

Report Number	TRN-13998
Customer	LED Roadway Lighting
Contact	Huw Convery
Product Type	Street Light
Test Purpose	UMS Energy Performance Test
Sales Order Ref	Q-LUX2014-2081
Works Order Number	WO-4153
Test Item Reference	TI-3590
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	20/08/2014
Analysed by	Steve Hunt
Number of products tested	5

Address: LUX-TSI Ltd.,
Pencoed Technology Park,
Pencoed, Bridgend,
CF35 5HZ, UK
Telephone: +44 (0) 1656 864618
Authorised by: David Chan
Email: dchan@lux-tsi.com
Signed: 



NXT-60 - 99W 75% with CLO - Start of Life

Date: 21/08/2014

Disclaimers

This report is for the exclusive use of LUX-TSI's Customer and is provided pursuant to the agreement between LUX-TSI and its Customer. LUX-TSI's responsibility and reliability are limited to the Terms and Conditions of the agreement. LUX-TSI assumes no liability to any other party, other than the Customer in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Customer is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the LUX-TSI name or one of its marks for the sale or advertisement of the tested material, product or service must be approved in writing by LUX-TSI.

The observations and test results in this report are relevant only to the sample tested. Opinions expressed and data supplied in this report, are given in good faith, and are based on the information provided by the Customer. This report does not remove the requirement for the Customer to obtain further independent advice and in particular to instruct a notified or competent body or person to carry out further evaluation work and/or testing. Accordingly, no warranty is given, nor is any term or condition to be implied, that the product, which is the subject of this report, complies with the requirements of any EU directives.

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

VBV - Vertical Base Up ±15°

VBD - Vertical Base Down ±15°

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	NXT-60 - 99W 75% with CLO - Start of Life
Part/Serial Number	See (Identifier) below
Type of Product	Street Light
Base Type	N/A
Driver Type	Mains
Driver Model	LRL66014-SUB-NXTS-525-LF
Light Engine Model	LRLP-H3-24-07-2ESR02-LF / LRLP-H3-36-07-2ESR02-LF
Operating Orientation	Base Up
Test Orientation	Base Up
Ambient Temperature	24.5°C
Manufacturer	LED Roadway Lighting
Date of Manufacturer	2014
Thermal Management	Passive
Dimmable	Yes
Humidity	<65% RH

Dimension	Sample	Luminous Opening
Diameter/Width	300 mm	198 mm
Length	750 mm	372 mm
Height/Depth	135 mm	0 mm

Test Item	Identifier
TI-3590A	A141001038
TI-3590B	A141001037
TI-3590C	A141001036
TI-3590D	A141001040
TI-3590E	A141001039

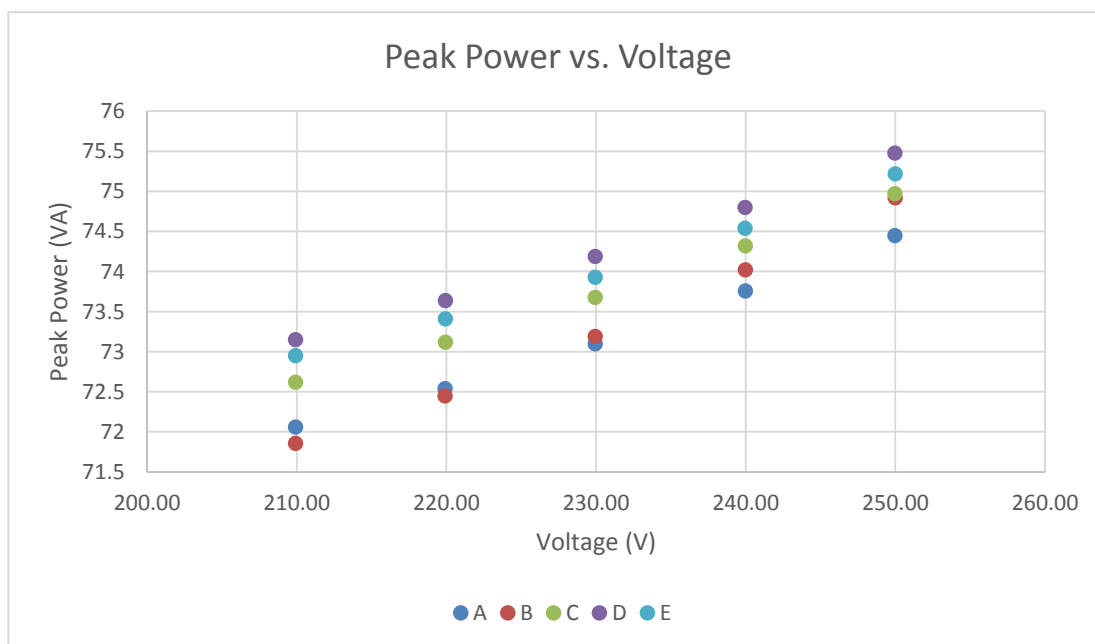
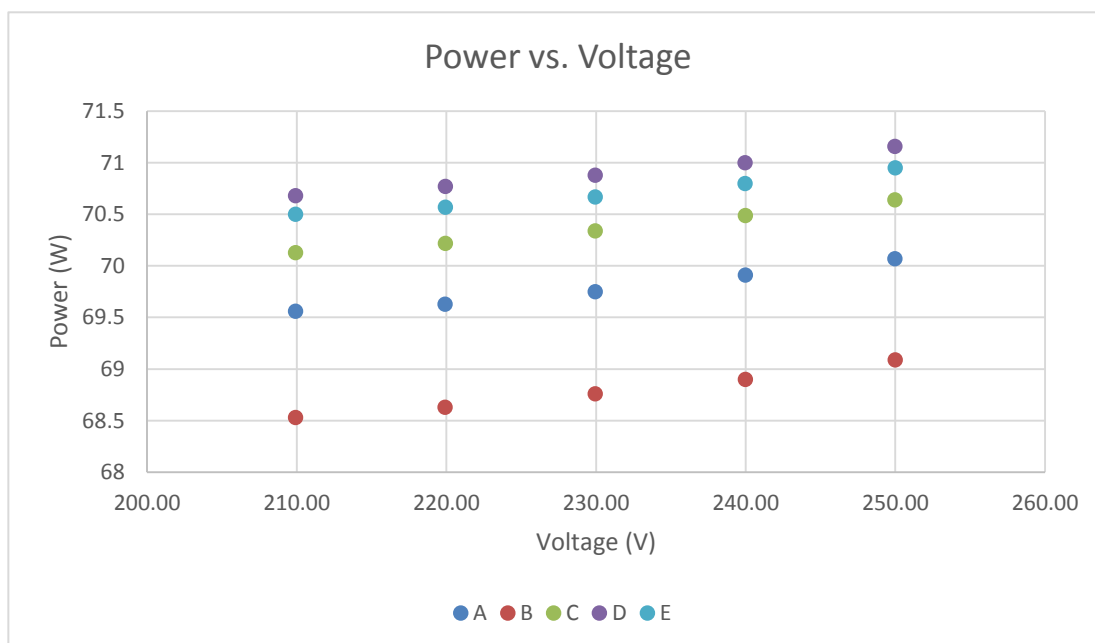
Test Conditions

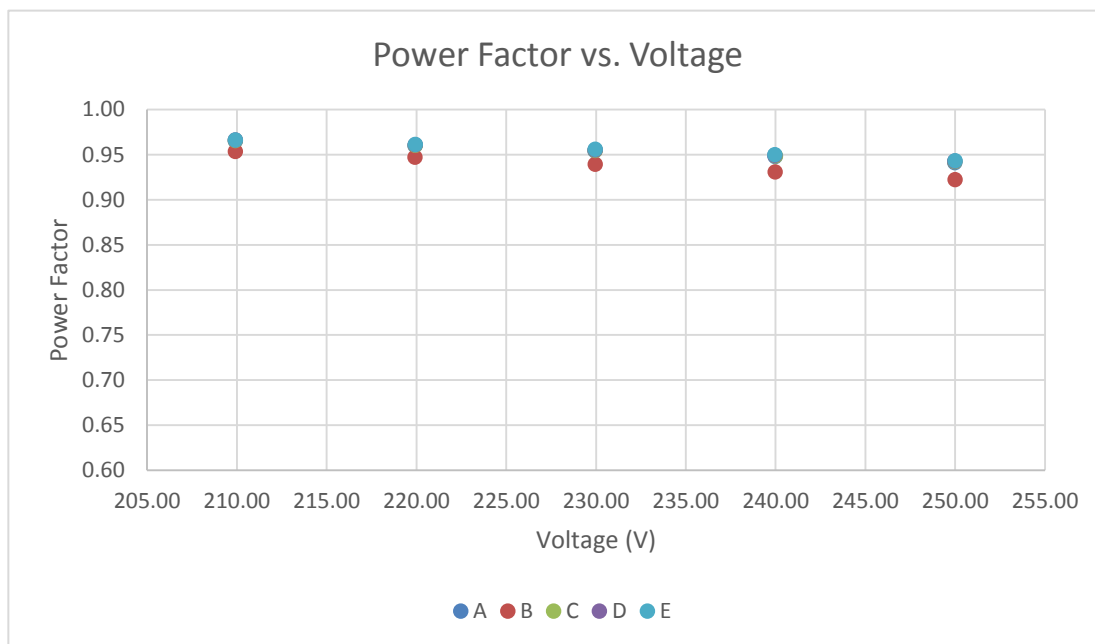
	Before Test	After Test
AC Supply Voltage (V)	249.96V	250V
AC Supply Frequency (Hz)	50Hz	50Hz
Voltage RMS Summation of the Harmonic Components (THD)	0.08%	0.07%

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.

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	$\pm 0.0006 \text{ PF}$

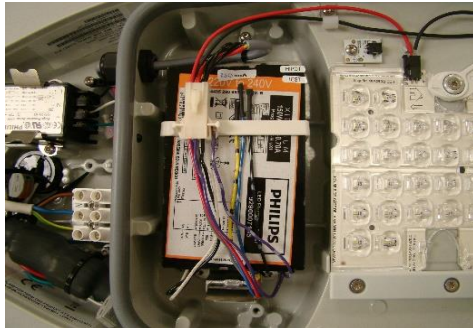
Measurements of power of 0.50W or greater are made with an uncertainty of less than or equal to 2% at the 95% confidence level. Measurements of power less than 0.50W are made with an uncertainty of less than or equal to 0.01W at the 95% confidence level.

Full Test Results

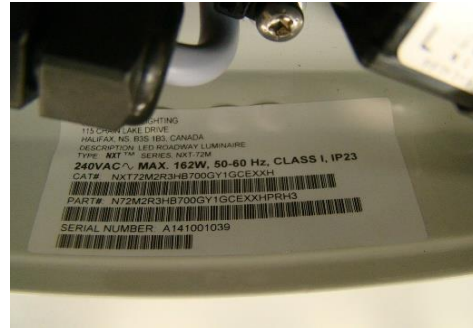
Test Item	Voltage (V)	Current (mA)	Electrical Power (W)	Ambient Temp (°C)	Peak Power (VA)	Power Factor	Leading / Lagging
A	249.98	297.84	70.07	24.46	74.45	0.941	Leading
B	249.99	299.69	69.09	24.48	74.92	0.922	Leading
C	249.98	299.91	70.64	24.53	74.97	0.942	Leading
D	249.98	301.90	71.16	24.63	75.48	0.943	Leading
E	250.00	300.90	70.95	24.64	75.22	0.943	Leading
A	239.98	307.40	69.91	24.74	73.76	0.948	Leading
B	239.97	308.50	68.90	24.70	74.02	0.931	Leading
C	239.99	309.70	70.49	24.65	74.32	0.948	Leading
D	239.96	311.70	71.00	24.59	74.80	0.949	Leading
E	239.96	310.60	70.80	24.59	74.54	0.950	Leading
A	229.94	317.90	69.75	24.66	73.10	0.954	Leading
B	229.95	318.30	68.76	24.53	73.19	0.939	Leading
C	229.95	320.40	70.34	24.50	73.68	0.955	Leading
D	229.95	322.60	70.88	24.55	74.19	0.955	Leading
E	229.95	321.50	70.67	24.50	73.93	0.956	Leading
A	219.92	329.80	69.63	24.49	72.54	0.960	Leading
B	219.92	329.50	68.63	24.36	72.45	0.947	Leading
C	219.94	332.50	70.22	24.38	73.12	0.960	Leading
D	219.94	334.80	70.77	24.42	73.64	0.961	Leading
E	219.93	333.80	70.57	24.42	73.41	0.961	Leading
A	209.92	343.30	69.56	24.39	72.06	0.965	Leading
B	209.92	342.30	68.53	24.47	71.86	0.954	Leading
C	209.92	345.90	70.13	24.47	72.62	0.966	Leading
D	209.92	348.50	70.68	24.51	73.15	0.966	Leading
E	209.92	347.50	70.50	24.55	72.95	0.966	Leading

Test Item Photographs

Product Details



(Driver and LED Module)



(Label fixture)

TI-3590A



TI-3590B



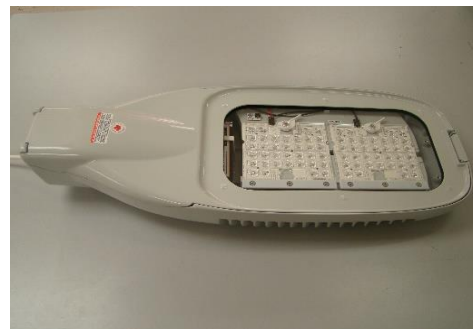
TI-3590C



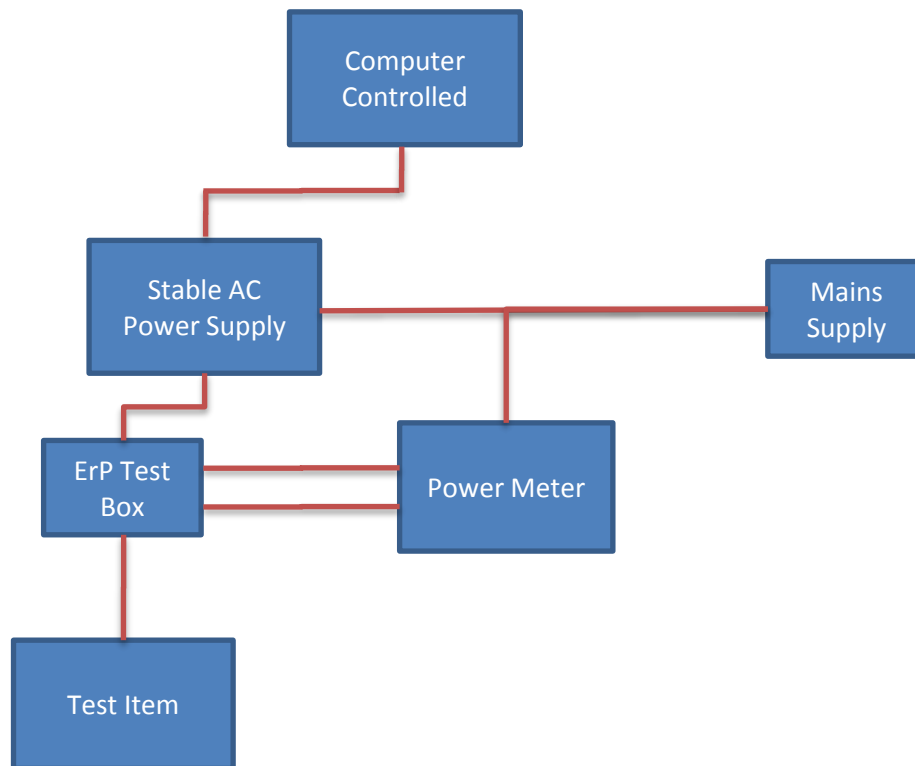
TI-3590D



TI-3590E



Appendix 1: Test item set-up



----- END OF REPORT -----