PD Signature requirements v200
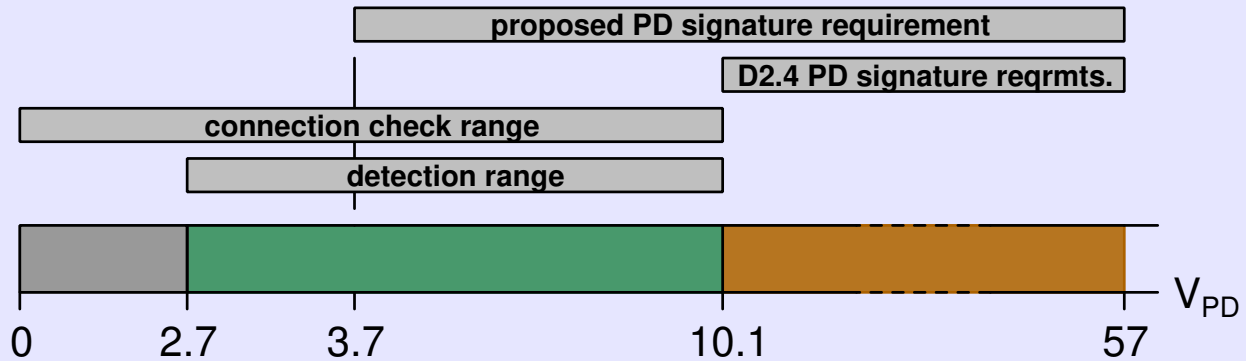
What is the problem?

The current text says that a PD shall show an invalid detection signature on a Mode, when a voltage between 10.1 and 57 volt is applied to the other mode. During connection check, the PSE will apply only voltages *less* than 10.1 volt to the other mode. Thus, this requirement does not apply in the voltage range where we need it to apply.

Proposed text

The new requirement (paraphrased) is that: "The PD shall not present a valid detection signature on a Mode when a voltage between 3.7 and 10.1 volt is applied to the other Mode".
Key to this requirement is the definition of "valid detection signature".
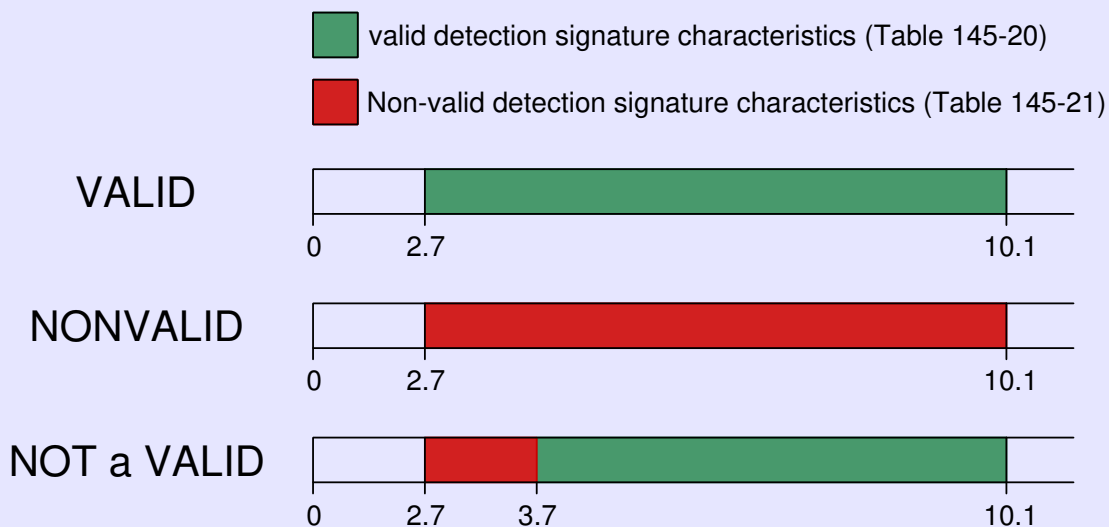
When 3.7 volt is applied as the corrupting voltage, the PD is assured to have an non-valid detection signature at least in the range of 2.7 to 3.7 volt. Because it no longer meets the requirements for a valid detection signature, it now meets "shall not present a valid detection signature".

This text does **NOT** require a PD to show a non-valid detection signature over the entire range, regardless of the voltage on the corruptor Mode. It is only required to fail at least over part of the range (a popular choice will be the voltage range below the corruptor voltage).

Modify 145.3.5 as follows:

145.3.5 PD signature configurations

A single-signature PD shall present a valid detection signature, as defined in Table 145–20, on a given Mode when no voltage or current is applied to the other Mode, and shall not present an invalid detection signature on that Mode when any voltage between 3.7 10.1 V and 57 V is applied to the other Mode. These requirements apply to both Mode A and Mode B.

NOTE—A detection signature is only considered valid when it meets Table 145–20 over the entire PD detection voltage range of 2.7 V to 10.1 V.

A dual-signature PD shall present a valid detection signature, as defined in Table 145–20, on a given Mode, regardless of any voltage between 0 V and 57 V applied to the other Mode. This requirement applies to both Mode A and Mode B.