Abstract

This specification lists errata, corrections, and enhancements to the IEEE 1394-2008 specification. After this specification is approved by the 1394 TA, the contents will be incorporated into a new edition of the IEEE 1394 specification and submitted for IEEE ballot.

Keywords
IEEE 1394-2008, Serial Bus, Errata
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USA

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The source document is:

IEEE Std 1394-2008, Standard for a High Performance Serial Bus

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1) proper acknowledgment is provided;

2) the ‘heart’ of the standard is not entirely contained within the portion being excerpted.

This included the use of tables, graphs, abstracts and scope statements from IEEE Documents.
Foreword (This foreword is not part of 1394 Trade Association Specification TS2013002)

This specification lists errata, corrections, and enhancements to the IEEE 1394-2008 specification. After this specification is approved by the 1394 TA, the contents will be incorporated into a new edition of the IEEE 1394 specification and submitted for IEEE ballot.

There are 2 annexes in this specification. Annexes A is normative and part of this specification. Annex B through is informative and are not considered part of this specification.

This specification was accepted by the Board of Directors of the 1394 Trade Association. Board of Directors acceptance of this specification does not necessarily imply that all board members voted for acceptance. At the time it accepted this specification, the 1394 Trade Association Board of Directors had the following members:

Richard Mourn, Chair
Morten Lave, Vice-Chair
Richard Davies, Financial Officer
Dave Thompson, Secretary

Organization Represented                      Name of Representative
DapTechnology ................................................................. Richard Mourn
IPRA .................................................................................... Richard Davies
LSI ........................................................................................ Dave Thompson
TC Applied Technologies ..................................................... Morten Lave

The Silicon Working Group, which developed and reviewed this specification, had the following members:

Morten Lave, Chair
Les Baxter, Vice-chair

Max Bassler
Richard Mourn
Toni Ray
Dave Thompson
Revision history

Draft 0 (Sept. 13, 2012)

Draft 1 (Oct. 8, 2012) – first draft distributed for comments.

Draft 2.0 (Jan. 28, 2013) – incorporated comments from SiWG review of Draft 1

Draft 3.0 (Mar. 06, 2013) – incorporated comments from SiWG review of Draft 2

Draft 4.0 (June 06, 2013) – incorporated comments from SiWG review of Draft 3

Draft 5.0 (Sept. 11, 2013) – incorporated comments from SiWG review of Draft 4

Draft 6.0 (Oct. 31, 2013) – incorporated comments from SiWG ballot
IEEE 1394-2008 Errata

1 Scope and purpose

1.1 Scope

This specification lists errata, corrections, and enhancements to the IEEE 1394-2008 specification.

1.2 Purpose

After this specification is approved by the 1394 TA, the contents will be incorporated into a new edition of the IEEE 1394 specification and submitted for IEEE ballot. This document will refer to the new IEEE 1394 specification as IEEE 1394-201X.
2 Normative references

2.1 Reference scope

The specifications and standards named in this section contain provisions, which, through reference in this text, constitute provisions of this 1394 Trade Association Specification. At the time of publication, the editions indicated were valid. All specifications and standards are subject to revision; parties to agreements based on this 1394 Trade Association Specification are encouraged to investigate the possibility of applying the most recent editions of the specifications and standards indicated below.

2.2 Approved references

The following approved specifications and standards may be obtained from the organizations that control them.

IEEE Std 1394-2008, Standard for a High Performance Serial Bus


Throughout this document, the term “IEEE 1394” shall be understood to refer to IEEE Std 1394-2008 unless otherwise noted.

2.3 Reference acquisition

The references cited may be obtained from the organizations that control them:

1394 Trade Association, 23117 39th Ave SE, Bothell, WA  98021, USA; (425) 870-6574 / (425) 320-3897 (FAX); http://www.1394ta.org/

American National Standards Institute (ANSI), 11 West 42nd Street, New York, NY  10036, USA; (212) 642-4900 / (212) 398-0023 (FAX); http://www.ansi.org/

Institute of Electrical and Electronic Engineers (IEEE), 445 Hoes Lane, PO Box 1331, Piscataway, NJ 08855-1331, USA; (732) 981-0060 / (732) 981-1721 (FAX); http://www.ieee.org/

In addition, many of the documents controlled by the above organizations may also be ordered through a third party:

Global Engineering Documents, 15 Inverness Way, Englewood, CO  80112-5776; (800) 624-3974 / (303) 792-2192; http://www.global.ihs.com/
3 Definitions and notation

3.1 Definitions

3.1.1 Conformance

Several keywords are used to differentiate levels of requirements and optionality, as follows:

3.1.1.1 expected: A keyword used to describe the behavior of the hardware or software in the design models assumed by this specification. Other hardware and software design models may also be implemented.

3.1.1.2 ignored: A keyword that describes bits, bytes, quadlets, octlets or fields whose values are not checked by the recipient.

3.1.1.3 may: A keyword that indicates flexibility of choice with no implied preference.

3.1.1.4 reserved: A keyword used to describe objects (bits, bytes, quadlets, octlets and fields) or the code values assigned to these objects in cases where either the object or the code value is set aside for future standardization. Usage and interpretation may be specified by future extensions to this or other specifications. A reserved object shall be zeroed or, upon development of a future specification, set to a value specified by such a specification. The recipient of a reserved object shall ignore its value. The recipient of an object defined by this specification as other than reserved shall inspect its value and reject reserved code values.

3.1.1.5 shall: A keyword that indicates a mandatory requirement. Designers are required to implement all such mandatory requirements to assure interoperability with other products conforming to this specification.

3.1.1.6 should: A keyword that denotes flexibility of choice with a strongly preferred alternative. Equivalent to the phrase “is recommended.”
### 4 Overview (informative)

Clause 5 of this document lists all the errata which have currently been resolved. The subclause for each errata item consists of two sections – a discussion of the error followed by a detailed description of the changes which will be made to the IEEE 1394 specification. The following errata are addressed in Clause 5:

<table>
<thead>
<tr>
<th>Errata No.</th>
<th>IEEE 1394-2008</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>7.3.3.2.2</td>
<td>Error in description of RX0:RX0a transition</td>
</tr>
<tr>
<td>5.2</td>
<td>8.3.2.6.4</td>
<td>Use of obsolete terminology &quot;Max_port_speed&quot;</td>
</tr>
<tr>
<td>5.3</td>
<td>9.2.6</td>
<td>Typo in Cable Interface Timing Constants</td>
</tr>
<tr>
<td>5.4</td>
<td>9.3.1</td>
<td>Clarification of differential voltage vs. differential amplitude</td>
</tr>
<tr>
<td>5.5</td>
<td>9.3.6</td>
<td>Modifications to S800 Beta jitter specification</td>
</tr>
<tr>
<td>5.6</td>
<td>12.4.4</td>
<td>Clarification regarding power over UTP links</td>
</tr>
<tr>
<td>5.7</td>
<td>14.3</td>
<td>Errors in Connection Manager Constants</td>
</tr>
<tr>
<td>5.8</td>
<td>14.5</td>
<td>Errors in Port Connection Manager State Machine</td>
</tr>
<tr>
<td>5.9</td>
<td>14.5</td>
<td>Omission of P2:P11 transition in description of Port Connection Manager State Machine</td>
</tr>
<tr>
<td>5.10</td>
<td>15.2.1</td>
<td>Typos and omissions in PHY register page</td>
</tr>
<tr>
<td>5.11</td>
<td>16.4.8</td>
<td>Errors in Arbitration State Machine</td>
</tr>
<tr>
<td>5.12</td>
<td>17.2.3, 17.2.5</td>
<td>Clarification of Alpha mode speed code signaling</td>
</tr>
<tr>
<td>5.13</td>
<td>Annex M</td>
<td>Incorrect cross-references in Annex M</td>
</tr>
<tr>
<td>5.14</td>
<td>new Annex Q</td>
<td>Automotive fiber jitter specification</td>
</tr>
<tr>
<td>5.15</td>
<td>Annex S</td>
<td>Updates to Bibliography</td>
</tr>
</tbody>
</table>

Clause 6 contains a list of additional technical issues which are reserved for further study (FFS.) These items are currently being investigated and may potentially be resolved and moved to clause 5 in a later revision of this document. The following FFS items are addressed in Clause 6:

<table>
<thead>
<tr>
<th>FFS No.</th>
<th>IEEE 1394-2008</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>15.2</td>
<td>Higher PHY delay</td>
</tr>
<tr>
<td>6.2</td>
<td>14 and 15</td>
<td>Faster startup after port error</td>
</tr>
</tbody>
</table>
5 Resolved Errata

5.1 Error in clause 7.3.3.2.2 (Responding to a transaction request)

5.1.1 Description

On page 186, the description of Transition RX0:RX0a is incorrect. ACKNOWLEDGE_MISSING should be replaced by TIMEOUT as indicated in item a2 of clause 7.1.2.2 (page 173.)

5.1.2 Proposed Changes

In line 8 of page 186, change “ACKNOWLEDGE_MISSING” to “TIMEOUT.”

5.2 Use of obsolete terminology “Max_port_speed”

5.2.1 Description

In clause 8.3.2.6.4, maxPortSpeed is referred to by the obsolete terminology Max_port_speed.

5.2.2 Proposed Changes

The reference to Max_port_speed (page 227, line 32) will be changed to maxPortSpeed. (See also Errata 5.10)

5.3 Typo in table 9-18

5.3.1 Description

In Table 9-18 (Cable interface timing constants, page 261), the maximum value for MAX_BETA_TIME is listed as 104.5. It should be 104.5 µs.

5.3.2 Proposed Changes

In Table 9-18 (Cable interface timing constants, page 261), the maximum value for MAX_BETA_TIME will be changed from 104.5 to 104.5 µs.

5.4 Differential Voltage/Amplitude

5.4.1 Description

In clause 9.3.1 of IEEE 1394-2008, there is a bit of confusion in the “Example” text following Table 9-21, which does not recognize that Differential Amplitude is a modulus (and hence is always positive.)

5.4.2 Proposed Changes

The Y axis on Figures 9-17 and 9-19 will be changed from “Differential Amplitude” to “Differential Voltage.”

5.5 S800 Beta jitter specification

5.5.1 Description

There was a considerable amount of discussion about the S800 Beta mode jitter specifications that are given in Tables 9-35 and 9-36 of IEEE 1394-2008. One item of concern was that there was initially no jitter budget allocated for connectors.
5.5.2 Proposed Changes

New S800 jitter values will be incorporated into Tables 9-35 and 9-36 as shown below.

Table 9-35 – S800β short-haul copper jitter output

<table>
<thead>
<tr>
<th>Jitter Output</th>
<th>DJ pk-pk</th>
<th>RJ RMS</th>
<th>RJ pk-pk</th>
<th>TJ pk-pk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance Point</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TP1</td>
<td>101</td>
<td>11</td>
<td>156</td>
<td>257</td>
</tr>
<tr>
<td>TP1 to TP2</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>TP2</td>
<td>121</td>
<td>11</td>
<td>156</td>
<td>277</td>
</tr>
<tr>
<td>TP2 to TP3</td>
<td>112</td>
<td>0</td>
<td>0</td>
<td>112</td>
</tr>
<tr>
<td>TP3</td>
<td>234</td>
<td>11</td>
<td>156</td>
<td>390</td>
</tr>
<tr>
<td>TP3 to TP4</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>TP4</td>
<td>254</td>
<td>11</td>
<td>156</td>
<td>410</td>
</tr>
</tbody>
</table>

Table 9-36 – S800β short-haul copper jitter tolerance

<table>
<thead>
<tr>
<th>Jitter Tolerance</th>
<th>DJ pk-pk</th>
<th>RJ RMS</th>
<th>RJ pk-pk</th>
<th>Sinusoidal pk-pk</th>
<th>TJ pk-pk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance Point</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TP1</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>TP2</td>
<td>121</td>
<td>11</td>
<td>156</td>
<td>101</td>
<td>378</td>
</tr>
<tr>
<td>TP3</td>
<td>234</td>
<td>11</td>
<td>156</td>
<td>101</td>
<td>491</td>
</tr>
<tr>
<td>TP4</td>
<td>254</td>
<td>11</td>
<td>156</td>
<td>101</td>
<td>511</td>
</tr>
</tbody>
</table>

Note: See Tables Q-1 and Q-2 for the S800β automotive fiber jitter requirements.

5.6 Power over UTP links

5.6.1 Description

In clause 12.4.4 of IEEE 1394-2008, Tables 12-2 and 12-3 both contain the note: “Pins 4, 5, 7, and 8 are reserved for transmission of dc power per Clause 30 of IEEE Std. 802.3-2005.”
Since this text is in a note, it is not normative. This will be changed to a normative requirement to use the PoE spec if power is provided over a UTP link.

5.6.2 Proposed Changes

The notes below Tables 12-2 and 12-3 will be deleted. The following normative text will be added to clause 12.4.4 of IEEE 1394-201X: "Pins 4, 5, 7, and 8 shall be reserved for transmission of DC power as per Clause 30 of IEEE Std 802.3-2005."

5.7 Errors in Table 14-3 (Connection Manager Constants)

5.7.1 Description

Errata 4.96 in the previous Errata document (TB2002001) contained several changes to the Connection Manager Constants that were not implemented properly in IEEE 1394-2008. There were two changes in Table 14-3 that were omitted (shown in yellow) and three that contained typos (orange) as indicated in the table below.
5.7.2 Proposed Changes

Table 14-3 will be changed to agree with the “Errata 4.96” column in the table above.

5.8 Errors in Figure 14-2 (Port connection manager state machine)

5.8.1 Description

Errata document TB2002001 contained 5 changes to Figure 14-2. During the compilation of the draft of IEEE 1394-2008, three of these changes were overwritten when the 1394c document was merged in, as described in the table below.

<table>
<thead>
<tr>
<th>Description</th>
<th>Errata No.</th>
<th>Survived 1394c merge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit from disabled on a Beta_mode port</td>
<td>4.16</td>
<td>YES</td>
</tr>
<tr>
<td>Transition to disabled</td>
<td>4.25</td>
<td>YES</td>
</tr>
<tr>
<td>Port hangs after loop_disabled</td>
<td>4.65</td>
<td>NO</td>
</tr>
<tr>
<td>Disconnection on Standby</td>
<td>4.86</td>
<td>NO</td>
</tr>
<tr>
<td>Arbitration state timeout during bus reset with port in P11: untested</td>
<td>4.98</td>
<td>NO</td>
</tr>
</tbody>
</table>

5.8.2 Proposed Changes

Changes to implement the three omitted errata (4.85, 4.86, and 4.98) will be made to Figure 14-2 in IEEE 1394-201X. A new version of this figure with all the changes implemented is shown below. In addition, in state P3, “suspendInitiatorAction” will be replaced by “suspendInitiatorActions()” as indicated by the red ellipse.
Figure 14-2—Port connection manager state machine
5.9 Section 14.5 Port connection manager state machine

5.9.1 Description

A transition from P2:P11 is shown in Figure 14-2 – Port connection manager state machine. However Transition P2:P11 is omitted from the text after the figure.

5.9.2 Proposed Changes

On page 369, after Transition P2:P8, add the following:

**Transition P2:P11.** If the forceDisconnect variable is asserted on an active port (legacy loop is detected), the port transitions from the P2:Active state to the P11: Untested State. Also if, the port is in beta mode and loopToDetect (PHY is in bus reset to S1:Self-ID Grant or S2:Self-ID Receive states) and it loses synchronization (!bportSyncOk) the port transitions from the P2:Active state to the P11:Untested state.

5.10 Errors in Figure 15-2 (PHY register page 0)

5.10.1 Description

There are two errors regarding Figure 15-2 (PHY register Page 0: Port Status page). First, the maxPortSpeed field is not identified in Figure 15-2 although it is listed in Table 15-3 and referred to in clause 19. Second, bit 6 is incorrectly labeled as bit 5.

5.10.2 Proposed Changes

Bits 1-3 of address 10102 will be labeled as the maxPortSpeed field. The second bit “5” will be changed to “6”. These corrections to Figure 15-2 are highlighted in below.
5.11 Arbitration state machine

5.11.1 Description

There are two errors in the Arbitration State Machine (Clause 16.4.8, Figure 16-19, page 453):

A0:A1 condition
Was:                  !immediateRequest && !proxyRoot && (JuniorRequest || arbOk)
Should be:        !immediateRequest && !proxyRoot && (legacyJuniorRequest || arbOk)

A1:TX condition
Was:                  Grant() && ownRequest
Should be:        legacyGrant() && ownRequest

5.11.2 Proposed Changes

In Figure 16-19, “JuniorRequest” will be changed to “legacyJuniorRequest” and “Grant()” will be changed to “legacyGrant()”.

Figure 15-2—PHY register page 0: Port Status page

<table>
<thead>
<tr>
<th>Address</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000₂</td>
<td>AStat</td>
<td>BStat</td>
<td>child</td>
<td>connected</td>
<td>receiveOK</td>
<td>disabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1001₂</td>
<td>negotiatedSpeed</td>
<td>intEnable</td>
<td>Fault</td>
<td>Standby Fault</td>
<td>disable Scrambler</td>
<td>Beta_Mode Only_Port</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1010₂</td>
<td>maxPortSp</td>
<td>IPP</td>
<td>cableSpeed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1011₂</td>
<td>connection Unreliable</td>
<td>betaMode</td>
<td>tMode</td>
<td>802Mode</td>
<td>T_Mode Port</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1100₂</td>
<td>portError</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1101₂</td>
<td>De-emph. disable</td>
<td>sleep flag</td>
<td>sleep enabled</td>
<td>loop Disable</td>
<td>inStandby</td>
<td>hard Disable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1110₂</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1111₂</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.12 Alpha mode speed code signaling

5.12.1 Description

Although Alpha mode is limited to a maximum speed of S400, Table 17-21 (Alpha PHY/Link Interface Speed code signaling) show speed codes above S400. This conflicts with the encodings for Beta mode shown in Table 17-38 (Beta Receive packet SPD interval encoding.)

5.12.2 Proposed Changes

Since Alpha mode is only defined up to S400, Table 17-21 should be limited to S400. Similarly, Table 17-15 (Request speed field) shows values for S800, S1600, and S3200. These values will be removed. The updated tables will be as shown below.

**Table 17-15 – Request speed field**

<table>
<thead>
<tr>
<th>LR[4:6]</th>
<th>Data Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>000₂</td>
<td>S100</td>
</tr>
<tr>
<td>001₂</td>
<td>Reserved</td>
</tr>
<tr>
<td>010₂</td>
<td>S200</td>
</tr>
<tr>
<td>011₂</td>
<td>Reserved</td>
</tr>
<tr>
<td>100₂</td>
<td>S400</td>
</tr>
<tr>
<td>101₂</td>
<td>Reserved</td>
</tr>
<tr>
<td>110₂</td>
<td>Reserved</td>
</tr>
<tr>
<td>111₂</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

**Table 17-21 – Speed code signaling**

<table>
<thead>
<tr>
<th>D[0:n]</th>
<th>Transmitted</th>
<th>Observed</th>
<th>Data Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>00000000₂</td>
<td>00xxxxxx₂</td>
<td>S100</td>
</tr>
<tr>
<td></td>
<td>01000000₂</td>
<td>0100xxxx₂</td>
<td>S200</td>
</tr>
<tr>
<td></td>
<td>01010000₂</td>
<td>0101xxxx₂</td>
<td>S400</td>
</tr>
<tr>
<td></td>
<td>11111111₂</td>
<td>11xxxxxx₂</td>
<td>Data prefix indication</td>
</tr>
<tr>
<td>All other values</td>
<td>All other values</td>
<td>Reserved</td>
<td></td>
</tr>
</tbody>
</table>

a An “x” indicates ignored when received.
5.13 Incorrect Cross-References in Annex M

5.13.1 Description

When IEEE 1394-2008 was formed by combining 1394a, b, and c, there were numerous changes to clause numbers. In Annex M (Serial bus topology considerations for power distribution, cable environment), page 829, there are two obsolete cross-references to subclause 9.2.1.7 and one to subclause 4.2.2.1.2.

5.13.2 Proposed Changes

The two cross-references to 9.2.1.7 will be changed to 4.4.4.7. The cross-reference to 4.2.1.2.2 will be changed to 4.2.2.2.

5.14 Automotive Fiber Jitter Specifications

5.14.1 Description

The 1394 Automotive Glass Fiber Specification (Document TS2010003) contains S800 jitter specifications. These specifications need to be added to IEEE 1394-201X.

5.14.2 Proposed Changes

A new normative annex (Annex Q) will be added to IEEE 1394-201X. The existing Annexes Q, R, and S (Summary Description, Glossary, and Bibliography) will be renumbered as Annexes R, S, and T, respectively. The contents of the new Annex Q are given in Annex A of this document.

5.15 Updates to Clause S (Bibliography)

5.15.1 Description

There are a few obsolete references in the bibliography of IEEE 1394-2008 that need to be updated. In addition, the address of the 1394 TA in footnote 40 is obsolete.

5.15.2 Proposed Changes

Reference [B1] (IDB-1394 Automotive Specification) will be replaced by TA Document TS2008001 (1394 Copper Automotive Standard).

The 1394 Automotive Glass Fiber Specification (TS2010003) will be added as a new reference.

References [B3] (Enhanced UTP PMD), [B4] (Beta Plus PHY-Link Interface), and [B5] (S3200 Electrical Specification) will be removed as they refer to 1394 TA specifications which have been incorporated into IEEE 1394-2008.

New references will be added to refer to this Errata document and to TA document 2007005 (Baseband Coax PMD). The address of the 1394 TA will be changed from Southlake TX to Bothell WA.
6 Additional technical issues

This clause contains additional technical issues which are reserved for further study (FFS.) These items are currently being investigated and may potentially be resolved and moved to clause 5 in a later revision of this document.

6.1 Option for higher PHY delay at S1600 and S3200

6.1.1 Description

From Figure 15-1 and Table 15-1, the maximum PHY delay is $144 + (15 \times 20) = 444$ ns. The modern transceivers in FPGAs have a lot of pipelining and the total delay could be longer than the 444 ns -- especially at higher speeds because wider busses are used. It would be nice to have an option for delays higher than 444 ns, i.e., more than 4 bits for the PHY Delay field.

6.1.2 Proposed Changes

No specific changes have been proposed yet. Resolution of this item will likely affect IEEE 1394-2008 clause 15.2 (p. 389), Figure 15-1 and Table 15-1.

6.2 Faster Start up after port error.

6.2.1 Description

The basic idea is to prevent the PHY from going to a fully disconnected state after communication errors as toning, training, etc. which can result in the network being down for as long as 500ms. This is mostly a problem for mission critical applications.

It is recommended that this functionality should be optional and enabled by a PHY register bit. PHY manufacturers can choose to use strap pins for setting the default value but that is outside the scope of the standard.

6.2.2 Proposed Changes

No specific changes have been proposed yet. Resolution of this item will likely affect IEEE 1394-2008 clauses 14 and 15 and Figures 14-2 and 15-2.
Specifications for the use of IEEE 1394 in automotive applications are given in the 1394 Copper Automotive Standard (Document TS2008001) and the 1394 Automotive Glass Fiber Specification (Document TS2010003.) Requirements for S800β operation over automotive glass fiber are given in Tables Q-1 and Q-2. Measurement points (TP1 – TP4) are as defined in Figure Q-1 (which is the same as Figure 4-1 of TS2010003.) Transmitters and receivers shall meet the normative values highlighted in bold and underscored. All other values are informative.

**Table Q-1 – S800β automotive glass fiber jitter output**

<table>
<thead>
<tr>
<th>Jitter Output</th>
<th>DJ pk-pk</th>
<th>RJ RMS</th>
<th>RJ pk-pk</th>
<th>TJ pk-pk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance Point</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TP1</td>
<td>60</td>
<td>10</td>
<td>140</td>
<td>200</td>
</tr>
<tr>
<td>TP1 to TP2</td>
<td>42</td>
<td>4.89</td>
<td>69</td>
<td>110</td>
</tr>
<tr>
<td>TP2</td>
<td>102</td>
<td>11.13</td>
<td>156</td>
<td>258</td>
</tr>
<tr>
<td>TP2 to TP3</td>
<td>19</td>
<td>7.39</td>
<td>104</td>
<td>122</td>
</tr>
<tr>
<td>TP3</td>
<td>102</td>
<td>13.36</td>
<td>187</td>
<td>307</td>
</tr>
<tr>
<td>TP3 to TP4</td>
<td>79</td>
<td>5.14</td>
<td>72</td>
<td>151</td>
</tr>
<tr>
<td>TP4</td>
<td>199</td>
<td>14.32</td>
<td>200</td>
<td>400</td>
</tr>
</tbody>
</table>

**Table Q-2 – S800β automotive glass fiber copper jitter tolerance**

<table>
<thead>
<tr>
<th>Jitter Tolerance</th>
<th>DJ pk-pk</th>
<th>RJ RMS</th>
<th>RJ pk-pk</th>
<th>Sinusoidal pk-pk</th>
<th>TJ pk-pk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance Point</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TP1</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>TP2</td>
<td>121</td>
<td>11</td>
<td>156</td>
<td>101</td>
<td>378</td>
</tr>
<tr>
<td>TP3</td>
<td>234</td>
<td>11</td>
<td>156</td>
<td>101</td>
<td>491</td>
</tr>
<tr>
<td>TP4</td>
<td>254</td>
<td>11</td>
<td>156</td>
<td>101</td>
<td>511</td>
</tr>
</tbody>
</table>

Note: See Tables 9-35 and 9-36 for the S800β copper jitter requirements.
Figure Q-1— Automotive fiber PMD block diagram showing measurement points
Bibliography


[B5] IEEE 802.3-2012 Standard for Ethernet
