

# Laboratory Test report



226-TEST

NBN EN ISO/IEC 17025 :2017



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Member of Schröder Group

FORM L-54 Edition 01 – Revision 04 – Date : 21/04/2021

## Thermal Test LED

### General information

**Subject :** IZYLUM LT 2 - 72 SEOUL 5050 - 850mA - Philips FP 165W - Zhaga socket

**Asked by :** CSIKÓS Balázs

**Created on :** 15/12/2022

**Started on :** 19/12/2022

**Test number :** D221139

**Reference norm :** IEC/EN 60598-1 Ed9 (2021) + A11 (2022); 60598-2-3 Ed3 (2002) +A1 (2011); 60598-2-5 Ed3 (2015)

**Sample(s) :** E220612

**Folder :** P-F22049

### Test conditions

**Luminaire :** IZYLUM LT 2

**Number of LED :** 72

**LED :** Seoul 5050

**Driver :** DRIVER\_SIGNIFY\_FP\_165W\_300.00-1050.00mA\_220-240V\_DALI\_C170\_ / 02-58-004

**Number of driver(s) :** 1

**Driver current (mA) :** 850

**Control system :** Zagha

**Operator :** CLOSSET Frédéric



lum

### Conclusion



Informative

**Conclusion :**

$\Delta T_s < 80^\circ\text{C}$  no risk of solder crack

Ta: 55°C limited by lenses according IEC 60598-2-3 and IEC 60598-2-5 (outdoor use only)

Ta: 45°C limited by lenses indoor use and UL standard

Tq: 30°C limited by lenses according IEC 62722-2-1

Tq given for 100 khrs of lifetime

Validated by :

LERHO Xavier

Duplicate to : PELSŐCZI Zoltán, GÖRGÉNYI Emese,  
HORVÁTH Balázs, SZÜGYI János Péter, LÁMFALUSI  
Ferenc, CSIKÓS Balázs, CSENKI Máté

LAB : 20/12/2022

**D221139**

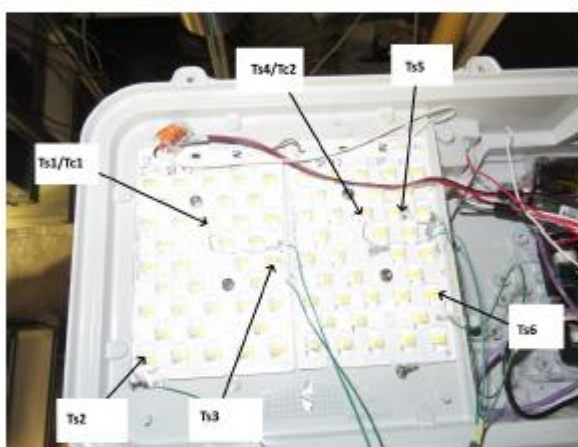
1/4

## Test(s) details

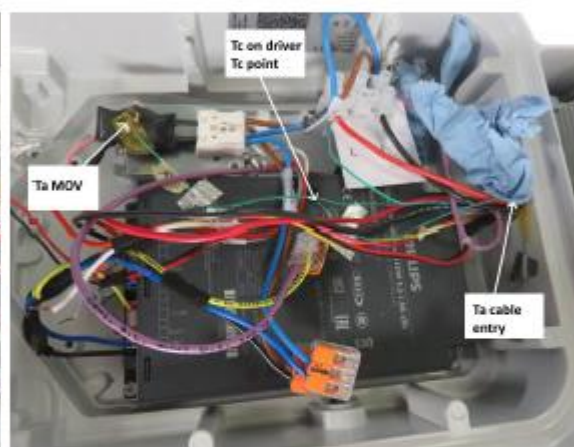
### Test(s)

Name	Description	Verdict
Sensors positions	Disposition of the thermocouples on the DUT.	Informative
Test @ 850mA	Test according section 12.4 of IEC 60598-1. The DUT is driven until all thermocouples reach thermal stabilization (i.e. variation = 1K/h). Evaluation of the harmonics behaviour according IEC 61000-3-2 - Not covered by the laboratory's accreditation.	Informative

### Sensors positions



*pos\_thermo1*



*pos\_thermo2*

**Test @ 850mA**

**Verdict(s)**

	Ts1	Ts2	Ts3	Ts4	Ts5	Ts6	Driver	MOV	Ta Cable entry
Limit Ta	99.0 °C	99.0 °C	99.0 °C	99.0 °C	99.0 °C	99.0 °C	90.0 °C	90.0 °C	90.0 °C
Limit Tq	85.0 °C	85.0 °C	85.0 °C	85.0 °C	85.0 °C	85.0 °C	80.0 °C	90.0 °C	90.0 °C
Thermocouple T°	71.2 °C	74.7 °C	73.6 °C	68.0 °C	68.4 °C	68.1 °C	57.4 °C	38.1 °C	31.2 °C
Room	22.5 °C	22.5 °C	22.5 °C	22.5 °C	22.5 °C	22.5 °C	22.5 °C	22.5 °C	22.5 °C
E Led	5.6 V	5.6 V	5.6 V	5.6 V	5.6 V	5.6 V			
I Led	0.281 A	0.281 A	0.281 A	0.281 A	0.281 A	0.281 A			
P Led	1.6 W	1.6 W	1.6 W	1.6 W	1.6 W	1.6 W			
Heating	48.7 °C	52.2 °C	51.1 °C	45.5 °C	45.9 °C	45.6 °C	34.9 °C	15.6 °C	8.7 °C
Ta Indoor	50.3 °C	46.8 °C	47.9 °C	53.5 °C	53.1 °C	53.4 °C	55.1 °C	74.4 °C	81.3 °C
Tq	36.3 °C	32.8 °C	33.9 °C	39.5 °C	39.1 °C	39.4 °C	45.1 °C	74.4 °C	81.3 °C
Solder point temperature used as the image of the lens temperature									
Primary EM	Secondary Em Dr1								
U	230.0 V	U	133.6 V						
I	0.544 A	I	0.844 A						
P	122.5 W	P	112.8 W						
PF	0.979								
Efficiency	92.1%								
THD	5.0%								
Harmonics - 100%	PASS								

Test room temperature (°C) :

22.5

Measurement equipment :

Keithley with thermocouples type K (E097)  
Norma 4000 (E110)  
APT (E102)

Quantities measured :

Qualification of the thermal limits and measurement of the electrical behavior of a luminaire according to PT-S-07

Uncertainties :

Statement of uncertainties (K=2, 95% of confidence level):

Temperature: 1,26 K  
Voltage (AC): 0,33%  
Current (AC): 0,33 %  
Power (AC): 0,27%  
Voltage (DC): 0,3 %  
Current (DC): 0,3%  
Power (DC): 0,23%  
Anemometer:  $\pm 0,27$  m/s

Decision rules :

Pass/fail criteria for individual test statement of conformity (Verdict):

No pass/fail criteria applied on electrical measurements, except on harmonics where the criteria of IEC 61000-3-2 are applied (the harmonics are not covered by the laboratory's accreditation).

No pass/fail criteria applied on thermal measurements when performed at 25°C (+/- 5°C), the Ta/Tq values are calculated according GDE-POL-001.

Pass/fail criteria on thermal qualification (test performed at announced Ta or Tq)

At the announced Ta, no component is above its maximum limit of operation : success

At the announced Ta, at least 1 component is above its maximum limit of operation : fail

According to IEC 60598-2-3 and IEC 60598-2-5 Standards, the maximum limit of every component can be augmented by 10 K provided that the luminaire is intended for outdoor use only.

At the announced Tq, no component is above its selected performance limit of operation: success

At the announced Tq, at least 1 component is above its selected performance limit of operation : fail

According to IEC 62722-2-1, the selected performance limit cannot be augmented by 10 K even if the luminaire is intended for outdoor use.

Any Ta/Tq defined value will be rounded down to the nearest multiple of 5.

In any case, test at 25°C or test at Ta or Tq, if delta Ts is above the recommended value of the GDE-POL-001, the test is failed.

Pass/fail criteria for the test report statement of conformity (Conclusion):

At least one of the individual test statements of conformity (Verdict) is successful: success, the highest achieved Ta/Tq is reported

Otherwise: fail

End of accredited report :

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