

Lightsource Test Report

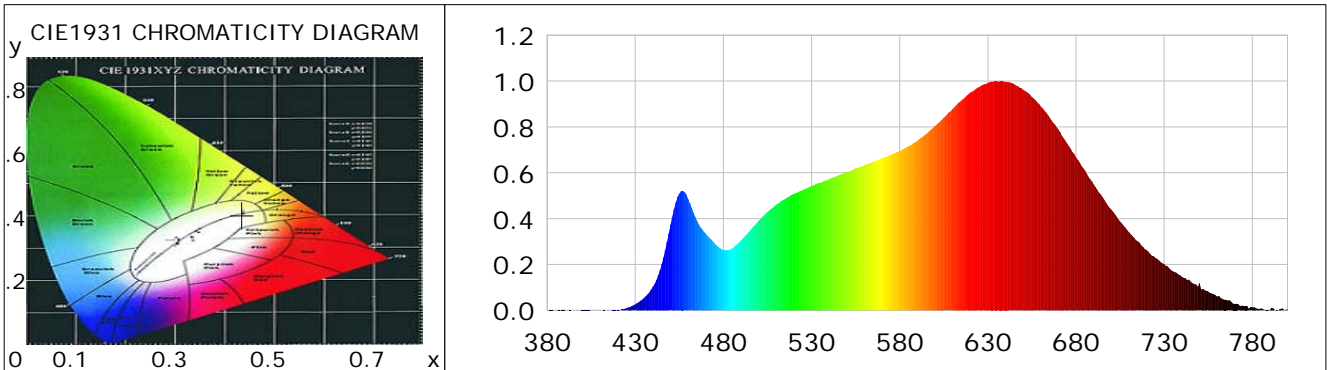
Product Information

Product Category: LED-Röhre
 Product Spec: LEDtube-060-8Deli-10WM
 Manufacturer: METOLIGHT
 Buyer: 7116

Product Type: LED-Röhre Spezial
 Product Number: 1
 Submitted Unit: 105184

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.4351$ $y=0.4039$ $u(u')=0.2495$ $v=0.3474$ $v'=0.5210$
 CCT: $T_c=3030K$ ($duv=0.00017$) Color Ratio: $R=0.249$ $G=0.718$ $B=0.033$
 Peak Wavelength: 637.4nm Half Bandwidth: 176.6nm
 Dominant Wavelength: 582.6nm Color Purity: 0.518
 CRI: $R_a=97.7$, $avgR(1\sim14)=96.6$, $avgR(1\sim15)=96.7$ TM30: $R_f=93$, $R_g=99$
 GAI: $GAI_BB_8=99.3$, $GAI_BB_15=105.7$, $GAI_EES=57.8$
 R1 =98 R2 =99 R3 =99 R4 =98 R5 =98 R6 =97 R7 =97 R8 =97
 R9 =97 R10=99 R11=97 R12=82 R13=98 R14=98 R15=98
 Color Quality Scale: $Q_a=95.0$, $Q_f=95.9$, $Q_p=97.3$, $Q_g=98.0$
 Q1 =91 Q2 =96 Q3 =94 Q4 =93 Q5 =94 Q6 =95 Q7 =98 Q8 =98
 Q9 =96 Q10=96 Q11=97 Q12=97 Q13=97 Q14=96 Q15=94



Photometric Parameters

Luminous Flux: 844.23 lm Efficiency: 77.10 lm/W Radiant Power: 3.192 W
 Total mains efficacy: 90.67 lm/W Energy Efficiency Class: F (EU 2019/2015)
 Pupil Flux: 1157.71 Plm Pupil Lumens Per Watt: 105.73 Plm/W Pupil Factor (Kp): 1.371
 Circopic Flux: 2233.34 lm

Electric Parameters

Voltage: 230.90V Current: 0.0500A Power: 10.95W
 Power Factor: 0.9340 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: 46931 (2636) CCD Integration Time: 567.22 ms

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 10:40:01
 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	0.0079	525	0.5242	9.4148	670	0.7889	14.1688
385	0.0010	0.0173	530	0.5416	9.7277	675	0.7280	13.0751
390	0.0009	0.0162	535	0.5557	9.9799	680	0.6680	11.9979
395	0.0002	0.0027	540	0.5721	10.2754	685	0.6107	10.9686
400	0.0012	0.0220	545	0.5878	10.5571	690	0.5496	9.8706
405	0.0001	0.0014	550	0.6031	10.8316	695	0.4947	8.8841
410	0.0003	0.0046	555	0.6199	11.1340	700	0.4403	7.9084
415	0.0011	0.0192	560	0.6326	11.3608	705	0.3878	6.9644
420	0.0022	0.0395	565	0.6489	11.6540	710	0.3410	6.1245
425	0.0084	0.1507	570	0.6633	11.9130	715	0.3009	5.4047
430	0.0260	0.4670	575	0.6784	12.1840	720	0.2633	4.7296
435	0.0542	0.9743	580	0.6953	12.4867	725	0.2296	4.1230
440	0.1028	1.8471	585	0.7151	12.8425	730	0.2018	3.6243
445	0.2018	3.6236	590	0.7382	13.2587	735	0.1697	3.0476
450	0.3741	6.7191	595	0.7695	13.8209	740	0.1468	2.6367
455	0.5096	9.1525	600	0.8037	14.4348	745	0.1250	2.2444
460	0.4846	8.7026	605	0.8408	15.1002	750	0.1186	2.1297
465	0.3907	7.0166	610	0.8776	15.7619	755	0.0819	1.4711
470	0.3341	6.0009	615	0.9151	16.4350	760	0.0605	1.0871
475	0.2923	5.2495	620	0.9500	17.0628	765	0.0467	0.8383
480	0.2632	4.7275	625	0.9738	17.4886	770	0.0287	0.5146
485	0.2703	4.8552	630	0.9924	17.8243	775	0.0198	0.3561
490	0.3049	5.4755	635	0.9990	17.9419	780	0.0119	0.2134
495	0.3468	6.2290	640	0.9972	17.9089	785	0.0090	0.1616
500	0.3906	7.0151	645	0.9857	17.7035	790	0.0033	0.0587
505	0.4299	7.7203	650	0.9626	17.2875	795	0.0036	0.0643
510	0.4615	8.2886	655	0.9301	16.7038	800	0.0060	0.1086
515	0.4853	8.7168	660	0.8896	15.9773			
520	0.5077	9.1183	665	0.8415	15.1136			

Condition: Tx: 19.9°C, Ti: 0.0°C, R.H.: 60%
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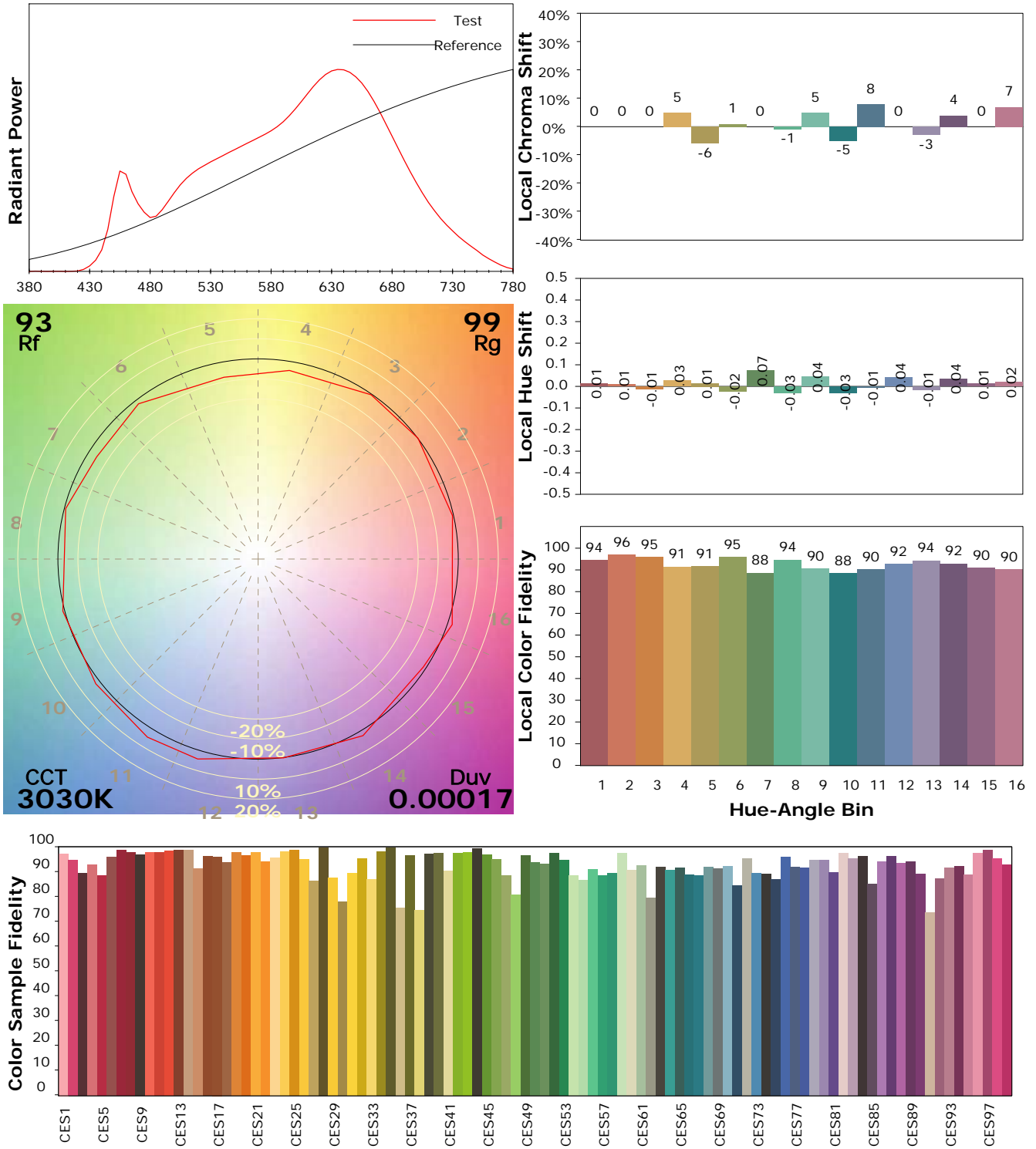
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IES TM-30-18 Color Rendition Report

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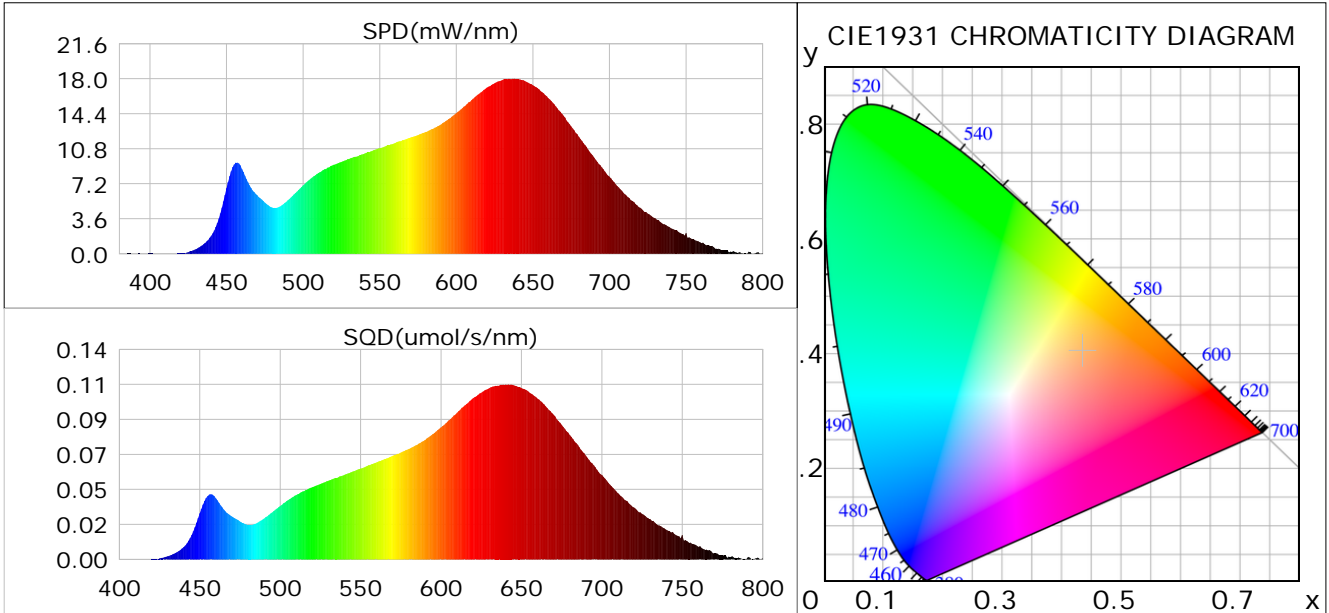
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Plant optical param data

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 Dominant Wavelength: 582.6nm Color Purity: 0.518
 CRI: $R_a=97.7$



Plant Optical Param

$ \mu_v(lm): 844.23$	$Q_v(lm.s): 844.23$
$ \mu_e, \dot{E}(W/nm): 3.19$	$Q_e(J): 3.19$
$ \mu_e(W): 2.95$	$ \mu_{fr}(W): 0.25$
$ \dot{C}_e: 0.27$	$ \dot{C}_{fr}: 0.02$
$PPE(umol/s/w): 1.33$	$K_{fr}: 0.13$
$Erb_Ratio: 3.95$	$PPF(umol/s): 14.56$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 1.48$
$PPF(500-600)(umol/s): 5.03$	$PPF(600-700)(umol/s): 8.04$
$PPF_r(700-800)(umol/s): 1.48$	$PPF.t(umol): 14.56$
$ \mu_{ch-A.t}(J): 0.26$	$ \mu_{ch-A}(W): 0.26$
$ \mu_{ch-B.t}(J): 0.12$	$ \mu_{ch-B}(W): 0.12$
$ \mu_b.t(J): 0.38$	$ \mu_b(W): 0.38$
$ \mu_y.t(J): 1.09$	$ \mu_y(W): 1.09$
$ \mu_r.t(J): 1.50$	$ \mu_r(W): 1.50$

Electric Parameters

Voltage: 230.90V	Current: 0.0500A	Power: 10.95W
Power Factor: 0.9340	Frequency: 49.99Hz	

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