



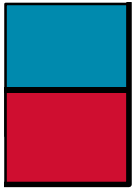
# Power Ad Hoc Summary

## May 24, 2001

**Karl Nakamura, Cisco Systems**

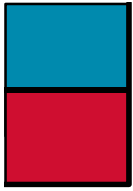
**karln@cisco.com**





## Summary(1 of 8)

- **Establish that the maximum power allowed to be used by a PD and ensure interoperability**
- **Propose that we specify that the maximum power allowed to be used by the PD is 12.95 watts.**  
For: 12    Against: 0    Abstain: 2
- **If the PD operates outside the blue zone(ccullin slide 5, power in excess of 12.95 watts at the PD) it is non-compliant and shall assume that it will be disconnected.**  
For: 15    Against: 0    Abstain: 1

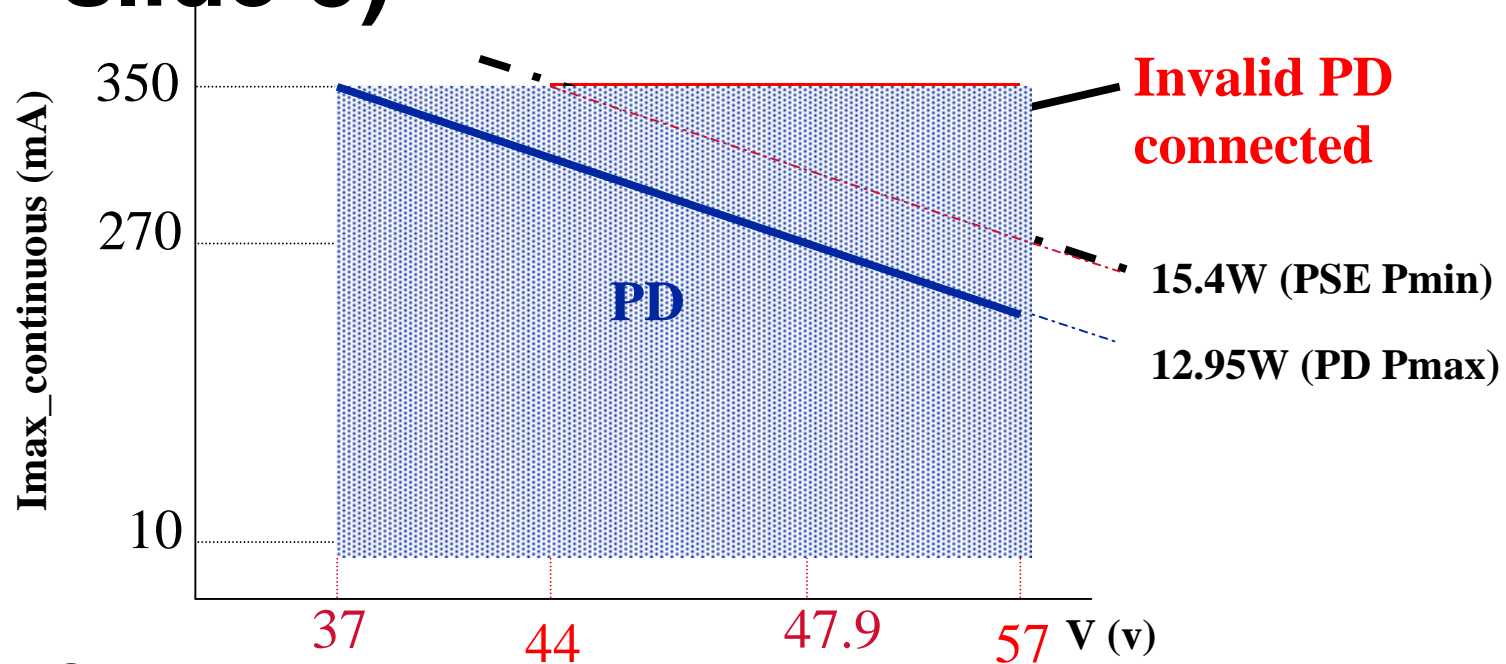


## Summary(2 of 8)

- **Establish that the PSE may(but is not required to) enforce this power limit.**
- **If the PSE operates in the black zone(ccullin slide 5, power in excess of Pmax at the PSE) it may disconnect the PD.**  
For: 13    Against: 1    Abstain: 0
- **If the PSE operates in the black zone(ccullin slide 5, power in excess of Pmax at the PSE) it shall disconnect the PD.**  
For: 7    Against: 7    Abstain: 0
- **Pmax in the 2 motions above is 15.4 Watts.**  
For: 12    Against: 3    Abstain: 2



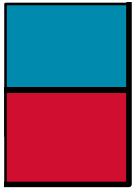
# Room for Confusion(ccullin slide 5)



## Summary

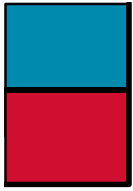
- PSE has a wider valid operating range than the PD
- If PSE operates outside of the **RED** zone there is an invalid PD connected
- PSE should not provide power to invalid PD  
Including false detection, no load & excessive load



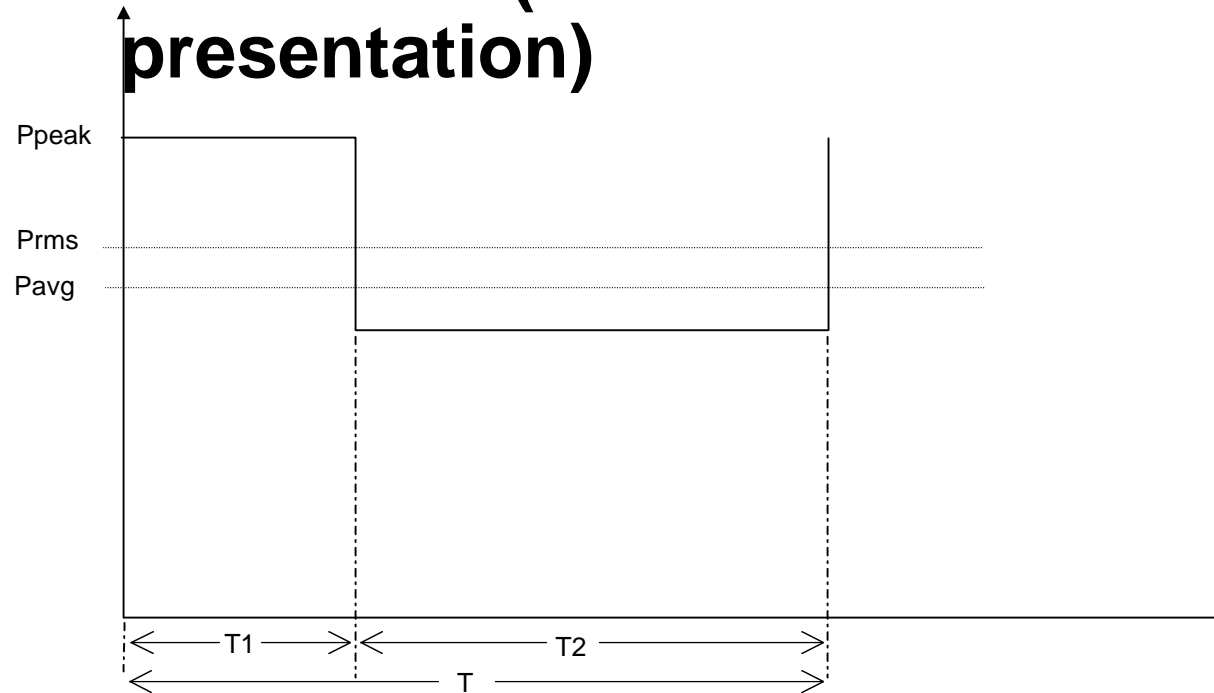


## Summary (3 of 8)

- **Established a framework for specifying continuous power from the PSE(see chart) and specified some values.**
- **P<sub>peak</sub> in slide 4 of the “continuous power presentation[Measured at the PSE]” is 15.4 Watts.**  
**For: 12    Against: 5    Abstain: 2**
- **P<sub>peak</sub> in slide 4 of the “continuous power presentation[Measured at the PSE]” is 19.8 Watts.**  
**For: 5    Against: 9    Abstain: 5**



# Continuous Power Specification, Power Provided from PSE, measured at the PSE (Slide 2 from karln presentation)





## Various Proposals for these Values [Measured at the PSE] [Slide 4 from Continuous Power Presentation]

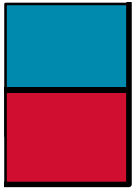
	<b>#1</b> Bruce and Peter	<b>#2</b>	<b>#3</b> Yair	<b>#4</b> Yair2
<b>P<sub>peak</sub></b>	350mA * 44V 15.4W		450mA * 44V 19.8W	400mA * 44V 17.6 W
<b>P<sub>rms</sub></b>	350mA * 44V		360mA * 44V	350mA * 44V
<b>P<sub>avg</sub></b>	350mA * 44V		350mA * 44V	350mA * 44V
<b>T<sub>1max</sub></b>	Anything		100 mSec	50 mSec
<b>T<sub>2</sub></b>	Anything			
<b>T<sub>min</sub></b>	Anything		416 mSec	1000 mSec



## Summary (4 of 8)

- **Column 1 on Slide 4 of the “continuous power presentation[Measured at the PSE]” is preferred (assuming 350mA\_RMS is the limitation of the cable plant, including all cable, cable types, connectors and connector types, cross connects, etc.)**  
**For: 10    Against: 5    Abstain: 3**
- **Column 3 on Slide 4 of the “continuous power presentation[Measured at the PSE]” is preferred (assuming 350mA\_RMS is the limitation of the cable plant, including all cable, cable types, connectors and connector types, cross connects, etc.)**  
**For: 5    Against: 10    Abstain:3**

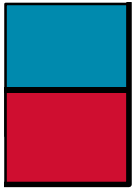




## Summary (5 of 8)

- **Column 4 on Slide 4 of the “continuous power presentation[Measured at the PSE]” is preferred (assuming 350mA\_RMS is the limitation of the cable plant, including all cable, cable types, connectors and connector types, cross connects, etc.)**

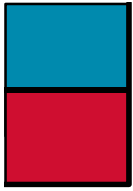
**For: 15    Against: 1    Abstain: 3**



## Summary (6 of 8)

- **Start up: Inrush current limiting. Should we limit it in the PSE, the PD, or both. Mr Dwelling to take the numbers below and generate a spec with voltage, current, and time.**
- **PSEs support inrush for PDs up to 50 uF. Above 50 uF the PD must provide inrush limiting**

**For: 16    Against: 0    Abstain: 5**



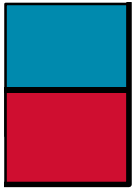
## Summary (7 of 8)

- **Isolation and Grounding:**
- **PDs and PSE must comply with either IEEE 802.3 Environment A or Environment B.**

For: 18    Against: 2    Abstain: 3

- **Minimum Current Spec**

**If the PSE slews voltage from 44 to 47 volts, a PD may draw less than 10 mA. Result was to limit the slew rate of the PSE?**



## Summary (8 of 8)

- **Stuff That's Left:**
- **Noise Envelopes (presentation by Mr. Brooks)**
- **Questions on the continuous power spec**
  - The chart on slide 2 is an ENVELOPE, not a required waveform. (5/22, 10:30am)
  - On the envelope, should there be a slew rate requirement on the rise and fall? (5/22 noon)
- **Patch Panels, 25 Pair Cables, RJ-21 Connectors and currents higher than 350 mA. Work needed to validate even 350 mA DC. Suggest that our esteemed chair(if not him, maybe Steve Carlson could do it) be tasked with asking other groups whether there was any data about this anywhere else.**
- **2 PSEs and 1 PD, the conclusion**



# Straw Polls and Notes

## May 22-23, 2001

**Karl Nakamura, Cisco Systems**

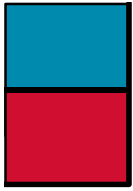
**karln@cisco.com**





## Straw Polls and Notes

- **Propose that we specify that the maximum power allowed to be used by the PD is 12.95 watts.**  
For: 12    Against: 0    Abstain: 2
- **If the PD operates outside the blue zone(ccullin slide 5, power in excess of 12.95 watts at the PD) it is non-compliant and shall assume that it will be disconnected.**  
For: 15    Against: 0    Abstain: 1
- **If the PSE operates in the black zone(ccullin slide 5, power in excess of Pmax at the PSE) it may disconnect the PD.**  
For: 13    Against: 1    Abstain: 0
- **If the PSE operates in the black zone(ccullin slide 5, power in excess of Pmax at the PSE) it shall disconnect the PD.**  
For: 7    Against: 7    Abstain: 0



## Straw Polls and Notes

- **P<sub>max</sub> in the 2 motions above is 15.4 Watts.**  
**For: 12    Against: 3    Abstain: 2**
- **P<sub>peak</sub> in slide 4 of the “continuous power presentation[Measured at the PSE]” is 15.4 Watts.**  
**For: 12    Against: 5    Abstain: 2**
- **P<sub>peak</sub> in slide 4 of the “continuous power presentation[Measured at the PSE]” is 19.8 Watts.**  
**For: 5    Against: 9    Abstain: 5**



# Straw Polls and Notes

- **Column 1 on Slide 4 of the “continuous power presentation[Measured at the PSE]” is preferred (assuming 350mA\_RMS is the limitation of the cable plant, including all cable, cable types, connectors and connector types, cross connects, etc.)**

**For: 10    Against: 5    Abstain: 3**

- **Column 3 on Slide 4 of the “continuous power presentation[Measured at the PSE]” is preferred (assuming 350mA\_RMS is the limitation of the cable plant, including all cable, cable types, connectors and connector types, cross connects, etc.)**

**For: 5    Against: 10    Abstain:3**





## Straw Polls and Notes

- **Column 4 on Slide 4 of the “continuous power presentation[Measured at the PSE]” is preferred (assuming 350mA\_RMS is the limitation of the cable plant, including all cable, cable types, connectors and connector types, cross connects, etc.)**  
**For: 15 Against: 1 Abstain: 3**
- **PSEs support inrush for PDs up to 50 uF. Above 50 uF the PD must provide inrush limiting**  
**For: 16 Against: 0 Abstain: 5**
- **PDs and PSE must comply with either IEEE 802.3 Environment A or Environment B.**  
**For: 18 Against: 2 Abstain: 3**



# Attendees

• 10 AM 5/22/01 St. Louis

Roger Karam	Cisco	rkaram@cisco.com
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