Limiting the scope of the new PSE requirement

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New PSE requirement

A rule is needed to handle the case where backfeed occurs in the presence of 3-pair power connections

- **Exists in many deployed PDs**
- **Will happen, Independent of a PD rule decision**

Condition detail

- **Backfeed only occurs on the unpowered Negative pair**
  - The positive rail is already connected at the PSE and isn't sourced by known bridge configurations
- **The Backfeed only occurs with non-isolated, non-switched, positive connections**

Scope of the new rule

Broad rule: impose a 57V tolerance with a Minimum PSE resistance on all PSEs

- **Potential problems:**
  - Some existing PSE designs may not generally meet the resistance requirement
  - 57V into a PSE with a Vport less than 57V could have current paths through protection circuits that violate the resistance rule

Narrow rule: describe the condition and impose a backfeed current limit on the condition

- **Allows options to meet the rule**
  - Switch all conductors
  - Avoid the condition (only power SSPDs over 4 pairs)

Suggested rule addressing the condition

4-pair PSEs which only switch the negative conductors will connect one negative pair and two positive pairs to a PD when providing 2-pair power; this can cause some single-signature PDs to couple the negative pair to the pair that is switched off, resulting in Vport_2P voltages on both pairsets. Under these conditions, the current through the pair that is switched off shall not exceed 1.3mA.

(1.3mA is 57V/45k-Ohms, rounded up)

Thank You