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# Test Report: 170502LCP

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

for Sylvania Modular LED 25W Luminaire Model No. LC99BDXXL25

Project No: PRT 5202A

*Type of product:* LED Streetlight

*Prepared for:* Gerard Lighting Pty Ltd

*Model number:* LC99BDXXL25

*Description:* 25W Modular LED StreetLight. Features die-cast aluminium body with clear drop visor incorporating a 140mm x 165mm prismatic diffusing patch, 1x Samsung LED module powered from a Philips Xitanium driver 40W 0.7A Prog+ GL-J sXt model number 929000736203 set at 403mA.

## 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:*

Gerard Lighting Pty Ltd contact Scott Powell, 96 Gow St, Padstow, NSW 2211

Tested by: Alain Yetendje On 02/05/2017 Authorised Signatory Date: 03/05/2017

Alain Yetendje

The data specified in this report relates to the sample measured under standard conditions specified in the Test Specification, and may not necessarily relate to other similar luminaires or other operating conditions. The tests and measurements covered by this document are traceable to Australian national standards of measurement. This report shall only be reproduced in full unless approved in writing by Light Emission Distribution Laboratory (LEDLab).

## Conclusions

Test results are given in following Tables.
**The Average Load (W) is 24.95W at 0.92Power Factor**.

## Results

Time till stabilisation: 3h

## Electrical Measurements

| Sample 1 | Supply Voltage (Vrms) | Input Current (Arms) | Input Power (W) | Power Factor |
|---|---|---|---|---|
| Average | 250.186 | 0.109 | 25.000 | 0.920 |
| Min | 249.880 | 0.109 | 24.998 | 0.919 |
| Max | 250.630 | 0.109 | 25.003 | 0.920 |
| 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 | 250.14 | 0.1084 | 24.94 | 0.920 |

| Sample 2 | Supply Voltage (Vrms) | Input Current (Arms) | Input Power (W) | Power Factor |
|---|---|---|---|---|
| Average | 249.862 | 0.109 | 24.998 | 0.920 |
| Min | 249.500 | 0.109 | 24.995 | 0.920 |
| Max | 250.260 | 0.109 | 24.999 | 0.920 |
| 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 | 249.81 | 0.1085 | 24.94 | 0.920 |

| Sample 3 | Supply Voltage (Vrms) | Input Current (Arms) | Input Power (W) | Power Factor |
|---|---|---|---|---|
| Average | 249.856 | 0.109 | 25.050 | 0.921 |
| Min | 249.140 | 0.109 | 25.046 | 0.921 |
| Max | 250.650 | 0.109 | 25.056 | 0.922 |
| 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 | 249.81 | 0.1086 | 24.99 | 0.922 |

| Sample 4 | Supply Voltage (Vrms) | Input Current (Arms) | Input Power (W) | Power Factor |
|---|---|---|---|---|
| Average | 249.920 | 0.108 | 25.014 | 0.924 |
| Min | 249.200 | 0.108 | 25.009 | 0.923 |
| Max | 250.340 | 0.109 | 25.019 | 0.924 |
| 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 | 249.87 | 0.1081 | 24.95 | 0.924 |

| Sample 5 | Supply Voltage (Vrms) | Input Current (Arms) | Input Power (W) | Power Factor |
|---|---|---|---|---|
| Average | 250.433 | 0.108 | 24.910 | 0.921 |
| Min | 249.950 | 0.108 | 24.906 | 0.920 |
| Max | 250.830 | 0.108 | 24.914 | 0.921 |
| 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 | 250.38 | 0.1078 | 24.85 | 0.921 |

| Sample 6 | Supply Voltage (Vrms) | Input Current (Arms) | Input Power (W) | Power Factor |
|---|---|---|---|---|
| Average | 250.042 | 0.108 | 24.966 | 0.923 |
| Min | 249.440 | 0.108 | 24.959 | 0.923 |
| Max | 250.540 | 0.108 | 24.971 | 0.924 |
| 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 | 0.1079 | 24.91 | 0.924 |

| Sample 7 | Supply Voltage (Vrms) | Input Current (Arms) | Input Power (W) | Power Factor |
|---|---|---|---|---|
| Average | 249.881 | 0.109 | 25.085 | 0.923 |
| Min | 249.430 | 0.109 | 25.083 | 0.922 |
| Max | 250.350 | 0.109 | 25.087 | 0.923 |
| 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 | 0.1085 | 25.03 | 0.923 |

| Sample 8 | Supply Voltage (Vrms) | Input Current (Arms) | Input Power (W) | Power Factor |
|---|---|---|---|---|
| Average | 249.869 | 0.108 | 24.988 | 0.922 |
| Min | 249.590 | 0.108 | 24.985 | 0.922 |
| Max | 250.150 | 0.109 | 24.991 | 0.922 |
| 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 | 249.82 | 0.1082 | 24.93 | 0.922 |

| Sample 9 | Supply Voltage (Vrms) | Input Current (Arms) | Input Power (W) | Power Factor |
|---|---|---|---|---|
| Average | 250.009 | 0.108 | 24.852 | 0.918 |
| Min | 249.730 | 0.108 | 24.848 | 0.918 |
| Max | 250.260 | 0.108 | 24.854 | 0.918 |
| 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 | 249.96 | 0.1080 | 24.79 | 0.918 |

| Sample 10 | Supply Voltage (Vrms) | Input Current (Arms) | Input Power (W) | Power Factor |
|---|---|---|---|---|
| Average | 250.183 | 0.109 | 25.200 | 0.920 |
| Min | 249.510 | 0.109 | 25.194 | 0.920 |
| Max | 250.360 | 0.110 | 25.204 | 0.921 |
| 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 | 250.13 | 0.1092 | 25.14 | 0.920 |

Electrical operating parameters of Modular LED 25W

| Sample No. | Supply Voltage (Vrms) | Input Current (Arms) | Input Power (W) | Power Factor |
|---|---|---|---|---|
| Sample 1 | 250.186 | 0.108 | 24.941 | 0.920 |
| Sample 2 | 249.812 | 0.109 | 24.938 | 0.920 |
| Sample 3 | 249.806 | 0.109 | 24.991 | 0.921 |
| Sample 4 | 249.870 | 0.108 | 24.954 | 0.924 |
| Sample 5 | 250.383 | 0.108 | 24.850 | 0.921 |
| Sample 6 | 249.992 | 0.108 | 24.907 | 0.923 |
| Sample 7 | 249.831 | 0.109 | 25.026 | 0.923 |
| Sample 8 | 249.819 | 0.108 | 24.929 | 0.922 |
| Sample 9 | 249.959 | 0.108 | 24.792 | 0.918 |
| Sample 10 | 250.132 | 0.109 | 25.140 | 0.920 |
| **Average** | **249.98** | **0.11** | **24.95** | **0.92** |

*Illustration 1: Electrical operating parameters of Modular LED 25W*

## 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: LED driver*

*Illustration 4: Setup*