

Laboratory Test report



226-TEST

NBN EN ISO/IEC 17025 :2017



R-Tech
Rue de Mons 3 – B-4000 Liège – Belgium
Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90
Member of Schröder Group

FORM L-54 Edition 01 – Revision 02 - Date: 14/11/2019

Thermal Test LED

General information

Subject : IZYLUM 2- 40 LH351C - Philips 110W - 620mA - Nema - Class II

Asked by : SZÜGYI János Péter

Created on : 28/02/2020

Started on : 03/03/2020

Test number : D200336

Reference norm : IEC/EN 60598-1; 60598-2-3; 60598-2-5 Standards

Sample(s) : E190879

Folder : P-F19085

Test conditions

Luminaire : IZYLUM 2

Number of LED : 40

LED : Samsung LH351C

Driver : Xi LP 110W 0.2-0.7A S1 230V C133 sXt / 00-70-392

Number of driver(s) : 1

Driver info : Tc max 90°C

Driver current (mA) : 620

SPD : Izylhub full control fuse CLII 01-01-810

Junction Temperature measurement method : Junction temperature measurement by base temperature measurement and electrical measurement. $T^{\circ}j = T^{\circ}b + R_{jb} \times P_{led}$

Operator : KOY Fiston



IMG_6054

Conclusion



Informative

Conclusion :

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

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

Ta: 50°C limited by driver; indoor use and UL standard

Tq: 35°C limited by driver; according IEC 62722-2-1

Tq given for 100 khrs of lifetime

Validated by :

GHYSENS Gilles

Duplicate to : SZÜGYI János Péter, HEYMANS Tom,

LÁMFALUSI Ferenc, HORVÁTH Csaba, BEDŐ Péter, BOS Peter

LAB : 24/03/2020

D200336

1/3

Test(s) details

Test(s)

Name	Description	Result
Test @ 620mA		Informative

Test @ 620mA

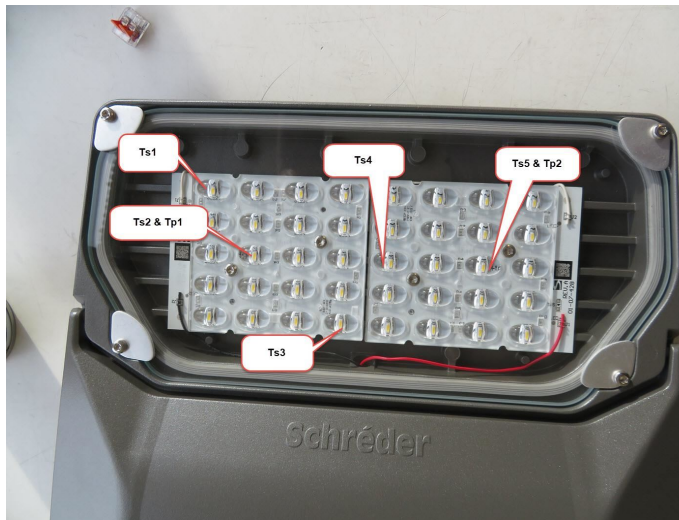
Result(s)

	Ts1	Ts2 & Tp1	Ts3	Ts4	Ts5& Tp2	Tc driver	Ta SPD	Ta Body
T° limite						90 °C	80 °C	90 °C
Junction T°	77.6 °C	78.7 °C	79.9 °C	79.3 °C	79.2 °C			
Thermocouple T°	67.0 °C	68.1 °C	69.3 °C	68.7 °C	68.6 °C	66.1 °C	38.7 °C	37.7 °C
Room	26.7 °C	26.7 °C	26.7 °C	26.7 °C	26.7 °C	26.7 °C	26.7 °C	26.7 °C
E led	5.70V	5.70V	5.70V	5.70V	5.70V			
I led	0.618A	0.618A	0.618A	0.618A	0.618A			
P led	3.52W	3.52W	3.52W	3.52W	3.52W			
Rth jonction-base	3.0 °C	3.0 °C	3.0 °C	3.0 °C	3.0 °C			
Heating						39.4 K	12.0 K	11.0 K
Δ Ts	40.3 K	41.4 K	42.6 K					

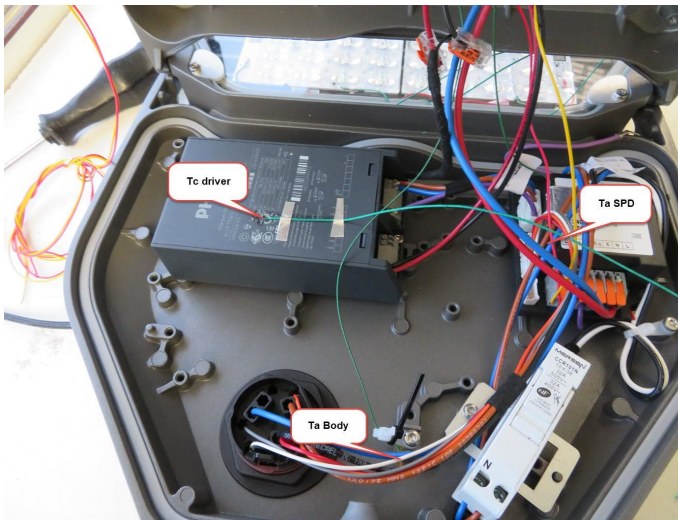
Solder point temperature used as the image of the lens temperature

Primary EM		Secondary EM dr1	
U	230.0V	U	114.1V
I	0.344A	I	0.618A
P	77.4 W	P	70.5 W
PF	0.976		
Efficiency	91%		

Annex(es)



IMG_6032



IMG_6038

Test room temperature (°C) :

26.7

Measurement equipment :

Keithley with thermocouples type K (E124)

Norma 4000 (E074)

APT (E113)

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: 0,6 °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 :

No pass/fail criteria applied on electrical measurements

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 reduced by the uncertainty on the temperature measurement: pass

At the announced Ta, at least 1 component is above its maximum limit of operation augmented by the uncertainty on the temperature measurement: fail

At the announced Ta, at least 1 component is at its maximum limit of operation $\pm$ the uncertainty on the temperature measurement and no other component is above its maximum limit of operation augmented by the uncertainty on the temperature measurement: pass with remark

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 reduced by the uncertainty on the temperature measurement: pass

At the announced Tq, at least 1 component is above its selected performance limit of operation augmented by the uncertainty on the temperature measurement: fail

At the announced Tq, at least 1 component is at its selected performance limit of operation $\pm$ the uncertainty on the temperature measurement and no other component is above its selected performance limit of operation augmented by the uncertainty on the temperature measurement: pass with remark

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.

End of test report :
