

## Lightsource Test Report

### Product Information

Product Category: LED-PL-Röhren	Product Type: LED-PL-Röhren-2G11
Product Spec: LED-PL-2G11-09W-WWM-TRF	Product Number: 1
Manufacturer: METOLIGHT	Submitted Unit: 105007
Buyer: 7709	

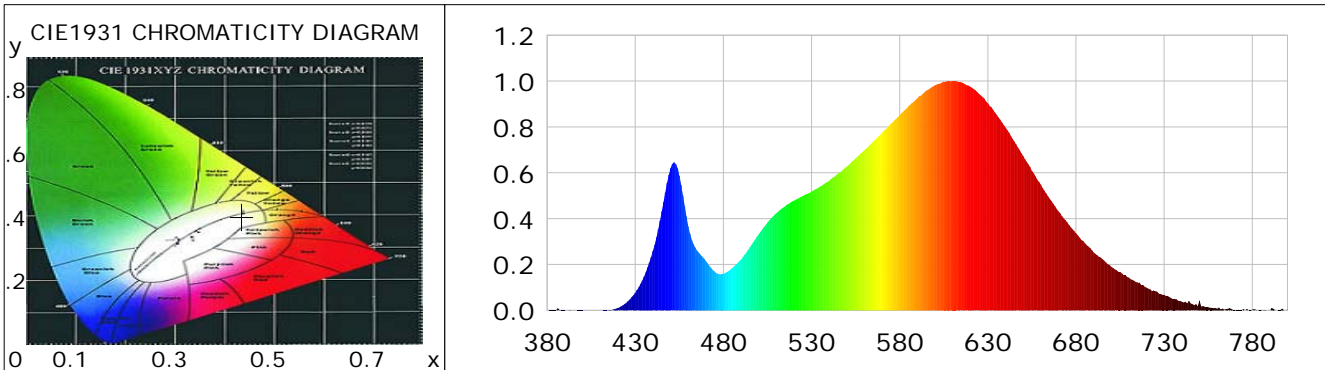
### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.4349$   $y=0.3987$   $u(u')=0.2516$   $v=0.3460$   $v'=0.5189$   
 CCT:  $T_c=2990K$  ( $duv=-0.00188$ ) Color Ratio:  $R=0.235$   $G=0.740$   $B=0.025$   
 Peak Wavelength: 610.2nm Half Bandwidth: 138.6nm  
 Dominant Wavelength: 583.6nm Color Purity: 0.502  
 CRI:  $R_a=85.7$ ,  $avgR(1\sim14)=81.1$ ,  $avgR(1\sim15)=80.9$  TM30:  $R_f=86$ ,  $R_g=99$   
 GAI:  $GAI\_BB\_8=101.4$ ,  $GAI\_BB\_15=107.5$ ,  $GAI\_EES=57.9$   

R1 =85	R2 =92	R3 =97	R4 =85	R5 =85	R6 =90	R7 =85	R8 =67
R9 =25	R10=81	R11=85	R12=73	R13=86	R14=98	R15=79	

Color Quality Scale:  $Q_a=84.3$ ,  $Q_f=85.1$ ,  $Q_p=87.4$ ,  $Q_g=95.1$   

Q1 =82	Q2 =96	Q3 =82	Q4 =81	Q5 =85	Q6 =85	Q7 =84	Q8 =87
Q9 =96	Q10=89	Q11=87	Q12=85	Q13=85	Q14=77	Q15=78	



### Photometric Parameters

Luminous Flux: 873.60 lm	Efficiency: 97.28 lm/W	Radiant Power: 2.741 W
Total mains efficacy: 114.40 lm/W	Energy Efficiency Class: E (EU 2019/2015)	
Pupil Flux: 1107.61 Plm	Pupil Lumens Per Watt: 123.34 Plm/W	Pupil Factor (Kp): 1.268
Cirtopic Flux: 2028.49 lm		

### Electric Parameters

Voltage: 230.60V	Current: 0.0389A	Power: 8.98W
Power Factor: 0.9520	Frequency: 50.00Hz	

### 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: 46481 (2753)	CCD Integration Time: 497.56 ms

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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	0.0084	525	0.4986	8.7518	670	0.4322	7.5866
385	0.0012	0.0207	530	0.5176	9.0862	675	0.3846	6.7513
390	0.0013	0.0230	535	0.5410	9.4962	680	0.3363	5.9037
395	0.0001	0.0013	540	0.5654	9.9252	685	0.2929	5.1418
400	0.0008	0.0139	545	0.5965	10.4705	690	0.2521	4.4248
405	0.0001	0.0022	550	0.6270	11.0053	695	0.2229	3.9124
410	0.0006	0.0098	555	0.6631	11.6395	700	0.1905	3.3444
415	0.0028	0.0491	560	0.6982	12.2558	705	0.1677	2.9445
420	0.0100	0.1758	565	0.7369	12.9344	710	0.1431	2.5112
425	0.0329	0.5771	570	0.7753	13.6091	715	0.1217	2.1360
430	0.0763	1.3388	575	0.8146	14.2993	720	0.0986	1.7307
435	0.1472	2.5838	580	0.8526	14.9655	725	0.0840	1.4742
440	0.2584	4.5360	585	0.8904	15.6297	730	0.0680	1.1930
445	0.4321	7.5853	590	0.9249	16.2341	735	0.0493	0.8650
450	0.6206	10.8927	595	0.9578	16.8131	740	0.0377	0.6619
455	0.5882	10.3240	600	0.9820	17.2374	745	0.0306	0.5370
460	0.3678	6.4561	605	0.9981	17.5198	750	0.0421	0.7389
465	0.2610	4.5818	610	1.0000	17.5531	755	0.0138	0.2422
470	0.2153	3.7793	615	0.9945	17.4573	760	0.0072	0.1257
475	0.1694	2.9743	620	0.9759	17.1298	765	0.0055	0.0963
480	0.1587	2.7858	625	0.9437	16.5643	770	0.0019	0.0331
485	0.1845	3.2383	630	0.9030	15.8496	775	0.0045	0.0793
490	0.2210	3.8792	635	0.8527	14.9677	780	0.0040	0.0698
495	0.2745	4.8175	640	0.7974	13.9971	785	0.0032	0.0566
500	0.3322	5.8309	645	0.7370	12.9365	790	0.0000	0.0001
505	0.3829	6.7214	650	0.6732	11.8176	795	0.0018	0.0322
510	0.4238	7.4392	655	0.6074	10.6612	800	0.0045	0.0784
515	0.4537	7.9631	660	0.5488	9.6335			
520	0.4783	8.3953	665	0.4876	8.5591			

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

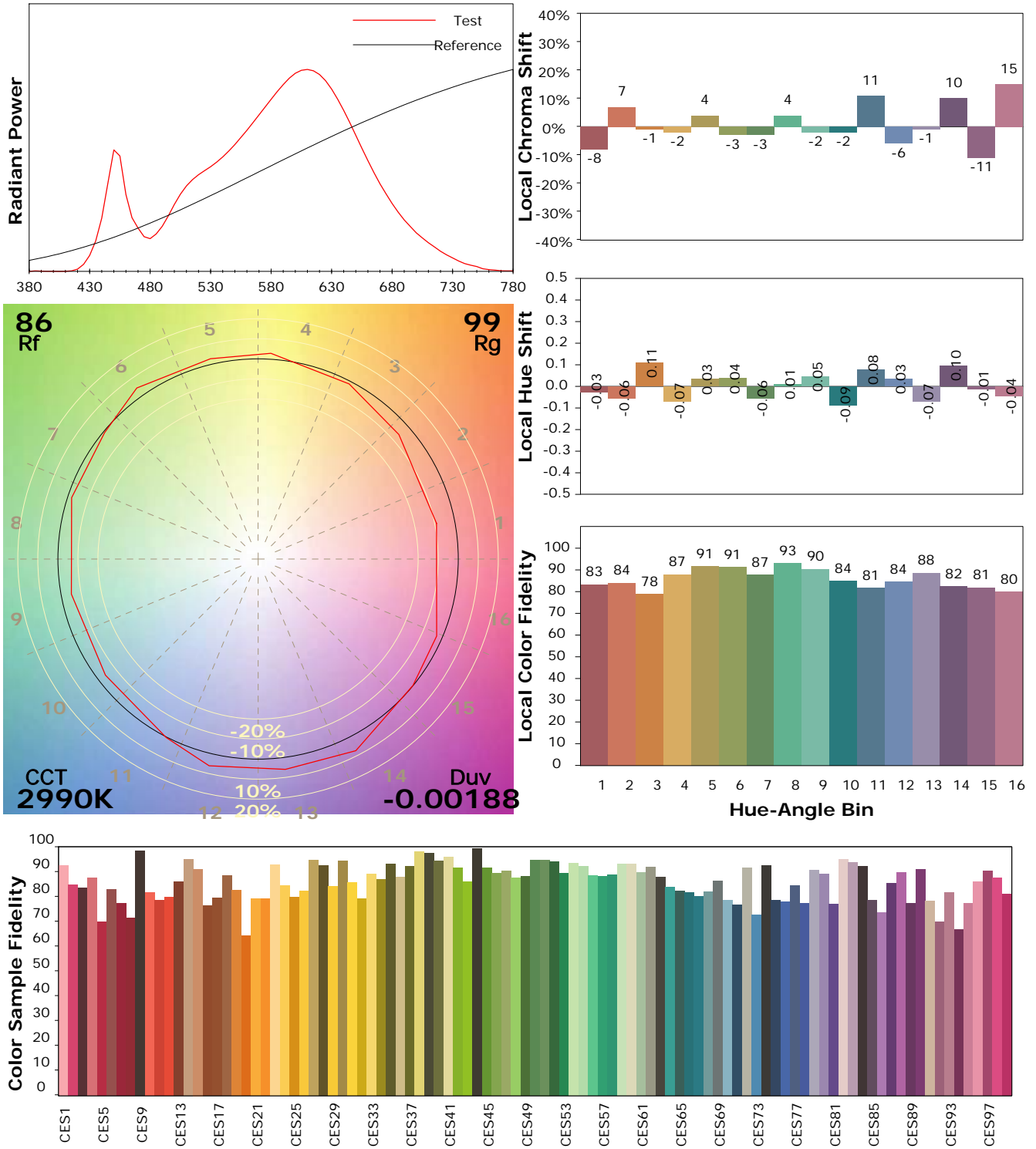
Test Device: Lisun LMS-9000B  
 Test Time: 2021-03-03 15:07:56  
 Inspector:

## IES TM-30-18 Color Rendition Report

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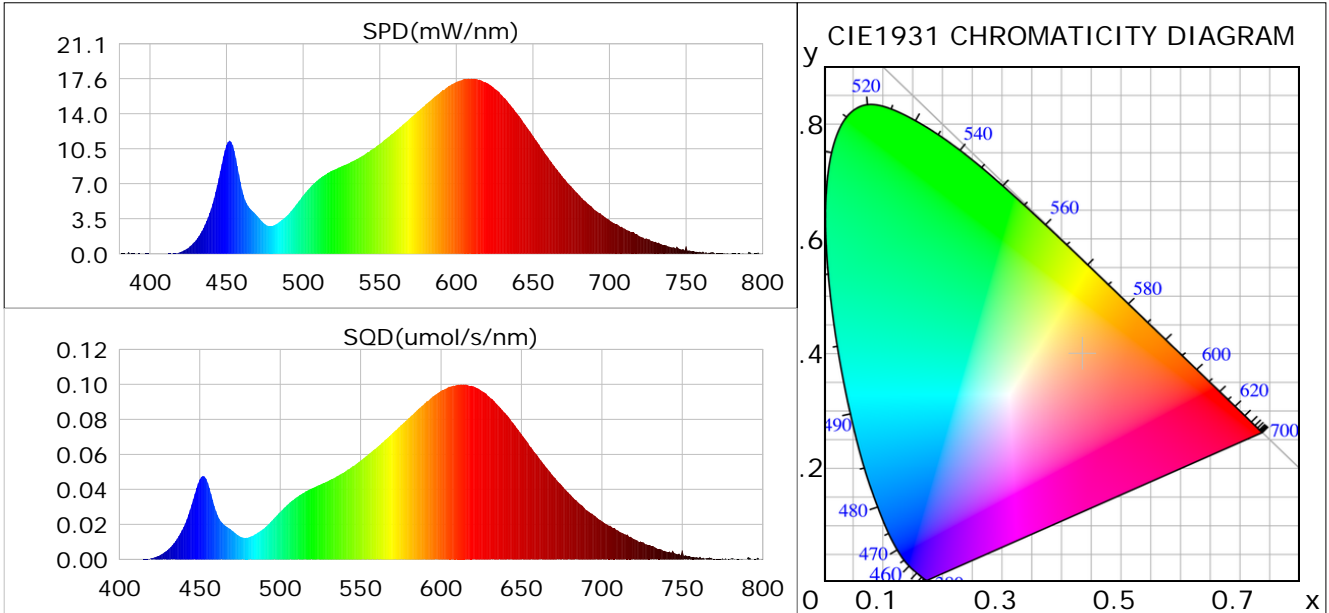
Condition: Tx:0.0°C, Ti:0.0°C, R.H.: 60%  
 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
 Test Time: 2021-03-03 15:07:56  
 Inspector:

## Plant optical param data

### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.4349$   $y=0.3987$   $u(u')=0.2516$   $v=0.3460$   $v'=0.5189$   
 CCT:  $T_c=2990K$  ( $duv=-0.00188$ ) Color Ratio:  $R=0.235$   $G=0.740$   $B=0.025$   
 Peak Wavelength: 610.2nm Half Bandwidth: 138.6nm  
 Dominant Wavelength: 583.6nm Color Purity: 0.502  
 CRI:  $R_a=85.7$



### Plant Optical Param

$ \mu_v(lm): 873.60$	$Q_v(lm.s): 873.60$
$ \mu_e, \dot{E}(W/nm): 2.74$	$Q_e(J): 2.74$
$ \mu_e(W): 2.66$	$ \mu_{fr}(W): 0.09$
$ \zeta_e: 0.30$	$ \zeta_{fr}: 0.01$
$PPE(umol/s/w): 1.43$	$K_{fr}: 0.06$
$Erb\_Ratio: 3.07$	$PPF(umol/s): 12.87$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 1.43$
$PPF(500-600)(umol/s): 5.38$	$PPF(600-700)(umol/s): 6.06$
$PPF_{fr}(700-800)(umol/s): 0.50$	$PPF.t(umol): 12.87$
$ \mu_{ch-A.t}(J): 0.22$	$ \mu_{ch-A}(W): 0.22$
$ \mu_{ch-B.t}(J): 0.11$	$ \mu_{ch-B}(W): 0.11$
$ \mu_b.t(J): 0.37$	$ \mu_b(W): 0.37$
$ \mu_y.t(J): 1.16$	$ \mu_y(W): 1.16$
$ \mu_r.t(J): 1.15$	$ \mu_r(W): 1.15$

### Electric Parameters

Voltage: 230.60V	Current: 0.0389A	Power: 8.98W
Power Factor: 0.9520	Frequency: 50.00Hz	

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: 2021-03-03 15:07:56  
 Inspector: