

Report Number	SAF-21331
Customer	Carbon Reduction Technology Ltd
Contact	William Robson
Product Type	Street Light (Gear Tray)
Test Purpose	UMS Energy Performance Test
Sales Order Ref	Q-LUX16-22541
Works Order Number	WO-11978
Test Item Reference	TI-15208
LAB Test Method Reference	TES-201012
Test Standards (if applicable)	LM-79-08 and Elexon UMS Charge Code process V4.0
Lab Location Reference	Safety Lab
Tested by	Mike Sewell
Date of Test	11/07/2018
Reviewed by	Martin Langdown
Number of products tested	5

Address: LUX-TSI Ltd.,
Pencoed Technology Park,
Pencoed, Bridgend,
CF35 5AQ, UK
Telephone: +44 (0) 1656 864618
Authorised by: Gareth Jones
Email: gjones@lux-tsi.com
Signed:




XPG3 LED with LCM-40

Date: 11 July 2018

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.

Product Information		
Product	Street Light (Gear Tray)	
Product Name / Model	XPG3 LED with LCM-40	
Part/Serial Number	See (Identifier) below	
Product Brand	Carbon Reduction Technology Ltd	
Manufacturer	Carbon Reduction Technology Ltd	
Category	LITE	
Rated Input Voltage	200-240	
Rated output:	100V	
Protection Class	II	
Driver Make/Model	MeanWell	LCM-40DA
Light Engine Make/Model	N/A	N/A
Dimmable / Level Tested	Yes	100%
Product Description		
The Streetlight Gear tray are made from a sheet metal frame, of which on the outside fits the LED modules and on the inner side sits the driver and the electrical connections for termination.		

Test Conditions			
Ambient Temperature			23 (°C)
Humidity			39 (%)
	Before Test		After Test
Voltage	250.22V		250.11V
Frequency	50Hz		50Hz
Total Harmonic Distortion	0.08%		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.			
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.			

Product Specifications / TI Ref Numbers			
Dimension	Sample		Luminous opening
Diameter / Width	90 mm		40 mm
Length	225 mm		90 mm
Height / Depth	60 mm		5 mm
Product Test Number	Identifier		Serial Number (if applicable)
Test Item #1	15208A		N/A
Test Item #2	15208B		N/A
Test Item #3	15208C		N/A
Test Item #4	15208D		N/A
Test Item #5	15208E		N/A

Test Equipment and Description

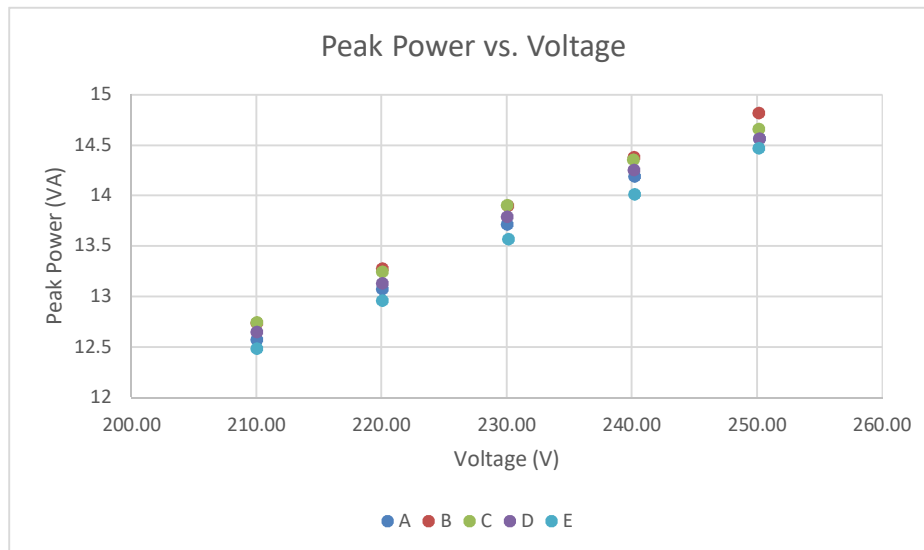
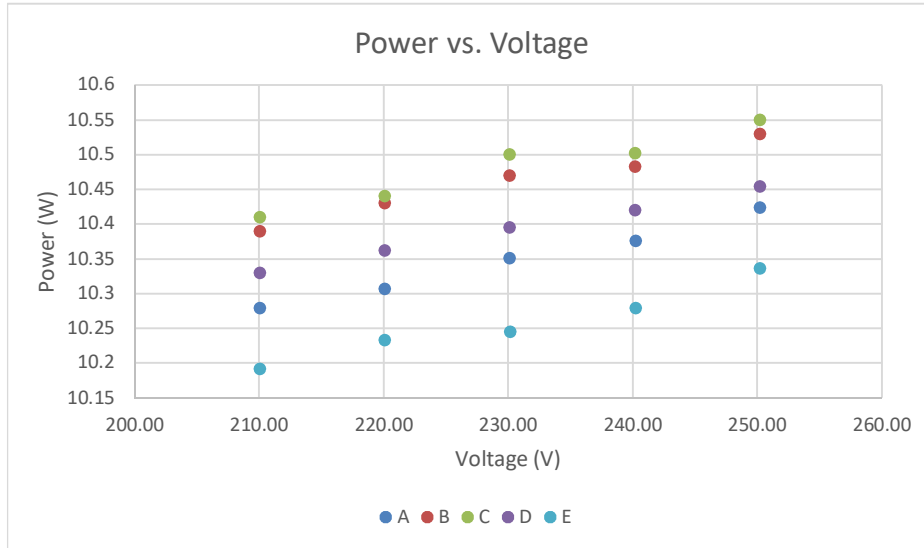
Yokogawa WT210 Power Analyser, Kikusui PCR2000M Stable AC Power Supply with PC control and data recording

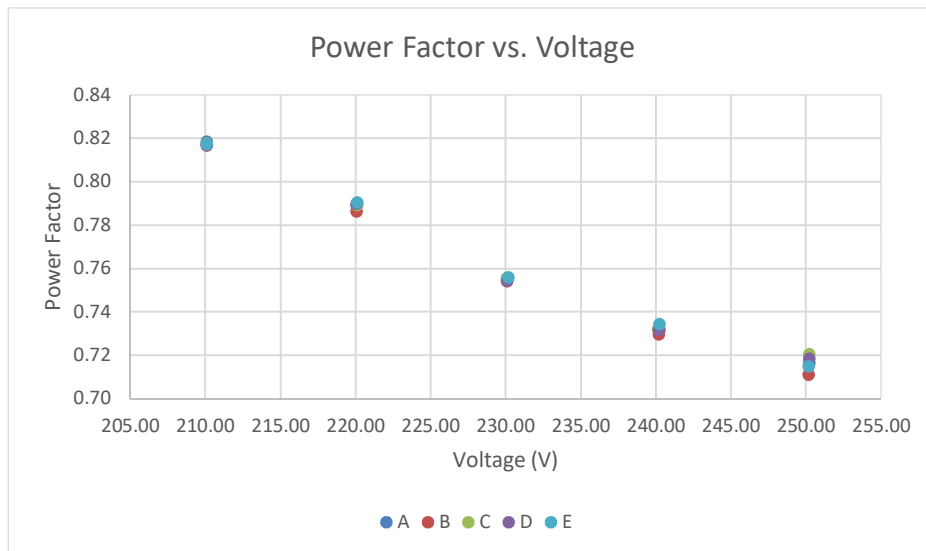


The products under test are connected to the UMS Test system which has full data control and recording using Labview software. This allows full integration of the test equipment used - Kikusui AC Stable Power Supply, Yokogawa Power Analyser, Pico Temperature Logger and a LUX-TSI distribution control panel

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)	$\pm 0.061 \text{ V}_{\text{rms}}$
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	250.21	58.18	10.42	25.79	14.56	0.716	Leading
B	250.19	59.21	10.53	25.60	14.81	0.711	Leading
C	250.20	58.55	10.55	25.61	14.65	0.720	Leading
D	250.21	58.17	10.45	25.73	14.56	0.718	Leading
E	250.18	57.81	10.34	25.98	14.46	0.715	Leading
A	240.23	59.04	10.38	25.74	14.18	0.732	Leading
B	240.20	59.83	10.48	25.74	14.37	0.729	Leading
C	240.16	59.76	10.50	25.80	14.35	0.732	Leading
D	240.19	59.31	10.42	25.88	14.24	0.732	Leading
E	240.23	58.29	10.28	25.85	14.00	0.734	Leading
A	230.09	59.58	10.35	25.72	13.71	0.755	Leading
B	230.10	60.37	10.47	25.94	13.89	0.754	Leading
C	230.09	60.41	10.50	25.62	13.90	0.755	Leading
D	230.09	59.91	10.40	25.82	13.78	0.754	Leading
E	230.18	58.91	10.24	25.72	13.56	0.756	Leading
A	220.09	59.39	10.31	25.56	13.07	0.789	Leading
B	220.08	60.28	10.43	25.53	13.27	0.786	Leading
C	220.10	60.14	10.44	25.67	13.24	0.789	Leading
D	220.09	59.63	10.36	25.66	13.12	0.789	Leading
E	220.10	58.84	10.23	25.83	12.95	0.790	Leading
A	210.09	59.80	10.28	25.95	12.56	0.818	Leading
B	210.07	60.60	10.39	25.88	12.73	0.816	Leading
C	210.08	60.64	10.41	25.72	12.74	0.817	Leading
D	210.08	60.19	10.33	25.93	12.64	0.817	Leading
E	210.08	59.38	10.19	25.75	12.48	0.817	Leading

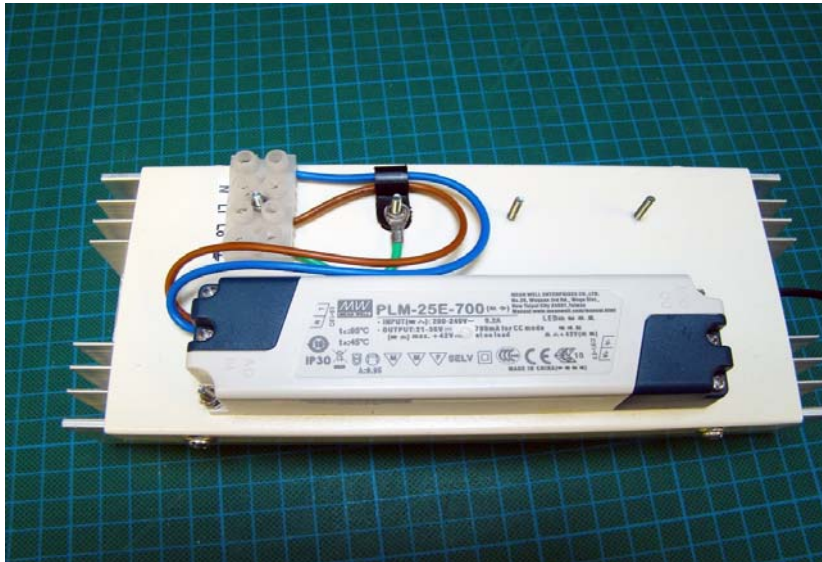
Test Item Photographs

TI-15208

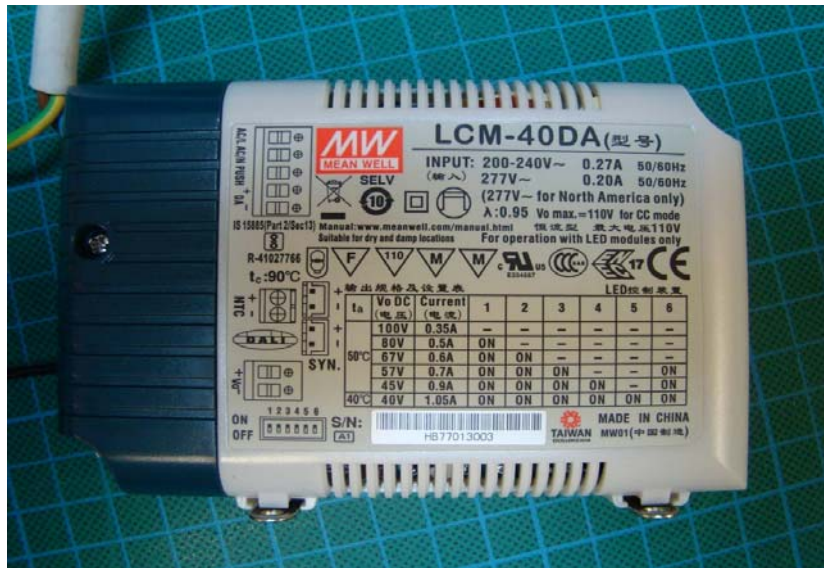
Images of Product(s) under test includes (where possible) labelling, Driver and Light engine details



Product View



Product View (Representative)

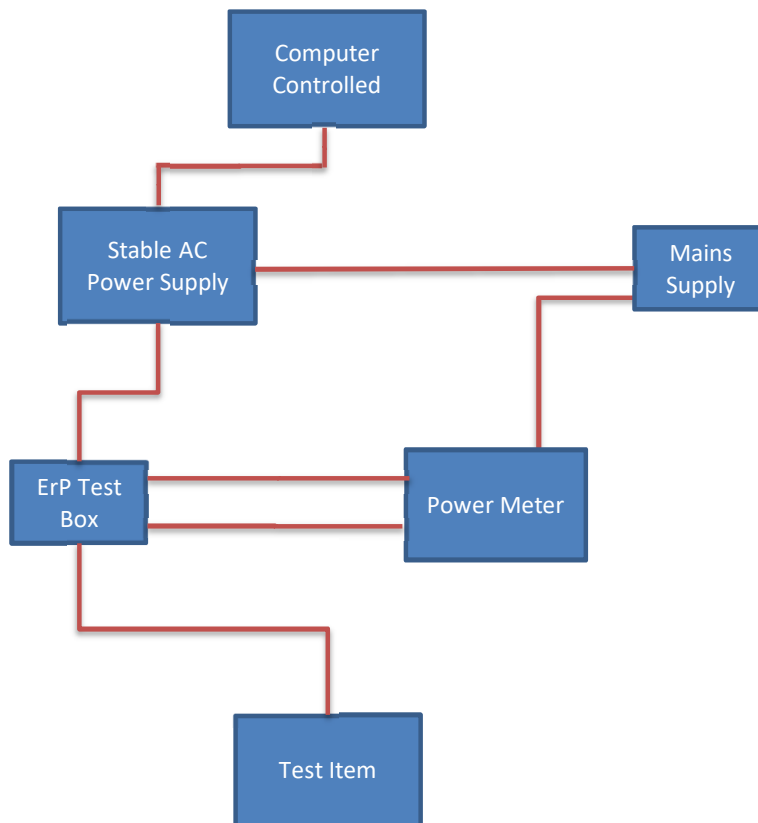


Driver used for test



Light Engine

Appendix 1: Test item set-up



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