

## Lightsource Test Report

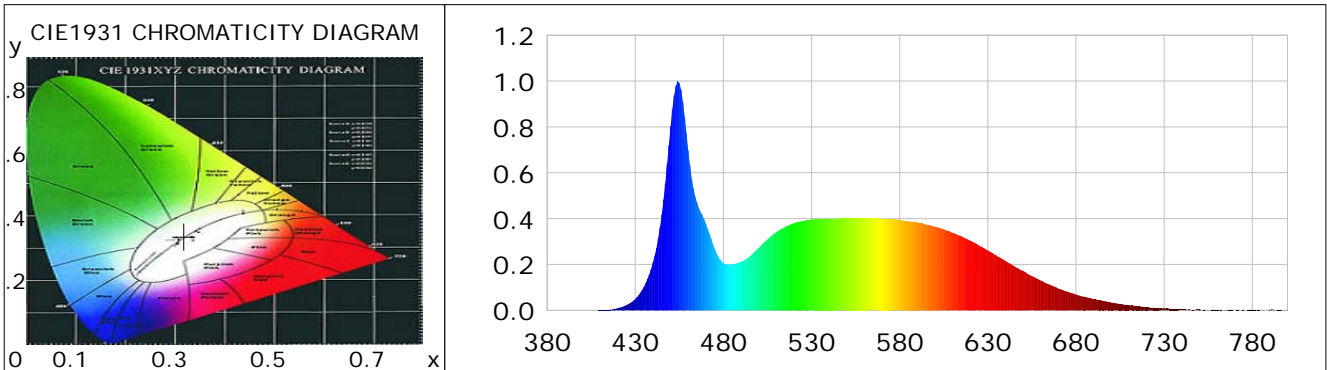
### Product Information

Product Category: LED-Röhre  
 Product Spec: LEDtube-060-8CWM-10W-VDE-RM  
 Manufacturer: METOLIGHT  
 Buyer: 6361

Product Type: LED-Röhre VDE  
 Product Number: 1  
 Submitted Unit: 101055

### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.3179$   $y=0.3372$   $u(u')=0.1984$   $v=0.3156$   $v'=0.4734$   
 CCT:  $T_c=6186K$  ( $duv=0.00476$ ) Color Ratio:  $R=0.140$   $G=0.804$   $B=0.056$   
 Peak Wavelength: 454.2nm Half Bandwidth: 17.6nm  
 Dominant Wavelength: 494.9nm Color Purity: 0.050  
 CRI:  $R_a=84.5$ ,  $avgR(1\sim14)=77.5$ ,  $avgR(1\sim15)=77.6$  TM30:  $R_f=83$ ,  $R_g=93$   
 GAI:  $GAI\_BB\_8=89.7$ ,  $GAI\_BB\_15=96.0$ ,  $GAI\_EES=86.2$   
 R1 =83 R2 =90 R3 =93 R4 =82 R5 =83 R6 =85 R7 =88 R8 =71  
 R9 =15 R10=76 R11=82 R12=54 R13=86 R14=97 R15=79  
 Color Quality Scale:  $Q_a=82.3$ ,  $Q_f=82.3$ ,  $Q_p=81.9$ ,  $Q_g=91.3$   
 Q1 =82 Q2 =98 Q3 =79 Q4 =72 Q5 =77 Q6 =81 Q7 =86 Q8 =90  
 Q9 =97 Q10=89 Q11=85 Q12=85 Q13=85 Q14=74 Q15=78



### Photometric Parameters

Luminous Flux: 1278.2 lm Efficiency: 126.55 lm/W Radiant Power: 4.043 W  
 Total mains efficacy: 148.83 lm/W Energy Efficiency Class: D (EU 2019/2015)  
 Pupil Flux: 2391.41 Plm Pupil Lumens Per Watt: 236.77 Plm/W Pupil Factor (Kp): 1.871  
 Circopic Flux: 5493.83 lm

### Electric Parameters

Voltage: 231.00V Current: 0.0480A Power: 10.10W  
 Power Factor: 0.9050 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: 45318 (2314) CCD Integration Time: 121.71 ms

Condition: Tx:19.0'C, Ti:0.0'C, R.H.:60%  
 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
 Test Time: 2021-01-06 15:13:20  
 Inspector:

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0001	0.0038	525	0.3881	18.5971	670	0.0956	4.5820
385	0.0009	0.0451	530	0.3966	19.0041	675	0.0819	3.9229
390	0.0003	0.0156	535	0.3974	19.0427	680	0.0698	3.3438
395	0.0004	0.0169	540	0.3995	19.1411	685	0.0596	2.8538
400	0.0006	0.0268	545	0.4008	19.2042	690	0.0487	2.3344
405	0.0004	0.0213	550	0.4019	19.2565	695	0.0416	1.9956
410	0.0010	0.0476	555	0.4040	19.3596	700	0.0341	1.6339
415	0.0027	0.1278	560	0.4027	19.2959	705	0.0286	1.3689
420	0.0095	0.4558	565	0.4012	19.2237	710	0.0236	1.1290
425	0.0230	1.1012	570	0.4005	19.1913	715	0.0183	0.8785
430	0.0492	2.3577	575	0.3982	19.0807	720	0.0137	0.6576
435	0.1033	4.9498	580	0.3927	18.8181	725	0.0107	0.5141
440	0.2073	9.9312	585	0.3882	18.6022	730	0.0097	0.4657
445	0.4190	20.0783	590	0.3833	18.3672	735	0.0060	0.2868
450	0.8016	38.4073	595	0.3747	17.9530	740	0.0038	0.1842
455	0.9912	47.4938	600	0.3650	17.4888	745	0.0038	0.1834
460	0.6985	33.4707	605	0.3535	16.9401	750	0.0065	0.3095
465	0.4701	22.5263	610	0.3382	16.2048	755	0.0023	0.1094
470	0.3787	18.1467	615	0.3237	15.5081	760	0.0015	0.0716
475	0.2691	12.8962	620	0.3038	14.5572	765	0.0033	0.1582
480	0.2058	9.8609	625	0.2826	13.5429	770	0.0006	0.0306
485	0.2005	9.6062	630	0.2613	12.5182	775	0.0009	0.0452
490	0.2116	10.1399	635	0.2387	11.4354	780	0.0017	0.0812
495	0.2356	11.2895	640	0.2154	10.3212	785	0.0007	0.0319
500	0.2719	13.0302	645	0.1931	9.2540	790	0.0019	0.0915
505	0.3099	14.8503	650	0.1721	8.2473	795	0.0018	0.0847
510	0.3410	16.3382	655	0.1492	7.1501	800	0.0037	0.1756
515	0.3637	17.4263	660	0.1303	6.2437			
520	0.3799	18.2045	665	0.1126	5.3959			

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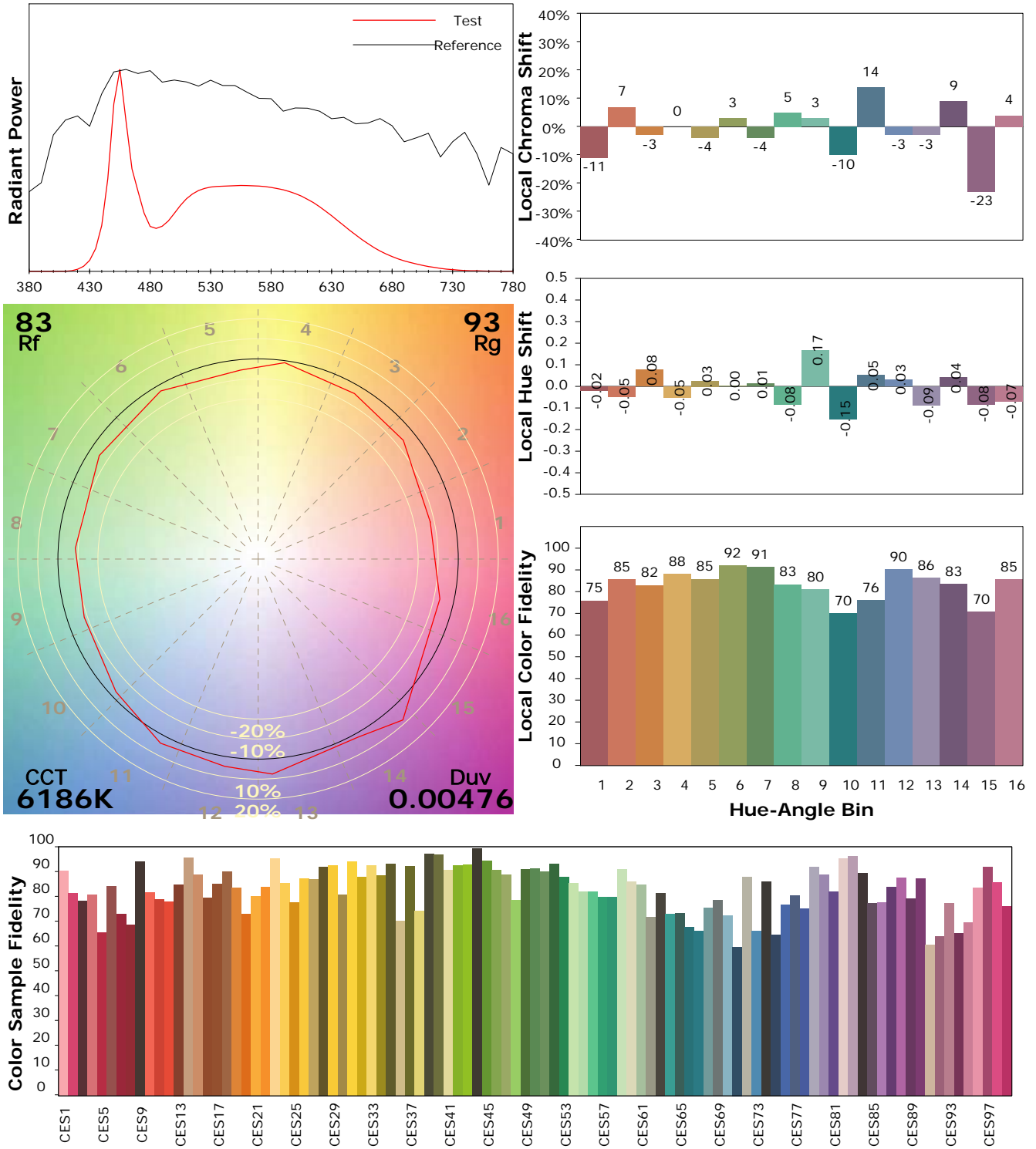
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## IES TM-30-18 Color Rendition Report

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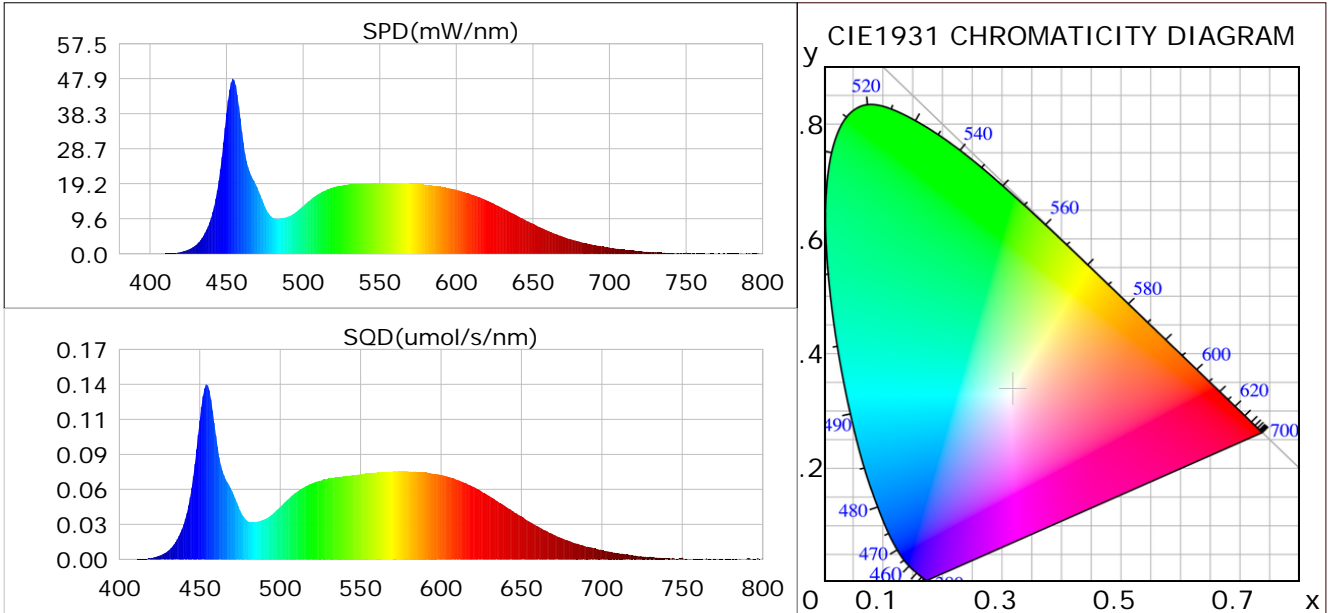
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## Plant optical param data

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 Dominant Wavelength: 494.9nm Color Purity: 0.050  
 CRI:  $R_a=84.5$



### Plant Optical Param

$ \mu_v(lm)$ : 1278.20	$Q_v(lm.s)$ : 1278.20
$ \mu_e, \dot{E}(W/nm)$ : 4.04	$Q_e(J)$ : 4.04
$ \mu_e(W)$ : 4.01	$ \mu_{fr}(W)$ : 0.04
$ \zeta_e$ : 0.40	$ \zeta_{fr}$ : 0.00
PPE(umol/s/w): 1.79	Kfr: 0.02
Erb_Ratio: 0.67	PPF(umol/s): 18.11
PFuv(360-400)(umol/s): 0.00	PPF(400-500)(umol/s): 5.03
PPF(500-600)(umol/s): 8.46	PPF(600-700)(umol/s): 4.61
PPfr(700-800)(umol/s): 0.21	PPF.t(umol): 18.11
$ \mu_{ch-A.t}(J)$ : 0.31	$ \mu_{ch-A}(W)$ : 0.31
$ \mu_{ch-B.t}(J)$ : 0.23	$ \mu_{ch-B}(W)$ : 0.23
$ \mu_b.t(J)$ : 1.30	$ \mu_b(W)$ : 1.30
$ \mu_y.t(J)$ : 1.85	$ \mu_y(W)$ : 1.85
$ \mu_r.t(J)$ : 0.89	$ \mu_r(W)$ : 0.89

### Electric Parameters

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Power Factor: 0.9050	Frequency: 49.99Hz	

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