IEEE 802.3 Ethernet Working Group
Liaison Communication

Source: IEEE 802.3 Working Group[1]

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Subject: Liaison to NFPA CMP 16

Approval: Agreed to at IEEE 802.3 Plenary meeting, Waikoloa, HI, USA, 16th July 2015

Dear Mr Moore,

We have reviewed First Revision No. 4643-NFPA 70-2015 (within http://www.nfpa.org/Assets/files/AboutTheCodes/70/70_A2016_NEC-_FRs_P1.pdf) comment submitted by CMP 16 proposing the addition of a new Part VI, addressing remote powering over data communications cables. We have confirmed that IEEE Std 802.3-2012 Clause 33 DTE Power via MDI specification, commonly referred to as "Power over Ethernet", (which incorporates IEEE Std 802.3af-2003 and IEEE Std 802.3at-2009) **does not** exceed:

- the maximum adjusted ampacity of conductors in Table 840.160(A) for multiple cables,
- the voltage and power limitations of Table 11(B) in NEC NFPA 70 2014,
- and the maximum adjusted ampacity of conductors adjusted for temperature as described in Table 310.15(B)(2)(a) in NEC NFPA 70, 2014

when deployed over the cabling specified in IEEE Std 802.3-2012 for these applications (i.e., ISO/IEC 11801:1995 Class D, ANSI/TIA-568-C.2 category 5, or better horizontal cabling).

[1] This document solely represents the views of the IEEE 802.3 Working Group, and does not necessarily represent a position of the IEEE, the IEEE Standards Association, or IEEE 802.

This includes applications under consideration in the proposed amendment to IEEE Std 802.3-2012 under development in the IEEE P802.3bt 4-Pair Power over Ethernet project.

Through our review process, it has become apparent that it will be extremely confusing and difficult for users to determine whether or not “LP” marked cables are required for support of remote powering applications compliant with the IEEE Std 802.3-2012 “Power over Ethernet”. To eliminate this confusion, we request the following changes be made to the proposed First Revision No. 4643-NFPA 70-2015 new section text:

1. Remove “Power over Ethernet” as a reference application in the Section VI Informational note. It would helpful if you could inform us of a remote powering application that specifically exceeds the values in Table 840.160(A), Table 11(B), Table 310.15(B)(2)(a).
2. Add the following text to both sections (C) and (D):

   “Cables with "LP" markings are not required for support of applications compliant with IEEE Std 802.3-2012 Clause 33 “Power over Ethernet” (which incorporates IEEE Std 802.3af-2003 and IEEE Std 802.3at-2009) when used over the cabling specified in IEEE Std 802.3-2012 for these applications (i.e., ISO/IEC 11801:1995 Class D, ANSI/TIA-568-C.2 category 5, or better horizontal cabling). This includes applications under consideration in the proposed amendment to IEEE Std 802.3-2012 under development in the IEEE P802.3bt 4-Pair Power over Ethernet project.”

The IEEE 802.3 Working Group has repeatedly considered the limitations of SELV and LPS using a maximum of 100 VA per eight-conductor cable as a limiting condition for Power over Ethernet applications and currently has no proposals that exceed this limit. It should be noted that considerations for IEEE P802.3bt Type 4 operation, up to 480 mA/conductor, are currently under study, and because this is close to the limits proposed in Table 840.160(A), Table 11(B), Table 310.15(B)(2)(a), we respectfully request any technical information that the NFPA thinks is useful. One item we are particularly interested in is the technical background to Table 840.160(A).

We look forward to hearing from you and working with you to improve the understanding and deployment of Power over Ethernet applications.

Sincerely,

David J. Law

Chair, IEEE 802.3 Ethernet Working Group