

TEST REPORT

Reference No. : WTZ19F03017216L
Applicant..... : ZHONGSHAN WOSEN LIGHTING TECHNOLOGY CO., LTD.
Address..... : Address: No.526, Dong'an North Road,Haizhou, Guzhen Town,
Zhongshan City, Guangdong,China
Manufacturer..... : LED market SRL
Address..... : sos. Muncesti 801, mun. Chisinau, R. Moldova
Product Name..... : Lighting
Model No...... : Ultra 2, Projector SMD 2835
Ratings..... : --
Standards..... : IEC 60529:1989+A1:1999+A2:2013
IEC 62262:2002
Customer commission
Date of Receipt sample : 2019-04-03
Date of Test..... : 2019-04-04 to 2019-04-05
Date of Issue..... : 2019-04-11
Test Report Form No. : WST-60529-50B
Test Result..... : Pass

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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List of test items:

No.	Test Items	Requirement + Test	Result
1	IP65 Test	IEC 60529:1989+A1:1999+A2:2013	Pass
2	IK08	IEC 62262:2002	Pass
3	High temperature test	Customer commission	Pass
Subcontract Whether parts of tests for the product have been subcontracted to other labs: ☐ Yes ☒ No If Yes, list the related test items and lab information: Test items: --- Lab information: --			
Remarks: Full tests were carried out on the two models			

Test Item :

Tests for protection against dust-proof: IP6X

Test Method:

The tests should be carried out under the standard atmospheric condition.

The atmospheric conditions during tests are as follows:

Temperature range: 15 °C to 35 °C. Relative humidity: 25% to 75%.

The test is made using a dust chamber incorporating the basic principles shown in figure 2 where by the powder circulation pump may be replaced by other means suitable to maintain the talcum powder in suspension in a closed test chamber. The talcum powder used shall be able to pass through a square-meshed sieve the nominal wire diameter of which is 50µm and the nominal width of gap between wires 75 µm. The amount of talcum powder to be used is 2 kg per cubic meter of the test chamber volume. It shall not have been used for more than 20 tests.

Enclosures are of necessity in one of two categories:

Category 1: Enclosures where the normal working cycle of the equipment causes reductions in air pressure within the enclosure below that of the surrounding air, for example, due to thermal cycling effects.

The enclosure under test is supported inside the test chamber and the pressure inside the enclosure is maintained below the surrounding atmospheric pressure by a vacuum pump. In no event shall the depression exceed 2 KPa(20mbar) on the manometer shown in figure 2. If an extraction rate of 40 to 60 volumes per hour is obtained the duration of the test is 2h. The extraction rate is less than 40 volumes per hour, the test is continued until 80 volumes have been drawn through, or a period of 8h has elapsed.

Category 2: Enclosures where no pressure difference relative to the surrounding air is present.

The enclosure under test is supported in its normal operating position inside the test chamber, but is not connected to a vacuum pump. Any drain-hole normally open shall be left open for the duration of the test. The test shall be continued for a period of 8h.

The enclosure shall be deemed category 1, whether reductions in pressure below the atmospheric pressure are present or not.

The test wire of 1.0 mmφ insert into any openings of the enclosure with a force of $1N \pm 10\%$.

Acceptance Conditions:

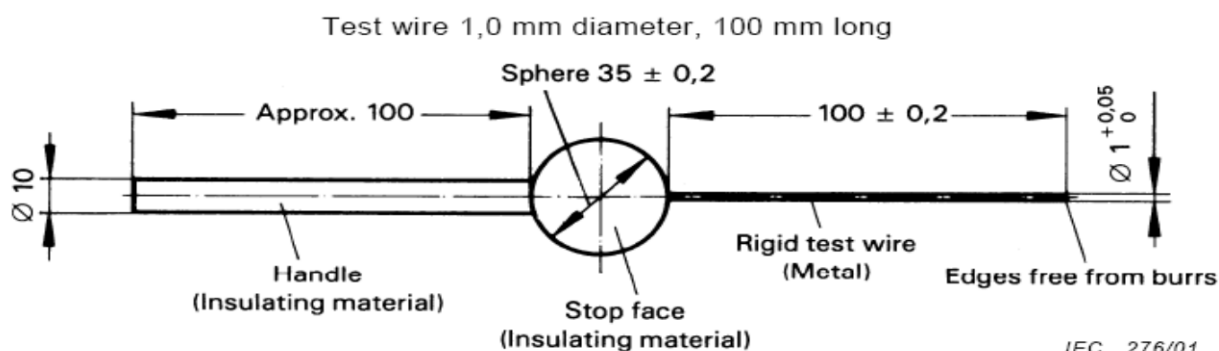
The protection is satisfactory if no deposit of dust is observable inside the enclosure at the end of the test.

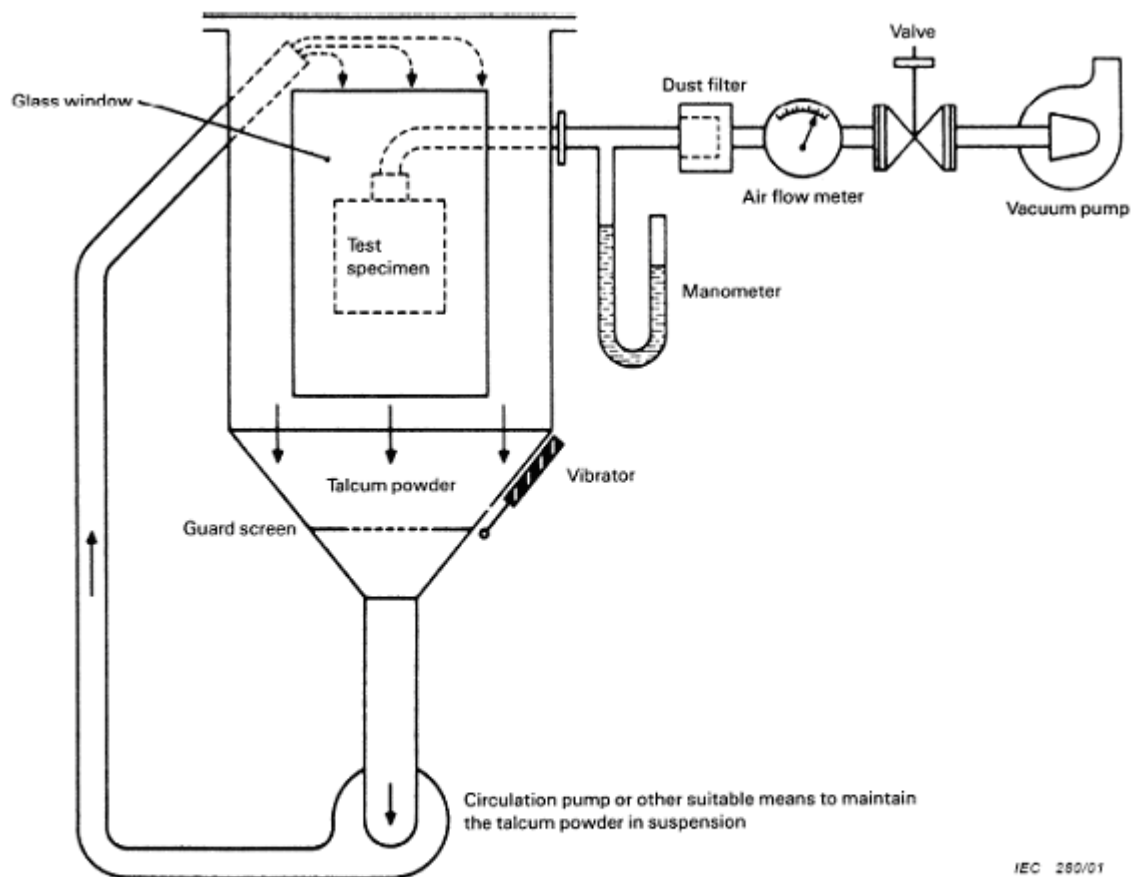
The protection is satisfactory if adequate clearance is kept between the access probe and hazardous parts.

The protection is satisfactory if the access probe 1.0 mm diameter shall not pass through the any opening.

Test Result:

☒ Pass ☐ Fail





IEC 280/01

NOTE See IEC 60068-2-68, figure 2 valid for La2 only.

Figure 2 – Test device to verify protection against dust (dust chamber)

Test Item :

Tests for protection against ingress moisture: IPX5

Test Method:

The tests should be carried out under the standard atmospheric condition. The atmospheric conditions during tests are as follows:

Temperature range: 15 °C to 35 °C; Relative humidity: 25% to 75%.

The tests are conducted with fresh water. The water temperature should not differ by more than 5 K from the temperature of the specimen under test. If the water temperature is more than 5 K below the temperature of the specimen a pressure balance shall be provided for the enclosure.

The test is made by spraying the enclosure from all practicable directions with a stream of water from a standard test nozzle as shown in figure 6.

The conditions to be observed are as follows:

- internal diameter of the nozzle: 6,3mm;
- delivery rate: 12,5 l/min $\pm 5\%$;
- water pressure: to be adjusted to achieve the specified delivery rate;
- core of the substantial stream: circle of approximately 40 mm diameter at 2,5 m distance from nozzle;
- test duration per square meter of enclosure surface area likely to be sprayed: 1 min;
- minimum test duration: 3 min;
- distance from nozzle to enclosure surface: between 2,5 m and 3m.

Acceptance Conditions:

After testing in accordance with the appropriate requirements, the enclosure shall be inspected for ingress of water.

It is the responsibility of the relevant Technical Committee to specify the amount of water which may be allowed to enter the enclosure and the details of a dielectric strength test, if any.

In general, if any water has entered, it shall not:

- be sufficient to interfere with the correct operation of the equipment or impair safety;
- deposit on insulation parts where it could lead to tracking along the creepage distances;
- reach live parts or windings not designed to operate when wet;
- accumulate near the cable end or enter the cable if any.

If the enclosure is provided with drain-holes, it should be proved by inspection that any water which enters does not accumulate and that it drains away without doing any harm to the equipment.

For enclosures without drain-holes, the relevant product standard shall specify the acceptance conditions if water can accumulate to reach live parts.

Test Result:

☒ Pass ☐ Fail

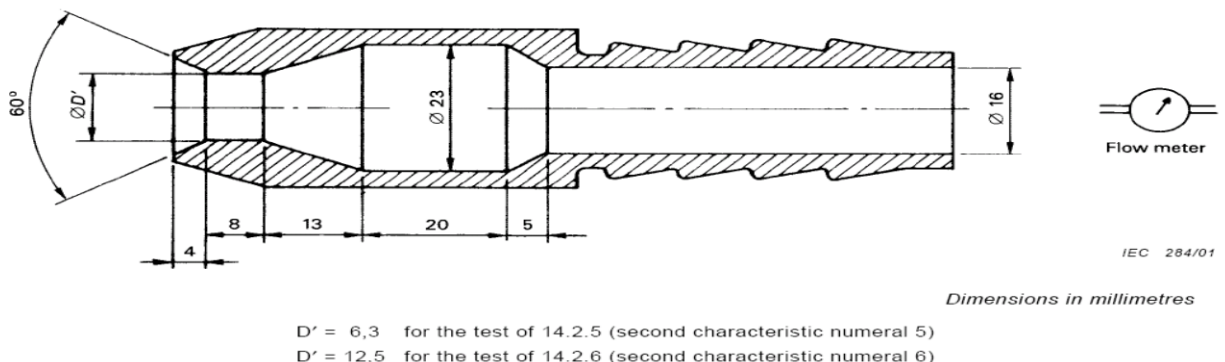


Figure 6 – Test device to verify protection against water jets (hose nozzle)

Test Item :
IK08 test

Test Method:

1. Unless otherwise specified in the relevant product standard, the test shall be carried out under the standard atmospheric conditions for tests described in IEC 60068-1:
 - temperature range: 15°C to 35 °C.
 - air pressure: 86 Kpa to 106 Kpa (860 mbar to 1060 mbar)
2. Each enclosure under test shall be in a clean and new condition, complete with all its parts in place unless otherwise specified in the relevant product standard.
3. In order to verify the protection against mechanical impacts, blows shall be applied to the enclosure to be tested. The test shall be done by using one of the test apparatus described in IEC 60068-2-75. The device to be used for this test is pendulum hammer.
4. During the test the enclosure shall be mounted on a rigid support, according to the manufacturer's instructions for use.
5. The number of impacts shall be five on each exposed face unless otherwise specified in the relevant product standard. The impacts shall be evenly distributed on the faces of the enclosure(s) under test. In no case shall more than three impacts be applied in the surroundings of the same point of the enclosure. The relevant product standard shall specify the points of application of impacts.
6. The impact energy is 5 J.

Verification procedure

1. Visually check the product and notice any "outside visible modifications". (examples: plastic broken, plastic deformation, rubber shifting, display broken, display shifting, key touch shifting...)
2. Functionally check the product and notice any "malfunctions". (Malfunctions can be functions don't working anymore or product security activation or also difficulty to swipe or insert the smart card)
 - Powered the product
 - Check security activation
 - Check each functions with final control application
3. Disassemble the product and check "inside visible modifications". (examples: plastic broken, PCB components unsoldered, FPC deformation...)

Acceptance Conditions:

1. After completion of the tests, there was no broken for the sample.
2. The mechanical structure, function, performance of the sample complied with the requirements.
3. IK08 test is passed if no "outside visible modifications" or "malfunctions" occurred at the end of test on the two samples. If no "outside visible modifications" and no "malfunction" are noticed, "inside visible modifications" are admissible damages.

Test Result:

☒ Pass ☐ Fail

Test Item :
High temperature test

Test Method:

Operating at 25 ° C for 24 hours, Samples should not be damaged after the test.

Test Result:

☒ Pass ☐ Fail

Photo Documentation:

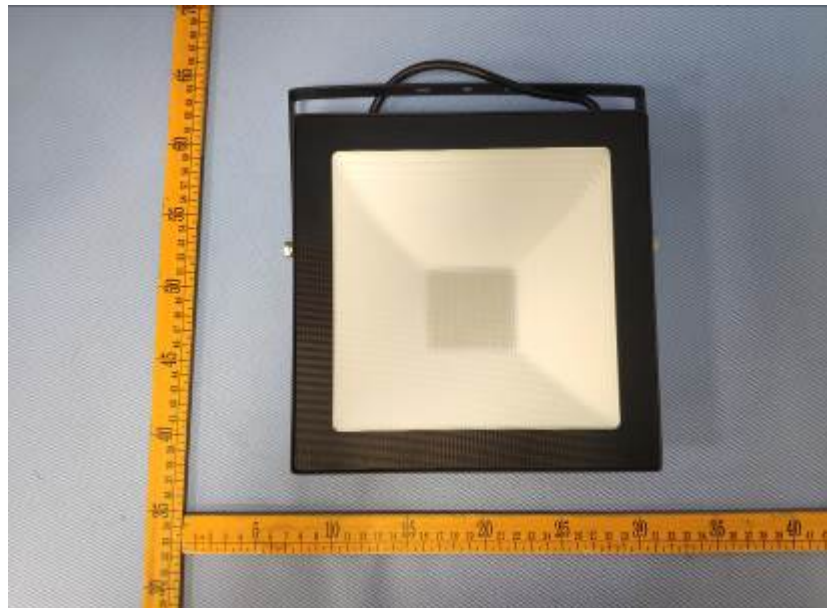


Photo 1 -- Model: Projector SMD 2835



Photo 2 -- Model: Ultra 2



Photo 3 -- During the test of IP6X



Photo 4 -- During the test of IPX5



Photo 5 -- After the test of IP65

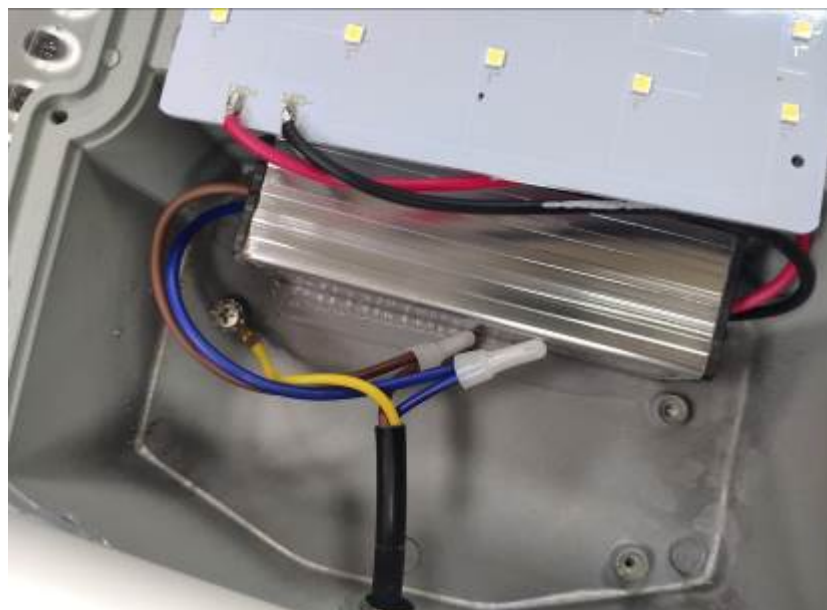


Photo 6 -- After the test of IP65

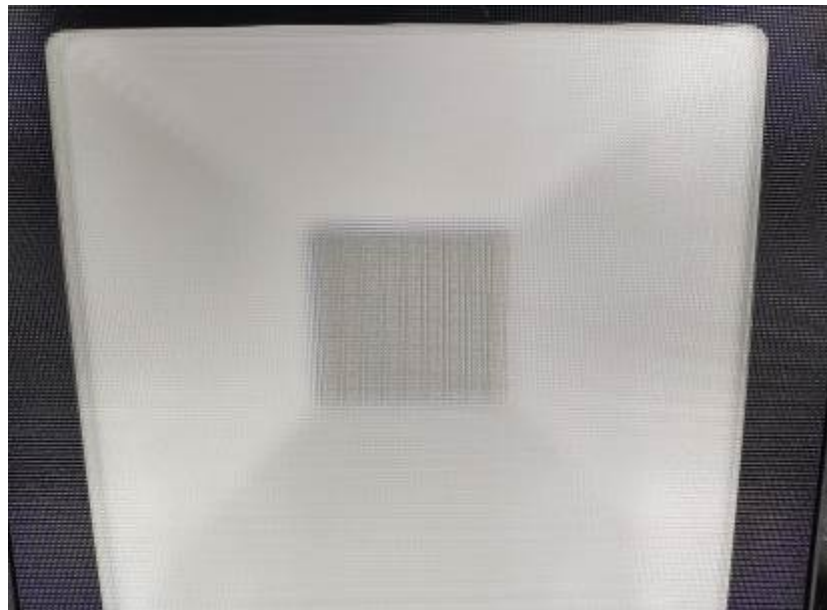


Photo 7 -- After the test of IP65



Photo 8 -- During the test of IK08



Photo 9 -- During the test of IK08



Photo 10 -- After the test of IK08



Photo 11 -- After the test of IK08



Photo 12 -- During the test of High temperature test

Equipment Used during Test :

Equipment	Model/Type
Temperature & Humidity Datalogger	THG312
Dustproof chamber	HY-FCX
Power Meter	QINZHI 8775A
Dielectric & Insulation Resistance Tester	CHROMA 9012
Probe	HANYANG FZ-1107-A
Force Gauge	ALGOL NK-300
Protection against water test device	HAIYU HY-IPX1-6
The temperature and humidity of atmospheric pressure gauge	Testo 622
Swing Hammer Impact-Test Apparatus	HANYANG FZ-7812
Tape Measure	Assist 3m
Environmental Chamber	KSON THS-D4C-100

===== End of Report =====