



## LM-79-08 Test Report

for

### GREEN CREATIVE LTD

756 North Zhongshan Rd., Unit B301 Zhabei District, Shanghai

**Surface mounted down light**

**Model: 14.5SMDL6DIM/840**

### Laboratory: Leading Testing Laboratories

**NVLAP CODE: 200960-0**

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Report No.: HZ16090035d

The laboratory that conducted the testing detailed in this report has been accredited for SSL by NVLAP.

Review by:

Engineer: April Zou  
Oct. 12, 2016

Approved by:



Manager: Jim Zhang  
Oct. 12, 2016

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

## Test Summary

Sample Tested: 3.5FB11DIM/827/E26

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
90.2	1290.0	14.30	0.9380
CCT (K)	CRI	Stabilization Time (Light & Power)	
3976	83.9	60	

Table 1: Executive Data Summary

Note: The above results are recorded/ derived from measurements made using an Integrating Sphere.

### Test specifications:

**Date of Receipt** : Sep. 28, 2016

**Date of Test** : Oct. 10, 2016

**Test item** : Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters

**Reference Standard** : IESNA LM-79-2008 Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products

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## Sample Photos



E26 base

Figure 1- Overview of the sample

### Equipment Under Test (EUT)

<b>Name</b>	: Surface mounted down light
<b>Model</b>	: 14.5SMDL6DIM/840
<b>Electrical Ratings</b>	: 120Vac, 60Hz, 14.5W
<b>Product Description</b>	: E26 base, 4000K
<b>Manufacturer</b>	: GREEN CREATIVE LTD
<b>Address</b>	: 756 North Zhongshan Rd., Unit B301 Zhabei District, Shanghai

## TEST RESULTS

Test ambient temperature was 25.0°C.

Base orientation was light down. Test was conducted without a dimmer in the circuit.

The stabilization time of the sample was 60 minutes, and the total operating time including stabilization was 70 minutes.

### Sphere-Spectroradiometer Method

Parameter	Result
Test Voltage (V)	120.0
Voltage frequency (Hz)	60
Test Current (A)	0.127
Power Factor	0.9380
Test Power (W)	14.30
THD A%	33.78
Luminous Efficacy (lm/W)	90.2
Total Luminous Flux (lm)	1290.0
Color Rendering Index (CRI)	83.9
R9	10.9
Correlated Color Temperature (CCT)(K)	3976
Chromaticity Chroma x	0.3819
Chromaticity Chroma y	0.3793
Chromaticity Chroma u	0.2251
Chromaticity Chroma v	0.3353
Duv	0.0008
Chromaticity Chroma u'	0.2251
Chromaticity Chroma v'	0.5029

Special Color Rendering Indices	
R1	82.2
R2	90.6
R3	95.9
R4	82.1
R5	82.2
R6	86.8
R7	86
R8	64.9
R9	10.9
R10	77.4
R11	81.3
R12	63.5
R13	84.5
R14	98.1

Table 2: Test data per Sphere-Spectroradiometer Method

Note: According to CIE 1976 (u',v') diagram,  $u' = u = 4x/(-2x+12y+3)$ ,  $v' = 3v/2 = 9y/(-2x+12y+3)$ .

## Goniophotometer Method

Test ambient temperature was 24.2°C.

The photometric distance is 2.47m.

Luminous data was taken at 0.5°vertical intervals and 10°horizontal intervals.

Parameter	Result
Test Voltage (V)	120.0
Voltage frequency (Hz)	60
Test Current (A)	0.127
Power Factor	0.9360
Test Power (W)	14.21
Luminous Efficacy (lm/W)	91.7
Total Luminous Flux (lm)	1303.3
Beam Angle (°)	114.3
Center Beam Candle Power (cd)	435
Spacing Criteria	1.25 (0°-180°)/ 1.26 (90°-270°)
Zonal Lumens in the 0°-60°Zone	75.85%
Zonal Lumens in the 60°-90°Zone	23.48%
Zonal Lumens in the 90°-120°Zone	0.62%
Zonal Lumens in the 120°-180°Zone	0.06%

Table 3: Test data per Goniophotometer Method

## Spectral Power Distribution - Sphere Spectroradiometer Method

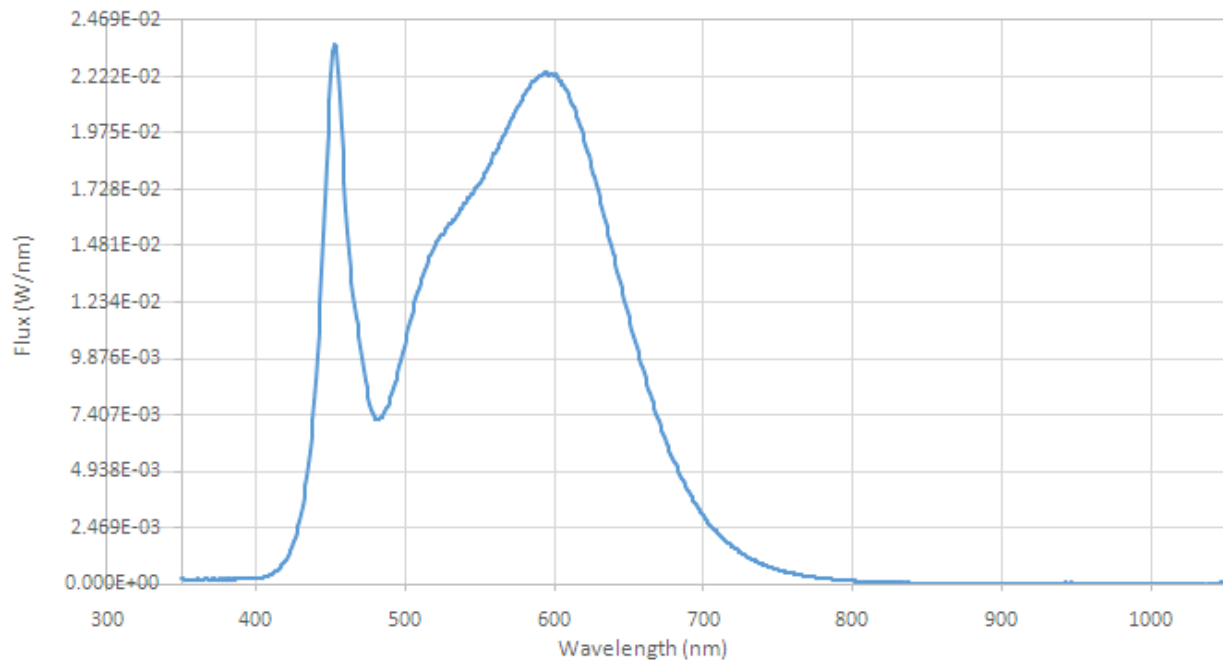


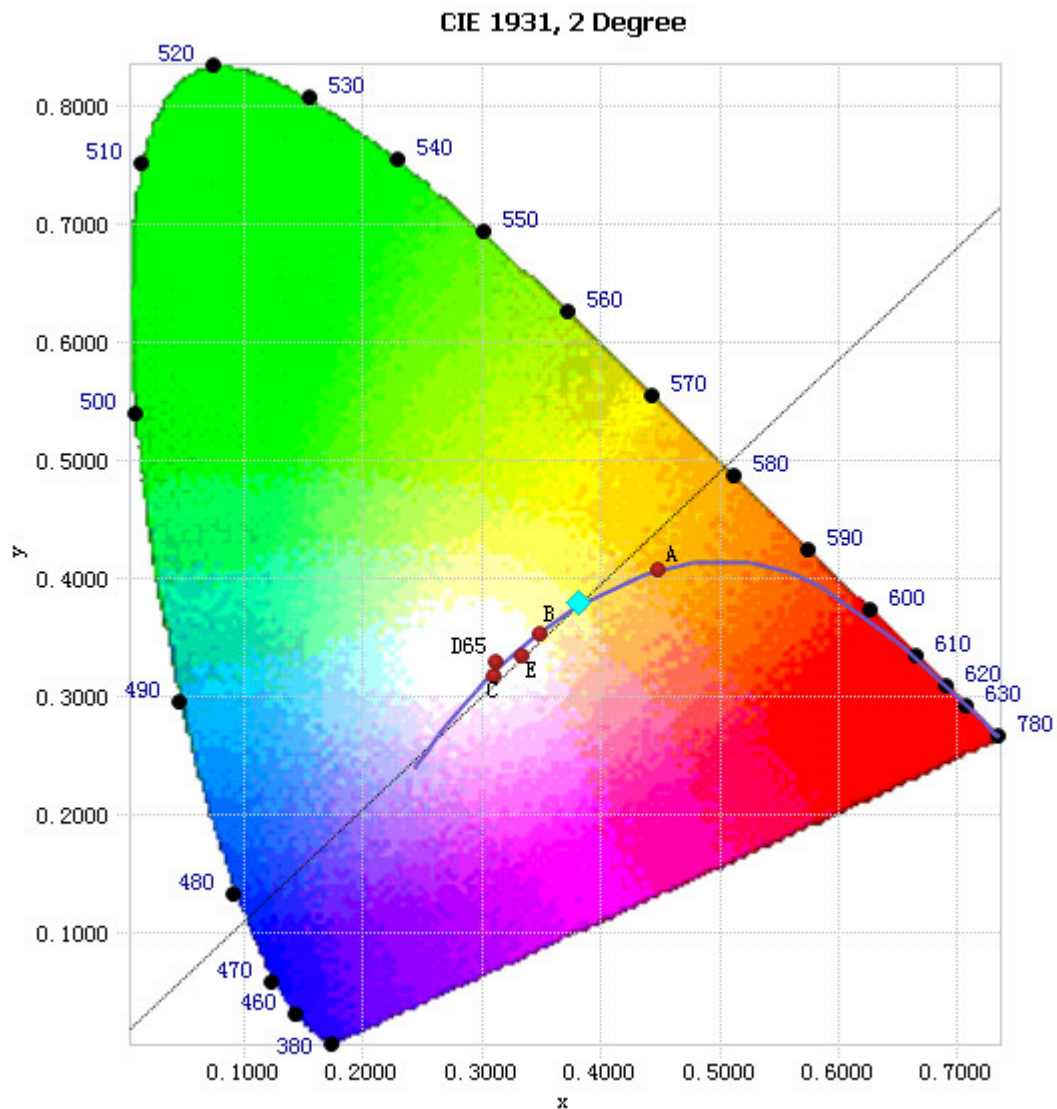
Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	2.18E-04	485	7.39E-03	590	2.23E-02	695	3.47E-03
385	2.19E-04	490	8.15E-03	595	2.24E-02	700	2.98E-03
390	2.28E-04	495	9.26E-03	600	2.22E-02	705	2.54E-03
395	2.37E-04	500	1.07E-02	605	2.18E-02	710	2.18E-03
400	2.67E-04	505	1.20E-02	610	2.13E-02	715	1.87E-03
405	3.17E-04	510	1.32E-02	615	2.05E-02	720	1.61E-03
410	4.25E-04	515	1.42E-02	620	1.94E-02	725	1.37E-03
415	6.66E-04	520	1.49E-02	625	1.83E-02	730	1.17E-03
420	1.09E-03	525	1.53E-02	630	1.70E-02	735	9.98E-04
425	1.86E-03	530	1.58E-02	635	1.56E-02	740	8.54E-04
430	3.08E-03	535	1.62E-02	640	1.43E-02	745	7.28E-04
435	5.30E-03	540	1.67E-02	645	1.30E-02	750	6.27E-04
440	8.95E-03	545	1.71E-02	650	1.17E-02	755	5.37E-04
445	1.53E-02	550	1.76E-02	655	1.04E-02	760	4.65E-04
450	2.23E-02	555	1.82E-02	660	9.21E-03	765	3.98E-04
455	2.24E-02	560	1.88E-02	665	8.11E-03	770	3.42E-04
460	1.64E-02	565	1.96E-02	670	7.11E-03	775	2.96E-04
465	1.26E-02	570	2.02E-02	675	6.20E-03	780	2.54E-04
470	1.04E-02	575	2.09E-02	680	5.38E-03		
475	8.15E-03	580	2.15E-02	685	4.66E-03		
480	7.24E-03	585	2.20E-02	690	4.04E-03		

Table 4: Spectral Power Distribution Numerical Data per Sphere - Spectroradiometer Method



## Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3819, 0.3793)

Chart 2: Chromaticity Diagram per Sphere - Spectroradiometer Method

Note: The location on the diagram of the tristimulus coordinates are indicated by the blue diamond.



### Nominal CCT Quadrangles – Sphere Spectroradiometer Method

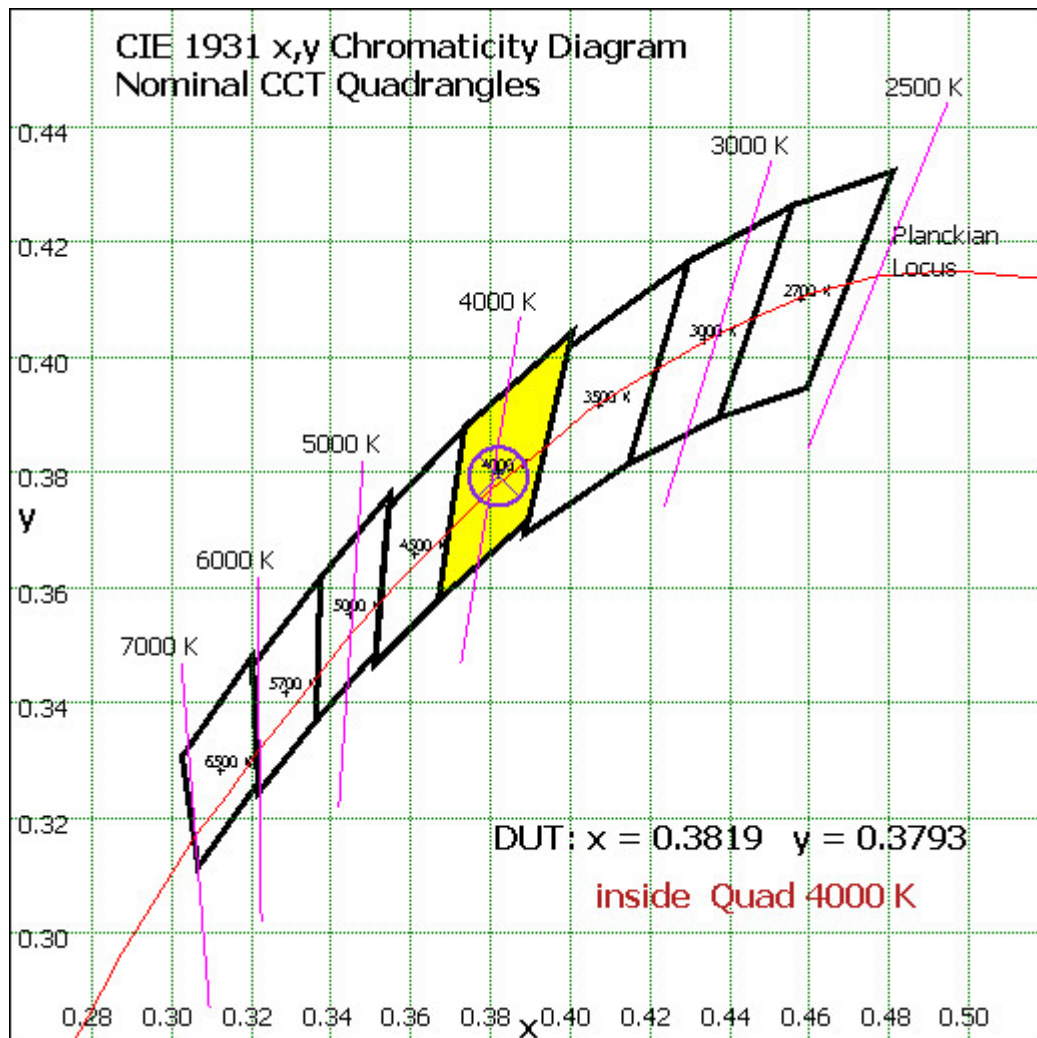


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

### Zonal Lumen Tabulation- Goniophotometer Method

$\gamma(^{\circ})$	Lumens	% Total
0- 10	41.184	3.16%
10- 20	117.993	9.05%
20- 30	179.041	13.74%
30- 40	216.613	16.62%
40- 50	226.344	17.37%
50- 60	207.367	15.91%
60- 70	162.674	12.48%
70- 80	101.07	7.75%
80- 90	42.233	3.24%
90-100	7.849	0.60%
100-110	0.094	0.01%
110-120	0.125	0.01%
120-130	0.145	0.01%
130-140	0.17	0.01%
140-150	0.167	0.01%
150-160	0.131	0.01%
160-170	0.084	0.01%
170-180	0.03	0.00%
Total	1303.3	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	988.542	75.85%
60- 90	305.977	23.48%
0-90	1294.519	99.33%
90- 180	8.795	0.67%
0- 180	1303.3	100%

Table 5: Zonal Lumen Data

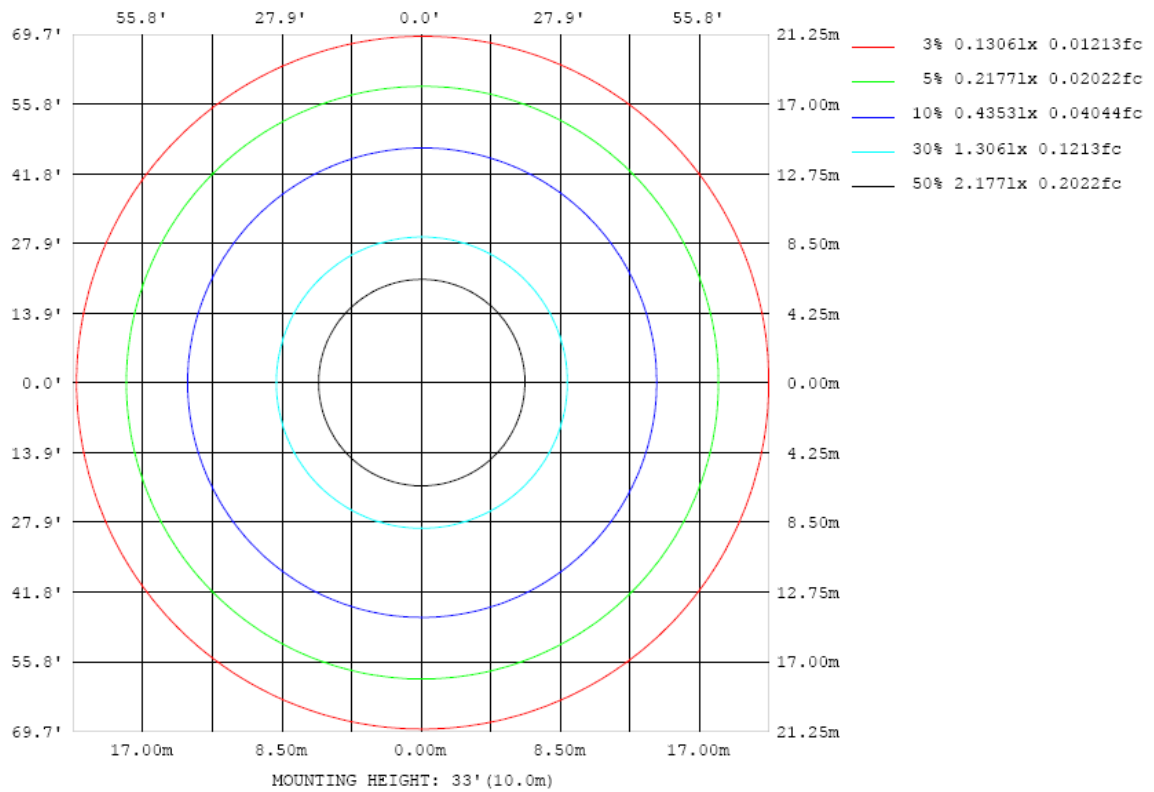


Chart 4: Illuminance Plot (Footcandles)

## Luminous Intensity Distribution Plots- Goniophotometer Method

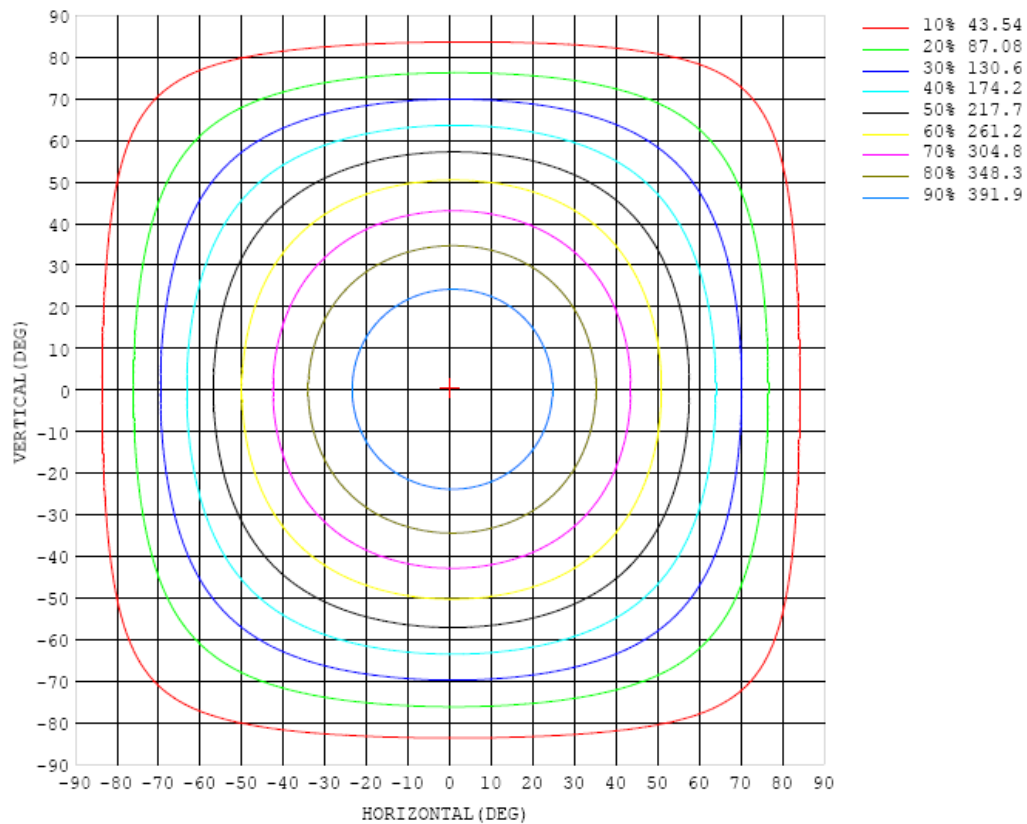


Chart 5: Isocandela Plot

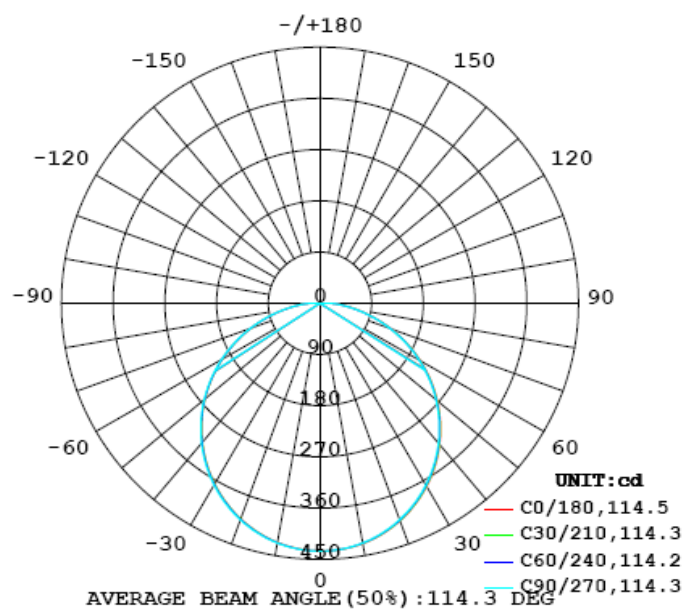


Chart 6: Polar Candela Distribution

## Luminous Intensity Data- Goniophotometer Method

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435
5	434	434	434	434	434	434	434	433	433	433	433	433	433	433	433	433	433	433	433
10	429	429	428	428	428	428	428	428	428	427	427	427	427	427	427	426	427	427	427
15	420	420	419	419	419	419	418	418	418	418	417	417	417	417	417	417	417	417	417
20	407	407	407	406	406	406	405	405	405	404	404	404	404	404	403	403	403	403	403
25	391	391	390	390	390	389	389	389	388	388	388	387	387	387	387	386	386	386	386
30	372	371	371	371	370	370	369	369	369	368	368	367	367	367	367	367	366	366	367
35	349	349	349	348	348	347	347	346	346	346	345	345	345	344	344	344	344	344	344
40	324	324	324	323	323	322	322	321	321	320	320	320	319	319	319	319	318	318	319
45	297	296	296	296	295	295	294	294	293	293	292	292	292	292	291	291	291	291	291
50	267	267	266	266	265	265	264	264	263	263	262	262	262	262	261	261	261	261	261
55	235	235	235	234	234	233	233	232	232	231	231	231	230	230	230	230	230	230	230
60	202	202	201	201	200	200	199	199	199	198	198	198	198	197	197	197	197	196	196
65	167	167	167	166	166	166	165	165	164	164	164	163	163	163	163	162	162	162	162
70	132	132	132	131	131	130	130	130	129	129	129	128	128	128	128	128	127	127	128
75	97.7	97.5	97.2	96.9	96.6	96.1	95.7	95.4	95.1	94.8	94.6	94.4	94.2	94.1	93.9	93.8	93.6	93.3	93.9
80	66.0	65.7	65.6	65.9	64.7	64.6	64.2	64.0	63.8	63.6	63.4	63.1	63.1	63.2	63.0	63.0	62.7	62.6	62.8
85	39.4	39.1	38.8	38.5	38.2	37.9	37.5	37.3	37.2	37.2	37.1	37.1	37.2	37.2	37.3	37.3	37.2	37.1	36.9
90	19.4	19.3	19.1	18.9	18.7	18.5	18.3	18.2	18.1	18.2	18.2	18.4	18.5	18.6	18.7	18.7	18.6	18.5	18.5
95	7.53	7.54	7.49	7.41	7.28	6.38	5.86	6.02	6.72	6.78	7.06	7.11	7.22	7.32	7.42	7.47	7.48	6.66	5.86
100	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.09
105	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.11
110	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.13
115	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.11	0.11	0.12	0.12	0.15
120	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.12	0.13	0.13	0.13	0.13	0.13	0.16
125	0.14	0.15	0.14	0.14	0.14	0.15	0.15	0.15	0.14	0.15	0.15	0.15	0.14	0.15	0.15	0.15	0.15	0.15	0.18
130	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.21
135	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.20	0.20	0.20	0.19	0.20	0.20	0.20	0.20	0.20	0.25
140	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.22	0.22	0.22	0.22	0.22	0.21	0.22	0.22	0.22	0.22	0.22	0.29
145	0.22	0.22	0.22	0.22	0.23	0.22	0.23	0.23	0.23	0.23	0.23	0.23	0.22	0.23	0.23	0.23	0.23	0.23	0.31
150	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.23	0.23	0.23	0.23	0.23	0.22	0.23	0.23	0.23	0.23	0.23	0.33
155	0.22	0.22	0.22	0.22	0.22	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.22	0.23	0.23	0.23	0.23	0.23	0.34
160	0.23	0.23	0.23	0.23	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.23	0.23	0.24	0.24	0.24	0.24	0.34
165	0.25	0.25	0.25	0.25	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.25	0.25	0.25	0.25	0.26	0.26	0.34
170	0.27	0.27	0.27	0.27	0.27	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.27	0.27	0.27	0.27	0.27	0.27	0.34
175	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.33
180	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31

Table 6: Luminous Intensity Data

Table--2

UNIT: cd

C (DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435		
5	433	433	433	433	433	433	433	433	434	434	434	434	434	434	434	434	434		
10	427	427	427	427	427	427	427	428	428	428	428	428	429	429	429	429	429		
15	417	417	417	417	417	418	418	418	418	419	419	419	419	420	420	420	420		
20	403	403	403	404	404	404	405	405	405	406	406	406	407	407	407	407	407		
25	386	386	387	387	387	388	388	388	389	389	390	390	390	391	391	391	391		
30	367	367	367	367	367	368	368	369	369	370	370	371	371	371	372	372	372		
35	344	344	344	344	345	345	345	346	347	347	348	348	349	349	349	349	349		
40	318	319	319	319	319	320	320	321	321	322	322	323	323	324	324	324	324		
45	291	291	291	291	291	292	292	293	294	294	295	295	296	296	297	297	297		
50	261	261	261	261	262	262	263	263	264	264	265	266	266	267	267	267	267		
55	230	230	230	230	230	230	231	231	232	233	233	234	234	235	235	235	235		
60	196	196	196	197	197	197	198	198	199	199	200	200	201	201	202	202	202		
65	162	162	162	162	162	163	163	164	164	165	165	166	166	167	167	168	168		
70	128	128	128	128	128	128	128	129	129	130	131	131	132	132	132	133	133		
75	93.8	93.7	93.6	93.5	93.6	93.8	94.3	94.5	95.0	95.6	96.2	96.7	97.3	97.8	98.2	98.4	98.4		
80	62.6	62.4	62.2	62.1	62.2	62.2	62.5	62.8	63.2	63.8	64.3	64.8	65.4	65.9	66.3	66.5	66.6		
85	36.7	36.4	36.2	36.0	36.0	36.0	36.2	36.4	36.7	37.1	37.6	38.1	38.5	38.9	39.3	39.5	39.6		
90	18.3	18.1	17.9	17.7	17.6	17.5	17.6	17.7	17.8	18.0	18.3	18.5	18.8	19.1	19.4	19.6	19.6		
95	6.54	7.13	6.98	6.84	6.72	6.64	6.59	6.60	6.65	6.72	6.23	5.51	6.48	7.25	7.38	7.47	7.53		
100	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08		
105	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10		
110	0.13	0.13	0.13	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.12	0.12	0.12		
115	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.13		
120	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15		
125	0.18	0.18	0.18	0.18	0.18	0.18	0.17	0.17	0.18	0.18	0.17	0.18	0.18	0.17	0.17	0.17	0.17		
130	0.21	0.21	0.21	0.21	0.21	0.21	0.20	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.20	0.21	0.20		
135	0.25	0.25	0.25	0.25	0.25	0.25	0.24	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.24	0.24	0.24		
140	0.29	0.29	0.29	0.29	0.29	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28		
145	0.32	0.32	0.32	0.31	0.32	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.30		
150	0.33	0.33	0.33	0.33	0.33	0.33	0.32	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.32		
155	0.34	0.34	0.34	0.34	0.34	0.34	0.33	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.33	0.34	0.33		
160	0.34	0.34	0.34	0.34	0.34	0.34	0.33	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34		
165	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.33	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.33		
170	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34		
175	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33		
180	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31		

Table 7: Luminous Intensity Data



## EQUIPMENT LIST

Test Equipment	Model	Equipment No.	Calibration Date	Calibration Due date
Goniophotometer system	GO-R5000	HZTE011-01	Jul. 27, 2016	Jul. 26, 2017
Digital Power Meter	PF2010A	HZTE028-01	Jul. 27, 2016	Jul. 26, 2017
AC Power Supply	PCR 500L	HZTE001-08	Jul. 27, 2016	Jul. 26, 2017
DC Power Supply	WY12010	HZTE004-03	Jul. 27, 2016	Jul. 26, 2017
Temperature Meter	TES1310	HZTE017-01	Jul. 27, 2016	Jul. 26, 2017
Standard source	D908	HZTE012-01	Jul. 27, 2016	Jul. 26, 2017
Integrate Sphere system	2M	HZTE015-01	Jul. 27, 2016	Jul. 26, 2017
Digital Power Meter	WT210	HZTE008-01	Jul. 27, 2016	Jul. 26, 2017
AC Power Supply	PCR 500L	HZTE001-07	Jul. 27, 2016	Jul. 26, 2017
DC Power Supply	6154	HZTE004-04	Jul. 27, 2016	Jul. 26, 2017
Temperature and humidity recorder	JR900	HZTE018-01	Jul. 27, 2016	Jul. 26, 2017
Standard source	SCL-1400	HZTE012-02	Jul. 27, 2016	Jul. 26, 2017

Table 8: Test Equipment List

## TEST METHODS

### Seasoning of SSL Product

For the purpose of rating new SSL products, SSL products shall be tested with no seasoning. Therefore, no seasoning was performed.

### Sphere-Spectroradiometer Method- Photometric and Electrical Measurements

A Labsphere Model CDS 2100 Spectroradiometer and Two Meter Sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit. The coating reflectance of each sphere is 98%. The measure geometry is  $4\pi$ . Self-absorption correction is conducted in testing. Bandwidth of spectroradiometer is 350nm-1050nm.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation.

The stabilization time typically ranges from 30 min (small integrated FA19 Lamps) to 2 or more hours for large SSL luminaires). It can be judged that stability is reached when the variation (maximum – minimum) of at least 3 readings of the light output and electrical power over a period of 30 min, taken 15 minutes apart, is less than 0.5 %.

Electrical measurements including voltage, current, and power were measured using the Yokogawa Power Analyzer.

The standard reference of the integrated sphere system is halogen incandescent lamp, the intensity distribution type is omni-directional, and is traceable to the National Institute of Standards and Technology.

The uncertainty of integrating sphere system reported in this document is expended uncertainty is 1.06% with a coverage factor  $k=2$ .



## **Goniophotometer Method**

### **Photometric and Electrical Measurements**

An EVERFINE Type C Model GO-R5000 Goniophotometer was used to measure the intensity at each angle of distribution for each sample. The photometric distance is 2.475m for near-field measurement or 30m for far-field measurement. Bandwidth of spectroradiometer is 380nm-780nm.

Ambient temperature was measured at the same height of the sample mounted on the Goniophotometer equipment. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation.

The stabilization time typically ranges from 30 min (small integrated FA19 Lamps) to 2 or more hours for large SSL luminaires). It can be judged that stability is reached when the variation (maximum – minimum) of at least 3 readings of the light output and electrical power over a period of 30 min, taken 15 minutes apart, is less than 0.5 %.

Electrical measurements including voltage, current, and power were measured using the Everfine Digital Power Meter.

Some graphics were created with Photometric Plus software.

The standard reference of the Goniophotometer system is halogen incandescent lamp, the intensity distribution type is omni-directional, and is traceable to the National Institute of Metrology P.R. China.

The uncertainty of goniophotometer system reported in this document is expanded uncertainty is 1.94% with a coverage factor  $k=2$ .

### **Color Characteristics Measurements**

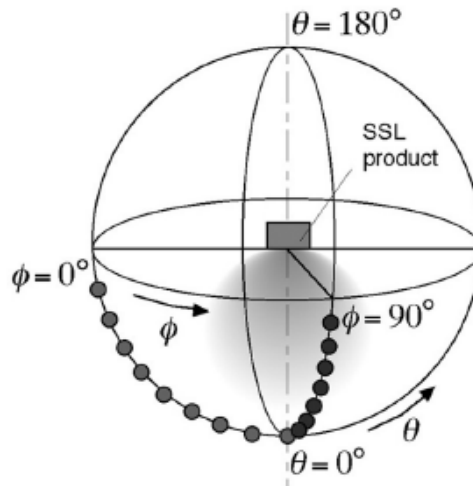
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as values that are spatially average, weighted to intensity, over the angular range where light is intentionally emitted from the SSL product. The color characteristics measurements are using gonio-spectroradiometer.

### **Color Spatial Uniformity**

The characteristics of SSL products may be spatially non-uniform, the chromaticity coordinate shall be measured at two vertical planes ( $C=0^\circ/180^\circ$  and  $C=90^\circ/270^\circ$ ) and at  $10^\circ$  or less intervals for vertical angle until the light output dropped to below 10% of the peak intensity. The averaged weighted chromaticity coordinate was calculated from these points. The data was then analyzed to check for delta color differences of the  $u'$ ,  $v'$  chromaticity coordinates. The spatial non-uniformity of chromaticity,  $\Delta u'v'$ , is determined as the maximum

deviation (distance on the CIE ( $u'$ ,  $v'$ ) diagram) among all measured points from the spatially averaged chromaticity coordinate.

The geometry for the chromaticity measurement using gonio-spectroradiometer is shown as following.



\*\*\* End of Report \*\*\*

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