

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/M9CCT5S/DUALDIM/MD/WBW

Report Type:	Electrical and Photometric tests including: Luminous Flux, Power Factor, Chromaticity, Luminous Intensity Distribution, THD
Reviewed By:	Ezer Pan <i>Ezer Pan</i>
Report Number:	KS2231204-72559E-EE-1
Test Date:	2023-12-09 to 2024-03-23
Report Date:	2024-04-18
Approved by:	Blake Zhang / EE Engineer
Prepared By:	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
Test Location 1:	Test facility was located at No.12, Pulong East 1 st Road, Tangxia Town, Dongguan, Guangdong, China.
Test Location 2:	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[#]

General Information:

One test sample was in good condition and received on 2023-12-04, and used for testing.

Model Tested: NYXDM8RD/M9CCT5S/DUALDIM/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: 120-277V,50/60Hz
Rated Power: 25/30/41W
Nominal CCT: 2700K/3000K/3500K/4000K/5000K
Nominal Lumen Output: 3895lm(2700K),3936lm(3000K),4100lm(3500K),4100lm(4000K),4100lm(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 frequency power supply	ALL Power	APW-105N	970613	2023-09-02	2024-09-01

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
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.

4π 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 (γ) 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 (γ) 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_i , 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%**

The Stabilization time: **30 minutes**

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

Test orientation: **Downward**

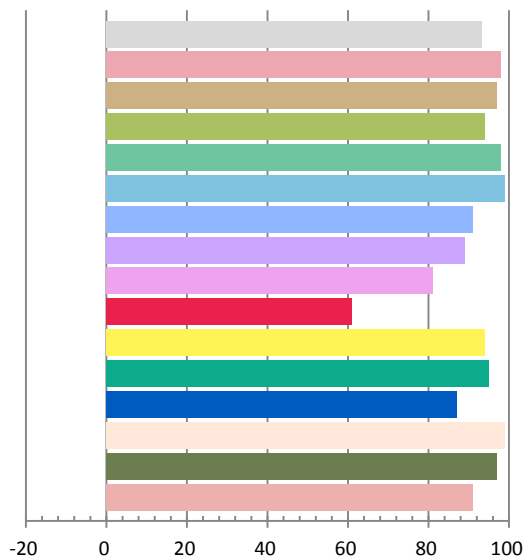
Photometric and Electrical Measurement Result

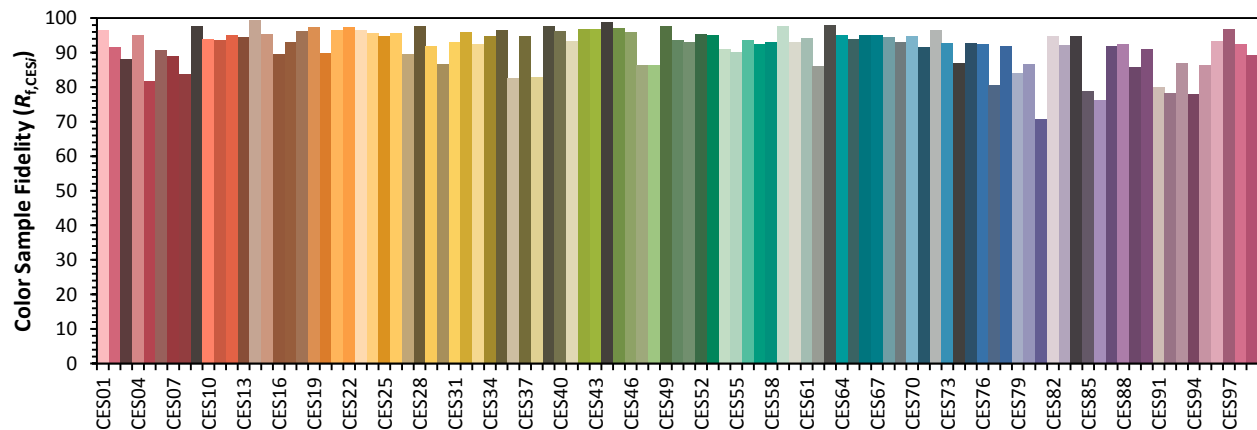
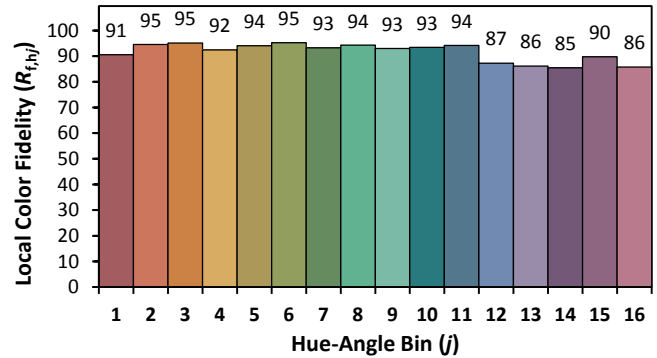
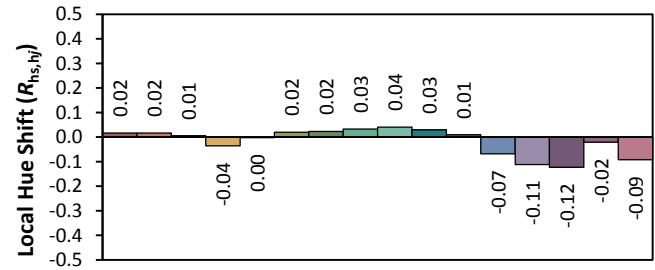
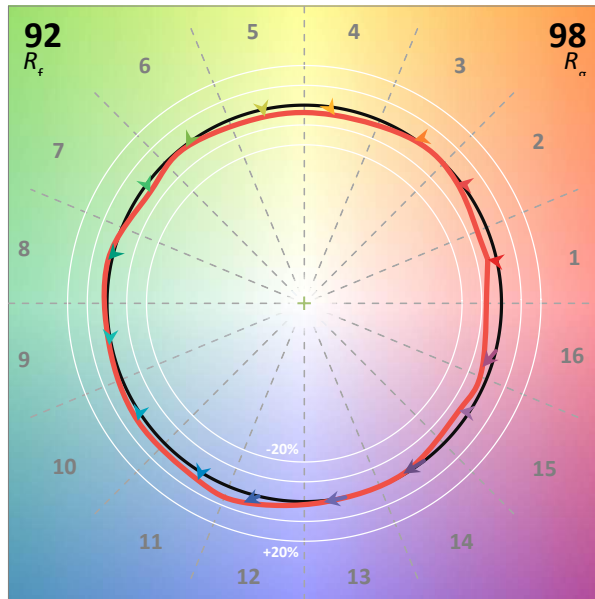
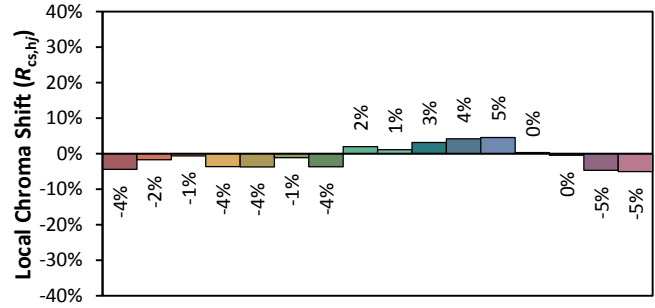
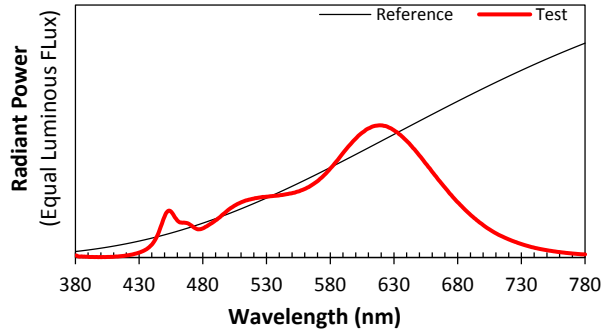
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120	60	0.329	38.95	0.9863	3971.3	101.95

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
13.71	2710	-0.00115	0.4571	0.4069	0.2624	0.5255

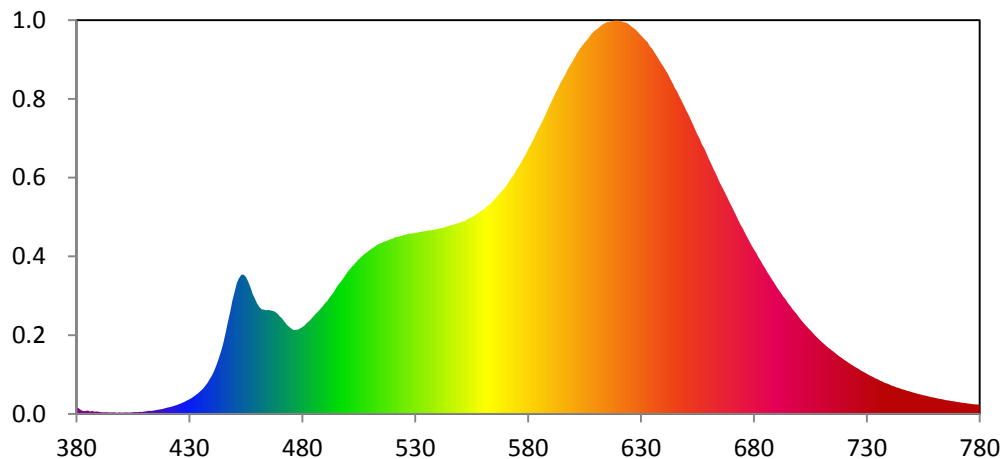
Color Rendering Index

Ra			
93.3			
R1	R2	R3	R4
98	97	94	98
R5	R6	R7	R8
99	91	89	81
R9	R10	R11	R12
61	94	95	87
R13	R14	R15	
99	97	91	





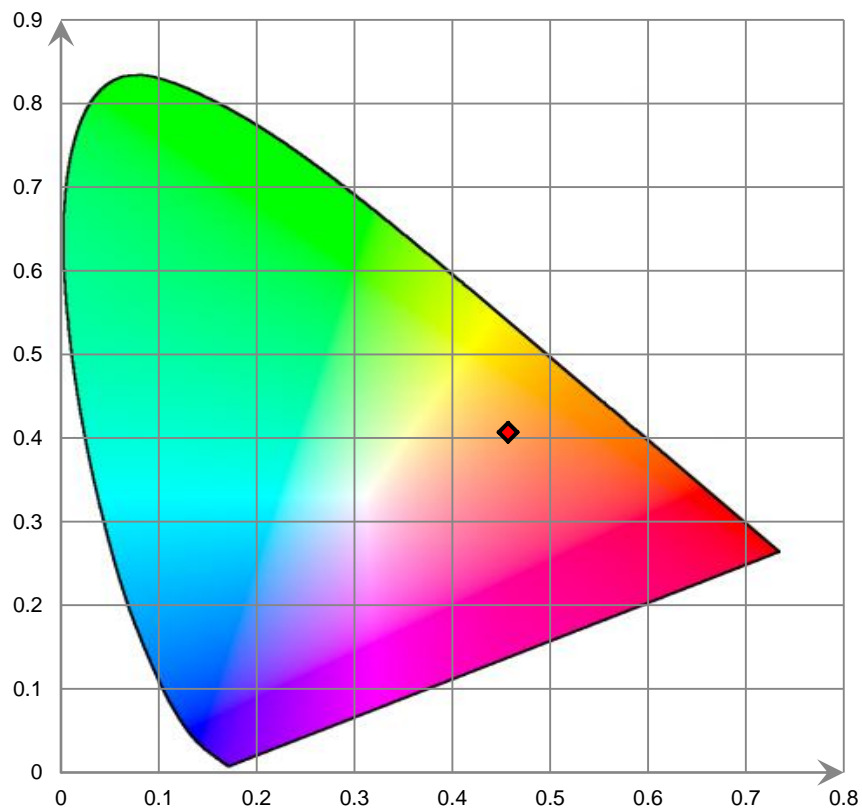
Relative Spectral Power Distribution



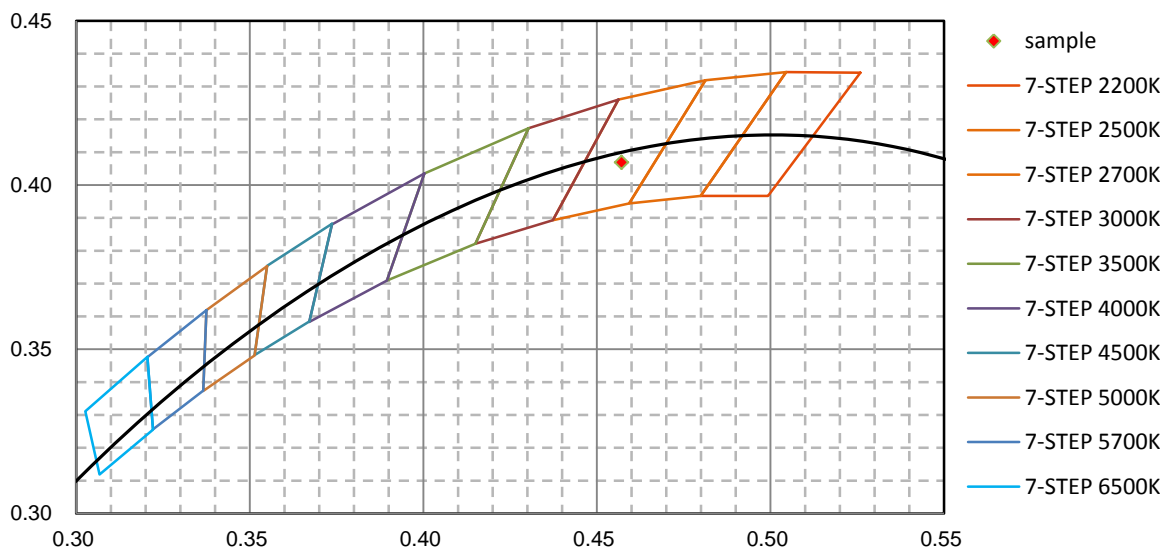
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	1.413E+00	421	1.541E+00	462	2.429E+01	503	3.473E+01	544	4.349E+01
381	1.337E+00	422	1.662E+00	463	2.421E+01	504	3.532E+01	545	4.367E+01
382	8.905E-01	423	1.867E+00	464	2.405E+01	505	3.590E+01	546	4.382E+01
383	6.810E-01	424	1.986E+00	465	2.414E+01	506	3.637E+01	547	4.394E+01
384	6.893E-01	425	2.174E+00	466	2.402E+01	507	3.691E+01	548	4.420E+01
385	7.953E-01	426	2.421E+00	467	2.391E+01	508	3.729E+01	549	4.428E+01
386	5.670E-01	427	2.647E+00	468	2.369E+01	509	3.770E+01	550	4.443E+01
387	6.952E-01	428	2.845E+00	469	2.330E+01	510	3.811E+01	551	4.472E+01
388	5.305E-01	429	3.140E+00	470	2.268E+01	511	3.848E+01	552	4.480E+01
389	6.015E-01	430	3.420E+00	471	2.216E+01	512	3.880E+01	553	4.516E+01
390	4.714E-01	431	3.724E+00	472	2.146E+01	513	3.917E+01	554	4.548E+01
391	3.860E-01	432	4.082E+00	473	2.080E+01	514	3.948E+01	555	4.565E+01
392	3.655E-01	433	4.449E+00	474	2.030E+01	515	3.965E+01	556	4.593E+01
393	4.056E-01	434	4.874E+00	475	1.987E+01	516	3.995E+01	557	4.638E+01
394	3.744E-01	435	5.364E+00	476	1.951E+01	517	4.011E+01	558	4.665E+01
395	3.332E-01	436	5.868E+00	477	1.954E+01	518	4.033E+01	559	4.701E+01
396	3.430E-01	437	6.533E+00	478	1.958E+01	519	4.056E+01	560	4.739E+01
397	3.719E-01	438	7.214E+00	479	1.982E+01	520	4.069E+01	561	4.778E+01
398	2.623E-01	439	8.102E+00	480	2.016E+01	521	4.101E+01	562	4.830E+01
399	3.554E-01	440	8.932E+00	481	2.054E+01	522	4.109E+01	563	4.865E+01
400	2.706E-01	441	1.006E+01	482	2.113E+01	523	4.124E+01	564	4.920E+01
401	3.090E-01	442	1.137E+01	483	2.153E+01	524	4.139E+01	565	4.977E+01
402	3.652E-01	443	1.285E+01	484	2.211E+01	525	4.153E+01	566	5.035E+01
403	3.103E-01	444	1.457E+01	485	2.269E+01	526	4.167E+01	567	5.093E+01
404	3.420E-01	445	1.648E+01	486	2.327E+01	527	4.187E+01	568	5.155E+01
405	4.015E-01	446	1.879E+01	487	2.376E+01	528	4.186E+01	569	5.213E+01
406	4.178E-01	447	2.128E+01	488	2.438E+01	529	4.192E+01	570	5.276E+01
407	4.096E-01	448	2.357E+01	489	2.499E+01	530	4.204E+01	571	5.349E+01
408	4.799E-01	449	2.623E+01	490	2.568E+01	531	4.207E+01	572	5.436E+01
409	4.547E-01	450	2.830E+01	491	2.619E+01	532	4.221E+01	573	5.504E+01
410	5.489E-01	451	3.037E+01	492	2.700E+01	533	4.235E+01	574	5.584E+01
411	6.178E-01	452	3.155E+01	493	2.763E+01	534	4.241E+01	575	5.674E+01
412	7.239E-01	453	3.229E+01	494	2.835E+01	535	4.251E+01	576	5.758E+01
413	6.820E-01	454	3.234E+01	495	2.926E+01	536	4.261E+01	577	5.846E+01
414	7.883E-01	455	3.178E+01	496	2.999E+01	537	4.266E+01	578	5.947E+01
415	8.891E-01	456	3.075E+01	497	3.065E+01	538	4.275E+01	579	6.035E+01
416	9.706E-01	457	2.945E+01	498	3.139E+01	539	4.281E+01	580	6.145E+01
417	1.070E+00	458	2.789E+01	499	3.216E+01	540	4.294E+01	581	6.240E+01
418	1.142E+00	459	2.680E+01	500	3.293E+01	541	4.314E+01	582	6.335E+01
419	1.283E+00	460	2.561E+01	501	3.359E+01	542	4.318E+01	583	6.445E+01
420	1.426E+00	461	2.486E+01	502	3.423E+01	543	4.333E+01	584	6.553E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	6.655E+01	626	8.984E+01	667	5.151E+01	708	1.776E+01	749	5.222E+00
586	6.756E+01	627	8.949E+01	668	5.048E+01	709	1.722E+01	750	5.057E+00
587	6.875E+01	628	8.906E+01	669	4.937E+01	710	1.675E+01	751	4.905E+00
588	6.988E+01	629	8.845E+01	670	4.836E+01	711	1.628E+01	752	4.738E+00
589	7.104E+01	630	8.791E+01	671	4.730E+01	712	1.577E+01	753	4.636E+00
590	7.216E+01	631	8.729E+01	672	4.626E+01	713	1.535E+01	754	4.496E+00
591	7.328E+01	632	8.675E+01	673	4.510E+01	714	1.495E+01	755	4.345E+00
592	7.433E+01	633	8.625E+01	674	4.402E+01	715	1.456E+01	756	4.235E+00
593	7.539E+01	634	8.528E+01	675	4.315E+01	716	1.415E+01	757	4.103E+00
594	7.647E+01	635	8.472E+01	676	4.203E+01	717	1.372E+01	758	3.954E+00
595	7.746E+01	636	8.390E+01	677	4.106E+01	718	1.334E+01	759	3.853E+00
596	7.839E+01	637	8.310E+01	678	4.010E+01	719	1.296E+01	760	3.780E+00
597	7.940E+01	638	8.223E+01	679	3.909E+01	720	1.257E+01	761	3.647E+00
598	8.041E+01	639	8.140E+01	680	3.821E+01	721	1.223E+01	762	3.530E+00
599	8.130E+01	640	8.056E+01	681	3.740E+01	722	1.185E+01	763	3.438E+00
600	8.217E+01	641	7.969E+01	682	3.640E+01	723	1.150E+01	764	3.343E+00
601	8.308E+01	642	7.883E+01	683	3.560E+01	724	1.118E+01	765	3.202E+00
602	8.404E+01	643	7.775E+01	684	3.463E+01	725	1.084E+01	766	3.147E+00
603	8.479E+01	644	7.677E+01	685	3.375E+01	726	1.060E+01	767	3.032E+00
604	8.553E+01	645	7.567E+01	686	3.284E+01	727	1.019E+01	768	2.967E+00
605	8.622E+01	646	7.486E+01	687	3.204E+01	728	9.892E+00	769	2.885E+00
606	8.681E+01	647	7.375E+01	688	3.121E+01	729	9.608E+00	770	2.791E+00
607	8.744E+01	648	7.269E+01	689	3.042E+01	730	9.326E+00	771	2.706E+00
608	8.823E+01	649	7.158E+01	690	2.957E+01	731	9.024E+00	772	2.643E+00
609	8.876E+01	650	7.048E+01	691	2.877E+01	732	8.756E+00	773	2.567E+00
610	8.920E+01	651	6.949E+01	692	2.808E+01	733	8.482E+00	774	2.469E+00
611	8.954E+01	652	6.833E+01	693	2.725E+01	734	8.223E+00	775	2.413E+00
612	9.002E+01	653	6.720E+01	694	2.662E+01	735	8.003E+00	776	2.330E+00
613	9.045E+01	654	6.599E+01	695	2.578E+01	736	7.724E+00	777	2.271E+00
614	9.071E+01	655	6.487E+01	696	2.515E+01	737	7.484E+00	778	2.221E+00
615	9.096E+01	656	6.388E+01	697	2.438E+01	738	7.213E+00	779	2.189E+00
616	9.108E+01	657	6.261E+01	698	2.376E+01	739	7.050E+00	780	2.193E+00
617	9.118E+01	658	6.168E+01	699	2.315E+01	740	6.830E+00		
618	9.131E+01	659	6.046E+01	700	2.243E+01	741	6.583E+00		
619	9.136E+01	660	5.923E+01	701	2.175E+01	742	6.431E+00		
620	9.130E+01	661	5.818E+01	702	2.113E+01	743	6.211E+00		
621	9.127E+01	662	5.699E+01	703	2.051E+01	744	6.036E+00		
622	9.099E+01	663	5.599E+01	704	1.995E+01	745	5.851E+00		
623	9.091E+01	664	5.479E+01	705	1.941E+01	746	5.691E+00		
624	9.069E+01	665	5.361E+01	706	1.885E+01	747	5.533E+00		
625	9.032E+01	666	5.264E+01	707	1.829E+01	748	5.361E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



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

The photometric distance: **2.513m**

The Stabilization time: **30 minutes**

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

Test orientation: **Downward**

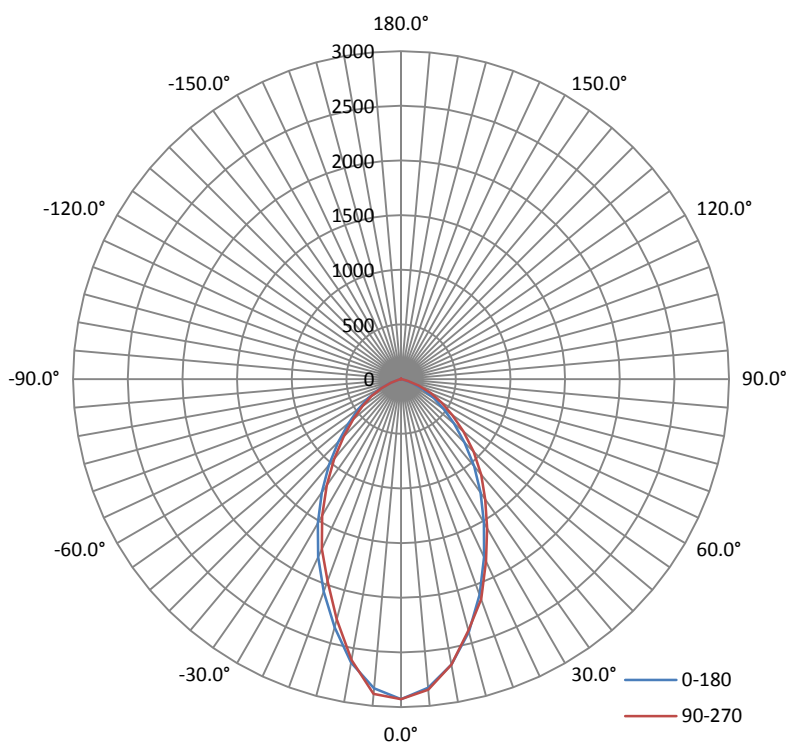
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.02	60	0.3291	38.960	0.9864

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I _{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
3978.76	102.12	2943	0.87	0.88

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I _{max}):	62.0	62.9	61.6	63.5	62.5
Field Angle (10% I _{max}):	124.1	127.9	126.0	128.2	126.6

Luminous Intensity (cd) Distribution Data

C Y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0°	2928	2928	2928	2928	2928	2928	2928	2928
1°	2920	2916	2931	2934	2933	2927	2919	2915
2°	2904	2912	2935	2943	2940	2922	2903	2889
3°	2888	2900	2936	2943	2943	2913	2886	2866
4°	2869	2884	2917	2926	2926	2892	2850	2837
5°	2838	2850	2886	2895	2890	2858	2816	2797
6°	2799	2823	2845	2854	2841	2828	2792	2766
7°	2766	2795	2806	2790	2787	2793	2755	2735
8°	2729	2750	2758	2724	2724	2751	2716	2693
9°	2687	2702	2718	2664	2670	2707	2665	2638
10°	2634	2651	2675	2615	2610	2649	2602	2585
11°	2578	2587	2626	2561	2547	2586	2542	2526
12°	2523	2530	2573	2496	2478	2532	2484	2457
13°	2465	2470	2517	2423	2406	2481	2430	2395
14°	2408	2419	2461	2353	2338	2430	2379	2337
15°	2351	2367	2405	2287	2274	2370	2327	2280
16°	2292	2320	2343	2224	2207	2311	2273	2225
17°	2237	2269	2277	2161	2146	2246	2214	2172
18°	2179	2213	2208	2101	2083	2179	2156	2118
19°	2128	2155	2140	2044	2026	2111	2095	2062
20°	2070	2095	2073	1988	1967	2044	2032	2006
21°	2011	2031	2007	1933	1914	1976	1978	1949
22°	1955	1974	1945	1881	1864	1913	1919	1893
23°	1901	1913	1884	1826	1813	1851	1859	1838
24°	1847	1857	1824	1774	1763	1792	1801	1786
25°	1794	1800	1767	1723	1713	1732	1743	1731
26°	1737	1740	1708	1669	1659	1677	1687	1677
27°	1683	1683	1652	1613	1603	1622	1629	1624
28°	1627	1627	1594	1557	1549	1565	1573	1571
29°	1574	1572	1542	1502	1497	1510	1520	1517
30°	1523	1519	1487	1447	1443	1455	1467	1464
31°	1468	1462	1431	1392	1388	1400	1415	1411
32°	1416	1411	1378	1342	1337	1349	1364	1362
33°	1364	1357	1325	1290	1285	1293	1313	1310
34°	1313	1308	1273	1242	1236	1244	1264	1262
35°	1263	1259	1223	1196	1186	1196	1215	1215
36°	1215	1207	1174	1146	1136	1148	1168	1167
37°	1166	1159	1127	1100	1092	1103	1120	1119
38°	1120	1111	1080	1052	1042	1056	1075	1073
39°	1073	1065	1036	1006	998	1012	1032	1028
40°	1028	1021	993	960	953	968	989	983
41°	982	976	950	916	907	925	947	940
42°	939	936	908	872	865	885	907	897
43°	895	895	866	829	822	845	868	855
44°	854	857	828	789	781	806	830	816
45°	813	820	790	750	742	769	793	778
46°	773	781	753	711	703	732	758	739
47°	735	746	718	675	668	697	723	702
48°	698	710	683	640	633	664	688	667

Luminous Intensity (cd) Distribution Data

$\begin{matrix} \text{C} \\ \backslash \\ \gamma \end{matrix}$	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
49°	662	676	650	617	603	630	654	633
50°	628	642	618	583	573	601	624	602
51°	597	609	589	548	542	571	595	572
52°	566	582	561	519	513	542	566	541
53°	535	554	532	491	485	513	536	511
54°	506	525	503	464	458	485	507	482
55°	477	496	475	438	431	458	479	455
56°	449	468	447	412	405	432	452	428
57°	422	441	421	387	381	407	425	403
58°	396	414	396	363	357	382	399	379
59°	372	389	372	340	334	358	375	355
60°	346	364	349	318	312	335	351	332
61°	320	340	325	296	291	313	327	309
62°	294	314	303	274	269	291	304	286
63°	268	289	280	251	246	268	280	262
64°	243	263	256	227	223	244	255	238
65°	218	237	231	204	200	220	229	213
66°	195	212	207	181	177	196	205	189
67°	172	187	184	159	155	174	182	167
68°	150	165	162	138	135	153	160	145
69°	129	143	142	118	115	133	139	124
70°	109	122	122	100	97	113	119	105
71°	90	103	103	82	79	95	100	86
72°	71	84	85	65	63	78	83	68
73°	57	66	69	52	50	62	66	54
74°	42	51	54	39	38	48	51	39
75°	27	36	39	26	25	34	36	25
76°	19	21	24	17	16	20	22	17
77°	12	14	15	11	11	13	13	11
78°	7	8	9	7	6	7	8	6
79°	5	6	7	5	4	6	6	5
80°	3	4	5	3	3	4	4	3
81°	3	3	2	2	2	2	2	3
82°	2	2	2	2	2	2	2	2
83°	2	2	2	2	2	2	2	2
84°	2	2	1	1	1	1	2	2
85°	1	1	1	1	1	1	1	1
86°	1	1	1	1	1	1	1	1
87°	1	1	1	1	1	1	1	1
88°	1	1	0	0	0	0	0	0
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

C γ	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°	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	1	1	1	0	0
119°	0	0	1	1	1	1	1	0
120°	0	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°	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	2	2	2	2	1
137°	1	2	2	2	2	2	2	2
138°	2	2	2	2	2	2	2	2
139°	2	2	2	2	2	2	2	2
140°	2	2	2	2	2	2	2	2
141°	2	2	2	2	2	2	2	2
142°	2	2	2	2	2	2	2	2
143°	2	2	2	3	3	3	2	2
144°	2	2	3	3	3	3	3	2
145°	2	3	3	3	3	3	3	2
146°	2	3	3	3	3	3	3	3

Luminous Intensity (cd) Distribution Data

C γ	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
147°	3	3	3	3	3	3	3	3
148°	3	3	3	3	3	3	3	3
149°	3	3	3	3	3	3	3	3
150°	3	3	3	3	3	3	3	3
151°	3	3	3	4	4	4	3	3
152°	3	3	4	4	4	4	3	3
153°	3	3	4	4	4	4	4	3
154°	3	4	4	4	4	4	4	3
155°	3	4	4	4	4	4	4	4
156°	4	4	4	4	4	4	4	4
157°	4	4	4	4	4	4	4	4
158°	4	4	4	4	4	4	4	4
159°	4	4	4	4	4	4	4	4
160°	4	4	4	4	4	4	4	4
161°	4	4	4	4	4	4	4	4
162°	4	4	4	4	4	4	4	4
163°	4	4	4	4	4	4	4	4
164°	4	4	4	4	4	4	4	4
165°	4	4	4	4	4	4	4	4
166°	4	4	4	4	4	4	4	4
167°	4	4	4	4	4	4	4	4
168°	4	4	4	4	4	4	4	4
169°	4	4	4	4	4	4	4	4
170°	4	4	4	4	4	4	4	4
171°	4	4	4	4	4	4	4	4
172°	4	3	4	4	3	4	3	3
173°	3	3	3	3	3	3	3	3
174°	3	3	3	3	3	3	3	3
175°	3	3	3	3	3	3	3	3
176°	3	3	3	3	3	3	3	3
177°	3	3	3	3	3	3	3	3
178°	3	3	3	3	3	3	3	3
179°	3	3	3	3	3	3	3	3
180°	3	3	3	3	3	3	3	3

Luminous Intensity (cd) Distribution Data (cont.)

$\begin{matrix} \text{C} \\ \diagdown \\ \text{Y} \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0°	2928	2928	2928	2928	2928	2928	2928	2928
1°	2919	2914	2918	2916	2921	2921	2924	2927
2°	2891	2889	2897	2904	2909	2912	2916	2910
3°	2867	2861	2879	2887	2893	2894	2889	2886
4°	2853	2839	2857	2868	2869	2866	2872	2868
5°	2835	2822	2831	2842	2851	2845	2858	2850
6°	2795	2801	2807	2812	2824	2827	2843	2830
7°	2752	2764	2779	2782	2789	2799	2817	2809
8°	2715	2724	2740	2744	2749	2759	2783	2782
9°	2687	2688	2687	2693	2704	2713	2751	2758
10°	2651	2652	2628	2634	2652	2659	2720	2724
11°	2608	2606	2566	2572	2595	2608	2677	2682
12°	2550	2560	2508	2520	2539	2556	2638	2640
13°	2492	2510	2453	2475	2480	2507	2585	2586
14°	2439	2458	2403	2430	2431	2460	2537	2533
15°	2394	2399	2356	2382	2380	2418	2485	2478
16°	2342	2341	2308	2329	2336	2371	2429	2423
17°	2289	2280	2260	2277	2292	2325	2368	2364
18°	2227	2217	2211	2215	2246	2267	2306	2303
19°	2163	2153	2164	2153	2196	2211	2243	2240
20°	2098	2095	2120	2093	2142	2154	2182	2177
21°	2038	2035	2075	2033	2084	2100	2122	2113
22°	1976	1979	2028	1975	2024	2048	2068	2048
23°	1912	1924	1980	1915	1956	1996	2013	1988
24°	1852	1873	1931	1859	1898	1943	1964	1929
25°	1797	1823	1878	1802	1838	1889	1913	1873
26°	1741	1776	1824	1747	1781	1838	1865	1818
27°	1687	1724	1771	1698	1728	1784	1815	1762
28°	1629	1673	1716	1646	1676	1729	1763	1704
29°	1574	1620	1660	1599	1625	1676	1709	1647
30°	1517	1572	1605	1552	1573	1621	1654	1591
31°	1463	1520	1552	1508	1527	1569	1600	1534
32°	1410	1466	1497	1464	1477	1517	1543	1478
33°	1359	1414	1445	1420	1430	1469	1489	1425
34°	1312	1363	1394	1379	1387	1418	1434	1373
35°	1267	1316	1344	1335	1342	1372	1382	1324
36°	1223	1272	1303	1297	1303	1328	1330	1280
37°	1177	1227	1261	1259	1264	1286	1285	1235
38°	1131	1178	1219	1220	1225	1245	1240	1191
39°	1084	1131	1174	1178	1183	1203	1194	1145
40°	1040	1087	1131	1136	1141	1161	1149	1098
41°	995	1044	1089	1094	1100	1119	1104	1051
42°	950	1002	1047	1053	1058	1077	1062	1006
43°	906	960	1005	1012	1019	1037	1019	962
44°	864	919	966	972	979	995	978	917
45°	822	880	927	931	939	957	937	875
46°	781	842	889	891	899	917	897	833
47°	742	804	853	852	860	879	860	792
48°	704	768	816	812	821	839	822	752

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°	666	731	779	775	782	804	786	715
50°	631	697	744	738	744	768	750	680
51°	598	664	710	701	707	733	714	645
52°	565	631	675	666	672	699	681	611
53°	533	599	642	632	636	664	648	578
54°	504	568	610	599	603	631	615	546
55°	476	538	579	566	571	599	583	516
56°	448	508	548	534	540	568	553	487
57°	422	480	519	506	510	538	522	460
58°	396	452	490	477	480	508	494	432
59°	370	426	462	449	453	480	466	407
60°	346	401	434	423	426	452	439	382
61°	320	375	408	397	400	426	412	357
62°	295	350	383	372	375	400	387	333
63°	269	324	358	348	351	374	362	308
64°	244	297	333	323	326	349	338	284
65°	219	271	307	296	299	322	312	258
66°	197	245	280	269	272	295	286	233
67°	174	219	253	243	245	268	258	208
68°	152	194	227	217	219	241	232	184
69°	131	171	202	192	194	216	207	162
70°	110	149	178	168	170	191	182	140
71°	91	128	156	145	148	167	160	118
72°	74	106	134	122	125	145	138	99
73°	56	86	112	101	103	122	116	80
74°	41	66	92	81	82	102	96	62
75°	29	47	73	62	63	80	77	44
76°	22	31	55	46	46	58	58	31
77°	15	23	38	31	33	35	40	23
78°	8	15	27	23	20	25	31	16
79°	5	7	17	15	7	15	22	8
80°	3	4	7	7	6	5	13	5
81°	3	3	4	4	4	3	4	3
82°	3	3	3	3	2	2	3	3
83°	2	2	2	2	2	2	2	2
84°	2	2	2	2	1	1	2	2
85°	2	2	2	2	1	1	1	2
86°	1	1	1	1	1	1	1	1
87°	1	1	1	1	1	1	1	1
88°	1	1	1	1	1	1	0	1
89°	0	0	0	0	0	0	0	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 (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°	0	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°	0	0	0	0	0	0	0	0
124°	0	0	0	0	0	0	0	0
125°	0	0	0	0	0	0	0	0
126°	0	0	0	0	0	0	0	0
127°	0	0	0	0	0	0	0	0
128°	0	0	0	0	0	0	0	0
129°	0	0	0	0	0	0	0	0
130°	0	0	0	0	0	0	0	0
131°	0	0	0	0	0	0	0	0
132°	1	0	0	0	0	0	0	0
133°	1	1	0	1	0	1	0	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	1	1	1	1	1
145°	1	1	1	1	1	1	1	1
146°	1	1	1	1	1	1	1	1

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°	1	1	1	1	1	1	1	1
148°	1	1	1	1	1	1	1	1
149°	1	1	1	1	1	1	1	1
150°	1	1	1	1	1	1	1	1
151°	1	1	1	1	1	1	1	1
152°	1	1	1	1	1	1	1	1
153°	1	1	1	1	1	1	1	1
154°	1	1	1	1	1	1	1	1
155°	1	1	1	1	1	1	1	2
156°	1	1	1	1	1	2	1	2
157°	1	1	2	2	2	2	2	2
158°	2	1	2	2	2	2	2	2
159°	2	2	2	2	2	2	2	2
160°	2	2	2	2	2	2	2	2
161°	2	2	2	2	2	2	2	2
162°	2	2	2	2	2	2	2	2
163°	2	2	2	2	2	2	2	2
164°	2	2	2	2	2	2	2	2
165°	2	2	2	2	2	2	2	2
166°	2	2	2	2	2	2	2	2
167°	2	2	2	2	2	2	2	2
168°	2	2	2	2	2	2	2	2
169°	2	2	2	2	2	2	2	2
170°	2	2	2	2	2	2	2	2
171°	2	2	2	2	2	2	2	2
172°	2	2	2	2	2	2	2	2
173°	2	2	2	2	2	2	2	2
174°	2	2	2	2	2	2	2	2
175°	2	2	2	2	2	2	2	2
176°	3	2	2	2	2	2	2	2
177°	3	3	3	2	2	2	2	3
178°	3	3	3	3	2	2	3	3
179°	3	3	3	3	3	3	3	3
180°	3	3	3	3	3	3	3	3

Zonal Lumen Density Measurement

Deg	Flux (lm)	%
0-5	69.0	1.73
5-10	196.5	4.94
10-15	296.6	7.46
15-20	366.5	9.21
20-25	406.0	10.20
25-30	420.6	10.57
30-35	411.9	10.35
35-40	387.7	9.75
40-45	350.0	8.79
45-50	303.4	7.63
50-55	253.8	6.38
55-60	203.2	5.11
60-65	152.6	3.83
65-70	97.2	2.45
70-75	46.2	1.16
75-80	10.7	0.27
80-85	1.3	0.03
85-90	0.4	0.01
90-95	0.1	0.00
95-100	0.1	0.00
100-105	0.1	0.00
105-110	0.1	0.01
110-115	0.1	0.00
115-120	0.2	0.00
120-125	0.2	0.01
125-130	0.3	0.01
130-135	0.3	0.00
135-140	0.4	0.02
140-145	0.5	0.01
145-150	0.6	0.01
150-155	0.6	0.02
155-160	0.6	0.01
160-165	0.5	0.01
165-170	0.3	0.01
170-175	0.2	0.01
175-180	0.1	0.00

Deg	Flux (lm)	%
0-5	69.0	1.73
0-10	265.4	6.67
0-15	562.0	14.13
0-20	928.6	23.34
0-25	1334.6	33.54
0-30	1755.1	44.11
0-35	2167.0	54.46
0-40	2554.7	64.21
0-45	2904.6	73.00
0-50	3208.1	80.63
0-55	3461.9	87.01
0-60	3665.1	92.12
0-65	3817.8	95.95
0-70	3915.0	98.40
0-75	3961.1	99.56
0-80	3971.8	99.83
0-85	3973.2	99.86
0-90	3973.6	99.87
0-95	3973.6	99.87
0-100	3973.7	99.87
0-105	3973.7	99.87
0-110	3973.8	99.88
0-115	3974.0	99.88
0-120	3974.1	99.88
0-125	3974.3	99.89
0-130	3974.6	99.90
0-135	3974.9	99.90
0-140	3975.4	99.92
0-145	3975.9	99.93
0-150	3976.5	99.94
0-155	3977.1	99.96
0-160	3977.7	99.97
0-165	3978.2	99.98
0-170	3978.5	99.99
0-175	3978.7	100.00
0-180	3978.8	100.00

[Additional Test]

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120	60	13.80%

[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**

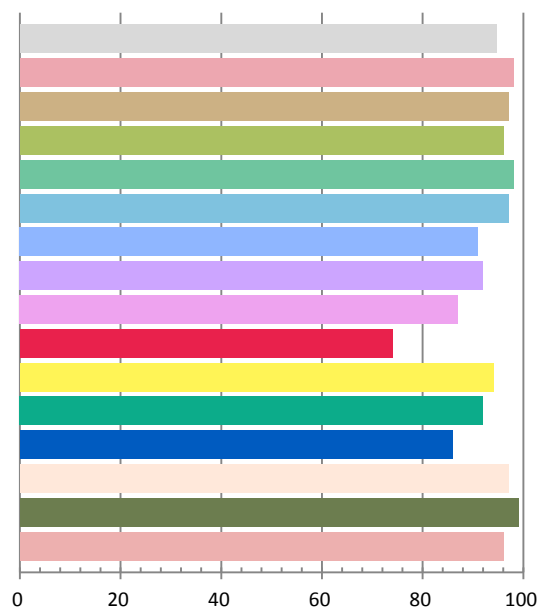
Photometric and Electrical Measurement Result

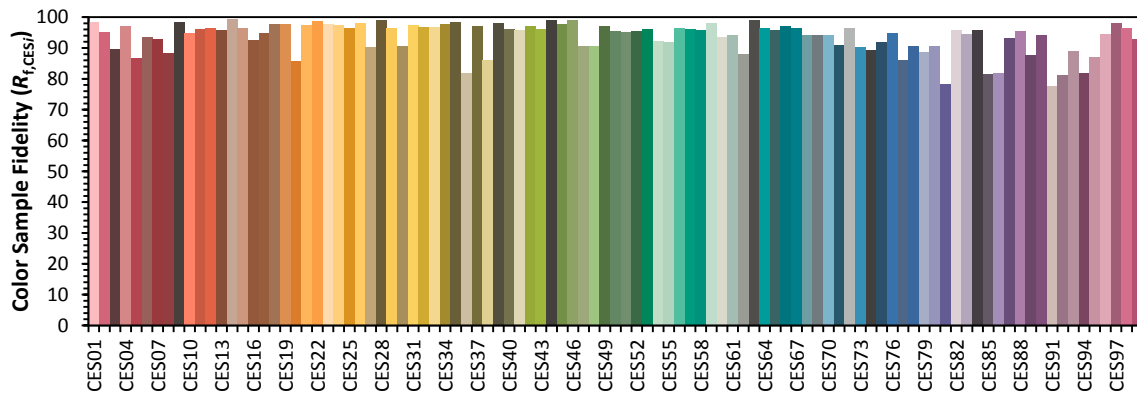
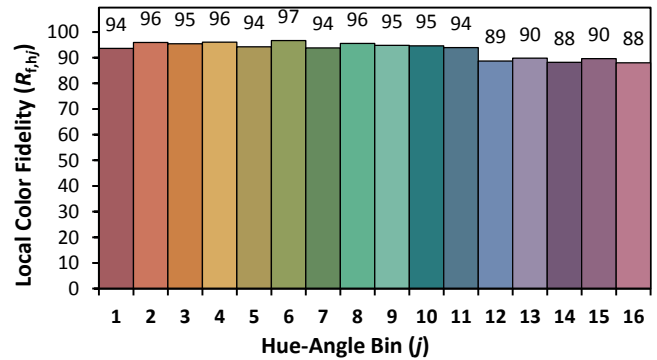
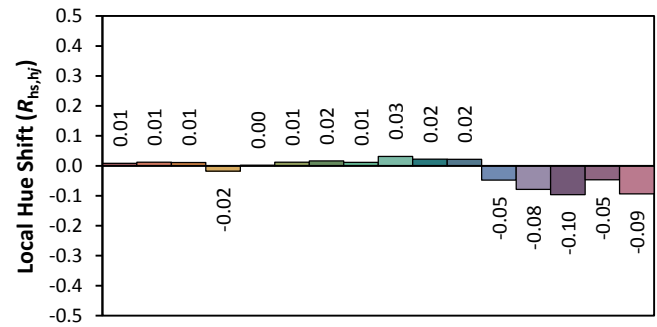
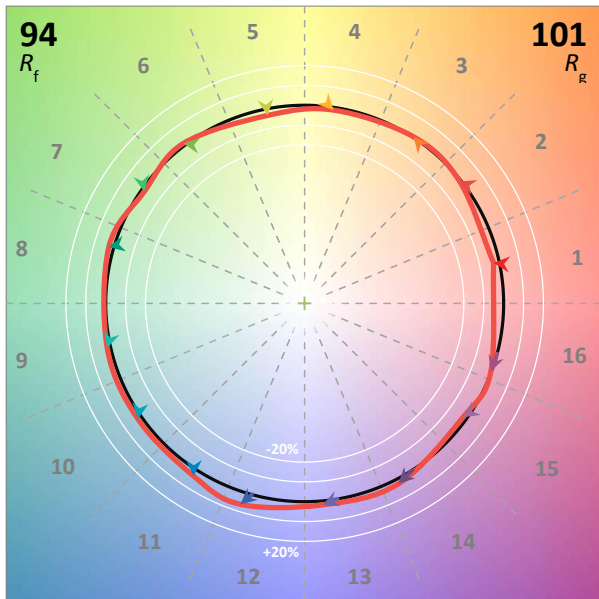
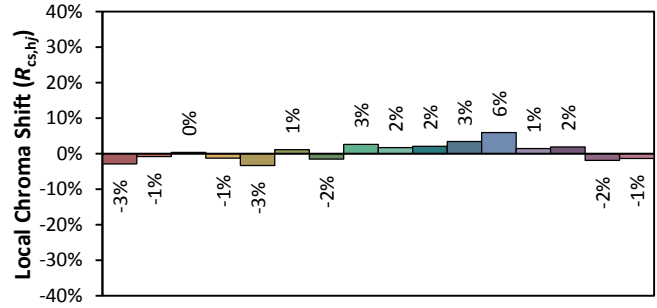
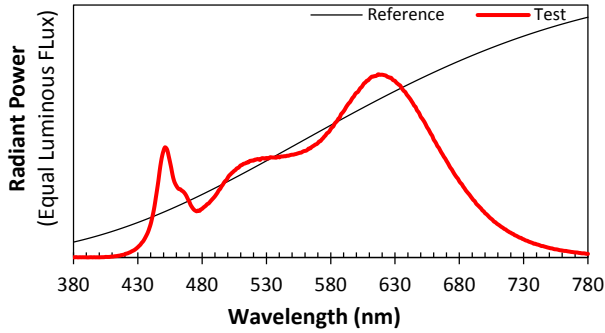
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.3285	38.89	0.9865	4133.1	106.28

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
14.255	3065	-0.00320	0.4280	0.3930	0.2495	0.5156

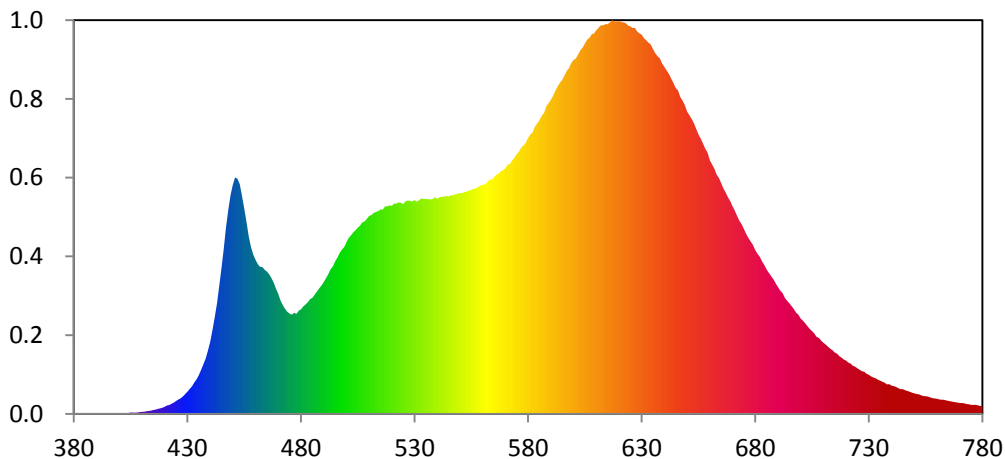
Color Rendering Index

Ra			
94.6			
R1	R2	R3	R4
98	97	96	98
R5	R6	R7	R8
97	91	92	87
R9	R10	R11	R12
74	94	92	86
R13	R14	R15	
97	99	96	





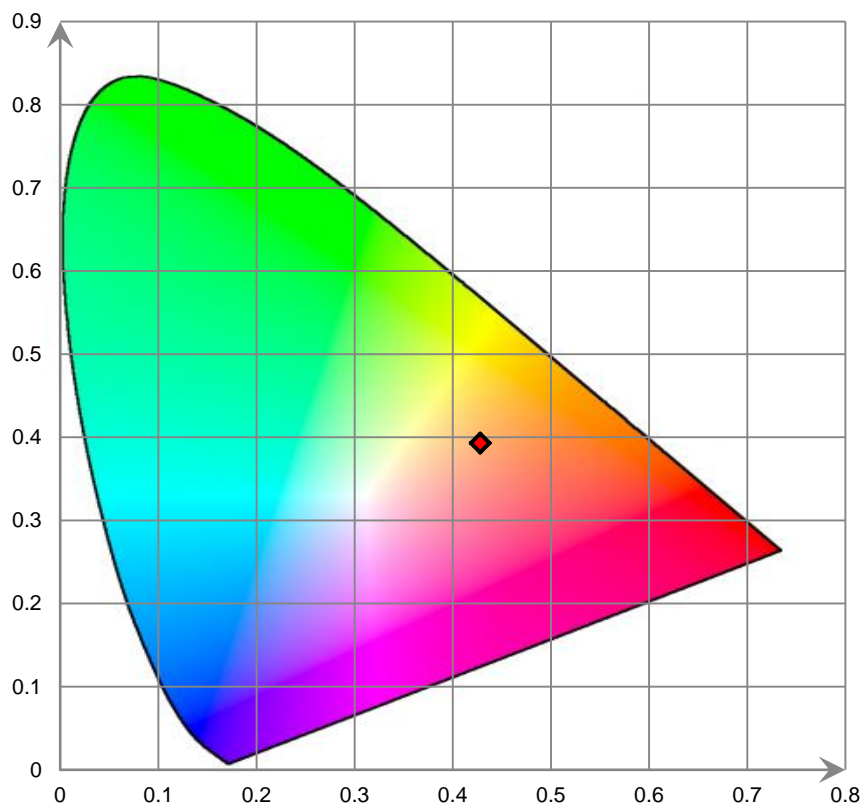
Relative Spectral Power Distribution



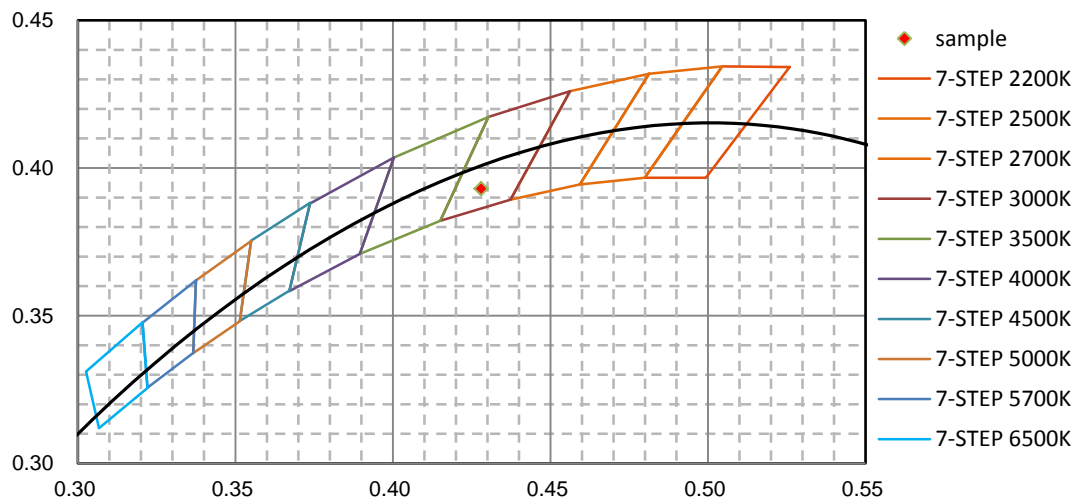
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380	1.365E-01	421	1.890E+00	462	3.283E+01	503	4.047E+01	544	4.860E+01
381	1.144E-01	422	1.995E+00	463	3.278E+01	504	4.100E+01	545	4.855E+01
382	2.071E-01	423	2.288E+00	464	3.214E+01	505	4.159E+01	546	4.882E+01
383	1.035E-01	424	2.537E+00	465	3.178E+01	506	4.202E+01	547	4.879E+01
384	1.064E-01	425	2.888E+00	466	3.117E+01	507	4.275E+01	548	4.900E+01
385	1.481E-01	426	3.196E+00	467	3.035E+01	508	4.296E+01	549	4.919E+01
386	1.130E-01	427	3.491E+00	468	2.924E+01	509	4.353E+01	550	4.930E+01
387	1.407E-01	428	3.913E+00	469	2.790E+01	510	4.419E+01	551	4.931E+01
388	1.223E-01	429	4.411E+00	470	2.682E+01	511	4.436E+01	552	4.951E+01
389	1.306E-01	430	4.942E+00	471	2.532E+01	512	4.487E+01	553	4.962E+01
390	1.035E-01	431	5.564E+00	472	2.430E+01	513	4.504E+01	554	4.984E+01
391	6.560E-02	432	6.150E+00	473	2.341E+01	514	4.526E+01	555	5.003E+01
392	8.417E-02	433	7.021E+00	474	2.276E+01	515	4.565E+01	556	5.022E+01
393	1.473E-01	434	7.685E+00	475	2.239E+01	516	4.558E+01	557	5.030E+01
394	1.394E-01	435	8.646E+00	476	2.215E+01	517	4.631E+01	558	5.067E+01
395	9.149E-02	436	9.763E+00	477	2.256E+01	518	4.633E+01	559	5.098E+01
396	1.521E-01	437	1.098E+01	478	2.236E+01	519	4.651E+01	560	5.112E+01
397	1.036E-01	438	1.233E+01	479	2.305E+01	520	4.646E+01	561	5.127E+01
398	1.191E-01	439	1.411E+01	480	2.335E+01	521	4.695E+01	562	5.171E+01
399	1.103E-01	440	1.604E+01	481	2.397E+01	522	4.692E+01	563	5.230E+01
400	9.406E-02	441	1.858E+01	482	2.443E+01	523	4.721E+01	564	5.227E+01
401	1.352E-01	442	2.141E+01	483	2.493E+01	524	4.711E+01	565	5.288E+01
402	1.646E-01	443	2.466E+01	484	2.562E+01	525	4.679E+01	566	5.332E+01
403	1.658E-01	444	2.861E+01	485	2.590E+01	526	4.745E+01	567	5.367E+01
404	1.984E-01	445	3.255E+01	486	2.660E+01	527	4.764E+01	568	5.415E+01
405	3.028E-01	446	3.680E+01	487	2.732E+01	528	4.754E+01	569	5.437E+01
406	2.761E-01	447	4.159E+01	488	2.799E+01	529	4.740E+01	570	5.488E+01
407	2.824E-01	448	4.567E+01	489	2.866E+01	530	4.775E+01	571	5.565E+01
408	2.994E-01	449	4.891E+01	490	2.940E+01	531	4.739E+01	572	5.578E+01
409	4.107E-01	450	5.116E+01	491	3.027E+01	532	4.769E+01	573	5.658E+01
410	4.439E-01	451	5.276E+01	492	3.116E+01	533	4.809E+01	574	5.719E+01
411	5.049E-01	452	5.250E+01	493	3.226E+01	534	4.799E+01	575	5.796E+01
412	6.146E-01	453	5.131E+01	494	3.290E+01	535	4.796E+01	576	5.858E+01
413	6.606E-01	454	4.869E+01	495	3.402E+01	536	4.795E+01	577	5.951E+01
414	7.512E-01	455	4.586E+01	496	3.485E+01	537	4.788E+01	578	5.991E+01
415	8.710E-01	456	4.292E+01	497	3.589E+01	538	4.794E+01	579	6.054E+01
416	9.479E-01	457	3.966E+01	498	3.667E+01	539	4.836E+01	580	6.160E+01
417	1.139E+00	458	3.716E+01	499	3.724E+01	540	4.800E+01	581	6.239E+01
418	1.243E+00	459	3.551E+01	500	3.832E+01	541	4.838E+01	582	6.288E+01
419	1.393E+00	460	3.437E+01	501	3.926E+01	542	4.845E+01	583	6.413E+01
420	1.585E+00	461	3.342E+01	502	3.983E+01	543	4.847E+01	584	6.484E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	6.550E+01	626	8.617E+01	667	4.941E+01	708	1.695E+01	749	4.756E+00
586	6.659E+01	627	8.617E+01	668	4.830E+01	709	1.633E+01	750	4.614E+00
587	6.716E+01	628	8.533E+01	669	4.748E+01	710	1.590E+01	751	4.439E+00
588	6.866E+01	629	8.492E+01	670	4.635E+01	711	1.550E+01	752	4.391E+00
589	6.933E+01	630	8.464E+01	671	4.537E+01	712	1.502E+01	753	4.181E+00
590	7.009E+01	631	8.385E+01	672	4.423E+01	713	1.458E+01	754	3.994E+00
591	7.103E+01	632	8.336E+01	673	4.311E+01	714	1.421E+01	755	3.947E+00
592	7.215E+01	633	8.283E+01	674	4.234E+01	715	1.370E+01	756	3.869E+00
593	7.307E+01	634	8.245E+01	675	4.127E+01	716	1.347E+01	757	3.715E+00
594	7.390E+01	635	8.141E+01	676	4.021E+01	717	1.292E+01	758	3.539E+00
595	7.451E+01	636	8.051E+01	677	3.928E+01	718	1.257E+01	759	3.464E+00
596	7.554E+01	637	7.978E+01	678	3.843E+01	719	1.214E+01	760	3.376E+00
597	7.656E+01	638	7.932E+01	679	3.769E+01	720	1.189E+01	761	3.252E+00
598	7.719E+01	639	7.819E+01	680	3.654E+01	721	1.147E+01	762	3.173E+00
599	7.831E+01	640	7.744E+01	681	3.573E+01	722	1.125E+01	763	3.160E+00
600	7.898E+01	641	7.664E+01	682	3.511E+01	723	1.073E+01	764	3.013E+00
601	7.931E+01	642	7.582E+01	683	3.403E+01	724	1.051E+01	765	2.917E+00
602	8.022E+01	643	7.481E+01	684	3.321E+01	725	1.019E+01	766	2.817E+00
603	8.119E+01	644	7.384E+01	685	3.223E+01	726	9.840E+00	767	2.692E+00
604	8.172E+01	645	7.273E+01	686	3.147E+01	727	9.508E+00	768	2.630E+00
605	8.264E+01	646	7.218E+01	687	3.074E+01	728	9.415E+00	769	2.537E+00
606	8.354E+01	647	7.068E+01	688	3.001E+01	729	8.950E+00	770	2.469E+00
607	8.393E+01	648	6.991E+01	689	2.913E+01	730	8.748E+00	771	2.428E+00
608	8.474E+01	649	6.891E+01	690	2.832E+01	731	8.380E+00	772	2.373E+00
609	8.489E+01	650	6.747E+01	691	2.751E+01	732	8.129E+00	773	2.225E+00
610	8.560E+01	651	6.670E+01	692	2.700E+01	733	7.967E+00	774	2.177E+00
611	8.619E+01	652	6.580E+01	693	2.591E+01	734	7.622E+00	775	2.040E+00
612	8.672E+01	653	6.483E+01	694	2.527E+01	735	7.428E+00	776	2.020E+00
613	8.672E+01	654	6.362E+01	695	2.470E+01	736	7.179E+00	777	2.018E+00
614	8.698E+01	655	6.236E+01	696	2.404E+01	737	6.972E+00	778	1.903E+00
615	8.698E+01	656	6.148E+01	697	2.343E+01	738	6.597E+00	779	1.788E+00
616	8.737E+01	657	6.030E+01	698	2.255E+01	739	6.629E+00	780	1.779E+00
617	8.787E+01	658	5.917E+01	699	2.214E+01	740	6.331E+00		
618	8.761E+01	659	5.828E+01	700	2.126E+01	741	6.206E+00		
619	8.762E+01	660	5.663E+01	701	2.082E+01	742	6.007E+00		
620	8.764E+01	661	5.570E+01	702	2.023E+01	743	5.749E+00		
621	8.751E+01	662	5.470E+01	703	1.957E+01	744	5.507E+00		
622	8.736E+01	663	5.338E+01	704	1.896E+01	745	5.509E+00		
623	8.718E+01	664	5.268E+01	705	1.848E+01	746	5.277E+00		
624	8.667E+01	665	5.151E+01	706	1.794E+01	747	5.122E+00		
625	8.648E+01	666	5.035E+01	707	1.721E+01	748	4.937E+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**

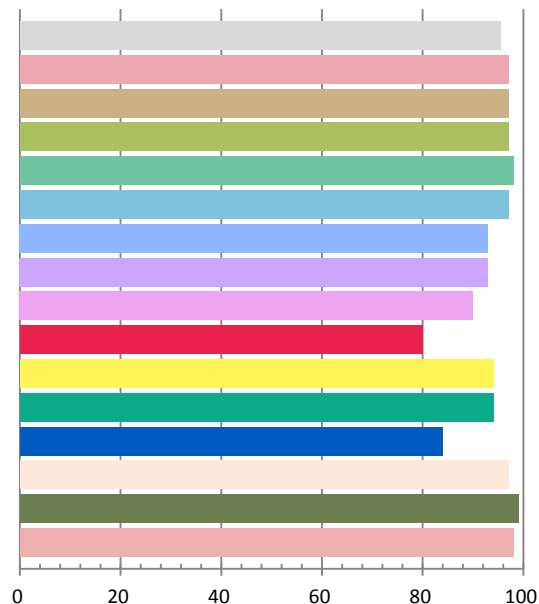
Photometric and Electrical Measurement Result

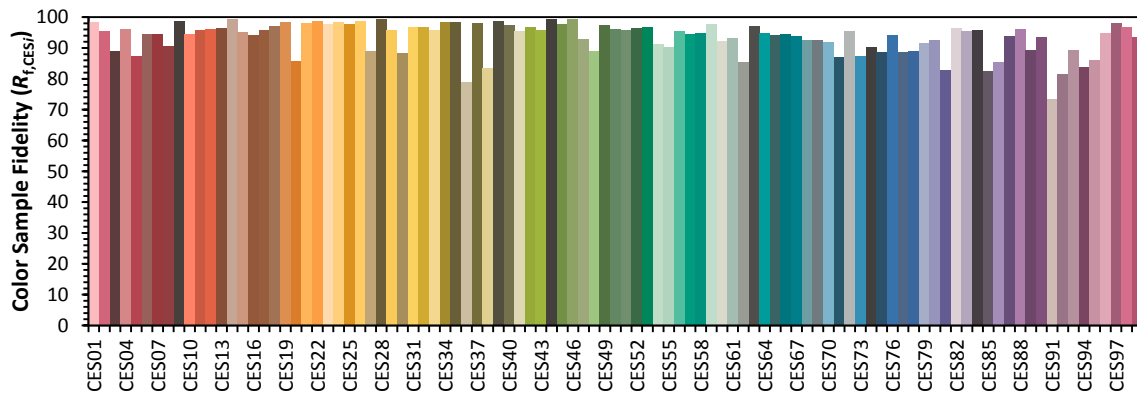
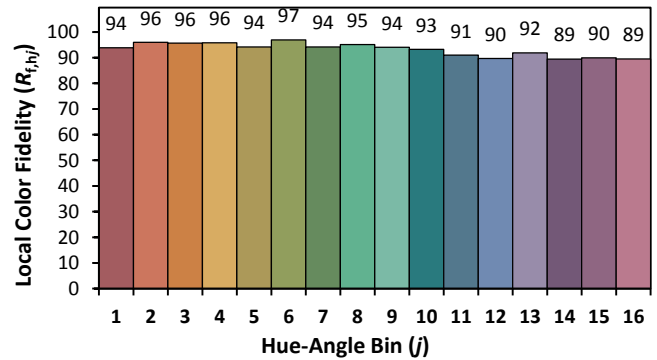
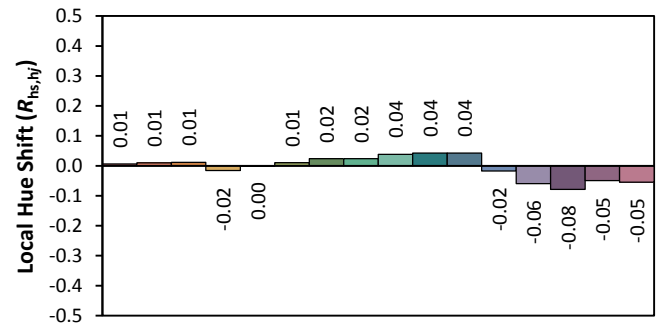
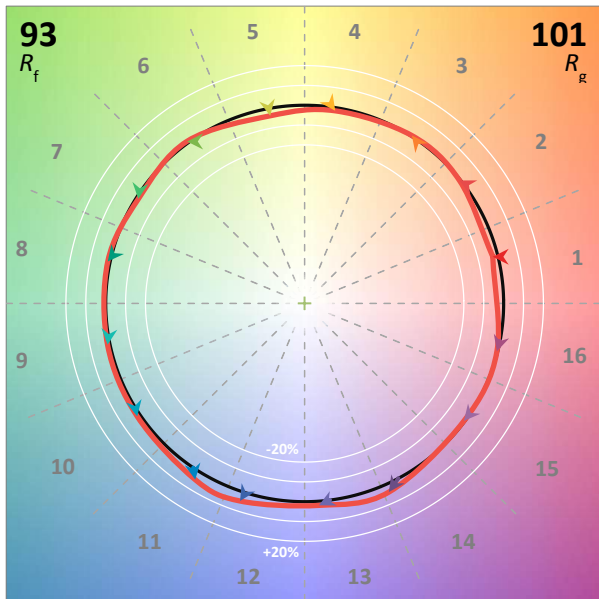
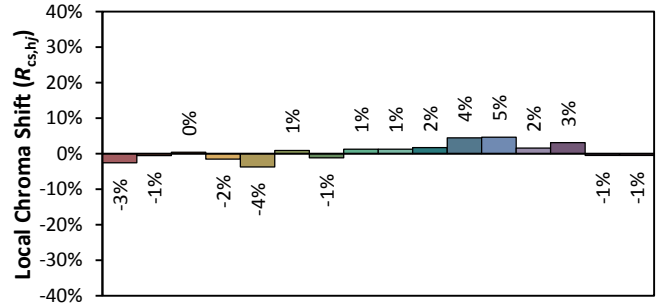
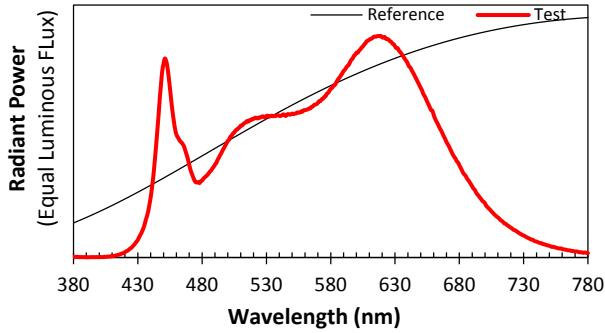
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.3215	38.05	0.9861	4252.5	111.76

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
14.656	3514	-0.00418	0.4003	0.3789	0.2373	0.5055

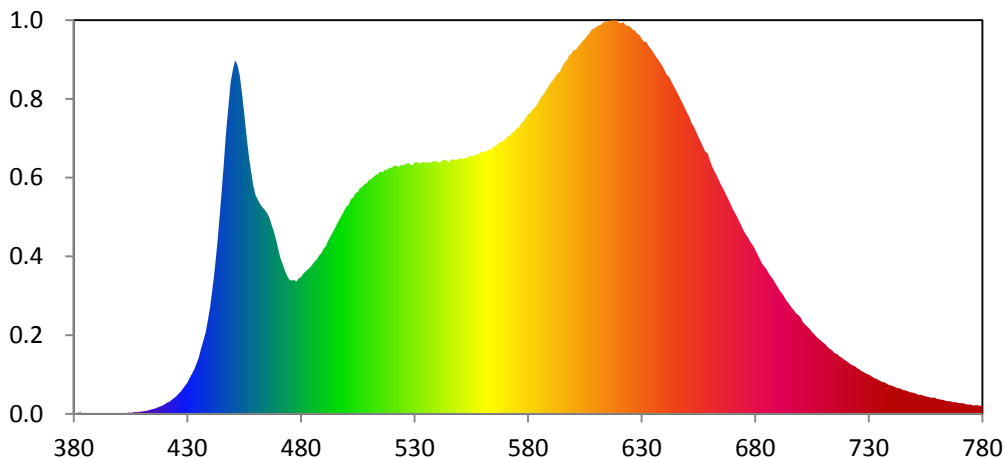
Color Rendering Index

Ra			
95.4			
R1	R2	R3	R4
97	97	97	98
R5	R6	R7	R8
97	93	93	90
R9	R10	R11	R12
80	94	94	84
R13	R14	R15	
97	99	98	





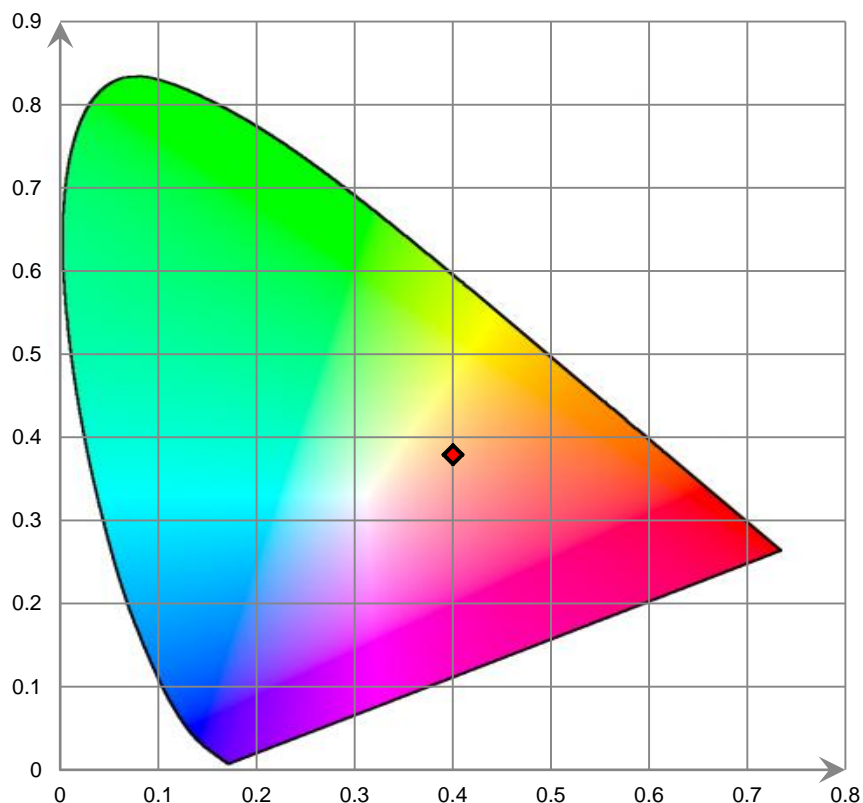
Relative Spectral Power Distribution



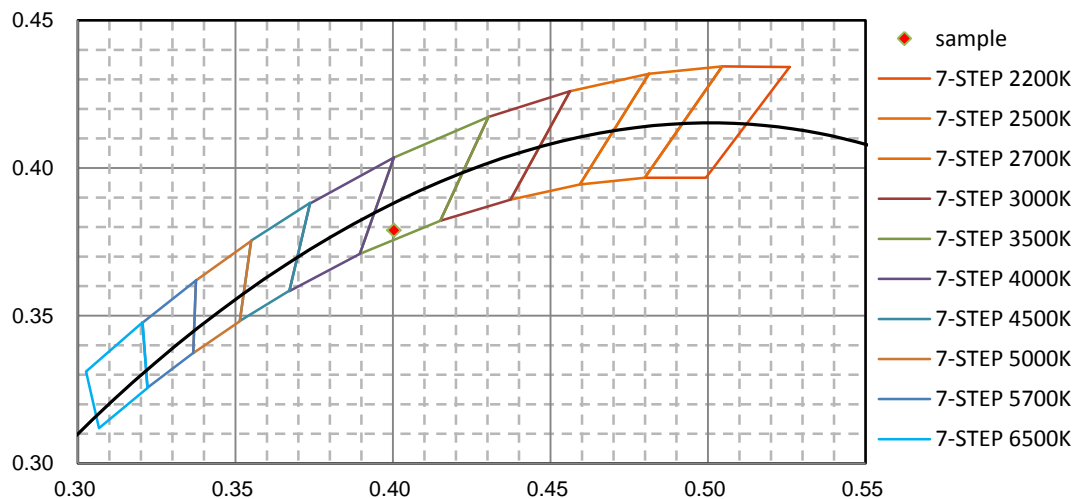
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	2.639E-01	421	2.318E+00	462	4.375E+01	503	4.504E+01	544	5.280E+01
381	1.338E-01	422	2.511E+00	463	4.300E+01	504	4.595E+01	545	5.233E+01
382	2.687E-01	423	2.892E+00	464	4.253E+01	505	4.621E+01	546	5.289E+01
383	2.761E-01	424	3.307E+00	465	4.186E+01	506	4.702E+01	547	5.307E+01
384	9.608E-02	425	3.609E+00	466	4.100E+01	507	4.725E+01	548	5.285E+01
385	2.262E-01	426	4.139E+00	467	3.950E+01	508	4.782E+01	549	5.296E+01
386	1.137E-01	427	4.634E+00	468	3.797E+01	509	4.806E+01	550	5.326E+01
387	1.814E-01	428	5.258E+00	469	3.633E+01	510	4.880E+01	551	5.308E+01
388	1.440E-01	429	5.886E+00	470	3.426E+01	511	4.885E+01	552	5.321E+01
389	1.679E-01	430	6.521E+00	471	3.240E+01	512	4.937E+01	553	5.329E+01
390	7.854E-02	431	7.490E+00	472	3.106E+01	513	4.974E+01	554	5.370E+01
391	1.154E-01	432	8.385E+00	473	2.974E+01	514	5.003E+01	555	5.361E+01
392	9.461E-02	433	9.298E+00	474	2.864E+01	515	5.054E+01	556	5.365E+01
393	1.437E-01	434	1.047E+01	475	2.787E+01	516	5.027E+01	557	5.405E+01
394	1.600E-01	435	1.175E+01	476	2.782E+01	517	5.085E+01	558	5.392E+01
395	1.164E-01	436	1.354E+01	477	2.788E+01	518	5.081E+01	559	5.448E+01
396	1.781E-01	437	1.513E+01	478	2.755E+01	519	5.129E+01	560	5.454E+01
397	1.091E-01	438	1.696E+01	479	2.825E+01	520	5.123E+01	561	5.464E+01
398	1.965E-01	439	1.950E+01	480	2.847E+01	521	5.167E+01	562	5.479E+01
399	1.280E-01	440	2.224E+01	481	2.918E+01	522	5.169E+01	563	5.510E+01
400	1.357E-01	441	2.582E+01	482	2.963E+01	523	5.142E+01	564	5.513E+01
401	1.856E-01	442	2.984E+01	483	3.007E+01	524	5.182E+01	565	5.571E+01
402	1.820E-01	443	3.477E+01	484	3.050E+01	525	5.174E+01	566	5.585E+01
403	1.694E-01	444	4.013E+01	485	3.110E+01	526	5.199E+01	567	5.641E+01
404	2.868E-01	445	4.588E+01	486	3.175E+01	527	5.222E+01	568	5.658E+01
405	2.302E-01	446	5.183E+01	487	3.218E+01	528	5.207E+01	569	5.677E+01
406	3.106E-01	447	5.838E+01	488	3.297E+01	529	5.172E+01	570	5.723E+01
407	3.742E-01	448	6.386E+01	489	3.355E+01	530	5.237E+01	571	5.784E+01
408	3.704E-01	449	6.899E+01	490	3.441E+01	531	5.244E+01	572	5.785E+01
409	4.534E-01	450	7.164E+01	491	3.498E+01	532	5.211E+01	573	5.857E+01
410	5.165E-01	451	7.361E+01	492	3.611E+01	533	5.228E+01	574	5.874E+01
411	5.906E-01	452	7.275E+01	493	3.693E+01	534	5.250E+01	575	5.944E+01
412	6.722E-01	453	7.051E+01	494	3.789E+01	535	5.226E+01	576	5.965E+01
413	7.687E-01	454	6.682E+01	495	3.869E+01	536	5.239E+01	577	6.059E+01
414	9.092E-01	455	6.263E+01	496	3.971E+01	537	5.233E+01	578	6.093E+01
415	1.033E+00	456	5.806E+01	497	4.050E+01	538	5.257E+01	579	6.168E+01
416	1.155E+00	457	5.398E+01	498	4.141E+01	539	5.267E+01	580	6.237E+01
417	1.383E+00	458	5.053E+01	499	4.229E+01	540	5.244E+01	581	6.272E+01
418	1.546E+00	459	4.748E+01	500	4.315E+01	541	5.237E+01	582	6.341E+01
419	1.712E+00	460	4.552E+01	501	4.361E+01	542	5.262E+01	583	6.377E+01
420	2.008E+00	461	4.459E+01	502	4.470E+01	543	5.295E+01	584	6.445E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	6.536E+01	626	8.004E+01	667	4.581E+01	708	1.561E+01	749	4.456E+00
586	6.609E+01	627	7.981E+01	668	4.480E+01	709	1.518E+01	750	4.343E+00
587	6.670E+01	628	7.912E+01	669	4.386E+01	710	1.482E+01	751	4.142E+00
588	6.745E+01	629	7.890E+01	670	4.272E+01	711	1.443E+01	752	3.945E+00
589	6.815E+01	630	7.815E+01	671	4.193E+01	712	1.386E+01	753	3.976E+00
590	6.901E+01	631	7.746E+01	672	4.106E+01	713	1.353E+01	754	3.838E+00
591	6.947E+01	632	7.747E+01	673	4.005E+01	714	1.315E+01	755	3.675E+00
592	7.025E+01	633	7.659E+01	674	3.906E+01	715	1.262E+01	756	3.546E+00
593	7.086E+01	634	7.603E+01	675	3.804E+01	716	1.250E+01	757	3.418E+00
594	7.126E+01	635	7.539E+01	676	3.729E+01	717	1.203E+01	758	3.350E+00
595	7.224E+01	636	7.462E+01	677	3.660E+01	718	1.175E+01	759	3.407E+00
596	7.313E+01	637	7.395E+01	678	3.567E+01	719	1.135E+01	760	3.129E+00
597	7.360E+01	638	7.319E+01	679	3.512E+01	720	1.107E+01	761	3.048E+00
598	7.458E+01	639	7.256E+01	680	3.417E+01	721	1.073E+01	762	2.955E+00
599	7.500E+01	640	7.161E+01	681	3.324E+01	722	1.031E+01	763	2.885E+00
600	7.576E+01	641	7.064E+01	682	3.228E+01	723	1.013E+01	764	2.708E+00
601	7.577E+01	642	7.022E+01	683	3.127E+01	724	9.897E+00	765	2.676E+00
602	7.651E+01	643	6.925E+01	684	3.068E+01	725	9.506E+00	766	2.639E+00
603	7.699E+01	644	6.839E+01	685	3.011E+01	726	9.236E+00	767	2.446E+00
604	7.765E+01	645	6.750E+01	686	2.923E+01	727	8.855E+00	768	2.453E+00
605	7.807E+01	646	6.657E+01	687	2.859E+01	728	8.667E+00	769	2.343E+00
606	7.878E+01	647	6.559E+01	688	2.789E+01	729	8.320E+00	770	2.235E+00
607	7.926E+01	648	6.466E+01	689	2.709E+01	730	8.181E+00	771	2.267E+00
608	8.004E+01	649	6.368E+01	690	2.635E+01	731	7.891E+00	772	2.161E+00
609	8.022E+01	650	6.270E+01	691	2.550E+01	732	7.592E+00	773	1.974E+00
610	8.058E+01	651	6.185E+01	692	2.505E+01	733	7.360E+00	774	1.966E+00
611	8.088E+01	652	6.049E+01	693	2.409E+01	734	7.117E+00	775	1.937E+00
612	8.101E+01	653	5.975E+01	694	2.340E+01	735	6.906E+00	776	1.768E+00
613	8.148E+01	654	5.874E+01	695	2.284E+01	736	6.628E+00	777	1.836E+00
614	8.172E+01	655	5.765E+01	696	2.215E+01	737	6.602E+00	778	1.831E+00
615	8.168E+01	656	5.668E+01	697	2.160E+01	738	6.251E+00	779	1.702E+00
616	8.185E+01	657	5.559E+01	698	2.090E+01	739	5.987E+00	780	1.638E+00
617	8.195E+01	658	5.460E+01	699	2.058E+01	740	5.917E+00		
618	8.189E+01	659	5.431E+01	700	2.003E+01	741	5.704E+00		
619	8.199E+01	660	5.287E+01	701	1.908E+01	742	5.498E+00		
620	8.145E+01	661	5.155E+01	702	1.861E+01	743	5.354E+00		
621	8.135E+01	662	5.053E+01	703	1.811E+01	744	5.286E+00		
622	8.159E+01	663	4.962E+01	704	1.765E+01	745	4.961E+00		
623	8.087E+01	664	4.866E+01	705	1.706E+01	746	4.908E+00		
624	8.080E+01	665	4.765E+01	706	1.659E+01	747	4.746E+00		
625	8.062E+01	666	4.683E+01	707	1.604E+01	748	4.568E+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**

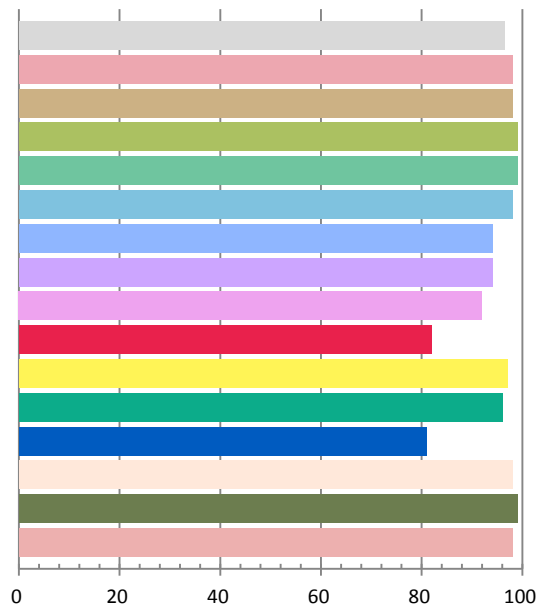
Photometric and Electrical Measurement Result

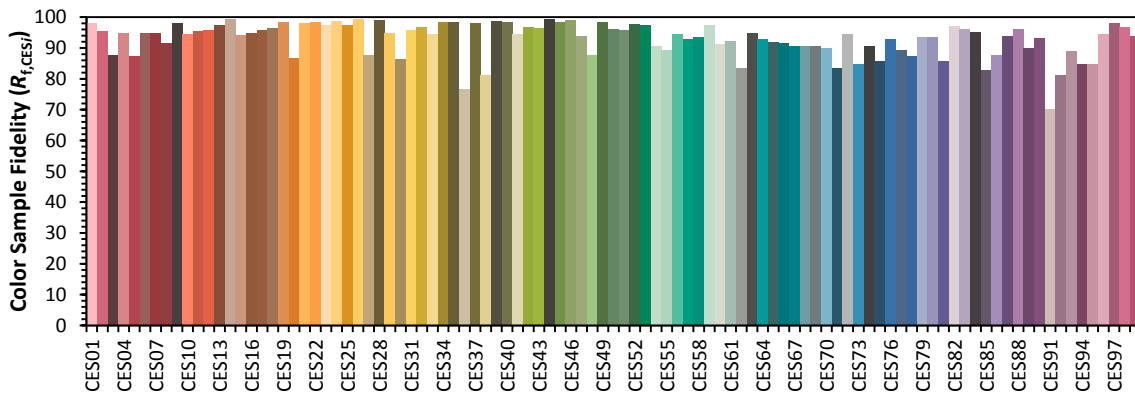
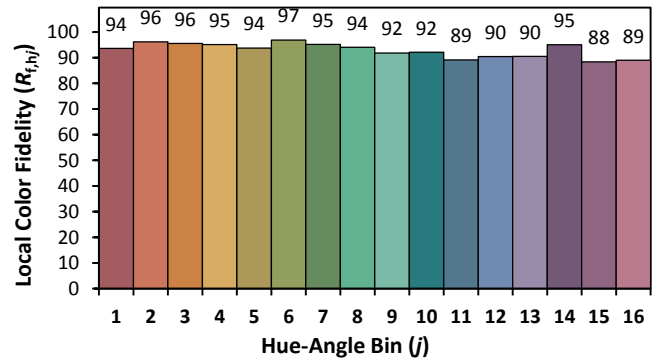
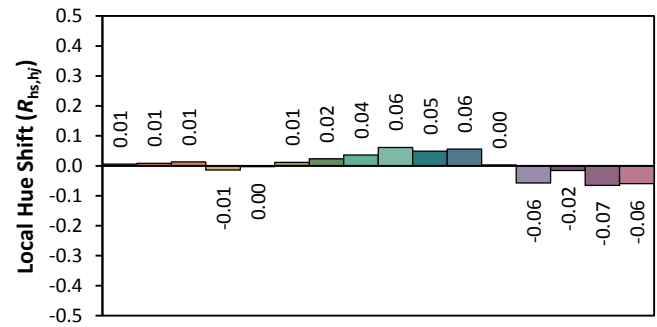
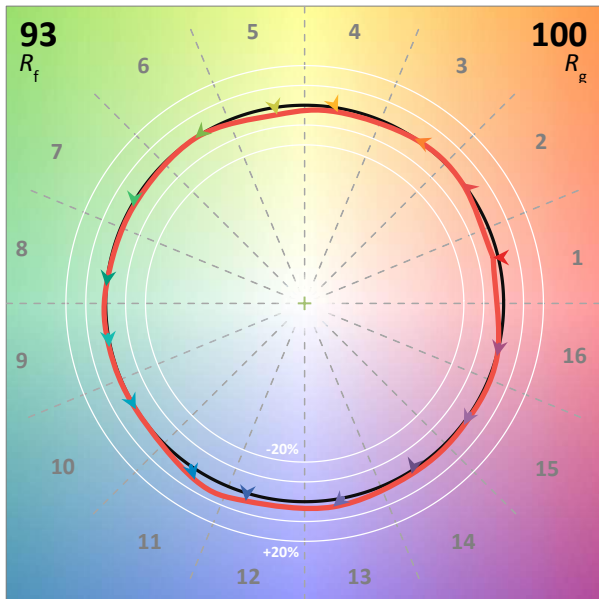
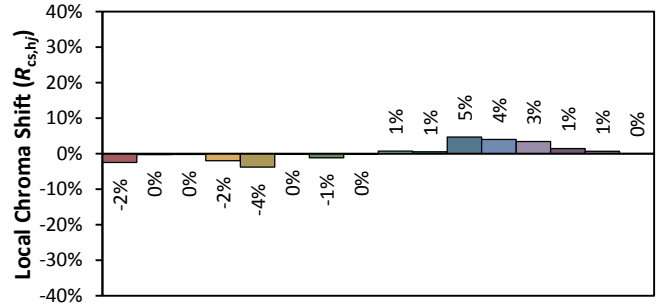
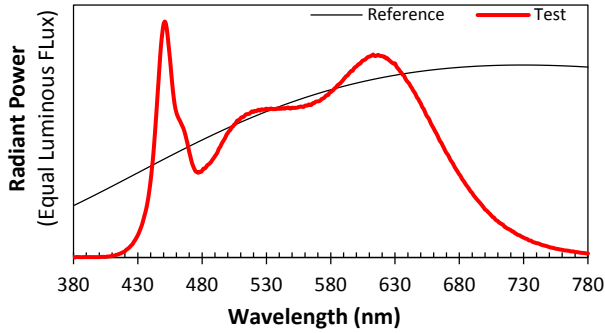
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.3239	38.33	0.9861	4310.4	112.46

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
14.829	3975	-0.00357	0.3791	0.3684	0.2276	0.4976

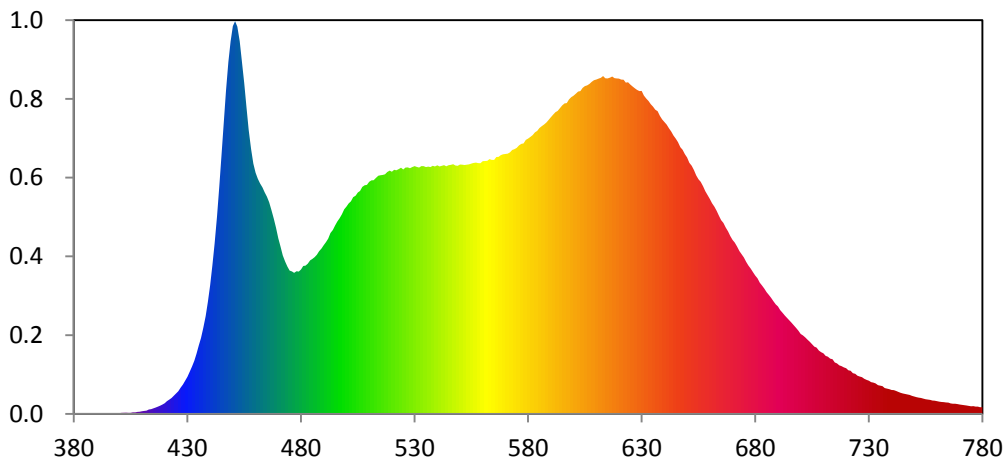
Color Rendering Index

Ra			
96.5			
R1	R2	R3	R4
98	98	99	99
R5	R6	R7	R8
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R9	R10	R11	R12
82	97	96	81
R13	R14	R15	
98	99	98	





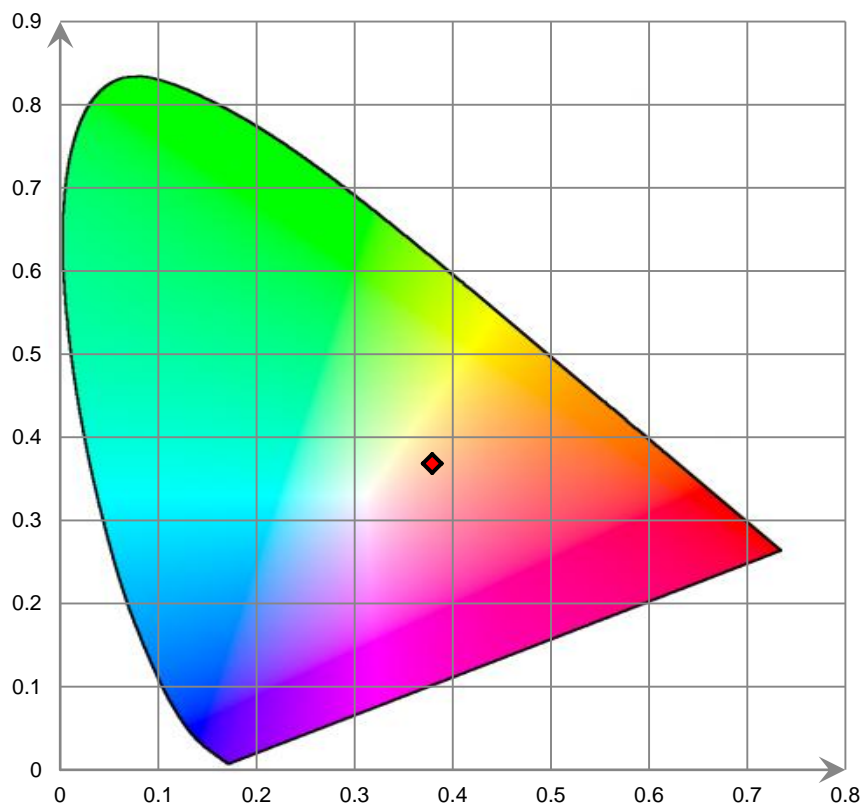
Relative Spectral Power Distribution



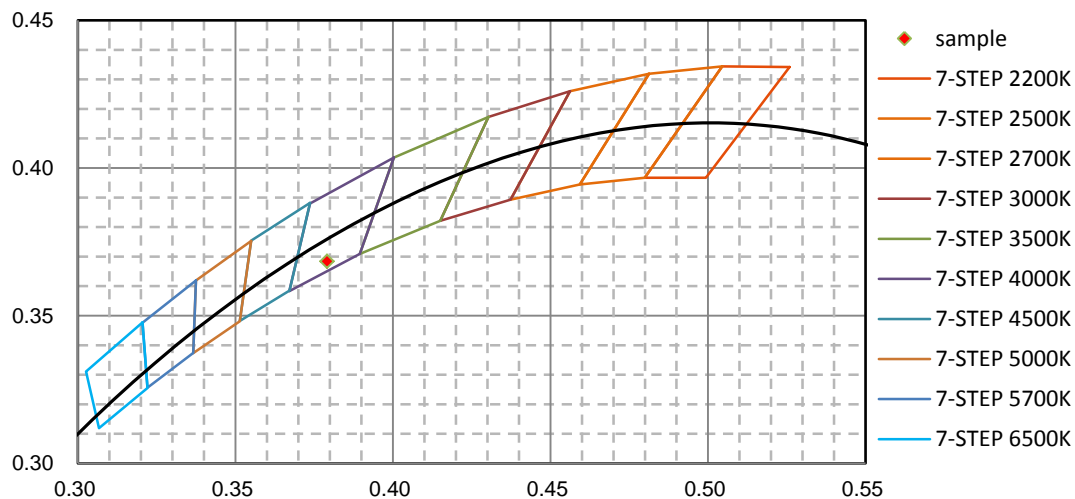
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381	3.199E-02	422	3.230E+00	463	5.104E+01	504	4.914E+01	545	5.603E+01
382	1.852E-01	423	3.587E+00	464	4.991E+01	505	4.987E+01	546	5.611E+01
383	2.021E-01	424	4.090E+00	465	4.893E+01	506	5.022E+01	547	5.627E+01
384	1.779E-01	425	4.618E+00	466	4.767E+01	507	5.115E+01	548	5.595E+01
385	1.595E-01	426	5.102E+00	467	4.595E+01	508	5.149E+01	549	5.588E+01
386	1.350E-01	427	5.927E+00	468	4.397E+01	509	5.162E+01	550	5.620E+01
387	1.577E-01	428	6.623E+00	469	4.192E+01	510	5.229E+01	551	5.613E+01
388	1.467E-01	429	7.502E+00	470	3.957E+01	511	5.262E+01	552	5.608E+01
389	2.207E-01	430	8.368E+00	471	3.768E+01	512	5.266E+01	553	5.616E+01
390	1.634E-01	431	9.461E+00	472	3.570E+01	513	5.313E+01	554	5.621E+01
391	1.698E-01	432	1.070E+01	473	3.430E+01	514	5.364E+01	555	5.641E+01
392	1.823E-01	433	1.196E+01	474	3.318E+01	515	5.377E+01	556	5.652E+01
393	1.852E-01	434	1.358E+01	475	3.230E+01	516	5.383E+01	557	5.663E+01
394	1.630E-01	435	1.542E+01	476	3.210E+01	517	5.400E+01	558	5.651E+01
395	1.481E-01	436	1.713E+01	477	3.177E+01	518	5.448E+01	559	5.648E+01
396	1.879E-01	437	1.935E+01	478	3.216E+01	519	5.481E+01	560	5.694E+01
397	1.506E-01	438	2.200E+01	479	3.206E+01	520	5.457E+01	561	5.698E+01
398	1.681E-01	439	2.525E+01	480	3.256E+01	521	5.499E+01	562	5.701E+01
399	1.527E-01	440	2.895E+01	481	3.333E+01	522	5.487E+01	563	5.741E+01
400	1.640E-01	441	3.346E+01	482	3.339E+01	523	5.515E+01	564	5.724E+01
401	2.278E-01	442	3.837E+01	483	3.385E+01	524	5.546E+01	565	5.722E+01
402	2.443E-01	443	4.446E+01	484	3.459E+01	525	5.509E+01	566	5.787E+01
403	2.639E-01	444	5.111E+01	485	3.492E+01	526	5.552E+01	567	5.790E+01
404	2.362E-01	445	5.825E+01	486	3.533E+01	527	5.553E+01	568	5.830E+01
405	2.268E-01	446	6.549E+01	487	3.585E+01	528	5.535E+01	569	5.851E+01
406	3.513E-01	447	7.272E+01	488	3.664E+01	529	5.560E+01	570	5.855E+01
407	3.614E-01	448	7.930E+01	489	3.725E+01	530	5.582E+01	571	5.864E+01
408	4.447E-01	449	8.394E+01	490	3.801E+01	531	5.564E+01	572	5.892E+01
409	5.160E-01	450	8.735E+01	491	3.870E+01	532	5.552E+01	573	5.945E+01
410	5.973E-01	451	8.849E+01	492	3.951E+01	533	5.582E+01	574	5.964E+01
411	6.869E-01	452	8.726E+01	493	4.076E+01	534	5.583E+01	575	5.993E+01
412	7.397E-01	453	8.393E+01	494	4.144E+01	535	5.560E+01	576	6.050E+01
413	9.872E-01	454	7.927E+01	495	4.247E+01	536	5.573E+01	577	6.085E+01
414	1.079E+00	455	7.456E+01	496	4.335E+01	537	5.559E+01	578	6.094E+01
415	1.257E+00	456	6.915E+01	497	4.409E+01	538	5.588E+01	579	6.173E+01
416	1.436E+00	457	6.397E+01	498	4.494E+01	539	5.574E+01	580	6.204E+01
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419	2.129E+00	460	5.435E+01	501	4.744E+01	542	5.588E+01	583	6.341E+01
420	2.392E+00	461	5.297E+01	502	4.788E+01	543	5.602E+01	584	6.374E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	6.440E+01	626	7.377E+01	667	4.203E+01	708	1.425E+01	749	4.068E+00
586	6.484E+01	627	7.333E+01	668	4.110E+01	709	1.390E+01	750	3.919E+00
587	6.518E+01	628	7.298E+01	669	4.007E+01	710	1.364E+01	751	3.775E+00
588	6.562E+01	629	7.273E+01	670	3.920E+01	711	1.306E+01	752	3.683E+00
589	6.619E+01	630	7.277E+01	671	3.859E+01	712	1.290E+01	753	3.592E+00
590	6.680E+01	631	7.171E+01	672	3.773E+01	713	1.245E+01	754	3.460E+00
591	6.741E+01	632	7.104E+01	673	3.669E+01	714	1.232E+01	755	3.321E+00
592	6.797E+01	633	7.050E+01	674	3.596E+01	715	1.158E+01	756	3.240E+00
593	6.825E+01	634	6.977E+01	675	3.525E+01	716	1.137E+01	757	3.175E+00
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600	7.168E+01	641	6.521E+01	682	2.957E+01	723	9.171E+00	764	2.582E+00
601	7.214E+01	642	6.433E+01	683	2.890E+01	724	9.028E+00	765	2.538E+00
602	7.262E+01	643	6.360E+01	684	2.822E+01	725	8.601E+00	766	2.387E+00
603	7.272E+01	644	6.272E+01	685	2.743E+01	726	8.427E+00	767	2.299E+00
604	7.345E+01	645	6.201E+01	686	2.680E+01	727	8.292E+00	768	2.298E+00
605	7.385E+01	646	6.124E+01	687	2.614E+01	728	7.934E+00	769	2.245E+00
606	7.404E+01	647	6.009E+01	688	2.538E+01	729	7.686E+00	770	2.105E+00
607	7.435E+01	648	5.950E+01	689	2.469E+01	730	7.493E+00	771	2.061E+00
608	7.480E+01	649	5.853E+01	690	2.423E+01	731	7.175E+00	772	1.988E+00
609	7.519E+01	650	5.779E+01	691	2.338E+01	732	7.047E+00	773	1.916E+00
610	7.533E+01	651	5.657E+01	692	2.280E+01	733	6.883E+00	774	1.829E+00
611	7.554E+01	652	5.590E+01	693	2.216E+01	734	6.463E+00	775	1.743E+00
612	7.573E+01	653	5.494E+01	694	2.163E+01	735	6.370E+00	776	1.748E+00
613	7.612E+01	654	5.374E+01	695	2.108E+01	736	6.260E+00	777	1.667E+00
614	7.563E+01	655	5.287E+01	696	2.055E+01	737	5.846E+00	778	1.642E+00
615	7.558E+01	656	5.228E+01	697	1.998E+01	738	5.707E+00	779	1.513E+00
616	7.577E+01	657	5.128E+01	698	1.934E+01	739	5.566E+00	780	1.540E+00
617	7.600E+01	658	5.017E+01	699	1.874E+01	740	5.384E+00		
618	7.565E+01	659	4.929E+01	700	1.800E+01	741	5.351E+00		
619	7.558E+01	660	4.845E+01	701	1.769E+01	742	5.182E+00		
620	7.554E+01	661	4.747E+01	702	1.725E+01	743	4.973E+00		
621	7.531E+01	662	4.666E+01	703	1.672E+01	744	4.749E+00		
622	7.530E+01	663	4.575E+01	704	1.625E+01	745	4.622E+00		
623	7.465E+01	664	4.464E+01	705	1.571E+01	746	4.514E+00		
624	7.473E+01	665	4.365E+01	706	1.517E+01	747	4.376E+00		
625	7.419E+01	666	4.302E+01	707	1.495E+01	748	4.280E+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**

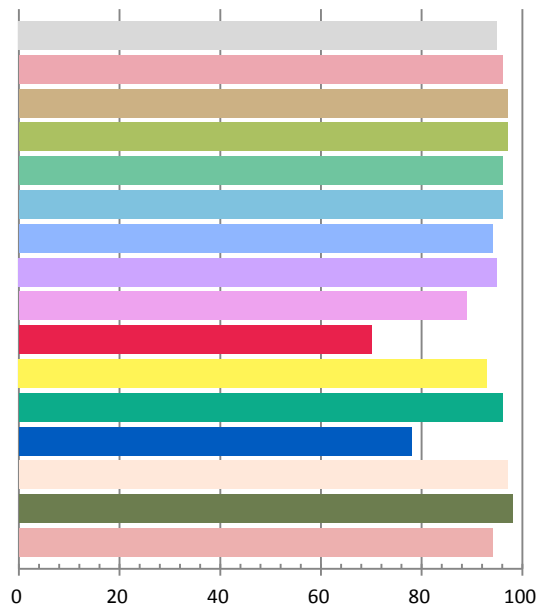
Photometric and Electrical Measurement Result

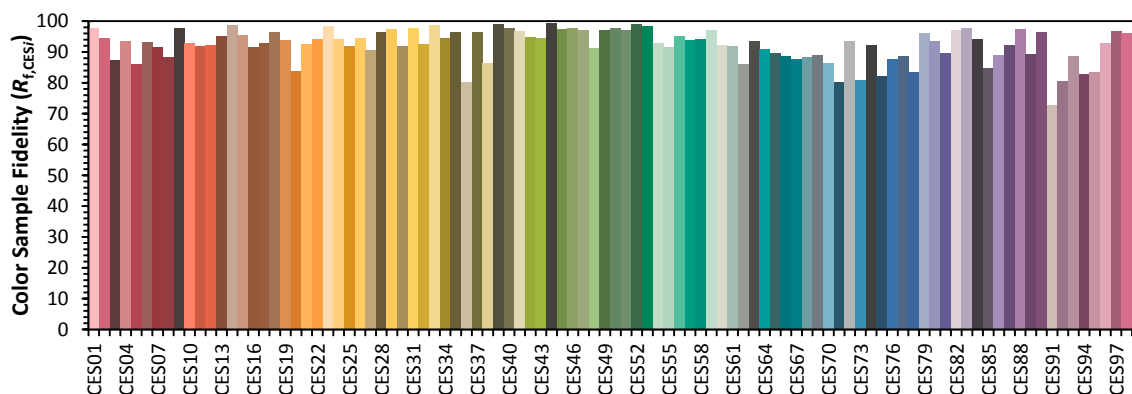
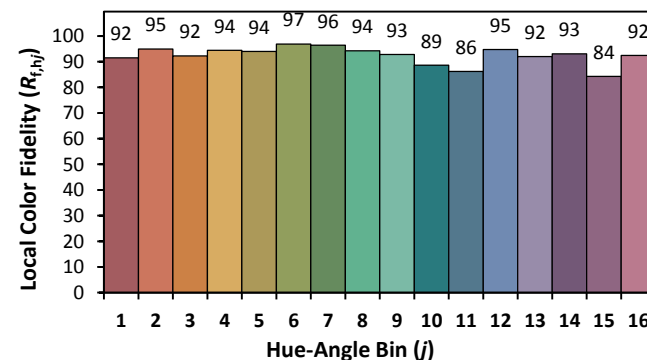
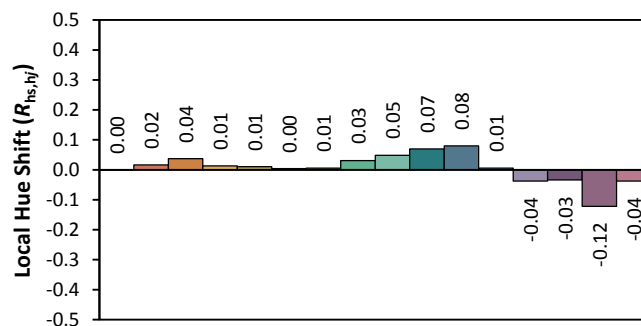
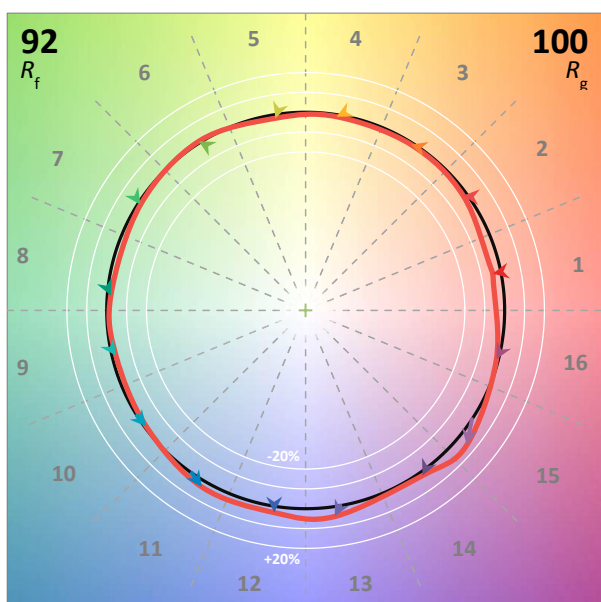
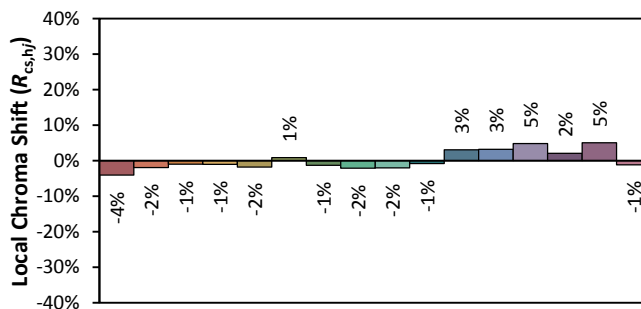
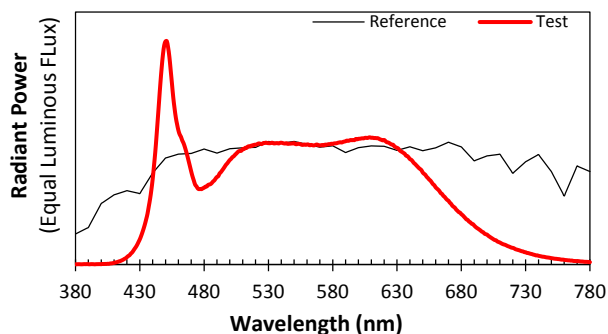
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.3275	38.79	0.9869	4297.2	110.78

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
14.677	5062	0.00072	0.3435	0.3518	0.2103	0.4845

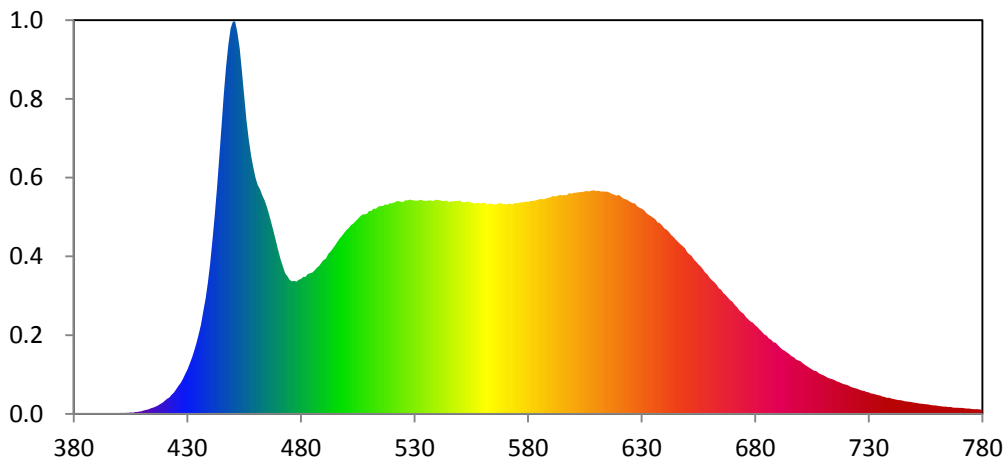
Color Rendering Index

Ra			
95.0			
R1	R2	R3	R4
96	97	97	96
R5	R6	R7	R8
96	94	95	89
R9	R10	R11	R12
70	93	96	78
R13	R14	R15	
97	98	94	





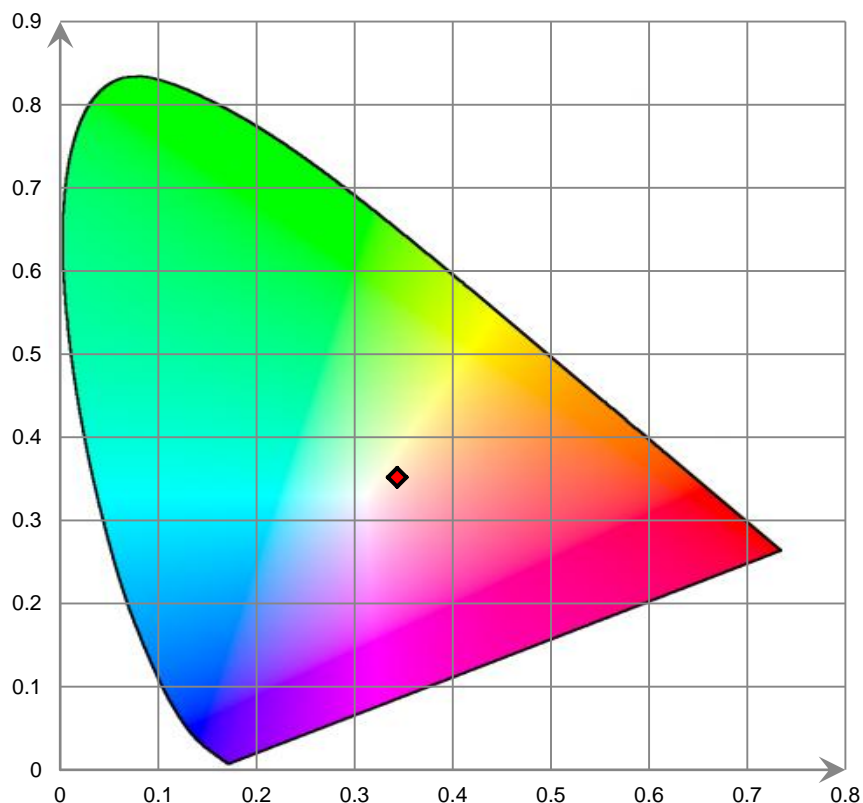
Relative Spectral Power Distribution



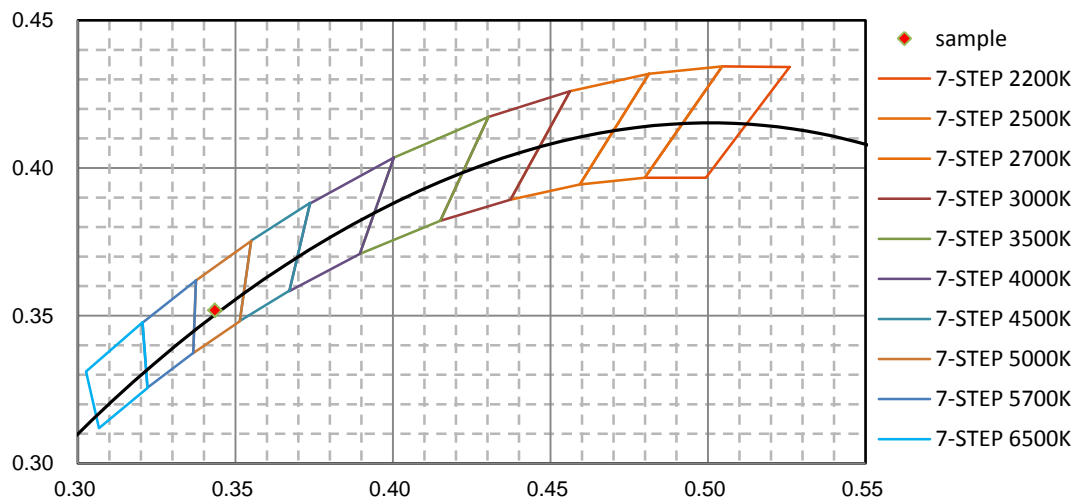
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	1.054E-01	421	4.248E+00	462	6.367E+01	503	5.394E+01	544	6.048E+01
381	1.333E-01	422	4.641E+00	463	6.184E+01	504	5.466E+01	545	6.014E+01
382	1.704E-01	423	5.422E+00	464	6.048E+01	505	5.528E+01	546	6.021E+01
383	1.755E-01	424	6.017E+00	465	5.861E+01	506	5.594E+01	547	6.024E+01
384	1.283E-01	425	6.926E+00	466	5.645E+01	507	5.649E+01	548	6.033E+01
385	1.260E-01	426	7.899E+00	467	5.410E+01	508	5.660E+01	549	6.036E+01
386	1.800E-01	427	8.799E+00	468	5.148E+01	509	5.672E+01	550	6.051E+01
387	2.185E-01	428	9.921E+00	469	4.890E+01	510	5.755E+01	551	6.005E+01
388	1.842E-01	429	1.126E+01	470	4.628E+01	511	5.753E+01	552	5.999E+01
389	2.255E-01	430	1.257E+01	471	4.389E+01	512	5.820E+01	553	6.016E+01
390	1.678E-01	431	1.418E+01	472	4.189E+01	513	5.812E+01	554	6.011E+01
391	1.237E-01	432	1.599E+01	473	3.983E+01	514	5.877E+01	555	5.994E+01
392	1.968E-01	433	1.800E+01	474	3.905E+01	515	5.896E+01	556	5.967E+01
393	1.947E-01	434	2.017E+01	475	3.798E+01	516	5.889E+01	557	5.966E+01
394	1.705E-01	435	2.266E+01	476	3.757E+01	517	5.938E+01	558	5.986E+01
395	1.033E-01	436	2.533E+01	477	3.771E+01	518	5.928E+01	559	5.964E+01
396	1.874E-01	437	2.907E+01	478	3.755E+01	519	5.968E+01	560	5.983E+01
397	1.953E-01	438	3.276E+01	479	3.804E+01	520	5.972E+01	561	5.983E+01
398	2.150E-01	439	3.726E+01	480	3.825E+01	521	5.990E+01	562	5.941E+01
399	2.162E-01	440	4.256E+01	481	3.885E+01	522	6.026E+01	563	5.962E+01
400	1.796E-01	441	4.903E+01	482	3.885E+01	523	6.035E+01	564	5.953E+01
401	2.998E-01	442	5.591E+01	483	3.963E+01	524	6.012E+01	565	5.937E+01
402	2.526E-01	443	6.405E+01	484	3.988E+01	525	6.006E+01	566	5.946E+01
403	3.117E-01	444	7.267E+01	485	4.009E+01	526	6.056E+01	567	5.972E+01
404	2.980E-01	445	8.146E+01	486	4.066E+01	527	6.054E+01	568	5.978E+01
405	3.811E-01	446	9.037E+01	487	4.143E+01	528	6.075E+01	569	5.944E+01
406	3.659E-01	447	9.811E+01	488	4.195E+01	529	6.056E+01	570	5.944E+01
407	5.391E-01	448	1.047E+02	489	4.289E+01	530	6.050E+01	571	5.944E+01
408	5.754E-01	449	1.093E+02	490	4.366E+01	531	6.046E+01	572	5.960E+01
409	7.035E-01	450	1.112E+02	491	4.403E+01	532	6.057E+01	573	5.935E+01
410	8.303E-01	451	1.113E+02	492	4.536E+01	533	6.072E+01	574	5.978E+01
411	1.029E+00	452	1.082E+02	493	4.601E+01	534	6.041E+01	575	5.970E+01
412	1.164E+00	453	1.035E+02	494	4.690E+01	535	6.039E+01	576	5.985E+01
413	1.364E+00	454	9.694E+01	495	4.778E+01	536	6.049E+01	577	6.000E+01
414	1.604E+00	455	9.011E+01	496	4.875E+01	537	6.052E+01	578	5.999E+01
415	1.789E+00	456	8.331E+01	497	4.972E+01	538	6.033E+01	579	6.022E+01
416	2.100E+00	457	7.796E+01	498	5.041E+01	539	6.062E+01	580	6.010E+01
417	2.394E+00	458	7.329E+01	499	5.131E+01	540	6.071E+01	581	6.035E+01
418	2.807E+00	459	6.984E+01	500	5.212E+01	541	6.056E+01	582	6.041E+01
419	3.143E+00	460	6.687E+01	501	5.270E+01	542	6.038E+01	583	6.046E+01
420	3.697E+00	461	6.485E+01	502	5.350E+01	543	6.033E+01	584	6.068E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	6.083E+01	626	5.978E+01	667	3.373E+01	708	1.150E+01	749	3.318E+00
586	6.094E+01	627	5.967E+01	668	3.291E+01	709	1.123E+01	750	3.192E+00
587	6.082E+01	628	5.886E+01	669	3.223E+01	710	1.096E+01	751	3.101E+00
588	6.111E+01	629	5.845E+01	670	3.179E+01	711	1.059E+01	752	2.964E+00
589	6.128E+01	630	5.817E+01	671	3.088E+01	712	1.026E+01	753	2.884E+00
590	6.146E+01	631	5.780E+01	672	3.028E+01	713	1.002E+01	754	2.839E+00
591	6.178E+01	632	5.695E+01	673	2.935E+01	714	9.836E+00	755	2.740E+00
592	6.164E+01	633	5.644E+01	674	2.879E+01	715	9.542E+00	756	2.698E+00
593	6.183E+01	634	5.607E+01	675	2.829E+01	716	9.206E+00	757	2.561E+00
594	6.207E+01	635	5.562E+01	676	2.739E+01	717	8.991E+00	758	2.450E+00
595	6.196E+01	636	5.519E+01	677	2.681E+01	718	8.710E+00	759	2.456E+00
596	6.209E+01	637	5.427E+01	678	2.614E+01	719	8.425E+00	760	2.344E+00
597	6.198E+01	638	5.406E+01	679	2.585E+01	720	8.309E+00	761	2.233E+00
598	6.262E+01	639	5.342E+01	680	2.510E+01	721	8.078E+00	762	2.192E+00
599	6.239E+01	640	5.256E+01	681	2.460E+01	722	7.685E+00	763	2.092E+00
600	6.266E+01	641	5.223E+01	682	2.391E+01	723	7.466E+00	764	2.084E+00
601	6.269E+01	642	5.157E+01	683	2.320E+01	724	7.290E+00	765	1.957E+00
602	6.281E+01	643	5.067E+01	684	2.248E+01	725	7.107E+00	766	1.988E+00
603	6.291E+01	644	5.013E+01	685	2.221E+01	726	6.856E+00	767	1.805E+00
604	6.288E+01	645	4.944E+01	686	2.140E+01	727	6.634E+00	768	1.772E+00
605	6.312E+01	646	4.878E+01	687	2.104E+01	728	6.512E+00	769	1.738E+00
606	6.316E+01	647	4.810E+01	688	2.032E+01	729	6.178E+00	770	1.700E+00
607	6.306E+01	648	4.758E+01	689	2.016E+01	730	6.124E+00	771	1.710E+00
608	6.332E+01	649	4.701E+01	690	1.945E+01	731	5.798E+00	772	1.604E+00
609	6.338E+01	650	4.587E+01	691	1.881E+01	732	5.723E+00	773	1.531E+00
610	6.315E+01	651	4.524E+01	692	1.828E+01	733	5.518E+00	774	1.515E+00
611	6.323E+01	652	4.473E+01	693	1.787E+01	734	5.329E+00	775	1.437E+00
612	6.304E+01	653	4.377E+01	694	1.741E+01	735	5.193E+00	776	1.361E+00
613	6.307E+01	654	4.314E+01	695	1.694E+01	736	4.938E+00	777	1.360E+00
614	6.297E+01	655	4.237E+01	696	1.637E+01	737	4.813E+00	778	1.336E+00
615	6.298E+01	656	4.182E+01	697	1.609E+01	738	4.558E+00	779	1.268E+00
616	6.266E+01	657	4.093E+01	698	1.541E+01	739	4.581E+00	780	1.182E+00
617	6.235E+01	658	4.005E+01	699	1.512E+01	740	4.364E+00		
618	6.212E+01	659	3.951E+01	700	1.491E+01	741	4.221E+00		
619	6.187E+01	660	3.852E+01	701	1.431E+01	742	4.088E+00		
620	6.210E+01	661	3.786E+01	702	1.387E+01	743	3.936E+00		
621	6.154E+01	662	3.731E+01	703	1.343E+01	744	3.879E+00		
622	6.097E+01	663	3.659E+01	704	1.302E+01	745	3.760E+00		
623	6.085E+01	664	3.559E+01	705	1.258E+01	746	3.599E+00		
624	6.054E+01	665	3.518E+01	706	1.222E+01	747	3.519E+00		
625	6.010E+01	666	3.424E+01	707	1.207E+01	748	3.437E+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.
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