REPORT

issued by an Accredited Testing Laboratory

Contact person RISE
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Date: 2021-02-03

Reference: 105105-124499-12

Testing

Labino AB
Fågelsångsvägen 16
186 42 Vallentuna

Classification of light source in accordance with IEC / SS-EN 62471 (1 appendix)

RISE Research Institutes of Sweden has performed classification of a light source in accordance with SS-EN 62471:2008.

Test object
UVG2 2.0 Mid

Classification
The light source tested belongs to *Risk Group 3 (High Risk)* during normal operation.

Identification
Reference: Lisel Athanasiadis
Date of arrival: December 2020
Manufacturer: Labino AB
Type: UVG2 2.0 Mid, s/n: 64873

Date of measurement
January 11-28, 2021.

Test conditions
Measurements were carried out in a temperature-stabilized laboratory with the temperature 23 °C ±2 °C.

Measurements of radiance/irradiance were made at a distance of 200 mm from the lamp front surface, which is considered appropriate for the application at hand. Measurements were made in the wavelength range 250 nm to 800 nm. No significant radiation was detected outside this range.

Instruments
Spectroradiometer Optronic 756 inv.no. 901723
Picoammeter Keithley 6485/E inv.no. 603159
Silicon detector inv.no. 500963

Test method
Applicable parts of SS-EN 62471:2008 and RISE Method 4432.

SWEDAC ACKREDITERING
Accred. No. 1002
Testing
ISO/IEC 17025

Test result light source UVG2 2.0 Mid

The spectral content for the light source is shown in figure 1 below. No significant radiation was detected outside the shown range.

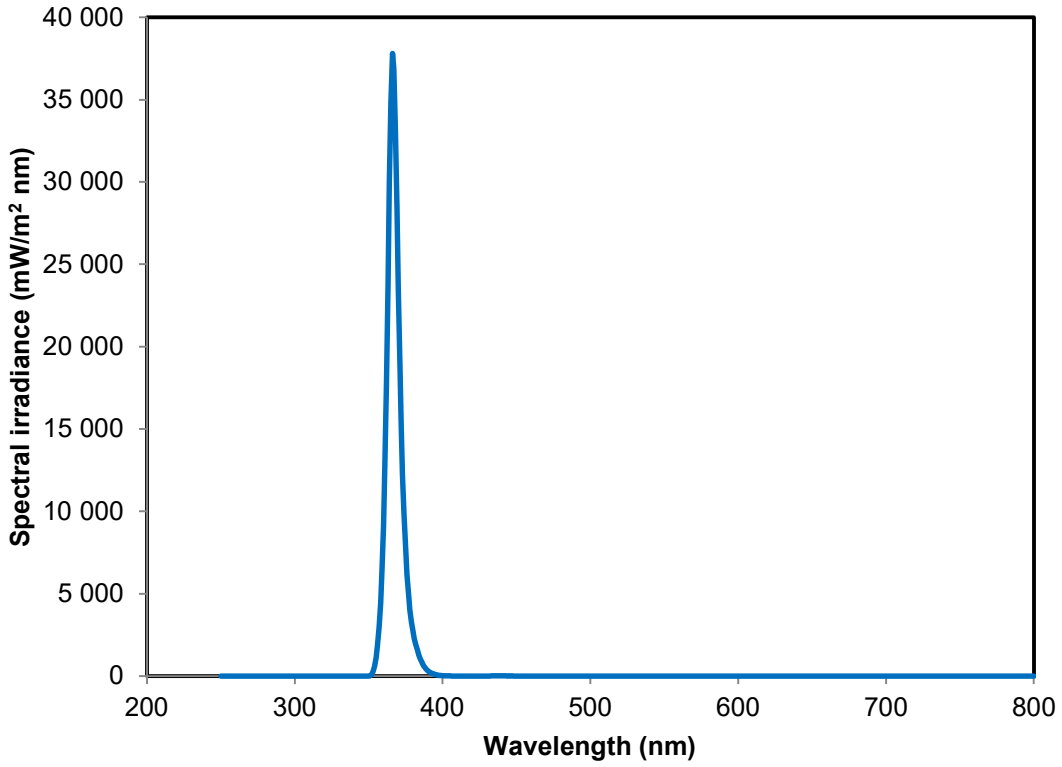

Figure 1. *Spectral irradiance.*

Table 1*. Summary of results based on irradiance measurement.*

Hazard name	Wavelength range (nm)	Exposure duration (s)	Limiting aperture (rad)	Exposure limit Risk Group 2 (W/m^2)	Measurement value (W/m^2)
Actinic UV skin & eye E_s	200 - 400	1000	1.4	3.0×10^{-2}	3.9×10^{-2}
Eye UV-A E_{UVA}	315 - 400	100	1.4	100,0	386.2
Blue-light small source E_B	300 - 700	0,25	<0.011	N/A	N/A
Eye IR E_{IR}	780 - 3000	10	1.4	N/A	N/A
Skin thermal E_H	380 - 3000	10	2 π sr	3557	16

Table 2. *Summary of results based on radiance measurement.*

Hazard name	Wavelength range (nm)	Exposure duration (s)	Limiting aperture (rad)	Exposure limit Risk Group 1 (W/m^2)	Measurement value (W/m^2 sr)
Blue light L_B	300 - 700	10000	0.011	1.0×10^4	5.0×10^2
Retinal thermal L_R	380 - 1400	10	0.011	($\alpha = 0.1$) 2.8×10^5	1.2×10^3
Retinal thermal (weak visual stimulus) L_{IR}	780 - 1400	N/A	0.011	N/A	N/A

Results based on the irradiance and radiance measurement show that the light source should be classified as belonging to *Risk group 3*.

Measurement uncertainty

Radiance/Irradiance: ±10 %

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95 %. The standard uncertainty of measurement has been determined in accordance with EA Publication EA-4/02.

Remark

The results in this report are only valid for the item tested. The classification has been done without considering the measurement uncertainties.

RISE Research Institutes of Sweden AB
Measurement Science and Technology - Time and Optics

Performed by

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Appendix

Appendix 1

Photo of the test object

REPORT

issued by an Accredited Testing Laboratory

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Date: 2021-02-03

Reference: 105105-124499-11

Testing

Labino AB
Fågelsångsvägen 16
186 42 Vallentuna

Classification of light source in accordance with IEC / SS-EN 62471 (1 appendix)

RISE Research Institutes of Sweden has performed classification of a light source in accordance with SS-EN 62471:2008.

Test object
UVG2 2.0 Spot

Classification
The light source tested belongs to *Risk Group 3 (High Risk)* during normal operation.

Identification
Reference: Lisel Athanasiadis
Date of arrival: December 2020
Manufacturer: Labino AB
Type: UVG2 2.0 Spot, s/n: 64872

Date of measurement
January 11-28, 2021.

Test conditions
Measurements were carried out in a temperature-stabilized laboratory with the temperature 23 °C ±2 °C.

Measurements of radiance/irradiance were made at a distance of 200 mm from the lamp front surface, which is considered appropriate for the application at hand. Measurements were made in the wavelength range 250 nm to 800 nm. No significant radiation was detected outside this range.

Instruments
Spectroradiometer Optronic 756 inv.no. 901723
Picoammeter Keithley 6485/E inv.no. 603159
Silicon detector inv.no. 500963

Test method
Applicable parts of SS-EN 62471:2008 and RISE Method 4432.

SWEDAC ACKREDITERING
Accred. No. 1002
Testing
ISO/IEC 17025

Test result light source UVG2 2.0 Spot

The spectral content for the light source is shown in figure 1 below. No significant radiation was detected outside the shown range.

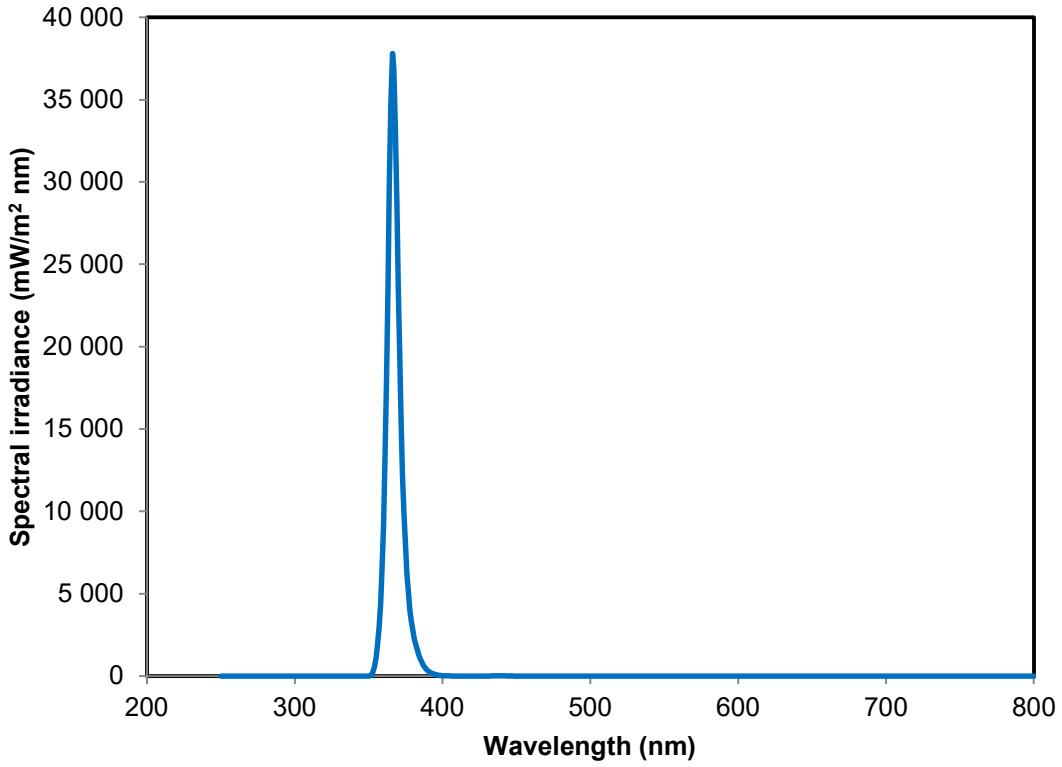

Figure 1. *Spectral irradiance.*

Table 1*. Summary of results based on irradiance measurement.*

Hazard name	Wavelength range (nm)	Exposure duration (s)	Limiting aperture (rad)	Exposure limit Risk Group 2 (W/m^2)	Measurement value (W/m^2)
Actinic UV skin & eye E_s	200 - 400	1000	1.4	3.0×10^{-2}	4.6×10^{-2}
Eye UV-A E_{UVA}	315 - 400	100	1.4	100,0	438.0
Blue-light small source E_B	300 - 700	0,25	<0.011	N/A	N/A
Eye IR E_{IR}	780 - 3000	10	1.4	N/A	N/A
Skin thermal E_H	380 - 3000	10	2 π sr	3557	14

Table 2. *Summary of results based on radiance measurement.*

Hazard name	Wavelength range (nm)	Exposure duration (s)	Limiting aperture (rad)	Exposure limit Risk Group 1 (W/m^2)	Measurement value (W/m^2 sr)
Blue light L_B	300 - 700	10000	0.011	1.0×10^4	5.1×10^2
Retinal thermal L_R	380 - 1400	10	0.011	($\alpha = 0.1$) 2.8×10^5	1.2×10^3
Retinal thermal (weak visual stimulus) L_{IR}	780 - 1400	N/A	0.011	N/A	N/A

Results based on the irradiance and radiance measurement show that the light source should be classified as belonging to *Risk group 3*.

Measurement uncertainty

Radiance/Irradiance: ±10 %

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95 %. The standard uncertainty of measurement has been determined in accordance with EA Publication EA-4/02.

Remark

The results in this report are only valid for the item tested. The classification has been done without considering the measurement uncertainties.

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Measurement Science and Technology - Time and Optics

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Appendix

Appendix 1

Photo of the test object