

TEST REPORT

Product Name: Fixed LED (spot light)

Product Model: SP-F310A

Test Category: IK Protection level test

Customer: TPK OPTOELECTRONIC TECH CO., LTD

Tested by: Huang Wenliang

Checked by: Chen Hairui

report time: Nov 28, 2024

广东泰然实业有限公司

TPK OPTOELECTRONIC TECH CO., LTD

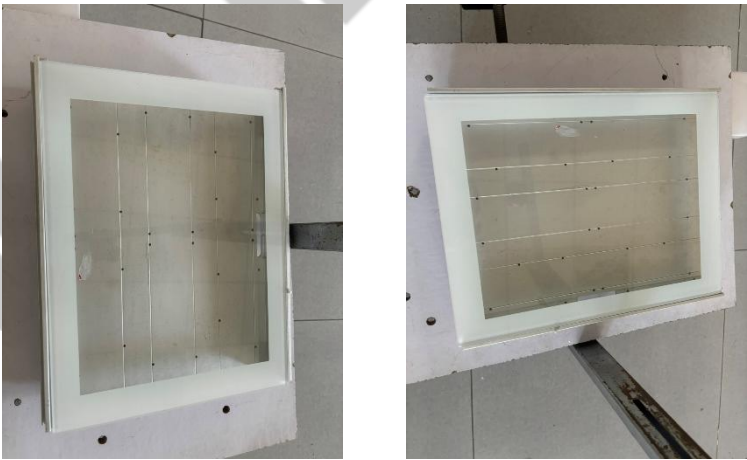
Inspection report

Test items	IK Protection level test
Test Object	SP-F310A
Detection Purposes	Verify the IK protection level of SP-F310A products
Test Time	2024-11-28
Testing equipment	Standard Number: GB/T 2423.55-2006 Standard Name: Environmental testing for electrical and electronic products - Part 2: Test methods Test Eh: Environmental testing for electric and electronic products--Part 2: Test methods--Test Eh: hammer tests) IK grade test tooling equipment, 0.25KG, 0.5KG, 1.7KG, 5KG metal hammers, tape measures

Final test conclusion: SP-F310A IK grade surface meets IK09 requirements for protection against external mechanical impact; The results of this test are only responsible for the sample results.

Experimental methods and procedures:
Refer to GB/T 2423.55-2006 (IEC 60068-2-75:1997) environmental testing for electrical and electronic products - Part 2: Test methods test Eh: Hammering tests shall be conducted in accordance with GBT 20138-2006 (IEC62262:2002) standard for protection of enclosures of electrical equipment against external mechanical impact

Test data:
1. Record the status of the sample before testing.



The product is intact.

2. 1 Test the fixed impact hammer according to IK06 grade requirements (400mm height, 0.25KG weight hammer, 1J energy).



0.25KG metal hammer at a height of 400MM

2. 2 Record the appearance data of the sample after the impact. Test results: The glass face cover did not break after hammering



The glass face cover did not break

3. 1 Test with a fixed impact hammer as required by IK07 grade (400mm height, 0.5KG weight, 2J energy).



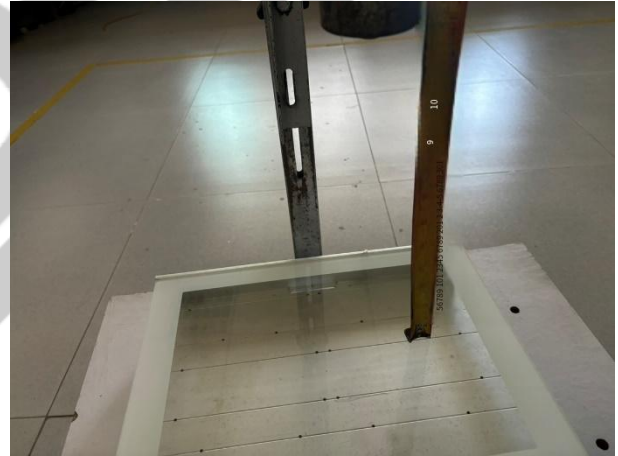
0.5KG metal hammer at a height of 400MM

3.2 Record the appearance data of the sample after the impact. Test results: The glass face cover did not break after hammering



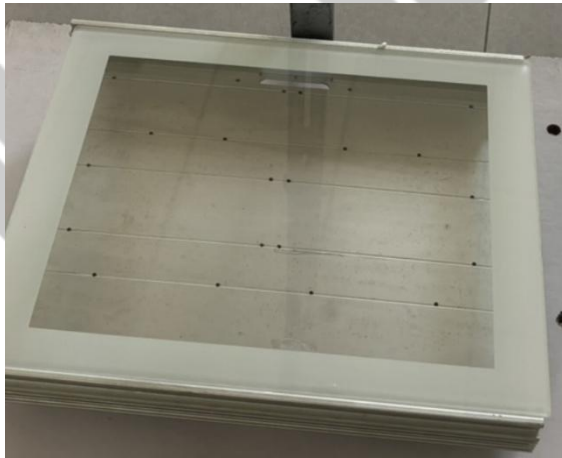
The glass face cover did not break

4.1 Test with a fixed impact hammer as required by IK08 grade (300mm height, 1.7KG weight hammer, 5J energy).



1.7KG metal hammer at a height of 300MM

4.2 Record the appearance data of the sample after the impact. Test results: The glass face cover did not break after hammering



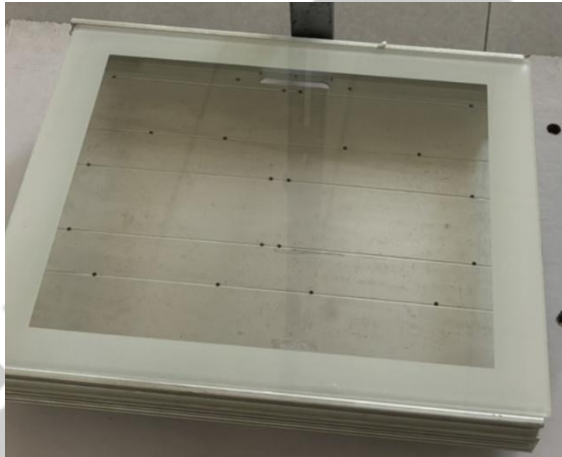
No breakage of the glass face cover

4.1 Test with a fixed impact hammer as required by IK09 grade (200mm height, 5KG weight hammer, 10J energy).



5KG metal hammer at a height of 200MM

4.2 Record the appearance data of the sample after the impact. Test results: The glass face cover did not break after hammering



The glass face cover did not crack

4.1 Test with a fixed impact hammer as required by IK10 grade (400mm height, 5KG weight hammer, 20J energy).



5KG metal hammer at a height of 400MM

4.2 Record the appearance data of the sample after the impact, test result: The glass face cover is completely broken after hammering



The glass face cover is completely broken

Appendix: IK Level Test Standard Reference Table

Table 1 IK codes and their corresponding collision energies

IK Code	IK00	IK01	IK02	IK03	IK04	IK05	IK06	IK07	IK08	IK09	IK10
Collision Energy /J	a	0.14	0.2	0.35	0.5	0.7	1	2	5	10	20
Note 1: 50J is recommended if a higher collision energy is required											
Note 2: Some national standards use one digit to represent the specified collision energy. To avoid confusion, the characteristic digit is represented by two digits.											
a It is unprotected under this standard.											

To avoid secondary impacts caused by rebound, braking can be achieved by grasping the impact element instead of the pendulum rod after the initial impact. To prevent the pendulum from deforming.

Table 2 Drop height

Energy / J	0.14	0.2		(0.3)	0.35	(0.4)	0.5		0.7	1	2	5	10	20	50
kg Equivalent mass/drop height, ±10%/mm	0.25	(0.2)	0.25	(0.2)	0.25	(0.2)	(0.2)	0.25	0.25	0.25	0.5	1.7	5	5	10
	56	(100)	80	(150)	140	(200)	(250)	200	280	400	400	300	200	400	500
Note 1: See Note 3.2.2.															
Note 2: The energy unit joule (J) in this section is derived from the standard gravitational acceleration (ga). g. Rounded to 10 m/s ²															

Test results:

The above test data prove that the IK10 grade 20J, 5KG weight, 400MM height test hammer completely broke the glass face cover. The IK grade of the SP-F310A surface was determined to pass IK09 in accordance with Test 4.4 of the national standard GB/T 20138-2006 /IEC 62262:2002 and the contents of Table 1 and Article 6 of GB/T 20138-2006 /IEC 62262:2002