

# ANSI/IES LM-79-19

## MEASUREMENT AND TEST REPORT

For

### GREEN CREATIVE LTD

Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, Kowloon,  
Hong Kong, China

**Test Model:**  
**NYXDM8RD/L9CCT5S/DIM010UNV/MD/WBW**

<b>Report Type:</b>	Electrical and Photometric tests including: Luminous Flux, Power Factor, Chromaticity, Luminous Intensity Distribution, THD
<b>Reviewed By:</b>	Ezer Pan <i>Ezer Pan</i>
<b>Report Number:</b>	KS2231107-64478E-EE-1
<b>Test Date:</b>	2023-11-11 to 2024-03-23
<b>Report Date:</b>	2024-04-18
<b>Approved by:</b>	Blake Zhang / EE Engineer
<b>Prepared By:</b>	Bay Area Compliance Laboratories Corp. (Shenzhen) 5F (B-West), 6F, 7F, the 3rd Phase of Wan Li Industrial Building D Shihua Road, Futian Free Trade Zone Shenzhen 518038 China. Tel: +86-755-33320018 Fax: +86-755-33320008
<b>Test Location 1:</b>	Test facility was located at No.12, Pulong East 1 <sup>st</sup> Road, Tangxia Town, Dongguan, Guangdong, China.
<b>Test Location 2:</b>	Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

**Note:** This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.(Shenzhen). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S. Government. \*This report contains data that are not covered by the NVLAP accreditation.

## 1. Product Description<sup>#</sup>

### General Information:

One test sample was in good condition and received on 2023-11-07, and used for testing.

Model Tested: NYXDM8RD/L9CCT5S/DIM010UNV/MD/WBW  
Manufacturer: GREEN CREATIVE LTD  
Brand Name: GREEN CREATIVE  
Product Designation: LED recessed downlight  
Burning Time Before Test: 0hour(For New Products)

### Rated Values:

Rated Voltage/Frequency: AC 120-277V 50/60Hz  
Rated Power: 40W-50W-63W  
Nominal CCT: 2700K/3000K/3500K/4000K/5000K  
Nominal Lumen Output: 5860lm(2700K),6110lm(3000K),6300lm(3500K/4000K/5000K)

## 2. Standards Used

- ANSI/IES LM-79-19: Approved method :Optical and Electrical Measurements of Solid-State Lighting Products
- ANSI C82.77-10-2014: Harmonic Emission Limits – Related Power Quality Requirements for Lighting
- \*IES TM-30-18: IES Method for Evaluating Light Source Color Rendition (This method is not in NVLAP accreditation scope)

## 3. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
2.0m integrating sphere	EVERFINE	R98	11010018	2023-09-02	2024-09-01
spectroradiometer	EVERFINE	HAAS-2000	G112048TS81331121	2023-09-02	2024-09-01
Digital Power Meter	EVERFINE	PF2010A	1011004	2023-09-02	2024-09-01
Digital CC&CV DC Power Supply	EVERFINE	WY305-V1	1101047	2023-09-02	2024-09-01
Standard Light Source	EVERFINE	D204	N/A	2023-05-12	2025-05-11
Special zero-voltage synchronous switching AC	EVERFINE	DPS1010-YF	1011001T	2023-09-02	2024-09-01
1.5m temperature integrating sphere	SENSING	SPR-600	S09008	2023-09-02	2024-09-01
High-precision rapid spectral analysis system	EVERFINE	HAAS-2000	M112048CA1361125	2023-09-02	2024-09-01
Digital power meter	YOKOGAWA	WT310	13398	2023-10-13	2024-10-12
Programmable Precision DC Power Supply	EVERFINE	WY5015	11060010	2023-09-02	2024-09-01
thermometer	SENSING	N/A	N/A	2023-10-13	2024-10-12
Precision	ALL Power	APW-105N	970613	2023-09-02	2024-09-01

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
frequency power supply					
AC POWER SUPPLY	EVERFINE	VPS1030 PWM	1012017	2023-09-02	2024-09-01
Digital CC&CV DC Power Supply	EVERFINE	WY12010	1009009	2023-09-02	2024-09-01
Digital power meter	YOKOGAWA	WT-210	91j926132	2023-09-02	2024-09-01
full-field speed goniophotometer	EVERFINE	GO-R5000	YG108492N10120001	2023-09-02	2024-09-01
wireless remote thermohygrometer	N/A	AOK-5017B	N/A	2023-09-02	2024-09-01
Standard Light Source	EVERFINE	D908	N/A	2023-05-12	2025-05-11

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Shenzhen) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

## 4. Test Method

Product was tested with no seasoning. All stabilization and measurements were made in compliance with ANSI/IES LM-79-19. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at  $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$  during measurement. And relative humidity is maintained between 10% and 65%. The air flow around the SSL product is less than 0.2m/s.

### Integrating Sphere System

The system includes AC power source, digital power meter, DC power supply, Spectroradiometer, and integrating sphere. The integrating sphere system is calibrated by standard spectrum light source before measurement.

4 $\pi$  geometry was used during measurement. The product was operated in its intended orientation in application and was recorded in this report.

The uncertainty of the light output (luminous flux) measurements is  $U=2.1\%$  ( $K=2$ ), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is  $U=22\text{K}$  ( $K=2$ ), at the 95% confidence level. The uncertainty of the CRI is  $U=2.1(K=2)$ , at the 95% confidence level.

The uncertainty of power meter AC current  $U=0.19\%$  of rdg, AC Voltage  $U=0.18\%$  of rdg, Power  $U=0.46\%$  ( $K=2$ ), at the 95% confidence level.

### Goniophotometer System

The goniophotometer system is calibrated by standard light source before measurement.

Type C goniophotometer was used for measuring total luminous flux, luminous intensity distribution, and color spatial uniformity. The product was operated in its intended orientation in application and was recorded in this report. For luminous intensity distribution, The vertical angle ( $\gamma$ ) test intervals were set no more than 2.5 degree, The horizontal angle (C plane) test intervals were set no more than 22.5 degree. For color spatial uniformity, The vertical angle ( $\gamma$ ) test intervals were set no more than 90 degree, The horizontal angle (C plane) test intervals were set no more than 10 degree

The uncertainty of the luminous intensity is  $U=2.00\%$  ( $K=2$ ), at the 95% confidence level.

### Additional Test

The Additional Test item may not be covered by ANSI/IES LM-79-2019. Additional test including power factor, off-state power and THD, was measured by Digital Power Meter after stabilized at  $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$ . Test voltage for THD and power factor test would be equal to rated voltage or, in case of a voltage range, maximum value of that range.

The uncertainty of power meter AC current  $U=0.19\%$  of rdg, AC Voltage  $U=0.15\%$  of rdg, Power  $U=0.46\%$  ( $K=2$ ), at the 95% confidence level.

### **Fidelity Index and Gamut Index Calculation**

The  $R_t$ ,  $R_g$  was calculated according to IES TM-30-18 by using calculation tools. The calculation was based on the measured SPD from 380nm to 780nm with 1nm intervals. All the colors in this report is for reference only.

## 5. Test Result

### [Integrating Sphere System]

Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

The diameter of the sphere: **2M**

The coating reflectance of sphere: **98%**

Total operating time for integrating sphere test: **1.0 hour**

Test orientation: **Downward**

Test CCT:**2700K**

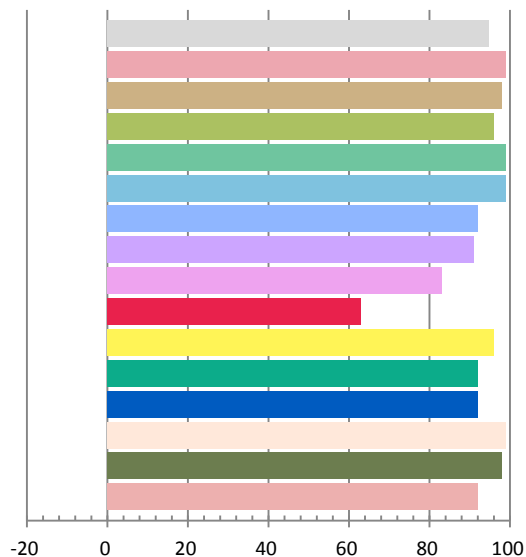
### Photometric and Electrical Measurement Result

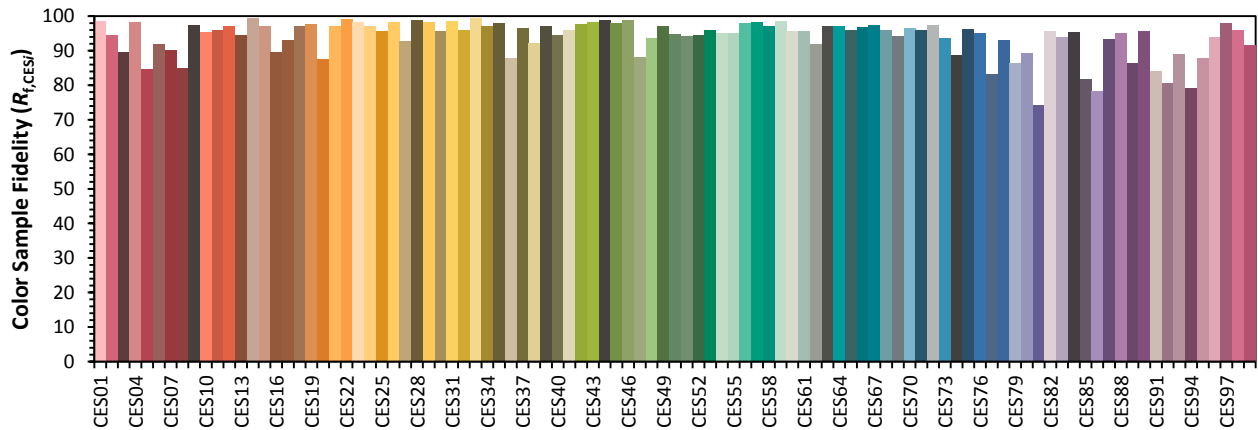
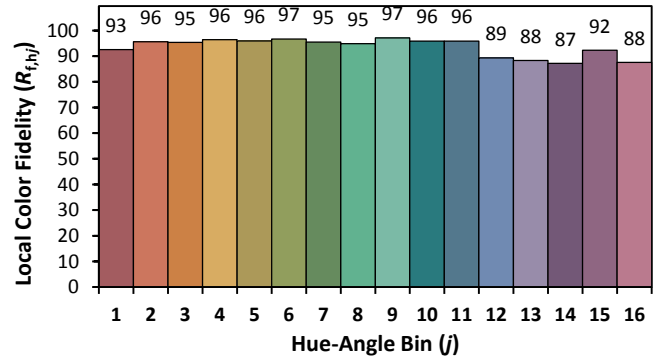
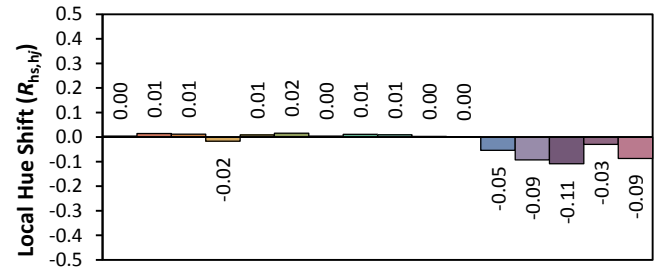
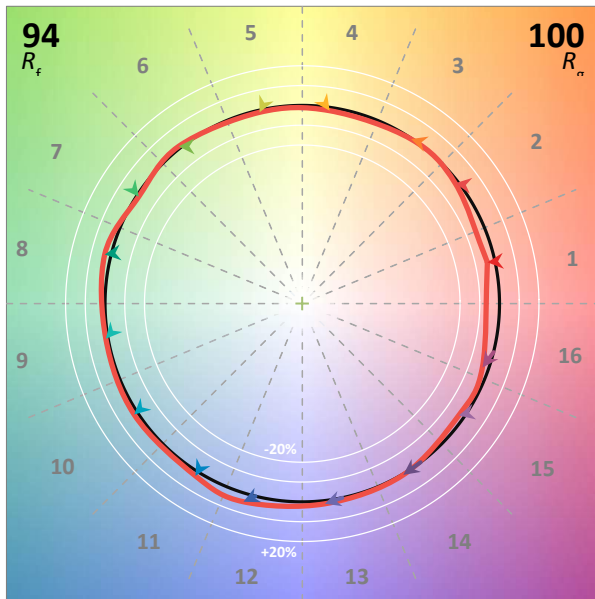
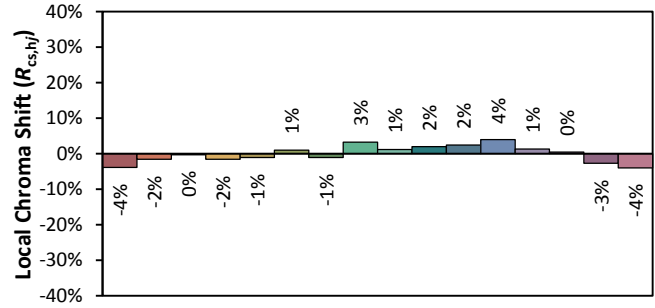
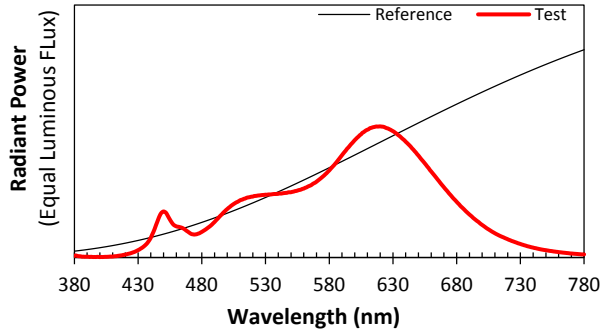
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120	60	0.5007	59.61	0.9917	5890.4	98.82

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
20.314	2744	-0.000608	0.4553	0.4079	0.2607	0.5256

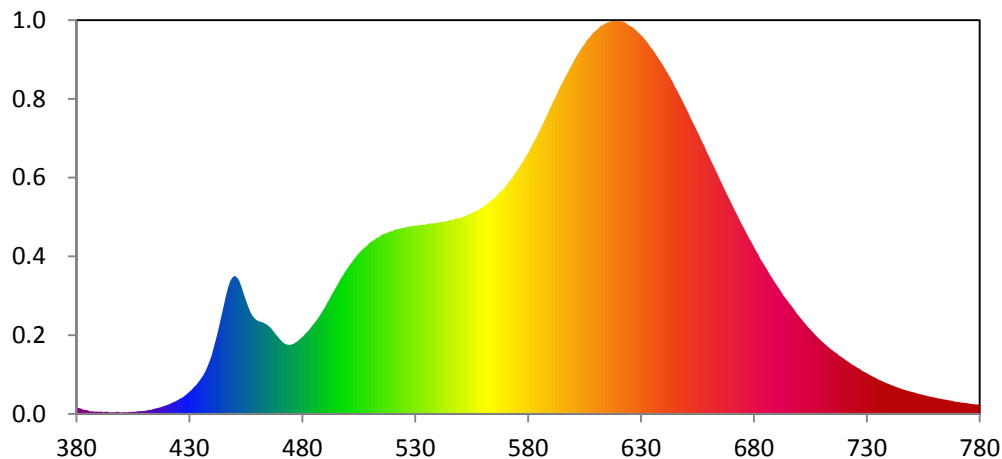
### Color Rendering Index

<b>Ra</b>			
94.7			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
99	98	96	99
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
99	92	91	83
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
63	96	92	92
<b>R13</b>	<b>R14</b>	<b>R15</b>	
99	98	92	





### Relative Spectral Power Distribution

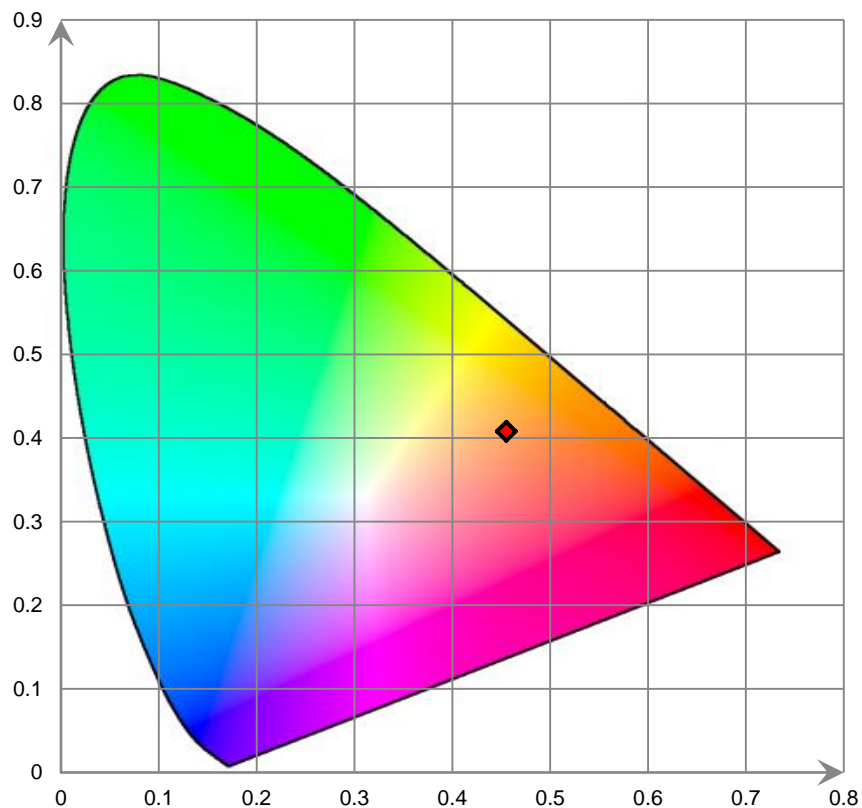


nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	1.733E+00	421	3.344E+00	462	3.144E+01	503	5.301E+01	544	6.596E+01
381	2.141E+00	422	3.709E+00	463	3.105E+01	504	5.393E+01	545	6.614E+01
382	1.818E+00	423	4.006E+00	464	3.069E+01	505	5.485E+01	546	6.625E+01
383	1.453E+00	424	4.344E+00	465	3.014E+01	506	5.567E+01	547	6.640E+01
384	1.332E+00	425	4.789E+00	466	2.941E+01	507	5.649E+01	548	6.686E+01
385	1.241E+00	426	5.272E+00	467	2.848E+01	508	5.704E+01	549	6.686E+01
386	8.598E-01	427	5.688E+00	468	2.744E+01	509	5.779E+01	550	6.694E+01
387	9.245E-01	428	6.266E+00	469	2.658E+01	510	5.863E+01	551	6.733E+01
388	7.777E-01	429	6.911E+00	470	2.566E+01	511	5.913E+01	552	6.755E+01
389	8.400E-01	430	7.593E+00	471	2.474E+01	512	5.948E+01	553	6.803E+01
390	7.841E-01	431	8.261E+00	472	2.405E+01	513	6.018E+01	554	6.824E+01
391	8.191E-01	432	9.132E+00	473	2.379E+01	514	6.046E+01	555	6.860E+01
392	5.602E-01	433	9.898E+00	474	2.357E+01	515	6.114E+01	556	6.908E+01
393	7.880E-01	434	1.085E+01	475	2.373E+01	516	6.153E+01	557	6.934E+01
394	6.182E-01	435	1.194E+01	476	2.391E+01	517	6.172E+01	558	6.974E+01
395	5.289E-01	436	1.314E+01	477	2.442E+01	518	6.203E+01	559	7.038E+01
396	5.633E-01	437	1.446E+01	478	2.485E+01	519	6.238E+01	560	7.064E+01
397	5.283E-01	438	1.621E+01	479	2.557E+01	520	6.247E+01	561	7.142E+01
398	7.405E-01	439	1.812E+01	480	2.629E+01	521	6.298E+01	562	7.181E+01
399	6.074E-01	440	2.039E+01	481	2.711E+01	522	6.312E+01	563	7.259E+01
400	4.666E-01	441	2.332E+01	482	2.792E+01	523	6.327E+01	564	7.318E+01
401	6.241E-01	442	2.616E+01	483	2.877E+01	524	6.354E+01	565	7.370E+01
402	5.210E-01	443	2.936E+01	484	2.972E+01	525	6.365E+01	566	7.436E+01
403	6.053E-01	444	3.301E+01	485	3.072E+01	526	6.381E+01	567	7.537E+01
404	7.114E-01	445	3.640E+01	486	3.166E+01	527	6.399E+01	568	7.614E+01
405	7.113E-01	446	3.985E+01	487	3.272E+01	528	6.412E+01	569	7.677E+01
406	7.624E-01	447	4.293E+01	488	3.389E+01	529	6.420E+01	570	7.773E+01
407	8.512E-01	448	4.531E+01	489	3.521E+01	530	6.440E+01	571	7.876E+01
408	9.910E-01	449	4.660E+01	490	3.643E+01	531	6.434E+01	572	7.980E+01
409	9.969E-01	450	4.722E+01	491	3.790E+01	532	6.457E+01	573	8.083E+01
410	1.006E+00	451	4.670E+01	492	3.925E+01	533	6.465E+01	574	8.189E+01
411	1.197E+00	452	4.572E+01	493	4.061E+01	534	6.462E+01	575	8.301E+01
412	1.369E+00	453	4.349E+01	494	4.205E+01	535	6.481E+01	576	8.412E+01
413	1.416E+00	454	4.110E+01	495	4.337E+01	536	6.501E+01	577	8.542E+01
414	1.683E+00	455	3.883E+01	496	4.469E+01	537	6.511E+01	578	8.656E+01
415	1.874E+00	456	3.676E+01	497	4.615E+01	538	6.513E+01	579	8.799E+01
416	2.083E+00	457	3.484E+01	498	4.734E+01	539	6.518E+01	580	8.925E+01
417	2.226E+00	458	3.343E+01	499	4.864E+01	540	6.532E+01	581	9.078E+01
418	2.532E+00	459	3.259E+01	500	4.973E+01	541	6.571E+01	582	9.222E+01
419	2.793E+00	460	3.198E+01	501	5.090E+01	542	6.552E+01	583	9.361E+01
420	2.989E+00	461	3.161E+01	502	5.187E+01	543	6.572E+01	584	9.502E+01

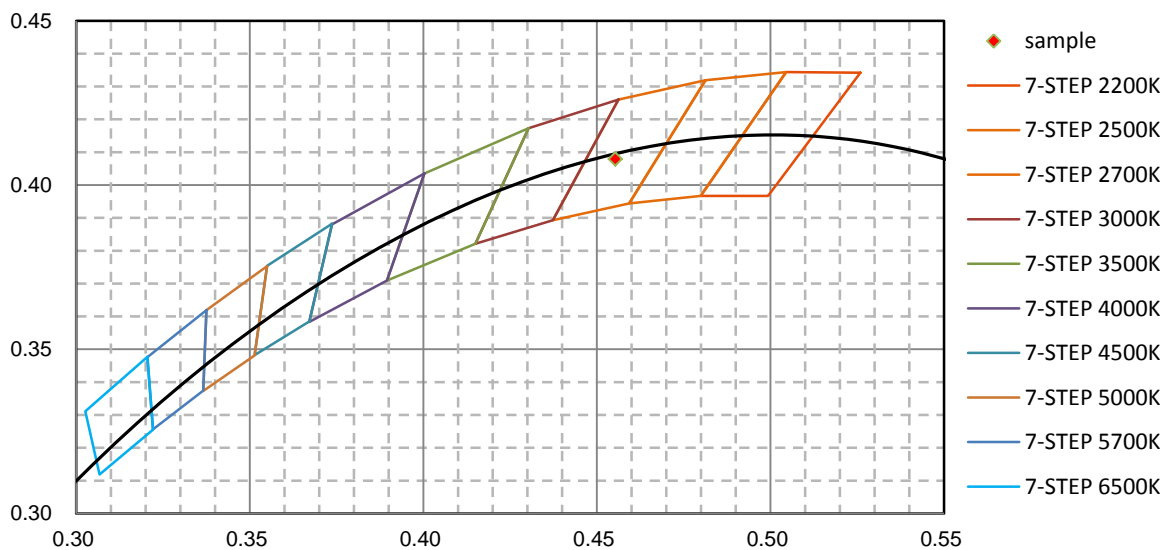
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	9.661E+01	626	1.323E+02	667	7.674E+01	708	2.636E+01	749	7.707E+00
586	9.815E+01	627	1.316E+02	668	7.511E+01	709	2.564E+01	750	7.531E+00
587	9.988E+01	628	1.310E+02	669	7.360E+01	710	2.486E+01	751	7.304E+00
588	1.015E+02	629	1.302E+02	670	7.200E+01	711	2.415E+01	752	7.084E+00
589	1.032E+02	630	1.295E+02	671	7.040E+01	712	2.351E+01	753	6.831E+00
590	1.049E+02	631	1.287E+02	672	6.892E+01	713	2.281E+01	754	6.684E+00
591	1.066E+02	632	1.277E+02	673	6.743E+01	714	2.218E+01	755	6.508E+00
592	1.082E+02	633	1.268E+02	674	6.576E+01	715	2.160E+01	756	6.264E+00
593	1.097E+02	634	1.256E+02	675	6.433E+01	716	2.105E+01	757	6.125E+00
594	1.115E+02	635	1.247E+02	676	6.282E+01	717	2.051E+01	758	5.914E+00
595	1.128E+02	636	1.236E+02	677	6.121E+01	718	1.986E+01	759	5.799E+00
596	1.144E+02	637	1.223E+02	678	5.988E+01	719	1.936E+01	760	5.572E+00
597	1.160E+02	638	1.212E+02	679	5.855E+01	720	1.878E+01	761	5.421E+00
598	1.173E+02	639	1.201E+02	680	5.709E+01	721	1.817E+01	762	5.281E+00
599	1.188E+02	640	1.187E+02	681	5.568E+01	722	1.771E+01	763	5.119E+00
600	1.203E+02	641	1.175E+02	682	5.437E+01	723	1.710E+01	764	4.962E+00
601	1.216E+02	642	1.162E+02	683	5.282E+01	724	1.666E+01	765	4.851E+00
602	1.229E+02	643	1.149E+02	684	5.160E+01	725	1.621E+01	766	4.671E+00
603	1.240E+02	644	1.135E+02	685	5.037E+01	726	1.572E+01	767	4.560E+00
604	1.254E+02	645	1.119E+02	686	4.909E+01	727	1.527E+01	768	4.415E+00
605	1.263E+02	646	1.106E+02	687	4.773E+01	728	1.471E+01	769	4.218E+00
606	1.278E+02	647	1.090E+02	688	4.650E+01	729	1.431E+01	770	4.137E+00
607	1.285E+02	648	1.076E+02	689	4.530E+01	730	1.392E+01	771	4.036E+00
608	1.295E+02	649	1.059E+02	690	4.411E+01	731	1.341E+01	772	3.895E+00
609	1.304E+02	650	1.045E+02	691	4.301E+01	732	1.307E+01	773	3.809E+00
610	1.310E+02	651	1.028E+02	692	4.190E+01	733	1.259E+01	774	3.702E+00
611	1.316E+02	652	1.011E+02	693	4.058E+01	734	1.228E+01	775	3.596E+00
612	1.326E+02	653	9.959E+01	694	3.954E+01	735	1.181E+01	776	3.455E+00
613	1.329E+02	654	9.811E+01	695	3.849E+01	736	1.145E+01	777	3.396E+00
614	1.334E+02	655	9.648E+01	696	3.743E+01	737	1.115E+01	778	3.238E+00
615	1.337E+02	656	9.487E+01	697	3.658E+01	738	1.076E+01	779	3.213E+00
616	1.340E+02	657	9.314E+01	698	3.541E+01	739	1.045E+01	780	3.219E+00
617	1.343E+02	658	9.162E+01	699	3.432E+01	740	1.017E+01		
618	1.342E+02	659	8.971E+01	700	3.340E+01	741	9.796E+00		
619	1.343E+02	660	8.821E+01	701	3.248E+01	742	9.590E+00		
620	1.344E+02	661	8.656E+01	702	3.155E+01	743	9.243E+00		
621	1.342E+02	662	8.499E+01	703	3.056E+01	744	8.955E+00		
622	1.341E+02	663	8.338E+01	704	2.965E+01	745	8.672E+00		
623	1.338E+02	664	8.176E+01	705	2.885E+01	746	8.392E+00		
624	1.332E+02	665	8.007E+01	706	2.804E+01	747	8.146E+00		
625	1.326E+02	666	7.848E+01	707	2.718E+01	748	7.927E+00		



CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



**[Goniophotometer System]**

Test facility was located at No.12, Pulong East 1<sup>st</sup> Road, Tangxia Town, Dongguan, Guangdong, China.

The photometric distance: **2.513m**

Total operating time for luminous intensity distribution: **1.5 hour**

Test orientation: **Downward**

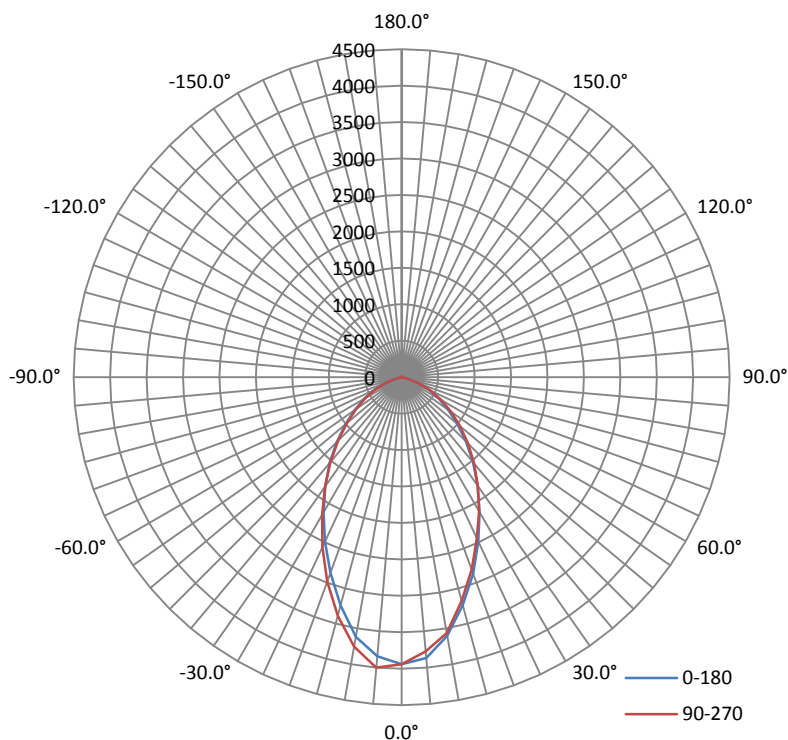
**Electrical Measurement**

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.10	60	0.5008	59.650	0.9918

**Photometric Measurement**

Luminous Flux (lm)	Efficacy (lm/W)	I <sub>max</sub> (cd)	S/MH (C0/180)	S/MH (C90/270)
5896.58	98.85	4057	0.89	0.87

**Luminous Intensity Distribution**



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I <sub>max</sub> ):	65.3	65.9	63.7	65.9	65.2
Field Angle (10% I <sub>max</sub> ):	131.4	133.0	130.6	133.1	132.0

**Luminous Intensity (cd) Distribution Data**

C y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0°	3939	3939	3939	3939	3939	3939	3939	3939
1°	3934	3958	3968	3987	3981	3980	3973	3956
2°	3922	3967	4001	4024	4024	4030	3995	3978
3°	3898	3952	4024	4052	4054	4057	4023	3995
4°	3863	3940	4024	4043	4037	4045	4023	3991
5°	3843	3913	3997	4006	4001	4010	4006	3964
6°	3819	3879	3965	3960	3963	3966	3954	3939
7°	3775	3838	3914	3918	3918	3907	3901	3884
8°	3729	3781	3857	3859	3856	3855	3849	3842
9°	3673	3717	3801	3794	3813	3787	3783	3779
10°	3619	3652	3748	3734	3754	3726	3724	3711
11°	3555	3583	3689	3675	3680	3654	3665	3631
12°	3477	3499	3615	3596	3593	3576	3583	3555
13°	3401	3409	3534	3518	3529	3499	3512	3475
14°	3317	3339	3445	3440	3457	3413	3433	3395
15°	3240	3261	3371	3364	3390	3344	3373	3319
16°	3165	3187	3303	3289	3310	3277	3303	3257
17°	3089	3119	3231	3223	3224	3204	3238	3177
18°	3012	3039	3160	3149	3140	3135	3165	3109
19°	2935	2959	3085	3071	3063	3047	3083	3031
20°	2858	2879	3003	2990	2985	2972	3002	2951
21°	2784	2796	2922	2911	2903	2889	2926	2870
22°	2710	2719	2839	2820	2819	2810	2838	2793
23°	2644	2640	2764	2736	2736	2732	2767	2717
24°	2566	2571	2691	2653	2652	2653	2691	2643
25°	2492	2498	2611	2575	2571	2581	2620	2574
26°	2421	2429	2542	2503	2491	2507	2540	2508
27°	2349	2364	2466	2431	2413	2431	2463	2425
28°	2280	2292	2396	2357	2333	2358	2386	2353
29°	2211	2224	2322	2282	2259	2277	2311	2279
30°	2144	2153	2251	2206	2185	2207	2236	2209
31°	2077	2086	2174	2138	2108	2135	2167	2138
32°	2013	2018	2102	2064	2037	2066	2089	2072
33°	1953	1950	2035	1995	1969	1995	2017	2007
34°	1889	1888	1967	1926	1904	1922	1947	1939
35°	1828	1825	1895	1862	1835	1858	1881	1875
36°	1769	1767	1832	1799	1769	1793	1814	1819
37°	1708	1708	1764	1738	1704	1730	1749	1751
38°	1651	1646	1704	1680	1641	1670	1689	1694
39°	1593	1586	1643	1618	1583	1606	1629	1631
40°	1537	1530	1589	1556	1522	1545	1567	1574
41°	1480	1474	1528	1499	1463	1485	1513	1516
42°	1419	1418	1473	1438	1404	1426	1455	1459
43°	1366	1361	1420	1382	1345	1371	1401	1402
44°	1310	1308	1366	1326	1291	1311	1347	1348
45°	1258	1255	1312	1272	1234	1258	1294	1293
46°	1207	1205	1263	1220	1180	1206	1242	1244
47°	1154	1155	1213	1168	1127	1154	1191	1188
48°	1103	1104	1165	1118	1073	1106	1144	1138

**Luminous Intensity (cd) Distribution Data**

$\begin{matrix} \text{C} \\ \backslash \\ \text{Y} \end{matrix}$	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
49°	1054	1055	1117	1069	1027	1057	1097	1089
50°	1006	1009	1070	1021	979	1009	1049	1039
51°	960	964	1024	976	933	963	1007	993
52°	911	919	980	931	890	919	961	947
53°	870	876	936	886	846	876	916	902
54°	828	835	894	844	805	832	875	859
55°	786	794	851	803	765	793	833	818
56°	746	753	811	762	725	752	791	779
57°	706	712	769	725	687	714	750	736
58°	668	674	728	685	646	676	710	697
59°	631	637	690	647	610	639	671	658
60°	595	600	651	609	576	600	633	622
61°	561	566	613	575	542	569	594	588
62°	527	531	578	542	508	538	562	554
63°	493	497	543	508	471	503	530	520
64°	457	463	509	475	436	468	495	485
65°	420	427	472	439	400	434	458	447
66°	383	390	435	402	364	396	419	411
67°	346	351	395	366	329	361	381	373
68°	309	314	357	329	293	324	344	337
69°	273	279	320	294	260	290	307	302
70°	239	245	285	259	227	256	273	268
71°	206	212	251	227	196	224	241	235
72°	173	181	218	195	164	193	209	203
73°	143	150	187	165	135	163	179	174
74°	113	122	157	137	110	135	150	145
75°	85	94	128	110	86	108	122	118
76°	61	67	101	84	65	82	94	90
77°	47	51	75	61	52	59	69	65
78°	32	35	57	47	38	44	53	50
79°	18	19	39	33	24	28	37	35
80°	12	13	21	19	16	19	20	20
81°	10	9	13	12	11	12	14	15
82°	8	8	9	9	9	9	11	12
83°	7	6	7	7	7	8	9	10
84°	5	5	6	6	6	7	8	8
85°	4	4	5	5	5	5	6	6
86°	3	3	4	4	4	4	5	5
87°	2	2	3	3	3	3	3	3
88°	1	1	2	2	2	2	2	2
89°	0	0	1	1	1	1	1	1
90°	0	0	0	0	0	0	0	0
91°	0	0	0	0	0	0	0	0
92°	0	0	0	0	0	0	0	0
93°	0	0	0	0	0	0	0	0
94°	0	0	0	0	0	0	0	0
95°	0	0	0	0	0	0	0	0
96°	0	0	0	0	0	0	0	0
97°	0	0	0	0	0	0	0	0

**Luminous Intensity (cd) Distribution Data**

C y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
98°	0	0	0	0	0	0	0	0
99°	0	0	0	0	0	0	0	0
100°	0	0	0	0	0	0	0	0
101°	0	0	0	0	0	0	0	0
102°	0	0	0	0	0	0	0	0
103°	0	0	0	0	0	0	0	0
104°	0	0	0	0	0	0	0	0
105°	0	0	0	0	0	0	0	0
106°	0	0	0	0	0	0	0	0
107°	0	0	0	0	0	0	0	0
108°	0	0	0	0	0	0	0	0
109°	0	0	0	0	0	0	0	0
110°	0	0	0	0	0	0	0	0
111°	1	0	0	1	1	1	1	0
112°	1	1	1	1	1	1	1	1
113°	1	1	1	1	1	1	1	1
114°	1	1	1	1	1	1	1	1
115°	1	1	1	1	1	1	1	1
116°	1	1	1	1	1	1	1	1
117°	1	1	1	1	1	1	1	1
118°	1	1	1	1	1	1	1	1
119°	1	1	1	1	1	1	1	1
120°	1	1	1	1	1	1	1	1
121°	1	1	1	1	1	1	1	1
122°	1	1	1	1	1	1	1	1
123°	1	1	1	1	1	1	1	1
124°	1	1	1	1	1	1	1	1
125°	1	1	1	1	1	1	1	1
126°	1	1	1	1	1	1	1	1
127°	1	1	1	1	1	1	1	1
128°	1	1	1	1	1	1	1	1
129°	1	1	1	1	1	1	1	1
130°	1	1	1	1	1	1	1	1
131°	2	2	1	2	2	2	2	1
132°	2	2	2	2	2	2	2	2
133°	2	2	2	2	2	2	2	2
134°	2	2	2	2	2	2	2	2
135°	2	2	2	2	2	2	2	2
136°	2	2	2	2	2	2	2	2
137°	2	2	2	2	2	2	2	2
138°	2	2	2	2	2	2	2	2
139°	3	3	3	3	3	3	3	2
140°	3	3	3	3	3	3	3	3
141°	3	3	3	3	3	3	3	3
142°	3	3	3	3	3	3	3	3
143°	3	3	3	3	3	3	3	3
144°	3	3	4	4	4	4	3	3
145°	3	4	4	4	4	4	4	3
146°	4	4	4	4	4	4	4	4

**Luminous Intensity (cd) Distribution Data**

C γ	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
147°	4	4	4	4	4	4	4	4
148°	4	4	4	4	4	4	4	4
149°	4	4	4	5	5	5	4	4
150°	4	4	5	5	5	5	5	4
151°	4	5	5	5	5	5	5	4
152°	5	5	5	5	5	5	5	4
153°	5	5	5	5	5	5	5	5
154°	5	5	5	5	5	5	5	5
155°	5	5	5	6	6	6	5	5
156°	5	5	6	6	6	6	5	5
157°	5	6	6	6	6	6	6	5
158°	5	6	6	6	6	6	6	5
159°	5	6	6	6	6	6	6	6
160°	6	6	6	6	6	6	6	6
161°	6	6	6	6	6	6	6	6
162°	6	6	6	6	6	6	6	6
163°	6	6	6	6	6	6	6	6
164°	6	6	6	6	6	6	6	6
165°	6	6	6	6	6	6	6	6
166°	5	6	6	6	6	6	6	6
167°	5	5	6	6	6	6	6	6
168°	5	5	6	6	6	6	6	5
169°	5	5	5	6	6	6	5	5
170°	5	5	5	6	6	5	5	5
171°	5	5	5	5	5	5	5	5
172°	5	5	5	5	5	5	5	5
173°	5	5	5	5	5	5	5	5
174°	5	5	5	5	5	5	5	5
175°	5	5	5	5	5	5	5	5
176°	5	5	5	5	5	5	5	5
177°	5	5	5	5	5	5	5	5
178°	4	4	5	4	4	4	4	5
179°	4	4	4	4	4	4	4	4
180°	4	4	4	4	4	4	4	4

**Luminous Intensity (cd) Distribution Data (cont.)**

$\begin{matrix} \diagup C \\ \diagdown \gamma \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0°	3939	3939	3939	3939	3939	3939	3939	3939
1°	3936	3923	3912	3907	3909	3902	3903	3919
2°	3936	3902	3881	3873	3862	3867	3865	3893
3°	3929	3889	3839	3825	3823	3821	3832	3860
4°	3903	3852	3804	3795	3795	3796	3797	3830
5°	3869	3808	3763	3770	3777	3773	3762	3785
6°	3825	3772	3718	3747	3760	3745	3712	3745
7°	3784	3723	3670	3713	3721	3720	3674	3706
8°	3730	3677	3604	3665	3669	3679	3636	3667
9°	3671	3623	3551	3618	3625	3627	3597	3621
10°	3602	3569	3494	3552	3564	3575	3546	3564
11°	3532	3521	3437	3486	3494	3513	3489	3501
12°	3460	3462	3378	3423	3411	3453	3429	3442
13°	3388	3415	3321	3355	3337	3378	3365	3383
14°	3317	3350	3261	3293	3257	3314	3304	3323
15°	3237	3284	3192	3226	3178	3247	3244	3248
16°	3160	3217	3123	3155	3102	3176	3170	3182
17°	3081	3144	3055	3085	3026	3107	3102	3111
18°	3011	3078	2980	3011	2956	3033	3028	3039
19°	2941	3001	2913	2942	2881	2956	2956	2961
20°	2869	2921	2843	2861	2809	2879	2880	2887
21°	2794	2841	2779	2786	2726	2800	2812	2810
22°	2715	2760	2713	2709	2645	2729	2743	2740
23°	2636	2692	2646	2639	2578	2656	2673	2663
24°	2564	2616	2587	2569	2510	2581	2606	2594
25°	2487	2541	2521	2497	2440	2510	2542	2518
26°	2413	2464	2454	2425	2378	2434	2474	2449
27°	2342	2385	2388	2356	2316	2365	2410	2384
28°	2270	2317	2316	2282	2242	2295	2341	2313
29°	2199	2244	2252	2221	2184	2221	2272	2239
30°	2137	2175	2186	2150	2123	2153	2197	2171
31°	2070	2108	2117	2086	2059	2083	2132	2104
32°	2004	2036	2050	2025	1998	2025	2069	2039
33°	1940	1976	1983	1966	1939	1960	2001	1976
34°	1880	1911	1920	1900	1879	1895	1937	1915
35°	1817	1852	1857	1841	1821	1835	1874	1846
36°	1756	1789	1794	1785	1766	1775	1813	1786
37°	1697	1727	1735	1728	1714	1723	1757	1726
38°	1636	1671	1673	1673	1658	1668	1697	1670
39°	1578	1613	1614	1619	1602	1614	1640	1610
40°	1521	1555	1556	1561	1547	1559	1582	1550
41°	1464	1498	1500	1506	1492	1503	1523	1491
42°	1408	1441	1444	1454	1438	1455	1468	1434
43°	1351	1389	1391	1403	1386	1404	1414	1381
44°	1298	1334	1338	1346	1334	1350	1361	1329
45°	1249	1285	1292	1297	1287	1304	1311	1281
46°	1199	1236	1246	1252	1240	1258	1264	1232
47°	1149	1187	1200	1207	1194	1212	1218	1184
48°	1100	1140	1150	1158	1145	1163	1172	1135

**Luminous Intensity (cd) Distribution Data (cont.)**

$\begin{matrix} \text{C} \\ \backslash \\ \gamma \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
49°	1046	1090	1100	1111	1093	1116	1127	1086
50°	1000	1044	1053	1063	1045	1068	1079	1039
51°	952	996	1008	1016	999	1022	1032	992
52°	908	951	963	972	954	977	988	946
53°	865	910	920	929	910	933	944	904
54°	824	866	877	882	867	890	900	861
55°	780	822	834	839	825	846	857	820
56°	740	780	793	799	782	805	816	779
57°	701	740	753	758	742	764	773	739
58°	665	703	713	718	703	725	735	699
59°	626	665	674	680	662	685	695	659
60°	591	629	634	640	625	646	656	621
61°	556	593	599	603	587	607	619	585
62°	522	556	561	565	551	570	581	548
63°	489	522	526	529	512	535	544	513
64°	456	487	488	491	473	498	506	477
65°	419	450	449	453	435	460	468	439
66°	383	413	409	413	395	420	429	400
67°	348	375	370	374	357	381	389	361
68°	313	339	332	335	320	343	350	324
69°	279	304	296	298	281	305	313	287
70°	246	269	261	262	246	269	277	252
71°	215	237	228	227	212	234	242	217
72°	185	204	196	195	178	201	209	185
73°	156	174	166	164	147	170	177	154
74°	127	145	135	134	116	140	146	124
75°	99	116	105	103	90	109	115	93
76°	73	89	78	76	66	82	87	66
77°	52	64	53	54	46	58	61	44
78°	37	43	35	36	32	38	40	30
79°	25	30	23	24	22	26	26	23
80°	17	20	19	19	18	20	20	17
81°	14	17	15	15	14	15	15	10
82°	12	13	10	10	10	10	9	8
83°	9	10	8	8	8	8	8	7
84°	7	8	7	7	7	7	6	5
85°	6	6	5	5	5	5	5	4
86°	4	5	4	4	4	4	3	3
87°	3	3	2	3	3	3	2	2
88°	1	2	1	1	1	1	1	1
89°	0	0	0	0	0	0	0	0
90°	0	0	0	0	0	0	0	0
91°	0	0	0	0	0	0	0	0
92°	0	0	0	0	0	0	0	0
93°	0	0	0	0	0	0	0	0
94°	0	0	0	0	0	0	0	0
95°	0	0	0	0	0	0	0	0
96°	0	0	0	0	0	0	0	0
97°	0	0	0	0	0	0	0	0



**Luminous Intensity (cd) Distribution Data (cont.)**

C y	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
98°	0	0	0	0	0	0	0	0
99°	0	0	0	0	0	0	0	0
100°	0	0	0	0	0	0	0	0
101°	0	0	0	0	0	0	0	0
102°	0	0	0	0	0	0	0	0
103°	0	0	0	0	0	0	0	0
104°	0	0	0	0	0	0	0	0
105°	0	0	0	0	0	0	0	0
106°	0	0	0	0	0	0	0	0
107°	0	0	0	0	0	0	0	0
108°	0	0	0	0	0	0	0	0
109°	0	0	0	0	0	0	0	0
110°	0	0	0	0	0	0	0	0
111°	0	0	0	0	0	0	0	0
112°	0	0	0	0	0	0	0	0
113°	0	0	0	0	0	0	0	0
114°	0	0	0	0	0	0	0	0
115°	0	0	0	0	0	0	0	0
116°	0	0	0	0	0	0	0	0
117°	0	0	0	0	0	0	0	0
118°	0	0	0	0	0	0	0	0
119°	0	0	0	0	0	0	0	0
120°	1	0	0	0	0	0	0	0
121°	0	0	0	0	0	0	0	0
122°	0	0	0	0	0	0	0	0
123°	1	0	0	0	0	0	0	0
124°	1	0	0	0	0	0	0	0
125°	1	0	1	1	1	1	1	0
126°	1	1	1	1	1	1	1	1
127°	1	1	1	1	1	1	1	1
128°	1	1	1	1	1	1	1	1
129°	1	1	1	1	1	1	1	1
130°	1	1	1	1	1	1	1	1
131°	1	1	1	1	1	1	1	1
132°	1	1	1	1	1	1	1	1
133°	1	1	1	1	1	1	1	1
134°	1	1	1	1	1	1	1	1
135°	1	1	1	1	1	1	1	1
136°	1	1	1	1	1	1	1	1
137°	1	1	1	1	1	1	1	1
138°	1	1	1	1	1	1	1	1
139°	1	1	1	1	1	1	1	1
140°	1	1	1	1	1	1	1	1
141°	1	1	1	1	1	1	1	1
142°	1	1	1	1	1	1	1	1
143°	1	1	1	1	1	1	1	1
144°	1	1	1	2	2	2	1	1
145°	1	1	1	2	2	2	2	2
146°	1	1	2	2	2	2	2	2

**Luminous Intensity (cd) Distribution Data (cont.)**

$\begin{matrix} C \\ \backslash \\ \gamma \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
147°	2	1	2	2	2	2	2	2
148°	2	1	2	2	2	2	2	2
149°	2	2	2	2	2	2	2	2
150°	2	2	2	2	2	2	2	2
151°	2	2	2	2	2	2	2	2
152°	2	2	2	2	2	2	2	2
153°	2	2	2	2	2	2	2	2
154°	2	2	2	2	2	2	2	2
155°	2	2	2	2	2	2	2	2
156°	2	2	2	2	2	2	2	2
157°	2	2	2	2	2	2	2	2
158°	2	2	2	2	2	2	2	2
159°	2	2	2	2	2	2	2	3
160°	2	2	2	2	2	2	2	3
161°	2	2	2	2	2	2	2	3
162°	3	2	2	3	2	2	2	3
163°	3	3	3	3	3	3	3	3
164°	3	3	3	3	3	3	3	3
165°	3	3	3	3	3	3	3	3
166°	3	3	3	3	3	3	3	3
167°	3	3	3	3	3	3	3	3
168°	3	3	3	3	3	3	3	3
169°	3	3	3	3	3	3	3	3
170°	3	3	3	3	3	3	3	3
171°	3	3	3	3	3	3	3	3
172°	3	3	3	3	3	3	3	3
173°	3	3	3	3	3	3	3	3
174°	3	3	3	3	3	3	3	3
175°	3	3	4	3	3	3	3	4
176°	4	4	4	3	3	3	3	4
177°	4	4	4	4	4	4	4	4
178°	4	4	4	4	4	4	4	4
179°	4	4	4	4	4	4	4	4
180°	4	4	4	4	4	4	4	4

**Zonal Lumen Density Measurement**

Deg	Flux (lm)	%
0-5	93.6	1.59
5-10	268.6	4.55
10-15	409.2	6.94
15-20	509.6	8.65
20-25	569.5	9.65
25-30	595.4	10.10
30-35	591.7	10.04
35-40	566.4	9.60
40-45	522.8	8.87
45-50	467.0	7.92
50-55	401.4	6.80
55-60	331.0	5.62
60-65	258.3	4.38
65-70	176.1	2.98
70-75	93.5	1.59
75-80	28.3	0.48
80-85	5.3	0.09
85-90	1.2	0.02
90-95	0.1	0.00
95-100	0.1	0.00
100-105	0.1	0.01
105-110	0.2	0.00
110-115	0.2	0.00
115-120	0.3	0.01
120-125	0.3	0.00
125-130	0.4	0.01
130-135	0.5	0.01
135-140	0.6	0.01
140-145	0.8	0.01
145-150	0.8	0.01
150-155	0.9	0.02
155-160	0.8	0.01
160-165	0.7	0.01
165-170	0.5	0.01
170-175	0.3	0.01
175-180	0.1	0.00

Deg	Flux (lm)	%
0-5	93.6	1.59
0-10	362.2	6.14
0-15	771.4	13.08
0-20	1281.1	21.73
0-25	1850.6	31.38
0-30	2446.0	41.48
0-35	3037.6	51.52
0-40	3604.0	61.12
0-45	4126.8	69.99
0-50	4593.8	77.91
0-55	4995.2	84.71
0-60	5326.2	90.33
0-65	5584.4	94.71
0-70	5760.6	97.69
0-75	5854.1	99.28
0-80	5882.4	99.76
0-85	5887.7	99.85
0-90	5888.9	99.87
0-95	5889.0	99.87
0-100	5889.1	99.87
0-105	5889.2	99.88
0-110	5889.4	99.88
0-115	5889.6	99.88
0-120	5889.9	99.89
0-125	5890.2	99.89
0-130	5890.6	99.90
0-135	5891.1	99.91
0-140	5891.7	99.92
0-145	5892.5	99.93
0-150	5893.3	99.94
0-155	5894.2	99.96
0-160	5895.0	99.97
0-165	5895.7	99.98
0-170	5896.2	99.99
0-175	5896.5	100.00
0-180	5896.6	100.00

**[Additional Test]**

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120V	60Hz	10.38%
Total Harmonic Distortion:	277V	60Hz	10.65%

## [Integrating Sphere System]

Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

The diameter of the sphere: **1.5M**

The coating reflectance of sphere: **98%**

Total operating time for integrating sphere test: **1.0 hour**

Test orientation: **Downward**

Test CCT:**3000K**

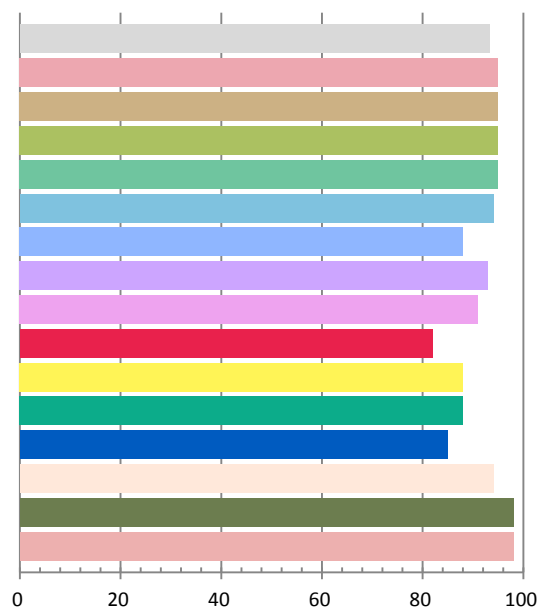
## Photometric and Electrical Measurement Result

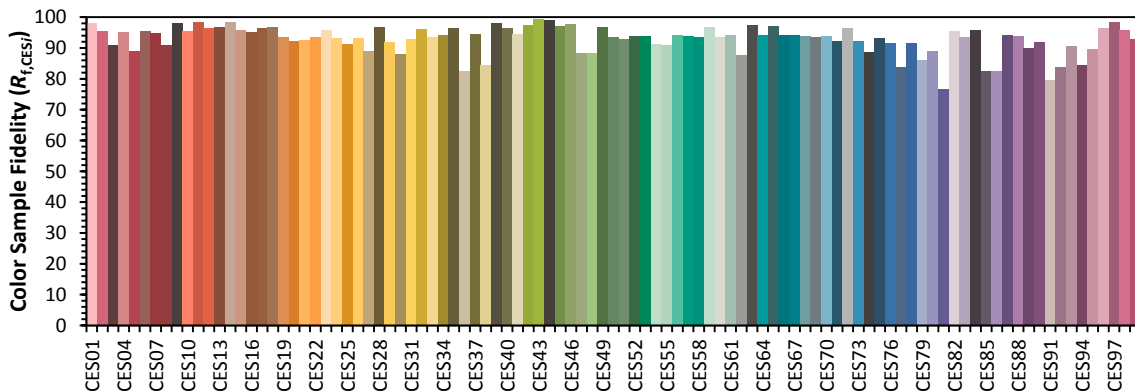
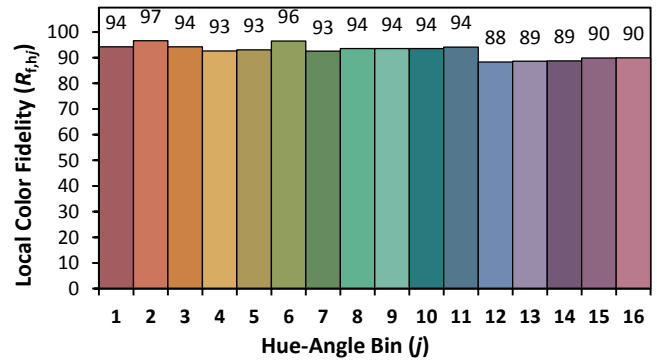
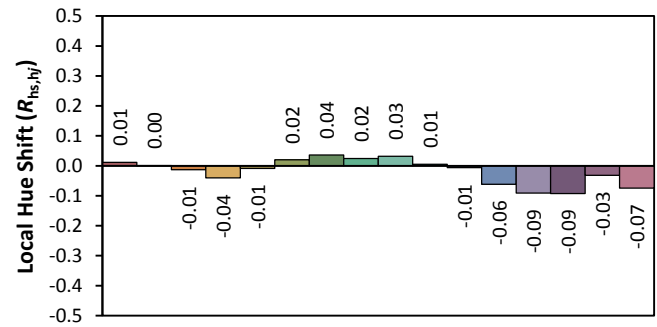
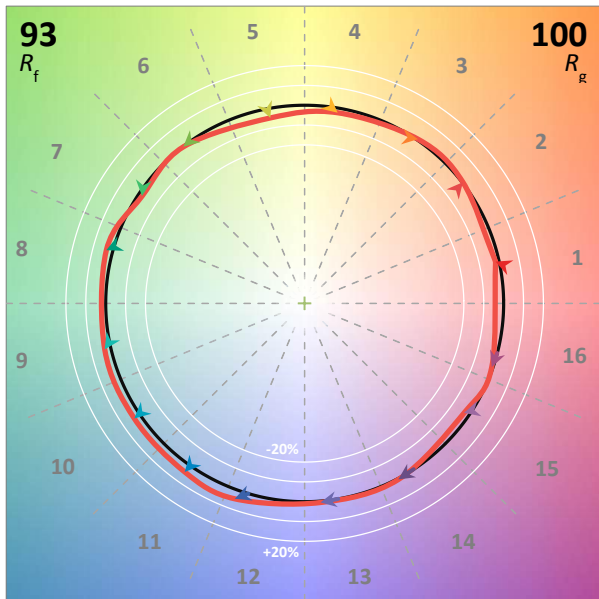
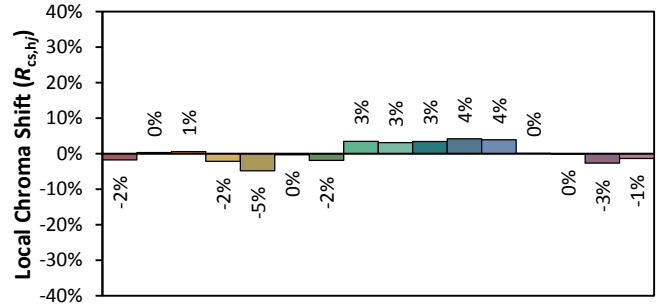
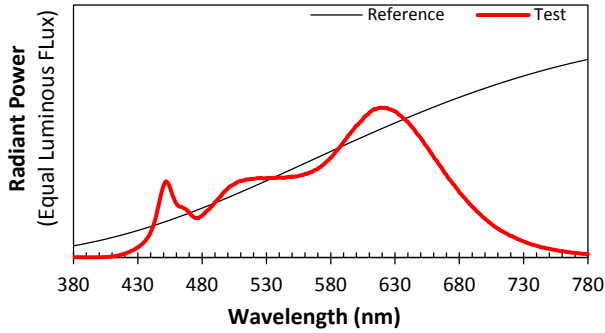
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.4986	59.38	0.9925	6143.4	103.46

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
21.596	3024	-0.00248	0.4317	0.3961	0.2506	0.5174

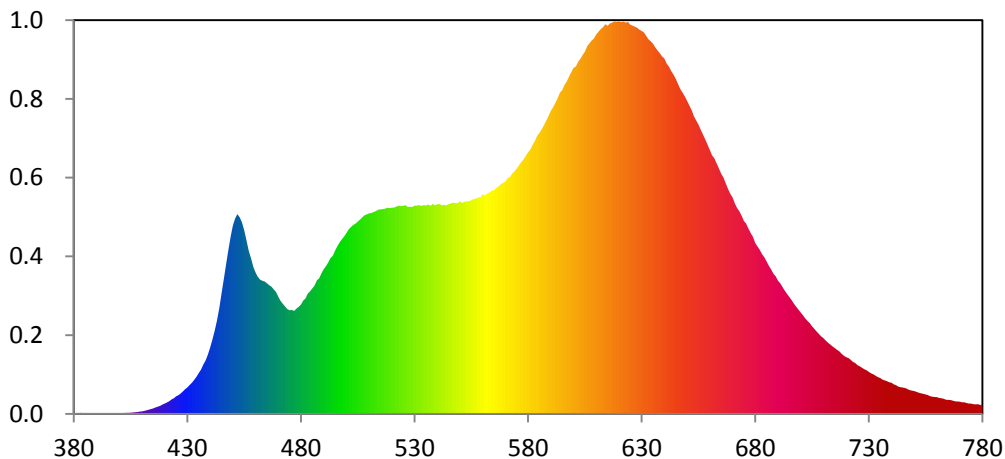
## Color Rendering Index

<b>Ra</b>			
<b>93.2</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
95	95	95	95
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
94	88	93	91
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
82	88	88	85
<b>R13</b>	<b>R14</b>	<b>R15</b>	
94	98	98	





### Relative Spectral Power Distribution

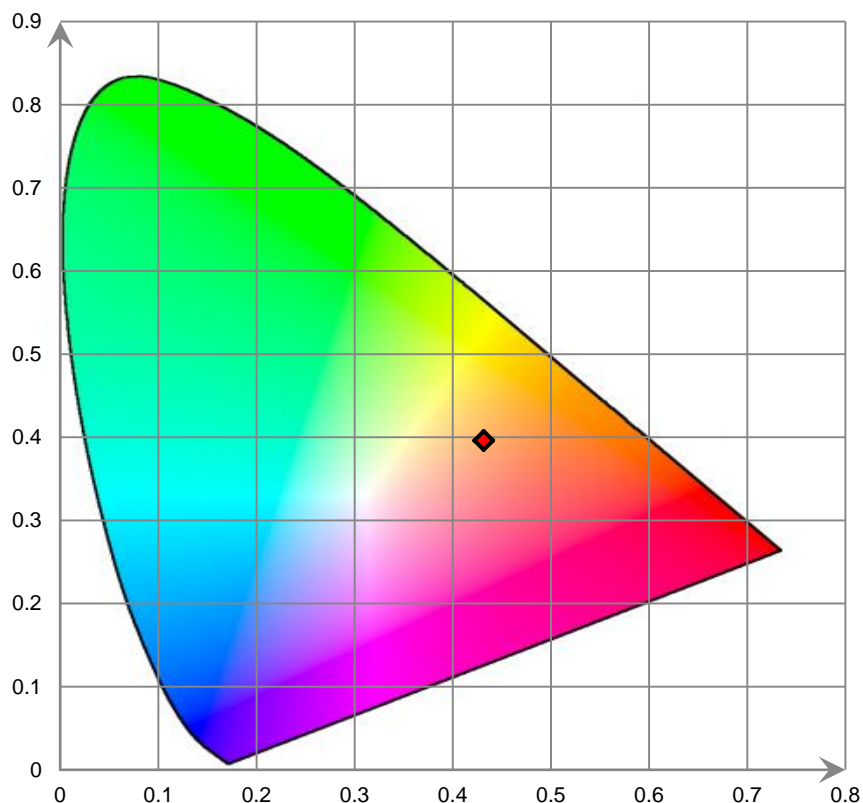


nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	2.051E-01	421	3.916E+00	462	4.563E+01	503	6.419E+01	544	7.091E+01
381	2.839E-01	422	4.363E+00	463	4.523E+01	504	6.472E+01	545	7.132E+01
382	2.416E-01	423	4.925E+00	464	4.499E+01	505	6.537E+01	546	7.155E+01
383	3.435E-01	424	5.310E+00	465	4.442E+01	506	6.605E+01	547	7.182E+01
384	2.748E-01	425	5.992E+00	466	4.378E+01	507	6.680E+01	548	7.163E+01
385	2.637E-01	426	6.376E+00	467	4.325E+01	508	6.750E+01	549	7.164E+01
386	2.181E-01	427	6.932E+00	468	4.231E+01	509	6.784E+01	550	7.225E+01
387	3.023E-01	428	7.682E+00	469	4.141E+01	510	6.820E+01	551	7.171E+01
388	2.250E-01	429	8.387E+00	470	3.985E+01	511	6.830E+01	552	7.214E+01
389	2.509E-01	430	8.993E+00	471	3.843E+01	512	6.862E+01	553	7.222E+01
390	1.603E-01	431	9.818E+00	472	3.744E+01	513	6.891E+01	554	7.228E+01
391	1.725E-01	432	1.066E+01	473	3.645E+01	514	6.945E+01	555	7.266E+01
392	2.494E-01	433	1.164E+01	474	3.560E+01	515	6.954E+01	556	7.307E+01
393	1.495E-01	434	1.264E+01	475	3.522E+01	516	6.961E+01	557	7.319E+01
394	1.737E-01	435	1.394E+01	476	3.533E+01	517	6.973E+01	558	7.356E+01
395	2.776E-01	436	1.505E+01	477	3.501E+01	518	7.010E+01	559	7.363E+01
396	2.327E-01	437	1.673E+01	478	3.580E+01	519	6.996E+01	560	7.465E+01
397	2.004E-01	438	1.819E+01	479	3.644E+01	520	7.009E+01	561	7.433E+01
398	2.299E-01	439	2.014E+01	480	3.720E+01	521	7.016E+01	562	7.496E+01
399	2.538E-01	440	2.255E+01	481	3.853E+01	522	7.046E+01	563	7.523E+01
400	2.255E-01	441	2.521E+01	482	3.927E+01	523	7.080E+01	564	7.589E+01
401	2.175E-01	442	2.817E+01	483	4.089E+01	524	7.062E+01	565	7.599E+01
402	3.115E-01	443	3.181E+01	484	4.171E+01	525	7.076E+01	566	7.682E+01
403	3.878E-01	444	3.587E+01	485	4.267E+01	526	7.093E+01	567	7.730E+01
404	3.683E-01	445	4.080E+01	486	4.365E+01	527	7.035E+01	568	7.806E+01
405	4.169E-01	446	4.563E+01	487	4.537E+01	528	7.040E+01	569	7.847E+01
406	4.731E-01	447	5.056E+01	488	4.602E+01	529	7.035E+01	570	7.900E+01
407	5.970E-01	448	5.575E+01	489	4.777E+01	530	7.082E+01	571	8.014E+01
408	6.267E-01	449	6.019E+01	490	4.921E+01	531	7.084E+01	572	8.055E+01
409	8.345E-01	450	6.400E+01	491	5.024E+01	532	7.093E+01	573	8.170E+01
410	8.451E-01	451	6.640E+01	492	5.149E+01	533	7.076E+01	574	8.240E+01
411	1.041E+00	452	6.788E+01	493	5.296E+01	534	7.098E+01	575	8.341E+01
412	1.262E+00	453	6.684E+01	494	5.376E+01	535	7.085E+01	576	8.457E+01
413	1.472E+00	454	6.509E+01	495	5.548E+01	536	7.115E+01	577	8.563E+01
414	1.656E+00	455	6.239E+01	496	5.698E+01	537	7.073E+01	578	8.653E+01
415	1.877E+00	456	5.904E+01	497	5.825E+01	538	7.130E+01	579	8.771E+01
416	2.206E+00	457	5.553E+01	498	5.931E+01	539	7.094E+01	580	8.891E+01
417	2.484E+00	458	5.286E+01	499	6.036E+01	540	7.125E+01	581	8.987E+01
418	2.774E+00	459	4.997E+01	500	6.150E+01	541	7.131E+01	582	9.148E+01
419	3.185E+00	460	4.805E+01	501	6.274E+01	542	7.091E+01	583	9.279E+01
420	3.521E+00	461	4.661E+01	502	6.349E+01	543	7.108E+01	584	9.449E+01

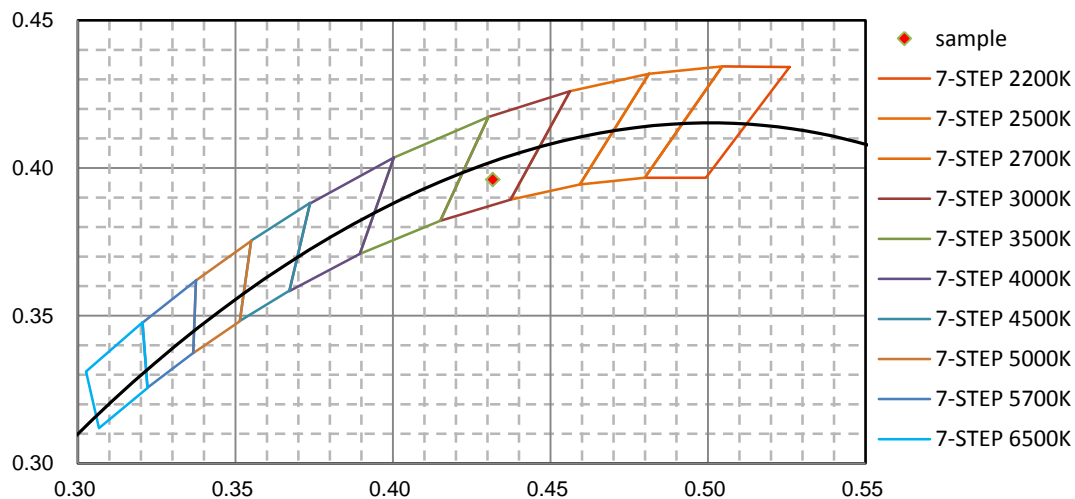
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585	9.550E+01	626	1.320E+02	667	7.844E+01	708	2.717E+01	749	7.940E+00
586	9.676E+01	627	1.316E+02	668	7.643E+01	709	2.634E+01	750	7.779E+00
587	9.820E+01	628	1.313E+02	669	7.482E+01	710	2.579E+01	751	7.470E+00
588	9.969E+01	629	1.306E+02	670	7.361E+01	711	2.495E+01	752	7.230E+00
589	1.012E+02	630	1.302E+02	671	7.161E+01	712	2.423E+01	753	7.013E+00
590	1.030E+02	631	1.297E+02	672	7.005E+01	713	2.364E+01	754	6.855E+00
591	1.043E+02	632	1.284E+02	673	6.882E+01	714	2.293E+01	755	6.611E+00
592	1.058E+02	633	1.273E+02	674	6.738E+01	715	2.237E+01	756	6.415E+00
593	1.073E+02	634	1.266E+02	675	6.555E+01	716	2.181E+01	757	6.052E+00
594	1.092E+02	635	1.258E+02	676	6.469E+01	717	2.128E+01	758	5.877E+00
595	1.100E+02	636	1.246E+02	677	6.299E+01	718	2.046E+01	759	5.764E+00
596	1.118E+02	637	1.235E+02	678	6.145E+01	719	1.977E+01	760	5.719E+00
597	1.130E+02	638	1.226E+02	679	6.012E+01	720	1.929E+01	761	5.449E+00
598	1.146E+02	639	1.215E+02	680	5.807E+01	721	1.905E+01	762	5.341E+00
599	1.161E+02	640	1.208E+02	681	5.693E+01	722	1.844E+01	763	5.168E+00
600	1.176E+02	641	1.191E+02	682	5.576E+01	723	1.772E+01	764	4.844E+00
601	1.181E+02	642	1.180E+02	683	5.427E+01	724	1.729E+01	765	4.759E+00
602	1.197E+02	643	1.165E+02	684	5.321E+01	725	1.655E+01	766	4.695E+00
603	1.207E+02	644	1.153E+02	685	5.180E+01	726	1.621E+01	767	4.492E+00
604	1.220E+02	645	1.139E+02	686	5.036E+01	727	1.571E+01	768	4.293E+00
605	1.231E+02	646	1.122E+02	687	4.916E+01	728	1.519E+01	769	4.259E+00
606	1.250E+02	647	1.103E+02	688	4.761E+01	729	1.483E+01	770	4.149E+00
607	1.260E+02	648	1.092E+02	689	4.674E+01	730	1.428E+01	771	3.968E+00
608	1.269E+02	649	1.078E+02	690	4.527E+01	731	1.380E+01	772	3.952E+00
609	1.276E+02	650	1.064E+02	691	4.442E+01	732	1.345E+01	773	3.734E+00
610	1.290E+02	651	1.048E+02	692	4.317E+01	733	1.297E+01	774	3.546E+00
611	1.299E+02	652	1.032E+02	693	4.185E+01	734	1.249E+01	775	3.523E+00
612	1.308E+02	653	1.011E+02	694	4.076E+01	735	1.221E+01	776	3.316E+00
613	1.315E+02	654	9.971E+01	695	3.976E+01	736	1.165E+01	777	3.261E+00
614	1.325E+02	655	9.838E+01	696	3.867E+01	737	1.143E+01	778	3.303E+00
615	1.319E+02	656	9.665E+01	697	3.753E+01	738	1.113E+01	779	3.095E+00
616	1.327E+02	657	9.485E+01	698	3.642E+01	739	1.074E+01	780	2.980E+00
617	1.330E+02	658	9.324E+01	699	3.542E+01	740	1.057E+01		
618	1.334E+02	659	9.152E+01	700	3.447E+01	741	1.003E+01		
619	1.333E+02	660	8.969E+01	701	3.353E+01	742	9.788E+00		
620	1.334E+02	661	8.786E+01	702	3.252E+01	743	9.265E+00		
621	1.332E+02	662	8.684E+01	703	3.155E+01	744	9.043E+00		
622	1.333E+02	663	8.508E+01	704	3.080E+01	745	8.954E+00		
623	1.330E+02	664	8.341E+01	705	2.978E+01	746	8.773E+00		
624	1.332E+02	665	8.166E+01	706	2.894E+01	747	8.476E+00		
625	1.323E+02	666	8.033E+01	707	2.802E+01	748	8.098E+00		



CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



## [Integrating Sphere System]

Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

The diameter of the sphere: **1.5M**

The coating reflectance of sphere: **98%**

Total operating time for integrating sphere test: **1.0 hour**

Test orientation: **Downward**

Test CCT:**3500K**

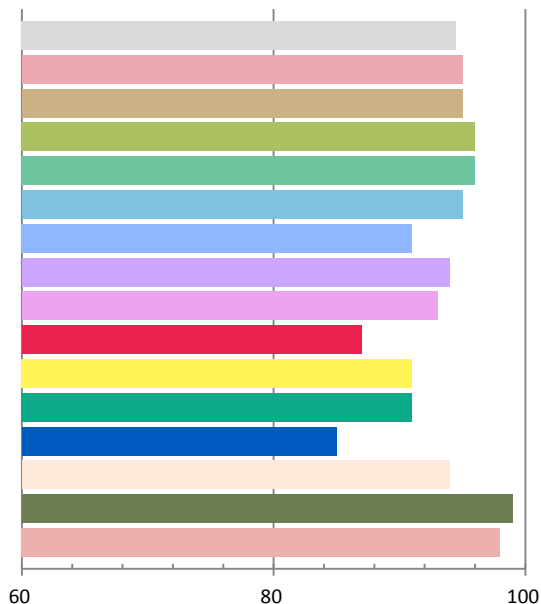
## Photometric and Electrical Measurement Result

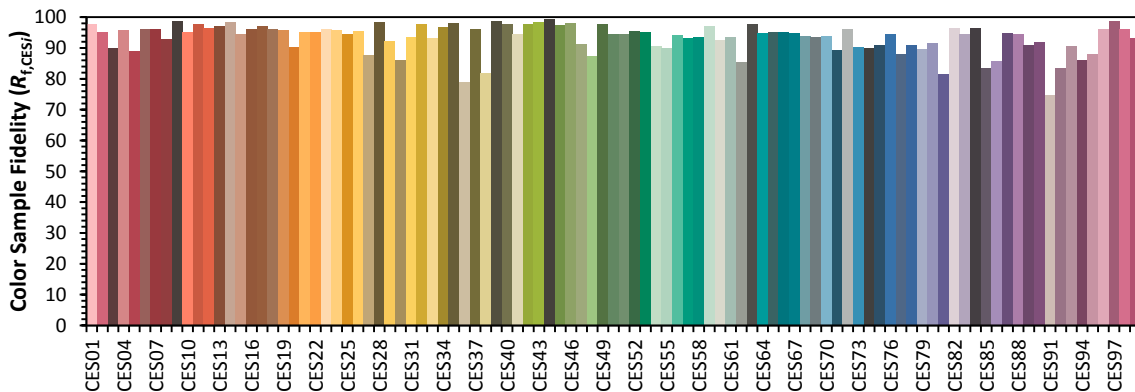
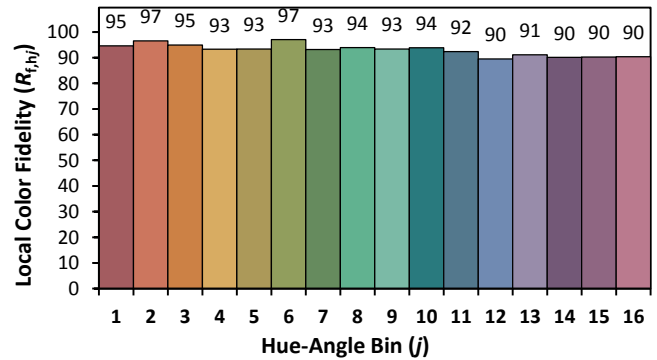
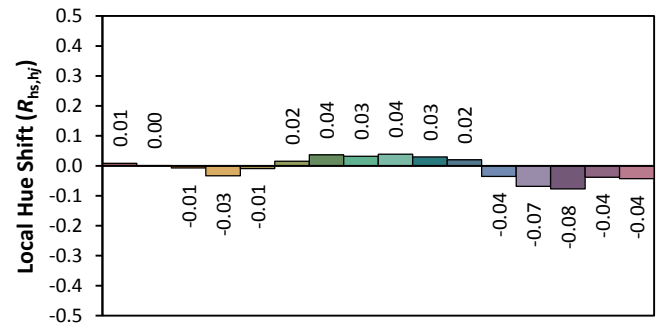
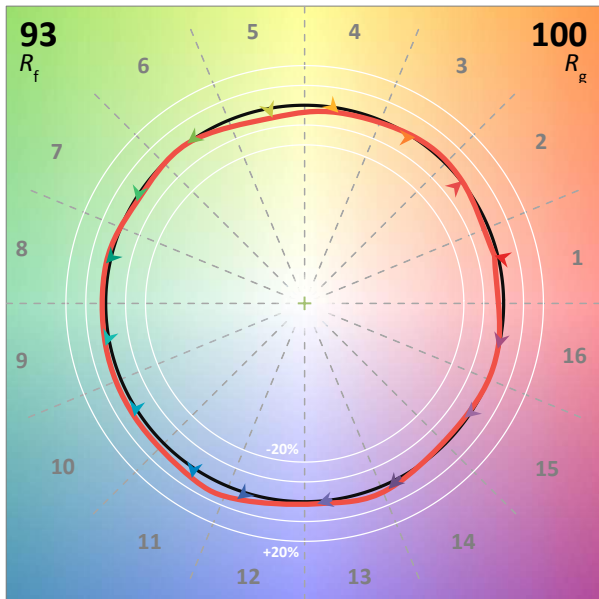
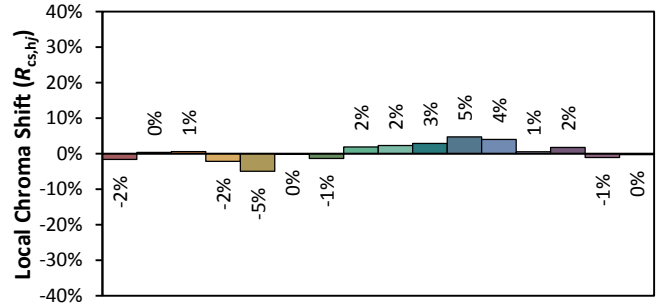
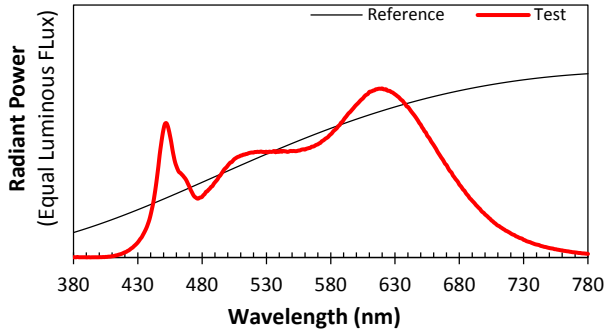
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.4945	58.88	0.9922	6402.9	108.75

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
22.37	3477	-0.00349	0.4029	0.3817	0.2379	0.5071

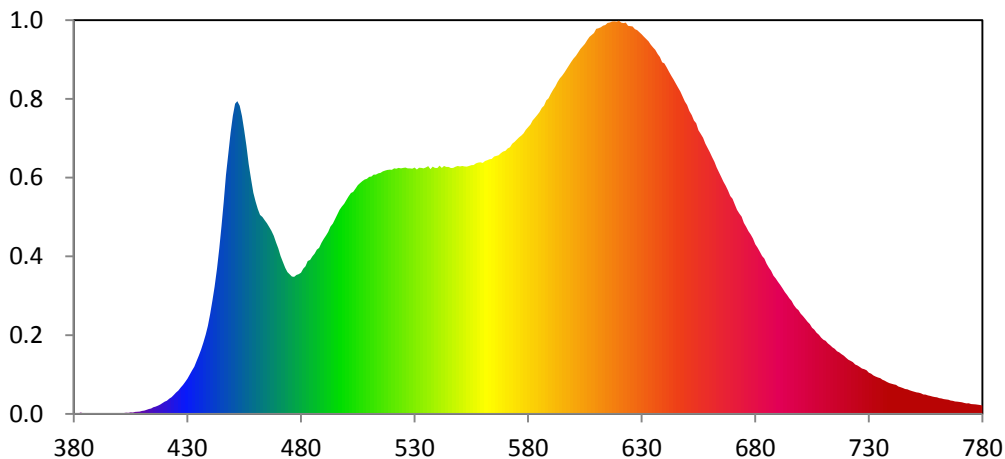
## Color Rendering Index

<b>Ra</b>			
<b>94.5</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
95	95	96	96
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
95	91	94	93
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
87	91	91	85
<b>R13</b>	<b>R14</b>	<b>R15</b>	
94	99	98	





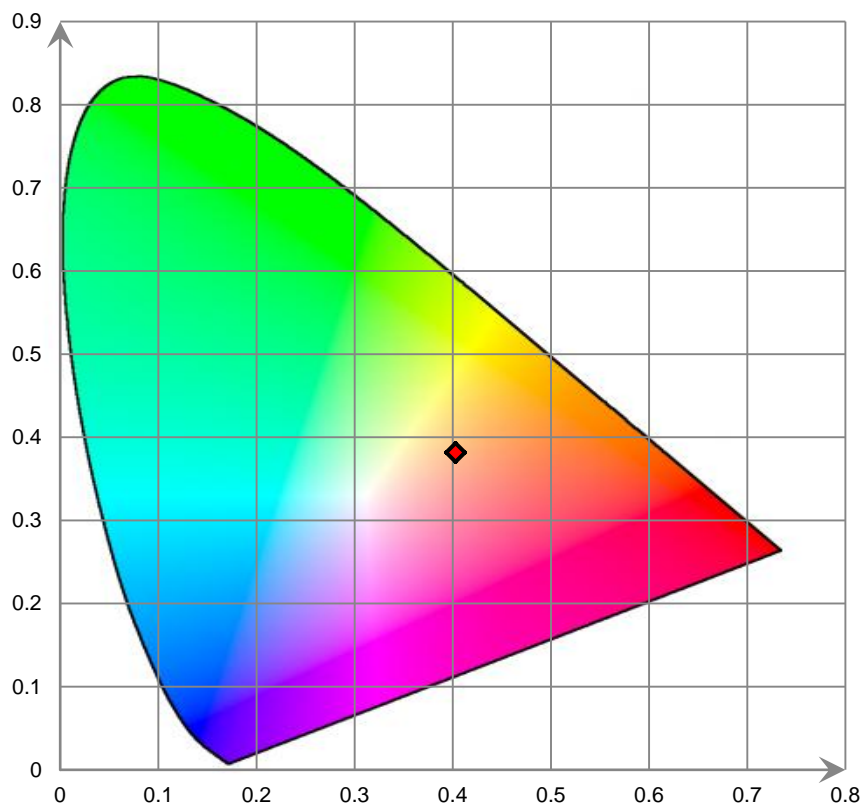
**Relative Spectral Power Distribution**



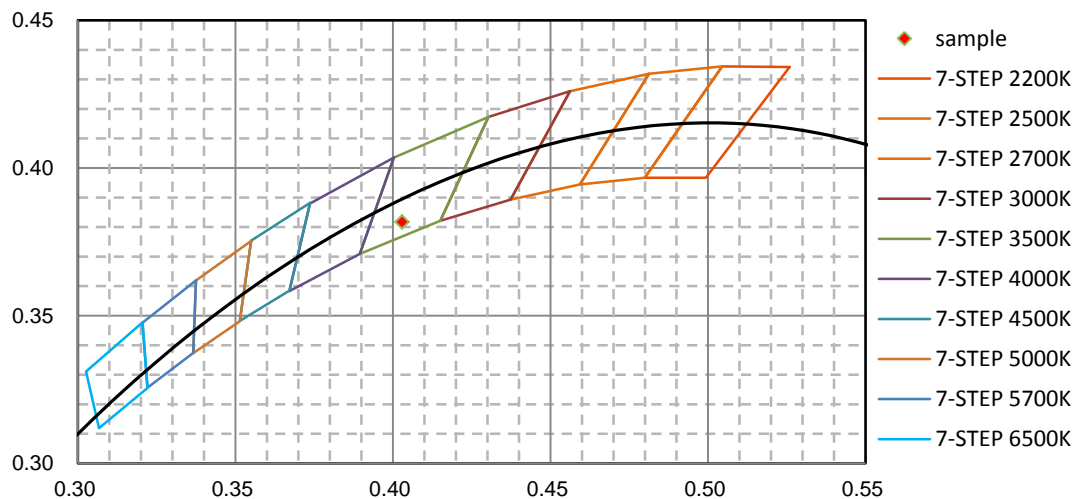
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	2.474E-01	421	4.228E+00	462	6.356E+01	503	7.090E+01	544	7.888E+01
381	2.531E-01	422	4.873E+00	463	6.290E+01	504	7.200E+01	545	7.890E+01
382	1.947E-01	423	5.332E+00	464	6.189E+01	505	7.305E+01	546	7.852E+01
383	4.309E-01	424	6.076E+00	465	6.091E+01	506	7.369E+01	547	7.857E+01
384	2.397E-01	425	6.838E+00	466	5.971E+01	507	7.431E+01	548	7.895E+01
385	2.074E-01	426	7.453E+00	467	5.851E+01	508	7.482E+01	549	7.919E+01
386	2.102E-01	427	8.403E+00	468	5.685E+01	509	7.511E+01	550	7.901E+01
387	2.126E-01	428	9.247E+00	469	5.476E+01	510	7.571E+01	551	7.916E+01
388	2.138E-01	429	1.019E+01	470	5.285E+01	511	7.582E+01	552	7.905E+01
389	2.258E-01	430	1.124E+01	471	5.047E+01	512	7.644E+01	553	7.899E+01
390	1.479E-01	431	1.251E+01	472	4.862E+01	513	7.643E+01	554	7.918E+01
391	1.646E-01	432	1.390E+01	473	4.669E+01	514	7.685E+01	555	7.946E+01
392	2.522E-01	433	1.507E+01	474	4.530E+01	515	7.698E+01	556	7.952E+01
393	1.121E-01	434	1.685E+01	475	4.462E+01	516	7.744E+01	557	8.002E+01
394	1.862E-01	435	1.859E+01	476	4.391E+01	517	7.772E+01	558	8.025E+01
395	2.027E-01	436	2.050E+01	477	4.378E+01	518	7.793E+01	559	8.037E+01
396	2.061E-01	437	2.266E+01	478	4.441E+01	519	7.801E+01	560	8.017E+01
397	2.140E-01	438	2.529E+01	479	4.466E+01	520	7.797E+01	561	8.078E+01
398	2.060E-01	439	2.813E+01	480	4.508E+01	521	7.840E+01	562	8.099E+01
399	2.014E-01	440	3.185E+01	481	4.638E+01	522	7.832E+01	563	8.133E+01
400	2.310E-01	441	3.611E+01	482	4.713E+01	523	7.857E+01	564	8.142E+01
401	2.902E-01	442	4.064E+01	483	4.881E+01	524	7.841E+01	565	8.221E+01
402	2.774E-01	443	4.642E+01	484	4.917E+01	525	7.857E+01	566	8.238E+01
403	3.808E-01	444	5.278E+01	485	5.033E+01	526	7.869E+01	567	8.262E+01
404	3.244E-01	445	5.996E+01	486	5.121E+01	527	7.842E+01	568	8.325E+01
405	4.735E-01	446	6.773E+01	487	5.247E+01	528	7.841E+01	569	8.377E+01
406	4.638E-01	447	7.631E+01	488	5.303E+01	529	7.830E+01	570	8.404E+01
407	6.509E-01	448	8.330E+01	489	5.465E+01	530	7.866E+01	571	8.479E+01
408	6.815E-01	449	8.985E+01	490	5.590E+01	531	7.808E+01	572	8.517E+01
409	7.793E-01	450	9.522E+01	491	5.698E+01	532	7.860E+01	573	8.630E+01
410	9.526E-01	451	9.905E+01	492	5.815E+01	533	7.858E+01	574	8.683E+01
411	1.071E+00	452	9.991E+01	493	5.983E+01	534	7.843E+01	575	8.753E+01
412	1.315E+00	453	9.838E+01	494	6.081E+01	535	7.874E+01	576	8.834E+01
413	1.583E+00	454	9.511E+01	495	6.227E+01	536	7.913E+01	577	8.887E+01
414	1.750E+00	455	9.056E+01	496	6.370E+01	537	7.818E+01	578	8.961E+01
415	2.108E+00	456	8.559E+01	497	6.520E+01	538	7.897E+01	579	9.072E+01
416	2.354E+00	457	7.980E+01	498	6.622E+01	539	7.855E+01	580	9.152E+01
417	2.630E+00	458	7.496E+01	499	6.711E+01	540	7.854E+01	581	9.241E+01
418	3.015E+00	459	7.068E+01	500	6.837E+01	541	7.931E+01	582	9.374E+01
419	3.476E+00	460	6.786E+01	501	6.953E+01	542	7.854E+01	583	9.457E+01
420	3.914E+00	461	6.545E+01	502	7.055E+01	543	7.920E+01	584	9.541E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	9.637E+01	626	1.237E+02	667	7.291E+01	708	2.530E+01	749	7.290E+00
586	9.771E+01	627	1.229E+02	668	7.131E+01	709	2.438E+01	750	7.083E+00
587	9.846E+01	628	1.226E+02	669	6.959E+01	710	2.370E+01	751	6.880E+00
588	1.001E+02	629	1.219E+02	670	6.870E+01	711	2.332E+01	752	6.761E+00
589	1.008E+02	630	1.212E+02	671	6.692E+01	712	2.253E+01	753	6.591E+00
590	1.022E+02	631	1.205E+02	672	6.519E+01	713	2.199E+01	754	6.213E+00
591	1.036E+02	632	1.197E+02	673	6.397E+01	714	2.126E+01	755	6.182E+00
592	1.047E+02	633	1.190E+02	674	6.297E+01	715	2.078E+01	756	5.912E+00
593	1.060E+02	634	1.179E+02	675	6.098E+01	716	2.000E+01	757	5.775E+00
594	1.072E+02	635	1.170E+02	676	5.979E+01	717	1.965E+01	758	5.585E+00
595	1.080E+02	636	1.163E+02	677	5.838E+01	718	1.910E+01	759	5.380E+00
596	1.091E+02	637	1.149E+02	678	5.726E+01	719	1.858E+01	760	5.317E+00
597	1.102E+02	638	1.140E+02	679	5.598E+01	720	1.792E+01	761	5.040E+00
598	1.113E+02	639	1.123E+02	680	5.420E+01	721	1.733E+01	762	4.931E+00
599	1.125E+02	640	1.119E+02	681	5.314E+01	722	1.695E+01	763	4.763E+00
600	1.135E+02	641	1.107E+02	682	5.184E+01	723	1.657E+01	764	4.629E+00
601	1.144E+02	642	1.093E+02	683	5.040E+01	724	1.580E+01	765	4.534E+00
602	1.154E+02	643	1.080E+02	684	4.959E+01	725	1.549E+01	766	4.301E+00
603	1.165E+02	644	1.068E+02	685	4.796E+01	726	1.498E+01	767	4.194E+00
604	1.174E+02	645	1.056E+02	686	4.675E+01	727	1.452E+01	768	3.964E+00
605	1.182E+02	646	1.043E+02	687	4.570E+01	728	1.428E+01	769	3.931E+00
606	1.194E+02	647	1.029E+02	688	4.416E+01	729	1.392E+01	770	3.796E+00
607	1.204E+02	648	1.014E+02	689	4.328E+01	730	1.315E+01	771	3.709E+00
608	1.210E+02	649	9.977E+01	690	4.218E+01	731	1.287E+01	772	3.539E+00
609	1.216E+02	650	9.864E+01	691	4.121E+01	732	1.228E+01	773	3.381E+00
610	1.230E+02	651	9.677E+01	692	4.014E+01	733	1.194E+01	774	3.395E+00
611	1.232E+02	652	9.545E+01	693	3.892E+01	734	1.164E+01	775	3.173E+00
612	1.235E+02	653	9.368E+01	694	3.801E+01	735	1.142E+01	776	3.098E+00
613	1.240E+02	654	9.281E+01	695	3.695E+01	736	1.095E+01	777	3.060E+00
614	1.242E+02	655	9.060E+01	696	3.612E+01	737	1.060E+01	778	2.938E+00
615	1.249E+02	656	8.945E+01	697	3.476E+01	738	1.022E+01	779	2.861E+00
616	1.250E+02	657	8.815E+01	698	3.378E+01	739	9.860E+00	780	2.715E+00
617	1.253E+02	658	8.634E+01	699	3.315E+01	740	9.650E+00		
618	1.254E+02	659	8.495E+01	700	3.200E+01	741	9.461E+00		
619	1.253E+02	660	8.359E+01	701	3.124E+01	742	9.268E+00		
620	1.256E+02	661	8.204E+01	702	3.041E+01	743	8.767E+00		
621	1.250E+02	662	8.051E+01	703	2.941E+01	744	8.505E+00		
622	1.248E+02	663	7.867E+01	704	2.869E+01	745	8.259E+00		
623	1.250E+02	664	7.718E+01	705	2.755E+01	746	7.941E+00		
624	1.240E+02	665	7.573E+01	706	2.692E+01	747	7.834E+00		
625	1.238E+02	666	7.419E+01	707	2.593E+01	748	7.570E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



## [Integrating Sphere System]

Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

The diameter of the sphere: **1.5M**

The coating reflectance of sphere: **98%**

Total operating time for integrating sphere test: **1.0 hour**

Test orientation: **Downward**

Test CCT:**4000K**

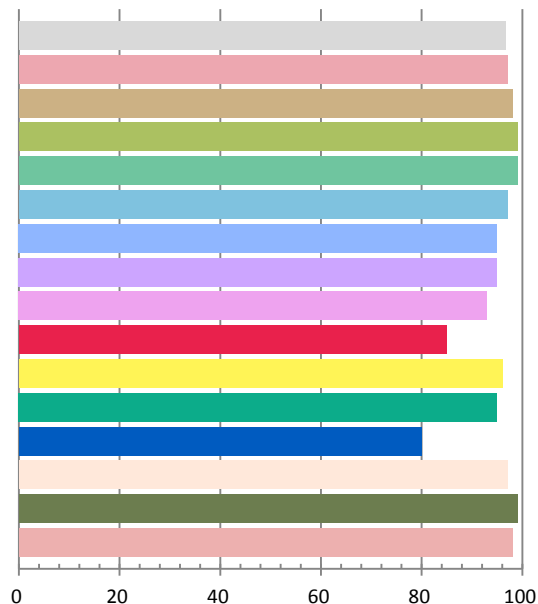
## Photometric and Electrical Measurement Result

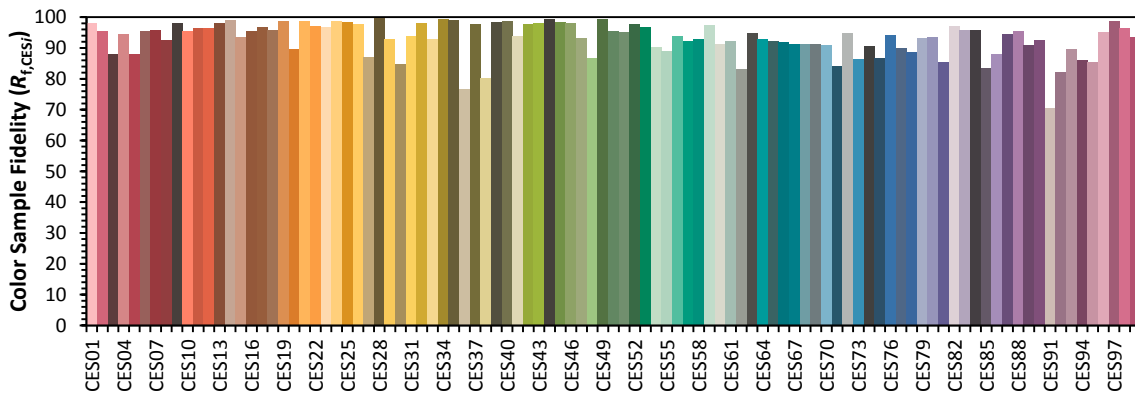
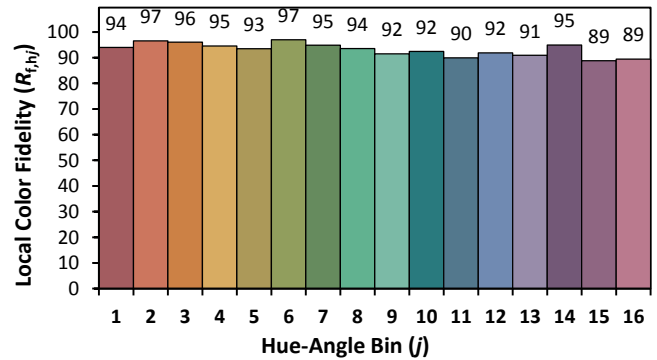
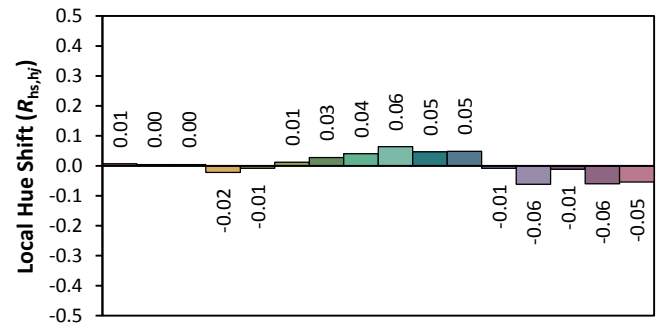
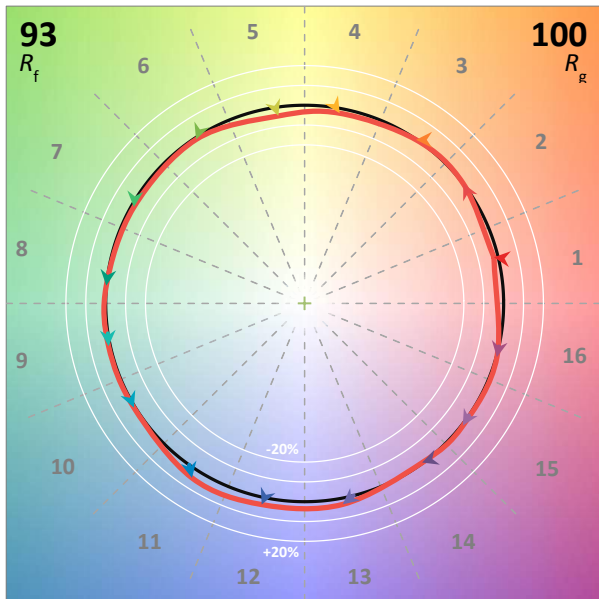
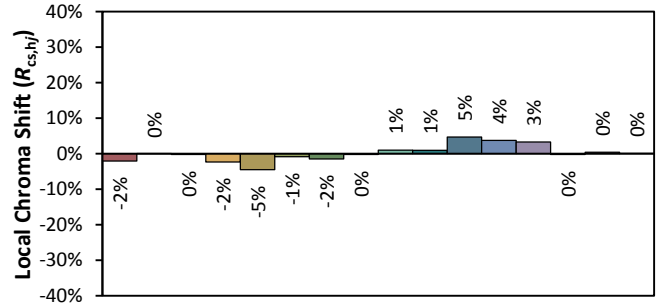
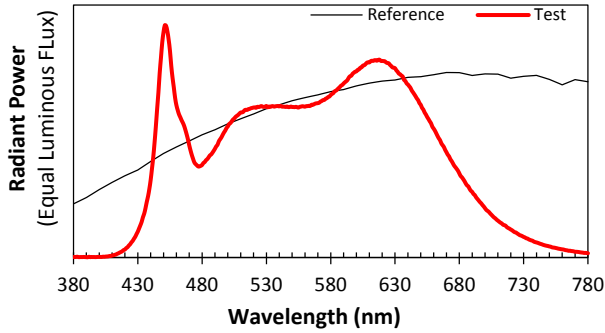
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.4973	59.25	0.9928	6613.2	111.62

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
22.901	4119	-0.00232	0.3739	0.3677	0.2244	0.4965

## Color Rendering Index

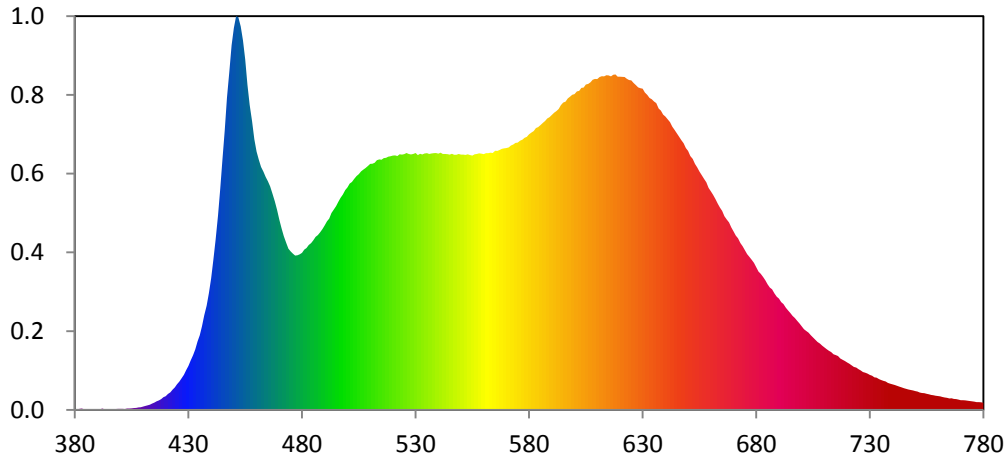
<b>Ra</b>			
<b>96.6</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
97	98	99	99
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
97	95	95	93
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
85	96	95	80
<b>R13</b>	<b>R14</b>	<b>R15</b>	
97	99	98	







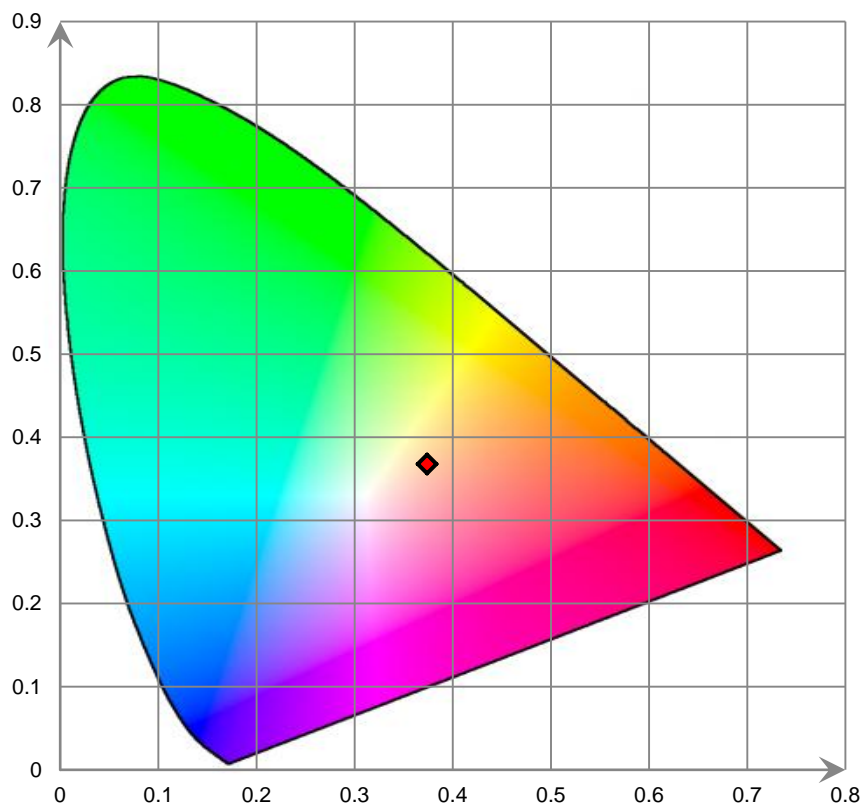
Relative Spectral Power Distribution



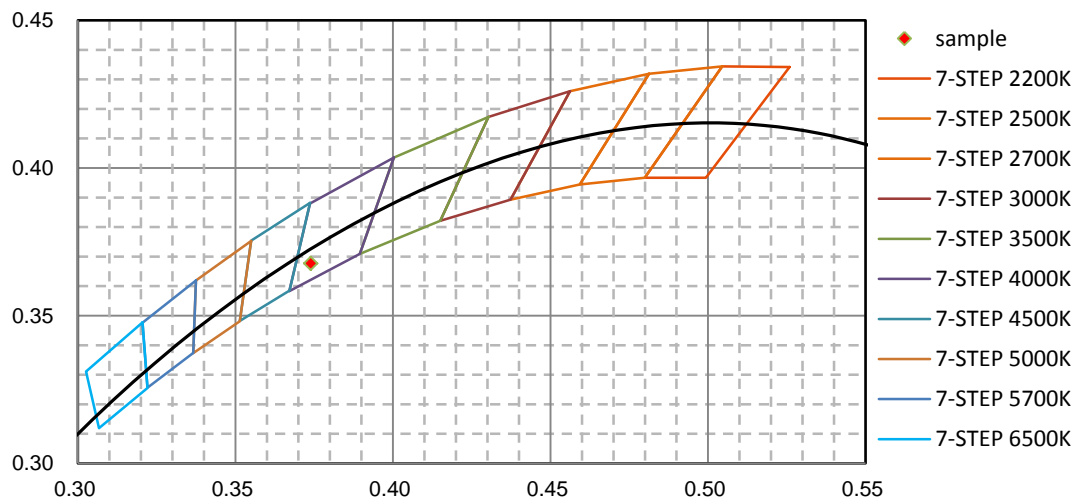
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	3.368E-01	421	5.431E+00	462	8.244E+01	503	7.834E+01	544	8.676E+01
381	2.839E-01	422	5.950E+00	463	8.079E+01	504	7.935E+01	545	8.663E+01
382	3.722E-01	423	6.878E+00	464	7.901E+01	505	8.000E+01	546	8.688E+01
383	4.544E-01	424	7.630E+00	465	7.754E+01	506	8.089E+01	547	8.655E+01
384	2.454E-01	425	8.710E+00	466	7.579E+01	507	8.148E+01	548	8.658E+01
385	2.748E-01	426	9.573E+00	467	7.343E+01	508	8.204E+01	549	8.685E+01
386	2.970E-01	427	1.080E+01	468	7.076E+01	509	8.277E+01	550	8.661E+01
387	2.785E-01	428	1.193E+01	469	6.789E+01	510	8.343E+01	551	8.660E+01
388	3.404E-01	429	1.349E+01	470	6.458E+01	511	8.349E+01	552	8.651E+01
389	2.582E-01	430	1.493E+01	471	6.162E+01	512	8.384E+01	553	8.670E+01
390	2.398E-01	431	1.675E+01	472	5.899E+01	513	8.470E+01	554	8.643E+01
391	1.525E-01	432	1.856E+01	473	5.669E+01	514	8.500E+01	555	8.629E+01
392	4.604E-01	433	2.056E+01	474	5.469E+01	515	8.488E+01	556	8.672E+01
393	2.366E-01	434	2.322E+01	475	5.375E+01	516	8.539E+01	557	8.684E+01
394	3.173E-01	435	2.533E+01	476	5.303E+01	517	8.552E+01	558	8.704E+01
395	2.753E-01	436	2.842E+01	477	5.237E+01	518	8.591E+01	559	8.691E+01
396	2.947E-01	437	3.213E+01	478	5.245E+01	519	8.608E+01	560	8.679E+01
397	2.408E-01	438	3.537E+01	479	5.278E+01	520	8.628E+01	561	8.709E+01
398	2.922E-01	439	3.959E+01	480	5.328E+01	521	8.635E+01	562	8.711E+01
399	3.697E-01	440	4.462E+01	481	5.439E+01	522	8.614E+01	563	8.727E+01
400	3.522E-01	441	5.098E+01	482	5.492E+01	523	8.673E+01	564	8.715E+01
401	3.526E-01	442	5.772E+01	483	5.596E+01	524	8.660E+01	565	8.791E+01
402	3.371E-01	443	6.594E+01	484	5.661E+01	525	8.679E+01	566	8.784E+01
403	4.905E-01	444	7.506E+01	485	5.759E+01	526	8.715E+01	567	8.818E+01
404	4.479E-01	445	8.515E+01	486	5.871E+01	527	8.682E+01	568	8.856E+01
405	5.535E-01	446	9.480E+01	487	5.928E+01	528	8.666E+01	569	8.872E+01
406	6.191E-01	447	1.060E+02	488	6.026E+01	529	8.682E+01	570	8.883E+01
407	6.919E-01	448	1.149E+02	489	6.138E+01	530	8.718E+01	571	8.907E+01
408	8.678E-01	449	1.237E+02	490	6.261E+01	531	8.642E+01	572	8.968E+01
409	9.198E-01	450	1.296E+02	491	6.397E+01	532	8.689E+01	573	9.005E+01
410	1.153E+00	451	1.336E+02	492	6.489E+01	533	8.665E+01	574	9.057E+01
411	1.338E+00	452	1.332E+02	493	6.682E+01	534	8.699E+01	575	9.066E+01
412	1.552E+00	453	1.301E+02	494	6.802E+01	535	8.710E+01	576	9.135E+01
413	1.766E+00	454	1.253E+02	495	6.914E+01	536	8.681E+01	577	9.168E+01
414	2.176E+00	455	1.189E+02	496	7.058E+01	537	8.699E+01	578	9.233E+01
415	2.467E+00	456	1.103E+02	497	7.193E+01	538	8.712E+01	579	9.266E+01
416	2.917E+00	457	1.035E+02	498	7.305E+01	539	8.713E+01	580	9.350E+01
417	3.247E+00	458	9.788E+01	499	7.454E+01	540	8.694E+01	581	9.413E+01
418	3.691E+00	459	9.183E+01	500	7.546E+01	541	8.727E+01	582	9.460E+01
419	4.315E+00	460	8.766E+01	501	7.679E+01	542	8.682E+01	583	9.561E+01
420	4.654E+00	461	8.485E+01	502	7.734E+01	543	8.681E+01	584	9.596E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	9.659E+01	626	1.109E+02	667	6.462E+01	708	2.254E+01	749	6.614E+00
586	9.734E+01	627	1.102E+02	668	6.358E+01	709	2.179E+01	750	6.378E+00
587	9.803E+01	628	1.094E+02	669	6.191E+01	710	2.121E+01	751	6.247E+00
588	9.885E+01	629	1.092E+02	670	6.056E+01	711	2.061E+01	752	5.913E+00
589	9.930E+01	630	1.089E+02	671	5.916E+01	712	2.006E+01	753	5.757E+00
590	1.001E+02	631	1.077E+02	672	5.820E+01	713	1.962E+01	754	5.667E+00
591	1.008E+02	632	1.069E+02	673	5.660E+01	714	1.890E+01	755	5.492E+00
592	1.014E+02	633	1.058E+02	674	5.550E+01	715	1.862E+01	756	5.328E+00
593	1.021E+02	634	1.054E+02	675	5.418E+01	716	1.828E+01	757	5.115E+00
594	1.034E+02	635	1.046E+02	676	5.286E+01	717	1.747E+01	758	4.989E+00
595	1.043E+02	636	1.041E+02	677	5.193E+01	718	1.700E+01	759	4.834E+00
596	1.046E+02	637	1.022E+02	678	5.093E+01	719	1.661E+01	760	4.706E+00
597	1.057E+02	638	1.016E+02	679	4.984E+01	720	1.611E+01	761	4.615E+00
598	1.063E+02	639	1.002E+02	680	4.840E+01	721	1.569E+01	762	4.376E+00
599	1.069E+02	640	9.952E+01	681	4.696E+01	722	1.511E+01	763	4.221E+00
600	1.071E+02	641	9.858E+01	682	4.618E+01	723	1.461E+01	764	4.113E+00
601	1.080E+02	642	9.762E+01	683	4.510E+01	724	1.439E+01	765	3.887E+00
602	1.082E+02	643	9.610E+01	684	4.396E+01	725	1.386E+01	766	3.925E+00
603	1.092E+02	644	9.501E+01	685	4.260E+01	726	1.339E+01	767	3.746E+00
604	1.094E+02	645	9.389E+01	686	4.152E+01	727	1.287E+01	768	3.681E+00
605	1.104E+02	646	9.274E+01	687	4.090E+01	728	1.264E+01	769	3.539E+00
606	1.106E+02	647	9.148E+01	688	3.948E+01	729	1.229E+01	770	3.324E+00
607	1.112E+02	648	9.046E+01	689	3.840E+01	730	1.187E+01	771	3.314E+00
608	1.120E+02	649	8.881E+01	690	3.775E+01	731	1.158E+01	772	3.249E+00
609	1.123E+02	650	8.785E+01	691	3.655E+01	732	1.109E+01	773	3.155E+00
610	1.122E+02	651	8.614E+01	692	3.593E+01	733	1.093E+01	774	3.007E+00
611	1.129E+02	652	8.511E+01	693	3.468E+01	734	1.045E+01	775	2.907E+00
612	1.132E+02	653	8.345E+01	694	3.376E+01	735	1.014E+01	776	2.816E+00
613	1.131E+02	654	8.229E+01	695	3.287E+01	736	9.853E+00	777	2.670E+00
614	1.135E+02	655	8.086E+01	696	3.192E+01	737	9.641E+00	778	2.677E+00
615	1.135E+02	656	7.969E+01	697	3.118E+01	738	9.145E+00	779	2.605E+00
616	1.132E+02	657	7.836E+01	698	3.021E+01	739	8.887E+00	780	2.450E+00
617	1.137E+02	658	7.721E+01	699	2.936E+01	740	8.676E+00		
618	1.138E+02	659	7.532E+01	700	2.837E+01	741	8.455E+00		
619	1.131E+02	660	7.421E+01	701	2.738E+01	742	8.169E+00		
620	1.131E+02	661	7.300E+01	702	2.682E+01	743	7.889E+00		
621	1.130E+02	662	7.154E+01	703	2.622E+01	744	7.667E+00		
622	1.129E+02	663	7.002E+01	704	2.534E+01	745	7.367E+00		
623	1.123E+02	664	6.863E+01	705	2.458E+01	746	7.132E+00		
624	1.119E+02	665	6.752E+01	706	2.380E+01	747	6.922E+00		
625	1.118E+02	666	6.573E+01	707	2.307E+01	748	6.755E+00		

### CIE 1931 x y Chromaticity Diagram



### 7-Step Chromaticity Quadrangles



## [Integrating Sphere System]

Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

The diameter of the sphere: **1.5M**

The coating reflectance of sphere: **98%**

Total operating time for integrating sphere test: **1.0 hour**

Test orientation: **Downward**

Test CCT:**5000K**

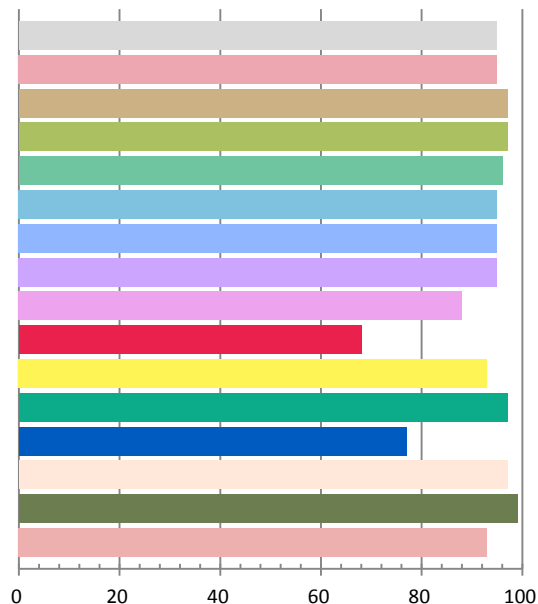
## Photometric and Electrical Measurement Result

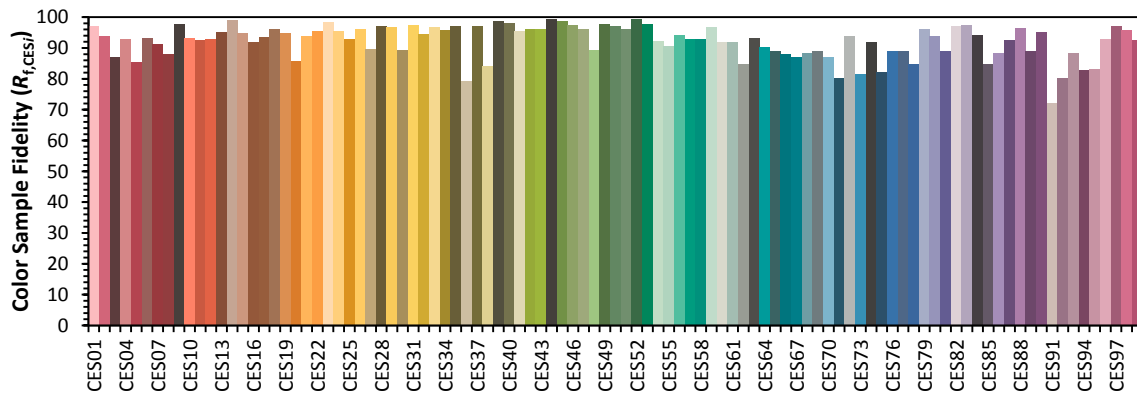
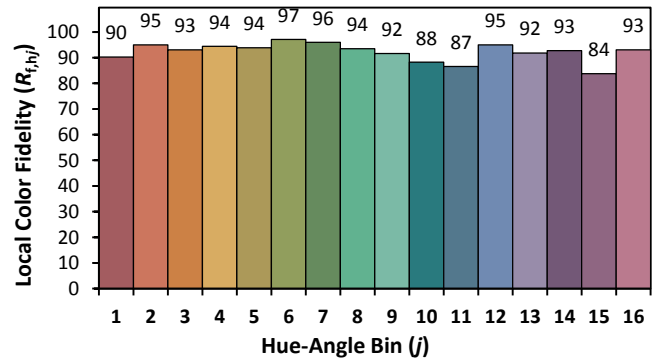
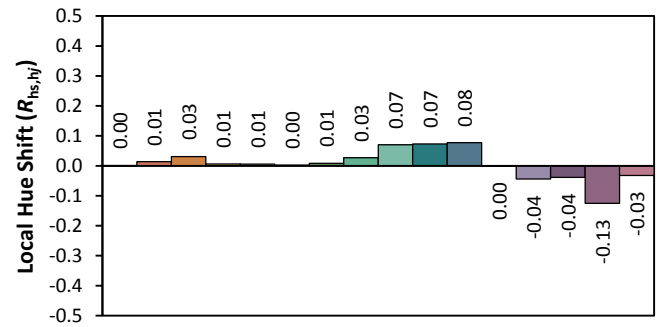
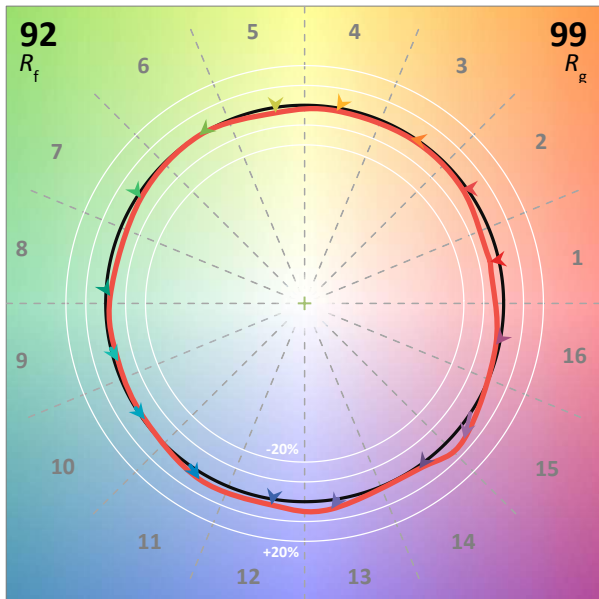
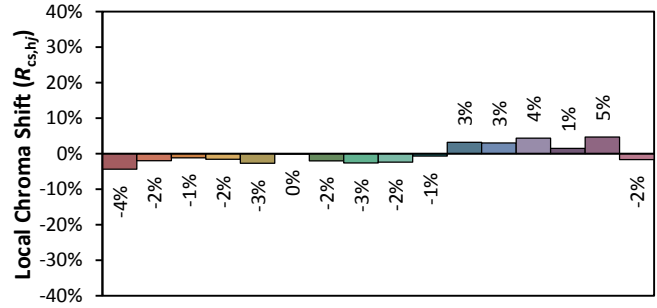
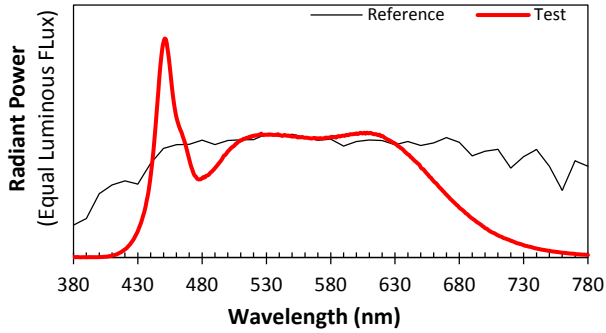
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.4991	59.44	0.9925	6725.8	113.15

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
22.973	5162	0.00215	0.3410	0.3525	0.2083	0.4845

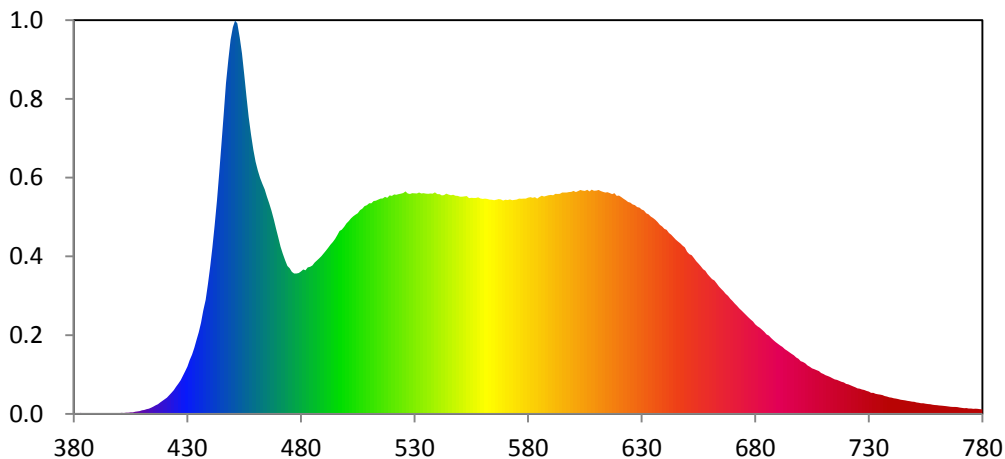
## Color Rendering Index

<b>Ra</b>			
<b>94.8</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
95	97	97	96
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
95	95	95	88
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
68	93	97	77
<b>R13</b>	<b>R14</b>	<b>R15</b>	
97	99	93	





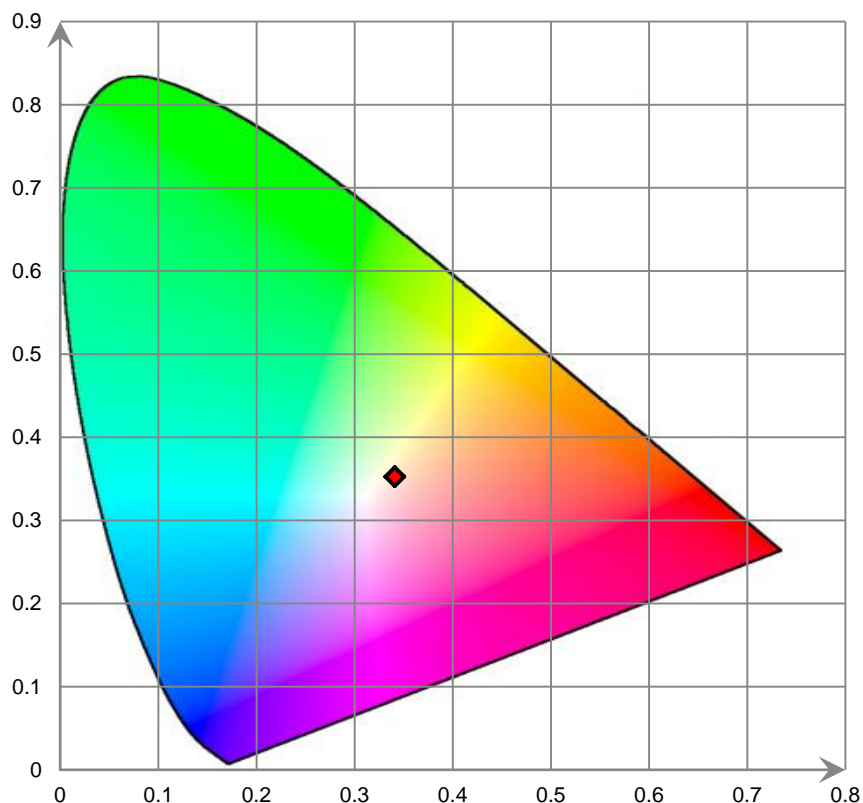
### Relative Spectral Power Distribution



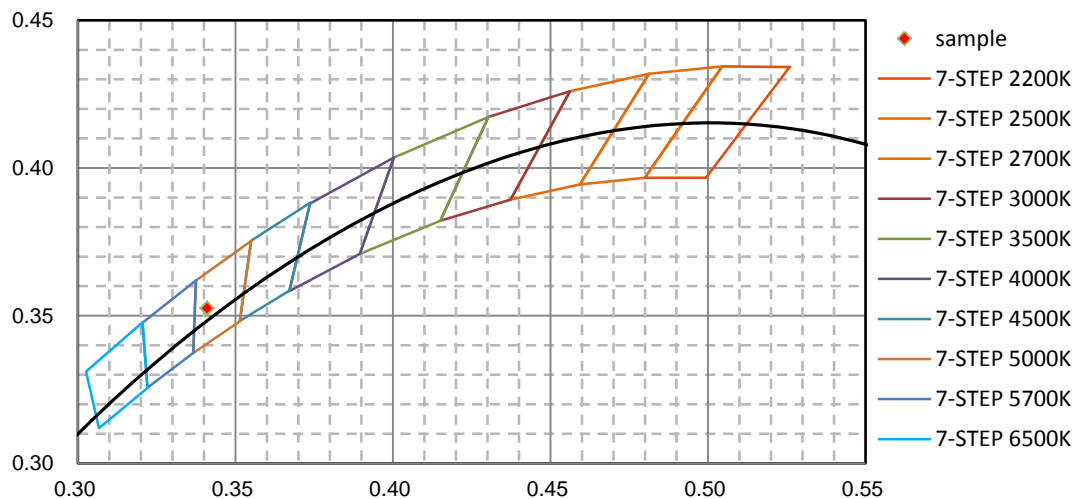
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	2.289E-01	421	7.092E+00	462	1.026E+02	503	8.577E+01	544	9.565E+01
381	3.900E-01	422	8.150E+00	463	9.980E+01	504	8.659E+01	545	9.524E+01
382	1.929E-01	423	9.259E+00	464	9.757E+01	505	8.722E+01	546	9.496E+01
383	4.435E-01	424	1.033E+01	465	9.435E+01	506	8.852E+01	547	9.520E+01
384	2.849E-01	425	1.178E+01	466	9.148E+01	507	8.912E+01	548	9.474E+01
385	1.876E-01	426	1.313E+01	467	8.836E+01	508	9.020E+01	549	9.470E+01
386	1.901E-01	427	1.466E+01	468	8.448E+01	509	9.070E+01	550	9.434E+01
387	2.888E-01	428	1.663E+01	469	8.041E+01	510	9.153E+01	551	9.435E+01
388	2.937E-01	429	1.854E+01	470	7.663E+01	511	9.154E+01	552	9.449E+01
389	2.323E-01	430	2.057E+01	471	7.265E+01	512	9.248E+01	553	9.463E+01
390	2.581E-01	431	2.330E+01	472	6.962E+01	513	9.264E+01	554	9.371E+01
391	2.082E-01	432	2.574E+01	473	6.667E+01	514	9.309E+01	555	9.388E+01
392	3.670E-01	433	2.870E+01	474	6.425E+01	515	9.348E+01	556	9.380E+01
393	2.594E-01	434	3.216E+01	475	6.329E+01	516	9.358E+01	557	9.380E+01
394	2.881E-01	435	3.549E+01	476	6.171E+01	517	9.427E+01	558	9.404E+01
395	3.205E-01	436	3.955E+01	477	6.101E+01	518	9.385E+01	559	9.358E+01
396	2.425E-01	437	4.489E+01	478	6.100E+01	519	9.492E+01	560	9.340E+01
397	2.860E-01	438	4.957E+01	479	6.116E+01	520	9.471E+01	561	9.351E+01
398	2.426E-01	439	5.626E+01	480	6.189E+01	521	9.529E+01	562	9.334E+01
399	3.208E-01	440	6.374E+01	481	6.271E+01	522	9.518E+01	563	9.310E+01
400	3.078E-01	441	7.225E+01	482	6.240E+01	523	9.548E+01	564	9.304E+01
401	4.529E-01	442	8.175E+01	483	6.364E+01	524	9.562E+01	565	9.283E+01
402	3.773E-01	443	9.287E+01	484	6.395E+01	525	9.595E+01	566	9.303E+01
403	5.391E-01	444	1.049E+02	485	6.445E+01	526	9.664E+01	567	9.330E+01
404	5.643E-01	445	1.175E+02	486	6.571E+01	527	9.575E+01	568	9.319E+01
405	6.762E-01	446	1.303E+02	487	6.661E+01	528	9.549E+01	569	9.266E+01
406	6.745E-01	447	1.436E+02	488	6.756E+01	529	9.586E+01	570	9.303E+01
407	9.178E-01	448	1.539E+02	489	6.856E+01	530	9.579E+01	571	9.287E+01
408	1.096E+00	449	1.626E+02	490	6.975E+01	531	9.573E+01	572	9.314E+01
409	1.238E+00	450	1.680E+02	491	7.096E+01	532	9.616E+01	573	9.282E+01
410	1.559E+00	451	1.708E+02	492	7.216E+01	533	9.573E+01	574	9.295E+01
411	1.694E+00	452	1.696E+02	493	7.350E+01	534	9.590E+01	575	9.310E+01
412	2.046E+00	453	1.635E+02	494	7.467E+01	535	9.565E+01	576	9.352E+01
413	2.306E+00	454	1.566E+02	495	7.604E+01	536	9.558E+01	577	9.344E+01
414	2.675E+00	455	1.475E+02	496	7.767E+01	537	9.574E+01	578	9.351E+01
415	3.207E+00	456	1.379E+02	497	7.949E+01	538	9.563E+01	579	9.354E+01
416	3.722E+00	457	1.288E+02	498	8.001E+01	539	9.622E+01	580	9.396E+01
417	4.236E+00	458	1.211E+02	499	8.129E+01	540	9.543E+01	581	9.415E+01
418	4.959E+00	459	1.147E+02	500	8.277E+01	541	9.544E+01	582	9.387E+01
419	5.669E+00	460	1.095E+02	501	8.372E+01	542	9.494E+01	583	9.413E+01
420	6.374E+00	461	1.058E+02	502	8.489E+01	543	9.503E+01	584	9.353E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	9.418E+01	626	9.101E+01	667	5.219E+01	708	1.857E+01	749	5.298E+00
586	9.478E+01	627	9.067E+01	668	5.123E+01	709	1.778E+01	750	5.256E+00
587	9.443E+01	628	8.984E+01	669	5.001E+01	710	1.736E+01	751	5.003E+00
588	9.470E+01	629	8.960E+01	670	4.901E+01	711	1.678E+01	752	4.862E+00
589	9.500E+01	630	8.879E+01	671	4.795E+01	712	1.644E+01	753	4.658E+00
590	9.509E+01	631	8.837E+01	672	4.692E+01	713	1.605E+01	754	4.611E+00
591	9.494E+01	632	8.709E+01	673	4.575E+01	714	1.545E+01	755	4.448E+00
592	9.561E+01	633	8.672E+01	674	4.485E+01	715	1.499E+01	756	4.327E+00
593	9.549E+01	634	8.572E+01	675	4.386E+01	716	1.480E+01	757	4.231E+00
594	9.557E+01	635	8.513E+01	676	4.294E+01	717	1.436E+01	758	4.031E+00
595	9.617E+01	636	8.432E+01	677	4.193E+01	718	1.396E+01	759	3.886E+00
596	9.614E+01	637	8.333E+01	678	4.097E+01	719	1.368E+01	760	3.803E+00
597	9.617E+01	638	8.214E+01	679	4.017E+01	720	1.307E+01	761	3.699E+00
598	9.634E+01	639	8.141E+01	680	3.890E+01	721	1.286E+01	762	3.611E+00
599	9.644E+01	640	8.038E+01	681	3.807E+01	722	1.244E+01	763	3.488E+00
600	9.685E+01	641	7.993E+01	682	3.743E+01	723	1.197E+01	764	3.364E+00
601	9.632E+01	642	7.859E+01	683	3.655E+01	724	1.159E+01	765	3.234E+00
602	9.678E+01	643	7.779E+01	684	3.566E+01	725	1.113E+01	766	3.137E+00
603	9.725E+01	644	7.674E+01	685	3.449E+01	726	1.099E+01	767	3.061E+00
604	9.697E+01	645	7.572E+01	686	3.400E+01	727	1.060E+01	768	3.048E+00
605	9.684E+01	646	7.485E+01	687	3.299E+01	728	1.043E+01	769	2.936E+00
606	9.732E+01	647	7.408E+01	688	3.204E+01	729	9.991E+00	770	2.793E+00
607	9.663E+01	648	7.308E+01	689	3.119E+01	730	9.688E+00	771	2.620E+00
608	9.740E+01	649	7.230E+01	690	3.048E+01	731	9.190E+00	772	2.521E+00
609	9.693E+01	650	7.042E+01	691	2.975E+01	732	9.128E+00	773	2.566E+00
610	9.700E+01	651	6.937E+01	692	2.910E+01	733	8.782E+00	774	2.370E+00
611	9.725E+01	652	6.890E+01	693	2.812E+01	734	8.558E+00	775	2.366E+00
612	9.677E+01	653	6.767E+01	694	2.752E+01	735	8.393E+00	776	2.240E+00
613	9.640E+01	654	6.637E+01	695	2.682E+01	736	8.176E+00	777	2.299E+00
614	9.614E+01	655	6.530E+01	696	2.613E+01	737	7.762E+00	778	2.192E+00
615	9.628E+01	656	6.416E+01	697	2.547E+01	738	7.529E+00	779	2.103E+00
616	9.586E+01	657	6.285E+01	698	2.455E+01	739	7.214E+00	780	2.002E+00
617	9.546E+01	658	6.219E+01	699	2.392E+01	740	7.100E+00		
618	9.586E+01	659	6.072E+01	700	2.292E+01	741	6.764E+00		
619	9.468E+01	660	5.964E+01	701	2.257E+01	742	6.632E+00		
620	9.486E+01	661	5.856E+01	702	2.199E+01	743	6.423E+00		
621	9.421E+01	662	5.791E+01	703	2.104E+01	744	6.159E+00		
622	9.342E+01	663	5.668E+01	704	2.051E+01	745	6.012E+00		
623	9.280E+01	664	5.539E+01	705	1.982E+01	746	5.907E+00		
624	9.202E+01	665	5.430E+01	706	1.942E+01	747	5.676E+00		
625	9.181E+01	666	5.337E+01	707	1.903E+01	748	5.523E+00		

CIE 1931 x y Chromaticity Diagram

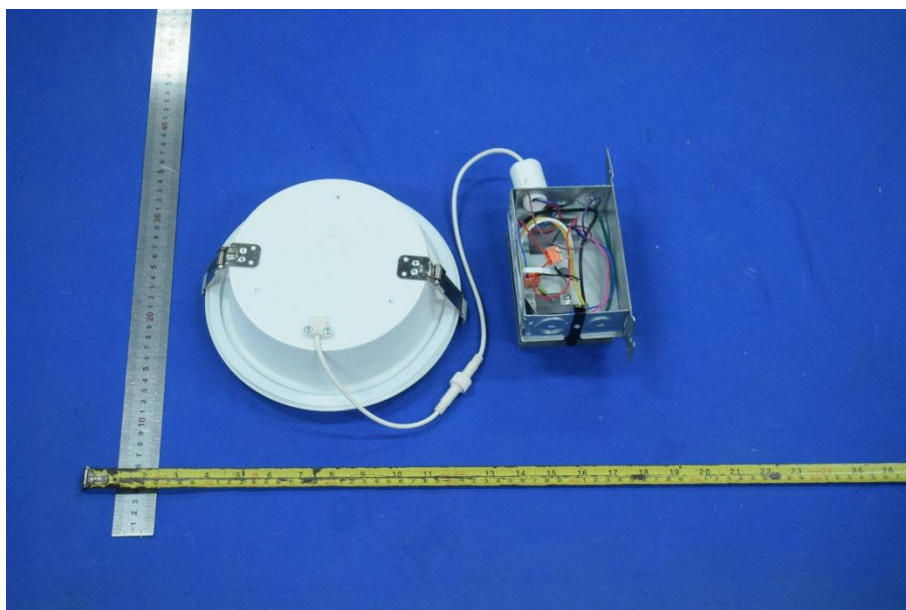
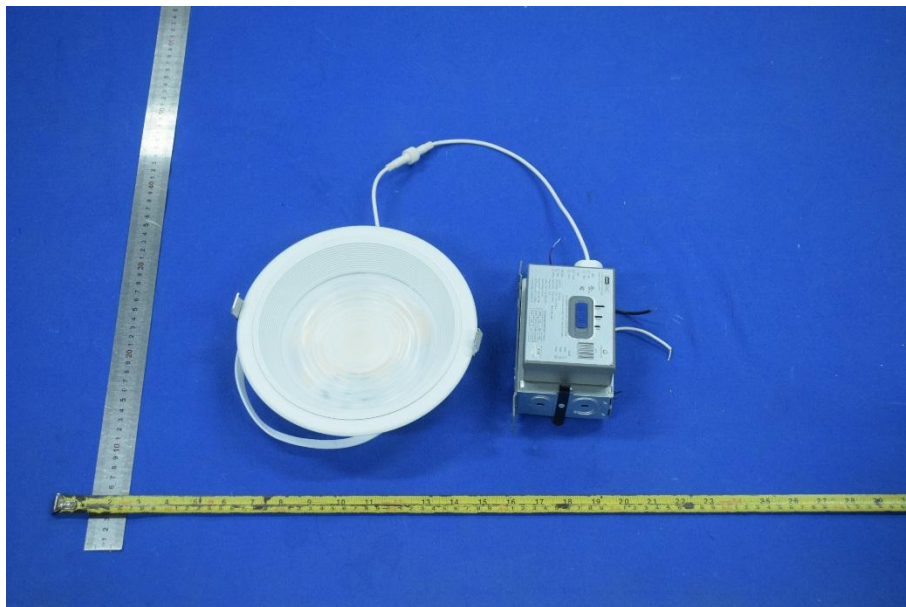


7-Step Chromaticity Quadrangles





## 6. Product Photo



## Directions

1. The information marked "superscript #" is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. This report includes some test methods are not in NVLAP accreditation scope marked \*.
3. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
5. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor  $K=2$  with the 95% confidence interval.
6. This report cannot be reproduced except in full, without prior written approval of the Company.
7. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

\*\*\*\*\*END OF REPORT\*\*\*\*\*