**VI. Premises Powering of Communications Equipment over Communications Cables**

Informational Note: This Part addresses types of circuits intended to provide power over coaxial cables and communications wires and cables.**840.160 Powering Circuits.** Communications wires and cables, and coaxial cables, in addition to carrying a communications circuit or circuits, shall be permitted to carry a powering circuit or circuits. The cables shall comply with 840.160(A), and (B) .

**(A) Power Limitations.** The power circuits shall comply with the requirements of Table 11(B) in Chapter 9 for Class 2 voltage sources over 30 V up to 60 V dc.

Informational Note: The 100 VA (100 W) power source maximum nameplate rating in Chapter 9, Table 11(B) is the same as the maximum power rating for network-powered broadband communications systems in Table 830.15. The communications industry standards applicable are ATIS-0600337.2010 and UL 60950-21.

**(B) Ampacity.** The maximum current carried by each Class 2 communications circuit using a pair of conductors shall comply with the requirements of Table 11(B) in Chapter 9 for voltage sources over 30 V up to 60 V dc. For ambient temperatures higher than 30°C (86°F) ampacity shall be permitted to be adjusted per Table 310.15(B)(2)(a).

Informational Note: Ampacity may need to be adjusted further depending on cable type, installation conditions and, bundle size. See TIA TSB-184-A *Guidelines for Supporting Power Delivery Over Balanced Twisted-Pair Cabling* for additional information.

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Rationale: Table 11(B) from chapter 9 corresponds to IEC 60950-1 tables that have been used by IEEE 802.3 and by TIA. This table can be used for both power and ampacity as described in the table. The ampacity can be easily adjusted for different temperatures using table 310.15B(2)a. However, the further adjustments that depend on cable type, installation conditions, and bundle sizes is very complex and the only information available is empirical in nature. This empirical information has to be analyzed theoretically, validated by multiple NRTL laboratories, and vetted further by actual assessment in real world installations. This is a huge undertaking that will take a very long time, and still pose some uncertainty.

The best interim solution is to reference TSB-184-A as a guideline, not a requirement and allow the industry to gain more experience.

It should also be pointed out that normally NEC NFPA 70 CMP 16 develops code for “ documented real instances of problems”, not hypothetical problems that may never occur. Therefore it makes sense to see if the safeguards in place in IEEE 802.33bt , TIA-TSB-184-A and ISO/IEC TR 29125 are sufficient or further mandatory action is warranted because of a “real documented problem” in the field.