DATE: 30th March, 2005
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REQUESTED REVISION:
STANDARD: IEEE Std. 802.3af-2003
CLAUSE NUMBER: 33.2.8.8
CLAUSE TITLE: PROPOSED REVISION TEXT:

Paragraph 33.2.8.8 Output current—at short circuit condition is:
The power shall be removed from the PI within TLIM, as specified in Table
33-5, under the following conditions:

a) Max value of the PI current during short circuit condition.
b) Max value applies for any DC output voltage up to the maximum voltage
as specified in item 1 of Table 33-5.
c) Measurement to be taken after 1ms to ignore initial transients.
See Figure 33C.4 and Figure 33C.6.

SHOULD BE:

The power shall be removed from the PI within TLIM, as specified in Table
33-5, under the following conditions:
a) Max value of the PI current during short circuit condition.
b) Max value applies for any DC output voltage up to the maximum voltage
as specified in item 1 of Table 33-5.
c) Measurement to be taken after 1ms to ignore initial transients.
d) During short circuit condition, for PI voltages above 30V, the ILIM
requirement is as specified in Table 33-5, item 10.
e) During short circuit condition, for PI voltages between 10V and 30V,
the minimum ILIM requirement is 60mA and the maximum requirement is as
specified in Table 33-5, item 10.

During short circuit condition, for PI voltages between 0V and 10V, the
minimum ILIM requirement is 0mA and the maximum requirement is as
specified in Table 33-5, item 10.

See Figures 33C.4, 33C.6 and 33C.6.1.

Add the following notes after 33.2.8.8-e:

Notes:

1. Items d and e in 33.2.8.8 allows implementation of foldback
current limit type in which ILIM requirement is decreased if Vport is
decreased below pre specified value.
2. Short circuit condition definition in IEEE802.3af is a case in which
the port voltages is dropped below normal operating voltages as defined
by table 33–5 items 1 and 2 due too load fault conditions that exceeds
item 8*

Add the following note text after 33.2.8.5-e:

Note: items d and e in 33.2.8.5 allows implementation of foldback
current limit type in which Iinrush requirement is decreased if Vport
is decreased below pre specified value.

Change 33.2.8.5 item e from:

e) During startup, for PI voltages between 10V and 30V, the minimum
IINRUSH requirement is 60mA.
See Figures 33C.4, 33C.6.

To:

e) During startup, for PI voltages between 10V and 30V, the minimum
IINRUSH requirement is 60mA.
During startup, for PI voltages between 0V and 10V, the max IINRUSH
requirement is as specified by Table 33–5, item 10.
See Figures 33C.4, 33C.6 and 33C.6.1.

Change the following in Annex 33C clause 33C.1.7:

1. Add figure 33C.6.1 right after figure 33C.6.
2. In Figure 33C.7 upper part: add a box labeled "variable load" in series to S1
3. Replace test procedure PSE-7 item 3 text from:
   3) Verify that Iport is within the limits shown in Figure 33C.4
With

   3) Change the variable load in order to verify that Iport is within the
   limits of Figures 33C.4 and 33C6.1. Please note that the variable load
type (resistive, constant voltage or other) depends on different PSE
implementations.

Clause 33C.1.4 PSE-4:

Change item 3 in PSE 4 from "Verify that ..in Figure 33C.4" to "Verify
that ..in Figures 33C.4 and 33C.6.1"

Change the note in the last two sentences in clause 33C.1.4 after item 6
in PSE-4:
From: "Test setup.............expected per Figure 33C.4."
To: "Test setup.............expected per Figure 33C.4 and 33C.6.1."
RATIONALE FOR REVISION:
1. A text is missing although it can be understood by integrating data from other parts in the standard.

We allowed in the standard the option of using foldback current limit in both startup mode and short circuit condition. While the specifications for foldback current limit are clear from paragraph 33.2.8.5 items d and e, the reader needs to do some detective work to figure out that similar specification are apply for short circuit condition by looking at figure 33-7 which describes Inrush current and short circuit as "detect short" and by looking at figures 33-4 (right corner with "Vport>30V" label) and figure 33-6 (at the upper part stated 30V<Vpor<Vnominal) that specifies the requirements for inrush current during startup and ILIM during short circuit for Vport>30V which is the boundary line between conventional current limit and foldback current limit as specified by 33.2.8.5 items d and e and should be the similar in 33.2.8.8.

2. Paragraph 33.2.8.5 item e was updated to reflect the addition of figure 33C.6.1 and to clarify the current levels for the range between 0V to 10V.

3. In 33.2.8.8 item b it should be "DC output" per Table 33-5 item 1.

4. Annex 33C updated in order to supply information of how to test the above requirements. It extends the test flexibility according the implementation being used.

Foldback current limit is optional in the standard.

IMPACT ON EXISTING NETWORKS:

No impact. It is optional.

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Please attach supporting material, if any
Submit to:- Bob Grow, Chair IEEE 802.3
E-Mail: Bob.Grow@intel.com

+------- For official 802.3 use +-------
REV REQ NUMBER: 1162
DATE RECEIVED: 30th March, 2005
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For information about this Revision Request see -
http://www.ieee802.org/3/maint/requests/revision_history.html#REQ1162
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New Figure 33-7

A possible example of the test load above.

PSE at Normal Powering Mode

Test Load

Variable Load

CC

Vport

PSE

Vz=33V +/-5%

R_{\text{max}}

R_{\text{sig}}

24.9K

+/-1%}

0.1\mu F

+/-10%

PD

1R

+/-5%

Variable Load

S1

AA

CC

PSE at Normal Powering Mode

BB

New Figure 33-7
Figure 33C.6.1 – \textit{ILIM} and \textit{INRUSH} requirements as function of \textit{Vport} at startup and short circuit conditions

- Examples of invalid curves.
- Examples of valid operating curves. Other curves may be valid.

New Figure 33C-6.1