

Lightsource Test Report

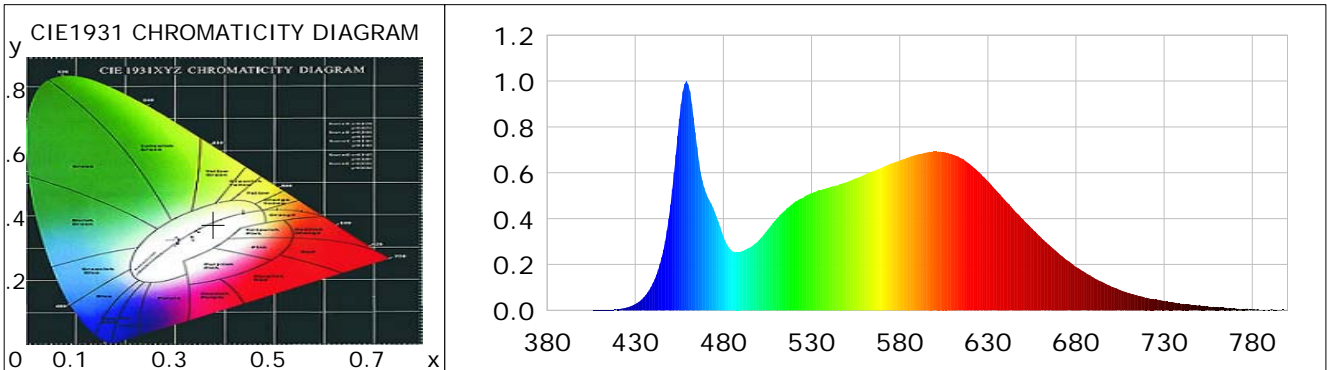
Product Information

Product Category: LED-Röhre
 Product Spec: Ledtube-052-5NWM-7W-TRF
 Manufacturer: METOLIGHT
 Buyer: 7709

Product Type: LED-Röhre-TRF
 Product Number: 1
 Submitted Unit: 101960

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: 1029.2 lm Efficiency: 118.30 lm/W Radiant Power: 3.214 W
 Total mains efficacy: 128.83 lm/W Energy Efficiency Class: E (EU 2019/2015)
 Pupil Flux: 1624.60 Plm Pupil Lumens Per Watt: 186.74 Plm/W Pupil Factor (Kp): 1.579
 Circopic Flux: 3447.53 lm

Electric Parameters

Voltage: 230.20V Current: 0.0550A Power: 8.70W
 Power Factor: 0.6900 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

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:

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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	0.0047	525	0.4898	12.3890	670	0.2503	6.3310
385	0.0006	0.0161	530	0.5112	12.9307	675	0.2185	5.5263
390	0.0003	0.0064	535	0.5236	13.2424	680	0.1897	4.7989
395	0.0003	0.0078	540	0.5361	13.5582	685	0.1660	4.1988
400	0.0006	0.0140	545	0.5458	13.8048	690	0.1426	3.6062
405	0.0006	0.0146	550	0.5586	14.1279	695	0.1231	3.1126
410	0.0012	0.0316	555	0.5754	14.5541	700	0.1044	2.6415
415	0.0025	0.0620	560	0.5908	14.9419	705	0.0888	2.2460
420	0.0050	0.1268	565	0.6082	15.3843	710	0.0762	1.9271
425	0.0123	0.3111	570	0.6226	15.7461	715	0.0647	1.6352
430	0.0273	0.6911	575	0.6407	16.2047	720	0.0552	1.3949
435	0.0581	1.4693	580	0.6535	16.5293	725	0.0476	1.2034
440	0.1184	2.9935	585	0.6666	16.8590	730	0.0413	1.0439
445	0.2318	5.8636	590	0.6793	17.1811	735	0.0350	0.8848
450	0.4606	11.6508	595	0.6881	17.4048	740	0.0286	0.7237
455	0.8350	21.1199	600	0.6932	17.5325	745	0.0248	0.6273
460	0.9850	24.9137	605	0.6907	17.4702	750	0.0239	0.6054
465	0.7134	18.0431	610	0.6794	17.1833	755	0.0173	0.4379
470	0.5141	13.0035	615	0.6630	16.7679	760	0.0146	0.3680
475	0.4301	10.8785	620	0.6362	16.0908	765	0.0113	0.2856
480	0.3224	8.1539	625	0.6022	15.2324	770	0.0085	0.2162
485	0.2581	6.5274	630	0.5632	14.2436	775	0.0063	0.1600
490	0.2568	6.4947	635	0.5204	13.1614	780	0.0046	0.1172
495	0.2740	6.9310	640	0.4780	12.0898	785	0.0026	0.0667
500	0.3045	7.7010	645	0.4362	11.0319	790	0.0021	0.0542
505	0.3505	8.8651	650	0.3967	10.0346	795	0.0032	0.0797
510	0.3979	10.0638	655	0.3573	9.0363	800	0.0040	0.1012
515	0.4360	11.0276	660	0.3195	8.0819			
520	0.4694	11.8736	665	0.2836	7.1737			

Condition: Tx: 19.8°C, Ti: 0.0°C, R.H.: 60%
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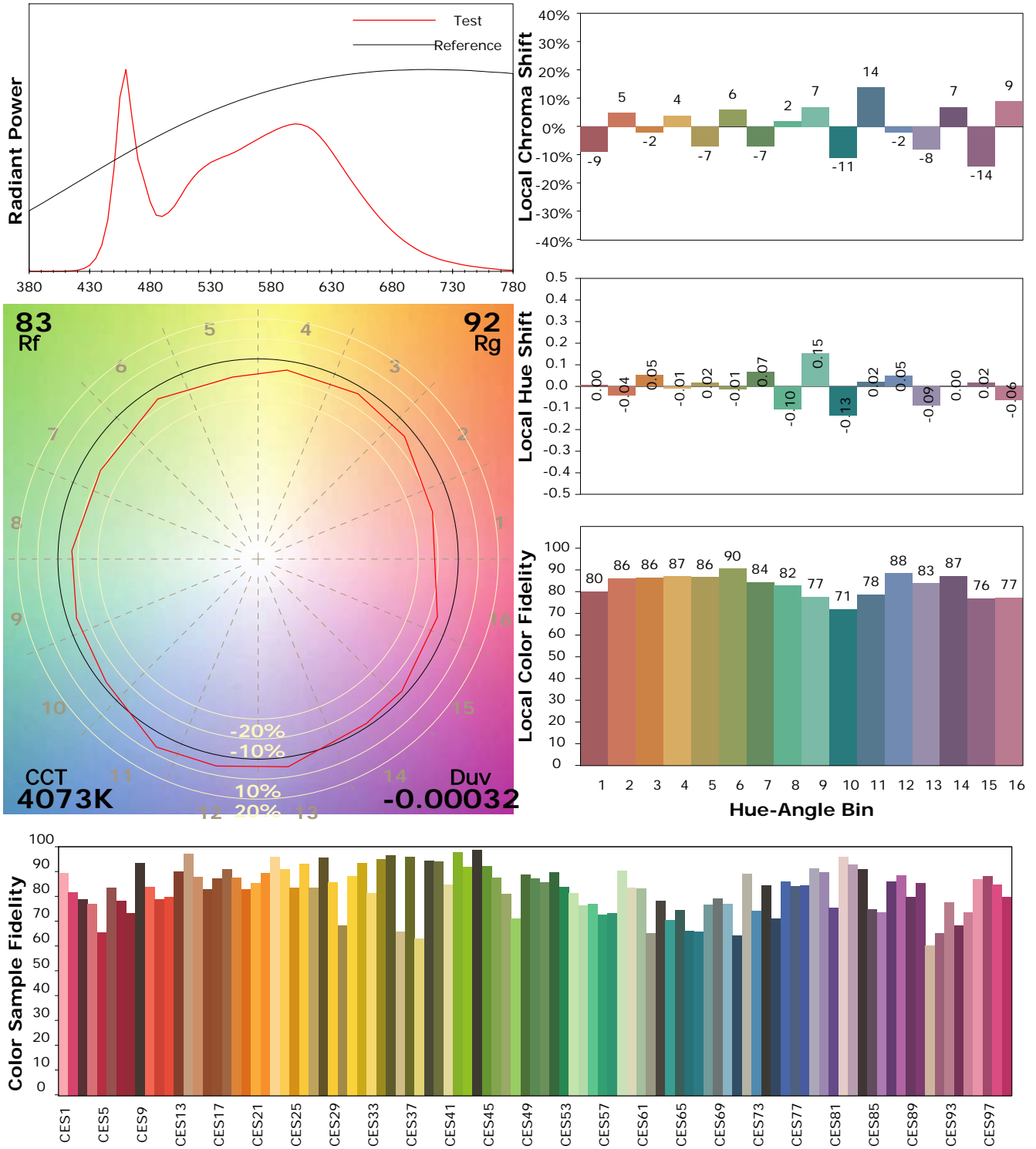
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IES TM-30-18 Color Rendition Report

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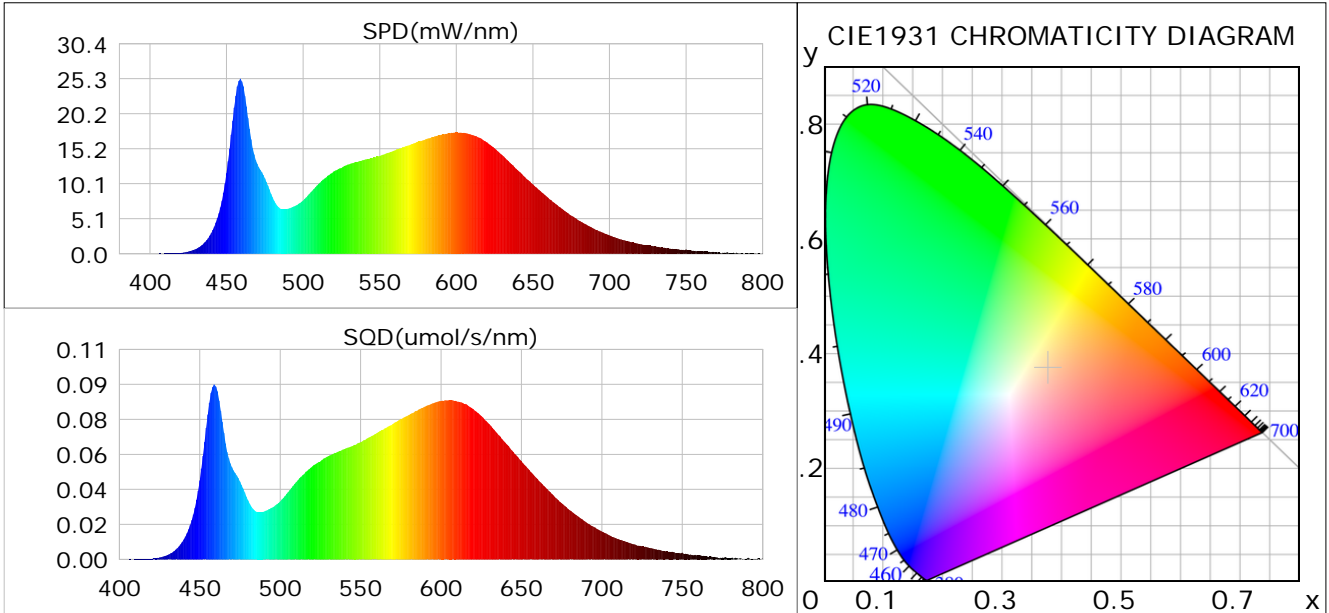
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Test Device: Lisun LMS-9000B
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Plant optical param data

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 CRI: $R_a=86.4$



Plant Optical Param

$ \mu_v(lm): 1029.20$	$Q_v(lm.s): 1029.20$
$ \mu_e, \dot{E}(W/nm): 3.21$	$Q_e(J): 3.21$
$ \mu_e(W): 3.14$	$ \mu_{fr}(W): 0.08$
$ \zeta_e: 0.36$	$ \zeta_{fr}: 0.01$
$PPE(\mu mol/s/w): 1.69$	$K_{fr}: 0.05$
$Erb_Ratio: 1.42$	$PPF(\mu mol/s): 14.74$
$PF_{uv}(360-400)(\mu mol/s): 0.00$	$PPF(400-500)(\mu mol/s): 2.80$
$PPF(500-600)(\mu mol/s): 6.51$	$PPF(600-700)(\mu mol/s): 5.42$
$PF_{fr}(700-800)(\mu mol/s): 0.46$	$PPF.t(\mu mol): 14.74$
$ \mu_{ch-A.t}(J): 0.23$	$ \mu_{ch-A}(W): 0.23$
$ \mu_{ch-B.t}(J): 0.16$	$ \mu_{ch-B}(W): 0.16$
$ \mu_b.t(J): 0.72$	$ \mu_b(W): 0.72$
$ \mu_y.t(J): 1.41$	$ \mu_y(W): 1.41$
$ \mu_r.t(J): 1.04$	$ \mu_r(W): 1.04$

Electric Parameters

Voltage: 230.20V	Current: 0.0550A	Power: 8.70W
Power Factor: 0.6900	Frequency: 49.99Hz	

Condition: $T_x: 19.8^\circ C$, $T_i: 0.0^\circ C$, R.H.: 60%
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