

<b>Report Number</b>	TRN-21840
<b>Customer</b>	Powerlite Lighting Solutions
<b>Contact</b>	Chris Thompson
<b>Product Type</b>	LED Street light
<b>Test Purpose</b>	UMS Energy Performance Test
<b>Sales Order Ref</b>	Q-LUX15-22692
<b>Works Order Number</b>	WO-12487
<b>Test Item Reference</b>	TI-15502
<b>LAB Test Method Reference</b>	TES-1012
<b>Test Standards</b>	LM-79-08 and AEMO Unmetered Load Guideline V1.0
<b>Lab Location Reference</b>	CF35 5AQ - Please note that 5 samples of each test item are required to carry out testing.
<b>Tested By</b>	Mike Sewell
<b>Date of Test</b>	07/08/2015
<b>Analysed by</b>	Gareth Jones
<b>Number of products tested</b>	4

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VI2S-56-2-DD-4K-60 @ 375mA

Date: 13/09/2018

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## Nomenclature

Lamp Orientation described below relates to the position in which a lamp is designed to operate for maximum performance and safety, these include:

BD - Base Down (bulb is vertically positioned with the metal base at the bottom, glass up)

BU - Base Up (bulb is vertically positioned with the metal base at the top, glass hanging down)

HBD - Horizontal +15° to Base Down

H45 - Horizontal to -45° only

VBU - Vertical Base Up  $\pm 15^\circ$

VBD - Vertical Base Down  $\pm 15^\circ$

HBU - Base Up +/- 90° (bulb can be operated in a base up or horizontal position)

HOR - Horizontal Burn (bulb is positioned with the metal base parallel to the ground)

H75 - Horizontal +/- 75° (bulb should not be operated within 15° of vertical)

U - Universal Burn (burn can be operated in any position)

## Test Equipment and Description

Yokogawa WT210 Power Analyzer. Kikusui PCR2000M Stable AC Power Supply with PC control and data recording



The products under test are connected to the UMS Test system which has full data control and recording using Labview software. This allows full integration of the Test equipment used - Kikusui AC Stable Power Supply, Yokogawa Power Analyser, Pico Temperature Logger and a LUX-TSI distribution control panel

<b>Product Name</b>	VI2S-56-2-DD-4K-60 @ 375mA
<b>Part/Serial Number</b>	See (Identifier) below
<b>Type of Product</b>	LED Street light
<b>Manufacturer</b>	Powerlite Lighting Solutions
<b>Date of Manufacturer</b>	2015
<b>Base Type</b>	N/A
<b>Driver Type</b>	Mains
<b>Driver Model</b>	LCA 60W 350-1050mA one4all C PRE OTD
<b>Light Engine Model</b>	LSP-PCB-146x45-12-A
<b>Operating Orientation</b>	Base Up
<b>Test Orientation</b>	Base Up
<b>Ambient Temperature</b>	24.9°C
<b>Humidity</b>	<65% RH
<b>Thermal Management</b>	Passive
<b>Dimmable</b>	Yes
<b>Product Summary</b>	The product is of a street lantern design with a Metal enclosure. The driver is situated within the enclosure and the Light engine fitted on underside of the product

Dimension	Sample	Luminous Opening
Diameter/Width	245 mm	200 mm
Length	600 mm	280 mm
Height/Depth	100 mm	0 mm

Test Item	Identifier
15502A	
15502B	
15502C	
15502D	

### Test Conditions

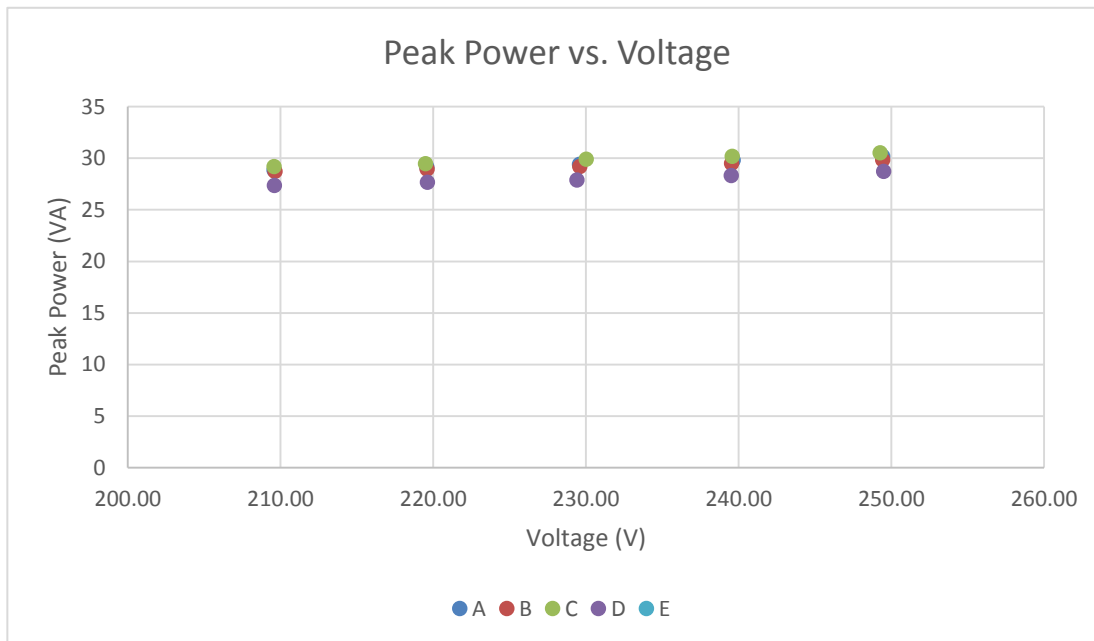
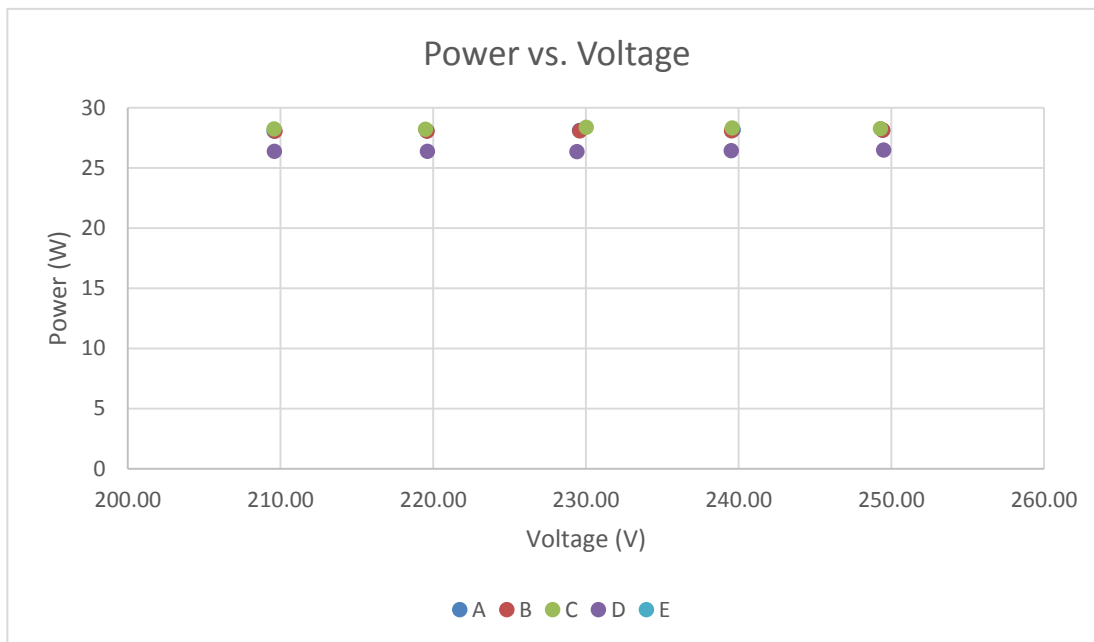
	Before Test	After Test
AC Supply Voltage (V)	250.08V	250.13V
AC Supply Frequency (Hz)	50Hz	50Hz
Voltage RMS Summation of the Harmonic Components (THD)	0.07%	0.08%

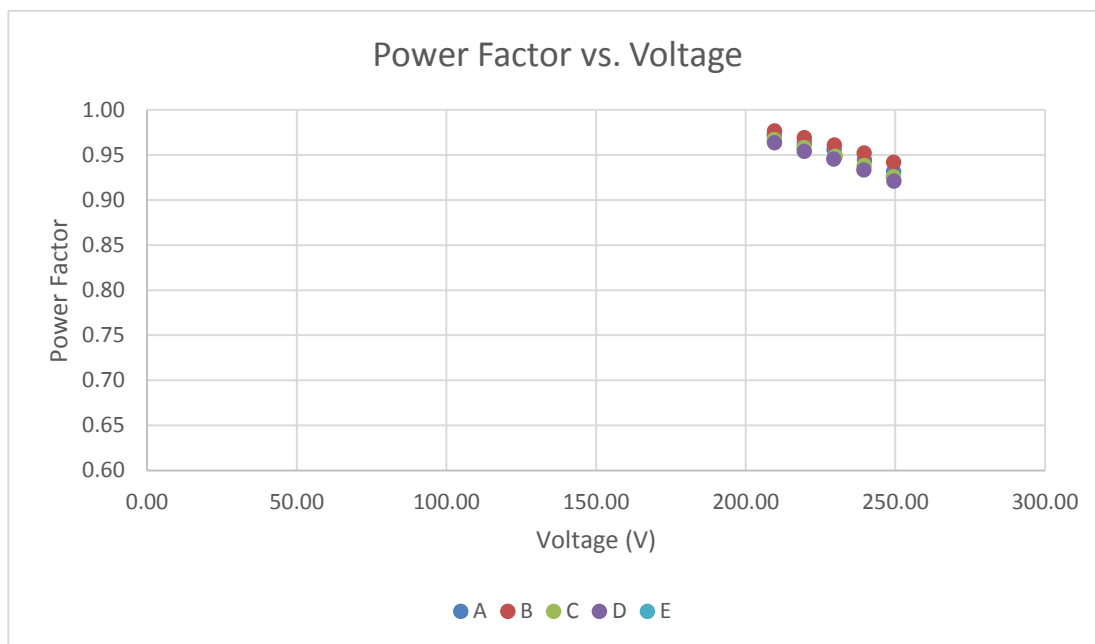
The test items were stabilised according to the electrical power stability of LM79-08. Stabilization is achieved when the difference in electrical power measurement is less than 0.5%. Each test item was stabilised at 250V.

Measurements were made with an ambient temperature of 23°C +/- 2°C. Measurements were taken only after sufficient time for thermal stabilisation has been allowed.

### Test Results Summary

These are the summary graphs of the test results for all products tested. The raw results are on page 6 of this test report.





Power factors measured have a Leading phase angle and therefore the driver has capacitive properties.

#### Measurement Uncertainty

Parameter	Uncertainty
Voltage (300 V, 50/60 Hz)	$\pm 0.061 \text{ V}_{\text{rms}}$
Current (200 mA, 50/60Hz)	$\pm 0.07 \text{ mA}_{\text{rms}}$
Current (0.5 A, 50/60Hz)	$\pm 0.16 \text{ mA}_{\text{rms}}$
Current (5 A, 50/60Hz)	$\pm 0.0016 \text{ A}_{\text{rms}}$
Power (300 V, 200 mA, 50/60 Hz)	$\pm 0.032 \text{ W}_{\text{rms}}$
Power (300 V, 0.5 A, 50/60 Hz)	$\pm 0.09 \text{ W}_{\text{rms}}$
Power (300 V, 5 A, 50/60 Hz)	$\pm 0.0009 \text{ kW}_{\text{rms}}$
Frequency (50/60 Hz)	$\pm 0.001 \text{ Hz}$
Power Factor	$\pm 0.0006 \text{ PF}$

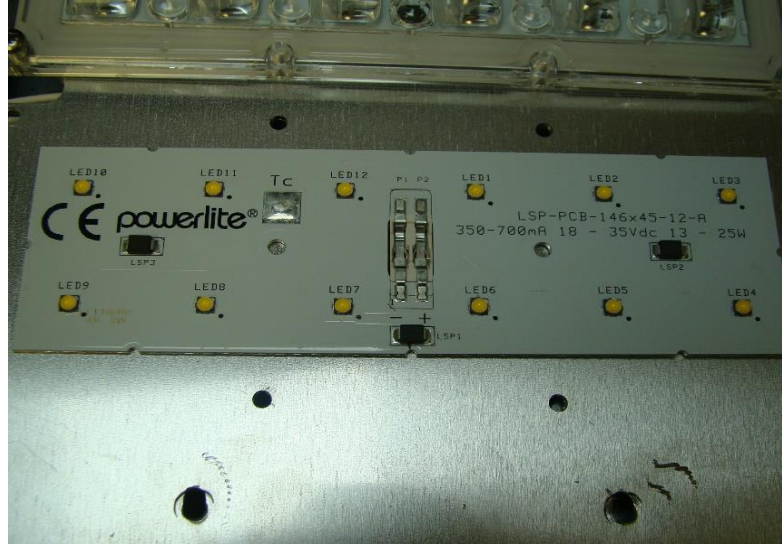
Measurements of power of 0.50W or greater are made with an uncertainty of less than or equal to 2% at the 95% confidence level. Measurements of power less than 0.50W are made with an uncertainty of less than or equal to 0.01W at the 95% confidence level.

### Full Test Results

Test Item	Voltage (V)	Current (mA)	Electrical Power (W)	Ambient Temp (°C)	Peak Power (VA)	Power Factor	Leading / Lagging
A	249.44	121.12	28.14	24.91	30.21	0.931	Leading
B	249.43	119.73	28.13	25.15	29.86	0.942	Leading
C	249.28	122.54	28.28	25.05	30.55	0.926	Leading
D	249.51	115.22	26.48	24.93	28.75	0.921	Leading
E	0.00	0.00	0.00	0.00	0.00	0.000	0
A	239.65	124.43	28.16	25.18	29.82	0.944	Leading
B	239.55	123.22	28.10	24.95	29.52	0.952	Leading
C	239.59	126.03	28.33	24.95	30.20	0.938	Leading
D	239.51	118.28	26.44	25.06	28.33	0.933	Leading
E	0.00	0.00	0.00	0.00	0.00	0.000	0
A	229.58	128.15	28.11	25.04	29.42	0.956	Leading
B	229.59	127.27	28.08	25.12	29.22	0.961	Leading
C	230.01	130.11	28.39	25.02	29.93	0.949	Leading
D	229.42	121.55	26.37	25.16	27.89	0.946	Leading
E	0.00	0.00	0.00	0.00	0.00	0.000	0
A	219.58	132.90	28.10	25.47	29.18	0.963	Leading
B	219.60	131.93	28.07	25.16	28.97	0.969	Leading
C	219.50	134.24	28.23	25.20	29.47	0.958	Leading
D	219.61	126.00	26.39	25.15	27.67	0.954	Leading
E	0.00	0.00	0.00	0.00	0.00	0.000	0
A	209.58	137.72	28.06	25.08	28.86	0.972	Leading
B	209.64	137.03	28.05	25.00	28.73	0.976	Leading
C	209.58	139.35	28.24	25.01	29.20	0.967	Leading
D	209.59	130.63	26.38	25.06	27.38	0.963	Leading
E	0.00	0.00	0.00	0.00	0.00	0.000	0

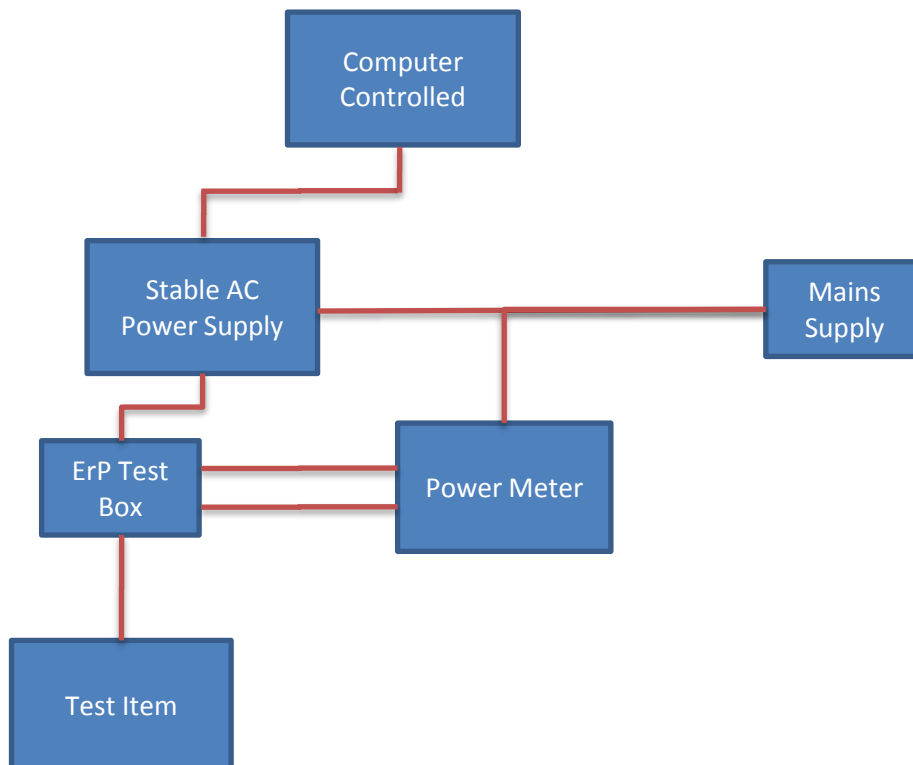








### Appendix 1: Test item set-up



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