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Test Report: 170930LCP

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

for Roadflair Streetlight 70W Model No. BRP391 LED84/NW 70W

Type of product: LED Streetlight

Prepared for: Philips Lighting Australia

Model number: BRP391 LED84/NW 70W

Description: 70W LED StreetLight. Features IP66 cast aluminium housing, 2xLED modules made of 75 LEDs powered from a Philips Xitanium driver Xi FP 75W 0.2-0.7A SNLDAE 230V S240 sXt model number 9290 009 624.

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:

Philips Lighting Australia contact Jacek Lipiec, 65 Epping Road, North Ryde, NSW, 2113

Tested by: David Orwin On 19/09/2017 Authorised Signatory Date: 25/09/2017

Alain Yetendje

Conclusions

Test results are given in following Tables.

The Average Load (W) is 69.23W at 0.98 Power Factor.

Results

Time till stabilisation: 3h

Electrical Measurements

Sample 1	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	249.978	0.285	69.575	0.978
Min	249.450	0.284	69.560	0.978
Max	250.340	0.285	69.588	0.978
Calibration correction (see Newton 4th calibration report 221983)	0.9998	0.9998	0.9999	1.0001
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	249.93	0.2843	69.51	0.978

Sample 2	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.214	0.283	69.210	0.976
Min	249.790	0.283	69.205	0.976
Max	250.560	0.284	69.216	0.977
Calibration correction (see Newton 4th calibration report 221983)	0.9998	0.9998	0.9999	1.0001
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.16	0.2830	69.15	0.977

Sample 3	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.044	0.284	69.276	0.977
Min	249.410	0.283	69.262	0.977
Max	250.420	0.284	69.285	0.977
Calibration correction (see Newton 4th calibration report 221983)	0.9998	0.9998	0.9999	1.0001
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	249.99	0.2833	69.21	0.977

Sample 4	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	249.752	0.283	68.892	0.976
Min	249.090	0.282	68.874	0.976
Max	250.440	0.283	68.902	0.976
Calibration correction (see Newton 4th calibration report 221983)	0.9998	0.9998	0.9999	1.0001
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	249.70	0.2823	68.83	0.976

Sample 5	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	249.879	0.283	69.171	0.977
Min	249.260	0.283	69.159	0.977
Max	250.660	0.284	69.180	0.977
Calibration correction (see Newton 4th calibration report 221983)	0.9998	0.9998	0.9999	1.0001
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	249.83	0.2831	69.11	0.977

Sample 6	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.149	0.282	69.020	0.977
Min	249.060	0.282	69.012	0.977
Max	250.790	0.284	69.025	0.977
Calibration correction (see Newton 4th calibration report 221983)	0.9998	0.9998	0.9999	1.0001
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.10	0.2822	68.96	0.977

Sample 7	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	249.877	0.286	69.860	0.977
Min	249.130	0.285	69.851	0.977
Max	250.880	0.287	69.879	0.977
Calibration correction (see Newton 4th calibration report 221983)	0.9998	0.9998	0.9999	1.0001
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	249.83	0.2858	69.80	0.977

Sample 8	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.098	0.283	69.149	0.977
Min	249.170	0.282	69.136	0.977
Max	250.690	0.284	69.163	0.977
Calibration correction (see Newton 4th calibration report 221983)	0.9998	0.9998	0.9999	1.0001
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.05	0.2828	69.09	0.977

Sample 9	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	249.951	0.284	69.342	0.978
Min	249.450	0.283	69.333	0.977
Max	250.370	0.284	69.347	0.978
Calibration correction (see Newton 4th calibration report 221983)	0.9998	0.9998	0.9999	1.0001
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	249.90	0.2835	69.28	0.978

Sample 10	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	249.903	0.285	69.464	0.976
Min	249.160	0.284	69.455	0.976
Max	250.310	0.285	69.477	0.977
Calibration correction (see Newton 4th calibration report 221983)	0.9998	0.9998	0.9999	1.0001
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	249.85	0.2844	69.40	0.976

Electrical operating parameters of Roadflair Streetlight 70W

Sample No.	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Sample 1	249.978	0.284	69.512	0.978
Sample 2	250.164	0.283	69.147	0.976
Sample 3	249.994	0.283	69.212	0.977
Sample 4	249.702	0.282	68.828	0.976
Sample 5	249.829	0.283	69.108	0.977
Sample 6	250.099	0.282	68.957	0.977
Sample 7	249.827	0.286	69.797	0.977
Sample 8	250.048	0.283	69.085	0.977
Sample 9	249.901	0.284	69.279	0.978
Sample 10	249.853	0.284	69.401	0.976
Average	**249.94**	**0.28**	**69.23**	**0.98**

Illustration 1: Electrical operating parameters of Roadflair Streetlight 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: Ausgrid 221983
Luminaire thermometer: AMA S No. 1086110-0.1deg

General Photographs

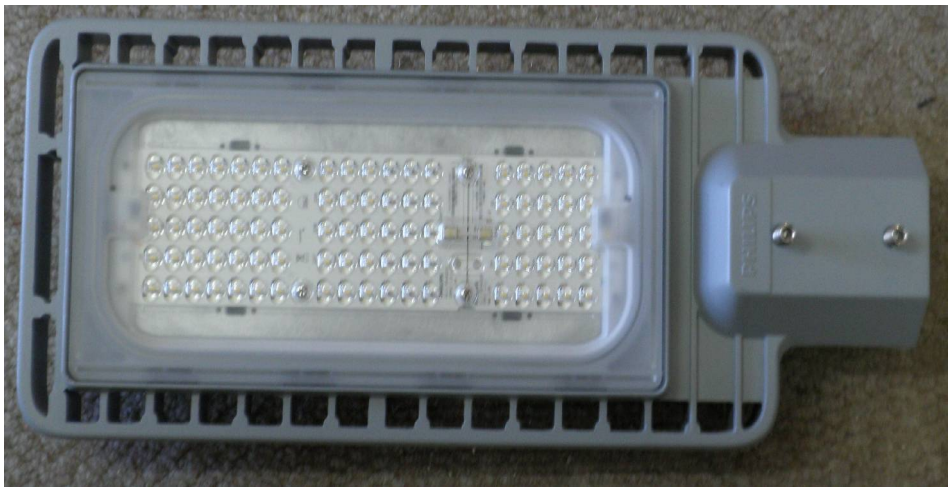

Illustration 2: Luminaire

Illustration 3: Control gear

Illustration 4: Luminaire label

Illustration 5: Surge protector

Illustration 6: LED driver

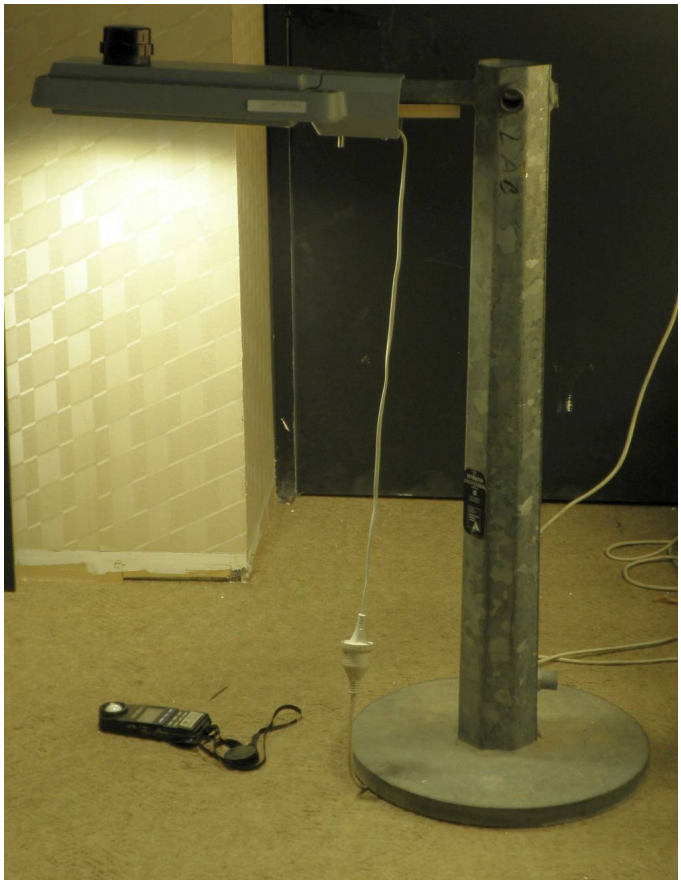

Illustration 7: Setup