

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/S9CCT5S/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:	KS2231204-72556E-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/S9CCT5S/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 AC 50/60Hz
Rated Power: 7.5/10/15/23W
Nominal CCT: 2700K/3000K/3500K/4000K/5000K
Nominal Lumen Output: 2185lm(2700K),2260lm(3000K),2300lm(3500K),2300lm(4000K),2300lm(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%

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

Test orientation: **Downward**

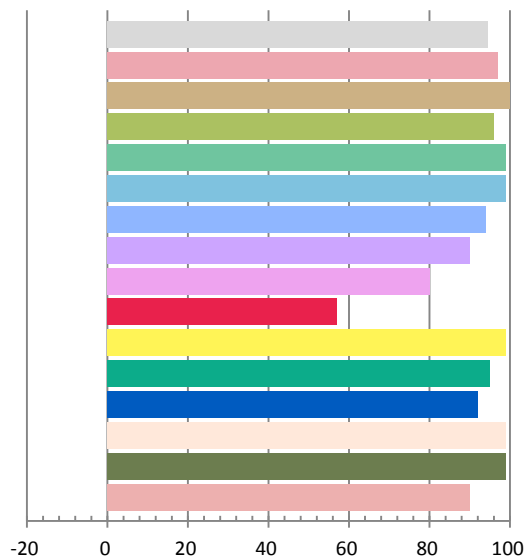
Photometric and Electrical Measurement Result

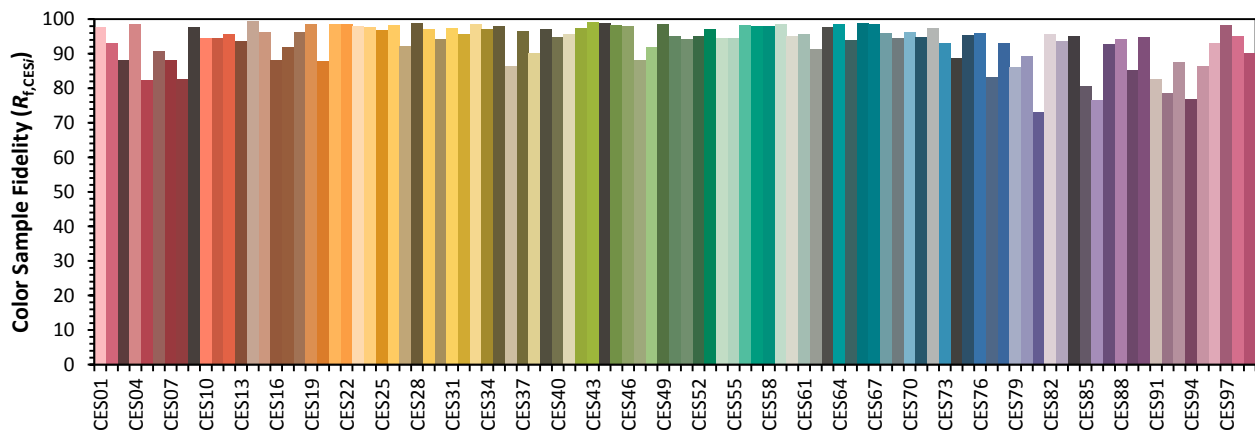
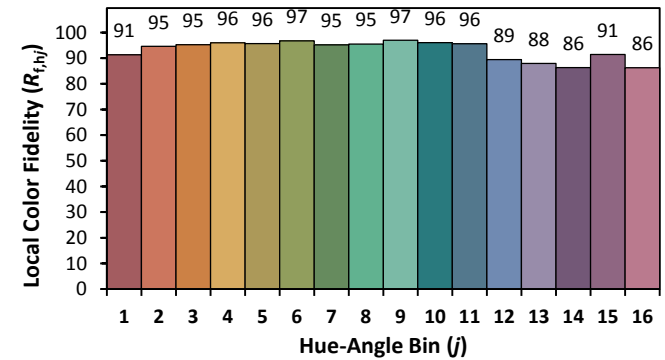
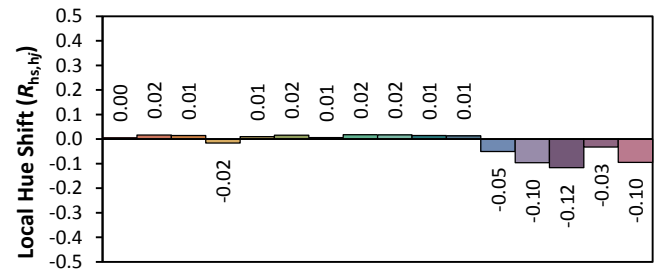
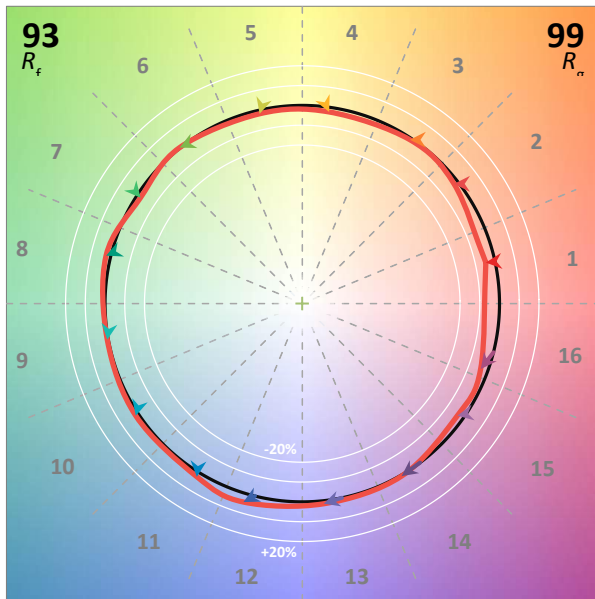
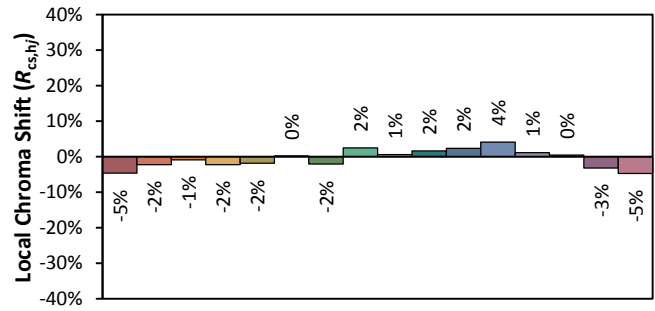
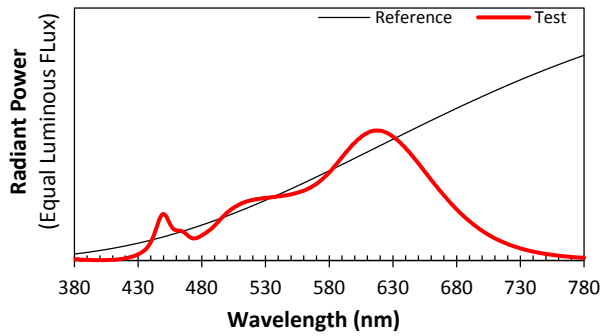
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120	60	0.1762	20.87	0.9869	2302.1	110.32

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
7.754	2758	0.000377	0.4558	0.4107	0.2598	0.5268

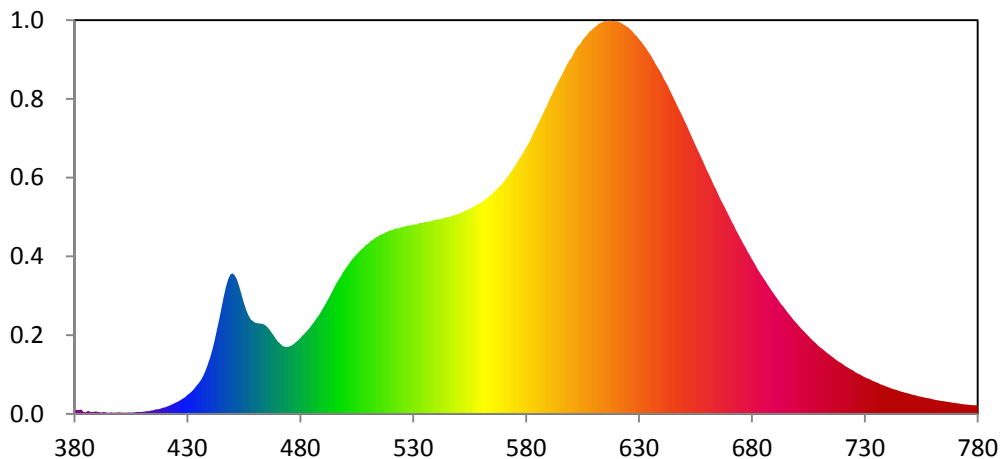
Color Rendering Index

Ra			
94.5			
R1	R2	R3	R4
97	100	96	99
R5	R6	R7	R8
99	94	90	80
R9	R10	R11	R12
57	99	95	92
R13	R14	R15	
99	99	90	





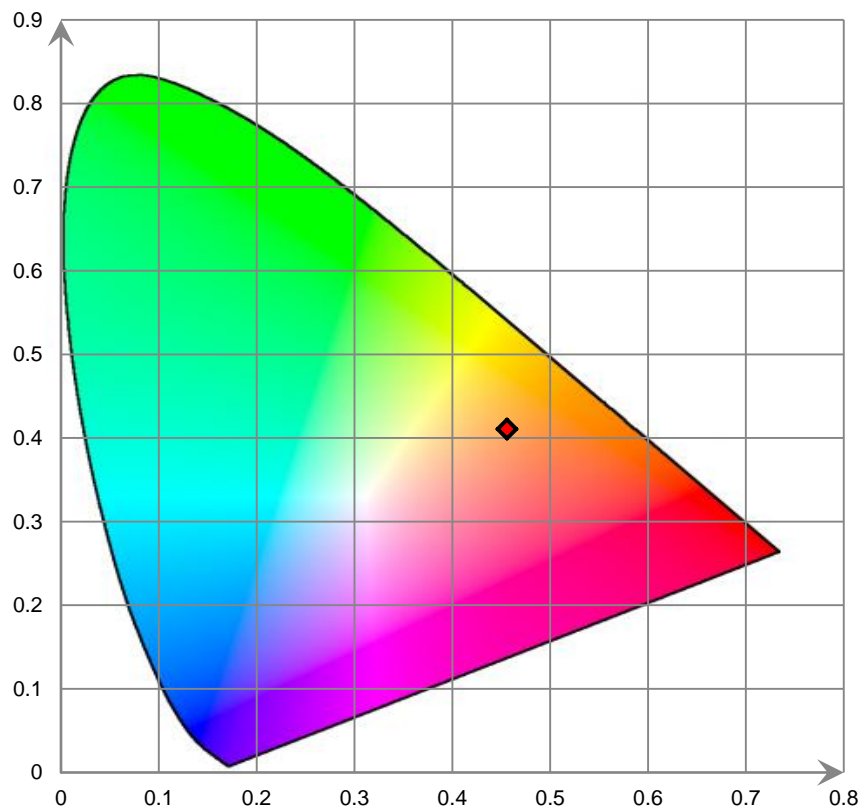
Relative Spectral Power Distribution



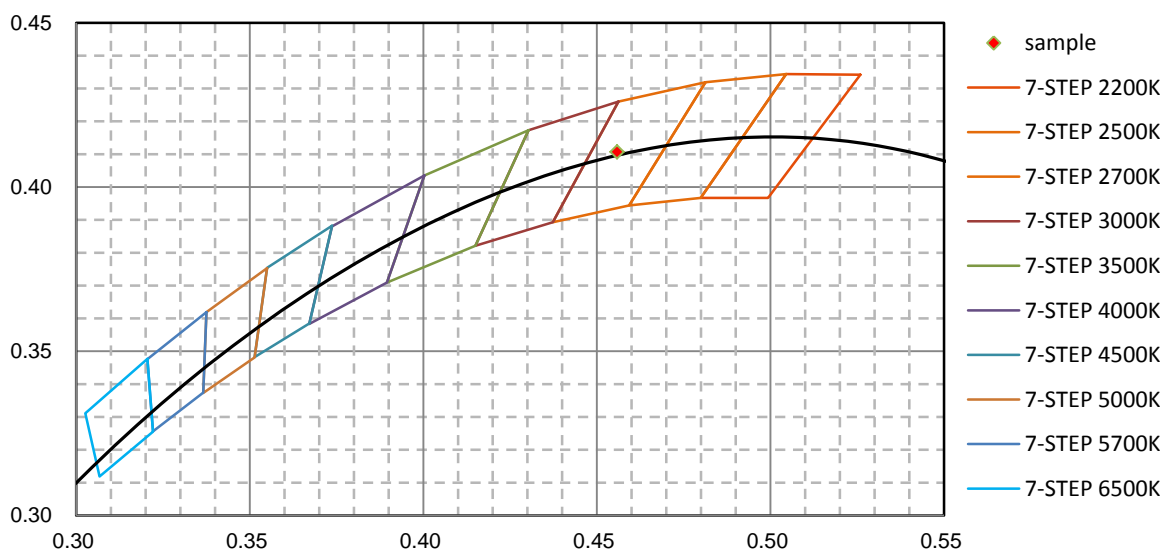
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	4.784E-01	421	1.002E+00	462	1.197E+01	503	2.046E+01	544	2.599E+01
381	5.423E-01	422	1.091E+00	463	1.193E+01	504	2.081E+01	545	2.605E+01
382	4.982E-01	423	1.238E+00	464	1.184E+01	505	2.113E+01	546	2.606E+01
383	5.779E-01	424	1.381E+00	465	1.160E+01	506	2.145E+01	547	2.617E+01
384	2.476E-01	425	1.512E+00	466	1.130E+01	507	2.179E+01	548	2.630E+01
385	2.200E-01	426	1.674E+00	467	1.088E+01	508	2.201E+01	549	2.634E+01
386	4.229E-01	427	1.842E+00	468	1.049E+01	509	2.237E+01	550	2.652E+01
387	2.744E-01	428	2.058E+00	469	1.003E+01	510	2.254E+01	551	2.663E+01
388	2.430E-01	429	2.226E+00	470	9.606E+00	511	2.285E+01	552	2.674E+01
389	3.223E-01	430	2.506E+00	471	9.306E+00	512	2.301E+01	553	2.689E+01
390	2.925E-01	431	2.730E+00	472	9.033E+00	513	2.327E+01	554	2.701E+01
391	2.269E-01	432	3.007E+00	473	8.881E+00	514	2.344E+01	555	2.714E+01
392	1.821E-01	433	3.327E+00	474	8.879E+00	515	2.364E+01	556	2.730E+01
393	2.725E-01	434	3.731E+00	475	8.910E+00	516	2.378E+01	557	2.752E+01
394	1.854E-01	435	4.075E+00	476	9.032E+00	517	2.390E+01	558	2.764E+01
395	1.474E-01	436	4.512E+00	477	9.240E+00	518	2.406E+01	559	2.783E+01
396	1.985E-01	437	5.062E+00	478	9.481E+00	519	2.418E+01	560	2.794E+01
397	1.668E-01	438	5.707E+00	479	9.742E+00	520	2.432E+01	561	2.821E+01
398	1.576E-01	439	6.549E+00	480	1.006E+01	521	2.435E+01	562	2.841E+01
399	1.842E-01	440	7.405E+00	481	1.040E+01	522	2.457E+01	563	2.866E+01
400	2.045E-01	441	8.447E+00	482	1.067E+01	523	2.454E+01	564	2.893E+01
401	1.623E-01	442	9.624E+00	483	1.100E+01	524	2.464E+01	565	2.911E+01
402	1.742E-01	443	1.100E+01	484	1.135E+01	525	2.473E+01	566	2.944E+01
403	1.703E-01	444	1.248E+01	485	1.175E+01	526	2.478E+01	567	2.977E+01
404	1.922E-01	445	1.395E+01	486	1.214E+01	527	2.490E+01	568	3.007E+01
405	1.903E-01	446	1.545E+01	487	1.255E+01	528	2.493E+01	569	3.033E+01
406	1.896E-01	447	1.678E+01	488	1.295E+01	529	2.499E+01	570	3.071E+01
407	2.297E-01	448	1.778E+01	489	1.347E+01	530	2.506E+01	571	3.109E+01
408	2.721E-01	449	1.846E+01	490	1.398E+01	531	2.509E+01	572	3.150E+01
409	2.462E-01	450	1.862E+01	491	1.449E+01	532	2.512E+01	573	3.195E+01
410	2.675E-01	451	1.833E+01	492	1.503E+01	533	2.530E+01	574	3.229E+01
411	3.105E-01	452	1.777E+01	493	1.554E+01	534	2.527E+01	575	3.281E+01
412	3.469E-01	453	1.679E+01	494	1.614E+01	535	2.539E+01	576	3.325E+01
413	3.704E-01	454	1.574E+01	495	1.670E+01	536	2.542E+01	577	3.380E+01
414	4.542E-01	455	1.468E+01	496	1.727E+01	537	2.546E+01	578	3.418E+01
415	4.788E-01	456	1.380E+01	497	1.777E+01	538	2.552E+01	579	3.476E+01
416	5.971E-01	457	1.307E+01	498	1.823E+01	539	2.565E+01	580	3.527E+01
417	6.042E-01	458	1.254E+01	499	1.879E+01	540	2.573E+01	581	3.578E+01
418	7.016E-01	459	1.227E+01	500	1.925E+01	541	2.576E+01	582	3.634E+01
419	8.159E-01	460	1.210E+01	501	1.964E+01	542	2.579E+01	583	3.703E+01
420	8.715E-01	461	1.202E+01	502	2.007E+01	543	2.585E+01	584	3.765E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	3.818E+01	626	5.094E+01	667	2.788E+01	708	9.435E+00	749	2.721E+00
586	3.880E+01	627	5.065E+01	668	2.733E+01	709	9.152E+00	750	2.643E+00
587	3.945E+01	628	5.030E+01	669	2.670E+01	710	8.879E+00	751	2.555E+00
588	4.011E+01	629	5.001E+01	670	2.611E+01	711	8.634E+00	752	2.493E+00
589	4.071E+01	630	4.962E+01	671	2.550E+01	712	8.401E+00	753	2.409E+00
590	4.139E+01	631	4.926E+01	672	2.498E+01	713	8.130E+00	754	2.337E+00
591	4.202E+01	632	4.884E+01	673	2.431E+01	714	7.907E+00	755	2.272E+00
592	4.262E+01	633	4.847E+01	674	2.378E+01	715	7.688E+00	756	2.188E+00
593	4.327E+01	634	4.799E+01	675	2.322E+01	716	7.474E+00	757	2.144E+00
594	4.384E+01	635	4.757E+01	676	2.260E+01	717	7.223E+00	758	2.086E+00
595	4.441E+01	636	4.707E+01	677	2.213E+01	718	7.010E+00	759	2.023E+00
596	4.498E+01	637	4.652E+01	678	2.153E+01	719	6.837E+00	760	1.939E+00
597	4.558E+01	638	4.600E+01	679	2.104E+01	720	6.629E+00	761	1.885E+00
598	4.619E+01	639	4.553E+01	680	2.048E+01	721	6.386E+00	762	1.821E+00
599	4.674E+01	640	4.498E+01	681	2.001E+01	722	6.221E+00	763	1.781E+00
600	4.712E+01	641	4.434E+01	682	1.947E+01	723	6.043E+00	764	1.718E+00
601	4.765E+01	642	4.385E+01	683	1.895E+01	724	5.865E+00	765	1.700E+00
602	4.824E+01	643	4.326E+01	684	1.849E+01	725	5.707E+00	766	1.617E+00
603	4.866E+01	644	4.263E+01	685	1.802E+01	726	5.483E+00	767	1.585E+00
604	4.896E+01	645	4.203E+01	686	1.755E+01	727	5.338E+00	768	1.535E+00
605	4.952E+01	646	4.141E+01	687	1.709E+01	728	5.208E+00	769	1.469E+00
606	4.988E+01	647	4.077E+01	688	1.665E+01	729	5.026E+00	770	1.451E+00
607	5.021E+01	648	4.018E+01	689	1.621E+01	730	4.848E+00	771	1.404E+00
608	5.060E+01	649	3.954E+01	690	1.578E+01	731	4.722E+00	772	1.369E+00
609	5.079E+01	650	3.888E+01	691	1.536E+01	732	4.604E+00	773	1.318E+00
610	5.114E+01	651	3.827E+01	692	1.494E+01	733	4.442E+00	774	1.271E+00
611	5.132E+01	652	3.759E+01	693	1.451E+01	734	4.310E+00	775	1.251E+00
612	5.162E+01	653	3.691E+01	694	1.417E+01	735	4.180E+00	776	1.209E+00
613	5.176E+01	654	3.625E+01	695	1.373E+01	736	4.084E+00	777	1.183E+00
614	5.189E+01	655	3.559E+01	696	1.336E+01	737	3.917E+00	778	1.153E+00
615	5.205E+01	656	3.495E+01	697	1.301E+01	738	3.817E+00	779	1.129E+00
616	5.198E+01	657	3.433E+01	698	1.259E+01	739	3.679E+00	780	1.131E+00
617	5.211E+01	658	3.364E+01	699	1.226E+01	740	3.583E+00		
618	5.195E+01	659	3.299E+01	700	1.193E+01	741	3.468E+00		
619	5.204E+01	660	3.229E+01	701	1.158E+01	742	3.350E+00		
620	5.200E+01	661	3.169E+01	702	1.124E+01	743	3.246E+00		
621	5.193E+01	662	3.107E+01	703	1.094E+01	744	3.171E+00		
622	5.178E+01	663	3.035E+01	704	1.061E+01	745	3.068E+00		
623	5.157E+01	664	2.982E+01	705	1.030E+01	746	2.956E+00		
624	5.138E+01	665	2.913E+01	706	9.992E+00	747	2.906E+00		
625	5.121E+01	666	2.849E+01	707	9.696E+00	748	2.796E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



[Goniophotometer System]

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

The photometric distance: 2.513m

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

Test orientation: **Downward**

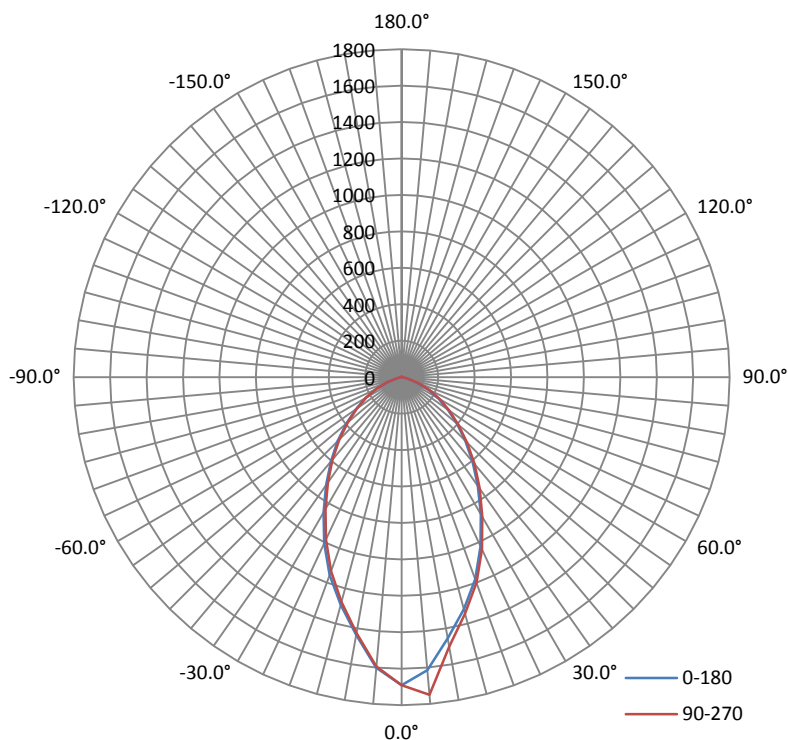
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.00	60	0.1763	20.880	0.9870

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I _{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
2309.97	110.63	1768	0.85	0.87

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I _{max}):	61.3	59.8	58.4	59.8	59.8
Field Angle (10% I _{max}):	128.3	128.6	128.2	128.8	128.5

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°
0°	1690	1690	1690	1690	1690	1690	1690	1690
1°	1691	1682	1676	1670	1670	1671	1674	1679
2°	1684	1669	1654	1651	1652	1655	1658	1663
3°	1668	1646	1634	1628	1631	1637	1638	1643
4°	1638	1619	1607	1602	1608	1614	1610	1615
5°	1601	1586	1579	1584	1594	1594	1586	1581
6°	1569	1559	1559	1568	1572	1568	1563	1552
7°	1537	1529	1537	1539	1538	1534	1532	1524
8°	1504	1495	1506	1504	1503	1504	1503	1491
9°	1471	1464	1478	1467	1464	1473	1472	1458
10°	1437	1430	1446	1427	1426	1443	1436	1426
11°	1403	1398	1413	1390	1392	1410	1400	1391
12°	1374	1367	1381	1358	1364	1383	1368	1359
13°	1348	1341	1354	1325	1335	1357	1341	1332
14°	1321	1313	1325	1293	1306	1327	1314	1303
15°	1293	1280	1291	1262	1278	1298	1286	1274
16°	1265	1251	1261	1232	1249	1268	1254	1244
17°	1239	1222	1231	1203	1220	1236	1226	1215
18°	1212	1193	1199	1174	1191	1209	1200	1186
19°	1184	1165	1169	1145	1162	1178	1170	1158
20°	1156	1135	1137	1115	1134	1150	1139	1129
21°	1128	1105	1105	1086	1104	1121	1108	1099
22°	1097	1074	1072	1057	1074	1091	1077	1071
23°	1066	1044	1042	1027	1043	1060	1046	1040
24°	1035	1016	1013	998	1013	1028	1015	1010
25°	1006	987	983	969	982	998	986	983
26°	976	959	953	941	953	965	956	953
27°	946	932	924	912	923	932	927	923
28°	916	904	895	884	894	901	897	894
29°	885	878	868	858	865	871	869	865
30°	858	851	840	830	837	841	840	837
31°	830	825	814	804	809	813	812	810
32°	803	799	788	779	783	786	785	784
33°	775	773	763	754	756	759	759	757
34°	749	748	738	730	731	733	732	731
35°	723	723	714	705	707	708	707	706
36°	699	699	690	682	682	683	683	680
37°	675	675	665	658	658	659	658	656
38°	651	650	641	634	633	635	634	630
39°	626	626	618	612	611	612	611	606
40°	604	602	597	591	590	591	590	586
41°	584	582	576	571	569	570	569	565
42°	564	563	555	550	548	548	548	545
43°	542	540	533	528	526	526	525	523
44°	520	519	511	506	505	504	504	502
45°	498	497	489	485	484	483	482	481
46°	477	476	469	465	464	462	462	460
47°	457	455	448	445	443	441	442	441
48°	437	436	429	425	424	422	423	421

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°	416	416	409	406	405	404	404	402
50°	397	397	390	387	386	385	386	384
51°	379	378	372	369	368	367	368	367
52°	360	360	353	351	349	349	349	349
53°	342	342	336	334	332	332	332	332
54°	324	325	319	316	315	315	316	315
55°	307	308	302	300	299	298	300	299
56°	291	291	286	285	283	283	284	283
57°	275	275	270	269	267	267	268	267
58°	260	260	256	254	252	253	253	252
59°	244	245	241	239	238	238	239	238
60°	230	231	227	225	224	224	225	225
61°	215	217	214	211	211	211	212	211
62°	199	204	200	197	198	198	199	198
63°	184	189	187	183	185	185	185	184
64°	168	174	172	168	170	171	171	169
65°	153	159	157	153	156	156	156	154
66°	138	144	142	139	142	142	142	139
67°	124	129	128	124	128	128	128	125
68°	111	115	114	111	114	115	114	111
69°	98	102	101	98	101	102	102	98
70°	85	90	88	85	89	90	89	86
71°	73	77	76	73	78	78	78	74
72°	62	66	65	61	66	67	67	63
73°	51	55	55	52	56	57	56	52
74°	41	44	45	43	46	46	46	41
75°	30	34	35	33	36	36	36	34
76°	24	26	27	26	28	28	27	27
77°	20	20	21	21	22	22	21	20
78°	16	16	17	17	18	18	17	16
79°	13	13	14	14	14	14	14	13
80°	12	11	11	12	12	12	12	12
81°	10	10	10	10	10	11	10	10
82°	9	8	8	9	9	9	9	9
83°	7	7	7	7	8	8	7	7
84°	6	5	6	6	6	7	6	5
85°	4	4	4	5	5	5	4	4
86°	3	3	3	3	4	4	3	2
87°	1	1	1	2	2	2	1	1
88°	0	0	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 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°	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	1	1	1	0
129°	0	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	1	2	1	1	1
145°	1	1	2	2	2	2	2	1
146°	1	1	2	2	2	2	2	1

Luminous Intensity (cd) Distribution Data

C γ	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
147°	1	2	2	2	2	2	2	1
148°	1	2	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	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°	2	2	2	2	2	2	2	2
177°	2	2	2	2	2	2	2	2
178°	2	2	2	2	2	2	2	2
179°	2	2	2	2	2	2	2	2
180°	2	2	1	1	1	2	2	2

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°	1690	1690	1690	1690	1690	1690	1690	1690
1°	1685	1701	1707	1713	1715	1713	1710	1700
2°	1682	1702	1723	1739	1745	1740	1727	1708
3°	1669	1697	1730	1756	1767	1754	1732	1702
4°	1646	1679	1722	1756	1768	1753	1723	1684
5°	1614	1650	1697	1739	1750	1735	1698	1652
6°	1578	1617	1656	1699	1715	1698	1662	1616
7°	1544	1572	1601	1647	1661	1642	1615	1579
8°	1511	1532	1553	1593	1598	1581	1564	1541
9°	1483	1500	1517	1545	1545	1528	1522	1511
10°	1455	1470	1480	1501	1503	1488	1484	1481
11°	1427	1441	1445	1463	1466	1452	1446	1452
12°	1398	1413	1414	1433	1434	1420	1413	1427
13°	1372	1387	1385	1403	1404	1388	1381	1401
14°	1346	1359	1357	1375	1374	1361	1351	1375
15°	1318	1330	1329	1346	1343	1332	1322	1347
16°	1291	1301	1299	1314	1311	1302	1293	1315
17°	1264	1273	1271	1284	1281	1272	1266	1285
18°	1238	1247	1243	1256	1254	1246	1239	1257
19°	1211	1221	1216	1227	1227	1220	1211	1228
20°	1179	1193	1185	1198	1200	1190	1180	1200
21°	1148	1162	1154	1165	1169	1159	1150	1169
22°	1118	1131	1124	1134	1137	1128	1120	1138
23°	1085	1099	1095	1102	1105	1096	1089	1103
24°	1055	1069	1065	1071	1074	1067	1061	1071
25°	1024	1037	1035	1039	1043	1038	1032	1038
26°	993	1005	1003	1007	1011	1007	1003	1007
27°	962	972	973	977	980	979	976	974
28°	931	941	943	947	947	947	944	943
29°	900	909	915	915	916	916	914	913
30°	869	878	884	886	885	886	885	881
31°	840	846	855	857	855	856	857	853
32°	811	818	826	828	826	827	828	824
33°	783	789	798	800	799	799	800	797
34°	755	762	771	774	773	772	774	770
35°	729	736	743	748	747	746	748	744
36°	701	709	718	723	721	720	723	719
37°	677	683	692	698	697	696	698	693
38°	652	658	667	673	672	671	673	669
39°	629	634	643	648	647	647	649	644
40°	605	610	618	623	623	623	625	619
41°	582	586	594	599	598	599	602	596
42°	559	563	570	575	575	576	578	573
43°	537	541	547	552	552	553	554	551
44°	515	519	524	529	530	530	532	529
45°	494	498	502	506	508	509	510	508
46°	473	476	481	485	487	487	488	487
47°	453	456	460	464	467	467	466	466
48°	434	436	440	444	446	446	446	446

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°
49°	415	417	421	424	426	427	426	426
50°	396	398	402	405	407	408	407	407
51°	378	380	383	386	388	389	389	388
52°	360	362	365	368	369	370	370	370
53°	343	344	347	349	352	352	352	352
54°	326	327	330	332	334	335	334	335
55°	309	311	314	315	316	318	318	318
56°	293	295	298	298	300	302	301	301
57°	277	279	282	283	285	286	285	285
58°	262	264	266	267	269	270	270	270
59°	247	250	252	252	254	255	255	255
60°	233	235	237	238	240	241	240	240
61°	219	222	224	224	227	227	227	226
62°	204	208	211	211	213	213	213	212
63°	189	195	197	197	200	200	200	198
64°	174	181	184	182	186	187	187	183
65°	159	166	169	167	171	173	173	168
66°	144	152	155	152	157	159	159	153
67°	130	137	140	138	143	145	144	138
68°	115	122	125	123	129	130	130	123
69°	102	109	111	110	115	116	116	110
70°	90	96	99	97	102	103	103	97
71°	77	84	86	84	90	91	91	85
72°	66	72	74	73	78	80	79	73
73°	54	61	63	61	67	69	68	62
74°	43	50	52	51	57	58	58	50
75°	33	39	43	41	46	48	47	40
76°	26	30	34	33	37	38	37	31
77°	21	23	26	26	29	29	29	24
78°	17	19	20	21	22	23	22	19
79°	15	16	16	17	18	19	18	16
80°	13	14	14	15	16	16	15	14
81°	11	11	12	12	13	14	13	12
82°	9	9	10	10	11	11	11	10
83°	8	8	8	9	9	10	9	8
84°	6	6	7	7	8	8	8	7
85°	5	5	5	5	6	7	6	5
86°	3	3	3	3	5	5	5	4
87°	2	2	2	2	3	4	3	3
88°	0	1	1	1	2	2	2	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 γ	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°	0	0	0	0	0	0	0	0
133°	0	0	0	0	0	0	0	0
134°	0	0	0	0	0	0	0	0
135°	0	0	0	0	0	0	0	0
136°	0	0	0	0	0	0	0	0
137°	0	0	0	0	0	0	0	0
138°	0	0	0	0	0	0	0	0
139°	0	0	0	0	0	0	0	0
140°	0	0	0	0	0	0	0	0
141°	0	0	0	0	0	0	0	0
142°	0	0	0	0	0	0	0	0
143°	0	0	0	1	1	1	1	1
144°	0	0	1	1	1	1	1	1
145°	1	0	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	1
156°	1	1	1	1	1	1	1	1
157°	1	1	1	1	1	1	1	1
158°	1	1	1	1	1	1	1	1
159°	1	1	1	1	1	1	1	1
160°	1	1	1	1	1	1	1	1
161°	1	1	1	1	1	1	1	1
162°	1	1	1	1	1	1	1	1
163°	1	1	1	1	1	1	1	1
164°	1	1	1	1	1	1	1	1
165°	1	1	1	1	1	1	1	1
166°	1	1	1	1	1	1	1	1
167°	1	1	1	1	1	1	1	1
168°	1	1	1	1	1	1	1	1
169°	1	1	1	1	1	1	1	1
170°	1	1	1	1	1	1	1	1
171°	1	1	1	1	1	1	1	1
172°	1	1	1	1	1	1	1	1
173°	1	1	1	1	1	1	1	1
174°	1	1	1	1	1	1	1	1
175°	1	1	1	1	1	1	1	1
176°	1	1	1	1	1	1	1	1
177°	1	1	1	1	1	1	1	1
178°	1	2	1	1	1	1	1	1
179°	2	2	2	1	1	1	1	2
180°	2	2	2	2	1	1	2	2

Zonal Lumen Density Measurement

Deg	Flux (lm)	%
0-5	40.0	1.73
5-10	110.2	4.77
10-15	163.3	7.07
15-20	203.1	8.80
20-25	227.5	9.84
25-30	236.4	10.24
30-35	233.1	10.09
35-40	221.7	9.60
40-45	203.6	8.81
45-50	179.6	7.78
50-55	152.6	6.61
55-60	124.3	5.38
60-65	96.0	4.15
65-70	64.0	2.77
70-75	33.7	1.46
75-80	12.1	0.52
80-85	4.8	0.21
85-90	1.0	0.04
90-95	0.0	0.01
95-100	0.0	0.00
100-105	0.0	0.00
105-110	0.1	0.00
110-115	0.1	0.00
115-120	0.1	0.01
120-125	0.1	0.00
125-130	0.2	0.01
130-135	0.2	0.01
135-140	0.2	0.01
140-145	0.3	0.01
145-150	0.3	0.02
150-155	0.3	0.01
155-160	0.3	0.01
160-165	0.3	0.02
165-170	0.2	0.00
170-175	0.1	0.01
175-180	0.0	0.00

Deg	Flux (lm)	%
0-5	40.0	1.73
0-10	150.2	6.50
0-15	313.5	13.57
0-20	516.6	22.37
0-25	744.2	32.21
0-30	980.5	42.45
0-35	1213.7	52.54
0-40	1435.4	62.14
0-45	1639.0	70.95
0-50	1818.6	78.73
0-55	1971.2	85.34
0-60	2095.6	90.72
0-65	2191.5	94.87
0-70	2255.5	97.64
0-75	2289.2	99.10
0-80	2301.3	99.62
0-85	2306.1	99.83
0-90	2307.1	99.87
0-95	2307.1	99.88
0-100	2307.1	99.88
0-105	2307.2	99.88
0-110	2307.2	99.88
0-115	2307.3	99.88
0-120	2307.4	99.89
0-125	2307.5	99.89
0-130	2307.7	99.90
0-135	2307.8	99.91
0-140	2308.1	99.92
0-145	2308.4	99.93
0-150	2308.7	99.95
0-155	2309.1	99.96
0-160	2309.4	99.97
0-165	2309.6	99.99
0-170	2309.8	99.99
0-175	2309.9	100.00
0-180	2310.0	100.00

[Additional Test]

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120	60	11.85%

[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**

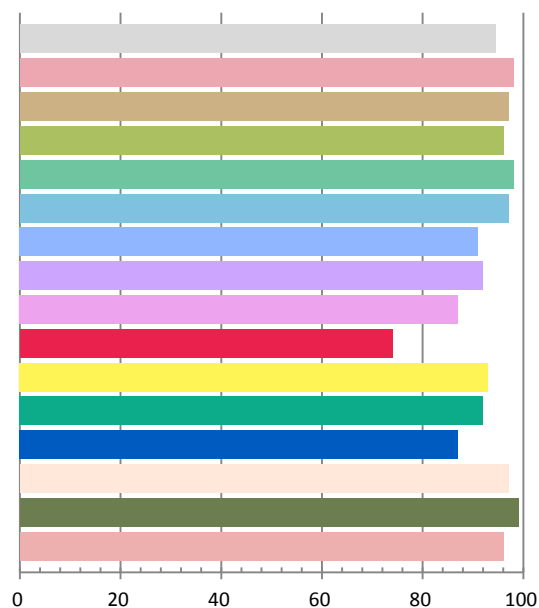
Photometric and Electrical Measurement Result

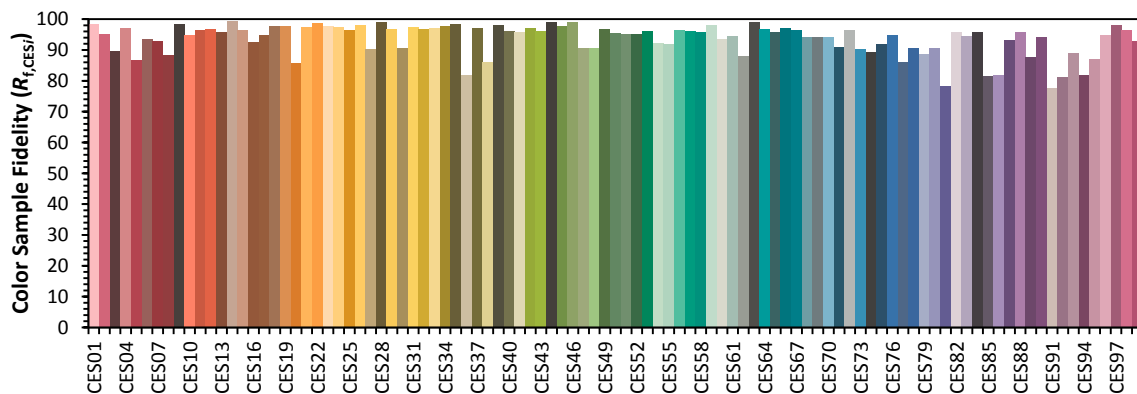
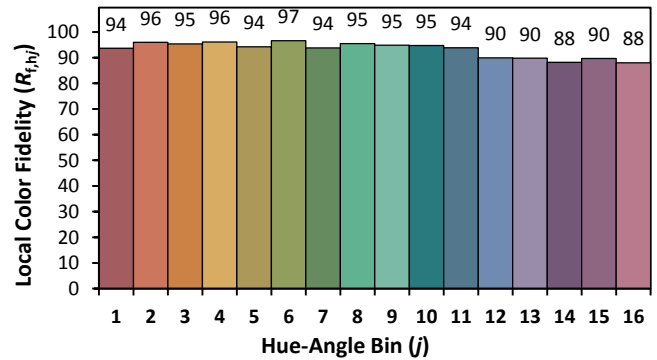
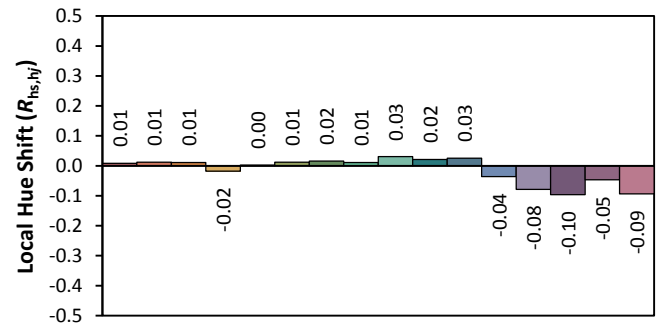
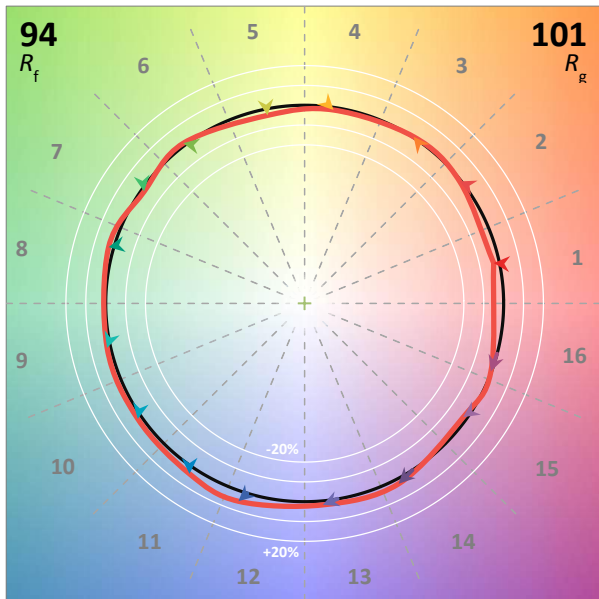
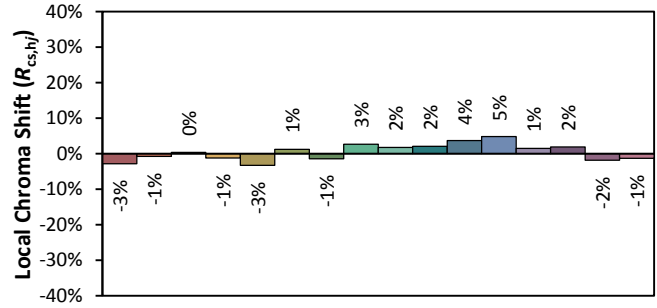
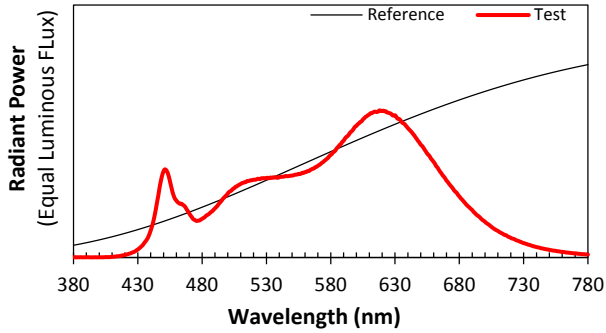
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.1744	20.67	0.9875	2372.4	114.78

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
8.1838	3060	-0.00323	0.4282	0.3931	0.2497	0.5157

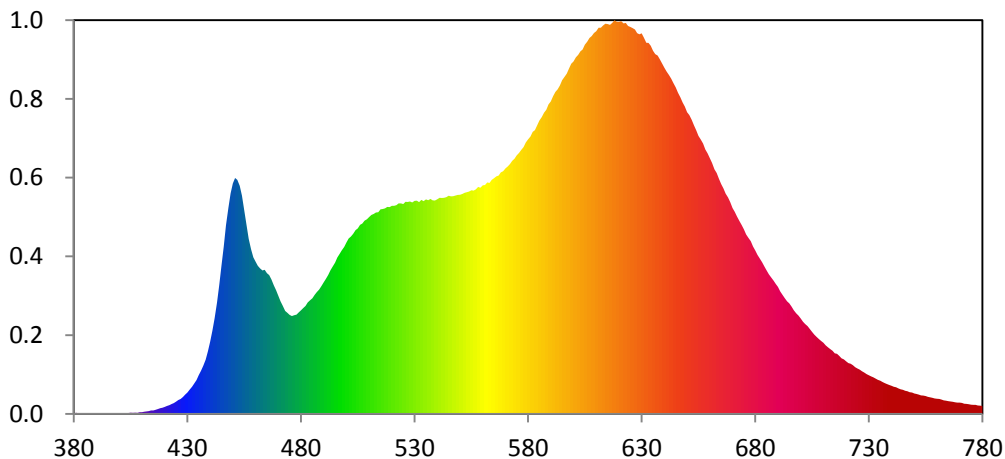
Color Rendering Index

Ra			
94.5			
R1	R2	R3	R4
98	97	96	98
R5	R6	R7	R8
97	91	92	87
R9	R10	R11	R12
74	93	92	87
R13	R14	R15	
97	99	96	





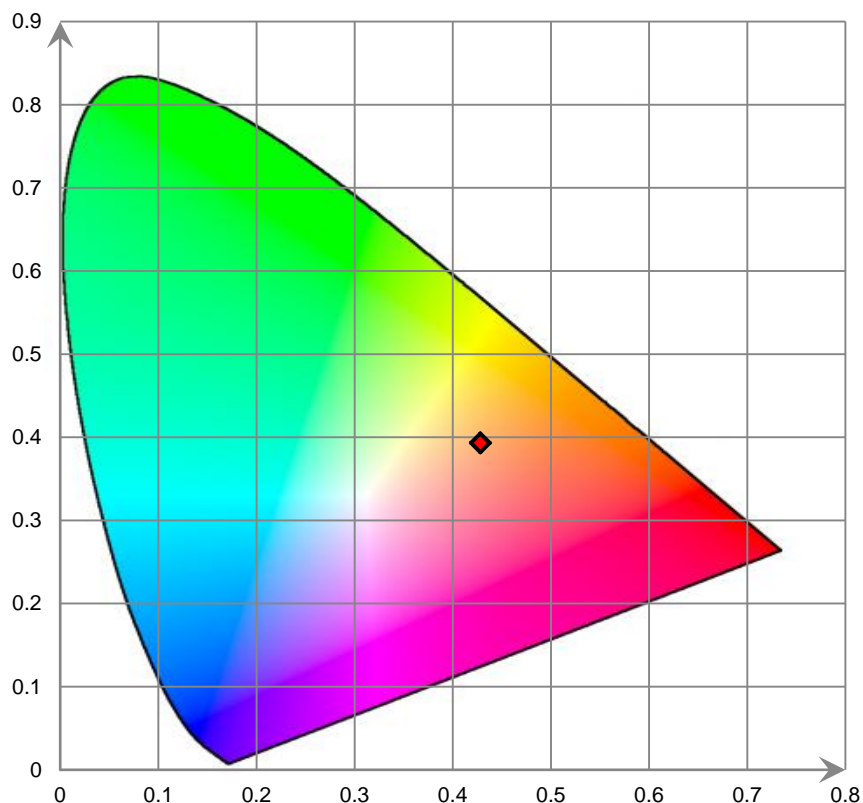
Relative Spectral Power Distribution



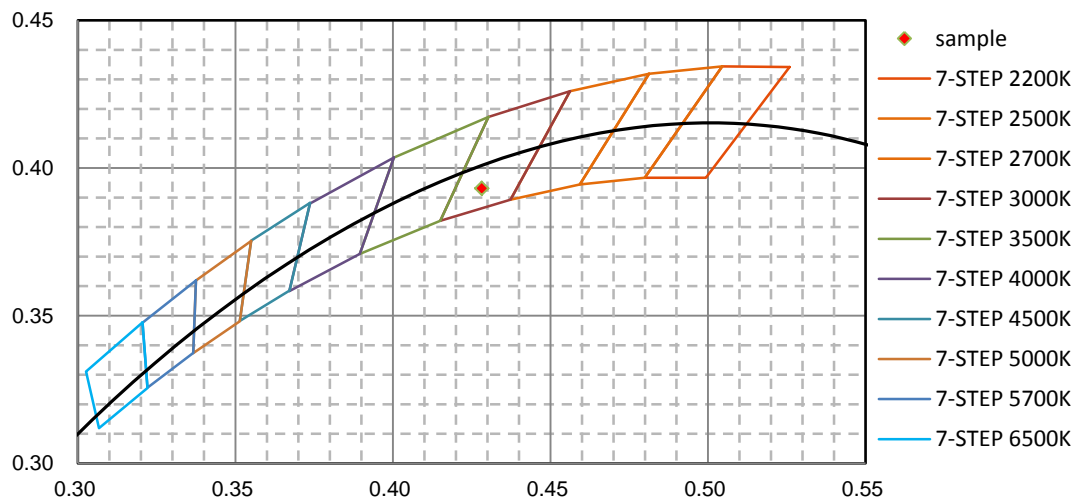
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380	6.599E-02	421	1.032E+00	462	1.872E+01	503	2.316E+01	544	2.787E+01
381	1.569E-01	422	1.132E+00	463	1.845E+01	504	2.364E+01	545	2.805E+01
382	4.737E-02	423	1.282E+00	464	1.853E+01	505	2.385E+01	546	2.798E+01
383	1.081E-01	424	1.404E+00	465	1.810E+01	506	2.432E+01	547	2.799E+01
384	8.116E-02	425	1.588E+00	466	1.785E+01	507	2.448E+01	548	2.808E+01
385	1.072E-01	426	1.785E+00	467	1.731E+01	508	2.484E+01	549	2.816E+01
386	1.173E-01	427	1.931E+00	468	1.654E+01	509	2.504E+01	550	2.818E+01
387	5.724E-02	428	2.166E+00	469	1.591E+01	510	2.533E+01	551	2.829E+01
388	9.893E-02	429	2.488E+00	470	1.521E+01	511	2.558E+01	552	2.844E+01
389	9.305E-02	430	2.762E+00	471	1.448E+01	512	2.571E+01	553	2.851E+01
390	9.084E-02	431	3.113E+00	472	1.391E+01	513	2.591E+01	554	2.859E+01
391	1.285E-01	432	3.498E+00	473	1.325E+01	514	2.594E+01	555	2.876E+01
392	9.074E-02	433	3.924E+00	474	1.300E+01	515	2.631E+01	556	2.872E+01
393	6.310E-02	434	4.366E+00	475	1.272E+01	516	2.635E+01	557	2.888E+01
394	6.486E-02	435	4.997E+00	476	1.259E+01	517	2.643E+01	558	2.919E+01
395	8.255E-02	436	5.553E+00	477	1.270E+01	518	2.662E+01	559	2.909E+01
396	7.196E-02	437	6.193E+00	478	1.276E+01	519	2.659E+01	560	2.940E+01
397	1.063E-01	438	6.974E+00	479	1.306E+01	520	2.677E+01	561	2.943E+01
398	7.302E-02	439	8.029E+00	480	1.332E+01	521	2.676E+01	562	2.976E+01
399	7.892E-02	440	9.273E+00	481	1.362E+01	522	2.684E+01	563	2.971E+01
400	9.149E-02	441	1.069E+01	482	1.388E+01	523	2.706E+01	564	3.009E+01
401	1.040E-01	442	1.229E+01	483	1.434E+01	524	2.707E+01	565	3.032E+01
402	7.744E-02	443	1.431E+01	484	1.463E+01	525	2.698E+01	566	3.055E+01
403	9.591E-02	444	1.658E+01	485	1.488E+01	526	2.727E+01	567	3.065E+01
404	1.115E-01	445	1.908E+01	486	1.529E+01	527	2.725E+01	568	3.107E+01
405	1.611E-01	446	2.150E+01	487	1.566E+01	528	2.732E+01	569	3.121E+01
406	1.406E-01	447	2.425E+01	488	1.599E+01	529	2.720E+01	570	3.157E+01
407	1.579E-01	448	2.647E+01	489	1.646E+01	530	2.739E+01	571	3.183E+01
408	1.366E-01	449	2.836E+01	490	1.692E+01	531	2.741E+01	572	3.214E+01
409	2.158E-01	450	2.963E+01	491	1.737E+01	532	2.724E+01	573	3.254E+01
410	2.282E-01	451	3.033E+01	492	1.786E+01	533	2.753E+01	574	3.281E+01
411	2.913E-01	452	3.010E+01	493	1.847E+01	534	2.736E+01	575	3.323E+01
412	3.183E-01	453	2.934E+01	494	1.899E+01	535	2.759E+01	576	3.356E+01
413	3.621E-01	454	2.807E+01	495	1.946E+01	536	2.749E+01	577	3.397E+01
414	4.455E-01	455	2.622E+01	496	2.012E+01	537	2.765E+01	578	3.431E+01
415	4.493E-01	456	2.436E+01	497	2.057E+01	538	2.747E+01	579	3.492E+01
416	5.311E-01	457	2.253E+01	498	2.104E+01	539	2.745E+01	580	3.529E+01
417	6.265E-01	458	2.116E+01	499	2.147E+01	540	2.761E+01	581	3.568E+01
418	7.306E-01	459	2.014E+01	500	2.205E+01	541	2.778E+01	582	3.628E+01
419	8.009E-01	460	1.957E+01	501	2.256E+01	542	2.778E+01	583	3.650E+01
420	9.063E-01	461	1.905E+01	502	2.281E+01	543	2.780E+01	584	3.711E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	3.773E+01	626	4.962E+01	667	2.831E+01	708	9.617E+00	749	2.754E+00
586	3.818E+01	627	4.943E+01	668	2.783E+01	709	9.370E+00	750	2.636E+00
587	3.874E+01	628	4.895E+01	669	2.722E+01	710	9.143E+00	751	2.556E+00
588	3.910E+01	629	4.881E+01	670	2.647E+01	711	8.825E+00	752	2.491E+00
589	3.980E+01	630	4.894E+01	671	2.599E+01	712	8.576E+00	753	2.382E+00
590	4.017E+01	631	4.838E+01	672	2.538E+01	713	8.340E+00	754	2.363E+00
591	4.088E+01	632	4.773E+01	673	2.481E+01	714	8.116E+00	755	2.293E+00
592	4.142E+01	633	4.770E+01	674	2.430E+01	715	7.796E+00	756	2.200E+00
593	4.174E+01	634	4.734E+01	675	2.374E+01	716	7.732E+00	757	2.144E+00
594	4.223E+01	635	4.671E+01	676	2.307E+01	717	7.476E+00	758	2.075E+00
595	4.292E+01	636	4.627E+01	677	2.264E+01	718	7.161E+00	759	2.001E+00
596	4.334E+01	637	4.608E+01	678	2.221E+01	719	7.004E+00	760	1.955E+00
597	4.375E+01	638	4.559E+01	679	2.154E+01	720	6.768E+00	761	1.922E+00
598	4.441E+01	639	4.505E+01	680	2.103E+01	721	6.546E+00	762	1.844E+00
599	4.503E+01	640	4.451E+01	681	2.045E+01	722	6.451E+00	763	1.736E+00
600	4.531E+01	641	4.403E+01	682	1.999E+01	723	6.264E+00	764	1.706E+00
601	4.585E+01	642	4.358E+01	683	1.949E+01	724	6.000E+00	765	1.651E+00
602	4.616E+01	643	4.311E+01	684	1.897E+01	725	5.850E+00	766	1.608E+00
603	4.662E+01	644	4.252E+01	685	1.844E+01	726	5.695E+00	767	1.559E+00
604	4.685E+01	645	4.198E+01	686	1.796E+01	727	5.490E+00	768	1.495E+00
605	4.749E+01	646	4.132E+01	687	1.756E+01	728	5.334E+00	769	1.450E+00
606	4.786E+01	647	4.071E+01	688	1.715E+01	729	5.117E+00	770	1.446E+00
607	4.835E+01	648	4.005E+01	689	1.672E+01	730	4.967E+00	771	1.417E+00
608	4.860E+01	649	3.951E+01	690	1.634E+01	731	4.834E+00	772	1.304E+00
609	4.897E+01	650	3.880E+01	691	1.577E+01	732	4.709E+00	773	1.293E+00
610	4.920E+01	651	3.842E+01	692	1.533E+01	733	4.542E+00	774	1.239E+00
611	4.966E+01	652	3.782E+01	693	1.488E+01	734	4.377E+00	775	1.180E+00
612	4.966E+01	653	3.711E+01	694	1.449E+01	735	4.284E+00	776	1.158E+00
613	4.994E+01	654	3.647E+01	695	1.421E+01	736	4.106E+00	777	1.161E+00
614	5.017E+01	655	3.576E+01	696	1.380E+01	737	3.975E+00	778	1.090E+00
615	5.014E+01	656	3.530E+01	697	1.333E+01	738	3.841E+00	779	1.067E+00
616	5.004E+01	657	3.477E+01	698	1.293E+01	739	3.718E+00	780	1.016E+00
617	5.027E+01	658	3.400E+01	699	1.265E+01	740	3.609E+00		
618	5.064E+01	659	3.350E+01	700	1.228E+01	741	3.500E+00		
619	5.044E+01	660	3.289E+01	701	1.188E+01	742	3.431E+00		
620	5.041E+01	661	3.228E+01	702	1.157E+01	743	3.286E+00		
621	5.051E+01	662	3.145E+01	703	1.129E+01	744	3.163E+00		
622	5.022E+01	663	3.097E+01	704	1.092E+01	745	3.094E+00		
623	5.029E+01	664	3.025E+01	705	1.055E+01	746	2.981E+00		
624	4.989E+01	665	2.956E+01	706	1.021E+01	747	2.913E+00		
625	4.977E+01	666	2.900E+01	707	9.908E+00	748	2.795E+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**

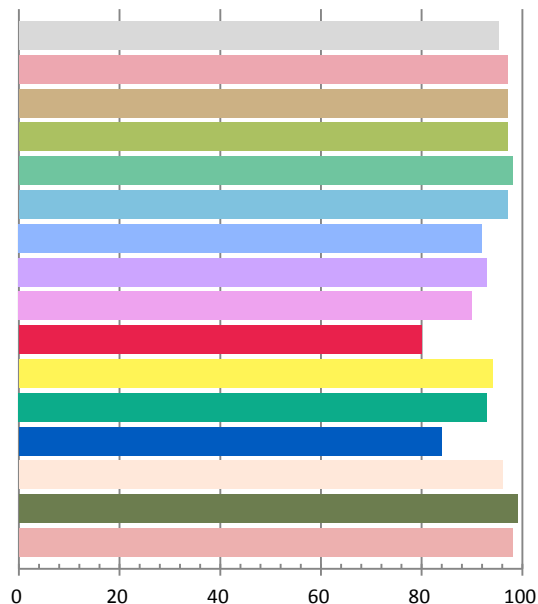
Photometric and Electrical Measurement Result

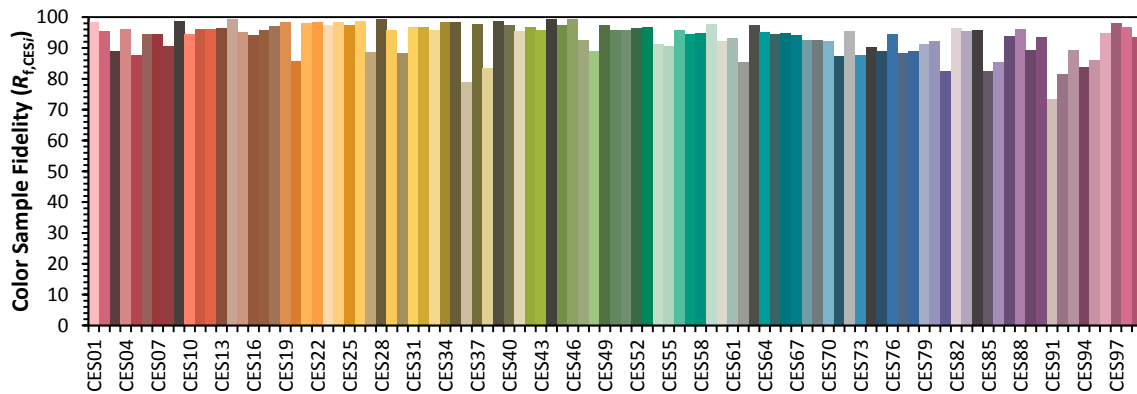
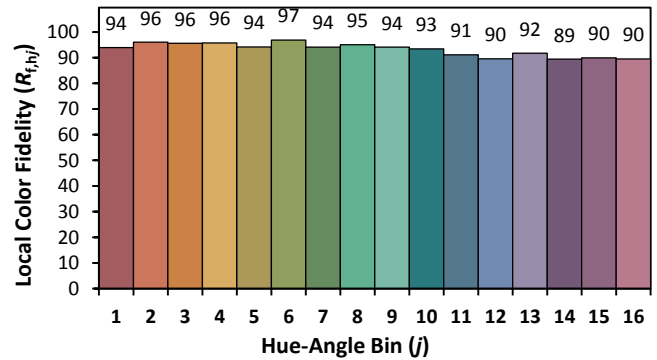
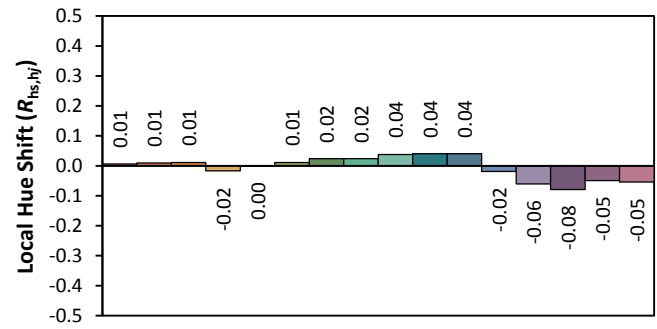
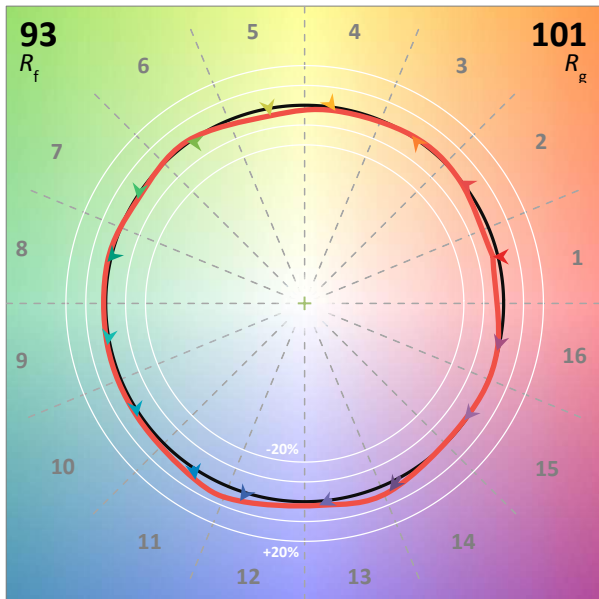
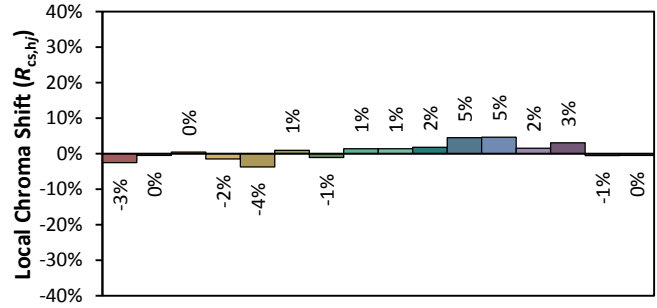
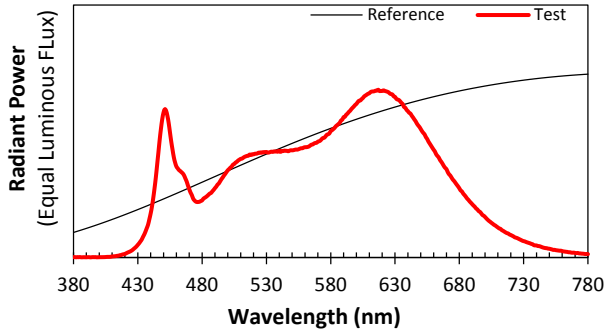
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.1716	20.34	0.9876	2445.3	120.22

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
8.4332	3482	-0.00425	0.4019	0.3795	0.2382	0.5060

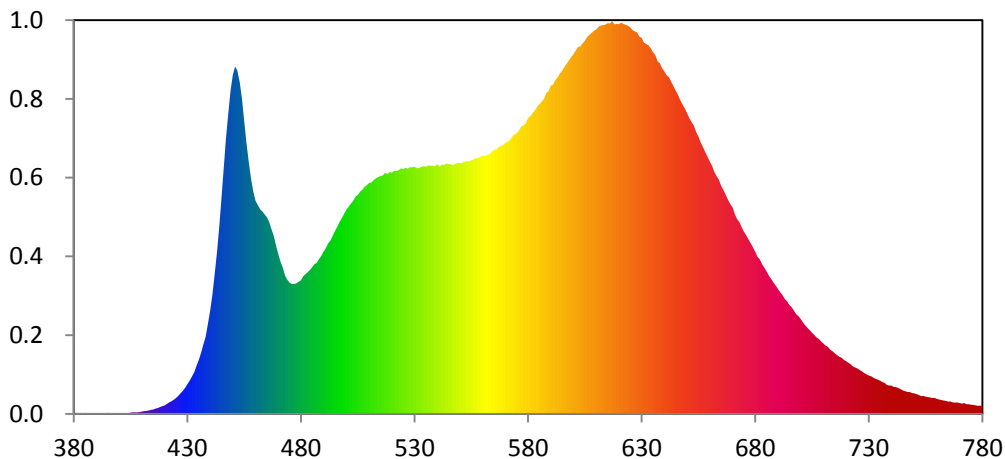
Color Rendering Index

Ra			
95.3			
R1	R2	R3	R4
97	97	97	98
R5	R6	R7	R8
97	92	93	90
R9	R10	R11	R12
80	94	93	84
R13	R14	R15	
96	99	98	





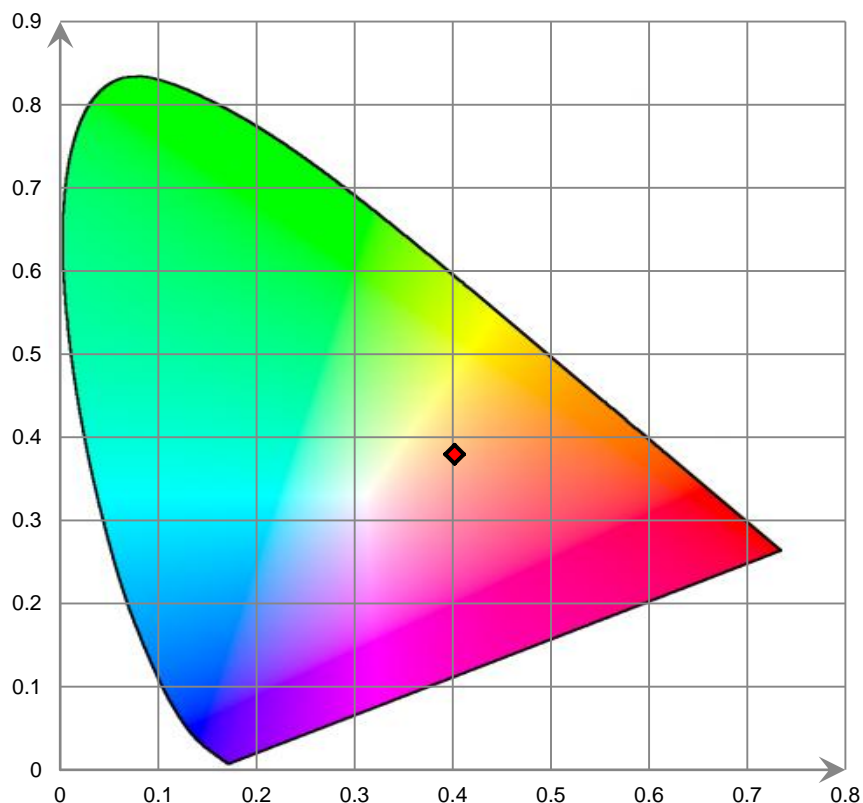
Relative Spectral Power Distribution



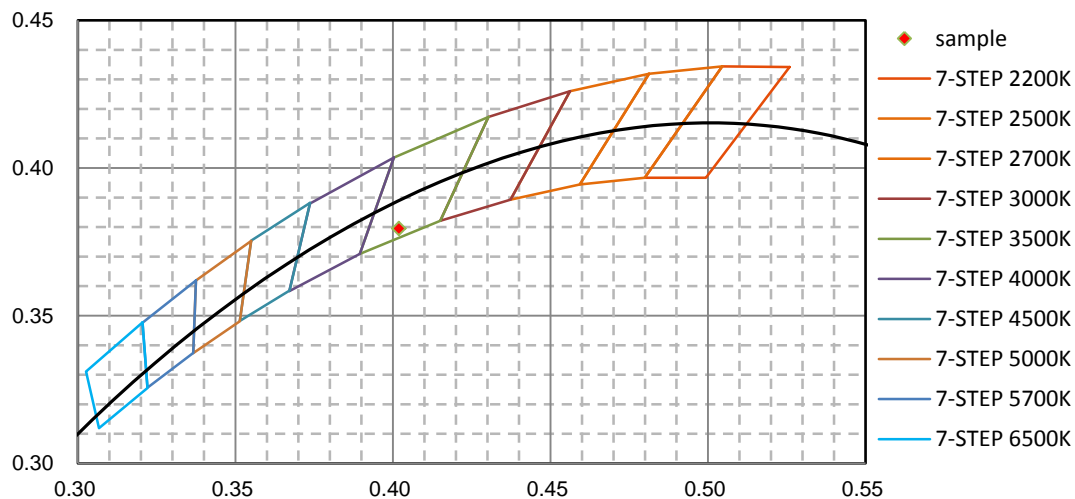
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381	1.302E-01	422	1.406E+00	463	2.453E+01	504	2.634E+01	545	3.027E+01
382	7.233E-02	423	1.556E+00	464	2.418E+01	505	2.654E+01	546	3.026E+01
383	1.239E-01	424	1.728E+00	465	2.384E+01	506	2.693E+01	547	3.014E+01
384	1.024E-01	425	1.928E+00	466	2.327E+01	507	2.716E+01	548	3.032E+01
385	1.365E-01	426	2.189E+00	467	2.242E+01	508	2.752E+01	549	3.042E+01
386	6.717E-02	427	2.509E+00	468	2.155E+01	509	2.775E+01	550	3.040E+01
387	7.892E-02	428	2.816E+00	469	2.040E+01	510	2.799E+01	551	3.045E+01
388	9.873E-02	429	3.177E+00	470	1.940E+01	511	2.805E+01	552	3.055E+01
389	8.547E-02	430	3.607E+00	471	1.843E+01	512	2.832E+01	553	3.063E+01
390	7.760E-02	431	4.030E+00	472	1.773E+01	513	2.855E+01	554	3.061E+01
391	1.028E-01	432	4.548E+00	473	1.673E+01	514	2.870E+01	555	3.072E+01
392	1.157E-01	433	5.078E+00	474	1.624E+01	515	2.884E+01	556	3.087E+01
393	6.112E-02	434	5.832E+00	475	1.589E+01	516	2.888E+01	557	3.100E+01
394	8.126E-02	435	6.538E+00	476	1.575E+01	517	2.922E+01	558	3.100E+01
395	1.237E-01	436	7.379E+00	477	1.576E+01	518	2.908E+01	559	3.119E+01
396	1.026E-01	437	8.366E+00	478	1.584E+01	519	2.931E+01	560	3.129E+01
397	1.181E-01	438	9.363E+00	479	1.603E+01	520	2.925E+01	561	3.130E+01
398	7.069E-02	439	1.089E+01	480	1.621E+01	521	2.944E+01	562	3.137E+01
399	8.233E-02	440	1.250E+01	481	1.668E+01	522	2.946E+01	563	3.149E+01
400	8.829E-02	441	1.443E+01	482	1.694E+01	523	2.953E+01	564	3.175E+01
401	1.086E-01	442	1.687E+01	483	1.718E+01	524	2.977E+01	565	3.201E+01
402	1.079E-01	443	1.962E+01	484	1.748E+01	525	2.968E+01	566	3.207E+01
403	1.172E-01	444	2.266E+01	485	1.782E+01	526	2.984E+01	567	3.234E+01
404	1.213E-01	445	2.617E+01	486	1.816E+01	527	2.973E+01	568	3.249E+01
405	1.432E-01	446	2.977E+01	487	1.833E+01	528	2.991E+01	569	3.255E+01
406	1.821E-01	447	3.340E+01	488	1.879E+01	529	2.987E+01	570	3.286E+01
407	1.890E-01	448	3.655E+01	489	1.920E+01	530	2.995E+01	571	3.299E+01
408	1.925E-01	449	3.924E+01	490	1.969E+01	531	2.978E+01	572	3.319E+01
409	2.271E-01	450	4.110E+01	491	2.012E+01	532	2.980E+01	573	3.360E+01
410	2.974E-01	451	4.208E+01	492	2.068E+01	533	2.993E+01	574	3.390E+01
411	3.407E-01	452	4.163E+01	493	2.102E+01	534	3.003E+01	575	3.398E+01
412	3.671E-01	453	4.020E+01	494	2.162E+01	535	2.995E+01	576	3.438E+01
413	4.142E-01	454	3.819E+01	495	2.221E+01	536	3.012E+01	577	3.482E+01
414	4.932E-01	455	3.549E+01	496	2.270E+01	537	3.006E+01	578	3.497E+01
415	5.277E-01	456	3.286E+01	497	2.326E+01	538	3.009E+01	579	3.523E+01
416	6.566E-01	457	3.059E+01	498	2.374E+01	539	3.000E+01	580	3.587E+01
417	7.161E-01	458	2.847E+01	499	2.428E+01	540	3.028E+01	581	3.611E+01
418	8.558E-01	459	2.693E+01	500	2.476E+01	541	2.996E+01	582	3.644E+01
419	9.394E-01	460	2.583E+01	501	2.511E+01	542	3.021E+01	583	3.677E+01
420	1.038E+00	461	2.531E+01	502	2.550E+01	543	3.018E+01	584	3.724E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	3.754E+01	626	4.651E+01	667	2.657E+01	708	9.076E+00	749	2.534E+00
586	3.787E+01	627	4.635E+01	668	2.593E+01	709	8.777E+00	750	2.497E+00
587	3.822E+01	628	4.623E+01	669	2.543E+01	710	8.526E+00	751	2.404E+00
588	3.887E+01	629	4.571E+01	670	2.505E+01	711	8.251E+00	752	2.308E+00
589	3.910E+01	630	4.556E+01	671	2.423E+01	712	8.138E+00	753	2.172E+00
590	3.980E+01	631	4.502E+01	672	2.363E+01	713	7.783E+00	754	2.187E+00
591	3.993E+01	632	4.481E+01	673	2.324E+01	714	7.589E+00	755	2.092E+00
592	4.049E+01	633	4.467E+01	674	2.264E+01	715	7.349E+00	756	2.040E+00
593	4.080E+01	634	4.430E+01	675	2.208E+01	716	7.126E+00	757	1.988E+00
594	4.126E+01	635	4.384E+01	676	2.168E+01	717	6.929E+00	758	1.937E+00
595	4.160E+01	636	4.350E+01	677	2.117E+01	718	6.816E+00	759	1.938E+00
596	4.207E+01	637	4.271E+01	678	2.066E+01	719	6.542E+00	760	1.824E+00
597	4.247E+01	638	4.249E+01	679	2.018E+01	720	6.394E+00	761	1.738E+00
598	4.284E+01	639	4.187E+01	680	1.964E+01	721	6.205E+00	762	1.692E+00
599	4.327E+01	640	4.151E+01	681	1.903E+01	722	6.023E+00	763	1.632E+00
600	4.359E+01	641	4.105E+01	682	1.875E+01	723	5.762E+00	764	1.594E+00
601	4.408E+01	642	4.082E+01	683	1.814E+01	724	5.635E+00	765	1.496E+00
602	4.447E+01	643	4.023E+01	684	1.773E+01	725	5.513E+00	766	1.502E+00
603	4.453E+01	644	3.973E+01	685	1.727E+01	726	5.331E+00	767	1.398E+00
604	4.492E+01	645	3.917E+01	686	1.676E+01	727	5.145E+00	768	1.372E+00
605	4.524E+01	646	3.867E+01	687	1.638E+01	728	4.968E+00	769	1.390E+00
606	4.569E+01	647	3.800E+01	688	1.592E+01	729	4.780E+00	770	1.306E+00
607	4.594E+01	648	3.747E+01	689	1.554E+01	730	4.656E+00	771	1.250E+00
608	4.619E+01	649	3.703E+01	690	1.514E+01	731	4.560E+00	772	1.309E+00
609	4.644E+01	650	3.644E+01	691	1.475E+01	732	4.394E+00	773	1.186E+00
610	4.659E+01	651	3.584E+01	692	1.440E+01	733	4.272E+00	774	1.171E+00
611	4.693E+01	652	3.534E+01	693	1.393E+01	734	4.150E+00	775	1.114E+00
612	4.708E+01	653	3.491E+01	694	1.365E+01	735	4.031E+00	776	1.100E+00
613	4.711E+01	654	3.415E+01	695	1.319E+01	736	3.863E+00	777	1.049E+00
614	4.718E+01	655	3.363E+01	696	1.296E+01	737	3.767E+00	778	9.894E-01
615	4.734E+01	656	3.289E+01	697	1.254E+01	738	3.505E+00	779	1.004E+00
616	4.733E+01	657	3.231E+01	698	1.207E+01	739	3.447E+00	780	9.654E-01
617	4.759E+01	658	3.173E+01	699	1.185E+01	740	3.426E+00		
618	4.721E+01	659	3.116E+01	700	1.151E+01	741	3.273E+00		
619	4.726E+01	660	3.059E+01	701	1.110E+01	742	3.245E+00		
620	4.723E+01	661	3.007E+01	702	1.074E+01	743	3.137E+00		
621	4.742E+01	662	2.929E+01	703	1.041E+01	744	2.990E+00		
622	4.726E+01	663	2.881E+01	704	1.014E+01	745	2.852E+00		
623	4.715E+01	664	2.837E+01	705	9.834E+00	746	2.756E+00		
624	4.703E+01	665	2.765E+01	706	9.566E+00	747	2.679E+00		
625	4.685E+01	666	2.714E+01	707	9.275E+00	748	2.645E+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**

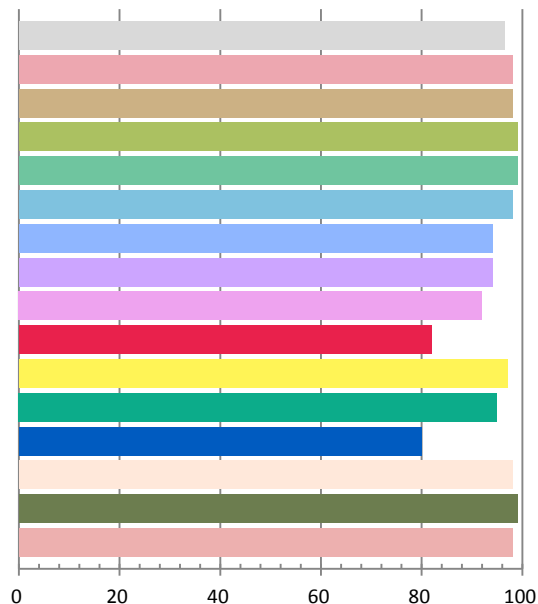
Photometric and Electrical Measurement Result

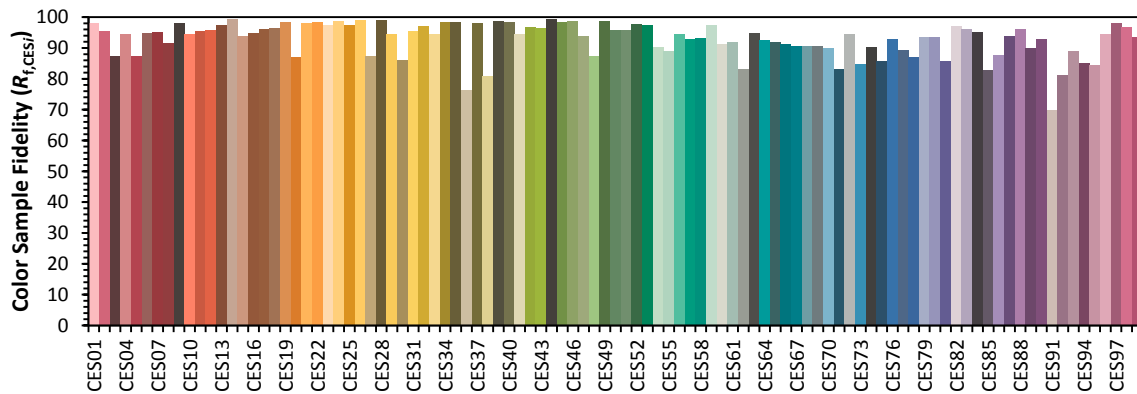
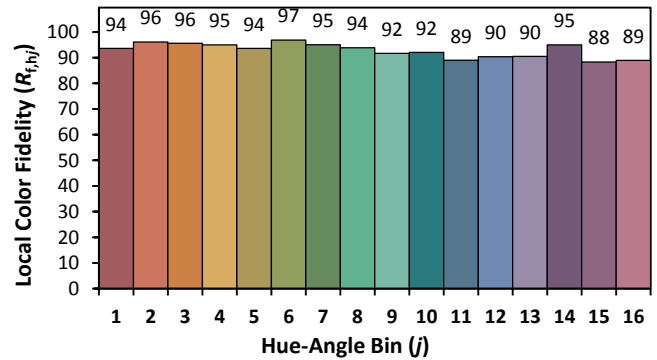
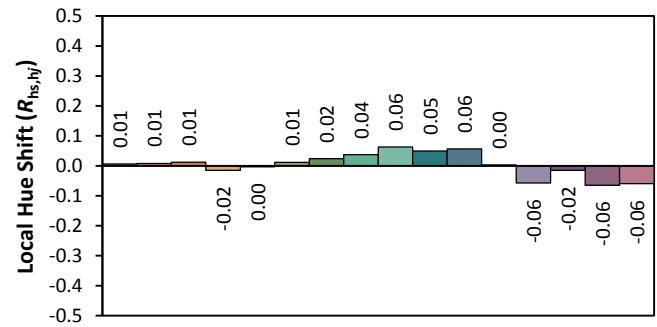
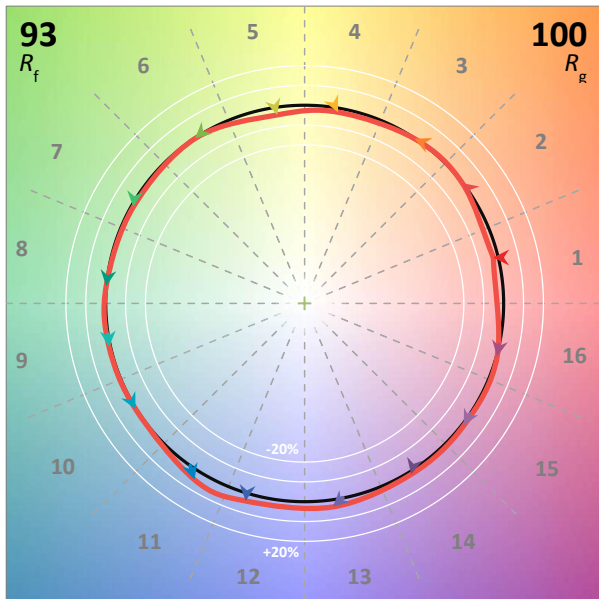
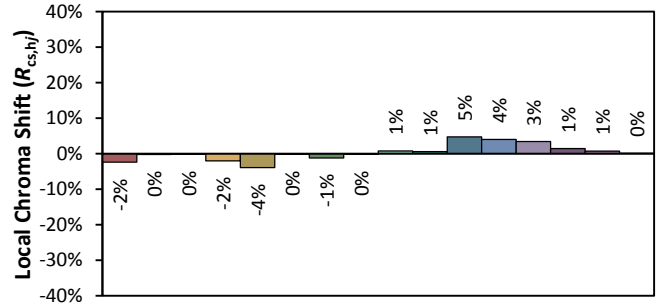
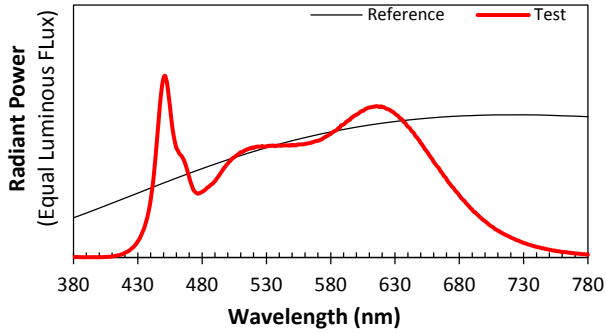
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.1718	20.37	0.9878	2487.6	122.12

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
8.5628	4005	-0.00364	0.3777	0.3674	0.2271	0.4970

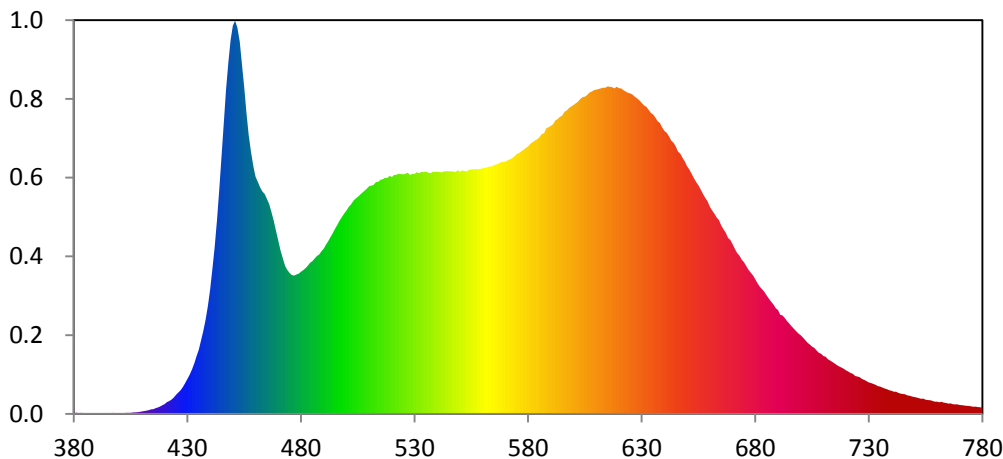
Color Rendering Index

Ra			
96.4			
R1	R2	R3	R4
98	98	99	99
R5	R6	R7	R8
98	94	94	92
R9	R10	R11	R12
82	97	95	80
R13	R14	R15	
98	99	98	





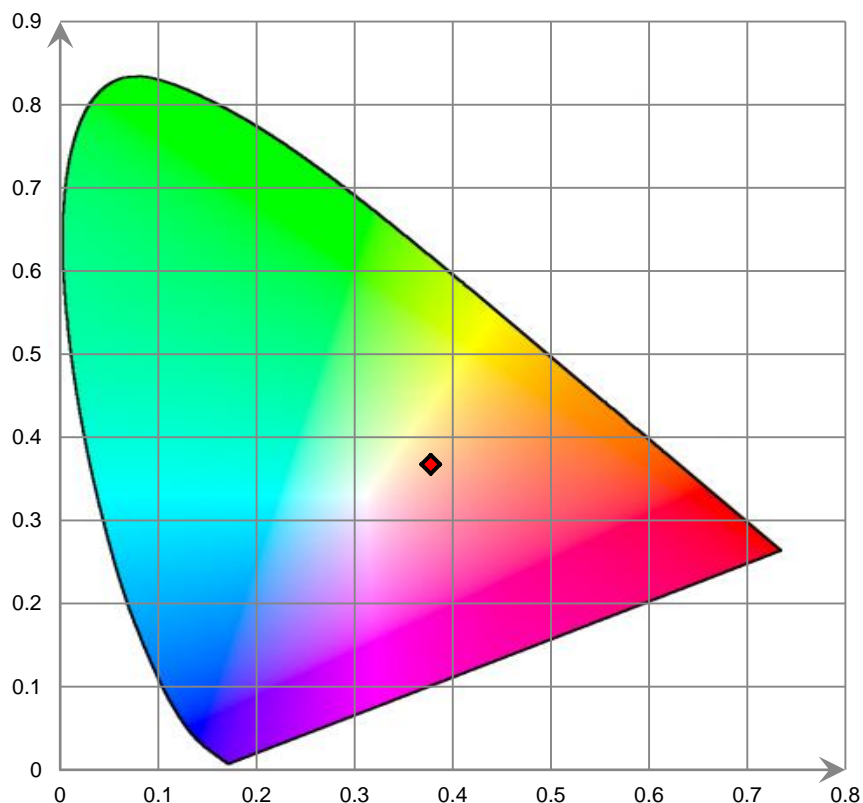
Relative Spectral Power Distribution



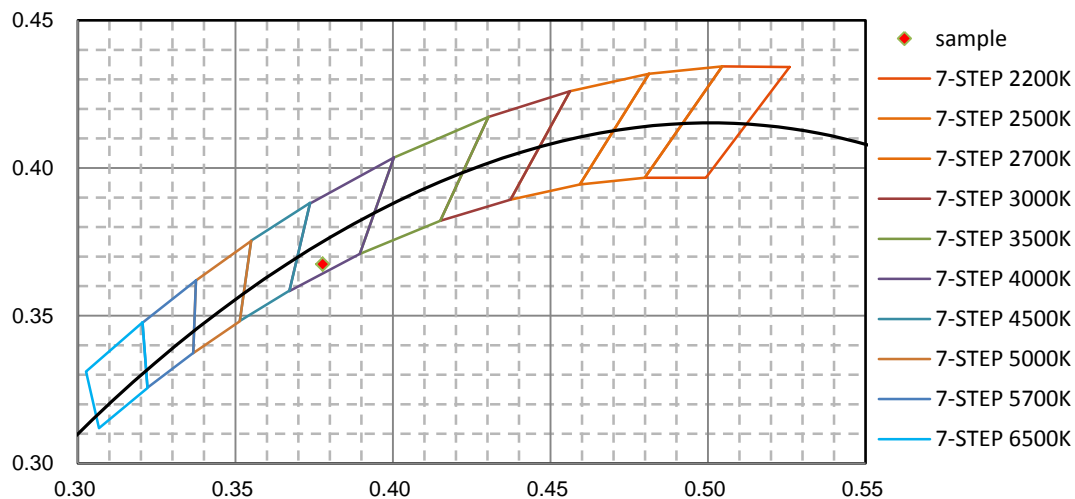
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380	1.011E-01	421	1.565E+00	462	3.023E+01	503	2.839E+01	544	3.237E+01
381	1.670E-01	422	1.719E+00	463	2.966E+01	504	2.871E+01	545	3.237E+01
382	1.177E-01	423	1.923E+00	464	2.934E+01	505	2.895E+01	546	3.236E+01
383	1.531E-01	424	2.196E+00	465	2.867E+01	506	2.924E+01	547	3.235E+01
384	1.240E-01	425	2.545E+00	466	2.799E+01	507	2.951E+01	548	3.226E+01
385	1.159E-01	426	2.846E+00	467	2.694E+01	508	2.978E+01	549	3.249E+01
386	1.160E-01	427	3.182E+00	468	2.574E+01	509	3.007E+01	550	3.231E+01
387	8.624E-02	428	3.594E+00	469	2.439E+01	510	3.040E+01	551	3.248E+01
388	1.014E-01	429	4.125E+00	470	2.311E+01	511	3.044E+01	552	3.241E+01
389	6.262E-02	430	4.671E+00	471	2.181E+01	512	3.057E+01	553	3.234E+01
390	1.183E-01	431	5.220E+00	472	2.078E+01	513	3.092E+01	554	3.256E+01
391	1.127E-01	432	5.947E+00	473	1.971E+01	514	3.096E+01	555	3.263E+01
392	1.008E-01	433	6.745E+00	474	1.918E+01	515	3.123E+01	556	3.263E+01
393	8.549E-02	434	7.688E+00	475	1.880E+01	516	3.130E+01	557	3.264E+01
394	9.939E-02	435	8.552E+00	476	1.851E+01	517	3.151E+01	558	3.266E+01
395	1.275E-01	436	9.780E+00	477	1.845E+01	518	3.148E+01	559	3.268E+01
396	9.007E-02	437	1.104E+01	478	1.862E+01	519	3.175E+01	560	3.278E+01
397	1.373E-01	438	1.261E+01	479	1.872E+01	520	3.160E+01	561	3.281E+01
398	8.637E-02	439	1.439E+01	480	1.897E+01	521	3.189E+01	562	3.290E+01
399	1.080E-01	440	1.661E+01	481	1.918E+01	522	3.191E+01	563	3.302E+01
400	9.621E-02	441	1.931E+01	482	1.943E+01	523	3.202E+01	564	3.301E+01
401	1.303E-01	442	2.216E+01	483	1.975E+01	524	3.199E+01	565	3.318E+01
402	1.063E-01	443	2.589E+01	484	2.016E+01	525	3.197E+01	566	3.330E+01
403	1.378E-01	444	2.990E+01	485	2.038E+01	526	3.203E+01	567	3.340E+01
404	1.352E-01	445	3.428E+01	486	2.071E+01	527	3.218E+01	568	3.357E+01
405	1.534E-01	446	3.868E+01	487	2.106E+01	528	3.189E+01	569	3.361E+01
406	1.797E-01	447	4.315E+01	488	2.124E+01	529	3.200E+01	570	3.366E+01
407	2.008E-01	448	4.691E+01	489	2.170E+01	530	3.202E+01	571	3.383E+01
408	2.244E-01	449	4.988E+01	490	2.204E+01	531	3.225E+01	572	3.396E+01
409	2.640E-01	450	5.180E+01	491	2.258E+01	532	3.211E+01	573	3.413E+01
410	3.465E-01	451	5.246E+01	492	2.305E+01	533	3.230E+01	574	3.436E+01
411	3.825E-01	452	5.156E+01	493	2.358E+01	534	3.224E+01	575	3.466E+01
412	4.366E-01	453	4.968E+01	494	2.414E+01	535	3.234E+01	576	3.480E+01
413	5.057E-01	454	4.661E+01	495	2.471E+01	536	3.218E+01	577	3.504E+01
414	6.040E-01	455	4.360E+01	496	2.522E+01	537	3.212E+01	578	3.524E+01
415	6.389E-01	456	4.017E+01	497	2.578E+01	538	3.229E+01	579	3.549E+01
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419	1.178E+00	460	3.163E+01	501	2.762E+01	542	3.223E+01	583	3.648E+01
420	1.326E+00	461	3.096E+01	502	2.793E+01	543	3.235E+01	584	3.665E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	3.690E+01	626	4.259E+01	667	2.420E+01	708	8.160E+00	749	2.315E+00
586	3.735E+01	627	4.229E+01	668	2.348E+01	709	8.014E+00	750	2.254E+00
587	3.742E+01	628	4.209E+01	669	2.321E+01	710	7.718E+00	751	2.194E+00
588	3.810E+01	629	4.182E+01	670	2.266E+01	711	7.625E+00	752	2.118E+00
589	3.824E+01	630	4.149E+01	671	2.204E+01	712	7.285E+00	753	2.020E+00
590	3.840E+01	631	4.116E+01	672	2.150E+01	713	7.135E+00	754	2.039E+00
591	3.866E+01	632	4.097E+01	673	2.112E+01	714	6.922E+00	755	1.887E+00
592	3.915E+01	633	4.058E+01	674	2.059E+01	715	6.713E+00	756	1.855E+00
593	3.932E+01	634	4.016E+01	675	2.025E+01	716	6.514E+00	757	1.839E+00
594	3.964E+01	635	3.996E+01	676	1.977E+01	717	6.339E+00	758	1.748E+00
595	3.977E+01	636	3.955E+01	677	1.925E+01	718	6.186E+00	759	1.639E+00
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599	4.102E+01	640	3.775E+01	681	1.743E+01	722	5.469E+00	763	1.512E+00
600	4.120E+01	641	3.751E+01	682	1.698E+01	723	5.343E+00	764	1.476E+00
601	4.144E+01	642	3.704E+01	683	1.663E+01	724	5.060E+00	765	1.388E+00
602	4.167E+01	643	3.644E+01	684	1.628E+01	725	4.982E+00	766	1.397E+00
603	4.202E+01	644	3.617E+01	685	1.581E+01	726	4.896E+00	767	1.287E+00
604	4.224E+01	645	3.567E+01	686	1.538E+01	727	4.662E+00	768	1.268E+00
605	4.231E+01	646	3.499E+01	687	1.498E+01	728	4.539E+00	769	1.270E+00
606	4.255E+01	647	3.469E+01	688	1.459E+01	729	4.379E+00	770	1.192E+00
607	4.286E+01	648	3.413E+01	689	1.410E+01	730	4.203E+00	771	1.160E+00
608	4.300E+01	649	3.368E+01	690	1.387E+01	731	4.119E+00	772	1.130E+00
609	4.319E+01	650	3.304E+01	691	1.324E+01	732	4.000E+00	773	1.075E+00
610	4.326E+01	651	3.261E+01	692	1.313E+01	733	3.872E+00	774	1.074E+00
611	4.335E+01	652	3.202E+01	693	1.277E+01	734	3.712E+00	775	1.017E+00
612	4.342E+01	653	3.144E+01	694	1.237E+01	735	3.648E+00	776	9.561E-01
613	4.350E+01	654	3.092E+01	695	1.206E+01	736	3.513E+00	777	9.695E-01
614	4.351E+01	655	3.050E+01	696	1.169E+01	737	3.386E+00	778	9.191E-01
615	4.368E+01	656	2.993E+01	697	1.136E+01	738	3.305E+00	779	8.920E-01
616	4.363E+01	657	2.933E+01	698	1.103E+01	739	3.161E+00	780	8.463E-01
617	4.358E+01	658	2.881E+01	699	1.073E+01	740	3.094E+00		
618	4.343E+01	659	2.835E+01	700	1.049E+01	741	2.963E+00		
619	4.364E+01	660	2.765E+01	701	1.020E+01	742	2.952E+00		
620	4.345E+01	661	2.716E+01	702	9.849E+00	743	2.806E+00		
621	4.343E+01	662	2.669E+01	703	9.495E+00	744	2.711E+00		
622	4.318E+01	663	2.619E+01	704	9.265E+00	745	2.658E+00		
623	4.301E+01	664	2.586E+01	705	8.989E+00	746	2.613E+00		
624	4.282E+01	665	2.517E+01	706	8.803E+00	747	2.462E+00		
625	4.275E+01	666	2.465E+01	707	8.474E+00	748	2.419E+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**

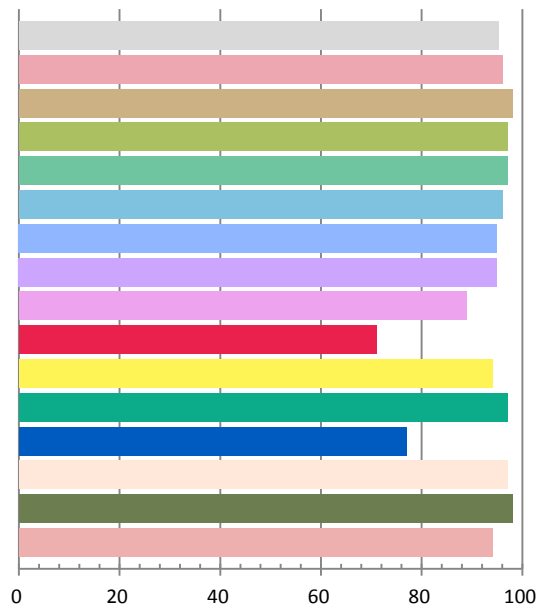
Photometric and Electrical Measurement Result

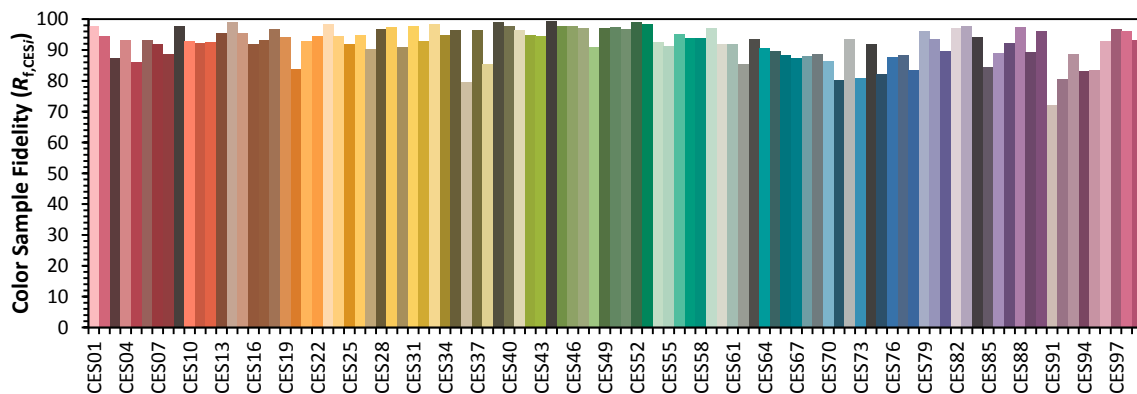
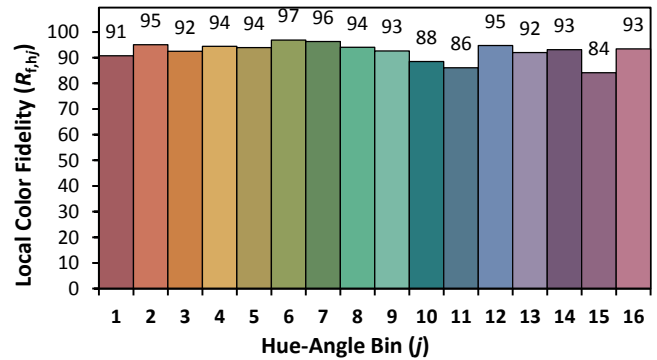
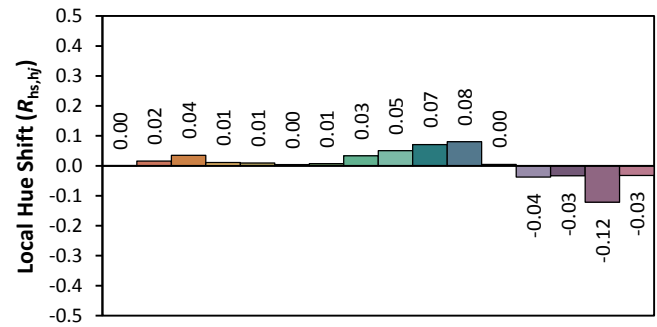
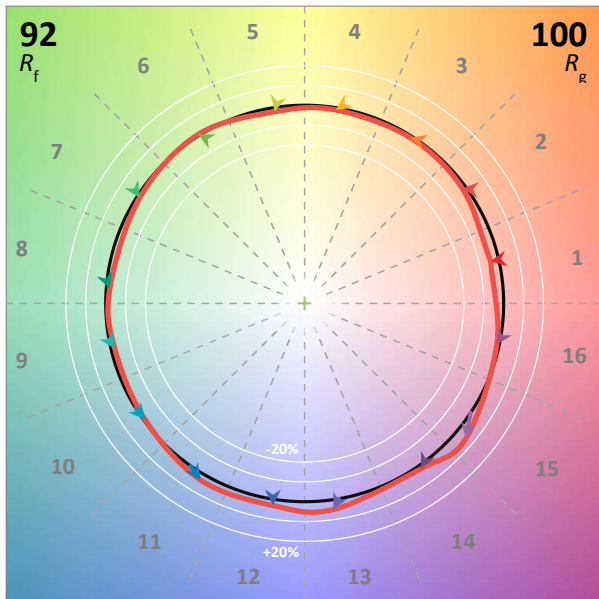
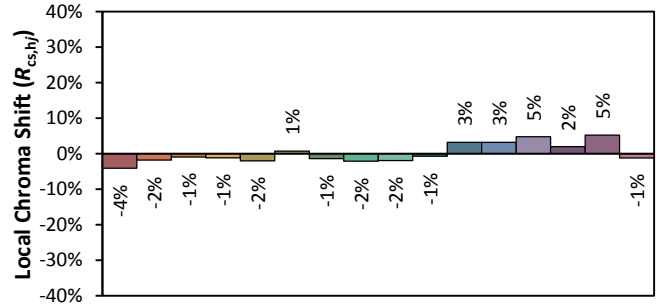
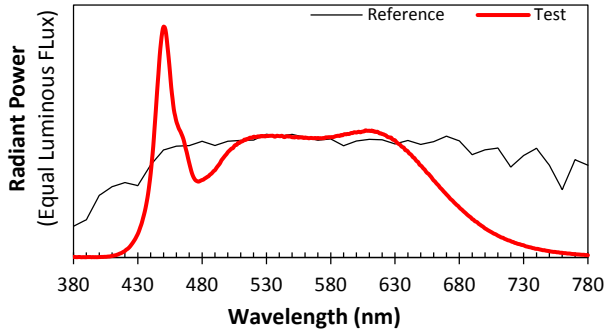
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.0	60	0.1731	20.52	0.9879	2494.7	121.55

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
8.5355	5101	0.00059	0.3424	0.3506	0.2100	0.4838

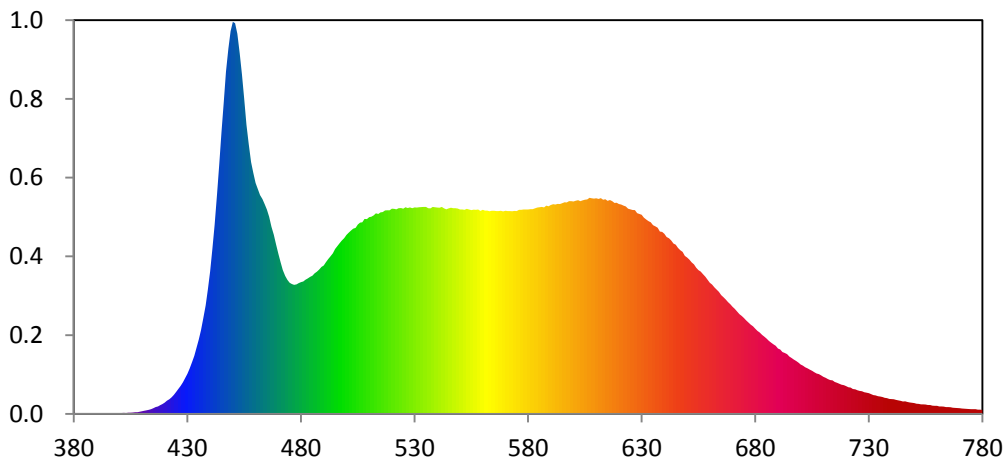
Color Rendering Index

Ra			
95.2			
R1	R2	R3	R4
96	98	97	97
R5	R6	R7	R8
96	95	95	89
R9	R10	R11	R12
71	94	97	77
R13	R14	R15	
97	98	94	





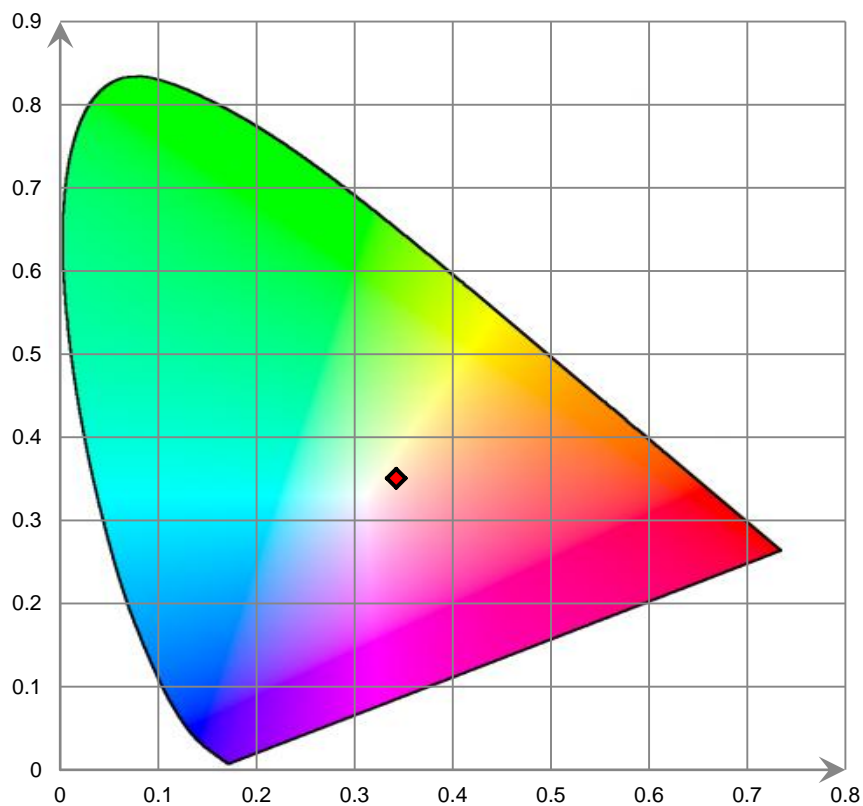
Relative Spectral Power Distribution



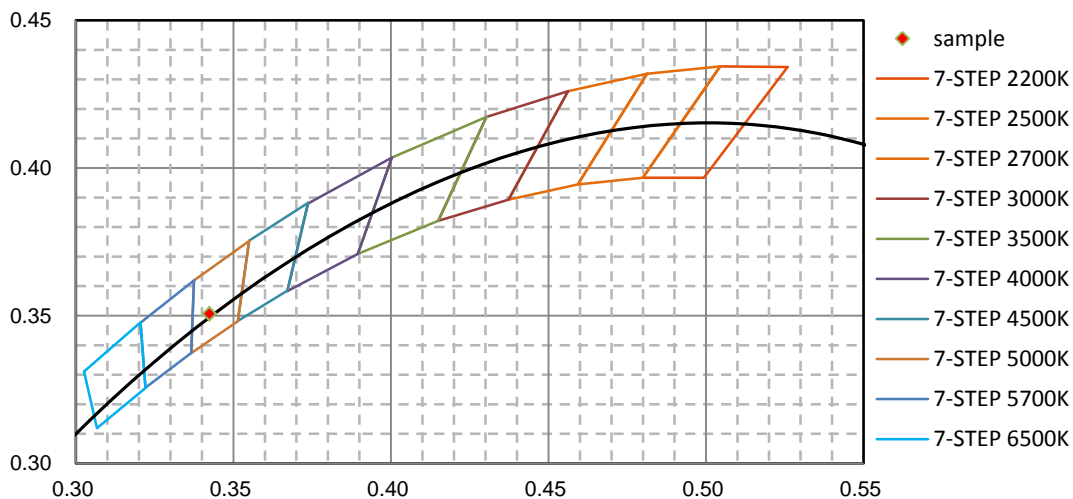
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	1.948E-01	421	2.267E+00	462	3.725E+01	503	3.155E+01	544	3.484E+01
381	1.592E-01	422	2.502E+00	463	3.658E+01	504	3.167E+01	545	3.498E+01
382	1.129E-01	423	2.813E+00	464	3.570E+01	505	3.224E+01	546	3.512E+01
383	1.159E-01	424	3.237E+00	465	3.478E+01	506	3.257E+01	547	3.501E+01
384	1.517E-01	425	3.726E+00	466	3.355E+01	507	3.263E+01	548	3.503E+01
385	1.548E-01	426	4.230E+00	467	3.189E+01	508	3.321E+01	549	3.496E+01
386	8.766E-02	427	4.792E+00	468	3.050E+01	509	3.317E+01	550	3.481E+01
387	1.052E-01	428	5.381E+00	469	2.886E+01	510	3.350E+01	551	3.481E+01
388	1.176E-01	429	6.110E+00	470	2.733E+01	511	3.359E+01	552	3.474E+01
389	9.444E-02	430	6.835E+00	471	2.586E+01	512	3.379E+01	553	3.491E+01
390	9.760E-02	431	7.744E+00	472	2.451E+01	513	3.414E+01	554	3.480E+01
391	1.478E-01	432	8.821E+00	473	2.351E+01	514	3.405E+01	555	3.469E+01
392	1.298E-01	433	9.888E+00	474	2.281E+01	515	3.431E+01	556	3.479E+01
393	1.507E-01	434	1.128E+01	475	2.233E+01	516	3.438E+01	557	3.475E+01
394	8.902E-02	435	1.267E+01	476	2.212E+01	517	3.465E+01	558	3.481E+01
395	1.318E-01	436	1.427E+01	477	2.197E+01	518	3.467E+01	559	3.457E+01
396	1.006E-01	437	1.626E+01	478	2.207E+01	519	3.468E+01	560	3.474E+01
397	1.149E-01	438	1.846E+01	479	2.227E+01	520	3.494E+01	561	3.463E+01
398	1.002E-01	439	2.123E+01	480	2.243E+01	521	3.491E+01	562	3.461E+01
399	1.153E-01	440	2.427E+01	481	2.255E+01	522	3.484E+01	563	3.450E+01
400	1.383E-01	441	2.809E+01	482	2.285E+01	523	3.502E+01	564	3.459E+01
401	1.527E-01	442	3.216E+01	483	2.306E+01	524	3.505E+01	565	3.460E+01
402	1.789E-01	443	3.735E+01	484	2.333E+01	525	3.495E+01	566	3.454E+01
403	1.710E-01	444	4.248E+01	485	2.353E+01	526	3.520E+01	567	3.453E+01
404	2.101E-01	445	4.799E+01	486	2.394E+01	527	3.505E+01	568	3.459E+01
405	2.050E-01	446	5.301E+01	487	2.421E+01	528	3.516E+01	569	3.449E+01
406	2.417E-01	447	5.827E+01	488	2.457E+01	529	3.503E+01	570	3.459E+01
407	2.955E-01	448	6.218E+01	489	2.502E+01	530	3.517E+01	571	3.452E+01
408	3.047E-01	449	6.516E+01	490	2.528E+01	531	3.515E+01	572	3.453E+01
409	3.860E-01	450	6.676E+01	491	2.585E+01	532	3.519E+01	573	3.450E+01
410	4.533E-01	451	6.651E+01	492	2.636E+01	533	3.522E+01	574	3.457E+01
411	5.498E-01	452	6.475E+01	493	2.682E+01	534	3.523E+01	575	3.453E+01
412	6.085E-01	453	6.136E+01	494	2.735E+01	535	3.524E+01	576	3.476E+01
413	6.983E-01	454	5.778E+01	495	2.809E+01	536	3.502E+01	577	3.476E+01
414	8.267E-01	455	5.362E+01	496	2.857E+01	537	3.500E+01	578	3.480E+01
415	9.743E-01	456	4.923E+01	497	2.905E+01	538	3.523E+01	579	3.482E+01
416	1.152E+00	457	4.599E+01	498	2.952E+01	539	3.518E+01	580	3.482E+01
417	1.272E+00	458	4.288E+01	499	2.994E+01	540	3.513E+01	581	3.485E+01
418	1.481E+00	459	4.102E+01	500	3.048E+01	541	3.511E+01	582	3.485E+01
419	1.695E+00	460	3.934E+01	501	3.085E+01	542	3.525E+01	583	3.499E+01
420	1.916E+00	461	3.828E+01	502	3.121E+01	543	3.499E+01	584	3.513E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	3.519E+01	626	3.471E+01	667	1.949E+01	708	6.769E+00	749	1.904E+00
586	3.525E+01	627	3.470E+01	668	1.905E+01	709	6.556E+00	750	1.843E+00
587	3.517E+01	628	3.418E+01	669	1.868E+01	710	6.316E+00	751	1.753E+00
588	3.545E+01	629	3.403E+01	670	1.825E+01	711	6.148E+00	752	1.702E+00
589	3.534E+01	630	3.391E+01	671	1.788E+01	712	5.943E+00	753	1.637E+00
590	3.557E+01	631	3.342E+01	672	1.746E+01	713	5.775E+00	754	1.637E+00
591	3.570E+01	632	3.310E+01	673	1.700E+01	714	5.711E+00	755	1.594E+00
592	3.564E+01	633	3.283E+01	674	1.669E+01	715	5.450E+00	756	1.508E+00
593	3.577E+01	634	3.262E+01	675	1.635E+01	716	5.303E+00	757	1.524E+00
594	3.573E+01	635	3.214E+01	676	1.592E+01	717	5.141E+00	758	1.413E+00
595	3.586E+01	636	3.194E+01	677	1.557E+01	718	4.979E+00	759	1.385E+00
596	3.604E+01	637	3.171E+01	678	1.520E+01	719	4.911E+00	760	1.374E+00
597	3.600E+01	638	3.106E+01	679	1.493E+01	720	4.741E+00	761	1.279E+00
598	3.622E+01	639	3.098E+01	680	1.450E+01	721	4.549E+00	762	1.285E+00
599	3.623E+01	640	3.067E+01	681	1.412E+01	722	4.490E+00	763	1.237E+00
600	3.616E+01	641	3.013E+01	682	1.385E+01	723	4.249E+00	764	1.166E+00
601	3.631E+01	642	2.990E+01	683	1.346E+01	724	4.181E+00	765	1.162E+00
602	3.639E+01	643	2.953E+01	684	1.314E+01	725	4.018E+00	766	1.142E+00
603	3.622E+01	644	2.900E+01	685	1.282E+01	726	3.915E+00	767	1.063E+00
604	3.637E+01	645	2.882E+01	686	1.245E+01	727	3.858E+00	768	1.024E+00
605	3.646E+01	646	2.827E+01	687	1.214E+01	728	3.700E+00	769	1.001E+00
606	3.652E+01	647	2.786E+01	688	1.184E+01	729	3.618E+00	770	9.706E-01
607	3.681E+01	648	2.760E+01	689	1.158E+01	730	3.548E+00	771	9.258E-01
608	3.670E+01	649	2.690E+01	690	1.112E+01	731	3.357E+00	772	9.021E-01
609	3.666E+01	650	2.663E+01	691	1.096E+01	732	3.217E+00	773	8.790E-01
610	3.670E+01	651	2.627E+01	692	1.055E+01	733	3.147E+00	774	8.424E-01
611	3.660E+01	652	2.578E+01	693	1.037E+01	734	3.032E+00	775	8.051E-01
612	3.675E+01	653	2.547E+01	694	1.018E+01	735	2.974E+00	776	7.988E-01
613	3.648E+01	654	2.490E+01	695	9.774E+00	736	2.886E+00	777	7.957E-01
614	3.654E+01	655	2.447E+01	696	9.537E+00	737	2.736E+00	778	7.170E-01
615	3.629E+01	656	2.423E+01	697	9.247E+00	738	2.691E+00	779	7.197E-01
616	3.642E+01	657	2.378E+01	698	9.025E+00	739	2.558E+00	780	6.747E-01
617	3.623E+01	658	2.336E+01	699	8.743E+00	740	2.517E+00		
618	3.592E+01	659	2.284E+01	700	8.410E+00	741	2.501E+00		
619	3.594E+01	660	2.232E+01	701	8.218E+00	742	2.399E+00		
620	3.573E+01	661	2.202E+01	702	7.960E+00	743	2.306E+00		
621	3.566E+01	662	2.153E+01	703	7.755E+00	744	2.224E+00		
622	3.546E+01	663	2.115E+01	704	7.542E+00	745	2.116E+00		
623	3.531E+01	664	2.077E+01	705	7.340E+00	746	2.140E+00		
624	3.494E+01	665	2.024E+01	706	7.104E+00	747	2.025E+00		
625	3.483E+01	666	1.989E+01	707	6.890E+00	748	1.960E+00		

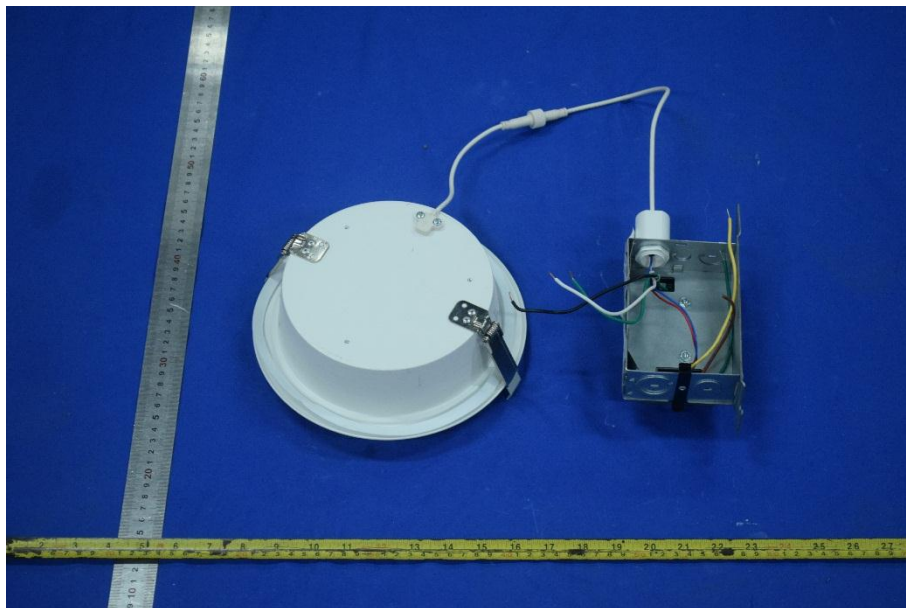
CIE 1931 x y Chromaticity Diagram



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