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Test Report: 200521LCP

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

for: 222W LED Streetlight

Type of product: LED Streetlight

Prepared for: decrolux, 72 Commercial Dr, Thomastown, VIC 3074

Model number: LC2366 PLUTO Highbay + Custom Cowling

Description: 222W LED Streetlight. Features die-cast aluminium housing with powder coated finish, tempered glass diffuser, an LED array driven from 1x Mean Well LED driver (model number HLG-240H-48A).

Test objective and Method

Determination of the luminaire supply operating parameters Voltage, Current, Power and Power Factor when tested at nominal test voltage 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 one minute 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: decrolux, 72 Commercial Dr, Thomastown, VIC 3074 contact Jared Grace

Conclusion

The Average Load (W) is 224.26W at 0.97 Power Factor.

Tested by: David Orwin On 14/05/2020 Authorised Signatory Date: 21/05/2020

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Results

Time till stabilisation: 3h

Electrical Measurements

Sample 1	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.398	0.931	224.800	0.965
Min	250.120	0.929	224.770	0.964
Max	251.010	0.932	224.840	0.965
Calibration correction (see Newton 4th calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.37	0.9305	224.70	0.965

Sample 2	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.262	0.923	222.631	0.964
Min	249.830	0.922	222.600	0.964
Max	250.440	0.924	222.670	0.965
Calibration correction (see Newton 4th calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.23	0.9222	222.53	0.964

Sample 3	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.178	0.936	226.302	0.967
Min	249.920	0.934	226.290	0.967
Max	250.600	0.936	226.320	0.967
Calibration correction (see Newton 4th calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.15	0.9353	226.20	0.967

Sample 4	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.077	0.926	223.895	0.967
Min	249.800	0.925	223.860	0.967
Max	250.430	0.927	223.920	0.967
Calibration correction (see Newton 4th calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.05	0.9254	223.80	0.967

Sample 5	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.145	0.927	223.991	0.966
Min	249.910	0.926	223.960	0.965
Max	250.470	0.928	224.020	0.966
Calibration correction (see Newton 4th calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.11	0.9265	223.89	0.966

Sample 6	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.119	0.926	223.875	0.966
Min	249.530	0.925	223.860	0.966
Max	250.400	0.928	223.900	0.966
Calibration correction (see Newton 4th calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.09	0.9260	223.78	0.966

Sample 7	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.227	0.920	222.482	0.967
Min	249.900	0.918	222.450	0.966
Max	250.920	0.921	222.500	0.967
Calibration correction (see Newton 4th calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.20	0.9195	222.39	0.967

Sample 8	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.204	0.929	224.250	0.965
Min	249.770	0.928	224.210	0.965
Max	250.500	0.930	224.290	0.965
Calibration correction (see Newton 4th calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.17	0.9285	224.15	0.965

Sample 9	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.173	0.936	226.433	0.967
Min	249.820	0.935	226.400	0.967
Max	250.530	0.938	226.470	0.967
Calibration correction (see Newton 4th calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.14	0.9360	226.34	0.967

Sample 10	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.163	0.931	224.864	0.965
Min	249.720	0.930	224.760	0.965
Max	250.520	0.933	225.040	0.965
Calibration correction (see Newton 4th calibration report NC17.36115)	0.9999	0.9999	0.9998	1.0000
Instrument impedance correction (N4)		0.00024	0.0576	
Final value	250.13	0.9310	224.77	0.965

Electrical operating parameters of 222W LED Streetlight

Sample No.	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Sample 1	250.398	0.930	224.703	0.965
Sample 2	250.231	0.922	222.535	0.964
Sample 3	250.146	0.935	226.205	0.967
Sample 4	250.045	0.925	223.798	0.967
Sample 5	250.114	0.926	223.895	0.966
Sample 6	250.087	0.926	223.779	0.966
Sample 7	250.196	0.919	222.386	0.967
Sample 8	250.172	0.928	224.153	0.965
Sample 9	250.142	0.936	226.336	0.967
Sample 10	250.132	0.931	224.768	0.965
Average	**250.17**	**0.93**	**224.26**	**0.97**

Illustration 1: Electrical operating parameters of 222W LED Streetlight.

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: TRCalibration NC17.36115
Luminaire thermometer: AMA S No. 1086110-0.1deg

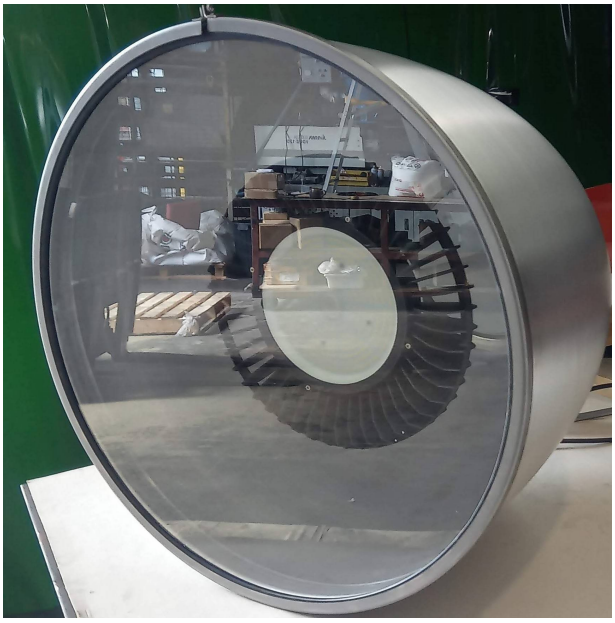

Illustration 2: Luminaire front

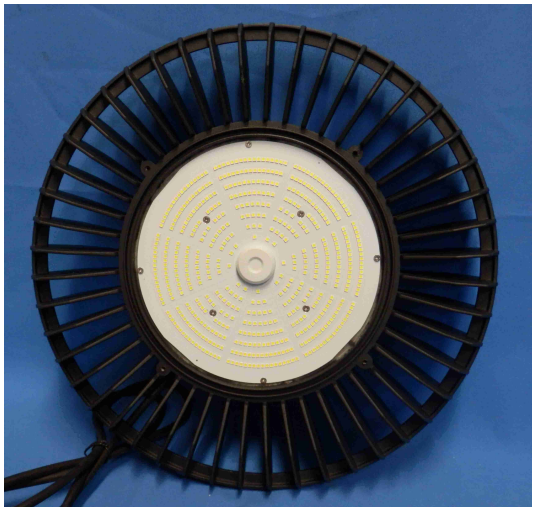

Illustration 3: Optical opening

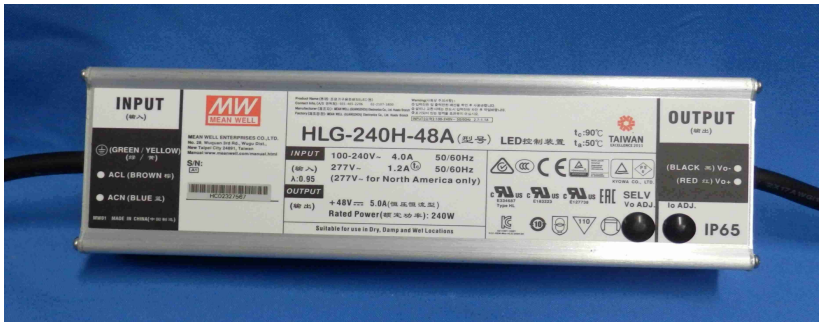

Illustration 4: LED driver