LM-79-08 TEST REPORT

for

GREEN CREATIVE LTD

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

LED Tube

Model: 10.5T8/4F/850/IS/DIR

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

3rd Floor, Bld. 2, NO. 96 Longchuanwu Rd Qianjiang Economy Dev. Zone, YuhangDist,
Hangzhou, Zhejiang Province, China 311100
Tel: +86571 86376106
www.ledtestlab.com

Report No.: HZ19040014f

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

Review by: April Zou

Engineer: April Zou
Apr. 18, 2019

Approved by: Jim Zhang

Manager: Jim Zhang
Apr. 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: **10.5T8/4F/850/IS/DIR**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
132.3	1851.0	13.99	0.9923

CCT (K)	CRI	Stabilization Time (Light & Power)
4941	81.4	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 : Apr. 09, 2019

Date of Test : Apr. 10, 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
ANSI/IES TM-30-18 IES Method for Evaluating Light Source Color Rendition

TABLE OF CONTENT

SAMPLE PHOTO

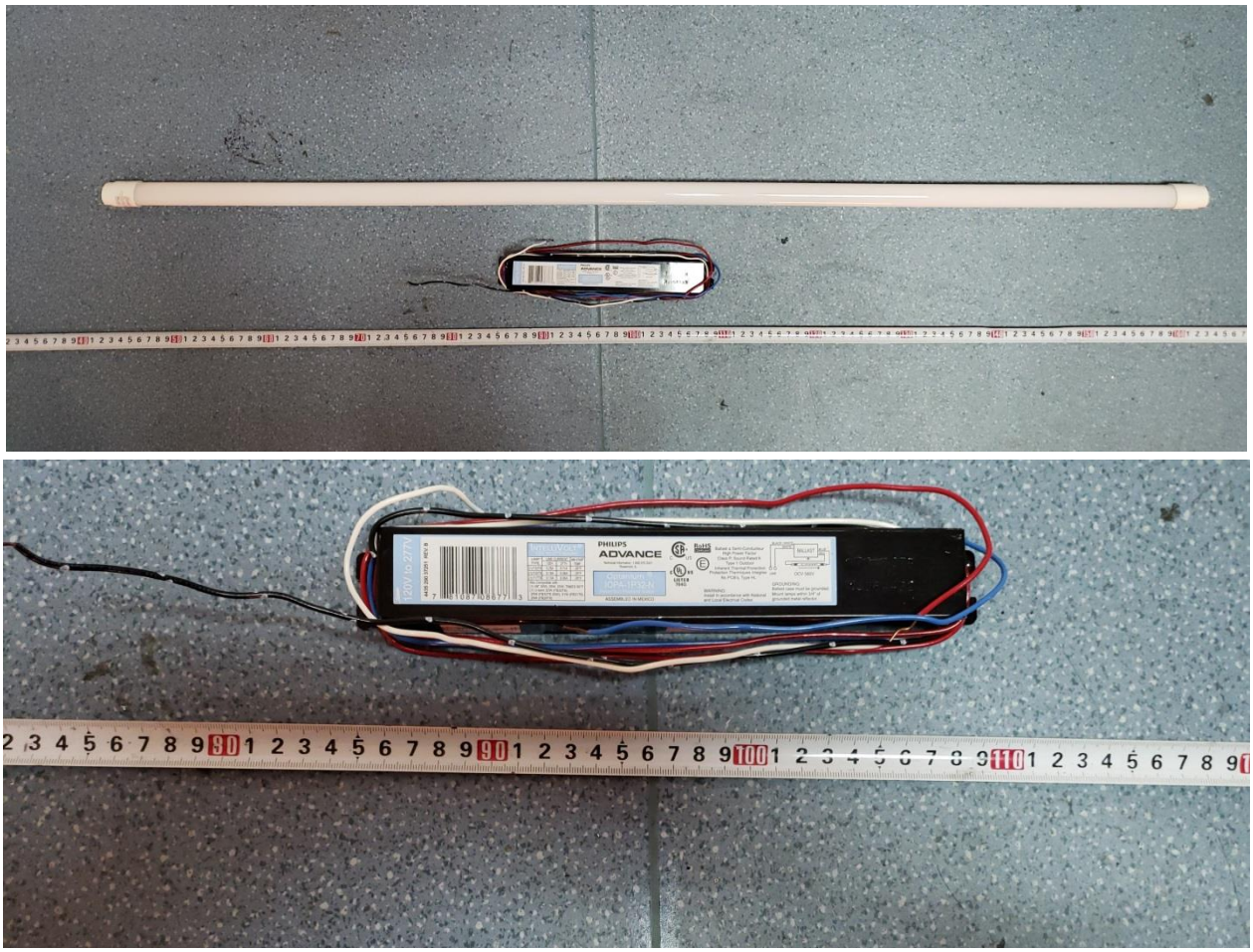


Figure 1- Overview of the sample

Equipment Under Test(EUT)	
Name	: LED Tube
Model	: 10.5T8/4F/850/IS/DIR
Electrical Ratings	: 120-277V, 60Hz
Product Description	: 5000K LED Tubes supplied by a high frequency fluorescent lamp ballast: IOPA-1P32-N
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 65 minutes.

Sphere-Spectroradiometer Method

Parameter	Result	
Test Voltage (V)	120.0	277.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.118	0.055
Power Factor	0.9923	0.9314
Test Power (W)	13.99	14.12
THD A%	8.55	14.98
Luminous Efficacy (lm/W)	132.3	131.1
Total Luminous Flux (lm)	1851.0	1851.0
Color Rendering Index (CRI)	81.4	
R9	0.5	
Correlated Color Temperature (CCT)(K)	4941	
Chromaticity Chroma x	0.3477	
Chromaticity Chroma y	0.3627	
Chromaticity Chroma u	0.2089	
Chromaticity Chroma v	0.3269	
Duv	0.0044	
Chromaticity Chroma u ’	0.2089	
Chromaticity Chroma v’	0.4903	

Special Color Rendering Indices	
R1	78.8
R2	85.8
R3	91.9
R4	81.4
R5	79.5
R6	80.9
R7	87.3
R8	65.7
R9	0.5
R10	67
R11	80.3
R12	57.9
R13	80.3
R14	95.7
Rf	83
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 25.0℃.

The photometric distance is 30 m.

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)	0.118
Power Factor	0.9929
Power (W)	14.04
Luminous Efficacy (lm/W)	129.8
Total Luminous Flux (lm)	1821.8
Beam Angle (°)	116.9（0^o-180^o）/ 242.8（90^o-270^o）
Center Beam Candle Power (cd)	276
Maximum Beam Candle Power (cd)	275.6 (At: C=90.0, Gamma=2.0)
Spacing Criteria	1.29（0^o-180^o）/1.47 (90^o-270^o)
Zonal Lumens in the 0 °-60 °Zone	40.50%
Zonal Lumens in the 60 °-90 °Zone	26.97%
Zonal Lumens in the 90 °-120 °Zone	18.57%
Zonal Lumens in the 120 °-180 °Zone	13.96%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

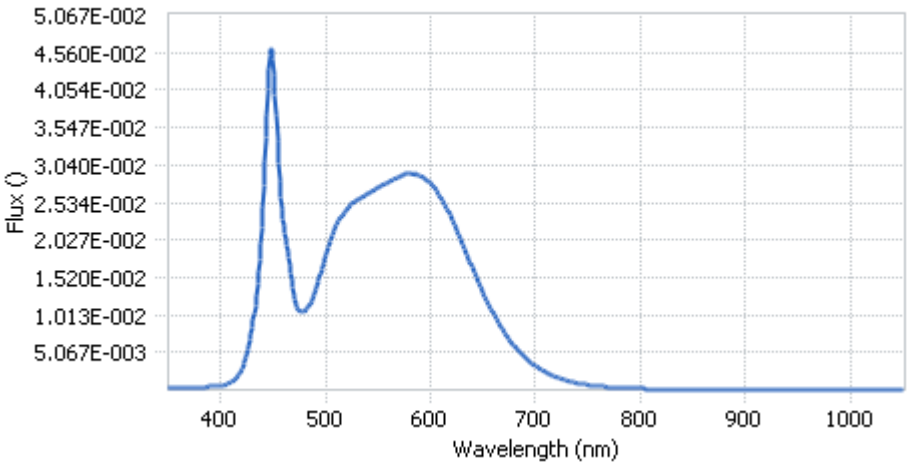
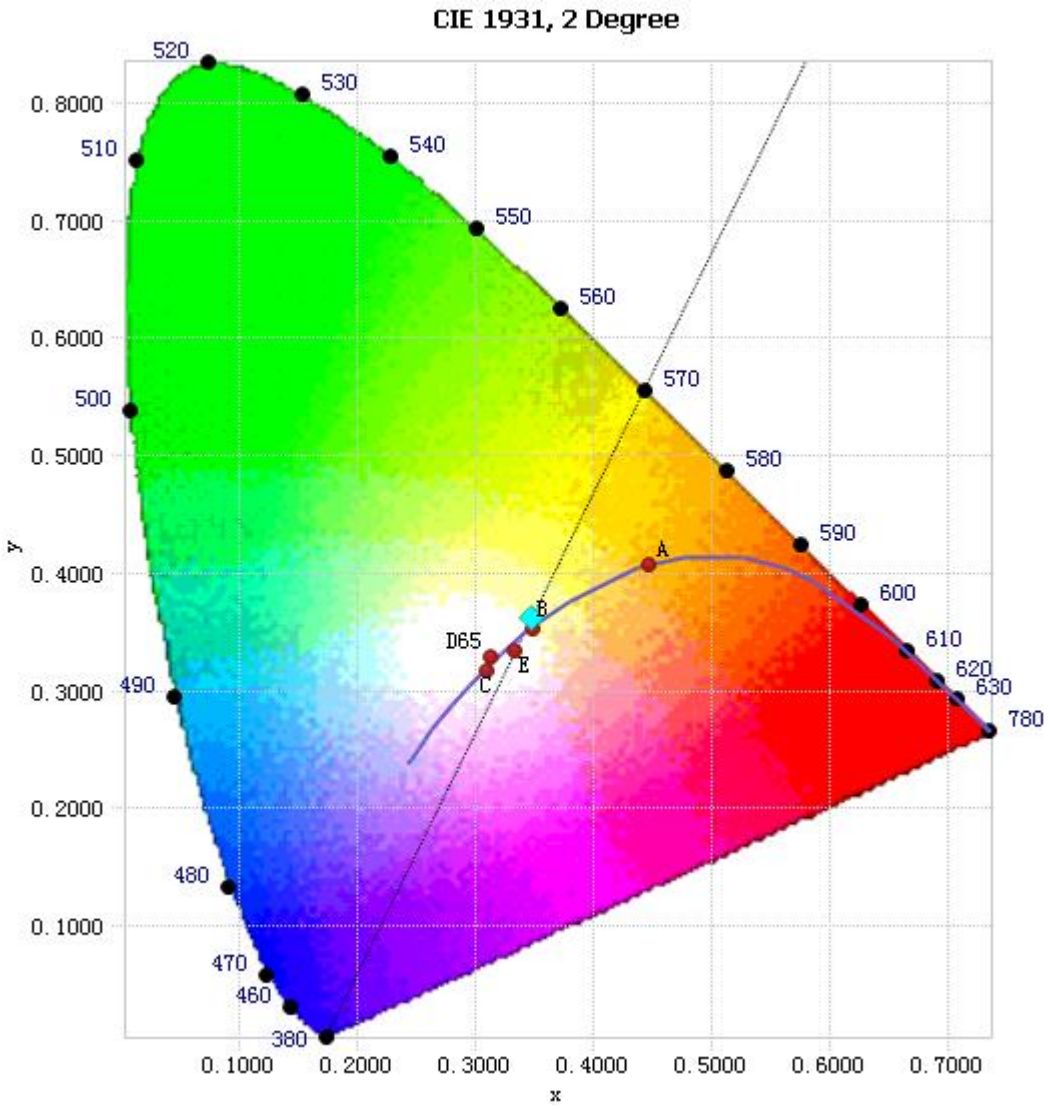


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	3.97E-04	485	1.15E-02	590	2.90E-02	695	3.79E-03
385	3.96E-04	490	1.33E-02	595	2.86E-02	700	3.24E-03
390	4.40E-04	495	1.57E-02	600	2.79E-02	705	2.78E-03
395	4.92E-04	500	1.82E-02	605	2.71E-02	710	2.38E-03
400	5.65E-04	505	2.04E-02	610	2.59E-02	715	2.04E-03
405	7.15E-04	510	2.22E-02	615	2.46E-02	720	1.74E-03
410	1.04E-03	515	2.35E-02	620	2.31E-02	725	1.49E-03
415	1.68E-03	520	2.44E-02	625	2.15E-02	730	1.28E-03
420	2.81E-03	525	2.51E-02	630	1.99E-02	735	1.09E-03
425	4.87E-03	530	2.57E-02	635	1.82E-02	740	9.27E-04
430	8.45E-03	535	2.61E-02	640	1.64E-02	745	8.00E-04
435	1.43E-02	540	2.66E-02	645	1.47E-02	750	6.91E-04
440	2.47E-02	545	2.70E-02	650	1.32E-02	755	5.95E-04
445	4.05E-02	550	2.73E-02	655	1.17E-02	760	5.10E-04
450	4.48E-02	555	2.77E-02	660	1.03E-02	765	4.39E-04
455	3.07E-02	560	2.81E-02	665	9.00E-03	770	3.84E-04
460	2.22E-02	565	2.85E-02	670	7.84E-03	775	3.30E-04
465	1.78E-02	570	2.88E-02	675	6.82E-03	780	2.83E-04
470	1.28E-02	575	2.91E-02	680	5.91E-03		
475	1.06E-02	580	2.92E-02	685	5.11E-03		
480	1.06E-02	585	2.93E-02	690	4.41E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3477, 0.3627)

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

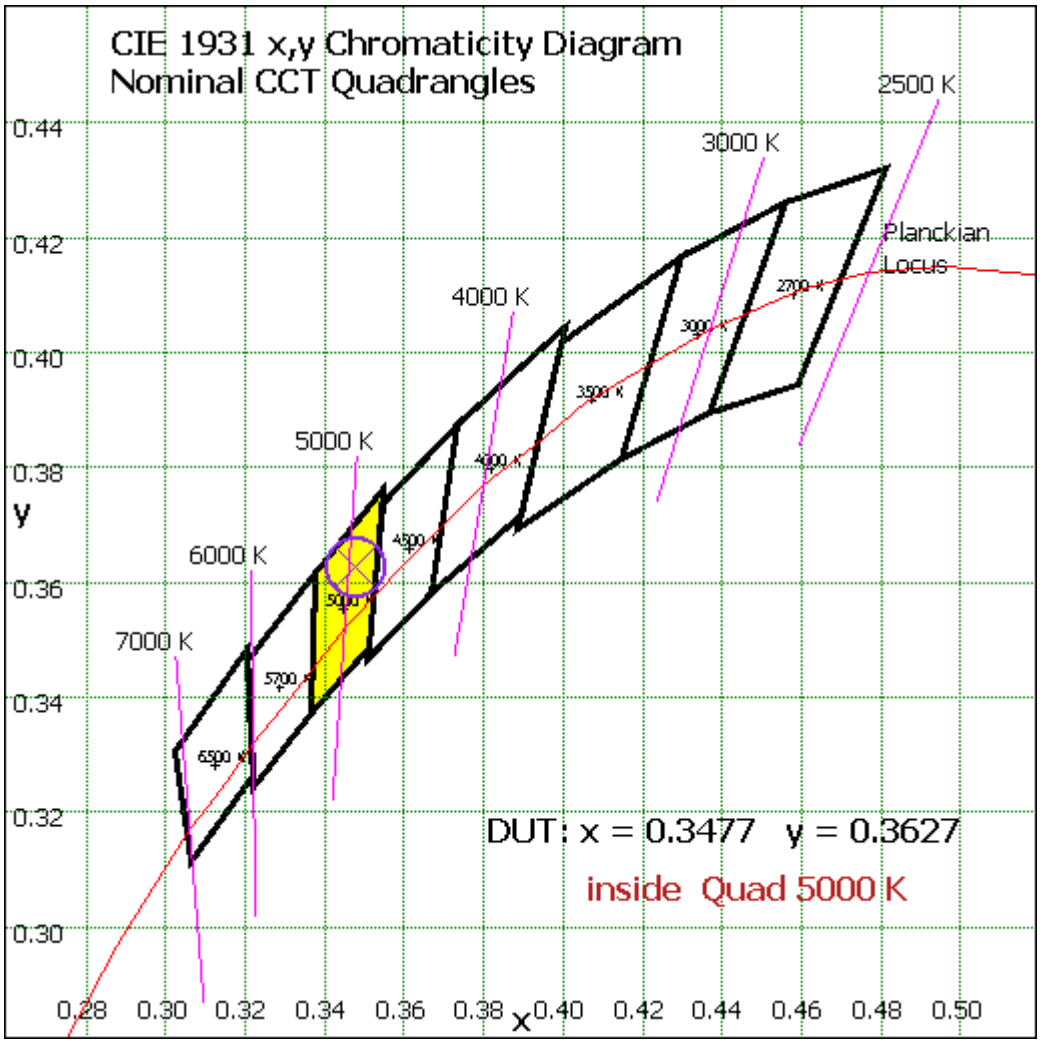
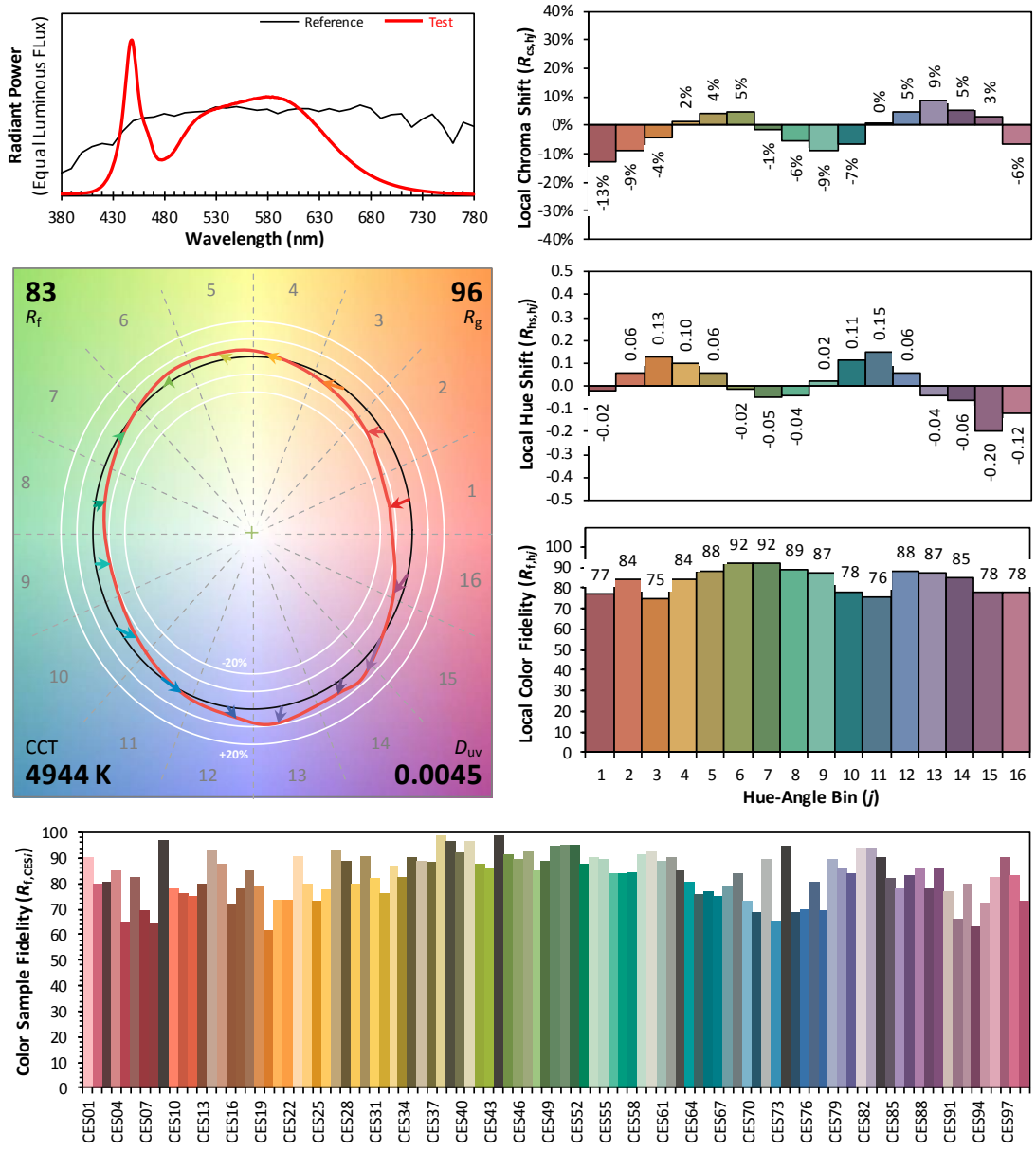


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3477
y	0.3627
u'	0.2089
v'	0.4903

Chart 4: Full Report Created with the IES TM-30 Calculator

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

γ(°)	Lumens	% Total
0- 10	26.184	1.44%
10- 20	76.398	4.19%
20- 30	120.342	6.61%
30- 40	154.434	8.48%
40- 50	176.118	9.67%
50- 60	184.335	10.12%
60- 70	179.724	9.87%
70- 80	165.227	9.07%
80- 90	146.393	8.04%
90-100	129.208	7.09%
100-110	112.717	6.19%
110-120	96.37	5.29%
120-130	80.513	4.42%
130-140	65.187	3.58%
140-150	50.102	2.75%
150-160	34.52	1.89%
160-170	18.558	1.02%
170-180	5.467	0.30%
Total	1821.8	100%

γ(°)	Lumens	% Total
0- 60	737.811	40.50%
60- 90	491.344	26.97%
0-90	1229.155	67.47%
90- 180	592.642	32.53%
0- 180	1821.8	100%

Table 5: Zonal Lumen

Illuminance Plots- Goniophotometer Method

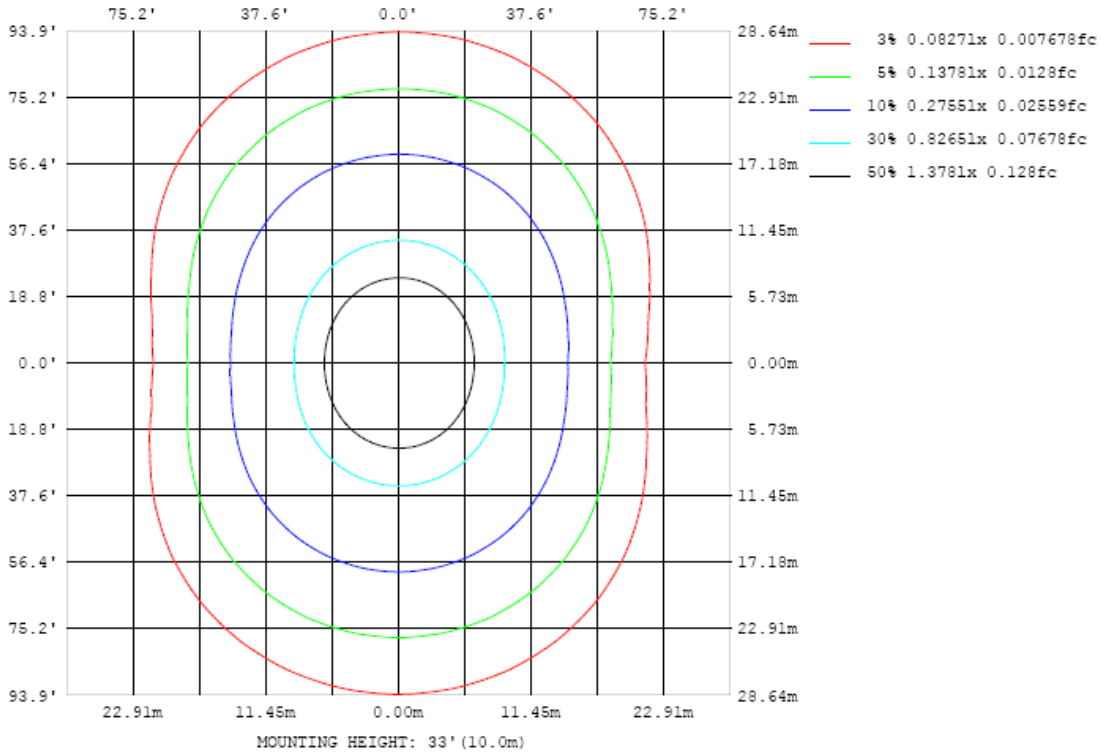


Chart 5: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

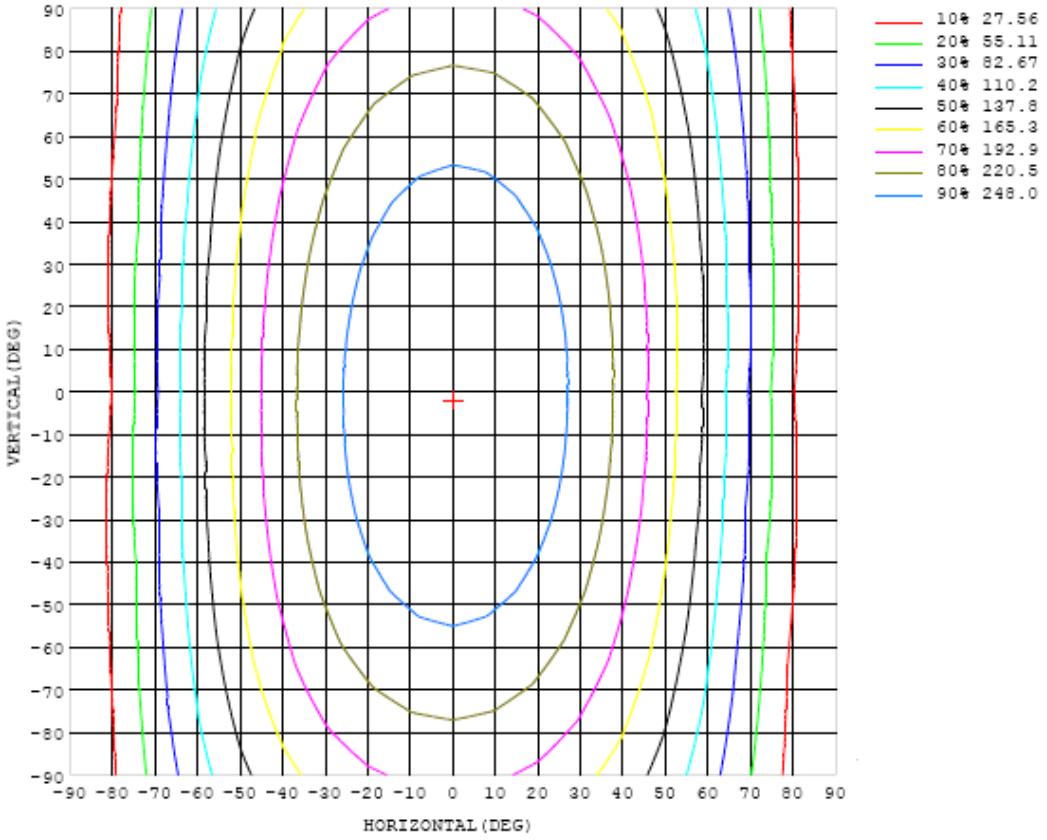


Chart 6: Isocandela Plot

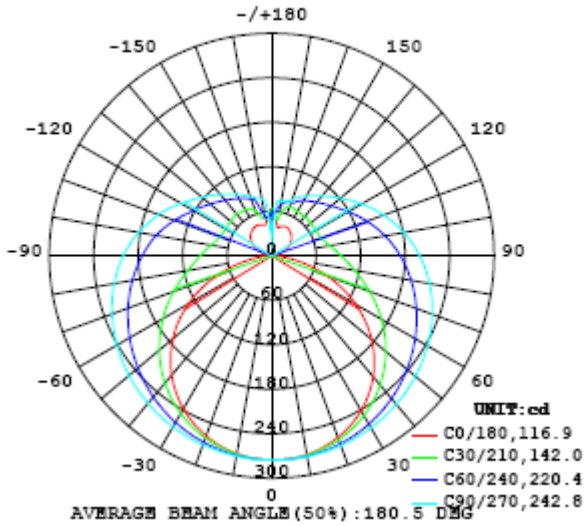


Chart 7: Polar Candela Distribution

Luminous Intensity Data- Goniophotometer Method

Table--1 UNIT: cd

C(DEG) / γ (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276
5	275	275	275	275	275	275	275	275	275	276	275	275	275	275	275	275	274	274	274
10	272	272	273	273	273	274	274	275	275	275	275	274	274	273	273	272	271	271	271
15	268	268	268	269	270	272	272	273	274	274	274	273	272	270	269	268	267	266	266
20	261	261	262	264	266	268	270	271	272	272	272	271	269	267	265	262	260	259	259
25	252	253	255	257	260	264	266	269	270	270	270	268	266	262	259	255	252	250	249
30	241	242	245	249	253	258	262	265	267	268	267	265	261	257	252	247	242	239	238
35	228	229	233	239	245	252	257	262	264	265	264	261	256	250	244	237	231	227	225
40	213	215	220	227	236	244	251	257	260	261	260	257	251	243	235	226	218	212	210
45	196	198	205	215	226	236	245	252	256	257	256	252	245	236	225	214	203	196	193
50	176	179	188	201	215	227	238	246	251	253	251	246	238	228	214	200	187	177	174
55	154	159	170	186	203	218	231	240	246	248	246	241	232	219	204	187	170	157	153
60	131	136	151	171	191	209	223	234	240	243	241	235	224	210	192	172	152	136	130
65	106	113	132	156	179	199	216	227	234	237	235	228	217	201	181	158	133	113	105
70	79.6	88.6	112	141	167	190	208	220	228	230	228	221	209	192	170	144	115	90.0	79.1
75	53.8	65.4	93.9	126	156	181	199	213	221	224	221	214	202	183	160	131	98.4	68.2	53.2
80	28.9	43.9	77.6	114	145	171	191	205	213	216	214	206	193	174	150	119	83.4	48.3	29.7
85	9.08	27.3	65.3	103	135	162	182	197	205	208	206	198	185	166	140	108	72.2	33.2	9.05
90	0.59	18.5	56.1	93.5	127	153	173	188	197	200	197	190	176	157	131	99.4	63.0	24.9	0.27
95	2.20	15.9	50.1	85.9	118	144	164	179	188	191	188	181	167	148	123	92.0	57.0	21.7	1.89
100	6.17	17.6	46.4	79.4	110	136	155	169	178	181	179	171	158	139	115	85.5	53.0	22.4	5.64
105	11.2	21.2	45.1	74.8	103	127	146	160	168	171	169	161	149	131	108	80.3	51.1	25.7	10.9
110	16.5	26.4	46.1	71.1	96.2	119	137	150	158	161	159	152	140	123	101	75.9	51.5	30.4	16.8
115	21.9	32.0	47.9	69.4	90.8	111	128	140	147	150	148	142	131	115	95.5	74.3	53.0	35.1	22.7
120	27.3	37.6	50.5	68.5	86.8	104	119	130	137	140	138	132	122	108	90.9	73.2	55.2	35.5	28.5
125	31.5	41.3	53.6	68.4	83.8	98.7	111	121	127	130	128	123	114	102	87.6	72.7	58.0	43.4	33.3
130	34.7	45.1	55.8	68.8	81.6	94.2	105	113	119	121	119	115	107	97.1	85.0	72.7	59.4	45.7	37.3
135	37.8	48.9	58.2	69.4	79.9	90.4	99.3	106	111	113	112	108	101	92.9	82.9	72.9	56.5	47.8	40.3
140	40.0	52.1	60.6	69.5	78.5	87.0	94.3	100	104	105	104	101	96.2	89.3	81.3	71.9	59.7	51.7	42.5
145	41.8	54.7	63.4	69.0	76.8	84.2	89.9	94.6	97.6	98.9	98.2	95.7	91.8	86.3	79.1	65.7	62.3	55.1	44.1
150	43.5	56.2	64.6	69.5	74.6	81.0	86.1	89.8	92.1	93.1	92.6	90.8	87.8	82.8	74.0	67.3	63.0	58.7	45.3
155	43.4	50.5	64.7	70.4	73.9	75.7	81.0	84.5	86.8	87.8	87.3	85.7	83.0	77.5	71.1	66.1	61.3	55.4	45.5
160	42.4	42.6	63.4	70.2	72.8	75.6	77.0	77.0	77.8	78.5	78.0	77.4	76.9	73.5	65.9	60.2	55.3	49.4	44.3
165	40.1	39.9	49.3	65.9	70.5	73.1	74.8	76.6	76.7	76.9	76.6	75.3	69.3	60.6	56.4	51.2	47.0	43.3	43.5
170	41.3	43.2	43.7	50.2	62.0	67.2	69.0	73.0	74.3	74.9	74.0	64.5	54.1	50.5	51.9	50.9	47.2	44.1	44.6
175	52.5	55.5	55.2	54.1	55.6	57.5	57.6	59.7	66.6	70.5	44.0	41.6	52.0	55.1	56.1	55.6	54.7	55.7	55.9
180	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4

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	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276	276		
5	274	274	274	274	275	275	275	275	275	275	275	275	275	275	275	275	275		
10	271	271	272	272	273	273	274	274	274	274	274	274	274	273	273	273	272		
15	266	267	267	268	270	271	272	273	273	273	273	272	271	270	269	268	268		
20	259	260	262	264	266	268	270	271	271	271	270	269	267	266	264	262	261		
25	250	252	254	257	261	264	267	268	269	269	268	266	263	260	257	255	253		
30	239	242	246	250	255	260	263	265	266	266	264	262	258	253	249	245	242		
35	226	230	235	242	249	254	259	262	263	263	261	257	251	245	239	234	230		
40	212	217	224	233	241	249	254	258	260	259	256	251	244	236	228	221	215		
45	195	202	212	223	233	242	249	254	256	255	251	245	236	226	216	206	199		
50	177	186	198	212	225	236	244	249	251	250	246	238	228	216	203	190	181		
55	157	169	184	200	216	229	238	244	246	245	240	231	219	205	189	173	161		
60	135	151	169	189	207	221	232	238	241	239	234	224	210	193	174	155	139		
65	112	131	155	177	198	214	226	233	235	234	227	217	201	182	160	137	117		
70	88.7	113	141	167	189	206	219	226	229	227	221	209	192	171	146	118	93.1		
75	65.6	94.8	127	156	180	199	212	220	223	221	214	201	183	161	133	100	70.3		
80	44.8	79.2	115	147	171	191	205	213	216	214	206	193	175	151	120	84.9	49.7		
85	29.0	67.0	105	137	164	183	197	205	208	206	198	185	166	141	110	72.5	33.9		
90	20.6	58.5	96.2	129	155	175	189	197	200	198	190	177	158	133	101	63.4	24.8		
95	17.8	52.7	89.1	121	147	167	180	189	192	189	182	168	150	124	93.0	56.9	21.0		
100	19.5	49.2	82.8	113	139	158	171	179	182	180	172	160	141	116	86.1	52.3	21.3		
105	23.7	48.4	77.7	106	130	149	162	169	172	170	163	150	132	108	80.2	50.2	24.8		
110	29.1	49.4	74.6	99.5	122	140	152	160	163	160	153	141	123	101	76.0	50.2	29.5		
115	34.6	51.8	72.9	94.6	114	130	142	149	152	150	143	131	115	95.4	73.4	51.5	34.6		
120	39.9	54.5	72.3	90.8	108	122	132	139	141	139	133	122	108	91.0	72.1	54.2	39.9		
125	44.7	57.5	72.2	87.9	103	115	124	130	131	130	124	115	103	87.7	71.7	56.6	44.8		
130	49.0	60.5	72.6	85.6	98.0	109	116	121	123	121	116	108	97.8	85.2	72.1	59.5	48.4		
135	52.4	62.2	73.3	83.8	94.1	103	110	114	115	114	110	103	93.8	83.4	72.1	62.4	51.8		
140	55.7	64.3	74.0	82.4	90.6	97.9	103	107	108	107	103	97.6	90.3	81.6	72.7	65.1	55.7		
145	59.3	65.7	71.4	81.3	87.6	93.4	97.8	100	101	100	97.7	93.2	87.0	79.9	73.5	66.8	59.3		
150	62.7	67.2	71.4	79.9	85.1	89.4	92.8	94.9	95.6	94.9	92.7	88.7	83.9	79.1	74.3	67.8	62.8		
155	59.9	65.4	70.0	74.4	82.1	85.6	88.3	89.8	90.3	89.5	87.7	85.1	82.1	78.6	74.5	69.1	60.2		
160	51.6	59.2	63.6	69.1	76.8	81.5	83.4	84.5	85.1	84.9	84.1	82.6	80.3	77.7	73.8	70.8	55.3		
165	46.8	51.1	54.4	57.3	63.2	71.9	79.6	80.3	80.8	80.8	80.5	79.6	77.9	75.2	72.1	71.4	50.1		
170	44.9	47.7	52.4	54.2	52.9	53.4	61.1	73.9	77.4	76.9	75.8	75.8	72.4	70.9	70.0	57.1	43.4		
175	55.8	54.6	55.5	55.0	54.1	53.4	46.8	42.9	56.9	73.2	74.2	66.6	60.1	55.6	53.7	53.0	51.2		
180	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4		

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.

3rd Floor, Bld. 2, NO. 96 Longchuanwu Rd Qianjiang Economy Dev. Zone, YuhangDist,
Hangzhou, Zhejiang Province, China 311100
Tel: +86 571 86376106 www.ledtestlab.com

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

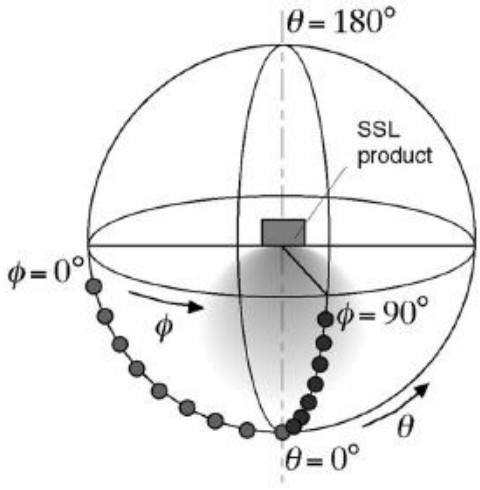
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as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

3rd Floor, Bld. 2, NO. 96 Longchuanwu Rd Qianjiang Economy Dev. Zone, YuhangDist,
Hangzhou, Zhejiang Province, China 311100
Tel: +86 571 86376106 www.ledtestlab.com