



PSE and PD Power limits

IEEE 802.3af Interim meeting

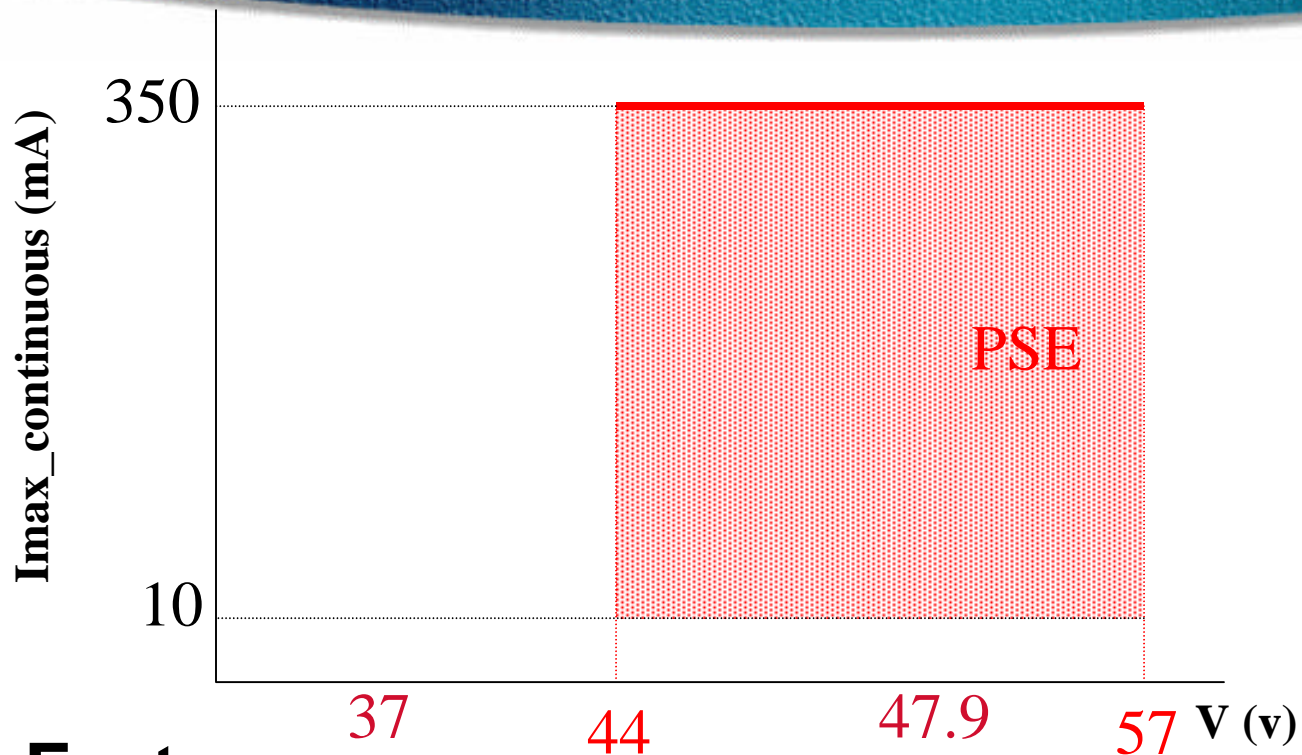
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PSE Parameters



Facts

7'00 PD $I_{max_continuous} = 350\text{mA}$

11'00 PSE voltage range 44 to 57v

=>PSE power range of 15.4W to 19.95W

Working the Numbers!

Facts

7'00 PD I_{max_continuous} = 350mA

11'00 PSE voltage range 44 to 57v

=>PSE power range of 15.4W to 19.95W

We know

⇒ Maximum power available to PD is the minimum power from a valid PSE **(15.4W less losses)**

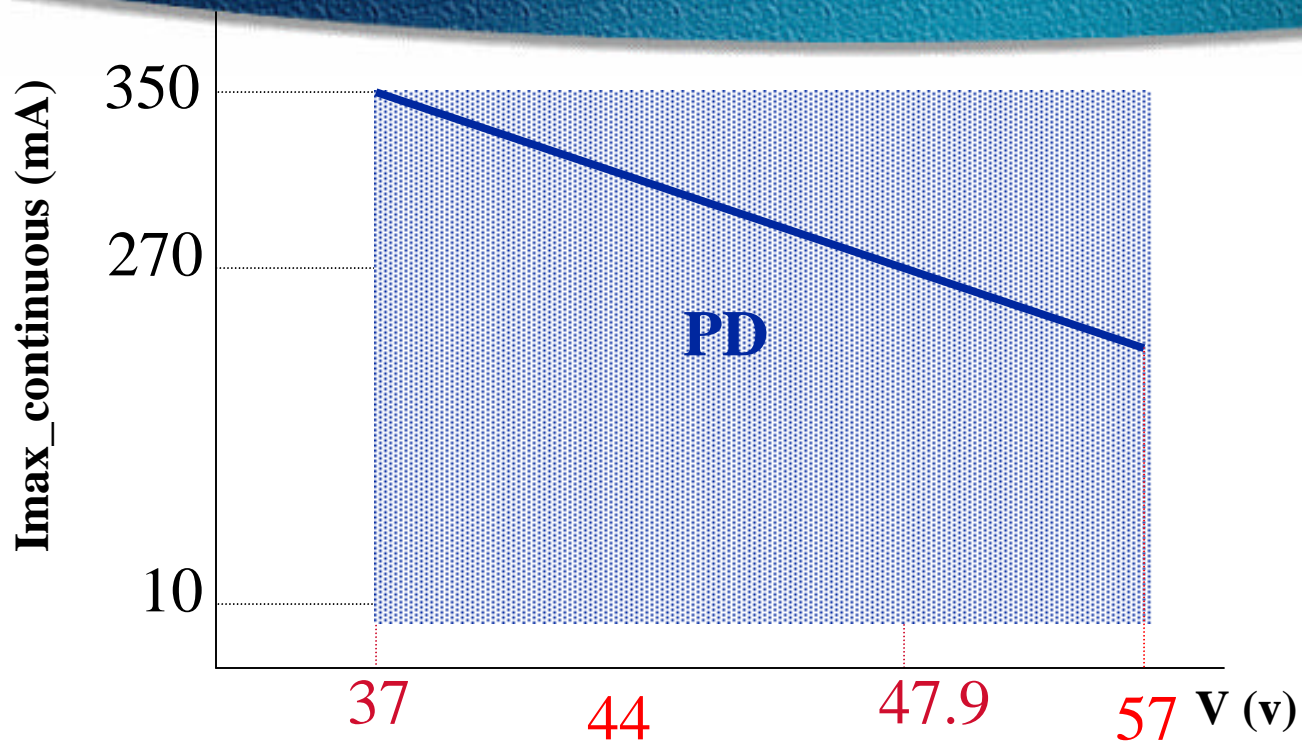
⇒ Loop resistance is 20 Ohms (7V @ 350mA)

This Gives

⇒ PD minimum voltage = 37V (44-7)

⇒ PD maximum Power = 37V x 350mA = **12.95W**

PD Power Parameters



PD Maximum Power

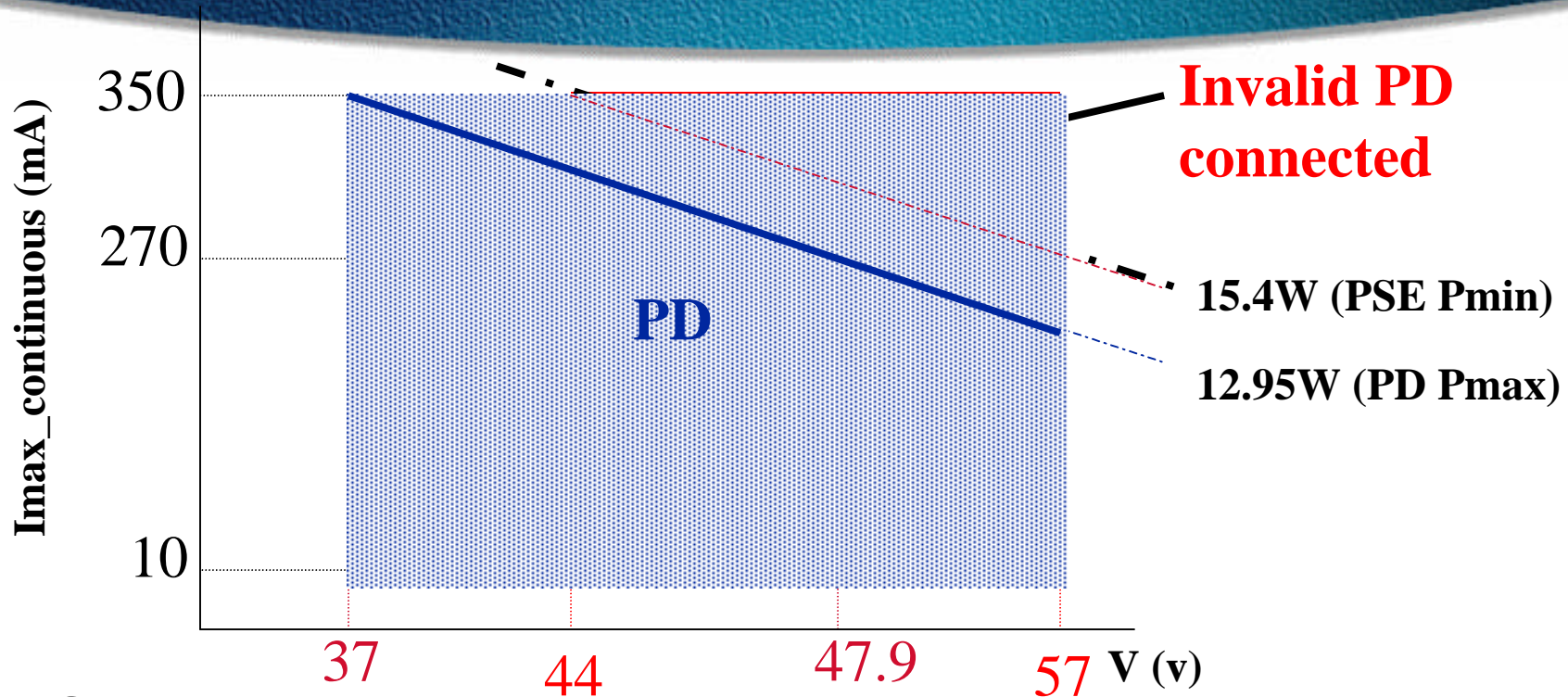
12.95W (derived from low end PSE)

37V @ 350mA = 12.95W

48V @ 270mA = 12.95W

More power cannot be guaranteed from the PSE

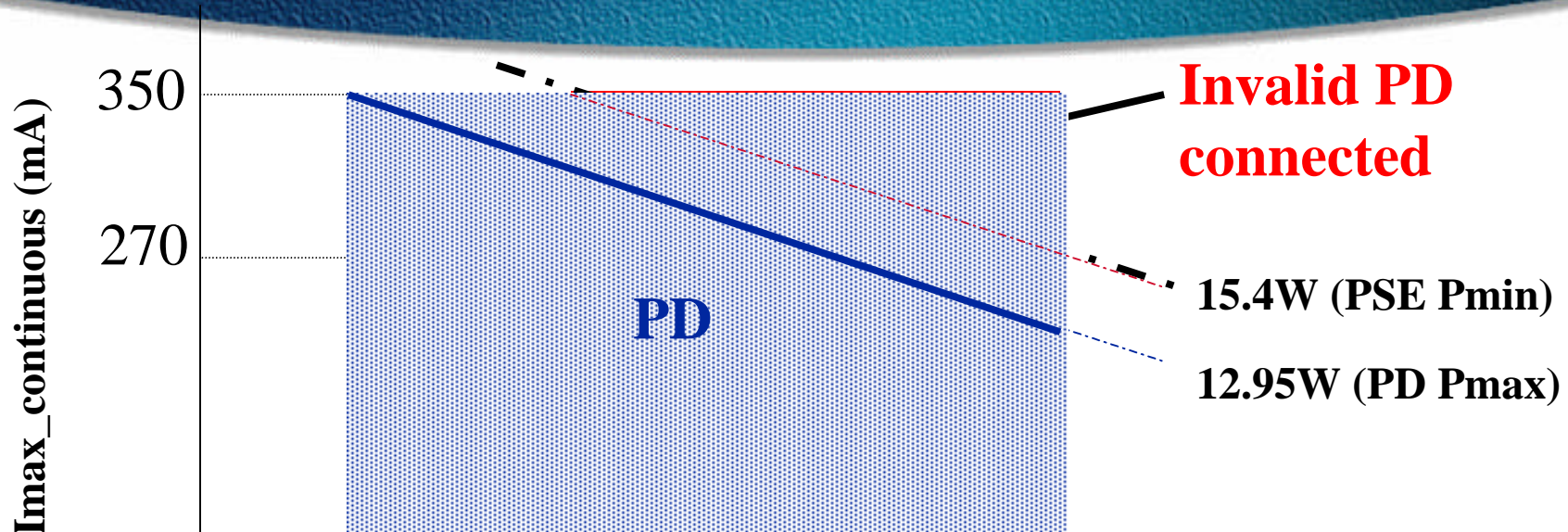
Room for Confusion



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%