Cable and Thermal Derating Revisited

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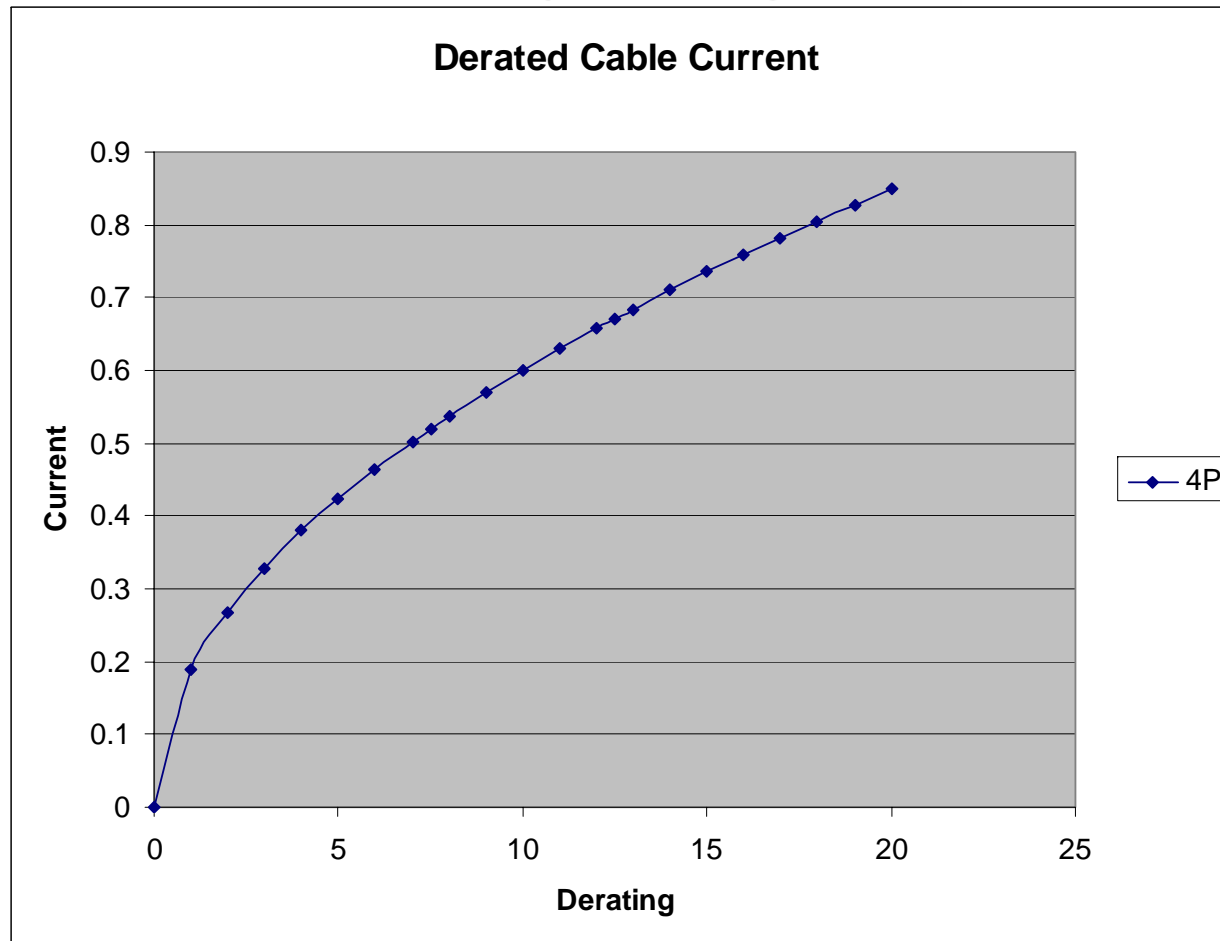
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Introduction

- **ISO/TIA recommendations based on all four pairs carrying current**

- **PoE Plus is based on two pairs carrying current**

- **Power dissipated in the cable is half, as specified by ISO/TIA at the same current**
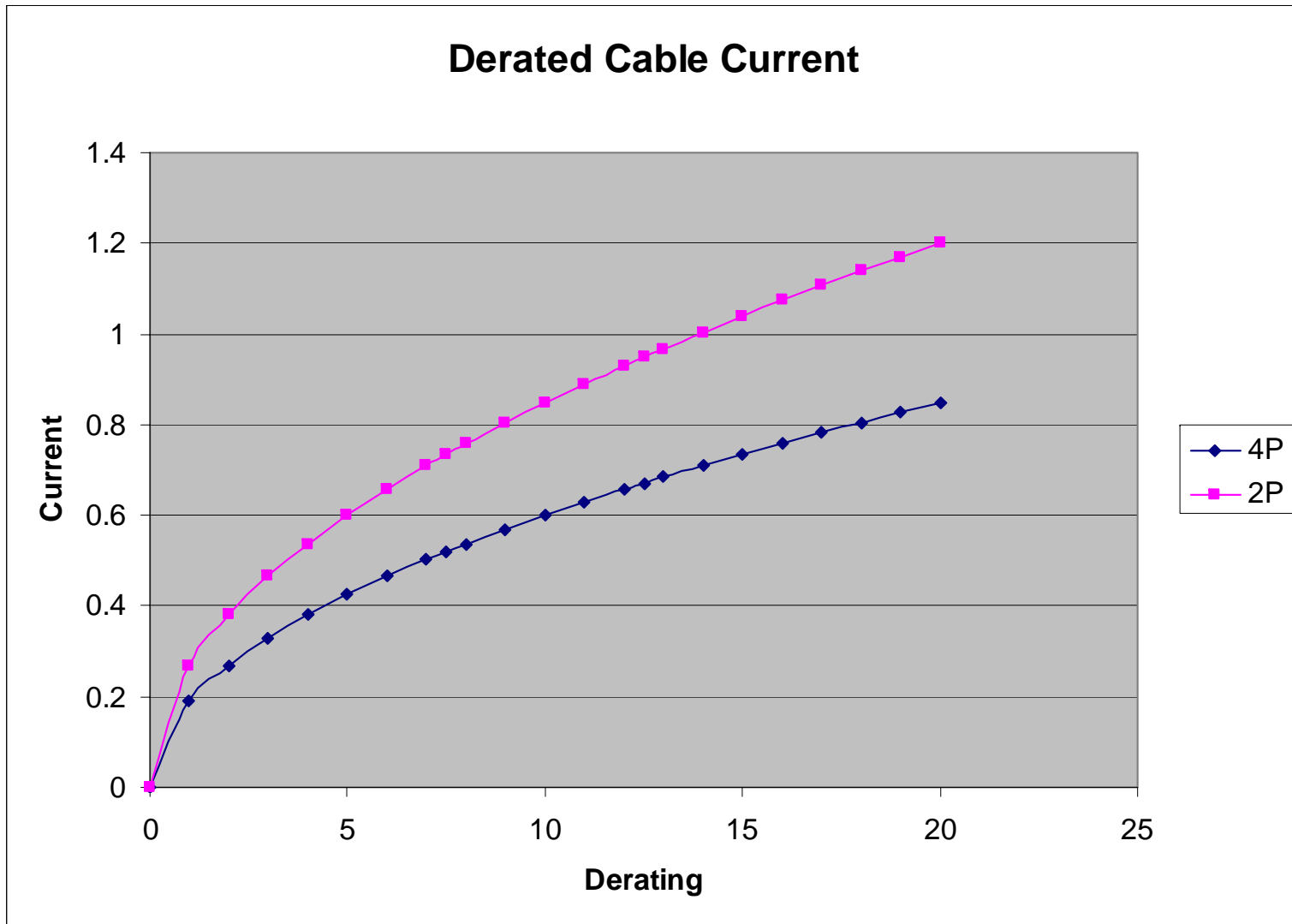
Two pair temperature derating

$$I_t = K \cdot \left(1 - \frac{t}{60} \right)^{0.5} \text{A}$$

Derated Cable Current

We can get more temp range…

current	4-pair	2-pair
424mA	5 C	2.5 C
600mA	10 C	5 C
735mA	15 C	7.5 C

Two pair vs. Four pair temp derating

Derated Cable Current

Proposal

- **Two pair**

- **600 mA**

- **5C derating**

Motion

- **Move that the IEEE 802.3at Task Force adopt the following changes to the text in paragraph 33.1.4.2:**

  Under worst case conditions, Type 2 operation requires a 10°C reduction in the maximum ambient operating temperature of the cable. Worst case operation assumes cable bundles with all pairs simultaneously energized at the maximum DC cable current specified in Table 33–1. **Type 2 operation that energizes two pairs requires a 5°C reduction.** Additional guidelines for the ambient operating temperature of Type 2 cables for 802.3at applications are addressed in ISO/IEC TR 29125 and TIA/EIA-TSBXX "Guidelines for Supporting Power Delivery over Balanced Twisted-Pair Cabling".

Mover: Bill Delveaux   Second: Martin Patoka

All in Room
   For: x
   Against: y
   Abstain: z

Motion p/f?

'Black' text from resolution to comment #509