

Voting Results on T10 Letter Ballot 07-434r0 on  
 Forwarding SAM-4 to First Public Review  
 Ballot closed: 2007/10/29 12:00 noon MDT

Organization	Name	S Vote	Add'l Info
Adaptec, Inc.		DNV	
AMCC	Paul von Stamwitz	P Yes	
Amphenol Interconnect	Gregory McSorley	P Yes	
ATL Technology	Jaremy Flake	P Yes	
Brocade	David Peterson	P Yes	Cmnts
Dell, Inc.	Kevin Marks	P Yes	
EMC Corp.	David Black	A Yes	
Emulex	William Martin	P Yes	Cmnts
ENDL	Ralph O. Weber	P Yes	
FCI	Douglas Wagner	P Yes	
Finisar Corp.	David Freeman	P Yes	
Foxconn Electronics	Elwood Parsons	P Yes	
Fujitsu	Mike Fitzpatrick	P Yes	
General Dynamics	Nathan Hastad	P Yes	
Hewlett Packard Co.	Rob Elliott	P No	Cmnts
Hitachi Global Storage Tech.	Dan Colegrove	P Yes	
IBM Corp.	George O. Penokie	A Yes	
Intel Corp.	Mark Seidel	P Yes	
Iomega Corp.	Robert Payne	P Yes	
Kawasaki Microelectronics Am	Joel Silverman	P Yes	
KnowledgeTek, Inc.	Dennis Moore	P Yes	
Lexar Media, Inc.	Martin Furuhjelm	A Yes	
LSI Corp.	John Lohmeyer	P Yes	
Marvell Semiconductor, Inc.	Paul Wassenberg	A Yes	
Maxim Integrated Products	Gregory Tabor	P Yes	
Microsoft Corp.	Mark Benedikt	P Yes	
Molex Inc.	Jay Neer	P Yes	
NeoScale Systems Inc.	Landon Noll	A Yes	
Network Appliance	Frederick Knight	P Yes	Cmnts
Nvidia Corp.	Mark Overby	P Yes	
Panasonic Technologies, Inc	Takaharu Ai	A Yes	
PMC-Sierra	Tim Symons	P Yes	
Quantum Corp.	Paul Suhler	P Yes	Cmnts
Samsung	Michael Rogers	A Yes	
SanDisk Corporation	Avraham Shimor	P Yes	
Seagate Technology	Gerald Houlder	P Yes	
STMicroelectronics, Inc.	Stephen Finch	P Yes	
Sun Microsystems, Inc.	Erich Oetting	P Yes	
Symantec	Roger Cummings	P Yes	
TycoElectronics	Ashlie Fan	P Yes	
Vitesse Semiconductor	Mahbubul Bari	A Yes	
Western Digital	Mark Evans	P No	Cmnts

Ballot totals: (39:2:0:1=42)  
 39 Yes  
 2 No  
 0 Abstain  
 1 Organization(s) did not vote  
 42 Total voting organizations  
 6 Ballot(s) included comments

This 2/3rds majority ballot passed.  
 39 Yes are more than half the membership eligible to vote  
 [greater than 21] AND  
 39 Yes are at least 28 (2/3rds of those voting YES or NO [41]).

Key:  
 P Voter is principal member  
 A Voter is alternate member  
 Abs Abstain vote  
 DNV Organization did not vote  
 Cmnts Comments were included with ballot  
 NoCmnts No comments were included with a vote that requires comments

[This report prepared by LB2 v2.2.]  
 \*\*\*\*\*

Comments attached to Yes ballot from David Peterson of  
 Brocade:

Brocade-001

The text in SAM-4 rev 13, clause 4.7.2

"The task identifier (i.e., the Q in an I\_T\_L\_Q nexus) represents a task, allowing many uniquely identified tasks to be outstanding at once. Each SCSI transport protocol defines the size of the task identifier, up to a maximum of 64 bytes, to be used by SCSI ports that support that SCSI transport protocol."

Has been changed to read something like:

"The Task Identifier (i.e., the Q in an I\_T\_L\_Q nexus) uniquely identifies a task,..."

I do not believe that is precisely correct. It only identifies the task uniquely within the context of a particular I\_T\_L nexus. As an example, see SPI-3's use of the Message Out and Message In to provide the Q value, which is only valid for a particular I\_T\_L nexus. As a second example, consider FCP, that uses X\_ID between a single initiator and target as the identifier, but where the same X\_ID may appear on other commands from a different initiator to the same target.

As a result, the proper wording would be something like:

"The Task Identifier (i.e., the Q in an I\_T\_L\_Q nexus) uniquely identifies a task in the context of a particular I\_T\_L nexus, ..."

\*\*\*\*\*

Comments attached to Yes ballot from William Martin of Emulex:

Emulex-001

Page: 2 first sentence below Figure 2 - "roadmap" s/b "document structure"

Emulex-002

Page: 3 Device-Type Specific Command Sets: - second sentence "is" s/b "are"

Emulex-003

Page: 5 3.1.10 "When in this state" s/b "A state in which"

Emulex-004

Page: 6 3.1.28 "supplier" s/b "server"

Emulex-005

Page: 6 3.1.35 and 3.1.36 "When in this state" s/b "A state in which"

Emulex-006

Page: 11 3.1.121 This definition is a partial sentence. It needs to specify: The portion (i.e., Q) of an I\_T\_L nexus (see 3.1.49) in a task set that uniquely identifies each task.

Emulex-007

Page: 12 ADC-2, FCP-4, SAS-2, SBC-3, SBP-3 and SPC-4 make hyphenation consistent in all full standard names. Some have a space before hyphen some do not. ADC-2 has a space after the hyphen.

Emulex-008

Page: 13 3.3.8 last sentence: For backward compatibility in future standards, shouldn't this be "Recipients shall not check ..."?

Emulex-009

Page: 34 4.5.10 second paragraph: This sentence fragment seems to be out of place.

Emulex-010

Page: 35 Paragraph after second a-b list "The interactions between the task manager, or a task router, &" remove the first comma.

Emulex-011

Page: 35 4.5.11.3 "The Function Identifier attribute contains function identifier" s/b "The Function Identifier attribute contains a function identifier"

Emulex-012

Page: 72 task set full □end of second paragraph there is an extraneous "c" in sentence

Emulex-013

Page: 79 Receive Data-Out Input argument list: Put these arguments in the same order as in the service request above.

Emulex-014

Page: 122 A.2 first sentence "attribute" s/b "attributes"

Emulex-015

Page: 122 A.2 last two sentences of first paragraph: To clarify that the tables do not specify which standard makes requirements, change to:  
"Table A.1 also lists whether SCSI transport protocols and logical units are required to support identifier attributes by either this standard or SPC-4. Table A.2 also lists whether SCSI transport protocols and logical units are required to support name attributes by either this standard or SPC-4."

Emulex-016

Page: 127 A.3.4: This seems to be a self reference. Should this be "SAS-2 Serial SCSI Protocol (see SAS-2)."

\*\*\*\*\*

Comments attached to No ballot from Rob Elliott of Hewlett Packard Co.:

HPQ comment number 1

Page=1 Subtype=Text Subj=Note Author=relliott

Comment=

move right-justified text on page i right by .2 inches to line up with the horizontal lines

---

HPQ comment number 2

Page=3 Subtype=Highlight Subj=Highlight Author=relliott

Comment=

SCSI Architecture Model - 4

s/b

SCSI Architecture Model - 4 (SAM-4)

---

HPQ comment number 3

Page=18 Subtype=Highlight Subj=Highlight Author=relliott

Comment=

The SCSI Architecture Model - 4 standard

s/b

This standard

---

HPQ comment number 4

Page=18 Subtype=Highlight Subj=Highlight Author=relliott

Comment=

Lists

s/b

lists

---

HPQ comment number 5

Page=18 Subtype=Highlight Subj=Highlight Author=relliott

Comment=

SAM-3 and this standard

s/b

this standard and previous versions of this standard

---

HPQ comment number 6

Page=19 Subtype=Highlight Subj=Highlight Author=relliott

Comment=  
SCSI Architecture Model - 4  
s/b  
SCSI Architecture Model - 4 (SAM-4)

(page 1 footer differs from the other pages)

---  
HPQ comment number 7  
Page=19 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
architecture model concepts  
s/b  
concepts

---  
HPQ comment number 8  
Page=20 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Architecture Model  
s/b  
SCSI Architecture Model

---  
HPQ comment number 9  
Page=21 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Architecture Model  
s/b  
SCSI Architecture Model

---  
HPQ comment number 10  
Page=22 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
References  
s/b  
references

---  
HPQ comment number 11  
Page=22 Subtype=StrikeOut Subj=Cross-Out Author=relliott  
Comment=  
Delete "IEC 60027-2:2000, Letter symbols to be used in electrical  
technology - Part 2: Telecommunications and electronics"

This is the reference that defines Ki, Mi, etc. prefixes for powers-of-two  
units to avoid misusing the SI powers-of-ten units. These prefixes are not  
used in this standard.

---  
HPQ comment number 12  
Page=23 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA task attribute  
s/b ACA (smallcaps lowercase) task attribute

---  
HPQ comment number 13  
Page=23 Subtype=Text Subj=Note Author=relliott  
Comment=At the end of 3.1.14 class diagram, add "See 3.6.2."

---  
HPQ comment number 14  
Page=23 Subtype=StrikeOut Subj=Cross-Out Author=relliott  
Comment=performed by a task

---  
HPQ comment number 15  
Page=24 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
(see 3.1.45), also  
s/b  
(see 3.1.45). Also,

---  
HPQ comment number 16

Page=24 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
returning a status and service response of TASK COMPLETE  
s/b  
returning a service response of TASK COMPLETE

The status is of secondary importance and doesn't need to be mentioned. As worded, it sounds like TASK COMPLETE could be a status value.

---  
HPQ comment number 17  
Page=24 Subtype=StrikeOut Subj=Cross-Out Author=relliott  
Comment=  
3.1.22 completed task: A task that has ended by returning a status and service response of TASK COMPLETE.

Delete this definition and replace all uses of "completed task" with "completed command." Their definitions are identical now that task=command.

---  
HPQ comment number 18  
Page=24 Subtype=Text Subj=Note Author=relliott  
Comment=  
The relationship of command and task is unclear now that linked commands are gone. The standard uses a mix of the terms with no apparent reason (if read without remembering the history).

---  
HPQ comment number 19  
Page=26 Subtype=Text Subj=Note Author=relliott  
Comment=At the end of 3.1.72 object diagram, add "See 3.6.3."

---  
HPQ comment number 20  
Page=26 Subtype=Text Subj=Note Author=relliott  
Comment=  
The phrase "logical unit number" is used many times in the standard where the acronym LUN could/should be used instead.

---  
HPQ comment number 21  
Page=27 Subtype=Text Subj=Note Author=relliott  
Comment=At the end of 3.1.80 procedure call, add "See 3.6.4."

---  
HPQ comment number 22  
Page=27 Subtype=Text Subj=Note Author=relliott  
Comment=  
Add:  
3.1.xx power loss expected: A condition resulting from a power loss expected event in which the logical unit performs the power loss expected operations described in 6.3.5, SPC-4, and the appropriate transport protocol and command standards.

---  
HPQ comment number 23  
Page=27 Subtype=Text Subj=Note Author=relliott  
Comment=  
Add:  
3.1.xx power loss expected event: An event that results in a power loss expected condition (see 3.1.xx) as described in 6.3.5.

---  
HPQ comment number 24  
Page=29 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
(global)

task identifier  
s/b  
task tag

There is no good justification for making this change from SAM-3 to SAM-4. Every transport protocol uses the name "tag" now and will have to unnecessarily change. This is reminiscent of changing "queue" to "task set" from SCSI-2 to SCSI-3.

This helps make the ingredients in I\_T\_L\_Q nexus have similar names, but "logical unit number" is not being renamed to "logical unit identifier" to make them all consistent.

---  
HPQ comment number 25  
Page=29 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
"assume the SCSI initiator device role"

The logical unit doesn't become an SCSI initiator device itself. The command forces the SCSI device containing that logical unit to assume the SCSI initiator device role.

---  
HPQ comment number 26  
Page=29 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
whose objects are, or an object that is, within the logical unit representing  
s/b  
within the logical unit whose objects represent, or an object that represents,

---  
HPQ comment number 27  
Page=29 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
whose objects are, or an object that is, within a logical unit that controls  
s/b  
within a logical unit whose objects control, or an object that controls

---  
HPQ comment number 28  
Page=29 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
are  
s/b  
are each  
  
to match "is" later

---  
HPQ comment number 29  
Page=29 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
whose objects are, or an object that is, within a SCSI target port that routes  
s/b  
within a SCSI target port whose objects route, or an object that routes

---  
HPQ comment number 30  
Page=31 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
as error  
s/b  
as an error

---  
HPQ comment number 31  
Page=32 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Within class diagrams and object diagrams there may be constraints which specify requirements and notes which are informative.  
s/b  
Class diagrams and object diagrams may include constraints, which specify requirements, and notes, which are informative.

---  
HPQ comment number 32  
Page=41 Subtype=StrikeOut Subj=Cross-Out Author=relliott  
Comment=  
Delete "(e.g., a task identifier)"

None of the classes include that as their single attribute.

---  
HPQ comment number 33  
Page=41 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
The model does not address other requirements that may be essential to some  
I/O system implementations  
s/b  
The model does not address other requirements that are essential to some  
I/O system implementations

---  
HPQ comment number 34  
Page=42 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
A client may only originate requests for service. A server may only respond  
to such requests.  
s/b  
A client only originates requests for service. A server only responds to  
such requests.

---  
HPQ comment number 35  
Page=43 Subtype=Text Subj=Note Author=relliott  
Comment=  
The last paragraph in 4.3.1 discusses commands and device server requests.  
It should also discuss TMFs and task management requests, to cover  
everything shown in figure 12.

---  
HPQ comment number 36  
Page=43 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
"SCSI initiator device" is not quite right.  
  
The SCSI initiator device might deduce that a command was received by the  
target by noticing data transfer requests for that command. Some protocols  
explicitly mention that "implicit ACK."  
  
It might be better to word this sentence with "application client", since  
although it is part of the initiator device it is not involved in the data  
transfer protocol services.

---  
HPQ comment number 37  
Page=43 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
architecture model  
s/b  
SCSI architecture model

---  
HPQ comment number 38  
Page=44 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
SCSI domain  
s/b  
SCSI Domain class

---  
HPQ comment number 39  
Page=46 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
SCSI Domain class (figure 15)  
s/b  
SCSI Domain class (see figure 15)

---  
HPQ comment number 40  
Page=46 Subtype=Text Subj=Note Author=relliott  
Comment=  
The implication that a logical unit is contained within only one SCSI  
target device may be too tight.

1. The way hierarchical logical units are currently modeled, a logical unit  
is part of its real SCSI target device and also part of each of the SCSI

target devices that route to it. (A separate comment suggests removing hierarchical logical units from the model)

2. With virtualization (e.g., RAID), some logical units (e.g., the physical disk drives) are used by a "higher level" logical unit (e.g., a RAID-5 volume). There is some interaction between the states of the higher and lower level logical units.

3. With remote replication, a logical unit can be in two different places at the same time. The media is essentially synchronized (writes to New York are immediately picked up by reads in Los Angeles). However, the task set states are not (an ABORT TASK SET in New York doesn't abort commands pending in Los Angeles).

To acknowledge these oddities, perhaps add a statement like "The medium accessed by a logical unit may not be exclusively accessible through that logical unit."

An optional containment relationship from logical unit to logical unit might represent the more complex interactions.

---

HPQ comment number 41

Page=46 Subtype=Text Subj=Note Author=relliott

Comment=

The SCSI Device to SCSI Target Device/SCSI Initiator Device relationship should be an inheritance relationship, not an aggregation relationship. Same for SCSI Port to SCSI Initiator Port/SCSI Target Port. This would be a proper use of multiple inheritance.

Comment from someone experienced with UML at HP:

"When they start showing that ports "contain" target and initiator ports, it seems to me that they really are describing inheritance. If that is true, they are mixing inheritance (a port shouldn't really be a SCSI device so much as a Network device anyway so that SCSI can go over any topology) and containment concepts in the same UML by overloading the aggregation symbol to include inheritance.

It is probably going to be hard for UML people to decipher. It is not at all consistent with UML for SCSI management (read SMI-S here), so if they are planning on representing topologies or developing a data model for management or as part of the protocol with this then I am really concerned."

---

HPQ comment number 42

Page=47 Subtype=Highlight Subj=Highlight Author=relliott

Comment=

A Service Delivery Subsystem class

s/b

The Service Delivery Subsystem class

---

HPQ comment number 43

Page=48 Subtype=Highlight Subj=Highlight Author=relliott

Comment=

"See figure 17 for the SCSI Device class diagram.

The SCSI Device class"

s/b

"The SCSI Device class (see figure 17)"

---

HPQ comment number 44

Page=48 Subtype=Highlight Subj=Highlight Author=relliott

Comment=

architecture model

s/b

SCSI architecture model

---

HPQ comment number 45

Page=50 Subtype=Highlight Subj=Highlight Author=relliott

Comment=

SCSI Initiator Port class

s/b

SCSI Initiator Port class (see figure 18)



---

HPQ comment number 46  
Page=50 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
SCSI Initiator Port (see figure 18) class  
s/b  
SCSI Initiator Port class

---

HPQ comment number 47  
Page=50 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=; s/b .

---

HPQ comment number 48  
Page=50 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Relative port identifiers may be retrieved through the Device  
Identification VPD page (see SPC-4) and the SCSI Ports VPD page (see  
SPC-4).  
s/b  
The Device Identification VPD page (see SPC-4) and the SCSI  
Ports VPD page (see SPC-4) report relative port identifiers.

---

HPQ comment number 49  
Page=50 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
A SCSI target port may have at most one name.  
s/b  
A SCSI target port shall have at most one name.

---

HPQ comment number 50  
Page=51 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
A SCSI initiator port may have at most one name.  
s/b  
A SCSI initiator port shall have at most one name.

---

HPQ comment number 51  
Page=51 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
incorrect logical unit

There is no such thing as an incorrect logical unit, just incorrect logical  
unit numbers.

---

HPQ comment number 52  
Page=51 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
incorrect logical unit

There is no such thing as an incorrect logical unit, just incorrect logical  
unit numbers.

---

HPQ comment number 53  
Page=52 Subtype=Text Subj=Note Author=relliott  
Comment=  
Nexus and Function Identifier should be swapped in figure 19 and in  
sections 4.5.11.2 and 4.5.11.3 to match the SCSI Target Device side in  
figure 22 and following sections. (or the target side should be swapped to  
follow this)

---

HPQ comment number 54  
Page=52 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Service Response[0..1]  
s/b  
Service Response[1]

like in Application Client Task

(also see comment on text removing "if any")

---  
HPQ comment number 55  
Page=53 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Application Client Task Management Function class  
s/b  
Application Client Task Management Function class (see figure 19)

---  
HPQ comment number 56  
Page=53 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Service Response attribute, if any,  
s/b  
Service Response attribute

(also see comment on table changing [0..1] to [1])

---  
HPQ comment number 57  
Page=54 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Application Client Task class  
s/b  
Application Client Task class (see figure 19)

---  
HPQ comment number 58  
Page=54 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
(e.g., SIMPLE task attribute, ORDERED task  
attribute, HEAD OF QUEUE task attribute, ACA task attribute)  
s/b  
(e.g., SIMPLE, ORDERED, HEAD OF QUEUE, or ACA)

---  
HPQ comment number 59  
Page=54 Subtype=Text Subj=Note Author=relliott  
Comment=  
All the "output" attribute sections 4.5.13.2 to 4.5.13.12 and 4.5.13.19  
should cross reference 5.4.2.2 (Send SCSI Command), just like the "input"  
attribute sections (4.5.13.13 to 4.5.13.18) reference 5.4.2.5 (Command  
Complete Received).

---  
HPQ comment number 60  
Page=54 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
SPC-3  
s/b  
SPC-4

or delete this reference and just refer to 5.2 alone

---  
HPQ comment number 61  
Page=55 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=; s/b :

---  
HPQ comment number 62  
Page=55 Subtype=Text Subj=Note Author=relliott  
Comment=  
Delete the hierarchical logical unit classes from the UML model.

UML should just model the logical units that are contained in the SCSI  
target device (i.e., the level 1 hierarchical logical units). Some LUN  
values address those logical units; others address logical units in other  
SCSI target devices. They should not be considered part of the same SCSI  
target device.

The Task Router class should own the rules about parsing a LUN field (e.g.  
deciding where to send a task or TMF - send it to a logical unit in this  
target, or forward it elsewhere)

---  
HPQ comment number 63  
Page=55 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
the retry delay time for the completed command (see 5.4.2.5)  
  
s/b  
the additional status information for the completed command (see 5.3.2 and  
5.4.2.5).

---  
HPQ comment number 64  
Page=55 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
command (see 5.4.2.5).  
s/b  
command (see 5.8.6 and 5.4.2.5)

---  
HPQ comment number 65  
Page=55 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
command (see 5.4.2.5).  
command (see 5.8.6 and 5.4.2.5).

---  
HPQ comment number 66  
Page=55 Subtype=Text Subj=Note Author=relliott  
Comment=  
Move 4.5.13.16 First Burst Enabled attribute up after 4.5.13.12 Task  
Priority attribute so the outputs are all ahead of the inputs. Also move  
it higher in the UML diagram attribute list.

---  
HPQ comment number 67  
Page=58 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Hierarchical Logical Unit class  
  
There is no class with that name, and it doesn't appear in figure 22.

---  
HPQ comment number 68  
Page=59 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
I\_T\_L\_Q nexus  
s/b  
I\_T\_L\_Q Nexus

---  
HPQ comment number 69  
Page=60 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
in the logical unit  
s/b  
if the logical unit

---  
HPQ comment number 70  
Page=61 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Task class  
s/b  
Task class (see figure 22)

---  
HPQ comment number 71  
Page=61 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
(see 8.6) contains  
  
Delete the blue underline after the ")" and before "contains"

---  
HPQ comment number 72  
Page=61 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=

SPC-3  
s/b  
SPC-4

or delete this reference and just refer to 5.2 alone

---  
HPQ comment number 73  
Page=63 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
4.5.24.3 should be swapped with 4.5.24.2 to match the order the attributes  
are listed in figure 22.

---  
HPQ comment number 74  
Page=63 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
The name of the well known logical unit may be determined by issuing an  
INQUIRY command requesting the Device Identification VPD page (see SPC-4).  
s/b  
The Device Identification VPD page (see SPC-4) reports the names of the  
SCSI target device (i.e., the names of the well-known logical unit).

---  
HPQ comment number 75  
Page=63 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
"If a well known logical unit is supported within a SCSI target device,  
then that logical unit shall support all the commands defined for it."  
s/b  
"A well known logical unit shall support all the commands defined for it."

---  
HPQ comment number 76  
Page=63 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
selection of incorrect logical units  
s/b  
incorrect logical unit numbers

---  
HPQ comment number 77  
Page=66 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
8 9 10 11  
s/b  
4 5 6 7

---  
HPQ comment number 78  
Page=68 Subtype=Text Subj=Note Author=relliott  
Comment=  
The field name is ADDRESS METHOD, but the descriptions all use "addressing  
method"

---  
HPQ comment number 79  
Page=69 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
selection of incorrect logical units  
s/b  
incorrect logical unit numbers

---  
HPQ comment number 80  
Page=69 Subtype=Text Subj=Note Author=relliott  
Comment=  
In 4.6.7 Peripheral device addressing method and 4.6.9 Logical unit  
addressing method, add a figure showing one level of hierarchy to  
illustrate the relay concept and how those addressing methods parse the  
fields.

---  
HPQ comment number 81  
Page=70 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
by a BUS IDENTIFIER field

d/n  
nu a BUS IDENTIFIER field of zero

---  
HPQ comment number 82  
Page=70 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
may be addressed  
s/b  
is addressed

---  
HPQ comment number 83  
Page=70 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
selection of incorrect logical units  
s/b  
incorrect logical unit numbers

---  
HPQ comment number 84  
Page=71 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
m  
should be two rows :  
n+1  
m

sharing the EXTENDED ADDRESS METHOD SPEIFIC field

---  
HPQ comment number 85  
Page=72 Subtype=Text Subj=Note Author=relliott  
Comment=  
Earlier addressing format tables used n-1 to n. Tables 13, 15, 16, 17, 20,  
21 should end in n, not start with n.

---  
HPQ comment number 86  
Page=72 Subtype=StrikeOut Subj=Cross-Out Author=relliott  
Comment=  
Delete (MSB)/(LSB) from the EXTENDED ADDRESS METHOD SPECIFIC field in table  
16, 17, 18

---  
HPQ comment number 87  
Page=72 Subtype=StrikeOut Subj=Cross-Out Author=relliott  
Comment=  
Delete (MSB)/(LSB) from the EXTENDED ADDRESS METHOD SPECIFIC field in table  
16, 17, 18

---  
HPQ comment number 88  
Page=72 Subtype=Text Subj=Note Author=relliott  
Comment=  
A LUN that includes a LENGTH field value that goes beyond the LUN field  
length supported by the transport protocol (2 bytes or 8 bytes) is invalid.

For example, if the protocol supports 8-byte LUNs, and a LUN contains:  
bytes 0-1: logical unit addressing format  
byte 2: address method 11b, length 11b  
bytes 3-7: ...  
that L:UN must be treated as an invalid LUN (two bytes are being  
truncated).

For example, if the protocol only supports 2-byte LUNs, then a LUN  
containing anything longer must be considered invalid:  
byte 0: address method 11b, length 01b, 10b, or 11b  
byte 1: ...

---  
HPQ comment number 89  
Page=73 Subtype=StrikeOut Subj=Cross-Out Author=relliott  
Comment=  
Delete "A SCSI target device may support zero or more well known logical  
units (see 4.5.25)."

Since this allows 0 through infinity, it is not stating a requirement or allowance. Could replace with "A SCSI target device supports zero or more well known logical units (see 4.5.25)."

---  
HPQ comment number 90  
Page=73 Subtype=StrikeOut Subj=Cross-Out Author=relliott  
Comment=  
Delete (MSB)/(LSB) from the EXTENDED ADDRESS METHOD SPECIFIC field in table 16, 17, 18

---  
HPQ comment number 91  
Page=73 Subtype=Text Subj=Note Author=relliott  
Comment=  
Code Fh length 00b  
Code Fh length 01b  
Code Fh length 10b  
should each also be a variant of "Logical unit not specified", used for hierarchical LUN situations where the lowest level logical unit receives one of these incoming LUN values, not all FFs:  
FFFF0000\_00000000h  
FFFFFFFF\_00000000h  
FFFFFFFF\_FFFF0000h

---  
HPQ comment number 92  
Page=75 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
A SCSI device may contain only SCSI target ports, only SCSI initiator ports, or any combination of ports.  
s/b  
A SCSI device shall contain only SCSI target ports, only SCSI initiator ports, or any combination of ports.

---  
HPQ comment number 93  
Page=76 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=Move "a single" into each of a) b) and c) to improve readability

---  
HPQ comment number 94  
Page=80 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
application clients may not be able to distinguish between  
s/b  
application clients are not required to be able to distinguish between

---  
HPQ comment number 95  
Page=81 Subtype=Text Subj=Note Author=relliott  
Comment=  
In figure 30 and its predecessors, add color to at least the logical unit boxes.

---  
HPQ comment number 96  
Page=87 Subtype=Text Subj=Note Author=relliott  
Comment=Does power loss expected have any impact on CRN?

---  
HPQ comment number 97  
Page=87 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
A buffer containing  
  
This sentence should reference 5.4.3, where the buffer is described in more detail.

---  
HPQ comment number 98  
Page=88 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
output parameters  
s/b  
output arguments

---  
HPQ comment number 99  
Page=88 Subtype=Text Subj=Note Author=relliott  
Comment=  
After first sentence in 5.2, add "CDB formats are defined in SPC-4."

---  
HPQ comment number 100  
Page=88 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
OPERATION CODE  
s/b  
OPERATION CODE field

---  
HPQ comment number 101  
Page=88 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
A buffer to contain  
  
This sentence should reference 5.4.3, where the buffer is described in more detail.

---  
HPQ comment number 102  
Page=88 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Sense Data  
s/b  
Sense Data (see 5.8.6)  
  
The Data-In Buffer Size field description points to 5.4.3, so the Sense Data Length field description should point to 5.8.6.

---  
HPQ comment number 103  
Page=88 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
parameter  
s/b  
field

---  
HPQ comment number 104  
Page=89 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
An NACA bit  
s/b  
a NACA bit  
  
(last line of this paragraph uses "a naca" so it must be pronounced "a nak-ka")

---  
HPQ comment number 105  
Page=89 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
An NACA bit  
s/b  
A NACA bit

---  
HPQ comment number 106  
Page=90 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Retry delay timer, when supported by a protocol, may provide the SCSI initiator port with more information on when the command should be retransmitted (see table 26).  
s/b  
Retry delay timer, when supported by a SCSI transport protocol, provides the SCSI initiator port with more information about when the command should be retransmitted (see table 26).  
  
(same comment on both BUSY and TASK SET FULL descriptions)

---  
HPQ comment number 107

Page=91 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Retry delay timer  
s/b  
either  
a) Retry delay time. Reason: the timer is the entity initialized to this value, not the value itself.  
  
or  
b) Additional status code. Reason: it is likely that this field will have a different meaning if used by any of the other status codes. A more generic name would be clearer. There can still be a "retry delay timer" that uses this code value for BUSY and TASK SET FULL.

---  
HPQ comment number 108  
Page=91 Subtype=Text Subj=Note Author=relliott  
Comment=  
Some designs cannot return this information on a per I\_T\_L basis, but can return it on a per I\_T basis. The target device should be able to return whichever scope it wants (perhaps with a "should" preferring the I\_T\_L scope).  
  
Either:  
a) Add a bit indicating scope (logical unit, target port, target device). This requires changing the transport protocols.  
  
b) redefine the code values:  
  
0001h - 4FFFh wait for this logical unit (any I, any T, this L)  
5000h - 9FFFh wait for this target port(any I, this T, any L)  
A000h - EFFFh wait for this target device (any I, any T, any L)  
F000h - FFEFh reserved

The current maximum of FFEFh is 65519, so the current field supports 6551.9 seconds (109 minutes). Reducing that range by a third shouldn't overload a fabric with retries.

Lack of results on a google search hints that this has not been widely implemented yet, so a change may still be viable.

---  
HPQ comment number 109  
Page=91 Subtype=Text Subj=Note Author=relliott  
Comment=  
Replace the GOOD through TASK ABORTED rows with:

All others 0000h - FFFFh Reserved

That covers all the reserved status codes (table 25 defines 256 total codes).

---  
HPQ comment number 110  
Page=91 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
addition  
s/b  
additional

---  
HPQ comment number 111  
Page=91 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
busy  
s/b  
BUSY

---  
HPQ comment number 112  
Page=91 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
task set full  
s/b  
TASK SET FULL  
  
---



HPQ comment number 113  
Page=92 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Status  
s/b  
status

---  
HPQ comment number 114  
Page=92 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Status  
s/b  
status

---  
HPQ comment number 115  
Page=96 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
interactions  
s/b  
interactions for data transfers

---  
HPQ comment number 116  
Page=97 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
:A  
s/b  
: A

---  
HPQ comment number 117  
Page=97 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
:T  
s/b  
: T

---  
HPQ comment number 118  
Page=98 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
:T  
s/b  
: T

---  
HPQ comment number 119  
Page=98 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
:A  
s/b  
: A

---  
HPQ comment number 120  
Page=98 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
device server  
s/b  
device server or task manager

allowing deletion of the first sentence in 5.4.3.4.1.

---  
HPQ comment number 121  
Page=98 Subtype=StrikeOut Subj=Cross-Out Author=relliott  
Comment=  
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."

Delete that and replace "device server" with "device server or task manager" in the next sentence

---

HPQ comment number 122  
Page=98 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
device server  
s/b  
device server or task manager

---  
HPQ comment number 123  
Page=98 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
device server  
s/b  
device server or task manager

---  
HPQ comment number 124  
Page=99 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
application client task to interact with the task  
s/b  
application client task to represent the task

---  
HPQ comment number 125  
Page=99 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
application client task to interact with the task  
s/b  
application client task to represent the task

---  
HPQ comment number 126  
Page=99 Subtype=Text Subj=Note Author=relliott  
Comment=  
Items b) through g) should be qualified with knowledge that the unit  
attention condition or service response was reported after the task  
arrived at the target port. Otherwise, it might still be in flight. This  
is the subtle ordering assumption in 4.3.3.

---  
HPQ comment number 127  
Page=99 Subtype=Text Subj=Note Author=relliott  
Comment=  
This list is incomplete (not that it claims to be complete). Receiving  
unit attention condition about a reset, etc. - items b) through g) in the  
previous list - also apply here.

This list might have originally been worded as the application client may  
send these TMFs to actively make the determination, but it's now worded too  
much like the previous list.

---  
HPQ comment number 128  
Page=100 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
hard resets, or logical unit resets  
s/b  
hard reset, or logical unit reset

---  
HPQ comment number 129  
Page=100 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Background operations shall not be aborted by I\_T nexus loss.

Add "or power loss expected."

---  
HPQ comment number 130  
Page=100 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Deferred errors should not be cleared by I\_T nexus loss.

Add "or power loss expected."

---

HPQ comment number 131  
Page=103 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
"that had task(s) aborted" might be incorrect.

Is the unit attention condition with COMMANDS CLEARED BY ANOTHER INITIATOR created for all I\_T nexuses that were affected by the preempt, regardless of whether or not they actually had tasks aborted?

Or is it only created for I\_T nexuses that had one or more tasks aborted?

---  
HPQ comment number 132  
Page=105 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=ACA s/b smallcaps lowercase

---  
HPQ comment number 133  
Page=105 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=ACA s/b smallcaps lowercase

---  
HPQ comment number 134  
Page=105 Subtype=Text Subj=Note Author=relliott  
Comment=  
Consider eliminating the 5.8 Command processing considerations level and upgrading each of the 5.8.x sections to 5.xx.

The Unit Attention section, for example, is as important as 5.6 Aborting tasks.

---  
HPQ comment number 135  
Page=106 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA task attribute  
s/b ACA (smallcaps lowercase) task attribute

---  
HPQ comment number 136  
Page=106 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA task attribute  
s/b ACA (smallcaps lowercase) task attribute

---  
HPQ comment number 137  
Page=106 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA task attribute  
s/b ACA (smallcaps lowercase) task attribute

---  
HPQ comment number 138  
Page=108 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=ACA s/b smallcaps lowercase

---  
HPQ comment number 139  
Page=108 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=ACA s/b smallcaps lowercase

---  
HPQ comment number 140  
Page=108 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA task attribute  
s/b  
ACA (smallcaps lowercase) task attribute

---  
HPQ comment number 141  
Page=109 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA  
s/b smallcaps lowercase

---  
HPQ comment number 142  
Page=109 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA  
s/b smallcaps lowercase

---  
HPQ comment number 143  
Page=109 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA  
s/b smallcaps lowercase

---  
HPQ comment number 144  
Page=109 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA  
s/b smallcaps lowercase

---  
HPQ comment number 145  
Page=109 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA task attribute  
s/b ACA (smallcaps lowercase) task attribute

---  
HPQ comment number 146  
Page=109 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA task attribute  
s/b  
ACA (small caps lowercase)

---  
HPQ comment number 147  
Page=109 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
ACA task attribute  
s/b ACA (smallcaps lowercase) task attribute

---  
HPQ comment number 148  
Page=110 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Incorrect logical unit selection  
s/b  
Incorrect logical unit numbers

"select" is an ancient parallel SCSI term, and the logical unit number is what is incorrect, not the logical unit.

---  
HPQ comment number 149  
Page=111 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Attention  
s/b  
attention

---  
HPQ comment number 150  
Page=111 Subtype=Text Subj=Note Author=relliott  
Comment=  
The list of unit attention conditions includes some but not all those defined in SPC-4. What is the basis for including some reasons here? Item j) does serve as a catch-all, but perhaps all the non-SAM related items should be removed.

Not covered include:

- successful completion of a SET IDENTIFYING INFORMATION command that changes identifying information saved by the logical unit (see SPC-4)
- On successful completion of a SET PRIORITY command or change to the mode page
- On successful completion of a SET TIMESTAMP command

- If the ETC bit is set to one and the result of the comparison is true (log parameters)
- block descriptor values changed
- informational exceptions

---  
HPQ comment number 151  
Page=111 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
A removable medium may have been changed;  
s/b  
A removable medium has possibly been changed

---  
HPQ comment number 152  
Page=111 Subtype=Text Subj=Note Author=relliott  
Comment=Incorporate 07-459 Unit attention queuing

---  
HPQ comment number 153  
Page=111 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
perform  
s/b  
process

---  
HPQ comment number 154  
Page=111 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
perform  
s/b  
process

---  
HPQ comment number 155  
Page=112 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
perform  
s/b  
process

---  
HPQ comment number 156  
Page=115 Subtype=Text Subj=Note Author=relliott  
Comment=  
The row  
"Power loss expected/COMMANDS CLEARED BY POWER LOSS NOTIFICATION"

needs to move down in table 36 to be below (higher specificity) than I\_T nexus loss.

Section 6.3.5 says it simply aborts tasks; it doesn't wipe out background operations, clear deferred errors, etc. This means it has less impact than a hard reset, logical unit reset, and a set of I\_T nexus losses (it has more impact than a single I\_T nexus loss...). If the target device experiences hard reset, logical unit reset, or I\_T nexus loss, it is not an acceptable substitute to only report COMMANDS CLEARED BY POWER LOSS NOTIFICATION, which its current position in the table endorses.

---  
HPQ comment number 157  
Page=116 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
hard reset condition  
s/b  
hard reset condition (see 6.3.2)

---  
HPQ comment number 158  
Page=116 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
may use the I\_T NEXUS LOSS OCCURRED additional sense code  
s/b  
should use ...

---

HPQ comment number 159  
Page=116 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
when establishing a unit  
attention condition  
s/b  
when establishing a unit attention condition for an I\_T nexus loss

---  
HPQ comment number 160  
Page=117 Subtype=Text Subj=Note Author=relliott  
Comment=  
In 6.3.4, add "abort all task management functions received on the I\_T  
nexus;"

---  
HPQ comment number 161  
Page=117 Subtype=Text Subj=Note Author=relliott  
Comment=In 6.3.3, add "abort all task management functions;"

---  
HPQ comment number 162  
Page=118 Subtype=Text Subj=Note Author=relliott  
Comment=  
Does power loss expected also abort task management functions? I think it  
should do so.

If so, then the comparison to "CLEAR TASK SET for all task sets" is  
incomplete, and the a) b) list needs to be expanded to include "abort all  
task management functions;"

If not, then rules in 7.11 about task management function lifetimes are  
incorrect.

---  
HPQ comment number 163  
Page=118 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
protocol standards  
s/b  
SCSI transport protocol standards

---  
HPQ comment number 164  
Page=120 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
the following procedure call  
s/b  
a procedure call using the following format:

---  
HPQ comment number 165  
Page=120 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Introduction  
s/b  
Task management function procedure calls  
  
(to parallel the section heading of 5.1 for commands)

---  
HPQ comment number 166  
Page=120 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
(IN ( nexus ), OUT ( [additional response information] )  
s/b  
(IN ( Nexus ), OUT ( [Additional Response Information] )

---  
HPQ comment number 167  
Page=120 Subtype=Text Subj=Note Author=relliott  
Comment=  
add the following after the Service Response = line:  
where:  
Function Name is one of the task management function names listed in  
table 34  
Nexus is either:

- a) an I\_T Nexus argument;
- b) an I\_T\_L Nexus Argument; or
- c) an I\_T\_L\_Q Nexus argument

Additional Response Information is the Additional Response Information output argument described below

---

HPQ comment number 168

Page=120 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=

Nexus: An I\_T nexus, I\_T\_L nexus, or I\_T\_L\_Q nexus (see 4.7) identifying the task or

tasks affected by the task management function.

I\_T Nexus: A SCSI initiator port and SCSI target port nexus (see 4.7).

I\_T\_L Nexus: A SCSI initiator port, SCSI target port, and logical unit nexus (see 4.7).

I\_T\_L\_Q Nexus: A SCSI initiator port, SCSI target port, logical unit, and task identifier nexus (see 4.7).

s/b

I\_T Nexus: The I\_T nexus (see 4.7) affected by the task management function.

I\_T\_L Nexus: The I\_T\_L nexus (see 4.7) affected by the task management function.

I\_T\_L\_Q Nexus: The I\_T\_L\_Q nexus (see 4.7) affected by the task management function.

---

HPQ comment number 169

Page=121 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=

Request

s/b

Procedure call:

(this is at the same level as Execute Command, not the same level as Send SCSI Command)

---

HPQ comment number 170

Page=121 Subtype=Text Subj=Note Author=relliott  
Comment=

At end of SERVICE DELIVERY OR TARGET FAILURE description, add "All output arguments are invalid."

That means Additional Response Information is not usable.

---

HPQ comment number 171

Page=121 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=

One of the following SCSI transport protocol specific service responses shall be returned

s/b

Service Response assumes one of the following values

to match wording in section 5.1 for Execute Command. Wording could be changed in both places if "assumes" is not agreeable. There is no need for the Service Response values to be determined by the transport protocol here. When included in RESPONSE frames over the wire, they are; when returned from the initiator port to the application client, the values are probably remapped to protocol-independent values (so generic SCSI software isn't affected by the transport protocol choice).

---

HPQ comment number 172

Page=122 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=

ACA task attribute

s/b ACA (smallcaps lowercase) task attribute

---

HPQ comment number 173

Page=122 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=

Request

s/b

Procedure call:

(this is at the same level as Execute Command, not the same level as Send SCSI Command)

---

HPQ comment number 174  
Page=122 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Request  
s/b  
Procedure call:

(this is at the same level as Execute Command, not the same level as Send SCSI Command)

---

HPQ comment number 175  
Page=122 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Request  
s/b  
Procedure call:

(this is at the same level as Execute Command, not the same level as Send SCSI Command)

---

HPQ comment number 176  
Page=123 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Request  
s/b  
Procedure call:

(this is at the same level as Execute Command, not the same level as Send SCSI Command)

---

HPQ comment number 177  
Page=123 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Request  
s/b  
Procedure call:

(this is at the same level as Execute Command, not the same level as Send SCSI Command)

---

HPQ comment number 178  
Page=123 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Request  
s/b  
Procedure call:

(this is at the same level as Execute Command, not the same level as Send SCSI Command)

---

HPQ comment number 179  
Page=124 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Request  
s/b  
Procedure call:

(this is at the same level as Execute Command, not the same level as Send SCSI Command)

---

HPQ comment number 180  
Page=124 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Request  
s/b



Procedure call:

(this is at the same level as Execute Command, not the same level as Send SCSI Command)

---

HPQ comment number 181  
Page=125 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
application client task to interact with the task management function  
s/b  
application client task management function to represent the task  
management function

---

HPQ comment number 182  
Page=125 Subtype=Text Subj=Note Author=relliott  
Comment=  
For commands (5.5), a service response of SERVICE DELIVERY OR TARGET  
FAILURE leaves the application client task in existence until the initiator  
receives something else from the target that assures it is gone (a response  
to a TMF aborting that task).

Task management functions should be handled the same way. It is not safe  
to reuse the task identifier (task tag) if a SERVICE DELIVERY OR TARGET  
FAILURE is returned. The task management function should be assumed to  
exist until an I\_T NEXUS RESET or LOGICAL UNIT RESET is successfully run  
(or a unit attention occurs reporting a reset).

---

HPQ comment number 183  
Page=125 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
FUNCTION COMPLETE, FUNCTION SUCCEEDED, FUNCTION REJECTED, or SERVICE  
DELIVERY OR TARGET FAILURE

1. Add INCORRECT LOGICAL UNIT NUMBER
2. If SERVICE DELIVERY OR TARGET FAILURE remains in this list, then there  
is no reason to list all of them - any service response suffices, so delete  
the list and just leave "A service response is received". See other  
comment about excluding SERVICE DELIVERY OR TARGET FAILURE, though.

---

HPQ comment number 184  
Page=125 Subtype=Text Subj=Note Author=relliott  
Comment=  
Add "power loss expected (see 6.3.5)" to the list of things that cause a  
task management function to no longer exist. Make it item b) ahead of I\_T  
nexus loss.

---

HPQ comment number 185  
Page=126 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
(see 7.12.5) confirmation  
s/b  
confirmation (see 7.12.5)

---

HPQ comment number 186  
Page=126 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Send Task Management Request  
s/b  
Send Task Management Request request

---

HPQ comment number 187  
Page=126 Subtype=Text Subj=Note Author=relliott  
Comment=  
Items b) c) and d) should be qualified with knowledge that the unit  
attention condition was reported after the task management request arrived  
at the target port. Otherwise, it might still be in flight. This is the  
subtle ordering assumption in 4.3.3.

---

HPQ comment number 188  
Page=127 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
task manger  
s/b  
task manager

---  
HPQ comment number 189  
Page=127 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
(IN ( Nexus, Service Response ))  
s/b  
(IN ( Nexus, Service Response, [Additional Response Information] ))

with this added to Input arguments:  
Additional Response Information: The Additional Response Information output  
argument for the task management procedure call (see 7.1):

---  
HPQ comment number 190  
Page=127 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
(IN ( Nexus, Service Response ))  
s/b  
(IN ( Nexus, Service Response, [Additional Response Information] ))

with this added to Input arguments:  
Additional Response Information: The Additional Response Information output  
argument for the task management procedure call (see 7.1):

---  
HPQ comment number 191  
Page=128 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Application Client Task  
s/b  
Application Client Task Management Function

---  
HPQ comment number 192  
Page=128 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
application client task  
s/b  
application client

---  
HPQ comment number 193  
Page=129 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
application client task  
s/b  
application client

---  
HPQ comment number 194  
Page=129 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
service response argument  
s/b  
Service Response argument

or just replace "service response argument is set to a value of" with  
"service response of" (this is how most of the standard is worded)

---  
HPQ comment number 195  
Page=130 Subtype=StrikeOut Subj=Cross-Out Author=relliott  
Comment=  
Delete ", or no task attribute." and move the "or" to earlier in the  
sentence.

SAM-4 requires each task have a task attribute.

---  
HPQ comment number 196

Page=133 Subtype=Text Subj=Note Author=relliott  
Comment=  
When referring to "(simple, ordered, head of queue, and ACA) task", Mixed  
Case should be used, not lowercase.

---  
HPQ comment number 197  
Page=134 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
A priority may be assigned  
s/b  
A priority is assigned

---  
HPQ comment number 198  
Page=147 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Information  
s/b  
Additional Response Information

---  
HPQ comment number 199  
Page=148 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Change "SAM-3" to "previous versions of this standard"  
  
or add SAM-3 as a normative reference in 2.1.

---  
HPQ comment number 200  
Page=148 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Change "SAM-4 to SAM-3 terminology mapping"  
to  
"Terminology mapping to previous versions of this standard"  
  
or add SAM-3 as a normative reference in 2.1.

---  
HPQ comment number 201  
Page=148 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Change "SAM-3 term"  
to  
"Term used in previous versions of this standard"  
  
or add SAM-3 as a normative reference in 2.1.

---  
HPQ comment number 202  
Page=148 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
SAM-4 equivalent term  
s/b  
Term used in this standard

---  
HPQ comment number 203  
Page=148 Subtype=Text Subj=Note Author=relliott  
Comment=  
In table C.1, center the left column and left-justify the right column  
(including the headers)

---  
HPQ comment number 204  
Page=148 Subtype=Highlight Subj=Highlight Author=relliott  
Comment=  
Terminology mapping  
s/b  
Terminology mapping to previous versions of this standard

\*\*\*\*\*  
  
Comments attached to Yes ballot from Frederick Knight of

Network Appliance:

A minor comment relative to Unit Attention precedence on Incorrect Logical Units was posted at <http://www.t10.org/ftp/t10/document.07/07-450r0.pdf>

\*\*\*\*\*

Comments attached to Yes ballot from Paul Suhler of Quantum Corp.:

Quantum comment number 1  
Page=1 Subtype=Text Author=suhlerp  
Comment=  
Quantum Corporation Letter Ballot Comments

Changes are shown as comments and/or edits. Edits may be easy to miss.

suhlerp - Paul Suhler

Quantum comment number 2  
Page=18 Subtype=StrikeOut Author=suhlerp  
Comment=

Quantum comment number 3  
Page=18 Subtype=Caret Author=suhlerp  
Comment=lists [don't capitalize, for consistency]

Quantum comment number 4  
Page=22 Subtype=Text Author=suhlerp  
Comment=  
ADC-2 will probably have completed INCITS approval by the time SAM-4 finishes LB comment resolution.

Quantum comment number 5  
Page=26 Subtype=Text Author=suhlerp  
Comment=  
Should there be a definition for "logical unit name" (see 4.5.19.3)? A designator can be associated with a logical unit.

3.1.x logical unit name: A name (see 3.1.68) of a logical unit that is world wide unique within the SCSI transport protocol of a SCSI domain in which the SCSI device containing the logical unit has SCSI ports (see 4.5.4.2). The logical unit name may be made available to other SCSI devices or SCSI ports in SCSI transport protocol specific ways.

Quantum comment number 6  
Page=26 Subtype=StrikeOut Author=suhlerp  
Comment=

Quantum comment number 7  
Page=26 Subtype=Caret Author=suhlerp  
Comment=Shows [capitalize]

Quantum comment number 8  
Page=30 Subtype=Text Author=suhlerp  
Comment=  
ADT-2 Automation/Drive Interface Transport Protocol - 2 (see 1.3) [used in table A.3]

Quantum comment number 9  
Page=37 Subtype=StrikeOut Author=suhlerp  
Comment=

Quantum comment number 10  
Page=37 Subtype=Caret Author=suhlerp  
Comment=Attribute

Quantum comment number 11  
Page=37 Subtype=StrikeOut Author=suhlerp  
Comment=

Quantum comment number 12  
Page=37 Subtype=Caret Author=suhlerp  
Comment=Attribute

Quantum comment number 13  
Page=37 Subtype=StrikeOut Author=suhlerp  
Comment=

Quantum comment number 14  
Page=37 Subtype=Caret Author=suhlerp  
Comment=Attribute

Quantum comment number 15  
Page=37 Subtype=StrikeOut Author=suhlerp  
Comment=

Quantum comment number 16  
Page=37 Subtype=Caret Author=suhlerp  
Comment=Attribute

Quantum comment number 17  
Page=37 Subtype=Text Author=suhlerp  
Comment=  
Page break before this paragraph. All the other notational elements start on a new page.

Quantum comment number 18  
Page=38 Subtype=Text Author=suhlerp  
Comment=  
Does this mean that the value of the attribute is the set {x,y,z} ? Maybe an example would help.

Quantum comment number 19  
Page=46 Subtype=Text Author=suhlerp  
Comment=  
[Technical]  
Both ADC-2 and SSC-2 & -3 include a physical device as part of the SCSI target device. If you wish, I could provide a proposal to add this. Otherwise, it could wait for SAM-5.

Quantum comment number 20  
Page=51 Subtype=Text Author=suhlerp  
Comment=  
Why "logical unit task manager"? Why not "task manager," as in a) above?  
This is the only use of "logical unit task manager."

Quantum comment number 21  
Page=61 Subtype=Text Author=suhlerp  
Comment=SPC-4 ?

Quantum comment number 22  
Page=63 Subtype=Text Author=suhlerp  
Comment=  
Should this say "receives a task or a task management function specifying a W-LUN" ?

Quantum comment number 23  
Page=64 Subtype=Text Author=suhlerp  
Comment=  
Is the use of "SCSI device" rather than "SCSI target device" in the first two sentences intentional? If so, then is the implication that a SCSI initiator device shall be able to issue commands to LUN 0?

Or should both sentences be changed to "SCSI target device"?

Quantum comment number 24  
Page=79 Subtype=Text Author=suhlerp  
Comment=Too much white space here

Quantum comment number 25  
Page=88 Subtype=StrikeOut Author=suhlerp  
Comment=

Quantum comment number 26  
Page=88 Subtype=Caret Author=suhlerp  
Comment=determinant

Quantum comment number 27  
Page=99 Subtype=Text Author=suhlerp  
Comment=  
[Technical]

How about ...

- d) Completion of a QUERY TASK task management function specifying the task with a service response of FUNCTION COMPLETE; or
- e) Completion of a QUERY TASK SET task management function specifying the task set [more words needed?] with a service response of FUNCTION COMPLETE.

Quantum comment number 28

Page=99 Subtype=Text Author=suhlerp

Comment=

[Technical]

How about ...

- h) A service response of FUNCTION COMPLETE following a QUERY TASK task management function directed to the specified task; or
- i) A service response of FUNCTION COMPLETE following a QUERY TASK SET task management function directed to the specified task set.

\*\*\*\*\*

Comments attached to No ballot from Mark Evans of Western Digital:

Western Digital Corporation Comments on the SCSI Architecture Model - 4 draft standard letter ballot

Submitted by Mark Evans of Western Digital Corporation

Western Digital Corporation #1

PDF page 20

Since text takes precedence in this standard, and text should introduce figures, tables, etc., I recommend moving the following paragraph above figure 1:

"As shown in figure 1, all SCSI implementation standards shall reflect the generic requirements defined herein. In addition, an implementation claiming SCSI compliance shall conform to the applicable implementation requirements defined in this standard and the appropriate SCSI implementation standards. In the event of a conflict between this document and other SCSI standards under the jurisdiction of technical committee T10, the requirements of this standard shall apply."

Western Digital Corporation #2

PDF page 20

I recommend that at least one "e.g." be added either in the four rows in figure 2, in the descriptive text that follows, or both. See SBC-3 for an example.

Western Digital Corporation #3

PDF page 22

I'm not sure that, "The following standards...", is correct because I thought the OMG document was a specification - not a standard. If this is true, then this should be changed to, "The following standards and specifications...".

Western Digital Corporation #4

PDF page 22

"Copies of the following documents..."  
I think that some of the following documents are not available from ANSI (e.g., the IETF and OMG documents as noted below), therefore, I think this...  
s/b  
"Except where noted in the following subclauses, copies of the following

documents..."

Western Digital Corporation #5

PDF page 23

The definitions (i.e., those with the numbers 3.1.x) are all left and right justified, and several have hyphens added by FrameMaker to split words across lines. All of the other clauses are left justified and right ragged with no hyphens added to split words. At a quick glance, SPC-4 is left and right justified with hyphens added throughout. SBC-3 and SAS- 2 are left justified and right ragged with no hyphens added throughout. Interesting to me, the style guide (i.e., 05-085r7) has the same odd combination as SAM-4. I wonder why that is? One way or the other, I think that all the clauses should have the same format - editor's choice.

Western Digital Corporation #6

PDF page 23

"see 3.1.8": This cross reference hot link is broken. When I click on it, nothing happens. This is true for almost all of the "3.1.x" cross references in this subclause and for some of them in other clauses.

Western Digital Corporation #7

PDF page 23

Add "(see 8.5.3)" at the end of 3.1.10.

Western Digital Corporation #8

PDF page 23

Add "(see 8.9.1)" at the end of 3.1.11.

Western Digital Corporation #9

PDF page 23

Add "(see 4.3)" at the end of 3.1.15.

Western Digital Corporation #10

PDF page 23

"...possibly a member of a series of defined numeric values,"  
This phrase tells me nothing. Remove the "ly" adverb and add an "e.g.", and then it tells me something.

s/b

"...sometimes a member of a series of defined numeric values (e.g., an additional sense code),"

Western Digital Corporation #11

PDF page 24

"(e.g., block, stream)."

s/b

"(e.g., a block device or a stream device)."

Western Digital Corporation #12

PDF page 24

"...a service delivery subsystem."

s/b

"...the service delivery subsystem."

Western Digital Corporation #13

PDF page 24

Add "(see 8.5.4)" at the end of 3.1.35.

Western Digital Corporation #14

PDF page 24

Add "(see 8.5.2)" at the end of 3.1.36.

Western Digital Corporation #15

PDF page 26

"...for transmission, but not yet received."

s/b

"...for transmission, but has not yet arrived at the intended recipient."

Western Digital Corporation #16

PDF page 26

"...in an object diagram. Represents an instance..."

s/b

"...in an object diagram representing an instance..."

Western Digital Corporation #17

PDF page 26

Delete "e.g., the terms name and world wide identifier (WWID) may be interchangeable)" as neither the terms "world wide identifier" or "WWID" are used anywhere else in this document.

Alternately, those terms could be defined, but that would be a little odd since they are only used in this definition.

Western Digital Corporation #18

PDF page 26

"From the point of view of the application client, the description of command between the time that the application client calls the Send SCSI Command SCSI transport protocol service and the time one of the SCSI target device responses described in 5.5 is received."

s/b

"From the point of view of the application client, a command from the time that the application client calls the Send SCSI Command SCSI transport protocol service until the application client receives a response for the command from the SCSI target device (see 5.5)."

Western Digital Corporation #19

PDF page 27

"...usually according to the temporal order..."

s/b

"...most often according to the temporal order..."

Western Digital Corporation #20

PDF page 29

"The portion (i.e, Q) of an I\_T\_L nexus (see 3.1.49) in a task set (see 3.1.128). See 4.7.2."

s/b

"The portion of an I\_T\_L\_Q nexus (i.e., the Q) that is the numerical identifier of the task in the nexus (see 3.1.49) in a task set (see 3.1.128). See 4.7.2."

Western Digital Corporation #21

PDF page 29



Add "See clause 7." at the end of 3.1.123.

Western Digital Corporation #22

PDF page 29

"...and send command(s) to another SCSI target device."

s/b

"...and send one or more commands to another SCSI target device."

Western Digital Corporation #23

PDF page 30

"...preference (synonymous with may or may not)."

s/b

"...preference. May is synonymous with the phrase "may or may not"."

Western Digital Corporation #24

PDF page 30

"...preference (synonymous with may or may not)."

s/b

"...preference. May not is synonymous with the phrase "may or may not"."

Western Digital Corporation #25

PDF page 30

3.3.7 prohibited: This definition should be deleted as it is not used in this standard.

Western Digital Corporation #26

PDF page 31

The paragraph that begins, "Lists sequenced by letters...",

s/b

...replaced by something more complete (e.g., how lists are described in the SCSI style guide).

Western Digital Corporation #27

PDF page 35

"Solid lines with arrowheads (see figure 4) are the notation..."

s/b

"...is the notation..." ["notation" meaning, "...any particular system of characters or symbols used to briefly express elements...", and this is my first choice]

or

"...are the notations..." ["notations" meaning, "...the characters or symbols used in such a system..."]

One way or the other, the verb has to agree with the object (i.e., either "is the notation" or "are the notations").

Western Digital Corporation #28

PDF page 36

"Solid lines with diamonds (see figure 5) are the notation..."

s/b

"...is the notation..." [see my earlier comment]

Western Digital Corporation #29

PDF page 37

"Solid lines with triangles (see figure 6) are the notation..."

s/b

"...is the notation..." [see my earlier comment]

Western Digital Corporation #30

PDF page 37

"Dashed lines with arrowheads (see figure 7) are the notation..."

s/b

"...is the notation..." [see my earlier comment]

Western Digital Corporation #31

PDF page 38

"Solid lines (see figure 9) are the notation..."

s/b

"...is the notation..." [see my earlier comment]

Western Digital Corporation #32

PDF page 40

"...transitions, using..."

s/b

"...transitions using..."

Western Digital Corporation #33

PDF page 40

"Using figure 10 as an example, the transition list might read as follows:"

s/b

"Using figure 10 as an example, the transition list reads as follows:"

Western Digital Corporation #34

PDF page 40

"State transitions are logically instantaneous;"

s/b

"Transitions from one state to another are instantaneous;"

Western Digital Corporation #35

PDF page 43

"...the response has been received successfully..."

s/b

"...the response has been received without error..."

Western Digital Corporation #36

PDF page 43

"...until the response has been successfully delivered..."

s/b

"...until the response has been delivered without error..."

Western Digital Corporation #37

PDF page 47

"Each instance of a SCSI Domain class shall contain the following objects:

a) one service delivery subsystem;

b) one or more SCSI devices; and

c) one or more SCSI ports."

s/b

I think there shall be two or more SCSI devices and two or more SCSI ports, as shown in figure 16.

Western Digital Corporation #38

PDF page 48

Delete "persistently".

Western Digital Corporation #39

PDF page 50

Delete "persistently".

Western Digital Corporation #40

PDF page 51

Delete "persistently".

Western Digital Corporation #41

PDF page 52

Delete "originates commands by issuing Send SCSI Command requests (see 5.4.2)."

s/b

I don't know where this goes, but it doesn't go here.

Western Digital Corporation #42

PDF page 54

"The application client task persists until a task complete response is sent..."

s/b

"The application client task persists until a task complete response is received..."

Western Digital Corporation #43

PDF page 60

Delete "persistently".

Western Digital Corporation #44

PDF page 61

"c) Data Transfer Terminated operation (see 5.4.3.4.3) to determines..."

s/b

"c) Data Transfer Terminated operation (see 5.4.3.4.3) to determine..."

Western Digital Corporation #45

PDF page 64

"When an application client displays or otherwise makes a 64-bit LUN value visible to a user, it should display it in hexadecimal format..."

s/b

"When an application client displays or otherwise makes a 64-bit LUN value visible, the application client should display the value in hexadecimal format..."

Western Digital Corporation #46

PDF page 64

"...an application client may display it as a single..."

s/b

"...an application client may display the value as a single..."

Western Digital Corporation #47

PDF page 64

"...an application client should display it as a single..."

s/b

"...an application client should display the value as a single..."

Western Digital Corporation #48

PDF page 65

"All logical unit number structure fields beyond byte 1 shall be zero (see table 3)."

s/b

"Byte 2 through byte 7 in an 8-byte single level logical unit number

structure using the peripheral device addressing method shall contain 00h (see table 3)."

Western Digital Corporation #49

PDF page 65

"The 00b in the ADDRESS METHOD field specifies peripheral device addressing (see 4.6.6) and the 00h in the BUS IDENTIFIER field specifies the current level (see 4.6.7)."

s/b

"A value of 00b in the ADDRESS METHOD field specifies peripheral device addressing (see 4.6.6). A value of 00h in the in the BUS IDENTIFIER field specifies the current level (see 4.6.7)."

Western Digital Corporation #50

PDF page 65

"All logical unit number structure fields beyond byte 1 shall be zero (see table 4)."

s/b

"Byte 2 through byte 7 in an 8-byte single level logical unit number structure using the flat space addressing method shall contain 00h (see table 4)."

Western Digital Corporation #51

PDF page 65

"The 01b in the ADDRESS METHOD field specifies flat space addressing (see 4.6.8) at the current level."

s/b

"A value of 01b in the ADDRESS METHOD field specifies flat space addressing (see 4.6.8) at the current level."

Western Digital Corporation #52

PDF page 66

"All logical unit number structure fields beyond byte 3 shall be zero (see table 5)."

s/b

"Byte 4 through byte 11 in an 12-byte single level logical unit number structure using the extended flat space addressing method shall contain 00h (see table 3)."

Western Digital Corporation #53

PDF page 66

"The 11b in the ADDRESS METHOD field with a 2h in the EXTENDED ADDRESS METHOD field specifies extended flat space addressing (see 4.6.12) at the current level. The 01b in the LENGTH field specifies that the LUN specified in the EXTENDED FLAT SPACE ADDRESS field is three bytes in length."

s/b

"A value of 11b in the ADDRESS METHOD field with a value of 2h in the EXTENDED ADDRESS METHOD field specifies extended flat space addressing (see 4.6.12) at the current level. A value of 01b in the LENGTH field specifies that the LUN specified in the EXTENDED FLAT SPACE ADDRESS field is three bytes in length."

Western Digital Corporation #54

PDF page 67

"N/A"

s/b

"n/a"

Western Digital Corporation #55

PDF page 69

"If the SCSI device does not relay any commands or task management functions to the addressed dependent logical unit, it shall follow the rules for selection of incorrect logical units described in 5.8.4 and 7.12."

s/b

"If the SCSI device does not relay any commands or task management functions to the addressed dependent logical unit, then the SCSI device shall follow the rules for selection of incorrect logical units described in 5.8.4 and 7.12."

Western Digital Corporation #56

PDF page 69

"If the SCSI device does relay some commands and task management functions to the addressed dependent logical unit, it shall:"

s/b

"If the SCSI device does relay some commands and task management functions to the addressed dependent logical unit, then the SCSI device shall:"

Western Digital Corporation #57

PDF page 69

"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."

s/b

"However, if the BUS IDENTIFIER field is set to 00h, then the command or task management function shall be relayed to a logical unit within the SCSI device at the current level."

Western Digital Corporation #58

PDF page 70

"If the SCSI device does not relay any commands or task management functions to the addressed dependent logical unit, it shall follow the rules for selection of incorrect logical units described in 5.8.4 and 7.12."

s/b

"If the SCSI device does not relay any commands or task management functions to the addressed dependent logical unit, then the SCSI device shall follow the rules for selection of incorrect logical units described in 5.8.4 and 7.12."

Western Digital Corporation #59

PDF page 70

"If the SCSI device does relay some commands and task management functions to the addressed dependent logical unit, it shall:"

s/b

"If the SCSI device does relay some commands and task management functions to the addressed dependent logical unit, then the SCSI device shall:"

Western Digital Corporation #60

PDF page 77

"Two-way communications shall be possible between all logical units and all SCSI target ports,

however, communications between any logical unit and any SCSI target port may be inactive.  
Two-way communications shall be available between each task manager and all task routers.  
Each SCSI target port shall accept commands sent to LUN 0 or the REPORT LUNS well-known logical unit and the task router shall route them to a device server for processing. REPORT LUNS commands (see SPC-4) shall be accepted by the logical unit with the logical unit number zero or the REPORT LUNS well-known logical unit from any SCSI target port and shall return the logical unit inventory available via that SCSI target port. The availability of the same logical unit through multiple SCSI target ports is discovered by matching logical unit name values in the INQUIRY command Device Identification VPD page (see SPC-4)."

s/b

"Two-way communications shall be possible between all logical units and all SCSI target ports in a SCSI target device. However, communications between any logical unit and any SCSI target port in a SCSI target device may be inactive. Two-way communications shall be available between each task manager and all task routers in the SCSI target ports in the SCSI target device. Each SCSI target port in a SCSI target device shall accept commands sent to LUN 0 or the REPORT LUNS well-known logical unit, and the task router in that SCSI target port shall route the commands to a device server in a logical unit in the SCSI target device for processing. REPORT LUNS commands (see SPC-4) shall be accepted by the logical unit with the logical unit number zero or the REPORT LUNS well-known logical unit from any SCSI target port in the SCSI target device, and the logical unit shall return the logical unit inventory available via that SCSI target port. An application client determines the availability of the same logical unit through multiple SCSI target ports in a SCSI target device by matching logical unit name values in the Device Identification VPD page (see SPC-4)."

Western Digital Corporation #61

PDF page 79

"Two-way communications shall be possible between all logical units and all SCSI target ports, however, communications between any logical unit and any SCSI target port may be inactive.  
Two-way communications shall be available between each task manager and all task routers.  
Each SCSI target port shall accept commands sent to LUN 0 or the REPORT LUNS well-known logical unit and the task router shall route them to a device server for processing. REPORT LUNS commands (see SPC-4) shall be accepted by the logical unit with the logical unit number zero or the REPORT LUNS well-known logical unit from any SCSI target port and shall return the logical unit inventory available via that SCSI target port. The availability of the same logical unit through multiple SCSI target ports is discovered by matching logical unit name values in the INQUIRY command Device Identification VPD page (see SPC-4)."

s/b

"Two-way communications shall be possible between all logical units and all SCSI target ports in a SCSI device. However, communications between any logical unit and any SCSI target port in a SCSI device may be inactive. Two-way communications shall be available between each task manager and all task routers in the SCSI target ports in the SCSI device. Each SCSI target port in a SCSI device shall accept commands sent to LUN 0 or the REPORT LUNS

well-known logical unit, and the task router in that SCSI target port shall route the commands to a device server in a logical unit in the SCSI device for processing. REPORT LUNS commands (see SPC-4) shall be accepted by the logical unit with the logical unit number zero or the REPORT LUNS well-known logical unit from any SCSI target port in the SCSI device, and the logical unit shall return the logical unit inventory available via that SCSI target port. An application client determines the availability of the same logical unit through multiple SCSI target ports in a SCSI device by matching logical unit name values in the Device Identification VPD page (see SPC-4)."

Western Digital Corporation #62

PDF page 79

"A SCSI target device may be connected to multiple SCSI domains such that a SCSI initiator port is only able to communicate with its logical units using a single SCSI target port."

s/b

"A SCSI target device may have SCSI target ports connected to different SCSI domains such that a SCSI initiator port is only able to communicate with the logical units in the SCSI target device using the SCSI target ports in a single SCSI domain."

Western Digital Corporation #63

PDF page 82

"This standard does not require a SCSI target device to have the ability to detect the presence of a SCSI initiator device with multiple SCSI initiator ports. Therefore, a SCSI target device handles a SCSI initiator device with multiple SCSI initiator ports exactly as it would handle multiple separate SCSI initiator devices (e.g., a SCSI target device handles the configurations shown in figure 29 and figure 30 in exactly the same way it handles the configuration shown in figure 28)."

s/b

"This standard does not require a SCSI target device to be able to detect that a SCSI initiator device contains more than one SCSI initiator port. In the cases where a SCSI target device does not detect that a SCSI initiator device contains more than one SCSI initiator port, the SCSI target device interacts with the SCSI initiator device as if each SCSI initiator port was contained in a separate SCSI initiator device (e.g., a SCSI target device operates in the configurations shown in figure 29 and figure 30 in the same way it operates in the configuration shown in figure 28)."

Western Digital Corporation #64

PDF page 89

"This status indicates that the device server has successfully completed the task."

s/b

"This status indicates that the device server has completed the task without error."

Western Digital Corporation #65

PDF page 90

"If the UA\_INTLCK\_CTRL field in the Control mode page contains 11b (see SPC-4), termination of a command with BUSY status shall cause a unit attention condition to be established for the SCSI

initiator port that sent the command with an additional sense code set to PREVIOUS BUSY STATUS unless a PREVIOUS BUSY STATUS unit attention condition already exists."

s/b

"If the UA\_INTLCK\_CTRL field in the Control mode page contains 11b (see SPC-4), then

completion of a command with BUSY status shall cause a unit attention condition to be established for the I\_T nexus on which the command was received with an additional sense code set to PREVIOUS BUSY STATUS unless a PREVIOUS BUSY STATUS unit attention condition already exists."

Western Digital Corporation #66

PDF page 90

"Retry delay timer,"

s/b

"The retry delay timer,"

Western Digital Corporation #67

PDF page 90

"This status shall be returned whenever a command attempts to access a logical unit in a way that conflicts with an existing reservation."

s/b

"This status shall be returned whenever a command is directed by an application client to access a logical unit in a way that conflicts with an existing reservation."

Western Digital Corporation #68

PDF page 90

"If the UA\_INTLCK\_CTRL field in the Control mode page contains 11b (see SPC-4), termination of a command with RESERVATION CONFLICT status shall cause a unit attention condition to be

established for the SCSI initiator port that sent the command with an additional sense code set to PREVIOUS RESERVATION CONFLICT STATUS unless a PREVIOUS RESERVATION CONFLICT STATUS unit attention condition already exists."

s/b

"If the UA\_INTLCK\_CTRL field in the Control mode page contains 11b (see SPC-4), then completion of a command with RESERVATION CONFLICT status shall cause a unit attention condition to be established for the I\_T nexus on which the command was received with an additional sense code set to PREVIOUS RESERVATION CONFLICT STATUS unless a PREVIOUS RESERVATION CONFLICT STATUS unit attention condition already exists."

Western Digital Corporation #69

PDF page 90

"...prevents accepting a received task from that I\_T nexus into the task set,"

s/b

"...prevents the logical unit from accepting an additional task received from that I\_T nexus into the task set,"

Western Digital Corporation #70

PDF page 90

"(i.e., for each SCSI target port, allow at least one command from each SCSI initiator port that has identified itself to the SCSI target port in a SCSI transport protocol specific manner (e.g., login), or



by the successful transmission of a c command)."

s/b

"(i.e., a logical unit should allow at least one command into the task set for any I\_T nexus that has been identified in a SCSI transport protocol specific manner (e.g., a login), or by the successful reception of a command)."

Western Digital Corporation #71

PDF page 90

"Retry delay timer,"

s/b

"The retry delay timer,"

Western Digital Corporation #72

PDF page 90

"If the UA\_INTLCK\_CTRL field in the Control mode page contains 11b (see SPC-4), termination of a command with TASK SET FULL status shall cause a unit attention condition to be established for the SCSI initiator port that sent the command with an additional sense code set to PREVIOUS TASK SET FULL STATUS unless a PREVIOUS TASK SET FULL STATUS unit attention condition already exists."

s/b

"If the UA\_INTLCK\_CTRL field in the Control mode page contains 11b (see SPC-4), then completion of a command with TASK SET FULL status shall cause a unit attention condition to be established for the I\_T nexus on which the command was received with an additional sense code set to PREVIOUS TASK SET FULL STATUS unless a PREVIOUS TASK SET FULL STATUS unit attention condition already exists."

Western Digital Corporation #73

PDF page 95

"This standard assumes that the buffering resources available to the logical unit are limited and may be less than the amount of data that is capable of being transferred in one command."

s/b

"This standard assumes that the buffering resources available to a logical unit are limited, and the buffer in the logical unit may not be capable of containing all of the data required to be transferred for one command."

Western Digital Corporation #74

PDF page 95

"...media..."

s/b

"...logical unit..."

Western Digital Corporation #75

PDF page 96

"Random buffer access occurs when the device server requests data transfers to or from segments of the application client's buffer that have an arbitrary offset and byte count. Buffer access is sequential when successive transfers access a series of increasing, adjoining buffer segments. Support for random buffer access by a SCSI transport protocol standard is optional. A device server implementation designed for any SCSI transport protocol implementation should be

prepared to use sequential buffer access when necessary."

s/b

Move this paragraph above the one that begins, "If a SCSI transport protocol supports random buffer access,".

Western Digital Corporation #76

PDF page 97

"DELIVERY SUCCESSFUL:The data was delivered successfully."

s/b a space after the colon.

Western Digital Corporation #77

PDF page 97

"DELIVERY FAILURE:A service delivery subsystem error occurred while attempting to deliver the data."

s/b a space after the colon.

Western Digital Corporation #78

PDF page 98

"DELIVERY SUCCESSFUL:The data was delivered successfully."

s/b a space after the colon.

Western Digital Corporation #79

PDF page 98

"DELIVERY FAILURE:A service delivery subsystem error occurred while attempting to receive the data."

s/b a space after the colon.

Western Digital Corporation #80

PDF page 99

"The application client maintains an application client task to interact with the task from the time the Send SCSI Command SCSI transport protocol service request is invoked until it receives one of the following SCSI target device responses:"

s/b

"An application client maintains an application client task to interact with the task from the time the Send SCSI Command SCSI transport protocol service request is invoked until the application client receives one of the following SCSI target device responses:"

Western Digital Corporation #81

PDF page 99

"Some commands (e.g., commands with immediate bits like SEND DIAGNOSTIC, or write commands when a write cache is enabled) start background operations that operate after the task containing the command is no longer in the task set."

s/b

"Some commands initiate background operations that are processed after the task containing the command is no longer in the task set (i.e., status has been returned for the command). For examples, see the SEND DIAGNOSTIC command when used to initiate a background self-test (see SPC-4) or write commands when write cache is enabled (see SBC-3)."

Western Digital Corporation #82

PDF page 100

This sentence part is included in the preceding comment at the bottom of the

previous page.

Western Digital Corporation #83

PDF page 100

Delete "completed", as the sense data is not reported for a "completed" command, but as part of the command completion process for the subsequent command.

Western Digital Corporation #84

PDF page 100

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

s/b

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

Western Digital Corporation #85

PDF page 104

"When a logical unit is aborting one or more tasks received on an I\_T nexus using the TASK

ABORTED status it should complete all of those tasks before entering additional tasks received on that I\_T nexus into the task set."

s/b

"When a logical unit completes one or more tasks received on an I\_T nexus with a status of TASK ABORTED, the logical unit should terminate all of the affected tasks before entering any other tasks received on that I\_T nexus into the task set."

Western Digital Corporation #86

PDF page 105

"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:"

s/b

"An application client uses the NACA bit in the CONTROL byte of the CDB (see 5.2) to specify whether or not the device server establishes an ACA condition when a command completes with CHECK CONDITION status. The meaning of the value in the NACA bit is as follows:"

Western Digital Corporation #87

PDF page 105

"Which I\_T nexuses are associated with the task set is influenced by the TST field in the Control mode page (see SPC-4)."

s/b

"Which I\_T nexuses are associated with a task set is specified by the value in the TST field in the Control mode page (see SPC-4)."

Western Digital Corporation #88

PDF page 106

"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 (see 5.8.1.1); or  
b) If the NACA bit is set to one, an ACA condition shall be established."  
s/b  
"An application client specifies if an ACA condition is established when a command completes with CHECK CONDITION status (see 5.8.1.1)."  
[All of the words that are recommended for replacement are in 5.8.1.1 and don't need to be repeated here.]

Western Digital Corporation #89

PDF page 110

"...the command shall be terminated with CHECK CONDITION status, sense key set to ILLEGAL REQUEST, and additional sense code set to INVALID MESSAGE ERROR."  
s/b  
"...the command shall be terminated with CHECK CONDITION status with the sense key set to ILLEGAL REQUEST and the additional sense code set to INVALID MESSAGE ERROR."

Western Digital Corporation #90

PDF page 111

"...(e.g., a unit attention condition with an additional sense code set to POWER ON OCCURRED may be followed by one with an additional sense code set to MICROCODE HAS BEEN CHANGED)."  
s/b  
"...(e.g., a unit attention condition with an additional sense code set to COMMANDS CLEARED BY ANOTHER INITIATOR may be followed by a unit attention condition with an additional sense code set to MODE PARAMETERS CHANGED)."  
[I think the example to be replaced is a poor example (i.e., if both a POWER ON OCCURRED and a MICROCODE HAS BEEN CHANGED occurred, most SCSI target devices would only report the POWER ON OCCURRED), and the suggested replacement is a much more likely scenario.]

Western Digital Corporation #91

PDF page 113

"Events that occur in the SCSI device..."  
s/b  
"Events that occur in a SCSI device..."

Western Digital Corporation #92

PDF page 125

"The application client maintains an application client task to interact with the task management function from the time the Send Task Management Request SCSI transport protocol service request is invoked until it receives one of the following SCSI target device responses:"  
s/b  
"An application client maintains an application client task to interact with the task management function from the time the Send Task Management Request SCSI transport protocol service request is invoked until the application client receives one of the following SCSI target device responses:"

Western Digital Corporation #93

PDF page 134

"If the task has a task attribute other than SIMPLE, the task priority is not

used."

s/b

"If a task has a task attribute other than SIMPLE, then task priority is not used."

Western Digital Corporation #94

PDF page 134

"If the Task Priority argument is set to zero or is not contained within the Send SCSI Received SCSI transport protocol service indication (see 5.4.2) and a priority has been assigned to the I\_T\_L nexus, the device server shall use that priority as the task priority."

s/b

"If the Task Priority argument is set to zero or is not contained within the Send SCSI Received SCSI transport protocol service indication (see 5.4.2), and a priority has been assigned to the I\_T\_L nexus, then the device server shall use the priority specified for the I\_T\_L nexus as the task priority."

Western Digital Corporation #95

PDF page 134

"If no priority has been assigned to the I\_T\_L nexus using the SET PRIORITY command and the logical unit does not support the INITIAL PRIORITY field in the Control Extension mode page the device server shall set the task priority to 0h (i.e., vendor specific) or the task shall have no task priority."

s/b

"If no priority has been assigned to the I\_T\_L nexus using the SET PRIORITY command, and the logical unit does not support the INITIAL PRIORITY field in the Control Extension mode page, then the device server shall set the task priority to 0h (i.e., vendor specific), or the task shall have no task priority."

Western Digital Corporation #96

PDF page 140

"This standard defines the identifier attributes and name attributes for the attribute listed in A.1."

s/b

"This standard defines the identifier attributes and name attributes for the SCSI architecture model objects listed in A.1."

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