

X379.2/91-219

To: Dick Brandt
Chair TIA TR30

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Regarding: EIA/TIA-485.1983 vs ISO 8482.1987
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Recommended Changes to ISO 8482.1987 "Twisted pair multipoint interconnections" to bring it into agreement with EIA/TIA-485.1983 Standard. The next section directly corresponds to the ISO 8482.1987 standard paragraphs references and describes recommended changes to the ISO 8482 Standard:

1 Scope and field application

1.1 Change maximum cable length limit from 500m to 1,200m (4000 feet). Change applicable data signalling rate from 1Mbit/s to 10Mbit/s or (12.5Mbit/s). This would also be a good place to note that under stated restrictions, it may be possible to operate at high data rates. This would be further specified by the complete physical interface standard and/or specific functional specification. For example 12.5Mbit/s data rate is specified by IPI (ISO 9318-6, 2/10/90)).

1.2 Add the following text to section 1.2:and is the international equivalent to EIA/TIA-485.1987 Standard.

2 Reference

Add reference to EIA/TIA-485.1983 in this section (if possible).

5 Interconnection configurations

Change maximum cable length from 500m to 1,200m. Change "A branch cable may be up to 5m in length" to: For optimal signal quality, branch cables should be kept short as possible.

Delete reference to the connector, this should not be included in a component standard, but rather defined by the complete physical interface standard and/or functional standard.

Add to the last paragraph of section 5 the following sentence: Other configuration exists, and may be defined by the complete physical interface standard and/or functional standard.

6 Load on the multipoint medium

6.2 Specification of a.c. loading

This section (6.2, 6.2.1, & 6.2.2) should be relocated in the appendix of the standard and is provided for informative purposes only. Signal quality is not defined by a component standard (Electrical Characteristic Standard), and should be located in a signal quality standard or complete interface standard if specified.

7 Polarities and significant levels

Change threshold values in Table 1 to: $V_{A'} - V_{B'} \leq -0.2V$ and $V_{A'} - V_{B'} \geq +0.2V$ respectively.

8 Generator characteristics

8.3 Terminated output voltage, V_t

This section references figure 9. In figure 9, two 270Ω resistor represent the equivalent of 32 parallel connected loads. These resistors should be 375Ω to represent 32 parallel connected receivers, each with an input impedance of $12k\Omega$.

8.4 Rise time, t_r , and imbalance voltage, V_e

Delete reference to V_e and the following text: "the resultant voltage due to imbalance between load center and terminal C shall be $V_e \leq 0.4V$ peak-to-peak." This parameter is not required by EIA/TIA-485.1983.

9 Receiver characteristics

Change receiver threshold transition region from $\pm 0.8V$ to $\pm 0.2V$.

9.1 Change receiver threshold transition region from $\pm 0.8V$ to $\pm 0.2V$. Delete the following statement: "In addition, the receiver shall not sustain any damage when connecting its input terminals A' or B' and C' to a testing voltage variable from $-10V$ to $+15V$." The receiver is already guaranteed to operate between $-7V$ and $+12V$. Specific component data sheets specify the absolute maximum ratings for the devices.

9.2 Change input voltage V_{R3} from $\pm 0.6V$ to $\pm 0.4V$.

10 Fault condition tests

10.2 Delete section 10.2, minimum device performance is already guaranteed by section 10.3. Specific components data sheets specify the absolute maximum ratings for the specific devices.

10.3 Generator current limitation

Delete the following text: "with slew rate of the voltage equal to or less than $1,2 V$ per μs ." The generator should be tested against a DC voltage with zero series resistance (as shown in figure 14).

10.4 Relocate this section to an Annex, this test can not be implemented with standard test equipment and should be a recommended test only.

11 Environmental constraints

Change maximum signalling rate from $1Mbit/s$ to $10Mbit/s$. Change maximum common mode voltage to $-7V$ to $+12V$. Delete the following text: "However, this range is extended in the generator contention case to $+12V$ ", since it is already covered by the previous line.

NOTES on Figures and Tables

Table 2 Delete reference to Generator and receiver "No damage" specification. Change Receiver sensitivity minimum from $\pm 300mV$ to $\pm 200mV$.

Figure 9 Change 270Ω resistors to 375Ω resistors.

- Figure 10 Remove the V_e measurement and the 27Ω resistor to common (C).
- Figure 11 Adjust graph values to reflect a 0.4V Indeterminate region.
- Figure 12 Adjust graph values to reflect a 0.8V Indeterminate region.
- Figure 15 Relocate figure 15 to an annex.