

Lightsource Test Report

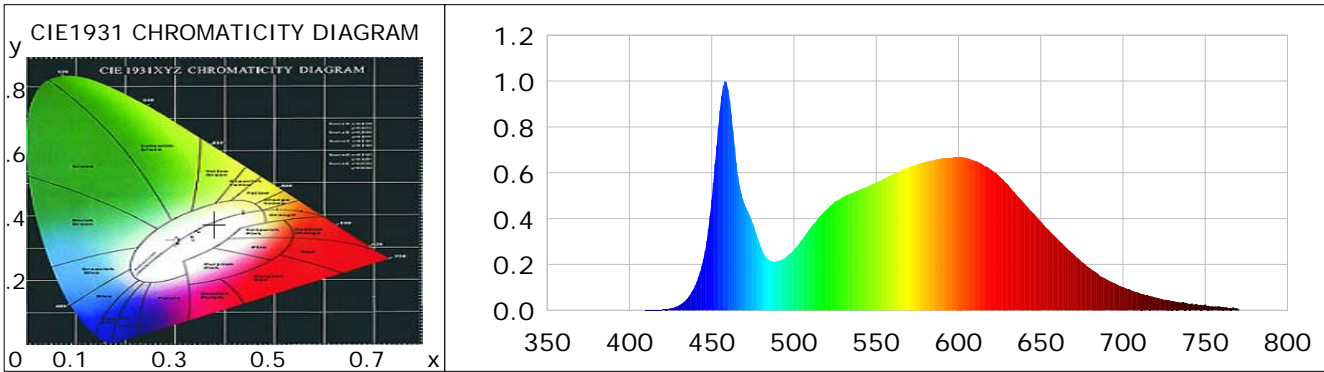
Product Infomation

Product Category: LED-Röhre Product Type: LED-Röhre-Spezial
 Product Spec: Ledtube-120-T10-DWC-24W-2120-230 Product Number: 1
 Manufacturer: METOLIGHT Submitted Unit: 101759
 Buyer: 4624

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3793$ $y=0.3751$ $u(u')=0.2250$ $v=0.3338$ $v'=0.5007$
 CCT: $T_c=4018K$ (duv=-0.00046) Color Ratio: $R=0.187$ $G=0.772$ $B=0.041$
 Peak Wavelength: 458.3nm Half Bandwidth: 18.1nm
 Dominant Wavelength: 579.3nm Color Purity: 0.264
 CRI: $R_a=84.8$, $avgR(1\sim14)=78.7$, $avgR(1\sim15)=78.9$ TM30: $R_f=82$, $R_g=92$
 GAI: $GAI_BB_8=91.5$, $GAI_BB_15=100.7$, $GAI_EES=72.5$

R1 =85	R2 =93	R3 =96	R4 =80	R5 =83	R6 =88	R7 =85	R8 =69
R9 =24	R10=81	R11=77	R12=56	R13=87	R14=98	R15=80	
Color Quality Scale: $Q_a=82.5$, $Q_f=82.7$, $Q_p=81.7$, $Q_g=91.7$							
Q1 =81	Q2 =96	Q3 =80	Q4 =72	Q5 =75	Q6 =78	Q7 =84	Q8 =89
Q9 =98	Q10=91	Q11=87	Q12=86	Q13=86	Q14=78	Q15=80	



Photometric Parameters

Luminous Flux: 3059.1 lm Efficiency: 121.34 lm/W Radiant Power: 9.463 W
 Total mains efficacy: 121.34 lm/W Energy Efficiency Class: E (EU 2019/2015)
 Pupil Flux: 4710.85 Plm Pupil Lumens Per Watt: 186.86 Plm/W Pupil Factor (Kp): 1.540
 Cirtopic Flux: 9839.99 lm

Electric Parameters

Voltage: 230.40V Current: 0.1130A Power: 25.21W
 Power Factor: 0.9650 Frequency: 49.98Hz

Test Infomation

Scan Range: 350~800:1nm Photometric Method: sphere-spectroradiometer
 Stabilization Time: 0 ms ALC.: 1.0000 Photometric Condition: Sphere diameter: 2.00m, 4PI
 Max of Signal: 45793 (2316) CCD Integration Time: 59.14 ms

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0005	0.0422	525	0.2304	17.7969	670	0.4672	36.0926
385	0.0000	0.0016	530	0.2640	20.3950	675	0.4263	32.9308
390	0.0002	0.0158	535	0.3085	23.8335	680	0.3877	29.9467
395	0.0001	0.0104	540	0.3585	27.6931	685	0.3495	27.0028
400	0.0004	0.0303	545	0.4035	31.1738	690	0.3130	24.1806
405	0.0003	0.0244	550	0.4406	34.0398	695	0.2778	21.4611
410	0.0003	0.0205	555	0.4747	36.6723	700	0.2445	18.8846
415	0.0001	0.0083	560	0.4952	38.2506	705	0.2112	16.3170
420	0.0003	0.0250	565	0.5114	39.5050	710	0.1829	14.1327
425	0.0001	0.0108	570	0.5257	40.6141	715	0.1580	12.2043
430	0.0002	0.0127	575	0.5408	41.7808	720	0.1352	10.4404
435	0.0004	0.0320	580	0.5572	43.0468	725	0.1181	9.1201
440	0.0010	0.0759	585	0.5752	44.4371	730	0.1021	7.8858
445	0.0018	0.1355	590	0.5932	45.8249	735	0.0877	6.7733
450	0.0039	0.2984	595	0.6104	47.1513	740	0.0757	5.8491
455	0.0086	0.6627	600	0.6254	48.3102	745	0.0656	5.0663
460	0.0213	1.6422	605	0.6401	49.4494	750	0.0564	4.3556
465	0.0501	3.8695	610	0.6475	50.0164	755	0.0458	3.5364
470	0.1093	8.4401	615	0.6549	50.5911	760	0.0406	3.1396
475	0.2238	17.2919	620	0.6633	51.2394	765	0.0339	2.6191
480	0.4819	37.2236	625	0.6672	51.5388	770	0.0282	2.1748
485	0.8722	67.3796	630	0.6674	51.5601	775	0.0270	2.0834
490	0.9630	74.3951	635	0.6647	51.3504	780	0.0262	2.0228
495	0.6428	49.6561	640	0.6514	50.3205	785	0.0165	1.2723
500	0.4633	35.7876	645	0.6340	48.9798	790	0.0145	1.1177
505	0.3795	29.3181	650	0.6121	47.2818	795	0.0111	0.8556
510	0.2745	21.2057	655	0.5840	45.1133	800	0.0070	0.5379
515	0.2189	16.9097	660	0.5497	42.4632			
520	0.2158	16.6741	665	0.5061	39.0966			

Condition: Tx:19.2'C, Ti:0.0'C, R.H.:60%
 Test Lab:
 Operator: CRE

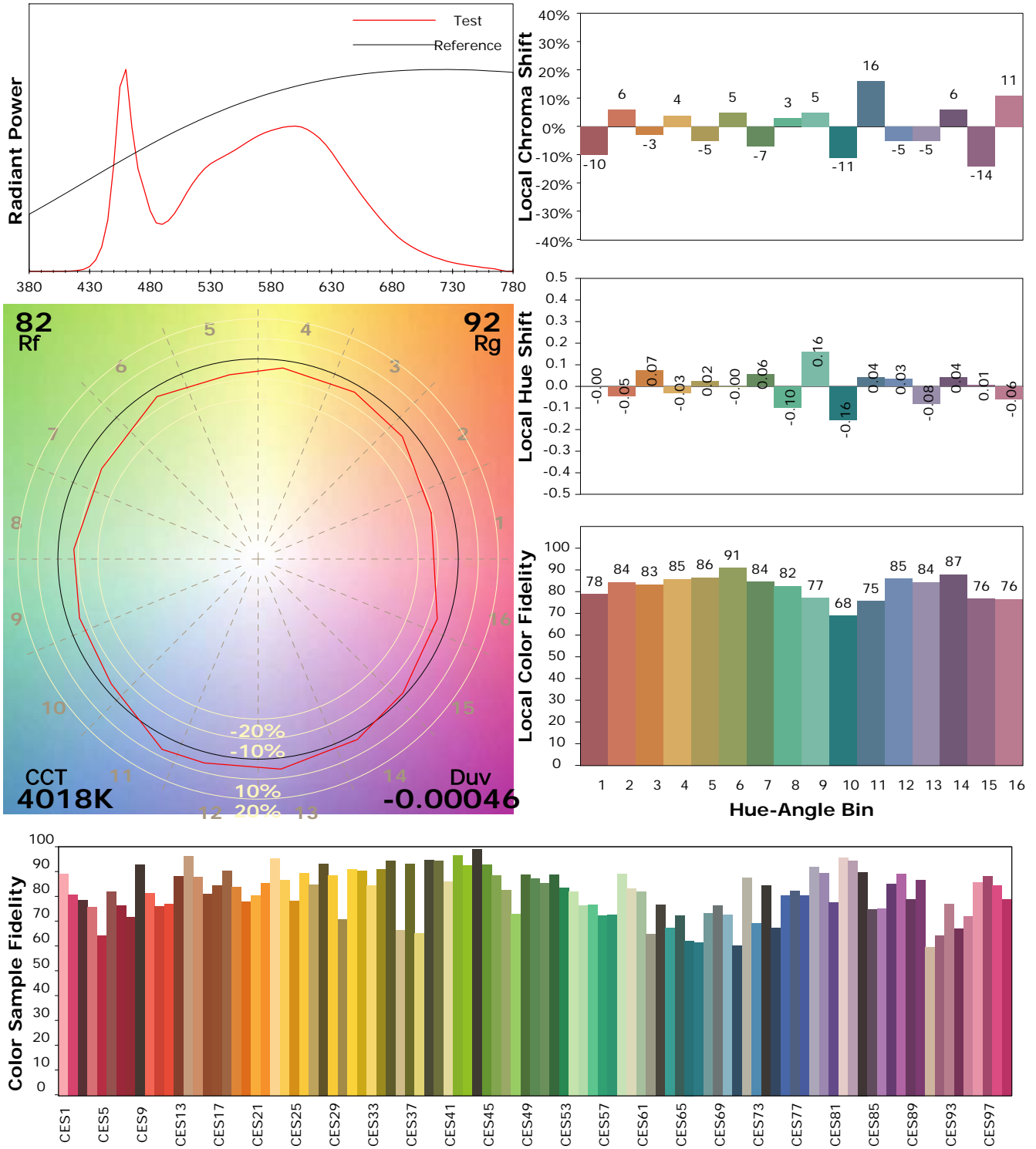
Test Device: Lisun LMS-9000B
 Test Time: 2021-01-22 11:23:55
 Inspector:

I ES TM-30-18 Color Rendition Report

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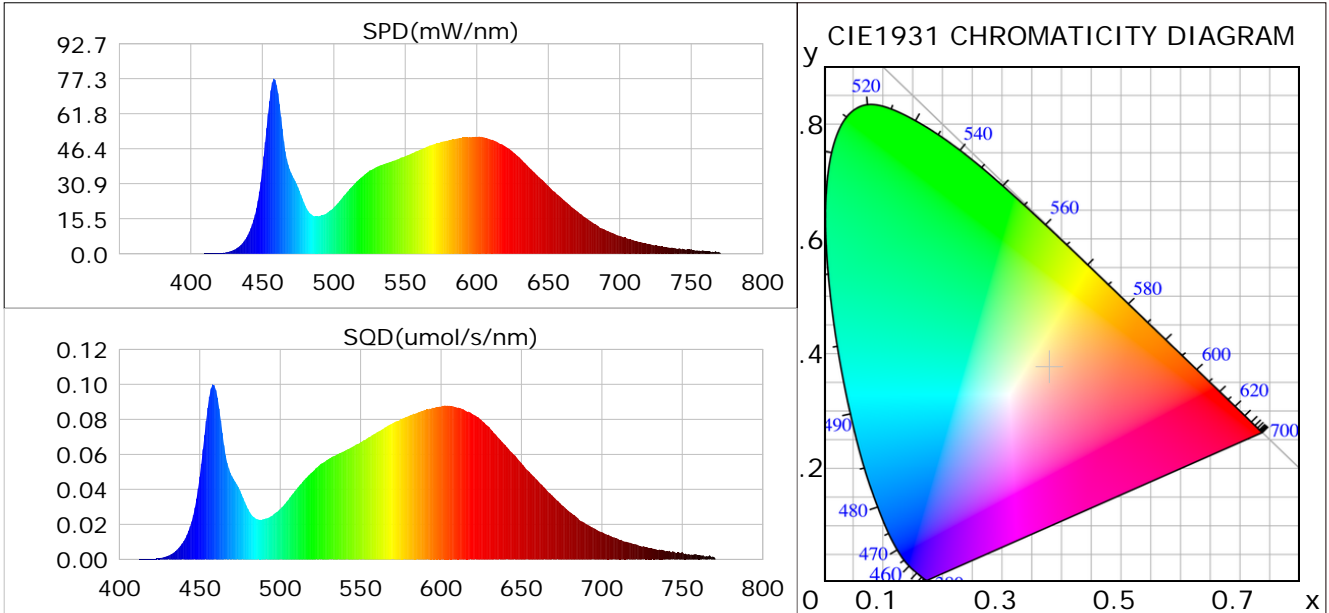
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Plant optical param data

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 Dominant Wavelength: 579.3nm Color Purity: 0.264
 CRI: $R_a=84.8$



Plant Optical Param

$ \mu_v(lm): 3059.10$	$Q_v(lm.s): 3059.10$
$ \mu_e, \dot{E}(W/nm): 9.46$	$Q_e(J): 9.46$
$ \mu_e(W): 10.63$	$ \mu_{fr}(W): 0.26$
$ \zeta_e: 0.42$	$ \zeta_{fr}: 0.01$
$PPE(\mu mol/s/w): 1.72$	$K_{fr}: 0.05$
$Erb_Ratio: 1.47$	$PPF(\mu mol/s): 43.42$
$PF_{uv}(360-400)(\mu mol/s): 0.00$	$PPF(400-500)(\mu mol/s): 8.00$
$PPF(500-600)(\mu mol/s): 19.39$	$PPF(600-700)(\mu mol/s): 16.03$
$PPF_{fr}(700-800)(\mu mol/s): 1.34$	$PPF.t(\mu mol): 43.42$
$ \mu_{ch-A.t}(J): 0.69$	$ \mu_{ch-A}(W): 0.69$
$ \mu_{ch-B.t}(J): 0.46$	$ \mu_{ch-B}(W): 0.46$
$ \mu_b.t(J): 2.36$	$ \mu_b(W): 2.36$
$ \mu_y.t(J): 4.82$	$ \mu_y(W): 4.82$
$ \mu_r.t(J): 3.53$	$ \mu_r(W): 3.53$

Electric Parameters

Voltage: 230.40V	Current: 0.1130A	Power: 25.21W
Power Factor: 0.9650	Frequency: 49.98Hz	

Condition: $T_x: 19.2^\circ C$, $T_i: 0.0^\circ C$, R.H.: 60%
 Test Lab:
 Operator: CRE

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