

LM-79-08 TEST REPORT

for

IDEAL INDUSTRIES LIGHTING LLC, DBA CREE LIGHTING

4401 SILICON DRIVE, DURHAM, NC 27703, USA

LED Tube

Model: C-T836-A-25W-40K-B1

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Hangzhou, Zhejiang Province, China 311100

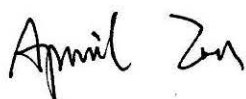
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Report No.: HZ22030014e

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

Review by:



Engineer: April Zou

Mar. 04, 2022

Approved by:



Manager: Jim Zhang

Mar. 04, 2022

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: **C-T836-A-25W-40K-B1**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
138.4	1623.7	11.73	0.9865
CCT (K)	CRI	Stabilization Time (Light & Power)	
3986	82.3	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 : Nov. 30, 2021

Date of Test : Dec. 01, 2021

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

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SAMPLE PHOTO



Figure 1- Overview of the sample

Equipment Under Test(EUT)

Name	: LED Tube
Model	: C-T836-A-25W-40K-B1
Electrical Ratings	: 120-277V, 50/60Hz, 12W
Product Description	: 4000K Manufacturer of light source: Bridgelux Inc. Model of LED light source: BXVN-40E-11L-3DV-000-00-00-0

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 65 minutes.

Sphere-Spectroradiometer Method

Parameter	Result	
Test Voltage (V)	120.0	277.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.099	0.046
Power Factor	0.9865	0.9243
Test Power (W)	11.73	11.83
THD A%	15.26	20.34
Luminous Efficacy (lm/W)	138.4	137.3
Total Luminous Flux (lm)	1623.7	1623.7
Color Rendering Index (CRI)	82.3	
R9	4.4	
Correlated Color Temperature (CCT)(K)	3986	
Chromaticity Chroma x	0.3816	
Chromaticity Chroma y	0.3795	
Chromaticity Chroma u	0.2248	
Chromaticity Chroma v	0.3353	
Duv	0.0010	
Chromaticity Chroma u'	0.2248	
Chromaticity Chroma v'	0.5030	

Special Color Rendering Indices	
R1	80.3
R2	88.6
R3	94.9
R4	81.2
R5	80.5
R6	84.4
R7	85.6
R8	63.1
R9	4.4
R10	73.2
R11	80.2
R12	61.9
R13	82.3
R14	97.4

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 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)	0.100
Power Factor	0.9823
Power (W)	11.73
Luminous Efficacy (lm/W)	137.2
Total Luminous Flux (lm)	1609.1
Beam Angle (°)	112.9 (0°-180°) / 245.6 (90°-270°)
Center Beam Candle Power (cd)	245
Maximum Beam Candle Power (cd)	245.6 (At: C=260.0, Gamma=5.0)
Spacing Criteria	1.28 (0°-180°) / 1.49 (90°-270°)
Zonal Lumens in the 0°-60°Zone	40.03%
Zonal Lumens in the 60°-90°Zone	26.34%
Zonal Lumens in the 90°-120°Zone	18.56%
Zonal Lumens in the 120°-180°Zone	15.06%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

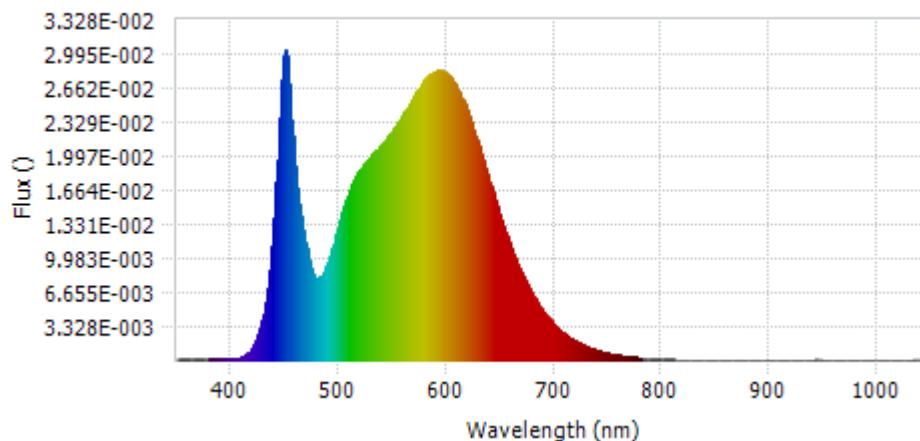
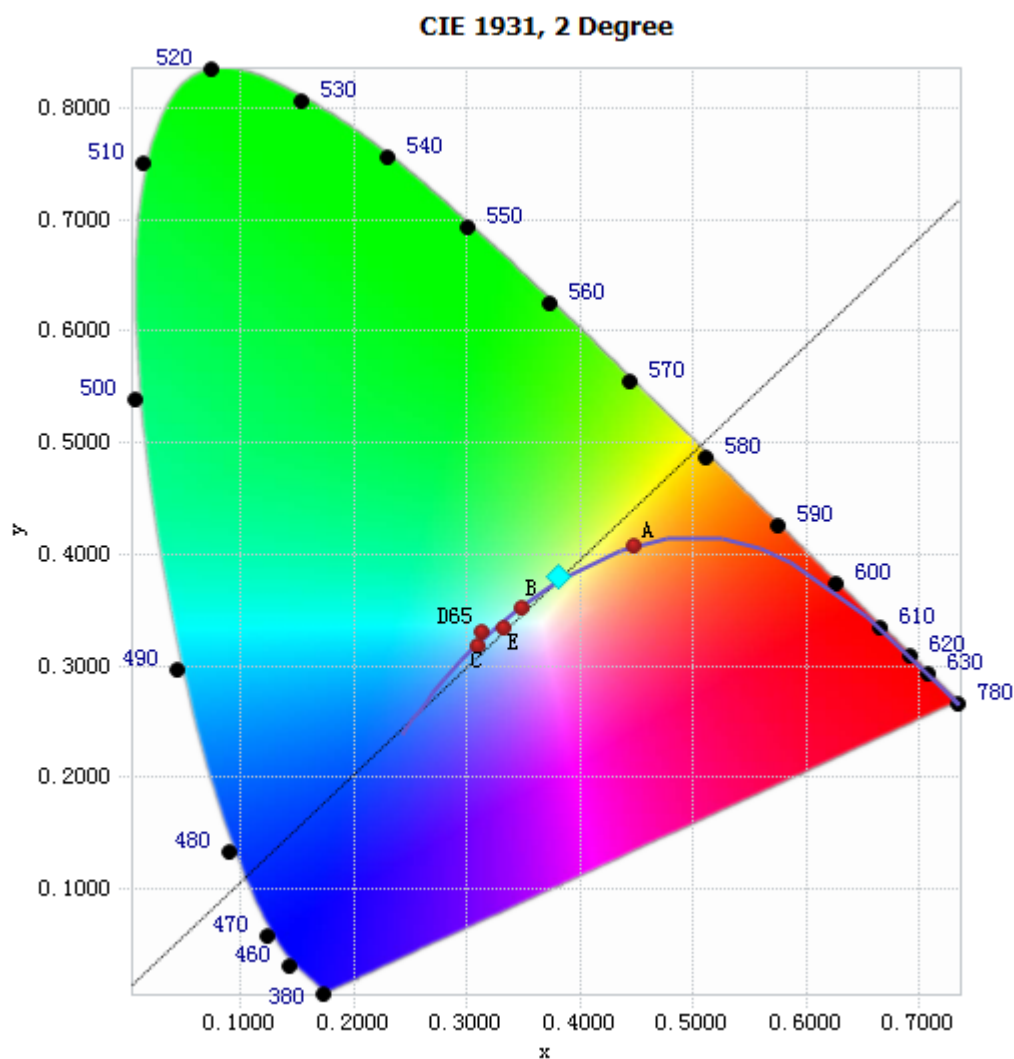


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	1.80E-04	485	8.51E-03	590	2.82E-02	695	4.11E-03
385	1.56E-04	490	9.63E-03	595	2.83E-02	700	3.53E-03
390	1.66E-04	495	1.14E-02	600	2.80E-02	705	3.01E-03
395	1.55E-04	500	1.34E-02	605	2.74E-02	710	2.57E-03
400	1.32E-04	505	1.52E-02	610	2.65E-02	715	2.19E-03
405	1.97E-04	510	1.66E-02	615	2.55E-02	720	1.90E-03
410	3.61E-04	515	1.79E-02	620	2.42E-02	725	1.63E-03
415	6.95E-04	520	1.87E-02	625	2.25E-02	730	1.38E-03
420	1.32E-03	525	1.94E-02	630	2.09E-02	735	1.16E-03
425	2.49E-03	530	2.00E-02	635	1.92E-02	740	9.92E-04
430	4.49E-03	535	2.05E-02	640	1.75E-02	745	8.54E-04
435	7.96E-03	540	2.11E-02	645	1.58E-02	750	7.25E-04
440	1.40E-02	545	2.18E-02	650	1.41E-02	755	6.16E-04
445	2.37E-02	550	2.25E-02	655	1.26E-02	760	5.47E-04
450	3.02E-02	555	2.33E-02	660	1.10E-02	765	4.57E-04
455	2.54E-02	560	2.40E-02	665	9.72E-03	770	3.91E-04
460	1.78E-02	565	2.50E-02	670	8.49E-03	775	3.40E-04
465	1.41E-02	570	2.58E-02	675	7.39E-03	780	2.94E-04
470	1.09E-02	575	2.67E-02	680	6.42E-03		
475	8.58E-03	580	2.74E-02	685	5.52E-03		
480	8.04E-03	585	2.80E-02	690	4.77E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3816, 0.3795)

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

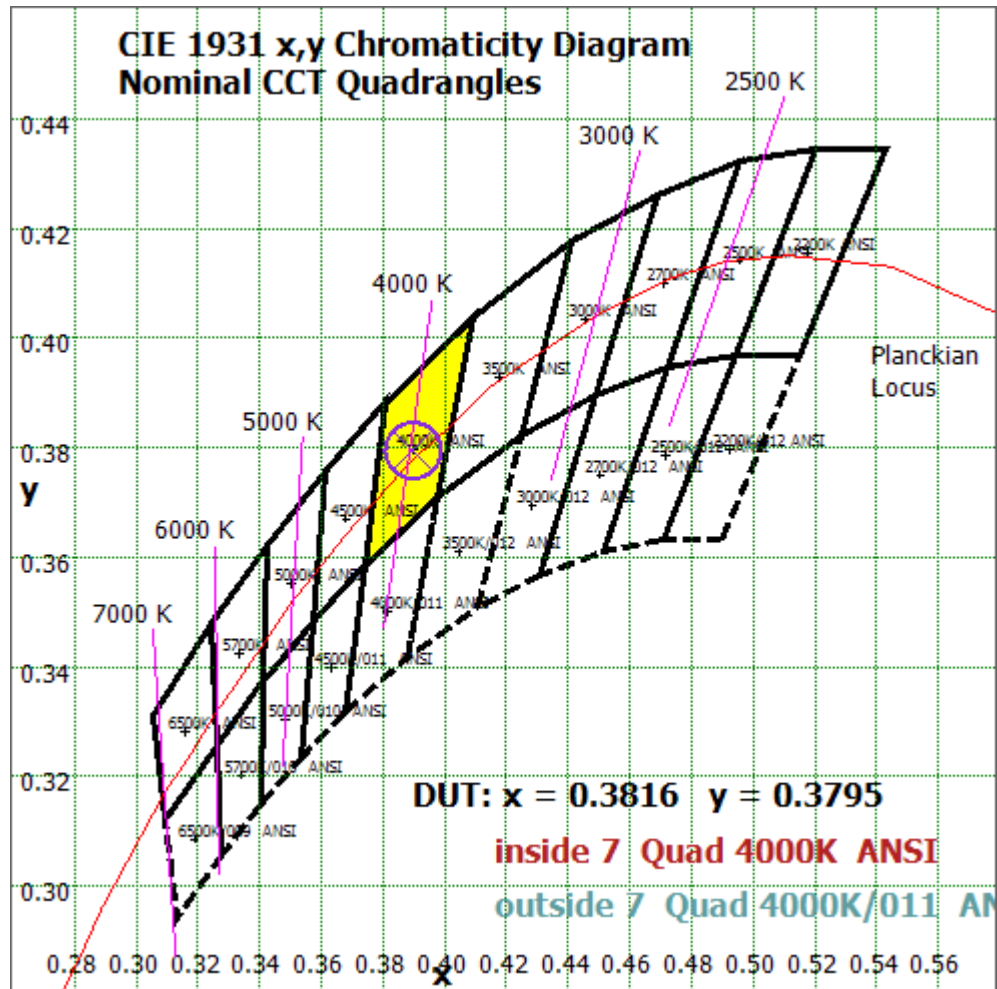


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

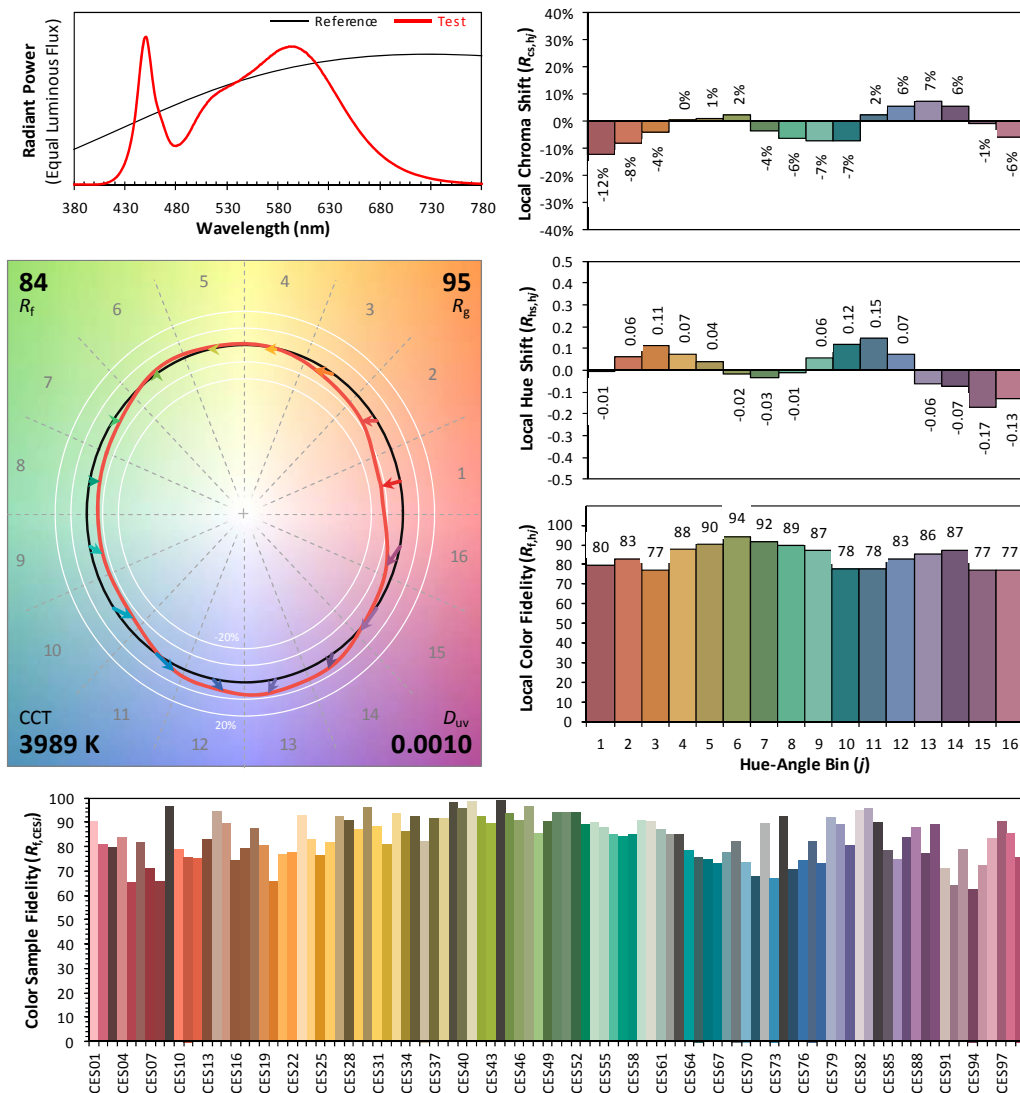
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: IDEAL INDUSTRIES LIGHTING LLC,
DBA CREE LIGHTING

Date: 2021/12/01

Model: C-T836-A-25W-40K-B1



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

x 0.3816
 y 0.3795
 u' 0.2248
 v' 0.5030

CIE 13.3-1995
(CRI)

R_a 82
 R_g 5

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.

Prepared by: Leading Testing Laboratories

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Zonal Lumen Tabulation- Goniophotometer Method

$\gamma(^{\circ})$	Lumens	% Total
0- 10	23.273	1.45%
10- 20	67.707	4.21%
20- 30	106.06	6.59%
30- 40	135.117	8.40%
40- 50	152.93	9.50%
50- 60	159.101	9.89%
60- 70	154.554	9.61%
70- 80	142.298	8.84%
80- 90	127.033	7.89%
90-100	113.157	7.03%
100-110	99.422	6.18%
110-120	86.102	5.35%
120-130	73.448	4.56%
130-140	61.194	3.80%
140-150	48.333	3.00%
150-160	34.606	2.15%
160-170	19.455	1.21%
170-180	5.296	0.33%
Total	1609.1	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	644.188	40.03%
60- 90	423.885	26.34%
0-90	1068.07	66.38%
90- 180	541.013	33.62%
0- 180	1609.1	100%

Table 5: Zonal Lumen

Illuminance Plots- Goniophotometer Method

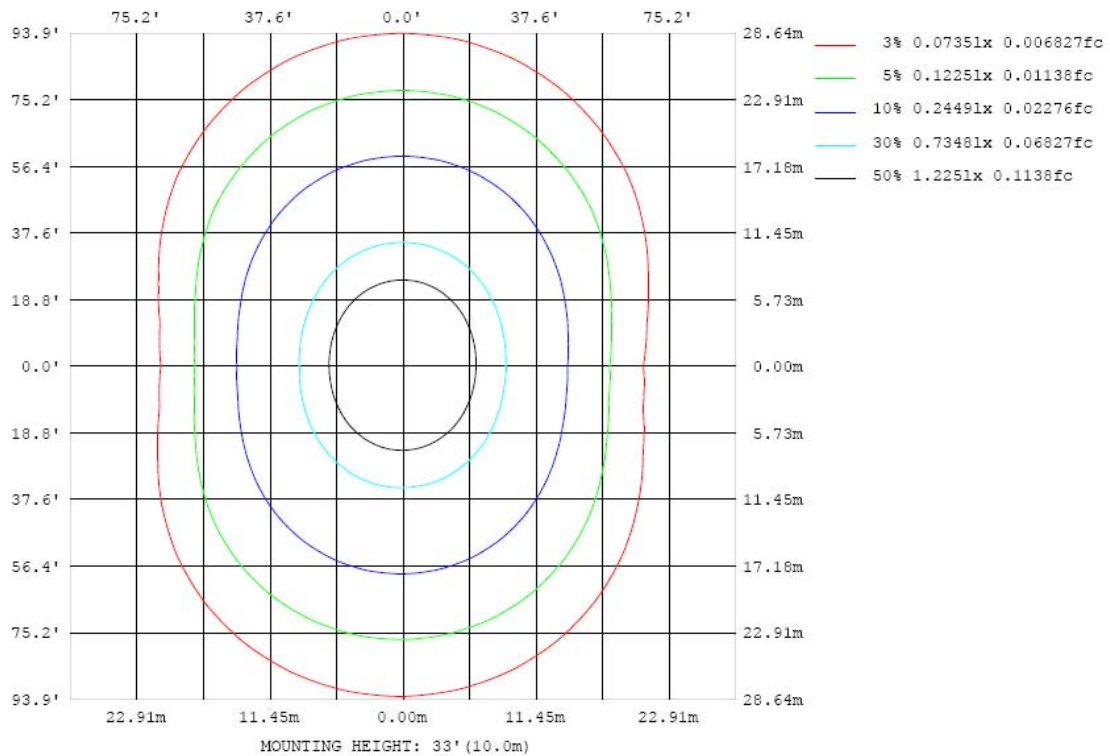


Chart 5: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

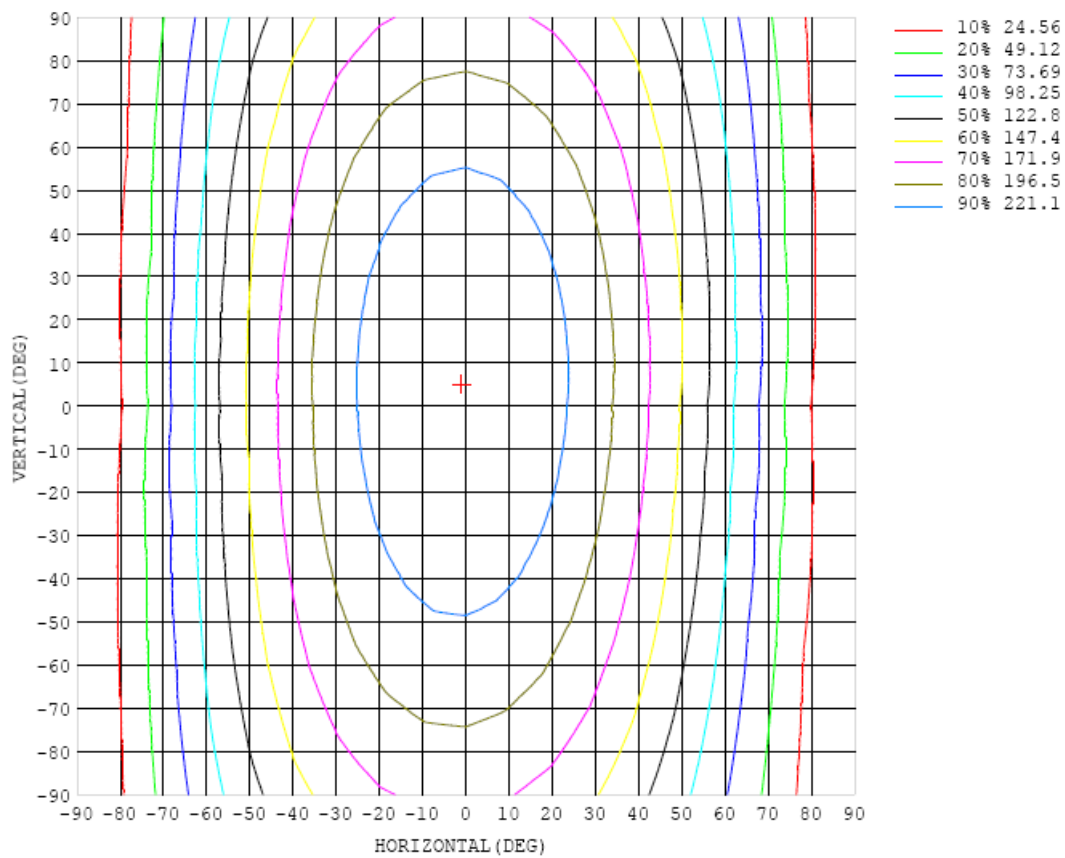


Chart 6: Isocandela Plot

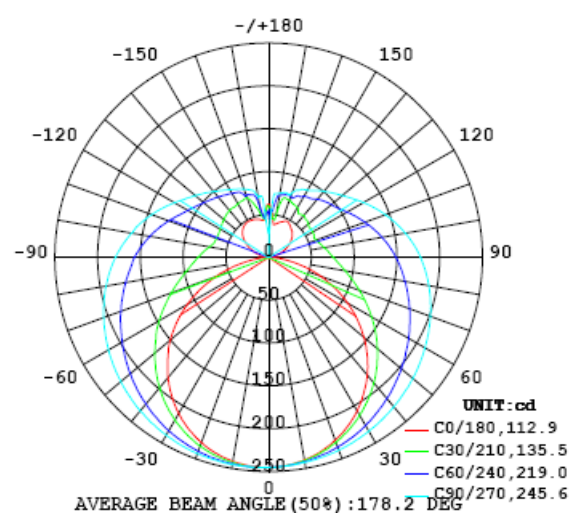


Chart 7: Polar Candela Distribution

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	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245
5	244	244	243	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	245
10	240	240	240	241	241	241	242	243	243	243	243	243	243	242	242	242	242	241	242
15	235	235	235	236	237	238	239	240	241	241	241	241	240	240	239	238	237	237	237
20	227	227	228	230	232	233	236	238	239	239	239	238	238	236	234	232	231	230	230
25	218	218	219	222	225	228	232	234	236	237	237	235	234	231	228	225	223	221	221
30	207	207	209	213	217	222	227	230	233	234	234	232	230	225	221	217	213	211	210
35	194	194	197	203	209	215	221	226	230	231	231	228	225	219	213	207	202	198	198
40	179	180	184	191	199	207	215	221	226	228	227	224	220	212	204	197	190	184	183
45	163	164	170	179	189	199	209	217	222	224	223	220	214	205	195	185	176	169	167
50	145	147	155	166	179	191	202	211	217	220	219	215	208	198	186	173	161	152	150
55	126	129	139	153	168	183	195	206	213	216	215	210	202	190	176	160	145	134	131
60	106	110	122	139	157	174	189	200	208	211	210	205	196	182	166	147	129	114	110
65	85.6	90.1	105	126	146	166	182	195	203	206	205	199	189	174	156	135	113	94.7	88.6
70	64.9	70.4	89.0	113	136	158	175	189	197	201	200	194	183	167	146	122	97.2	75.4	65.2
75	44.0	51.8	73.9	101	127	150	169	183	192	196	195	188	177	160	138	111	82.8	56.8	43.2
80	24.3	34.6	61.6	90.8	119	142	162	176	186	190	189	182	170	153	129	102	70.8	40.3	22.4
85	8.64	21.3	51.3	82.2	111	135	156	170	180	184	183	176	164	146	122	93.6	61.7	28.2	6.62
90	1.20	14.2	44.4	75.5	104	129	149	164	173	178	176	169	157	139	116	87.2	55.2	21.9	0.72
95	1.99	11.8	40.0	70.6	98.0	122	142	156	166	170	169	162	151	133	109	81.6	50.8	19.7	2.39
100	5.59	13.0	37.1	65.9	91.9	115	135	149	158	162	161	155	143	125	103	76.7	48.0	20.6	6.61
105	10.2	16.4	35.4	62.1	86.5	109	127	141	150	154	153	146	135	119	97.6	72.7	46.1	23.4	12.0
110	15.3	21.1	38.0	58.9	81.6	102	120	133	142	145	144	138	128	112	92.5	70.3	47.8	28.0	17.7
115	20.7	26.4	39.4	58.6	77.2	96.4	113	125	133	137	136	130	120	106	87.8	68.4	49.1	33.4	23.6
120	26.1	33.5	42.0	59.4	74.4	91.0	106	117	125	128	127	122	113	100	84.4	68.8	50.1	37.0	29.4
125	31.2	38.9	45.3	59.4	74.4	87.3	99.8	110	116	120	119	114	107	95.8	82.7	68.2	52.7	42.6	34.9
130	35.7	44.5	47.5	60.3	73.3	85.8	95.9	104	109	112	112	108	102	92.3	80.3	67.1	55.9	47.5	39.8
135	38.8	48.4	49.7	62.2	72.2	83.3	92.4	99.1	104	106	106	103	97.3	88.6	78.1	68.4	58.5	51.7	43.3
140	41.8	51.7	56.1	64.0	73.5	79.9	88.5	94.6	98.6	101	100	97.6	93.1	85.3	77.4	69.8	61.9	56.1	45.9
145	44.2	55.7	59.8	61.7	72.2	79.1	84.1	89.1	92.8	95.1	95.3	93.1	89.0	82.6	76.2	70.2	64.3	60.2	47.6
150	46.6	59.3	63.8	66.9	70.4	76.5	82.5	86.0	88.2	90.5	90.9	89.1	85.7	79.9	75.2	70.1	66.8	63.4	48.2
155	46.7	59.5	66.3	68.6	71.8	72.8	79.2	81.9	84.9	86.7	86.1	84.1	82.2	76.9	72.9	71.7	68.3	66.2	47.8
160	44.0	49.2	67.3	70.9	72.3	73.9	76.1	75.4	78.9	80.0	79.7	77.3	75.8	74.8	72.5	72.3	69.3	65.2	47.2
165	41.5	41.1	53.5	71.9	73.1	73.6	75.7	77.0	78.0	78.1	77.7	76.8	75.8	71.8	70.7	64.3	60.4	54.4	45.7
170	38.8	38.4	39.3	49.4	67.4	71.1	73.5	74.8	75.8	75.9	75.9	74.6	69.1	60.2	56.2	53.1	49.6	45.5	44.1
175	49.3	48.9	47.4	46.5	52.0	51.4	55.1	62.4	72.2	74.4	63.9	45.0	43.7	47.8	47.4	50.5	47.4	48.6	49.8
180	61.8	61.5	60.3	58.4	55.0	48.5	45.5	38.7	41.8	3.36	27.3	39.3	42.8	49.3	50.4	56.0	59.5	61.4	61.7

Table 6: Luminous Intensity Data

Table--2

UNIT: cd

C (DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245		
5	244	245	245	245	245	246	246	246	246	245	245	245	245	244	244	244	244		
10	242	243	243	244	244	244	245	245	246	245	245	244	243	242	242	241	241		
15	237	238	240	241	242	243	244	245	245	244	243	243	241	239	238	236	235		
20	231	232	234	236	239	241	243	243	244	243	242	240	237	235	232	230	228		
25	222	225	228	231	234	238	240	242	242	241	239	237	232	229	225	222	219		
30	212	215	219	224	229	234	237	239	240	239	236	232	227	222	216	212	208		
35	199	204	210	216	223	229	233	236	237	235	232	227	221	214	207	201	196		
40	185	191	198	207	216	223	229	233	234	232	228	222	214	205	196	188	182		
45	170	177	187	197	208	218	225	229	230	228	223	216	206	195	184	174	166		
50	154	162	174	187	200	211	220	224	226	224	218	210	198	185	171	160	151		
55	135	146	161	177	192	205	214	220	221	219	212	203	190	175	160	145	133		
60	115	129	148	166	183	198	208	215	216	214	207	196	181	164	147	129	114		
65	94.2	112	134	157	175	191	202	209	211	208	201	189	173	155	134	112	94.8		
70	73.3	95.0	121	146	167	184	196	204	205	202	194	182	165	145	121	96.7	75.4		
75	53.3	79.3	109	137	160	177	190	197	200	196	188	175	158	136	110	82.0	56.9		
80	35.6	65.9	98.5	128	152	170	183	191	193	190	181	168	151	127	99.6	69.3	40.4		
85	22.5	55.6	89.8	120	145	163	176	184	186	183	174	161	143	119	90.8	59.1	27.7		
90	16.0	48.7	82.7	112	138	157	169	177	179	176	167	155	136	112	83.6	51.9	20.4		
95	13.8	43.7	76.5	106	130	149	162	169	171	168	160	148	129	105	77.4	46.7	16.5		
100	16.5	40.1	70.4	98.7	123	141	154	161	163	160	153	139	121	98.0	71.1	41.6	17.4		
105	21.4	41.4	65.9	92.0	115	133	145	153	155	152	144	131	113	91.1	65.7	41.1	20.7		
110	27.2	43.6	65.1	86.7	108	124	137	144	146	143	135	123	106	85.1	63.6	42.0	25.6		
115	32.2	47.1	64.8	83.7	101	116	128	135	136	134	126	115	99.2	81.6	62.4	43.9	30.8		
120	37.8	50.9	65.7	81.5	96.8	109	119	126	127	125	118	108	94.3	78.8	62.4	47.2	35.8		
125	43.8	54.6	66.9	80.2	93.0	104	112	118	119	117	111	102	90.5	77.1	63.2	51.1	40.4		
130	48.0	57.6	68.6	79.5	90.1	99.3	106	111	112	110	105	97.8	87.7	76.2	64.7	54.9	44.6		
135	52.8	60.5	70.3	79.2	87.8	95.3	101	104	106	104	100	93.8	85.5	75.8	66.7	58.2	47.8		
140	56.5	63.8	71.4	78.9	85.8	91.9	96.5	99.4	100	99.1	95.6	90.4	83.7	75.9	68.5	61.3	52.5		
145	58.7	66.1	71.3	78.4	84.1	88.9	92.6	94.7	95.4	94.4	91.8	87.7	82.3	76.3	70.1	63.7	56.1		
150	62.5	67.5	72.2	76.3	82.3	86.3	89.1	90.7	91.1	90.5	88.3	85.3	81.2	76.6	71.3	65.2	59.3		
155	62.5	69.5	73.0	76.2	77.4	83.9	86.0	87.2	87.8	87.1	85.7	83.4	80.3	76.4	72.0	67.4	63.8		
160	56.8	68.7	73.8	75.7	76.5	76.9	83.1	84.2	84.7	84.2	83.2	81.6	79.0	76.1	72.8	70.9	59.6		
165	48.4	56.4	63.1	66.6	74.9	75.4	76.0	78.4	81.1	80.6	80.3	79.5	77.9	75.9	74.6	70.7	49.4		
170	44.5	47.3	50.2	52.2	54.6	59.2	70.5	73.6	71.3	78.4	78.0	77.4	76.8	74.7	69.9	51.9	41.0		
175	49.7	49.4	48.2	51.1	47.7	49.1	43.1	43.4	54.0	70.7	67.5	61.6	56.2	52.2	52.4	47.4	46.7		
180	61.7	61.4	60.4	58.4	54.9	50.3	46.1	40.1	34.7	8.55	29.9	39.6	45.1	49.3	53.8	57.4	59.6		

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, 2021	Aug. 04, 2022
Digital Power Meter	PF2010A	HZTE028-01	Aug. 05, 2021	Aug. 04, 2022
AC Power Supply	DPS1060	HZTE001-06	Aug. 05, 2021	Aug. 04, 2022
DC Power Supply	WY12010	HZTE004-03	Aug. 05, 2021	Aug. 04, 2022
Temperature recorder	JM624U	HZTE018-08	Aug. 05, 2021	Aug. 04, 2022
Temperature and humidity recorder	JR900	HZTE018-01	Aug. 05, 2021	Aug. 04, 2022
Standard source	D908	HZTE012-01	Aug. 05, 2021	Aug. 04, 2022
Integrate Sphere system	3M	HZTE015-04	Aug. 05, 2021	Aug. 04, 2022
Digital Power Meter	WT210	HZTE008-01	Aug. 05, 2021	Aug. 04, 2022
AC Power Supply	PCR 500L	HZTE001-07	Aug. 05, 2021	Aug. 04, 2022
DC Power Supply	IT6154	HZTE004-04	Aug. 05, 2021	Aug. 04, 2022
Standard source	SCL-1400	HZTE012-02	Aug. 05, 2021	Aug. 04, 2022
Temperature and humidity recorder	JR900	HZTE018-02	Aug. 05, 2021	Aug. 04, 2022
Temperature Meter	TES1310	HZTE017-01	Aug. 05, 2021	Aug. 04, 2022

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

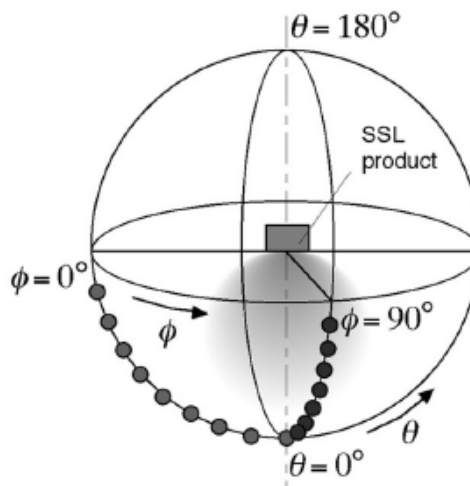
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as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