

Lightsource Test Report

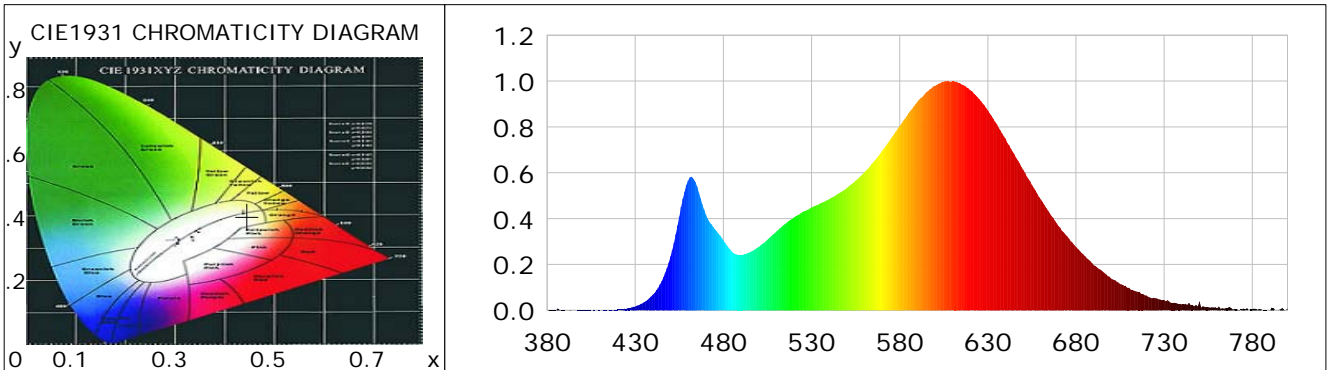
Product Information

Product Category: LED-PL-Röhren
 Product Spec: LED-PL-G24-09W-WWM-TRF
 Manufacturer: METOLIGHT
 Buyer: 6852

Product Type: LED-PL-Röhren-G24
 Product Number: 1
 Submitted Unit: 104968

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.4453$ $y=0.3994$ $u(u')=0.2581$ $v=0.3472$ $v'=0.5208$
 CCT: $T_c=2825K$ ($duv=-0.00289$) Color Ratio: $R=0.250$ $G=0.719$ $B=0.031$
 Peak Wavelength: 606.2nm Half Bandwidth: 115.1nm
 Dominant Wavelength: 584.6nm Color Purity: 0.536
 CRI: $R_a=84.5$, $avgR(1\sim14)=81.0$, $avgR(1\sim15)=80.8$ TM30: $R_f=84$, $R_g=92$
 GAI: $GAI_BB_8=99.5$, $GAI_BB_15=108.9$, $GAI_EES=52.1$
 R1 =86 R2 =98 R3 =90 R4 =81 R5 =87 R6 =95 R7 =78 R8 =60
 R9 =19 R10=94 R11=81 R12=78 R13=90 R14=96 R15=79
 Color Quality Scale: $Q_a=83.8$, $Q_f=85.5$, $Q_p=85.8$, $Q_g=90.7$
 Q1 =79 Q2 =92 Q3 =88 Q4 =81 Q5 =81 Q6 =82 Q7 =85 Q8 =87
 Q9 =93 Q10=94 Q11=89 Q12=85 Q13=84 Q14=76 Q15=77



Photometric Parameters

Luminous Flux: 889.60 lm Efficiency: 103.20 lm/W Radiant Power: 2.769 W
 Total mains efficacy: 121.37 lm/W Energy Efficiency Class: E (EU 2019/2015)
 Pupil Flux: 1134.48 Plm Pupil Lumens Per Watt: 131.61 Plm/W Pupil Factor (Kp): 1.275
 Circopic Flux: 2154.36 lm

Electric Parameters

Voltage: 231.00V Current: 0.0450A Power: 8.62W
 Power Factor: 0.8220 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: 45093 (2896) CCD Integration Time: 443.90 ms

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

Test Device: Lisun LMS-9000B
 Test Time: 2021-08-10 12:51:10
 Inspector:

Lightsource Test Report

Product Information

Product Category: LED-PL-Röhren
 Product Spec: LED-PL-G24-O9W-WWM-TRF
 Manufacturer: METOLIGHT
 Buyer: 6852

Product Type: LED-PL-Röhren-G24
 Product Number: 1
 Submitted Unit: 104968

| WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) |
|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|
| 380 | 0.0011 | 0.0217 | 525 | 0.4302 | 8.3431 | 670 | 0.3690 | 7.1561 |
| 385 | 0.0012 | 0.0239 | 530 | 0.4484 | 8.6960 | 675 | 0.3228 | 6.2596 |
| 390 | 0.0007 | 0.0137 | 535 | 0.4667 | 9.0520 | 680 | 0.2767 | 5.3654 |
| 395 | 0.0001 | 0.0023 | 540 | 0.4849 | 9.4051 | 685 | 0.2371 | 4.5987 |
| 400 | 0.0011 | 0.0211 | 545 | 0.5084 | 9.8605 | 690 | 0.1973 | 3.8259 |
| 405 | 0.0003 | 0.0051 | 550 | 0.5340 | 10.3556 | 695 | 0.1700 | 3.2965 |
| 410 | 0.0013 | 0.0246 | 555 | 0.5656 | 10.9695 | 700 | 0.1383 | 2.6830 |
| 415 | 0.0025 | 0.0488 | 560 | 0.6027 | 11.6878 | 705 | 0.1151 | 2.2321 |
| 420 | 0.0038 | 0.0742 | 565 | 0.6460 | 12.5294 | 710 | 0.0985 | 1.9099 |
| 425 | 0.0067 | 0.1302 | 570 | 0.6957 | 13.4915 | 715 | 0.0803 | 1.5571 |
| 430 | 0.0173 | 0.3365 | 575 | 0.7491 | 14.5288 | 720 | 0.0645 | 1.2505 |
| 435 | 0.0352 | 0.6833 | 580 | 0.8045 | 15.6018 | 725 | 0.0535 | 1.0371 |
| 440 | 0.0678 | 1.3152 | 585 | 0.8599 | 16.6767 | 730 | 0.0441 | 0.8545 |
| 445 | 0.1276 | 2.4738 | 590 | 0.9094 | 17.6374 | 735 | 0.0324 | 0.6281 |
| 450 | 0.2352 | 4.5619 | 595 | 0.9513 | 18.4505 | 740 | 0.0261 | 0.5060 |
| 455 | 0.4093 | 7.9378 | 600 | 0.9792 | 18.9914 | 745 | 0.0226 | 0.4391 |
| 460 | 0.5663 | 10.9833 | 605 | 0.9969 | 19.3331 | 750 | 0.0380 | 0.7371 |
| 465 | 0.5404 | 10.4797 | 610 | 0.9992 | 19.3781 | 755 | 0.0143 | 0.2769 |
| 470 | 0.4181 | 8.1089 | 615 | 0.9863 | 19.1289 | 760 | 0.0094 | 0.1828 |
| 475 | 0.3550 | 6.8854 | 620 | 0.9599 | 18.6165 | 765 | 0.0098 | 0.1910 |
| 480 | 0.3058 | 5.9298 | 625 | 0.9217 | 17.8747 | 770 | 0.0064 | 0.1244 |
| 485 | 0.2547 | 4.9391 | 630 | 0.8713 | 16.8972 | 775 | 0.0078 | 0.1504 |
| 490 | 0.2419 | 4.6906 | 635 | 0.8127 | 15.7608 | 780 | 0.0058 | 0.1128 |
| 495 | 0.2534 | 4.9135 | 640 | 0.7486 | 14.5178 | 785 | 0.0046 | 0.0887 |
| 500 | 0.2771 | 5.3735 | 645 | 0.6808 | 13.2037 | 790 | 0.0005 | 0.0091 |
| 505 | 0.3081 | 5.9746 | 650 | 0.6129 | 11.8872 | 795 | 0.0021 | 0.0416 |
| 510 | 0.3440 | 6.6706 | 655 | 0.5465 | 10.5990 | 800 | 0.0096 | 0.1852 |
| 515 | 0.3765 | 7.3025 | 660 | 0.4841 | 9.3878 | | | |
| 520 | 0.4053 | 7.8612 | 665 | 0.4245 | 8.2323 | | | |

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

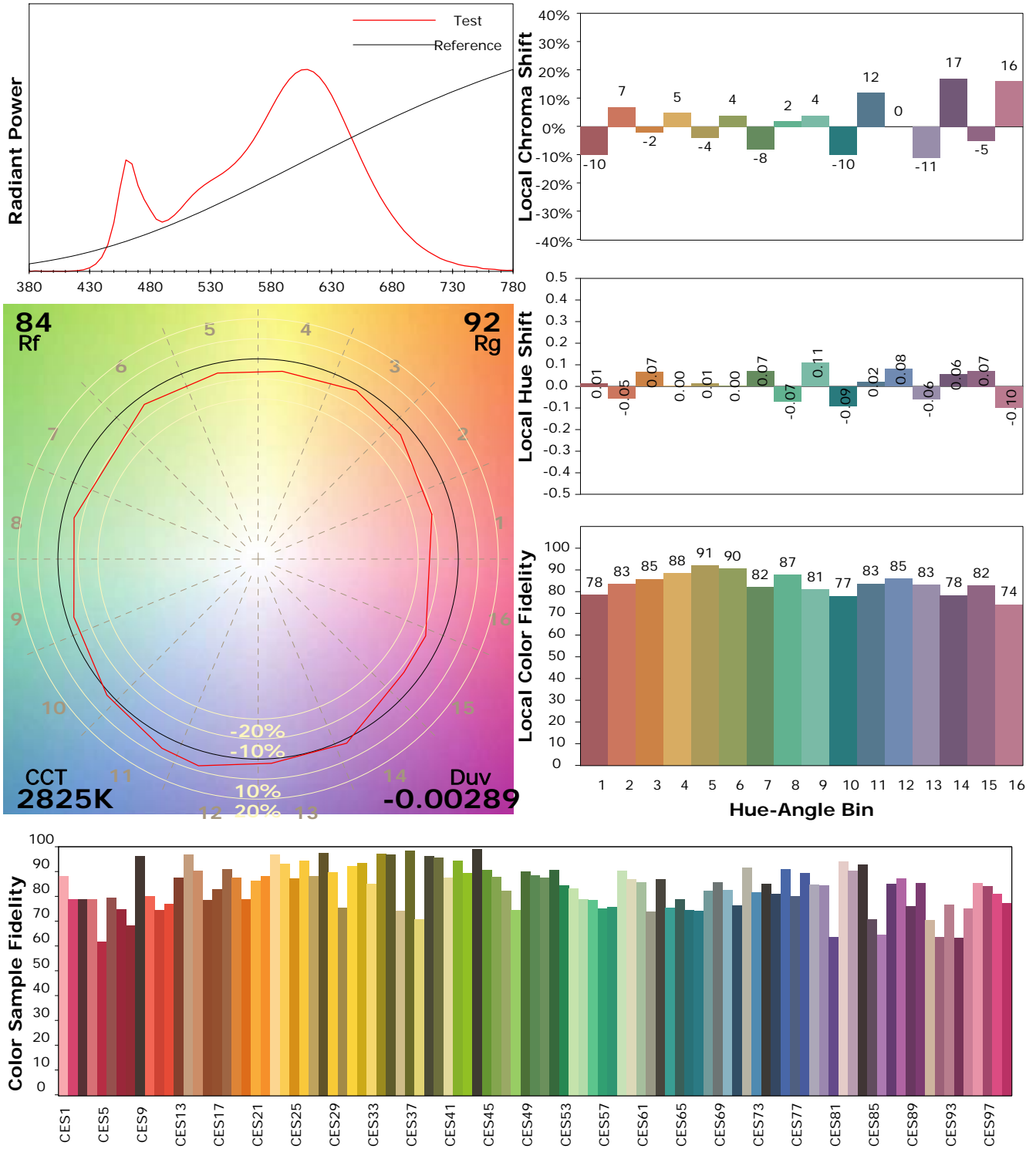
Test Device: Lisun LMS-9000B
 Test Time: 2021-08-10 12:51:10
 Inspector:

IES TM-30-18 Color Rendition Report

Product Information

Product Category: LED-PL-Röhren
 Product Spec: LED-PL-G24-09W-WWM-TRF
 Manufacturer: METOLIGHT
 Buyer: 6852

Product Type: LED-PL-Röhren-G24
 Product Number: 1
 Submitted Unit: 104968



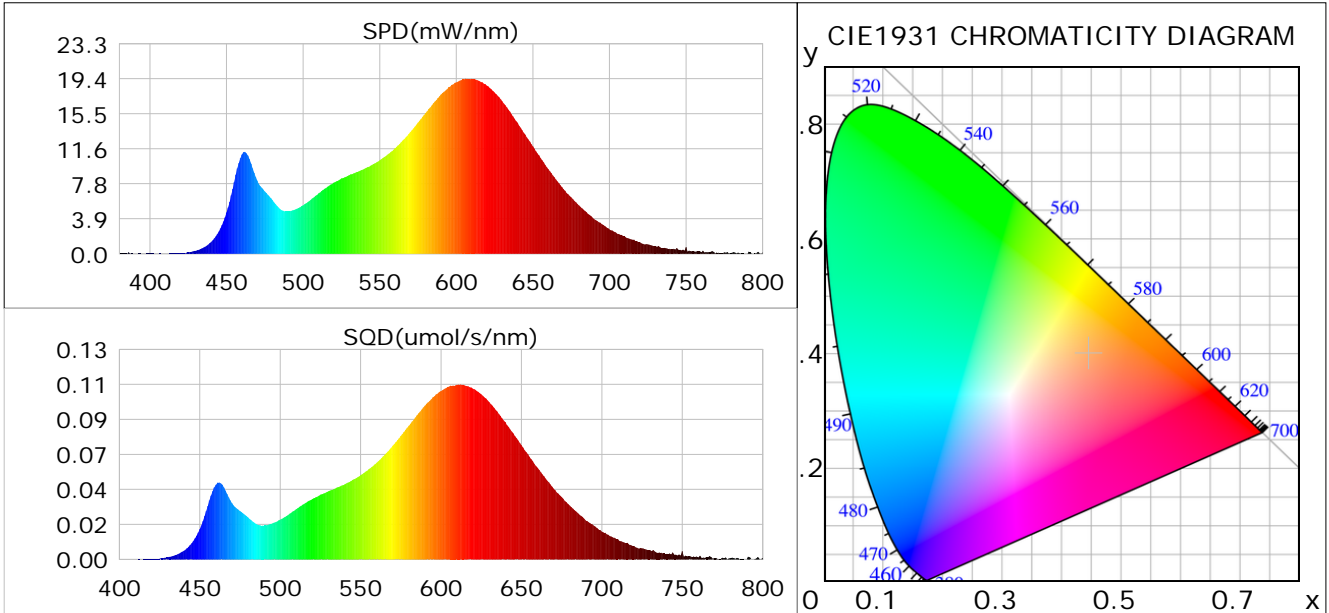
Condition: Tx:0.0°C, Ti:0.0°C, R.H.: 60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-08-10 12:51:10
 Inspector:

Plant optical param data

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.4453$ $y=0.3994$ $u(u')=0.2581$ $v=0.3472$ $v'=0.5208$
 CCT: $T_c=2825K$ ($duv=-0.00289$) Color Ratio: $R=0.250$ $G=0.719$ $B=0.031$
 Peak Wavelength: 606.2nm Half Bandwidth: 115.1nm
 Dominant Wavelength: 584.6nm Color Purity: 0.536
 CRI: $R_a=84.5$



Plant Optical Param

| | |
|---|---|
| $ \mu_v(\text{lm})$: 889.60 | $Q_v(\text{lm}\cdot\text{s})$: 889.60 |
| $ \mu_e, \dot{E}(\text{W}/\text{nm})$: 2.77 | $Q_e(\text{J})$: 2.77 |
| $ \mu_e(\text{W})$: 2.70 | $ \mu_{fr}(\text{W})$: 0.07 |
| $ \zeta_e$: 0.31 | $ \zeta_{fr}$: 0.01 |
| PPE($\mu\text{mol/s/w}$): 1.52 | Kfr: 0.05 |
| Erb_Ratio: 3.02 | PPF($\mu\text{mol/s}$): 13.11 |
| PFuv(360-400)($\mu\text{mol/s}$): 0.00 | PPF(400-500)($\mu\text{mol/s}$): 1.53 |
| PPF(500-600)($\mu\text{mol/s}$): 5.35 | PPF(600-700)($\mu\text{mol/s}$): 6.24 |
| PPfr(700-800)($\mu\text{mol/s}$): 0.40 | PPF.t(μmol): 13.11 |
| $ \mu_{ch-A.t}(\text{J})$: 0.21 | $ \mu_{ch-A}(\text{W})$: 0.21 |
| $ \mu_{ch-B.t}(\text{J})$: 0.11 | $ \mu_{ch-B}(\text{W})$: 0.11 |
| $ \mu_b.t(\text{J})$: 0.39 | $ \mu_b(\text{W})$: 0.39 |
| $ \mu_y.t(\text{J})$: 1.15 | $ \mu_y(\text{W})$: 1.15 |
| $ \mu_r.t(\text{J})$: 1.19 | $ \mu_r(\text{W})$: 1.19 |

Electric Parameters

| | | |
|----------------------|--------------------|--------------|
| Voltage: 231.00V | Current: 0.0450A | Power: 8.62W |
| Power Factor: 0.8220 | Frequency: 49.99Hz | |

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

Test Device: Lisun LMS-9000B
 Test Time: 2021-08-10 12:51:10
 Inspector: