LM-79-08 Test Report

for

GREEN CREATIVE LTD

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

LED lamp

Model: 5.5PLH/835/HYBM

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Report No.: HZ18100024b

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

Review by: April Zou

Engineer: April Zou

Nov. 02, 2018

Approved by: Jim Zhang

Manager: Jim Zhang

Nov. 02, 2018

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: **5.5PLH/835/HYBM**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
108.3	629.3	5.81	0.9675

CCT (K)	CRI	Stabilization Time (Light & Power)
3427	83.6	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	: Oct. 30, 2018
Date of Test	: Oct. 31, 2018
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	: LED lamp
Model	: 5.5PLH/835/HYBM
Electrical Ratings	: 120-277V, 50/60Hz, 5.5W
Product Description	: 3500K
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 horizontal. 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)	0.050	0.024
Power Factor	0.9675	0.9005
Test Power (W)	5.81	5.91
THD A%	20.94	24.26
Luminous Efficacy (lm/W)	108.3	106.3
Total Luminous Flux (lm)	629.3	628.4
Color Rendering Index (CRI)	83.6	
R9	11.1	
Correlated Color Temperature (CCT)(K)	3427	
Chromaticity Chroma x	0.4095	
Chromaticity Chroma y	0.3932	
Chromaticity Chroma u	0.2374	
Chromaticity Chroma v	0.3419	
Duv	0.0002	
Chromaticity Chroma u ’	0.2374	
Chromaticity Chroma v’	0.5129	

Special Color Rendering Indices	
R1	82
R2	90.9
R3	96.6
R4	81.9
R5	82.2
R6	88.1
R7	84.8
R8	62.8
R9	11.1
R10	78.6
R11	81.1
R12	69.1
R13	84.2
R14	98.5
Rf	84
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 24.8℃.

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)	0.050
Power Factor	0.9693
Test Power (W)	5.82
Luminous Efficacy (lm/W)	110.2
Total Luminous Flux (lm)	641.2
Beam Angle (°)	116.6
Center Beam Candle Power (cd)	185
Spacing Criteria	1.20 (0°-180°)/ 1.30 (90°-270°)
Zonal Lumens in the 0°-60°Zone	65.49%
Zonal Lumens in the 60°-90°Zone	25.66%
Zonal Lumens in the 90°-120°Zone	7.60%
Zonal Lumens in the 120°-180°Zone	1.25%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

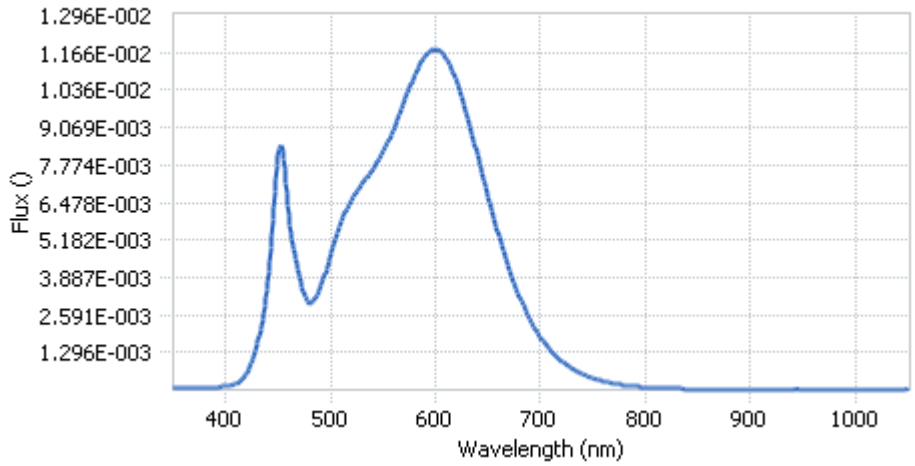
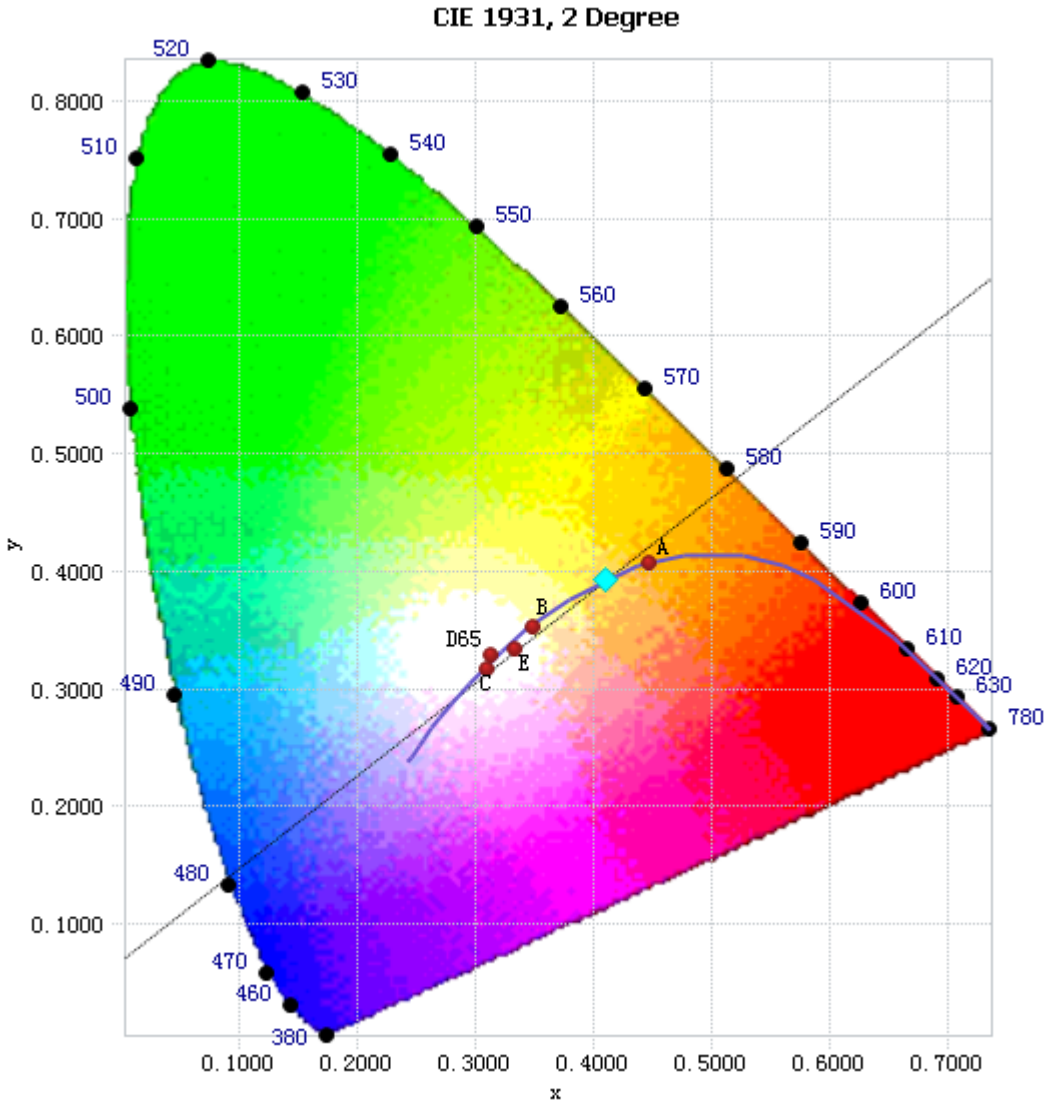


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	8.79E-05	485	3.17E-03	590	1.15E-02	695	2.11E-03
385	9.03E-05	490	3.52E-03	595	1.17E-02	700	1.82E-03
390	1.01E-04	495	4.04E-03	600	1.18E-02	705	1.57E-03
395	1.08E-04	500	4.69E-03	605	1.17E-02	710	1.35E-03
400	1.22E-04	505	5.29E-03	610	1.15E-02	715	1.16E-03
405	1.53E-04	510	5.79E-03	615	1.11E-02	720	9.99E-04
410	2.26E-04	515	6.22E-03	620	1.06E-02	725	8.67E-04
415	3.59E-04	520	6.57E-03	625	1.01E-02	730	7.40E-04
420	5.91E-04	525	6.85E-03	630	9.47E-03	735	6.32E-04
425	9.75E-04	530	7.13E-03	635	8.80E-03	740	5.44E-04
430	1.57E-03	535	7.38E-03	640	8.10E-03	745	4.65E-04
435	2.44E-03	540	7.63E-03	645	7.37E-03	750	3.99E-04
440	3.76E-03	545	7.93E-03	650	6.69E-03	755	3.44E-04
445	5.87E-03	550	8.26E-03	655	6.01E-03	760	2.99E-04
450	8.09E-03	555	8.61E-03	660	5.37E-03	765	2.56E-04
455	8.00E-03	560	9.01E-03	665	4.76E-03	770	2.20E-04
460	6.01E-03	565	9.47E-03	670	4.19E-03	775	1.88E-04
465	4.84E-03	570	9.96E-03	675	3.68E-03	780	1.64E-04
470	4.04E-03	575	1.04E-02	680	3.22E-03		
475	3.28E-03	580	1.09E-02	685	2.82E-03		
480	3.01E-03	585	1.13E-02	690	2.42E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4095, 0.3932)

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

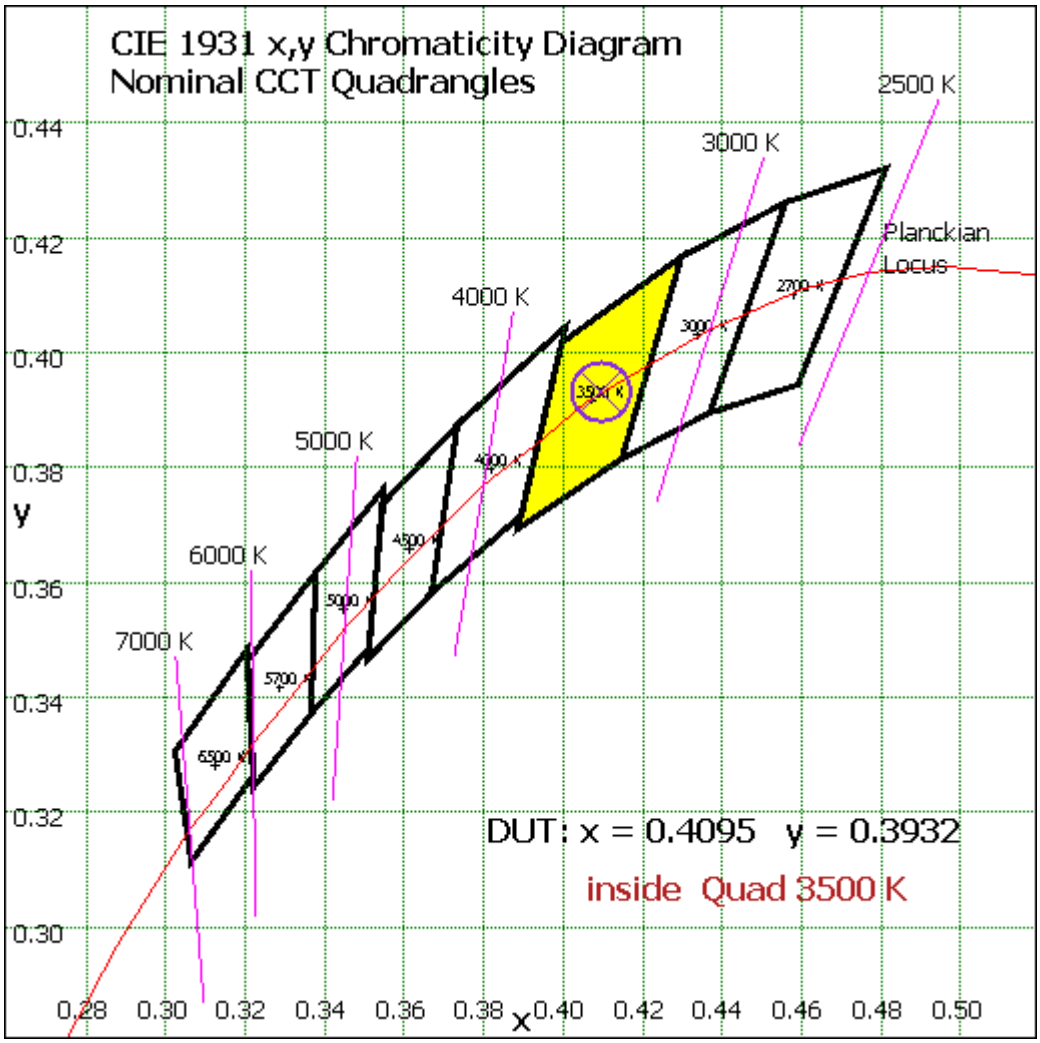


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Zonal Lumen Tabulation- Goniophotometer Method

γ(°)	Lumens	% Total
0- 10	17.507	2.73%
10- 20	49.985	7.80%
20- 30	75.547	11.78%
30- 40	91.315	14.24%
40- 50	95.84	14.95%
50- 60	89.747	14.00%
60- 70	74.917	11.68%
70- 80	54.647	8.52%
80- 90	34.946	5.45%
90-100	22.836	3.56%
100-110	15.849	2.47%
110-120	10.062	1.57%
120-130	4.987	0.78%
130-140	1.927	0.30%
140-150	0.696	0.11%
150-160	0.277	0.04%
160-170	0.104	0.02%
170-180	0.027	0.00%
Total	641.2	100%

γ(°)	Lumens	% Total
0- 60	419.941	65.49%
60- 90	164.51	25.66%
0-90	584.451	91.15%
90- 180	56.765	8.85%
0- 180	641.2	100%

Table 5: Zonal Lumen Data

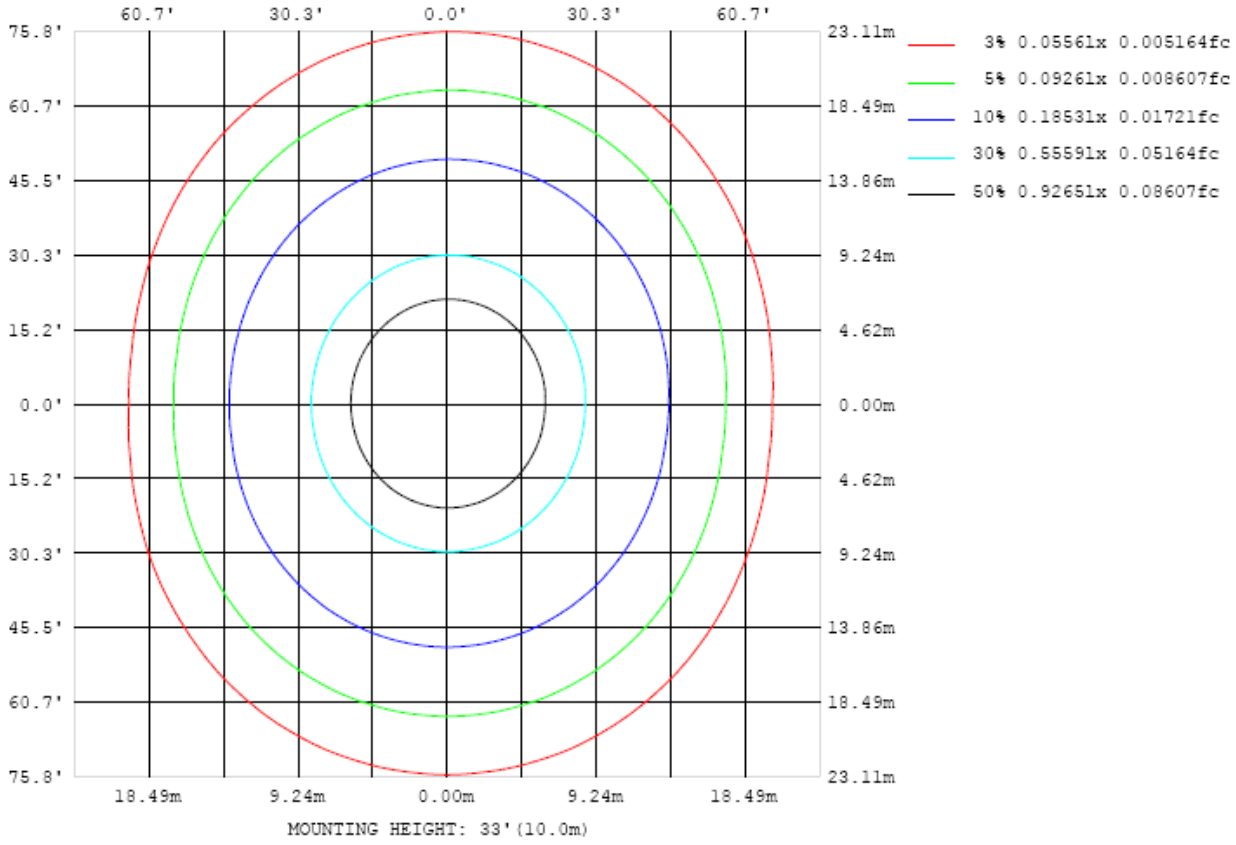


Chart 4: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

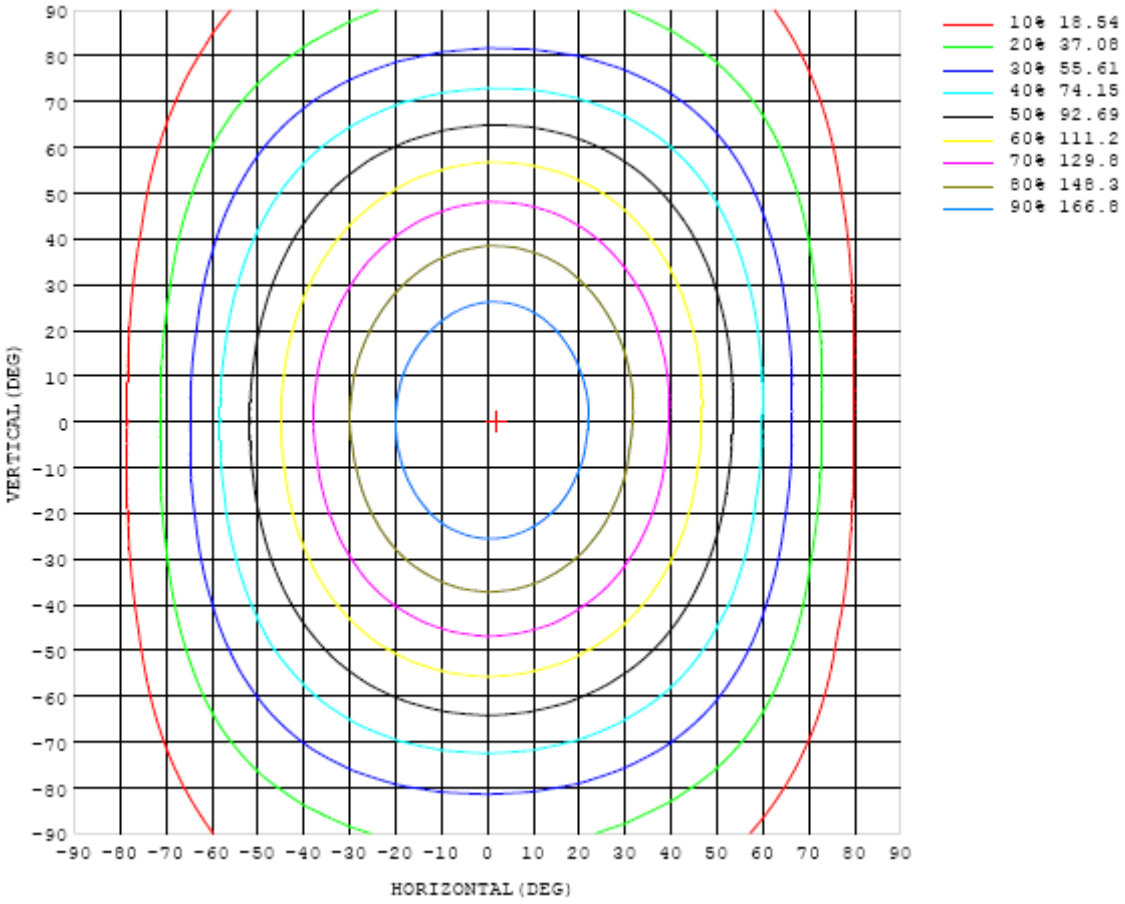


Chart 5: Isocandela Plot

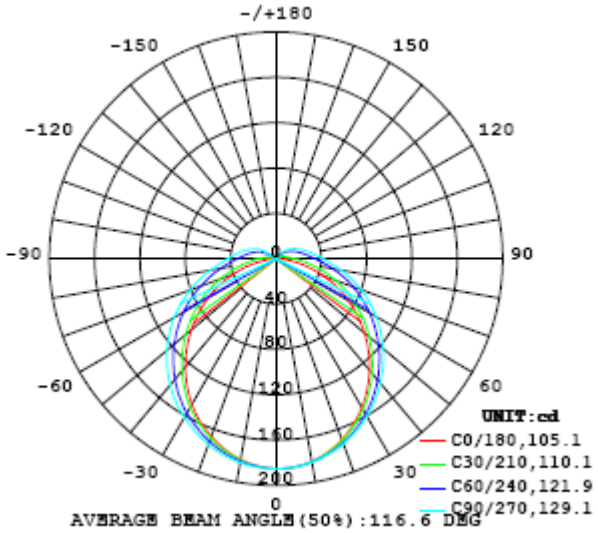


Chart 6: Polar Candela Distribution

Luminous Intensity Data- Goniophotometer Method

Table--1 UNIT: cd

γ (DEG) \ C (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185
5	185	184	185	185	185	185	184	184	185	184	184	184	184	184	184	184	184	184	183
10	182	182	182	182	182	182	182	182	182	182	182	182	181	181	181	180	180	180	180
15	177	176	177	177	178	178	178	179	179	179	178	178	177	176	176	175	175	174	174
20	170	170	170	171	172	172	173	173	174	174	173	173	172	171	169	168	168	167	167
25	161	161	162	163	164	165	166	167	168	168	167	166	165	163	162	160	159	158	159
30	152	151	152	154	155	157	158	160	160	160	160	159	157	155	153	151	149	148	148
35	141	141	142	143	145	148	149	151	152	152	152	150	148	145	143	140	138	137	137
40	128	128	130	132	134	137	139	142	143	143	142	141	138	135	132	129	126	125	124
45	115	116	117	120	123	126	129	132	133	134	133	131	128	124	121	117	114	112	111
50	102	102	104	107	111	115	118	121	123	123	122	120	117	113	109	105	101	98.3	97.7
55	87.9	88.4	90.9	94.5	98.7	103	107	110	112	113	112	110	106	102	96.9	92.1	87.9	84.7	83.6
60	73.6	74.1	77.2	81.4	86.3	91.1	95.4	98.9	101	102	101	98.6	94.9	90.2	84.8	79.4	74.5	70.8	69.3
65	59.5	60.3	64.0	68.6	73.9	79.2	83.8	87.7	90.0	91.1	90.1	87.6	83.7	78.7	72.8	67.3	61.8	57.2	54.9
70	44.9	46.0	50.3	56.0	62.1	67.8	72.3	76.3	79.0	79.8	78.9	76.4	72.4	67.7	61.6	55.3	48.9	43.5	40.6
75	30.9	32.2	37.3	43.8	50.3	56.3	61.7	65.7	68.2	69.1	68.2	66.0	62.0	56.8	50.4	43.7	36.7	30.7	27.2
80	18.1	19.7	25.6	32.5	39.4	45.7	51.1	55.2	57.7	58.6	57.9	55.6	51.7	46.5	40.2	33.2	25.9	19.1	14.9
85	8.09	9.84	16.1	23.2	30.2	36.6	41.9	45.8	48.3	49.1	48.4	46.3	42.6	37.7	31.4	24.6	17.3	10.2	5.23
90	1.34	3.57	9.78	16.7	23.4	29.5	34.6	38.5	40.7	41.4	40.8	38.9	35.5	30.7	24.8	18.4	11.6	5.18	0.28
95	0.52	1.51	6.33	12.5	18.7	24.4	29.2	32.9	35.0	35.8	35.2	33.4	30.2	25.7	20.3	14.3	8.27	2.86	0.13
100	0.44	1.23	4.51	9.82	15.4	20.7	25.1	28.5	30.7	31.4	30.9	29.2	26.1	21.9	17.0	11.5	6.08	1.75	0.21
105	0.31	0.93	3.33	7.84	12.8	17.6	21.7	24.9	26.9	27.6	27.2	25.6	22.7	18.9	14.3	9.37	4.59	1.52	0.23
110	0.22	0.53	2.50	6.09	10.6	15.0	18.7	21.6	23.4	24.2	23.8	22.3	19.6	16.1	12.0	7.49	3.20	1.01	0.16
115	0.09	0.34	1.63	4.32	8.60	12.5	15.9	18.6	20.3	21.0	20.6	19.2	16.9	13.7	9.89	5.65	2.25	0.68	0.19
120	0.11	0.23	1.02	2.81	6.21	10.3	13.4	15.8	17.4	18.0	17.7	16.4	14.3	11.3	7.76	3.21	1.55	0.55	0.25
125	0.13	0.23	0.76	1.82	3.63	7.43	10.8	13.1	14.5	15.2	14.8	13.7	11.7	8.80	4.53	2.44	1.16	0.45	0.35
130	0.15	0.23	0.60	1.32	2.38	4.11	7.16	9.99	11.5	12.1	11.8	10.6	8.38	4.82	3.30	1.80	0.88	0.35	0.39
135	0.17	0.24	0.48	0.99	1.75	2.91	4.12	5.10	6.68	7.52	7.09	5.33	4.30	3.70	2.49	1.38	0.72	0.31	0.32
140	0.20	0.25	0.39	0.75	1.30	2.28	3.13	3.44	3.70	3.96	3.74	3.73	3.38	2.68	1.86	1.12	0.61	0.30	0.25
145	0.22	0.25	0.34	0.57	0.95	1.64	2.22	2.72	2.66	2.31	1.90	1.89	1.96	1.79	1.30	0.79	0.36	0.23	0.23
150	0.23	0.25	0.31	0.43	0.67	1.17	1.56	1.90	2.13	2.05	1.74	1.45	1.16	0.90	0.65	0.43	0.22	0.22	0.25
155	0.24	0.25	0.29	0.36	0.52	0.82	1.08	1.29	1.43	1.50	1.47	1.28	1.04	0.82	0.61	0.40	0.32	0.28	0.28
160	0.25	0.26	0.28	0.33	0.40	0.56	0.72	0.84	0.93	0.97	0.95	0.88	0.76	0.60	0.43	0.33	0.32	0.28	0.27
165	0.26	0.25	0.28	0.34	0.35	0.35	0.39	0.48	0.53	0.56	0.55	0.52	0.44	0.35	0.33	0.33	0.30	0.26	0.27
170	0.31	0.33	0.34	0.35	0.35	0.34	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.33	0.31	0.29	0.28	0.26	0.26
175	0.25	0.26	0.26	0.27	0.29	0.30	0.31	0.31	0.32	0.32	0.31	0.31	0.30	0.29	0.28	0.26	0.25	0.25	0.25
180	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	0.16

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	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185	185		
5	184	184	184	184	184	184	184	184	185	185	185	185	185	185	185	185	185		
10	180	180	180	181	181	181	182	182	183	183	183	183	182	182	182	182	182		
15	174	175	175	176	176	177	178	179	179	179	179	179	179	178	178	177	177		
20	167	168	168	169	170	172	173	174	174	174	174	174	173	172	171	171	170		
25	159	160	160	162	163	165	166	168	169	169	168	167	166	165	164	163	162		
30	149	150	151	153	155	157	159	160	161	162	161	160	159	157	156	154	153		
35	137	139	141	143	146	149	151	153	154	154	154	152	150	148	145	143	142		
40	125	127	129	132	135	139	142	144	145	146	145	143	140	137	134	132	130		
45	112	114	117	120	124	128	132	134	136	136	135	132	129	126	122	120	117		
50	98.3	101	104	108	113	117	121	124	126	126	124	122	118	114	110	107	104		
55	84.4	87.3	91.2	96.0	101	106	110	113	115	115	113	110	106	102	97.4	93.4	90.4		
60	70.2	73.6	78.0	83.5	89.1	94.3	98.9	102	104	104	102	98.6	94.2	89.4	84.5	79.9	76.2		
65	56.0	60.0	65.1	71.2	77.2	82.6	87.3	90.6	92.4	92.2	90.3	86.9	82.2	77.0	71.5	66.3	62.0		
70	42.1	46.6	52.5	59.0	65.5	71.0	75.8	79.1	80.7	80.6	78.6	75.1	70.3	64.8	58.8	53.0	48.0		
75	28.8	34.1	40.8	47.7	54.3	59.9	64.6	67.9	69.4	69.2	67.3	63.6	58.8	53.1	46.8	40.3	34.5		
80	16.9	22.9	30.2	37.4	44.1	49.8	54.3	57.4	58.9	58.5	56.7	53.1	48.3	42.3	35.8	28.8	22.3		
85	7.53	14.2	21.6	28.9	35.4	41.1	45.6	48.4	49.7	49.5	47.7	44.3	39.3	33.5	26.8	19.6	12.5		
90	2.61	8.75	15.7	22.7	28.9	34.4	38.7	41.4	42.6	42.4	40.6	37.3	32.7	26.9	20.4	13.2	6.44		
95	0.88	5.35	11.7	18.2	24.2	29.3	33.4	36.0	37.2	37.0	35.3	32.0	27.7	22.2	16.0	9.37	3.53		
100	0.96	2.41	8.54	14.6	20.3	25.1	29.0	31.5	32.6	32.3	30.7	27.7	23.5	18.5	12.6	6.95	2.64		
105	0.60	2.91	5.10	11.4	16.8	21.4	25.0	27.4	28.4	28.1	26.5	23.8	19.9	15.1	9.93	5.32	1.85		
110	0.32	1.77	3.75	7.51	13.3	17.9	21.3	23.6	24.6	24.3	22.8	20.2	16.6	11.9	7.18	3.38	0.97		
115	0.31	1.14	2.72	3.99	8.65	14.0	17.7	19.8	20.8	20.5	19.0	16.6	12.4	7.61	4.37	2.00	0.49		
120	0.34	0.85	1.89	2.87	4.21	7.85	12.5	15.2	16.4	15.9	14.3	11.0	6.64	4.41	2.65	1.21	0.32		
125	0.43	0.70	1.33	2.25	2.70	4.25	6.36	8.34	9.36	9.06	7.71	5.96	4.05	2.93	1.81	0.83	0.27		
130	0.46	0.60	1.01	1.61	2.22	2.95	3.73	4.58	5.24	5.29	4.73	3.71	2.74	2.03	1.25	0.51	0.26		
135	0.34	0.46	0.76	1.16	1.55	2.25	2.58	2.92	3.07	3.03	2.86	2.35	1.89	1.38	0.45	0.38	0.26		
140	0.21	0.25	0.41	0.66	0.97	1.52	1.89	2.24	2.44	2.40	2.14	1.64	1.34	0.83	0.19	0.39	0.27		
145	0.23	0.25	0.34	0.49	0.73	1.09	1.34	1.52	1.70	1.70	1.55	1.20	0.72	0.20	0.24	0.35	0.29		
150	0.25	0.26	0.31	0.40	0.59	0.79	0.95	1.05	1.16	1.14	0.93	0.29	0.23	0.25	0.36	0.33	0.30		
155	0.26	0.26	0.28	0.35	0.47	0.55	0.54	0.60	0.52	0.43	0.39	0.33	0.27	0.37	0.31	0.32	0.30		
160	0.27	0.28	0.27	0.31	0.37	0.42	0.47	0.50	0.44	0.36	0.35	0.38	0.32	0.31	0.31	0.30	0.29		
165	0.28	0.28	0.29	0.29	0.28	0.29	0.32	0.34	0.35	0.35	0.35	0.33	0.30	0.29	0.30	0.30	0.30		
170	0.26	0.26	0.26	0.27	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.29	0.29	0.29	0.30		
175	0.25	0.25	0.24	0.24	0.24	0.24	0.24	0.24	0.25	0.25	0.25	0.26	0.26	0.26	0.26	0.26	0.26		
180	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		

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	2M	HZTE015-01	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.

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

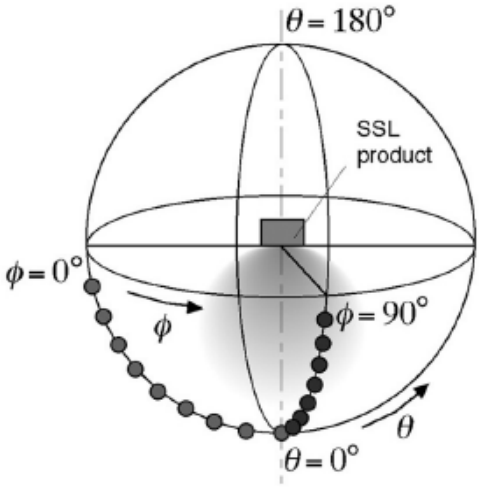
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as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