

# Ethernet-APL Test Guide

**Test Type (Data or Power):** Power

**Test Name:** SL.2.4 Current Events

**Purpose/Description:** To verify that a Spur Power Load port properly regulates its usage of current steps and spikes during operational start up. Maximum Supply Voltage and Minimum Load Voltage.

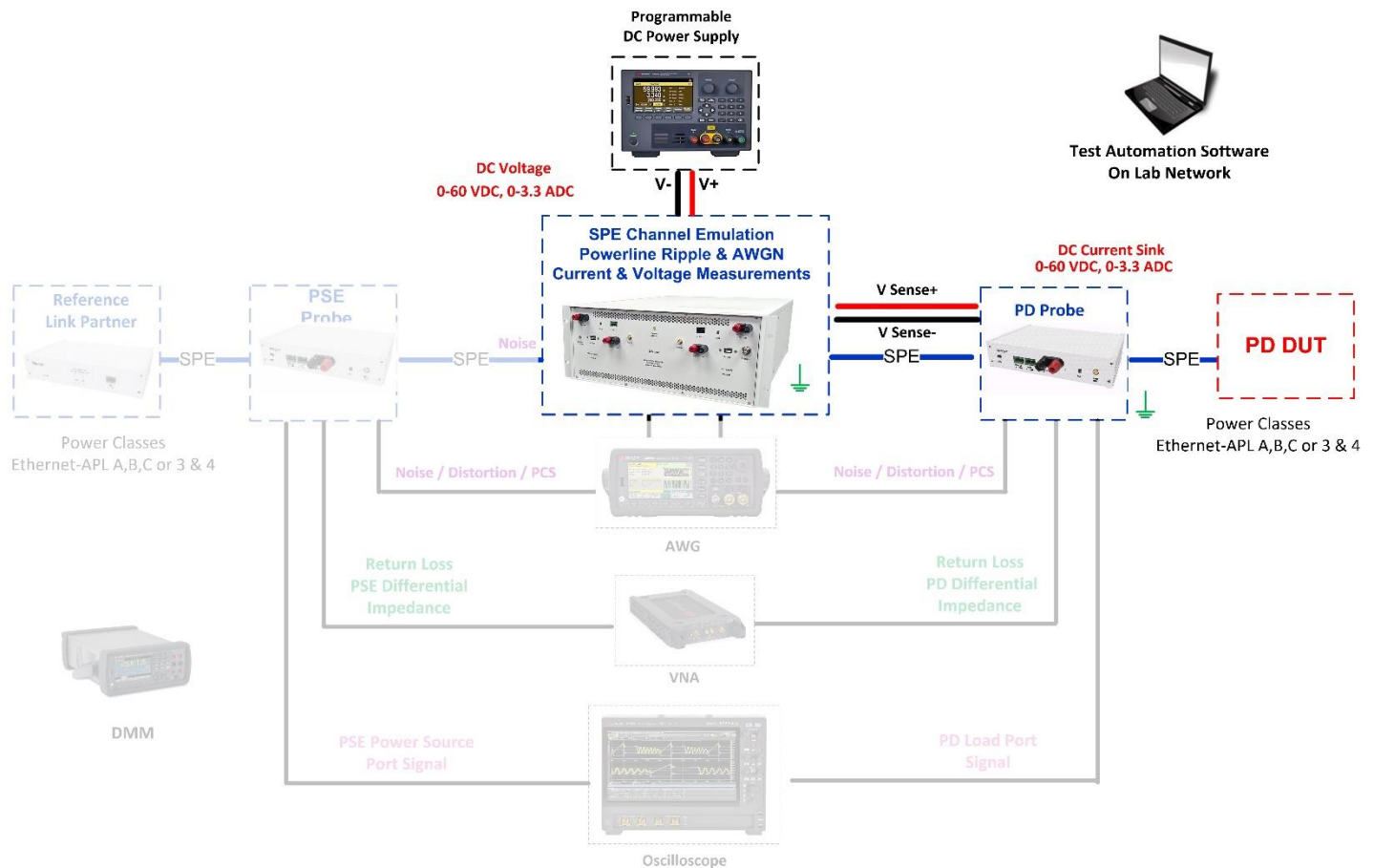
## Required Test Equipment:

1. PD Probe
2. 4950 Channel Emulator (for current and voltage measurements)
3. Programmable DC Power Supply (to power the PD Load DUT)
4. Test Automation Software

## Test Setup / Connection Diagram:



### Universal Test Setup for Combined PSE and PD Data & Power Conformance Testing Port Under Test PD



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## Device Under Test Setup:

- It is expected that all tests are performed with PHY communication abilities disabled. This is achieved by disabling Auto-Negotiation and setting the PHY to SLAVE mode. Regardless of the PHY state, each data line of the port under test shall be terminated with a 50 Ohm resistance behind a 1  $\mu$ F series capacitor in the Telebyte Probe.
- Enter the Power Class for the Device Under Test (Class A, B or C) into the test automation software.

## Expected Results (Pass/Fail Criteria):

Step	Status	Description
5,7	PASS	a. All current steps have a maximum magnitude of 50 mA; <b>and</b> b. All current spikes have a maximum charge of 20 $\mu$ C; <b>and</b> c. No current spike causes the current consumption of the port under test to exceed $I_{PS(MIN)}$ for the port power class; <b>and</b> d. There are no more than six current events in the first 1000 ms after applying port power; <b>and</b> e. There are no current events after the first 1000 ms after applying port power
5	FAIL	At least one current step has a magnitude greater than 50 mA
7	FAIL	At least one current spike has a charge greater than 20 $\mu$ C
5	FAIL	At least one current spike causes the current consumption of the port under test to exceed $I_{PS(MIN)}$ for the port power class
5	FAIL	There are more than six current events in the first 1000 ms after applying port power
5	FAIL	There is at least one current event that occurs after the first 1000 ms after applying port power

## Notes:

## References:

- [1] APL Port Profile 1.2 Section 5.4
- [2] Methods Annex – Sampling with Digital Multimeter
- [3] Methods Annex – Inrush Energy Definition and Calculation
- [4] Methods Annex – Disabling PHY
- [5] Methods Annex – Power Supply Voltage Sensing