

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/835/UEB

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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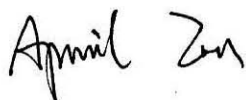
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Report No.: HZ23030039a

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

Review by:



Engineer: April Zou
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/835/UEB**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
131.1	1094.7	8.35	0.9886
CCT (K)	CRI	Stabilization Time (Light & Power)	
3480	83.5	50	

Table 1: Executive Data Summary

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

Test specifications:

Date of Receipt	: Mar. 28, 2023
Date of Test	: Mar. 30, 2023
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	: IESNA LM-79-2019 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)

Name	: LED Tube
Model	: 8.5T8/2F/835/UEB
Electrical Ratings	: 120-277V, 50/60Hz, 8.5W
Product Description	: 3500K
Manufacturer	: GREEN CREATIVE LTD
Address	: 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	0.9886	0.9251
Test Power (W)	8.35	8.57
THD A%	11.63	16.27
Luminous Efficacy (lm/W)	131.1	129.5
Total Luminous Flux (lm)	1094.7	1109.6
Color Rendering Index (CRI)	83.5	
R9	12.6	
Correlated Color Temperature (CCT)(K)	3480	
Chromaticity Chroma x	0.4059	
Chromaticity Chroma y	0.3903	
Chromaticity Chroma u	0.2363	
Chromaticity Chroma v	0.3408	
Duv	-0.0004	
Chromaticity Chroma u'	0.2363	
Chromaticity Chroma v'	0.5112	

Special Color Rendering Indices	
R1	82
R2	91.2
R3	96.2
R4	80.8
R5	81.8
R6	87.8
R7	84.7
R8	63.3
R9	12.6
R10	78.9
R11	79.5
R12	64.8
R13	84.4
R14	98.5

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	0.9885
Power (W)	8.35
Luminous Efficacy (lm/W)	132.2
Total Luminous Flux (lm)	1104.0
Beam Angle (°)	106.8 (0°-180°) / 213.2 (90°-270°)
Center Beam Candle Power (cd)	198
Maximum Beam Candle Power (cd)	198.1 (At: C=30.0, Gamma=1.0)
Spacing Criteria	1.21 (0°-180°) / 1.40 (90°-270°)
Zonal Lumens in the 0°-60° Zone	44.39%
Zonal Lumens in the 60°-90° Zone	26.42%
Zonal Lumens in the 90°-120° Zone	17.39%
Zonal Lumens in the 120°-180° Zone	11.80%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

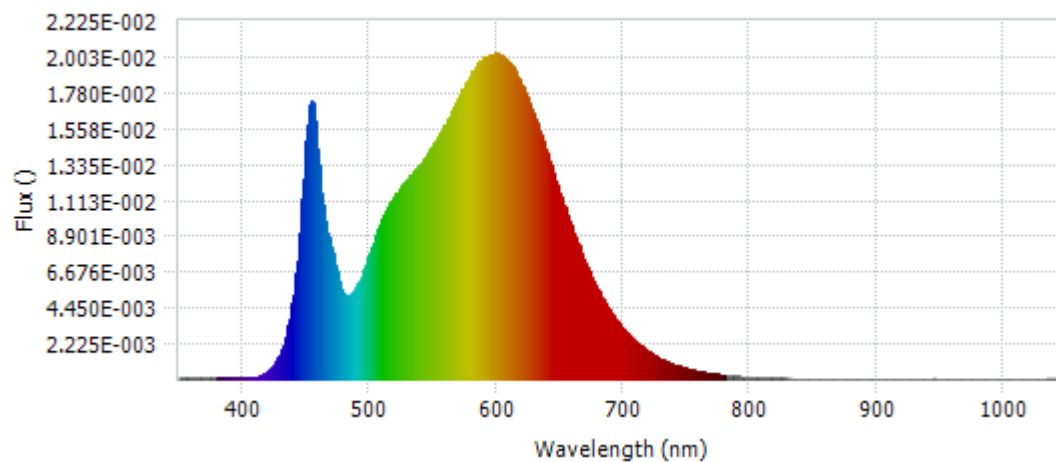
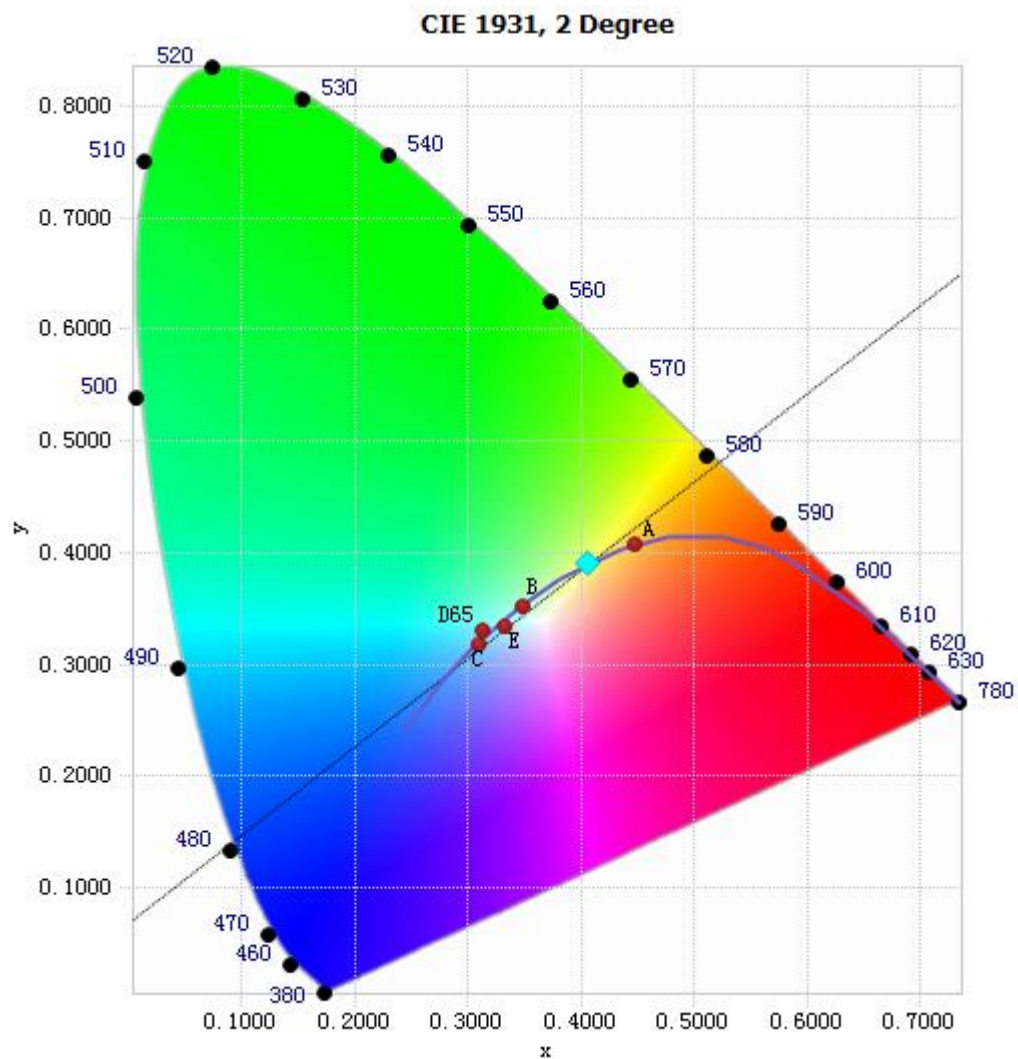


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	1.05E-04	485	5.27E-03	590	2.00E-02	695	3.66E-03
385	8.55E-05	490	5.76E-03	595	2.02E-02	700	3.16E-03
390	8.45E-05	495	6.63E-03	600	2.02E-02	705	2.72E-03
395	8.97E-05	500	7.80E-03	605	2.00E-02	710	2.33E-03
400	8.33E-05	505	8.91E-03	610	1.97E-02	715	2.01E-03
405	1.00E-04	510	9.90E-03	615	1.91E-02	720	1.73E-03
410	1.53E-04	515	1.08E-02	620	1.83E-02	725	1.47E-03
415	2.76E-04	520	1.13E-02	625	1.74E-02	730	1.26E-03
420	5.01E-04	525	1.19E-02	630	1.63E-02	735	1.09E-03
425	9.61E-04	530	1.25E-02	635	1.52E-02	740	9.28E-04
430	1.70E-03	535	1.29E-02	640	1.41E-02	745	7.95E-04
435	3.03E-03	540	1.34E-02	645	1.28E-02	750	6.77E-04
440	5.23E-03	545	1.39E-02	650	1.16E-02	755	5.77E-04
445	9.10E-03	550	1.44E-02	655	1.04E-02	760	5.00E-04
450	1.48E-02	555	1.52E-02	660	9.33E-03	765	4.27E-04
455	1.71E-02	560	1.58E-02	665	8.28E-03	770	3.61E-04
460	1.33E-02	565	1.67E-02	670	7.26E-03	775	3.10E-04
465	9.86E-03	570	1.74E-02	675	6.40E-03	780	2.68E-04
470	8.18E-03	575	1.82E-02	680	5.59E-03		
475	6.34E-03	580	1.89E-02	685	4.88E-03		
480	5.32E-03	585	1.96E-02	690	4.23E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4059, 0.3903)

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

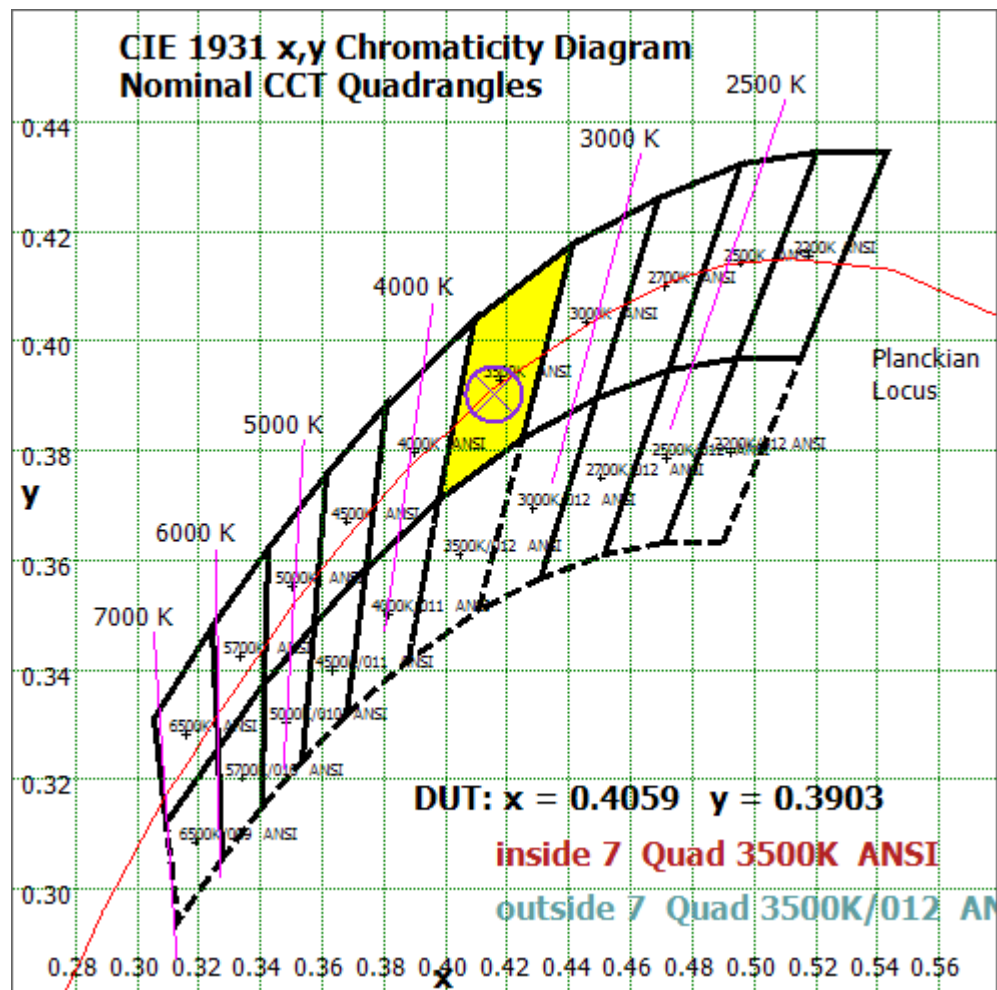


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

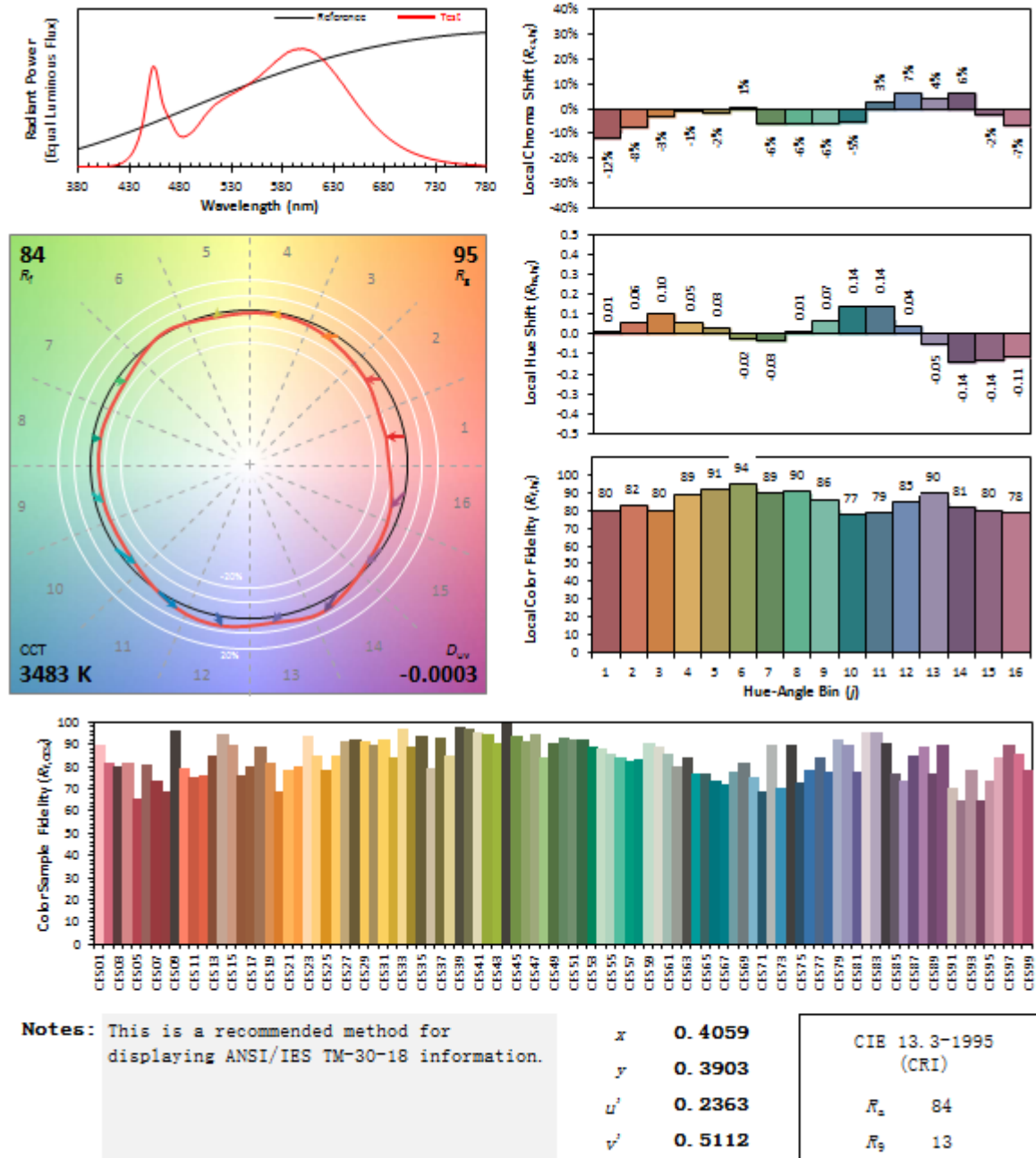
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2023/03/30

Model: 8.5T8/2F/835/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	18.75	1.70%
10- 20	54.097	4.90%
20- 30	83.287	7.54%
30- 40	103.781	9.40%
40- 50	114.457	10.37%
50- 60	115.654	10.48%
60- 70	109.199	9.89%
70- 80	97.697	8.85%
80- 90	84.783	7.68%
90-100	73.681	6.67%
100-110	63.75	5.77%
110-120	54.602	4.95%
120-130	45.716	4.14%
130-140	35.971	3.26%
140-150	26.39	2.39%
150-160	15.65	1.42%
160-170	5.778	0.52%
170-180	0.783	0.07%
Total	1104.0	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	490.026	44.39%
60- 90	291.679	26.42%
0-90	781.705	70.80%
90- 180	322.321	29.20%
0- 180	1104.0	100%

Table 5: Zonal Lumen

Illuminance Plots- Goniophotometer Method

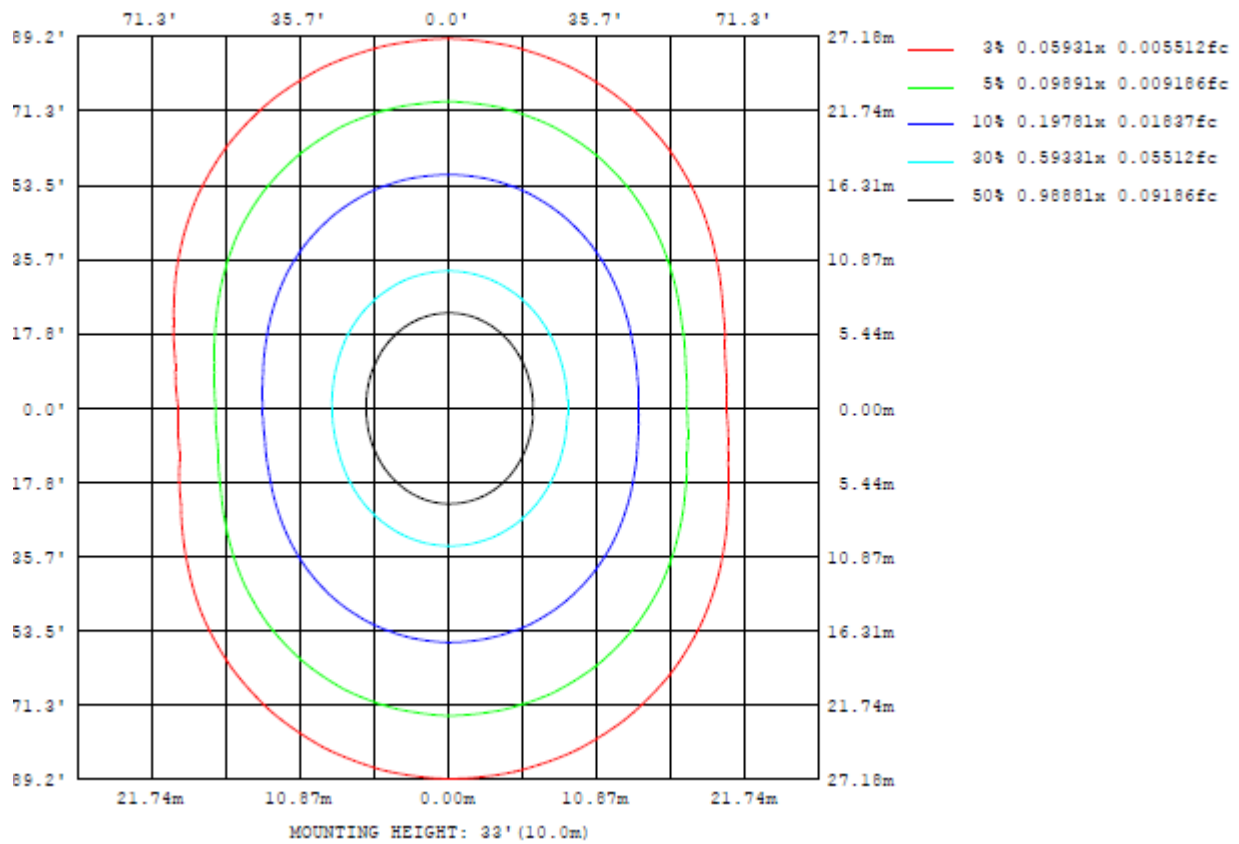


Chart 5: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

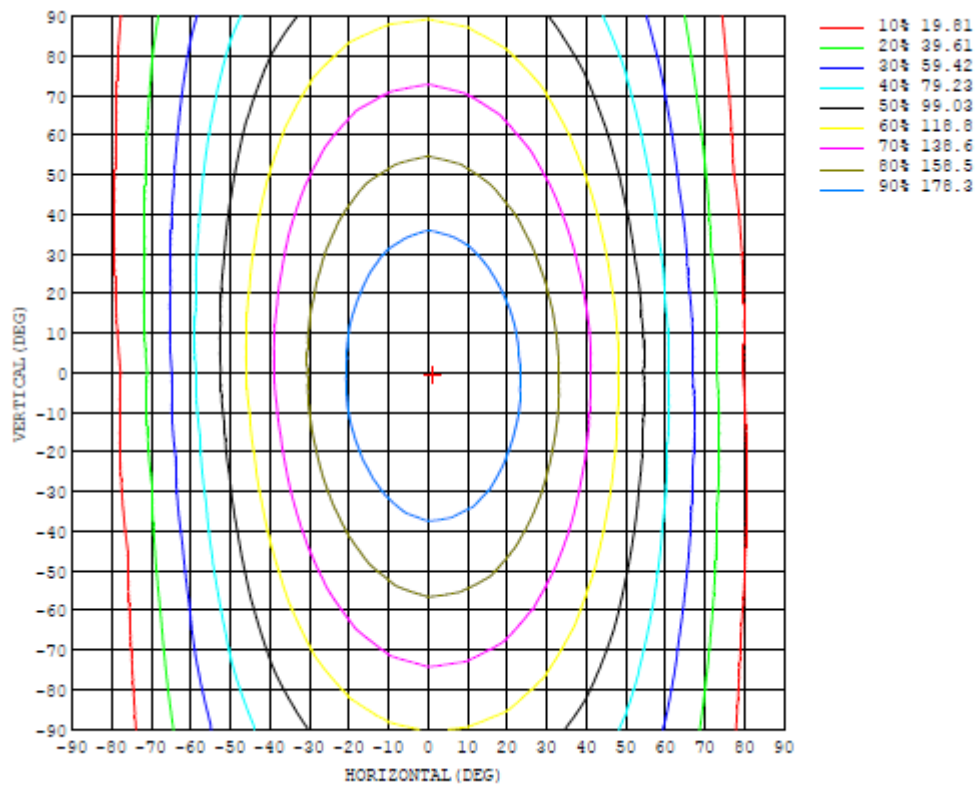


Chart 6: Isocandela Plot

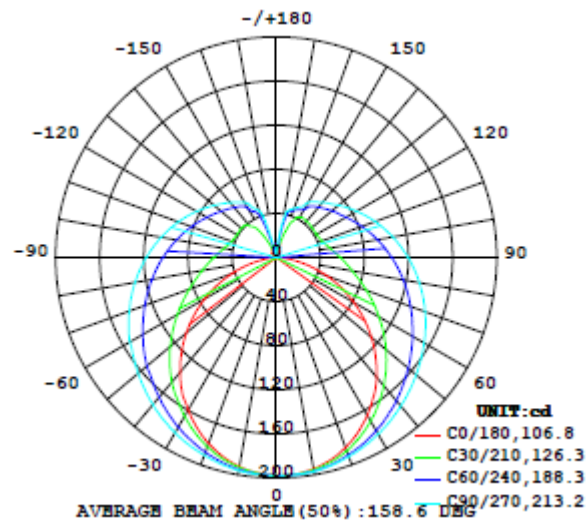


Chart 7: Polar Candela Distribution

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	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198
5	197	197	197	198	197	198	198	198	198	198	198	197	197	197	197	196	196	196	196
10	195	195	195	196	196	196	197	197	197	197	197	196	196	195	194	194	193	193	192
15	190	190	191	192	193	194	194	195	195	195	194	194	192	192	190	189	188	187	187
20	184	184	185	187	188	189	191	192	192	192	191	190	188	187	185	183	181	180	179
25	175	176	178	180	182	184	186	188	189	189	188	186	183	180	178	175	173	171	170
30	165	166	168	171	175	178	181	184	185	185	184	181	178	174	169	166	162	160	160
35	154	155	158	162	167	171	176	179	180	181	179	176	171	166	161	155	151	149	149
40	141	143	147	152	158	164	170	173	175	176	174	170	165	158	151	144	139	136	136
45	128	129	134	141	149	156	163	168	170	171	169	164	158	150	141	133	126	122	121
50	113	115	121	130	139	148	156	162	165	166	163	158	151	141	131	121	112	107	106
55	97.2	100	108	119	130	141	150	156	159	160	158	152	144	133	121	109	98.6	91.8	90.9
60	81.1	85.4	95.2	108	121	133	143	150	154	155	152	146	137	125	112	97.7	84.9	76.3	74.9
65	65.6	70.4	82.3	97.0	112	125	136	144	148	149	146	140	130	118	103	86.7	71.7	61.6	58.8
70	49.1	56.5	70.2	87.0	104	118	130	138	142	144	141	134	124	110	94.2	76.6	59.8	46.4	42.9
75	33.2	42.6	59.7	77.9	95.8	111	123	132	136	138	135	128	117	103	86.6	67.5	48.4	32.2	27.6
80	18.6	30.2	49.9	69.9	88.8	104	117	126	130	132	129	122	111	97.1	79.8	60.5	38.9	20.0	14.1
85	6.96	20.6	42.2	63.7	82.2	98.1	111	120	124	126	123	116	105	91.1	73.7	54.1	31.9	11.4	4.09
90	0.66	15.1	36.7	58.1	76.4	92.2	105	114	118	120	117	110	99.6	85.6	69.3	49.2	27.5	7.59	0.66
95	0.40	11.7	32.6	53.4	71.2	86.7	98.8	108	112	114	111	104	94.1	80.5	64.7	45.5	25.1	6.70	0.10
100	0.47	9.78	29.4	49.5	67.3	81.4	93.2	102	106	107	105	98.5	88.8	75.8	60.7	42.8	22.8	8.16	0.19
105	0.70	10.6	27.6	46.4	63.2	76.7	87.9	95.8	100	101	98.9	93.0	83.7	71.5	57.5	40.3	24.0	10.8	0.36
110	1.16	12.2	27.4	44.2	59.7	72.0	82.7	90.1	94.1	95.5	93.2	87.5	78.9	68.4	54.7	36.4	25.5	13.6	0.73
115	1.87	14.3	28.1	42.9	56.8	69.0	77.7	84.7	88.4	89.7	87.4	82.3	74.5	63.8	47.0	38.8	27.4	16.7	1.25
120	2.80	16.6	29.4	42.2	54.4	65.1	73.2	79.5	82.9	84.1	82.2	77.4	68.5	58.6	50.5	39.6	29.3	20.0	2.02
125	3.24	17.8	31.0	42.1	52.7	62.0	69.2	74.7	77.8	78.8	76.6	71.0	66.5	58.9	49.7	40.1	31.3	22.6	3.41
130	1.63	14.9	33.0	42.3	51.2	59.2	66.0	70.2	72.9	73.7	71.7	68.5	63.6	56.7	48.9	41.0	34.0	19.7	4.62
135	0.00	10.7	35.2	42.8	50.1	56.8	62.7	66.8	68.5	68.9	67.9	65.1	60.6	54.8	48.4	42.0	36.5	17.5	5.44
140	0.15	12.9	36.8	42.9	49.5	54.9	59.6	63.2	65.0	65.4	64.3	61.7	57.9	53.2	46.8	42.4	39.0	15.8	4.66
145	3.11	13.3	34.1	43.3	47.9	52.1	57.0	59.9	61.3	61.6	60.6	58.6	55.4	48.7	44.4	41.5	38.3	14.9	4.02
150	6.50	8.39	26.4	42.2	44.6	47.3	50.5	54.6	57.3	57.6	56.4	52.4	49.3	47.0	44.0	41.3	31.8	13.4	6.21
155	5.61	3.82	18.7	37.0	43.2	45.5	47.6	49.5	50.4	50.6	49.9	49.1	47.7	45.7	43.0	40.4	26.3	9.28	8.06
160	6.66	7.21	10.2	26.5	39.9	43.7	45.3	46.7	47.3	47.6	47.4	46.7	45.5	43.7	42.2	33.9	16.1	5.54	6.77
165	13.4	7.14	6.96	12.6	26.5	37.5	42.6	43.2	43.8	44.2	43.8	43.3	43.2	40.6	31.8	18.3	8.00	7.30	4.32
170	9.57	6.92	8.62	8.31	8.92	14.8	20.6	26.7	30.6	31.9	31.4	28.7	23.7	17.7	12.2	6.98	5.69	6.93	5.51
175	13.0	6.50	5.49	8.26	9.62	9.29	8.99	8.56	8.10	7.86	8.04	7.82	6.78	5.60	5.11	6.44	6.84	5.37	4.03
180	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22

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	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198		
5	196	196	196	196	197	197	197	197	197	197	198	198	197	197	197	197	197		
10	192	193	193	194	194	195	195	196	196	196	196	196	196	195	195	195	195		
15	187	188	189	190	191	192	193	193	194	194	194	193	193	192	191	190	190		
20	180	181	183	185	186	188	189	190	191	191	190	189	188	187	186	184	183		
25	171	173	175	178	180	183	185	186	187	187	186	184	182	180	178	177	175		
30	161	163	166	170	174	178	180	182	184	183	181	179	176	173	170	167	166		
35	150	153	157	162	167	172	176	178	179	178	176	173	169	164	160	157	155		
40	138	142	147	154	159	165	170	173	174	173	170	166	161	155	150	146	143		
45	124	129	137	145	153	159	164	167	169	168	165	159	154	146	139	133	129		
50	110	116	125	136	145	153	158	162	164	162	158	153	145	136	127	119	115		
55	94.9	103	114	126	137	147	154	156	158	156	153	146	137	126	115	106	99.6		
60	80.0	90.4	104	117	129	140	148	152	153	152	147	139	128	116	103	91.6	84.0		
65	65.3	78.1	93.4	109	122	133	141	146	148	146	140	132	120	107	91.8	77.9	68.0		
70	51.2	66.6	84.0	101	115	127	135	140	142	140	134	125	112	97.5	80.9	64.7	52.4		
75	38.3	56.3	75.4	93.3	108	121	129	134	136	134	128	118	105	89.2	71.1	52.6	37.5		
80	27.5	47.8	68.2	86.7	102	114	123	128	130	127	121	112	98.2	81.8	62.6	42.2	24.3		
85	19.8	41.2	62.0	80.7	96.2	109	117	122	124	122	115	105	91.9	75.3	55.6	34.0	14.0		
90	15.0	35.9	56.6	75.1	90.7	103	112	116	118	115	109	99.5	86.1	69.5	50.0	28.5	8.46		
95	11.2	31.6	52.0	70.1	85.4	97.3	106	110	112	110	104	94.1	80.9	64.6	45.7	25.4	7.38		
100	10.2	28.5	48.1	65.7	80.5	92.0	100	105	106	104	97.9	88.6	75.9	60.5	42.6	24.1	8.43		
105	10.9	27.2	45.0	61.8	75.9	86.8	94.6	98.9	100	98.0	92.5	83.6	71.6	57.1	40.6	24.1	10.5		
110	11.8	27.2	43.0	58.3	71.5	81.9	89.3	93.3	94.5	92.4	87.1	78.8	67.6	54.2	39.3	25.0	12.9		
115	12.9	27.8	41.9	55.6	67.7	77.2	84.0	87.8	89.0	86.9	82.0	74.3	64.0	51.8	38.7	26.6	15.4		
120	13.6	28.7	41.4	53.5	64.3	72.8	79.1	82.5	83.6	81.8	77.2	70.1	60.9	50.0	38.8	28.6	17.7		
125	11.9	29.2	41.3	51.9	61.3	68.8	74.5	77.4	78.4	76.7	72.7	66.4	58.2	48.9	39.4	30.5	18.4		
130	6.81	26.5	41.4	50.7	58.7	65.3	70.2	72.6	73.6	72.1	68.5	63.0	56.0	48.1	40.5	30.6	13.2		
135	1.60	22.2	41.2	49.7	56.5	62.1	66.2	68.4	69.2	67.8	64.8	60.1	54.1	47.7	41.8	28.5	5.83		
140	2.74	20.0	37.3	47.8	54.8	59.2	62.6	64.4	65.1	63.9	61.3	57.4	52.6	47.7	41.5	22.0	0.00		
145	4.83	15.7	33.0	44.1	51.8	56.7	59.4	60.8	61.3	60.4	58.3	55.2	51.5	47.9	37.6	16.3	2.13		
150	6.41	4.88	22.0	40.7	45.6	51.5	55.8	57.4	57.9	57.2	55.8	53.4	50.8	45.1	26.8	9.20	6.15		
155	6.60	2.03	9.41	27.0	41.1	46.0	47.7	48.8	49.5	50.1	51.0	50.0	46.2	33.5	13.0	4.76	7.88		
160	9.71	9.34	4.90	7.28	20.1	33.3	41.7	44.0	44.8	44.7	43.6	38.2	28.2	13.9	5.34	4.67	9.41		
165	9.13	10.3	6.16	6.06	5.24	4.83	8.50	16.0	19.9	19.4	16.7	10.4	4.99	4.79	4.39	4.47	12.8		
170	6.22	9.19	9.48	9.85	4.76	2.19	4.24	5.28	5.25	5.69	4.83	3.85	4.77	4.97	3.19	8.83	10.3		
175	2.69	5.41	8.80	8.78	7.70	5.30	5.34	4.22	1.76	0.89	2.71	5.76	9.82	12.2	9.41	7.28	10.7		
180	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22		

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 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 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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