

Lightsource Test Report

Product Information

Product Category: LED-Röhre
 Product Spec: LEDtube-120-8CWM-20W-SCE-24
 Manufacturer: METOLIGHT
 Buyer: 4624
 Product Type: LED-Röhre-Spezial
 Product Number: 1
 Submitted Unit: 105040

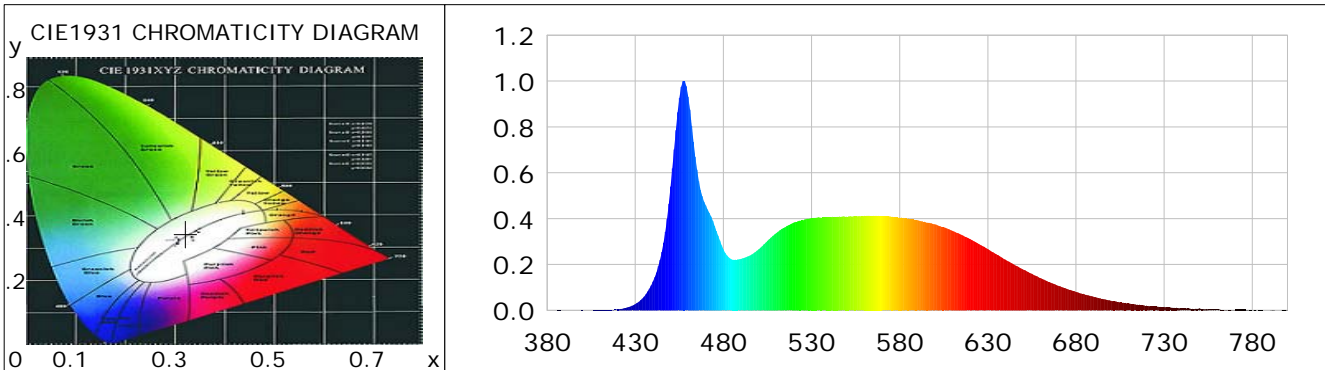
CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3211$ $y=0.3448$ $u(u')=0.1977$ $v=0.3185$ $v'=0.4778$
 CCT: $T_c=6008K$ ($duv=0.00711$) Color Ratio: $R=0.140$ $G=0.800$ $B=0.060$
 Peak Wavelength: 457.5nm Half Bandwidth: 18.5nm
 Dominant Wavelength: 504.5nm Color Purity: 0.037
 CRI: $R_a=83.8$, $avgR(1\sim14)=77.1$, $avgR(1\sim15)=77.2$ TM30: $R_f=81$, $R_g=90$
 GAI: $GAI_BB_8=86.2$, $GAI_BB_15=93.3$, $GAI_EES=82.0$

| | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|
| R1 =83 | R2 =93 | R3 =95 | R4 =78 | R5 =81 | R6 =88 | R7 =85 | R8 =68 |
| R9 =14 | R10=81 | R11=78 | R12=53 | R13=87 | R14=98 | R15=78 | |

Color Quality Scale: $Q_a=81.8$, $Q_f=82.1$, $Q_p=80.0$, $Q_g=89.0$

| | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|
| Q1 =78 | Q2 =95 | Q3 =83 | Q4 =73 | Q5 =75 | Q6 =76 | Q7 =83 | Q8 =89 |
| Q9 =97 | Q10=93 | Q11=88 | Q12=87 | Q13=86 | Q14=74 | Q15=77 | |



Photometric Parameters

Luminous Flux: 2018.5 lm Efficiency: 128.57 lm/W Radiant Power: 6.374 W
 Total mains efficacy: 151.19 lm/W Energy Efficiency Class: D (EU 2019/2015)
 Pupil Flux: 3791.27 Plm Pupil Lumens Per Watt: 241.48 Plm/W Pupil Factor (Kp): 1.878
 Circopic Flux: 8783.70 lm

Electric Parameters

Voltage: 24.010V Current: 0.6520A Power: 15.70W
 Power Factor: 0.7340 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: 45981 (2332) CCD Integration Time: 78.31 ms

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

Test Device: Lisun LMS-9000B
 Test Time: 2021-02-25 11:04:37
 Inspector:

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| WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) |
|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|
| 380 | 0.0007 | 0.0500 | 525 | 0.3923 | 29.0085 | 670 | 0.1074 | 7.9391 |
| 385 | 0.0005 | 0.0369 | 530 | 0.4021 | 29.7361 | 675 | 0.0934 | 6.9057 |
| 390 | 0.0007 | 0.0519 | 535 | 0.4047 | 29.9282 | 680 | 0.0807 | 5.9647 |
| 395 | 0.0002 | 0.0148 | 540 | 0.4068 | 30.0818 | 685 | 0.0693 | 5.1240 |
| 400 | 0.0007 | 0.0538 | 545 | 0.4082 | 30.1904 | 690 | 0.0591 | 4.3688 |
| 405 | 0.0003 | 0.0249 | 550 | 0.4085 | 30.2130 | 695 | 0.0500 | 3.6991 |
| 410 | 0.0014 | 0.0999 | 555 | 0.4109 | 30.3902 | 700 | 0.0419 | 3.0972 |
| 415 | 0.0021 | 0.1588 | 560 | 0.4121 | 30.4762 | 705 | 0.0347 | 2.5693 |
| 420 | 0.0049 | 0.3633 | 565 | 0.4123 | 30.4896 | 710 | 0.0306 | 2.2602 |
| 425 | 0.0115 | 0.8534 | 570 | 0.4109 | 30.3859 | 715 | 0.0248 | 1.8356 |
| 430 | 0.0275 | 2.0316 | 575 | 0.4089 | 30.2397 | 720 | 0.0207 | 1.5340 |
| 435 | 0.0598 | 4.4260 | 580 | 0.4045 | 29.9159 | 725 | 0.0178 | 1.3128 |
| 440 | 0.1252 | 9.2572 | 585 | 0.4001 | 29.5910 | 730 | 0.0147 | 1.0842 |
| 445 | 0.2549 | 18.8469 | 590 | 0.3933 | 29.0826 | 735 | 0.0112 | 0.8262 |
| 450 | 0.5398 | 39.9176 | 595 | 0.3837 | 28.3771 | 740 | 0.0082 | 0.6072 |
| 455 | 0.9269 | 68.5463 | 600 | 0.3749 | 27.7284 | 745 | 0.0066 | 0.4864 |
| 460 | 0.9322 | 68.9358 | 605 | 0.3624 | 26.7991 | 750 | 0.0088 | 0.6484 |
| 465 | 0.6139 | 45.3964 | 610 | 0.3468 | 25.6441 | 755 | 0.0046 | 0.3421 |
| 470 | 0.4578 | 33.8566 | 615 | 0.3298 | 24.3892 | 760 | 0.0040 | 0.2979 |
| 475 | 0.3686 | 27.2575 | 620 | 0.3111 | 23.0099 | 765 | 0.0035 | 0.2600 |
| 480 | 0.2665 | 19.7103 | 625 | 0.2890 | 21.3688 | 770 | 0.0031 | 0.2325 |
| 485 | 0.2215 | 16.3787 | 630 | 0.2671 | 19.7493 | 775 | 0.0025 | 0.1819 |
| 490 | 0.2246 | 16.6125 | 635 | 0.2437 | 18.0200 | 780 | 0.0010 | 0.0757 |
| 495 | 0.2390 | 17.6782 | 640 | 0.2208 | 16.3255 | 785 | 0.0014 | 0.1044 |
| 500 | 0.2661 | 19.6765 | 645 | 0.1990 | 14.7184 | 790 | 0.0012 | 0.0879 |
| 505 | 0.3035 | 22.4419 | 650 | 0.1781 | 13.1737 | 795 | 0.0010 | 0.0760 |
| 510 | 0.3378 | 24.9782 | 655 | 0.1594 | 11.7850 | 800 | 0.0032 | 0.2344 |
| 515 | 0.3629 | 26.8393 | 660 | 0.1409 | 10.4201 | | | |
| 520 | 0.3838 | 28.3860 | 665 | 0.1234 | 9.1273 | | | |

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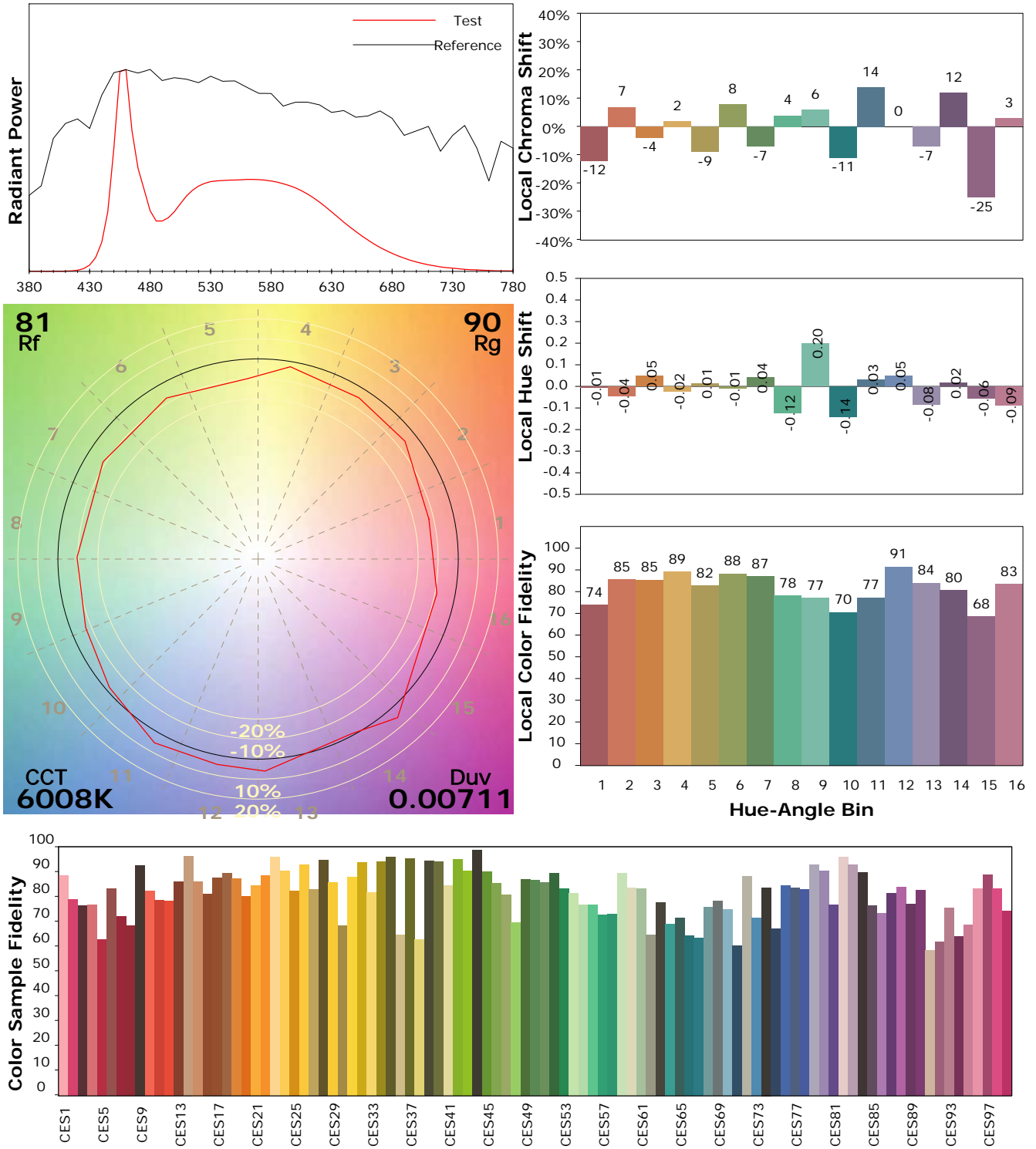
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IES TM-30-18 Color Rendition Report

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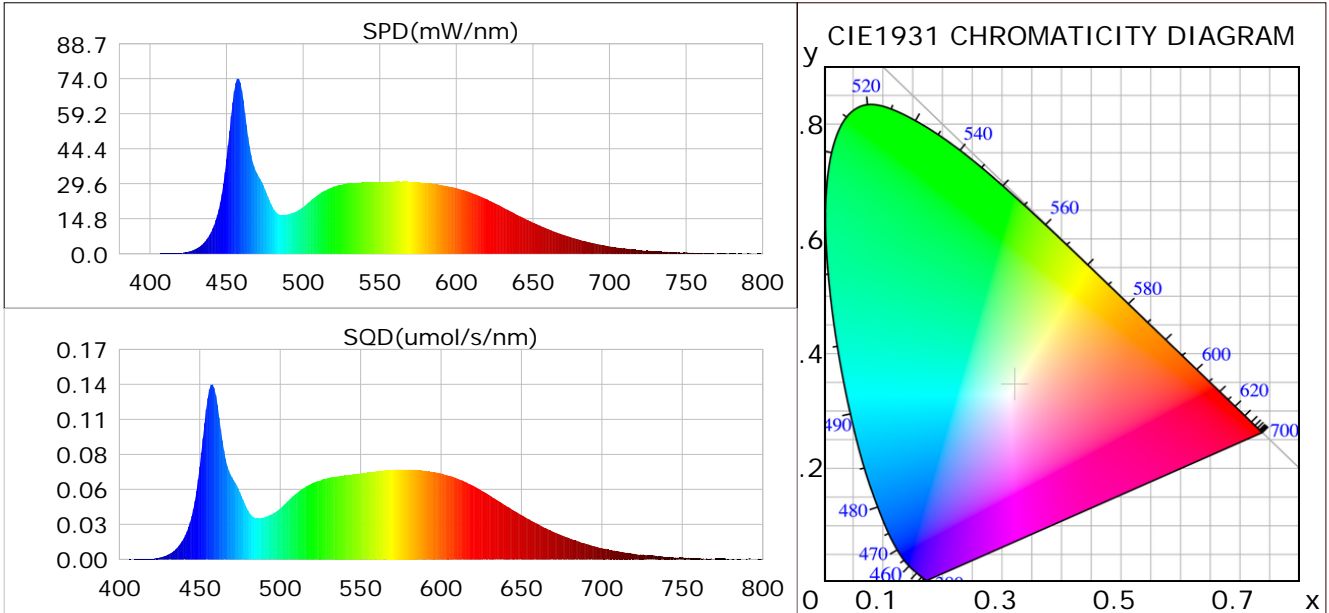
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Plant optical param data

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 CRI: $R_a=83.8$



Plant Optical Param

| | |
|----------------------------------|------------------------------|
| $ \mu_v(lm): 2018.50$ | $Q_v(lm.s): 2018.50$ |
| $ \mu_e, \dot{E}(W/nm): 6.37$ | $Q_e(J): 6.37$ |
| $ \mu_e(W): 6.30$ | $ \mu_{fr}(W): 0.08$ |
| $ \zeta_e: 0.40$ | $ \zeta_{fr}: 0.01$ |
| $PPE(umol/s/w): 1.82$ | $K_{fr}: 0.03$ |
| $Erb_Ratio: 0.70$ | $PPF(umol/s): 28.55$ |
| $PF_{uv}(360-400)(umol/s): 0.00$ | $PPF(400-500)(umol/s): 7.81$ |
| $PPF(500-600)(umol/s): 13.28$ | $PPF(600-700)(umol/s): 7.46$ |
| $PPF_r(700-800)(umol/s): 0.49$ | $PPF.t(umol): 28.55$ |
| $ \mu_{ch-A.t}(J): 0.46$ | $ \mu_{ch-A}(W): 0.46$ |
| $ \mu_{ch-B.t}(J): 0.37$ | $ \mu_{ch-B}(W): 0.37$ |
| $ \mu_b.t(J): 2.01$ | $ \mu_b(W): 2.01$ |
| $ \mu_y.t(J): 2.90$ | $ \mu_y(W): 2.90$ |
| $ \mu_r.t(J): 1.43$ | $ \mu_r(W): 1.43$ |

Electric Parameters

| | | |
|----------------------|--------------------|---------------|
| Voltage: 24.010V | Current: 0.6520A | Power: 15.70W |
| Power Factor: 0.7340 | Frequency: 49.99Hz | |

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