

Temperature Measurement Test

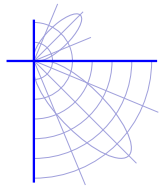
LL2312501A-I-R01

This report supersedes report LL2312501A-I

This test report was issued by LightLab International without alterations or amendments


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Test Report Number LL2312501A-I-R01

Client	Western Power 363 Wellington Street, Perth, WA 6000.
Contact	Thomas Marchant
Sample Description	An 18 W LED replacement lamp in a weathered Sylvania B224 80MV HPF RFI/TVI PEB streetlantern. The streetlantern comprises: cast aluminium housing with black plastic backshell and clear prismatic lens. The original Tridonic OMB80-03 iron-core ballast and PF correction capacitor remained in circuit for testing (the photocell did not form part of sample as received). The spigot was horizontal. One Philips 9290023499 220-240V 50/60 Hz 18W 3000K 3000lm integrated replacement lamp.
Reference Document Summary	No reference document is defined for this test
Nature of Tests	To determine the maximum value of Tc for an LED replacement lamp in a customer supplied streetlight fitting, Measurement methods and conditions in accordance with the standards noted in the Observations and Determinations table: - the sample supply voltage and frequency were set to the input values noted in the Observations and Determinations table. - lamp Tc was measured - other points of interest were measured for temperature
Sample Selection	This laboratory has not exercised control over the selection of samples to be tested. The significance of the report is limited to the extent that the sample is representative of the population.
Applicability	The results apply only to the sample that was tested.
Uncertainties	Uncertainties available on request.
Procedure Details	LightLab procedure Test-B3038. Testing was performed in a draught free, controlled environment. The sample was energised and operated until it reached thermal and electrical stability prior to measurements being performed. Observations and determinations relevant to the test are listed in the Observations and Determinations Table. Measurements are recorded in the Measurements Table.
Results of Tests	Compliance not relevant to the tests. Refer to the tables for test conditions, determinations and measurements.

Authorised Signatory 
P. Lawrance

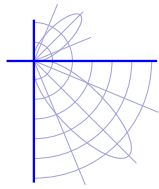
Date of Test 5th May, 2023
Date of Report 8th Jun, 2023

History LL2312501A-I - Original report
LL2312501A-I-R01 - Corrected the stabilisation duration


B3007 ISTM Report & 60598-1 12.4 report, V5.1, 15th Mar 21

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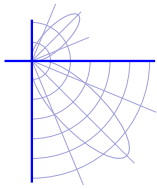
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Observation	Determination
Standard(s) tested	(a) ASNZS60598.1:2017 section 12.4.1 excepting: clause 12.4.1 (d) & applicable 60598-2-X document Temperature measurement points limited to those listed in the results section. Ambient temperature not set to the T _a rating of the luminaire Supply voltage set to 240 V 50 Hz.
Sample (manufacturer, model)	Sylvania – B2224 80MV HPF RFI/TVI PEB
Integrated LED lamp (manufacturer, model)	Philips - 9290023499
Manufacturer's installation instructions	Not supplied
Luminaire type specific observations	Spigot mount luminaire
Sample mounting	Horizontal
Sample T _a rating	Not labelled, tested at 25°C per customer instructions
Sample electrical input rating	Not labelled
Supply setpoint	240 V 50 Hz
Luminaire configuration	As supplied
LED T _s location	

Observations & Determinations Table

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Electrical & environment		Temperatures ⁽¹⁾	
Supply Voltage (ac)	240 V	Driver Tc point (TC #1)	30.5 °C
Supply Power	18.4 W	LED Tc (TC #3)	62.5 °C
Supply Current (ac)	260 mA	Lamp chamber T (TC #4)	34.5 °C
Supply Frequency	50 Hz		
Power Factor	0.30		
Measured Ambient Temperature	25.5 °C		
Stabilisation time *	17.5 hours		
Test duration *	0.5 hours		

Measurements Table

* NATA accreditation does not cover the performance of this service.

⁽¹⁾ All temperature measurements, apart from Measured Ambient, have been normalised to 25°C.



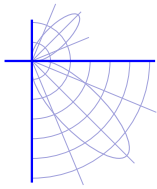
Thermocouple attachment points



Lamp Replacement

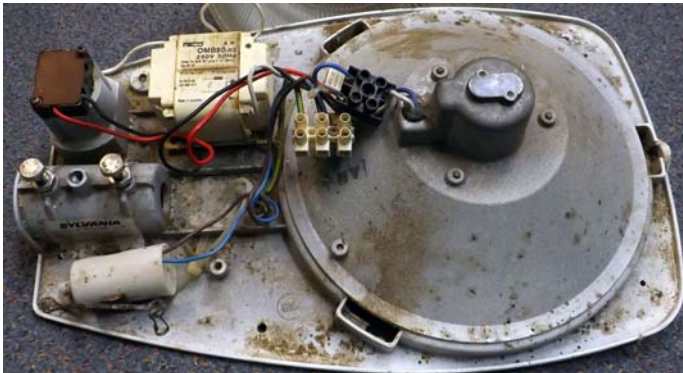
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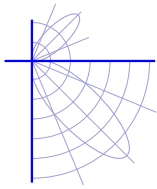
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Photographs:



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Thermocouple placement:

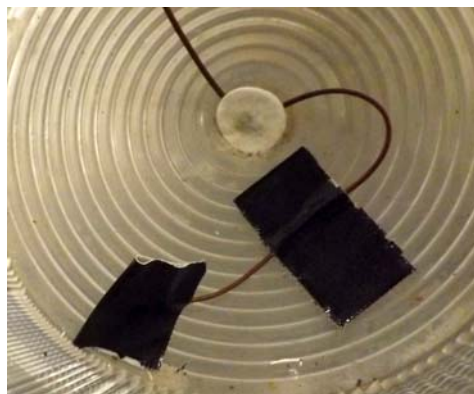
TC# 1



TC# 3

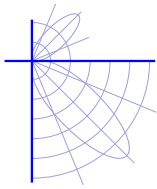


TC# 4



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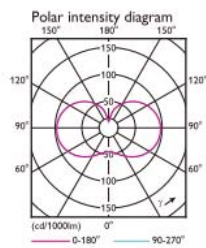
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Annex 1 – External documents

Extract from “Technical application guide – Philips TrueForce Core LED Urban” dated 02/2021, Published by Philips Lighting. Extract shows data for lamp, including expected lifetime of the lamp vs case temperature.

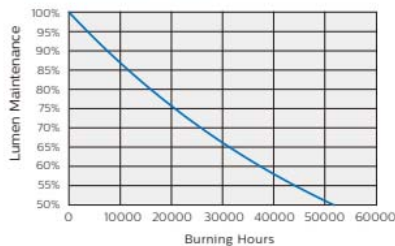
TForce Core LED HPL 36W E40 840 FR 1 x 6000 lm

Light output ratio 1.00 CIE flux code 18 43 71 52 100
Service upward 0.48 UGRcen (4Hx8H, 0.25H) 27
Service downward 0.52

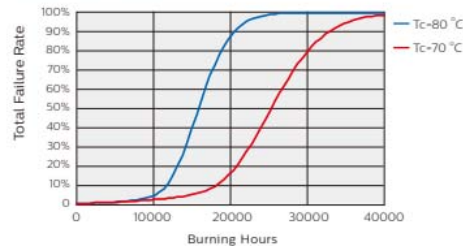


Lifetime + Sustainability

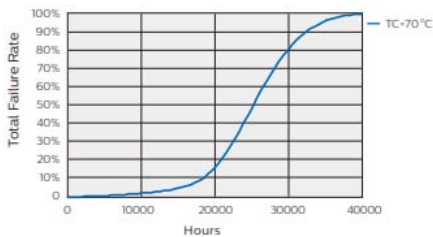
Lumen Maintenance vs Lifetime



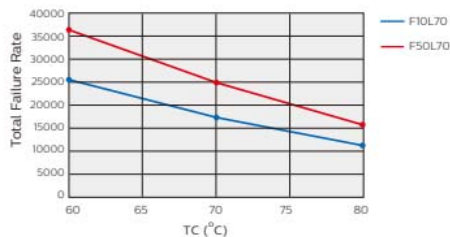
Failure Rate vs Lifetime



Lifetime vs. Failure Rate @ Ta 25 °C



Lifetime vs. Tcase



- Philips TrueForce LED Public lamps have lifetime of 25,000 hours, defined as the number of hours when 50% of a large group of identical lamps fall below 70% of its initial lumens.

- Lifetime estimation based on the application environment condition: please refer to the Tc for lifetime forecast.

