LM-79-08 TEST REPORT

for

GREEN CREATIVE LTD

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

LED Lamp

Model: 9A19/930/277V

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Report No.: HZ19040047d

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

Review by:

Engineer: April Zou
May 10, 2019

Approved by:

Manager: Jim Zhang
May 10, 2019

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: **9A19/930/277V**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
108.5	974.0	8.98	0.9453

CCT (K)	CRI	Stabilization Time (Light & Power)
3079	94.0	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	: Apr. 26, 2019
Date of Test	: May 01, 2019
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 ANSI/IES TM-30-18 IES Method for Evaluating Light Source Color Rendition

TABLE OF CONTENT

SAMPLE PHOTO

Figure 1- Overview of the sample

Equipment Under Test(EUT)	
Name	: LED Lamp
Model	: 9A19/930/277V
Electrical Ratings	: 120-277V, 60Hz, 9W
Product Description	: 3000K
Manufacturer	: GREEN CREATIVE LTD
Address	: 756 North Zhongshan Rd., Unit B301 Zhabei District, Shanghai

TEST RESULTS

Test ambient temperature was 26.0℃.

Base orientation was base up. 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 65 minutes.

Sphere-Spectroradiometer Method

Parameter	Result	
Test Voltage (V)	120.0	277.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.079	0.038
Power Factor	0.9453	0.8564
Test Power (W)	8.98	9.04
THD A%	31.04	33.36
Luminous Efficacy (lm/W)	108.5	108.3
Total Luminous Flux (lm)	974.0	979.3
Color Rendering Index (CRI)	94.0	
R9	62.3	
Correlated Color Temperature (CCT)(K)	3079	
Chromaticity Chroma x	0.4287	
Chromaticity Chroma y	0.3966	
Chromaticity Chroma u	0.2485	
Chromaticity Chroma v	0.3448	
Duv	0.0024	
Chromaticity Chroma u ’	0.2485	
Chromaticity Chroma v’	0.5172	

Special Color Rendering Indices	
R1	97.7
R2	96.4
R3	93.1
R4	94.6
R5	96.4
R6	95.8
R7	93.1
R8	84.9
R9	62.3
R10	89.1
R11	92.7
R12	81.9
R13	97.8
R14	94.7

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 24.7℃.

The photometric distance is 2.47 m.

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)	0.079
Power Factor	0.9489
Power (W)	8.96
Luminous Efficacy (lm/W)	109.0
Total Luminous Flux (lm)	976.8
Beam Angle (°)	223.3（0^o-180^o）/ 223.4（90^o-270^o）
Center Beam Candle Power (cd)	120
Maximum Beam Candle Power (cd)	120.3 (At: C=40.0, Gamma=19.0)
Spacing Criteria	1.50（0^o-180^o）/1.50 (90^o-270^o)
Zonal Lumens in the 0 °-60 °Zone	37.08%
Zonal Lumens in the 60 °-90 °Zone	30.75%
Zonal Lumens in the 90 °-120 °Zone	21.69%
Zonal Lumens in the 120 °-180 °Zone	10.48%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

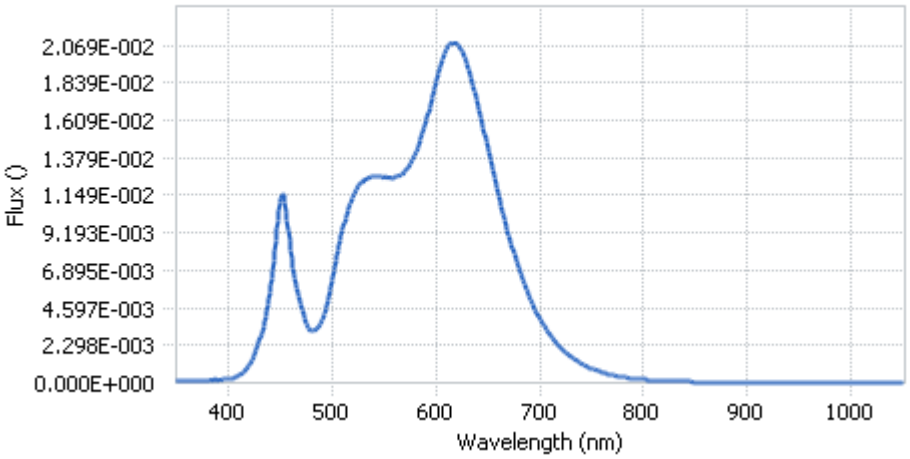
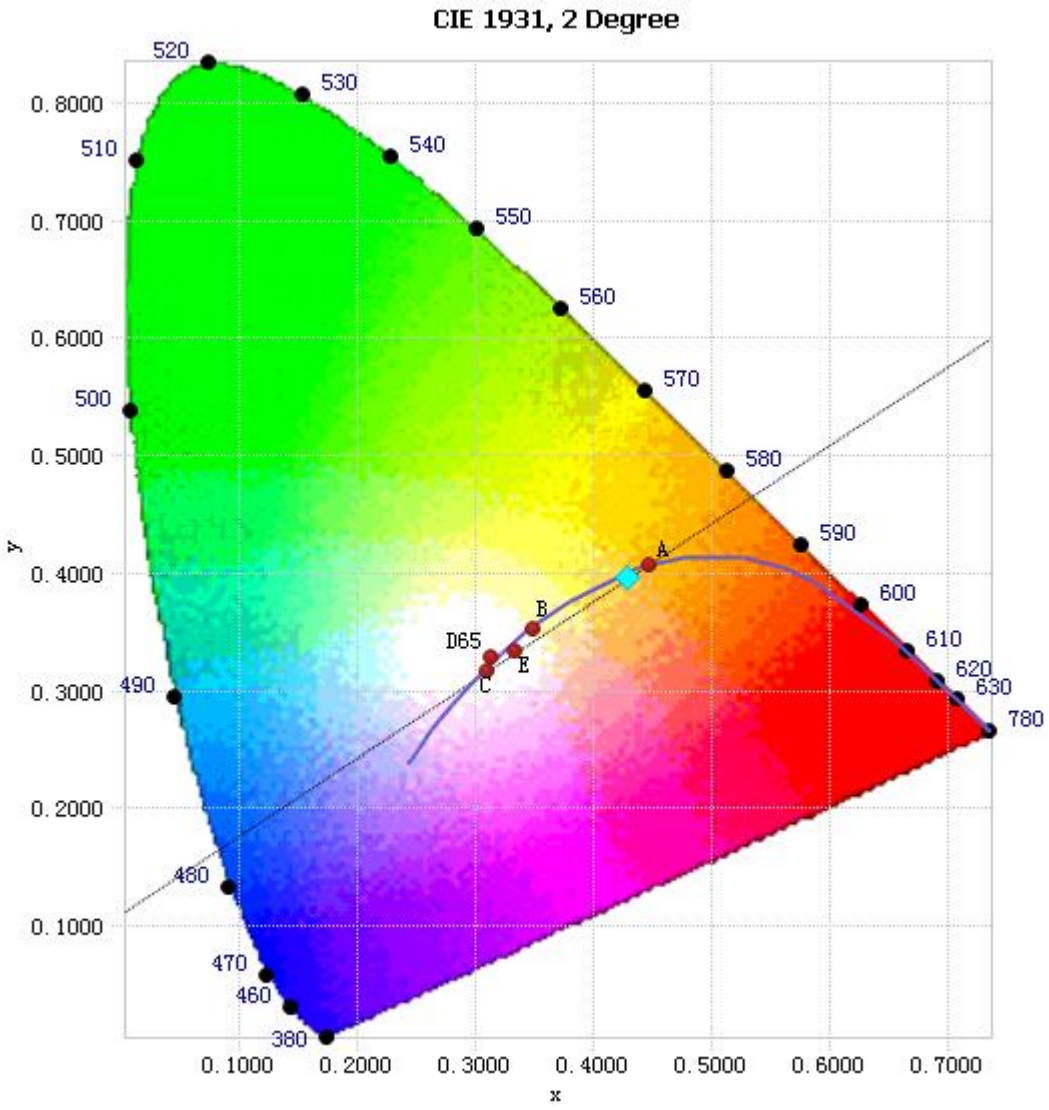


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	1.67E-04	485	3.30E-03	590	1.58E-02	695	4.60E-03
385	1.62E-04	490	3.82E-03	595	1.71E-02	700	3.98E-03
390	1.76E-04	495	4.79E-03	600	1.84E-02	705	3.43E-03
395	2.04E-04	500	6.23E-03	605	1.95E-02	710	2.93E-03
400	2.47E-04	505	7.81E-03	610	2.04E-02	715	2.53E-03
405	2.98E-04	510	9.29E-03	615	2.08E-02	720	2.19E-03
410	4.27E-04	515	1.06E-02	620	2.08E-02	725	1.87E-03
415	6.66E-04	520	1.14E-02	625	2.03E-02	730	1.61E-03
420	1.05E-03	525	1.20E-02	630	1.96E-02	735	1.38E-03
425	1.65E-03	530	1.23E-02	635	1.84E-02	740	1.17E-03
430	2.53E-03	535	1.25E-02	640	1.73E-02	745	1.00E-03
435	3.75E-03	540	1.26E-02	645	1.59E-02	750	8.68E-04
440	5.47E-03	545	1.26E-02	650	1.44E-02	755	7.38E-04
445	8.05E-03	550	1.26E-02	655	1.31E-02	760	6.34E-04
450	1.11E-02	555	1.26E-02	660	1.17E-02	765	5.46E-04
455	1.10E-02	560	1.26E-02	665	1.04E-02	770	4.73E-04
460	8.08E-03	565	1.27E-02	670	9.15E-03	775	4.03E-04
465	6.04E-03	570	1.30E-02	675	8.03E-03	780	3.50E-04
470	4.81E-03	575	1.33E-02	680	7.03E-03		
475	3.74E-03	580	1.40E-02	685	6.13E-03		
480	3.21E-03	585	1.48E-02	690	5.31E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4287, 0.3966)

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

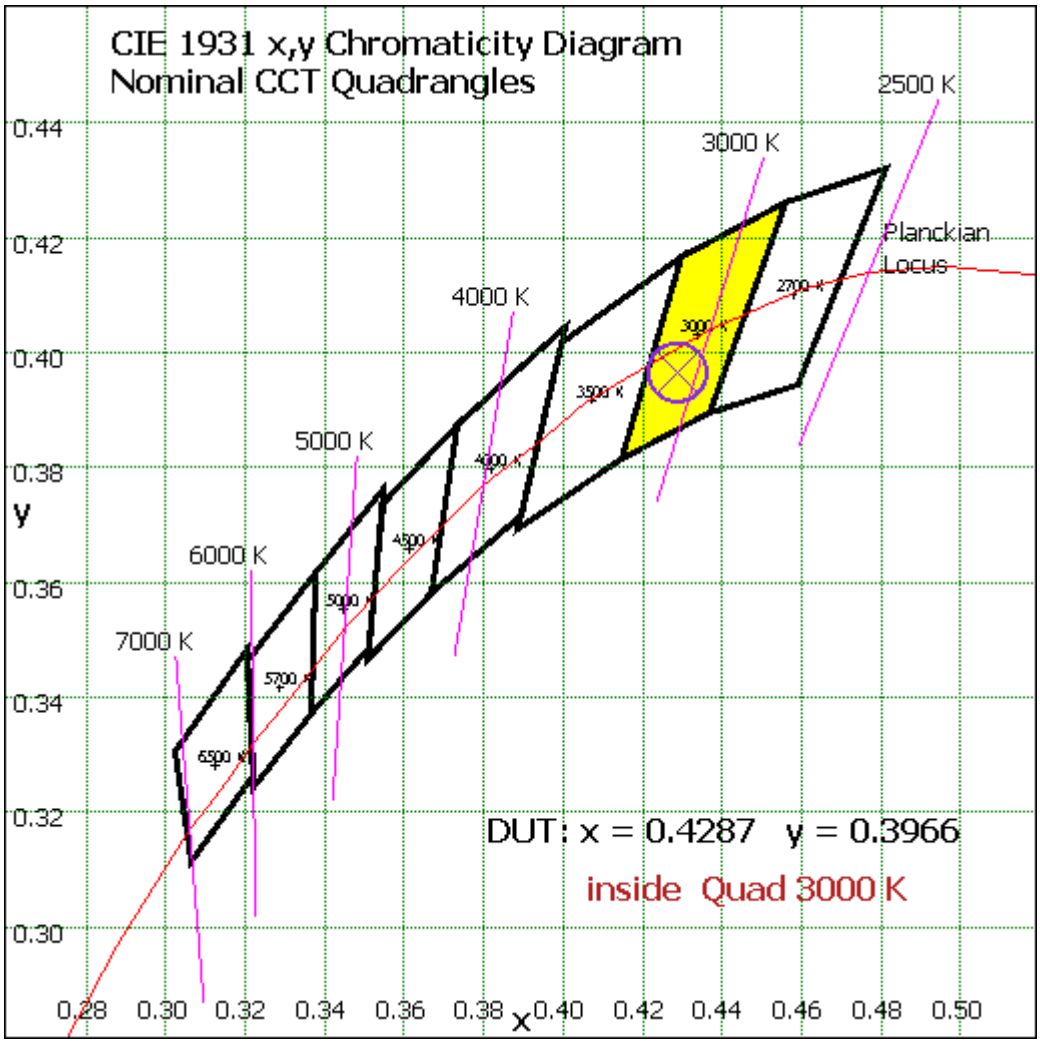
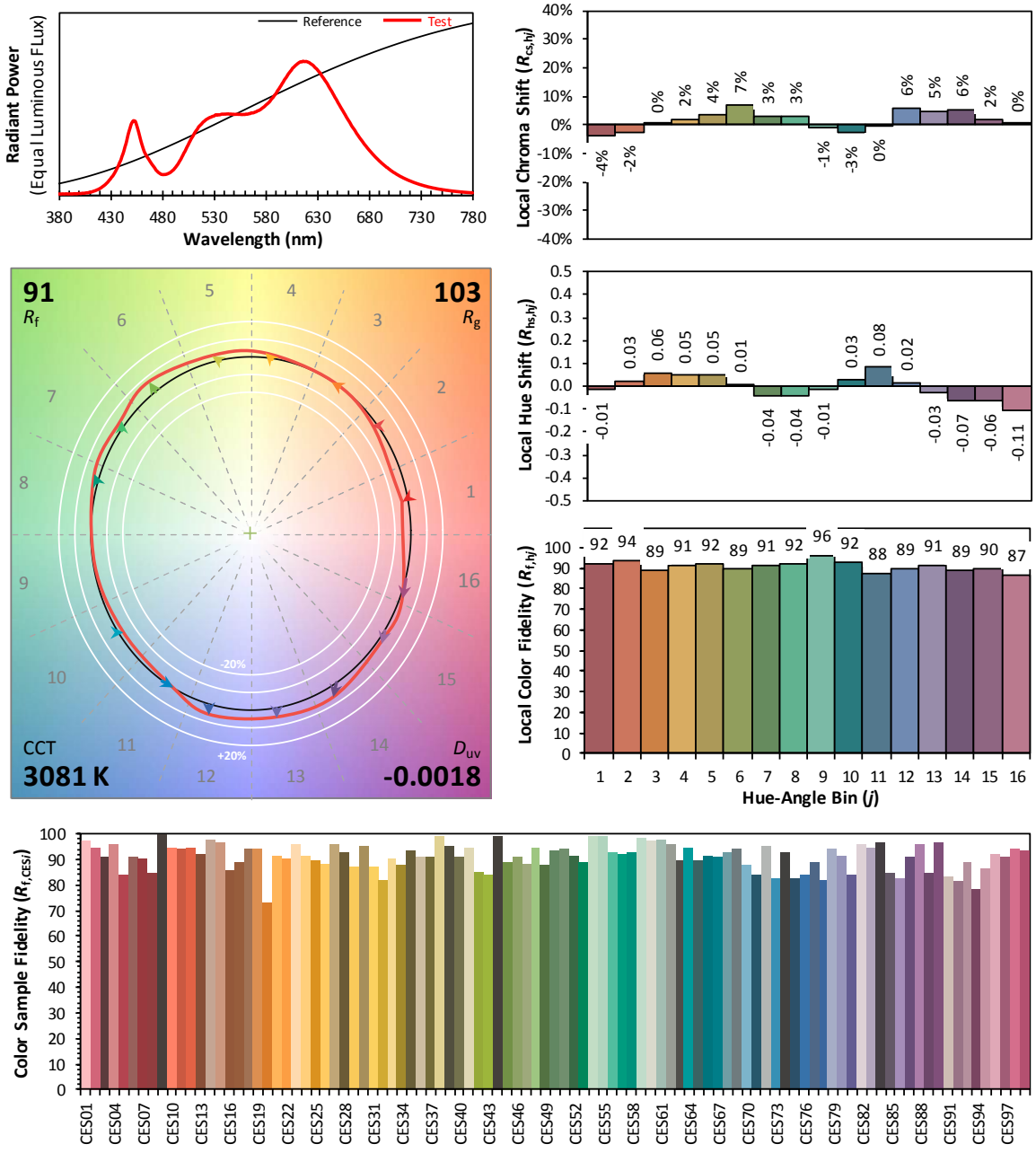


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4287
y	0.3966
u'	0.2485
v'	0.5172

Chart 4: Full Report Created with the IES TM-30 Calculator

Note: The values in this diagram might be a little different from the values in Table 2 due to rounding.

Zonal Lumen Tabulation- Goniophotometer Method

γ(°)	Lumens	% Total
0- 10	11.423	1.17%
10- 20	33.868	3.47%
20- 30	55.077	5.64%
30- 40	73.924	7.57%
40- 50	88.956	9.11%
50- 60	98.969	10.13%
60- 70	103.277	10.57%
70- 80	101.851	10.43%
80- 90	95.245	9.75%
90-100	84.489	8.65%
100-110	71.002	7.27%
110-120	56.345	5.77%
120-130	41.934	4.29%
130-140	28.937	2.96%
140-150	18.073	1.85%
150-160	9.598	0.98%
160-170	3.548	0.36%
170-180	0.319	0.03%
Total	976.8	100%

γ(°)	Lumens	% Total
0-130	916.36	93.81%
130-180	60.475	6.19%
0-180	976.8	100%

Table 5: Zonal Lumen

Illuminance Plots- Goniophotometer Method

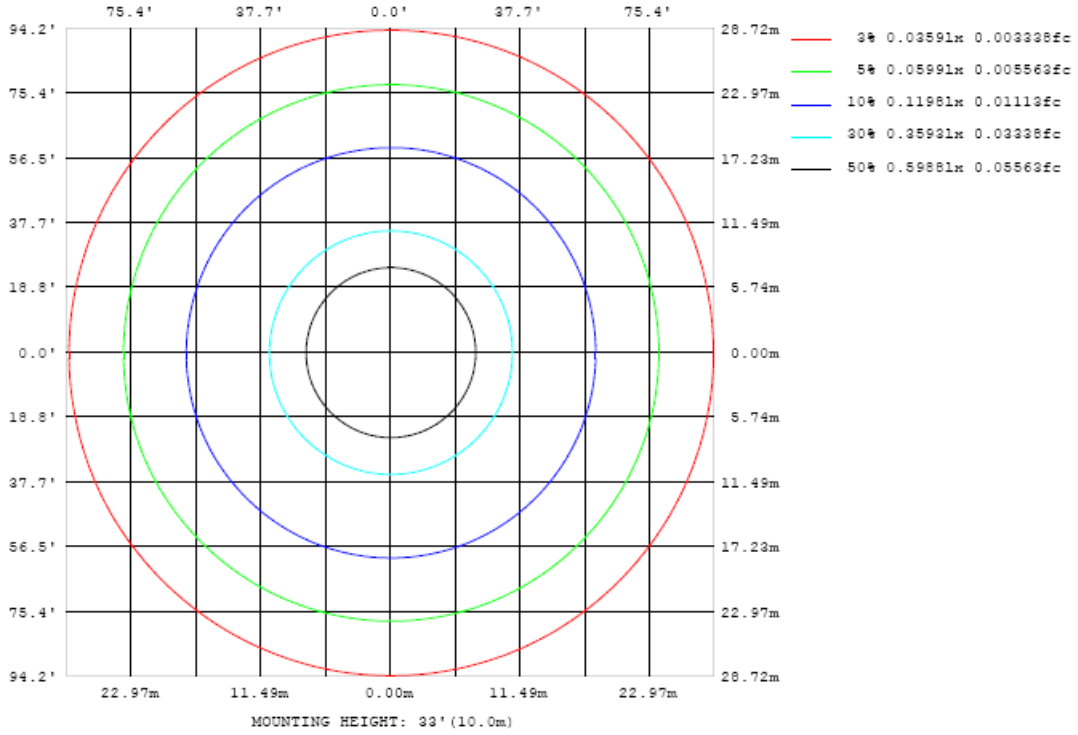


Chart 5: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

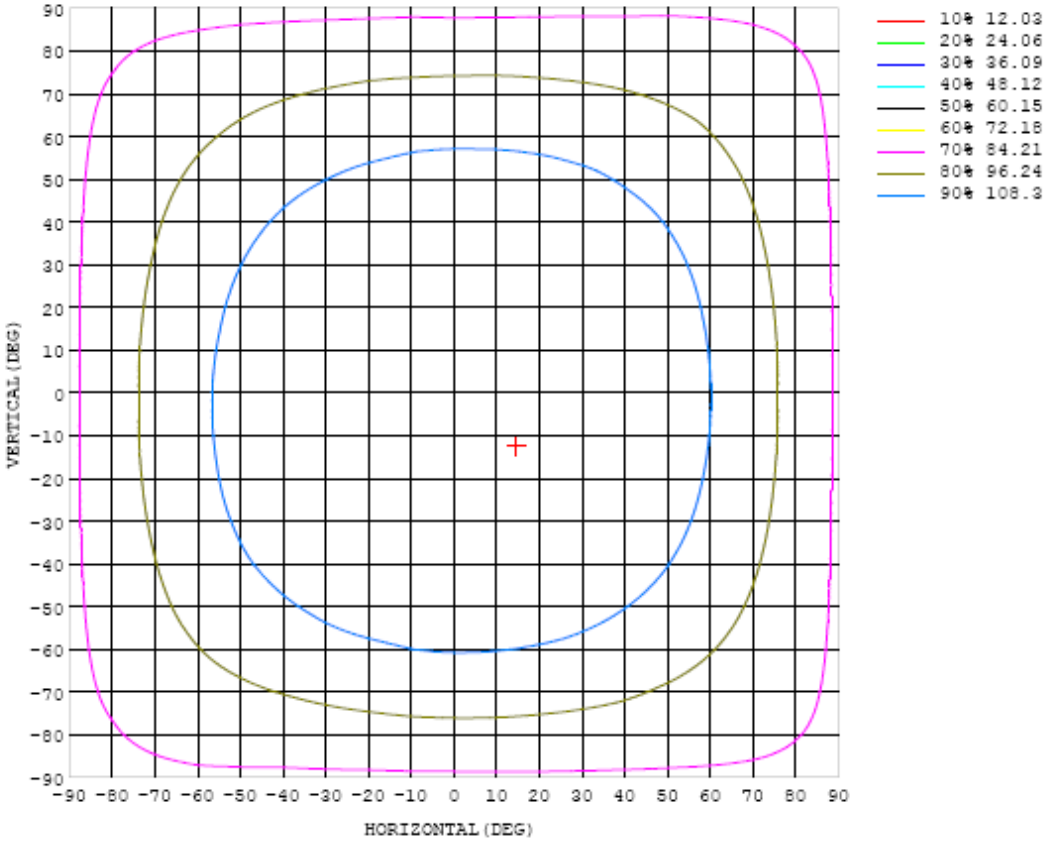


Chart 6: Isocandela Plot

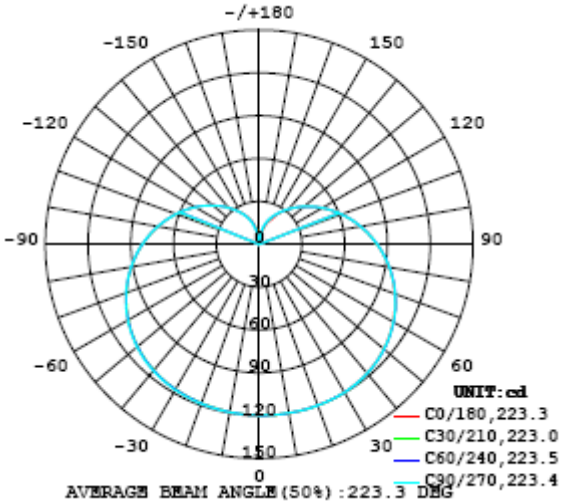


Chart 7: Polar Candela Distribution

Luminous Intensity Data- Goniophotometer Method

Table--1 UNIT: cd

γ (DEG) \ C (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
5	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
10	120	120	120	120	120	120	120	120	120	120	120	120	120	120	119	120	120	119	119
15	120	120	120	120	120	120	120	120	120	120	120	120	120	119	119	119	119	119	119
20	120	120	120	120	120	120	120	120	120	120	120	120	119	119	119	119	119	119	119
25	120	120	120	120	120	120	120	120	120	120	120	119	119	119	119	119	119	118	118
30	120	120	120	120	120	120	120	120	120	119	119	119	119	118	118	118	118	118	118
35	119	119	119	119	119	119	119	119	119	119	119	118	118	118	117	117	117	117	117
40	118	118	118	118	118	118	118	118	118	118	118	117	117	117	116	116	116	116	115
45	116	116	116	116	116	116	116	116	116	116	116	116	115	115	115	115	114	114	114
50	114	114	114	114	114	114	114	114	114	114	114	114	113	113	113	113	112	112	112
55	111	112	112	112	112	112	112	112	112	112	111	111	111	111	110	110	110	110	109
60	108	108	109	109	109	109	109	109	109	109	109	108	108	108	107	107	107	107	106
65	105	105	105	105	105	105	105	105	105	105	105	105	104	104	104	104	104	103	103
70	101	101	101	102	101	101	102	102	102	101	101	101	101	101	100	100	100	99.7	99.3
75	96.9	97.0	97.1	97.1	97.2	97.3	97.5	97.4	97.1	97.1	97.0	96.9	96.5	96.5	96.5	96.6	96.2	95.7	95.4
80	92.5	92.6	92.6	92.7	92.7	92.7	92.7	92.7	92.7	92.5	92.5	92.3	92.1	92.1	92.2	92.3	91.8	91.3	91.2
85	87.7	87.7	87.8	87.8	87.7	87.9	87.9	87.8	87.8	87.8	87.7	87.6	87.4	87.3	87.5	87.7	87.3	86.8	86.7
90	82.7	82.7	82.7	82.7	82.7	82.8	82.9	82.9	82.7	82.7	82.6	82.5	82.4	82.5	82.7	82.9	82.5	82.1	82.0
95	77.6	77.6	77.6	77.5	77.4	77.6	77.6	77.7	77.7	77.5	77.5	77.4	77.3	77.5	77.5	77.8	77.6	77.1	77.1
100	72.3	72.2	72.3	72.2	72.2	72.2	72.4	72.3	72.3	72.2	72.4	72.3	72.0	72.3	72.4	72.6	72.5	72.2	72.2
105	67.0	66.9	67.0	66.9	66.8	66.8	67.0	66.8	66.8	66.9	66.9	66.9	67.0	67.1	67.1	67.3	67.2	67.0	67.1
110	61.6	61.5	61.5	61.4	61.5	61.4	61.5	61.5	61.5	61.6	61.6	61.5	61.7	61.7	61.9	62.1	62.1	62.0	61.9
115	56.3	56.3	56.2	56.2	56.1	56.1	56.2	56.3	56.3	56.3	56.4	56.5	56.4	56.5	56.8	57.0	57.0	56.8	57.0
120	51.1	51.1	51.0	50.9	50.9	50.8	51.0	51.0	51.1	51.2	51.2	51.3	51.4	51.6	51.7	51.9	51.9	51.8	52.0
125	46.1	46.0	46.0	45.9	45.9	45.9	45.9	46.0	46.1	46.2	46.3	46.3	46.5	46.6	46.8	47.0	47.1	47.0	47.1
130	41.2	41.1	41.1	41.1	41.0	41.1	41.2	41.2	41.3	41.3	41.4	41.5	41.7	41.8	42.0	42.2	42.3	42.3	42.4
135	36.6	36.5	36.4	36.3	36.4	36.4	36.5	36.6	36.7	36.8	36.9	36.9	37.1	37.3	37.5	37.6	37.7	37.8	37.8
140	32.2	32.1	32.1	32.0	32.1	32.1	32.2	32.3	32.3	32.5	32.6	32.6	32.8	33.0	33.1	33.3	33.5	33.5	33.5
145	27.9	28.0	28.0	27.9	28.0	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.8	28.9	29.1	29.3	29.4	29.4	29.4
150	23.2	24.3	24.2	24.2	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	25.1	25.2	25.3	25.5	25.6	25.6	25.7
155	18.5	20.7	20.6	20.6	20.7	20.8	20.9	21.1	21.2	21.3	21.4	21.5	21.7	21.8	21.9	22.0	22.1	22.2	22.2
160	15.6	16.6	16.8	16.8	17.0	17.3	17.5	17.6	17.7	17.9	18.2	18.2	18.4	18.5	18.6	18.6	18.7	18.7	18.7
165	11.1	12.1	12.5	12.6	12.9	13.3	13.6	13.7	13.9	14.3	14.6	14.7	14.8	14.9	15.0	15.0	15.0	14.8	14.8
170	4.09	5.08	5.99	7.27	8.07	8.64	8.97	8.97	9.39	10.1	10.4	10.5	10.7	10.8	10.9	10.9	10.6	10.2	10.1
175	0.04	0.04	0.05	0.05	0.11	0.54	1.28	2.06	2.59	2.97	3.35	3.75	4.02	4.10	4.02	3.82	3.65	3.52	3.21
180	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

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	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120		
5	119	119	120	120	120	120	120	119	119	119	120	120	120	120	120	120	120		
10	119	119	119	119	119	119	119	119	119	119	119	120	120	120	120	120	120		
15	119	119	119	119	119	119	119	119	119	119	119	120	119	120	120	120	120		
20	118	118	118	118	118	118	119	119	119	119	119	119	119	119	120	120	120		
25	118	118	118	118	118	118	118	118	118	119	119	119	119	119	120	120	120		
30	117	117	117	117	117	117	118	118	118	118	118	118	119	119	119	119	119		
35	116	116	116	116	116	117	117	117	117	117	117	118	118	118	118	119	119		
40	115	115	115	115	115	115	115	116	116	116	116	116	117	117	117	117	117		
45	113	113	113	113	113	114	114	114	114	114	114	115	115	115	116	116	116		
50	112	111	111	111	111	111	112	112	112	112	112	113	113	113	114	114	114		
55	109	109	109	109	109	109	109	109	109	110	110	110	110	111	111	111	111		
60	106	106	106	106	106	106	106	106	106	107	107	107	108	108	108	108	108		
65	103	103	103	103	103	103	103	103	103	103	104	104	104	105	105	105	105		
70	99.1	99.0	99.1	99.1	99.1	99.2	99.3	99.6	99.6	99.7	100	100	101	101	101	101	101		
75	95.1	95.1	95.2	95.2	95.2	95.4	95.4	95.6	95.6	95.9	96.0	96.3	96.6	96.9	97.0	97.1	97.0		
80	90.9	90.9	90.8	90.9	91.0	91.2	91.2	91.2	91.5	91.5	91.8	91.8	92.3	92.6	92.7	92.6	92.5		
85	86.4	86.5	86.4	86.4	86.6	86.8	86.6	86.8	86.9	86.9	87.2	87.3	87.6	87.9	88.2	87.9	87.7		
90	81.7	81.8	81.8	81.8	81.9	82.0	81.9	82.2	82.2	82.3	82.3	82.7	82.9	82.9	83.3	82.9	82.7		
95	77.0	77.0	76.9	77.1	77.1	77.2	77.2	77.3	77.3	77.3	77.4	77.6	77.8	78.0	78.1	77.8	77.6		
100	71.9	72.0	72.0	72.1	72.1	72.2	72.2	72.3	72.3	72.3	72.3	72.5	72.7	72.8	72.8	72.5	72.3		
105	67.0	66.9	67.0	67.1	67.1	67.1	67.2	67.2	67.2	67.1	67.2	67.3	67.4	67.5	67.5	67.2	67.0		
110	61.9	61.9	61.9	62.1	62.1	62.2	62.1	62.0	62.1	62.1	62.0	62.2	62.3	62.1	62.1	62.0	61.6		
115	56.9	56.9	57.0	57.0	57.1	57.1	57.0	57.0	57.1	57.0	57.0	57.1	57.0	57.0	56.8	56.6	56.3		
120	52.0	52.0	52.0	52.0	52.0	52.0	52.1	52.0	51.9	52.0	51.9	51.9	51.9	51.7	51.6	51.4	51.3		
125	47.1	47.1	47.2	47.2	47.1	47.2	47.2	47.2	47.0	47.0	46.9	47.0	46.8	46.7	46.5	46.4	46.3		
130	42.4	42.4	42.4	42.5	42.4	42.4	42.4	42.3	42.2	42.2	42.0	42.1	42.0	41.8	41.7	41.5	41.3		
135	37.9	37.9	37.9	37.9	37.8	37.9	37.8	37.7	37.6	37.5	37.4	37.3	36.9	37.1	37.0	36.7	36.6		
140	33.6	33.6	33.6	33.5	33.5	33.4	33.4	33.3	33.2	33.1	33.0	32.8	31.6	32.7	32.6	32.0	31.9		
145	29.5	29.5	29.5	29.4	29.4	29.3	29.2	29.2	29.1	29.0	28.8	28.6	26.4	27.3	27.6	26.7	27.0		
150	25.8	25.7	25.6	25.6	25.5	25.4	25.4	25.3	25.2	25.0	24.8	24.3	22.1	21.7	22.0	21.9	22.4		
155	22.2	22.1	22.0	21.9	21.9	21.7	21.6	21.5	21.4	21.0	19.8	19.3	18.2	15.6	14.9	14.7	16.6		
160	18.8	18.6	18.3	18.1	18.1	17.8	17.6	17.5	16.9	15.7	14.2	11.1	5.94	3.57	7.65	10.8	14.0		
165	14.8	14.6	14.0	13.7	13.5	13.3	13.0	12.5	11.1	9.45	6.61	2.40	3.17	6.85	6.38	8.48	10.5		
170	10.1	9.91	9.62	8.73	7.75	6.98	6.09	4.89	3.60	2.38	1.54	0.99	0.33	0.36	1.02	1.60	2.76		
175	2.56	1.69	0.82	0.18	0.01	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03		
180	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03		

Table 7: Luminous Intensity Data

EQUIPMENT LIST

Test Equipment	Model	Equipment No.	Calibration Date	Calibration Due date
Goniophotometer system	GO-R5000	HZTE011-01	Aug. 14, 2018	Aug. 13, 2019
Digital Power Meter	PF2010A	HZTE028-01	Sep. 12, 2018	Sep. 11, 2019
AC Power Supply	DPS1060	HZTE001-06	Aug. 09, 2018	Aug. 08, 2019
DC Power Supply	WY12010	HZTE004-03	Aug. 09, 2018	Aug. 08, 2019
Temperature recorder	JM624U	HZTE018-08	Aug. 09, 2018	Aug. 08, 2019
Temperature and humidity recorder	JR900	HZTE018-01	Aug. 09, 2018	Aug. 08, 2019
Standard source	D908	HZTE012-01	Aug. 14, 2018	Aug. 13, 2019
Integrate Sphere system	3M	HZTE015-04	Aug. 16, 2018	Aug. 15, 2019
Digital Power Meter	WT210	HZTE008-01	Aug. 02, 2018	Aug. 01, 2019
AC Power Supply	PCR 500L	HZTE001-07	Aug. 09, 2018	Aug. 08, 2019
DC Power Supply	IT6154	HZTE004-04	Aug. 09, 2018	Aug. 08, 2019
Standard source	SCL-1400	HZTE012-02	Aug. 16, 2018	Aug. 15, 2019
Temperature and humidity recorder	JR900	HZTE018-02	Aug. 09, 2018	Aug. 08, 2019
Temperature Meter	TES1310	HZTE017-01	Aug. 09, 2018	Aug. 08, 2019

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 4π. 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 LED 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.

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The uncertainty of integrating sphere system reported in this document is expended uncertainty is 2.1% 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 LED 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 expended uncertainty is 2.3% with a coverage factor k=2.

Color Characteristics Measurements

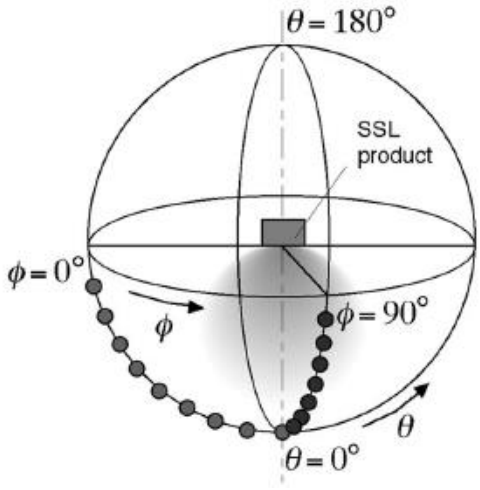
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as 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°/180° and C=90°/270°) and at 10° 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, Δu'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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