

IEEE 802.3au (IEEE P802.3-2005/Cor 1) D1.0 DTE Power Isolation Corrigendum Comments

Cl 00 SC P L # 19
 Robert Grow Intel

Comment Type E Comment Status A

Update base text to IEEE 802.3-2005, and remove references to pre-publication versions of 802.3-2005.

SuggestedRemedy

Cover, Abstract -- remove "(in publication preparation)"

P. 8, L. 20 -- Change NOTE to read:

This corrigendum is based on IEEE Std 802.3-2005. This is one of seven approved projects changin text in the base standard, but this corrigendum has minimal overlap with the other projects in ballot.

P. 11, L. 26 -- Base text is "50 Hz to 60 Hz", that part of the change is unnecessary.

P. 11, L. 21 -- Struckout base text is "subclause 6.2.2.3"

P. 11, L. 40 -- Struckout paragraphs in lines 40-48 are not in the base document, remove from draft.

Response Response Status C
 ACCEPT.

Cl 01 SC 1.3 P9 L 6 # 27
 Thompson, Geoff Nortel

Comment Type E Comment Status A
 Misspelling

SuggestedRemedy

Change 'refernce' to 'reference'

Response Response Status C
 ACCEPT.

Cl 08 SC 8.3.2.1 P 161 (in 802. L # 25
 Pat Thaler Avago Technologies

Comment Type TR Comment Status A Global

The isolation requirement for this MAU was changed from 250 V to the current levels (1500 to 2400 V depending on the type of test) some time between the 1992 and 1996 editions of IEEE 802. The vast majority of 10BASE5 MAUs were manufactured before the change occurred. There is a risk that someone will use the modern edition and assume a 10BASE5 MAU was built to the current isolation specifications.

SuggestedRemedy

Though in general we are no longer maintaining this clause, we need to provide a note to warn people that the isolation specification in the clause was changed and older equipment may not meet the current requirement. Therefore, add a warning:
 Warning - The current electrical isolation requirement is a change that was incorporated into IEEE 802.3-1996. Older editions of IEEE 802.3 had a significantly lower isolation requirement.

I think warning is appropriate since there is some risk of injury if the user assumes that the current isolation requirement applied to a MAU and therefore uses it in an inappropriate situation for its actual isolation.

Response Response Status C
 ACCEPT IN PRINCIPLE.

Caution - The current electrical isolation requirement is a change that was incorporated into IEEE 802.3-1996. Older editions of IEEE 802.3 had a significantly lower isolation requirement.

Cl 14 SC 14.3.1.1 P 10 L 10 # 11
 Piers Dawe Avago Technologies

Comment Type E Comment Status A

We don't say 'subclause' (when referring within 802.3).

SuggestedRemedy

Delete 'subclause'. Similarly in 40.6.1.1.

Response Response Status C
 ACCEPT.

IEEE 802.3au (IEEE P802.3-2005/Cor 1) D1.0 DTE Power Isolation Corrigendum Comments

Cl 14 SC 14.3.1.1 P10 L13 # 24
 Pat Thaler Avago Technologies

Comment Type E Comment Status A

This comment also applies to 40.6.1.1. Please apply any change in both places. 'emcompass within its MDI' This wording doesn't seem entirely accurate. How can something be within the MDI? The MDI is an interface and it doesn't encompass the attached circuits.

SuggestedRemedy

I think 'A MAU that does not share its MDI with a PI ...' works though I don't think it reads great.

Response Response Status C

ACCEPT.

Cl 14 SC 14.3.1.1 P10 L14 # 10
 Piers Dawe Avago Technologies

Comment Type T Comment Status A

I don't see any definition of 'frame ground', even by reference. If you mean a chassis, metal box or similar, why would the DTE Physical Layer circuits necessarily include one? 1. The communications circuits might not use chassis at all; 2. The frame, box or chassis might be made of plastic these days (a good choice for the Ethernet soap dispenser?)

SuggestedRemedy

Give a definition or reference - or use another term. Insert 'if any'. Similarly for 33.4.1, 40.6.1.1.

Response Response Status C

ACCEPT IN PRINCIPLE.

See comment #6

'if any' will be added to 33.4.1.

Cl 14 SC 14.3.1.1 P10 L16 # 1
 Peter Bradshaw Intersil Corpn.

Comment Type ER Comment Status A

The line (and paragraph) begins with

"This electrical separation shall withstand .."

However, there is no "separation" for the "This" to refer to, only an "isolation".

All other examples of "separation" refer to physical separations, e.g. cable lengths, etc., logical separations, e.g. MAC parts from PHY parts, or timing separations (e.g. NLP bursts).

A similar grammatical confusion appears in the following subclauses:-

12.10.1 Isolation (page 311 of 802_3REVam_D2p2_section_1.pdf)

32.6.1.1 Isolation requirement (page 476 of 802_3REVam_D2p2_section_2.pdf) and the corresponding PICS in 32.13.5.8 PME3

40.6.1.1 Isolation requirement (page 203 of 802_3REVam_D2p2_section_3.pdf) and the corresponding PICS in 40.12.7 PME16; note that PME15b, referring to the same fundamental item, uses "isolation".

See also the following comment re NOT removing the preferable form from 33.4.1.

SuggestedRemedy

Replace "separation" by "isolation" at least in 14.3.1.1 and 40.6.1.1, and in the PICS item 40.12.7 (PME16) (which are or should be in the scope of this corrigendum) and preferably also in 12.10.1, 32.6.1.1, and in the PICS item 32.13.5.8 (PME3).

Response Response Status C

ACCEPT IN PRINCIPLE.

Change subclauses 14.3.1.1, 40.6.1.1 and 40.12.7 (PME16) but we will not change the deprecated subclauses 12.10.1, 32.6.1.1, and 32.13.5.8 (PME3).

Cl 14 SC 14.3.1.1 P10 L24 # 12
 Piers Dawe Avago Technologies

Comment Type E Comment Status A

case?

SuggestedRemedy

Annex N (I think. IEC practice might be different).

Response Response Status C

ACCEPT.

IEEE 802.3au (IEEE P802.3-2005/Cor 1) D1.0 DTE Power Isolation Corrigendum Comments

Cl 14, 33, SC 14.3.1.1, 33.4.1, 40.6.1. P10, 11, 12 L 14, 2 # 6
 Robert Busse Transition Networks

Comment Type TR Comment Status A Global

Comment Title: Frame Ground undefined, 'All accessible conductors' clarifying text

Since the term 'Frame Ground' appears to be an IEEE802.3 term, not found in IEC60950, and a term used by Bellcore now Telcordia to describe relay rack frames and circuit pack structures, I was pleased to see 'all accessible conductors, including frame ground' in the draft in clause 33.4.1. I have also found an interpretation from the IEEE802.3 committee equating 'frame ground' with 'chassis ground' another term whose definition is elusive within IEEE802.3. Since the 802.3 standard refers much to IEC60950 it is curious that the definitions of IEC60950 are not used for the enclosure and protective earthing or protective bonding conductor or a reference made to a Bellcore/Telcordia document. Also, since equipment containing IEEE802.3 ports can be IEC60950 Class I, II, or III, the range of what is or is not a type of 'ground' or grounded can range from floating metal enclosures, i.e., chassis unearthed, to Isolated Bonding Networks in a CO.

The IEEE802.3 committee through a stroke of genius chose to add the text, 'all accessible external conductors' to the list of what is to be isolated from the MDI leads. Unfortunately, I was not pleased to find it absent in clauses 14.3.1.1 and 40.6.1.1. Note, there are also many other places the standard where 'frame ground' appears and is ambiguous such as clauses 12.10.1, 23.5.1.1, 32.6.1.1, 32.13.5.8, and 40.12.7. Is frame ground exposed enclosure metal if it is not actually earthed or is it a name only? What does grounded mean anyway? Is it the IEC60950 functional ground or protective ground or perhaps floating metal called frame ground in a Class II device? Or is floating metal not specifically called frame ground exempt? The premise for isolation is user protection from exposure to telecom voltages due to accidental or incidental coupling and/or fault conditions with or without the presence of POE elements. It would seem that a clear definition would be useful in all isolation clauses not just 33.4.1. The added text, 'all accessible conductors' does just that!

SuggestedRemedy

Add the text 'all accessible conductors' to clauses 14.3.1.1 and 40.6.1.1. This text should be added to all other places in the standard referring to 'frame ground' such as clauses 12.10.1, 23.5.1.1, 32.6.1.1, 32.13.5.8, and 40.12.7. The corrigendum falls short in its PAR goal to clarify and correct the isolation requirements to make implementation less confusing. This text would remove all the subjective interpretation of the definition of 'frame ground' by clearly stating all accessible conductors, including frame ground shall be isolated from the MDI leads. An IEC reference for 'Frame Ground' as protective bonding conductor should also be included.

Response Response Status W

ACCEPT IN PRINCIPLE.

Based on the interpretations referenced, 5-03/03 - Item 1 (1BASE5 Isolation), available at the URL -[http://www.ieee802.org/3/interp/interp-5-0303.pdf], will add a definition that states that 'Frame Ground' is the same as 'Chassis Ground' as well as the reference to IEEE 100 that contains the definition of Chassis.

Cl 14, 33, SC 14.3.1.1, 33.4.1, 40.6.1. P10, 11, 12 L 25, 3 # 7
 Robert Busse Transition Networks

Comment Type TR Comment Status R Global

Comment Title: Isolation Compliance/Insulation Breakdown Requirement Ambiguous

All clauses in this draft, 14.3.1.1, 33.4.1, and 40.6.1.1 have three components two of which are steady state, subparts A and B, in nature requiring application of a test voltage for a period of time and a third, subpart C, requiring application of impulse voltage. There is a wealth of interpretation and subjectivity here. Subpart A and B refer to IEC 60950 5.2.2 but...IEC 5.2.2 has to do with power mains primary and secondary circuits, not telecommunications circuits. Note, I won't mention the many other parts of the standard that also refer to IEC 60950 5.2.2 or 5.3.2 in older revisions of the standard. IEC60950 6.2.2 is the proper reference and appropriate for telecom port testing. The 5.2.2 reference and prior IEC60950 5.3.2 references are misleading and confusing.

Now it is understood that the voltage is to be 'applied' as specified as in IEC 60950 5.2.2. So the first thing we do is we ignore the voltage tables of IEC60950 5.2.2 and look only at the voltage application method. So what is a failure, i.e., what is insulation breakdown? Is it just the final resistance being less than 2M ohm measured at 500 volts? Or perhaps a failure is unsuccessful application of voltage as it is being elevated gradually. (What is gradual?) Or perhaps a failure is a single corona discharge or rapid increase in current during ramp up to the test voltage. (What is rapid?) Or is a failure to achieve the 60 second duration specified? Perhaps it is all of the aforementioned. Since passing the isolation test doesn't necessarily mean that the device tested will be operational after the test, perhaps a single discharge is all that will occur...if the test current limit is high enough to vaporize the offending circuit elements.

Does this sort of test meet passing criteria and the intent of proper isolation? There is no current limit specified in IEC60950 clause 5.2.2, only the 'rapid increase of current', whatever that means. However, there is a current specification in IEC60950 6.1.2. There is no requirement for 'fail-open' safety-like devices to be used for crossing the isolation boundary as in power mains isolation. The criteria of 2M ohms with a 500V test voltage can only be guaranteed by use of proper recognized specified devices. This is likely 'out-of-scope' for the IEEE802.3 standard and thus makes this element of the IEEE802.3 standard subjective and not a standard at all as port circuit elements without specified, deterministic isolation properties may be used.

Also, how does one judge single corona discharge for the application of impulses as described in subclause C using IEC60950 5.2.2 for insulation breakdown criteria? If the test is an entire sequence of ten impulses, then does a single corona discharge event for ALL ten impulses constitute a failure? Or does this mean that the application is only a single discharge for the test duration of ten and there be one discharge for each impulse as in IEC60950 6.2.2? Subpart C isolation breakdown as defined in IEC60950 5.2.2 is inappropriate for subclause C. IEC60950 clause 6.2.2 should be used instead where oscillograms are used for evaluation. There is not a way to evaluate insulation breakdown of impulse testing using IEC60950 5.2.2. The impulse test becomes purely subjective when evaluated according to IEC60950 5.2.2 in contradiction to IEC60950 itself unless IEEE802.3 provides the evaluation criteria.

IEEE 802.3au (IEEE P802.3-2005/Cor 1) D1.0 DTE Power Isolation Corrigendum Comments

In fact, the evaluation criteria of IEC60950 6.2.2 should be used throughout even for subclauses A and B as IEC60950 refers to IEC60950 5.2.2 for steady state testing! This should be the case for all 802.3 ports and not just PSE and PD ports. Note, this should be changed in all references to isolation in the 802.3 standard. Perhaps a subsequent interpretation/maintenance request! IEC60950 5.2.2 references should be IEC60950 6.2.2! Only the waveform should be changed for non-powered IEEE802.3 ports satisfying the 1.2/50 waveshape. Ethernet ports are indeed more like telecom ports than primary or secondary power circuits.

The last issue is with the selection of IEC60950 6.2.1b. If the reference is for the test finger only perhaps the reference is proper. However, when evaluating the impulse test insulation breakdown, there is opportunity for confusion as to the evaluation criteria. Certainly unearthed conductive parts should be considered accessible conductors. The A criterion is based on the equipment parts as defined in 6.2.1a,b, c. So even though the 6.2.1b is chosen for the finger test, insulation breakdown may be evaluated according to 6.2.1a,b, c criteria...or is it? This will only be an issue when the IEC60950 reference to 5.2.2 is changed to 6.2.2 since there is no way to non-subjectively evaluate impulse insulation breakdown during impulse testing in IEC 60950 5.2.2.

SuggestedRemedy

This remedy applies to all isolation test clauses in the IEEE802.3 standard as well. Change all IEC60950 5.2.2 references to IEC60950 6.2.2. Make the application of steady state testing be for a duration of 60 seconds in all isolation testing clauses; after all 60 seconds is greater than 1 second and appeal for consistency is satisfied. Make the current limit of steady state testing be that of IEC60950 6.1.2. Define insulation breakdown as either a single event for the entire test (all 10 impulses) if no agreement can be reached to more properly refer to IEC60950 6.2.2 and allow oscillogram evaluation for impulse testing. Select the proper reference for equipment as determined by IEC60950 6.2.1 a, b, and c. Specify that port circuit elements that cross the isolation boundary shall be rated for 2400 volts or higher. If the IEEE802.3 standard requires 2400 volts of isolation then why can't it be plainly and simply specified along with the testing criteria? It should be! The way it is now if a single sample of a port circuit can be evaluated and pass one of the tests and fail 'open' without the use of properly rated MDI port circuit elements, the device design can be claimed compliant. It is confusing, purely subjective, and confusing to implementers not satisfying the goal of the corrigendum PAR.

Response *Response Status* **W**
REJECT.

Taking 10BASE-T as an example it is considered a SELV circuit by the IEC (see IEC TR62102) and would therefore require no isolation. During the development of 10BASE-T a concern was raised that a 10BASE-T port could be mistakenly patched into a telecom circuit in a patch panel. Due to this the isolation requirements found today in 10BASE-T was included. This isolation requirement was used in subsequently Twisted Pair clauses.

While it could be argued that we simply state that all Twisted Pair ports should be treated as TNV-1 circuits, this requirement would be a significant change from the existing requirements, could render existing implementations and components non-compliant and seems excessive for protecting against a possible short term misconnection.

Further subclause 14.7.1, 33.5.1 and 40.9.1 state that equipment meeting this standard shall conform to IEC 60950. Any requirements in IEC 60950 are therefore in addition to the

requirements in IEEE Std 802.3 . Hence if a port type is considered a TNV circuit the requirement to meet IEC60950 subclause 6.2.2 is already there.

In respect to evaluating the definition of isolation breakdown contained in subclause 5.2.2 of IEC 60950, it is beyond the scope and expertise of this group.

Motion to accept this response:
M: M McCormack S:Y Darshan
Y: 12 N:0 A:0

| | | | | |
|-----------------|-----------|--------------|--------------|------|
| <i>Cl</i> 25 | <i>SC</i> | <i>P DNA</i> | <i>L DNA</i> | # 30 |
| Thompson, Geoff | | Nortel | | |

Comment Type **TR** *Comment Status* **A**
I do not understand how we can justify not specifying the equivalent isolation requirement for 100BASE-TX. After all, we can't ask X3T9.5 to fix the TP-PMD spec.

SuggestedRemedy
Add equivalent isolation requirements to clause 25 to apply to the referenced TP-PMD spec used for 100BASE-TX

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

The existing requirements in subclause 8.4.1 'UTP isolation requirements' of TP-PMD, which are identical to pre-DTE Power 10/100BASE-T isolation requirements, will be added to Clause 25. This text will then be modified to include the DTE Power change consistent with 10/100BASE-T.

IEEE 802.3au (IEEE P802.3-2005/Cor 1) D1.0 DTE Power Isolation Corrigendum Comments

Cl 33 SC 33 P11 L 10 # 23
 David V James JGG

Comment Type TR Comment Status R

Numerous style violations, leading to confusion.

Examples include the following-

==>33. Data terminal equipment (DTE) power via media dependent interface

(MDI)

subclause 5.2.2 ==> 5.2.2

SuggestedRemedy

Read the style manual an fix the problems.

Response Response Status W

REJECT.

This comment, as well as the associated ballot, were submitted after close of ballot but the comment was considered nonetheless.

Changing the title of the Clause is beyond the scope of the project.

Use of the word subclause in this case is due to the reference being to an external standard and we believe this additional clarity is useful.

We will ensure that all base text is consistent with IEEE Std 802.3-2005 which has just been reviewed for style during preparation for publication.

Cl 33 SC 33.4.1 P11 L 17 # 13
 Piers Dawe Avago Technologies

Comment Type TR Comment Status R

33.4.1 says '... PSEs shall provide isolation between all accessible external conductors, including frame ground, and all MDI leads ...' yet 33.4.4 Common-mode output voltage (fig 33-15) shows the interface connected to some kind of (accessible) ground, through some circuit. There's a contradiction here. Would providing a less than infinite resistance to earth at the PI would be the right way to go?

SuggestedRemedy

Reconcile.

Response Response Status C

REJECT.

The comment is out of scope as this figure does not relate to isolation requirements.

The commenter is invited to submit a maintenance request to change what appears to be a driver into a box since there will also be power supply components within this DTE power related circuitry.

IEEE 802.3au (IEEE P802.3-2005/Cor 1) D1.0 DTE Power Isolation Corrigendum Comments

Cl 33 SC 33.4.1 P11 L 20 # 5
 Robert Busse Transition Networks

Comment Type TR Comment Status A Global

Comment Title: Definition/Specification of an accessible external conductor

According to the IEEE Style rules notes in the standard are just that, notes, and as such are not part of the standard and do NOT have to be followed or respected for devices to be compliant with the standard. Also, the IEC60950 test for accessible conductors need not be followed; thus allowing any exposed metal enclosure areas and terminal blocks, etc. to become essentially non-isolated from the MDI leads. Also, any equipment attached to the non-MDI connector, hardwired excluded, need not comply with the isolation statement of the note to be compliant with the standard. Also, if there is not specifically a physical connector then there is the distinct interpretation that isolation is not required even in the absence of the style issue.

The corrigendum falls short of its PAR goal to clarify and correct isolation text and make it less confusing to implementers if this text is part of a note and not required for compliance to the IEEE802.3 standard.

SuggestedRemedy

Remove the 'note' distinction of clause 33.4.1 and use a 'SHALL' statement as follows:
 Any equipment that can be attached to a PSE or PD as part of the MDI port circuit elements that is not isolated from the MDI leads shall provide isolation from the MDI leads and all accessible conductors, including frame ground. Accessibility of external conductors shall be determined by subclause 6.2.1b of IEC60950.

Response Response Status W

ACCEPT IN PRINCIPLE.

The note will be promoted to normative text and included in the paragraph above.

Note - Notes in body are informative, notes in figures and tables are normative.

Cl 33 SC 33.4.1 P11 L 20 # 21
 Robert Grow Intel

Comment Type E Comment Status A

Correct formatting

SuggestedRemedy

Note -> NOTE, apply proper style.

Response Response Status C

ACCEPT IN PRINCIPLE.

This note has now been promoted to be text (see comment #5).

Cl 33 SC 33.4.1 P11 L 24 # 2
 Peter Bradshaw Intersil Corpn.

Comment Type ER Comment Status A

It is proposed in the corrigendum that the line (and paragraph) begin with

"This electrical separation shall withstand ..", rather than the original

"This electrical isolation shall withstand .."

However, there is no "separation" for the "This" to refer to, only a well-described "isolation", which it clearly DOES refer to. See the preceding comment for analysis of the appearance of "separation" in the 802.3 documents.

SuggestedRemedy

Restore the "isolation" instead of "separation" in 33.4.1

Response Response Status C

ACCEPT.

Cl 33 SC 33.4.1 P11 L 29 # 22
 Robert Grow Intel

Comment Type E Comment Status A

Inconsistent units representation.

SuggestedRemedy

second -> s.

Response Response Status C

ACCEPT.

IEEE 802.3au (IEEE P802.3-2005/Cor 1) D1.0 DTE Power Isolation Corrigendum Comments

Cl 33 SC 33.4.1 P11 L 30 # 3
 Hugh Barrass Cisco Systems

Comment Type T Comment Status R

The commenter does not understand the reason why item c) in 33.4.1 is defined differently to item c) in 14.3.1.1.

I assume it is for some legacy or grandfathering reason. If there is good reason, then please explain (while rejecting the comments) otherwise change Clause 33 item c) to match Clause 14.

SuggestedRemedy

Change Clause 33.4.1 item c) to match Clause 14.3.1.1 item c).

Response Response Status C

REJECT.

During the development of IEEE Std 802.3af-2003 it was felt that the impulse test requirements in 10/100/1000BASE-T were too stringent. We however didn't want to go back and change 10/100/1000BASE-T due to fear of impact on existing implementations and components. We decided to maintain this approach in this project.

Cl 33 SC 33.4.1 P11 L 37 # 16
 Piers Dawe Avago Technologies

Comment Type ER Comment Status A

No definition of network interface devices (NID). I guess we are talking about data terminal equipment (DTE), and multi-port DTE in particular.

SuggestedRemedy

Use appropriate 802.3 terminology.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add a definition to subclause 1.4 that 'A NID is a device that contains a MDI or a PI.'

Add the acronym to subclause 1.5.

Cl 33 SC 33.4.1 P11 L 37 # 28
 Thompson, Geoff Nortel

Comment Type ER Comment Status A

The text 'Conductive link segments that have different isolation and grounding requirements shall have those requirements provided by the port-to-port isolation of network interface devices (NID)' is confusing.

There is no clear reference point for 'the difference'.

SuggestedRemedy

Perhaps:

'Conductive link segments with differing isolation and grounding requirements shall have those requirements provided by the port-to-port isolation of network interface devices (NID)'

-OR-

'Conductive link segments that have isolation and grounding requirements different from each other shall have those requirements provided by the port-to-port isolation of network interface devices (NID)'

Response Response Status C

ACCEPT IN PRINCIPLE.

Use option 1.

Cl 33 SC 33.4.1 P11 L 37 # 29
 Thompson, Geoff Nortel

Comment Type TR Comment Status R

The text '...provided by the port-to-port isolation of network interface devices (NID)' does not provide a reference. I do not know where to find this isolation specification.

SuggestedRemedy

Please provide a definitive reference for the port-to-port isolation requirement of a network interface device.

Response Response Status C

REJECT.

This comment was WITHDRAWN by the commenter.

IEEE 802.3au (IEEE P802.3-2005/Cor 1) D1.0 DTE Power Isolation Corrigendum Comments

Cl 33 **SC 33.4.1.1.2** **P11** **L 40** # 14

Piers Dawe Avago Technologies

Comment Type **E** *Comment Status* **A**

This stricken text appears to be from 33.4.1.1.2.

SuggestedRemedy

Insert appropriate subclause title.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This text will not be included as it has been removed from the draft (see comments #19 & #15).

Cl 33 **SC 33.4.1.1.2** **P11** **L 44** # 15

Piers Dawe Avago Technologies

Comment Type **T** *Comment Status* **A**

It seems irresponsible to blow away all mention of lightning strikes or other outside hazards.

SuggestedRemedy

Reinstate this text, or whatever is correct. Add text in 33.5 mentioning these issues. Could move this text to 33.5 and refer to it from 33.4.1.1.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This text will be reinstated. The inclusion of this text for deletion seems to have been an error on the part of the editor.

Cl 33 **SC 33.4.1.1.2** **P 549** **L** # 17

Piers Dawe Avago Technologies

Comment Type **E** *Comment Status* **R**

Wording like 'electrical isolation between each segment and all other attached segments' gives the impression that this is a wiring or installation issue. But actually, it's a DTE issue.

SuggestedRemedy

Rephrase to talk about ports rather than segments where appropriate: 'The attachment of network segments that cross environment A boundaries requires electrical isolation between each port [whose segment crosses a boundary?] and all other ports, as well as to the protective ground [what?] of the DTE.'

Response *Response Status* **C**

REJECT.

This text is the same as 10, 100 and 1000Mb/s repeaters, the only other type of multi-port device that we discuss in IEEE Std 802.3.

Cl 33 **SC 33.4.1.1.2** **P 549** **L** # 18

Piers Dawe Avago Technologies

Comment Type **T** *Comment Status* **A**

What is 'protective ground'? 7.5.2.7 implies that it is nearly the same as 'chassis ground'. Is that the same as 'frame ground'? Which one is connected to the round pin of the mains plug? Need it be?

SuggestedRemedy

Clarify.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

With respect to chassis and frame ground see comment #6.

Unfortunately the terms used for grounds have changed while IEEE 802.3 has been developed. Grounding issues are beyond the scope of this project which is in relation to Isolation issues. The commenter is invited to submit a Maintenance request that address this issue in the several clauses in which it occurs.

IEEE 802.3au (IEEE P802.3-2005/Cor 1) D1.0 DTE Power Isolation Corrigendum Comments

Cl 40 SC 40.6.1.1 P12 L14 # 4
 Robert Busse Transition Networks

Comment Type TR Comment Status R

Comment Title: Removal of '(if any)' text
 The text, '(if any)', referring to frame ground as something that should be isolated from the MDI leads, is included in clause 40.6.1.1 and is not included in clause 14.3.1.1, nor does it appear in clause 33.4.1. For purposes of notable mention, the '(if any)' text is absent in many other isolation clauses of the IEEE802.3 standard, 12.10.1, 23.5.1.1, 32.6.1.1, 32.13.5.8, and 40.12.7. Why should this text be inconsistent? If there is not a 'frame ground' then the statement is not relevant and if there is something called 'frame ground' it must be isolated. Never-the-less the text should be the consistent, either include the '(if any)' everywhere when referring to the presence of frame ground or get rid of it! The purpose of the corrigendum is, after all, to clarify and correct isolation text and make it less confusing to implementers.

SuggestedRemedy

Remove the '(if any)' text from clause 40.6.1.1. or add the '(if any)' text to all other relevant clauses, 14.3.1.1, 33.4.1, et al. This applies to clauses 12.10.1, 23.5.1.1, 32.6.1.1, 32.13.5.8, and 40.12.7 IEEE802.3 standard as well. The corrigendum falls short of its PAR goal to clarify and correct isolation text and make it less confusing to implementers if this text is not consistent.

Response Response Status W

REJECT.

The reason 'if any' does not appear in subclause 14.3.1.1, and many others, is that the Clauses they appear in, consider the absence of frame ground to be beyond the scope of the standard. In the case of 10BASE-T for example subclause 14.7.2.2 contains the following warning:

'WARNING It is assumed that the equipment to which the MAU is attached is properly earthed, and not left floating nor serviced by a "doubly insulated ac power distribution system." The use of floating or insulated equipment, and the consequent implications for safety are beyond the scope of this standard.'

In the case of 1000BASE-T, this warning does not exist, therefore the text 'if any' appears.

Motion: Accept the above resolution.

M: M McCormack S:Y Darshan
 Y: 11 N: 0 A:0

Cl 99 SC P5 L7 # 20
 Robert Grow Intel

Comment Type E Comment Status A

Insert participant list.

SuggestedRemedy

Insert participant list.

Response Response Status C

ACCEPT.

Cl Front m SC DNA P3 L41 # 26
 Thompson, Geoff Nortel

Comment Type E Comment Status A

The URL shown here appears in broken form, i.e. broken (unnecessarily) by the requirement for a new line.

SuggestedRemedy

There should be a required carriage return (or CR + TAB) both before and after each URL so that the URL appears in the standard in unbroken form. This will allow the text to be copied and pasted directly into a browser without regard for any buried links.

This should be done for all instances of this situation.

Response Response Status C

ACCEPT.

Cl Various SC Various PVarious L Vari # 9
 George Claseman Micrel Semiconductor

Comment Type E Comment Status A

'vdc' and 'v dc' are used interchangeably. This also occurs in the 802.3-2002 version and may in the 802.3am version. 'vac' and 'v ac' have similar problems (outside of 802.3au).

SuggestedRemedy

Be consistent.

Response Response Status C

ACCEPT.

IEEE 802.3au (IEEE P802.3-2005/Cor 1) D1.0 DTE Power Isolation Corrigendum Comments

Cl Various SC Various PNA L NA # 8
 Robert Busse Transition Networks

Comment Type TR Comment Status R

Comment Title: Corrigendum Does not adequately meet PAR objective

I take this opportunity to document and identify all IEEE802.3 clauses requiring attention that the corrigendum should address but does not or does not address adequately. This comment may very well be ruled 'out of scope' and therefore, I will plan a follow-up with an Interpretation/Maintenance Request to formalize and further document the issues.

The clauses that demand update and correction are as follows; all having either reference to only 'frame ground' and not accessible conductors, insulation test reference incorrect in IEC60950, improper insulation breakdown specification requirements for impulse testing, or simply unclear phrasing of text to be consistent with all other isolation text in the IEEE802.3 standard:

IEEE802.3 Clauses 8.3.2.1, 9.9.3.1, 12.10.1, 14.3.1.1, 15.3.4, 23.5.1.1, 23.12.4.12, 32.6.1.1, 32.13.5.8, 40.6.1.1, 40.12.7.

I also do not agree with the reference to IEC60950-2001 when there as a 2005 addition available. This corrigendum is being published in 2006 and therefore outdated at publication unless the references are made to the IEC60950-2005 document.

In addition, if the corrigendum does not take into account all of the above clauses of IEEE802.3 for update then there are dramatic differences in the standard regarding isolation. The reader is left to wonder why some requirements and references are different, e.g., various clauses reference one version of the same document and others reference an update. Why?

Furthermore, the exclusion of an update to the 100base-tx isolation is unjustifiable. Just because the FDDI PMD is used for 100base-tx is no reason to avoid an update to bring this part of the standard into consistency with the remainder of the document. Clauses 25.2, 25.3.and 25.4 are in place to provide a mechanism for exceptions and enhancements to the FDDI TP-PMD usage for 100base-tx. Not to take advantage of this corrigendum as a fresh start to bring the isolation enhancement to the 100base-tx is shortsighted and overall a detriment to the standard and its implementation. The corrigendum can provide much needed opportunity to identify and correct errors, deficiencies, and omissions in the FDDI TP-PMD as it is currently when used for 100base-tx. No, I am not proposing the IEEE802.3 committee can make changes to the ANSI X3-263 document! The corrigendum provides an official date of acceptance to grandfather in implementations that have taken advantage of the lack of isolation required by the FDDI TP-PMD. IEEE802.3 100base-tx implementations after the corrigendum date must adhere to the enhanced isolation requirements consistent with all other isolation clauses of the IEEE802.3 standard. Perpetuating inconsistencies is unacceptable especially when there is this corrigendum opportunity.

SuggestedRemedy

Add the following to the corrigendum: add enhanced FDDI TP-PMD isolation requirement to 100base-tx consistent with all other isolation clauses of the IEEE802.3 standard,

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
 COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
 SORT ORDER: Clause, Subclause, page, line

reference IEC60950-2005 throughout the IEEE802.3 standard, update all clauses listed above to make them consistent with one another in terms of the isolation requirement and insulation testing thereof and include the text, 'all accessible conductors', to further define those elements requiring isolation from the MDI leads making a reference to 'frame ground' only less subjective. An IEC reference for 'Frame Ground' as protective bonding conductor should also be included.

Response Response Status W

REJECT.

Subclauses 8.3.2.1, 9.9.3.1, 12.10.1, 23.5.1.1, 23.12.4.12, 32.6.1.1, 32.13.5.8 are deprecated since these MAU/PHYs are not recommended for new installations and we are not aware of any new designs being implemented. Maintenance changes are therefore no longer being considered for this clause hence maintaining the references to the old documents, as well as the existing text is consistent.

The commenter is invited to submit a Maintenance Request for subclause 15.3.4. In respect to subclauses 14.3.1.1 and 40.6.1.1, updates to these subclauses are already included in the draft.

2005 Edition of IEC 60950:

The document hasn't been available to the group and therefore we cannot determine where the reference should be to. The commenter is invited to provide updated references to the 2005 edition.

100BASE-TX Isolation:

See response to comment #30.

Motion: Accept above response.

M: Y. Darshan S: D. Feldman

Y: 7 N: 0 A:1

Cl Various SC Various