



Test Report



中国认可
国际互认
检测
TESTING
CNAS L6964

Report No. : UNIB21071219LR-01

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Applicant : Shenzhen Sonoff Technologies Co.,Ltd.

Address : 1001, BLDG8, Lianhua Industrial Park, Shenzhen, GD, China

Name of sample : Wi-Fi Smart LED RGB Light Strip

Receiving Date : Jul. 12, 2021

Test Date : Jul. 15, 2021

Test Address : No.47-3, Industrial Road, Zhushan, Dalong Street, Panyu District, Guangzhou, Guangdong, China

Test Method : EN 62471:2008 Photobiological safety of lamps and lamp systems

Testing Item : See the conclusion item

Decision Basis : EN 62471:2008 Photobiological safety of lamps and lamp systems

Conclusion : Pass

Signed for and on behalf of
Shenzhen United Testing Technology Co.,Ltd

Liuze
Approved Signatory

Aug. 25, 2021

Issue Date



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1、 Sample information

For samples, the information provided by the customer is as follows:

Product Name : Wi-Fi Smart LED RGB Light Strip
Trade Mark : N/A
Main Model : 5050RGB-2M
Additional models : 5050RGB-5M
Rting(S) : DC5V
Manufacturer : Shenzhen Sonoff Technologies Co.,Ltd.
Manufacturer Address : 1001, BLDG8, Lianhua Industrial Park, Shenzhen, GD, China

2、 Conclusion

The sample was detected and according to the detection results, the conclusion are as follows:

| Test item | Decision Basis | Conclusion |
|--|--|------------|
| Actinic UV, Es | EN 62471:2008 Photobiological safety of lamps and lamp systems | Pass |
| Near UV, Euva | | Pass |
| Blue light, Lb | | Pass |
| Retinal thermal, Lr | | Pass |
| Retinal thermal, weak visual stimulus, Lir | | Pass |
| IR radiation,eye, Eir | | Pass |

3、Test item particulars

| | |
|--|--|
| Test item particulars | |
| Test item Description | : Wi-Fi Smart LED RGB Light Strip |
| Trademark | : N/A |
| Model and/or type reference | : L2-2M |
| Rating(s) | : DC5V |
| Test item particulars | |
| Lamp Type | : LED Lamp |
| Emission Condition | : <input checked="" type="checkbox"/> Continuous wave emission <input type="checkbox"/> Pulse emission |
| Possible test case verdicts | |
| - test case does not apply to the test object | : N/A |
| - test object does meet the requirement | : P (Pass) |
| - test object does not meet the requirement | : F (Fail) |
| Lamp classification group | : <input checked="" type="checkbox"/> Exempt <input type="checkbox"/> Risk 1 <input type="checkbox"/> Risk 2 <input type="checkbox"/> Risk 3 |
| General remarks: | |
| "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator. | |
| Summary of testing: The test samples are complying with the relevant product standard(s) and all applicable test clauses. -EN 62471:2008 | |

| | |
|------------------------------|---------------|
| Ambient temperature for test | : 25.3°C 50RH |
| Test input voltage | : 220.0V |
| Current | : 0.146A |
| Power | : 14.03W |
| Power factor | : 0.435 |

| EN 62471 | | | |
|----------|--|----------------|----------|
| Clause | Requirement Test | Result-Remark | Verdict |
| 4 | EXPOSURE LIMITS | | P |
| 4.1 | General | | P |
| | The exposure limits in this standard is not less than 0,01 ms and not more than any 8-hour period and should be used as guides in the control of exposure | | P |
| | Detailed spectral data of a light source are generally required only if the luminance of the source exceeds $10^4 \text{ cd}\cdot\text{m}^{-2}$ | see clause 4.3 | P |
| 4.3 | Hazard exposure limits | | P |
| 4.3.1 | Actinic UV hazard exposure limit for the skin and eye | | P |
| | The exposure limit for effective radiant exposure is $30 \text{ J}\cdot\text{m}^{-2}$ within any 8-hour period | | P |
| | To protect against injury of the eye or skin from ultraviolet radiation exposure produced by a broadband source, the effective integrated spectral irradiance, E_s , of the light source shall not exceed the levels defined by: | | P |
| | $E_s \cdot t = \sum_{200}^{400} \sum_t E_\lambda(\lambda, t) \cdot S_{UV}(\lambda) \cdot \Delta t \cdot \Delta \lambda \leq 30 \quad \text{J}\cdot\text{m}^{-2}$ | | P |
| | The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye or skin shall be computed by: | | P |
| | $t_{\max} = \frac{30}{E_s} \quad \text{s}$ | | P |
| 4.3.2 | Near-UV hazard exposure limit for eye | | P |
| | For the spectral region 315 nm to 400 nm (UV-A) the total radiant exposure to the eye shall not exceed $10000 \text{ J}\cdot\text{m}^{-2}$ for exposure times less than 1000 s. For exposure times greater than 1000 s (approximately 16 minutes) the UV-A irradiance for the unprotected eye, E_{UVA} , shall not exceed $10 \text{ W}\cdot\text{m}^{-2}$. | | P |
| | The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye for time less than 1000 s, shall be computed by: | | N/A |
| | $t_{\max} \leq \frac{10\,000}{E_{UVA}} \quad \text{s}$ | | N/A |
| 4.3.3 | Retinal blue light hazard exposure limit | | P |

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| Clause | Requirement Test | Result-Remark | Verdict |
| | To protect against retinal photochemical injury from chronic blue-light exposure, the integrated spectral radiance of the light source weighted against the blue-light hazard function, $B(\lambda)$, i.e., the blue-light weighted radiance, L_B , shall not exceed the levels defined by: | | P |
| | $L_B \cdot t = \sum_{300}^{700} \sum_t L_\lambda(\lambda, t) \cdot B(\lambda) \cdot \Delta t \cdot \Delta \lambda \leq 10^6 \quad \text{J} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$ | for $t \leq 10^4 \text{ s}$ $t_{\max} = \frac{10^6}{L_B}$ | N/A |
| | $L_B = \sum_{300}^{700} L_\lambda \cdot B(\lambda) \cdot \Delta \lambda \leq 100 \quad \text{W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$ | for $t > 10^4 \text{ s}$ | P |
| 4.3.4 | Retinal blue light hazard exposure limit - small source | | N/A |
| | Thus the spectral irradiance at the eye E_λ , weighted against the blue-light hazard function $B(\lambda)$ shall not exceed the levels defined by: | | N/A |
| | $E_B \cdot t = \sum_{300}^{700} \sum_t E_\lambda(\lambda, t) \cdot B(\lambda) \cdot \Delta t \cdot \Delta \lambda \leq 100 \quad \text{J} \cdot \text{m}^{-2}$ | | N/A |
| | $E_B = \sum_{300}^{700} E_\lambda \cdot B(\lambda) \cdot \Delta \lambda \leq 1 \quad \text{W} \cdot \text{m}^{-2}$ | | N/A |
| 4.3.5 | Retinal thermal hazard exposure limit | | P |
| | To protect against retinal thermal injury, the integrated spectral radiance of the light source, L_λ , weighted by the burn hazard weighting function $R(\lambda)$ (from Figure 4.2 and Table 4.2), i.e., the burn hazard weighted radiance, shall not exceed the levels defined by: | | P |
| | $L_R = \sum_{380}^{1400} L_\lambda \cdot R(\lambda) \cdot \Delta \lambda \leq \frac{50\,000}{\alpha \cdot t^{0,25}} \quad \text{W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$ | ($10 \mu\text{s} \leq t \leq 10 \text{ s}$) | P |
| 4.3.6 | Retinal thermal hazard exposure limit – weak visual stimulus | | P |
| | For an infrared heat lamp or any near-infrared source where a weak visual stimulus is inadequate to activate the aversion response, the near infrared (780 nm to 1400 nm) radiance, L_{IR} , as viewed by the eye for exposure times greater than 10 s shall be limited to: | | P |
| | $L_{IR} = \sum_{780}^{1400} L_\lambda \cdot R(\lambda) \cdot \Delta \lambda \leq \frac{6\,000}{\alpha} \quad \text{W} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$ | $t > 10 \text{ s}$ | P |

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| EN 62471 | | | |
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| Clause | Requirement Test | Result-Remark | Verdict |
| 4.3.7 | Infrared radiation hazard exposure limits for the eye | | P |
| | The avoid thermal injury of the cornea and possible delayed effects upon the lens of the eye (cataractogenesis), ocular exposure to infrared radiation, E_{IR} , over the wavelength range 780 nm To 3000 nm, for times less than 1000 s, shall not exceed: | | P |
| | $E_{IR} = \sum_{780}^{3000} E_{\lambda} \cdot \Delta\lambda \leq 18000 \cdot t^{-0.75} \quad W \cdot m^{-2}$ | $t \leq 1000 \text{ s}$ | N/A |
| | For times greater than 1000 s the limit becomes | | P |
| | $E_{IR} = \sum_{780}^{3000} E_{\lambda} \cdot \Delta\lambda \leq 100 \quad W \cdot m^{-2}$ | $t > 1000 \text{ s}$ | P |
| 4.3.8 | Thermal hazard exposure limit for the skin | | P |
| | Visible and infrared radiant exposure (380 nm to 3000 nm) of the skin shall be limited to: | | P |
| | $E_H \cdot t = \sum_{380}^{3000} \sum_t E_{\lambda}(\lambda, t) \cdot \Delta t \cdot \Delta\lambda \leq 20000 \cdot t^{0.25} \quad J \cdot m^{-2}$ | | P |

| | | | |
|----------|--|--|----------|
| 5 | MEASUREMENT OF LAMPS AND LAMP SYSTEMS | | P |
| 5.1 | Measurement conditions | | P |
| | Measurement conditions shall be reported as part of the evaluation against the exposure limits and the assignment of risk classification. | | P |
| 5.1.1 | Lamp ageing (seasoning) | | P |
| | Seasoning of lamps shall be done as stated in the appropriate IEC lamp standard. | | P |
| 5.1.2 | Test environment | | P |
| | For specific test conditions, see the appropriate IEC lamp standard or in absence of such standards, the appropriate national standards or manufacturer's recommendations. | | P |
| 5.1.3 | Extraneous radiation | | P |
| | Careful checks should be made to ensure that extraneous sources of radiation and reflections do not add significantly to the measurement results. | | P |

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| Clause | Requirement Test | Result-Remark | Verdict |
| 5.1.4 | Lamp operation | | P |
| | Operation of the test lamp shall be provided in accordance with: | | P |
| | – the appropriate IEC lamp standard, or | | P |
| | – the manufacturer's recommendation | | P |
| 5.1.5 | Lamp system operation | | N/A |
| | The power source for operation of the test lamp shall be provided in accordance with: | | N/A |
| | – the appropriate IEC standard, or | | N/A |
| | – the manufacturer's recommendation | | N/A |
| 5.2 | Measurement procedure | | P |
| 5.2.1 | Irradiance measurements | | P |
| | Minimum aperture diameter 7mm. | | P |
| | Maximum aperture diameter 50 mm. | | P |
| | The measurement shall be made in that position of the beam giving the maximum reading. | | P |
| | The measurement instrument is adequate calibrated. | | P |
| 5.2.2 | Radiance measurements | | P |
| 5.2.2.2 | Alternative method | | N/A |
| | Alternatively to an imaging radiance set-up, an irradiance measurement set-up with a circular field stop placed at the source can be used to perform radiance measurements. | | N/A |
| 5.2.3 | Measurement of source size | | P |
| | The determination of α , the angle subtended by a source, requires the determination of the 50% emission points of the source. | | P |
| 5.2.4 | Pulse width measurement for pulsed sources | | N/A |
| | The determination of Δt , the nominal pulse duration of a source, requires the determination of the time during which the emission is $> 50\%$ of its peak value. | | N/A |

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| Clause | Requirement Test | Result-Remark | Verdict |
| 5.3 | Analysis methods | | P |
| 5.3.1 | Weighting curve interpolations | | P |
| | To standardize interpolated values, use linear interpolation on the log of given values to obtain intermediate points at the wavelength intervals desired. | see table 4.1 | P |
| 5.3.2 | Calculations | | P |
| | The calculation of source hazard values shall be performed by weighting the spectral scan by the appropriate function and calculating the total weighted energy. | | P |
| 5.3.3 | Measurement uncertainty | | P |
| | The quality of all measurement results must be quantified by an analysis of the uncertainty. | see Annex C in the norm | P |

| | | | |
|----------|--|---------------|----------|
| 6 | LAMP CLASSIFICATION | | P |
| | For the purposes of this standard it was decided that the values shall be reported as follows: | see table 6.1 | P |
| | – for lamps intended for general lighting service, the hazard values shall be reported as either irradiance or radiance values at a distance which produces an illuminance of 500 lx, but not at a distance less than 200 mm | 500lx | P |
| | – for all other light sources, including pulsed lamp sources, the hazard values shall be reported at a distance of 200 mm | | N/A |
| 6.1 | Continuous wave lamps | | P |
| 6.1.1 | Except Group | | P |
| | In the except group are lamps, which does not pose any photobiological hazard. The requirement is met by any lamp that does not pose: | | P |
| | – an actinic ultraviolet hazard (Es) within 8-hours exposure (30000 s), nor | | P |

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| Clause | Requirement Test | Result-Remark | Verdict |
| | – a near-UV hazard (E_{UVA}) within 1000 s, (about 16 min), nor | | P |
| | – a retinal blue-light hazard (L_B) within 10000 s (about 2,8 h), nor | | P |
| | – a retinal thermal hazard (L_R) within 10 s, nor | | P |
| | – an infrared radiation hazard for the eye (E_{IR}) within 1000 s | | P |
| 6.1.2 | Risk Group 1 (Low-Risk) | | N/A |
| | In this group are lamps, which exceeds the limits for the except group but that does not pose: | | N/A |
| | – an actinic ultraviolet hazard (E_S) within 10000 s, nor | | N/A |
| | – a near ultraviolet hazard (E_{UVA}) within 300 s, nor | | N/A |
| | – a retinal blue-light hazard (L_B) within 100 s, nor | | N/A |
| | – a retinal thermal hazard (L_R) within 10 s, nor | | N/A |
| | – an infrared radiation hazard for the eye (E_{IR}) within 100 s | | N/A |
| | Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (L_{IR}), within 100 s are in Risk Group 1. | | N/A |
| 6.1.3 | Risk Group 2 (Moderate-Risk) | | N/A |
| | This requirement is met by any lamp that exceeds the limits for Risk Group 1, but that does not pose: | | N/A |
| | – an actinic ultraviolet hazard (E_S) within 1000 s exposure, nor | | N/A |
| | – a near ultraviolet hazard (E_{UVA}) within 100 s, nor | | N/A |
| | – a retinal blue-light hazard (L_B) within 0,25 s (aversion response), nor | | N/A |
| | – a retinal thermal hazard (L_R) within 0,25 s (aversion response), nor | | N/A |
| | – an infrared radiation hazard for the eye (E_{IR}) within 10 s | | N/A |

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| Clause | Requirement Test | Result-Remark | Verdict |
| | Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (L_{IR}), within 10 s are in Risk Group 2. | | N/A |
| 6.1.4 | Risk Group 3 (High-Risk) | | N/A |
| | Lamps which exceed the limits for Risk Group 2 are in Group 3. | | N/A |
| 6.2 | Pulsed lamps | | N/A |
| | Pulse lamp criteria shall apply to a single pulse and to any group of pulses within 0,25 s. | | N/A |
| | A pulsed lamp shall be evaluated at the highest nominal energy loading as specified by the manufacturer. | | N/A |
| | The risk group determination of the lamp being tested shall be made as follows: | | N/A |
| | – a lamp that exceeds the exposure limit shall be classified as belonging to Risk Group 3 (High-Risk) | | N/A |
| | – for single pulsed lamps, a lamp whose weighted radiant exposure or weighted radiance does is below the EL shall be classified as belonging to the Exempt Group | | N/A |
| | – for repetitively pulsed lamps, a lamp whose weighted radiant exposure or weighted radiance dose is below the EL, shall be evaluated using the continuous wave risk criteria discussed in clause 6.1, using time averaged values of the pulsed emission | | N/A |

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| | | | |
|----------|------------------|---------------|---------|
| EN 62471 | | | |
| Clause | Requirement Test | Result-Remark | Verdict |

| Table 4.1 Spectral weighting function for assessing ultraviolet hazards for skin and eye | | | P |
|--|---|------------------------------|---|
| Wavelength ¹ λ , nm | UV hazard function $S_{UV}(\lambda)$ | Wavelength λ , nm | UV hazard function $S_{UV}(\lambda)$ |
| 200 | 0,030 | 313* | 0,006 |
| 205 | 0,051 | 315 | 0,003 |
| 210 | 0,075 | 316 | 0,0024 |
| 215 | 0,095 | 317 | 0,0020 |
| 220 | 0,120 | 318 | 0,0016 |
| 225 | 0,150 | 319 | 0,0012 |
| 230 | 0,190 | 320 | 0,0010 |
| 235 | 0,240 | 322 | 0,00067 |
| 240 | 0,300 | 323 | 0,00054 |
| 245 | 0,360 | 325 | 0,00050 |
| 250 | 0,430 | 328 | 0,00044 |
| 254* | 0,500 | 330 | 0,00041 |
| 255 | 0,520 | 333* | 0,00037 |
| 260 | 0,650 | 335 | 0,00034 |
| 265 | 0,810 | 340 | 0,00028 |
| 270 | 1,000 | 345 | 0,00024 |
| 275 | 0,960 | 350 | 0,00020 |
| 280* | 0,880 | 355 | 0,00016 |
| 285 | 0,770 | 360 | 0,00013 |
| 290 | 0,640 | 365* | 0,00011 |
| 295 | 0,540 | 370 | 0,000093 |
| 297* | 0,460 | 375 | 0,000077 |
| 300 | 0,300 | 380 | 0,000064 |
| 303* | 0,120 | 385 | 0,000053 |
| 305 | 0,060 | 390 | 0,000044 |
| 308 | 0,026 | 395 | 0,000036 |
| 310 | 0,015 | 400 | 0,000030 |

¹ Wavelengths chosen are representative: other values should be obtained by logarithmic interpolation intermediate wavelengths.

* Emission lines of a mercury discharge spectrum.

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| Clause | Requirement Test | Result-Remark | Verdict |

| Table 4.2 Spectral weighting functions for assessing retinal hazards from broadband optical sources | | | P |
|---|--|--------------------------------------|---|
| Wavelength nm | Blue-light hazard function B (λ) | Burn hazard function R (λ) | |
| 300 | 0,01 | | |
| 305 | 0,01 | | |
| 310 | 0,01 | | |
| 315 | 0,01 | | |
| 320 | 0,01 | | |
| 325 | 0,01 | | |
| 330 | 0,01 | | |
| 335 | 0,01 | | |
| 340 | 0,01 | | |
| 345 | 0,01 | | |
| 350 | 0,01 | | |
| 355 | 0,01 | | |
| 360 | 0,01 | | |
| 365 | 0,01 | | |
| 370 | 0,01 | | |
| 375 | 0,01 | | |
| 380 | 0,01 | 0,1 | |
| 385 | 0,013 | 0,13 | |
| 390 | 0,025 | 0,25 | |
| 395 | 0,05 | 0,5 | |
| 400 | 0,10 | 1,0 | |
| 405 | 0,20 | 2,0 | |
| 410 | 0,40 | 4,0 | |
| 415 | 0,80 | 8,0 | |
| 420 | 0,90 | 9,0 | |
| 425 | 0,95 | 9,5 | |
| 430 | 0,98 | 9,8 | |
| 435 | 1,00 | 10,0 | |

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| Clause | Requirement Test | Result-Remark | Verdict |

| Table 4.2 Spectral weighting functions for assessing retinal hazards from broadband optical sources | | | P |
|---|--|--------------------------------------|---|
| Wavelength nm | Blue-light hazard function B (λ) | Burn hazard function R (λ) | |
| 440 | 1,00 | 10,0 | |
| 445 | 0,97 | 9,7 | |
| 450 | 0,94 | 9,4 | |
| 455 | 0,90 | 9,0 | |
| 460 | 0,80 | 8,0 | |
| 465 | 0,70 | 7,0 | |
| 470 | 0,62 | 6,2 | |
| 475 | 0,55 | 5,5 | |
| 480 | 0,45 | 4,5 | |
| 485 | 0,40 | 4,0 | |
| 490 | 0,22 | 2,2 | |
| 495 | 0,16 | 1,6 | |
| 500-600 | $10^{[(450-\lambda)/50]}$ | 1,0 | |
| 600-700 | 0,001 | 1,0 | |
| 700-1050 | | $10^{[(700-\lambda)/500]}$ | |
| 1050-1150 | | 0,2 | |
| 1150-1200 | | $0,2 \cdot 10^{0,02(1150-\lambda)}$ | |
| 1200-1400 | | 0,02 | |

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| Clause | Requirement Test | Result-Remark | Verdict |

| Table 5.4 Summary of the ELs for the surface of the skin or cornea (irradiance based values) | | | | | P |
|--|---|---------------------|-----------------------|-----------------------------|---|
| Hazard Name | Relevant equation | Wavelength range nm | Exposure duration sec | Limiting aperture rad (deg) | EL in terms of constant irradiance $W \cdot m^{-2}$ |
| Actinic UV skin & eye | $E_S = \sum E_\lambda \cdot S(\lambda) \cdot \Delta\lambda$ | 200 – 400 | < 30000 | 1,4 (80) | 30/t |
| Eye UV-A | $E_{UVA} = \sum E_\lambda \cdot \Delta\lambda$ | 315 – 400 | ≤ 1000 >1000 | 1,4 (80) | 10000/t 10 |
| Blue-light small source | $E_B = \sum E_\lambda \cdot B(\lambda) \cdot \Delta\lambda$ | 300 – 700 | ≤ 100 >100 | < 0,011 | 100/t 1,0 |
| Eye IR | $E_{IR} = \sum E_\lambda \cdot \Delta\lambda$ | 780 – 3000 | ≤ 1000 >1000 | 1,4 (80) | 18000/t ^{0,75} 100 |
| Skin thermal | $E_H = \sum E_\lambda \cdot \Delta\lambda$ | 380 – 3000 | < 10 | 2π sr | 20000/t ^{0,75} |

| Table 5.5 Summary of the ELs for the retina (radiance based values) | | | | | P |
|---|--|---------------------|--|--|--|
| Hazard Name | Relevant equation | Wavelength range nm | Exposure duration sec | Field of view radians | EL in terms of constant radiance $W \cdot m^{-2} \cdot sr^{-1}$ |
| Blue light | $L_B = \sum L_\lambda \cdot B(\lambda) \cdot \Delta\lambda$ | 300 – 700 | 0,25 – 10 10-100 100-10000 ≥ 10000 | $0,011 \cdot \sqrt{(t/10)}$ 0,011 $0,0011 \cdot \sqrt{t}$ 0,1 | $10^6/t$ $10^6/t$ $10^6/t$ 100 |
| Retinal thermal | $L_R = \sum L_\lambda \cdot R(\lambda) \cdot \Delta\lambda$ | 380 – 1400 | < 0,25 0,25 – 10 | 0,0017 $0,011 \cdot \sqrt{(t/10)}$ | $50000/(\alpha \cdot t^{0,25})$ $50000/(\alpha \cdot t^{0,25})$ |
| Retinal thermal (weak visual stimulus) | $L_{IR} = \sum L_\lambda \cdot R(\lambda) \cdot \Delta\lambda$ | 780 – 1400 | > 10 | 0,011 | $6000/\alpha$ |

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|----------|------------------|---------------|---------|
| EN 62471 | | | |
| Clause | Requirement Test | Result-Remark | Verdict |

| Table 6.1 | | Emission limits for risk groups of continuous wave lamps of Red light | | | | | | P | |
|---|------------------|---|-------------------------------------|----------------------|-----------|-----------------|--------|-----------------|--------|
| Risk | Action spectrum | Symbol | Units | Emission Measurement | | | | | |
| | | | | Exempt | | Low risk | | Mod risk | |
| | | | | Limit | Result | Limit | Result | Limit | Result |
| Actinic UV | SUV(λ) | E _S | W•m ⁻² | 0,001 | 0.000E+00 | 0,003 | -- | 0,03 | -- |
| Near UV | | E _{UVA} | W•m ⁻² | 0.33 | 0.000E+00 | 33 | -- | 100 | -- |
| Blue light | B(λ) | L _B | W•m ⁻² •sr ⁻¹ | 100 | 7.920E-03 | 10000 | -- | 4000000 | -- |
| Blue light, small source | B(λ) | E _B | W•m ⁻² | 1,0* | -- | 1,0 | -- | 400 | -- |
| Retinal thermal | R(λ) | L _R | W•m ⁻² •sr ⁻¹ | 28000/ α | 3.100E+01 | 28000/ α | -- | 71000/ α | -- |
| Retinal thermal, weak visual stimulus** | R(λ) | L _{IR} | W•m ⁻² •sr ⁻¹ | 6000/ α | 0.000E+00 | 6000/ α | -- | 6000/ α | -- |
| IR radiation, eye | --- | E _{IR} | W•m ⁻² | 100 | 6.271E-03 | 570 | -- | 3200 | -- |

* Small source defined as one with $\alpha < 0,011$ radian. Averaging field of view at 10000 s is 0,1 radian.
 ** Involves evaluation of non-GLS source
 Note: Angular subtense of apparent source: 68.7 mrad

| Table 6.1 | | | | Emission limits for risk groups of continuous wave lamps of Blue light | | | | P | |
|---|------------------|------------------|-------------------------------------|--|-----------|-----------------|--------|-----------------|--------|
| Risk | Action spectrum | Symbol | Units | Emission Measurement | | | | | |
| | | | | Exempt | | Low risk | | Mod risk | |
| | | | | Limit | Result | Limit | Result | Limit | Result |
| Actinic UV | SUV(λ) | E _S | W•m ⁻² | 0,001 | 1.748E-07 | 0,003 | -- | 0,03 | -- |
| Near UV | | E _{UVA} | W•m ⁻² | 0.33 | 1.682E-03 | 33 | -- | 100 | -- |
| Blue light | B(λ) | L _B | W•m ⁻² •sr ⁻¹ | 100 | 1.656E+01 | 10000 | -- | 4000000 | -- |
| Blue light, small source | B(λ) | E _B | W•m ⁻² | 1,0* | -- | 1,0 | -- | 400 | -- |
| Retinal thermal | R(λ) | L _R | W•m ⁻² •sr ⁻¹ | 28000/ α | 7.492E+02 | 28000/ α | -- | 71000/ α | -- |
| Retinal thermal, weak visual stimulus** | R(λ) | L _{IR} | W•m ⁻² •sr ⁻¹ | 6000/ α | 0.000E+00 | 6000/ α | -- | 6000/ α | -- |
| IR radiation, eye | --- | E _{IR} | W•m ⁻² | 100 | 6.054E-03 | 570 | -- | 3200 | -- |

* Small source defined as one with $\alpha < 0,011$ radian. Averaging field of view at 10000 s is 0,1 radian.
 ** Involves evaluation of non-GLS source
 Note:Angular subtense of apparent source:67.71mrad

| Table 6.1 | | | | Emission limits for risk groups of continuous wave lamps of White light | | | | P | |
|---|------------------|------------------|-------------------------------------|---|-----------|-----------------|--------|-----------------|--------|
| Risk | Action spectrum | Symbol | Units | Emission Measurement | | | | | |
| | | | | Exempt | | Low risk | | Mod risk | |
| | | | | Limit | Result | Limit | Result | Limit | Result |
| Actinic UV | SUV(λ) | E _S | W•m ⁻² | 0,001 | 1.581E-07 | 0,003 | -- | 0,03 | -- |
| Near UV | | E _{UVA} | W•m ⁻² | 0.33 | 2.109E-03 | 33 | -- | 100 | -- |
| Blue light | B(λ) | L _B | W•m ⁻² •sr ⁻¹ | 100 | 5.223E-03 | 10000 | -- | 4000000 | -- |
| Blue light, small source | B(λ) | E _B | W•m ⁻² | 1,0* | -- | 1,0 | -- | 400 | -- |
| Retinal thermal | R(λ) | L _R | W•m ⁻² •sr ⁻¹ | 28000/ α | 7.133E+02 | 28000/ α | -- | 71000/ α | -- |
| Retinal thermal, weak visual stimulus** | R(λ) | L _{IR} | W•m ⁻² •sr ⁻¹ | 6000/ α | 0.000E+00 | 6000/ α | -- | 6000/ α | -- |
| IR radiation, eye | --- | E _{IR} | W•m ⁻² | 100 | 1.956E-02 | 570 | -- | 3200 | -- |

* Small source defined as one with $\alpha < 0,011$ radian. Averaging field of view at 10000 s is 0,1 radian.
 ** Involves evaluation of non-GLS source
 Note:Angular subtense of apparent source:66.43 mrad



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List of test equipment used:

| Manufacturer | Description | Equipment ID | Model | Last Calibration date | Calibration due date |
|--------------|---|--------------|----------|-----------------------|----------------------|
| SENSING | Measuring System for Assessment of Optical Radiation safety | LC01 | SPR-5000 | 2020-11-02 | 2021-11-02 |

Sample Photo



5050RGB-2M



5050RGB-2M

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5050RGB-5M

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