

## Lightsource Test Report

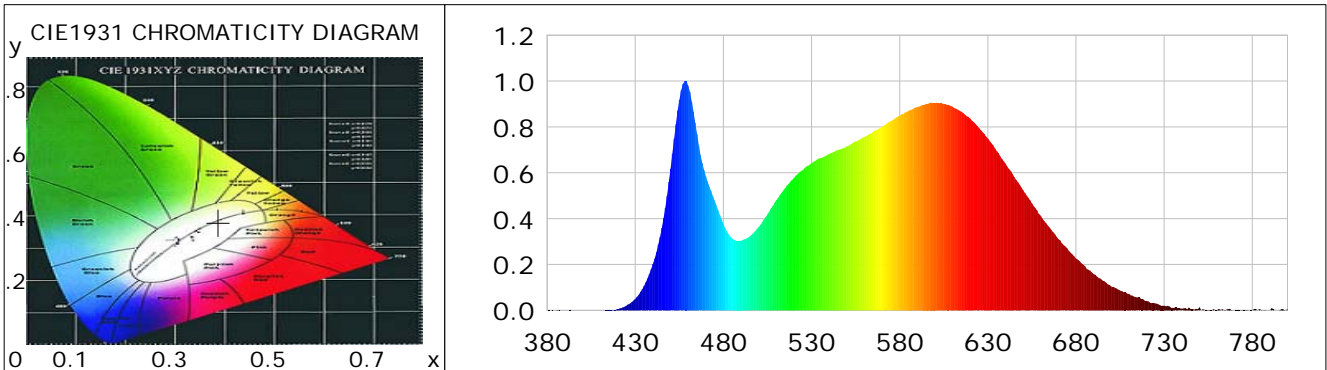
### Product Infomation

Product Category: LED-Röhre  
 Product Spec: LEDtube-060-10NWM-10W-RAD-A  
 Manufacturer: METOLIGHT  
 Buyer: 6299

Product Type: LED-Röhre PIR  
 Product Number: 1  
 Submitted Unit: 104602

### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3872$   $y=0.3807$   $u(u')=0.2279$   $v=0.3362$   $v'=0.5043$   
 CCT:  $T_c=3852K$  ( $duv=-0.00004$ ) Color Ratio:  $R=0.194$   $G=0.766$   $B=0.040$   
 Peak Wavelength: 458.5nm Half Bandwidth: 25.9nm  
 Dominant Wavelength: 579.6nm Color Purity: 0.305  
 CRI:  $R_a=85.7$ ,  $avgR(1\sim14)=80.2$ ,  $avgR(1\sim15)=80.2$  TM30:  $R_f=83$ ,  $R_g=93$   
 GAI:  $GAI\_BB\_8=91.8$ ,  $GAI\_BB\_15=100.2$ ,  $GAI\_EES=70.1$   
 R1 =86 R2 =94 R3 =96 R4 =82 R5 =84 R6 =90 R7 =85 R8 =69  
 R9 =25 R10=83 R11=80 R12=62 R13=88 R14=99 R15=80  
 Color Quality Scale:  $Q_a=84.2$ ,  $Q_f=84.6$ ,  $Q_p=83.2$ ,  $Q_g=92.1$   
 Q1 =82 Q2 =96 Q3 =83 Q4 =76 Q5 =79 Q6 =81 Q7 =86 Q8 =90  
 Q9 =98 Q10=92 Q11=88 Q12=87 Q13=87 Q14=78 Q15=80



### Photometric Parameters

Luminous Flux: 1074.4 lm Efficiency: 96.88 lm/W Radiant Power: 3.264 W  
 Total mains efficacy: 113.93 lm/W Energy Efficiency Class: E (EU 2019/2015)  
 Pupil Flux: 1624.80 Plm Pupil Lumens Per Watt: 146.51 Plm/W Pupil Factor (Kp): 1.512  
 Cirtopic Flux: 3349.13 lm

### Electric Parameters

Voltage: 231.10V Current: 0.0560A Power: 11.09W  
 Power Factor: 0.8550 Frequency: 49.99Hz

### Test Infomation

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: 43726 (2519) CCD Integration Time: 319.11 ms

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0003	0.0054	525	0.6118	12.6449	670	0.3111	6.4302
385	0.0012	0.0253	530	0.6409	13.2473	675	0.2708	5.5963
390	0.0007	0.0136	535	0.6632	13.7087	680	0.2263	4.6780
395	0.0003	0.0061	540	0.6821	14.0980	685	0.1928	3.9842
400	0.0005	0.0111	545	0.6988	14.4440	690	0.1582	3.2708
405	0.0001	0.0025	550	0.7157	14.7925	695	0.1302	2.6922
410	0.0003	0.0071	555	0.7370	15.2342	700	0.1047	2.1640
415	0.0013	0.0260	560	0.7562	15.6301	705	0.0868	1.7947
420	0.0059	0.1215	565	0.7799	16.1205	710	0.0719	1.4863
425	0.0204	0.4227	570	0.8002	16.5391	715	0.0560	1.1573
430	0.0496	1.0255	575	0.8258	17.0686	720	0.0412	0.8513
435	0.1063	2.1963	580	0.8491	17.5512	725	0.0303	0.6257
440	0.2020	4.1756	585	0.8697	17.9758	730	0.0216	0.4463
445	0.3593	7.4259	590	0.8875	18.3447	735	0.0109	0.2254
450	0.6177	12.7676	595	0.9007	18.6173	740	0.0070	0.1444
455	0.9175	18.9643	600	0.9038	18.6818	745	0.0056	0.1155
460	0.9796	20.2478	605	0.9007	18.6171	750	0.0127	0.2617
465	0.7693	15.9017	610	0.8880	18.3537	755	0.0036	0.0741
470	0.5855	12.1025	615	0.8667	17.9139	760	0.0019	0.0385
475	0.4794	9.9091	620	0.8367	17.2938	765	0.0032	0.0656
480	0.3764	7.7797	625	0.7950	16.4322	770	0.0012	0.0258
485	0.3135	6.4806	630	0.7495	15.4916	775	0.0012	0.0245
490	0.3032	6.2664	635	0.6951	14.3683	780	0.0017	0.0356
495	0.3231	6.6773	640	0.6395	13.2191	785	0.0032	0.0667
500	0.3633	7.5093	645	0.5812	12.0125	790	0.0010	0.0198
505	0.4193	8.6671	650	0.5238	10.8276	795	0.0006	0.0126
510	0.4809	9.9392	655	0.4666	9.6448	800	0.0068	0.1397
515	0.5327	11.0108	660	0.4127	8.5308			
520	0.5777	11.9404	665	0.3609	7.4603			

Condition: Tx: 19.9°C, Ti: 0.0°C, R.H.: 60%  
 Test Lab:  
 Operator: CRE

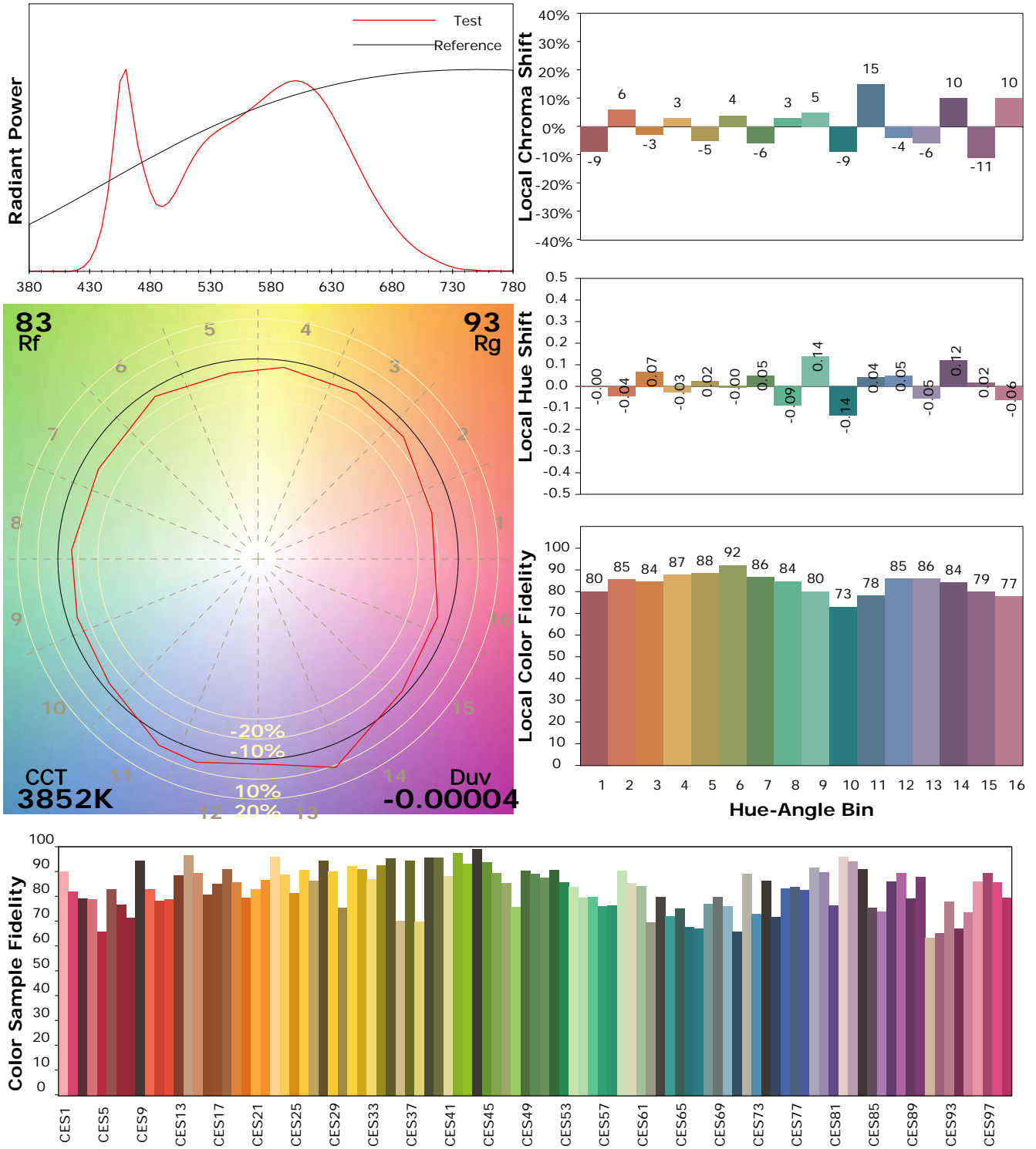
Test Device: Lisun LMS-9000B  
 Test Time: 2021-01-06 11:11:17  
 Inspector:

## IES TM-30-18 Color Rendition Report

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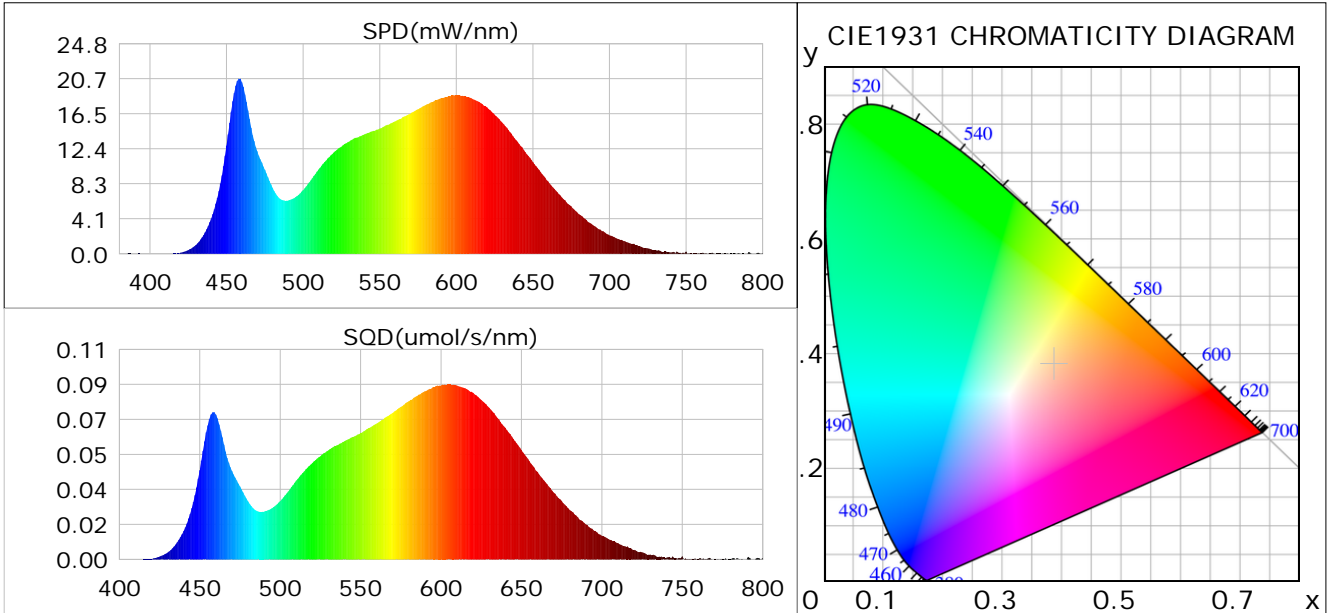
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 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
 Test Time: 2021-01-06 11:11:17  
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## Plant optical param data

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 Peak Wavelength: 458.5nm Half Bandwidth: 25.9nm  
 Dominant Wavelength: 579.6nm Color Purity: 0.305  
 CRI:  $R_a=85.7$



### Plant Optical Param

$ \mu_v(lm): 1074.36$	$Q_v(lm.s): 1074.36$
$ \mu_e, \dot{E}(W/nm): 3.26$	$Q_e(J): 3.26$
$ \mu_e(W): 3.22$	$ \mu_{fr}(W): 0.04$
$ \zeta_e: 0.29$	$ \zeta_{fr}: 0.00$
$PPE(umol/s/w): 1.37$	$K_{fr}: 0.02$
$Erb\_Ratio: 1.57$	$PPF(umol/s): 15.18$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 2.66$
$PPF(500-600)(umol/s): 6.79$	$PPF(600-700)(umol/s): 5.73$
$PPF_{fr}(700-800)(umol/s): 0.25$	$PPF.t(umol): 15.18$
$ \mu_{ch-A.t}(J): 0.24$	$ \mu_{ch-A}(W): 0.24$
$ \mu_{ch-B.t}(J): 0.16$	$ \mu_{ch-B}(W): 0.16$
$ \mu_b.t(J): 0.69$	$ \mu_b(W): 0.69$
$ \mu_y.t(J): 1.47$	$ \mu_y(W): 1.47$
$ \mu_r.t(J): 1.10$	$ \mu_r(W): 1.10$

### Electric Parameters

Voltage: 231.10V	Current: 0.0560A	Power: 11.09W
Power Factor: 0.8550	Frequency: 49.99Hz	

Condition:  $T_x: 19.9^\circ C$ ,  $T_i: 0.0^\circ C$ , R.H.: 60%  
 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
 Test Time: 2021-01-06 11:11:17  
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