Test Report issued under the responsibility of **IMQ**

Photobiological safety of lamps and lamp systems
RISK GROUP EVALUATION REPORT

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Date (s) of performance of tests 2010-04-13

Test specification

TRF Originator ..... : IMQ S.p.A.
Master TRF ..... : Dated 2010-01

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For the risk group estimation have been used the exposure limits reported on:

☐ IEC 62471:2006 ☒ EN 62471:2008

(in compliance with the Artificial Optical Radiation Directive 2006/25/EC)

Test item characteristics

Description ..... : Recessed luminaire
Trade Mark ..... : Goccia Illuminazione S.r.l.
Manufacturer ..... : Goccia Illuminazione S.r.l.
Model/Type reference ..... : Quantum A rettangolo
Ratings of the lamp system ..... : 220 - 240V; 50 - 60Hz
Ratings of LED(s) ..... : 350 mA
Ratings of LED module ..... : -

Test item particulars

Tested lamp system ..... : ☒ continuous wave ☐ pulsed

Intended use ..... : ☐ GLS ☒ No GLS

Lamp system classification group ..... : ☒ exempt ☐ risk 1 ☐ risk 2 ☐ risk 3

Measurement distance 200 mm

General remarks

The test results presented in this report is related only to the object tested as described on 'General product information' and as shown in the 'Photographs' sections and/or extended to the models reported in the Annex.
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This report covers recommended practices for classification, labelling and informational requirements for devices that emit optical radiation in the spectral range between 200nm and 3000nm.

Abbreviations used in the report:

Device under test:..... DUT Ultraviolet:.....UV

Infrared:.....IR General lighting service:.....GLS

Product composition

Component	Quantity	Manufacturer	Model	Technical data
White LED	1	Citizen Electronics	CL-L103-MC3 WW1-C	Ifmax 420 mA 3500 K
Electronic control gear for LED module	1	QLT	MPL3	In: 230 V 50-60 Hz; Out: 360 mA, 12 Vdc
Optics	1	Goccia Illuminazione	Satinata A	-
Heatsink	1	Goccia Illuminazione	A-Rettangolo	Alluminium

Preliminary measurements:

The operation of sources and measurement equipment is impacted by environmental factors

Ambient conditions during the test..... T= 23 °C – H= 40 %

Detailed spectral data of a light source are required only if the luminance of the source exceeds 10^4 cd·m^{-2}

Value of luminance measured on the DUT at 11mrad .....: 1890310 cd·m^{-2}

Visible and infrared radiant exposure of the skin, for t = 10s, have to be limited to 35565 J/m^2. Most significant range measured 380–1100 nm

Value of thermal exposure for the skin measured on the DUT.....: 128,7 J/m^{-2}

Measurement details:

Irradiance and radiance measurements have been carried out in compliance with the methods and conditions described on IEC 62471:2006 Standard.

The calculation of source hazard values have been performed by weighting the spectral scan by the appropriate function and calculating the total weighted energy. The equation and the appropriate function used have been in compliance with IEC 62471:2006 Standard.

The measurements have been carried out in a dark room in order to avoid extraneous radiation.

The measurement have been made in that position of the beam giving the maximum reading.

The quality of all measurement results have been quantified by an analysis of the uncertainty.

Measurement results:

The table below provides emission risk group classification for *continuous wave* lamp in accordance with the measurement details described above:

Risk	Risk Group 0 Exempt	Risk Group 1 Low Risk	Risk Group 2 Moderate Risk	Risk Group 3 High Risk
Actinic UV	☒	☐	☐	☐
Near UV	☒	☐	☐	☐
Blue light	☒	☐	☐	☐
Blue light, small source	☐	☐	☐	☐
Retinal thermal	☒	☐	☐	☐
Retinal thermal, weak visual stimulus*	☐	☐	☐	☐
IR radiation, eye**	☒	☐	☐	☐

* *Involves evaluation of non-GLS source*
** *Most significant range measured: 780-1100nm*

Indication for labelling and accompanying documents requirements

For the risk group classification the following label shall be provided with the product:

Not required.

For the risk group classification the following information shall be provided with the accompanying document:

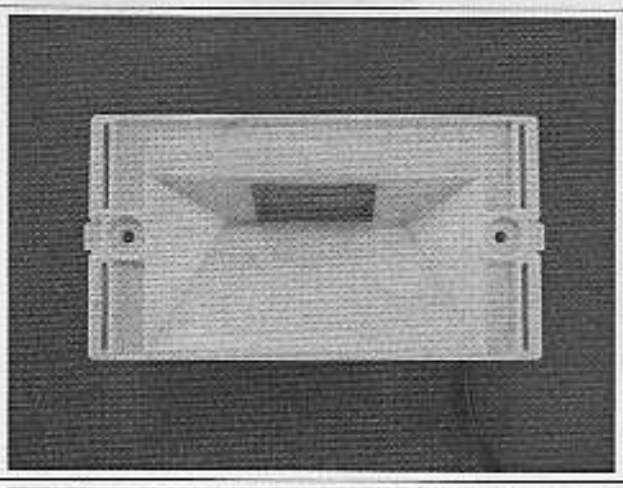
Not required.

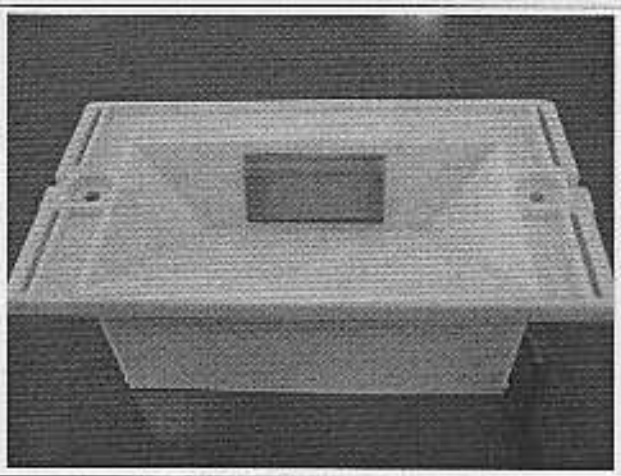
Test equipment list

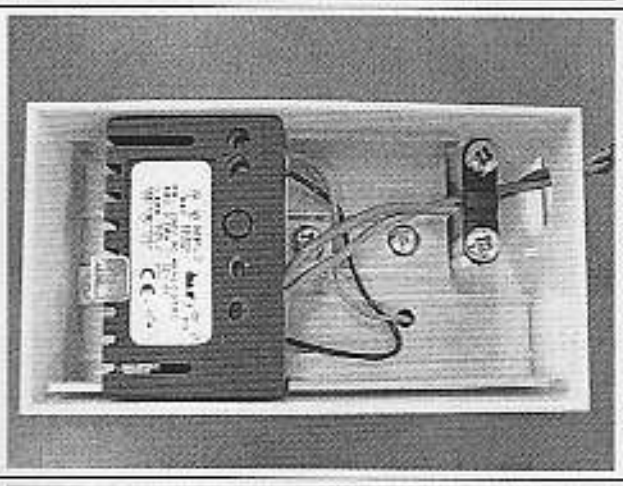
Double monochromator
Photomultiplier tube
Infrared detector
Silicon detector
Diffuser for irradiance measurements
Telescope for radiance measurements
Reference lamp for irradiance measurements
Reference lamp for irradiance measurements (UV)
Reference lamp for radiance measurements

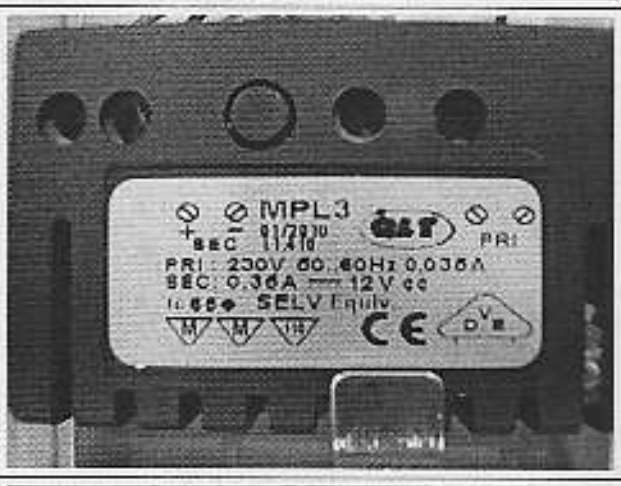
The measurement instruments are adequate calibrated. All the calibration certificates are kept internally in IMQ S.p.A.

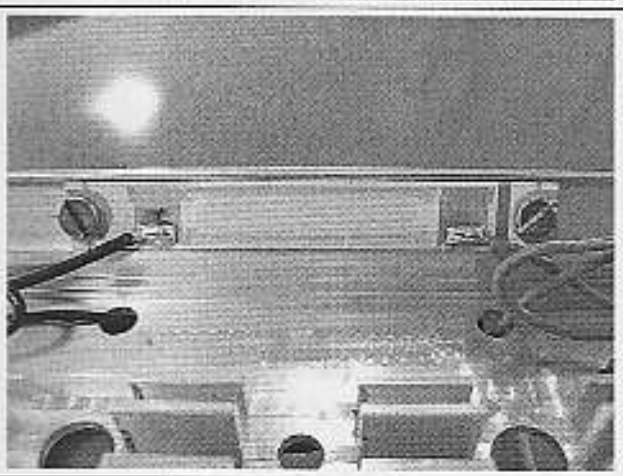
PHOTOGRAPHIC DOCUMENTATION

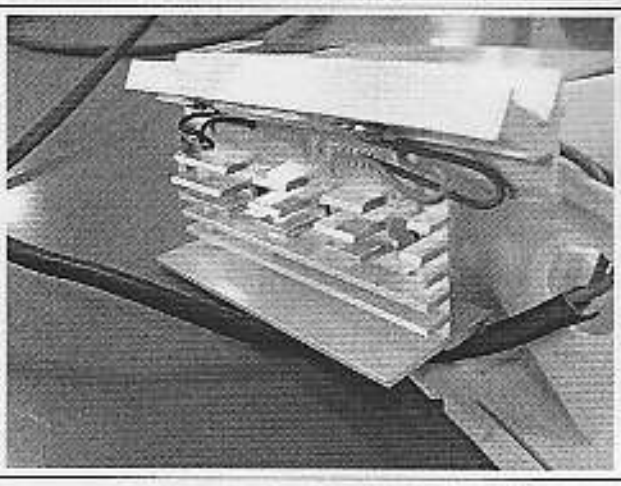


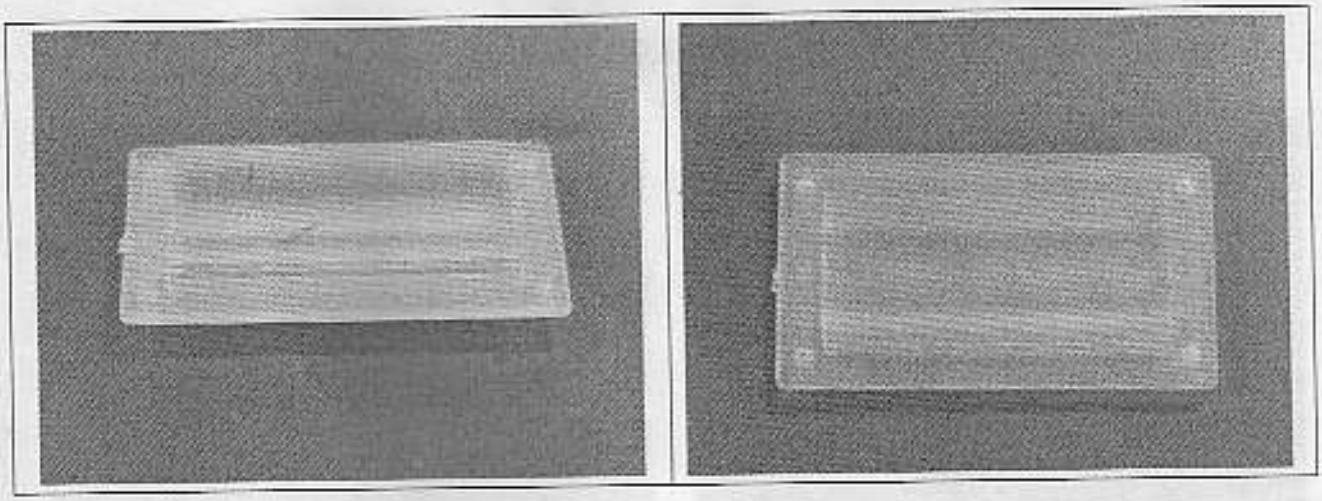












Annex

The results obtained in this test report can be extended to the following models:

None.

THIS IS THE END OF THE REPORT