ENDL
TEXAS

Date: 25 August 2004
To: T10 Technical Committee
From: Ralph O. Weber
Subject: Response to T10 Letter Ballot comments on SAM-3

This document contains the responses to the T10 Letter Ballot comments on forwarding SAM-3 to first public review. The summary of the T10 Letter Ballot results can be found in document T10/04-103.

All references to SAM-3 pages are based on sam3r13.pdf.

The number in square brackets at the end of each comment description counts all the comments presented in this document.

Revision History

r0 All comments from T10/04-103r0 included. Comments needing discussion during the May T10 meeting week marked with blue text titles.
r1 Incorporated changes discussed during the May T10 meeting week. New resolutions added for about 90 comments.
r2 Added several late comments. Added proposed resolutions for all comments concerning the front matter and clauses 1 through 3 that are not marked for review by T10.
r3 Incorporated changes agreed during the July T10 meeting week. Only 2 comments needing T10 discussion remain.
r4 Resolutions proposed for all comments except the 6 comments listed below.

FDF Files

The following revisions have an associated .FDF file that may be imported into the sam3r13.pdf file to show what changes have been marked up for inclusion in SAM-3 r14 (the SAM-3 revision resolving the Letter Ballot comments):

r1 r2 r3 r4

Remaining Unresolved Comments

The remaining unresolved comments fall in three groups:

- Comments needing CAP discussion that were not caught in r0:
  - HP 117) Eliminate another little bit of SPI from SAM-3
- Comments relating to figures in the model that need some good graphic ideas:
  - HP 136) Use different service delivery subsystem graphic for multi-port examples
  - HP 138) Use different service delivery subsystem graphic for multi-port examples
  - HP 140) Use different service delivery subsystem graphic for multi-port examples
- Comments awaiting CAP approval of supplemental documents:
  - Maxtor 3) Numeric conventions
  - Sun 5) Incorporate 04-088

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Recommended Activities

This is the near final revision of the Letter Ballot comment resolution for SAM-3. Those who contributed comments should review the resolutions proposed in this document.

Approval of the SAM-3 Letter Ballot comments resolution is possible during the September T10 meeting week.

Resolution Summary

The lists of comments on the following pages may be used to locate comments with specific types of resolutions and each entry is a PDF hot link to the comment and resolution text. The PDF bookmarks may be used to locate comments based on their source company.

The following table summarizes numbers of comments with specific types of resolutions by source company.

Company	Unre-solved	Technical		Editorial		Rejected	Deferred or No Action Taken	Total
		As Is	Changed	As Is	Changed			
AMCC		1	4		4	8	1	18
Brocade Comm.		1	7	5	7	4	1	25
Crossroads Systems					1			1
EMC Corp.			1	1	5	2	1	10
Emulex			3	2	2	1		8
ENDL Texas			1					1
Hewlett Packard Co.	4	9	35	42	54	55	11	210
IBM Corp.		6	20	8	22	10	3	69
Maxtor Corp.	1		3	15	2	7	4	32
Sun Microsystems	1		5		1	1		8
Texas Instruments			1					1
Veritas Software			1	12	10	3	3	29
Late Comments		2		4	1			7
Total	6	19	81	89	109	91	24	419

Unresolved Comments List

Rejected Comments List

Rejected Comments List (continued)

Comments With Implemenation Deferred to SAM-4

Substantive Comments Accepted As Proposed

Substantive Comments Accepted With Noted Changes

Substantive Comments Accepted With Noted Changes (continued)

Accepted As Proposed Non-Substantive Comments List

Accepted As Proposed Non-Substantive Comments List (continued)

Accepted With Noted Changes Non-Substantive Comments List

Accepted With Noted Changes Non-Substantive Comments List (continued)

Accepted With Noted Changes Non-Substantive Comments List (continued)

No Action Requested, No Action Taken Comments List

1. AMCC

Neil Wanamaker from AMCC submitted the following comments on a Yes vote.

AMCC 1) Definition of CDB sizes not clear (Accepted, Editorial) [1]
pg 7, 3.1.15

Second sentence nonsensical unless you already know how this works.

Proposed Solution:

A CDB may either have a length up to 16 bytes determined by the group (bits 7:5 of the operation code) or a variable length from 12-260 bytes for operation code 7f.

Editor's Note: Modify the cited sentence as follows:

> A CDB may have a fixed length of ~~up to 16 bytes~~ 6 bytes, 10 bytes, 12 bytes, or 16 bytes, or a variable length of between 12 and 260 bytes.

AMCC 2) What are confirmed STPL services? (Accepted, Editorial) [2]
pg 8, 3.1.20

conf -> status or class 2???

Editor's Note: A confirmed STPL service is neither status nor class 2.

A cross reference to 4.15 will be added to the confirmed SCSI transport protocol service and unconfirmed SCSI transport protocol service glossary entries. This is sufficient clarification for the glossary.

AMCC 3) Change 'current task' definition (Rejected) [3]
pg 8, 3.1.21

This seems too restrictive - a rewind command that has not yet returned status is current by most definitions.

Proposed Solution:

change "in the process of sending" to "has not yet sent"

Reason for Rejection: The current task is the task that has information in transit through the service delivery subsystem. Therefore, all current tasks must be in the process of transmitting or receiving information and "has not yet sent" does not qualify.

AMCC 4) Change 'in transit' definition (Accepted, Editorial) [4]
pg 10, 3.1.56

"sent to a remote entity" - the data could be inbound.

Proposed Solution:

change "sent to a remote entity" to "sent across the service delivery subsystem"

Editor's Note: The cited definition will be changed to:

> Information that has been ~~sent to a remote entity~~ delivered to the service delivery subsystem for transmission but not yet received.

AMCC 5) Tasks do not process task management functions (Rejected) [5]
pg 10, 3.1.60

Logical units process task management functions

Proposed Solution:

change "process commands" to "process commands and task management functions"

Reason for Rejection: The cited text is out of context. Consider the complete sentence:

> A SCSI target device object, containing a device server and task manager, that implements a device model and manages tasks to process commands sent by an application client.

The architecture model does not provide for managing tasks to process task management functions.

AMCC 6) SBP-3 Only Supports 16-bit LUN values (Accepted, Substantive) [6]
pg 10, 32, 3.1.64, 4.8
See also comment HP 1)

Appears inconsistent with Tables A.1, A.2; SBP appears to support 16-bit LUNs.

Proposed Solution:

make consistent

Editor's Note: This comment will be resolved as described in comment HP 1).

AMCC 7) Change 'queue' definition (Rejected) [7]
pg 11, 3.1.79

" usually according to the temporal order in which they were created."

Proposed Solution:

perhaps: "according to the order in which the tasks will be executed" (or remove).

Reason for Rejection: The current definition describes exactly what T10 intends the word queue to mean.

AMCC 8) Allow targets to be the source of task management functions (Rejected) [8]
The author marked this comment as technical.
pg 27, 4.7.1

"Application clients are the sources of commands and task management functions." FCP-2 12.3.5 permits ABTS from a target. This also appears to duplicate the contents of the next paragraph. Note that this is not unique to FCP-2.

Proposed Solution:

Remove first of the two paragraphs; rephrase last paragraph to say "An application client task may originate a singlea"

Reason for Rejection: The architecture model is under no obligation to describe every feature of every transport protocol. Only those features that are common to all transport protocols and required for interoperability need appear in the architecture.

AMCC 9) Allow targets to be the source of task management functions (Rejected) [9]
The author marked this comment as technical.
pg 27, 4.7.1

No service is described to process a received task management function (see previous comment).

Proposed Solution:

Describe a mechanism for an initiator to process received task management functions.

Reason for Rejection: The architecture model is under no obligation to describe every feature of every transport protocol. Only those features that are common to all transport protocols and required for interoperability need appear in the architecture.

AMCC 10) Allow targets to be the source of task management functions (Rejected) [10]
The author marked this comment as technical.
pg 30, 4.7.3

Third from last paragraph "When the SCSI Target/Initiator devicea". See previous two comments.

Proposed Solution:

Modify wording to allow the task router to route task management functions even if acting as an initiator.

Reason for Rejection: The architecture model is under no obligation to describe every feature of every transport protocol. Only those features that are common to all transport protocols and required for interoperability need appear in the architecture.

AMCC 11) Task manager need not broadcast task management functions (Accepted, Substantive) [11]
pg 30, 4.7.6

"Any task management function that is not sent to a specific logical unit shall be broadcast to all logical units known to the task router." Per table 28, the remaining task management functions are all related to an I_T_L or I_T_L_Q nexus.

Proposed Solution:

Remove.

AMCC 12) LUN 0 or well-known logical unit (Accepted, Substantive) [12]
The author marked this comment as technical.
pg 45, 4.13.3
See also comment IBM 26)

"The REPORT LUNS commands (see SPC-3) shall be accepted by the logical unit with the logical unit number zero." does not account for the REPORT LUNS well-known logical unit.

Proposed Solution:

Add "or, if the REPORT LUNS well-known logical unit is supported in the target and the command is addressed to the REPORT LUNS well-known logical unit, "

Editor's Note: This comment will be resolved as described in the response to comment IBM 26).

AMCC 13) TASK SET FULL requirements (Rejected) [13]
The author marked this comment as technical.
pg 63, 5.3.1, Task Set Full status

It appears that the "should" and "shall" in the first paragraph are reversed. If the expectation is that the initiator waits until a task completion before redriving an operation that received Task Set Full, the initiator should never receive a Task Set Full when there are no tasks from this initiator that could complete. Otherwise, there is no meaningful difference between Task Set Full and Busy.

Proposed Solution:

Swap "should" and "shall".

Reason for Rejection: This wording has been the subject of several lengthy debates. This wording is the best that can be agreed at this time and represents the preferred direction for the industry to go.

AMCC 14) Is COMMANDS CLEARED BY ANOTHER INITIATOR a SCSI event? (Accepted, Editorial) [14]
The author marked this comment as technical.
pg 73, 82, 85, 5.7.3, 5.9.7, Table 27

5.7.3 suggests that if TAS is set to 0, a UA is generated; none of the conditions in 5.9.7 seems appropriate to this condition, nor do any of the entries in Table 27. It would appear that COMMANDS CLEARED BY ANOTHER INITIATOR would be appropriate in 5.9.7 and Table 27.

Editor's Note: The answer is no because not all unit attention conditions represent SCSI events

To clarify what is and is not a SCSI event, the following definition will be added to the glossary:

> **3.1.x SCSI event:** A condition defined by this standard (e.g. logical unit reset) that is detected by SCSI device and that requires notification of its occurrence within the SCSI device. See clause 6.

Note that the COMMANDS CLEARED BY ANOTHER INITIATOR unit attention condition is not a SCSI event because it requires notification between SCSI devices, not with in a SCSI device.

AMCC 15) What about ABORT TASK for a MODE SELECT command? (Accepted, Substantive) [15]
The author marked this comment as technical.
pg 72-73, 90, 5.7, 7.2

It is explicitly stated that the ABORT TASK does not change the state of reservations or mode parameters. If an ABORT TASK is issued for a MODE SELECT or PERSISTENT RESERVE OUT, is the state of the mode pages or reservation known? Is media unchanged on aborted writes?

Proposed Solution:

Clarify, or explicitly note that the device state is not known.

Editor's Note: The following text will be added to the end of 5.5 (Task and command lifetimes):

> Unless a command completes with a GOOD, CONDITION MET, INTERMEDIATE, or INTERMEDIATE-CONDITION MET status the degree to which the required command processing has been completed is vendor specific.

The following sentence will be deleted in 7.5 (CLEAR TASK SET) because it is no longer necessary:

> ~~The medium may have been altered by partially processed commands.~~

AMCC 16) CLEAR ACA is allowed only from the faulted initiator (Accepted, Substantive) [16]
The author marked this comment as technical.
pg 91, 7.4

It is not specified whether the issuance of a CLEAR ACA task management function is limited to the initiator that issued the command that created the ACA, and how this is affected by TST.

Editor's Note: The third paragraph in the description will be modified as follows:

~~The application client issues~~ An application client requests a CLEAR ACA using the faulted I_T nexus (see 3.1.32) to clear an ACA condition from the task set serviced by the logical unit.

The following new paragraph will be added as the second to the last paragraph in the subclause:

The service response for a CLEAR ACA request received from an I_T nexus other than the faulted I_T nexus shall be FUNCTION REJECTED.

AMCC 17) Remove SPI-5 from Annex A (Deferred to SAM-4) [17]
pg 109, Table a.2
See also comment HP 205)

SPI-5 is referenced.

Proposed Solution:

remove

Editor's Note: SAM-2 includes only SPI-4 information. SPI-5 information needs to appear in one SAM. It can be removed in SAM-4.

AMCC 18) 'the from' s/b 'from the' (Rejected) [18]
pg 79, 5.9.2.3.1, note 8

… the from SCSI initiator ports …

Proposed Solution:

swap words

Reason for Rejection: Comment Brocade 15) specifies the correct solution for this wording problem.

2. Brocade Communications

Robert Snively from Brocade Communications submitted the following comments on a Yes vote.

Brocade 1) SPI-x is Obsolete in SAM-3 (Rejected) [19]
The author marked this comment as technical.
no location specified by comment author

At first glance, the parameter lists for the execute command procedure call require auto-sense. It looks to me, again at first glance, as if even SPI-5 allows devices without auto-sense to operate. If this is true, then SAM-3 requires wording that includes saving sense information for REQUEST SENSE, probably as part of the definition of the execute command in clause 5.1 and perhaps other places.

Proposed Solution:

Consider explicitly indicating either that all modern SCSI protocols use auto-sense or including appropriate modifications to the text in 5.1 and perhaps other places.

Reason for Rejection: Clause 1 spells the situation out unambiguously, to whit:

> The following architecture model concepts from previous versions of this standard are made obsolete by this standard:
>
> a) Support for the SPI-5 SCSI transport protocol (except for informational listings in Annex A);
> b) Contingent Allegiance; …

In an architecture where there is no Contingent Allegiance, the only sense data delivery mechanism is the one formerly known as autosense. Because there is only one sense data delivery mechanism, no name need be given to that mechanism since there is nothing to compare and contrast it with.

Brocade 2) Remove 'media information' definition (Accepted, Substantive) [20]
pg 10, 3.1.65
See also comment HP 148) and comment IBM 6)

Media information is poorly defined here and used in only one place in the whole document. I believe the explanation should be expanded where it is used, in clause 5.2, second paragraph and removed from the glossary.

Proposed Solution:

In clause 5.2, "For all commands, if the logical unit detects an invalid parameter in the CDB, then the logical unit shall complete the command without altering the media information." should be changed to "For all commands, if the logical unit detects an invalid parameter in the CDB, then the logical unit shall complete the command without executing any operations that will change any state in the device controlled by a SCSI command set."

Editor's Note: The 'media information' glossary entry will be removed and the cited sentence in 5.2 will be modified as follows:

> For all commands, if the logical unit detects an invalid parameter in the CDB, then the logical unit shall not process the command ~~complete the command without altering the media information~~.

Brocade 3) Change 'or' to 'nor' (Accepted, Editorial) [21]
pg 26, 4.6.3, last paragraph

"about, or places" s/b "about, nor places"

Editor's Note: This comment is resolved as described in the response to comment HP 38).

Brocade 4) Target/Initiator device definition is too broad (Accepted, Substantive) [22]
The author marked this comment as technical.
pg 29, 4.7.3

The description b) B) appears to be exactly the same as a target device and an initiator device co-residing in a platform with no other connections between them. This function may be described, but it is NOT a SCSI target/ initiator device.

Proposed Solution:

Modify the text to treat co-residing SCSI target devices and SCSI initiator devices as just another curious example, but not as one having the authority of a special type. That requires deletion of b) B) and separation of Figure 14 into a separate and explanatory (and perhaps unnecessary) clause.

Editor's Note: The following paragraph will be added a the end of the cited subclause:

The device server and the application client shall have knowledge of each other's presence in the SCSI target/ initiator device and shall cooperate in the processing of one or more SCSI functions.

Brocade 5) Does SCSI port name definition prohibit FC NPIV? (No Action Taken) [23]
pg 31, 4.7.8

I believe that this text correctly allows multiple virtual N_Ports to be implemented as defined by FC-FS. However, it is possible to read this to make that impossible. Suggest review of text with this point in mind.

Proposed Solution:

Review 4.7.8 wording.

Editor's Note: The committee has reviewed the wording and agrees with the comment's assertion that "this text correctly allows multiple virtual N_Ports to be implemented as defined by FC-FS".

Brocade 6) Terminate data transfer request has no statement of use (Accepted, Editorial) [24]
The author marked this comment as technical.
pg 57, 4.15

The terminate data transfer request appears to me to be at a strange level in this explanation. I would have expected it to be a characteristic of the transport protocol called upon by such functions as task management. Where is there an example of its pure use at this level?

Proposed Solution:

This is basically a question to start with, but may require removal of this function.

Editor's Note: The following statement will be added at the beginning of 5.4.3.4 (Terminate Data Transfer service):

The terminate data transfer request and confirmation may be used by a task manager to terminate partially completed transfers to the Data-In Buffer or from the Data-Out Buffer.

Brocade 7) Data-In Buffer Size argument may include location information (Accepted, Substantive) [25]
The author marked this comment as technical.
pg 59, 5.1
See also comment Brocade 9)

There is a fundamental problem in the definition of the Execute Command procedure call. One of the characteristics of channel architectures (as opposed to network architectures) is the presence of a pre-established Data-In Buffer Descriptor. This descriptor includes both length information and a handle or address that identifies a particular destination area. This is a key to the high performance "zero-copy" behavior of storage devices on channels. The Execute Command procedure call does not provide a complete Data-In Buffer Descriptor, but only a length. This Descriptor is required implicitly by all SCSI transports, but explicitly by SRP and other RDMA approaches to SCSI.

Note that this is not a direct requirement for all Data-Out Buffers, since the Data-Out Buffer is implicitly self describing, but something like it could be used for SRP and other RDMA transports.

Proposed Solution:

"Service Response =Execute Command (IN (I_T_L_Q Nexus, CDB, Task Attribute, [Data-In Buffer Size], [Data-Out Buffer], [Data-Out Buffer Size], [Command Reference Number], [Task Priority]), OUT ([Data-In Buffer], [Sense Data], [Sense Data Length], Status))"

should be changed to read:

"Service Response =Execute Command (IN (I_T_L_Q Nexus, CDB, Task Attribute, [Data-In Buffer Descriptor], [Data-Out Buffer], [Data-Out Buffer Size], [Command Reference Number], [Task Priority]), OUT ([Data-In Buffer], [Sense Data], [Sense Data Length], Status))"

The description for Data-In Buffer Size should be rewritten as:

"Data-In Buffer Descriptor: A descriptor providing information about the length of the Data-In Buffer and the identifier of the Data-In Buffer location."

Alternatively, the Data-In Buffer Descriptor may be replaced with a Data-In Buffer Size and a Data-In Buffer Location Identifier, both required if a Data-In Buffer is used.

Editor's Note: As described in the minutes of the July, 2004 CAP meeting (see 04-215), the dependency of command and protocol standards on the nomenclature in the **Execute Command** function prototype precludes changing the names of arguments this late in SAM-3 development.

Achieving the full effect of the proposed change must be deferred to SAM-4 and is contingent upon approval of a detailed proposal for such changes in SAM-4.

As an intermediate solution, the definition of the Data-In Buffer Size argument will be modified as follows:

> **Data-In Buffer Size:** The number of bytes available for data transfers to the Data-In Buffer (see 5.4.3). SCSI transport protocols may interpret this argument to include both the size and the location of the Data-In Buffer.

Brocade 8) 'LINK ED' s/b 'LINKED' (Rejected) [26]
pg 60, 5.1

"TASK COMPLETE,LINK ED COMMAND" s/b "TASK COMPLETE, LINKED COMMAND"

Reason for Rejection: A search of SAM-3 r13 found no instances of 'LINK ED' anywhere in the standard (i.e., no place was found to fix as described in the comment.

Brocade 9) Data-In Buffer Size argument may include location information (Accepted, Substantive) [27]
The author marked this comment as technical.
pg 65, 5.4.2
See also comment Brocade 7)

See Brocade 007.

Proposed Solution:

Make same changes to Execute Command request/confirmation as for Execute Command procedure call.

Editor's Note: For the reasons described in the response to comment Brocade 7), the definition of the Data-In Buffer Size argument will be modified as follows:

> **Data-In Buffer Size:** The number of bytes available for data transfers to the Data-In Buffer (see 5.4.3). SCSI transport protocols may interpret this argument to include both the size and the location of the Data-In Buffer.

Brocade 10) Terminate data transfer service not required (Accepted, Editorial) [28]
The author marked this comment as technical.
pg 70, 5.4.3.4

Terminate Data Transfer Service does not appear to be a required function. It overlaps with the Task Management functions in a very uncertain way, terminating both data transfers for a particular command and all others. I believe that this should be handled instead by making sure that the text in clause 7, especially for ABORT TASK, include the option of terminating data transfers. If this is an artifact of the SAS state machine, it is not sufficiently general to be justified in SAM.

Proposed Solution:

Remove clause 5.4.3.4 and other references to Terminate Data Transfer service.

Include in clause 5.7.1 a definition of the functions that are realized when a Task is aborted. (This needs to be done anyway, since there is still some ambiguity about time relationships where an ABORT TASK is busy chasing a task through its entire request/response cycle and may catch up to it at any point in the cycle, leaving state that must also be cleared beyond the point in the cycle where the ABORT TASK becomes effective.)

The functions need to include:

1) Clear any remaining protocol state associated with the task.
2) Terminate any on-going data transfers associated with the task as possible.

Note that 2 allows the possibility that data transfers may continue for some short time after ABORT TASK has been received.

Editor's Note: This comment will be resolved as described in the response to comment Brocade 6).

Brocade 11) Clearing deferred errors (Accepted, Editorial) [29]
The author marked this comment as technical.
pg 71, 5.5

It is implicit in the paragraph on deferred errors that deferred errors are cleared only by those events listed. In fact, deferred errors are reported by a subsequent completed command, but may be cleared by all kinds of actions, including ACA recovery operations.

Proposed Solution:

Allow the list to include dynamic Application Client sourced action as one mechanism for clearing deferred errors.

Editor's Note: The cited sentence will be modified as follows:

~~A deferred error may be cleared~~ Information that a deferred error occurred may be cleared before it is reported (e.g., by power on, hard reset, or logical unit reset). ~~, or by I_T nexus loss involving the SCSI initiator port from which the command that spawned the background operation was received, if the device server has retained that information.~~ Deferred errors should not be cleared by I_T nexus loss.

Brocade 12) 'an unit' [s/b] 'a unit' (Accepted, Editorial) [30]
pg 73, 5.7.3

"shall be an unit attention" s/b "shall be a unit attention"

Editor's Note: 'an unit' will be changed to 'a unit' throughout the standard.

Brocade 13) Hanging paragraphs (Accepted, Editorial) [31]
pg 77, 5.9.2

This is a hanging paragraph. It looks like an editorial slip, since much of the text of 5.9.2 is redundant with the text of 5.9.2.1.

Proposed Solution:

Rewrite 5.9.2.1 to include any critical text of 5.9.2 not already included in 5.9.2.1 and delete the text of 5.9.2.

Editor's Note: The hanging paragraphs constitute a valid overview of ACA handling. The first paragraph summarizes the contents of 5.9.2.1. The second paragraph, third paragraph, and list review the contents of 5.9.2.2 and 5.9.2.3. The last paragraph leads the reader to 5.9.2.4 as the definition of how to clear an ACA.

Therefore, the hanging paragraph problem will be resolved by adding a 5.9.2.1 ACA overview subclause header immediately following the 5.9.2 subclause heading.

Brocade 14) 'the from' s/b 'the' (Accepted, Editorial) [32]
pg 79, 5.9.2.3.1, note 8

"action) the from" s/b "action) from"

Brocade 15) 'an REQUEST' s/b 'a REQUEST' (Accepted, Editorial) [33]
pg 81, 5.9.4

"an REQUEST" s/b "a REQUEST"

Brocade 16) SPI-x is Obsolete in SAM-3 (Rejected) [34]
The author marked this comment as technical.
pg 82, 5.9.6

See Brocade 001. This strongly implies that SPI type protocols without autosense are not allowed under SAM-3, but this is not stated elsewhere, and SAM-3 does list the SPI series of documents in clause 1, implicitly supporting them.

Proposed Solution:

State explicitly that non-auto-sense behavior as defined in SPI (and I believe in many other SCSI command sets and some other protocols) is not supported by SAM-3 compliant devices. This should be done in Clause 1, either by eliminating such devices from the list or by explicitly disclaiming that support for each relevant document. A few words in 5.9.6 saying the same thing would be helpful.

Reason for Rejection: See response to comment Brocade 1).

Brocade 17) 'shall only used' s/b 'shall only be used' (Accepted, Editorial) [35]
pg 89, 7.1

"shall only used by" s/b "shall only be used by"

Brocade 18) All logical units are required to support ABORT TASK (Accepted, Editorial) [36]
pg 90, 7.2

The first sentence says the function shall be supported by all logical units. The third paragraph says "If the logical unit supports this function,"

Proposed Solution:

Delete "If the logical unit supports this function,"

Brocade 19) Different Send Task Management Request requirements for different Function Identifiers (Accepted, Substantive) [37]
The author marked this comment as technical.
pg 92, 7.8
See also comment HP 10)

The text of this section implies that each SCSI transport protocol shall have a single mechanism for transmitting all Task Management requests. Several have different mechanisms for different commands. As one example, ABORT TASK is performed by a recovery abort sequence in FCP-2, but the remainder of the functions is achieved by a Task Management tag in the Command IU.

Proposed Solution:

Change

"All SCSI transport protocol standards shall define the SCSI transport protocol specific requirements for implementing the Send Task Management Request SCSI transport protocol service and the Received Task Management Function Executed confirmation described below."

to read

"All SCSI transport protocol standards shall define the SCSI transport protocol specific requirements for implementing the Send Task Management Request SCSI transport protocol service and the Received Task Management Function Executed confirmation described below. The SCSI transport protocol standard may define more than one mechanism for implementing the Send Task Management Request transport protocol service, depending on the Task Management Request to be transported."

Editor's Note: The cited paragraph will be revised as follows:

> All SCSI transport protocol standards shall define the SCSI transport protocol specific requirements for implementing the **Send Task Management Request** SCSI transport protocol service and the **Received Task Management Function Executed** confirmation described ~~below~~ in this subclause. A SCSI transport protocol standard may specify different implementation requirements for the **Send Task Management Request** SCSI transport protocol service for different values of the **Function Identifier** argument.
>
> Support for the **Task Management Request Received** indication and **Task Management Function Executed** SCSI transport protocol service response by the SCSI transport protocol standard is optional.
>
> All SCSI devices shall implement these SCSI transport protocol services as defined in the applicable SCSI transport protocol standards.

The changes shown here have been incorporated in the response to comment HP 10). See comment HP 10) for complete details of the changes in the cited paragraph.

Brocade 20) Associating task management function requests and confirmations (Accepted, Substantive) [38]

The author marked this comment as technical.
pg 94, 7.8

The last paragraph allows task management functions to be requested and the response to be returned unrelated, requiring additional mechanisms to restrict the SCSI initiator port to a single pending task management request. I believe that all transport mechanisms should have a method to identify the responses and peg them to a particular request as a requirement. This is actually a separate question, since it implies that because the tags of the effected tasks may be uncertain or many, that the task management response is somehow incapable of being identified.

Proposed Solution:

The last paragraph should read: "The specification of the SCSI transport protocol shall allow the Received Task Management Function Executed, confirming completion of the requested task, to be associated with the Task Management Request."

Editor's Note: The last paragraph of the subclause:

~~Since the nexus used by all task management functions except ABORT TASK and QUERY TASK does not contain a task tag to uniquely identify the task, there may be no way for an application client to associate a confirmation with a request. A SCSI transport protocol that does not provide such an association should not allow a SCSI initiator port to have more than one pending task management request per I_T_L nexus.~~

will be replaced with:

Each SCSI transport protocol shall allow a **Received Task Management Function Executed** confirming completion of the requested task to be associated with the corresponding **Send Task Management Request**.

Brocade 21) Eliminate sentence fragment (Accepted, Editorial) [39]

pg 98, 8.5.2

"media). This" s/b "media) this

Editor's Note: The cited text will be changed to:

~~Although, before~~ Before entering this state for the first time, the task may perform other activities visible at the STPL (e.g., pre-fetching data to be written to the media), ~~media). This~~ however this activity shall not result in a detectable change in state as perceived by an application client.

Brocade 22) Figure 39 note not consistent with 8.6.3 definition of Ordered Task (Accepted, Substantive) [40]

The author marked this comment as technical.
pg 102, 8.8, Figure 39

Note b should read "For ordered tasks, all older tasks have ended."

Brocade 23) One blocking boundary for all HEAD OF QUEUE tasks (Accepted, Substantive) [41]

The author marked this comment as technical.
pg 104, 8.9.2, Figure 40 and 41.
See also comments IBM 60), IBM 61), IBM 62), IBM 63), IBM 64), IBM 65), IBM 67), and IBM 68)

The blocking boundary for task 3 should be in the same location as the blocking boundary for task 1. Head of Queue does not order with respect to subsequent tasks, but with respect to all simple and ordered tasks.

Proposed Solution:

Move blocking boundary for task 3 to the same location as for task 1 in snapshot 2. The same change is required for figure 41.

Editor's Note: The cited blocking boundary will be removed in both figures and the blocking boundary will be relabeled "task 1 & task 3" in both snapshot 2's. In figure 41 snapshot 3, simple task 2 will be kept gray and kept below the blocking boundary.

Brocade 24) Tasks entering the enabled state after blocking boundaries removed (Accepted, Editorial) [42]

The author marked this comment as technical.
pg 104, 8.9.1

The last sentence implies that a task always enters the enabled task state after intervening barriers have been removed. In fact, it MAY enter the enabled task state, depending on the vendor specific behavior of the device.

Proposed Solution:

Change "enters the enabled" to "may enter the enabled".

Brocade 25) Font problems in table A.3 (Rejected) [43]

pg 110, A.2, Table A.3

There are some font problems in the FCP-2 column, Initiator Port row and Target Port row

Reason for Rejection: All text in the FCP-2 column of table A.3 is 10 point Helvetica. The observed problem appears to be the video display rendering of the PDF file.

3. Crossroads Systems, Inc.

Dexter Anderson from Crossroads Systems, Inc. submitted the following comments on a Yes vote.

CRDS 1) How different are the requirements for non-ACA and ACA CHECK CONDITION handling? (Accepted, Editorial) [44]
Pages 76&77 5.9.1.1 & 5.9.2
See also comment Brocade 13)

The text in these two sections is similar. I recommend 5.9.1.1 be rewritten to more closely match 5.9.2.

Editor's Note: To provide some consistency between the non-ACA and ACA descriptions, the two paragraphs in 5.9.1.1 and the first paragraph in 5.9.2 will be modified as follows:

5.9.1.1 Overview

When a command completes with a CHECK CONDITION status, the application client may request that the device server alter command processing by establishing an ACA condition, using the NACA bit in the CONTROL byte of the CDB as follows:

a) If the NACA bit is set to zero, an ACA condition shall not be established; or
b) If the NACA bit is set to one, an ACA condition shall be established (see 5.9.2).

~~The application client requests establishment of an ACA condition by setting NACA bit to one in the CONTROL byte of the CDB that specified the command. The ACA condition is described in 5.9.2. Requirements~~ The requirements that apply when the ACA condition is not in effect are described in 5.9.1.2.

~~When the NACA bit is set to zero in the CONTROL byte of the CDB for a command that returns in a CHECK CONDITION status, the device server shall not establish an ACA condition. However,~~ When a command completes with a CHECK CONDITION status and an ACA condition is not established, tasks other than the task for the command returning the CHECK CONDITION status may be aborted as described in 5.9.1.3.

…

5.9.2 Auto contingent allegiance (ACA)

When a command ~~is terminated~~ completes with a CHECK CONDITION status, the application client may request that the device server alter command processing by establishing an ACA condition, using the NACA bit in the CONTROL byte of the CDB as follows:

a) If the NACA bit is set to zero, an ACA condition shall not be established (see 5.9.1.1); or
b) If the NACA bit is set to one, an ACA condition shall not be established.

~~When the NACA bit in the CONTROL byte of the CDB for the command is set to one, the device server shall establish an ACA condition as~~ The steps taken by the device server to establish an ACA condition are described in 5.9.2.1. Upon establishment of the ACA condition, some tasks other than the task returning the CHECK CONDITION status may be aborted and continued processing of other tasks may be blocked as described in 5.9.2.1.

Note that the response to comment Brocade 13) provides for the addition of a new 5.9.2.1 ACA Overview subclause heading immediately following the current 5.9.2 (Auto contingent allegiance (ACA)) heading shown above.

4. EMC Corp.

David Black from EMC Corp. submitted the following comments on a Yes vote.

EMC 1) Add forward cross reference — overtaken by events (No Action Taken) [45]
4.9.2 LUN 0 Address

The last sentence of this section refers to the peripheral device address method. This is the first mention of this address method, and it is a forward reference - please add a note that this method is specified in 4.9.6.

Editor's Note: This comment would have been accepted had not the response to comment HP 61) resulted in removal of the entire paragraph containing the cited text.

EMC 2) Clarify single level subset references (Accepted, Editorial) [46]
4.9.3 Single level logical unit number structure.

The descriptions of Tables 1 and 2 contain forward references to 4.14:

- Table 1 describes a single level subset of the format described in 4.14 for logical unit numbers 255 and below.
- Table 2 describes a single level subset of the format described in 4.14 for logical unit numbers 16 383 and below.

Aside from the forward references, these are incorrect because 4.14 describes a model, not a format.

Please remove the references to 4.14 from these two sentences and add a sentence at the start of 4.9.3 saying that the logical unit number formats defined in this section are for a single level subset of the hierarchical model for dependent logical units described in 4.14.

Editor's Note: Comment Veritas 12) identifies the reference to 4.14 as being incorrect with the proper replacement being a reference to 4.9.4. Referencing 4.9.4 as describing a format seems appropriate since a format is one of the things described in that subclause.

Keeping the forward cross reference in both of the cited sentences seems valuable since they appear on different pages and are likely to continue to do so in most of the future SAM revisions.

Both cited instances of the cross reference to 4.14 will be changed to 4.9.4. No other changes will be made.

EMC 3) Flat space and extended logical unit addressing forward commands (Rejected) [47]
4.9.7 Flat space addressing method and 4.9.8 Extended logical unit addressing

Both of these sections appear to be missing the equivalent of the first paragraph of 4.9.5 and 4.9.6 requiring that the received command be sent to the logical unit. That requirement should be present in all four sections, or none of them.

Reason for Rejection: In fact, the exact opposite is true. Flat space and extended logical unit addressing terminate the forwarding of commands to other levels in the hierarchy. This difference is clarified in the response to comment HP 85) for flat space addressing and the response to comment Other 5) for extended logical unit addressing.

EMC 4) Excess verbiage (Accepted, Editorial) [48]
4.13.2 SCSI devices with multiple ports

In the following sentence:

> SCSI target/initiator devices with multiple ports implement both target and initiator models and combine the SCSI target/initiator port structures in vendor specific ways that meet product requirements while maintaining the model for SCSI devices with multiple ports for the target and initiator functions performed by the product.

Both "that meet product requirements" and "performed by the product" are excess verbiage - please remove them.

EMC 5) Delete repetitious sentence (Accepted, Editorial) [49]
Numbered [4] in 04-103r0 (i.e., [4] used twice)
4.13.2 SCSI devices with multiple ports

The meaning of the following sentence is unclear:

> The structures and views of SCSI devices are asymmetric for SCSI target ports and SCSI initiator ports.

Depending on what was intended, either replace "asymmetric" with "different" or remove the sentence if it is a restatement of the previous sentence.

Editor's Note: The cited sentence will be deleted.

EMC 6) Description of figure 25 does not match figure 25 (Accepted, Editorial) [50]
Numbered [5] in 04-103r0 due to duplicate use of [4]
4.14 Model for dependent logical units

The description of Figure 25 in terms of whether or not additional SCSI target devices or SCSI domains can be added is peculiar. The 3 dots notation used in the figure generally denotes omission of things that actually exist for the purpose of simplification. The description should be rewritten to better correspond to the figure.

Editor's Note: A Key will be added to figure 25 stating that three dots indicate the ability to add more components.

EMC 7) Eliminate 'whenever' in CONDITION MET (Accepted, Substantive) [51]
Numbered [6] in 04-103r0 due to duplicate use of [4]
5.3.1 Status codes

The following text appears to be over-broad:

> CONDITION MET. This status shall be returned whenever the requested operation specified by an unlinked command is satisfied (see the PRE-FETCH commands in the SBC standard).

The "shall" could be interpreted as requiring CONDITION MET to be returned in a large number of situations where it is inappropriate to do so. I suggest adding an initial sentence to say that CONDITION MET is only used with specific commands (e.g., SBC PRE-FETCH commands) that allow it, and those commands specify its usage. The above sentence would then begin with "For such commands, this status shall be returned …"

Editor's Note: The cited sentence will be replaced with the following:

> The use of this status is limited to commands for which it is specified (see the PRE-FETCH commands in the SBC standard).

Also, the definition of INTERMEDIATE-CONDITION MET will be modified as follows:

INTERMEDIATE-CONDITION MET. ~~This status is returned whenever the requested operation specified by a linked command is satisfied~~ The use of this status is limited to linked commands for which it is specified (see the PRE-FETCH commands in the SBC standard), …

EMC 8) 'previous versions of this standard' is not acceptable (Rejected) [52]
Numbered [7] in 04-103r0 due to duplicate use of [4]
5.3.2 Status precedence

Note 5 is troublesome. Where are the unit attention conditions defined/specified, 5.9.7? Something other than "previous versions of this standard" seems to be needed here.

Reason for Rejection: 'Previous versions of this standard' is the T10 phrasing for SAM and/or SAM-2. It is the same phrasing that is used when describing obsolete features. In this specific case, the additional sense code names are appropriate for parallel SCSI and subclause with the same title in either SAM or SAM-2 contains the information alluded to by the cited note.

The unit attention additional sense code values are defined in SPC-3, as is specified in the glossary entry for 'additional sense code', but that is not relevant to the cited note. The cited note specifically concerns the names associated with the unit attention conditions. These names are derived from the additional sense code names and the names are unchangeable for historical reasons.

EMC 9) 'command data' is a non sequitur (Accepted, Editorial) [53]
Numbered [8] in 04-103r0 due to duplicate use of [4]
5.4.3.1 Introduction

Near the end of the section:

The STPL confirmed services specified in 5.4.3.2 and 5.4.3.3 are used by the device server to request the transfer of command data to or from the application client.

The phrase "command data" is potentially confusing, delete the word "command", or rephrase.

Editor's Note: To maintain consistency with the wording in the remainder of the cited subclause, the cited sentence will be modified as follows:

The STPL confirmed services specified in 5.4.3.2 and 5.4.3.3 are used by the device server to request the transfer of ~~command~~ data to or from the application client Data-In Buffer or Data-Out Buffer, respectively.

EMC 10) iSCSI is RFC 3720 (Accepted, Editorial) [54]
Numbered [9] in 04-103r0 due to duplicate use of [4]
A.3.4 iSCSI

The reference will be RFC 3720 in the near future.

Editor's Note: The cited bibliography entry will be replaced with the following:

A.3.4 iSCSI: internet SCSI (see RFC 3720, http://www.ietf.org/rfc/rfc3720.txt).

5. Emulex

Robert H. Nixon from Emulex submitted the following comments on a Yes vote.

Emulex 1) Remove figure 2 (SCSI Document Structure) (Rejected) [55]
1.3

The paragraph above Figure 2 says "Figure 2 shows the relationship…" The paragraph below Figure 2 says "Figure 2 is not intended to imply a relationship…" Figure 2 is so vague as to be meaningless, even without this assistance.

Delete Figure 2 and replace the first three paragraphs of 1.3 with "The SCSI standards family comprises standards in the following five functional areas:"

Reason for Rejection: Thank you for your comment. We like our figure just the way it is. That is why we keep it around in all our standards.

Emulex 2) Interconnect standards need not be SCSI standards (Accepted, Editorial) [56]
The author marked this comment as technical.
3.1

As the arbiter of the SCSI model, it would be useful for SAM to point out that Interconnects need not be specific to SCSI.

After the second sentence describing Interconnects, add a new sentence "Interconnect standards may not be specific to SCSI transport."

Editor's Note: The following statement will be added to the end of the definition of Interconnect following Figure 2:

> Interconnect standards may allow the interconnection of devices other than SCSI devices in ways that are outside the scope of this standard.

Emulex 3) iSCSI name/identifier length issues (Accepted, Substantive) [57]
The author marked this comment as technical.
A.2, table A.2

In table A.2, the initiator port identifier size for iSCSI is shown as 246. According to feetnotes b and c in table A.3, this looks like it should be 241 (including the trailing null). Also, it is the maximum size, not the fixed size.

In table A.2, change the iSCSI initiator port identifier size to 241 bytes (maximum) and change the iSCSI target port identifier size to 233 bytes(maximum).

Editor's Note: According to the iSCSI RFC 3720:

- The iSCSI name is 223 bytes not including any nulls;
- Add to that ",i," that is 3 bytes,
- Add to that the iSCSI ISID that is 15 bytes including the terminating null and the initial "0x".

The sum of that is 241.

The target port group portal tag is 7 bytes (including a the leading "0x" and the terminating null), meaning that the target port identifier size is 8 bytes shorter than the initiator port identifier.

The following changes will be made:

- The initiator port identifier size will be changed from 246 to 241.
- Footnote b will be modified as follows:

[b] ~~Including~~ Maximum size, including the terminating null character byte.

Emulex 4) iSCSI target infix is ",t,0x", not ",i,0x" (Accepted, Editorial) [58]
The author marked this comment as technical.
A.2, table A.3

In table A.3, it is stated that the identifier for an iSCSI Target port uses the infix ",i,0x". I believe it should be ",t,0x"

In table A.3, in the identifier for an iSCSI Target port change the infix ",i,0x" to ",t,0x"

Emulex 5) iSCSI name/identifier null termination issue (Accepted, Editorial) [59]
The author marked this comment as technical.
A.2

Footnote b in table A.3 could be interpreted to require a trailing null in the middle of the identifiers to which it applies.

In table A.3, change footnote b to "The iSCSI name is a worldwide unique UTF-8 string no more than 223 bytes long. As it is used only with a suffix in this table, it does not include a null character to terminate the string."

Editor's Note: Table A.3 footnote b will be modified as follows:

[b] The iSCSI name is a worldwide unique UTF-8 string no more than ~~224~~ 223 bytes long, not including null character termination if any. ~~including the null character required to terminate the string.~~

The following new table footnote will be added with the reference occurring in the column heading for the iSCSI column:

[x] iSCSI identifiers are concatenated strings containing no null characters except after the last string in the concatenation.

Emulex 6) iSCSI name/identifier length issues (Accepted, Substantive) [60]
The author marked this comment as technical.
A.2

In table A.4, the initiator and target port name sizes for iSCSI are shown as 246. According to feetnotes b, d and e in table A.5, this looks like initiator should be 241 and the target should be 233 (each including the trailing null). Also, they are the maximum sizes, not the fixed sizes.

In table A.4, change the iSCSI initiator port name size to 241 bytes(maximum) and change the iSCSI target port name size to 233 bytes(maximum).

Editor's Note: See comment Emulex 3) for a discussion of how the sizes are derived.

The following changes will be made:

- The initiator port identifier size will be changed from 245 to 241.
- The target port identifier size will be changed from 245 to 233.
- Footnote b will be modified as follows:

[b] ~~Including~~ Maximum size, including the terminating null character byte.

Emulex 7) iSCSI target infix is ",t,0x", not ",i,0x" (Accepted, Editorial) [61]
The author marked this comment as technical.
A.2

In table A.5, it is stated that the name for an iSCSI Target port uses the infix ",i,0x". I believe it should be ",t,0x"

In table A.5, in the name for an iSCSI Target port change the infix ",i,0x" to ",t,0x"

Emulex 8) iSCSI name/identifier null termination issue (Accepted, Substantive) [62]
The author marked this comment as technical.
A.2

Footnote b in table A.5 could be interpreted to require a trailing null in the middle of the names to which it applies.

In table A.5, change footnote b to "The iSCSI name is a worldwide unique UTF-8 string no more than 223 bytes long. As it is used only with a suffix in this table, it does not include a null character to terminate the string."

Editor's Note: Table A.3 footnote b will be modified as follows:

[b] The iSCSI name is a worldwide unique UTF-8 string no more than ~~224~~ 223 bytes long, not including null character termination if any. ~~including the null character required to terminate the string.~~

The following new table footnote will be added with the reference occurring in the column heading for the iSCSI column:

[x] iSCSI identifiers are concatenated strings containing no null characters except after the last string in the concatenation.

6. ENDL Texas

Ralph O. Weber from ENDL Texas submitted the following comments on a Yes vote.

ENDL 1) Remove Editor's Note 1 (Accepted, Substantive) [63]

The author marked this comment as technical.
pg 68, 5.4.3.1, Editor's Note 1

Remove Editor's Note 1. Make no other changes.

Editor's Note: This comment will be resolved as described in comment HP 166).

7. Hewlett Packard Co.

Rob Elliott from Hewlett Packard Co. submitted the following comments on a No vote.

HP 1) SBP-3 only supports 16-bit LUN values (Accepted, Substantive) [64]
Page xiv, 2.7 Revision 6

"One change overlooked by 03-002r3 concerns logical unit numbers. In the parallel SCSI bus, logical unit numbers could contain less then 64 bits. All SCSI transport protocols except SPI provide for 64 bit logical unit numbers. In keeping with the ground work established by 03-002r3, phrasing that allowed logical unit numbers to contain fewer than 64 bits has been removed in this revision."

SBP-3 still only supports a 2 byte LUN field. Some of these changes may need to be undone. A sentence could be added in 4.9 stating "Some transport protocols only support a single level of the 8 byte LUN structure."

Editor's Note: The logical unit number glossary entry will be modified as follows:

A 64-bit or 16-bit identifier for a logical unit.

The first sentence after figure 15 in 4.8 (Logical units) will be modified as follows:

A logical unit number is a field (see 4.9) containing 64 bits or 16 bits that identifies the logical unit within a SCSI target device when accessed by a SCSI target port.

The following new paragraph will be inserted at the end of 4.9.1 (Logical unit numbers overview):

A logical unit number shall contain 64 bits or 16 bits, with the size being defined by the SCSI transport protocol. For SCSI transport protocols that define 16-bit logical unit numbers, the two bytes shall be formatted as described for the FIRST LEVEL ADDRESSING field (see table 4 in 4.9.4).

HP 2) CDB format no longer defined in SAM-3 (Accepted, Substantive) [65]
Page 2, 1.2 Requirements precedence

After "command descriptor block" add "(CDB)" This section precedes the acronym section, so it might be too early to just use CDB alone.

Editor's Note: The cited sentence will be modified as follows:

Examples of implementation requirements defined in this document are ~~the command descriptor block format and~~ the status values to be returned upon command completion and the service responses to be returned upon task management function completion.

CDB formats are no specified in SPC-3, not SAM-3.

HP 3) command set standard [s/b] command standard (Accepted, Editorial) [66]
Page 7, 3.1.16 command standard

Change "command standard" to "command set standard" which is used more often

Editor's Note: The phrase 'command set standard' will be changed to 'command standard' since that is the glossary term in SPC-3. This change will be made in: 5.9.6 (Sense data), 6.3.3 (Logical unit reset), and 6.3.4 (I_T nexus loss).

HP 4) Application clients also source task management functions requests (Accepted, Editorial) [67]
Page 7, 3.1.3 application client

Change "commands" to "commands and task management functions."

Editor's Note: The cited glossary entry will be modified as follows:

3.1.3 application client: An object that is the source of commands and task management function requests.

HP 5) Add cross reference to CDB glossary entry (Accepted, Editorial) [68]
Page 7, 3.1.15 command descriptor block (CDB)

Add "See 5.2 and SPC-3."

HP 6) Clarify 'domain' glossary entry (Accepted, Editorial) [69]
Page 8, 3.1.29 domain

"An I/O system consisting of a set of SCSI devices that interact with one another by means of a service delivery subsystem." (for Hugh Curley)

This doesn't clearly state that the domain also *contains* the service delivery subsystem, which figure 9 in 4.5 does indicate.

Reword as:

"An I/O system consisting of a set of SCSI devices and a service delivery subsystem, where the SCSI devices interact with one another by means of the service delivery subsystem."

HP 7) All current transport protocols do not define 'current task' (Accepted, Editorial) [70]
Page 8, 3.1.21 current task

Delete "Each SCSI transport protocol standard should define the SCSI transport protocol specific conditions under which a task is considered a current task."

This is unnecessary. Protocols already have to define Send Data-In and Receive Data-Out protocol services. This should suffice.

Editor's Note: The 'should' in the cited sentence will be changed to 'may'.

HP 8) Remove definition of interconnect subsystem (Accepted, Substantive) [71]
Page 9, 3.1.55 interconnect subsystem
See also comments HP 24), HP 25), HP 26), and HP 33)

"One or more interconnects that appear as a single path for the transfer of information between SCSI devices in a domain."

Delete this definition. Ssee main comment on this topic in 4.6.1.

HP 9) Implicit head of queue and tasks (Accepted, Editorial) [72]
Page 10, 3.1.57 implicit head of queue

"commands wherein the specified commands" Reword in terms of tasks, since tasks have task attributes, not commands (until linked are obsoleted).

Editor's Note: The cited glossary entry will be modified as follows:

> An optional processing model for specified commands wherein the ~~specified commands~~ first command in a task may be treated as if ~~they~~ it had been received with a HEAD OF QUEUE task attribute.

Also the sentence in 8.2 (Implicit head of queue) will be modified as follows:

> A command standard (see 3.1.16) may define tasks that may be processed by the task manager as if the task's task attribute is HEAD OF QUEUE without regard to the actual task attribute received with the command that created the task.

HP 10) Request-confirmation transaction is obsolete in SAM-3 (Accepted, Substantive) [73]
Page 11, 3.1.85 request-confirmation transaction

This term is not used anywhere. The header "5.4.2 Execute Command request/confirmation SCSI transport protocol services" is the closest

Editor's Note: The request-confirmation transaction is an artifact of task management function handling on the parallel SCSI bus (e.g., the parallel SCSI bus TARGET RESET task management function did not implement usage of the **Task Management Request Received** indication and **Task Management Function Executed** procedure calls).

In 3.1 (Definitions), the following definition will be removed:

> ~~**3.1.85 request-confirmation transaction:** An interaction between a pair of cooperating entities, consisting of a request for service submitted to an entity followed by a response from the entity confirming request completion.~~

In 7.8 (Task management SCSI transport protocol services) the second paragraph will be modified as follows (including the changes make in response to comment Brocade 19):

> All SCSI transport protocol standards shall define the SCSI transport protocol specific requirements for implementing the **Send Task Management Request**, the **Task Management Request Received** indication, the **Task Management Function Executed** response, ~~SCSI transport protocol service~~ and the **Received Task Management Function Executed** confirmation SCSI transport protocol services described in this subclause ~~below~~. A SCSI transport protocol standard may specify different implementation requirements for the **Send Task Management Request** SCSI transport protocol service for different values of the **Function Identifier** argument.
>
> ~~Support for the **Task Management Request Received** indication and **Task Management Function Executed** SCSI transport protocol service response by the SCSI transport protocol standard is optional. All SCSI devices shall implement these SCSI transport protocol services as defined in the applicable SCSI transport protocol standards.~~
>
> All SCSI initiator devices shall implement the **Send Task Management Request** and the **Received Task Management Function Executed** confirmation SCSI transport protocol services as defined in the applicable SCSI transport protocol standards. All SCSI target devices shall implement the **Task Management Request**

Received indication and the **Task Management Function Executed** response SCSI transport protocol services as defined in the applicable SCSI transport protocol standards.

HP 11) Clarify 'sense key' glossary entry (Accepted, Editorial) [74]
Page 12, 3.1.110 sense key

Change "A field" to "The SENSE KEY field"

HP 12) SCSI port transactions list is incomplete (Accepted, Editorial) [75]
Page 12, 3.1.96 SCSI port

If request/response terminology terminology is intended, leave as is. If protocol service is intended, change "requests and responses are routed." to "requests, indications, responses, and confirmations are routed."

HP 13) SCSI initiator port transactions list wrong (Rejected) [76]
Page 12, 3.1.95 SCSI initiator port

If protocol service terminology is intended, leave as is. If generic request/response terminology is intended, change "requests and confirmations are routed." to "requests and responses are routed."

Reason for Rejection: The list is correct as written. Comment HP 12) identifies the correct change.

HP 14) SCSI target port transaction list wrong (Rejected) [77]
Page 12, 3.1.100 SCSI target port

"through which indications and responses are routed." If this is using the 4 protocol service terms, it also services requests and confirmations for data transfers (in the opposite direction).

Change to

"through which device server requests, indications, responses, and confirmations are routed."

If this is using generic request-response terms, change to "through which requests and responses are routed." (see comment on 3.1.95)

Reason for Rejection: The list is correct as written. Comment HP 12) identifies the correct change.

HP 15) Remove 'signal' definition (Accepted, Editorial) [78]
Page 13, 3.1.116 signal

Is this term still needed?

"(n) A detectable asynchronous event possibly accompanied by descriptive data and parameters. (v) The act of generating such an event."

Editor's Note: The glossary entry for signal will be removed.

HP 16) Clarify 'standard INQUIRY data' glossary entry (Accepted, Editorial) [79]
Page 13, 3.1.117 standard INQUIRY data

After "an INQUIRY command." add "with the EVPD bit set to zero (see SPC-3)."

Editor's Note: The cited sentence will be modified as follows:

Data returned to an application client as a result of an INQUIRY command with the EVPD bit set to zero.

There is no need to add the SPC-3 reference because it appears in the next sentence.

HP 17) Add cross reference to 'task' glossary entry (Accepted, Editorial) [80]
Page 13, 3.1.124 task

Add "See 4.11."

HP 18) Change 'unlinked command' definition incomplete (Accepted, Editorial) [81]
Page 14, 3.1.135 unlinked command

After "A command having the LINK bit set to zero in the CDB CONTROL byte." add "not preceded by a command that had the LINK but set to one in the CDB CONTROL byte."

Otherwise this conflicts with the definition of linked command in 3.1.59, which includes a command with LINK=0 as the last one in the sequence.

Editor's Note: The cited glossary entry will be modified as follows:

A command having the LINK bit set to zero in the CDB CONTROL byte and not part of a series of linked commands (see 3.1.59).

HP 19) Reword 4.1 item b) (Accepted, Editorial) [82]
Page 19, 4.1 Introduction (RC), item b

Whole sentence is too long and difficult to follow.

Suggestions:

'Identify areas for developing standards and provide a common reference for maintaining consistency among related standards. In this way, independent implementers may work productive and independently.'

Editor's Note: The cited list entry (b) will be replaced with two list entries as follows:

b) Establish a layered model in which standards may be developed;
c) Provide a common reference for maintaining consistency among related standards; and

HP 20) Insert paragraph break (Accepted, Editorial) [83]
Page 20, 4.2 SCSI distributed service model (RC)

In the last paragraph, the way they explain 'client-server relationships not being symmetrical' is not clear enough. I'm not sure what they are trying to achieve in that paragraph. I think they are mixing 2 concepts.

Maybe there should be a split into 2 paragraphs and an addition: '.A server may only respond to such requests. In other words, a client may not have the ability to behave like a server and vice versa.

[New paragraph] The client requests.'

Editor's Note: A paragraph break will be inserted before the following sentence:

> The client requests an operation provided by a server located in another SCSI device and waits for completion, which includes transmission of the request and response to/from the remote server.

The proposed text that begins "In other words…" will not be added, as the introductory phrase implies, it says nothing that has not already been said.

HP 21) command standards [s/b] command set standards (Rejected) [84]
Page 21, 4.3 The SCSI client-server model

Change "command standards" to "command set standards" (see comment in 3.1.16)

Reason for Rejection: See response to comment HP 3).

HP 22) Account for linked commands in client-server model (Accepted, Editorial) [85]
Page 21, 4.3 The SCSI client-server model

"command completion response is sent" is wrong. A task will result in lots of SCSI Command Completes. Change to "task complete response".

HP 23) Explain symbols in Figure 8 (Rejected) [86]
Page 23, 4.4 SCSI structural model (RC)

The figure should have an explanation on what the symbols mean. For example, the diagonal lines mean 0 or more objects. If they are not present then the box means 1 or more objects. And so on with the rest of the boxes in the diagram.

Reason for Rejection: The requested explanation is already present in subclause 3.6.1.

HP 24) Eliminate interconnect subsystem in description of service delivery subsystem (Accepted, Substantive) [87]
Page 24, 4.6.1 The service delivery subsystem object
See also comments HP 8), HP 25), HP 26), and HP 33)

Get rid of the "interconnect subsystem" level, which adds little value. The "Service delivery subsystem" term can stand on its own. Miscellaneous comments in 4.6.1 and 3.1 implement this. (reprise of an EMC comment on SAM-2 in 02-155)

Editor's Note: This comment will be resolved as described in the response to comment HP 25) and by the removal of the figure as described in comment HP 26).

HP 25) Eliminate interconnect subsystem in description of service delivery subsystem (Accepted, Substantive) [88]
Page 24, 4.6.1 The service delivery subsystem object
See also comments HP 8), HP 24), HP 26), and HP 33)

Delete "and is composed of an interconnect subsystem (see figure 10)." leaving just:

"The service delivery subsystem connects SCSI ports (see 3.1.96)" See main comment on this topic in 4.6.1.

Editor's Note: The first two sentences (and paragraphs) of 4.6.1 will be modified (and joined to form a single sentence) as follows:

The service delivery subsystem connects SCSI ports (see 3.1.96) and is composed of ~~an interconnect subsystem (see figure 10).~~

~~The interconnect subsystem is a set of~~ one or more interconnects that appear to a client or server as a single path for the transfer of requests, responses, and data between SCSI devices.

HP 26) Eliminate service delivery subsystem hierarchy figure (Accepted, Substantive) [89]
Page 24, 4.6.1 The service delivery subsystem object
See also comments HP 8), HP 24), HP 25), and HP 33)

Delete "Figure 10 - Service delivery subsystem model" See main comment on this topic in 4.6.1.

Editor's Note: Since the elimination of the interconnect subsystem leaves the service delivery subsystem with only one layer (itself), the figure is no longer needed.

HP 27) Include task management functions (Accepted, Editorial) [90]
Page 24, 4.5 SCSI domain

Change "command" to "command or task management function"

Editor's Note: This comment will be resolved as described in the response to comment HP 28).

HP 28) Include task management functions (Accepted, Editorial) [91]
Page 24, 4.5 SCSI domain

Change "commands" to "commands and task management functions"

Editor's Note: Including the change requested in comment HP 27) he three following figure 9 will be modified as follows:

A SCSI device (see 4.7) is an object that originates or processes commands and task management functions ~~(see 4.7)~~.

When a SCSI device originates a command or task management function it is called a SCSI initiator device. The commands and task management functions are transmitted through SCSI initiator ports or SCSI target/initiator ports.

A SCSI device containing logical units that process commands and task management functions is called a SCSI target device. It receives commands through SCSI target ports or SCSI target/initiator ports.

HP 29) Duplicate comment (No Action Taken) [92]
Page 24, 4.5 SCSI domain

Change "commands" to "commands and task management functions"

Editor's Note: There is no discernible difference between this comment and comment HP 28).

HP 30) Duplicate comment (No Action Taken) [93]
Page 24, 4.5 SCSI domain

Change "commands" to "commands and task management functions"

Editor's Note: There is no discernible difference between this comment and comment HP 28).

HP 31) Duplicate comment (No Action Taken) [94]
Page 24, 4.5 SCSI domain

Change "commands" to "commands and task management functions"

Editor's Note: There is no discernible difference between this comment and comment HP 28).

HP 32) Require SCSI devices to include at least one target port (Rejected) [95]
Page 24, 4.5 SCSI domain (RC)

1st sentence maybe include some more words 'A SCSI domain is composed of at least one SCSI devices, which includes at least one SCSI target port.'

Reason for Rejection: But, a SCSI device is not required to include a target port. A SCSI device may have only initiator ports. Getting the wording right will make the description overly complex. That is why there is a cross reference to the subclause that spells out all the facts about SCSI devices.

HP 33) Eliminate interconnect subsystem in description of service delivery subsystem (Accepted, Editorial) [96]
Page 25, 4.6.1 The service delivery subsystem object
See also comments HP 8), HP 24), HP 25), and HP 26)

Delete "The interconnect subsystem is a set of one or more interconnects that appear to a client or server as a single path for the transfer of requests, responses, and data between SCSI devices." (see main comment on this topic in 4.6.1)

Editor's Note: This comment will be resolved as described in the response to comment HP 25).

HP 34) Clarify sent and received (Accepted, Editorial) [97]
Page 25, 4.6.1 Service delivery subsystem object

"Considered received" by whom"? The sender doesn't know until the protocol service returns back a confirmation.

Changed c) to "Considered received by the receiver" and a) to "Considered sent by the sender"

HP 35) Reword request/response ordering example (Accepted, Editorial) [98]
Page 25, 4.6.3 Request/Response ordering (RC)

2nd sentence contains an example that is confusing. It may be re-worded differently. '. and may take action based on the nature and sequence of SCSI target device responses. An example of how/when non-ordering could go wrong is if the SCSI initiator device aborts.' [parenthesis have been removed]

Editor's Note: The cited text will be changed as follows:

> The SCSI initiator device acquires knowledge about the state of pending commands and task management functions and may take action based on the nature and sequence of SCSI target device responses (e.g., a SCSI initiator device should be aware that further responses are possible from an aborted command ~~if the SCSI initiator device aborts a~~ because the command ~~whose~~ completion response may be delivered out of order with respect to ~~is in transit and~~ the abort response ~~is received out of order, the SCSI initiator device may incorrectly conclude that no further responses are expected from that command~~).

Also, a paragraph break will be inserted before the cited sentence.

HP 36) 'data' is inappropriate in this context (Accepted, Editorial) [99]
Page 25, 4.6.1 Service delivery subsystem object

"requests, responses, and data" If generic request/response terminology is intended, change to "requests and responses" (if this paragraph is kept at all)

HP 37) Is request/response intended? (Rejected) [100]
Page 25, 4.6.3 Request/Response ordering

Are data transfers included in "responses"? Does this mean the generic request/response type of response, or the protocol service response? (same comment in 7.2)

Reason for Rejection: It means generic response, which is the only term defined up to this point in the model description.

HP 38) In-Order delivery assumptions (Accepted, Editorial) [101]
Page 26, 4.6.3 Request/Response ordering

The first sentence speaks very generally: "The SCSI architecture model assumes in-order delivery to be a property of the service delivery subsystem."

The third sentence then makes a statement that belies the first: "This standard makes no assumption about, or places any requirement on the ordering of requests or responses between tasks or task management functions received from different SCSI initiator ports."

If it truly makes no assumption about different SCSI initiator ports, then the first sentence is too strong. Restrict the first sentence to one initiator port.

"The SCSI architecture model assumes in-order delivery _between tasks and task management functions from a single SCSI initiator port_ to be a property of the service delivery subsystem." (another comment asks that "of requests and responses" be added after "delivery" too)

Editor's Note: Including changes made by comments Brocade 3), HP 39), HP 40), the cited paragraph will be changed to:

> To simplify the description of behavior, the ~~The~~ SCSI architecture model assumes in-order delivery of requests or responses to be a property of the service delivery subsystem. This assumption ~~is made to simplify the description of behavior and~~ does not constitute a requirement.
>
> The SCSI architecture model ~~This standard~~ makes no assumption about~~,~~ and ~~or~~ places ~~any~~ no requirement on the ordering of requests or responses ~~between tasks or task management functions received from~~ for different SCSI initiator ports.

HP 39) In-Order delivery assumptions (Accepted, Editorial) [102]
Page 26, 4.6.3 Request/Response ordering

The first sentence "The SCSI architecture model assumes in-order delivery to be a property of the service delivery subsystem." doesn't specify in-order delivery of _what_.

The third sentence mentions "tasks or task management functions," but is mentioning that there is NO assumption for them for different SCSI initiator ports. It is silent about ordering for the same initiator port. 4.8 mentions that this standard does not require in-order delivery or processing of task management functions (but isn't clear if it "assumes" it).

The preceding paragraphs describe requests and responses in general. The protocol service requests defined later in this standard are:

Send Command Complete, Send Data-In, Receive Data-Out, Send Task Management Request, Terminate Data Transfer

The responses are:

Send Command Complete, Task Management Function Executed Are those all "assumed" to be ordered, even the data transfer requests?

Assuming so…

Reword the first sentence as: "The SCSI architecture model assumes in-order delivery _of requests and responses_ to be a property of the service delivery subsystem."

Reword the third sentence as:

"This standard makes no assumption about, nor places any requirement on, the ordering of requests or responses between tasks or task management functions received from different SCSI initiator ports."

Then, to clarify what "assumes" means and doesn't mean, add:

"Although written assuming in-order delivery of requests and responses, the SCSI architecture model does not require in-order delivery of requests and responses."

Editor's Note: This comment will be resolved as described in the response to comment HP 38).

HP 40) Change 'or' to 'nor' and add a comma (Accepted, Editorial) [103]
Page 26, 4.6.3 Request/response ordering

"This standard makes no assumption about, or places any requirement on the ordering…" or should be nor and a command should be added.

Change to:

"This standard makes no assumption about, nor places any requirement on, the ordering…."

Editor's Note: This comment will be resolved as described in the response to comment HP 38). There will be no addition of a command anywhere near the cited text.

HP 41) Logical unit number zero is the same as LUN 0 (Rejected) [104]
Page 28, 4.7.2 SCSI target device
See also comment IBM 12)

Change "be accessed using the logical unit number zero." to "be LUN 0."

Reason for Rejection: During the development of SAM-3 a lengthy CAP working group discussion concluded that LUN 0 is name given to the logical unit itself whereas logical unit number zero is the means by which LUN 0 is addressed. The cited wording is correct according to the CAP working group's determination.

HP 42) Delete reference to 'SCSI identifier' (Rejected) [105]
Page 30, 4.7.4 SCSI port identifier

Delete "The SCSI port identifier is equivalent to SCSI identifier." There is no need for the imprecise "SCSI identifier" term any more.

Reason for Rejection: Comments Maxtor 9) and Veritas 6) both proposed improvements in the cited sentence. This comment is in the minority.

HP 43) Logical unit number zero is the same as LUN 0 (Rejected) [106]
Page 30, 4.7.3 SCSI target/initiator device
See also comment IBM 13)

Change "be accessed using the logical unit number zero." to "be LUN 0."

Reason for Rejection: During the development of SAM-3 a lengthy CAP working group discussion concluded that LUN 0 is name given to the logical unit itself whereas logical unit number zero is the means by which LUN 0 is addressed. The cited wording is correct according to the CAP working group's determination.

HP 44) Task router routes commands (Accepted, Editorial) [107]
Page 30, 4.7.6 SCSI task router (MB)

"The task router routes tasks…" This statement contradicts 5.5, Task and Command Lifetimes, which states, 'The device server shall create a task upon receiving a SCSI Command Received indication ….' See also 5.8.1 and 5.8.2. The Task Router actually routes commands, data, and status associated with (or bound to) a task.

Editor's Note: The cited text will be modified as follows:

> The task router routes ~~tasks~~ commands and task management functions to the selected logical unit.

This change makes the cited text consistent with numerous other descriptions the task router, to whit the glossary entry:

> 3.1.130 task router: An object in a SCSI target port that routes commands and task management functions between the service delivery subsystem (see 3.1.114) and the appropriate logical unit's task manager (see 3.1.129).

HP 45) Replace 'task' with 'SCSI Command Received indication'. (Rejected) [108]
Page 30, 4.7.6 SCSI task router (MB)

A device server creates a task [5.5]. A device server can only exist inside of a logical unit [4.8]. Hence the only way for a task to be sent to a logical unit is for a device server to create the task and then send it to some a logical unit. I know of no other location in SCSI that supports this view of tasks. Replace 'task' with 'SCSI Command Received indication'.

Editor's Note: See response to comment HP 44).

HP 46) How many ports to a relative port identifier? (Accepted, Substantive) [109]
Page 30, 4.7.5 Relative port identifier (RC)

It is not clear if one relative port identifier is used for all ports in the SCSI device; or if a group of ports in the SCSI device will share the same relative port identifier; or if there is a different relative port identifier for every SCSI port in the SCSI device. I found it confusing, so it needs clarification.

Editor's Note: The first sentence in the cited subclause will be modified as follows:

> A SCSI target device or a SCSI target/initiator device may assign ~~each of~~ relative port identifiers to its SCSI ports. If relative port identifiers are assigned, the SCSI target device or SCSI target/initiator device shall assign each of its SCSI ports a unique relative port identifier from 1 to 65 535.

HP 47) MSC may be incompatible with logical unit hierarchy (Deferred to SAM-4) [110]
Page 32, 4.8 Logical units

When multi-level LUNs are used, is the nested logical unit really a "logical unit within the scope of a SCSI target device"? In SCC, a nested LUN often represents LUN 0 on a disk drive on a bus behind the RAID controller. Is the RAID controller expected to intercept the INQUIRY VPD data from that LU and change the reported target port name (association=2) and the reported target port identifier (association=1)?

The current proposal for bridges in MSC plans to use multi-level LUNs to access devices behind a bridge. The bridge will not be expected to do so (that's one of the points of the proposal). Change "within the scope" phrases to something like "accessible via the"

Editor's Note: Yes, the nested logical unit is within the scope of the target device. No, that nested logical unit does not have the same VPD view of the world as a logical unit within a different level of the hierarchy represented by the target device. No, the VPD data returned by the nested logical unit will not be modified to correct it to the target device's perspective. This organization was and is viewed as appropriate and desirable for SCC devices.

Since there is not yet sufficient agreement on how or whether MSC will use the logical unit hierarchy to represent its bridging functions, it is not appropriate to delay publication of SAM-3 to extend its vision to MSC devices.

HP 48) Logical unit number is not a field (Rejected) [111]
Page 32, 4.8 Logical units

"A logical unit number is a field" In this context, the logical unit number is not really a field, it's just a value.

Change to "A logical unit number contains 64 bits…"

Reason for Rejection: The comment citation cleverly omitted the cross reference to 4.9, where logical unit number is very definitely a field. The context of the statement is somewhere between the 4.9 context and the cited context. Clearly, the preference to date has been to prefer the 4.9 context and the justification offered is not sufficient to motivate changing that.

HP 49) Logical units that are not well-known logical units are required to have names (Accepted, Substantive) [112]
Page 32, 4.8 Logical units
See also comment HP 53) and comment HP 55)

"may require that a logical unit include a logical unit name" implies that it is not always present. If that is the case, the b) item above above needs to change from "one or more logical unit names" to "zero or more".

Or better yet, require that a logical unit name be included in all logical units except well-known logical units. Don't make that a transport protocol option. Leave b) alone.

Editor's Note: Based on the following statement from SPC-3 (see 7.6.4.11.3 (Identification descriptors for logical units) in SPC-3 r18), SAM-3 clearly needs to represent the fact that logical units that are not well-known logical units are required to have at least one logical unit name:

> "For each logical unit that is not a well known logical unit, the Device Identification VPD page shall include at least one identification descriptor. The identification descriptor shall have the ASSOCIATION field set to 0h (i.e., logical unit) and …"

Therefore, the decision to have or not to have a logical unit name is not a transport protocol option.

The following paragraph will be removed:

> ~~A SCSI transport protocol standard may require that a logical unit include a logical unit name if the logical unit is accessed through a SCSI domain defined by that SCSI transport protocol.~~

Comment HP 53) describes an addition change needed to instantiate this newly realized requirement.

HP 50) 'A' s/b 'One or more' (Accepted, Editorial) [113]
Page 32, 4.8 Logical units

Change

"a) A logical unit number;"

to

"a) One or more logical unit numbers: " or "a) Logical unit number(s)" because the B) that follows allows more than one.

Editor's Note: The cited text will be modified as follows:

> a) ~~A logical~~ Logical unit ~~number~~ number(s), required as follows;

The proposed change could be read to imply that any logical unit may have more than one logical unit number. Such a lack of clarity is inappropriate in a standard.

HP 51) 'per logical unit' is redundant (Rejected) [114]
Page 32, 4.8 Logical units

Delete "per logical unit;" which is redundant with the "A logical unit contains" introduction

Reason for Rejection: Because of the distance between the 'logical unit contains' and the cited text and because of the complexity of the cited text and because of the phrase 'per SCSI initiator port' in the cited text, the Department of Redundancy Department has concluded that the extra words make the cited text more readable.

HP 52) Duplicate comment (No Action Taken) [115]
Page 32, 4.8 Logical units

Delete "per logical unit;" which is redundant with the "A logical unit contains" introduction

Editor's Note: There is no discernible difference between this comment and comment HP 51).

HP 53) Logical units that are not well-known logical units are required to have names (Accepted, Editorial) [116]
Page 32, 4.8 Logical units

Change "b) one or more logical unit names" to "b) one or more logical unit names if the logical unit is not a well-known logical unit"

Editor's Note: The cited text will be modified as follows:

b) ~~One or more logical~~ Logical unit ~~names~~ name(s), required as follows;
A) One or more logical unit names if the logical unit is not a well-known logical unit; or
B) Zero logical unit names in the logical unit is a well-known logical unit;

Comment HP 55) describes an addition change needed to instantiate this newly realized requirement.

HP 54) 'may contain' is implied by 'zero or more' (Accepted, Editorial) [117]
Page 32, 4.8 Logical units

Change "may contain" to "contains" Since zero or more is contained, there's no need for "may"

HP 55) Well-known logical units do not have logical unit names (Accepted, Editorial) [118]
Page 32, 4.8 Logical units

Since well-known logical units are not allowed to have logical unit names, the "logical unit name" box should be a zero or more box with diagonal lines.

HP 56) Clarify one device server per LU (Accepted, Editorial) [119]
Page 32, 4.8 Logical units

Add "There is one device server per logical unit." to match the sentence in the next paragraph about the task manager.

HP 57) carries out [s/b] processes (Accepted, Editorial) [120]
Page 32, 4.8 Logical units
Missing comment identifier added by editor

Change "carries out" to "processes"

HP 58) Put task management request/response ordering where somebody can find it (Accepted, Editorial) [121]

Page 32, 4.8 Logical units

Move this paragraph into 4.6.3 Request/response ordering. "The order in which task management requests are processed is not specified by this standard. This standard does not require in-order delivery of such requests, as defined in 4.6.3, or processing by the task manager in the order received. To guarantee the processing order of task management requests referencing a specific logical unit, an application client should not have more than one such request pending to that logical unit."

Editor's Note: The cited text will be moved to the second to the last paragraph in 4.6.3 and the (post move) recursive reference to 4.6.3 will be removed.

HP 59) Incorrect cross reference (Accepted, Editorial) [122]

Page 33, 4.9.3 Single level logical unit number structure

If this text is kept (other comments suggest removing it)… Change "in 4.14" to "in 4.9.6". 4.14 is the dependent logical unit model; the address method 00h format is defined in 4.9.6.

Editor's Note: The cross reference will be changed 4.9.4 since it is 4.9.4 that describes the general structure of which table 1 describes a subset. 4.9.5 is an incorrect reference because it describes a general structure of which only the first two bytes of table 1 is a subset.

HP 60) LUN 0 and incorrect logical unit selection (Accepted, Editorial) [123]

Page 33, 4.9.2 LUN 0 address

"All SCSI devices shall accept LUN 0 as a valid address." needs to be clarified with respect to 5.9.4 Incorrect logical unit selection.

If PQ=001 at LUN 0, it is not going to support most commands (but has to support REPORT LUNS, REQUEST SENSE, and INQUIRY).

Editor's Note: Including the changes made in response to comment IBM 16) and the wording changes assisting with the resolution of comment HP 61)the cited sentence will be modified as follows:

> All SCSI devices shall ~~accept~~ support LUN 0 (i.e., 00000000 00000000h) or the REPORT LUNS well-known logical unit ~~as a valid address~~.

In addition, the following sentence will be added at the end of the subclause:

> The responses to commands sent to unsupported logical units are defined in 5.9.4. The response to task management functions sent to unsupported logical units is defined in 7.1.

HP 61) LUN 0 addressing with the peripheral device address method (Accepted, Editorial) [124]
Page 33, 4.9.2 LUN 0 address

"To address the LUN 0 of a SCSI device the peripheral device address method shall be used." implies that LUN 0 or other LUN numbers might be accessed via more than one address method. The shall hints that there are choices that are not allowed.

However, LUN 0 by definition has an address method of 00b. Some other LUN with another address method is not LUN 0; it is a different LUN (e.g. LUN 40000000_00000000 is different from LUN 00000000_00000000).

Change to "LUN 0 _is_ addressed with the peripheral device address method."

Editor's Note: The addition of "(i.e., 00000000 00000000h)" by the response to comment HP 60) allows the cited sentence to be deleted, to whit:

~~To address the LUN 0 of a SCSI device the peripheral device address method shall be used.~~

HP 62) Last level of hierarchy follows single level rules (No Action Taken) [125]
Page 33, 4.9.3

This is confusing, because the rules it contains also apply to the last level of the eight byte logical unit number field as well. Merge this section into the eight-byte LUN sections: 4.9.4 (peripheral device) for the format for LUNs 255 and below, and 4.9.7 (flat space) for LUNs 16383 and below)

Editor's Note: The statement is true, but because a device at the last level of the hierarchy is unaware of the levels above it in the hierarchy it will follow the cited rules because from its perspective it is a device with a single-level logical unit numbering scheme.

HP 63) LUN object nomenclature problems (Accepted, Substantive) [126]
Page 33, 4.9 Logical unit numbers

There is terminology conflict between LUN referring to the 8-byte structure, and a variety of subfields also called LUNs (in whole or in part):

Table 1, 2 - SINGLE LEVEL LUN (8 bits or 14 bits)
Table 1, 2 - Null second level LUN (16 bits)
Table 1, 2 - Null third level LUN (16 bits)
Table 1, 2 - Null fourth level LUN (16 bits)
Table 7 - LUN field (5 bits)
Table 8 - TARGET/LUN (8 bits)
Table 9 - LUN (14 bits)

Since the rest of SCSI uses LUN to mean the 8-byte structure, all these subfields should be renamed. Table 4 calls each of the 2 byte structures:

FIRST LEVEL ADDRESSING
SECOND LEVEL ADDRESSING
THIRD LEVEL ADDRESSING
FOURTH LEVEL ADDRESSING

Other comments suggest removing tables 1 and 2, folding their information into the peripheral device and flat space sections.

That would leave these needing clarification:

Table 7 - LUN field (5 bits) - change to PARTIAL LUN field
Table 8 - TARGET/LUN (8 bits) - change to TARGET OR PARTIAL LUN field
Table 9 - LUN (14 bits) - change to PARTIAL LUN field

Editor's Note: It is not possible to implement this change correctly without coordinated, detailed review and rewriting of several SAM-3 clauses. The preferred way to approach this change is as a detailed proposal for changes in SAM-4.

Since the terminology issue raised by this comment is real, the following new subclause will be added to warn readers of the pitfalls:

4.9.1 Introduction

Clause 4.9 defines the construction of logical unit numbers to be used by SCSI target devices. Application clients should use only those logical unit numbers returned by a REPORT LUNS command. The device server shall respond to logical unit numbers other than those returned by a REPORT LUNS command as specified in 5.9.4.

The 64-bit quantity called a LUN is the Logical Unit Number object defined by this standard. The fields containing the acronym LUN that compose the Logical Unit Number object are historical nomenclature anomalies, not Logical Unit Number objects. Logical Unit Number objects having different values represent different logical units, regardless of any implications to the contrary in 4.9 (e.g., LUN 00000000 00000000h is a different logical unit from LUN 40000000 00000000h and 00FF0000 00000000h is a different logical unit from LUN 40FF0000 00000000h).

HP 64) Incorrect cross reference (Accepted, Editorial) [127]
Page 34, 4.9.3 Single level logical unit number structure

Change "in 4.14" to "in 4.9.7"

Editor's Note: The cross reference will be changed 4.9.4 since it is 4.9.4 that describes the general structure of which table 1 describes a subset. 4.9.6 is an incorrect reference because it describes a general structure of which only the first two bytes of table 1 is a subset.

HP 65) Rewrite single level LUN requirements (Accepted, Editorial) [128]
Page 34, 4.9.3 Single level LUN format
See also comments IBM 20)

"If a SCSI target device contains 256 or fewer logical units, none of which are dependent logical units (see 4.14) or extended addressing logical units (see 4.9.8), then its logical units should be numbered 255 and below."

Reword as:

Devices with 256 or fewer logical units should assign them LUNs using the peripheral device addressing method. and place in 4.9.4 (see other comments about merging 4.9.3 into 4.9.4+)

Editor's Note: This comment will be resolved as described by comment HP 67).

HP 66) Rewrite single level LUN requirements (Accepted, Editorial) [129]
Page 34, 4.9.3 Single level LUN format
See also comment IBM 21)

"If a SCSI target device contains 16 384 or fewer logical units, none of which are dependent logical units or extended addressing logical units, then its logical units should be numbered 16 383 and below."

Reword as:

Devices with 16384 or fewer logical units should assign them LUNs using the flat space addressing method.

Editor's Note: This comment will be resolved as described by comment HP 67).

HP 67) Delete redundant single level logical unit requirements paragraph (Accepted, Editorial) [130]
Page 34, 4.9.3 Single level LUN structure
See also comments HP 65), HP 66), IBM 20), IBM 21), IBM 22), and IBM 23)

"Except for dependent logical units and extended addressing logical units, logical unit numbers that are greater than 255 shall have the format shown in table 2. Except for dependent logical units and extended addressing logical units, logical unit numbers that are less than 256 should have the format shown in table 1 but may have the format shown in table 2."

This implies that the same LU might be accessed with LUNs 00000000_000000nn or 40000000_000000nn. Really those are two different LUs.

Delete this paragraph.

Editor's Note: The cited paragraph will be removed and the two paragraphs that precede it will be modified as follows:

> If a SCSI target device contains 256 or fewer logical units, none of which are dependent logical units (see 4.14) or extended addressing logical units (see 4.9.8), then its logical units should be numbered 255 and below and should have the format shown in table 1 (i.e., peripheral device addressing) but may have the format shown in table 2 (i.e., flat space addressing).
>
> If a SCSI target device contains 16 384 or fewer logical units, none of which are dependent logical units or extended addressing logical units, then its logical units should be numbered 16 383 and below and should have the format shown in table 2 (i.e., flat space addressing) but may have the format shown in table 1 (i.e., peripheral device addressing) for logical unit numbers that are less than 256.

HP 68) Byte [s/b] byte (Accepted, Editorial) [131]
Page 35, 4.9.4 Eight byte logical unit number structure, Figure 16

Change Byte to byte

HP 69) Hierarchy is addressing levels, not device levels (Accepted, Editorial) [132]
Page 35, 4.9.4 Eight byte logical unit number structure
See also comments HP 65), HP 66), HP 67), IBM 20), IBM 21), IBM 22), and IBM 23)

"The eight byte logical unit number structure (see table 4) allows up to four levels of SCSI devices to be addressed under a single SCSI target device."

"Four levels of devices under a single device" is the same as "5 levels of SCSI devices"; I think the latter would be clearer if levels of devices are being described. Figure 25 in 4.14 calls itself a 3 level example; to match the terminology in this sentence, it would be more appropriate to call it a 2 level example.

The logical unit address method 10b sneaks in an extra level, since it specifies separate bus number, target, and LUN values. (It must be the last in the list).

Example:

LUN going into first level SCSI device: 1,2,3,4 (addr method 01b, bus number A target B, LUN C)
LUN going into second level SCSI device: 2,3,4
LUN going into third level SCSI device: 3,4
LUN going into fourth level SCSI device: 4

The fourth level device parses the 10b format and relays the command out bus number A to target B, addressing it to LUN C. That is received by a _fifth_ level SCSI device.

Reword like: "The eight byte LUN structure contains four levels of addressing fields."

Editor's Note: The cited sentence will be modified as follows:

The eight byte logical unit number structure (see table 4) contains four levels of addressing fields. ~~allows up to four levels of SCSI devices to be addressed under a single SCSI target device.~~

HP 70) Byte [s/b] byte (Accepted, Editorial) [133]
Page 36, 4.9.4 Eight byte logical unit number structure, Table 4

Change Byte to byte

HP 71) Remove MSB and LSB on fields with substructures (Accepted, Editorial) [134]
Page 36, 4.9.4 Eight byte LUN structure

Table 4 - Eight byte LUN structure Delete each (MSB) and (LSB) in this table (8 total) since each pair of bytes has sub-structures

HP 72) Logical units may be physical or logical devices (Accepted, Editorial) [135]
Page 36, 4.9.4 Eight byte LUN format

"The SCSI device pointed to in the FIRST LEVEL ADDRESSING, SECOND LEVEL ADDRESSING, THIRD LEVEL ADDRESSING, and FOURTH LEVEL ADDRESSING fields may be any physical or logical device addressable by an application client."

If a logical unit is pointed to by level X, however, the device at level X-1 (the previous level) must have the ability to route the request to level X (e.g., be an SCC-2 device)

Editor's Note: In 4.8 (Logical units), the first sentence will be modified as follows:

A logical unit (see figure 15) represents a physical or logical device and contains:

In 4.9.4 (Eight byte LUN format), the cited sentence will be removed, to whit:

~~The SCSI device pointed to in the FIRST LEVEL ADDRESSING, SECOND LEVEL ADDRESSING, THIRD LEVEL ADDRESSING, and FOURTH LEVEL ADDRESSING fields may be any physical or logical device addressable by an application client.~~

HP 73) Remove MSB and LSB on field with a substructure (Accepted, Editorial) [136]
Page 36, 4.9.4 Eight byte LUN structure, Table 5 - format of addressing fields

Remove (MSB) and (LSB) since the ADDRESS METHOD SPEIFIC field has substructure

HP 74) Eliminate over use of 'method' in LUN definitions (Accepted, Editorial) [137]
Page 37, 4.9.x
See also comment HP 109) and comment HP 110)

All the "addressing methods" should use mixed case. It is very difficult to parse the logical unit not specified extended address method.

Globally change terms to:

logical unit addressing method -> Logical Unit addressing method
peripheral device addressing method -> Peripheral Device addressing method
flat space addressing method -> Flat Space addressing method
extended logical unit addressing method -> Extended Logical Unit addressing method
well known logical unit extended address -> Well Known Logical Unit extended address
logical unit not specified extended address method -> Logical Unit Not Specified extended address

Editor's Note: The global changes will not be made, but 4.9.8 (Extended logical unit addressing), the title for table 16 will be modified as follows:

Table 16 — Logical unit extended addressing ~~address methods~~

In 4.9.9 (Well known logical unit addressing), the second paragraph will be modified as follows:

~~See table 17 for the definition of the EXTENDED ADDRESS METHOD SPECIFIC field used when the well known logical unit extended address method is selected.~~ Well known logical units are addressed using the well known logical unit extended address format (see table 17).

In 4.9.10 (Logical unit not specified addressing), the first two paragraph will be modified as follows:

~~A logical unit not specified extended address method LUN shall be used to indicate that no logical unit of any kind is specified.~~

~~See table 18 for the format of a LUN using the logical unit not specified extended address method.~~

Logical unit not specified addressing (see table 18) shall be used to indicate that no logical unit of any kind is specified.

HP 75) Clarify address method field and contents (Accepted, Editorial) [138]
Page 37, 4.9.5 Logical unit addressing method, Table 7

Change the two cells containing 1 0 into one cell containing "ADDRESS METHOD (10b)"

HP 76) Sort LUN addressing methods by code value (Accepted, Editorial) [139]
Page 37, 4.9.4 Eight byte logical unit number structure

Sort the addressing methods in table 6 and sections 4.9.5 through 4.9.8 in this order:

00b Peripheral device
01b Flat space
10b Logical unit
11b Extended logical unit

This is numerically sorted and more closely matches their level of use. The current order is not even alphabetical.

HP 77) Table 7 introductory paragraph is inaccurate (Accepted, Editorial) [140]
Page 37, 4.9.5 LU addressing method

Change "ADDRESS METHOD SPECIFIC field" to "address field". The table has 2 bits more than just the ADDRESS METHOD SPECIFC field contents.

Editor's Note: The cited sentence will be deleted and the first sentence in the subclause will be modified as follows:

If the logical unit addressing method (see table 7) is selected, the SCSI device should …

HP 78) How to map the LUN field (Accepted, Substantive) [141]
Page 37, 4.9.5 LU addressing method

The LUN field doesn't seem to be usable except when the LU addressing format appears last in the chain.

What would it mean to have a LUN of:

bytes 0-1: address method 10b, target=XX, bus number=YY, LUN=ZZ
bytes 2-3: anything but 00h
bytes 4-5: 00h
bytes 6-7: 00h

Assume that LUN is sent to device A. The target and bus number fields make sense; device A chooses output bus YY and sends the command to target XX on that bus. The LUN field on that bus, however, cannot be ZZ. It has to be the shifted version:

bytes 0-1: anything but 00h
bytes 2-5: 000000h

There's no way to include the original "LUN" value of ZZ on that output bus or otherwise use it for relaying.

Add a rule that the LUN field is ignored unless this addressing field is the last in the 8 byte LUN. Or, that if this addressing field appears, none of the subsequent address fields in the 8 byte LUN are used.

Editor's Note: The following new paragraph will be added to the description of the logical unit addressing method prior to table 7:

The contents of all hierarchical structure addressing fields following a logical unit addressing method addressing field shall be ignored.

The following will be added to the description of the fields in table 7:

The value in the LUN field shall be placed in the least significant bits of the SINGLE LEVEL LUN field in a single level logical unit number structure for logical unit numbers 255 and below (see 4.9.1).

See the response to comment HP 80) for details regarding where the new sentence will be added.

The following new paragraph will be added to the description of the flat space addressing method prior to table 9:

The contents of all hierarchical structure addressing fields following a flat space addressing method addressing field shall be ignored.

The following new paragraph will be added to the description of the extended logical unit addressing method prior to table 10:

The contents of all hierarchical structure addressing fields following an extended logical unit addressing method addressing field shall be ignored.

HP 79) Clarify SCC-2 usage of flat space addressing (Rejected) [142]
Page 37, 4.9.4 Eight byte LUN structure, Table 6 Address Method field values

Add a note to 01b that "This address method is called the Volume set addressing method by SCC-2"

Reason for Rejection: The price for adding the proposed note would be adding a normative reference to SCC-2. That price is too high.

HP 80) What if task management functions cannot be relayed? (Accepted, Substantive) [143]
Page 37, 4.9.5 Logical unit address method, 4.9.6 Peripheral device address method, (and, if changed by another comment, 4.9.7 Flat space addressing method)

"If the logical unit addressing method is selected the SCSI device should relay the received command to the addressed dependent logical unit. Any command that is not relayed to a dependent logical unit 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 COMMAND OPERATION CODE."

The SCSI device also has to relay task management functions. Those cannot be terminated with CHECK CONDITION status. What if it does not choose to relay one of them?

Add "or task management function" to the paragraph and the following note. Describe the response if it is not relayed.

Editor's Note: In 4.9.5 (Logical unit addressing method), the first two paragraphs will be modified as follows:

> If the logical unit addressing method is selected the SCSI device should relay the received command or task management function to the addressed dependent logical unit. Any command that is not relayed to a dependent logical unit 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 COMMAND OPERATION CODE. If a task management function cannot be relayed to a dependent logical unit, a service response of SERVICE DELIVERY OR TARGET FAILURE shall be returned.
>
> NOTE 1 - A SCSI device may filter (i.e., not relay) commands or task management functions to prevent ~~commands~~ operations with deleterious effects from reaching a dependent logical unit (e.g., a WRITE command directed to a logical unit that is participating in a RAID volume).

In 4.9.5 (Logical unit addressing method), the paragraph following table 7 will be modified as follows (including changes made in response to comment HP 78):

> The TARGET field, BUS NUMBER field, and LUN field address the logical unit to which the received command or task management function shall be relayed. The command or task management function shall be relayed to the logical unit specified by the LUN field within the SCSI target device specified by the TARGET field located on the bus specified by the BUS NUMBER field. The value in the LUN field shall be placed in the least significant bits of the SINGLE LEVEL LUN field in a single level logical unit number structure for logical unit numbers 255 and below (see 4.9.1). The SCSI target device information in the TARGET field may be a target port identifier (see 4.7.2) or it may be a mapped representation of a target port identifier, when the range of possible target port identifiers is too large to fit in the TARGET field.

In 4.9.6 (Peripheral device addressing method), the first two paragraphs will be modified as follows:

> If the peripheral device addressing method is selected, the SCSI device should relay the received command or task management function to the addressed dependent logical unit. Any command that is not relayed to a dependent logical unit 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 COMMAND OPERATION CODE.

If a task management function cannot be relayed to a dependent logical unit, a service response of SERVICE DELIVERY OR TARGET FAILURE shall be returned.

NOTE 3 - A SCSI device may filter (i.e., not relay) commands or task management functions to prevent ~~commands~~ operations with deleterious effects from reaching a dependent logical unit (e.g., a WRITE command directed to a logical unit that is participating in a RAID volume).

In 4.9.6 (Peripheral device addressing method), the four paragraphs following table 8 will be modified as follows (including the changes made in response to comments HP 87) and HP 88):

The BUS IDENTIFIER field identifies the bus or path that the SCSI device shall use to relay the received command or task management function. The BUS IDENTIFIER field may use the same value encoding as the BUS NUMBER field (see 4.9.5). However, bus identifier zero shall specify that the command or task management function is to be relayed to a logical unit within the SCSI device at the current level.

The ~~TARGET/LUN~~ TARGET OR LUN field specifies the address of the peripheral device to which the SCSI device shall relay the received command or task management function. The meaning and usage of the ~~TARGET/LUN~~ TARGET OR LUN field depends on whether the BUS IDENTIFIER field contains zero.

A BUS IDENTIFIER field of zero specifies a logical unit at the current level. This representation of a logical unit may be used either when the SCSI device at the current level does not use hierarchical addressing for assigning LUNs to entities or when the SCSI device at the current level includes entities that need LUNs but are not attached to SCSI buses ~~(e.g., fans, cache, and controllers)~~. When the BUS IDENTIFIER field contains zero, the command or task management function shall be relayed to the current level logical unit specified by the ~~TARGET/LUN~~ TARGET OR LUN field within or joined to the current level SCSI device.

A BUS IDENTIFIER field greater than zero represents a SCSI domain that connects a group of SCSI devices to the current level SCSI device. Each SCSI domain shall be assigned a unique bus identifier number from 1 to 63. These bus identifiers shall be used in the BUS IDENTIFIER field when assigning addresses to peripheral devices attached to the SCSI domains. When the BUS IDENTIFIER field is greater than zero, the command or task management function shall be relayed to the logical unit with the logical unit number zero within the SCSI target device specified in the ~~TARGET/LUN~~ TARGET OR LUN field located in the SCSI domain specified by the BUS IDENTIFIER field. The SCSI target device information in the ~~TARGET/LUN~~ TARGET OR LUN field may be a target port identifier (see 4.7.2) or it may be a mapped representation of a target port identifier, when the range of possible target port identifiers is too large to fit in the ~~TARGET/LUN~~ TARGET OR LUN field.

The SCSI device located within the current level shall be addressed by a BUS IDENTIFIER field and a ~~TARGET/LUN~~ TARGET OR LUN field of all zeros, also known as LUN 0 (see 4.9.2).

HP 81) Eliminate another little bit of SPI from SAM-3 (Accepted, Substantive) [144]
Page 37, 4.9.5 Logical unit addressing method

"The ~~SCSI target device information in the~~ TARGET field ~~may be a target port identifier (see 4.7.2) or~~ it may be a mapped representation of a target port identifier, ~~when the range of possible target port identifiers is too large to fit in the TARGET field~~. NOTE 2 - The value of target port identifiers within the TARGET field are defined by individual standards. (e.g., SCSI Parallel Interface -2 standard defines target port identifiers to be in the range 0 to 7, 0 to 15, and 0 to 31)."

There are no SCSI transport protocols covered by SAM-3 that define target port identifiers that fit into this 6 bit field, so they all have to be mapped representations. Delete the note (i.e., note 2) and change the sentence to:

"The TARGET field contains a mapped representation of a target port identifier."

HP 82) How to fit 3 bits into a 6 bit field (Accepted, Substantive) [145]
Page 38, 4.9.6 Peripheral device addressing method

"The BUS IDENTIFIER field may use the same value encoding as the BUS NUMBER field (see 4.9.5)."

This is a 6 bit field, but the referred-to Bus Number field is 3 bits. They can't completely use the same encoding.

Editor's Note: The cited sentence will be modified as follows:

> The BUS IDENTIFIER field may use the same value encoding as the BUS NUMBER field (see 4.9.5) with the most significant bits set to zero.

HP 83) Clarify address method field and contents (Accepted, Editorial) [146]
Page 38, 4.9.6 Peripheral device addressing method, Table 8

Change the two cells containing 0 0 into one cell containing "ADDRESS METHOD (00b)"

HP 84) Table 8 introductory paragraph is inaccurate (Accepted, Editorial) [147]
Page 38, 4.9.6 Peripheral device addressing method

Change "ADDRESS METHOD SPECIFIC field" to "address field". The table has 2 bits more than just the ADDRESS METHOD SPECIFC field contents.

Editor's Note: The cited sentence will be deleted and the first sentence in the subclause will be modified as follows:

> If the peripheral device addressing method (see table 8) is selected, the SCSI device should …

HP 85) Revise flat address space definition (Accepted, Substantive) [148]
Page 38, 4.9.7 Flat space addressing method
See also comment Other 5) and comment EMC 3)

Change:

"All commands are allowed when the flat space addressing method is used, however, the addressed logical unit is not required to support all commands. Any command that is not supported 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 COMMAND OPERATION CODE."

to:

"If the flat space addressing method is selected the SCSI device should relay the received command to the addressed dependent logical unit. Any command that is not relayed to a dependent logical unit 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 COMMAND OPERATION CODE."

or, if this address method is considered special because it just has a LUN field:

"If the flat space addressing method is selected the SCSI device shall relay the received command to the current level logical unit specified by the LUN field."

This paragraph was just copied from SCC-2, where it did match the wording in the other addressing formats. Since it's in SAM-3, it should match the wording in the other SAM-3 paragraphs describing addressing formats.

Editor's Note: Including addition of the introductory text for table 9 needed to resolve comment HP 94), the first paragraph in the cited subclause will be replaced as follows:

~~All commands are allowed when the flat space addressing method is used, however, the addressed logical unit is not required to support all commands. Any command that is not supported 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 COMMAND OPERATION CODE.~~
The flat space addressing method (see table 9) specifies a logical unit at the current level.

The first paragraph after table 9 will be modified as follows:

The LUN field specifies ~~the address of~~ the current level logical unit. ~~to which the current level shall direct the received command.~~

HP 86) Delete INQUIRY requirement in flat address space addressing (Accepted, Substantive) [149]
Page 38, 4.9.7 Flat space addressing method

Delete "In the response to an INQUIRY command, the addressed logical unit shall return a valid SCSI peripheral device type (e.g., direct access device, streaming device)." which doesn't seem to belong here. It may have made sense in SCC-2 where it was pulled from.

HP 87) target/lun [s/b] target or lun (Accepted, Editorial) [150]
Page 38, 4.9.6 Peripheral device addressing, Table 8 and throughout the section

Change the "TARGET/LUN" field to the "TARGET OR LUN" field.

The current name sounds like it's a single value that contains a combination of target and LUN values somehow mapped into one byte.

Really, it is based on BUS IDENTIFIER:

if BUS IDENTIFIER is 00h, contains a (small) LUN value
if BUS IDENTIFIER is not 00h, contains a (mapped) target port identifier

Editor's Note: The field definition in table 8 will be changed from ~~TARGET/LUN~~ to TARGET OR LUN. All references to the field in the paragraphs following table 8 will be changed in the same way (details of these changes can be found in the response to comment HP 80).

HP 88) No fan or cache LUNs anymore (Accepted, Editorial) [151]
Page 38, 4.9.6 Peripheral device addressing

Delete "This representation of a logical unit may be used either when the SCSI device at the current level does not use hierarchical addressing for assigning LUNs to entities or when the SCSI device at the current level includes entities that need LUNs but are not attached to SCSI buses (e.g., fans, cache, and controllers)."

There is no SCSI fan or cache command set, so why would those ever need LUNs? These examples don't make sense. The rules from 4.9.3 should be merged into this section instead.

Editor's Note: The cited sentence will be modified as follows:

> This representation of a logical unit may be used either when the SCSI device at the current level does not use hierarchical addressing for assigning LUNs to entities or when the SCSI device at the current level includes entities that need LUNs but are not attached to SCSI buses ~~(e.g., fans, cache, and controllers)~~.

HP 89) Delete text (Rejected) [152]
Page 38, 4.9.6 Peripheral device addressing method

Delete "within or joined to the current level SCSI device."

Reason for Rejection: The cited text belongs with the majority of the text marked for deletion by comment HP 88) (i.e., it stays in the standard).

HP 90) Eliminate another little bit of SPI from SAM-3 (Accepted, Substantive) [153]
Page 38, 4.9.6 Peripheral device addressing method

"The SCSI target device information in the TARGET/LUN field may be a target port identifier (see 4.7.2) or it may be a mapped representation of a target port identifier, when the range of possible target port identifiers is too large to fit in the TARGET/LUN field."

There are no SCSI transport protocols covered by SAM-3 that define target port identifiers that fit into this 8 bit field, so they all have to be mapped representations. Change the sentence to:

"The TARGET field contains a mapped representation of a target port identifier."

Editor's Note: The proposed change is nonsense because there is no TARGET field in this cited text. However, the issue is real and the cited text will be modified as follows:

> The SCSI target device information in the TARGET/LUN field ~~may be a target port identifier (see 4.7.2) or it may be~~ is a mapped representation of a target port identifier, ~~when the range of possible target port identifiers is too large to fit in the TARGET/LUN field~~.

HP 91) Logical unit number zero is the same as LUN 0 (Rejected) [154]
Page 38, 4.9.6 Peripheral device addressing method

Change "the logical unit with the logical unit number zero" to "LUN 0"

Reason for Rejection: During the development of SAM-3 a lengthy CAP working group discussion concluded that LUN 0 is name given to the logical unit itself whereas logical unit number zero is the means by which LUN 0 is addressed. The cited wording is correct according to the CAP working group's determination.

HP 92) Clarify address method field and contents (Accepted, Editorial) [155]
Page 39, 4.9.7 Flat space addressing method, Table 9

Change the two cells containing 0 1 into one cell containing "ADDRESS METHOD (01b)"

HP 93) Clarify address method field and contents (Accepted, Editorial) [156]
Page 39, 4.9.8 Extended logical unit addressing, Table 10

Change the two cells containing 1 1 into one cell containing "ADDRESS METHOD (11b)"

HP 94) Table 9 introductory paragraph is inaccurate (Accepted, Editorial) [157]
Page 39, 4.9.7 Flat space addressing method

Change "ADDRESS METHOD SPECIFIC field" to "address field". The table has 2 bits more than just the ADDRESS METHOD SPECIFC field contents.

Editor's Note: The cited sentence will be deleted and the first sentence will be rewritten as shown in the response to comment HP 85).

HP 95) Table 10 introductory paragraph is inaccurate (Accepted, Editorial) [158]
Page 39, 4.9.8 Extended logical unit addressing

Change "ADDRESS METHOD SPECIFIC field" to "address field". The table has 2 bits more than just the ADDRESS METHOD SPECIFIC field contents.

Editor's Note: The cited sentence will be deleted and the first sentence will be rewritten as shown in the comment Other 5).

HP 96) Extended logical unit addressing [s/b] Extended logical unit addressing method (Rejected) [159]
Page 39, 4.9.8 Extended logical unit addressing

Change "addressing" to "addressing method" to match 4.9.5, 4.9.6, and 4.9.7

Reason for Rejection: Extended logical unit addressing is sufficiently different from the other methods that dropping 'method' from the name is a reasonable differentiator. Also, there are methods within extended logical unit addressing and too many methods could be confusing.

HP 97) Extended address method field has two more bits (Rejected) [160]
Page 39, 4.9.8 Extended logical unit addressing

Change "EXTENDED ADDRESS METHOD SPECIFIC field" to "extended address field". The length refers to 2 bits more than just the EXTENDED ADDRESS METHOD SPECIFC field contents.

Reason for Rejection: The extended address method specific field has exactly the number of bits shown in table 11.

HP 98) Clarify address method field and contents (Accepted, Editorial) [161]
Page 40, 4.9.8 Extended logical unit addressing, Table 12

Change the two cells containing 1 1 into one cell containing "ADDRESS METHOD (11b)"

HP 99) Clarify address method field and contents (Accepted, Editorial) [162]
Page 40, 4.9.8 Extended logical unit addressing, Table 13

Change the two cells containing 1 1 into one cell containing "ADDRESS METHOD (11b)"

Editor's Note: The same change will be made in table 14 and table 15.

HP 100) Duplicate comment (No Action Taken) [163]
Page 40, 4.9.8 Extended logical unit addressing, Table 12

Change the two cells containing 1 1 into one cell containing "ADDRESS METHOD (11b)"

Editor's Note: There is no discernible difference between this comment and comment HP 98).

HP 101) Duplicate comment (No Action Taken) [164]
Page 40, 4.9.8 Extended logical unit addressing, Table 12

Change the two cells containing 1 1 into one cell containing "ADDRESS METHOD (11b)"

Editor's Note: There is no discernible difference between this comment and comment HP 98).

HP 102) Code [s/b] Code(s) (Accepted, Editorial) [165]
Page 40, 4.9.8 Extended logical unit addressing, Table 16

Change "Code" to "Code(s)" to match the length column. Check the font of "Code".

HP 103) Remove MSB/LSB from fields without substructures (Rejected) [166]
Page 40, 4.9.8 Extended logical unit addressing, Table 13, 14, 15

Delete (MSB) and (LSB). There are no multibyte EXTENDED ADDRESS SPECIFIC fields defined yet. When they are defined, they may or may not have substructures and the MSB/LSB labels might be inappropriate.

Reason for Rejection: As SAM-3 is written, the presence of the MSB and LSB indications is correct. The future definition of substructures is speculative.

HP 104) Add more levels in the table of contents (Rejected) [167]
Page 41, 4.9.9 Well known logical unit addressing and 4.9.10 Logical unit not specified addressing

4.9.9 Well known logical unit addressing and 4.9.10 Logical unit not specified addressing should be subsections of 4.9.8 Extended logical unit addressing since they are both of type 11b

Reason for Rejection: Extended logical unit addressing and well known logical unit addressing are of equal importance to the other logical unit addressing mechanisms. There is no fundamental reason why the bits have to drive the subclause header levels.

HP 105) Incorrect nomenclature in structure format table (Accepted, Editorial) [168]
Page 41, 4.9.9 Well known logical unit addressing, Table 17 - Well known LU extended address format

"Well known logical unit (1h)"

The usual format for this is

"EXTENDED ADDRESS METHOD (1h)"

Editor's Note: The cited text will be modified as follows:

~~Well known logical unit~~ EXTENDED ADDRESS METHOD (1h)

HP 106) Incorrect nomenclature in structure format table (Accepted, Editorial) [169]
Page 41, 4.9.9 Logical unit not specified addressin, Table 17 - Logical unit not specified addressing

"Logical unit not specified (Fh)"

The usual format for this is

"EXTENDED ADDRESS METHOD (Fh)"

Editor's Note: The cited text will be modified as follows:

~~Logical unit not specified~~ EXTENDED ADDRESS METHOD (Fh)

HP 107) Add article 'the' (Accepted, Editorial) [170]
Page 41, 4.9.9 Well known logical unit addressing

Change "well" to "the well"

HP 108) Require two-byte addressing for all LUN values (Rejected) [171]
Page 41, 4.9.10 Logical unit not specified addressing

If an 8-byte LUN has an extended address method LUN in the second, third, or fourth position, but the LENGTH field extends past the end of the LUN, what should happen?

The only format currently defined that is not 2 bytes is the logical unit not specified format. If 2 bytes of FFFFh appears in the LUN field in any position, are the prior SCSI devices allowed to relay it and zero fill at the end? That means the last device could see an incoming LUN like FFFF0000_00000000.

It seems like that should be treated as a logical unit not specified LUN. So, table 18 should just show a 2-byte addressing field instead of an 8-byte field. If the extended addressing method is FFh and the length is 11b, it shall be treated as logical unit not specified, regardless of the remaining bytes in the LUN.

Perhaps even treat any multi-byte extended address format that exceeds past the end of of the LUN as a logical unit not specified.

Reason for Rejection: The comment appears to be attempting to legislate T10 committee behavior in a standard. The world is sufficiently complex that eliminating committee options is not appropriate. As with many other things about SCSI, it continues to be necessary to depend on the standards development process to do the right thing.

HP 109) Remove 'method' (Accepted, Editorial) [172]
Page 41, 4.9.10 Logical unit not specified addressing, Table 18
See also comment HP 74)

Delete "method" from the table 18 header. It's not in table 17 or preceding tables.

HP 110) Table 17 introductory paragraph is inaccurate (Accepted, Editorial) [173]
Page 41, 4.9.9 Well known logical unit addressing

Change "EXTENDED ADDRESS METHOD SPECIFIC field" to "address field". The table has 2 bits more than just the EXTENDED ADDRESS METHOD SPECIFC field contents.

Editor's Note: This comment will be resolved as described in the response to comment HP 74).

HP 111) Clarify address method field and contents (Accepted, Editorial) [174]
Page 41, 4.9.9 Well known logical unit addressing, Table 17

Change the two cells containing 1 1 into one cell containing "ADDRESS METHOD (11b)"

HP 112) Clarify address method field and contents (Accepted, Editorial) [175]
Page 41, 4.9.10 Logical unit not specified addressing, Table 18

Change the two cells containing 1 1 into one cell containing "ADDRESS METHOD (11b)"

HP 113) invalid [s/b] incorrect (Accepted, Editorial) [176]
Page 42, 4.10 Well known logical units

Change invalid to incorrect

HP 114) Well known logical unit names not fully correct (Accepted, Substantive) [177]
Page 42, 4.10 Well known logical units

Change "A SCSI target device may have more than one SCSI target device name if the SCSI target device supports multiple SCSI transport protocols." into a NOTE, since this is not the place for such a rule. It's really a note for item b) explaining why target device names is plural.

Editor's Note: Including changes described in the response to comment Veritas 22), the cited text will be modified as follows:

b) Shall identify themselves using the SCSI target device names or SCSI target/initiator device names of the SCSI target device or SCSI target/initiator device in which they are contained.

Note n - A SCSI target device may have ~~more than one~~ multiple SCSI target device names ~~name~~ if the SCSI target device supports multiple SCSI transport protocols (see 4.7.2). A SCSI target/initiator device may have multiple SCSI target/initiator device names if the SCSI target/initiator device supports multiple SCSI transport protocols (see 4.7.3).

HP 115) Add 'task priority' (Accepted, Substantive) [178]
Page 42, 4.11 Tasks and task tags

Add c) Optionally, a task priority (see 8.7)

HP 116) Define when a nexus is created and destroyed (Rejected) [179]
Page 43, 4.12 The nexus object

Define when a nexus is created and destroyed. Different for I_T, I_T_L, and I_T_L_Q. I_T is protocol specific. I_T_L_Q is pretty well defined.

SAM-2 HP comment (see 02-155) was:

This does not describe when each of the nexus objects comes into existence, and when it is destroyed (issue raised in 02-078r1).

The following is suggested - I_T nexus object is instantiated upon the first successful instantiation of an I_T_L_x nexus object as indicated by the SCSI protocol layer interactions. The I_T nexus object is destroyed on receiving the "I_T Nexus loss" notification from the SCSI protocol (Rob Elliott's 02-134r0). The I_T_L nexus object is instantiated when the first valid task to the LU is received and accepted (i.e. the task enters the Dormant state) and destroyed when the corresponding I_T nexus object is destroyed. The I_T_L_Q nexus object is instantiated when the corresponding I_T_L nexus object is already instantiated (thus exists) and when a task with a tag Q is issued on the nexus. The I_T_L_Q nexus object is destroyed on the conclusion of the said task, or when the I_T_L nexus object is destroyed.

Editor's Note: It is very difficult to describe when an I_T nexus is instantiated in a manner that is compatible with both parallel SCSI and Fibre Channel. It may be possible to address this issue in SAM-3.

Reason for Rejection: The proposed definitions are not sufficient. Developing the necessary definitions requires more consideration than the Letter Ballot resolution process can provide. If proposals are made for changes in SAM-4, they will considered and potentially approved. This does not represent a commitment by T10 regarding whether or not such proposals will be made.

HP 117) Eliminate another little bit of SPI from SAM-3 (Unresolved) [180]
Page 44, 4.13.2 SCSI devices with multiple ports

Delete "Similarly, a single SCSI target port or SCSI initiator port may respond to multiple SCSI identifiers, with the model for such a SCSI port being one of multiple SCSI target ports or SCSI initiator ports (i.e., one for each SCSI identifier)."

This is not true. The obsolete "SCSI identifier" term now means SCSI port identifier. A port might have multiple association=1 identifiers in VPD data, but it isn't treated as multiple ports because of that.

HP 118) Match LU names not port names in multi-path discovery (Accepted, Substantive) [181]
Page 45, 4.13.3 Multiple port target SCSI device structure

Change "SCSI port name or identifier values" to "logical unit names". The port names/identifiers don't help discovery of the same logical unit through multiple target ports; they help discover the same port through multiple logical units. This sentence is backwards. (see similar comment in 4.14.5)

Editor's Note: This comment will be resolved as described in the response to comment Sun 1).

HP 119) Split one sentence into two (Rejected) [182]
Page 45, 4.13.3 Multiple port target SCSI device structure

Change "ports, however, communications" to "ports. However, communications"

Reason for Rejection: The sentence is not a run-on sentence and the two ideas being presented are more closely tied together if they are in one sentence.

HP 120) target SCSI device [s/b] SCSI target device (Accepted, Editorial) [183]
Page 45, 4.13.3 Multiple port target SCSI device structure

Change "target SCSI device" to "SCSI target device"

HP 121) SCSI target ports do not accept all commands for LUN 0 (Rejected) [184]
Page 45, 4.13.3 Multiple port target SCSI device structure
See also comment HP 133)

"Each SCSI target port shall accept commands sent to LUN 0 and the task router shall route them to a device server for processing." is not completely true. If LUN 0 has PQ=001b, only REQUEST SENSE, INQUIRY, and REPORT LUNS must be accepted. The rest can result in CC/ILLEGAL REQUEST/LOGICAL UNIT NOT SUPPORTED"

Reason for Rejection: The handling of CHECK CONDITION status is ambiguous and intentionally so, because it allows useful flexibility in implementations. The entity that generates CHECK CONDITION status when the peripheral qualifier is 001b is defined only as the SCSI target device. The entity might be the task router or it might be a 'default' device server.

This intentional ambiguity allows ample room for the cited text to be correct.

HP 122) Logical unit number zero is the same as LUN 0 (Rejected) [185]
Page 45, 4.13.3 Multiple port target SCSI device structure
See also comment IBM 26)

Change "the logical unit number zero" to "LUN 0"

Reason for Rejection: During the development of SAM-3 a lengthy CAP working group discussion concluded that LUN 0 is name given to the logical unit itself whereas logical unit number zero is the means by which LUN 0 is addressed. The cited wording is correct according to the CAP working group’s determination.

HP 123) Link 'inactive' to the asymmetric logical unit access states (Rejected) [186]
Page 45, 4.13.3 Multiple port target SCSI device structure (MB)

Link 'inactive' to the asymmetric logical unit access states defined in SPC3, 5.8.4.

Reason for Rejection: This usage of 'inactive' is not meant to be construed as narrowly as the asymmetric logical unit access states.

HP 124) initiator SCSI device [s/b] SCSI initiator device (Accepted, Editorial) [187]
Page 46, 4.13.4 Multiple port initiator SCSI device structure

Change "initiator SCSI device" to "SCSI initiator device"

HP 125) Add detail to description of reservations handling (Rejected) [188]
Page 46, 4.13.4 Multiple port initiator SCSI device structure

Change "as if no such mechanisms exist" to "on a port, not device, basis"

Reason for Rejection: SPC-3 is a better place to get into details of reservations operation than SAM-3. If one views the 'shall' in the cited example as a generic requirement (see 1.2), then the existing text is appropriate for SAM-3, places a generic requirement on SPC-3 (that thankfully SPC-3 meets), and does not dive into implementation requirements for reservations (a good thing since that is the province of SPC-3).

HP 126) Application clients may have access to all initiator ports (Accepted, Substantive) [189]
Page 46, 4.13.4 Multiple port initiator SCSI device structure, Figure 19

The application clients should be shown together, all having access to any initiator port they select.

Execute Command and the Send SCSI Command protocol service each take an I_T_L_Q nexus argument, which implies that any application client can select any initiator port (any I) to service its request. If they couldn't, it'd be a T_L_Q argument. (this comment is appears for Figure 20, 22, and 23.)

Editor's Note: This figure will be modified to look more like figure 18.

HP 127) Match LU names not port names in multi-path discovery (Accepted, Substantive) [190]
Page 47, 4.13.5 Multiple target/initiator ports

Change "SCSI port name or identifier values" to "logical unit names". The port names/identifiers don't help discovery of the same logical unit through multiple target ports; they help discover the same port through multiple logical units. This sentence is backwards. (see similar comment in 4.13.3)

Editor's Note: This comment will be resolved as described in the response to comment Sun 1).

HP 128) target/initiator SCSI device [s/b] SCSI target/initiator device (Accepted, Editorial) [191]
Page 47, 4.13.5 Multiple port target/initiator SCSI device structure

Change "target/initiator SCSI device" to "SCSI target/initiator device"

HP 129) Clarify target/initiator device ports (Accepted, Substantive) [192]
Page 47, 4.13.5 Multiple port target/initiator SCSI device structure

After "Figure 20 shows the structure of a SCSI target/initiator device with multiple SCSI target/initiator ports." add "A SCSI target/initiator device may also contain SCSI target ports and SCSI initiator ports." so this picture doesn't imply that only target/initiator ports are allowed

HP 130) Use 'a' or 'a single' consistently (Accepted, Editorial) [193]
Page 47, 4.13.5 Multiple port target/initiator SCSI device structure

Delete "a" or change to "a single"

Editor's Note: The cited sentence will be modified as follows:

Each logical unit contains a ~~single~~ task manager and a device server.

HP 131) Application clients may have access to all initiator ports (Accepted, Substantive) [194]
Page 47, 4.13.5 Multiple port target/initiator SCSI device structure, Figure 20

Show the application clients with access to all initiator ports

Editor's Note: This figure will be modified to look more like figure 18.

HP 132) Logical unit number zero is the same as LUN 0 (Rejected) [195]
Page 47, 4.13.5 Multiple port target/initiator SCSI device structure
See also comment IBM 28)

Change "the logical unit number zero" to "LUN 0"

Reason for Rejection: During the development of SAM-3 a lengthy CAP working group discussion concluded that LUN 0 is name given to the logical unit itself whereas logical unit number zero is the means by which LUN 0 is addressed. The cited wording is correct according to the CAP working group's determination.

HP 133) SCSI target ports do not accept all commands for LUN 0 (Rejected) [196]
Page 47, 4.13.5 Multiple port target/initiator SCSI device structure

"Each SCSI target/ initiator port shall accept commands sent to LUN 0 and the task router shall route them to a device server for processing." See comment in 4.13.3 on the same sentence.

Reason for Rejection: See response to comment HP 121).

HP 134) Link 'inactive' to the asymmetric logical unit access states (Rejected) [197]
Page 47, 4.13.5 Multiple port target/initiator SCSI device structure (MB)

Link 'inactive' to the asymmetric logical unit access states defined in SPC3, 5.8.4.

Reason for Rejection: This usage of 'inactive' is not meant to be construed as narrowly as the asymmetric logical unit access states.

HP 135) domains [s/b] SCSI domains (Accepted, Editorial) [198]
Page 48, 4.13.6 SCSI initiator device view of a multiple port SCSI target device

Change domains to SCSI domains

HP 136) Use different service delivery subsystem graphic for multi-port examples (Unresolved) [199]
Page 48, 4.13.6 SCSI initiator device view of a multiple port SCSI target device, Figure 21

This almost implies that the SCSI domain contains 4 service delivery subsystems. It really contains 1. A would be better.

HP 137) Figure 21 shows only one SCSI target device (Accepted, Editorial) [200]
Page 48, 4.13.6 SCSI initiator device view of a multiple port SCSI target device

Since this is describing figure 21 where there is only one SCSI target device, it should be singular.

The "access via target port identifier" concept is confusing; use the i.e. instead. change "…the SCSI target devices are accessible via multiple target port identifiers (i.e., SCSI target ports) and map the configuration of the SCSI target devices." to "…the SCSI target device are accessible via multiple SCSI target ports and map the configuration of the SCSI target device."

Editor's Note: The cited sentence will be modified as follows (I think this is exactly the changes being requested):

> Using the INQUIRY command Device Identification VPD page (see SPC-3), the application clients in each of the SCSI initiator devices have the ability to discover the logical units in the SCSI target device ~~devices~~ are accessible via multiple ~~target port identifiers (i.e.,~~ SCSI target ports~~)~~ and map the configuration of the SCSI target device ~~devices~~.

HP 138) Use different service delivery subsystem graphic for multi-port examples (Unresolved) [201]

Page 49, 4.13.6 SCSI initiator device view of a multiple port SCSI target device, Figure 22

Show two clouds. It looks like each domain has two service delivery subsystems.

HP 139) Clarify SCSI ports involved in figure 22 and figure 23 introduction (Accepted, Editorial) [202]
Page 49, 4.13.6 SCSI initiator device view of a multiple port SCSI target device

Change "multiple ports to "multiple SCSI initiator ports and multiple SCSI target ports"

HP 140) Use different service delivery subsystem graphic for multi-port examples (Unresolved) [203]

Page 49, 4.13.6 SCSI initiator device view of a multiple port SCSI target device, Figure 23

Show a cloud so it doesn't look like the SCSI domain has 4 service delivery subsystems.

HP 141) Application clients may have access to all initiator ports (Accepted, Substantive) [204]
Page 49, 4.13.6 SCSI initiator device view of a multiple port SCSI target device, Figure 23

Show the application clients with access to all initiator ports

Editor's Note: This figure will be modified to look more like figure 18.

HP 142) Application clients may have access to all initiator ports (Accepted, Substantive) [205]
Page 49, 4.13.6 SCSI initiator device view of a multiple port SCSI target device, Figure 22

Show the application clients with access to all initiator ports

Editor's Note: This figure will be modified to look more like figure 18.

HP 143) Initiators can distinguish multiple SCSI target ports (Accepted, Substantive) [206]
Page 50, 4.13.5 Multiple port target/initiator SCSI device structure

"The SCSI initiator ports in the SCSI initiator devices (figure 21) or SCSI initiator device (figure 22 and figure 23) are unable to distinguish the multiple SCSI target ports from individual SCSI target ports in two separate SCSI target devices."

Not true.

VPD page 83h logical unit names provide this info, since a logical unit must be in only one target device. The target device name directly provides this information, as well. The first sentence hints at application client knowledge.

Since the application client is part of the device, the second sentence is untrue. It might be true that the SCSI initiator port (in some protocols) cannot make a distinction, but does that matter? Delete the sentence.

Editor's Note: Reasoning wrong. Result right.

HP 144) Restrict dependent logical units to SCC and MSC (Rejected) [207]
Page 51, 4.14 Model for dependent logical units

This is only used by Controller (SCC) devices today (and possibly Bridge (MSC) devices in the future). Add a statement to that effect.

Reason for Rejection: The proposed changes unnecessarily constrains implementations and creates a "hidden" requirement that may not get updated as the development of other SCSI standards advances.

HP 145) Logical unit number zero is the same as LUN 0 (Rejected) [208]
Page 51, 4.14 Model for dependent logical units

Change "the logical unit number zero" to "LUN 0"

Reason for Rejection: During the development of SAM-3 a lengthy CAP working group discussion concluded that LUN 0 is name given to the logical unit itself whereas logical unit number zero is the means by which LUN 0 is addressed. The cited wording is correct according to the CAP working group's determination.

HP 146) Close parenthesis located wrong in e.g. (Accepted, Editorial) [209]
Page 60, 5.1 Execute Command procedure call (CM)

"(e.g., sense data, to determine the state of the buffer contents)." Closing ")" should be after "sense data" not at end of sentence.

HP 147) Specify additional sense code (Accepted, Substantive) [210]
Page 61, 5.2 CDB

After "sense key of ILLEGAL REQUEST" add "and an additional sense code of INVALID FIELD IN CDB"

Editor's Note: The proposed change would result in two 'and's in one sentence. The cited sentence will be modified as follows:

> If the LINK bit is set to one and the logical unit does not support linked commands, the ~~The~~ logical unit shall complete the command with a status of CHECK CONDITION, ~~and~~ a sense key of ILLEGAL REQUEST, and an additional sense code of INVALID FIELD IN CDB. ~~if the LINK bit is set to one and the logical unit does not support linked commands.~~

HP 148) 'media information' definition (Accepted, Substantive) [211]
Page 61, 5.2 CDB (CM)
See also comment Brocade 2) and comment IBM 6)

"media information." Presumably more than just "media information" should not change; e.g. mode parameters, log parameters, etc. Something along the lines of "The commanded action shall not be carried out" (better words needed!)

Editor's Note: This comment will be resolved as described in the response to comment Brocade 2)

HP 149) Insert paragraph break (Accepted, Editorial) [212]
Page 62, 5.2 CDB

Add a paragraph break before "If the" so BUSY looks like TASK SET FULL and RESERVATION CONFLICT.

HP 150) 'an unit' [s/b] 'a unit' (Accepted, Editorial) [213]
Page 62, 5.3.1 Status codes and global

Change "an unit" to "a unit" http://www.stclaresoxfordonline.fsworld.co.uk/pages/langprac/articles-indef.htm shows "an university", which has the same sound, is incorrect.

Editor's Note: 'an unit' will be changed to 'a unit' throughout the standard.

HP 151) ACA ACTIVE status definition not complete (Accepted, Substantive) [214]
Page 63, 5.3.1 Status codes

The return of ACA ACTIVE needs to exempt PR OUT with a PREEMPT AND ABORT service action (as described in 5.9.2.3.1):

a PERSISTENT RESERVE OUT command with a PREEMPT AND ABORT service action (see SPC-3) while an ACA condition is established when the command is received from a SCSI initiator port other than the faulted initiator port.

Editor's Note: This comment will be resolved as described in the response to comment Sun 2).

HP 152) Eliminate a vestige of element reservations (Accepted, Substantive) [215]
Page 63, 5.2 CDB

Delete "or an element of a logical unit" since element reservations are now obsolete in SPC-3

HP 153) Period in the wrong place (Accepted, Editorial) [216]
Page 63, 5.2 CDB

Delete the period in "SPC-3)."

Editor's Note: The cited sentence will be modified as follows:

(See the PERSISTENT RESERVE OUT command and PERSISTENT RESERVE IN command in SPC-3.)~~.~~

HP 154) Eliminate redundant requirement for TASK SET FULL support (Accepted, Substantive) [217]
Page 63, 5.3.1 Status codes (CM), TASK SET FULL

This status shall be implemented by all logical units. Seems strange that this is the only one explicitly called out as "shall be implemented by all logical units" - that must be true for others too (GOOD, CHECK)?

Editor's Note: The cited sentence will be removed, to whit:

TASK SET FULL. ~~This status shall be implemented by all logical units.~~

HP 155) More unit attentions for status precedence (Rejected) [218]
Page 64, 5.3.2 Status precedence (CM)

There are other unit attention conditions which would seem pretty important; I'm thinking of:

LVD Transceivers changed state
Microcode has been changed

Are these lower precedence because they're not listed explicitly, or are they overlooked?

Reason for Rejection: SAM-3 does not cover SPI-x devices. See SAM-2. Microcode has changed is not a reset-type unit attention condition and therefore does not belong in the list. Everything not listed is of lower precedence.

HP 156) What is any level of status precedence? (No Action Taken) [219]
Page 64, 5.3.2 Status precedence (CM)

A device server may report the following status codes with any level of precedence:

It's not clear to me how this paragraph relates to the preceding one. "any level of precedence" could mean:

"after the above highest-precedence conditions"

OR

"wherever you like; could take precedence over the above highest-precedence conditions"

Is it deliberately vague, or not explicit by accident?

Editor's Note: The existing text is not viewed as vague. "Any level of precedence" means "any level of precedence" without regard for any other statements about precedence anywhere (e.g., if a device lacks the resources to accept a command, it may return BUSY status even if one of the unit attention conditions named earlier in the subclause needs to be reported).

HP 157) Require all transport protocols to define all command-related services (Accepted, Substantive) [220]

Page 65, 5.4.2 Execute Command request/confirmation SCSI transport protocol services

Delete "Support for the SCSI Command Received indication and Send Command Complete response by a SCSI transport protocol standard is optional."

Why wouldn't they be mandatory? The only SCSI implementation that might not have them would be a software stack. In that case, it's not a "SCSI transport protocol".

Editor's Note: The cited paragraph will be modified as follows:

> All SCSI transport protocol standards shall define the SCSI transport protocol specific requirements for implementing the **Send SCSI Command** ~~SCSI transport protocol service~~ request, **SCSI Command Received** indication, **Send Command Complete** response, and the **Command Complete Received** confirmation SCSI transport protocol services. Support for the **SCSI Command Received** indication and **Send Command Complete** response by a SCSI transport protocol standard is optional. All SCSI I/O systems shall implement these SCSI transport protocols as defined in the applicable SCSI transport protocol specification.
>
> All SCSI initiator devices shall implement the **Send SCSI Command** request and the **Command Complete Received** confirmation SCSI transport protocol services as defined in the applicable SCSI transport protocol standards. All SCSI target devices shall implement the **SCSI Command Received** indication and the **Send Command Complete** response SCSI transport protocol services as defined in the applicable SCSI transport protocol standards.

HP 158) List SCSI transport protocol specifications (Rejected) [221]

Page 65, 5.4.2 Execute Command (JL)

"All SCSI I/O systems shall implement these SCSI transport protocols as defined in the applicable SCSI transport protocol specification." should these applicable specifications be listed?

Reason for Rejection: The list of SCSI transport protocols changes over time. Any attempt to specify such a list is prone to errors. Besides, the current best effort list can be found in 1.3.

HP 159) Shorten sentence (Rejected) [222]

Page 65, 5.4.2 Execute Command (JL)

shorten sentence to make easier to read?

Reason for Rejection: No. The sentence says what needs to be said.

HP 160) Parameters optional (Rejected) [223]

Page 65, 5.4.2 Execute Command (JL)

Data-In Buffer Size:
Data-Out Buffer:
Data-Out Buffer Size:
Command Reference Number (CRN):
Task Priority:
First Burst Enabled:

Should these also be described as 'if present' as is in Send Command Complete (p66) for Sense Data?

Reason for Rejection: The comment proposes a view of the architecture that is too algorithmic. The clarity of the model is not served by continuously repeating that some arguments are optional, when the use of square brackets

in the function prototypes clearly identifies that fact. In some cases (such as the cited Sense Data), the presence or absence of an optional argument has specific meaning. When that is the case, mentioning the optional nature of the argument is necessary to convey the intent of the model.

HP 161) Definitions do not match prototype (Accepted, Editorial) [224]
Page 66, 5.4.2 Execute Command (JL)

Status & Sense Data Length incorrectly ordered to prototype.

Editor's Note: Sense Data Length will be moved to before Status.

HP 162) Parameters optional (Rejected) [225]
Page 66, 5.4.2 Execute Command (JL)
Command Reference Number (CRN):
Task Priority:
First Burst Enabled:

Should these also be described as 'if present' as is in Send Command Complete (p66) for Sense Data?

Reason for Rejection: The comment proposes a view of the architecture that is too algorithmic. The clarity of the model is not served by continuously repeating that some arguments are optional, when the use of square brackets in the function prototypes clearly identifies that fact. In some cases (such as the cited Sense Data), the presence or absence of an optional argument has specific meaning. When that is the case, mentioning the optional nature of the argument is necessary to convey the intent of the model.

HP 163) Parameters optional (Rejected) [226]
Page 66, 5.4.2 Execute Command (JL)
Sense Data:
Sense Data Length:

Should Send Data Length also be described as 'if present' like Sense Data?

Reason for Rejection: The comment proposes a view of the architecture that is too algorithmic. The clarity of the model is not served by continuously repeating that some arguments are optional, when the use of square brackets in the function prototypes clearly identifies that fact. In some cases (such as the cited Sense Data), the presence or absence of an optional argument has specific meaning. When that is the case, mentioning the optional nature of the argument is necessary to convey the intent of the model.

HP 164) Two buffer figures, not one (Rejected) [227]
Page 67, 5.4.3.1 Introduction, Figure 32 - Model for Data-In and Data-Out data transfers

To avoid any implication that the Data-In Buffer and Data-Out Buffer might overlap, split this into two parts, one for Data-In Buffer and one for the Data-Out Buffer. Replace "Application Client Buffer Offset & Size" in each of those parts with Data-In Buffer Offset & Size and Data-Out Buffer Offset & Size.

HP 165) Byte Count Requested by Device Server [s/b] Request Byte Count (Rejected) [228]
Page 67, 5.4.3.1 Introduction, Figure 32 - Model for Data-In and Data-Out data transfers

Change "Byte Count Requested by Device Server" to "Request Byte Count" to match the name used later

Reason for Rejection: The proposed change will create more confusion than it solves. The changes made in response to comments HP 168), HP 171), and HP 172) are sufficient to eliminate any confusion.

HP 166) Editor's Note 1 – Eliminate byte alignment on buffer offsets (Accepted, Substantive) [229]
Page 68, 5.4.3.1 Introduction, Editor's Note 1
See also comments ENDL 1), IBM 37), Maxtor 15), and TI 1),

"All SCSI transport protocol standards shall (should) define support for a resolution of one byte for the above arguments. A SCSI initiator device shall (should) support a resolution of one byte. A SCSI target device may support any resolution."

Proposal 03-002 had proposed changing each shall to should. However, every transport protocol is required to support one byte resolution for at least the last data frame of a command transferred in each direction. It is common for transport protocols to place restrictions on intermediate frames, which might correspond to Send Data In or Receive Data Out procedure calls, which should also be recognized by the text.

Change to: All SCSI transport protocol standards shall define support for a resolution of one byte for the Data-In Buffer Size argument and the Data-Out Buffer Size argument.

SCSI transport protocol standards may define restrictions on the resolution of the Data-In Buffer Offset argument and the Data-Out Buffer Offset. [e.g. SAS requires they always be 4-byte aligned] SCSI transport protocol standards may define restrictions on the resolution of the Request Byte count argument for all but the last call to Send Data-In and all but the last call to Receive Data-Out for a command. They shall support a resolution of one byte for the last call to Send Data-In and the last call to Receive Data Out for a command.

Editor's Note: The cited text will be modified as follows:

> All SCSI transport protocol standards shall define support for a resolution of one byte for the ~~above arguments. A SCSI initiator device shall support a resolution of one byte. A SCSI target device may support any resolution.~~ Application Client Buffer Size argument.
>
> SCSI transport protocol standards may define restrictions on the resolution of the Application Client Buffer Offset argument. SCSI transport protocol standards may define restrictions on the resolution of the Request Byte count argument for any call to **Send Data-In** or any call to **Receive Data-Out** that does not transfer the last byte of the Application Client Buffer.

HP 167) Byte Count Requested by Device Server [s/b] Request Byte Count (Rejected) [230]
Page 68, 5.4.3.1 Introduction

Change "Byte Count Requested by Device Server" to "Request Byte Count" two times on this page. The latter is the name used in the data transfer protocol services.

Reason for Rejection: The proposed change will create more confusion than it solves. The changes made in response to comments HP 168), HP 171), and HP 172) are sufficient to eliminate any confusion.

HP 168) Application Client Buffer Size definition not clear (Accepted, Editorial) [231]
Page 68, 5.4.3.1 Introduction, "Application Client Buffer Size"

This is not an argument to a data transfer protocol service; it is used in Send SCSI Command/SCSI Command Received instead.

It has two names there - Data In Buffer Size and Data-Out Buffer Size - since bidirectional commands use both buffers.

Change "Application Client Buffer Size" to "Data-In Buffer Size or Data-Out Buffer size"

Change "The total number of bytes in the application client's buffer (Data-In or Data-Out)." to "The total number of bytes in the application client's buffer (Data-In or Data-Out), as specified by the application client in the Send SCSI Command protocol service and indicated to the device server by the SCSI Command Received protocol service"

Editor's Note: The following change will be made (not to the cited text) to clarify the dual meaning of Application Client Buffer Size:

> The movement of data between the application client and device server is controlled by the following arguments:
>
> **Application Client Buffer Size:** The total number of bytes in the application client's buffer ~~(Data-In or Data-Out).~~ (i.e., equivalent to **Data-In Buffer Size** for the Data-In Buffer or equivalent to **Data-Out Buffer Size** for the Data-Out Buffer).

HP 169) Not Application Client Buffer Size (Rejected) [232]
Page 68, 5.4.3.1 Introduction

Change "the combination of Application Client Buffer Size minus the Application Client Buffer Offset." to "the combination of Data-In Buffer Size or Data-Out Buffer Size minus the Application Client Buffer Offset."

Reason for Rejection: See response to comment HP 164).

HP 170) Just say 'increasing' (Accepted, Editorial) [233]
Page 68, 5.4.3.1 Introduction (JL)

'Monotonically increasing' - use of obscure word? Monotonic - adj. Math. (of a function or quantity) varying in such a way that it either never decreases or never increases. Can we just say, 'increasing'?

HP 171) Clarify Application Client Buffer Offset (Accepted, Editorial) [234]
Page 69, 5.4.3.2 Data-In delivery service

Change "Application Client Buffer Offset" to "Data-In Buffer Offset" twice in this section so Data-In and Data-Out transfers can be concurrent and are not confused

Editor's Note: The cited text will be modified as follows:

> **Application Client Buffer Offset:** Offset in bytes from the beginning of the application client's buffer (i.e., the Data-In Buffer) to the first byte of transferred data.

HP 172) Clarify Application Client Buffer Offset (Accepted, Editorial) [235]
Page 69, 5.4.3.3 Data-Out delivery service

Change "Application Client Buffer Offset" to "Data-Out Buffer Offset" twice in this section so Data-In and Data-Out transfers can be concurrent and are not confused

Editor's Note: The cited text will be modified as follows:

> **Application Client Buffer Offset:** Offset in bytes from the beginning of the application client's buffer (i.e., the Data-Out Buffer) to the first byte of transferred data.

HP 173) SERVICE DELIVERY OR TARGET FAILURE does not guarantee task ended (Accepted, Substantive) [236]
Page 71, 5.5 Task and command lifetimes (MB)

Clarify the reference to 'task'. To which task does this sentence refer, the device server task or the application client task? Since the sentence contains 'shall', I initially read 'task' as the device server task. However a service response of SERVICE DELIVERY OR TARGET FAILURE may mean that the device server did not create a task and hence cannot end it. This inconsistency makes me wonder if the sentence refers to the application client task.

Editor's Note: Item c will be removed from the cited list. The following will be inserted immediately below the cited list:

> If a service response of SERVICE DELIVERY OR TARGET FAILURE is received for a command the application client shall maintain an application client task to interact with the task until the application client has determined (e.g., by completion of an ABORT TASK task management function) that the task is no longer known to the device server.

HP 174) shall be ended [s/b] shall end (Rejected) [237]
Page 71, 5.5 Task and command lifetimes (MB)

Terrible grammar. Change to 'shall end.'

Reason for Rejection: The reason that this change cannot be made is that 'ended' is a term of reference for task management. The good news is that the cited sentence has been completely replaced in response to comment HP 173).

HP 175) Demark aside statement (Accepted, Editorial) [238]
Page 73, 5.7.1 Mechanisms that cause tasks to be aborted

Delete "with or without establishing an ACA condition" or put in parenthesis. Since both cases are covered, it's just a parenthetical aside rather than part of the rule itself.

Editor's Note: The cited sentence will be modified as follows:

> A command completes with a CHECK CONDITION status, with or without establishing an ACA condition, and the QERR field was set to 01b and the TST field was set to 000b in the Control mode page (see SPC-3);

HP 176) Unit attention is a response (Rejected) [239]
Page 73, 5.7.3 When … aborts task from another

"If the TAS bit is set to zero, the method of notification shall be an unit attention condition."

This appears to contradict SPC-3 clause 7.4.6 TAS bit, which says "A task aborted status (TAS) bit set to zero specifies that aborted tasks shall be terminated by the device server without any response to the application client."

"without any response" seems to preclude a unit attention. Change SPC-3 to "the device server shall abort tasks without returning status." or otherwise make SAM-3 and SPC-3 more consistent.

Reason for Rejection: The comment neglects the very specific meaning of 'response'. A 'response' can only be make to a request. The cited SPC-3 statement is correct, because the tasks are aborted any 'response', which include status among other things. Establishment of a unit attention condition is not a response. The unit attention condition becomes a response only when it is turned into a CHECK CONDITION status sent in response to a request. However, establishment of a unit attention condition is a means of notification.

HP 177) Enumerate unit attention conditions for aborted tasks (Accepted, Substantive) [240]
Page 73, 5.7.3 When … aborts task from other ports

"The additional sense code set for the unit attention condition depends on the action that caused the task(s) to be aborted."

Enumerate the additional sense codes for each of the reasons in 5.7.1.

a) CLEAR TASK SET yields COMMANDS CLEARED BY ANOTHER INITIATOR
b) CC QErr=1 yields COMMANDS CLEARED BY ANOTHER INITIATOR
c) PR OUT/PREEMPT AND ABORT yields COMMANDS CLEARED BY ANOTHER INITIATOR
d) LOGICAL UNIT RESET yields BUS DEVICE RESET FUNCTION OCCURRED (see 6.2)

Editor's Note: The cited 5.7.1 a,b,c list will be changed to a table. A column with the heading "unit attention additional sense code, if any, see 5.7.3" will be added, with the correct additional sense codes in the correct rows. A reference to the table will be added to 7.5.3.

HP 178) Delete 'the' (Accepted, Editorial) [241]
Page 79, 5.9.2.3.1 Commands permitted from non-faulted… (MD), Note 8

Delete "the"

HP 179) an [s/b] a (Accepted, Editorial) [242]
Page 81, 5.9.4 Incorrect logical unit selection

Change an to a

HP 180) Specify who terminates the command (Rejected) [243]
Page 81, 5.9.4 Incorrect logical unit selection

After "terminated" add "by the SCSI target device"

Reason for Rejection: Nothing is added by the proposed change, except five words.

HP 181) Delete introductory sentence (Rejected) [244]
Page 81, 5.9.4 Incorrect logical unit selection

Delete the redundant "The SCSI target device's response to an incorrect logical unit number is described in this subclause."

Reason for Rejection: The sentence serves to introduce the sentences that follow it.

HP 182) Incorrect Logical Unit Selection and REPORT LUNS (Accepted, Substantive) [245]
Page 81, 5.9.4 Incorrect logical unit selection

"Any command except REQUEST SENSE or INQUIRY:" is not complete. REPORT LUNS has some special rules too. LUN 0 is supposed to support REPORT LUNS even if its PQ is 001b.

Editor's Note: Including the changes described in comment Brocade 15), the cited text will be modified as follows:

In response to ~~an~~ a REQUEST SENSE command, a REPORT LUNS command, or an INQUIRY command the SCSI target device shall respond as defined in SPC-3.

Any command except REQUEST SENSE, REPORT LUNS, or INQUIRY:

HP 183) Match Incorrect Logical Unit text to Peripheral Qualifier text (Accepted, Editorial) [246]
Page 81, 5.9.4 Incorrect logical unit selection

Please tie the phrases like "does not support the logical unit" in all the A) B) entries to the PQ values returned by INQUIRY for that logical unit.

Either: A) The logical unit returns a PQ of 011b in the Standard INQUIRY data (see SPC-3) (i.e., the SCSI target device does not support the logical unit)

or

A) The SCSI target device does not support the logical unit (i.e., the logical unit returns a PQ of 011b in the Standard INQUIRY data (see SPC-3);

Editor's Note: Including the changes made by comment IBM 47), the cited text will be modified as follows:

a) Shall be terminated with CHECK CONDITION status, with the sense key set to ILLEGAL REQUEST, and with the additional sense code set to LOGICAL UNIT NOT SUPPORTED, if:
   A) The SCSI target device ~~does not support~~ is not capable of supporting the logical unit (e.g., some SCSI target devices support only one peripheral device); or
   B) The SCSI target device supports the logical unit, but the peripheral device is not currently ~~attached~~ connected to the SCSI target device;

or

b) Is responded to in a vendor specific manner, if:
   A) The SCSI target device supports the logical unit and the peripheral device is ~~attached~~ connected, but the peripheral device is not operational; or
   B) The SCSI target device supports the logical unit but is incapable of determining if the peripheral device is ~~attached~~ connected or is not operational ~~when~~ because the peripheral device is not ready.

HP 184) Commands other than the overlapped command receive CHECK CONDITION status (Rejected) [247]

Page 81, 5.9.3 Overlapped commands

"that command" is not the command that was just received with the overlapping tag, nor is it the command/task already using that tag.

Change to "for that I_T_L_Q nexus."

Reason for Rejection: In fact, 'that command' is the command that was received with the overlapping tag. All other tasks are aborted without response to the application client. Comment Maxtor 20) addresses the need for a change in the cited text. Comment Sun 3) addresses the need for a change in the subclause describing task lifetimes.

HP 185) SPI hold over (Accepted, Editorial) [248]

Page 81, 5.9.3 Overlapped command

Delete "10 Some logical units may not detect an overlapped command until after the CDB has been received."

This is a remnant of parallel SCSI where the tag was sent in a discrete step before the CDB was sent. In modern protocols it's in the same frame as the CDB.

HP 186) Scope of overlapped commands processing is limited to logical unit (No Action Taken) [249]

Page 81, 5.9.3 Overlapped commands

"A task manager that detects an overlapped command…"

Both FCP and SAS define task tags that have an I_T scope, not an I_T_L scope. If a command arrives with a tag in use in logical unit N, must only tasks from that initiator port in logical unit N aborted, or can tasks from that initiator port in all logical units be aborted?

Editor's Note: The complete cited sentence is:

> A task manager that detects an overlapped command shall abort all tasks for the faulted initiator port in the task set and the device server shall return CHECK CONDITION status for that command.

The phrase 'faulted initiator port' restricts the scope to a single I_T nexus. The phrase 'task set' restricts the scope to a single logical unit, because task sets cannot span logical units. Therefore, the tasks aborted upon detection of an overlapped command condition all belong to a single I_T_L nexus.

HP 187) Add cross reference to linked overlapped commands (Rejected) [250]

Page 81, 5.9.3 Overlapped commands

Add a cross reference to 5.1 to pick up the description of linked overlapped commands

Reason for Rejection: There is no way to make this change without mentioning linked commands in yet one more SAM-3 place. The editor can think of no compelling reason to encourage additional development of products using linked commands, particularly since doing so will only increase the difficulty of removing them.

HP 188) Field name is not in smallcaps (Accepted, Editorial) [251]

Page 82, 5.9.6 Sense data

UA_INTLCK_CTRL should be smallcaps.

HP 189) Give example of other condition (Accepted, Editorial) [252]
Page 82, 5.9.6 Sense data

After "other conditions" add "(e.g., with the REQUEST SENSE command (see SPC-3))"

Editor's Note: The cited sentence will be modified as follows:

> Sense data shall be made available by the logical unit in the event a command completes with a CHECK CONDITION status or other conditions (e.g., processing of a REQUEST SENSE command).

HP 190) Add reference to Control mode page in SPC-3 (Rejected) [253]
Page 82, 5.9.6 Sense data

After "field" add "in the Control mode page (see SPC-3)".

Reason for Rejection: See comments IBM 40), IBM 41), IBM 43), IBM 44), IBM 52), IBM 58), IBM 59), and IBM 66) for some examples of what happens when 'Control mode page (see SPC-3)' appears too many times in close proximity.

HP 191) Shorten sentence (Rejected) [254]
Page 88, 6.4 Event notification (JL)

shorten sentence to make easier to read?

Reason for Rejection: No.

HP 192) Fix ABORT TASK SET definition (Accepted, Substantive) [255]
Page 90, 7.3 ABORT TASK SET

Change "SCSI initiator port" to "I_T nexus".

Because:

1) The previous sentence said "abort all tasks…that were created by the SCSI initiator port routed through the SCSI target port"
2) the argument is I_T_L

HP 193) Fix ABORT TASK SET definition (Accepted, Substantive) [256]
Page 90, 7.3 ABORT TASK SET

Change "SCSI initiator ports" to "I_T nexuses".

Because:

1) The previous sentence said "abort all tasks…that were created by the SCSI initiator port routed through the SCSI target port"
2) the argument is I_T_L

HP 194) Aborting a task eliminates both requests (data transfer) and responses (Accepted, Substantive) [257]
Page 90, 7.2 ABORT TASK

Are data transfers included in "responses"? Does this mean the generic request/response type of response, or the protocol service response? (same comment in 4.6.3)

Editor's Note: Including the changes made by comment HP 195), the cited sentence will be modified as follows:

In either case, the SCSI target device shall guarantee that no further requests or responses are sent from the task ~~are sent to the SCSI initiator port~~.

HP 195) SCSI initiator port is redundant (Accepted, Editorial) [258]
Page 90, 7.2 ABORT TASK

Delete "to the SCSI initiator port."

The comment will be resolved as shown in the response to comment

HP 196) Task management function encoding (Rejected) [259]
Page 92, 7.8 Task management SCSI transport protocol services

After "Argument encoding the task management function to be performed."

add:

"The encoding between the application client and initiator port and between the target port and task manager is outside the scope of this standard, and between the SCSI initiator port and SCSI target port is protocol-specific."

Reason for Rejection: Similar statements can be made about all arguments to all function prototypes except Status and CDB. It appears as if the wrong case has been cited as exceptional.

HP 197) Transport errors only result in CHECK CONDITION status (Accepted, Substantive) [260]
Page 96, 8.1 Intro to task set mgmt

"with a status other than GOOD." doesn't account for CONDITION MET, INTERMEDIATE, or INTERMEDIATE-CONDITION MET, which are also decent statuses.

Change to "with CHECK CONDITION status."

Transport protocol specific errors don't cause any of the other status values.

HP 198) command standard [s/b] command set standard (Rejected) [261]
Page 96, 4.3 Implicit head of queue

Change "command standard" to "command set standard" (see comment in 3.1.16)

Reason for Rejection: See response to comment HP 3).

HP 199) controls application clients [s/b] controls that application clients (Accepted, Editorial) [262]
Page 96, 8.1 Into to task set management (MB)

Change 'controls application clients' to 'controls that application clients'.

HP 200) that task [s/b] that cause the task (Rejected) [263]
Page 96, 8.1 Intro to task set management (MB)

Change 'that task' to 'that cause the task'.

Reason for Rejection: The proposed change would result in the following nonsense:

> SCSI transport protocol specific errors cause that cause the task to be …

Repeated usage of 'that task' elsewhere in the cited a,b,c list drew no comments. So there is no clear motivation to alter the cited wording in any way.

HP 201) Status returned for tasks not in a task set (Rejected) [264]
Page 96, 8.1 Intro to task set management (MB)

The second a)b)c) list implies that a logical unit can perform work for a task that is not in any task set. The sentence, 'the requirements for task set management only apply …' exempts tasks outside of all task sets from everything in clause 8. Hence the standard says nothing about the order in which the logical unit executes the task versus other tasks in its task set(s). The standard should state that the logical unit shall, when the device server creates a task, either place the task into a task set or end the task.

Reason for Rejection: The cited text specifies the named two options. Saying more seems redundant.

HP 202) 'is required to' to 'shall' (Rejected) [265]
Page 98, 8.5.1.2 Suspended information (MB)

Change 'is required to' to 'shall'.

Reason for Rejection: For better or worse, the cites wording is the product of torturous debates. Changing it is not appropriate at this time.

HP 203) Remove 'Although' (Accepted, Editorial) [266]
Page 98, 8.5.1.1 Task state nomenclature (MB)

Use of 'although' makes this sentence a fragment. Either remove 'although' or merge this sentence with the next one.

Editor's Note: 'Although' will be removed.

HP 204) Obscure task requirement (Rejected) [267]
Page 98, 8.5.2 Enabled task state (MB)

"In addition, the behavior of a completed task, as defined by the commands it has processed, shall not be affected by the task's states before it enters the enabled task state."

This sentence is too obscure. I think it states that the states a task passes through prior to entering enables task state shall not affect the subsequent behaviour of the task's command(s). However I can't be sure given the convoluted sentence structure.

Reason for Rejection: The cited sentence concerns linked commands. T10 has agreed not to change any wording associated with linked commands prior to making them obsolete.

HP 205) Remove SPI-5 from Annex A (Deferred to SAM-4) [268]
Page 109, Annex A

Delete the SPI-5 columns in all the tables in annex A; SPI-5 goes with SAM-2 not SAM-3.

Editor's Note: SAM-2 includes only SPI-4 information. SPI-5 information needs to appear in one SAM. It can be removed in SAM-4.

HP 206) iSCSI is RFC 3720 (Accepted, Editorial) [269]
Page 113, A.3.4 iSCSI

Before completing SAM-3, see if iSCSI has been published as an RFC yet.

Editor's Note: This will be resolved as described in the response to comment EMC 10).

HP 207) Delete extra http:// (Accepted, Editorial) [270]
Page 113, A.3.4 iSCSI

Delete extra http://

Editor's Note: This will be resolved as described in the response to comment EMC 10).

HP 208) Update mechanisms that cause tasks to be aborted (Accepted, Substantive) [271]
Page 72, 5.7.1 Mechanisms that cause tasks to be aborted

Modify the first a,b,c list as follows:

The following events cause a task or several tasks to be aborted:
a) The return of an Execute Command service response of SERVICE DELIVERY OR TARGET FAILURE as described in 5.1;
b) An I_T nexus loss (see 6.3.4);
~~b)~~c) A logical unit reset (see 6.3.3);
~~c)~~d) A hard reset (see 6.3.2); or
~~d)~~e) A power on condition (see 6.3.1). ~~; or~~
~~e) SCSI transport protocol specific events.~~

HP 209) Log parameter changes result in unit attentions (Accepted, Substantive) [272]
[273]
Page 82, 5.9.7 Unit Attention condition

Modify the first a,b,c list as follows:

Each logical unit shall generate an unit attention condition whenever one of the following events occurs:
a) A hard reset condition (see 6.3.2), logical unit reset condition (see 6.3.3), or I_T nexus loss condition (see 6.3.4) occurs;
b) A removable medium may have been changed;
c) The mode parameters in effect for this SCSI initiator port have been changed by another SCSI initiator port (i.e., initiator ports share mode parameters, see SPC-3);
d) The log parameters in effect for this SCSI initiator port have been changed by another SCSI initiator port (i.e., initiator ports share log parameters, see SPC-3);
…

HP 210) Spindle synchronization obsolete in SBC-2 (Accepted, Substantive) [274]
Page 82, 5.9.7 Unit Attention condition

Since SBC-2 has made spindle synchronization obsolete, modify the first a,b,c list as follows:

h) The mode parameters in effect for the SCSI initiator port have been restored from non-volatile memory (see SPC-3); or
~~i) A change in the condition of a synchronized spindle; or~~
j) Any other event requiring the attention of the SCSI initiator device.

8. IBM Corp.

George O. Penokie from IBM Corp. submitted the following comments on a No vote.

IBM 1) Remove revision history (Accepted, Editorial) [275]
PDF pg 11, pg xi, Revision Information

The revision information needs to be removed before letter ballot

Editor's Note: The revision history will be removed before Public Review.

IBM 2) Remove change bars (Accepted, Editorial) [276]
PDF pg 18, pg xviii, Introduction

The change bars should be removed.

IBM 3) Remove list of SCSI standards (Rejected) [277]
PDF pg 22, pg 4, 1.3 SCSI standards family

There is no point in this list of standards. It is never 100% correct. It should be deleted from SAM-3.

Reason for Rejection: I have to maintain this list in conjunction with the SPC-3 version descriptors. As long I have to deal with the version descriptors, this list is appearing in my standards.

IBM 4) Glossary see x.y.z usage is not consistent (Rejected) [278]
PDF pg 25, pg 7, 3.1 Definitions

When you have a reference at the end of the definition you use the notation << text description (see xxx). >> in other case you use the notation << text description. See xxx. >> I prefer the first but whichever is used it should be used consistently throughout the definitions section.

Reason for Rejection: The usage is consistent as follows:

a) If the reference further defines the glossary entry term (i.e., the term that appears in bold), then a sentence of the form "See x.y.z." appears at the end of the glossary entry.
b) If the reference clarifies text in a glossary entry but not the whole glossary entry, then the text clarified by the reference is followed by "(see x.y.z)".

IBM 5) 12 byte variable length CDBs seem silly (Rejected) [279]
The author marked this comment as technical.
PDF pg 25, pg 7, 3.1.15 command descriptor block (CDB):

The statement << variable length of between 12 and 260 bytes. >> does not seem correct. The smallest variable length should be GT 16. If its smaller that 16 then it not really a variable length CDB.

Reason for Rejection: The minimum additional CDB length value for a variable length CDB is 4. While this requirement is not explicitly stated, it is a result of the requirement that additional CDB length values be a multiple of 4 and the requirement that the 2 bytes of service action be included in the additional CDB length value.

SPC-3 defines 8 bytes of variable length CDB preamble that when added to the 4 bytes of minimum additional CDB length produces the value of 12 cited here.

If a change is desired, it is not a SAM-3 change. It is an SPC-3 change. SAM-3 is simply stating the facts as specified by SPC-3.

IBM 6) I.e. in 'media information' definition (Rejected) [280]
PDF pg 28, pg 10, 3.1.65 media information:
See also comment Brocade 2) and comment HP 148)

The statement << non-volatile (retained through a power cycle) and >> should be << non-volatile (i.e., retained through a power cycle) and >>.

Reason for Rejection: As per comment Brocade 2), the glossary entry for 'media information' is being removed.

IBM 7) Clarify 'task tag' glossary entry (Accepted, Editorial) [281]
PDF pg 31, pg 13, 3.1.125 task tag:

The statement << 64 bits that is a component of an I_T_L_Q nexus. >> should be << 64 bits that is the Q component of an I_T_L_Q nexus. >>

Editor's Note: The cited glossary entry will be modified as follows:

> **3.1.125 task tag:** An object containing up to 64 bits that uniquely identifies each task for a given I_T_L nexus (see 3.1.44) in a task set (see 3.1.131) ~~is a component of an I_T_L_Q nexus.~~ See 4.11.

No other nexus component is named by letter (e.g., Q).

IBM 8) Repeated 1 task for n linked commands statement (Accepted, Editorial) [282]
PDF pg 39, pg 21, 4.3 The SCSI client-server model, 1st paragraph under figure 6

The statement << There is one application client task for each pending command, series of linked commands, or task management request. >> seems to be a duplicate of the statement in the same paragraph that states << An application client creates one or more application client tasks each of which issues a single command, series of linked commands, or task management function. >> and therefore should be deleted.

IBM 9) Targets w/o logical units (Accepted, Substantive) [283]
The author marked this comment as technical.
PDF pg 44, pg 26, 4.7 SCSI devices, 2nd paragraph

The statement << A SCSI target device contains at least one SCSI target port and is capable …>> should be << A SCSI target device contains at least one SCSI target port, at least one logical unit, and is capable …>> as a target device without a logical unit is of no use in this model.

IBM 10) Targets w/o logical units (Accepted, Substantive) [284]
The author marked this comment as technical.
PDF pg 44, pg 26, 4.7 SCSI devices, 2nd paragraph

The statement << A SCSI target/initiator device contains at least one SCSI target/initiator port and is capable … >> should be << A SCSI target/initiator device contains at least one SCSI target/initiator port, at least one logical unit, and is capable … >> as a target device without a logical unit is of no use in this model.

IBM 11) SCSI Domain requirement (Accepted, Editorial) [285]
PDF pg 44, pg 26, 4.7 SCSI devices, 2nd paragraph

The statement << a SCSI domain needs to contain >> should be << A SCSI domain shall contain >> or << A SCSI domain is required to contain >>

Editor's Note: The cited text will be modified as follows:

… a SCSI domain ~~needs~~ is required to contain …

IBM 12) LUN 0 or REPORT LUNS W-LUN (Accepted, Substantive) [286]
The author marked this comment as technical.
PDF pg 46, pg 28, 4.7.2 SCSI target device, Last paragraph

The statement << shall be accessed using the logical unit number zero. >> should be changed to <<shall be accessed using the logical unit number zero or a Report LUNs well-known logical unit. >> to allow for a target device to have either a LUN 0 or a W-LUN.

Editor's Note: The cited text will be changed to (differences from the proposed changes are underlined):

… shall be accessed using the logical unit number zero or the REPORT LUNS well-known logical unit.

If the text currently reads 'the logical unit', then the new text should read 'the … well-known logical unit'. In SPC-3 the command text in the logical unit name is all caps, so that nomenclature needs to be observed here.

IBM 13) LUN 0 or REPORT LUNS W-LUN (Accepted, Substantive) [287]
The author marked this comment as technical.
PDF pg 48, pg 30, 4.7.3 SCSI target/initiator device, 2nd to last paragraph

The statement << shall be accessed using the logical unit number zero. >> should be changed to <<shall be accessed using the logical unit number zero or a Report LUNs well-known logical unit. >> to allow for a target device to have either a LUN 0 or a W-LUN.

Editor's Note: The cited text will be changed to (differences from the proposed changes are underlined):

… shall be accessed using the logical unit number zero or the REPORT LUNS well-known logical unit.

If the text currently reads 'the logical unit', then the new text should read 'the … well-known logical unit'. In SPC-3 the command text in the logical unit name is all caps, so that nomenclature needs to be observed here.

IBM 14) Add cross reference for dependent logical units (Accepted, Editorial) [288]
PDF pg 50, pg 32, 4.8 Logical units, 1st paragraph after figure 15

The statement << dependent logical units in its composition, >> should have a reference to the dependent logical unit section.

Editor's Note: Comment Veritas 9) recommended a cross reference to the glossary and that is the change that will be made.

IBM 15) Replace 'otherwise' with specific text (Accepted, Editorial) [289]
PDF pg 50, pg 32, 4.8 Logical units, 1st paragraph after figure 15

The statement << ~~Otherwise~~, the logical unit numbers should >> is not exact and should be changed to << If there are no dependent logical units within the scope of the SCSI target device, the logical unit numbers should >>.

IBM 16) LUN 0 or REPORT LUNS W-LUN (Accepted, Substantive) [290]
PDF pg 51, pg 33, 4.9.2 LUN 0 address

The title of section 4.9.2 << LUN 0 address >> should be changed to << Minimum LUN addressing requirements >>.

IBM 17) LUN 0 or REPORT LUNS W-LUN (Accepted, Substantive) [291]
The author marked this comment as technical.
PDF pg 51, pg 33, 4.9.2 LUN 0 address, 1st paragraph

The statement << All SCSI devices shall accept LUN 0 as a valid address. >> does not address the W-LUN option and should be changed to << All SCSI devices shall accept LUN 0 or a well known logical unit as a valid address >>.

Editor's Note: The cited sentence will be modified as follows:

All SCSI devices shall accept LUN 0 or the REPORT LUNS well-known logical unit as a valid address.

IBM 18) LUN 0 or REPORT LUNS W-LUN (Accepted, Substantive) [292]
The author marked this comment as technical.
PDF pg 51, pg 33, 4.9.2 LUN 0 address, 1st paragraph

The statement << model the LUN 0 shall be the logical unit that >> does not address the W-LUN option and should be changed to << model the LUN 0 or a well known logical unit shall be the logical unit that >>

Editor's Note: The cited sentence will be modified as follows:

For SCSI devices that support the hierarchical addressing model the LUN 0 or the REPORT LUNS well-known logical unit shall be the logical unit that an application client addresses to determine information about the SCSI target device and the logical units contained within the SCSI target device.

IBM 19) Delete redundant requirement (Accepted, Substantive) [293]
PDF pg 51, pg 33, 4.9.3 Single level logical unit number structure, 1st paragraph

The statement << When the single level subset format is used, the HISUP bit shall be set to one in the standard INQUIRY data (see SPC-3) returned by the logical unit with the logical unit number zero. >> is redundant with the statement in section 4.9.1 and should be deleted.

IBM 20) Rewrite single level LUN requirements (Accepted, Editorial) [294]
PDF pg 52, pg 34, 4.9.3 Single level logical unit number structure, 2nd paragraph under table 2
See also comment HP 65)

The statement << logical units should be numbered 255 and below. >> does not clearly state that the address method should be 00b. Change to << logical units should be numbered 255 and below using the 00b address method. >>

Editor's Note: This comment will be resolved as described in the response to comment HP 67).

IBM 21) Rewrite single level LUN requirements (Accepted, Editorial) [295]
PDF pg 52, pg 34, 4.9.3 Single level logical unit number structure, 3rd paragraph under table 2
See also comments HP 66)

The statement << logical units should be numbered 16 383 and below. >> does not clearly state that the address method should be 01b. Change to << logical units should be numbered 16 383 and below using the 01b address method. >>

Editor's Note: This comment will be resolved as described in the response to comment HP 67).

IBM 22) Rewrite single level LUN requirements (Accepted, Editorial) [296]
PDF pg 52, pg 34, 4.9.3 Single level logical unit number structure, 3rd paragraph under table 2

The statement << greater than 255 shall have >> should be changed to << greater than 255 and less than 16 384 shall have >>

Editor's Note: This comment will be resolved as described in the response to comment HP 67).

IBM 23) Rewrite single level LUN requirements (Accepted, Editorial) [297]
The author marked this comment as technical.
PDF pg 52, pg 34, 4.9.3 Single level logical unit number structure, 3rd paragraph under table 2
See also comment HP 67)

This paragraph is a restatement of the two paragraphs directly above it. I think those two should be deleted.

Editor's Note: This comment will be resolved as described in the response to comment HP 67).

IBM 24) W-LUN alternative eliminates LUN 0 requirement (Accepted, Substantive) [298]
The author marked this comment as technical.
PDF pg 56, pg 38, 4.9.6 Peripheral device addressing method, Last paragraph

The statement << The SCSI device located within the current level shall be addressed by a BUS IDENTIFIER field and a TARGET/LUN field of all zeros, also known as LUN 0 (see 4.9.2). >> should be changed to << The SCSI device located within the current level may be addressed by a BUS IDENTIFIER field and a TARGET/LUN field of all zeros, also known as LUN 0 (see 4.9.2). >> as this is no longer the only way to find out information about a SCSI device. The alternative is W-LUN.

IBM 25) LUN 0 or REPORT LUNS W-LUN (Accepted, Substantive) [299]
The author marked this comment as technical.
PDF pg 63, pg 45, 4.13.3 Multiple port target SCSI device structure, 1st paragraph after figure 18

The statement << Each SCSI target port shall accept commands sent to LUN 0 and the task router shall route them to a device server for processing.>> should be deleted as the architecture should not force LUN 0 to be fully implemented in all product designs.

Editor's Note: The cited sentence will be modified as follows:

> Each SCSI target port shall accept commands sent to LUN 0 or the REPORT LUNS well-know logical unit and the task router shall route them to a device server for processing.

IBM 26) LUN 0 or REPORT LUNS W-LUN (Accepted, Substantive) [300]
The author marked this comment as technical.
PDF pg 63, pg 45, 4.13.3 Multiple port target SCSI device structure, 1st paragraph after figure 18
See also comment AMCC 12)

The statement <<The REPORT LUNS commands (see SPC-3) shall be accepted by the logical unit with the logical unit number zero from >> does not address the W-LUN option and should be changed to << The REPORT LUNS commands (see SPC-3) shall be accepted by the logical unit with the logical unit number zero or the report LUNs well known logical unit from >>

Editor's Note: The cited text will be changed to (differences from the proposed changes are underlined):

> The REPORT LUNS commands (see SPC-3) shall be accepted by the logical unit with the logical unit number zero or the REPORT LUNS well-known logical unit from …

In SPC-3 the command text in the logical unit name is all caps, so that nomenclature needs to be observed here. 'Well known' is hyphenated because it is a modifier for logical unit (see comment IBM 12).

IBM 27) LUN 0 or REPORT LUNS W-LUN (Accepted, Substantive) [301]
The author marked this comment as technical.
PDF pg 65, pg 47, 4.13.5 Multiple port target/initiator SCSI device structure, 1st paragraph after figure 20

The statement << Each SCSI target/initiator port shall accept commands sent to LUN 0 and the task router shall route them to a device server for processing.>> should be deleted as the architecture should not force LUN 0 to be fully implemented in all product designs.

Editor's Note: The cited sentence will be modified as follows:

> Each SCSI target port shall accept commands sent to LUN 0 or the REPORT LUNS well-know logical unit and the task router shall route them to a device server for processing.

IBM 28) LUN 0 or REPORT LUNS W-LUN (Accepted, Substantive) [302]
The author marked this comment as technical.
PDF pg 65, pg 47, 4.13.5 Multiple port target/initiator SCSI device structure, 1st paragraph after figure 20

The statement <<The REPORT LUNS commands (see SPC-3) shall be accepted by the logical unit with the logical unit number zero from >> does not address the W-LUN option and should be changed to << The REPORT LUNS commands (see SPC-3) shall be accepted by the logical unit with the logical unit number zero or the report LUNs well known logical unit from >>

Editor's Note: The cited text will be changed to (differences from the proposed changes are underlined):

> The REPORT LUNS commands (see SPC-3) shall be accepted by the logical unit with the logical unit number zero or the REPORT LUNS well-known logical unit from …

In SPC-3 the command text in the logical unit name is all caps, so that nomenclature needs to be observed here. 'Well known' is hyphenated because it is a modifier for logical unit (see comment IBM 12).

IBM 29) Label the dependent logical unit correctly (Accepted, Editorial) [303]
PDF pg 69, pg 51, 4.14 Model for dependent logical units, figure 24

The dependent logical unit should be labeled << dependent logical unit >>.

IBM 30) W-LUNs not covered (Accepted, Substantive) [304]
The author marked this comment as technical.
PDF pg 70, pg 52, 4.14 Model for dependent logical units, 2nd paragraph after figure 25

The statement << All addressable entities may default to vendor specific values or may be defined by an application client >> does not consider W-LUNs and should be changed to << All addressable entities, except well known logical units, may default to vendor specific values or may be defined by an application client >>

Editor's Note: The cited text will be modified as follows:

> All addressable entities, except well known logical units (see 4.10), may default to vendor specific values or may be defined by an application client (e.g., by the use of SCC-2 configuration commands).

IBM 31) Remove SAL and STPL descriptions (Rejected) [305]
PDF pg 71, pg 53, 4.15 The SCSI model for distributed communications

The SAL, and STPL are already defined in the definitions section. So why redefined them here. They should be deleted.

Reason for Rejection: Taking the proposed action would result in the following comment on the SAM-4 letter ballot: "Three layers are shown in figure 25, why is only one of those layers described in the text that explains the figure?"

IBM 32) Add 'interconnect layer' to the glossary (Rejected) [306]
PDF pg 71, pg 53, 4.15 The SCSI model for distributed communications

The interconnect layer is not defined in the definitions section but should be. Move it there and delete it from this section.

Reason for Rejection: Such a change seems to fly in the face of the CAP approved changes made in response to comments HP 24), HP 25), HP 26), and HP 33).

The problem is that the interconnect layer is needed only by the cited subclause, but the SAL and STPL are needed throughout the standard. There is a balancing act between loading up the glossary with nearly useless definitions and duplicating some text (see comment IBM 31) in the cited subclause.

Particularly in light of the shunning of interconnect subsystem, it seems like the current balance is the right one.

IBM 33) Eliminate definitions (Accepted, Editorial) [307]
PDF pg 72, pg 54, 4.15 The SCSI model for distributed communications

The following terms are already defined in the definitions section therefor those definitions should be deleted from this section: SCSI transport protocol service request, SCSI transport protocol service indication, SCSI transport protocol service response, and SCSI transport protocol service confirmation.

Editor's Note: The cited text will be modified as follows to end the appearance of its being glossary entries:

The following types of service interactions between layers are defined.

a) SCSI transport protocol service request~~: A~~ procedure ~~call~~ calls from the SAL invoking a service provided by the STPL~~.~~;
b) SCSI transport protocol service indication~~: A~~ procedure ~~call~~ calls from the STPL informing the SAL that an asynchronous event has occurred (e.g., the receipt of a peer-to-peer protocol transaction)~~.~~;
c) SCSI transport protocol service response~~: A~~ procedure ~~call~~ calls to the STPL invoked by the SAL in response to a SCSI transport protocol service indication. A SCSI transport protocol service response may be invoked to return a reply from the invoking SAL to the peer SAL~~.~~; and
d) SCSI transport protocol service confirmation~~: A~~ procedure ~~call~~ calls from the STPL notifying the SAL that a SCSI transport protocol service request has completed, has been terminated, or has failed to transit the interconnect layer. A confirmation may communicate parameters that indicate the completion status of the SCSI transport protocol service request or any other status. A SCSI transport protocol service confirmation may be used to convey a response from the peer SAL.

Since the cited text contains information not found in the glossary, removing it is not appropriate.

IBM 34) Remove assumption regarding Data-In Buffer (Accepted, Editorial) [308]
PDF pg 78, pg 60, 5.1 The Execute Command procedure call, Data-In Buffer description

The statement << The application client shall not assume that the buffer contents are valid unless the command completes with a status of GOOD, CONDITION MET, INTERMEDIATE, or INTERMEDIATE-CONDITION MET. >> should be << As a result the contents of the buffer are not valid unless the command completes with a status of GOOD, CONDITION MET, INTERMEDIATE, or INTERMEDIATE-CONDITION MET. >>. There should be no assumptions in a standard over than it works perfectly.

Editor's Note: The proposed replacement text, reads like a repeat of the sentence preceding the cited sentence. Therefore, the cited text will be modified as follows:

The application client shall ~~not assume that~~ treat the buffer contents as invalid ~~are valid~~ unless the command completes with a status of GOOD, CONDITION MET, INTERMEDIATE, or INTERMEDIATE-CONDITION MET.

IBM 35) Delete obsolete bit 1 description (Accepted, Editorial) [309]
PDF pg 79, pg 61, 5.2 Command descriptor block (CDB), Last paragraph

The statement << Bit 1 provides an obsolete way to request interrupts between linked commands. >> should be deleted as the function is obsolete so no further statement need be stated.

IBM 36) Define TMF_ONLY bit (Accepted, Substantive) [310]
The author marked this comment as technical.
PDF pg 81, pg 63, 5.3.1 Status codes, ACA Active

Add into the list the following: << If the TASK_ONLY bit is set to one and a task with the ACA attribute is received from the faulted initiator port; >> This will be in a upcoming proposal.

Editor's Note: With the improved definition of ACA handling in 5.9, this text is both redundant and wrong. The cited text will be modified as follows:

ACA ACTIVE. This status shall be returned as described in 5.9.2.2 and 5.9.2.3 when an ACA exists within a task set. ~~and a SCSI initiator port issues a command for that task set when at least one of the following is true:~~

~~a) There is a task with the ACA attribute (see 8.6.5) in the task set;~~
~~b) The SCSI initiator port issuing the command did not cause the ACA condition; or~~
~~c) The task created to process the command did not have the ACA attribute and the NACA bit was set to one in the CDB CONTROL byte of the faulting command (see 5.9.1).~~

IBM 37) Remove Editor's Note 1 (Accepted, Substantive) [311]
PDF pg 86, pg 68, 5.4.3.1 Introduction, Editor's Note

I don't have an answer to this but if none comes forward then it should not be changed. In any case the note needs to be deleted.

Editor's Note: This comment will be resolved as described in comment HP 166).

IBM 38) Remove assumption about tasks existing (Accepted, Editorial) [312]
PDF pg 89, pg 71, 5.5 Task and command lifetimes, 4th paragraph

The statement << The application client assumes that the task exists and maintains an application client task to interact with the task from the time >> should be << The application client shall maintain an application client task to interact with the task from the time >>.

Editor's Note: The cited text will be modified as follows:

The application client ~~assumes that the task exists and~~ maintains an application client task to interact with the task from the time …

IBM 39) Eliminate parentheses (Accepted, Editorial) [313]
PDF pg 89, pg 71, 5.5 Task and command lifetimes, item A

The statement << COMMANDS CLEARED BY ANOTHER INITIATOR (if in reference to the task set containing the task); >> should be << COMMANDS CLEARED BY ANOTHER INITIATOR if in reference to the task set containing the task; >

Editor's Note: The cited text will be modified as follows:

A) COMMANDS CLEARED BY ANOTHER INITIATOR, ~~(~~if in reference to the task set containing the task~~)~~;

IBM 40) Name the Control mode page only once in this paragraph (Accepted, Editorial) [314]
PDF pg 95, pg 77, 5.9.1.3 Aborting other tasks when CHECK CONDITION status is returned without establishing an ACA, 1st paragraph

The statement << The TST (task set type) Control mode page field specifies >> should be << The TST field specifies >> as the fact that it is in the control mode page is already stated in this paragraph and there is no reason the give the long version of the field name as that is done no where else.

Editor's Note: The current text seems more logical to me, but if you insist, the cited paragraph will be modified as follows:

When a CHECK CONDITION status is returned for a command where the NACA bit is set to zero in the command's CDB CONTROL byte (i.e., when an ACA condition is not established), tasks in the dormant or enabled task state (see 8.5) may be aborted based on the contents of the TST (task set type) field and QERR (queue error management) field in the Control mode page (see SPC-3) as shown in table 23. The TST ~~(task set type) Control mode page~~ field specifies the type of task set in the logical unit ~~(see SPC-3)~~. The QERR (queue error management) Control mode page field specifies how the device server handles blocked and dormant tasks when another task receives a CHECK CONDITION status ~~(see SPC-3)~~.

IBM 41) Name the Control mode page only once in this paragraph (Accepted, Editorial) [315]
PDF pg 95, pg 77, 5.9.1.3 Aborting other tasks when CHECK CONDITION status is returned without establishing an ACA, 1st paragraph

The statement <<The QERR (queue error management) Control mode page field specifies how >> should be << The QERR field specifies how >> as the fact that it is in the control mode page is already stated in this paragraph and there is no reason the give the long version of the field name as that is done no where else.

Editor's Note: This comment will be resolved as described in the response to comment IBM 40)

IBM 42) Define TMF_ONLY bit (Accepted, Substantive) [316]
The author marked this comment as technical.
PDF pg 95, pg 77, 5.9.2 Auto contingent allegiance (ACA), 2nd paragraph

Change the statement << While the ACA condition is in effect, new tasks received by the logical unit from the faulted initiator port are not allowed to enter the task set unless they have the ACA task attribute (see 8.6.5). >> to << While the ACA condition is in effect and the TASK_ONLY bit is set to zero, new tasks received by the logical unit from the faulted initiator port are not allowed to enter the task set unless they have the ACA task attribute (see 8.6.5). >> This will be in a upcoming proposal.

Editor's Note: The cited sentence will be modified as follows:

While the ACA condition is in effect and the TMF_ONLY bit is set to zero in the Control mode page (see SPC-3), new tasks received by the logical unit from the faulted initiator port are not allowed to enter the task set unless they have the ACA task attribute (see 8.6.5).

The following new paragraph will be inserted following the cited paragraph:

While the ACA condition is in effect and the TMF_ONLY bit is set to one in the Control mode page, no new tasks received by the logical unit from the faulted initiator port are allowed to enter the task set (see 8.6.5).

Note these changes are almost what is proposed on 04-141r3, but the proposal fails to mention the Control mode page.

IBM 43) Name the Control mode page only once in this paragraph (Accepted, Editorial) [317]
PDF pg 95, pg 77, 5.9.2.1 Establishing an ACA, 2nd paragraph

The statement << The TST (task set type) Control mode page field specifies >> should be << The TST field specifies >> as the fact that it is in the control mode page is already stated in this paragraph and there is no reason the give the long version of the field name as that is done no where else.

Editor's Note: The current text seems more logical to me, but if you insist, the cited paragraph will be modified as follows:

> When an ACA condition is established, tasks in the dormant or enabled task state (see 8.5) shall either be aborted or blocked based on the contents of the TST (task set type) field and QERR (queue error management) field in the Control mode page (see SPC-3) as shown in table 24. The TST ~~(task set type) Control mode page~~ field specifies the type of task set in the logical unit ~~(see SPC-3)~~. The QERR (queue error management) Control mode page field specifies how the device server handles blocked and dormant tasks when another task receives a CHECK CONDITION status ~~(see SPC-3)~~.

IBM 44) Name the Control mode page only once in this paragraph (Accepted, Editorial) [318]
PDF pg 96, pg 78, 5.9.2.1 Establishing an ACA, 2nd paragraph

The statement <<The QERR (queue error management) Control mode page field specifies how >> should be << The QERR field specifies how >> as the fact that it is in the control mode page is already stated in this paragraph and there is no reason the give the long version of the field name as that is done no where else.

IBM 45) Define TMF_ONLY bit (Accepted, Editorial) [319]
PDF pg 97, pg 79, 5.9.2.2 Handling new tasks from the faulted initiator port when ACA is in effect, Table 25

Add in a new column under << new task properties >> for the TASK_ONLY bit. If ACA attribute and set to 0 then process the task; If ACA attribute and set to 1 then terminate the task; If not ACA attribute then don't care and terminate the task. This will be in a upcoming proposal.

Editor's Note: Table 25 will be updated as shown in table 2 in 04-141r3.

IBM 46) Remove Control mode page from table header (Rejected) [320]
PDF pg 98, pg 80, 5.9.2.3.2 Handling new tasks from non-faulted initiator ports when ACA is in effect, Table 26

The title of column 1 << TST field value in control mode page >> should be << TST >> as the location of the TST is established in the paragraph above the table and the suggest change is how you do it in other tables in SAM-3.

Reason for Rejection: Since the cited table is the only table in SAM-3 with a column heading that references a definition not found in SAM-3, there is no valid point of comparison. The fact that the tst field is not defined in SAM-3 justifies the special nomenclature.

IBM 47) when [s/b] because (Accepted, Editorial) [321]
The author marked this comment as technical.
PDF pg 99, pg 81, 5.9.4 Incorrect logical unit selection, Item b) B)

I have no idea what this statement means << or is not operational when the peripheral device is not ready. >> This needs to be fixed.

Editor's Note: The cited text will be modified as follows:

B) The SCSI target device supports the logical unit but is incapable of determining if the peripheral device is attached or is not operational ~~when~~ because the peripheral device is not ready.

See comment HP 183) for other changes affecting this text.

IBM 48) Add a comma (Accepted, Editorial) [322]
PDF pg 100, pg 82, 5.9.6 Sense data, 1st paragraph

The statement << applicable command set standard and applicable >> should be << applicable command set standard, and applicable >> (i.e., it is missing a comma).

IBM 49) Coordination of requirements between SAM-3 and SPC-3 (No Action Taken) [323]
The author marked this comment as technical.
PDF pg 101, pg 83, 5.9.7 Unit Attention condition, 4th paragraph

The statement << If an INQUIRY command enters the enabled task state, the logical unit shall perform the INQUIRY command and shall neither report nor clear any unit attention condition. >> is duplicated in SPC-3 and should be removed from one. I suggest removing to from SPC-3 and placing a pointer to SAM-3 in SPC-3.

Editor's Note: SAM-3 appears to be correct. Any needed changes appear to affect SPC-3.

IBM 50) Coordination of requirements between SAM-3 and SPC-3 (No Action Taken) [324]
The author marked this comment as technical.
PDF pg 101, pg 83, 5.9.7 Unit Attention condition, 5th paragraph

The statement << If a REPORT LUNS command enters the enabled task state, the logical unit shall perform the REPORT LUNS command and shall not report any unit attention condition. The logical unit shall clear any unit attention condition established in response to a change in the logical unit inventory for all logical units for the SCSI initiator port that sent the REPORT LUNS command. The logical unit shall not clear any other unit attention condition. >> is duplicated in SPC-3 and should be removed from one. I suggest removing to from SPC-3 and placing a pointer to SAM-3 in SPC-3.

Editor's Note: SAM-3 appears to be correct. Any needed changes appear to affect SPC-3.

IBM 51) Coordination of requirements between SAM-3 and SPC-3 (No Action Taken) [325]
PDF pg 101, pg 83, 5.9.7 Unit Attention condition, 5th paragraph

The description of the REQUEST SENSE command handling of Unit attention is not duplicated in SPC-3 but there is no reference to SAM-3 in SPC-3. This should be fixed in SPC-3 unless it is decided to move all this into SPC-3. (I know this isn't really a SAM-3 comment but the two are closely linked in this case.

Editor's Note: SAM-3 appears to be correct. Any needed changes appear to affect SPC-3.

IBM 52) Delete second reference to Control mode page (Accepted, Editorial) [326]
PDF pg 101, pg 83, 5.9.7 Unit Attention condition, Last paragraph

The statement << If the UA_INTLCK_CTRL field ~~in the Control mode page~~ contains 10b or 11b, the logical unit >> should be << If the UA_INTLCK_CTRL field contains 10b or 11b, the logical unit >> as the fact that it is in the control mode page is already stated in this paragraph

IBM 53) Delete unit attention specificity (Rejected) [327]
The author marked this comment as technical.
PDF pg 103, pg 85, 6.2 Establishing a unit attention condition subsequent to detection of an event, 1st paragraph

The statement <<The most specific condition in table 27 known to the logical unit should be used to establish the additional sense code for a unit attention. >> is unclear at best and serves no purpose. It should be deleted along with the last column in table 27 for the same reason.

Reason for Rejection: The information is of value, however minimal.

IBM 54) Delete unit attention specificity (Rejected) [328]
The author marked this comment as technical.
PDF pg 104, pg 86, 6.2 Establishing a unit attention condition subsequent to detection of an event, Last paragraph

The statement << Otherwise, the logical unit shall use one of the less specific additional sense codes (e.g., POWER ON OCCURRED) when establishing a unit attention condition. >> should be << Otherwise, the logical unit shall use one of the other additional sense codes (e.g., POWER ON OCCURRED) when establishing a unit attention condition. >> for the same reason as stated in previous comment.

Reason for Rejection: The information is of value, however minimal.

IBM 55) Delete 'part of the' (Accepted, Editorial) [329]
The author marked this comment as technical.
PDF pg 104, pg 86, 6.3.2 Hard reset, item b

In the statement <<A part of the response to a power on condition (see 6.3.1). >> it is not at all clear what a part of the response is a part of. This needs to be fixed or deleted.

Editor's Note: The cited text will be modified as follows:

b) A ~~part of the~~ response to a power on condition (see 6.3.1).

IBM 56) Delete 'part of the' (Accepted, Editorial) [330]
The author marked this comment as technical.
PDF pg 105, pg 87, 6.3.3 Logical unit reset, Item b

In the statement << A part of the response to a hard reset condition (see 6.3.2). >> it is not at all clear what a part of the response is a part of. This needs to be fixed or deleted.

Editor's Note: The cited text will be modified as follows:

b) A ~~part of the~~ response to a hard reset condition (see 6.3.2).

IBM 57) Task management processing and ACA (Rejected) [331]
The author marked this comment as technical.
PDF pg 107, pg 89, 7.1 Introduction

In this subclause the following statement needs to be added << All supported task management functions received by a logical unit shall be processed even if an ACA condition has been established. >>.

Note that this means an CLEAR ACA can be issued by any initiator.

Reason for Rejection: CLEAR ACA is allowed only from the faulted initiator.

IBM 58) Delete extra references to the Control mode page (Accepted, Editorial) [332]
PDF pg 115, pg 97, 8.4 Task management events, 2nd state description

The statement << If the TST field in the Control mode page equals 000b, >> should be << If the TST field equals 000b, >> once a subclause is more than enough.

Editor's Note: One extra reference to the Control mode page has been missed by these comments. The first two state descriptions will be modified as follows:

All older tasks ended: If the TST field in the Control mode page (see SPC-3) equals 000b, all tasks have ended that were accepted from all SCSI initiator ports earlier in time than the referenced task. If the TST field ~~in the Control mode page~~ equals 001b, all tasks have ended that were accepted from the referenced SCSI initiator port earlier in time than the referenced task.

All older head of queue and older ordered tasks ended: If the TST field ~~in the Control mode page~~ equals 000b, all head of queue and ordered tasks have ended that were accepted from all SCSI initiator ports earlier in time than the referenced task. If the TST field ~~in the Control mode page~~ equals 001b, all head of queue and ordered tasks have ended that were accepted from the referenced SCSI initiator port earlier in time than the referenced task.

IBM 59) Delete extra references to the Control mode page (Accepted, Editorial) [333]
PDF pg 115, pg 97, 8.4 Task management events, 2nd state description

The statement << If the TST field in the Control mode page equals 001b, >> should be << If the TST field equals 001b, >> once a subclause is more than enough.

Editor's Note: This comment will be resolved as described in the response to comment IBM 58)

IBM 60) Correct head of queue requirements (Accepted, Substantive) [334]
The author marked this comment as technical.
PDF pg 118, pg 100, 8.6.2 Simple task, 1st paragraph
See also comments Brocade 23), IBM 61), IBM 62), IBM 63), IBM 64), IBM 65), IBM 67), and IBM 68)

The statement << the enabled task state until all older head of queue tasks and older >> is not correct as a head of queue task that comes in after the simple task may move ahead of it in the queue. It should be stated as << the enabled task state until all head of queue tasks and older >>

Editor's Note: This change will be made as described here and in 04-187r1.

IBM 61) Correct head of queue requirements (Accepted, Substantive) [335]
The author marked this comment as technical.
PDF pg 118, pg 100, 8.6.3 Ordered task
See also comments Brocade 23), IBM 60), IBM 62), IBM 63), IBM 64), IBM 65), IBM 67), and IBM 68)

The statement << shall not enter the enabled task state until all older tasks in the task set have ended >> is not correct as it does not say anything about head or queue tasks that could move ahead of the ordered task. It should be stated as << shall not enter the enabled task state until all older tasks and any head of queue tasks in the task set have ended >>

Editor's Note: As shown in 04-187r1, the cited sentence will be modified as follows:

The task shall not enter the enabled task state until all head of queue tasks and all older tasks in the task set have ended (see 8.4).

IBM 62) Correct head of queue requirements (Accepted, Substantive) [336]
The author marked this comment as technical.
PDF pg 120, pg 102, 8.8 Task state transitions, Figure 39
See also comments Brocade 23), IBM 60), IBM 61), IBM 63), IBM 64), IBM 65), IBM 67), and IBM 68)

The statement << For simple tasks, all older head of queue and all older ordered tasks >> should be << For simple tasks, all head of queue and all older ordered tasks >> for the reason stated in previous comment.

Editor's Note: As shown in 04-187r1, the footnotes in figure 39 will be modified as follows:

[a] ACA is not active and:
a) For simple tasks, all ~~older~~ head of queue and all older ordered tasks have ended; or
b) For ordered tasks, all head of queue tasks and all ~~older~~ ordered tasks have ended.

IBM 63) Correct head of queue requirements (Accepted, Substantive) [337]
PDF pg 120, pg 102, 8.8 Task state transitions, Figure 39
See also comments Brocade 23), IBM 60), IBM 61), IBM 62), IBM 64), IBM 65), IBM 67), and IBM 68)

The statement <<For ordered tasks, all older ordered tasks have ended. >> should be << For ordered tasks, all older ordered tasks and any head of queue tasks have ended. >> for the reasons stated in previous comment.

Editor's Note: As shown in 04-187r1, the footnotes in figure 39 will be modified as follows:

[a] ACA is not active and:
a) For simple tasks, all ~~older~~ head of queue and all older ordered tasks have ended; or
b) For ordered tasks, all head of queue tasks and all ~~older~~ ordered tasks have ended.

IBM 64) Correct head of queue requirements (Accepted, Substantive) [338]
The author marked this comment as technical.
PDF pg 121, pg 103, 8.8 Task state transitions, transition S1:S2 item a
See also comments Brocade 23), IBM 60), IBM 61), IBM 62), IBM 63), IBM 65), IBM 67), and IBM 68)

The statement << task state when all older head of queue and older >> should be << < task state when all head of queue and older >> of the reason stated in previous comment.

Editor's Note: This change will be made as described here and in 04-187r1.

IBM 65) Correct head of queue requirements (Accepted, Substantive) [339]
The author marked this comment as technical.
PDF pg 121, pg 103, 8.8 Task state transitions, transition S1:S2 item b
See also comments Brocade 23), IBM 60), IBM 61), IBM 62), IBM 63), IBM 64), IBM 67), and IBM 68)

The statement << state when all older tasks (see 8.4) have ended. >> should be << state when all older tasks and any head of queue tasks (see 8.4) have ended. >> of the reason stated in previous comment.

Editor's Note: As shown in 04-187r1, the cited text will be modified as follows:

b) A dormant task having the ORDERED task attribute shall enter the enabled task state when all head of queue tasks and all older tasks (see 8.4) have ended.

IBM 66) Delete extra references to the Control mode page (Accepted, Editorial) [340]
PDF pg 121, pg 103, 8.8 Task state transitions, transition S1:S2 item a

The statement << If the TST field ~~in the Control mode page~~ contains 001b, then dormant >> should be << If the TST field contains 001b, then dormant >> as one time is more than enough.

IBM 67) Correct head of queue requirement (Accepted, Substantive) [341]
The author marked this comment as technical.
PDF pg 124, pg 106, 8.9.3 Ordered tasks, table 32
See also comments Brocade 23), IBM 60), IBM 61), IBM 62), IBM 63), IBM 64), IBM 65), and IBM 68)

The statement << until all older tasks have ended. >> should be << until all older tasks and head of queue task have ended. >> for the reason stated in previous comment.

Editor's Note: As shown in 04-187r1, the cited text will be modified as follows:

An ordered task is not allowed to enter the enabled task state until all head of queue tasks and all older tasks have ended.

IBM 68) Correct head of queue requirement (Accepted, Substantive) [342]
The author marked this comment as technical.
PDF pg 124, pg 106, 8.9.3 Ordered tasks, table 32
See also comments Brocade 23), IBM 60), IBM 61), IBM 62), IBM 63), IBM 64), IBM 65), and IBM 67)

The statement << all older head of queue and older ordered tasks have ended. >> should be << all head of queue and older ordered tasks have ended. >> for the reason stated in previous comment.

Editor's Note: The cited text will be modified as follows:

A simple task is not allowed to enter the enabled task state until all ~~older~~ head of queue and all older ordered tasks have ended.

Note this differs from 04-187r1 in that the word 'ordered' is not removed. However, removing the word 'ordered' introduces a new ordering concept between simple tasks.

IBM 69) LUN 0 or REPORT LUNS W-LUN (Accepted, Substantive) [343]

The author marked this comment as technical.

PDF pg 69, pg 51, 4.14 Model for dependent logical units, 1st paragraph under figure 24

The statement << returned by the logical unit with the logical unit number zero (see SPC-3). >> should be changed to <<returned by the logical unit with the logical unit number zero or by the REPORT LUNS well-known logical unit (see SPC-3). >> to allow for a target device to have either a LUN 0 or a W-LUN.

9. Maxtor Corp.

Mark Evans from Maxtor Corp. submitted the following comments on a Yes vote.

Maxtor 1) term [s/b] terms (Accepted, Editorial) [344]
PDF Page 10

Change, "…the term name and world wide identifier…" to, "…the terms name and world wide identifier…"

Maxtor 2) Expunge 'usually' (Accepted, Editorial) [345]
PDF Page 14

Delete the word "usually" in the following sentence: "Well known logical units allow an application client to issue requests to receive and manage specific information usually relating to a SCSI target device."

Maxtor 3) Numeric conventions (Unresolved) [346]
PDF Page 16

I think it would be beneficial if the description of numeric conventions became more consistent from T10 standard to T10 standard. I recommend a combination of what is in the latest draft of SAS-1.1 and SPC-3.

Maxtor 4) Move commas in example procedure notation (Rejected) [347]
PDF Page 17

Change, "[input-1] [,input-2]" to, "[input-1], [input-2]".

Reason for Rejection: The commas are correct as shown. If input-2 is absent, the comma that precedes it also must be absent.

Maxtor 5) Remove 'logically' (Rejected) [348]
PDF Page 18

Delete the word "logically" in item (b) in the bulleted list.

Reason for Rejection: The cited bullet reads as follows:

b) State transitions are logically instantaneous; and

Removing 'logically' would make the statement untrue. State transitions do not occur instantaneously for a sufficiently small definition of instant (e.g., 1 ps). Furthermore, it would be unwise to place SAM-3 in the position of specifying how fast state transitions are required to be completed.

The softening of the cited statement introduced by the use of 'logically' is very important.

Maxtor 6) Architecture [s/b] architecture (Accepted, Editorial) [349]
PDF Page 19

Change, "…the overall SCSI Architecture model;" to, "…the overall SCSI architecture model;"

Maxtor 7) Clarify request to and response from (Accepted, Editorial) [350]
PDF Page 20

Change, "…which includes transmission of the request and response to/from the remote server." to, "…which includes transmission of the request to and the response from the remote server."

Maxtor 8) Add article 'The' (Accepted, Editorial) [351]
PDF Page 30

Change, "SCSI port identifier…" to, "The SCSI port identifier…"

Maxtor 9) Add article 'a' (Accepted, Editorial) [352]
PDF Page 30

Change, "The SCSI port identifier is equivalent to SCSI identifier." To, "The SCSI port identifier is equivalent to the SCSI identifier."

Editor's Note: This comment says 'the' comment Veritas 6) says 'a'. I could not honor both. So, I picked comment Veritas 6).

Maxtor 10) Give example of 'peripheral device' (Accepted, Substantive) [353]
PDF Page 38

The term, "…peripheral device…" is introduced for the first time in this sentence without any definition. This term is used farther down this page and extensively on the page numbered 81 (pdf 99 of 132). I recommend that an "e.g." be added here or an entry be made in the definitions describing this term.

Editor's Note: The first instance of 'peripheral device' will be modified as follows:

> The TARGET/LUN field specifies the address of the peripheral device (e.g., a SCSI device at the next level in the hierarchy) to which the SCSI device shall relay the received command.

Maxtor 11) Eliminate 'need' in the model (Accepted, Editorial) [354]
PDF Page 38

Change, "…entities that need LUNs…" to something like, "…entities that are assigned LUNs…"

Maxtor 12) Delete obsolete bit 1 description (Accepted, Editorial) [355]
PDF Page 61

As this bit was last described in SAM, I recommend that the following sentence be deleted "Bit 1 provides an obsolete way to request interrupts between linked commands."

Maxtor 13) 'an unit' [s/b] 'a unit' (Accepted, Editorial) [356]
PDF Page 62

This is the first of many instances of the phrase "…an unit attention…" in this document. Change this phrase in all cases to the phrase "…a unit attention…"

Editor's Note: 'an unit' will be changed to 'a unit' throughout the standard.

Maxtor 14) Wrong cross reference (Accepted, Editorial) [357]
PDF Page 64

Change list item 4)A): "for any reason not listed in 1);" to, "for any reason not listed in 2);"

Maxtor 15) Remove Editor's Note 1 (Accepted, Substantive) [358]
PDF Page 68
See also comments ENDL 1), IBM 37), TI 1), and HP 166)

I recommend that, "A SCSI initiator device shall support a resolution of one byte." be changed to something like, "A SCSI initiator device shall support a resolution of a minimum of at least one byte."

Editor's Note: This comment will be resolved as described in comment HP 166).

Maxtor 16) Delete 'normally' (Accepted, Editorial) [359]
PDF Page 71

Change, "…the lifetime of a task or command as it appears to the application client ~~normally~~ is different from the lifetime observed by the device server." to, "…the lifetime of a task or command as it appears to the application client is different from the lifetime observed by the device server."

Maxtor 17) Add article 'the' (Accepted, Editorial) [360]
PDF Page 76

Change, "…the application client may request that device server alter command processing…" to, "…the application client may request that the device server alter command processing…"

Maxtor 18) Add article 'the' (Accepted, Editorial) [361]
PDF Page 77

Change, "…the application client may request that device server alter command processing…" to, "…the application client may request that the device server alter command processing…"

Maxtor 19) 'the from' s/b 'from the' (Rejected) [362]
PDF Page 79

Change, "The processing of specific commands (e.g., PERSISTENT RESERVE OUT command with a PREEMPT AND ABORT service action) the from SCSI initiator ports…" to, "The processing of specific commands (e.g., PERSISTENT RESERVE OUT command with a PREEMPT AND ABORT service action) from the SCSI initiator ports…"

Reason for Rejection: Comment Brocade 15) specifies the correct solution for this wording problem.

Maxtor 20) Clarify that CHECK CONDITION is returned for the overlapped command (Accepted, Editorial) [363]
PDF Page 81

Change, "A task manager that detects an overlapped command shall abort all tasks for the faulted initiator port in the task set and the device server shall return CHECK CONDITION status for ~~that~~ command." to, "A task manager that detects an overlapped command shall abort all tasks for the faulted initiator port in the task set and the device server shall return CHECK CONDITION status for the overlapped command."

Maxtor 21) Add article 'the' (Accepted, Editorial) [364]
PDF Page 82

Change, "…and applicable SCSI transport protocol standard." to, "…and the applicable SCSI transport protocol standard."

Maxtor 22) summarized [s/b] listed (Rejected) [365]
PDF Page 89

Change, "The task management function names are summarized in table 28." to, "The task management function names are listed in table 28."

Reason for Rejection: Table 28 has three columns, only one of which is a list of the task management function names. Other summary information is contained in the other two columns. The use of 'summarized' is appropriate.

Maxtor 23) summarized [s/b] listed (Rejected) [366]
PDF Page 98

Change, "The task management function names are summarized in table 29." to, "The task management function names are listed in table 29."

Reason for Rejection: First, the text in the comment does not match the text introducing table 29 in the standard. Second, table 29 has three columns, only one of which is a list of the task state names. Other summary information is contained in the other two columns. The use of 'summarized' is appropriate.

Maxtor 24) does not necessarily [s/b] may not (Accepted, Editorial) [367]
PDF Page 101

Change, "A difference in task priority between tasks does not necessarily override…" to "A difference in task priority between tasks may not override…"

Maxtor 25) Expunge 'initially' (Accepted, Editorial) [368]
PDF Page 104

Change, "In snapshot 1 the task set ~~initially~~ contains one head of queue and one simple task." to, "In snapshot 1 the task set contains one head of queue and one simple task."

Maxtor 26) Ordered tasks contribute to blocking boundaries (Rejected) [369]
PDF Page 106

I'm not sure why task 5 is included as a cause for the boundary. I think that this should be deleted.

Reason for Rejection: Task 5 is included in the blocking boundary because it is an ordered task, meaning that all older tasks must complete before it can exit the dormant state.

Maxtor 27) Duplicate comment (No Action Taken) [370]
PDF Page 106

I'm not sure why task 5 is included as a cause for the boundary. I think that this should be deleted.

Editor's Note: There is no discernible difference between this comment and comment Maxtor 26).

Maxtor 28) Duplicate comment (No Action Taken) [371]
PDF Page 106

I'm not sure why task 5 is included as a cause for the boundary. I think that this should be deleted.

Editor's Note: There is no discernible difference between this comment and comment Maxtor 26).

Maxtor 29) Ordered tasks contribute to blocking boundaries (Rejected) [372]
PDF Page 107

I'm not sure why task 3 is included as a cause for the boundary. I think that this should be deleted.

Reason for Rejection: Task 3 is included in the blocking boundary because it is an ordered task, meaning that all older tasks must complete before it can exit the dormant state.

Maxtor 30) Duplicate comment (No Action Taken) [373]
PDF Page 107

I'm not sure why task 3 is included as a cause for the boundary. I think that this should be deleted.

Editor's Note: There is no discernible difference between this comment and comment Maxtor 29).

Maxtor 31) Duplicate comment (No Action Taken) [374]
PDF Page 107

I'm not sure why task 3 is included as a cause for the boundary. I think that this should be deleted.

Editor's Note: There is no discernible difference between this comment and comment Maxtor 29).

Maxtor 32) I_T nexus loss and task management requests (Accepted, Substantive) [375]
PDF Page 88

Modify the last paragraph of 6.3.4 (I_T nexus loss) as follows:

> When a SCSI initiator port detects an I_T nexus loss, it should terminate all its outstanding **Execute Command** and **Send Task Management Request** procedure calls to the SCSI target port associated with the I_T nexus with a service response of SERVICE DELIVERY OR TARGET FAILURE.

Editor's Note: The cited text will be modified as follows:

> When a SCSI initiator port detects an I_T nexus loss, it should terminate all its outstanding **Execute Command** procedure calls and **Send Task Management Request** procedure calls ~~to~~ for the SCSI target port associated with the I_T nexus with a service response of SERVICE DELIVERY OR TARGET FAILURE.

10. Sun Microsystems, Inc.

Charles Binford from Sun Microsystems, Inc. submitted the following comments on a Yes vote.

Sun 1) Match LU names not port names in multi-path discovery (Accepted, Substantive) [376]
(same text in two places)
4.13.3, Page 45, last sentence on page.
4.13.5, Page 47, Last sentence of paragraph following figure 20
See also comment HP 118) and HP 127)

Current text:

'The availability of the same logical unit through multiple SCSI target ports is discovered by matching SCSI port name or identifier values in the INQUIRY command Device Identification VPD page (see SPC-3).'

The availability of the same LU through multiple ports is discovered by matching LU names, not SCSI port names.

Editor's Note: The cited text will be modified as follows in both the cited locations:

The availability of the same logical unit through multiple SCSI target ports is discovered by matching ~~SCSI port name or identifier~~ logical unit name values in the INQUIRY command Device Identification VPD page (see SPC-3).

Sun 2) ACA ACTIVE status definition is redundant and incomplete (Accepted, Substantive) [377]
5.3.1, Page 63, 'ACA ACTIVE' description
See also comment HP 151)

The a), b), c), list is overly simplified and not consistent with the tables in sections 5.9.2.2 and 5.9.2.3 (e.g. Under certain conditions a BUSY is supposed to be returned instead of ACA Active). I suggest that instead of trying to fix this text the section be reworded along the following lines:

'The status shall be returned under certain conditions when an ACA exits within the task set. See 5.9.2.2 and 5.9.2.3 for details.'

Editor's Note: The cited text will be replaced with:

This status shall be returned as specified in 5.9.2.2 and 5.9.2.3 when an ACA exists within the task set.

Sun 3) Overlapped commands are another reason the task no longer exists (Accepted, Substantive) [378]
5.5, Page 71, a) through f) list of conditions that indicate tasks no longer exist

This list should include receiving the Sense data Aborted-Command/Overlapped-Commands-Attempted. (See 5.9.3)

Editor's Note: The following new entry will be added to the cited list:

c) Receipt of a CHECK CONDITION status with a sense key set to ABORTED COMMAND and an additional sense code set to OVERLAPPED COMMANDS ATTEMPTED (see 5.9.3);

Sun 4) Overlapped commands question (Rejected) [379]
5.7.1, Page 72, bottom of page

Sending an Overlapped Command is an action that causes the sending initiator port's IOs to be aborted. However, I'm not sure if it fits the context since the condition is an indication of a bug. I brought it up, I'll let the editor/ committee decide if it fits.

Reason for Rejection: Because this is not a "normal mode of operation" it is not appropriate for inclusion in the cited list.

Sun 5) Incorporate 04-088 (Unresolved) [380]
Multiple sections, multiple pages, but 5.7.2, 5.7.3 on page 73 are examples.

The term 'initiator port' is used in many, many places throughout the document to describe a subset of tasks, e.g. 'task(s) of another SCSI initiator port…'. My contention is that in most of these cases the group of tasks is more accurately described as the tasks from a SCSI initiator port sent across a particular I_T nexus. I already have a document addressing this concern, 04-088, and will continue to pursue this issue via that document instead of in this set of comments.

Sun 6) Incorrect Logical Unit Selection and REPORT LUNS (Accepted, Substantive) [381]
5.9.4, Page 81, bottom of page

'Any command except Request Sense or Inquiry:' is incomplete. The command REPORT LUNS needs to be added to this section.

Editor's Note: Including the changes described in comment Brocade 15), the cited text will be modified as follows:

In response to ~~an~~ a REQUEST SENSE command, a REPORT LUNS command, or an INQUIRY command the SCSI target device shall respond as defined in SPC-3.

Any command except REQUEST SENSE, REPORT LUNS, or INQUIRY:

Sun 7) TAS = 1 means no unit attention for cleared tasks (Accepted, Substantive) [382]
5.9.7, Page 82, sentence e)

'e) Tasks for this SCSI initiator port were cleared by another SCSI initiator port;' This is true only if the TAS bit in the control mode page is 0.

Editor's Note: The cited text will be modified as follows:

e) Tasks for this SCSI initiator port were cleared by another SCSI initiator port and the TAS bit was set to zero in the Control mode page for this SCSI initiator port (see SPC-3);

Sun 8) 'an unit' [s/b] 'a unit' (Accepted, Editorial) [383]
5.9.7, page 83, multiple paragraphs

'an unit attention' should be 'a unit attention'.

Editor's Note: 'an unit' will be changed to 'a unit' throughout the standard.

11. Texas Instruments

Paul D. Aloisi from Texas Instruments submitted the following comments on a Yes vote.

TI 1) Resolve Editor's Note 1 (Accepted, Substantive) [384]
pg 68, 5.4.3.1, Editor's Note 1
See also comments ENDL 1), IBM 37), Maxtor 15), and HP 166)

Editors notes should be resolved before a document goes out for review.

Byte limitations should remain the rule in this version of SAM, future versions may want consider this again. There has to be a basic unit definition, the byte should remain the basic unit.

Editor's Note: This comment will be resolved as described in comment HP 166).

12. Veritas Software

Roger Cummings from Veritas Software submitted the following comments on a Yes vote.

Veritas 1) Add HiSup acronym (Rejected) [385]
PDF pg 32, pg 14, 3.2 Acronyms

Add HiSUP to acronyms

Proposed Solution:

HISUP Hierarchy Supported (see 4.9.1 and SPC-3)

Reason for Rejection: HiSup is the name of a bit in the standard INQUIRY data, not an acronym. This usage is clearly described every time HiSup is mentioned, as in this example from 4.9.1 (Logical unit numbers overview):

> The HiSup bit shall be set to one in the standard INQUIRY data (see SPC-3) when any logical unit number format described in this standard is used.

Veritas 2) Insert 2 a's (Accepted, Editorial) [386]
PDF pg 39, pg 21, 4.3 The SCSI client-server model

a single command, series of linked commands, or task management function

Proposed Solution:

a single command, a series of linked commands, or a task management function

Veritas 3) SCSI targets contain one or more logical units (Accepted, Editorial) [387]
PDF pg 42, pg 24, 4.5 SCSI Domain

A SCSI device containing logical units that process commands is called a SCSI target device.

Proposed Solution:

A SCSI device containing one or more logical units that process commands is called a SCSI target device.

Veritas 4) Application clients communicate with both device servers and task managers (Accepted, Editorial) [388]
PDF pg 42, pg 24, 4.5 SCSI Domain

providing a mechanism through which application clients and device servers communicate (see 4.6).

Proposed Solution:

providing a mechanism through which application clients and device servers or task managers communicate (see 4.6).

Editor's Note: The proposed wording leaves the precedence of the 'and' and 'or' open to interpretation. The cited sentence will be modified as follows:

> The service delivery subsystem connects all the SCSI ports in the SCSI domain, providing a mechanism through which application clients ~~and~~ communicate with device servers and task managers ~~communicate~~ (see 4.6).

Veritas 5) Commands are 'sent' to logical units, not 'addressed' to them (Accepted, Editorial) [389]
PDF pg 48, pg 30, 4.7.3 SCSI target/initiator device

"A logical unit is the object to which commands are sent." In 4.7.2 the term "addressed" is used instead of sent, should be consistent

Proposed Solution:

A logical unit is the object to which commands are addressed.

Editor's Note: The cited text in 4.7.2 (not 7.4.3) will be modified as follows:

> A logical unit is the object to which commands are ~~addressed~~ sent.

Veritas 6) Add 'a' and cross references to SCSI identifier definitions (Accepted, Editorial) [390]
PDF pg 48, pg 30, 4.7.4 SCSI port identifier

The SCSI port identifier is equivalent to SCSI identifier.

Proposed Solution:

The SCSI port identifier is equivalent to a SCSI identifier (see 3.1.9.3 and Annex B).

Veritas 7) Do relative port number change across power cycles? (No Action Taken) [391]
PDF pg 48, pg 30, 4.7.5 relative port identifier

Question: The last paragraph implies relative port identifiers do not change across power cycles - is this true?

Editor's Note: Yes. The CAP working group agreed that relative port identifiers do not change unless a reconfiguration occurs.

Veritas 8) Move cross reference next to the term it describes (Accepted, Editorial) [392]
PDF pg 50, pg 32, 4.8 Logical Units

A logical unit number is a field (see 4.9)

Proposed Solution:

A logical unit number (see 4.9) is a field

Veritas 9) Clarify 'one or more' dependent logical units & add cross reference to definition (Accepted, Editorial) [393]
PDF pg 50, pg 32, 4.8 Logical Units

If any logical unit within the scope of a SCSI target device includes dependent logical units in

Proposed Solution:

If any logical unit within the scope of a SCSI target device includes one or more dependent logical units (see 3.1.23) in

Veritas 10) Device servers process tasks (Accepted, Editorial) [394]
PDF pg 50, pg 32, 4.8 Logical Units

The device server is the object that processes the operations requested by the received commands.

Proposed Solution:

The device server is the object that processes the operations received in Device Service Requests.

Editor's Note: The cited text will be modified as follows:

> The device server is the object that processes tasks (see 4.11). ~~the operations requested by the received commands.~~

Veritas 11) Add cross reference — overtaken by events (No Action Taken) [395]
PDF pg 51, pg 33, 4.9.2 LUN 0 address

To address the LUN 0 of a SCSI device the peripheral device address method shall be used.

Proposed Solution:

To address the LUN 0 of a SCSI device the peripheral device address method (see 4.9.6) shall be used.

Editor's Note: This comment would have been accepted, but the cited sentence has been deleted by the response to comment HP 61).

Veritas 12) Incorrect cross reference (Accepted, Editorial) [396]
PDF pg 52, pg 34, 4.9.3 Single level logical unit number structure

Table 1 describes a single level subset of the format described in 4.14 for logical unit numbers 255 and below.

Proposed Solution:

Table 1 describes a single level subset of the format described in 4.9.4 for logical unit numbers 255 and below.

Veritas 13) Add glossary entry for extended logical unit addressing (Accepted, Editorial) [397]
PDF pg 52, pg 34, 4.9.3 Single level logical unit number structure

Comment: dependent logical units are defined in clause 3, extended addressing logical units are not defined

Proposed Solution:

Add definition for extended addressing logical units to clause 3

Editor's Note: The following new glossary entry will be added:

> **3.1.x Extended logical unit addressing:** The logical unit addressing method used by special function logical units (e.g., well known logical units). See 4.9.8.

Veritas 14) Is 'relay' as in 'relay commands' common English usage? (No Action Taken) [398]
PDF pg 55, pg 37, 4.9.6 Peripheral device addressing method

Question: is the term relay here common usage? Should it be more clearly defined?

Editor's Note: Yes. One of the English dictionary definitions of 'relay' is:

> "the act of passing along (as a message or ball) by stages".

Veritas 15) Is INQUIRY special in the flat address space? (Accepted, Substantive) [399]
PDF pg 56, pg 38, 4.9.7 Flat space addressing method

Question: Why is the last paragraph on page 38 included for this address method and not for any others?

Editor's Note: The cited sentence has been deleted in response to comment HP 86).

Veritas 16) Incorrect cross reference (Accepted, Editorial) [400]
PDF pg 57, pg 39, 4.9.8 Extended logical unit addressing

(see table 6 in 4.14)

Proposed Solution:

(see table 6 in 4.9.4)

Veritas 17) EXTENDED ADDRESS METHOD SPECIFIC field size confusing in table 11 (Accepted, Editorial) [401]
PDF pg 57, pg 39, 4.9.8 Extended logical unit addressing

Comment: Table 11 is correct but confusing e.g. the 1st line contains a length of one byte but references table 12 which is the "two byte extended addressing format".

Proposed Solution:

Make the length column in table 11 numeric i.e. make the heading identify bytes as the value and put the 1st line entry as "1" etc.

Editor's Note: Table 11 will be modified as follows:

Table 11 — LENGTH field values and related sizes

Value	Size in bytes of		Reference
	~~Length of the~~ EXTENDED ADDRESS METHOD SPECIFIC ~~Field~~ field	Extended logical unit addressing format	
00b	~~One byte~~ 1	2	table 12
01b	~~Three bytes~~ 3	4	table 13
10b	~~Five bytes~~ 5	6	table 14
11b	~~Seven bytes~~ 7	8	table 15

Veritas 18) Eight byte extended logical unit addressing byte numbering is different (Rejected) [402]
PDF pg 58, pg 40, Table 15 Eight byte extended logical unit addressing format

Question: Why is the byte numbering different in this table from the three preceding ones?

Proposed Solution:

Number the three lines, n, n+1 and n+6

Reason for Rejection: The bytes in the eight byte format cannot be in position n in the hierarchical logical unit address format shown in table 4. There are eight bytes in the eight byte extended logical unit addressing format and there are eight bytes in a logical unit number. The eight bytes in this particular extended logical unit addressing format must by bytes 0 to 7 (inclusive) and that is precisely what table 15 shows.

Veritas 19) Add cross reference to well known logical units (Accepted, Editorial) [403]
PDF pg 59, pg 41, 4.9.9 Well known logical unit addressing

A SCSI target device may support zero or more well known logical units.

Proposed Solution:

A SCSI target device may support zero or more well known logical units (see 4.10).

Veritas 20) Well-known logical unit addressing (Accepted, Editorial) [404]
PDF pg 60, pg 42, 4.10 Well known logical units

Well known logical units are addressed using the well known logical unit addressing method of extended logical unit addressing (see 4.9.8).

Proposed Solution:

Well known logical units are addressed using the well known logical unit addressing method (see 4.9.9).

Editor's Note: The cited text will be modified as follows:

> Well known logical units are addressed using the well known logical unit addressing method (see 4.9.9) of extended logical unit addressing (see 4.9.8).

Veritas 21) Invalid LU selection [s/b] Incorrect LU selection (Accepted, Editorial) [405]
PDF pg 60, pg 42, 4.10 Well known logical units

shall follow the rules for selection of invalid logical units described in 5.9.4.

Proposed Solution:

shall follow the rules for selection of incorrect logical units described in 5.9.4.

Veritas 22) Add reference to where SCSI target device name rules appear (Accepted, Editorial) [406]
PDF pg 60, pg 42, 4.10 Well known logical units

A SCSI target device may have more than one SCSI target device name if the SCSI target device supports multiple SCSI transport protocols.

Proposed Solution:

A SCSI target device may have more than one SCSI target device name if the SCSI target device supports multiple SCSI transport protocols (see 4.7.2 for additional requirements related to name formats).

Editor's Note: The proposed cross reference will be added, but the descriptive text will not. See comment HP 114) for details.

Veritas 23) reservation [s/b] persistent reservation (Accepted, Editorial) [407]
PDF pg 68, pg 50, Note 4

exclusive access reservation

Proposed Solution:

exclusive access persistent reservation

Veritas 24) RESERVE/RELEASE in SAM-3 (Rejected) [408]
PDF pg 68, pg 50, Note 4

Question" SPC-2 is included in the Normative References. Should reserve/release also be addressed in SAM-3, in Note 4 and in RESERVATION CONFLICT in 5.3.1 (PDF pg 81, pg 63)??

Reason for Rejection: No way!!!!

Veritas 25) logical unit [s/b] logical unit number (Accepted, Editorial) [409]
PDF pg 69, pg 51, 4.14 Model for dependent logical units

When the dependent logical unit model is utilized, the hierarchical logical unit structure defined in 4.9.4

Proposed Solution:

When the dependent logical unit model is utilized, the hierarchical logical unit number structure defined in 4.9.4

Veritas 26) 'tree' is not specific (Accepted, Editorial) [410]
PDF pg 70, pg 52, 4.14 Model for dependent logical units

Question: Does this a) thru d) lists here contradict with the requirement on the previous page to use the hierarchical logical unit structure defined in 4.9.4?

Editor's Note: The introductory phrase for the cited a,b,c list will be modified as follows:

> SCSI devices at each level in the ~~tree~~ hierarchical logical unit structure are referenced by one of the following address methods: …

Veritas 27) SBC [s/b] SBC-2 (Accepted, Editorial) [411]
PDF pg 80, pg 62, 5.2 Command descriptor block (CDB)

Comment: SBC is not included in the Normative References

Proposed Solution:

Add SBC to Normative References

Editor's Note: Instead, the cited text will be modified (twice on the cited page) as follows:

> … (see the PRE-FETCH commands in the ~~SBC~~ SBC-2 standard) …

And, SBC-2 will be added to the references under development.

Veritas 28) Add cross reference to 'port' history (Accepted, Editorial) [412]
PDF pg 28, pg 10, 3.1.72 port

Add reference to Annex B

Proposed Solution:

(see 3.1.96 and Annex B)

Veritas 29) SCSI port definition not complete (Accepted, Editorial) [413]
PDF pg 28, pg 10, 3.1.72 port

3.1.94 SCSI port: A SCSI device resident object that connects the application client, device server or task manager to the service delivery subsystem through which requests and responses are routed. SCSI port is synonymous with port. A SCSI port is either a SCSI initiator port (see 3.1.93) or a SCSI target port (see 3.1.98).

Proposed Solution:

3.1.94 SCSI port: A SCSI device resident object that connects the application client and/or (device server and task manager) to the service delivery subsystem through which requests and responses are routed. SCSI port is synonymous with port. A SCSI port is one of a SCSI initiator port (see 3.1.93), a SCSI target port (see 3.1.98), or a SCSI target/initiator port (see 3.1.102).

Editor's Note: The cited definition will be modified as follows:

> **3.1.94 SCSI port:** A SCSI device resident object that connects the application client, device server or task manager to the service delivery subsystem through which requests and responses are routed. SCSI port is synonymous with port. A SCSI port is ~~either~~ one of: a SCSI initiator port (see 3.1.93), ~~or~~ a SCSI target port (see 3.1.98), or a SCSI target/initiator port (see 3.1.102).

The proposed change in the first sentence appears to be some kind of pseudo-mathematical notational attempt to convey the request/response relationship between application clients and target device components. Since the notation is not defined in the Editorial Conventions subclause, the proposed change produces confusion instead of illumination.

13. Late Comments

The following issues were discovered during the letter ballot comments resolution process.

Other 1) Figure 5 not in list of figures (Accepted, Editorial) [414]
pg x, Figures (list)

Figure 5 does not appear in the table of contents list of figures. Get it listed.

Other 2) 'task priority' glossary entry needed (Accepted, Editorial) [415]
pg 13, after 3.1.129

For cross reference from the SPC-3 REPORT/SET PRIORITY commands, a glossary entry is required for task priority.

Editor's Note: The following new glossary entry will be added:

> **3.1.x task priority:** The relative scheduling importance of a task having a SIMPLE task attribute in relation to other tasks already in the task set.

Other 3) Add normative/informative to Table of Contents Annex entries (Accepted, Editorial) [416]
pg vii

As required by ISO, make the glossary entries for annexes include the normative or informative status of the annex.

Other 4) Fix incorrect cross reference (Accepted, Editorial) [417]
pg 39, 4.9.8 (Extended logical unit addressing), p 1, s 1

As noted in the ISO ballot for SAM-2, change the cross reference from 4.14 to 4.9.4.

Other 5) Clarify that Extended addressing is at this level (Accepted, Substantive) [418]
pg 39, 4.9.8 (Extended logical unit addressing)
See also comment EMC 3), comment HP 85), and comment HP 95)

Including the addition of introductory text for table 10 needed to resolved comment HP 95), insert the following as the new first paragraph of the subclause:

> Extended logical unit addressing (see table 10) specifies a logical unit at the current level.

Other 6) Add missing 'and' (Accepted, Editorial) [419]
pg 61, 5.2 Command descriptor block (CDB), 3rd p after table 20

Modify as follows:

> If the NACA bit is set to one but the logical unit does not support ACA, the logical unit shall complete the command with a CHECK CONDITION status, sense key of ILLEGAL REQUEST, and an additional sense code of INVALID FIELD IN CDB.

Other 7) Sense Keys & Codes are set (Accepted, Substantive) [420]

In an all Autosense world, sense keys and additional sense codes are set.

Make a global search and replace for:

- sense key of [s/b] sense key set to
- additional sense code of [s/b] additional sense code set to