

Ethernet-APL Test Guide

Test Type (Data or Power): Data

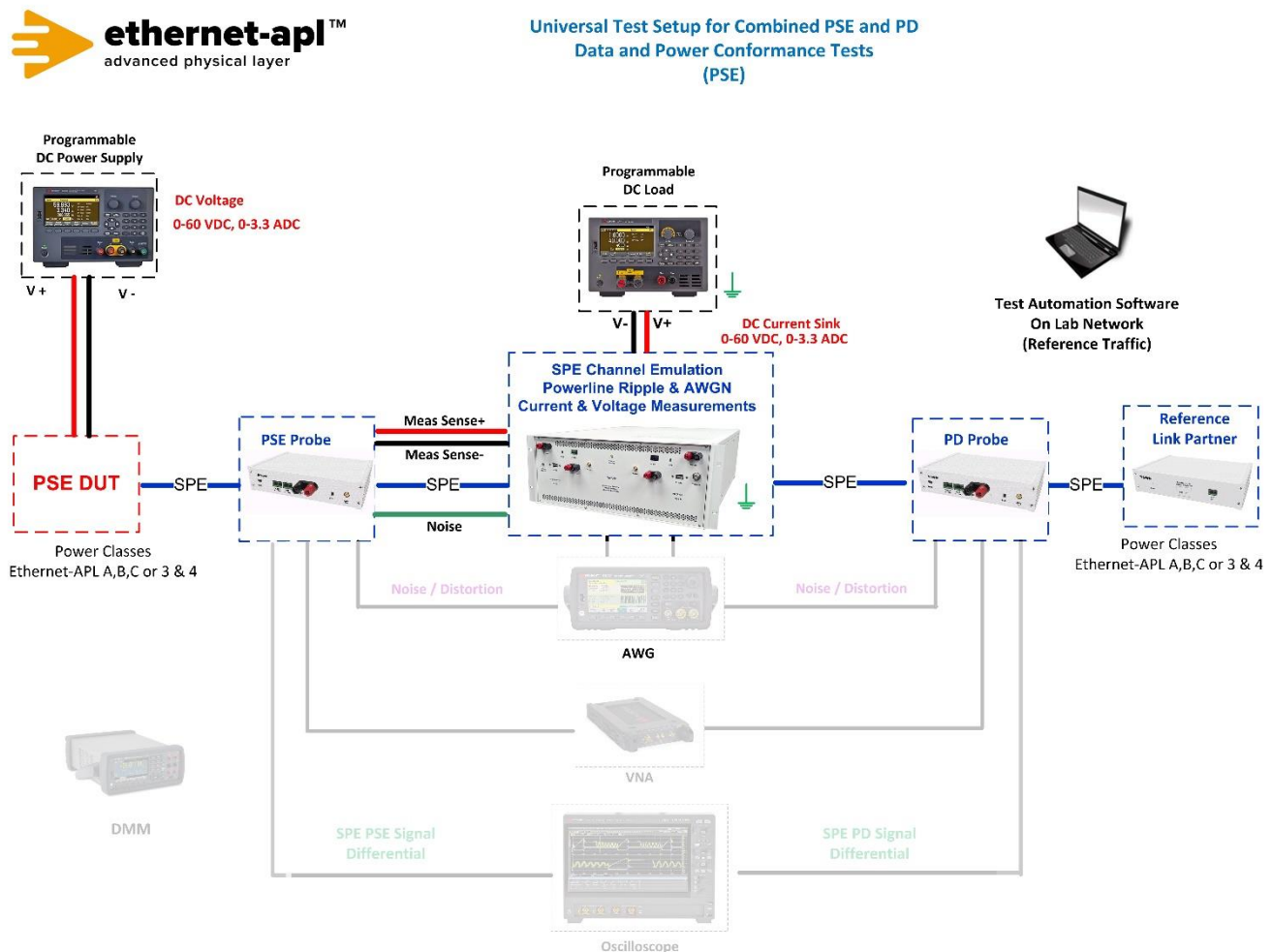
Test Name: 146.4.1 Automatic Polarity Detection and Correction

Purpose/Description: To verify that the Ethernet-APL Device properly corrects incorrect channel polarity per the PCS detection and correction mechanism.

Required Test Equipment for PSE:

1. PD Probe
2. 4950 Channel Emulator (for current measurements)
3. PSE Probe
4. Programmable DC Power Supply (to power the PSE DUT)
5. Programmable DC Load (to draw current from PSE DUT)
6. Reference Link Partner
7. Test Automation Software
8. Telebyte Model 4925 Link Partner

Test Setup / Connection Diagram (PSE):



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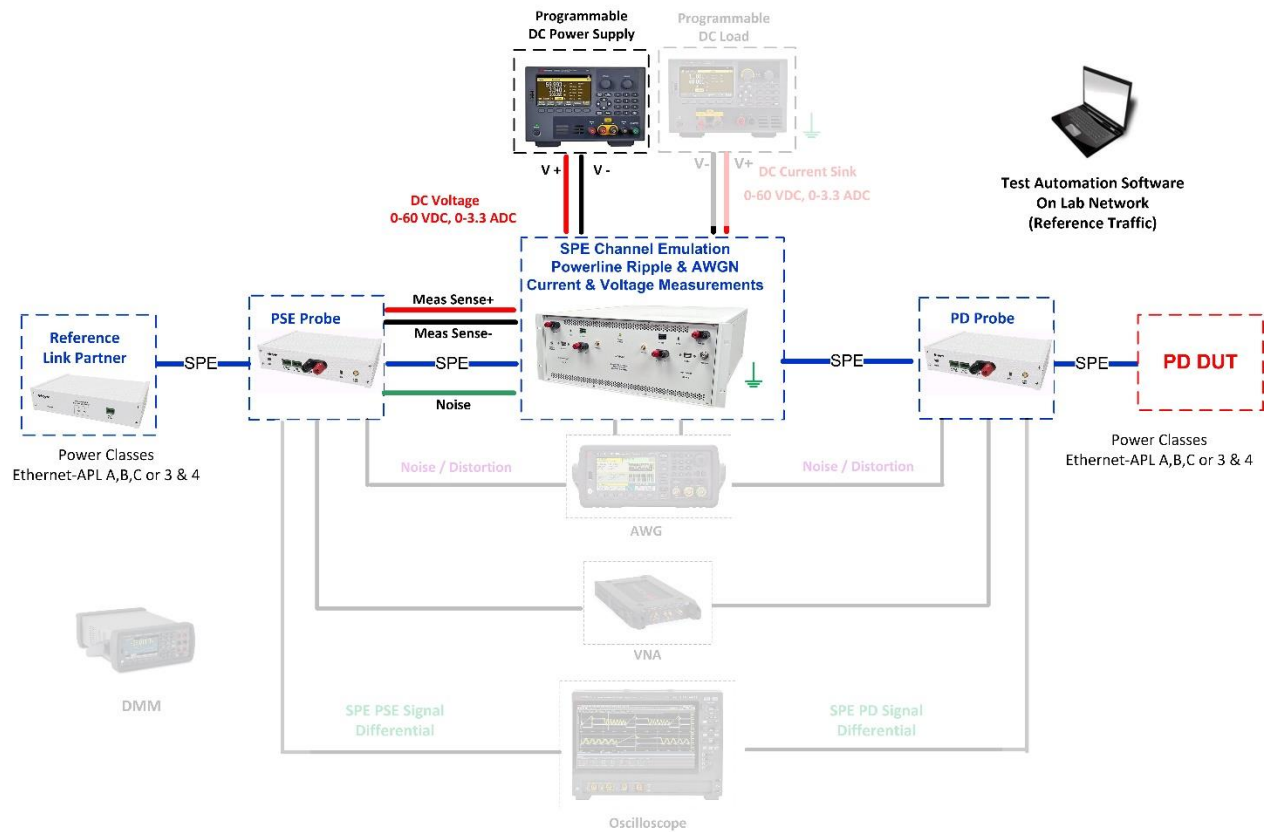
Required Test Equipment for PD:

1. PD Probe
2. 4950 Channel Emulator (for current measurements)
3. PSE Probe
4. Programmable DC Power Supply (to power the PD Load DUT)
5. Reference Link Partner
6. Test Automation Software
7. Telebyte Model 4925 Link Partner

Test Setup / Connection Diagram (PD):



Universal Test Setup for Combined PSE and PD Data and Power Conformance Tests (PD)



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Device Under Test Setup:

- Part A: Configure the DUT as 10BASE-T1L SLAVE with Auto-Negotiation Enabled
- Enter the Power Class for the Device Under Test (Trunk: Class 3 or 4, Spur: Class A, B or C) into the test automation software.
- The Device Under Test (DUT) must have the ability to send and receive Test Packets
- A test station capable of Auto-Negotiation, 10BASE-T1L link signaling, arbitrary packet generation and capturing; OR A test station capable of transmitting arbitrary ternary symbols (allowing explicit control of tx_disparity) and receiving valid ethernet packets. Note that if an Option 1A test station is in use, Auto-negotiation must be disabled. If an Option 2 test station is in use, the test station will be capable of DME page exchange as well.

Expected Results (Pass/Fail Criteria):

Step	Status	Description
A:4	PASS	The DUT establishes a link regardless of the received polarity, as indicated by responding to the test packet in both cases.
A:1	FAIL	The DUT does not link. Note the polarity tested.
A:3	FAIL	The DUT does not respond to all test packets. Note the polarity tested.

Notes:

References:

[1] IEEE Std. 802.3cg-2019 subclause 146.3.4.4 (PCS Receive automatic polarity detection)