

Lightsource Test Report

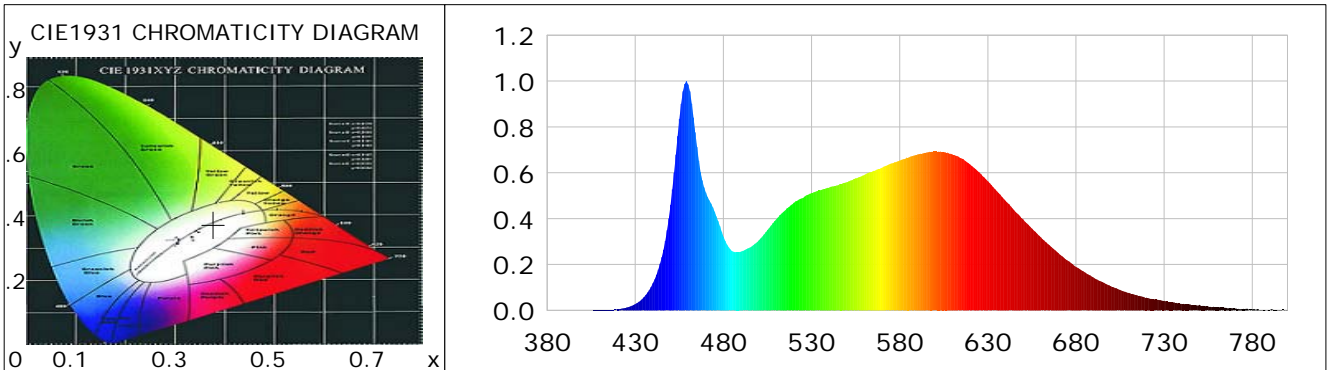
Product Information

Product Category: LED-Röhre
 Product Spec: Ledtube-055-5NWM-9W-TRF
 Manufacturer: METOLIGHT
 Buyer: 7709

Product Type: LED-Röhre-SCE
 Product Number: 1
 Submitted Unit: 104520

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3771$ $y=0.3740$ $u(u')=0.2240$ $v=0.3332$ $v'=0.4998$
 CCT: $T_c=4073K$ ($duv=-0.00032$) Color Ratio: $R=0.189$ $G=0.767$ $B=0.044$
 Peak Wavelength: 459.0nm Half Bandwidth: 20.2nm
 Dominant Wavelength: 579.0nm Color Purity: 0.254
 CRI: $R_a = 86.4$, $avgR(1\sim14) = 81.3$, $avgR(1\sim15) = 81.4$ TM30: $R_f = 83$, $R_g = 92$
 GAI: $GAI_BB_8=91.6$, $GAI_BB_15=100.1$, $GAI_EES=73.3$
 R1 =87 R2 =96 R3 =96 R4 =82 R5 =85 R6 =91 R7 =85 R8 =70
 R9 =30 R10=87 R11=81 R12=60 R13=90 R14=99 R15=82
 Color Quality Scale: $Q_a = 84.4$, $Q_f = 84.7$, $Q_p = 83.2$, $Q_g = 91.8$
 Q1 =81 Q2 =95 Q3 =84 Q4 =76 Q5 =78 Q6 =80 Q7 =86 Q8 =90
 Q9 =98 Q10=94 Q11=90 Q12=88 Q13=88 Q14=79 Q15=81



Photometric Parameters

Luminous Flux: 1143.3 lm Efficiency: 123.87 lm/W Radiant Power: 3.571 W
 Total mains efficacy: 134.89 lm/W Energy Efficiency Class: E (EU 2019/2015)
 Pupil Flux: 1804.71 Plm Pupil Lumens Per Watt: 195.53 Plm/W Pupil Factor (Kp): 1.579
 Circopic Flux: 3829.73 lm

Electric Parameters

Voltage: 230.70V Current: 0.0400A Power: 9.23W
 Power Factor: 0.9640 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: 45577 (2370) CCD Integration Time: 80.00 ms

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0002	0.0052	525	0.4898	13.7624	670	0.2503	7.0328
385	0.0006	0.0179	530	0.5112	14.3643	675	0.2185	6.1389
390	0.0003	0.0072	535	0.5236	14.7105	680	0.1897	5.3309
395	0.0003	0.0086	540	0.5361	15.0613	685	0.1660	4.6643
400	0.0006	0.0156	545	0.5458	15.3352	690	0.1426	4.0060
405	0.0006	0.0162	550	0.5586	15.6942	695	0.1231	3.4577
410	0.0012	0.0351	555	0.5754	16.1676	700	0.1044	2.9344
415	0.0025	0.0688	560	0.5908	16.5984	705	0.0888	2.4950
420	0.0050	0.1409	565	0.6082	17.0898	710	0.0762	2.1408
425	0.0123	0.3456	570	0.6226	17.4918	715	0.0647	1.8165
430	0.0273	0.7678	575	0.6407	18.0012	720	0.0552	1.5496
435	0.0581	1.6322	580	0.6535	18.3617	725	0.0476	1.3368
440	0.1184	3.3254	585	0.6666	18.7281	730	0.0413	1.1597
445	0.2318	6.5136	590	0.6793	19.0858	735	0.0350	0.9829
450	0.4606	12.9424	595	0.6881	19.3343	740	0.0286	0.8039
455	0.8350	23.4614	600	0.6932	19.4762	745	0.0248	0.6969
460	0.9850	27.6758	605	0.6907	19.4070	750	0.0239	0.6725
465	0.7134	20.0434	610	0.6794	19.0883	755	0.0173	0.4864
470	0.5141	14.4451	615	0.6630	18.6269	760	0.0146	0.4088
475	0.4301	12.0845	620	0.6362	17.8747	765	0.0113	0.3173
480	0.3224	9.0579	625	0.6022	16.9211	770	0.0085	0.2402
485	0.2581	7.2511	630	0.5632	15.8227	775	0.0063	0.1778
490	0.2568	7.2148	635	0.5204	14.6205	780	0.0046	0.1302
495	0.2740	7.6994	640	0.4780	13.4301	785	0.0026	0.0741
500	0.3045	8.5548	645	0.4362	12.2550	790	0.0021	0.0602
505	0.3505	9.8479	650	0.3967	11.1471	795	0.0032	0.0886
510	0.3979	11.1795	655	0.3573	10.0381	800	0.0040	0.1124
515	0.4360	12.2502	660	0.3195	8.9779			
520	0.4694	13.1900	665	0.2836	7.9690			

Condition: Tx: 19.8°C, Ti: 0.0°C, R.H.: 60%
 Test Lab:
 Operator: CRE

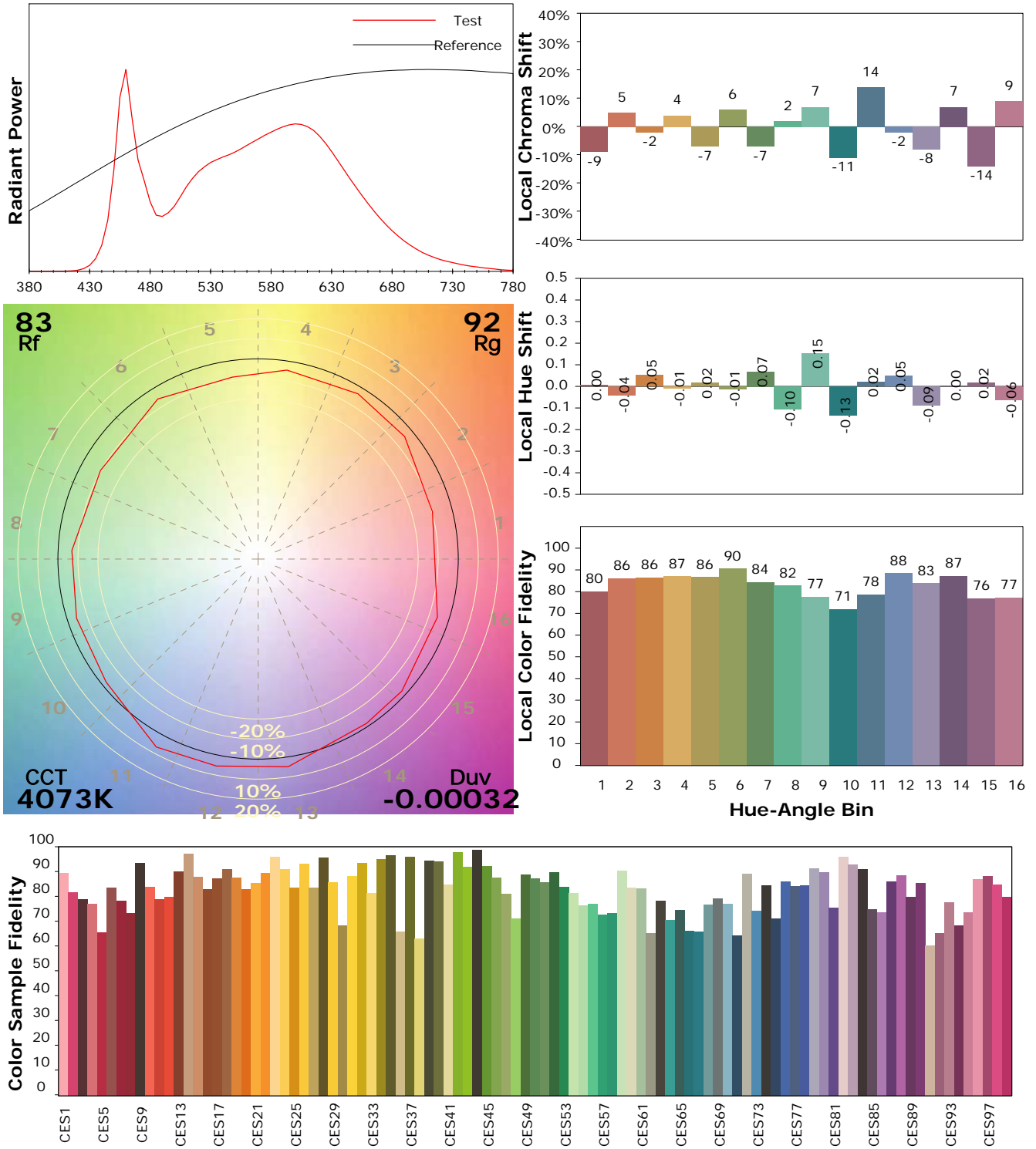
Test Device: Lisun LMS-9000B
 Test Time: 2021-01-22 11:50:17
 Inspector:

IES TM-30-18 Color Rendition Report

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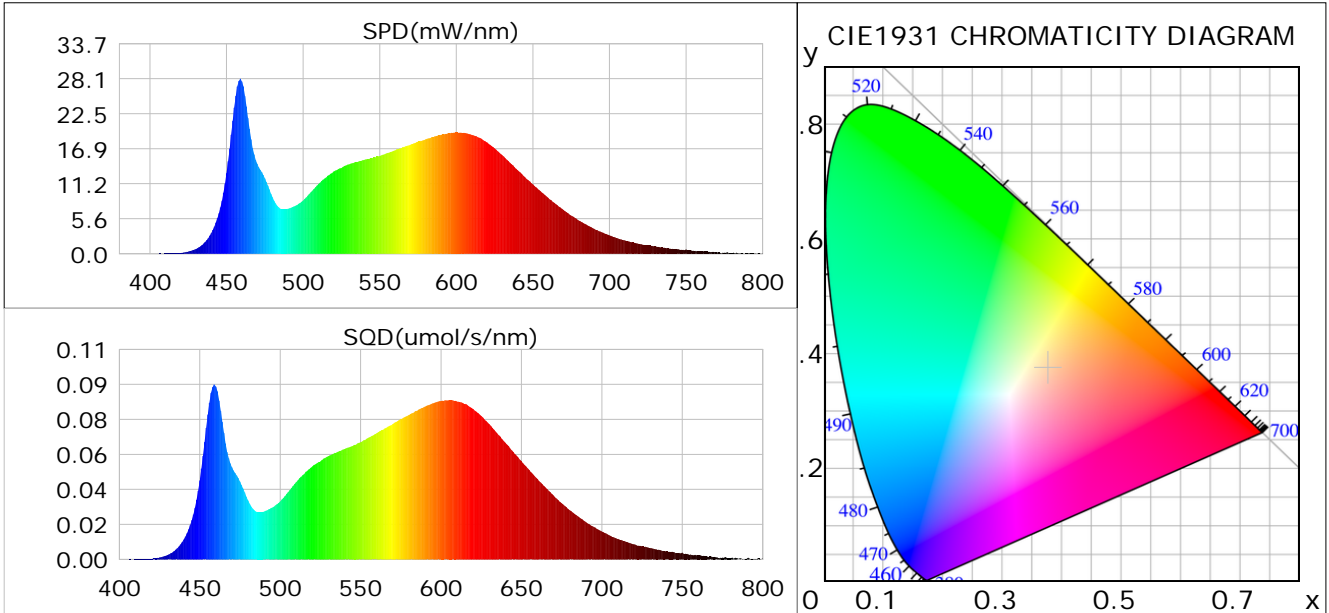
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Plant optical param data

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 CRI: $R_a=86.4$



Plant Optical Param

$ \mu_v(lm)$: 1143.30	$Q_v(lm.s)$: 1143.30
$ \mu_e, \dot{E}(W/nm)$: 3.57	$Q_e(J)$: 3.57
$ \mu_e(W)$: 3.49	$ \mu_{fr}(W)$: 0.09
$ \zeta_e$: 0.38	$ \zeta_{fr}$: 0.01
PPE(umol/s/w): 1.77	Kfr: 0.05
Erb_Ratio: 1.42	PPF(umol/s): 16.37
PFuv(360-400)(umol/s): 0.00	PPF(400-500)(umol/s): 3.11
PPF(500-600)(umol/s): 7.24	PPF(600-700)(umol/s): 6.02
PPfr(700-800)(umol/s): 0.51	PPF.t(umol): 16.37
$ \mu_{ch-A.t}(J)$: 0.26	$ \mu_{ch-A}(W)$: 0.26
$ \mu_{ch-B.t}(J)$: 0.18	$ \mu_{ch-B}(W)$: 0.18
$ \mu_b.t(J)$: 0.80	$ \mu_b(W)$: 0.80
$ \mu_y.t(J)$: 1.57	$ \mu_y(W)$: 1.57
$ \mu_r.t(J)$: 1.15	$ \mu_r(W)$: 1.15

Electric Parameters

Voltage: 230.70V	Current: 0.0400A	Power: 9.23W
Power Factor: 0.9640	Frequency: 49.99Hz	

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