Report Number	TRN-17615
Customer	LED Roadway Lighting Ltd.
Contact	Huw Convery
Product Type	Street Light
Test Purpose	UMS Energy Performance Test
Sales Order Ref	Q-LUX16-20981
Works Order Number	WO-8262
Test Item Reference	TI-12271
LAB Test Method Reference	TES-20012
Test Standards	LM-79-08 and Elexon UMS Charge Code process V4.0
Lab Location Reference	LUX-TSI - Safety Laboratory
Tested By	Steve Hunt
Date of Test	22 September 2016
Analysed by	Steve Hunt
Number of products tested	5

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Date: 22 September 2016

NXT-LITE Series. Model: L-016S

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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 +15º to Base Down
H45 - Horizontal to -45º only
VBU - Vertical Base Up ±15º
VBD - Vertical Base Down ±15º
HBU - Base Up +/- 90º (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 +/- 75º (bulb should not be operated within 15º of vertical)
U - Universal Burn (burn can be operated in any position)

Test Equipment and Description

Yokogawa WT210 Power Analyser. 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

Product Name	NXT-LITE Series. Model: L-016S
Part/Serial Number	See (Identifier) below
Type of Product	Street Light
Manufacturer	LED Roadway Lighting
Date of Manufacturer	2016
Base Type	N/A
Driver Type	Mains
Driver Model	Osram Optotronic OT 50/120-277/1A2 2DIML T2 P
Light Engine Model	LRL TS-N240-16-2ES-02-LF
Operating Orientation	Base Up
Test Orientation	Base Up
Ambient Temperature	24.6°C
Humidity	<65% RH
Thermal Management	Passive
Dimmable	Yes
Product Summary	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	205 mm	90 mm
Length	325 mm	90 mm
Height/Depth	155 mm	0 mm

Test Item	Identifier
12271A	A163405870W039
12271B	A163410142W039
12271C	A163405874W039
12271D	A163405869W039
12271E	A163405872W039

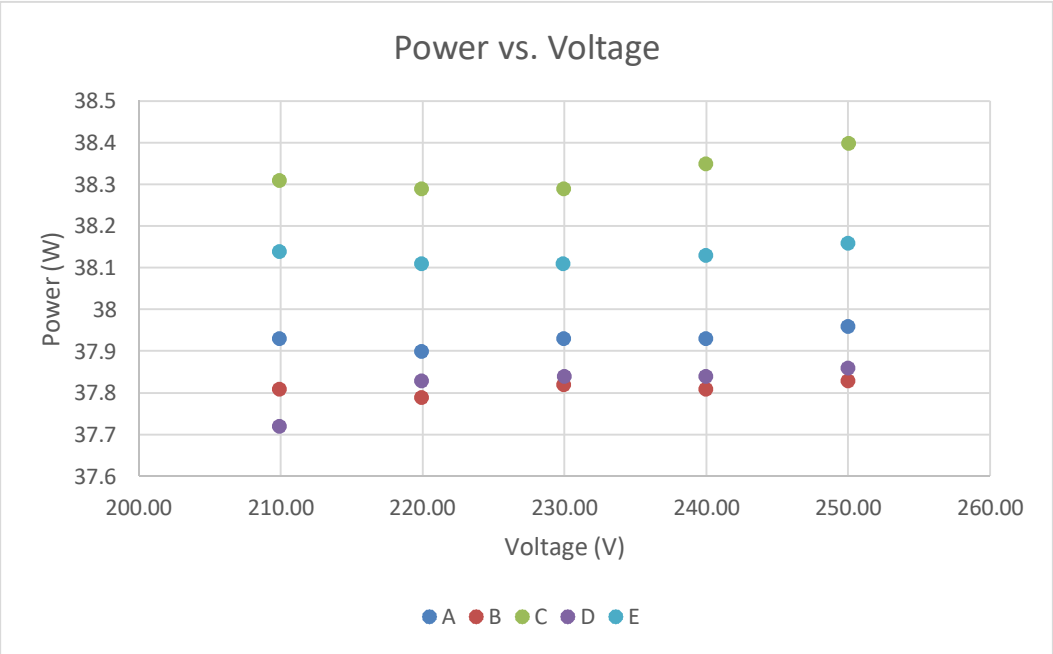
Test Conditions

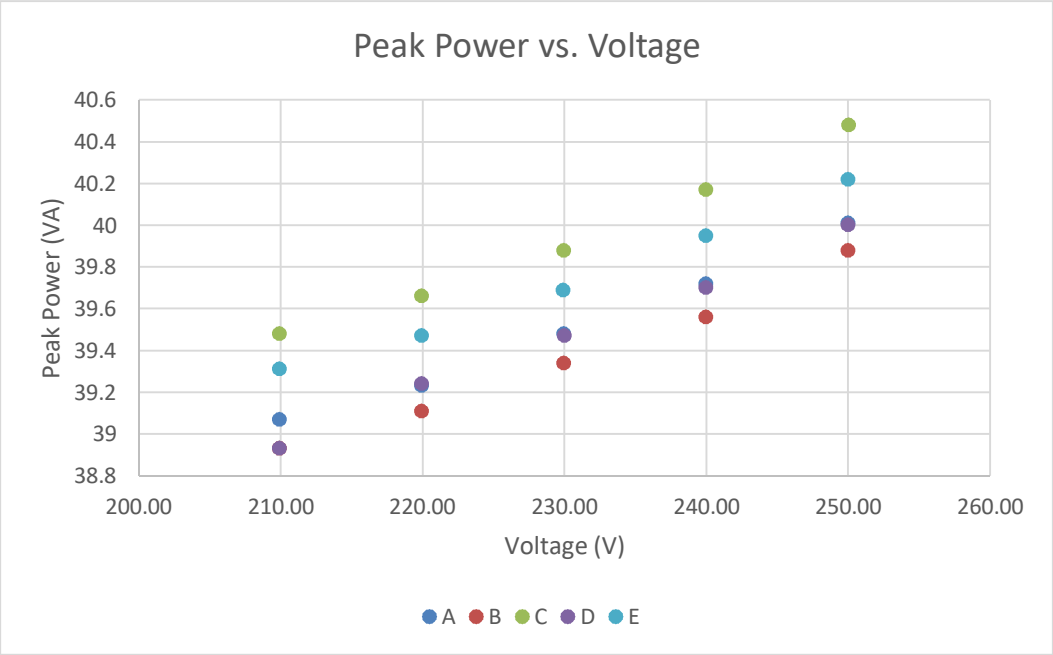
	Before Test	After Test
AC Supply Voltage (V)	249.99V	250.04V
AC Supply Frequency (Hz)	50Hz	50Hz
Voltage RMS Summation of the Harmonic Components (THD)	0.11%	0.07%

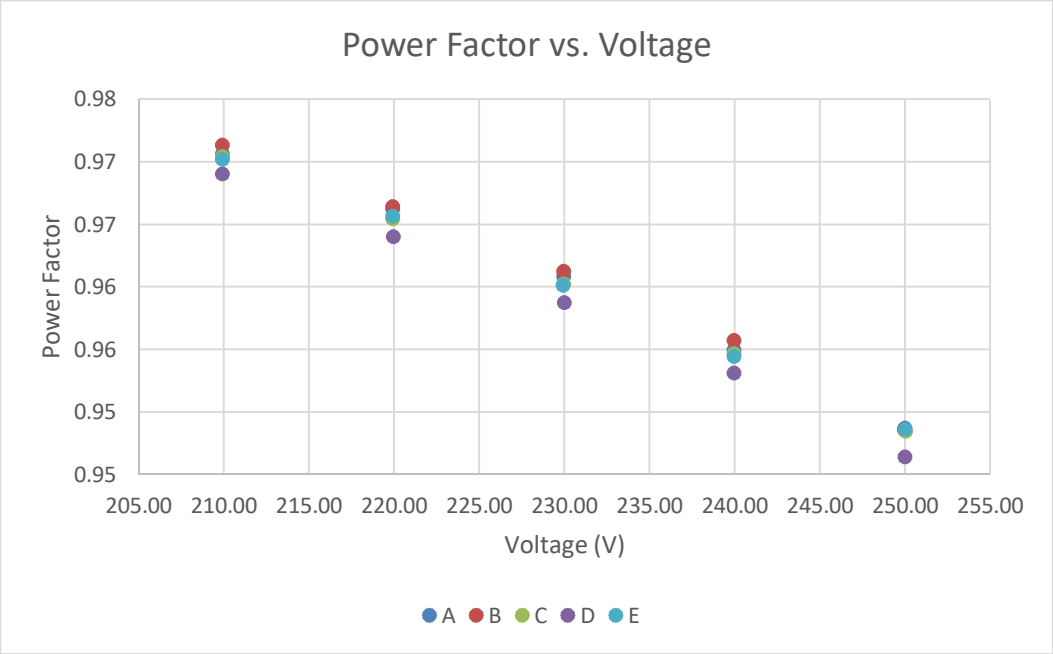
The test items were stabilised according to the electrical power stability of LM79-08. Stabilization is achieved when the difference in electrical power measurement is less than 0.5%. Each test item was stabilised at 250V.
Measurements were made with an ambient temperature of 23°C +/- 2°C. Measurements 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)	± 0.061 V_{rms}
Current (200 mA, 50/60Hz)	± 0.07 mA_{rms}
Current (0.5 A, 50/60Hz)	± 0.16 mA_{rms}
Current (5 A, 50/60Hz)	± 0.0016 A_{rms}
Power (300 V, 200 mA, 50/60 Hz)	± 0.032 W_{rms}
Power (300 V, 0.5 A, 50/60 Hz)	± 0.09 W_{rms}
Power (300 V, 5 A, 50/60 Hz)	± 0.0009 kW_{rms}
Frequency (50/60 Hz)	± 0.001 Hz
Power Factor	± 0.0006 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.

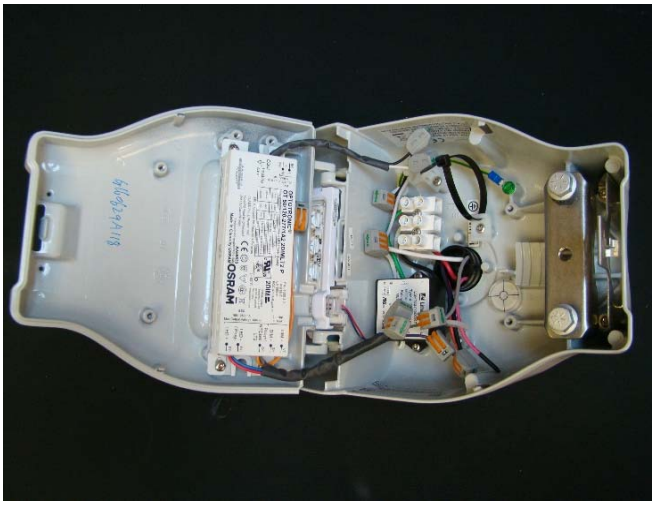
Full Test Results

Test Item	Voltage (V)	Current (mA)	Electrical Power (W)	Ambient Temp (°C)	Peak Power (VA)	Power Factor	Leading / Lagging
A	250.01	160.05	37.96	24.61	40.01	0.949	Leading
B	249.99	159.53	37.83	24.42	39.88	0.949	Leading
C	250.05	161.90	38.40	24.40	40.48	0.948	Leading
D	250.01	159.99	37.86	24.69	40.00	0.946	Leading
E	250.00	160.89	38.16	24.45	40.22	0.949	Leading
A	239.99	165.51	37.93	24.46	39.72	0.955	Leading
B	239.99	164.84	37.81	24.59	39.56	0.956	Leading
C	239.98	167.39	38.35	24.64	40.17	0.955	Leading
D	239.99	165.42	37.84	24.49	39.70	0.953	Leading
E	239.99	166.47	38.13	24.54	39.95	0.954	Leading
A	229.97	171.66	37.93	24.62	39.48	0.961	Leading
B	229.96	171.09	37.82	24.36	39.34	0.961	Leading
C	229.96	173.41	38.29	24.71	39.88	0.960	Leading
D	230.01	171.60	37.84	24.59	39.47	0.959	Leading
E	229.94	172.61	38.11	24.39	39.69	0.960	Leading
A	219.95	178.34	37.90	24.20	39.23	0.966	Leading
B	219.95	177.79	37.79	24.44	39.11	0.966	Leading
C	219.94	180.32	38.29	24.37	39.66	0.965	Leading
D	219.96	178.39	37.83	24.48	39.24	0.964	Leading
E	219.94	179.47	38.11	24.37	39.47	0.966	Leading
A	209.95	186.12	37.93	24.37	39.07	0.971	Leading
B	209.93	185.43	37.81	24.46	38.93	0.971	Leading
C	209.94	188.06	38.31	24.48	39.48	0.970	Leading
D	209.93	185.45	37.72	24.20	38.93	0.969	Leading
E	209.94	187.23	38.14	24.17	39.31	0.970	Leading

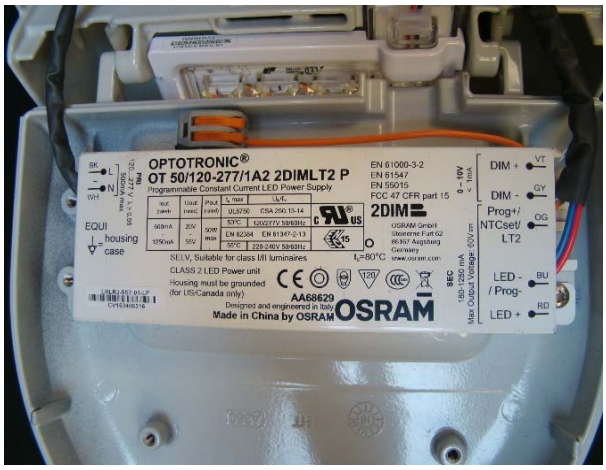
Test Item Photographs

TI-12271

Images of Product(s) under test includes (where possible) labelling, Driver and Light engine details



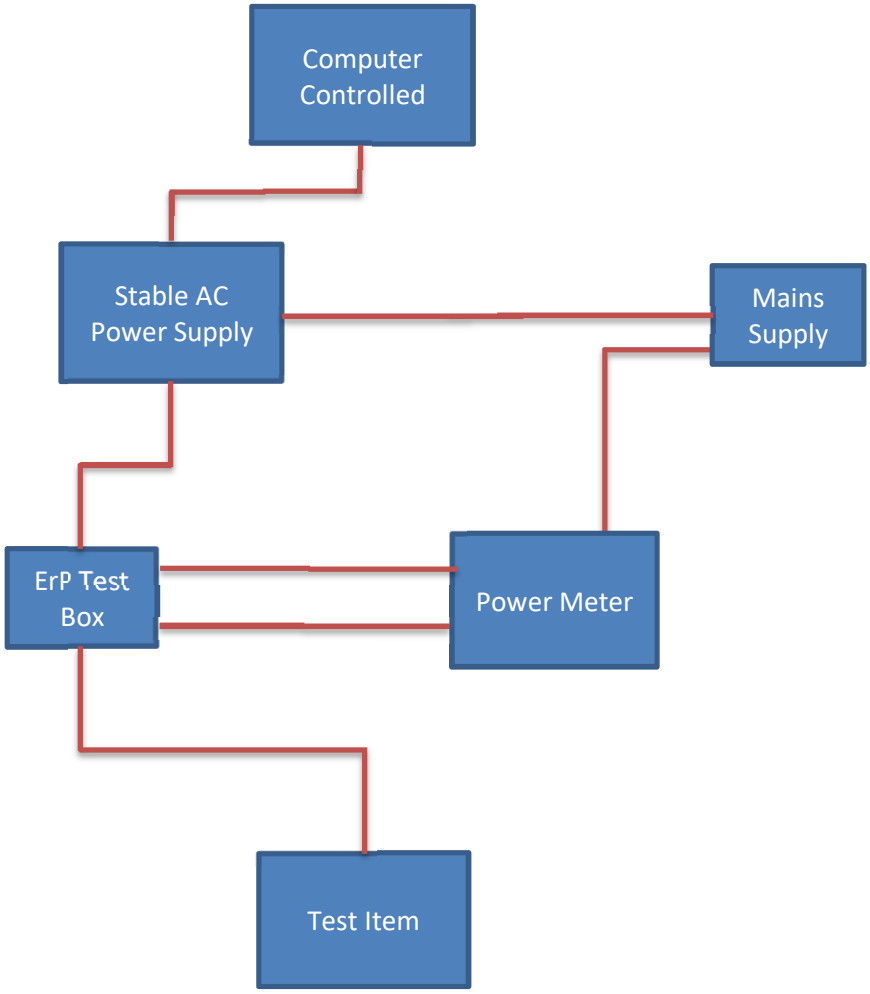
Internal construction



Driver in Situ

Light Engine

Appendix 1: Test item set-up



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