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 Schréder Group

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

Thermal Test LED

Digitally signed by Ionel Igor
Date: 2021.06.06 14:57:09 EEST
Reason: MoldSign Signature
Location: Moldova

General information

Subject : IZYLUM 4 - 240 Osconiq S3030 - 2x LG 110W - Nema - CL I
Asked by : SZÜGYI János Péter
Created on : 08/04/2020
Started on : 10/04/2020
Test number : D200474
Reference norm : IEC/EN 60598-1; 60598-2-3; 60598-2-5 Standards
Sample(s) : E200256
Folder : P-F20015

Test conditions

Luminaire : IZYLUM 4
Number of LED : 240
LED : Osram OSCONIQ 3030S
Driver : LG 110W 200-700A Prog Modular EU / 00-36-982
Number of driver(s) : 2
Driver info : Tc max 80°C TC life 100khours 70°C
SPD : Izyhub 01-01-808 Tc 80°C
Additional components : NEMA 7P

Operator : CLOSSET Frédérick

Conclusion

Informative

Conclusion :

ΔTs < 80°C no risk of solder crack

500mA:
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

Remark : for Ta indoor the margin is below measurement uncertainties.

700mA:
Ta: 45°C limited by lenses; according IEC 60598-2-3 and IEC 60598-2-5 (outdoor use only)
Ta: 35°C limited by lenses; indoor use and UL standard
Tq: 20°C limited by lenses; according IEC 62722-2-1

Tq given for 100 khrs of lifetime

Validated by :

GHYSENS Gilles

Duplicate to : RACANELLI Frank, SZÜGYI János Péter, HEYMANS Tom, HORVÁTH Csaba, BEDŐ Péter

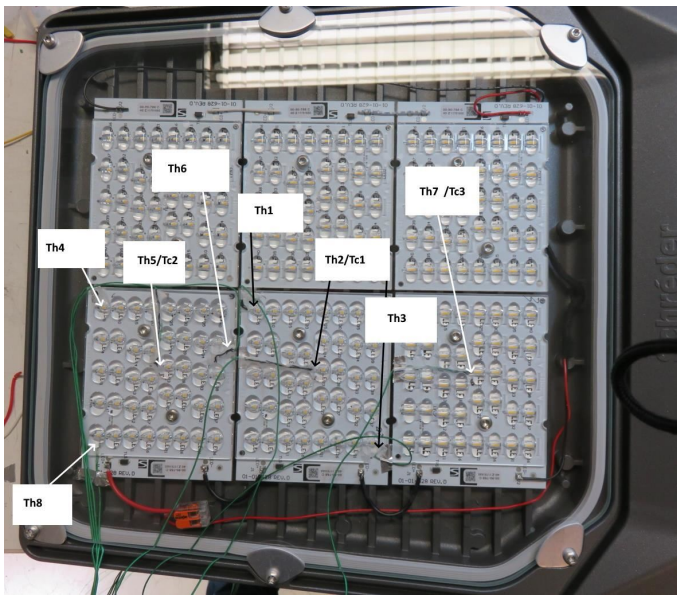
LAB : 20/04/2020

Test(s) details

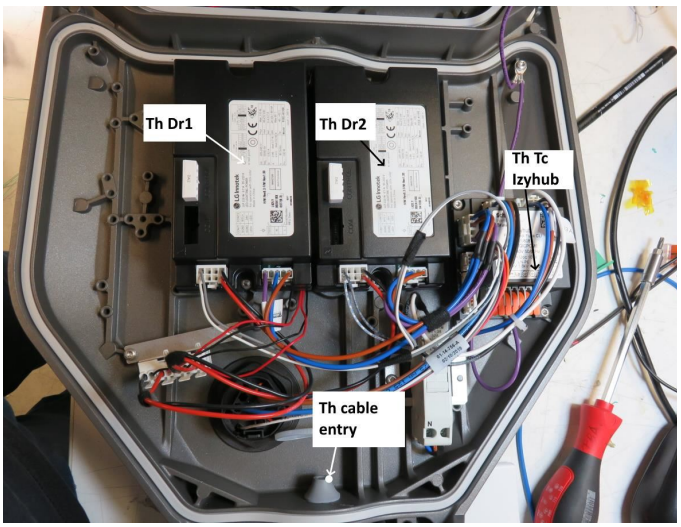
Test(s)

Name	Description	Result
Test @ 500mA		Informative
Test @ 700mA		Informative

Annex(es)



pos_thermo1



pos_thermo2

Test @ 500mA

Result(s)

	Ts1	Ts2/Tc1	Ts3	Ts4	Ts5/Tc2	Ts6	Ts7/Tc3	Ts8	Tc driver1	Tc driver2	Th Izy hub	Tc Cable
Limit Ta	**99 °C**		**99 °C**	**99 °C**	**99 °C**	**99 °C**	**99 °C**	**99 °C**	**80 °C**	**80 °C**	**80 °C**	**90 °C**
Limit Tq	**85 °C**		**85 °C**	**85 °C**	**85 °C**	**85 °C**	**85 °C**	**85 °C**	**70 °C**	**70 °C**	**80 °C**	**90 °C**
Thermocouple T°	66,4 °C		62,4 °C	64,5 °C	66,4 °C	66,0 °C	62,6 °C	61,7 °C	53,7 °C	53,4 °C	32,6 °C	30,7 °C
Room	24,1 °C		24,1 °C	24,1 °C	24,1 °C	24,1 °C	24,1 °C	24,1 °C	24,1 °C	24,1 °C	24,1 °C	24,1 °C
E led	5,72V	**Not Measured**	5,72V	5,72V	5,72V	5,72V	5,72V	5,72V				
I led	0,098A		0,098A	0,098A	0,098A	0,098A	0,098A	0,098A				
P led	0,56W		0,56W	0,56W	0,56W	0,56W	0,56W	0,56W				
Heating	42,3 K		38,3 K	40,4 K	42,3 K	41,9 K	38,5 K	37,6 K	29,6 K	29,3 K	8,5 K	6,6 K
Ta indoor	56,7 °C		60,7 °C	58,6 °C	56,7 °C	57,1 °C	60,5 °C	61,4 °C	50,4 °C	50,7 °C	71,5 °C	83,4 °C
Tq	42,7 °C		46,7 °C	44,6 °C	42,7 °C	43,1 °C	46,5 °C	47,4 °C	40,4 °C	40,7 °C	71,5 °C	83,4 °C
Solder point temperature used as the image of the lens temperature												

Primary EM		Secondary EM dr1		Secondary EM dr2	
U	229,7 V	U	137,3 V	U	137,8 V
I	0,635 A	I	0,492 A	I	0,491 A
P	144,4 W	P	67,5 W	P	67,6 W
PF	0,979				
Efficiency	94%				

Test @ 700mA

Result(s)

	Ts1	Ts2/Tc1	Ts3	Ts4	Ts5/Tc2	Ts6	Ts7/Tc3	Ts8	Tc driver1	Tc driver2	Th Izy hub	Tc Cable
Limit Ta	**99 °C**	**99 °C**	**99 °C**	**99 °C**	**99 °C**	**99 °C**	**99 °C**	**99 °C**	**80 °C**	**80 °C**	**80 °C**	**90 °C**
Limit Tq	**85 °C**	**85 °C**	**85 °C**	**85 °C**	**85 °C**	**85 °C**	**85 °C**	**85 °C**	**70 °C**	**70 °C**	**80 °C**	**90 °C**
Thermocouple T°	86,0 °C	84,7 °C	79,7 °C	83,0 °C	85,7 °C	84,8 °C	80,3 °C	79,3 °C	62,4 °C	62,3 °C	36,8 °C	34,2 °C
Room	24,8 °C	24,8 °C	24,8 °C	24,8 °C	24,8 °C	24,8 °C	24,8 °C	24,8 °C	24,8 °C	24,8 °C	24,8 °C	24,8 °C
E led	5,85V	5,85V	5,85V	5,85V	5,85V	5,85V	5,85V	5,85V				
I led	0,138A	0,138A	0,138A	0,138A	0,138A	0,138A	0,138A	0,138A				
P led	0,81W	0,81W	0,81W	0,81W	0,81W	0,81W	0,81W	0,81W				
Heating	61,2 K	59,9 K	54,9 K	58,2 K	60,9 K	60,0 K	55,5 K	54,5 K	37,6 K	37,5 K	12,0 K	9,4 K
Ta indoor	37,8 °C	39,1 °C	44,1 °C	40,8 °C	38,1 °C	39,0 °C	43,5 °C	44,5 °C	42,4 °C	42,5 °C	68,0 °C	80,6 °C
Tq	23,8 °C	25,1 °C	30,1 °C	26,8 °C	24,1 °C	25,0 °C	29,5 °C	30,5 °C	32,4 °C	32,5 °C	68,0 °C	80,6 °C
Solder point temperature used as the image of the lens temperature												

Primary EM		Secondary EM dr1		Secondary EM dr2	
U	229,6 V	U	140,3 V	U	140,9 V
I	0,901 A	I	0,689 A	I	0,688 A
P	205,8 W	P	96,7 W	P	97,0 W
PF	0,979				
Efficiency	94%				

Test room temperature (°C) :

24.1 °C @ 0.5A

24.8 °C @ 0.7A

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 test report :
