LM-79-08 Test Report

for

GREEN CREATIVE LTD

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

PLV Lamp

Model: 6.5PLSV/830/HYB/GX23

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Report No.: HZ17030047b

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

Review by: April Zou

Engineer: April Zou

Mar. 21, 2017

Approved by: Zhang

Manager: Jim Zhang

Mar. 21, 2017

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: **6.5PLSV/830/HYB/GX23**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
95.7	612.3	6.40	0.9818

CCT (K)	CRI	Stabilization Time (Light & Power)
2996	82.1	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	: Mar. 15, 2017
Date of Test	: Mar. 17, 2017
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

Figure 1- Overview of the sample

Equipment Under Test (EUT)	
Name	: PLV Lamp
Model	: 6.5PLSV/830/HYB/GX23
Electrical Ratings	: 120-277Vac, 60Hz, 6.5W
Product Description	: GX23 base, 3000K
Manufacturer	: GREEN CREATIVE LTD
Address	: 756 North Zhongshan Rd., Unit B301 Zhabei District, Shanghai

TEST RESULTS

Test ambient temperature was 25.0℃.

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	277.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.055	0.026
Power Factor	0.9818	0.8962
Test Power (W)	6.40	6.55
THD A%	17.03	24.27
Luminous Efficacy (lm/W)	95.7	93.5
Total Luminous Flux (lm)	612.3	612.1
Color Rendering Index (CRI)	82.1	
R9	5.4	
Correlated Color Temperature (CCT)(K)	2996	
Chromaticity Chroma x	0.4326	
Chromaticity Chroma y	0.3949	
Chromaticity Chroma u	0.2517	
Chromaticity Chroma v	0.3447	
Duv	0.0033	
Chromaticity Chroma u ’	0.2517	
Chromaticity Chroma v’	0.5170	

Special Color Rendering Indices	
R1	81.1
R2	92.4
R3	94
R4	79.1
R5	81.7
R6	90.8
R7	80.5
R8	57
R9	5.4
R10	82.8
R11	78.3
R12	75.4
R13	84
R14	97.5
Rf	82
Rg	96

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 24.6℃.

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)	0.054
Power Factor	0.9821
Test Power (W)	6.41
Luminous Efficacy (lm/W)	97.4
Total Luminous Flux (lm)	624.6
Beam Angle (°)	108.0
Center Beam Candle Power (cd)	218
Spacing Criteria	1.20(0°-180°)/ 1.22 (90°-270°)
Zonal Lumens in the 0°-60°Zone	75.60%
Zonal Lumens in the 60°-90°Zone	23.04%
Zonal Lumens in the 90°-120°Zone	1.30%
Zonal Lumens in the 120°-180°Zone	0.06%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

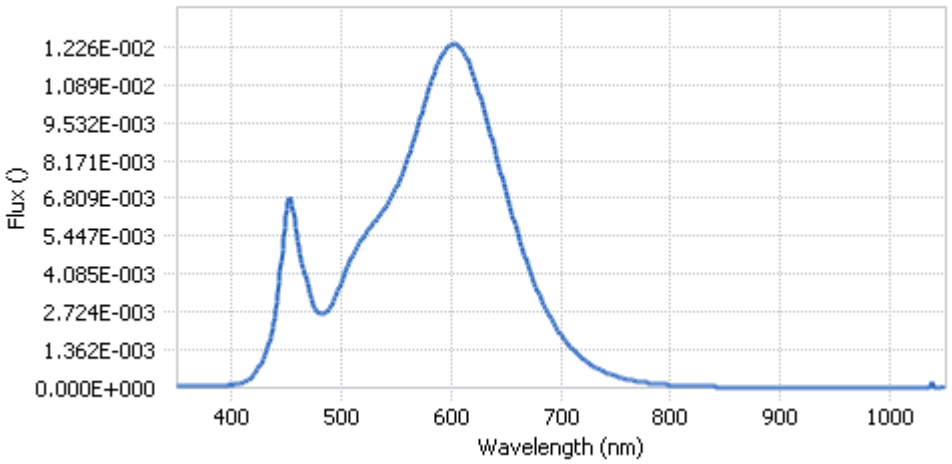
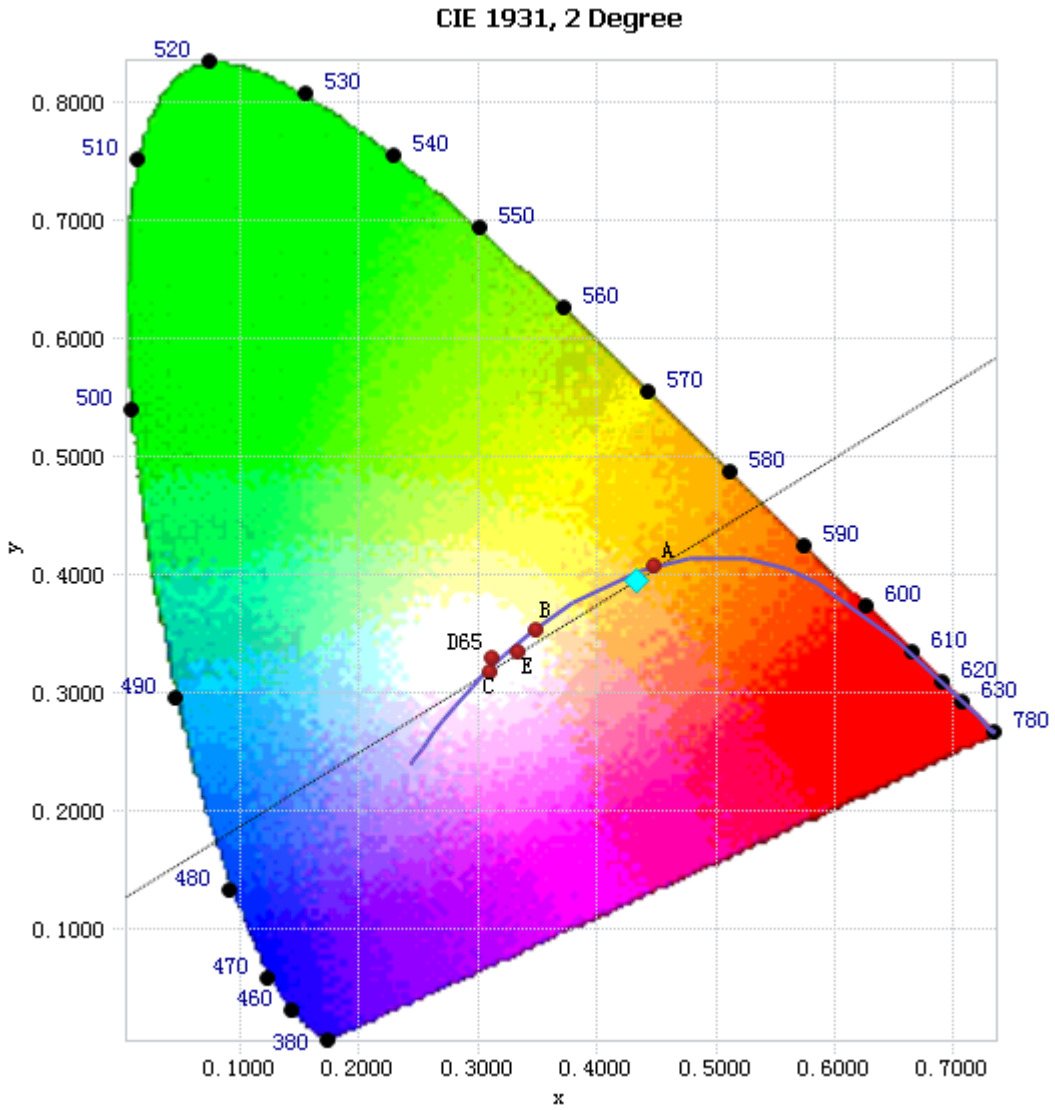


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	9.01E-05	485	2.69E-03	590	1.18E-02	695	2.21E-03
385	8.36E-05	490	2.92E-03	595	1.22E-02	700	1.91E-03
390	8.70E-05	495	3.34E-03	600	1.23E-02	705	1.63E-03
395	9.26E-05	500	3.81E-03	605	1.23E-02	710	1.41E-03
400	9.54E-05	505	4.30E-03	610	1.21E-02	715	1.22E-03
405	1.25E-04	510	4.74E-03	615	1.18E-02	720	1.05E-03
410	1.83E-04	515	5.12E-03	620	1.13E-02	725	8.99E-04
415	3.08E-04	520	5.42E-03	625	1.07E-02	730	7.77E-04
420	4.84E-04	525	5.69E-03	630	1.00E-02	735	6.62E-04
425	7.65E-04	530	5.95E-03	635	9.27E-03	740	5.69E-04
430	1.17E-03	535	6.19E-03	640	8.53E-03	745	4.87E-04
435	1.77E-03	540	6.50E-03	645	7.78E-03	750	4.20E-04
440	2.79E-03	545	6.84E-03	650	7.06E-03	755	3.59E-04
445	4.55E-03	550	7.19E-03	655	6.34E-03	760	3.12E-04
450	6.43E-03	555	7.65E-03	660	5.66E-03	765	2.66E-04
455	6.54E-03	560	8.19E-03	665	5.01E-03	770	2.29E-04
460	5.22E-03	565	8.78E-03	670	4.40E-03	775	1.99E-04
465	4.33E-03	570	9.46E-03	675	3.89E-03	780	1.69E-04
470	3.58E-03	575	1.01E-02	680	3.39E-03		
475	2.90E-03	580	1.08E-02	685	2.96E-03		
480	2.64E-03	585	1.14E-02	690	2.56E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4326, 0.3949)

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

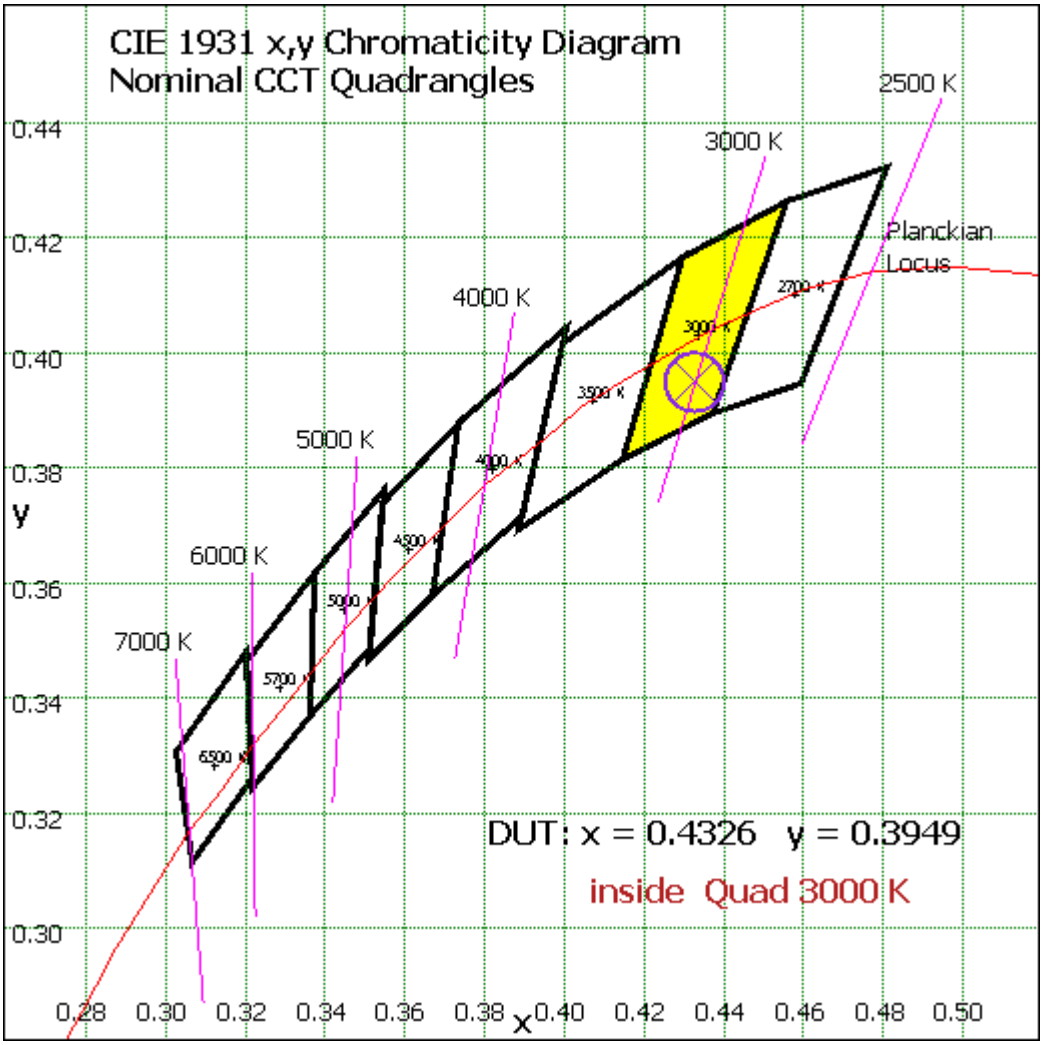


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Zonal Lumen Tabulation- Goniophotometer Method

γ(°)	Lumens	% Total
0- 10	20.623	3.30%
10- 20	58.698	9.40%
20- 30	87.859	14.07%
30- 40	104.097	16.67%
40- 50	106.104	16.99%
50- 60	94.78	15.18%
60- 70	73.564	11.78%
70- 80	47.475	7.60%
80- 90	22.861	3.66%
90-100	6.919	1.11%
100-110	1.094	0.18%
110-120	0.115	0.02%
120-130	0.062	0.01%
130-140	0.079	0.01%
140-150	0.085	0.01%
150-160	0.07	0.01%
160-170	0.046	0.01%
170-180	0.016	0.00%
Total	624.5	100%

γ(°)	Lumens	% Total
0- 60	472.161	75.60%
60- 90	143.9	23.04%
0-90	616.061	98.64%
90- 180	8.486	1.36%
0- 180	624.5	100%

Table 5: Zonal Lumen Data

Note: The Flux in this table might be a little different from the total flux in Table 2 due to rounding.

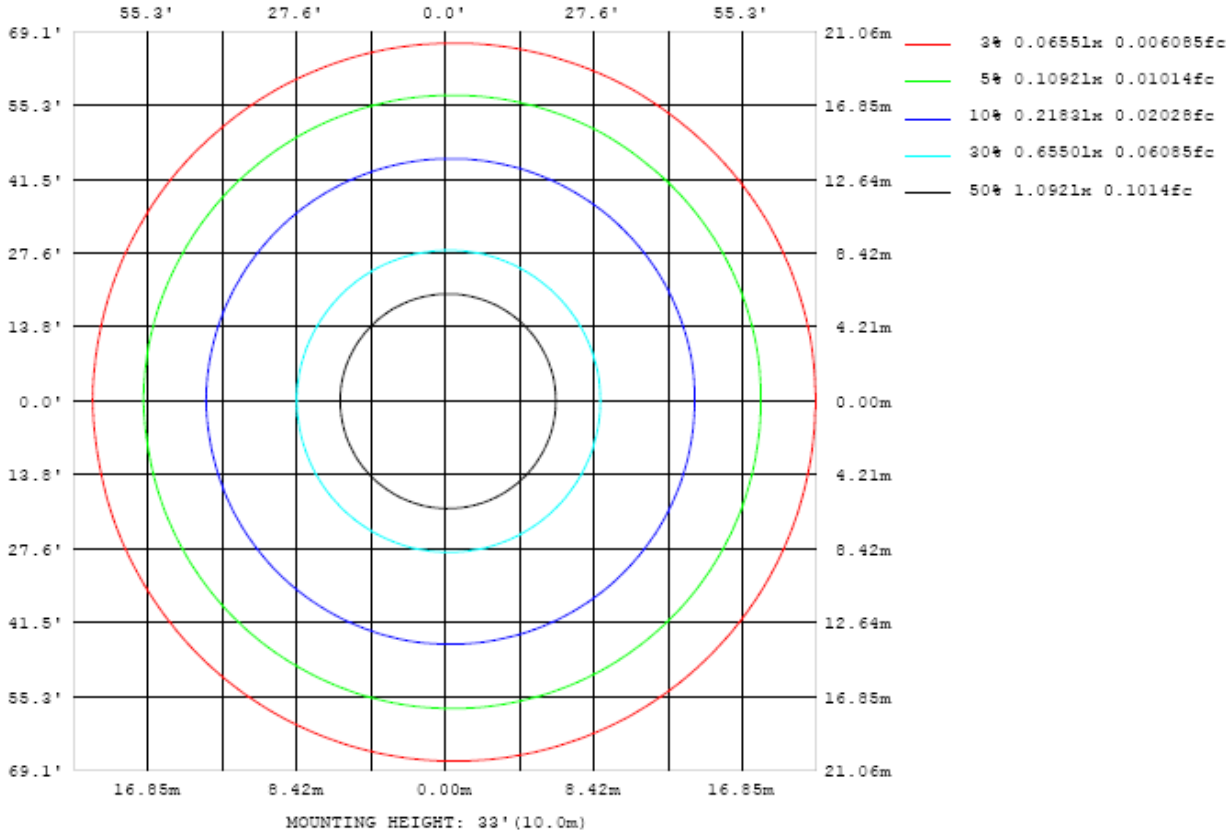


Chart 4: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

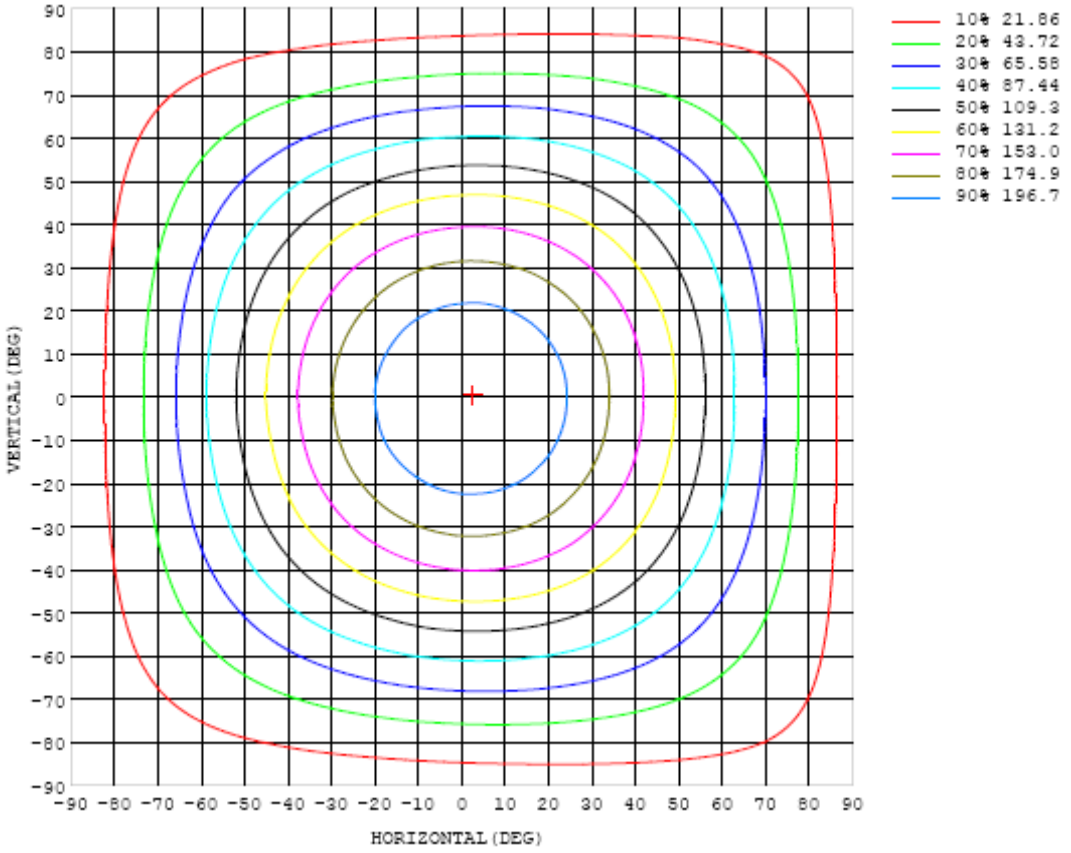


Chart 5: Isocandela Plot

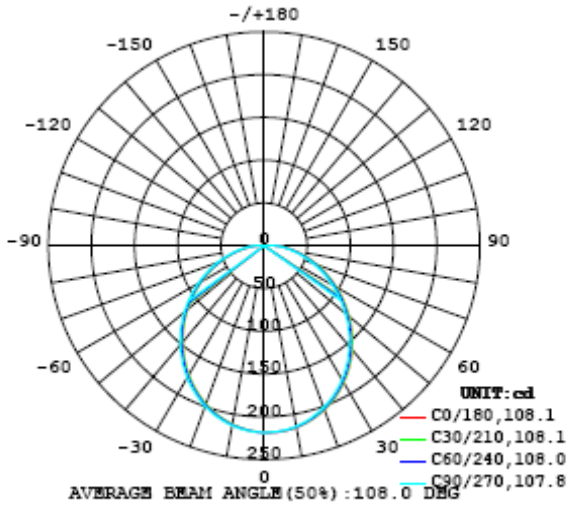


Chart 6: Polar Candela Distribution

Luminous Intensity Data- Goniophotometer Method

Table--1 UNIT: cd

γ (DEG) \ C (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	218	218	218	218	218	218	218	218	218	218	218	218	218	218	218	218	218	218	218
5	218	218	218	218	218	218	218	218	218	217	217	217	217	217	217	216	216	216	216
10	216	215	215	215	215	215	215	215	214	214	214	213	213	213	213	212	212	212	212
15	211	211	211	211	210	210	210	210	209	209	208	208	207	207	206	206	206	205	206
20	204	204	204	204	203	203	203	202	202	201	200	200	199	199	198	197	197	197	197
25	195	195	195	195	194	194	193	193	192	191	191	190	189	188	188	187	187	186	186
30	185	184	184	184	184	183	183	182	181	180	179	178	177	176	176	175	175	174	174
35	172	172	172	172	171	171	170	169	168	167	166	165	164	163	162	162	161	161	161
40	159	159	158	158	158	157	156	155	154	153	152	151	150	149	148	147	147	146	147
45	144	144	144	143	143	142	141	140	139	138	137	136	135	134	133	132	131	131	132
50	129	128	128	128	127	127	126	125	124	122	121	120	119	118	117	116	116	115	116
55	113	113	113	112	111	111	110	109	108	107	106	104	103	102	101	100	99.6	99.2	100
60	96.6	96.6	96.5	96.1	95.6	94.8	93.9	92.9	91.8	90.6	89.6	88.1	87.0	86.1	85.1	84.3	83.8	83.2	84.2
65	80.8	80.9	80.7	80.3	79.7	79.0	78.2	77.1	76.1	74.9	73.8	72.5	71.5	70.5	69.6	68.8	68.5	67.8	68.2
70	65.3	65.5	65.3	64.8	64.2	63.9	62.9	62.0	60.9	59.9	58.9	57.9	56.8	55.9	55.0	54.3	53.7	53.2	53.0
75	50.9	51.0	50.8	50.4	50.0	49.3	48.5	47.6	46.7	45.7	44.8	43.7	42.8	41.7	40.9	40.2	40.0	39.3	39.4
80	37.2	37.2	37.1	36.8	36.3	35.7	35.0	34.2	33.3	32.5	31.6	30.7	30.0	29.0	28.3	27.8	27.4	27.0	26.9
85	25.1	25.0	25.0	24.7	24.4	23.8	23.2	22.6	21.8	21.1	20.5	19.7	19.0	18.4	17.8	17.4	17.0	16.8	16.8
90	15.2	15.3	15.1	14.9	14.7	14.3	13.8	13.3	12.8	12.3	11.8	11.2	10.7	10.3	9.94	9.66	9.48	9.18	9.17
95	8.06	8.12	8.08	7.92	7.67	7.40	7.09	6.75	6.45	6.12	5.80	5.45	5.13	4.89	4.67	4.51	4.39	4.25	4.25
100	3.51	3.53	3.48	3.40	3.29	3.13	2.96	2.79	2.62	2.47	2.31	2.16	2.03	1.91	1.81	1.72	1.67	1.60	1.61
105	1.22	1.23	1.21	1.18	1.14	1.09	1.03	0.98	0.93	0.88	0.83	0.79	0.74	0.70	0.66	0.62	0.59	0.56	0.56
110	0.38	0.38	0.38	0.38	0.38	0.37	0.36	0.36	0.35	0.34	0.32	0.31	0.29	0.27	0.24	0.22	0.19	0.16	0.17
115	0.08	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.09	0.09	0.08	0.08	0.07	0.06	0.05	0.05	0.05	0.05	0.06
120	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.07
125	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.08
130	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	0.10
135	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.12
140	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.14
145	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	0.12	0.16
150	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.18
155	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.18
160	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.19
165	0.13	0.13	0.13	0.13	0.13	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	0.19
170	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.18
175	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.18
180	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	0.17

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	218	218	218	218	218	218	218	218	218	218	218	218	218	218	218	218	218		
5	216	216	216	216	217	217	217	217	217	217	217	217	218	218	218	218	218		
10	212	212	212	212	212	213	213	213	214	214	214	214	215	215	215	215	216		
15	205	205	205	206	206	206	207	207	208	208	209	209	209	210	211	211	211		
20	197	197	197	197	198	198	199	199	200	201	201	202	202	203	203	204	204		
25	186	187	187	187	187	188	189	189	190	191	191	192	193	194	195	195	195		
30	174	174	175	175	176	176	177	178	179	180	180	181	182	183	184	184	184		
35	161	161	161	162	162	163	164	165	166	167	168	168	169	170	171	172	172		
40	146	147	147	147	148	149	149	150	152	153	154	154	156	156	158	158	159		
45	132	132	132	132	133	134	135	136	137	138	139	140	141	142	143	144	144		
50	116	116	116	117	117	117	119	120	121	122	124	125	126	127	128	129	129		
55	99.8	100.0	100	100	101	102	103	104	105	106	107	108	110	111	112	112	113		
60	84.1	83.7	84.3	84.8	84.8	85.7	86.7	88.0	88.7	89.9	91.2	92.5	93.5	95.0	95.6	96.7	96.9		
65	68.4	68.3	68.8	68.8	69.8	70.0	70.6	72.0	72.9	74.2	75.3	76.3	77.8	79.0	79.9	80.5	81.2		
70	53.3	53.2	53.2	53.8	54.2	55.0	55.9	56.8	58.0	59.0	60.1	61.3	62.2	63.6	64.2	65.2	65.5		
75	39.3	39.4	39.4	39.6	40.4	40.9	41.4	42.4	43.4	44.4	45.4	46.4	47.3	48.5	49.4	50.4	50.6		
80	26.8	26.9	27.1	27.2	27.9	27.9	29.0	29.5	30.2	31.4	32.1	33.2	34.0	35.1	35.9	36.5	37.0		
85	16.6	16.7	16.8	17.0	17.3	17.8	18.1	18.7	19.5	20.2	21.0	21.7	22.3	23.2	23.9	24.5	25.0		
90	9.13	9.06	9.14	9.21	9.45	9.69	10.0	10.4	10.9	11.4	12.0	12.6	13.2	13.9	14.5	14.9	15.3		
95	4.23	4.20	4.21	4.27	4.38	4.52	4.73	4.96	5.28	5.59	5.96	6.29	6.73	7.13	7.49	7.76	8.04		
100	1.59	1.58	1.59	1.62	1.68	1.75	1.85	1.99	2.11	2.29	2.46	2.63	2.85	3.04	3.25	3.38	3.55		
105	0.55	0.55	0.55	0.58	0.61	0.64	0.68	0.73	0.78	0.83	0.89	0.95	1.02	1.06	1.14	1.19	1.25		
110	0.16	0.16	0.18	0.19	0.22	0.24	0.27	0.29	0.31	0.33	0.35	0.36	0.37	0.38	0.39	0.40	0.40		
115	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.08	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10		
120	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06		
125	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07		
130	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09		
135	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.11		
140	0.14	0.15	0.14	0.15	0.14	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14		
145	0.16	0.16	0.16	0.16	0.16	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16		
150	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.17		
155	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18		
160	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.18	0.19		
165	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19		
170	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19		
175	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18		
180	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		

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 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 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 expended uncertainty is 1.94% with a coverage factor k=2.

Color Characteristics Measurements

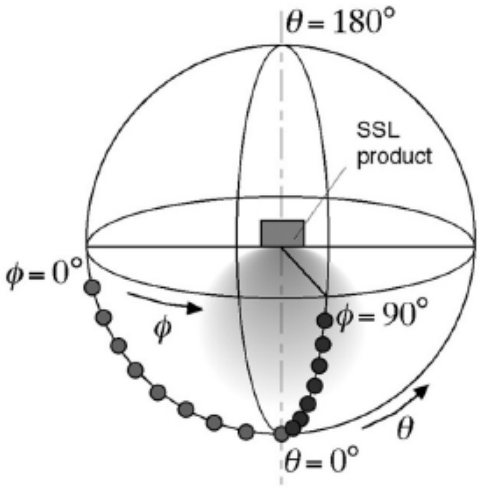
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as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