

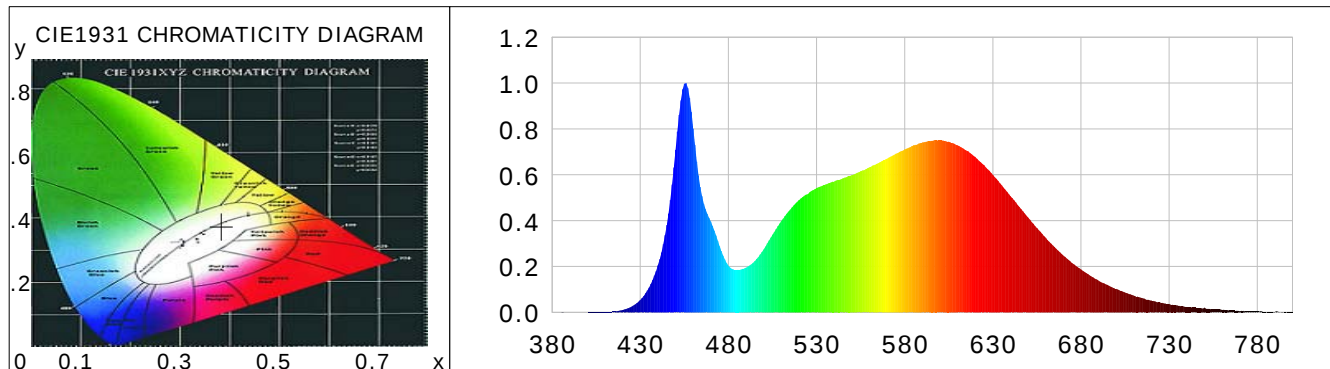
Lightsource Test Report

Product Information

Product Category: LED-Röhre Product Type: LED-Röhre-SCE
 Product Spec: LEDtube-120-8NWM-20W-SCE-RM-160 Product Number: 1
 Manufacturer: METOLIGHT Submitted Unit: 105043
 Buyer: 6961-20840

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3837$ $y=0.3751$ $u(u')=0.2279$ $v=0.3342$ $v'=0.5013$
 CCT: $T_c=3900K$ ($duv=-0.00169$) Color Ratio: $R=0.191$ $G=0.775$ $B=0.035$
 Peak Wavelength: 455.6nm Half Bandwidth: 18.1nm
 Dominant Wavelength: 580.4nm Color Purity: 0.277
 CRI: $R_a=84.0$, $avgR(1\sim14)=77.6$, $avgR(1\sim15)=77.7$ TM30: $R_f=82$, $R_g=95$
 GAI: $GAI_BB_8=95.2$, $GAI_BB_15=103.6$, $GAI_EES=73.5$
 R1 =84 R2 =91 R3 =94 R4 =82 R5 =82 R6 =86 R7 =86 R8 =67
 R9 =18 R10=76 R11=80 R12=57 R13=86 R14=97 R15=79
 Color Quality Scale: $Q_a=82.2$, $Q_f=82.1$, $Q_p=82.8$, $Q_g=93.6$
 Q1 =83 Q2 =98 Q3 =77 Q4 =72 Q5 =78 Q6 =82 Q7 =85 Q8 =88
 Q9 =97 Q10=88 Q11=85 Q12=84 Q13=84 Q14=76 Q15=78



Photometric Parameters

Luminous Flux: 3213.8 lm Efficiency: 155.18 lm/W Radiant Power: 9.798 W
 Total mains efficacy: 182.49 lm/W Energy Efficiency Class: C (EU 2019/2015)
 Pupil Flux: 4785.89 Plm Pupil Lumens Per Watt: 231.09 Plm/W Pupil Factor (Kp): 1.489
 Cirtopic Flux: 9713.45 lm

Electric Parameters

Voltage: 230.40V Current: 0.0950A Power: 20.71W
 Power Factor: 0.9400 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: 44972 (2392) CCD Integration Time: 85.06 ms

Condition: Tx:19.9'C, Ti:0.0'C, R.H.:60%
 Test Lab:
 Operator: CRE

Test Device: Lisun LMS-9000B
 Test Time: 2020-11-16 13:05:32
 Inspector:

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WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0003	0.0187	525	0.5158	38.5337	670	0.2483	18.5460
385	0.0008	0.0630	530	0.5422	40.5025	675	0.2145	16.0265
390	0.0005	0.0386	535	0.5573	41.6356	680	0.1877	14.0235
395	0.0004	0.0322	540	0.5709	42.6494	685	0.1607	12.0031
400	0.0008	0.0618	545	0.5848	43.6861	690	0.1378	10.2959
405	0.0007	0.0557	550	0.5984	44.7007	695	0.1196	8.9316
410	0.0017	0.1292	555	0.6156	45.9867	700	0.1023	7.6404
415	0.0044	0.3280	560	0.6328	47.2737	705	0.0872	6.5173
420	0.0101	0.7510	565	0.6512	48.6480	710	0.0731	5.4574
425	0.0248	1.8531	570	0.6705	50.0863	715	0.0616	4.6046
430	0.0541	4.0430	575	0.6920	51.6957	720	0.0512	3.8261
435	0.1081	8.0738	580	0.7110	53.1165	725	0.0431	3.2177
440	0.2051	15.3236	585	0.7283	54.4053	730	0.0366	2.7334
445	0.3811	28.4675	590	0.7410	55.3525	735	0.0296	2.2134
450	0.7086	52.9357	595	0.7483	55.9003	740	0.0236	1.7632
455	0.9970	74.4773	600	0.7502	56.0452	745	0.0211	1.5750
460	0.8017	59.8896	605	0.7446	55.6251	750	0.0208	1.5569
465	0.5071	37.8850	610	0.7282	54.3962	755	0.0128	0.9542
470	0.3958	29.5713	615	0.7062	52.7560	760	0.0106	0.7945
475	0.2886	21.5609	620	0.6779	50.6405	765	0.0080	0.5977
480	0.2041	15.2461	625	0.6416	47.9336	770	0.0050	0.3748
485	0.1851	13.8245	630	0.5991	44.7552	775	0.0047	0.3535
490	0.1952	14.5811	635	0.5548	41.4425	780	0.0047	0.3495
495	0.2236	16.7024	640	0.5061	37.8089	785	0.0039	0.2899
500	0.2748	20.5273	645	0.4605	34.4012	790	0.0029	0.2195
505	0.3388	25.3103	650	0.4139	30.9209	795	0.0011	0.0849
510	0.3992	29.8222	655	0.3681	27.5000	800	0.0028	0.2060
515	0.4477	33.4415	660	0.3253	24.3028			
520	0.4900	36.6052	665	0.2853	21.3118			

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IES TM-30-18 Color Rendition Report

Product Information

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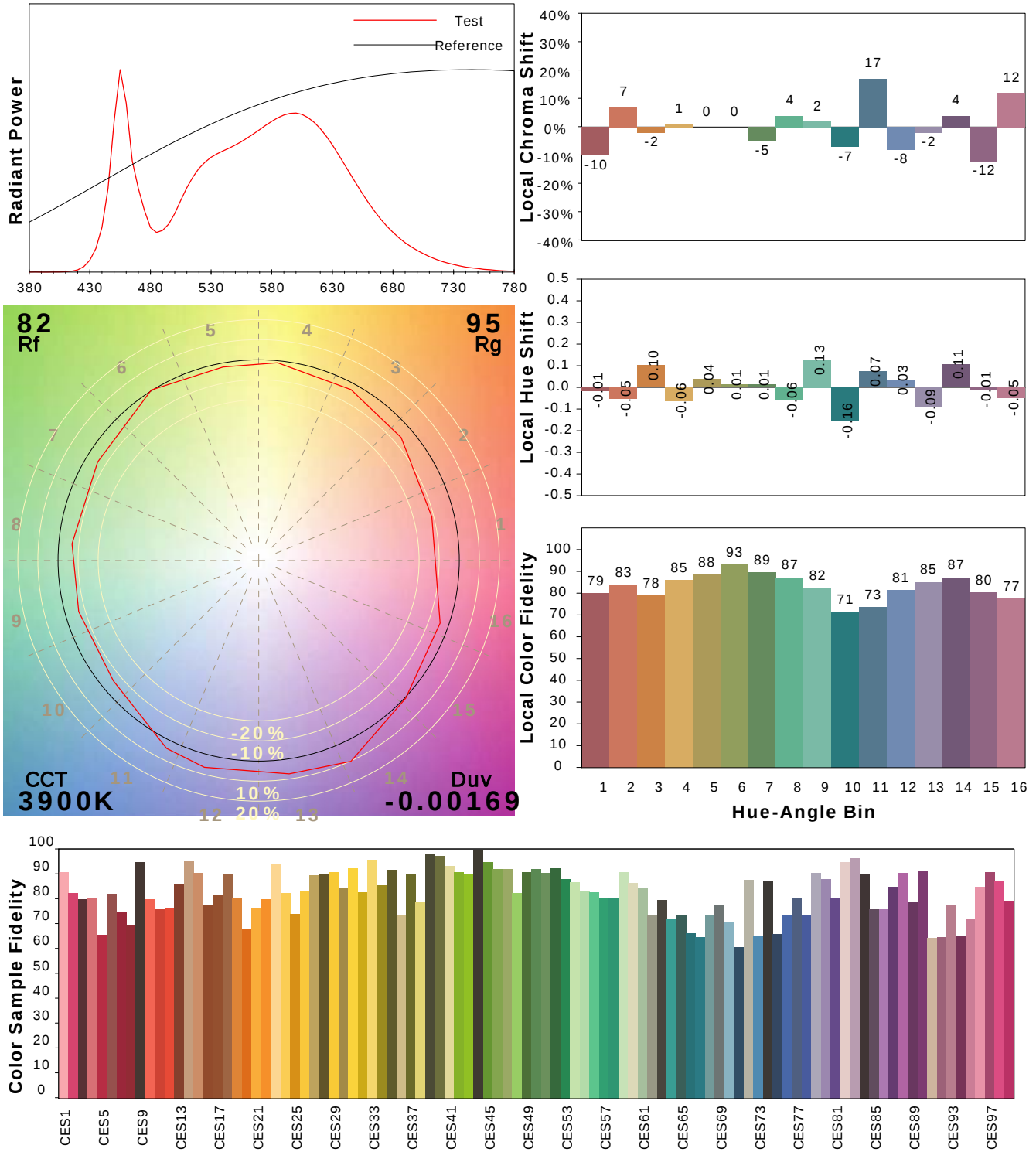
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Product Number: 1

Submitted Unit: 105043



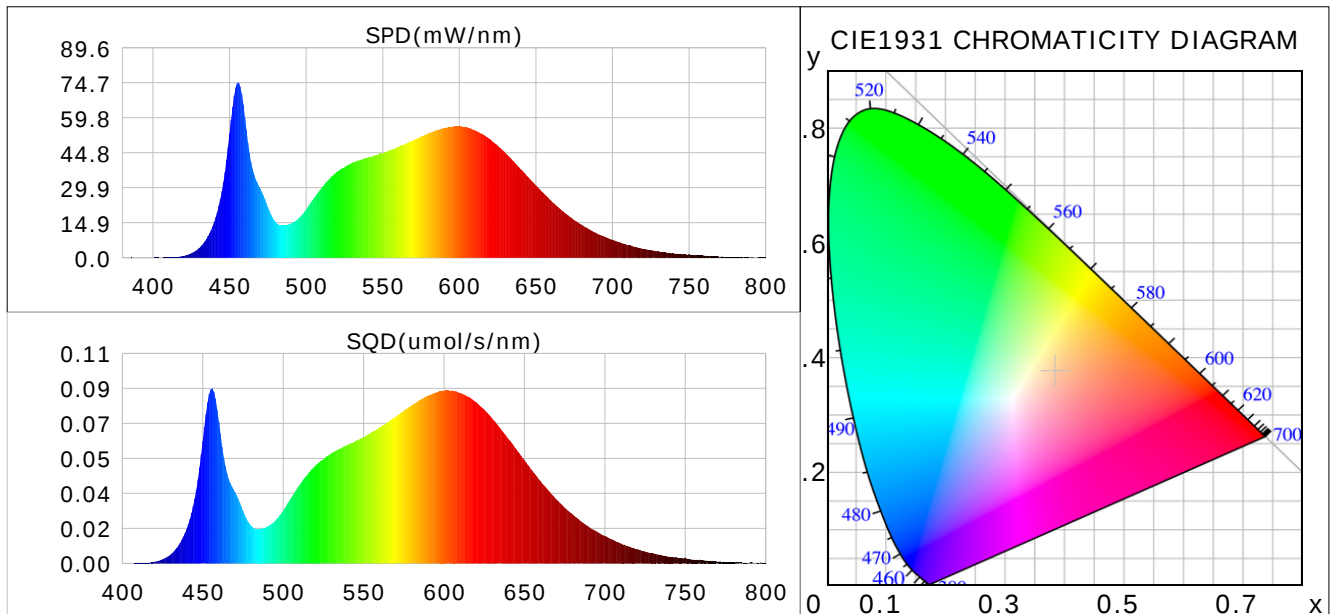
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Plant optical param data

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 Dominant Wavelength: 580.4nm Color Purity: 0.277
 CRI: Ra= 84.0



Plant Optical Param

$\mu_v(lm)$: 3213.80	$Q_v(lm.s)$: 3213.80
$\mu_e, \dot{E}(W/nm)$: 9.80	$Q_e(J)$: 9.80
$\mu_e(W)$: 9.60	$\mu_{fr}(W)$: 0.21
$\dot{C}_e$: 0.46	$\dot{C}_{fr}$: 0.01
$PPE(umol/s/w)$: 2.18	K_{fr} : 0.06
Erb_Ratio : 1.55	$PPF(umol/s)$: 45.13
$PF_{uv}(360-400)(umol/s)$: 0.00	$PPF(400-500)(umol/s)$: 7.88
$PPF(500-600)(umol/s)$: 20.50	$PPF(600-700)(umol/s)$: 16.75
$PF_{fr}(700-800)(umol/s)$: 1.22	$PPF.t(umol)$: 45.13
$\mu_{ch-A.t}(J)$: 0.74	$\mu_{ch-A}(W)$: 0.74
$\mu_{ch-B.t}(J)$: 0.46	$\mu_{ch-B}(W)$: 0.46
$\mu_b.t(J)$: 2.04	$\mu_b(W)$: 2.04
$\mu_y.t(J)$: 4.43	$\mu_y(W)$: 4.43
$\mu_r.t(J)$: 3.21	$\mu_r(W)$: 3.21

Electric Parameters

Voltage: 230.40V	Current: 0.0950A	Power: 20.71W
Power Factor: 0.9400	Frequency: 49.99Hz	

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