

To: T-10/SPI-4 Working Group
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Subject: Vn for Or-Tied Signals

SPI-4 Annex A (Table A.1) allows terminators with an impedance range of 100 to 110 ohms and bias voltage ranging from 100 to 125 mV. It also allows up to 16 devices, each with a leakage current of up to 20 uA. Table A.1 also specifies Vn for OR-tied signals to be a minimum of 100 mV. This requirement is incompatible with the terminator and leakage allowances, since $100 \text{ mV} - (16 * 20 \text{ uA} * 110 \text{ ohms}/2) = 82.4 \text{ mV}$.

There are two possible resolutions to this problem:

1. Change the minimum Vn for OR-tied signals to 82.4 mV; or
2. Change the minimum terminator bias to 118 mV.

Because the latter option creates a very tight tolerance for terminators, and because it would require other changes to Annex A, this proposal recommends that the first option be incorporated into SPI-4.