

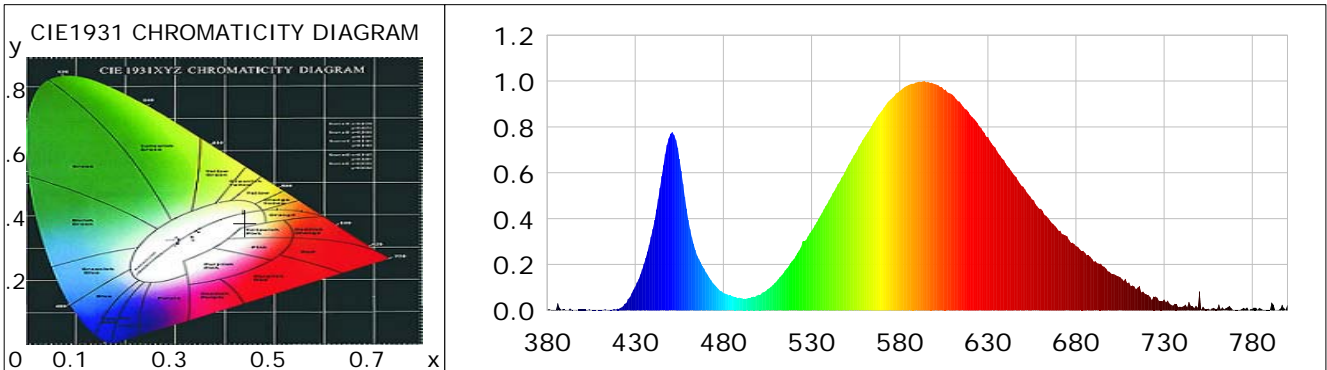
## Lightsource Test Report

### Product Information

Product Category: LED-Lampen  
 Product Spec: LED-E14-Kerze Q68-4W-WW-G  
 Manufacturer: METOLIGHT  
 Buyer: 2801  
 Product Type: LED-Lampen-E14  
 Product Number: 1  
 Submitted Unit: 102393

### CIE Colorimetric Parameters

Chromaticity coordinates:  $x=0.4413$   $y=0.3789$   $u(u')=0.2649$   $v=0.3411$   $v'=0.5117$   
 CCT:  $T_c=2715K$  ( $duv=-0.01068$ ) Color Ratio:  $R=0.229$   $G=0.755$   $B=0.016$   
 Peak Wavelength: 593.7nm Half Bandwidth: 112.2nm  
 Dominant Wavelength: 588.7nm Color Purity: 0.461  
 CRI:  $R_a=65.7$ ,  $avgR(1\sim14)=58.5$ ,  $avgR(1\sim15)=58.6$  TM30:  $R_f=64$ ,  $R_g=95$   
 GAI:  $GAI\_BB\_8=122.2$ ,  $GAI\_BB\_15=128.9$ ,  $GAI\_EES=59.9$   
 R1 =62 R2 =80 R3 =92 R4 =54 R5 =59 R6 =69 R7 =71 R8 =38  
 R9 =0 R10=53 R11=39 R12=41 R13=65 R14=95 R15=60  
 Color Quality Scale:  $Q_a=61.6$ ,  $Q_f=58.5$ ,  $Q_p=73.3$ ,  $Q_g=92.4$   
 Q1 =65 Q2 =95 Q3 =56 Q4 =46 Q5 =56 Q6 =58 Q7 =56 Q8 =66  
 Q9 =93 Q10=72 Q11=61 Q12=57 Q13=61 Q14=59 Q15=60



### Photometric Parameters

Luminous Flux: 270.73 lm Efficiency: 59.90 lm/W Radiant Power: 0.816 W  
 Total mains efficacy: 70.44 lm/W Energy Efficiency Class: G (EU 2019/2015)  
 Pupil Flux: 286.09 Plm Pupil Lumens Per Watt: 63.29 Plm/W Pupil Factor (Kp): 1.057  
 Circopic Flux: 477.60 lm

### Electric Parameters

Voltage: 230.90V Current: 0.0400A Power: 4.52W  
 Power Factor: 0.4880 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: 33343 (3279) CCD Integration Time: 1000.00 ms

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

Test Device: Lisun LMS-9000B  
 Test Time: 2021-04-28 11:23:34  
 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	0.0021	0.0121	525	0.3004	1.7714	670	0.3485	2.0552
385	0.0039	0.0230	530	0.3468	2.0451	675	0.3227	1.9029
390	0.0041	0.0242	535	0.4122	2.4308	680	0.2805	1.6543
395	0.0005	0.0027	540	0.4813	2.8382	685	0.2510	1.4804
400	0.0034	0.0198	545	0.5513	3.2513	690	0.2125	1.2530
405	0.0003	0.0019	550	0.6191	3.6508	695	0.1932	1.1392
410	0.0015	0.0091	555	0.6859	4.0447	700	0.1599	0.9433
415	0.0039	0.0229	560	0.7536	4.4444	705	0.1446	0.8530
420	0.0073	0.0433	565	0.8179	4.8237	710	0.1218	0.7182
425	0.0326	0.1924	570	0.8715	5.1394	715	0.0998	0.5885
430	0.1028	0.6061	575	0.9203	5.4272	720	0.0695	0.4100
435	0.2026	1.1948	580	0.9574	5.6460	725	0.0604	0.3563
440	0.3541	2.0884	585	0.9825	5.7940	730	0.0469	0.2766
445	0.5852	3.4510	590	0.9952	5.8688	735	0.0205	0.1209
450	0.7699	4.5402	595	0.9942	5.8633	740	0.0147	0.0867
455	0.6608	3.8972	600	0.9870	5.8206	745	0.0208	0.1224
460	0.3947	2.3280	605	0.9630	5.6789	750	0.0826	0.4870
465	0.2394	1.4117	610	0.9402	5.5449	755	0.0073	0.0428
470	0.1662	0.9801	615	0.8991	5.3021	760	0.0065	0.0383
475	0.1117	0.6585	620	0.8523	5.0265	765	0.0094	0.0554
480	0.0755	0.4450	625	0.8029	4.7348	770	0.0030	0.0180
485	0.0619	0.3649	630	0.7560	4.4582	775	0.0109	0.0643
490	0.0532	0.3138	635	0.6966	4.1081	780	0.0068	0.0401
495	0.0524	0.3092	640	0.6409	3.7797	785	0.0064	0.0377
500	0.0678	0.4000	645	0.5889	3.4731	790	0.0012	0.0074
505	0.0916	0.5404	650	0.5393	3.1806	795	0.0032	0.0191
510	0.1252	0.7381	655	0.4844	2.8568	800	0.0253	0.1491
515	0.1745	1.0292	660	0.4427	2.6105			
520	0.2228	1.3137	665	0.3938	2.3223			

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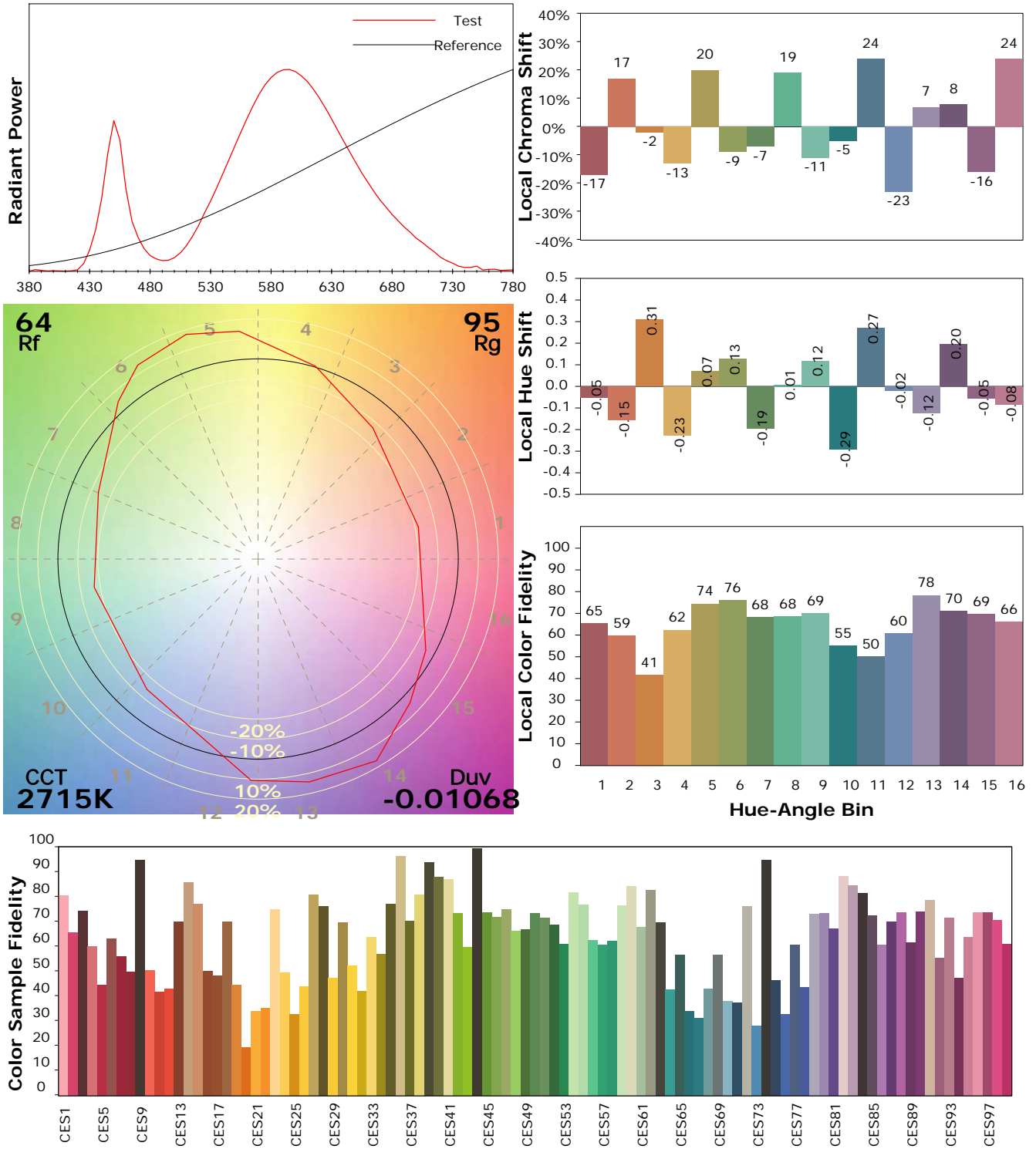
Test Device: Lisun LMS-9000B  
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 Inspector:

## IES TM-30-18 Color Rendition Report

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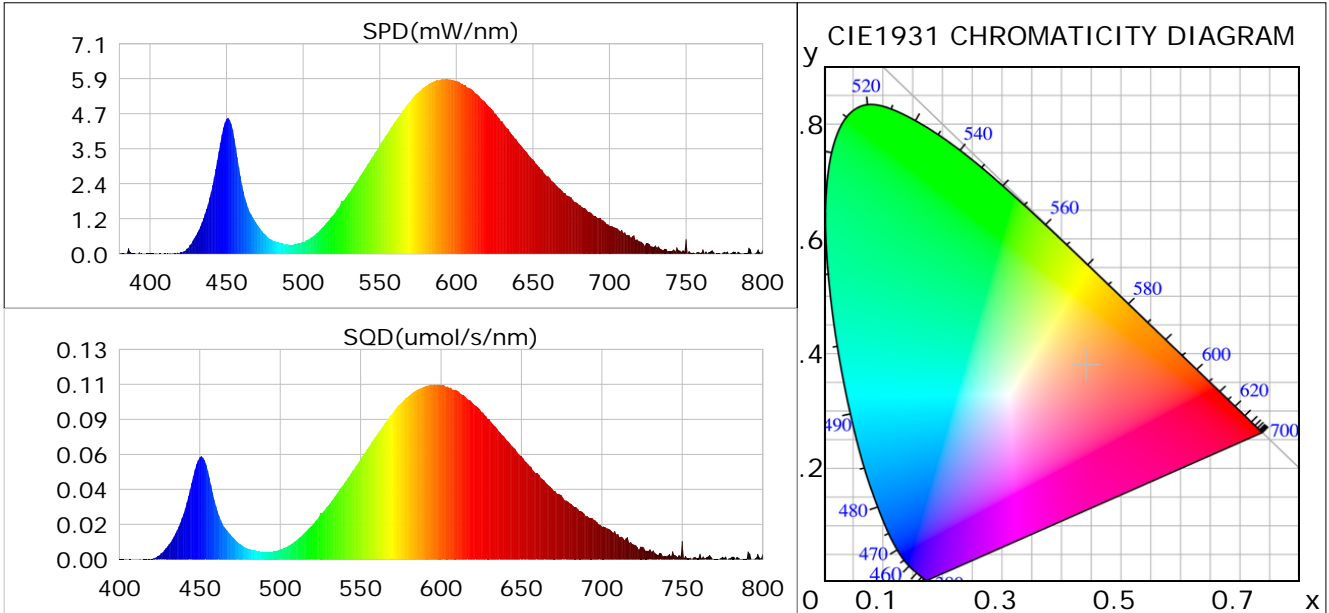
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 Test Lab:  
 Operator: CRE

Test Device: Lisun LMS-9000B  
 Test Time: 2021-04-28 11:23:34  
 Inspector:

## Plant optical param data

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 Peak Wavelength: 593.7nm Half Bandwidth: 112.2nm  
 Dominant Wavelength: 588.7nm Color Purity: 0.461  
 CRI:  $R_a=65.7$



### Plant Optical Param

$ \mu_v(lm): 270.73$	$Q_v(lm.s): 270.73$
$ \mu_e, \dot{E}(W/nm): 0.82$	$Q_e(J): 0.82$
$ \mu_e(W): 0.79$	$ \mu_{fr}(W): 0.02$
$ \dot{C}_e: 0.18$	$ \dot{C}_{fr}: 0.01$
$PPE(\mu mol/s/w): 0.85$	$K_{fr}: 0.03$
$Erb\_Ratio: 2.83$	$PPF(\mu mol/s): 3.84$
$PF_{uv}(360-400)(\mu mol/s): 0.00$	$PPF(400-500)(\mu mol/s): 0.44$
$PPF(500-600)(\mu mol/s): 1.66$	$PPF(600-700)(\mu mol/s): 1.74$
$PPF_r(700-800)(\mu mol/s): 0.13$	$PPF.t(\mu mol): 3.84$
$ \mu_{ch-A.t}(J): 0.07$	$ \mu_{ch-A}(W): 0.07$
$ \mu_{ch-B.t}(J): 0.03$	$ \mu_{ch-B}(W): 0.03$
$ \mu_b.t(J): 0.12$	$ \mu_b(W): 0.12$
$ \mu_y.t(J): 0.35$	$ \mu_y(W): 0.35$
$ \mu_r.t(J): 0.33$	$ \mu_r(W): 0.33$

### Electric Parameters

Voltage: 230.90V	Current: 0.0400A	Power: 4.52W
Power Factor: 0.4880	Frequency: 49.99Hz	

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

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