

## Lightsource Test Report

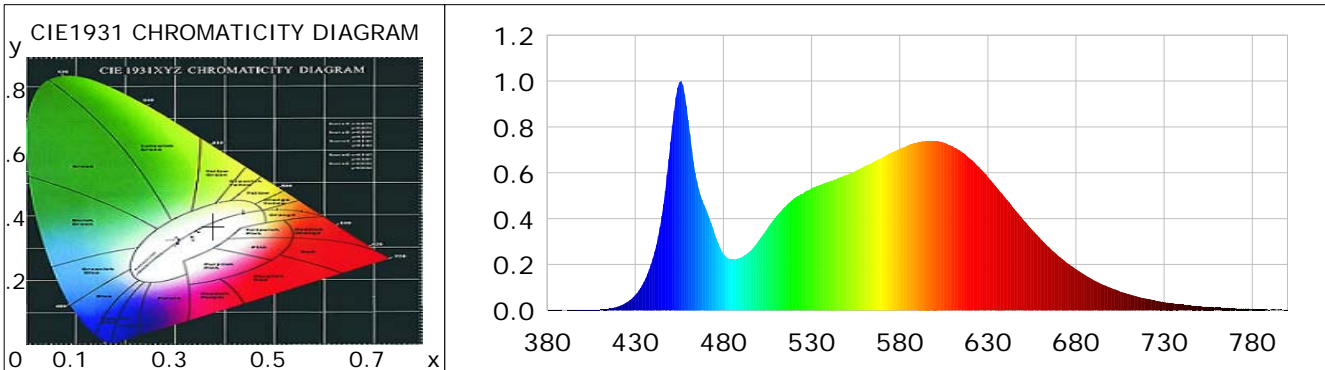
### Product Information

Product Category: LED-HiPower  
 Product Spec: LED-HBL-S2-150--NW-120  
 Manufacturer: METOLIGHT  
 Buyer: 5069

Product Type: LED-HiPower-Highbay  
 Product Number: 1  
 Submitted Unit: 105137

### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3767$   $y=0.3689$   $u(u')=0.2258$   $v=0.3317$   $v'=0.4975$   
 CCT:  $T_c=4046K$  ( $duv=-0.00262$ ) Color Ratio:  $R=0.188$   $G=0.773$   $B=0.039$   
 Peak Wavelength: 455.7nm Half Bandwidth: 20.4nm  
 Dominant Wavelength: 580.5nm Color Purity: 0.238  
 CRI:  $R_a=84.9$ ,  $avgR(1\sim14)=78.9$ ,  $avgR(1\sim15)=79.0$  TM30:  $R_f=83$ ,  $R_g=95$   
 GAI:  $GAI\_BB\_8=95.7$ ,  $GAI\_BB\_15=103.4$ ,  $GAI\_EES=76.2$   
 R1 =85 R2 =92 R3 =95 R4 =82 R5 =84 R6 =88 R7 =85 R8 =68  
 R9 =20 R10=80 R11=81 R12=60 R13=87 R14=98 R15=80  
 Color Quality Scale:  $Q_a=82.7$ ,  $Q_f=82.6$ ,  $Q_p=83.0$ ,  $Q_g=93.4$   
 Q1 =83 Q2 =98 Q3 =78 Q4 =73 Q5 =78 Q6 =82 Q7 =86 Q8 =89  
 Q9 =98 Q10=89 Q11=85 Q12=84 Q13=84 Q14=76 Q15=79



### Photometric Parameters

Luminous Flux: 21053 lm Efficiency: 138.53 lm/W Radiant Power: 64.984 W  
 Total mains efficacy: 162.92 lm/W Energy Efficiency Class: C (EU 2019/2015)  
 Pupil Flux: 32379.68 Plm Pupil Lumens Per Watt: 213.07 Plm/W Pupil Factor (Kp): 1.538  
 Circopic Flux: 67288.88 lm

### Electric Parameters

Voltage: 231.20V Current: 0.6790A Power: 151.97W  
 Power Factor: 0.9670 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: 45431 (2587) CCD Integration Time: 15.67 ms

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0010	0.5141	525	0.5086	250.5736	670	0.2377	117.0840
385	0.0010	0.5169	530	0.5323	262.2524	675	0.2062	101.5977
390	0.0004	0.1898	535	0.5471	269.5126	680	0.1800	88.6992
395	0.0009	0.4637	540	0.5609	276.3239	685	0.1546	76.1733
400	0.0015	0.7329	545	0.5773	284.4105	690	0.1319	64.9645
405	0.0019	0.9352	550	0.5902	290.7767	695	0.1129	55.6256
410	0.0036	1.7977	555	0.6082	299.6108	700	0.0976	48.0669
415	0.0079	3.9041	560	0.6279	309.3362	705	0.0822	40.5008
420	0.0162	8.0021	565	0.6476	319.0337	710	0.0708	34.8953
425	0.0343	16.8971	570	0.6661	328.1438	715	0.0594	29.2738
430	0.0666	32.8098	575	0.6875	338.6644	720	0.0506	24.9506
435	0.1249	61.5446	580	0.7046	347.1351	725	0.0427	21.0559
440	0.2268	111.7193	585	0.7203	354.8260	730	0.0361	17.7731
445	0.4117	202.7976	590	0.7335	361.3519	735	0.0311	15.3005
450	0.7340	361.6009	595	0.7386	363.8474	740	0.0252	12.4026
455	0.9944	489.8982	600	0.7387	363.9038	745	0.0220	10.8138
460	0.8304	409.0688	605	0.7314	360.3205	750	0.0182	8.9586
465	0.5626	277.1338	610	0.7150	352.2262	755	0.0153	7.5173
470	0.4433	218.4015	615	0.6923	341.0591	760	0.0124	6.1048
475	0.3349	164.9605	620	0.6608	325.5407	765	0.0111	5.4493
480	0.2469	121.6111	625	0.6242	307.5022	770	0.0097	4.7914
485	0.2224	109.5765	630	0.5808	286.1005	775	0.0074	3.6502
490	0.2309	113.7356	635	0.5356	263.8754	780	0.0069	3.3884
495	0.2576	126.8901	640	0.4891	240.9514	785	0.0059	2.9027
500	0.3037	149.6273	645	0.4429	218.2110	790	0.0029	1.4343
505	0.3583	176.5236	650	0.3957	194.9380	795	0.0054	2.6845
510	0.4106	202.2619	655	0.3524	173.6153	800	0.0038	1.8665
515	0.4515	222.4125	660	0.3109	153.1771			
520	0.4880	240.4091	665	0.2732	134.6115			

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

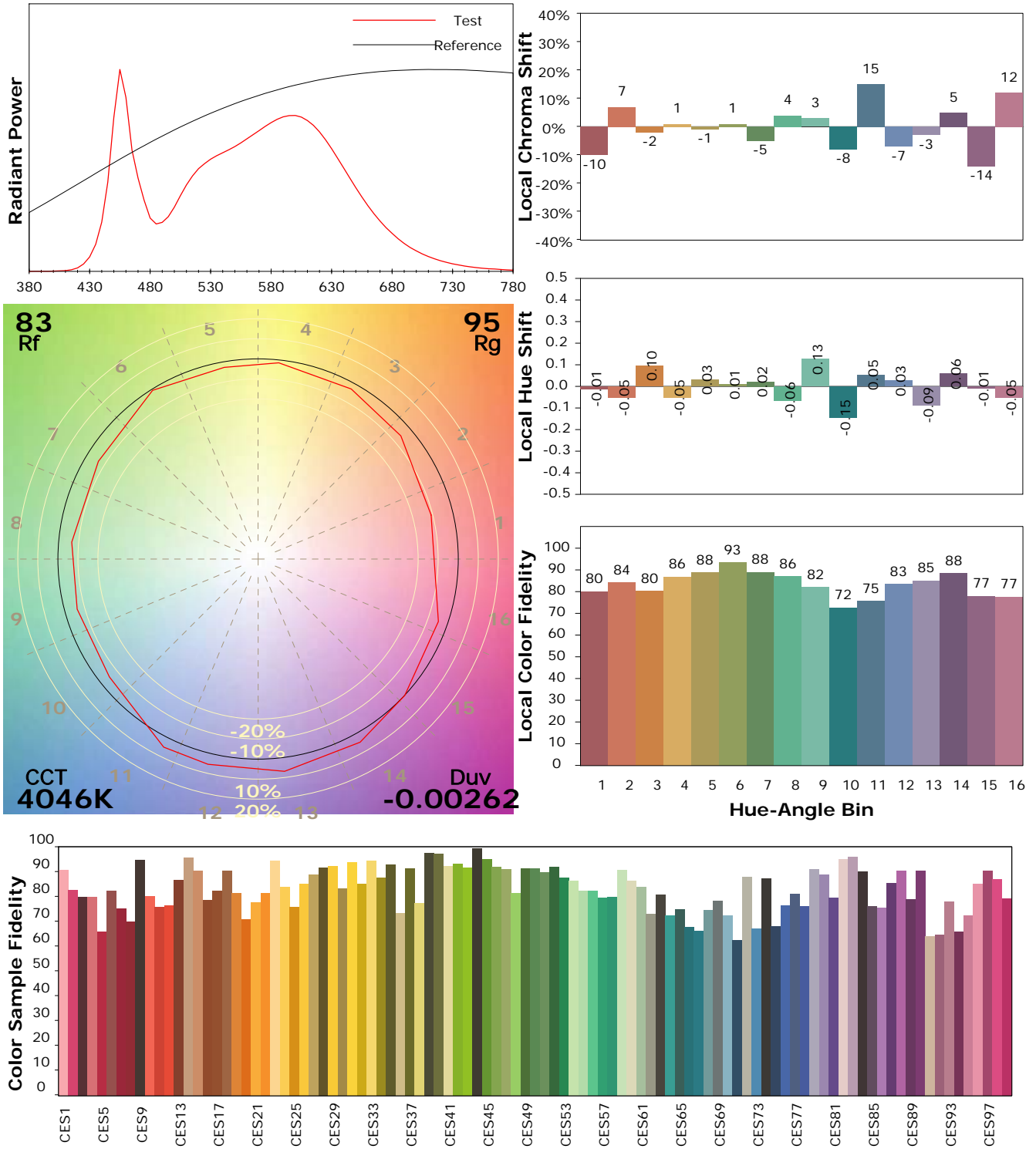
Test Device: Lisun LMS-9000B  
 Test Time: 2021-08-19 10:56:18  
 Inspector:

## IES TM-30-18 Color Rendition Report

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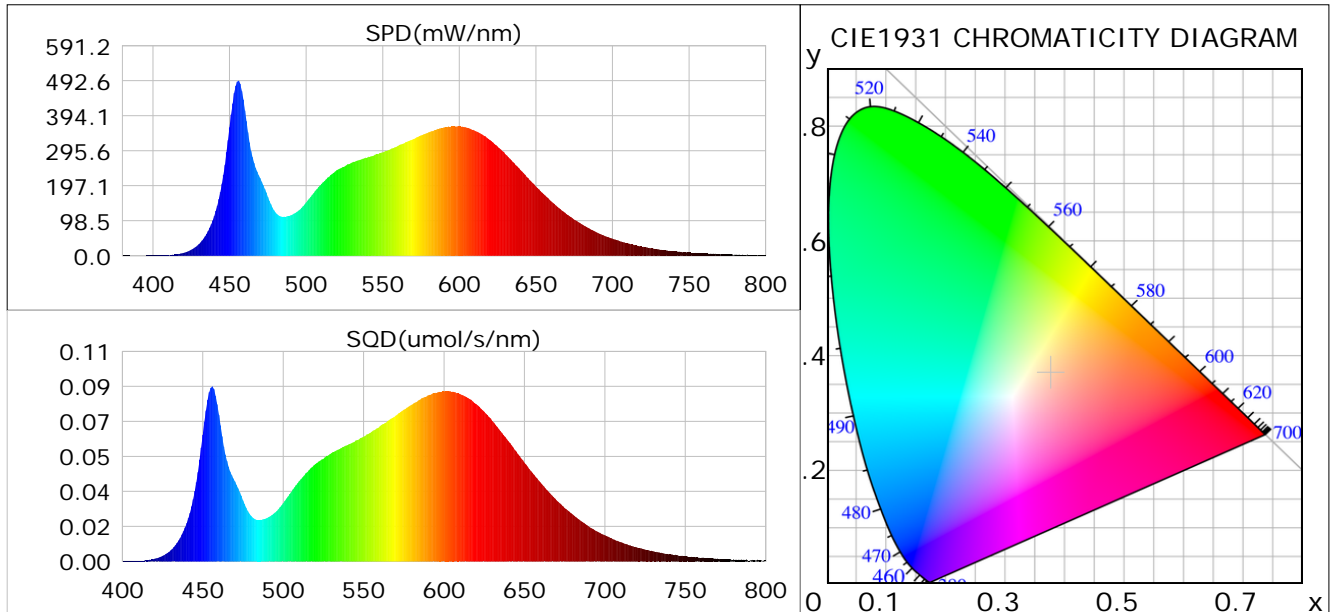
Condition: Tx:0.0°C, Ti:0.0°C, R.H.: 60%  
 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
 Test Time: 2021-08-19 10:56:18  
 Inspector:

## Plant optical param data

### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3767$   $y=0.3689$   $u(u')=0.2258$   $v=0.3317$   $v'=0.4975$   
 CCT:  $T_c=4046K$  ( $duv=-0.00262$ ) Color Ratio:  $R=0.188$   $G=0.773$   $B=0.039$   
 Peak Wavelength: 455.7nm Half Bandwidth: 20.4nm  
 Dominant Wavelength: 580.5nm Color Purity: 0.238  
 CRI:  $R_a=84.9$



### Plant Optical Param

$ \mu_v(lm): 21053.00$	$Q_v(lm.s): 21053.00$
$ \mu_e, \dot{E}(W/nm): 64.98$	$Q_e(J): 64.98$
$ \mu_e(W): 63.66$	$ \mu_{fr}(W): 1.41$
$ \zeta_e: 0.42$	$ \zeta_{fr}: 0.01$
$PPE(umol/s/w): 1.96$	$K_{fr}: 0.05$
$Erb\_Ratio: 1.38$	$PPF(umol/s): 297.87$
$PF_{uv}(360-400)(umol/s): 0.03$	$PPF(400-500)(umol/s): 56.45$
$PPF(500-600)(umol/s): 134.31$	$PPF(600-700)(umol/s): 107.11$
$PPF_r(700-800)(umol/s): 8.26$	$PPF.t(umol): 297.87$
$ \mu_{ch-A.t}(J): 4.95$	$ \mu_{ch-A}(W): 4.95$
$ \mu_{ch-B.t}(J): 3.16$	$ \mu_{ch-B}(W): 3.16$
$ \mu_b.t(J): 14.60$	$ \mu_b(W): 14.60$
$ \mu_y.t(J): 29.04$	$ \mu_y(W): 29.04$
$ \mu_r.t(J): 20.53$	$ \mu_r(W): 20.53$

### Electric Parameters

Voltage: 231.20V	Current: 0.6790A	Power: 151.97W
Power Factor: 0.9670	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: 2021-08-19 10:56:18  
 Inspector: