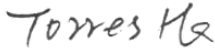


Efficiency Of Control Gear TEST REPORT

Of IEC 62384:2006+A1:2009 Applied for SASO-2927

Kunde: <i>Client:</i>	MIC Optoelectronic Co., Ltd		
Adresse: <i>Address:</i>	2nd floor, Third Building, 97# AiNan Road, LongDong, BaoLong Street, LongGang District, Shenzhen, China		
Hersteller: <i>Manufacturer:</i>	SHENZHEN MOSO ELECTRONICS TECHNOLOGY CO.,LTD		
Adresse: <i>Address:</i>	No.1061, Songbai Road, Xili Town, Nanshan District, Shenzhen, CHINA		
Name der Marke: <i>Brand Name:</i>	MOSO		
Beschreibung des Produkts: <i>Product Description:</i>	LED Driver		
Modelle: <i>Models:</i>	X6-320M062		
Bewertung: <i>Rating:</i>	Input: 100-277V~, 50/60Hz, 4.2A Max. PF:0.95 Output: 38-62Vdc, 0.75-7.50A, Max.320W		
Verfahren: <i>Method:</i>	SASO 2927: 2019: Energy efficiency functionality and labelling requirements for lighting products – Part 3: Street lighting IEC 62384:2006+A1:2009: LED DC or AC supplied electronic control gear for LED modules performance requirements. IEC 60529:1989+A1:1999+A2:2013: Degrees of protection provided by enclosures (IP Code)		
Prüfergebnis*: <i>Test result*:</i>	IP67 No deposit of talcum powder inside enclosures for dust-tight control gear; No water entry control gear; Function Normal		
Datum der Prüfung: <i>Date of Test:</i>	Datum der Emission: <i>Date of Issue:</i>	Klassifizierung: <i>Classification:</i>	Gegenstand der Prüfung: <i>Test item:</i>
2025-06-23	2025-06-23	Commission Test	Efficiency of Control Gear; IP
Prüflabor (Testlabor) / Testing Laboratory: Shenzhen Southern LCS Compliance Testing Co., Ltd. Room 101-201, Building 39, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, Guangdong, China			
Test von/Test by:	Check von/Check by:	Genehmigt von/Approved by:	
			
Rose Cao/ Project Engineer	Torres He/ Director	Jesse Liu/ Manager	
<p>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</p> <p><i>Remark: The duplication of this report or parts of it and its use for advertising purposes is only allowed with permission of the testing laboratory. This report contains the result of examination of the product sample submitted by the applicant. A general statement concerning the quality of the products from the series manufacturer cannot be derived therefore.</i></p>			



General remarks:

1. The test results presented in this report relate only to the object tested.
2. This report shall not be reproduced, except in full, without the written approval of the Issuing Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the Testing Laboratory, responsible for this Test Report.
3. The general information of applicant and manufacturer (such as the name and address), product name, model/type reference, trademark and other similar information contained in this report are all provided by the applicant, the laboratory is not responsible for verifying its authenticity.

Modified Information

Version	Report No.	Revision Date	Summary
V1.0	LCSB08234029S	/	Original Version

Rated Efficiency of Control Gear: 90%.

General remarks:

“(See attachment#)” refers to additional information appended to the report.

“(See remark#)” refers to a remark appended to the report.

“(See appended table)” refers to a table appended to the report.

Throughout this report a comma (point) is used as the decimal separator.

Remark:

Measurement was conducted at a stable ambient temperature $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$.

Possible test case verdicts:

- test case does not apply to the test object : N/A (Not applicable)
- test object does meet the requirement : P (Pass)
- test object does not meet the requirement : F (Fail)



Equipment used during test:

ID Number	Instrument	Model/ Type	Calibration Date
SLCS-S-031	Sand and dust test box	SG-500	2025/4/30
SLCS-S-040	Submersible test unit	X8	2024/12/14
SLCS-E-027	Temperature and humidity barometer	/	2025/4/22
SLCS-S-095	Test needle(1mm)	AGPCD	2025/4/30
SLCS-S-011	J Thermocouple	J	2025/4/28
SLCS-S-029	Temperature recorder	34970A	2025/4/30



Test Item:

Dust test for first characteristic numerals 6.

Atmospheric conditions for water or dust tests:

Air pressure: 86 kPa to 106 kPa

Temperature range: 15°C to 35°C

Relative humidity: 25 %RH to 75 %RH

Test samples:

Clean and new samples were tested

Test Method:

The test is made using a dust chamber incorporating the basic principles shown in figure 2 whereby 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 50 μm and the nominal width of a gap between wires 75 μm . The amount of talcum powder to be used is 2 kg per cubic metre 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, e.g., due to thermal cycling effects. Category 2: Enclosures where no pressure difference relative to the surrounding air is present.

Category 1 enclosures:

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.

The suction connection shall be made to a hole specially provided for this test. If not otherwise specified in the relevant product standard, this hole shall be in the vicinity of the vulnerable parts. If it is impracticable to make a special hole, the suction connection shall be made to the cable inlet hole. If there are other holes (for example, more cable inlet holes or drain-holes) these shall be treated as intended for normal use on site.

The object of the test is to draw into the enclosure, by means of depression, a volume of air 80 times the volume of the sample enclosure tested without exceeding the extraction rate of 60 volumes per hour. In no event shall the depression exceed 2 kPa (20 mbar) 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 2 h.

If, with a maximum depression of 2 kPa (20 mbar), 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 8 h has elapsed.

Category 2 enclosures

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 8 h.

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 the test wire of 1,0 mm ϕ shall not penetrate and adequate clearance shall be kept.

Test Result:

☒ Pass

☐ Fail

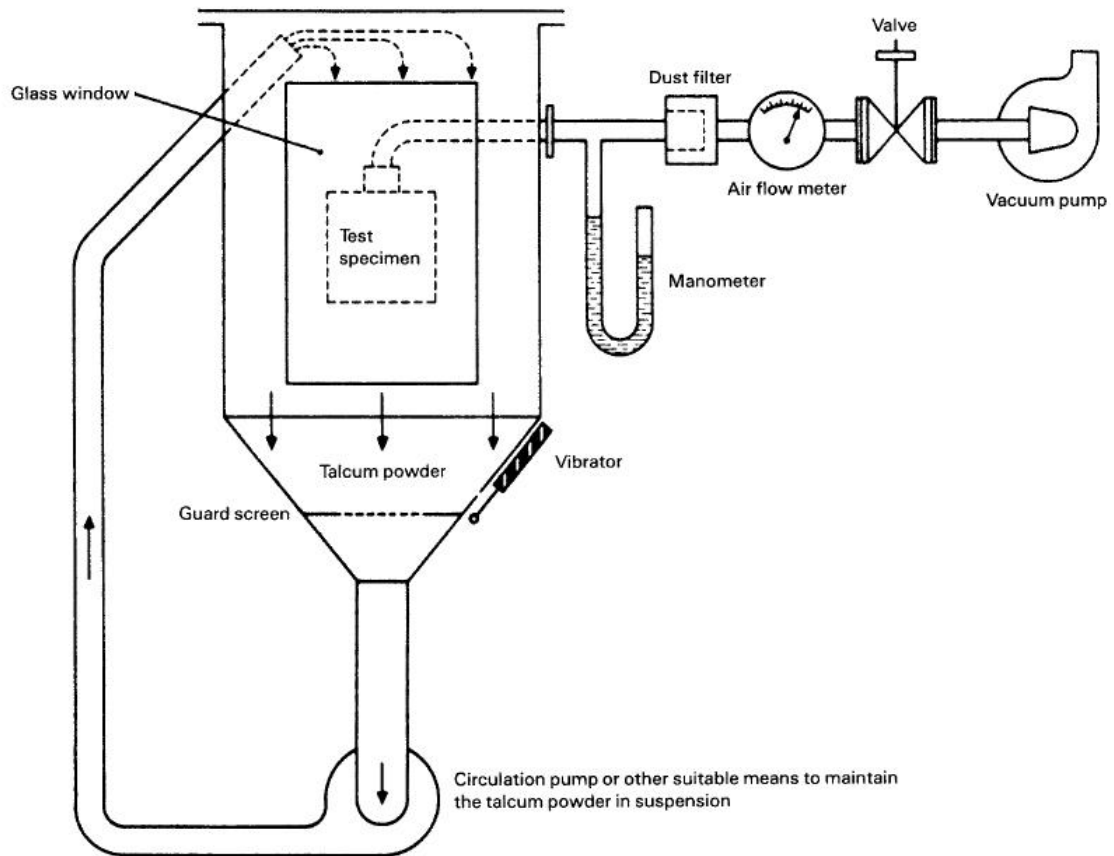


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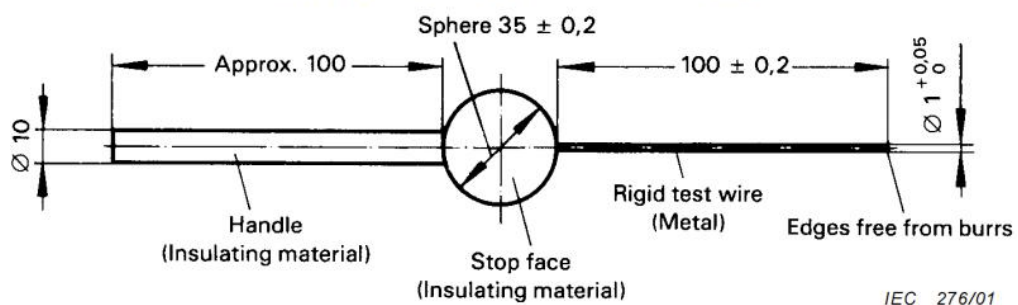


IEC 280/01

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

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

Test wire 1,0 mm diameter, 100 mm long



IEC 276/01



Test Item:

Test for second characteristic numeral 7: temporary immersion between 0,15 m and 1 m

Atmospheric conditions for water or dust tests:

Air pressure: 86 kPa to 106 kPa

Temperature range: 15°C to 35°C

Relative humidity: 25 %RH to 75 %RH

Test samples:

Clean and new samples were tested

Test Method:

The test is made by completely immersing the enclosure in water in its service position as specified by the manufacturer so that the following conditions are satisfied:

- a) the lowest point of enclosures with a height less than 850mm is located 1000mm below the surface of the water;
- b) the highest point of enclosures with a height equal to or greater than 850mm is located 150mm below the surface of the water;
- c) the duration of the test is 30 min;
- d) the water temperature does not differ from that of the equipment by more than 5 K.

However, a modified requirement may be specified in the relevant product standard if the tests are to be made when the equipment is energized and/or its parts in motion.

Acceptance Conditions:

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



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Test Result

Control Gear model	X6-320M062				
Sample No.	No Load Power of Control Gear (W)	Stand by Power of Control Gear (W)	Power of Control Gear (W)	Power factor of Control Gear (PF)	Efficiency of Control Gear (%)
1	0	0.29	319.54	0.987	97.54%
2	0	0.33	319.54	0.977	97.64%
3	0	0.23	319.43	0.984	97.36%
4	0	0.29	319.37	0.988	97.73%
5	0	0.28	318.67	0.978	97.76%
6	0	0.26	319.25	0.974	97.47%
7	0	0.25	319.56	0.983	97.53%
8	0	0.27	319.53	0.988	97.68%
9	0	0.27	319.35	0.988	97.78%
10	0	0.28	319.55	0.978	97.73%
Avg.	0	0.28	319.38	0.983	97.62%

Electrical Requirements result

Requirement - Test	Result - Remark	Verdict
The control unit shall be equipped with internal protection to withstand charges and lightning of not less than 4 kV	10KV	P
Constant Voltage Drivers are not allowed to be used; drivers shall be programmable whether DALI (preferable) or 0-10V dimmable	0-10V dali	P
The control units (Driver) must operates with voltage (120-277) Vac at 60 Hz	100-277Vac at 60 Hz	P
The Power factor value for driver and integrated luminaire shall be ≥ 0.9	0.95	P
Total Harmonic Distortion of the driver individually < 15%	11.0%	P
The control gear in the lighting fixtures shall have IP66 protection levels	IP67	P
The control unit enclosure shall be designed to withstand a temperature between -10 and +85.	-40 and +90	P

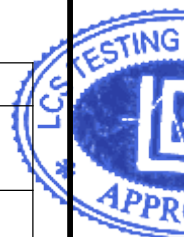
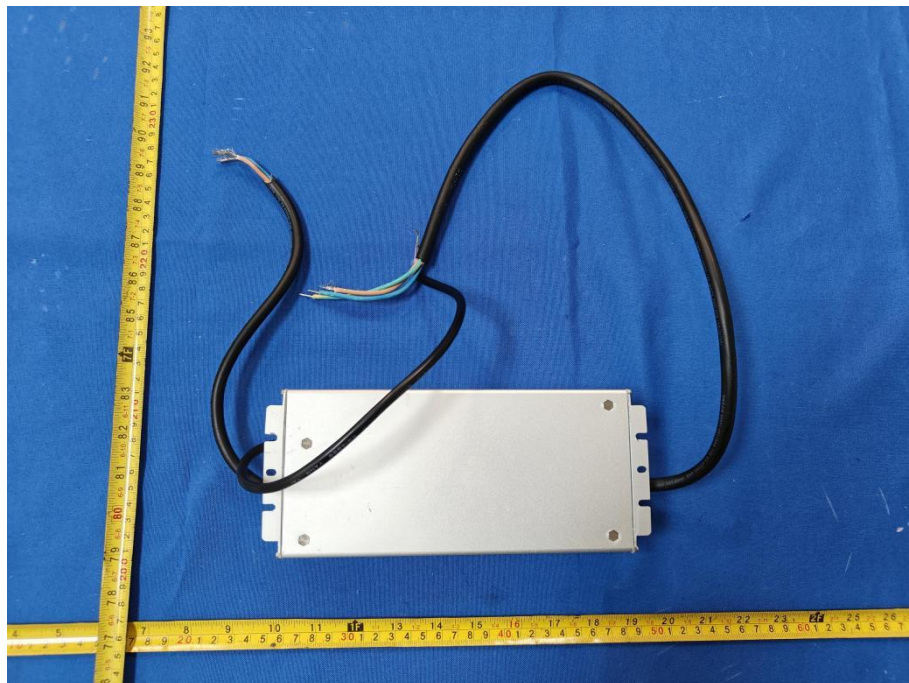


Photo Documentation:

Photos 1 of Control Gear



Photos 2 of Control Gear



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Photo Documentation:

Photo 3: IP6X test of model X6-320M062

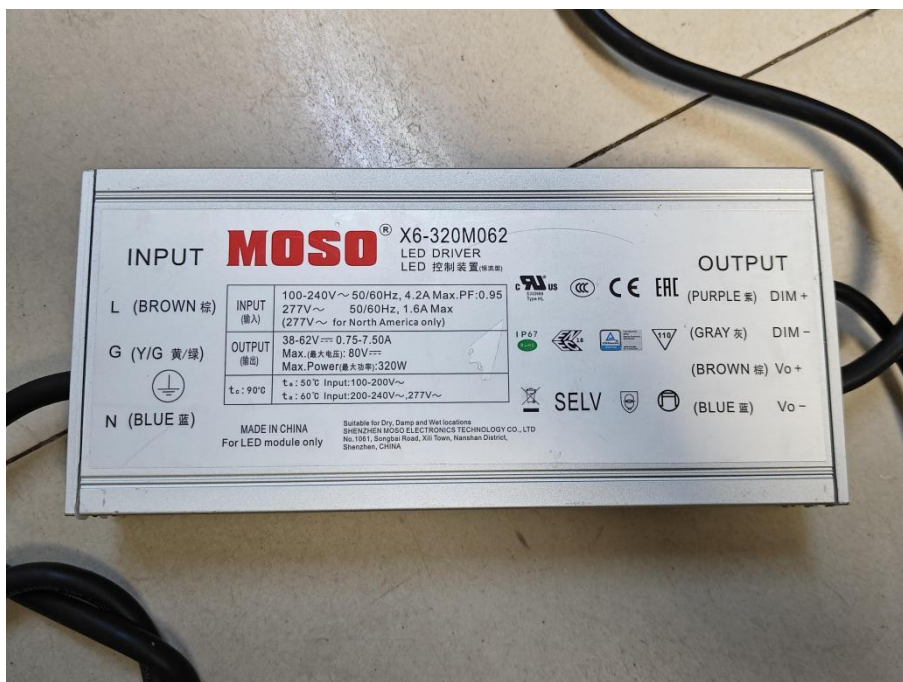


Photo 4: IPX7 test of model X6-320M062



Photo Documentation:

Photo 5: Test result after IP6X and IPX7 test (no dust & no water)



----- End of Test Report-----

