

# ANSI/IES LM-79-19

## MEASUREMENT AND TEST REPORT

For

### GREEN CREATIVE LTD

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

**Test Model:**  
**NYXDM8RD/L9CCT5S/DIM120V/MD/WBW**

<b>Report Type:</b>	Electrical and Photometric tests including: Luminous Flux, Power Factor, Chromaticity, Luminous Intensity Distribution, THD
<b>Reviewed By:</b>	Ezer Pan <i>Ezer Pan</i>
<b>Report Number:</b>	KS2231107-64477E-EE-1
<b>Test Date:</b>	2024-03-23
<b>Report Date:</b>	2024-04-18
<b>Approved by:</b>	Blake Zhang / EE Engineer
<b>Prepared By:</b>	Bay Area Compliance Laboratories Corp. (Shenzhen) 5F (B-West), 6F, 7F, the 3rd Phase of Wan Li Industrial Building D Shihua Road, Futian Free Trade Zone Shenzhen 518038 China. Tel: +86-755-33320018 Fax: +86-755-33320008
<b>Test Location 1:</b>	Test facility was located at No.12, Pulong East 1 <sup>st</sup> Road, Tangxia Town, Dongguan, Guangdong, China.
<b>Test Location 2:</b>	Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

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

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

### General Information:

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

Model Tested: NYXDM8RD/L9CCT5S/DIM120V/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: 120V AC 60Hz  
Rated Power: 40W-50W-63W  
Nominal CCT: 2700K/3000K/3500K/4000K/5000K  
Nominal Lumen Output: 5860lm(2700K),6110lm(3000K),6300lm(3500K/4000K/5000K)

## 2. Standards Used

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

## 3. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
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
Standard Light Source	EVERFINE	D204	N/A	2023-05-12	2025-05-11
Precision frequency power supply	ALL Power	APW-105N	970613	2023-09-02	2024-09-01
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

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
wireless remote thermohygrometer	N/A	AOK-5017B	N/A	2023-09-02	2024-09-01
Standard Light Source	EVERFINE	D908	N/A	2023-05-12	2025-05-11

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

## 4. Test Method

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

### Integrating Sphere System

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

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

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

The uncertainty of power meter AC current  $U=0.39\%$  of rdg, AC Voltage  $U=0.25\%$  of rdg, Power  $U=0.42\%$  ( $K=2$ ), at the 95% confidence level.

### Goniophotometer System

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

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

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

### Additional Test

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

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

### Fidelity Index and Gamut Index Calculation

The  $R_i$ ,  $R_g$  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: **1.5M**

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

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

Test orientation: **Downward**

Test CCT:**2700K**

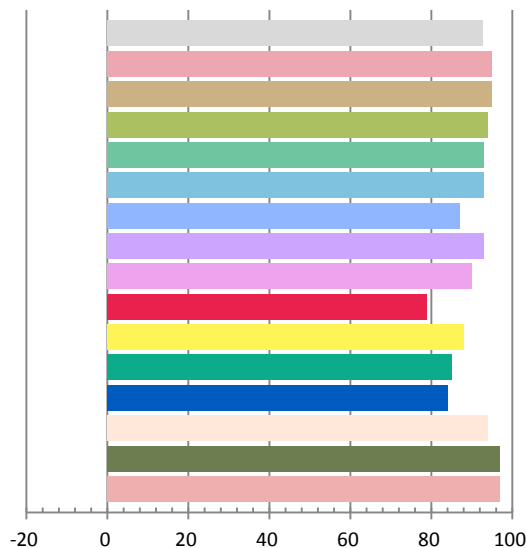
### Photometric and Electrical Measurement Result

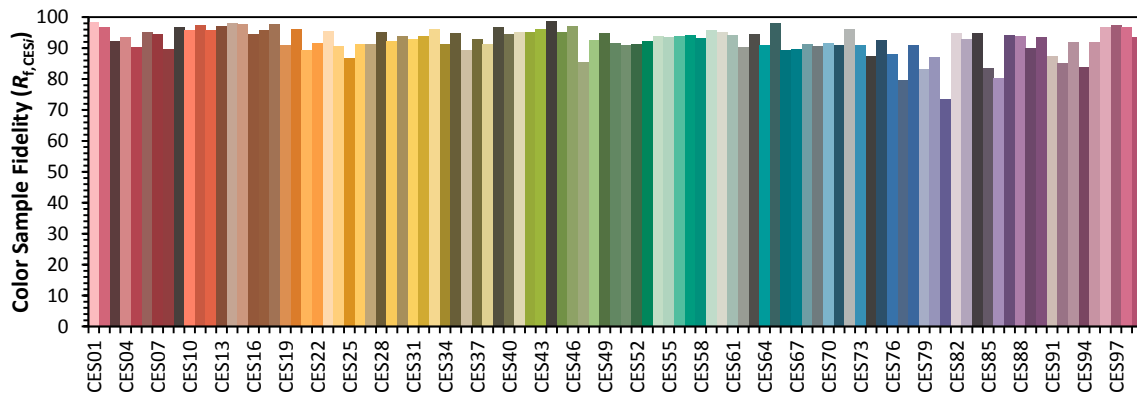
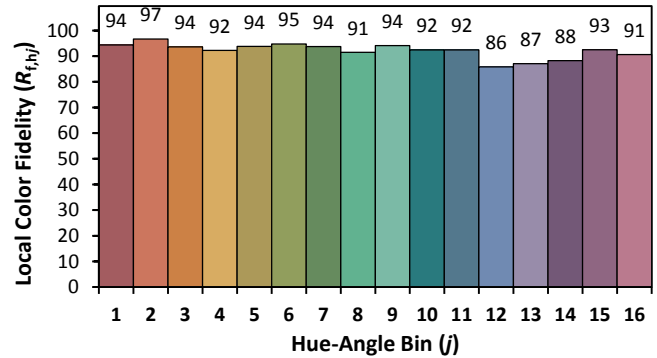
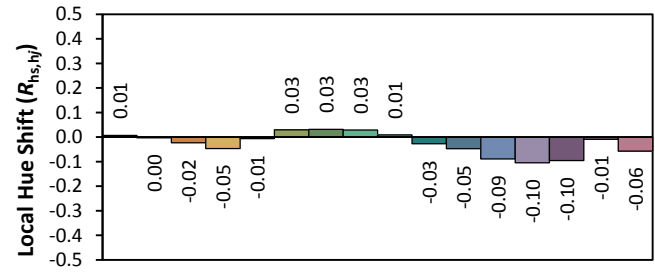
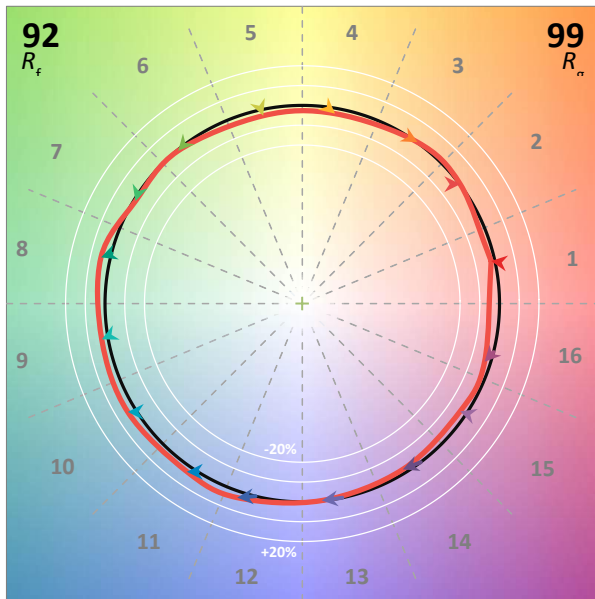
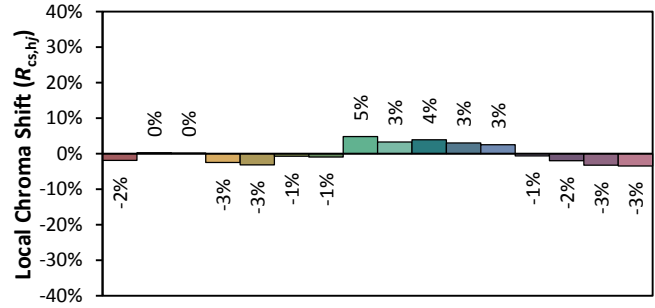
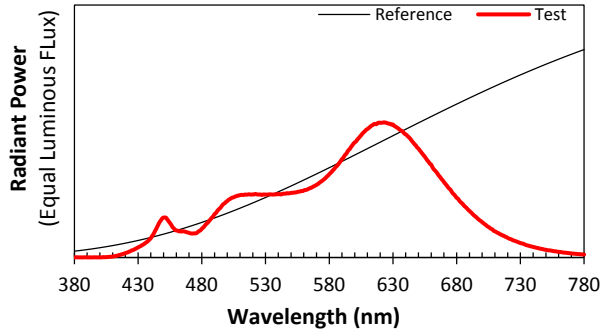
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.5269	62.96	0.9949	5895.4	93.64

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
20.881	2744	-0.000246	0.4559	0.4090	0.2607	0.5262

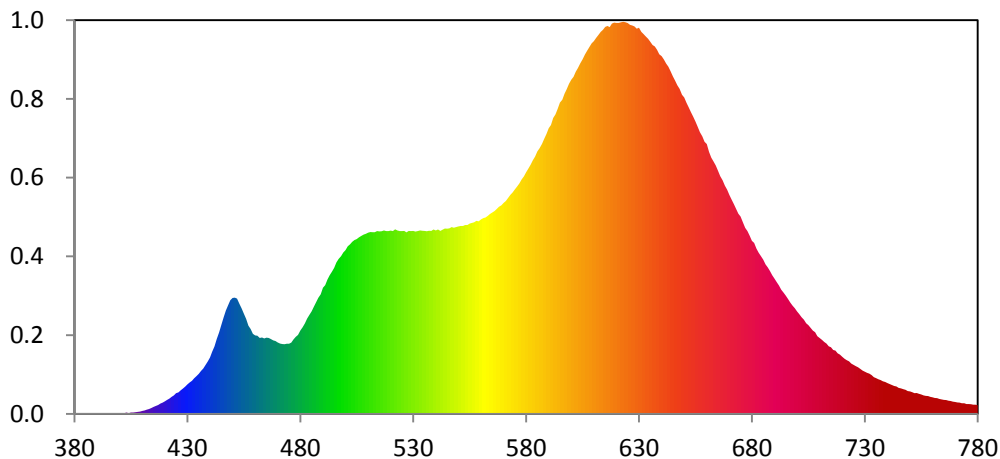
### Color Rendering Index

<b>Ra</b>			
92.7			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
95	95	94	93
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
93	87	93	90
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
79	88	85	84
<b>R13</b>	<b>R14</b>	<b>R15</b>	
94	97	97	





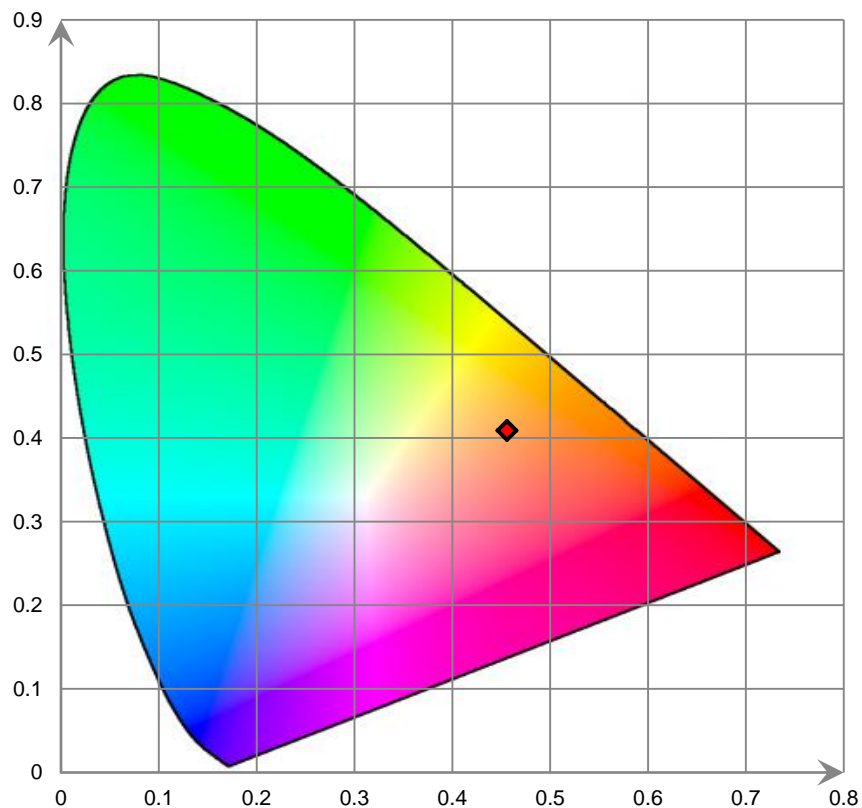
### Relative Spectral Power Distribution



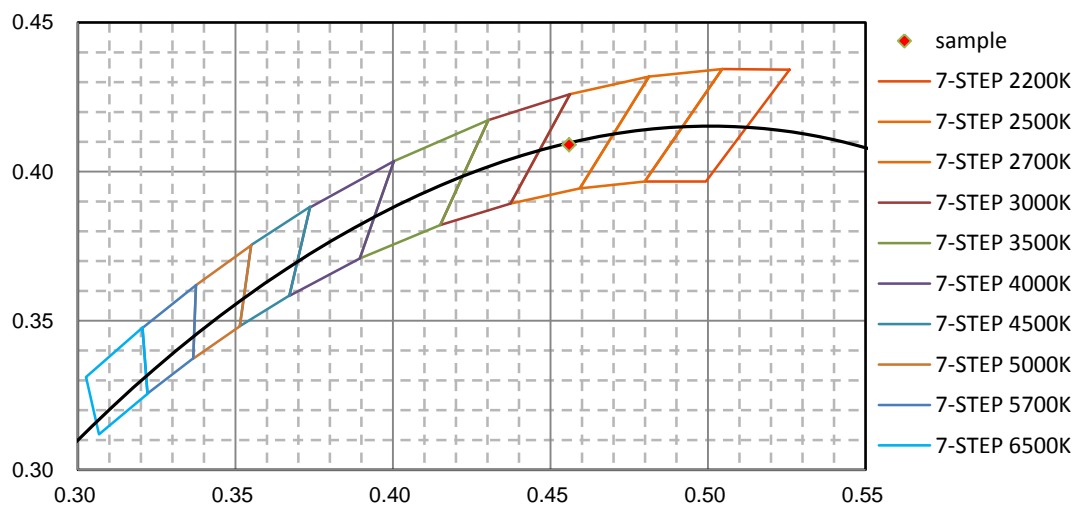
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	1.743E-01	421	4.987E+00	462	2.688E+01	503	6.082E+01	544	6.551E+01
381	2.760E-01	422	5.400E+00	463	2.704E+01	504	6.144E+01	545	6.551E+01
382	2.177E-01	423	6.013E+00	464	2.668E+01	505	6.179E+01	546	6.557E+01
383	2.244E-01	424	6.560E+00	465	2.695E+01	506	6.240E+01	547	6.604E+01
384	1.711E-01	425	7.369E+00	466	2.684E+01	507	6.292E+01	548	6.579E+01
385	1.843E-01	426	7.638E+00	467	2.644E+01	508	6.337E+01	549	6.603E+01
386	8.763E-02	427	8.353E+00	468	2.603E+01	509	6.363E+01	550	6.625E+01
387	1.938E-01	428	8.959E+00	469	2.575E+01	510	6.405E+01	551	6.643E+01
388	2.587E-01	429	9.678E+00	470	2.529E+01	511	6.428E+01	552	6.646E+01
389	1.685E-01	430	1.042E+01	471	2.485E+01	512	6.422E+01	553	6.678E+01
390	1.908E-01	431	1.114E+01	472	2.468E+01	513	6.423E+01	554	6.676E+01
391	1.042E-01	432	1.171E+01	473	2.465E+01	514	6.463E+01	555	6.731E+01
392	2.744E-01	433	1.260E+01	474	2.480E+01	515	6.449E+01	556	6.752E+01
393	6.055E-02	434	1.331E+01	475	2.480E+01	516	6.459E+01	557	6.772E+01
394	1.592E-01	435	1.419E+01	476	2.523E+01	517	6.486E+01	558	6.825E+01
395	2.246E-01	436	1.521E+01	477	2.636E+01	518	6.463E+01	559	6.809E+01
396	2.077E-01	437	1.602E+01	478	2.726E+01	519	6.461E+01	560	6.875E+01
397	2.245E-01	438	1.727E+01	479	2.794E+01	520	6.479E+01	561	6.923E+01
398	1.425E-01	439	1.854E+01	480	2.948E+01	521	6.465E+01	562	6.942E+01
399	2.516E-01	440	1.995E+01	481	3.065E+01	522	6.524E+01	563	6.998E+01
400	1.501E-01	441	2.204E+01	482	3.200E+01	523	6.483E+01	564	7.066E+01
401	2.058E-01	442	2.386E+01	483	3.371E+01	524	6.466E+01	565	7.116E+01
402	2.536E-01	443	2.646E+01	484	3.497E+01	525	6.460E+01	566	7.166E+01
403	4.723E-01	444	2.885E+01	485	3.626E+01	526	6.469E+01	567	7.240E+01
404	2.854E-01	445	3.150E+01	486	3.790E+01	527	6.416E+01	568	7.319E+01
405	5.011E-01	446	3.411E+01	487	3.948E+01	528	6.467E+01	569	7.373E+01
406	4.827E-01	447	3.654E+01	488	4.106E+01	529	6.460E+01	570	7.459E+01
407	6.223E-01	448	3.837E+01	489	4.230E+01	530	6.466E+01	571	7.527E+01
408	7.430E-01	449	4.021E+01	490	4.458E+01	531	6.443E+01	572	7.635E+01
409	8.607E-01	450	4.097E+01	491	4.551E+01	532	6.466E+01	573	7.740E+01
410	1.055E+00	451	4.107E+01	492	4.748E+01	533	6.483E+01	574	7.824E+01
411	1.250E+00	452	4.079E+01	493	4.904E+01	534	6.475E+01	575	7.930E+01
412	1.508E+00	453	3.889E+01	494	5.026E+01	535	6.471E+01	576	8.032E+01
413	1.739E+00	454	3.723E+01	495	5.159E+01	536	6.454E+01	577	8.141E+01
414	2.081E+00	455	3.540E+01	496	5.354E+01	537	6.477E+01	578	8.291E+01
415	2.462E+00	456	3.360E+01	497	5.481E+01	538	6.469E+01	579	8.396E+01
416	2.806E+00	457	3.123E+01	498	5.575E+01	539	6.516E+01	580	8.546E+01
417	3.176E+00	458	3.004E+01	499	5.706E+01	540	6.484E+01	581	8.676E+01
418	3.676E+00	459	2.829E+01	500	5.792E+01	541	6.516E+01	582	8.811E+01
419	4.024E+00	460	2.778E+01	501	5.924E+01	542	6.467E+01	583	8.966E+01
420	4.475E+00	461	2.762E+01	502	5.993E+01	543	6.513E+01	584	9.097E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	9.277E+01	626	1.375E+02	667	8.258E+01	708	2.891E+01	749	8.082E+00
586	9.393E+01	627	1.373E+02	668	8.067E+01	709	2.744E+01	750	7.951E+00
587	9.542E+01	628	1.370E+02	669	7.929E+01	710	2.688E+01	751	7.671E+00
588	9.725E+01	629	1.362E+02	670	7.741E+01	711	2.619E+01	752	7.358E+00
589	9.896E+01	630	1.365E+02	671	7.577E+01	712	2.544E+01	753	7.391E+00
590	1.010E+02	631	1.350E+02	672	7.420E+01	713	2.486E+01	754	7.125E+00
591	1.021E+02	632	1.343E+02	673	7.247E+01	714	2.388E+01	755	6.858E+00
592	1.046E+02	633	1.334E+02	674	7.081E+01	715	2.355E+01	756	6.576E+00
593	1.059E+02	634	1.326E+02	675	6.978E+01	716	2.259E+01	757	6.404E+00
594	1.078E+02	635	1.315E+02	676	6.768E+01	717	2.239E+01	758	6.299E+00
595	1.100E+02	636	1.304E+02	677	6.578E+01	718	2.141E+01	759	6.011E+00
596	1.111E+02	637	1.299E+02	678	6.464E+01	719	2.096E+01	760	5.845E+00
597	1.132E+02	638	1.287E+02	679	6.299E+01	720	2.019E+01	761	5.666E+00
598	1.149E+02	639	1.271E+02	680	6.119E+01	721	1.949E+01	762	5.594E+00
599	1.167E+02	640	1.264E+02	681	6.042E+01	722	1.901E+01	763	5.298E+00
600	1.181E+02	641	1.252E+02	682	5.846E+01	723	1.858E+01	764	5.112E+00
601	1.191E+02	642	1.239E+02	683	5.701E+01	724	1.779E+01	765	4.968E+00
602	1.209E+02	643	1.227E+02	684	5.583E+01	725	1.735E+01	766	4.911E+00
603	1.223E+02	644	1.211E+02	685	5.452E+01	726	1.690E+01	767	4.663E+00
604	1.239E+02	645	1.193E+02	686	5.284E+01	727	1.649E+01	768	4.552E+00
605	1.254E+02	646	1.178E+02	687	5.180E+01	728	1.593E+01	769	4.372E+00
606	1.270E+02	647	1.161E+02	688	5.049E+01	729	1.531E+01	770	4.202E+00
607	1.284E+02	648	1.149E+02	689	4.903E+01	730	1.494E+01	771	4.047E+00
608	1.296E+02	649	1.128E+02	690	4.785E+01	731	1.450E+01	772	4.027E+00
609	1.310E+02	650	1.118E+02	691	4.662E+01	732	1.423E+01	773	3.785E+00
610	1.318E+02	651	1.100E+02	692	4.542E+01	733	1.375E+01	774	3.776E+00
611	1.329E+02	652	1.083E+02	693	4.392E+01	734	1.301E+01	775	3.526E+00
612	1.339E+02	653	1.066E+02	694	4.283E+01	735	1.263E+01	776	3.522E+00
613	1.351E+02	654	1.050E+02	695	4.177E+01	736	1.227E+01	777	3.461E+00
614	1.358E+02	655	1.034E+02	696	4.058E+01	737	1.195E+01	778	3.253E+00
615	1.368E+02	656	1.015E+02	697	3.932E+01	738	1.153E+01	779	3.239E+00
616	1.371E+02	657	9.959E+01	698	3.829E+01	739	1.127E+01	780	3.069E+00
617	1.367E+02	658	9.811E+01	699	3.739E+01	740	1.091E+01		
618	1.379E+02	659	9.616E+01	700	3.624E+01	741	1.058E+01		
619	1.383E+02	660	9.537E+01	701	3.526E+01	742	1.024E+01		
620	1.382E+02	661	9.263E+01	702	3.421E+01	743	9.901E+00		
621	1.382E+02	662	9.058E+01	703	3.332E+01	744	9.681E+00		
622	1.384E+02	663	8.925E+01	704	3.207E+01	745	9.235E+00		
623	1.386E+02	664	8.781E+01	705	3.137E+01	746	9.049E+00		
624	1.384E+02	665	8.596E+01	706	3.039E+01	747	8.752E+00		
625	1.381E+02	666	8.401E+01	707	2.944E+01	748	8.516E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



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

The photometric distance: **2.513m**

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

Test orientation: **Downward**

Test CCT:**2700K**

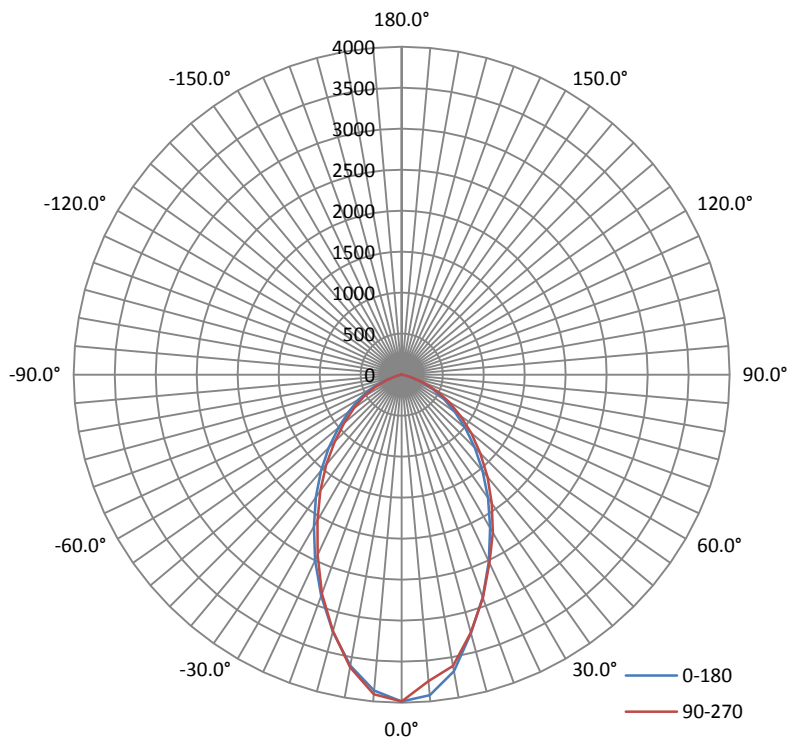
### Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.99	60	0.5282	62.940	0.993

### Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I <sub>max</sub> (cd)	S/MH (C0/180)	S/MH (C90/270)
5897.4	93.70	4063	0.88	0.89

### Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I <sub>max</sub> ):	64.6	66.0	64.1	65.7	65.1
Field Angle (10% I <sub>max</sub> ):	131.4	132.6	130.6	133.1	131.9

## Luminous Intensity (cd) Distribution Data

$\begin{matrix} \text{C} \\ \swarrow \\ \gamma \end{matrix}$	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0°	3986	3986	3986	3986	3986	3986	3986	3986
1°	3995	4003	4010	4011	4008	4014	4019	4004
2°	3976	3998	4024	4015	4011	4044	4035	4016
3°	3955	3973	4006	4008	3996	4063	4034	4021
4°	3913	3943	3979	3965	3969	4042	4033	4012
5°	3868	3899	3937	3928	3912	4011	3992	3967
6°	3824	3855	3879	3872	3884	3962	3953	3926
7°	3786	3817	3821	3821	3829	3914	3899	3881
8°	3735	3755	3762	3756	3757	3852	3848	3831
9°	3675	3675	3693	3684	3694	3783	3791	3774
10°	3604	3599	3625	3616	3624	3721	3717	3715
11°	3540	3518	3555	3542	3560	3648	3640	3647
12°	3467	3444	3486	3458	3490	3595	3567	3571
13°	3401	3365	3419	3384	3413	3528	3480	3488
14°	3321	3297	3342	3304	3340	3440	3410	3409
15°	3246	3227	3278	3233	3240	3367	3338	3330
16°	3169	3157	3210	3166	3167	3284	3272	3261
17°	3100	3090	3133	3097	3085	3214	3206	3190
18°	3027	3016	3058	3019	3005	3136	3135	3121
19°	2954	2930	2977	2932	2926	3046	3059	3044
20°	2869	2851	2899	2856	2843	2962	2979	2965
21°	2800	2770	2820	2778	2762	2870	2900	2885
22°	2724	2694	2748	2703	2669	2789	2822	2810
23°	2646	2620	2672	2629	2588	2712	2746	2730
24°	2575	2548	2591	2547	2508	2629	2678	2656
25°	2498	2476	2518	2477	2425	2549	2601	2580
26°	2420	2405	2441	2400	2352	2469	2523	2508
27°	2356	2339	2368	2328	2277	2395	2456	2433
28°	2285	2266	2296	2255	2200	2317	2386	2365
29°	2210	2197	2223	2177	2127	2240	2312	2290
30°	2138	2130	2154	2109	2055	2171	2234	2215
31°	2077	2058	2081	2042	1979	2096	2156	2146
32°	2015	2000	2018	1973	1920	2034	2084	2076
33°	1948	1931	1950	1905	1856	1972	2009	2014
34°	1885	1873	1879	1838	1794	1902	1943	1942
35°	1823	1809	1816	1775	1727	1839	1873	1875
36°	1761	1750	1751	1715	1670	1774	1804	1814
37°	1704	1694	1688	1656	1610	1715	1746	1755
38°	1649	1630	1628	1596	1550	1652	1683	1692
39°	1590	1572	1569	1533	1490	1590	1626	1633
40°	1532	1514	1513	1478	1430	1528	1561	1571
41°	1479	1456	1457	1423	1375	1467	1506	1511
42°	1423	1404	1403	1364	1319	1410	1449	1457
43°	1368	1348	1351	1312	1263	1354	1396	1402
44°	1313	1293	1297	1255	1212	1295	1341	1347
45°	1257	1240	1246	1204	1155	1241	1285	1294
46°	1207	1186	1194	1154	1106	1185	1232	1243
47°	1159	1137	1146	1105	1054	1136	1184	1194
48°	1106	1088	1099	1056	1006	1086	1137	1142

**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°	1057	1037	1052	1009	960	1035	1089	1095
50°	1005	993	1006	964	915	987	1041	1045
51°	962	949	963	920	871	944	997	996
52°	918	905	918	876	829	899	953	955
53°	873	860	876	835	789	856	909	911
54°	831	817	833	792	747	814	866	869
55°	789	777	791	753	707	774	823	826
56°	751	736	749	715	671	733	783	785
57°	710	698	711	675	633	695	743	745
58°	672	658	672	639	599	658	703	706
59°	635	622	634	598	566	621	664	666
60°	608	589	604	568	532	587	625	626
61°	571	556	567	538	497	554	590	592
62°	533	523	531	503	460	521	555	558
63°	499	488	495	469	426	486	520	524
64°	466	453	459	432	390	451	487	488
65°	429	417	420	395	353	415	448	452
66°	394	380	381	359	319	379	412	415
67°	358	345	345	323	285	343	373	377
68°	321	307	308	288	252	307	336	339
69°	285	274	275	255	221	273	301	304
70°	250	242	243	224	190	240	266	269
71°	217	211	211	193	160	209	234	236
72°	184	180	181	165	132	179	203	205
73°	154	150	152	138	107	150	173	174
74°	123	122	125	110	85	123	144	145
75°	94	94	98	85	64	98	117	118
76°	68	69	73	63	47	73	90	91
77°	52	53	57	49	37	58	66	65
78°	36	38	40	35	28	43	50	50
79°	20	22	23	21	18	27	35	35
80°	14	15	16	15	14	19	20	19
81°	11	11	12	12	11	14	14	13
82°	9	10	10	10	10	11	11	11
83°	7	8	9	8	8	10	9	9
84°	6	6	7	7	6	8	8	7
85°	5	5	5	5	5	6	6	6
86°	3	3	4	4	4	5	5	4
87°	2	2	2	3	3	4	3	3
88°	1	1	1	1	1	2	2	2
89°	0	0	0	0	0	1	1	1
90°	0	0	0	0	0	1	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°	1	0	1	1	1	0	0	0
111°	1	0	1	1	1	1	1	0
112°	1	1	1	1	1	1	1	1
113°	1	1	1	1	1	1	1	1
114°	1	1	1	1	1	1	1	1
115°	1	1	1	1	1	1	1	1
116°	1	1	1	1	1	1	1	1
117°	1	1	1	1	1	1	1	1
118°	1	1	1	1	1	1	1	1
119°	1	1	1	1	1	1	1	1
120°	1	1	1	1	1	1	1	1
121°	1	1	1	1	1	1	1	1
122°	1	1	1	1	1	1	1	1
123°	1	1	1	1	1	1	1	1
124°	1	1	1	1	1	1	1	1
125°	1	1	1	1	1	1	1	1
126°	1	1	1	1	1	1	1	1
127°	1	1	1	1	1	1	1	1
128°	1	1	1	1	1	1	1	1
129°	1	1	1	1	1	1	1	1
130°	1	1	1	2	2	1	1	1
131°	2	2	2	2	2	2	2	1
132°	2	2	2	2	2	2	2	2
133°	2	2	2	2	2	2	2	2
134°	2	2	2	2	2	2	2	2
135°	2	2	2	2	2	2	2	2
136°	2	2	2	2	2	2	2	2
137°	2	2	2	2	2	2	2	2
138°	2	2	3	3	3	2	2	2
139°	3	3	3	3	3	3	3	2
140°	3	3	3	3	3	3	3	3
141°	3	3	3	3	3	3	3	3
142°	3	3	3	3	3	3	3	3
143°	3	3	4	4	4	3	3	3
144°	3	4	4	4	4	4	3	3
145°	3	4	4	4	4	4	4	3
146°	4	4	4	4	4	4	4	4

**Luminous Intensity (cd) Distribution Data**

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

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

$\begin{matrix} \text{C} \\ \backslash \\ \text{Y} \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0°	3986	3986	3986	3986	3986	3986	3986	3986
1°	3996	3977	3966	3942	3944	3934	3961	3957
2°	4003	3963	3939	3903	3903	3894	3911	3926
3°	3998	3940	3904	3860	3847	3853	3859	3873
4°	3966	3910	3878	3823	3800	3805	3820	3831
5°	3925	3879	3843	3783	3752	3783	3782	3801
6°	3900	3846	3789	3740	3748	3768	3758	3762
7°	3864	3798	3746	3712	3728	3745	3719	3713
8°	3801	3757	3707	3679	3692	3696	3670	3658
9°	3741	3721	3659	3649	3660	3643	3628	3614
10°	3673	3668	3602	3601	3607	3586	3579	3563
11°	3608	3610	3542	3553	3554	3530	3533	3507
12°	3523	3539	3485	3502	3498	3470	3458	3443
13°	3435	3473	3422	3439	3423	3402	3392	3370
14°	3351	3398	3361	3377	3348	3324	3321	3300
15°	3266	3328	3300	3308	3256	3254	3249	3223
16°	3197	3257	3229	3246	3199	3180	3188	3160
17°	3124	3179	3164	3183	3118	3116	3120	3094
18°	3053	3108	3095	3109	3045	3037	3037	3020
19°	2973	3034	3027	3036	2973	2965	2960	2945
20°	2889	2957	2951	2955	2895	2889	2890	2872
21°	2815	2871	2882	2887	2825	2817	2820	2800
22°	2734	2796	2818	2822	2751	2746	2743	2733
23°	2657	2726	2748	2741	2674	2670	2670	2661
24°	2584	2646	2684	2673	2605	2600	2602	2592
25°	2513	2571	2618	2603	2531	2536	2535	2519
26°	2441	2497	2557	2534	2475	2466	2470	2456
27°	2371	2422	2493	2464	2412	2402	2400	2389
28°	2302	2352	2427	2397	2349	2322	2330	2313
29°	2230	2278	2359	2328	2281	2256	2265	2240
30°	2156	2204	2284	2256	2223	2188	2199	2171
31°	2090	2134	2217	2187	2162	2116	2135	2105
32°	2025	2058	2149	2123	2099	2054	2072	2039
33°	1962	1993	2077	2057	2038	1985	2002	1974
34°	1898	1932	2006	1994	1974	1922	1942	1908
35°	1835	1864	1938	1932	1913	1865	1883	1845
36°	1777	1802	1876	1871	1857	1806	1826	1785
37°	1715	1744	1815	1813	1799	1754	1763	1727
38°	1655	1683	1754	1754	1744	1694	1707	1667
39°	1595	1624	1689	1698	1686	1642	1651	1610
40°	1534	1563	1629	1637	1628	1588	1597	1551
41°	1479	1508	1571	1579	1573	1531	1542	1498
42°	1424	1452	1515	1525	1519	1478	1490	1443
43°	1369	1395	1457	1470	1464	1427	1434	1387
44°	1314	1341	1401	1414	1407	1372	1382	1336
45°	1264	1292	1346	1362	1354	1321	1331	1289
46°	1213	1243	1300	1310	1306	1275	1284	1242
47°	1164	1194	1254	1264	1256	1229	1238	1195
48°	1109	1142	1208	1217	1206	1180	1191	1148

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

$\begin{matrix} \text{C} \\ \diagdown \\ \gamma \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
49°	1062	1090	1156	1171	1156	1132	1146	1099
50°	1013	1042	1105	1122	1107	1080	1098	1054
51°	968	996	1058	1073	1058	1034	1054	1008
52°	922	951	1013	1028	1010	987	1009	962
53°	878	906	967	983	964	940	962	919
54°	834	860	923	938	917	899	917	876
55°	791	819	879	894	874	854	873	835
56°	752	778	836	851	832	812	834	794
57°	712	738	795	809	789	772	788	752
58°	673	698	755	766	747	730	748	713
59°	634	657	712	727	705	690	709	674
60°	597	622	673	688	666	649	670	637
61°	561	585	634	647	629	612	633	598
62°	526	549	597	608	590	574	594	562
63°	492	514	558	571	553	535	557	527
64°	458	478	522	534	515	500	519	489
65°	422	443	485	496	475	462	480	454
66°	387	407	447	458	437	421	440	413
67°	351	370	407	417	397	382	399	374
68°	316	334	369	377	358	342	358	337
69°	281	298	329	339	320	303	321	300
70°	248	264	293	301	283	267	284	265
71°	216	232	258	266	247	232	249	230
72°	186	199	225	231	212	198	215	197
73°	157	170	192	198	179	167	183	165
74°	128	141	163	167	147	136	152	134
75°	99	112	133	137	116	105	121	103
76°	74	85	103	106	90	77	90	73
77°	51	61	76	79	66	53	62	49
78°	36	42	52	55	45	35	39	31
79°	24	28	34	36	30	23	24	24
80°	19	22	22	23	23	18	19	17
81°	14	16	17	18	17	13	13	10
82°	10	10	13	13	10	8	8	8
83°	8	8	9	8	8	7	6	7
84°	6	7	7	7	7	5	5	5
85°	5	5	6	5	5	4	4	4
86°	4	4	4	4	4	3	3	3
87°	2	3	3	3	3	2	2	2
88°	1	1	2	2	2	1	1	1
89°	0	0	1	1	1	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°	1	0	0	0	0	0	0	0
124°	1	0	0	0	0	0	0	0
125°	1	0	0	0	0	1	1	0
126°	1	1	1	1	0	1	1	1
127°	1	1	1	1	1	1	1	1
128°	1	1	1	1	1	1	1	1
129°	1	1	1	1	1	1	1	1
130°	1	1	1	1	1	1	1	1
131°	1	1	1	1	1	1	1	1
132°	1	1	1	1	1	1	1	1
133°	1	1	1	1	1	1	1	1
134°	1	1	1	1	1	1	1	1
135°	1	1	1	1	1	1	1	1
136°	1	1	1	1	1	1	1	1
137°	1	1	1	1	1	1	1	1
138°	1	1	1	1	1	1	1	1
139°	1	1	1	1	1	1	1	1
140°	1	1	1	1	1	1	1	1
141°	1	1	1	1	1	1	1	1
142°	1	1	1	1	1	1	1	1
143°	1	1	1	1	1	1	1	1
144°	1	1	1	1	1	1	1	1
145°	1	1	1	2	2	2	2	2
146°	1	1	1	2	2	2	2	2

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

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

**Zonal Lumen Density Measurement**

Deg	Flux (lm)	%
0-5	94.1	1.59
5-10	268.6	4.56
10-15	409.2	6.94
15-20	509.3	8.63
20-25	569.1	9.65
25-30	595.5	10.10
30-35	591.9	10.04
35-40	566.8	9.61
40-45	523.3	8.87
45-50	467.1	7.92
50-55	401.5	6.81
55-60	330.9	5.61
60-65	258.0	4.37
65-70	175.8	2.98
70-75	93.7	1.59
75-80	28.6	0.49
80-85	5.4	0.09
85-90	1.2	0.02
90-95	0.1	0.00
95-100	0.1	0.00
100-105	0.1	0.00
105-110	0.2	0.01
110-115	0.2	0.00
115-120	0.3	0.01
120-125	0.3	0.00
125-130	0.4	0.01
130-135	0.5	0.01
135-140	0.6	0.01
140-145	0.8	0.01
145-150	0.9	0.01
150-155	0.9	0.02
155-160	0.8	0.01
160-165	0.7	0.02
165-170	0.5	0.00
170-175	0.3	0.01
175-180	0.1	0.00

Deg	Flux (lm)	%
0-5	94.1	1.59
0-10	362.6	6.15
0-15	771.8	13.09
0-20	1281.1	21.72
0-25	1850.2	31.37
0-30	2445.7	41.47
0-35	3037.6	51.51
0-40	3604.4	61.12
0-45	4127.7	69.99
0-50	4594.8	77.91
0-55	4996.3	84.72
0-60	5327.1	90.33
0-65	5585.1	94.70
0-70	5760.9	97.68
0-75	5854.5	99.27
0-80	5883.1	99.76
0-85	5888.5	99.85
0-90	5889.7	99.87
0-95	5889.8	99.87
0-100	5889.9	99.87
0-105	5890.0	99.87
0-110	5890.2	99.88
0-115	5890.4	99.88
0-120	5890.7	99.89
0-125	5891.0	99.89
0-130	5891.4	99.90
0-135	5891.9	99.91
0-140	5892.5	99.92
0-145	5893.3	99.93
0-150	5894.1	99.94
0-155	5895.0	99.96
0-160	5895.8	99.97
0-165	5896.5	99.99
0-170	5897.0	99.99
0-175	5897.3	100.00
0-180	5897.4	100.00

**[Additional Test]**

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120	60	6.52%

## [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**

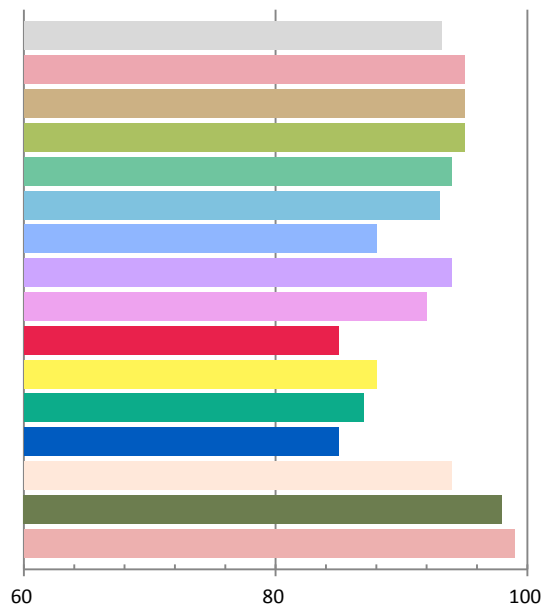
## Photometric and Electrical Measurement Result

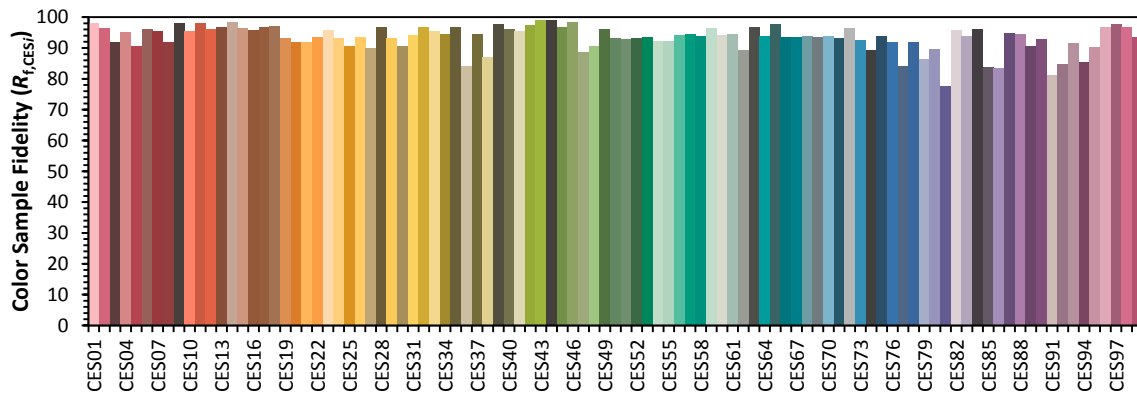
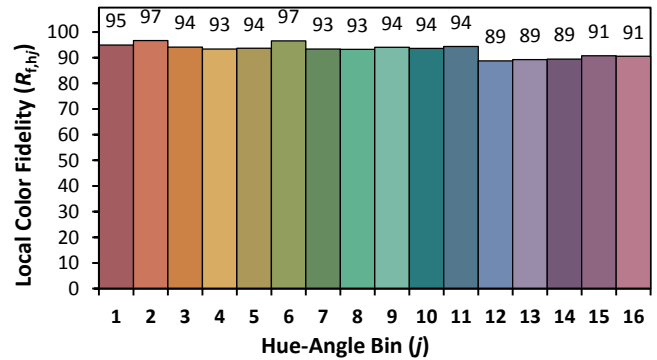
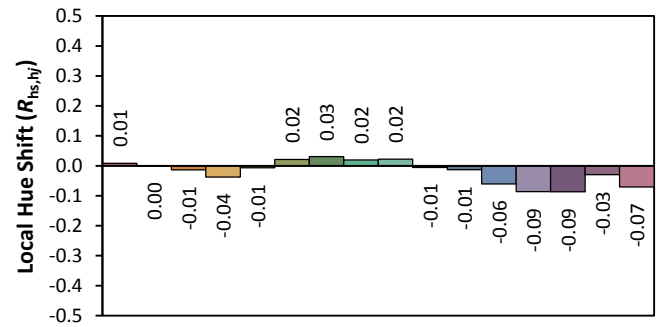
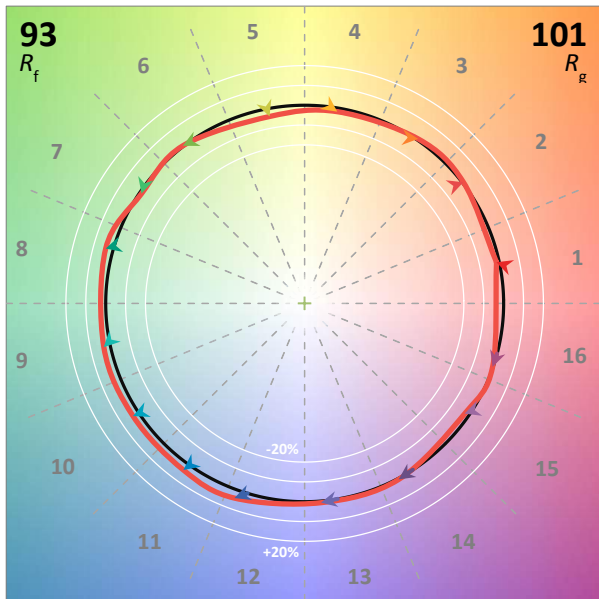
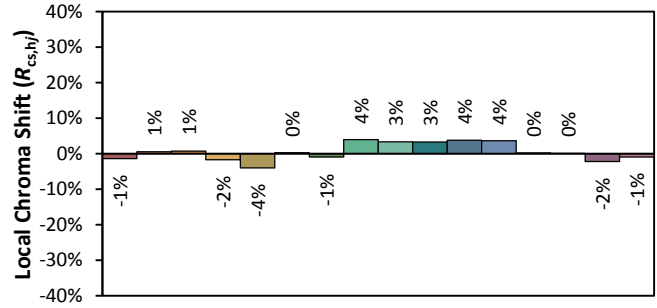
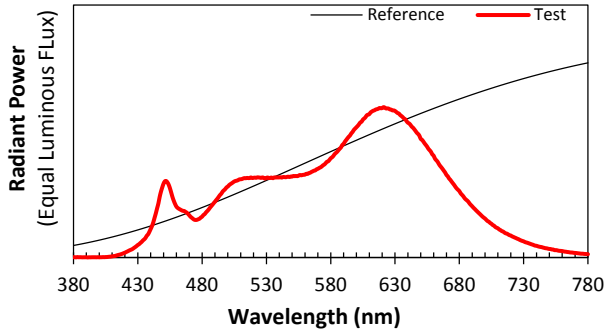
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.5198	62.11	0.9949	6122.9	98.58

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
21.591	3048	-0.00246	0.4301	0.3956	0.2498	0.5170

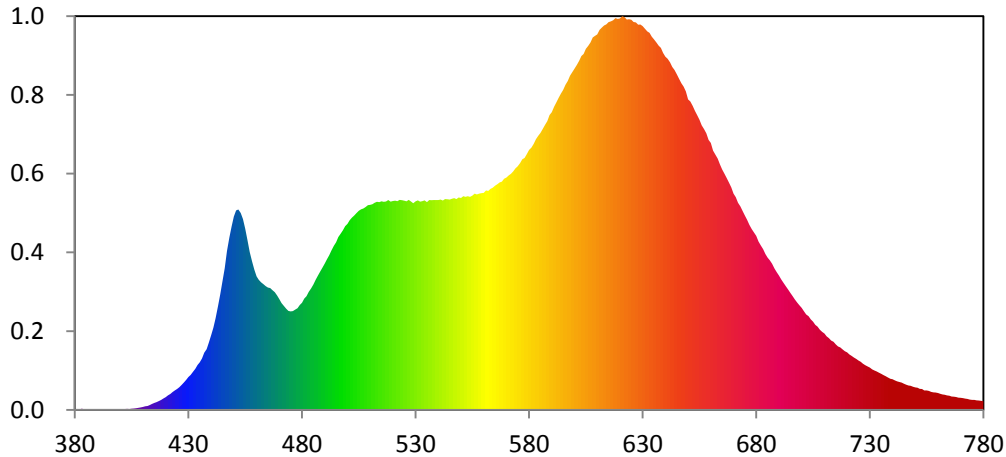
## Color Rendering Index

<b>Ra</b>			
<b>93.2</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
95	95	95	94
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
93	88	94	92
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
85	88	87	85
<b>R13</b>	<b>R14</b>	<b>R15</b>	
94	98	99	





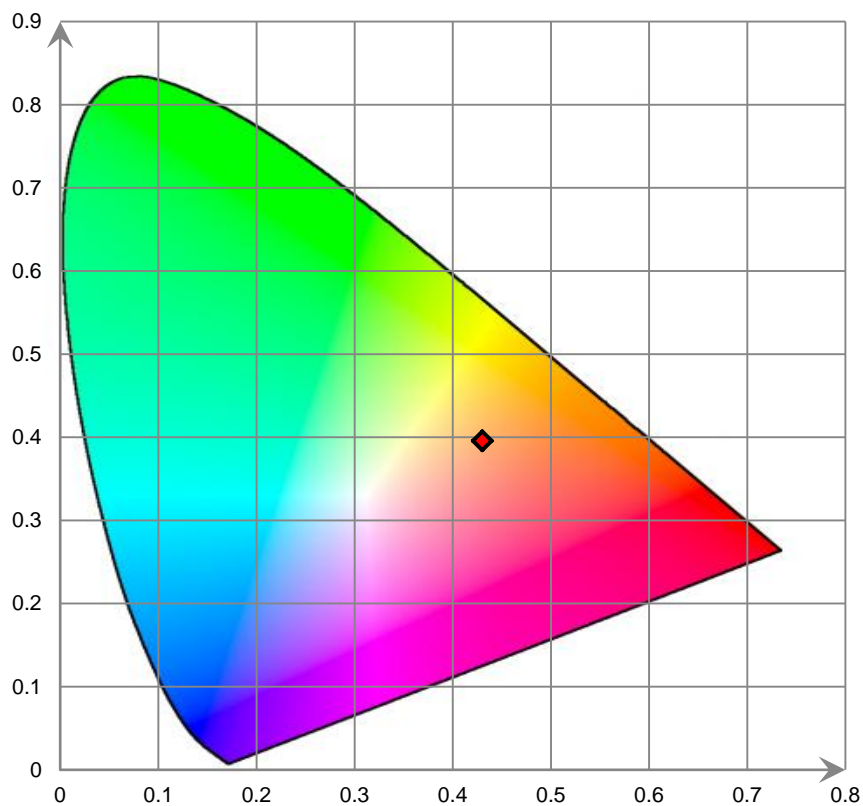
**Relative Spectral Power Distribution**



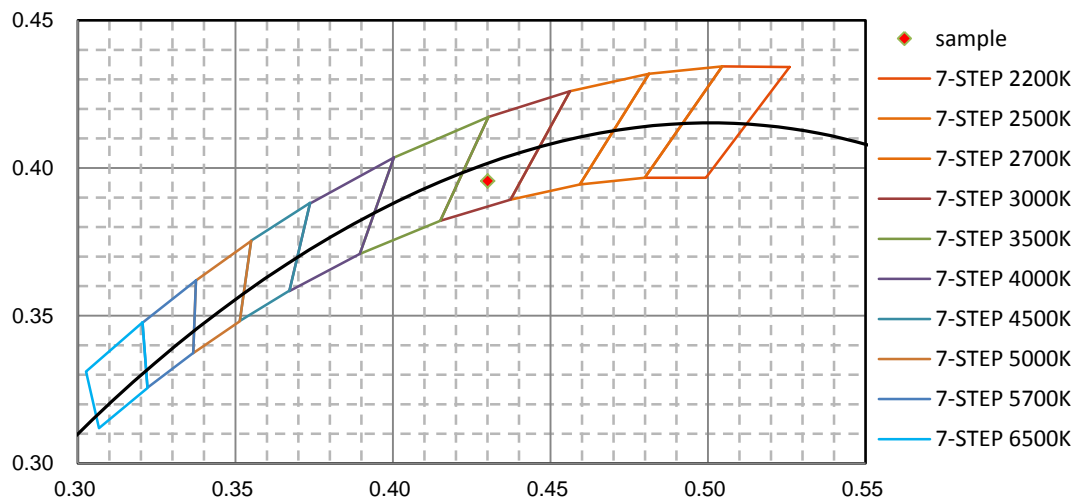
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	3.067E-01	421	4.927E+00	462	4.327E+01	503	6.589E+01	544	7.142E+01
381	3.067E-01	422	5.437E+00	463	4.261E+01	504	6.672E+01	545	7.127E+01
382	1.660E-01	423	6.066E+00	464	4.197E+01	505	6.752E+01	546	7.157E+01
383	4.211E-01	424	6.616E+00	465	4.148E+01	506	6.799E+01	547	7.176E+01
384	2.709E-01	425	7.087E+00	466	4.133E+01	507	6.826E+01	548	7.147E+01
385	3.177E-01	426	7.682E+00	467	4.059E+01	508	6.875E+01	549	7.197E+01
386	2.664E-01	427	8.518E+00	468	3.989E+01	509	6.939E+01	550	7.185E+01
387	1.977E-01	428	9.306E+00	469	3.880E+01	510	6.949E+01	551	7.242E+01
388	2.375E-01	429	1.019E+01	470	3.754E+01	511	6.972E+01	552	7.223E+01
389	2.371E-01	430	1.114E+01	471	3.622E+01	512	7.022E+01	553	7.242E+01
390	2.669E-01	431	1.187E+01	472	3.529E+01	513	7.051E+01	554	7.224E+01
391	8.001E-02	432	1.294E+01	473	3.431E+01	514	7.041E+01	555	7.267E+01
392	2.307E-01	433	1.392E+01	474	3.356E+01	515	7.068E+01	556	7.329E+01
393	1.851E-01	434	1.520E+01	475	3.337E+01	516	7.051E+01	557	7.300E+01
394	2.490E-01	435	1.615E+01	476	3.350E+01	517	7.064E+01	558	7.328E+01
395	2.571E-01	436	1.743E+01	477	3.400E+01	518	7.114E+01	559	7.346E+01
396	2.537E-01	437	1.937E+01	478	3.450E+01	519	7.058E+01	560	7.360E+01
397	2.501E-01	438	2.062E+01	479	3.554E+01	520	7.079E+01	561	7.439E+01
398	2.233E-01	439	2.285E+01	480	3.631E+01	521	7.094E+01	562	7.422E+01
399	3.145E-01	440	2.533E+01	481	3.773E+01	522	7.078E+01	563	7.494E+01
400	1.855E-01	441	2.787E+01	482	3.855E+01	523	7.117E+01	564	7.528E+01
401	2.796E-01	442	3.111E+01	483	4.003E+01	524	7.108E+01	565	7.599E+01
402	2.914E-01	443	3.516E+01	484	4.122E+01	525	7.092E+01	566	7.650E+01
403	3.826E-01	444	3.916E+01	485	4.249E+01	526	7.071E+01	567	7.710E+01
404	3.356E-01	445	4.365E+01	486	4.407E+01	527	7.116E+01	568	7.737E+01
405	4.333E-01	446	4.803E+01	487	4.546E+01	528	7.063E+01	569	7.833E+01
406	4.542E-01	447	5.383E+01	488	4.681E+01	529	7.007E+01	570	7.875E+01
407	6.072E-01	448	5.845E+01	489	4.825E+01	530	7.070E+01	571	7.950E+01
408	7.263E-01	449	6.220E+01	490	4.961E+01	531	7.104E+01	572	8.004E+01
409	8.447E-01	450	6.553E+01	491	5.109E+01	532	7.057E+01	573	8.082E+01
410	1.029E+00	451	6.760E+01	492	5.243E+01	533	7.074E+01	574	8.187E+01
411	1.256E+00	452	6.793E+01	493	5.405E+01	534	7.101E+01	575	8.254E+01
412	1.349E+00	453	6.676E+01	494	5.560E+01	535	7.041E+01	576	8.366E+01
413	1.677E+00	454	6.468E+01	495	5.682E+01	536	7.111E+01	577	8.496E+01
414	2.048E+00	455	6.143E+01	496	5.863E+01	537	7.106E+01	578	8.540E+01
415	2.360E+00	456	5.755E+01	497	5.972E+01	538	7.112E+01	579	8.667E+01
416	2.626E+00	457	5.354E+01	498	6.081E+01	539	7.111E+01	580	8.810E+01
417	3.005E+00	458	5.032E+01	499	6.228E+01	540	7.114E+01	581	8.893E+01
418	3.397E+00	459	4.752E+01	500	6.305E+01	541	7.126E+01	582	9.014E+01
419	3.886E+00	460	4.525E+01	501	6.429E+01	542	7.097E+01	583	9.174E+01
420	4.339E+00	461	4.405E+01	502	6.516E+01	543	7.146E+01	584	9.284E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	9.387E+01	626	1.315E+02	667	7.860E+01	708	2.714E+01	749	7.833E+00
586	9.527E+01	627	1.313E+02	668	7.697E+01	709	2.647E+01	750	7.621E+00
587	9.663E+01	628	1.306E+02	669	7.541E+01	710	2.593E+01	751	7.522E+00
588	9.784E+01	629	1.306E+02	670	7.330E+01	711	2.494E+01	752	7.170E+00
589	9.992E+01	630	1.301E+02	671	7.211E+01	712	2.434E+01	753	7.117E+00
590	1.009E+02	631	1.292E+02	672	7.020E+01	713	2.350E+01	754	6.577E+00
591	1.028E+02	632	1.283E+02	673	6.898E+01	714	2.307E+01	755	6.583E+00
592	1.043E+02	633	1.278E+02	674	6.738E+01	715	2.223E+01	756	6.451E+00
593	1.058E+02	634	1.265E+02	675	6.588E+01	716	2.152E+01	757	6.098E+00
594	1.072E+02	635	1.256E+02	676	6.441E+01	717	2.121E+01	758	5.949E+00
595	1.084E+02	636	1.246E+02	677	6.273E+01	718	2.052E+01	759	5.876E+00
596	1.102E+02	637	1.234E+02	678	6.126E+01	719	1.987E+01	760	5.747E+00
597	1.115E+02	638	1.227E+02	679	6.010E+01	720	1.952E+01	761	5.488E+00
598	1.133E+02	639	1.210E+02	680	5.896E+01	721	1.881E+01	762	5.260E+00
599	1.145E+02	640	1.197E+02	681	5.708E+01	722	1.833E+01	763	5.148E+00
600	1.157E+02	641	1.190E+02	682	5.577E+01	723	1.777E+01	764	4.907E+00
601	1.169E+02	642	1.178E+02	683	5.450E+01	724	1.731E+01	765	4.811E+00
602	1.183E+02	643	1.162E+02	684	5.284E+01	725	1.673E+01	766	4.565E+00
603	1.199E+02	644	1.152E+02	685	5.161E+01	726	1.630E+01	767	4.484E+00
604	1.206E+02	645	1.138E+02	686	5.069E+01	727	1.567E+01	768	4.408E+00
605	1.224E+02	646	1.123E+02	687	4.953E+01	728	1.516E+01	769	4.189E+00
606	1.234E+02	647	1.107E+02	688	4.791E+01	729	1.473E+01	770	4.093E+00
607	1.245E+02	648	1.096E+02	689	4.665E+01	730	1.437E+01	771	3.992E+00
608	1.262E+02	649	1.080E+02	690	4.550E+01	731	1.377E+01	772	3.824E+00
609	1.268E+02	650	1.053E+02	691	4.421E+01	732	1.339E+01	773	3.705E+00
610	1.273E+02	651	1.045E+02	692	4.311E+01	733	1.308E+01	774	3.538E+00
611	1.288E+02	652	1.030E+02	693	4.191E+01	734	1.263E+01	775	3.401E+00
612	1.296E+02	653	1.013E+02	694	4.080E+01	735	1.224E+01	776	3.420E+00
613	1.303E+02	654	9.987E+01	695	3.969E+01	736	1.179E+01	777	3.222E+00
614	1.307E+02	655	9.834E+01	696	3.862E+01	737	1.145E+01	778	3.182E+00
615	1.314E+02	656	9.646E+01	697	3.747E+01	738	1.099E+01	779	3.066E+00
616	1.317E+02	657	9.517E+01	698	3.638E+01	739	1.057E+01	780	2.958E+00
617	1.321E+02	658	9.372E+01	699	3.543E+01	740	1.042E+01		
618	1.328E+02	659	9.154E+01	700	3.458E+01	741	1.002E+01		
619	1.325E+02	660	9.047E+01	701	3.341E+01	742	9.684E+00		
620	1.327E+02	661	8.791E+01	702	3.237E+01	743	9.456E+00		
621	1.335E+02	662	8.646E+01	703	3.174E+01	744	9.253E+00		
622	1.331E+02	663	8.519E+01	704	3.067E+01	745	8.889E+00		
623	1.323E+02	664	8.322E+01	705	2.992E+01	746	8.587E+00		
624	1.324E+02	665	8.147E+01	706	2.885E+01	747	8.280E+00		
625	1.322E+02	666	8.009E+01	707	2.823E+01	748	8.177E+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**

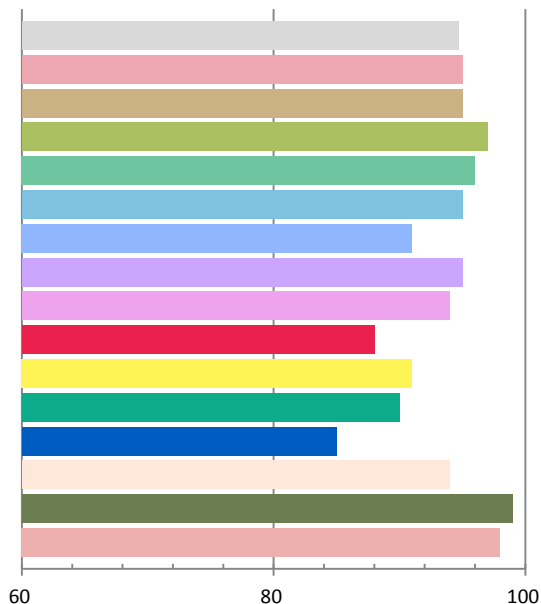
## Photometric and Electrical Measurement Result

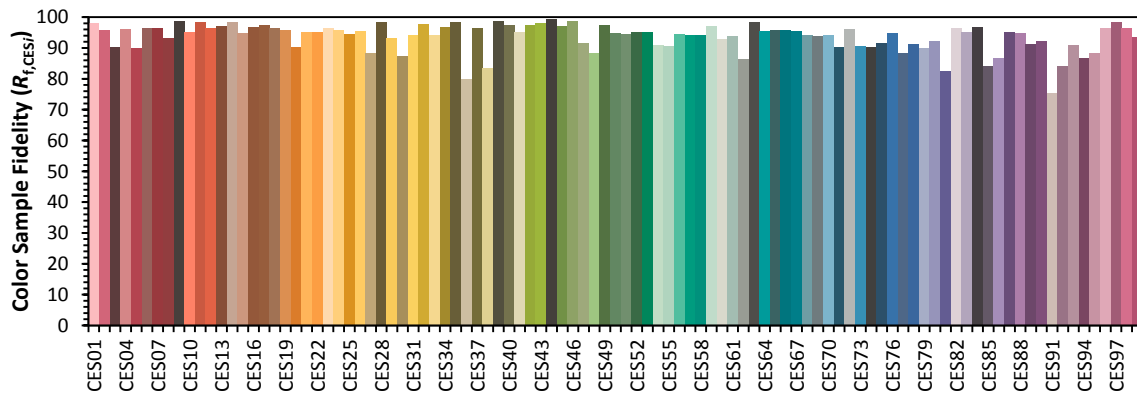
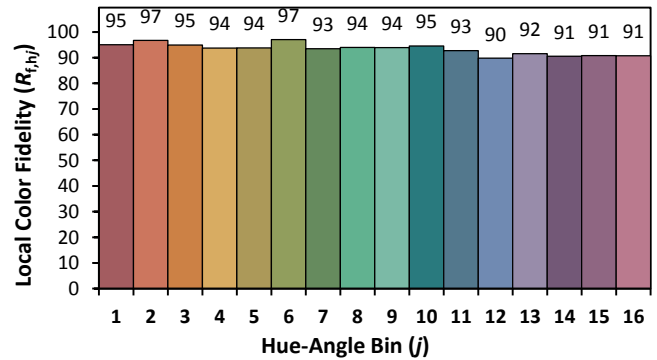
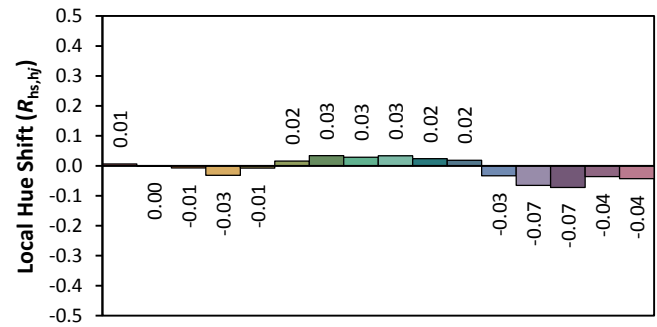
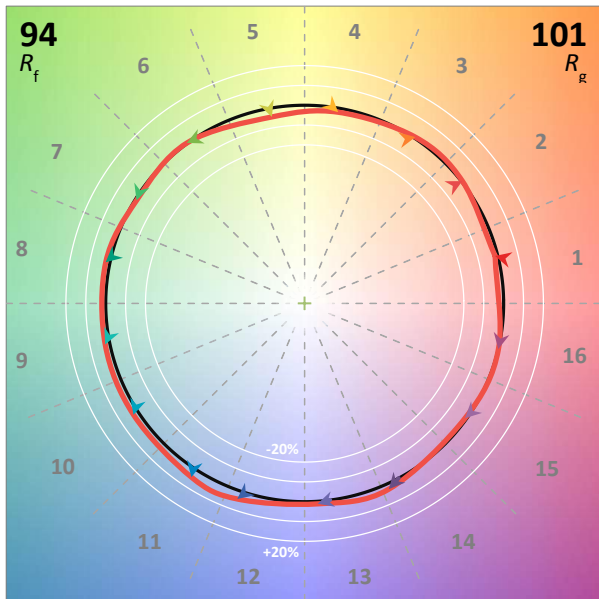
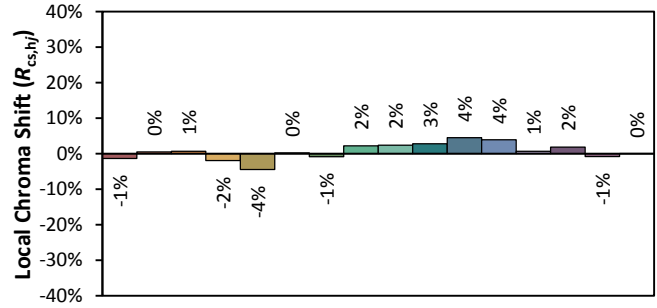
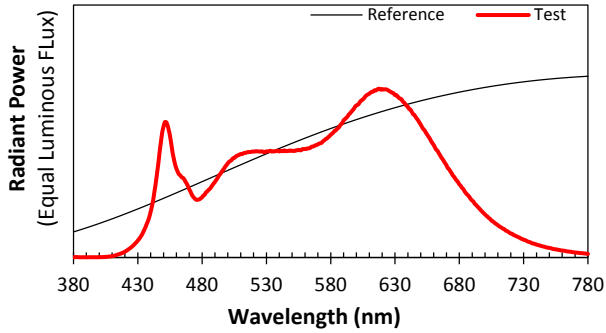
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.5093	60.84	0.9944	6340.9	104.22

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
22.193	3502	-0.00342	0.4017	0.3813	0.2373	0.5067

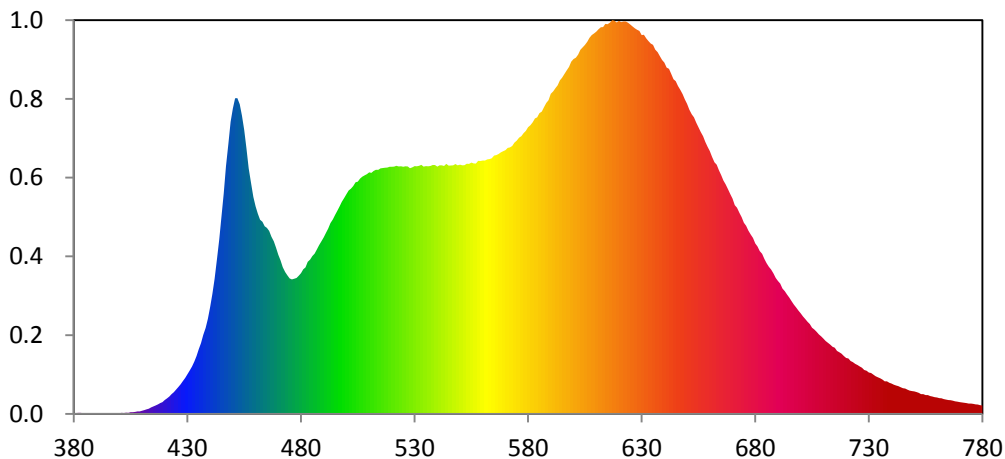
## Color Rendering Index

<b>Ra</b>			
<b>94.7</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
95	95	97	96
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
95	91	95	94
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
88	91	90	85
<b>R13</b>	<b>R14</b>	<b>R15</b>	
94	99	98	





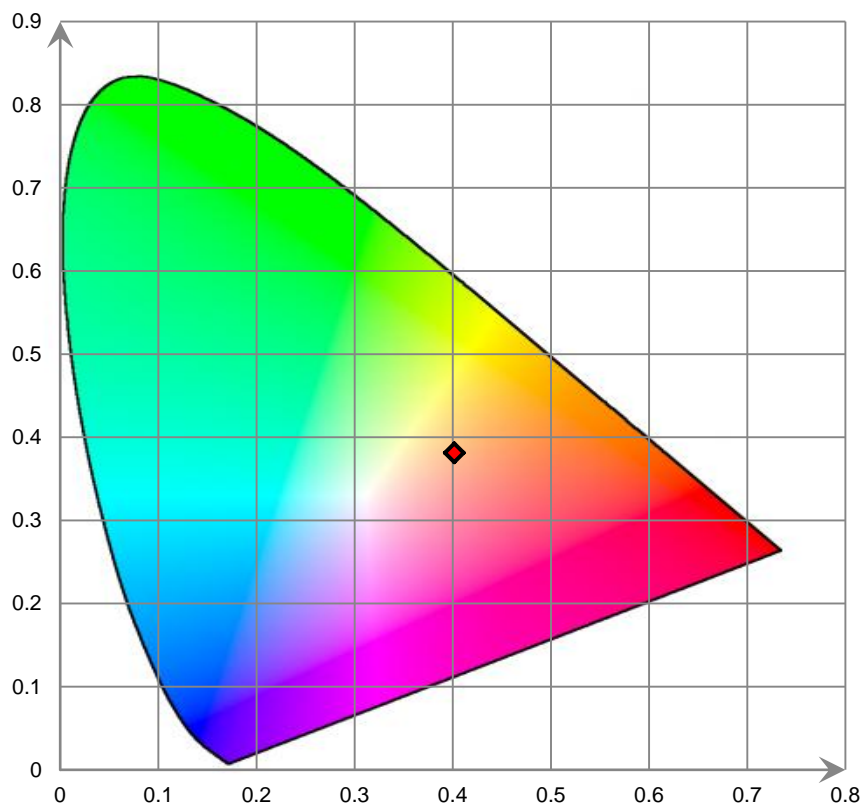
Relative Spectral Power Distribution



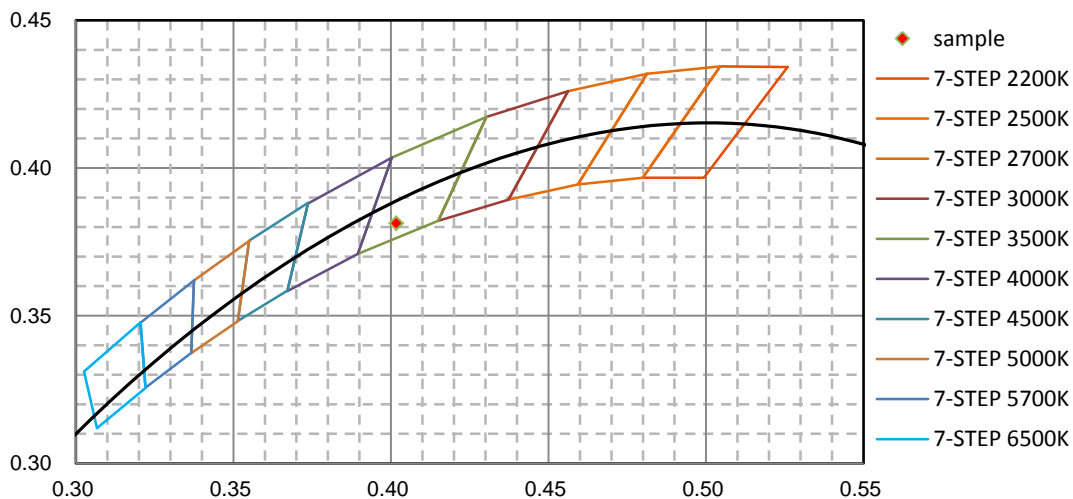
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	2.656E-01	421	4.888E+00	462	6.120E+01	503	7.180E+01	544	7.883E+01
381	3.154E-01	422	5.492E+00	463	6.055E+01	504	7.303E+01	545	7.825E+01
382	3.388E-01	423	6.249E+00	464	5.914E+01	505	7.324E+01	546	7.833E+01
383	3.217E-01	424	6.851E+00	465	5.864E+01	506	7.418E+01	547	7.837E+01
384	2.488E-01	425	7.673E+00	466	5.769E+01	507	7.478E+01	548	7.878E+01
385	2.375E-01	426	8.462E+00	467	5.585E+01	508	7.522E+01	549	7.839E+01
386	2.031E-01	427	9.363E+00	468	5.441E+01	509	7.560E+01	550	7.860E+01
387	2.107E-01	428	1.037E+01	469	5.241E+01	510	7.618E+01	551	7.839E+01
388	2.500E-01	429	1.136E+01	470	5.018E+01	511	7.602E+01	552	7.841E+01
389	2.171E-01	430	1.251E+01	471	4.843E+01	512	7.658E+01	553	7.889E+01
390	1.659E-01	431	1.364E+01	472	4.624E+01	513	7.695E+01	554	7.882E+01
391	1.637E-01	432	1.497E+01	473	4.474E+01	514	7.699E+01	555	7.922E+01
392	2.389E-01	433	1.649E+01	474	4.369E+01	515	7.743E+01	556	7.897E+01
393	2.634E-01	434	1.823E+01	475	4.274E+01	516	7.753E+01	557	7.892E+01
394	1.783E-01	435	2.040E+01	476	4.243E+01	517	7.764E+01	558	7.978E+01
395	2.676E-01	436	2.232E+01	477	4.259E+01	518	7.767E+01	559	7.973E+01
396	2.343E-01	437	2.489E+01	478	4.288E+01	519	7.794E+01	560	7.986E+01
397	2.229E-01	438	2.712E+01	479	4.359E+01	520	7.794E+01	561	7.989E+01
398	1.769E-01	439	3.001E+01	480	4.435E+01	521	7.798E+01	562	8.024E+01
399	2.969E-01	440	3.371E+01	481	4.561E+01	522	7.822E+01	563	8.032E+01
400	2.109E-01	441	3.783E+01	482	4.621E+01	523	7.804E+01	564	8.061E+01
401	3.176E-01	442	4.259E+01	483	4.794E+01	524	7.806E+01	565	8.146E+01
402	2.867E-01	443	4.890E+01	484	4.867E+01	525	7.792E+01	566	8.162E+01
403	4.093E-01	444	5.500E+01	485	4.976E+01	526	7.806E+01	567	8.195E+01
404	3.539E-01	445	6.228E+01	486	5.051E+01	527	7.800E+01	568	8.249E+01
405	5.301E-01	446	6.950E+01	487	5.182E+01	528	7.744E+01	569	8.280E+01
406	5.282E-01	447	7.805E+01	488	5.320E+01	529	7.773E+01	570	8.318E+01
407	6.388E-01	448	8.512E+01	489	5.449E+01	530	7.811E+01	571	8.386E+01
408	7.947E-01	449	9.212E+01	490	5.568E+01	531	7.805E+01	572	8.403E+01
409	8.240E-01	450	9.628E+01	491	5.710E+01	532	7.823E+01	573	8.448E+01
410	1.004E+00	451	9.952E+01	492	5.845E+01	533	7.855E+01	574	8.553E+01
411	1.213E+00	452	9.956E+01	493	6.016E+01	534	7.795E+01	575	8.616E+01
412	1.453E+00	453	9.764E+01	494	6.133E+01	535	7.812E+01	576	8.709E+01
413	1.667E+00	454	9.403E+01	495	6.273E+01	536	7.805E+01	577	8.754E+01
414	2.076E+00	455	8.952E+01	496	6.403E+01	537	7.817E+01	578	8.849E+01
415	2.388E+00	456	8.370E+01	497	6.540E+01	538	7.850E+01	579	8.922E+01
416	2.665E+00	457	7.740E+01	498	6.685E+01	539	7.849E+01	580	9.036E+01
417	3.019E+00	458	7.273E+01	499	6.807E+01	540	7.799E+01	581	9.105E+01
418	3.435E+00	459	6.843E+01	500	6.932E+01	541	7.839E+01	582	9.196E+01
419	3.722E+00	460	6.544E+01	501	7.046E+01	542	7.835E+01	583	9.317E+01
420	4.386E+00	461	6.312E+01	502	7.099E+01	543	7.819E+01	584	9.352E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	9.482E+01	626	1.222E+02	667	7.238E+01	708	2.506E+01	749	7.197E+00
586	9.534E+01	627	1.216E+02	668	7.080E+01	709	2.446E+01	750	7.079E+00
587	9.675E+01	628	1.211E+02	669	6.930E+01	710	2.375E+01	751	6.891E+00
588	9.806E+01	629	1.207E+02	670	6.786E+01	711	2.300E+01	752	6.638E+00
589	9.890E+01	630	1.194E+02	671	6.584E+01	712	2.244E+01	753	6.254E+00
590	1.009E+02	631	1.195E+02	672	6.499E+01	713	2.186E+01	754	6.236E+00
591	1.017E+02	632	1.184E+02	673	6.341E+01	714	2.117E+01	755	5.964E+00
592	1.027E+02	633	1.175E+02	674	6.201E+01	715	2.086E+01	756	5.923E+00
593	1.036E+02	634	1.168E+02	675	6.029E+01	716	1.988E+01	757	5.629E+00
594	1.051E+02	635	1.164E+02	676	5.931E+01	717	1.947E+01	758	5.496E+00
595	1.060E+02	636	1.148E+02	677	5.780E+01	718	1.900E+01	759	5.263E+00
596	1.072E+02	637	1.140E+02	678	5.656E+01	719	1.825E+01	760	5.163E+00
597	1.083E+02	638	1.128E+02	679	5.549E+01	720	1.763E+01	761	4.989E+00
598	1.094E+02	639	1.116E+02	680	5.378E+01	721	1.750E+01	762	4.956E+00
599	1.110E+02	640	1.108E+02	681	5.283E+01	722	1.667E+01	763	4.650E+00
600	1.119E+02	641	1.092E+02	682	5.132E+01	723	1.631E+01	764	4.514E+00
601	1.123E+02	642	1.088E+02	683	5.046E+01	724	1.577E+01	765	4.399E+00
602	1.133E+02	643	1.072E+02	684	4.888E+01	725	1.541E+01	766	4.327E+00
603	1.148E+02	644	1.055E+02	685	4.748E+01	726	1.495E+01	767	4.177E+00
604	1.156E+02	645	1.049E+02	686	4.641E+01	727	1.454E+01	768	3.971E+00
605	1.163E+02	646	1.034E+02	687	4.551E+01	728	1.387E+01	769	3.849E+00
606	1.173E+02	647	1.021E+02	688	4.429E+01	729	1.360E+01	770	3.701E+00
607	1.186E+02	648	1.008E+02	689	4.287E+01	730	1.304E+01	771	3.642E+00
608	1.194E+02	649	9.915E+01	690	4.190E+01	731	1.291E+01	772	3.540E+00
609	1.200E+02	650	9.775E+01	691	4.109E+01	732	1.240E+01	773	3.431E+00
610	1.205E+02	651	9.594E+01	692	3.954E+01	733	1.187E+01	774	3.285E+00
611	1.213E+02	652	9.448E+01	693	3.866E+01	734	1.153E+01	775	3.251E+00
612	1.219E+02	653	9.350E+01	694	3.762E+01	735	1.125E+01	776	3.172E+00
613	1.220E+02	654	9.184E+01	695	3.664E+01	736	1.083E+01	777	2.996E+00
614	1.230E+02	655	9.038E+01	696	3.555E+01	737	1.030E+01	778	2.979E+00
615	1.228E+02	656	8.891E+01	697	3.451E+01	738	1.026E+01	779	2.784E+00
616	1.234E+02	657	8.756E+01	698	3.352E+01	739	9.829E+00	780	2.681E+00
617	1.241E+02	658	8.573E+01	699	3.256E+01	740	9.566E+00		
618	1.240E+02	659	8.421E+01	700	3.169E+01	741	9.216E+00		
619	1.234E+02	660	8.288E+01	701	3.074E+01	742	8.974E+00		
620	1.239E+02	661	8.105E+01	702	2.998E+01	743	8.748E+00		
621	1.235E+02	662	7.933E+01	703	2.903E+01	744	8.435E+00		
622	1.237E+02	663	7.857E+01	704	2.833E+01	745	8.137E+00		
623	1.237E+02	664	7.679E+01	705	2.719E+01	746	8.003E+00		
624	1.233E+02	665	7.531E+01	706	2.663E+01	747	7.660E+00		
625	1.228E+02	666	7.356E+01	707	2.590E+01	748	7.371E+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**

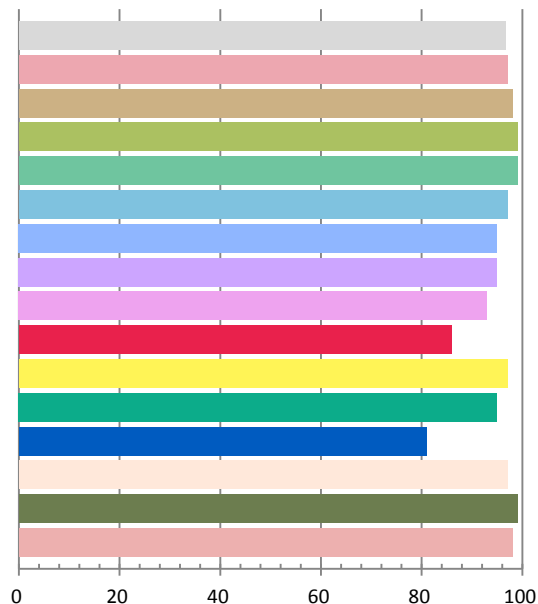
## Photometric and Electrical Measurement Result

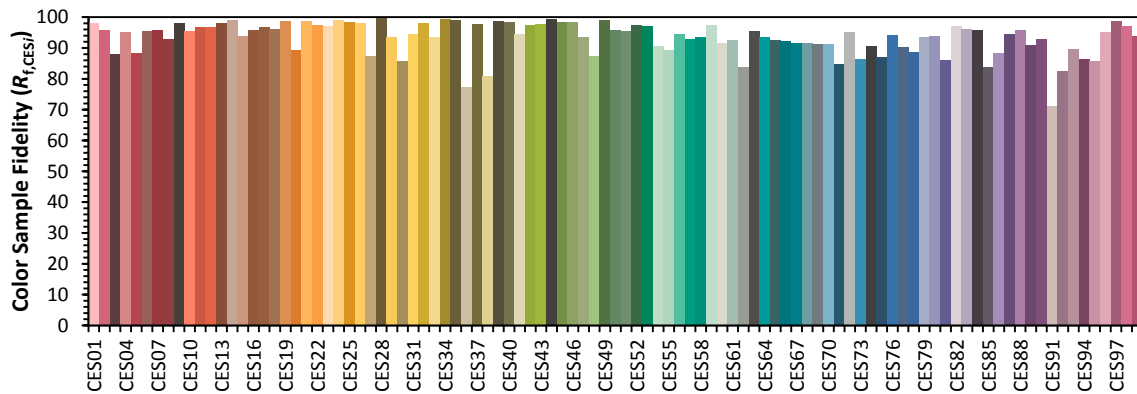
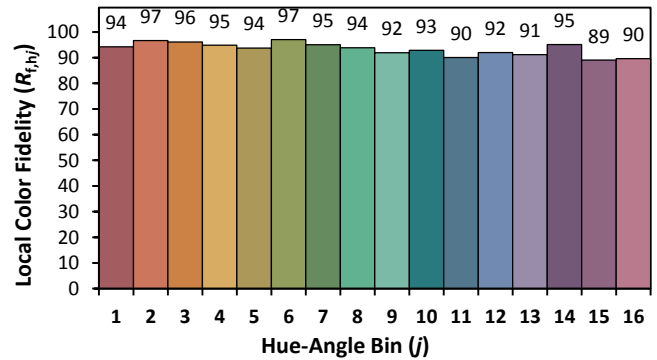
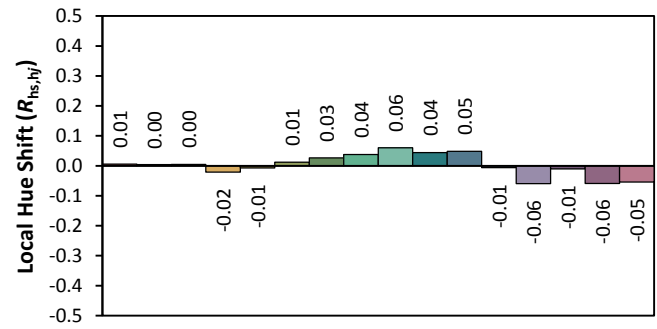
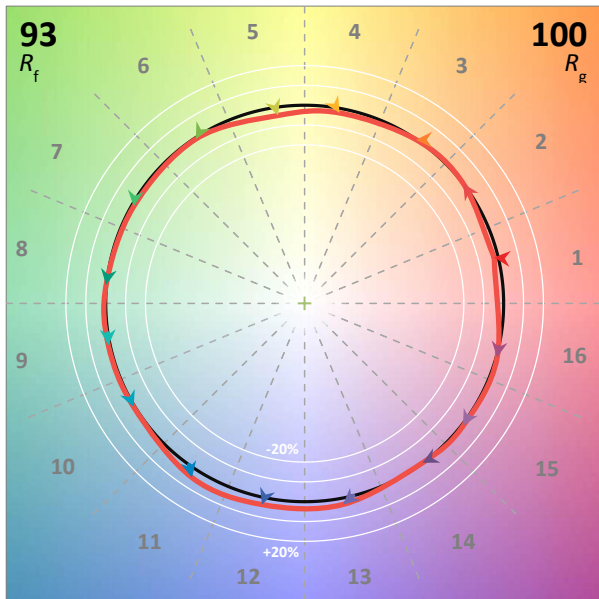
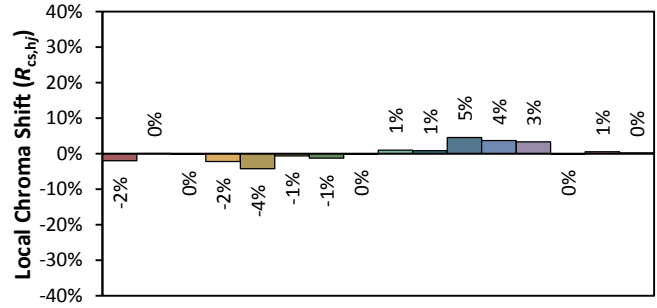
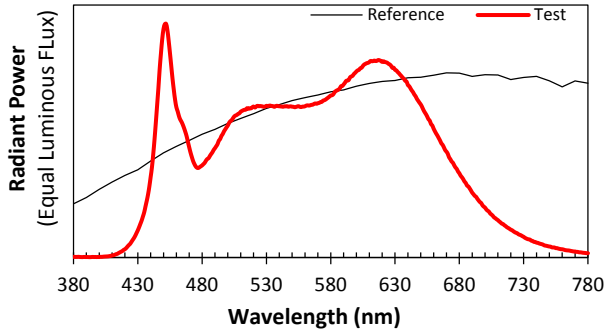
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.5095	60.87	0.9945	6553.6	107.67

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
22.713	4136	-0.00227	0.3733	0.3674	0.2241	0.4963

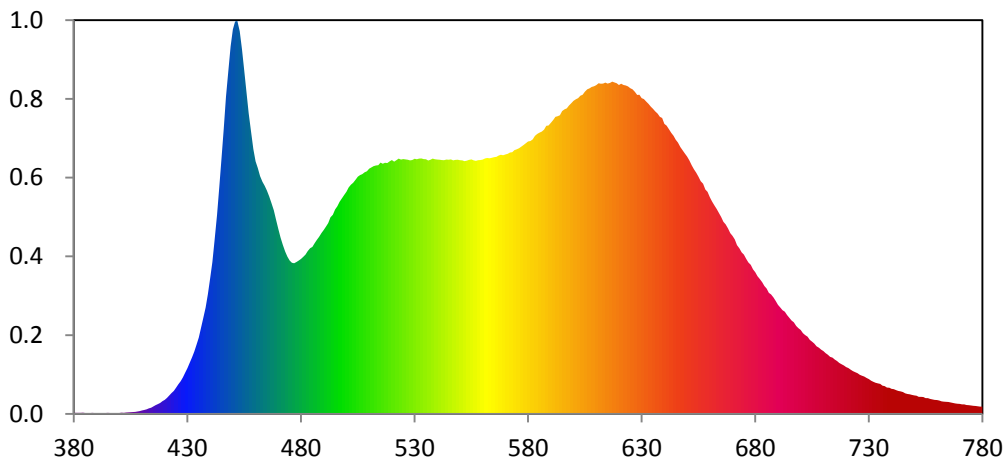
## Color Rendering Index

<b>Ra</b>			
<b>96.7</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
97	98	99	99
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
97	95	95	93
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
86	97	95	81
<b>R13</b>	<b>R14</b>	<b>R15</b>	
97	99	98	





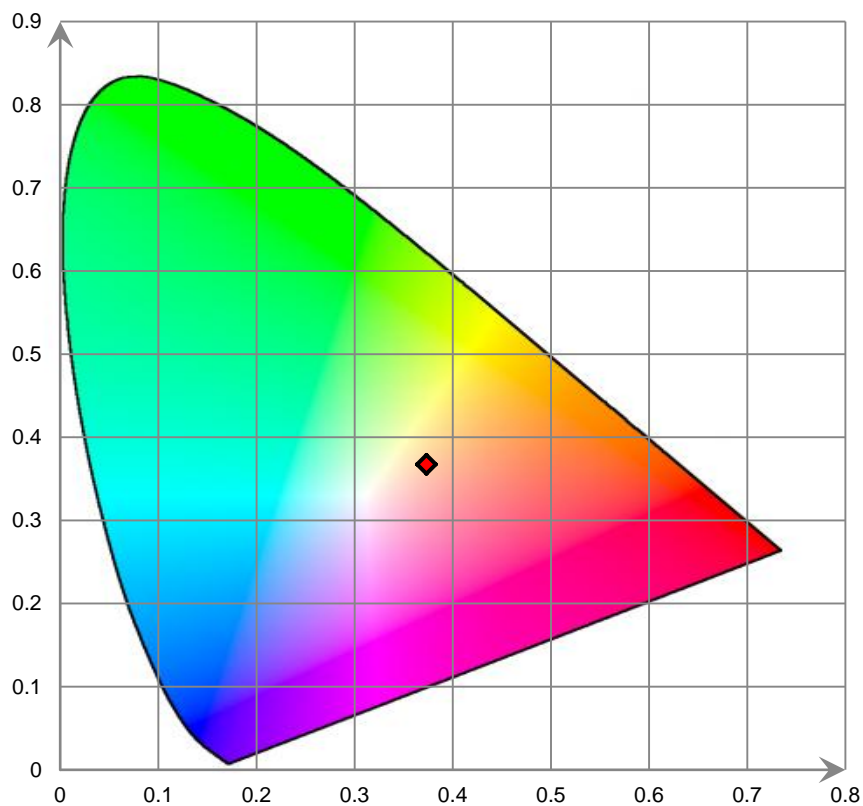
### Relative Spectral Power Distribution



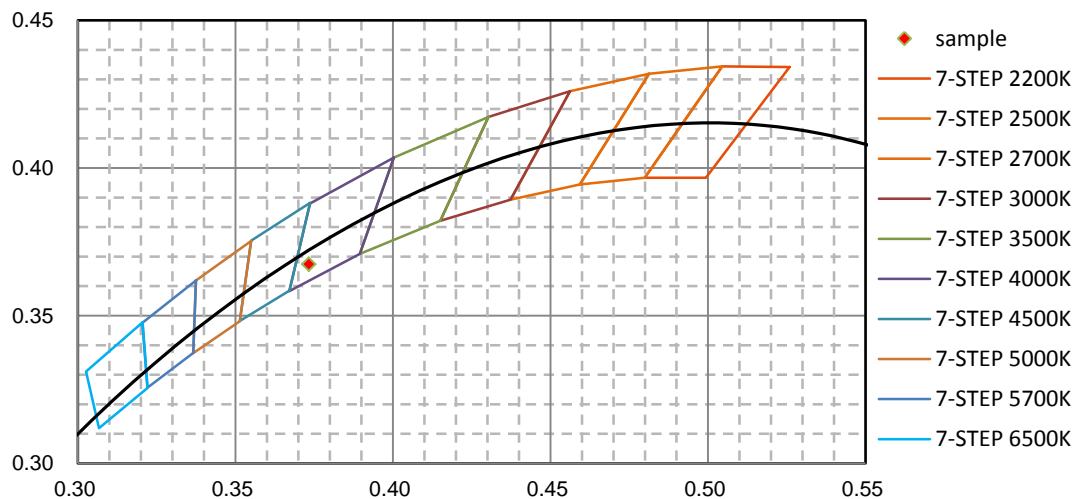
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	4.203E-01	421	5.427E+00	462	8.061E+01	503	7.833E+01	544	8.620E+01
381	3.669E-01	422	6.276E+00	463	7.866E+01	504	7.940E+01	545	8.616E+01
382	3.470E-01	423	7.091E+00	464	7.734E+01	505	8.043E+01	546	8.630E+01
383	3.693E-01	424	7.785E+00	465	7.569E+01	506	8.096E+01	547	8.596E+01
384	4.161E-01	425	8.878E+00	466	7.372E+01	507	8.130E+01	548	8.612E+01
385	3.082E-01	426	1.001E+01	467	7.152E+01	508	8.190E+01	549	8.617E+01
386	2.784E-01	427	1.109E+01	468	6.902E+01	509	8.225E+01	550	8.600E+01
387	2.457E-01	428	1.241E+01	469	6.581E+01	510	8.313E+01	551	8.594E+01
388	3.411E-01	429	1.397E+01	470	6.273E+01	511	8.357E+01	552	8.569E+01
389	3.055E-01	430	1.552E+01	471	5.983E+01	512	8.398E+01	553	8.585E+01
390	2.927E-01	431	1.728E+01	472	5.735E+01	513	8.422E+01	554	8.612E+01
391	2.933E-01	432	1.918E+01	473	5.500E+01	514	8.432E+01	555	8.627E+01
392	2.404E-01	433	2.113E+01	474	5.332E+01	515	8.517E+01	556	8.594E+01
393	2.331E-01	434	2.346E+01	475	5.199E+01	516	8.480E+01	557	8.578E+01
394	2.975E-01	435	2.586E+01	476	5.122E+01	517	8.510E+01	558	8.602E+01
395	3.443E-01	436	2.919E+01	477	5.106E+01	518	8.502E+01	559	8.606E+01
396	2.924E-01	437	3.249E+01	478	5.149E+01	519	8.561E+01	560	8.623E+01
397	3.256E-01	438	3.614E+01	479	5.202E+01	520	8.608E+01	561	8.661E+01
398	2.784E-01	439	4.061E+01	480	5.252E+01	521	8.552E+01	562	8.675E+01
399	3.236E-01	440	4.595E+01	481	5.326E+01	522	8.599E+01	563	8.664E+01
400	2.875E-01	441	5.145E+01	482	5.401E+01	523	8.653E+01	564	8.679E+01
401	4.123E-01	442	5.897E+01	483	5.522E+01	524	8.623E+01	565	8.704E+01
402	3.819E-01	443	6.735E+01	484	5.616E+01	525	8.637E+01	566	8.713E+01
403	4.770E-01	444	7.673E+01	485	5.662E+01	526	8.628E+01	567	8.755E+01
404	5.471E-01	445	8.655E+01	486	5.787E+01	527	8.615E+01	568	8.784E+01
405	5.960E-01	446	9.655E+01	487	5.898E+01	528	8.593E+01	569	8.766E+01
406	6.349E-01	447	1.075E+02	488	6.000E+01	529	8.604E+01	570	8.798E+01
407	7.004E-01	448	1.164E+02	489	6.135E+01	530	8.651E+01	571	8.816E+01
408	8.289E-01	449	1.246E+02	490	6.236E+01	531	8.633E+01	572	8.861E+01
409	9.669E-01	450	1.303E+02	491	6.349E+01	532	8.652E+01	573	8.872E+01
410	1.164E+00	451	1.330E+02	492	6.466E+01	533	8.662E+01	574	8.942E+01
411	1.335E+00	452	1.332E+02	493	6.661E+01	534	8.636E+01	575	8.967E+01
412	1.550E+00	453	1.297E+02	494	6.752E+01	535	8.635E+01	576	9.005E+01
413	1.906E+00	454	1.236E+02	495	6.929E+01	536	8.591E+01	577	9.062E+01
414	2.105E+00	455	1.165E+02	496	7.036E+01	537	8.619E+01	578	9.117E+01
415	2.538E+00	456	1.092E+02	497	7.191E+01	538	8.652E+01	579	9.177E+01
416	2.947E+00	457	1.019E+02	498	7.306E+01	539	8.632E+01	580	9.237E+01
417	3.346E+00	458	9.558E+01	499	7.423E+01	540	8.625E+01	581	9.252E+01
418	3.723E+00	459	8.981E+01	500	7.529E+01	541	8.614E+01	582	9.306E+01
419	4.350E+00	460	8.563E+01	501	7.678E+01	542	8.607E+01	583	9.422E+01
420	4.769E+00	461	8.334E+01	502	7.772E+01	543	8.597E+01	584	9.491E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	9.533E+01	626	1.100E+02	667	6.424E+01	708	2.244E+01	749	6.453E+00
586	9.573E+01	627	1.092E+02	668	6.283E+01	709	2.180E+01	750	6.288E+00
587	9.639E+01	628	1.081E+02	669	6.125E+01	710	2.131E+01	751	6.188E+00
588	9.767E+01	629	1.082E+02	670	6.033E+01	711	2.060E+01	752	5.806E+00
589	9.779E+01	630	1.070E+02	671	5.916E+01	712	2.005E+01	753	5.768E+00
590	9.865E+01	631	1.067E+02	672	5.719E+01	713	1.934E+01	754	5.713E+00
591	9.959E+01	632	1.058E+02	673	5.610E+01	714	1.908E+01	755	5.369E+00
592	1.007E+02	633	1.051E+02	674	5.476E+01	715	1.841E+01	756	5.372E+00
593	1.009E+02	634	1.042E+02	675	5.402E+01	716	1.793E+01	757	5.100E+00
594	1.012E+02	635	1.034E+02	676	5.261E+01	717	1.729E+01	758	4.923E+00
595	1.027E+02	636	1.025E+02	677	5.137E+01	718	1.686E+01	759	4.772E+00
596	1.032E+02	637	1.018E+02	678	5.051E+01	719	1.640E+01	760	4.717E+00
597	1.036E+02	638	1.007E+02	679	4.902E+01	720	1.588E+01	761	4.557E+00
598	1.046E+02	639	1.003E+02	680	4.805E+01	721	1.556E+01	762	4.303E+00
599	1.053E+02	640	9.832E+01	681	4.670E+01	722	1.500E+01	763	4.165E+00
600	1.061E+02	641	9.772E+01	682	4.578E+01	723	1.451E+01	764	4.080E+00
601	1.067E+02	642	9.648E+01	683	4.469E+01	724	1.413E+01	765	4.030E+00
602	1.070E+02	643	9.527E+01	684	4.335E+01	725	1.384E+01	766	3.896E+00
603	1.079E+02	644	9.427E+01	685	4.250E+01	726	1.327E+01	767	3.731E+00
604	1.082E+02	645	9.292E+01	686	4.105E+01	727	1.296E+01	768	3.583E+00
605	1.092E+02	646	9.193E+01	687	4.052E+01	728	1.265E+01	769	3.452E+00
606	1.100E+02	647	9.047E+01	688	3.945E+01	729	1.219E+01	770	3.433E+00
607	1.104E+02	648	8.936E+01	689	3.827E+01	730	1.181E+01	771	3.244E+00
608	1.108E+02	649	8.826E+01	690	3.699E+01	731	1.127E+01	772	3.225E+00
609	1.110E+02	650	8.726E+01	691	3.612E+01	732	1.088E+01	773	3.012E+00
610	1.114E+02	651	8.592E+01	692	3.516E+01	733	1.055E+01	774	2.974E+00
611	1.121E+02	652	8.428E+01	693	3.463E+01	734	1.037E+01	775	2.889E+00
612	1.119E+02	653	8.292E+01	694	3.351E+01	735	1.018E+01	776	2.742E+00
613	1.120E+02	654	8.177E+01	695	3.255E+01	736	9.588E+00	777	2.678E+00
614	1.123E+02	655	8.041E+01	696	3.164E+01	737	9.441E+00	778	2.582E+00
615	1.120E+02	656	7.887E+01	697	3.105E+01	738	8.942E+00	779	2.494E+00
616	1.122E+02	657	7.801E+01	698	2.981E+01	739	8.876E+00	780	2.473E+00
617	1.126E+02	658	7.609E+01	699	2.904E+01	740	8.497E+00		
618	1.124E+02	659	7.527E+01	700	2.844E+01	741	8.371E+00		
619	1.121E+02	660	7.350E+01	701	2.739E+01	742	8.062E+00		
620	1.115E+02	661	7.200E+01	702	2.671E+01	743	7.828E+00		
621	1.119E+02	662	7.066E+01	703	2.618E+01	744	7.631E+00		
622	1.115E+02	663	6.947E+01	704	2.512E+01	745	7.394E+00		
623	1.113E+02	664	6.810E+01	705	2.450E+01	746	6.962E+00		
624	1.110E+02	665	6.673E+01	706	2.382E+01	747	6.791E+00		
625	1.104E+02	666	6.513E+01	707	2.291E+01	748	6.646E+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**

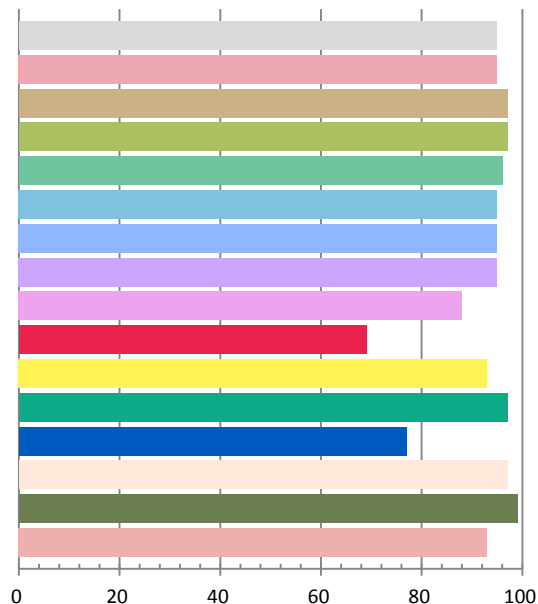
## Photometric and Electrical Measurement Result

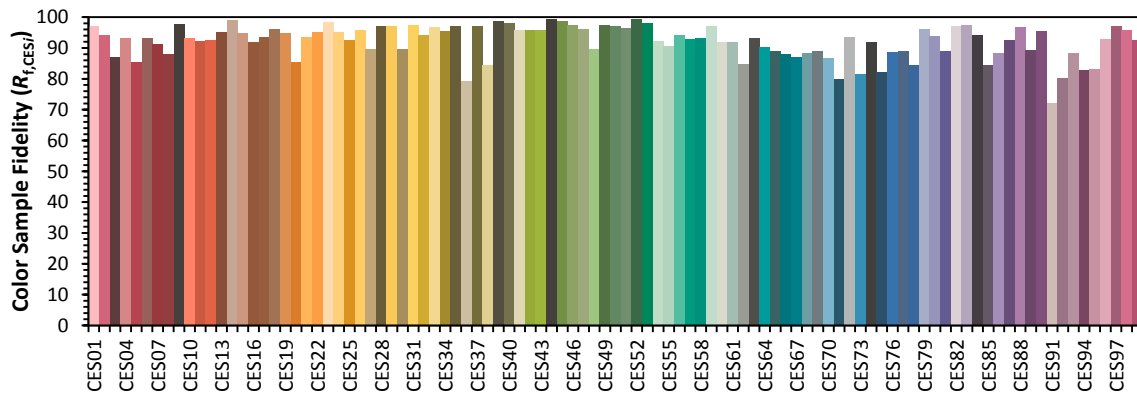
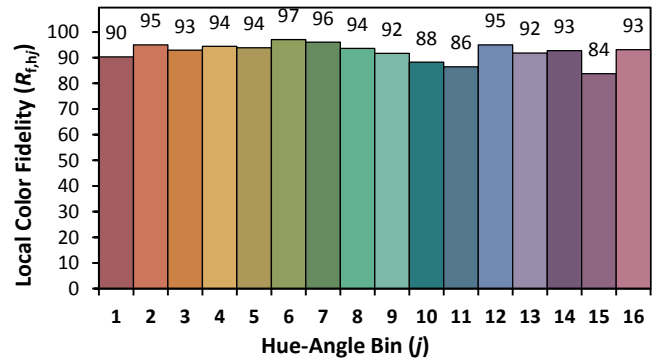
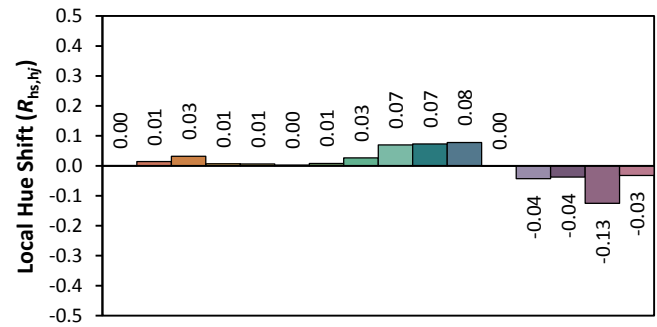
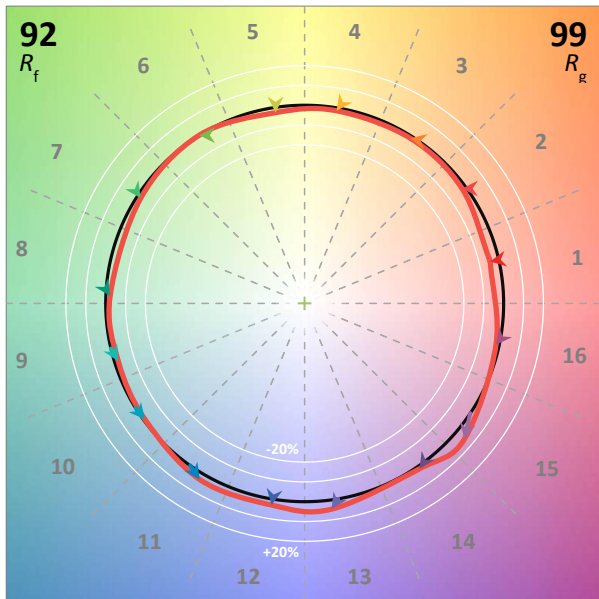
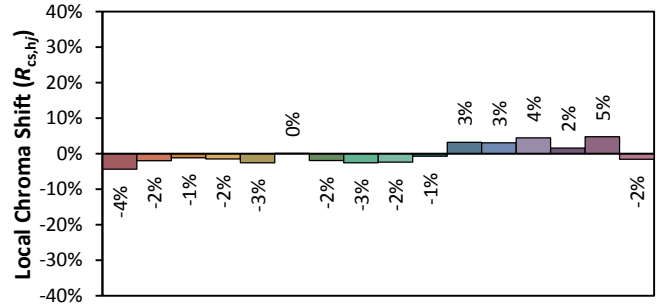
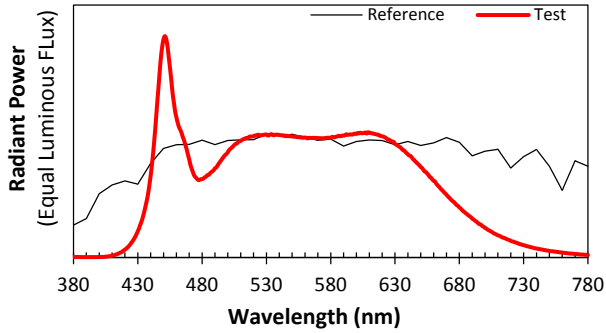
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.5221	62.4	0.9951	6678.4	107.03

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
22.819	5159	0.00193	0.3410	0.3521	0.2084	0.4843

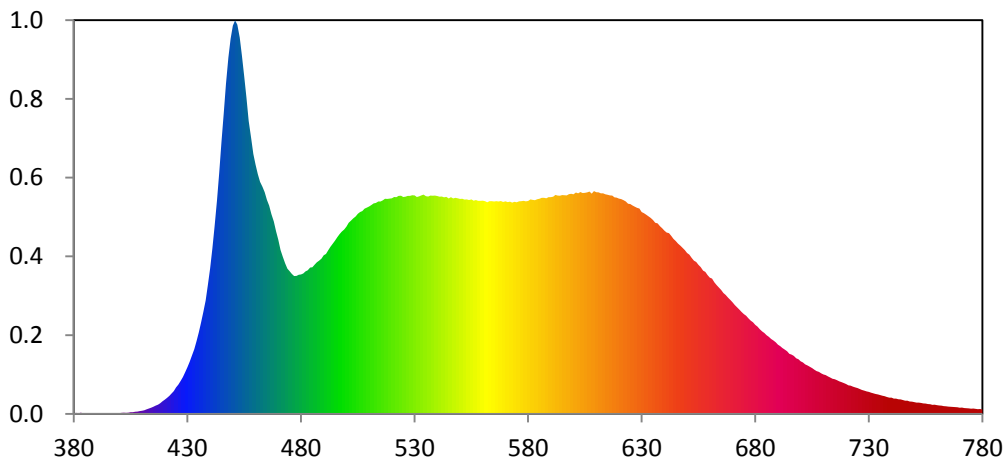
## Color Rendering Index

<b>Ra</b>			
<b>94.8</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
95	97	97	96
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
95	95	95	88
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
69	93	97	77
<b>R13</b>	<b>R14</b>	<b>R15</b>	
97	99	93	





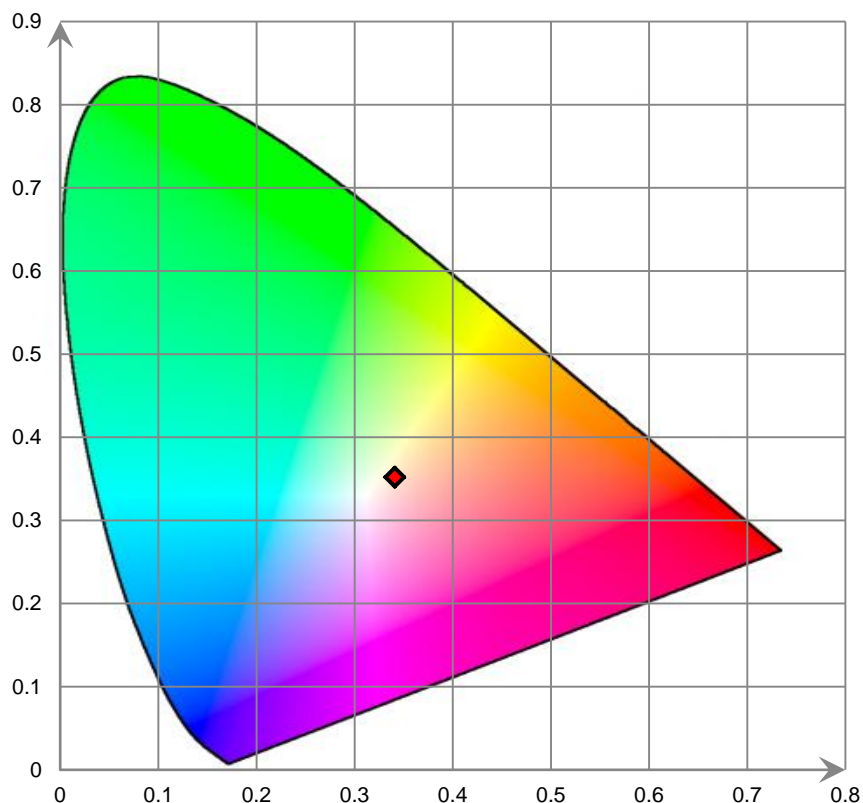
### Relative Spectral Power Distribution



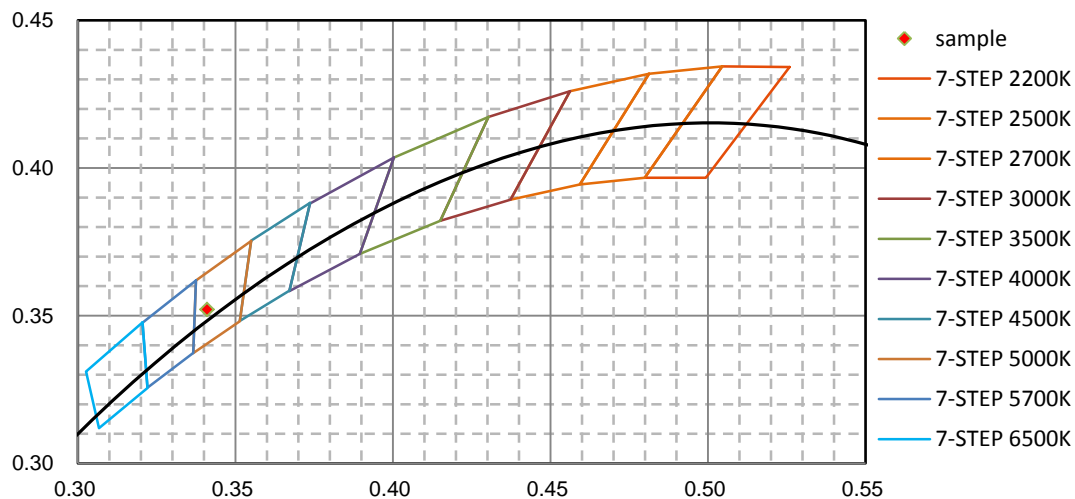
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	3.295E-01	421	6.949E+00	462	1.011E+02	503	8.516E+01	544	9.456E+01
381	4.500E-01	422	7.890E+00	463	9.900E+01	504	8.601E+01	545	9.392E+01
382	2.969E-01	423	8.882E+00	464	9.659E+01	505	8.717E+01	546	9.444E+01
383	5.539E-01	424	9.991E+00	465	9.329E+01	506	8.797E+01	547	9.391E+01
384	3.446E-01	425	1.156E+01	466	9.075E+01	507	8.840E+01	548	9.419E+01
385	4.220E-01	426	1.275E+01	467	8.709E+01	508	8.945E+01	549	9.398E+01
386	3.093E-01	427	1.439E+01	468	8.382E+01	509	8.996E+01	550	9.372E+01
387	3.302E-01	428	1.608E+01	469	7.958E+01	510	9.044E+01	551	9.379E+01
388	3.650E-01	429	1.817E+01	470	7.590E+01	511	9.105E+01	552	9.344E+01
389	3.687E-01	430	2.036E+01	471	7.147E+01	512	9.170E+01	553	9.352E+01
390	3.154E-01	431	2.273E+01	472	6.856E+01	513	9.196E+01	554	9.319E+01
391	2.665E-01	432	2.560E+01	473	6.563E+01	514	9.255E+01	555	9.347E+01
392	4.239E-01	433	2.825E+01	474	6.330E+01	515	9.255E+01	556	9.296E+01
393	2.381E-01	434	3.168E+01	475	6.220E+01	516	9.307E+01	557	9.322E+01
394	4.033E-01	435	3.549E+01	476	6.099E+01	517	9.373E+01	558	9.282E+01
395	3.472E-01	436	3.975E+01	477	6.008E+01	518	9.367E+01	559	9.288E+01
396	3.698E-01	437	4.429E+01	478	6.012E+01	519	9.382E+01	560	9.294E+01
397	3.141E-01	438	4.942E+01	479	6.065E+01	520	9.400E+01	561	9.273E+01
398	3.375E-01	439	5.627E+01	480	6.078E+01	521	9.455E+01	562	9.225E+01
399	4.060E-01	440	6.345E+01	481	6.121E+01	522	9.445E+01	563	9.269E+01
400	3.614E-01	441	7.209E+01	482	6.212E+01	523	9.498E+01	564	9.268E+01
401	4.378E-01	442	8.182E+01	483	6.260E+01	524	9.508E+01	565	9.255E+01
402	5.102E-01	443	9.312E+01	484	6.381E+01	525	9.452E+01	566	9.274E+01
403	4.695E-01	444	1.052E+02	485	6.390E+01	526	9.466E+01	567	9.257E+01
404	5.090E-01	445	1.186E+02	486	6.505E+01	527	9.498E+01	568	9.275E+01
405	7.176E-01	446	1.309E+02	487	6.605E+01	528	9.502E+01	569	9.238E+01
406	7.271E-01	447	1.438E+02	488	6.678E+01	529	9.528E+01	570	9.263E+01
407	9.216E-01	448	1.553E+02	489	6.767E+01	530	9.523E+01	571	9.231E+01
408	1.059E+00	449	1.635E+02	490	6.915E+01	531	9.454E+01	572	9.250E+01
409	1.226E+00	450	1.692E+02	491	6.970E+01	532	9.477E+01	573	9.208E+01
410	1.382E+00	451	1.715E+02	492	7.128E+01	533	9.523E+01	574	9.246E+01
411	1.583E+00	452	1.696E+02	493	7.286E+01	534	9.559E+01	575	9.224E+01
412	2.008E+00	453	1.641E+02	494	7.423E+01	535	9.488E+01	576	9.265E+01
413	2.357E+00	454	1.559E+02	495	7.559E+01	536	9.473E+01	577	9.268E+01
414	2.688E+00	455	1.471E+02	496	7.700E+01	537	9.515E+01	578	9.286E+01
415	3.088E+00	456	1.378E+02	497	7.836E+01	538	9.512E+01	579	9.266E+01
416	3.643E+00	457	1.277E+02	498	7.945E+01	539	9.515E+01	580	9.280E+01
417	4.011E+00	458	1.204E+02	499	8.038E+01	540	9.496E+01	581	9.346E+01
418	4.656E+00	459	1.133E+02	500	8.163E+01	541	9.470E+01	582	9.331E+01
419	5.513E+00	460	1.086E+02	501	8.330E+01	542	9.473E+01	583	9.314E+01
420	6.163E+00	461	1.045E+02	502	8.423E+01	543	9.439E+01	584	9.357E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	9.375E+01	626	9.083E+01	667	5.187E+01	708	1.829E+01	749	5.322E+00
586	9.421E+01	627	9.028E+01	668	5.067E+01	709	1.769E+01	750	5.122E+00
587	9.415E+01	628	8.982E+01	669	4.969E+01	710	1.721E+01	751	4.926E+00
588	9.401E+01	629	8.953E+01	670	4.866E+01	711	1.692E+01	752	4.905E+00
589	9.449E+01	630	8.798E+01	671	4.750E+01	712	1.634E+01	753	4.793E+00
590	9.449E+01	631	8.746E+01	672	4.648E+01	713	1.586E+01	754	4.610E+00
591	9.466E+01	632	8.682E+01	673	4.547E+01	714	1.536E+01	755	4.497E+00
592	9.547E+01	633	8.611E+01	674	4.442E+01	715	1.512E+01	756	4.329E+00
593	9.516E+01	634	8.540E+01	675	4.352E+01	716	1.470E+01	757	4.252E+00
594	9.509E+01	635	8.450E+01	676	4.276E+01	717	1.419E+01	758	3.989E+00
595	9.539E+01	636	8.328E+01	677	4.164E+01	718	1.388E+01	759	4.030E+00
596	9.527E+01	637	8.301E+01	678	4.060E+01	719	1.344E+01	760	3.834E+00
597	9.525E+01	638	8.183E+01	679	3.995E+01	720	1.303E+01	761	3.694E+00
598	9.581E+01	639	8.094E+01	680	3.883E+01	721	1.250E+01	762	3.599E+00
599	9.590E+01	640	7.988E+01	681	3.804E+01	722	1.235E+01	763	3.424E+00
600	9.572E+01	641	7.906E+01	682	3.691E+01	723	1.190E+01	764	3.344E+00
601	9.651E+01	642	7.874E+01	683	3.597E+01	724	1.155E+01	765	3.201E+00
602	9.613E+01	643	7.759E+01	684	3.523E+01	725	1.129E+01	766	3.085E+00
603	9.672E+01	644	7.622E+01	685	3.433E+01	726	1.083E+01	767	3.069E+00
604	9.627E+01	645	7.535E+01	686	3.358E+01	727	1.045E+01	768	2.965E+00
605	9.635E+01	646	7.425E+01	687	3.268E+01	728	1.019E+01	769	2.900E+00
606	9.656E+01	647	7.330E+01	688	3.198E+01	729	9.829E+00	770	2.701E+00
607	9.689E+01	648	7.235E+01	689	3.126E+01	730	9.624E+00	771	2.743E+00
608	9.601E+01	649	7.141E+01	690	3.017E+01	731	9.290E+00	772	2.595E+00
609	9.710E+01	650	7.011E+01	691	2.953E+01	732	8.975E+00	773	2.493E+00
610	9.664E+01	651	6.944E+01	692	2.875E+01	733	8.718E+00	774	2.419E+00
611	9.657E+01	652	6.798E+01	693	2.799E+01	734	8.464E+00	775	2.316E+00
612	9.612E+01	653	6.676E+01	694	2.731E+01	735	8.223E+00	776	2.377E+00
613	9.612E+01	654	6.623E+01	695	2.620E+01	736	7.906E+00	777	2.203E+00
614	9.572E+01	655	6.500E+01	696	2.584E+01	737	7.734E+00	778	2.113E+00
615	9.554E+01	656	6.400E+01	697	2.531E+01	738	7.393E+00	779	2.141E+00
616	9.520E+01	657	6.247E+01	698	2.428E+01	739	7.126E+00	780	1.956E+00
617	9.517E+01	658	6.186E+01	699	2.382E+01	740	7.083E+00		
618	9.440E+01	659	6.053E+01	700	2.290E+01	741	6.703E+00		
619	9.427E+01	660	5.941E+01	701	2.244E+01	742	6.665E+00		
620	9.381E+01	661	5.898E+01	702	2.160E+01	743	6.366E+00		
621	9.364E+01	662	5.730E+01	703	2.115E+01	744	6.307E+00		
622	9.314E+01	663	5.610E+01	704	2.052E+01	745	6.015E+00		
623	9.258E+01	664	5.505E+01	705	2.001E+01	746	5.747E+00		
624	9.157E+01	665	5.404E+01	706	1.928E+01	747	5.746E+00		
625	9.143E+01	666	5.267E+01	707	1.865E+01	748	5.402E+00		

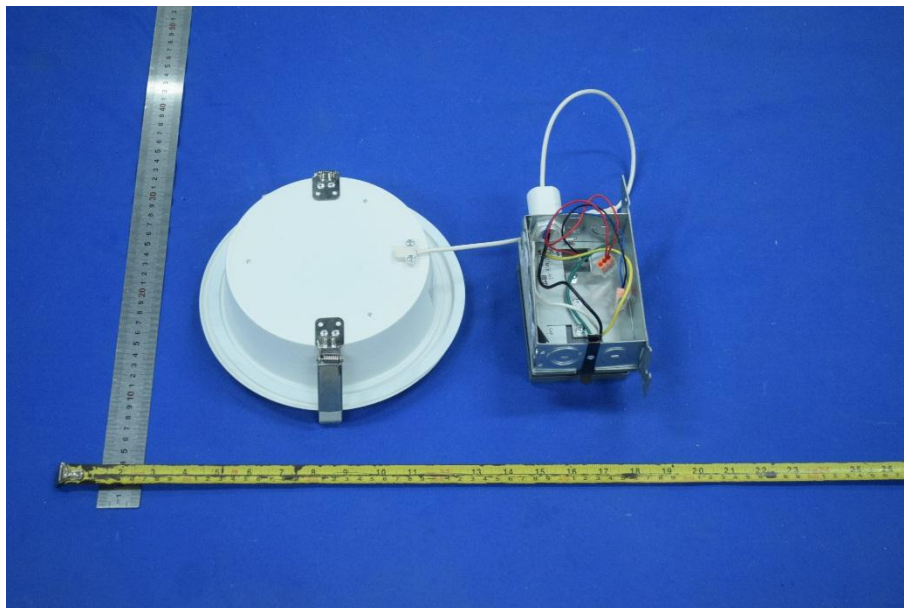
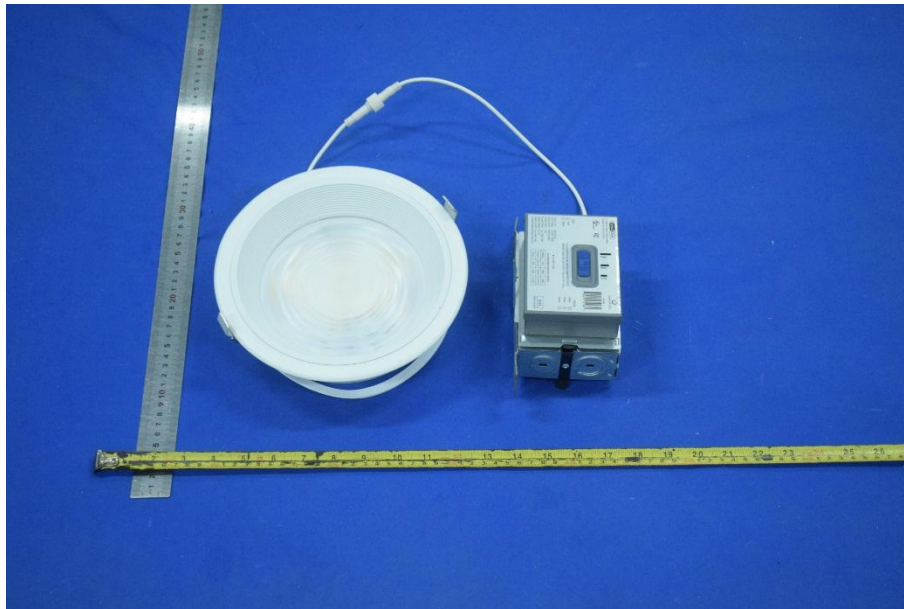
CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



## 6. Product Photo



## Directions

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

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