

Report Number	TRN-14090
Customer	ASD lighting
Contact	John Ryder
Product Type	Street Light
Test Purpose	UMS Energy Performance Test
Sales Order Ref	Q-LUX2014-2116
Works Order Number	WO-4247
Test Item Reference	TI-3698
LAB Test Method Reference	TES-2012
Test Standards	LM-79-08 and UMS charge code process v4.0
Lab Location Reference	LUX-EPC
Tested by	Steve Hunt
Date of Test	15/08/2014
Analysed by	Steve Hunt
Number of products tested	5

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ASD Streetlight - 12 LED

Date: 18/08/2014

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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 Conditions

Measurements were made with an ambient temperature of 25°C +/- 1°C. Measurements were taken only after sufficient time for thermal stabilisation has been allowed.

Test Equipment

Yokogawa WT210 Power Analyzer. Kikusui PCR2000M Stable AC Power Supply

with PC control and data recording



Full data control and recording
using Labview software and full
integration of the AC Stable Power
Supply and Power Analyser

Product Name	ASD Streetlight - 12 LED
Part/Serial Number	See (Identifier) below
Type of Product	Street Light
Base Type	N/A
Driver Type	Mains
Driver Model	Meso RMLD-500A-P-AA
Light Engine Model	PO-02-14 Rev.1 PCB 049
Operating Orientation	Base Up
Test Orientation	Base Up
Ambient Temperature	24.0°C
Manufacturer	ASD lighting
Date of Manufacturer	2014
Thermal Management	Passive
Dimmable	Yes
Humidity	<65% RH

Dimension	Sample	Luminous Opening
Diameter/Width	386 mm	298 mm
Length	730 mm	356 mm
Height/Depth	100 mm	18 mm

Test Item	Identifier
TI-3698A	1
TI-3698B	2
TI-3698C	3
TI-3698D	4
TI-3698E	5

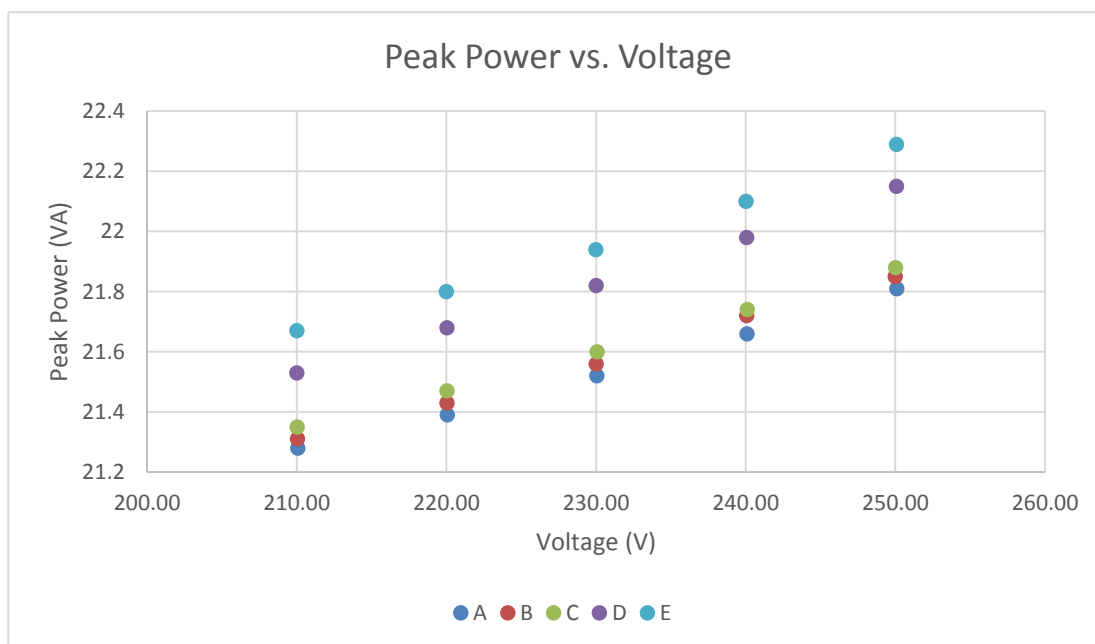
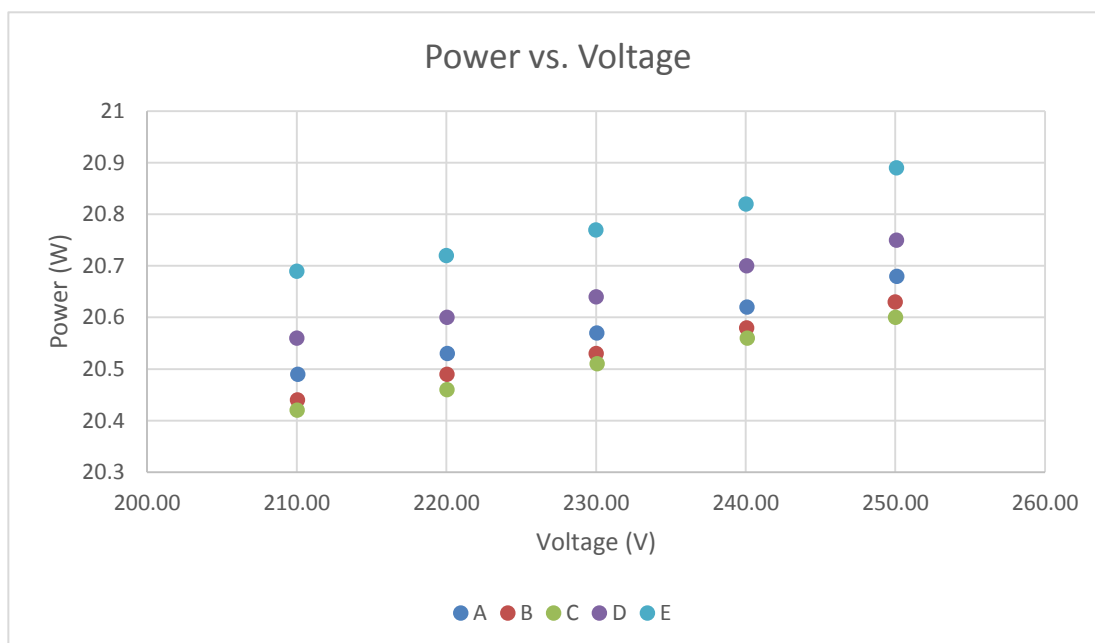
Test Conditions

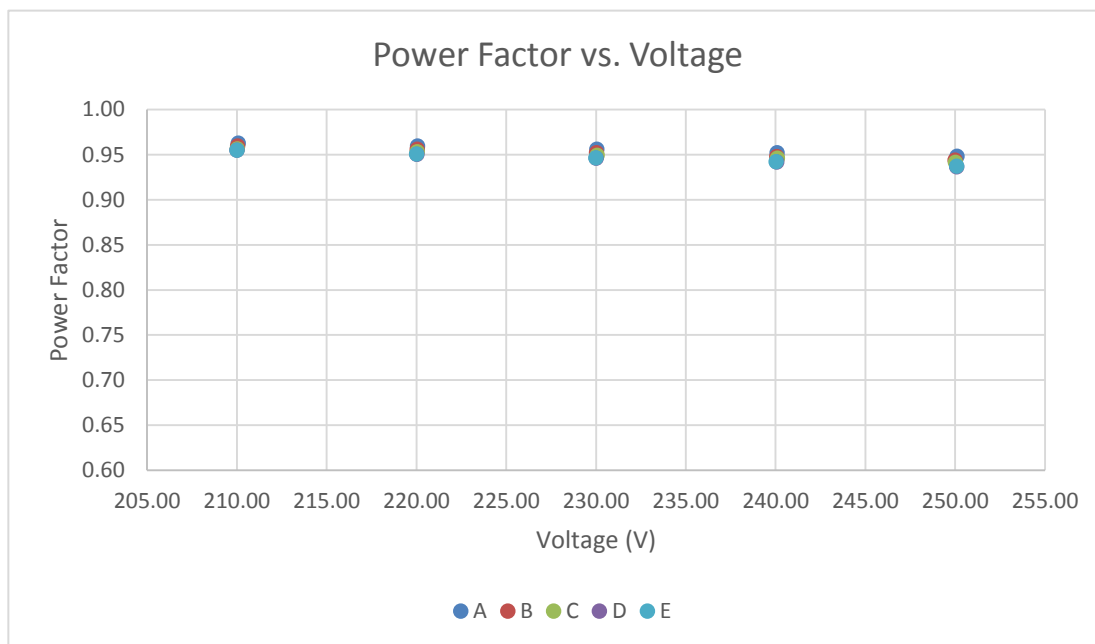
	Before Test	After Test
AC Supply Voltage (V)	249.95V	250.06V
AC Supply Frequency (Hz)	50Hz	50Hz
Voltage RMS Summation of the Harmonic Components (THD)	0.07%	0.09%

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.

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.





All 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	250.10	87.22	20.68	24.04	21.81	0.948	Leading
B	249.99	87.41	20.63	24.13	21.85	0.944	Leading
C	250.02	87.52	20.60	24.10	21.88	0.942	Leading
D	250.08	88.59	20.75	24.20	22.15	0.937	Leading
E	250.08	89.12	20.89	24.05	22.29	0.937	Leading
A	240.08	90.22	20.62	24.06	21.66	0.952	Leading
B	240.06	90.48	20.58	24.07	21.72	0.948	Leading
C	240.10	90.55	20.56	24.30	21.74	0.946	Leading
D	240.07	91.54	20.70	24.27	21.98	0.942	Leading
E	240.02	92.08	20.82	24.36	22.10	0.942	Leading
A	230.05	93.54	20.57	24.91	21.52	0.956	Leading
B	230.02	93.75	20.53	24.70	21.56	0.952	Leading
C	230.07	93.90	20.51	25.03	21.60	0.949	Leading
D	230.01	94.85	20.64	25.34	21.82	0.946	Leading
E	229.99	95.40	20.77	25.00	21.94	0.947	Leading
A	220.06	97.20	20.53	24.78	21.39	0.960	Leading
B	220.04	97.38	20.49	24.74	21.43	0.956	Leading
C	220.04	97.57	20.46	24.80	21.47	0.953	Leading
D	220.03	98.52	20.60	24.77	21.68	0.950	Leading
E	220.00	99.07	20.72	24.77	21.80	0.951	Leading
A	210.08	101.31	20.49	24.82	21.28	0.963	Leading
B	210.04	101.44	20.44	24.87	21.31	0.960	Leading
C	210.02	101.67	20.42	24.76	21.35	0.956	Leading
D	210.01	102.53	20.56	24.68	21.53	0.955	Leading
E	210.01	103.17	20.69	24.86	21.67	0.955	Leading

Test Item Photographs

Product Details



(Driver fixture and LED module)

TI-3698A



TI-3698B



TI-3698C



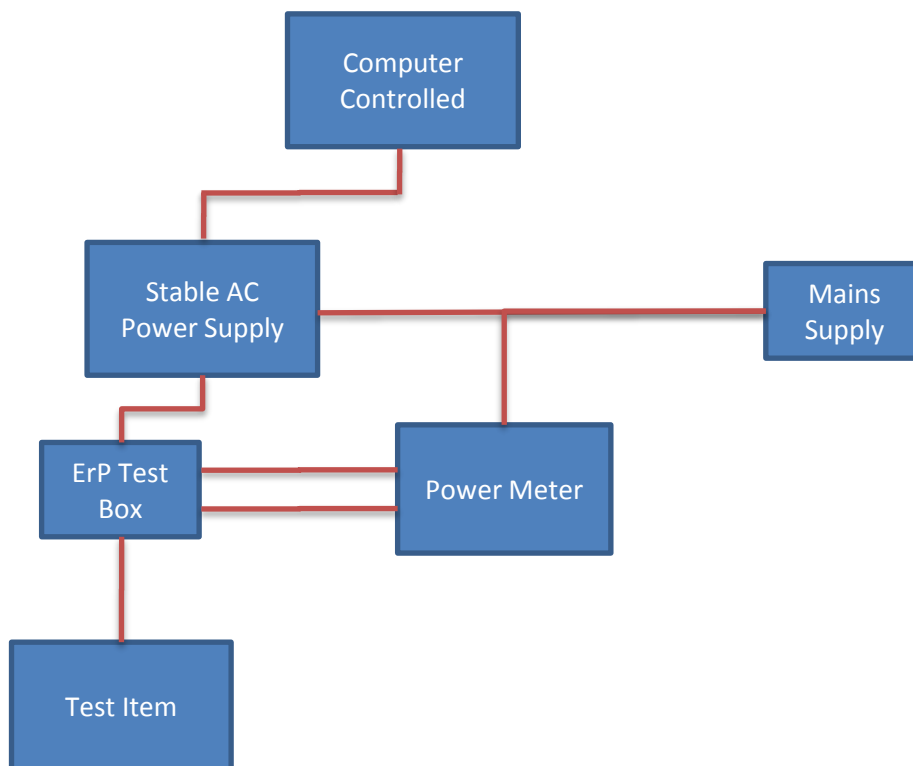
TI-3698D



TI-3698E



Appendix 1: Test item set-up



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