

Voting Results on T10Letter Ballot 02-376r0 on
 Forwarding PIP to First Public Review
 Ballot closed: 2002/10/17 12:00 noon MDT

Organization	Name	S Vote	Add'l Info
Adaptec, Inc.		DNV	
Amphenol Interconnect	Michael Wingard	P No	Cmnts
Andiamo Systems, Inc.	Claudio DeSanti	P Yes	
BREA Technologies, Inc.	Bill Galloway	P Yes	
Brocade	Brian Forbes	P Yes	
Cisco Systems, Inc.	David Peterson	P Yes	
Congruent Software, Inc.	Peter Johansson	P Abs	Cmnts
Crossroads Systems, Inc.	John Tyndall	A Yes	
Dallas Semiconductor	James A. Lott, Jr.	P Yes	
Dell Computer Corp.	Kevin Marks	P Abs	Cmnts
EMC	Gary S. Robinson	P Yes	
Emulex	Robert H. Nixon	P Abs	Cmnts
ENDL	Ralph O. Weber	P Yes	
Exabyte Corp.	Joe Breher	P Yes	
FCIDouglas Wagner		P Yes	
Fujitsu	Mike Fitzpatrick	P Yes	
General Dynamics	Nathan Hastad	P Yes	
Hewlett Packard Co.	William Ham	A No	Cmnts
Hitachi Cable Manchester	Zane Daggett	P No	Cmnts
Honda Connectors		DNV	
IBM Corp.	George O. Penokie	P No	Cmnts
Intel Corp.	Cris Simpson	P Yes	
Iomega Corp.	Tim Bradshaw	P Yes	
KnowledgeTek, Inc.	Dennis Moore	P Yes	
LSI Logic Corp.	William Petty	A No	Cmnts
Maxtor Corp.	Mark Evans	P Yes	
Microsoft Corp.	Emily Hill	P Yes	
Molex Inc.	Jay Neer	P Yes	
Network Appliance Inc.	James R. (Bob) Davis	P Yes	
Nishan Systems Inc.	Charles Monia	P Yes	
Ophidian Designs	Edward A. Gardner	P Abs	Cmnts
Panasonic Technologies, Inc	Terence J. Nelson	P Yes	
Philips Electronics	William P. McFerrin	P Yes	
Pirus Networks	Milan J. Merhar	A Yes	
QLogic Corp.	Skip Jones	P Yes	
Quantum Corp.	Jim Jones	A Abs	Cmnts
Seagate Technology	A. Bruce Manildi	A Yes	
Storage Technology Corp.		DNV	
Sun Microsystems, Inc.	Vit Novak	P Yes	
Texas Instruments	Paul D. Aloisi	P No	Cmnts
Toshiba America Elec. Comp.	Tasuku Kasebayashi	P Yes	
TycoElectronics	Jie Fan	P No	Cmnts
UNISYS	Ron Mathews	P Yes	
Veritas Software	Roger Cummings	P Abs	Cmnts
Vixel Corp.	Kenneth Hirata	P Yes	

Western Digital Corporation

Tom Hanan

P Yes

Ballot totals: (30:7:6:3=46) 30 Yes

7 No

6 Abstain

3 Organization(s) did not vote 46 Total voting organizations

1 Duplicate ballot(s) not counted 13 Ballot(s) included comments

This 2/3rds majority ballot passed.

30 Yes are more than half the membership eligible to vote minus abstentions [greater than 20] AND

30 Yes are at least 25 (2/3rds of those voting, excluding abstentions [37]) AND 30 Yes are equal to or exceed a quorum [15]

Key:

P Voter is principal member

A Voter is alternate member

Abs Abstain vote

DNV Organization did not vote

Cmnts Comments were included with ballot

NoCmnts No comments were included with a vote that requires comments

Hitachi Comments

1. (Technical) Page 27 Dielectric constant variation with frequency

States: Network Analyzer Agilent 8753X

Should be: Impedance Analyzer Agilent 4192x or equivalent

Proposed Resolution: Rejected because the 4192 only works to 30MHz

2. (Technical) Page 29 6.1.3.2 Item 9

States: Ground the shield on both ends except for NEXT

Should State: Ground the shield on one end. *Connecting both ends creates a closed loop.*

Proposed Resolution: Rejected, closed loop represents the application

3. (Editorial) Page 30 6.1.4.2

States: Electrical access is to features designed into the PCB for this purpose.

Suggestion: Electrical access is designed into the PCB for this purpose.

Proposed Resolution: Accepted

4. (Technical) Page 32 6.2.4 Test Fixture

Suggestion: BH Electronics has Baluns to cover this requirement – Q10219 (50:130) 1 – 600MHz..

Proposed Resolution: Reject – The requirement is up to 650 MHz, where this balun is only rated to 600 MHz. This balun has not been shown to be equivalent to the Ma-com TP101.

5. (Technical) Page 39 Most TDRs have a Cal system built in – this should be an option.

Proposed Resolution: Reject, calibration should be where the sample is attached.

6. (Technical) Page 46 7.5.1.3

States: An Agilent 41928

Should be: An Agilent 4291x

Proposed Resolution: accepted as 4192x, not 4291x

7. (Editorial) Page 47 7.6.2.4

The first sentence states: with two fixtures shorted as shown etc.

Should say: with two fixtures connected through

Second Par misspelled 'varried'.

Proposed Resolution: Accept

8. (Editorial) Page 48 7.6.2.4 Item 8

States: Connect to test etc.

Should say: Connect the test etc.

Proposed Resolution: Accepted, figure 17 title also changed.

9. (Technical) Page 52 7.7.2.5 Item e

Suggestion: add " Note: -30db or 3.2% is the lowest accurate measurement that can be made using a TDR."

Proposed Resolution: partially accepted using the following wording - Offset errors for SUM waveform may be as high as -30 dB (3.2%) for some TDR instruments.

10. (Editorial) Page v

Delete "(NCITS Membership to be inserted)"

Proposed Resolution: rejected, the INCITS will add this

11. (Editorial) Page vi

Correct the spelling of shalliam Ham

Proposed Resolution: Accepted

12. (Editorial) Page vii

Introduction is incomplete. Hanging sentence: "The Parallel Interface Perfomance defines...."

Plus performance is misspelled.

Proposed Resolution: accepted, Hanging sentence changed to The Parallel Interface Performance standard defines the electrical performance of bulk cable and interconnect assemblies for use in SPI-x applications and specification limits.

13. (Editorial) Page xiv and xv.

Correct format for LOT and LOF.

Proposed Resolution: accepted

14. (Editorial) Page 22, 23 & 24.

Correct formatting issue with table 2.

Proposed Resolution: Accepted – but Bill Can't fix it.

15. Page 30 -- 6.1.4.2

Second sentence doesn't make sense. Needs rewording.

Proposed Resolution: accepted again

PIP Comments

Paul Aloisi

Texas Instruments

Document should have another letter ballot, too many loose ends.

1. (Substantive) PIP complaint about the first line on page 14 (most twist and flat cables ship with attached terminators and terminators are mounted on the backplanes, 4.9.2 Prohibited should be changed to not covered in this standard. Switchable terminators when they are not powered appear as the capacitive load, very close to the capacitance with the device is powered. The parts are designed for hot plugging where they can be attached to a bus in disconnect mode without loading the bus any more than the capacitance, typically 2 pF.

Proposed Resolution: accepted Interconnect that contains enabled integral terminators are addressed in PIP even though the terminators themselves are active components and, strictly speaking, make the interconnect non-passive. If enabled integral terminators exist, the enabled integral terminators eliminate the requirement for using a standard load with an enabled terminator in that position. See 4.9.2 For interconnect that contains disabled terminators the disabled terminator shall be considered as part of the interconnect assembly under test.

2. (Substantive) 4.9.3.1 & 4.9.3.2 list SPI-5 should be SPI-x, we were careful in the rest of the document to state SPI-x,

Proposed Resolution: partially accepted – reviewed the document and changed to the correct reference of SPI-x or SPI-# , 4.9.3.1. & 4.9.3.2 were left as SPI-5. Definitions for SPI and SPI-x were added.

3. (Substantive) 4.9.3.1 & 4.9.3.2 should include the VHDCI 68 pin.

Proposed Resolution: accepted

4. (Substantive) 4.10.3 sections don't adequately describe the measurement for pass/fail – is zero crossing? Or what a receiver considers the valid signal which could be more than 100 mV from the zero crossing? It is not clear that the Data Spewing board can generate to levels of signal with that accuracy. Voltages assumed are the voltages into a test load, not the voltages into a cable that can be higher.

Proposed Resolution: reject

5. (Editorial) Table 3 Comments, second box down, analyzer is spelled wrong.

Proposed Resolution: accepted

6. (Editorial) Introduction – Space missing on Clause 4 description – in this
- Clause 4 describes the definitions, symbols, conventions and abbreviations used in this standard;

Proposed Resolution: accepted

7. (Substantive) The full reference numbers should be called out in section 2 Example SPI-4 should be INCITS.362-200x and all the other SPI-x standards should be referenced that are not obsolete since SPI-x is referenced in the document. The source information needs to be added too.

ISO/IEC 14776-113, *SCSI Parallel Interface-3 standard*

ISO/IEC 14776-112, *SCSI Parallel Interface-2 standard*

In development

ISO/IEC 14776-xxx, *SCSI Signal Modeling -2 standard (T10/1514D)*

SSM-tr is an approved technical report (T10/1414-DT) INCITS/TR29:2002

NOTE 1 - For more information on the current status of the document, contact the INCITS Secretariat at 202-737-8888 (phone), 202-638-4922 (fax) or via Email at incits@itic.org. To obtain copies of this document, contact Global Engineering at 15 Inverness Way, East Englewood, CO 80112-5704 at 303-792-2181 (phone), 800-854-7179 (phone), or 303-792-2192 (fax).

Proposed Resolution: accepted

8. (Substantive) Informative references are called out without the source information

NOTE 2 - For more information on the current status of the document, contact the SFF committee at 408-867-6630 (phone), or 408-867-2115 (fax). To obtain copies of this document, contact the SFF committee at 14426 Black Walnut Court, Saratoga, CA 95070 at 408-867-6630 (phone) or 408-741-1600 (fax).

Proposed Resolution: accepted

9. (Substantive) Clause 3.1 calls out the SPI document that is obsolete, this should be replaced with the SPI-2 document.

Proposed Resolution: accepted

10. (Editorial) There are several references for distance called out in cm, the international standards for mechanical measurement should be in mm. This avoids confusion and errors, like 0.5 cm should be 5 mm.

Proposed Resolution: accepted

11. (Editorial) 3.2.9 and 3.2.10 has an extra carriage return

Proposed Resolution: accepted

12. (Substantive) No definition - 3.2.24 Concatenated: Two or more cable assemblies, backplanes or combination of cable assemblies and backplanes attached together to form a SCSI bus.

Proposed Resolution: accepted with a wording change to: two or more interconnect assemblies (similar or dissimilar) connected together as part of a single SCSI bus segment. Examples include round cables connected to a backplane with no expander on the backplane.

13. (Editorial) 3.2.49 High - not used in the Passive Interconnect standard or SCSI remove from the definition list.

Proposed Resolution:accepted

14. (Editorial) 3.2.57 Low – not used in the Passive Interconnect standard or SCSI remove from the definition list.

Proposed Resolution: accepted

15. (Substantive) 3.2.85 S plane: not defined

Proposed Resolution: accepted - deleted

16. (Substantive) 3.2.120 Worst Case device: not defined

Proposed Resolution: accepted - Deleted

17. (Editorial) 4.3.1 third paragraph is missing a space between the first and second sentence.

Proposed Resolution: accepted

18. (Editorial) 4.3.1 this sentence needs work: The same conventions commonly used for modeling and transmission lines are used to define interoperability points, if possible.

The same conventions commonly used for modeling and transmission lines, these conventions should be are used to define interoperability points, if possible.

Proposed Resolution: Partially accepted Sentence deleted -

19. (Substantive) 4.3.1 wrong TLA All measurements are specified through a mated connector. This means that the test fixturing specification is critical since part of the tested interconnect remains with the test environment and part is removable with the DUT. IUT.

Proposed Resolution: partially accepted – interconnect assembly under test

20. (Substantive) 4.3.1 A standard should not reference a proposal. See 00-149r0 for more detail. The proposal should be made an ANNEX or put directly in the section, it is basically one figure and description.

Proposed Resolution: partially accepted – deleted sentence

21. (editorial) 4.3.3 this paragraph seems awkward and however in the last sentence doesn't add meaning and should be removed

Bulk cable is the collection of conductors and associated insulation used between, but not including, the connectors or non-permanent transition regions in a passive SCSI interconnect. Bulk cable includes permanent transition regions (e.g., flat regions used in twist and flat type bulk cable) designed for purposes of enabling connector attachment. Bulk cable is flexible and is not used to describe printed circuit boards. Printed circuit boards without connectors are, however, included under separate headings in the clauses associated with bulk cable.

Proposed Resolution: accepted paragraph was reworded

22. (Editorial) 4.3.4 states all the connectors

An interconnect with all the connectors installed is termed an interconnect assembly. Each SCSI connector shall be identified by all of the functions listed in clause 4.9.1 that the connector is expected to support in service. Note that this may be more restrictive than allowed by the SCSI architecture model (SAM). SAM allows all SCSI ports to have either the initiator role or the target role or both roles. However, in practice most SCSI ports implement only one role.

Proposed Resolution: accepted

23. (Possibly Substantive) 4.4 clause needs to be rewritten, its logic is reversed. It should state what we are doing for bulk cable testing, then the logic behind it if necessary. It is not clear that the logic behind it is needed in a standards.

4.4 Relationship between requirements on bulk cable and requirements on interconnect assemblies

Interconnect assemblies are intrinsically a higher level component than bulk cable. Performance requirements on interconnect assemblies are dictated by the signal requirements specified in SPI-x. Separate performance requirements on bulk cable are theoretically not necessary for an interconnect assembly to meet its requirements. However, the signal loss, the propagation time skew, the impedance, and the cross talk are directly affected by mechanisms intrinsic to the bulk cable. Separate performance specifications for bulk cable that are independent from the interconnect assembly are defined in this document for purposes of enabling multisourcing of bulk cable. For applications where multisourcing is not required, these specifications may not apply. Another reason for having separate bulk cable specifications is to allow statements of compliance.

Predictable, consistent performance for bulk cable supplied by different vendors is a goal. Meeting this goal requires specification of test samples to be used by all suppliers that have common properties such as length and sample preparation schemes.

Recommended

4.4 Relationship between requirements on bulk cable and requirements on interconnect assemblies

Predictable, consistent performance for bulk cable supplied by different vendors is a goal. Meeting this goal requires specification of test samples to be used by all suppliers that have common properties such as length and sample preparation schemes. The signal loss, the propagation time skew, the impedance, and the cross talk are directly affected by mechanisms intrinsic to the bulk cable.

Bulk cable testing does not guarantee that interconnect assemblies will meet the SPI-x requirements. The signal level and crosstalk requirements of the interconnect assembly may require tighter or allow looser specifications. The test methodology specified in this standard gives a consistent predictable method of testing that allows multi-sourcing of bulk cable.

Proposed Resolution: accepted – reworded paragraphs

24. (Editorial) PIP purposes should be changed to in this standard.

Following is a sample list where interoperability might be expected in a SCSI segment. A “Y” following the position designation means that this is considered an interoperability point in this standard. for PIP purposes. Similarly, a “N” following the position designation means that the point is NOT considered an interoperability point in this standard. for PIP purposes.

Proposed Resolution: accepted

25. (Editorial) 4.9.2 what does primary practical interest mean?

The following configurations of primary practical interest shall be used for specifying the level 1 tests in this document:

The common configurations shall be used for specifying the level 1 tests in this standard:

Proposed Resolution: accepted

26. (General - editorial) There should be a consistent reference to this standard; the document refers to itself as PIP, this document.

Proposed Resolution: accepted

27. (Editorial) 4.10.2 there is an extra 1 one

Since level 1 one measurements are intended to determine compliance to requirements, and performance level all level 1 measurements are tests as defined above. No level 2 measurements are tests.

Proposed Resolution: accepted

28. (Editorial) 4.10.4 – fourth paragraph, first sentence away should be removed.

Proposed Resolution: partial accepted - reworded

29. (Substantive) 4.17 makes assumptions that may not be true if future generations of SPI are developed with self clocking data. The zero error rate should stop with SPI-5, if SPI-6 is developed it may have phase lock loops with Gaussian noise.

Proposed Resolution: accepted

30. (Editorial) Table 6 the second box on the left side has an extra period

Proposed Resolution: accepted

31. (Editorial) 7.6.1 the last sentence of the second paragraph doesn't seem to belong in that paragraph, it should either be part of the first paragraph or a separate paragraph.

Proposed Resolution: accepted deleted the sentence. Paragraph reworded

32. (Editorial) 7.6.2.4 the second paragraph, Analyzer is misspelled

Proposed Resolution: accepted

33. (Editorial) 7.7.1 the last sentence of the second paragraph doesn't seem to belong in that paragraph, it should either be part of the first paragraph or a separate paragraph.

Proposed Resolution: Partially accepted. The combination of the first three paragraphs was reworked to allow for better reading and comprehension.

34. (substantive) 9.2.4 second paragraph, the terminator is enabled and termpwr must be present on the cable for the enabled terminator to be operational. (Sentence was added)

Proposed Resolution: Accepted.

35. (Substantive) 9.3.2 there is no figure at the top of page 60 but there is this label: Figure 25 - Interconnect assembly set up 1 (SET_ASY_1)

Proposed Resolution: Accepted (figured existed but conversion to PDF caused a drop of the figure. This will be corrected on rev 4.

36. (General comment) Review copies should not have change bars, change bars should only be in preliminary copies before letter ballot review.

Proposed Resolution: Accepted

37. (Editorial) 10.3.2.3.2 fourth paragraph Shall has an extra l

Proposed Resolution: Rejected, error not found. Error was found in fifth paragraph and corrected.

38. (Editorial) 10.3.2.4 last paragraph – minor spelling and comma

The requirements in Table 11 are the formal requirements. However, since a large number of measurements are required, it is expected that implementers will actually execute only a small subset based on the known worst case positions in the interconnect assembly and previous experience with the conditions that are most likely to produce a failure.

Proposed Resolution: Accepted with additional editing.

39. (Substantive) 10.3.2.5 There are different numbers of mask for the different speeds and driver techniques, only the Non precomp fast-160 and fast-320 have 5.

Proposed Resolution: Accepted

40. (editorial) 10.4.2.4 procedures is misspelled in the first paragraph

Proposed Resolution: Accepted

41. (General editorial) "Note that" is used several times in the document, that should be removed and in several cases note should be removed too.

Proposed Resolution: Accepted and noted

42. (Substantive) 10.5.2.4 has no information, it is the acceptance values for the test sequence. If there is no acceptance values then it should be stated, not left blank.

Proposed Resolution: Accepted: "There are no acceptance values for this measurement" was added.

43. (Editorial) the first section of Annex D is about what happened in what meeting, that should be removed from the beginning of the annex. Annex D needs a lot of editing, it is basically in a rough version with Greg's name listed in several places.

Proposed Resolution: Accepted to be reviewed and corrected by editors NEEDS WORK HERE!!!

Amphenol comments

Comment number: 1 E

Document location: 4.10.2

Comment: Sentence beginning "Since level1 measurements ..." needs rework after comma.

Proposed resolution: accept

Comment number: 2 E

Document location: 4.10.3.2 and 4.10.3.3

Comment: Is "2**7-1" accepted usage?

Proposed resolution: accepted, change to 2^7-1

Comment number: 3 E

Document location: 4.12

Comment: Second sentence needs rework.

Proposed resolution: accepted, change "There are significant differences possible length specifications." to "There are different ways to specify length for the same interconnect assembly."

Comment number: 4E
Document location: 4.16 Third line
Comment: "proagation" is misspelled
Proposed resolution: accept

Comment number: 5E
Document location: Table 4
Comment: Differential to Common Mode: "sum of the difference" needs clarification. And FEXT: remove asterisk
Proposed resolution: accept, removed asterisk and changed "sum of the difference" to "sum of the + signal and the - signal"

Comment number: 6T
Document location: 6.4
Comment: Second paragraph: Change to "..... long enough to contain two complete transitions"
Proposed resolution: accept

Comment number: 7T
Document location: 7.2.2.1
Comment: Add sentence: "It is permitted to use sample SP_Bulk_PP10 defined in 6.1.3.2."
Proposed resolution: accept with following wording: Use of samples longer than 3 meters is permitted, for example, SP_Bulk_PP10 defined in 6.1.3.2

Comment number: 8T
Document location: 7.3.2.4 item 3)
Comment: Change to "..... falling edge are approximately as shown in figure 15."
Proposed resolution: accept and changed terminology in figure 15 to agree with text

Comment number: 9T
Document location: 7.5.1.5
Comment: Methods for measuring Z and Td require floating the pairs not being measured. This section says "....the shield with all other conductors as conductor 3." Using these conflicting methods, $T_d \neq Z_C$. Prefer floating all other conductors unless there is a measurement issue.
Proposed resolution: Accepted. First sentence changed to read Designate one conductor of the pair as conductor 1, the other as conductor 2, and the shield as conductor 3. All other conductors are left floating on both ends.

Comment number: 10 E
Document location: 7.6.2.4
Comment: Second paragraph: "varried" should be "varied".
Proposed resolution: accept

Comment number: 11 T
Document location: 7.7.1
Comment: Last paragraph: Would like to see "... on each of the DATA (16 pairs), PARITY (2 PAIRS),"
Proposed resolution: accepted - subclause reworded.

Comment number: 12 T

Document location: 7.7.2.5

Comment: a) Would like to see a WARNING to be sure probe polarity of victim signal not inadvertently reversed.

b) Do we want to correct stored trace section to show 18 aggressors? Presently we show 25.

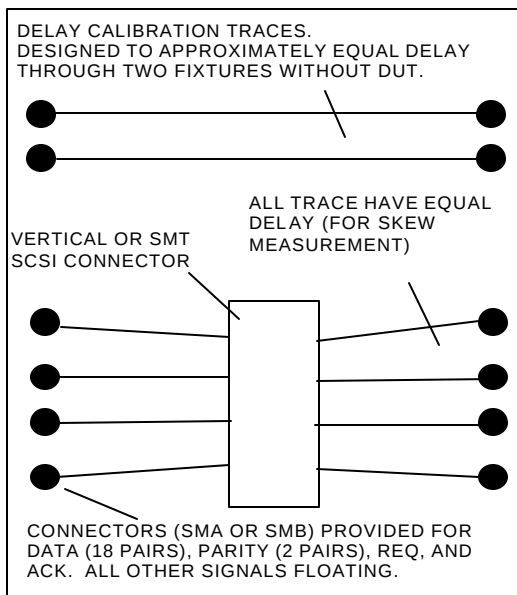
Proposed resolution: rendered irrelevant by previous comment resolution.

Comment number: 13 T

Document location: 9.2.3

Comment:

- a) Says "The test fixture may be constructed of semi-rigid coax, microstrip PCB, or stripline PCB." BUT, the figure shows something very different. Eliminate "semi-rigid coax". Accepted
- b) The fixture shows chip capacitors. These would ruin TDR risetime if large values. If low values, the capacitors are useless. In either event, they should not be there. Accepted
- c) Bulk cable and PCB impedance and Td measured with 'other lines floating'. Here, tying other lines to ground through 61 Ohms risks a different answer for assembly versus bulk. Resistors should probably not be on this fixture. Accepted
- d) Suggest entirely new figure 19 FIX_ASY_1 (below, created in PowerPoint). Perhaps the existing figure will be used as new figure (Standard Load). Accepted



Proposed resolution: Accepted with additional comments made under the overview section of 10.1.1: The impedance values used for specification compliance are recorded only in the bulk cable portion of the interconnect assembly. The impedance in the connector and transition regions may be visible but since the STD used is 1 ns and the connector and the transition regions are not expected to determine the interconnect assembly performance with loads there are no performance requirements specified for the connector and transition regions.

Comment number: 14T

Document location: 9.2.4

Comment: First paragraph, second sentence. Since this is used in an eye diagram measurement, wiring should be per Section 4.16. Grounds should be grounded. Be specific regarding treatment of DATA, PARITY, DIFFSENSE, TERMPWR, RESERVED, etc.

Last sentence: "This test fixture also serves as a standard load"

Is this true? If memory serves, only the link-end has an enabled terminator. Intermediate standard loads do not (?).

Partially accepted. Changes to the paragraph one : "All connector pins unused by the SSDB shall be terminated to the ground plane using resistors of 62 +/- 5% (62 ohm 1% chip resistors are readily available and recommended) and located as close as possible to the connector vias.

And changes to paragraph 3.

This test fixture also shall serve as a standard load with enabled terminator and shall additionally meet the requirements in 4.9.3.2. It may be possible to modify this design to build a standard load without enabled terminators as defined in 4.9.3.1

>> Now re-examine Table 9, Eye, Multi-drop. Is a non-terminated standard load required?

Proposed resolution: Accepted, updated table 9 with multiple changes.

Comment number: 15 T

Document location: 9.2.6

Comment: Figure 23: pins descending from TP-101 fixture – add note saying must be as short as possible.

Proposed resolution: Accepted figure updated to reflect change.

Comment number: 16 T

Document location: Figure 24

Comment: add grounding dots and text same as figure 4 (6.2.4).

Proposed resolution: Accepted figure updated to reflect change

Comment number: 17 T

Document location: 9.3.3 (SET_ASY_2)

Comment: Multiple problems figure 26. Replace this figure with exact copy of figure 7 (6.3.3).

Proposed resolution: Accepted

Comment number: 18T

Document location: 9.3.4 (SET_ASY_3)

Comment: Figure 27 allows only point to point. No intermediate standard loads for multi-drop.

Proposed resolution: Accepted with changes to the figure

Comment number: 19T

Document location: 9.3.5 (SET_ASY_4)

Comment: Figure 28: All wrong. Replace baluns, attenuators, and matching networks with image from figure 22 – or – blocks referring to figure 24.

Proposed resolution: Accepted changes made to figure

Comment number: 20T

Document location: 10.1.2.3

Comment: Remove all text.

Add "Use the same requirements as specified in 7.2.2.4 ..."

Proposed resolution: Accepted, deleted all text and cross ref 7.2.2.4

Comment number: 21T

Document location: 10.1.2.4

Comment: Remove all text.

Add "Use the same requirements as specified in 7.2.2.5 ..."

Proposed resolution: Accepted, deleted all text and cross ref 7.2.2.5

Comment number: 22T

Document location: 10.1.2.5

Comment: add the subclause 10.1.2.5 for acceptable values

Proposed resolution: Partially accepted with changes in the overview section of 10.1.1 and added 10.1.5 to focus only on the bulk cable portion.

Comment number: 23T

Document location: 10.1.3

Comment: Remove all text. (Presently refers back to 10.1.2, which is empty. Actual measurement procedure is different for multi-drop, which differs from point to point.)

Proposed resolution: Partially accepted. Closed the loop on section 10.1.2 and comment was made to address the need to accommodate short assemblies.

Comment number: 24T

Document location: new subclause 10.1.3.1

Comment: Add Section 10.1.3.1 Test Fixtures for multi-drop assemblies

Add words: Test fixtures for multi-drop interconnect assemblies are defined in 9.2.3.

Proposed resolution: Accepted

Comment number: 25T

Document location: new subclause 10.1.3.2

Comment: Add Section 10.1.3.2 Measurement equipment and setup for multi-drop assemblies

Add words: Measurement equipment for multi-drop interconnect assemblies are defined in 9.3.2.

Proposed resolution: Accepted

Comment number: 26T

Document location: new subclause 10.1.3.3

Comment: Add Section 10.1.3.3 Calibration and verification procedure for multi-drop interconnect assemblies

Add "Use the same requirements as specified in 7.2.2.4 ..."

Proposed resolution: Accepted

Comment number: 27T

Document location: new subclause 10.1.3.4

Comment: Add Section 10.1.3.4 Test procedures and data output format for multi-drop interconnect assemblies

Add "Use the same requirements as specified in 7.2.3.5 ..."

Proposed resolution: Accepted

Comment number: 28T

Document location: new subclause 10.1.3.5

Comment: Add Section 10.1.3.5 Acceptable values

Proposed resolution: Partially accepted with changes in the overview section of 10.1.1 and added 10.1.5 to focus only on the bulk cable portion.

Comment number: 29T

Document location: 10.1.4

Comment: "Use the same procedures and equipment defined for multi-drop interconnect assemblies with appropriate modifications for the PCB structure being used."

Proposed resolution: Accepted

Comment number: 30T

Document location: 10.2.1

Comment: Second sentence:

This test is performed on interconnect assemblies that are terminated with connectors consistent with SCSI signal assignments specified in SPI-x.

Proposed resolution: Accepted

Comment number: 31E

Document location: 10.2.2.2

Comment: Eliminate 1), 2), 3)

Proposed resolution: Accepted.

Comment number: 32T

Document location: 10.2.2.3

Comment: Remove all text.

Add "Use the same requirements as specified in 7.3.2.4 ..."

Proposed resolution: Accepted

Comment number: 33T

Document location: 10.2.2.4

Comment: Remove all text.

Add "Use the same requirements as specified in 7.3.2.5 ..."

Proposed resolution: Accepted

Comment number: 34T

Document location: 10.2.3

Comment: Add "Use the same requirements as specified in 10.2.2 ..."

Remove all subsections 10.2.3.x except, perhaps, acceptable values.

Proposed resolution: Accepted-did not add acceptable values.

Comment number: 35T

Document location: 10.3.1 first paragraph

Comment: Sentence "The time domain waveform is acquired .. set to trigger on the same part of the data pattern."

Triggering should be off the data clock. Triggering off the same part of the data pattern will not show the full eye (unless there is something unique with SCSI).

Proposed resolution: Accepted Changed end of sentence to read "set to trigger off the clock".

Comment number: 36E

Document location: 10.3.2.4 Last paragraph, last line.

Comment: Spelling error hat that.

Proposed resolution: Accepted previously correct by comments of another voter.

Comment number: 37T

Document location: 10.5

Comment: This section apparently uses an active termination load board (FIX_ASY_2, 9.2.4) as part of a network analyzer measurement. Does this really work???

Further, FIX_ASY_1 is suitable only for Impedance and Delay measurement.

Proposed resolution:

Partially accepted, the use of a passive terminator will be used in lieu of an active. See changes in overview section of 10.5.1

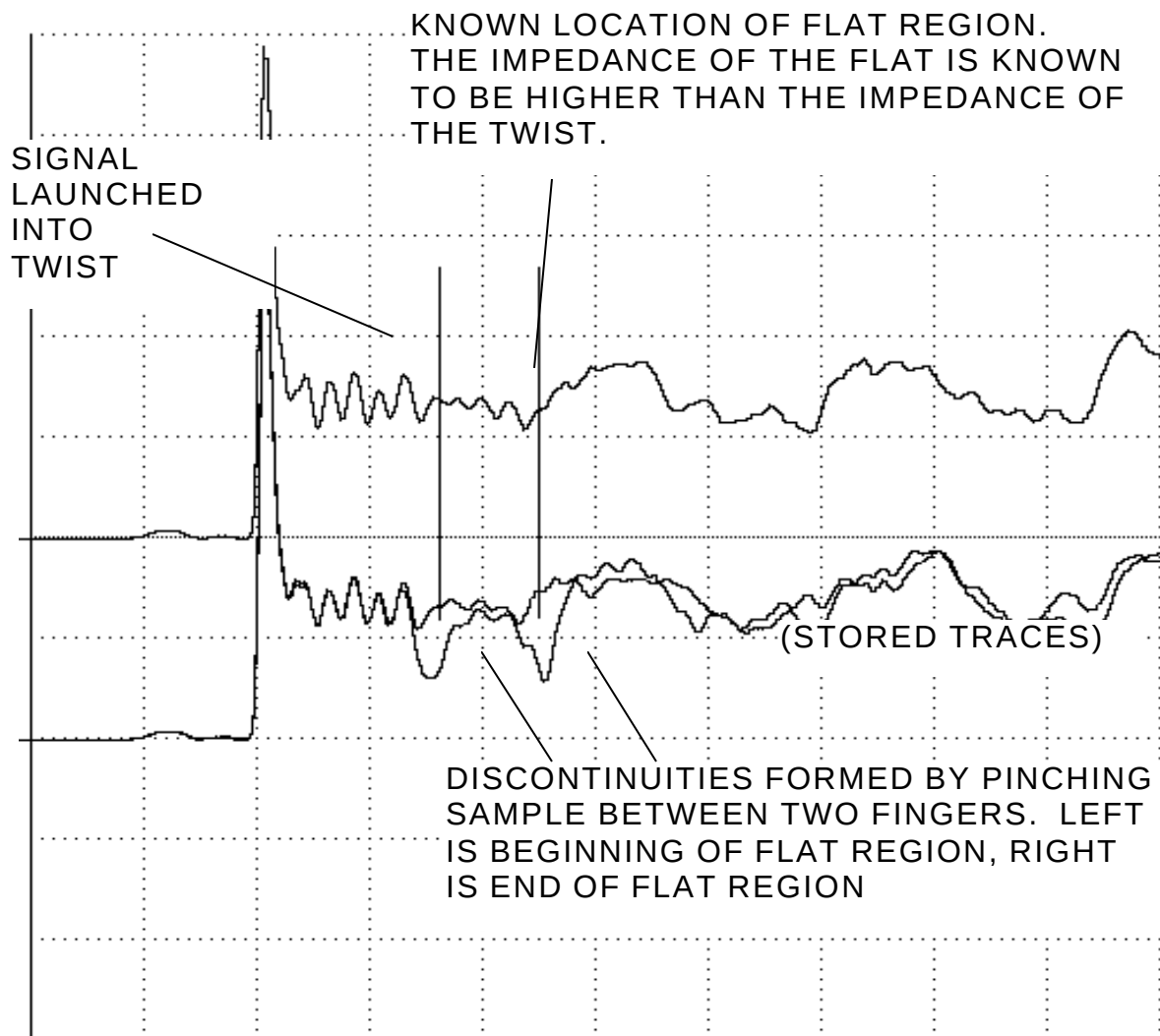
Comment number: 38T

Document location: Figure C2

Comment: Use improved figure below

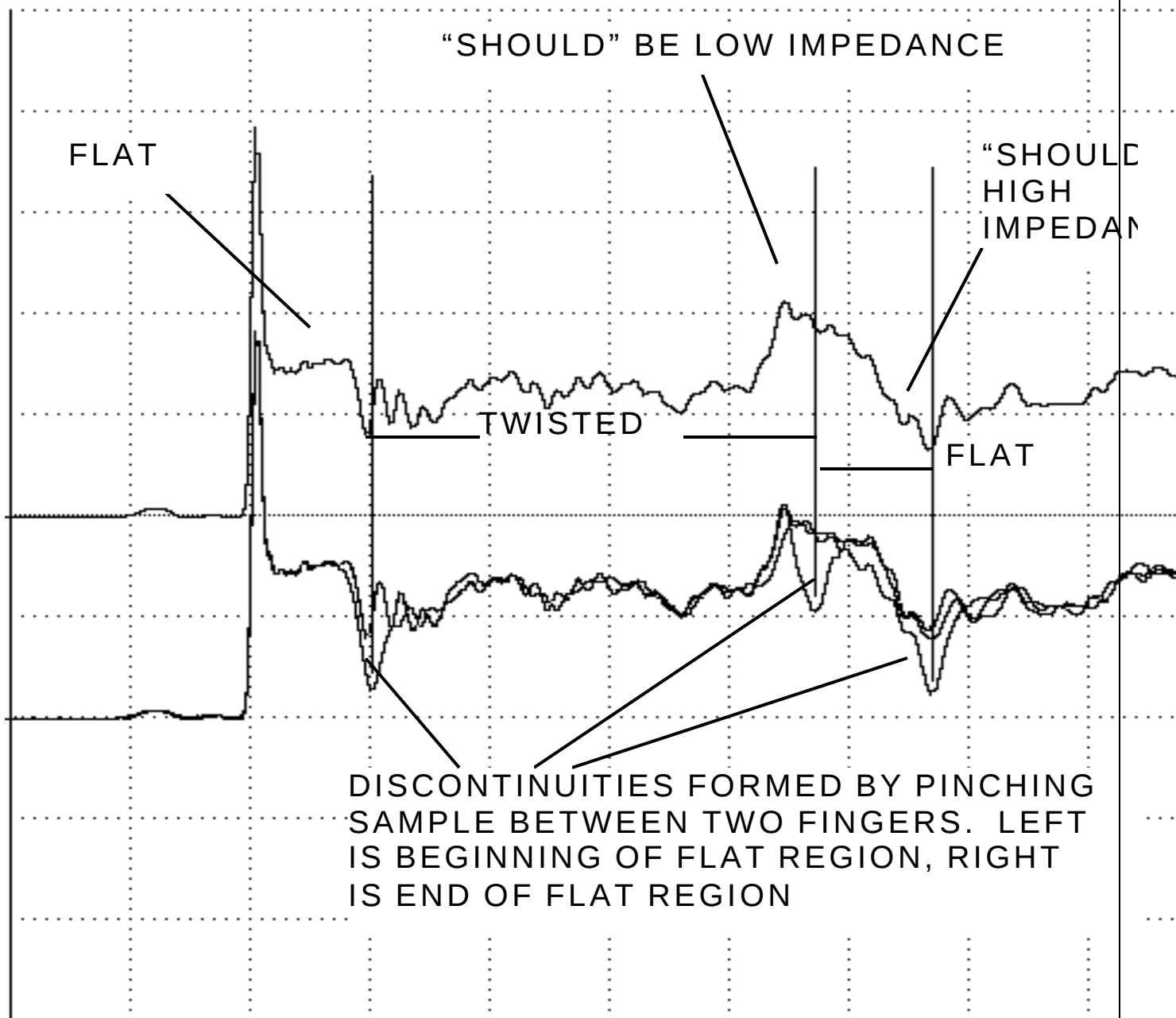
Accepted, changed

Improved Figure C.2 (from PowerPoint)



Comment number: 39T
Document location: Figure C.3
Comment: use improved figure below
Accepted, changed

Improved Figure C.3 (from PowerPoint)



Proposed resolution:

Comment number: 40T

Document location: Annex C.2

a) Comment: Second to last paragraph, at end, add "Filtering the data does not remove the mirages."

b) Last paragraph and figure C.4

Proposed resolution:

Rejected, already there.

PIP comments: HP

Comment number: 1 E

Document location: p vi

Comment: update the list of members and alternates and put all the “shalliams” back to “Williams”

Proposed resolution: Implement the comment

Accepted

Comment number: 2 E

Document location: p vii

Comment: Add the list of contributor names

Proposed resolution: Implement the comment

Accepted

Comment number: 3 E

Document location: p viii

Comment: Only Annex E is a normative part of the standard.

Proposed resolution: Remove references to Annex’s A, B, and C and replace with reference to Annex E

Accepted

Comment number: 4 E

Document location: p ix

Comment: Add table of contents title and reformat with indentations for sub headings

Proposed resolution: Implement the comment

Partially accepted added Table of Contents title

Comment number: 5 E

Document location: p xiv

Comment: Add table of figures title and right justify the page numbers

Proposed resolution: Implement the comment

Accepted, completed

Comment number: 6 E

Document location: p xv

Comment: Add table of table title and right justify the page numbers

Proposed resolution: Implement the comment

Accepted, completed

Comment number: 7 E

Document location: 2.2 and 2.4

Comment: Add details for SPI-4 and SFF references

Proposed resolution: Implement the comment

Accepted

Comment number: 8 E

Document location: 3.2.24

Comment: definition of concatenated is missing

Proposed resolution: Accepted, definition added "Two or more interconnect assemblies (similar or dissimilar) connected together as part of a single SCSI bus segment. Examples include round shielded cable connected to a backplane with no expander on the backplane and flat multi-drop interconnect assembly connected to a round point to point interconnect assembly."

Comment number: 9 T

Document location: 3.2.29

Comment: Definition of device is not consistent with usage in the SCSI PIP context

Proposed resolution: accepted - Change definition to "the entity that contains the SCSI driver and receiver".

Accepted

Comment number: 10 T

Document location: 3.2.40

Comment: Definition not relevant to PIP

Proposed resolution: accepted - Delete the definition

Accepted, removed

Comment number: 11 T

Document location: 3.2.85

Comment: definition is missing and irrelevant to PIP

Proposed resolution: accepted - delete the definition

Accepted, removed

Comment number: 12 T

Document location: 3.2.99

Comment: definition is irrelevant to PIP

Proposed resolution: accepted - delete the definition

Accepted, removed

Comment number: 13 T

Document location: 3.2.105

Comment: definition is not consistent with usage in other documents

Proposed resolution: accepted with modification - change definition to: "the region of the cable or PCB between the connector connection point and the point where the bulk cable or PCB is physically undisturbed by the connector attachment methodology."

Accepted, modified

Comment number: 14 T

Document location: 3.2.117, 119 and 121 and footnote 1

Comment: definitions are irrelevant to PIP

Proposed resolution: accepted - delete the definitions and footnote

Accepted removed.

Comment number: 15 T
Document location: 3.3.120
Comment: definition is missing and may be irrelevant
Proposed resolution: accepted - delete the definition
Accepted, removed

Comment number: 16 E
Document location: 3.3
Comment: delete CAE, HDL, and IBIS as being irrelevant
Proposed resolution: accepted – deleted - Implement the comment
Accepted, removed

Comment number: 17 E
Document location: 3.4
Comment: symbol “e” has no meaning specified
Proposed resolution: delete the symbol
Accepted, removed

Comment number: 18 T
Document location: 3.5.5
Comment: delete the second sentence as being untrue.
Proposed resolution: Implement the comment
Accepted, removed.

Comment number: 19 E
Document location: 4.10.3.1
Comment: first list should have alpha not numeric bullets
Proposed resolution: Implement the comment
Accepted, corrected

Comment number: 20 E
Document location: 4.10.3.2 and 4.10.3.3
Comment: use exponents instead of **
Proposed resolution: Implement the comment
Accepted, corrected

Comment number: 21 E
Document location: figure 2
Comment: place the title closer to the actual figure
Proposed resolution: Implement the comment
Accepted, corrected.

Comment number: 22 E
Document location: clause 5
Comment: need wording that explains that most level 2 measurements are not described in detail and that the focus is on level 1 measurements.
Proposed resolution: add wording

Accepted, added wording

Comment number: 23 E

Document location: 6.1.3.1 and 6.1.4.1

Comment: replace "Z" with "differential local impedance"

Proposed resolution: Implement the comment

Accepted, changed

Comment number: 24 E

Document location: 6.4

Comment: list of actions are ordered and need numeric bullets

Proposed resolution: Implement the comment

Accepted, changed

Comment number: 25 E

Document location: 7.1

Comment: add period

Proposed resolution: Implement the comment

Accepted, changed

Comment number: 26 E

Document location: 7.5.1.4

Comment: add period

Proposed resolution: Implement the comment

Accepted, added

Comment number: 27 E

Document location: 7.5.1.5

Comment: list should have numerical bullets

Proposed resolution: Implement the comment

Accepted, changed.

Comment number: 28 E

Document location: 7.6.2.4

Comment: change "varried" to "varied"

Proposed resolution: Implement the comment

Accepted, correct

Comment number: 29 E

Document location: 7.7.2.5

Comment: list should have numeric bullets

Proposed resolution: Implement the comment

Accepted, changed

Comment number: 30 T

Document location: clause 8

Comment: where are the level 2 interconnect assembly measurement?

Proposed resolution: add a table of level 2 measurements
Accepted, table added

Comment number: 31 T
Document location: 10.3.1
Comment: need more detail concerning the following:
.Data patterns specified are longitudinal (not the payload for the parallel bus segment) - should add a figure for this one
.More complete definition of the aggressor signals that cause the cross talk
.More detail concerning the conditions used for the TDW measurements
Proposed resolution: add the required material
accepted, completed

Comment number: 33 T
Document location: 10.3.2.4
Comment: need wording stating the requirements for TDW measurements as well as eye diagram
Proposed resolution: add the required wording
Accepted, completed

Comment number: 34 E
Document location: 10.4.1
Comment: move statement in 10.4.2.4 that states that there are no requirements that use the TDW methodology to clause 10.4.1
Proposed resolution: Implement the comment
Accepted, changed.

Comment number: 35 E
Document location: 10.5.2.3
Comment: add period
Proposed resolution: Implement the comment
Accepted, added

Comment number: 36 T
Document location: 10.5.2.4
Comment: content missing
Proposed resolution: add the required content
Accepted, changed to level 2

Comment number: 37 T
Document location: 10.2
Comment: There are no performance requirements specified for propagation time and propagation time skew.
Proposed resolution: add these requirements as subclause 10.2.5
Accepted, added acceptable value

Comment number: 38 E
Document location: all
Comment: a huge step forward and contributors and commenters are to be congratulated for tackling this huge issue set addressed by PIP and getting it too this point. Unfortunately, there are still too many important areas in rev 03a that need

non-trivial attention so the HP vote has to be 'no'.
Proposed resolution: resolve all the comments and issue a new rev.
Partially accepted, many many changes made.

LSI Logic comments on the PIP letter ballot.

1. Global Comment

Most references to National Committee for Information Technology Standards (NCITS) need to be updated to InterNational Committee for Information Technology Standards (INCITS).

Exception:

The URL <http://www.techstreet.com/ncits.html> on page ii is correct.

Accepted, corrected

2. Page vi

"shalliam Petty" should be William Petty. Global substitution error,
Is this the only this one?

Accepted, corrected

3. Page vii

Correct spelling of "indivuals" and add the individuals or delete this sentence.

Accepted, corrected

4. Page viii, Introduction

Finish the sentence, "The Parallel Interface Perfromance defines"
and correct the spelling error in Performance.

Accepted, corrected

5. Page 2 2.1

"The documents named in this section contain provisions which, through reference in this text, may constitute provisions of this document" should read

"The standards named in this sub clause contain provisions which, through reference in this text, may constitute provisions of this standard".

Accepted, changed

6. Page 2 2.2

Replace SPI-4 with:

ANSI INCITS.362:2002, SCSI Parallel Interface - 4 (SPI-4)

Accepted

7. Page 2 2.3

Replace reference with:

INCITS/TR-29:2002, SCSI Signal Modeling (SSM)

Accepted

8. Page 2 2.4

SFF references are not complete. See Note 2 in 2.4 of SPI-4 for complete reference.

Accepted

9. Page 3 3.1

The reference to SPI-3 is wrong. It should be:

1) NCITS.336:2000, SCSI Parallel Interface - 3 (SPI-3)

Partially accepted, using international ISO version

10. Page 3 3.2.9

"n" First word should be In.

Accepted, corrected

11. Page 8 3.2.100

Spelling error "tow" should be two.

Accepted, corrected

12. Page 9 3.3

Missing acronyms. STD, TDR, TDT... etc. Many acronyms found throughout the document are not in this list. Have to hunt to find the definitions.

Accepted and updated

13. Page(17, 22, others?) 4.9.2 & 4.13

References to 3 meter multi-drop maximum lengths. Where does this come from? SPI-x documents multi-drop as 9 or 12 meters maximum depending on wire gauge. There are references in SPI-5 about restricting some cable types to shorter lengths, but none are 3 meters.

Acknowledged. Maximum length in PIP is 3 meters for unshielded multi-drop measurements. This does not prevent operation at longer lengths, but PIP does not provide standard lengths beyond 3 meters. For the 9 to 12 meter lengths concatenated shielded cables are generally required for multi-drop applications and not considered in PIP.

14. Page 21 4.11

"100 CM" should be 10,0 CM. $2,5 \times 4 = 10,0$

Partially Accepted changed to mm.

15. Page 24 4.16

Why is RST not controlled? If not, then why are MSG, CD, and IO controlled?

Acknowledged, reset RST requires low pass filtering, which makes it insensitive to the parameters addressed in PIP. e.g. Cross-talk, impedance, propagation time, etc. MSG, CD and IO have no such filtering.

16. Page 75 Annex B

This entire annex should not be part of the PIP document.

Partially accepted. All reference to companies and license terms are removed but technical content has been added.

17. Page 76 C.1

Change "shall" in first sentence below Figure C.1 to "are".

Accepted, changed

18. Page 81 Annex D

This annex needs an extensive editorial review. Stuff like "Per the last PIP meeting", "Greg noted that the concept", "PIP working group", and "PIP group" does not belong in a standard.

Accepted, extensive rework done on this annex.

19. Page 86 Annex E

Normative annexes are supposed to go before any informative annexes.

Accepted, done.

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Tyco Electronics/Madison Cable Letter Ballot Comments to PIP (02-376)
Comments attached to No ballot from Jie Fan of TycoElectronics:

1. Page 50: paragraph 'In a SCSI cable ...'

Comments: last sentence should be changed to: The results from each aggressor signal are added to yield the total crosstalk for REQ or ACK respectively

Reason: the current sentence can be confused with the total sum of REQ and ACK measurements, which will exceed the 3% level.

Proposed Resolution: accepted, reworded the paragraph.

2. Various pages: Acceptable values for point to point bulk cable:

Comments: All values should be stated clearly in this document despite of the value set by SPI-x

Reason: To make it more consistent with multidrop bulk cable description

Proposed Resolution: Accepted, values added for bulk cable.

3. Page 27 Table 4

Comments: Under column 'Level' : 2* should be removed or edited

Reason: Editorial

Proposed Resolution: Accepted,

4. Page 26: Table 3 Comments on Differential capacitancemeasurement

Comments: Replace current statement with 'TDR/TDT (time domain or calculated capacitance) – Impedance Analyzer (frequency domain or direct measured capacitance)

Reason: a. Two methods are supposed to be relately equivelant, therefore, should allow flexibility

b. Be consistant with later description

Proposed Resolution: Partially accepted, see changes in Table 3

5. Related pages: Insertion loss for bulk cable (point to point and multidrop)

Comments : Add Balanless method as an alternative/optional method to the standard

Proposed Resolution: Partially accepted. Comment added to 7.6.1 to allow balunless methods.

Jie Fan
Tyco Electronics/Madison Cable

Comments attached to Abs ballot from Peter Johansson of Congruent Software, Inc.:

My abstention is because of a lack of technical expertise in the subject matter.

Comments attached to Abs ballot from Kevin Marks of Dell Computer Corp.:

Not technically competent on subject *****

Comments attached to Abs ballot from Robert H. Nixon of Emulex:

1) The subject matter of this standard is not relevant to the business of my organization.

end of comments.

Comments attached to Abs ballot from Edward A. Gardner of Ophidian Designs:

I have little knowledge of physical layer behavior and do not feel competent to evaluate this standard.

Comments attached to Abs ballot from Jim Jones of Quantum Corp.:

Not materially affected by this proposal. *****

Comments attached to Abs ballot from Roger Cummings of Veritas Software:

Not within our organization's scope of expertise

Comments attached to No ballot from George O. Penokie of IBM Corp.:

This standard does not conform to the SCSI Style Guide (01-313r1). This needs to be corrected. Some examples of problems are:

-There are no table of contents for figures and tables.

Accepted

-The normative references to standards do not properly name the standards.

Accepted and changed.

-Notes within the text are not numbered.

Accepted (not numbered)

-There is extensive use of illegal words (e.g., can, must, will)

Accepted many changes made

-There are bulleted lists when all lists should be numbered or lettered.

Accepted already address from previous comment resolution.

-There appear to be numbered lists (ordered) that should be lettered (unordered).

Accepted changed

-There poorly formatted tables (e.g., table 2 that could easily be placed in one page, table 11 is a mess).

Accepted, table has been totally reworked.

-Improper cross-references are used (e.g., clause x.x instead of just x.x).

Accepted and changed

-Calling out specific brand names for test equipment is not allowed.

Rejected. Specific tests do require specific pieces of equipment. In all case where equipment is called for, the phrases “or equivalent” and “for example” are used to allow the use of alternate brand names. Clause 3.6 is added to address the use of specific equipment. Precedence for this specification methodology is given in SPI-3 and SPI-4, where models are called out by specific brand names or equivalent.

-Many equations do not use the same font as the rest of the document and appear to be in bold.

Accepted, reviewed and corrected.

In addition:

-There is nothing in figure 25.

Accepted, figure is there, just didn't process on PDF conversion.

-Annex B talks about licensing agreements which is not allowed in a standard.

Accepted, addressed by previous comment resolutions.