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Test Report: 170236LCP

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

for BEGA 3000K LED Pole Top Luminaire Model No. 77 930S

Type of product: LED Pole Top Luminaire

Prepared for: Zumtobel Group (Australia)

Model number: 77 930S

Description: BEGA IP66 3000K LED Pole Top Luminaire with asymmetrical flat beam light distribution. Features body made of aluminium alloy and stainless steel, pure anodised aluminium reflector, safety glass with optical structure; 2x LED-0403/830 modules powered from a VS Lighting Solutions Electronic power supply Type ECXd 700.024.

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 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:

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Tested by: Alain Yetendje On 21/02/2017 Authorised Signatory Date: 06/03/2017

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Conclusions

Test results are given in following Tables.
The Average Load (W) is 39.17W at 0.97 Power Factor.

Results

Time till stabilisation: 3h

Electrical Measurements

Sample 1	Time	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average		249.736	0.1631	39.31	0.96
Min		248.210	0.1628	39.30	
Max		250.440	0.1640	39.32	
Calibration correction (see CH calibration report)		1.0013	1.0025	1.0013	
Instrument impedance correction (CH)			0.00023	0.053	
Final value		250.05	0.1633	39.31	0.96

Sample 2	Time	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average		250.224	0.1616	39.04	0.97
Min		249.550	0.1612	39.03	
Max		251.010	0.1620	39.05	
Calibration correction (see CH calibration report)		1.0013	1.0025	1.0013	
Instrument impedance correction (CH)			0.00023	0.053	
Final value		250.54	0.1618	39.04	0.97

Sample 3	Time	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average		250.186	0.1597	38.64	0.97
Min		249.660	0.1593	38.62	
Max		251.000	0.1600	38.65	
Calibration correction (see CH calibrat		1.0013	1.0025	1.0013	
Instrument impedance correction (CH)			0.00023	0.053	
Final value		250.50	0.1599	38.63	0.97

Sample 4	Time	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average		249.816	0.1593	38.52	0.97
Min		249.430	0.1589	38.51	
Max		250.580	0.1596	38.53	
Calibration correction (see CH calibrat		1.0013	1.0025	1.0013	
Instrument impedance correction (CH)			0.00023	0.053	
Final value		250.13	0.1595	38.52	0.97

Sample 5	Time	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average		250.423	0.1615	39.22	0.97
Min		249.890	0.1612	39.22	
Max		251.040	0.1619	39.24	
Calibration correction (see CH calibrat		1.0013	1.0025	1.0013	
Instrument impedance correction (CH)			0.00023	0.053	
Final value		250.74	0.1617	39.22	0.97

Sample 6	Time	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average		249.724	0.1599	38.66	0.97
Min		249.070	0.1596	38.65	
Max		250.240	0.1602	38.67	
Calibration correction (see CH calibrat		1.0013	1.0025	1.0013	
Instrument impedance correction (CH)			0.00023	0.053	
Final value		250.04	0.1600	38.66	0.97

Sample 7	Time	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average		249.594	0.1603	38.67	0.97
Min		248.940	0.1601	38.67	
Max		249.980	0.1607	38.68	
Calibration correction (see CH calibrat		1.0013	1.0025	1.0013	
Instrument impedance correction (CH)			0.00023	0.053	
Final value		249.91	0.1605	38.67	0.97

Sample 8	Time	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average		250.400	0.1573	38.26	0.97
Min		249.800	0.1569	38.25	
Max		251.190	0.1576	38.27	
Calibration correction (see CH calibrat		1.0013	1.0025	1.0013	
Instrument impedance correction (CH)			0.00023	0.053	
Final value		250.71	0.1574	38.26	0.97

Sample 9	Time	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average		249.780	0.1617	39.15	0.97
Min		249.340	0.1615	39.14	
Max		250.150	0.1619	39.16	
Calibration correction (see CH calibrat		1.0013	1.0025	1.0013	
Instrument impedance correction (CH)			0.00023	0.053	
Final value		250.09	0.1619	39.15	0.97

Sample 10	Time	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average		249.912	0.1609	38.91	0.97
Min		249.320	0.1604	38.90	
Max		250.750	0.1612	38.93	
Calibration correction (see CH calibrat		1.0013	1.0025	1.0013	
Instrument impedance correction (CH)			0.00023	0.053	
Final value		250.22	0.1611	38.91	0.97

Electrical operating parameters of BEGA (77 930S) LED Pole Top Luminaire

Sample No.	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Sample 1	249.736	0.163	39.311	0.965
Sample 2	250.537	0.162	39.035	0.965
Sample 3	250.499	0.160	38.635	0.967
Sample 4	250.129	0.159	38.517	0.968
Sample 5	250.737	0.162	39.223	0.970
Sample 6	250.036	0.160	38.659	0.968
Sample 7	249.907	0.160	38.671	0.967
Sample 8	250.713	0.157	38.260	0.972
Sample 9	250.093	0.162	39.152	0.969
Sample 10	250.225	0.161	38.913	0.968
Average	**250.14**	**0.16**	**39.17**	**0.97**

Illustration 1: Electrical operating parameters of BEGA (77930S) LED Pole Top Luminaire

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: Clarke Hess Sampling Wattmeter 2335 Serial No. 52164
Power meter integration time (s): 5
Calibration Report: Ausgrid 220537
Luminaire thermometer: AMA S No. 1086110-0.1deg

General Photographs

Illustration 2: Luminaire marking

Illustration 3: Optical opening (with safety glass)

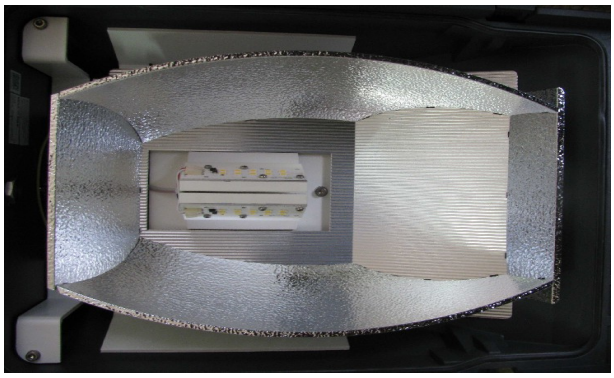

Illustration 4: Optical opening (with safety glass removed)

Illustration 6: LED modules

Illustration 5: LED driver

Illustration 7: Luminaire setup