



**Łukasiewicz**  
Instytut Techniki  
Innowacyjnych  
EMAG



AB 261



Centrum Badań i Certyfikacji  
Zespół Laboratoriów Badawczych

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LABORATORY OF CABLE TESTING AND ENVIRONMENTAL TESTS

TEST REPORT №

**7436-ZLK-2/2023**

**Degrees of protection provided by enclosures:  
IP69k tests of LED lamp AWL-14-CW-7-AAG-R**

ZESPÓŁ LABORATORIÓW  
BADAWCZYCH

Świadczy usługi  
w zakresie badań:

- kompatybilności elektromagnetycznej (EMC)
- środowiskowych
- elektrycznych
- mechanicznych
- trudności palności materiałów
- funkcjonalności
- iskrobezpieczeństwa
- stopnia ochrony IP
- UN DOT 38.3
- aparatury rozdzielczej
- stacji transformatorowych
- akumulatorów
- kabli i przewodów
- urządzeń gazometrycznych
- podzespołów stosowanych w kolejnictwie, branży automotive i siłach zbrojnych RP
- pozostałych urządzeń elektrycznych i elektronicznych

Customer:

MTX LED SOLUTIONS SRL.  
Tăietura Turcului Str.no. 47  
400221 Cluj-Napoca, Romania

Order:

1/2021 of February 28, 2023

Test report prepared by

*Marcin Patola*

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*Robert Ulfig*

Robert Ulfig

Test report authorized by

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Robert Ulfig  
Head of Laboratory

Katowice, March 31, 2023

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## 1. Equipment Under Test (EUT)

Table 1-1: EUT data

No.	Name according to the supplier	Serial number	Producer	Date of delivery	Laboratory ID
1	LED Lamp AWL-14-CW-7-AAG-R	N/A	MTX LED SOLUTIONS	January 30, 2023	7436.03
2	LED Lamp AWL-14-CW-7-AAG-R	N/A	MTX LED SOLUTIONS	February 10, 2023	7436.04

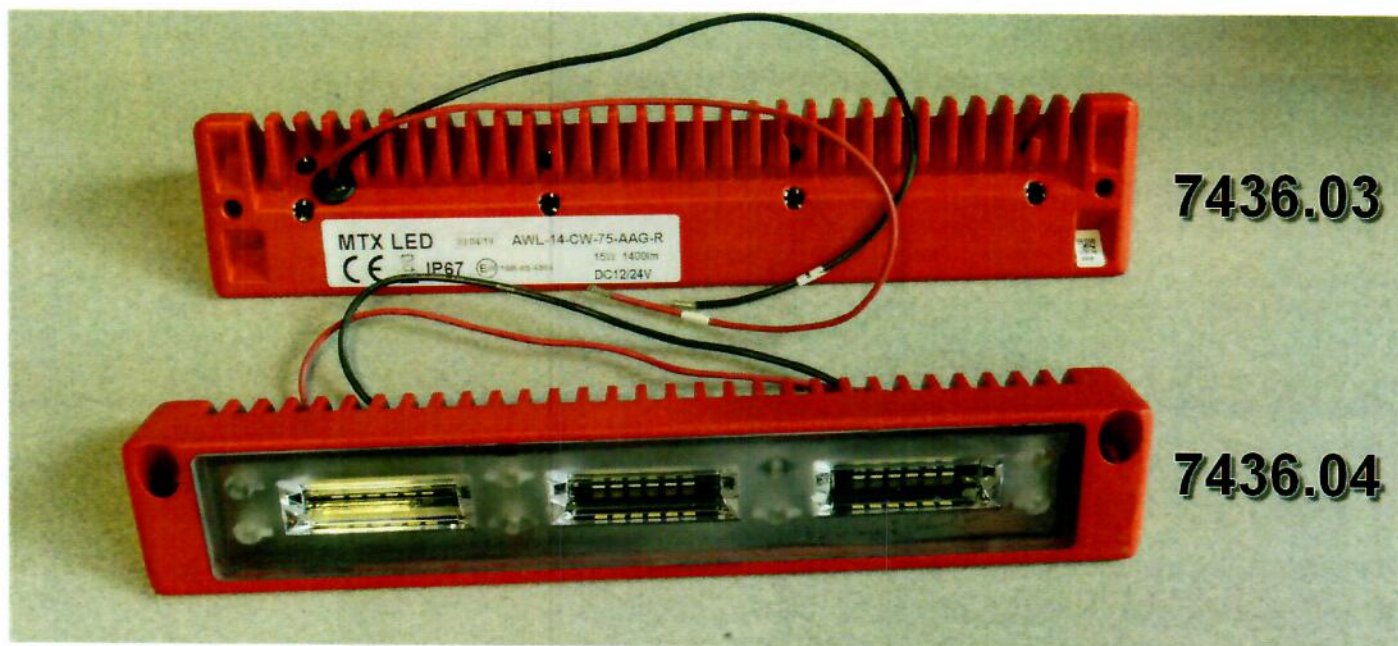


Photo 1-1: General view of EUT.

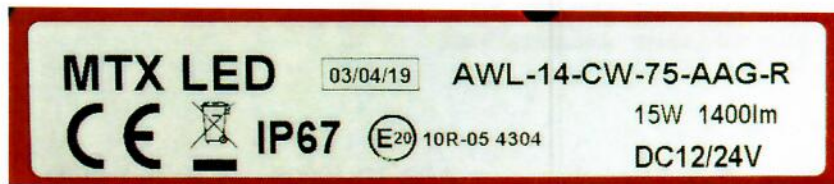


Photo 1-2: All objects have the same nameplate's content.

## 2. Test plan

Table 2-1: Scope of tests

No.	Tested feature / Test method	Remarks	A <sup>1)</sup>
1	IP6X Test according to PN-EN 60529:2003+A2:2014-07+AC:2017-12: Checking protection against dust tight	Sample ID: 7436.03	A
2	IPX9K Test according to ISO 20653:2013: Checking protection against high pressure, steam-jet cleaning.	Sample ID: 7436.04	A

Tests listed in Table 2-1 were performed in Research Network Łukasiewicz – Institute of Innovative Technologies EMAG in Katowice at 31 Leopolda Street.

<sup>1</sup> Explanations for table „A” means accredited test, „-” means not accredited test. “A” means, that accreditation concerns only exposure. Tests of resistance and endurance to exposure (procedure of evaluation and criteria) is not accredited. Evaluation criteria – according to clause **Błąd! Nie można odnaleźć źródła odwołania.** of this report. Procedure of evaluation - according to clause **Błąd! Nie można odnaleźć źródła odwołania.** of this report.





### 3. Description and results of tests

Before the tests, the laboratory staff took photos and checked the functionality of EUT by connecting to 12 V DC.

All lights were working properly.

#### 3.1. Protection against dust: IP6X test

##### 3.1.1. Test procedure

Test was performed in accordance with recommendations of standard PN-EN 60529:2003+A2:2014-07+AC:2017-12 clause 13.4 and 13.6 – IP6X test.

The air flow through the object was 0 dm<sup>3</sup>/h. The exposure lasted 8 hours.

The test was performed on March 22, 2023.

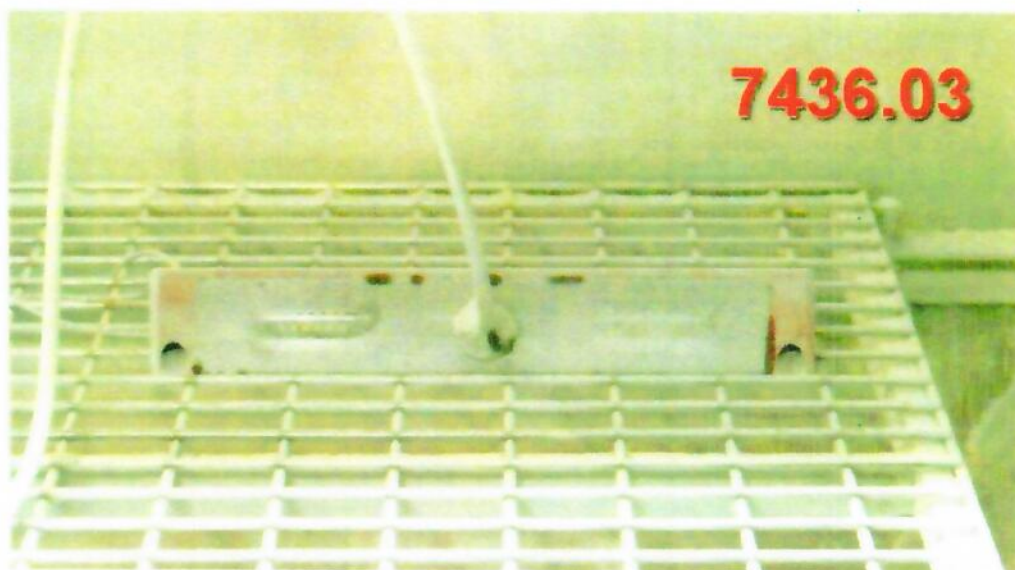


Photo 3-1. Object ID 7436.03 placed in dust chamber after the IP6X exposure.

##### 3.1.2. Test equipment

- |  |                  |           |
|--|------------------|-----------|
| • Dust chamber                                   | ACS SD-1000S     | ZL/1160/P |
| • Rotameter                                      | ROS-06           | ZL/0993/A |
| • Differential pressure sensor                   | MRC              | ZL/1161/A |
| • Multisensor                                    | LB-717TWP        | ZL/1516/A |
| • Set for measuring the temperature and humidity | LB-701H/LB-706   | ZL/0454/A |
| • Stopwatch                                      | SMJSport JS-6618 | ZL/1102/A |

##### 3.1.3. Test result

After the exposure the plastic cover has been removed and inspection was carried out to ensure that no dust was penetrated inside the housing.

No dust was found inside the enclosure (Photo 3-2).

Summary: the test was carried out correctly, obtaining the results as described above



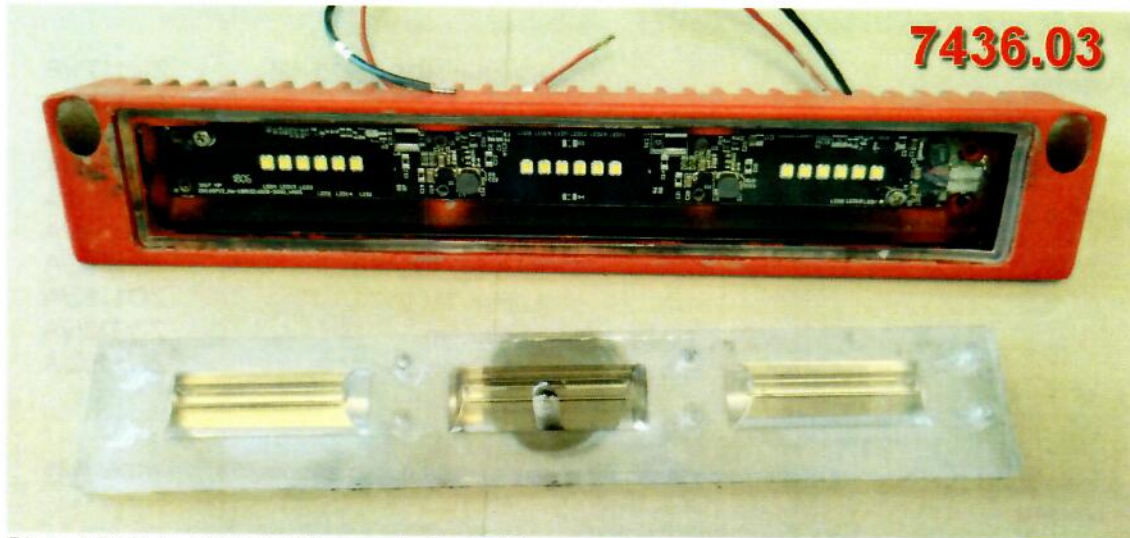


Photo 3-2: Object ID 7436.03 opened after IP6X exposure.

### 3.2. Protection against high pressure steam-jet cleaning: IPX9K test

#### 3.2.1. Test procedure

Test was performed in accordance to ISO 20653:2013 standard – IPX9K test on March 28, 2023.



Photo 3-3: Object ID 7436.04 installed on test stand before the exposure.

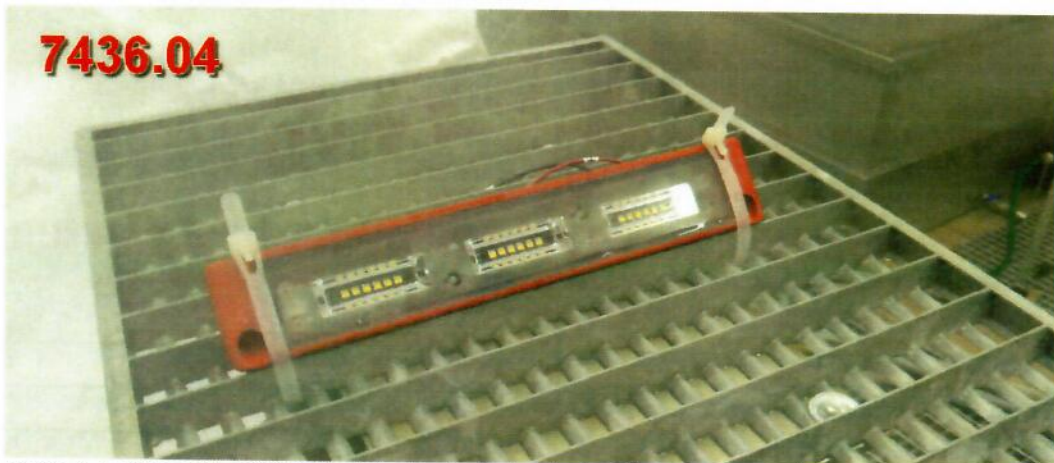


Photo 3-4: Object ID 7436.04 installed on test stand after the exposure.



**3.2.2. Test equipment**

• Hight Pressure Washer	Kärcher HDS 10/20-4M	ZL/1171/P
• Rotary table	–	ZL/1172/B
• Flowmeter	IFM SM 6000	ZL/1521/A
• Multisensor	LAB-EL TWP-717	ZL/1514/A
• Set for measuring the temperature and humidity	LAB-EL 706/701H	ZL/0454/A
• Thermometer	LAB-EL 706/701T	ZL/1155/A
• Thermometer	LAB-EL 706/701T	ZL/1156/A
• Thermometer	Lutron TM-917	ZL/1152/A
• Ruler	Leniar 1m	ZL/0225/A
• Stopwatch	SMJSport JS-6618	ZL/1102/A

**3.2.3. Test result**

After the exposure the plastic cover has been removed and inspection was carried out to ensure that no water was penetrated inside of the housing.

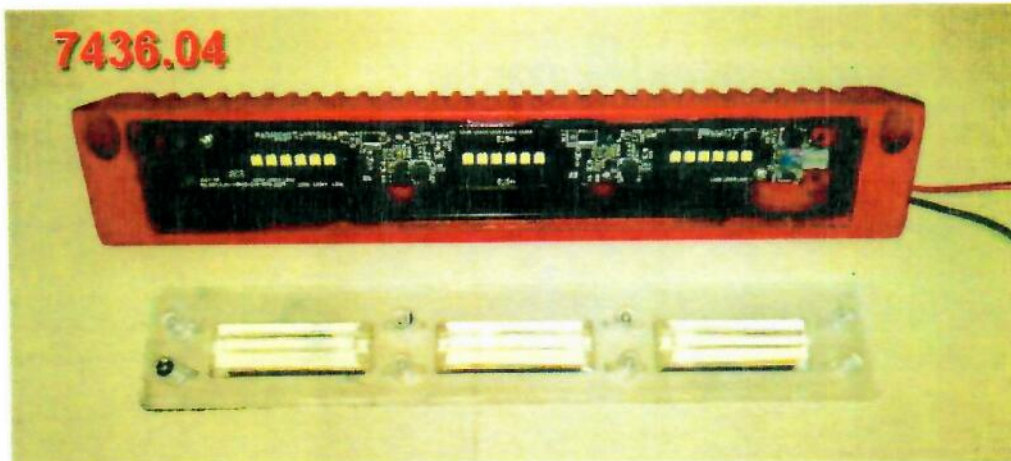


Photo 3-5. Object ID 7436.04 opened after IPX9K exposure

No water was found inside the enclosure (Photo 3-5).

Summary: the test was carried out correctly, obtaining the results as described above.

**4. Opinions and interpretations and a summary of the results**

Based on obtained results and observations, it was found that the:

- Object ID 7436.03 meets the criteria of PN-EN 60529:2003+A2:2014-07+AC:2017-12 standard,
- Object ID 7436.04 meets the criteria of ISO 20653:2013 standard.

Result of IP6X test for object ID 7436.03 is positive. Result of IPX9K test for object ID 7436.04 is positive.

**5. Laboratory staff and test dates**

Tested by Marcin Patoła, March 22 and 28, 2023.

**6. Distribution list of test reports**

Table 6-1 Distribution list

Copy No.	Recipients
1	MTX LED SOLUTIONS SRL. Taietura Turcului str. no. 47, 400221 Cluj-Napoca, Romania
2	Research Network Łukasiewicz – Institute of Innovative Technologies EMAG Laboratory of Cable Testing and Environmental Tests

**END OF REPORT**

*All results of tests and measurements presented in this test report refer only to items tested  
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