

LightLab  
INTERNATIONAL

LightLab International  
Brisbane QLD 4019.



Accredited for compliance with ISO/IEC 17025 - Testing.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accreditation No. 2258.

# In-Situ Temperature Measurement Test

## LL2132202-I

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

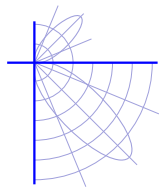
Page 1 of 7



USA LightLab International, LLC Ph : +1 623-434-1499  
west 24825 N. 16<sup>th</sup> Avenue Fx : +1 623-434-1492  
coast Suite 125 [www.lightlabint.com](http://www.lightlabint.com)  
Phoenix, AZ, 85085


USA LightLab Int'l Allentown LLC Ph: +1 484-273-0705  
east 905 Harrison Street [www.lightlabint.com](http://www.lightlabint.com)  
coast Suite 135  
Allentown, PA 18103

Australasia LightLab International Ph : +61 7 3283 7862  
& 50 Redcliffe Gardens Drive Fx : +61 7 3283 8751  
S.E. Asia Clontarf [www.lightlabint.com](http://www.lightlabint.com)  
Queensland, 4019, Australia (issuing laboratory)



**Test Report Number LL2132202-I**

Client	Interglo Lighting Pty. Ltd. 11E Plane Tree Avenue, Dingley Village. VIC. 3172.
Contact	Cameron Ely
Sample Description	A 12 W recessed LED downlight, Product ID: XE12. The sample comprises: white metal fascia and grey finned formed housing, one truncated cone combination reflector/diffuser, one white LED PCB, one remote electronic driver. Reflector has a stippled finish, diffuser is translucent with stippled finish on upper surface.
Reference Document Summary	LM-80 test report 160022W7 (Doc. No. 130484W9), on Osram Duris S 5 GW PSLPS1.EC LED, dated 15 <sup>th</sup> August 2019. Report issued by Osram Opto Semiconductors GmbH, Reliability Engineering Test and Analysis Laboratory, Liebnizstraße 4, 93055 Regensburg.
Nature of Tests	To determine the maximum value of $T_s$ for a number of LEDs, where the LEDs are selected in accordance with IES LM-84-14 Annex A. The location of $T_s$ is defined in the Reference Document. Measurement methods and conditions in accordance with the standards noted in the Observations and Determinations table:  <ul style="list-style-type: none"> <li>- the sample supply voltage and frequency were set to the input values noted in the Observations and Determinations table.</li> <li>- LED <math>T_s</math> was measured</li> <li>- driver <math>T_c</math> was measured</li> </ul>
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

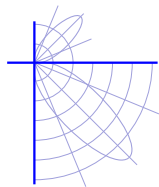
Date of Test 22<sup>nd</sup> Nov 2021  
 Date of Report 2<sup>nd</sup> Dec 2021

B3007 ISTM Report & 60598-1 12.4 report, V4.9, 1<sup>st</sup> Dec 2021

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

Page 2 of 7





**Test Report Number LL2132202-I**

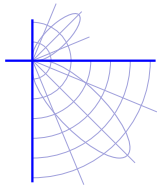
Observation	Determination
Standard(s) tested	VEU requirements: (a) AS/NZS60598.1:2017 section 12.4.1 excepting: clause 12.4.1 (d) & applicable 60598-2-X document (b) IES LM-84-14 Annex A
Sample (manufacturer, model)	Interglo Lighting – XE12
LED (manufacturer, model)	Osram - Duris S GW PSLPS1.EC
Driver (manufacturer, model)	Lifud – LF-GDE014YG (set to “300 mA” output)
Manufacturer's installation instructions	Not supplied
Reference document applicability	<p><b>Appendix B: Additional Models Covered By Testing</b></p> <p>The 28 September 2017 ENERGY STAR® Requirements for the Use of LM-80 Data defines conditions for which a LM-80 report is applied to cover models that have not been directly tested.</p> <p>The following list of models may be covered by the test results in this report:</p> <ul style="list-style-type: none"> <li>DURIS® S 5 GW PSLPS1.EC with CCT 2700 K – 6500 K</li> <li>DURIS® S 5 GW PSLPS1.CC with CCT 2700 K – 4000 K</li> <li>DURIS® S 5 GW PSLPS1.EC with CCT 2700 K – 6500 K</li> </ul>
Luminaire type specific observations	Recessed luminaire
Sample mounting	Fitting and driver were recessed with fascia horizontal and beam downward.
Sample T <sub>a</sub> rating	Not stated, deemed to be 25 °C for testing purposes
Sample electrical input rating	AC220-240V, 50-60Hz
Supply setpoint	230 V 50 Hz
Luminaire configuration	Mains power supplied to all parts of circuit
Selection of LED(s)	In accordance with IES LM-84-14 using thermal imaging camera
LED forward current determination method	Fanout of 12C2B printed on LED circuit board. Inspection yields 2 strings of 12 LEDs. Therefore fanout is 2:1.
Reference doc. LED dimensions	The dimensions of the LED from LM-80 report 3.0 x 3.0 mm
Reference doc. LED T <sub>s</sub> location	

Observations & Determinations Table

:-

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





**Test Report Number LL2132202-I**

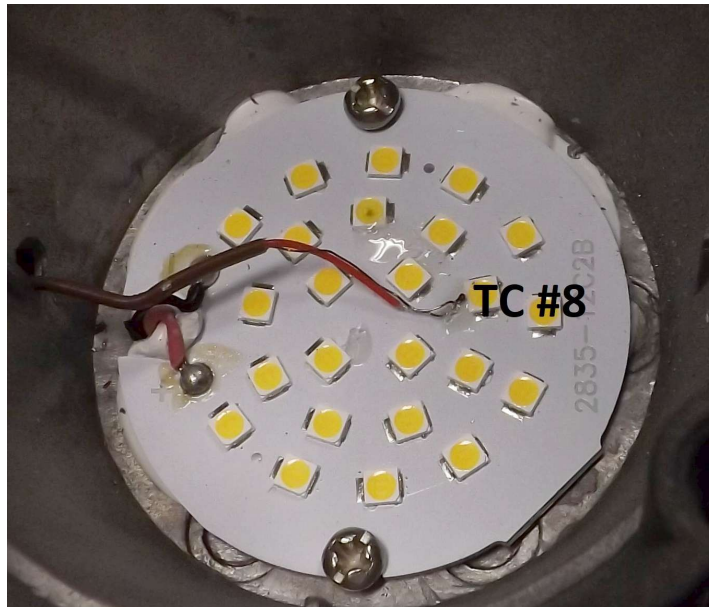
Electrical & environment		Temperatures <sup>(1)</sup>	
Supply Voltage (ac)	230 V	Driver Tc point (TC # 7)	48.9 °C
Supply Power	12.6 W	LED Ts (TC # 8)	83.0 °C
Supply Current (ac)	59 mA		
Supply Frequency	50 Hz		
Power Factor	0.93		
Driver Output Current (dc)	294 mA		
Average LED Forward Current <sup>(2)</sup>	147 mA		
Measured Ambient Temperature	25.1 °C		
Dimensions of LED *	3.0 x 3.0 mm		
LED count	24		
Stabilisation time *	66.0 hours		
Test duration *	0.25 hours		

Measurements Table

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

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

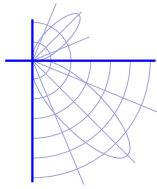
<sup>(2)</sup> The Average LED Forward Current has been calculated by dividing the Driver Output Current by the LED Circuit Fanout.



Thermocouple attachment points

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





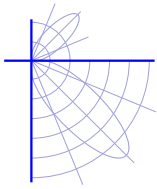
Test Report Number LL2132202-I

Photographs:



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





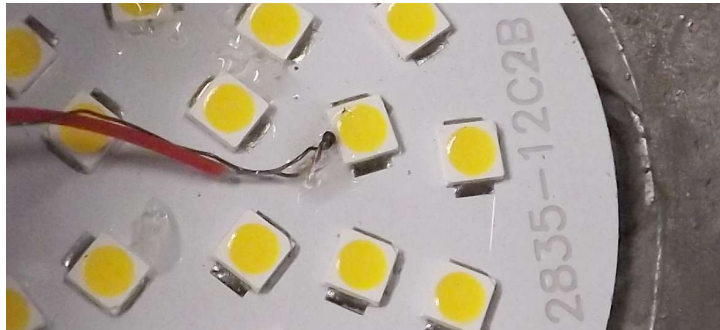
Test Report Number LL2132202-I

Thermocouple placement:

TC# 7



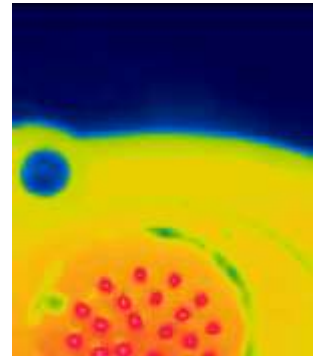
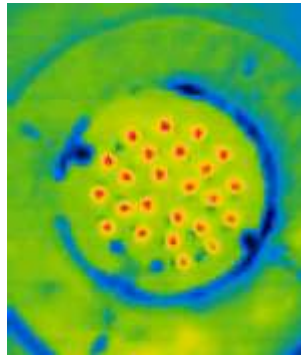
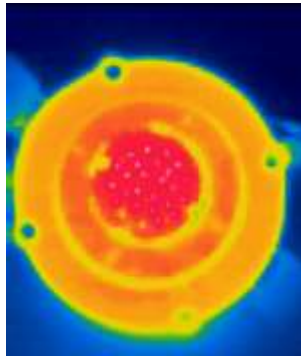
TC# 8



Relative temperature

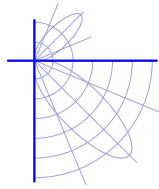


IR Thermography heat map



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





**Test Report Number LL2132202-I**

**Annex 1 – Determination of Lumen Maintenance Life of LEDs**

**Method** Determination of the L<sub>70</sub> projected lumen maintenance of LEDs in accordance with IESNA TM-21-11 and its associated series of addenda. Calculations were performed using the TM-21 calculator spreadsheet published by Energy Star and located at [www.energystar.gov](http://www.energystar.gov).

**Calculator revision** Revision 06-18-2018

**Calculation results** The quantities in the tables below have been calculated for the LEDs based on the measurements, determinations and observations in this report. The table includes the Reported L<sub>70</sub> projected lumen maintenance value. Refer to IESNA TM-21-11 for definitions of the quantities.

Quantity	Value	Units
T <sub>s,1</sub>	55	°C
T <sub>s,1</sub>	328.15	K
α <sub>1</sub>	6.420E-06	
B <sub>1</sub>	1.0268	
T <sub>s,2</sub>	8.50E+01	°C
T <sub>s,2</sub>	358.15	K
α <sub>2</sub>	4.878E-06	
B <sub>2</sub>	1.0188	
E <sub>a</sub> /k <sub>b</sub>	-1.08E+03	
A	0	
B <sub>0</sub>	1.0228	
T <sub>s,i</sub> (°C)	83	
T <sub>s,i</sub> (K)	356.15	
α <sub>i</sub>	4.961E-06	
Reported L70 (9K)	>54000	hour

L<sub>70</sub> and interpolation data

Quantity	Test condition 1	Test condition 2	Test condition 3	Units
Sample size	25	25	25	
Number of failures	0	0	0	
DUT drive current used in the test	160	160	160	mA
Test duration	9000	9000	9000	hour
Test duration used for projection	4,000 - 9,000	4,000 - 9,000	4,000 - 9,000	(hour - hour)
Tested case temperature	55	85	105	°C
α	6.420E-06	4.878E-06	4.095E-06	
B	1.027	1.019	0.98	
Reported L70 (9K)	>54000	>54000	>54000	hour

Test condition data used for interpolation

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

