



LM-79-08 TEST REPORT

for

RAB Lighting Inc

170 Ludlow Avenue, Northvale, New Jersey 07647 USA

LED Tube

Model: T8-9.5-48G-830-SD-BYP/2

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Report No.: HZ21060026i

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

Review by:

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Jul. 01, 2021

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Jul. 01, 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-830-SD-BYP/2**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
168.8	1633.8	9.68	0.9715
CCT (K)	CRI	Stabilization Time (Light & Power)	
3098	81.7	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 : Feb. 07, 2021

Date of Test : Feb. 08, 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-830-SD-BYP/2
Electrical Ratings	: 120V, 50/60Hz, 9.5W
Product Description	: 3000K

TEST RESULTS

Test ambient temperature was 26.0 °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
Test Current (A)	0.083
Power Factor	0.9715
Test Power (W)	9.68
THD A%	22.63
Luminous Efficacy (lm/W)	168.8
Total Luminous Flux (lm)	1633.8
Color Rendering Index (CRI)	81.7
R9	1.2
Correlated Color Temperature (CCT)(K)	3098
Chromaticity Chroma x	0.4305
Chromaticity Chroma y	0.4027
Chromaticity Chroma u	0.2470
Chromaticity Chroma v	0.3466
Duv	0.0004
Chromaticity Chroma u'	0.2470
Chromaticity Chroma v'	0.5199

Special Color Rendering Indices	
R1	79.7
R2	89.6
R3	96.5
R4	80.3
R5	80.1
R6	87.3
R7	82.5
R8	57.4
R9	1.2
R10	76.8
R11	80.2
R12	69
R13	81.9
R14	98.6

Table 2: Test data per Sphere-Spectroradiometer Method

Note: According to CIE 1976 (u',v') diagram, $u' = u / (-2x + 12y + 3)$, $v' = 3v / 2 = 9y / (-2x + 12y + 3)$.

Goniophotometer Method

Test ambient temperature was 25.8 °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)	0.083
Power Factor	0.9702
Power (W)	9.65
Luminous Efficacy (lm/W)	168.7
Total Luminous Flux (lm)	1627.8
Beam Angle (°)	109.2 (0°-180°) / 156.5 (90°-270°)
Center Beam Candle Power (cd)	342
Maximum Beam Candle Power (cd)	342.7 (At: C=260.0, Gamma=5.0)
Spacing Criteria	1.25 (0°-180°) / 1.36 (90°-270°)
Zonal Lumens in the 0°-60° Zone	50.06%
Zonal Lumens in the 60°-90° Zone	25.55%
Zonal Lumens in the 90°-120° Zone	14.24%
Zonal Lumens in the 120°-180° Zone	10.15%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

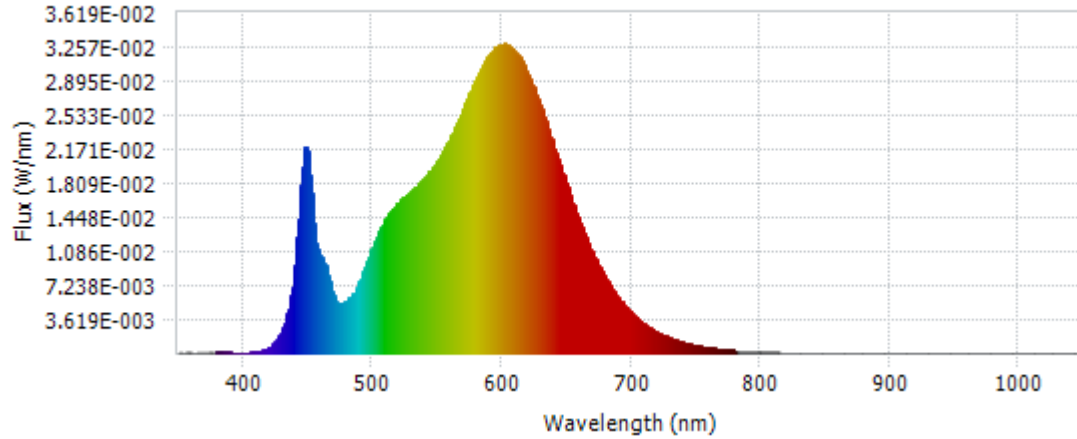
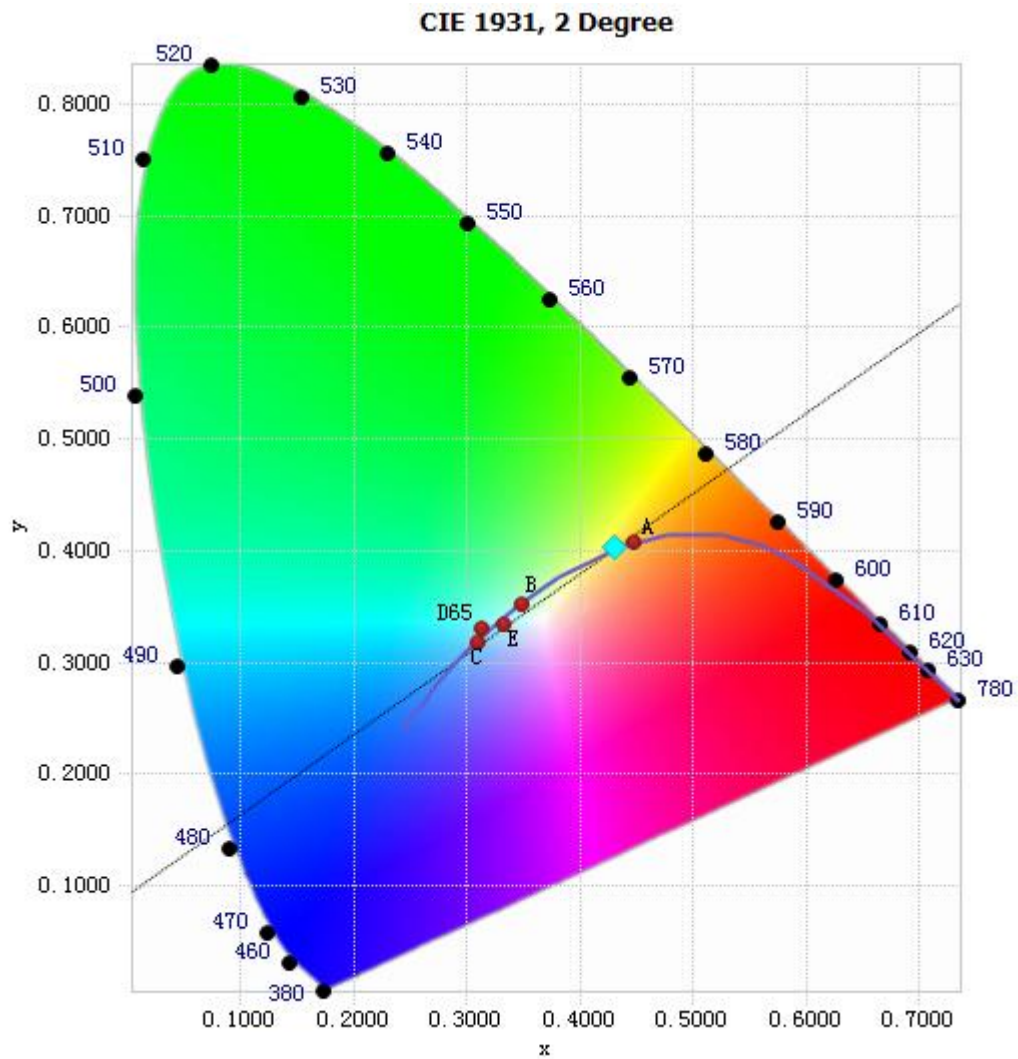


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	1.16E-04	485	6.29E-03	590	3.17E-02	695	5.14E-03
385	1.12E-04	490	7.61E-03	595	3.25E-02	700	4.38E-03
390	1.12E-04	495	9.47E-03	600	3.28E-02	705	3.74E-03
395	9.98E-05	500	1.13E-02	605	3.28E-02	710	3.16E-03
400	9.05E-05	505	1.29E-02	610	3.22E-02	715	2.69E-03
405	9.81E-05	510	1.42E-02	615	3.11E-02	720	2.29E-03
410	1.70E-04	515	1.53E-02	620	2.98E-02	725	1.95E-03
415	3.29E-04	520	1.60E-02	625	2.82E-02	730	1.65E-03
420	6.43E-04	525	1.67E-02	630	2.64E-02	735	1.40E-03
425	1.30E-03	530	1.73E-02	635	2.44E-02	740	1.19E-03
430	2.52E-03	535	1.79E-02	640	2.23E-02	745	1.01E-03
435	4.77E-03	540	1.86E-02	645	2.01E-02	750	8.59E-04
440	9.28E-03	545	1.95E-02	650	1.80E-02	755	7.27E-04
445	1.80E-02	550	2.04E-02	655	1.60E-02	760	6.21E-04
450	2.15E-02	555	2.16E-02	660	1.41E-02	765	5.28E-04
455	1.39E-02	560	2.29E-02	665	1.24E-02	770	4.49E-04
460	1.04E-02	565	2.44E-02	670	1.08E-02	775	3.85E-04
465	8.86E-03	570	2.60E-02	675	9.39E-03	780	3.25E-04
470	6.22E-03	575	2.76E-02	680	8.11E-03		
475	5.24E-03	580	2.92E-02	685	7.00E-03		
480	5.60E-03	585	3.06E-02	690	6.01E-03		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4305, 0.4027)

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

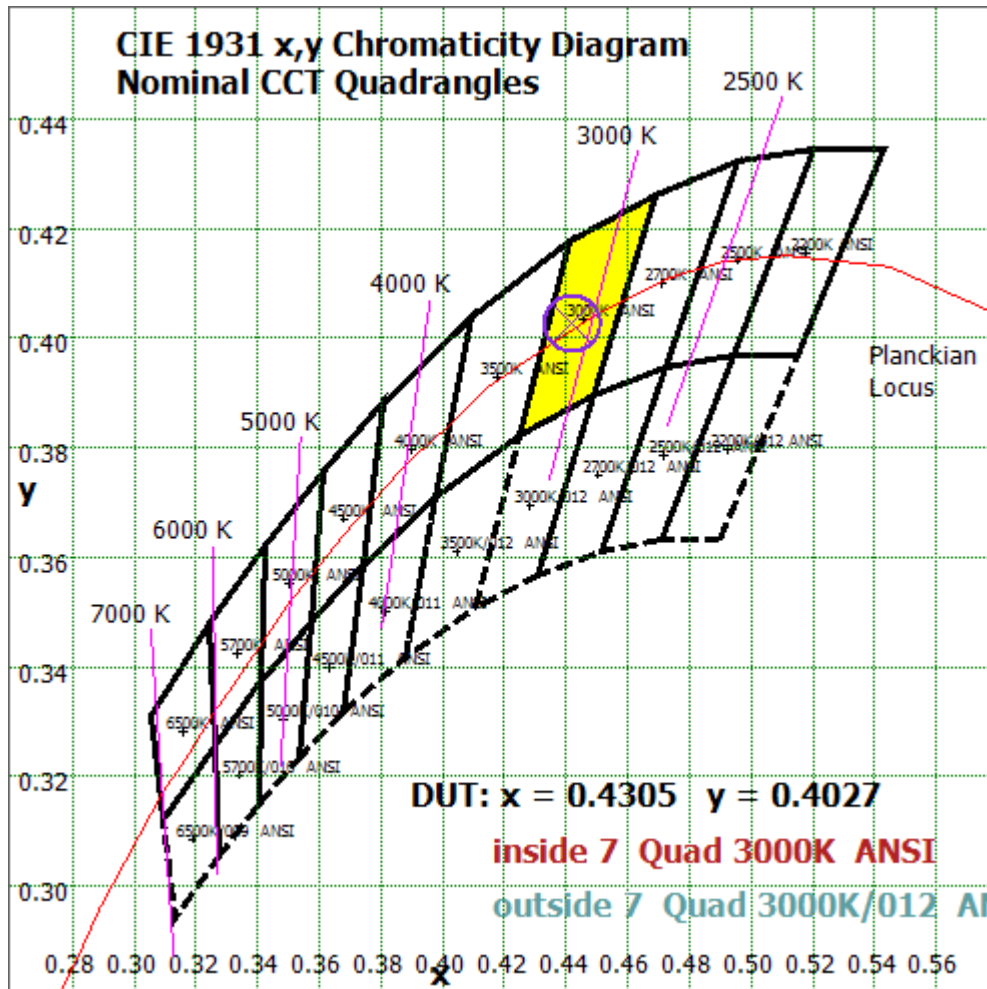


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

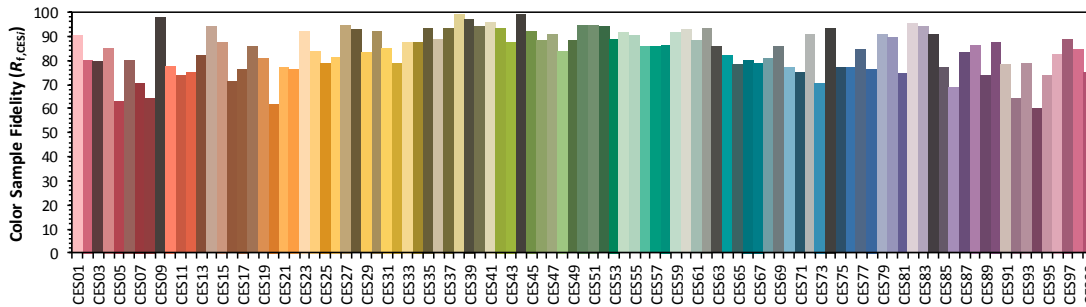
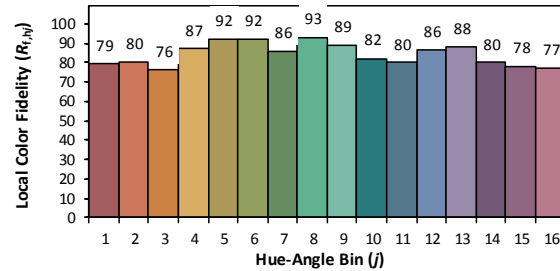
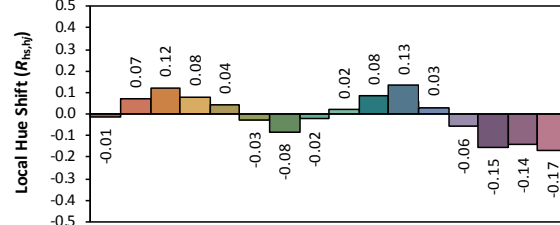
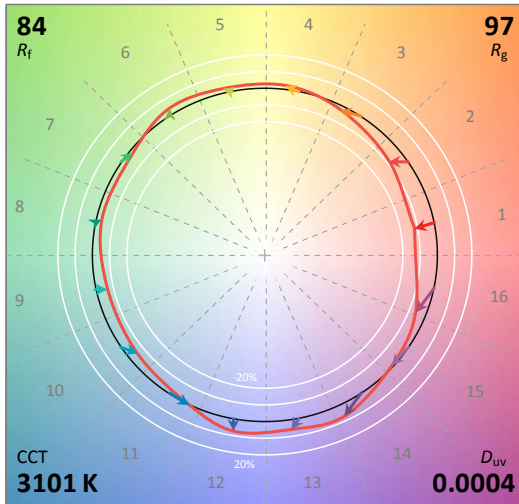
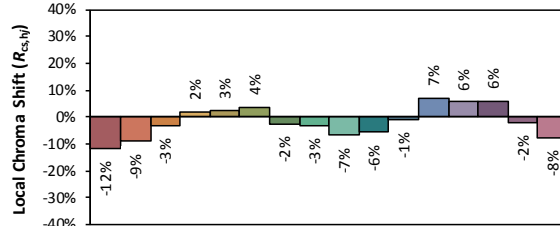
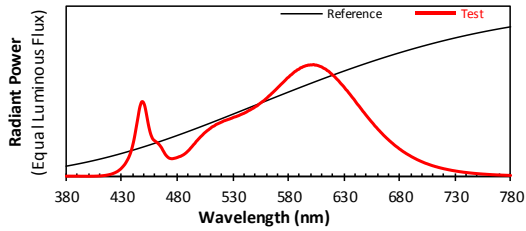
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: RAB Lighting Inc

Date: 2021/02/08

Model: T8-9.5-48G-830-SD-BYP/2



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

x 0.4305
 y 0.4027
 u' 0.2470
 v' 0.5199

CIE 13.3-1995 (CRI)	
R_a	82
R_g	1

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	32.369	1.99%
10- 20	93.092	5.72%
20- 30	142.45	8.75%
30- 40	175.023	10.75%
40- 50	188.379	11.57%
50- 60	183.546	11.28%
60- 70	164.845	10.13%
70- 80	138.609	8.52%
80- 90	112.501	6.91%
90-100	92.316	5.67%
100-110	76.353	4.69%
110-120	63.128	3.88%
120-130	51.811	3.18%
130-140	41.951	2.58%
140-150	32.481	2.00%
150-160	22.815	1.40%
160-170	12.494	0.77%
170-180	3.645	0.22%
Total	1627.8	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	814.859	50.06%
60- 90	415.955	25.55%
0-90	1230.814	75.61%
90- 180	396.994	24.39%
0- 180	1627.8	100%

Table 5: Zonal Lumen

Illuminance Plots- Goniophotometer Method

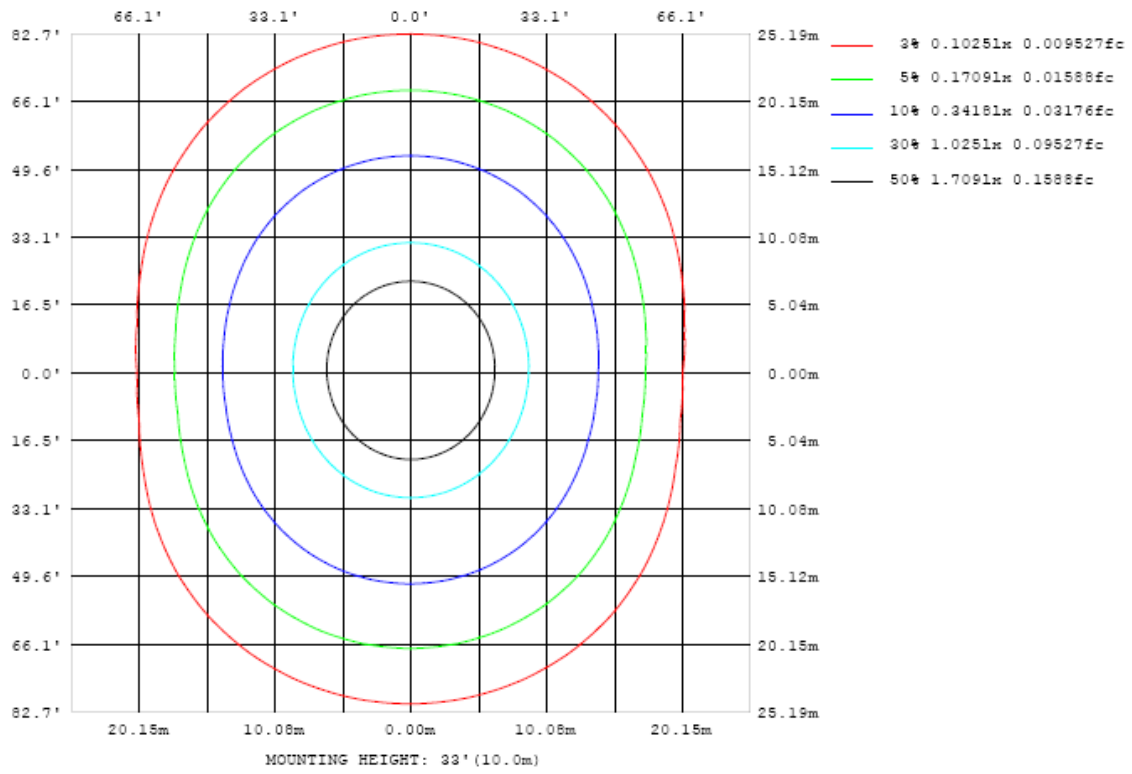


Chart 5: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

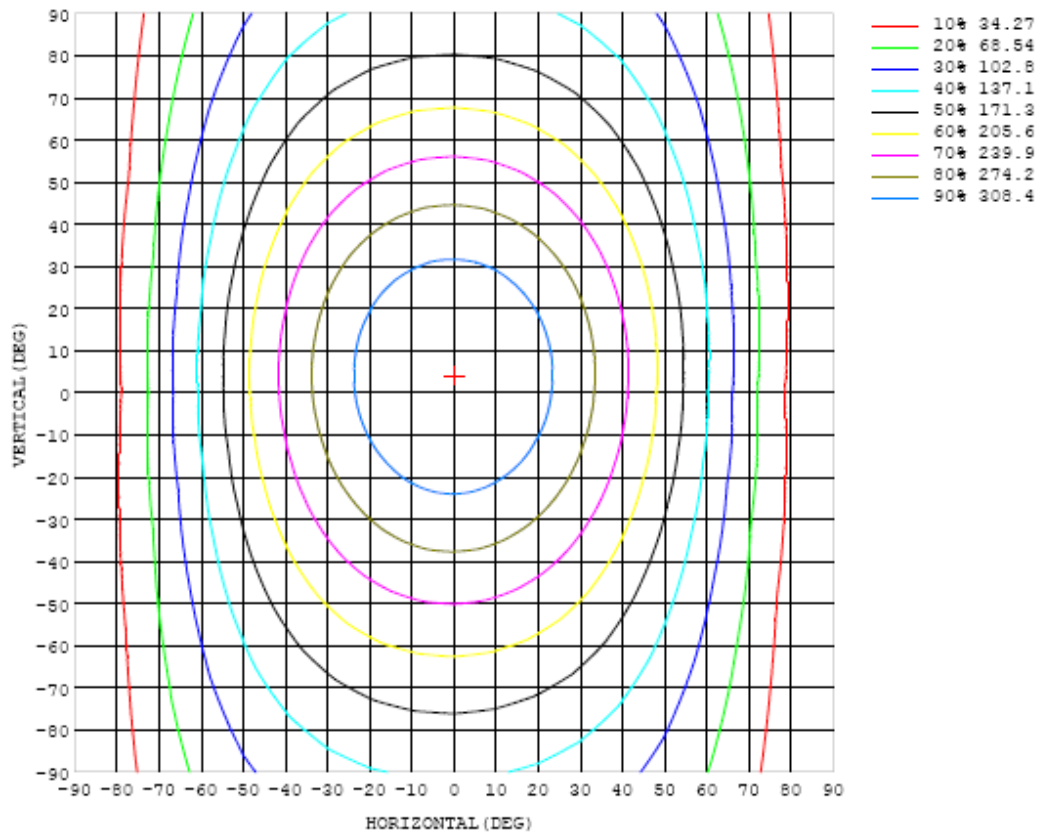


Chart 6: Isocandela Plot

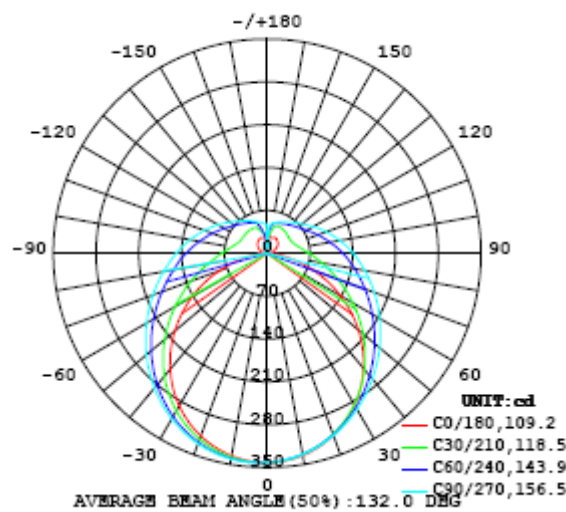


Chart 7: Polar Candela Distribution

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	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342
5	340	340	340	339	339	339	339	339	339	339	339	339	339	339	339	339	340	340	340
10	335	335	334	334	334	333	333	333	333	333	334	334	334	333	334	334	335	335	336
15	327	327	326	325	325	325	325	326	326	326	326	326	326	326	326	326	327	327	328
20	317	316	315	315	315	315	315	316	317	317	317	316	316	316	315	315	316	316	318
25	303	302	301	301	302	303	304	305	306	306	306	305	305	303	303	302	302	303	304
30	286	285	284	285	287	289	290	292	294	294	294	293	292	290	288	287	286	286	288
35	267	266	265	267	270	273	276	279	281	281	281	280	277	274	272	269	267	267	269
40	245	244	245	248	252	256	261	265	267	268	268	266	263	258	254	250	247	246	247
45	221	220	222	227	233	239	245	250	253	254	254	251	247	242	235	229	224	222	223
50	195	194	198	205	214	222	229	235	239	240	239	237	232	225	217	208	201	197	197
55	167	168	173	183	194	205	214	220	225	226	225	222	216	208	198	187	177	170	170
60	138	140	149	162	176	189	199	206	211	213	212	208	201	192	180	167	153	143	142
65	109	112	124	141	158	173	184	192	197	199	198	194	187	177	163	147	130	116	113
70	79.7	84.9	102	123	142	158	170	179	184	186	185	181	173	162	147	129	108	90.1	83.3
75	52.3	60.0	81.5	106	127	144	157	166	172	174	173	169	161	149	133	112	88.7	65.8	55.0
80	27.1	38.4	64.3	91.0	114	132	145	155	160	162	161	157	149	136	120	97.9	72.0	45.5	29.5
85	8.11	22.3	51.4	78.8	102	121	134	144	149	151	150	146	138	125	108	85.9	59.4	29.7	9.52
90	0.58	13.8	42.0	69.0	92.3	111	124	133	139	141	140	135	127	115	98.0	75.9	49.6	20.5	0.58
95	1.66	10.7	34.9	60.6	82.7	101	114	123	129	131	130	125	118	105	88.6	67.0	41.9	16.0	1.32
100	4.28	11.4	31.2	54.5	74.7	91.5	104	113	119	121	120	116	108	96.4	80.5	60.9	37.5	15.2	3.77
105	7.34	14.2	29.7	49.7	68.2	84.0	96.0	104	110	112	111	107	99.4	88.4	73.5	55.5	34.4	17.0	7.03
110	10.7	17.6	29.7	46.6	63.0	77.1	88.3	96.2	101	103	102	98.5	91.4	81.0	67.2	50.7	34.0	20.2	10.6
115	14.1	21.2	30.9	44.7	59.0	70.9	81.2	88.7	93.3	95.1	94.3	90.6	84.0	74.1	62.2	48.6	34.9	23.6	13.8
120	17.4	24.8	32.9	43.8	55.8	66.2	74.8	81.2	85.5	87.2	86.4	82.9	76.6	68.4	58.9	47.6	36.3	27.0	16.5
125	20.3	28.1	35.2	43.8	53.7	63.0	70.0	75.4	78.8	80.1	79.4	76.5	71.6	64.7	56.7	47.2	37.8	29.9	18.8
130	22.8	30.7	37.4	44.3	52.2	60.1	65.9	70.6	73.6	74.8	74.2	71.7	67.5	62.2	54.9	47.1	39.6	32.8	20.6
135	24.7	31.6	39.6	45.1	51.3	57.7	62.9	66.4	69.1	70.1	69.6	67.5	63.9	59.6	53.6	47.3	41.4	35.6	22.5
140	26.2	34.0	41.5	45.9	50.8	55.8	60.1	63.2	65.1	66.0	65.6	63.8	61.4	57.3	52.6	47.6	42.7	37.5	24.0
145	27.4	36.2	43.1	46.7	50.4	54.2	57.6	60.2	62.1	62.8	62.5	61.1	58.7	55.5	51.8	48.1	43.3	39.0	25.3
150	28.9	38.1	44.0	47.4	50.2	53.0	55.5	57.6	58.9	59.6	59.3	58.2	56.5	54.0	51.3	48.3	44.4	39.8	26.7
155	28.3	36.7	43.1	47.9	50.0	52.1	53.9	55.3	56.3	56.8	56.6	55.8	54.6	52.8	50.8	45.9	44.4	38.8	27.3
160	27.2	31.0	41.4	47.0	49.8	51.2	52.5	53.5	54.1	54.5	54.4	53.8	52.9	51.5	47.0	43.8	40.0	34.6	27.0
165	26.5	25.7	33.3	44.8	47.8	50.2	51.1	51.6	52.0	52.2	52.1	51.8	51.1	44.4	40.5	36.6	33.2	30.2	25.8
170	26.6	24.5	25.7	33.5	40.7	44.8	47.0	48.8	49.6	50.1	50.0	47.2	39.7	34.4	34.4	32.3	31.0	27.5	25.3
175	34.8	33.8	31.7	31.0	34.4	35.2	36.8	38.1	44.3	45.6	32.0	24.0	28.6	32.8	32.8	34.6	33.0	32.3	31.6
180	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.02	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.03

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	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342		
5	341	341	341	342	342	342	342	343	343	343	342	342	342	342	341	341	340		
10	337	337	338	339	340	340	341	341	341	341	341	340	339	338	338	337	336		
15	329	331	332	333	335	336	336	337	337	337	336	335	334	333	331	330	329		
20	319	321	323	325	327	329	330	331	331	331	330	328	326	324	322	320	318		
25	306	309	311	314	317	319	321	322	323	322	321	318	316	313	310	307	305		
30	290	293	297	301	305	308	310	312	312	312	310	307	303	300	296	292	289		
35	272	276	281	286	291	295	298	300	300	299	297	293	289	284	279	274	270		
40	251	255	262	268	275	280	284	287	287	286	283	278	273	266	260	254	249		
45	227	233	241	249	258	264	269	272	273	272	268	263	256	248	239	232	226		
50	202	209	219	230	240	248	254	257	258	257	253	246	238	228	217	208	200		
55	175	184	197	210	222	231	238	242	243	241	237	229	220	208	195	183	174		
60	148	159	174	190	204	215	222	227	228	226	221	213	202	188	173	158	146		
65	119	135	152	171	186	199	207	212	213	211	206	197	185	169	152	134	119		
70	91.4	110	133	153	170	183	192	198	199	197	191	182	168	152	132	111	91.2		
75	65.1	88.6	114	137	155	169	178	184	185	183	177	167	154	137	114	89.5	65.8		
80	42.2	69.9	98.2	123	142	156	165	171	172	170	164	154	141	122	98.9	71.7	44.0		
85	24.9	55.3	84.9	110	130	144	153	158	160	158	152	143	129	110	86.0	57.7	27.8		
90	15.4	45.2	74.4	99.1	119	133	142	147	149	147	142	132	118	99.1	75.5	47.8	18.7		
95	12.3	38.7	66.1	89.8	109	122	132	137	139	137	131	121	108	89.9	67.2	41.1	15.1		
100	12.9	34.8	59.6	81.6	99.5	113	122	127	128	126	121	112	98.9	81.8	60.6	36.7	14.7		
105	15.3	32.9	54.6	74.7	91.3	104	112	117	119	117	112	103	90.8	74.8	55.3	34.3	16.4		
110	18.6	33.0	50.9	68.9	84.0	95.5	104	108	110	108	103	94.9	83.5	68.8	51.4	33.6	19.2		
115	22.0	34.0	48.9	64.0	77.6	88.1	95.5	99.8	101	99.5	95.0	87.5	77.0	63.8	48.8	34.0	22.7		
120	25.3	35.6	47.8	60.5	72.0	81.4	88.1	92.1	93.2	91.7	87.6	80.8	71.3	59.9	47.4	35.1	26.1		
125	28.1	37.4	47.4	58.0	67.6	75.4	81.3	84.9	86.0	84.6	80.9	74.8	66.8	57.2	46.7	36.7	29.3		
130	30.6	39.1	47.4	56.1	64.1	70.7	75.6	78.6	79.4	78.3	75.1	70.0	63.3	55.2	46.5	38.7	31.9		
135	33.8	40.6	47.6	54.6	61.1	66.7	70.8	73.3	74.0	73.0	70.3	66.0	60.4	53.7	46.7	40.5	34.3		
140	36.2	41.6	47.8	53.5	58.7	63.2	66.6	68.6	69.2	68.4	66.1	62.6	58.0	52.6	47.2	42.0	36.5		
145	38.5	42.6	46.8	52.5	56.7	60.2	62.8	64.5	65.0	64.3	62.5	59.7	56.1	51.9	47.6	43.2	37.5		
150	41.7	43.3	47.3	51.6	54.9	57.6	59.6	61.0	61.3	60.9	59.4	57.4	54.5	51.4	48.1	44.0	38.4		
155	41.2	44.2	46.2	48.2	53.2	55.2	56.8	57.8	58.1	57.8	56.8	55.3	53.0	50.9	48.6	44.8	39.3		
160	34.9	39.7	42.3	45.5	48.5	53.1	54.3	55.1	55.3	55.2	54.6	53.6	51.6	50.4	49.0	45.6	40.2		
165	28.2	34.2	36.3	37.9	41.4	44.6	51.2	52.6	53.0	52.7	52.3	52.1	50.1	50.0	49.5	46.5	41.1		
170	25.8	27.9	31.9	34.3	34.8	34.8	46.1	49.9	50.7	50.2	50.0	50.6	48.6	49.5	49.9	47.3	42.0		
175	31.6	31.7	31.4	25.1	34.7	22.1	40.9	47.3	48.5	47.7	47.7	49.1	47.1	49.0	50.4	48.1	42.9		
180	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.02	9.03	9.03	9.03	9.03	9.03	9.03	9.03	9.03		

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 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

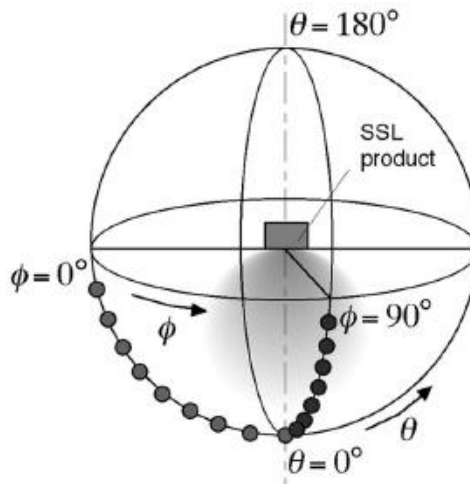
The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as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