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44-121 Gliwice**
Laboratorium L A B O R E x
**ul. Aronii 4
44-102 Gliwice**



AB 1340

Gliwice, 15.12.2017

REPORT

from test No. 1/LL/179/2017/A

**Subject: Technical study of luminary enclosures
type Secure LED 26W 3800LM**

Test results are related to tested subject. Without written permission of LABOREx Laboratory this report cannot be disseminated differently but as whole document.

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1. Clients name and address:

AIRFAL International
Rio Esera, 4
Villanueva de Galiego 50830
Zaragoza SPAIN

2. Contract/errand/order number:

0358/OBAC/2117WB/17/P – repeated tests

3. Case identification number given by Laboratory:

LL/179/2017

4. Place of performing tests:

LABOREx Laboratory
4 Aronii street
44-102 Gliwice

5. Date of delivery of test samples:

07.11.2017

6. Description, status and identification of tested subject:

Subject of the study: luminary enclosures type Secure LED 26W 3800LM, (2 pieces).

Serial number: none.

Year of production: none.

Samples delivered by the client.

7. Date(s) of performing tests:

13.11÷15.12.2017

8. Tests range and identification of method applied:

No.	Tested magnitude	Standards applied
1.	Thermal endurance to heat	PN-EN 60079-0:2013-03 +A11:2014-02 section 26.8
2.	Thermal endurance to cold	PN-EN 60079-0:2013-03 +A11:2014- section 26.9
3.	Resistance to impact	PN-EN 60079-0:2013-03 +A11:2014- section 26.4.2
4.	Type test with additional routine test	PN-EN 60079-15:2010 section 22.6.2.2

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9. Equipment used to perform tests:

No.	Equipment name	Identification number
1.	Environmental chamber SU 2000DC	C/081/LL
2.	Impact test stand	C/076/LL
3.	Bitter	C/076/01/LL
4.	Differential micromanometer PVM 610	A/188/LL
5.	Stopwatch	A/135/LL
6.	Caliper 600mm	A/120/LL
7.	Thermohigrometer LB-522B	A/207/LL

Apparatus was inspected prior to the tests – apparatus works correctly.

10. Test performance and results

The results and associated uncertainties relate only to the tested sample and may not relate to any part of product / substance / material.

Measurement uncertainty was determined according to the document EA-4/02. These uncertainties are expanded uncertainty at the 95% confidence level and coverage factor $k = 2$.

10.1. Thermal endurance to heat

Test performed on two luminary enclosures in type of Secure LED 26W 3800LM:

- Luminary enclosure marked with letter “A” and its endings marked “A1” and “A2”,
- Luminary enclosure marked with letter “B” and its endings marked “B1” and “B2”.

Test performed in environmental chamber. Air temperature during test was maintained at level of $(+80,0 \pm 2,0)^{\circ}\text{C}$ and relative humidity at level of $(90,0 \pm 3,0)\%$.

Duration of the test was 672 hours (4 weeks).

After the trial was finished, samples were stored in air with temperature of $(+23 \pm 2)^{\circ}\text{C}$ and relative humidity of $(50,0 \pm 3,0)\%$ for period of 24 hours.

10.2. Thermal endurance to cold

Test performed on two luminary enclosures in type of Secure LED 26W 3800LM:

- Luminary enclosure marked with letter “A” and its endings marked “A1” and “A2”,
- Luminary enclosure marked with letter “B” and its endings marked “B1” and “B2”.

Test performed in environmental chamber. Air temperature during test was maintained at level of $(-25,0 \pm 2,0)^{\circ}\text{C}$.

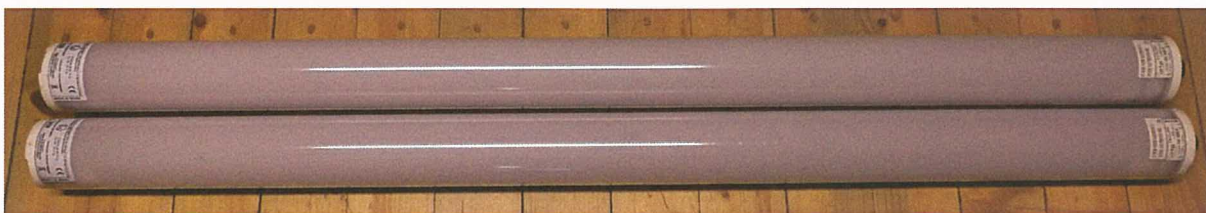
Duration of the test was 24 hours.

After finishing tests (clauses 10.1 and 10.2) luminary enclosures were visually inspected.

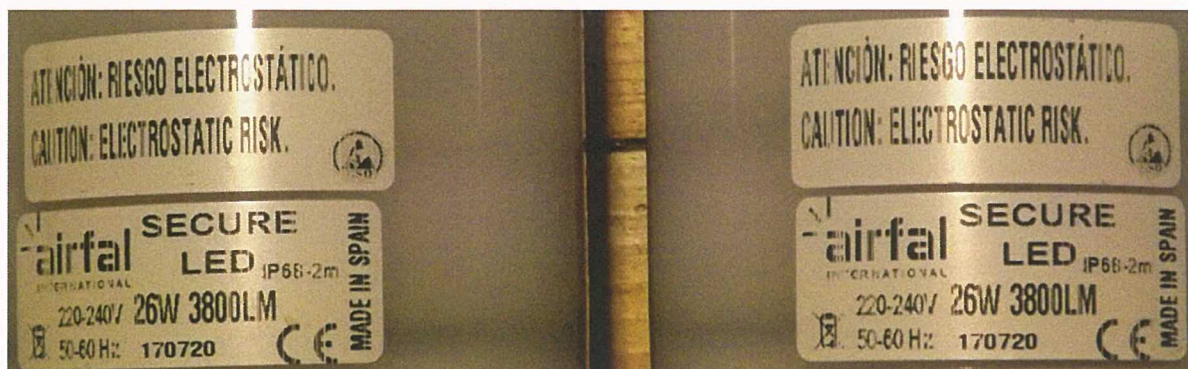
No mechanical damage was spotted.

After power supplying tested luminary enclosures, they worked correctly.

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Picture 1. Luminary enclosure type Secure LED 26W 3800LM



Picture 2. Tested luminary enclosures nameplates



Picture 3. Determination of the type of construction of tested luminaries

10.3. Resistance to impact

Environmental conditions during the test that affects test results:

Test performed at ambient temperature of $(18,6 \pm 2,0)^\circ\text{C}$ and relative humidity of $(32,4 \pm 3,0)\%$.

Tested enclosures was subjected to resistance to impact test by hitting one time with the bitter (mass of 1 kg) falling from height of 0,4 m on light transmitting elements.

In result of performed test, enclosures were not mechanically damaged.

10.4. Type test with additional routine test

Environmental conditions during the test that affects test results:

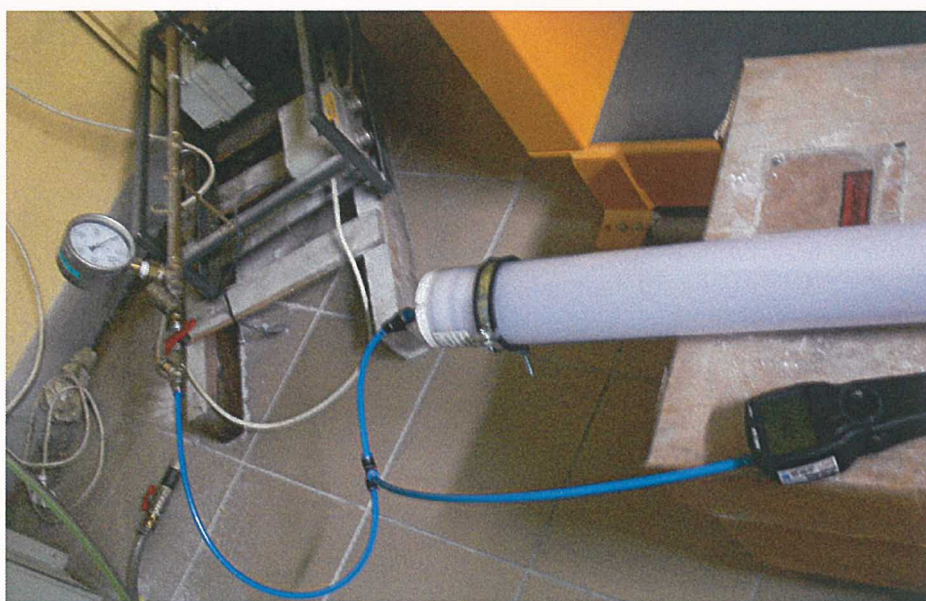
Test performed at ambient temperature of $(18,8 \pm 2,0)^\circ\text{C}$ and relative humidity of $(31,5 \pm 2,0)\%$.

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Test performed with underpressure of 0,3kPa inside the enclosure.

Enclosure marked	Underpressure applied [Pa]	Underpressure gained [Pa]	Duration [s]
A	300	156,4	180
B	300	211,8	180

Tested enclosures meet the requirements of clause 22.6.2.2 of PN-EN 60079-15:2010.



Picture 4. Tested enclosure during tightness test

Tests performed by:

15.12.2017
Date

Leon Bieniek
name and surname

Research Specialist
position

.....
signature

Checked and verified by:

15.12.2017
Date

Wojciech Bobeck
name and surname

Laboratory Manager
position

.....
signature

END OF REPORT

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