IEEE P802.3bt 4-Pair Power over Ethernet Task Force
Informal Communication

Source:	IEEE P802.3bt 4-Pair Power over Ethernet Task Force[1]	
To:	Dr Albrecht Oehler	Convenor, ISO/IEC/JTC1 SC25 WG3 albrecht.oehler@fh-reutlingen.de
	Paul Nikolich	Chair, IEEE 802 LMSC p.nikolich@ieee.org
	David Law	Chair, IEEE 802.3 Ethernet Working Group dlaw@hp.com
CC:	Adam Healey	Vice-chair, IEEE 802.3 Ethernet Working Group adam.healey@lsi.com
	Pete Anslow	Secretary, IEEE 802.3 Ethernet Working Group panslow@ciena.com
	Alan Flatman	Liaison, IEEE 802.3 & ISO/IEC/JTC1 SC25 WG3 a_flatman@tiscali.co.uk
From:	Chad Jones	Chair, IEEE 802.3bt 4-Pair Power over Ethernet Task Force cmjones@cisco.com
Subject:	Informal communication relating to impact of higher levels of Power over Ethernet on balanced cabling channels	
Approval:	Agreed to at IEEE P802.3bt 4-Pair Power over Ethernet Task Force meeting, Indian Wells, 24 January 2014	

Dear Dr Oehler,

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 802.3at.

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
   d. Category 5 cable and components as specified in ANSI/TIA/EIA-568-A

[1] This document solely represents the views of the IEEE P802.3bt 4PPOE Task Force, and does not necessarily represent a position of the IEEE, the IEEE Standards Association, IEEE 802 or the IEEE 802.3 Working Group

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.

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 850mA to 1000mA 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 between pairs in your cabling channel. This is not the unbalance between wires in a pair but instead the unbalance between pairs in a bundle.

We are familiar with the content of ISO/IEC TR 29125 (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 802.3bt?

We are also familiar with IEC 60512-99-001 which specifies modular connectors for unmating under load with 802.3at. Would it be possible to provide a version of this for 802.3bt?

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,

Chad Jones
Chair, IEEE P802.3bt 4-Pair Power over Ethernet Task Force
cmjones@cisco.com