

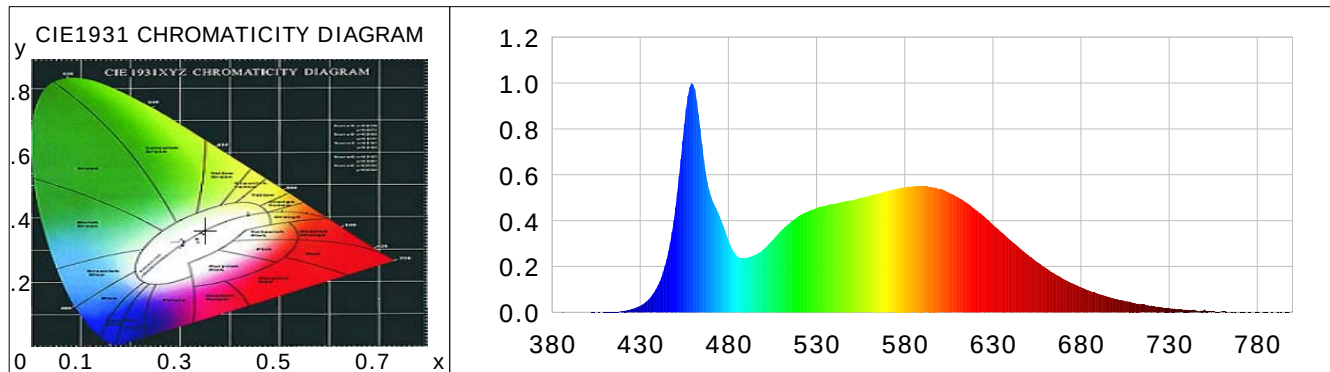
Lightsource Test Report

Product Information

Product Category: LED-Röhre
 Product Spec: LEDtube-060-10DWC-12W-2120-230
 Manufacturer: METOLIGHT
 Buyer: 4624
 Product Type: LED-Röhre SCE
 Product Number: 1
 Submitted Unit: 101108

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3512$ $y=0.3627$ $u(u')=0.2112$ $v=0.3272$ $v'=0.4909$
 CCT: $T_c=4821K$ ($duv=0.00310$)
 Peak Wavelength: 459.2nm
 Dominant Wavelength: 572.1nm
 CRI: $R_a=82.7$, $avgR(1\sim14)=76.0$, $avgR(1\sim15)=76.0$
 GAI: $GAI_BB_8=85.1$, $GAI_BB_15=93.8$, $GAI_EES=76.2$
 TM30: $R_f=79$, $R_g=89$
 R1 =82 R2 =93 R3 =95 R4 =76 R5 =80 R6 =88 R7 =83 R8 =64
 R9 =9 R10=82 R11=75 R12=52 R13=86 R14=98 R15=76
 Color Quality Scale: $Q_a=80.8$, $Q_f=81.2$, $Q_p=78.6$, $Q_g=88.1$
 Q1 =76 Q2 =93 Q3 =83 Q4 =71 Q5 =73 Q6 =74 Q7 =81 Q8 =88
 Q9 =97 Q10=93 Q11=88 Q12=87 Q13=85 Q14=73 Q15=76



Photometric Parameters

Luminous Flux: 1318.1 lm
 Total mains efficacy: 128.11 lm/W
 Pupil Flux: 2243.94 Plm
 Cirtopic Flux: 4959.81 lm
 Efficiency: 108.93 lm/W
 Energy Efficiency Class: E (EU 2019/2015)
 Pupil Lumens Per Watt: 185.45 Plm/W
 Radiant Power: 4.027 W
 Pupil Factor (Kp): 1.702

Electric Parameters

Voltage: 231.20V
 Power Factor: 0.9450
 Current: 0.0550A
 Frequency: 49.99Hz
 Power: 12.10W

Test Information

Scan Range: 380~800:1nm
 Stabilization Time: 0 ms
 Max of Signal: 45918 (2411)
 Photometric Method: sphere-spectroradiometer
 Photometric Condition: Sphere diameter: 2.00m, 4PI
 CCD Integration Time: 122.73 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 11:36:31
 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	0.0036	525	0.4380	16.9666	670	0.1458	5.6479
385	0.0005	0.0187	530	0.4543	17.5971	675	0.1271	4.9251
390	0.0004	0.0141	535	0.4634	17.9521	680	0.1093	4.2348
395	0.0003	0.0117	540	0.4732	18.3319	685	0.0932	3.6108
400	0.0005	0.0188	545	0.4804	18.6110	690	0.0802	3.1061
405	0.0001	0.0055	550	0.4883	18.9133	695	0.0678	2.6257
410	0.0009	0.0335	555	0.4983	19.3024	700	0.0583	2.2596
415	0.0022	0.0837	560	0.5079	19.6735	705	0.0495	1.9160
420	0.0059	0.2284	565	0.5177	20.0558	710	0.0418	1.6204
425	0.0135	0.5222	570	0.5289	20.4859	715	0.0349	1.3525
430	0.0285	1.1037	575	0.5391	20.8839	720	0.0297	1.1498
435	0.0577	2.2358	580	0.5452	21.1201	725	0.0231	0.8951
440	0.1171	4.5344	585	0.5486	21.2515	730	0.0195	0.7553
445	0.2323	8.9999	590	0.5516	21.3677	735	0.0147	0.5699
450	0.4583	17.7522	595	0.5477	21.2170	740	0.0112	0.4333
455	0.8203	31.7754	600	0.5372	20.8097	745	0.0089	0.3450
460	0.9938	38.4959	605	0.5226	20.2453	750	0.0121	0.4699
465	0.7337	28.4200	610	0.5029	19.4823	755	0.0048	0.1849
470	0.5085	19.6957	615	0.4789	18.5527	760	0.0048	0.1860
475	0.4184	16.2077	620	0.4488	17.3868	765	0.0040	0.1538
480	0.3155	12.2220	625	0.4182	16.1987	770	0.0025	0.0974
485	0.2446	9.4745	630	0.3825	14.8167	775	0.0025	0.0958
490	0.2369	9.1763	635	0.3481	13.4837	780	0.0021	0.0801
495	0.2497	9.6715	640	0.3138	12.1551	785	0.0014	0.0552
500	0.2759	10.6865	645	0.2820	10.9232	790	0.0000	0.0016
505	0.3147	12.1885	650	0.2503	9.6961	795	0.0002	0.0078
510	0.3571	13.8319	655	0.2196	8.5076	800	0.0044	0.1708
515	0.3903	15.1207	660	0.1939	7.5109			
520	0.4204	16.2866	665	0.1684	6.5219			

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IES TM-30-18 Color Rendition Report

Product Information

Product Category: LED-Röhre

Product Spec: LEDtube-060-10DWC-12W-2120-230

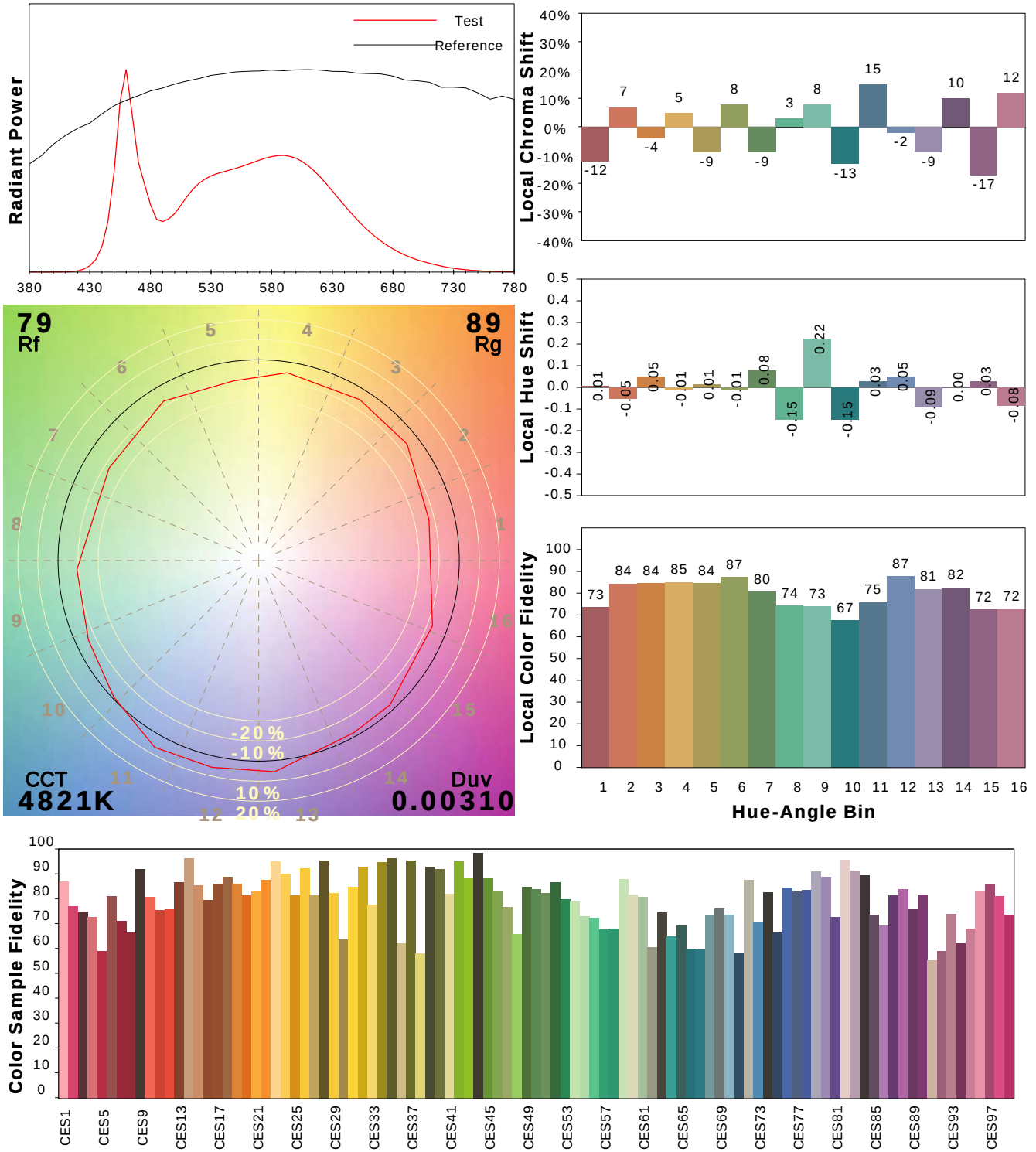
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Buyer: 4624

Product Type: LED-Röhre SCE

Product Number: 1

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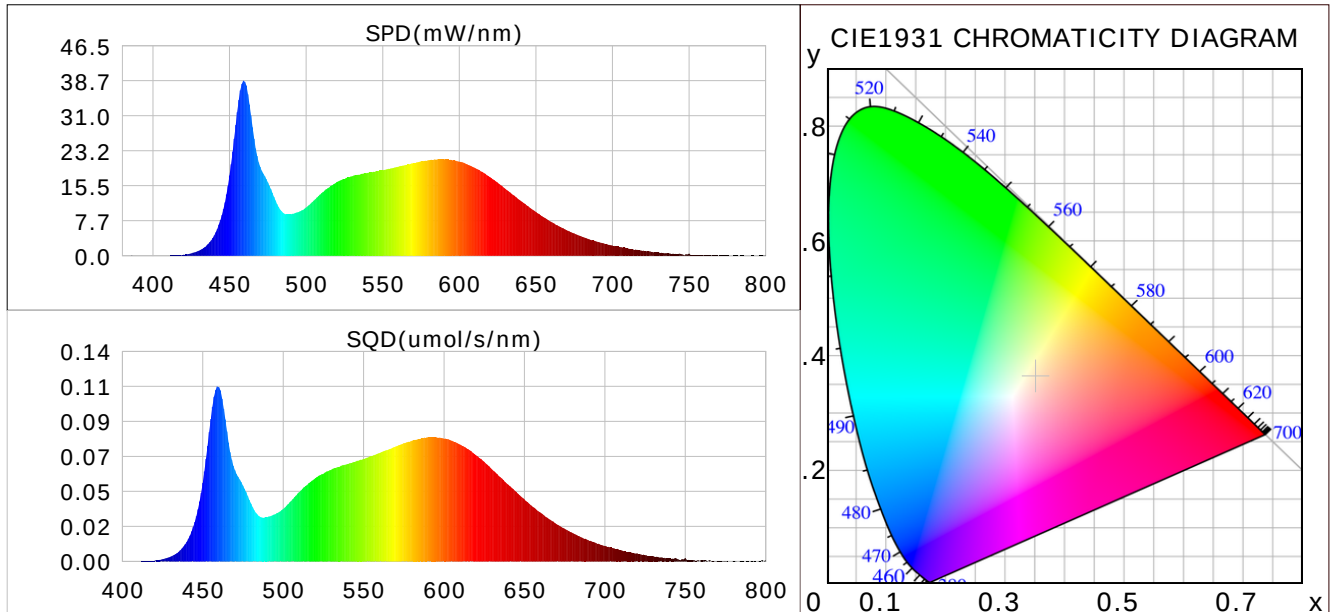
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Test Device: Lisun LMS-9000B
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Plant optical param data

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3512$ $y=0.3627$ $u(u')=0.2112$ $v=0.3272$ $v'=0.4909$
 CCT: $T_c=4821K$ ($duv=0.00310$) Color Ratio: $R=0.162$ $G=0.787$ $B=0.051$
 Peak Wavelength: 459.2nm Half Bandwidth: 19.7nm
 Dominant Wavelength: 572.1nm Color Purity: 0.142
 CRI: Ra= 82.7



Plant Optical Param

$\mu_v(lm): 1318.10$	$Q_v(lm.s): 1318.10$
$\mu_e, \dot{E}(W/nm): 4.03$	$Q_e(J): 4.03$
$\mu_e(W): 3.97$	$\mu_{fr}(W): 0.06$
$\dot{C}_e: 0.33$	$\dot{C}_{fr}: 0.00$
$PPE(umol/s/w): 1.51$	$K_{fr}: 0.03$
$Erb_Ratio: 0.96$	$PPF(umol/s): 18.31$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 4.23$
$PPF(500-600)(umol/s): 8.54$	$PPF(600-700)(umol/s): 5.55$
$PF_{fr}(700-800)(umol/s): 0.33$	$PPF.t(umol): 18.31$
$\mu_{ch-A.t}(J): 0.28$	$\mu_{ch-A}(W): 0.28$
$\mu_{ch-B.t}(J): 0.22$	$\mu_{ch-B}(W): 0.22$
$\mu_{b.t}(J): 1.09$	$\mu_b(W): 1.09$
$\mu_{y.t}(J): 1.85$	$\mu_y(W): 1.85$
$\mu_{r.t}(J): 1.07$	$\mu_r(W): 1.07$

Electric Parameters

Voltage: 231.20V	Current: 0.0550A	Power: 12.10W
Power Factor: 0.9450	Frequency: 49.99Hz	

Condition: Tx:19.9'C, Ti:0.0'C, R.H.:60%
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