



IES LM-79-08

MEASUREMENT AND TEST REPORT

For

SIMKAR Corp

700 Ramona Avenue, Philadelphia PA 19120.

Test Model: LDP2451L35LU1

Report Type:	Electrical and Photometric tests including: Luminous Flux, Chromaticity, Luminous Intensity Distribution, THD
Test Engineer:	Carl Du <i>Carl Du</i>
Report Number:	RKS170414004-10
Test Date:	2016-07-29 to 2016-07-30
Report Date:	2017-04-17
Reviewed By:	Blake Zhang <i>Blake Zhang</i>
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). No.69, Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax: +86-0769-86858588
Test Facility:	Test facility was located at No.69, Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.
Accreditation:	The IAS Accreditation Number TL-460.

Note: The test data was only valid for the test sample(s). 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. (Dongguan). 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.

1. Product Description

General Information:

One sample was received on 2016-07-27 and used for testing.

Model Tested:	LDP2451L35LU1
Manufacturer:	SIMKAR Corp
Brand Name:	SIMKAR
Product Designation:	2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces
Dimmable:	Continuous
Dimming Range:	10% to 100%
Burning Time Before Test:	0hour(For New Products)

Rated Values:

Rated Voltage/Frequency:	120-277VAC, 60Hz
Rated Power:	50W
Nominal CCT:	3500K
Nominal Lumen Output:	5000lm
Nominal CRI:	80

Note:

1. The applicant SIMKAR Corp declare that their product with model LDP2451L35LU1 is the same to the product in report# RKS160727007-10 and is authorized by original applicant to use their test data.
2. All the data in previous report (RKS160727007-10) is shared in report.

2. Standards Used

- IES LM-79-08: Approved Method: Electrical & Photometric Measurement of Solid-state Lighting Products
- ANSI C82.77-2002: Harmonic Emission Limits – Related Power Quality Requirements for Lighting
- IES TM-30-15: IES Method for Evaluating Light Source Color Rendition (This method is not in IAS accreditation scope)

3. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
2.0m integrating sphere	EVERFINE	R98	11010018	R98	2015-11-09	2016-11-08
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	380-780nm	2016-03-10	2017-03-09
Digital Power Meter	EVERFINE	PF2010A	1011004	600V/20A	2016-07-11	2017-07-10
Digital CC&CV DC Power Supply	EVERFINE	WY305-V1	1101047	30V/5A	2016-07-07	2017-07-06
Temperature/humidity/clock	Victor	VC230	EE023	0~40°C0~90%	2016-03-21	2017-03-20
Standard Light Source	SENSING	N/A	LSD090808	N/A	2015-09-25	2016-09-24
Special zero-voltage synchronous switching AC	EVERFINE	DPS1010-YF	1011001T	30V/5A	2016-03-04	2017-03-03

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
AC Power Supply	EVERFINE	VPS1030 PWM	1012017	0-150V, 0-300V	2016-03-04	2017-03-03
DC Power Supply	EVERFINE	WY12010	1009009	30V/5A	2016-03-04	2017-03-03
Power Meter	YOKOGAWA	WT-210	91KB35700	15/30/60/150/300/600V	2016-03-04	2017-03-03
Goniophotometer	EVERFINE	GO- R5000	YG108492N10120001	1600mm,3000W/10A	2016-03-10	2017-03-09
Wireless Remote Sensor	N/A	433MHz	N/A	0°C~50°C;-20°C~60°C	2016-03-21	2017-03-20
Standard Light Source	EVERFINE	D908	1012003	N/A	2015-09-08	2016-09-07

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) 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 IES LM-79-08. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at 25°C±1°C during measurement. And relative humidity is less than 65%.

Integrating Sphere System

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

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

The uncertainty of the light output (luminous flux) measurements is U=1.8% (K=2), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is U=20K (K=2), at the 95% confidence level. The uncertainty of the CRI is U=1.8(K=2), at the 95% confidence level.

The uncertainty of power meter AC current U=0.19 % of rdg, AC Voltage U=0.15% of rdg, Power U=0.20%) (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. The vertical angle (γ) test intervals were set no more than 1 degree while data for 5 degree intervals is reported. The horizontal angle (C plane) test intervals were set no more than 22.5 degree.

The uncertainty of the luminous intensity is U=1.6% (K=2) , at the 95% confidence level.

Additional Test

The Additional Test item may not be covered by IESNA LM-79-2008. Additional test including power factor, off-state power and THD, was measured by Digital Power Meter after stabilized at 25°C±1°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=0.20%) (K=2), at the 95% confidence level.

Fidelity Index and Gamut Index Calculation

The R_i , R_g was calculated according to IES TM-30-15 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]

Total operating time for integrating sphere test: **0.5 hour**

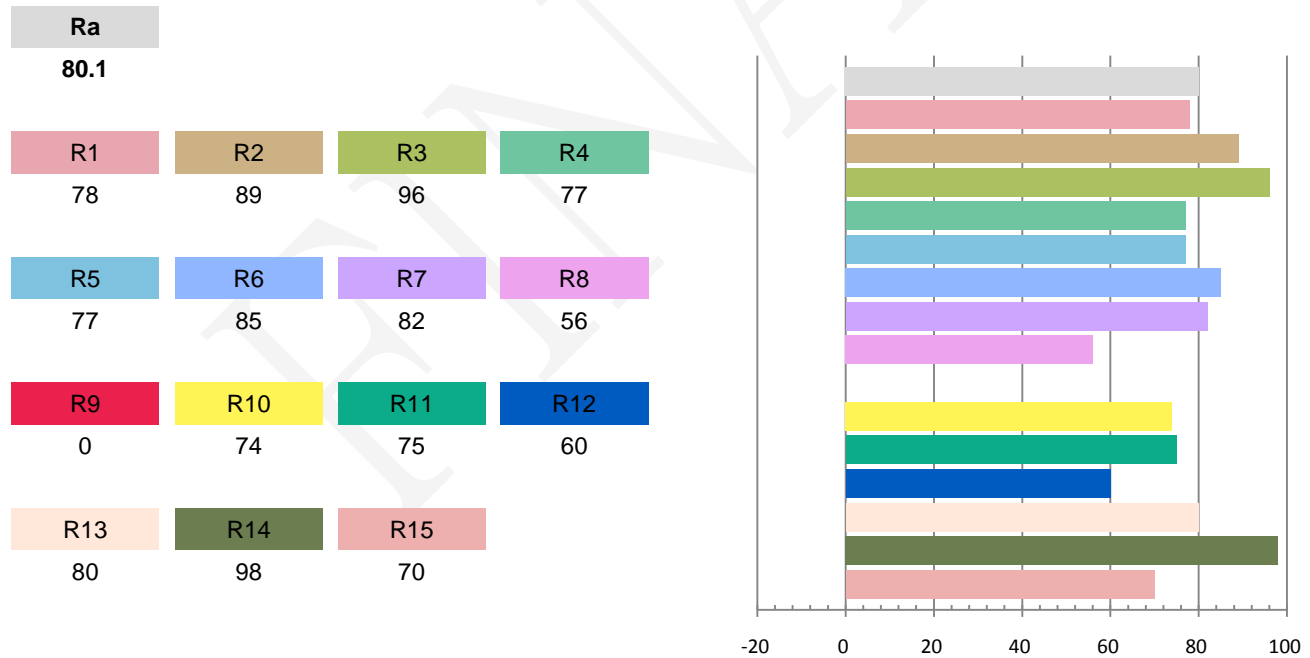
Test orientation: **Downward**

Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
119.9	60	0.4083	48.72	0.995	5056	103.76

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
14.850	3300	0.00185	0.4193	0.4017	0.2402	0.5178

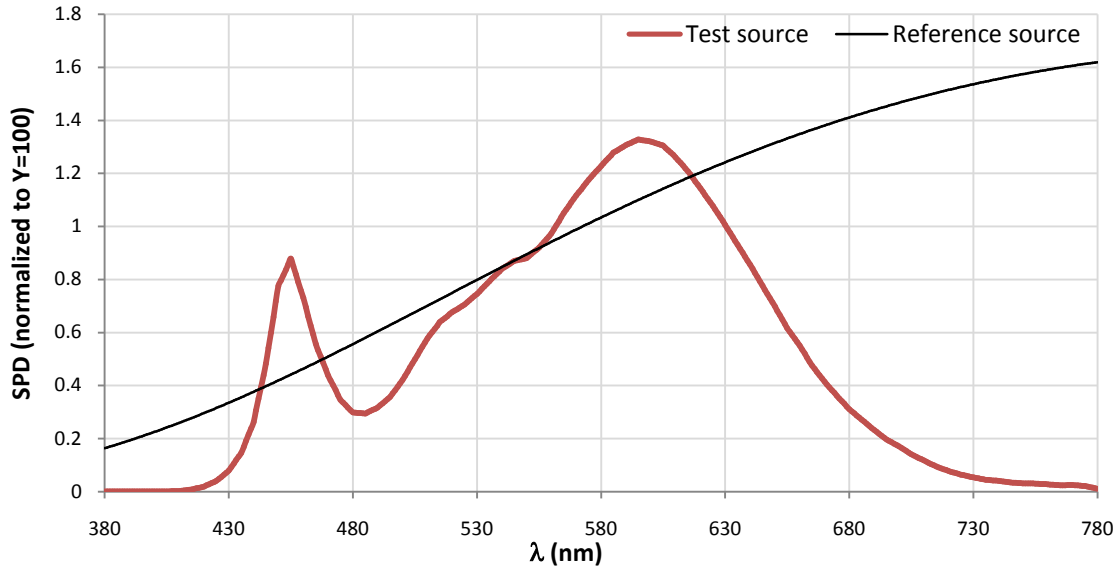
Color Rendering Index



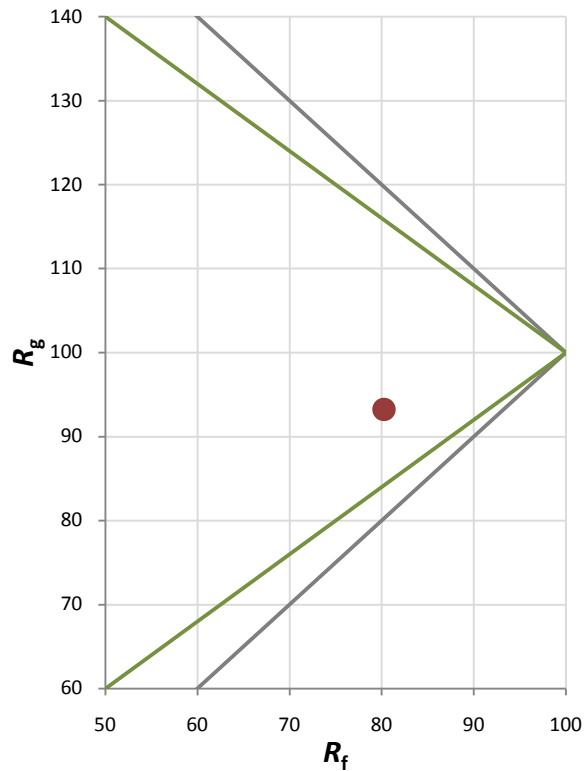
Fidelity Index and Gamut Index

Fidelity Index R_f	80
Gamut Index R_g	93

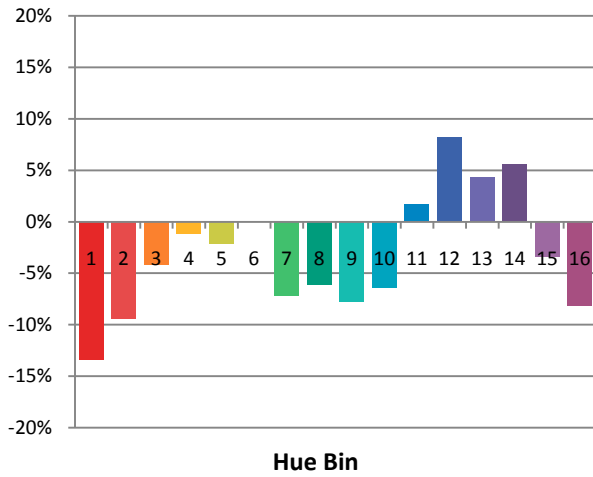
Spectral Power Distribution Comparison



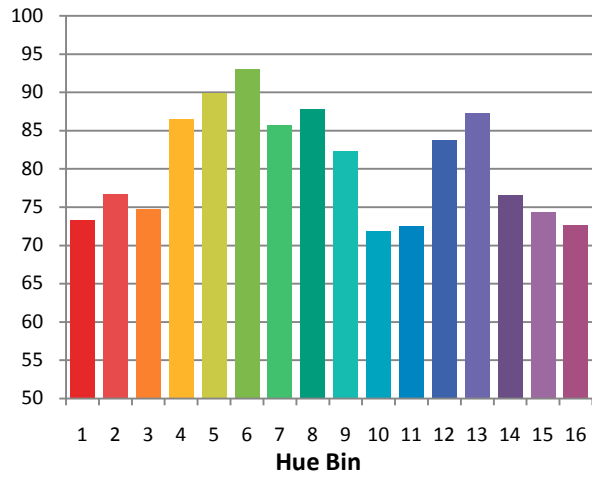
Plot of R_g versus R_f



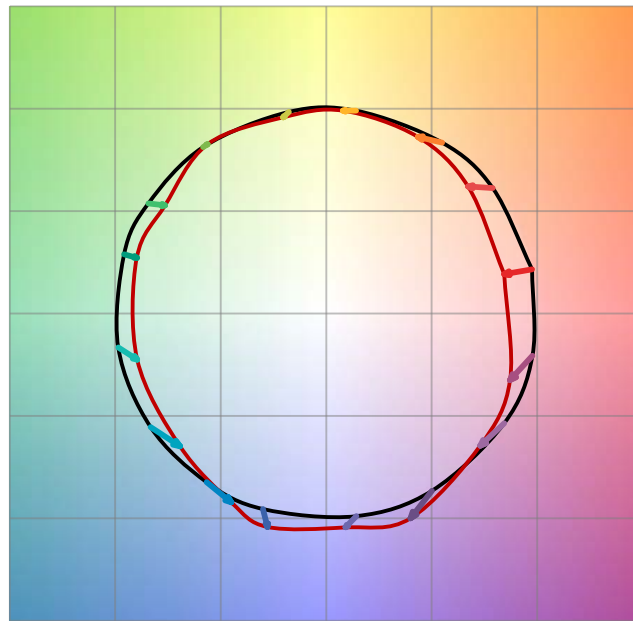
Chroma Shift by Hue



R_f by Hue

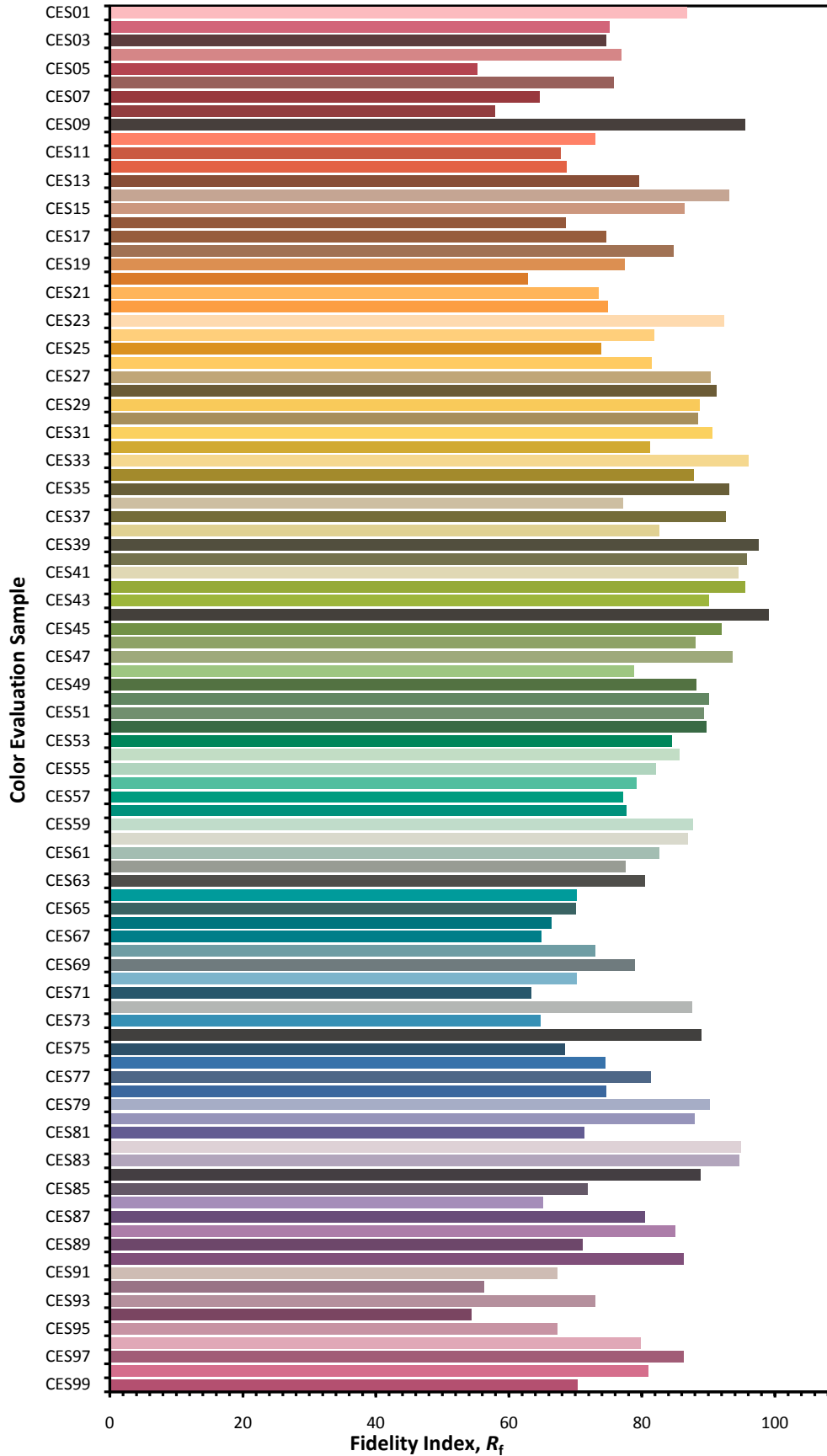


Color Vector Graphic

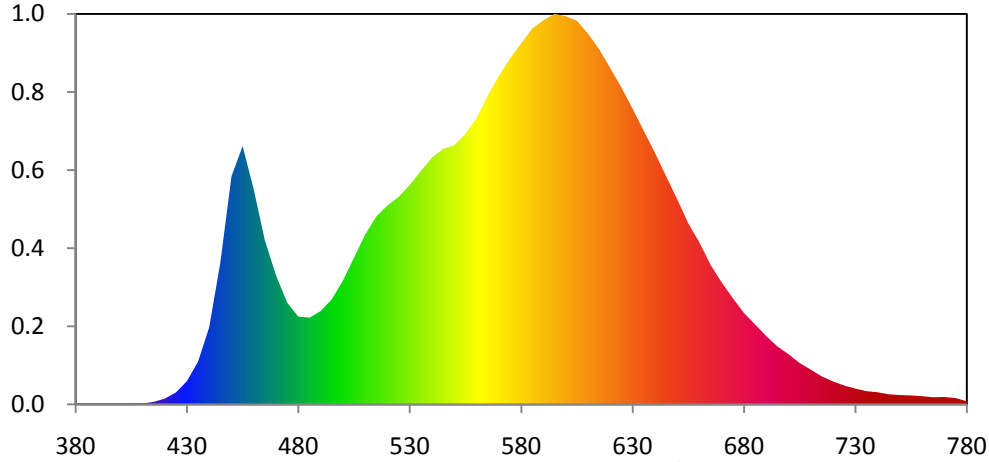


— Reference Illuminat — Test Source

Color Fidelity by CES Sample



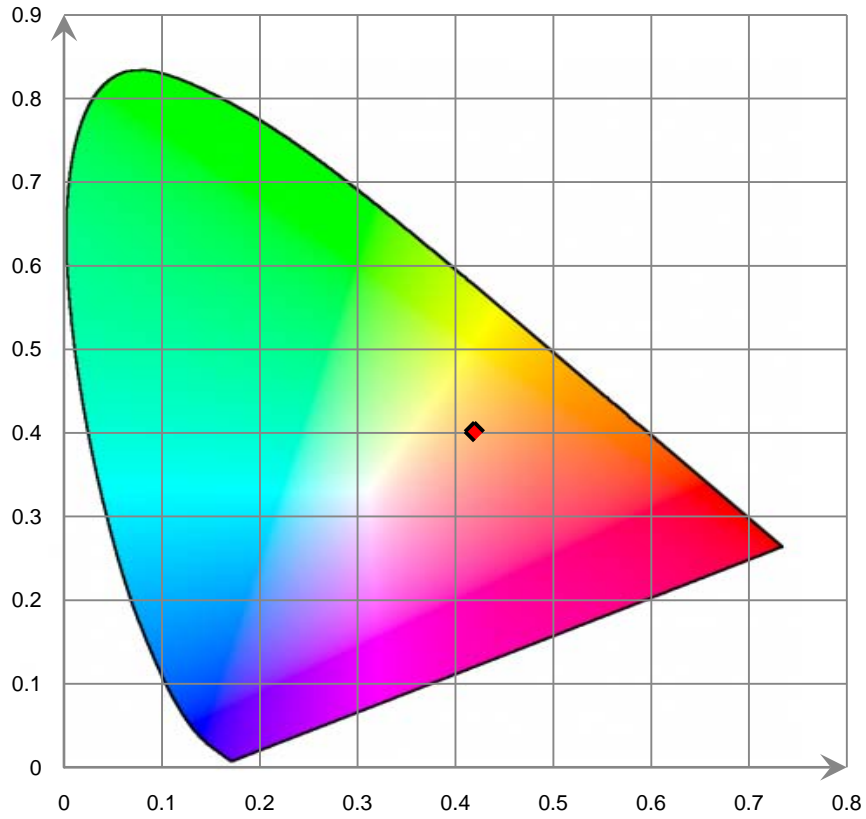
Relative Spectral Power Distribution



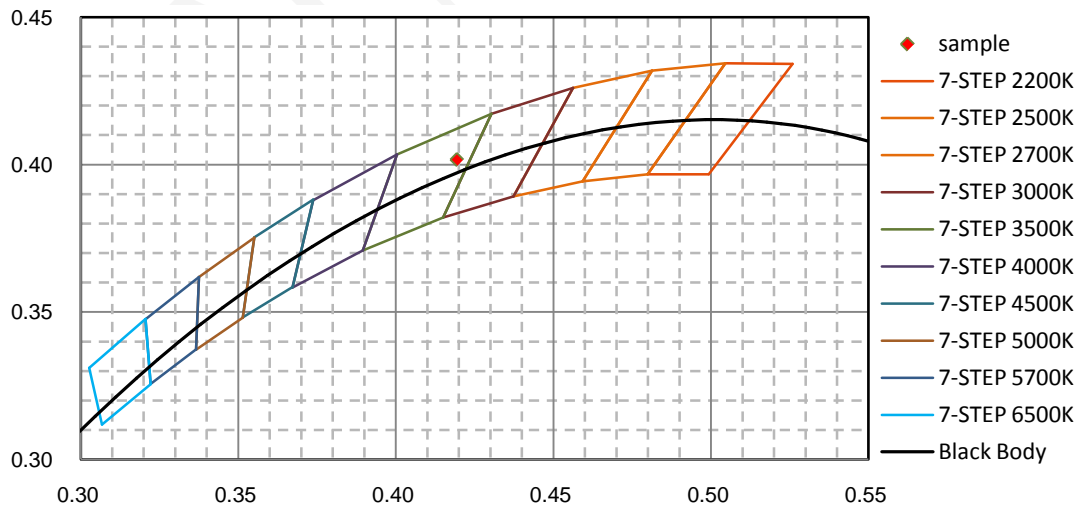
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	1.130E-01	421	1.747E+00	462	4.894E+01	503	3.462E+01	544	6.389E+01
381	1.035E-01	422	2.057E+00	463	4.638E+01	504	3.577E+01	545	6.434E+01
382	9.405E-02	423	2.368E+00	464	4.382E+01	505	3.693E+01	546	6.451E+01
383	8.457E-02	424	2.679E+00	465	4.126E+01	506	3.809E+01	547	6.469E+01
384	7.509E-02	425	2.989E+00	466	3.950E+01	507	3.926E+01	548	6.486E+01
385	6.561E-02	426	3.560E+00	467	3.774E+01	508	4.042E+01	549	6.504E+01
386	6.533E-02	427	4.131E+00	468	3.598E+01	509	4.158E+01	550	6.522E+01
387	6.506E-02	428	4.702E+00	469	3.422E+01	510	4.274E+01	551	6.579E+01
388	6.478E-02	429	5.273E+00	470	3.245E+01	511	4.365E+01	552	6.636E+01
389	6.451E-02	430	5.844E+00	471	3.108E+01	512	4.456E+01	553	6.694E+01
390	6.423E-02	431	6.827E+00	472	2.971E+01	513	4.547E+01	554	6.751E+01
391	5.982E-02	432	7.810E+00	473	2.835E+01	514	4.638E+01	555	6.809E+01
392	5.541E-02	433	8.793E+00	474	2.698E+01	515	4.729E+01	556	6.888E+01
393	5.101E-02	434	9.775E+00	475	2.561E+01	516	4.785E+01	557	6.967E+01
394	4.660E-02	435	1.076E+01	476	2.490E+01	517	4.840E+01	558	7.046E+01
395	4.219E-02	436	1.249E+01	477	2.420E+01	518	4.896E+01	559	7.125E+01
396	4.342E-02	437	1.422E+01	478	2.350E+01	519	4.951E+01	560	7.205E+01
397	4.465E-02	438	1.596E+01	479	2.280E+01	520	5.007E+01	561	7.319E+01
398	4.588E-02	439	1.769E+01	480	2.210E+01	521	5.050E+01	562	7.434E+01
399	4.712E-02	440	1.942E+01	481	2.205E+01	522	5.093E+01	563	7.548E+01
400	4.835E-02	441	2.268E+01	482	2.199E+01	523	5.136E+01	564	7.663E+01
401	5.473E-02	442	2.594E+01	483	2.194E+01	524	5.179E+01	565	7.778E+01
402	6.111E-02	443	2.920E+01	484	2.188E+01	525	5.222E+01	566	7.875E+01
403	6.749E-02	444	3.247E+01	485	2.182E+01	526	5.282E+01	567	7.973E+01
404	7.387E-02	445	3.573E+01	486	2.216E+01	527	5.341E+01	568	8.070E+01
405	8.025E-02	446	4.007E+01	487	2.249E+01	528	5.401E+01	569	8.168E+01
406	1.077E-01	447	4.441E+01	488	2.282E+01	529	5.460E+01	570	8.266E+01
407	1.351E-01	448	4.875E+01	489	2.315E+01	530	5.520E+01	571	8.354E+01
408	1.625E-01	449	5.309E+01	490	2.349E+01	531	5.591E+01	572	8.442E+01
409	1.899E-01	450	5.744E+01	491	2.408E+01	532	5.662E+01	573	8.530E+01
410	2.173E-01	451	5.895E+01	492	2.467E+01	533	5.733E+01	574	8.618E+01
411	2.970E-01	452	6.047E+01	493	2.526E+01	534	5.804E+01	575	8.706E+01
412	3.766E-01	453	6.199E+01	494	2.585E+01	535	5.875E+01	576	8.782E+01
413	4.562E-01	454	6.351E+01	495	2.644E+01	536	5.943E+01	577	8.859E+01
414	5.358E-01	455	6.503E+01	496	2.738E+01	537	6.010E+01	578	8.935E+01
415	6.154E-01	456	6.283E+01	497	2.832E+01	538	6.077E+01	579	9.012E+01
416	7.796E-01	457	6.064E+01	498	2.926E+01	539	6.144E+01	580	9.088E+01
417	9.437E-01	458	5.845E+01	499	3.020E+01	540	6.211E+01	581	9.163E+01
418	1.108E+00	459	5.626E+01	500	3.114E+01	541	6.256E+01	582	9.237E+01
419	1.272E+00	460	5.406E+01	501	3.230E+01	542	6.300E+01	583	9.312E+01
420	1.436E+00	461	5.150E+01	502	3.346E+01	543	6.345E+01	584	9.386E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	9.461E+01	626	7.871E+01	667	3.338E+01	708	9.411E+00	749	2.387E+00
586	9.502E+01	627	7.765E+01	668	3.249E+01	709	9.082E+00	750	2.348E+00
587	9.544E+01	628	7.658E+01	669	3.160E+01	710	8.752E+00	751	2.329E+00
588	9.586E+01	629	7.551E+01	670	3.071E+01	711	8.407E+00	752	2.310E+00
589	9.628E+01	630	7.445E+01	671	2.992E+01	712	8.062E+00	753	2.291E+00
590	9.670E+01	631	7.334E+01	672	2.913E+01	713	7.716E+00	754	2.272E+00
591	9.702E+01	632	7.223E+01	673	2.834E+01	714	7.371E+00	755	2.253E+00
592	9.733E+01	633	7.112E+01	674	2.755E+01	715	7.025E+00	756	2.213E+00
593	9.765E+01	634	7.000E+01	675	2.676E+01	716	6.775E+00	757	2.173E+00
594	9.797E+01	635	6.889E+01	676	2.601E+01	717	6.525E+00	758	2.134E+00
595	9.828E+01	636	6.779E+01	677	2.527E+01	718	6.275E+00	759	2.094E+00
596	9.817E+01	637	6.669E+01	678	2.452E+01	719	6.025E+00	760	2.054E+00
597	9.806E+01	638	6.559E+01	679	2.377E+01	720	5.774E+00	761	2.003E+00
598	9.795E+01	639	6.449E+01	680	2.302E+01	721	5.569E+00	762	1.952E+00
599	9.783E+01	640	6.339E+01	681	2.244E+01	722	5.364E+00	763	1.902E+00
600	9.772E+01	641	6.222E+01	682	2.186E+01	723	5.159E+00	764	1.851E+00
601	9.749E+01	642	6.104E+01	683	2.128E+01	724	4.954E+00	765	1.800E+00
602	9.726E+01	643	5.987E+01	684	2.071E+01	725	4.749E+00	766	1.811E+00
603	9.704E+01	644	5.869E+01	685	2.013E+01	726	4.593E+00	767	1.822E+00
604	9.681E+01	645	5.752E+01	686	1.954E+01	727	4.437E+00	768	1.833E+00
605	9.658E+01	646	5.635E+01	687	1.896E+01	728	4.281E+00	769	1.844E+00
606	9.593E+01	647	5.519E+01	688	1.838E+01	729	4.125E+00	770	1.856E+00
607	9.528E+01	648	5.402E+01	689	1.779E+01	730	3.970E+00	771	1.802E+00
608	9.463E+01	649	5.285E+01	690	1.721E+01	731	3.842E+00	772	1.749E+00
609	9.398E+01	650	5.169E+01	691	1.668E+01	732	3.714E+00	773	1.696E+00
610	9.333E+01	651	5.047E+01	692	1.616E+01	733	3.587E+00	774	1.642E+00
611	9.255E+01	652	4.925E+01	693	1.564E+01	734	3.459E+00	775	1.589E+00
612	9.177E+01	653	4.804E+01	694	1.512E+01	735	3.332E+00	776	1.430E+00
613	9.098E+01	654	4.682E+01	695	1.459E+01	736	3.275E+00	777	1.271E+00
614	9.020E+01	655	4.560E+01	696	1.420E+01	737	3.219E+00	778	1.112E+00
615	8.942E+01	656	4.464E+01	697	1.381E+01	738	3.162E+00	779	9.529E-01
616	8.847E+01	657	4.368E+01	698	1.342E+01	739	3.105E+00	780	7.938E-01
617	8.751E+01	658	4.272E+01	699	1.303E+01	740	3.049E+00		
618	8.655E+01	659	4.176E+01	700	1.264E+01	741	2.947E+00		
619	8.560E+01	660	4.080E+01	701	1.219E+01	742	2.846E+00		
620	8.464E+01	661	3.967E+01	702	1.174E+01	743	2.744E+00		
621	8.367E+01	662	3.854E+01	703	1.130E+01	744	2.643E+00		
622	8.269E+01	663	3.742E+01	704	1.085E+01	745	2.541E+00		
623	8.172E+01	664	3.629E+01	705	1.040E+01	746	2.503E+00		
624	8.075E+01	665	3.516E+01	706	1.007E+01	747	2.464E+00		
625	7.978E+01	666	3.427E+01	707	9.740E+00	748	2.425E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



[Goniophotometer System]

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

Test orientation: **Downward**

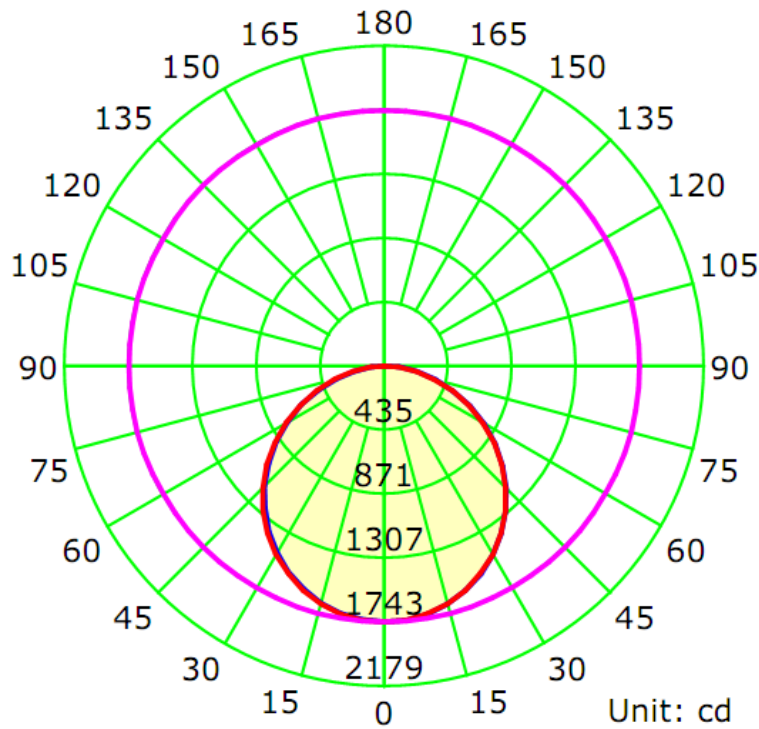
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.0	60	0.4050	48.42	0.9960

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I _{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
5072.5	104.76	1744.0	1.26	1.26

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I _{max}):	112.9	113.0	113.3	113.0	113.1
Field Angle (10% I _{max}):	163.8	163.7	163.7	163.7	163.7

Luminous Intensity (cd) Distribution Data

C y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0.0°	1744	1744	1744	1744	1744	1744	1744	1744
5.0°	1739	1736	1738	1737	1738	1735	1735	1737
10.0°	1715	1715	1713	1715	1713	1714	1713	1713
15.0°	1679	1677	1677	1678	1678	1674	1674	1676
20.0°	1626	1627	1626	1627	1625	1624	1620	1624
25.0°	1562	1561	1559	1562	1559	1557	1553	1555
30.0°	1485	1482	1481	1481	1482	1477	1474	1475
35.0°	1394	1390	1388	1390	1389	1384	1382	1382
40.0°	1291	1289	1286	1288	1286	1281	1278	1278
45.0°	1178	1174	1172	1174	1172	1166	1163	1165
50.0°	1057	1053	1052	1050	1048	1045	1041	1042
55.0°	924	923	921	921	919	915	912	911
60.0°	790	786	785	783	781	779	774	776
65.0°	647	647	642	641	641	640	633	633
70.0°	506	502	501	499	496	495	492	493
75.0°	366	362	360	359	356	355	353	353
80.0°	230	229	228	225	223	222	220	222
85.0°	109	107	106	103	101	99	99	100
90.0°	7	7	8	8	6	5	4	4
95.0°	2	2	3	2	2	2	2	2
100.0°	2	2	2	1	2	2	2	2
105.0°	2	2	2	1	2	2	1	2
110.0°	2	2	2	1	2	2	2	2
115.0°	2	2	2	1	2	1	2	2
120.0°	2	2	3	1	2	2	2	2
125.0°	2	2	3	2	2	2	2	3
130.0°	3	3	3	2	3	2	2	3
135.0°	3	3	4	3	3	3	3	3
140.0°	3	3	4	3	3	3	3	3
145.0°	4	4	4	3	4	4	3	4
150.0°	4	4	4	4	4	4	4	4
155.0°	4	4	4	4	4	4	4	4
160.0°	4	4	4	4	4	4	4	4
165.0°	4	4	5	4	4	4	4	4
170.0°	4	4	5	4	4	4	4	4
175.0°	4	4	5	4	4	5	4	4
180.0°	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°
0.0°	1744	1744	1744	1744	1744	1744	1744	1744
5.0°	1735	1735	1736	1737	1737	1736	1734	1738
10.0°	1710	1710	1712	1715	1715	1713	1712	1713
15.0°	1671	1673	1675	1675	1677	1677	1675	1676
20.0°	1615	1619	1621	1625	1625	1623	1622	1624
25.0°	1548	1552	1554	1557	1559	1557	1554	1557
30.0°	1469	1470	1475	1479	1481	1477	1475	1478
35.0°	1375	1379	1380	1384	1388	1387	1384	1384
40.0°	1269	1272	1275	1281	1287	1282	1280	1281
45.0°	1155	1156	1160	1166	1170	1170	1168	1167
50.0°	1031	1032	1038	1043	1048	1045	1045	1045
55.0°	900	901	906	912	915	915	914	913
60.0°	764	763	766	772	778	778	775	775
65.0°	623	623	626	631	637	637	636	634
70.0°	479	478	483	488	491	492	494	493
75.0°	340	340	344	348	350	351	353	353
80.0°	210	209	210	213	217	218	218	218
85.0°	90	89	90	92	95	96	96	96
90.0°	3	3	4	4	5	5	4	4
95.0°	2	2	3	3	3	3	2	2
100.0°	2	2	2	2	2	2	2	2
105.0°	2	2	2	2	2	2	2	2
110.0°	2	2	2	2	2	2	2	2
115.0°	2	2	2	2	2	2	2	2
120.0°	2	2	2	2	2	2	2	2
125.0°	2	2	2	2	2	2	3	3
130.0°	2	3	3	2	2	2	3	3
135.0°	3	3	3	3	3	3	3	3
140.0°	3	3	3	3	3	3	3	3
145.0°	3	3	4	3	3	3	4	4
150.0°	3	4	4	3	4	3	4	4
155.0°	3	4	4	4	4	3	4	4
160.0°	4	4	4	4	4	3	4	4
165.0°	4	4	4	4	4	4	4	4
170.0°	4	4	5	4	5	4	5	5
175.0°	4	4	4	4	5	4	4	4
180.0°	0	0	0	0	0	0	0	0

Zonal Lumen Density Measurement

Deg	Flux (lm)	%	Deg	Flux (lm)	%
0-5	41.6	0.82	0-5	41.6	0.82
5-10	123.4	2.43	0-10	165.0	3.25
10-15	201.0	3.96	0-15	366.0	7.22
15-20	271.9	5.36	0-20	637.9	12.58
20-25	333.5	6.57	0-25	971.4	19.15
25-30	383.9	7.57	0-30	1355.3	26.72
30-35	421.5	8.31	0-35	1776.8	35.03
35-40	444.9	8.77	0-40	2221.7	43.80
40-45	453.4	8.94	0-45	2675.1	52.74
45-50	447.0	8.81	0-50	3122.1	61.55
50-55	425.9	8.40	0-55	3548.0	69.95
55-60	390.7	7.70	0-60	3938.7	77.65
60-65	343.2	6.77	0-65	4281.9	84.42
65-70	285.6	5.63	0-70	4567.5	90.05
70-75	220.9	4.36	0-75	4788.5	94.40
75-80	153.1	3.02	0-80	4941.5	97.42
80-85	86.2	1.70	0-85	5027.8	99.12
85-90	28.2	0.56	0-90	5055.9	99.67
90-95	2.0	0.04	0-95	5057.9	99.71
95-100	1.1	0.02	0-100	5059.1	99.74
100-105	1.0	0.02	0-105	5060.1	99.76
105-110	0.9	0.02	0-110	5061.0	99.77
110-115	0.9	0.02	0-115	5061.9	99.79
115-120	0.9	0.02	0-120	5062.8	99.81
120-125	1.0	0.02	0-125	5063.8	99.83
125-130	1.1	0.02	0-130	5064.9	99.85
130-135	1.1	0.02	0-135	5066.0	99.87
135-140	1.1	0.02	0-140	5067.1	99.89
140-145	1.1	0.02	0-145	5068.2	99.92
145-150	1.0	0.02	0-150	5069.2	99.94
150-155	0.9	0.02	0-155	5070.2	99.95
155-160	0.8	0.02	0-160	5071.0	99.97
160-165	0.7	0.01	0-165	5071.6	99.98
165-170	0.5	0.01	0-170	5072.1	99.99
170-175	0.3	0.01	0-175	5072.4	100.00
175-180	0.1	0.00	0-180	5072.5	100.00

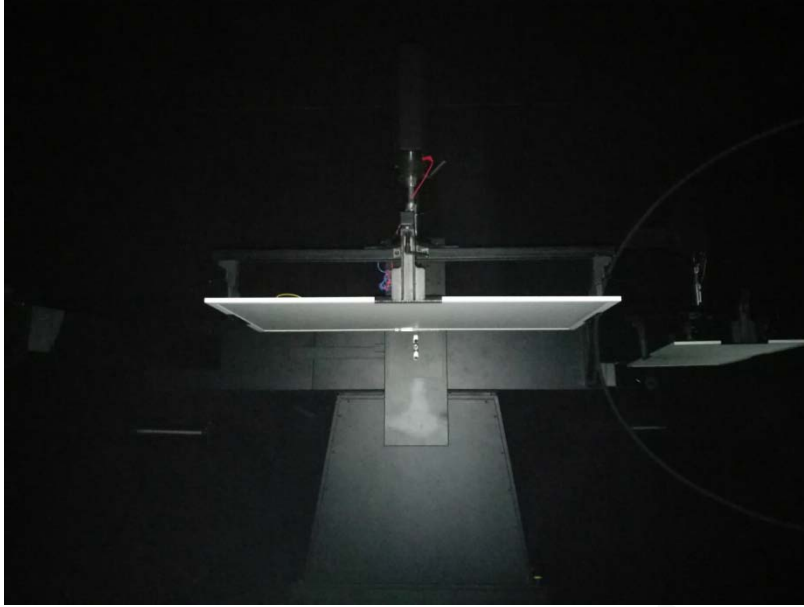
[Additional Test]

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Power Factor:	240.0	60	0.9395
Total Harmonic Distortion:	240.0	60	11.76%
Total Harmonic Distortion:	120.0	60	7.65%
Total Harmonic Distortion:	277.0	60	13.84%
Power Factor:	277.0	60	0.911

6. Product Photo



7. Product Test orientation in the Goniophotometer



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