

## Lightsource Test Report

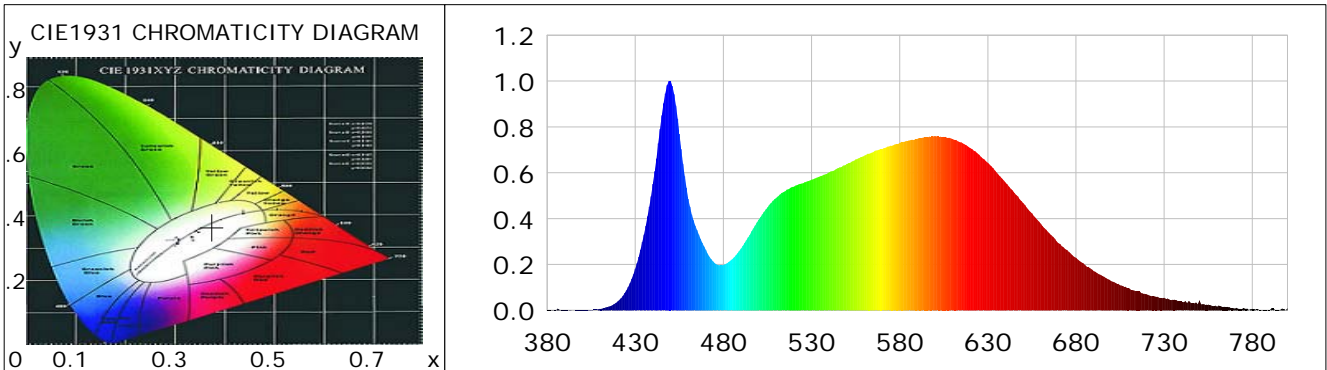
### Product Information

Product Category: LED-PL-Röhren  
 Product Spec: LED-PL-G24D-10-NW  
 Manufacturer: METOLIGHT  
 Buyer: 2320

Product Type: LED-PL-Röhren-G24  
 Product Number: 1  
 Submitted Unit: 100474

### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3747$   $y=0.3663$   $u(u')=0.2255$   $v=0.3307$   $v'=0.4960$   
 CCT:  $T_c=4085K$  ( $duv=-0.00329$ ) Color Ratio:  $R=0.188$   $G=0.776$   $B=0.036$   
 Peak Wavelength: 449.5nm Half Bandwidth: 20.7nm  
 Dominant Wavelength: 580.9nm Color Purity: 0.224  
 CRI:  $R_a = 86.3$ ,  $avgR(1\sim14) = 81.1$ ,  $avgR(1\sim15) = 81.2$  TM30:  $R_f = 85$ ,  $R_g = 99$   
 GAI:  $GAI\_BB\_8 = 100.7$ ,  $GAI\_BB\_15 = 105.4$ ,  $GAI\_EES = 80.8$   
 R1 = 86 R2 = 90 R3 = 92 R4 = 87 R5 = 86 R6 = 86 R7 = 88 R8 = 74  
 R9 = 32 R10 = 76 R11 = 87 R12 = 67 R13 = 87 R14 = 95 R15 = 83  
 Color Quality Scale:  $Q_a = 84.9$ ,  $Q_f = 84.1$ ,  $Q_p = 86.9$ ,  $Q_g = 97.4$   
 Q1 = 86 Q2 = 98 Q3 = 78 Q4 = 78 Q5 = 85 Q6 = 87 Q7 = 87 Q8 = 91  
 Q9 = 96 Q10 = 87 Q11 = 85 Q12 = 85 Q13 = 86 Q14 = 79 Q15 = 82



### Photometric Parameters

Luminous Flux: 832.80 lm Efficiency: 87.20 lm/W Radiant Power: 2.648 W  
 Total mains efficacy: 102.55 lm/W Energy Efficiency Class: F (EU 2019/2015)  
 Pupil Flux: 1273.63 Plm Pupil Lumens Per Watt: 133.36 Plm/W Pupil Factor (Kp): 1.529  
 Circopic Flux: 2591.98 lm

### Electric Parameters

Voltage: 231.00V Current: 0.0430A Power: 9.55W  
 Power Factor: 0.9500 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: 46453 (2528) CCD Integration Time: 292.68 ms

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

Test Device: Lisun LMS-9000B  
 Test Time: 2021-03-03 13:57:19  
 Inspector:

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0015	0.0273	525	0.5538	10.1175	670	0.2938	5.3676
385	0.0009	0.0171	530	0.5701	10.4151	675	0.2628	4.8011
390	0.0007	0.0133	535	0.5851	10.6904	680	0.2290	4.1837
395	0.0003	0.0060	540	0.6021	11.0009	685	0.1989	3.6338
400	0.0017	0.0305	545	0.6203	11.3330	690	0.1715	3.1335
405	0.0017	0.0313	550	0.6386	11.6676	695	0.1500	2.7398
410	0.0063	0.1154	555	0.6582	12.0252	700	0.1277	2.3328
415	0.0171	0.3130	560	0.6748	12.3293	705	0.1094	1.9986
420	0.0387	0.7077	565	0.6905	12.6162	710	0.0967	1.7674
425	0.0873	1.5958	570	0.7032	12.8479	715	0.0841	1.5372
430	0.1815	3.3154	575	0.7186	13.1283	720	0.0700	1.2784
435	0.3305	6.0382	580	0.7303	13.3428	725	0.0605	1.1056
440	0.5508	10.0630	585	0.7401	13.5222	730	0.0549	1.0029
445	0.8503	15.5355	590	0.7483	13.6711	735	0.0462	0.8437
450	0.9994	18.2594	595	0.7549	13.7930	740	0.0389	0.7098
455	0.7698	14.0644	600	0.7609	13.9019	745	0.0334	0.6095
460	0.4862	8.8833	605	0.7565	13.8220	750	0.0426	0.7782
465	0.3502	6.3989	610	0.7471	13.6496	755	0.0256	0.4669
470	0.2639	4.8213	615	0.7326	13.3840	760	0.0161	0.2935
475	0.2063	3.7688	620	0.7083	12.9408	765	0.0149	0.2727
480	0.1986	3.6278	625	0.6791	12.4082	770	0.0078	0.1427
485	0.2232	4.0776	630	0.6434	11.7553	775	0.0101	0.1848
490	0.2693	4.9199	635	0.6004	10.9701	780	0.0068	0.1246
495	0.3295	6.0192	640	0.5577	10.1902	785	0.0034	0.0620
500	0.3952	7.2206	645	0.5124	9.3625	790	0.0017	0.0310
505	0.4492	8.2075	650	0.4678	8.5463	795	0.0019	0.0342
510	0.4912	8.9753	655	0.4233	7.7334	800	0.0107	0.1954
515	0.5196	9.4924	660	0.3779	6.9043			
520	0.5402	9.8700	665	0.3357	6.1339			

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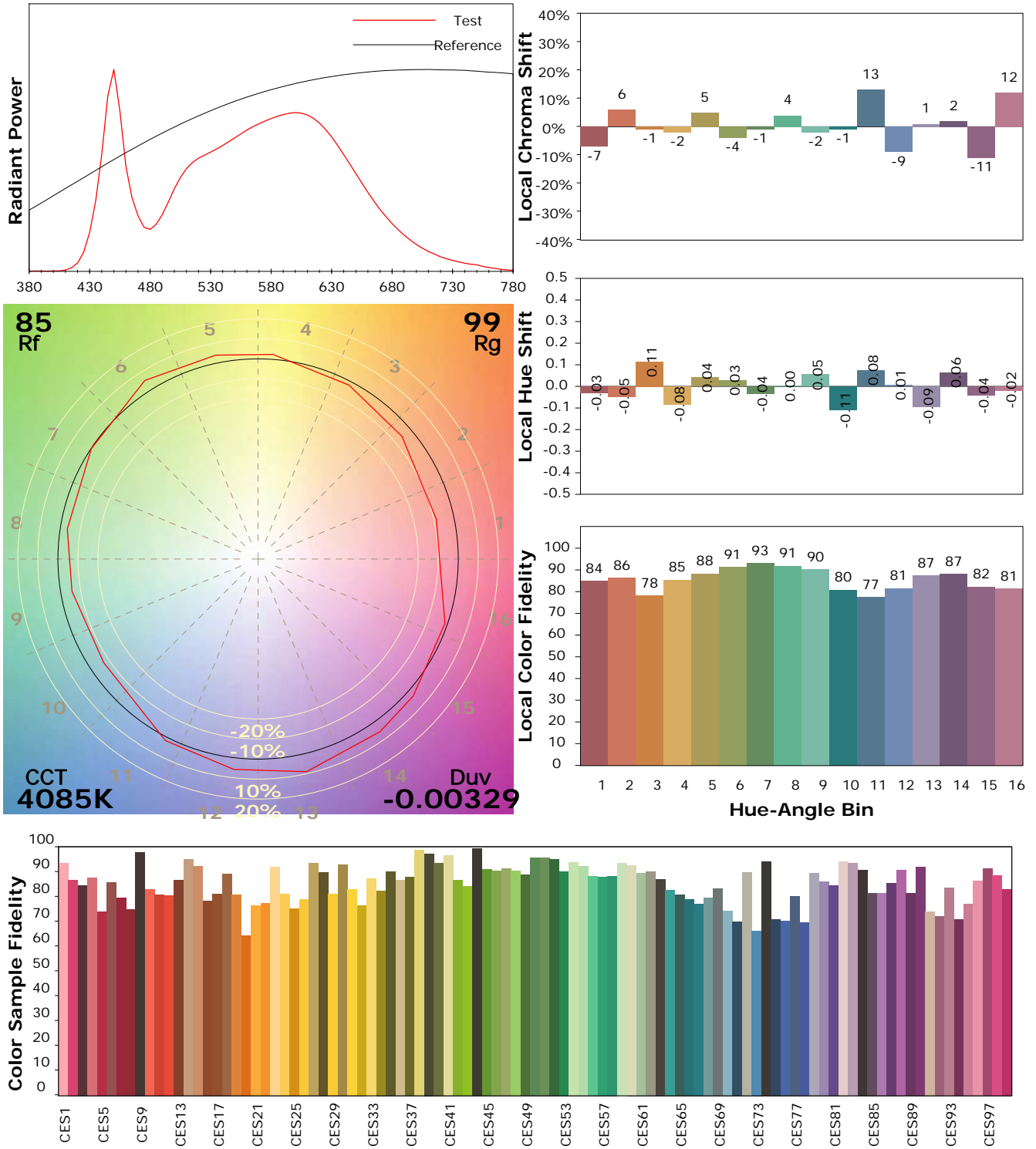
Test Device: Lisun LMS-9000B  
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## IES TM-30-18 Color Rendition Report

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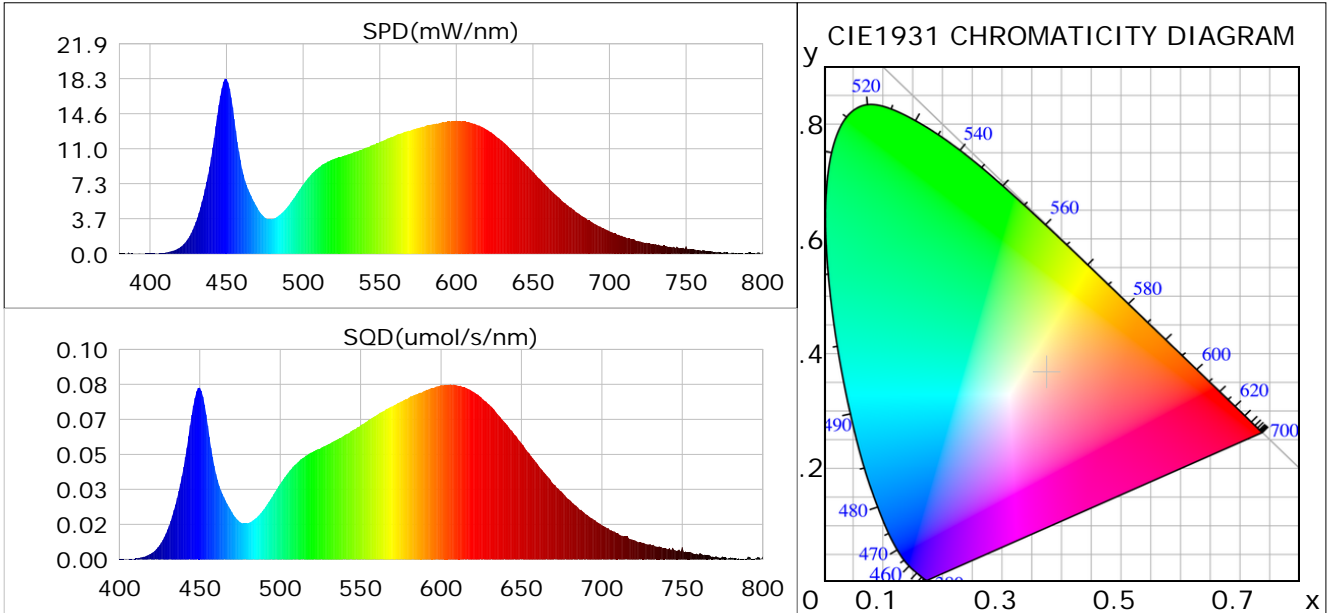
Condition: Tx:0.0°C, Ti:0.0°C, R.H.: 60%  
 Test Lab:  
 Operator: CRE

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

### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3747$   $y=0.3663$   $u(u')=0.2255$   $v=0.3307$   $v'=0.4960$   
 CCT:  $T_c=4085K$  ( $duv=-0.00329$ ) Color Ratio:  $R=0.188$   $G=0.776$   $B=0.036$   
 Peak Wavelength: 449.5nm Half Bandwidth: 20.7nm  
 Dominant Wavelength: 580.9nm Color Purity: 0.224  
 CRI:  $R_a=86.3$



### Plant Optical Param

$ \mu_v(lm): 832.80$	$Q_v(lm.s): 832.80$
$ \mu_e, \dot{E}(W/nm): 2.65$	$Q_e(J): 2.65$
$ \mu_e(W): 2.58$	$ \mu_{fr}(W): 0.07$
$ \dot{C}_e: 0.27$	$ \dot{C}_{fr}: 0.01$
$PPE(umol/s/w): 1.26$	$K_{fr}: 0.04$
$Erb\_Ratio: 1.44$	$PPF(umol/s): 12.07$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 2.24$
$PPF(500-600)(umol/s): 5.34$	$PPF(600-700)(umol/s): 4.49$
$PPF_{fr}(700-800)(umol/s): 0.42$	$PPF.t(umol): 12.07$
$ \mu_{ch-A.t}(J): 0.22$	$ \mu_{ch-A}(W): 0.22$
$ \mu_{ch-B.t}(J): 0.12$	$ \mu_{ch-B}(W): 0.12$
$ \mu_b.t(J): 0.58$	$ \mu_b(W): 0.58$
$ \mu_y.t(J): 1.16$	$ \mu_y(W): 1.16$
$ \mu_r.t(J): 0.86$	$ \mu_r(W): 0.86$

### Electric Parameters

Voltage: 231.00V	Current: 0.0430A	Power: 9.55W
Power Factor: 0.9500	Frequency: 49.99Hz	

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