May 10, 2000 T10/00-150 revision 3

To: John Lohmeyer, chairperson, T10
From: Bob Snively
Date: February 2, 2000
Subject: Resolution of FCP-2 ballot comments

The following comments were submitted during the balloting on revision 04 of the FCP-2 document. The comments were submitted by the following balloting organizations. Additional comments are included that were provided by non-balloting members which should also be addressed as part of the ballot resolution process.

Headers in red indicate comments that are considered to have technical content and that have not yet been discussed or where solutions may require more study.

Headers in blue indicate technical or editorial comments that have been formally considered by the group and are considered resolved.

Revision 3 of this document documents the results of the April 5, 2000 FCP-2 working group meeting. It also completes all the responses to all technical comments so that they may be reviewed in the May 15, 2000 FCP-2 working group meeting. It further completes the responses for about 1/2 of the editorial comments.

Organization	Reviewer	
Crossroads Systems, Inc.	Neil T. Wanamaker	
ENDL	Ralph O. Weber	
Hewlett Packard Co.	Stewart Wyatt	
IBM Corp.	George Penokie	
LSI Logic Corp.	Charles Binford	
Seagate Technology	Gene Milligan	
Storage Technology Corp.	Erich Oetting	
Sun Microsystems Computer Co	Robert N. Snively	
Texas Instruments	Paul D. Aloisi	
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1 Comments from Crossroads Systems, Inc.

The following comments accompanied the ballot from Neil Wanamaker of Crossroads Systems, Inc.

1.1 Crossroads 1 (E): Global

There are hanging paragraphs at the beginning of many chapters (4,5,6,7,8...). These will require changes for ISO.

Response:

Accepted.

1.2 Crossroads 2 (E): Foreword

The committee lists are void (or nearly so).

Response:

Accepted.

1.3 Crossroads 3 (E): 2.2

FC-PH-3 is an approved standard. The next four are under development by T11. This section also needs an X3-ectomy.

Response:

Accepted.

1.4 Crossroads 4 (E): 2.3

The first sentence refers to a singluar reference; there are two. SFF-8045 also appears twice (strike the first).

Response:

Accepted:

1.5 Crossroads 5 (T): 3.1.7

This doesn't match the definition in SAM-2.

Response:

Accepted. SAM-2 and FCP-2 will change the term “command byte count” to “data buffer size”. (March 6, 2000).

1.6 Crossroads 6 (E): 3.2, FCP-2

X3.

Response:

Accepted.

1.7 Crossroads 7 (E): 4.2 Par 6

I would suggest inclusion of a note about residual data handling.

Response:

Accepted in principle. Editorial details need to be worked out.

1.8 Crossroads 8 (E): 4.2 Par 7

After "proper status" in first sentence, add parenthetical note (i.e., INTERMEDIATE or INTERMEDIATE CONDITION MET).

Response:

Accepted.

1.9 Crossroads 9 (E): 4.2 Par 7

After "an IU that allows command linking" add parenthetical note (i.e., not last sequence of exchange).

Response:

The second sentence actually refers to a particular IU type, I5. This will be clarified.

1.10 Crossroads 10 (T): 4.2 Par 7

This paragraph does not appear to allow breaking linking by presentation of an error or busy status.

Response:

The concern is accepted, although some work remains on the resolution.

At the meeting of March 6, 2000, the following partial resolutions were agreed upon:

The first two sentences of the offending paragraph will be corrected to include the possible case for breaking a command link.

There is an implication that linked commands are indivisible. After careful review of SAM-2, I find no evidence that linked commands must be executed without allowing other tasks to enter the enabled and current states.

There was some discussion about whether or not linked commands can be ended by a BUSY status. SAM-2 indicates that linking can be broken by BUSY status.

Wording from SAM-2, pdf page 68, concerning Intermediate Status will be incorporated as appropriate.

1.11 Crossroads 11 (E): 4.2 last par

Add mention of 3d party/extended copy operations.

Response:

Accepted. Wording remains to be worked out.

1.12 Crossroads 12 (T): 4.4 par 1

Last sentence should read "confirmed completion is allowed by an initiator". The PRLI contains no information about the target's ability to deal with FCP_CONF.

Response:

The target should not request a function that is not supported by an initiator. The sentence will be: “PRLI parameters are used to determine that confirmed completion is allowed by an initiator and may be requested by a target communicating with that initiator.” (Accepted March 6, 2000)

It was discussed that there may need to be separate indications for initiators and targets in the PRLI about supporting FCP_CONF. After close examination, it was determined that the bit only applied to the initiator function. Note that section 6.2.6.8 or other parts of 6.2 may also need to be corrected to reflect this.

1.13 Crossroads 13 (E): 4.5 Par 3

In first sentence, after "both the initator and target", add parenthetical note (i.e., by setting RETRY in PRLI).

Response:

Accepted, but with editorial improvement.

1.14 Crossroads 14 (E/T): 4.5 Par 3 and many subsequent places

Reference to FCP-2 ELS, rather than FC-4 Link Data Request.

Response:

I believe the correct terms should be FCP-2 Link Service Request and FCP-2 Link Service Reply. I will always write the appropriate term out, avoiding any non-standard abbreviations.

1.15 Crossroads 15 (E/T): 4.7 Par 2

Third sentence should read: Task management functions that use the FCP_CMND IU end with an FCP_RSP IU that indicates whether it was correctly completed.

Response:

Accepted.

1.16 Crossroads 16 (E): Table 4 (second page)

Column headings not required on second page.

Response:

Accepted.

1.17 Crossroads 17 (E): Table 4 Note 2

The reference to "the SCSI initiator" actually refers to the initiator issuing the task management function. An alternate initiator has no knowledge of the clearing action until a subsequent command has been issued (and receives a Unit Attention), and so cannot be expected to perform ABTS for the associated exchanges.

Response:

Note 2 refers only to open sequences, not to outstanding exchanges. A reference will be provided here to clause 9.1.1.4 for the proper management of exchanges with no open sequences.

1.18 Crossroads 18 (E): 4.9

The header is in all lower case.

Response:

The heading will be changed to read: “Process login/logout”.

1.19 Crossroads 19 (E): 5.3 Par 1

The last half of the paragraph seems to imply that targets will discover reconfiguration events and this will drive his discovery of a changed initiator address.

In real life, targets do not typically register for events like RSCN, and do not probe for initiators. Normally, the change in initiator address is discovered by a new PLOGI from an entity having the same WWN but a new S_ID.

Suggest that the paragraph simply refer to the effect of receipt of a PLOGI from an entity having the same WWN as an object holding a persistent reservation.

Response:

The wording does not require the target to detect such behavior, nor does it specify the mechanism used to detect the reconfiguration. As you point out, it will usually be a new PLOGI that finally notifies the target of the change. I do not believe any change is required.

1.20 Crossroads 20 (E): 5.4, Table 9

The third line of the note should read "I3 allows..."

Response:

Accepted.

1.21 Crossroads 21 (T): 6.2 Par 3

6.2.7.1 suggests that an ACC with Image Pair Established = 0 may also indicate that the PRLI request is not accepted (this behavior has been observed in the wild).

Response:

I believe that the intent of the different cases is that:

a) LS_RJT means that the PRLI ELS was not accepted, either because it was invalid or because PRLI is not supported.

b) Image Pair Established = 0 means that the command was accepted, but that the image pair was not established, perhaps because the parameters were invalid, perhaps because the conditions in the target or initiator did not allow the establishment of the pair.

1.22 Crossroads 22 (T): 6.2.5 Par 1

The behavior if the change in parameters does not affect any outstanding exchanges is not specified (see (24) below).

Response:

At the March 6, 2000 committee meeting, it was decided that the paragraph should be rewritten to clarify explicitly what would happen under three conditions:

What would happen if the page of parameters was presented with the same values?

At present, this is explicitly a case where no operation is affected, but the text should be modified as above.

What would happen if the page of parameters was presented with different values, but no exchanges existed for that image pair?

At present, this is explicitly a case where Unit Attention is offered on the next command for that image pair.

What would happen if the page of parameters was presented with different values, but exchanges existed for that image pair?

At present, this is specified in Table 4, where it indicates that open sequences and exchanges for the modified image pair are cleared.

At present, these ideas are scattered across paragraphs 1 and 2. The paragraphs need to be consolidated and rewritten.

At the April 5, 2000 meeting, it was decided that this should be simplified. Image pairs are always reset and their exchanges cleared. This is true for binding PRLIs, not for informational

PRLIs. An implicit logout, together with the appropriate clearing actions, is performed. See also 5.7.

1.23 Crossroads 23 (T): 6.2.5 Par 2

The description of Unit Attention does not match SPC/SAM (Inquiry, Request Sense) behavior.

Response:

The PRLI acts like a power-on reset, so the corresponding Unit Attention is provided.

At the March 6, 2000 committee meeting, it was pointed out that this should be corrected to indicate that the Unit Attention condition was established. All behavior after that is standard and already specified.

1.24 Crossroads 24 (T): 6.2.5 Par 2 last sentence

This statement conflicts with 4.7 table 4, which indicates that all open FCP sequences and all open tasks are terminated on receipt of a PRLI, and that device reservations are cleared (CRN also cleared).

Response:

Table 4.7 needs to be corrected to reflect this behavior. See 9.20 Sun 20.

The proper management also needs to be corrected. See 1.22 Crossroads.

1.25 Crossroads 25 (E): 6.2.5 last par

Non-acknowledged class responders are not to terminate an exchange with ABTS (some later section). Normal practice (see 12.7) is to return a LOGO in this case.

Response:

Accepted. This was accepted in the April 5, 2000 meeting.

1.26 Crossroads 26 (E): 6.2.6.7 Par 3 (p.26)

LS_RJT should be FCP_RJT (see 8).

Response:

Accepted.

1.27 Crossroads 27 (T): 6.2.6.8 (p.26)

There are existing implementations that requre targets to set CONFIRMED COMPLETION ALLOWED. Do we want to legitimize this behavior?

Response:

No. Targets should still be able to work, although with less rapid recovery and with more unrecoverable errors, even if the initiator does not choose to support confirmed completion. No change is required to the document.

1.28 Crossroads 28 (E): 8. (p. 31 et. seq.)

Either put 8.1 after 8.2, 8.3 (as an instantiation of the general case), adding a generic 8.1 on FC_4 Link Data Frames, or make 8.2, 8.3 specific to SRR responses.

Response:

Accepted. Clause 8.1 will be placed after clause 8.2 and 8.3.

1.29 Crossroads 29 (E): 8 First sentence (p. 31)

The type field should be shown as 08h as everywhere else. Should R_CTL be binary or hex?

Response:

The type field should be shown as hexadecimal, although FC-FS shows them as binary. R_CTL is actually composed of two 4-bit fields, expressed in FC-FS as binary values. They will remain expressed in binary.

1.30 Crossroads 30 (E): 8. Table 15 (p.31)

Column header refers to bits 31-24. Should indicate of what.

Response:

Accepted. The bits are Word 0 of the payload, similar to FC-FS Table 49, pdf page 168.

1.31 Crossroads 31 (E): 8.1 Par 1 (p.31)

Should read "or request retransmission of information".

Response:

Accepted.

1.32 Crossroads 32 (E): 8.1 Pars 2, 3 (p.31)

Par 2 refers to reason code hex '09', par 3 to reason code 00092A00h. These should be made consistent (and be either reason code & explanation or reason code).

Response:

Accepted. They shall both use reason code and explanation. The explanation for the case defined in the second paragraph will be: 17h, Invalid OX_ID-RX_ID combination.

1.33 Crossroads 33 (E): 8.1 top of page 33

Should have heading Reject Payload:

Table 18 header should indicate reason code & explanation.

Response:

Accepted. These will be taken from FC-FS pdf page 187.

1.34 Crossroads 34 (T): 8.1 top of page 33

Should have reason code for request not supported.

Response:

That is covered in Table 20. During the March 6, 2000 committee meeting, the committee decided that no change is required. Other comments may require additional text in this area.

1.35 Crossroads 35 (E) 8.2, 8.3 (p33)

No indication of remaining payload (or note that it isn't to be returned on SRR ACC/RJT.

Response:

The remainder of the ACC/RJT payload will be defined in a manner similar to 15.5.2 of FC-FS.

1.36 Crossroads 36 (T) 8.3 (Reason Code Descriptions) (p34)

It appears from the description that 01h and 0Bh mean the same; Table 20 suggests otherwise.

Response:

This needs to be verified against FC-FS. My impression is that 01 means that the ELS is in an invalid format, which may include invalid operation codes. 0B means that the ELS operation code, while known (maybe valid or maybe invalid), is not one of those supported by the device. The distinction should be made clearer in the text by removing the word “supported” from the 01 description.

The committee assigned me an action item to request this correction in FC-FS. I have posted document T11/00-184v0 to address this problem.

1.37 Crossroads 37 (T) 9.1.1.2 (p 37)

In out-of-order fabric cases, this means that an initiator must wait R_A_TOV after issuing the last FCP_CMND affected by the task management function before issuing a task management function, else the command might arrive after the task management function. This requirement could be made unnecessarily if CRNs applied to TM functions.

Response:

There is no guaranteed order between the actual execution of task management functions and the state of commands in the target in the SAM or SAM-2 documents. Because of this, there is no need to create ordering procedures. In addition, Task Management functions are designed to correct behavior when ordering has already failed. No change is required in section 9.1.1.2.

The committee requested the following additional changes in the March 6, 2000 meeting:

Section 4.3 needs to add Abort Task Set and Clear Queue to the list of task management functions that clear CRN.

Table 4 on page 13 needs to add Abort Task Set and Clear Queue to the list of items that clear CRN.

Section 9.1.1.4 needs to either contain similar wording or refer to table 4. In the interest of avoiding diverging definitions, I believe the wording of most of the detailed task management functions should reference table 4 for most of the clearing operations.

1.38 Crossroads 38 (T) 9.1.1.3 (Ordered) (p 37)

The third sentence of the ORDERED_Q description indicates that sequential delivery must (shall??) be used to ensure correct ordering. Precise delivery would also meet the requirements of ORDERED_Q operation.

Response:

The assured ordering associated with waiting for completion is an alternate mechanism for assuring precise delivery when the precise delivery function is not implemented. The availability of this alternate mechanism will be made clear.

At the March 6, 2000 meeting, the committee requested that this be moved to the model, section 4.3. The text would make clear that there are three valid mechanisms for assuring proper ordered behavior:

1) In-order delivery is required of the fabric at login time.

2) CRN is specified in the mode page.

3) Command completion is awaited before issueing the next command.

The text in 9.1.1.3 would then reference the model.

1.39 Crossroads 39 (T) 9.1.1.3 (Untagged) (p 37)

5.6.9 indicates that targets aren't required to detect this. These sections should be made consistent (and probably in the direction of SAM).

Response:

The individual tagging by Fibre Channel protocols makes truly overlapped commands impossible. However, SAM specifies that you can only have one command with the attribute of Untagged at a time. This is expected to be verified by FCP-2 devices.

In the March 6, 2000 meeting, the committee further requested that the last sentence of the Untagged attribute be removed. No other change is required.

1.40 Crossroads 40 (E) 9.1.1.4 (pp 38 - 40)

In the definition of each of the function bits the phrase "the xxx bit is mandatory" should be replaced by "Support of the xxxx bit is mandatory".

Response:

Accepted.

1.41 Crossroads 41 (T) 9.2 par 3 (p 42)

Change "...precisely that amount of data." to "...precisely that amount of data in a single sequence" (or FCP_DATA IU).

Response:

Accepted.

1.42 Crossroads 42 (T) 9.3 par 4 last sentence (p 43)

9.2 indicates that all but the first data IU are preceded by FCP_XFER_RDYs.

Response:

The comment is correct. This sentence will be corrected accordingly.

1.43 Crossroads 43 (T) 9.4 par 2 second sentence (p 44)

Many devices return RSP_LEN_VALID (and equal to 8) on all completions. Are these to be made non-compliant?

Response:

Considerable discussion occurred as a result of this question at the March 6, 2000 meeting. The following conclusions were reached:

1) There was agreement that such devices are non-compliant. The text should be changed to read:

Bytes 10 and 11 ~~are normally~~ shall be 0 upon successful completion of a FCP I/O Operation, indicating that no other information is present in the FCP_RSP.

2) It was pointed out that the text should also indicate that, if FCP_RESP_VALID=1, the STATUS field shall be ignored.

3) The text must be reviewed to be sure that Task Management explicitly requires a valid FCP_RESP field to present the completion state. If this is not explicitly stated, the text must be modified to include that.

4) The text of 9.4.10, next to the last sentence, is incomplete and should be modified to read:

The task management function may or may not have been performed by the target if a RSP_CODE value other than 0 is returned or if no FCP_RSP is returned before the Exchange is aborted.

5) In table 28 of section 9.4.10, the words “No failure or” are deleted from the first row.

1.44 Crossroads 44 (T) 9.4.7 par 3 (p 46)

The value should be FCP_DL - highest offset of any byte transmitted -1.

Response:

Accepted.

1.45 Crossroads 45 (T) 9.4.11 par 1 (p. 48)

COMMAND TERMINATED status is no longer in SAM-2.

Response:

Accepted.

1.46 Crossroads 46 (E) 12.5.2, 12.6.1, 12.7, F.2 (pp. 68-69, 109-110)

There are numerous references to NL_Port; this material also applies to N_Ports.

Response:

Accepted in principle. Note that the proper term, defined in 3.1.19 and further explained in 4.1, is FCP_Port for most of these cases. A search and global correction will be made.

1.47 Crossroads 47 (T) 12.6.1. last par (p 69)

The implication of the penultimate sentence is that if the target is not on a remote loop that it is connected on a local loop. This is not a valid inference; switches don't deal real well with Selective Reset LIPs.

Response:

The committee, in their March 6, 2000 meeting, discussed in more detail the overall content and structure of the second level recovery clause. This is also relevant to 5.22 LSI. The following conclusions were reached.

1) At present, second level recovery is mandatory. Instead, the committee indicated that the text should recommend that second level recovery not be performed and that an appropriate ABTS-LS or ABTX should be performed to clear the exchange resources.

2) If a device chooses to go beyond simply giving up, it should use FC-FS recovery mechanisms, not detailed here. In most cases, those mechanisms are so vaguely defined that interoperability may be a challenge.

3) If the ABTS-LS fails, it may be appropriate to recommend a link level reset, but this was not made as a firm statement.

4) The text should be restructured to clearly relate 12.1.1 with 12.5. The text of 12.1.2 should be clearly related to the actual recovery techniques, including the text of 12.6.

This response was approved by the committee in the April 5, 2000 meeting as part of the analysis of 5.22 LSI and 5.23.

1.48 Crossroads 48 (T) 12.7 last sentence (p 69)

The last sentence should read something like: "If any other FCP-level frame is received before PLOGI or PRLI, the sequence receives a P_RJT, with reason not logged in if F_CTL indicated first sequence, else reason invalid F_CTL."

Response:

At the March 6, 2000 meeting, the committee agreed upon the following modifications:

1) The last sentence (“For the action taken...TBD”) of 12.7 should be deleted.

2) The third paragraph of clause 12.7 should be modified to read as follows:

~~If a SCSI Target receives an FCP_DATA Sequence from a SCSI Initiator with which it has not successfully completed Process Login (PRLI), it shall discard all Frames of that Sequence and may send PRLO.~~

If a SCSI device receives a frame of category 0001b or 0011b (solicited data or solicited control) and the SCSI device is has not performed a successful explicit or implicit PLOGI and PRLI with the source of the frame, the SCSI device shall discard and ignore the content of the frame. If the PLOGI is not completed, the SCSI device may transmit a LOGO extended link service request to the source of the unexpected frame. If the PLOGI is completed, but the PRLI is not completed, the SCSI device may transmit a PRLO extended link service request to the source of the unexpected frame.

3) The last paragraph of clause 6.2.5 conflicts with the proposed text of 12.7. The offending paragraph in 6.2.5 will be deleted.

1.49 Crossroads 49 (E) B.2.1 (p 77)

Is there any action that will cause this to be included in FC-FS?

Response:

I don’t know. I will check.

I checked. There was no such reference. I have prepared document T11/00-284v0 (T10/00-230r0) to address this and any other similar questions.

1.50 Crossroads 50 (E) C.1.6, Table C.6 (p 83)

The first response might have a parenthetical note (INTERMEDIATE or INTERMEDIATE CONDITION MET).

Response:

Accepted.

1.51 Crossroads 51 (E) I.1 bullet c (p 117)

..should read "return FCP_RSP for the task management function..."

Response:

Accepted.

1.52 Crossroads 52 (E) after J.1.5 (p 120)

There should be a J.1.6 "ABTS changes" with reference to B.2.1.

Response:

Accepted.

1.53 Crossroads 53 (E) after page 120

There is a curious page after page 120 that could be omitted.

Response:

Accepted.

2 ENDL

The following comments accompanied the ballot from Ralph O. Weber of ENDL Associates. Mr. Weber indicates that all these comments are editorial.

2.1 ENDL-1 FCP/FCP-2 (Editorial)

In the Introduction list of clauses, some clauses are said to discuss or define information for FCP while others are said to cover FCP-2. Is it realistic to have some clauses describing FCP features and other clauses describing FCP-2 features? It seems to me that all clauses should discuss one or the other, either the protocol being described is FCP or FCP-2. FCP-2 ought to be one document describing one protocol, not one document describing two protocols. Note also, that if FCP-2 chosen for use throughout, the second paragraph of the Introduction needs to be changed too.

Response:

Accepted.

2.2 ENDL-2 T10/T11 (Editorial)

Clause 2.2 first sentence. Change from: "At the time of publication, the following referenced standards were still under development by X3T10." to: "At the time of publication, the following referenced standards were still under development by T10 and T11." Note that several of the standards listed below this sentence are T11 projects.

Response:

Accepted.

2.3 ENDL-3 (Editorial)

Clause 2.2 last paragraph first sentence. Change from: "Copies of these X3T10 draft documents are available for purchase from Global Engineering Documents." to: "Copies of these T10 and T11 draft documents are available for purchase from Global Engineering Documents." Same comment as ENDL-2.

Response:

Accepted.

2.4 ENDL-4 (Editorial)

Clause 2.2 last paragraph first sentence: "Copies of these X3T10 draft documents are available for purchase from Global Engineering Documents." Would it not be better to provide pointers to the T10 and T11 web sites? Even if Global Engineering is still maintaining copies of T10 and T11 committee drafts documents, the web sites must be more up to date.

Response:

Accepted.

2.5 ENDL-5 (Editorial)

Clause 3 only paragraph. It seems appropriate and helpful to add a sentence to this paragraph that describes the references in square brackets that appear in some definitions.

Response:

Accepted.

2.6 ENDL-6 (Technical)

Clause 3.1.13. It looks like the definition of data overlay is proposal a change to SAM-2, yet I know of no pending or approved proposals to make a change of this nature. SAM-2 r11 does not contain the word 'overlay' and there are not pending proposals to add the word 'overlay' that I know of.

It may also be that no SAM-2 changes are necessary. Clause 5.3.1 in both SAM and SAM-2 contains the following statement: "If an SCSI protocol supports random buffer access, as described below, the offset and byte count specified for each data segment to be transferred may overlap." This statement appears to cover the needs of the FCP-2 3.1.13 definition of data overlay. Perhaps all that is required to tie the knot here are editorial changes to the data overlay definition, with the following replacement definition seeming adequate to me: "Data overlay occurs when random buffer access capability is used to transfer data to or from the same the same area of application client buffer more than once during the same command. [ANSI X3.270]"

Response:

Accepted in principle. After review of the work done at the March 6, 2000 committee meeting, it appears that there may actually be two separate functions at work here with different requirements and definitions.

SAM-2 defines “random buffer access capability”. This is really the function enabled by the Enable Modify Data Pointers function. This breaks down into two types of random buffer access capability, one where the data is transmitted only once for each allowed data pointer value, the other where data is transmitted more than once for at least one allowed data pointer value. The first functionality is typically associated with re-ordering transfers to improve performance, while second functionality is more often associated with retries required by device level error recovery.

Neither of these is related to the FCP-2 retry functionality, which retransmits data nominally for the same data pointer value, but at a logical level before the data has been transferred to or from the buffer on behalf of the SCSI protocol. This function is not “data overlay”.

To properly encompass this idea, the following changes need to be made.

3.1.13, redefine data overlay

> data overlay: The use of random buffer access capability where data is transmitted using the same data pointer value more than one time during a data delivery action.

New glossary section, define random buffer access capability

> random buffer access: The occurrence of device server data transfer requests that request data transfers to or from segments of the application client’s buffer which have an arbitrary offset and extent.

Section 6.2.6.7, removes “data overlay” from retry function, delete last paragraph.

> ~~If the image pair is allowed to use the retransmission capability, overlay of data as defined for SRR shall be allowed regardless of the state of the DATA OVERLAY ALLOWED bit.~~

Section 6.2.6.9, rewrite “data overlay allowed” paragraph.

> When this bit is set to 1, the process defined by the page is indicating that its initiator function has the capability of supporting data overlay. When the bit is set to 0, the initiator function does not have the capability of performing data overlay. The bit shall be 0 for devices having

only target function. If the initiator function supports data overlay, then a target may optionally perform random buffer access that performs a transfer to or from the same offset in ~~transfer FCP_DATA IUs that are moving data from or to~~ the application client buffer more than once during execution of a command.

Data transmission requested by the initiator during the optional retry procedures defined by this standard is managed by the initiator. Such data retransmissions are not considered data overlays, even if retransmission occurs to the same offset in the application client buffer.

~~If the RETRY bit is set to 1, data overlay shall be allowed as defined for SRR regardless of the state of the DATA OVERLAY ALLOWED bit. Any other use of data overlay shall be allowed only by the DATA OVERLAY ALLOWED bit.~~

DATA OVERLAY ALLOWED is a PRLI capability that is only defined for the initiator function.

Section 9.3, no rewrite is required by this comment, although paragraph 7 does need some clarification.

Section 10.1.1.7, rewrite to use the proper term of “random buffer access”.

The ENABLE MODIFY DATA POINTERS (EMDP) bit indicates whether or not the target may use the random buffer access capability to reorder FCP_DATA IUs for a single SCSI command. If the EMDP bit is zero, the target shall generate continuously increasing DATA_RO values for each FCP_DATA sequence for a single SCSI command. If the EMDP bit is one, the target may transfer the FCP_DATA IUs for a single SCSI command in any order. An EMDP bit of zero prohibits data overlay, even if it is allowed by the state of the PRLI DATA OVERLAY ALLOWED bit. This bit does not affect the order of frames within a sequence. The EMDP function is optional for all FCP-2 devices.

~~If the RETRY bit is one (see 6.2.6.7), data overlay and pointer modification shall be allowed as defined for SRR regardless of the state of the EMDP bit.~~

2.7 ENDL-7 (Technical)

Clauses 3.1.25 and 3.1.26. It is difficult to see the difference between 3.1.25 (logical unit identifier) and 3.1.26 (logical unit number). SAM and SAM-2 differentiate these two objects by stating that a logical unit identifier is a combination of a target identifier and a logical unit number, i.e., a logical unit number is a constituent of a logical unit identifier. Following the SAM lead, 3.1.25 should read: "Identifier used by an initiator to reference the logical unit and the target that contains that logical unit. [ANSI X3.270]"

Response:

Analysis by the committee in their March 6, 2000 meeting indicated that this term was used only two times in section 9.1.1. The term will be changed to “logical unit” and the glossary definition of logical unit identifier will be removed.

2.8 ENDL-8 (Editorial)

Clause 3.1.27. Regarding the following definition: "A mode of operation on a Loop where MCM circuits are established between one or more MCM L_Port pairs without arbitration." What's a 'Loop'? There is no definition for a 'Loop'. Either add a definition for 'Loop' or change 'Loop' to 'arbitrated loop' which would reasonably be a definition from FC-AL, incorporated here by reference.

Response:

MCM has been removed from FC-AL-3. The MCM related terms will be removed from the glossary.

2.9 ENDL-9 (Technical)

Clause 3.1.41. The definition of tag is incomplete as written: "The initiator-specified component of the task identifier." The task attribute is equally well an initiator-specified component of a task identifier. A more correct definition would be: "The initiator-specified component of a task identifier that uniquely identifies one task among the several tasks coming from that initiator."

Also, it might be helpful to add FCP-2 specific information to the definition. The following sentence is proposed for addition at the end of the definition text: "In FCP-2, tag is the contents of the OX_ID field in the FCP-2 frame header."

Response:

The first paragraph of the comment is accepted. The second paragraph of the tag attempts to include portions of the standard in the definitions, and should not be included. This response was approved the committee on March 6, 2000.

2.10 ENDL-10 (Editorial)

Clause 3.2. The usage of CRN as an abbreviation for Command Reference Number is pervasive enough to justify addition of an abbreviation definition, suggest: "CRN Command Reference Number (see 4.3)"

Response:

Accepted.

2.11 ENDL-11 (Editorial)

Clause 3.4 second sentence. Change from: "These words and terms are defined either in or in the text where they first appear." to: "These words and terms are defined either in 3.1 or in the text where they first appear."

Response:

Accepted.

2.12 ENDL-12 (Editorial)

Clause 3.4 second paragraph. In so far as I can tell the following editorial convention is not observed in 90% or more FCP-2: "The names of fields are in small uppercase (e.g., ALLOCATION LENGTH). When a field name is a concatenation of acronyms, uppercase letter may be used for readability (e.g., NORMACA). Normal case is used when the contents of a field are being discussed. Fields containing only one bit are usually referred to as the NAME bit instead of the NAME field."

For example, all the fields in the FCP Frame Header (Table 10 and subsequent text) are normal height all caps. The fields in the FCP service parameter page, PRLI request (Table 11) are in small caps, but the first letter of each field name is in full height cap even though I can see no readability reason to do this. Bit (field) names such as EPDC and PS are in full height caps, and spelled out acronyms such as enable precise delivery checking (following Table 31) are in small caps with occasional full height caps.

These problems are most egregious in the Disconnect-Reconnect mode page definition, where the use of full height caps is in direct conflict with the notation used in SPC-2.

FCP-2 should be carefully reviewed and modified to make the use of small caps match the description in the paragraph shown above. Also, the notation for field names in the Disconnect-Reconnect mode page should be made consistent with the notation found in SPC-2.

Response:

Accepted in principle. An additional sentence will be added to clause 3.4, second paragraph to say: Where fields defined in another standard are referenced in this standard, the capitalization conventions of this standard will be used.

2.13 ENDL-13 (Editorial)

Clause 3.4 second paragraph second sentence. Change from: "NORMACA" to "NormACA" with the letters appearing in lower case appearing as small capitals. (Small caps can't be represented in plain text.)

Response:

Accepted. This will be done consistent with SPC-2.

2.14 ENDL-14 (Editorial)

Clause 4.1 paragraph just before Table 1. Regarding the following wording: "The FCP-2 device and task management protocols define the mapping of the SCSI functions defined in SAM and SAM-2 to the FC-PH. ... The I/O Operation defined by ANSI X3.270 is mapped into an exchange."

SAM is identically the same thing as ANSI X3.270 and referring to the one document by two different names in the same paragraph can only serve to obfuscate the meaning of FCP-2. Pick one identifier and use it with religious consistency. I prefer SAM, or better still SAM-2.

I believe there is a similar problem with using FC-PH and ANSI X3.230 as synonyms.

Response:

Accepted. See 4.29.

2.15 ENDL-15 (Editorial)

Clause 4.1 paragraph just before Table 1. The following wording: "The FCP-2 device and task management protocols define the mapping of the SCSI functions defined in SAM and SAM-2 to the FC-PH." leads the reader to believe that a mapping for the SAM-2 task management functions will appear soon (probably in Table 1). This is not the case and the task management mapping does not appear until clause 4.7 (some five pages hence). I believe that the most natural way to guide the reader to the right clause would be the addition of the following sentence between the current second and third sentences of the paragraph: "4.7 defines the mapping for task management functions." After this addition and other corrections discussed above, the paragraph would read:

"The FCP-2 device and task management protocols define the mapping of the SCSI functions defined in SAM-2 to ~~the FC-PH~~ the Fibre Channel interface defined by FC-FS. Link control is performed by standard FC-FS protocols. ~~The FCP-2 is based on a two-level paradigm. 4.7 defines the mapping for task management functions.~~ The task management functions defined by SAM-2 are mapped as described in 4.7 of this standard. The I/O Operation defined by SAM-2 is mapped into a Fibre Channel exchange. The request and response primitives of an I/O Operation are mapped into information units~~. Link control is performed by standard FC-PH protocols. This is~~ as shown in table 1."

Response:

Accepted in principle. See adjustments above.

2.16 ENDL-16 (Editorial)

Clause 4.2 first and second sentences. The following seems to be wanting to reference SAM-2: "An application client begins a FCP I/O Operation when it provides to the FCP a request for an Execute command service." However, the wording fails to match SAM-2 (or SAM) and there is no specific reference to SAM-2. Better wording would be: "An application client begins a FCP

I/O Operation when it invokes an Execute Command remote procedure call (described in SAM-2)."

Similarly, the second sentence ("A single request or a list of linked requests may be presented to the software interface of the FCP.") needs work to correlate with SAM-2. Better wording would be: "The Execute Command call conveys a single request or a list of linked requests from the application client to the FCP service delivery subsystem."

Response:

Accepted.

2.17 ENDL-17 (Editorial)

Clause 4.2 second paragraph second sentence. Here's another almost correct reference to SAM-2: "The FCP_CMND payload is the Send SCSI Command service request and starts the FCP I/O Operation." Better wording would be:

"The FCP_CMND payload is the Send SCSI Command protocol service request (described in SAM-2) and starts the FCP I/O Operation."

Response:

Accepted.

2.18 ENDL-18 (Editorial)

Clause 4.2 third paragraph. Since every paragraph thus far in this clause has tied the FCP actions to SAM-2 defined protocol services, why not do the same in this paragraph. Suggest adding the following sentence before the sentence that begins: "Exactly one FCP_DATA IU ...": "The FCP_XFER_RDY and FCP_DATA payloads constitute the Receive Data-Out protocol service request and Data-Out Received service confirmation described in SAM-2."

Response:

Accepted.

2.19 ENDL-19 (Editorial)

Clause 4.2 forth paragraph. As with ENDL-18, why not tie the FCP operations to the SAM-2 defined protocol services in this paragraph? Suggest adding the following sentence at the end of the paragraph: "The FCP_DATA payload constitutes the Send Data-In protocol service request described in SAM-2."

Response:

Accepted.

2.20 ENDL-20 (Editorial)

Clause 4.2 first sentence after note. Here's another almost correct reference to SAM-2: "After all the data has been transferred, the device server transmits the Send Command Complete service response by requesting the transmission of an IU containing the FCP_RSP payload." Better wording would be: "After all the data has been transferred, the device server transmits the Send Command Complete protocol service response (described in SAM-2) by requesting the transmission of an IU containing the FCP_RSP payload."

Response:

Accepted.

2.21 ENDL-21 (Editorial)

Clause 4.2 second sentence after note. The following sentence offers a plethora of opportunities to deepen the coordination between FCP-2, SAM-2, and SPC-2: "That payload contains the SCSI status and, if an unusual condition has been detected, the SCSI REQUEST

SENSE information describing the condition." Suggest the following rewrite: "That payload contains the SCSI status and, if the SCSI status is CHECK CONDITION, the autosense data describing the condition."

The change from "unusual condition" to "CHECK CONDITION" status is justified because the only time sense data can appear in the FCP_RSP payload is when the SCSI status is CHECK CONDITION (with autosense). If the sense data is returned in response to a REQUEST SENSE command or as the result of Asynchronous Event Reporting, it will appear in an FCP_DATA payload.

To augment the change from "REQUEST SENSE information" to "autosense data", the following definitions should be added:

"3.1.x autosense data: Sense data (see 3.1.y) that is returned in the FCP_RSP IU payload."

"3.1.y sense data: Data returned to an application client as a result of an autosense operation, asynchronous event report, or REQUEST SENSE command (see SPC-2)."

Also throughout FPC-2, all uses of "SCSI REQUEST SENSE information" should be replaced with "autosense data". The only uses I found were the two occurrences in clause 4.2 first paragraph after note (one noted here and the other noted in comment ENDL-21).

Note: acceptance of this comment also obligates SPC-2 to make its definition of "sense data" consistent with the definition shown above.

Response:

Accepted.

2.22 ENDL-22 (Editorial)

Clause 4.2 fifth sentence after note. The following sentence needs changes for clarity and to coordinate with SAM-2: "The SCSI logical unit deter-

mines whether additional commands will be performed in the FCP I/O Operation." Better wording would be: "The device server determines whether additional linked commands will be performed in the FCP I/O Operation."

In my mind, the device server is the entity that processes the command(s) within a task (thus the first change). Additionally, this sentence is referring to the relationship between several linked commands in a single task, not to the relationship between several different unlinked commands (each in their own task). That needs to be clarified.

I am aware that you have received another comment on this sentence requesting that "logical unit" be changed to "task manager". That comment would be correct if the sentence were referring to several unlinked commands. Since the sentence is referring to linked commands, the change requested here is correct.

Response:

Accepted.

2.23 ENDL-23 (Editorial)

Clause 4.2 last sentence in first paragraph after note. The verb number in these following sentence is wrong: "If an FCP protocol error occurred during execution of the command, the FCP_RSP payload carry the FCP Response information instead of the SCSI status and SCSI REQUEST SENSE information." There is but one FCP_RSP payload, so it "carries" the information. If there were several payloads, they would "carry" the information. Also, this is the only other occurrence of "SCSI REQUEST SENSE information" that I could find. My preferred wording is: "If an FCP protocol error occurred during execution of the command, the

FCP_RSP payload carries the FCP Response information instead of the SCSI status and autosense data."

Response:

Accepted.

2.24 ENDL-24 (Editorial)

Clause 4.2 first sentence in second paragraph after note (in r4 this is the paragraph at the top of PDF page 70). The following sentence needs changes to coordinate with SAM-2: "When the command is completed, returned information is used to prepare and return the Execute Command service confirmation information to the software that requested the operation." Better wording would be: "When the command is completed, returned information is used to prepare and return the Command Complete Received protocol service confirmation to the application client that requested the operation."

Response:

Accepted.

2.25 ENDL-25 (Editorial)

Clause 4.2 last sentence in second paragraph after note. If one is to follow the nomenclature in SAM-2 clause 4.12, then the following sentence needs changes: "The SCSI target can optionally request confirmation of the status delivery, as described in 4.4." In SAM-2 "confirmation" is a protocol service action between the initiator LLP and ULP layers. The protocol service being described here is an "indication" and that "indication" occurs between the target LLP and ULP layers. Thus, I think the better wording would be: "The device server can optionally request a protocol service indication that confirms delivery of the FCP_RSP payload, as described in 4.4."

Response:

Accepted.

2.26 ENDL-26 (Editorial)

Clause 4.2 last sentence in the clause. A substantial FCP-2/SPC-2 cleanup is needed in and around the following sentence (and now seems like as good a time as any to do the work): "For Asynchronous Event Notification, the peripheral device takes on the SCSI initiator role to inform the host, in its target role, that an asynchronous event has occurred."

The SAM-2 (and for that matter SAM) name for this feature is AER (Asynchronous Event Reporting) and FCP-2 should be using that name. The intention (as I remember it) has always been that SPC (now SPC-2) should define AEN (Asynchronous Event Notification) as a specific implementation of AER. If this comment is accepted, SPC-2 will be obliged to hold up its end of the bargain and define AEN (I have material ready for a proposal to make the change SPC-2).

In FCP-2, the sentence shown above should be deleted and the following new paragraph should be added at the end of clause 4.2.

"FCP-2 implements Asynchronous Event Reporting (see SAM-2) using the Asynchronous Event Notification (AEN) model in SPC-2. The AEN model reports asynchronous events by requiring that the peripheral device take on the SCSI initiator role to deliver the asynchronous event sense data to the host, which is required to act as a SCSI target using the processor device model for the duration of the AEN reporting process."

Response:

Accepted.

2.27 ENDL-27 (Editorial)

Clause 4.3 second paragraph last sentence. The following is not the way cross references are handled in SCSI documents: "See "10.1.2" on page 53." The accepted wording is: "See 10.1.2." Note the removal of both the page reference and the quotation marks.

Response:

Accepted.

2.28 ENDL-28 (Editorial)

Clause 4.3 third paragraph first sentence. Regarding the following: "Precise delivery of SCSI commands uses the COMMAND REFERENCE NUMBER (CRN) in the FCP_CMND IU." The SCSI editorial convention is that the use of small caps for COMMAND REFERENCE NUMBER requires that it be followed by the word field. Also, if ENDL-10 has been accepted then the definition of the CRN abbreviation need not appear in this sentence. Thus the preferred wording would be: "Precise delivery of SCSI commands uses the COMMAND REFERENCE NUMBER field in the FCP_CMND IU." with the usage of small caps being as currently exists in the document, not as shown here (small caps cant be represented in plain text).

Response:

Accepted.

2.29 ENDL-29 (Editorial)

Clause 4.3 third paragraph second sentence. There are a couple of problems in the following: "For each device server having the EPDC bit set to one, the application client places a monotonically increasing one byte integer in the CRN field for each command that is transmitted that also requires precise delivery." Is the integer signed or (more probably) unsigned? Also, the abbreviation CRN is used almost universally to mean the content of the field not the name of the field, therefore, CRN should be replaced with small caps COMMAND REFERENCE NUMBER field. Better wording would be: "For each device server having the EPDC bit set to one, the application client places a monotonically increasing one byte unsigned integer in the COMMAND REFERENCE NUMBER field for each command requiring precise delivery that is transmitted." Remember, COMMAND REFERENCE NUMBER is in small caps. The use of small caps for the EPDC bit is covered by comment ENDL-12.

Response:

Accepted.

2.30 ENDL-30 (Technical)

Clause 4.4 third, forth and fifth paragraphs. I have several problems with the following paragraphs:

"The confirmed completion function may be used to confirm that a SCSI initiator has received an FCP_RSP reporting a SCSI CHECK CONDITION status, together with accompanying sense information. The SCSI target requests in an FCP_RSP IU containing CHECK CONDITION status and sense information that an FCP_CONF be returned by the Initiator. Upon receiving the FCP_CONF, the SCSI target can be assured that the initiator has the information necessary to perform stateful(sic) recovery and can then discard its own copy of the information. If the FCP_CONF is not returned, the SCSI target may be requested by the initiator to retransmit the FCP_RSP, assuring eventual receipt of the critical information by the initiator.

"The confirmed completion function may be used to confirm that a queued SCSI command has been completed and that the completion information has been successfully transferred to the

initiator. The SCSI target requests in an FCP_RSP IU that an FCP_CONF be returned by the initiator. That allows subse- quent queued stateful(sic) operations to be performed, since the FCP_CONF confirms that the FCP_RSP has been received by the initiator. If the FCP_CONF is not returned, the SCSI target may be requested by the initiator to retransmit the status information, assuring proper synchronization of the state of operations on the initiator and target.

"The confirmed completion function may be used to confirm that a SCSI initiator has received an FCP_RSP if a target process requires confirmation that the initiator has accepted the FCP_RSP completion information."

First, the fact that "The confirmed completion function may be used to confirm that a SCSI initiator has received an FCP_RSP" is repeated three times, once at the beginning of each paragraph. Surely, this is rhetorical overkill.

Second, 9.4.1 has no requirement that FCP_CONF_REQ be set to 1 only when the status is CHECK CONDITION (as implied by the first paragraph). As far as I can tell from 9.4.1, it is perfectly valid for a device server to set FCP_CONF_REQ to 1 when the status is GOOD. So, all the bluster about CHECK CONDITION status and sense data is misleading and could result in incompatible implementations.

Third, I can find no mechanism to support the last sentence of the first paragraph: "If the FCP_CONF is not returned, the SCSI target may be requested by the initiator to retransmit the FCP_RSP, assuring eventual receipt of the critical information by the initiator." It looks to me like the target may voluntarily elect to retransmit the FCP_RSP IU, but I can find no mechanism for an initiator to use to request the retransmission.

Forth, the second paragraph appears to be missing a step. Read literally as it currently is written, the mere act of setting the FCP_CONF_REQ bit to 1 in an FCP_RSP IU is sufficient to verify to the target that the FCP_RSP IU was received by the initiator. Read the second and third sentences in the second paragraph carefully.

Fifth, stateful is not in the Random House Unabridged Dictionary second edition, neither is it in the FCP-2 glossary. It appears to be a word with no meaning.

Sixth, we find here yet another name for autosense data, to whit "sense information", that needs to be replaced with term "autosense data" defined in comment ENDL-21.

With all of this in mind, the following wording seems better for the three paragraphs:

"The confirmed completion function may be used by a SCSI target to confirm that a SCSI initiator has received an FCP_RSP IU. If the confirmed completion function is supported by the initiator, a target may it whenever verification is required that the initiator has accepted the FCP_RSP IU and the information contained therein. Requirements on a target to maintain queued commands state information or autosense data after transmitting the FCP_RSP IU are examples of instances where use of the confirmed completion function may be useful, since successful completion of the confirmed completion function may allow the target to discard such state information and data.

"The target requests in an FCP_RSP IU that an FCP_CONF be returned by the initiator. Upon detecting the confirmed completion request in an FCP_RSP IU, the initiator shall transmit an FCP_CONF IU. Receipt of the FCP_CONF IU verifies to the target that the FCP_RSP has been received by the initiator."

Response:

The following resolutions were reached in the March 6, 2000 meeting of the committee.

1) The word “stateful” will be changed to “state dependent”.

2) It will be clarified editorially that the third, fourth, and fifth paragraphs are 3 separate reasons one might choose to use FCP_CONF.

3) The description of the operation of FCP_CONF will be separated from the descriptions of why it may be used.

4) “sense information” s/b “autosense data” (See 2.21)

5) The third comment above addresses the possibility that the recovery of a missing FCP_CONF may not be defined in the recovery process. I believe it is correctly defined, but will review the text to be sure.

2.31 ENDL-31 (Editorial)

Clause 4.5 last sentence in the clause. I do not understand the following: "Those targets that have agreed to support the data retransmission capability shall support REC." With whom did the targets agree? What specifically is the data retransmission capability? If it is correct, the following would be better wording: "Targets that support SRR shall also support REC."

Response:

Accepted in principle. This should point instead to the successful negotiation in PRLI for the proper state of the RETRY bit.

2.32 ENDL-32 (Editorial)

Clause 4.7 first sentence. While it is true that the preponderance of task management functions abort or terminate tasks, the following statement is not really true: "An application client requests a task management function when a task or some group of tasks must be aborted or terminated." Borrowing from the wording in SAM-2 (and SAM), the following wording is better: "An application client requests a task management function to control explicitly the execution of one or more tasks." In the context of FCP-2, the following might be even better: "An application client requests a task management function to control explicitly the execution of one or more FCP I/O Operations."

Response:

Accepted second wording.

2.33 ENDL-33 (Editorial)

Clause 4.7 second paragraph third sentence. The following statement is not true for task management functions that are initiated as FC-PH link services: "A task management function ends with an FCP_RSP IU that indicates whether it was correctly accepted." Better wording would be: "A task management function that begins with an FCP_CMND IU ends with an FCP_RSP IU that indicates whether it was correctly accepted."

Response:

Accepted. Other comments also affect this wording.

2.34 ENDL-34 (Editorial)

Clause 4.7 Table 3. Would it be possible to add a references column to Table 3?

Response:

Accepted.

2.35 ENDL-35 (Editorial)

Clause 9.4 second sentence. If comment ENDL-21 is accepted, then change "... REQUEST SENSE information" to "... autosense data".

Response:

Accepted.

2.36 ENDL-36 (Editorial)

Clause 9.4.11 first sentence. If comment ENDL-21 is accepted, change this sentence from: "The FCP_SNS_INFO field contains the information specified by ANSI X3.301 for presentation by the REQUEST SENSE command." to: "The FCP_SNS_INFO field contains the autosense data (see SAM-2 and SPC-2)."

Response:

Accepted.

2.37 ENDL-37 (Technical)

Clause 9.4.11 second sentence. The COMMAND TERMINATED status became obsolete when the TERMINATE TASK task management function was made obsolete. FCP-2 has removed TERMINATE TASK from the Task management flags in the FCP_CMND IU, but the removal of the COMMAND TERMINATED status was overlooked in the following: "The proper FCP_SNS_INFO shall be presented when the SCSI status byte of CHECK CONDITION or COMMAND TERMINATED is presented as specified by ANSI X3.270." Better wording would be: "The proper FCP_SNS_INFO shall be presented when the SCSI status byte of CHECK CONDITION is presented as specified by SAM-2."

Response:

Accepted and approved by the committee in the meeting of March 6, 2000.

2.38 ENDL-38 (Editorial)

Clause A.1 third paragraph. The sentence describing Table A.1 indicates that the table contains much more information that the table actually contains. Better wording would be: "See table A.1 for the mapping of objects and identifiers used in this standard to the equivalent remote procedure call terms and definitions used in the SCSI Architecture Model-2 standard."

Response:

Accepted.

2.39 ENDL-39 (Technical)

Clause A.1 Table A.1, equivalence to task identifier. SAM-2 (and SAM) require that a task identifier include an initiator identifier. Since it appears that a fully qualified exchange identifier may not include an address identifier of initiator port, it is possible that a task identifier is equiv- alent to a fully qualified exchange identifier plus an address identifier of initiator port. Note: I had a similar concern about the SAM-2 requirement that a task identifier include a logical unit identifier (whose main component of interest here is a logical unit number). However, it appears that all logical units share the set of fully qualified exchange identifiers associated with one initiator/target pair. Therefore, the fully qualified exchange identifier implicitly includes the logical unit identifier (and LUN).

Note: I believe that SAM-2 (and SAM) contain a bug in the definition of task identifier and will bring a proposal on the subject to the next Protocol WG meeting.

Response:

The March 6, 2000 meeting requested that the solution to SAM-2 be completed before resolving this comment.

2.40 ENDL-40 (Editorial)

Clause A.1 Table A.1, equivalence to task address. Using the argument found in comment ENDL-39, there is no need for a task address to contain a logical unit number, as is currently

shown in Table A.1. However, SAM-2 (and SAM) contains a trick in the definition of task address. The logical unit identifier is a key component of the task address. The logical unit identifier contains two parts; a target identifier and a logical unit number. Thus, task address must contain a target identifier. Since it appears that a fully qualified exchange identifier may not include an address identifier of target port, it is possible that a task address is equivalent to a fully qualified exchange identifier plus an address identifier of target port.

Response:

This needs to be reviewed after ENDL-39 is resolved. The fully qualified exchange identifier actually does include an address identifier of the exchange destination port, which is the target port.

2.41 ENDL-41 (Editorial)

Clause A.1 Table A.1, usage of object identifier. SAM-2 is so tied up in object definitions that I'd prefer not to have FCP-2 referencing an object identifier. My first response is object, what object. Please consider changing "object identifier" to "task management function object identifier".

Also, a SAM-2 object identifier can be any one of the following: target identifier, logical unit identifier, or task address. The equivalence list in FCP-2 covers the target identifier (first entry) and task address (second entry) with the possible exception of problems noted in ENDL-39. The third entry fits none of the SAM-2 objects covered by the object identifier. To fully fit the SAM-2 list of objects covered by the object identifier, the third entry should be deleted and a new second entry should be added reading as follows: "or address identifier of target port + logical unit number".

I believe that a fully acceptable alternative would be to delete the object identifier row entirely and add a new row giving "address identifier of target port + logical unit number" as the FCP-2 equivalent of SAM-2 "logical unit identifier". This would have the effect of defining all the objects covered by the object identifier, and would leave the definition of what objects can be an object identifier to SAM-2. Note: SAM-2 might need to be a little clearer about the definition of an object identifier.

Response:

Accepted, but will require study as the change is actually made.

2.42 ENDL-42 (Editorial)

Clause A.1 Table A.1, usage of object address. SAM-2 is so tied up in object definitions that I'd prefer not to have FCP-2 referencing an object address. My first response is object, what object. Please consider changing "object address" to "task management protocol service object address".

Also, a SAM-2 object address can be any one of the following: target identifier, logical unit identifier, or task address. The equivalence list in FCP-2 covers the target identifier (first entry) and task address (second entry) with the possible exception of problems noted in ENDL-39. The third entry fits none of the SAM-2 objects covered by the object identifier. To fully fit the SAM-2 list of objects covered by the object identifier, the third entry should be deleted and a new second entry should be added reading as follows: "or address identifier of target port + logical unit number".

As with ENDL-41, I believe an equally acceptable alternative is to add a table row showing the equivalence for SAM-2 logical unit identifier (see ENDL-41 for details of the new row) and delete the row for object address.

Response:

Accepted, but will require study as the change is actually made.

2.43 ENDL-43 (Editorial)

Clause A.1 Table A.1. In notes 1 and 2, change "SCSI-3 Primary Commands" to "SCSI Primary Commands-2".

Response:

Accepted. It may be that the abbreviation can be used here.

2.44 ENDL-44 (Editorial)

Several A.x clauses Tables A.3, A.4 and A.5. The heading for the third column looks like a cut and paste error: "SCSI Interlocked Protocol Service Interface procedure call". Better wording would be "FCP-2 Service Interface procedure call".

Response:

Accepted.

2.45 ENDL-45 (Editorial)

Clause A.3 Table A.3. There are nomenclature problems in the names listed in the second column: "send SCSI command request, send SCSI command indication, send SCSI command response, and send SCSI command confirmation". To coordinate properly with SAM-2, the entries in the second column should read: "Send SCSI Command request, SCSI Command Received indication, Send Command Complete response, and Command Complete Received confirmation".

Response:

Accepted.

2.46 ENDL-46 (Editorial)

Clause A.3 Table A.3. The "[sense data]" parameter should be added to the response and confirmation procedure calls.

Response:

Accepted.

2.47 ENDL-47 (Editorial)

Clause A.3 Table A.3. The following note should be added to Table A.3: "Since FCP-2 requires the use of autosense for all SCSI command operations, the Autosense Request parameter has been omitted from the request and indication procedure calls."

Response:

Accepted.

2.48 ENDL-48 (Editorial)

Clause A.4. To better coordinate with SAM-2, the title of this clause should be "Data Transfer Protocol Services".

Response:

Accepted.

2.49 ENDL-49 (Editorial)

Clause A.4.1. I don't understand the need for the two sentences and two paragraphs that appear before Table A.4, to whit:

"The data-in delivery service is a two step confirmed service that provides the means to transfer a parameter list or data from a device server to an initiator.

"Processing the execute command procedure call for a data-in delivery service shall be composed of the 2 step confirmed service shown in table A.4."

It seems to me that the following would be sufficient:

"The data-in delivery service is a two step confirmed service (see table A.4) that provides the means to transfer a parameter list or data from a device server to an initiator."

Response:

Accepted.

2.50 ENDL-50 (Editorial)

Clause A.4.1 Table A.4. There are nomenclature problems in the names listed in the second column: "data-in delivery request and data-in delivery confirmation". To coordinate properly with SAM-2, the entries in the second column should read: "Send Data-In request and Data-In Delivered confirmation".

Response:

Accepted.

2.51 ENDL-51 (Editorial)

Clause A.4.2. I don't understand the need for the two sentences and two paragraphs that appear before Table A.5, to whit:

"The data-out delivery service is a two step confirmed service that provides the means to transfer a parameter list or data from an initiator to a device server.

"Processing the execute command procedure call for a data-out delivery service shall be composed of the 2 step confirmed service shown in table A.5."

It seems to me that the following would be sufficient:

"The data-out delivery service is a two step confirmed service (see table A.5) that provides the means to transfer a parameter list or data from an initiator to a device server."

Response:

Accepted.

2.52 ENDL-52 (Editorial)

Clause A.4.2 Table A.5. There are nomenclature problems in the names listed in the second column: "data-out delivery request and data-out delivery confirmation". To coordinate properly with SAM-2, the entries in the second column should read: "Receive Data-Out request and Data-Out Received confirmation".

Response:

Accepted.

2.53 ENDL-53 (Editorial)

Clause A.5. The || symbol has two meanings in the prototype procedure call. The first usage is intended to mean "or" and the second usage is intended to delineate the beginning of the output parameters. The second usage is consistent with the usage of || elsewhere in FCP-2 and throughout SAM-2. The first usage is inappropriate and a different nomenclature must be found. A nomenclature that is consistent with SAM-2 would be to make the first procedure call parameter object identifier and add the following sentence after the procedure call text: "Depending on the task management function being call, the object identifier is one of the following: a fully qualified exchange identifier, an address identifier of target port, or an address identifier of target port + logical unit number."

Response:

Accepted.

2.54 ENDL-54 (Editorial)

Clause A.5.1 first sentence. Curiously enough, a statement such as the following usually precedes a table showing the multi-step process: "This standard handles task management functions as a four step confirmed service that provides the means to transfer task management functions to a task manager." Recommend addition of a table showing the four step confirmed service process used by task management functions.

Response:

Accepted.

2.55 ENDL-55 (Editorial)

Clauses A.5.1.1 through A.5.1.7. All of these clauses are obvious cut and paste text from SPI-x. They must be modified to describe FCP-2 aspects of the task management functions. Note: particular care must be taken in modifying clause A.5.1.1, since the ABORT TASK task management function relies on an FC-PH primitive, not on a flag bit in the FCP_CMND IU.

Response:

Accepted.

2.56 ENDL-56 (Editorial)

Clause A.5.1.8. This clause can be removed. SAM-2 does not define a WAKEUP task management function, that function is unique to SPI-x. Therefore, FCP-2 need not contain any discussion of the WAKEUP task management function.

Response:

Accepted.

3 Comments fromHewlett Packard

The following comments accompanied the ballot for Hewlett Packard from Geoff Fisher (GF), from Stewart Wyatt (SW), and from Matt Wakeley.

3.1 HP/GF 1. [t] (Editorial)

SPC2r13a Table 168 - Protocol specific LUN page (Page Code 18h) defines byte 2 as bits 7 - 4 reserved and bits 3 - 0 as the PROTOCOL IDENTIFIER. Table 169 then defines the PROTOCOL IDENTIFIER as 0 for Fibre Channel (FCPn). In FCP2r4, Table 31 Fibre Channel Logical Unit Control page (18h) defines byte 2 as all bits Reserved (Originally noted this in FCP2r3 Table 25). FCP2r4 therefore conflicts with SPC2r13a.

Response:

The field will be relabeled so that the 0 value will be parsed to the same format as that carried by SPC-2. Reviewed and accepted by the meeting of March 6, 2000.

3.2 HP/GF 2. [t] (Editorial)

Similarly SPC2r13a Table 170 - Protocol specific port page (Page Code 19h) defines byte 2 as bits 7 - 4 reserved and bits 3 - 0 as the PROTOCOL IDENTIFIER. Table 169 defines the PROTOCOL IDENTIFIER as 0 for Fibre Channel (FCPn). In FCP2r4, Table 32 Fibre Channel Logical Port Control page (19h) defines byte 2 as all bits Reserveda (Originally noted this in FCP2r3 Table 26). FCP2r4 therefore conflicts again with SPC2r13a.

Response:

The field will be relabeled so that the 0 value will be parsed to the same format as that carried by SPC2. Reviewed and accepted by the meeting of March 6, 2000.

3.3 HP/GF 3. [t] (Editorial)

Also in FCP2r4 Table 32 Byte 1 the Page Length is specified as (06h) whereas it should be (0Eh) for the conventional (n-1) length, also wrong in FCP2r3.

Response:

With the removal of the MCM functions, the original value is correct again.

3.4 HP/SW 4. [t] (Editorial)

Page 24, 6.2.5 New or repeated PRLI, last sentence of first paragraph: "A recovery qualifier may be established after the recovery abort, temporarily restricting the choice of OX_ID values." Should this statement also include RX_ID values, if they are valid?

Response:

The sentence will be changed to read:

> A recovery qualifier may be established after the recovery abort, temporarily restricting the choice of OX_ID values by the initiator and RX_ID values by the target.

3.5 HP/SW 5. [t] (Editorial)

Page 46, 9.4.7 FCP_RESID: The effect of sequence error recovery defined in this document on FCP_RESID is not explicitly defined in this clause. I believe that if an error occurs which is successfully recovered using the procedures described in clause 12, that no residuals should be reported. A case in point would be when a target transferred a read data sequence, which the initiator detected an error in. As part of the error recovery the target resends the same sequence, which is successfully received by the initiator. The target reports successful status and no residuals even though the target sent the sequence twice.

Response:

The comment was withdrawn. The second to the last paragrap of clause 9.3 addresses the question.

3.6 HP/SW 6. [t] (Editorial)

a Page 52, clause 10.1.1.6 Maximum Burst Size Field: My understanding of the relationship between SCSI and Fibre Channel (see Table 1, SCSI and FCP-2 functions, on page 7 of the FCP-2) is that a SCSI burst is equal to one FCP_DATA IU. If that is true, then the Maximum Burst Size Field specifies the maximum length of an FCP_Data IU. This definition states what it isn't (an interconnect tenancy), notes that it is required, but fails to define what it is. A precise definition is needed. I believe the definition is, "The maximum length of an FCP_DATA read sequence or the maximum amount of data a target can request in an FCP_XFER_RDY". If I am in error we do need to define a mode page parameter that does specify the maximum FCP_DATA IU length.

Response:

The comment forgets the first sentence, which provides the required definition. No change is required.

3.7 HP/SW 7. [t] (Technical)

Page 111, annex G.2 Table G.1 Clarification - The SEQ_CNT content, "SEQ_CNT if last Frame transmitted in an Open Sequence + 1. If no Sequence is open then SEQ_CNT = zero" If no sequence is open and the PLOGI Common Service Parameter SEQ_CNT = 1, should Frame Header SEQ_CNT still be equal to zero?a This violates the common usage model of this parameter. If this is intended, it needs to be explicitly stated.

Response:

FC-FS, clause 15.2.2.2, states that the proper value for SEQ_CNT for the case where no sequence is open is either one greater than the last frame transmitted or zero. The text will be modified to reflect this. Note that this section is supposed to be informative and should reflect the values defined by FC-FS.

3.8 HP/MW 8. [t] (Editorial)

3.1.21 - the definition of Information Unit seems to imply that all the data in a "phase" must be transmitted in a single sequence. Isn't it possible to send FCP_DATA in multiple sequences instead of just one?a For example, if a long transfer is to be performed, a device or initiator may choose to break the transfer up into multiple smaller sequences instead of just on long sequence.a Is this allowed by this definition?a This is implied by the sequence streaming notes in tables 8 and 9.

Response:

After further review at the March 6, 2000 meeting, the text is apparently correct. No change is required.

3.9 HP/MW 9. [t] (Technical)

4.8, table 4 - should a normal LIP (non resetting) be included?

Response:

This comment was discussed in the March 6, 2000 meeting. The following conclusions were reached:

1) LIP with successful discovery is not a clearing action. This will be added to Note 3 in the table.

2) LIP with successful fabric discovery is also not a clearing action. This will also be included in the same note.

3) OLS does not cause a reset in a fabric environment where the subsequent FLOGIN has also been successful. However, OLS in a point-to-point environment is a clearing action.

4) LR/LRR has properties similar to OLS.

5) Table 4 is becoming unmanageably large. It was suggested that it be cut into two tables, one for link actions and the other for protocol actions. The

3.10 HP/MW 10. [t] (Editorial)

5.1, table 6 - why is "R" required in the RX_ID field for target identification?a Isn't it optional? See 5.10.

Response:

This comment was discussed in the March 6, 2000 meeting. The conclusion was that the table should be deleted. The third sentence of the first paragraph should be expanded to indicate that the FQXID is initiator address identifier, target address identifier, OX_ID, and RX_ID. It should be farther expanded to indicate that RX_ID is required for certain recovery capabilities and if it has been successfully assigned by the target.

3.11 HP/MW 11. [t] (Editorial)

5.6.9 defines the value of the OX_ID as the tag defined in ANSI X3.270. X3.270 defines the tag as 64 bits, but the OX_ID is only 32 bits.

Response:

This comment was discussed in the March 6, 2000 meeting. The conclusion was that the sentence in 5.6.9, “The value of the ... X3.270.” should be deleted. In addition, in the glossary, section 3.1.41, the OX_ID should be defined as the initial tag and the OX_ID/RX_ID is the tag.

See 2.9.

The editor will try to identify any other places where this problem may appear.

3.12 HP/MW 12. [t] (Technical)

5.6.11 defines RLTV_OFF as "not required". However, 9.3 (3rd paragraph) states "If more than one FCP_DATA IU is used to transfer the data, the RLTV_OFF is used to ensure that the SCSI data is reassembled in the proper order." It seems to me that 5.6.11 should define RLTV_OFF as required.

Response:

This comment was discussed in the March 6, 2000 meeting. The conclusion was that the relative offset was required to be generated by the sequence initiator. There are still two reassembly methods specified by FC-PH, one using sequence count, the other using relative offset. However, the tools to do either must always be provided to the recipient.

3.13 HP/MW 13. [t] (Technical)

6.2.5, last paragraph "Acknowledged class responders will close the exchange with P_RJT and an indication that process login is required." This is defining ACK and P_RJT to report FC-4 errors. ACK, P_RJT and P_BSY are only defined as FC-2 acknowledgements to signify the deliverability of a sequence or not. This requirement would require a FC-2 to deliver a sequence to an FC-4, that would then indicate to the FC-2 that it is ok to send an ACK or P_RJT. Acknowledged classes of service should work the same as unacknowledged classes - send an ABTS. This also requires a change to J.1.4.

Response:

The comment was discussed at the March 6, 2000 meeting. The offending paragraph has been deleted (See 1.48). The change to J.1.4 has also been requested by another comment, which requests that Annex J be deleted (see 9.146 Sun 146). This comment may require further review.

3.14 HP/MW 14. [t] (Technical)

8.2 indicates that the Accept FC-4 Link Service is sent to indicate that the request "has been completed".a So, in the case of the SRR, is the accept sent before the retransmitted data, or after? The error recovery procedures indicate the accept is sent before the retransmitted data, but the definition implies after.

Response:

The committee decided on March 6, 2000 that the ACC only indicates that the request has been successfully received and that the target intends to transmit the data. The data is transmitted after the request is accepted. The text will be clarified.

3.15 HP/MW 15. [t] (Technical)

10.1.3.2 (DTIPE) - the definition says that the port shall wait in a non-participating state with the bypass set, but shall respond to LPE addressed to it's hard address. This conflicts with FC-AL-2, which indicates that a node has to be in the participating (but bypassed) state to respond to an LPE. That is, since the node will respond to an alpa, it's participate flag must be set. Suggest removing the word "nonparticipating".

Response:

The comment is accepted and the text will be changed accordingly. This resolution was approved at the March 6, 2000 meeting.

3.16 HP/MW 16. [t] (Technical)

11 table 35 & 11.3, RR_TOV. Since a recipient of an REC as R_A_TOV (ELS) time to reply to an REC, it seems like RR_TOV should be 3*(REC_TOV + R_A_TOV (ELS)) when retry = 1.

Response:

A proposal by Carl Zeitler (T11/00-145v0) indicates that the actual value should be 7*REC_TOV. This change was approved on March 6, 2000.

3.17 HP/MW 17. [t] (Technical)

11.4, table 36, 2nd row, "(optional timer restart)". Why is this optional?

Response:

At the March 6, 2000 meeting, the committee resolved the comment in the following manner:

In Table 36:

Change “timer starts after” to “timer starts or restarts after”

Change “Reply sequence” to “FCP_RSP”

Change second column, second row to same description as first and third row

The question was asked, but not answered, about whether or not it was appropriate to allow a single timer to be used, such that REC_TOV functions would be very short. At present, a single timer may be used, but no REC may occur before REC_TOV.

The REC-TOV timeout diagrams may also need to be corrected to match with these tables.

3.18 HP/MW ?25. [t] (Technical)

12.3.3, at the end of "(by indicating that the Initiator...", should add "and all bytes not transferred" to differentiate between a lost FCP_XFER_RDY and a lost FCP_RSP requesting an FCP_CONF.

Response:

This was discussed and partially resolved at the March 6, 2000 meeting.

Charles Binford requested that a table be created to relate REC ACC to the SRR and to the actual recovery state.

Sections 12.3.3 shows the recovery for XFER_RDY, but does not indicate how to differentiate this case from the case described in 12.3.4.

3.19 HP/MW 18. [t] (Technical)

12.6.1, 12.6.2, 12.6.3.a The text indicates that if an ABTS fails, the initiator may explicitly logout the target.a If the response to REC and SRR fails three times, is a logout also performed?a Maybe not, since the aborting of the REC/SRR would be done by ABTS, and if that fails, the target is logged out.

Response:

See 1.47. (Approved March 6, 2000)

3.20 HP/MW 19. [t] (Editorial)

12.7 "If a SCSI Target receives an FCP_CMND from an NL_Port with which it has not successfully completed Process Login (PRLI), it shall discard the FCP_CMND and send PRLO to the SCSI Initiator." This conflicts with 6.2.5: "Devices may have default PRLI information provided at the time the device is installed in the configuration. Such devices do not require the execution of a PRLI to perform normal FCP operations."

Response:

After review by the committee on March 6, 2000, it was considered unneccessary to make any change.

3.21 HP/MW 20. [t] (Editorial)

12.7, end of section, there is a "TBD".a Need to specify the TBD.

Response:

See 1.48. Resolution accepted March 6, 2000.

3.22 HP/MW 21. [t] (Technical)

B.3.1, page 79, last sentence of section, what does the "Data Transfer Count" mean to a target that sends REC in response to a lost FCP_CONF? Since REC can be used by other FC-4s, perhaps this section should be defined in more generic terms?

Response:

The following recommendations were made by the committee on March 6, 2000.

> The Data Transfer Count is protocol dependent. Where the Data Transfer Count is specified for FCP-2 operation, the count is the highest displacement that the device knows has been transmitted.
>
> For the REC associated with FCP_CONF, the data transfer count is set to 0 and treated as ignored, because the only requirement is that the existence of the exchange be verified.

3.23 HP/MW 22. [t] (Technical)

Figure D.7 and D.8 - "(or a Relative Offset smaller than the Relative Offset specified in the SRR in order to be aligned on an appropriate boundary in the Target)." conflicts with 12.3.5: "the Target transmits an FCP_XFER_RDY with the Relative Offset parameter specified by the SRR" and conflicts with 12.3.3: "retransmit the FCP_XFER_RDY in a new Sequence containing the same Relative Offset as the originally transmitted FCP_XFER_RDY."

Response:

Accepted. The parenthetical statement is deleted. Approved March 6, 2000.

3.24 HP/MW 23. [t] (Technical)

Figure D.14. In this example, the ACC to the SRR was lost.a But what if the target resent the data requested by the SRR? Can the initiator imply that the ACC was sent, or must it abort the SRR and reperform it, causing the target to resend the data again?

Response:

This figure must be verified against T11/99-722v1. At present, figure 14b of this series of figures needs to reevaludate SRR every time. Approved March 6, 2000, but may require more review.

3.25 HP/SW 24. [e] (Editorial)

Introduction page xiv and xv: The introduction has not been undated since the previous revision. It does not reflect the new clause 7 and the 4 additions to the annex.

Response:

Accepted.

3.26 HP/SW 25. [e] (Editorial)

Page 6, Clause 3.4 Editorial conventions: First paragraph, second sentence, "These words and terms are defined either in or in the text where they first appear." This sentence doesn't make sense: "in or in" where?

Response:

Accepted.

3.27 HP/SW 26. [e] (Editorial)

Page 8, clause 4.2 Device Management, last paragraph on the page: The term "SCSI REQUEST SENSE information" should be "SENSE data" (two occurrences). See SAM-2 clause 3.1.84.

Response:

Accepted. See 2.21. the proper word is “autosense data”.

3.28 HP/SW 27. [e] (Editorial)

Page 12, clause 4.7 Task management, last sentence of first paragraph: Other references in this document have been to clause numbers. This reference lists the page without the clause. Reformatting could make this reference become erroneous. Suggest that the reference be to clause 9.1.1.4.

Response:

Accepted.

3.29 HP/SW 28. [e] (Editorial)

Page 18, clause 5.4 information units, first paragraph last sentence references annex B. This appears to be in error. Should it reference annex C?

Response:

Accepted.

3.30 HP/SW 29. [e] (Editorial)

Page 19, notes to Table 9. The first note states that I2 is obsolete. The third note states that, "I2 and I3 allow optional sequence streaming ..." Since I2 is obsolete the third note should not reference I2, only I3.

Response:

Accepted.

3.31 HP/SW 30. [e] (Editorial)

Page 30, 7.1 Query - Get port Identifiers (GID_FT): The first sentence has an extraneous "a" at the beginning of the second line.

Response:

Accepted.

3.32 HP/SW 31. [e] (Editorial)

Page 30, Table 13; page 34, Table 20; page 35, Table 21: There is a formatting problem that is visible both on the screen and when printed. The table cell lines obscure the top of the text.

Response:

Accepted.

3.33 HP/SW 32. [e] (Editorial)

Page 34, clause 8.2, under the bold text "FCP_RJT Reason explanation": There is an extra carriage return separating the two lines in this paragraph.

Response:

Accepted.

3.34 HP/SW 33. [e] (Editorial)

Page 43, clause 9.3 FCP_DATA IU, seventh paragraph: This paragraph states,a "If the PRLI service parameter DATA OVERLAY ALLOWED for the initiator is 1, the target may request that data be overlaid. If the PRLI service parameter DATA OVERLAY ALLOWED is 0, the target shall not request that data be overlaid." This sentence appears to be inconsistent with clause 6.2.6.9 Word 3, Bit 6: DATA OVERLAY ALLOWED, where any exception is made to allow error recovery when RETRY = 1. I would suggest modifying the second sentence to read: "If the PRLI service parameter DATA OVERLAY ALLOWED is 0, the target shall not request that data be overlaid except as is described elsewhere in this document when the PRLI RETRY but is set to 1 and the device is performing FCP-2 error recovery."

Response:

Accepted. See 2.6.

3.35 HP/SW 34. [e] (Editorial)

Page 48, clause 9.4.11, FCP_SNS_INFO: The first sentence states, " The FCP_SNS_INFO field contains the information specified by ANSI X3.301 for presentation by the REQUEST SENSE command." To be technically consistent with SAM-2 the term "data" should be used instead of "information". Also the data is provided by an autosense operation not by a REQUEST SENSE command. I think the sentence should be more accurately written as, "THE FCP_SNS_INFO field contains the sense data specified by ANSI X3.301 delivered by an autosense operation." See SAM-2 3.1.84. My understanding is that the request sense command is not used in FCP.

Response:

Accepted. See 2.21.

3.36 HP/SW 35. [e] (Editorial)

Page 51, clause 10.1.1 Disconnect-Reconnect mode page, immediately after Table 30, the term "interconnect tenancy" is defined. Rather than consistently using this term, an undefined but assumably synonymous term "link tenancy" is used in several places. A search and replace should be performed to make the document consistent. Three occurrences of the "link tenancy" term are on page 52 in the final sentences of clauses 10.1.1.3 Bus Inactivity Limit, 10.1.1.4 Disconnect Time Limit and 10.1.1.5 Connect Time Limit. Another occurrence is on page 53, clause 10.1.1.8 Access fairness management bits, second to last sentence.

Response:

Accepted.

3.37 HP/SW 36. [e] (Editorial)

Page 62, clause 12.1.2 Sequence level error recovery: There is an extra line between the title and the text.

Response:

Accepted.

3.38 HP/SW 37. [e] (Editorial)

Page 63, clause 12.2.2 Error mechanisms for acknowledged class of Service: The term "class" in the title should be "classes". Also the first sentence in the text should end in a colon instead of a period. The second sentence, "The Exchange originator (SCSI Initiator) shall initiate error detection and recovery described in 12.3 for the following:" should state, "The Exchange originator (usually the SCSI Initiator) shall detect an error and initiate recovery described..." The original sentence implies some circular activity where an error initiates error detection.

Finally a comment that may not be particularly relevant, there is at least one case where a SCSI target is an exchange originator, that is for a LOGO.

Response:

Accepted. Review is requested of the committee.

3.39 HP/SW 38. [e] (Editorial)

Page 67, 12.5.1 SCSI Initiator Abort of Exchange behavior and 12.5.2 SCSI Target Abort of Exchange behavior: These titles are ambiguous - is it Initiator/Target or exchange behavior that is to be addressed? I think better titles would be SCSI Initiator/Target procedure for aborting Exchanges.

Response:

Accepted in principle.

3.40 HP/SW 39. [e] (Editorial)

Page 82, annex C.1.4, Table C.4 - FCP read operation with FCP_XFER_RDY disabled, example. The title of the table does not reflect the FCP-2 requirement to disable FCP_XFER_RDY. The title could be changed by dropping the reference to the FCP_XFER_RDY. The new title would be, "FCP read operation, example. Alternately some explanatory text could be provided.

Response:

Accepted in principle.

3.41 HP/SW 40. [e] (Editorial)

Page 84, annex C.1.7, Table C.7, second to bottom entry in left column. Redundant bracket at end of statement, " [indicate command completion]]".

Response:

Accepted.

3.42 HP/SW 41. [e] (Editorial)

Page 111, annex G.2 Table G.1 ABTS Frame. Formatting error - the table outlines are missing.

Response:

Accepted.

3.43 HP/SW 42. [e] (Editorial)

Page 112,113, annex G, Table G.2, G.3 and G.4. The text is too high in the table cells.

Response:

Accepted.

3.44 HP/AT 43. [e] (Editorial)

Page 8, clause 4.2 Device management, last paragraph on page 8, last sentence: "...the FCP_RSP payload carry the FCP response..." carry should be carries.

Response:

Accepted.

3.45 HP/AT 44. [e] (Editorial)

Page 68, clause 12.5.2 Target Abort of Exchange behavior, middle paragraph of clause: "Reinstate Recover Qualifier (RRQ)", Recover should be Recovery.

Response:

Accepted.

3.46 HP/MW 45. [e] (Editorial)

3.1.127 needs to reference NCITS 1304-D.

Response:

Accepted in principle. Mnemonics will be used.

3.47 HP/MW 46. [e] (Editorial)

3.3.5 "indicated" should be "indicates".

Response:

Accepted.

3.48 HP/MW 47. [e] (Editorial)

3.3.6 "indicated" should be "indicates".

Response:

Accepted.

3.49 HP/MW 48. [e] (Editorial)

3.3.6 "standards" should be "standard".

Response:

Accepted.

3.50 HP/MW 49. [e] (Editorial)

3.2 CMR - suggest removing "project".

Response:

Accepted.

3.51 HP/MW 50. [e] (Editorial)

4.5, 2nd paragraph "Request Exchange Concise" should be "Read Exchange Concise".

Response:

Accepted.

3.52 HP/MW 51. [e] (Editorial)

5.4, table 9, 3rd note, I2 is obsolete and should be removed from the note.

Response:

Accepted.

3.53 HP/MW 52. [e] (Editorial)

5.6.2 and 5.6.3.a The D_ID and S_ID are defined in terms that the exchange originator is always the initiator.a However, the target is allowed to originate exchanges, for example when it sends an REC. Suggest simply using the FC-PH definitions.

Response:

Accepted.

3.54 HP/MW 53. [?] (Technical)

6.2.5, 2nd paragraph.a Says: "Immediately after the execution of the first PRLI, both members of all image pairs shall have the same state as they would have after a hard reset or a power on with respect to each other." I think the sentence should say "Immediately before..." (not after).

Response:

This was reviewed by the committee on March 6, 2000. Note that some parameters are not reset. While it may be explicit enough in the subsequent paragraph, this text will be reviewed again. Note that some Mode pages apply per initiator, while other pages apply per target.

3.55 HP/MW 54. [e] (Editorial)

9.1, table 22 - FCP-1 defined bytes 8-11 as the "Control Field". Do we want to do away with this?

Response:

Yes. At an earlier revision of the document, flattening of the tables was requested. Collections of bits are no longer labeled with such secondary descriptions unless necessary.

3.56 HP/MW 55. [e] (Editorial)

9.1.2.2 - should indicate that bit 0 in the PARM field is set to 0 for this ABTS. (other areas of the document specify when to set the bit to 1)

Response:

Accepted in principle. The actual fields will be reviewed.

3.57 HP/MW 56. [e] (Editorial)

9.4, table 26 - FCP-1 defined bytes 8-11 as the "FCP Status". Do we want to do away with this?

Response:

Yes. At an earlier revision of the document, flattening of the tables was requested. Collections of bits are no longer labeled with such secondary descriptions unless necessary.

3.58 HP/MW 57. [e] (Editorial)

11.3. I do not understand what "... and always appropriate to ADISC address discovery time." means.

Response:

The intent is to point out that the timer for REC_TOV should not be incremented during the time that LIP and address verification are taking place due to a temporary link error. No change is proposed.

3.59 HP/MW 58. [e] (Editorial)

12.3.2 typo "interal".

Response:

Accepted. The word should be “interval”.

3.60 HP/MW 59. [e] (Editorial)

12.3.4, "A command that was terminated before execution by a CHECK CONDITION with FCP_CONF requested may have the same REC values as a command for which an FCP_RSP...". This FCP_RSP should be FCP_XFER_RDY.

Response:

Accepted. Wasn’t this covered somewhere else?

3.61 HP/MW 60. [e] (Editorial)

B.1 "FC-PH" should be "FC-FS".

Response:

Accepted.

3.62 HP/MW 61. [e] (Editorial)

B.3.1, page 79, accept payload, should say "The Responder Address Identifier is set to..." (add the word "to").

Response:

Accepted.

3.63 HP/MW 62. [e] (Editorial)

Annex E: E.2 should reference figure E.2, and the figure renamed figure E.2 (there are two figure E.1s). The same thing applies to E.3.

Response:

Accepted.

3.64 HP/MW 63. (Editorial)

Annex G, all references to figures should be references to tables.

Response:

Accepted.

3.65 HP/MW 64. (Editorial)

[e] list of figures duplicated on last page of document.

Response:

Accepted.

4 Comments from IBM

The following comments accompanied the ballot of IBM Corporation, prepared by George Penokie.

The notation 'Page xx' refers to all pages in the standard not roman numeral xx. All comments are editorial unless indicated with a '(T)' at the start of the comment. The technical comments are IBM comments 1, 138, 202, 205, 322, 521, 538, 546, 572, 636, and 693.

4.1: IBM comment from George Penokie (Technical)

(T) Page 13 - table 4 - There is another operation that needs to be added to this table. It involves the result of an XDWRITE command that is saved in the target until an XDREAD command is issued. The normal sequence goes like this:

An initiator does an XDWRITE command.

The target reserves resources for saving the XOR result so it can read out via an XDREAD command.

An initiator issues an XDREAD command to retrieve the result of the XOR. This does not have to be the same initiator that issued the original XDWRITE.

The target frees up the resource.

The problem is there is not definition in as to what the target is supposed to do with the reserved XOR data if the initiator that issued the XDWRITE command logs out before an XDREAD command occurs. Since the XDWRITE/XDREAD commands can come from any initiator we can't just throw away the data when an initiator logs out.

I propose a new row be added to table 4 to describe the clearing actions that are required to occur on the reserved XOR data. This row should require that the reserved XOR data only be cleared only if there is a target power cycle, reset LIP, log out only if all initiators are logged out, TPRLO, SCSI target reset, or a SCSI logical unit reset.

Response:

The comment is accepted and the appropriate changes will be made. This action was approved at the April 5, 2000 meeting.

4.2: IBM comment from George Penokie (Editorial)

Page xx - Throughout this standard the use of the small caps notation is erratic. Small caps should always be used when the name of a field or bit is being used (e.g. the BSST bit when set to 1 or the GO FIND SOUP field indicates). Small caps is not used when describing the contents of a field (e.g., a go find soup value of 54 is not value). I have commented where on many of the instances where small caps should have been used or where they were used but should not have been used but a general seep of the standard should be made to correct those errors.

Response:

Accepted.

PDF Page 1

4.3: IBM comment from George Penokie (Editorial)

Page i - At the bottom of the page the 'Reference number' is overlapping the bar and is difficult to read.

Response:

Accepted.

PDF Page 2

4.4: IBM comment from George Penokie (Editorial)

Page ii -The address of the t10 vice chair should be changed from 2B7 to Z9V.

Response:

Accepted.

4.5: IBM comment from George Penokie (Editorial)

Page ii - All 'X3T10's need to be changed to 'T10'.

Response:

Accepted.

4.6: IBM comment from George Penokie (Editorial)

Page ii - The SCSI bulletin board information should be removed

Response:

Accepted.

4.7: IBM comment from George Penokie (Editorial)

Page xx - Any capitals on the words 'Initiator' and 'Target' should be made non-capitals (i.e., initiator, target). In general there are numerous cases where words are capitalized throughout this standard. Most, if not all, of those words should not be capitalized. I have pointed out many of these in the first part of the standard as examples but this is a general comment on the entire standard not just the places that I have indicated.

Response:

Accepted.

4.8: IBM comment from George Penokie (Editorial)

Page ii - What is 'Fibre Channel Physical and Signaling Interface'? Should this be the name of this standard? If not then what is it?

Response:

This is the actual name of the FC-PH standard. I suggest changing this to “Fibre Channel family of standards.” This resolution was approved at the April 5, 2000 meeting.

4.9: IBM comment from George Penokie (Editorial)

Page ii - Why is the statement 'The second revision includes additional mandatory and optional requirements.' here it adds nothing to the abstract and should be removed.

Response:

Accepted. It is appropriate to indicate why a second version is being prepared instead of simply using the first version. The offending sentence will be replaced with: “The second version adds optional retransmission, task ordering, and confirmation capabilities.” This resolution was approved at the April 5, 2000 meeting.

PDF Page 3

4.10: IBM comment from George Penokie (Editorial)

Page iii -The document revision history should be removed.

Response:

Accepted.

PDF Page 13

4.11: IBM comment from George Penokie (Editorial)

Page xx - Is the reference to FC-PH really a reference to FC-PH-2, FC-PH-3, DAM-1, DAM-2 or the new FC-PI and FC-FS. Through out this standard there are references to the various FC-PH standards. In many cases it is not clear as to which version of FC-PH is being referred to. I suggest all references be changed to reference FC-FS. I do not believe there are any references to the FC-PI part of FC-PH but if there are then FC-PI should be used as the reference.

Response:

Accepted.

4.12: IBM comment from George Penokie (Editorial)

Page xiii - The term 'Fibre Channel ' should not be capitalized.

Response:

In all Fibre Channel documents and at all times, Fibre Channel is capitalized. I believe we should maintain that convention. The comment is not accepted.

See 4.46: IBM comment from George Penokie.

This resolution was accepted in the March 6, 2000 meeting.

4.13: IBM comment from George Penokie (Editorial)

Page xiii - There is no list of names for t10.

Response:

Accepted.

PDF Page 14

4.14: IBM comment from George Penokie (Editorial)

Page xiv - There is no list of names for NCITS.

Response:

Accepted.

4.15: IBM comment from George Penokie (Editorial)

Page xiv - X3 needs to be changed to NCITS.

Response:

Accepted.

4.16: IBM comment from George Penokie (Editorial)

Page xiv - The statement ' This document describes...' should be 'This standard describes...'..

Response:

Accepted.

4.17: IBM comment from George Penokie (Editorial)

Page xiv - The statement 'This document describes the protocol for using Fibre Channel FC-PH Exchanges and Information Units to implement the SCSI Fibre Channel Protocol (FCP) and optional extensions to that protocol.' Is completely unclear and needs to be rewritten.

Response:

Accepted.

4.18: IBM comment from George Penokie (Editorial)

The term 'Information Unit' should not be capitalized.

Response.

Accepted. FC-FS is inconsistent about its capitalization policy with respect to “information unit”. This needs to be raised as an editorial issue to FC-FS. The convention selected for FCP-2 and provided to FC-FS will be to use “information unit” in lower case and to use the abbreviation “IU” in upper case. This will be addressed for FC-FS in T10-00-230r1.

4.19: IBM comment from George Penokie (Editorial)

Page xiv - The statement 'into 11 major clauses' should be 'into 11 clauses'. All clauses are major anything else is a subclause.

Response:

Accepted.

4.20: IBM comment from George Penokie (Editorial)

Page xiv - Once you start using the acronym FCP you should continue to use it not Fibre Channel Protocol.

Response:

Accepted in principle. I believe that FCP-2 should be used to reference this standard. The protocol should be referred to as “the Fibre Channel protocol” or perhaps “the FC protocol” at all times. This resolution was accepted at the meeting on April 5, 2000.

PDF Page 15

4.21: IBM comment from George Penokie (Editorial)

Page xv - Once you start using the acronym FCP you should continue to use it not Fibre Channel Protocol.

Response:

See 4.20.

4.22: IBM comment from George Penokie (Editorial)

Page xv - What is a temporary annex? It must be removed or not removed because it cannot be changed after the standard is forwarded.

Response:

Accepted.

4.23: IBM comment from George Penokie (Editorial)

Page xv - There is a statement that 3 annexes have been removed and then it goes on to tell what those were and where they went. There are several problems with this.

1-You use FCP here to mean the FCP standard but in other places it means either the FCP or FCP-2. This needs to be resolved.

2-You reference specific clauses in a standard. This is almost always going to be incorrect. Only the standard should be referenced.

The best solution to this problem would be to totally removed any comments about the removed annexes.

Response:

Accepted. See also 4.20.

4.24: IBM comment from George Penokie (Editorial)

Page xv - I would be best to change all references from SAM to SAM-2.

Response:

Accepted in principle. There may be a few things that SAM provides that SAM-2 does not provide, so references must be verified. Any exceptions will be listed here.

4.25: IBM comment from George Penokie (Editorial)

Page xv - You should change the statement 'SCSI-3 family' to 'SCSI family'.

Response:

Accepted.

PDF Page 17

4.26: IBM comment from George Penokie (Editorial)

I believe it would be much less confusing if the name of this standard was change to 'Fibre Channel Protocol for SCSI, Second Version'. The term 'revision' makes me think of document revision numbers (e.g., Rev. 02, 03).

Response:

Accepted.

4.27: IBM comment from George Penokie (Editorial)

Page 1 - The statement 'This standard defines a second revision of the ...' should be 'This standard defines a second version of the ...'

Response:

Accepted.

4.28: IBM comment from George Penokie (Editorial)

Page 1 - The statement 'This standard defines a second revision of the ...' should be 'This standard defines a second version of the ...'

Response:

Accepted.

PDF Page 18

4.29: IBM comment from George Penokie (Editorial)

Page xx - In many, but not all, cases standards are referenced by the ANSI number. This is not very useful to the reader. These should be changed to the standards acronym throughout the standard.

Response:

Accepted. The following changes will be made to the document: All references will use the mnemonic to specify the referenced standard. All mnemonics will be included in the sub-clause on abbreviations, together with the official title of the document. The sub-clause on abbreviations will point to the appropriate sub-clause on references.

4.30: IBM comment from George Penokie (Editorial)

Page 2 - section 3.1.10 - I believe B comes before C so the BMCM definition should be moved to the correct alpha position.

Response:

The MCM function has been removed from FC-AL-3. These definitions and related text will be removed.

4.31: IBM comment from George Penokie (Editorial)

Page 2 - section 2.2 - The project number of FC-FS is 1331D not 3111D.

Response:

Accepted.

PDF Page 19

4.32: IBM comment from George Penokie (Editorial)

Page 3 - section 3.1.17 - The term 'Execute Command' should not be capitalized.

Response:

The convention established for callable procedures in SAM-2 requires their capitalization. This will continue to be used in FCP-2 as well. This resolution was accepted in the April 5, 2000 meeting.

4.33: IBM comment from George Penokie (Editorial)

Page 3 - section 3.1.20 - When did tokens become part of FC? Address would be a better term.

Response:

Accepted.

4.34: IBM comment from George Penokie (Editorial)

Page 3 - section 3.1.23 - Replace token with address.

Response:

Accepted.

4.35: IBM comment from George Penokie (Editorial)

Page 3 - section 3.1.30 - Another reference to FC-PH where it should be a reference to all the FC-PH standards.

Response:

Accepted in principle. The references will be to FC-FS. This resolution was accepted in the April 5, 2000 meeting.

4.36: IBM comment from George Penokie (Editorial)

The terms Exchange, Originator, and Responder should not be capitalized.

Response:

In all Fibre Channel documents, and at all times, these terms are capitalized. I believe we should maintain that convention. The comment is not accepted. This resolution was reluctantly accepted in the April 5, 2000 meeting. Because of this reluctance, I will raise the issue in T11/00-284v1.

4.37: IBM comment from George Penokie (Editorial)

Page 3 - section 3.1.32 - The reference to 'Responder Exchange Identifier' should be replaced with a subclause number.

Response:

Accepted.

PDF Page 20

4.38: IBM comment from George Penokie (Editorial)

Page 4 - section 3.1.34 - Another reference to FC-PH where it should be a reference to all the FC-PH standards.

Response:

Accepted.

4.39: IBM comment from George Penokie (Editorial)

Page 4 - section 3.2 - The FCP-2 abbreviation does not need the ANSI document reference. And if it stays the TBD needs to be removed.

Response:

Accepted.

4.40: IBM comment from George Penokie (Editorial)

Page 4 - section 3.2 - I cannot believe the fibre channel is wholly defined in a single standard. This reference should be removed.

Response:

Accepted in principle. The text will be changed to reference the document name.

PDF Page 21

4.41: IBM comment from George Penokie (Editorial)

Page 5 - section 3.2 - SCSI-2 - What is ANS X3.131-1994? I believe it should be ANSI X3.131-1994.

Response:

Accepted.

4.42: IBM comment from George Penokie (Editorial)

Page 5 - section 3.2 - SCSI-2 - This is an abbreviations list but this does not tell what SCSI-2 is. It should be changed to 'Small Computer System Interface-2'.

Response:

Accepted.

4.43: IBM comment from George Penokie (Editorial)

Page 5 - section 3.2 - SCSI-3 - This is an abbreviations list but this does not tell what SCSI-3 is. It should be changed to 'Small Computer System Interface-3'. Also there is no single SCSI-3 standard so the current reference is incorrect.

Response:

Accepted.

PDF Page 22

4.44: IBM comment from George Penokie (Editorial)

Page 6 - section 3.4 - The bit order and byte order should be specified here not by reference to another document.

Response:

Accepted.

4.45: IBM comment from George Penokie (Editorial)

Page 6 - section 3.4 - The following ISO editorial conventions need to be added in and followed: Decimals are indicated with a comma (e.g., two and one half is represented as 2,5). Decimal numbers having a value exceeding 999 are represented with a space (e.g., 24 255).

Response:

Accepted.

PDF Page 23

4.46: IBM comment from George Penokie (Editorial)

If fibre channel was changed to FC every where except the first occurrence then the issue about capitalizing fibre channel would be resolved.

Response:

Not accepted. See 4.12.

4.47: IBM comment from George Penokie (Editorial)

Page 7 - section 4.4 - The statement 'In the FCP-2 document N_Ports...' should be 'In this standard N_Ports...'.

Response:

Accepted.

4.48: IBM comment from George Penokie (Editorial)

Section 4 - There are several references to standards that use the ANSI number all these should be changed to reference the standards name.

Response:

Accepted.

4.49: IBM comment from George Penokie (Editorial)

Page 7 - section 4.1 - There is a reference to a specific annex outside this standard that should be removed.

Response:

Accepted.

4.50: IBM comment from George Penokie (Editorial)

Page xx - There are several references to 'SAM and SAM-2' this implies that these two standards are both needed when you only need one or the other. The best thing to do is to reference only one; SAM-2 is preferred.

Response:

Accepted.

4.51: IBM comment from George Penokie (Editorial)

Page 7 - section 4.1 - The sentence that contains the reference to CAM is not necessary and should be removed. This would then allow the removal of CAM from the normative reference list.

Response:

Accepted.

4.52: IBM comment from George Penokie (Editorial)

Page 7 - section 4.1 - The word 'paradigm' should be replaced with 'structure' or some such word.

Response:

Accepted.

PDF Page 24

4.53: IBM comment from George Penokie (Editorial)

Page 8 - section 4.1 - The term '65535' should be '65 535'.

Response:

Accepted.

4.54: IBM comment from George Penokie (Editorial)

Page 8 - section 4.2 - The term Execute should not be capitalized.

Response:

Accepted.

4.55: IBM comment from George Penokie (Editorial)

Page 8 - section 4.2 - Again SAM-2 is not an incremental standard to SAM therefore only one should be listed here and in other places throughout this standard.

Response:

Accepted.

4.56: IBM comment from George Penokie (Editorial)

Page 8 - section 4.2 - The term Send should not be capitalized.

Response:

Accepted.

4.57: IBM comment from George Penokie (Editorial)

Page 8 - section 4.2 - A cross-reference to the section that explains about FQXIDs would be helpful at this point in the document.

Response:

Accepted.

4.58: IBM comment from George Penokie (Editorial)

Page 8 - section 4.2 - The document should be de-whiched. For example in this section the statement '...initiator to indicate which portion of the data.., should be changed to '...initiator to indicate the portion of the data...'.

Response:

Accepted.

4.59: IBM comment from George Penokie (Editorial)

Page 8 - section 4.2 - The sentence 'Exactly one FCP_DATA IU follows each FCP_XFER_RDY IU.' should be changed to 'One FCP_DATA IU shall follow each FCP_XFER_RDY IU.'

Response:

Accepted.

4.60: IBM comment from George Penokie (Editorial)

Page 8 - section 4.2 - What is the statement 'other mechanisms for controlling the data transfer.' supposed to mean? Do you mean 'mechanisms outside the scope of this standard'? If so then say it that way.

Response:

Accepted.

4.61: IBM comment from George Penokie (Editorial)

Page 8 - section 4.2 - All note should be numbered. But this note should be remove and a list of obsolete things placed in one place, preferably in the Scope clause.

Response:

Accepted.

4.62: IBM comment from George Penokie (Editorial)

Page 8 - section 4.2 - What exactly is an 'unusual condition'? Would this be an error condition or something else; it is not clear at all. "Unusual conditions' need to be defined or replaced with something that is defined.

Response:

Accepted.

4.63: IBM comment from George Penokie (Editorial)

Page 8 - section 4.2 and other places - The term 'Operation ' should not be capitalized.

Response:

Accepted.

4.64: IBM comment from George Penokie (Editorial)

Page 8 and 9 - section 4.2 - This entire section contains descriptions of sequences of operations that occur written in paragraphs. This is difficult to read and understand. It would be much clearer if the operations were placed in lists were each step was a new list entry.

Response:

Accepted.

4.65: IBM comment from George Penokie (Editorial)

Page 8 - section 4.2 - 'Send Command Complete' should not be capitalized.

Response:

This will be reviewed in the context of SAM-2 and capitalized consistently with that standard.

4.66: IBM comment from George Penokie (Technical)

Page 8 - section 4.2 - The statement 'The SCSI logical unit determines whether ...'. is not correct, it is the task manager that controls the command sequencing..

Response:

Actually, if I interpret SAM-2 correctly, the task manager performs task management functions on the task set, while the device server orders the entry of the task into the various stages of execution. As a result, the text should read “The SCSI device server for the logical unit determines...”.

PDF Page 25

4.67: IBM comment from George Penokie (Editorial)

Page 9 - section 4.2 - The statement ' ..confirmation information to the software that requested...' should be '...confirmation information to the application client that requested...'.

Response:

Accepted.

4.68: IBM comment from George Penokie (Editorial)

Page 9 - section 4.2 - Unlike editors, standards do not have emotions. The statement '...performed the desired operations with the..' should be changed to '...performed the requested operations with the...'

Response:

Accepted.

4.69: IBM comment from George Penokie (Editorial)

Page 9 - section 4.2 - The statement 'The Flag bit defined by SAM for linked commands is obsolete in FCP-2.' should be removed and a list of obsolete things placed in one place, preferably in the Scope clause

Response:

Accepted.

4.70: IBM comment from George Penokie (Editorial)

Page 9 - section 4.2 The term Flag in the statement ' The Flag bit defined by SAM...' should be in small caps as it is the name of a field.

Response:

Accepted.

4.71: IBM comment from George Penokie (Editorial)

Page 9 - section 4.2 - The statement '...of the particular SCSi devices and ..' should be changed to '...of the SCSI device...'

Response:

Accepted.

4.72: IBM comment from George Penokie (Editorial)

Page 9 - section 4.2 - I/O operations are not between a host and a peripheral subsystem. I/O operations are between application clients and device servers. This needs to fixed in the last paragraph of section 4.2.

Response:

Accepted.

4.73: IBM comment from George Penokie (Editorial)

Page 9 - section 4.2 - Asynchronous Event Notification should not be capitalized.

Response:

The definition in SAM-2 chooses to use these terms capitalized. Unless SAM-2 changes, the FCP-2 document should not change.

4.74: IBM comment from George Penokie (Editorial)

Page 9 - section 4.3 - The statement 'for the proper operation and error recovery of a device server' should be removed as it carries no value in a standard.

Response:

The statement will be modified to indicate more clearly that it can be done under any conditions. An explanation of the possible benefits of this should also be included here so that people can understand why they might choose to do this.

4.75: IBM comment from George Penokie (Editorial)

Page 9 - section 4.3 - The statement 'In many cases, SCSI communications between an application client and a device server are stateless. In such applications, verification...' shows

bias. It should be changed to 'In applications were SCSI communications between an application client and a device server are stateless, verification...'

Response:

Accepted.

4.76: IBM comment from George Penokie (Editorial)

Page 9 - section 4.3 - The statement 'For those special cases where checking for the precise delivery of SCSI...' should be changed to 'In applications where checking for the precise delivery of SCSI...'

Response:

Accepted.

4.77: IBM comment from George Penokie (Editorial)

Page 9 - section 4.3 - The cross-reference contains a page number. This is not the proper form. The page number should be removed.

Response:

Accepted.

4.78: IBM comment from George Penokie (Editorial)

Page 9 - section 4.3 - All the following except LUN should not be capitalized - Target Reset, LUN Reset, or Fibre Channel Login or Process Login..

Response:

SAM-2 chooses to make Target Reset and LUN Reset all upper case. FCP-2 will follow the same convention.

FC-FS chooses to use the abbreviations for Fibre Channel Login (PLOGI, FLOGI). FCP-2 will follow the same convention.

FC-FS chooses to capitalize Process Login. FCP-2 will follow the same convention.

The question will be formally asked for FC-FS in T11/00-284v1 to make sure this is correct.

4.79: IBM comment from George Penokie (Editorial)

Page 9 - section 4.3 - There is a 'will' that needs to be changed into a 'shall'.

Response:

Accepted.

4.80: IBM comment from George Penokie (Editorial)

Page xx - section xx - The term 'FCP I/O Operation' is stated to be he same as 'FCP exchange' but both are used throughout the standard. One term should be used in all cases. Pick one and change all others to match it. There also are places where the term 'task' seems to be being used where FCP exchange or FCP I/O operation may be better (e.g., table 4).

Response:

Accepted.

4.81: IBM comment from George Penokie (Editorial)

Page 9 - section 4.3 - The information about what things cause the CRN to be cleared is also in table 4. It appears that table 4 is more precise. The sentence 'The integer begins with a value of one after any Target Reset, LUN Reset, or Fibre Channel Login or Process Login occurs.' should be replaced with 'See table 5 for the actions that cause the CRN field to be set to 1.'

Response:

Accepted.

4.82: IBM comment from George Penokie (Editorial)

Page 10 - section 4.3 - The 1,2,3 list should be an a,b,c list as there is not required order to the things listed.

Response:

Accepted.

4.83: IBM comment from George Penokie (Technical)

Page 10 - section 4.3 - number 6 - There is no such thing as an execution queue. You may mean 'all tasks are in the ended state as defined by SAM-2' but in any case the term 'execution queue' needs to be replaced with a valid term.

Response:

Accepted in principle. SAM-2 has several different definitions for the possible states that a task may enter when condition 6) is present. The following wording is proposed, which also changes rule 5:

5) The device server shall not accept a command with a nonzero CRN into the dormant or enabled state until after all commands with a previous CRN have been received by the device server. The commands shall be assumed to be received in the order of increasing CRN, highest CRN last. The order of execution of the commands shall be managed by the normal task set management algorithms.

6) The device server shall accept any valid command with a CRN of 0 into the dormant or enabled state regardless of whether or not all commands with a nonzero CRN have been received. The order of execution of the commands shall be managed by the normal task set management algorithms.

4.84: IBM comment from George Penokie (Editorial)

Page 10 - section 4.3 - The statement 'Any command, including such initialization commands as INQUIRY, TEST UNIT READY, and MODE SENSE/ SELECT may always use a CRN of zero if the state of the EPDC bit is not known or if precise delivery is not...' First states 'Any command' then gives a list of some commands, why?. What is the point in saying 'any command' if you are going to qualify it. The statement should read 'Any command may use a CRN of zero if the state....'

Response:

Explanation is desirable as to some of the reasons for and possible uses of CRN values of zero.

4.85: IBM comment from George Penokie (Editorial)

Page 10 - section 4.4 - The word can needs to be removed.

Response:

Accepted.

4.86: IBM comment from George Penokie (Editorial)

Page 10 - section 4.4 - The statement 'Upon receiving the FCP_CONF, the SCSI target can be assured that the initiator has the information necessary to perform stateful recovery and can then discard its own copy of the information.' Should be changed to ' Upon receiving the FCP_CONF, the SCSI target shall (or may?) discard its own copy of the information. The removed wording add no information to the standard.

Response:

Accepted.

4.87: IBM comment from George Penokie (Editorial)

Page 10 - section 4.4 - All information should be assumed to be 'critical' therefore it need not be stated as such. Remove the word 'critical' .

Response:

Accepted.

4.88: IBM comment from George Penokie (Editorial)

Page 10 - section 4.3 - item 1 - The information about what things cause the CRN to be cleared is also in table 4. It appears that table 4 is more precise. The statement 'A PRLI, Target Reset task management function, and LUN Reset task management function shall reset the CRN to be transmitted....' should be replaced with 'See table 5 for the actions that cause the CRN to be transmitted .... '.

Response:

Accepted.

PDF Page 27

4.89: IBM comment from George Penokie (Editorial)

Page 11 - section 4.4 - The term 'intermediate status' needs to be written as 'INTERMEDIATE status'.

Response:

Accepted.

4.90: IBM comment from George Penokie (Editorial)

Page 11 - section 4.4 - The 1,2 list should be an a,b list there is no order to the items in the list.

Response:

Accepted.

4.91: IBM comment from George Penokie (Editorial)

Page 11- Section 4.6 - table 2 - MODE SENSE should be MODE SENSE command.

Response:

Accepted.

4.92: IBM comment from George Penokie (Editorial)

Page 11- Section 4.6 - table 2 - What is 'none' supposed to mean?

Response:

Accepted. “None” will be replaced with “Not required”.

4.93: IBM comment from George Penokie (Editorial)

Page 11- Section 4.6 - table 2 - Why is there a blank row in this table?

Response:

Accepted.

PDF Page 28

4.94: IBM comment from George Penokie (Editorial)

Page 12 - section 4.7 - The page number on the cross reference needs to be removed.

Response:

Accepted.

4.95: IBM comment from George Penokie (Editorial)

Page 12 - section 4.8 - The statement 'cleared to its default or power-on value...' is not really correct. In many cases information is cleared to its saved values which in many cases is not the same as the default. Also, power-on value is not a good description. I think the best thing to say would be 'most recent saved value'.

Response:

Accepted.

4.96: IBM comment from George Penokie (Editorial)

Page 12 - section 4.8 - Sequences and exchanges should not be capitalized.

Response:

At present, FC-FS capitalizes Sequence and Exchange. Correction of this has been requested in T10/00-230v1.

4.97: IBM comment from George Penokie (Editorial)

Page 12 - table 3 - The term 'SCSI-3 function' should be 'SAM-2 function'.

Response:

Accepted.

PDF Page 29

4.98: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - The term 'TPRLO' is not defined or a referenced made as to where it is defined. This needs to be fixed.

Response:

Accepted.

4.99: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - The the clearing actions for TPRLO and SCSI target reset are identical. Why have both?

Response:

The two operations are widely disparate in source and independently happen to have the same clearing actions for all the listed items. This may or may not be true for any future additions to the table. No change is required.

4.100: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - The terms 'SCSI initiator port', L_Ports, SCSI initiators, and ports all seem to be the same thing. One term should be used or the deferences between these terms clearly stated.

Response:

Accepted.

4.101: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - The terms 'tasks', 'FCP exchanges', and 'I/O Operations' seem to be the same thing. Only one name should be used.

Response:

Accepted.

4.102: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - The row entry 'only for ports of specified TYPE' should be removed as this standard only defines on TYPE (i.e., SCSI). No other TYPE applies.

Response:

PRLI can be performed for non-SCSI devices while SCSI devices are present. As a result, the case can occur and should be considered. No change will be made.

4.103: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - The 'N' in the TPRLO column/for all logged-in SCSI initiator ports should be a 'Y' when the 'only for ports of specified TYPE' row is removed.

Response:

See 4.102. No change is required.

4.104: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - In several places a statement like 'for all xxxx SCSI initiator ports' is made. The meaning of this is not clear. Does it mean for all initiators on all the ports connected either physically or logically to the device on which the port resides or only those initiator ports that reside on the same physical loop? The current wording could be interpreted either way.

Response:

Accepted.

4.105: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - The 'Y' in columns LOGO, PLOGI and PRLI, PRLO row PRLI parameters cleared only for port initiating action should be '-'. Because the operation on the port is the login or logout so there can be no specified tasks going on.

Response:

Logouts can be executed for ports even when tasks are going on. As a result, clearing parameters must still be considered. No change will be made.

4.106: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - The 'N' and 'Y' in column LOGO, PLOGI rows for 'SCSI target mode page parameters restored form saved pages' should both reference note 12.

Response:

Accepted.

4.107: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - The row 'pre-existing SCSI, UA, and deferred error conditions cleared only of port initiating action' it is not clear that these actions only apply for any pre-existing conditions that where caused by the initiating initiator. (i.e., if there is an ACA and an initiator logs in that is not the initiator that caused the ACA the ACA will not be cleared.) This needs to be made clear.

Response:

Accepted.

4.108: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - The term 'UA' is not defined and should be changed to 'unit attention' in all cases.

Response:

Accepted.

4.109: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - It is not clear if the clearing actions causes the CRN to be set to 1 or 0. This needs to be specified.

Response:

Accepted.

PDF Page 30

4.110: IBM comment from George Penokie (Editorial)

Page 14 - table 4 - note 4 - The statement '...,not the entire SCSI target.' contains no useful information and should be deleted.

Response:

Accepted.

4.111: IBM comment from George Penokie (Editorial)

Page 14 - table 4 - note 5 - The statements 'Global bit = '1b'. If the Global bit ='0b',...' should be 'GLOBAL is set to 1. IF the GLOBAL bit is set to 0,....' Global should be in small caps. Also there is no indication as to where the global bit is defined. This needs to be added.

Response:

Accepted.

4.112: IBM comment from George Penokie (Editorial)

Page 14 - table 4 - note 8 - The statement '...only "establish image pair"=1.' is unclear. What is an establish image pair and where is it defined?

Response:

Accepted.

4.113: IBM comment from George Penokie (Editorial)

Page 14 - table 4 - note 11 - The term 'APTPL' is not defined. It needs to be defined a reference added to where it is defined.

Response:

Accepted.

4.114: IBM comment from George Penokie (Editorial)

Page 14 - table 4 - note 12 - The statement '...of proper management of mode pages.' should be 'of management of mode pages.' The term 'proper' should be deleted from here and ~~are~~ in the table 5 heading.

Response:

Accepted.

4.115: IBM comment from George Penokie (Editorial)

Page 14 - table 5 - The two entries labeled 'discard current mode pages' should be changed to 'not specified'. There is no reason to force the device to discard current mode pages or do any other action with mode pages at this point.

Response:

Accepted. See 6.51.

4.116: IBM comment from George Penokie (Editorial)

Page 13 - table 4 - note 13 - This note attempts to give, what appears to be, a reason for an implicit logout may happen. This is more confusing that helpful. The reason should be removed and just the reference should be specified.

Response:

Accepted.

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4.117: IBM comment from George Penokie (Editorial)

Page 15 - Section 4.10 - The reference to ANSI X3.230 should be changed to the common name of that standard.

Response:
Accepted.

PDF Page 32

4.118: IBM comment from George Penokie (Editorial)

Page 16 - section 5.1 - The word 'uniquely' should be deleted in 2 places. The term does add any information to the standards requirements.

Response:

Accepted.

4.119: IBM comment from George Penokie (Editorial)

Page 16 - section 5.1 - The statement ...'defined in the following table...' should reference the exact table.

Response:

Accepted.

4.120: IBM comment from George Penokie (Editorial)

Page 16 - section 5.1 - The statement '...parameters that uniquely identify the exchange between the initiator and target.' should be replaced with '...the fully qualified exchange identifier (FQXID).' Then replace the next sentence with 'The FQXID is defined in table xxx.' Of course there is another possibility and that is that there are some other undefined parameters in addition to the S_ID and D_ID. If that is the case then they should be stated and not left to the reader imagination. If that is the case then the second sentence still needs to be modified but how depends on the answers.

Response:

Accepted.

4.121: IBM comment from George Penokie (Editorial)

Page 16 - section 5.1 - The term Required should not be capitalized.

Response:

Accepted.

4.122: IBM comment from George Penokie (Editorial)

Page 16 - section 5.1 - LUs are not inside ports. The statement '...internal to an addressed NL_Port...' should be deleted from the sentence.

Response:

Accepted.

4.123: IBM comment from George Penokie (Editorial)

Page 16 - section 5.1 - You have been using the term FCP I/O operation and the term exchange independently up to this point. Now it appears you are equating it to an exchange. Are these two term interchangeable? If so then only one should be used exclusively except for possibly a single definition were both terms are used.

Response:

Accepted.

4.124: IBM comment from George Penokie (Editorial)

Page 16 - section 5.1 - In one sentence three undefined terms appear; logical initiator, logical target, and process associator. These terms need to be defined.

Response:

Accepted.

4.125: IBM comment from George Penokie (Editorial)

Page 16 - section 5.1 - I did not know targets were a form of intelligent life! The sentence: 'The target is required to be cognizant of the OX_ID to perform error recovery and task management functions.' should be changed to: 'In order to perform error recovery and task management functions SCSI device servers shall support the OX_ID address identifier.'

Response:

Device servers are not slings either. Accepted in principle, but using the verb “record”.

4.126: IBM comment from George Penokie (Editorial)

Page 16 - section 5.1 - table 6 - The definition of 'R' should be in the table not part of the text outside the table.

Response:

Accepted.

4.127: IBM comment from George Penokie (Editorial)

Page 16 - section 5.1 - table 6 - There is a blank cell under RX_ID; what does that mean?

Response:

Accepted in principle. The table is removed. See 3.10.

4.128: IBM comment from George Penokie (Editorial)

Page 16 - section 5.2 - The first three sentences would read better if rewritten as follows: 'Any third-party SCSI command parameters that contain 64-bit fields (e.g., COPY command, and RESERVE command) that define access to other SCSI devices through FCP_Ports shall format the 64-bit field as defined in table 7.

Response:

Accepted.

4.129: IBM comment from George Penokie (Editorial)

Page 16 - section 5.1 - table 6 - What is a 'basic operation'? I see no explanation of what it is or does. On needs to be added.

Response:

Accepted.

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4.130: IBM comment from George Penokie (Editorial)

Page 17 - sections 5.2.1, 5.2.2, and 5.2.3 - There is no need for these sections. Normally the fields are defined in paragraphs under the table. If these sections remain then you have to eliminate the hanging text and table between 5.2 and 5.2.1 by putting that information into a section 5.2.1 and incrementing the remaining 5.2.x sections.

Response:

Accepted. The text will be integrated into 5.2 as necessary and deleted as possible.

4.131: IBM comment from George Penokie (Editorial)

Page 17 - section 5.2.1 and throughout the document - All italics should be removed and replace with normal text.

Response:

Accepted.

4.132: IBM comment from George Penokie (Editorial)

Page 17 - section 5.2.1 - The statement 'If this bit is set...' should be changed to 'If the process associatior value (PA_VAL) bit is set...'. Without this change I have no idea what 'this bit' is. and The second 'If this bit...' should be 'If the PA_VAL bit ...'

Response:

Accepted.

4.133: IBM comment from George Penokie (Editorial)

Page 17 - section 5.2.2 - The statement 'This field defines..' should be changed to 'The FCP_Port identifier field defines...'.

Response:

Accepted.

4.134: IBM comment from George Penokie (Editorial)

Page 17 - section 5.2.3 - The statement 'If the PA_VAL bit indicates that this field is valid, the field defines the..' should be 'If the PA_VAL bit is set to 1, the process associator field defines the ....'

Response:

Accepted.

4.135: IBM comment from George Penokie (Editorial)

Page 17 - section 5.3 - The statement 'According to FC-PH...' should be 'As specified in FC-PH...'

Response:

Accepted in principle. FC-PH should be FC-FS.

4.136: IBM comment from George Penokie (Editorial)

Page 17 - section 5.3 - In one sentence 2 terms are used for the same thing; address identifier and S_ID. This is confusing to the reader. Only one name for one thing should be used. Pick one and use it constantly throughout the document.

Response:

Accepted.

4.137: IBM comment from George Penokie (Editorial)

Page 17 - section 5.3 - Remove the statement '(page code 83h)'. That information is not important to this standard and can be found in SPC-2.

Response:

Accepted.

4.138: IBM comment from George Penokie

(T) Page 17 - section 5.3 - The statement: 'For FCP-2 devices with a single LUN, the world-wide unique name of the LUN may be the same as the world-wide unique name for the Fibre Channel node.' should be changed to 'For FCP-2 devices with a LUN 0, the world-wide unique name of the LUN 0 may be the same as the world-wide unique name for the Fibre Channel node.' This change will have no effect on devices covered under the current definition but would give guidance to multi-LUN devices as to what the node should be.

Response:

Accepted. The following wording improvement was provided in the April 5, 2000 meeting:

> For devices compliant with this standard and having a LUN 0, the world wide name of the LUN 0 may be the same as the world wide name for the Fibre Channel node.

In addition, the following editorial change was agreed upon:

The words used shall be “world wide name” (three words, all lower case). Glossary entries for world wide name, world wide port name, and world wide node name will be provided. Abbreviations of WW-PN, WWNN, and WWN will be defined. These conventions will be used throughout the document.

4.139: IBM comment from George Penokie (Editorial)

Page 17 - section 5.3 - I would like to see everything relating to persistent reservation in this section placed in a section that only deals with persistent reservation. Putting it in this section is confusing. It may also need to be expanded somewhat to make it clear as to how WWIDs relate to Persistent reservation.

Response:

There should be only two items related to persistent reservation in FCP-2:

a) This section on maintaining information based on WWN.

b) The clearing actions in table 4.

Concentrating those two items in one place and taking them away from their more natural location would not clarify the document. No change is proposed.

PDF Page 34

4.140: IBM comment from George Penokie (Editorial)

Page 18 - section 5.4 - table 8 - key - The references to specific subclauses in other standards should be removed.

Response:

Accepted.

4.141: IBM comment from George Penokie (Editorial)

Page 18 - section 5.4 - table 8 - key - The H and T need to be added to the key list not hidden in the explanation of a different key.

Response:

Accepted.

4.142: IBM comment from George Penokie (Editorial)

Page 18 - section 5.4 - table 8 - notes - The should be a cross-reference to table 9 after the statement '..an I5 frame...'

Response:

Accepted.

4.143: IBM comment from George Penokie (Editorial)

Page 18 - section 5.4 - table 8 - 'Note' should be 'Notes'

Response:

Accepted.

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4.144: IBM comment from George Penokie (Editorial)

Page 19 - section 5.4 - table 9 - All the comments on table 8 apply to table 9 except for the cross-reference.

Response:

Accepted.

4.145: IBM comment from George Penokie (Editorial)

Page 19 - section 5.5 - The statement 'The FCP needs only...' should be changed to 'The FCP requires only...'

Response:

Accepted.

4.146: IBM comment from George Penokie (Editorial)

Page 19 - section 5.5 - There are references to specific annexs in another standard that must be removed.

Response:

Accepted.

4.147: IBM comment from George Penokie (Editorial)

Page 19 - section 5.5 - I assume the '.' between FC_PH_SEQUENCE_TAG.indication should not be there..

Response:

This is the value used in the service definition of FC-FS, annex R. No change will be made.

PDF Page 36

4.148: IBM comment from George Penokie (Editorial)

Page 20 - section 5.6 - table 10 - There is a format problem with the table in that the right side is missing some of its double-lines.

Response:

Accepted.

4.149: IBM comment from George Penokie (Editorial)

Pages 20 and 21 - sections 5.6.1 to 5.6.11. - Although I can see a benefits to doing it this way normally the field definitions are not separated from a table by sections. The sections should be removed. However, if this comment is rejected then the hanging text and table must be removed in the same manor as described in a previous comment.

Response:

Accepted in principle. The hanging text will be removed.

4.150: IBM comment from George Penokie (Editorial)

Pages 20 and 21 - sections 5.6.2, 5.6.3, 5.6.6 and 5.6.7 - All these sections have the same problem. They do not tell the reader what is in the field, instead they define terms which have already be defined elsewhere in the standard. To fix this the should all be changed to read for example: The D_ID field identifies the D_ID of the destination of the frame.

Response:

For those fields having a definition in other locations, the definition will be referenced. For example:

The D_ID field contains the D_ID (see 3.1.14 and 3.2).

PDF Page 37

4.151: IBM comment from George Penokie (Editorial)

Page 21 - section 5.6.11 - There is no such thing as a 'SCSI-3 application client'. I assume this should be 'application client'.

Response:

Accepted.

4.152: IBM comment from George Penokie (Editorial)

Page 21 - section 5.6.11 - The statement 'other FC-PH information' is not clear. What other information is being referred to? This should be changed to 'FC-PH information' unless the 'other' can be more completely defined.

Response:

Accepted.

4.153: IBM comment from George Penokie (Editorial)

Page 21 - Section 5.6.9 and 5.9.10 - The term element is used in relation to FQXID but in the section that defines FQXID there is not description of elements. Maybe it should be '..is a part of the FQXID.' or '... is one of the identifiers contained within the FQXID.'

Response:

Accepted.

PDF Page 38

4.154: IBM comment from George Penokie (Editorial)

Page 22 - section 6 - The paragraphs between the 6 header and 6.1 header are hanging and should be fixed.

Response:

Accepted.

4.155: IBM comment from George Penokie (Editorial)

Page 22 - section 6 - In the following sentence it is not clear what '... and summarized below.' is supposed to mean. 'The protocol also includes the process login and process logout extended link services in ANSI X3.297 and summarized below.'

Response:

Accepted.

4.156: IBM comment from George Penokie (Editorial)

Page 22 - section 6 - The statement '...may require new login procedures.' Makes it should like this standard is going to define some new login procedures. I do not think this is the case. Maybe it should state '...may require login.'

Response:

Accepted.

4.157: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The term 'Process' should not be capitalized.

Response:

Accepted. This is routinely, but inconsistently, violated in FC-FS. This will be added to the document T10/00-230r1.

4.158: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The statement '(LS_Command code = “20” hexadecimal)' should be removed as it is defined in the referenced standard.

Response:

Accepted.

4.159: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The statement '...capabilities to be announced by the...' should be replaced with '...capabilities to be reported by the...'. This change assumes that FC does not have a PA system to make announcements over.

Response:

Accepted.

4.160: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The term 'image pair' should be added to the definitions section.

Response:

Accepted.

4.161: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - In the statement '...PRLI can reject the command...' it is not at all clear what command is being rejected. So what command is being rejected?

Response:

Accepted. The command is the PRLI ELS.

4.162: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The text '...LS_Command code = “21” hexadecimal...' should be removed as it is defined in the referenced standard.

Response:

Accepted.

4.163: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The 1,2,3 list should be an a,b,c list.

Response:

Accepted.

4.164: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The statement '...is exchanged enabling subsequent...' would be clearer if it stated '...is exchanged during the process login enabling subsequent...'

Response:

Accepted.

4.165: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The term 'explicitly' should be deleted. There is no difference between explicitly establishes a relationship and establishes a relationship.

4.166: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The term 'modes of operation' seems to be equal to the term 'capabilities' used else where in this section. Replace 'modes of operation' with 'capabilities'.

4.167: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The sentence: 'Such capabilities include channel or device (FC-SB), initiator or target (FCP), and similar values.' should be replace with something like: '(e.g., indication if node is a channel or device (FC-SB), an initiator or target (this standard), and similar values).

4.168: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The following sentence 'Requirements include values such as the parameters controlling the FCP IUs that must be used.' should be replaced with something like '(e.g., parameters controlling the FCP IUs that must be used).

4.169: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - The term Parameter should not be capitalized.

4.170: IBM comment from George Penokie (Editorial)

Page 22 - section 6.2 - The paragraphs between sections 6.2 and 6.2.1 are hanging.

4.171: IBM comment from George Penokie (Editorial)

Page 22 - section 6.2 - The statement '...according to the rules below.' is not specific. It needs to indicate by cross reference in which subclauses the rules are located.

4.172: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - item 2 - Is this 'service parameter information' or some other form on 'information' . The current statement implies there is some, unspecified, type of information for the Binding mode.

4.173: IBM comment from George Penokie (Editorial)

Page 22 - section 6.1 - There should be a reference to table 4 which contains the clearing actions relating to PRLI and PRLO.

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4.174: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2 - Are the same PRLI parameters and codes defined in two different standards? If so then which one has priority when then is a conflict?

4.175: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.1 and else where - The term Process Associator should not be capitalized.

4.176: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.1 - The statement '...shall return exactly one page..' should be changed to '...shall return one page...' The is no additional information carried in the word exactly.

4.177: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.1 and others - What is a 'service parameter page'? What is in it and where is it defined?

4.178: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.1 and others - The term 'page' is used several times without a clear definition of what a 'page' is, what it contains, and where it is defined.

4.179: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.1 - In the statement 'Use if this mechanism requires...' I assume you mean 'Use of process associators requires...'. If so it should be changed if not the mechanism needs to be stated.

4.180: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.1 - The statement 'precise and detailed' should be removed as it add no value to the sentence it is in.

4.181: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.1 - The sentence 'That information may be obtained by mechanisms outside the scope of the FCP or may be obtained by performing a PRLI requesting informative communication. needs to be restated as 'That information may be obtained by performing a PRLI requesting informative communication or by other mechanisms outside the scope of the this standard.'

4.182: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.1 and others - So in addition to undefined service parameter pages and pages this section also has undefined service pages. All this needs to be cleared up.

4.183: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.1 - The term 'informative communications' does not seem to be defined anywhere. What is it?

4.184: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.2 - The sentence 'In the ACC, the service parameter pages shall be returned using the same originator PA and invalid responder PA indication.' Seems incomplete. The same originator PA and invalid responder PA indication as what? (i.e., The same as what?)

4.185: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.2 - Now we have binding communications which is not defined to go along with informative communications. What are all these forms of communication?

4.186: IBM comment from George Penokie (Editorial)

Page 23 - sections 6.2.1 and others - The acronym PA as suddenly appeared and it is not defined anywhere. I assume it stands for process associator but it could be anything. I recommend PA be replaced with process associator in all cases (assuming that's what it stands for.

4.187: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.3 - The statement 'The request pages...' should be 'The requested pages...'.

4.188: IBM comment from George Penokie (Editorial)

Page 23 - section 6.2.3 - Now we have binding communications which is not defined to go along with informative communications. What are all these forms of communication?

PDF Page 40

4.189: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - To add to the list of unknown pages this section now references a PRLI page. The same questions apply; What's in it, and where is it defined,

4.190: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - The following sentence is unclear as to the information it is conveying. 'A new PRLI page to an already established image pair replaces the previous parameters with new PRLI parameters.' I believe the following would be better 'A new PRLI page that references an already established image pair replaces the previous parameters with the new PRLI parameters.'

4.191: IBM comment from George Penokie (Editorial)

Page 24 - sections 6.2.5 - In may long standing war against excess executions I would like the following statement; 'Immediately after the execution of the first PRLI....' changed to 'After the competition of the first PRLI...' The term 'immediately' cannot be quantified and therefore should be removed where ever used.

4.192: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - The 'will' needs to be replaced with a shall.

4.193: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - The statement 'The MODE SELECT parameters will assume their default or saved states...' should be changed to 'The MODE SELECT parameters shall be set to their default or saved values...'

4.194: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - The statement '... for all image pair.' should be '...for all image pairs.'

4.195: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - The statements '(Sense Key = 6)' and (ASC=29,ASCQ=00) should be removed as they are defined in other standards.

4.196: IBM comment from George Penokie (Editorial)

Page 24 - sections 6.2.5 - The 'which' should be replaced with a 'that'..

4.197: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - The statement 'first attempt to communication' seem vague. Do you mean 'the first SCSI task sent'? If so change the words should be changed.

4.198: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - The term 'reset state' is not correct. It should be 'reset condition'.

4.199: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - The statement; 'Devices may have default PRLI information provided at the time the device is installed in the configuration.' should be changed to 'Devices may have default PRLI information provided in a manor outside the scope of this standard.'

4.200: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - The statement; 'If a device has no such default parameters and...' should be changed to 'If a device has no default parameters and...'

4.201: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - The statement '...if no PRLI has been performed since power on or the last PRLO,..' does not talk about reset. Is this intentional?

4.202: IBM comment from George Penokie (Technical)

(T) Page 24 - section 6.2.5 - The statement ...'will close the exchange with an ABTS or ABTX ELS." is in direct conflict with PLDA which states that a target shall never initiate an ABTS. PLDA states that in this case the target does a PRLO. Because many devices have been implemented to the PLDA this standard should be made to match it. This section is also in direct conflict with section 12.7.

Response:

Accepted. See 1.25. This was agreed upon in the April 5, 2000 meeting.

4.203: IBM comment from George Penokie (Editorial)

Page 24 - section 6.2.5 - The term 'ABTX ' is only used one time in this standard. It needs to be defined or a reference added to where it is defined.

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4.204: IBM comment from George Penokie (Editorial)

Page 25 - section 6.2.6 - table 11 and 12 - The entry 'hexadecmial '08', SCSI FCP' should be changed to 'SCSI FCP (08h)'.

4.205: IBM comment from George Penokie (Technical)

(T) Page 25 - section 6.2.6 - table 11 and 12 - One of the obsolete entries has a requirement. How can something that is obsolete have a requirement? The requirement should be removed.

Response:

In the April 5, 2000 meeting of the committee, the decision was to leave Read XFER_RDY Disabled defined, but to make the “0” state of the bit obsolete.

4.206: IBM comment from George Penokie (Editorial)

Page 25 - section 6.2.6 - The information between 6.2.6 and 6.2.6.1 is hanging and needs to be unhung.

4.207: IBM comment from George Penokie (Editorial)

Page 25 -27 - sections 6.2.6.x - These section titles should be removed. I suggest making them into run in headers (like the definitions list) which would keep the identity of the sections and get rid of the hung information.

4.208: IBM comment from George Penokie (Editorial)

Page 25 - section 6.2.6.1 - The statement 'The value of hexadecimal '08' in this byte...' needs to be changed to 'The value 08h in this byte...'

PDF Page 42

4.209: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.5 - The term 'originator process associator' is in small caps when it is not the name of the field but the contents of the field. The term should be in normal text not caps.

4.210: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.6 - The term 'responder process associator' is in small caps when it is not the name of the field but the contents of the field. The term should be in normal text not caps.

4.211: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.7 - Here we are again back to the 'page' name. I assume this is the 'FCP service parameter page, PRLI request' but it is not clear if that is the case or not.

4.212: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.7 - The following sentence would be clearer if made into 2 sentences as shown. Original sentence:' If the process has both initiator and target capabilities, the RETRY bit shall apply to both and SRR may be both transmitted by and accepted by the process .' New sentences: If the process has both initiator and target capabilities, the RETRY bit shall apply to both. In addition SRR may be both transmitted by and accepted by the process.

4.213: IBM comment from George Penokie (Editorial)

Page 26 - sections 6.2.6.8 to 6.2.6.11 - Here we are again back to the 'page' name. I assume this is the 'FCP service parameter page, PRLI request' but it is not clear if that is the case or not

4.214: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.8 - It is not clear what the 'its' in the statement '...is indicating that its initiator function...' is referring to.

4.215: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.7 - It is not clear what the 'it' in the statement '...is indicating that it supports as an initiator function...' is referring to.

4.216: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.9 - It is not clear what the 'its' in the statement '...is indicating that its initiator function...' is referring to.

4.217: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.8 - last sentence - The term 'confirmed completion allowed ' is in small caps when it is not being used as the name of a bit. The term should be in normal text not caps in this case.

4.218: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.8 - The term 'bit' is used in several cases with no name associated with the bit. The should be fixed in all cases. Bit should never stand alone as it may become unclear as to which bit is being referred to.

4.219: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.9 - The term 'bit' is used in several cases with no name associated with the bit. The should be fixed in all cases. Bit should never stand alone as it may become unclear as to which bit is being referred to.

4.220: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.69 - last paragraph - The term 'data overlay allowed' is in small caps when it is not being used as the name of a bit. The term should be in normal text not caps in this case..

4.221: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.10 and 6.2.6.11 - It is not clear what the 'it' in the statement '...is indicating that it operates as a SCSI ...' is referring to.

4.222: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.10 - last sentence - The term 'initiator function ' is in small caps when it is not being used as the name of a bit. The term should be in normal text not caps in this case.

4.223: IBM comment from George Penokie (Editorial)

Page 26 - section 6.2.6.11 - 3rd sentence - The term 'target function ' is in small caps when it is not being used as the name of a bit. The term should be in normal text not caps in this case.

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4.224: IBM comment from George Penokie (Editorial)

Page 27 - section 6.2.6.11 - The statement 'Both bits 4 and 5 may be set.' should be changed to 'Both the initiator function bit and the target function bit may be set.' This makes it clear which bits are being talked about.

4.225: IBM comment from George Penokie (Editorial)

Page 27 - section 6.2.6.11 - The statement 'If neither bit is set...' should be 'If neither the target function bit or the initiator function bit is set...'.

4.226: IBM comment from George Penokie (Editorial)

Page 27 - section 6.2.6.11 - The statement; '...with a PRLI ACCEPT RESPONSE CODE of 1000b (Invalid service parameters for page) indication.' should be changed to 'with a PRLI accept reason code of INVALID SERVICE PARAMETERS OF PAGE indication.

4.227: IBM comment from George Penokie (Editorial)

Page 27 - section 6.2.6.12 - This bit is marked as obsolete so what is it doing being defined. This section should be removed.

4.228: IBM comment from George Penokie (Editorial)

Page 27 - section 6.2.6.13 - The statement '..may be not used before the first FCP_DATA IU...' mean. I believe it should be '... may not be used before the first FCP_DATA IU...'. or '... shall not be used before the first FCP_DATA IU...'

4.229: IBM comment from George Penokie (Editorial)

Page 27 - sections 6.2.6.13 The term 'Operation' should not be capitalized.

4.230: IBM comment from George Penokie (Editorial)

Page 27 - section 6.2.6.13 The statement 'after the first one' is redundant and should be removed.

4.231: IBM comment from George Penokie (Editorial)

Page 27 - section 6.2.6.13 - In the following statement the term SCSI write is used, but this seems to be the only place a read or write is noted as being a SCSI write or read. The SCSI should be removed here or added in everywhere else. '...then all FCP I/O Operations performing SCSI writes between the FCP_Ports shall operate without using the FCP_XFER_RDY IU before the first FCP_DATA IU.'

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4.232: IBM comment from George Penokie (Editorial)

Page 28 - section 6.2.7.1 - The statement; 'IMAGE PAIR ESTABLISHED is valid only if bit 13 was set to 1...' should be 'IMAGE PAIR ESTABLISHED bit shall only be valid it the IMAGE PAIR ESTABLISHED bit was set to 1...'

4.233: IBM comment from George Penokie (Editorial)

Page 28 - section 6.2.7.1 - The statement 'If this bit...' should be 'If the IMAGE PAIR ESTABLISHED bit...'.

4.234: IBM comment from George Penokie (Editorial)

Page 28 - section 6.2.7.1 - The statement 'If set to...' should be 'If the IMAGE PAIR ESTABLISHED bit is set to...'

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4.235: IBM comment from George Penokie (Editorial)

Page 29 - section 6.2.7.2 - The statement 'This 4-bit value is defined....' should be 'The PRLI ACCEPT RESPONSE CODE field is defined...'

4.236: IBM comment from George Penokie (Editorial)

Page 29 - section 6.3 - The statement 'Only the specified image pairs are logged out...' should be 'Only the image pairs specified in the ???? are logged out...'

4.237: IBM comment from George Penokie (Editorial)

Page 29 - section 6.3 - To add to the list of unknown pages this section now references a PRLO page. The same questions apply; What's in it, and where is it defined,

4.238: IBM comment from George Penokie (Editorial)

Page 29 - section 6.3 - The term process associator should not be capitalized.

4.239: IBM comment from George Penokie (Editorial)

Page 29 - section 6.3 - The acronym PA as suddenly appeared and it is not defined anywhere. I assume it stands for process associator but it could be anything. I recommend PA be replaced with process associator in all cases (assuming that's what it standards for.

4.240: IBM comment from George Penokie (Editorial)

Page 29 - section 6.3 - last sentence - The term 'accept response coeds' is in small caps when it is not being used as the name of a field. The term should be in normal text not caps in this case.

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4.241: IBM comment from George Penokie (Editorial)

Page 30 - section 7 - The term 'NCTIS project 1356-D, FC-GS-3' need only state 'FC-GS-3'.

4.242: IBM comment from George Penokie (Editorial)

Page 30 - section 7 - The information between section 7 and 7.1 is hanging.

4.243: IBM comment from George Penokie (Editorial)

Page 30 - section 7.1 - tables 13 and 14 - The text in the cells needs space between the cell lines and the text.

4.244: IBM comment from George Penokie (Editorial)

Page 30 - section 7.1 - Why is the term 'TYPE' in all caps. I believe it should not have any caps.

4.245: IBM comment from George Penokie (Editorial)

Page 30 - section 7.1 - The following sentence is not clear and does not contain a proper table reference: 'The returned information contains a list header and a list of 4-byte values, described in FC-GS-3 as in the following table.' Something like this would be better: 'The returned information contains a list header and a list of 4-byte values as shown in table 13.

4.246: IBM comment from George Penokie (Editorial)

Page 30 - section 7.1 - table 13 - The title of the first column is 'item' but the text above the table seems to indicate that column should be titled 'list header'. If that is not the case then some other change must be made..

4.247: IBM comment from George Penokie (Editorial)

Page 30 - section 7.1 - table 13 - I assume that the '...' means there can be any number of these 4 byte entries but it would be cleared if the '...' was vertical rather then horizontal.

4.248: IBM comment from George Penokie (Editorial)

Page 30 - section 7.1 - The statement '...as in the following table' should be '...as shown in table 14.'

4.249: IBM comment from George Penokie (Editorial)

Page 30 - section 7.1 - table 14 - The first column should be hex values (e.g., 0h, 1h, 2h, 3h) or binary values (e.g., 0001b, 0010b, 0011b).

4.250: IBM comment from George Penokie (Editorial)

Page 30 - section 7.1 - table 13 -The 'rrr' is not defined. What does it stand for?

4.251: IBM comment from George Penokie (Editorial)

Page 30 - section 7 - The term 'Name Server' should not be capitalized.

4.252: IBM comment from George Penokie (Editorial)

Page 30 - section 7.2 - The term 'NCTIS project 1356-D, FC-GS-3' need only state 'FC-GS-3'.

4.253: IBM comment from George Penokie (Editorial)

Page 30 - section 7.2 - The term 'NCTIS project 1236-D, SPC-2' need only state 'SPC-2'.

4.254: IBM comment from George Penokie (Editorial)

Page 30 - section 7.2 - The NCITS Project 1356-D should state the FC-xx-n standard.

4.255: IBM comment from George Penokie (Editorial)

Page 30 - section 7.2 and others - Why is the term 'TYPE' in all caps. I believe it should not have any caps

4.256: IBM comment from George Penokie (Editorial)

Page 30 - section 7.2 - Why is the term 'TYPE' in all caps. I believe it should not have any caps

4.257: IBM comment from George Penokie (Editorial)

Page 30 - section 7.2 - The statement '(08h as specified by FC-FS)' should be '(as specified by FC-FS)'.

4.258: IBM comment from George Penokie (Editorial)

Page 30 - section 7.2 - The term 'Inquiry' should not be capitalized.

4.259: IBM comment from George Penokie (Editorial)

Page 30 - section 7.2 - The terms 'Register and Query' should not be capitalized.

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4.260: IBM comment from George Penokie (Editorial)

Page 31 - section 8 - The term 'TYPE' should be in small caps as it is the name of a field.

4.261: IBM comment from George Penokie (Editorial)

Page 31 - section 8 - The text and table between section 8 and 8.1 is hanging.

4.262: IBM comment from George Penokie (Editorial)

Page 31 - sections 8, 8.1, etc. - The terms 'Link Services, Sequences, Information Category, Unable, Relative Offset, Target, Exchange, Payload, Recipient, Vendor Specific' to name a few should not be capitalized.

4.263: IBM comment from George Penokie (Editorial)

Page 31 - section - 8 - The statement 'The FCP-2 ELS functions in table 15 are defined in this standard.' would be clearer if it was stated as 'The FCP-2 ELS functions defined by this standard are shown in table 15.'

4.264: IBM comment from George Penokie (Editorial)

Page 31 - section 8 - table 15 - There is no reference to where the FCP FC-4 LS Accept and Reject are defined. This should be added into the table.

4.265: IBM comment from George Penokie (Editorial)

Page xx - section xx - The usage of the term FCP and FCP-2 seems to be random throughout the standard. This need to be fixed by consistently using one or the other.

4.266: IBM comment from George Penokie (Editorial)

Page 31 - section 8.1 - There is not need to restate the definition of the acronyms. One time is good enough.

4.267: IBM comment from George Penokie (Editorial)

Page 31 - section 8.1 - The statement '...with a reason code hex ‘09’ (i.e. Unable to perform the command request).' should be changed to '...with a reason code of UNABLE TO PERFORM THE COMMAND REQUEST.'

4.268: IBM comment from George Penokie (Editorial)

Page 31 - section 8.1 - The statement '...with a reason code 00092A00h (i.e. Unable to perform the command request / Unable to supply requested data).' with '...with a reason code of UNABLE TO PERFORM THE COMMAND REQUEST/UNABLE TO SUPPLY REQUESTED DATA.'

4.269: IBM comment from George Penokie (Editorial)

Page 31 - section 8.1 - There is a jump into areas labeled 'Protocol, format, addressing, etc. what no explanation to the read as to what is being talked about. In would be helpful if there were a few words talking about this.

4.270: IBM comment from George Penokie (Editorial)

Page 31 - section 8.1 - What is FT_1 supposed to be.

4.271: IBM comment from George Penokie (Editorial)

Page 31 - section 8.1 - The statement '...present a check condition as if it had responded to an Initiator Detected Error with a Restore Pointers message (i.e., Sense Key = 4h, ASC/ASQ = 48h/00h).' should be 'return CHECK CONDITION status with the sense key set to HARDWARE ERROR and an additional sense code of INITIATOR DETECTED ERROR MESSAGE RECEIVED.'

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4.272: IBM comment from George Penokie (Editorial)

Page 32 - section 8.1 - The following statement '...Payload is shown in the following table.' should be '...payload is shown in table 16.

4.273: IBM comment from George Penokie (Editorial)

Page 32 - section 8.1 - There is a cross-reference to a section in another standard. The reference

4.274: IBM comment from George Penokie (Editorial)

Page 32 - section 8.1 - The statement 'Tables 28, 29; i.e., 05 = Data Descriptor (FCP_XFER_RDY), 07 = Command Status (FCP_RSP), 01 = Solicited Data (FCP_DATA).' should be changed to '... FC-PH (i.e., data descriptor (FCP_XFER_RDY), command status (FCP_RSP), solicited data (FCP_DATA)).'

4.275: IBM comment from George Penokie (Editorial)

Page 32 - section 8.1 - The term 'meaningful' should be 'valid'.

4.276: IBM comment from George Penokie (Editorial)

Page 32 - section 8.1 - The statement '...set to 01 for...' to ...set to 01h for...'

4.277: IBM comment from George Penokie (Editorial)

Page 32 - section 8.1 - The statement '...or to 05 for...' to '...or to 05h for...'

4.278: IBM comment from George Penokie (Editorial)

Page 32 - section 8.1 - table 17 - The notation 'hex '02000000' 'needs to be changed to '02000000h'

4.279: IBM comment from George Penokie (Editorial)

Page 32 - section 8.1 -table 17 - I can find no reference to this table. All table must have al least one reference to them.

4.280: IBM comment from George Penokie (Editorial)

Page 32 - section 8.1 - table 16 - The column numbers under size should be centered.

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4.281: IBM comment from George Penokie (Editorial)

Page 33 - section 8.1 - The following statement '...code is defined below.' should be changed to '...code is defined in table 18.'

4.282: IBM comment from George Penokie (Editorial)

Page 33 - section 8.1 - table 18 - The reason code name should be in all caps and the ',' should be replaced with a '/' to make it consistent with the usage above.

4.283: IBM comment from George Penokie (Editorial)

Page 33 - section 8.2 - The term 'terminate' should be change to 'end'.

4.284: IBM comment from George Penokie (Editorial)

Page 33 - section 8.2 - The statement '(Bit 20)' should be removed.

4.285: IBM comment from George Penokie (Editorial)

Page 33 - section 8.2 - The statement '...is unique to the link...' should be changed to '...is defined by the link..' or something like that.

4.286: IBM comment from George Penokie (Editorial)

Page 33 - section 8.2 - There is a jump into areas labeled 'Protocol, format, addressing, etc. what no explanation to the read as to what is being talked about. In would be helpful if there were a few words talking about this.

4.287: IBM comment from George Penokie (Editorial)

Page 33 - section 8.2 - What is FT_1 supposed to be.

4.288: IBM comment from George Penokie (Editorial)

Page 33 - section 8.2 - The statement '...accepted while the S_ID...' should be changed to '...accepted. The S_ID...'

4.289: IBM comment from George Penokie (Editorial)

Page 33 - section 8.2 - payload - There should be a cross-reference to where the link service requests are defined.

4.290: IBM comment from George Penokie (Editorial)

Page 33 - section 8.3 - There is a jump into areas labeled 'Protocol, format, addressing, etc. what no explanation to the read as to what is being talked about. In would be helpful if there were a few words talking about this.

4.291: IBM comment from George Penokie (Editorial)

Page 33 - section 8.2 - What is FT_1 supposed to be.

4.292: IBM comment from George Penokie (Editorial)

Page 33 - section 8.3 - There should be a cross-reference to where the reason codes are defined.

4.293: IBM comment from George Penokie

Page 33 - section 8.3 - The sentence 'FCP FC-4 Link Service Reject may be transmitted for a variety of conditions.' has no useful information and should be deleted.

4.294: IBM comment from George Penokie (Editorial)

Page 33 - section 8.3 - The statement '...rejected while the S_ID...' should be changed to '...rejected. The S_ID...'

4.295: IBM comment from George Penokie (Editorial)

Page 33 - section 8.3 - payload - The statement '...shall indicate the reason for rejecting the request.' should be '...shall contain a reason code (see table 20) for rejecting the request.'

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4.296: IBM comment from George Penokie (Editorial)

Page 34 - section 8.3 - table 19 - There is no cross-reference to this table.

4.297: IBM comment from George Penokie (Editorial)

Page 34 - section 8.3 - table 20 -The text in the cells is too close to the top row lines. There needs to be space added there.

4.298: IBM comment from George Penokie (Editorial)

Page 34 - section 8.3 - table 20 - All the reason codes should be all caps.

4.299: IBM comment from George Penokie (Editorial)

Page 34 - section 8.3 - Why are there no section numbers on what appear to be sections (i.e. FCP_RJT Reason Code Descriptions, and FCP_RJT Reason explanation?

4.300: IBM comment from George Penokie (Editorial)

Page 34 - section 8.3 - All the response code should be all caps.

4.301: IBM comment from George Penokie (Editorial)

Page 34 - section 8.3 - Where are the 'rules of the extended link service protocol' specified? There should be a cross-reference to that place.

4.302: IBM comment from George Penokie (Editorial)

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Page 35 - section 8.3 - table 21 -The text in the cells is too close to the top row lines. There needs to be space added there

4.303: IBM comment from George Penokie (Editorial)

Page 35 - section 8.3 - table 21 -There are two blank row that should be removed.

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4.304: IBM comment from George Penokie (Editorial)

Page 36 - section 9 - The text between section 9 and 9.1 is hanging.

4.305: IBM comment from George Penokie (Editorial)

Page 36 - section 9.1 - The information between section 9.1 and 9.1.1 is hanging.

4.306: IBM comment from George Penokie (Editorial)

Page 36 - section 9.1 - The statement '...carries either a SCSI Command to be executed or a task management request to be performed.' would be clearer if it was stated as '...contains either a SCSI Command or a task management request.'

4.307: IBM comment from George Penokie (Editorial)

Page 36 -41 - sections 9.1.1.x - These section titles should be removed. I suggest making them into run in headers (like the definitions list) which would keep the identity of the sections and get rid of the hung information.

4.308: IBM comment from George Penokie (Editorial)

Pages 36 -41 - sections 9.1.1.x - All the descriptions should start out with a statement like: 'The XXXX field contains the xxx is...' For example FCP_LUN would be 'The RCP_LUN field contains the address of the logical unit where the FCP_CMND payload is sent.' Note that this sentence should replace the sentence; ' The FCP logical unit number (FCP_LUN) is the address of the desired logical unit in the attached subsystem.'

4.309: IBM comment from George Penokie (Editorial)

Page 36 - section 9.1.1.1 - The statement '(0000 0000 0000 0000 hexadecimal).' should be removed.

4.310: IBM comment from George Penokie (Editorial)

Page 36 - section 9.1.1.1 - The term 'SCSI INQUIRY' should be just 'inquiry'.

4.311: IBM comment from George Penokie (Editorial)

Page 36 - section 9.1.1.1 - The statement '...can determine the SCSI device type, manufacturer, model of the logical unit, and addressing structure.' should be replaced with '...can, for example, determine the SCSI device type, manufacturer, model of the logical unit, and addressing structure.' The list is not a complete list therefore the 'for example' needs to be added.

4.312: IBM comment from George Penokie (Editorial)

Page 36 - section 9.1.1.1 - The statement 'as recommended by SPC-2' carries no additional value and should be removed.

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4.313: IBM comment from George Penokie (Editorial)

Page 37 - section 9.1.1.1 - The sentences 'If the FCP_LUN address locates a valid logical unit, the command shall be executed according to standard SCSI behavior. Behavior may include successful execution of the command, presentation of errors associated with the command, or rejection of the command.' Should be condensed to 'If the FCP_LUN address contains a valid logical unit the command shall be routed to the addressed logical unit.' There is no reason to tell the reader how SCSI commands work we have entire standards that do that.

4.314: IBM comment from George Penokie (Editorial)

Page 37 - section 9.1.1.1 - The statement '...the responses shall report that...' does not make sense. It should be '... device server shall report that...'

4.315: IBM comment from George Penokie (Editorial)

Page 37 - section 9.1.1.1 - The statement '... is provided by the...' should be '...is sent by the...'

4.316: IBM comment from George Penokie (Editorial)

Page 37 - section 9.1.1.2 - I believe the following statement is incorrect '...enabled, a zero value of CRN shall be ignored and that command...'. It is not zero value that is ignored but the CRN. To fix this changed the statement to '...enabled, a zero value of CRN indicates the COMMAND REFERENCE NUMBER field shall be ignored and that command

4.317: IBM comment from George Penokie (Editorial)

Page 37 - section 9.1.1.2 - The statement '...the value of CRN shall be ignored...' should be 'the COMMAND REFERENCE NUMBER field shall be ignored...'

4.318: IBM comment from George Penokie (Editorial)

Page 37 section 9.1.1.2 - The statement 'special care must be exercised to guarantee successful ordering.' needs to be removed as it is editorial comment.

4.319: IBM comment from George Penokie (Editorial)

Page 37 - section 9.1.1.2 - The following sentences 'With a class 2 fabric, special care must be exercised to guarantee successful ordering. Sequential delivery must be requested at login to ensure correct ordering among tasks.' should be changed to 'With a class 2 fabric sequential delivery shall be requested at login to ensure correct ordering among tasks.'

4.320: IBM comment from George Penokie (Editorial)

Page 37 section 9.1.1.2 - All the musts must be changed to shalls.

4.321: IBM comment from George Penokie (Editorial)

Page 37 - section 9.1.1.2 - All the task attribute descriptions should reference SAM-2.

4.322: IBM comment from George Penokie (Technical)

(T) Page 37 - section 9.1.1.2 - The untagged task option should be make obsolete in FCP-2 as it serves no useful purpose.

Response:

This proposal is rejected. SAM-2 unambiguously requires a protocol to support both tagged and untagged tasks. Tape functionality is almost exclusively implemented with untagged tasks. Boot functionality is almost exclusively implemented with untagged tasks. While the use of that attribute may not create a meaningful difference in the behavior of the devices, the attribute will absolutely be used by present day drivers and must be supported. This response was accepted in the April 5, 2000 meeting.

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4.323: IBM comment from George Penokie (Editorial)

Page 38 - section 9.1.1.4 - The statement '...the FCP_CDB, FCP_DL, TASK ATTRIBUTES, RDDATA, and WRDATA fields and bits are not valid and are ignored.' should be changed to '...the FCP_CDB field, FCP_DL field, TASK ATTRIBUTE field, RDDATA bit, and WRDATA bit shall be ignored.

4.324: IBM comment from George Penokie (Editorial)

Page 38 - section 9.1.1.4 - So what does the target do if more than one task management flag is set? This should be defined.

4.325: IBM comment from George Penokie (Editorial)

Page 38 - section 9.1.1.4 - table 24 - The first column should be centered..

4.326: IBM comment from George Penokie (Editorial)

Pages 38 -39 - section 9.1.1.4 - All the descriptions of the bits should start out as 'The xxx bit...'. For example ; The CLEAR ACA bit...'

4.327: IBM comment from George Penokie (Editorial)

Page 38 - section 9.1.1.4 - The term 'states' in the target reset should be 'conditions'.

4.328: IBM comment from George Penokie (Editorial)

Page 38 -39 - section 9.1.1.4 - The statements 'The initiator and target clear all resources that can be cleared unambiguously. Any open exchanges that are in an ambiguous state as defined in the next paragraph shall be terminated using a recovery abort by whichever port detects the ambiguous state. The ports may issue additional recovery abort operations if they are unable to determine in a simple manner whether the state of an FCP I/O operation is ambiguous.' Is very unclear and does not give the read enough guidance as to what resources can be cleared unambiguously or what is a simple manner and what is not.

4.329: IBM comment from George Penokie (Editorial)

Page 38 - 40 - Section 9.1.1.4 - Some of the target reset, LU reset, clear task set, and abort task set information is defined here and in table 4. It should only be defined in one place and a reference placed in the other. It is not clear which place is better in this case.

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4.330: IBM comment from George Penokie (Editorial)

Page 39 - section 9.1.1.4 - The note contains a requirement therefore it cannot be a note. Either the note must make part of the text or the requirement removed.

4.331: IBM comment from George Penokie (Editorial)

Page 39 - section 9.1.1.4 - The 1,2,3 list should be an a,b,c list.

4.332: IBM comment from George Penokie (Editorial)

Page 39 - section 9.1.1.4 - item 4 - The statement '...similar to those conditions...' means what exactly? How similar do I have to be? Either the conditions are the same as those of power on or they are not. If they are not then how are they different? These questions need to be answered and wording put in so they do not have to be asked.

4.333: IBM comment from George Penokie (Editorial)

Page 39 - section 9.1.1.4 - How is the 1,2,3 list different than what is described in SAM-2. The only things that should be described are those that are not already described in SAM-2 anything else should be removed.

4.334: IBM comment from George Penokie (Editorial)

Page 39 - section 9.1.1.4 - The statements 'The initiator and target clear all resources that can be cleared unambiguously. Any open exchanges that are in an ambiguous state as defined in the next paragraph shall be terminated using a recovery abort by whichever port detects the ambiguous state. The ports may issue additional recovery abort operations if they are unable to determine in a simple manner whether the state

of an FCP I/O operation is ambiguous.' Is very unclear and does not give the read enough guidance as to what resources can be cleared unambiguously or what is a simple manner and what is not.

4.335: IBM comment from George Penokie (Editorial)

Page 39 - section 9.1.1.4 - The note contains a requirement therefore it cannot be a note. Either the note must make part of the text or the requirement removed..

4.336: IBM comment from George Penokie (Editorial)

Page 39 - section 9.1.1.4 - In the logical unit reset descriptions paragraph before the note TARGET RESET is used where it should be LOGICAL UNIT RESET.

4.337: IBM comment from George Penokie (Editorial)

Page 39 - section 9.1.1.4 - The statements 'The initiator and target clear all resources that can be cleared unambiguously. Any open exchanges that are in an ambiguous state as defined in the next paragraph shall be terminated using a recovery abort by whichever port detects the ambiguous state. The ports may issue additional recovery abort operations if they are unable to determine in a simple manner whether the state of an FCP I/O operation is ambiguous.' Is very unclear and does not give the read enough guidance as to what resources can be cleared unambiguously or what is a simple manner and what is not.

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4.338: IBM comment from George Penokie (Editorial)

Page 40 - section 9.1.1.4 - The note contains a requirement therefore it cannot be a note. Either the note must make part of the text or the requirement removed.

4.339: IBM comment from George Penokie (Editorial)

Page 40 - section 9.1.1.4 - The note contains a requirement therefore it cannot be a note. Either the note must make part of the text or the requirement removed.

4.340: IBM comment from George Penokie (Editorial)

Page 40 - section 9.1.1.4 - The statements 'The initiator and target clear all resources that can be cleared unambiguously. Any open exchanges that are in an ambiguous state as defined in the next paragraph shall be terminated using a recovery abort by whichever port detects the ambiguous state. The ports may issue additional recovery abort operations if they are unable to determine in a simple manner whether the state of an FCP I/O operation is ambiguous.' Is very unclear and does not give the read enough guidance as to what resources can be cleared unambiguously or what is a simple manner and what is not.

4.341: IBM comment from George Penokie (Editorial)

Page 40 - section 9.1.1.6 - The statement 'SCSI read-type operation' should be 'SCSI read operation'. I do not recall ever seeing a read-type operation in SCSI.

4.342: IBM comment from George Penokie (Editorial)

Page 40 - section 9.1.1.7 - What is the target supposed to do if the FCP_DL is not 0 when both read data and write data bits are set to 0? What is the target supposed to do it both the read data and write data bits are set to 1? These error conditions need to be specified.

4.343: IBM comment from George Penokie (Editorial)

Page 40 - section 9.1.1.8 - The statement 'the actual CDB to be interpreted by' should be 'the CDB to be sent to '.

4.344: IBM comment from George Penokie (Editorial)

Page 40 - section 9.1.1.8 - The statement '..is not valid and is ignored...' should be just '...shall be ignored...'.

4.345: IBM comment from George Penokie (Editorial)

Page 40 - section 9.1.1.8 - The last to paragraphs should be deleted as they contain no information that is not already in SAM-2. They should be replaced with a 'As defined in SPC-2' statement..

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4.346: IBM comment from George Penokie (Editorial)

Page 41 - section 9.1.1.9 - The statement 'The contents of the field shall be those bytes of an extended CDB beyond the first 16 bytes of the CDB as defined in the SCSI command standards.' should be replaced with 'The contents of the ADDITIONAL_FCP_CDB field are defined in the SCSI command standards.

4.347: IBM comment from George Penokie (Editorial)

Page 41 - section 9.1.1.9 - The term 'expected' implies the number of bytes to transfer is uncertain. Removing the term will remove the uncertainty.

4.348: IBM comment from George Penokie (Editorial)

Page 41 - section 9.1.1.10 - The statement 'The parameter is...' should be 'The FCP_DL field contains ...'.

4.349: IBM comment from George Penokie (Editorial)

Page 41 - section 9.1.2 - This seem like a very odd place to put this information. It appears to be more like model type information that should be placed in the model sections.

4.350: IBM comment from George Penokie (Editorial)

Page 41 - section 9.1.2.1 - The information in this section seems disjointed and I am not sure what point is trying to be made. Something needs to be added to make it clearer what is being described.

4.351: IBM comment from George Penokie (Editorial)

Page 41 - section 9.1.2.2 - The sentence 'The following protocol has been selected for simplicity, completeness, and robustness.' is an interesting opinion but does not belong in a standard. It should be replaced with 'The following protocol shall be followed during a recovery abort:'

4.352: IBM comment from George Penokie (Editorial)

Page 41 - section 9.1.2.2 - The statement '...ABTS sequence is generated...' should be 'ABTS sequence shall be generated...'.

4.353: IBM comment from George Penokie (Editorial)

Page 41 - section 9.1.2.2 - The term 'FFFF h' is used. It should be 'FFFFh'. (i.e., not space between the last F and the h.

4.354: IBM comment from George Penokie (Editorial)

Page 41 - section 9.1.2.2 - The statement '...reason code of “logical error/invalid OX_ID/ RX_ID combination”...' should be '...reason code of LOGICAL ERROR/INVALID OX_ID/RX_ID COMBINATION.'

4.355: IBM comment from George Penokie (Editorial)

Page 41 - section 9.1.2.2 - In the statement '...the L_S bit set in the...' it is not clear what the bit is set to. This needs to be corrected.

4.356: IBM comment from George Penokie (Editorial)

Page 41 - section 9.1.2.2 - The indented paragraphs should be an a,b,c list.

4.357: IBM comment from George Penokie (Editorial)

Page 41 - Section 9.1.2.1 - Some of the abort task set information is defined here and in table 4. It should only be defined in one place and a reference placed in the other. It is not clear which place is better in this case..

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4.358: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2 - The term 'write type command' should be change to 'write command' in all occurrences..

4.359: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2 - What is a SCSI-3 data delivery service? Do you mean a SAM-2 data delivery service?

4.360: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2 - The term 'write XFER_RDY disabled' should be in small caps and are cross-reference added in to tell me where it is defined.

4.361: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2 - The term 'write XFER_RDY disabled' that is in small caps should be in normal non-cap text.

4.362: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2 - The term 'planned' should be deleted.

4.363: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2 - The statement '...entire FCP_DL bytes of data.' should be changed to '...number of bytes indicated in the FCP_DL field.'

4.364: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2 - The obsolete function should only be listed in one place in the front of the document. Remove the reference to the obsolete function from this place.

4.365: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2 - The information between 9.2 and 9.2.1 is hanging information.

4.366: IBM comment from George Penokie (Editorial)

Page 42-43 - sections 9.2.x - These section titles should be removed. I suggest making them into run in headers (like the definitions list) which would keep the identity of the sections and get rid of the hung information.

4.367: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2.1 - There needs to be a cross reference to where the RLTV_OFF field is defined.

4.368: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2.1 - The term 'disconnect-reconnect mode page' should be 'disconnect-reconnect page' .

4.369: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2.1 - The term 'SCSI-3 application client' should be 'SAM-3 application client'.

4.370: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2.2 - The term 'exact' should be deleted.

4.371: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2.2 - The statement 'SCSI data delivery' should be SAM-3 data delivery'..

4.372: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2.2 - The statement 'The value is this field...' should be 'The value in the BURST_LEN field...'.

4.373: IBM comment from George Penokie (Editorial)

Page 42 - section 9.2.2 - The statement '...MODE SELECT/MODE SENSE.' should be MODE SELECT command and MODE SENSE command.

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4.374: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The sentence 'The disconnect/reconnect page is examined and set by the MODE SENSE and MODE SELECT commands.' should be deleted as that is stated in other standards.

4.375: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The statement '...shall post the error code indicating...' is made but no specific error code is listed. What is 'the' error code?

4.376: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The following statement is unclear and I don't know how to fix it but it does need to be fixed. '...and the subsequent FCP_DATA IU has a lowest RLTV_OFF that differs from the DATA_RO of the FCP_XFER_RDY,...'

4.377: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The term 'exact' in the statement '...payload that indicates the exact location and length of the data delivery.' adds no value to the standard and should be removed.

4.378: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The statement ' ...(an operation that uses the Data In action,...' needs a ')'.

4.379: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The statement '...FC_RSP IU shall contain the FCP_RESID_UNDER bit.' should be stated as '...FC_RSP IU shall contain an FCP_RESID_UNDER bit set to 1.'

4.380: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The term 'always' in the statement '...initiator shall always have available...' add on value and should be deleted.

4.381: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The statement '...setting the FCP_RESID_OVER bit in the FC_RSP IU.' should be '...setting the FCP_RESID_OVER bit to 1 in the FC_RSP IU.

4.382: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The statement '...disconnect-reconnect mode page...' should be '...disconnect-reconnect page...'

4.383: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - A undefined term 'sets of data' has suddenly appeared. What are 'sets of date' supposed to be.

4.384: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The following sentence has to 'not's in it that make it difficult to understand. It should be rewritten. 'The target shall not request that sets of data in the middle of a transfer not be transferred.'

4.385: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The statement 'The manner in which a SCSI Initiator determines that the correct amount of data is returned is outside the scope of this standard.' should be rewritten to 'The method used by the SCSI initiator to determine the correct amount of data is returned is vendor specific.'

4.386: IBM comment from George Penokie (Editorial)

Page 43 - section 9.3 - The sentence 'Data that has been retransmitted and overlaid shall be counted only once.' states 'shall be counted only once' what does this mean? I see no reference to a counter in any other part of this section.

PDF Page 60

4.387: IBM comment from George Penokie (Editorial)

Page 44 - section 9.3 - The following sentence 'The mechanisms vary with which Class of Service is being used and what service parameters are in effect.' should be rewritten to 'The mechanisms vary with the Class of Service being used and the service parameters in effect.

4.388: IBM comment from George Penokie (Editorial)

Page 44 -section 9.3 - The statement 'ANSI X3.230 specifies the mechanisms by which an IU shall be transferred.' should be 'The FC-PH standard specifies the mechanisms for transferring IUs.'

4.389: IBM comment from George Penokie (Editorial)

Page 44 - section 9.4 - Why is the term 'information unit' now being using instead of 'IU'. Pick one or the other and only use that one.

4.390: IBM comment from George Penokie (Editorial)

Page 44 - section 9.4 - When do bytes 10 and 11 being not indicate a successful completion? If there are no cases then the term 'normally' should be deleted. If there are cases then they should be stated or a reference added to where it is explained.

4.391: IBM comment from George Penokie (Editorial)

Page 44 - section 9.4 - The statement '...either byte 10 or byte 11 should be examined by the application client to determine...' should be '...either byte 10 or byte 11 should cause the application client to examine the fields in the FCP_RSP IU to determine...'

4.392: IBM comment from George Penokie (Editorial)

Page 44 - section 9.4 - The term 'executed' in the statement '..for each command executed.' should be executed.

4.393: IBM comment from George Penokie (Editorial)

Page 44 - section 9.4 - The statement 'The Flag bit defined by SAM for command linking is obsolete in FCP-2.' should be moved to section that list obsolete things and deleted from here.

4.394: IBM comment from George Penokie (Editorial)

Page 44 - section 9.4 - The information between 9.4 and 9.4.1 is hanging.

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4.395: IBM comment from George Penokie (Editorial)

Page 45 -48 - sections 9.4.x - These section titles should be removed. I suggest making them into run in headers (like the definitions list) which would keep the identity of the sections and get rid of the hung information.

4.396: IBM comment from George Penokie (Editorial)

Page xx - table xx - There are two notations used for labeling reserved bytes. One uses all small caps (the preferred) and the other uses normal text with first letter capitalized. Pick one and make them all the same.

4.397: IBM comment from George Penokie (Editorial)

Page 45 - section 9.4 - table 26 - Byte 10 - bits 5-7 have no information as to what they are. I assume they are reserved and should be labeled as such.

4.398: IBM comment from George Penokie (Editorial)

Page 45 - section 9.4.1 - The statement 'FCP_CONF_REQ, when 1, indicates...' should be An FCP_CONF_REQ bit of 1 indicates...' This form should be followed in all the bit descriptions.

4.399: IBM comment from George Penokie (Editorial)

Page 45 - section 9.4.1 - The statement 'FCP_CONF_REQ, when 0, indicates...' should be 'An FCP_COMF_REQ bit of 0 indicates...' This form should be followed in all the bit descriptions.

PDF Page 62

4.400: IBM comment from George Penokie (Editorial)

Page 46 - section 9.4.7 - The statement 'If the FCP_RESID_UNDER or the...' should be 'If the FCP_RESID_UNDER bit or the...'

4.401: IBM comment from George Penokie (Editorial)

Page 46 - section 9.4.7 - The statement 'If the FCP_RESID_UNDER bit is set, a transfer...' should be 'If the FCP_RESID_UNDER bit is set to 1, a transfer...;

4.402: IBM comment from George Penokie (Editorial)

Page 46 - section 9.4.7 - The statement '..equal to: FCP_DL - highest offset of any byte transmitted' is not clear. Is it a=b-c or something else. If this is an equation then it needs to be stated more clearly than it is.

4.403: IBM comment from George Penokie (Editorial)

Page 46 - section 9.4.7 - The statement 'If the FCP_RESID_OVER bit is set, the transfer...' should be 'If the FCP_RESID_OVER bit is set to 1, the transfer...;

4.404: IBM comment from George Penokie (Editorial)

Page 46 - section 9.4.7 - The statement '...equal to: (Transfer length required by command) - FCP_DL' is not clear. Is it a=b-c or something else. If this is an equation then it needs to be stated more clearly than it is

PDF Page 64

4.405: IBM comment from George Penokie (Editorial)

Page 48 - section 9.4.10 - table 27 - Why is this table in a format that is different than other table that have the same type of information (e.g., table 26). This table should be changed to make it like the others.

4.406: IBM comment from George Penokie (Editorial)

Page 48 - section 9.4.10 - table 28 - The values in the value column should all be in the format xxh and the term 'hexadecimal' should be removed from the header.

4.407: IBM comment from George Penokie (Editorial)

Page 48 - section 9.4.10 - table 28 - All the RDP_CODEs should be all caps.

4.408: IBM comment from George Penokie (Editorial)

Page 48 - section 9.4.10 - The statement 'Values 04 and 05 are not...' should be 'Values 04h and 05h are not...'.

PDF Page 66

4.409: IBM comment from George Penokie (Editorial)

Page 50 - section 10 - The information between section 10 and 10.1 is hanging.

4.410: IBM comment from George Penokie (Editorial)

Page 50 - section 10.1 - The information between section 10.1 and 10.1.1 is hanging.

4.411: IBM comment from George Penokie (Editorial)

Page 50 - section 10.1 - The statement 'This clause describes...' is not correct in that the statement is in a subclause. A better was to say it would be 'Clause 10 describes...'

4.412: IBM comment from George Penokie (Editorial)

Page 50 - section 10.1 - The term 'influence' should be removed in its first use and changed to 'control' in its second use.

4.413: IBM comment from George Penokie (Editorial)

Page 50 - section 10.1.1 - I do not believe the sentence 'The name for this mode page (disconnect-reconnect) comes from the SCSI-2 parallel bus definitions.' contains a useful information and should be deleted.

4.414: IBM comment from George Penokie (Editorial)

Page 50 - section 10.1.1 - The statement 'This clause specifies which parameters defined...' should be changed to 'This subclause specifies the parameters defined...'

4.415: IBM comment from George Penokie (Editorial)

Page 50 - section 10.1.1 - The sentences 'The application client and initiator communicate to determine what values are most appropriate for a device server. The device server communicates the parameter values in this mode page to the Target Role Agent, normally the Fibre Channel interface circuitry. This communication is internal to the target device and is outside the scope of SCSI-3.' talk about actions that are outside the control of this standard and therefore it should be removed.

4.416: IBM comment from George Penokie (Editorial)

Page 50 - section 10.1.1 - The statement 'If a parameter that is not appropriate for the an FCP-2 SCSI-3 device is nonzero,...' is incorrect and makes no sense. Maybe it should be 'If a field or bit contains a value that is not supported by the FCP-2 device,...'

4.417: IBM comment from George Penokie (Editorial)

Page 50 - section 10.1.1 - All the information between 10.1.1 and 10.1.1.1 is hanging.

4.418: IBM comment from George Penokie (Editorial)

Page 50 - section 10.1 - There should be a something here about seeing table 4 for how to handle mode pages under various conditions.

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4.419: IBM comment from George Penokie (Editorial)

Page 51 -53 - sections 10.1.1.x - These section titles should be removed. I suggest making them into run in headers (like the definitions list) which would keep the identity of the sections and get rid of the hung information.

PDF Page 68

4.420: IBM comment from George Penokie (Editorial)

Page xx - section xx - The term 'device' or 'devices' should be qualified in all cases. In this standard that could be 'FCP-2 devices' or 'FCP-2 SCSI devices' or 'SCSI devices' one should be picked and used throughout the standard.

4.421: IBM comment from George Penokie (Editorial)

Page 52 - section 10.1.1.4 - There is no such thing as a 'target device' there are 'targets' and 'SCSI devices'. In this case the term 'devices' should be deleted.

4.422: IBM comment from George Penokie (Editorial)

Page 52 - sections 10.1.1.3, 10.1.1.4, and 10.1.1.5 - In the second paragraph in all these section there is a term in small caps that should be in normal text. (i.e., bus inactivity limit, disconnect time limit, and connect time limit).

4.423: IBM comment from George Penokie (Editorial)

Page 52 - section 10.1.1.7 - The following wording is different from the rest of the standard. If should always be the same. 'If the xxxx bit is zero/one...' should in all cases be change to 'If the xxxx bit is set to 1/0....'

4.424: IBM comment from George Penokie (Editorial)

Page 52 - section 10.1.1.7 - In the statement 'This bit does not...' it is not clear what bit is being talked about. Change to 'The xxx bit does not...'.

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4.425: IBM comment from George Penokie (Editorial)

Page 53 - section 10.1.1.7 - There should be a cross-reference to where SRR is defined.

4.426: IBM comment from George Penokie (Editorial)

Page 53 - section 10.1.1.8 - What is an FA bit??

4.427: IBM comment from George Penokie (Editorial)

Page 53 - section 10.1.1.8 - The following wording is different from the rest of the standard. If should always be the same. 'If the xxxx bit is zero/one...' should in all cases be change to 'If the xxxx bit is set to 1/0....

4.428: IBM comment from George Penokie (Editorial)

Page 53 - section 10.1.1.9 - The statement '...SPC-2 are not implemented and are reserved for FCP-2 devices.' should be change to '...SPC-2 are reserved in FCP-2 devices.'

4.429: IBM comment from George Penokie (Editorial)

Page 53 - section 10.1.1.10 - The statement '...will be transmitted...' should be '...shall be transmitted....'

4.430: IBM comment from George Penokie (Editorial)

Page 53 - section 10.1.1.10 - The statement '...but more data must still be transferred...' should be '...but more data is required to be transferred...'

4.431: IBM comment from George Penokie (Editorial)

Page 53 - section 10.1.1.10 - The term 'etc.' should be deleted. An etc. in an e.g. list is redundant..

4.432: IBM comment from George Penokie (Editorial)

Page 53 - section 10.1.1.10 - The statement 'This value shall...' needs to state which value is being referred to.

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4.433: IBM comment from George Penokie (Editorial)

Page 54 - section 10.1.2 - The statement '...follows the MODE SENSE/MODE SELECT rules...' should be '...follows the MODE SENSE command and MODE SELECT command rules...'

4.434: IBM comment from George Penokie (Editorial)

Page 54 - section 10.1.2 - The statement '(See See "4.3" on page 9)' should be changed to '(See 4.3)'.

4.435: IBM comment from George Penokie (Editorial)

Page 54 - section 10.1.2 - The following wording is different from the rest of the standard. If should always be the same. 'If the xxxx bit is zero/one...' should in all cases be change to 'If the xxxx bit is set to 1/0....

4.436: IBM comment from George Penokie (Editorial)

Page 54 - section 10.1.2 - The statement '...follows the MODE SENSE/MODE SELECT rules...' should be '...follows the MODE SENSE command and MODE SELECT command rules...'

4.437: IBM comment from George Penokie (Editorial)

Page 54 - section 10.1.3 - The information between 10.1.3 and 10.1.3.1 is hanging.

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4.438: IBM comment from George Penokie (Editorial)

Page 55 - Section 10.1.3 - table 32 - There are several cells that have no text. I assume these should be marked reserved.

4.439: IBM comment from George Penokie (Editorial)

Page 55 - section 10.1.3 - The statement '...follows the MODE SENSE/MODE SELECT rules...' should be '...follows the MODE SENSE command and MODE SELECT command rules...'

4.440: IBM comment from George Penokie (Editorial)

Page 55 -58 - sections 10.1.3.x - These section titles should be removed. I suggest making them into run in headers (like the definitions list) which would keep the identity of the sections and get rid of the hung information.

4.441: IBM comment from George Penokie (Editorial)

Page 54 - section 10.1.3.x - The following wording is different from the rest of the standard. If should always be the same. 'If the xxxx bit is zero/one...' should in all cases be change to 'If the xxxx bit is set to 1/0....

4.442: IBM comment from George Penokie (Editorial)

Page 55 - section 10.1.3.1 - The term 'LIP' is not defined anywhere nor is there a cross-reference to where it is defined.

4.443: IBM comment from George Penokie (Editorial)

Page 55 - section 10.1.3.2 - The term 'loop port enable primitive sequence' is not defined and there are no references to where it is defined.

4.444: IBM comment from George Penokie (Editorial)

Page 55 - section 10.1.3.2 - The term 'LPE primitive sequence' is not defined and there are no references to where it is defined.

4.445: IBM comment from George Penokie (Editorial)

Page 55-56 - sections 10.1.3.1 to 10.1.3.3 and 10.1.3.5 to 10.1.3.8 - The following sentence should be first like in section 10.1.3.4 'Targets not attached to an FC-AL loop shall ignore this bit.'

PDF Page 72

4.446: IBM comment from George Penokie (Editorial)

Page 56 - section 10.1.3.3 - The term 'monitoring state' is not defined and there are no references to where it is defined.

4.447: IBM comment from George Penokie (Editorial)

Page 56 - section 10.1.3.4 - The term 'LISA phase' is not defined and there are no references to where it is defined.

4.448: IBM comment from George Penokie (Editorial)

Page 56 - section 10.1.3.4 - The term 'LIFA phase' is not defined and there are no references to where it is defined.

4.449: IBM comment from George Penokie (Editorial)

Page 56 - section 10.1.3.4 - The term 'LIPA phase' is not defined and there are no references to where it is defined.

4.450: IBM comment from George Penokie (Editorial)

Page 56 - section 10.1.3.4 - The term 'LIHA phase' is not defined and there are no references to where it is defined.

4.451: IBM comment from George Penokie (Editorial)

Page 56 - section 10.1.3.5 - The term 'LISM frames' is not defined and there are no references to where it is defined.

4.452: IBM comment from George Penokie (Editorial)

Page 56 - section 10.1.3.6 - The terms 'address or port discovery' are not defined and there are no references to where they are defined.

4.453: IBM comment from George Penokie (Editorial)

Page 56 - section 10.1.3.6 - The statement 'A target with a valid fabric login shall ignore this bit.' should be moved out of the center of this paragraph and made into its own paragraph.

PDF Page 73

4.454: IBM comment from George Penokie (Editorial)

Page 57 - section 10.1.3.8 - The statement '..fabric loop port, FL_Port, on...' should be '...fabric loop port (FL_Port) on...'

4.455: IBM comment from George Penokie (Editorial)

Page 57 - section 10.1.3.9 - The following sentence 'The RR_TOV (See “11.3” on page 60.) is defined by bytes 6 and 7 in the following manner.' should be changed to 'The RR_TOV (see 11.3) timer values are defined by bytes 6 and 7 of table 32.'

4.456: IBM comment from George Penokie (Editorial)

Page 57 - section 10.1.3.9 - The statement '...RR_TOV value in byte 7 shall..' should be '...RR_TOV value shall..'.

4.457: IBM comment from George Penokie (Editorial)

Page 57 - section 10.1.3.9 - The sentence 'Those functions are specified by FC-PLDA and by section 11.3 of this standard.' should be 'See 11.3 and FC-PLDA for the RR_TOV time-out functions.'

4.458: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - The information between section 11 and 11.1 is hanging.

4.459: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - What is the statement 'indicates the implications of timers defined' supposed to mean??

4.460: IBM comment from George Penokie (Editorial)

Page 59 - section 11 -table 35 - The text is the cells is too close to the cell tops.

4.461: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - There appears to be no definition for any of the TOVs. They all should be added into the definitions list. On second look I now see the description column looks to do this. But it would still be a good idea to add the TOVs to the acronym list.

4.462: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - There is no key that tells me what a 'R' or 'A' stands for.

4.463: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - The terms 'public' and 'private' are used but there is no indication as to what they relate to.

4.464: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - The reference column contains what appear to be references to sections in PLDA. But I see they are not. The confusion is from the reference that list PLDA and 11.3 in one cell. These should be split into 2 cells. It is also not clear if those 2 references apply to both default values or one applies to one and the other the other.

4.465: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - What does the '1:>' in the 'Retry = 1:> 3 X REC_TOV' mean?

4.466: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - What does '>=' mean? I assume it means greater than or equal but without a key to the symbols I do not know for sure.

4.467: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - In one place you have a caps 'X' with spaces around it and in another a 'x' with no spaces. Do they mean different things? If not then they should both be the same.

4.468: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - note 2 - The statement ' SCSI Target devices' should be 'Targets'.

4.469: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - note 1 - This note is very confusing. I believe this is because it contains unclear references and information that is not relevant to this standard. It should be changed to something like: 'R_A_TOV is defined by FC-PH. FCP-2 defines those default values required by the recovery protocol, deriving the values as described in xxx..FCP-2 defines the default R_A_TOV for sequence qualifiers as 0 for private loops and 10 seconds for public loops. FCP-2 defines the default R_A_TOV for ELS responses as 2 seconds for private loops and 10 seconds for public loops. If extended link services are used to set R_A_TOV, the same value is applied private and public loops. Other FC standards may specify different R_A_TOV default values.'

4.470: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - note 3 - The statement '...deriving the value as described below:' should be '...that value is derived as follows:'

4.471: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - note 3 - The list of items should be an a,b,c list.

4.472: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - note 3 - There is a reference to a specific section in FC-FS that needs to be removed.

4.473: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - note 4 - The term 'SCSI target' should be 'target'.

4.474: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - note 5 - The statement '3 X REC_TOV' should be '3 times REC_TOV'.

4.475: IBM comment from George Penokie (Editorial)

Page 59 - section 11 - table 35 - In the references column there are no references in some of the row to sections in this document yet there is a section for row. These reference should be added in.

4.476: IBM comment from George Penokie (Editorial)

Page 59 - section 11.1 - The statement '...Its use is specified in FC-PH, FC-AL, FC-PLDA, FC-FLA, FC-TAPE and other standards.' should be changed to either list all the standards or just state 'Its use is specified in other FC standards.'

4.477: IBM comment from George Penokie (Editorial)

Page 59 - 60 - section 11.1 - The bulleted list should be an a,b,c list.

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4.478: IBM comment from George Penokie (Editorial)

Page xx - section xx - As stated in another comment; one term should be used when talking about a target throughout the standard. There are 2 valid options; target or FCP-2 target. Pick one and change all others to it.

4.479: IBM comment from George Penokie (Editorial)

Page 60 - section 11.2 - The 'which' should be changed to 'that'.

4.480: IBM comment from George Penokie (Editorial)

Page 60 - section 11.2 - The list of items between the ( ) should be (i.e., ...).

4.481: IBM comment from George Penokie (Editorial)

Page 60 - section 11.2 - 1st note - The 'shall' needs to be removed from the note or text of the note made into main line text.

4.482: IBM comment from George Penokie (Editorial)

Page 60 - section 11.2 - The term 'FLOGI' is not defined anywhere. It should at least be added to the acronym list.

4.483: IBM comment from George Penokie (Editorial)

Page xx - section xx -One term should be used when talking about an initiator throughout the standard. There are 2 valid options; initiator or FCP-2 initiator. Pick one and change all others to it.

4.484: IBM comment from George Penokie (Editorial)

Page 60 - section 11.3 - The term 'LOGO' is not defined. It should at least be added to the acronym list.

4.485: IBM comment from George Penokie (Editorial)

Page 60 - section 11.3 - The statement '(hex '16') should be removed and replaced with a cross reference to the mode pages description.

4.486: IBM comment from George Penokie (Editorial)

Page 60 - section 11.3 - The statement '...always appropriate to ADISC address discovery time.' make no sense.

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4.487: IBM comment from George Penokie (Editorial)

Page 61 - section 11.4 - table 36 - It is not clear what is meant by the statement '(optional timer restart)'. Does that mean that the timer may not start when this event occurs or does it mean something else?

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4.488: IBM comment from George Penokie (Editorial)

Page 62 - section 12.1.1 - The statement '..in this chapter..' is not correct and should be change to '..in the following subclauses...' or deleted altogether.

4.489: IBM comment from George Penokie (Editorial)

Page 62 - section 12.1.1 - The statement '...of this document.' should be changed to '...of this standard.'

4.490: IBM comment from George Penokie (Editorial)

Page 62 - section 12.1.1 - In the statement 'FCP-2 has expanded the error detection...' it is not stated what FCP-2 has expended from. This needs to be stated.

4.491: IBM comment from George Penokie (Editorial)

Page 62 - section 12.1.1 - The statement '...that will allow..' should be '...that allows...'

4.492: IBM comment from George Penokie (Editorial)

Page 62 - section 12.1.2 - The statement '...shall use and accept the REC and SRR ELSs as required to perform the retransmission unless unusual events have made the recovery features unavailable 'has a requirement that is removed with one sentence. If it is not a requirement then the shall should be make into a may or it is a requirement then the 'unusual events' (what ever those are) statement should be removed.

4.493: IBM comment from George Penokie (Editorial)

Page 62 - section 12.1.2 - What is meant by the statement '..by this clause.'. Do you mean clause 12 or subclause 12.1.2 or some group of subclauses under clause 12? It should be made clare as to what is being referenced..

4.494: IBM comment from George Penokie (Editorial)

Page 62 - section 12.2 - The text between section 12.2 and 12.2.1 is hanging.

4.495: IBM comment from George Penokie (Editorial)

Page 62 - section 12.2.1 - All the 1,2,3 lists should be an a,b,c lists.

4.496: IBM comment from George Penokie (Editorial)

Page 62 - section 12.2 - There should be an i.e., within the ( )s.

4.497: IBM comment from George Penokie (Editorial)

Page 62 - section 12.2 - The statement 'read-type command' should be 'read command'.

4.498: IBM comment from George Penokie (Editorial)

Page 62 - section 12.2 - The statement '...is set to 0b' should be change to '...is set to 0'. This is in line with the notation that has been used up to this point in the standard so there is no point in changing.

4.499: IBM comment from George Penokie (Editorial)

Page 62 -63 - section 12.2.1 - Each item in the list should end with a ';' with the 2nd to the last ending in a '; and'.

4.500: IBM comment from George Penokie (Editorial)

Page 62 - 69 - The statement 'after expiration of the time-out period' should be change in all cases to 'after xxx_TOV times out ...' this will remove the to post a death notice after the timers expire.

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4.501: IBM comment from George Penokie (Editorial)

Page 63 - section 12.2.2 - All the 1,2,3 lists should be an a,b,c lists.

4.502: IBM comment from George Penokie (Editorial)

Page 63 - section 12.2 - The statement '...is set to 1b' should be change to '...is set to 1'.

4.503: IBM comment from George Penokie (Editorial)

Page 63 - section 12.2.2 - Each item in the list should end with a ';' with the 2nd to the last ending in a '; and'.

4.504: IBM comment from George Penokie (Editorial)

Page 63 - section 12.2 - item 1 - The statement 'for detection of a...' should be 'after detection of a ...'

4.505: IBM comment from George Penokie (Editorial)

Page 63 - section 12.2.2 - item 5 - The statement '..an "Abort, Perform ABTS" is...' sounds like a error code. If is then it should state 'an xxxx code of ABORT, PERFORM ABTS is...' where xxx is the name of the error code type.

4.506: IBM comment from George Penokie (Editorial)

Page 63 - section 12.2.2 - The statement '(due to a missing ACK)' should be in ','s not '( )'s.

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4.507: IBM comment from George Penokie (Editorial)

Page 64 - section 12.3.4 - All the 1,2,3 lists should be an a,b,c lists

4.508: IBM comment from George Penokie (Editorial)

Page 64 - section 12.3.1 - The statement '2x...' should be '2 times...'.

4.509: IBM comment from George Penokie (Editorial)

Page 64 - section 12.3.1 - The statement 'If the response is an LS_RJT with a reason code indicating that the function is not supported, treat the Target as a device not supporting error detection using...' is unclear. If the response (to what?)....treat the target (whom is treating the target?) . I am guessing the following is correct: 'If the response to the new exchange is an LS_RJT with a reason code indicating that the function is not supported, the initiator shall assume the target as a device not supporting error detection using...'

4.510: IBM comment from George Penokie (Editorial)

Page 64 - section 12.3.1 - In the statement 'If a proper ACC...' what is an improper ACC etc.? The statement should read 'If an ACC...'.

4.511: IBM comment from George Penokie (Editorial)

Page 64 - section 12.3.2 - The statement in '( )'s should start with 'i.e.,'.

4.512: IBM comment from George Penokie (Editorial)

Page 64 - section 12.3.2 - The statement '...shall be retransmitted. This is to ensure that...' should be '...shall be retransmitted to ensure that...'

4.513: IBM comment from George Penokie (Editorial)

Page 64 - section 12.3.3 - The statement in '( )'s should start with 'i.e.,'.

4.514: IBM comment from George Penokie (Editorial)

Page 64 - section 12.3.3 - The statement '(r_CTL = data descriptor).' should be changed to 'with R_CTL set to data descriptor.'.

4.515: IBM comment from George Penokie (Editorial)

Page 64 - section 12.3.3 - The sentence 'When the FCP_XFER_RDY is successfully received, the data is sent, and the operation continues normally.' is not a complete sentence and I do not know how to fix it.

4.516: IBM comment from George Penokie (Editorial)

Page 64 - section 12.3.4 - The statements in '( )'s should start with 'i.e.,'.

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4.517: IBM comment from George Penokie (Editorial)

Page 65 - section 12.3.4 - Each item in the list should end with a ';' with the 2nd to the last ending in a '; or'.

4.518: IBM comment from George Penokie (Editorial)

Page 65 - section 12.3.4 - The statement '..response and will perform...' should be 'response and shall perform...'

4.519: IBM comment from George Penokie (Editorial)

Page xx - All FCP-2 IUs should be labeled as IUs through out the standard. There are many cases where an FCP-2 IU leaves off the IU and it is then not clear it the term is an IU or some new thing.

4.520: IBM comment from George Penokie (Editorial)

Page 65 - section 12.3.4 - The statement '...terminated before execution by a...' should be '...terminated by a..'. The 'before execution' term is meaningless as there is no definition of what command execution is, when it starts, or when it ends..

4.521: IBM comment from George Penokie (Technical)

(T) Page 65 - section 12.3.4 - non-tagged queueing should be made obsolete in FCP-2.

Response:

Rejected. See 4.322.

4.522: IBM comment from George Penokie (Editorial)

Page 65 - section 12.3.4 - item 2 - The '3x' should be '3 times'.

4.523: IBM comment from George Penokie (Editorial)

Page 65 - section 12.3.4 - item 3 - The statement 'status retention resources are exhausted and the oldest retained status must be flushed from the retention resource.' should be 'no status retention resources are available.' The remaining information in that statement is implementation specific and should be removed.

4.524: IBM comment from George Penokie (Editorial)

Page 65 - section 12.3.5 - The sentence 'As documented in 12.3.9, the Target discards the Sequence in error, but does not initiate any recovery action for Class 3.' should be The Target discards the Sequence in error, but does not initiate any recovery action for Class 3 (see 12.3.9).'

4.525: IBM comment from George Penokie (Editorial)

Page 65 - section 12.3.6 - The statement in '( )'s should start with 'i.e.,'.

4.526: IBM comment from George Penokie (Editorial)

Page 65 - section 12.3.6 - The statement '(R_CTL = solicited data)...' should be changed to 'with R_CTL set to solicited data ....'.

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4.527: IBM comment from George Penokie (Editorial)

Page 66 - section 12.3.6 - The statement '...Sense key 4, ASC/ASQ of 48/00 (Initiator Detected Error message received)).' should be '...sense key of HARDWARE ERROR and an ASC/ASCQ of INITIATOR DETECTED ERROR MESSAGE RECEIVED)).'

4.528: IBM comment from George Penokie (Editorial)

Page 66 - section 12.2.6 - The statement '(retry, allow ULP time out, or return status to ULP)' should be '(e.g. retry, allow ULP time out, or return status to ULP)'.

4.529: IBM comment from George Penokie (Editorial)

Page 66 - section 12.3.6 - The statement '...and other internal state'. should be '...and other internal states.'.

4.530: IBM comment from George Penokie (Editorial)

Page 66 - section 12.3.6 - The sentence 'As stated in 12.3.9, the SCSI Target does not initiate error recovery for Class 3.' should be 'The SCSI Target shall not initiate error recovery for Class 3 (see 12.3.9).

4.531: IBM comment from George Penokie (Editorial)

Page 66 - section 12.3.7 - The statement '...target will be a LS_RJT..' should be '...target shall be a LS_RJT...'.

4.532: IBM comment from George Penokie (Editorial)

Page 66 - section 12.3.7 - The statement '...an “Invalid OX_ID-RX_ID combination” reason code explanation.' should be '...the reason code set to INVALID OX_ID-RX_ID COMBINATION'.'

4.533: IBM comment from George Penokie (Editorial)

Page 66 - section 12.3.7 - The statement '...FCP_CONF_REQ bit set and...' should be ...'FCP_CONF_REQ bit set to 1 and....'.

4.534: IBM comment from George Penokie (Editorial)

Page 66 - section 12.3.7 - The statement '...reply will be...' should be '...reply shall be...'

4.535: IBM comment from George Penokie (Editorial)

Page 66 -section 12.3.9 - The term 'error policy' shows up here for the first time and there is not indication as to what an 'error policy' is or where it is defined. This needs to be fixed.

4.536: IBM comment from George Penokie (Editorial)

Page 66 - section 12.3.9 - The statement '(refer to Annex B.2.1)' should be '(see Annex B.2.1)'.

4.537: IBM comment from George Penokie (Editorial)

Page 67 - section 12.3.9 - The note contains requirements that are not allowed in notes. The requirement must be removed.

4.538: IBM comment from George Penokie (Technical)

(T) - Page 66 - section 12.3.9 - This states targets may issue an ABTS. This should be change to prohibited class-3 device when running in target mode from issuing any ABTSs. This would match the PLDA and most of the implementations.

Response:

This restriction is presently not defined in FCP, but only in FC-PLDA. The proper place to define this is in a profile. No change will be made. After some discussion, was agreed to in the April 5, 2000 meeting.

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4.539: IBM comment from George Penokie (Editorial)

Page 67 - section 12.4 - Each item in the list should end with a ';' with the 2nd to the last ending in a '; or'.

4.540: IBM comment from George Penokie (Editorial)

Page 67 - section 12.3.9 - Each item in the list should end with a ';' with the 2nd to the last ending in a '; and'.

4.541: IBM comment from George Penokie (Editorial)

Page 67 - section 12.3.9 - The term 'SCSI target authentication' is used for the first time with no reference as to where it is defined or what it is. This needs to resolved.

4.542: IBM comment from George Penokie (Editorial)

Page 67 - section 12.4 - The statement '(refer to Annex B.2.1)' should be '(see Annex B.2.1)'.

4.543: IBM comment from George Penokie (Editorial)

Page 67 - section 12.4 - The statement '...values are reused quickly and..' should be '...values are reused and...'. The term 'quickly' cannot be quantified so it should be removed.

4.544: IBM comment from George Penokie (Editorial)

Page 67 - section 12.5.1 - The sentence 'This subclause does not define the protocol by which multiple SCSI Initiators communicate or synchronize shared peripherals.' should be removed because it adds nothing to the standard. This subclause does not define how to bake bread but we do not state that in the standard.

4.545: IBM comment from George Penokie (Editorial)

Page 67 - section 12.5 - The text between 12.5 and 12.5.1 is hanging.

4.546: IBM comment from George Penokie (Technical)

(T) Page 67 - section - 12.5 - The statement 'All FCP-2 devices shall support the use of ABTS-....' should be changed to 'All FCP-2 SCSI devices when operating as an initiator shall support the use of ABTS-...' this goes along with my other comments on no allowing ABTS for target devices.

Response:

This was intended to specify the requirement that all targets shall accept an ABTS-LS as a recovery abort and that all initiators shall be able to create an ABTS-LS as a recovery abort and as an Abort Task. All other uses of ABTS-LS should be optional, but not prohibited. The text will be changed accordingly. This was accepted in the April 5, 2000 meeting.

4.547: IBM comment from George Penokie (Editorial)

Page 67 - section 12.5.1 - The statement '...Exchange" bit is received...' should be '...exchange" bit set to one is received...'.

4.548: IBM comment from George Penokie (Editorial)

Page 67 - section 12.5.1 - The statement '...after certain task management functions have been executed.' is not clear in that it does not tell which task management functions this applied to. There needs to be a list.

4.549: IBM comment from George Penokie (Editorial)

Page 67 - section 12.5.1 - The '( )' in the following statement should be dropped. '(or the data may already be in flight at the time the ABTS was sent).'.

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4.550: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.2 - Each item in the list should end with a ';' with the 2nd to the last ending in a '; or'.

4.551: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.1 - The statement '...status byte indicating COMMAND CLEARED...' should be '...status set to COMMAND CLEARED...'

4.552: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.1 - The statement '...after certain task management functions have been executed.' is not clear in that it does not tell which task management functions this applies to. There needs to be a list.

4.553: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.1 - The statement '...specified LUN on...' should be '...specified logical unit on...'.

4.554: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.1. The statement '...(no STATUS returned...' should be '...(i.e., no status returned...'.

4.555: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.1 - In the statement 'If a proper BA_ACC...' what is an improper BA_ ACC etc.? The statement should read 'If a BA_ ACC...'.

4.556: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.1 - The '2x' should be '2 times'.

4.557: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.2 - Item a - In two places - The statement 'in (no PLOGI).' should be 'in (i.e., no PLOGI).'

4.558: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.2 - item b in two places - The statement '...bit set to one if...' should be '...bit set to 1 if...' . This is to maintain consistency within the standard.

4.559: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.2 - item b in two places - The sentence 'The reason code shall be “Logical Error” with a reason code explanation of “Invalid OX_ID/RX_ID combination”.' should be 'The reason code shall be LOGICAL ERROR with a reason code explanation of INVALID OX_ID.RX_ID COMBINATION.'

4.560: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.2 - item c in two places - The term 'otherwise' should be deleted as it is implied by the to be added 'or' at the end of item b..

4.561: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.2 - in multiple places - There should be no space between the 'FFFF' and the 'h' as there is now.

4.562: IBM comment from George Penokie (Editorial)

Page 68 - section 12.5.2 - In the statement '...upon D_ID || S_ID || OX_ID,...' what is the meaning of the '||'? That symbol is not defined in this standard and should be removed and replaced to the equivalent text.

4.563: IBM comment from George Penokie (Editorial)

Page 68-69 - section 12.6.1 - in two places - The term '2x' should be replaced with '2 times'.

PDF Page 85

4.564: IBM comment from George Penokie (Editorial)

Page 69 - section 12.6.3 - Each item in the list should end with a ';' with the 2nd to the last ending in a '; and'.

4.565: IBM comment from George Penokie (Editorial)

Page 69 - section 12.6.2 - Each item in the list should end with a ';' with the 2nd to the last ending in a '; and'.

4.566: IBM comment from George Penokie (Editorial)

Page 69 - section 12.6.1 - in two places - The statement inside the '( )'s should start with 'i.e.,'.

4.567: IBM comment from George Penokie (Editorial)

Page 69 - section 12.6.2 - The term '2x' should be replaced with '2 times'.

4.568: IBM comment from George Penokie (Editorial)

Page 69 - section 12.6.3 - The term '2x' should be replaced with '2 times'.

4.569: IBM comment from George Penokie (Editorial)

Page 69 - section 12.7 - The statement ...'NL_Port with which it has...' should be changed to '...NL_Port that it has...'. in multiple places.

4.570: IBM comment from George Penokie (Editorial)

Page 69 - section 12.7 - The statement '(PLOGI)' should be '(i.e., PLOGI). in several places.

4.571: IBM comment from George Penokie (Editorial)

(T) - Page 69 - section 12.7 - The is a 'TBD' in this section. There can be no TBDs in a standard.

Response:

Accepted.

4.572: IBM comment from George Penokie (Technical)

(T) Page 69 - section 12.7 - Several statements in this section are in direction conflict with statements in section 6.2.5. This conflict needs to be resolved. believe the wording in section 12.7 is more correct.

Response:

This text will be reviewed in detail. Several of these discrepancies are corrected by the resolution of other comments. This was accepted in the April 5, 2000 meeting.

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4.573: IBM comment from George Penokie (Editorial)

Page 71 - several places - Only one SAM standard should be referenced. I believe this standard would only reference SAM-2.

4.574: IBM comment from George Penokie (Editorial)

Page 71 - section A.1 - The editors note needs to be removed.

4.575: IBM comment from George Penokie (Editorial)

Page 71 - section a.1 - item c - There needs to be a '.' at the end of the statement in item c.

PDF Page 88

4.576: IBM comment from George Penokie (Editorial)

Page 72 - section A.1 - table A.1 - note 3 - The term 'SCSI-3 ' should be replaced with 'SCSI'.

PDF Page 89

4.577: IBM comment from George Penokie (Editorial)

Page 73 - The symbols used in this annex are not defined. You need to define these symbols in section 3. I suggest you copy section 3.5 out of SPI-3 which has every thing you should need to cover this comment.

4.578: IBM comment from George Penokie (Editorial)

Page 73 - section a.4 - The information between a.4 and a.4.1 is hanging.

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4.579: IBM comment from George Penokie (Editorial)

Page - 74 - section a.5 - The information between a.5 and a.5.1 is hanging.

4.580: IBM comment from George Penokie (Editorial)

Page 74 - section a.5.1 - The term 'SCSI parallel interface service' should be replaced with 'FCP-2 service'.

4.581: IBM comment from George Penokie (Editorial)

Page 74 - section a.5.1 - The information between a.5.1 and a.5.1.1 is hanging.

PDF Page 91

4.582: IBM comment from George Penokie (Editorial)

Page 75 - section a.5.1.1 - a.5.1.7 - Replace the term 'SCSI parallel interface services' with 'FCP-2 services' and the term 'message' with 'flag'.

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4.583: IBM comment from George Penokie (Editorial)

Page 77 - section b.2 - The text between b.2 and b.2.1 is hanging.

4.584: IBM comment from George Penokie (Editorial)

Page 77 - section b.1 - All the text in this section should be removed. This information will not be removed from this standard no matter what happens with other standards because once it if forwarded it cannot be changed.

4.585: IBM comment from George Penokie (Editorial)

Page 77 - section b.2.1 - The statement '...parameter field' should be '...PARAMETER (in small caps) field as shown in table b.1.'

4.586: IBM comment from George Penokie (Editorial)

Page 77 - section b.2.1 - The statement '...determine which behavior...' needs to be de-whiched. I suggest '...determine the behavior...'.

4.587: IBM comment from George Penokie (Editorial)

Page 77 - section b.2.1 - The term 'parameter' should be in small caps.

4.588: IBM comment from George Penokie (Editorial)

Page 77 -section b.2.1 - in two places - The notation 'as described in section x.x.x on page xxx' is used. This need to be changed to 'see x.x.x'.

4.589: IBM comment from George Penokie (Editorial)

Page 77 - section b.2.1 - There is a reference to a clause in another standard; this reference needs to be removed.

4.590: IBM comment from George Penokie (Editorial)

Page 77 - section b.3 - The information between section b.3 and b.3.1 is hanging.

4.591: IBM comment from George Penokie (Editorial)

Page 77 - section b.3 - The information about the values that are frame should be reformatted into a table so the reader has a change of understanding what is required to be set to what value.

4.592: IBM comment from George Penokie (Editorial)

Page 77 - section b.3 - The statement '.. are defined or modified in this annex.' is not correct. It makes no sense because how can you both define and modify something at the same time either you are defining it or modifying it, so which is it? Also the term 'this annex' must be removed or somehow changed into the term 'subclause' or 'clause'.

4.593: IBM comment from George Penokie (Editorial)

Page 77 - section b.3 - table b.2 - There is a blank row that must be eliminated.

PDF Page 94

4.594: IBM comment from George Penokie (Editorial)

Page 78 - section b.3.1 - The term 'would use' should be 'should use' or 'shall use' depending on your intent which in not clear.

4.595: IBM comment from George Penokie (Editorial)

Page 78 - section b.3.1 - The statement 'To avoid ambiguity in the termination and reuse of exchanges,...' should be deleted. The standard does not have to explain why it makes a requirement, it only needs to clearly state the requirements.

4.596: IBM comment from George Penokie (Editorial)

Page 78 - section b.3.1 - The statement '...reason code hex ‘09’ (i.e. Unable to perform command request).' should be '...reason code of UNABLE TO PERFORM COMMAND REQUEST.'.

4.597: IBM comment from George Penokie (Editorial)

Page 78 - section b.3.1 - It is not clear as the interpretation of this format. This needs to be explained so the reader understands what is being defined.

4.598: IBM comment from George Penokie (Editorial)

Page 78 - section b.3.1 - format - This is no definition of what the term 'FT_1' means.

4.599: IBM comment from George Penokie (Editorial)

Page 78 - section b.3.1 - payload - The statement '...the following table.' should be '...table b.3.'.

4.600: IBM comment from George Penokie (Editorial)

Page 78 - section b.3.1 - addressing - The term 'which' needs to be removed.

4.601: IBM comment from George Penokie (Editorial)

Page 78 - section b.3.1 - table b.3 - The term 'hex '13000000'' should be '13000000h'.

PDF Page 95

4.602: IBM comment from George Penokie (Editorial)

Page 79 - section b.3.1 - accept payload - The statement '...in the table below.' should be '...in table b.4.'..

4.603: IBM comment from George Penokie (Editorial)

Page 79 - section b.3.1 - accept payload - The statement '...is specified below.' should indicate exactly where it is specified, below could be anywhere from here to the end of the standard.

4.604: IBM comment from George Penokie (Editorial)

Page 79 - section b.3.1 - table b.4 - The term 'hex '02000000'' should be '02000000h'.

4.605: IBM comment from George Penokie (Editorial)

Page 79 - section b.3.1 - There is a reference to a section in another standard that must be removed.

4.606: IBM comment from George Penokie (Editorial)

Page - 79 section b.3.1 - The sentence 'The bits specifying whether the Exchange is complete (Bit 29) and whether the responder holds Sequence Initiative (Bit 30) must be valid; the setting of other bits is not required.' should be changed to 'The xxxx bit and the yyy bit of the zzzz shall be set to x. The settings of the other zzzz bits is ignored.' It is not clear as to what bits are being referred to.

4.607: IBM comment from George Penokie (Editorial)

Page 79 - section b.3.1 - It appears the terms originator address identifier, responder address identifier, and data transfer count are all field names and therefore should be small caps and have the term 'field' after them in the last 3 paragraphs.

PDF Page 97

4.608: IBM comment from George Penokie (Editorial)

Page 81 - section c.1 - The text between c.1 and c.1.1 is hanging.

4.609: IBM comment from George Penokie (Editorial)

Page 81 - section c.1 - The statement 'The following sections...' should be 'This annex...'

4.610: IBM comment from George Penokie (Editorial)

Page 81 - section c.1 - The note should be removed and all obsolete information placed in one place in the front of the standard.

PDF Page 99

4.611: IBM comment from George Penokie (Editorial)

Page 83 - section c.1.6 - The term 'intermediate status' should be 'INTERMEDIATE status'.

PDF Page 105

4.612: IBM comment from George Penokie (Editorial)

Page 88 - section d.1 - The statement '...SCSI devices conforming to this profile.' is not correct. It should be '...SCSI devices conforming to the FCP-2.'.

4.613: IBM comment from George Penokie (Editorial)

Page 88 - section d.1 - table d.1 - There is not reference to this table. One needs to be added.

4.614: IBM comment from George Penokie (Editorial)

Page 88- 102 - section d.1 - figure d.x - The titles of these figures is at the top of the figure, it should be moved to the bottom of the figure.

4.615: IBM comment from George Penokie (Editorial)

Page 89 - figure d.1 - What does the term 'None:' mean? Is it a typo that should be 'Note:' or does it mean 'No error recover'? whichever it is it should be made clear.

4.616: IBM comment from George Penokie (Editorial)

Page 92 - figure d.4 - What does the term 'None:' mean? Is it a typo that should be 'Note:' or does it mean 'No error recover'? whichever it is it should be made clear.

PDF Page 110

4.617: IBM comment from George Penokie (Editorial)

Page 94 - figure d.6 - What does the term 'None:' mean? Is it a typo that should be 'Note:' or does it mean 'No error recover'? whichever it is it should be made clear.

PDF Page 111

4.618: IBM comment from George Penokie (Editorial)

Page 95 - figure d.7 - The '(' and ')' should be deleted.

PDF Page 112

4.619: IBM comment from George Penokie (Editorial)

Page 96 - figure d.8 - The '(' and ')' should be deleted.

PDF Page 115

4.620: IBM comment from George Penokie (Editorial)

Page 99 - figure d.11 - What does the term 'None:' mean? Is it a typo that should be 'Note:' or does it mean 'No error recover'? whichever it is it should be made clear.

PDF Page 116

4.621: IBM comment from George Penokie (Editorial)

Page 100 - figure d.12 - What does the term 'None:' mean? Is it a typo that should be 'Note:' or does it mean 'No error recover'? whichever it is it should be made clear. There is not space between the 1st and 2nd sentences.

PDF Page 119

4.622: IBM comment from George Penokie (Editorial)

Page 103 - section e.1 - The statement '...count (FCP_DL - FCP_RESID)...' should be '...count (i.e., FCP_DL - FCP_RESID)...'

4.623: IBM comment from George Penokie (Editorial)

Page 103 - section e.1 - The statement '...Initiator will use the...' should be '....initiator uses the...'. You cannot state a requirement in an informative annex.

4.624: IBM comment from George Penokie (Editorial)

Page 103 - section e.1 - The statement '...Initiator can detect that...' should be '... initiator detects that...'

4.625: IBM comment from George Penokie (Editorial)

Page 103 - section e.1 - table e.1 - This table is not referenced from anywhere. This must be fixed.

4.626: IBM comment from George Penokie (Editorial)

Page 103 - section e.2 - The text between e.2 and e.2.1 is hanging.

4.627: IBM comment from George Penokie (Editorial)

Page 103 - section e.2 - The statement '...example in Figure e.1 -on page 105,...' should be '...example in figure E.1, ...'.

4.628: IBM comment from George Penokie (Editorial)

Page 103 section e.2 - The terms '3000' and '1000' should be '3 000' and '1 000'.

4.629: IBM comment from George Penokie (Editorial)

Page 103 - section e.2 - The statement '... Fixed bit set and...' should be '....FIXED bit set to 1 and...'.

4.630: IBM comment from George Penokie (Editorial)

Page 103 - section e.2 - The term 'transfer length' should be in small caps.

4.631: IBM comment from George Penokie (Editorial)

Page 103 - section e.2 - The statement '(fixed-length block count)' should either be '(i.e., fixed-length block count)' or deleted.

4.632: IBM comment from George Penokie (Editorial)

Page 103 - section e.2.1 - There is something very wrong with this section. Although the sentences appear to be complete taken one at a time when put together they do not make any sense. This section needs to be rewritten to make it clear as to what is going on.

4.633: IBM comment from George Penokie (Editorial)

Page 103 - section e.2.1 - The term '36000' must be '36 000'.

4.634: IBM comment from George Penokie (Editorial)

Page 103 - section e.2.1 - The statement '...count (FCP_DL - FCP_RESID)...' should be '...count (i.e., FCP_DL - FCP_RESID)...'

PDF Page 120

4.635: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...know which of the...' should be '...know if any of the...'

4.636: IBM comment from George Penokie (Technical)

(T) - Page 104 - section e.2.2 - If untagged queuing is made obsolete then the following sentences and other like it should be deleted. 'For an unqueued Target it would not have asked for an explicit FCP_CONF_REQ in this FCP_RSP with good status. Rather, it would be waiting for an implicit confirm (next command from the same Initiator).

Response:

Rejected. See 4.322.

4.637: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...is needed it will not...' should be changed to '...is needed it does not...'.

4.638: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...Initiator will instead issue...' should be '...initiator instead issues...'.

4.639: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...the Exchange Completion bit of Complete, and the Sequence Initiative bit indicating...' should be '...the EXCHANGE COMPLETION bit set to 1(?) to indicate completion and the SEQUENCE INITIATIVE bit set to 1(?) to indicate...'.

4.640: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The term 'data transfer count' should be in small caps in 2 places.

4.641: IBM comment from George Penokie (Editorial)

Page 104 -section e.2.2 - The term '36000' should be '36 000' in 2 places..

4.642: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...the Exchange Completion bit of Open, and the Sequence Initiative bit indicating...' should be '...the EXCHANGE COMPLETION bit set to 0(?) to indicate open and the SEQUENCE INITIATIVE bit set to 0(?) to indicate...'.

4.643: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...reason code hex ‘09’ (unable to perform command request)...' should be '...reason code of UNABLE TO PERFORM COMMAND REQUEST...'.

4.644: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...recovery will be necessary.' should be '...recovery becomes necessary.'

4.645: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...Initiator will send a Sequence...' should be '...initiator sends a sequence...'.

4.646: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...payload will have the...; should be '...payload has the...'.

4.647: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 -The term 'relative offset' should be in small caps.

4.648: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement 'This will request...' should be 'This requests...'.

4.649: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...the FCP_RSP will also be retransmitted.' should be '...the FCP_RDP is also retransmitted.'.

4.650: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...Initiator has to use Relative...' should be '...initiator uses relative...'.

4.651: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...Target will then transfer...' should be '...target then transfers...'

4.652: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...and then transmit...' should be '...and then transmits...'.

4.653: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...field will be the same...' should be '...field is the same...'.

4.654: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.3 - This section needs to be rewritten as it has several problems. I suggest the following rewrite: 'This method is easy to implement but errors are only detected after the FCP_RSP is processed and then all the data has to be retransmitted. This causes a large performance hit because the media is repositioned and reread. Initiators that only implement this type of discovery should limit the number of blocks transferred in one command in case Link Level recovery is required.'.

4.655: IBM comment from George Penokie (Editorial)

Page 104 - section e.2.2 - The statement '...queued Target, it will generate...' should be '...queued target, it generates...'.

PDF Page 121

4.656: IBM comment from George Penokie (Editorial)

Page 105 - 108 - section e.2.3 - figure e.x - The figure title should be after the figure not before.

PDF Page 122

4.657: IBM comment from George Penokie (Editorial)

Page 106 - section e.3 - All the comments made on section e.2 also apply to this section.

4.658: IBM comment from George Penokie (Editorial)

Page 106 - section e3.1 - There is something very wrong with this section. Although the sentences appear to be complete taken one at a time when put together they do not make any sense. This section needs to be rewritten to make it clear as to what is going on.

4.659: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.2 - The statement '... Target, it will generate...' should be '...target, it generates...'.

4.660: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.2 - The statement '...the Exchange Completion bit of Open, and the Sequence Initiative bit indicating...' should be '...the EXCHANGE COMPLETION bit set to 0(?) to indicate open and the SEQUENCE INITIATIVE bit set to 0(?) to indicate...'.

4.661: IBM comment from George Penokie (Editorial)

Page 106 -section e.3.2 - The term '36000' should be '36 000'.

4.662: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.2 - The term 'data transfer count' should be in small caps in two places.

4.663: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.2 - The statement '...field will indicate...' should be '...field indicates...'.

4.664: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.2 - The statement '...point which may...' should be '....point that may...'.

4.665: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.2 - The statement '...Initiator can proceed...' should be '...initiator may proceed...'.

4.666: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.2 - The statement '...recovery will be necessary.' should be '...recovery is necessary.'.

4.667: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.3 - OK, I give up trying to note all the wills, cans, and musts that are in the section. All wills, cans, and musts must be removed and none can be replaced with a 'shall'.

4.668: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.2 - The term 'relative offset' needs to be in small caps when it is the name of a field.

4.669: IBM comment from George Penokie (Editorial)

Page 106 - section e.2.3 - The term '15000' must be '15 000' and '16000' must be '16 000'.

4.670: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.2 - The statements between the ( ) must begin with 'i.e.,' in two places.

4.671: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.3 - The statement 'The Target must be prepared...' should be 'The target is prepared...'

4.672: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.3 - The statement '...it must be capable of ignoring...' should be '...it ignores...'

4.673: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.3 - The statement '...it must be capable of setting up...' should be 'it sets up...'.

4.674: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.3 - The term 'which' should be 'that' in 2 places.

4.675: IBM comment from George Penokie (Editorial)

Page 106 - section e.3.3 - There is no indication as to what an 'after status mode' is or where it is defined. This must be corrected.

PDF Page 123

4.676: IBM comment from George Penokie (Editorial)

Page 107 - section e.3.3 - The sentence 'This method of recovery detects the error much sooner.' does not tell you much sooner that what?

4.677: IBM comment from George Penokie (Editorial)

Page 107 - section e.3.3 - The sentence ' Only the data starting at the error must be retransmitted.' seems to be missing something when taking both this sentence and the one before it. It seem like there should only be one sentence with a 'because' between them.

4.678: IBM comment from George Penokie (Editorial)

Page 107 - section e.3.3 - The statement '...media must be...' should be '...media is...'.

PDF Page 125

4.679: IBM comment from George Penokie (Editorial)

Page 109 - section f.1 - The statement '...procedure shall also...' should be 'procedure also...' cannot have requirements in informative information.

4.680: IBM comment from George Penokie (Editorial)

Page 109 - section f.1- f.1.1 - f.1.2 - There are several terms in this section that have no definition or reference to a definition. These are: name server, fabric controller, state change notification, WWNN, and WWPN.

4.681: IBM comment from George Penokie (Editorial)

Page 109 - section f.1.1 - item 1 and 7 - section f.1.2 - item 2 - There is a statement 'if needed'. How I determine if the entry is needed or not?

4.682: IBM comment from George Penokie (Editorial)

Page 109 - section f.1.1 - item 8 - section f.1.2 item 4 - The statement '...EVPD bit set for...' should be '...EVPD bit set to 1 for...'.

4.683: IBM comment from George Penokie (Editorial)

Page 109 - section f.1 - The information between f.1 and f.1.1 is hanging.

4.684: IBM comment from George Penokie (Editorial)

Page 109 - section f.1.1 - The terms 'domain_ID_scope' and 'area_id_scope' are field names and should be in small caps.

4.685: IBM comment from George Penokie (Editorial)

Page 109 - section f.1.2 - item 1 - The '(' and ')' should be removed and the two statements merged into one sentence.

4.686: IBM comment from George Penokie (Editorial)

Page 109 - 110 - section f.2 - There are many 'shall's in this section. They all have to be removed from this informative annex.

4.687: IBM comment from George Penokie (Editorial)

Page 109 - 110 - section f.2- f.1.1 - f.1.2 - There are several terms in this section that have no definition or reference to a definition. These are: fabric port name, fabric name, loop fabric address, FAN, port name, node name, address identifier

PDF Page 127

4.688: IBM comment from George Penokie (Editorial)

Page 111 - section g.2 - The statement ' ... in figure g.1.' should be '...in table g.1.'.

4.689: IBM comment from George Penokie (Editorial)

Page 111-113 - section g.x - table g.x - The text in the cells is touching the top lines of the cells. There needs to be space added there.

4.690: IBM comment from George Penokie (Editorial)

Page 111 - table g.1 - The term 'FFFF h' should be 'FFFFh'.

4.691: IBM comment from George Penokie (Editorial)

Page 111 - table g.1 - It would be helpful if the bit positions for the Sequence context (bit 23) and the sequence initiative (bit 16) were placed into the sub-field description.

4.692: IBM comment from George Penokie (Editorial)

Page 111 - section g.2 - All the information between g.1 and g.2.1 is hanging.

4.693: IBM comment from George Penokie (Technical)

(T) Page 111 - section g.2 - The statement 'The SCSI initiator or SCSI target may transmit...' should be changed to 'The SCSI initiator may transmit...'. This goes along with the other comments on restricting ABTS to initiators.

Response:

Rejected. See 4.538.

PDF Page 128

4.694: IBM comment from George Penokie (Editorial)

Page 112 - table g.2- table g.3 - It would be helpful if the bit positions for the Last_sequence (bit 20) and the sequence context (bit 22) were placed into the sub-field description.

4.695: IBM comment from George Penokie (Editorial)

Page 112 - table g.2 - Change '00 h', '80 h', '0000 h', and 'FFFF h' to '00h', '80h', '0000h' and 'FFFFh'.

4.696: IBM comment from George Penokie (Editorial)

Page 112 - section g.2.1 - The statement ' ... in figure g.2.' should be '...in table g.2.'.

4.697: IBM comment from George Penokie (Editorial)

Page 112 - section g.2.1 - The statement ' ... in figure g.3.' should be '...in table g.3.'

4.698: IBM comment from George Penokie (Editorial)

Page 112 - section G.2.2 - The statement 'When it does so, the...' should be 'When it does, the...'

PDF Page 129

4.699: IBM comment from George Penokie (Editorial)

Page 113 - section g.2.3 - The statement ' ... in figure g.4.' should be '...in table g.4.'

4.700: IBM comment from George Penokie (Editorial)

Page 113 - section g.2.3 - The statement '...Target shall respond with ACC.' should be '...target responds with ACC.'

4.701: IBM comment from George Penokie (Editorial)

Page 113 - table g.4 - The term 'FFFF h' should be 'FFFFh'.

PDF Page 131

4.702: IBM comment from George Penokie (Editorial)

Page 115 - section H - The statement '...it shall wait until...' should be 'it waits until...'.

4.703: IBM comment from George Penokie (Editorial)

Page 115 - The statement - '... it can return...' should be 'it may return...'.

4.704: IBM comment from George Penokie (Editorial)

Page 115 - The statement '...Target shall return...' should be '...target returns...'

4.705: IBM comment from George Penokie (Editorial)

Page 115 - The statement 'as required by NCITS 1157-D.' should be '(see SAM-2)'.

4.706: IBM comment from George Penokie (Editorial)

Page 115 - The statement '...Target shall respond...' should be '...target responses...'.

4.707: IBM comment from George Penokie (Editorial)

Page 115 the statement '...reason code “unable to perform command request” and reason explanation “insufficient resources to support Login” as required by NCITS 1311-D.' should be '...a reason code of UNABLE TO PERFORM COMMAND REQUEST and a reason explanation of INSUFFICIENT RESOURCES TO SUPPORT LOGIN (see FC-FS).

4.708: IBM comment from George Penokie (Editorial)

Page 115 - The statement '..outside the scope of this profile...' should be '...outside the scope of the standard...'.

PDF Page 133

4.709: IBM comment from George Penokie (Editorial)

Page 117 - The terms 'SCSI Target Reset, Logical Unit Reset, and Clear Task Set' should be all caps.

4.710: IBM comment from George Penokie (Editorial)

Page 117 - The statement 'The payload shall be zeros...; should be 'The payload is zeros...'.

4.711: IBM comment from George Penokie (Editorial)

Page 117 - The statement '...(which shall be set equal to 8)...' should be '...(set to 8h)...'..

4.712: IBM comment from George Penokie (Editorial)

Page 117 - The statement '...Initiators (an FCP_RSP...' should be '...initiators (e.g., an FCP_RSP...'.

4.713: IBM comment from George Penokie (Editorial)

Page 117 - The terms 'refer to' should be 'see'.

PDF Page 135

4.714: IBM comment from George Penokie (Editorial)

Page 119 - section j.1.3 - table h.1 - The terms '1000' , '1001' and '1111' should be '1000b', '1001b', and '1111b'.

4.715: IBM comment from George Penokie (Editorial)

Page 119 - The statement 'service parameters are invalid' should be in all caps.

4.716: IBM comment from George Penokie (Editorial)

Page 119 - The statement '...an “Invalid Service Parameters” response code of 1000 agree upon.' should be '...an INVALID SERVICE PARAMETERS response code of SERVICE PARAMETERS ARE INVALID agreed to.'

4.717: IBM comment from George Penokie (Editorial)

Page 119 - section j.1 - The statement '...this document effect text presently standardized in FC-PH-2 which will be corrected...' is nice but cannot be enforced by this standard and should be change to '...this annex effect text presently standardized in other standards that may be corrected in future versions of those standards.'

4.718: IBM comment from George Penokie (Editorial)

Page 119 - section j.1 - The text between j.1 and j.1.1 is hanging.

4.719: IBM comment from George Penokie (Editorial)

Page 119 - section j.1.1 - The section has to be deleted. You cannot call out section in another standard and this not only does that it states a specific page.

4.720: IBM comment from George Penokie (Editorial)

Page 119 - section j.1.2 - The statement 'FC-PH-2 21.11.1.2 incorrectly...' must be changed to 'FC-PH-2 incorrectly...'.

4.721: IBM comment from George Penokie (Editorial)

Page 119 - section j.1.2 - The statement 'I believe the wording of Annex A of FCP is better, where it says:...' should be 'The wording in annex A of FCP-2 is correct, where it states:...'

4.722: IBM comment from George Penokie (Editorial)

Page 119 - section j.1.2 - The following sentences cannot be enforced and should be removed: 'All these corrections must be installed in FC-FS.'.

4.723: IBM comment from George Penokie (Editorial)

Page 119 - section j.1.2 - The following sentence, after the section number is removed, restates what was in the first sentence of this section so it should be deleted : Delete 'The same error is repeated in FC-PH-2, section 21.11.1.3.'

4.724: IBM comment from George Penokie (Editorial)

Page 119 - annex j - I believe this entire annex should be deleted as it is not relevant to this standard. But if it is to stay then the changes indicated below are necessary..

4.725: IBM comment from George Penokie (Editorial)

Page 119 - section j.1.3 - The sentence 'The document should replace the last line in Table 118 (PRLI accept response code) and Table 123 (PRLO accept response code) with the following two lines:' needs to be replaced with 'The additional PRLI (PRLO) should be placed into the FC-FS standard as indicated in table H.1.'

PDF Page 136

4.726: IBM comment from George Penokie (Editorial)

Page 120 - section j.2.1 - The sentences list here are editorial and have not place in a standard. They needs to be deleted. 'This value rather meaninglessly requires that a target shall transfer all data for a command and complete the command within a single interconnect tenancy. I believe that 95-348r1 is correct and FC-PLDA is incorrect and have taken this approach in FCP-2.

4.727: IBM comment from George Penokie (Editorial)

Page 120 - section j.1.5 - The following statement implies something can be removed from a standard after it is processed, this is not the case and the sentence should be removed. 'Section 6.2.5 will be removed when FC-FS has been updated.'

PDF Page 137

4.728: IBM comment from George Penokie (Editorial)

Page 121 - Why is there a list of figures at the end of the document? They should be in the front of the document not at the end.

5 Comments from LSI Logic

The following comments accompanied the ballot from LSI Logic Corporation, prepared by Charels Binford.

5.1 LSI 01: (Editorial)

Page 13 / PDF 29 Section 4.8, Table 4 Cmt Name: Column Order (This is a very minor comment and may be ignored at the editor's discretion.) I believe the readability of the table will be enhanced if the columns were reordered such that actions that had very similar effects

where grouped together. Specifically, I suggest moving: - SCSI Logical Unit Reset column to the right of SCSI Target Reset - ABTS w/Last Seq. to the far right hand side.

Response:

Accepted in principle. Will be reviewed.

5.2 LSI 02: (Editorial)

Page 13 / PDF 29 Section 4.8, Table 4 Cmt Name: Row alignment (This is a very minor comment and may be ignored at the editor's discretion.) The 'Y's and 'N's of the 'Open FCP Sequences Terminated' rows don't line up well with the descriptions.

(my other comments have a bit more meat to them, really!)

Response:

Accepted.

5.3 LSI 03: (Editorial)

Page 13 / PDF 29 Section 4.8, Table 4 Cmt Name: Placement of note 12 label The 'N' and 'Y' of the SCSI Target mode page/PRLI-PRLO box reference note 12. I believe that note 12 is applicable to the entire row (not just this specific box) and would be better placed in the row description.

5.4 LSI 04: (Technical)

Page 13 / PDF 29 Section 4.8, Table 4 Cmt Name: Wrong value for table entry The value at: row: Prevent Allow Medium Removal / Only for SCSI Initiator port initiating action column: LOGI,PLOGI is currently 'N', it should be 'Y'

Response:

Accepted. This was accepted in the April 5, 2000 meeting.

5.5 LSI 05: (Editorial)

Page 18 / PDF 34 Section 5.4 Cmt Name: Bad reference The reference to annex B in the first paragraph should be to annex C.

5.6 LSI 06: (Technical)

Page 18 / PDF 34 Section 5.4, Table 8 Cmt Name: Obsolete IU T7 The T7 IU is never used and should be marked obsolete. Even if the *initial* xfer-rdy is suppressed with the PRLI bit, each Data-Out is *followed* by an xfer-rdy or status, thus T6 which transfers SI is all that is needed. (Note, a global search for T7 needs to be made, e.g. section 9.3)

Response:

Accepted. This was accepted in the April 5, 2000 meeting.

5.7 LSI 07: (Technical)

Page 24 / PDF 40 Section 6.2.5, 2nd paragraph Cmt Name: Misleading PRLI requirement At the end of the second paragraph of this section the statement is made that 'Subsequent PRLI operations shall have no effect on FCP operation between two devices except where new requirements are negotiated between the devices.' I hope this is trying to say there is no effect if an image pair is not established by the PRLI. It sounds like the initiator and target are supposed to compare previous setting to current settings and only apply Table 4 if there are any differences. This would be a mistake. Any PRLI (whether the 1st or the 10th) that has the establish image pair bit should cause the target to 'reset' that initiator's FCP operation as detailed in Table 4 under the PRLI column.

Response:

Accepted in principle. See 1.22. The changes to 1.22 were agreed upon at the April 5, 2000 meeting.

5.8 LSI 08: (Technical)

Page 24 / PDF 40 Section 6.2.5, 4th paragraph Cmt Name: Incorrect ABTS requirement. The middle of the 4th paragraph of this section states that 'Non-acknowledged class responders will close the exchange with an ABTS or ABTX ELS.' This is inconsistent with 12.7 of this document and with several years worth of shipping product under PLDA (I don't think our intent for FCP-2 is to invalidate any PLDA behavior). What will really happen is the responder will discard the received frame/sequence, send a PRLO, and let the initiator send the ABTS for cleanup if it chooses.

Response:

Accepted in principle. See 1.25. This response was accepted in the April 5, 2000 meeting.

5.9 LSI 09: (Technical)

Page 29 / PDF 45 Section 6.3 Cmt Name: Multiple Image Pair behavior The last sentence of the first paragraph states 'If any image pairs between the initiator and the host remain after the PRLO, then there is no clearing effect on any task, reservation, mode page parameter or status.' This would make sense to me if the phrase 'for those remaining image pairs' was added to the end of this sentence. The current wording sounds like nothing is cleared until all image pairs are PRLO'd, I don't think that is the intent.

Response:

This comment had originally been accepted. After further discussion in the April 5, 2000 meeting, the acceptance was reconsidered and the comment rejected.

The committee agreed that Process Associators could be removed from FCP-2 if we allow initiator aliasing to instanciate multiple logical initiators behind a single port. Such initiator aliasing would be transparent to FCP-2. This would require more logins during the initialization activity. N_Ports operating in OLD PORT mode would normally not support this capability. A change to FC-FS is required, but no proposal is presently contemplated for this.

5.10 LSI 10: (Editorial)

Page 30 / PDF 46 Section 7.2, 2nd paragraph Cmt Name: Need to specify which LUN The second paragraph specifies the Inquiry data should be the object supplied. Words should be added to indicate it should be the Inquiry data for LUN 0.

5.11 LSI 11: (Editorial)

Page 31 / PDF 47 Section 8.1 Cmt Name: Missing period The last sentence on the page is missing a period.

5.12 LSI 12: (Technical)

Page 37 / PDF 53 Section 9.1.1.3 Cmt Name: Ordered Q rules The paragraph explaining Ordered_Q describes in detail the issues of delivering commands in a certain order on a class 2 fabric. If CRN is being used all of this extra work is unnecessary. Therefore I suggest words be added to indicate this is applicable if using CRN==0.

Response:

Accepted in principle. See 1.38. The committee meeting of April 5, 2000 approved this response.

5.13 LSI 13: (Editorial)

Page 43 / PDF 59 Section 9.3, 4th paragraph Cmt Name: XFER_RDY disable clarification The last sentence of the 4th paragraph implies that that *each* FCP_DATA IU is sent without a preceding XFER_RDY if XFER_RDY disable is on in PRLI. Only the *1st* FCP_DATA IU is sent without an XFER_RDY.

5.14 LSI 14: (Technical)

Page 43 / PDF 59 Section 9.3, 5th paragraph Cmt Name: _UNDER should be _OVER The second to last sentence in the 5th paragraph incorrectly states the FCP_RESID_UNDER bit should be on. It should say FCP_RESID_OVER.

Response:

Accepted.The committee approved this response in the meeting of April 5, 2000.

5.15 LSI 15: (Editorial)

Page 63 / PDF 79 Section 12.2.2 4) Cmt Name: Redundant item The 4th item under SCSI Initiator '4) a Sequence error is detected in a Sequence transmitted from a Target to an Initiator.' is redundant with item 3) in the previous classless section. There is no reason to repeat it here. It should be deleted.

5.16 LSI 16: (Editorial)

Page 64 / PDF 80 Section 12.3.2, 3rd paragraph Cmt Name: spelling error Second to last sentence should read 'At a minimum interval...', not '... interal...'.

Response:

Accepted.

5.17 LSI 17: (Technical)

Page 65 / PDF 81 Section 12.3.4 Cmt Name: Paragraph needs expanding / clarification The second paragraph from the top of the is explaining the case where the REC data is ambiguous. However it fails to mention a lost XFER_RDY as one of the cases. Here is what I believe this paragraph should cover: The REC ACC data shows the following information for more than one error case. SI at initiator, 0 or more data transferred, exchange still open. The cases are: - Lost XFER_RDY - Lost FCP_RSP with FCP_CONF requested - Lost FCP_CONF The initiator can differentiate the last two based on local data. However, the intent of the paragraph is to say the initiator can't tell the difference between the first two (for a data-out type command), so it assumes the lost XFER_RDY case and lets the target determine the proper action.

Response:

Accepted in principle. See 3.18. The committee approved this response in the meeting of April 5, 2000. Some work remains in preparing appropriate wording.

5.18 LSI 18: (Editorial)

Page 66 / PDF 82 Section 12.3.7 12.3.9 Cmt Name: Need new section Sections 12.3.7 and 12.3.9 both deal with target specific recovery, yet they are in the initiator specific 12.3 section. I'd suggest a new section inserted between the current 12.3 and 12.4 that covers FCP Error Recovery (Target, All classes of service). These two sections would be the contents.

5.19 LSI 19: (Technical)

Page 66 / PDF 82 Section 12.3.7 Cmt Name: Introductory paragraph needed The 4th paragraph jumps into the middle of a scenario. A paragraph is needed that describes the target sending REC to the initiator if it times out waiting on an FCP_CONF.

Response:

Accepted in principle. The committee accepted this response in the meeting of April 5, 2000. The ladder diagrams provided by Carl Zeitler are an important contribution to this comment.

5.20 LSI 20: (Editorial)

Page 68 / PDF 84 Section 12.5.1 Cmt Name: COMMAND CLEARED not approved yet Although I greatly appreciate the confidence the editor has shown in my proposal to the T10 committee concerning the addition of a COMMAND CLEARED status to SAM, it is not yet approved. As such, words similar to the notes in section 9.1.1.4 would be more appropriate.

5.21 LSI 21: (Technical)

Page 68 / PDF 84 Section 12.5.2 b) Cmt Name: BA_RJT case stated incorrectly A target must BA_ACC an ABTS if the RX_ID is FFFFh. Item b) does not state this. I'd suggest the following words (new words marked by *). b) the SCSI Target shall return BA_RJT with Last Sequence of Exchange bit set to one if the received ABTS contains *an assigned RX_ID and* a FQXID that is unknown to the SCSI target.

Response:

Accepted. This response was approved in the April 5, 2000 meeting.

5.22 LSI 22: (Technical)

Page 68 / PDF 84 Section 12.6 Cmt Name: Section too specific I believe the details of second level error recovery do not pose any interoperability problems and should be left to implementers, not spelled out in a standard. I don't want LSI adapters to fail compliance tests if, for example, we choose to use Abort Task Set or Target Reset as part of second- level error recovery instead of the prescribed algorithm. It would be acceptable to leave the current words if the 'shall's were turned into 'may's.

Response:

Accepted in principle. See 1.47. This response was approved in the April 5, 2000 meeting.

5.23 LSI 23: (Technical)

Page 69 / PDF 85 Section 12.7, 1st paragraph Cmt Name: Need to add PRLI case. The case described in the first paragraph applies equally to PRLI as it does FCP_CMND. Either 'or PRLI' could be inserted after both occurrences of FCP_CMND in the present paragraph, or another paragraph could be added to the section.

Response:

Accepted in principle. See 1.48. This response was accepted in the April 5, 2000 meeting.

5.24 LSI 24: (Editorial)

Page 69 / PDF 85 Section 12.7, last paragraph Cmt Name: Can't have 'TBD'. Obviously a standard can not be forwarded with a 'TBD'.

5.25 LSI 25: (Technical)

Page 92-102 / PDF 108- Section Annex D Cmt Name: Misuse of Timeout symbol In many of the diagrams (e.g. D.4, D.7, D.8, etc.) the Timer symbol is used to indicate a cause and effect. For example in figure D.9, the Timer symbol shows that the REC is sent as a result of detecting a missing frame. While this information is useful, it is very confusing to use the same symbol as the Timer symbol. I'd suggest adding a new symbol the drawing conventions (Table D.1) and separate timeout from cause and effect. (The same symbol, only dotted would work nicely.)

Response:

Accepted. This response was approved in the April 5, 2000 meeting.

5.26 LSI 26: (Technical)

Page 95-96 / PDF 111-112 Figures D.7, D.8 Cmt Name: Target shall not adjust RO from SRR The text in both figures D.7 and D.8 incorrectly state that the target may adjust the RO to be smaller that what is requested in SRR. These sentences should be removed.

Response:

Accepted. This response was approved in the April 5, 2000 meeting.

5.27 LSI 27: (Technical)

Page 109-110 / PDF 125-126 Section Annex F Cmt Name: Device Identification Page references Three places in this annex (F.1.1 8., F1.2 4., and F.3) the "logical unit WWN" value

returned in the Inquiry VPD page 83h is referred to as having a WW Port Name component. For the purpose of tracking a Logical Unit, one should only use Identifiers that have an Association field value of 00b. By definition, that identifier will not have a WWPN component. Also, while it is true that some devices may use their FC WWNN (node name) for the LU Identifier, it is not required. Thus any reference to "node name", "port name", (including WWNN and WWPN) should not be used. I'd suggest a generic 'Logical Unit WWN'. (Note: some devices use the Registered, Extended format which is 16 bytes long.)

Response:

Accepted in principle. This response was approved in the April 5, 2000 meeting.

6 Comments from Seagate Technology

The following comments accompanied the ballot response from Seagate Technology, prepared by Gene Milligan. Note that some of these have been renumbered from Seagate's original numbering.

6.1: Seagate Page 8 (Editiorial)

Note 1; Label: Gene Milligan; Date: 1/12/0 9:36:40 PM 1) There should not be two table ones.

6.2: Seagate Page 10 (Editiorial)

Note 1; Label: Gene Milligan; Date: 1/12/0 9:40:27 PM 2) In the table of contents Table F.1 is missing a title.

6.3: Seagate Page 13 (Editiorial)

Note 1; Label: Gene Milligan; Date: 1/12/0 9:43:47 PM 3) FCP-2 is not X3.269.

6.4: Seagate Page 14 (Editiorial)

Note 1; Label: Gene Milligan; Date: 1/12/0 9:52:28 PM 4) Update the introduction to delete 133 Mbps and the normative references to call out a viable PH.

6.5: Seagate Page 14 (Editiorial)

Note 2; Label: Gene Milligan; Date: 1/12/0 9:57:06 PM 5) In the text of the standard please delete revision designations.

6.6: Seagate Page 15 (Editiorial)

Note 1; Label: Gene Milligan; Date: 1/12/0 10:05:39 PM 4) Portions of FCP-2 that are written as if this is a revision of FCP should be re-written (e.g., delete discussion of where material that was in FCP is now. Replace second revision with -2 or version two globally.

6.7: Seagate Page 15 (Editiorial)

Note 2; Label: Gene Milligan; Date: 1/20/0 2:29:24 AM 7) Replace "document" with "standard" and "documents" with "standards" globally.

6.8: Seagate Page 17 (Editiorial)

Note 1; Label: Gene Milligan; Date: 1/20/0 2:29:32 AM 8) Either delete "FC-4" or add a reference to its definition.

6.9: Seagate Page 17 (Editiorial)

Note 2; Label: Gene Milligan; Date: 1/20/0 2:29:42 AM 9) In scope and if elsewhere delete "approved" in the text when referring to items in FCP-2.

6.10: Seagate Page 17 (Editiorial)

Note 3; Label: Gene Milligan; Date: 1/20/0 2:29:48 AM 10) In Normative References replace "text" with "standard".

6.11: Seagate Page 17 (Editiorial)

Note 4; Label: Gene Milligan; Date: 1/20/0 2:39:00 AM 11) Should FC-PH-3 be called out as a normative reference? References under development needs to be updated. FC-AL-2 should not be called out as a reference in FC-AL-2. X3T10 is NCITS T10 although it may not be correctly used depending upon the update (e.g., T10 did not develop FC-PH-3.

Why would FC-AL-3 be a reference for FC-AL-2? Why is FC-TAPE a reference?

6.12: Seagate Page 18 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/20/0 2:43:34 AM 12) <<Definitions, conventions, abbreviations, acronyms and symbols applicable to this standard are provided, unless they are identical to that described in any referenced standard, in which case they are included by reference. Some definitions from the glossary or body of other standards are included here for easy reference.>> The second sentence contradicts the first. Suggest using SPC-2 as a reference for this introduction.

6.13: Seagate Page 18 (Editorial)

Note 2; Label: Gene Milligan; Date: 1/20/0 4:23:07 PM 13) Some definitions site a standard's acronym and some the number. They should be consistent and the style guides indicate that it should be name and number along with the publication year.

6.14: Seagate Page 18 (Editorial)

Note 3; Label: Gene Milligan; Date: 1/20/0 4:28:38 PM 14) <<base address: The address of the lowest address byte to be transferred to or from an application client buffer.>> should be "base address: The address of the lowest addressable byte that may be transferred to or from an application client buffer." or "base address: The address of the first addressable byte that may be transferred to or from an application client's buffer."

6.15: Seagate Page 18 (Technical)

Note 4; Label: Gene Milligan; Date: 1/20/0 4:44:00 PM 15) Are the FC-AL-3 definitions stable enough to include in FCP-2? Why does CMR have to be dedicated to an MCM circuit as opposed to shared? The BMCM pdf is missing probable underscores.

Response:

MCM and all related functions are now deleted from FC-AL-3, and therefore from FCP-2. This response was approved in the April 5, 2000 meeting.

6.16: Seagate Page 19 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/21/0 3:59:45 PM 16) Shouldn't the data overlay definition should be for overlapping addresses not exact offsets?

6.17: Seagate Page 19 (Editorial)

Note 2; Label: Gene Milligan; Date: 1/21/0 4:03:04 PM 17) Globally check for "which" to see which ones should be replaced with "that".

6.18: Seagate Page 19 (Editorial)

Note 3; Label: Gene Milligan; Date: 1/22/0 2:54:32 PM 18) Replace the references to FC-AL with references to FC-AL-2.

6.19: Seagate Page 20 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/22/0 2:54:51 PM 19) Change <<The initiator-specified component>> to "An initiator-specified component". There are other components specified by the initiator.

6.20: Seagate Page 20 (Editorial)

Note 2; Label: Gene Milligan; Date: 1/22/0 3:01:46 PM 20) Change <<[ANSI 1304-D]>> to "[NCITS 1304-D]" globally. Globally change <<this document>> to "this standard".

6.21: Seagate Page 20 (Editorial)

Note 3; Label: Gene Milligan; Date: 1/22/0 2:56:51 PM 21) The definition of FC-PH conflicts with that of the FC-PH standard.

6.22: Seagate Page 21 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/22/0 3:00:43 PM 22) Should the dash in <<loop initialization fabric assigned - loop initialization sequence>> be "of a"? Otherwise it seems to indicate LIFA means either. Same comment for LIHA, LIPA, and LISA.

6.23: Seagate Page 21 (Editorial)

Note 2; Label: Gene Milligan; Date: 1/22/0 3:06:06 PM 23) Change <<Small Computer System Interface. Either SCSI-2 or SCSI-3.>> to "Small Computer System Interface. Either SCSI-2 or a newer SCSI standard"

6.24: Seagate Page 21 (Editorial)

Note 3; Label: Gene Milligan; Date: 1/22/0 3:18:09 PM 24) In may and may not replace <<indicated>> with "indicates". In optional change <<this standards>> to "this standard". In reserve replace <<as error>> with "as an error".

6.25: Seagate Page 21 (Editorial)

Note 4; Label: Gene Milligan; Date: 1/22/0 3:14:40 PM 25) What guidance is used to choose the label <<ignored>>, <<obsolete>>, or <<reserved>>. Two are clear in other standards but <<ignored>> causes confusion in the meanings.

6.26: Seagate Page 22 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/22/0 3:19:46 PM 26) In shall delete <<If such a rule is not followed, the results are unpredictable.>>

6.27: Seagate Page 22 (Editorial)

Note 2; Label: Gene Milligan; Date: 1/22/0 3:24:25 PM 27) Change <<These words and terms are defined either in or in the text where they first appear.>> to "These words and terms are defined either in the glossary or in the text where they first appear." This is the wording found in SAM-2, since the glossary is titled Definitions perhaps we could have chosen a better word (i.e., Definitions).

6.28: Seagate Page 22 (Editorial)

Note 3; Label: Gene Milligan; Date: 1/22/0 3:28:12 PM 28) <<The names of fields are in small uppercase (e.g., ALLOCATION LENGTH). When a field name is a concatenation of acronyms, uppercase letter may be used for readability (e.g., NORMACA).>> is not the convention followed by other SCSI standards. The SCSI convention, followed by most but not all editors is for field names to use small uppercase. For concatenation the only convention I have noticed is underscores.

6.29: Seagate Page 22 (Editorial)

Note 4; Label: Gene Milligan; Date: 1/22/0 3:32:31 PM 29) I think <<Lists sequenced by letters (e.g., a-red, b-blue, c-green) show no priority relationship between the listed items. Numbered lists (e.g., 1-red, 2-blue, 3-green) show a priority ordering between the listed items.>> should be "Lists sequenced by letters (e.g., a-red, b-blue, c-green) show no sequential preference between the listed items. Numbered lists (e.g., 1-red, 2-blue, 3-green) show a sequential ordering between the listed items.

6.30: Seagate Page 23 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/22/0 3:40:31 PM 30) Change <<The detailed implementation that supports that stream is not defined, although originator and responder FCP_Ports are assumed to have a common service interface for use by all FC-4s that is similar in characteristics to the service interface defined in annex S of ANSI X3.230.>> to "The detailed implementation that supports the stream is not defined, although originator and

responder FCP_Ports are assumed to have a common service interface, for use by all FC-4s, that is similar in characteristics to the service interface defined in annex S of ANSI X3.230." and collect a long sentence prize.

6.31: Seagate Page 23 (Editorial)

Note 2; Label: Gene Milligan; Date: 1/22/0 3:43:47 PM 31) Regarding <<The SCSI Common Access Method [CAM] is one example of a service interface that fulfills the requirements specified in SAM and SAM-2.>> it has been reported that CAM is SCSI-2 compliant but not SAM compliant and thus the CAM-3 project.

6.32: Seagate Page 23 (Editorial)

Note 3; Label: Gene Milligan; Date: 1/24/0 2:10:24 PM 32) In Table 1 Acknowledge Command Complete is not actually a SCSI function is it? Perhaps the column title should be Function or the item should perhaps just be ACK(REQ).

[Note problems 33-34 not defined in PDF file]

6.33: Seagate Page 24 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/27/0 2:46:06 AM 35) Change <<until all data described by the SCSI command is transferred.>> to "until all data describing the SCSI command is transferred."

6.34: Seagate Page 24 (Technical)

Note 2; Label: Gene Milligan; Date: 1/27/0 2:49:17 AM 36) How does <<The transmission of the initial FCP_XFER_RDY IU may be disabled for those systems having other mechanisms for controlling the data transfer.>> relate to the FCP-2 standard?

Response:

This idea is necessary to indicate that burst management must be performed according to the mode select page or other conventions to prevent overflows. However, it might be possible to make the sentence a bit clearer.

After further discussion, the committee chose, in its April 5, 2000 meeting, to remove the tutorial warning on the grounds that the problem should be obvious to the casual observer. The proposal is accepted.

6.35: Seagate Page 24 (Editorial)

Note 3; Label: Gene Milligan; Date: 1/27/0 2:50:46 AM 37) <<Note: FCP_XFER_RDY on read operations is made obsolete in FCP-2.>> Where?

Response:

A forward reference to the IU where it has been removed is desirable here.

6.36: Seagate Page 24 (Editorial)

Note 4; Label: Gene Milligan; Date: 1/27/0 2:54:11 AM 38) <<if an unusual condition has been detected,>> What is an unusual condition? Is an error being referred to?

6.37: Seagate Page 25 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/27/0 3:01:40 AM 38) Globally search on "will" & must and replace with shall or should as appropriate.

6.38: Seagate Page 25 (Editorial)

Note 2; Label: Gene Milligan; Date: 1/27/0 3:04:41 AM 39) What does <<SCSI allows the initiator function in any FCP_Port and the target function in any FCP_Port.>> mean?

6.39: Seagate Page 25 (Editorial)

Note 3; Label: Gene Milligan; Date: 1/27/0 3:11:35 AM 39) <<For those special cases>> It is in the eye of the beholder what is special.

6.40: Seagate Page 25 (Editorial)

Note 4; Label: Gene Milligan; Date: 1/29/0 2:34:26 PM 40) Delete <<In many cases, SCSI communications between an application client and a device server are stateless. In such applications, verification of the delivery and execution of SCSI commands is often not critical. Any changes in execution sequence caused by link failures or switch latencies are not important and the recovery and retry mechanisms can be executed while other activities are continued by the application client and the device server.>> Search globally on <<can>> and replace with some form of "may".

6.41: Seagate Page 25 (Editorial)

Note 5; Label: Gene Milligan; Date: 1/29/0 2:39:30 PM 41) Change <<For those special cases where checking for the precise delivery of SCSI commands is necessary for the proper operation and error recovery of a device server, FCP-2 defines an additional optional function called precise delivery.>> to "FCP-2 defines an optional function called precise delivery."

6.42: Seagate Page 25 (Editorial)

Note 6; Label: Gene Milligan; Date: 1/29/0 2:41:23 PM Null label.

6.43: Seagate Page 25 (Editorial)

Note 7; Label: Gene Milligan; Date: 1/29/0 3:28:58 PM 42) <<in the CRN field for each command that is transmitted that also requires precise delivery. The integer begins with a value of one after any Target Reset, LUN Reset, or Fibre Channel Login or Process Login occurs. After the number of precisely delivered commands causes the integer to increment to 255, the integer will wrap back to a value of one.>> Delete "also". Globally search the normative clauses to replace <<will>> with "shall".

6.44: Seagate Page 26 (Technical)

Note 1; Label: Gene Milligan; Date: 1/29/0 3:35:55 PM 43) Rule 5 of precise delivery either makes some special unstated assumption as to what a queue is or fails to precisely define the outcome of the command (e.g., aborted) and in 7 zero is not reserved it has the meaning of not precise delivery. Delete reserved.

Response:

Accepted.This response was approved in the April 5, 2000 meeting.

6.45: Seagate Page 26 (Technical)

Note 2; Label: Gene Milligan; Date: 1/29/0 3:39:22 PM 44) <<Any command, including such initialization commands as INQUIRY, TEST UNIT READY, and MODE SENSE/SELECT may always use a CRN of zero if the state of the EPDC bit is not known or if precise delivery is not required for that command.>> Delete <<always>> and <<the state of the EPDC bit is not known or if>>. Regardless the result is not precise delivery.

Response:

Accepted.This response was approved in the April 5, 2000 meeting.

6.46: Seagate Page 26 (Technical)

Note 3; Label: Gene Milligan; Date: 1/29/0 3:41:35 PM 45) <<PRLI parameters are used to determine that confirmed completion is allowed>> Is it <<allowed>> or is it "used"?

Response:

Accepted in principle. See 1.12. This response was approved in the April 5, 2000 meeting.

6.47: Seagate Page 27 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/29/0 3:50:09 PM 46) Change <<Some devices have complex or low-performance recovery algorithms that must be performed if data is lost or damaged in the transmission process. Such devices may find it useful to implement the error

detection and data retransmission algorithms defined by clause 12.>> to " Data retransmission algorithms are defined in clause 12."

Response:

I believe it is necessary to indicate “why bother”. That is the intent of these sentences. No change is made.

After further discussion, the committee elected to accept this comment in principle in the meeting of April 5, 2000. The text will be rewritten to simply reflect the behavior of the devices without providing the editorial.

6.48: Seagate Page 28 (Technical)

Note 1; Label: Gene Milligan; Date: 1/29/0 3:55:49 PM 47) In Table 3 CLEAR ACA should be Optional but retaining the present note.

Response:

Accepted. This response was approved in the April 5, 2000 meeting.

6.49: Seagate Page 30 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/29/0 3:59:42 PM 48) Why do 1b and 0b have apostrophe marks?

6.50: Seagate Page 30 (Editorial)

Note 2; Label: Gene Milligan; Date: 1/29/0 4:04:20 PM 49) In note 12 delete <<proper>>.

6.51: Seagate Page 30 (Technical)

Note 3; Label: Gene Milligan; Date: 1/29/0 4:04:53 PM 50) What does it mean to discard a mode page?

Response:

The intent of this text is to indicate that the mode pages, together with all other SCSI functions, are not accessible. The state of the mode pages is indeterminant. The text will be modified to read: “SCSI functions not accessible.”

After further discussion, the committee chose to indicate that the behavior under these conditions is “not specified”. This approach was approved in the April 5, 2000 meeting.

6.52: Seagate Page 32 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/29/0 4:10:10 PM 51) In Table 6 it is not clear whether the blank is optional or not allowed.

6.53: Seagate Page 35 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/29/0 9:56:37 PM 52) <<The FCP needs only the standard FC-2 services as described in informative annex S of ANSI X3.230.>> What was the expectation of referencing an informative annex?

6.54: Seagate Page 37 (Technical)

Note 1; Label: Gene Milligan; Date: 1/30/0 11:52:11 AM 53) <<Since the value of the OX_ID is required by FC-PH to be unique, there is no requirement for an FCP logical unit to check for overlapping commands.>>

Is this correct? In SPI tags are required to be unique but I don’t think there is a caveat that they therefore do not need to be checked.

Response:

Accepted in principle. See 1.39. The committee chose in the April 5, 2000 meeting to simply remove the offending sentence.

6.55: Seagate Page 37 (Editorial)

Note 2; Label: Gene Milligan; Date: 1/30/0 11:57:48 AM 54) Change <<SCSI-3 application client buffer offset>> to "application client's buffer offset".

6.56: Seagate Page 38 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/30/0 12:06:06 PM 55) Why is << 20 hexadecimal>> not 20h as in the conventions? Global question regarding values not following the stated convention.

6.57: Seagate Page 39 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/30/0 12:16:12 PM 56) I seems inappropriate to require elements outside the scope of the standard. Change <<Use of this mechanism requires that the originator have precise and detailed knowledge of the requirements and capabilities of each image in the responder. That information may be obtained by mechanisms outside the scope of the FCP or may be obtained by performing a PRLI requesting informative communication.>> to "Use of this mechanism assumes that the originator have precise and detailed knowledge of the requirements and capabilities of each image in the responder. That information may be obtained by mechanisms outside the scope of the FCP or may be obtained by performing a PRLI requesting informative communication."

6.58: Seagate Page 40 (Technical)

Note 1; Label: Gene Milligan; Date: 1/30/0 12:26:20 PM 57) <<Immediately after the execution of the first PRLI, both members of all image pairs shall have the same state as they would have after a hard reset or a power on with respect to each other. No tasks, reservations or status shall be present in either SCSI device.>>

Does this outlaw Persistent Reservations across power cycles?

Response:

It is certainly not intended to prohibit Persistent Reservations across power cycles. The text will be clarified to distinguish persistent reservations as a special case. This response was approved in the April 5, 2000 meeting.

6.59: Seagate Page 41 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/30/0 12:34:46 PM 58) Is it correct that the last obsolete in Table 11 is supposed to be set to a decimal one? According to the conventions that would be the case.

6.60: Seagate Page 42 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/30/0 12:41:54 PM 59) <<the target shall not turn on the FCP_CONF_REQ bit.>> Does this mean enable it or does this mean set it to one?

Reponse:

This means set to one. The text will be corrected.

6.61: Seagate Page 43 (Technical)

Note 1; Label: Gene Milligan; Date: 1/30/0 12:46:37 PM 60) << A responder receiving such an invalid page shall notify the originator with a PRLI ACCEPT RESPONSE CODE of 1000b(Invalid service parameters for page) indication.>>

Is this the case if implicit login is in effect?

Response:

If implicit login is in effect, explicit logins are still permitted and may be invalid. No change to the document is required.

6.62: Seagate Page 45 (Technical)

Note 1; Label: Gene Milligan; Date: 1/31/0 3:59:52 PM 61) <<No further FCP communication is possible between those two N_Ports.>>

This implies a requirement. Where is the requirement stated or should this be not allowed rather than not possible?

Response:

This is not a requirement. It is a characteristic of devices that are not logged in and have no implicit PRLI capability. The text will be modified to clarify that communication between ports that have logged out depends on implicit login parameters or is outside the standard and may not be accepted.

6.63: Seagate Page 45 (Technical)

Note 2; Label: Gene Milligan; Date: 1/31/0 4:02:10 PM 62) <<It is not an error to perform a PRLO for an image pair that is not known to the responder.>>

If not known, is it valid?

[note 2 number 62 comments]

Response:

An otherwise validly formatted PRLO with an image pair which does not exist is accepted without error and no action is performed. This kind of thing may happen if more than one application is empowered with image pair management. Note that this becomes mostly harmless when Process Associators are removed, since there can only be one image pair between two ports.

6.64: Seagate Page 46 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/31/0 4:13:20 PM 62) <<The Name Server for a fabric is defined by NCITS Project 1356-D, FC-GS-3.>> Call out the standard not the project. This needs to be a global change by searching on project.

6.65: Seagate Page 46 (Editorial)

63) Table 13 needs to have the lettering centered vertically in the rows. This is also the case in several other tables but not all.

6.66: Seagate Page 47 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/31/0 4:24:13 PM 63) <<In the event that the Target cannot accept the SRR request, the Target shall present a check condition as if it had responded to an Initiator Detected Error with a Restore Pointers message (i.e., Sense Key = 4h, ASC/ASQ = 48h/00h).>>

Why not "In the event that the Target cannot accept the SRR request, the Target shall present a check condition with Sense Key = 4h, ASC/ASQ = 48h/00h?"

6.67: Seagate Page 48 (Editorial)

Note 1; Label: Gene Milligan; Date: 1/31/0 4:29:53 PM 64) Under Table 16 it is not clear where the i.e., ends nor what it applies to. Parenthesis would solve where it ends but what does it apply to - Table 29? Also "and" is missing before 29.

6.68: Seagate Page 54 (Technical)

Note 1; Label: Gene Milligan; Date: 1/31/0 9:03:03 PM 65) <<The initiator and target clear all resources that can be cleared unambiguously.>>

This appears to be something that should be stated as a requirement. What is the requirement?

Response:

The requirement is that any resource that does not meet the specified definition of “ambiguous” is cleared. Those that do meet the specified definition must also be cleared with a Recovery Abort. However, those that do not meet the specified definition of “ambiguous” may optionally be cleared with a Recovery Abort.

6.69: Seagate Page 55 (Technical)

Note 1; Label: Gene Milligan; Date: 1/31/0 9:07:56 PM 66) <<The ports may issue additional recovery abort operations if they are unable to determine in a simple manner whether the state of an FCP I/O operation is ambiguous.>>

Simple is in the eye of the beholder. Is there a more specific requirement?

Response:

There is no specific requirement. The words “in a simple manner” will be deleted.

6.70: Seagate Page 55 (Technical)

Note 2; Label: Gene Milligan; Date: 2/1/0 8:38:43 AM 67) <<For a target FCP_Port, an exchange is also in an ambiguous state if the exchange exists between the target FCP_Port and an initiator other than the initiator FCP_Port that performed the TARGET RESET.>>

This seems strange or is missing context. The implication is that all initiators, to avoid ambiguous state, must issue a TARGET RESET to all targets and perhaps all LUNs. The correction may be as simple as changing the statement to "After a TARGET RESET for a target FCP_Port, an exchange is also in an ambiguous state if the exchange exists between the target FCP_Port and an initiator other than the initiator FCP_Port that performed the TARGET RESET." But it seems beyond the scope of the standard as to whether the exchange is in an ambiguous state since the behavior from a TARGET RESET is well documented in SCSI standards. It appears that FCP-2 is providing excessive overlapped requirements to SAM and the command standards.

Response:

In Fibre Channel, there is an additional requirement. You can’t just drop exchanges on the floor without any other action, since those that are ambiguous may still have resources that will be locked up uselessly for an extended period of time. As a result, the additional requirement of executing a Recovery Abort function to clear out the resources associated with destroyed tasks is necessary.

6.71: Seagate Page 55 (Editorial)

Note 3; Label: Gene Milligan; Date: 2/1/0 8:41:20 AM 68) In item (4) delete "similar".

6.72: Seagate Page 55 (Editorial)

Note 4; Label: Gene Milligan; Date: 2/1/0 8:47:52 AM 69) What is a recovery abort? Reading further this might be resolved by a forward reference but the terminology seems vulnerable for being mistaken with normal SCSI terminology.

6.73: Seagate Page 55 (Editorial)

Note 5; Label: Gene Milligan; Date: 2/1/0 9:03:53 AM 70) The last defining paragraph for the ambiguous state appears to be redundant although ambiguous state still seems ambiguous and I assume could be made less ambiguous. The note is also redundant. The redundancy stems from the organization of reset between TARGET RESET and LOGICAL UNIT RESET text. Perhaps the redundancy is appropriate or perhaps there should be a generic reset definition hooked to the specific differences.

6.74: Seagate Page 55 (Technical)

Note 6; Label: Gene Milligan; Date: 2/1/0 9:26:41 AM 71) <<The initiator and target clear any resources that can be cleared unambiguously.>> This seems to be a conflict with SAM and the command sets. CLEAR TASK set should clear the task set not selectively clear tasks. This comment also applies to ABORT TASK SET.

Response:

The behavior with respect to the Fibre Channel resources is not specified by SAM. The intent is that the SCSI stuff works in a SAM-like manner, but that any additional functions to clear up FC resources must also be specified. See 6.68.

6.75: Seagate Page 56 (Technical)

Note 1; Label: Gene Milligan; Date: 2/1/0 9:31:06 AM 72) How should Read Data and Write Data be set for complex commands such as Write and Verify, third party copy, and some XOR commands?

Response:

For each command, no command does both a read-direction data transfer and a write-direction data transfer. A command may cause other uni-directional commands to be executed on its behalf, but those have a separate command context. No change is required.

6.76: Seagate Page 56 (Technical)

Note 2; Label: Gene Milligan; Date: 2/1/0 9:41:09 AM 73) <<The Flag bit previously defined by SAM in the control byte of the CDB is obsolete and shall be set to zero.>>

The definition of obsolete allows implementation according to a prior standard. I think this should be changed to "The Flag bit previously defined by SAM in the control byte of the CDB is obsolete." or to "The Flag bit shall be set to zero."

Response:

After extended discussion, the committee accepted, in its April 5, 2000 meeting, the wording: “The Flag bit shall be set to zero.”

6.77: Seagate Page 57 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 10:29:49 AM 74) <<The FCP_Port wanting to terminate the exchange generates an ABTS sequence.>> Replace <<wanting to>> with "may">

6.78: Seagate Page 57 (Technical)

Note 2; Label: Gene Milligan; Date: 2/1/0 10:35:26 AM 75) <<A Recovery_Qualifier is established if necessary to discard any pending frames for the exchange and to prevent the reuse of the OX_ID and RX_ID for at least R_A_TOV. The BA_ACC shall request that the Recovery_Qualifier cause all frames for all sequences of the exchange to be discarded by setting SEQ_CNT_LO to 0 and SEQ_CNT_HI to FFFF h.>>

Discard is not a defined SCSI process. Should this be cleared or aborted, or should discard have a defined SCSI process? Also the space in <<FFFF h>> needs to be discarded globally.

Response:

This is a description of FC-2 level behavior necessary to properly implement FCP behavior. A glossary entry will be provided for the word “discard”.

6.79: Seagate Page 59 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 10:49:20 AM 76) Change <<the FC_RSP IU shall contain the FCP_RESID_UNDER bit.>> to "the FC_RSP IU shall contain the FCP_RESID_UNDER bit set to one."

6.80: Seagate Page 59 (Editorial)

Note 2; Label: Gene Milligan; Date: 2/1/0 10:54:36 AM 77) <<by setting the FCP_RESID_OVER bit in the FC_RSP IU.>> Is the setting convention firm enough or should this be "by setting the FCP_RESID_OVER bit in the FC_RSP IU to one."?

6.81: Seagate Page 59 (Technical)

Note 3; Label: Gene Milligan; Date: 2/1/0 11:02:59 AM 78) <<transfer has been terminated, all data between the offset of 0 and the highest offset shall have been transferred. The target shall not request that sets of data in the middle of a transfer not be transferred. If error conditions

occur that prevent the transfer of a set of data in the middle of a data transfer, the FCP_SNS_INFO shall indicate that only data from the offset of 0 to the highest offset before the untransferred data space has been transferred.>>

Does this language allow certain applications (e.g., video) to transfer erroneous data?

Response:

Applications are allowed to accept and transmit erroneous data by these statements. However, the target cannot choose to skip any data. Furthermore, it can only invoke the retry capabilities if the various time-out and recovery procedures will not excessively disturb the data transfer rate. No change is required.

6.82: Seagate Page 61 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 11:21:46 AM 79) In table 26 bits 5-7 should be reserved in Byte 10. The style of reserved should be standardized.

Two styles are used in table 26.

6.83: Seagate Page 67 (Technical)

Note 1; Label: Gene Milligan; Date: 2/1/0 12:17:45 PM 80) <<An interconnect tenancy is a period of time during which a target device owns or may access the interconnect. For example, on FC-AL loops or Fibre Channel Class 1 connections, a tenancy typically begins when a device successfully opens the connection and ends when the device releases the connection for use by other device pairs.>> The discussion in this subclause does not include how it relates to the disconnect-reconnect page.

Response:

The comment is correct. The paragraph in question defines interconnect tenancy so that the term can be used in several paragraphs in the clause. The definition will be moved to the glossary. Note that the definition is longer than most glossary definitions are.

6.84: Seagate Page 68 (Technical)

Note 1; Label: Gene Milligan; Date: 2/1/0 12:29:51 PM 81) <<The CONNECT TIME LIMIT is not applicable for devices attached to links that do not have the concept of link tenancy.>>

How does the SCSI device know if they have the concept? Wouldn't it be easier to have a value indicate that.

Response:

This is known through the Fibre Channel link characteristics outside the SAM definitions. The individual device can determine from these characteristics whether or not to ignore these parameters.

After considerable discussion, it was decided at the April 5, 2000 meeting to indicate that the paragraph only applies to FC-AL, Class 1, or Class 6 attachments. After further consideration, I believe that that change makes the text too closed to future changes in FC-2 layers. I propose that the text be slightly reworded to make use of the definition proposed in 6.83 instead of specifying particular link types.

6.85: Seagate Page 68 (Technical)

Note 2; Label: Gene Milligan; Date: 2/1/0 2:48:20 PM 82) <<The ENABLE MODIFY DATA POINTERS (EMDP) bit indicates whether or not the target may reorder>>

Reorder seems a little strong. I think this should be "The ENABLE MODIFY DATA POINTERS (EMDP) bit indicates whether or not the device server may begin the data transfer at a logical block offset within the requested logical blocks to reduce latency".

Response:

SCSI does not provide any limits on reordering once the EMDP bit is set to one. No change is required.

After further consideration at the April 5, 2000 meeting, the committee chose to accept the comment in principle. However, there is no requirement that devices choose to begin their transfers on logical block boundaries, so wording considering the RO of the first frame of a sequence is probably more appropriate.

6.86: Seagate Page 68 (Technical)

Note 3; Label: Gene Milligan; Date: 2/1/0 2:52:56 PM 83) <<If the EMDP bit is one, the target may transfer the FCP_DATA IUs for a single SCSI command in any order.>> Is it necessary to have this be more than one sequential stream beginning at an offset and wrapping? Is this needed for a scatter gather function?

Response:

SCSI does not provide any limits on reordering once the EMDP bit is set to one. No change is required.

After further consideration at the April 5, 2000 meeting, the committee chose to accept the comment in principle. However, I believe the text is correct as is. In answer to the questions raised by the comment, it is not necessary to restrict the order of streams or the wrapping of streams in the architecture. The FC architected limit is one sequence per exchange at any given instant, and therefore one stream for a particular I/O Operation. The ordering is managed by the target, so memory scatter/gather at the initiator is not part of the function.

6.87: Seagate Page 69 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 2:58:27 PM 85) The fairness bits should have their names changed to FAA, FAB, and FAC. I am embarrassed to explain why.

Response:

These should be defined as they are in other standards, particularly SPC-2. SPC-2 now defines a Fair Arbitration field. FCP-2 will change the definition to the same format and specify the allowed values in a table. This solution was approved in the April 5, 2000 meeting.

6.88: Seagate Page 70 (Technical)

Note 1; Label: Gene Milligan; Date: 2/1/0 3:10:23 PM 86) <<If the precise delivery function is not supported by the target, the EPDC bit shall be masked as not changeable and shall follow the MODE SENSE/MODE SELECT rules specified by SPC-2.>>

Why not just not support the page at all if the function is not supported?

Response:

The lack of support of this page will be used to explicitly indicate that precise delivery is not supported. The change is accepted. This was approved in the April 5, 2000 meeting.

6.89: Seagate Page 71 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 3:20:18 PM 87) <<DISABLE TARGET ORIGINATED LOOP INITIALIZATION (DTOLI)>>

The first portion of the clause is in terms of FC-AL and the last portion in terms of FC-AL-2. Was that intended? If so how does the SCSI device determine which it is attached to? If half of the SCSI devices claim compliance to FC-AL and half FC-AL-2 which type of loop is it?

6.90: Seagate Page 76 (Technical)

Note 1; Label: Gene Milligan; Date: 2/1/0 4:15:49 PM 88) <<NOTE Using a value of 0 for this time out value assumes that a Sequence Initiator does not transmit any Frames for a Sequence after an ABTS is sent for that Sequence. If a design uses a queuing mechanism for

the transmission of Se-quences, the queue for a given Sequence shall be empty before an ABTS for that Sequence can be sent, or the act of sending the ABTS purges the queue.>>

The requirement needs to be moved out of the note and into the text or changed to informative rather than a requirement.

Response:

The requirement will be moved into the text. This resolution was accepted in the April 5, 2000 meeting.

6.91: Seagate Page 76 (Editorial)

Note 2; Label: Gene Milligan; Date: 2/1/0 4:19:37 PM 89) Change <<NOTE SCSI Targets are required to implement R_A_TOV ELS in order to time the expected response to a LOGO or PRLO Extended Link Service.>> to "NOTE R_A_TOV ELS is used to time the expected response to a LOGO or PRLO Extended Link Service."

6.92: Seagate Page 78 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 4:49:21 PM 90) <<Initiators communicating with SCSI devices that do not depend on command ordering or maintaining records of internal device state may simply use the mechanisms described in this chapter to detect the presence of errors, then abort the exchange using an ABORT TASK task management function or a recovery abort function.>>

Delete <<simply>>

6.93: Seagate Page 78 (Editorial)

Note 2; Label: Gene Milligan; Date: 2/1/0 4:52:02 PM 91) Globally search on chapter and replace it with section or even better search on chapter and section and replace them with clause.

6.94: Seagate Page 79 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 4:57:10 PM 92) <<The Exchange responder (SCSI Target) shall initiate error detection and recovery described in 12.3 for the following:

1) after expiration of the timeout period REC_TOV and an expected FCP_CONF has not been received.

The Exchange responder (SCSI Target) may also initiate error detection and recovery for the following:

1) for detection of a Sequence error (see 12.3.9).>>

Why use lists only one item long rather than a simple sentence?

6.95: Seagate Page 80 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 5:02:29 PM 93) Perhaps a spell check should be made. Definitely <<interal>> should not pass a spell check.

6.96: Seagate Page 82 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 5:13:25 PM 94) <<NOTE The profiles for many class 3 Targets indicate that the Target shall not attempt recovery for such cases and shall depend on Initiator timeouts for recovery.>>

Delete this note or change it to eliminate the shalls (e.g. use a from of assumes).

6.97: Seagate Page 83 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 5:18:19 PM 95) <<All FCP-2 devices shall support the use of ABTS-Last Sequence of Exchange (ABTS-LS), which uses ABTS to abort the entire Exchange.>>

Delete this sentence or change the introductory portion of Clause 12 that states that all the recovery protocols are optional.

6.98: Seagate Page 83 (Editorial)

Note 2; Label: Gene Milligan; Date: 2/1/0 5:20:06 PM 96) <<This subclause does not define the protocol by which multiple SCSI Initiators communicate or synchronize shared peripherals.>>

I think <<subclause>> should be changed to "standard".

6.99: Seagate Page 83 (Technical)

Note 3; Label: Gene Milligan; Date: 2/1/0 5:35:38 PM 97) <<The ABTS protocol shall be invoked as required by 9.1.1.4 for ambiguous exchanges after certain task management functions have been executed.>>

Which ones are these <<certain ones>>?

Response:

The text will be changed to read “The ABTS protocol shall be invoked after task management functions have been executed as required in 9.1.1.4.”

6.100: Seagate Page 85 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 5:42:09 PM 98) <<For the action taken on any other received Frame, see TBD.>>

Not ready for prime time.

6.101: Seagate Page 87 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 5:44:53 PM 99) <<[Editor s Note: This is new text and may still have some small errors in it. Minor revisions to make it consistent with SAM-2 will probably be installed in the next revision of the document.]>>

Then why did the editor talk the Chairman into a letter ballot? Delete this note.

6.102: Seagate Page 93 (Technical)

Note 1; Label: Gene Milligan; Date: 2/1/0 5:51:12 PM 101) <<The following extended link services will be specified by a future version of FC-PH. Until that time, they will be specified here for use by all FCP-2 devices, including those specified by the FC-TAPE profile.>>

Delete this subclause.

Response:

This entire clause will be deleted. Document T11/00-284v1 (T10/00-230r1) requests that these functions be included in FC-FS.

6.103: Seagate Page 95 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 5:55:23 PM 102) Annex B uses a third style for hex values. One is needed.

6.104: Seagate Page 125 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 6:04:46 PM 103) Since this is an informative annex change <<The Fabric SCSI device discovery procedure shall also apply to a F/ NL_Port that supplies the required Simple Name Server service functionality.>> to "The Fabric SCSI device discovery procedure is useful with a F/ NL_Port that supplies the required Simple Name Server service functionality." Globally change all the instances of <<shall>> in the informative annexes to an informative construction rather than normative.

6.105: Seagate Page 127 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 6:06:16 PM 104) Delete <<required>> globally in the informative annexes.

6.106: Seagate Page 131 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 6:09:51 PM 105) Change <<If a device level error is detected by a SCSI Target while it has Sequence Initiative, the only permissible recovery action

is the transmission of FCP_RSP with CHECK CONDITION status and an appropriate Sense Key/ASC/ ASCQ.>> to "If a device level error is detected by a SCSI Target while it has Sequence Initiative, the recommended recovery action is the transmission of FCP_RSP with CHECK CONDITION status and an appropriate Sense Key/ASC/ ASCQ." Globally search the informative annexes for permissible and be sure the text is constructed as informative not normative.

6.107: Seagate Page 135 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 6:12:23 PM 106) <<Annex J FCP-2 requirements for other standards (normative)>>

Move this annex ahead of the informative annexes.

6.108: Seagate Page 135 (Editorial)

Note 2; Label: Gene Milligan; Date: 2/1/0 6:18:41 PM 107) Change <<The changes outlined in this document effect text presently standardized in FC-PH- 2 which will be corrected in the publication of FC-FS.>> to "This annex documents exceptions to FC-PH-2." In addition T10 should seek formal approval by T11 of changes required by T10 in the T11 standards.

Note 3; Label: Gene Milligan; Date: 2/1/0 6:19:50 PM 108) <<The second to the last paragraph of section 21.12.1 on page 49 is duplicated. This must be installed in FC-FS.>>

Delete this subclause.

6.109: Seagate Page 135 (Editorial)

Note 4; Label: Gene Milligan; Date: 2/1/0 6:21:01 PM 109) <<I believe the wording of Annex A of FCP is better, where it says:>>

Not ready for prime time.

6.110: Seagate Page 135 (Editorial)

Note 5; Label: Gene Milligan; Date: 2/1/0 6:22:09 PM 108) Clean up J.1.3.

6.111: Seagate Page 136 (Editorial)

Note 1; Label: Gene Milligan; Date: 2/1/0 6:24:12 PM 109) <<At present, this is documented in section 6.2.5. It should be documented instead in FC-FS, section 15.10 or 15.11. Section 6.2.5 will be removed when FC-FS has been updated.>>

Delete this statement (subclause) and move it to a T11 tickler file.

6.112: Seagate Page 136 (Editorial)

Note 2; Label: Gene Milligan; Date: 2/1/0 6:25:14 PM 110) Clean up J.2.1.

6.113: Seagate Page 136 (Editorial)

Note 3; Label: Gene Milligan; Date: 2/1/0 6:26:45 PM 111) The table of contents on the last page should be deleted or moved to the table of contents.

6.114: Seagate Page 136 (Editorial)

Note 4; Label: Gene Milligan; Date: 2/1/0 6:32:32 PM 112) The letter ballot review, in my opinion, clearly indicates the draft was not ready for a letter ballot. T10 has in recent years, stimulated by drafts balloted before there time, made a practice in most cases of conducting editorial review session prior to the forwarding practice. I think the Chair should make this a general practice in the absence of evidence that there is a reason it is not needed. In addition I think the Chair should encourage new editors to attend at least some of the editorial review meetings to have more understanding of the styles required for standards. The action item from Brisbane for a T10 style guide may also help with the editor awareness.

7 Additional comments from Seagate

The following additional comments were received from Seagate, ordered separately

7.1: Seagate Comment 001, editorial, whole document (Editorial)

There are a number of references to FC-PHx and FC-FS documents. If FC-FS is an acceptable reference, the references to the FC-PHx documents should all be changed to reference FC-FS.

7.2: Seagate Comment 002, editorial, whole document (Editorial)

Standards are referenced both by number, i.e., X3..., and abbreviation, i.e., SAM-2. An example is page 7, the paragraph above table 1. SAM is referenced as SAM and X3.270.

7.3: Seagate Comment 003, editorial?, pdf page 29, Doc Page 13, Table 4

Is the last row, FCP exchange information, different from the second row, Open FCP Sequences Terminated, or row 6, Open Tasks? Is this Exchange information for REC? This affects the requirements for Clear & Abort Task Set. If this is exchange information for REC, the text for REC should be added.

7.4: Seagate Comment 004, technical, pdf page 32, Doc Page 16, Table 7

The third party address format defined here is new and conflicts with existing implementation.

Suggest adding a format field in byte 0. A zero in the field defines the address format below. The PA_VAL could also be used to select the format instead of defining a new field. If PA_VAL is a one, the format is as the new format as in FCP-2 rev 4, If PA_VAL is zero, the format is as below.

```
Bit        7 6 5 4 3 2 1 0
Byte       0 0 0 0 0 0 0 0
1-4         reserved
5-7         FCP_Port Identifier
```

Response:

What existing implementations have been defined that conflict with this?

In any case, this format is appropriate because process associators have been dropped from FCP-2.

7.5: Seagate Comment 005, technical, clause 6.2, pdf page 38, Doc page 22, last sentence bottom of page 22, first sentence top of page 23.

A PLRI request may also be rejected in the PRLI ACCept with one of the response codes. An LS_RJT is generally only returned to an improperly formatted PRLI.

Response:

Accepted. See 1.21.

7.6: Seagate Comment 006, technical, pdf page 40, Doc Page 24, clause 6.2.5, last paragraph Also, page 120, J.1.5

The behavior of sending an ABTS in response to FCP frames received without a process login is in conflict with PLDA rev 2.1. Clause 9.7 on doc page 34 requires sending a PRLO. FCP-2 should support the PLDA behavior or a method for discovering an FCP-2 environment (i.e., a login bit) needs to be defined.

Response:

Accepted. See 1.48.

7.7: Seagate Comment 007, editorial, pdf page 46, Doc Page 30, clause 7, 7.1, 7.2

FC-GS-3 is referenced as NCITS Project 1356-D, FC-GS-3 and FC-GS-3 Suggest simplifying to just FC-GS-3 in:

clause 7 first paragraph,

clause 7.2 first paragraph, and

clause 7.2 third paragraph.

7.8: Seagate Comment 008, editorial, pdf page 46, Doc Page 30, clause 7.2

SPC-2 is referenced as NCITS Project 1236 (SPC-2) Suggest simplifying to just SPC-2 in the second paragraph.

7.9: Seagate Comment 009, editorial, pdf page 55, Doc Page 39, clause 9.1.1.4, first and second NOTEs.

SMA-2 is referenced as NCITS Project 1157-D (SAM-2) Suggest simplifying to just SAM-2 in both notes.

7.10: Seagate Comment 010, editorial, pdf page 56, Doc Page 40, clause 9.1.1.4, first and second NOTEs.

Same as comment 10. SMA-2 is referenced as NCITS Project 1157-D (SAM-2) Suggest simplifying to just SAM-2 in both notes.

7.11: Seagate Comment 011, editorial, pdf page 72, Doc Page 56, clause 10.1.3.4

The sentence Targets not attached . . . . is before the other text describing the RHA bit. For other bits defined in 10.1.3, this sentence is after the definition text. The ordering should be consistent.

7.12: Seagate Comment 012, editorial, whole document

FC-AL-3 is referenced as NCITS 1304-D throughout the document. Suggest changing NCITS 1304-D to FC-AL-3 in the document to be consistent with other references to standards.

7.13: Seagate Comment 013, technical, pdf page 78,doc page 62, clause 12.1.1, first and only paragraph

ABORT TASK task management referenced, but is no longer a task management function in FCP-2. It is an additional mechanism. Suggest changing an ABORT TASK task management function to an ABORT TASK function .

Response:

Accepted in principle. The wording will be made consistent with 9.1.2.1.

7.14: Seagate (Editorial)

Project: FCP-2 Revision: 4 ClauseSubclause: Introduction PDFPage: 15 DocPage: xv Line: CommentType: Editorial Title: Summary of Clauses and Annexes is Incomplete

Comment: Does not refer to new clause 7, FC 4 specific name server objects. Does not describe all annexes. CommentEnd:

SuggestedRemedy: Renumber "Clause 7..." through "Clause 11 ..." to one higher and insert "Clause 7 describes the FC-4 specific name server objects for FCP." Correct and add descriptions of annexes. RemedyEnd:

7.15: Seagate (Editorial)

ClauseSubclause: 4.2 PDFPage: 24 DocPage: 8 Line: 1st line, 4th paragraph of 4.2 CommentType: Editorial Title: Grammar

Comment: Conjunction needed: "...interpretation of the command, has determined..." CommentEnd:

SuggestedRemedy: Change to "...interpretation of the command and has determined..." RemedyEnd:

7.16: Seagate (Editorial)

ClauseSubclause: 4.2 PDFPage: 24 DocPage: 8 Line: Next-to-last CommentType: Editorial Title: Grammar

Comment: Subject/verb number disagreement: "FCP_RSP payload carry the FCP Response information" CommentEnd:

SuggestedRemedy: Change "carry" to "carries" RemedyEnd:

7.17: Seagate (Editorial)

PDFPage: 25 DocPage: 9 Line: Last line, 2nd paragraph under 4.3 CommentType: Editorial Title: Specify which FC mode page

Comment: "...Fibre Channel Control page...." is vague. CommentEnd:

SuggestedRemedy: Change to "...Fibre Channel Logical Unit Control page...." RemedyEnd:

7.18: Seagate (Editorial)

ClauseSubclause: 4.9 PDFPage: 31 DocPage: 15 Line: 1 CommentType: Editorial Title: Capitalization

Comment: Capitalize first word of heading CommentEnd:

SuggestedRemedy: "login/logout" => "Login/logout" RemedyEnd:

8 Comments from Storage Technology Corporation

The following comments accompanied the ballot from Storage Technology, prepared by Erich Oetting.

8.1: StoreTek Comment # 1 (Editorial)

PDF Page # 1 Paper Page # i Section # Title page Paragraph # 1

Problem: Through out the document the term "X3T10" is being used.

Solution: Replace all current "X3T10" references with "NCITS T10" as necessary.

8.2: StoreTek Comment # 2 (Editorial)

PDF Page # 2 Paper Page # ii Section # Points Of Contact Paragraph # X3T10 Chair

Problem: John Lohmeyers Email address is not correct.

Solution: Change it to lohmeyer@t10.org

8.3: StoreTek Comment # 3 (Editorial)

PDF Page # 2 Paper Page # ii Section # Points Of Contact Paragraph # T10 Reflector

Problem: The two references to "symbios.com" are not correct.

Solution: Replace with "t10.org".

8.4: StoreTek Comment # 4 (Editorial)

PDF Page # 2 Paper Page # ii Section # Points Of Contact Paragraph #

Problem: Should the T10 Web Site be listed in this section?

Solution: Add the T10 Web Page as http://www.t10.org.

8.5: StoreTek Comment # 5 (Editorial)

PDF Page # 2 Paper Page # ii Section # Abstract Paragraph #

Problem: Last sentence in Abstract talks about the second revision instead of this revision.

Solution: Remove the second sentence.

8.6: StoreTek Comment # 6 (Editorial)

PDF Page # 5 Paper Page # v Section # Contents Paragraph #

Problem: Extra text after "Forward".

Solution: Remove text in parentheses following Foreword entry..

8.7: StoreTek Comment # 7 (Editorial)

PDF Page # 10 Paper Page # x Section # List Of Tables Table # F.1

Problem: There is no Table F.1 on page 110.

Solution: Remove F.1 from the List of Tables.

8.8: StoreTek Comment # 8 (Editorial)

PDF Page # 14 Paper Page # xiv Section # Introduction Paragraph # 3
Problem: The number of clauses and annexes is incorrect and their descriptions are incorrect.
Solution: Update as necessary.

8.9: StoreTek Comment # 9 (Editorial)

PDF Page # 15 Paper Page # xv Section # Introduction Paragraph # ?
Problem: Missing period.
Solution: Add a period at the end of sentence starting "Annex E".

8.10: StoreTek Comment # 10 (Editorial)

PDF Page # 15 Paper Page # xv Section # Introduction Paragraph # Last paragraph on page.
Problem: SAM-2 should be refered to by name.
Solution: Change "and subsequent documents" to "and SCSI-3 Archictecture Model-2 (SAM-2).

8.11: StoreTek Comment # 11 (Editorial)

PDF Page # 17 Paper Page # 1 Section # Scope Paragraph # 1
Problem: Wording.
Solution: Three sentences that start "The FCP-2" should start "FCP-2".

8.12: StoreTek Comment # 12 (Editorial)

PDF Page # 17 Paper Page # 1 Section # Scope Paragraph # 1
Problem: Update reference.
Solution: Replace SAM ref. in third sentence with SAM-2.

8.13: StoreTek Comment # 13 (Editorial)

PDF Page # 17 Paper Page # 1 Section # Scope Paragraph # 1
Problem: Sentence not needed.
Solution: Remove last sentence of paragraph.

8.14: StoreTek Comment # 14 (Editorial)

PDF Page # 17 Paper Page # 1 Section # 2.2 Paragraph # 2
Problem: Verify the status of these documents.
Solution: Move documents to 2.1 as necessary.

8.15: StoreTek Comment # 15 (Editorial)

PDF Page # 17 Paper Page # 1 Section # 2.2 Paragraph #
Problem: Typos in FC-AL-2 ref.
Solution: Add a comma after "revision 7.0", remove period after "FC-AL-2".

8.16: StoreTek Comment # 16 (Editorial)

PDF Page # 17 Paper Page # 1 Section # 2.2 Paragraph #
Problem: Typos in FC-AL-3 ref.
Solution: Add a comma and space after "revision 1.0", remove period after "FC-AL-3".

8.17: StoreTek Comment # 17 (Editorial)

PDF Page # 18 Paper Page # 2 Section # 2.2 Paragraph # Last
Problem: The documents described in this clause are both T10 and T11.
Solution: Remove the "X3T10" from the first sentence.

8.18: StoreTek Comment # 18 (Editorial)

PDF Page # 18 Paper Page # 2 Section # 2.2 Paragraph # Last
Problem: Missing period.

Solution: Add period after zip code in last sentence.

8.19: StoreTek Comment # 19 (Technical)

PDF Page # 18 Paper Page # 2 Section # 3 Paragraph #

Problem: Through out this document terms have been created as FCP_... and are not defined in Clause 3.

Solution: Define all FCP_... terms used in this document in Clause 3.

Response:

Many of these objects are fields. Others are IUs. They are all defined in the proper descriptive area of the text. Traditionally, such fields are not placed in the glossary or abbreviations section, since there are many of them and there is not enough context to define them. No change will be made.

8.20: StoreTek Comment # 20(Editorial)

PDF Page # 19 Paper Page # 3 Section # 3.1.22 Paragraph #

Problem: Inconsistent wording.

Solution: Change "An SCSI" to "A SCSI".

8.21: StoreTek Comment # 21 (Editorial)

PDF Page # 19 Paper Page # 4 Section # 3.1.42 Paragraph #

Problem: Inconsistent wording.

Solution: Change "An SCSI" to "A SCSI".

8.22: StoreTek Comment # 22 (Editorial)

PDF Page # 22 Paper Page # 6 Section # 3.2 Paragraph #

Problem: Abbreviations used in the document are not defined.

Solution: Add definitions for WWNN and WWPN to clause 3.2.

8.23: StoreTek Comment # 23 (Editorial)

PDF Page # 23 Paper Page # 7 Section # 4.1 Paragraph # 1

Problem: Wording.

Solution: First sentence, change "The Fibre Channel" to "Fibre Channel".

8.24: StoreTek Comment # 24 (Editorial)

PDF Page # 23 Paper Page # 7 Section # 4.1 Paragraph # 3

Problem: Wording.

Solution: First sentence, change "The Fibre Channel Arbitrated Loop" to "Fibre Channel Arbitrated Loop".

8.25: StoreTek Comment # 25 (Editorial)

PDF Page # 24 Paper Page # 8 Section # 4.2 Paragraph # 5

Problem: Wording.

Solution: Last sentence, change "FCP_RSP payload carry" to "FCP_RSP payload shall carry".

8.26: StoreTek Comment # 26 (Technical)

PDF Page # 26 Paper Page # 10 Section # 4.3 Paragraph # Last

Problem: Incomplete list.

Solution: Add REPORT LUNS to the list of initialization commands.

Response:

Accepted.

8.27: StoreTek Comment # 27 (Technical)

PDF Page # 26 Paper Page # 10 Section # 4.4 Paragraph # 4

Problem: The first sentence uses "may" be used in describing queued command completions.

Solution: Either change "may" to "shall" or add text saying link level recovery may not be possible on a queued device.

Response:

Link level recovery for queued devices should still work fine for those devices that are not state dependent and using ordered commands. May is the appropriate word in this context. No change will be made.

8.28: StoreTek Comment # 28 (Editorial)

PDF Page # 27 Paper Page # 11 Section # 4.6 Paragraph #

Problem: Blank entry in Table 2.

Solution: Remove the blank line in Table 2.

8.29: StoreTek Comment # 29 (Technical)

PDF Page # 28 Paper Page # 12 Section # 4.7 Paragraph # 1

Problem: First sentence, task management function also applies to Clear ACA.

Solution: Change "must be aborted or terminated" to "must be aborted or terminated, or an ACA condition must be cleared."

Response:

Accepted.

8.30: StoreTek Comment # 30 (Editorial)

PDF Page # 28 Paper Page # 12 Section # 4.7 Paragraph # 2

Problem: Typo.

Solution: Capitalize "Table" in last sentence.

8.31: StoreTek Comment # 31 (Editorial)

PDF Page # 32 Paper Page # 16 Section # 5.1 Paragraph # 2

Problem: The first sentence uses "NL_Port", this should also apply to N_Ports as well.

Solution: The term "FCP_Port" has already been defined in this document. Replace all remaining "L_Port" and "N_Port" with "FCP_Port" as necessary.

8.32: StoreTek Comment # 32 (Editorial)

PDF Page # 33 Paper Page # 17 Section # 5.3 Paragraph # 1

Problem: Specify use of initiatior WWPN when keeping track of reservations.

Solution: In second sentence, replace "world-wide unique name of each initiator" with "world-wide unique port name of each initiator".

8.33: StoreTek Comment # 33 (Editorial)

PDF Page # 33 Paper Page # 17 Section # 5.3 Paragraph # 2

Problem: Requirements for World Wide Names are not clear.

Solution: Replace the last two sentences with. "FCP-2 devices with a single LUN and a single port should not use the same world wide name for the LUN and the port. Devices with more than one LUN or more than one port shall use a unique world wide name for each port and each LUN.

8.34: StoreTek Comment # 34 (Editorial)

PDF Page # 34 Paper Page # 18 Section # 5.4 Paragraph # 1

Problem: The last sentence refers to Annex "B" incorrectly.

Solution: Replace "B" with "C".

8.35: StoreTek Comment # 35 (Technical)

PDF Page # 34 Paper Page # 18 Section # 5.4 Paragraph # 8 & 9

Problem: For any IU that is L (last sequence of exchange) why is SI (sequence initiative) marked as T (transfered) when the exchange is now over?

Solution: Create an SI code of X (don't care) and update these tables as necessary.

Response:

This is normal FC-PH behavior. No change is required.

8.36: StoreTek Comment # 36 (Technical)

PDF Page # 34 Paper Page # 18 Section # 5.4 Table # 8

Problem: Unfortunate to see that IU's T8, T9, T10, and T11 have been declared obsolete. I (DAP) believe these IU's can aid in performance and resource management and don't see any harm in leaving them in at this time.

Solution: Leave IU's in FCP-2.

Response:

This change has been repeatedly approved by the committee. No change will be made.

8.37: StoreTek Comment # 37 (Technical)

PDF Page # 35 Paper Page # 19 Section # 5.4 Table # 9

Problem: Unfortunate to see that IU's I6 and I7 have been declared obsolete. I (DAP) believe these IU's can aid in performance and resource management and don't see any harm in leaving them in at this time.

Solution: Leave IU's in FCP-2.

Response:

This change has been repeatedly approved by the committee. No change will be made.

8.38: StoreTek Comment # 38 (Technical)

PDF Page # 36 Paper Page # 20 Section # 5.6 Table # 10

Problem: Word 1 bits 31-24 are shown as "reserved" when FC-PH-2 Figure 46 has defined them as "CS_CTL".

Solution: Replace "reserved" with "CS_CTL" and add a sub clause describing this field.

Response:

Note that CS_CTL has no interaction with the SCSI mapping of FC-PH. The field will be included, but appropriate notes will indicate that CS_CTL does not participate in the mapping.

8.39: StoreTek Comment # 39 (Technical)

PDF Page # 37 Paper Page # 21 Section # 5.6.11 Paragraph # Sun clause name Problem: The term "RLTV_OFF" is not defined in this document or any other FC documents.

Solution: Either define this term in Clause 3 or replace every occurrence with the FC-PH definition in Clause 18.11.

Response:

The term is defined in FC-FS as “relative offset” or RO. RLTV_OFF will be replaced with RO and both terms (relative offset and RO) will be placed in clause 3.

8.40: StoreTek Comment # 40 (Technical)

PDF Page # 37 Paper Page # 21 Section # 5.6.11 Paragraph #

Problem: Missing restriction for Relative Offset.

Solution: Specify the Relative Offset shall be 0 modulo 4.

Response:

That was previously mandated only by profiles. The FCP-2 requires only that SRR specify 4-byte boundaries. This requirement makes it awkward for multi-block tape operations performed on blocks with odd byte counts (which may or may not actually exist). No change will be made.

8.41: StoreTek Comment # 41 (Technical)

PDF Page # 38 Paper Page # 22 Section # 6 Paragraph #

Problem: This clause does not indicate the required order of logins prior to PRLI.

Solution: Add a paragraph that indicates the proper order of logging in. i.e. Flogi, Name Server, Plogi, Prli.

Response:

This specified in FC-FS 17.3 and 17.4 and need not be specified again here. It is also mentioned in some profiles. This is also mentioned in the discovery protocol annex, which is informative. No change should be made.

8.42: StoreTek Comment # 42 (Technical)

PDF Page # 38 Paper Page # 22 Section # 6.1 Paragraph # 5

Problem: In the description of the process login modes, what controls these modes are not stated.

Solution: Add "(Establish Image Pair = 0)" and "(Establish Image Pair = 1)".

Response:

The text will be reviewed and clarified if required.

8.43: StoreTek Comment # 43 (Editorial)

PDF Page # 38, 39 Paper Page # 22, 23 Section # Paragraph #

Problem: Inconsistent usage.

Solution: Add (or remove) period after all "(See FC-FS)" references.

8.44: StoreTek Comment # 44 (Technical)

PDF Page # 41 Paper Page # 25 Section # Table # 11

Problem: Command/Data Mixed Allowed and Data/Response Mixed Allowed should not be obsoleted at this time.

Solution: Reactivate these features.

Response:

This change has been repeatedly approved by the committee. No change will be made.

8.45: StoreTek Comment # 45 (Editorial)

PDF Page # 43 Paper Page # 27 Section # 6.2.6.12 Paragraph # Sun clause name

Problem: The term "XFER_RDY" is not defined in this document.

Solution: Define this term in Clause 3.

8.46: StoreTek Comment # 46 (Editorial)

PDF Page # 43 Paper Page # 27 Section # 6.2.6.12 Paragraph # 1

Problem: The "XFER_RDY" is not correct.

Solution: Replace "XFER_RDY" with "FCP_XFER_RDY IU".

8.47: StoreTek Comment # 47 (Editorial)

PDF Page # 43 Paper Page # 27 Section # 6.2.6.13 Paragraph # 1

Problem: Wording.

Solution: Second sentence, replace "may be not used" with "may not be used".

8.48: StoreTek Comment # 48 (Technical)

PDF Page # 44 Paper Page # 28 Section # Table # 12

Problem: Command/Data Mixed Allowed and Data/Response Mixed Allowed should not be obsoleted at this time.

Solution: Reactivate these features.

Response:

This change has been repeatedly approved by the committee. No change will be made.

8.49: StoreTek Comment # 49 (Editorial)

PDF Page # 44 Paper Page # 28 Section # 6.2.7.1 Paragraph #

Problem: Font.

Solution: "ACCEPT RESPONSE CODE" should not be bold.

8.50: StoreTek Comment # 50 (Editorial)

PDF Page # 46 Paper Page # 30 Section # 7.1 Paragraph # 1

Problem: Wording.

Solution: Change "registered for a the requested" to "registered for the requested"

8.51: StoreTek Comment # 51 (Technical)

PDF Page # 46 Paper Page # 30 Section # 7.2 Paragraph # 1 Problem: FC-GS-3 specifies the objects as: - Register FC-4 Descriptors (RFD_ID) - Get FC-4 Descriptors (GFD_ID)

Solution: Use same objects as FC-GS-3.

Response:

Accepted.

8.52: StoreTek Comment # 52 (Technical)

PDF Page # 46 Paper Page # 30 Section # 7.2 Paragraph # 1

Problem: FC-GS-3 specifies the objects by port identifier (i.e. not port name).

Solution: Use port identifier.

Response:

This is now all included in FC-GS-3, but was not at the time this was written. The text will be completely rewritten to reference FC-GS-3 for the Query and Register commands. Terminology for the FCP specific object will be made consistent with FC-GS-3.

8.53: StoreTek Comment # 53 (Techncial)

PDF Page # 46 Paper Page # 30 Section # 7.2 Paragraph # 2

Problem: Currently the FCP object would only apply to an FCP Target device. It's not clear who is supposed to issue the Register request either. I can see a benefit if each Target device would Register it's Inquiry data, could this be expanded to the lun level also?

Solution: Clarify who issues the register request.

Response:

This function should not be expanded to the LUN level. Otherwise, the comment is accepted.

8.54: StoreTek Comment # 54 (Editorial)

PDF Page # 47 Paper Page # 31 Section # 8 Paragraph # 1

Problem: The last sentence makes reference to "ELS" incorrectly when talking about SRR.

Solution: Replace "ELS" with "FC-4 Link Service" here and through out the document as necessary.

8.55: StoreTek Comment # 55 PDF (Technical)

Page # 47 Paper Page # 31 Section # 8 Table # 15

Problem: The Table and the text do not specify what the "Encoded Value (bits 31-24)" are.

Solution: Add text that indicates they are the first word of the payload of the request or the reply.

Reponse:

Accepted.

8.56: StoreTek Comment # 56 (Editorial)

PDF Page # 47 Paper Page # 31 Section # 8.1 Paragraph # last

Problem: Missing period.

Solution: Add a period to the end of the last sentence.

8.57: StoreTek Comment # 57 (Technical)

PDF Page # 48 Paper Page # 32 Section # 8.1 Payload: Paragraph # 3

Problem: The last sentence indicates recovery shall be on a four-byte boundary. However, no where else can I find the approved restriction on fixed block record length of 0 modulo 4.

Solution: Add text detailing the fixed block length restriction into sub clause 5.6.11 and/or create a new sub clause somewhere that defines this.

Response:

Accepted.

8.58: StoreTek Comment # 58 (Editorial)

PDF Page # 49 Paper Page # 33 Section # 8.3 Paragraph # 6

Problem: The last sentence on the page is incomplete and it also appears

to be the same as the Table 19 title.

Solution: Complete this sentence and make a reference to table 19.

8.59: StoreTek Comment # 59 (Editorial)

PDF Page # 50 Paper Page # 34 Section # 8.3 Table # 19

Problem: The title of Table 19 needs to be clarified.

Solution: Add "of Payload" to the end of the Table title.

8.60: StoreTek Comment # 60 (Editorial)

PDF Page # 50 Paper Page # 34 Section # 8.3 Paragraph:

Problem: Missing Colon. Solution: Add a colon after "Protocol Error" in Reason Code Descriptions.

8.61: StoreTek Comment # 61 (Editorial)

PDF Page # 50 Paper Page # 34 Section # 8.3 Paragraph: Reason explanation

Problem: Wording. Solution: Change "Table 21 shows expanded explanations" to "Table 21 lists the reason code explanations".

8.62: StoreTek Comment # 62 (Editorial)

PDF Page # 50 Paper Page # 34 Section # 8.3 Table # 19

Problem: The byte 1 column has the bits incorrectly labeled.

Solution: Change the bits to "23-16".

8.63: StoreTek Comment # 63 (Editorial)

PDF Page # 50 Paper Page # 34 Section # 8.3 Table # 20

Problem: This table is not referenced by any text.

Solution: Add a reference to this table under FCP_RJT Reason Code Descriptions.

8.64: StoreTek Comment # 64 (Editorial)

PDF Page # 51 Paper Page # 35 Section # 8.3 Table # 21

Problem: The table title is inconsistent with the text that references it.

Solution: Remove "code" from the title.

8.65: StoreTek Comment # 65 (Editorial)

PDF Page # 51 Paper Page # 35 Section # 8.3 Table # 21

Problem: Blank rows in table.

Solution: Remove two blank rows.

8.66: StoreTek Comment # 66 (Editorial)

PDF Page # 52 Paper Page # 36 Section # 9.1 Paragraph # 1

Problem: The last sentence is missing a period.

Solution: Add a period.

8.67: StoreTek Comment # 67 (Technical)

PDF Page # 52 Paper Page # 36 Section # 9.1.1.1 Paragraph # 2

Problem: Second sentence text implies that all LUNs must be the same device type.

Solution: Remove the second sentence.

Response:

Accepted.

8.68: StoreTek Comment # 68 (Editorial)

PDF Page # 54 Paper Page # 38 Section # 9.1.1.4 Paragraph # Clear ACA section.

Problem: NORMACA should be in small caps.

Solution: Change font for NORMACA in two places.

8.69: StoreTek Comment # 69 (Editorial)

PDF Page # 55 Paper Page # 39 Section # 9.1.1.4 Paragraph # Logical Unit Reset

Problem: In item 6) there is a reference to "(see 4.11)". Clause 4.11 does not exist.

Solution: Correct the reference as necessary.

8.70: StoreTek Comment # 70 (Editorial)

PDF Page # 55 Paper Page # 39 Section # 9.1.1.4 Paragraph # Logical Unit Reset section, just before note.

Problem: TARGET RESET should be LOGICAL UNIT RESET.

Solution: Replace TARGET RESET with LOGICAL UNIT RESET.

8.71: StoreTek Comment # 71 (Technical)

PDF Page # 56 Paper Page # 40 Section # 9.1.1.4 Paragraph # Abort Task Set section, third paragraph.

Problem: Description used in previous task management function should also apply here.

Solution: Change to "For a target FCP_Port, an exchange is also in an ambiguous state if the exchange exists between the target FCP_Port and an initiator other than the initiator FCP_Port that performed the ABORT TASK SET".

Response:

Accepted.

8.72: StoreTek Comment # 72 (Editorial)

PDF Page # 56 Paper Page # 40 Section # 9.1.1.6 Paragraph # 1

Problem: This sub clause describes the "Read Data" field, but Table 22 has this bit labeled differently.

Solution: Change the sub clause title and text with "RDDATA".

8.73: StoreTek Comment # 73 (Editorial)

PDF Page # 56 Paper Page # 40 Section # 9.1.1.7 Paragraph # 1

Problem: This sub clause describes the "Write Data" field but table 22 has this bit labeled differently.

Solution: Change the sub clause title and text with "WRDATA".

8.74: StoreTek Comment # 74 (Editorial)

PDF Page # 57 Paper Page # 41 Section # 9.1.2.2 Paragraph # 3 & 4

Problem: There are two references to "FFFF h".

Solution: Remove the space character before the h in these and any other binary or hex numbers used through out the document.

8.75: StoreTek Comment # 75 (Editorial)

PDF Page # 58 Paper Page # 42 Section # 9.2.1 Paragraph # Sun clause name

Problem: The term "DATA_RO" is not defined in this document.

Solution: Define this term in Clause 3.

8.76: StoreTek Comment # 76 (Technical)

PDF Page # 58 Paper Page # 42 Section # 9.2.1 Paragraph #

Problem: Missing restriction on Relative Offset.

Solution: Specify the Relative Offset shall be 0 modulo 4.

Response:

Accepted.

8.77: StoreTek Comment # 77 (Editorial)

PDF Page # 58 Paper Page # 42 Section # 9.2.2 Paragraph # Sun clause name

Problem: The term "BURST_LEN" is not defined in this document.

Solution: Define this term in Clause 3.

8.78: StoreTek Comment # 78 (Editorial)

PDF Page # 58 Paper Page # 42 Section # 9.2.2 Paragraph # 2

Problem: There is a reference to "(see 9.3)" that is incorrect.

Solution: Replace the "9.3" with "10.1.1.6".

8.79: StoreTek Comment # 79 (Technical)

PDF Page # 59 Paper Page # 43 Section # 9.3 Paragraph # 4

Problem: The last sentence of paragraph conflicts with 9.2 paragraph 2 second sentence. Only true for the first burst, subsequent bursts must use the FCP_XFER_RDY

Solution: Specify the restriction.

Response:

Accepted.

8.80: StoreTek Comment # 80 (Editorial)

PDF Page # 59 Paper Page # 43 Section # 9.3 Paragraph # 5

Problem: There is a reference to 9.4.1 that is incorrect.

Solution: Replace "9.4.1" with "9.4.2".

8.81: StoreTek Comment # 81 (Editorial)

PDF Page # 71 Paper Page # 55 Section # 10.1.3.2 Paragraph # Heading

Problem: Spelling error.

Solution: Change "INITIATIED" to "INITIATED"..

8.82: StoreTek Comment # 82 (Editorial)

PDF Page # 71 Paper Page # 55 Section # 10.1.3.2 Paragraph # 1

Problem: Typo.

Solution: Change "A LPE primitive sequences addressed..." to "A LPE primitive sequence addressed...".

8.83: StoreTek Comment # 83 (Editorial)

PDF Page # 72 Paper Page # 56 Section # 10.1.3.6 Paragraph # 1

Problem: The second to the last sentence needs a reference to FC-TAPE added with FC-PLDA and FC-FLA.

Solution: Add the reference.

8.84: StoreTek Comment # 84 (Editorial)

PDF Page # 73 Paper Page # 57 Section # 10.1.3.8 Paragraph # 1

Problem: Style.

Solution: First sentence, change "a fabric loop port, FL_Port, on the loop." to "a fabric loop port (FL_Port), on the loop..

8.85: StoreTek Comment # 85 (Editorial)

PDF Page # 73 Paper Page # 57 Section # 10.1.3.8 Paragraph # 1

Problem: The second sentence needs a reference to FC-TAPE added with FC-PLDA.

Solution: Add the reference.

8.86: StoreTek Comment # 86 (Editorial)

PDF Page # 73 Paper Page # 57 Section # 10.1.3.10 Paragraph # 2

Problem: Missing reason for ref.

Solution: change "See NCITS 1304-D." to "See NCITS 1304-D for a description of MCM operations."

8.87: StoreTek Comment # 87 (Editorial)

PDF Page # 76 Paper Page # 60 Section # 11.4 Paragraph # 1

Problem: Wording.

Solution: First sentence, change "provide minimum" to provide a minimum".

8.88: StoreTek Comment # 88 (Editorial)

PDF Page # 78 Paper Page # 62 Section # 12.1.2 Paragraph # 1

Problem: Format.

Solution: Remove extra blank line between heading and first paragraph.

8.89: StoreTek Comment # 89 (Editorial)

PDF Page # 78 Paper Page # 62 Section # 12.1.1 & 12.1.2 Paragraph # 1

Problem: The word "chapter" is used in these paragraphs.

Solution: Replace "chapter" with "clause".

8.90: StoreTek Comment # 90 (Editorial)

PDF Page # 78 Paper Page # 63 Section # 12.1.2 Paragraph # 3

Problem: Formatting.

Solution: Third paragraph, appears to be a larger font size. Change it to match others.

8.91: StoreTek Comment # 91 (Editorial)

PDF Page # 78 Paper Page # 62 Section # 12.1.2 Paragraph # 4

Problem: A reference to Annex E needs to be added with Annex D.

Solution: Add "" and Annex E" to the end of the sentence.

8.92: StoreTek Comment # 92 (Editorial)

PDF Page # 78 Paper Page # 62 Section # 12.2.1 Paragraph # Step 2

Problem: Wording.
Solution: Change "in an Sequence" to "in a Sequence".

8.93: StoreTek Comment # 93 (Editorial)

PDF Page # 78 Paper Page # 62 Section # 12.2.1 Paragraph # Step 4
Problem: Typo.
Solution: Remove space between "0 b".

8.94: StoreTek Comment # 94 (Editorial)

PDF Page # 79 Paper Page # 63 Section # 12.2.2 Paragraph # Third paragraph, Step 4
Problem: Wording.
Solution: Change "in an Sequence" to "in a Sequence".

8.95: StoreTek Comment # 95 (Technical)

PDF Page # 79 Paper Page # 63 Section # 12.2.2 Paragraph # 4, Step 4
Problem: Missing requirement.
Solution: Indicate the RRQ should be sent after expiration of R_A_TOV.
Response:
Accepted.

8.96: StoreTek Comment # 96 (Editorial)

PDF Page # 80 Paper Page # 64 Section # 12.3.2 Paragraph # 3
Problem: Spelling error.
Solution: Change "minimum interal" to "minimum interval".

8.97: StoreTek Comment # 97 (Editorial)

PDF Page # 80 Paper Page # 64 Section # 12.3.3 Paragraph # 2
Problem: The SRR is being described as an "Extended Link Service".
Solution: Through out the document replace "Extended Link Service" with "FC-4 Link Service".

8.98: StoreTek Comment # 98 (Editorial)

PDF Page # 83 Paper Page # 67 Section # 12.4 Paragraph # step b.
Problem: Typo.
Solution: Change "FCP_CONF:" to "FCP_CONF;".

8.99: StoreTek Comment # 99 (Editorial)

PDF Page # 84 Paper Page # 68 Section # 12.5.2 Paragraph #
Problem: Typo.
Solution: Change two instances of "FFFF h" to "FFFFh".

8.100: StoreTek Comment # 100 (Editorial)

PDF Page # 85 Paper Page # 69 Section # 12.7 Paragraph # 4
Problem: There is a "see TBD" in the text.
Solution: Replace the TBD with the correct reference.

8.101: StoreTek Comment # 101 (Editorial)

PDF Page # Paper Page # 71 Section # A.1 Paragraph # 2
Problem: Editors notes should not be in released standards.
Solution: Remove the note.

8.102: StoreTek Comment # 102 (Technical)

PDF Page # 87 Paper Page # 71 Section # A.1 Paragraph # Table A.1

Problem: The object identifier and object address entries contain the same procedure terms.

Solution: Change one of them?

Response:

They can both be deleted because they are not used anyplace in FCP-2 and because they are fully defined in SAM-2 with terms defined within SAM-2.

8.103: StoreTek Comment # 103 (Technical)

PDF Page # 89 Paper Page # 73 Section # A.3 Paragraph # Table A.3

Problem: What does || in table indicate?

Solution: Each entry in the third column contains a "||". Is there something missing? Also, does a CRN/value and FCP_CONF request belong in this table?

Response:

This symbol has been used in SAM-2 to represent a demarcation between inputs and outputs. Inputs come before the symbol, outputs afterwards. This symbol is undesirable and will be replaced with the text:

command {inputs(a, b, c); outputs(d, e, f)}

8.104: StoreTek Comment # 104 (Technical)

PDF Page # 89 Paper Page # 73 Section # A.4 Paragraph #

Problem: What does || indicate?

Solution: A "||" appears inside the procedure call without explanation. Explain or remove.

Response:

This symbol has been used in SAM-2 to represent a demarcation between inputs and outputs. Inputs come before the symbol, outputs afterwards. This symbol is undesirable and will be replaced with the text:

command {inputs(a, b, c); outputs(d, e, f)}

8.105: StoreTek Comment # 105 (Technical)

PDF Page # 89 Paper Page # 74 Section # A.4 Table # A.4

Problem: What does || indicate?

Solution: A "||" appears without explanation. Explain or remove.

Response:

This symbol has been used in SAM-2 to represent a demarcation between inputs and outputs. Inputs come before the symbol, outputs afterwards. This symbol is undesirable and will be replaced with the text:

command {inputs(a, b, c); outputs(d, e, f)}

8.106: StoreTek Comment # 106 (Technical)

PDF Page # 89 Paper Page # 74 Section # A.5 Paragraph #

Problem: What does || indicate?

Solution: A "||" appears inside the procedure call without explanation. Explain or remove.

Response:

This symbol has been used in SAM-2 to represent a demarcation between inputs and outputs. Inputs come before the symbol, outputs afterwards. This symbol is undesirable and will be replaced with the text:

command {inputs(a, b, c); outputs(d, e, f)}

8.107: StoreTek Comment # 107 (Editorial)

PDF Page # 90 Paper Page # 74 Section # A.5.1 Paragraph # 2

Problem: The second sentence makes reference to SCSI "parallel" interface.

Solution: Remove the "parallel" reference.

8.108: StoreTek Comment # 108 (Editorial)

PDF Page # 91 Paper Page # 75 Section # A.5.1.1 - A.5.1.7 Paragraph # 1

Problem: The first sentence of each of these sub clauses makes reference to SCSI "parallel" interface.

Solution: Remove the "parallel" reference.

8.109: StoreTek Comment # 109 (Editorial)

PDF Page # 98 Paper Page # 82 Section # C.1.4 Table # C.4

Problem: Missing note.

Solution: Add note contained in clause C.1.1.

8.110: StoreTek Comment # 110 (Editorial)

PDF Page # 99 Paper Page # 79 Section # B.3.1 Paragraph # ? Problem:

Typo after "Accept payload:" header.

Solution: Remove the "-" before the sentence.

8.111: StoreTek Comment # 111 (Editorial)

PDF Page # 105 Paper Page # 89 Section # D Paragraph # Heading

Problem: Improve wording.

Solution: Change heading to "Examples of error detection and recovery actions".

8.112: StoreTek Comment # 112 (Editorial)

PDF Page # 111 Paper Page # 95 Section # Annex D Figure # D.7

Problem: The last sentence of the error recovery text in the figure body "(or a Relative...)" is incorrect.

Solution: Remove "(or a Relative Offset smaller than the Relative Offset specified in the SRR in order to be aligned on an appropriate boundary in the Target)". This issue was debated and the group determined the Target shall use the specified Relative Offset in the SRR only (and use 0 modulo 4).

8.113: StoreTek Comment # 113 (Editorial)

PDF Page # 112 Paper Page # 96 Section # Annex D Figure # D.8

Problem: The last sentence of the Error Recovery text in the figure body "(or a Relative...)" is incorrect.

Solution: Remove "(or a Relative Offset smaller than the Relative Offset specified in the SRR in order to be aligned on an appropriate boundary in the Target)". This issue was debated and the group determined the Target shall use the specified Relative Offset in the SRR only (and use 0 modulo 4)..

8.114: StoreTek Comment # 114 (Editorial)

PDF Page # 122 Paper Page # 106 Section # E.3.2 Paragraph # 2

Problem: The 3rd sentence states through the "tenth" block, which is incorrect.

Solution: Replace "tenth" with "twelfth".

8.115: StoreTek Comment # 115 (Editorial)

PDF Page # 122 Paper Page # 106 Section # E.3.2 Paragraph # 2 Problem:

The 4th sentence states the FCP_RSP "will also be retransmitted" is incorrect.

Solution: Replace "will also be retransmitted" with "will be transmitted".

8.116: StoreTek Comment # 116 (Editorial)

PDF Page # 125 Paper Page # 109 Section # F Paragraph #

Problem: Update to match later document.

Solution: Update the text to match document T11/99-340v3 on the web site (it's actually v4 as indicated in the document text). I (DAP) will be updating this document as a result of recent FC-GS-3 work. The new document number will be 00-039v0.

8.117: StoreTek Comment # 117 (Technical)

PDF Page # 126 Paper Page # 110 Section # F.2 Paragraph # 5

Problem: In item 4 there is reference to ADISC, should PDISC also be included?

Solution: Add PDISC to the text as necessary.

Response:

This is informative. No change is required.

8.118: StoreTek Comment # 118 (Technical)

PDF Page # 133 Paper Page # 117 Section # I.1 Paragraph #

Problem: Should muli-initiator Reserve/Release be mentioned here?

Solution: This looks like a good spot for some text regarding Reserve/Release in a multi-initiator environment and I (DAP) am willing to do the work.

8.119: StoreTek Comment # 119 (Editorial)

PDF Page # 135 Paper Page # 119 Section # J Paragraph #

Problem: Requirements for other standards should be in the other standards.

Solution: Remove Annex J after submitting proposals against future versions of the affected standards. If this is not done, at least edit Annex J to remove phrases like "I believe".

8.120: StoreTek Comment # 120 (Editorial)

PDF Page # 137 Paper Page # cxxix Section # ? Paragraph # ? Problem: This list of figures has been duplicated.

Solution: Remove the list of figures and verify the document ending page number.

9 Sun Microsystems

The following comments were received from Bob Snively of Sun Microsystems

9.1 Sun 1 Document references

Editorial

All sections. Document references are inconsistent or not helpful. Most people cannot hold the numbers of the various standards in their head, yet NCITS/ANSI prefers that the numbers of the referenced standards be used as the method for designating documents. Examples include:

3.4 last sentence: document cited as “FC-FS”

4.1 first paragraph: document cited as “ANSI X3.230”

6.2.7.2 first paragraph: document cited as “ANSI X3.297”

Assuming this is acceptable to the editors, I would prefer to use either the document name exclusively, or both the document name and the document number together. As examples: “FC-FS” or “FC-PH, X3.230”

Response:

Accepted: See 4.29.

9.2 Sun 2 Use of word FCP

Editorial

All sections. The word “FCP” is used as a noun, in the context “The FCP...” while referring to the protocol. This looks like terrible English and reads very badly.

I would like to see the words “Fibre Channel protocol” used when speaking of the protocol, and the words “FCP standard” when referring to the document. See in particular:

Section 5.5, page 19: “The FCP” s/b “Fibre Channel Protocol”

Annex A.1, page 71. “The FCP-2” s/b “This standard”

9.3 Sun 3 Correct hexadecimal references

Editorial

All sections. The conventions for hexadecimal notation (AB1Ch) are not followed consistently. Corrections need to be installed everywhere, particularly sections 6.1 (p22), 9.1 (p36), 11.3 (p60),

9.4 Sun 4 Update contacts

Editorial

page ii. The E-mail addresses for the X3T10 chair and the T10 reflector must be updated. The SCSI BBC information must be updated. The references to X3 must be changed to NCITS.

9.5 Sun 5 Remove document revision history

Editorial

page iii. The document revision history should be removed.

9.6 Sun 6 Combine annexes into primary table of contents

Editorial

page viii. The annex table of contents should be moved from page x and appended to the normal table of contents on page viii.

9.7 Sun 7 Correct document description

Editorial

Section “Introduction”, page xv.

Clause 7 should be inserted in the document description with text that says: “Clause 7 describes the FC-4 specific name server object for FCP.”

Annex E should be inserted with text that says “Annex E is an informative annex providing examples of error recovery procedures.”

Annex G should be inserted with text that says “Annex G is an informative annex showing examples of ELS formats required for proper FCP-2 recovery operations.”

The text describing removal of annexes should clarify that the referenced document is the old standard.

Text for annexes H, I, and J should be inserted.

9.8 Sun 8 Remove redundant sentence

Editorial

Page 2, Clause 2.3, first paragraph, last sentence is redundant and should be deleted.

9.9 Sun 9 Clarify definition of base address

Editorial

Page 2, clause 3.1.5, the definition should be replaced with “base address: The virtual address of the byte having the lowest address among the bytes to be transferred to or from an application client buffer.”

9.10 Sun 10 Data overlay definition restriction

Editorial

Page 3, clause 3.1.13, the definition of data overlay should be corrected to exclude link recovery. “data overlay: Data overlay occurs when data is transferred to or from the same offset of the SCSI application client buffer more than once during the same command, except for the recovery of link transmission failures.”

9.11 Sun 11 Circular definition of MCM

Editorial

Page 3, 3.1.27, the definition of MCM should have the word “MCM” removed in the defining text in two locations. A reference to FC-AL-3 should be provided.

9.12 Sun 12 typo

Editorial

Page 5, section 3.3.8. “standards” s/b “standard”.

9.13 Sun 13 typo

Editorial

Page 6, section 3.4. second line s/b “...defined in the glossary or in the text...”

9.14 Sun 14 Clarify number of sequences

Editorial

Page 8, section 4.1, next to the last sentence s/b “The maximum number of active sequences that can simultaneously be open between an initiator FCP_Port and a target FCP_Port is restricted by the allowable range of values of the Sequence ID to 256, as defined in FC-PH.”

9.15 Sun 15 Use of “the FCP”

Editorial

Page 8, section 4.2, first paragraph. The word “FCP” in this sentence should be replaced with “FCP host adapter” in three places.

9.16 Sun 16 typo

Editorial

Page 8, section 4.2, 4th paragraph. “... command, has...” s/b “...command, and has...”

9.17 Sun 17 typo

Page 8, Correct fonts in section 4.2, 5th paragraph.

9.18 Sun 18 table typo

Page 11, section 4.6, Remove extra line in table 2.

9.19 Sun 19 Clarify task management completion

Editorial

Page 12, section 4.7, second paragraph. Change “A task management function ends with an FCP_RSP IU that indicates whether it was correctly accepted.” to “A task management function ends with an FCP_RSP IU that indicates the completion status of the function.”

9.20 Sun 20 Clearing effects of PRLI/PRLO

Technical

Page 13, table 4. In the column that indicates the clearing action for PRLI/PRLO, all the “Y” entries actually only apply for the affected image pair. This must either be indicated in a note or have a separate entry for that case in each relevant row.

Response:

Since Process Associators have been removed from FCP-2, there is now only one case to be considered. No change is required for this, but editorial improvements are still desirable, separating the table into “link clearing actions” and “protocol/SCSI clearing actions”.

9.21 Sun 21 Clearing effects on buffered data

Technical

This was presented by George Penokie on Jan 26, 2000. He suggests that reserved XOR data be cleared if there is a target power cycle, a reset LIP, a logout of all initiators, TPRLO, SCSI target reset, or a Logical Unit Reset. All other cases would preserve the data.

Response:

Accepted.

9.22 Sun 22 Clarification of mode page management

Editorial

Page 14, table 5, column 4. The column should indicate that this is the state after the PRLI/PRLO has been executed.

9.23 Sun 23 typo

Editorial

Page 15, section 4.9, title. The title should indicate that this references only Process Login/Logout.

9.24 Sun 24 Process Login image definition

Technical

Page 16, section 5.1, second paragraph. In this paragraph, it is clearly stated that the process associator does not take place in the identification of the initiator or target. However, in the third sentence, there is a left-over sentence that indicates that more than one logical initiator or logical target image may be defined by the process associator. The sentence “More than one logical initiator or logical target image may be defined...” should be deleted.

Response:

Process Associator is now removed from FCP-2. This text and any other text associated with Process Associators should be edited or removed.

9.25 Sun 25 Process Associator for FCP_Port addressability

Technical

Page 16, section 5.2. This section defines a process associator value for third-party referencing of FCP addresses. Since the Process Associator does not take part in the initiator or target definition, it is not necessary to include the Process Associator in the definition. Table 7 should have the PA_VAL bit changed to reserved and the Process Associator field changed to reserved. Section 5.2.1 and 5.2.3 should be deleted.

Response:

Accepted. See 7.4.

9.26 Sun 26 Incorrect definition of Data Out IU T7

Editorial

Page 18, section 5.4, table 8. This is an editorial error that was not caught in the original FCP document. The T7 Data Out action IU can only occur when there are two consecutive write data sequences. With the final definition of Disable Write Data Transfer, all FCP_DATA IUs are separated by a XFER_RDY IU, making T7 an unused IU. T7 should be removed from the table and notes of table 8.

9.27 Sun 27 Remnant of I2 IU needs to be removed

Editorial

Page 19, table 9, notes. The I2 data IU has been removed from the table. The third note should also have it removed.

9.28 Sun 28 Clarify definition of tag

Technical?

Page 21, section 5.6.9. The third sentence indicates that the OX_ID is the tag defined by SAM. That is not strictly true, because the OX_ID exists for all exchanges, even those that have no tag definition. The sentence should be. “The value of the OX_ID is used to identify an FCP I/O Operation the same way that the tag value identifies I/O Operations in ANSI X3.270.”

Response:

Accepted.

9.29 Sun 29 Correct RO requirements

Technical *******

Page 21, section 5.6.11, last sentence. The sentence indicates that RLTV_OFF is not required if both FCP_Ports can unambiguously reassemble the transmitted IUs. This creates severe interoperability problems for those ports that may be attached that cannot perform this magic. This interoperability issue is not negotiated in any login parameters. The correct solution is to require the presence of the RO, then allow the recipient of the data to use the RO or other FC-PH mechanisms to reassemble the data.

Response:

Accepted.

9.30 Sun 30 Make Process Associator obsolete for FCP

Technical ******

Process Associators create a complex functionality that cannot successfully distinguish separate images in the initiator or the target. In the target, separate images (including both initiator and target enforced protection) are created using the logical unit. In the initiator, no separate images are explicitly defined, but they can be emulated by using more than one port address identifier for the initiator port. Since the function originally conceived of (but never practically implemented) by Process Associators in FCP can be done practically by other mechanisms more natural to both FC and SCSI, Process Associators should be made obsolete for FCP. Process Login should still be used to negotiate capabilities and to identify target/initiator pairs.

Response:

Accepted.

9.31 Sun 31 Distinguish image pair and initiator/target pair

Technical *****

Section 6, all sections. In many places, image pair is referenced. However in some cases it is implicitly a relationship between initiator and target, and in other cases it is a relationship between initiator process image and target process image. The two cases should be distinguished by using the word “image pair” for those that use a process image and “initiator/target pair” for those that do not use a process image.

Response:

Accepted in principle. Since Process Associators are no longer used in FCP-2, image pair only defines initiator/target pairs now. This will be corrected by changes related to 9.30 Sun 30.

9.32 Sun 32 typo

Editorial

Page 22, section 6, first paragraph. “extended link services in ANSI” s/b “extended link services defined in ANSI”

9.33 Sun 33 Correct login requirement

Editorial

Page 22, section 6, second paragraph, last sentence: is “Devices introduced into a configuration or modifications in the addressing or routing of the configuration may require new login procedures.”, should be “Devices introduced into a configuration or modifications in the addressing or routing of the configuration may require the login and discovery procedures to be executed again.”

9.34 Sun 34 Problem with process associators

Technical

Page 23, section 6.2.2: Refer to Sun 30. The originator for all FCP communications is the initiator. The mechanisms to manage multiple images behind a single initiator port are incomplete. Section 6.2, third paragraph is one example of this attempt to create an unsupported function. Similar problems exist in the corresponding paragraph of 6.2.1 and 6.2.3.

Response:

Accepted in principle. This will be corrected by the changes required to resolve comment 9.30 Sun 30.

9.35 Sun 35 Problem with clearing PRLI image pairs

Editorial

Page 24, section 6.2.5, first paragraph. The third sentence of this paragraph indicates how outstanding exchanges are affected by a PRLI. This is actually referenced in table 4, but incorrectly. See Sun 20. The correct solution is eliminate Process Associators. Failing that, a reference should be used here and the definition of the clearing effects should be placed in table 4.

9.36 Sun 36 Correct behavior of new PRLI

Editorial

Page 24, second paragraph, reads in part:

> Immediately after the execution of the first PRLI, both members of all image pairs shall have the same state as they would have after a hard reset or a power on with respect to each other. No tasks, reservations or status shall be present in either SCSI device. The MODE SELECT parameters will assume their default or saved states for all image pair. Tasks, reservations, status, and MODE SELECT parameters for other initiators are not affected. A Unit Attention condition (Sense Key = 6) with an Additional Sense Code of Reset Occurred (ASC = 29, ASCQ = 00) shall be presented upon the first attempt to communicate between the N_Ports using FCP when a new PRLI has been performed. A target port shall not generate a unit attention condition for initiators which are already logged in. Subsequent PRLI operations shall have no effect on FCP operation between two devices except where new requirements are negotiated between the devices.

The text should be corrected as follows:

> Immediately after the execution of ~~the first~~ any PRLI, both members of all new image pairs shall have the same state as they would have after a hard reset or a power on with respect to each other. No tasks, non-persistent reservations or status shall be present in either SCSI device. The MODE SELECT parameters will assume their default or saved states for ~~all~~ the new image pairs. Tasks, reservations, status, and MODE SELECT parameters for other ~~initiators~~ image pairs are not affect-

ed. A Unit Attention condition (Sense Key = 6) with an Additional Sense Code of Reset Occurred (ASC = 29, ASCQ = 00) shall be presented upon the first attempt to communicate between the N_Ports using FCP when a new PRLI image pair has been ~~performed~~ created. A target port shall not generate a unit attention condition for ~~initiators~~ initiator members of image pairs which are already logged in. Subsequent PRLI operations shall have no effect on FCP operation between two devices except where new requirements are negotiated between the devices.

This is another example of the problems associated with Process Associators.

9.37 Sun 37 Correction to PRLI request

Technical

Page 25, section 6.2.6.4. If process associators are removed for FCP, the value for the Establish Image Pair field shall be 0.

Response:

Accepted. Process associators are removed.

9.38 Sun 38 Definition of process suspect

Editorial

Page 26, section 6.2.6.7, first paragraph. The word “process” in the first sentence should probably be replaced with the words “member of the image pair”, or alternatively, the words initiator and target should be used.

9.39 Sun 39 Incorrect use of word “image pair”

Editorial

Page 26, section 6.2.6.7, third paragraph. The paragraph presently reads:

> An image pair shall use the retransmission capability only if the RETRY bit is set in both the request payload and in the accept payload. If the RETRY bit is set to 0 in either the request payload or the accept payload, the SRR shall not be performed by the initiator. If the SRR is received by the target, the SRR shall be rejected with LS_RJT.

The text should read:

> An ~~image pair~~ initiator and target port pair shall use the retransmission capability only if the RETRY bit is set in both the request payload and in the accept payload. If the RETRY bit is set to 0 in either the request payload or the accept payload, the SRR shall not be performed by the initiator. If ~~the~~ an SRR ELS is received by ~~the~~ a target that has set the RETRY bit to 0, the SRR shall be rejected with LS_RJT.

9.40 Sun 40 Correct Write XFER_RDY Disabled definition

Technical

Page 27, section 6.2.6.13, first two sentences should be rewritten as follows:

> When this bit is set to 0, FCP_XFER_RDY IUs shall ~~be used~~ transmitted by the target to request each of the SCSI write FCP_DATA IUs from the initiator. ~~for SCSI write operations.~~ When this bit is set to 1, FCP_XFER_RDY IUs ~~may be not~~ shall not be used before the first FCP_DATA IU to be transferred in the write operation.

Response:

Accepted.

9.41 Sun 41 Complete Image Pair Established definition

Technical

Page 28, section 6.2.7.1, first paragraph should be rewritten as follows:

IMAGE PAIR ESTABLISHED is valid only if bit 13 was set to 1 on the corresponding Service Parameter page of the PRLI request and if the image pair was correctly established.

Response:

Since Process Associators are removed, bit 13 is required to be zero. The text should be modified accordingly.

9.42 Sun 42 Correct PRLO text

Technical *****

Page 29, section 6.3, first paragraph, should have the same corrections applied as those defined in Sun 36. In addition, it should be clarified that tasks are reset for all image pairs that have been “unpaired” and destroyed by the PRLO, but not for other image pairs.

Response:

Since Process Associators are removed, only one image pair exists between an initiator and target, so no distinction is required and all tasks are destroyed.

9.43 Sun 43 State after PRLO

Technical

Page 29, section 6.3, paragraph 3, second sentence. The second sentence should be modified to read:

After PRLO, no further FCP communication is possible between those two N_Ports.

Response:

Accepted.

9.44 Sun 44 State of image pairs after PRLO

Technical

Page 29, section 6.3, 4th paragraph. The paragraph leaves some uncertainty about the proper response to the PRLO and the proper state of image pairs if some are discontinued, some are not discontinued, and some do not exist (or never existed). I believe that the PRLO should respond as if the image pairs that do not exist are successfully discontinued just as if they existed.

Response:

Since Process Associators are removed, only one image pair exists between an initiator and target, so no distinction is required and the image pair is destroyed by PRLO.

9.45 Sun 45 Clarify table 13

Editorial

Page 30, section 7.1, table 13. The table should be restructured in bit/byte format to make the definitions clearer. The fields should be identified and described by field name.

9.46 Sun 46 Verify FCP specific object format

Editorial

Page 30, section 7.2. This section was written before FC-GS-3 was available. It should be examined for consistency with FC-GS-3 and any corrections installed.

9.47 Sun 47 Install references

Editorial

Page 31, section 8, table 15. The references for FCP_ACC and FC__RJT need to be installed.

9.48 Sun 48 Clarify table 16

Editorial

Page 32, section 8.1, table 16. The table should be restructured in bit/byte format to make the definitions clearer. The fields should be identified and described by field name.

9.49 Sun 49 SRR inconsistent error reporting

Technical

Page 31, section 8.1. The seventh paragraph indicates that an SRR that cannot be accepted is treated as an “Initiator Detected Error.” The third paragraph of the “payload” description on the next page indicates that such an error will be indicated with an FCP_RJT. These two statements need to be reconciled. I expect that there are really two cases. One could be treated as an Initiator Detected Error (failed link recovery), while the other could be treated as an FCP_RJT (invalid payload contents).

Response:

Accepted.

9.50 Sun 50 Describe payload for FCP_RJT

Editorial

On page 33, section 8.3, the paragraphs describing payload, the description is complicated enough to warrant the creation of a table that describes the complete payload.

9.51 Sun 51 FCP_LUN format

Technical

On page 36, section 9.1.1.1. FCP-2 revision 4 shows the FCP_LUN field in the FCP_CMND IU as an 8 byte field. It states: “The FCP logical unit number (FCP_LUN) is the address of the desired logical unit in the attached subsystem. The FCP_LUN field is specified by ANSI X3.230 for all IUs of Category 6."

The last sentence implies one can find detail on the contents of the LUN field in X3.230, but that document is FC-PH, and FC-PH simply defines the field as “Entity Address (FC-4 dependent)”. So the references point at each other.

Was the intent in FCP-2 to let the LUN field be defined by the appropriate SCSI standard document(s)? FCP mentioned the SCSI Device Model. Or was more specific guidance to a specific format of the LUN field intended in FCP-2? FCP Annex C gave a SCSI Controller Command LUN field usage example.

The proper documentation is probably in SAM-2.

Response:

The proper reference is to SAM-2, where the address field is specified in 4.11.2.

9.52 Sun 52 FCP_CMND IU sub-section titles

Editorial

The titles for sections 9.1.1.x starting on page 37 should not have the byte number included in the title.

9.53 Sun 53 Clarification of ordered queueing

Technical

Page 37, section 9.1.1.3, the text of paragraph 4 should be rewritten as follows:

> ORDERED_Q requests that the task be managed according to the rules for an ORDERED task attribute. With a class 2 fabric, special care ~~must be~~ should be taken ~~exercised~~ to guarantee successful ordering. ~~Sequential~~ In order delivery ~~must~~ should be requested at login to ensure correct ordering among tasks. ~~FCP_CMND IUs must be acknowledged before new FCP_CMND IUs are issued to avoid inadvertent reordering of commands during retries of F_BSY.~~ Acknowledgements should be received before new FCP_CMND IUs are issued to avoid inadvertent reordering of commands during delays in the fabric, including retries of F_BSY. Ordering can also be accomplished

by waiting for the completion of those commands requiring ordering before transmitting the FCP_CMND for the next FCP I/O operation, or by using the precise delivery mechanism.

Response:

Accepted.

9.54 Sun 54 Clarification of task management flags

Editorial

Page 38, section 9.1.1.4, the words “Task Management function” s/b “Task Management request”.

9.55 Sun 55 ACA clarification

Technical

Page 38, section 9.1.1.4, Clear ACA. It is unclear what the proper behavior is if there is no ACA present when a Clear ACA is transmitted. References to SAM should be provided to clarify this.

Response:

Accepted.

9.56 Sun 56 Complete Clear ACA description

Technical

Page 38, section 9.1.1.4, Clear ACA, 4th paragraph, the incomplete sentence should be completed as:

Depending on the MODE SELECT parameters that have been established, additional FCP I/O operations may have to be aborted by the recovery abort as part of the process of clearing the automatic contingent allegiance.

Response:

Accepted.

9.57 Sun 57 Clarify Target Reset

Editorial

Page 38, section 9.1.1.4, Target Reset. The first paragraph should be rewritten as a list (see Logical Unit Reset text as an example) to make it easier to read.

9.58 Sun 58 Correction of note about SAM-2

Editorial

On page 39 and 40, section 9.1.1.4, the text of the notes about SAM-2 should be corrected by changing the words “by this mechanism” to “with this completion status”. There are 4 such notes to be corrected.

9.59 Sun 59 Clarify dependant logical unit

Editorial

Page 39, section 9.1.1.4, Logical Unit Reset, item 6. The definition of dependent logical units is a little vague. It is not included in the glossary and the reference 4.11 does not exist. The definition should be extracted from SAM-2, placed in the glossary, and referenced here.

9.60 Sun 60 Clarify logical unit reset

Editorial

Page 39, 9.1.1.4, logical unit reset, second paragraph after list. The first sentence should be re-ordered to say: “shall be terminated using a recovery abort by whichever port”.

9.61 Sun 61 Clarify logical unit reset

Editorial

Page 39, 9.1.1.4, logical unit reset, last paragraph. The Logical Unit Reset does not address targets, but rather logical units. The ambiguity should be addressed in terms of those exchanges ambiguous with respect to the logical unit, not those ambiguous with respect to the target.

9.62 Sun 62 Clarify Clear Task Set

Editorial

Page 40, 9.1.1.4, Clear Task Set. This section has the same problems as the logical unit reset, except that the focus of the logical unit reset should be logical unit and the focus of clear task set should be task sets. See Sun 60 and Sun 61.

9.63 Sun 63 Clarify Additional FCP_CDB length

Technical

Page 40, 9.1.1.5. Add a sentence to this section. “The Additional FCP_CDB Length field shall be zero for task management requests.”

Response:

Accepted.

9.64 Sun 64 Clarify Additional FCP_CDB

Technical

Page 41, 9.1.1.9. The text of the second sentence should be changed as shown: “The ADDITIONAL_FCP_CDB shall not be present ~~is not valid and is ignored~~ if any task management flag is set to 1.

Response:

Accepted.

9.65 Sun 65 Use of word FC-PH

Editorial

Page 41, 9.1.2.2, second paragraph. The text “The FC-PH allows...” s/b “The FC-PH standard allows...”

9.66 Sun 66 Verify proper execution of recovery abort

Technical?

Page 41, 9.1.2.2, fourth paragraph. The text “A target ... specified RX_ID.” needs to be clarified. In particular, it is not clear what the detailed values of the recovery qualifier are with respect to RX_ID.

Response:

I believe that the original intent of this was:

A target shall always accept an ABTS using the unassigned RX_ID value of FFFFh and establish a Recovery_Qualifier ~~with~~ without a specified RX_ID.

Accepted.

9.67 Sun 67 Clarify FCP_XFER_RDY

Editorial

Page 42, section 9.2, first paragraph. The text “... to perform ...” s/b “... to receive ...”.

9.68 Sun 68 Clarify FCP_XFER_RDY when disabled

Editorial

Page 42, section 9.2, second paragraph. An additional sentence should be added at the end of the paragraph as follows: “The first FCP_DATA IU is transmitted without a preceding FCP_XFER_RDY.”

9.69 Sun 69 Clarify obligation of initiator

Editorial

Page 42, section 9.2, third paragraph. The last sentence should be changed to read: “The initiator shall be ready to transmit any part or all of the ~~the entire~~ FCP_DL bytes of data.”

9.70 Sun 70 Clarify Data_RO

Editorial

Page 42, 9.2.1. The first sentence should change the words “the next FCP_DATA” to “the requested FCP_DATA”. In addition, a reference should be put in place for the SCSI-3 application client buffer offset, probably in SAM-2.

9.71 Sun 71 Clarify Burst_LEN

Editorial

Page 42, 9.2.2, first paragraph should be changed as follows: “~~For data transfers from the SCSI initiator to the target,~~ The BURST_LEN field indicates the amount of buffer space prepared for the next FCP_DATA IU and requests the transfer of an IU from the initiator of that exact length. This value is the same as the SCSI data delivery request byte count. See SAM-2.

9.72 Sun 72 Clarify maximum burst length

Technical

Page 42, 9.2.2, third paragraph. The following text should be added to the third paragraph: “A BURST_LEN greater than FCP_DL or longer than the maximum burst length specified by the disconnect/reconnect mode page is not valid.”

Response:

Accepted.

9.73 Sun 73 Clarify FCP_DATA IU

Editorial

Page 43, 9.3, first paragraph. The first paragraph should be changed as follows: “The data associated with a particular FCP I/O Operation is transmitted in the same exchange that sent the FCP_CMND requesting the transfer. ~~identified by the FQXID~~.”

9.74 Sun 74 Simplify Mode Sense/Select reference

Editorial

Page 43, section 9.3, second paragraph. Delete the last sentence and replace it with a reference to 10.1.1.6.

9.75 Sun 75 Improve text

Editorial

Page 43, section 9.3, fourth paragraph. Since there is only one Data Out IU, the parenthetic (T6 or T7) should be deleted. The last sentence needs to be corrected to indicate “first” rather than “corresponding”.

9.76 Sun 76 Improve text

Editorial

Page 43, section 9.3, fifth paragraph. Since there is only one Data Out IU, the parenthetic T6 and T7 should be removed. The last sentence needs to be corrected to read: “The command is completed normally except that data beyond the FCP_DL count shall not be transferred and that the appropriate overrun condition is presented. ~~for presentation of the overrun condition~~. See 9.4.1.”

9.77 Sun 77 Clarify data is contiguous

Editorial

Page 43, section 9.3, 8th paragraph. The third sentence “The target shall not request that sets of data in the middle of a transfer not be transferred.” should be deleted. The second sentence covers this.

9.78 Sun 78 Stylistic improvement

Editorial

Page 44, section 9.3, last paragraph. The wording of the following sentence, “ANSI X3.230 specifies the mechanisms by which an IU shall be transferred.” should be changed to “ANSI X3.230 specifies how an IU shall be transferred.”

9.79 Sun 79 Improve description of linking

Editorial

Page 44, section 9.4, third paragraph. The wording of the last sentence should be changed to: “T~~here is no FCP-2 function equivalent to the~~ The LINKED COMMAND COMPLETE or LINKED COMMAND COMPLETE (WITH FLAG) function defined by SAM and SAM-2 is implicit in the presentation of the proper status in the FCP_RSP.

9.80 Sun 80 Include task management in FCP_RSP_INFO

Technical

Page 47, section 9.4.10. The FCP_RSP_INFO description should contain an explicit requirement that FCP_RSP_INFO is always present in a task management response.

Response:

Accepted.

9.81 Sun 81 Improve table format

Editorial

Page 48, section 9.4.10, table 27. The table should be reformatted to clearly define the bits and bytes used.

9.82 Sun 82 Correct task management completion

Technical

Page 48, section 9.4.10, last paragraph. The first sentence should be changed as follows: ~~The task management function may or may not have been performed by the target if RSP_CODE is returned or if no FCP_RSP is returned before the Exchange is aborted.~~ The completion status of the task management function is indicated by the RSP_CODE. If the Exchange is aborted before the FCP_RSP is returned, the completion status is unknown.

Response:

Accepted.

9.83 Sun 83 Capitalize error codes

Editorial

Page 48, section 9.4.10, table 28. SPI-3 has elected to place the packetized failure codes in upper case. They recommend that the corresponding response codes of table 28 all be upper case.

9.84 Sun 84 Verify task management completion

Technical

There was a statement at one meeting that the FCP-2 document is not consistent with the SAM-2 document with respect to the task management function completion codes. This must be verified.

Response:

After review, the task management completions are:

1) Function complete

2) Function not supported

3) Function failed

These are the same in definition in both FCP-2 and SAM-2, although different wording is used for them. The wording in FCP-2 will be adjusted to more closely parallel the SAM-2 wording.

Accepted.

9.85 Sun 85 Correct description of SCSI mode parameters

Editorial

Page 50, section 10.1, first sentence: The sentence should be changed to read: “This clause describes the block descriptors and the pages used with MODE SELECT and MODE SENSE commands that ~~influence,~~ control and report the parameters that influence the behavior of FCP.

9.86 Sun 86 Clarify requirements for parameters

Editorial

Page 50, section 10.1.1, last sentence: The sentence should be changed to read: “If a parameter that is not ~~appropriate for the an~~ standard for FCP-2 SCSI-3 device is set ~~nonzero~~, the device server shall return CHECK CONDITION status. The sense key shall be set to ILLEGAL REQUEST and the additional sense code set to ILLEGAL FIELD IN PARAMETER LIST.

9.87 Sun 87 Add recommendation to Bus Inactivity Limit

Technical

Page 52, section 10.1.1.3: The following note should be added after the last paragraph:

Note: Because of the low overheads associated with initiating and closing bus tenancy on Fibre Channel links, device servers should end tenancies immediately upon completing the required transfers.

Response:

Accepted.

9.88 Sun 88 Note that FC Port Control page violates standards

Editorial

Page 54/55, section 10.1.3: The following note should be added before Table 32:

Note: Some of the bits defined by the Fibre Channel Port Control page require the port to violate one or more of the fibre channel standards. The non-standard behaviors have been identified as useful for certain specialized operating environments.

9.89 Sun 89 typo

Editorial

Page 55, section 10.1.3.2:

Initiated s/b Initiated

sequences s/b sequence

9.90 Sun 90 Correct DTIPE bit = 0 description

Technical

Page 55/56, section 10.1.3.2: At present, if DTIPE is set to zero, vendor specific initialization is expected. The proper behavior should be to follow the initialization method specified by FC-AL-2.

Response:

Accepted.

9.91 Sun 91 Improve RHA readability

Editorial

Page 56, section 10.1.3.4: The second paragraph should be divided into two paragraphs separated between "... get its hard address." and "If the hard address ...".

9.92 Sun 92 Clarify RR_TOV default

Technical

Page 57, section 10.1.3.9: The next to the last sentence should be changed to read: If no timer is specified, the RR_TOV value in byte 7 shall be ignored by the device server and a vendor specific default value shall be used.

Response:

Accepted.

9.93 Sun 93 typo

Editorial

Page 60, section 11.2. "... with the aborted Sequence." s/b "... with an aborted Sequence."

9.94 Sun 94 Concern about organization of error recovery section

Editorial

Page 62, section 12. It appears that a descriptive paragraph or model would be appropriate either here or in section 4.0. The overall structure of 12 depends on two types of error detection, one that works for all classes of service and an additional one that works for acknowledged classes of service. Once an error is detected, there appears to be two types of error recovery that can be performed, one that does exchange level recovery, and the other that does sequence level recovery. This is a bit difficult to pick out of the document.

9.95 Sun 95 Remove redundant sentence

Editorial

Page 62, section 12.1.1. The sentence "An FCP-2 ... defined below." should be deleted. It is left over from a previous revision of the document.

9.96 Sun 96 Emphasize optional error recovery

Editorial

Page 62, section 12.1.2. The first sentence should be rewritten as: "SCSI devices may use the mechanisms described in this chapter to detect the presence of link errors, then perform optional retransmission procedures that ~~will~~ allow the commands to be completed without requiring ~~complex~~ higher level recovery algorithms." The extra line space above the paragraph should be deleted.

9.97 Sun 97 typo

Editorial

Page 62, 12.1.2, third paragraph. Correct font.

9.98 Sun 98 Clarify error detection

Editorial

Page 62, section 12.2.1, first paragraph. The sentence should be rewritten as: “The Exchange originator (SCSI Initiator) may detect the following errors. It may optionally further identify and recover the error as described in 12.3. ~~shall initiate error detection and recovery described in 12.3 for the following~~:”

In addition, in line item 3, “an Sequence” s/b “a Sequence”.

The same rewrite should be done for the paragraph associated with the Exchange responder.

9.99 Sun 99 Clarify sequence error detection

Editorial

Page 63, sections 12.2.1 and 12.2.2. Item 4 of the target list of section 12.2.2 really applies to all classes and should be deleted from 12.2.2. In 12.2.1, the wording for sequence errors should be changed to match the text deleted from 12.2.2. Reference to section 12.3.9 for the recovery process should be made.

9.100 Sun 100 Clarify error detection

Editorial

Page 62, section 12.2.2, first paragraph. The second sentence should be rewritten as: “The Exchange originator (SCSI Initiator) may detect the following errors. It may optionally further identify and recover the error as described in 12.3. ~~shall initiate error detection and recovery described in 12.3 for the following~~:”

The same rewrite should be done for the paragraph associated with the Exchange responder.

9.101 Sun 101 Clarify exchange level error recovery

Editorial ******

Section 12.1.1 outlines how exchange level error recovery works. The only place it is actually described in detail is in 12.3.8 , 12.3.9, 12.4, and 12.5 actually describe different portions of the exchange level error recovery. However, 12.3.8 and 12.3.9 in large measure duplicate the detection discussion of 12.2.1 and 12.2.2. Section 12.4 overlaps with the recovery information in 12.5.2. I believe that 12.3.8 and 12.3.9 should be selectively deleted where the information is duplicated by 12.2.1 and 12.2.2. I believe that section 12.4 should be carried into section 12.5.2, with which it is almost totally redundant.

9.102 Sun 102 Clarify exchange level error recovery

Editorial

Page 63, Section 12.2.2 The last two paragraphs describe recovery mechanisms, not detection mechanisms. These belong in another section, possibly 12.5.

9.103 Sun 103 Overall formatting of recovery suggestion

Editorial

The relationship among recovery algorithms and detection algorithms is not as clear as it should be. I would suggest the following organization:

12.1 Overview

12.1.1 Overview of exchange level recovery

12.1.2 Overview of sequence level recovery

12.2 Initial FCP error detection

12.2.1 Error detection for all classes of service

Initiator

Target

12.2.2 Additional error detection for acknowledged classes
Initiator
Target

12.3 Exchange level error recovery (largely the same as old 12.5)

12.3.1 SCSI initiator abort of exchange (largely the same as old 12.5.1)

12.3.2 SCSI target abort of exchange (largely the same as old 12.5.2, combined with 12.4)

12.4 FCP-2 specific error recovery (this is distinguished by special use of REC and time-outs.) This contains all the sections from 12.3.1 to 12.3.7. Note that 12.3.8 and 12.3.9 are included already in 12.2.1.

12.5 Second level error recovery (This contains all the sections from 12.6.1 through 12.6.3)

12.6 Responses to FCP-level frames before PLOGI or PRLI (This contains all of 12.7)

See also 11.8

9.104 Sun 104 Clarify REC polling

Editorial

Page 64, section 12.3.1. The overall model of polling using REC is never defined. Parts of it are included in the REC_TOV definition, some implicit timeout conditions in 12.2.1, and parts in 12.3.1. Since we are not covering the overall error recovery in section 4, it seems appropriate to spend a paragraph indicating how polling is performed in 12.3.1.

9.105 Sun 105 Clarify REC response if no OX_ID

Technical

Page 64, section 12.3.2. The definition of the reason code for the LS_RJT is incomplete. The definition should be: "... for the REC with a reason code of Logical Error and a reason code explanation of Invalid OX_ID-RX_ID combination (0317h))."

Response:

Accepted.

9.106 Sun 106 Correct error recovery reason

Editorial

Page 64, section 12.3.2. The sentence "This is to ensure that no reply Sequences have been lost." is really not correct. It will eventually become apparent that they were lost. This is really to find out more quickly that the sequences have been lost.

9.107 Sun 107 Clarify REC response if no OX_ID

Technical

Page 66, section 12.3.7. The definition of the reason code for the LS_RJT is incomplete. The definition should be: "... to the REC from the target will be a LS_RJT with a reason code of Logical Error and a reason code explanation of Invalid OX_ID-RX_ID combination (0317h)."

Response:

Accepted.

9.108 Sun 108 Exchange bashing options

Technical

Page 66, section 12.3.8. The initiator may also abort the exchange with any task management function or with the ABORT TASK function, which uses the recovery abort protocol, which uses ABTS. It is my

impression that ULP_TOV will use one of the higher level functions, probably ABORT TASK, to invoke the ABTS.

Response:

Accepted.

9.109 Sun 109 Redundant sections

Technical

Page 67, section 12.4 appears to be largely redundant with 12.5.2 and should be combined with it.

Response:

Accepted.

9.110 Sun 110 Exchange bashing options again

Editorial

Page 67, 12.5.1, paragraphs 4, 5, and 7. The words “ABTS protocol” should be replaced with “recovery abort”

9.111 Sun 111 Stylistic correction

Editorial

Page 69, section 12.6.1. The phrase “If the SCSI target is not on a remote loop,” s/b “If the SCSI target is on the local loop or if the loop is private,”.

9.112 Sun 112 Clear resources after second level error recovery of REC

Technical

Page 69, section 12.6.2, next to last paragraph. The paragraph should be modified to read: “The REC shall be retried at a rate not to exceed once per the timeout period for at least 3 times. If none of the RECs receive a response, the Initiator shall report an error condition to the ULP, clear resources associated with the exchange, and perform an implicit logout with the target.

Response:

Accepted in principle. See 1.47.

9.113 Sun 113 Clear resources after second level error recovery of SRR

Technical

Page 69, section 12.6.2, next to last paragraph. The paragraph should be modified to read: “The SRR shall be retried at a rate not to exceed once per the timeout period for at least 3 times. If none of the SRRs receive a response, the Initiator shall report an error condition to the ULP, clear resources associated with the exchange, and perform an implicit logout with the target.

Response:

Accepted in principle. See 1.47.

9.114 Sun 114 Clarify sending of logout

Technical

Page 69, section 12.7. The first paragraph should be rewritten as follows: “If a SCSI Target receives an FCP_CMND from ~~an NL_Port~~ a port with which it has not successfully completed N_Port Login (PLOGI), it shall discard the FCP_CMND and, in a new exchange, send LOGO to that ~~NL_Port~~ port. No Exchange is created in the SCSI Target for the discarded request, and the originator of the discarded request terminates the Exchange associated with the discarded request and any other open Exchanges for the SCSI Target sending the LOGO. ~~The LOGO is not part of the Exchange associated with the discarded request.~~

Response:

Accepted.

9.115 Sun 115 Allow implicit login

Technical

Page 69, section 12.7. The successful completion of a login should include an implicit login. A new paragraph should be added at the end that says: “FCP-2 devices that have used implicit PLOGI and/or implicit PRLI to establish their parameters and relationships may accept all FCP-2 IUs exactly as if they had completed an explicit PLOGI and/or PRLI.

Response:

Accepted.

9.116 Sun 116 Remove placeholder

Technical

Page 69, section 12.7. Delete the last sentence of the section, which had been reserved as a placeholder for any other frames of interest.

Response:

Accepted.

9.117 Sun 117 Remove editor’s note

Editorial

Page 71, section A.1. The editor’s note should be removed.

9.118 Sun 118 Remove SCSI Parallel Interface

Editorial

Beginning page 74, sections of A.5. These sections were originally taken from a parallel SCSI document. The words “SCSI parallel interface services” s/b “Fibre Channel Protocol for SCSI services”.

9.119 Sun 119 Resetting FCP

Editorial

Page 75, section A.5.1.1. The words “ABORT TASK message” s/b “ABORT TASK function”.

9.120 Sun 120 Create change document for FC-FS

Editorial

Page 77, section B.1. The words “a future version of FC-PH” should be “FC-FS”.

The document requesting these changes for FC-FS must be prepared by the editor.

9.121 Sun 121 Clarify Basic Link Services requirements

Editorial

Page 77, section B.2. The word “exceptions” s/b “additional functions”.

9.122 Sun 122 Clarify ABTS description

Editorial

Page 77, section B.2.1, second paragraph should be rewritten to say: “~~FC-PH does not specify a mechanism to determine which behavior an ABTS should create. While using~~ To meet the requirements of the FCP-2 standard ~~protocol~~, the default value of bit 0 in the ABTS request parameter field shall be interpreted as requiring the aborting of the exchange, as described in section 9.1.2.2 on page 41 of this standard. ~~While using the FCP-2 protocol, a~~ A value of 1 in bit 0 of the parameter field requires that the

sequence be aborted as described in FC-FS ~~FC-PH, clause 21.2.2.1 and as described in section 12.4 on page 67 of this standard.~~

9.123 Sun 123 Reference update

Editorial

Page 77, section B.3. “FC-PH” s/b “FC-FS”.

9.124 Sun 124 Clarify REC description

Editorial

Page 78, section B.3.1, first paragraph. The text “If the RX_ID is unspecified in the request” s/b “If the RX_ID is specified as undetermined in the request”.

9.125 Sun 125 Reference update

Editorial

Page 78, section b.3.1, “FC-PH” s/b “FC-FS”.

9.126 Sun 126 Clarify REC Accept payload

Editorial

Page 79, section b.3.1, table B.4 and text underneath:

a) Table B.4 should be modified to show the byte/bit layouts

b) The first sentence under the table, “E_STAT ...” under the table should be deleted. The full byte definitions of the E_STAT value should be incorporated in table B.4.

c) The third paragraph under the table should be changed from “set the” to “set to the”.

9.127 Sun 127 typo

Editorial

Page 81, section C.1: “initiators and targets” s/b “initiators or targets”.

9.128 Sun 128 document format improvement

Editorial

Page 84, C.2, The text should be moved to join Figure C.1.

9.129 Sun 129 Consider T11/99-722v2

Technical

Carl Zeitler of Compaq has offered document T11/99-722v2 for consideration with respect to error recovery examples including those in Annex D. If these considerations are not included in his formal comments, they are included in this formal comment.

Response:

Accepted in principle. The work has gone through several iterations. The final iteration will be used.

9.130 Sun 130 Correct error recovery procedure

Technical

Page 95 and 96, Figure D.7 and D8. The last sentence in figure D.7 should be rewritten to read: “The Target retransmits the FCP_XFER_RDY using the specified Relative Offset ~~(or a Relative Offset smaller than the Relative Offset specified in the SRR in order to be aligned on an appropriate boundary in the Target)~~.”

In addition, the label for the last data transfer arrow should be: “FCP_DATA (seq=2, cnt=1)”.

Response:

Accepted.

9.131 Sun 131 typo

Editorial

Page 97 and 98, Figure D.9 and D.10. The label for the last data transfer arrow should be “FCP_DATA (seq=2, cnt=1)”.

9.132 Sun 132 typo

Editorial

Page 100, Figure D.12. The last two sentences need to be separated by a blank space.

9.133 Sun 133 Acknowledged classes

Editorial

Page 103, Table E.1. The words “Class 2 or Class 3 Frame” s/b “Acknowledged or unacknowledged frame”. The words “Class 2 only frame” s/b “Acknowledgement frame”.

9.134 Sun 134 Clarify text of E.2

Editorial

Page 103, section E.2 (all). The example weaves together queued and unqueued cases. As a result, it is harder than necessary to interpret these pages. The section should separate the queued and unqueued cases into two separate examples.

9.135 Sun 135 Implicit confirm?

Technical

Page 104, Section E.2.2. The third sentence of the second paragraph is not correct. There is no concept of an implicit confirmation with respect to a target-initiator nexus in SCSI or FCP. The best solution is probably to delete the sentence.

Response:

Accepted.

9.136 Sun 136 Is example desirable?

Editorial

Page 105, Figure E.1. After some review, this picture looks just like D.9 and D.10. It this section is redundant, it should be removed.

9.137 Sun 137 Clarify discovery is for initiator

Editorial

Page 109, F1. The sections in F.1 are involved only in discovery of SCSI peripheral devices by the initiators. The text and titles should be modified to address this.

9.138 Sun 138 Simplify list

Editorial

Page 109, section F.1.1, item 7. This item should be divided into two items, like the corresponding items of the list in F.1.2

9.139 Sun 139 typo

Editorial

Page 109, section F.2, first line. delete “that”

9.140 Sun 140 Clarify fabric and device authentication

Editorial

Page 110, section F.2. The list of items 1-4, is actually two lists, items 1 and 2 addressing the fabric logins and items 3 and 4 addressing the port logins. The text should be separated into two parts. Items 2 and 4 need to be rewritten to clarify the "if-then-else" sense of the sentences. The last part of each sentence (what to do if a configuration change has occurred) needs to be separated out of the respective paragraph and presented as a separate line item or as a separate conclusion.

9.141 Sun 141 Logical Unit Authentication

Technical ******

At present, this specifies two device identification page items, port name and node name. This is incorrect. It should be LUN WWN (which may or may not be derived from node name) and optional port name using the association bit.

Response:

Accepted.

9.142 Sun 142 Improve informative text

Editorial

Page 111, section G.1. The first sentence, "The required formats for recovery ELSs are described below" s/b "Examples of the formats for recovery ELSs are described below."

9.143 Sun 143 Complete informative text

Editorial

Page 113, Section G.?. Should additional examples be provided for REC and SRR?

9.144 Sun 144 Re-distribute contents of Annex H

Editorial

Annex H should be deleted, and its contents distributed into the body of the document.

Paragraph 1 should be distributed to section 9.4

Paragraph 2 should be distributed to section 9.4

Paragraph 3 should be distributed to section 4.2 or 9.1.

Paragraph 4 should be distributed to a location just before section 4.9.

9.145 Sun 145 Re-distribute contents of Annex I

Editorial

Annex I, with the following modifications, should be moved to section 4.8.

"If a SCSI Target Reset, Logical Unit Reset, or Clear Task Set management function is received by a SCSI Target that has multiple SCSI Initiators logged in with it, then the SCSI Target ~~should~~ shall:

a) create a Unit Attention Condition for all other SCSI Initiators ~~(an FCP_RSP may have been transmitted but not received by the SCSI Initiator, or the SCSI Initiator may have transmitted a command that has not yet been received by the SCSI Target) (refer to SAM and SAM-2)~~;

b) clear all resources associated with the cleared Exchanges~~, per SCSI Architectural Model~~ (refer to SAM and SAM-2);

~~c) return FCP_RSP upon completion of (a) and (b). The payload shall be zeroes with the exception of the FCP_RSP_LEN_VALID bit, FCP_RSP_LEN (which shall be set equal to 8), and the FCP_RSP_INFO (refer to FCP-2).~~ [This is normal behavior already defined for task management, and need not be repeated here].

~~Upon discovery of the Unit Attention Condition set in a), SCSI Initiators should issue ABTS for all commands that are outstanding for the appropriate LUN or LUNs at that SCSI Target as described in~~

~~12.5.1. From a SCSI Initiator perspective, this is all commands for which FCP_RSP has not been received."~~ [This is normal behavior, already covered in other sections.]

9.146 Sun 146 Remove Annex J

Editorial

These changes to FC-PH-2 and FC-FS should already be in progress and should not need to be covered here.

10 Comments from Texas Instruments

The following comments accompanied the ballot from Texas Instruments, prepared by Paul D. Aloisi.

10.1: TI Comment 1 (Editorial)

2.2 Last Paragraph - NCITS documents should be reference not just X3T10

10.2: TI Comment 2 (Editorial)

General - The references to SCSI-3, I thought we had changed to just SCSI without the -3

10.3: TI Comment 4 (Editorial)

X3T10 should be just T10 - several places in the document. 2.2 example

10.4: TI Comment 5 (Editorial)

Web site and reflectors are www.t10.org & T10.org

10.5: TI Comment 6 (Editorial)

John Lohmeyer mail is lohmeyre@t10.org

10.6: TI Comment 7 (Editorial)

We don't use the SCSI Bulletin board any more.

11 Comments from Compaq

The following comments were provided by Carl Zeitler of Compaq Computer Corporation.

11.1 Compaq CommentID:1 (Editorial)

PDFPage: 46 Document Page: 30 ClauseSubclause:7.1 Paragraph number: 1 Line: 2

Comment: Remove the "a" , first word on line 2.

Response:

11.2 Compaq CommentID:2 (Technical)

PDFPage: Document Page: 31 ClauseSubclause:8.1 Paragraph number: last Line:

Comment: Restarting Sequence Count is fine for Class 3. It doesn't work for Class 2 since any frame with a Sequence Count value within the range of the Recovery Qualifier will be discarded. So reword:

For Class 3, the Sequence Count..... For Class 2, The Sequence Count must be one greater than the last Sequence Count used in the Exchange.

Response:

Accepted.

11.3 Compaq CommentID:3 (Editorial)

PDFPage: Document Page: 31 ClauseSubclause:8.1 Paragraph number: Last on the page Line: Last on the page Comment

Comment: Is the period missing on the last sentence or is text missing?

Response:

11.4 Compaq CommentID:4 (Technical)

PDFPage: Document Page: 37 ClauseSubclause:9.1.1.3 ORDERED_Q Paragraph number:

Comment: Sequential delivery by the fabric does not insure task order in either Class 2 or 3 if a frame gets busied off and resent or if the frame is discarded in Class 3. There are 2 solutions that I can see. One is CRN, so everything is in order or can be put back in order. If CRN is not used, then waiting for some response for each previous command or a GOOD response to a REC on each command preceding the command requiring ordering should suffice. The "ordered" command must also get a response or good response back on its REC, before issuing the next command, to insure that no frames pass it by for the out-of-order case.

Response:

Accepted in principle. The wording may require refinement.

11.5 Compaq CommentID:5 (Technical)

PDFPage:75 Document Page:59 ClauseSubclause: 11 Paragraph number: Table 35 Line:

Title: R_A_TOV/2 support for out-of order

Comment: R_A_TOV/2 is required for out-of-order recovery.

In Table 35, qualify current Default Value for REC_TOV for in-order-delivery. Add a new line, for REC_TOV, qualified by out-of-order delivery where Default Value is R_A_TOV/2.

Response:

This requires further study.

11.6 Compaq CommentID:6 (Technical)

PDFPage:78 Document Page:62 ClauseSubclause:12.1.2 Paragraph number: 3 Line:

Title: Remove paragraph

Comment: For out of order, the error detection and recovery procedures are different. Even for in-order, recovery is different-i.e., reuse/non-reuse of SEQ_CNT for Classes 3 and 2 respectively for data.

Response:

This requires further study. If true, this requirement is undesirable, and would be sufficient to reinstate the prohibition on out-of-order delivery.

11.7 Compaq CommentID:7 (Technical)

PDFPage:78 Document Page:62 ClauseSubclause: 12.1.2 Paragraph number:4 Line:

Title: Remove

Comment: Remove to cover out-of-order.

Response:

Accepted

11.8 Compaq CommentID: 8 (Technical)

PDFPage:80 Document Page:64 ClauseSubclause:12.3.1 Paragraph number: Line: CommentType: T

Title: Don't understand intent of paragraph

Comment: Need ladder diagram to help explain the text.

Response:

The intent of the paragraph is to explain three concepts:

1) Sequence errors should be indicated with a request for ABTS before performing an REC. Unfortunately, it is not explained how this can occur if the REC comes from the sequence originator.

2) If an REC is rejected as non-supported, use exchange level recovery.

3) If an REC receives no response, perform second level recovery.

Item 1 should probably be deleted from the paragraph. Items 2 and 3 are duplicated several other places. This should be fixed by the editorial changes proposed in 9.103 Sun 103.

11.9 Compaq CommentID: 9 (Technical)

PDFPage:80 Document Page:64 ClauseSubclause: 12.3.3 Paragraph number: 2 Line: 6

Title: Addition for Class 2

Comment: Recovery Qualifier is established. The Target needs to use the next higher SEQ_CNT value, one greater than used in ABTS.

Add qualifying sentence just prior to the last sentence in the paragraph: For Class 2, the Sequence count used in the new Sequence, shall be one greater than that used to transmit the ABTS.

Response:

Accepted in principle. This must be applied to all acknowledged classes, not just class 2.

Note that this is a dumb requirement of FC-FS, which could be corrected by including SEQ_ID in the recovery_qualifier range.

11.10 Compaq CommentID: 10 (Technical)

PDFPage:80 Document Page:64 ClauseSubclause: 12.3.4 Paragraph number: 3 Line: 3 CommentType: T

Title: Qualifier for Class 2

Comment: Add sentence to end of paragraph: For Class 2, the Sequence count used in the new Sequence, shall be one greater than that used to transmit the ABTS.

Response:

Accepted in principle. This must be applied to all acknowledged classes, not just class 2.

Note that this is a dumb requirement of FC-FS, which could be corrected by including SEQ_ID in the recovery_qualifier range.

11.11 Compaq CommentID:11 (Technical)

PDFPage: 81 Document Page: 65 ClauseSubclause:12.3.5 Paragraph number: 2 Line: Last sentence. CommentType: T

Title: Add in a new Sequence

Comment: Change the sentence to read: After transmitting the ACC for the SRR, the Target transmits an FCP_XFER_RDY, in a new Sequence, with the Relative Offset...

Response:

Accepted.

11.12 Compaq CommentID: 12 (Technical)

PDFPage: 81 Document Page:65 ClauseSubclause: 12.3.5 Paragraph number: 3 Line: 1

Title: Qualifier for Class 2

Comment: Add new Sequence and Class 2 qualifier for Sequence count. Suggested change for paragraph 3:

FCP_DATA shall be retransmitted in a new Sequence. For Class 3, the Sequence count shall start at zero, even if continuously increasing sequence count is used. For Class 2, the Sequence count shall be one greater than that used to transmit the ABTS.

Response:

Accepted in principle. The terms should be “unacknowledged classes” and “acknowledged classes”. I would suggest that for unacknowledged classes, the word “may” should be used, since I do not believe there is any requirement that they start at zero.

11.13 Compaq CommentID:13 (Technical)

PDFPage: 81 Document Page:65 ClauseSubclause:12.3.6 Paragraph number: 3 Line: 1

Title: Qualifier for Class 2

Comment: Add Class 3 qualifier to sentence: The Sequence count for retransmitted FCP_DATA, in class 3, shall start..... Add additional sentence: For Class 2, the starting Sequence count shall be one greater than that used to transmit the ABTS.

Response:

Accepted in principle. This must be applied to all acknowledged classes, not just class 2.

11.14 Compaq CommentID:14 (Technical)

PDFPage: 82 ClauseSubclause:12.3.7 Document Page:66 Paragraph number: Line:

Title: Separate recovery procedures for Classes 2 and 3

Comment:

Trying to mimic Class 3 for this case doesn't work.

Solution: Put text currently in 12.3.7 into 12.3.7.1 FCP-CONF Recovery for Class 3.

Replace 2nd paragraph with: After the transmission of FCP_RESP and no FCP_CONF is received within R_A_TOV, the Target shall issue REC.

At end of subclause add: See D.? for an example.

Add 12.3.7.2 FCP_CONF Recovery for Class 2

If E_D_TOV expires prior to receiving the ACK to FCP_CONF, the Initiator issues ABTS. Receipt of BA_RJT indicates that FCP_CONF was received, and no recovery is necessary. If BA_ACC indicates that FCP_CONF was not received, then it is retransmitted in a new Sequence with a Sequence count one greater than used in ABTS.

Upon expiration of R_A_TOV following the receipt of BA_ACC or BA_RJT, the Initiator issues RRQ to free up the Recovery Qualifier and associated resources in the Target, if necessary. See D.?? and D.??? for examples.

Response:

This violates our basic assumption that, while the detection may be enhanced, the recovery remains unchanged. REC should be used as the recovery process. No change will be made.

11.15 Compaq CommentID:15 (Technical)

PDFPage: 83 ClauseSubclause:12.4 Document Page:67 Paragraph number: 2 Line: C)

Title: Remove option b) and c).

Comment: These options are inconsistent with the rest of the error procedures for Class 2. The a) option is all that is required.

Response:

However, the other two options will also accomplish the goal. No change is required.

11.16 Compaq CommentID:16 (Technical)

PDFPage: 83 ClauseSubclause:12.4 Document Page:67 Paragraph number: 3 Line:

Title: Abort Perform ABTS doesn't work for out of order

Comment: Delete the paragraph. Error detection is done by the Sequence initiator.

Response:

This simplification is outside the FC-FS standard. No change is required.

11.17 Compaq CommentID:17 (Editorial)

PDFPage: 83 ClauseSubclause:12.4 Document Page: 67 Paragraph number: last Line:

Title: Change text

Comment: Examples of recovery for acknowledged services are shown throughout Appendix D. for acknowledged service.

Change paragraph to:

Examples of recovery for acknowledged services are shown in Appendix D.

Response:

Accepted. (The comment was changed to editorial)

11.18 Compaq CommentID:18 (Technical)

PDFPage: 85 ClauseSubclause:12.6.2 Document Page:69 Paragraph number: 1 Line: a)

Title: Change ABTS to ABTS (LS)

Comment: To be more precise, change ABTS to ABTS (LS)

Same is also true for 16.6.3 SRR in the same respective place.

(Note that in the Ladder diagrams, D.13 and D.14, I changed E_D_TOV to 2 * R_A_TOV to agree with your text in these sections.)

Response:

Accepted.

11.19 Compaq CommentID:19 (Editorial)

PDFPage: 85 ClauseSubclause:12.7 Document Page:69 Paragraph number: last Line:

Title: Needs to be removed

Comment: Add text if applicable.

CommentEnd:

11.20 Compaq CommentID:20 (Editorial)

PDFPage:87 ClauseSubclause:A.1 Document Page:71 Paragraph number: 4 Line: last

Title: Change though to through in line c)

Comment:

CommentEnd:

11.21 Compaq Comment from FCP-2 editor (Technical)

Many of the comments from Compaq are further explained by the ladder diagrams contained in T10 document T10/00-137r0.pdf.

Response:

Include conclusions of latest revision of relevant documents.

12 Additional comments identified during ballot resolution process

12.1 FC-MI multi-initiator resolution (Technical)

Section TBD:

Some devices attempting to participate in a multi-initiator reject PRLIs if both the initiator and target bits are set. This is wrong. Some devices may also reject the presence of any other initiator.

This needs to be checked in FCP-2. The particular issue is whether or not FCP-2 has been explicit in the requirements for supporting multi-initiator operation and temporary initiator operation.

FCP-2 will discuss it further, and, if any changes are required to FCP-2 or to FC-MI, a proposal will be presented.

Response:

Section 6.2.6.11 explicitly requires the setting of both bits 4 and 5 to be allowed. This was also true in FCP, clause 6.2.6.9. The devices not meeting this requirement are not compliant with FCP-2.

The present revision of FC-MI does not address this question. There does not appear to be any test in SANMark that specifically verifies this capability or justifies this failure.

No change is required.

12.2 Concern about the re-definitions of fields defined in SPC-2 (Editorial)

Section 10.1, all sub-clauses.

Gary Stephens has called attention to the definitions of protocol dependent fields in SPC-2 and FCP-2. He believes that FCP-2 should not redefine fields described in SPC-2. Ralph Weber indicates that FCP-2 presently describes the use of protocol dependent fields in a manner consistent with the text of SPC-2 and feels that there is no problem. This will be cross-checked in FCP-2, but there is not expected to be any problem.

12.3 Mode Page 19 returned to short format

Section 10.1.3.

The MCM function has been removed from FC-AL-3.

Response:

All references to MCM are removed. In particular, clauses 10.1.3.10 through 10.1.3.13 are removed. The Mode Page 19 is shortened to its original length of 8 bytes.