



LM-79-08 Test Report

for

Revolution Lighting Technologies, Inc.

2280 Ward Ave. Simi Valley, CA 93065

LED Tube

Model: 202100-111

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Report No.: HZ18110016h

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

Review by:

Engineer: April Zou
Nov. 21, 2018

Approved by:



Manager: Jim Zhang
Nov. 21, 2018

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: 202100-111

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
132.2	1207.0	9.13	0.9843
CCT (K)	CRI	Stabilization Time (Light & Power)	
2943	82.5	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. 12, 2018

Date of Test : Nov. 14, 2018

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

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Sample Photo

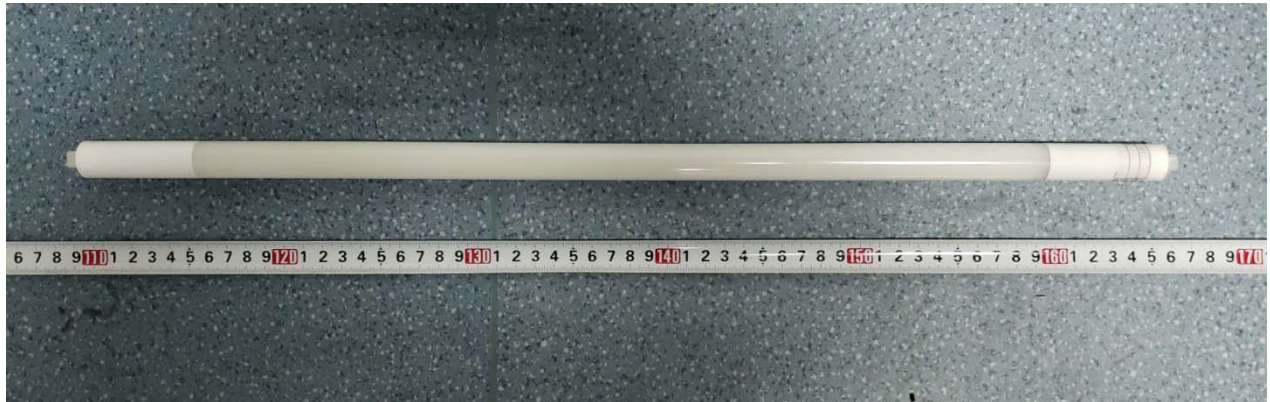


Figure 1- Overview of the sample

Equipment Under Test (EUT)

Name	: LED Tube
Model	: 202100-111
Electrical Ratings	: 120-277V, 60Hz
Product Description	: 3000K
Manufacturer	: Revolution Lighting Technologies, Inc.
Address	: 2280 Ward Ave. Simi Valley, CA 93065

TEST RESULTS

Test ambient temperature was 25.0°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 65 minutes.

Sphere-Spectroradiometer Method

Parameter	Result	
	Test Voltage (V)	120.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.077	0.038
Power Factor	0.9843	0.9148
Test Power (W)	9.13	9.53
THD A%	15.36	28.96
Luminous Efficacy (lm/W)	132.2	126.7
Total Luminous Flux (lm)	1207.0	1207.0
Color Rendering Index (CRI)	82.5	
R9	6.5	
Correlated Color Temperature (CCT)(K)	2943	
Chromaticity Chroma x	0.4391	
Chromaticity Chroma y	0.4019	
Chromaticity Chroma u	0.2529	
Chromaticity Chroma v	0.3472	
Duv	0.0014	
Chromaticity Chroma u'	0.2529	
Chromaticity Chroma v'	0.5209	

Special Color Rendering Indices	
R1	81.4
R2	92.6
R3	94.2
R4	79.7
R5	81.9
R6	91.4
R7	81
R8	57.4
R9	6.5
R10	83.3
R11	79.3
R12	74.4
R13	84.3
R14	97.6

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 °C.

The photometric distance is 2.47 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)	0.077
Power Factor	0.9850
Power (W)	9.16
Luminous Efficacy (lm/W)	131.3
Total Luminous Flux (lm)	1203.0
Beam Angle (°)	102.2 (0°-180°) /127.6(90°-270°)
Center Beam Candle Power (cd)	346
Maximum Beam Candle Power (cd)	346.8 (At: C=80.0, Gamma=0.5)
Spacing Criteria	1.20 (0°-180°) /1.30 (90°-270°)
Zonal Lumens in the 0°-60°Zone	64.89%
Zonal Lumens in the 60°-90°Zone	25.33%
Zonal Lumens in the 90°-120°Zone	7.50%
Zonal Lumens in the 120°-180°Zone	2.28%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

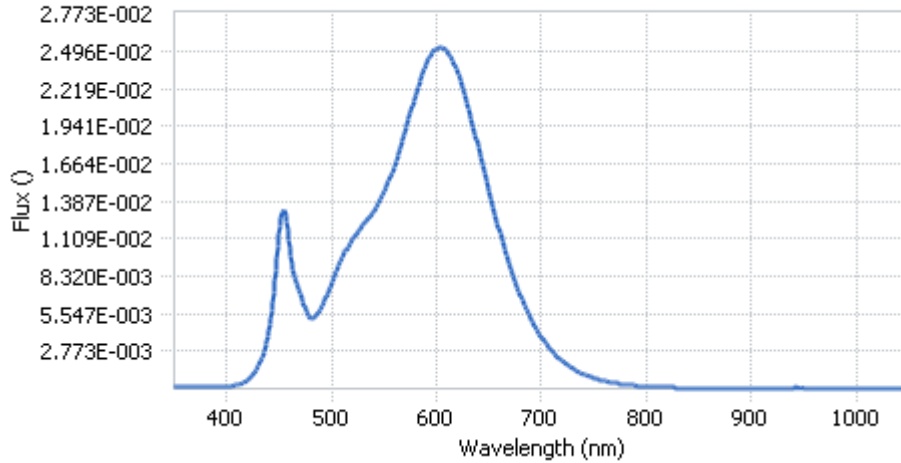
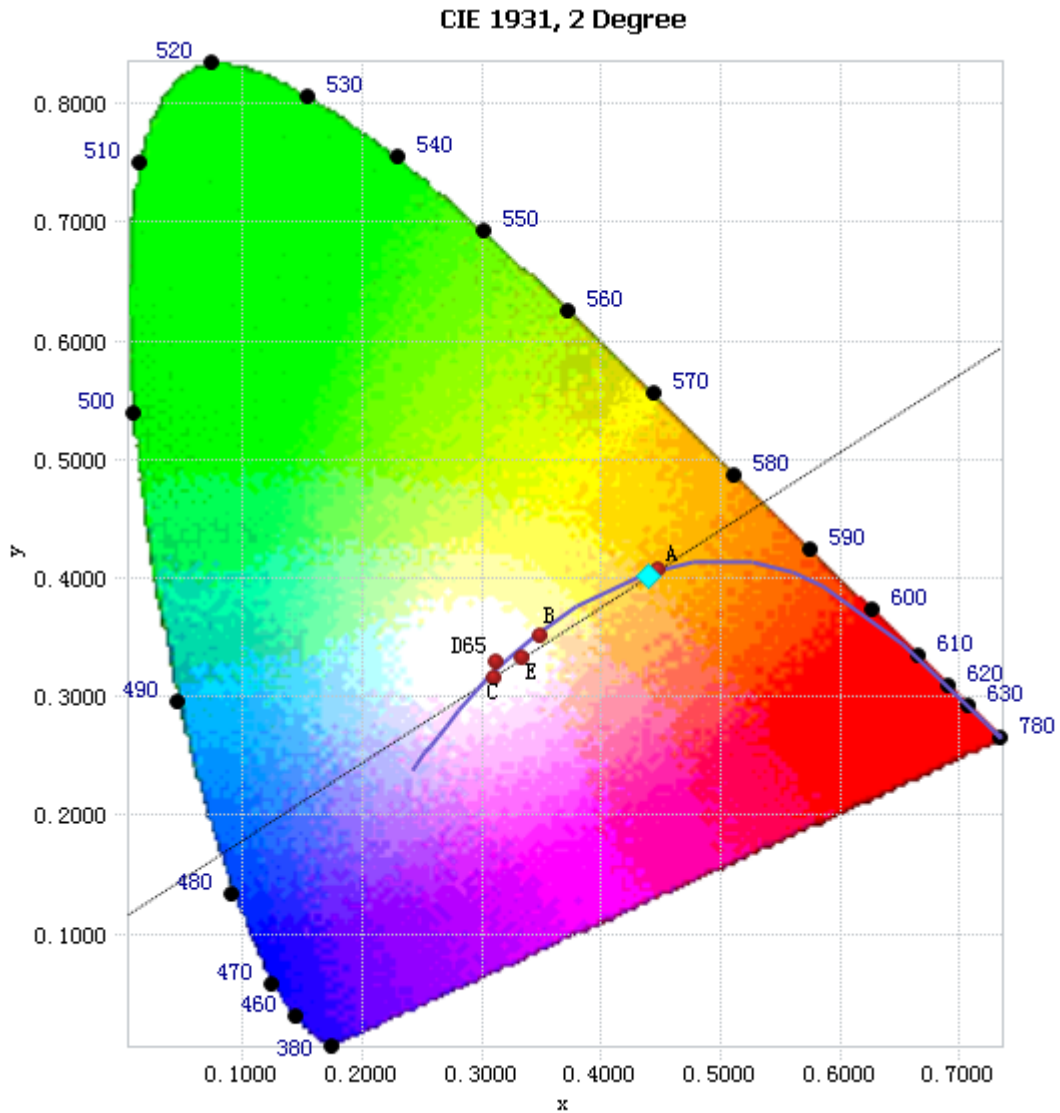


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	1.59E-04	485	5.41E-03	590	2.39E-02	695	4.42E-03
385	1.49E-04	490	5.99E-03	595	2.47E-02	700	3.81E-03
390	1.47E-04	495	6.81E-03	600	2.51E-02	705	3.26E-03
395	1.75E-04	500	7.81E-03	605	2.52E-02	710	2.79E-03
400	1.84E-04	505	8.83E-03	610	2.49E-02	715	2.37E-03
405	2.18E-04	510	9.72E-03	615	2.43E-02	720	2.04E-03
410	2.89E-04	515	1.05E-02	620	2.34E-02	725	1.75E-03
415	4.28E-04	520	1.11E-02	625	2.22E-02	730	1.50E-03
420	6.53E-04	525	1.16E-02	630	2.08E-02	735	1.27E-03
425	1.05E-03	530	1.21E-02	635	1.93E-02	740	1.08E-03
430	1.67E-03	535	1.26E-02	640	1.78E-02	745	9.26E-04
435	2.69E-03	540	1.31E-02	645	1.62E-02	750	7.97E-04
440	4.31E-03	545	1.38E-02	650	1.46E-02	755	6.81E-04
445	7.16E-03	550	1.46E-02	655	1.31E-02	760	5.85E-04
450	1.14E-02	555	1.55E-02	660	1.16E-02	765	5.00E-04
455	1.32E-02	560	1.65E-02	665	1.03E-02	770	4.31E-04
460	1.04E-02	565	1.77E-02	670	9.01E-03	775	3.69E-04
465	8.19E-03	570	1.90E-02	675	7.89E-03	780	3.16E-04
470	7.17E-03	575	2.04E-02	680	6.85E-03		
475	5.88E-03	580	2.17E-02	685	5.96E-03		
480	5.21E-03	585	2.30E-02	690	5.12E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4391, 0.4019)

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

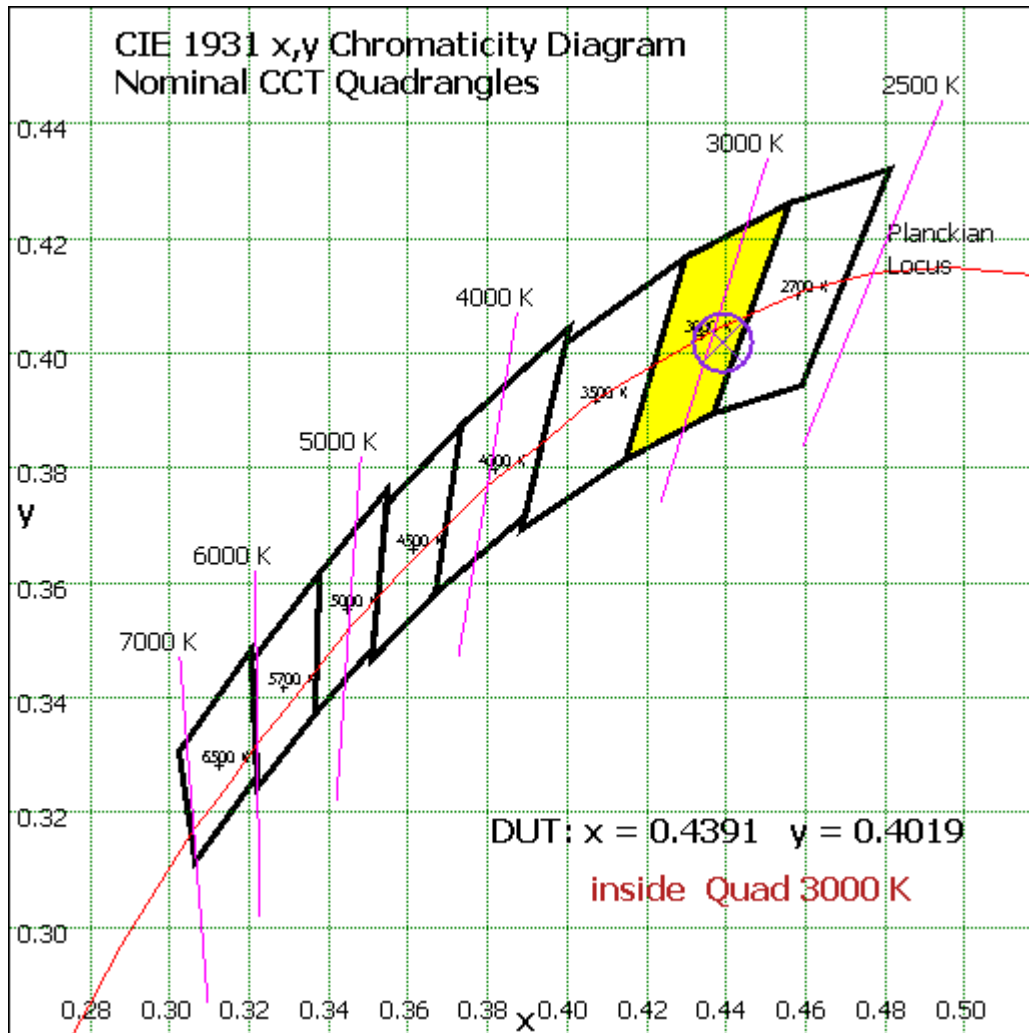


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

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

Zonal Lumen Tabulation- Goniophotometer Method

$\gamma(^{\circ})$	Lumens	% Total
0- 10	32.758	2.72%
10- 20	93.75	7.79%
20- 30	141.778	11.79%
30- 40	170.551	14.18%
40- 50	177.472	14.75%
50- 60	164.274	13.66%
60- 70	136.225	11.32%
70- 80	100.862	8.38%
80- 90	67.593	5.62%
90-100	44.101	3.67%
100-110	28.534	2.37%
110-120	17.632	1.47%
120-130	11.191	0.93%
130-140	7.228	0.60%
140-150	4.597	0.38%
150-160	2.742	0.23%
160-170	1.388	0.12%
170-180	0.323	0.03%
Total	1203.0	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	780.583	64.89%
60- 90	304.68	25.33%
0-90	1085.263	90.21%
90- 180	117.736	9.79%
0- 180	1203.0	100%

Table 5: Zonal Lumen Data

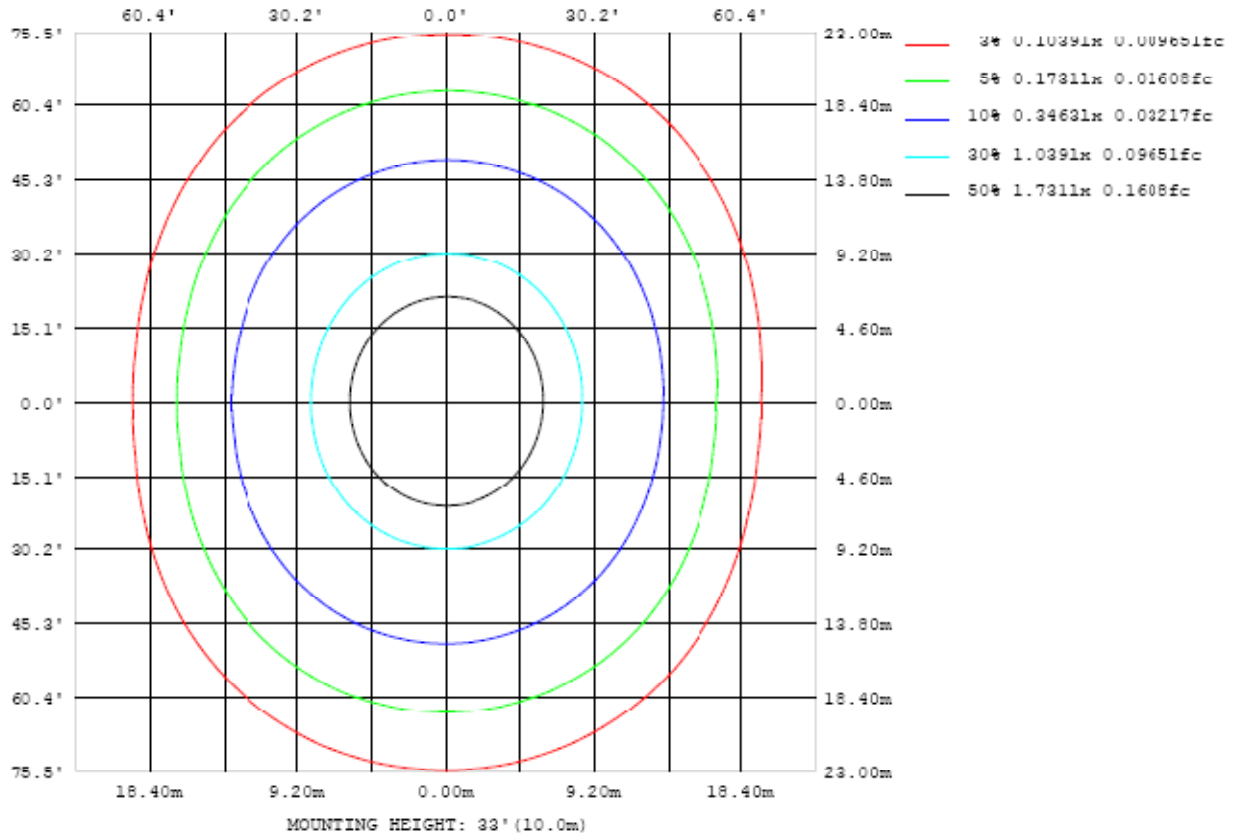


Chart 4: Beam Angle

Luminous Intensity Distribution Plots- Goniophotometer Method

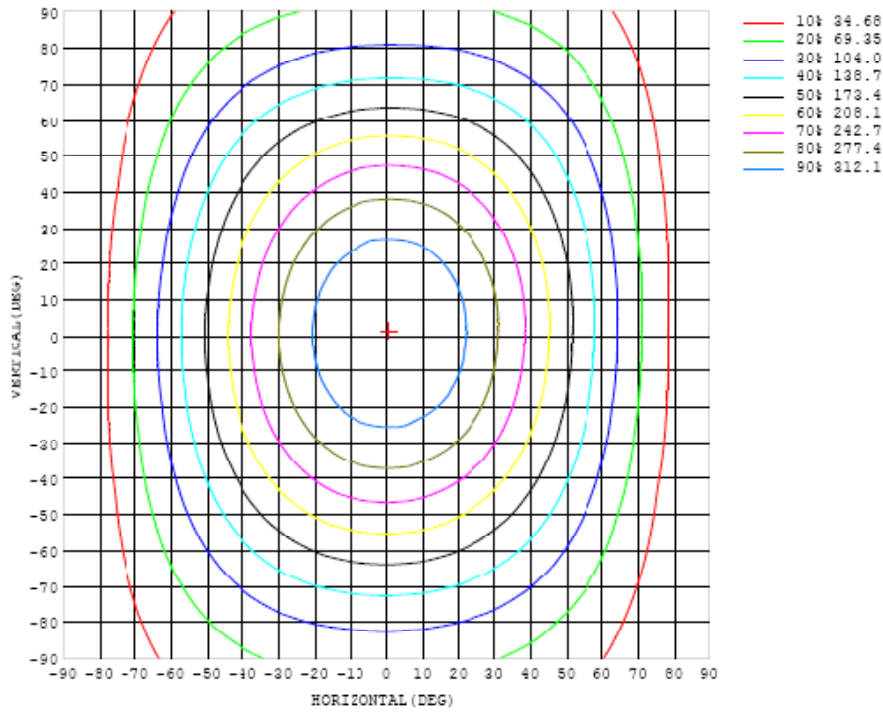


Chart 5: Illuminance Plot (Footcandles)

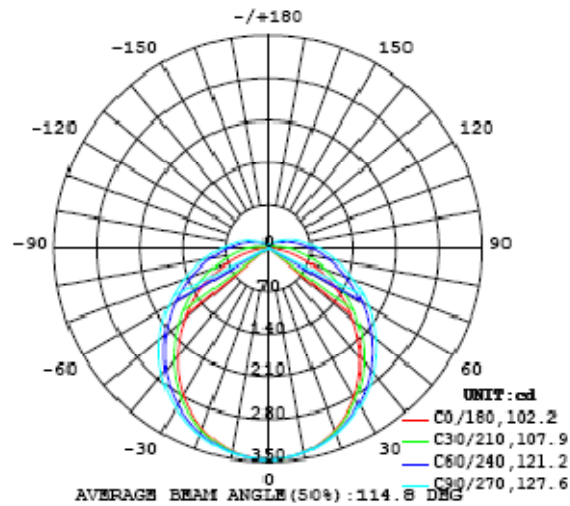


Chart 6: Polar Candela Distribution

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	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346
5	345	344	345	345	345	345	345	345	346	345	345	345	344	344	344	344	344	344	344
10	340	339	340	340	340	341	341	341	341	340	340	341	340	339	339	338	338	337	339
15	331	331	331	332	332	333	333	333	334	334	334	333	333	332	331	330	329	328	329
20	318	318	318	320	321	323	324	324	325	324	325	324	323	321	319	317	316	315	315
25	301	301	303	305	307	309	310	311	314	314	313	312	310	308	305	301	299	298	298
30	282	282	284	287	290	293	296	298	300	300	299	299	295	291	287	284	281	278	278
35	260	259	262	266	270	275	279	282	284	285	284	282	279	274	268	263	258	256	255
40	234	236	239	243	249	255	250	261	267	267	266	264	260	254	248	241	236	231	230
45	209	209	213	219	227	234	240	245	249	249	248	246	241	233	225	217	210	205	204
50	182	182	187	194	203	212	219	225	229	230	229	226	219	211	202	193	184	179	177
55	154	155	161	169	179	189	198	205	209	210	208	205	198	190	179	169	159	152	151
60	127	128	135	145	156	167	176	183	188	189	188	184	178	168	157	145	134	126	124
65	99.7	101	110	121	134	146	156	163	167	169	168	164	157	147	135	122	110	100	97.3
70	73.3	76.0	85.8	98.8	112	125	135	143	148	149	148	144	137	127	115	101	87.4	75.7	71.5
75	49.0	52.6	64.4	78.7	93.3	106	117	124	129	130	129	125	118	108	96.1	81.8	67.1	53.7	46.7
80	25.6	31.6	45.9	62.2	76.4	89.3	99.5	107	111	113	112	108	101	91.8	79.6	65.2	49.7	34.2	25.0
85	9.16	15.4	30.8	47.1	62.0	74.2	84.0	90.8	95.2	96.7	95.9	92.7	86.2	77.0	65.7	51.3	35.5	19.4	8.09
90	0.86	6.23	20.0	35.4	49.6	61.8	70.9	77.4	81.3	82.7	82.0	78.9	72.9	64.7	53.4	39.9	24.8	10.1	0.63
95	0.32	2.46	12.8	26.5	39.6	50.9	59.7	65.7	69.2	70.7	69.9	67.1	61.8	53.9	43.3	30.9	17.3	4.97	0.37
100	0.43	1.53	7.97	19.0	31.2	41.7	49.8	55.5	59.2	60.4	59.8	57.1	51.9	44.6	34.8	23.3	11.4	3.37	0.45
105	0.55	1.48	5.82	13.8	23.4	33.1	41.0	46.7	50.0	51.4	50.8	48.1	43.3	36.2	26.9	17.2	8.63	2.64	0.69
110	0.74	1.64	4.52	10.7	18.1	25.6	32.4	37.8	41.2	42.6	42.1	39.6	34.8	28.1	21.2	13.7	7.05	2.67	0.96
115	1.01	1.89	4.08	8.81	14.7	20.7	25.9	30.0	32.8	34.0	33.5	31.4	27.9	23.0	17.2	11.3	6.15	2.81	1.26
120	1.30	2.14	3.98	7.39	12.2	17.1	21.4	24.7	26.9	27.9	27.6	26.0	23.0	19.1	14.4	9.69	5.64	2.97	1.57
125	1.56	2.42	4.01	6.54	10.4	14.4	17.9	20.6	22.5	23.3	22.9	21.7	19.2	16.1	12.3	8.53	5.32	3.18	1.89
130	1.81	2.70	4.10	6.09	8.95	12.2	15.1	17.3	18.9	19.5	19.2	18.2	16.1	13.5	10.6	7.65	5.06	3.34	2.15
135	2.06	2.98	4.19	5.80	8.00	10.5	12.8	14.6	15.9	16.4	16.2	15.3	13.7	11.6	9.22	6.84	4.86	3.51	2.38
140	2.30	3.16	4.30	5.58	7.23	9.18	11.0	12.4	13.4	13.8	13.7	13.0	11.7	10.0	8.21	6.34	4.83	3.75	2.68
145	2.51	3.33	4.39	5.39	6.63	8.12	9.44	10.5	11.3	11.6	11.5	11.0	10.0	8.77	7.34	5.94	4.82	3.96	2.92
150	2.63	3.43	4.48	5.24	6.13	7.13	8.18	8.99	9.58	9.82	9.76	9.34	8.64	7.68	6.61	5.66	4.82	4.14	3.00
155	2.78	3.50	4.52	5.12	5.75	6.43	7.08	7.71	8.14	8.31	8.26	7.98	7.47	6.77	6.09	5.43	4.83	4.20	2.99
160	2.87	3.52	4.38	5.03	5.45	5.91	6.31	6.66	6.93	7.02	6.99	6.82	6.63	6.15	5.70	5.25	4.82	4.27	2.95
165	2.77	3.13	4.19	4.85	5.21	5.48	5.72	5.93	6.08	6.15	6.13	6.02	5.85	5.63	5.37	5.03	4.60	4.08	2.91
170	2.52	2.66	2.86	3.46	4.35	5.11	5.25	5.32	5.45	5.47	5.47	5.43	5.33	5.00	4.42	3.93	3.49	3.07	2.83
175	2.38	2.39	2.41	2.44	2.45	2.52	2.93	3.68	4.41	4.76	4.08	3.01	2.86	2.82	2.81	2.80	2.79	2.78	2.76
180	0.81	0.81	0.81	0.81	0.81	0.82	0.82	0.83	0.83	0.84	0.84	0.84	0.85	0.85	0.86	0.86	0.86	0.86	0.86

Table 6: Luminous Intensity Data

Table--2 UNIT: cd

C (DEG) y (mm)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346		
5	344	344	345	344	345	344	344	346	345	345	346	346	346	345	345	345	345		
10	338	338	339	340	340	340	341	342	342	341	342	342	341	340	341	340	340		
15	328	329	331	331	332	333	334	335	336	335	336	335	334	333	333	332	331		
20	315	316	318	320	323	324	326	327	327	327	327	327	325	323	322	320	319		
25	298	300	302	305	309	311	314	316	317	316	316	315	312	310	307	305	303		
30	278	281	285	288	293	297	299	303	303	303	302	300	297	293	290	286	284		
35	256	259	264	269	275	280	284	287	288	288	288	284	280	275	270	265	262		
40	231	235	241	248	255	261	267	270	271	271	270	266	261	255	248	242	238		
45	205	210	217	225	234	241	246	251	252	252	250	246	240	232	224	217	212		
50	179	184	192	202	211	220	226	231	232	232	230	225	218	209	200	191	185		
55	152	158	167	178	188	198	205	209	211	211	209	203	195	185	175	166	159		
60	126	133	143	155	166	175	183	188	189	189	186	181	172	162	151	140	132		
65	99.2	108	120	132	144	154	161	166	168	167	165	160	151	139	127	115	105		
70	71.1	83.8	97.2	111	123	133	140	145	147	146	144	138	130	118	105	91.4	80.1		
75	50.7	62.6	77.1	91.2	103	113	120	125	126	126	123	118	109	97.6	84.2	69.8	56.8		
80	30.1	44.1	59.6	73.6	86.0	95.4	102	106	108	107	105	99.7	91.3	79.7	66.3	51.2	36.4		
85	14.9	29.5	44.9	59.0	70.7	79.4	85.8	89.6	90.9	90.5	88.4	83.3	75.3	64.5	51.1	36.0	20.4		
90	5.85	19.1	33.5	46.8	57.7	66.1	72.0	75.5	76.8	76.3	74.2	69.5	61.9	51.6	39.0	24.6	10.1		
95	2.40	12.2	25.0	37.1	47.2	55.0	60.5	63.8	64.8	64.4	62.3	57.9	50.8	41.3	29.6	16.7	4.85		
100	1.59	7.55	18.4	29.2	38.5	45.8	50.7	53.8	55.0	54.5	52.4	48.2	41.7	32.9	22.4	11.0	2.84		
105	1.42	5.65	13.0	22.5	31.1	37.9	42.6	45.6	46.6	46.2	44.0	40.1	34.1	25.8	16.4	7.68	2.14		
110	1.06	4.72	10.2	17.2	24.1	30.6	35.2	38.1	39.0	38.6	36.5	32.7	26.8	19.5	12.1	5.93	2.01		
115	1.94	4.27	8.46	13.8	19.4	24.1	28.0	30.7	31.8	31.3	29.2	25.6	20.9	15.5	9.81	4.97	2.17		
120	2.22	4.08	7.32	11.5	16.0	19.8	22.8	24.8	25.5	25.1	23.6	20.9	17.1	12.6	8.25	4.42	2.40		
125	2.51	4.00	6.56	9.83	13.3	16.6	19.1	20.7	21.2	20.9	19.6	17.3	14.2	10.7	7.09	4.22	2.64		
130	2.72	4.00	6.06	8.61	11.3	13.8	16.0	17.3	17.8	17.5	16.4	14.4	12.0	9.15	6.33	4.20	2.70		
135	2.90	3.97	5.63	7.62	9.72	11.7	13.3	14.4	14.9	14.6	13.7	12.2	10.2	8.01	5.88	4.18	2.99		
140	3.15	3.88	5.31	6.86	8.50	10.1	11.3	12.2	12.5	12.3	11.6	10.4	8.91	7.16	5.50	4.24	3.36		
145	3.39	3.98	5.01	6.27	7.51	8.69	9.66	10.3	10.6	10.4	9.86	8.97	7.82	6.53	5.15	4.07	3.58		
150	3.56	4.10	4.66	5.64	6.67	7.58	8.30	8.79	8.95	8.82	8.44	7.79	6.93	5.64	4.96	4.04	3.71		
155	3.74	4.34	4.74	5.13	5.77	6.50	7.08	7.47	7.60	7.52	7.25	6.80	6.07	5.51	4.61	4.27	3.79		
160	3.56	4.21	4.60	4.09	5.22	5.70	5.94	6.10	6.29	6.36	6.24	6.01	5.56	4.94	4.50	4.21	3.60		
165	3.31	3.98	4.49	4.64	4.87	4.41	5.28	5.53	5.58	5.53	5.40	5.11	4.92	4.77	4.55	4.11	3.75		
170	2.97	2.99	3.46	3.79	4.07	4.53	4.60	4.34	4.36	4.70	4.76	4.79	4.77	4.48	4.10	3.41	3.00		
175	2.76	2.74	2.70	2.64	2.59	2.56	2.50	2.62	3.50	4.19	4.12	3.76	3.08	2.36	2.27	2.40	2.40		
180	0.86	0.86	0.86	0.86	0.85	0.85	0.84	0.84	0.84	0.83	0.83	0.82	0.82	0.81	0.81	0.81	0.81		

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	2M	HZTE015-01	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.

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

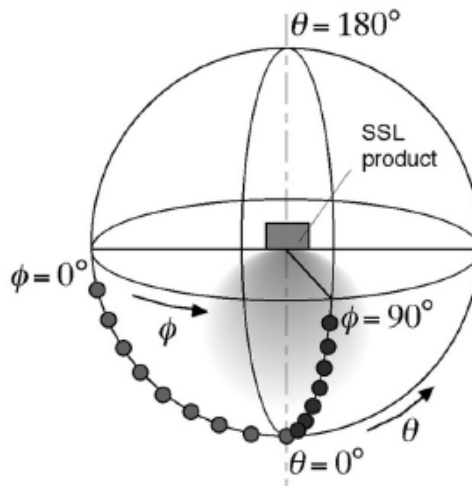
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as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