

## Green Power over Ethernet Certification Testing Methodology Description

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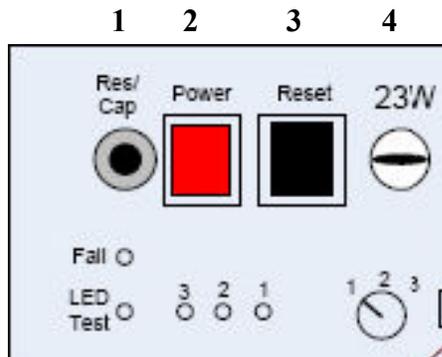
### Equipment

- a) P3 International P4320 KILL-A-WATT PS power meter
- b) PD-TE-0040 PoE Burn-in Tester
- c) PoE Switch/Midspan Under Test (DUT)

### An Introduction to the PD-TE-0040

- 1) The RES/CAP Switch allows the choice between Resistor detection and Capacitor detection of the items attached to the ports
- 2) The Power Switch turns the load on and off
- 3) The Reset Switch will reset the unit
- 4) The 23W Switch will put the unit in High Power mode allowing 23W per port
- 5) The Power selection switch allows the choice of:
  - 1 = 7W per port
  - 2 = 15W per port
  - 3 = 8W per port

\* The 23W switch combines settings 2 and 3



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### Testing Procedure

- 1) Plug the DUT (Device Under Test) into the KILL-A-Watt power meter. Set the meter to read Watts and PF
- 2) Record the No Load power usage and No Load Power Factor percentage once the Device has finished the turn on procedures, if any, or once the numbers have become stable. This may take a few seconds while the unit warms up. Calculate the No Load AC Power Consumption by dividing the Power at No Load by the PF% at No Load. The full power and half Power AC Power Consumption are calculated in a similar fashion



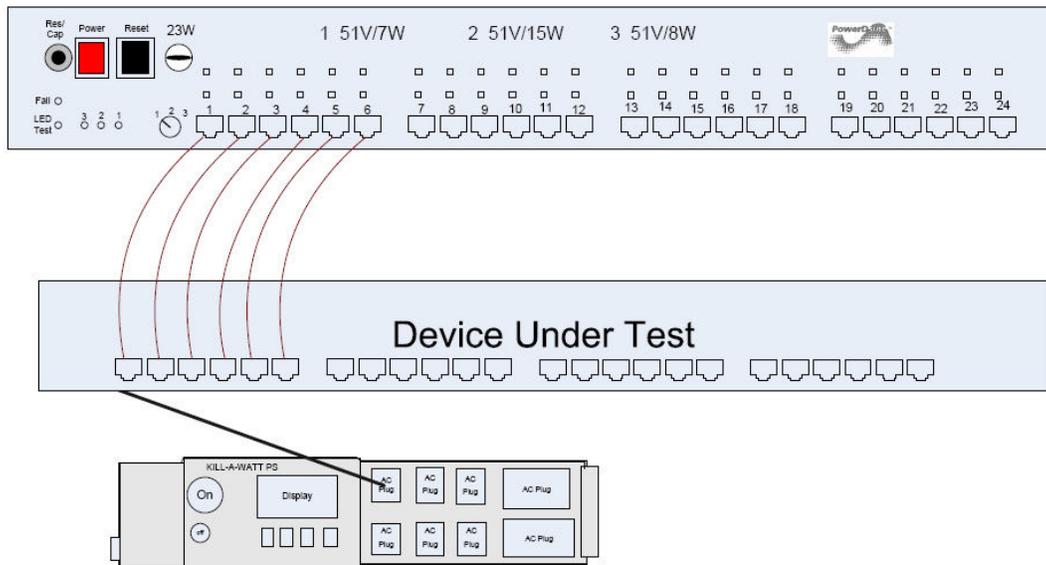
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- 3) Create a table, (See Table 1) to record the measured and calculated values for the DUT. Measure the Voltage and Current of one port while connected to the load at each Power Selection Switch setting then calculate the resistance and power used for that port. This information will be used for latter calculations.

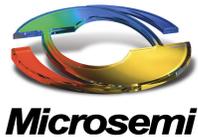
Table 1

HiPoE tester Load (PD-XXXX)				
Switch Position	1	2	3	HiPoE Switch ON (2+3)
Stated Watts/port	7	15	8	32
Measured Voltage	55.23	54.72	55.16	54.25
Measured current (A)	0.145	0.300	0.150	0.450
Calculated resistance	380.90	182.40	367.73	120.56
Calculated Power/Port	8.01	16.42	8.27	24.41

- 4) Set the position switch to the setting that gave the highest current reading and start to connect the DUT ports to the load box. See Below.



Continue connecting the DUT ports to the load until you either run out of ports or the DUT refuses to turn on any more ports. At this point record the wattage used and the



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PF% value. To calculate the Power to the load Multiply the Single port Wattage value from the table you created in step 3 by the number of ports needed to fully load the DUT. Remember to record all values.

- 5) To get the Half Power value, divide the full power value in half and change the Selector switch on the load to a setting that gets you close to, but not under the value you need. Then start to disconnect ports until you are at the needed value or one unplugged or one plugged in port value away.

Example: If you are testing a High PoE unit, such as that depicted in Table 1, The Selector switch would have been set to 2 and the HiPoE switch would have been in the UP position allowing 32W per port. You would have 24.41W per port and if it took 18 ports to fully load the DUT. That comes out to be about 440W. Half of that is 220W. To get the unit power down to this value turn off the 32W switch. The current on the Kill-A-Watt is now reading 250W. at this point you can remove one port connection and get down to 225W. removing one more port would bring you below the needed value. Record your readings.

- 6) The Full and Half Power Efficiency are calculated by Dividing the Max Power to Load by the Max AC Power Consumption