

LM-79-08 Test Report

for

GREEN CREATIVE LTD

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

LED Tube

Model: 8.5T8/2F/835/DEB/RC

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

3rd Floor, Bld. 2, NO. 96 Longchuanwu Rd Qianjiang Economy Dev. Zone, Yuhang Dist,
Hangzhou, Zhejiang Province, China 311100

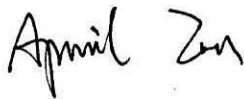
Tel: +86 571 86376106

www.ledtestlab.com

Report No.: HZ18120037g

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

Review by:



Engineer: April Zou
Jan. 18, 2019

Approved by:



Manager: Jim Zhang
Jan. 18, 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: 8.5T8/2F/835/DEB/RC

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
130.9	1075.0	8.21	0.9769
CCT (K)	CRI	Stabilization Time (Light & Power)	
3523	82.2	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. 26, 2018

Date of Test : Dec. 29, 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 Tube
Model	: 8.5T8/2F/835/DEB/RC
Electrical Ratings	: 120-277V, 50/60Hz, 8.5W
Product Description	: G13 base, 3500K
Manufacturer	: GREEN CREATIVE LTD
Address	: 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)	0.070	0.034
Power Factor	0.9769	0.9118
Test Power (W)	8.21	8.48
THD A%	19.56	17.40
Luminous Efficacy (lm/W)	130.9	128.1
Total Luminous Flux (lm)	1075.0	1086.0
Color Rendering Index (CRI)	82.2	
R9	5.8	
Correlated Color Temperature (CCT)(K)	3523	
Chromaticity Chroma x	0.4037	
Chromaticity Chroma y	0.3895	
Chromaticity Chroma u	0.2352	
Chromaticity Chroma v	0.3404	
Duv	0.0003	
Chromaticity Chroma u'	0.2352	
Chromaticity Chroma v'	0.5105	

Special Color Rendering Indices	
R1	80.3
R2	89.5
R3	95.8
R4	80.2
R5	80.3
R6	85.8
R7	84.3
R8	61.3
R9	5.8
R10	75.3
R11	78.7
R12	64.4
R13	82.5
R14	98
Rf	82
Rg	95

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 24.9°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)	0.070
Power Factor	0.9773
Test Power (W)	8.21
Luminous Efficacy (lm/W)	128.4
Total Luminous Flux (lm)	1053.9
Beam Angle (°)	151.6
Center Beam Candle Power (cd)	195
Spacing Criteria	1.23 (0 °-180 °)/ 1.41 (90 °-270 °)
Zonal Lumens in the 0 °-60 °Zone	45.81%
Zonal Lumens in the 60 °-90 °Zone	26.73%
Zonal Lumens in the 90 °-120 °Zone	16.27%
Zonal Lumens in the 120 °-180 °Zone	11.18%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

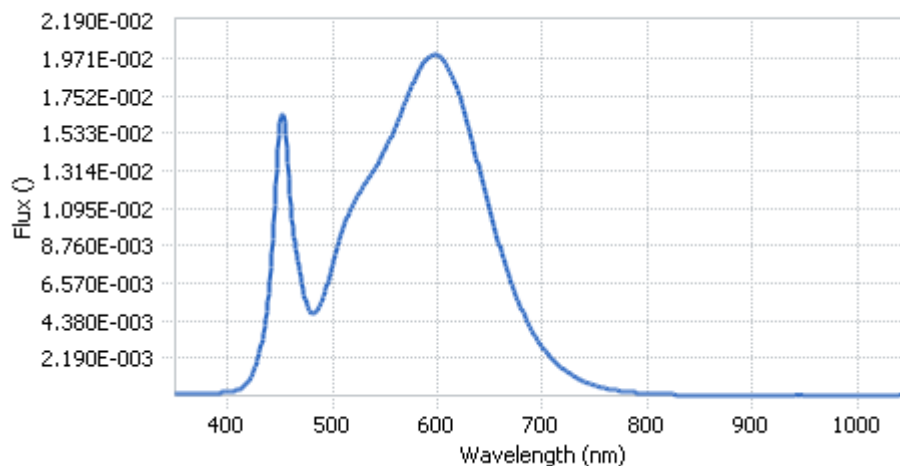
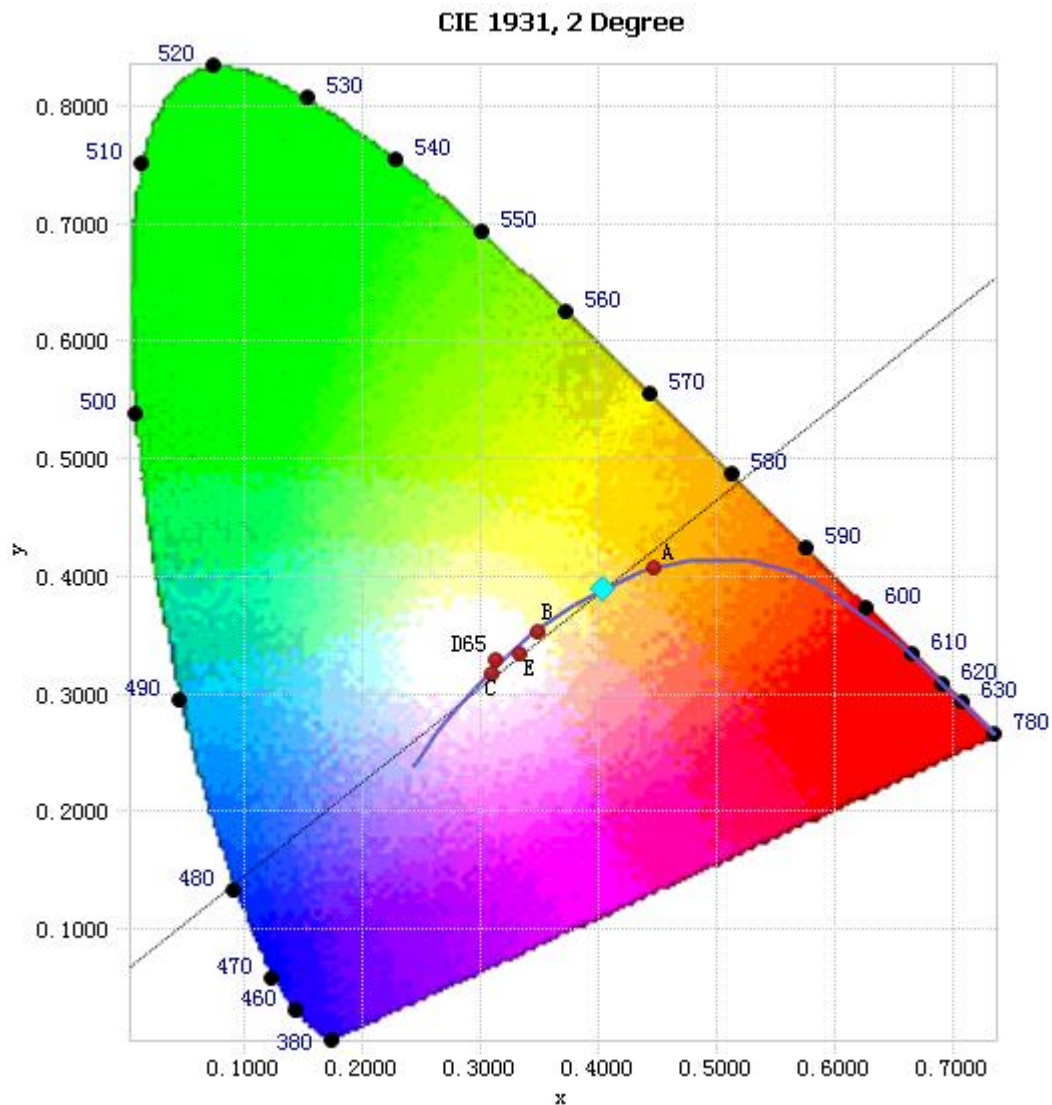


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	1.62E-04	485	4.98E-03	590	1.97E-02	695	3.27E-03
385	1.65E-04	490	5.57E-03	595	1.99E-02	700	2.83E-03
390	1.80E-04	495	6.54E-03	600	1.99E-02	705	2.43E-03
395	1.97E-04	500	7.69E-03	605	1.96E-02	710	2.09E-03
400	2.22E-04	505	8.84E-03	610	1.91E-02	715	1.79E-03
405	2.66E-04	510	9.79E-03	615	1.85E-02	720	1.54E-03
410	3.75E-04	515	1.07E-02	620	1.76E-02	725	1.33E-03
415	5.61E-04	520	1.13E-02	625	1.66E-02	730	1.13E-03
420	8.94E-04	525	1.18E-02	630	1.56E-02	735	9.66E-04
425	1.49E-03	530	1.23E-02	635	1.43E-02	740	8.28E-04
430	2.48E-03	535	1.27E-02	640	1.32E-02	745	7.13E-04
435	4.11E-03	540	1.32E-02	645	1.19E-02	750	6.05E-04
440	6.72E-03	545	1.38E-02	650	1.08E-02	755	5.26E-04
445	1.12E-02	550	1.44E-02	655	9.64E-03	760	4.54E-04
450	1.60E-02	555	1.50E-02	660	8.56E-03	765	3.89E-04
455	1.53E-02	560	1.57E-02	665	7.56E-03	770	3.36E-04
460	1.10E-02	565	1.65E-02	670	6.62E-03	775	2.87E-04
465	8.58E-03	570	1.73E-02	675	5.79E-03	780	2.48E-04
470	6.92E-03	575	1.80E-02	680	5.06E-03		
475	5.38E-03	580	1.87E-02	685	4.39E-03		
480	4.81E-03	585	1.93E-02	690	3.81E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y) : (0.4037,0.3895)

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

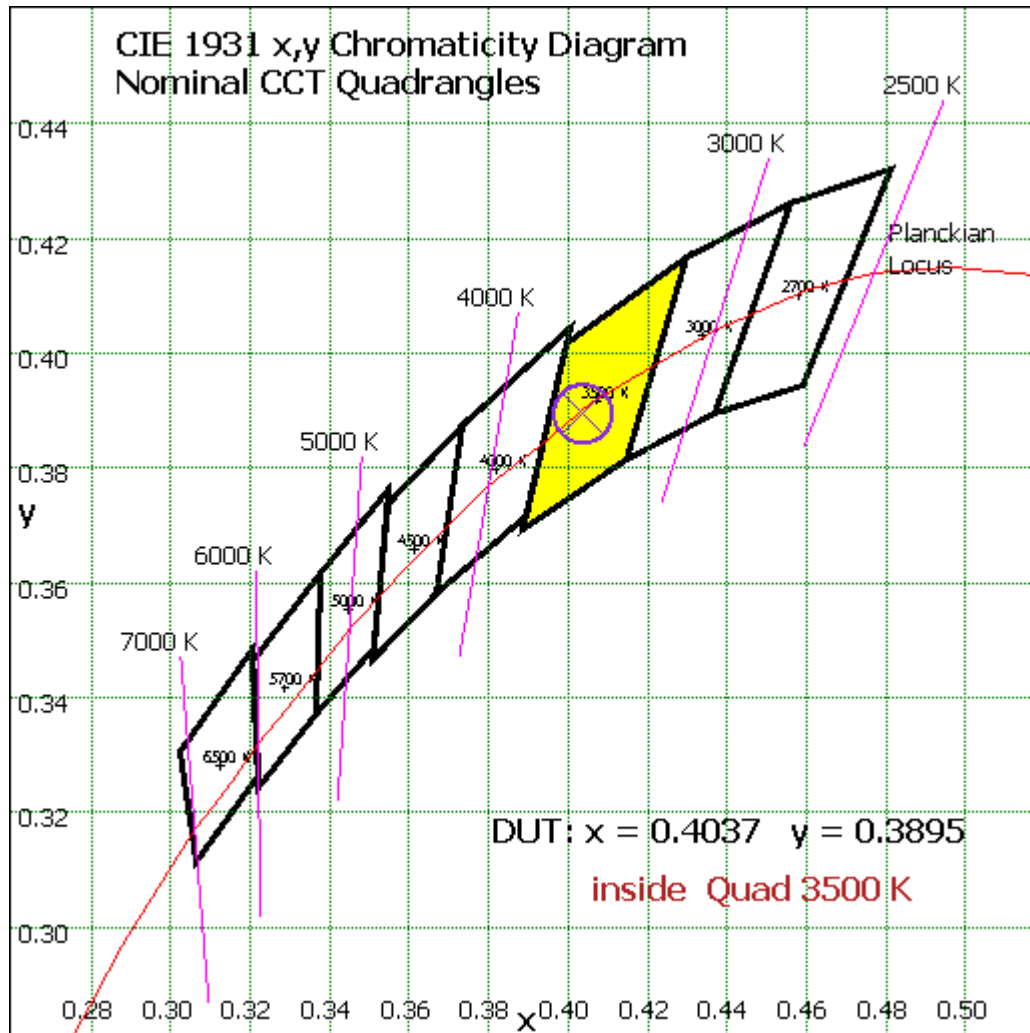


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Zonal Lumen Tabulation- Goniophotometer Method

$\gamma(^{\circ})$	Lumens	% Total
0- 10	18.517	1.76%
10- 20	53.393	5.07%
20- 30	82.227	7.80%
30- 40	102.414	9.72%
40- 50	112.721	10.70%
50- 60	113.523	10.77%
60- 70	106.5	10.11%
70- 80	94.421	8.96%
80- 90	80.836	7.67%
90-100	68.473	6.50%
100-110	56.792	5.39%
110-120	46.244	4.39%
120-130	37.427	3.55%
130-140	29.999	2.85%
140-150	23.027	2.18%
150-160	16.07	1.52%
160-170	8.908	0.85%
170-180	2.403	0.23%
Total	1053.9	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	482.795	45.81%
60- 90	281.757	26.73%
0-90	764.552	72.55%
90- 180	289.343	27.45%
0- 180	1053.9	100%

Table 5: Zonal Lumen Data

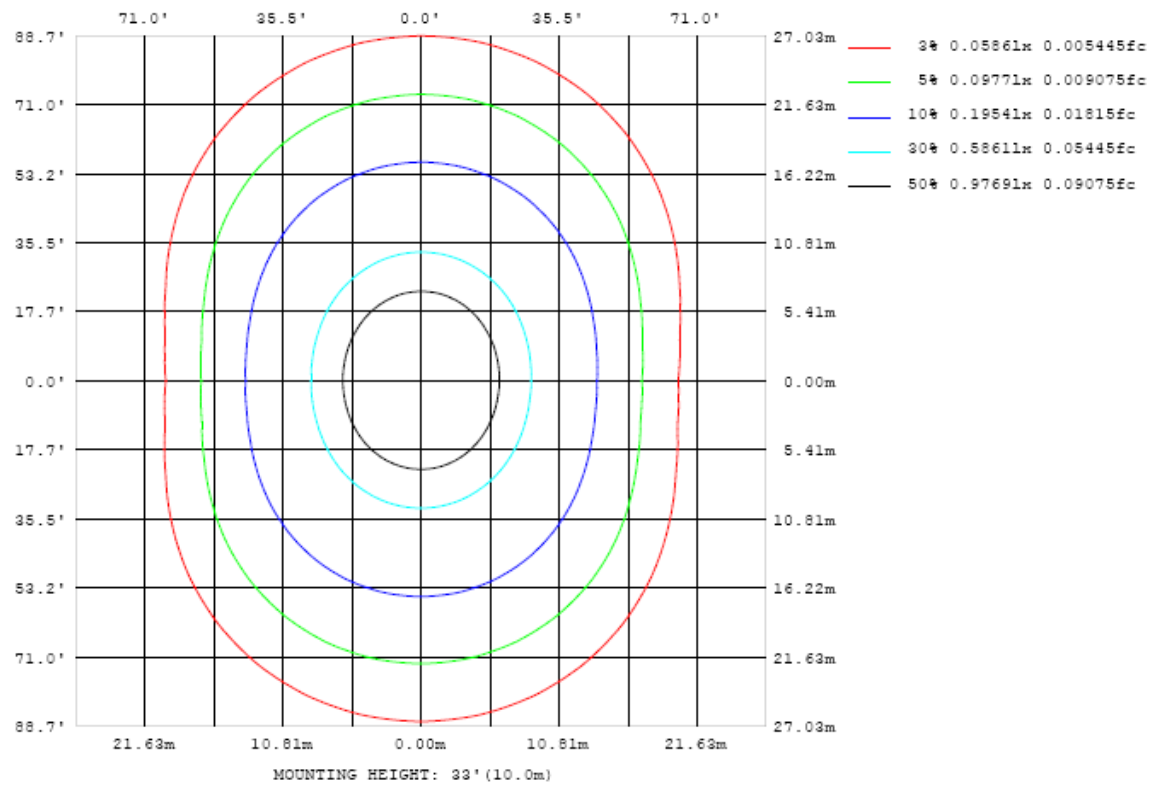


Chart 4: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

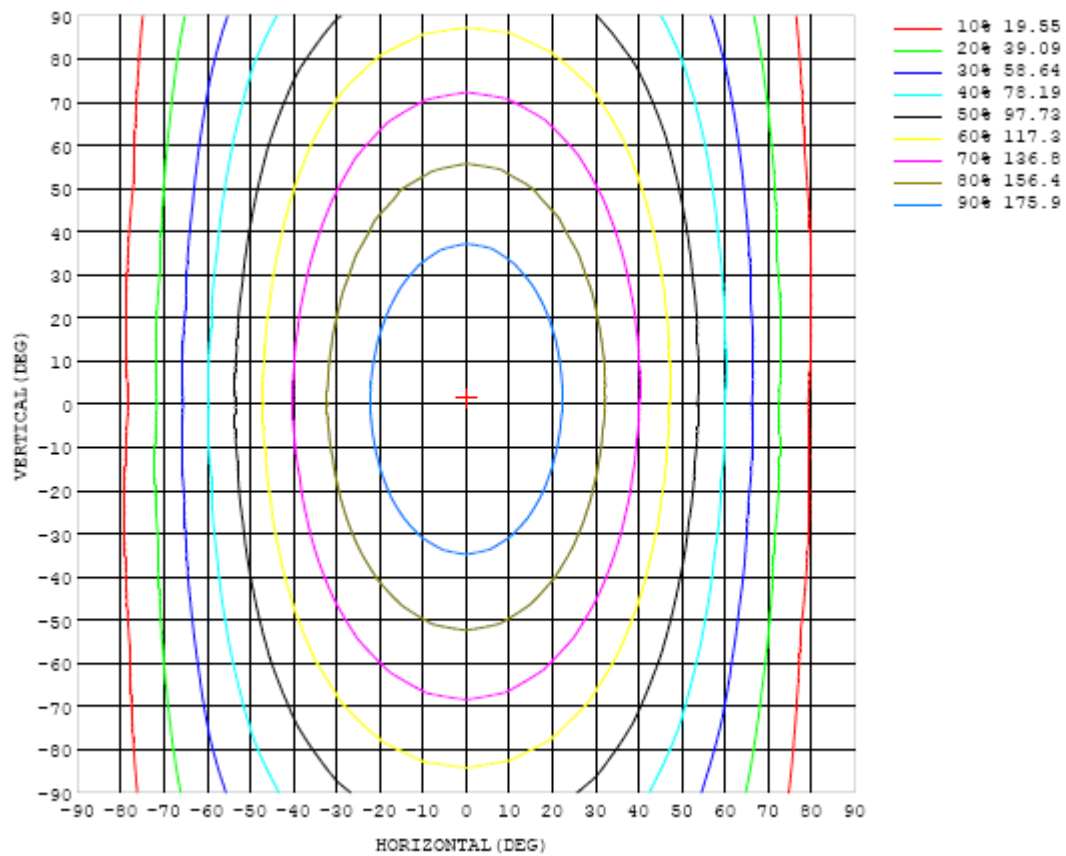


Chart 5: Isocandela Plot

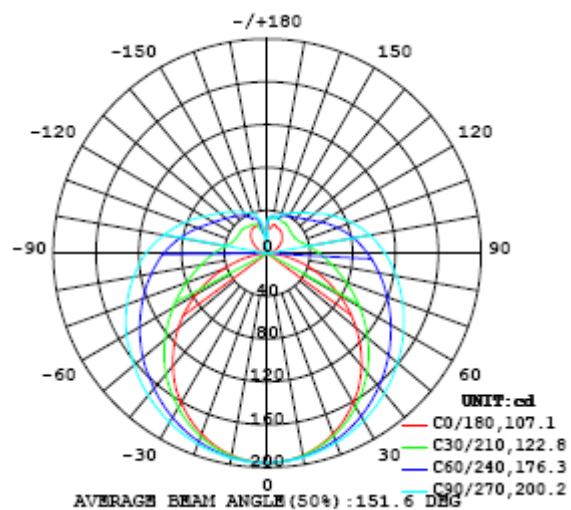


Chart 6: Polar Candela Distribution

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	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195
5	194	194	194	195	194	195	195	195	195	195	195	195	195	195	195	195	194	194	194
10	191	191	191	192	192	192	193	193	193	193	193	193	193	192	192	192	192	191	191
15	186	186	187	187	188	189	190	191	191	191	191	191	190	189	188	187	187	186	186
20	180	180	180	181	183	184	186	187	188	188	188	187	186	185	183	181	180	180	179
25	171	171	172	174	176	179	181	183	184	185	184	183	181	179	177	174	172	171	171
30	161	161	163	165	169	172	175	178	180	180	180	178	176	173	169	166	163	161	161
35	150	150	152	156	160	165	169	173	175	176	175	173	170	165	161	156	152	151	150
40	137	137	140	145	151	157	162	167	169	170	170	167	163	158	152	146	141	138	137
45	123	124	128	134	141	149	155	160	164	165	164	161	156	150	142	135	128	124	123
50	109	110	115	123	132	140	148	154	158	159	158	154	149	141	133	123	115	110	109
55	93.5	95.1	102	111	122	132	141	148	152	153	152	148	142	133	123	112	102	95.2	93.0
60	77.8	80.1	88.4	99.7	112	124	134	141	146	147	146	141	134	125	113	101	88.9	80.1	76.9
65	62.3	65.4	75.3	88.8	103	116	126	134	139	141	140	135	127	117	104	90.1	76.1	65.1	60.6
70	46.6	50.8	63.3	78.5	94.2	108	119	128	133	135	133	128	120	109	95.6	80.0	64.2	50.7	44.4
75	31.4	36.8	51.9	69.2	86.1	101	113	121	127	129	127	122	114	102	87.8	71.0	53.6	37.2	29.0
80	17.5	24.6	42.0	61.5	78.8	94.1	106	115	121	123	121	116	107	95.4	80.7	63.6	44.2	25.7	15.3
85	6.73	15.1	34.2	54.4	72.3	87.7	100	109	114	116	115	110	101	89.2	74.2	56.9	36.9	17.1	4.89
90	0.98	9.55	28.6	48.6	66.9	81.7	93.8	103	108	110	109	103	95.0	83.3	68.6	51.2	31.6	12.3	0.65
95	1.22	7.29	24.7	43.9	61.6	75.9	87.8	96.6	102	104	102	97.4	89.2	77.8	63.8	46.6	27.7	9.67	1.29
100	2.58	7.07	21.5	39.5	56.4	70.5	82.1	90.6	95.8	97.7	96.2	91.4	83.5	72.3	58.7	42.3	24.5	9.52	2.74
105	4.32	8.23	19.8	35.5	51.4	65.2	75.9	84.1	89.2	90.9	89.7	85.0	77.3	67.0	53.6	38.2	22.6	10.4	4.91
110	6.88	10.4	19.4	32.5	46.7	59.6	69.8	77.4	82.2	84.0	82.7	78.4	71.0	61.4	49.0	35.1	22.3	12.4	7.60
115	9.77	12.8	19.7	30.7	42.7	54.4	64.0	70.8	75.3	77.0	75.8	71.7	65.4	56.1	44.9	33.3	22.8	14.9	10.3
120	12.4	15.3	20.8	29.7	39.8	49.6	58.4	64.9	68.8	70.0	69.8	65.9	59.6	51.3	41.9	32.4	23.8	17.4	12.9
125	15.2	18.0	22.4	29.4	37.8	45.9	53.1	58.9	62.7	64.1	63.1	59.8	54.3	47.6	39.9	32.1	25.0	19.8	15.8
130	17.8	20.6	24.2	29.6	36.6	43.3	49.2	53.8	56.8	57.9	57.1	54.5	50.4	44.8	38.6	32.2	26.4	22.2	18.9
135	19.5	22.6	26.2	30.2	35.7	41.3	46.1	49.9	52.4	53.4	52.8	50.7	47.2	42.7	37.6	32.4	27.6	24.0	21.5
140	21.6	25.0	28.1	31.1	35.2	39.7	43.6	46.6	48.7	49.4	48.9	47.3	44.6	41.0	36.9	32.9	28.4	25.9	23.8
145	23.4	27.2	29.8	32.1	35.2	38.5	41.5	43.9	45.5	46.1	45.8	44.4	42.3	39.5	36.5	32.4	28.5	28.3	25.7
150	24.9	29.4	31.3	32.7	35.1	37.6	39.8	41.6	42.8	43.3	43.1	42.1	40.4	38.3	36.0	31.1	29.1	30.0	27.4
155	25.0	30.9	32.5	33.0	34.2	36.6	38.5	39.7	40.6	40.9	40.8	40.1	38.9	37.4	34.0	29.9	32.1	31.4	27.5
160	26.1	32.1	33.2	33.8	34.0	34.6	36.0	37.7	38.9	39.0	38.9	38.4	37.8	36.3	34.2	33.8	32.9	32.2	27.5
165	27.4	32.2	33.2	33.8	34.5	35.0	34.7	33.6	33.4	33.8	34.5	34.8	35.3	35.6	35.1	34.2	33.0	31.5	28.9
170	25.4	31.5	33.2	33.4	34.2	34.6	35.0	35.3	35.4	35.5	35.6	35.7	35.8	35.3	34.9	34.3	32.5	30.4	26.5
175	23.3	29.6	32.3	33.5	33.3	33.4	33.7	34.1	34.4	34.6	34.5	34.2	34.0	33.9	33.7	32.7	29.2	23.9	20.0
180	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3

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	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195		
5	194	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195		
10	191	192	192	193	193	193	194	194	194	194	194	193	193	193	192	192	192		
15	187	187	188	189	190	191	192	192	192	192	192	191	190	189	188	187	187		
20	180	181	182	184	185	187	188	189	190	189	189	187	186	184	182	181	180		
25	171	173	175	177	180	182	184	186	186	186	185	183	180	178	175	173	172		
30	161	163	166	170	174	177	180	182	182	182	180	178	174	171	167	164	162		
35	151	154	157	162	167	171	175	177	178	177	175	172	167	162	158	154	152		
40	138	142	147	153	159	165	169	172	173	172	170	165	160	154	148	143	139		
45	125	130	136	144	152	158	163	167	168	167	164	159	153	145	137	131	126		
50	111	116	125	134	144	152	157	161	163	161	158	153	145	136	126	118	112		
55	95.6	103	113	125	135	145	152	156	157	156	152	146	137	126	115	105	97.1		
60	80.2	89.3	102	115	127	138	145	150	152	151	146	139	129	117	104	91.7	82.2		
65	64.7	76.1	90.8	106	119	130	139	144	146	144	140	132	121	108	93.3	78.9	67.4		
70	49.6	63.5	80.4	97.0	112	124	132	138	140	138	133	125	113	99.2	83.2	66.8	52.9		
75	35.6	52.1	71.0	88.9	104	117	126	131	133	132	127	118	106	91.1	74.0	55.7	39.2		
80	23.4	42.3	62.8	81.5	97.4	110	119	125	127	125	120	111	99.0	83.7	65.7	46.0	27.4		
85	14.5	34.8	55.8	74.7	90.8	103	113	118	120	119	113	105	92.3	76.8	58.7	38.2	18.0		
90	9.70	29.2	49.8	68.5	84.3	96.8	106	112	113	112	107	98.0	85.9	70.6	52.5	32.4	12.5		
95	7.41	24.7	44.2	62.3	77.6	89.8	98.6	104	106	104	99.2	90.8	79.1	64.1	46.5	27.2	9.04		
100	7.62	21.7	39.3	56.3	70.9	82.7	91.0	96.4	98.1	96.7	91.7	83.7	72.3	57.9	41.2	23.3	8.30		
105	9.14	20.8	35.6	51.0	64.6	75.7	83.8	88.8	90.6	89.2	84.3	76.5	65.8	52.2	36.7	21.3	8.96		
110	11.2	21.1	33.5	46.6	58.8	69.1	76.7	81.4	83.0	81.7	77.1	69.7	59.6	47.2	33.6	20.7	11.2		
115	13.6	22.1	32.5	43.5	53.9	62.9	69.9	74.2	75.7	74.4	70.1	63.4	54.1	43.4	31.8	20.9	13.0		
120	15.7	23.3	32.1	41.4	50.3	57.9	63.7	67.3	68.7	67.5	63.7	57.9	50.1	40.9	30.9	22.2	15.9		
125	17.7	24.3	32.0	39.9	47.4	54.0	58.9	62.0	63.0	62.0	58.8	53.8	47.1	39.0	30.7	24.0	18.2		
130	19.8	25.4	32.2	38.8	45.1	50.6	54.9	57.5	58.3	57.4	54.6	50.4	44.6	37.8	30.9	25.1	20.1		
135	21.2	25.9	32.2	38.0	43.2	47.7	51.3	53.4	54.2	53.4	51.0	47.4	42.6	37.1	31.8	26.7	21.6		
140	22.6	26.0	31.3	37.0	41.5	45.2	48.1	49.9	50.5	49.8	47.9	45.0	41.1	36.4	32.2	27.9	22.8		
145	23.2	27.3	30.5	34.9	39.8	43.0	45.3	46.8	47.3	46.8	45.2	42.9	39.6	35.0	31.7	28.2	23.7		
150	22.9	28.5	30.4	33.0	36.7	40.5	42.7	44.0	44.4	44.1	42.8	40.8	37.2	34.3	32.0	28.9	24.2		
155	22.9	27.7	30.0	32.2	34.1	37.0	40.5	41.4	41.8	41.2	39.5	37.6	35.7	34.0	32.4	29.5	24.2		
160	22.3	23.7	29.1	32.4	34.2	35.4	33.4	38.8	39.5	38.3	37.1	36.2	35.1	34.2	31.8	27.7	22.3		
165	23.2	20.9	22.4	24.9	28.2	30.0	33.7	32.3	34.7	36.1	35.8	35.4	34.5	30.0	26.8	22.8	20.7		
170	21.1	17.4	17.9	18.1	18.3	18.1	17.8	17.8	24.6	28.6	24.5	19.3	18.2	19.0	19.5	19.1	20.1		
175	16.6	15.7	15.7	15.4	15.7	16.6	18.4	17.7	0.00	18.8	20.1	18.1	17.2	17.2	16.9	16.6	18.1		
180	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3		

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 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 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

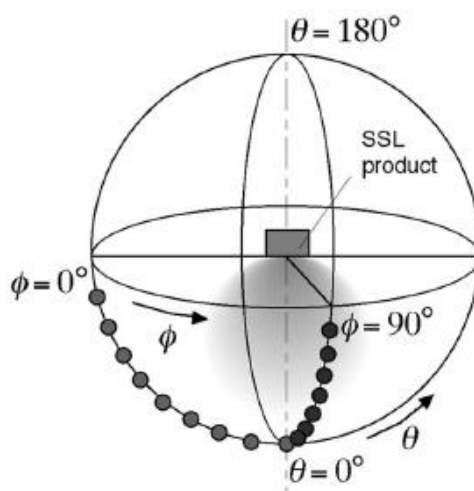
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as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