



## LM-79-08 Test Report

for

### GREEN CREATIVE LTD

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

### LED Tube

**Model: 14.5T5HO/3F/830/BYP**

### Laboratory: Leading Testing Laboratories

**NVLAP CODE: 200960-0**

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Report No.: HZ19020002y

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

Review by:

Engineer: April Zou  
Feb. 22, 2019

Approved by:



Manager: Jim Zhang  
Feb. 22, 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: 14.5T5HO/3F/830/BYP

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
127.9	1840.0	14.39	0.9816
CCT (K)	CRI	Stabilization Time (Light & Power)	
2933	81.8	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** : Feb. 01, 2019

**Date of Test** : Feb. 13, 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

## TABLE OF CONTENT

LM-79-08 Test Report.....	1
Test Summary.....	2
Sample Photo.....	4
TEST RESULTS .....	5
Spectral Power Distribution - Sphere Spectroradiometer Method .....	7
Chromaticity Diagram - Sphere Spectroradiometer Method.....	8
Nominal CCT Quadrangles – Sphere Spectroradiometer Method .....	9
Color Vector – Sphere Spectroradiometer Method .....	10
Zonal Lumen Tabulation- Goniophotometer Method .....	11
Luminous Intensity Distribution Plots- Goniophotometer Method.....	13
Luminous Intensity Data- Goniophotometer Method.....	14
EQUIPMENT LIST .....	16
TEST METHODS .....	16
Seasoning of SSL Product.....	16
Sphere-Spectroradiometer Method- Photometric and Electrical Measurements.....	16
Goniophotometer Method .....	17
Photometric and Electrical Measurements.....	17
Color Characteristics Measurements.....	17
Color Spatial Uniformity .....	17

## Sample Photo



Figure 1- Overview of the sample

### Equipment Under Test(EUT)

<b>Name</b>	: LED Tube
<b>Model</b>	: 14.5T5HO/3F/830/BYP
<b>Electrical Ratings</b>	: 120-277V, 50/60Hz, 14.5W
<b>Product Description</b>	: 3000K
<b>Manufacturer</b>	: GREEN CREATIVE LTD
<b>Address</b>	: 756 North Zhongshan Rd., Unit B301 Zhabei District, Shanghai

## TEST RESULTS

Test ambient temperature was 26.0°C.

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)	0.122	0.056
Power Factor	0.9816	0.9471
Test Power (W)	14.39	14.71
THD A%	17.62	13.31
Luminous Efficacy (lm/W)	127.9	125.0
Total Luminous Flux (lm)	1840.0	1839.0
Color Rendering Index (CRI)	81.8	
R9	1.7	
Correlated Color Temperature (CCT)(K)	2933	
Chromaticity Chroma x	0.4408	
Chromaticity Chroma y	0.4040	
Chromaticity Chroma u	0.2531	
Chromaticity Chroma v	0.3480	
Duv	0.0008	
Chromaticity Chroma u'	0.2531	
Chromaticity Chroma v'	0.5220	

Special Color Rendering Indices	
R1	80.2
R2	91.1
R3	95.3
R4	80.1
R5	80.9
R6	89.9
R7	81.2
R8	56
R9	1.7
R10	80.4
R11	80.1
R12	75.2
R13	82.8
R14	98
Rf	85
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°C.

The photometric distance is 30m.

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)	0.123
Power Factor	0.9793
Test Power (W)	14.45
Luminous Efficacy (lm/W)	125.4
Total Luminous Flux (lm)	1812.6
Beam Angle ( °)	118.0
Center Beam Candle Power (cd)	501
Spacing Criteria	1.22 (0 °-180 °)/ 1.31 (90 °-270 °)
Zonal Lumens in the 0 °-60 °Zone	63.16%
Zonal Lumens in the 60 °-90 °Zone	25.96%
Zonal Lumens in the 90 °-120 °Zone	8.29%
Zonal Lumens in the 120 °-180 °Zone	2.59%

Table 3: Test data per Goniophotometer Method

## Spectral Power Distribution - Sphere Spectroradiometer Method

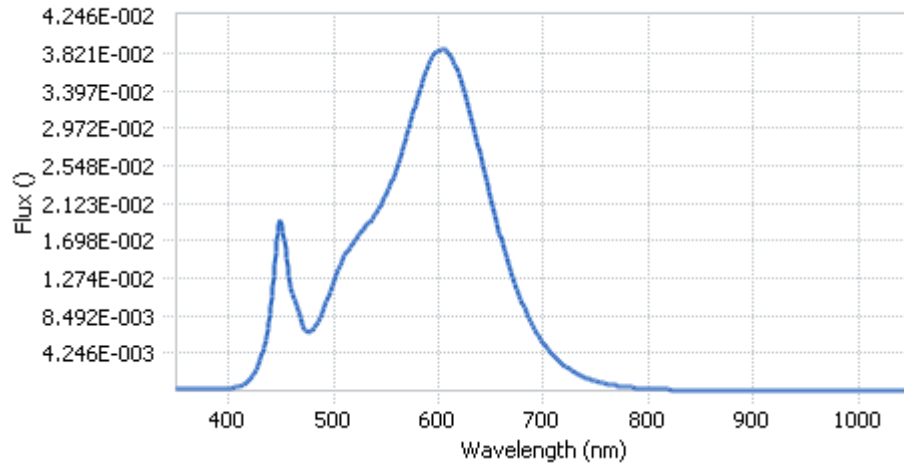
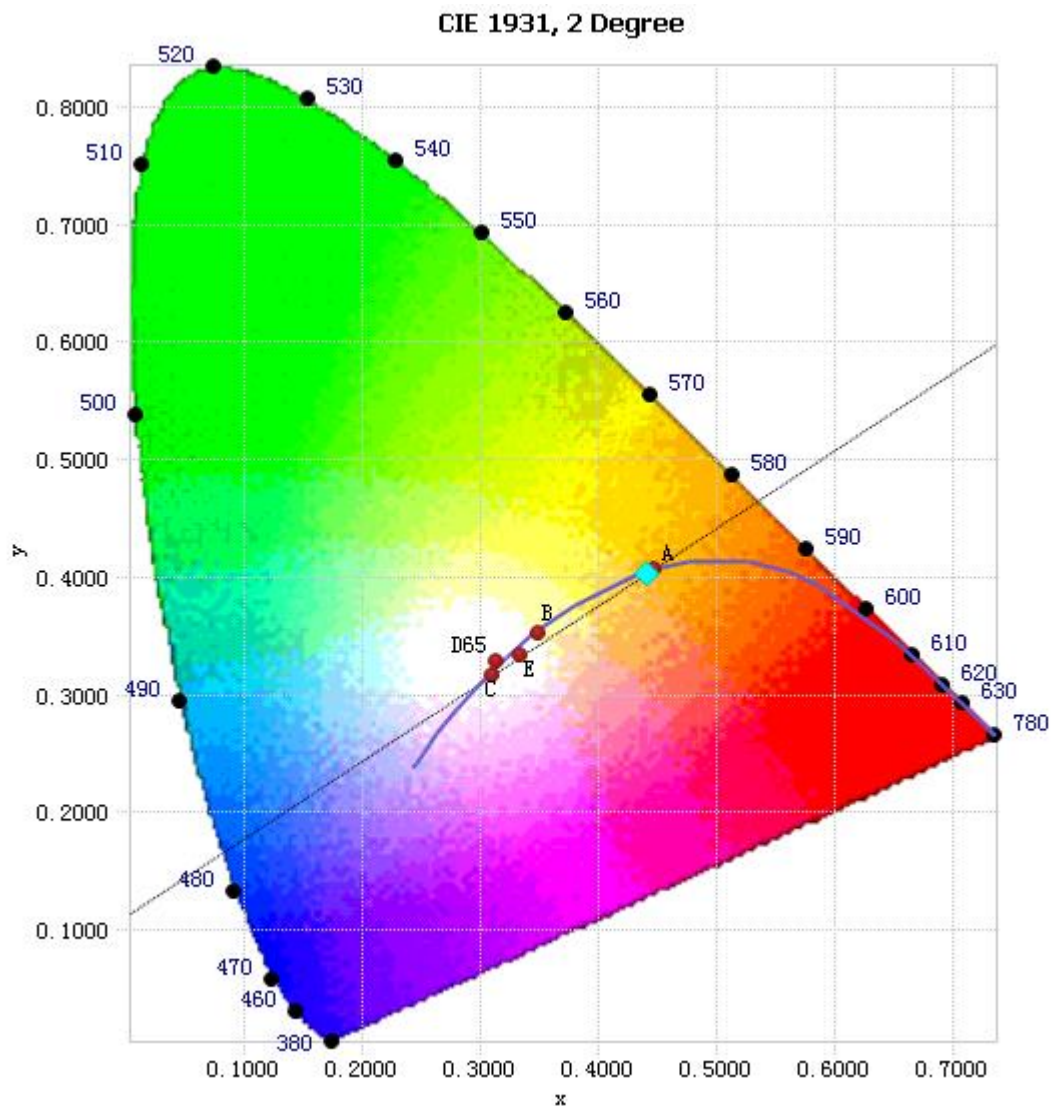


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	2.53E-04	485	7.78E-03	590	3.67E-02	695	6.27E-03
385	2.54E-04	490	9.02E-03	595	3.79E-02	700	5.37E-03
390	2.57E-04	495	1.07E-02	600	3.85E-02	705	4.59E-03
395	2.87E-04	500	1.24E-02	605	3.86E-02	710	3.90E-03
400	3.13E-04	505	1.39E-02	610	3.81E-02	715	3.33E-03
405	3.74E-04	510	1.52E-02	615	3.70E-02	720	2.84E-03
410	5.29E-04	515	1.62E-02	620	3.55E-02	725	2.43E-03
415	7.84E-04	520	1.70E-02	625	3.36E-02	730	2.06E-03
420	1.30E-03	525	1.78E-02	630	3.14E-02	735	1.76E-03
425	2.15E-03	530	1.85E-02	635	2.90E-02	740	1.49E-03
430	3.49E-03	535	1.92E-02	640	2.66E-02	745	1.27E-03
435	5.74E-03	540	2.01E-02	645	2.41E-02	750	1.08E-03
440	9.63E-03	545	2.10E-02	650	2.16E-02	755	9.29E-04
445	1.58E-02	550	2.22E-02	655	1.93E-02	760	7.94E-04
450	1.92E-02	555	2.35E-02	660	1.70E-02	765	6.78E-04
455	1.49E-02	560	2.51E-02	665	1.50E-02	770	5.79E-04
460	1.11E-02	565	2.70E-02	670	1.30E-02	775	4.97E-04
465	9.67E-03	570	2.91E-02	675	1.13E-02	780	4.23E-04
470	7.70E-03	575	3.11E-02	680	9.83E-03		
475	6.64E-03	580	3.33E-02	685	8.51E-03		
480	6.94E-03	585	3.52E-02	690	7.30E-03		

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

## Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4408, 0.4040)

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

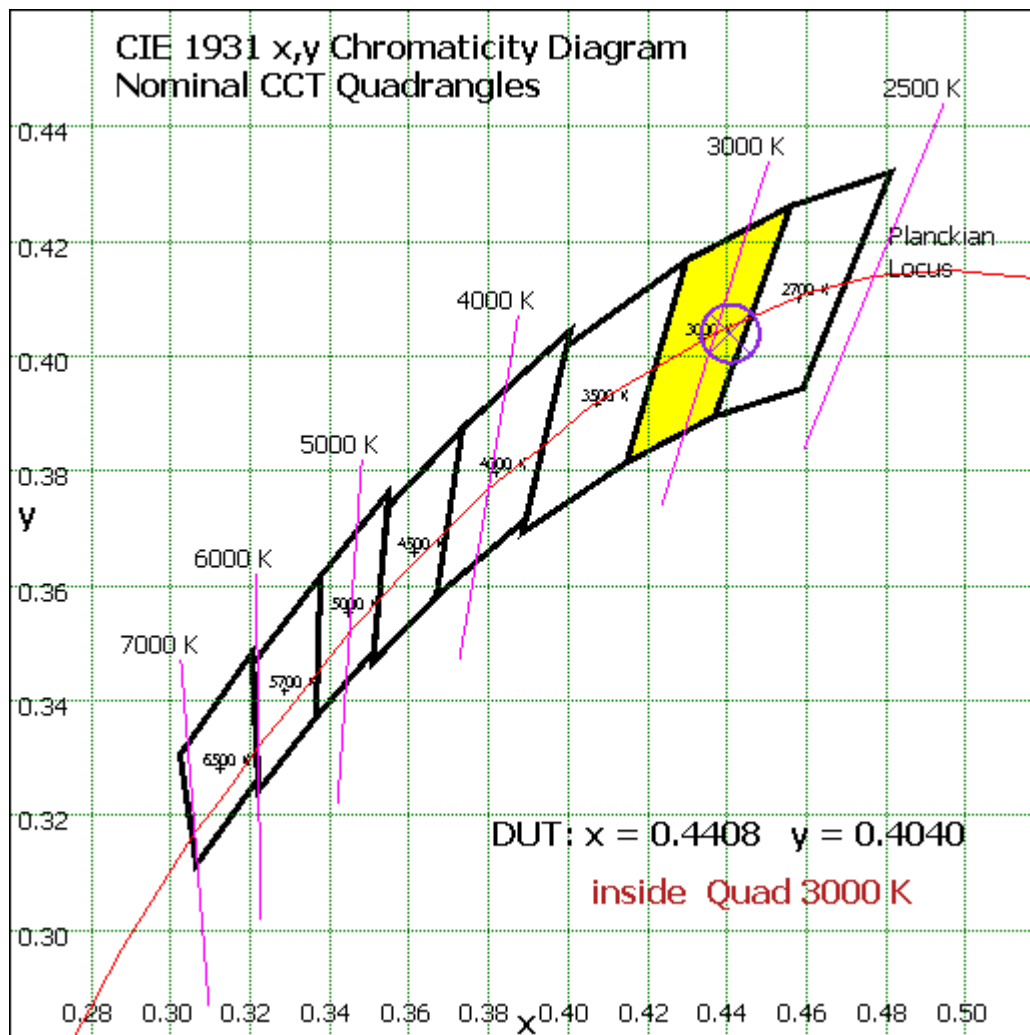


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

## Color Vector – Sphere Spectroradiometer Method

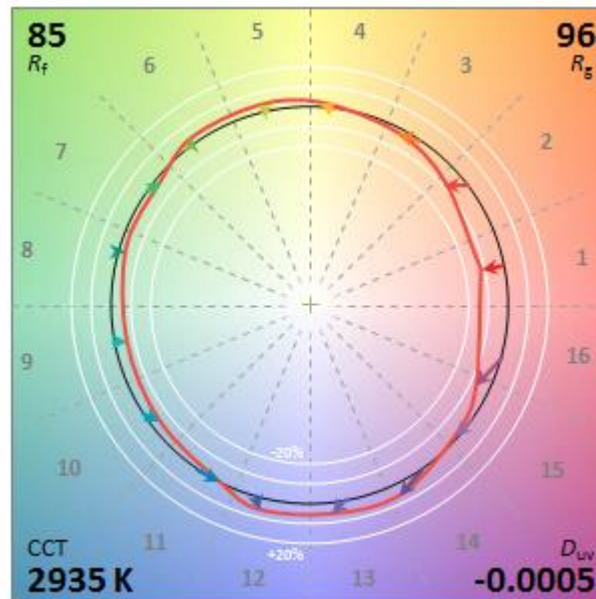


Chart 4: Color Vector Diagram of TM-30-18

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

$\gamma(^{\circ})$	Lumens	% Total
0- 10	47.371	2.61%
10- 20	135.677	7.49%
20- 30	205.749	11.35%
30- 40	249.051	13.74%
40- 50	261.719	14.44%
50- 60	245.359	13.54%
60- 70	206.685	11.40%
70- 80	156.313	8.62%
80- 90	107.536	5.93%
90-100	71.922	3.97%
100-110	47.722	2.63%
110-120	30.607	1.69%
120-130	19.608	1.08%
130-140	12.457	0.69%
140-150	7.695	0.42%
150-160	4.46	0.25%
160-170	2.141	0.12%
170-180	0.563	0.03%
Total	1812.6	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	1144.926	63.16%
60- 90	470.534	25.96%
0-90	1615.46	89.12%
90- 180	197.175	10.88%
0- 180	1812.6	100%

Table 5: Zonal Lumen

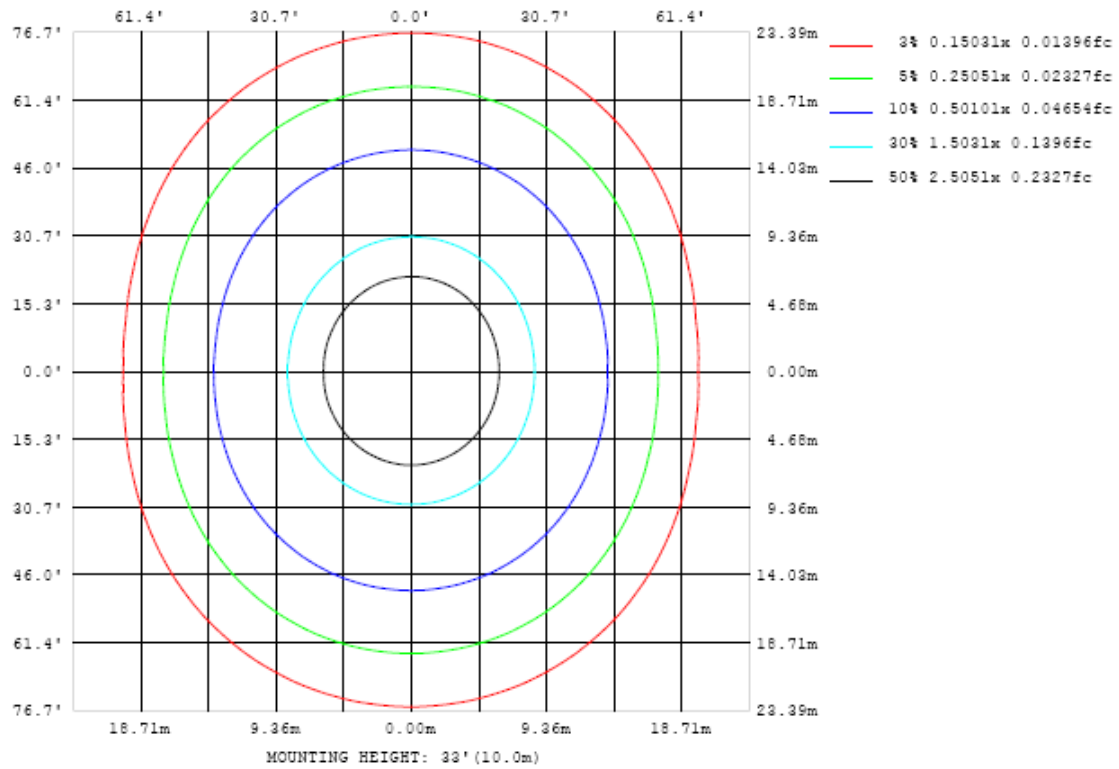


Chart 5: Illuminance Plot (Footcandles)

## Luminous Intensity Distribution Plots- Goniophotometer Method

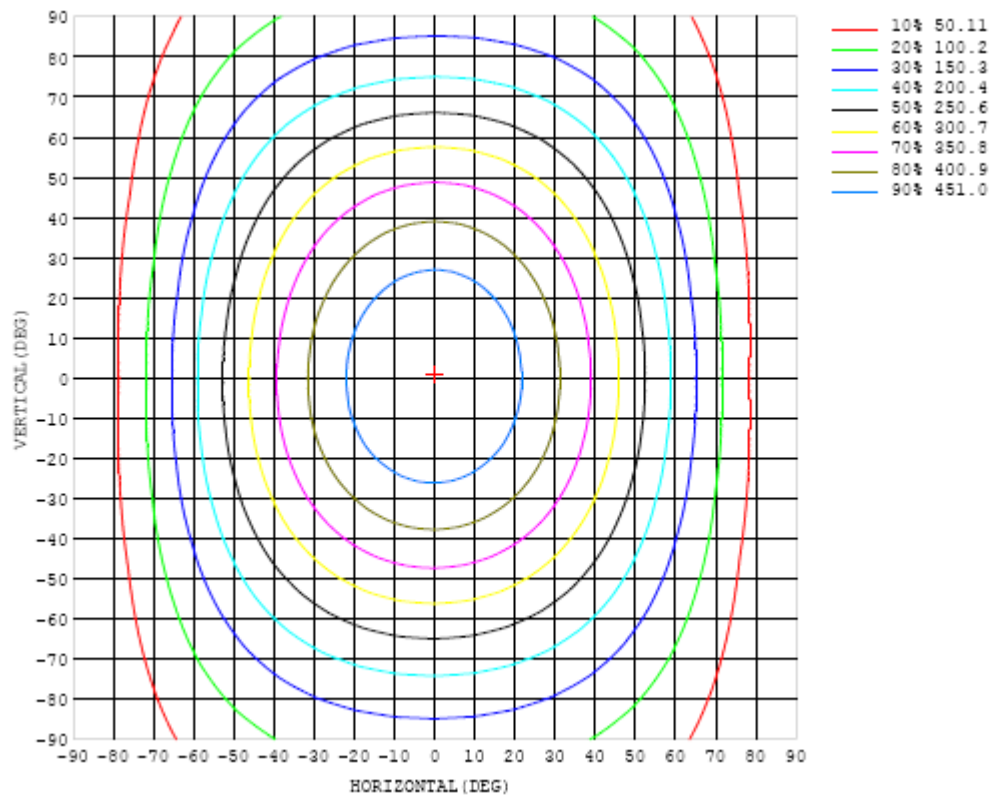


Chart 6: Isocandela Plot

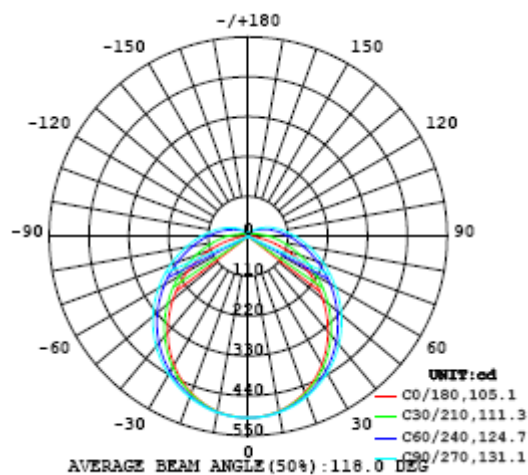


Chart 7: Polar Candela Distribution

## Luminous Intensity Data- Goniophotometer Method

Table--1

UNIT: cd

C (DEG) y (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	501	501	501	501	501	501	501	501	501	501	501	501	501	501	501	501	501	501	501
5	498	498	498	498	498	498	499	499	499	499	499	499	499	499	499	499	498	498	498
10	490	490	490	490	491	492	492	493	493	493	493	493	493	492	492	491	491	491	491
15	476	477	477	479	480	481	482	483	484	484	484	484	483	482	481	480	479	478	478
20	458	458	460	462	464	466	468	469	471	471	471	470	469	467	465	463	462	460	460
25	435	436	438	440	444	447	450	452	454	455	455	454	451	449	446	442	440	438	437
30	408	409	412	415	420	425	429	433	435	436	436	434	431	427	422	418	415	411	410
35	377	378	382	387	393	399	405	410	413	414	414	411	407	402	396	390	385	381	380
40	343	345	349	356	364	372	379	385	388	390	389	386	381	374	367	359	353	348	346
45	307	309	314	323	332	342	351	358	362	364	363	359	353	344	336	326	319	313	310
50	269	271	278	288	300	311	321	329	334	336	335	331	323	314	303	292	282	275	272
55	230	233	241	253	267	280	291	300	306	308	306	302	293	283	270	257	246	237	233
60	190	194	204	218	234	249	261	271	277	279	277	272	263	251	238	222	209	198	193
65	151	155	168	185	202	219	232	242	248	250	249	243	234	221	206	189	172	160	153
70	112	118	134	153	172	190	204	214	220	223	221	215	206	192	176	157	138	123	114
75	73.7	82.3	102	124	145	163	178	188	194	196	195	189	179	165	148	128	106	86.6	75.9
80	39.2	50.7	73.8	98.2	120	139	153	164	170	172	170	165	155	141	123	101	77.4	54.7	41.5
85	12.3	26.3	51.1	76.2	98.7	117	132	142	148	150	148	143	133	119	101	79.0	54.1	29.5	13.6
90	0.20	11.8	34.5	58.5	80.1	98.3	112	122	128	130	129	123	114	99.9	82.1	60.7	36.9	14.0	0.37
95	0.33	5.30	23.4	44.7	64.8	82.1	95.2	105	110	112	111	105	96.3	83.2	66.5	46.5	25.0	6.36	0.30
100	0.50	3.77	15.9	34.2	52.4	68.1	80.6	89.5	94.8	96.7	95.0	89.9	81.5	69.1	53.6	35.6	17.0	4.05	0.52
105	0.88	3.29	11.9	25.6	41.9	56.3	67.7	76.1	81.1	82.8	81.3	76.5	68.6	57.2	42.9	26.8	12.3	3.44	0.76
110	1.33	3.46	9.79	20.4	32.7	45.5	56.3	64.1	68.8	70.4	69.0	64.6	57.0	46.3	33.5	20.8	9.81	3.43	1.15
115	1.82	3.72	8.62	16.9	26.9	36.8	45.3	52.5	57.1	58.6	57.3	53.0	45.8	37.1	27.1	17.1	8.44	3.62	1.63
120	2.32	4.09	7.99	14.4	22.4	30.5	37.7	43.1	46.5	47.7	46.6	43.2	37.8	30.6	22.5	14.3	7.72	3.95	2.14
125	2.84	4.50	7.62	12.7	19.1	25.6	31.5	36.0	38.9	39.8	38.8	36.0	31.5	25.6	19.0	12.4	7.38	4.35	2.67
130	3.35	4.88	7.45	11.4	16.5	21.7	26.5	30.2	32.5	33.3	32.5	30.1	26.4	21.6	16.3	11.1	7.26	4.80	3.21
135	3.69	5.20	7.36	10.5	14.3	18.5	22.2	25.3	27.2	27.8	27.2	25.3	22.3	18.4	14.1	10.2	7.23	5.20	3.74
140	4.16	5.61	7.33	9.71	12.7	15.9	18.9	21.2	22.7	23.3	22.7	21.2	18.8	15.9	12.6	9.63	7.27	5.64	4.32
145	4.56	5.90	7.36	9.19	11.4	13.8	16.1	17.8	19.0	19.4	19.0	17.8	16.0	13.7	11.3	9.13	7.33	6.02	4.80
150	4.97	6.27	7.26	8.72	10.4	12.1	13.7	15.0	15.9	16.2	15.9	15.0	13.6	12.0	10.3	8.73	7.39	6.36	5.27
155	5.23	6.42	7.26	8.34	9.50	10.7	11.8	12.7	13.2	13.5	13.3	12.7	11.8	10.7	9.53	8.42	7.49	6.68	5.51
160	5.69	6.60	7.27	7.55	8.65	9.54	10.2	10.8	11.2	11.4	11.3	10.9	10.3	9.65	8.91	8.19	7.50	7.06	5.91
165	4.99	5.87	6.82	7.32	7.52	8.52	9.05	9.37	9.62	9.74	9.69	9.52	9.22	8.84	8.42	7.97	7.58	7.28	6.20
170	4.74	5.01	5.62	6.26	6.87	7.31	8.02	8.37	8.47	8.54	8.54	8.47	8.35	8.18	7.94	7.74	7.58	7.39	6.04
175	4.41	4.51	4.65	4.97	5.47	6.13	6.67	7.07	7.44	7.68	7.73	7.72	7.69	7.64	7.56	7.47	7.38	6.91	5.86
180	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49

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	501	501	501	501	501	501	501	501	501	501	501	501	501	501	501	501	501		
5	498	498	498	498	499	499	499	499	499	499	499	499	498	498	498	498	498		
10	491	491	491	491	492	493	493	493	494	494	493	493	492	491	491	490	490		
15	478	479	479	480	481	483	484	484	485	485	484	483	482	480	479	478	477		
20	460	461	463	465	467	469	471	472	473	472	471	469	467	464	462	460	458		
25	438	440	442	446	449	452	455	457	458	457	455	452	449	445	441	438	436		
30	411	414	418	422	427	432	436	439	440	439	436	432	427	422	416	412	409		
35	381	385	390	396	403	409	415	418	419	418	415	409	403	395	388	382	378		
40	348	352	359	368	376	384	391	395	396	395	391	384	376	367	358	350	345		
45	312	318	326	337	348	357	365	369	371	369	365	357	347	336	325	315	309		
50	274	281	292	305	317	328	337	342	344	342	337	328	317	304	291	279	271		
55	236	244	257	272	286	298	308	313	315	314	308	298	286	271	256	242	233		
60	196	207	222	238	254	268	278	284	286	284	278	268	254	238	221	205	194		
65	158	170	188	206	223	238	248	255	257	255	249	238	224	206	187	169	155		
70	119	135	155	175	194	208	219	226	228	226	220	209	194	176	155	134	117		
75	83.1	102	125	147	166	181	192	198	201	199	193	182	167	147	125	102	81.8		
80	51.3	73.6	98.2	121	140	155	166	173	175	173	167	156	141	122	99.3	74.3	50.9		
85	26.2	50.8	75.7	98.4	118	132	143	149	151	150	144	134	119	99.9	77.2	52.3	27.1		
90	11.3	33.8	57.9	79.2	97.8	112	122	128	130	129	123	113	99.2	81.0	59.8	35.7	12.9		
95	4.86	22.3	43.7	63.7	81.1	94.4	104	110	112	110	105	95.8	82.6	65.4	45.7	24.2	6.17		
100	3.11	14.7	32.6	51.0	66.6	79.2	88.4	93.7	95.6	94.3	89.1	80.6	68.2	52.9	34.7	16.3	4.32		
105	2.50	10.9	24.3	39.8	54.5	65.8	74.3	79.3	81.3	80.0	75.2	67.2	56.1	41.6	26.0	12.7	3.56		
110	2.39	8.72	19.2	31.4	43.4	53.8	61.7	66.2	68.0	66.9	62.4	55.2	44.8	33.1	21.3	10.4	3.38		
115	2.60	7.19	15.7	25.6	35.5	44.0	50.5	54.6	56.4	55.3	51.4	45.2	37.0	27.5	17.6	9.13	3.54		
120	3.09	6.79	13.0	21.2	29.5	36.6	42.2	45.7	47.1	46.3	43.1	37.9	30.8	22.9	15.0	8.26	3.82		
125	3.49	6.47	11.2	17.8	24.6	30.6	35.3	38.3	39.5	38.8	36.1	31.7	25.9	19.4	12.8	7.65	4.09		
130	3.83	6.19	10.2	14.5	20.4	25.6	29.6	32.0	33.0	32.4	30.2	26.6	21.8	16.4	11.6	7.35	4.30		
135	4.08	6.37	9.51	13.3	16.7	20.9	24.5	26.7	27.5	27.1	25.2	22.0	18.1	14.4	10.4	7.11	4.42		
140	4.33	6.46	8.78	11.8	15.0	17.8	19.6	21.1	22.0	21.6	20.3	18.5	15.7	12.5	9.46	6.89	4.48		
145	4.50	6.53	8.23	10.6	13.0	15.2	17.1	18.2	18.7	18.4	17.4	15.7	13.3	11.0	8.64	6.72	4.58		
150	4.35	6.65	7.91	9.45	11.3	13.0	14.4	15.3	15.6	15.3	14.4	13.0	11.5	9.84	8.10	6.75	4.61		
155	4.06	6.57	7.54	8.70	9.92	11.0	12.0	12.6	12.8	12.5	12.0	11.2	10.2	8.50	7.57	6.66	4.37		
160	4.30	5.46	6.94	8.03	8.76	9.49	10.1	10.5	10.6	10.5	10.2	9.71	8.45	7.80	6.88	5.77	4.53		
165	4.47	4.29	5.05	6.28	7.83	8.39	8.71	8.98	9.11	9.14	8.56	7.17	6.18	5.78	5.31	4.65	4.61		
170	4.42	4.04	4.10	4.21	4.38	4.95	6.30	7.83	8.01	5.91	4.73	4.95	4.68	4.57	4.49	4.42	4.57		
175	4.85	4.71	4.64	4.63	5.11	5.64	5.93	5.79	2.23	5.92	6.15	5.85	5.56	5.24	4.85	4.53	4.51		
180	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49		

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  $4\pi$ . 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 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 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 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  $10^\circ$  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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