Facts
7’00  PD Imax_continuous = 350mA
11’00 PSE voltage range 44 to 57v
=> PSE power range of 15.4W to 19.95W
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We know
⇒ Maximum power available to PD is the minimum power from a valid PSE (15.4W less losses)
⇒ Loop resistance is 20 Ohms (7V @ 350mA)

This Gives
⇒ PD minimum voltage = 37V (44-7)
⇒ PD maximum Power = 37V x 350mA = 12.95W
PD Maximum Power
12.95W  (derived from low end PSE)
37V @ 350mA = 12.95W
48V @ 270mA = 12.95W
More power cannot be guaranteed from the PSE
Summary
- PSE has a wider valid operating range than the PD
- If PSE operates outside of the RED zone there is an invalid PD connected
- PSE should not provide power to invalid PD including false detection, no load & excessive load
Recommendation

Remove ambiguity

- PD and PSE operating ranges are implied, they should be specified
- PD max power = 12.95W
- PSE min power = 15.4W
- PSE max power = 15.4 +5%