

IEEE 802.3 Ethernet Working Group Liaison Communication

Source: IEEE 802.3 Working Group¹

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From: David Law Chair, IEEE 802.3 Ethernet Working Group
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Subject: Power Delivery over Communications Cabling

Dear Mr. D'Ambrosia,

We are concerned that the 2017 National Electrical Code® revisions in Table 725.144 have effectively created a "new" class of communication cables for operating temperatures greater than 60°C with designated ampacity limits for powering, without consideration for the transmission characteristics related to the application usage.

At this time, no known IEEE 802.3 communications and/or power delivery have been specified for operation on data center or enterprise Ethernet based communications circuits at 90°C conductor temperature. IEEE 802.3 references TIA and ISO/IEC cabling functionally specified over the temperature range from -10°C to +60°C. Cabling transmission characteristics beyond 60°C are not specified, therefore 802.3 operation may not be supported. This is independent of whether the cabling itself may survive exposure to such temperatures.

We are bringing to your attention that the 2017 National Electrical Code® text allows operation of telecommunications systems with conductor temperatures up to 90°C without warning the reader that the communications equipment might not support it, based on no de-rating or available channel models in IEEE 802.3 to verify intended operation.

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.

We appreciate the Ethernet Alliance's assistance in disseminating this information to the Ethernet Alliance membership.

Sincerely,

David Law

Chair, IEEE 802.3 Ethernet Working Group