

Lightsource Test Report

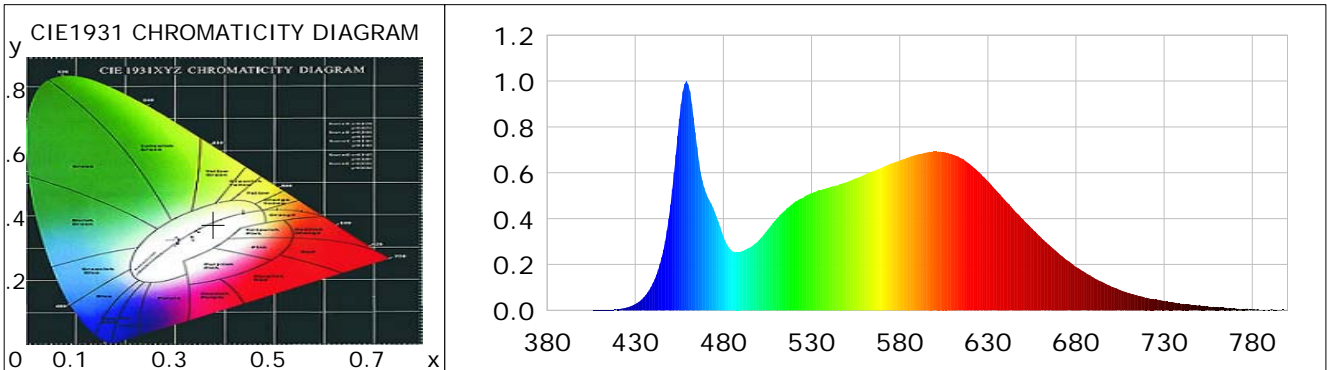
Product Information

Product Category: LED-Röhre
 Product Spec: Ledtube-145-5NWM-HO-24W-TRF
 Manufacturer: METOLIGHT
 Buyer: 7709

Product Type: LED-Röhre-TRF
 Product Number: 1
 Submitted Unit: 104530

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: 2883.0 lm Efficiency: 120.63 lm/W Radiant Power: 9.004 W
 Total mains efficacy: 131.36 lm/W Energy Efficiency Class: E (EU 2019/2015)
 Pupil Flux: 4550.85 Plm Pupil Lumens Per Watt: 190.41 Plm/W Pupil Factor (Kp): 1.579
 Circopic Flux: 9657.23 lm

Electric Parameters

Voltage: 230.00V Current: 0.1110A Power: 23.90W
 Power Factor: 0.9370 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	0.0132	525	0.4898	34.7040	670	0.2503	17.7343
385	0.0006	0.0451	530	0.5112	36.2216	675	0.2185	15.4802
390	0.0003	0.0180	535	0.5236	37.0947	680	0.1897	13.4426
395	0.0003	0.0218	540	0.5361	37.9794	685	0.1660	11.7618
400	0.0006	0.0393	545	0.5458	38.6700	690	0.1426	10.1016
405	0.0006	0.0409	550	0.5586	39.5753	695	0.1231	8.7191
410	0.0012	0.0884	555	0.5754	40.7689	700	0.1044	7.3994
415	0.0025	0.1736	560	0.5908	41.8554	705	0.0888	6.2916
420	0.0050	0.3553	565	0.6082	43.0945	710	0.0762	5.3983
425	0.0123	0.8716	570	0.6226	44.1081	715	0.0647	4.5805
430	0.0273	1.9360	575	0.6407	45.3926	720	0.0552	3.9075
435	0.0581	4.1157	580	0.6535	46.3018	725	0.0476	3.3710
440	0.1184	8.3854	585	0.6666	47.2256	730	0.0413	2.9243
445	0.2318	16.4250	590	0.6793	48.1277	735	0.0350	2.4784
450	0.4606	32.6362	595	0.6881	48.7544	740	0.0286	2.0271
455	0.8350	59.1613	600	0.6932	49.1120	745	0.0248	1.7573
460	0.9850	69.7885	605	0.6907	48.9376	750	0.0239	1.6959
465	0.7134	50.5425	610	0.6794	48.1340	755	0.0173	1.2266
470	0.5141	36.4256	615	0.6630	46.9704	760	0.0146	1.0310
475	0.4301	30.4728	620	0.6362	45.0738	765	0.0113	0.8001
480	0.3224	22.8408	625	0.6022	42.6691	770	0.0085	0.6056
485	0.2581	18.2847	630	0.5632	39.8992	775	0.0063	0.4482
490	0.2568	18.1931	635	0.5204	36.8677	780	0.0046	0.3283
495	0.2740	19.4152	640	0.4780	33.8660	785	0.0026	0.1867
500	0.3045	21.5721	645	0.4362	30.9027	790	0.0021	0.1519
505	0.3505	24.8330	650	0.3967	28.1091	795	0.0032	0.2233
510	0.3979	28.1906	655	0.3573	25.3127	800	0.0040	0.2835
515	0.4360	30.8906	660	0.3195	22.6390			
520	0.4694	33.2605	665	0.2836	20.0949			

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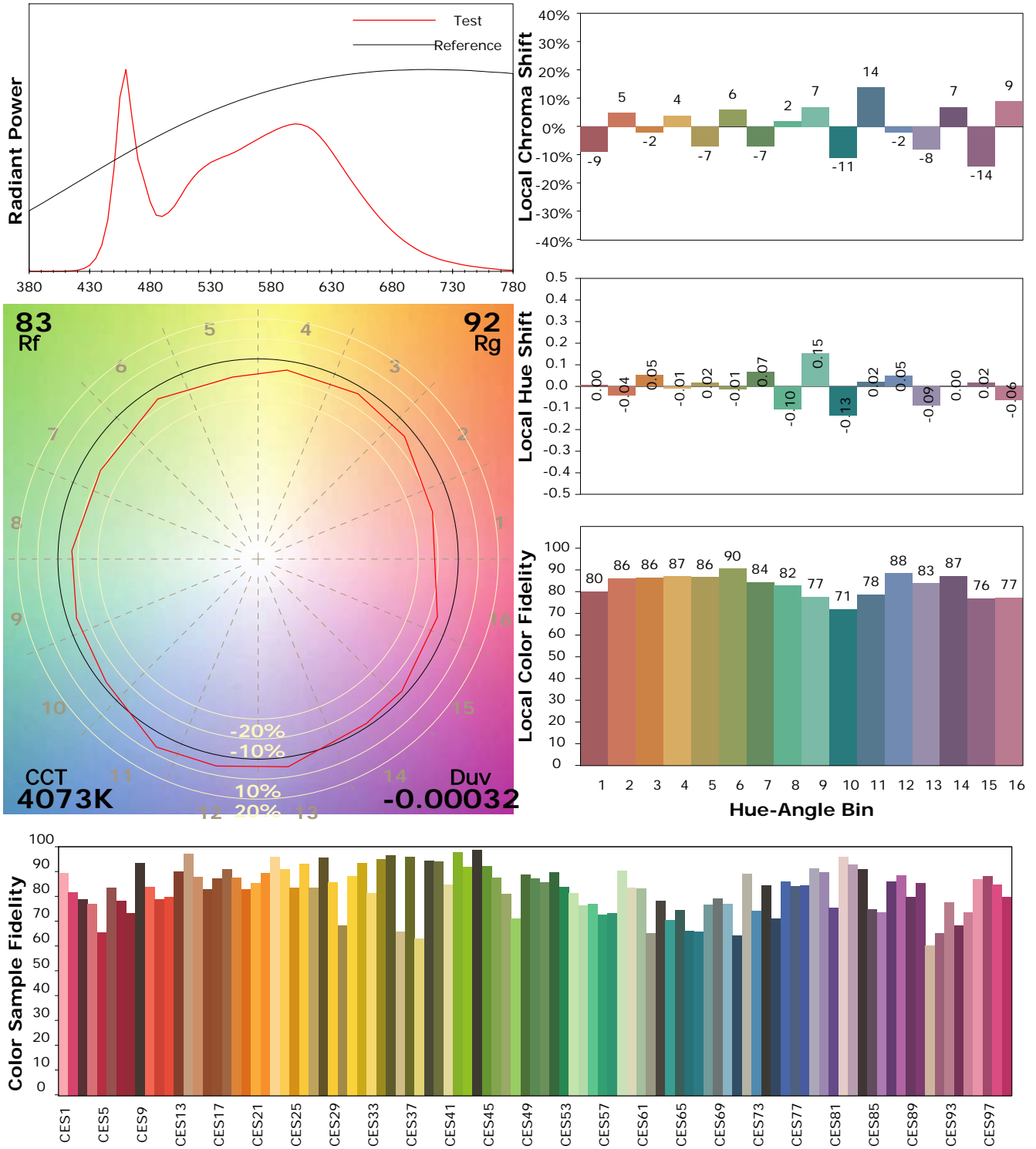
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IES TM-30-18 Color Rendition Report

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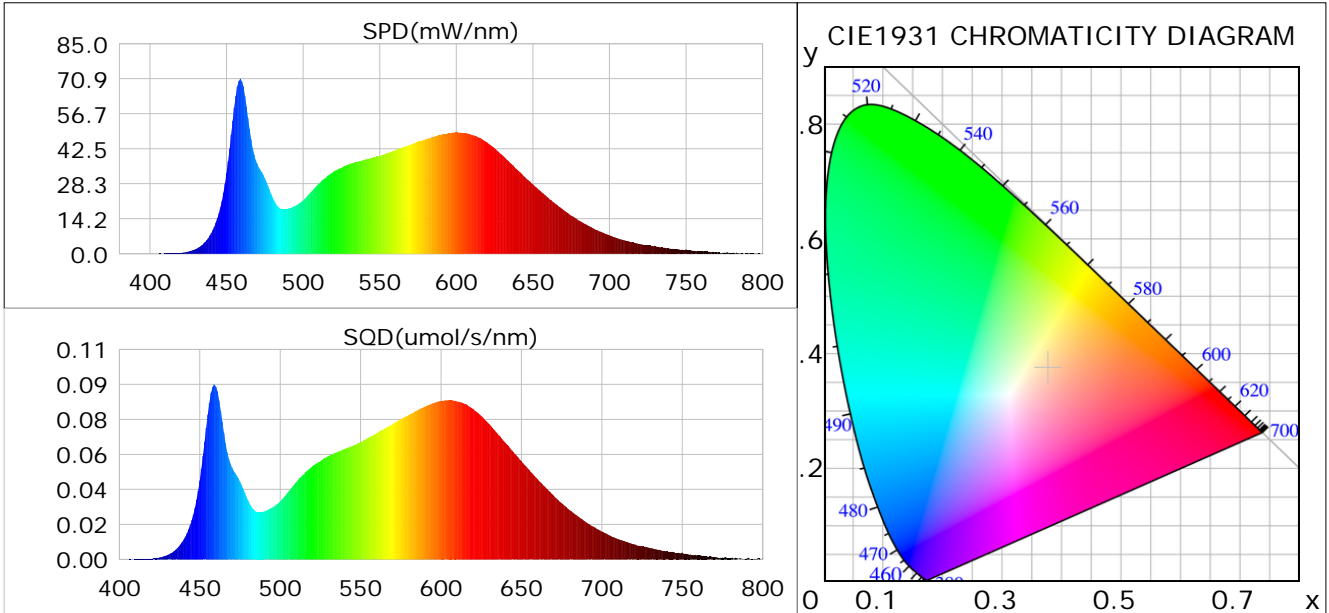
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Plant optical param data

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 CRI: $R_a=86.4$



Plant Optical Param

$ \mu_v(lm): 2883.00$	$Q_v(lm.s): 2883.00$
$ \mu_e, \dot{E}(W/nm): 9.00$	$Q_e(J): 9.00$
$ \mu_e(W): 8.80$	$ \mu_{fr}(W): 0.22$
$ \zeta_e: 0.37$	$ \zeta_{fr}: 0.01$
$PPE(umol/s/w): 1.73$	$K_{fr}: 0.05$
$Erb_Ratio: 1.42$	$PPF(umol/s): 41.28$
$PF_{uv}(360-400)(umol/s): 0.00$	$PPF(400-500)(umol/s): 7.85$
$PPF(500-600)(umol/s): 18.25$	$PPF(600-700)(umol/s): 15.18$
$PPF_r(700-800)(umol/s): 1.28$	$PPF.t(umol): 41.28$
$ \mu_{ch-A.t}(J): 0.65$	$ \mu_{ch-A}(W): 0.65$
$ \mu_{ch-B.t}(J): 0.44$	$ \mu_{ch-B}(W): 0.44$
$ \mu_b.t(J): 2.01$	$ \mu_b(W): 2.01$
$ \mu_y.t(J): 3.95$	$ \mu_y(W): 3.95$
$ \mu_r.t(J): 2.90$	$ \mu_r(W): 2.90$

Electric Parameters

Voltage: 230.00V	Current: 0.1110A	Power: 23.90W
Power Factor: 0.9370	Frequency: 49.99Hz	

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