

IT/02-0956

----- Original Message -----

From: Tracy Supnet

To: Tyrone Tran ; Ron Miller ; 'swansonse@corning.com' ;
'levinpa@earthlink.net' ; 'tlindsay@stratoslightwave.com' ;
'dpetrich@wavecrestcorp.com' ; 'curt@lsil.com'

Cc: Robert Snively ; Deborah Donovan (E-mail) ; Schelto Vandoorn (E-mail)

Sent: Wednesday, February 06, 2002 11:18 PM

Subject: FC-PI PR Comment Resolution Letter

T11/02-096v0

Accredited Standards Committee, INCITS, Information Technology
INCITS Secretariat, Information Technology Industry Council (ITI)
1250 Eye St. NW, Suite 200, Washington, DC 20005
Telephone 202-737-8888; Fax 202-638-4922; Email: ncits@itic.org

Date:

02/06/02

Project:

1306-D

Ref. Docs:

T11/00-302v0

Reply to:

Robert Snively, T11 Chairman

Phone:

408-487-8135

Email:

rsnively@brocade.com

To:

Tyrone Tran, Brocade Communications

Ron Miller, Brocade Communications
Steven E. Swanson, Corning
Paul Levin, Xyratex
Tom Lindsay, Stratos Lightwave
Dennis Petrich, Wavecrest
Curtis A. Ridgeway, LSI Logic
cc:
T11 Members
From:

Robert Snively, T11 Chairman
1745 Technology Drive
San Jose, CA 95110
Subject:

Response of incites T11 to the Public Review Comments on INCITS 352
(FC-PI'98) Project 1306-D

Thank you for your public review comment on INCITS 352 (FC-PI'98). INCITS T11 has carefully reviewed the comments. The resolution of the public comments is described in document T11/01-302v2, which is enclosed for reference. The comment resolution for LSI and Wavecrest comments are incorporated in the Stratos Lightwave comments. Please notify us whether or not the response by the TC resolves the comment(s) to your satisfaction, allowing you to withdraw the comment(s).

In accordance with ANSI requirements, we are advising you in this letter of the Appeals Processes. The appeals process is stated below.

Appeals Processes

You may appeal an action of INCITS or its Secretariat. The INCITS Appeals Procedures are in Section 5.9 of the INCITS Standing Document SD-2.

As indicated in INCITS SD-2, you may further appeal to the ANSI Board of Standards Review according to the process described at:

http://web.ansi.org/public/library/std_proc/anspro.html

Please note, in accordance with BSR Procedures, those objecting to the approvals or withdrawals are hereby notified of their right of appeal. The appeal must be based on due process or lack of consensus and include a statement as to why the BSR action should be modified. The BSR will not render decisions on the relative merits of technical matters, but it shall consider whether due process was afforded technical concerns. If you have not completed the appeals process at the standards developer, you are normally not eligible to appeal to the BSR.

Once again, thank you for your interest in the "Fibre Channel - Physical Interface" draft standard.

Sincerely,

Robert Snively

T11 Chairman

cc: Deborah Donovan, INCITS Secretariat

Comments from member: Brocade

Brocade #	1	Type	t	Page:	0	Clause:	A.4.2	Group:	o	Status:	p	A/R:	a	Edited	<input checked="" type="checkbox"/>		
<p>The problem: Multimode cable is often used for interconnect between FC devices within a rack. Because FC-PI re-quires that the multimode cables be no shorter than 2 meters it is difficult to physically route the cables in an orderly fashion. Essentially when many interconnects are required it becomes a tangle of cables.</p> <p>The specification: FC-PI calls out a minimum length of 2 meters for multimode cable. Note that single-mode cable is not effected by this problem because it is not usually used for local interconnects with its higher cost.</p> <p>Discussion on 2 meter requirement:</p> <p>After checking with several cable vendors and gbic vendors, no one seems to require the 2 meter mini-mum requirement now. In the past there were some concerns based on older single-mode environments. Further study has determined that none of those are applicable to short-wave multi-mode operation.</p>																	
<table border="1"><tr><td>Solution</td><td>Reduce the minimum length for multimode cable or remove the minimum length requirement altogeth-er. Conversations with other T11 member companies have revealed a desire to change this to 0.5 meters.</td></tr></table>																Solution	Reduce the minimum length for multimode cable or remove the minimum length requirement altogeth-er. Conversations with other T11 member companies have revealed a desire to change this to 0.5 meters.
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<table border="1"><tr><td>Resolution</td><td></td></tr></table>																Resolution	
Resolution																	

Comments from member: Corning

Corning # 1 Type e Page: 2 Clause: 2.1.1 Group: Status: A/R: ap Edited

Lists FOTP-30 [13] and FOTP-51 [18] as references. These documents have been subsumed by FOTP- 204 (EIA/TIA-455-204) Measurements of Bandwidth on Multimode Fiber: 1st Ed December 2000

Solution

Resolution Subject to vrification

Corning # 2 Type e Page: 3 Clause: [42] Group: Status: A/R: ap Edited

This reference is obsolete. The reference should read: OFSTP-14A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant, August 1998. Also, see comment 004 below.

Solution

Resolution Subject to vrification

Corning # 3 Type e Page: 2 Clause: 2.1.1 Group: Status: A/R: ap Edited

Add the following references: FOTP - 61 (EIA/TIA-455-61A) Measurement of Fiber or Cable Attenuation Using an OTDR, April 2000
ANSI/TIA/EIA - 586B.1: Commercial Building Telecommunications Standard, part 1, Generic Standards 2000
ANSI/TIA/EIA - 586B.3: Commercial Building Telecommunications Standard, part 3, Optical Fiber 2000

Solution

Resolution Subject to vrification

Corning # 4 Type e Page: 56 Clause: 8.2.3 Group: s Status: A/R: a Edited

The reference at the end of the clause appears to be incorrect. It should reference [42] rather than [46]. Additionally, FOTP-61 (see comment 002 above) should be referenced here.

Solution

Resolution

Corning # 5 Type e Page: 5 Clause: 3.18 Group: Status: p A/R: r Edited

baud: Should a "bit" be defined? A bit could be defined, unless that is implicit in the note of 3.1.8. I think it should be separate. Then for Fibre Channel a baud is a bit/sec (b/s).

Solution

Resolution This is incorect

Corning # 6 Type e Page: 7 Clause: 3.1.34 Group: Status: p A/R: w Edited

jitter: This "definition" appears to be much more than a definition. The paragraph in question appears to address how to track or not track; how to calculate; what parts it consists of, etc.

Solution Perhaps it could be reduced to the first and last sentence in the current "definition."

Resolution This comment was withdrawn by the commenter

Corning # 7 Type e Page: 10 Clause: Group: Status: p A/R: r Edited

The ISO numbering convention: This appears to be an NCITS tradition. ITU has decided that the notation "...with spaces and strange commas was confusing....", and the "American"(?) convention is would be used there. If we continue with the ISO convention then Figure 8 on page 22 has an error with regard to 62 5µm media.

Solution

Resolution Let NCITS editor decide

Corning # 8	Type e	Page: 11	Clause: t3	Group:	Status:	A/R: a	Edited <input type="checkbox"/>
Table 3, Acronyms and other abbreviations: HIPPI, IP, OMA, SMA, IEC, SFF, ANSI, ICEA and others are missing. Add the meaning of these acronyms to Table 3.							
Solution							
Resolution	Leonard will supply text						
Corning # 9	Type e	Page: 22	Clause: 5.8	Group:	Status:	A/R: r	Edited <input type="checkbox"/>
FC-PI nomenclature: Remove "cost reduce" text in LC Transmitter. The reference to cost should not be included in standards recommendations. Suggest uncooled or some other differentiator that implies lower cost. Also the note at the bottom of Figure 8 contains a misspelled word "optica"							
Solution							
Resolution	Designator was changed from Low Cost to cost reduced						
Corning # 10	Type e	Page: 22	Clause: 5.8	Group:	Status: p	A/R: ap	Edited <input checked="" type="checkbox"/>
FC-PI nomenclature: Delete "LL" Transmitter and "V" Length since they are not specified elsewhere in the document. These are the only occurrences of this nomenclature in the FC-PI draft.							
Solution							
Resolution	And remove distances from L,I,S rows.						
Corning # 11	Type e	Page: 30	Clause: t5	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
Units missing for MMF variants. Use (μm) as a unit designator for MMF variants.							
Solution							
Resolution	done						
Corning # 12	Type e	Page: 37	Clause: f18	Group:	Status: p	A/R: r	Edited <input type="checkbox"/>
Figures 18, 19, 20: Change Center Wavelength units from (μm) to (nm). Microns are no longer in use for wavelength unit of measure.							
Solution							
Resolution	Practically not possible						
Corning # 13	Type e	Page: 41	Clause: t11	Group:	Status: p	A/R: pa	Edited <input checked="" type="checkbox"/>
1) Tables 11 and 12, Multimode link classes: Should OMA units be provided in both mW numbers and dBm units? 2) Also, change MMF mode field diameter to core diameter. Mode field diameter applies only to single mode fiber.							
Solution							
Resolution	1) this would be a major change. 2) Accepted						
Corning # 14	Type t	Page: 53	Clause: t19	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
MT-RJ active device receptacle dimensions: Remove the reference to "H". The "H" dimension is not specified in Figure 30. . This would make the information consistent with TIA FOCIS-12. This comment was originally accepted during the December 2000 review of FC-PI (Corning Comment #29)							
Solution							
Resolution	done						
Corning # 15	Type t	Page: 53	Clause: t19	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
MT-RJ active device receptacle dimensions: Change reference "Q". The "Q" dimension should have no minimum value and 3,3 for the maximum value. This would make the information consistent with TIA FOCIS-12. This comment was originally accepted during the December 2000 review of FC-PI (Corning Comment #30)							
Solution							
Resolution	done						

Corning # 16	Type t	Page: 53	Clause: t19	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
<p>MT-RJ active device receptacle dimensions: Change reference "U". The "U" dimension should have a value of 0,15 for the minimum value and no value for the maximum value. This would make the information consistent with TIA FOCIS-12. This comment was originally accepted during the December 2000 review of FC-PI (Corning Comment #31)</p>							
Solution							
Resolution	done						
Corning # 17	Type t	Page: 54	Clause: t20	Group:	Status:	A/R: a	Edited <input type="checkbox"/>
<p>Dimensional table for MT-RJ plug: Change the "L" dimensions. They should be >=9,1 mated;<=9,75 free to be consistent with TIA FOCIS-12</p>							
Solution							
Resolution	Make consistent to fig3.2.2 in FOCIS-12. Mated 9.1-9.3, unmated 9.35-9.75						
Corning # 18	Type e	Page: 55	Clause: 8.1.1	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
<p>SM optical fibre type: Drop the reference to Clause 5. IEC 60793-2 is currently under significant structural revision. (Currently in final committee draft). Leaving the reference in will cause FC-PI to be obsolete before it is published. Leaving it out will not detract from the informational value of the reference.</p>							
Solution							
Resolution	done						
Corning # 19	Type e	Page: 55	Clause: 8.2.3	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
<p>SM optical return loss: The optical return loss in FOTP - 107 is an (absolute) power based measurement. Should an OTDR (relative) power - based measurement also be referenced? If so, then, FOTP - 8 should be added to Clause 2.1 on page one as follows: FOTP - 8 (EIA/TIA-455-8) Measurement of Splice or Connector Loss reflectance Using and OTDR, May 2000.</p>							
Solution							
Resolution	done						
Corning # 20	Type e	Page: 85	Clause: A.4.3	Group: s	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
<p>Component description: If FOTP - 8 is to be included as suggested in the previous comment then it should also be referenced in the first paragraph of this clause, i.e. ...may be determined by the methods specified in either FOTP - 8 or FOTP - 107.</p>							
Solution							
Resolution	done						
Corning # 21	Type t	Page: 56	Clause: t23	Group: s	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
<p>Multimode cable plant NOTE-: The words and loss budget should be removed from the note. Fiber bandwidth modulates operating ranges not power budgets.</p>							
Solution							
Resolution	done						
Corning # 22	Type t	Page: 56	Clause: 8.2.1	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
<p>MM optical fibre type: Drop the reference to Clause 4. IEC 60793-2 is currently under significant structural revision. (Currently in final committee draft). Leaving the reference in will cause FC-PI to be obsolete before it is published. Leaving it out will not detract from the informational value of the reference. Additionally, Type A1a fiber should be added to the reference</p>							
Solution							
Resolution	done						
Corning # 23	Type t	Page: 56	Clause: t25	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
<p>Multimode bandwidth: BW should be identified as OFL BW to differentiate from RML BW. Add a note to the bottom of the table to effect this change.</p>							
Solution							
Resolution	done						

Corning # 24	Type t	Page: 56	Clause: t25	Group:	Status:	A/R: r	Edited <input type="checkbox"/>
Multimode bandwidth: Remove 1300 nm MMF BW values if that wavelength is not specified for use.							
Solution							
Resolution MM fiber is for 1300nm and 850nm. In addition a note indicates that 1300nm is not included in FC-PI.							
Corning # 25	Type e	Page: 56	Clause: t25	Group: s	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
Multimode bandwidth: ANSI/TIA/EIA-455-30B and -51A have been subsumed by ANSI/TIA/EIA -455-204. Remove the references to ANSI/TIA/EIA-455-30B and -51A from column three							
Solution							
Resolution done							
Corning # 26	Type e	Page: 56	Clause: t25	Group: s	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
Multimode bandwidth Note -: Define "shorter distances". Suggest reference to Table 23, i.e., (see Table 23) inserted in the note after the words ...shorter distances...."							
Solution							
Resolution done							
Corning # 27	Type e	Page: 83	Clause: e1	Group: s	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
Remove the change mark							
Solution							
Resolution done							
Corning # 28	Type e	Page: 88	Clause: A.6	Group: s	Status:	A/R: r	Edited <input type="checkbox"/>
Optical receiver stress test: Second from last line on next to last paragraph on page has "tabl e11 on p age41".							
Solution							
Resolution Text is OK in Frame file							
Corning # 29	Type e	Page: 94	Clause: B.2.3	Group: s	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
Remove all change marks							
Solution							
Resolution will be done in final version							
Corning # 30	Type e	Page: 94	Clause: A.3	Group: s	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
Approximate curve fitting for BERT scan: Mathcad trademark should not be hyphenated in sub clause b).							
Solution							
Resolution done							
Corning # 31	Type e	Page: 104	Clause: D.6	Group: s	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
Insertion-decouple Cycles: The word "Cycles" in the title should begin with a lower case "c"							
Solution							
Resolution done							
Corning # 32	Type t	Page: 139	Clause: G.4.1	Group: s	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
The clause should reference TIA FOCIS - 10. This comment was originally accepted during the December 2000 review of FC-PI (Corning Comment #8)							
Solution							
Resolution done							

Corning # 33	Type e	Page: 145	Clause: H.1.2.2.1	Group: s	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
Fiber Optic Connector Set: Inconsistent capitalization. Should it be "Fiber optic connector set"?							
Solution							
Resolution done							
Corning # 34	Type e	Page: 145	Clause: H.1.2.2.1	Group: s	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
Kit, Connector Set (fiber optics): Inconsistent capitalization. Should it be "Kit, connector set (fiber optics)"?							
Solution							
Resolution done							
Corning # 35	Type t	Page: 147	Clause: H.1.3	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
The example CGHA2A15 is incorrect. The "G" is not defined in Table H.2. The example should be modified to read CxHA2A15 (where x is one of the designators identified in table H.2 below) This comment was originally accepted during the December 2000 review of FC-PI (Corning Comment #38)							
Solution							
Resolution done							
Corning # 36	Type t	Page: 153	Clause: H.9	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
The second character of the variant number, the variant value 0. The value "d" should be 1 and not 0. Additionally, the variant value t=1 should be added. This comment was originally accepted during the December 2000 review of FC-PI (Corning Comment #52)							
Solution							
Resolution done							
Corning # 37	Type t	Page: 153	Clause: H.9	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
The second character of the variant number, the variant value 1. The value "d" should be 1 and not 0. This comment was originally accepted during the December 2000 review of FC-PI (Corning Comment #53)							
Solution							
Resolution done							
Corning # 38	Type e	Page:	Clause: F.	Group:	Status:	A/R: a	Edited <input checked="" type="checkbox"/>
Informative Annexes F, G, and H, X.1.7.2 Color coding requirements: Where X above is an informative annex (F, G, or H) for the connectors supported by FC-PI. The reference to EIA 568 A is incorrect. The reference should be ANSI/TIA/EIA - B.3.							
Solution							
Resolution done							

Comments from member: Editor

Editor #	1	Type	e	Page:		Clause:		Group:		Status:	p	A/R:	r	Edited	<input type="checkbox"/>
The comments #5, #6 and #7 from NCITS were deleted from the database, because they were letters referring to comment #4															
Solution															
Resolution comments were rejected															

Comments from member: Stratos

Type Page: Clause: Group: Status: A/R: Edited

Page 72, Figures 42 & 43
 Note 1 under Figure 43 should also be applied to Figure 42.

Solution

Resolution done

Type Page: Clause: Group: Status: A/R: Edited

Currently, $X2=X1+0.19$. There is no known analytical or experimental record that determines the 0.19 value, whereas a recent analysis by Mike Jenkins (LSI) showed that 0.205 was reasonable.

Solution I propose the value be changed to 0.205.

Resolution The analysis by Mike Jenkins used where a sine wave having amplitude and frequency of the bit rate was used. (Note that this allows a sine wave to be launched.)
 Straw poll: 14 in favor, 0 against, 4 abstain

Type Page: Clause: Group: Status: A/R: Edited

There is currently no definition of 0 and 1 along the time axis for electrical eye mask location (optical eye mask location is already controlled, and electrical methods should be consistent). I propose these 2 values be determined via the mean of the eye pattern crossing (taken at the average amplitude).

Solution Add a separate paragraph at the end of 9.4 (before 9.4.1).
 "To accurately determine the 0 mask time, use an oscilloscope having an internal time histogram capability. Set the time limits of the histogram to include all transitions within the crossing. Set the voltage limits of the histogram to a small fraction of the peak to peak amplitude of the eye and center them about the average value of the entire waveform .
 The 0 time to be used for the mask shall be the mean of the histogram.
 The 1 mask time is the 0 mask time plus 1 UI."

Resolution After significant MJSQ discussion, the sense of the group was that this topic is not ready to make a specific recommendation to incorporate into FC-PI.

Type Page: Clause: Group: Status: A/R: Edited

Page 83, section A.3, paragraph b) The de-convolution is not very accurate as written.

Solution I propose the following.

- The equation that currently reads $Q_n = -qnorm(BER_n, 0, 1)$ needs a correction factor. It should read:
 $Q_n = -qnorm[(2/TD)*BER_n, 0, 1]$.
- Insert the following after the sentence with the equation.
 "TD is the transition density of the data pattern being used for the measurement. A typical value for 8B10B of $TD=0.6$ may be used."
- Modify the values in the last sentence of b) so that it reads "For $1E-5$, $Q = 3.99$ and for $1E-9$, $Q = 5.8$. ($Q = 6.87$ for $1E-12$)."
- Equation 3 for TJ should use a multiplier of 13.73, not 14.

Resolution Straw poll: 14 in favor, 0 against, 4 abstain

Stratos # 5 Type t Page: 33 Clause: t6 Group: j Status: A/R: a Edited

Note 10 on page 33 - Table 6, Page 41 - Table 11, Page 42 - Table 12, and note 2 on Page 59 - Table 26 Clock tolerance specifications are inadequate. Present wording could allow a "wandering" clock to appear compliant if it was measured at only one instance in time. I propose the following wording.
"The measured frequency shall not exceed tolerance specifications when averaged over all instances of 200,000 bits (10 max length FC frames) and higher."

(FYI - there may also be a disconnect between clock tolerance and jitter test/specifications, but further study is required. No comment at this time).

Solution

Resolution New wording proposed: "The data rate shall not exceed +- 100 ppm from the nominal data rate over all periods equal to 200,000 transmitted bits (~10 max length frames)."
Motion to accept: 8 in favor, 1 against, 8 abstain

Stratos # 6 Type t Page: Clause: 2.1.1 Group: o Status: A/R: r Edited

Presently, OFSTP-2 is called out for SM measurements, but nothing is referenced for MM measurements.

Solution Len Young and Clint Schow did some digging around and determined that FOTP95 (or FOTP95A) may be useful. Someone should access FOTP95x and determine if it is truly suitable.

Resolution No Support

Stratos # 7 Type t Page: Clause: ALL Group: o Status: A/R: a Edited

Multiple multimode sections Change the minimum operating distance values in tables 12, 23, C.1, C.2, and C.3 from 2 meters down to 0.5 meters.
(I assume that Brocade has already provided the comments to FC-PI that they posted on the T11 web site, document 01-038v1. So to avoid redundancy, those comments are not re-submitted here).

Solution

Resolution See Brocade #1

Comments from member: Xyratex

Xyratex #	1	Type	e	Page:	9	Clause:	3.1.82	Group:	o	Status:		A/R:	a	Edited	<input checked="" type="checkbox"/>
	TxRx connection reads:, over which a BER of =>10-12 is achieved.														
Solution	This should read:, over which a BER of < 10-12 is achieved. The '-12' should also be superscripted.														
Resolution	done														