

TEST REPORT

Product Name: Fixed LED lamp (strip lamp)

Product Model: LLS-OP-W20B-L10-DMX

Test Category: Commissioned tests

Customer: TPK OPTOELECTRONIC TECH CO., LTD

Tested by: LWB

Checked by: OP

Report date: April 3, 2025

TPK OPTOELECTRONIC TECH CO., LTD

Test report			
Test type	Temperature rise test	Inspector	LWB
Sample name	Line lamp LLS-OP-W20B-L10-DMX		
Entrusting unit	Guangdong Tairan Industrial Co., LTD	Testing unit	Guangdong Taian Industrial Co., LTD
Entrusting unit Address	Building 1-2, No. 10, Dacheng Road, Dongfeng Town, Zhongshan City	Address of the testing unit	Building 1-2, No. 10, Dacheng Road, Dongfeng Town, Zhongshan City
Sample Code	8.02.040.0009	Sample quantity	1
Test date	2025/4/2 15:00 to 2025/4/2 19:00		
Test background: In order to evaluate the heat dissipation performance and stability of the linear lamp LLS-OP-W20B-L10-DMX in high-temperature environments, this temperature rise test is specially set up to detect its temperature performance when simulated in a high-temperature environment in a 50°C constant temperature box.			
Test purpose: To test the thermal reliability of the estimated line light LLS-OP-W20B-L10-DMX when it reaches thermal equilibrium in a 50 ° C incubator.			
Testing equipment: Supmea thermometer (SUP-R9616)... 1 48V DC power supply 1		Specification model: Line lamp,-W20B series,V1.0; L1000xW20xH34 mm, silver oxide mist, transparent tempered glass; 48 p, 0.2 W, 120 °, RGBW (3000 k), LUMILEDS, 5050; DC24~48V,DMX/8 segment,IP66, Huaxing 5 pins, exposed 50mm; Maximum power 15W with bullet card mounting	
Test items: Sample line lamp LLS-OP-W20B-L10-DMX each at 50 ° C incubator to thermal equilibrium: ☐ Drive section key component temperature ☐ Temperature of key components of the light board section ☐ Ambient temperature of the lamp body			
Test conclusion: The temperature rise test of the linear lamp LLS-OP-W20B-L10-DMX was conducted under the condition of running in a 50 ° C incubator. All test points of the sample were within the safe usage range, and the temperature performance was excellent. The temperature rise test passed.		Chief inspector: LWB Date: April 3, 2025 Review: OP Date: 2025/4/3	

Testing steps:

Wear appropriate personal protective gear (such as insulating gloves), prepare and install the test instrument, and use thermocouple wire to connect the thermometer to the respective thermocouple of the two samples to be tested:

- 1) Drive key components of the section
- 2) Key components of the light board section
- 3) The environment where the lamp body is located

Connect the lamp and run it in a 50 ° C incubator under a 48V DC voltage until it reaches a stable thermal equilibrium state (≥ 2 hours), and record its temperature value.

Equipment and sample images:



Figure 1 Supmea thermometer Figure 2 JINGJIU variable AC source



Figure 3 Line light LLS-OP-W20B-L10-DMX



Figure 4 The thermostat and the operating conditions of the lamp

List of test items and reference criteria:

Reference criteria based on industry experience and specification sheet of electronic components (in a 50 ° C incubator) :

Table 1 Criteria for temperature determination

Inspection items	Criteria for judgment
Lamp beads chip	Pin temperature + thermal resistance * power <85 ° C
Aluminum substrate (lamp plate)	< 70 °C
Lamp body	< 65 °C
Inductance	< 100 °C
Capacitor	< 85 °C
Control chip determination	< 75 °C
Voltage stabilizer	< 75 °C
DC-DC	< 75 °C
Driver chip	< 90 °C
Power Tc point	<80 ° C (3-year warranty) <70°C (5-year warranty)
Freewheeling diode	< 90 °C
Output diode	< 90 °C
Schottky diode	< 90 °C
Transformer	< 100 °C
MOSFET	< 90 °C

Test data:
The line lamp LLS-OP-W20B-L10-DMX was tested under the condition of running in a 50 ° C incubator to assess the temperature of the lamp. The test data are shown in the table below.

Table 2 Temperature rise test data

Test points			48V _{dc} ,50°C	
			Temperature (°C)	Whether qualified
Test conditions				
Light board - Drive section	CH1	Schottky diode (<90 ° C)	59.6	√
	CH2	Light beads (<70 ° C)	59.0	√
	CH3	Light panel (<70 ° C)	56.4	√
	CH4	UCS2912(<90°C)	72.1	√
	CH5	Surface mount capacitor (<85 ° C)	64.2	√
	CH6	Lamp body (<65 ° C)	50.5	√
Constant temperature box	CH13	Internal temperature	49.4	/

Table 3 Test the power before and after

Test status	Total power (including drive power supply)
Before testing	22.69 W
After testing	21.83 W
The difference before and after the test	0.86 W

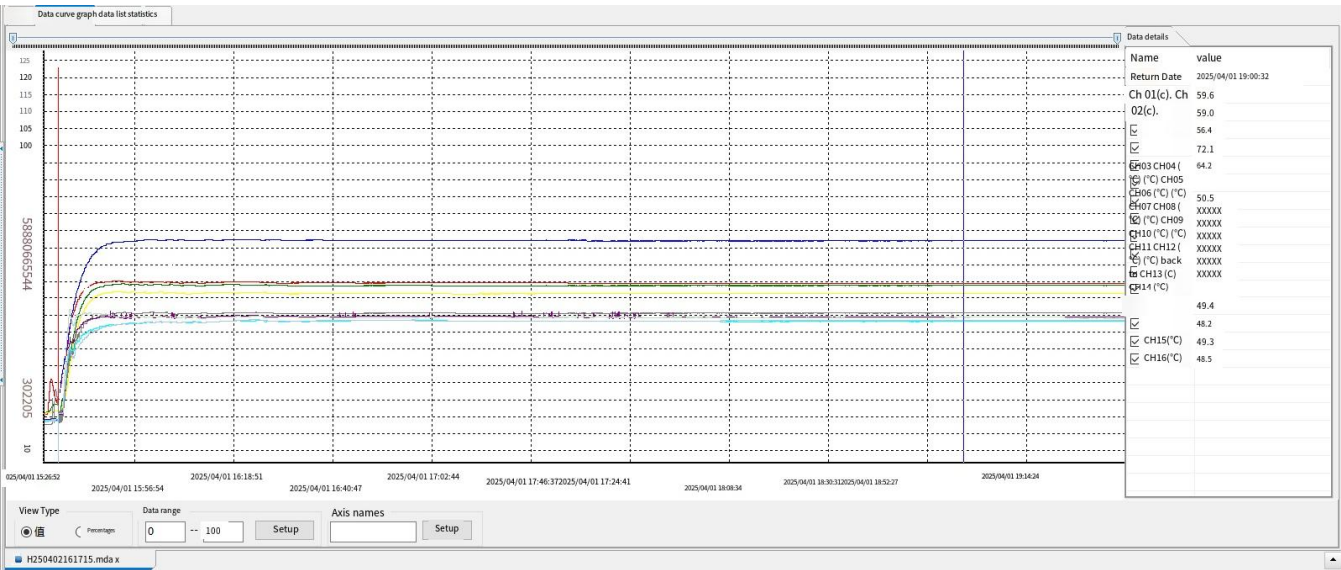


Figure 5 Thermometer: Temperature curve at each test point

Data analysis:

Based on the above data, the temperature performance of the linear lamp LLS-OP-W20B-L 10-DMX was analyzed as follows when operating to thermal equilibrium in a thermostatic chamber with an input voltage of 48V DC and an ambient temperature of 50 ° C:

- The power difference before and after the test was only 0.86W, within the error range of the nominal power;
- The temperature distribution in the driver - lamp board section is uniform, with the maximum temperature not exceeding 72.1 ° C (surface mount capacitor). The average temperature of the PCB board including on-board components is 62.26 ° C;

During the testing process, the temperatures at all test points of the lamp sample were within the safe operation range of the lamp, and the temperature rise test was passed.

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