802.3BT 4P-ID AD HOC MINUTES (UNAPPROVED) -
1 Oct 2014
G. Zimmerman recording – please send updates or corrections to
George@cmeconsulting.onmicrosoft.com

Participants are encouraged to review IEEE meeting guidelines available at the following URL -
https://development.standards.ieee.org/myproject/Public/mytools/mob/preparslides.pdf

The proposed agenda for the meeting follows.

8 AM Pacific Time meeting start
Meeting called to order by George Zimmerman, acting as ad hoc Chair.

1. Roll call : Please send an email indicating your attendance, employer and affiliation to
   mailto:george@cmeconsulting.onmicrosoft.com?subject=802.3bt%204PID%20ad%20hoc%20attendance%201Oct2014
   George Zimmerman (chair) – CME Consulting / affiliations: Commscope & Linear Technology
   Chad Jones – Cisco
   Dave Dwelley – Linear Technology
   David Lucia – Sifos
   Geoff Thompson – GraCaSi / affiliation: Linear Technology
   Koussalya Balasubramanian – Cisco
   Miklos Lukacs – Silicon Labs
   Sesha Panguluri - Broadcom
   Yair Darshan – Microsemi
   Brian Buckmeier – Bel Stewart Connector
   Gaoling Zou - Maxim
   Matthias Wendt – Phillips
   Rick Frosch – Phihong
   Alex Seiger – UNH-IOL
   David Tremblay – HP
   Peter Scruton – UNH-IOL
2. Reminder of IEEE patent policy
   www.ieee802.org/3/patent.html
   The chair reminded the group that the meeting was being held under the auspices of the IEEE 802.3WG, and asked if there was anyone on the call for whom it was the first meeting. He then reminded the group to review the IEEE patent policy at the link provided, and asked if anyone would like the patent policy read. There were no requests, and the group consented to proceed without the reading of the patent policy.

3. Housekeeping
   (no prior minutes) – previous ad hoc on similar topic is:
   http://www.ieee802.org/3/bt/public/sep14/tremblay_01_0914.pdf)

4. Old business from previous ad hoc meetings:
   None

5. New business at this meeting:

The Chair asked if there were any additions, corrections or objections to the proposed agenda, and members of the group responded they had none. The meeting then proceeded with the following presentations:

Name of presenter: Yair Darshan, Microsemi
Title of presentation: Part A: Existing compliant PD implementations, Part B: Proposal for detecting Type 1/2 capable of 4P operation: Layer 1 Method to Detect 4PPoE Capable Legacy Type 1 & 2 PD – Rev 006

Brief description of topic: Update to previous presentation:
http://www.ieee802.org/3/bt/public/sep14/darshan_6_0914_rev_05b.pdf.
The presenter reviewed his description of types of legacy type 1 and type 2 PDs. Additionally he reviewed an approach to determining whether a PD could take 4 pair power. During the presentation he pointed out that new matter in this update was provided on slide 16. (note – there may be other new matter on other slides, but slide 16 was not in the earlier deck)

Discussion: Mr. Dwelley (the next presenter) pointed out that the differences between the proposal in this presentation and the next presentation's proposal was primarily in a single place, and that the two proposals were otherwise mutually acceptable. The difference noted was that Yair's proposal required that the a 4 pair PSE be able to power on one pair and then detect on the other pair, something Mr. Dwelley understood was not required by the standard.

Discussion then centered on the purpose of the 'signature disable language' in the standard (slide 16) , where, when a PD was under power on one alternative, an invalid signature was to be presented on the other alternative. The commenter understood this to have been for the purpose of guarding against both midspan PSE and endpoint PSEs powering the same device on different alternatives – something unneeded in 4 pair power. The presenter disagreed with the purpose, but submitted that even so he could still use this requirement to detect 4PID, and to avoid PDs whose designers had not considered 4 pair power (because such PSE behavior was disallowed in the standard)

A participant then pointed out that such designers needed to meet the requirement of the possibility of 57 volts being presented on all pairs at all times, and hence if such a PD were damaged by 4 pair power, they would be non compliant. The presenter disagreed. Others commented that the 57V requirement was known to be unclear and some discussion would be needed, with various viewpoints on the requirement being put forward. At that point another participant interjected that discussion of the "57V requirement" discussion be deferred until after the next presentation. The group agreed.

A participant asked for clarification on slide 15 – what was the meaning of "Not Valid" out of the top "Valid Signature?" decision block? The presenter answered that it indicated that the simultaneous detection produced an apparent invalid signature (as currently defined in the standard) on both Alt A & Alt B pairs.

Further discussion was deferred until after the next presentation.

Name of presenter: Dave Dwelley, Linear Technologies
Title of presentation: 4P-ID Proposal
Brief description of topic: Proposal for identifying legacy devices capable of 4P powering. The presenter proposed a 4PID based on identifying that there was a pair of valid signature resistances (25k ohms) present, and excluding a set of known invalid arrangements (see slide 4). The 4PID would specify test criteria and not the precise test method, allowing flexible implementations. Additionally, the presenter added a classification check for matched classifications. During presentation, he clarified that slide 6 should be read in a hierarchical fashion, where the bottom 3 bullets were subject to the classifications on Alt A & Alt B being matched. Rewritten below for clarity:
Step 3: Classification Check

- Test for Class signature at each pair set to establish Mutual ID
  - Class signature for each pair set must match for Type ½
  - Class signature match TBD for Type 3+
- If unmatched Type 1/2: Deny or AT power (2P or 2x2P)
- Else:
  - If Class 0 or signature not found, PSE must limit 4P power to 13W to prevent PD overheating
  - If matched Class 1---4: limit power to Class limits
  - Else matching, power requirements for Type 3+ TBD

Discussion: A participant asked for clarification whether if the proposal detected different classes, it would shut off power to the whole PD. The presenter replied that there were 3 options available to the implementer – deny power to the whole PD, provide 2 pair power to the PD, or provide 2 pair power on each pair as if each pair were an 802.3at device (which he commented wasn't compliant but OK).

The participant then commented that the addition of the classification building block, in his opinion, improved reliability. It supported PDs that can work on 2 pair but not necessarily gave power to them, and limited the power. He was concerned that PDs which could not be powered (these were called "option 2b" PD's in the prior presentation). The presenter replied that to his understanding, such PDs were noncompliant.

At this point, the floor moved to general discussion of the 2 proposals.

General discussion:
There were 3 points of disagreement:

- What is the meaning of the "57V language"
- Whether and how to power Yair's Option 2b PD
- Will a 4P PSE be required by the standard to be capable of providing 2 pair-only power?

There was some discussion of a straw poll on the requirement for provide 2 pair-only power, as this seemed to be the key issue. The Chair noted that such a requirement, while seemingly key to this ad hoc's work, was, in his view, a larger scope issue than some might think the ad hoc

had been chartered for, and he would like to provide notice or access to any poll on the subject to the larger Task Force via the reflector.

The Chair asked participants for assistance in defining straw poll language prior to the next meeting.

There was also heated discussion about the meaning of backward compatibility and the "compatibility" criterion for the project, as it related to power over Ethernet. A participant pointed out that backward compatibility for Ethernet PHYs meant that while PHYs could communicate with earlier versions of the standard, they were not required to implement other protocols, and they communicated this via clause 28 autonegotiation. Others held that powering was different and needed to provide backward compatible power regardless.

A participant pointed out that review of the 5 criteria language for compatibility might be relevant.

One of the presenters offered that the two presenters work together on a unified presentation to try to minimize differences and distinguish decisions to be made, where they were required.

The Chair invited further discussion and contributions on the key issues noted above at the next ad hoc meeting.

Next steps / Action items:

- George to send note to the reflector that we are discussing the larger issue of whether 4P PSE's are additionally required to provide 2P power only
- Kousi coordinate (w/George) defining language for a straw poll at the next meeting

The group then proceeded to set the time for the next meeting.

6. Next meeting time: Tuesday October 21, 8AM-10AM Pacific (2 hour meeting planned)
7. Adjournment: 9:40AM Pacific