

## Lightsource Test Report

### Product Information

Product Category: LED-Röhre  
 Product Spec: LEDtube-150-8Milk-25WM  
 Manufacturer: METOLIGHT  
 Buyer: 7116

Product Type: LED-Röhre-Spezial  
 Product Number: 1  
 Submitted Unit: 105191

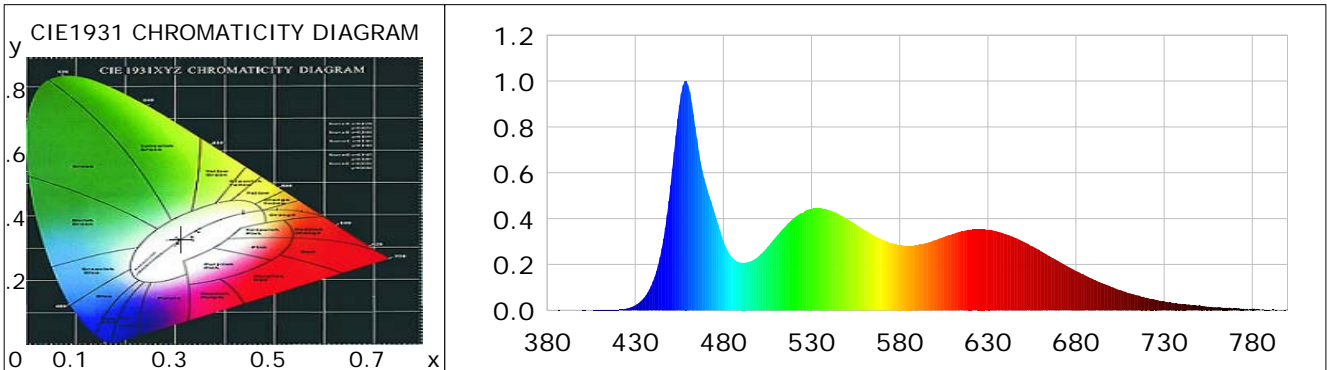
### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3122$   $y=0.3291$   $u(u')=0.1974$   $v=0.3122$   $v'=0.4683$   
 CCT:  $T_c=6534K$  ( $duv=0.00352$ ) Color Ratio:  $R=0.164$   $G=0.769$   $B=0.066$   
 Peak Wavelength: 458.5nm Half Bandwidth: 22.7nm  
 Dominant Wavelength: 489.1nm Color Purity: 0.074  
 CRI:  $R_a=93.8$ ,  $avgR(1\sim14)=90.7$ ,  $avgR(1\sim15)=90.6$  TM30:  $R_f=87$ ,  $R_g=97$   
 GAI:  $GAI\_BB\_8=100.2$ ,  $GAI\_BB\_15=105.4$ ,  $GAI\_EES=97.8$   

R1 =95	R2 =99	R3 =92	R4 =94	R5 =93	R6 =95	R7 =93	R8 =90
R9 =79	R10=96	R11=96	R12=59	R13=95	R14=95	R15=89	

Color Quality Scale:  $Q_a=90.9$ ,  $Q_f=90.0$ ,  $Q_p=92.3$ ,  $Q_g=100.5$   

Q1 =87	Q2 =96	Q3 =87	Q4 =81	Q5 =85	Q6 =88	Q7 =98	Q8 =99
Q9 =94	Q10=97	Q11=99	Q12=97	Q13=95	Q14=97	Q15=93	



### Photometric Parameters

Luminous Flux: 2225.6 lm Efficiency: 93.39 lm/W Radiant Power: 8.088 W  
 Total mains efficacy: 109.83 lm/W Energy Efficiency Class: F (EU 2019/2015)  
 Pupil Flux: 4452.80 Plm Pupil Lumens Per Watt: 186.86 Plm/W Pupil Factor (Kp): 2.001  
 Circopic Flux: 10667.44 lm

### Electric Parameters

Voltage: 230.80V Current: 0.1120A Power: 23.83W  
 Power Factor: 0.9150 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: 45707 (2604) CCD Integration Time: 79.38 ms

Condition: Tx:23.2'C, Ti:0.0'C, R.H.:60%  
 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
 Test Time: 2021-02-17 10:57:55  
 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	0.0329	525	0.4251	36.9264	670	0.2150	18.6785
385	0.0004	0.0356	530	0.4427	38.4551	675	0.1925	16.7190
390	0.0006	0.0478	535	0.4441	38.5811	680	0.1717	14.9174
395	0.0005	0.0450	540	0.4370	37.9580	685	0.1528	13.2742
400	0.0008	0.0671	545	0.4216	36.6246	690	0.1347	11.7026
405	0.0007	0.0584	550	0.3990	34.6617	695	0.1177	10.2212
410	0.0013	0.1172	555	0.3755	32.6165	700	0.1023	8.8886
415	0.0018	0.1564	560	0.3509	30.4784	705	0.0889	7.7208
420	0.0029	0.2537	565	0.3283	28.5220	710	0.0754	6.5486
425	0.0078	0.6769	570	0.3087	26.8196	715	0.0655	5.6905
430	0.0219	1.9009	575	0.2946	25.5877	720	0.0554	4.8122
435	0.0549	4.7649	580	0.2851	24.7667	725	0.0464	4.0289
440	0.1253	10.8845	585	0.2818	24.4827	730	0.0392	3.4061
445	0.2701	23.4643	590	0.2848	24.7445	735	0.0326	2.8328
450	0.5457	47.3998	595	0.2944	25.5704	740	0.0272	2.3593
455	0.8946	77.7089	600	0.3059	26.5721	745	0.0234	2.0328
460	0.9811	85.2240	605	0.3203	27.8202	750	0.0243	2.1145
465	0.7481	64.9860	610	0.3323	28.8698	755	0.0163	1.4135
470	0.5504	47.8103	615	0.3443	29.9123	760	0.0127	1.1024
475	0.4245	36.8790	620	0.3521	30.5863	765	0.0113	0.9838
480	0.3041	26.4160	625	0.3546	30.8002	770	0.0088	0.7664
485	0.2302	19.9937	630	0.3505	30.4472	775	0.0071	0.6200
490	0.2079	18.0559	635	0.3447	29.9397	780	0.0072	0.6233
495	0.2132	18.5174	640	0.3325	28.8818	785	0.0026	0.2216
500	0.2359	20.4897	645	0.3178	27.6057	790	0.0018	0.1585
505	0.2767	24.0337	650	0.3005	26.1011	795	0.0011	0.0974
510	0.3222	27.9931	655	0.2806	24.3752	800	0.0050	0.4310
515	0.3648	31.6924	660	0.2584	22.4454			
520	0.4030	35.0108	665	0.2364	20.5350			

Condition: Tx:23.2'C, Ti:0.0'C, R.H.:60%  
 Test Lab:  
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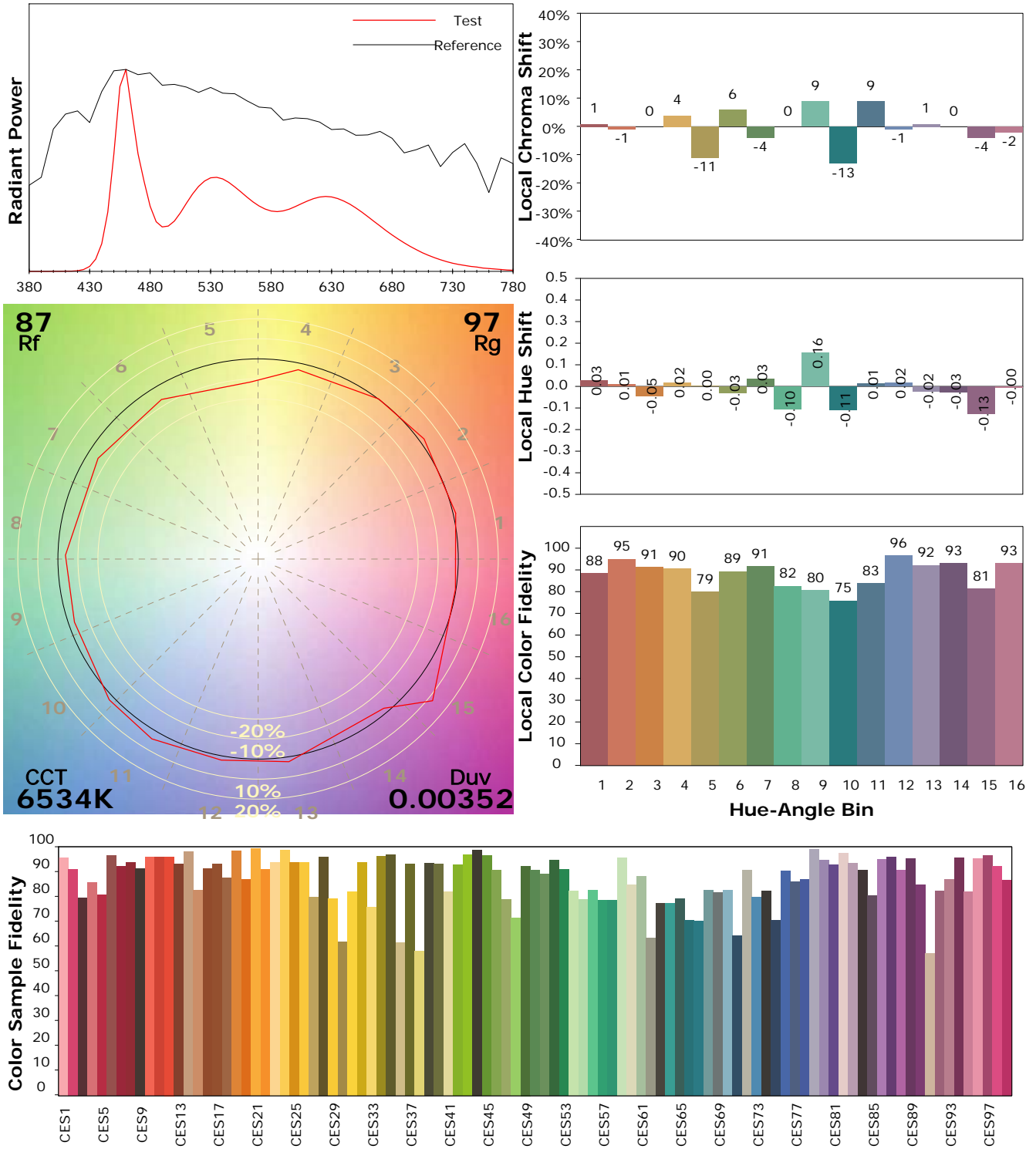
Test Device: Lisun LMS-9000B  
 Test Time: 2021-02-17 10:57:55  
 Inspector:

## I ES TM-30-18 Color Rendition Report

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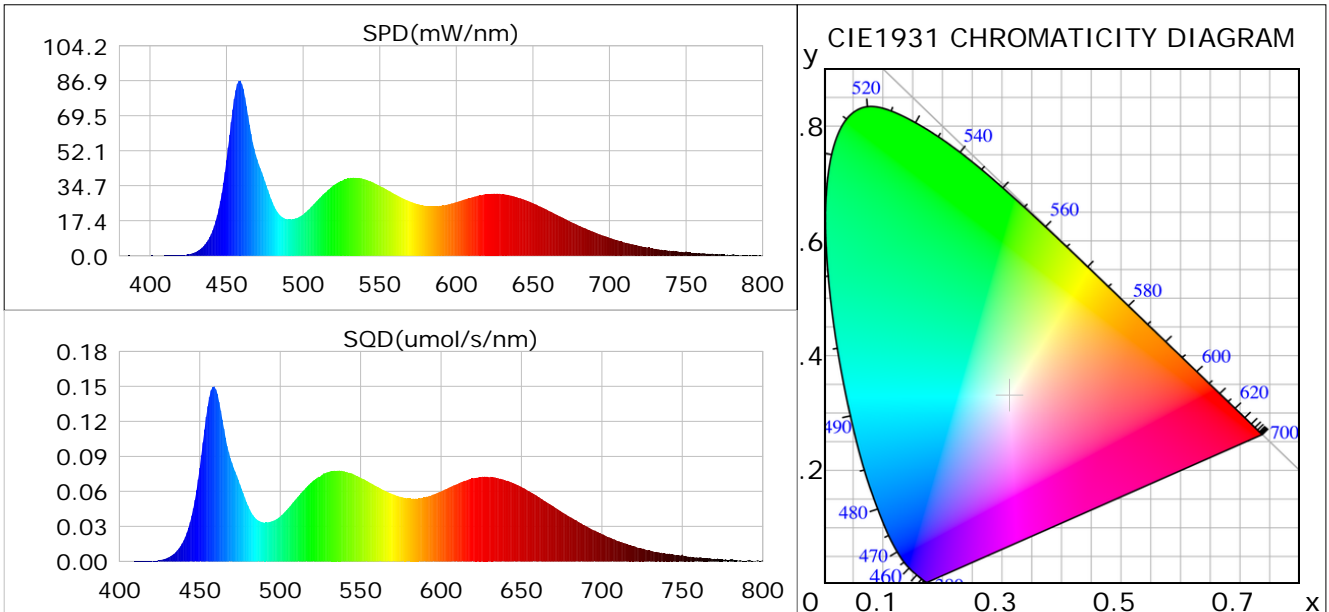
Condition: Tx:23.2°C, Ti:0.0°C, R.H.:60%  
 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
 Test Time: 2021-02-17 10:57:55  
 Inspector:

## Plant optical param data

### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3122$   $y=0.3291$   $u(u')=0.1974$   $v=0.3122$   $v'=0.4683$   
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 Peak Wavelength: 458.5nm Half Bandwidth: 22.7nm  
 Dominant Wavelength: 489.1nm Color Purity: 0.074  
 CRI:  $R_a=93.8$



### Plant Optical Param

$ \mu_v(lm): 2225.60$	$Q_v(lm.s): 2225.60$
$ \mu_e, \dot{E}(W/nm): 8.09$	$Q_e(J): 8.09$
$ \mu_e(W): 7.84$	$ \mu_{fr}(W): 0.26$
$ \zeta_e: 0.33$	$ \zeta_{fr}: 0.01$
$PPE(umol/s/w): 1.51$	$K_{fr}: 0.06$
$Erb\_Ratio: 0.93$	$PPF(umol/s): 36.00$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 9.66$
$PPF(500-600)(umol/s): 13.99$	$PPF(600-700)(umol/s): 12.35$
$PPF_r(700-800)(umol/s): 1.55$	$PPF.t(umol): 36.00$
$ \mu_{ch-A.t}(J): 0.63$	$ \mu_{ch-A}(W): 0.63$
$ \mu_{ch-B.t}(J): 0.48$	$ \mu_{ch-B}(W): 0.48$
$ \mu_b.t(J): 2.49$	$ \mu_b(W): 2.49$
$ \mu_y.t(J): 3.07$	$ \mu_y(W): 3.07$
$ \mu_r.t(J): 2.33$	$ \mu_r(W): 2.33$

### Electric Parameters

Voltage: 230.80V	Current: 0.1120A	Power: 23.83W
Power Factor: 0.9150	Frequency: 49.99Hz	

Condition:  $T_x: 23.2^\circ C$ ,  $T_i: 0.0^\circ C$ , R.H.: 60%  
 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
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