

Report Number	TRN-13978
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-4133
Test Item Reference	TI-3584
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	26/08/2014
Analysed by	Steve Hunt
Number of products tested	5

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NXT-48 - 53W 50% with CLO - Start of Life

Date: 27/08/2014

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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

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-48 - 53W 50% 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-350-LF
Light Engine Model	LRLP-H3-24-07-2ESR02-LF (x2)
Operating Orientation	Base Up
Test Orientation	Base Up
Ambient Temperature	25.3°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-3584A	A141001038
TI-3584B	A141001037
TI-3584C	A141001036
TI-3584D	A141001040
TI-3584E	A141001039

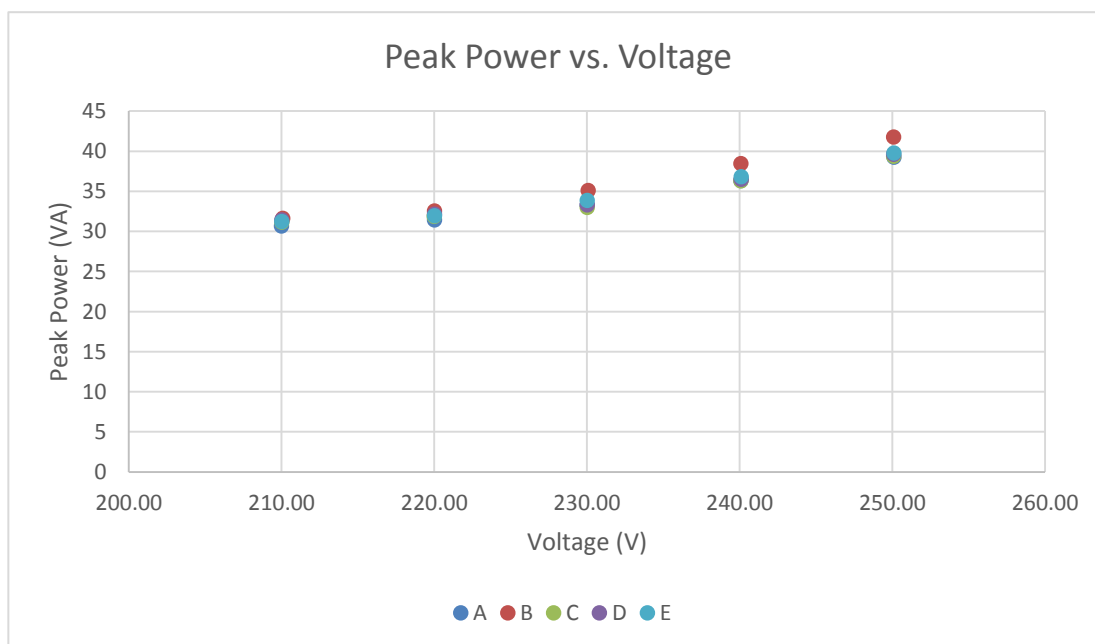
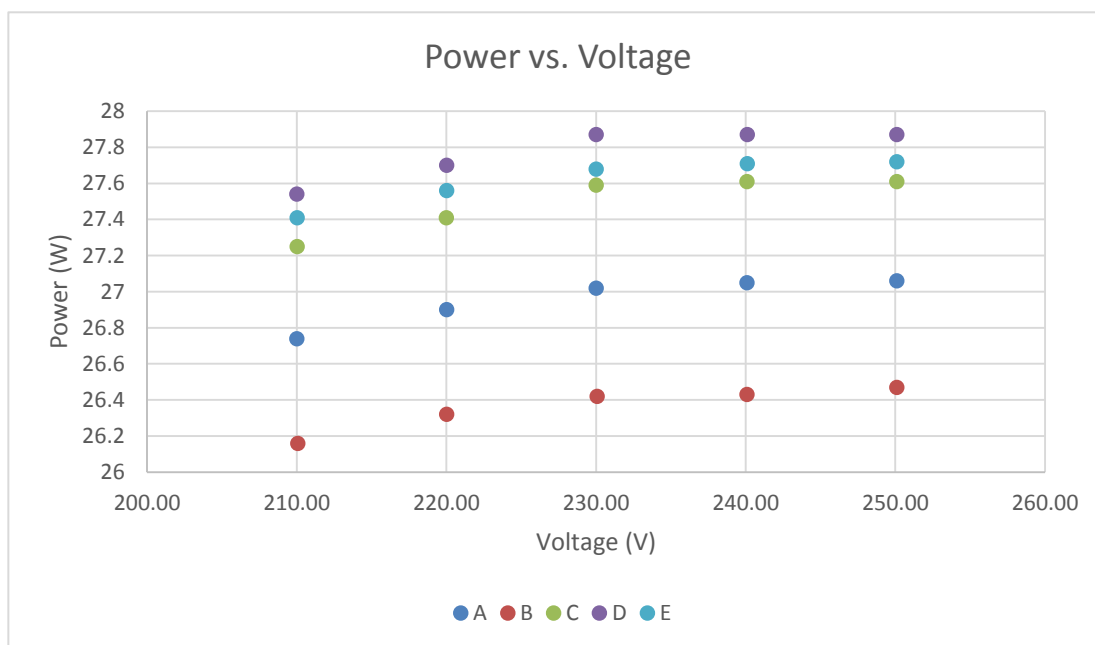
Test Conditions

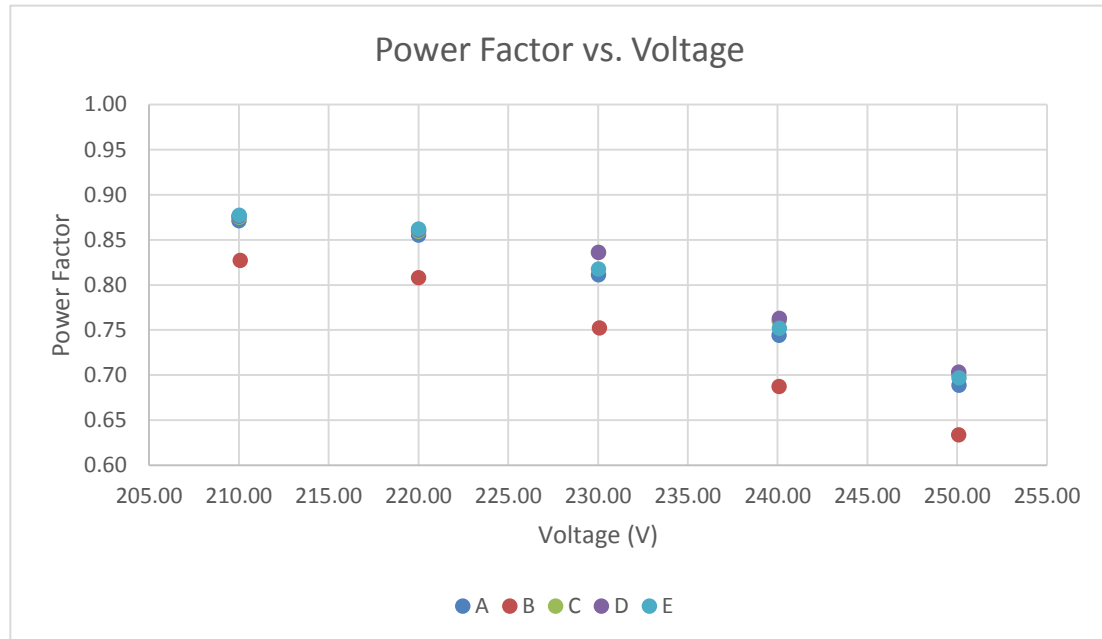
	Before Test	After Test
AC Supply Voltage (V)	250.05V	250.09V
AC Supply Frequency (Hz)	50Hz	50Hz
Voltage RMS Summation of the Harmonic Components (THD)	0.08%	0.1%

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	$\pm 0.0006 \text{ PF}$

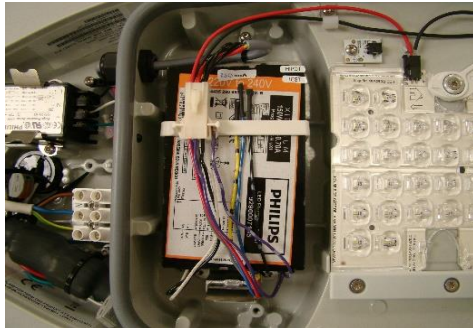
Measurements of power of 0.50W or greater are made with an uncertainty of less than or equal to 2% at the 95% confidence level. Measurements of power less than 0.50W are made with an uncertainty of less than or equal to 0.01W at the 95% confidence level.

Full Test Results

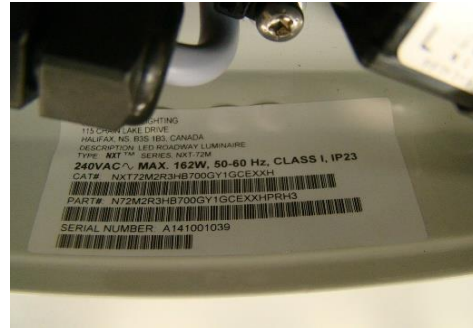
Test Item	Voltage (V)	Current (mA)	Electrical Power (W)	Ambient Temp (°C)	Peak Power (VA)	Power Factor	Leading / Lagging
A	250.11	157.06	27.06	25.32	39.28	0.689	Leading
B	250.09	167.05	26.47	25.09	41.78	0.634	Leading
C	250.09	157.42	27.61	25.33	39.37	0.701	Leading
D	250.09	158.45	27.87	25.34	39.63	0.703	Leading
E	250.11	159.04	27.72	25.03	39.78	0.697	Leading
A	240.08	151.40	27.05	25.28	36.35	0.744	Leading
B	240.08	160.17	26.43	25.52	38.45	0.687	Leading
C	240.09	151.25	27.61	25.57	36.31	0.760	Leading
D	240.10	152.17	27.87	25.24	36.53	0.763	Leading
E	240.10	153.47	27.71	25.17	36.85	0.752	Leading
A	230.02	144.81	27.02	25.56	33.31	0.811	Leading
B	230.08	152.64	26.42	25.14	35.12	0.752	Leading
C	230.02	143.51	27.59	25.65	33.01	0.836	Leading
D	230.02	144.89	27.87	25.40	33.33	0.836	Leading
E	230.02	147.23	27.68	25.21	33.87	0.817	Leading
A	220.01	142.97	26.90	25.38	31.45	0.855	Leading
B	220.01	148.08	26.32	25.30	32.58	0.808	Leading
C	220.00	144.92	27.41	25.94	31.88	0.860	Leading
D	220.01	146.22	27.70	25.47	32.17	0.861	Leading
E	220.01	145.30	27.56	25.53	31.97	0.862	Leading
A	210.00	146.20	26.74	25.81	30.70	0.871	Leading
B	210.08	150.55	26.16	25.52	31.63	0.827	Leading
C	210.02	148.33	27.25	25.59	31.15	0.875	Leading
D	210.01	149.73	27.54	25.87	31.44	0.876	Leading
E	210.02	148.79	27.41	25.52	31.25	0.877	Leading

Test Item Photographs

Product Details



(Driver and LED Module)



(Label fixture)

TI-3584A



TI-3584B



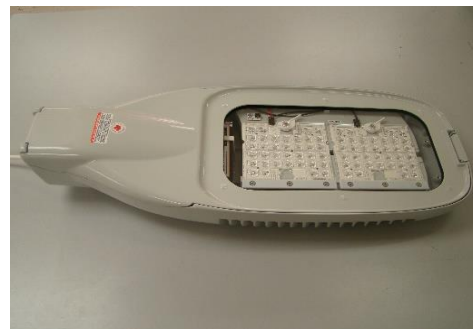
TI-3584C



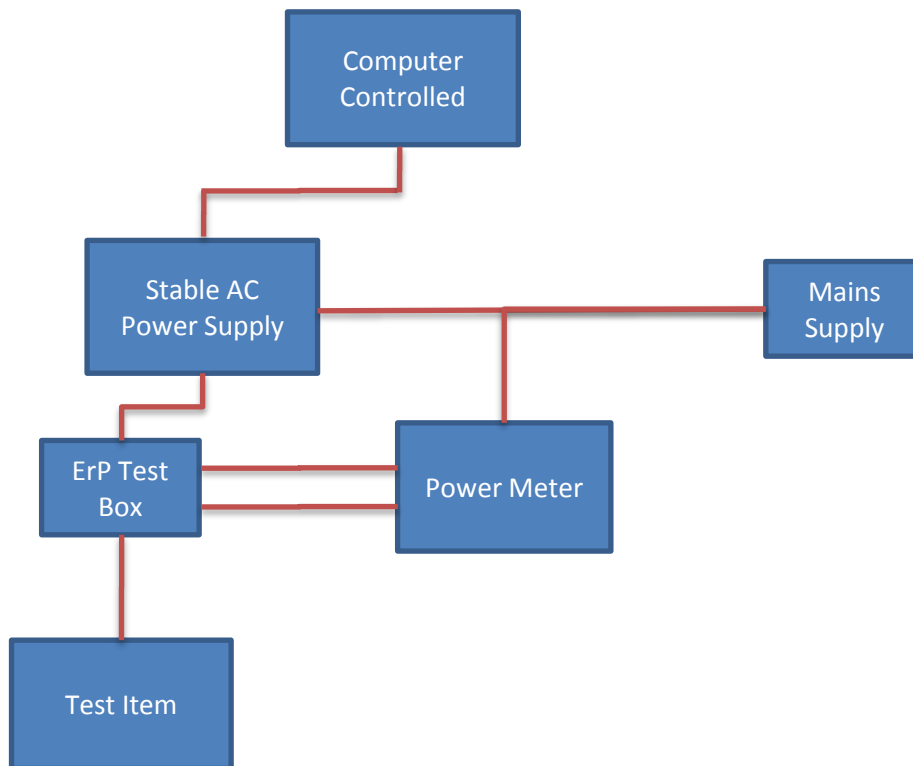
TI-3584D



TI-3584E



Appendix 1: Test item set-up



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