

Lightsource Test Report

Product Information

Product Category: LED-Röhre
 Product Spec: LEDtube-090-8Milk-15WM
 Manufacturer: METOLIGHT
 Buyer: 7116

Product Type: LED-Röhre-Spezial
 Product Number: 1
 Submitted Unit: 105189

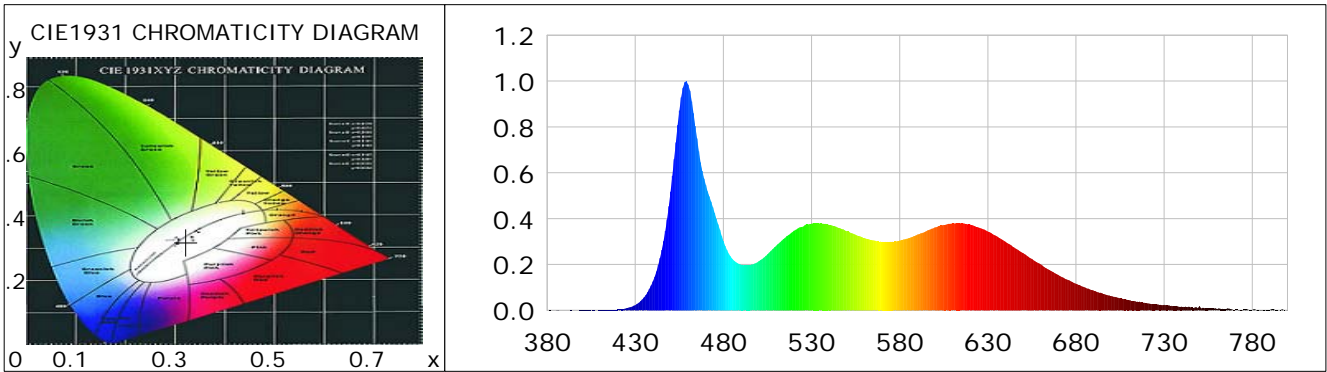
CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3218$ $y=0.3187$ $u(u')=0.2082$ $v=0.3094$ $v'=0.4641$
 CCT: $T_c=6068K$ ($duv=-0.00680$) Color Ratio: $R=0.181$ $G=0.751$ $B=0.068$
 Peak Wavelength: 458.7nm Half Bandwidth: 22.2nm
 Dominant Wavelength: 471.4nm Color Purity: 0.054
 CRI: $R_a=91.3$, $avgR(1\sim14)=89.4$, $avgR(1\sim15)=89.3$ TM30: $R_f=86$, $R_g=98$
 GAI: $GAI_BB_8=106.1$, $GAI_BB_15=109.7$, $GAI_EES=101.3$

R1 =89	R2 =92	R3 =97	R4 =92	R5 =90	R6 =89	R7 =90	R8 =91
R9 =86	R10=90	R11=96	R12=64	R13=89	R14=97	R15=87	

Color Quality Scale: $Q_a=90.4$, $Q_f=89.4$, $Q_p=92.7$, $Q_g=101.4$

Q1 =87	Q2 =96	Q3 =86	Q4 =80	Q5 =84	Q6 =88	Q7 =98	Q8 =99
Q9 =95	Q10=96	Q11=95	Q12=97	Q13=96	Q14=93	Q15=92	



Photometric Parameters

Luminous Flux: 1403.2 lm	Efficiency: 91.12 lm/W	Radiant Power: 4.993 W
Total mains efficacy: 107.15 lm/W	Energy Efficiency Class: F (EU 2019/2015)	
Pupil Flux: 2759.16 Plm	Pupil Lumens Per Watt: 179.17 Plm/W	Pupil Factor (Kp): 1.966
Cirtopic Flux: 6665.95 lm		

Electric Parameters

Voltage: 230.90V	Current: 0.0710A	Power: 15.40W
Power Factor: 0.9370	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: 45860 (2406)	CCD Integration Time: 120.11 ms

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0007	0.0397	525	0.3648	21.0369	670	0.1546	8.9160
385	0.0008	0.0476	530	0.3782	21.8126	675	0.1344	7.7526
390	0.0006	0.0366	535	0.3789	21.8526	680	0.1164	6.7106
395	0.0007	0.0393	540	0.3717	21.4355	685	0.1004	5.7918
400	0.0008	0.0436	545	0.3608	20.8097	690	0.0859	4.9542
405	0.0006	0.0374	550	0.3455	19.9267	695	0.0734	4.2348
410	0.0017	0.0955	555	0.3300	19.0283	700	0.0624	3.5981
415	0.0021	0.1229	560	0.3159	18.2188	705	0.0527	3.0391
420	0.0039	0.2231	565	0.3052	17.6003	710	0.0453	2.6100
425	0.0092	0.5334	570	0.2988	17.2301	715	0.0379	2.1879
430	0.0230	1.3240	575	0.2990	17.2412	720	0.0315	1.8179
435	0.0567	3.2704	580	0.3047	17.5734	725	0.0267	1.5369
440	0.1263	7.2845	585	0.3147	18.1509	730	0.0243	1.4005
445	0.2633	15.1868	590	0.3304	19.0525	735	0.0182	1.0516
450	0.5178	29.8589	595	0.3453	19.9116	740	0.0167	0.9624
455	0.8716	50.2660	600	0.3617	20.8574	745	0.0131	0.7530
460	0.9848	56.7918	605	0.3723	21.4712	750	0.0184	1.0582
465	0.7501	43.2578	610	0.3795	21.8866	755	0.0098	0.5633
470	0.5471	31.5497	615	0.3791	21.8626	760	0.0062	0.3604
475	0.4246	24.4893	620	0.3745	21.5960	765	0.0057	0.3296
480	0.3029	17.4669	625	0.3605	20.7909	770	0.0042	0.2409
485	0.2251	12.9836	630	0.3436	19.8169	775	0.0038	0.2203
490	0.1995	11.5026	635	0.3234	18.6496	780	0.0027	0.1577
495	0.1974	11.3850	640	0.2991	17.2509	785	0.0029	0.1646
500	0.2141	12.3493	645	0.2742	15.8110	790	0.0026	0.1488
505	0.2447	14.1091	650	0.2495	14.3860	795	0.0007	0.0389
510	0.2821	16.2676	655	0.2246	12.9522	800	0.0024	0.1394
515	0.3166	18.2601	660	0.2007	11.5740			
520	0.3473	20.0277	665	0.1754	10.1164			

Condition: Tx:19.7'C, Ti:0.0'C, R.H.:60%
 Test Lab:
 Operator: CRE

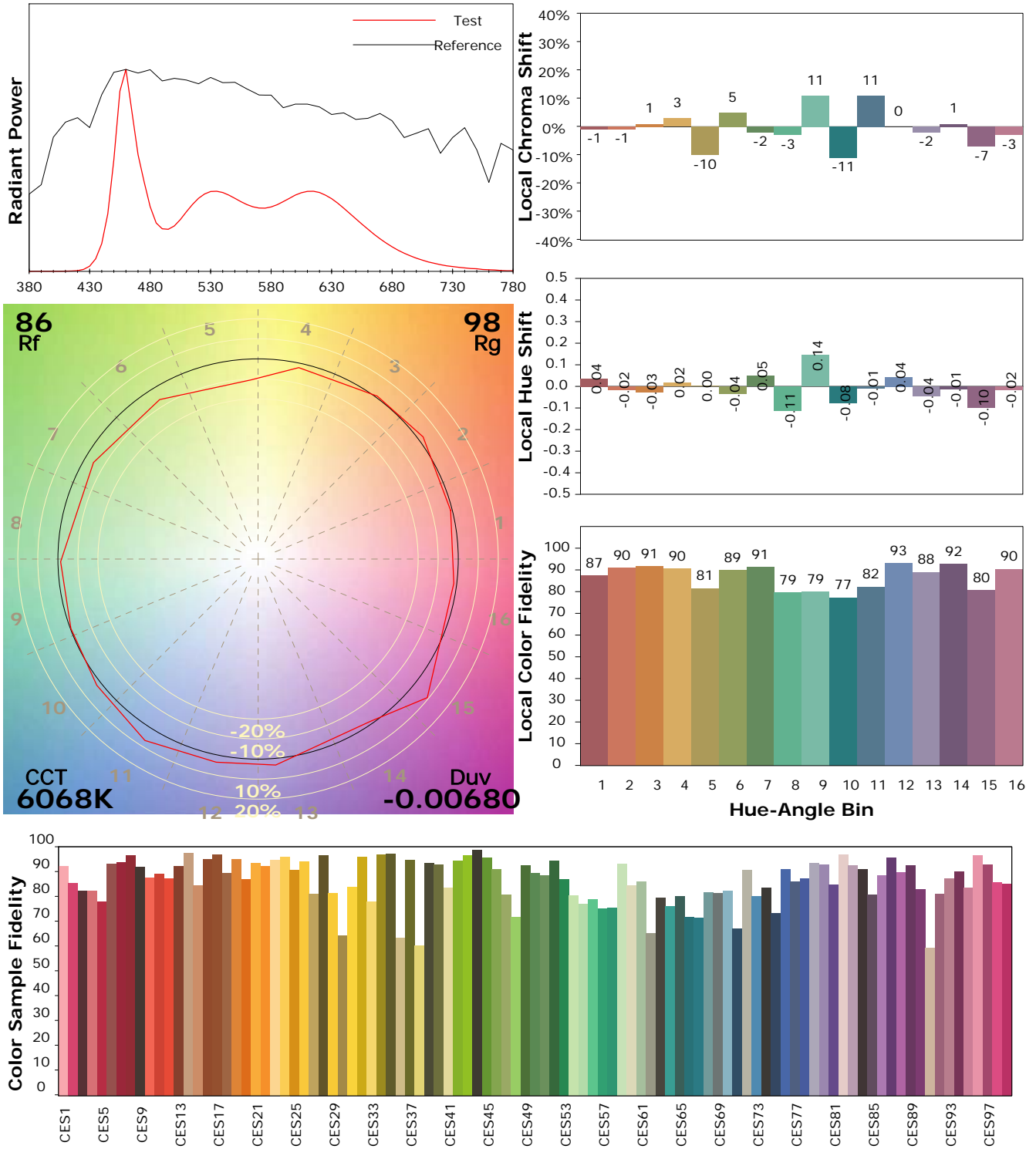
Test Device: Lisun LMS-9000B
 Test Time: 2021-01-14 13:21:44
 Inspector:

IES TM-30-18 Color Rendition Report

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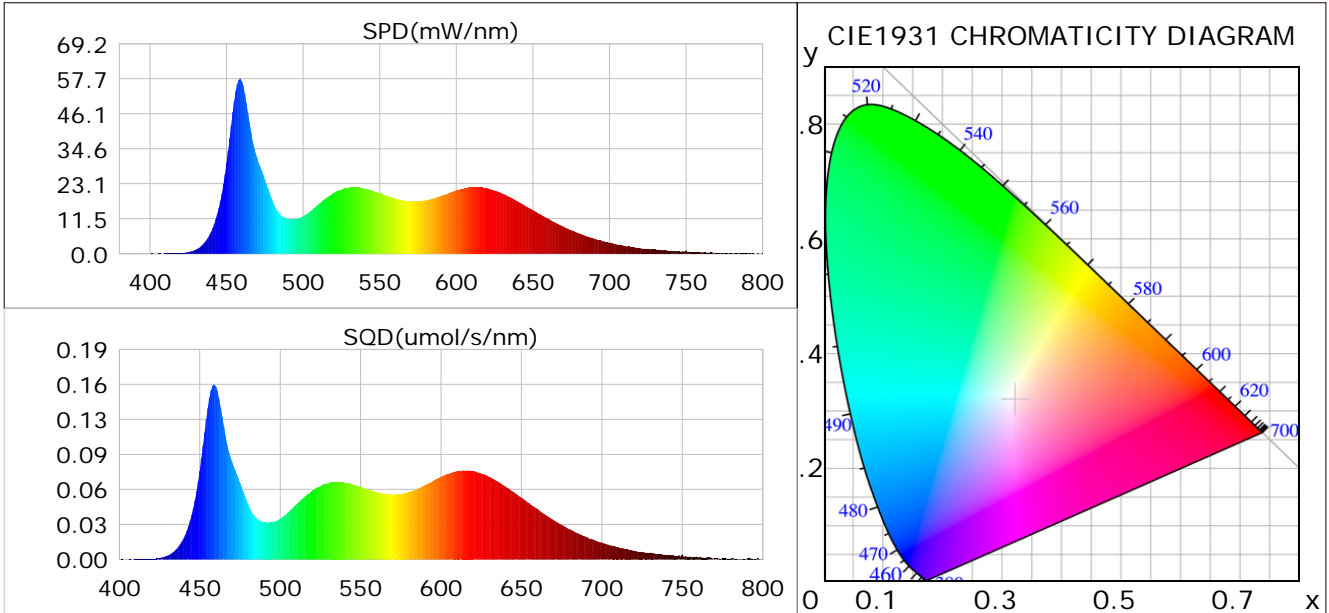
Condition: Tx: 19.7°C, Ti: 0.0°C, R.H.: 60%
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Test Device: Lisun LMS-9000B
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Plant optical param data

CIE Colorimetric Parameters

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 CCT: $T_c=6068K$ ($duv=-0.00680$) Color Ratio: $R=0.181$ $G=0.751$ $B=0.068$
 Peak Wavelength: 458.7nm Half Bandwidth: 22.2nm
 Dominant Wavelength: 471.4nm Color Purity: 0.054
 CRI: $R_a=91.3$



Plant Optical Param

$ \mu_v(lm): 1403.20$	$Q_v(lm.s): 1403.20$
$ \mu_e, \dot{E}(W/nm): 4.99$	$Q_e(J): 4.99$
$ \mu_e(W): 4.90$	$ \mu_{fr}(W): 0.10$
$ \zeta_e: 0.32$	$ \zeta_{fr}: 0.01$
$PPE(umol/s/w): 1.45$	$K_{fr}: 0.04$
$Erb_Ratio: 0.85$	$PPF(umol/s): 22.38$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 6.31$
$PPF(500-600)(umol/s): 8.69$	$PPF(600-700)(umol/s): 7.38$
$PPF_{fr}(700-800)(umol/s): 0.60$	$PPF.t(umol): 22.38$
$ \mu_{ch-A.t}(J): 0.39$	$ \mu_{ch-A}(W): 0.39$
$ \mu_{ch-B.t}(J): 0.31$	$ \mu_{ch-B}(W): 0.31$
$ \mu_b.t(J): 1.62$	$ \mu_b(W): 1.62$
$ \mu_y.t(J): 1.90$	$ \mu_y(W): 1.90$
$ \mu_r.t(J): 1.41$	$ \mu_r(W): 1.41$

Electric Parameters

Voltage: 230.90V	Current: 0.0710A	Power: 15.40W
Power Factor: 0.9370	Frequency: 49.99Hz	

Condition: $T_x: 19.7^\circ C$, $T_i: 0.0^\circ C$, R.H.: 60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
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