

## Lightsource Test Report

### Product Information

Product Category: LED-Röhre  
 Product Spec: LEDtube-150-8DWM-25W-SCE-24  
 Manufacturer: METOLIGHT  
 Buyer: 4624

Product Type: LED-Röhre-Spezial  
 Product Number: 1  
 Submitted Unit: 102296

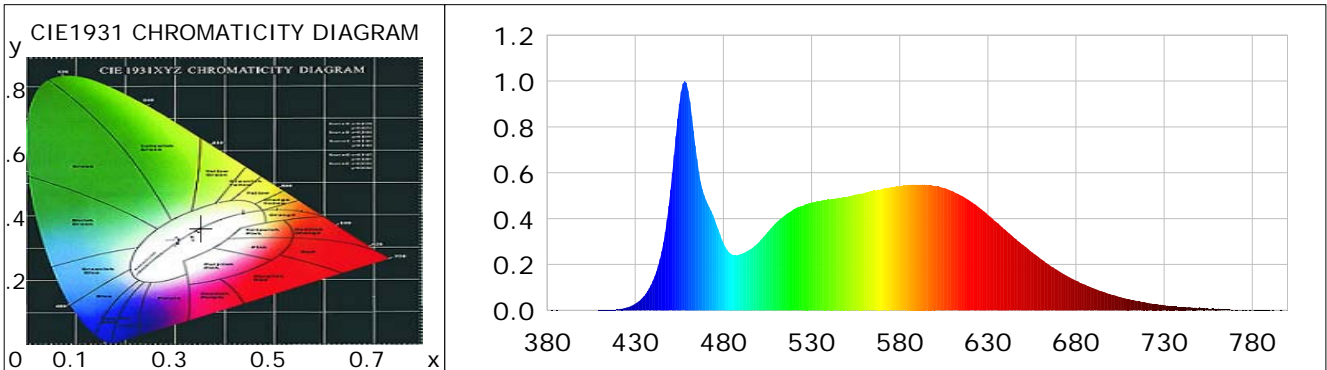
### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3527$   $y=0.3630$   $u(u')=0.2121$   $v=0.3275$   $v'=0.4912$   
 CCT:  $T_c=4768K$  ( $duv=0.00268$ ) Color Ratio:  $R=0.167$   $G=0.783$   $B=0.050$   
 Peak Wavelength: 458.1nm Half Bandwidth: 19.5nm  
 Dominant Wavelength: 591.3nm Color Purity: 0.148  
 CRI:  $R_a=85.2$ ,  $avgR(1\sim14)=79.2$ ,  $avgR(1\sim15)=79.2$  TM30:  $R_f=82$ ,  $R_g=91$   
 GAI:  $GAI\_BB\_8=87.6$ ,  $GAI\_BB\_15=95.9$ ,  $GAI\_EES=77.9$   

R1 =85	R2 =94	R3 =96	R4 =80	R5 =83	R6 =89	R7 =85	R8 =69
R9 =23	R10=84	R11=79	R12=54	R13=88	R14=98	R15=80	

Color Quality Scale:  $Q_a=83.4$ ,  $Q_f=83.6$ ,  $Q_p=81.6$ ,  $Q_g=90.2$   

Q1 =79	Q2 =94	Q3 =83	Q4 =74	Q5 =76	Q6 =78	Q7 =85	Q8 =90
Q9 =98	Q10=94	Q11=90	Q12=89	Q13=88	Q14=77	Q15=79	



### Photometric Parameters

Luminous Flux: 2281.7 lm Efficiency: 118.96 lm/W Radiant Power: 7.084 W  
 Total mains efficacy: 139.90 lm/W Energy Efficiency Class: D (EU 2019/2015)  
 Pupil Flux: 3880.99 Plm Pupil Lumens Per Watt: 202.35 Plm/W Pupil Factor (Kp): 1.701  
 Circopic Flux: 8543.31 lm

### Electric Parameters

Voltage: 24.020V Current: 0.7980A Power: 19.18W  
 Power Factor: 0.7540 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: 45042 (2349) CCD Integration Time: 88.23 ms

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0001	0.0096	525	0.4554	29.8970	670	0.1727	11.3379
385	0.0008	0.0548	530	0.4704	30.8827	675	0.1495	9.8163
390	0.0009	0.0573	535	0.4767	31.2903	680	0.1297	8.5126
395	0.0002	0.0155	540	0.4837	31.7530	685	0.1126	7.3887
400	0.0006	0.0367	545	0.4898	32.1526	690	0.0963	6.3228
405	0.0004	0.0275	550	0.4962	32.5704	695	0.0822	5.3962
410	0.0011	0.0689	555	0.5048	33.1360	700	0.0684	4.4931
415	0.0017	0.1133	560	0.5124	33.6344	705	0.0584	3.8362
420	0.0048	0.3134	565	0.5226	34.3051	710	0.0494	3.2398
425	0.0121	0.7942	570	0.5295	34.7573	715	0.0400	2.6240
430	0.0288	1.8900	575	0.5362	35.1973	720	0.0332	2.1813
435	0.0617	4.0513	580	0.5422	35.5954	725	0.0274	1.8006
440	0.1291	8.4731	585	0.5466	35.8800	730	0.0227	1.4931
445	0.2581	16.9463	590	0.5479	35.9685	735	0.0187	1.2252
450	0.5250	34.4644	595	0.5476	35.9444	740	0.0148	0.9687
455	0.9008	59.1332	600	0.5428	35.6301	745	0.0131	0.8621
460	0.9583	62.9104	605	0.5343	35.0762	750	0.0137	0.8971
465	0.6598	43.3100	610	0.5196	34.1109	755	0.0083	0.5457
470	0.4830	31.7050	615	0.4999	32.8153	760	0.0063	0.4162
475	0.3960	25.9934	620	0.4763	31.2661	765	0.0041	0.2670
480	0.2935	19.2671	625	0.4482	29.4210	770	0.0026	0.1725
485	0.2429	15.9482	630	0.4156	27.2807	775	0.0033	0.2189
490	0.2454	16.1089	635	0.3833	25.1587	780	0.0032	0.2124
495	0.2653	17.4157	640	0.3506	23.0177	785	0.0020	0.1332
500	0.2965	19.4630	645	0.3157	20.7265	790	0.0011	0.0723
505	0.3408	22.3691	650	0.2850	18.7118	795	0.0005	0.0304
510	0.3828	25.1274	655	0.2541	16.6776	800	0.0034	0.2249
515	0.4147	27.2250	660	0.2245	14.7405			
520	0.4412	28.9628	665	0.1967	12.9110			

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

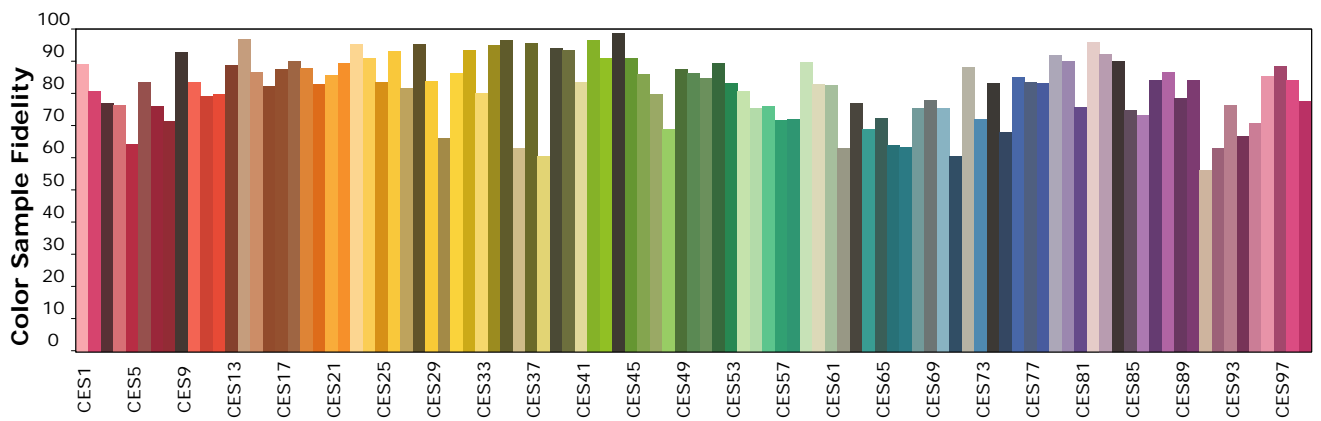
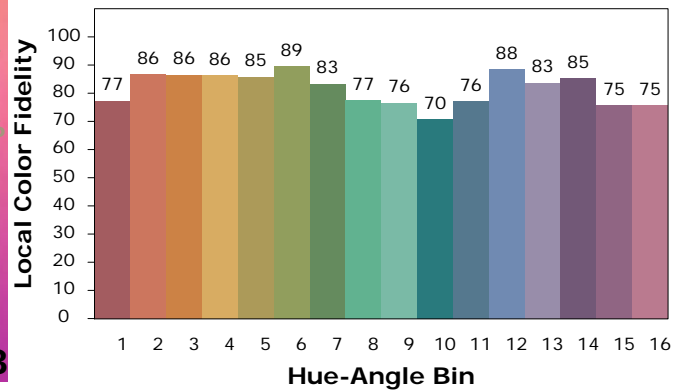
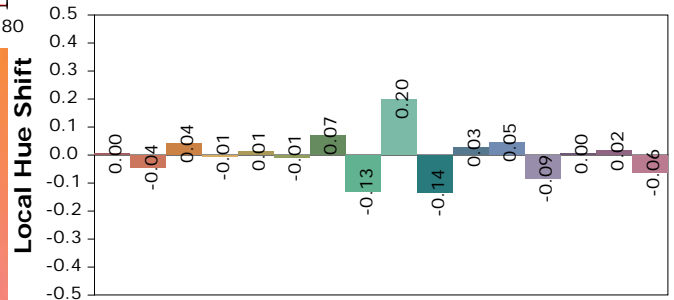
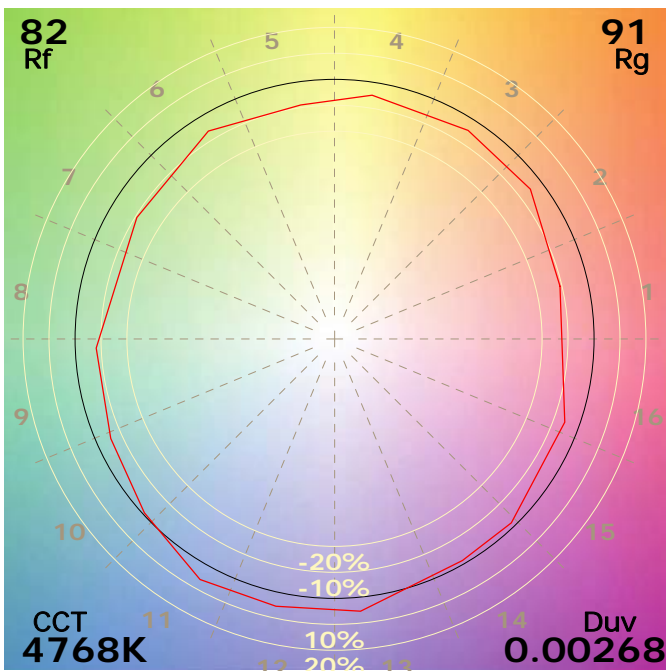
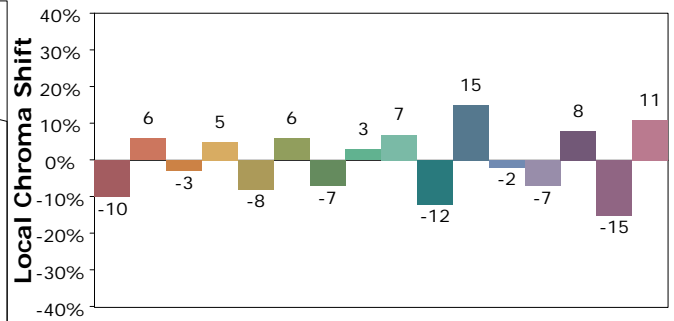
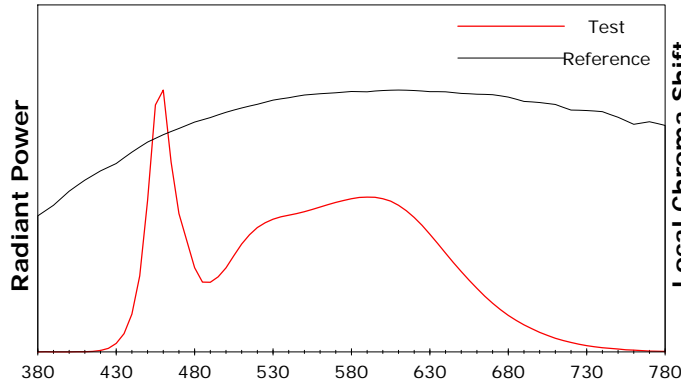
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 Test Time: 2021-02-25 11:18:35  
 Inspector:

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

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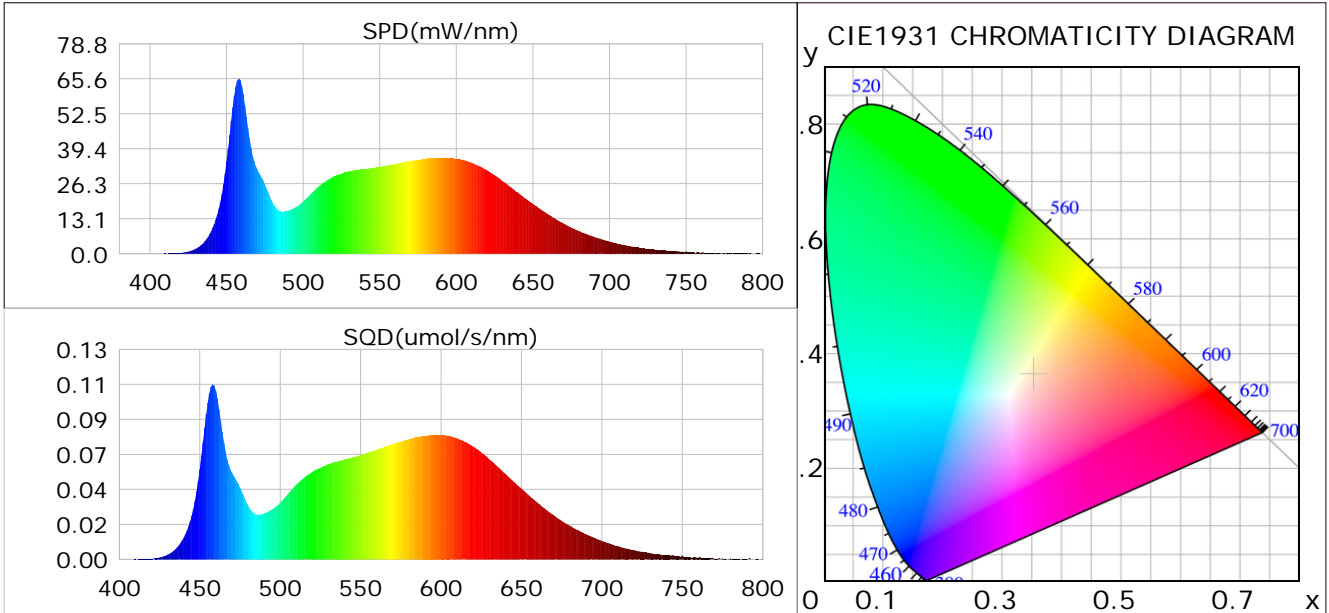
Condition: Tx:0.0°C, Ti:0.0°C, R.H.: 60%  
 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
 Test Time: 2021-02-25 11:18:35  
 Inspector:

## Plant optical param data

### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3527$   $y=0.3630$   $u(u')=0.2121$   $v=0.3275$   $v'=0.4912$   
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 Peak Wavelength: 458.1nm Half Bandwidth: 19.5nm  
 Dominant Wavelength: 591.3nm Color Purity: 0.148  
 CRI:  $R_a=85.2$



### Plant Optical Param

$ \mu_v(lm): 2281.70$	$Q_v(lm.s): 2281.70$
$ \mu_e, \dot{E}(W/nm): 7.08$	$Q_e(J): 7.08$
$ \mu_e(W): 6.97$	$ \mu_{fr}(W): 0.12$
$ \zeta_e: 0.36$	$ \zeta_{fr}: 0.01$
$PPE(umol/s/w): 1.68$	$K_{fr}: 0.04$
$Erb\_Ratio: 1.05$	$PPF(umol/s): 32.23$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 7.20$
$PPF(500-600)(umol/s): 14.73$	$PPF(600-700)(umol/s): 10.30$
$PPF_r(700-800)(umol/s): 0.69$	$PPF.t(umol): 32.23$
$ \mu_{ch-A.t}(J): 0.51$	$ \mu_{ch-A}(W): 0.51$
$ \mu_{ch-B.t}(J): 0.37$	$ \mu_{ch-B}(W): 0.37$
$ \mu_b.t(J): 1.85$	$ \mu_b(W): 1.85$
$ \mu_y.t(J): 3.20$	$ \mu_y(W): 3.20$
$ \mu_r.t(J): 1.97$	$ \mu_r(W): 1.97$

### Electric Parameters

Voltage: 24.020V	Current: 0.7980A	Power: 19.18W
Power Factor: 0.7540	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: 2021-02-25 11:18:35  
 Inspector: