LM-79-08 TEST REPORT

for

RAB Lighting Inc

170 Ludlow Avenue, Northvale, New Jersey 07647 USA

LED Tube

Model: T8-9.5-48G-840-SD-BYP/2

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Report No.: HZ21060026af

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

Review by: April Zou

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Jul. 21, 2021

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Jul. 21, 2021

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: **T8-9.5-48G-840-SD-BYP/2**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
179.7	1726.9	9.61	0.9719

CCT (K)	CRI	Stabilization Time (Light & Power)
4064	82.2	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	: Jun. 23, 2021
Date of Test	: Jul. 12, 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

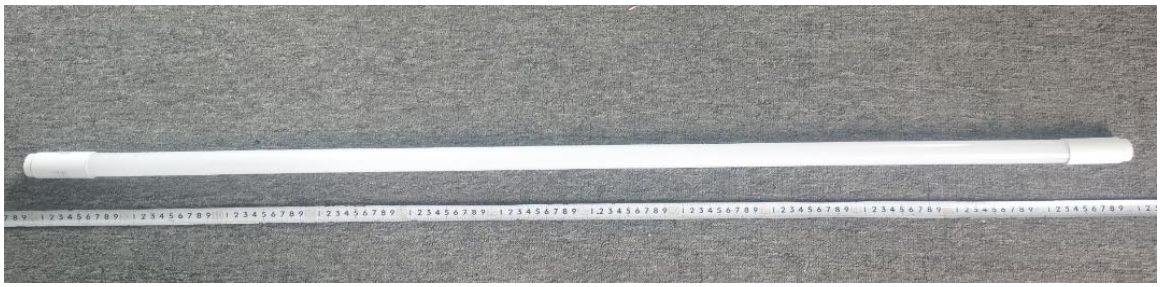


Figure 1- Overview of the sample

Equipment Under Test(EUT)	
Name	: LED Tube
Model	: T8-9.5-48G-840-SD-BYP/2
Electrical Ratings	: 120V, 50/60Hz
Product Description	: 4000K

TEST RESULTS

Test ambient temperature was 25.0 ℃.

Base orientation was base up. 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
Test Current (A)	0.082
Power Factor	0.9719
Test Power (W)	9.61
THD A%	21.84
Luminous Efficacy (lm/W)	179.7
Total Luminous Flux (lm)	1726.9
Color Rendering Index (CRI)	82.2
R9	1.9
Correlated Color Temperature (CCT)(K)	4064
Chromaticity Chroma x	0.3775
Chromaticity Chroma y	0.3746
Chromaticity Chroma u	0.2240
Chromaticity Chroma v	0.3335
Duv	-0.0001
Chromaticity Chroma u ’	0.2240
Chromaticity Chroma v’	0.5002

Special Color Rendering Indices	
R1	81.2
R2	92.7
R3	94.1
R4	77.8
R5	81
R6	88.6
R7	82.2
R8	59.9
R9	1.9
R10	82.1
R11	76.9
R12	60.8
R13	84.8
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 25.1 ℃.

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)	0.083
Power Factor	0.9716
Power (W)	9.63
Luminous Efficacy (lm/W)	176.0
Total Luminous Flux (lm)	1694.7
Beam Angle (°)	107.0 (0^o-180^o) / 168.1 (90^o-270^o)
Center Beam Candle Power (cd)	347
Maximum Beam Candle Power (cd)	347.7 (At: C=300.0, Gamma=4.5)
Spacing Criteria	1.21 (0^o-180^o) / 1.42 (90^o-270^o)
Zonal Lumens in the 0 °-60 °Zone	50.15%
Zonal Lumens in the 60 °-90 °Zone	26.46%
Zonal Lumens in the 90 °-120 °Zone	13.97%
Zonal Lumens in the 120 °-180 °Zone	9.41%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

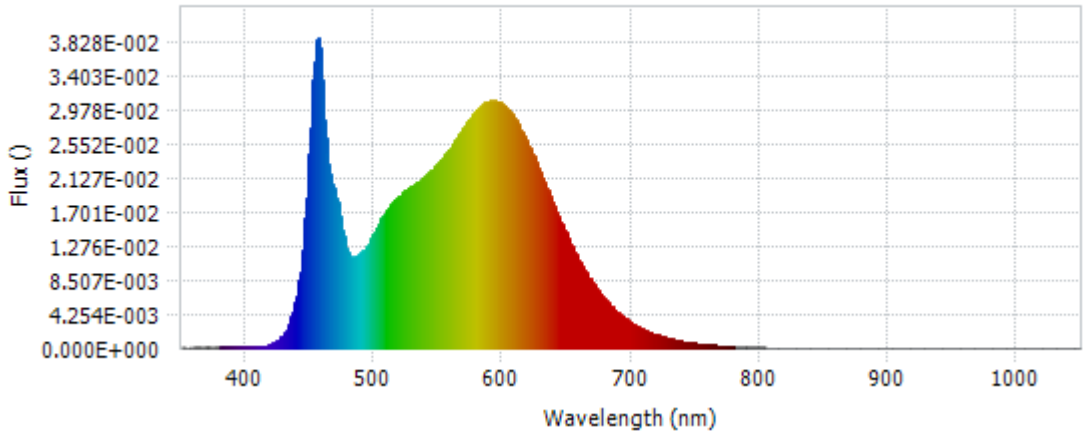
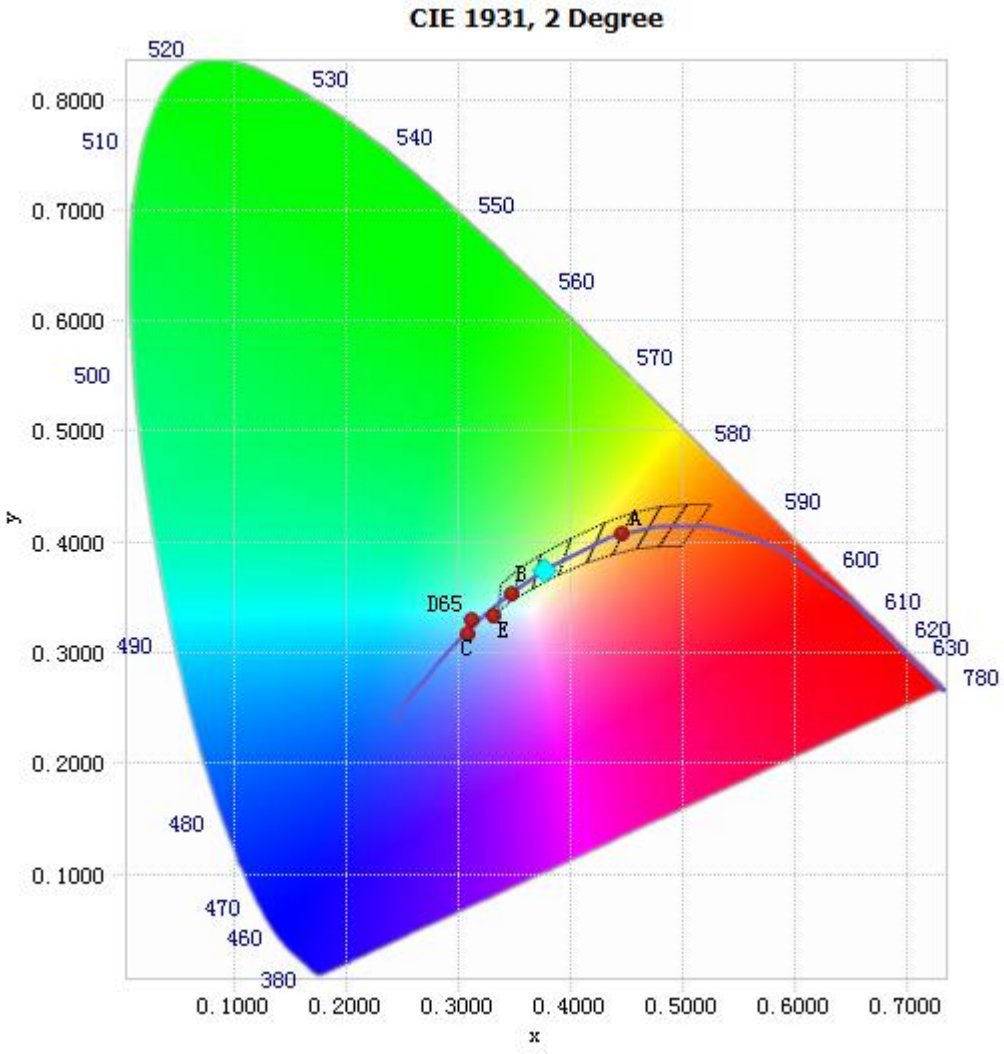


Chart 1: Spectral Power Distribution

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	1.14E-02	590	3.08E-02	695	3.78E-03
385	1.46E-04	490	1.21E-02	595	3.09E-02	700	3.20E-03
390	1.77E-04	495	1.31E-02	600	3.05E-02	705	2.73E-03
395	1.57E-04	500	1.45E-02	605	2.97E-02	710	2.31E-03
400	1.61E-04	505	1.62E-02	610	2.85E-02	715	1.97E-03
405	1.64E-04	510	1.74E-02	615	2.71E-02	720	1.68E-03
410	1.97E-04	515	1.84E-02	620	2.53E-02	725	1.43E-03
415	3.12E-04	520	1.91E-02	625	2.36E-02	730	1.20E-03
420	5.66E-04	525	1.97E-02	630	2.16E-02	735	1.03E-03
425	1.09E-03	530	2.03E-02	635	1.97E-02	740	8.68E-04
430	2.06E-03	535	2.09E-02	640	1.78E-02	745	7.41E-04
435	3.91E-03	540	2.15E-02	645	1.59E-02	750	6.31E-04
440	7.43E-03	545	2.24E-02	650	1.41E-02	755	5.29E-04
445	1.42E-02	550	2.32E-02	655	1.23E-02	760	4.59E-04
450	2.74E-02	555	2.42E-02	660	1.08E-02	765	3.87E-04
455	3.86E-02	560	2.53E-02	665	9.43E-03	770	3.30E-04
460	3.11E-02	565	2.65E-02	670	8.14E-03	775	2.87E-04
465	2.19E-02	570	2.77E-02	675	7.05E-03	780	2.48E-04
470	1.88E-02	575	2.88E-02	680	6.05E-03		
475	1.48E-02	580	2.98E-02	685	5.19E-03		
480	1.16E-02	585	3.06E-02	690	4.43E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3775, 0.3746)

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

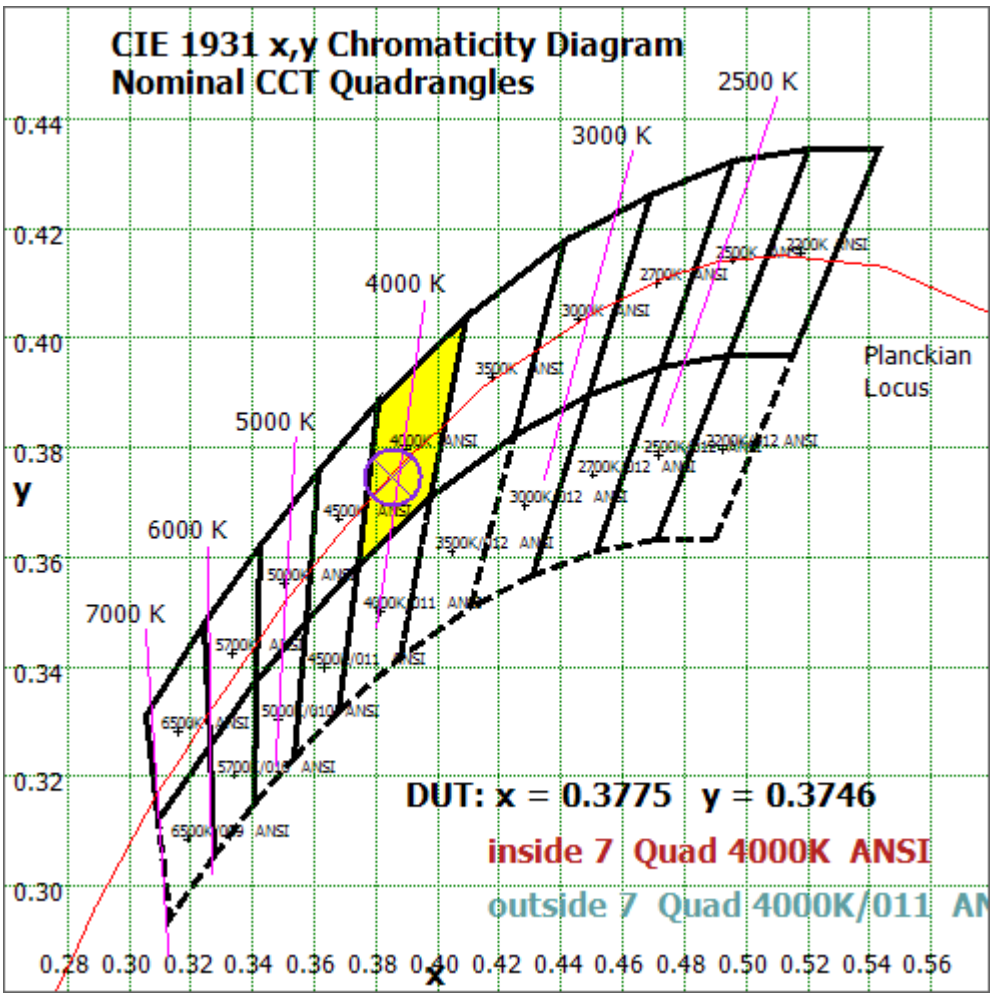


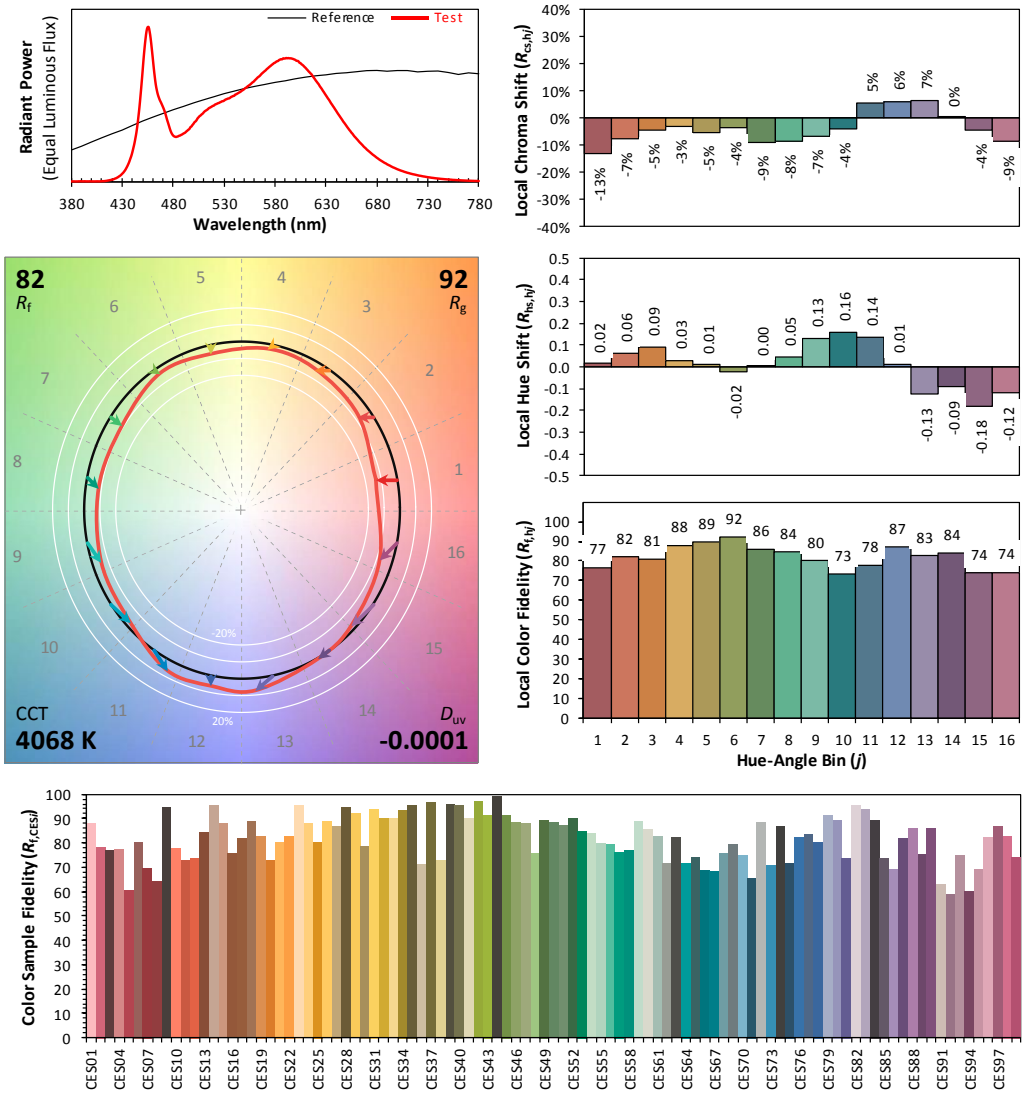
Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

ANSI/IES TM-30-18 Color Rendition Report

Source: LED **Manufacturer:** RAB Lighting Inc

Date: 2021/07/12 **Model:** T8-9.5-48G-840-SD-BYP/2



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

x	0.3775
y	0.3746
u'	0.2240
v'	0.5002

CIE 13.3-1995 (CRI)

R_a	82
R_9	2

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

γ(°)	Lumens	% Total
0- 10	32.857	1.94%
10- 20	94.873	5.60%
20- 30	146.297	8.63%
30- 40	181.756	10.72%
40- 50	198.267	11.70%
50- 60	195.835	11.56%
60- 70	177.731	10.49%
70- 80	149.964	8.85%
80- 90	120.816	7.13%
90-100	97.152	5.73%
100-110	77.656	4.58%
110-120	62.031	3.66%
120-130	50.333	2.97%
130-140	40.479	2.39%
140-150	31.309	1.85%
150-160	22.113	1.30%
160-170	12.145	0.72%
170-180	3.125	0.18%
Total	1694.7	100%

γ(°)	Lumens	% Total
0- 60	849.885	50.15%
60- 90	448.511	26.46%
0-90	1298.4	76.61%
90- 180	396.343	23.39%
0- 180	1694.7	100%

Table 5: Zonal Lumen

Illuminance Plots- Goniophotometer Method

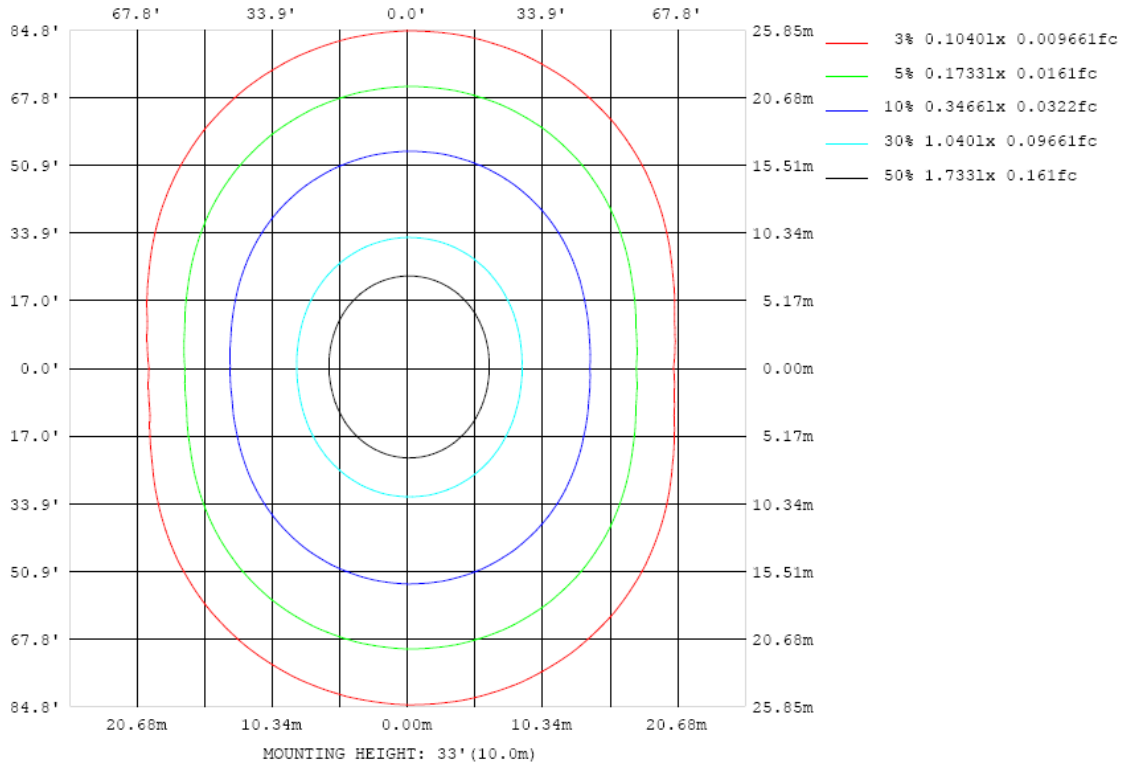


Chart 5: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

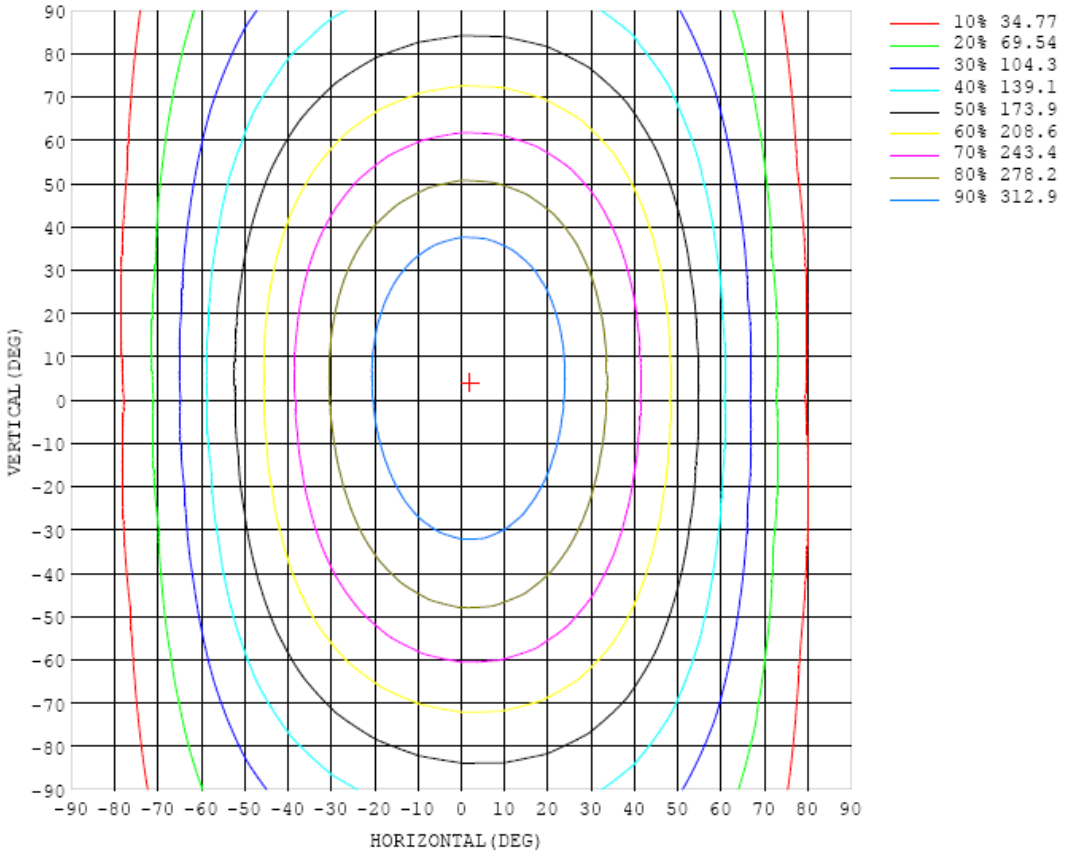


Chart 6: Isocandela Plot

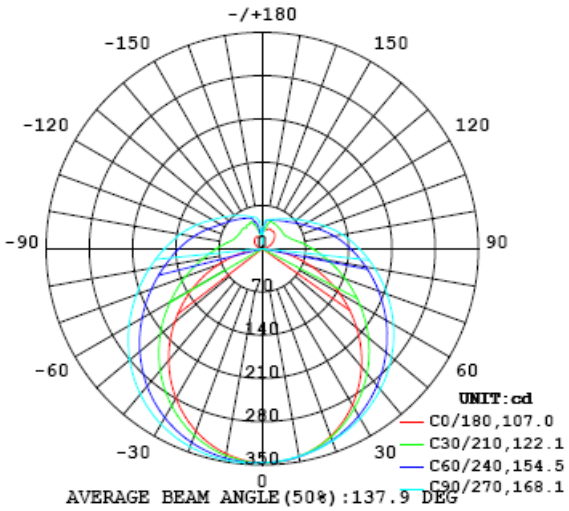


Chart 7: Polar Candela Distribution

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	347	347	347	347	347	347	347	347	347	347	347	347	347	347	347	347	347	347	347
5	346	346	346	345	345	345	345	345	345	345	344	344	344	344	343	343	343	343	344
10	342	341	341	341	341	342	342	342	342	341	341	340	339	339	338	337	337	337	337
15	334	334	334	334	335	336	337	337	337	337	336	335	333	331	330	328	327	327	327
20	323	323	323	325	326	328	330	331	332	332	330	328	325	322	319	317	315	314	314
25	309	309	310	312	316	319	322	324	325	325	323	320	316	312	307	303	300	298	298
30	292	292	294	298	303	308	312	315	317	317	315	311	306	299	293	287	282	280	280
35	272	273	276	282	289	295	301	306	308	308	305	300	294	286	277	270	263	259	259
40	250	251	256	264	273	281	289	295	297	297	294	289	281	271	260	250	242	237	236
45	226	228	234	244	256	267	276	282	286	286	282	276	267	255	243	230	220	213	211
50	200	202	212	224	238	251	262	269	273	273	269	262	252	239	224	210	196	188	185
55	172	176	188	204	220	235	247	255	259	259	255	247	236	222	205	188	173	161	159
60	144	149	164	183	202	218	232	240	245	245	241	232	220	205	186	167	149	135	132
65	115	122	140	163	184	202	216	225	230	230	226	217	204	187	168	147	125	108	104
70	86.2	95.3	118	143	166	185	200	210	215	215	210	201	188	171	150	127	103	82.4	75.6
75	57.5	70.1	96.7	125	150	170	185	195	200	200	195	186	173	155	134	109	82.4	58.3	49.2
80	32.4	48.4	78.2	108	134	155	170	180	185	185	180	171	158	141	119	93.5	65.0	38.2	25.7
85	12.4	31.2	63.7	93.7	120	141	156	166	171	171	166	157	144	127	106	80.1	51.7	22.5	8.26
90	2.54	20.4	51.9	81.5	107	128	143	152	157	157	153	144	132	115	93.8	69.0	41.6	14.1	1.34
95	1.80	14.2	42.7	71.0	95.9	116	130	140	144	144	140	132	120	104	83.5	59.7	33.9	10.1	1.68
100	3.94	12.2	35.4	61.8	84.9	104	118	127	132	132	128	120	108	92.9	74.0	52.2	28.8	10.1	3.35
105	7.40	13.8	31.9	53.7	74.6	92.7	106	115	119	119	116	108	97.4	82.8	65.3	46.2	27.1	11.4	5.51
110	11.5	16.2	29.6	48.9	66.1	82.3	95.1	104	108	108	104	97.5	87.2	74.0	59.2	43.0	27.0	13.9	8.01
115	15.2	19.0	29.7	45.4	61.4	74.2	85.1	92.6	96.5	96.8	93.7	87.5	78.7	67.7	55.3	41.2	28.1	16.6	10.3
120	19.0	22.5	30.9	42.7	56.8	68.3	77.8	84.1	87.4	87.7	85.2	79.9	72.3	62.8	52.2	40.3	29.8	19.3	12.5
125	22.4	25.6	33.1	42.0	52.9	63.5	71.3	77.1	80.1	80.3	78.1	73.7	67.2	59.5	49.8	40.3	31.7	22.2	14.8
130	25.5	28.9	34.9	42.2	50.5	58.9	65.6	70.8	73.5	73.8	71.9	68.1	62.6	56.1	48.4	40.8	33.5	24.7	16.6
135	28.6	32.1	36.8	42.8	49.3	55.8	61.2	65.0	67.5	67.9	66.4	63.2	59.2	53.6	47.7	41.3	35.5	27.2	17.8
140	31.1	34.6	38.9	43.3	48.5	53.5	57.8	60.8	62.3	62.8	62.1	59.7	56.3	52.1	47.2	41.8	37.0	29.2	19.3
145	32.8	35.9	40.5	43.9	47.8	51.6	55.1	57.6	59.0	59.3	58.5	56.7	54.0	50.5	46.6	42.3	38.4	31.2	20.5
150	33.2	36.0	42.2	44.7	47.3	50.1	52.6	54.5	55.7	55.9	55.3	54.0	51.9	49.3	46.0	41.8	40.2	32.8	21.3
155	33.2	37.6	43.4	45.3	47.3	49.0	50.7	52.0	52.7	52.8	52.5	51.7	50.3	48.1	44.9	43.3	41.8	33.9	21.9
160	34.3	38.0	42.1	45.8	47.0	48.4	49.4	50.2	50.6	50.7	50.5	50.1	49.0	45.9	42.8	43.2	39.1	30.7	20.2
165	32.0	34.1	37.3	44.9	46.9	47.5	48.1	48.7	49.0	49.0	48.9	48.4	45.5	41.3	39.9	34.1	31.0	25.4	18.9
170	30.9	30.8	30.6	33.5	42.2	46.1	47.1	47.3	47.3	47.4	47.2	44.0	35.7	29.2	26.7	25.1	23.4	21.2	18.2
175	29.5	29.9	29.5	30.6	32.6	32.1	35.6	41.2	43.7	42.4	26.5	17.8	20.1	25.5	25.4	27.3	25.2	25.9	25.9
180	35.1	34.7	33.9	33.0	31.2	28.3	25.2	23.7	21.0	8.00	11.5	22.1	22.0	32.6	32.6	36.7	38.1	37.9	34.7

Table 6: Luminous Intensity Data

Table--2 UNIT: cd

γ (DEG) \ C (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	347	347	347	347	347	347	347	347	347	347	347	347	347	347	347	347	347		
5	344	344	345	345	346	346	347	347	347	348	348	348	347	347	347	347	346		
10	338	339	340	341	343	344	346	346	347	347	347	347	346	345	344	343	342		
15	328	330	332	335	338	340	342	344	345	345	345	344	342	340	338	337	335		
20	316	318	322	326	330	334	337	340	341	341	340	339	336	333	330	327	325		
25	300	304	309	315	320	326	330	334	336	336	334	332	328	323	318	314	311		
30	282	287	294	301	309	316	321	326	328	328	326	322	317	311	304	299	294		
35	262	268	276	286	295	304	311	316	319	319	316	311	305	297	288	281	275		
40	240	247	257	269	280	290	299	304	307	307	304	299	290	280	270	260	253		
45	216	225	237	250	263	275	285	291	295	294	291	284	274	263	250	238	230		
50	191	202	216	231	246	259	269	276	280	280	276	269	257	244	229	215	204		
55	165	178	194	211	228	242	253	261	265	265	260	252	240	224	207	190	178		
60	139	153	172	192	210	225	237	245	249	249	244	235	221	204	185	165	150		
65	112	131	152	173	192	208	220	229	233	233	228	218	203	184	163	141	123		
70	86.5	108	132	154	174	191	204	212	217	216	211	201	186	166	142	117	95.0		
75	62.6	87.9	115	139	158	175	188	197	201	201	195	185	169	148	123	94.2	68.4		
80	42.1	70.5	98.6	124	144	160	173	182	186	185	180	170	154	133	106	74.4	45.1		
85	26.9	56.7	85.2	110	131	147	159	168	172	171	166	156	140	118	90.7	58.4	27.1		
90	18.3	46.6	74.3	98.7	119	135	147	154	158	158	153	143	128	106	78.5	47.0	16.5		
95	14.0	39.2	65.3	88.6	108	124	136	143	146	145	141	131	116	94.7	68.6	38.9	12.1		
100	13.7	33.9	57.6	79.6	98.2	113	124	132	135	134	129	120	105	84.7	60.2	33.6	12.0		
105	15.5	31.8	51.4	71.5	89.0	103	114	121	124	123	118	109	94.5	75.7	53.7	31.3	13.9		
110	18.0	31.5	48.0	64.7	80.5	93.7	104	110	113	112	107	98.5	85.3	68.5	49.6	31.1	17.3		
115	20.9	32.3	46.0	60.4	73.6	85.0	94.1	100	103	102	97.4	89.2	77.7	63.4	47.3	31.9	21.0		
120	24.2	33.5	45.0	57.3	68.8	78.6	86.1	91.2	93.6	92.8	88.9	82.0	72.2	59.8	46.1	33.6	24.6		
125	27.3	35.0	44.7	55.0	64.9	73.4	80.0	84.4	86.4	85.7	82.3	76.3	67.8	57.1	45.7	35.7	28.1		
130	30.6	36.2	44.8	53.4	61.8	69.0	74.7	78.4	80.2	79.6	76.6	71.5	64.2	55.2	45.9	37.9	31.3		
135	32.1	37.7	45.1	52.3	59.2	65.2	70.0	73.3	74.8	74.2	71.7	67.4	61.3	54.0	46.5	39.9	34.4		
140	34.6	39.6	44.7	51.4	57.0	62.0	66.0	68.7	70.0	69.5	67.4	63.9	59.0	53.2	47.3	41.9	36.2		
145	37.5	41.3	44.8	50.8	55.2	59.2	62.4	64.6	65.7	65.3	63.7	60.9	57.1	52.5	47.7	43.8	38.8		
150	39.8	43.1	45.5	48.3	53.8	56.8	59.3	61.1	61.9	61.6	60.4	58.3	55.3	51.7	48.5	45.4	40.7		
155	40.5	42.7	46.4	47.3	52.5	54.7	56.5	57.9	58.5	58.3	57.5	55.9	53.7	51.4	48.9	46.0	42.1		
160	31.6	40.5	43.9	47.6	47.6	53.0	54.1	54.9	55.1	55.2	54.9	54.0	52.8	51.3	49.5	47.2	43.5		
165	22.9	31.8	34.4	37.8	44.2	45.1	51.4	52.6	52.9	52.8	52.6	52.2	51.7	50.5	48.6	46.6	38.4		
170	18.7	21.3	25.1	27.6	29.7	33.4	39.8	45.4	50.5	50.5	50.1	49.5	49.2	49.2	45.7	36.2	32.2		
175	25.7	25.1	25.2	27.2	25.5	25.8	20.2	21.5	32.6	47.0	47.1	43.8	37.8	33.7	32.6	30.0	29.4		
180	35.0	34.8	34.3	33.5	31.8	29.0	25.8	21.8	14.5	6.44	16.4	23.9	27.4	29.6	32.2	34.1	35.2		

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, 2020	Aug. 04, 2021
Digital Power Meter	PF2010A	HZTE028-01	Aug. 05, 2020	Aug. 04, 2021
AC Power Supply	DPS1060	HZTE001-06	Aug. 05, 2020	Aug. 04, 2021
DC Power Supply	WY12010	HZTE004-03	Aug. 05, 2020	Aug. 04, 2021
Temperature recorder	JM624U	HZTE018-08	Aug. 05, 2020	Aug. 04, 2021
Temperature and humidity recorder	JR900	HZTE018-01	Aug. 05, 2020	Aug. 04, 2021
Standard source	D908	HZTE012-01	Aug. 05, 2020	Aug. 04, 2021
Integrate Sphere system	3M	HZTE015-04	Aug. 05, 2020	Aug. 04, 2021
Digital Power Meter	WT210	HZTE008-01	Aug. 05, 2020	Aug. 04, 2021
AC Power Supply	PCR 500L	HZTE001-07	Aug. 05, 2020	Aug. 04, 2021
DC Power Supply	IT6154	HZTE004-04	Aug. 05, 2020	Aug. 04, 2021
Standard source	SCL-1400	HZTE012-02	Aug. 05, 2020	Aug. 04, 2021
Temperature and humidity recorder	JR900	HZTE018-02	Aug. 05, 2020	Aug. 04, 2021
Temperature Meter	TES1310	HZTE017-01	Aug. 05, 2020	Aug. 04, 2021

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.

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The uncertainty of integrating sphere system reported in this document is expended 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 expended uncertainty is 2.3% with a coverage factor k=2.

Color Characteristics Measurements

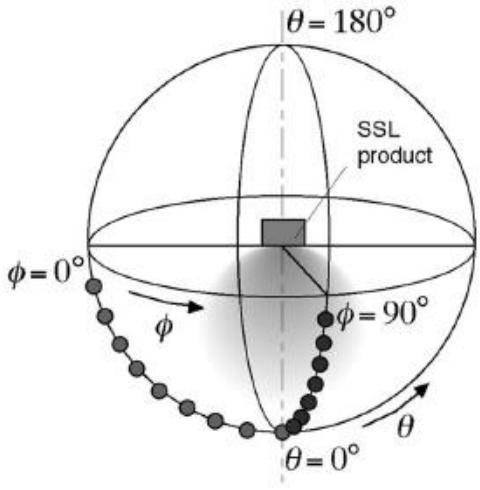
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as 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 °/180 ° and C=90 °/270 °) 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, Δu'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 ***