

## Lightsource Test Report

### Product Information

Product Category: LED-PL-Röhre  
 Product Spec: LED-PL-2G10-4-09W-NWM  
 Manufacturer: METOLIGHT  
 Buyer: 3258

Product Type: LED-PL-Röhren-2G10  
 Product Number: 1  
 Submitted Unit: 103323

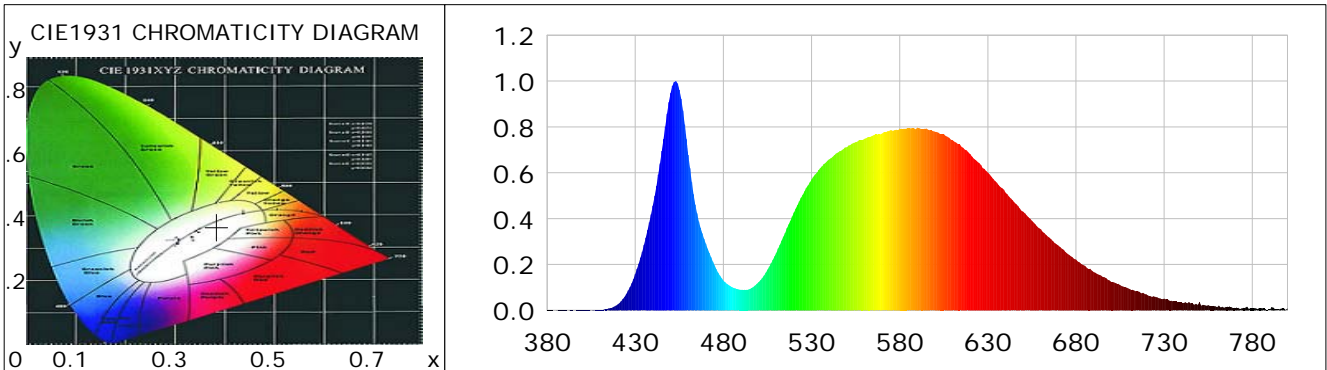
### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3839$   $y=0.3668$   $u(u')=0.2315$   $v=0.3318$   $v'=0.4976$   
 CCT:  $T_c=3828K$  ( $duv=-0.00571$ ) Color Ratio:  $R=0.184$   $G=0.792$   $B=0.025$   
 Peak Wavelength: 452.8nm Half Bandwidth: 22.1nm  
 Dominant Wavelength: 583.2nm Color Purity: 0.253  
 CRI:  $R_a=74.9$ ,  $avgR(1\sim14)=65.8$ ,  $avgR(1\sim15)=66.2$  TM30:  $R_f=73$ ,  $R_g=96$   
 GAI:  $GAI\_BB\_8=100.1$ ,  $GAI\_BB\_15=108.2$ ,  $GAI\_EES=76.0$   

|        |        |        |        |        |        |        |        |
|--------|--------|--------|--------|--------|--------|--------|--------|
| R1 =74 | R2 =82 | R3 =83 | R4 =72 | R5 =72 | R6 =71 | R7 =83 | R8 =61 |
| R9 =0  | R10=52 | R11=64 | R12=40 | R13=75 | R14=90 | R15=73 |        |

Color Quality Scale:  $Q_a=71.6$ ,  $Q_f=70.2$ ,  $Q_p=75.5$ ,  $Q_g=94.0$   

|        |        |        |        |        |        |        |        |
|--------|--------|--------|--------|--------|--------|--------|--------|
| Q1 =81 | Q2 =95 | Q3 =60 | Q4 =54 | Q5 =65 | Q6 =70 | Q7 =73 | Q8 =82 |
| Q9 =91 | Q10=75 | Q11=69 | Q12=71 | Q13=75 | Q14=68 | Q15=73 |        |



### Photometric Parameters

Luminous Flux: 913.00 lm Efficiency: 103.87 lm/W Radiant Power: 2.771 W  
 Total mains efficacy: 103.87 lm/W Energy Efficiency Class: F (EU 2019/2015)  
 Pupil Flux: 1243.93 Plm Pupil Lumens Per Watt: 141.52 Plm/W Pupil Factor (Kp): 1.362  
 Circopic Flux: 2373.61 lm

### Electric Parameters

Voltage: 230.80V Current: 0.0440A Power: 8.79W  
 Power Factor: 0.8640 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: 46743 (2483) CCD Integration Time: 355.30 ms

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

Test Device: Lisun LMS-9000B  
 Test Time: 2021-03-05 10:10:12  
 Inspector:

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| WL(nm) | PL     | PE(mW/nm) | WL(nm) | PL     | PE(mW/nm) | WL(nm) | PL     | PE(mW/nm) |
|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|
| 380    | 0.0021 | 0.0414    | 525    | 0.5040 | 10.0904   | 670    | 0.2830 | 5.6651    |
| 385    | 0.0013 | 0.0270    | 530    | 0.5704 | 11.4187   | 675    | 0.2484 | 4.9723    |
| 390    | 0.0016 | 0.0318    | 535    | 0.6208 | 12.4283   | 680    | 0.2216 | 4.4360    |
| 395    | 0.0002 | 0.0039    | 540    | 0.6584 | 13.1801   | 685    | 0.1947 | 3.8984    |
| 400    | 0.0014 | 0.0284    | 545    | 0.6887 | 13.7884   | 690    | 0.1674 | 3.3520    |
| 405    | 0.0006 | 0.0125    | 550    | 0.7120 | 14.2542   | 695    | 0.1463 | 2.9280    |
| 410    | 0.0024 | 0.0474    | 555    | 0.7333 | 14.6800   | 700    | 0.1242 | 2.4872    |
| 415    | 0.0084 | 0.1686    | 560    | 0.7483 | 14.9814   | 705    | 0.1101 | 2.2042    |
| 420    | 0.0257 | 0.5151    | 565    | 0.7636 | 15.2875   | 710    | 0.0946 | 1.8939    |
| 425    | 0.0720 | 1.4418    | 570    | 0.7718 | 15.4508   | 715    | 0.0833 | 1.6672    |
| 430    | 0.1584 | 3.1713    | 575    | 0.7861 | 15.7382   | 720    | 0.0693 | 1.3868    |
| 435    | 0.2857 | 5.7194    | 580    | 0.7918 | 15.8505   | 725    | 0.0588 | 1.1774    |
| 440    | 0.4572 | 9.1534    | 585    | 0.7943 | 15.9015   | 730    | 0.0513 | 1.0260    |
| 445    | 0.6953 | 13.9200   | 590    | 0.7972 | 15.9595   | 735    | 0.0394 | 0.7885    |
| 450    | 0.9473 | 18.9649   | 595    | 0.7935 | 15.8861   | 740    | 0.0346 | 0.6917    |
| 455    | 0.9626 | 19.2699   | 600    | 0.7793 | 15.6014   | 745    | 0.0303 | 0.6064    |
| 460    | 0.6783 | 13.5788   | 605    | 0.7682 | 15.3793   | 750    | 0.0366 | 0.7327    |
| 465    | 0.4233 | 8.4750    | 610    | 0.7421 | 14.8558   | 755    | 0.0225 | 0.4507    |
| 470    | 0.2905 | 5.8158    | 615    | 0.7141 | 14.2967   | 760    | 0.0146 | 0.2924    |
| 475    | 0.1958 | 3.9192    | 620    | 0.6814 | 13.6416   | 765    | 0.0151 | 0.3013    |
| 480    | 0.1302 | 2.6071    | 625    | 0.6425 | 12.8617   | 770    | 0.0107 | 0.2139    |
| 485    | 0.1008 | 2.0187    | 630    | 0.6009 | 12.0306   | 775    | 0.0107 | 0.2151    |
| 490    | 0.0905 | 1.8110    | 635    | 0.5573 | 11.1565   | 780    | 0.0102 | 0.2049    |
| 495    | 0.0931 | 1.8642    | 640    | 0.5138 | 10.2857   | 785    | 0.0100 | 0.2008    |
| 500    | 0.1230 | 2.4626    | 645    | 0.4707 | 9.4239    | 790    | 0.0037 | 0.0737    |
| 505    | 0.1776 | 3.5552    | 650    | 0.4305 | 8.6187    | 795    | 0.0040 | 0.0800    |
| 510    | 0.2513 | 5.0306    | 655    | 0.3907 | 7.8213    | 800    | 0.0103 | 0.2065    |
| 515    | 0.3374 | 6.7551    | 660    | 0.3543 | 7.0919    |        |        |           |
| 520    | 0.4266 | 8.5395    | 665    | 0.3167 | 6.3410    |        |        |           |

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

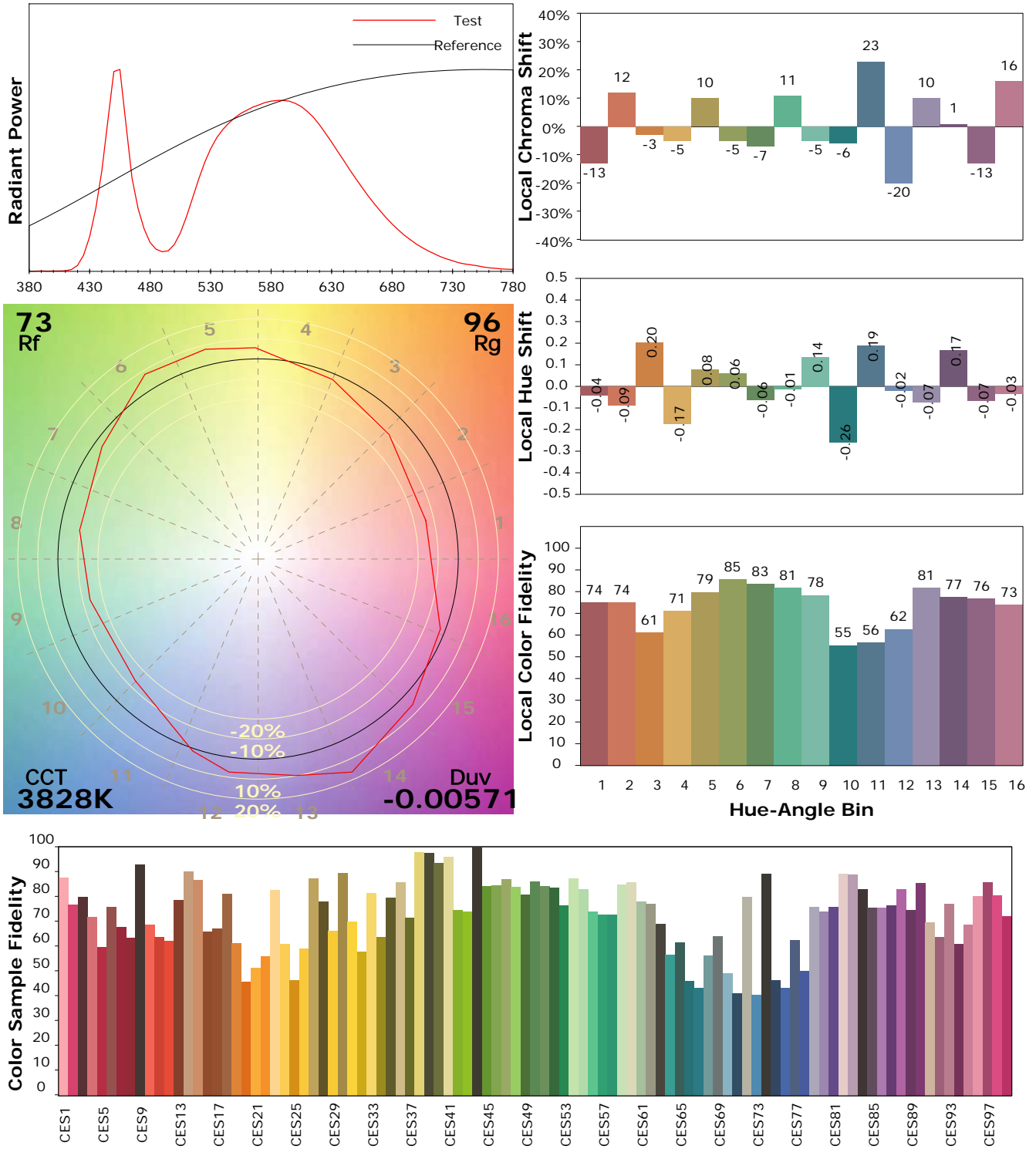
Test Device: Lisun LMS-9000B  
 Test Time: 2021-03-05 10:10:12  
 Inspector:

## IES TM-30-18 Color Rendition Report

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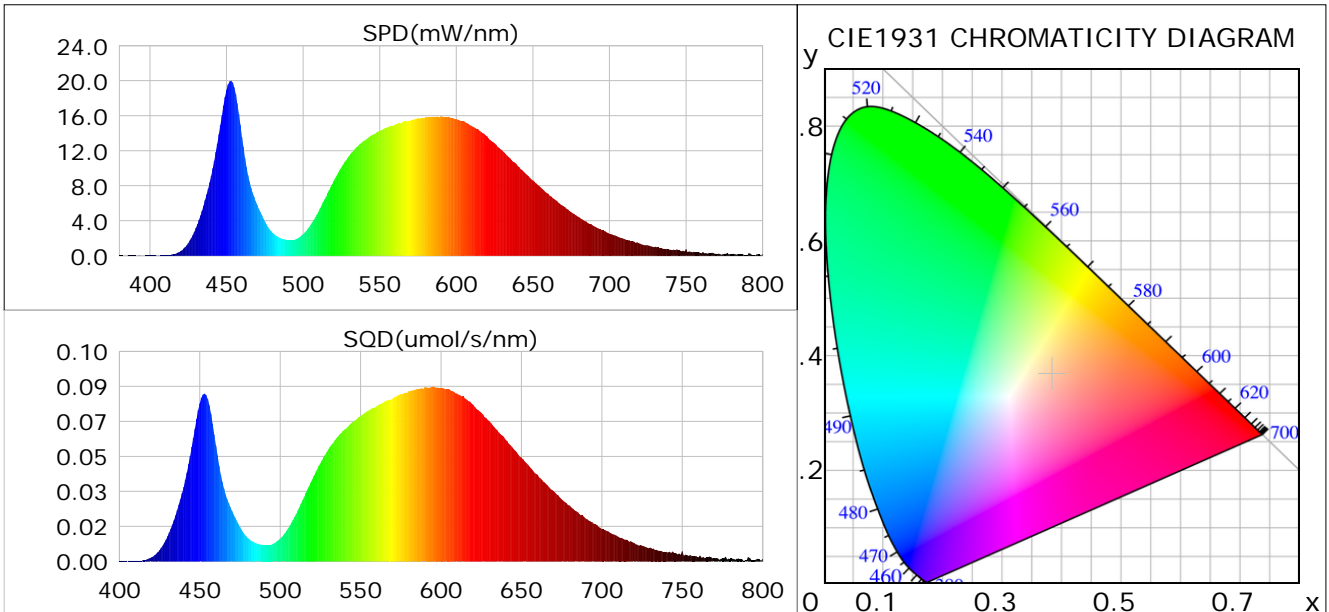
Condition: Tx:0.0°C, Ti:0.0°C, R.H.: 60%  
 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
 Test Time: 2021-03-05 10:10:12  
 Inspector:

## Plant optical param data

### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3839$   $y=0.3668$   $u(u')=0.2315$   $v=0.3318$   $v'=0.4976$   
 CCT:  $T_c=3828K$  ( $duv=-0.00571$ ) Color Ratio:  $R=0.184$   $G=0.792$   $B=0.025$   
 Peak Wavelength: 452.8nm Half Bandwidth: 22.1nm  
 Dominant Wavelength: 583.2nm Color Purity: 0.253  
 CRI:  $R_a=74.9$



### Plant Optical Param

|                                  |                              |
|----------------------------------|------------------------------|
| $ \mu_v(lm): 913.00$             | $Q_v(lm.s): 913.00$          |
| $ \mu_e, \dot{E}(W/nm): 2.77$    | $Q_e(J): 2.77$               |
| $ \mu_e(W): 2.70$                | $ \mu_{fr}(W): 0.08$         |
| $ \zeta_e: 0.31$                 | $ \zeta_{fr}: 0.01$          |
| $PPE(umol/s/w): 1.44$            | $K_{fr}: 0.05$               |
| $Erb\_Ratio: 1.55$               | $PPF(umol/s): 12.69$         |
| $PF_{uv}(360-400)(umol/s): 0.00$ | $PPF(400-500)(umol/s): 2.17$ |
| $PPF(500-600)(umol/s): 5.82$     | $PPF(600-700)(umol/s): 4.70$ |
| $PPF_r(700-800)(umol/s): 0.46$   | $PPF.t(umol): 12.69$         |
| $ \mu_{ch-A.t}(J): 0.23$         | $ \mu_{ch-A}(W): 0.23$       |
| $ \mu_{ch-B.t}(J): 0.13$         | $ \mu_{ch-B}(W): 0.13$       |
| $ \mu_b.t(J): 0.57$              | $ \mu_b(W): 0.57$            |
| $ \mu_y.t(J): 1.25$              | $ \mu_y(W): 1.25$            |
| $ \mu_r.t(J): 0.90$              | $ \mu_r(W): 0.90$            |

### Electric Parameters

|                      |                    |              |
|----------------------|--------------------|--------------|
| Voltage: 230.80V     | Current: 0.0440A   | Power: 8.79W |
| Power Factor: 0.8640 | 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: 2021-03-05 10:10:12  
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