

Lightsource Test Report

Product Information

Product Category: LED-Technik
 Product Spec: LED-MODUL-180-20-CW
 Manufacturer: METOLIGHT
 Buyer: 5318

Product Type: LED-Technik-Module
 Product Number: 1
 Submitted Unit: 103238

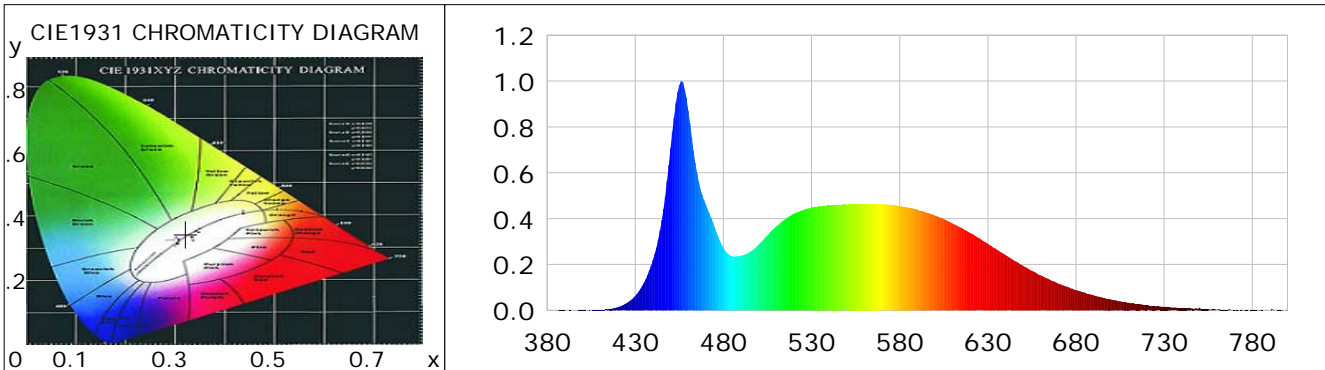
CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3212$ $y=0.3437$ $u(u')=0.1982$ $v=0.3182$ $v'=0.4772$
 CCT: $T_c=6006K$ ($duv=0.00652$) Color Ratio: $R=0.138$ $G=0.806$ $B=0.056$
 Peak Wavelength: 456.3nm Half Bandwidth: 21.1nm
 Dominant Wavelength: 503.3nm Color Purity: 0.037
 CRI: $R_a=82.9$, $avgR(1\sim14)=75.5$, $avgR(1\sim15)=75.5$ TM30: $R_f=82$, $R_g=92$
 GAI: $GAI_BB_8=86.8$, $GAI_BB_15=93.6$, $GAI_EES=82.6$

R1 =81	R2 =90	R3 =94	R4 =79	R5 =80	R6 =85	R7 =87	R8 =68
R9 =8	R10=75	R11=77	R12=54	R13=84	R14=97	R15=76	

Color Quality Scale: $Q_a=81.0$, $Q_f=81.3$, $Q_p=79.6$, $Q_g=89.4$

Q1 =80	Q2 =97	Q3 =80	Q4 =71	Q5 =75	Q6 =77	Q7 =83	Q8 =89
Q9 =97	Q10=90	Q11=85	Q12=84	Q13=84	Q14=72	Q15=76	



Photometric Parameters

Luminous Flux: 1987.9 lm	Efficiency: 115.37 lm/W	Radiant Power: 6.253 W
Total mains efficacy: 125.64 lm/W	Energy Efficiency Class: E (EU 2019/2015)	
Pupil Flux: 3677.44 Plm	Pupil Lumens Per Watt: 213.43 Plm/W	Pupil Factor (Kp): 1.850
Cirtopic Flux: 8412.36 lm		

Electric Parameters

Voltage: 231.10V	Current: 0.1440A	Power: 17.23W
Power Factor: 0.5140	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: 45331 (2751)	CCD Integration Time: 91.25 ms

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

Test Device: Lisun LMS-9000B
 Test Time: 2021-08-16 14:09:06
 Inspector:

Lightsource Test Report

Product Information

Product Category: LED-Technik
 Product Spec: LED-MODUL-180-20-CW
 Manufacturer: METOLIGHT
 Buyer: 5318

Product Type: LED-Technik-Module
 Product Number: 1
 Submitted Unit: 103238

WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0005	0.0334	525	0.4366	28.6164	670	0.1171	7.6734
385	0.0004	0.0262	530	0.4475	29.3310	675	0.1035	6.7837
390	0.0007	0.0468	535	0.4535	29.7221	680	0.0882	5.7813
395	0.0003	0.0177	540	0.4577	29.9997	685	0.0770	5.0442
400	0.0007	0.0471	545	0.4616	30.2556	690	0.0650	4.2577
405	0.0005	0.0301	550	0.4614	30.2399	695	0.0559	3.6668
410	0.0025	0.1644	555	0.4645	30.4463	700	0.0473	3.0988
415	0.0056	0.3703	560	0.4648	30.4653	705	0.0394	2.5850
420	0.0139	0.9103	565	0.4649	30.4689	710	0.0339	2.2188
425	0.0309	2.0238	570	0.4636	30.3860	715	0.0280	1.8379
430	0.0628	4.1167	575	0.4604	30.1769	720	0.0229	1.4981
435	0.1206	7.9075	580	0.4554	29.8519	725	0.0190	1.2461
440	0.2187	14.3330	585	0.4474	29.3254	730	0.0157	1.0318
445	0.3936	25.7983	590	0.4398	28.8230	735	0.0117	0.7656
450	0.7070	46.3415	595	0.4266	27.9642	740	0.0102	0.6668
455	0.9823	64.3836	600	0.4137	27.1143	745	0.0096	0.6283
460	0.8731	57.2283	605	0.3976	26.0617	750	0.0113	0.7379
465	0.6001	39.3349	610	0.3788	24.8310	755	0.0059	0.3879
470	0.4619	30.2737	615	0.3602	23.6096	760	0.0027	0.1767
475	0.3621	23.7308	620	0.3378	22.1436	765	0.0025	0.1656
480	0.2724	17.8557	625	0.3145	20.6167	770	0.0013	0.0855
485	0.2367	15.5170	630	0.2898	18.9964	775	0.0028	0.1851
490	0.2376	15.5709	635	0.2659	17.4254	780	0.0017	0.1131
495	0.2541	16.6533	640	0.2412	15.8084	785	0.0009	0.0604
500	0.2871	18.8144	645	0.2168	14.2076	790	0.0007	0.0437
505	0.3272	21.4445	650	0.1942	12.7318	795	0.0013	0.0851
510	0.3669	24.0512	655	0.1723	11.2934	800	0.0030	0.1983
515	0.3973	26.0413	660	0.1522	9.9785			
520	0.4218	27.6443	665	0.1341	8.7872			

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

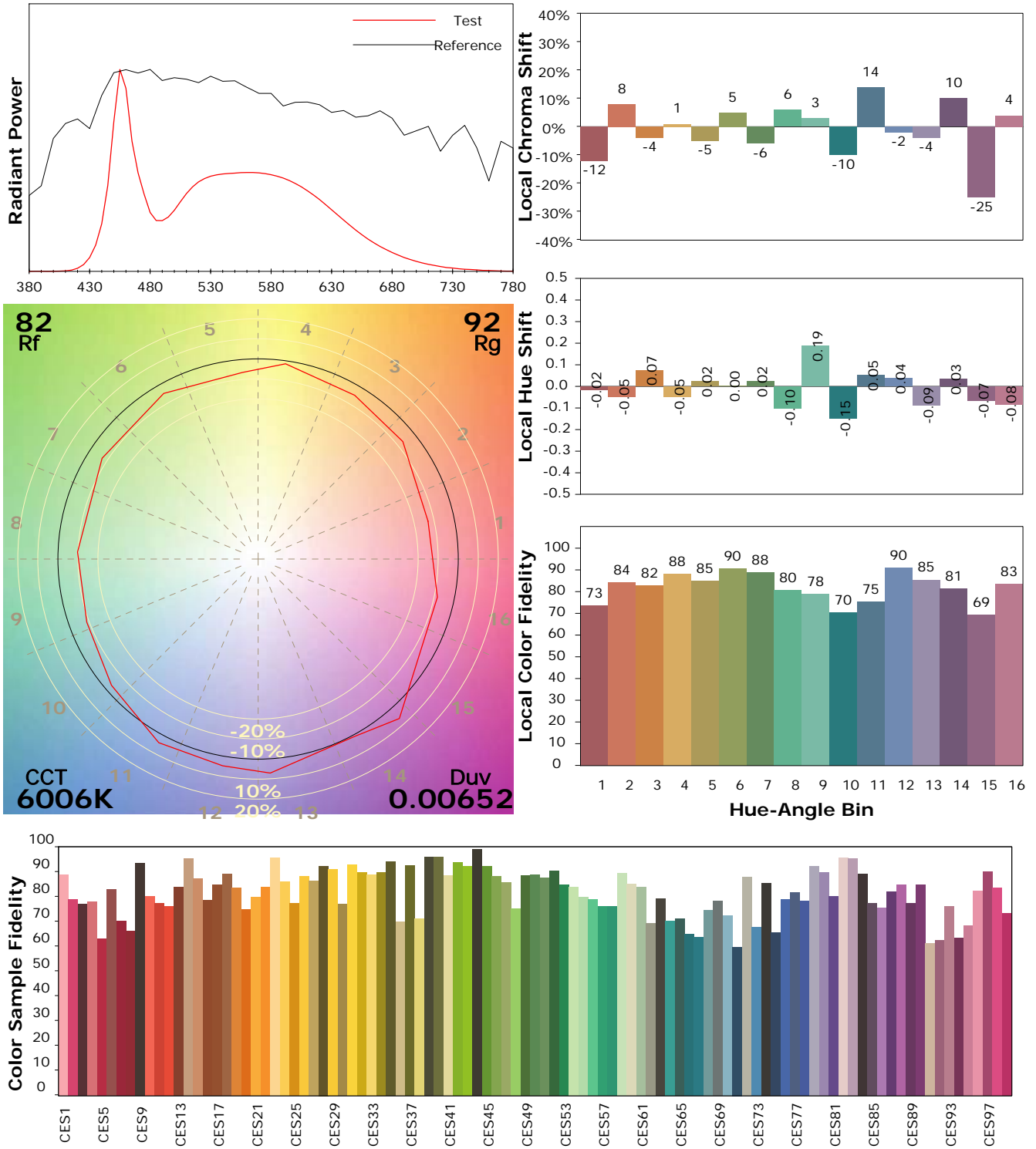
Test Device: Lisun LMS-9000B
 Test Time: 2021-08-16 14:09:06
 Inspector:

IES TM-30-18 Color Rendition Report

Product Information

Product Category: LED-Technik
 Product Spec: LED-MODUL-180-20-CW
 Manufacturer: METOLIGHT
 Buyer: 5318

Product Type: LED-Technik-Module
 Product Number: 1
 Submitted Unit: 103238



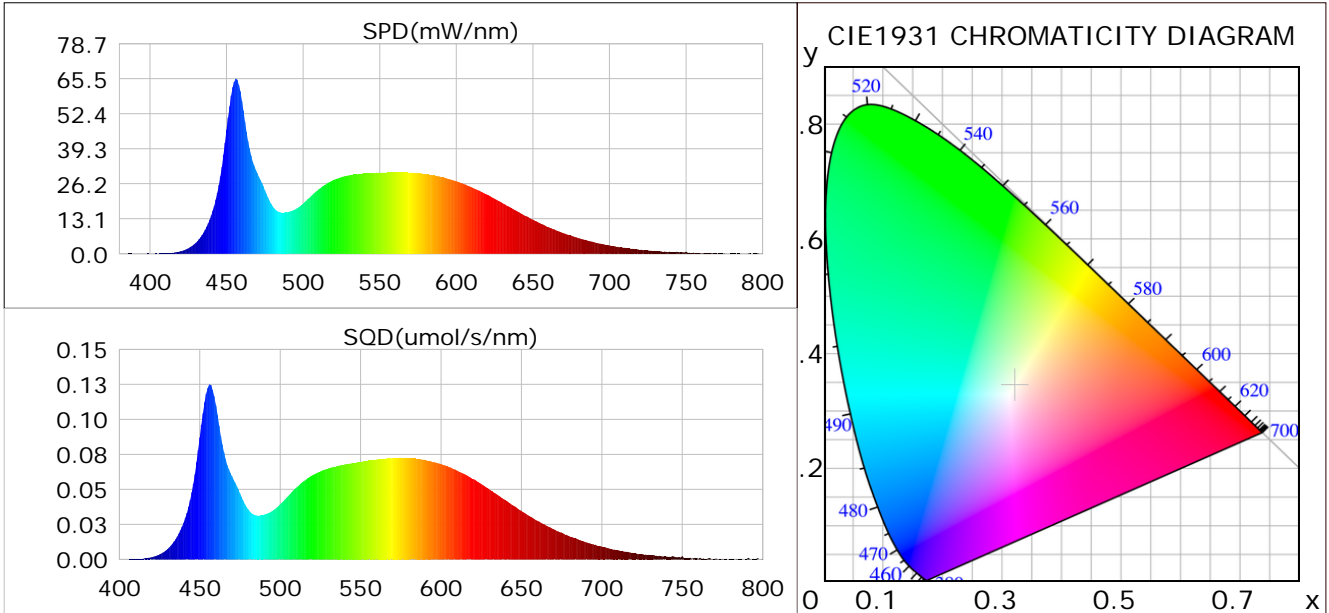
Condition: Tx:0.0°C, Ti:0.0°C, R.H.: 60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-08-16 14:09:06
 Inspector:

Plant optical param data

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3212$ $y=0.3437$ $u(u')=0.1982$ $v=0.3182$ $v'=0.4772$
 CCT: $T_c=6006K$ ($duv=0.00652$) Color Ratio: $R=0.138$ $G=0.806$ $B=0.056$
 Peak Wavelength: 456.3nm Half Bandwidth: 21.1nm
 Dominant Wavelength: 503.3nm Color Purity: 0.037
 CRI: $R_a=82.9$



Plant Optical Param

$ \mu_v(lm): 1987.90$	$Q_v(lm.s): 1987.90$
$ \mu_e, \dot{E}(W/nm): 6.25$	$Q_e(J): 6.25$
$ \mu_e(W): 6.18$	$ \mu_{fr}(W): 0.08$
$ \zeta_e: 0.36$	$ \zeta_{fr}: 0.00$
$PPE(umol/s/w): 1.62$	$K_{fr}: 0.03$
$Erb_Ratio: 0.69$	$PPF(umol/s): 27.98$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 7.61$
$PPF(500-600)(umol/s): 13.14$	$PPF(600-700)(umol/s): 7.23$
$PPF_{fr}(700-800)(umol/s): 0.47$	$PPF.t(umol): 27.98$
$ \mu_{ch-A.t}(J): 0.47$	$ \mu_{ch-A}(W): 0.47$
$ \mu_{ch-B.t}(J): 0.36$	$ \mu_{ch-B}(W): 0.36$
$ \mu_b.t(J): 1.97$	$ \mu_b(W): 1.97$
$ \mu_y.t(J): 2.87$	$ \mu_y(W): 2.87$
$ \mu_r.t(J): 1.39$	$ \mu_r(W): 1.39$

Electric Parameters

Voltage: 231.10V	Current: 0.1440A	Power: 17.23W
Power Factor: 0.5140	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: 2021-08-16 14:09:06
 Inspector: