

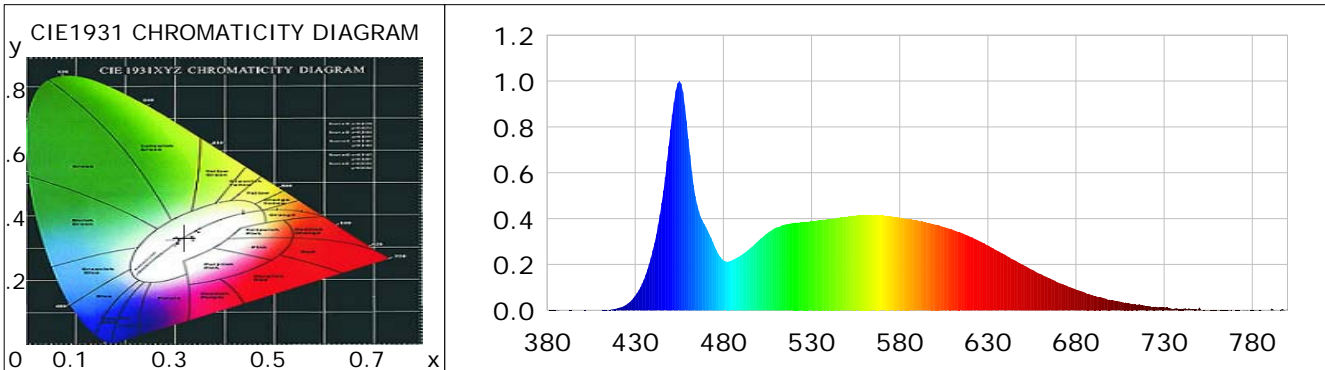
Lightsource Test Report

Product Information

Product Category: LED-Leuchten	Product Type: LED-Leuchten-Downlight-Magic
Product Spec: LED-DEL-M-Modul-110-15W-CWM	Product Number: 1
Manufacturer: METOLIGHT	Submitted Unit: 104249
Buyer: 2320	

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3186$ $y=0.3336$ $u(u')=0.2002$ $v=0.3144$ $v'=0.4717$
 CCT: $T_c=6168K$ ($duv=0.00265$) Color Ratio: $R=0.144$ $G=0.798$ $B=0.058$
 Peak Wavelength: 455.0nm Half Bandwidth: 18.4nm
 Dominant Wavelength: 502.2nm Color Purity: 0.049
 CRI: $R_a=86.7$, $avgR(1\sim14)=80.9$, $avgR(1\sim15)=81.0$ TM30: $R_f=84$, $R_g=95$
 GAI: $GAI_BB_8=92.3$, $GAI_BB_15=98.1$, $GAI_EES=88.6$
 R1 =86 R2 =92 R3 =94 R4 =85 R5 =85 R6 =87 R7 =89 R8 =75
 R9 =29 R10=80 R11=85 R12=59 R13=88 R14=97 R15=83
 Color Quality Scale: $Q_a=84.1$, $Q_f=84.0$, $Q_p=84.2$, $Q_g=93.0$
 Q1 =85 Q2 =99 Q3 =80 Q4 =74 Q5 =80 Q6 =83 Q7 =88 Q8 =91
 Q9 =98 Q10=90 Q11=86 Q12=85 Q13=85 Q14=78 Q15=81



Photometric Parameters

Luminous Flux: 1682.1 lm	Efficiency: 114.74 lm/W	Radiant Power: 5.463 W
Total mains efficacy: 124.95 lm/W	Energy Efficiency Class: E (EU 2019/2015)	
Pupil Flux: 3167.20 Plm	Pupil Lumens Per Watt: 216.04 Plm/W	Pupil Factor (Kp): 1.883
Cirtopic Flux: 7318.03 lm		

Electric Parameters

Voltage: 230.90V	Current: 0.0640A	Power: 14.66W
Power Factor: 0.8850	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: 45853 (2775)	CCD Integration Time: 163.35 ms

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0002	0.0125	525	0.3864	23.7116	670	0.1211	7.4301
385	0.0011	0.0678	530	0.3886	23.8428	675	0.1067	6.5470
390	0.0003	0.0177	535	0.3931	24.1201	680	0.0913	5.6046
395	0.0003	0.0180	540	0.3984	24.4448	685	0.0776	4.7584
400	0.0005	0.0287	545	0.4046	24.8282	690	0.0635	3.8976
405	0.0002	0.0119	550	0.4076	25.0113	695	0.0547	3.3594
410	0.0006	0.0394	555	0.4127	25.3243	700	0.0437	2.6819
415	0.0028	0.1735	560	0.4157	25.5069	705	0.0378	2.3185
420	0.0092	0.5663	565	0.4145	25.4344	710	0.0318	1.9505
425	0.0251	1.5395	570	0.4136	25.3777	715	0.0250	1.5314
430	0.0636	3.9015	575	0.4104	25.1838	720	0.0185	1.1370
435	0.1347	8.2634	580	0.4046	24.8244	725	0.0165	1.0126
440	0.2621	16.0847	585	0.3988	24.4716	730	0.0137	0.8427
445	0.4691	28.7858	590	0.3928	24.1007	735	0.0066	0.4071
450	0.7883	48.3661	595	0.3834	23.5263	740	0.0068	0.4190
455	1.0000	61.3587	600	0.3740	22.9453	745	0.0051	0.3145
460	0.7495	45.9874	605	0.3642	22.3438	750	0.0125	0.7646
465	0.4615	28.3171	610	0.3516	21.5740	755	0.0030	0.1825
470	0.3638	22.3226	615	0.3383	20.7561	760	0.0014	0.0834
475	0.2788	17.1086	620	0.3210	19.6949	765	0.0018	0.1107
480	0.2181	13.3811	625	0.3029	18.5863	770	0.0009	0.0531
485	0.2182	13.3866	630	0.2828	17.3526	775	0.0026	0.1581
490	0.2400	14.7242	635	0.2616	16.0493	780	0.0012	0.0759
495	0.2696	16.5403	640	0.2411	14.7958	785	0.0031	0.1908
500	0.3041	18.6590	645	0.2195	13.4666	790	0.0001	0.0033
505	0.3365	20.6464	650	0.1987	12.1913	795	0.0004	0.0239
510	0.3613	22.1682	655	0.1770	10.8631	800	0.0043	0.2629
515	0.3742	22.9621	660	0.1585	9.7265			
520	0.3819	23.4352	665	0.1399	8.5814			

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

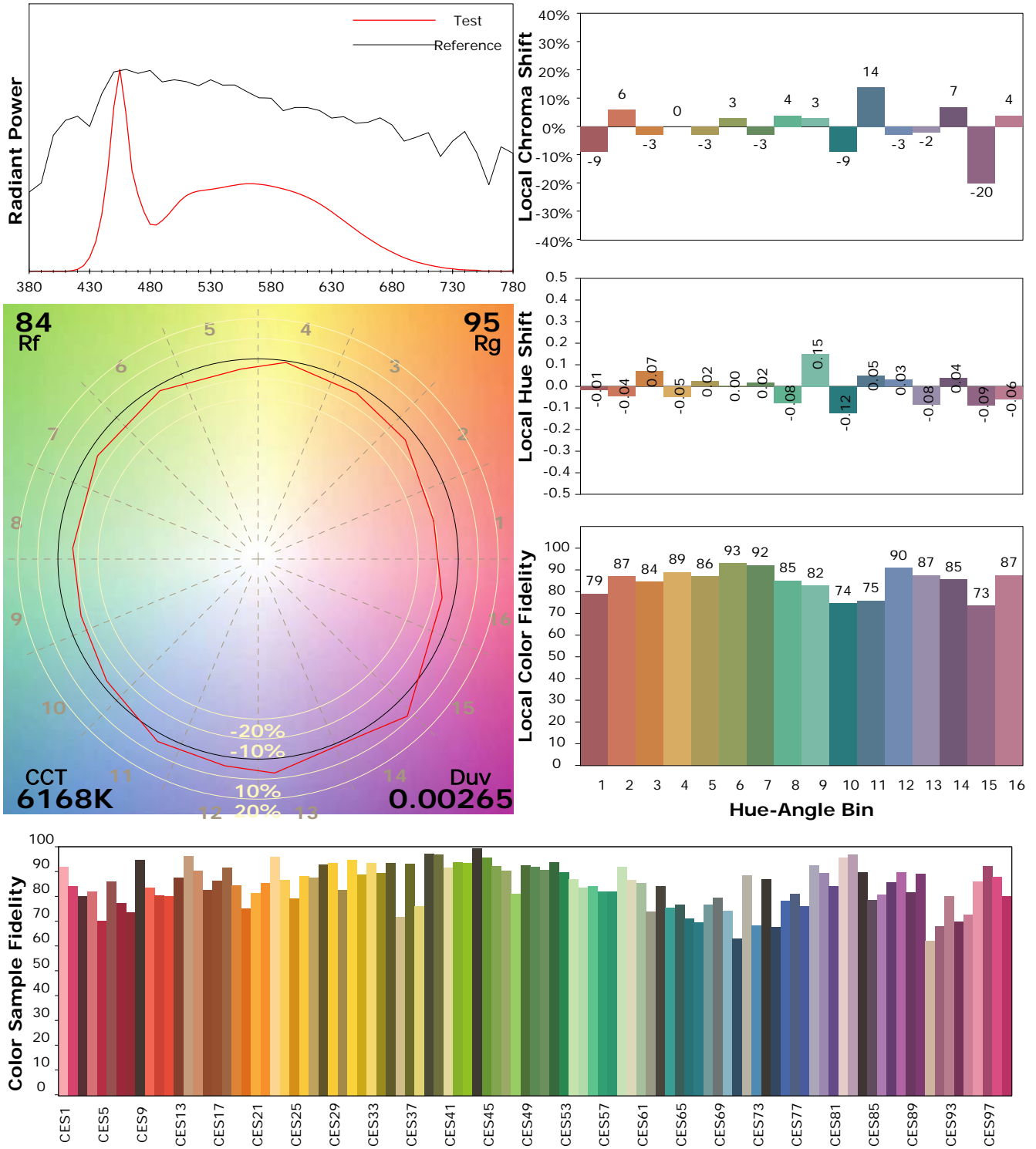
Test Device: Lisun LMS-9000B
 Test Time: 2021-08-12 13:17:11
 Inspector:

IES TM-30-18 Color Rendition Report

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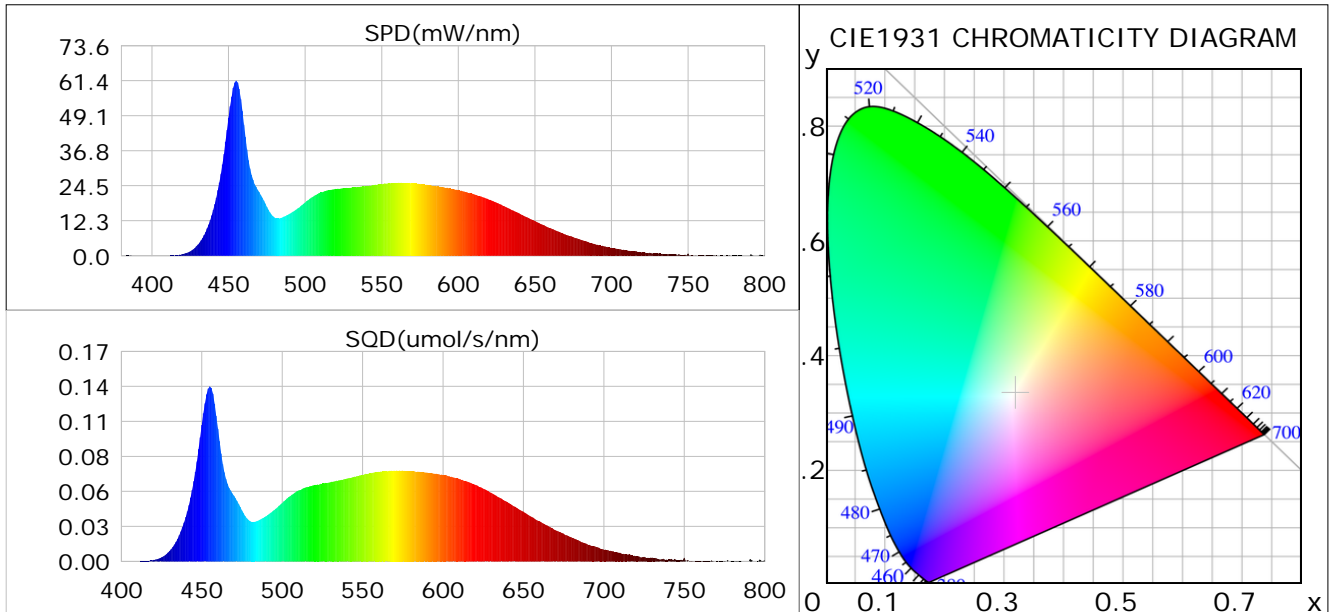
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 Test Lab:
 Operator: CRE

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

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 Dominant Wavelength: 502.2nm Color Purity: 0.049
 CRI: $R_a=86.7$



Plant Optical Param

$ \mu_v(lm)$: 1682.10	$Q_v(lm.s)$: 1682.10
$ \mu_e, \dot{E}(W/nm)$: 5.46	$Q_e(J)$: 5.46
$ \mu_e(W)$: 5.40	$ \mu_{fr}(W)$: 0.06
$ \zeta_e$: 0.37	$ \zeta_{fr}$: 0.00
PPE(umol/s/w): 1.67	Kfr: 0.03
Erb_Ratio: 0.71	PPF(umol/s): 24.46
PFuv(360-400)(umol/s): 0.00	PPF(400-500)(umol/s): 6.80
PPF(500-600)(umol/s): 11.07	PPF(600-700)(umol/s): 6.59
PPfr(700-800)(umol/s): 0.38	PPF.t(umol): 24.46
$ \mu_{ch-A.t}(J)$: 0.43	$ \mu_{ch-A}(W)$: 0.43
$ \mu_{ch-B.t}(J)$: 0.32	$ \mu_{ch-B}(W)$: 0.32
$ \mu_b.t(J)$: 1.76	$ \mu_b(W)$: 1.76
$ \mu_y.t(J)$: 2.42	$ \mu_y(W)$: 2.42
$ \mu_r.t(J)$: 1.26	$ \mu_r(W)$: 1.26

Electric Parameters

Voltage: 230.90V	Current: 0.0640A	Power: 14.66W
Power Factor: 0.8850	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 13:17:11
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