

TEST REPORT

Reference No. : WTZ82Y24175428R
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...... : Spectra
Ratings..... : --
Standards..... : IEC 60529:1989+A1:1999+A2:2013
IEC 62262:2002
Customer commission
Date of Receipt sample : 2020-07-03
Date of Test..... : 2020-07-08 to 2020-07-09
Date of Issue..... : 2020-07-17
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.

Prepared By:

Waltek Services (Foshan) Co., Ltd.

Address: No.13-19, 2/F., 2nd Building, Sunlink International Machinery City,
Chencun, Shunde District, Foshan, Guangdong, China
Tel:+86-757-23811398 Fax:+86-757-23811381 E-mail:info@waltek.com.cn

Compiled by:

Approved by:

Can Guo/Project Engineer

Jerry Mu/Manager

WTZ82Y24175428R List of test

| No. items: | Test Items | Requirement + Test | Result |
|--|-----------------------|--------------------------------|--------|
| 1 | IP65 Test | IEC 60529:1989+A1:1999+A2:2013 | Pass |
| 2 | IK09 | IEC 62262:2002 | Pass |
| 3 | High temperature test | Customer commission | Pass |
| <p>Subcontract Whether parts of tests for the product have been subcontracted to other labs: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, list the related test items and lab information: Test items: --- Lab information: --</p> | | | |
| <p>Remarks: Full tests were carried out on the two models</p> | | | |

Test Item :

Tests for protection against dust-proof: IP6X

Test Method: The test 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:

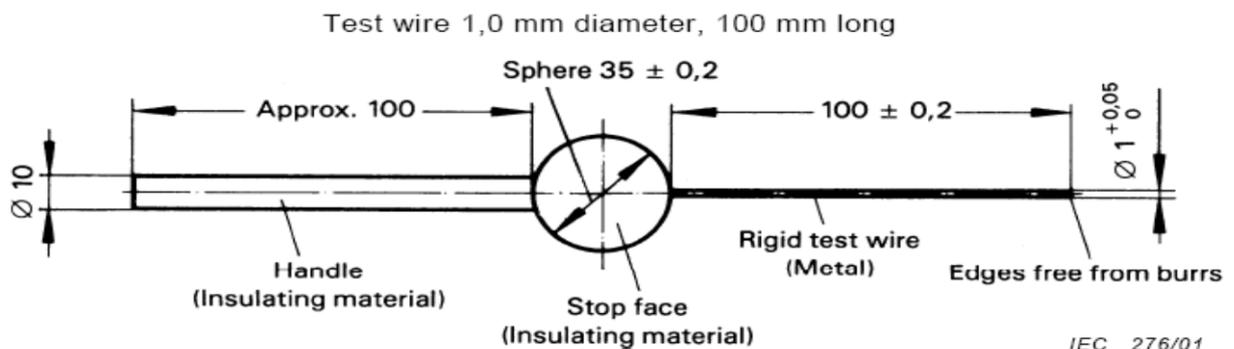
The protection is satisfactory if no deposit of dust is observable inside the enclosure at the end of the test.

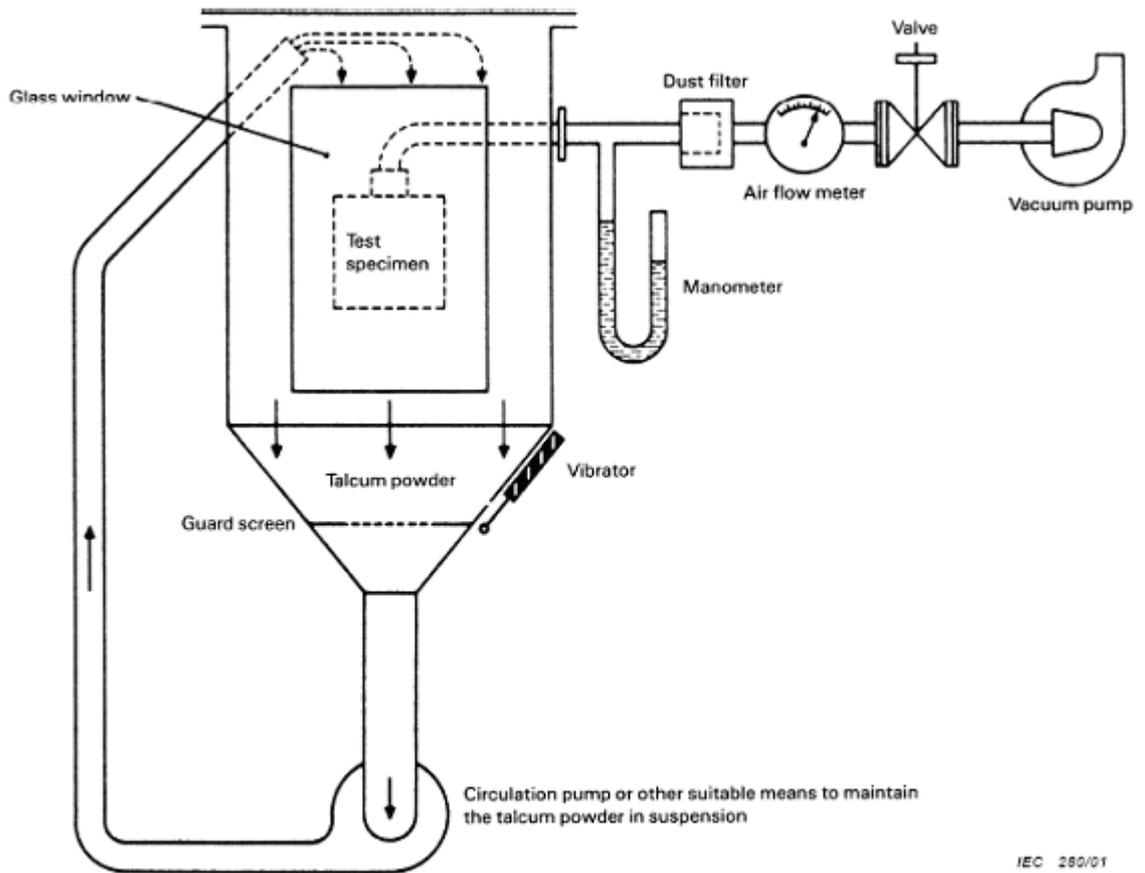
The protection is satisfactory if adequate clearance is kept between the access probe and hazardous parts.

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)

WTZ82Y24175428R 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:

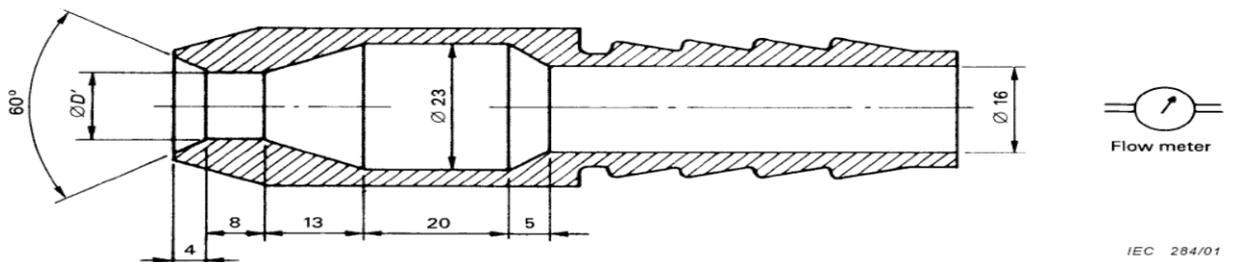
- be sufficient to interfere with the correct operation of the equipment or impair safety;
- deposit on insulation parts where it could lead to tracking along the creepage distances;
- reach live parts or windings not designed to operate when wet;
- accumulate near the cable end or enter the cable if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



Dimensions in millimetres

$D' = 6,3$ for the test of 14.2.5 (second characteristic numeral 5)

$D' = 12,5$ for the test of 14.2.6 (second characteristic numeral 6)

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

Test Item :
IK09 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. IK09 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 4 -- During the test of IPX5



Photo 5 -- After the test of IP65

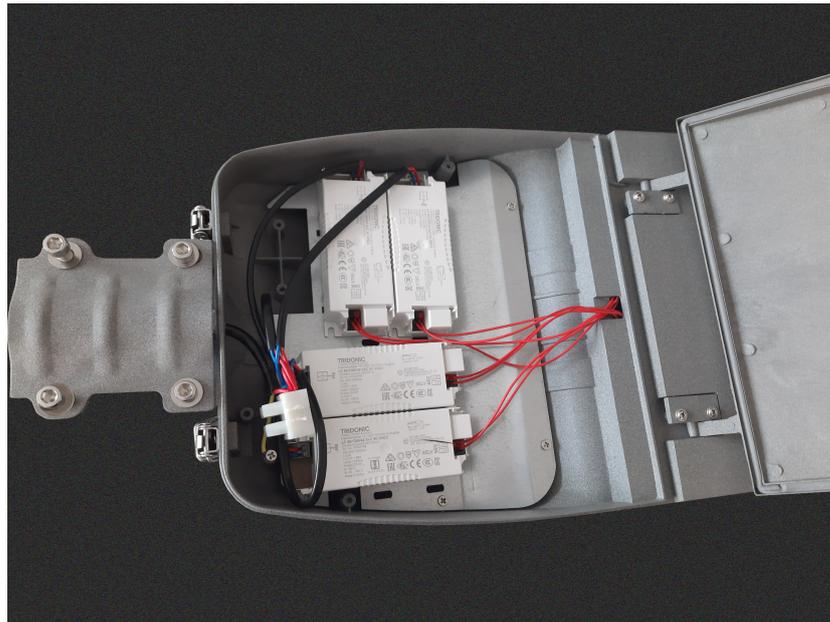


Photo 6 -- After the test of IP65

WTZ82Y24175428R Equipment

| UEseqduipdmureinngt Test: | 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 =====