

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: Liaison letter to TIA TR42

Approval: Agreed to at IEEE 802.3 Plenary meeting, Beijing, China, 20th March 2014

Dear Ray,

We would like to inform you that a new project was sanctioned in November 2013 to define higher levels of Power over Ethernet than currently specified by IEEE Std 802.3at-2009.

Some objectives for this new project, IEEE P802.3bt, are as follows:

1. Comply to the limited power source and SELV requirements as defined in ISO/IEC 60950.
2. Not preclude the ability to meet FCC/CISPR/EN Class A, Class B, Performance Criteria A and Performance Criteria B with data for all supported PHYs.
3. Support operation over the following channels with DC loop resistance of up to 25 ohms:
 - a. Class D or better 4-pair copper medium from ISO/IEC 11801:2002, including Amendments 1 & 2
 - b. Class D or better media from ISO/IEC 11801:1995
 - c. Category 5e or better cable and components as specified in ANSI/TIA-568-C.2

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.

- d. Category 5 cable and components as specified in ANSI/TIA/EIA-568-A
- 4. Support operation with 10GBASE-T.
- 5. Support a minimum of 49 Watts at the PD.
- 6. Define parameters to limit maximum pair-to-pair current imbalance.
- 7. 802.3bt PSEs will be backwards compatible with 802.3at PDs.

IEEE 802.3bt will provide power over all 4-pairs in a cable and, while we have not yet adopted an appropriate dc current level, we are exploring the feasibility of the range 850 mA to 1000 mA per pair. This will support a power level greater than our minimum objective stated above in item 5.

We would also appreciate any information you could share about the DC resistance unbalance (variance) between pairs in your cabling channel.

We are familiar with the content of TIA TSB-184 (Telecommunications cabling requirements for remote powering of terminal equipment), which is oriented to the support of IEEE 802.3at. Would it be possible to extend this document to provide guidance on recommended bundle sizes for the higher current levels being considered in IEEE 802.3bt? We believe that in addition to these variables, barometric pressure may also affect the cable temperature rise and request that you include this in your study. Please consider barometric pressures encountered in installations as high as 10,000 ft. altitude.

We will keep you informed of progress and relevant decisions as they occur.

IEEE P802.3bt project documentation may be found at <http://www.ieee802.org/3/bt/index.html>.

Sincerely,

David Law

Chair, IEEE 802.3 Ethernet Working Group