

Lightsource Test Report

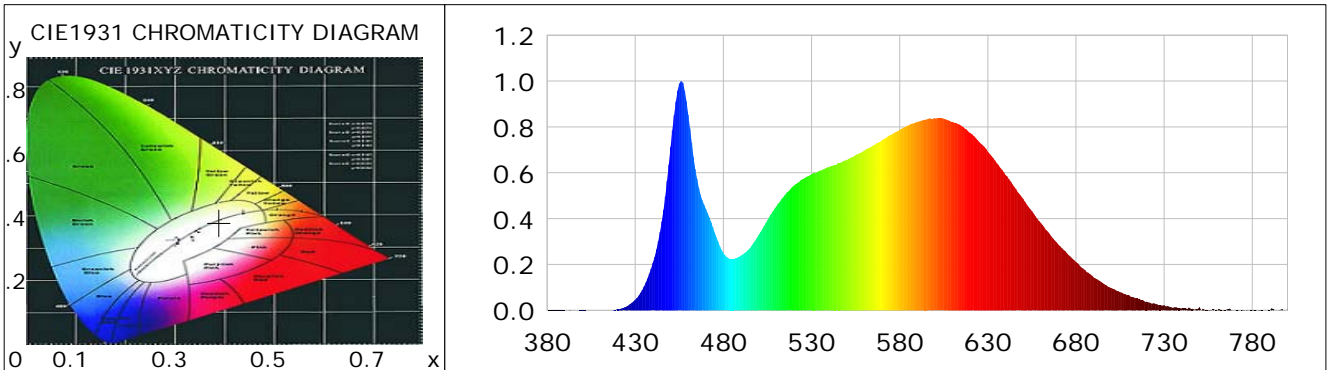
Product Information

Product Category: LED-Röhren
 Product Spec: LEDtube-052-5NWM-7W-DC
 Manufacturer: METOLIGHT
 Buyer: 7709

Product Type: LED-Röhren-TRF
 Product Number: 1
 Submitted Unit: 105259

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3887$ $y=0.3801$ $u(u')=0.2292$ $v=0.3362$ $v'=0.5043$
 CCT: $T_c=3807K$ ($duv=-0.00076$) Color Ratio: $R=0.195$ $G=0.769$ $B=0.035$
 Peak Wavelength: 456.1nm Half Bandwidth: 20.1nm
 Dominant Wavelength: 580.2nm Color Purity: 0.308
 CRI: $R_a=85.3$, $avgR(1\sim14)=79.3$, $avgR(1\sim15)=79.3$ TM30: $R_f=84$, $R_g=95$
 GAI: $GAI_BB_8=94.1$, $GAI_BB_15=102.5$, $GAI_EES=71.1$
 R1 =85 R2 =92 R3 =96 R4 =83 R5 =84 R6 =88 R7 =86 R8 =69
 R9 =23 R10=79 R11=82 R12=60 R13=87 R14=98 R15=80
 Color Quality Scale: $Q_a=83.8$, $Q_f=83.9$, $Q_p=83.9$, $Q_g=93.5$
 Q1 =83 Q2 =97 Q3 =80 Q4 =75 Q5 =80 Q6 =83 Q7 =86 Q8 =89
 Q9 =98 Q10=90 Q11=87 Q12=86 Q13=86 Q14=77 Q15=80



Photometric Parameters

Luminous Flux: 989.30 lm Efficiency: 138.17 lm/W Radiant Power: 2.991 W
 Total mains efficacy: 150.47 lm/W Energy Efficiency Class: D (EU 2019/2015)
 Pupil Flux: 1467.02 Plm Pupil Lumens Per Watt: 204.89 Plm/W Pupil Factor (Kp): 1.483
 Circopic Flux: 2971.29 lm

Electric Parameters

Voltage: 230.00V Current: 0.0310A Power: 7.16W
 Power Factor: 0.7860 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: 43936 (2693) CCD Integration Time: 297.27 ms

Lightsource Test Report

Product Information

Product Category: LED-Röhren
 Product Spec: LEDtube-052-5NWM-7W-DC
 Manufacturer: METOLIGHT
 Buyer: 7709

Product Type: LED-Röhren-TRF
 Product Number: 1
 Submitted Unit: 105259

WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0007	0.0148	525	0.5729	11.8339	670	0.2869	5.9272
385	0.0008	0.0164	530	0.5935	12.2601	675	0.2483	5.1291
390	0.0011	0.0228	535	0.6098	12.5975	680	0.2109	4.3575
395	0.0003	0.0069	540	0.6252	12.9145	685	0.1763	3.6417
400	0.0010	0.0213	545	0.6419	13.2591	690	0.1437	2.9683
405	0.0001	0.0014	550	0.6558	13.5476	695	0.1196	2.4712
410	0.0005	0.0103	555	0.6777	14.0000	700	0.0971	2.0058
415	0.0010	0.0210	560	0.6973	14.4047	705	0.0795	1.6432
420	0.0050	0.1024	565	0.7192	14.8556	710	0.0661	1.3650
425	0.0161	0.3318	570	0.7427	15.3416	715	0.0518	1.0693
430	0.0461	0.9519	575	0.7656	15.8153	720	0.0379	0.7821
435	0.1045	2.1589	580	0.7881	16.2790	725	0.0290	0.5985
440	0.2067	4.2700	585	0.8069	16.6678	730	0.0226	0.4669
445	0.3888	8.0319	590	0.8225	16.9892	735	0.0109	0.2259
450	0.7122	14.7111	595	0.8327	17.2006	740	0.0082	0.1694
455	0.9895	20.4396	600	0.8381	17.3118	745	0.0071	0.1472
460	0.8541	17.6437	605	0.8362	17.2740	750	0.0139	0.2879
465	0.5737	11.8513	610	0.8222	16.9838	755	0.0042	0.0863
470	0.4430	9.1515	615	0.8050	16.6293	760	0.0014	0.0288
475	0.3397	7.0171	620	0.7741	15.9903	765	0.0024	0.0488
480	0.2497	5.1585	625	0.7348	15.1780	770	0.0000	0.0010
485	0.2246	4.6400	630	0.6914	14.2822	775	0.0035	0.0721
490	0.2388	4.9334	635	0.6422	13.2666	780	0.0020	0.0411
495	0.2707	5.5908	640	0.5903	12.1934	785	0.0015	0.0313
500	0.3291	6.7991	645	0.5388	11.1293	790	0.0011	0.0230
505	0.3936	8.1310	650	0.4864	10.0464	795	0.0004	0.0073
510	0.4540	9.3771	655	0.4324	8.9326	800	0.0045	0.0928
515	0.5041	10.4130	660	0.3818	7.8871			
520	0.5441	11.2392	665	0.3339	6.8980			

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

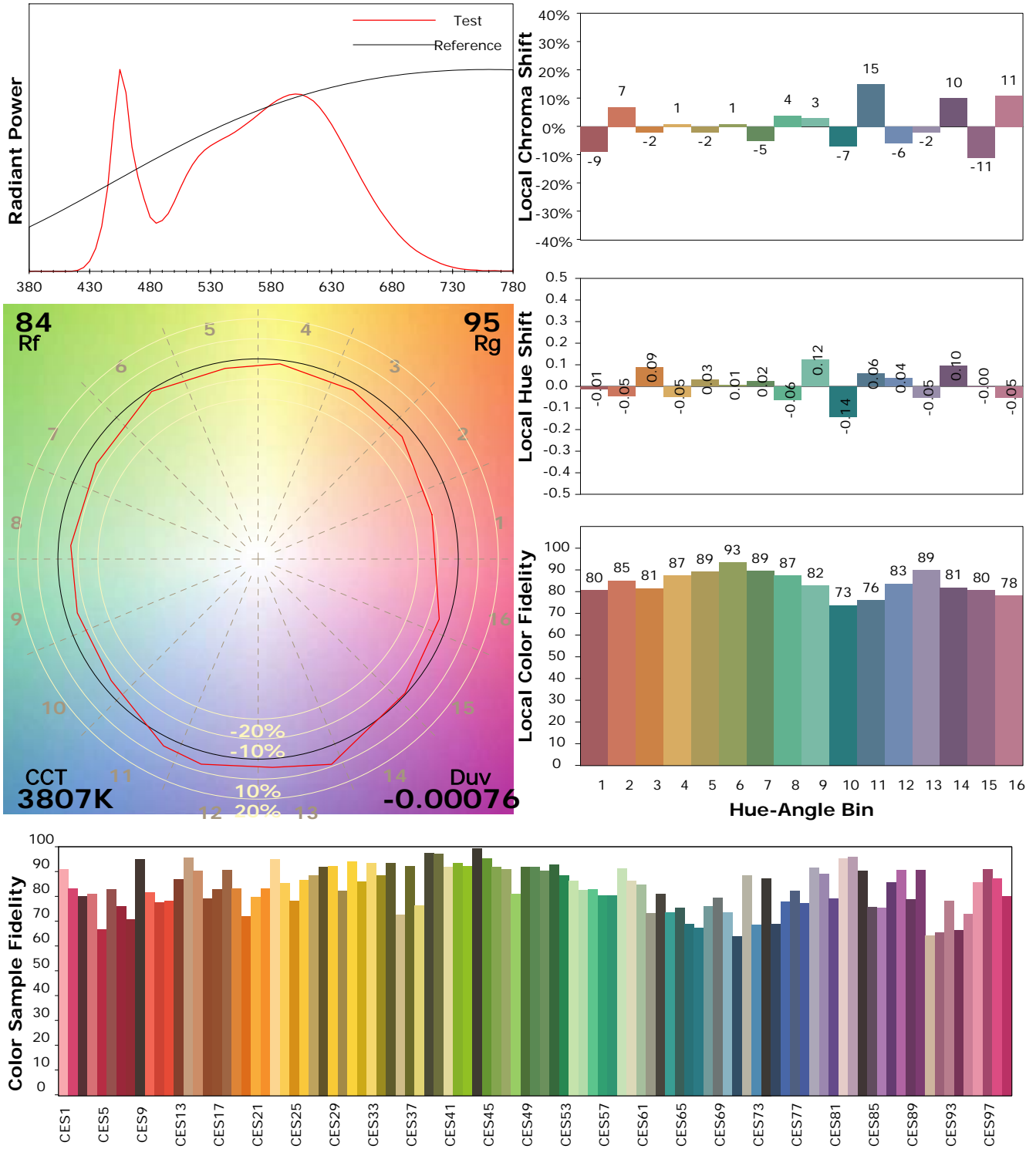
Test Device: Lisun LMS-9000B
 Test Time: 2021-08-26 09:46:45
 Inspector:

I ES TM-30-18 Color Rendition Report

Product Information

Product Category: LED-Röhren
 Product Spec: LEDtube-052-5NWM-7W-DC
 Manufacturer: METOLIGHT
 Buyer: 7709

Product Type: LED-Röhren-TRF
 Product Number: 1
 Submitted Unit: 105259



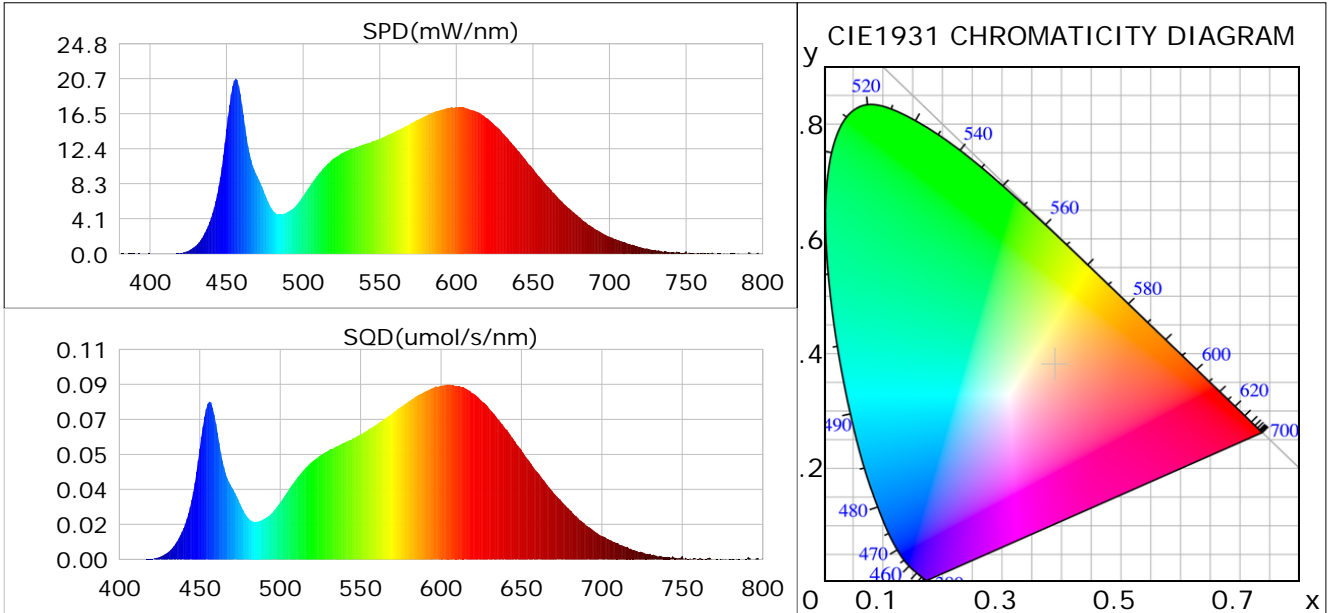
Condition: Tx:0.0°C, Ti:0.0°C, R.H.: 60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-08-26 09:46:45
 Inspector:

Plant optical param data

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3887$ $y=0.3801$ $u(u')=0.2292$ $v=0.3362$ $v'=0.5043$
 CCT: $T_c=3807K$ ($duv=-0.00076$) Color Ratio: $R=0.195$ $G=0.769$ $B=0.035$
 Peak Wavelength: 456.1nm Half Bandwidth: 20.1nm
 Dominant Wavelength: 580.2nm Color Purity: 0.308
 CRI: $R_a=85.3$



Plant Optical Param

$ \mu_v(lm)$: 989.30	$Q_v(lm.s)$: 989.30
$ \mu_e, \dot{E}(W/nm)$: 2.99	$Q_e(J)$: 2.99
$ \mu_e(W)$: 2.95	$ \mu_{fr}(W)$: 0.04
$ \zeta_e$: 0.41	$ \zeta_{fr}$: 0.01
PPE(umol/s/w): 1.94	Kfr: 0.03
Erb_Ratio: 1.65	PPF(umol/s): 13.92
PFuv(360-400)(umol/s): 0.00	PPF(400-500)(umol/s): 2.34
PPF(500-600)(umol/s): 6.28	PPF(600-700)(umol/s): 5.30
PPfr(700-800)(umol/s): 0.23	PPF.t(umol): 13.92
$ \mu_{ch-A.t}(J)$: 0.23	$ \mu_{ch-A}(W)$: 0.23
$ \mu_{ch-B.t}(J)$: 0.14	$ \mu_{ch-B}(W)$: 0.14
$ \mu_b.t(J)$: 0.60	$ \mu_b(W)$: 0.60
$ \mu_y.t(J)$: 1.36	$ \mu_y(W)$: 1.36
$ \mu_r.t(J)$: 1.01	$ \mu_r(W)$: 1.01

Electric Parameters

Voltage: 230.00V	Current: 0.0310A	Power: 7.16W
Power Factor: 0.7860	Frequency: 49.99Hz	

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

Test Device: Lisun LMS-9000B
 Test Time: 2021-08-26 09:46:45
 Inspector: