Backfeed v201

145.2.4 PSE PI

A PSE device may provide power via one or both of the two valid four-conductor connections, named pairsets. A pairset consists of a pair at the positive V_{PSE} and a pair at the negative V_{PSE}. The two conductors associated with a pair each carry the same nominal current in both magnitude and polarity. Figure 145–12, in conjunction with Table 145–3, illustrates the pairsets, which for PSEs are named Alternative A and Alternative B.

PSE are required to switch the negative pairs, but are not required to switch the positive pairs as defined in 145.4.1.1.1. This may lead to both positive pairs providing current in 2-pair mode.

145.2.10 Power supply output

Add new item to Table 145–16 as follows:

Item	17a
Parameter	Unpowered pair current
Symbol	I_{rev}
Unit	A
Min	—
Max	0.0013
PSE Type	3,4
Additional information	See 145.2.10.3a

Insert new subclause after 145.2.10.3 as follows:

145.2.10.3a Reflected voltage

When a 4-pair capable PSE provides power in 2-pair mode, whereby two pairs are connected to the positive V_{PSE}, and one pair is connected to the negative V_{PSE}, the PD may reflect a voltage of up to V_{PSE} back onto the unpowered pairset. See 145.3.8.8. A PSE, operating in 2-pair mode shall not source a current higher than I_{rev}, as defined in Table 145–20, on the negative pair of the unpowered pairset.

PSE is not sourcing in this case. It is drawing or consuming power. A device sourcing power is a device that the current is flowing out on its positive terminal to a load and return back to its negative. Negative

145.3.2 PD PI

Change the note at the bottom of Table 145–20 as follows:

PSEs are required to switch the negative pairs, but are not required to switch the positive pairs as defined in 145.4.1.1.1. This may lead to both positive pairs providing current in 2-pair mode.

This is OK for SSPDs but not for DSPDs. It is true that DSPDs need to show valid sign on each pairset however the proposed text as is will create confusion

145.3.8.8 Backfeed voltage

to a single-signature PD

When any voltage in the range of 0 V to $V_{Port\_PD\text{-}2P}$ max is applied ~~across the PI at either polarity specified on the conductors of either Mode A or Mode B according to Table 145–20~~ per any of the valid 2-pair configurations, defined in Table 145–20, that have only a single pair connected to positive V_{PSE}, the voltage measured ~~across the PI for~~ on the other Mode with a 100 kΩ ~~load~~ resistor connected across that other Mode shall not exceed V_{bfd} as defined in Table 145–29.

30V?

When any voltage in the range of 0 V to 10.1 V is applied per any of the valid 2-pair configurations, defined in Table 145–20, the voltage measured on the other Mode with a 100 kΩ resistor connected across that other Mode shall not exceed V_{bfd} as defined in Table 145–29.

Add here: When any voltage in the range of 0V to VPort PD-2P max is applied to a dual-signature PD per any of the valid 2-pair configurations, defined in Table 145–20, the voltage measured on the other Mode with a 100 kOhm resistor connected across that other Mode shall not exceed Vbfd as defined in Table 145–29.

Missing addresing PSE sensitivity to leakage current generated by the backfeed common mode voltage and its low source resistance if backfeed is permitted in 3-pair:
Add the following text to :
"In a multiport system, PSE port that is doing detection should not be polluted by an other PSE port at any operating modes including:
a) backfeed voltage of unpowered pair. See 45.3.8.8.
b) powered pair of adjacent port."
(or equivalent text).