



LM-79-08 Test Report

for

GREEN CREATIVE LTD

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

T5 TUBE

Model: 24T5HO/4F/840/DIR/R

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.: HZ17050025a

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

Review by:

Engineer: April Zou
May 16, 2017

Approved by:



Manager: Jim Zhang
May 16, 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: 24T5HO/4F/840/DIR/R

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)/2	Power Factor
122.0	3506.0	28.76	0.9965
CCT (K)	CRI	Stabilization Time (Light & Power)	
4052	81.0	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 : May 09, 2017

Date of Test : May 13, 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

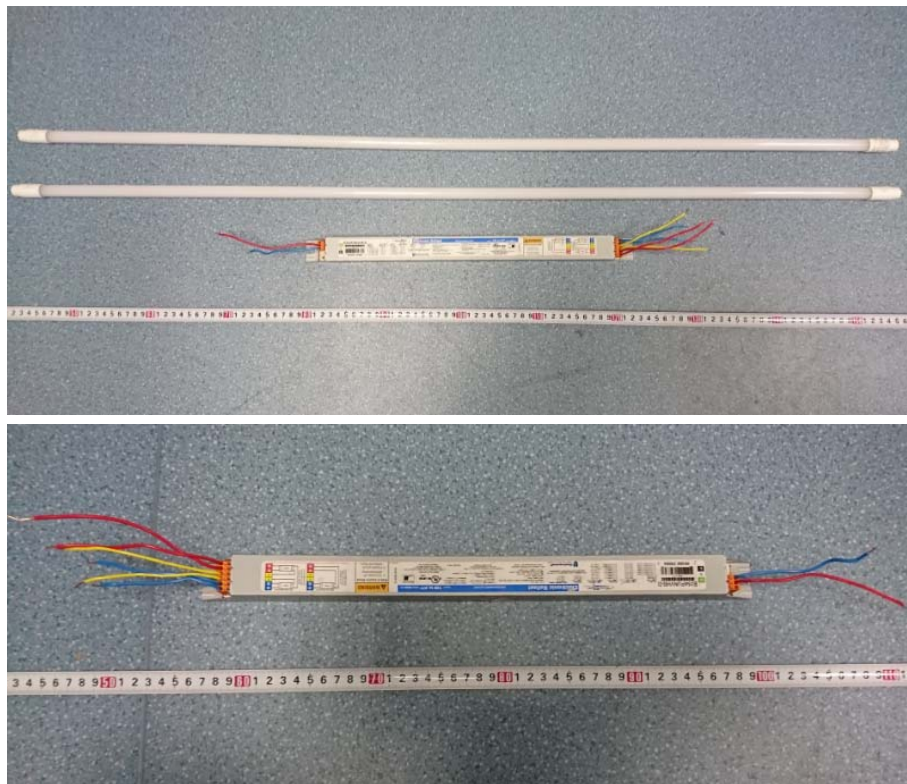


Figure 1- Overview of the sample

Equipment Under Test (EUT)

Name	: T5 TUBE
Model	: 24T5HO/4F/840/DIR/R
Electrical Ratings	: 120Vac, 60Hz, 29W
Product Description	: Mini Bi-Pin G5 base, 4000K, CRI80 LED Tubes supplied by a high frequency fluorescent lamp ballast: B254PUNVHB-D
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)	0.481
Power Factor	0.9965
Test Power (W)/2	28.76
THD A%	6.18
Luminous Efficacy (lm/W)	122.0
Total Luminous Flux (lm)	3506.0
Color Rendering Index (CRI)	81.0
R9	-1.2
Correlated Color Temperature (CCT)(K)	4052
Chromaticity Chroma x	0.3795
Chromaticity Chroma y	0.3808
Chromaticity Chroma u	0.2229
Chromaticity Chroma v	0.3355
Duv	0.0015
Chromaticity Chroma u'	0.2229
Chromaticity Chroma v'	0.5032

Special Color Rendering Indices	
R1	78.5
R2	86.9
R3	94
R4	80.3
R5	78.9
R6	82.4
R7	85.4
R8	61.7
R9	-1.2
R10	69.6
R11	78.9
R12	61.1
R13	80.3
R14	96.8
Rf	81
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 24.6°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)	0.481
Power Factor	0.9925
Test Power (W)/2	28.66
Luminous Efficacy (lm/W)	123.8
Total Luminous Flux (lm)	3549.2
Beam Angle (°)	127.7
Center Beam Candle Power (cd)	886
Spacing Criteria	1.26 (0°-180°)/ 1.33 (90°-270°)
Zonal Lumens in the 0°-60°Zone	59.80%
Zonal Lumens in the 60°-90°Zone	27.45%
Zonal Lumens in the 90°-120°Zone	9.60%
Zonal Lumens in the 120°-180°Zone	3.15%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

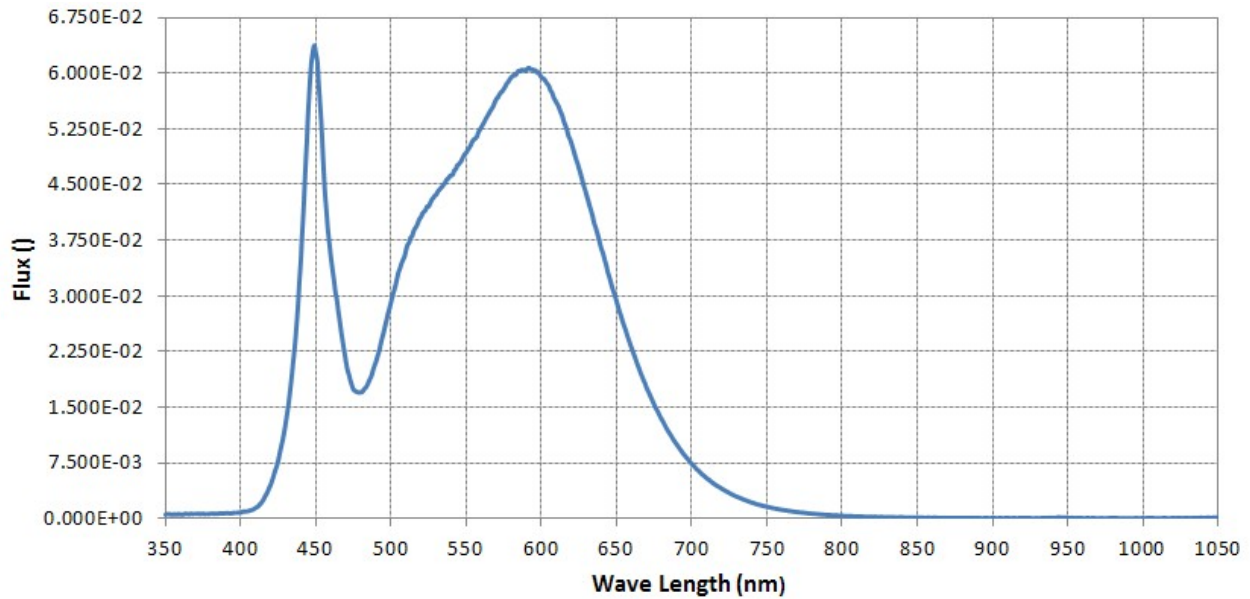


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	6.51E-04	485	1.83E-02	590	6.04E-02	695	8.57E-03
385	6.39E-04	490	2.11E-02	595	6.04E-02	700	7.38E-03
390	6.96E-04	495	2.50E-02	600	5.95E-02	705	6.33E-03
395	7.44E-04	500	2.91E-02	605	5.83E-02	710	5.40E-03
400	7.86E-04	505	3.32E-02	610	5.60E-02	715	4.64E-03
405	9.90E-04	510	3.62E-02	615	5.34E-02	720	3.99E-03
410	1.43E-03	515	3.87E-02	620	5.05E-02	725	3.43E-03
415	2.46E-03	520	4.06E-02	625	4.71E-02	730	2.93E-03
420	4.54E-03	525	4.20E-02	630	4.36E-02	735	2.50E-03
425	7.83E-03	530	4.36E-02	635	3.98E-02	740	2.14E-03
430	1.29E-02	535	4.50E-02	640	3.63E-02	745	1.82E-03
435	2.12E-02	540	4.62E-02	645	3.26E-02	750	1.58E-03
440	3.46E-02	545	4.77E-02	650	2.92E-02	755	1.37E-03
445	5.51E-02	550	4.93E-02	655	2.59E-02	760	1.16E-03
450	6.27E-02	555	5.10E-02	660	2.30E-02	765	1.00E-03
455	4.79E-02	560	5.27E-02	665	2.02E-02	770	8.68E-04
460	3.52E-02	565	5.45E-02	670	1.76E-02	775	7.48E-04
465	2.78E-02	570	5.65E-02	675	1.53E-02	780	6.48E-04
470	2.11E-02	575	5.79E-02	680	1.33E-02		
475	1.74E-02	580	5.94E-02	685	1.15E-02		
480	1.70E-02	585	6.03E-02	690	9.97E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method

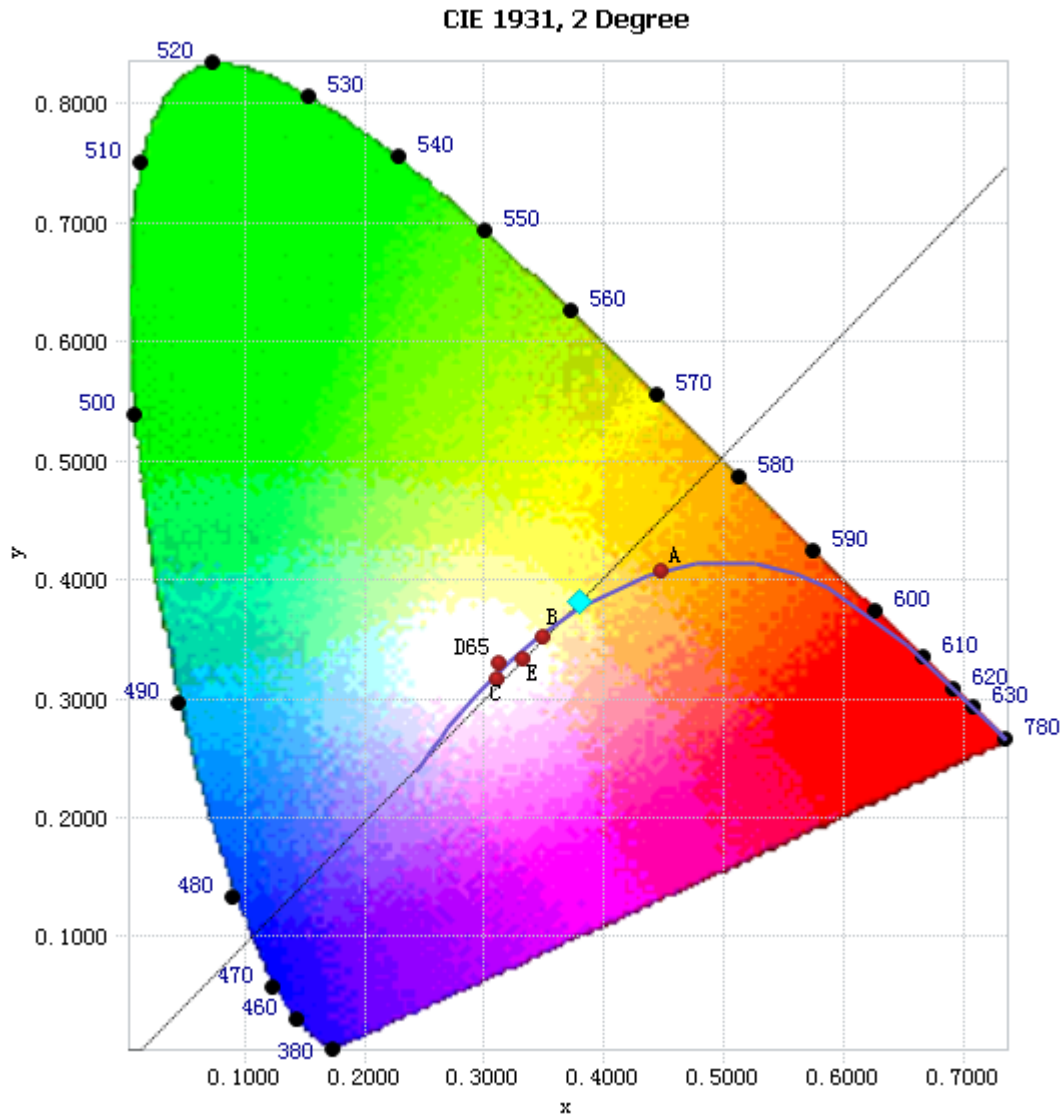


Chart 2: Chromaticity Diagram per Sphere - Spectroradiometer Method

Note: The location on the diagram of the tristimulus coordinates are indicated by the blue diamond.

Nominal CCT Quadrangles – Sphere Spectroradiometer Method

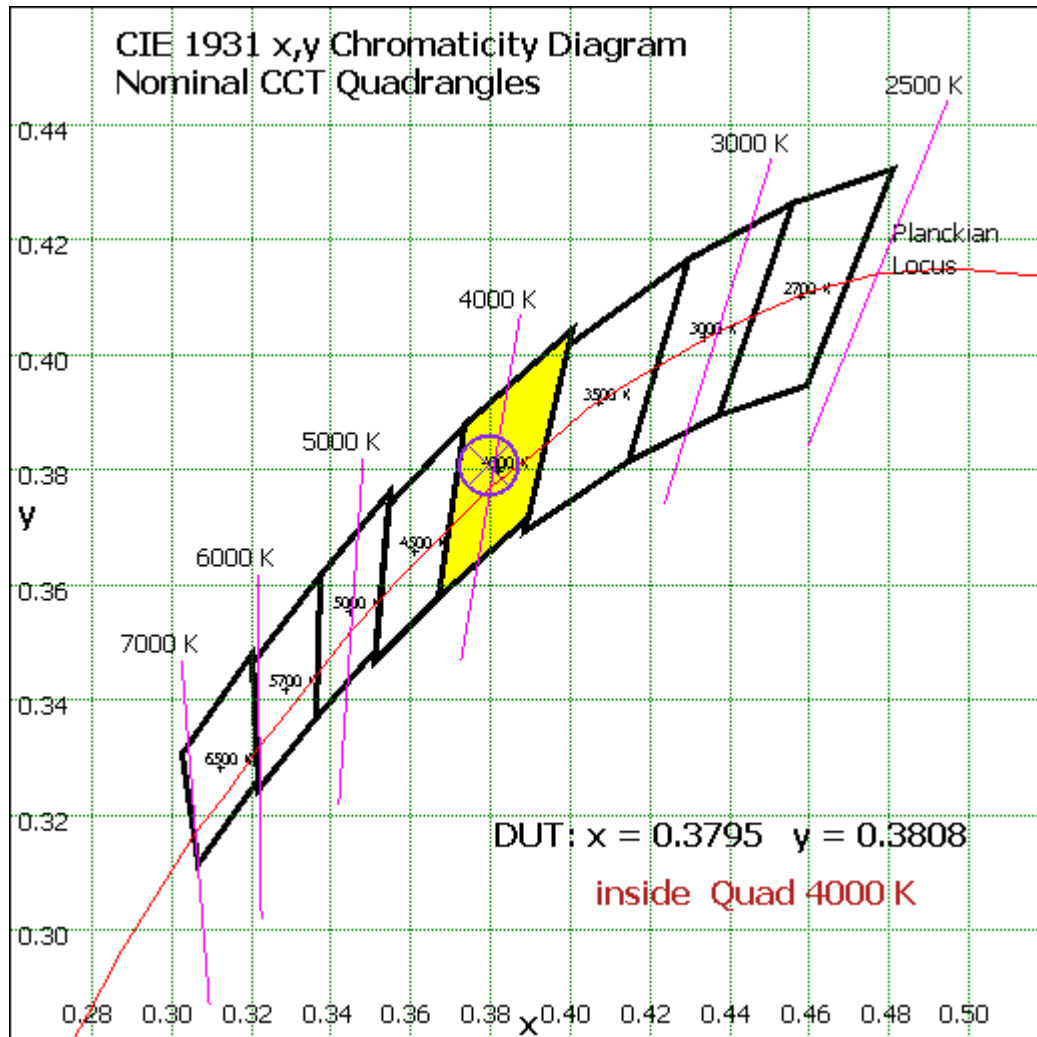


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Zonal Lumen Tabulation- Goniophotometer Method

$\gamma(^{\circ})$	Lumens	% Total
0- 10	83.901	2.36%
10- 20	241.669	6.81%
20- 30	370.882	10.45%
30- 40	457.213	12.88%
40- 50	492.523	13.88%
50- 60	476.226	13.42%
60- 70	415.591	11.71%
70- 80	326.368	9.20%
80- 90	232.361	6.55%
90-100	158.488	4.47%
100-110	108.917	3.07%
110-120	73.25	2.06%
120-130	47.572	1.34%
130-140	29.736	0.84%
140-150	17.704	0.50%
150-160	9.781	0.28%
160-170	5.299	0.15%
170-180	1.75	0.05%
Total	3549.2	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	2122.414	59.80%
60- 90	974.32	27.45%
0-90	3096.734	87.25%
90- 180	452.497	12.75%
0- 180	3549.2	100%

Table 5: Zonal Lumen Data

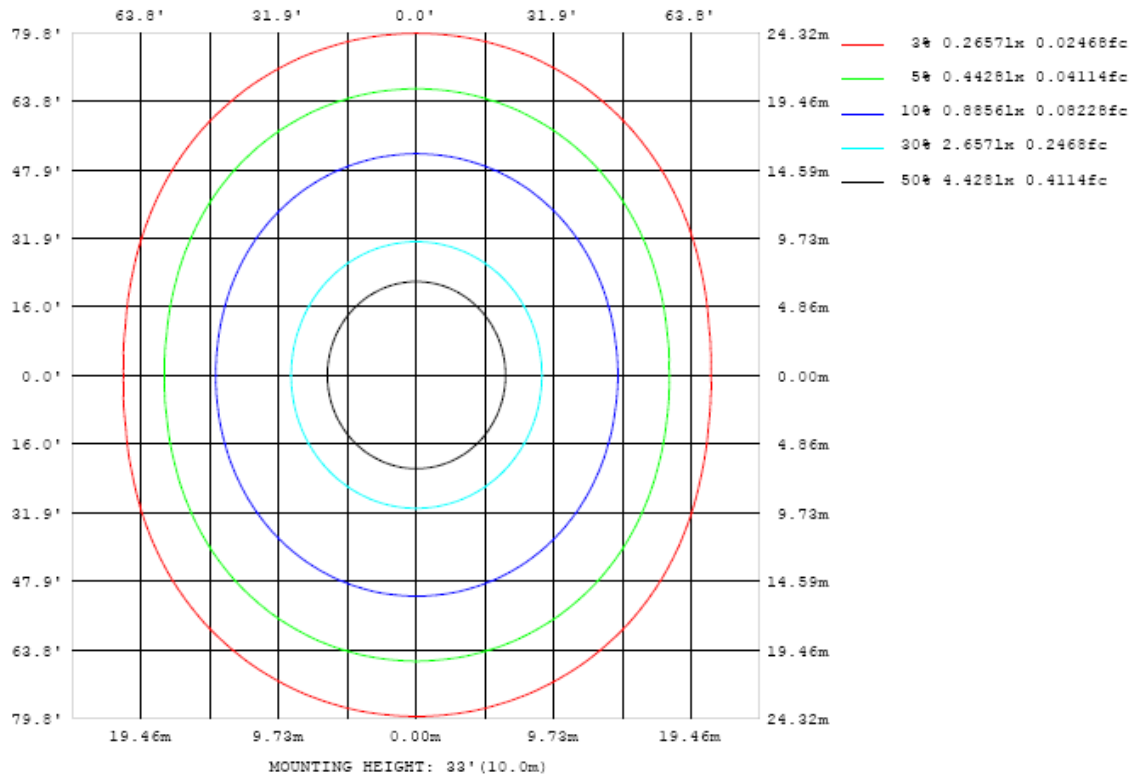


Chart 4: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

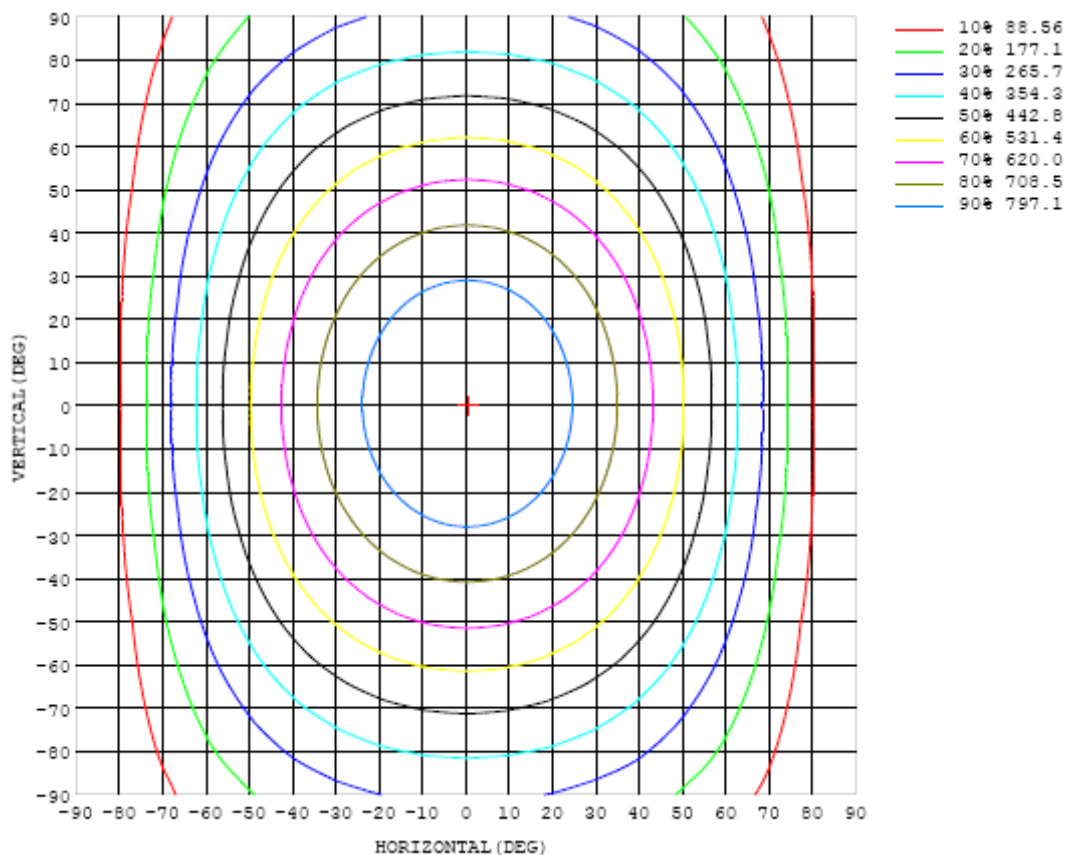


Chart 5: Isocandela Plot

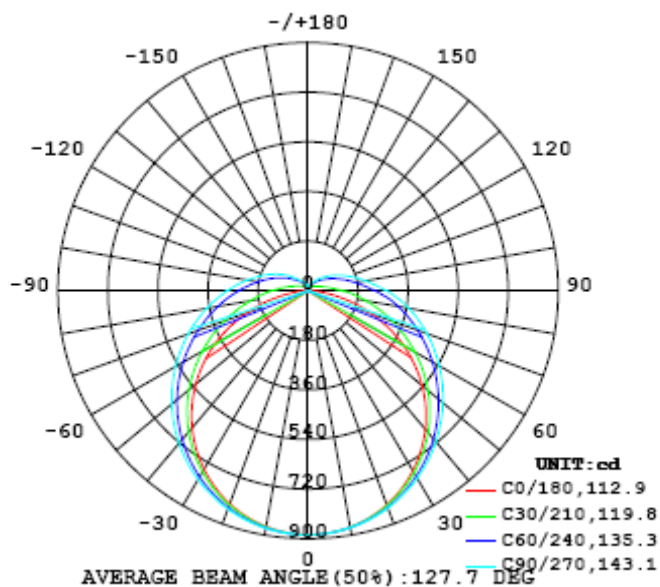


Chart 6: Polar Candela Distribution

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	886	886	886	886	886	886	886	886	886	886	886	886	886	886	886	886	886	886	886
5	882	882	882	882	882	882	882	882	882	882	882	882	882	882	882	881	881	881	881
10	871	871	871	872	872	872	873	873	873	873	873	872	872	871	870	870	869	869	869
15	853	853	853	854	855	856	857	858	859	859	858	857	856	854	853	851	850	850	850
20	827	827	828	830	832	834	836	838	839	839	838	836	834	831	829	826	824	823	823
25	794	794	796	799	802	806	809	812	814	814	813	811	807	803	798	795	791	790	789
30	754	755	757	762	767	773	778	782	784	785	784	780	775	769	763	757	752	750	749
35	708	709	713	719	726	734	742	747	751	752	750	745	739	730	722	714	707	703	702
40	656	657	663	671	681	692	701	709	713	715	713	707	698	688	676	666	657	651	649
45	598	600	607	619	632	646	658	667	673	675	672	665	655	642	627	613	601	594	591
50	535	538	548	562	580	597	612	624	631	633	630	622	609	593	575	557	542	531	528
55	467	471	484	504	525	546	565	578	587	589	586	576	562	542	521	498	478	464	460
60	395	401	418	443	470	495	516	532	541	544	541	530	513	491	465	438	413	394	387
65	319	328	351	382	414	443	468	485	496	499	495	484	465	440	411	377	345	321	311
70	242	252	283	322	360	393	420	439	450	454	450	438	418	390	357	318	279	246	233
75	164	179	219	265	307	344	373	394	406	410	406	393	372	342	305	262	216	173	156
80	90.4	111	161	212	259	298	329	350	363	368	363	350	327	297	258	211	159	108	83.4
85	30.3	58.3	112	166	215	255	285	307	319	324	320	307	285	254	214	166	112	57.2	27.0
90	0.51	25.9	71.9	123	170	210	241	263	276	282	278	265	243	212	172	125	73.1	26.3	0.60
95	0.61	12.0	48.3	92.8	136	173	203	224	237	242	239	226	205	176	138	95.4	50.9	14.2	0.35
100	1.29	7.59	34.5	71.7	110	145	173	193	205	210	206	194	175	148	113	74.9	37.4	9.63	0.84
105	2.57	6.80	26.8	56.5	90.2	121	147	165	177	181	178	167	149	124	93.3	60.1	29.5	8.09	2.08
110	3.99	6.97	22.4	45.5	73.8	101	124	141	151	155	152	142	126	104	77.6	49.3	24.8	7.43	3.73
115	5.48	6.95	19.4	38.0	60.9	84.0	104	119	129	132	130	121	107	87.2	65.0	41.5	21.3	7.09	5.47
120	7.01	7.55	15.5	32.4	51.3	70.5	87.5	101	109	112	110	102	89.8	73.6	54.9	35.5	18.2	7.77	7.09
125	8.64	9.06	14.6	28.5	43.8	59.5	73.2	84.6	91.7	94.5	92.6	86.1	75.6	62.5	46.0	30.4	15.9	8.93	8.76
130	10.2	10.8	12.6	24.7	36.7	50.3	62.0	71.2	76.9	79.2	77.7	72.6	64.1	52.7	38.0	26.6	13.9	10.6	10.3
135	11.6	12.4	11.7	20.5	28.2	41.7	51.7	59.3	64.5	66.5	65.3	61.0	53.9	42.6	31.3	22.8	12.4	12.5	11.6
140	13.0	13.6	13.2	16.2	25.2	33.8	42.0	48.8	53.0	54.7	53.7	51.1	43.8	34.7	28.0	18.0	13.5	13.6	12.8
145	14.3	14.9	15.0	13.1	18.9	29.5	33.5	36.6	41.5	43.8	43.4	38.6	32.2	29.2	22.6	14.3	15.5	14.6	13.9
150	15.4	16.2	16.7	15.2	13.4	15.6	27.1	32.3	34.5	36.4	31.7	25.9	23.7	19.8	15.4	15.5	16.8	15.6	14.9
155	16.4	16.9	18.2	17.8	14.7	13.4	13.9	17.5	23.5	30.0	21.9	20.3	15.9	14.7	14.9	16.1	17.1	15.8	15.7
160	17.1	17.4	18.2	19.3	19.8	17.5	13.9	15.9	19.7	18.1	20.1	17.3	14.3	13.4	14.8	16.3	16.9	16.7	16.6
165	17.7	17.8	18.1	18.7	19.4	19.4	19.0	18.9	19.0	12.6	14.2	15.2	14.8	14.5	15.1	16.3	16.9	17.1	17.0
170	18.1	18.1	18.2	18.5	18.5	18.1	18.5	19.3	19.3	19.6	19.0	17.2	17.0	16.6	17.6	17.9	17.6	17.5	17.5
175	17.9	17.9	17.7	17.5	17.3	17.5	17.9	18.1	18.2	18.2	18.2	18.1	18.0	18.0	17.9	17.9	17.8	17.8	17.9
180	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8

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	886	886	886	886	886	886	886	886	886	886	886	886	886	886	886	886	886		
5	881	882	882	882	883	883	883	883	883	883	883	883	883	883	883	882	882		
10	869	870	871	872	873	874	874	875	875	875	875	875	874	873	873	872	872		
15	850	851	853	855	857	859	860	861	862	862	861	860	859	857	855	854	853		
20	824	826	828	831	835	838	840	842	843	843	842	840	837	834	832	829	828		
25	790	793	797	802	807	812	816	818	820	819	817	814	810	805	801	797	795		
30	750	754	759	766	774	781	786	790	791	791	788	783	778	771	764	759	756		
35	704	709	716	726	736	745	752	757	759	758	754	748	740	731	722	715	710		
40	652	658	669	681	693	705	714	720	723	721	716	708	698	686	675	665	658		
45	594	603	616	632	647	662	673	680	683	681	675	665	652	637	623	610	601		
50	532	543	560	579	598	615	629	637	641	639	631	619	603	585	567	550	539		
55	465	480	501	524	548	567	583	593	596	594	585	571	552	530	508	488	473		
60	394	414	440	468	496	518	536	547	551	548	538	522	500	474	447	422	402		
65	321	346	379	413	444	469	488	500	505	502	491	473	448	418	385	354	329		
70	247	279	319	358	393	421	441	454	459	455	444	424	397	363	325	287	255		
75	175	216	262	306	344	374	396	409	414	410	398	377	348	311	268	223	183		
80	109	159	211	258	298	329	352	366	371	367	354	332	301	262	216	165	117		
85	57.4	112	167	215	256	288	311	325	329	325	312	290	259	218	170	116	63.5		
90	26.8	77.0	130	178	218	250	273	286	291	287	274	252	220	180	133	79.6	29.3		
95	14.0	53.6	101	147	185	215	238	251	255	251	238	217	186	148	103	54.8	14.4		
100	9.78	38.7	79.0	120	156	184	206	218	222	219	206	185	157	121	79.9	39.1	9.56		
105	8.73	29.0	62.5	98.2	131	158	177	188	192	189	177	158	131	98.7	62.8	29.2	8.37		
110	8.85	23.9	50.0	80.6	109	133	151	162	166	162	152	134	110	80.7	50.0	23.5	8.35		
115	9.46	21.1	40.5	66.1	91.0	112	128	138	142	138	128	113	91.2	66.0	40.3	20.4	8.89		
120	10.3	19.5	34.8	53.8	75.2	93.9	108	117	120	117	108	94.0	75.2	53.5	34.0	18.8	9.80		
125	10.9	18.6	30.5	45.6	61.4	77.0	89.7	97.5	100	97.5	89.8	77.0	61.0	44.8	29.7	17.8	10.8		
130	12.2	17.8	27.4	39.1	51.6	63.3	72.6	78.9	81.2	78.9	72.4	62.9	51.1	38.4	26.7	17.4	11.9		
135	13.2	17.7	25.1	34.1	43.8	52.9	60.2	64.9	66.4	64.7	59.9	52.4	43.2	33.4	24.4	17.3	12.9		
140	14.1	17.5	22.9	30.2	37.5	44.4	50.0	53.6	54.8	53.4	49.7	44.0	37.0	29.6	22.7	17.3	14.0		
145	15.0	17.6	21.8	27.0	32.4	37.5	41.6	44.3	45.2	44.2	41.4	37.2	32.0	26.5	21.5	17.5	15.0		
150	15.8	17.7	20.4	24.3	28.4	32.0	35.0	36.9	37.5	36.8	34.8	31.8	28.0	24.2	20.6	17.7	16.0		
155	16.5	17.9	19.5	22.4	25.2	27.6	29.7	31.0	31.4	30.9	29.5	27.4	25.0	22.3	19.9	17.9	16.7		
160	17.1	18.1	19.2	20.7	22.6	24.4	25.6	26.4	26.6	26.3	25.4	24.1	22.6	20.9	19.3	18.1	17.4		
165	17.5	18.1	18.7	19.1	20.2	21.6	22.5	22.9	23.0	22.8	22.3	21.6	20.7	19.8	18.9	18.3	17.9		
170	17.8	18.1	18.4	18.6	19.0	19.5	20.0	20.3	20.5	20.4	20.2	19.9	19.5	19.1	18.7	18.4	18.2		
175	18.0	18.1	18.2	18.3	18.3	18.4	18.4	18.4	18.5	18.6	18.6	18.7	18.7	18.6	18.4	18.2	18.1		
180	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8	17.8		

Table 7: Luminous Intensity Data

EQUIPMENT LIST

Test Equipment	Model	Equipment No.	Calibration Date	Calibration Due date
Goniophotometer system	GO-R5000	HZTE011-01	Jul. 26, 2016	Jul. 25, 2017
Digital Power Meter	PF2010A	HZTE028-01	Jul. 26, 2016	Jul. 25, 2017
AC Power Supply	DPS1060	HZTE001-06	Dec. 25, 2016	Dec. 24, 2017
DC Power Supply	WY12010	HZTE004-03	Dec. 25, 2016	Dec. 24, 2017
Temperature Meter	TES1310	HZTE017-01	Aug. 08, 2016	Aug. 07, 2017
Standard source	D908	HZTE012-01	Jul. 28, 2016	Jul. 27, 2017
Integrate Sphere system	2M	HZTE015-01	Jul. 26, 2016	Jul. 25, 2017
Digital Power Meter	WT210	HZTE008-01	Jul. 26, 2016	Jul. 25, 2017
AC Power Supply	PCR 500L	HZTE001-07	Dec. 25, 2016	Dec. 24, 2017
DC Power Supply	IT6154	HZTE004-04	Jul. 27, 2016	Jul. 26, 2017
Temperature and humidity recorder	JR900	HZTE018-01	Dec. 25, 2016	Dec. 24, 2017
Standard source	SCL-1400	HZTE012-02	Jul. 28, 2016	Jul. 27, 2017

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

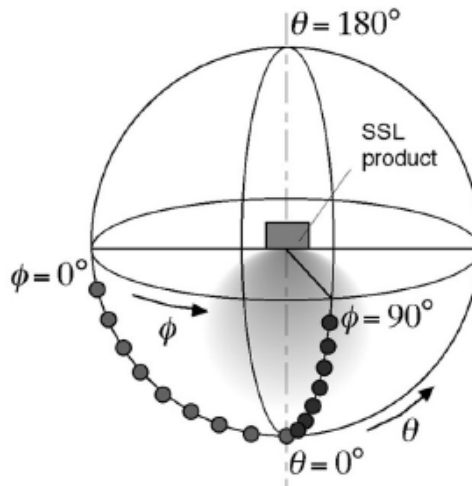
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as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

This report is considered invalidated without the Special Seal for Inspection of the LTL. This report shall not be altered, increased or deleted. The results shown in this test report refer only to the sample(s) tested. Without written approval of LTL, this test report shall not be copied except in full and published as advertisement.