Certificate No: RED-201901

REDTRONIC IP69K
TEST CERTIFICATE

Company : Redtronic Ltd

Address : Unit 1-9, Wellington Business Park, Quebec Street, Elland, HX5 9BX, United Kingdom

Sample Name : BX32 GRILLE LAMP

Date Tested : 19th November 2019

TESTING LABORATORY ACCREDITATION:

ISO 9001:2015 certificate is approved by Q.A. International Certification Limited
Certificate No: QAIC / UK / 501

Regulations; 72/245/EC, ECE10 as amended is approved by Vehicle Certification Agency
Registration No: VCAMC/14/0043/A

UN/ECE Regulation No 65 is approved by Unidad De Certificación Del Automovil
Certificate No: C1 29571503D

TEST METHOD:

BS EN 60529:1992+A2:2013 – Degrees of protection provided by enclosures

ISO 20653: 2013-02 IP6X: Dust Test

ISO 20653: 2013-02: IPx9K high-pressure cleaning

WE HEREBY CERTIFY THAT:

The test(s) shown in the attachment were conducted according to the indicating procedures. We assume full responsibility for the accuracy and completeness of these tests and vouch for the qualifications of all personnel performing them.

	Name	Date
Technical Director	Steve Redfern	25th November 2019

NOTE:

1. This certificate will be invalid if reproduced in part or altered in anyway.
2. This certificate refers only to the specimen(s) submitted to test, and is invalid if used otherwise.

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1. GENERAL INFORMATION

1.1 DESCRIPTION OF UNIT

Manufacturer: Redtronic Ltd
Sample name and Sample quantity:

Sample Name	Sample Quantity
BX32 GRILLE LAMP	1 unit

1.2 UNIT OPERATING CONDITION

Unit is powered off and disconnected from power source. The unit is housed inside a mounting bezel with a gasket sealing pad on the rear. During testing there is a function test at beginning and end of test procedure.

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2. HIGH PRESSURE CLEANING TEST

2.1 TEST EQUIPMENT

Model	Calibration Date
HAIDA	January 2019

2.2 LABORATORY AMBIENCE CONDITION

Temperature: 25°C ± 10°C

Relative Humidity: 50% ± 25% (RH)

2.3 REFERENCE DOCUMENT

This test method refers to BS EN 60529:1992+A2:2013 – Degrees of protection provided by enclosures, specifically ISO 20653: 2013-02: IPx9K high-pressure cleaning.

2.4 TEST PARAMETERS

Distance of the Nozzle to the specimen:	100 to 150mm
Water flow rate:	15l / min
Water pressure:	100 bar
Water temperature:	80°C
Speed test table:	5 U / min
Spray angle:	0°, 30°, 60°, 90°
Number of cycles:	1
Test Conditions:	The specimen is not in electrical operation.

2.5 SUMMARY OF TEST

After testing, visual inspection showed no water permeated into the unit.

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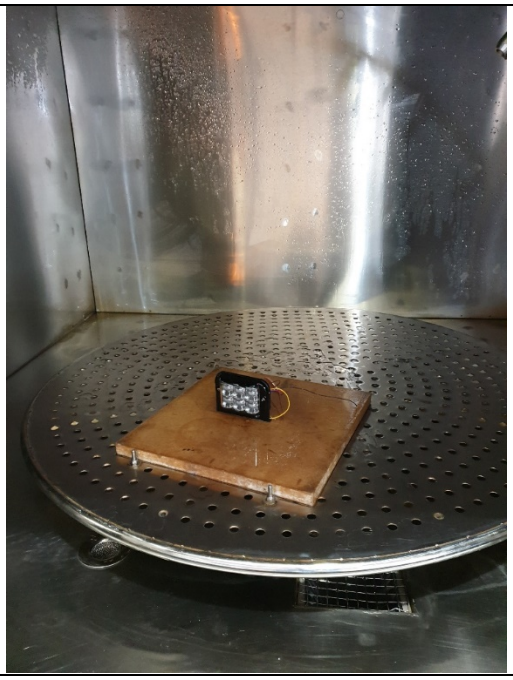
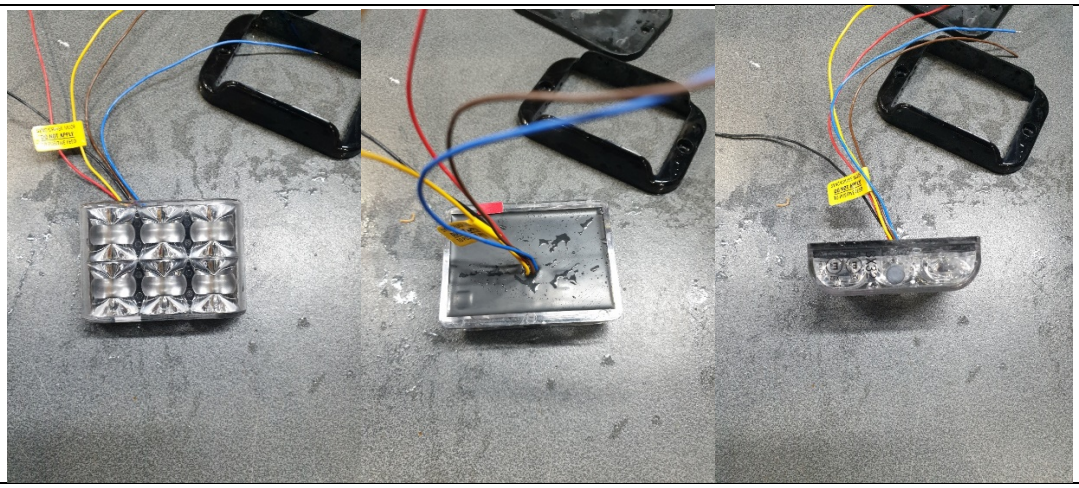
3. ATTACHMENTS HIGH PRESSURE CLEANING

SETUP



AFTER TESTING



Comments: Device passed IPX9K test with no negative reaction. Lamp worked both at beginning of test cycle, during and after test cycle complete.

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4. HIGH PRESSURE DUST TEST

4.1 TEST EQUIPMENT

Model	Calibration Date
HAIDA	January 2019

4.2 LABORATORY AMBIENCE CONDITION

Temperature: 25°C ± 10°C

Relative Humidity: 50% ± 25% (RH)

4.3 REFERENCE DOCUMENT

This test method refers to BS EN 60529:1992+A2:2013 – Degrees of protection provided by enclosures, specifically ISO 20653: 2013-02: IP6x Dust Test.

4.4 TEST PARAMETERS

Dust Material: Talcum powder (100% dry fine)

Particle Size	Amount (%)
< 5 µm (Diameter)	42.3% ± 5
5~10 µm (Diameter)	35.85% ± 5
10~20 µm (Diameter)	21.15 % ± 5
20~40 µm (Diameter)	0.69% ± 5
> 40 µm (Diameter)	0%

Amount of Talcum Powder: 2 kg/m3 (chamber volume)

Dust Density: 2.03 g/cm3

Depression level: 0 mbar

Air Direction: Vertically to achieve slowest possible downward settlement

Duration: 2 hours

4.5 SUMMARY OF TEST

After testing, visual inspection showed no dust particle permeated into the unit.

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5. ATTACHMENTS HIGH PRESSURE DUST TEST

SETUP

AFTER TESTING

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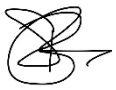
Comments: Device passed IP6X test with no negative reaction. Lamp worked both at beginning of test cycle and after test complete. There was no ingress of dust within the lamp enclosure from vent position, side walls or cable entry (or any other area). On first inspection the silicone material does discolour slightly due to the layers of dust attached to the lamp however this can be easily cleaned / removed using water/cloth combination and is an expected condition on standard IP6X test. This is obviously a controlled test condition and not a standard use of the lamp therefore this is not expected when using the lamp within its intended installation conditions (ie white chalk/talcum powder will not be present).

Conclusion: Device passed IP69K test with no negative ingress effects.

	Name	Signature	Date
Technical Director	Steve Redfern		25th November 2019

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