

Test report

TEST REPORT

Product Name: Fixed LED lamp (wall wash lamp)

Product Name

Product Name: LWW-WZB-W55-L12-RDM

Product Model

Test Category: Commissioned test

Test Category

Commissioned by: TPK OPTOELECTRONIC TECH CO., LTD

Customer

Tester: Weibiao Li

Tested by

Auditor: Zhenbiao Wu

Checked by

Reported: November 12, 2024

TPK OPTOELECTRONIC TECH CO., LTD

Inspection Report

Test type	Temperature rise test	Inspector	Weibiao Li
Sample name	Wall wash light LWW-WZB-W55-L12-RDM		
Commissioned unit	TPK OPTOELECTRONIC TECH CO., LTD	Testing Unit	TPK OPTOELECTRONIC TECH CO., LTD
Entrusted Unit Address	Building 1-2, 10 Dacheng Road, Dongfeng Town, Zhongshan City	Address of testing unit	Zhongshan City Dongfeng Town Dacheng Road 10 1-2 building
Sample CODE	8.01.017.0079	Sample quantity	2 PCS
Test date	2024/11/8 12:00 to 2024/11/8 18:00		

Test background:

In order to evaluate the heat dissipation performance and stability of wall washing lamp LWW-WZB-W55-L12-RDM in outdoor high temperature environment, and to prevent potential thermal risks, this temperature rise test was made to check the temperature performance of the lamp in a 50°C incubator simulating high temperature environment.

Purpose of testing:

To test the thermal reliability of the wall washing lamp LWW-WZB-W55-L12-RDM when the temperature box is running to the heat equilibrium state at 50°C.

Testing equipment:

Supmea thermometer (SUP-R9616)... 3 stations
JINGJIU Variable AC source 1 set

Specifications Model:

Wall washing lamp, WZB-W55, V2.0; 1220xW55xH126mm, oxidized fine sand black, silk screen glass, bottom bracket; 36P, 8W, RGBW (W=3000K), Add Xin, 4in1, 30°; 100-277V (YINGJIAO power supply), constant power 4*60W, DMX/RDM, IP66, panel male connector + female connector line can be connected (from the upper end cover exposed 0.18m); With glass touch panel display board, individually packaged

Test items:

Wall washing lamp LWW-WZB-W55-L12-RDM running at 50°C thermostat to heat balance state:

- ☐ Temperature of key parts of the power supply of Ever Shining and Yingqiao
- ☐ Drive part of the key parts temperature
- ☐ Temperature of key parts of light board
- ☐ Ambient temperature inside and outside the lamp
- ☐ Internal and external wall temperature of the lamp

Detection conclusion:

The temperature rise test of LWW-WZB-W55-L12-RDM was carried out under the oper

Main inspector: Weibiao Li

Signature: Date: 2024/11/12

ating condition of 50°C incubator. The test points of the lamp sample driven by Yingqiao power supply were all within the safe use range, and the temperature performance was excellent, and the temperature rise test passed; However, the temperature rise test of the luminaire sample driven by Ever Shining did not pass.

Reviewed by: Zhenbiao Wu

Signature: Date: 2024/11/12

Detection steps:

Wear appropriate personal protective equipment (such as insulating gloves), prepare and install all the test instrument, and use the thermocouple wire to connect the thermometer to the sample to be tested:

- 1) Key parts of the power supply of Ever Shining and Yingqiao
- 2) Drive some key components
- 3) Light board key parts
- 4) The internal and external environment of the lamp
- 5) The inner and outer walls of the lamp

Connect well, run the lamp under the condition of running the 50°C incubator at 220V voltage until it reaches a stable heat balance state (≥ 2 hour), and record its temperature value.

Equipment and sample diagram:



Figure 1 Supmea thermometer Figure 2 JINGJIU variable AC source



Figure 3 Wall washing lamp LWW-WZB-W55-L12-RDM



Figure 4 Thermostat and luminaire operating conditions Figure 5 YINGJIAO (top) and Ever Shining (bottom) power supply

Test item list and reference criteria:

Reference standard based on industry experience and electronic components specification:

Test items	Criteria for determination
Lamp bead chip	Lamp pin temperature + thermal resistance * Power <85°C
Aluminum substrate (lamp plate)	< 80 °C
Lamp body	< 70 °C
Inductance	< 100 °C
Capacitance	< 100 °C
Control chip decision	- 40 ~ 85 °C
Voltage regulator	- 40 ~ 100 °C
DC-DC	- 40 ~ 100 °C
Driver chip	- 40 ~ 85 °C
Power Tc point	< 85 °C
Continuous current diode	< 100 °C
Output diode	< 100 °C
Schottky diode	< 100 °C
Transformer	< 100 °C
MOS tube	< 100 °C

Table 1 Criteria for determining temperature

Test data:

The wall washing lamp LWW-WZB-W55-L12-RDM was tested under the condition that the incubator operated at 50°C to evaluate the temperature of the lamp. The test data are as follows. (Those marked black in the table are the measured data of thermometer A, those marked red are the measured data of thermometer B, and those marked blue are the measured data of thermometer C)

Test Point Test conditions			220V,50°C			
			Eagle Cay	Eligible or not	Ever Shining	Whether qualified
Drive part	CH1	UR1(<85°C)	65.3	√	62.6	√
	CH2	LR1(<100°C)	64.4	√	61.0	√
	CH3	UG1(<85°C)	64.5	√	62.5	√
	CH4	LG1(<100°C)	64.5	√	61.6	√
	CH5	UB1(<85°C)	64.8	√	62.3	√
	CH6	LB1(<100°C)	64.5	√	62.3	√
	CH7	UW1(<85°C)	65.7	√	63.8	√
	CH8	LW1(<100°C)	65.5	√	62.2	√
Control section	CH9	Single chip microcomputer (<85 ° C)	63.2	√	60.8	√
	CH10	T1(<85°C)	63.4	√	62.0	√
	CH11	Inductance (<100 ° C)	62.9	√	60.4	√
	CH12	U3(<85°C)	63.2	√	61.8	√
Power supply	CH13	Tc(<85°C)	63.0	√	90.0	×
	CH14	Shell (<85 ° C)	64.8	√	66.9	√
Light board	CH15	Light board 1(<80 ° C)	58.8	√	57.0	√
	CH16	Light Board 2(<80 ° C)	59.1	√	57.5	√
Lamp body	CH1/CH4	Inner wall (<70 ° C)	56.2	√	54.3	√
	CH2/CH5	Outer wall (<70 ° C)	54.3	√	52.5	√
Environment	CH3/CH6	Internal air	60.4	/	58.8	/
	CH16	Outside air	48.7			

Table 2 Temperature rise test data

Power before and after test	Total power for both lights
Before test	115.4 W
After testing	113.9 W
Difference before and after testing	1.5 W

Table 3 Test pre and post power

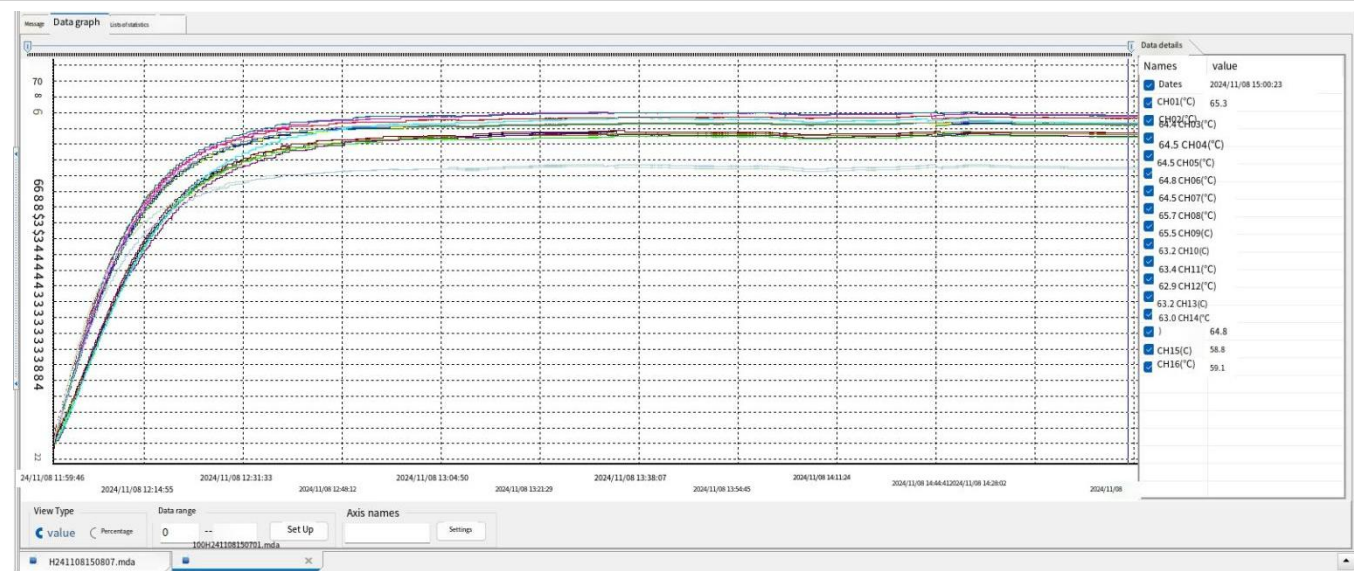


Figure 5 Thermometer A: Temperature curve of each test point

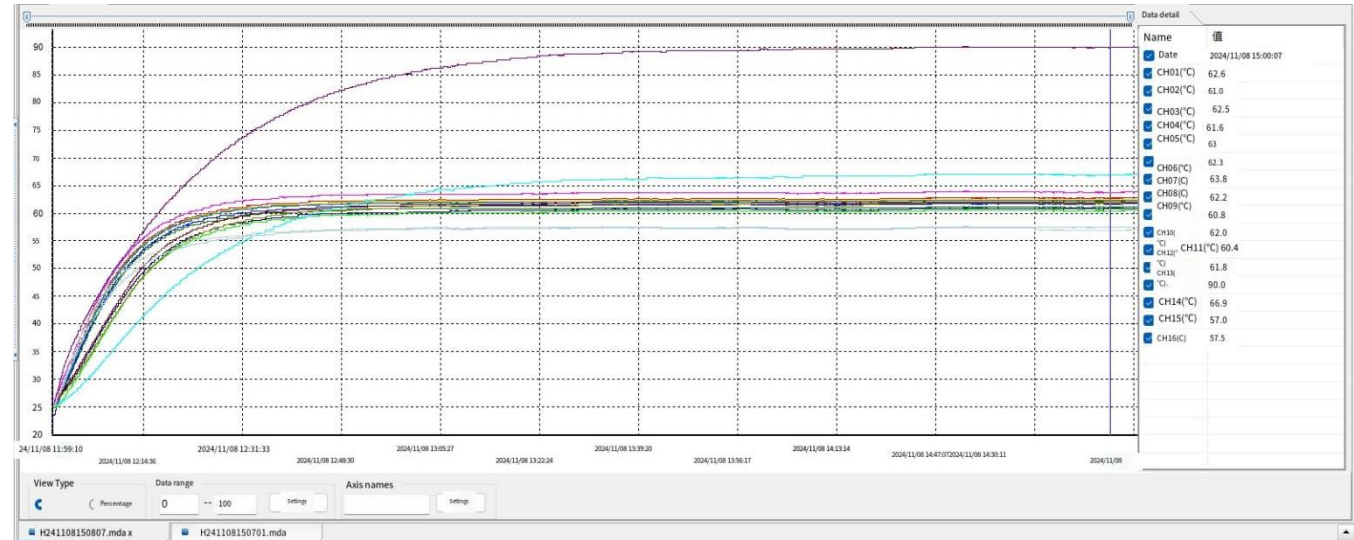


Figure 6 Thermometer B: Temperature curve of each test point

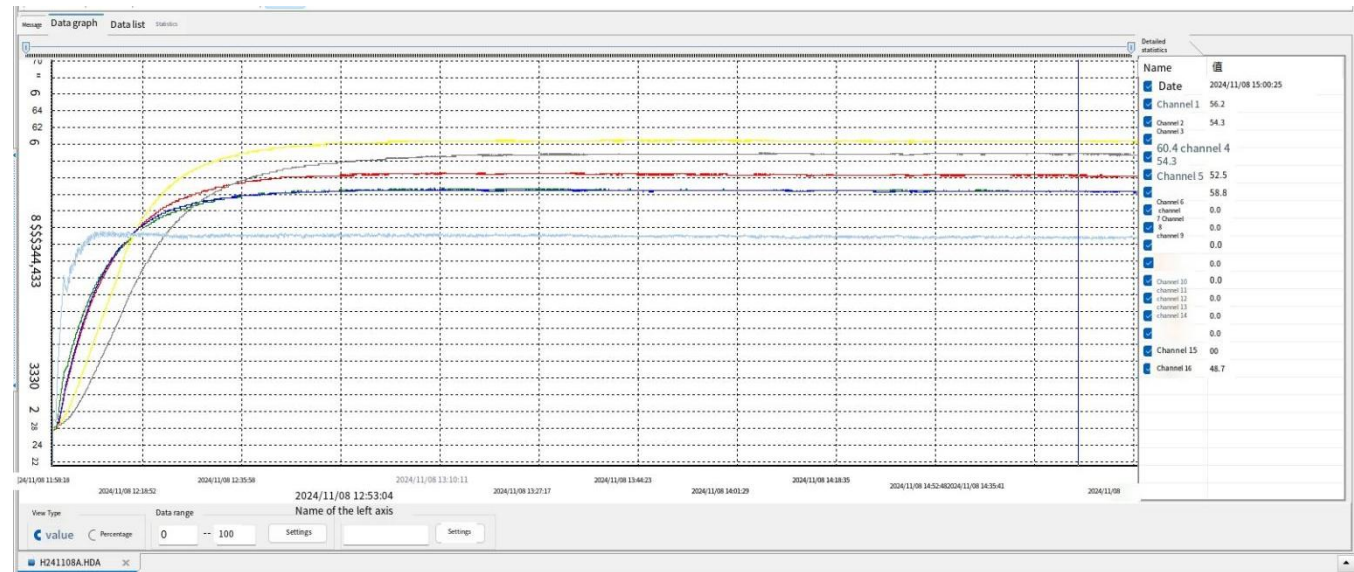


Figure 7 Thermometer C: Temperature curve of each test point

Data analysis:

According to the above data, when the input voltage is 220V and the ambient temperature is 50°C, the temperature performance of the wall washing lamp LWW-WZB-W55-L12-RDM is as follows:

YINGJIAO power supply:

- The temperature distribution of the driving part is uniform, the highest temperature does not exceed 65.7°C(blue light drive inductance :LB1), the average temperature is 64.9°C;
- The temperature distribution of the control part is uniform, the highest temperature does not exceed 63.4°C(T1), and the average temperature is 63.175°C;
- The Tc point temperature of the power supply is 63°C, far away from the Tc point shell is 64.8°C, which is higher than the Tc point, the disassembly analysis found that the Tc point of the power supply is not uniform, making the Tc point temperature slightly lower, but overall the temperature is still working in a relatively safe temperature range;
- The average temperature of the lamp board is 58.95 ° C;
- The temperature difference between the inner and outer walls of the lamp body is 1.9°C.

Ever Shining power supply:

- The temperature distribution of the drive part is uniform, the highest temperature does not exceed 63.8°C(white light driver IC:LB1), the average temperature is 62.2875°C
- The temperature distribution of the control part is uniform, the highest temperature does not exceed 62.0°C(T1), and the average temperature is 61.25°C;
- tc point temperature of the power supply is 90°C, far away from the Tc point shell is 66.9°C, Tc point temperature exceeds the nominal range of the power supply, then retes t to increase the test point around the power supply, found that the temperature is the center of the Tc point, the temperature gradually decreases from the center to the periphery, which verifies that the temperature of the former test point is not abnormal and the heat concentrated in the Tc point is not easy to disperse. The reasons for the analysis are as follows: the power supply runs in the high temperature environment for a long time under full load and the heat dissipation of the power supply is not uniform enough;
- The average temperature of the lamp board is 57.25°C;
- The temperature difference between the inner and outer walls of the lamp body is 1.8°C.

During the test process, the temperature of all test points of YINGJIAO is within the safe operating range of the lamp, and the temperature rise test passed, while the power supply of Ever Shining power because the Tc point temperature is high, then put forward optimization suggestions, the temperature rise test did not pass.

The results of this test are only responsible for the sample.