LM-79-08 TEST REPORT

for

GREEN CREATIVE LTD

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

LED Lamp

Model: 9.5PLO/835/DIR

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Report No.: HZ19120026g

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

Review by: April Zou

Engineer: April Zou
Dec. 27, 2019

Approved by: Jim Zhang

Manager: Jim Zhang
Dec. 27, 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: **9.5PLO/835/DIR**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)/2	Power Factor
111.0	1330.2	11.99	0.9947

CCT (K)	CRI	Stabilization Time (Light & Power)
3444	81.7	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	: Dec. 19, 2019
Date of Test	: Dec. 25, 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

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SAMPLE PHOTO

Figure 1- Overview of the sample

Equipment Under Test(EUT)	
Name	: LED Lamp
Model	: 9.5PLO/835/DIR
Electrical Ratings	: 120-277V, 50/60Hz, 9.5W
Product Description	: 3500K LED lamps supplied by a high frequency fluorescent lamp ballast: C2642UNVME
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)	0.201	0.890
Power Factor	0.9947	0.9779
Test Power (W)/2	11.99	12.06
THD A%	8.26	8.59
Luminous Efficacy (lm/W)	111.0	110.3
Total Luminous Flux (lm)	1330.2	1329.5
Color Rendering Index (CRI)	81.7	
R9	5.4	
Correlated Color Temperature (CCT)(K)	3444	
Chromaticity Chroma x	0.4085	
Chromaticity Chroma y	0.3926	
Chromaticity Chroma u	0.2370	
Chromaticity Chroma v	0.3417	
Duv	0.0002	
Chromaticity Chroma u ’	0.2370	
Chromaticity Chroma v’	0.5125	

Special Color Rendering Indices	
R1	80
R2	89.3
R3	95.6
R4	79.3
R5	79.5
R6	85.2
R7	84.2
R8	60.8
R9	5.4
R10	74.3
R11	77.3
R12	61.2
R13	82.3
R14	97.8

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 25.1 ℃.

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)	0.202
Power Factor	0.9954
Power (W)/2	12.07
Luminous Efficacy (lm/W)	110.5
Total Luminous Flux (lm)	1333.2
Beam Angle (°)	336.5 (0^o-180^o) / 329.3 (90^o-270^o)
Center Beam Candle Power (cd)	11.0
Maximum Beam Candle Power (cd)	149.4 (At: C=200.0, Gamma=88.5)
Spacing Criteria	5.10 (0^o-180^o) / 5.06 (90^o-270^o)
Zonal Lumens in the 0 °-60 °Zone	19.49%
Zonal Lumens in the 60 °-90 °Zone	32.68%
Zonal Lumens in the 90 °-120 °Zone	31.51%
Zonal Lumens in the 120 °-180 °Zone	16.32%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

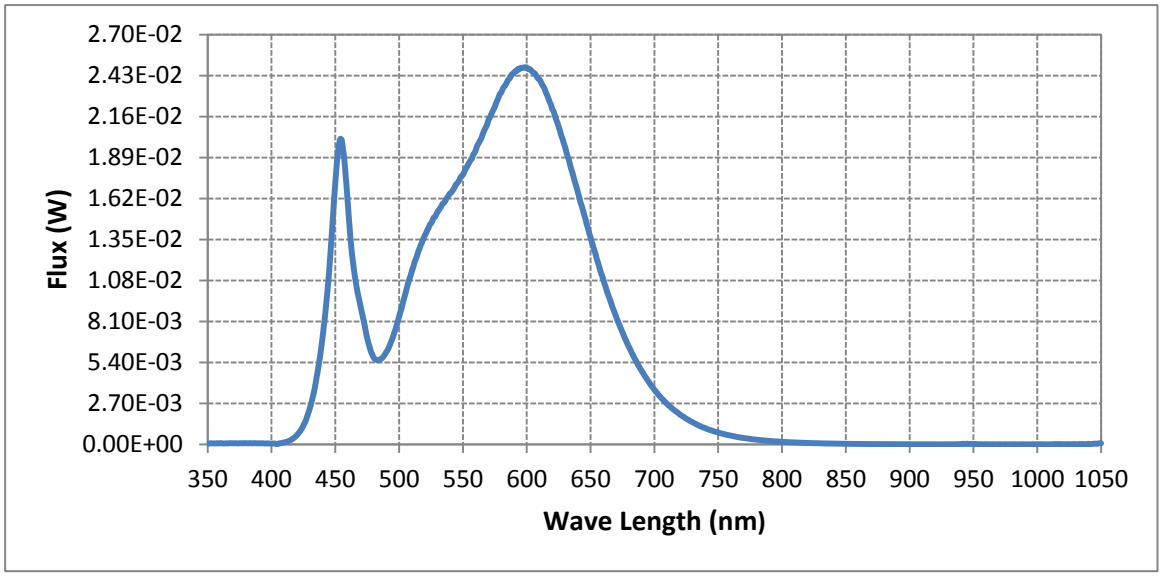
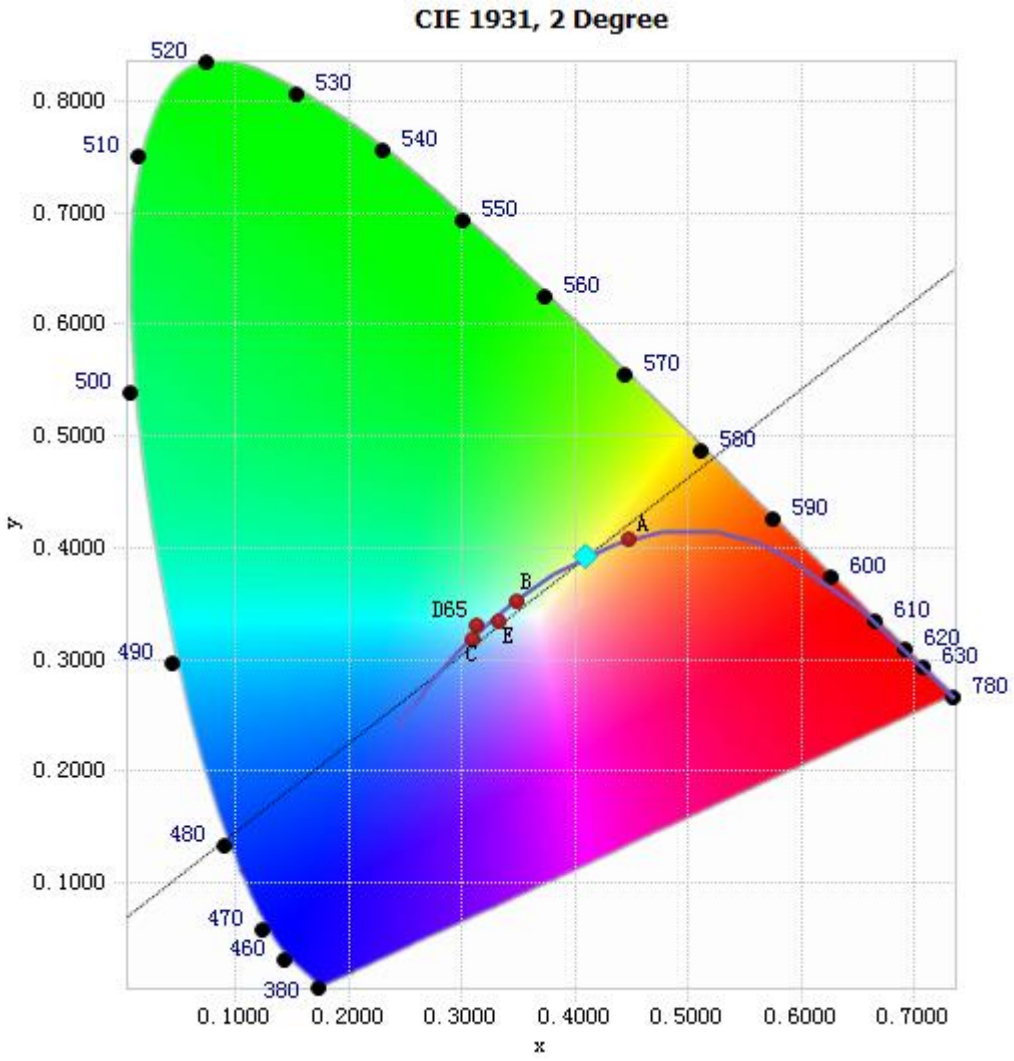


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	8.81E-05	485	5.59E-03	590	2.45E-02	695	4.20E-03
385	7.61E-05	490	6.10E-03	595	2.48E-02	700	3.61E-03
390	8.03E-05	495	7.05E-03	600	2.48E-02	705	3.10E-03
395	6.46E-05	500	8.43E-03	605	2.45E-02	710	2.67E-03
400	6.38E-05	505	9.97E-03	610	2.40E-02	715	2.30E-03
405	3.33E-05	510	1.14E-02	615	2.32E-02	720	1.98E-03
410	1.32E-04	515	1.27E-02	620	2.21E-02	725	1.70E-03
415	2.90E-04	520	1.37E-02	625	2.09E-02	730	1.46E-03
420	6.27E-04	525	1.46E-02	630	1.96E-02	735	1.24E-03
425	1.25E-03	530	1.53E-02	635	1.81E-02	740	1.07E-03
430	2.38E-03	535	1.59E-02	640	1.66E-02	745	9.14E-04
435	4.25E-03	540	1.66E-02	645	1.51E-02	750	7.85E-04
440	7.06E-03	545	1.72E-02	650	1.36E-02	755	6.72E-04
445	1.12E-02	550	1.78E-02	655	1.22E-02	760	5.81E-04
450	1.72E-02	555	1.86E-02	660	1.09E-02	765	4.95E-04
455	2.01E-02	560	1.94E-02	665	9.59E-03	770	4.28E-04
460	1.56E-02	565	2.03E-02	670	8.42E-03	775	3.67E-04
465	1.13E-02	570	2.14E-02	675	7.39E-03	780	3.15E-04
470	9.01E-03	575	2.23E-02	680	6.44E-03		
475	6.99E-03	580	2.32E-02	685	5.59E-03		
480	5.73E-03	585	2.40E-02	690	4.86E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4085, 0.3926)

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

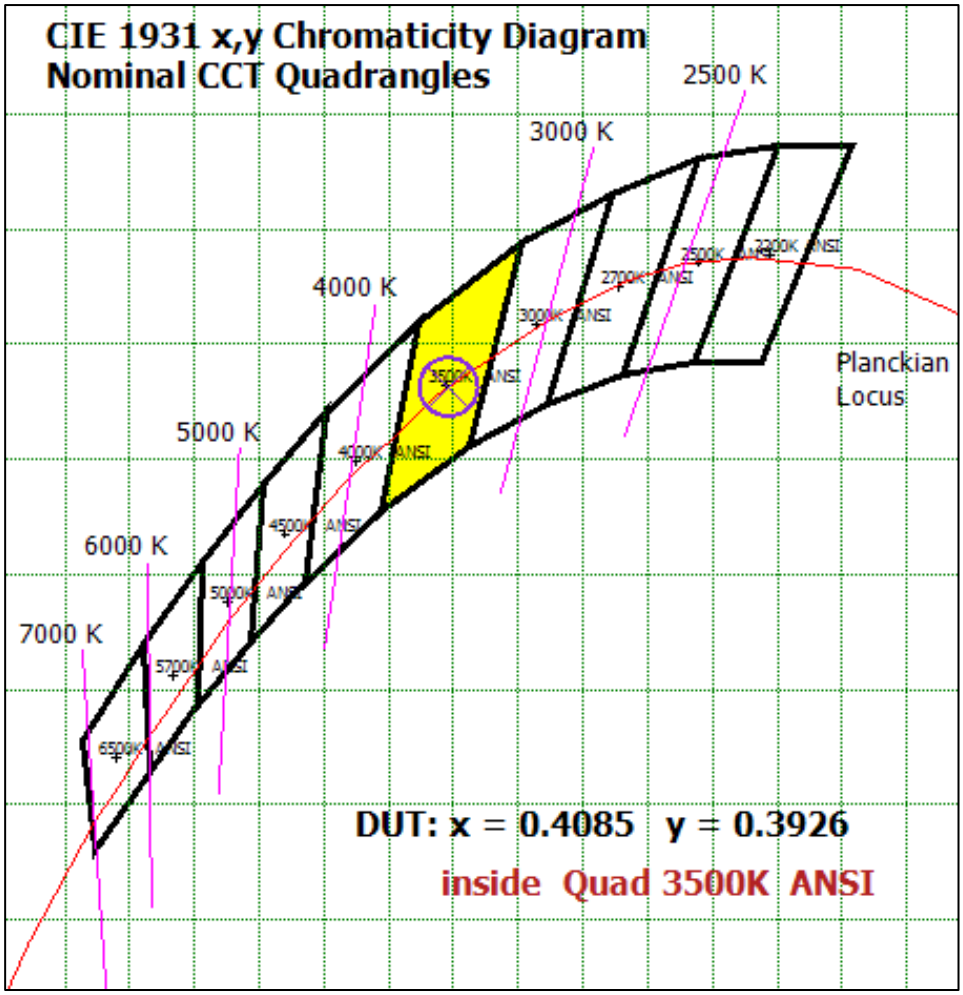
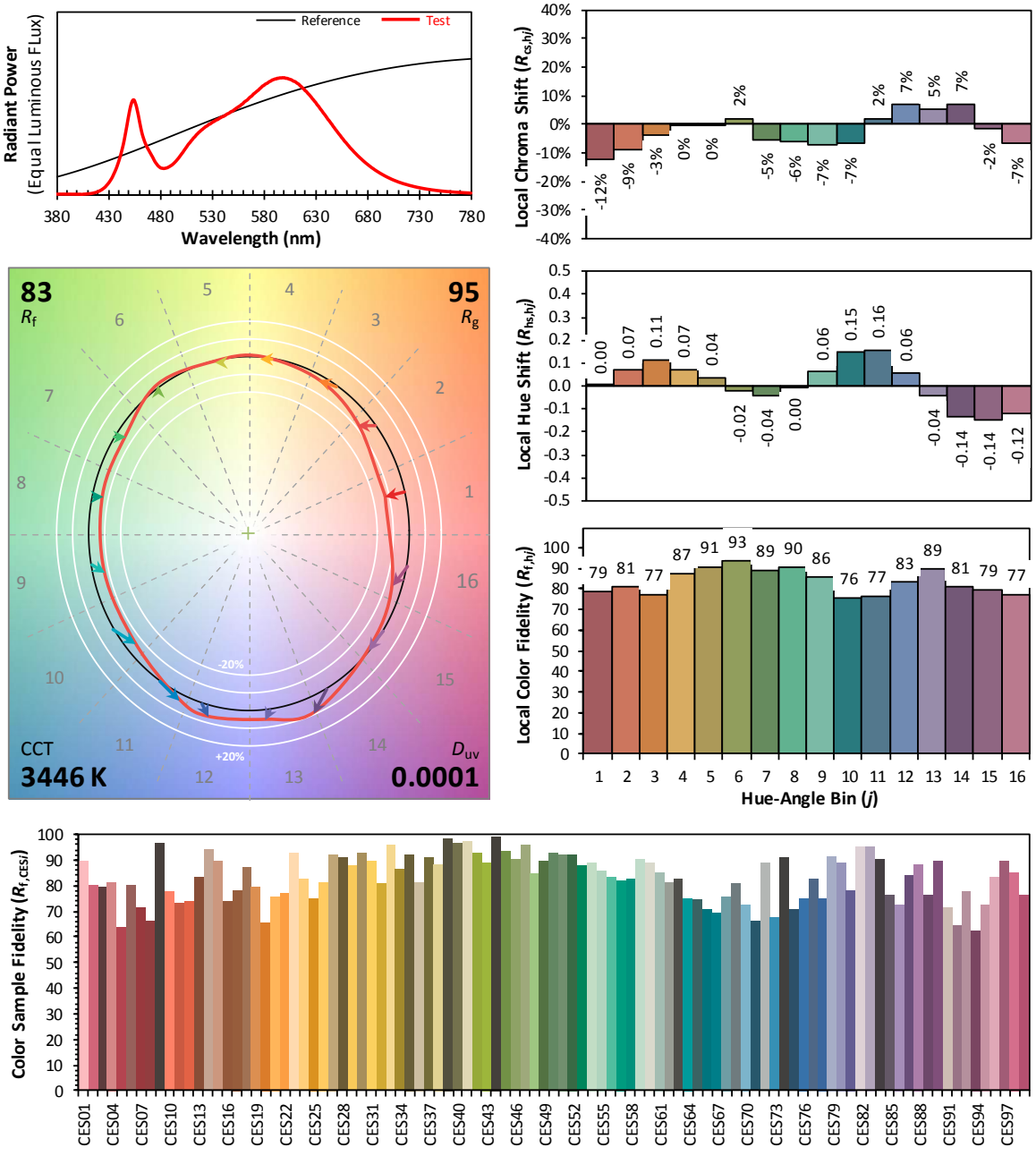


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method



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

x	0.4085
y	0.3926
u'	0.2370
v'	0.5125

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	1.607	0.12%
10- 20	9.231	0.69%
20- 30	24.743	1.86%
30- 40	47.167	3.54%
40- 50	74.27	5.57%
50- 60	102.868	7.72%
60- 70	128.976	9.67%
70- 80	148.518	11.14%
80- 90	158.173	11.86%
90-100	156.277	11.72%
100-110	142.954	10.72%
110-120	120.829	9.06%
120-130	93.492	7.01%
130-140	64.924	4.87%
140-150	38.843	2.91%
150-160	17.125	1.28%
160-170	3.024	0.23%
170-180	0.144	0.01%
Total	1333.2	100%

γ(°)	Lumens	% Total
0- 60	259.886	19.49%
60- 90	435.667	32.68%
0-90	695.553	52.17%
90- 180	637.612	47.83%
0- 180	1333.2	100%

Table 5: Zonal Lumen

Illuminance Plots- Goniophotometer Method

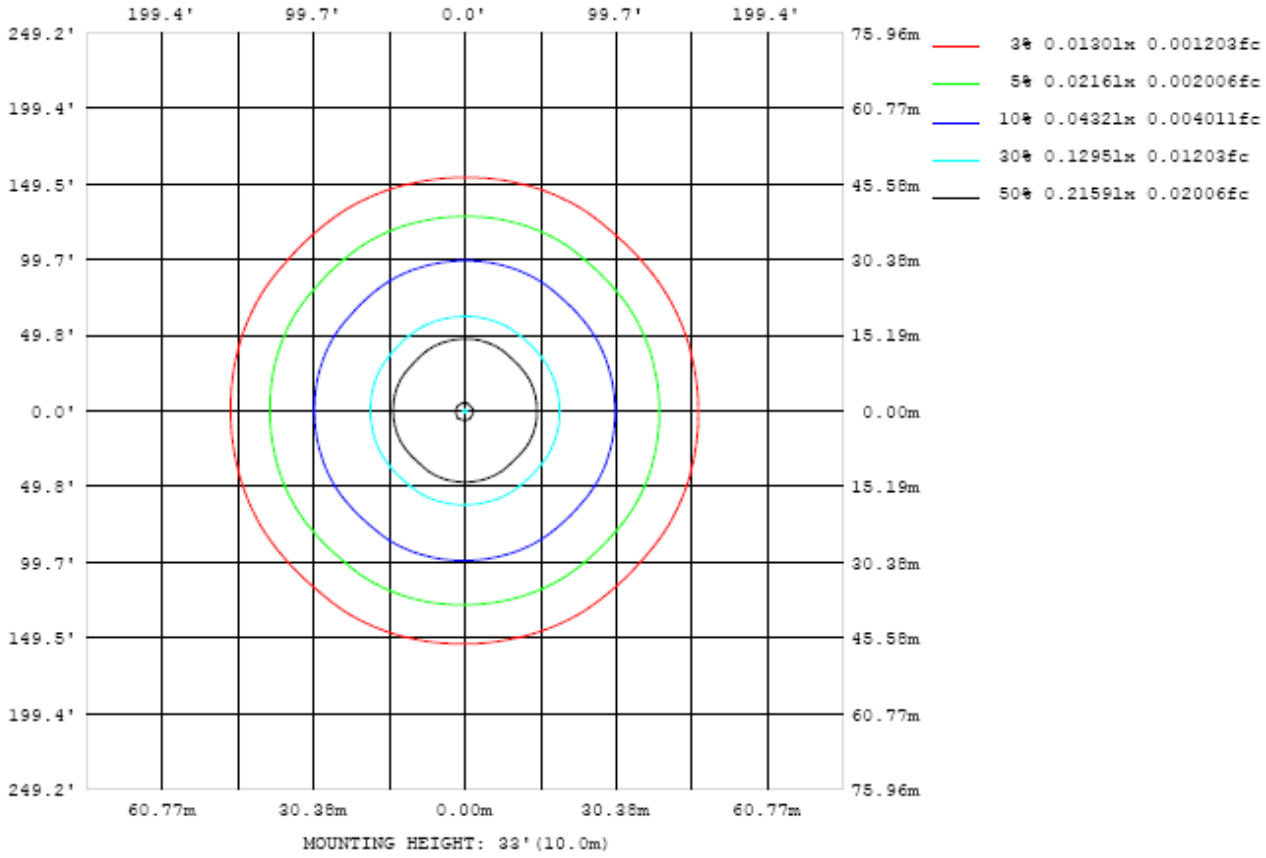


Chart 5: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

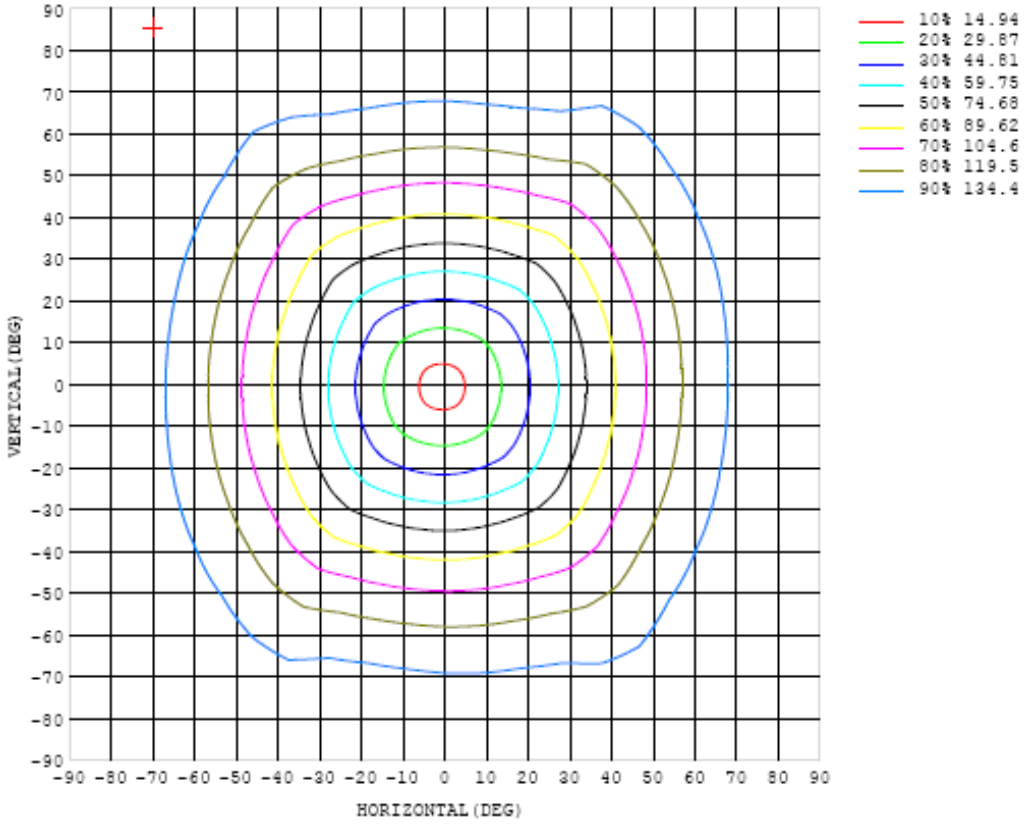


Chart 6: Isocandela Plot

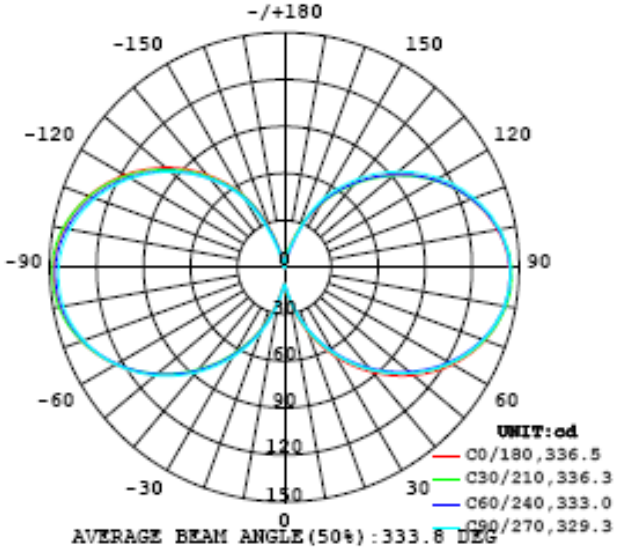


Chart 7: Polar Candela Distribution

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	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	11.0	11.0	11.0	11.0	11.0	11.0
5	15.2	15.1	14.9	14.7	14.5	14.2	14.0	13.9	13.8	13.7	13.6	13.4	13.3	13.2	13.2	13.2	13.3	13.5	13.5
10	23.2	23.0	22.6	22.2	21.7	21.1	21.1	21.1	21.1	20.9	20.7	20.5	20.2	19.9	19.9	20.1	20.4	20.7	20.8
15	33.1	32.8	32.3	31.7	30.8	30.2	30.5	30.6	30.6	30.5	30.3	29.9	29.5	28.8	28.9	29.5	30.0	30.4	30.6
20	43.8	43.5	42.9	42.1	40.9	40.1	40.8	41.1	41.2	41.1	40.9	40.5	39.8	38.8	39.1	40.0	40.8	41.3	41.5
25	55.0	54.6	53.9	52.8	51.3	50.5	51.5	52.1	52.3	52.2	52.1	51.5	50.7	49.3	49.7	51.0	52.0	52.6	52.9
30	66.1	65.7	65.0	63.7	61.8	61.0	62.4	63.1	63.4	63.4	63.3	62.6	61.7	59.9	60.4	62.1	63.3	64.0	64.3
35	77.1	76.8	75.9	74.5	72.2	71.6	73.2	74.1	74.5	74.5	74.4	73.7	72.6	70.5	71.1	73.2	74.6	75.3	75.5
40	87.7	87.4	86.6	85.1	82.6	81.9	83.8	84.9	85.2	85.3	85.2	84.6	83.4	81.0	81.7	84.1	85.6	86.2	86.6
45	98.0	97.8	97.0	95.5	92.6	92.0	94.2	95.2	95.5	95.6	95.6	95.1	93.9	91.2	92.1	94.7	96.2	96.8	97.1
50	108	107	107	105	102	102	104	105	105	105	106	105	104	101	102	105	106	107	107
55	116	116	116	114	111	111	113	114	114	114	115	114	113	110	112	114	116	116	116
60	124	124	124	123	119	119	122	122	122	122	123	123	122	119	120	123	124	124	125
65	131	131	131	130	127	126	129	129	129	129	130	130	130	127	128	131	132	132	132
70	136	137	137	136	133	132	135	135	135	135	136	137	136	133	134	137	138	138	138
75	141	141	142	141	137	137	139	140	139	140	141	142	141	138	139	142	143	142	142
80	143	144	144	144	140	140	143	143	142	143	144	145	145	142	143	146	146	146	146
85	144	145	146	145	142	142	144	144	144	144	145	147	147	144	145	148	148	147	147
90	144	145	146	145	142	142	144	144	144	144	146	147	147	143	145	148	148	148	147
95	142	143	143	143	140	140	142	142	142	143	144	146	146	143	144	147	147	146	146
100	138	139	140	139	136	136	139	139	139	139	141	142	143	140	141	143	144	143	143
105	133	134	135	134	131	131	134	135	134	135	136	137	137	135	136	139	139	139	139
110	127	128	128	127	125	125	127	128	128	129	131	132	132	129	130	133	133	133	133
115	120	120	121	120	117	117	120	121	121	122	123	124	124	121	123	125	126	126	126
120	111	112	112	111	108	109	112	113	113	114	115	116	115	113	114	117	118	118	118
125	102	102	102	101	98.7	99.6	102	104	104	105	106	106	106	103	105	107	109	109	109
130	92.3	92.4	92.3	91.1	88.6	89.6	92.2	93.6	94.3	95.3	96.0	96.1	95.7	93.4	94.9	97.4	98.9	99.1	99.2
135	81.7	81.7	81.4	80.3	78.2	79.1	81.8	83.1	84.0	84.9	85.5	85.6	84.9	83.0	84.2	86.6	87.9	88.5	88.7
140	70.8	70.6	70.4	69.3	67.4	68.4	70.8	72.1	73.1	74.0	74.5	74.6	74.0	72.2	73.5	75.7	76.1	77.1	77.3
145	59.5	59.4	59.1	58.2	56.7	57.6	59.6	61.1	62.1	62.7	63.4	63.2	62.7	60.8	62.5	64.4	64.0	63.5	65.8
150	47.0	47.7	47.9	47.2	46.0	46.1	48.3	49.4	49.8	51.5	52.0	51.9	51.6	48.9	51.3	53.2	51.7	50.6	53.5
155	33.2	34.8	36.4	36.2	35.5	33.4	35.2	36.5	35.8	35.9	37.9	39.7	40.3	38.0	39.7	41.7	39.0	37.9	39.6
160	22.8	23.5	23.8	23.4	19.6	16.5	18.1	22.1	21.2	20.0	17.7	27.1	27.5	27.0	27.3	30.0	27.7	23.6	23.9
165	13.9	13.9	14.5	13.3	10.0	6.92	6.96	6.35	6.59	10.6	11.7	15.1	15.4	16.3	14.1	15.8	14.4	10.5	9.01
170	5.27	6.28	6.88	7.30	7.48	6.14	3.87	2.67	0.86	0.52	2.31	4.29	6.30	6.78	5.33	5.11	3.18	2.40	2.14
175	0.79	0.78	0.79	0.76	0.75	0.69	0.33	0.16	0.16	0.16	0.15	0.14	0.14	0.14	0.14	0.15	0.15	0.31	0.16
180	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

Table 6: Luminous Intensity Data

Table--2 UNIT: cd

γ (DEG) \ C (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
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	11.0	11.0	11.0	11.0		
5	13.6	13.8	13.9	14.0	14.3	14.5	14.8	15.0	15.1	15.2	15.2	15.2	15.2	15.2	15.3	15.3	15.3		
10	21.0	21.1	21.1	21.1	21.7	22.2	22.6	22.9	23.1	23.2	23.2	23.0	22.7	22.8	23.1	23.2	23.3		
15	30.8	30.8	30.6	30.4	31.1	31.9	32.5	32.9	33.1	33.2	33.0	32.6	32.0	32.2	32.7	33.1	33.1		
20	41.7	41.6	41.2	40.5	41.4	42.5	43.3	43.7	44.0	44.0	43.7	43.1	42.0	42.3	43.2	43.7	43.9		
25	53.0	52.8	52.1	51.0	52.1	53.5	54.4	54.9	55.2	55.2	54.7	53.8	52.4	52.8	53.9	54.7	55.0		
30	64.4	64.1	63.3	61.7	62.8	64.5	65.6	66.1	66.4	66.3	65.7	64.7	62.8	63.3	64.8	65.8	66.1		
35	75.7	75.3	74.3	72.3	73.5	75.4	76.6	77.1	77.4	77.3	76.6	75.4	73.2	73.8	75.5	76.6	77.0		
40	86.7	86.3	85.2	82.9	84.0	86.1	87.3	87.8	88.0	88.0	87.3	86.0	83.4	84.1	86.1	87.3	87.6		
45	97.3	97.0	95.7	93.1	94.3	96.5	97.6	98.0	98.2	98.2	97.6	96.2	93.4	94.1	96.2	97.5	97.9		
50	107	107	106	103	104	106	107	108	108	108	107	106	103	104	106	107	107		
55	117	117	115	112	113	115	116	116	117	117	116	115	112	113	115	116	116		
60	125	125	124	121	122	124	125	124	124	125	124	123	120	121	123	124	124		
65	132	133	132	128	129	131	131	131	131	132	131	130	127	128	130	131	131		
70	139	139	138	134	135	137	137	137	137	137	137	136	133	133	136	136	136		
75	143	144	143	139	140	142	142	141	141	141	142	141	137	138	140	141	140		
80	147	147	146	143	143	145	145	144	143	144	144	144	140	141	143	143	143		
85	148	149	148	145	145	146	146	145	145	145	146	145	141	142	144	145	144		
90	148	149	148	145	145	146	146	145	144	145	145	145	141	142	144	144	144		
95	147	148	147	143	143	145	144	143	143	143	144	143	139	140	142	142	142		
100	144	145	144	140	140	141	141	140	139	140	140	139	136	136	138	139	138		
105	139	140	139	135	135	136	136	135	135	135	135	134	131	131	133	134	133		
110	134	134	133	129	129	130	130	129	129	129	129	128	124	125	126	127	127		
115	127	127	125	122	122	123	123	122	122	122	121	120	117	117	119	120	120		
120	118	118	117	113	113	115	115	114	114	113	113	111	108	108	110	111	111		
125	109	109	107	104	104	105	106	105	105	104	103	102	98.8	99.0	101	102	102		
130	99.3	98.8	97.2	94.2	93.8	95.4	95.8	95.5	94.9	94.4	93.4	91.8	88.8	89.0	90.7	91.8	92.2		
135	88.8	88.1	86.6	83.8	83.3	84.8	85.3	85.0	84.5	84.0	82.9	81.2	78.4	78.5	80.2	81.2	81.7		
140	77.6	77.0	75.5	73.0	72.5	73.9	74.4	74.2	73.7	73.1	72.0	70.4	67.8	67.8	69.3	70.3	70.8		
145	66.0	65.6	64.3	62.1	61.6	62.8	63.2	63.0	62.6	62.0	60.8	59.3	57.1	57.1	58.3	59.0	59.6		
150	54.3	53.8	53.0	51.3	50.7	51.4	51.2	51.0	50.0	49.9	49.0	48.2	46.6	46.3	47.1	47.5	46.1		
155	40.2	39.5	38.2	36.6	35.6	36.1	35.5	34.6	32.3	30.8	32.4	35.4	35.5	35.6	36.0	35.3	35.1		
160	23.9	23.1	22.1	21.0	19.9	19.6	18.7	16.8	12.0	8.23	9.89	14.2	16.8	19.9	22.5	22.8	23.6		
165	9.34	7.55	6.14	6.33	6.45	5.88	4.80	2.09	0.50	0.57	0.60	0.61	0.62	2.13	4.92	8.12	11.2		
170	2.08	1.83	1.79	1.52	1.40	1.23	1.14	1.12	1.13	1.09	0.95	0.94	0.94	0.91	0.79	0.76	2.29		
175	0.19	0.32	1.14	2.11	2.16	2.09	1.99	1.81	1.58	1.37	1.22	1.28	1.30	1.35	1.23	1.21	1.04		
180	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08		

Table 7: Luminous Intensity Data

EQUIPMENT LIST

Test Equipment	Model	Equipment No.	Calibration Date	Calibration Due date
Goniophotometer system	GO-R5000	HZTE011-01	Aug. 02, 2019	Aug. 01, 2020
Digital Power Meter	PF2010A	HZTE028-01	Aug. 02, 2019	Aug. 01, 2020
AC Power Supply	DPS1060	HZTE001-06	Aug. 02, 2019	Aug. 01, 2020
DC Power Supply	WY12010	HZTE004-03	Aug. 02, 2019	Aug. 01, 2020
Temperature recorder	JM624U	HZTE018-08	Aug. 02, 2019	Aug. 01, 2020
Temperature and humidity recorder	JR900	HZTE018-01	Aug. 02, 2019	Aug. 01, 2020
Standard source	D908	HZTE012-01	Aug. 02, 2019	Aug. 01, 2020
Integrate Sphere system	3M	HZTE015-04	Aug. 02, 2019	Aug. 01, 2020
Digital Power Meter	WT210	HZTE008-01	Aug. 02, 2019	Aug. 01, 2020
AC Power Supply	PCR 500L	HZTE001-07	Aug. 02, 2019	Aug. 01, 2020
DC Power Supply	IT6154	HZTE004-04	Aug. 02, 2019	Aug. 01, 2020
Standard source	SCL-1400	HZTE012-02	Aug. 02, 2019	Aug. 01, 2020
Temperature and humidity recorder	JR900	HZTE018-02	Aug. 02, 2019	Aug. 01, 2020
Temperature Meter	TES1310	HZTE017-01	Aug. 02, 2019	Aug. 01, 2020

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

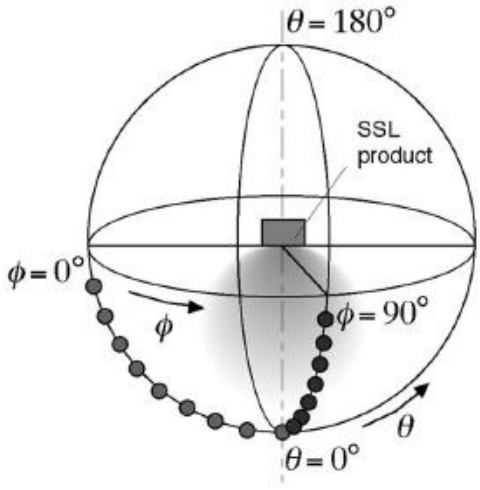
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as 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 ***