

Lightsource Test Report

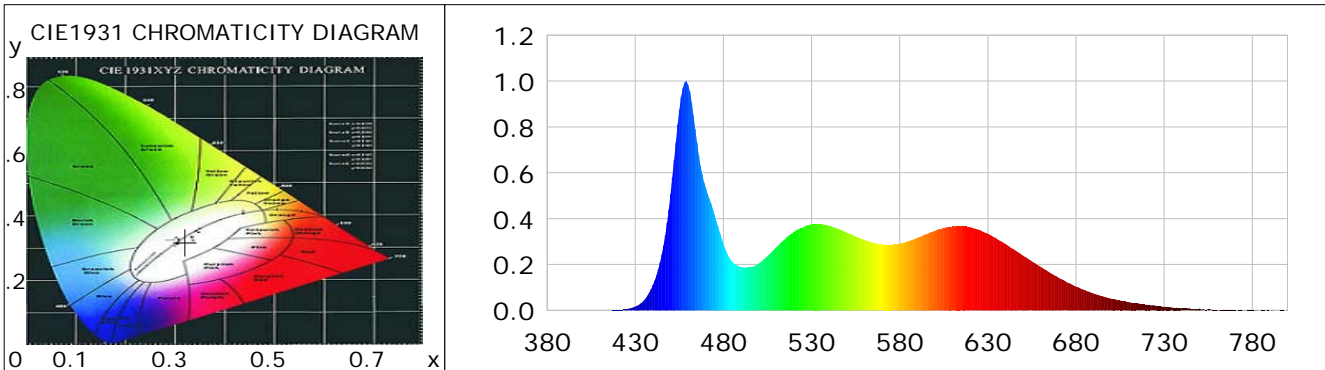
Product Information

Product Category: LED-Röhre
 Product Spec: LEDtube-120-8Milk-20WM
 Manufacturer: METOLIGHT
 Buyer: 7116

Product Type: LED-Röhre-Spezial
 Product Number: 1
 Submitted Unit: 105190

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3204$ $y=0.3190$ $u(u')=0.2071$ $v=0.3093$ $v'=0.4640$
 CCT: $T_c=6144K$ ($duv=-0.00596$) Color Ratio: $R=0.180$ $G=0.752$ $B=0.068$
 Peak Wavelength: 458.8nm Half Bandwidth: 21.5nm
 Dominant Wavelength: 474.9nm Color Purity: 0.058
 CRI: $R_a=91.4$, $avgR(1\sim14)=89.5$, $avgR(1\sim15)=89.4$ TM30: $R_f=86$, $R_g=98$
 GAI: $GAI_BB_8=105.5$, $GAI_BB_15=109.4$, $GAI_EES=101.2$
 R1 =89 R2 =92 R3 =97 R4 =92 R5 =90 R6 =89 R7 =90 R8 =91
 R9 =87 R10=92 R11=96 R12=63 R13=89 R14=96 R15=87
 Color Quality Scale: $Q_a=90.2$, $Q_f=89.2$, $Q_p=92.5$, $Q_g=101.2$
 Q1 =86 Q2 =96 Q3 =86 Q4 =80 Q5 =83 Q6 =88 Q7 =98 Q8 =99
 Q9 =95 Q10=96 Q11=96 Q12=97 Q13=97 Q14=93 Q15=92



Photometric Parameters

Luminous Flux: 1817.0 lm Efficiency: 93.04 lm/W Radiant Power: 6.393 W
 Total mains efficacy: 109.41 lm/W Energy Efficiency Class: F (EU 2019/2015)
 Pupil Flux: 3584.07 Plm Pupil Lumens Per Watt: 183.52 Plm/W Pupil Factor (Kp): 1.973
 Circopic Flux: 8663.58 lm

Electric Parameters

Voltage: 230.40V Current: 0.0880A Power: 19.53W
 Power Factor: 0.9570 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: 55818 (2157) CCD Integration Time: 104.05 ms

Condition: Tx:16.9'C, Ti:0.0'C, R.H.:60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-01-18 14:19:41
 Inspector:

Lightsource Test Report

Product Information

Product Category: LED-Röhre
 Product Spec: LEDtube-120-8Milk-20WM
 Manufacturer: METOLIGHT
 Buyer: 7116

Product Type: LED-Röhre-Spezial
 Product Number: 1
 Submitted Unit: 105190

WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0000	0.0001	525	0.3610	27.7103	670	0.1424	10.9326
385	0.0005	0.0366	530	0.3755	28.8199	675	0.1220	9.3666
390	0.0005	0.0371	535	0.3761	28.8658	680	0.1039	7.9779
395	0.0003	0.0192	540	0.3681	28.2545	685	0.0883	6.7804
400	0.0001	0.0083	545	0.3558	27.3098	690	0.0734	5.6309
405	0.0002	0.0143	550	0.3388	26.0012	695	0.0616	4.7255
410	0.0003	0.0237	555	0.3222	24.7338	700	0.0508	3.8968
415	0.0009	0.0662	560	0.3073	23.5890	705	0.0429	3.2959
420	0.0018	0.1402	565	0.2951	22.6523	710	0.0362	2.7760
425	0.0057	0.4372	570	0.2883	22.1273	715	0.0300	2.3059
430	0.0165	1.2636	575	0.2860	21.9486	720	0.0245	1.8784
435	0.0439	3.3665	580	0.2917	22.3897	725	0.0204	1.5664
440	0.1104	8.4700	585	0.3018	23.1644	730	0.0162	1.2428
445	0.2441	18.7345	590	0.3162	24.2685	735	0.0116	0.8876
450	0.5073	38.9413	595	0.3323	25.5077	740	0.0089	0.6820
455	0.8756	67.2082	600	0.3468	26.6180	745	0.0066	0.5062
460	0.9826	75.4181	605	0.3599	27.6279	750	0.0078	0.5997
465	0.7330	56.2588	610	0.3659	28.0856	755	0.0043	0.3327
470	0.5341	40.9972	615	0.3692	28.3392	760	0.0017	0.1334
475	0.4155	31.8938	620	0.3629	27.8517	765	0.0014	0.1068
480	0.2895	22.2169	625	0.3507	26.9172	770	0.0019	0.1427
485	0.2129	16.3378	630	0.3332	25.5784	775	0.0023	0.1764
490	0.1898	14.5644	635	0.3122	23.9630	780	0.0018	0.1371
495	0.1878	14.4147	640	0.2894	22.2164	785	0.0008	0.0639
500	0.2043	15.6787	645	0.2651	20.3472	790	0.0004	0.0288
505	0.2366	18.1619	650	0.2385	18.3034	795	0.0006	0.0457
510	0.2757	21.1638	655	0.2135	16.3878	800	0.0024	0.1810
515	0.3108	23.8584	660	0.1894	14.5339			
520	0.3418	26.2321	665	0.1651	12.6721			

Condition: Tx: 16.9°C, Ti: 0.0°C, R.H.: 60%
 Test Lab:
 Operator: CRE

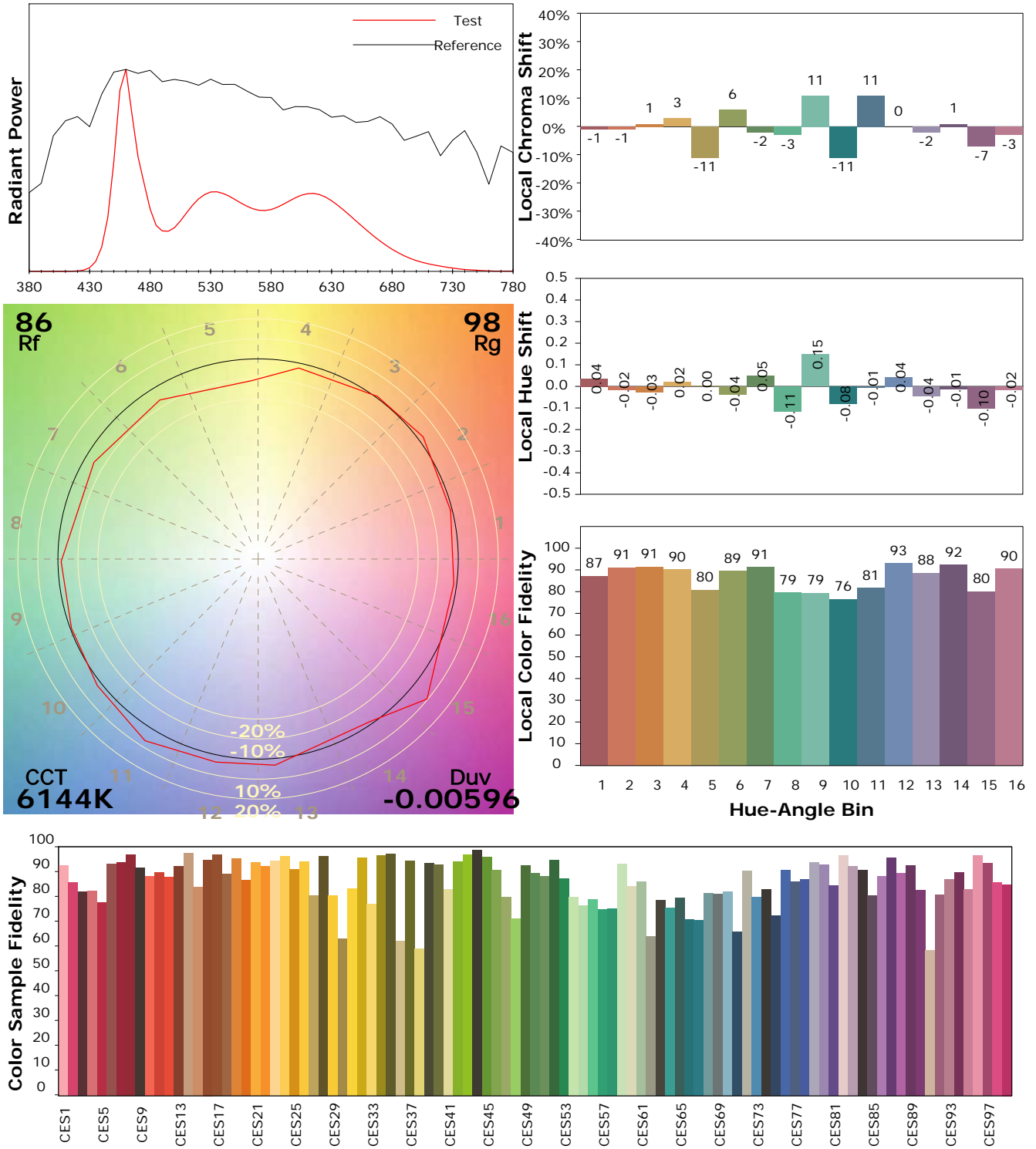
Test Device: Lisun LMS-9000B
 Test Time: 2021-01-18 14:19:41
 Inspector:

IES TM-30-18 Color Rendition Report

Product Information

Product Category: LED-Röhre
 Product Spec: LEDtube-120-8Milk-20WM
 Manufacturer: METOLIGHT
 Buyer: 7116

Product Type: LED-Röhre-Spezial
 Product Number: 1
 Submitted Unit: 105190



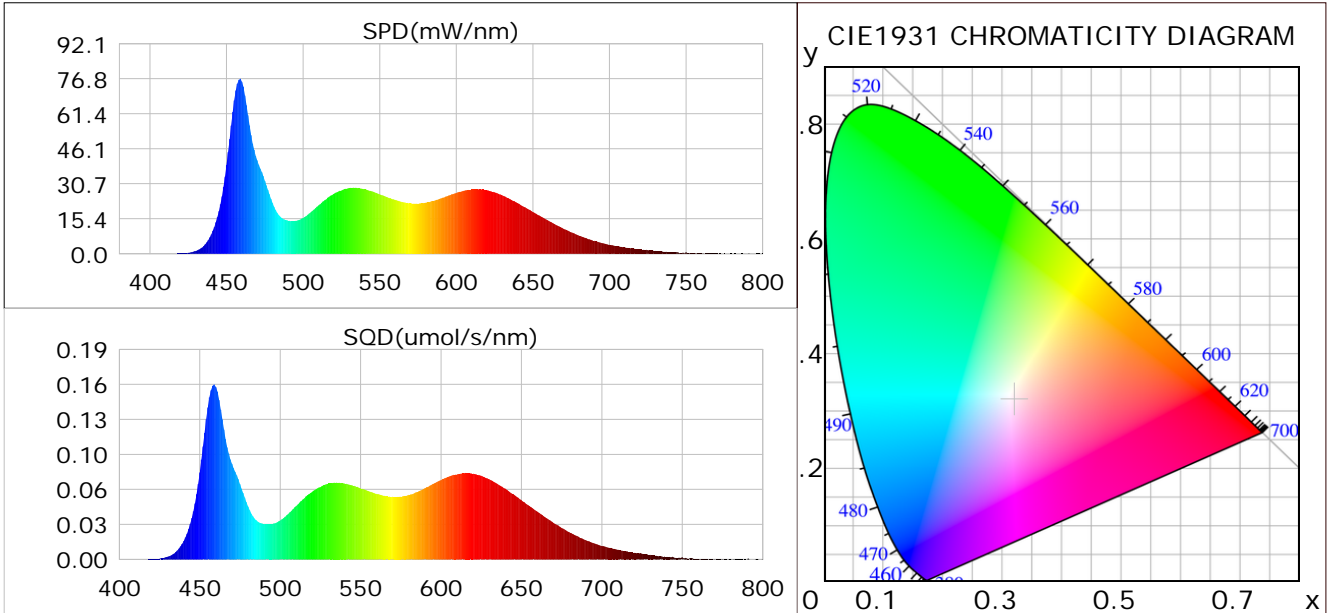
Condition: Tx: 16.9°C, Ti: 0.0°C, R.H.: 60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-01-18 14:19:41
 Inspector:

Plant optical param data

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3204$ $y=0.3190$ $u(u')=0.2071$ $v=0.3093$ $v'=0.4640$
 CCT: $T_c=6144K$ ($duv=-0.00596$) Color Ratio: $R=0.180$ $G=0.752$ $B=0.068$
 Peak Wavelength: 458.8nm Half Bandwidth: 21.5nm
 Dominant Wavelength: 474.9nm Color Purity: 0.058
 CRI: $R_a=91.4$



Plant Optical Param

$ \mu_v(lm): 1817.00$	$Q_v(lm.s): 1817.00$
$ \mu_e, \dot{E}(W/nm): 6.39$	$Q_e(J): 6.39$
$ \mu_e(W): 6.30$	$ \mu_{fr}(W): 0.10$
$ \zeta_e: 0.32$	$ \zeta_{fr}: 0.00$
$PPE(umol/s/w): 1.47$	$K_{fr}: 0.03$
$Erb_Ratio: 0.84$	$PPF(umol/s): 28.77$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 8.16$
$PPF(500-600)(umol/s): 11.26$	$PPF(600-700)(umol/s): 9.35$
$PPF_r(700-800)(umol/s): 0.55$	$PPF.t(umol): 28.77$
$ \mu_{ch-A.t}(J): 0.49$	$ \mu_{ch-A}(W): 0.49$
$ \mu_{ch-B.t}(J): 0.40$	$ \mu_{ch-B}(W): 0.40$
$ \mu_b.t(J): 2.10$	$ \mu_b(W): 2.10$
$ \mu_y.t(J): 2.46$	$ \mu_y(W): 2.46$
$ \mu_r.t(J): 1.78$	$ \mu_r(W): 1.78$

Electric Parameters

Voltage: 230.40V	Current: 0.0880A	Power: 19.53W
Power Factor: 0.9570	Frequency: 49.99Hz	

Condition: $T_x: 16.9^\circ C$, $T_i: 0.0^\circ C$, R.H.: 60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2021-01-18 14:19:41
 Inspector: