

## LM-79-19 TEST REPORT

for

### GREEN CREATIVE LTD

Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, KL,  
Hong Kong

### LED Tube

**Model: 8.5T8/2F/840/UEB**

### Laboratory: Leading Testing Laboratories

**NVLAP CODE: 200960-0**

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Report No.: HZ23030039b

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

Review by:



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Apr. 04, 2023

Approved by:



Manager: Jim Zhang  
Apr. 04, 2023

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/840/UEB**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
138.7	1152.3	8.31	0.9888
CCT (K)	CRI	Stabilization Time (Light & Power)	
4044	82.7	50	

Table 1: Executive Data Summary

Note: The above results are recorded/ derived from measurements made using an Integrating Sphere.

### Test specifications:

<b>Date of Receipt</b>	: Mar. 28, 2023
<b>Date of Test</b>	: Mar. 30, 2023
<b>Test item</b>	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
<b>Reference Standard</b>	: IESNA LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products ANSI/IES TM-30-18 IES Method for Evaluating Light Source Color Rendition

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## SAMPLE PHOTO



Figure 1- Overview of the sample

### Equipment Under Test(EUT)

<b>Name</b>	: LED Tube
<b>Model</b>	: 8.5T8/2F/840/UEB
<b>Electrical Ratings</b>	: 120-277V, 50/60Hz, 8.5W
<b>Product Description</b>	: 4000K
<b>Manufacturer</b>	: GREEN CREATIVE LTD
<b>Address</b>	: Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, KL, Hong Kong

## TEST RESULTS

Test ambient temperature was 26.0 °C.

Base orientation was base up. Test was conducted without a dimmer in the circuit.

The stabilization time of the sample was 50 minutes, and the total operating time including stabilization was 55 minutes.

### Sphere-Spectroradiometer Method

Parameter	Result	
Test Voltage (V)	120.0	277.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.070	0.033
Power Factor	0.9888	0.9257
Test Power (W)	8.31	8.56
THD A%	11.27	16.06
Luminous Efficacy (lm/W)	138.7	136.6
Total Luminous Flux (lm)	1152.3	1169.6
Color Rendering Index (CRI)	82.7	
R9	8.7	
Correlated Color Temperature (CCT)(K)	4044	
Chromaticity Chroma x	0.3786	
Chromaticity Chroma y	0.3763	
Chromaticity Chroma u	0.2241	
Chromaticity Chroma v	0.3341	
Duv	0.0003	
Chromaticity Chroma u'	0.2241	
Chromaticity Chroma v'	0.5011	

Special Color Rendering Indices	
R1	81
R2	89.1
R3	94.6
R4	81.2
R5	80.8
R6	84.4
R7	86.1
R8	64.7
R9	8.7
R10	73.8
R11	79.8
R12	59.7
R13	83
R14	97.2

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 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)	0.070
Power Factor	0.9887
Power (W)	8.33
Luminous Efficacy (lm/W)	139.6
Total Luminous Flux (lm)	1163.2
Beam Angle (°)	106.9 (0°-180°) / 209.0 (90°-270°)
Center Beam Candle Power (cd)	212
Maximum Beam Candle Power (cd)	212.4 (At: C=90.0, Gamma=0.5)
Spacing Criteria	1.23 (0°-180°) / 1.39 (90°-270°)
Zonal Lumens in the 0°-60° Zone	44.80%
Zonal Lumens in the 60°-90° Zone	26.48%
Zonal Lumens in the 90°-120° Zone	17.25%
Zonal Lumens in the 120°-180° Zone	11.47%

Table 3: Test data per Goniophotometer Method

## Spectral Power Distribution - Sphere Spectroradiometer Method

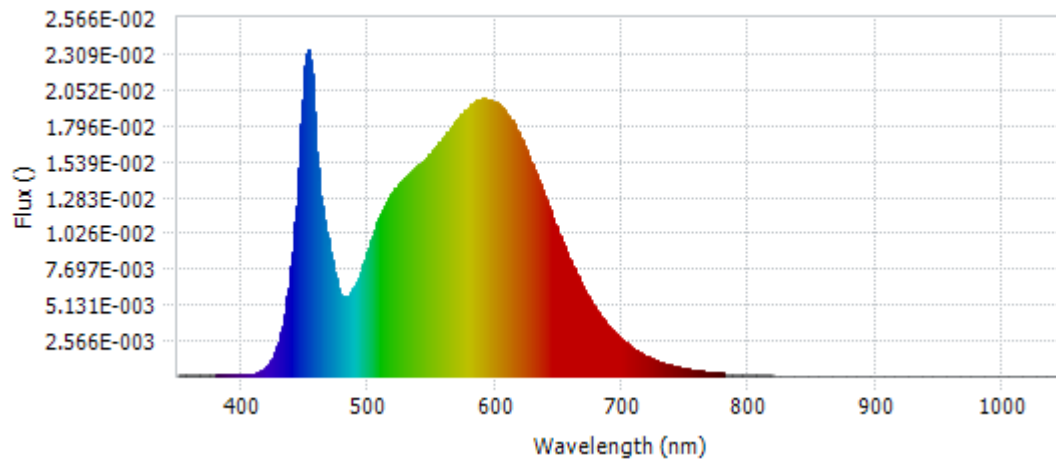
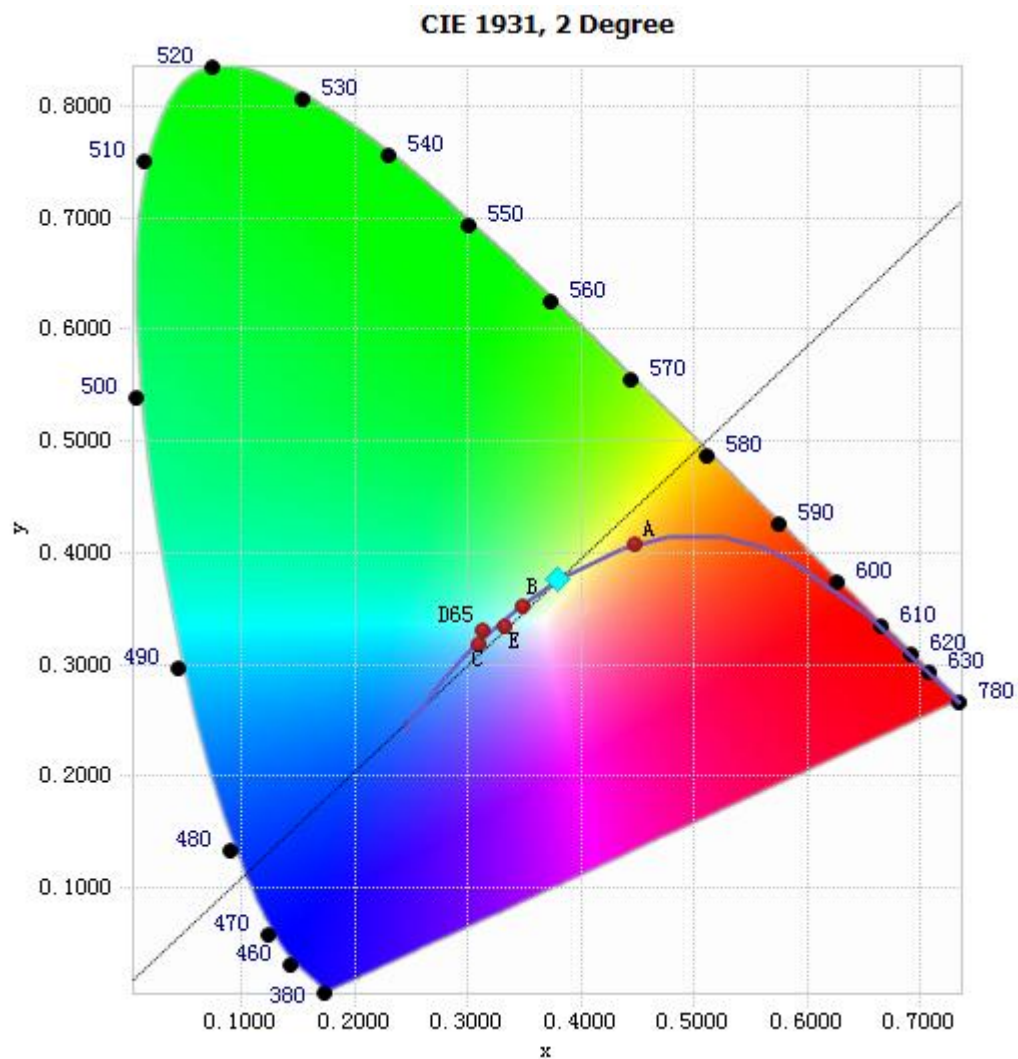


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	1.37E-04	485	5.90E-03	590	1.99E-02	695	3.06E-03
385	9.86E-05	490	6.58E-03	595	1.98E-02	700	2.62E-03
390	1.04E-04	495	7.73E-03	600	1.96E-02	705	2.24E-03
395	1.15E-04	500	9.18E-03	605	1.92E-02	710	1.91E-03
400	1.03E-04	505	1.05E-02	610	1.87E-02	715	1.65E-03
405	1.18E-04	510	1.16E-02	615	1.80E-02	720	1.41E-03
410	1.86E-04	515	1.27E-02	620	1.70E-02	725	1.20E-03
415	3.70E-04	520	1.32E-02	625	1.60E-02	730	1.03E-03
420	7.37E-04	525	1.38E-02	630	1.49E-02	735	8.80E-04
425	1.45E-03	530	1.43E-02	635	1.37E-02	740	7.49E-04
430	2.77E-03	535	1.47E-02	640	1.26E-02	745	6.32E-04
435	5.09E-03	540	1.51E-02	645	1.14E-02	750	5.45E-04
440	8.87E-03	545	1.56E-02	650	1.02E-02	755	4.61E-04
445	1.50E-02	550	1.60E-02	655	9.13E-03	760	3.93E-04
450	2.22E-02	555	1.66E-02	660	8.08E-03	765	3.37E-04
455	2.16E-02	560	1.71E-02	665	7.15E-03	770	2.88E-04
460	1.49E-02	565	1.78E-02	670	6.21E-03	775	2.51E-04
465	1.12E-02	570	1.83E-02	675	5.46E-03	780	2.11E-04
470	8.85E-03	575	1.89E-02	680	4.72E-03		
475	6.57E-03	580	1.93E-02	685	4.11E-03		
480	5.73E-03	585	1.98E-02	690	3.55E-03		

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

## Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3786, 0.3763)

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

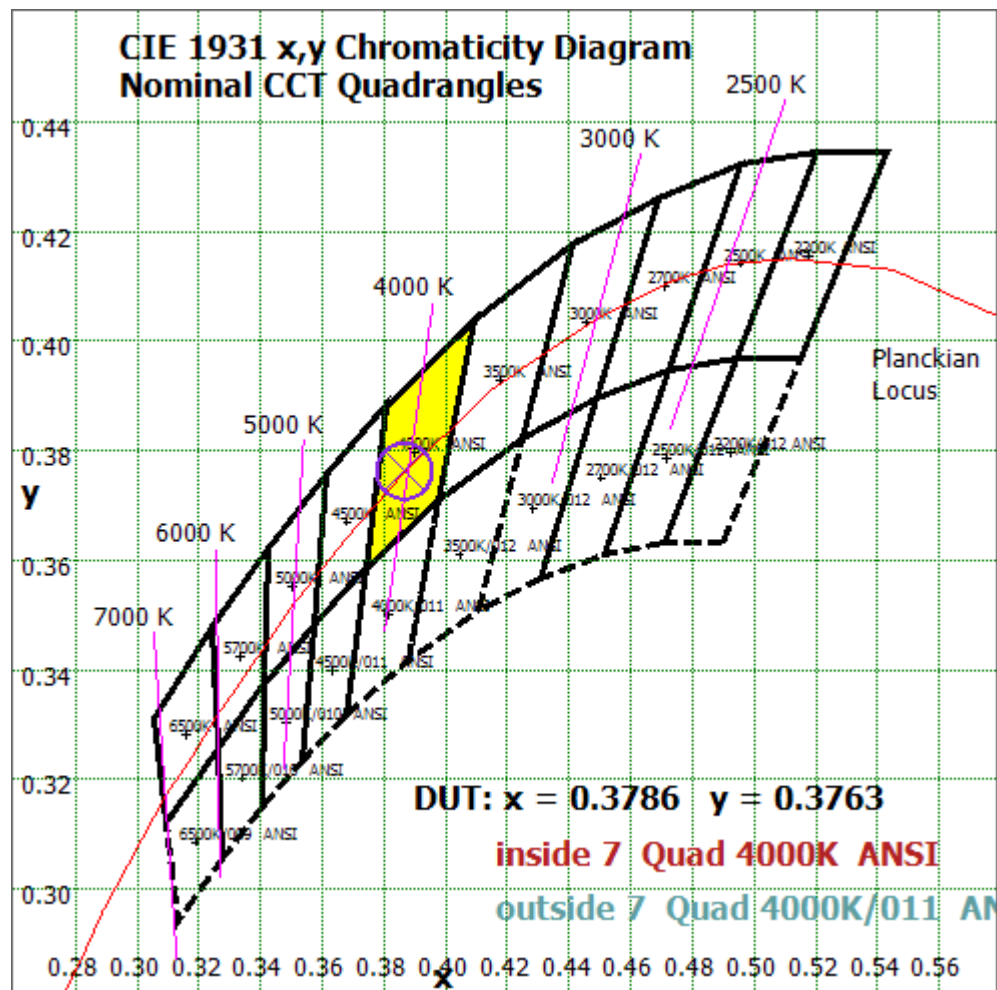


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

# Color Rendition Report – Sphere Spectroradiometer Method

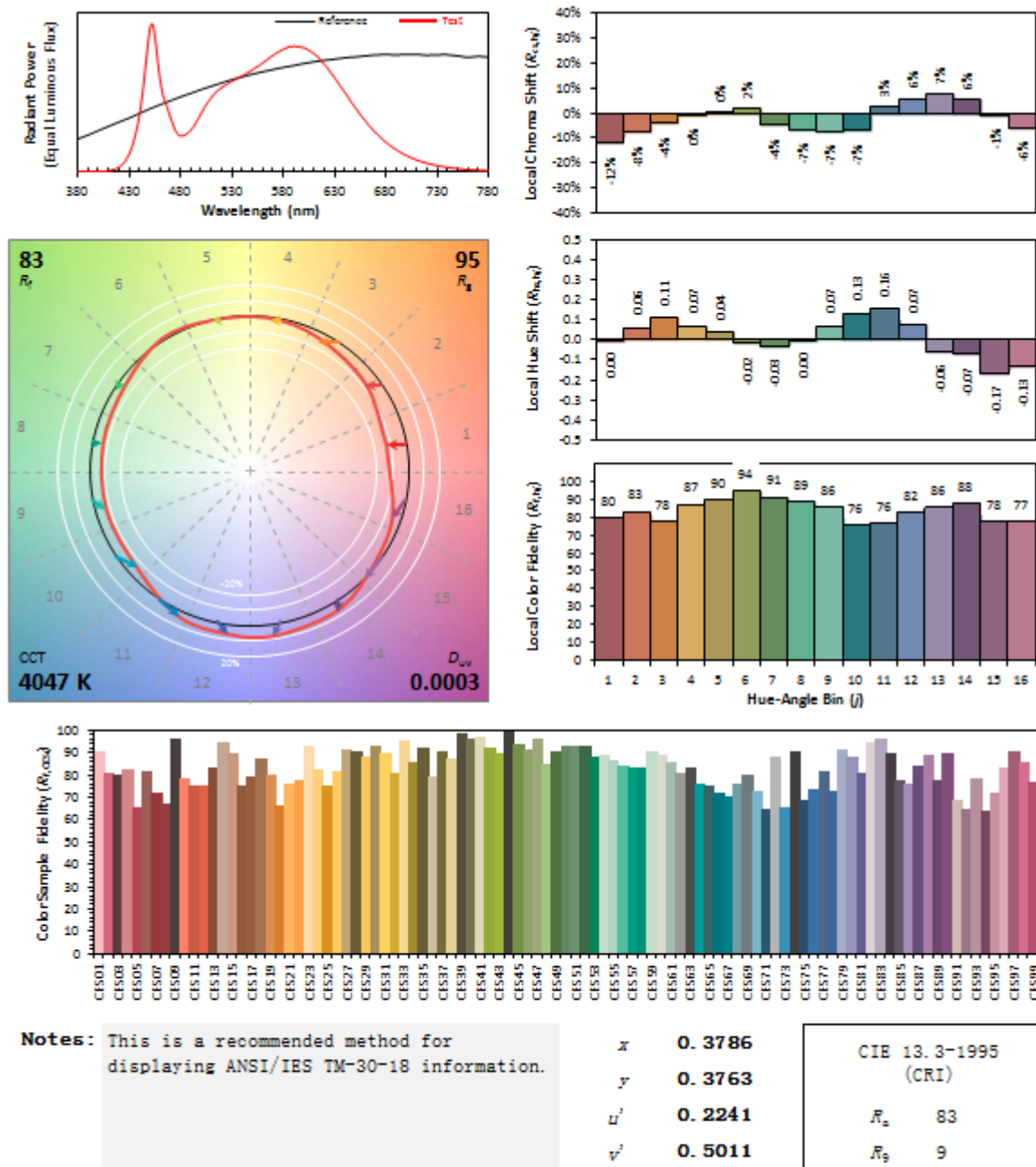
## ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2023/03/30

Model: 8.5T8/2F/840/UEB



Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

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

$\gamma(^{\circ})$	Lumens	% Total
0- 10	20.074	1.73%
10- 20	57.773	4.97%
20- 30	88.816	7.64%
30- 40	110.347	9.49%
40- 50	121.52	10.45%
50- 60	122.56	10.54%
60- 70	115.529	9.93%
70- 80	103.238	8.88%
80- 90	89.263	7.67%
90-100	77.144	6.63%
100-110	66.631	5.73%
110-120	56.928	4.89%
120-130	47.181	4.06%
130-140	36.587	3.15%
140-150	25.979	2.23%
150-160	14.11	1.21%
160-170	7.131	0.61%
170-180	2.371	0.20%
Total	1163.2	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	521.09	44.80%
60- 90	308.03	26.48%
0-90	829.12	71.28%
90- 180	334.062	28.72%
0- 180	1163.2	100%

Table 5: Zonal Lumen

### Illuminance Plots- Goniophotometer Method

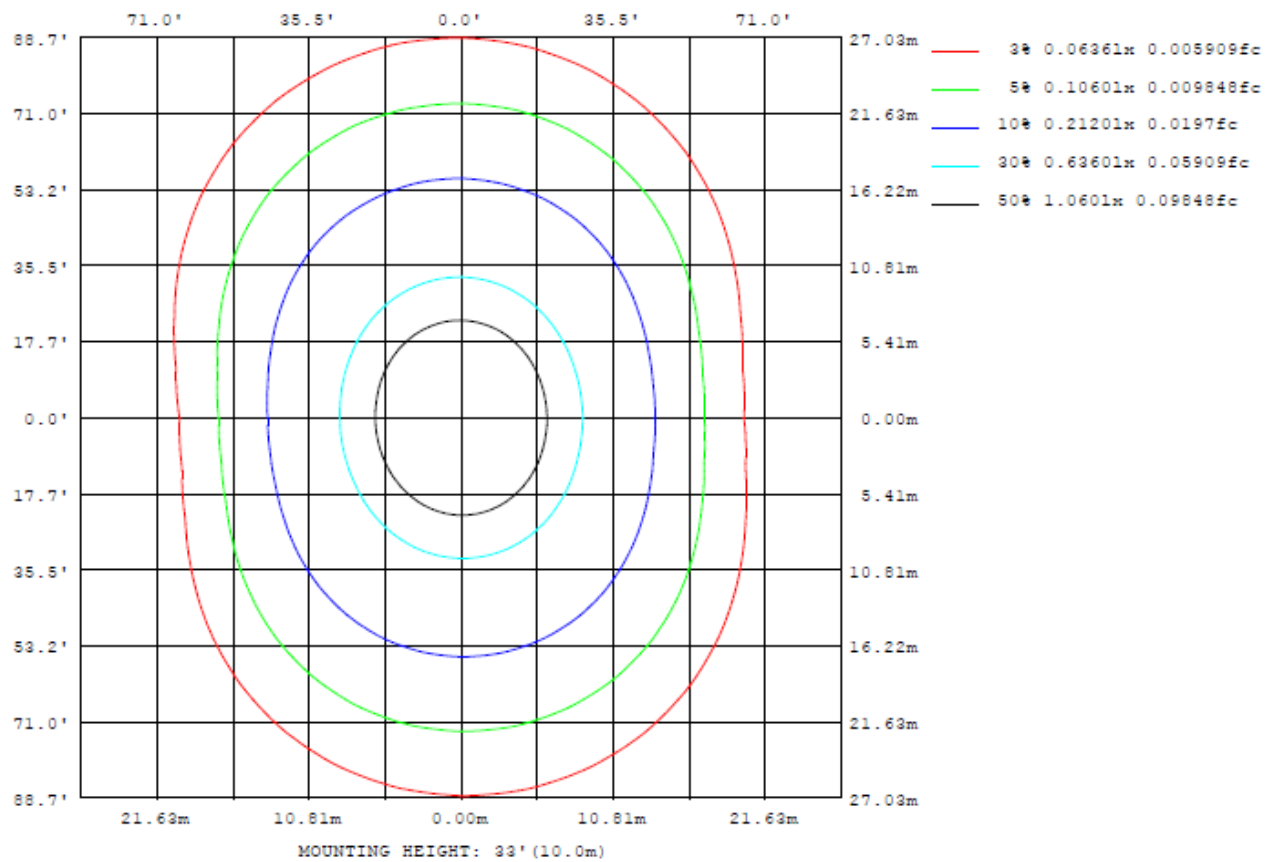


Chart 5: Illuminance Plot (Footcandles)

## Luminous Intensity Distribution Plots- Goniophotometer Method

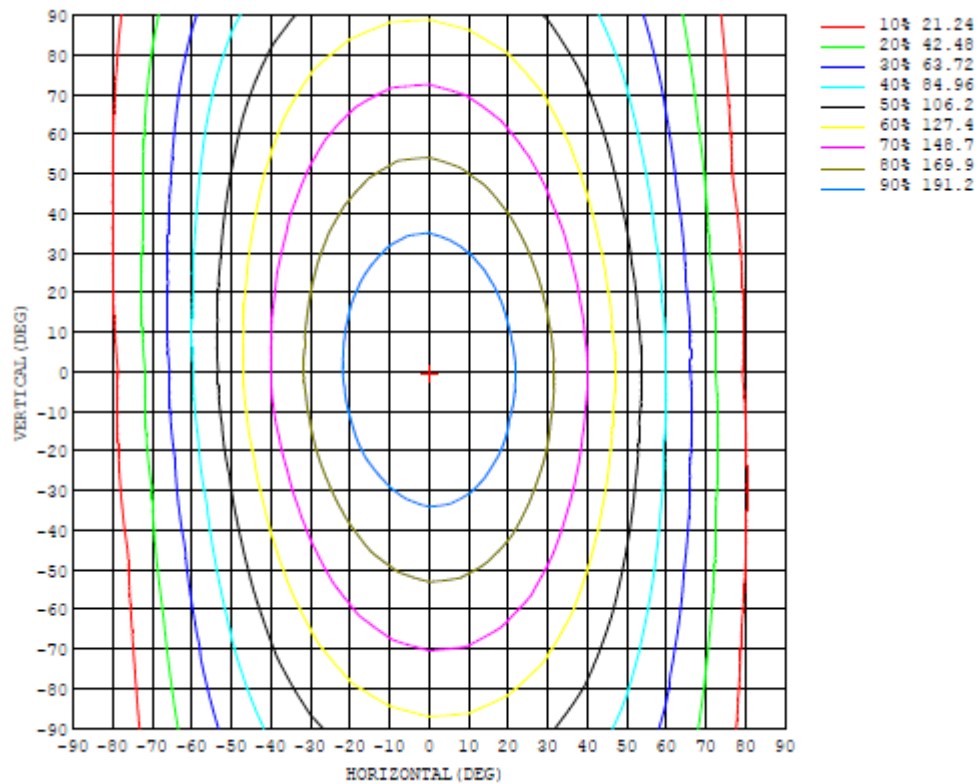


Chart 6: Isocandela Plot

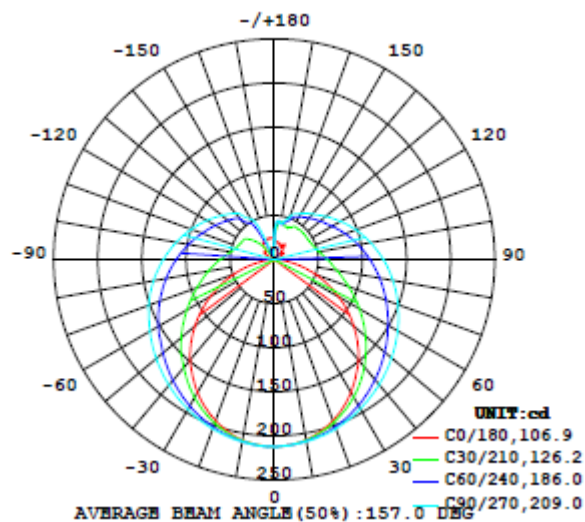


Chart 7: Polar Candela Distribution

## Luminous Intensity Data- Goniophotometer Method

Table--1

UNIT: cd

C (DEG) y (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212
5	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211
10	208	207	208	208	208	209	209	209	209	209	210	209	209	208	208	208	208	208	208
15	202	202	202	203	204	205	206	206	207	207	207	206	205	205	204	203	202	202	202
20	194	195	196	197	198	200	202	203	204	204	204	203	201	199	197	196	195	194	194
25	185	186	187	189	192	195	197	199	200	200	199	198	196	193	190	188	186	185	185
30	174	175	176	180	184	187	191	194	195	195	194	192	189	185	182	178	175	174	174
35	161	162	165	170	175	180	184	188	190	190	189	186	182	177	172	167	164	162	161
40	149	150	153	159	165	172	178	182	184	185	183	180	174	168	161	155	151	149	149
45	134	135	140	147	155	163	171	176	179	179	177	173	167	159	151	143	137	134	134
50	118	119	126	135	145	155	164	169	173	174	171	166	159	150	140	130	122	118	117
55	101	104	112	123	135	147	156	163	167	168	165	159	151	141	129	117	107	101	101
60	84.2	88.0	98.3	111	125	138	149	156	161	162	159	153	143	132	118	104	91.8	84.5	83.4
65	67.0	72.5	84.9	100	116	130	142	150	155	155	152	146	136	123	108	92.0	77.0	67.8	65.9
70	50.2	58.3	72.4	89.9	107	122	135	143	148	149	146	139	129	115	98.6	80.7	63.3	51.3	48.7
75	33.9	44.0	61.3	80.4	99.0	115	128	137	142	143	140	133	122	107	90.1	70.9	51.4	35.6	32.1
80	19.1	31.5	51.7	72.3	91.7	108	121	130	136	137	133	126	115	101	82.6	62.4	40.7	22.1	17.4
85	7.16	21.8	43.8	65.9	84.9	102	115	124	129	130	127	120	109	94.1	76.2	55.8	32.8	12.1	5.85
90	0.86	15.9	38.1	60.1	79.0	95.5	109	118	123	124	121	114	103	88.3	70.4	50.3	27.9	7.51	1.19
95	0.83	13.6	34.6	55.4	73.7	89.8	102	111	116	117	114	108	96.9	82.8	66.2	46.3	25.3	7.14	0.11
100	1.02	11.7	32.0	51.8	69.4	84.4	96.5	105	110	111	108	102	91.4	77.8	62.0	43.4	24.3	8.67	0.42
105	2.07	12.7	30.5	48.9	65.6	79.3	91.0	99.0	104	105	102	95.8	86.1	73.3	58.6	41.6	24.6	11.2	1.35
110	3.23	14.4	30.3	46.8	61.9	74.8	85.6	93.1	97.7	98.6	95.9	90.2	81.2	69.8	55.9	40.5	25.8	14.2	3.15
115	5.98	17.2	31.2	45.4	59.2	70.9	80.5	87.5	91.7	92.5	90.1	84.9	76.5	66.3	53.7	40.1	27.6	17.8	5.98
120	10.1	20.6	32.4	44.7	56.7	67.3	75.7	82.1	86.0	86.7	84.6	79.8	72.1	63.0	52.0	40.3	29.7	21.5	10.1
125	13.8	22.7	33.4	44.5	54.7	64.1	71.2	77.1	80.6	81.2	79.2	74.9	68.9	60.6	50.8	40.9	32.1	25.2	14.7
130	10.7	25.2	35.1	44.5	53.1	61.3	67.8	72.3	75.4	76.0	74.3	70.6	65.4	58.3	50.1	41.8	34.6	28.3	12.1
135	8.19	29.3	35.6	44.5	52.1	58.8	64.6	68.6	70.6	71.2	69.7	67.2	62.5	56.4	49.6	42.9	37.0	32.3	12.5
140	15.3	34.6	37.5	44.3	50.8	56.7	61.4	65.0	67.2	67.6	66.4	63.8	59.8	54.8	49.4	44.1	38.6	36.4	16.9
145	21.3	36.9	38.3	44.2	49.8	54.8	58.6	61.6	63.3	63.7	62.7	60.6	57.4	53.6	49.4	44.5	39.4	38.1	22.8
150	17.3	37.4	37.9	43.4	47.8	52.8	56.2	58.5	59.9	60.2	59.4	57.8	55.5	52.5	46.4	41.5	40.5	37.8	22.3
155	18.1	39.7	37.9	40.6	44.2	49.2	53.2	55.5	56.7	57.0	56.5	55.4	53.0	47.9	44.7	40.3	38.6	39.7	22.4
160	17.8	37.5	41.0	39.8	41.5	44.8	47.0	49.2	51.4	52.1	51.0	48.8	47.1	45.6	42.2	41.1	41.7	39.0	24.1
165	20.1	35.9	42.7	41.2	40.5	41.8	42.0	44.4	45.8	45.9	45.4	44.0	43.1	42.5	41.5	42.7	43.3	39.9	25.7
170	20.4	32.8	41.6	43.7	43.8	42.5	41.0	41.2	41.4	41.5	41.5	41.5	42.2	43.9	44.2	44.0	42.7	37.1	25.2
175	21.0	28.0	33.1	38.0	41.9	43.4	43.7	43.9	44.0	44.1	44.1	44.0	43.9	43.6	42.6	39.8	35.8	30.9	24.2
180	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7

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	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212		
5	211	211	211	211	212	212	212	212	211	211	211	211	211	211	211	211	211		
10	208	208	208	209	209	209	210	210	210	210	209	209	209	209	208	208	208		
15	203	203	204	205	205	206	207	207	208	207	206	206	205	204	203	202	202		
20	195	196	197	199	201	202	203	204	204	204	203	201	200	198	196	195	194		
25	186	187	190	193	195	197	199	200	200	199	198	196	193	191	188	186	185		
30	175	177	181	185	188	192	194	196	196	195	193	190	186	182	178	175	174		
35	163	166	171	176	181	185	189	191	191	190	187	183	178	173	168	164	162		
40	150	154	160	167	173	179	183	186	186	184	180	175	169	163	156	152	149		
45	136	142	150	157	165	172	177	180	180	178	174	168	161	152	145	138	134		
50	121	128	138	148	157	165	171	174	175	172	167	160	152	142	132	124	119		
55	105	114	126	138	149	158	164	168	169	166	161	153	143	131	120	109	103		
60	89.1	100	114	129	142	152	158	162	163	160	155	146	135	121	107	94.7	86.3		
65	73.2	87.0	103	119	134	145	153	156	157	154	148	139	126	111	95.0	80.2	69.8		
70	57.8	74.6	93.2	111	126	138	146	151	152	149	142	132	118	101	83.8	66.5	53.6		
75	43.8	63.4	84.1	103	119	131	140	145	146	142	135	125	110	93.0	73.7	53.9	38.1		
80	31.8	54.1	75.9	95.4	112	125	133	138	139	136	129	118	103	85.2	64.9	43.2	24.3		
85	23.1	46.2	68.4	88.1	105	118	127	132	132	129	122	111	96.4	78.4	57.5	34.9	13.8		
90	16.3	38.9	61.3	81.2	98.1	111	120	125	126	123	116	105	90.3	72.3	51.7	29.1	8.34		
95	11.2	33.0	55.2	75.1	91.8	105	114	119	119	116	110	98.8	84.5	67.1	47.2	25.9	7.37		
100	9.45	29.1	50.1	69.4	85.9	98.7	107	112	113	110	103	93.1	79.3	62.7	43.9	24.7	8.15		
105	8.59	27.5	46.5	64.6	80.3	92.8	101	106	106	104	97.4	87.7	74.6	59.0	41.8	24.9	9.30		
110	7.57	26.9	44.3	60.8	75.4	87.1	95.0	99.6	100	97.6	91.7	82.5	70.4	56.0	40.5	26.0	10.1		
115	6.10	26.6	42.7	57.8	71.4	82.0	89.3	93.4	94.2	91.7	86.3	77.8	66.6	53.6	40.0	27.5	9.95		
120	4.02	25.2	41.7	55.3	67.5	77.4	84.0	87.7	88.5	86.1	81.2	73.4	63.3	51.9	40.2	28.8	8.36		
125	2.62	20.7	40.8	53.3	64.1	73.0	79.0	82.3	83.0	80.8	76.3	69.4	60.6	50.6	41.1	24.8	4.68		
130	3.76	5.77	35.3	51.3	61.1	68.9	74.3	77.3	77.8	75.9	71.9	65.9	58.1	49.8	40.8	11.9	2.83		
135	5.51	1.24	27.9	44.5	58.2	65.3	69.8	72.5	73.0	71.3	67.8	62.7	56.2	49.0	31.2	0.24	1.98		
140	4.18	4.30	18.7	38.2	49.7	59.8	65.9	68.0	68.6	67.1	64.3	59.8	54.9	41.8	19.1	1.39	1.64		
145	3.48	7.45	6.78	19.0	45.2	51.1	55.1	57.8	59.0	58.8	59.4	56.6	48.2	23.5	8.54	6.35	3.08		
150	6.38	8.73	4.11	4.14	17.1	39.4	49.2	52.1	53.0	52.5	50.0	43.0	22.2	5.23	5.56	7.68	5.99		
155	8.22	8.78	9.57	8.51	5.13	5.58	12.5	26.1	32.8	31.6	24.7	11.9	5.42	4.14	7.19	6.16	5.68		
160	9.04	5.99	8.42	12.3	8.55	3.83	5.13	6.60	6.28	6.13	4.77	3.29	4.45	6.40	10.6	7.11	7.82		
165	12.2	7.56	6.38	5.48	11.2	12.4	8.04	8.05	3.57	2.36	2.57	6.26	11.7	14.7	6.91	7.44	8.45		
170	13.9	9.78	6.99	5.63	6.45	6.04	4.77	3.18	1.60	10.8	13.5	9.00	5.39	6.89	9.08	9.10	11.1		
175	17.0	13.3	11.9	10.2	8.82	8.88	8.93	9.05	9.43	9.56	9.69	9.67	9.14	9.24	10.9	12.5	15.0		
180	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7		

Table 7: Luminous Intensity Data

## EQUIPMENT LIST

Test Equipment	Model	Equipment No.	Calibration Date	Calibration Due date
Goniophotometer system	GO-R5000	HZTE011-01	Aug. 05, 2022	Aug. 04, 2023
Digital Power Meter	PF2010A	HZTE028-01	Aug. 05, 2022	Aug. 04, 2023
AC Power Supply	DPS1060	HZTE001-06	Aug. 05, 2022	Aug. 04, 2023
DC Power Supply	WY12010	HZTE004-03	Aug. 05, 2022	Aug. 04, 2023
Temperature recorder	JM624U	HZTE018-08	Aug. 05, 2022	Aug. 04, 2023
Temperature and humidity recorder	JR900	HZTE018-01	Aug. 05, 2022	Aug. 04, 2023
Standard source	D908	HZTE012-01	Aug. 05, 2022	Aug. 04, 2023
Integrate Sphere system	3M	HZTE015-04	Aug. 05, 2022	Aug. 04, 2023
Digital Power Meter	WT210	HZTE008-01	Aug. 05, 2022	Aug. 04, 2023
AC Power Supply	PCR 500L	HZTE001-07	Aug. 05, 2022	Aug. 04, 2023
DC Power Supply	IT6154	HZTE004-04	Aug. 05, 2022	Aug. 04, 2023
Standard source	SCL-1400	HZTE012-02	Aug. 05, 2022	Aug. 04, 2023
Temperature and humidity recorder	JR900	HZTE018-02	Aug. 05, 2022	Aug. 04, 2023
Temperature Meter	TES1310	HZTE017-01	Aug. 05, 2022	Aug. 04, 2023

Table 7: 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 3 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 Tubes) 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 20 min, taken 10 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 Tubes) 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 20 min, taken 10 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.

\*\*\* End of Report \*\*\*

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