

Ethernet-APL Test Guide

Test Type (Data or Power): Data

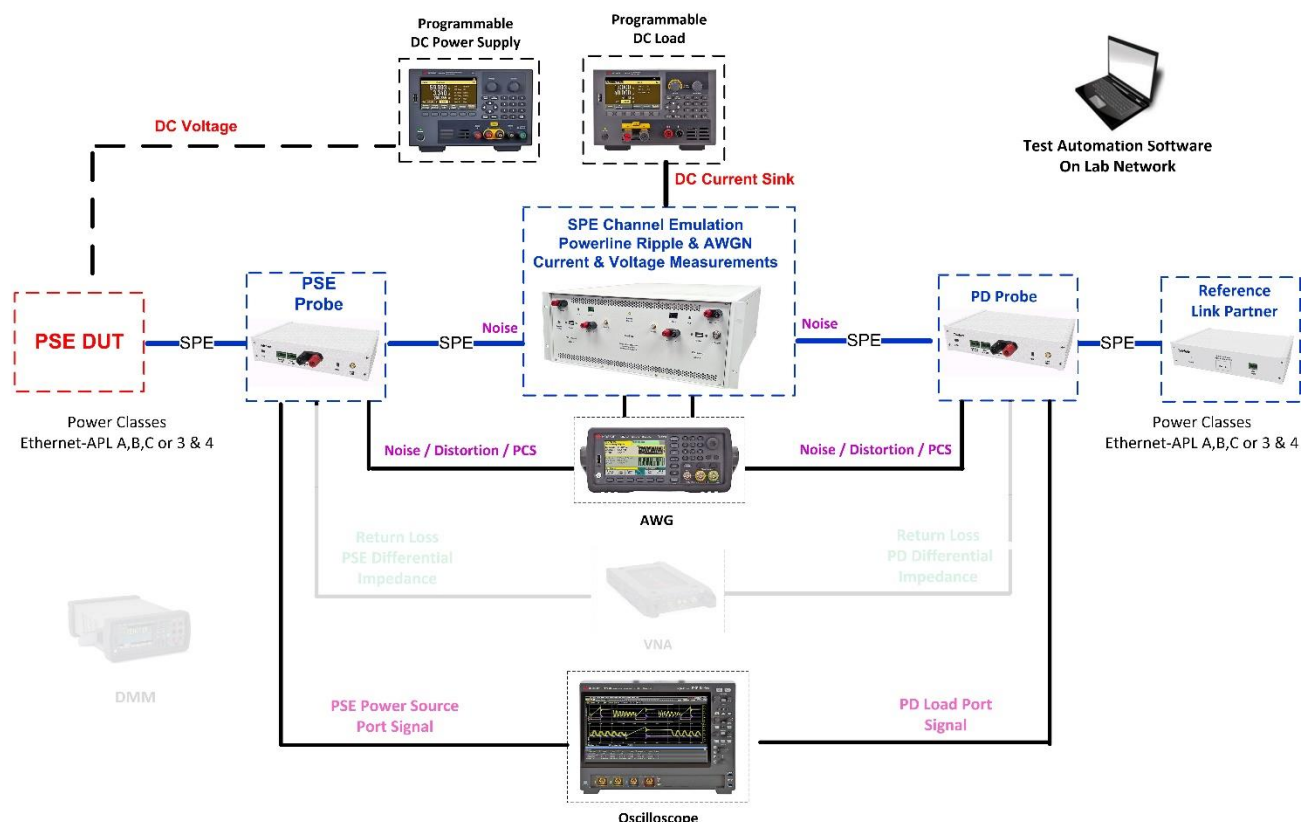
Test Name: 146.4.3 Handling of Received FCS Errors

Purpose/Description: To verify that the DUT properly sets disparity_error based on the values of Rxn-4 and rx_disparity, as observed by the handling of test packets.

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. AWG
7. Oscilloscope
8. Test Automation Software
9. Telebyte Model 4925 Link Partner

Test Setup / Connection Diagram (PSE):

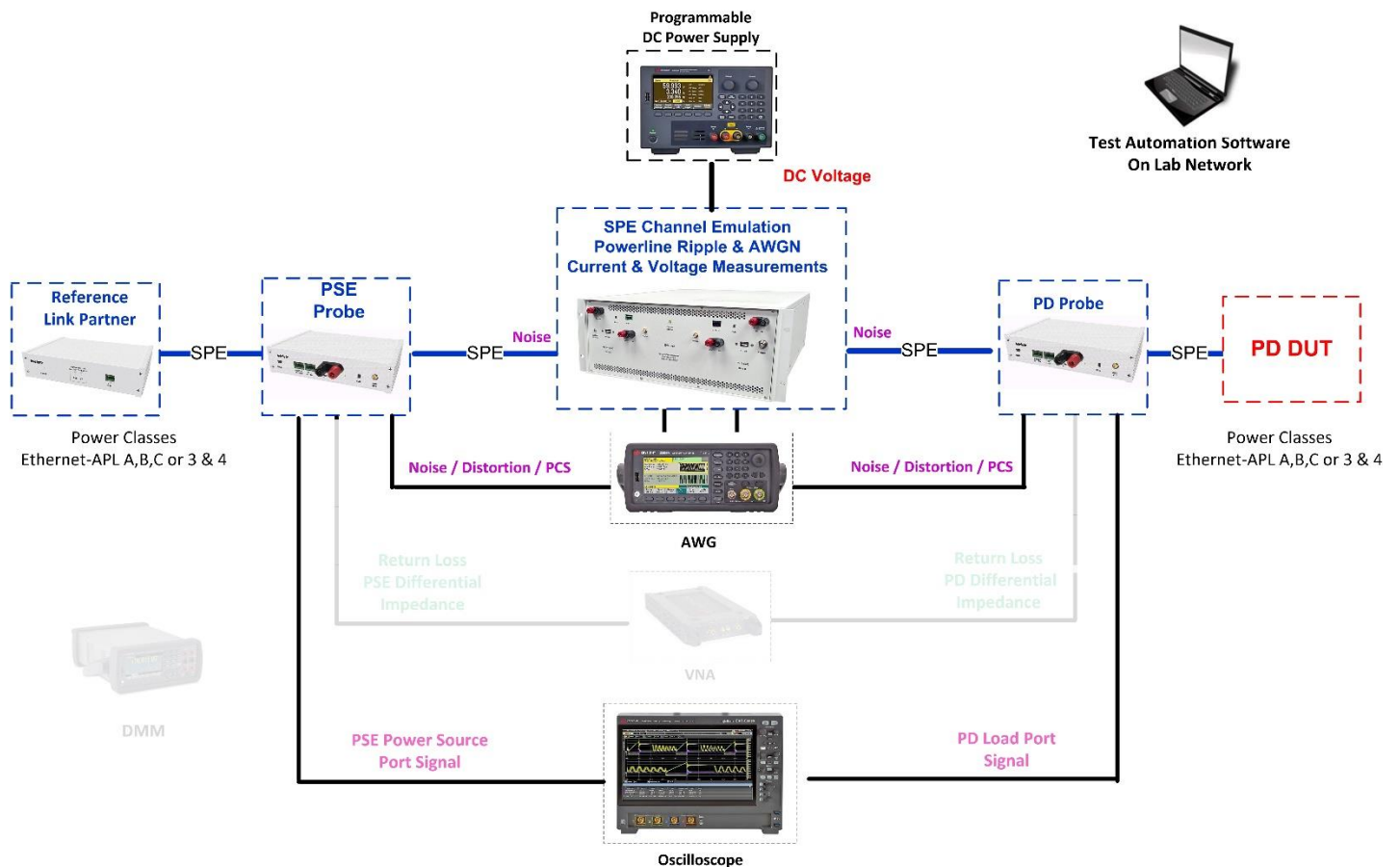


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Required Test Equipment for PD:

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. AWG
6. Oscilloscope
7. Test Automation Software
8. Telebyte Model 4925 Link Partner

Test Setup / Connection Diagram (PD):



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Device Under Test Setup:

- Part A: DUT as 10BASE-T1L SLAVE, Tx Enabled and disable auto-negotiation
- Set DUT's IP address is 192.168.1.107
- 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:3	PASS	The DUT properly discards packets received with ESD_ERR4 indicated. Receipt of valid packets is not impacted when received immediately before and after the invalid packet.
A:1	FAIL	The DUT does not link.
A:3	FAIL	Responses to the first ("A") and third ("C") Test Packet are not captured from the DUT. Responses to the first ("A") and third ("C") If the first and third (no ARP required) or second and fourth (ARP required) ICMP Echo Request sequence numbers sent by the test tool do not match the sequence numbers of the ICMP Echo Responses sent by the DUT this test is a FAIL.
A:3	FAIL	A response to the second Test Packet ("B") is captured from the DUT. If the second (no ARP required) or third (ARP required) ICMP Echo Request sequence number sent by the test tool matches the sequence number of any ICMP Echo Response sent by the DUT this test is a FAIL.

Notes:

References:

- [1] IEEE Std. 802.3cg-2019 subclause 146.3.4 – PCS Receive
- [2] IEEE Std. 802.3cg-2019 subclause 146.3.4.2 – PCS Receive symbol decoding
- [3] IEEE Std. 802.3cg-2019 Table 146-2 – Disparity reset
- [4] IEEE Std. 802.3cg-2019 Table 146-3 – Delimiters