

## Lightsource Test Report

### Product Infomation

Product Category: LED-PL-Röhre  
 Product Spec: LED-PL-2G10-4-12W-NWM  
 Manufacturer: METOLIGHT  
 Buyer: 7709

Product Type: LED-PL-Röhren-2G11  
 Product Number: 1  
 Submitted Unit: 104975

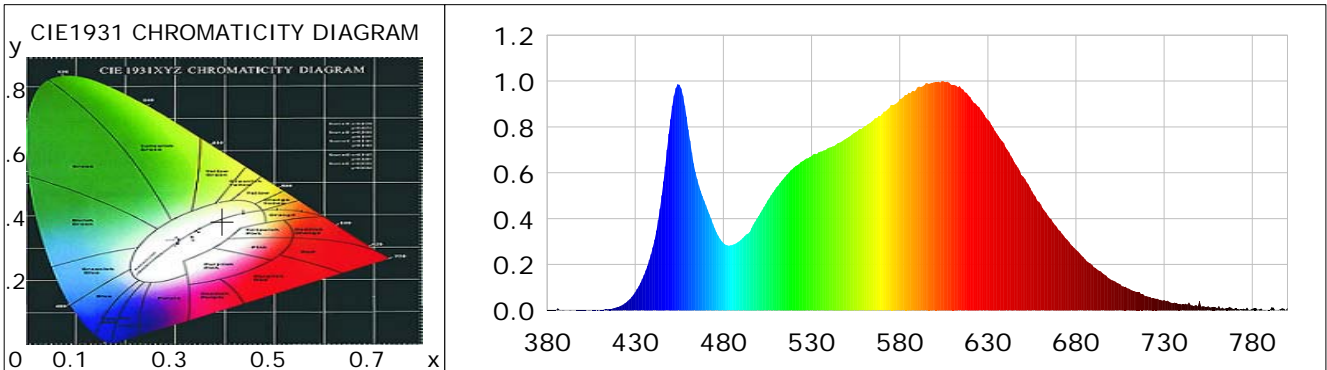
### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3955$   $y=0.3841$   $u(u')=0.2320$   $v=0.3380$   $v'=0.5070$   
 CCT:  $T_c=3673K$  ( $duv=-0.00066$ ) Color Ratio:  $R=0.201$   $G=0.764$   $B=0.035$   
 Peak Wavelength: 604.3nm Half Bandwidth: 149.8nm  
 Dominant Wavelength: 580.6nm Color Purity: 0.340  
 CRI:  $R_a=86.0$ ,  $avgR(1\sim14)=80.5$ ,  $avgR(1\sim15)=80.4$  TM30:  $R_f=85$ ,  $R_g=96$   
 GAI:  $GAI\_BB\_8=94.7$ ,  $GAI\_BB\_15=102.3$ ,  $GAI\_EES=69.2$   

R1 =85	R2 =92	R3 =96	R4 =84	R5 =85	R6 =89	R7 =86	R8 =69
R9 =24	R10=81	R11=84	R12=65	R13=87	R14=98	R15=80	

Color Quality Scale:  $Q_a=85.1$ ,  $Q_f=85.2$ ,  $Q_p=85.1$ ,  $Q_g=93.9$   

Q1 =84	Q2 =98	Q3 =82	Q4 =78	Q5 =83	Q6 =85	Q7 =88	Q8 =90
Q9 =98	Q10=91	Q11=88	Q12=87	Q13=87	Q14=78	Q15=80	



### Photometric Parameters

Luminous Flux: 1224.6 lm	Efficiency: 113.39 lm/W	Radiant Power: 3.741 W
Total mains efficacy: 133.35 lm/W	Energy Efficiency Class: E (EU 2019/2015)	
Pupil Flux: 1786.72 Plm	Pupil Lumens Per Watt: 165.44 Plm/W	Pupil Factor (Kp): 1.459
Cirtopic Flux: 3576.75 lm		

### Electric Parameters

Voltage: 230.80V	Current: 0.0490A	Power: 10.80W
Power Factor: 0.9550	Frequency: 49.99Hz	

### Test Infomation

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: 46172 (2683)	CCD Integration Time: 457.80 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 11:45:23  
 Inspector:

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0012	0.0272	525	0.6513	14.3143	670	0.3523	7.7434
385	0.0016	0.0360	530	0.6726	14.7820	675	0.3084	6.7776
390	0.0012	0.0258	535	0.6921	15.2109	680	0.2640	5.8020
395	0.0004	0.0081	540	0.7095	15.5927	685	0.2236	4.9140
400	0.0011	0.0232	545	0.7295	16.0341	690	0.1885	4.1429
405	0.0003	0.0071	550	0.7507	16.4990	695	0.1614	3.5471
410	0.0029	0.0645	555	0.7767	17.0696	700	0.1332	2.9280
415	0.0061	0.1338	560	0.8024	17.6358	705	0.1140	2.5044
420	0.0149	0.3275	565	0.8289	18.2183	710	0.0948	2.0838
425	0.0350	0.7694	570	0.8559	18.8117	715	0.0798	1.7542
430	0.0790	1.7372	575	0.8953	19.6762	720	0.0615	1.3514
435	0.1537	3.3775	580	0.9212	20.2454	725	0.0512	1.1243
440	0.2744	6.0301	585	0.9489	20.8550	730	0.0449	0.9869
445	0.5012	11.0165	590	0.9723	21.3687	735	0.0318	0.6992
450	0.8333	18.3152	595	0.9917	21.7954	740	0.0257	0.5642
455	0.9843	21.6321	600	0.9949	21.8652	745	0.0234	0.5137
460	0.7894	17.3486	605	0.9984	21.9440	750	0.0410	0.9020
465	0.5738	12.6109	610	0.9822	21.5873	755	0.0176	0.3864
470	0.4593	10.0941	615	0.9682	21.2797	760	0.0093	0.2049
475	0.3586	7.8808	620	0.9301	20.4429	765	0.0097	0.2131
480	0.2938	6.4569	625	0.8860	19.4727	770	0.0080	0.1757
485	0.2851	6.2658	630	0.8310	18.2631	775	0.0076	0.1670
490	0.3072	6.7515	635	0.7711	16.9466	780	0.0064	0.1417
495	0.3414	7.5043	640	0.7112	15.6302	785	0.0080	0.1764
500	0.4118	9.0513	645	0.6459	14.1949	790	0.0026	0.0566
505	0.4789	10.5243	650	0.5829	12.8120	795	0.0025	0.0542
510	0.5365	11.7906	655	0.5190	11.4071	800	0.0123	0.2704
515	0.5822	12.7957	660	0.4622	10.1580			
520	0.6231	13.6952	665	0.4032	8.8614			

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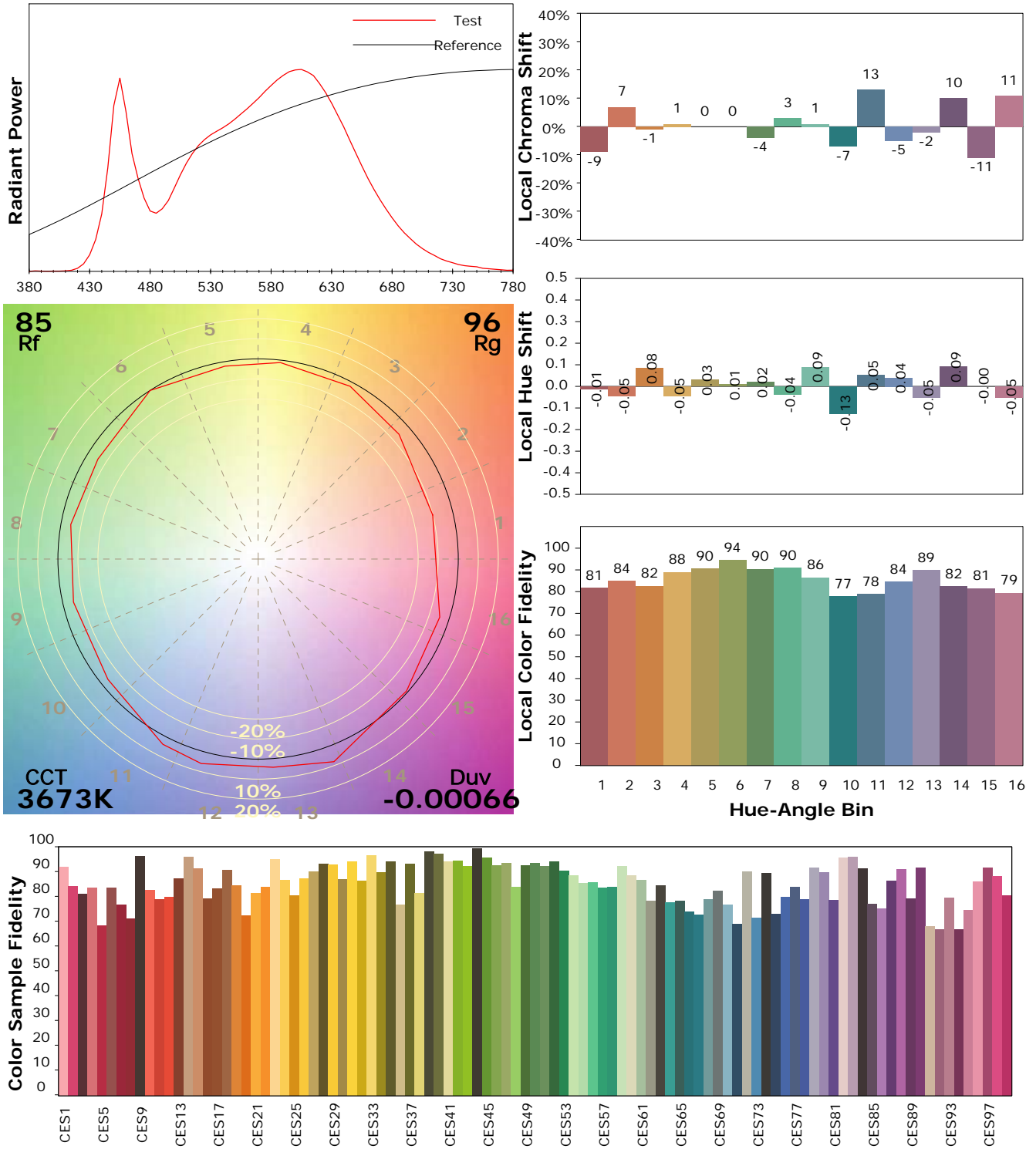
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## I ES TM-30-18 Color Rendition Report

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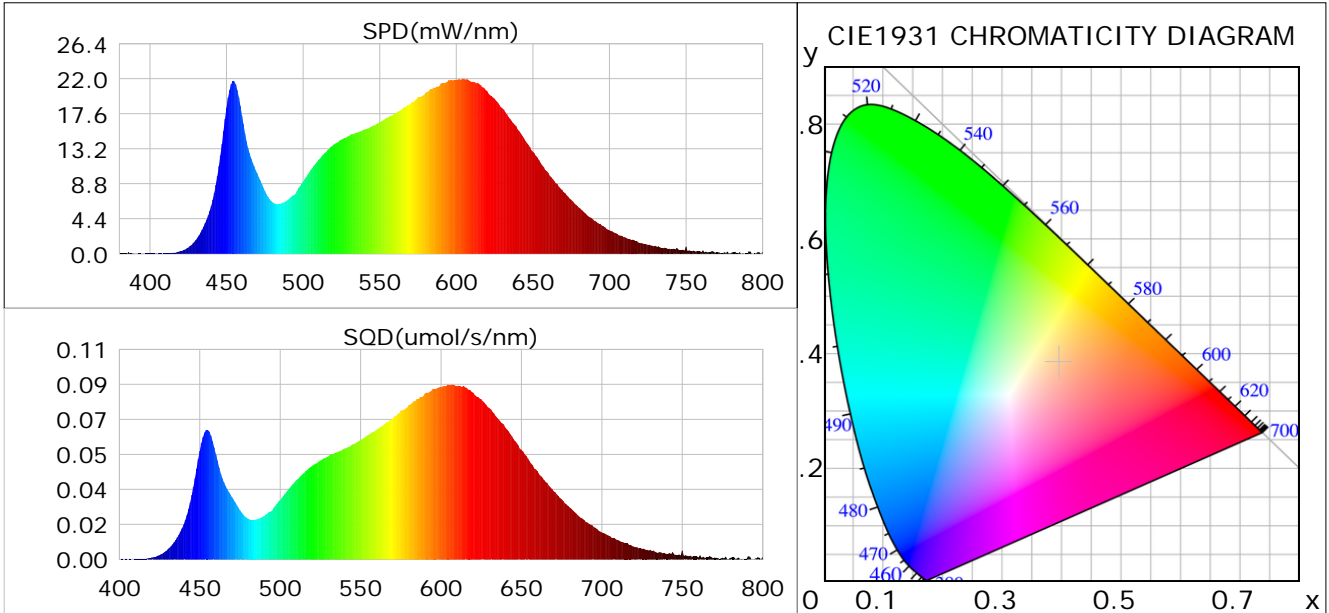
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Test Device: Lisun LMS-9000B  
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## Plant optical param data

### CIE Colorimetric Parameters

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 Peak Wavelength: 604.3nm Half Bandwidth: 149.8nm  
 Dominant Wavelength: 580.6nm Color Purity: 0.340  
 CRI:  $R_a=86.0$



### Plant Optical Param

$ \mu_v(lm): 1224.60$	$Q_v(lm.s): 1224.60$
$ \mu_e, \dot{E}(W/nm): 3.74$	$Q_e(J): 3.74$
$ \mu_e(W): 3.67$	$ \mu_{fr}(W): 0.08$
$ \zeta_e: 0.34$	$ \zeta_{fr}: 0.01$
$PPE(umol/s/w): 1.61$	$K_{fr}: 0.04$
$Erb\_Ratio: 1.78$	$PPF(umol/s): 17.35$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 2.79$
$PPF(500-600)(umol/s): 7.75$	$PPF(600-700)(umol/s): 6.82$
$PPF_{fr}(700-800)(umol/s): 0.45$	$PPF.t(umol): 17.35$
$ \mu_{ch-A.t}(J): 0.29$	$ \mu_{ch-A}(W): 0.29$
$ \mu_{ch-B.t}(J): 0.17$	$ \mu_{ch-B}(W): 0.17$
$ \mu_b.t(J): 0.72$	$ \mu_b(W): 0.72$
$ \mu_y.t(J): 1.67$	$ \mu_y(W): 1.67$
$ \mu_r.t(J): 1.30$	$ \mu_r(W): 1.30$

### Electric Parameters

Voltage: 230.80V	Current: 0.0490A	Power: 10.80W
Power Factor: 0.9550	Frequency: 49.99Hz	

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