



LM-79-08 Test Report

for

GREEN CREATIVE LTD

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

Downlight

Model: 10DL4DIM/940

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Report No.: HZ17080054c

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

Review by:

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Sep. 01, 2017

Approved by:



Jim Zhang

Manager: Jim Zhang
Sep. 01, 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: **10DL4DIM/940**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
99.1	988.7	9.98	0.9702
CCT (K)	CRI	Stabilization Time (Light & Power)	
3873	92.4	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 : Aug. 29, 2017

Date of Test : Aug. 30, 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

TABLE OF CONTENT

LM-79-08 Test Report.....	1
Test Summary.....	2
Sample Photos.....	4
TEST RESULTS	5
Goniophotometer Method	6
Spectral Power Distribution - Sphere Spectroradiometer Method	7
Chromaticity Diagram - Sphere Spectroradiometer Method.....	8
Nominal CCT Quadrangles – Sphere Spectroradiometer Method	9
Zonal Lumen Tabulation- Goniophotometer Method	10
Luminous Intensity Distribution Plots- Goniophotometer Method.....	12
Luminous Intensity Data- Goniophotometer Method.....	13
EQUIPMENT LIST	15
TEST METHODS	15
Seasoning of SSL Product.....	15
Sphere-Spectroradiometer Method- Photometric and Electrical Measurements.....	15
Goniophotometer Method	16
Photometric and Electrical Measurements.....	16
Color Characteristics Measurements.....	16
Color Spatial Uniformity	16

Sample Photos



Figure 1- Overview of the sample

Equipment Under Test (EUT)

Name	: Downlight
Model	: 10DL4DIM/940
Electrical Ratings	: 120V, 60Hz, 10W
Product Description	: 4000K
Manufacturer	: GREEN CREATIVE LTD
Address	: 756 North Zhongshan Rd., Unit B301 Zhabei District, Shanghai

TEST RESULTS

Test ambient temperature was 24.9°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)	0.086
Power Factor	0.9702
Test Power (W)	9.98
THD A%	18.51
Luminous Efficacy (lm/W)	99.1
Total Luminous Flux (lm)	988.7
Color Rendering Index (CRI)	92.4
R9	59.3
Correlated Color Temperature (CCT)(K)	3873
Chromaticity Chroma x	0.3869
Chromaticity Chroma y	0.3829
Chromaticity Chroma u	0.2269
Chromaticity Chroma v	0.3368
Duv	0.0009
Chromaticity Chroma u'	0.2269
Chromaticity Chroma v'	0.5052

Special Color Rendering Indices	
R1	92.5
R2	96.5
R3	98.2
R4	91
R5	91.5
R6	94
R7	92.5
R8	83
R9	59.3
R10	90.5
R11	91.3
R12	72.8
R13	93.9
R14	99
Rf	89
Rg	97

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°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)	0.083
Power Factor	0.9660
Test Power (W)	9.67
Luminous Efficacy (lm/W)	103.6
Total Luminous Flux (lm)	1002.2
Beam Angle (°)	94.2
Center Beam Candle Power (cd)	452
Spacing Criteria	1.18 (0°-180°)/ 1.18 (90°-270°)
Zonal Lumens in the 0°-60°Zone	87.14%
Zonal Lumens in the 60°-90°Zone	12.76%
Zonal Lumens in the 90°-120°Zone	0.02%
Zonal Lumens in the 120°-180°Zone	0.08%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

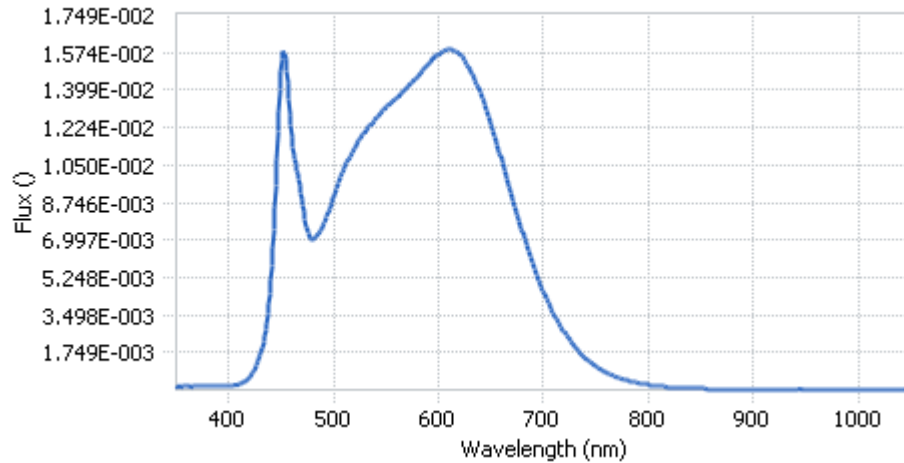
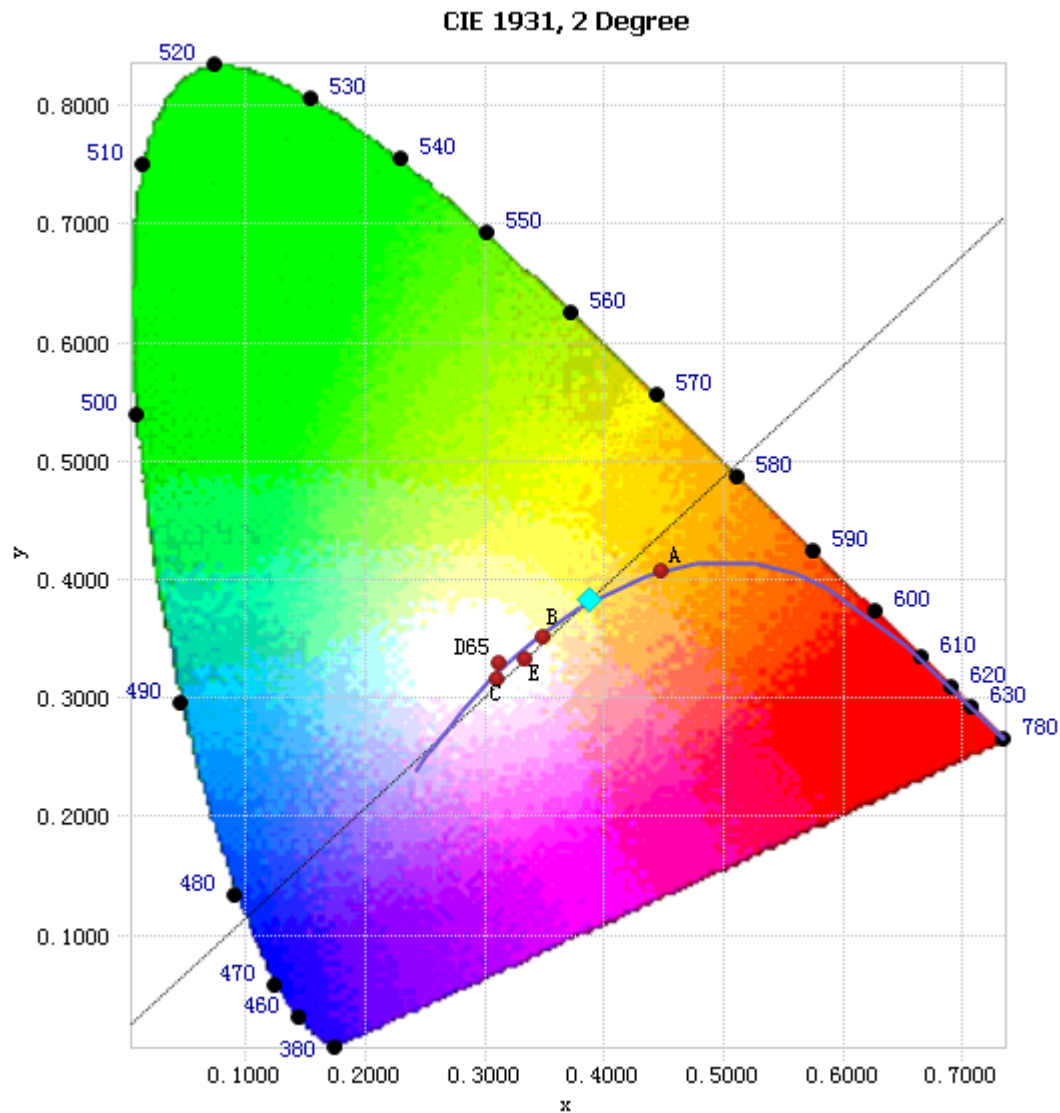


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	1.71E-04	485	7.28E-03	590	1.52E-02	695	5.19E-03
385	1.75E-04	490	7.63E-03	595	1.55E-02	700	4.58E-03
390	1.67E-04	495	8.31E-03	600	1.57E-02	705	4.01E-03
395	1.83E-04	500	9.02E-03	605	1.58E-02	710	3.51E-03
400	1.96E-04	505	9.74E-03	610	1.59E-02	715	3.06E-03
405	2.35E-04	510	1.03E-02	615	1.59E-02	720	2.68E-03
410	2.88E-04	515	1.09E-02	620	1.56E-02	725	2.32E-03
415	3.90E-04	520	1.13E-02	625	1.54E-02	730	2.01E-03
420	6.02E-04	525	1.17E-02	630	1.49E-02	735	1.73E-03
425	9.78E-04	530	1.20E-02	635	1.44E-02	740	1.49E-03
430	1.62E-03	535	1.24E-02	640	1.38E-02	745	1.28E-03
435	2.79E-03	540	1.27E-02	645	1.31E-02	750	1.10E-03
440	5.13E-03	545	1.29E-02	650	1.24E-02	755	9.54E-04
445	9.54E-03	550	1.32E-02	655	1.16E-02	760	8.16E-04
450	1.49E-02	555	1.34E-02	660	1.08E-02	765	7.04E-04
455	1.49E-02	560	1.37E-02	665	9.87E-03	770	6.00E-04
460	1.18E-02	565	1.38E-02	670	9.00E-03	775	5.13E-04
465	1.02E-02	570	1.41E-02	675	8.16E-03	780	4.44E-04
470	8.86E-03	575	1.43E-02	680	7.36E-03		
475	7.41E-03	580	1.46E-02	685	6.60E-03		
480	7.03E-03	585	1.50E-02	690	5.85E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3869, 0.3829)

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

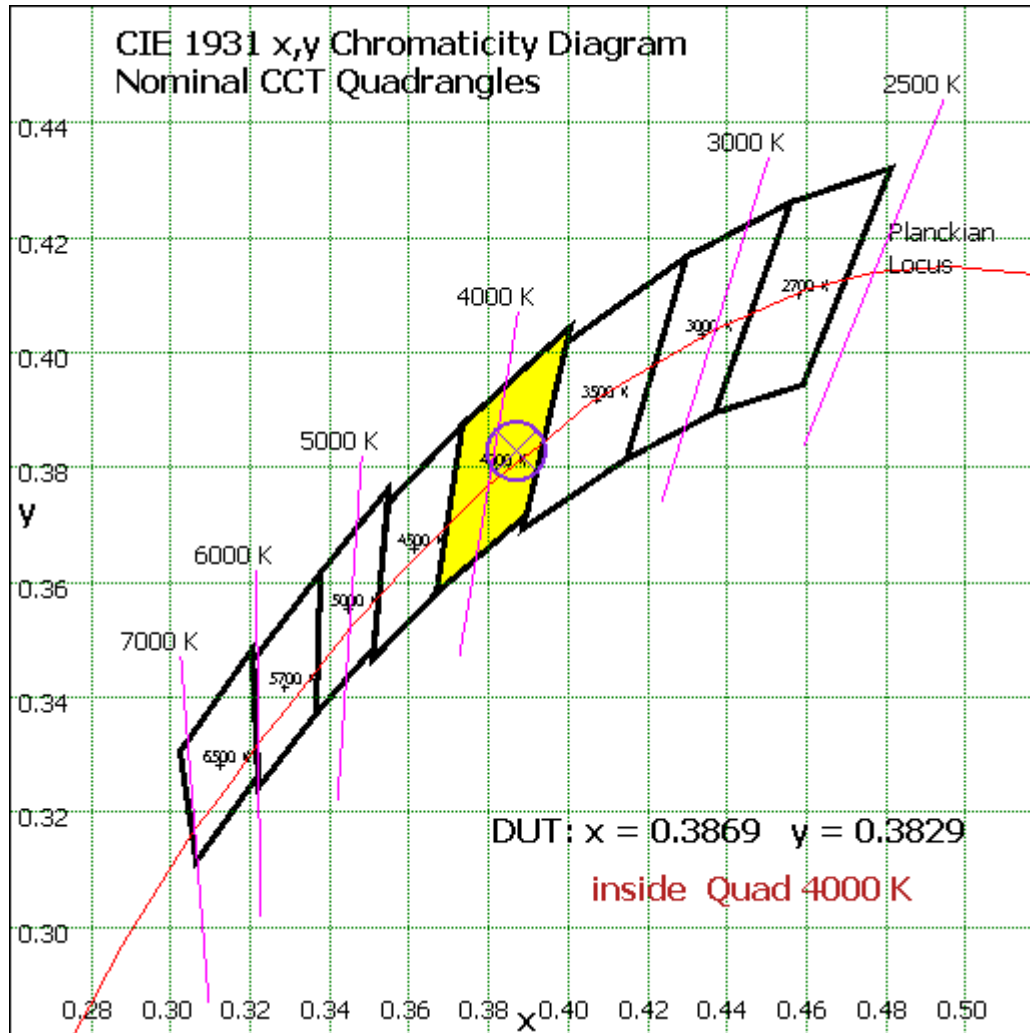


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Zonal Lumen Tabulation- Goniophotometer Method

$\gamma(^{\circ})$	Lumens	% Total
0- 10	42.635	4.25%
10- 20	120.343	12.01%
20- 30	176.692	17.63%
30- 40	201.127	20.07%
40- 50	187.859	18.74%
50- 60	144.65	14.43%
60- 70	86.655	8.65%
70- 80	33.709	3.36%
80- 90	7.559	0.75%
90-100	0.02	0.00%
100-110	0.049	0.00%
110-120	0.086	0.01%
120-130	0.13	0.01%
130-140	0.181	0.02%
140-150	0.204	0.02%
150-160	0.176	0.02%
160-170	0.117	0.01%
170-180	0.041	0.00%
Total	1002.2	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	873.306	87.14%
60- 90	127.923	12.76%
0-90	1001.229	99.90%
90- 180	1.004	0.10%
0- 180	1002.2	100%

Table 5: Zonal Lumen Data

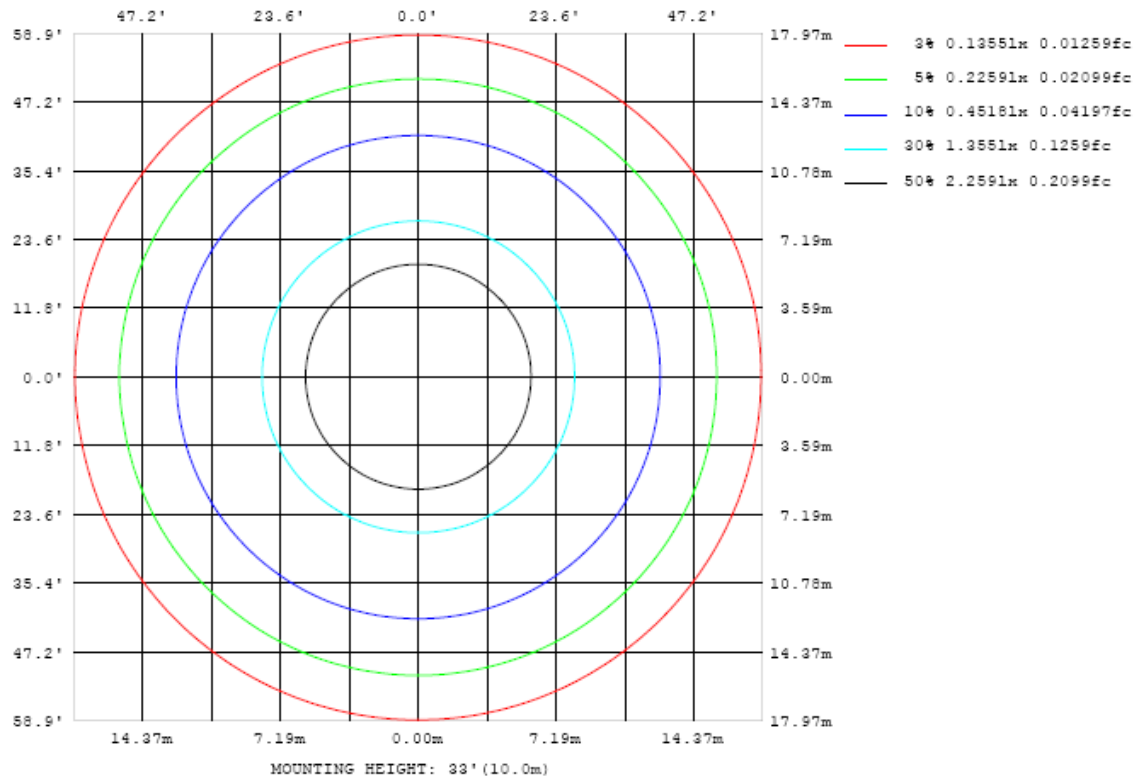


Chart 4: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

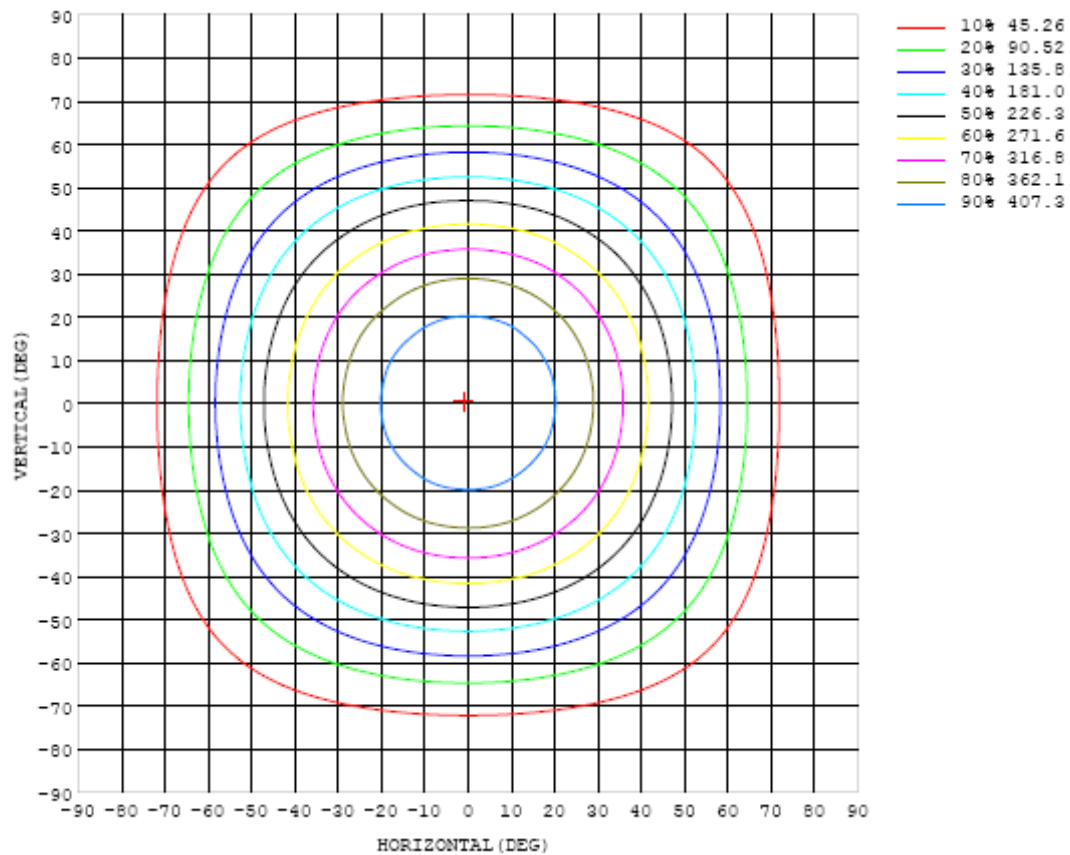


Chart 5: Isocandela Plot

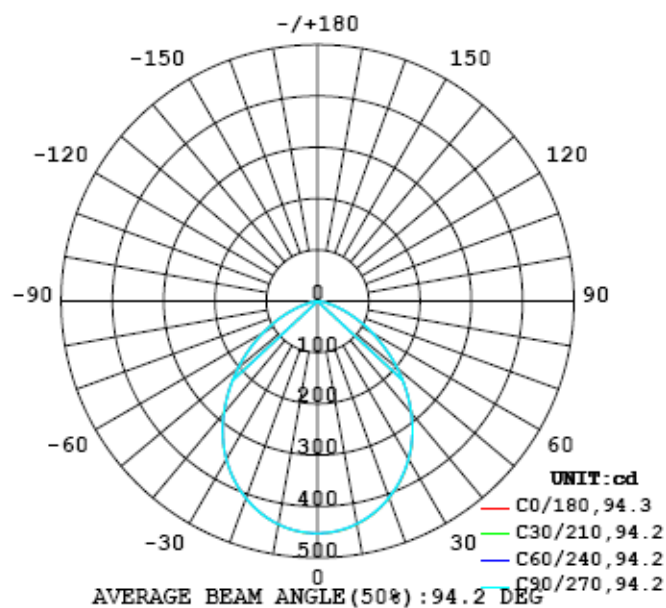


Chart 6: Polar Candela Distribution

Luminous Intensity Data- Goniophotometer Method

Table--1

UNIT: cd

C (DEG) y (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452
5	449	449	449	450	449	449	449	450	449	449	449	449	450	449	449	449	450	449	449
10	441	441	441	441	440	440	440	441	440	440	440	441	441	440	441	441	441	441	441
15	427	427	427	427	426	426	426	427	426	426	426	427	427	426	427	427	427	427	427
20	408	408	408	408	407	407	407	407	407	407	407	407	408	407	407	408	408	408	408
25	384	384	384	384	383	383	383	383	383	383	383	384	384	383	383	384	384	384	384
30	356	355	356	355	355	354	355	355	355	354	355	355	355	355	355	355	356	355	355
35	322	322	322	322	322	322	322	322	322	322	322	322	322	322	322	322	322	322	322
40	285	285	285	285	284	284	284	285	284	284	284	285	285	284	284	285	285	284	285
45	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244
50	202	202	202	203	202	202	202	203	203	203	203	203	203	203	203	202	203	202	202
55	161	161	162	162	161	162	162	162	162	162	162	162	162	162	162	162	162	161	162
60	122	122	123	123	123	123	123	123	123	123	124	124	124	123	123	123	123	123	124
65	86.7	86.8	87.1	87.3	87.3	87.5	87.8	87.9	88.0	88.0	88.0	88.2	88.1	87.8	87.6	87.5	87.3	87.0	87.4
70	55.5	55.7	56.0	56.2	56.3	56.4	56.7	56.9	56.9	57.0	56.9	56.8	56.8	56.6	56.4	56.2	55.9	55.5	55.5
75	30.6	30.8	31.1	31.2	31.4	31.5	31.6	31.8	31.8	31.7	31.7	31.6	31.3	31.1	30.8	30.5	30.2	30.0	30.0
80	15.3	15.4	15.6	15.7	15.8	15.8	15.9	16.0	16.0	16.0	15.9	15.9	15.7	15.6	15.4	15.3	15.1	14.9	15.2
85	7.14	7.28	7.45	7.58	7.64	7.69	7.75	7.77	7.77	7.74	7.69	7.62	7.52	7.33	7.19	7.06	6.92	6.74	6.56
90	0.02	0.03	0.03	0.05	0.06	0.06	0.08	0.08	0.08	0.07	0.06	0.05	0.04	0.03	0.02	0.02	0.01	0.01	0.01
95	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
100	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03
105	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05
110	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	0.06	0.06	0.06	0.06	0.06	0.07
115	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	0.09
120	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	0.10	0.10	0.10	0.12
125	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	0.13	0.13	0.13	0.15
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	0.20
135	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.26
140	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.32
145	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.37
150	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.41
155	0.32	0.32	0.33	0.32	0.32	0.33	0.33	0.33	0.32	0.33	0.33	0.33	0.32	0.33	0.33	0.33	0.32	0.33	0.43
160	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.45
165	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.45
170	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.45
175	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.44
180	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44

Table 6: Luminous Intensity Data

Table--2

UNIT: cd

C (DEG) y (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452		
5	449	450	450	449	449	450	450	450	449	450	450	450	449	450	450	450	449		
10	441	441	442	441	441	441	442	442	441	441	442	442	441	441	442	441	441		
15	427	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428		
20	408	408	409	408	408	409	409	409	409	409	409	409	409	409	409	409	409		
25	384	384	385	384	384	384	385	385	385	385	385	385	384	385	385	385	385		
30	356	356	356	356	356	356	356	356	356	356	356	357	356	356	357	357	357		
35	322	322	323	323	322	323	323	323	323	323	322	323	323	323	323	323	323		
40	284	285	285	284	285	284	285	285	284	284	285	285	285	285	285	286	285		
45	244	244	244	245	244	244	244	244	243	244	244	245	244	244	244	245	245		
50	202	203	203	202	202	202	202	202	202	202	202	202	202	202	202	203	203		
55	162	162	162	162	161	161	161	162	161	161	161	162	161	162	162	162	162		
60	123	123	123	123	122	122	122	122	122	122	122	123	123	123	123	123	123		
65	87.4	86.8	86.5	86.3	86.1	86.0	86.1	86.0	86.1	86.3	86.4	86.5	86.6	86.6	87.0	87.1	87.1		
70	55.1	54.6	54.6	54.2	54.0	53.8	53.7	54.0	53.9	54.0	54.3	54.5	54.6	54.9	55.2	55.4	55.6		
75	29.7	29.4	29.2	29.0	28.8	28.7	28.6	28.7	28.9	29.1	29.2	29.5	29.7	29.9	30.2	30.4	30.6		
80	14.8	14.7	14.5	14.4	14.3	14.2	14.2	14.2	14.3	14.4	14.5	14.7	14.8	14.9	15.3	15.4	15.5		
85	6.39	6.25	6.13	6.04	5.97	5.94	5.95	5.94	5.99	6.07	6.18	6.28	6.41	6.58	6.75	6.90	7.06		
90	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
95	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02		
100	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.03	0.04	0.04	0.03	0.03		
105	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05		
110	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.07	0.07	0.07	0.08	0.08	0.07	0.07	0.07	0.07	0.07		
115	0.09	0.09	0.10	0.09	0.09	0.10	0.10	0.09	0.09	0.09	0.10	0.10	0.09	0.10	0.09	0.09	0.09		
120	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		
125	0.15	0.15	0.16	0.15	0.15	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15		
130	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20		
135	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26		
140	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32		
145	0.37	0.37	0.38	0.37	0.37	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38		
150	0.41	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42		
155	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44		
160	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.46	0.45		
165	0.45	0.45	0.45	0.45	0.45	0.45	0.46	0.45	0.45	0.45	0.46	0.46	0.45	0.46	0.46	0.46	0.46		
170	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45		
175	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44		
180	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44		

Table 7: Luminous Intensity Data

EQUIPMENT LIST

Test Equipment	Model	Equipment No.	Calibration Date	Calibration Due date
Goniophotometer system	GO-R5000	HZTE011-01	Aug. 23, 2017	Aug. 22, 2018
Digital Power Meter	PF2010A	HZTE028-01	Aug. 10, 2017	Aug. 09, 2018
AC Power Supply	DPS1060	HZTE001-06	Aug. 10, 2017	Aug. 09, 2018
DC Power Supply	WY12010	HZTE004-03	Aug. 10, 2017	Aug. 09, 2018
Temperature Meter	TES1310	HZTE017-01	Aug. 17, 2017	Aug. 16, 2018
Standard source	D908	HZTE012-01	Aug. 15, 2017	Aug. 14, 2018
Integrate Sphere system	2M	HZTE015-01	Aug. 23, 2017	Aug. 22, 2018
Digital Power Meter	WT210	HZTE008-01	Aug. 10, 2017	Aug. 09, 2018
AC Power Supply	PCR 500L	HZTE001-07	Aug. 10, 2017	Aug. 09, 2018
DC Power Supply	IT6154	HZTE004-04	Aug. 10, 2017	Aug. 09, 2018
Temperature and humidity recorder	JR900	HZTE018-01	Aug. 16, 2017	Aug. 15, 2018
Standard source	SCL-1400	HZTE012-02	Aug. 15, 2017	Aug. 14, 2018

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 expanded 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 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 2.3% with a coverage factor $k=2$.

Color Characteristics Measurements

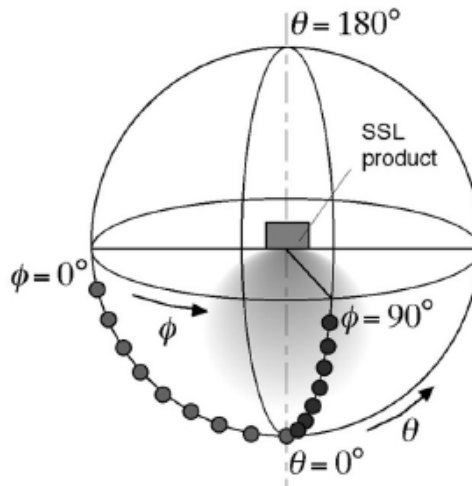
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as 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 ($C=0^\circ/180^\circ$ and $C=90^\circ/270^\circ$) 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, $\Delta u'v'$, 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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