

Lightsource Test Report

Product Information

Product Category: LED-Leuchten
 Product Spec: LED-DEL-M-Modul-110-12W-WWM
 Manufacturer: METOLIGHT
 Buyer: 2320
 Product Type: LED-Leuchten-Downlight-Magic
 Product Number: 1
 Submitted Unit: 104244

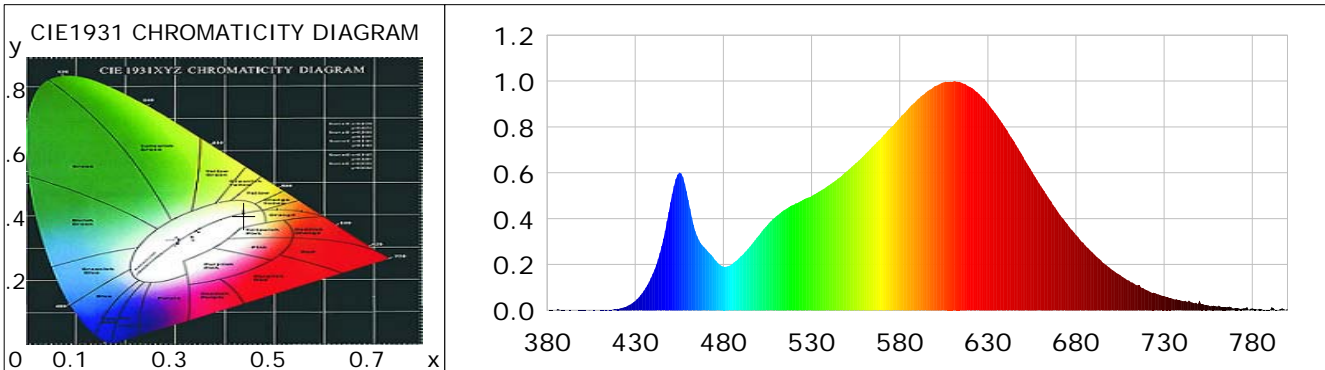
CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.4391$ $y=0.4019$ $u(u')=0.2529$ $v=0.3472$ $v'=0.5208$
 CCT: $T_c=2946K$ ($duv=-0.00116$) Color Ratio: $R=0.239$ $G=0.734$ $B=0.027$
 Peak Wavelength: 611.1nm Half Bandwidth: 133.2nm
 Dominant Wavelength: 583.5nm Color Purity: 0.524
 CRI: $R_a=86.1$, $avgR(1\sim14)=81.8$, $avgR(1\sim15)=81.6$ TM30: $R_f=86$, $R_g=96$
 GAI: $GAI_BB_8=97.8$, $GAI_BB_15=105.7$, $GAI_EES=54.7$

R1 =85	R2 =94	R3 =97	R4 =84	R5 =86	R6 =93	R7 =84	R8 =66
R9 =26	R10=85	R11=84	R12=74	R13=87	R14=99	R15=79	

Color Quality Scale: $Q_a=85.1$, $Q_f=86.6$, $Q_p=87.1$, $Q_g=93.2$

Q1 =82	Q2 =95	Q3 =85	Q4 =82	Q5 =85	Q6 =86	Q7 =86	Q8 =88
Q9 =96	Q10=91	Q11=88	Q12=86	Q13=85	Q14=78	Q15=79	



Photometric Parameters

Luminous Flux: 1152.1 lm Efficiency: 96.90 lm/W Radiant Power: 3.611 W
 Total mains efficacy: 113.95 lm/W Energy Efficiency Class: E (EU 2019/2015)
 Pupil Flux: 1463.96 Plm Pupil Lumens Per Watt: 123.13 Plm/W Pupil Factor (Kp): 1.271
 Circopic Flux: 2706.32 lm

Electric Parameters

Voltage: 230.70V Current: 0.0520A Power: 11.89W
 Power Factor: 0.9120 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: 45620 (2949) CCD Integration Time: 300.14 ms

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0006	0.0130	525	0.4812	11.3367	670	0.4272	10.0656
385	0.0010	0.0246	530	0.4979	11.7313	675	0.3770	8.8833
390	0.0009	0.0203	535	0.5213	12.2818	680	0.3285	7.7400
395	0.0006	0.0131	540	0.5460	12.8653	685	0.2847	6.7071
400	0.0010	0.0228	545	0.5746	13.5385	690	0.2465	5.8075
405	0.0002	0.0047	550	0.6060	14.2785	695	0.2094	4.9335
410	0.0011	0.0263	555	0.6413	15.1107	700	0.1794	4.2259
415	0.0029	0.0681	560	0.6767	15.9451	705	0.1541	3.6311
420	0.0070	0.1642	565	0.7176	16.9081	710	0.1303	3.0709
425	0.0162	0.3808	570	0.7557	17.8050	715	0.1089	2.5670
430	0.0409	0.9647	575	0.7985	18.8132	720	0.0885	2.0854
435	0.0864	2.0357	580	0.8381	19.7476	725	0.0754	1.7762
440	0.1598	3.7653	585	0.8797	20.7260	730	0.0627	1.4776
445	0.2806	6.6124	590	0.9188	21.6491	735	0.0501	1.1813
450	0.4706	11.0875	595	0.9512	22.4109	740	0.0418	0.9844
455	0.6005	14.1492	600	0.9784	23.0537	745	0.0363	0.8558
460	0.4819	11.3552	605	0.9946	23.4353	750	0.0414	0.9755
465	0.3244	7.6444	610	0.9968	23.4853	755	0.0220	0.5177
470	0.2675	6.3017	615	0.9930	23.3964	760	0.0164	0.3873
475	0.2220	5.2299	620	0.9739	22.9462	765	0.0137	0.3232
480	0.1906	4.4915	625	0.9435	22.2315	770	0.0093	0.2194
485	0.2022	4.7635	630	0.9011	21.2307	775	0.0086	0.2023
490	0.2361	5.5619	635	0.8506	20.0415	780	0.0085	0.2001
495	0.2776	6.5405	640	0.7943	18.7161	785	0.0063	0.1476
500	0.3254	7.6673	645	0.7353	17.3253	790	0.0013	0.0296
505	0.3728	8.7827	650	0.6700	15.7858	795	0.0031	0.0729
510	0.4108	9.6783	655	0.6049	14.2530	800	0.0075	0.1764
515	0.4395	10.3548	660	0.5426	12.7850			
520	0.4613	10.8681	665	0.4834	11.3887			

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

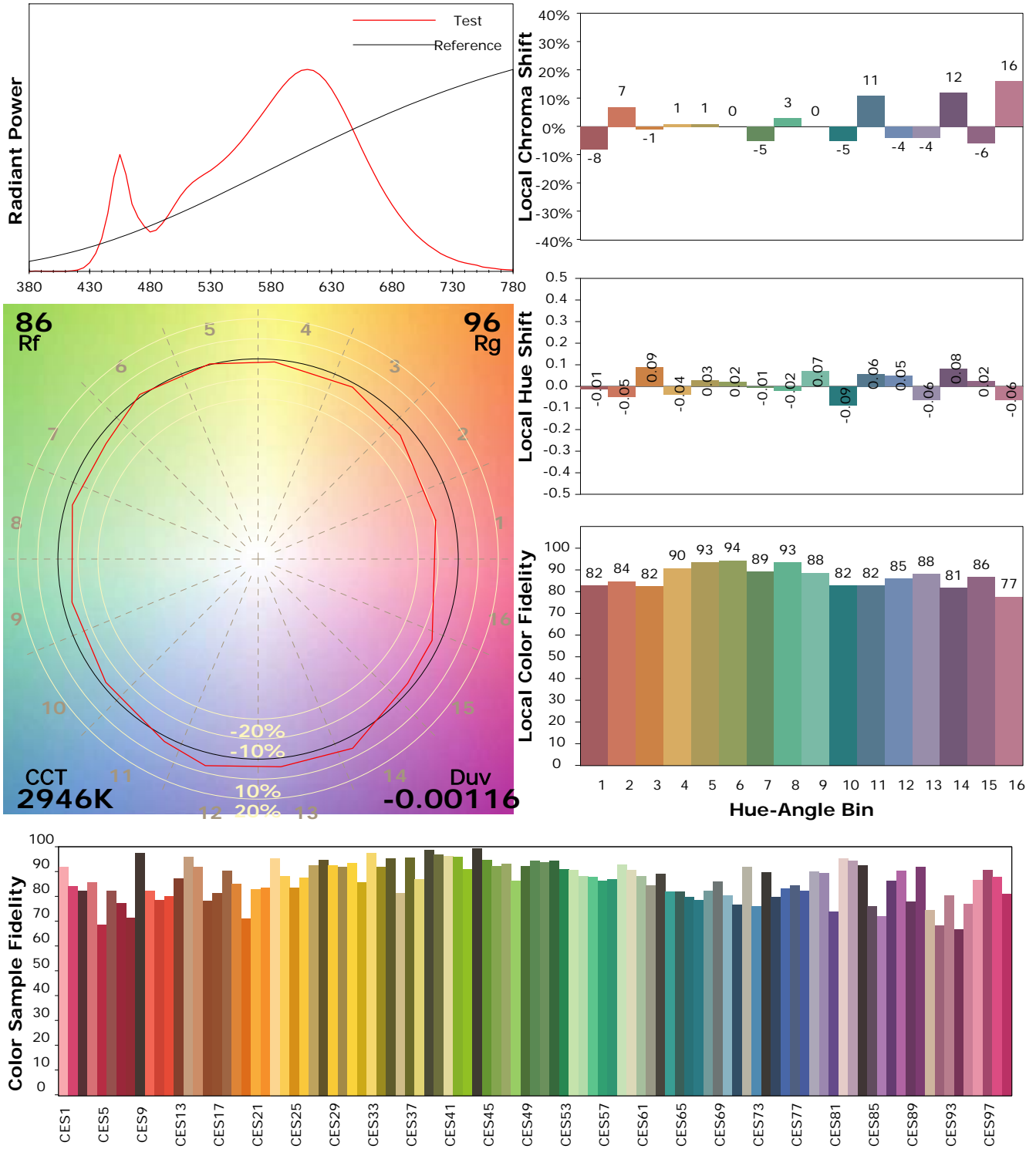
Test Device: Lisun LMS-9000B
 Test Time: 2021-08-12 14:27:37
 Inspector:

IES TM-30-18 Color Rendition Report

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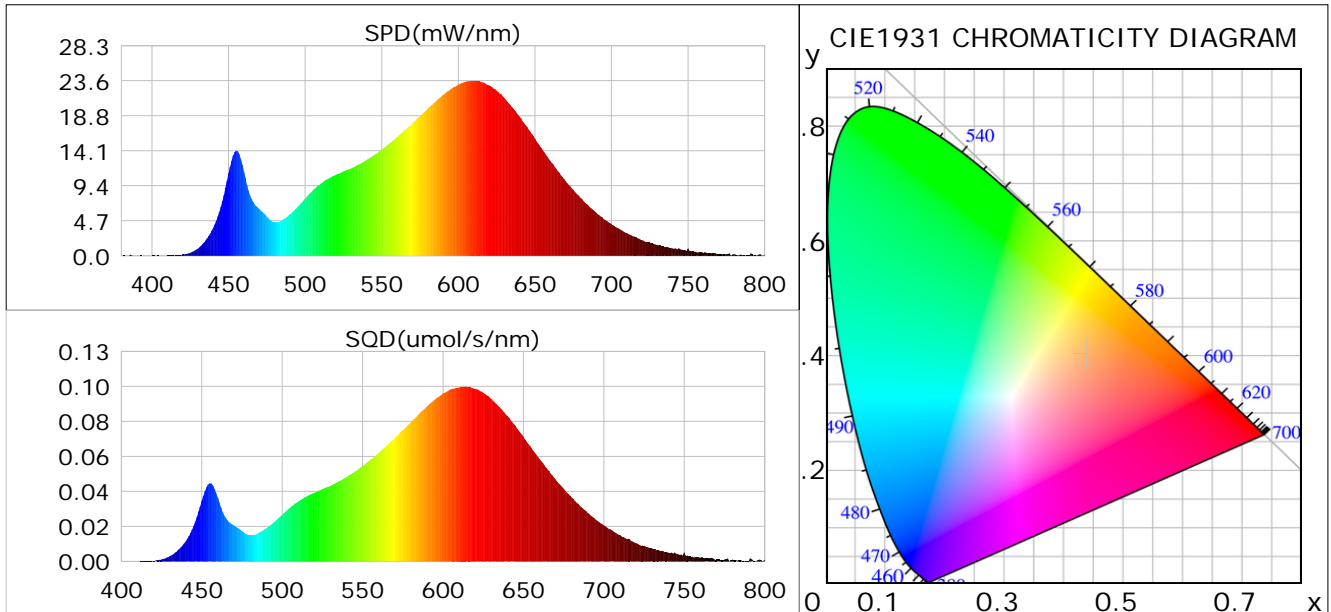
Condition: Tx:0.0°C, Ti:0.0°C, R.H.: 60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-08-12 14:27:37
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Plant optical param data

CIE Colorimetric Parameters

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 Dominant Wavelength: 583.5nm Color Purity: 0.524
 CRI: $R_a=86.1$



Plant Optical Param

$ \mu_v(lm): 1152.10$	$Q_v(lm.s): 1152.10$
$ \mu_e, \dot{E}(W/nm): 3.61$	$Q_e(J): 3.61$
$ \mu_e(W): 3.50$	$ \mu_{fr}(W): 0.11$
$ \zeta_e: 0.29$	$ \zeta_{fr}: 0.01$
$PPE(umol/s/w): 1.43$	$K_{fr}: 0.06$
$Erb_Ratio: 3.17$	$PPF(umol/s): 16.99$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 1.86$
$PPF(500-600)(umol/s): 7.05$	$PPF(600-700)(umol/s): 8.08$
$PPF_r(700-800)(umol/s): 0.67$	$PPF.t(umol): 16.99$
$ \mu_{ch-A.t}(J): 0.28$	$ \mu_{ch-A}(W): 0.28$
$ \mu_{ch-B.t}(J): 0.14$	$ \mu_{ch-B}(W): 0.14$
$ \mu_b.t(J): 0.48$	$ \mu_b(W): 0.48$
$ \mu_y.t(J): 1.52$	$ \mu_y(W): 1.52$
$ \mu_r.t(J): 1.54$	$ \mu_r(W): 1.54$

Electric Parameters

Voltage: 230.70V	Current: 0.0520A	Power: 11.89W
Power Factor: 0.9120	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: 2021-08-12 14:27:37
 Inspector: