

Lightsource Test Report

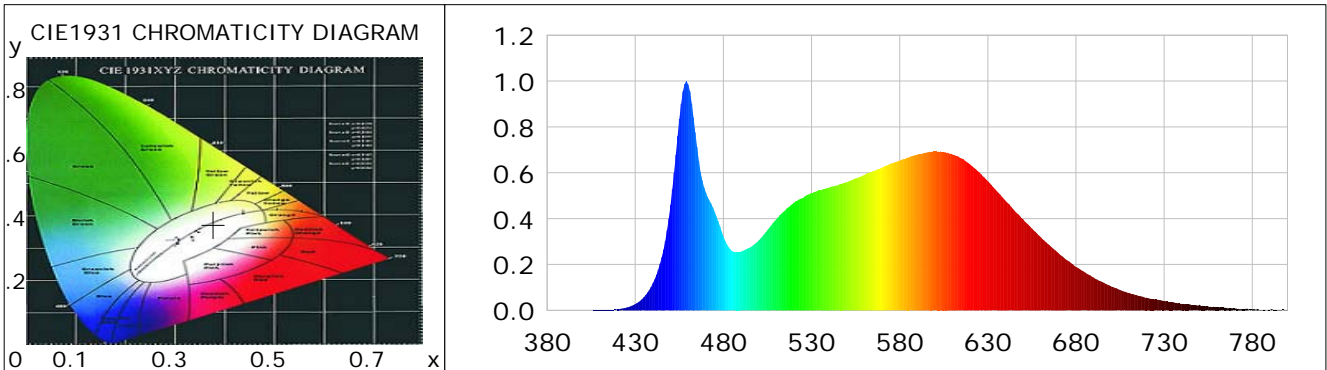
Product Information

Product Category: LED-Röhre
 Product Spec: Ledtube-115-5NWM-18W-TRF
 Manufacturer: METOLIGHT
 Buyer: 5931

Product Type: LED-Röhre-TRF
 Product Number: 1
 Submitted Unit: 104524

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: 2283.0 lm Efficiency: 120.16 lm/W Radiant Power: 7.130 W
 Total mains efficacy: 130.85 lm/W Energy Efficiency Class: E (EU 2019/2015)
 Pupil Flux: 3603.74 Plm Pupil Lumens Per Watt: 189.67 Plm/W Pupil Factor (Kp): 1.579
 Circopic Flux: 7647.40 lm

Electric Parameters

Voltage: 229.61V Current: 0.0890A Power: 19.00W
 Power Factor: 0.9340 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	0.0105	525	0.4898	27.4815	670	0.2503	14.0435
385	0.0006	0.0357	530	0.5112	28.6833	675	0.2185	12.2585
390	0.0003	0.0143	535	0.5236	29.3747	680	0.1897	10.6450
395	0.0003	0.0172	540	0.5361	30.0752	685	0.1660	9.3140
400	0.0006	0.0311	545	0.5458	30.6222	690	0.1426	7.9993
405	0.0006	0.0324	550	0.5586	31.3390	695	0.1231	6.9045
410	0.0012	0.0700	555	0.5754	32.2842	700	0.1044	5.8595
415	0.0025	0.1375	560	0.5908	33.1446	705	0.0888	4.9822
420	0.0050	0.2813	565	0.6082	34.1258	710	0.0762	4.2748
425	0.0123	0.6902	570	0.6226	34.9285	715	0.0647	3.6272
430	0.0273	1.5331	575	0.6407	35.9456	720	0.0552	3.0943
435	0.0581	3.2592	580	0.6535	36.6657	725	0.0476	2.6695
440	0.1184	6.6403	585	0.6666	37.3972	730	0.0413	2.3157
445	0.2318	13.0067	590	0.6793	38.1115	735	0.0350	1.9626
450	0.4606	25.8441	595	0.6881	38.6078	740	0.0286	1.6052
455	0.8350	46.8488	600	0.6932	38.8910	745	0.0248	1.3916
460	0.9850	55.2644	605	0.6907	38.7529	750	0.0239	1.3429
465	0.7134	40.0238	610	0.6794	38.1165	755	0.0173	0.9713
470	0.5141	28.8448	615	0.6630	37.1951	760	0.0146	0.8164
475	0.4301	24.1309	620	0.6362	35.6932	765	0.0113	0.6336
480	0.3224	18.0872	625	0.6022	33.7890	770	0.0085	0.4796
485	0.2581	14.4793	630	0.5632	31.5955	775	0.0063	0.3549
490	0.2568	14.4068	635	0.5204	29.1950	780	0.0046	0.2600
495	0.2740	15.3746	640	0.4780	26.8179	785	0.0026	0.1479
500	0.3045	17.0826	645	0.4362	24.4713	790	0.0021	0.1203
505	0.3505	19.6649	650	0.3967	22.2591	795	0.0032	0.1769
510	0.3979	22.3237	655	0.3573	20.0447	800	0.0040	0.2245
515	0.4360	24.4618	660	0.3195	17.9275			
520	0.4694	26.3384	665	0.2836	15.9128			

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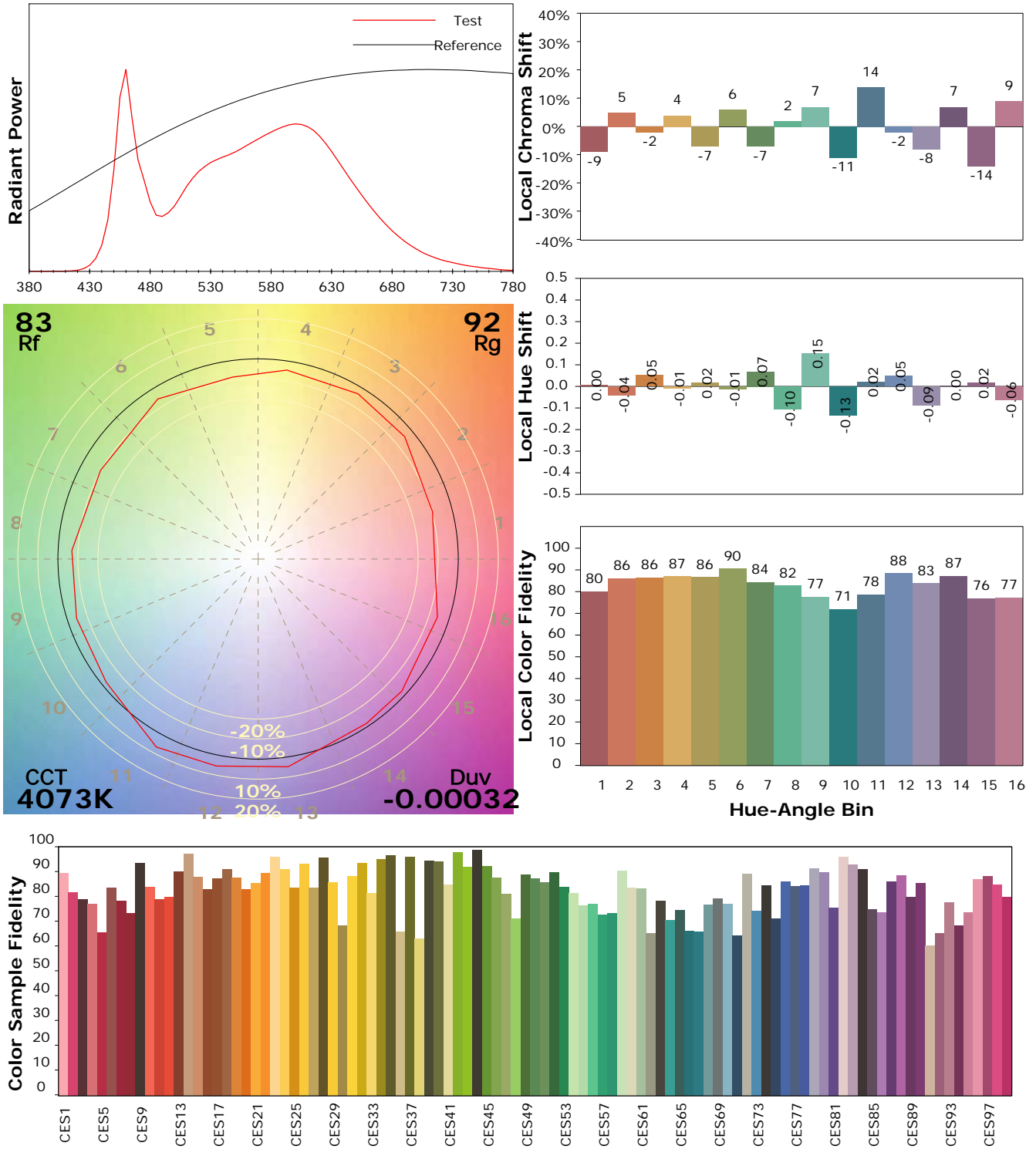
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IES TM-30-18 Color Rendition Report

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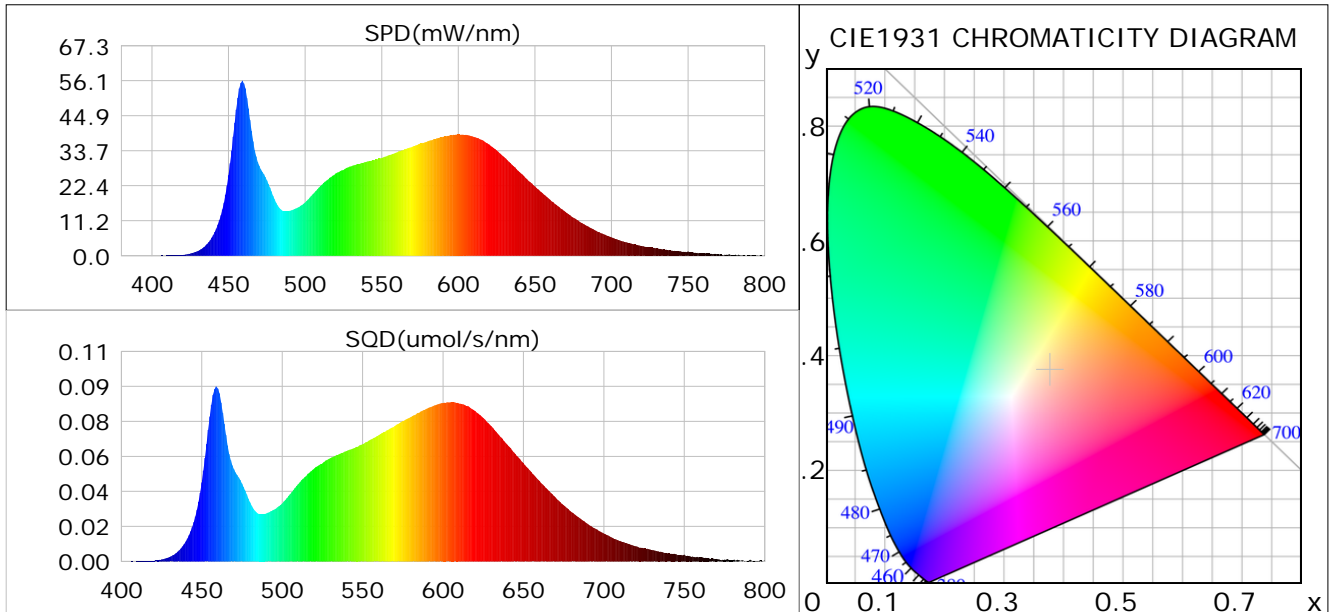
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Plant optical param data

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 CRI: $R_a=86.4$



Plant Optical Param

$ \mu_v(lm): 2283.00$	$Q_v(lm.s): 2283.00$
$ \mu_e, \dot{E}(W/nm): 7.13$	$Q_e(J): 7.13$
$ \mu_e(W): 6.97$	$ \mu_{fr}(W): 0.17$
$ \zeta_e: 0.37$	$ \zeta_{fr}: 0.01$
$PPE(umol/s/w): 1.72$	$K_{fr}: 0.05$
$Erb_Ratio: 1.42$	$PPF(umol/s): 32.69$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 6.22$
$PPF(500-600)(umol/s): 14.45$	$PPF(600-700)(umol/s): 12.02$
$PPF_r(700-800)(umol/s): 1.01$	$PPF.t(umol): 32.69$
$ \mu_{ch-A.t}(J): 0.52$	$ \mu_{ch-A}(W): 0.52$
$ \mu_{ch-B.t}(J): 0.35$	$ \mu_{ch-B}(W): 0.35$
$ \mu_b.t(J): 1.60$	$ \mu_b(W): 1.60$
$ \mu_y.t(J): 3.13$	$ \mu_y(W): 3.13$
$ \mu_r.t(J): 2.30$	$ \mu_r(W): 2.30$

Electric Parameters

Voltage: 229.61V	Current: 0.0890A	Power: 19.00W
Power Factor: 0.9340	Frequency: 49.99Hz	

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