

Light Emission Distribution Laboratory

Division of Photometry & Electrical Testing Pty. Ltd ABN 11 166 255 134 Unit 4, 140 George St. Hornsby NSW 2077 Australia Ph: +61 2 9476 3097 E: sales@ledlab.com.au



Accredited for compliance with ISO/IEC 17025 – For Testing. Accreditation No. 19541

## Test Report: 180709LCP

# Testing of FloodLight Power for AEMO's NEM Load Table and other tests on optical systems

for Tango floodlight 70W Model No. BVP38x 70W

Type of product: LED Floodlight

Prepared for: Signify

Model number: BVP38x 70W

*Description:* 70W LED FloodLight. Features IP66 cast aluminium housing, 1xLED module made of 75x LEDs powered from 1x Philips Xitanium driver Xi 100W 0.7A 230V Y model number 9290 014 010.

#### Test objective and Method

Determination of the luminaire supply operating parameters Voltage, Current, Power and Power Factor when tested at nominal test voltages of 250V. By the method of LEDLab Electrical Parameter Determination and AEMO Unmetered\_Load\_Guideline\_v1\_0.

#### Test configuration

The ten luminaires were operated at 25°C ambient temperature in their normal operational orientation at 250VAC, 50Hz, until the monitored luminaire stabilised as defined in IES LM79. Twenty readings were taken ten seconds apart and the average found. The average value is multiplied by the Calibration Correction given in the latest NATA endorsed calibration report then has Voltmeter losses subtracted based on Watt-meter input impedance and test voltage. The other nine luminaires having operated for the same or more time are switched one by one to Watt-meter for their twenty readings.

#### Client:

Signify contact Jacek Lipiec, 65 Epping Road, North Ryde, NSW, 2113 Tested by: David Orwin On 12/07/2018 Authorised Signatory

Date: 12/07/2018

Alain Yetendje

#### Conclusions

Test results are given in following Tables. The Average Load (W) is 71.33W at 0.97 Power Factor.

#### Results

Time till stabilisation: 2h

#### **Electrical Measurements**

Sample 1	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W) Power Factor	' Power Factor	
Average	250.063	0.299	72.635 0.973	72.635 0.973	
Min	249.410	0.298	72.613 0.972	72.613 0.972	
Max	250.480	0.299	72.656 0.973	72.656 0.973	
Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115)	0.9999	0.9999	0.9998 1.0000	0.9998 1.0000	
Instrument impedance correction (N4)		0.00024	0.0576	0.0576	
Final value	250.03	0.2984	72.56 0.973	72.56 0.973	
	Supply	Input	Input Power	iput Power	
Sample 2	Voltage	Current	(W) Power Factor	Power Facto	ſ
	(Vrms)	(Arms)	74 402 0 072	71 402 0.072	
Average	250.448	0.293	71.493 0.973		
Min	249.360	0.293	71.478 0.973		
Max	250.930	0.294	71.507 0.974	71.507 0.974	
- u	0.9999	0.9999	0.9998 1.0000	0 9998 1 0000	
Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115) Instrument impedance correction (N4)	0.5555	0.00024	0.0576		
Final value	250.42	0.2930	71.42 0.973		
	230.42	0.2950	71.42 0.373	/1.42 0.375	
	Supply	Input	Input Power	aput Power	
Sample 3	Voltage	Current	(W) Power Factor	Power Facto	-
	(Vrms)	(Arms)	(\v)	(\v)	
Average		0.200			
//veruge	250.579	0.290	70.782 0.975	70.782 0.973	
Min	250.579 249.790	0.290	70.771 0.973		
-				70.771 0.973	
Min	249.790	0.290	70.771 0.973	70.771 0.973	
Min	249.790	0.290	70.771 0.973	70.7710.97370.7920.973	
Min Max	249.790 251.370	0.290 0.291	70.7710.97370.7920.973	70.771   0.973     70.792   0.973     0.9998   1.0000	
Min Max Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115)	249.790 251.370	0.290 0.291 0.9999	70.7710.97370.7920.9730.99981.0000	70.771   0.973     70.792   0.973     0.9998   1.0000     0.0576	
Min Max Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115) Instrument impedance correction (N4)	249.790 251.370 0.9999 250.55	0.290 0.291 0.9999 0.00024 0.2901	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 1.0000	70.771   0.973     70.792   0.973     0.9998   1.0000     0.0576	
Min Max Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115) Instrument impedance correction (N4) Final value	249.790 251.370 0.9999 250.55 Supply	0.290 0.291 0.9999 0.00024 0.2901 Input	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973	r
Min Max Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115) Instrument impedance correction (N4)	249.790 251.370 0.9999 250.55 Supply Voltage	0.290 0.291 0.9999 0.00024 0.2901 Input Current	70.7710.97370.7920.9730.99981.00000.05760.973	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973	r
Min Max Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115) Instrument impedance correction (N4) Final value Sample 4	249.790 251.370 0.9999 250.55 Supply Voltage (Vrms)	0.290 0.291 0.9999 0.00024 0.2901 Input Current (Arms)	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   Input Power (W) Power Factor	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   nput Power (W) Power Factor	r
Min Max Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115) Instrument impedance correction (N4) Final value	249.790 251.370 0.9999 250.55 Supply Voltage	0.290 0.291 0.9999 0.00024 0.2901 Input Current	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   Input Power (W) Power Factor	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   nput Power (W) Power Facto   74.132 0.974	r
Min Max Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115) Instrument impedance correction (N4) Final value Sample 4 Average	249.790 251.370 0.9999 250.55 Supply Voltage (Vrms) 250.423	0.290 0.291 0.9999 0.00024 0.2901 Input Current (Arms) 0.304	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   Input Power (W) Power Factor   74.132 0.974	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   nput Power (W) Power Facto   74.132 0.974   74.121 0.973	r
Min Max Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115) Instrument impedance correction (N4) Final value Sample 4 Average Min	249.790 251.370 0.9999 250.55 Supply Voltage (Vrms) 250.423 249.230	0.290 0.291 0.9999 0.00024 0.2901 Input Current (Arms) 0.304 0.303	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   Input Power (W) Power Factor   74.132 0.974   74.121 0.973	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   nput Power (W) Power Facto   74.132 0.974   74.121 0.973	r
Min Max Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115) Instrument impedance correction (N4) Final value Sample 4 Average Min	249.790 251.370 0.9999 250.55 Supply Voltage (Vrms) 250.423 249.230	0.290 0.291 0.9999 0.00024 0.2901 Input Current (Arms) 0.304 0.303	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   Input Power (W) Power Factor   74.132 0.974   74.121 0.973	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   0.9098 0.0073   0.973 0.973   0.974 0.973   74.121 0.973   74.153 0.974	r
Min Max Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115) Instrument impedance correction (N4) Final value Sample 4 Average Min Max	249.790 251.370 0.9999 250.55 Supply Voltage (Vrms) 250.423 249.230 251.150	0.290 0.291 0.9999 0.00024 0.2901 Input Current (Arms) 0.304 0.303 0.305	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   Input Power (W) Power Factor   74.132 0.974   74.153 0.974	70.771 0.973   70.792 0.973   0.9998 1.0000   0.0576 0.973   70.71 0.973   0.9098 1.0000   0.973 0.973   0.974 0.973   74.121 0.973   74.153 0.974   0.9998 1.0000	r

The tests and measurements covered by this document are traceable to Australian national standards of measurement. This report only applies to the items tested and shall only be reproduced in full unless approved in writing by Light Emission Distribution Laboratory (LEDLab). 180709LCP Page 2 of 5

#### LEDLab Test Report: 180709LCP

	Supply	Input	Input Power	
Sample 5	Voltage	Current	(W)	Power Factor
	(Vrms)	(Arms)		0.072
Average	250.508	0.290	70.541	0.972
Min Max	249.790 250.990	0.289 0.290	70.531 70.549	0.972 0.973
IVIAX	230.990	0.290	70.549	0.975
Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.48	0.2893	70.47	0.972
	Supply	Input		
Sample 6	Voltage	Current	Input Power	<sup>r</sup> Power Factor
<b>I</b>	(Vrms)	(Arms)	(W)	
Average	250.305	0.291	70.795	0.973
Min	249.870	0.290	70.785	0.973
Max	250.740	0.291	70.803	0.973
Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.27	0.2905	70.72	0.973
	Supply	Input	Input Power	
Sample 7	Voltage	Current	•	Power Factor
	(Vrms)	(Arms)	(W)	
Average	250.296	0.290	70.572	0.973
Min	249.570	0.289	70.546	0.973
Max	250.730	0.290	70.588	0.974
Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.26	0.2894	70.50	0.973
	Supply	Input	Input Power	-
Sample 8	Voltage	Current	(W)	Power Factor
	(Vrms)	(Arms)		
Average	250.243	0.293	71.292	0.973
Min	249.900	0.293	71.282	0.972
Max	250.550	0.293	71.304	0.973
Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.21	0.2927	71.22	0.973
	Supply	loout		
Sample 9	Supply Voltage	Input Current	Input Power	Power Factor
Sample 5	(Vrms)	(Arms)	(W)	FOWEIFACIO
Average	250.346	0.291	70.948	0.974
Min	250.020	0.291	70.936	0.974
Max	250.710	0.291	70.958	0.974
	2007/20	0.201	, 01000	0.071
Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.32	0.2908	70.88	0.974
	Supply	Input	Input Power	
Sample 10	Voltage	Current	(W)	Power Factor
Average	(Vrms)	(Arms)		0.074
Average	250.051	0.291	70.853 70.839	0.974
Min	249.610	0.291		0.974
Max	250.420	0.291	70.860	0.974
	0.9999	0.9999	0.9998	1.0000
Calibration correction (see Newton 4 <sup>th</sup> calibration report NC17.36115) Instrument impedance correction (N4)	0.5555	0.00024	0.0576	1.0000
Final value	250.02	0.2908	70.78	0.974

The tests and measurements covered by this document are traceable to Australian national standards of measurement. This report only applies to the items tested and shall only be reproduced in full unless approved in writing by Light Emission Distribution Laboratory (LEDLab). 180709LCP Page 3 of 5

Sample No.	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Sample 1	250.063	0.298	72.565	0.973
Sample 2	250.416	0.293	71.423	0.973
Sample 3	250.548	0.290	70.712	0.973
Sample 4	250.392	0.304	74.062	0.974
Sample 5	250.476	0.289	70.471	0.972
Sample 6	250.273	0.290	70.725	0.973
Sample 7	250.264	0.289	70.502	0.973
Sample 8	250.212	0.293	71.222	0.973
Sample 9	250.315	0.291	70.878	0.974
Sample 10	250.020	0.291	70.783	0.974
Average	250.30	0.29	71.33	0.97

Electrical operating parameters of Tango Floodlight 70W

Illustration 1: Electrical operating parameters of Tango Floodlight 70W

#### Uncertainties

At a Confidence Level of 95% with a Coverage Factor of 2 Supply Voltage: ± 0.07% Supply Current: ± 0.14% Supply Power: ± 0.19% Power Factor: ± 0.005 Ambient Temperature: ± 1°C

#### Test Equipment Used

Power meter: Newton 4th Power Analyser KinetiQ Model PPA2520 SN 133-00467

Power meter integration time (s): 5 Calibration Report: NC17.36115 Luminaire thermometer: AMA S No. 1086110-0.1deg

### **General Photographs**

#### LEDLab Test Report: 180709LCP



Illustration 2: Luminaire



Illustration 4: Luminaire label





Illustration 6: LED driver (1x off)



Illustration 5: Setup

The tests and measurements covered by this document are traceable to Australian national standards of measurement. This report only applies to the items tested and shall only be reproduced in full unless approved in writing by Light Emission Distribution Laboratory (LEDLab). 180709LCP Page 5 of 5