

# 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, KL,  
Hong Kong

**Test Model: SLFTG3/4/9CCT5S/DUALDIM**

<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>	2502T63508E-EE
<b>Test Date:</b>	2025-06-17
<b>Report Date:</b>	2025-06-25
<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 2025-06-05, and used for testing.

Model Tested: SLFTG3/4/9CCT5S/DUALDIM  
Manufacturer: GREEN CREATIVE LTD.  
Product Designation: Downlight  
Burning Time Before Test: 0hour(For New Products)

### Rated Values:

Rated Voltage/Frequency: AC 120-277V 50/60Hz  
Rated Power: 7W/8W/10W  
Nominal CCT: 2700K/3000K/3500K/4000K/5000K  
Nominal Lumen Output:  
2700K:820lm  
3000K:840lm  
3500K:900lm  
4000K:900lm  
5000K:900lm

## 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	2024-07-25	2025-07-24
High-precision rapid spectral analysis system	EVERFINE	HAAS-2000	M112048CA1361125	2024-07-25	2025-07-24
Digital power meter	YOKOGAWA	WT310	13398	2024-07-25	2025-07-24
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11060010	2024-07-25	2025-07-24
thermometer	SENSING	N/A	N/A	2024-07-25	2025-07-24
Standard Light Source	EVERFINE	D204	N/A	2023-05-12	2026-05-11
Precision frequency power supply	ALL Power	APW-105N	970613	2024-07-25	2025-07-24
AC POWER SUPPLY	EVERFINE	VPS1030 PWM	1012017	2024-08-30	2025-08-29
Digital CC&CV DC Power Supply	EVERFINE	WY12010	1009009	2024-08-30	2025-08-29
Digital power meter	YOKOGAWA	WT-210	91J926132	2024-08-30	2025-08-29
full-field speed goniophotometer	EVERFINE	GO-R5000	YG108492N10120001	2024-07-25	2025-07-24

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
wireless remote thermohygrometer	N/A	AOK-5017B	N/A	2024-09-06	2025-09-05
Standard Light Source	EVERFINE	D908	N/A	2023-05-12	2026-05-11

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.

### 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%**

The Stabilization time: **30 minutes**

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

Test orientation: **Downward**

Test CCT:**2700K**

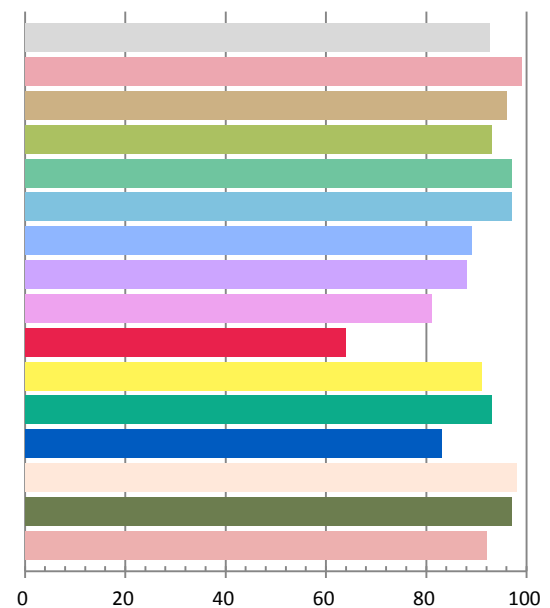
### Photometric and Electrical Measurement Result

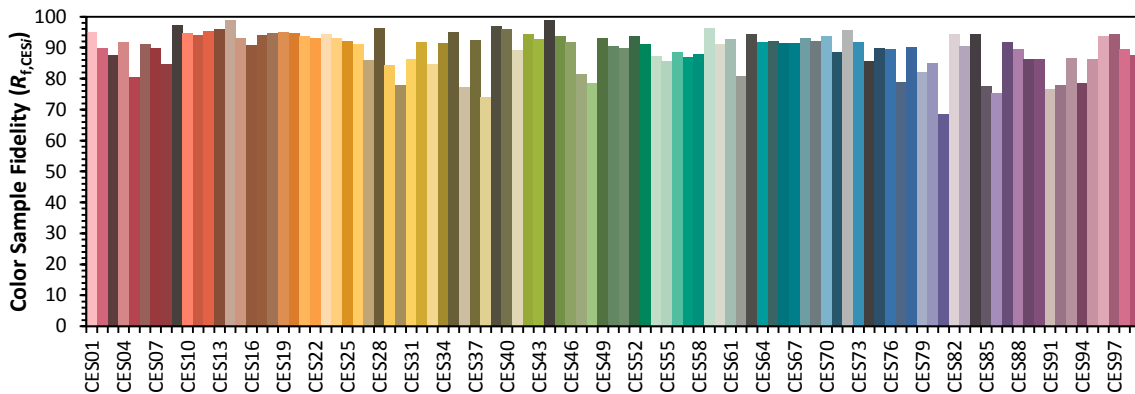
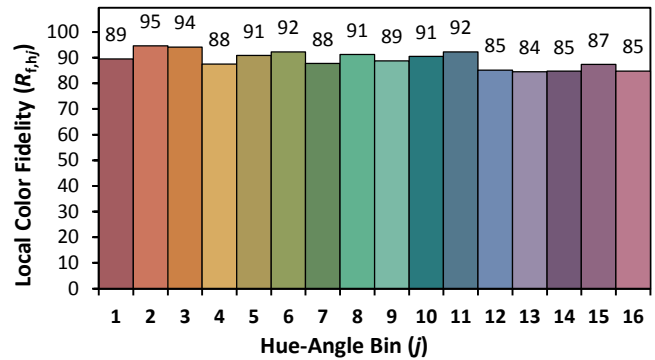
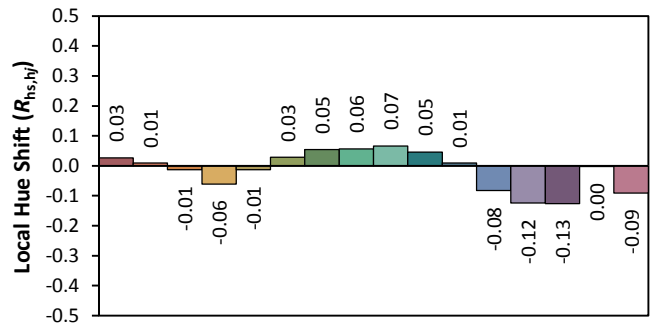
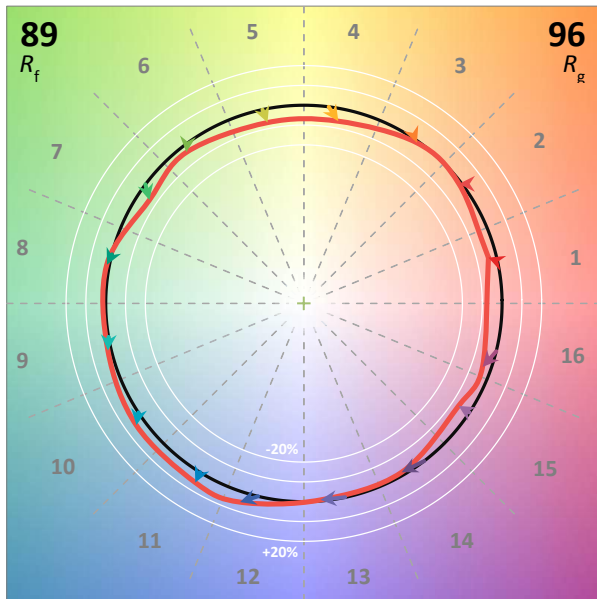
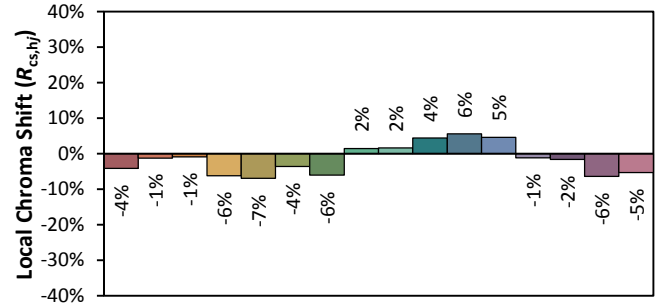
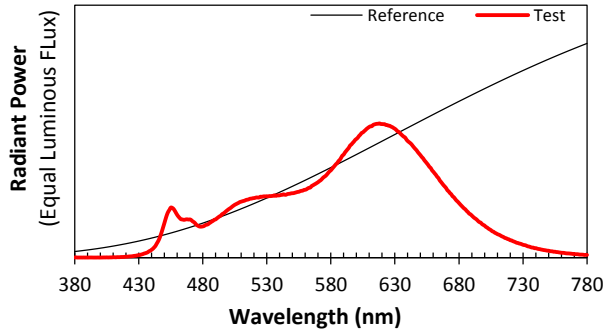
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.07721	9.066	0.978	910.71	100.45

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
3.1305	2712	-0.00061	0.4579	0.4085	0.2622	0.5263

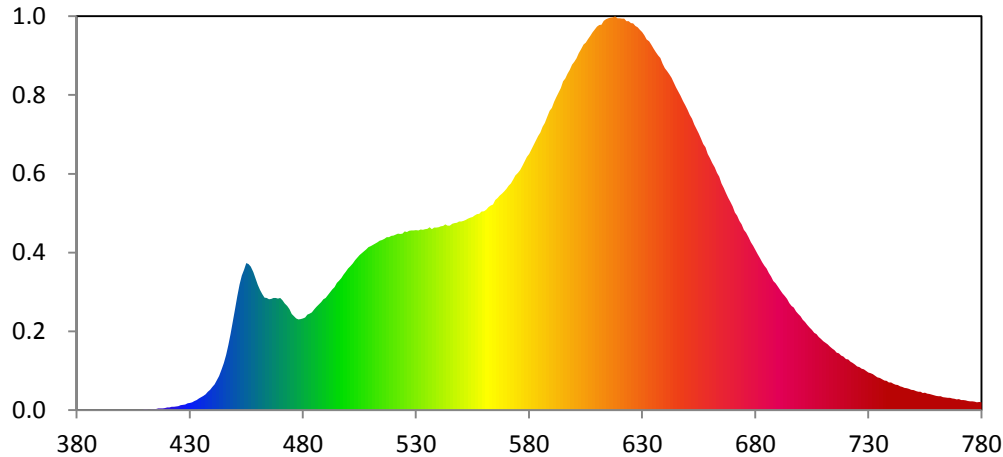
### Color Rendering Index

<b>Ra</b>			
<b>92.5</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
99	96	93	97
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
97	89	88	81
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
64	91	93	83
<b>R13</b>	<b>R14</b>	<b>R15</b>	
98	97	92	





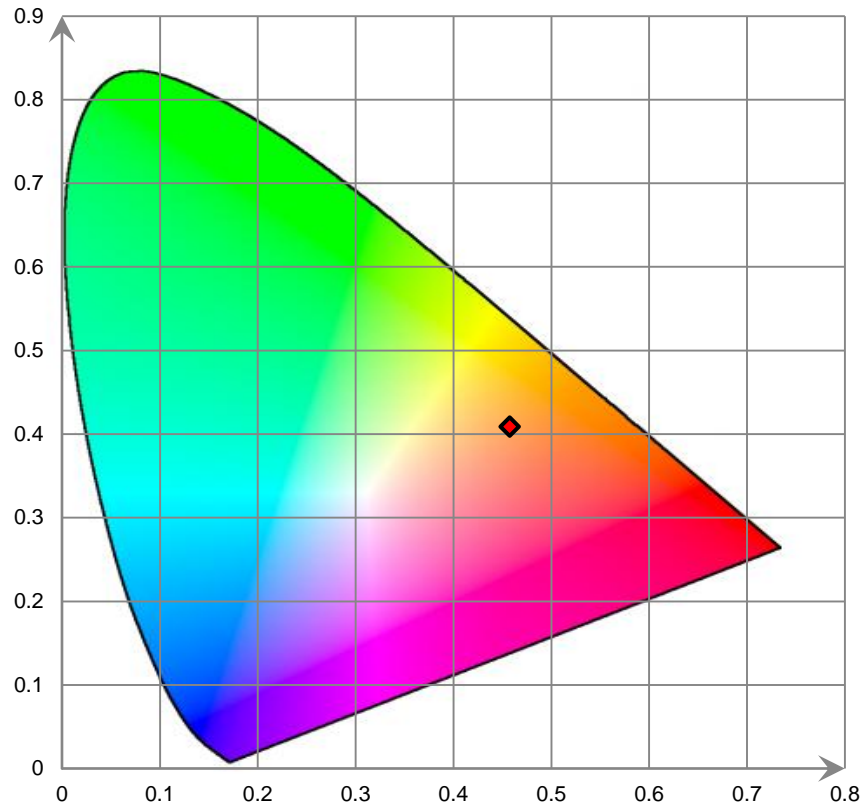
### Relative Spectral Power Distribution



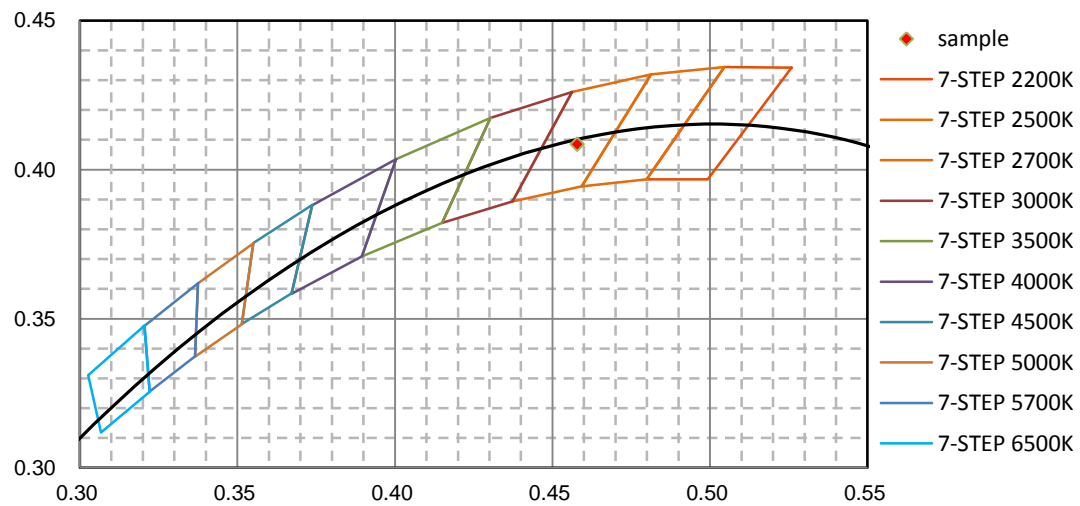
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	1.356E-02	421	1.303E-01	462	6.260E+00	503	8.076E+00	544	9.949E+00
381	2.869E-02	422	1.629E-01	463	6.062E+00	504	8.221E+00	545	9.950E+00
382	0.000E+00	423	1.791E-01	464	6.043E+00	505	8.362E+00	546	1.005E+01
383	4.348E-03	424	1.884E-01	465	5.979E+00	506	8.465E+00	547	1.009E+01
384	5.931E-03	425	2.110E-01	466	5.995E+00	507	8.571E+00	548	1.011E+01
385	5.521E-03	426	2.493E-01	467	6.051E+00	508	8.676E+00	549	1.017E+01
386	0.000E+00	427	2.734E-01	468	6.049E+00	509	8.799E+00	550	1.019E+01
387	1.060E-02	428	2.998E-01	469	6.015E+00	510	8.853E+00	551	1.021E+01
388	0.000E+00	429	3.540E-01	470	6.040E+00	511	8.922E+00	552	1.027E+01
389	4.076E-03	430	3.744E-01	471	5.929E+00	512	8.976E+00	553	1.033E+01
390	0.000E+00	431	4.144E-01	472	5.744E+00	513	9.048E+00	554	1.039E+01
391	5.061E-03	432	4.827E-01	473	5.617E+00	514	9.144E+00	555	1.042E+01
392	9.396E-03	433	5.345E-01	474	5.435E+00	515	9.173E+00	556	1.051E+01
393	9.563E-03	434	6.225E-01	475	5.187E+00	516	9.240E+00	557	1.057E+01
394	3.401E-03	435	6.821E-01	476	5.061E+00	517	9.324E+00	558	1.060E+01
395	0.000E+00	436	7.499E-01	477	4.944E+00	518	9.337E+00	559	1.071E+01
396	0.000E+00	437	8.378E-01	478	4.895E+00	519	9.397E+00	560	1.074E+01
397	3.083E-04	438	9.898E-01	479	4.901E+00	520	9.420E+00	561	1.082E+01
398	7.655E-03	439	1.088E+00	480	4.935E+00	521	9.467E+00	562	1.096E+01
399	0.000E+00	440	1.235E+00	481	4.998E+00	522	9.524E+00	563	1.105E+01
400	1.034E-03	441	1.389E+00	482	5.144E+00	523	9.505E+00	564	1.110E+01
401	7.704E-03	442	1.606E+00	483	5.201E+00	524	9.522E+00	565	1.133E+01
402	1.010E-02	443	1.837E+00	484	5.263E+00	525	9.644E+00	566	1.144E+01
403	1.914E-02	444	2.199E+00	485	5.429E+00	526	9.611E+00	567	1.157E+01
404	1.109E-02	445	2.544E+00	486	5.558E+00	527	9.673E+00	568	1.168E+01
405	2.590E-02	446	2.963E+00	487	5.703E+00	528	9.696E+00	569	1.181E+01
406	1.135E-02	447	3.500E+00	488	5.816E+00	529	9.688E+00	570	1.194E+01
407	1.980E-02	448	4.113E+00	489	5.985E+00	530	9.713E+00	571	1.211E+01
408	2.605E-02	449	4.783E+00	490	6.043E+00	531	9.686E+00	572	1.224E+01
409	2.864E-02	450	5.455E+00	491	6.210E+00	532	9.744E+00	573	1.244E+01
410	4.801E-02	451	6.149E+00	492	6.365E+00	533	9.730E+00	574	1.266E+01
411	5.257E-02	452	6.776E+00	493	6.515E+00	534	9.761E+00	575	1.281E+01
412	3.259E-02	453	7.252E+00	494	6.629E+00	535	9.780E+00	576	1.296E+01
413	5.748E-02	454	7.565E+00	495	6.859E+00	536	9.872E+00	577	1.318E+01
414	5.754E-02	455	7.925E+00	496	6.976E+00	537	9.769E+00	578	1.343E+01
415	5.845E-02	456	7.879E+00	497	7.125E+00	538	9.844E+00	579	1.366E+01
416	8.161E-02	457	7.739E+00	498	7.305E+00	539	9.839E+00	580	1.382E+01
417	8.627E-02	458	7.453E+00	499	7.468E+00	540	9.856E+00	581	1.407E+01
418	8.776E-02	459	7.104E+00	500	7.630E+00	541	9.917E+00	582	1.431E+01
419	1.085E-01	460	6.762E+00	501	7.764E+00	542	9.932E+00	583	1.455E+01
420	1.346E-01	461	6.484E+00	502	7.904E+00	543	1.002E+01	584	1.479E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	1.498E+01	626	2.087E+01	667	1.172E+01	708	3.930E+00	749	1.091E+00
586	1.529E+01	627	2.074E+01	668	1.146E+01	709	3.840E+00	750	1.079E+00
587	1.549E+01	628	2.066E+01	669	1.124E+01	710	3.713E+00	751	1.024E+00
588	1.581E+01	629	2.052E+01	670	1.100E+01	711	3.634E+00	752	9.912E-01
589	1.615E+01	630	2.040E+01	671	1.066E+01	712	3.547E+00	753	9.792E-01
590	1.631E+01	631	2.023E+01	672	1.048E+01	713	3.419E+00	754	9.198E-01
591	1.664E+01	632	2.001E+01	673	1.021E+01	714	3.322E+00	755	9.259E-01
592	1.689E+01	633	1.991E+01	674	1.003E+01	715	3.228E+00	756	8.716E-01
593	1.714E+01	634	1.971E+01	675	9.719E+00	716	3.096E+00	757	8.642E-01
594	1.738E+01	635	1.950E+01	676	9.567E+00	717	3.053E+00	758	8.202E-01
595	1.774E+01	636	1.931E+01	677	9.306E+00	718	2.931E+00	759	7.934E-01
596	1.791E+01	637	1.914E+01	678	9.050E+00	719	2.891E+00	760	7.620E-01
597	1.815E+01	638	1.901E+01	679	8.870E+00	720	2.746E+00	761	7.472E-01
598	1.837E+01	639	1.870E+01	680	8.646E+00	721	2.720E+00	762	7.385E-01
599	1.864E+01	640	1.846E+01	681	8.419E+00	722	2.609E+00	763	6.944E-01
600	1.880E+01	641	1.829E+01	682	8.203E+00	723	2.533E+00	764	6.655E-01
601	1.899E+01	642	1.813E+01	683	7.990E+00	724	2.451E+00	765	6.572E-01
602	1.927E+01	643	1.793E+01	684	7.786E+00	725	2.345E+00	766	6.460E-01
603	1.947E+01	644	1.767E+01	685	7.635E+00	726	2.309E+00	767	6.235E-01
604	1.973E+01	645	1.742E+01	686	7.391E+00	727	2.226E+00	768	6.043E-01
605	1.983E+01	646	1.719E+01	687	7.207E+00	728	2.185E+00	769	5.715E-01
606	2.002E+01	647	1.697E+01	688	6.962E+00	729	2.113E+00	770	5.774E-01
607	2.020E+01	648	1.668E+01	689	6.847E+00	730	2.022E+00	771	5.292E-01
608	2.040E+01	649	1.644E+01	690	6.661E+00	731	1.977E+00	772	5.339E-01
609	2.055E+01	650	1.620E+01	691	6.464E+00	732	1.939E+00	773	5.156E-01
610	2.070E+01	651	1.593E+01	692	6.281E+00	733	1.841E+00	774	4.776E-01
611	2.079E+01	652	1.572E+01	693	6.152E+00	734	1.766E+00	775	4.631E-01
612	2.081E+01	653	1.541E+01	694	5.986E+00	735	1.729E+00	776	4.653E-01
613	2.101E+01	654	1.517E+01	695	5.776E+00	736	1.649E+00	777	4.469E-01
614	2.109E+01	655	1.492E+01	696	5.614E+00	737	1.584E+00	778	4.064E-01
615	2.115E+01	656	1.466E+01	697	5.531E+00	738	1.576E+00	779	4.244E-01
616	2.119E+01	657	1.436E+01	698	5.311E+00	739	1.479E+00	780	4.184E-01
617	2.120E+01	658	1.418E+01	699	5.175E+00	740	1.491E+00		
618	2.125E+01	659	1.382E+01	700	5.064E+00	741	1.420E+00		
619	2.116E+01	660	1.360E+01	701	4.867E+00	742	1.360E+00		
620	2.115E+01	661	1.334E+01	702	4.752E+00	743	1.338E+00		
621	2.113E+01	662	1.310E+01	703	4.589E+00	744	1.281E+00		
622	2.113E+01	663	1.280E+01	704	4.461E+00	745	1.243E+00		
623	2.100E+01	664	1.259E+01	705	4.340E+00	746	1.197E+00		
624	2.099E+01	665	1.223E+01	706	4.164E+00	747	1.169E+00		
625	2.089E+01	666	1.198E+01	707	4.089E+00	748	1.134E+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: **2.519m**

The Stabilization time: **30 minutes**

Total operating time for luminous intensity distribution: **1.0 hour**

Test orientation: **Downward**

Test CCT:**2700K**

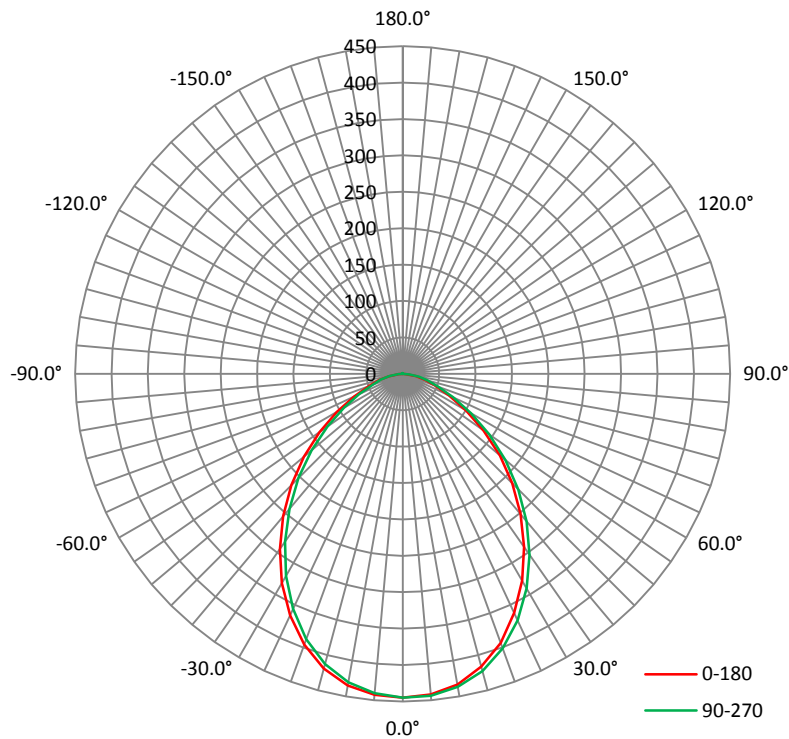
## Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.07	60	0.0774	9.0900	0.9781

## Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	$I_{max}$ (cd)	S/MH (C0/180)	S/MH (C90/270)
913.355	100.48	445.8	1.12	1.15

## Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% $I_{max}$ ):	87.9	87.6	87.7	87.9	87.8
Field Angle (10% $I_{max}$ ):	141.5	141.7	141.6	142.0	141.7

## 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°
0°	445	445	445	445	445	445	445	445
1°	445	445	444	445	445	445	445	445
2°	445	444	444	444	444	443	444	444
3°	444	444	443	443	443	443	443	443
4°	443	443	442	442	442	442	442	442
5°	443	442	441	441	441	440	441	441
6°	441	440	440	440	439	439	439	440
7°	440	439	438	438	437	437	437	438
8°	438	437	436	436	435	435	435	436
9°	437	435	434	434	433	433	433	434
10°	435	433	431	432	430	430	431	431
11°	432	431	429	429	427	427	427	429
12°	429	428	425	425	424	424	424	425
13°	426	424	423	422	421	420	420	422
14°	423	421	419	418	417	416	416	418
15°	419	418	416	415	413	413	412	414
16°	415	414	411	410	408	409	407	409
17°	411	410	407	406	404	403	403	404
18°	406	405	401	400	398	398	398	400
19°	401	400	396	395	393	393	392	395
20°	396	394	391	390	388	387	387	389
21°	390	389	385	384	381	381	381	383
22°	385	383	379	378	375	375	375	377
23°	379	377	373	372	369	368	369	371
24°	372	371	367	365	363	362	362	364
25°	366	364	361	359	356	356	355	358
26°	360	358	353	352	349	349	349	351
27°	352	351	347	345	342	342	342	344
28°	346	343	340	338	335	335	335	337
29°	339	337	332	331	328	327	328	329
30°	332	329	325	324	320	320	320	323
31°	325	323	318	316	313	312	312	315
32°	317	314	310	309	306	305	305	308
33°	310	307	303	301	298	298	297	300
34°	302	300	295	294	290	290	289	292
35°	294	292	287	285	282	282	282	285
36°	287	284	279	277	274	274	274	277
37°	279	276	271	269	266	266	267	270
38°	271	268	263	261	259	258	259	262
39°	263	260	255	253	250	250	251	254
40°	256	253	247	245	242	242	243	246
41°	248	245	239	237	234	234	235	238
42°	240	237	232	229	226	226	227	231
43°	232	228	223	221	218	219	219	223
44°	224	220	215	213	210	211	211	215
45°	216	212	208	205	202	203	204	207
46°	208	205	199	197	194	195	196	199
47°	200	197	191	189	186	187	188	192
48°	192	189	183	181	179	179	181	184

## 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°	185	181	176	174	171	172	173	177
50°	177	173	168	166	163	164	165	169
51°	170	165	160	158	156	157	158	161
52°	162	158	153	150	148	149	151	154
53°	154	150	145	142	141	141	143	146
54°	147	142	138	135	133	134	136	139
55°	140	135	130	127	126	127	129	131
56°	132	128	123	120	119	120	122	124
57°	125	120	116	114	112	113	115	117
58°	118	114	109	107	106	106	108	110
59°	111	107	103	100	99	100	102	104
60°	104	100	96	94	93	94	95	97
61°	98	94	90	88	87	88	89	91
62°	91	88	84	82	81	82	83	85
63°	85	82	78	76	76	76	77	79
64°	79	76	73	71	70	71	72	73
65°	74	71	68	66	66	66	67	68
66°	68	65	63	61	61	61	62	63
67°	63	61	58	57	56	56	57	58
68°	58	56	54	53	52	52	52	53
69°	53	52	49	49	48	48	48	49
70°	48	47	46	45	44	44	44	45
71°	44	44	42	41	41	41	41	42
72°	41	40	39	39	38	38	38	39
73°	38	38	37	36	36	36	36	36
74°	36	35	34	34	33	33	33	33
75°	33	33	32	32	31	31	31	31
76°	30	30	30	29	29	28	28	28
77°	28	28	27	27	26	26	26	26
78°	25	25	25	25	24	24	23	23
79°	22	22	22	22	21	21	21	20
80°	20	20	20	20	19	19	18	17
81°	17	17	17	17	16	16	15	15
82°	14	14	14	15	14	14	13	12
83°	11	11	12	12	11	11	10	9
84°	8	9	9	9	8	8	7	6
85°	6	6	6	7	6	6	5	3
86°	3	3	4	4	4	4	2	1
87°	1	1	1	2	2	2	1	0
88°	0	0	0	1	0	0	0	0
89°	0	0	0	0	0	0	0	0
90°	0	0	0	0	0	0	0	0
91°	0	0	0	0	0	0	0	0
92°	0	0	0	0	0	0	0	0
93°	0	0	0	0	0	0	0	0
94°	0	0	0	0	0	0	0	0
95°	0	0	0	0	0	0	0	0
96°	0	0	0	0	0	0	0	0
97°	0	0	0	0	0	0	0	0

**Luminous Intensity (cd) Distribution Data**

C γ	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
98°	0	0	0	0	0	0	0	0
99°	0	0	0	0	0	0	0	0
100°	0	0	0	0	0	0	0	0
101°	0	0	0	0	0	0	0	0
102°	0	0	0	0	0	0	0	0
103°	0	0	0	0	0	0	0	0
104°	0	0	0	0	0	0	0	0
105°	0	0	0	0	0	0	0	0
106°	0	0	0	0	0	0	0	0
107°	0	0	0	0	0	0	0	0
108°	0	0	0	0	0	0	0	0
109°	0	0	0	0	0	0	0	0
110°	0	0	0	0	0	0	0	0
111°	0	0	0	0	0	0	0	0
112°	0	0	0	0	0	0	0	0
113°	0	0	0	0	0	0	0	0
114°	0	0	0	0	0	0	0	0
115°	0	0	0	0	0	0	0	0
116°	0	0	0	0	0	0	0	0
117°	0	0	0	0	0	0	0	0
118°	0	0	0	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	1	1	0	0
142°	0	0	1	1	1	1	1	0
143°	0	1	1	1	1	1	1	0
144°	1	1	1	1	1	1	1	1
145°	1	1	1	1	1	1	1	1
146°	1	1	1	1	1	1	1	1

### Luminous Intensity (cd) Distribution Data

$\begin{matrix} C \\ \backslash \\ \gamma \end{matrix}$	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
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	1	1	1	1	1	1	1
179°	1	1	1	1	1	1	1	1
180°	1	1	1	1	1	1	1	1

**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°	445	445	445	445	445	445	445	445
1°	445	445	445	446	445	445	445	445
2°	445	445	444	445	445	445	445	445
3°	443	444	444	445	445	445	445	445
4°	443	444	444	444	445	444	444	444
5°	442	442	443	444	444	443	444	443
6°	440	441	442	443	443	442	442	442
7°	440	440	440	441	441	441	441	441
8°	437	438	439	440	440	440	440	439
9°	435	436	437	438	439	438	438	438
10°	433	434	434	436	437	436	437	436
11°	430	431	433	433	435	434	434	433
12°	427	428	430	431	432	432	432	431
13°	424	425	426	429	429	429	429	428
14°	420	422	424	425	426	426	427	425
15°	416	418	420	422	423	423	423	422
16°	412	415	417	418	420	419	419	418
17°	408	410	412	414	415	415	415	414
18°	403	406	408	409	411	411	411	409
19°	398	401	403	405	407	406	407	404
20°	393	395	398	400	402	401	402	399
21°	388	389	393	394	397	396	396	394
22°	381	384	387	390	391	390	391	389
23°	374	377	381	383	385	385	385	383
24°	369	372	376	378	380	379	379	377
25°	363	365	369	371	374	373	373	371
26°	356	359	363	365	367	367	367	364
27°	349	352	356	359	361	361	360	358
28°	342	345	349	352	354	354	353	351
29°	335	339	343	345	347	347	347	344
30°	328	331	335	338	340	340	340	337
31°	321	324	328	331	334	333	333	329
32°	314	316	321	324	326	326	325	322
33°	306	308	313	316	319	318	318	315
34°	298	301	306	309	312	311	311	307
35°	290	294	298	301	304	303	303	300
36°	283	287	291	294	296	296	296	292
37°	275	279	283	285	288	288	288	284
38°	267	270	275	277	281	281	280	277
39°	259	263	267	270	273	273	273	269
40°	252	255	259	262	265	265	265	261
41°	244	247	251	254	257	257	257	254
42°	236	239	243	246	249	249	249	246
43°	228	231	235	238	241	241	241	238
44°	221	223	227	230	233	234	234	230
45°	213	215	219	221	225	225	226	223
46°	205	207	211	213	217	217	218	214
47°	197	199	203	205	209	209	210	206
48°	189	192	195	197	201	201	202	199

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

C y	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
49°	182	184	187	189	192	193	194	191
50°	174	176	179	182	185	185	186	183
51°	166	168	171	173	177	178	178	176
52°	159	160	164	166	169	170	171	168
53°	151	153	156	157	161	162	163	160
54°	143	145	148	150	153	154	155	153
55°	136	138	140	142	145	146	148	145
56°	128	130	132	135	137	139	140	138
57°	121	123	125	127	130	131	132	131
58°	114	116	118	120	122	124	125	123
59°	107	109	111	113	115	117	118	116
60°	101	102	104	106	108	110	111	109
61°	94	96	97	99	101	103	104	103
62°	88	90	91	93	95	96	97	96
63°	82	83	85	86	88	90	91	90
64°	76	77	79	81	82	84	84	84
65°	71	72	73	75	76	78	78	78
66°	65	67	68	69	71	72	73	72
67°	60	62	63	64	66	67	67	66
68°	56	57	58	59	61	62	62	61
69°	51	52	54	54	56	57	57	56
70°	47	48	50	50	52	53	53	52
71°	43	44	46	46	48	48	49	47
72°	40	41	42	43	44	44	45	43
73°	37	38	40	40	41	41	41	40
74°	35	36	37	37	38	38	39	37
75°	32	33	35	35	36	36	36	35
76°	30	30	32	33	33	33	34	32
77°	27	28	30	30	31	31	31	30
78°	24	25	27	28	28	28	28	27
79°	21	22	24	25	25	26	26	24
80°	19	20	22	22	23	23	23	22
81°	16	17	19	20	20	20	21	19
82°	13	14	16	17	17	18	18	16
83°	10	11	14	14	15	15	15	13
84°	7	8	11	11	12	12	12	10
85°	4	6	8	9	9	9	10	7
86°	2	3	5	6	7	7	7	5
87°	1	1	3	4	4	5	4	3
88°	0	0	1	2	2	2	1	0
89°	0	0	0	0	1	1	0	0
90°	0	0	0	0	0	0	0	0
91°	0	0	0	0	0	0	0	0
92°	0	0	0	0	0	0	0	0
93°	0	0	0	0	0	0	0	0
94°	0	0	0	0	0	0	0	0
95°	0	0	0	0	0	0	0	0
96°	0	0	0	0	0	0	0	0
97°	0	0	0	0	0	0	0	0

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

C y	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
98°	0	0	0	0	0	0	0	0
99°	0	0	0	0	0	0	0	0
100°	0	0	0	0	0	0	0	0
101°	0	0	0	0	0	0	0	0
102°	0	0	0	0	0	0	0	0
103°	0	0	0	0	0	0	0	0
104°	0	0	0	0	0	0	0	0
105°	0	0	0	0	0	0	0	0
106°	0	0	0	0	0	0	0	0
107°	0	0	0	0	0	0	0	0
108°	0	0	0	0	0	0	0	0
109°	0	0	0	0	0	0	0	0
110°	0	0	0	0	0	0	0	0
111°	0	0	0	0	0	0	0	0
112°	0	0	0	0	0	0	0	0
113°	0	0	0	0	0	0	0	0
114°	0	0	0	0	0	0	0	0
115°	0	0	0	0	0	0	0	0
116°	0	0	0	0	0	0	0	0
117°	0	0	0	0	0	0	0	0
118°	0	0	0	0	0	0	0	0
119°	0	0	0	0	0	0	0	0
120°	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	0	0	0	0	0
144°	0	0	0	0	0	0	0	0
145°	0	0	0	0	0	0	0	0
146°	0	0	0	0	0	0	0	0



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°
147°	0	0	0	0	0	0	0	0
148°	0	0	0	0	0	0	0	0
149°	0	0	0	0	0	0	0	0
150°	0	0	0	0	0	0	0	0
151°	0	0	0	0	0	0	0	0
152°	0	0	0	0	0	0	0	0
153°	0	0	0	0	0	0	0	0
154°	0	0	0	0	0	0	0	0
155°	0	0	0	0	0	0	0	0
156°	0	0	0	0	0	0	0	0
157°	0	0	0	0	0	0	0	0
158°	0	0	0	0	0	0	0	0
159°	0	0	0	0	0	0	0	0
160°	0	0	0	0	0	0	0	0
161°	0	0	0	0	0	0	0	0
162°	0	0	0	0	0	0	0	0
163°	0	0	0	0	0	0	0	0
164°	0	0	0	0	0	0	0	0
165°	0	0	0	0	0	0	0	0
166°	0	0	0	0	0	0	0	0
167°	0	0	0	0	0	0	0	0
168°	0	0	0	0	0	0	0	0
169°	0	0	0	0	0	0	0	0
170°	0	0	0	0	0	0	0	0
171°	0	0	0	0	0	0	0	0
172°	0	0	0	0	0	0	0	0
173°	0	0	0	0	0	0	0	0
174°	0	0	0	0	0	0	0	0
175°	0	0	0	0	0	0	0	0
176°	1	0	0	0	0	0	0	1
177°	1	1	0	0	0	0	1	1
178°	1	1	1	0	0	0	1	1
179°	1	1	1	1	1	1	1	1
180°	1	1	1	1	1	1	1	1

### Zonal Lumen Density Measurement

Deg	Flux (lm)	%
0-5	10.6	1.16
5-10	31.3	3.43
10-15	50.5	5.53
15-20	67.0	7.33
20-25	79.6	8.71
25-30	87.9	9.63
30-35	91.7	10.03
35-40	91.1	9.97
40-45	86.5	9.47
45-50	78.4	8.58
50-55	67.6	7.40
55-60	54.8	6.00
60-65	41.8	4.58
65-70	30.0	3.28
70-75	20.8	2.28
75-80	14.3	1.57
80-85	7.3	0.80
85-90	1.2	0.13
90-95	0.0	0.00
95-100	0.0	0.00
100-105	0.0	0.00
105-110	0.0	0.01
110-115	0.0	0.00
115-120	0.0	0.01
120-125	0.1	0.00
125-130	0.1	0.01
130-135	0.1	0.01
135-140	0.1	0.01
140-145	0.1	0.01
145-150	0.1	0.01
150-155	0.1	0.02
155-160	0.1	0.01
160-165	0.1	0.01
165-170	0.1	0.00
170-175	0.0	0.01
175-180	0.0	0.00

Deg	Flux (lm)	%
0-5	10.6	1.16
0-10	41.9	4.59
0-15	92.4	10.12
0-20	159.4	17.45
0-25	239.0	26.16
0-30	326.9	35.79
0-35	418.5	45.82
0-40	509.6	55.79
0-45	596.1	65.26
0-50	674.4	73.84
0-55	742.0	81.24
0-60	796.8	87.24
0-65	838.6	91.82
0-70	868.6	95.10
0-75	889.4	97.38
0-80	903.8	98.95
0-85	911.1	99.75
0-90	912.2	99.88
0-95	912.3	99.88
0-100	912.3	99.88
0-105	912.3	99.88
0-110	912.3	99.89
0-115	912.4	99.89
0-120	912.4	99.90
0-125	912.5	99.90
0-130	912.5	99.91
0-135	912.6	99.92
0-140	912.7	99.93
0-145	912.8	99.94
0-150	912.9	99.95
0-155	913.0	99.97
0-160	913.1	99.98
0-165	913.2	99.99
0-170	913.3	99.99
0-175	913.3	100.00
0-180	913.4	100.00

## [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%**

The Stabilization time: **30 minutes**

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

Test orientation: **Downward**

Test CCT: **3000K**

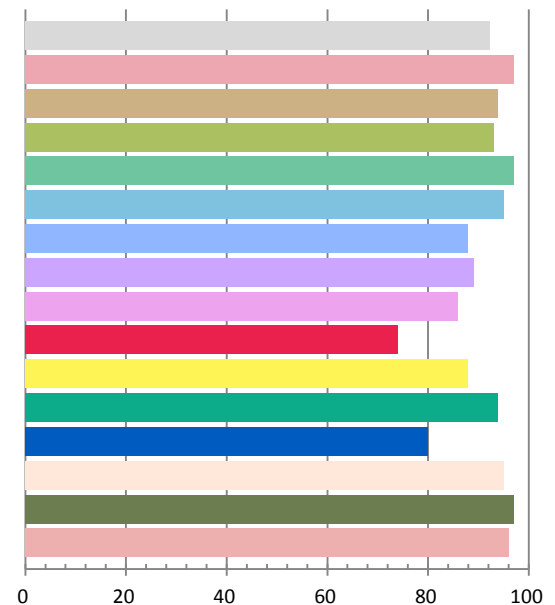
## Photometric and Electrical Measurement Result

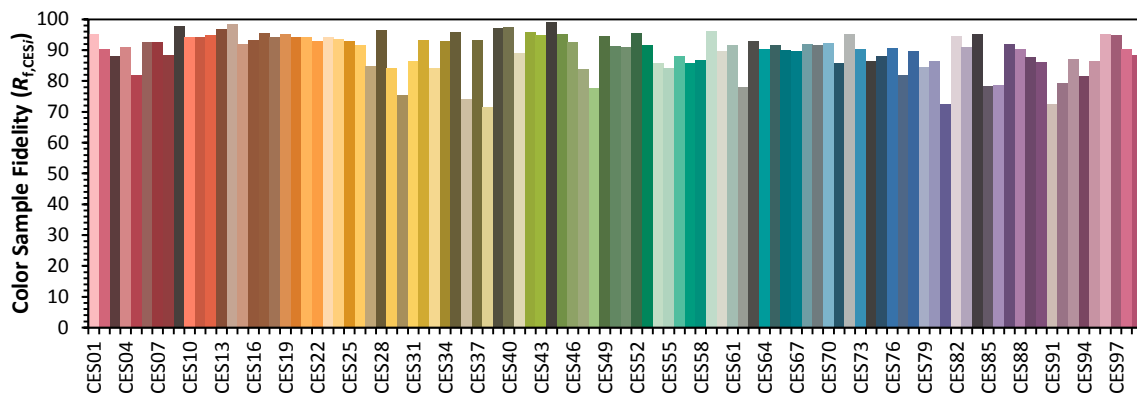
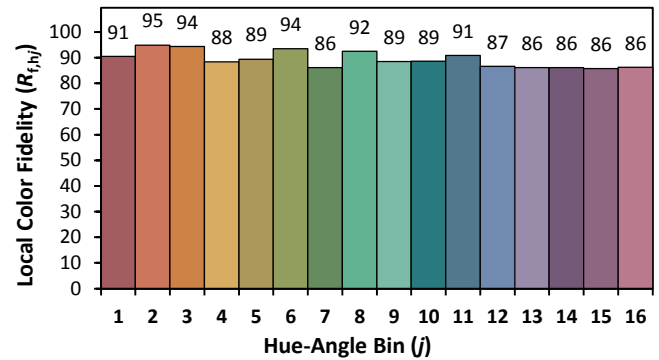
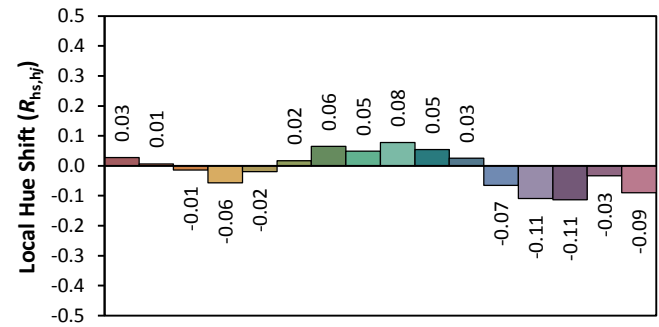
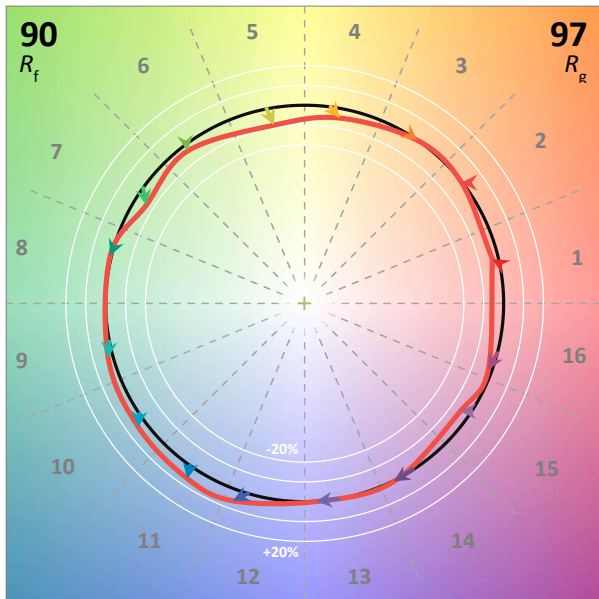
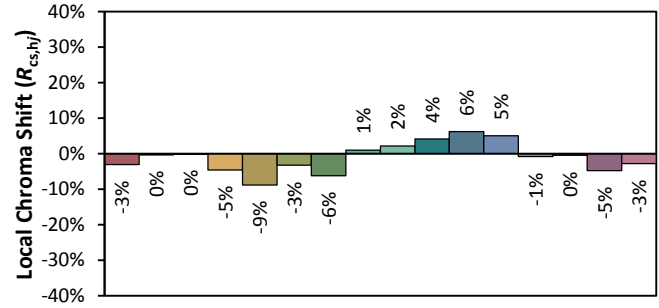
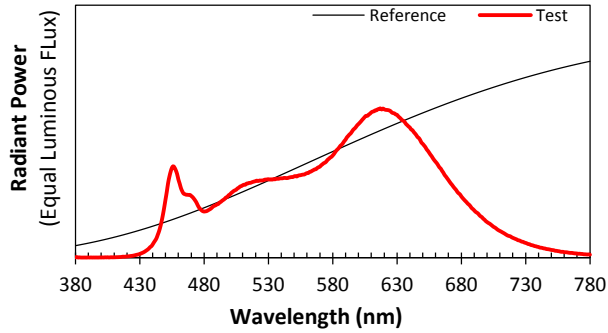
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.0756	8.88	0.9783	927.2	104.41

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
3.2031	3037	-0.00287	0.4303	0.3947	0.2503	0.5166

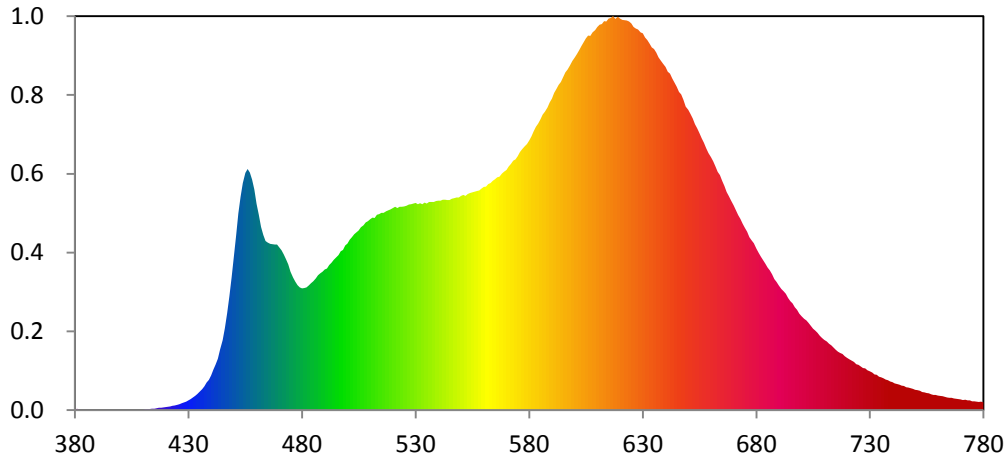
## Color Rendering Index

<b>Ra</b>			
<b>92.4</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
97	94	93	97
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
95	88	89	86
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
74	88	94	80
<b>R13</b>	<b>R14</b>	<b>R15</b>	
95	97	96	





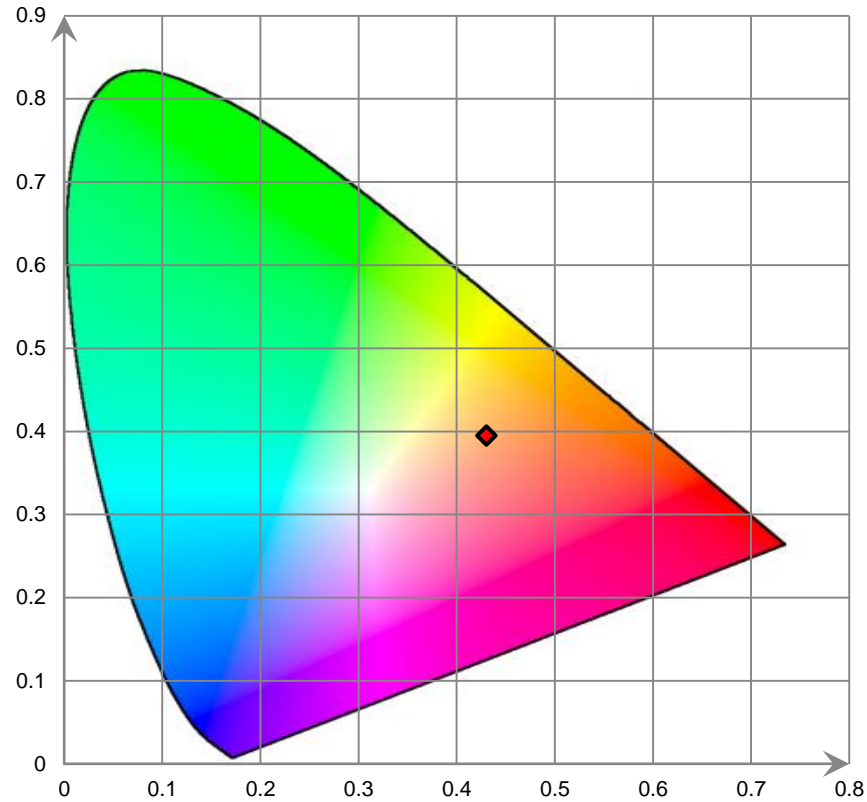
### Relative Spectral Power Distribution



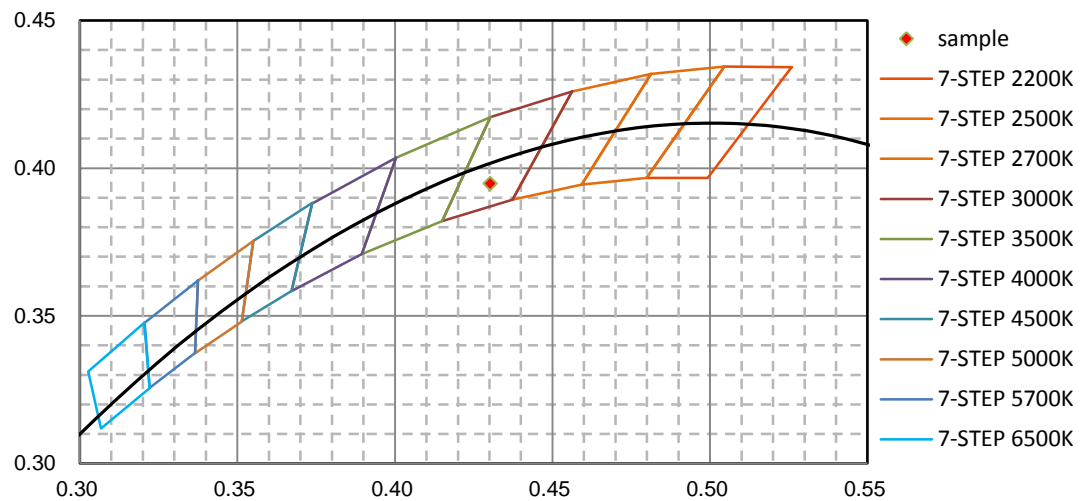
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	2.574E-02	421	1.627E-01	462	9.319E+00	503	8.942E+00	544	1.068E+01
381	6.540E-02	422	1.806E-01	463	8.917E+00	504	9.038E+00	545	1.069E+01
382	0.000E+00	423	2.078E-01	464	8.606E+00	505	9.130E+00	546	1.075E+01
383	2.409E-02	424	2.291E-01	465	8.525E+00	506	9.294E+00	547	1.079E+01
384	3.662E-03	425	2.597E-01	466	8.448E+00	507	9.394E+00	548	1.082E+01
385	0.000E+00	426	2.981E-01	467	8.437E+00	508	9.548E+00	549	1.082E+01
386	0.000E+00	427	3.455E-01	468	8.414E+00	509	9.607E+00	550	1.091E+01
387	3.007E-03	428	3.844E-01	469	8.415E+00	510	9.712E+00	551	1.095E+01
388	0.000E+00	429	4.245E-01	470	8.278E+00	511	9.791E+00	552	1.089E+01
389	0.000E+00	430	4.875E-01	471	8.128E+00	512	9.781E+00	553	1.100E+01
390	1.316E-02	431	5.583E-01	472	7.921E+00	513	9.940E+00	554	1.105E+01
391	0.000E+00	432	6.303E-01	473	7.677E+00	514	9.963E+00	555	1.107E+01
392	1.632E-02	433	7.145E-01	474	7.403E+00	515	1.003E+01	556	1.112E+01
393	0.000E+00	434	8.162E-01	475	7.043E+00	516	1.004E+01	557	1.115E+01
394	6.986E-03	435	9.394E-01	476	6.736E+00	517	1.011E+01	558	1.117E+01
395	2.787E-03	436	1.057E+00	477	6.528E+00	518	1.017E+01	559	1.127E+01
396	7.500E-03	437	1.208E+00	478	6.355E+00	519	1.022E+01	560	1.135E+01
397	3.970E-03	438	1.398E+00	479	6.235E+00	520	1.027E+01	561	1.136E+01
398	4.362E-03	439	1.525E+00	480	6.185E+00	521	1.034E+01	562	1.151E+01
399	1.407E-02	440	1.759E+00	481	6.210E+00	522	1.028E+01	563	1.155E+01
400	8.843E-03	441	2.045E+00	482	6.244E+00	523	1.035E+01	564	1.166E+01
401	1.913E-02	442	2.305E+00	483	6.340E+00	524	1.035E+01	565	1.175E+01
402	7.911E-03	443	2.610E+00	484	6.444E+00	525	1.036E+01	566	1.185E+01
403	3.127E-02	444	3.077E+00	485	6.546E+00	526	1.038E+01	567	1.188E+01
404	1.985E-02	445	3.548E+00	486	6.695E+00	527	1.046E+01	568	1.204E+01
405	3.494E-02	446	4.174E+00	487	6.862E+00	528	1.048E+01	569	1.214E+01
406	1.038E-02	447	4.919E+00	488	6.957E+00	529	1.050E+01	570	1.222E+01
407	3.003E-02	448	5.774E+00	489	7.029E+00	530	1.053E+01	571	1.240E+01
408	3.618E-02	449	6.751E+00	490	7.146E+00	531	1.047E+01	572	1.253E+01
409	2.977E-02	450	7.805E+00	491	7.202E+00	532	1.052E+01	573	1.268E+01
410	3.498E-02	451	8.861E+00	492	7.380E+00	533	1.047E+01	574	1.276E+01
411	3.917E-02	452	1.001E+01	493	7.486E+00	534	1.055E+01	575	1.291E+01
412	4.902E-02	453	1.086E+01	494	7.637E+00	535	1.051E+01	576	1.313E+01
413	5.141E-02	454	1.155E+01	495	7.756E+00	536	1.058E+01	577	1.327E+01
414	6.532E-02	455	1.207E+01	496	7.889E+00	537	1.059E+01	578	1.343E+01
415	6.659E-02	456	1.227E+01	497	8.074E+00	538	1.059E+01	579	1.354E+01
416	9.147E-02	457	1.208E+01	498	8.146E+00	539	1.064E+01	580	1.372E+01
417	1.180E-01	458	1.172E+01	499	8.365E+00	540	1.065E+01	581	1.393E+01
418	1.044E-01	459	1.122E+01	500	8.475E+00	541	1.065E+01	582	1.419E+01
419	1.286E-01	460	1.049E+01	501	8.662E+00	542	1.070E+01	583	1.442E+01
420	1.399E-01	461	9.933E+00	502	8.800E+00	543	1.070E+01	584	1.458E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	1.479E+01	626	1.949E+01	667	1.110E+01	708	3.774E+00	749	1.067E+00
586	1.503E+01	627	1.942E+01	668	1.089E+01	709	3.664E+00	750	1.022E+00
587	1.517E+01	628	1.937E+01	669	1.065E+01	710	3.569E+00	751	1.004E+00
588	1.539E+01	629	1.923E+01	670	1.041E+01	711	3.480E+00	752	9.736E-01
589	1.565E+01	630	1.918E+01	671	1.016E+01	712	3.376E+00	753	9.080E-01
590	1.585E+01	631	1.897E+01	672	9.926E+00	713	3.283E+00	754	9.021E-01
591	1.615E+01	632	1.882E+01	673	9.723E+00	714	3.174E+00	755	8.638E-01
592	1.634E+01	633	1.865E+01	674	9.474E+00	715	3.061E+00	756	8.459E-01
593	1.654E+01	634	1.846E+01	675	9.270E+00	716	2.962E+00	757	7.942E-01
594	1.669E+01	635	1.838E+01	676	9.068E+00	717	2.900E+00	758	7.690E-01
595	1.694E+01	636	1.820E+01	677	8.803E+00	718	2.857E+00	759	7.706E-01
596	1.719E+01	637	1.795E+01	678	8.627E+00	719	2.743E+00	760	7.253E-01
597	1.734E+01	638	1.779E+01	679	8.478E+00	720	2.651E+00	761	7.125E-01
598	1.753E+01	639	1.761E+01	680	8.216E+00	721	2.581E+00	762	7.065E-01
599	1.777E+01	640	1.747E+01	681	8.004E+00	722	2.504E+00	763	6.675E-01
600	1.794E+01	641	1.721E+01	682	7.809E+00	723	2.439E+00	764	6.395E-01
601	1.812E+01	642	1.712E+01	683	7.619E+00	724	2.331E+00	765	6.226E-01
602	1.831E+01	643	1.687E+01	684	7.449E+00	725	2.300E+00	766	6.232E-01
603	1.852E+01	644	1.667E+01	685	7.245E+00	726	2.222E+00	767	5.907E-01
604	1.871E+01	645	1.645E+01	686	7.103E+00	727	2.134E+00	768	5.660E-01
605	1.891E+01	646	1.619E+01	687	6.907E+00	728	2.109E+00	769	5.550E-01
606	1.906E+01	647	1.606E+01	688	6.660E+00	729	2.015E+00	770	5.369E-01
607	1.904E+01	648	1.579E+01	689	6.517E+00	730	1.968E+00	771	5.040E-01
608	1.922E+01	649	1.545E+01	690	6.344E+00	731	1.901E+00	772	5.166E-01
609	1.934E+01	650	1.528E+01	691	6.159E+00	732	1.814E+00	773	4.841E-01
610	1.951E+01	651	1.507E+01	692	6.039E+00	733	1.793E+00	774	4.840E-01
611	1.961E+01	652	1.485E+01	693	5.917E+00	734	1.695E+00	775	4.448E-01
612	1.965E+01	653	1.455E+01	694	5.705E+00	735	1.661E+00	776	4.389E-01
613	1.979E+01	654	1.434E+01	695	5.541E+00	736	1.610E+00	777	4.236E-01
614	1.978E+01	655	1.409E+01	696	5.427E+00	737	1.540E+00	778	4.079E-01
615	1.993E+01	656	1.383E+01	697	5.227E+00	738	1.513E+00	779	4.187E-01
616	1.996E+01	657	1.360E+01	698	5.090E+00	739	1.452E+00	780	3.889E-01
617	2.005E+01	658	1.332E+01	699	4.902E+00	740	1.418E+00		
618	1.990E+01	659	1.308E+01	700	4.774E+00	741	1.344E+00		
619	2.003E+01	660	1.287E+01	701	4.650E+00	742	1.322E+00		
620	1.993E+01	661	1.266E+01	702	4.555E+00	743	1.290E+00		
621	1.986E+01	662	1.239E+01	703	4.423E+00	744	1.233E+00		
622	1.984E+01	663	1.212E+01	704	4.283E+00	745	1.215E+00		
623	1.982E+01	664	1.195E+01	705	4.137E+00	746	1.154E+00		
624	1.977E+01	665	1.166E+01	706	4.043E+00	747	1.130E+00		
625	1.967E+01	666	1.141E+01	707	3.922E+00	748	1.109E+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%**

The Stabilization time: **30 minutes**

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

Test orientation: **Downward**

Test CCT: **3500K**

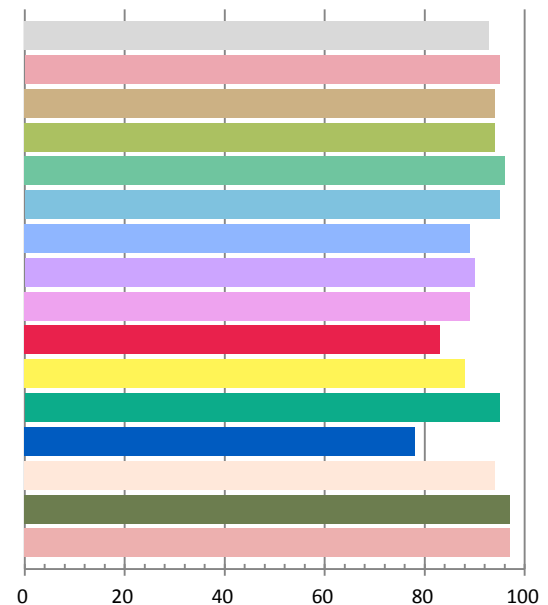
## Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.075	8.81	0.9783	944.85	107.25

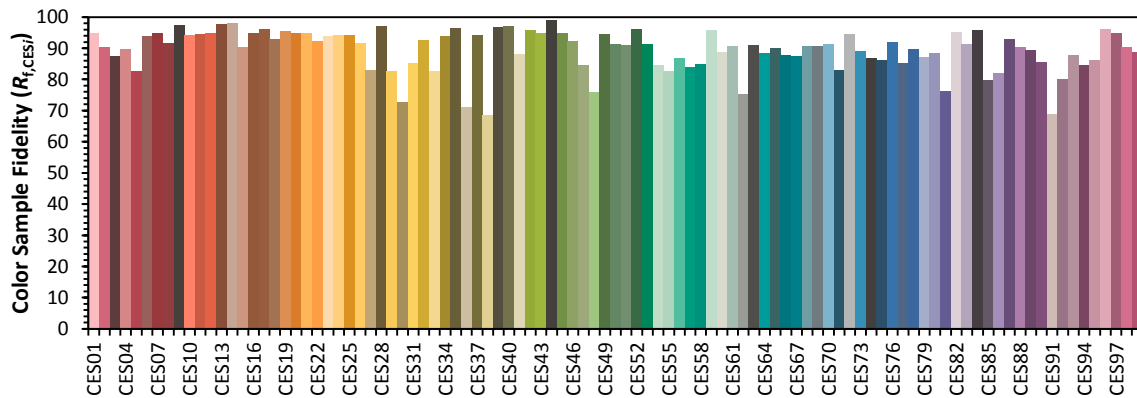
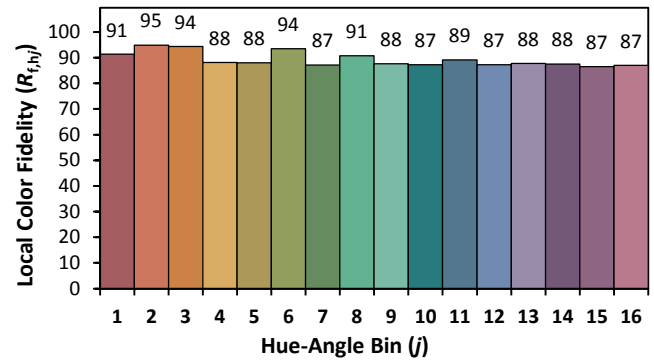
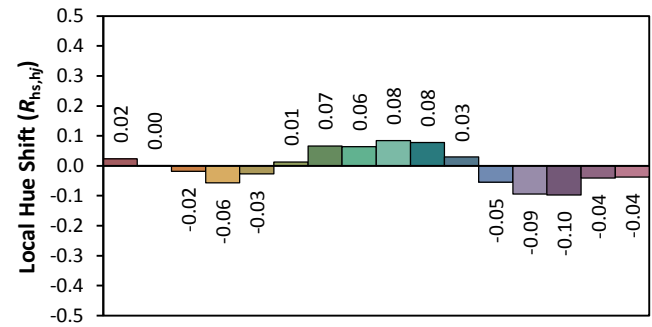
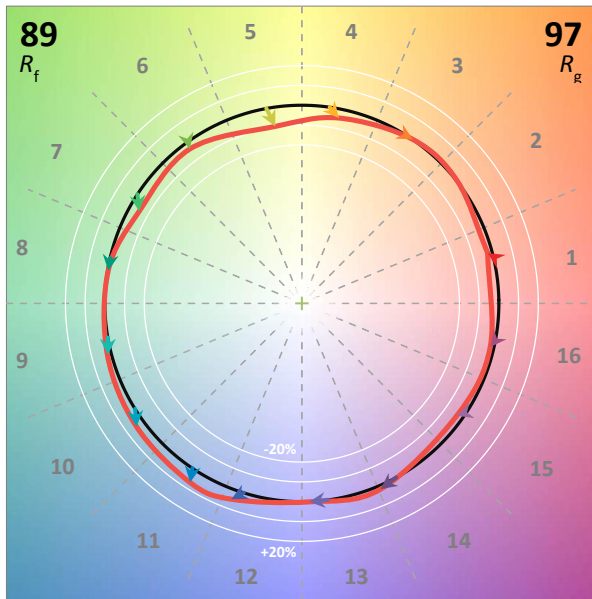
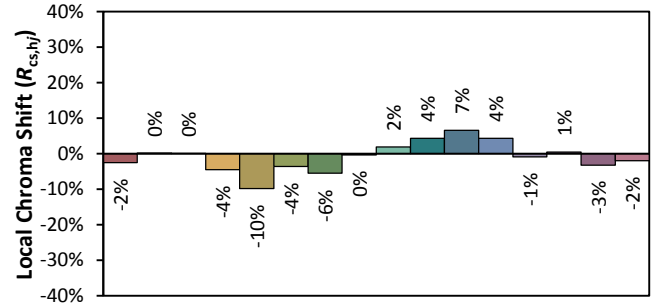
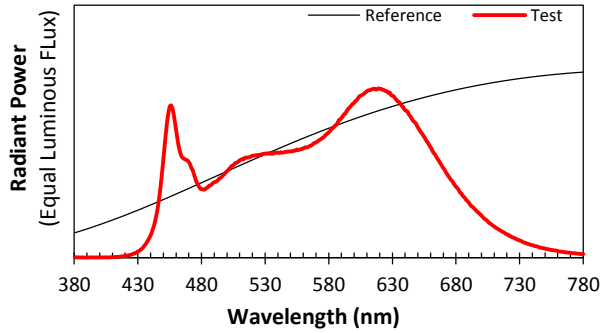
Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
3.2757	3463	-0.00358	0.4037	0.3819	0.2383	0.5073

## Color Rendering Index

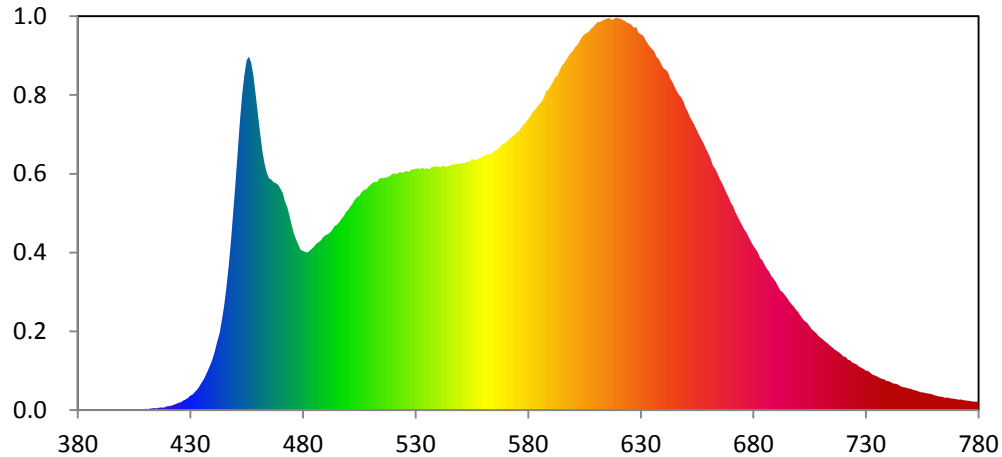
<b>Ra</b>			
<b>92.8</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
95	94	94	96
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
95	89	90	89
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
83	88	95	78
<b>R13</b>	<b>R14</b>	<b>R15</b>	
94	97	97	







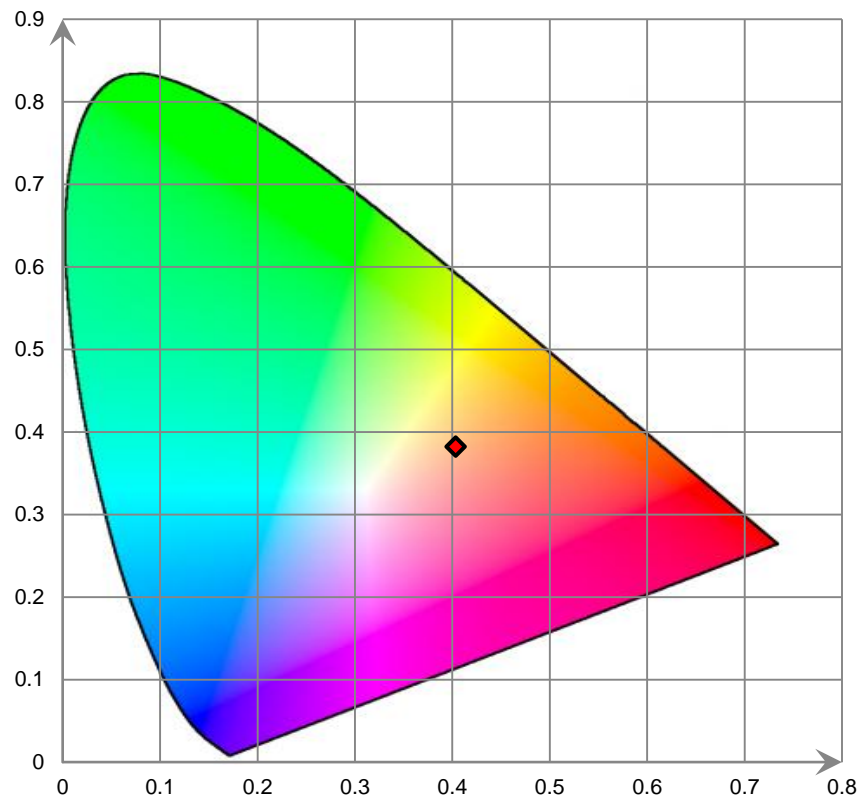
### Relative Spectral Power Distribution



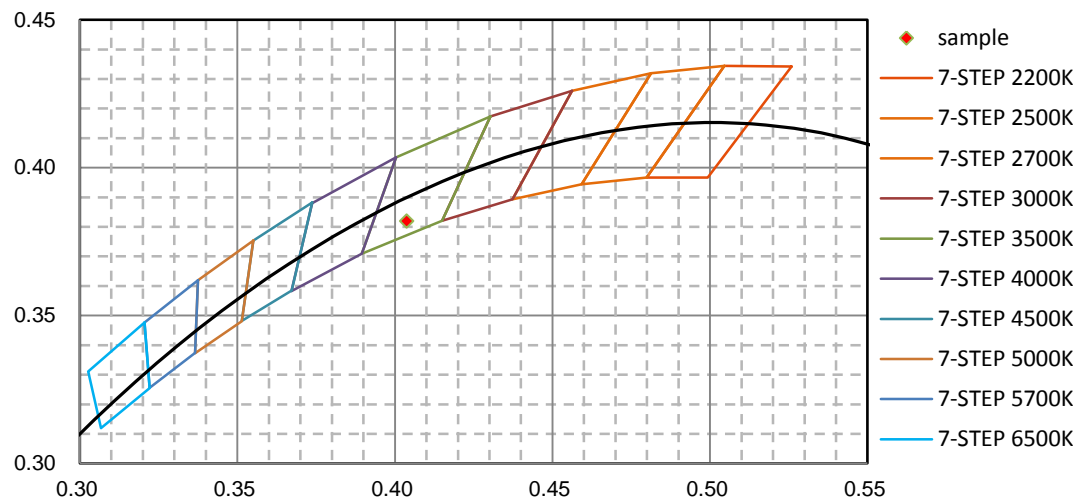
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	1.951E-03	421	1.739E-01	462	1.225E+01	503	9.924E+00	544	1.149E+01
381	4.375E-02	422	2.227E-01	463	1.164E+01	504	1.005E+01	545	1.153E+01
382	0.000E+00	423	2.562E-01	464	1.120E+01	505	1.011E+01	546	1.158E+01
383	2.231E-02	424	2.932E-01	465	1.094E+01	506	1.027E+01	547	1.158E+01
384	1.226E-02	425	3.376E-01	466	1.088E+01	507	1.038E+01	548	1.163E+01
385	0.000E+00	426	3.820E-01	467	1.075E+01	508	1.041E+01	549	1.161E+01
386	2.212E-02	427	4.445E-01	468	1.071E+01	509	1.054E+01	550	1.165E+01
387	6.177E-03	428	4.903E-01	469	1.063E+01	510	1.064E+01	551	1.164E+01
388	1.253E-03	429	5.714E-01	470	1.045E+01	511	1.073E+01	552	1.167E+01
389	0.000E+00	430	6.726E-01	471	1.024E+01	512	1.078E+01	553	1.173E+01
390	1.276E-03	431	7.197E-01	472	9.837E+00	513	1.076E+01	554	1.172E+01
391	0.000E+00	432	8.425E-01	473	9.587E+00	514	1.093E+01	555	1.185E+01
392	1.274E-02	433	9.479E-01	474	9.164E+00	515	1.094E+01	556	1.179E+01
393	2.045E-02	434	1.094E+00	475	8.721E+00	516	1.096E+01	557	1.182E+01
394	2.168E-02	435	1.278E+00	476	8.314E+00	517	1.098E+01	558	1.186E+01
395	7.651E-03	436	1.446E+00	477	8.038E+00	518	1.101E+01	559	1.191E+01
396	0.000E+00	437	1.657E+00	478	7.790E+00	519	1.108E+01	560	1.197E+01
397	2.226E-02	438	1.904E+00	479	7.551E+00	520	1.116E+01	561	1.203E+01
398	7.263E-04	439	2.149E+00	480	7.503E+00	521	1.116E+01	562	1.209E+01
399	6.051E-03	440	2.426E+00	481	7.471E+00	522	1.116E+01	563	1.206E+01
400	6.394E-03	441	2.792E+00	482	7.438E+00	523	1.123E+01	564	1.213E+01
401	1.939E-02	442	3.218E+00	483	7.520E+00	524	1.119E+01	565	1.222E+01
402	1.872E-02	443	3.662E+00	484	7.615E+00	525	1.124E+01	566	1.226E+01
403	1.275E-02	444	4.277E+00	485	7.714E+00	526	1.128E+01	567	1.236E+01
404	1.601E-02	445	4.961E+00	486	7.863E+00	527	1.125E+01	568	1.249E+01
405	2.791E-02	446	5.811E+00	487	7.918E+00	528	1.135E+01	569	1.257E+01
406	2.823E-03	447	6.808E+00	488	8.006E+00	529	1.137E+01	570	1.261E+01
407	4.212E-03	448	7.974E+00	489	8.165E+00	530	1.139E+01	571	1.272E+01
408	4.169E-02	449	9.332E+00	490	8.243E+00	531	1.140E+01	572	1.281E+01
409	2.214E-02	450	1.070E+01	491	8.300E+00	532	1.137E+01	573	1.291E+01
410	5.240E-02	451	1.218E+01	492	8.368E+00	533	1.145E+01	574	1.299E+01
411	4.486E-02	452	1.363E+01	493	8.496E+00	534	1.137E+01	575	1.310E+01
412	5.621E-02	453	1.490E+01	494	8.666E+00	535	1.143E+01	576	1.319E+01
413	6.712E-02	454	1.582E+01	495	8.737E+00	536	1.136E+01	577	1.335E+01
414	8.150E-02	455	1.652E+01	496	8.859E+00	537	1.145E+01	578	1.348E+01
415	7.405E-02	456	1.668E+01	497	9.020E+00	538	1.148E+01	579	1.360E+01
416	9.588E-02	457	1.641E+01	498	9.148E+00	539	1.149E+01	580	1.373E+01
417	1.220E-01	458	1.581E+01	499	9.329E+00	540	1.151E+01	581	1.386E+01
418	1.109E-01	459	1.491E+01	500	9.449E+00	541	1.145E+01	582	1.408E+01
419	1.538E-01	460	1.401E+01	501	9.589E+00	542	1.153E+01	583	1.417E+01
420	1.782E-01	461	1.309E+01	502	9.747E+00	543	1.150E+01	584	1.430E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	1.445E+01	626	1.817E+01	667	1.050E+01	708	3.620E+00	749	1.016E+00
586	1.457E+01	627	1.804E+01	668	1.026E+01	709	3.495E+00	750	9.918E-01
587	1.476E+01	628	1.808E+01	669	1.004E+01	710	3.401E+00	751	9.502E-01
588	1.506E+01	629	1.781E+01	670	9.791E+00	711	3.312E+00	752	9.175E-01
589	1.512E+01	630	1.773E+01	671	9.630E+00	712	3.211E+00	753	8.948E-01
590	1.530E+01	631	1.767E+01	672	9.349E+00	713	3.136E+00	754	8.456E-01
591	1.548E+01	632	1.748E+01	673	9.142E+00	714	3.035E+00	755	8.321E-01
592	1.570E+01	633	1.731E+01	674	8.931E+00	715	2.959E+00	756	8.145E-01
593	1.577E+01	634	1.715E+01	675	8.730E+00	716	2.859E+00	757	7.853E-01
594	1.603E+01	635	1.705E+01	676	8.528E+00	717	2.792E+00	758	7.663E-01
595	1.624E+01	636	1.693E+01	677	8.385E+00	718	2.716E+00	759	7.554E-01
596	1.639E+01	637	1.667E+01	678	8.160E+00	719	2.625E+00	760	7.068E-01
597	1.654E+01	638	1.656E+01	679	7.946E+00	720	2.530E+00	761	6.813E-01
598	1.671E+01	639	1.636E+01	680	7.759E+00	721	2.505E+00	762	6.541E-01
599	1.686E+01	640	1.613E+01	681	7.618E+00	722	2.363E+00	763	6.329E-01
600	1.696E+01	641	1.608E+01	682	7.444E+00	723	2.334E+00	764	6.246E-01
601	1.715E+01	642	1.597E+01	683	7.165E+00	724	2.231E+00	765	5.775E-01
602	1.724E+01	643	1.567E+01	684	7.055E+00	725	2.190E+00	766	5.827E-01
603	1.745E+01	644	1.551E+01	685	6.839E+00	726	2.136E+00	767	5.612E-01
604	1.763E+01	645	1.528E+01	686	6.666E+00	727	2.044E+00	768	5.457E-01
605	1.774E+01	646	1.504E+01	687	6.532E+00	728	1.995E+00	769	5.306E-01
606	1.780E+01	647	1.489E+01	688	6.308E+00	729	1.927E+00	770	5.126E-01
607	1.788E+01	648	1.477E+01	689	6.196E+00	730	1.860E+00	771	4.797E-01
608	1.801E+01	649	1.456E+01	690	6.034E+00	731	1.838E+00	772	4.948E-01
609	1.811E+01	650	1.426E+01	691	5.827E+00	732	1.745E+00	773	4.641E-01
610	1.822E+01	651	1.406E+01	692	5.642E+00	733	1.667E+00	774	4.525E-01
611	1.832E+01	652	1.381E+01	693	5.554E+00	734	1.632E+00	775	4.317E-01
612	1.832E+01	653	1.364E+01	694	5.422E+00	735	1.579E+00	776	4.216E-01
613	1.839E+01	654	1.344E+01	695	5.287E+00	736	1.529E+00	777	4.048E-01
614	1.843E+01	655	1.321E+01	696	5.116E+00	737	1.470E+00	778	3.866E-01
615	1.849E+01	656	1.299E+01	697	4.986E+00	738	1.444E+00	779	3.928E-01
616	1.850E+01	657	1.275E+01	698	4.877E+00	739	1.378E+00	780	3.763E-01
617	1.842E+01	658	1.256E+01	699	4.732E+00	740	1.361E+00		
618	1.845E+01	659	1.231E+01	700	4.601E+00	741	1.308E+00		
619	1.853E+01	660	1.209E+01	701	4.448E+00	742	1.258E+00		
620	1.850E+01	661	1.186E+01	702	4.291E+00	743	1.240E+00		
621	1.848E+01	662	1.154E+01	703	4.186E+00	744	1.201E+00		
622	1.841E+01	663	1.139E+01	704	4.104E+00	745	1.153E+00		
623	1.838E+01	664	1.118E+01	705	3.959E+00	746	1.080E+00		
624	1.829E+01	665	1.092E+01	706	3.805E+00	747	1.074E+00		
625	1.825E+01	666	1.072E+01	707	3.710E+00	748	1.047E+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%**

The Stabilization time: **30 minutes**

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

Test orientation: **Downward**

Test CCT: **4000K**

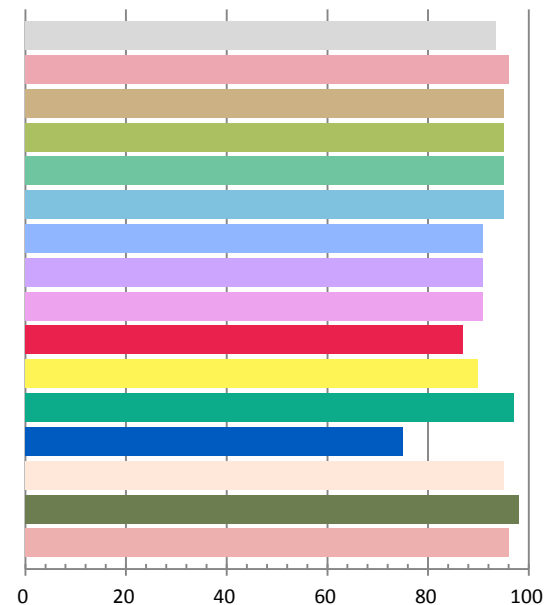
## Photometric and Electrical Measurement Result

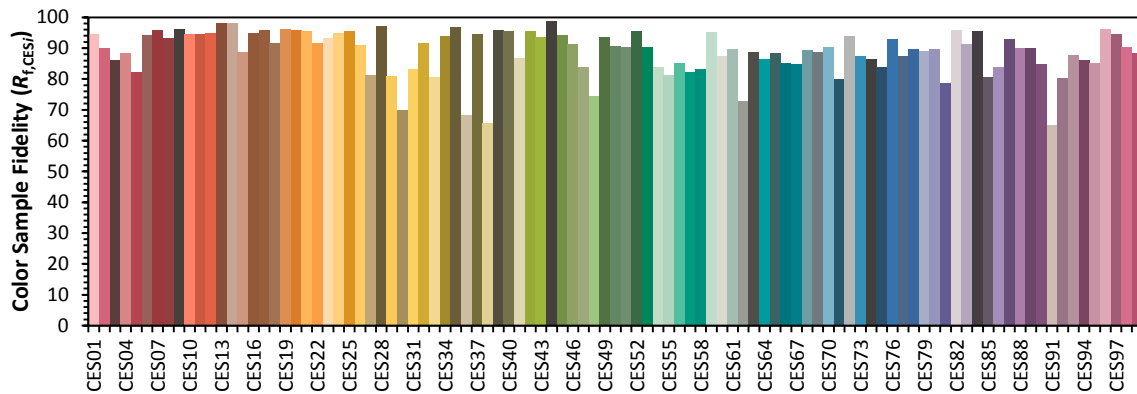
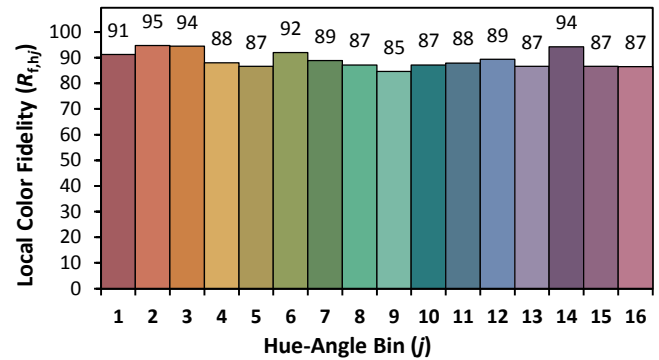
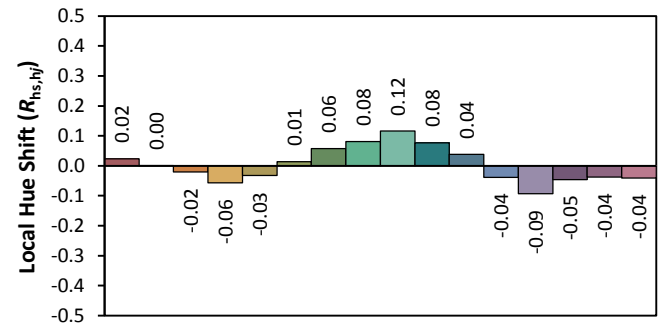
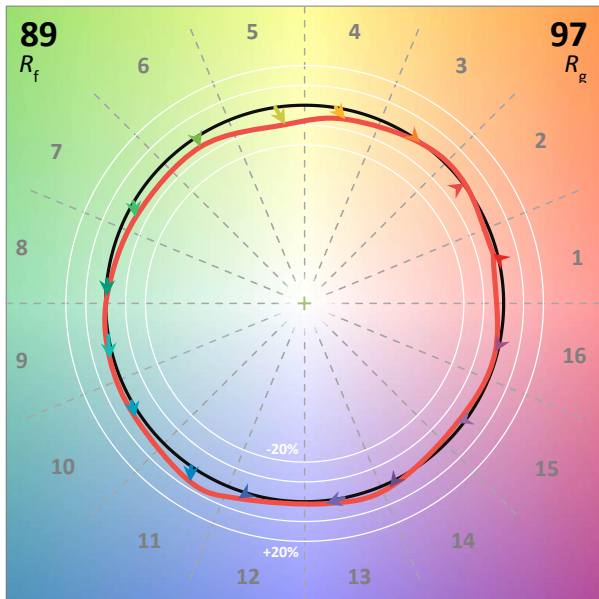
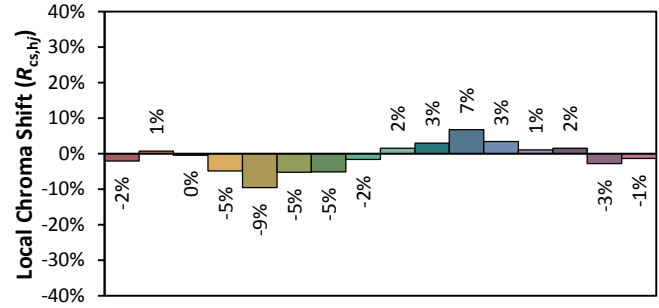
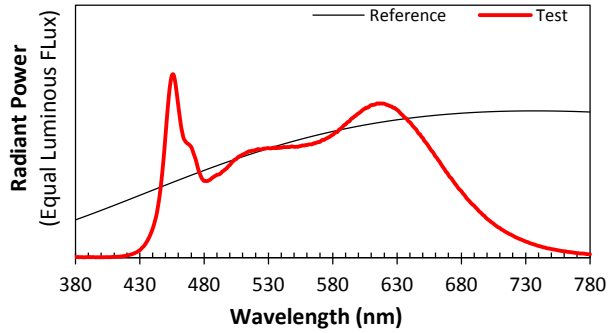
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.0754	8.87	0.9798	954.58	107.62

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
3.3165	3933	-0.00274	0.3814	0.3716	0.2279	0.4994

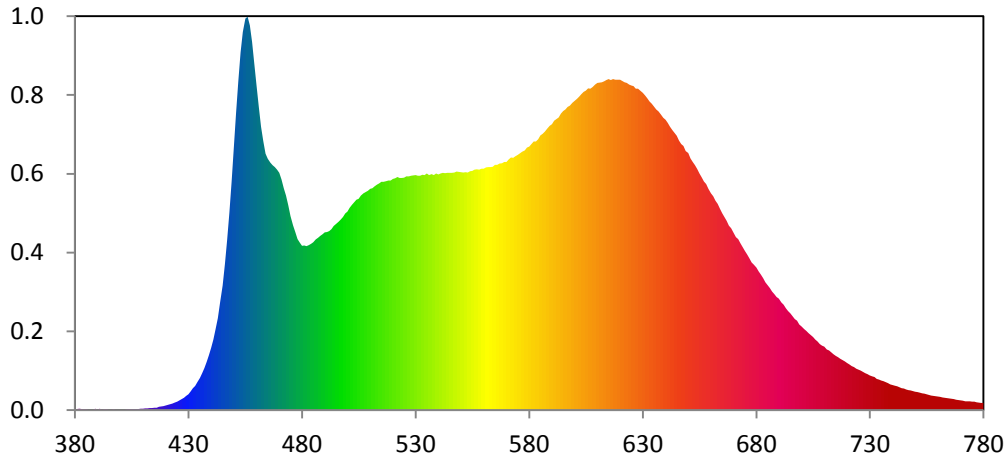
## Color Rendering Index

<b>Ra</b>			
<b>93.5</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
96	95	95	95
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
95	91	91	91
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
87	90	97	75
<b>R13</b>	<b>R14</b>	<b>R15</b>	
95	98	96	





### Relative Spectral Power Distribution

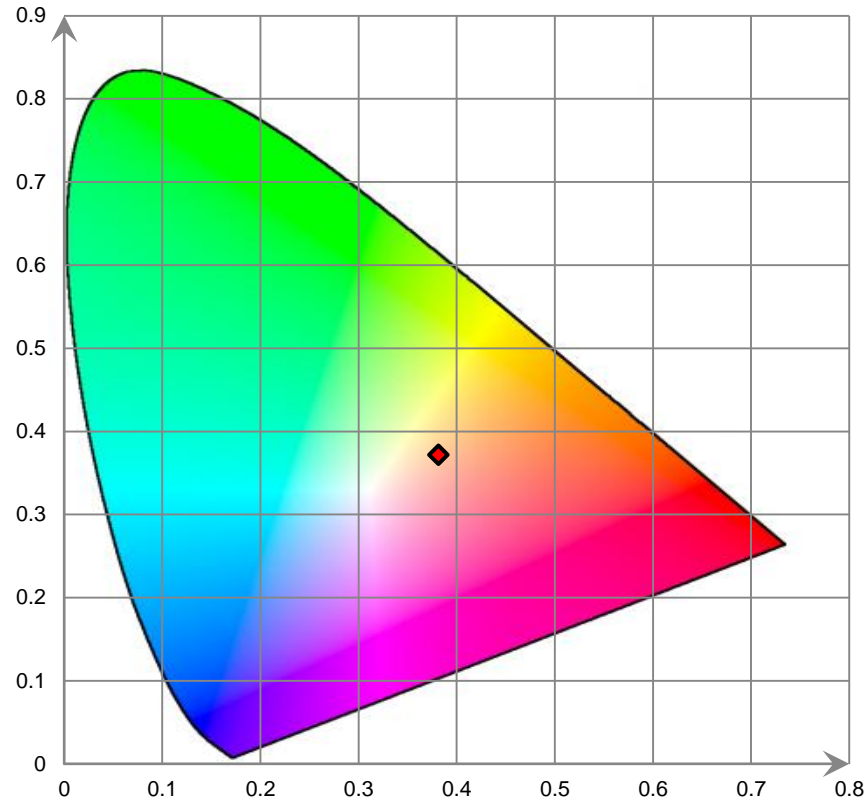


nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	4.928E-02	421	2.580E-01	462	1.461E+01	503	1.072E+01	544	1.223E+01
381	4.920E-02	422	2.940E-01	463	1.387E+01	504	1.085E+01	545	1.223E+01
382	5.958E-02	423	3.323E-01	464	1.323E+01	505	1.090E+01	546	1.223E+01
383	4.103E-02	424	3.765E-01	465	1.297E+01	506	1.106E+01	547	1.225E+01
384	4.824E-02	425	4.275E-01	466	1.276E+01	507	1.118E+01	548	1.231E+01
385	4.500E-02	426	4.913E-01	467	1.263E+01	508	1.124E+01	549	1.228E+01
386	3.602E-02	427	5.522E-01	468	1.254E+01	509	1.132E+01	550	1.226E+01
387	2.287E-02	428	6.219E-01	469	1.240E+01	510	1.141E+01	551	1.225E+01
388	3.674E-02	429	7.279E-01	470	1.224E+01	511	1.145E+01	552	1.227E+01
389	5.642E-02	430	8.143E-01	471	1.189E+01	512	1.154E+01	553	1.226E+01
390	3.831E-02	431	9.516E-01	472	1.144E+01	513	1.162E+01	554	1.232E+01
391	6.935E-02	432	1.118E+00	473	1.106E+01	514	1.169E+01	555	1.234E+01
392	2.968E-02	433	1.240E+00	474	1.057E+01	515	1.177E+01	556	1.240E+01
393	5.183E-02	434	1.436E+00	475	1.000E+01	516	1.177E+01	557	1.241E+01
394	4.970E-02	435	1.644E+00	476	9.521E+00	517	1.181E+01	558	1.240E+01
395	2.980E-02	436	1.890E+00	477	9.175E+00	518	1.184E+01	559	1.246E+01
396	2.167E-02	437	2.160E+00	478	8.819E+00	519	1.184E+01	560	1.245E+01
397	3.986E-02	438	2.470E+00	479	8.628E+00	520	1.191E+01	561	1.251E+01
398	3.706E-02	439	2.816E+00	480	8.475E+00	521	1.196E+01	562	1.253E+01
399	2.523E-02	440	3.195E+00	481	8.486E+00	522	1.201E+01	563	1.253E+01
400	3.600E-02	441	3.636E+00	482	8.460E+00	523	1.197E+01	564	1.254E+01
401	2.987E-02	442	4.171E+00	483	8.497E+00	524	1.197E+01	565	1.264E+01
402	3.739E-02	443	4.739E+00	484	8.571E+00	525	1.198E+01	566	1.264E+01
403	4.159E-02	444	5.540E+00	485	8.650E+00	526	1.206E+01	567	1.271E+01
404	4.012E-02	445	6.419E+00	486	8.798E+00	527	1.206E+01	568	1.274E+01
405	4.385E-02	446	7.519E+00	487	8.887E+00	528	1.208E+01	569	1.280E+01
406	4.156E-02	447	8.765E+00	488	8.984E+00	529	1.211E+01	570	1.279E+01
407	4.501E-02	448	1.018E+01	489	9.064E+00	530	1.212E+01	571	1.293E+01
408	5.449E-02	449	1.177E+01	490	9.157E+00	531	1.209E+01	572	1.302E+01
409	6.771E-02	450	1.355E+01	491	9.179E+00	532	1.208E+01	573	1.301E+01
410	6.523E-02	451	1.533E+01	492	9.236E+00	533	1.214E+01	574	1.310E+01
411	7.587E-02	452	1.698E+01	493	9.332E+00	534	1.211E+01	575	1.317E+01
412	8.205E-02	453	1.845E+01	494	9.501E+00	535	1.220E+01	576	1.324E+01
413	9.137E-02	454	1.951E+01	495	9.601E+00	536	1.211E+01	577	1.333E+01
414	9.206E-02	455	2.019E+01	496	9.708E+00	537	1.217E+01	578	1.339E+01
415	1.148E-01	456	2.029E+01	497	9.820E+00	538	1.212E+01	579	1.353E+01
416	1.225E-01	457	1.985E+01	498	9.948E+00	539	1.220E+01	580	1.358E+01
417	1.556E-01	458	1.898E+01	499	1.013E+01	540	1.216E+01	581	1.371E+01
418	1.741E-01	459	1.786E+01	500	1.024E+01	541	1.220E+01	582	1.386E+01
419	1.937E-01	460	1.672E+01	501	1.043E+01	542	1.224E+01	583	1.386E+01
420	2.362E-01	461	1.564E+01	502	1.059E+01	543	1.222E+01	584	1.396E+01

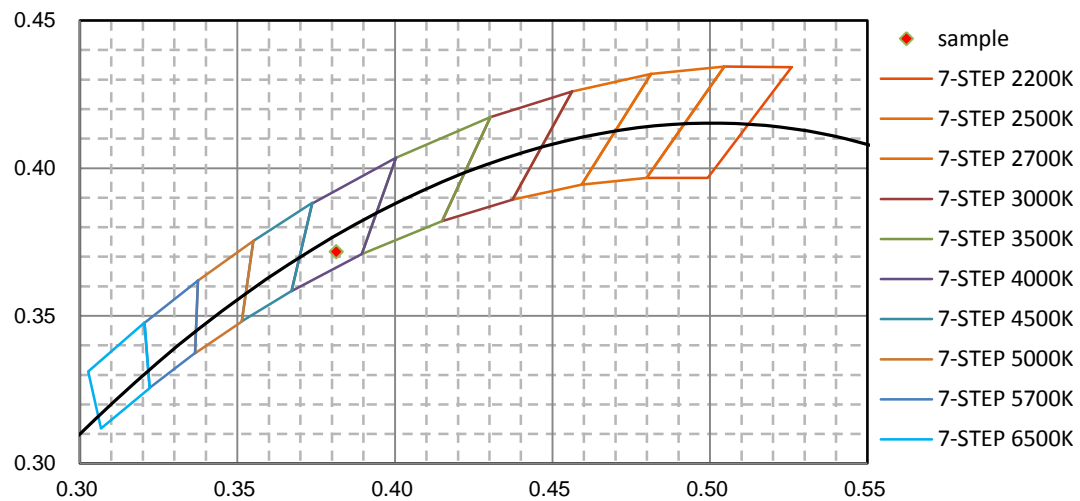
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	1.417E+01	626	1.671E+01	667	9.764E+00	708	3.407E+00	749	9.777E-01
586	1.424E+01	627	1.658E+01	668	9.512E+00	709	3.325E+00	750	9.405E-01
587	1.437E+01	628	1.657E+01	669	9.371E+00	710	3.263E+00	751	9.161E-01
588	1.452E+01	629	1.646E+01	670	9.138E+00	711	3.125E+00	752	8.910E-01
589	1.467E+01	630	1.635E+01	671	8.913E+00	712	3.064E+00	753	8.612E-01
590	1.474E+01	631	1.624E+01	672	8.809E+00	713	2.966E+00	754	8.401E-01
591	1.492E+01	632	1.609E+01	673	8.608E+00	714	2.877E+00	755	8.057E-01
592	1.502E+01	633	1.592E+01	674	8.397E+00	715	2.789E+00	756	7.802E-01
593	1.509E+01	634	1.580E+01	675	8.198E+00	716	2.721E+00	757	7.482E-01
594	1.528E+01	635	1.565E+01	676	8.022E+00	717	2.634E+00	758	7.277E-01
595	1.542E+01	636	1.550E+01	677	7.829E+00	718	2.569E+00	759	7.032E-01
596	1.550E+01	637	1.541E+01	678	7.620E+00	719	2.507E+00	760	6.974E-01
597	1.564E+01	638	1.526E+01	679	7.489E+00	720	2.426E+00	761	6.788E-01
598	1.571E+01	639	1.507E+01	680	7.350E+00	721	2.347E+00	762	6.468E-01
599	1.586E+01	640	1.498E+01	681	7.145E+00	722	2.255E+00	763	6.196E-01
600	1.595E+01	641	1.481E+01	682	6.989E+00	723	2.209E+00	764	6.139E-01
601	1.605E+01	642	1.461E+01	683	6.805E+00	724	2.135E+00	765	5.874E-01
602	1.616E+01	643	1.445E+01	684	6.584E+00	725	2.073E+00	766	5.795E-01
603	1.630E+01	644	1.430E+01	685	6.431E+00	726	2.025E+00	767	5.523E-01
604	1.641E+01	645	1.416E+01	686	6.295E+00	727	1.965E+00	768	5.306E-01
605	1.648E+01	646	1.391E+01	687	6.113E+00	728	1.897E+00	769	5.068E-01
606	1.660E+01	647	1.371E+01	688	5.974E+00	729	1.842E+00	770	4.972E-01
607	1.658E+01	648	1.363E+01	689	5.831E+00	730	1.773E+00	771	4.812E-01
608	1.667E+01	649	1.335E+01	690	5.739E+00	731	1.731E+00	772	4.505E-01
609	1.679E+01	650	1.325E+01	691	5.553E+00	732	1.692E+00	773	4.487E-01
610	1.688E+01	651	1.297E+01	692	5.428E+00	733	1.607E+00	774	4.483E-01
611	1.689E+01	652	1.280E+01	693	5.252E+00	734	1.567E+00	775	4.358E-01
612	1.691E+01	653	1.263E+01	694	5.095E+00	735	1.513E+00	776	4.218E-01
613	1.695E+01	654	1.244E+01	695	4.983E+00	736	1.478E+00	777	3.898E-01
614	1.703E+01	655	1.221E+01	696	4.842E+00	737	1.430E+00	778	3.847E-01
615	1.707E+01	656	1.200E+01	697	4.695E+00	738	1.381E+00	779	3.608E-01
616	1.702E+01	657	1.179E+01	698	4.612E+00	739	1.326E+00	780	3.591E-01
617	1.707E+01	658	1.165E+01	699	4.415E+00	740	1.287E+00		
618	1.704E+01	659	1.141E+01	700	4.302E+00	741	1.253E+00		
619	1.705E+01	660	1.117E+01	701	4.177E+00	742	1.214E+00		
620	1.703E+01	661	1.102E+01	702	4.083E+00	743	1.170E+00		
621	1.698E+01	662	1.080E+01	703	3.960E+00	744	1.128E+00		
622	1.690E+01	663	1.063E+01	704	3.855E+00	745	1.111E+00		
623	1.687E+01	664	1.038E+01	705	3.756E+00	746	1.054E+00		
624	1.680E+01	665	1.016E+01	706	3.626E+00	747	1.021E+00		
625	1.674E+01	666	9.955E+00	707	3.528E+00	748	1.001E+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%**

The Stabilization time: **30 minutes**

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

Test orientation: **Downward**

Test CCT: **5000K**

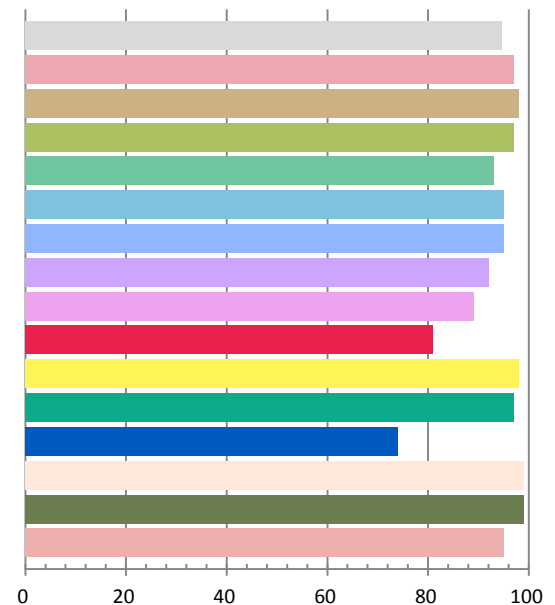
## Photometric and Electrical Measurement Result

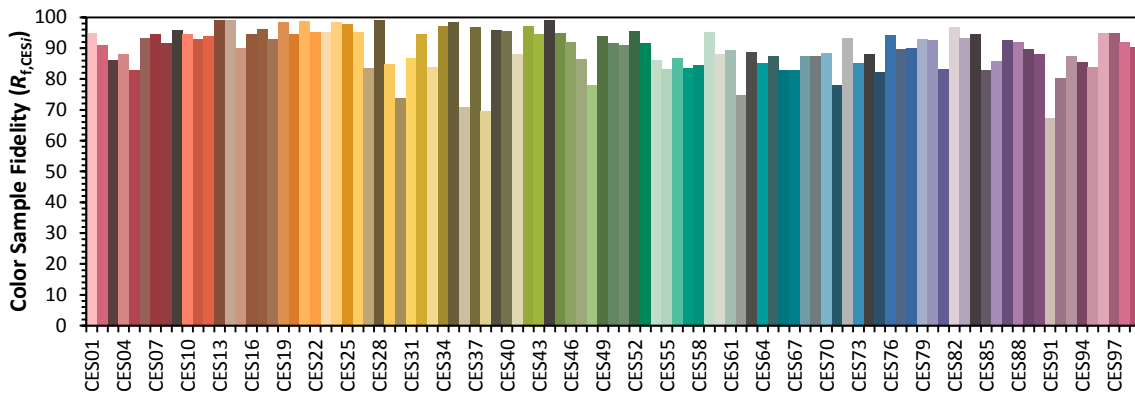
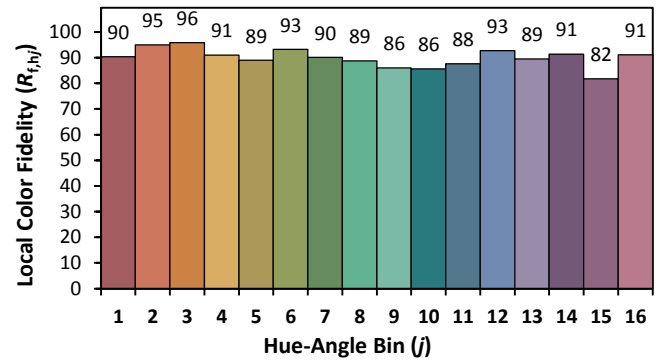
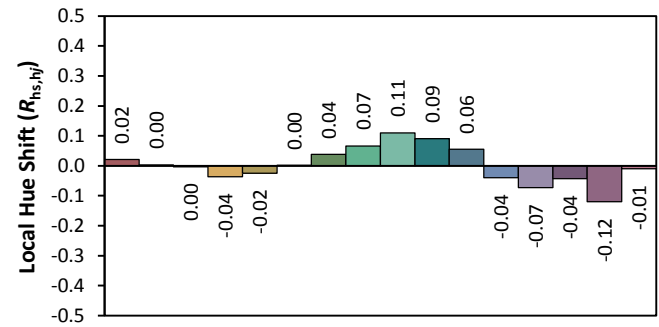
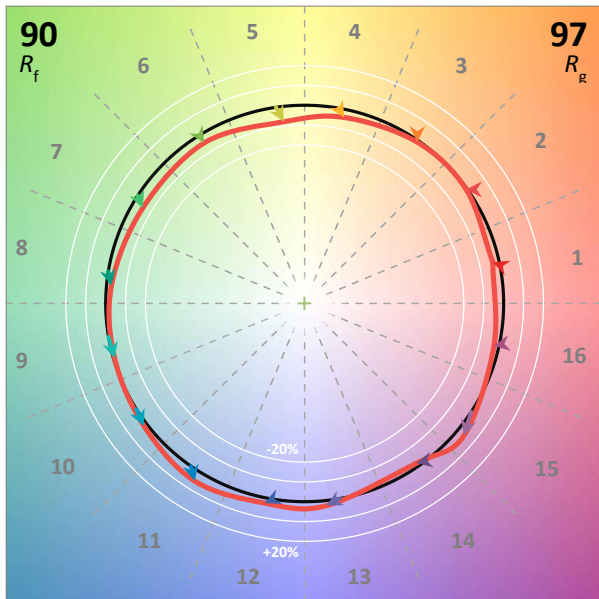
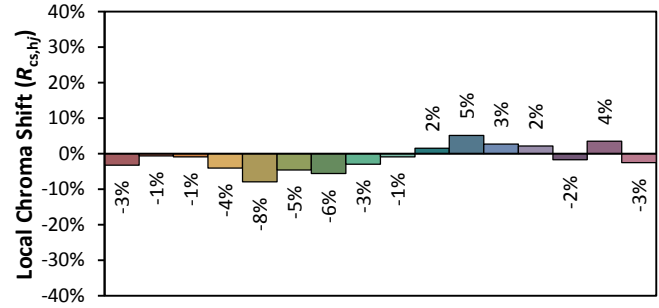
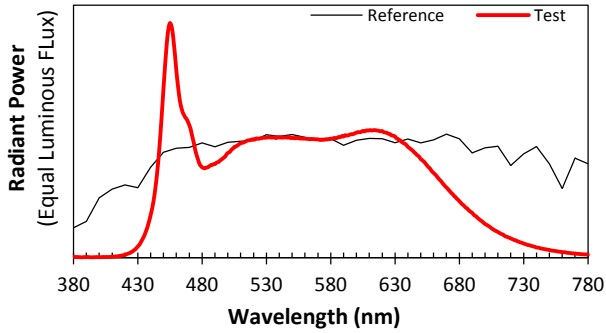
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.0764	8.98	0.979	965.43	107.51

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
3.3505	5016	0.00196	0.3450	0.3555	0.2099	0.4865

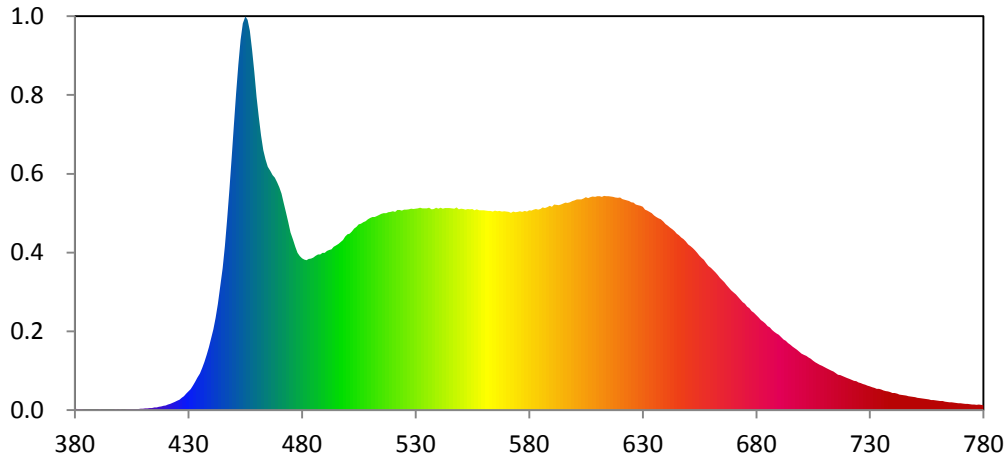
## Color Rendering Index

<b>Ra</b>			
<b>94.6</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
97	98	97	93
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
95	95	92	89
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
81	98	97	74
<b>R13</b>	<b>R14</b>	<b>R15</b>	
99	99	95	





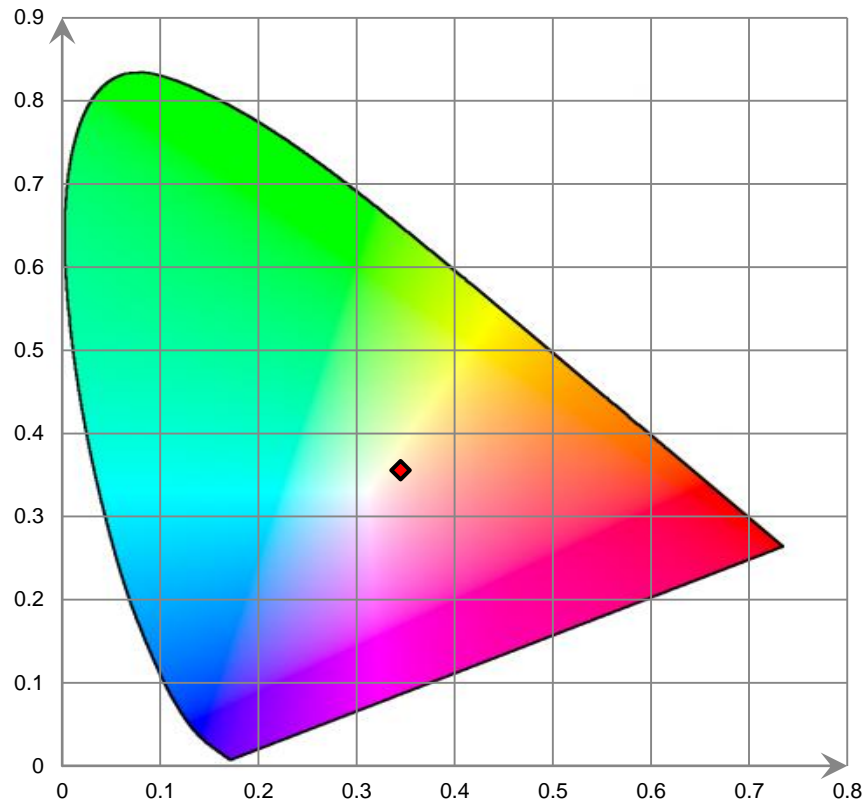
### Relative Spectral Power Distribution



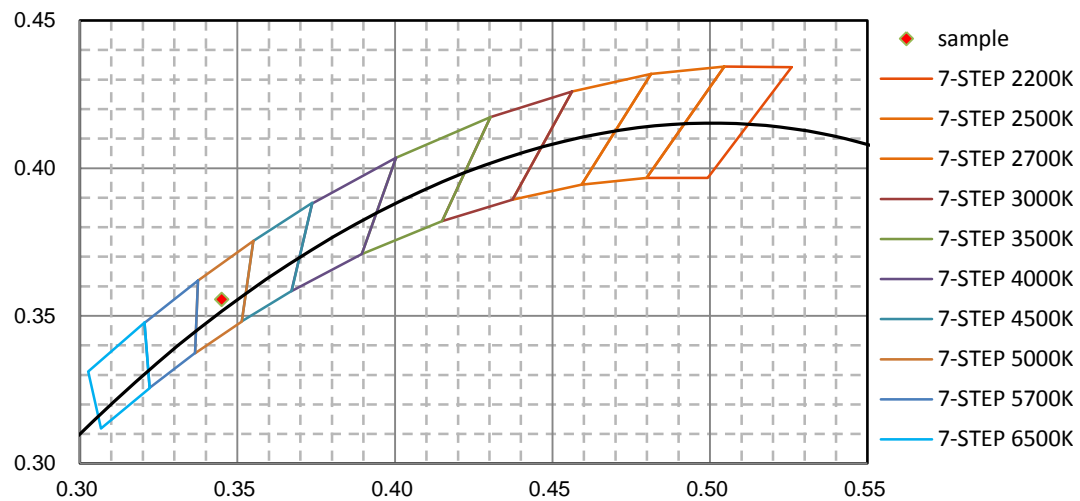
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	8.741E-02	421	3.583E-01	462	1.830E+01	503	1.210E+01	544	1.345E+01
381	5.936E-02	422	4.110E-01	463	1.733E+01	504	1.220E+01	545	1.345E+01
382	6.408E-02	423	4.733E-01	464	1.670E+01	505	1.237E+01	546	1.345E+01
383	5.342E-02	424	5.225E-01	465	1.622E+01	506	1.241E+01	547	1.341E+01
384	4.494E-02	425	6.126E-01	466	1.594E+01	507	1.252E+01	548	1.350E+01
385	4.027E-02	426	6.907E-01	467	1.567E+01	508	1.259E+01	549	1.337E+01
386	2.297E-02	427	8.163E-01	468	1.550E+01	509	1.272E+01	550	1.342E+01
387	2.370E-02	428	9.110E-01	469	1.519E+01	510	1.279E+01	551	1.339E+01
388	4.850E-02	429	1.077E+00	470	1.484E+01	511	1.286E+01	552	1.335E+01
389	5.033E-02	430	1.241E+00	471	1.443E+01	512	1.287E+01	553	1.340E+01
390	3.950E-02	431	1.390E+00	472	1.378E+01	513	1.294E+01	554	1.337E+01
391	6.962E-02	432	1.618E+00	473	1.317E+01	514	1.301E+01	555	1.340E+01
392	3.804E-02	433	1.885E+00	474	1.252E+01	515	1.308E+01	556	1.331E+01
393	3.694E-02	434	2.146E+00	475	1.183E+01	516	1.313E+01	557	1.337E+01
394	2.692E-02	435	2.432E+00	476	1.135E+01	517	1.313E+01	558	1.331E+01
395	2.940E-02	436	2.800E+00	477	1.088E+01	518	1.319E+01	559	1.332E+01
396	4.187E-02	437	3.203E+00	478	1.047E+01	519	1.322E+01	560	1.331E+01
397	3.476E-02	438	3.665E+00	479	1.026E+01	520	1.325E+01	561	1.330E+01
398	5.404E-02	439	4.176E+00	480	1.010E+01	521	1.320E+01	562	1.328E+01
399	4.094E-02	440	4.771E+00	481	1.004E+01	522	1.333E+01	563	1.327E+01
400	5.124E-02	441	5.383E+00	482	9.987E+00	523	1.333E+01	564	1.324E+01
401	3.890E-02	442	6.143E+00	483	1.008E+01	524	1.329E+01	565	1.329E+01
402	4.325E-02	443	7.055E+00	484	1.008E+01	525	1.335E+01	566	1.325E+01
403	6.710E-02	444	8.164E+00	485	1.016E+01	526	1.336E+01	567	1.327E+01
404	5.310E-02	445	9.444E+00	486	1.027E+01	527	1.339E+01	568	1.323E+01
405	6.184E-02	446	1.093E+01	487	1.037E+01	528	1.343E+01	569	1.325E+01
406	5.990E-02	447	1.272E+01	488	1.037E+01	529	1.341E+01	570	1.322E+01
407	5.947E-02	448	1.466E+01	489	1.047E+01	530	1.343E+01	571	1.321E+01
408	6.061E-02	449	1.678E+01	490	1.046E+01	531	1.344E+01	572	1.315E+01
409	8.331E-02	450	1.898E+01	491	1.060E+01	532	1.349E+01	573	1.323E+01
410	8.395E-02	451	2.110E+01	492	1.067E+01	533	1.344E+01	574	1.318E+01
411	1.072E-01	452	2.302E+01	493	1.072E+01	534	1.344E+01	575	1.320E+01
412	9.883E-02	453	2.467E+01	494	1.088E+01	535	1.344E+01	576	1.325E+01
413	1.307E-01	454	2.578E+01	495	1.097E+01	536	1.347E+01	577	1.321E+01
414	1.338E-01	455	2.625E+01	496	1.108E+01	537	1.339E+01	578	1.327E+01
415	1.608E-01	456	2.601E+01	497	1.120E+01	538	1.340E+01	579	1.324E+01
416	1.763E-01	457	2.529E+01	498	1.133E+01	539	1.349E+01	580	1.332E+01
417	2.066E-01	458	2.399E+01	499	1.156E+01	540	1.343E+01	581	1.329E+01
418	2.417E-01	459	2.253E+01	500	1.171E+01	541	1.349E+01	582	1.335E+01
419	2.697E-01	460	2.086E+01	501	1.177E+01	542	1.341E+01	583	1.340E+01
420	3.032E-01	461	1.952E+01	502	1.191E+01	543	1.345E+01	584	1.336E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	1.339E+01	626	1.383E+01	667	8.315E+00	708	2.999E+00	749	8.647E-01
586	1.350E+01	627	1.370E+01	668	8.155E+00	709	2.945E+00	750	8.514E-01
587	1.347E+01	628	1.366E+01	669	7.985E+00	710	2.857E+00	751	8.100E-01
588	1.353E+01	629	1.362E+01	670	7.838E+00	711	2.771E+00	752	7.801E-01
589	1.361E+01	630	1.355E+01	671	7.695E+00	712	2.695E+00	753	7.641E-01
590	1.354E+01	631	1.336E+01	672	7.521E+00	713	2.618E+00	754	7.422E-01
591	1.370E+01	632	1.330E+01	673	7.359E+00	714	2.561E+00	755	7.279E-01
592	1.367E+01	633	1.319E+01	674	7.197E+00	715	2.454E+00	756	6.923E-01
593	1.366E+01	634	1.312E+01	675	7.074E+00	716	2.355E+00	757	6.691E-01
594	1.371E+01	635	1.297E+01	676	6.883E+00	717	2.327E+00	758	6.590E-01
595	1.376E+01	636	1.286E+01	677	6.775E+00	718	2.262E+00	759	6.263E-01
596	1.382E+01	637	1.278E+01	678	6.586E+00	719	2.205E+00	760	6.181E-01
597	1.380E+01	638	1.272E+01	679	6.481E+00	720	2.140E+00	761	6.000E-01
598	1.386E+01	639	1.257E+01	680	6.307E+00	721	2.076E+00	762	5.968E-01
599	1.393E+01	640	1.239E+01	681	6.165E+00	722	2.010E+00	763	5.539E-01
600	1.398E+01	641	1.229E+01	682	5.994E+00	723	1.946E+00	764	5.311E-01
601	1.404E+01	642	1.216E+01	683	5.887E+00	724	1.928E+00	765	5.201E-01
602	1.403E+01	643	1.206E+01	684	5.755E+00	725	1.826E+00	766	5.011E-01
603	1.404E+01	644	1.193E+01	685	5.588E+00	726	1.788E+00	767	4.864E-01
604	1.410E+01	645	1.176E+01	686	5.512E+00	727	1.718E+00	768	4.720E-01
605	1.418E+01	646	1.165E+01	687	5.338E+00	728	1.679E+00	769	4.484E-01
606	1.412E+01	647	1.149E+01	688	5.208E+00	729	1.622E+00	770	4.543E-01
607	1.418E+01	648	1.139E+01	689	5.101E+00	730	1.580E+00	771	4.253E-01
608	1.424E+01	649	1.124E+01	690	5.002E+00	731	1.515E+00	772	4.097E-01
609	1.421E+01	650	1.102E+01	691	4.831E+00	732	1.474E+00	773	4.033E-01
610	1.425E+01	651	1.093E+01	692	4.696E+00	733	1.416E+00	774	3.916E-01
611	1.426E+01	652	1.079E+01	693	4.612E+00	734	1.397E+00	775	3.716E-01
612	1.422E+01	653	1.066E+01	694	4.459E+00	735	1.354E+00	776	3.661E-01
613	1.426E+01	654	1.047E+01	695	4.342E+00	736	1.307E+00	777	3.495E-01
614	1.426E+01	655	1.029E+01	696	4.220E+00	737	1.266E+00	778	3.532E-01
615	1.426E+01	656	1.013E+01	697	4.125E+00	738	1.233E+00	779	3.377E-01
616	1.422E+01	657	1.000E+01	698	4.002E+00	739	1.186E+00	780	3.222E-01
617	1.421E+01	658	9.782E+00	699	3.876E+00	740	1.122E+00		
618	1.416E+01	659	9.607E+00	700	3.764E+00	741	1.118E+00		
619	1.414E+01	660	9.475E+00	701	3.672E+00	742	1.084E+00		
620	1.417E+01	661	9.333E+00	702	3.595E+00	743	1.032E+00		
621	1.405E+01	662	9.182E+00	703	3.497E+00	744	1.003E+00		
622	1.401E+01	663	8.995E+00	704	3.407E+00	745	9.752E-01		
623	1.398E+01	664	8.815E+00	705	3.285E+00	746	9.538E-01		
624	1.394E+01	665	8.663E+00	706	3.175E+00	747	9.231E-01		
625	1.385E+01	666	8.516E+00	707	3.097E+00	748	8.969E-01		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles

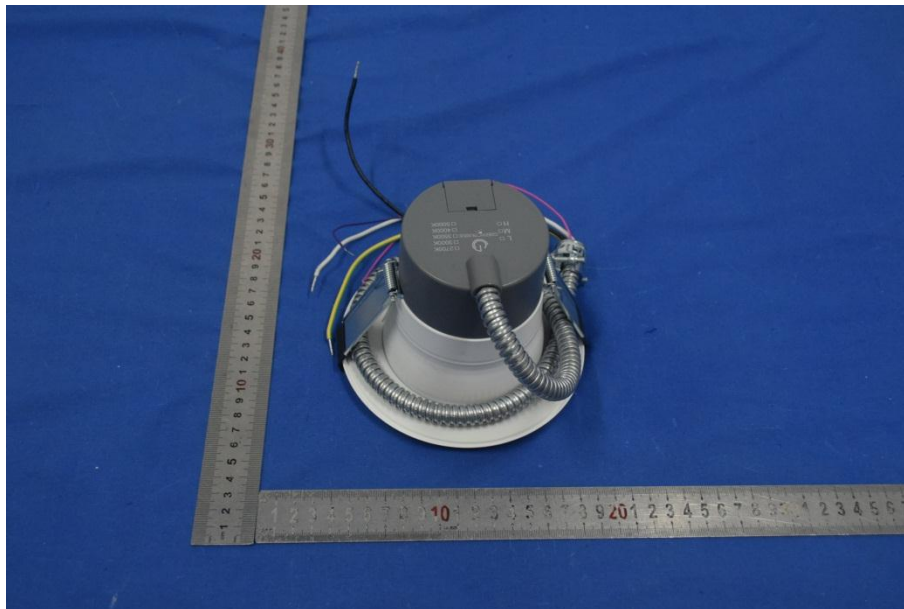
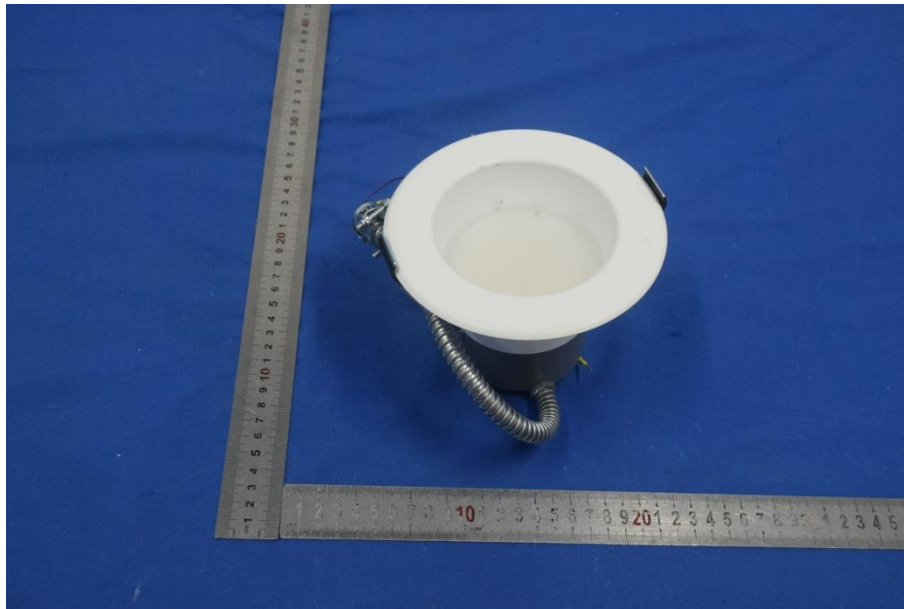


**[Additional Test]**

Test CCT: **2700K**

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120.1	60	11.02%

**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\*\*\*\*\*