

## Lightsource Test Report

### Product Information

Product Category: LED-Röhre  
 Product Spec: LEDtube-120-8WWC-20W-SCE-24  
 Manufacturer: METOLIGHT  
 Buyer: 4624

Product Type: LED-Röhre-Spezial  
 Product Number: 1  
 Submitted Unit: 101758

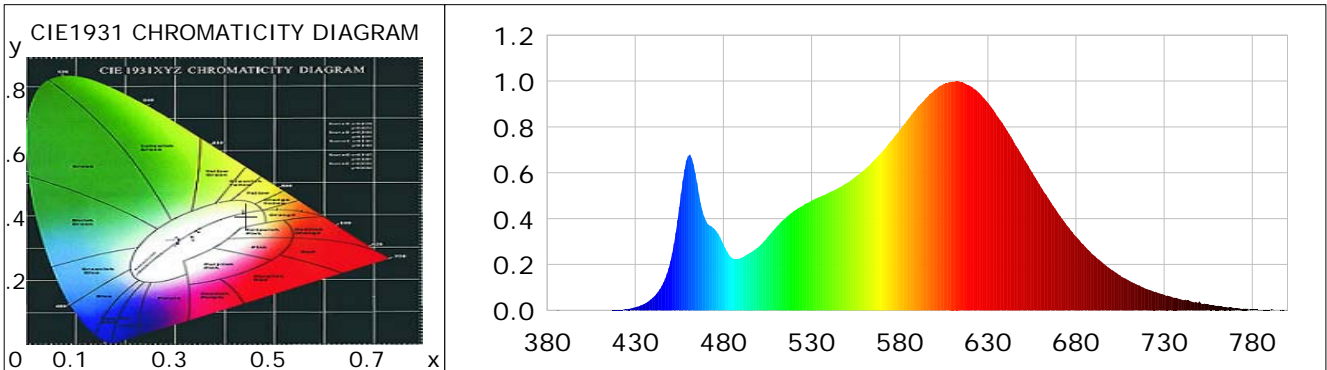
### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.4436$   $y=0.4002$   $u(u')=0.2566$   $v=0.3473$   $v'=0.5209$   
 CCT:  $T_c=2859K$  ( $duv=-0.00236$ ) Color Ratio:  $R=0.250$   $G=0.719$   $B=0.031$   
 Peak Wavelength: 612.4nm Half Bandwidth: 127.4nm  
 Dominant Wavelength: 584.3nm Color Purity: 0.533  
 CRI:  $R_a=87.2$ ,  $avgR(1\sim14)=83.9$ ,  $avgR(1\sim15)=83.8$  TM30:  $R_f=85$ ,  $R_g=94$   
 GAI:  $GAI\_BB\_8=99.6$ ,  $GAI\_BB\_15=109.3$ ,  $GAI\_EES=53.2$   

R1 =89	R2 =98	R3 =93	R4 =85	R5 =89	R6 =95	R7 =82	R8 =67
R9 =32	R10=94	R11=85	R12=76	R13=92	R14=97	R15=82	

Color Quality Scale:  $Q_a=85.8$ ,  $Q_f=87.4$ ,  $Q_p=87.8$ ,  $Q_g=92.2$   

Q1 =81	Q2 =93	Q3 =88	Q4 =82	Q5 =82	Q6 =84	Q7 =88	Q8 =89
Q9 =95	Q10=94	Q11=91	Q12=88	Q13=87	Q14=80	Q15=80	



### Photometric Parameters

Luminous Flux: 2286.8 lm Efficiency: 117.51 lm/W Radiant Power: 7.303 W  
 Total mains efficacy: 138.20 lm/W Energy Efficiency Class: D (EU 2019/2015)  
 Pupil Flux: 2941.19 Plm Pupil Lumens Per Watt: 151.14 Plm/W Pupil Factor (Kp): 1.286  
 Circopic Flux: 5581.65 lm

### Electric Parameters

Voltage: 24.010V Current: 0.8100A Power: 19.46W  
 Power Factor: 0.7310 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: 46409 (2406) CCD Integration Time: 191.55 ms

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

Test Device: Lisun LMS-9000B  
 Test Time: 2020-12-16 13:40:33  
 Inspector:

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0007	0.0320	525	0.4560	22.4038	670	0.4223	20.7468
385	0.0004	0.0191	530	0.4786	23.5149	675	0.3688	18.1168
390	0.0004	0.0218	535	0.4950	24.3207	680	0.3222	15.8301
395	0.0002	0.0084	540	0.5139	25.2456	685	0.2791	13.7095
400	0.0006	0.0316	545	0.5321	26.1386	690	0.2402	11.7999
405	0.0001	0.0032	550	0.5552	27.2746	695	0.2074	10.1911
410	0.0001	0.0034	555	0.5822	28.6040	700	0.1778	8.7370
415	0.0008	0.0394	560	0.6128	30.1077	705	0.1522	7.4789
420	0.0014	0.0693	565	0.6517	32.0161	710	0.1300	6.3872
425	0.0048	0.2355	570	0.6915	33.9705	715	0.1107	5.4395
430	0.0134	0.6597	575	0.7389	36.2989	720	0.0930	4.5664
435	0.0276	1.3543	580	0.7862	38.6237	725	0.0816	4.0091
440	0.0556	2.7309	585	0.8351	41.0269	730	0.0679	3.3376
445	0.1068	5.2451	590	0.8855	43.5009	735	0.0563	2.7642
450	0.2146	10.5447	595	0.9269	45.5382	740	0.0468	2.2977
455	0.4505	22.1301	600	0.9621	47.2639	745	0.0396	1.9474
460	0.6734	33.0804	605	0.9883	48.5552	750	0.0385	1.8918
465	0.5558	27.3053	610	0.9978	49.0218	755	0.0266	1.3061
470	0.3917	19.2431	615	0.9946	48.8646	760	0.0196	0.9628
475	0.3540	17.3894	620	0.9784	48.0686	765	0.0150	0.7388
480	0.2880	14.1512	625	0.9481	46.5775	770	0.0092	0.4527
485	0.2279	11.1963	630	0.9052	44.4698	775	0.0071	0.3494
490	0.2282	11.2110	635	0.8500	41.7577	780	0.0044	0.2164
495	0.2503	12.2967	640	0.7939	39.0009	785	0.0037	0.1798
500	0.2775	13.6317	645	0.7307	35.8965	790	0.0018	0.0886
505	0.3189	15.6652	650	0.6669	32.7651	795	0.0005	0.0233
510	0.3637	17.8666	655	0.6033	29.6404	800	0.0040	0.1948
515	0.4007	19.6854	660	0.5395	26.5024			
520	0.4329	21.2673	665	0.4798	23.5730			

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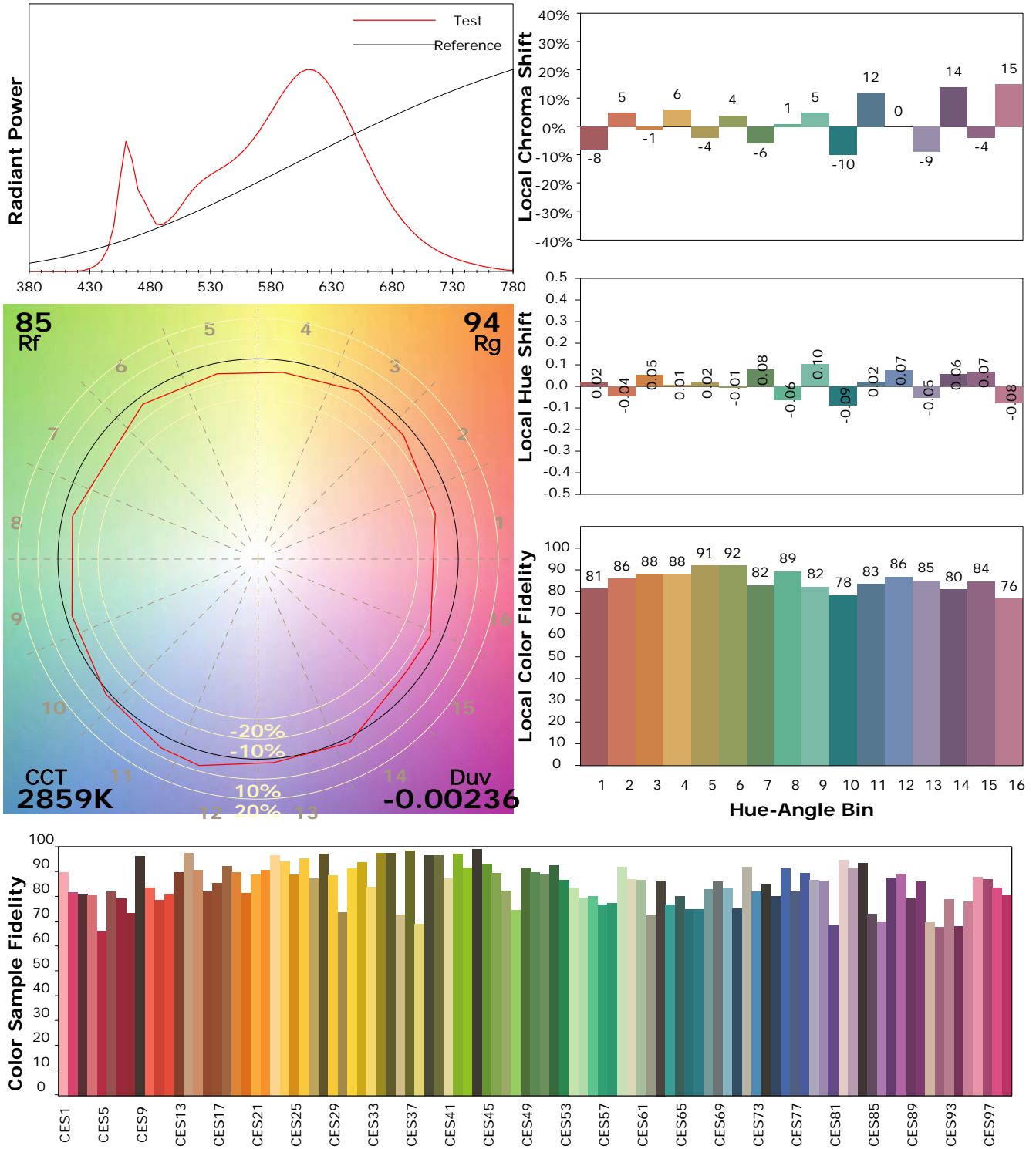
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## IES TM-30-18 Color Rendition Report

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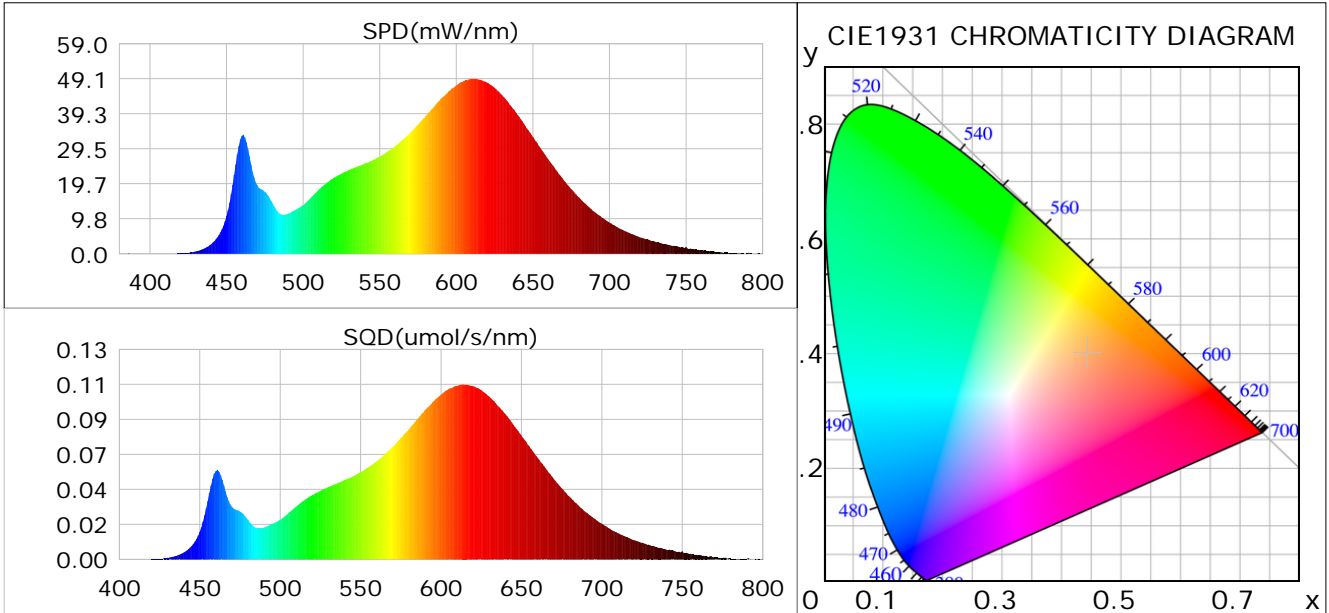
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 Test Lab:  
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Test Device: Lisun LMS-9000B  
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## Plant optical param data

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 Peak Wavelength: 612.4nm Half Bandwidth: 127.4nm  
 Dominant Wavelength: 584.3nm Color Purity: 0.533  
 CRI:  $R_a=87.2$



### Plant Optical Param

$ \mu_v(lm)$ : 2286.80	$Q_v(lm.s)$ : 2286.80
$ \mu_e, \dot{E}(W/nm)$ : 7.30	$Q_e(J)$ : 7.30
$ \mu_e(W)$ : 7.07	$ \mu_{fr}(W)$ : 0.25
$ \zeta_e$ : 0.36	$ \zeta_{fr}$ : 0.01
PPE(umol/s/w): 1.77	Kfr: 0.07
Erb_Ratio: 3.20	PPF(umol/s): 34.36
PFuv(360-400)(umol/s): 0.00	PPF(400-500)(umol/s): 3.86
PPF(500-600)(umol/s): 13.72	PPF(600-700)(umol/s): 16.78
PPfr(700-800)(umol/s): 1.44	PPF.t(umol): 34.36
$ \mu_{ch-A.t}(J)$ : 0.55	$ \mu_{ch-A}(W)$ : 0.55
$ \mu_{ch-B.t}(J)$ : 0.30	$ \mu_{ch-B}(W)$ : 0.30
$ \mu_b.t(J)$ : 0.98	$ \mu_b(W)$ : 0.98
$ \mu_y.t(J)$ : 2.95	$ \mu_y(W)$ : 2.95
$ \mu_r.t(J)$ : 3.19	$ \mu_r(W)$ : 3.19

### Electric Parameters

Voltage: 24.010V	Current: 0.8100A	Power: 19.46W
Power Factor: 0.7310	Frequency: 49.99Hz	

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