

4PID Ad hoc – Review

IEEE 802.3: 4PPOE Task Force
4PID Ad Hoc

George Zimmerman, Ph.D.
CME Consulting

Overview

- Where we stand in 4PID ad hoc
- Agreed approaches
- What is assumed in 4PID discussion
- Modifications to the PSE state machine to support 4PID

Where we stand in 4PID ad hoc

- 2 basic PD types:
 - Option 1: single Rsig
 - Option 2: dual Rsig
 - Comes as 2 types, single vs. dual loads
- Converging discussion
- No integration into Figures 33-9 (PSE) or 33-11 PSE state machines
- This presentation attempts to summarize proposals and see what we can adopt

What is assumed in 4PID discussion

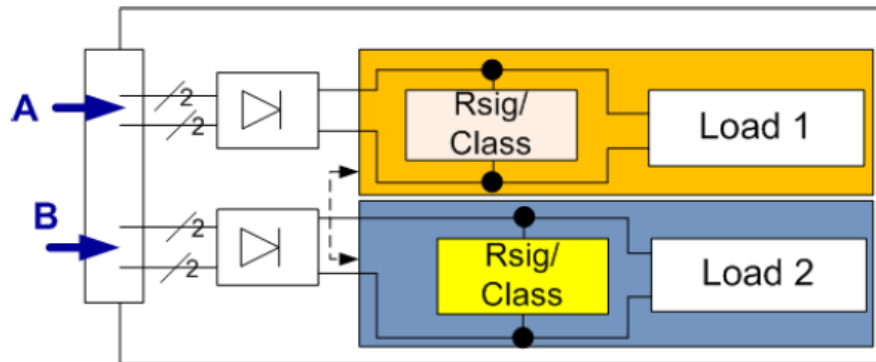
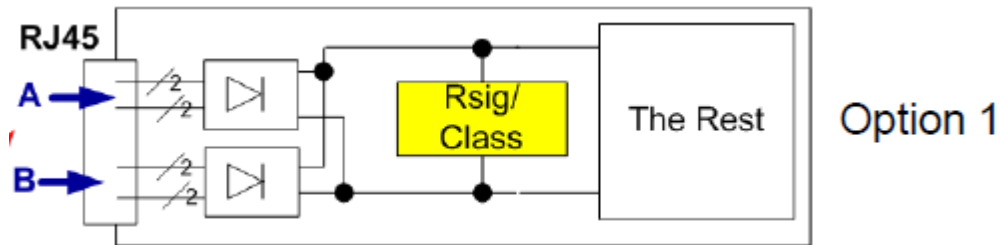
- PD state machine is fixed for legacy PDs
- 4PID can modify PSE state machine in responding to PD state machine
- *Assume all modifications are in the PSE state machine*
 - *PD state machine may be clarified, but not modified for 4PID of legacy Type 1 and Type 2 devices*
 - *Additional 4PID may be added to Type 3 or 4 if necessary*
- 4PID is a 2 part process:
 - Differentiate invalid vs. single sig vs. dual sig via detection protocol modified at the PSE
 - Differentiate 4p capable single sig or dual sig PDs via additional criterion

4PID as part of do_detect

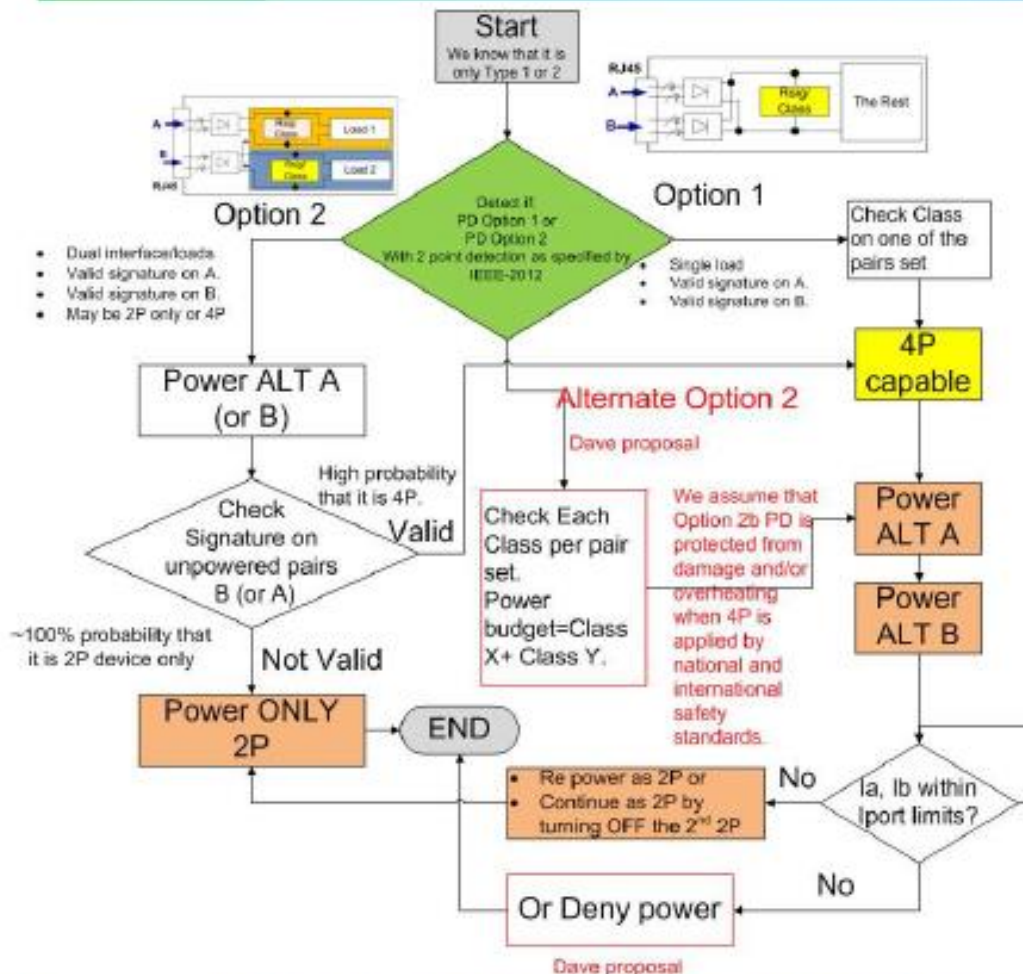
Differentiate Invalid vs. single sig vs dual sig

- darshan_11_1114_rev_07.pdf (darshan_11)
 - Modifies detection sequence to include 1st part of 4PID
 - Differentiate option 1 vs. option 2 PDs (slide 15)
 - Figure 33-9 changed to specify simultaneous detection
 - Invalid signatures get extra steps to detect option 1 or true “invalid”
 - Valid signatures go to extra states for Option 2a/b differentiation
 - We seem to have agreement on this part, but not on the following steps to differentiate Option 2a/2b

“Option 1 & Option 2” PDs (darshan_11)



Option comparison (darshan_11)



Green decision block and Option 1 branch appear agreed, assuming "Power ALT A" & "Power ALT B" blocks are a single state, not a sequence

Alternative Option 2 is marked red.



Next step – 4PID in Classification

- One approach looks at unpowered pair sig
- One approach looks at class signature
- Both 4PID branches involve going to power on and checking $I_a + I_b < I_{port}$
 - One has fallout to retry 2P power
 - One has fallout to POWER_DENIED
 - BOTH can be allowed, retry is NOT 4PID

Discussion/Presentations

- What do we agree on?
- What do we disagree on?
- What work is needed to move forward?