

Thermal Test LED

General information

Subject : IZYLUM 1 - 20 led's LH351C - OSRAM 50W driver 700mA - Nema - CL I

Asked by : SZÜGYI János Péter

Created on : 23/10/2019

Validated on : 30/10/2019

Test number : D190981

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

Sample(s) : E190743

Folder : P-F19084

Test conditions

Luminaire : IZYLUM 1

Number of LED : 20

LED : Samsung LH351C

Driver : Optotronic OT50/120-277/800 2DIM LT2 P / 00-14-564

Number of driver(s) : 1

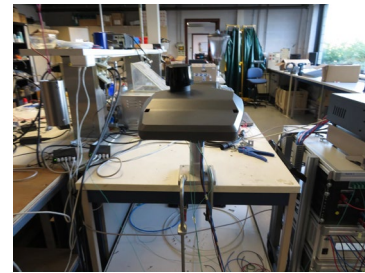
Driver info : Tc (max) 85°C

Driver current (mA) : 700

SPD : Izylhub Full Control Fuse CLI - 01-01-808


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

Operator : KOY Fiston



IMG_5301

Conclusion

 Informative

Conclusion :

$\Delta T_s < 80^\circ\text{C}$ 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: 45°C limited by driver; indoor use and UL standard

Tq: 30°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, HORVÁTH Csaba, BEDŐ

Péter, BOS Peter

LAB : 05/11/2019

D190981

1/3



Test(s) details

Test(s)

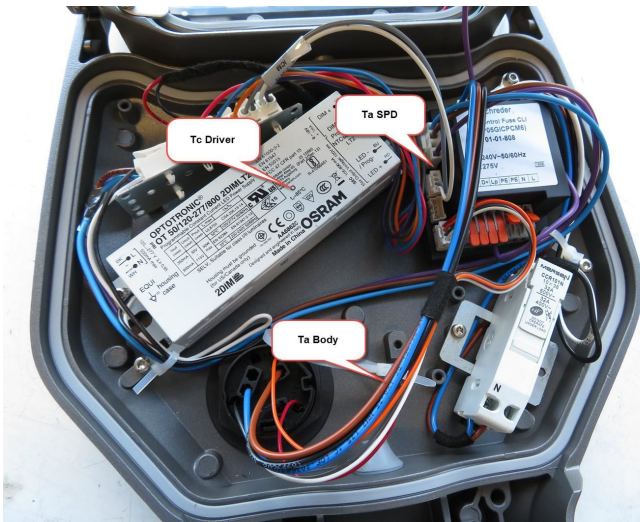
| Name | Description | Result |
|--------------|-------------|-------------|
| Test @ 700mA | | Informative |

Test @ 700mA

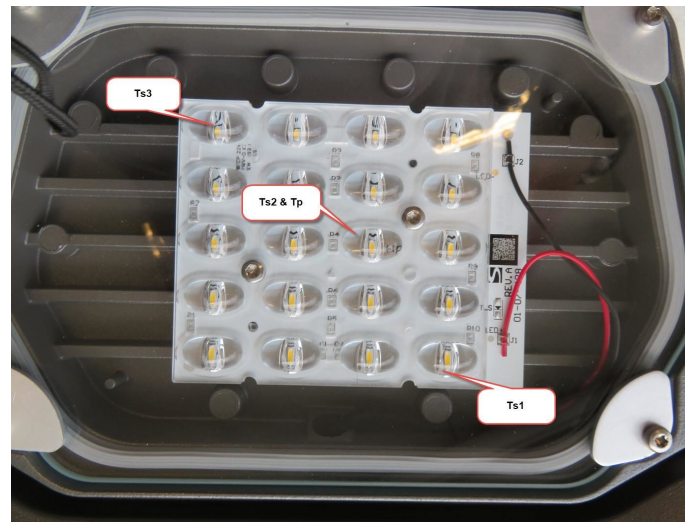
Result(s)

| | Ts1 | Ts2 & Tp | Ts3 | Tc driver | Ta SPD | Ta Body |
|-------------------|---------|------------------|---------|-----------|---------|---------|
| T° limite | | | | 85 °C | 70 °C | 90 °C |
| Junction T° | 70.1 °C | 72.2 °C | 72.2 °C | | | |
| Thermocouple T° | 64.1 °C | 66.3 °C | 66.3 °C | 61.2 °C | 40.4 °C | 36.0 °C |
| Room | 24.9 °C | 24.9 °C | 24.9 °C | 24.9 °C | 24.9 °C | 24.9 °C |
| E led | 2.86V | 2.86V | 2.86V | | | |
| I led | 0.694A | 0.694A | 0.694A | | | |
| P led | 1.99W | 1.99W | 1.99W | | | |
| Rth jonction-base | 3.0 °C | 3.0 °C | 3.0 °C | | | |
| Heating | | | | 36.3 K | 15.5 K | 11.0 K |
| Δ Ts | 39.2 K | 41.4 K | 41.3 K | | | |
| Primary EM | | Secondary EM dr1 | | | | |
| U | 230.0V | U | 57.2V | | | |
| I | 0.208A | I | 0.694A | | | |
| P | 46.6 W | P | 39.7 W | | | |
| PF | 0.971 | | | | | |
| Efficiency | 85% | | | | | |

Thermocouples disposition



IMG_5323



IMG_5275

Test room temperature (°C) : 24.9

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: 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: ± 0,27 m/s

Decision rules

No pass/fail criteria applied on electrical measurements

Pass/fail criteria on thermal qualification

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 ± 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 ± 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.

End of test report-----