

Lightsource Test Report

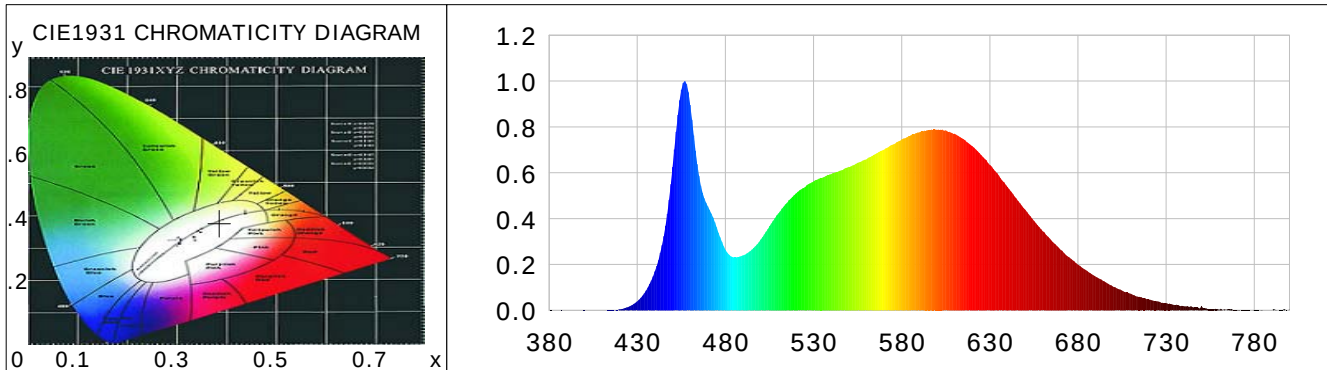
Product Information

Product Category: LED-Röhre
Product Spec: LEDtube-090-8NWM-14W-24
Manufacturer: METOLIGHT
Buyer: 4624

Product Type: LED-Röhre-Spezial
Product Number: 1
Submitted Unit: 104995

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3856$ $y=0.3790$ $u(u')=0.2276$ $v=0.3356$ $v'=0.5033$
CCT: $T_c=3880K$ ($duv=-0.00041$) Color Ratio: $R=0.192$ $G=0.771$ $B=0.037$
Peak Wavelength: 456.9nm Half Bandwidth: 19.3nm
Dominant Wavelength: 579.7nm Color Purity: 0.295
CRI: $R_a=84.8$, $avgR(1\sim14)=78.7$, $avgR(1\sim15)=78.7$ TM30: $R_f=83$, $R_g=94$
GAI: $GAI_BB_8=92.5$, $GAI_BB_15=101.2$, $GAI_EES=71.1$
 $R1=84$ $R2=92$ $R3=96$ $R4=82$ $R5=83$ $R6=88$ $R7=85$ $R8=67$
 $R9=20$ $R10=80$ $R11=80$ $R12=58$ $R13=87$ $R14=98$ $R15=79$
Color Quality Scale: $Q_a=83.2$, $Q_f=83.4$, $Q_p=82.8$, $Q_g=92.5$
 $Q1=82$ $Q2=97$ $Q3=80$ $Q4=74$ $Q5=78$ $Q6=81$ $Q7=86$ $Q8=89$
 $Q9=98$ $Q10=91$ $Q11=87$ $Q12=86$ $Q13=86$ $Q14=76$ $Q15=79$



Photometric Parameters

Luminous Flux: 1360.9 lm Efficiency: 115.72 lm/W Radiant Power: 4.134 W
Total mains efficacy: 136.09 lm/W Energy Efficiency Class: D (EU 2019/2015)
Pupil Flux: 2045.05 Plm Pupil Lumens Per Watt: 173.90 Plm/W Pupil Factor (Kp): 1.503
Cirtopic Flux: 4186.77 lm

Electric Parameters

Voltage: 24.010V Current: 0.4900A Power: 11.76W
Power Factor: 0.7140 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: 44453 (2467) CCD Integration Time: 179.02 ms

Condition: Tx:20.5'C, Ti:0.0'C, R.H.:60%
Test Lab:
Operator: CRE

Test Device: Lisun LMS-9000B
Test Time: 2021-01-14 13:52:40
Inspector:

Lightsource Test Report

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0006	0.0181	525	0.5365	16.1436	670	0.2657	7.9959
385	0.0008	0.0239	530	0.5624	16.9240	675	0.2316	6.9678
390	0.0006	0.0185	535	0.5782	17.3993	680	0.1990	5.9880
395	0.0001	0.0027	540	0.5946	17.8909	685	0.1726	5.1928
400	0.0007	0.0215	545	0.6091	18.3279	690	0.1469	4.4212
405	0.0002	0.0069	550	0.6257	18.8275	695	0.1257	3.7826
410	0.0004	0.0117	555	0.6433	19.3565	700	0.1033	3.1078
415	0.0016	0.0477	560	0.6588	19.8230	705	0.0862	2.5923
420	0.0048	0.1458	565	0.6819	20.5181	710	0.0719	2.1636
425	0.0151	0.4537	570	0.7015	21.1076	715	0.0590	1.7742
430	0.0393	1.1840	575	0.7239	21.7812	720	0.0479	1.4418
435	0.0859	2.5852	580	0.7457	22.4385	725	0.0397	1.1958
440	0.1699	5.1130	585	0.7627	22.9490	730	0.0316	0.9515
445	0.3234	9.7319	590	0.7769	23.3765	735	0.0235	0.7065
450	0.6248	18.8014	595	0.7864	23.6635	740	0.0187	0.5613
455	0.9622	28.9513	600	0.7887	23.7323	745	0.0140	0.4204
460	0.8963	26.9687	605	0.7849	23.6177	750	0.0193	0.5794
465	0.5867	17.6552	610	0.7705	23.1853	755	0.0058	0.1741
470	0.4539	13.6589	615	0.7471	22.4788	760	0.0033	0.0997
475	0.3627	10.9125	620	0.7164	21.5563	765	0.0055	0.1648
480	0.2646	7.9615	625	0.6775	20.3873	770	0.0020	0.0595
485	0.2308	6.9448	630	0.6344	19.0895	775	0.0015	0.0451
490	0.2398	7.2149	635	0.5886	17.7103	780	0.0022	0.0660
495	0.2649	7.9710	640	0.5380	16.1882	785	0.0013	0.0382
500	0.3091	9.3010	645	0.4885	14.6977	790	0.0013	0.0386
505	0.3677	11.0634	650	0.4397	13.2303	795	0.0016	0.0495
510	0.4230	12.7268	655	0.3906	11.7521	800	0.0046	0.1389
515	0.4695	14.1266	660	0.3453	10.3897			
520	0.5102	15.3525	665	0.3039	9.1439			

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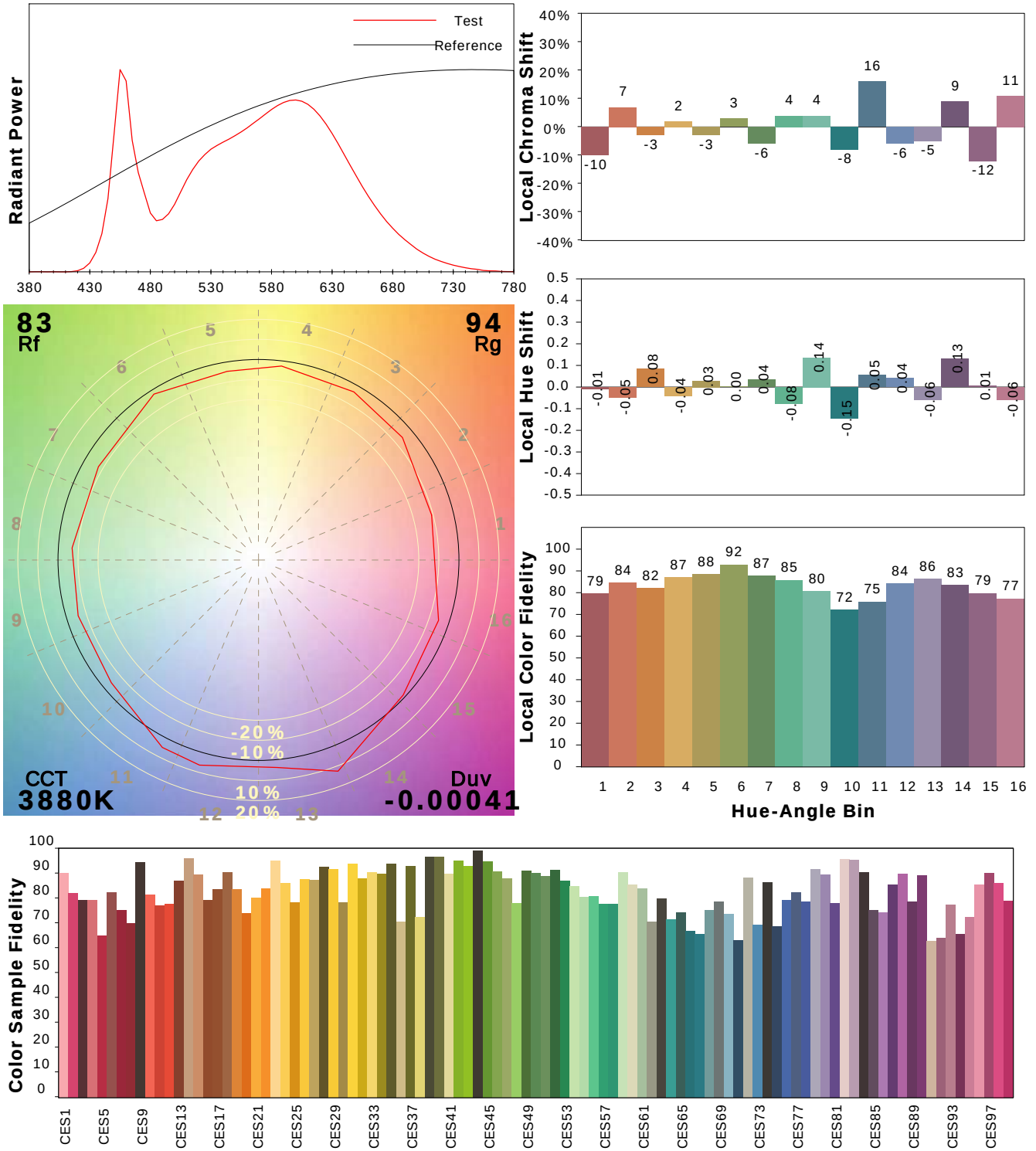
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IES TM-30-18 Color Rendition Report

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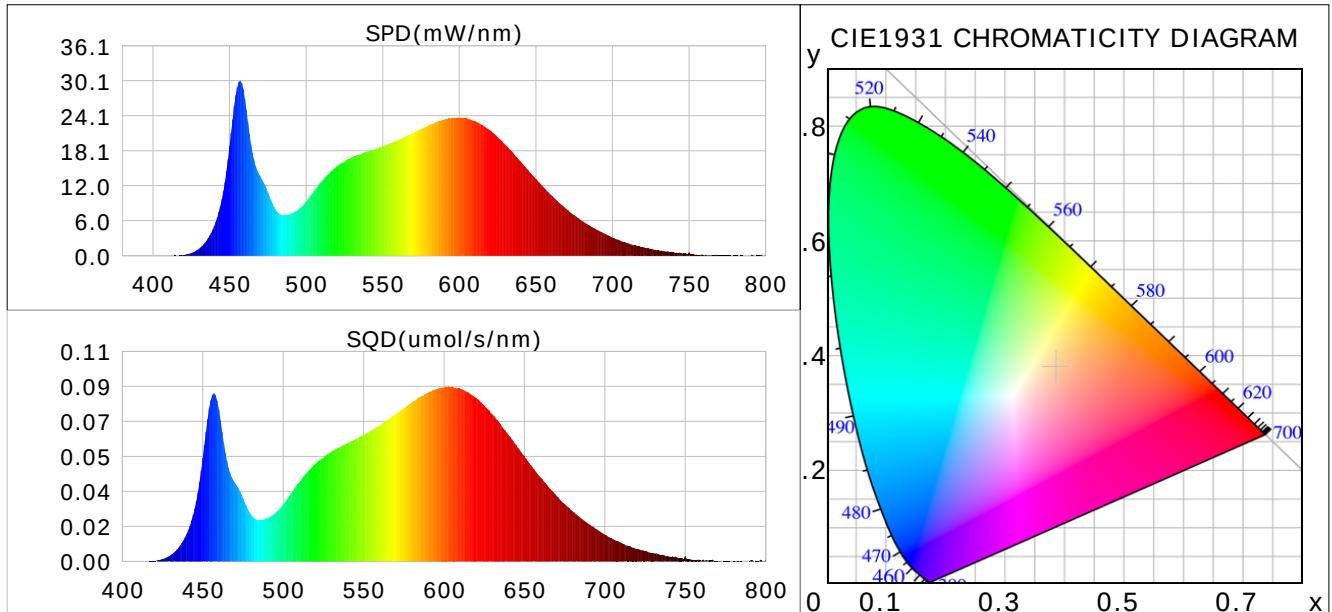
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Plant optical param data

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 CRI: Ra= 84.8



Plant Optical Param

$\mu_v(lm): 1360.90$	$Q_v(lm.s): 1360.90$
$\mu_e, \dot{E}(W/nm): 4.13$	$Q_e(J): 4.13$
$\mu_e(W): 4.06$	$\mu_{fr}(W): 0.07$
$\dot{Q}_e: 0.35$	$\dot{Q}_{fr}: 0.01$
$PPE(umol/s/w): 1.63$	$K_{fr}: 0.04$
$Erb_Ratio: 1.57$	$PPF(umol/s): 19.13$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 3.33$
$PPF(500-600)(umol/s): 8.65$	$PPF(600-700)(umol/s): 7.15$
$PF_{fr}(700-800)(umol/s): 0.42$	$PPF.t(umol): 19.13$
$\mu_{ch-A.t}(J): 0.31$	$\mu_{ch-A}(W): 0.31$
$\mu_{ch-B.t}(J): 0.20$	$\mu_{ch-B}(W): 0.20$
$\mu_b.t(J): 0.86$	$\mu_b(W): 0.86$
$\mu_y.t(J): 1.87$	$\mu_y(W): 1.87$
$\mu_r.t(J): 1.37$	$\mu_r(W): 1.37$

Electric Parameters

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