

## Lightsource Test Report

### Product Information

Product Category: LED-Technik  
 Product Spec: LED-MODUL-210-25-NW  
 Manufacturer: METOLIGHT  
 Buyer: 5318

Product Type: LED-Technik-Module  
 Product Number: 1  
 Submitted Unit: 103240

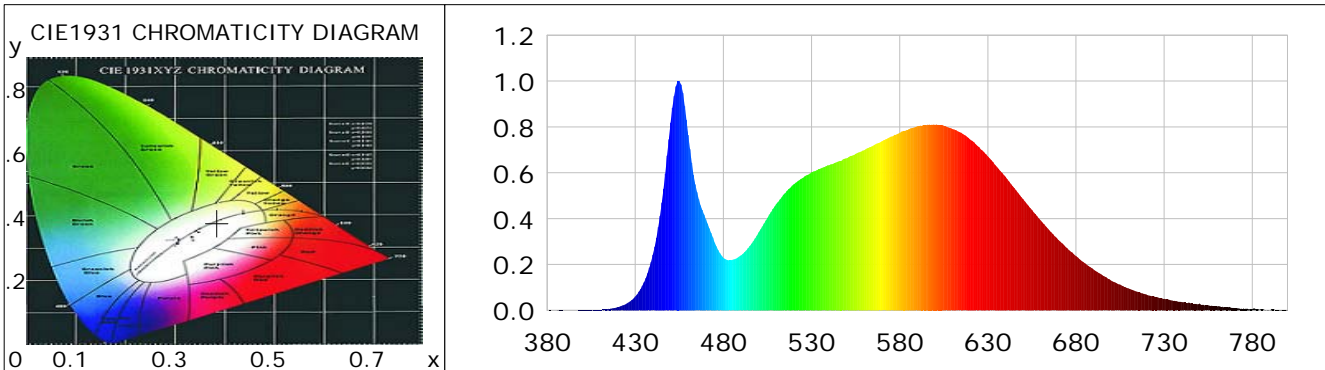
### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3848$   $y=0.3792$   $u(u')=0.2270$   $v=0.3355$   $v'=0.5033$   
 CCT:  $T_c=3903K$  ( $duv=-0.00010$ ) Color Ratio:  $R=0.191$   $G=0.775$   $B=0.035$   
 Peak Wavelength: 454.6nm Half Bandwidth: 20.0nm  
 Dominant Wavelength: 579.5nm Color Purity: 0.293  
 CRI:  $R_a=85.1$ ,  $avgR(1\sim14)=78.9$ ,  $avgR(1\sim15)=79.0$  TM30:  $R_f=84$ ,  $R_g=96$   
 GAI:  $GAI\_BB\_8=93.8$ ,  $GAI\_BB\_15=101.8$ ,  $GAI\_EES=72.4$   

R1 =84	R2 =91	R3 =94	R4 =84	R5 =83	R6 =86	R7 =88	R8 =70
R9 =24	R10=77	R11=82	R12=58	R13=86	R14=97	R15=80	

Color Quality Scale:  $Q_a=84.0$ ,  $Q_f=84.0$ ,  $Q_p=84.2$ ,  $Q_g=93.9$   

Q1 =84	Q2 =98	Q3 =79	Q4 =75	Q5 =81	Q6 =84	Q7 =86	Q8 =90
Q9 =97	Q10=89	Q11=87	Q12=86	Q13=86	Q14=78	Q15=80	



### Photometric Parameters

Luminous Flux: 2596.1 lm	Efficiency: 104.01 lm/W	Radiant Power: 8.015 W
Total mains efficacy: 113.27 lm/W	Energy Efficiency Class: E (EU 2019/2015)	
Pupil Flux: 3876.78 Plm	Pupil Lumens Per Watt: 155.32 Plm/W	Pupil Factor (Kp): 1.493
Cirtopic Flux: 7840.17 lm		

### Electric Parameters

Voltage: 231.20V	Current: 0.2050A	Power: 24.96W
Power Factor: 0.5240	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: 45143 (2758)	CCD Integration Time: 94.23 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 14:21:45  
 Inspector:

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0004	0.0192	525	0.5778	31.5365	670	0.3078	16.7962
385	0.0004	0.0241	530	0.6018	32.8447	675	0.2712	14.8028
390	0.0006	0.0322	535	0.6180	33.7293	680	0.2369	12.9271
395	0.0010	0.0524	540	0.6336	34.5783	685	0.2053	11.2044
400	0.0011	0.0577	545	0.6488	35.4085	690	0.1773	9.6774
405	0.0008	0.0417	550	0.6637	36.2202	695	0.1525	8.3204
410	0.0029	0.1598	555	0.6824	37.2401	700	0.1298	7.0863
415	0.0065	0.3531	560	0.6992	38.1612	705	0.1124	6.1363
420	0.0142	0.7772	565	0.7187	39.2214	710	0.0953	5.2016
425	0.0291	1.5873	570	0.7379	40.2710	715	0.0809	4.4148
430	0.0600	3.2767	575	0.7576	41.3474	720	0.0687	3.7500
435	0.1226	6.6918	580	0.7747	42.2811	725	0.0586	3.1969
440	0.2424	13.2280	585	0.7892	43.0709	730	0.0508	2.7714
445	0.4700	25.6524	590	0.8028	43.8139	735	0.0422	2.3037
450	0.8188	44.6891	595	0.8083	44.1141	740	0.0368	2.0088
455	1.0000	54.5761	600	0.8105	44.2312	745	0.0301	1.6428
460	0.7647	41.7326	605	0.8050	43.9361	750	0.0300	1.6360
465	0.5158	28.1490	610	0.7907	43.1540	755	0.0222	1.2106
470	0.3977	21.7030	615	0.7746	42.2731	760	0.0169	0.9216
475	0.2959	16.1498	620	0.7453	40.6766	765	0.0138	0.7531
480	0.2296	12.5296	625	0.7118	38.8492	770	0.0100	0.5454
485	0.2202	12.0202	630	0.6713	36.6391	775	0.0078	0.4267
490	0.2400	13.0984	635	0.6265	34.1910	780	0.0057	0.3092
495	0.2807	15.3185	640	0.5825	31.7887	785	0.0049	0.2684
500	0.3401	18.5611	645	0.5335	29.1164	790	0.0007	0.0372
505	0.4041	22.0535	650	0.4851	26.4738	795	0.0017	0.0952
510	0.4648	25.3692	655	0.4381	23.9115	800	0.0040	0.2205
515	0.5117	27.9243	660	0.3920	21.3961			
520	0.5507	30.0530	665	0.3482	19.0024			

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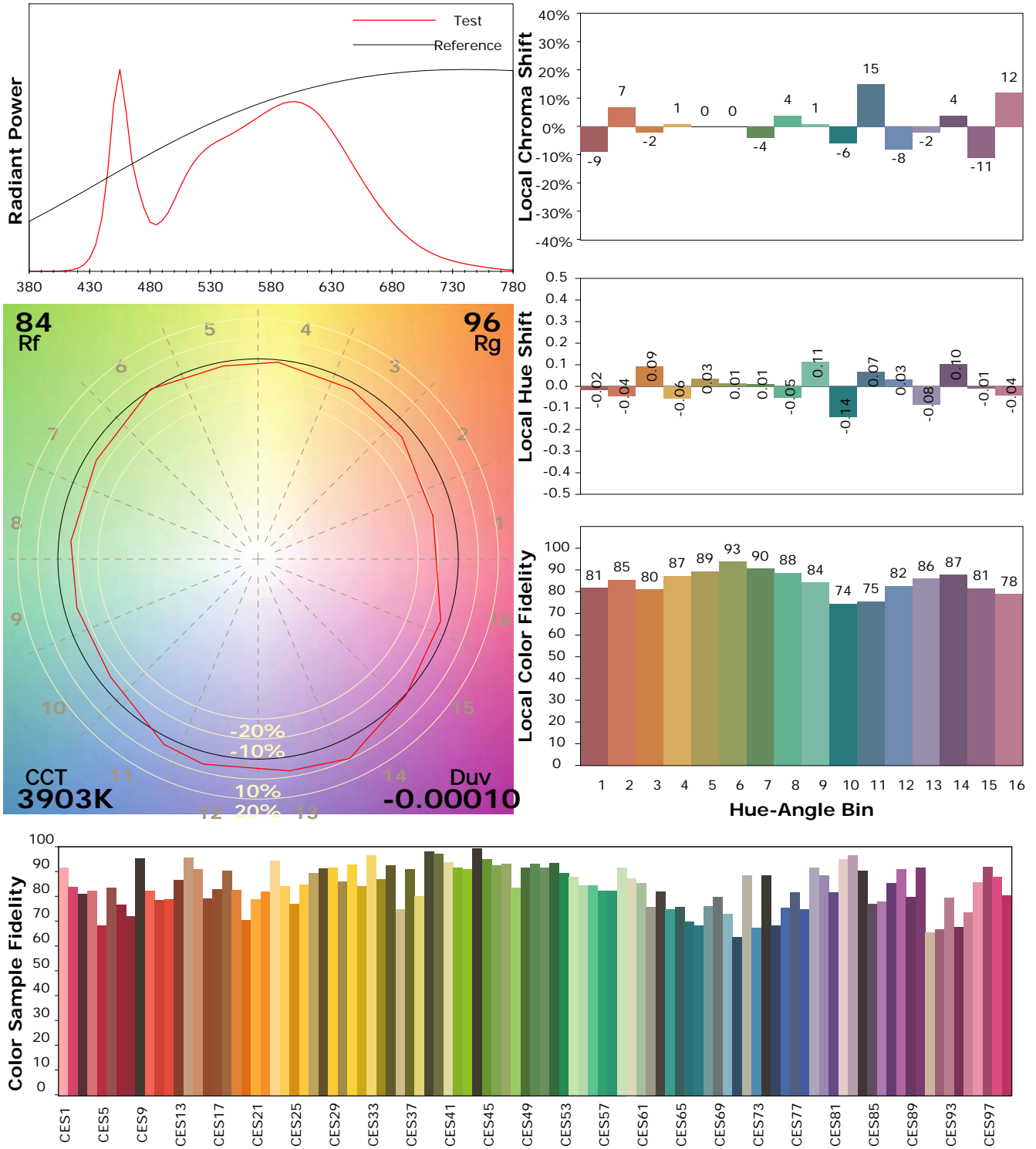
Test Device: Lisun LMS-9000B  
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 Inspector:

## IES TM-30-18 Color Rendition Report

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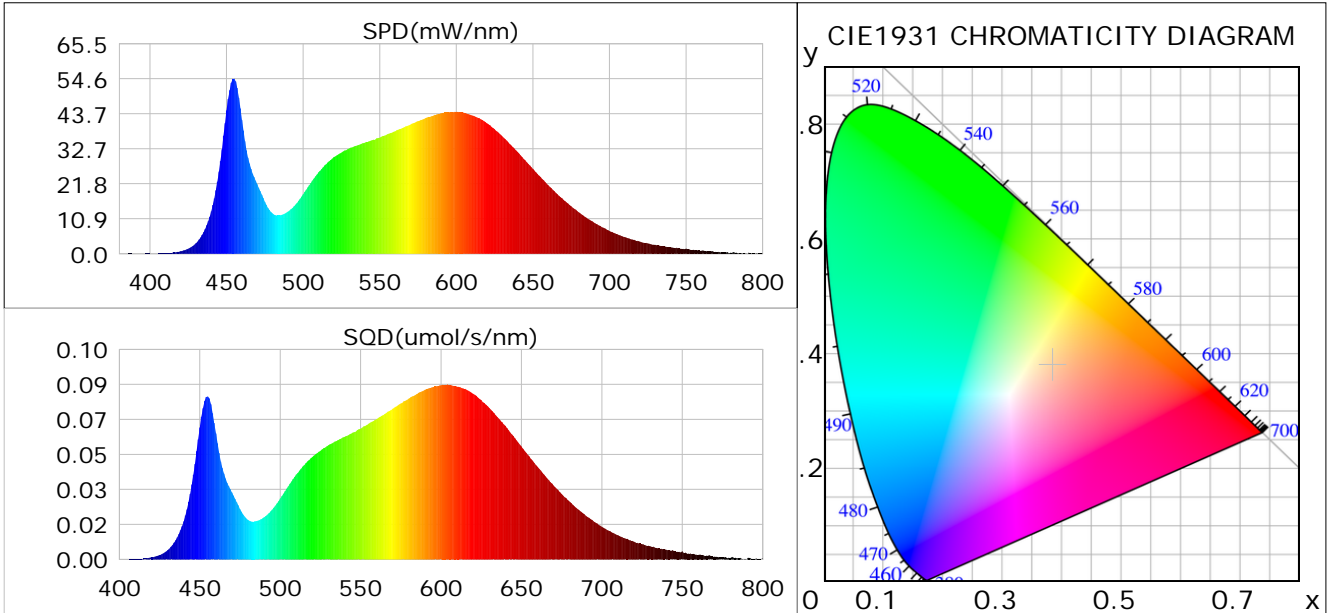
Condition: Tx:0.0°C, Ti:0.0°C, R.H.: 60%  
 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
 Test Time: 2021-08-16 14:21:45  
 Inspector:

## Plant optical param data

### CIE Colorimetric Parameters

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 Peak Wavelength: 454.6nm Half Bandwidth: 20.0nm  
 Dominant Wavelength: 579.5nm Color Purity: 0.293  
 CRI:  $R_a=85.1$



### Plant Optical Param

$ \mu_v(lm): 2596.10$	$Q_v(lm.s): 2596.10$
$ \mu_e, \dot{E}(W/nm): 8.01$	$Q_e(J): 8.01$
$ \mu_e(W): 7.82$	$ \mu_{fr}(W): 0.21$
$ \dot{C}_e: 0.31$	$ \dot{C}_{fr}: 0.01$
$PPE(umol/s/w): 1.48$	$K_{fr}: 0.05$
$Erb\_Ratio: 1.63$	$PPF(umol/s): 36.84$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 6.23$
$PPF(500-600)(umol/s): 16.57$	$PPF(600-700)(umol/s): 14.03$
$PPF_{fr}(700-800)(umol/s): 1.22$	$PPF.t(umol): 36.84$
$ \mu_{ch-A.t}(J): 0.61$	$ \mu_{ch-A}(W): 0.61$
$ \mu_{ch-B.t}(J): 0.37$	$ \mu_{ch-B}(W): 0.37$
$ \mu_b.t(J): 1.61$	$ \mu_b(W): 1.61$
$ \mu_y.t(J): 3.59$	$ \mu_y(W): 3.59$
$ \mu_r.t(J): 2.68$	$ \mu_r(W): 2.68$

### Electric Parameters

Voltage: 231.20V	Current: 0.2050A	Power: 24.96W
Power Factor: 0.5240	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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