LM-79-08 TEST REPORT

for

RAB lighting INC

170 Ludlow Avenue,Northvales,New Jerscy 07647 USA

LED Tube

Model: T8-15-U6GC-830-EXT-2

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

3rd Floor, Bld. 2, NO. 96 Longchuanwu Rd Qianjiang Economy Dev. Zone, YuhangDist,
Hangzhou, Zhejiang Province, China 311100
Tel: +86571 86376106
www.ledtestlab.com

Report No.: HZ21030011g

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

Review by: April Zou

Engineer: April Zou
Mar. 30, 2021

Approved by: Jim Zhang

Manager: Jim Zhang
Mar. 30, 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: **T8-15-U6GC-830-EXT-2**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)/2	Power Factor
129.6	2128.6	16.42	0.9944

CCT (K)	CRI	Stabilization Time (Light & Power)
3035	83.1	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 : Mar. 09, 2021

Date of Test : Mar. 10, 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

TABLE OF CONTENT

SAMPLE PHOTO

Figure 1- Overview of the sample

Equipment Under Test(EUT)	
Name	: LED Tube
Model	: T8-15-U6GC-830-EXT-2
Electrical Ratings	:120-277V, 60Hz, 17W
Product Description	: 3000K LED Tube supplied by a LED driver: DRI-30T5HE-2L-DIM
Manufacturer	: RAB lighting INC
Address	: 170 Ludlow Avenue,Northvales,New Jerscy 07647 USA

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)	0.275	0.127
Power Factor	0.9944	0.9342
Test Power (W)/2	16.42	16.40
THD A%	5.44	6.87
Luminous Efficacy (lm/W)	129.6	129.8
Total Luminous Flux (lm)	2128.6	2128.4
Color Rendering Index (CRI)	83.1	
R9	7.6	
Correlated Color Temperature (CCT)(K)	3035	
Chromaticity Chroma x	0.4360	
Chromaticity Chroma y	0.4068	
Chromaticity Chroma u	0.2488	
Chromaticity Chroma v	0.3482	
Duv	0.0012	
Chromaticity Chroma u ’	0.2488	
Chromaticity Chroma v’	0.5223	

Special Color Rendering Indices	
R1	81.5
R2	91
R3	96.7
R4	81.6
R5	81.7
R6	89.4
R7	83.4
R8	59.6
R9	7.6
R10	79.8
R11	81.6
R12	70.7
R13	83.8
R14	98.8

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 25.3°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)	0.275
Power Factor	0.9946
Power (W)/4	16.36
Luminous Efficacy (lm/W)	131.9
Total Luminous Flux (lm)	2156.7
Beam Angle (°)	105.7 (0^o-180^o) / 167.8 (90^o-270^o)
Center Beam Candle Power (cd)	419
Maximum Beam Candle Power (cd)	420.4 (At: C=100.0, Gamma=6.0)
Spacing Criteria	1.22 (0^o-180^o) / 1.37 (90^o-270^o)
Zonal Lumens in the 0°-60°Zone	47.68%
Zonal Lumens in the 60°-90°Zone	25.64%
Zonal Lumens in the 90°-120°Zone	14.31%
Zonal Lumens in the 120°-180°Zone	12.37%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

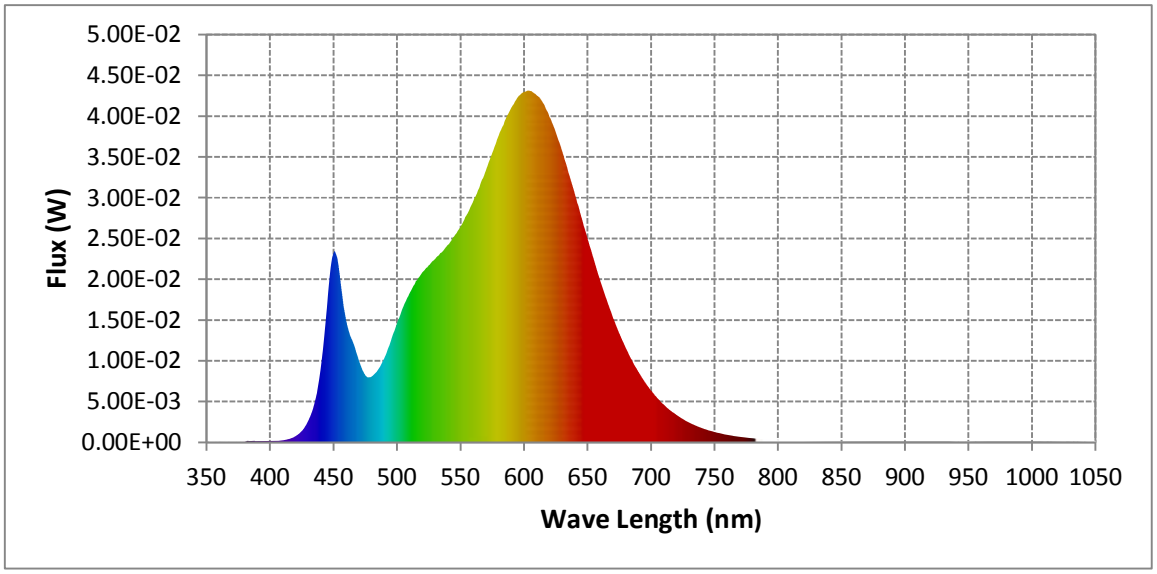
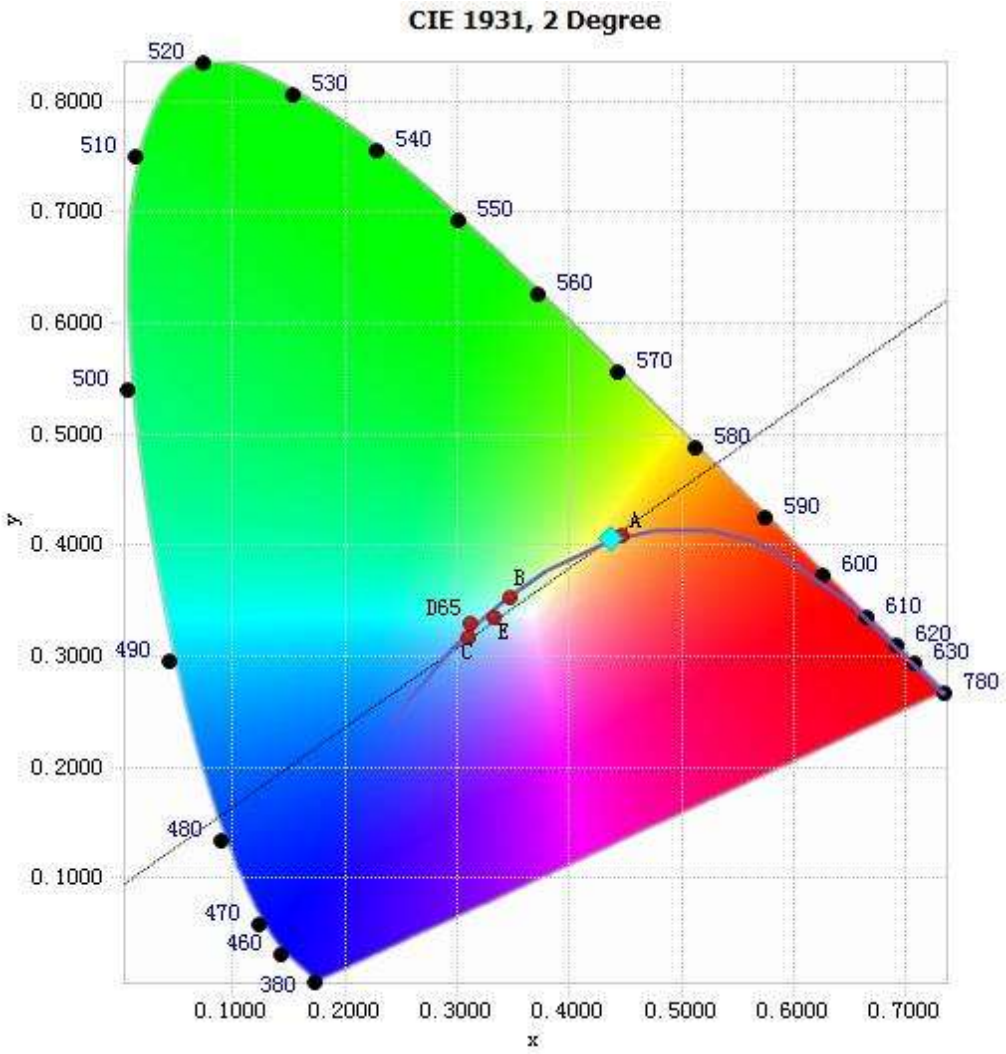


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	1.77E-04	485	8.86E-03	590	4.10E-02	695	7.43E-03
385	1.67E-04	490	1.03E-02	595	4.23E-02	700	6.35E-03
390	1.59E-04	495	1.23E-02	600	4.30E-02	705	5.41E-03
395	1.68E-04	500	1.46E-02	605	4.31E-02	710	4.63E-03
400	1.41E-04	505	1.66E-02	610	4.25E-02	715	3.94E-03
405	1.62E-04	510	1.83E-02	615	4.16E-02	720	3.36E-03
410	2.36E-04	515	1.98E-02	620	3.99E-02	725	2.87E-03
415	4.04E-04	520	2.08E-02	625	3.80E-02	730	2.42E-03
420	7.39E-04	525	2.17E-02	630	3.57E-02	735	2.06E-03
425	1.38E-03	530	2.25E-02	635	3.31E-02	740	1.74E-03
430	2.58E-03	535	2.33E-02	640	3.05E-02	745	1.48E-03
435	4.75E-03	540	2.42E-02	645	2.77E-02	750	1.26E-03
440	8.94E-03	545	2.53E-02	650	2.50E-02	755	1.07E-03
445	1.65E-02	550	2.64E-02	655	2.24E-02	760	9.14E-04
450	2.32E-02	555	2.79E-02	660	1.99E-02	765	7.75E-04
455	2.04E-02	560	2.95E-02	665	1.75E-02	770	6.60E-04
460	1.50E-02	565	3.13E-02	670	1.53E-02	775	5.67E-04
465	1.24E-02	570	3.33E-02	675	1.34E-02	780	4.87E-04
470	1.00E-02	575	3.54E-02	680	1.16E-02		
475	8.24E-03	580	3.76E-02	685	1.01E-02		
480	8.06E-03	585	3.95E-02	690	8.69E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4360, 0.4068)

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

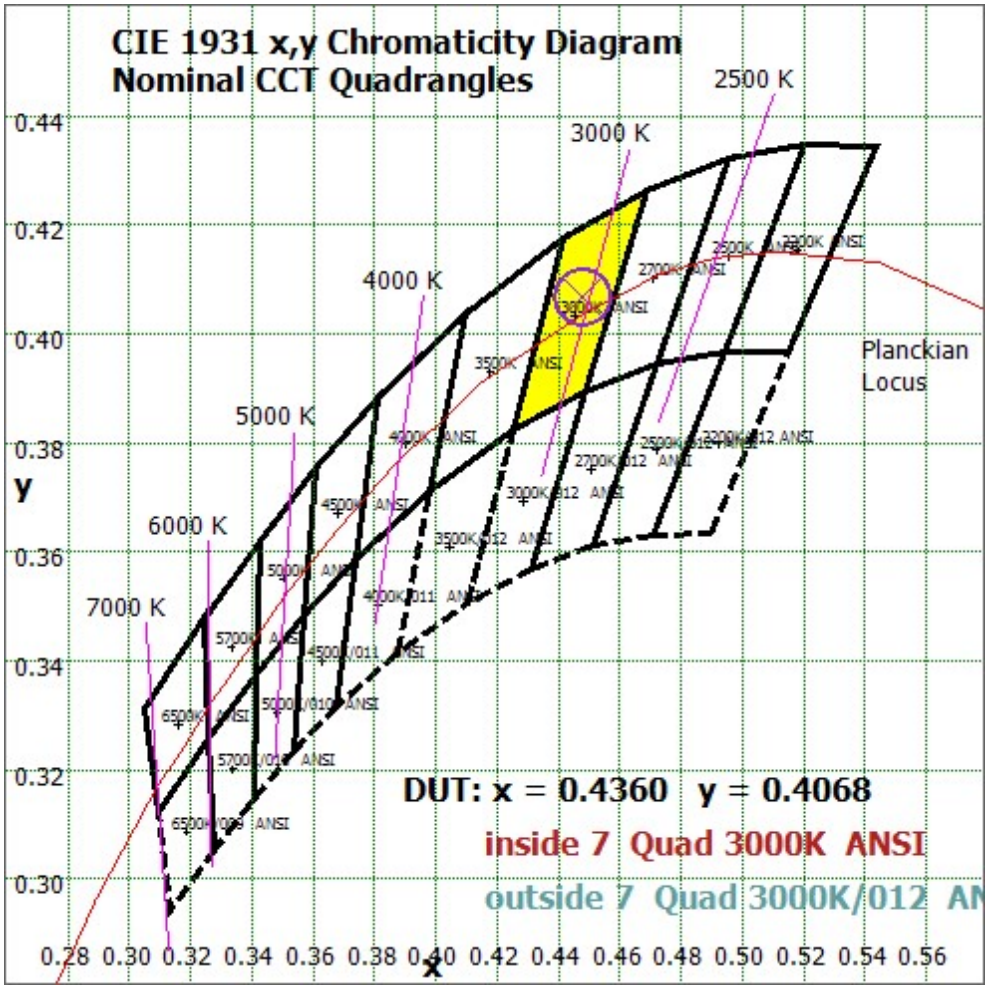


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

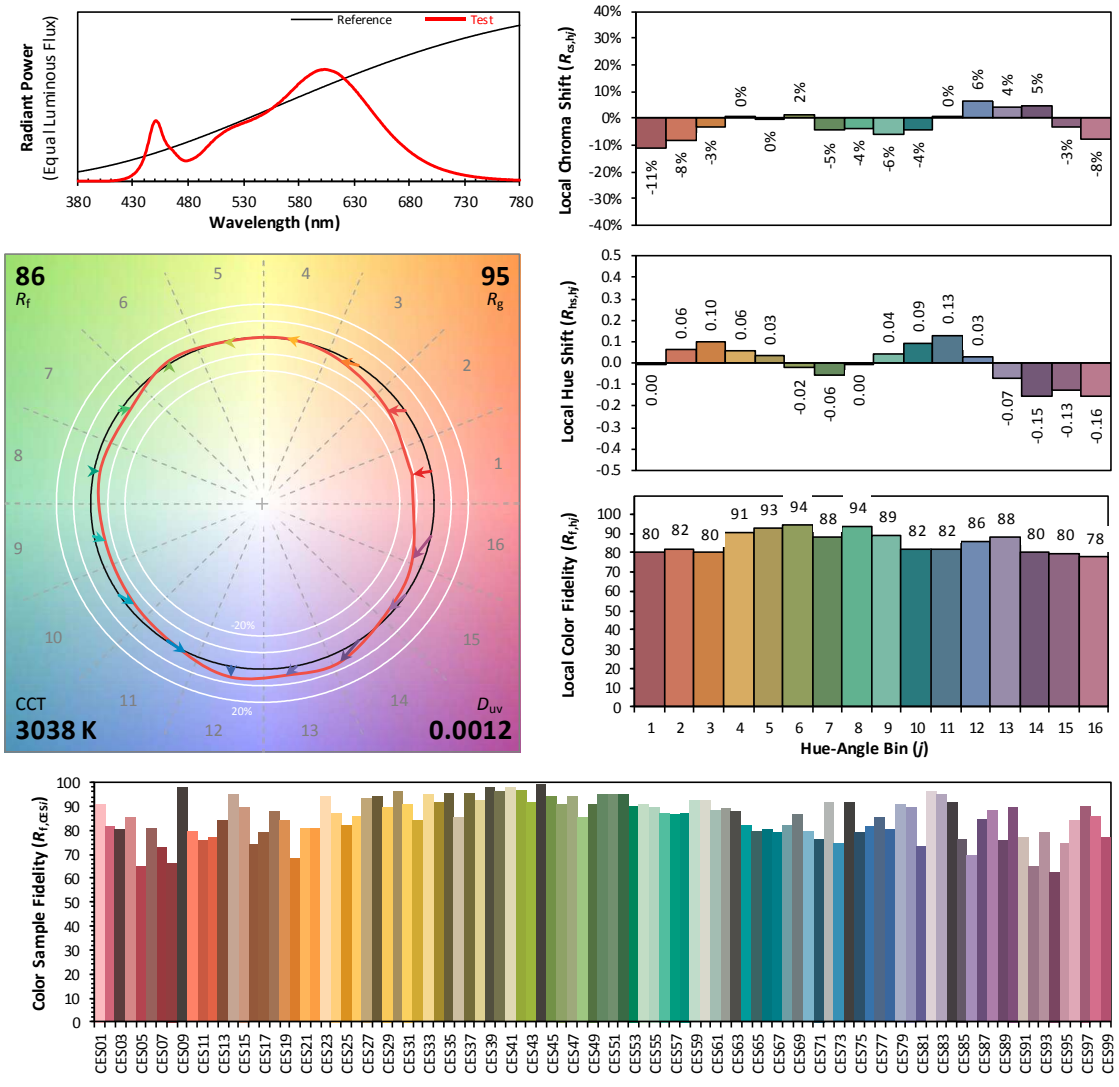
Quality Assured

Color Rendition Report – Sphere Spectroradiometer Method

ANSI/IES TM-30-18 Color Rendition Report

Source: LED **Manufacturer:** RAB lighting INC

Date: 2021/03/10 **Model:** U6-830-15P-G6-EX-B2



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

x	0.4360
y	0.4068
u'	0.2488
v'	0.5223

CIE 13.3-1995 (CRI)

R_a	83
R_9	8

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.

3rd Floor, Bld. 2, NO. 96 Longchuanwu Rd Qianjiang Economy Dev. Zone, YuhangDist,
Hangzhou, Zhejiang Province, China 311100
Tel: +86 571 86376106 www.ledtestlab.com

Zonal Lumen Tabulation- Goniophotometer Method

γ(°)	Lumens	% Total
0- 10	39.74	1.84%
10- 20	114.554	5.31%
20- 30	176.225	8.17%
30- 40	218.727	10.14%
40- 50	239.501	11.11%
50- 60	239.622	11.11%
60- 70	222.973	10.34%
70- 80	194.323	9.01%
80- 90	135.575	6.29%
90-100	97.364	4.51%
100-110	112.172	5.20%
110-120	99.168	4.60%
120-130	84.097	3.90%
130-140	68.641	3.18%
140-150	52.187	2.42%
150-160	36.107	1.67%
160-170	20.47	0.95%
170-180	5.246	0.24%
Total	2156.7	100%

γ(°)	Lumens	% Total
0- 60	1028.369	47.68%
60- 90	552.871	25.64%
0-90	1581.24	73.32%
90- 180	575.452	26.68%
0- 180	2156.7	100%

Table 5: Zonal Lumen

Illuminance Plots- Goniophotometer Method

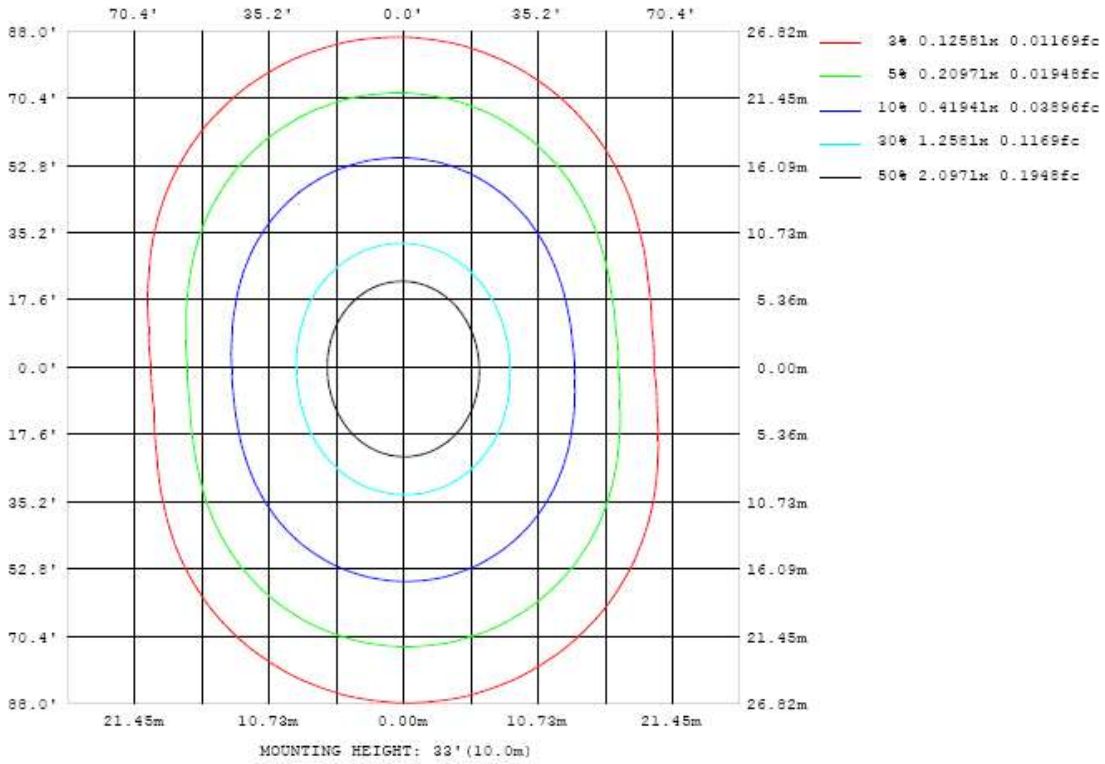


Chart 5: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

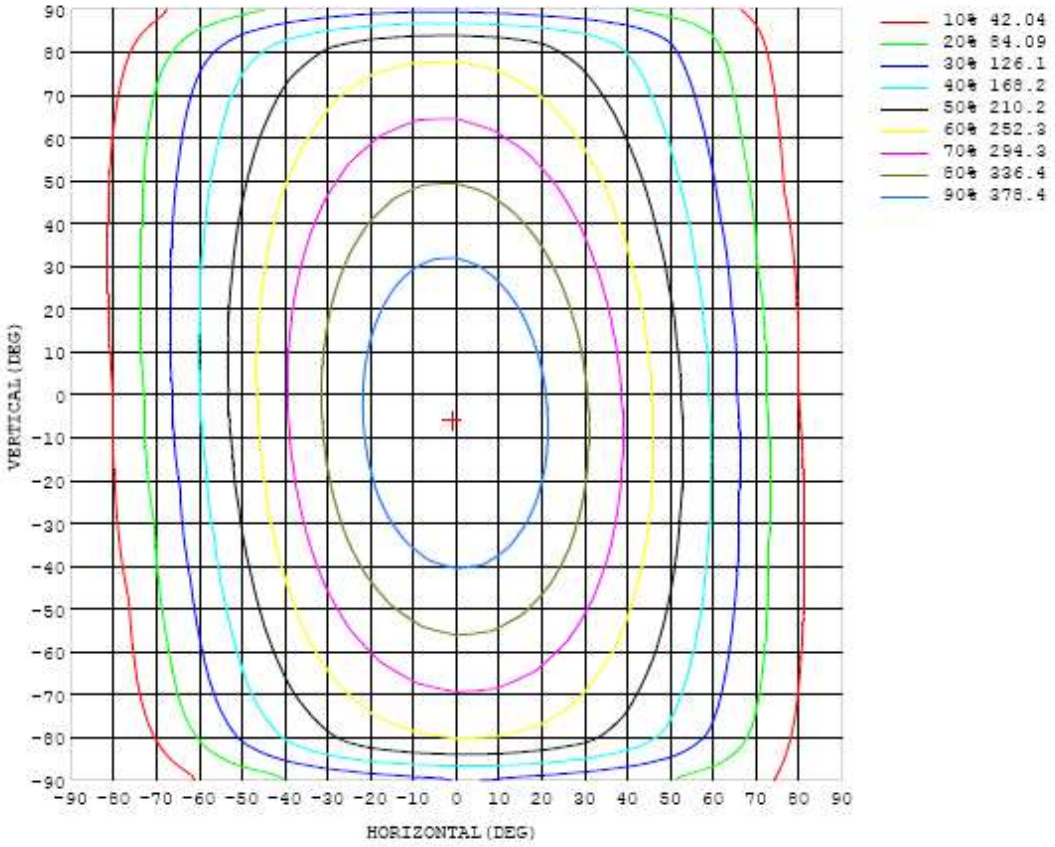


Chart 6: Isocandela Plot

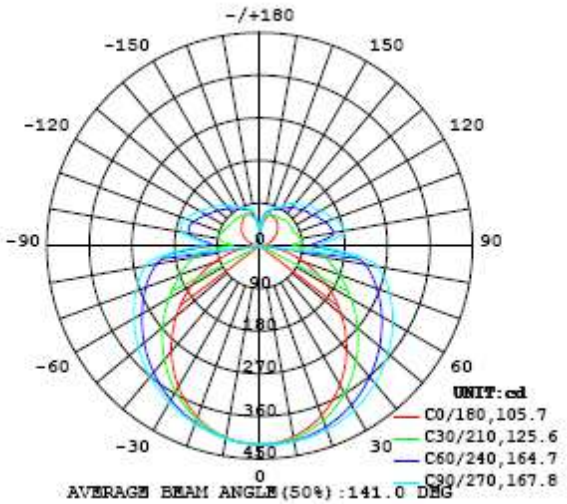


Chart 7: Polar Candela Distribution

Luminous Intensity Data- Goniophotometer Method

Table--1 UNIT: cd

γ (DEG) \ C (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419
5	417	417	418	418	419	419	419	420	420	420	420	420	420	420	419	419	418	418	418
10	409	410	411	413	415	416	418	419	420	420	420	419	418	417	415	414	413	412	411
15	397	399	401	404	407	411	414	416	417	417	417	416	413	411	408	405	403	401	400
20	381	384	388	392	397	402	407	411	413	414	412	410	406	402	397	392	388	386	385
25	362	365	370	377	384	392	398	404	407	408	406	402	397	390	383	376	371	367	366
30	339	343	350	359	369	379	388	395	399	400	398	393	385	376	367	357	350	345	344
35	313	318	327	339	352	364	375	384	389	390	388	381	372	360	347	336	326	320	318
40	286	292	303	317	333	348	362	372	378	380	376	368	357	342	327	312	300	292	291
45	256	263	277	294	313	331	347	359	366	367	363	354	340	323	305	287	272	263	261
50	225	234	250	270	292	313	331	344	352	354	349	339	323	304	282	261	243	232	230
55	194	204	223	246	271	295	314	329	338	340	335	323	305	283	259	234	213	200	198
60	162	174	196	223	251	277	298	314	323	324	319	307	288	264	236	208	184	168	166
65	130	144	170	200	231	258	281	297	307	309	303	290	270	244	214	183	154	136	134
70	98.5	116	146	179	212	240	264	281	290	292	286	273	252	225	194	159	127	104	102
75	69.2	89.6	124	159	193	223	246	263	273	274	268	254	233	206	173	137	101	73.8	71.3
80	41.7	67.2	104	141	175	203	226	242	252	253	247	234	212	185	152	116	78.2	47.1	43.2
85	19.1	48.7	84.6	119	145	164	177	187	193	194	190	181	166	146	120	87.7	54.7	23.6	19.4
90	6.06	28.4	51.7	71.0	85.9	99.2	110	120	126	127	123	114	101	84.7	67.6	44.6	23.2	5.45	2.32
95	7.73	26.8	55.8	82.8	103	120	133	144	151	153	150	142	129	111	89.5	61.3	33.4	11.2	8.11
100	11.7	28.6	56.5	87.5	114	139	158	172	181	183	178	166	148	123	94.8	65.2	37.6	16.7	13.0
105	17.4	30.9	54.7	83.6	111	135	154	168	175	176	171	160	142	119	93.1	67.2	40.9	22.0	18.7
110	23.4	35.1	54.7	79.4	105	128	147	160	167	168	163	152	135	114	92.8	67.5	43.8	27.7	25.0
115	30.0	39.0	56.5	77.8	98.2	122	139	150	157	157	153	143	129	112	91.0	67.7	46.9	34.0	31.6
120	36.5	42.5	58.3	77.5	96.3	113	129	141	148	149	145	137	124	107	88.8	68.4	49.9	40.5	38.2
125	42.8	46.7	60.7	77.0	93.8	110	125	133	137	139	137	130	117	103	86.9	69.3	52.9	46.2	44.6
130	48.5	51.7	62.3	76.9	91.3	106	118	128	132	133	129	122	112	99.1	85.1	68.7	56.0	51.9	50.4
135	53.9	56.0	63.4	76.6	88.9	101	112	119	124	124	121	115	107	95.0	82.5	67.1	59.6	57.0	54.6
140	58.8	59.2	62.9	73.7	83.7	95.5	105	112	116	116	114	109	99.6	90.1	80.2	68.5	63.3	60.1	58.9
145	62.6	62.2	63.9	72.7	78.5	88.1	97.5	103	107	108	105	101	92.7	86.0	78.0	69.5	65.9	63.6	64.1
150	65.5	64.3	63.3	72.2	78.2	83.5	89.1	94.3	96.3	98.0	95.2	90.9	85.6	82.8	77.4	67.8	67.6	66.7	68.4
155	67.3	67.7	63.8	70.5	76.6	81.1	84.7	86.5	89.2	88.0	87.0	85.8	85.1	80.5	75.4	66.3	68.9	70.2	71.7
160	70.4	69.8	65.8	68.8	74.1	78.4	81.1	83.5	84.8	84.9	84.3	83.1	81.1	74.8	68.2	64.4	68.3	74.1	73.6
165	65.4	68.5	66.6	65.4	68.9	74.2	74.9	77.2	77.9	77.7	77.9	76.7	71.8	69.5	65.6	65.6	69.6	73.2	73.2
170	53.6	59.5	64.5	64.1	62.9	65.1	69.2	72.1	73.4	72.7	69.0	63.0	60.4	60.3	61.8	61.6	62.2	62.7	61.0
175	39.8	39.4	41.6	50.4	54.9	53.9	51.8	51.0	49.5	50.7	52.2	53.3	51.9	47.7	46.9	47.1	46.4	45.7	45.5
180	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6

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	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419	419		
5	417	417	417	417	417	417	417	417	417	417	416	416	416	416	416	416	417		
10	411	411	411	412	412	412	413	413	412	412	411	411	410	409	409	409	409		
15	400	400	402	403	405	406	407	407	407	406	405	403	401	399	398	397	397		
20	385	387	389	392	395	398	400	401	400	399	396	393	390	386	383	381	381		
25	367	369	373	378	383	387	391	392	392	390	386	381	376	370	366	362	361		
30	345	349	355	362	370	376	380	383	382	380	375	368	360	352	346	341	338		
35	321	326	335	345	355	363	369	372	372	368	362	353	343	333	323	316	313		
40	294	302	313	326	338	349	357	360	360	356	348	337	325	311	299	290	285		
45	266	277	291	307	321	334	344	348	348	343	334	321	305	289	274	263	256		
50	237	250	268	287	304	319	330	335	335	329	318	304	286	267	248	234	226		
55	207	223	245	267	287	303	315	321	321	315	303	287	267	244	223	205	195		
60	177	197	222	247	269	288	300	307	307	300	288	270	247	223	198	176	163		
65	148	171	200	228	252	272	286	293	293	286	272	253	229	202	174	149	133		
70	119	148	179	209	236	256	271	279	279	271	257	237	211	182	152	122	102		
75	93.0	126	160	192	219	240	255	262	263	255	241	221	194	164	131	97.9	73.0		
80	69.4	105	142	173	200	221	236	243	243	236	223	203	177	147	113	76.6	46.7		
85	47.5	81.1	114	142	162	179	189	195	195	191	182	169	151	127	94.5	58.7	25.5		
90	17.4	37.3	57.2	75.8	91.8	104	113	118	118	114	106	96.7	85.4	71.1	54.7	35.0	10.2		
95	28.1	51.3	73.7	92.4	108	119	127	131	131	127	119	109	96.8	81.7	60.8	35.4	12.1		
100	32.6	59.4	88.2	112	134	151	163	169	169	163	152	137	118	94.2	65.4	36.3	14.8		
105	35.3	59.4	88.2	115	138	155	167	173	174	169	158	141	118	91.4	62.9	37.7	19.5		
110	37.6	59.4	84.3	110	132	149	160	166	166	161	152	134	112	86.5	61.4	38.6	25.1		
115	42.0	59.2	81.3	103	124	140	151	157	157	153	143	126	105	83.2	60.7	41.9	31.1		
120	46.7	59.4	79.2	98.7	116	131	141	147	147	142	133	118	100.0	80.4	59.8	46.3	37.3		
125	50.9	60.5	77.3	94.9	110	123	131	136	136	132	124	111	95.2	77.4	61.2	50.5	43.4		
130	54.8	62.1	76.3	90.9	105	116	124	128	127	124	116	105	90.8	75.6	63.9	54.5	49.1		
135	59.0	64.2	75.3	87.9	99.2	109	116	119	119	116	109	99.2	87.1	76.0	64.4	58.4	54.2		
140	62.0	66.7	74.5	84.6	94.8	102	108	111	111	108	102	94.2	84.2	74.4	65.1	61.7	59.2		
145	64.4	67.5	75.0	81.1	89.4	96.7	101	104	103	101	96.6	88.5	80.9	73.8	68.5	63.8	62.1		
150	65.3	68.5	75.2	80.5	85.6	91.0	93.9	95.2	94.8	92.9	89.4	84.7	79.3	74.6	70.4	65.4	64.9		
155	67.5	67.8	72.9	78.0	82.2	86.1	88.5	89.3	89.3	88.4	85.8	82.0	78.7	75.3	71.9	66.3	67.5		
160	68.7	65.2	70.4	75.0	79.0	82.1	82.2	82.9	84.7	83.6	82.5	81.1	78.8	75.8	71.2	65.4	68.5		
165	72.1	66.0	63.9	69.8	75.0	77.6	79.0	79.9	75.7	78.7	78.8	78.6	76.1	71.1	64.9	65.6	66.7		
170	61.2	60.7	59.3	59.7	60.6	61.1	63.9	69.9	76.4	76.3	72.6	68.1	64.8	61.5	62.9	62.5	59.1		
175	45.6	45.6	46.4	47.1	46.6	51.4	54.0	54.3	49.9	50.6	45.5	47.1	57.2	57.1	62.1	57.6	50.3		
180	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6		

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, 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.

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

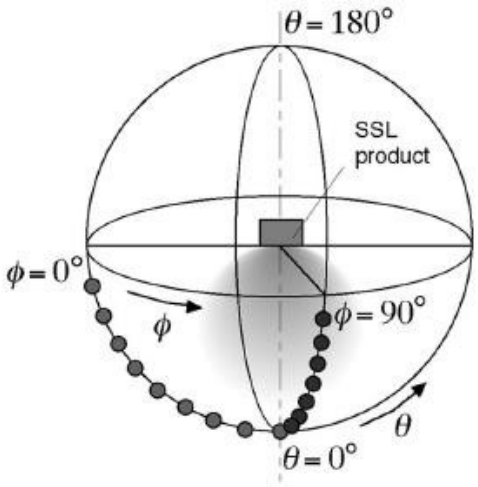
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as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