



AB 261



LABORATORY OF CABLE TESTING AND ENVIROMENTAL TESTS

TEST REPORT No. 4770-ZLK/2017

Degree of protection provided by enclosures. IP65 tests of lamp enclosure SP-102.

**ZESPÓŁ LABORATORIÓW
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Świadczy usługi
w zakresie badań:

- kompatybilności elektromagnetycznej (EMC)
- środowiskowych
- elektrycznych
- mechanicznych
- trudności materiałowych
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- ♦ innych urządzeń elektrycznych i elektronicznych
- ♦ podzespołów stosowanych w kolejnictwie, branży automotive i siłach zbrojnych RP

Report for:

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Order:

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1. Equipment Under Test (EUT):

Table 1.



No.	Name according to the supplier	Serial number	Laboratory code
1	Lamp enclosure SP-102	<p>No serial number</p> 	4770.1/2017
2	Lamp enclosure SP-102	<p>No serial number</p> 	4770.2/2017



Fig. 1. Test sample 4770.1 in the dust chamber – after the test IP6X



Fig. 2. Test sample 4770.2 at the test stand - after the test IPX5

2. Test plan

Table 2.

No.	Tested feature / test method	Remarks	A ¹⁾
1	Protection against penetration of dust: IP6X test, according to the standard PN-EN 60529:2003.	The test was performed only on the test sample 4770.1/2017	A
2	Protection against water jet: IPX5 test, according to the standard PN-EN 60529:2003.	The test was performed only on the test sample 4770.2/2017	A

1) A" means the accredited testing; „-" means the non-accredited testing.

Evaluation criterion A:

During test:

- not acceptable is any mechanical damage of EUT.

After test:

- not acceptable is presence of water inside the EUT (after IPX6 test),

- not acceptable is presence of dust inside the EUT (after IP6X test),

3. Description and results of tests

3.1. Protection against penetration of dust: IP6X test.

3.1.1. Test procedure

Test was performed in accordance with the recommendations of PN-EN 60529:2003, clause 13.4: test IP6X – protection against dust (category 1 enclosure).

Test parameters:

- Type of dust: Talcum powder,
- Talcum powder's grain size: <75 um,
- The amount of dust: 2 kg,
- The dust chamber size: 1 m³,
- Test duration: 8 h.

3.1.2. Test equipment

- dust chamber SD1000 S ZL/1160/P,
- stopwatch ZL/1102/A,
- rotometer ZL/1163/A,
- manometer MRC ZL/1161/A,
- thermohigrometer ZL/0454/A,

3.1.3. Test results

After the test, the EUT was opened and inspected according to the point 2 of test report. Dust did not penetrate into tested object (Fig. 3). Test result positive.



Fig. 3. Visual internal inspection after the test of IP6X. EUT – 4770.1/2017

3.2. Protection against water jet: IPX5 test.

3.2.1. Test procedure

Test was performed in accordance with standard PN-EN 60529:2003, clause 14.2.5: protection against water jet.

Test conditions:

- temperature of water jet: $(24,8 \pm 2,0)$ °C,
- water flow: $(12,5 \pm 1,0)$ l/min,
- test duration: 3 min.

3.2.2. Test equipment

- flowmeter ZL/1194/A,
- stopwatch ZL/1102/A,
- nozzle 6,3 mm ZL/1166/B,
- thermohigrometer ZL/0454/A,
- thermometer ZL/1156/B.

3.2.3. Test results

After the test, the EUT was opened and inspected according to the point 2 of test report (Fig. 4). Water did not penetrate into tested object. Test result positive.



Fig. 4. Visual internal inspection after the test of IPX5. EUT – 4770.2/2017

4. Test dates, conditions and personnel:

Test dates	Climatic conditions		Tested by
Start: 23-08-2017 End: 24-08-2017	Ambient temperature	(23÷26) °C	Cezary Kaczmarek Ireneusz Zdrzałek
	Relative air humidity	(31-40) %	
	Atmospheric pressure	(990÷998) hPa	

5. Distribution list of test reports:

Copy No.	Recipients
1	Solutions4GA Sp. z o.o. ul. Sylwestra Kaliskiego 57, 01-476 Warszawa
2	Institute of Innovative Technologies EMAG Laboratory of cable testing and environmental tests

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