

Lightsource Test Report

Product Information

Product Category: LED-Lampen
 Product Spec: LED-AR111-12-CW-C-25
 Manufacturer: METOLIGHT
 Buyer: 2320

Product Type: LED-Lampen-AR111
 Product Number: 1
 Submitted Unit: 101998

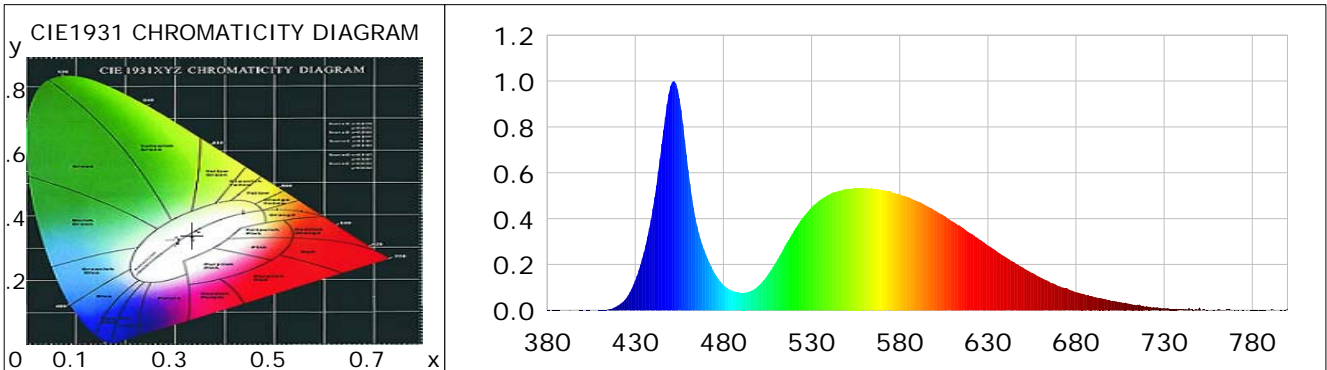
CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3345$ $y=0.3403$ $u(u')=0.2086$ $v=0.3183$ $v'=0.4775$
 CCT: $T_c=5408K$ ($duv=-0.00132$) Color Ratio: $R=0.137$ $G=0.829$ $B=0.034$
 Peak Wavelength: 451.7nm Half Bandwidth: 20.9nm
 Dominant Wavelength: 561.4nm Color Purity: 0.025
 CRI: $R_a=71.0$, $avgR(1\sim14)=61.6$, $avgR(1\sim15)=62.0$ TM30: $R_f=69$, $R_g=93$
 GAI: $GAI_BB_8=90.5$, $GAI_BB_15=98.0$, $GAI_EES=82.6$

| | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|
| R1 =69 | R2 =77 | R3 =77 | R4 =70 | R5 =69 | R6 =65 | R7 =82 | R8 =59 |
| R9 =0 | R10=40 | R11=63 | R12=34 | R13=71 | R14=87 | R15=68 | |

Color Quality Scale: $Q_a=66.8$, $Q_f=65.6$, $Q_p=70.4$, $Q_g=89.4$

| | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|
| Q1 =80 | Q2 =93 | Q3 =56 | Q4 =47 | Q5 =60 | Q6 =66 | Q7 =73 | Q8 =83 |
| Q9 =87 | Q10=69 | Q11=62 | Q12=64 | Q13=68 | Q14=60 | Q15=68 | |



Photometric Parameters

| | | |
|----------------------------------|---|--------------------------|
| Luminous Flux: 734.80 lm | Efficiency: 40.53 lm/W | Radiant Power: 2.193 W |
| Total mains efficacy: 44.14 lm/W | Energy Efficiency Class: G (EU 2019/2015) | |
| Pupil Flux: 1168.97 Plm | Pupil Lumens Per Watt: 64.48 Plm/W | Pupil Factor (Kp): 1.591 |
| Cirtopic Flux: 2429.86 lm | | |

Electric Parameters

| | | |
|----------------------|--------------------|---------------|
| Voltage: 9.5400V | Current: 1.9010A | Power: 18.13W |
| Power Factor: 0.8540 | Frequency: 49.99Hz | |

Test Information

| | |
|---------------------------------------|--|
| Scan Range: 380~800:1nm | Photometric Method: sphere-spectroradiometer |
| Stabilization Time: 0 ms ALC.: 1.0000 | Photometric Condition: Sphere diameter: 2.00m, 4PI |
| Max of Signal: 45111 (2770) | CCD Integration Time: 206.39 ms |

Condition: Tx:0.0°C, Ti:0.0°C, R.H.:60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-08-17 10:53:22
 Inspector:

Lightsource Test Report

Product Information

Product Category: LED-Lampen
 Product Spec: LED-AR111-12-CW-C-25
 Manufacturer: METOLIGHT
 Buyer: 2320

Product Type: LED-Lampen-AR111
 Product Number: 1
 Submitted Unit: 101998

| WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) |
|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|
| 380 | 0.0016 | 0.0382 | 525 | 0.4039 | 9.6545 | 670 | 0.1058 | 2.5298 |
| 385 | 0.0012 | 0.0280 | 530 | 0.4485 | 10.7205 | 675 | 0.0962 | 2.2996 |
| 390 | 0.0006 | 0.0136 | 535 | 0.4821 | 11.5238 | 680 | 0.0795 | 1.9009 |
| 395 | 0.0004 | 0.0089 | 540 | 0.5053 | 12.0768 | 685 | 0.0691 | 1.6526 |
| 400 | 0.0012 | 0.0284 | 545 | 0.5203 | 12.4357 | 690 | 0.0587 | 1.4035 |
| 405 | 0.0003 | 0.0070 | 550 | 0.5286 | 12.6358 | 695 | 0.0511 | 1.2220 |
| 410 | 0.0011 | 0.0258 | 555 | 0.5339 | 12.7620 | 700 | 0.0411 | 0.9816 |
| 415 | 0.0048 | 0.1148 | 560 | 0.5324 | 12.7266 | 705 | 0.0361 | 0.8624 |
| 420 | 0.0205 | 0.4899 | 565 | 0.5308 | 12.6866 | 710 | 0.0292 | 0.6980 |
| 425 | 0.0543 | 1.2972 | 570 | 0.5247 | 12.5425 | 715 | 0.0249 | 0.5963 |
| 430 | 0.1303 | 3.1141 | 575 | 0.5181 | 12.3826 | 720 | 0.0176 | 0.4195 |
| 435 | 0.2536 | 6.0620 | 580 | 0.5061 | 12.0976 | 725 | 0.0122 | 0.2913 |
| 440 | 0.4438 | 10.6085 | 585 | 0.4931 | 11.7864 | 730 | 0.0102 | 0.2440 |
| 445 | 0.7265 | 17.3649 | 590 | 0.4760 | 11.3763 | 735 | 0.0056 | 0.1345 |
| 450 | 0.9788 | 23.3956 | 595 | 0.4562 | 10.9041 | 740 | 0.0035 | 0.0845 |
| 455 | 0.9252 | 22.1132 | 600 | 0.4355 | 10.4089 | 745 | 0.0039 | 0.0938 |
| 460 | 0.6135 | 14.6631 | 605 | 0.4131 | 9.8731 | 750 | 0.0124 | 0.2971 |
| 465 | 0.3692 | 8.8242 | 610 | 0.3875 | 9.2631 | 755 | 0.0023 | 0.0557 |
| 470 | 0.2446 | 5.8460 | 615 | 0.3641 | 8.7035 | 760 | 0.0033 | 0.0778 |
| 475 | 0.1618 | 3.8680 | 620 | 0.3364 | 8.0397 | 765 | 0.0040 | 0.0954 |
| 480 | 0.1103 | 2.6364 | 625 | 0.3099 | 7.4068 | 770 | 0.0016 | 0.0377 |
| 485 | 0.0857 | 2.0491 | 630 | 0.2833 | 6.7705 | 775 | 0.0015 | 0.0356 |
| 490 | 0.0764 | 1.8252 | 635 | 0.2572 | 6.1486 | 780 | 0.0011 | 0.0274 |
| 495 | 0.0828 | 1.9785 | 640 | 0.2320 | 5.5449 | 785 | 0.0024 | 0.0571 |
| 500 | 0.1078 | 2.5771 | 645 | 0.2096 | 5.0088 | 790 | 0.0011 | 0.0262 |
| 505 | 0.1530 | 3.6577 | 650 | 0.1863 | 4.4536 | 795 | 0.0007 | 0.0164 |
| 510 | 0.2125 | 5.0797 | 655 | 0.1632 | 3.9004 | 800 | 0.0085 | 0.2033 |
| 515 | 0.2819 | 6.7382 | 660 | 0.1429 | 3.4166 | | | |
| 520 | 0.3465 | 8.2815 | 665 | 0.1239 | 2.9620 | | | |

Condition: Tx:0.0°C, Ti:0.0°C, R.H.:60%
 Test Lab:
 Operator: CRE

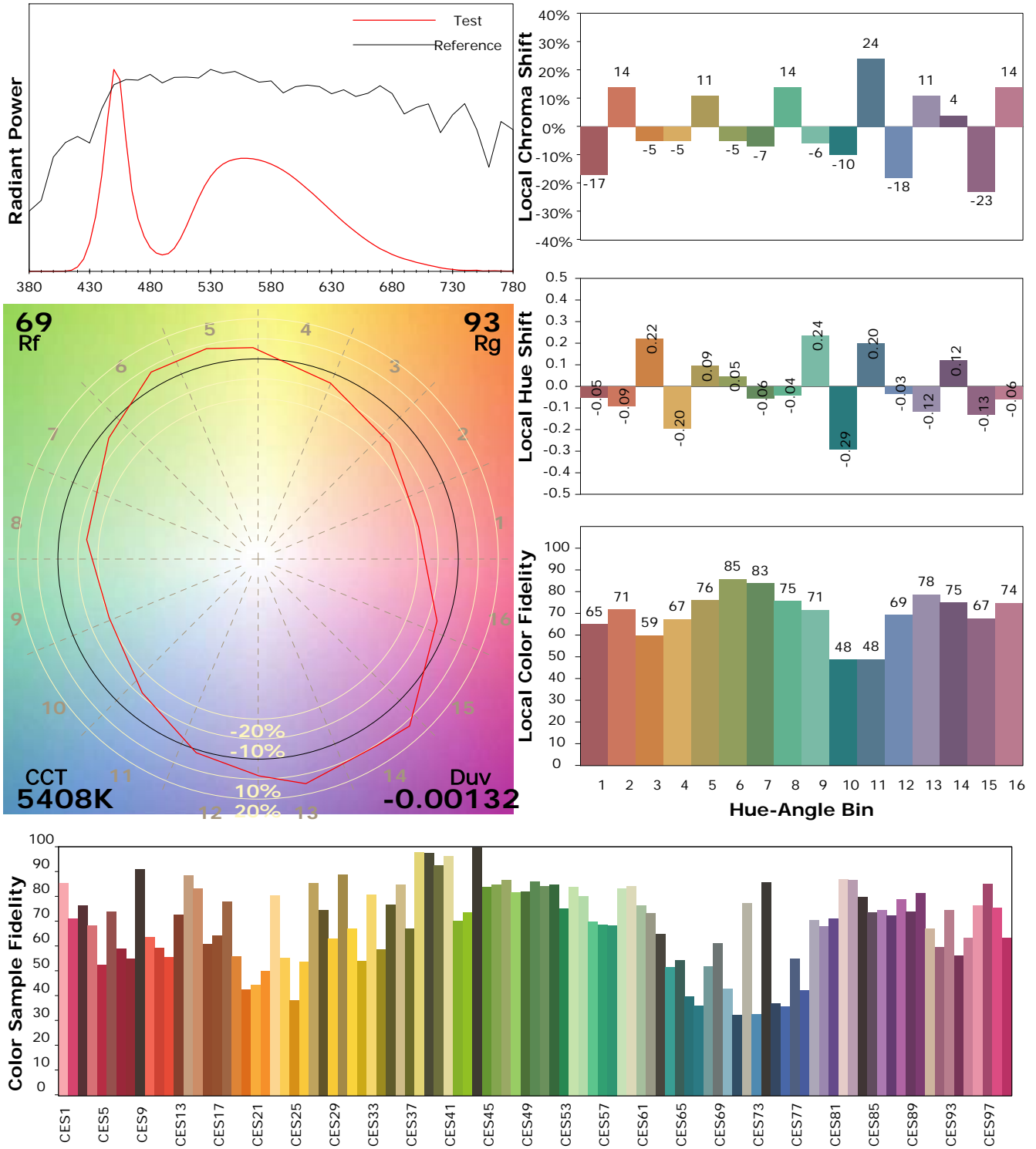
Test Device: Lisun LMS-9000B
 Test Time: 2021-08-17 10:53:22
 Inspector:

IES TM-30-18 Color Rendition Report

Product Information

Product Category: LED-Lampen
 Product Spec: LED-AR111-12-CW-C-25
 Manufacturer: METOLIGHT
 Buyer: 2320

Product Type: LED-Lampen-AR111
 Product Number: 1
 Submitted Unit: 101998



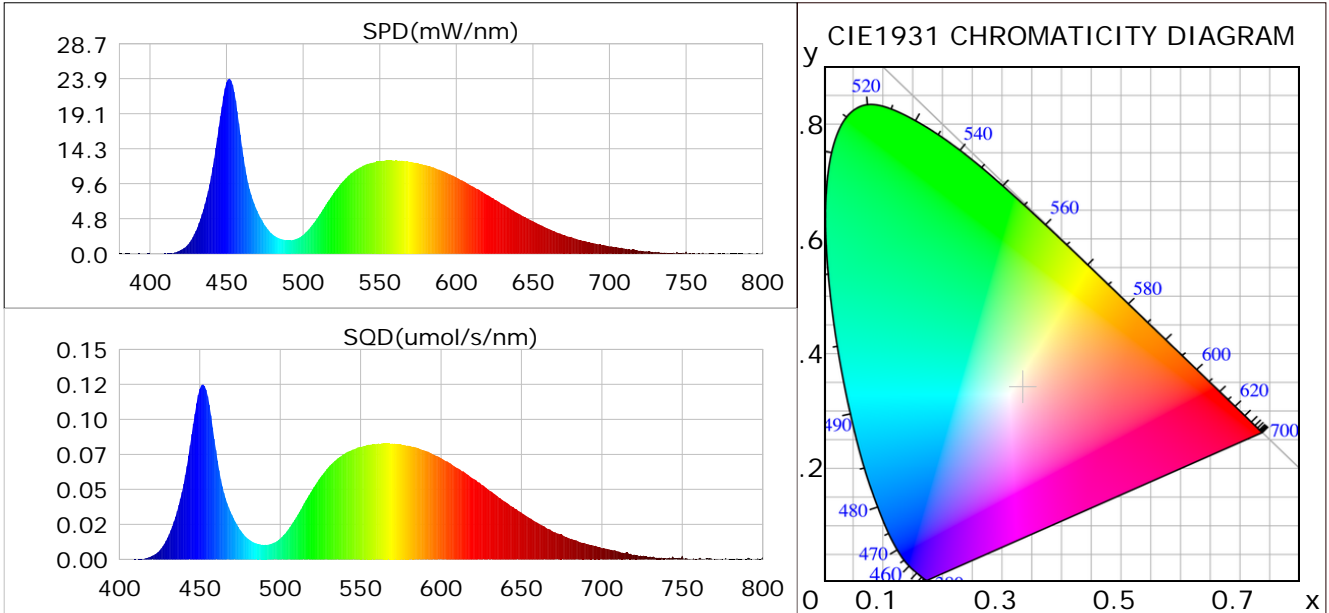
Condition: Tx:0.0°C, Ti:0.0°C, R.H.: 60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-08-17 10:53:22
 Inspector:

Plant optical param data

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3345$ $y=0.3403$ $u(u')=0.2086$ $v=0.3183$ $v'=0.4775$
 CCT: $T_c=5408K$ ($duv=-0.00132$) Color Ratio: $R=0.137$ $G=0.829$ $B=0.034$
 Peak Wavelength: 451.7nm Half Bandwidth: 20.9nm
 Dominant Wavelength: 561.4nm Color Purity: 0.025
 CRI: $R_a=71.0$



Plant Optical Param

| | |
|----------------------------------|------------------------------|
| $ \mu_v(lm): 734.80$ | $Q_v(lm.s): 734.80$ |
| $ \mu_e, E(W/nm): 2.19$ | $Q_e(J): 2.19$ |
| $ \mu_e(W): 2.17$ | $ \mu_{fr}(W): 0.02$ |
| $ \zeta_e: 0.12$ | $ \zeta_{fr}: 0.00$ |
| $PPE(umol/s/w): 0.54$ | $K_{fr}: 0.01$ |
| $Erb_Ratio: 0.76$ | $PPF(umol/s): 9.87$ |
| $PF_{uv}(360-400)(umol/s): 0.00$ | $PPF(400-500)(umol/s): 2.43$ |
| $PPF(500-600)(umol/s): 4.87$ | $PPF(600-700)(umol/s): 2.57$ |
| $PPF_r(700-800)(umol/s): 0.14$ | $PPF.t(umol): 9.87$ |
| $ \mu_{ch-A.t}(J): 0.19$ | $ \mu_{ch-A}(W): 0.19$ |
| $ \mu_{ch-B.t}(J): 0.12$ | $ \mu_{ch-B}(W): 0.12$ |
| $ \mu_b.t(J): 0.64$ | $ \mu_b(W): 0.64$ |
| $ \mu_y.t(J): 1.05$ | $ \mu_y(W): 1.05$ |
| $ \mu_r.t(J): 0.50$ | $ \mu_r(W): 0.50$ |

Electric Parameters

| | | |
|----------------------|--------------------|---------------|
| Voltage: 9.5400V | Current: 1.9010A | Power: 18.13W |
| Power Factor: 0.8540 | Frequency: 49.99Hz | |

Condition: $T_x:0.0^\circ C$, $T_i:0.0^\circ C$, R.H.: 60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-08-17 10:53:22
 Inspector: