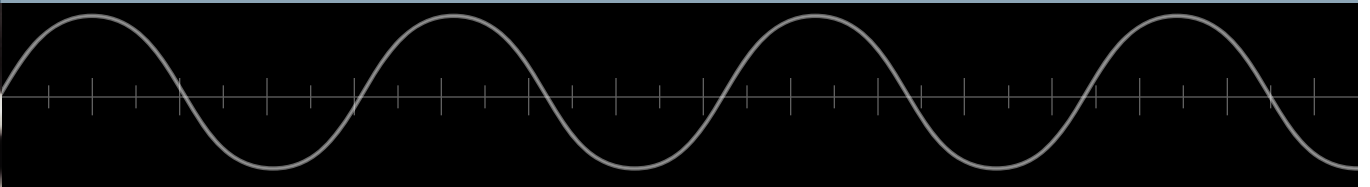


RTPGE PoE Ad Hoc Report

Dave Dwelley

San Diego, 7/17/12



PoE Ad Hoc Activity

- PoE Ad Hoc chartered to generate a list of questions for automotive/industrial end users about PoE needs
- 1st meeting during breaks in RTPGE SG meeting in Minneapolis
- Subsequent communication via RTPGE reflector
- Final question list posted to reflector 6/12/12
- First responses received on reflector 7/9/12
(120705_Buntz_information for IEEE RTPGE_PoE and Channel Model Questions.pdf)

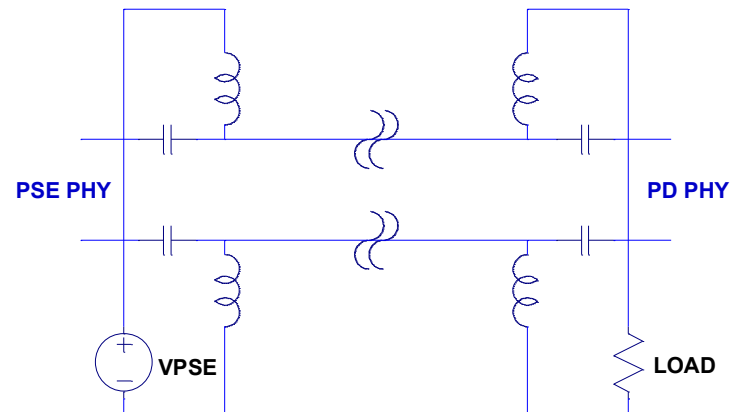
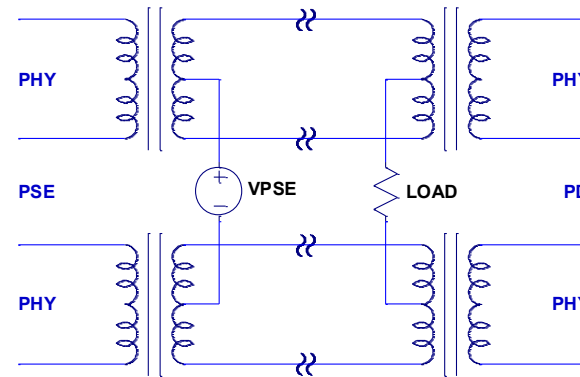
Quick Clause 33 Summary

- PSE = Power Sourcing Equipment, PD = Powered Device
- Line voltage is 44V - 57V (50V - 57V for 25W ports), limited by SELV
- 4 power classes available (sensed during detection): 3W, 7W, 13W, 25W
- Live insertion and removal of devices is supported via dedicated detection and disconnect protocols. Unconnected PSE ports are unpowered.
- Ports will tolerate limited overcurrent events for 50ms without reporting a fault
- Overcurrent faults are sensed and faulty ports are typically retried
- Ports are galvanically isolated at both PSE and PD
- Power is delivered as a common-mode signal between two pairs
- Power interface to the line is via data isolation transformer centertaps (“phantom power”)

Definitions

- Phantom power injection:
 - Requires 2 pairs or chassis ground
 - Very good CMRR
 - Used by Clause 33 PoE

- DSL-style power injection:
 - Works with single pair
 - Limited CMRR
 - Used in legacy telecom systems



List of Questions

- Is PoE as defined in Clause 33 of the current standard adequate for RTPGE?
- Will vehicles use a mix of Clause 33 and non-clause 33 connections?
- Will PSE ports be dedicated to a specific load or do they need to be “universal”?
- What line voltage should be used?
- What power levels are required?
- Will multiple power classes be required?
- Will the power system need to support surge loads (motor start)?
- What are the isolation requirements?
- What action should a PSE take if a power fault is detected?
- Is a chassis ground always available?
- Will we need to support adding/subtracting nodes to/from a live system (for example, a vehicle trailer or customer-installed equipment)?
- What is the maximum length of a PoE segment?
- Will PoE channels be treated differently (e.g., different wire gauge) than non-PoE channels?
- Do we need to support daisy-chain configurations?
- What is the estimated ratio of powered to unpowered ports?

RTPGE will not include PoE

- PoE not included in RTPGE CFI
- RTPGE is a data PHY spec, Clause 33 PoE is (mostly) data PHY-agnostic
- RTPGE should not preclude PoE (Clause 33 or something else)
- A new PoE CFI may be appropriate