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Member of Schréder Group

Thermal Test LED

Digitally signed by Ionel Igor
Date: 2022.07.28 20:22:22 EEST
Reason: MoldSign Signature
Location: Moldova

General information

Subject : ECOBLAST - 360 OSLON - ENEDO Driver - 1250mA - CL I - 70°

Asked by : BECSKE Imre
Created on : 01/04/2021
Started on : 16/04/2021
Test number : D210334
Reference norm : IEC/EN 60598-1; 60598-2-3; 60598-2-5 Standards
Sample(s) : E210109, E210112
Folder : P-F20030

Test conditions

Luminaire : ECOBLAST 6

Number of LED : 360

LED : Osram OSLON SQUARE GIANT

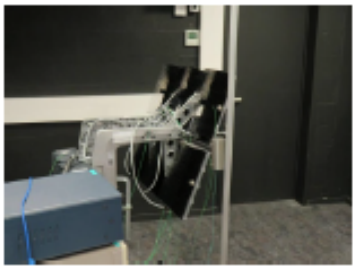
Driver : DRIVER_ENEDO_NONE_1800W:3_1250-2000mA_240-400V_DALI_._. / 01-26-746

Number of driver(s) : 1

Driver current (mA) : 1250

Additional load info : Tilt 70°

Operator : CLOSSET Frédérick



Conclusion

Conclusion :

ΔTs < 80°C no risk of solder crack

Ta: 50°C limited by connectors; according IEC 60598-2-3 and IEC 60598-2-5 (outdoor use only)
Ta: 40°C limited by connectors; indoor use and UL standard
Tq: 30°C limited by lenses; according IEC 62722-2-1

Tq given for 100 khrs of lifetime

Ta for D-Mark application : 40°C (This measurement is not covered by the laboratory's accreditation)

Validated by :

GHYSENS Gilles

Duplicate to : PELSŐCZI Zoltán, RACANELLI Frank, BECSKE Imre, CSIKÓS Balázs

LAB : 26/04/2021

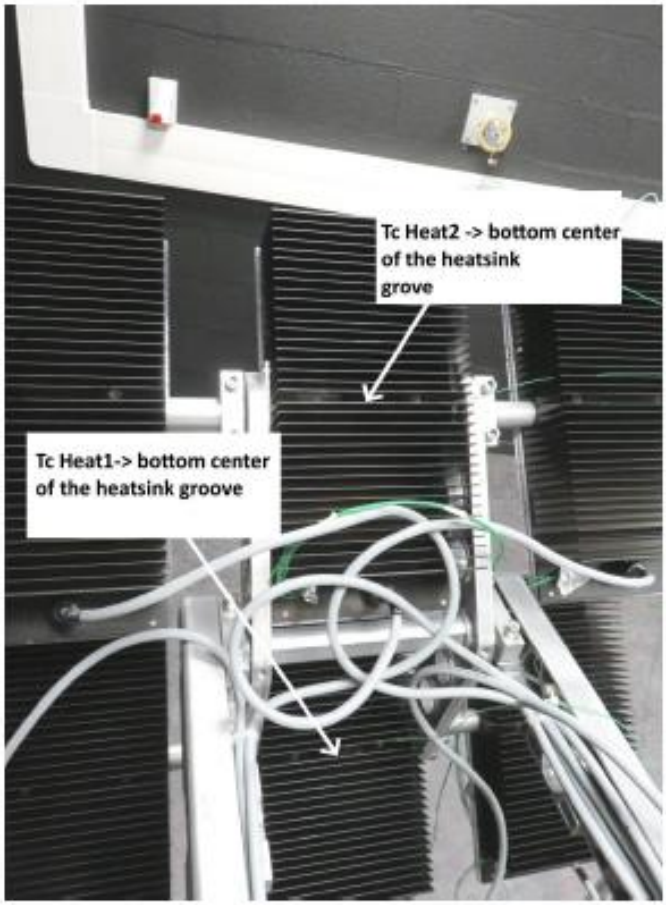
Test(s) details

Test(s)

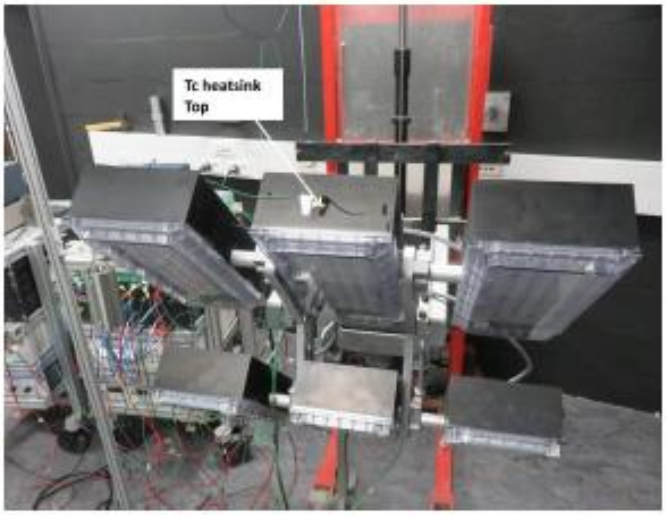
Name	Description	Verdict
Sensors positions	Disposition of the thermocouples on the DUT.	Informative
Test @ 1250mA	Test according section 12.4 of IEC 60598-1. The DUT is driven until all thermocouples reach thermal stabilization (i.e. variation = 1K/h).	Informative

Sensors positions

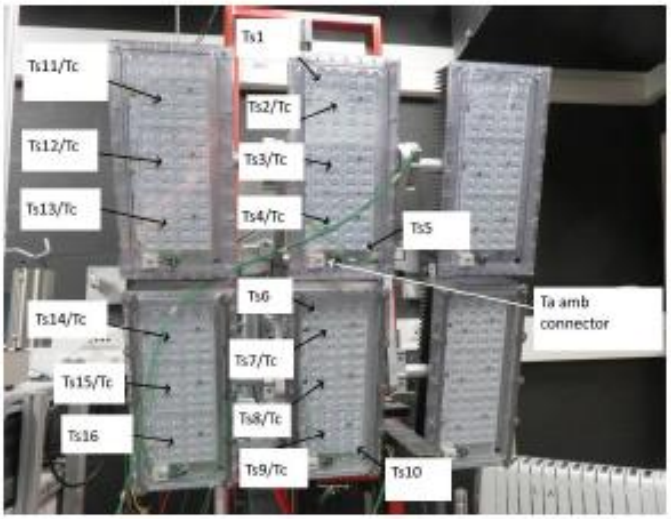
Annex(es)



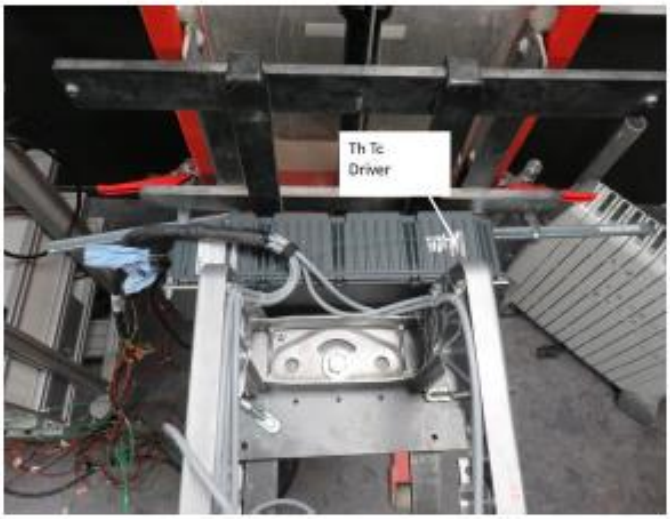
pos_thermo4



pos_thermo5



pos_thermo1



pos_thermo2

Test @ 1250mA

Verdict(s)

	Ts1	Ts2	Ts3	Ts4	Ts5	Ts6	Ts7	Ts8	Ts9	Ts10	Ts11	Ts12	Ts13	Ts14	Ts15	Ts16	Connector amb	Driver	heatsink1	heatsink2	heatsink top
Limit Ta	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	110.0 °C	85.0 °C	75.0 °C	90.0 °C	90.0 °C	90.0 °C
Limit Tq	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	95.0 °C	85.0 °C	75.0 °C	90.0 °C	90.0 °C	90.0 °C
Thermocouple T°	74.1 °C	74.7 °C	86.1 °C	84.9 °C	80.8 °C	80.7 °C	79.2 °C	85.1 °C	84.6 °C	79.9 °C	74.2 °C	74.9 °C	79.1 °C	84.4 °C	83.4 °C	85.0 °C	66.9 °C	42.6 °C	71.3 °C	71.9 °C	65.6 °C
Room	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C	25.4 °C
E Led	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V	2.9 V					
I Led	1.246 A	1.246 A	1.246 A	1.246 A	1.246 A	1.246 A	1.246 A	1.246 A	1.246 A	1.246 A	1.233 A	1.233 A	1.233 A	1.233 A	1.233 A	1.233 A					
P Led	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W	3.6 W					
Heating	48.7 °C	49.3 °C	60.7 °C	59.5 °C	55.4 °C	55.3 °C	53.8 °C	59.7 °C	59.2 °C	54.5 °C	48.8 °C	49.5 °C	53.7 °C	59.0 °C	58.0 °C	59.6 °C	41.5 °C	17.2 °C	45.9 °C	46.5 °C	40.2 °C
Ta Indoor	51.3 °C	50.7 °C	49.3 °C	50.5 °C	54.8 °C	54.7 °C	56.2 °C	50.5 °C	50.8 °C	55.5 °C	61.2 °C	60.5 °C	56.3 °C	51.0 °C	52.0 °C	50.4 °C	43.5 °C	57.8 °C	44.1 °C	43.5 °C	49.8 °C
Tq	46.3 °C	45.7 °C	34.5 °C	35.5 °C	39.6 °C	39.7 °C	41.2 °C	35.5 °C	35.8 °C	40.5 °C	46.2 °C	45.5 °C	41.5 °C	36.0 °C	37.0 °C	35.4 °C	43.5 °C	57.8 °C	44.1 °C	43.5 °C	49.8 °C
Solder point temperature used as the image of the lens temperature																					
Primary EM		Secondary Em Dr1		Secondary Em Dr2		Secondary Em Dr3															
U	240.6 V	U	350.1 V	U	348.9 V	U	349.9 V														
I	5.696 A	I	1.246 A	I	1.233 A	I	1.246 A														
P	1354.1 W	P	436.2 W	P	430.2 W	P	435.9 W														
PF	0.995																				
Efficiency	96.2%																				

The heatsinks are measured for the evaluation according IEC 60598-2-24 and are only taken into account for the Ta for D-Mark application.

Test room temperature (°C) :

25.4

Measurement equipment :

Keithley with thermocouples type K (E101)
Norma 4000 (E116)
APT (E108)

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

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 ± 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.

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 accredited report :
