

<b>Report Number</b>	TRN-13448
<b>Customer</b>	LED Roadway Lighting
<b>Contact</b>	Huw Convery
<b>Product Type</b>	Street Light
<b>Test Purpose</b>	UMS Energy Performance Test
<b>Sales Order Ref</b>	Q-LUX2014-1849
<b>Works Order Number</b>	WO-3602
<b>Test Item Reference</b>	TI-2996
<b>LAB Test Method Reference</b>	TES-2012
<b>Test Standards</b>	LM-79-08 and UMS charge code process v4.0
<b>Lab Location Reference</b>	LUX-EPC
<b>Tested by</b>	Steve Hunt
<b>Date of Test</b>	10/04/2014
<b>Analysed by</b>	Steve Hunt
<b>Number of products tested</b>	5

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NXT - 48 - 53W

Date: 10/04/2014

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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)

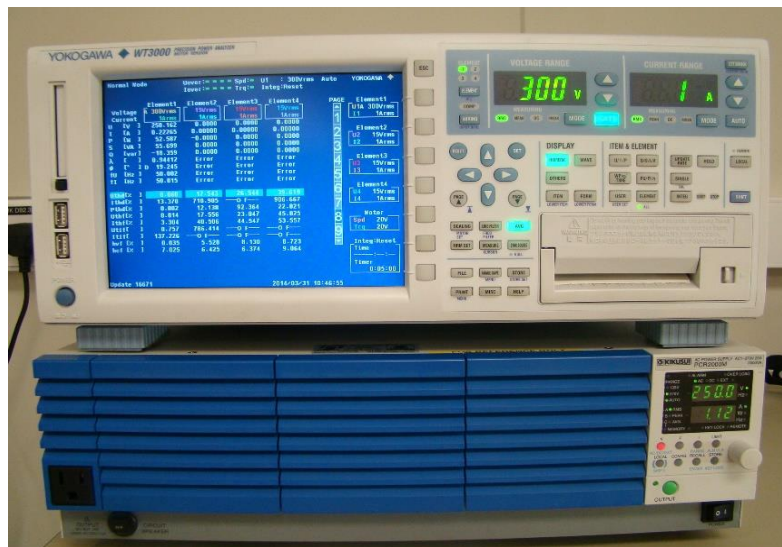
U - Universal Burn (burn can be operated in any position)

## 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 WT3000 Precision Power Analyzer. Kikusui PCR2000M Stable AC Power Supply



<b>Product Name</b>	NXT - 48 - 53W
<b>Part/Serial Number</b>	N72M2R3HB700GY1GCEXXHPRH3
<b>Type of Product</b>	Street Light
<b>Base Type</b>	N/A
<b>Driver Type</b>	Mains
<b>Driver Model</b>	LRL-66014-SUB-NXTS-350-LF
<b>Operating Orientation</b>	Base Up
<b>Test Orientation</b>	Base Up
<b>Ambient Temperature</b>	25.2°C
<b>Manufacturer</b>	LED Roadway Lighting
<b>Date of Manufacturer</b>	2014
<b>Thermal Management</b>	Passive
<b>Dimmable</b>	Yes
<b>Humidity</b>	<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-2996A	A141001038
TI-2996B	A141001037
TI-2996C	A141001036
TI-2996D	A141001040
TI-2996E	A141001039

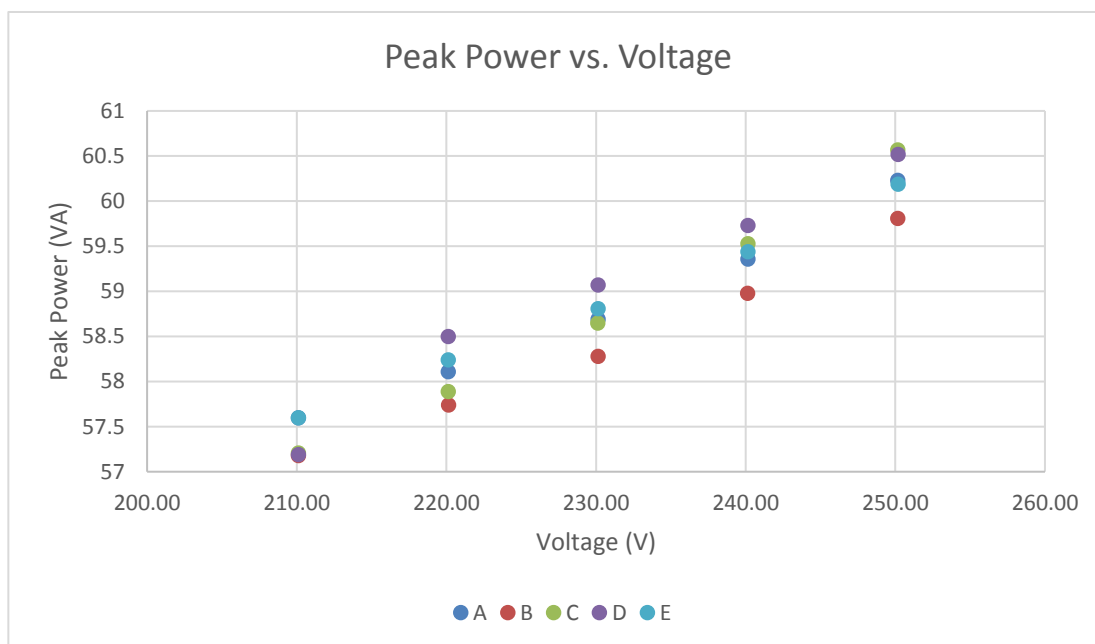
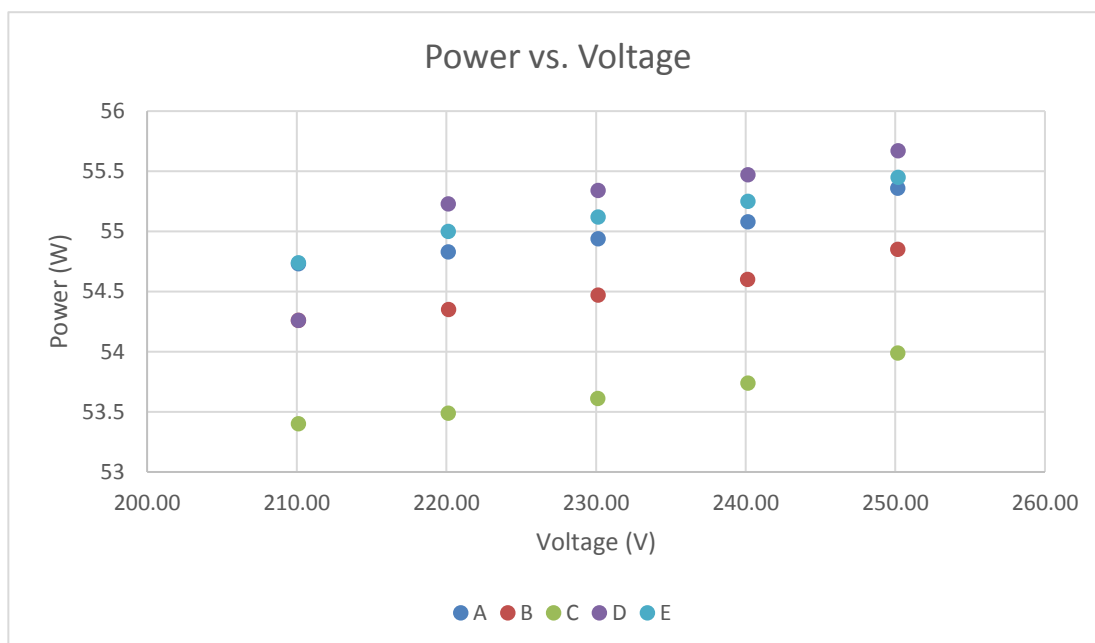
### Test Conditions

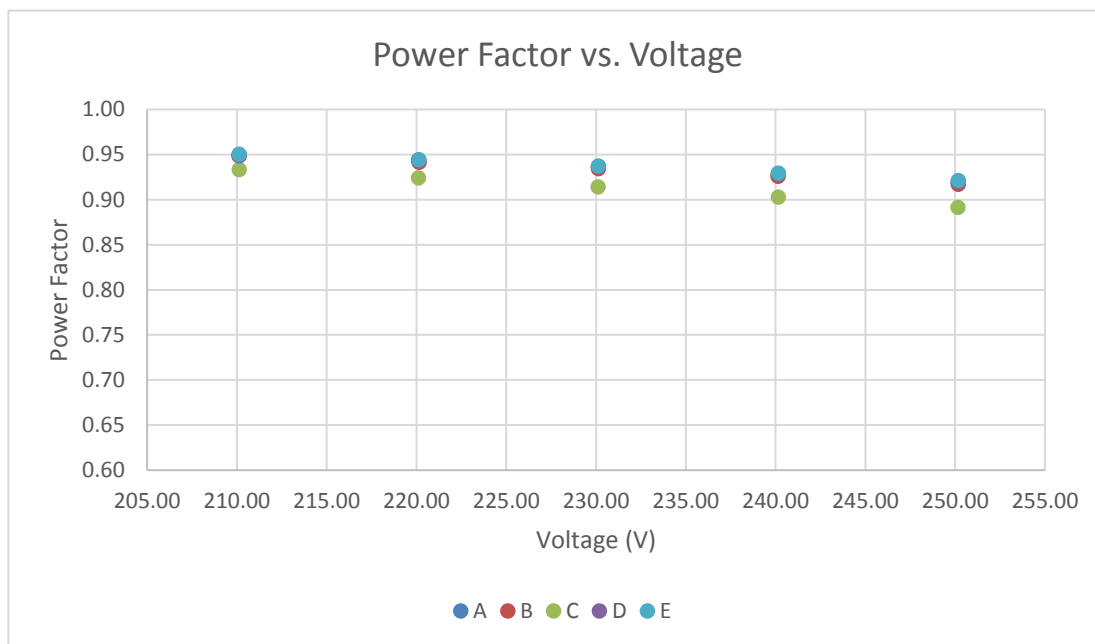
	Before Test	After Test
AC Supply Voltage (V)	250.16V	250.15V
AC Supply Frequency (Hz)	50Hz	50Hz
Voltage RMS Summation of the Harmonic Components (THD)	0.06%	0.06%

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

There 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	$\pm 0.0006 \text{ PF}$

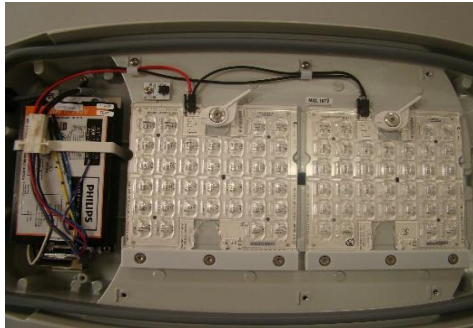
Measurements of power of 0.50W or greater are made with an uncertainty of less than or equal to 2% at the 95% confidence level. Measurements of power less than 0.50W are made with an uncertainty of less than or equal to 0.01W at the 95% confidence level.

### Full Test Results

Test Item	Voltage (V)	Current (mA)	Electrical Power (W)	Ambient Temp (°C)	Peak Power (VA)	Power Factor	Leading / Lagging
A	250.17	240.00	55.36	25.2	60.23	0.919	Leading
B	250.17	239.00	54.85	25.2	59.81	0.917	Leading
C	250.16	242.00	53.99	25.2	60.57	0.891	Leading
D	250.18	241.00	55.67	25.2	60.52	0.920	Leading
E	250.18	240.00	55.45	25.2	60.19	0.921	Leading
A	240.15	247.00	55.08	25.2	59.36	0.928	Leading
B	240.14	245.00	54.60	25.2	58.98	0.926	Leading
C	240.16	247.00	53.74	25.2	59.53	0.903	Leading
D	240.15	248.00	55.47	25.2	59.73	0.929	Leading
E	240.16	247.00	55.25	25.2	59.44	0.930	Leading
A	230.13	255.00	54.94	25	58.69	0.936	Leading
B	230.13	253.00	54.47	25	58.28	0.934	Leading
C	230.11	254.00	53.61	25	58.65	0.914	Leading
D	230.13	256.00	55.34	25	59.07	0.937	Leading
E	230.13	255.00	55.12	25	58.81	0.937	Leading
A	220.13	264.00	54.83	25	58.11	0.943	Leading
B	220.15	262.00	54.35	25	57.74	0.941	Leading
C	220.12	262.00	53.49	25	57.89	0.924	Leading
D	220.12	265.00	55.23	25	58.50	0.944	Leading
E	220.13	264.00	55.00	25	58.24	0.944	Leading
A	210.12	274.00	54.73	25	57.60	0.950	Leading
B	210.11	272.00	54.26	25	57.18	0.949	Leading
C	210.12	272.00	53.40	25	57.21	0.933	Leading
D	210.12	272.00	54.26	25	57.19	0.949	Leading
E	210.12	274.00	54.74	25	57.60	0.950	Leading

## Test Item Photographs

### Product Details



(Driver and LED Module)



(Label fixture)

### TI-2996A



### TI-2996B





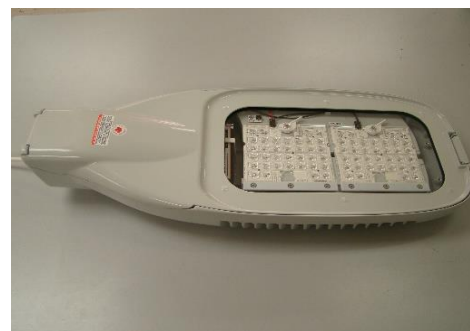
**TI-2996C**



**TI-2996D**

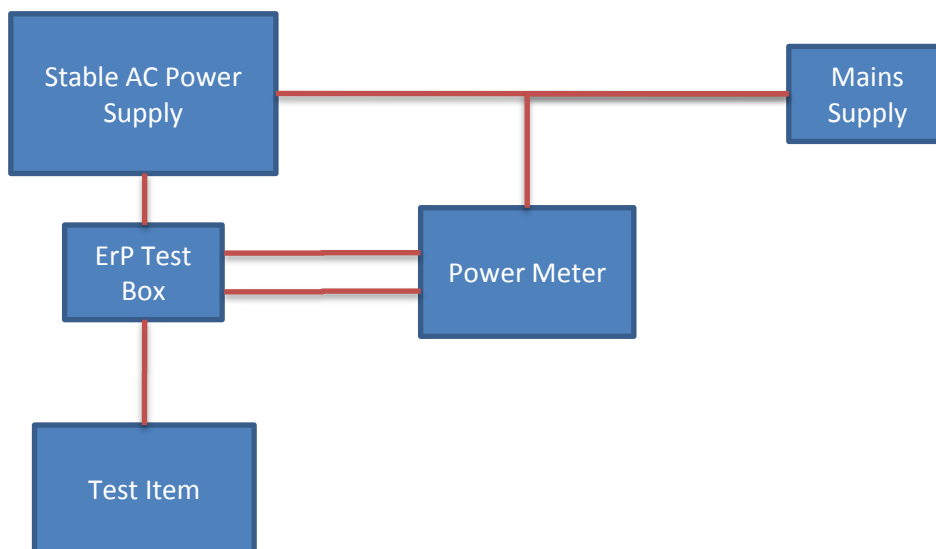


**TI-2996E**





#### Appendix 1: Test item set-up



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