

Lightsource Test Report

Product Information

Product Category: LED-Röhre
 Product Spec: LEDtube-120-8Meat-TR-20WM
 Manufacturer: METOLIGHT
 Buyer: 7116

Product Type: LED-Röhre-Spezial
 Product Number: 1
 Submitted Unit: 104304

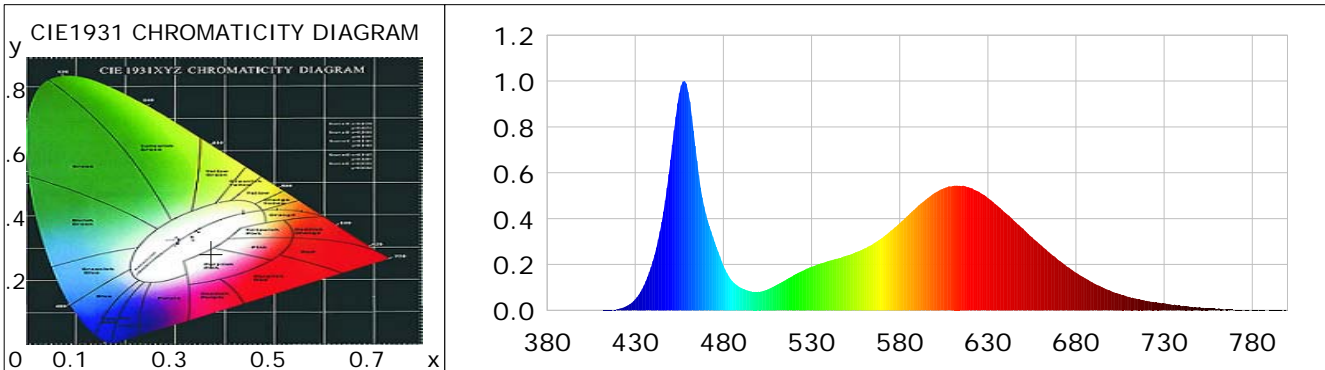
CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3731$ $y=0.2821$ $u(u')=0.2646$ $v=0.3002$ $v'=0.4502$
 CCT: $T_c=3164K$ ($duv=-0.04924$) Color Ratio: $R=0.281$ $G=0.663$ $B=0.056$
 Peak Wavelength: 457.6nm Half Bandwidth: 20.5nm
 Dominant Wavelength: 0.0nm Color Purity: 0.000
 CRI: $R_a=75.7$, $avgR(1\sim14)=72.9$, $avgR(1\sim15)=73.7$ TM30: $R_f=80$, $R_g=105$
 GAI: $GAI_BB_8=184.6$, $GAI_BB_15=174.6$, $GAI_EES=114.0$

| | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|
| R1 =88 | R2 =75 | R3 =72 | R4 =81 | R5 =86 | R6 =61 | R7 =66 | R8 =76 |
| R9 =80 | R10=57 | R11=77 | R12=30 | R13=82 | R14=89 | R15=85 | |

Color Quality Scale: $Q_a=74.6$, $Q_f=67.7$, $Q_p=90.6$, $Q_g=109.8$

| | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|
| Q1 =92 | Q2 =94 | Q3 =64 | Q4 =59 | Q5 =73 | Q6 =84 | Q7 =81 | Q8 =84 |
| Q9 =92 | Q10=78 | Q11=68 | Q12=63 | Q13=64 | Q14=79 | Q15=86 | |



Photometric Parameters

Luminous Flux: 1811.4 lm Efficiency: 90.93 lm/W Radiant Power: 7.190 W
 Total mains efficacy: 106.94 lm/W Energy Efficiency Class: F (EU 2019/2015)
 Pupil Flux: 2934.85 Plm Pupil Lumens Per Watt: 147.33 Plm/W Pupil Factor (Kp): 1.620
 Circopic Flux: 6926.18 lm

Electric Parameters

Voltage: 230.60V Current: 0.0900A Power: 19.92W
 Power Factor: 0.9530 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: 55444 (2175) CCD Integration Time: 109.73 ms

Condition: Tx:17.2'C, Ti:0.0'C, R.H.:60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-01-18 14:24:32
 Inspector:

Lightsource Test Report

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| WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) |
|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|
| 380 | 0.0005 | 0.0422 | 525 | 0.1727 | 13.9493 | 670 | 0.2193 | 17.7070 |
| 385 | 0.0003 | 0.0242 | 530 | 0.1900 | 15.3450 | 675 | 0.1905 | 15.3824 |
| 390 | 0.0001 | 0.0075 | 535 | 0.2042 | 16.4877 | 680 | 0.1647 | 13.2977 |
| 395 | 0.0000 | 0.0029 | 540 | 0.2159 | 17.4329 | 685 | 0.1405 | 11.3457 |
| 400 | 0.0004 | 0.0355 | 545 | 0.2267 | 18.3080 | 690 | 0.1181 | 9.5388 |
| 405 | 0.0004 | 0.0329 | 550 | 0.2394 | 19.3309 | 695 | 0.1002 | 8.0882 |
| 410 | 0.0006 | 0.0450 | 555 | 0.2529 | 20.4241 | 700 | 0.0835 | 6.7466 |
| 415 | 0.0012 | 0.1001 | 560 | 0.2700 | 21.8048 | 705 | 0.0705 | 5.6966 |
| 420 | 0.0055 | 0.4453 | 565 | 0.2908 | 23.4842 | 710 | 0.0591 | 4.7695 |
| 425 | 0.0183 | 1.4813 | 570 | 0.3159 | 25.5124 | 715 | 0.0495 | 3.9992 |
| 430 | 0.0486 | 3.9256 | 575 | 0.3477 | 28.0794 | 720 | 0.0413 | 3.3373 |
| 435 | 0.1094 | 8.8337 | 580 | 0.3808 | 30.7520 | 725 | 0.0344 | 2.7782 |
| 440 | 0.2148 | 17.3455 | 585 | 0.4160 | 33.5983 | 730 | 0.0307 | 2.4827 |
| 445 | 0.3857 | 31.1509 | 590 | 0.4518 | 36.4858 | 735 | 0.0236 | 1.9053 |
| 450 | 0.6568 | 53.0413 | 595 | 0.4843 | 39.1081 | 740 | 0.0186 | 1.5041 |
| 455 | 0.9468 | 76.4584 | 600 | 0.5125 | 41.3857 | 745 | 0.0149 | 1.1994 |
| 460 | 0.9526 | 76.9261 | 605 | 0.5326 | 43.0113 | 750 | 0.0149 | 1.1999 |
| 465 | 0.6522 | 52.6717 | 610 | 0.5422 | 43.7825 | 755 | 0.0092 | 0.7452 |
| 470 | 0.4216 | 34.0472 | 615 | 0.5423 | 43.7943 | 760 | 0.0057 | 0.4582 |
| 475 | 0.2987 | 24.1245 | 620 | 0.5341 | 43.1280 | 765 | 0.0049 | 0.3961 |
| 480 | 0.1954 | 15.7824 | 625 | 0.5169 | 41.7442 | 770 | 0.0026 | 0.2108 |
| 485 | 0.1279 | 10.3297 | 630 | 0.4895 | 39.5280 | 775 | 0.0035 | 0.2838 |
| 490 | 0.0983 | 7.9368 | 635 | 0.4592 | 37.0818 | 780 | 0.0025 | 0.2007 |
| 495 | 0.0840 | 6.7872 | 640 | 0.4249 | 34.3142 | 785 | 0.0022 | 0.1746 |
| 500 | 0.0811 | 6.5501 | 645 | 0.3901 | 31.5056 | 790 | 0.0016 | 0.1323 |
| 505 | 0.0913 | 7.3701 | 650 | 0.3561 | 28.7539 | 795 | 0.0016 | 0.1259 |
| 510 | 0.1103 | 8.9076 | 655 | 0.3194 | 25.7943 | 800 | 0.0035 | 0.2809 |
| 515 | 0.1311 | 10.5908 | 660 | 0.2848 | 23.0027 | | | |
| 520 | 0.1539 | 12.4320 | 665 | 0.2520 | 20.3477 | | | |

Condition: Tx:17.2'C, Ti:0.0'C, R.H.:60%
 Test Lab:
 Operator: CRE

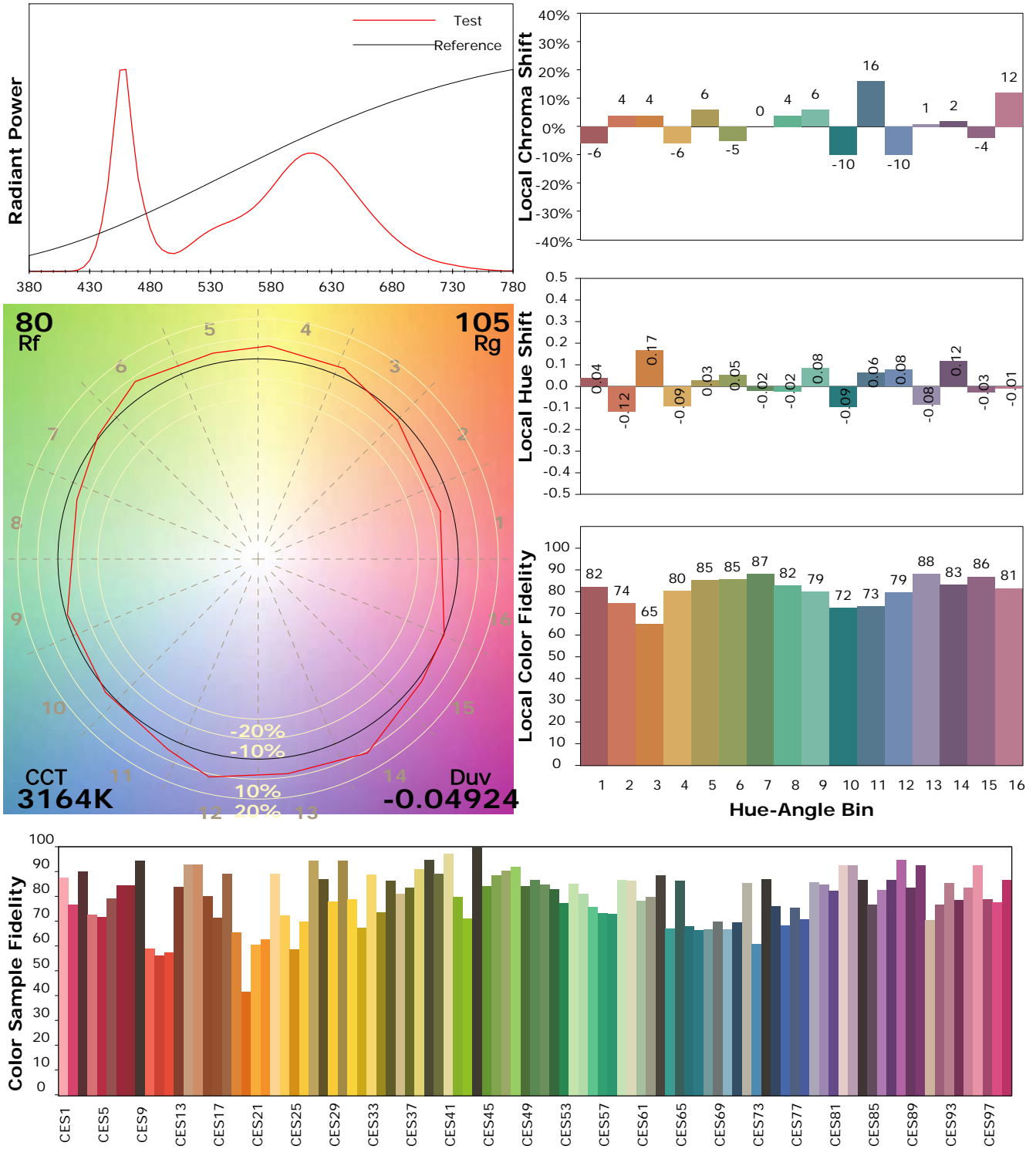
Test Device: Lisun LMS-9000B
 Test Time: 2021-01-18 14:24:32
 Inspector:

IES TM-30-18 Color Rendition Report

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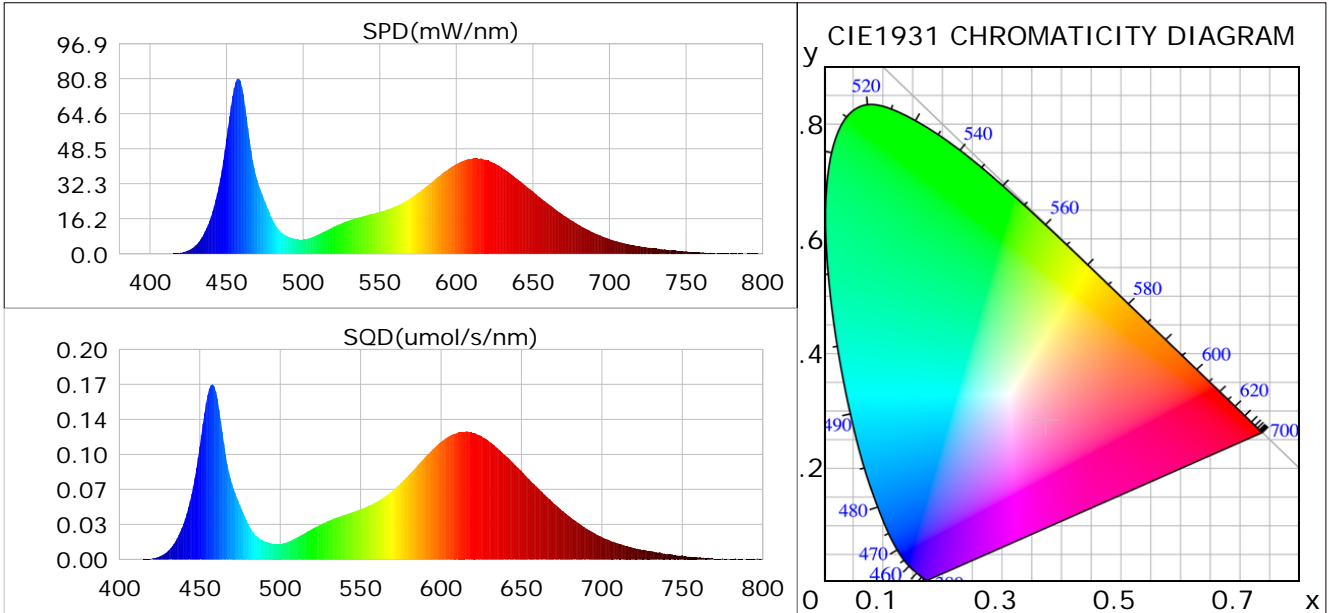
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Test Device: Lisun LMS-9000B
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Plant optical param data

CIE Colorimetric Parameters

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 Dominant Wavelength: 0.0nm Color Purity: 0.000
 CRI: $R_a=75.7$



Plant Optical Param

| | |
|----------------------------------|-------------------------------|
| $ \mu_v(lm): 1811.40$ | $Q_v(lm.s): 1811.40$ |
| $ \mu_e, \dot{E}(W/nm): 7.19$ | $Q_e(J): 7.19$ |
| $ \mu_e(W): 7.02$ | $ \mu_{fr}(W): 0.18$ |
| $ \zeta_e: 0.35$ | $ \zeta_{fr}: 0.01$ |
| $PPE(umol/s/w): 1.65$ | $K_{fr}: 0.05$ |
| $Erb_Ratio: 1.30$ | $PPF(umol/s): 32.93$ |
| $PF_{uv}(360-400)(umol/s): 0.00$ | $PPF(400-500)(umol/s): 8.18$ |
| $PPF(500-600)(umol/s): 10.04$ | $PPF(600-700)(umol/s): 14.71$ |
| $PPF_r(700-800)(umol/s): 1.04$ | $PPF.t(umol): 32.93$ |
| $ \mu_{ch-A.t}(J): 0.66$ | $ \mu_{ch-A}(W): 0.66$ |
| $ \mu_{ch-B.t}(J): 0.45$ | $ \mu_{ch-B}(W): 0.45$ |
| $ \mu_b.t(J): 2.13$ | $ \mu_b(W): 2.13$ |
| $ \mu_y.t(J): 2.14$ | $ \mu_y(W): 2.14$ |
| $ \mu_r.t(J): 2.80$ | $ \mu_r(W): 2.80$ |

Electric Parameters

| | | |
|----------------------|--------------------|---------------|
| Voltage: 230.60V | Current: 0.0900A | Power: 19.92W |
| Power Factor: 0.9530 | Frequency: 49.99Hz | |

Condition: $T_x: 17.2^\circ C$, $T_i: 0.0^\circ C$, R.H.: 60%
 Test Lab:
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