

LM-79-19 TEST REPORT

for

GREEN CREATIVE LTD

Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, KL,
Hong Kong

LED Tube

Model: 15T8/4F/8CCTS/UEB/C

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Report No.: HZ25080001c

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

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Sep. 17, 2025

Approved by:



April Zou

Manager: April Zou
Sep. 17, 2025

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

TEST SUMMARY

Tested Model	15T8/4F/8CCTS/UEB/C 3000K Setting	15T8/4F/8CCTS/UEB/C 3500K Setting	15T8/4F/8CCTS/UEB/C 4000K Setting
Luminous Efficacy (Lumens /Watt)	145.4	153.4	162.3
Total Luminous Flux (Lumens)	2066.7	2156.9	2252.1
Power (Watts)	14.21	14.06	13.88
Power Factor	0.9749	0.9755	0.9762
CCT (K)	3076	3568	4153
CRI	82.9	85.3	86.4
Stabilization Time (Light & Power)	50 mins	50 mins	50 mins
Note	3000K	3500K	4000K

Tested Model	15T8/4F/8CCTS/UEB/C 5000K Setting	15T8/4F/8CCTS/UEB/C 6500K Setting
Luminous Efficacy (Lumens /Watt)	162.4	154.2
Total Luminous Flux (Lumens)	2261.7	2176.6
Power (Watts)	13.93	14.12
Power Factor	0.9760	0.9752
CCT (K)	5142	6376
CRI	86.5	85.0
Stabilization Time (Light & Power)	50 mins	50 mins
Note	5000K	6500K

Table 1: Executive Data Summary

Test specifications:

Date of Receipt	: Aug. 01, 2025
Date of Test	: Sep. 12, 2025
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	: IESNA LM-79-2019 Approved Method: 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

LM-79-19 TEST REPORT.....	1
TEST SUMMARY	2
SAMPLE PHOTO	5
TEST RESULTS (3000K Setting)	6
Sphere-Spectroradiometer Method.....	6
Spectral Power Distribution - Sphere Spectroradiometer Method	7
Chromaticity Diagram - Sphere Spectroradiometer Method.....	8
Nominal CCT Quadrangles – Sphere Spectroradiometer Method	9
Color Rendition Report – Sphere Spectroradiometer Method	10
Goniophotometer Method	11
Zonal Lumen Tabulation- Goniophotometer Method	12
Illuminance Plots- Goniophotometer Method	13
Luminous Intensity Distribution Plots- Goniophotometer Method.....	14
Luminous Intensity Data- Goniophotometer Method	15
TEST RESULTS (3500K Setting)	17
Sphere-Spectroradiometer Method.....	17
Spectral Power Distribution - Sphere Spectroradiometer Method	18
Chromaticity Diagram - Sphere Spectroradiometer Method.....	19
Nominal CCT Quadrangles – Sphere Spectroradiometer Method	20
Color Rendition Report – Sphere Spectroradiometer Method	21
TEST RESULTS (4000K Setting)	22
Sphere-Spectroradiometer Method.....	22
Spectral Power Distribution - Sphere Spectroradiometer Method	23
Chromaticity Diagram - Sphere Spectroradiometer Method.....	24
Nominal CCT Quadrangles – Sphere Spectroradiometer Method	25
Color Rendition Report – Sphere Spectroradiometer Method	26
TEST RESULTS (5000K Setting)	27
Sphere-Spectroradiometer Method.....	27

Spectral Power Distribution - Sphere Spectroradiometer Method	28
Chromaticity Diagram - Sphere Spectroradiometer Method.....	29
Nominal CCT Quadrangles – Sphere Spectroradiometer Method	30
Color Rendition Report – Sphere Spectroradiometer Method	31
TEST RESULTS (6500K Setting)	32
Sphere-Spectroradiometer Method.....	32
Spectral Power Distribution - Sphere Spectroradiometer Method	33
Chromaticity Diagram - Sphere Spectroradiometer Method.....	34
Nominal CCT Quadrangles – Sphere Spectroradiometer Method	35
Color Rendition Report – Sphere Spectroradiometer Method	36
EQUIPMENT LIST	37
TEST METHODS	37
Seasoning of SSL Product.....	37
Sphere-Spectroradiometer Method- Photometric and Electrical Measurements.....	37
Goniophotometer Method	38
Photometric and Electrical Measurements	38
Color Characteristics Measurements.....	38

SAMPLE PHOTO

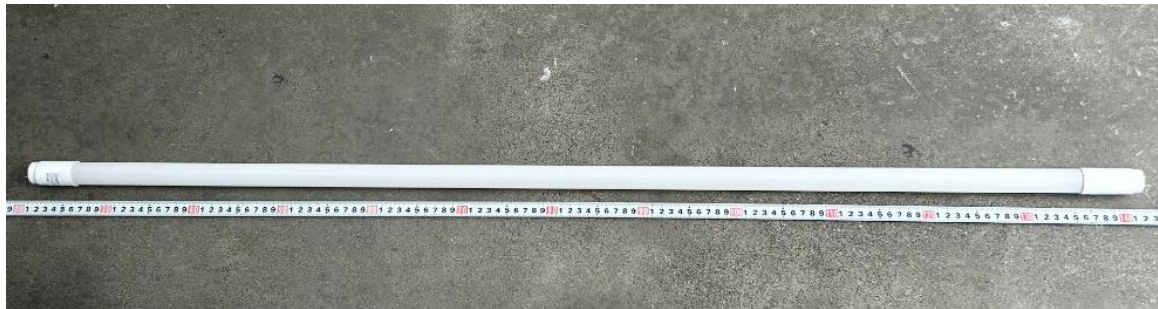


Figure 1- Overview of the sample

Equipment Under Test(EUT)

Name	: LED Tube
Model	: 15T8/4F/8CCTS/UEB/C
Electrical Ratings	: 120-277V, 50/60Hz, 15W
Product Description	: Color- Tunable 3000K/3500K/4000K/5000K/6500K
Manufacturer	: GREEN CREATIVE LTD
Address	: Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, KL, Hong Kong

TEST RESULTS (3000K Setting)

Test ambient temperature was 26.0 °C.

Base orientation was base up Test was conducted without a dimmer in the circuit.

The stabilization time of the sample was 50 minutes, and the total operating time including stabilization was 55 minutes.

Sphere-Spectroradiometer Method

Parameter	Result	
Test Voltage (V)	120.0	277.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.121	0.058
Power Factor	0.9749	0.9077
Test Power (W)	14.21	14.53
THD A%	17.79	19.57
Luminous Efficacy (lm/W)	145.4	143.0
Total Luminous Flux (lm)	2066.7	2077.3
Color Rendering Index (CRI)	82.9	
R9	8.5	
Correlated Color Temperature (CCT)(K)	3076	
Chromaticity Chroma x	0.4303	
Chromaticity Chroma y	0.3997	
Chromaticity Chroma u	0.2482	
Chromaticity Chroma v	0.3458	
Duv	-0.0008	
Chromaticity Chroma u'	0.2482	
Chromaticity Chroma v'	0.5186	

Special Color Rendering Indices	
R1	81.2
R2	90.4
R3	96.5
R4	81.4
R5	81.5
R6	88.2
R7	83.3
R8	60.2
R9	8.5
R10	78.4
R11	81.2
R12	71.4
R13	83.3
R14	98.6

Table 2: Test data per Sphere-Spectroradiometer Method

Note: According to CIE 1976 (u', v') diagram, $u' = u = 4x/(-2x+12y+3)$, $v' = 3v/2 = 9y/(-2x+12y+3)$.

Spectral Power Distribution - Sphere Spectroradiometer Method

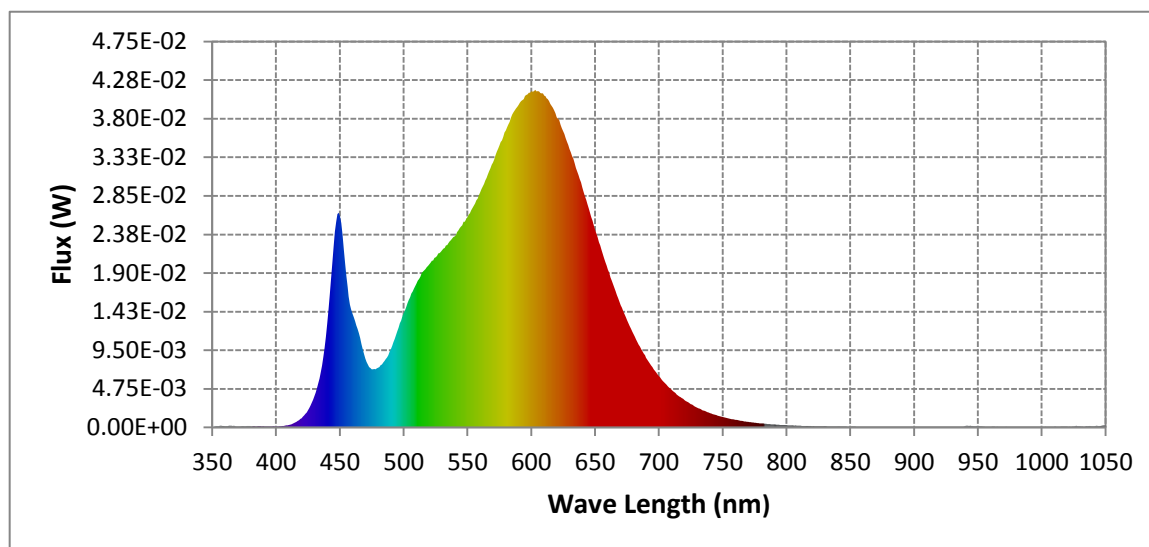
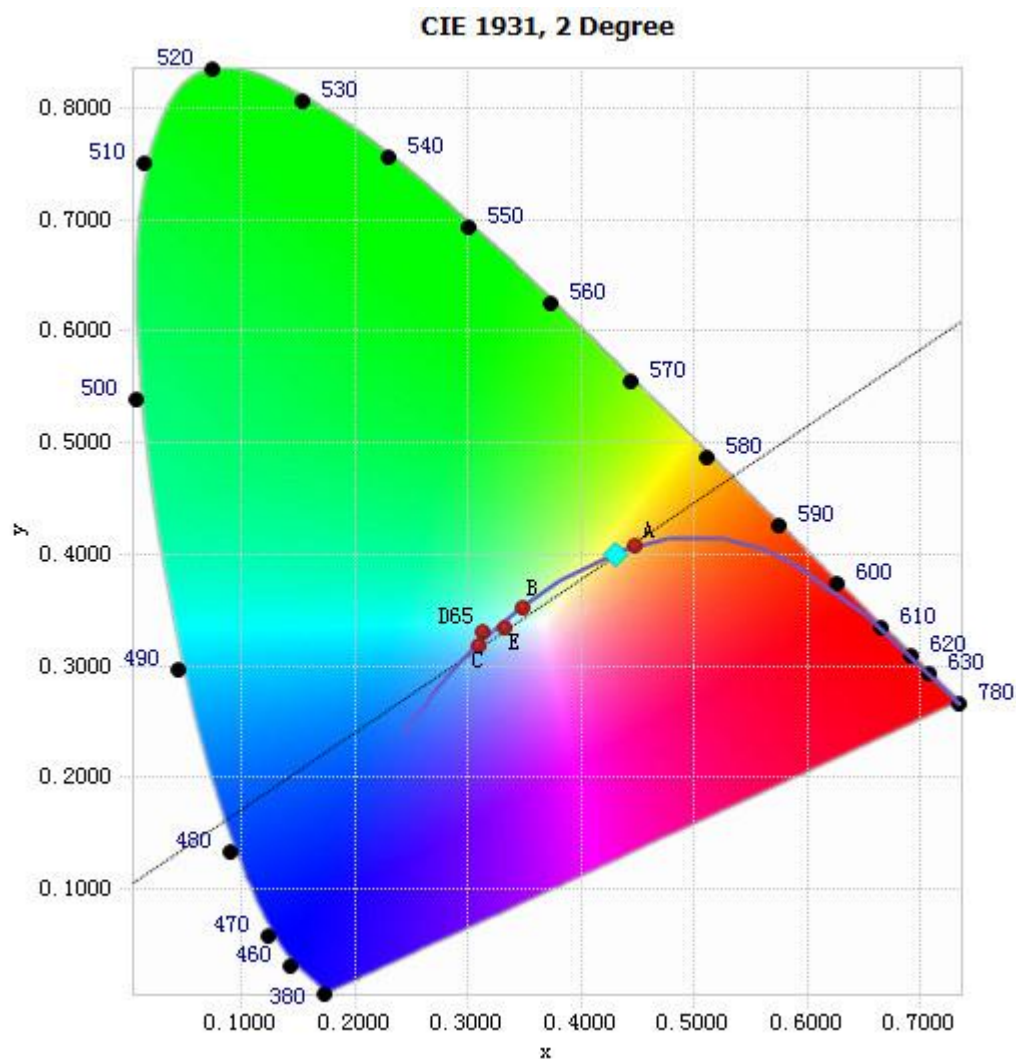


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	1.57E-04	485	8.18E-03	590	3.97E-02	695	7.41E-03
385	1.16E-04	490	9.63E-03	595	4.08E-02	700	6.33E-03
390	1.23E-04	495	1.19E-02	600	4.14E-02	705	5.41E-03
395	8.63E-05	500	1.41E-02	605	4.14E-02	710	4.62E-03
400	8.73E-05	505	1.60E-02	610	4.08E-02	715	3.93E-03
405	1.57E-04	510	1.77E-02	615	3.98E-02	720	3.37E-03
410	3.06E-04	515	1.91E-02	620	3.82E-02	725	2.86E-03
415	6.12E-04	520	2.01E-02	625	3.64E-02	730	2.44E-03
420	1.11E-03	525	2.09E-02	630	3.43E-02	735	2.06E-03
425	2.12E-03	530	2.18E-02	635	3.19E-02	740	1.76E-03
430	3.85E-03	535	2.26E-02	640	2.95E-02	745	1.52E-03
435	6.81E-03	540	2.35E-02	645	2.70E-02	750	1.28E-03
440	1.27E-02	545	2.47E-02	650	2.43E-02	755	1.08E-03
445	2.22E-02	550	2.58E-02	655	2.18E-02	760	9.43E-04
450	2.60E-02	555	2.73E-02	660	1.94E-02	765	8.02E-04
455	1.86E-02	560	2.89E-02	665	1.72E-02	770	6.80E-04
460	1.40E-02	565	3.07E-02	670	1.50E-02	775	5.76E-04
465	1.16E-02	570	3.26E-02	675	1.32E-02	780	5.05E-04
470	8.49E-03	575	3.47E-02	680	1.15E-02		
475	7.15E-03	580	3.65E-02	685	9.93E-03		
480	7.35E-03	585	3.85E-02	690	8.57E-03		

Table 3: Spectral Power Distribution Numerical Data per Sphere - Spectroradiometer Method

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4303, 0.3997)

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

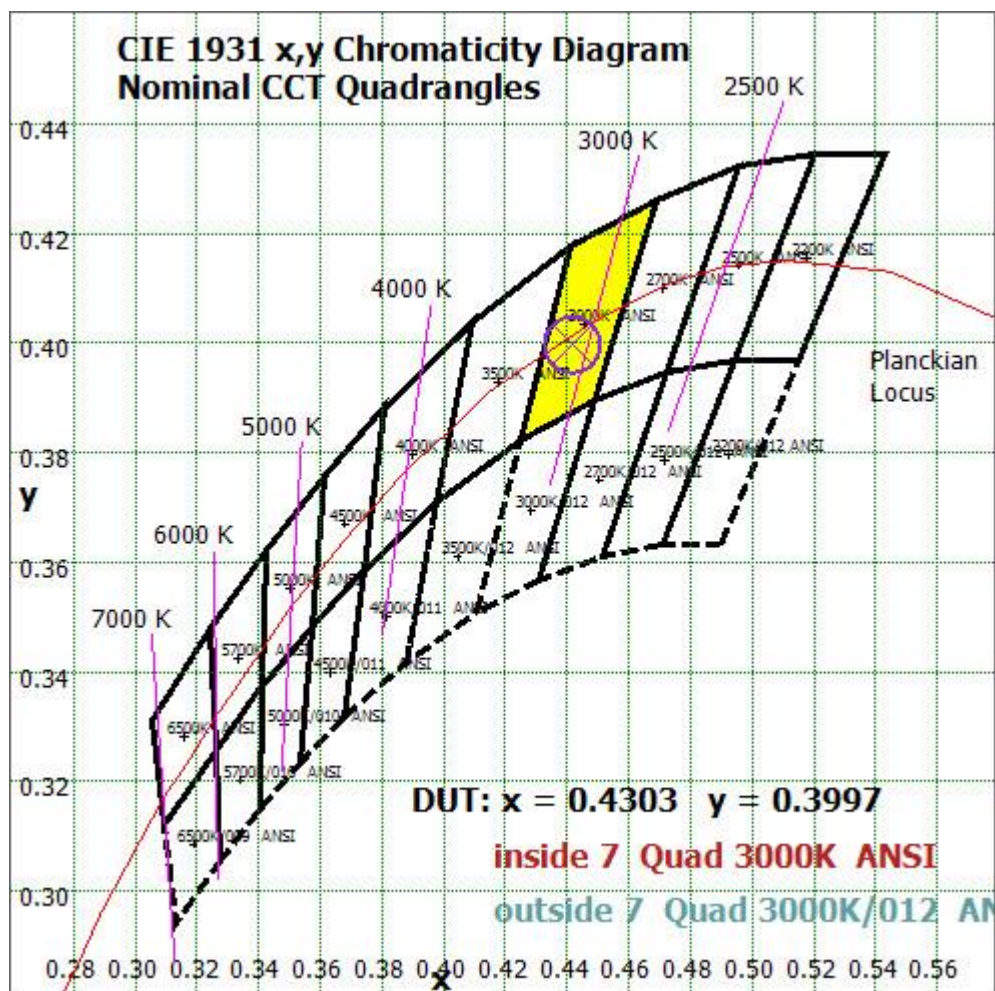


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

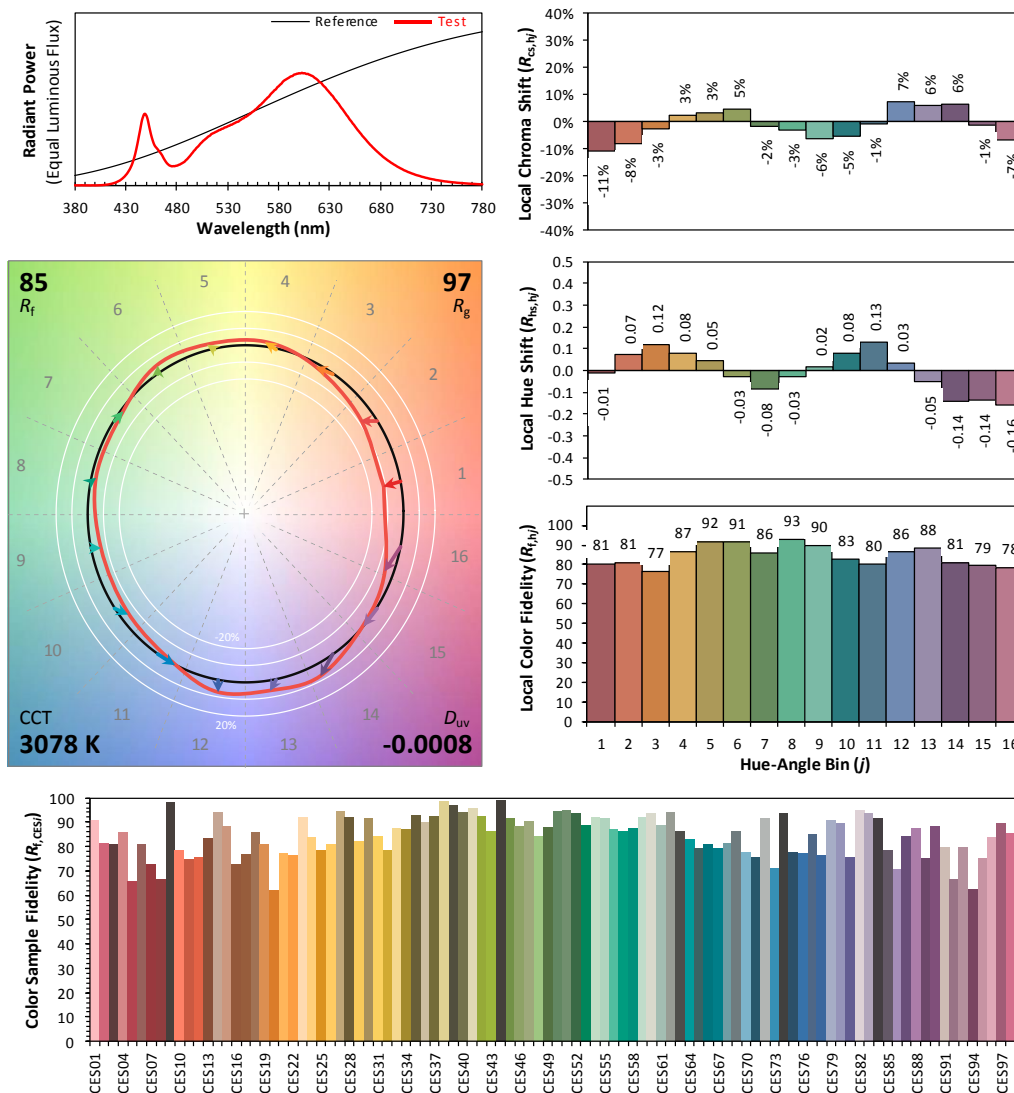
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/09/12

Model: 15T8/4F/8CCTS/UEB/C



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

x 0.4303
 y 0.3997
 u' 0.2482
 v' 0.5186

CIE 13.3-1995
(CRI)

R_a 83
 R_g 9

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.

Goniophotometer Method

Test ambient temperature was 25.1 °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)	0.122
Power Factor	0.9757
Power (W)	14.25
Luminous Efficacy (lm/W)	146.3
Total Luminous Flux (lm)	2084.8
Beam Angle (°)	116.9 (0°-180°) / 228.0 (90°-270°)
Center Beam Candle Power (cd)	333
Maximum Beam Candle Power (cd)	333.5 (At: C=270.0, Gamma=7.0)
Spacing Criteria	1.28 (0°-180°) / 1.48 (90°-270°)
Zonal Lumens in the 0 °-60 °Zone	42.40%
Zonal Lumens in the 60 °-90 °Zone	27.65%
Zonal Lumens in the 90 °-120 °Zone	17.85%
Zonal Lumens in the 120 °-180 °Zone	12.10%

Table 4: Test data per Goniophotometer Method

Zonal Lumen Tabulation- Goniophotometer Method

$\gamma(^{\circ})$	Lumens	% Total
0- 10	31.627	1.52%
10- 20	92.194	4.42%
20- 30	144.876	6.95%
30- 40	185.348	8.89%
40- 50	210.582	10.10%
50- 60	219.402	10.52%
60- 70	212.917	10.21%
70- 80	194.203	9.32%
80- 90	169.219	8.12%
90-100	145.553	6.98%
100-110	123.793	5.94%
110-120	102.783	4.93%
120-130	83.025	3.98%
130-140	65.118	3.12%
140-150	48.638	2.33%
150-160	32.795	1.57%
160-170	17.357	0.83%
170-180	5.336	0.26%
Total	2084.8	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	884.029	42.40%
60- 90	576.339	27.65%
0-90	1460.368	70.05%
90- 180	624.398	29.95%
0- 180	2084.8	100%

Table 5: Zonal Lumen

Illuminance Plots- Goniophotometer Method

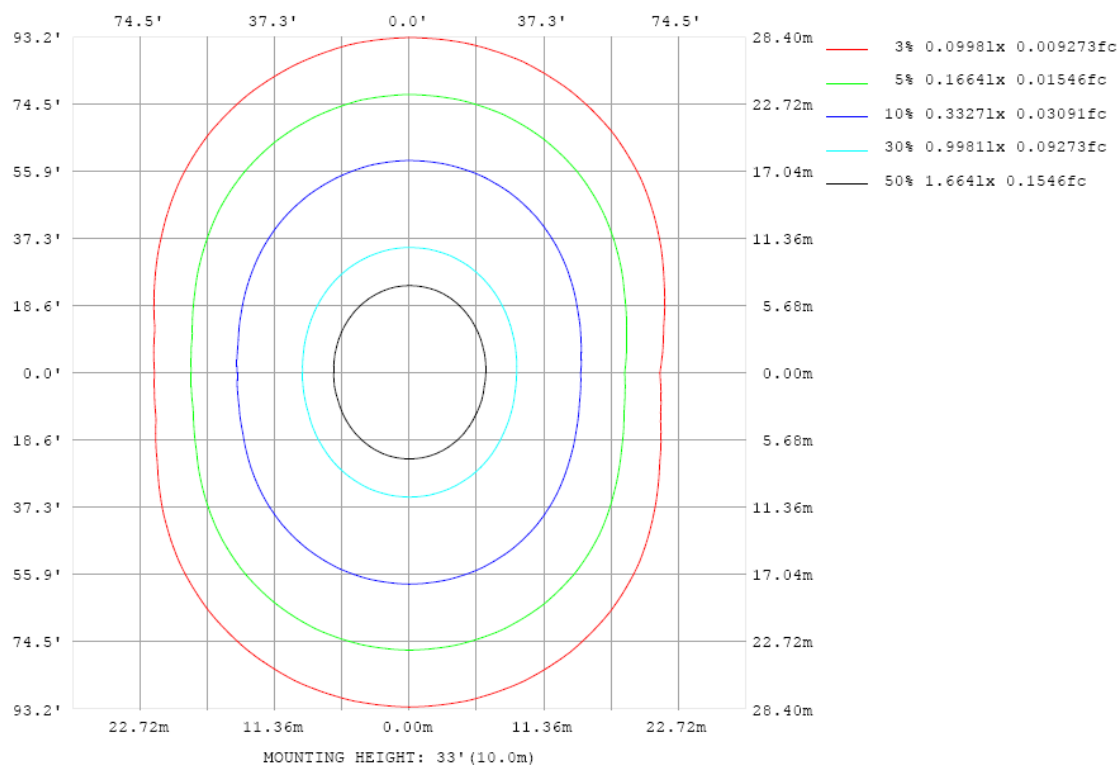


Chart 5: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

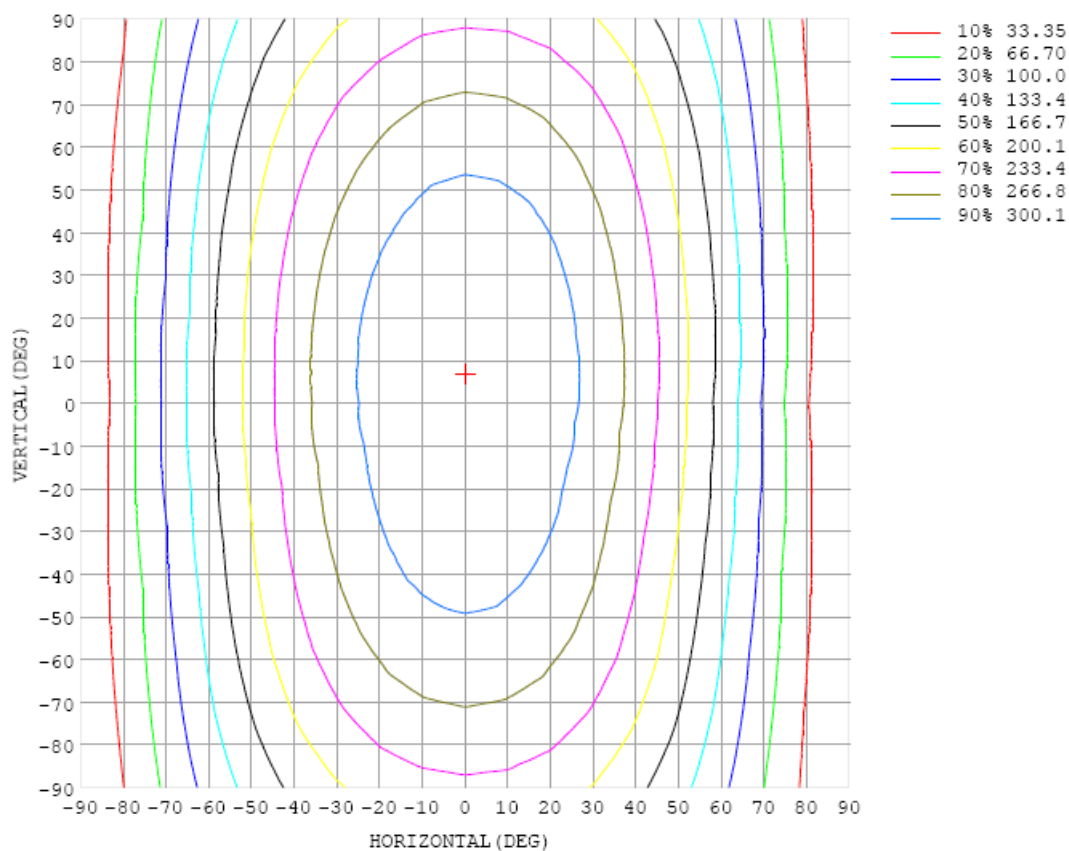


Chart 6: Isocandela Plot

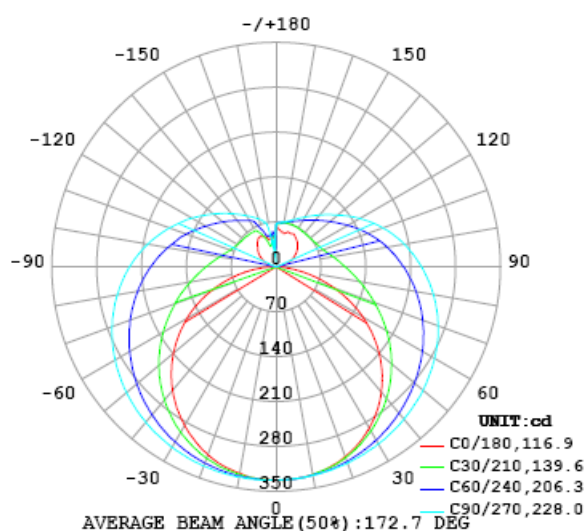


Chart 7: Polar Candela Distribution

Luminous Intensity Data- Goniophotometer Method

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333
5	332	332	332	332	332	332	332	332	332	332	331	332	331	332	332	332	331	331	331
10	329	329	329	329	329	330	330	331	330	330	330	330	329	328	328	328	328	327	327
15	323	323	323	324	324	326	327	328	328	328	328	327	326	324	322	321	321	320	321
20	315	314	315	317	318	321	323	324	325	326	325	323	322	319	316	313	312	311	312
25	304	303	305	307	310	315	318	320	322	323	322	320	316	312	309	304	301	301	300
30	291	288	293	296	301	307	312	316	319	319	318	315	310	305	299	293	288	288	286
35	275	273	278	282	290	299	306	311	314	315	314	310	304	296	288	280	273	272	270
40	255	255	261	268	278	289	298	305	309	310	309	304	296	287	276	266	256	253	251
45	234	235	242	252	266	279	290	299	304	305	303	298	288	277	264	251	238	233	231
50	210	212	222	235	252	269	282	292	298	299	297	291	280	266	250	234	219	211	209
55	184	187	200	217	238	257	273	284	291	292	290	283	271	255	237	217	199	188	185
60	156	162	177	199	224	246	263	276	284	286	283	275	261	243	223	200	178	163	161
65	127	134	154	181	210	234	254	268	275	278	275	266	251	232	209	182	156	138	134
70	96.0	107	132	164	196	222	243	258	266	269	266	257	241	221	195	166	135	112	106
75	65.4	80.1	111	147	182	211	233	248	257	260	256	247	230	209	182	150	116	86.9	77.8
80	36.5	57.1	92.5	132	169	199	222	238	246	249	246	236	219	197	169	135	98.3	64.4	50.2
85	10.8	38.1	77.6	119	157	187	210	227	235	238	235	225	208	186	157	122	83.7	45.7	24.3
90	0.75	26.7	67.3	108	145	175	199	215	224	227	224	214	197	174	145	111	72.0	33.1	3.87
95	4.70	21.9	60.0	98.7	135	164	187	204	212	215	212	202	186	163	135	101	64.4	26.7	1.83
100	9.75	22.3	54.5	90.5	125	154	176	192	201	203	200	191	175	153	125	92.5	58.1	24.6	5.78
105	15.4	25.0	51.7	83.7	116	143	164	180	188	190	187	179	163	142	116	85.3	53.6	25.9	10.8
110	21.4	29.5	50.9	78.2	107	132	153	167	175	178	174	166	151	132	107	79.2	51.9	29.0	16.0
115	27.4	34.4	51.5	75.0	99.3	122	141	154	162	164	161	153	140	122	99.1	75.2	51.9	33.2	21.6
120	33.2	39.3	53.0	72.4	92.8	113	130	142	148	151	148	141	129	112	92.3	72.2	52.8	37.5	26.8
125	38.5	44.1	55.0	70.6	88.0	105	119	130	136	138	136	129	118	104	87.1	70.2	54.3	41.8	31.8
130	43.4	48.7	57.4	69.6	83.8	97.8	110	119	124	126	124	118	109	96.9	82.8	68.8	56.0	46.1	36.8
135	47.5	53.0	59.7	69.0	80.3	92.0	102	110	114	115	114	109	101	90.9	79.4	68.0	58.0	50.0	40.8
140	51.3	56.6	62.0	68.9	77.6	86.9	95.0	101	104	105	104	100	94.1	85.9	76.5	67.6	60.0	53.6	45.3
145	54.1	59.9	64.0	69.0	75.4	82.6	88.9	93.6	96.2	97.2	96.0	93.0	87.9	81.4	74.6	68.0	61.7	57.1	50.3
150	57.2	62.5	65.6	69.8	74.2	79.0	83.7	87.1	89.1	89.7	88.9	86.6	82.7	77.7	72.8	68.0	63.5	59.7	53.1
155	56.9	65.1	67.2	70.1	72.6	76.0	79.3	81.6	83.0	83.5	82.9	81.2	78.4	74.9	71.2	68.3	64.5	60.3	52.4
160	57.3	66.9	68.3	70.1	71.4	73.6	75.6	77.1	77.8	78.1	77.7	76.6	74.8	72.6	71.0	67.9	62.7	56.2	50.1
165	54.4	67.6	69.1	70.1	71.0	71.7	72.8	73.4	73.9	74.0	73.7	73.0	72.0	70.9	70.0	63.3	54.7	49.9	44.1
170	55.3	65.8	68.5	69.5	70.3	70.5	70.6	70.9	71.1	71.1	70.9	70.9	70.8	69.4	63.2	54.2	48.5	46.7	45.7
175	58.4	62.6	65.4	67.6	68.8	69.3	69.3	69.3	69.3	69.3	69.6	69.3	67.1	62.5	55.7	48.3	43.3	42.6	44.4
180	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2

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	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333		
5	331	331	332	332	332	332	333	333	333	333	333	333	333	333	333	332	332		
10	328	328	329	330	330	331	332	333	333	333	333	333	331	330	330	330	329		
15	321	323	324	326	327	329	331	332	332	332	332	331	329	327	326	325	324		
20	313	315	318	320	323	326	328	330	330	330	329	328	325	322	320	318	316		
25	302	304	309	313	317	321	324	327	328	328	327	324	320	316	311	308	306		
30	289	292	298	304	310	315	320	324	325	325	323	319	313	307	301	296	293		
35	273	278	285	293	301	309	315	320	321	320	318	312	306	297	289	282	277		
40	255	262	271	282	292	301	309	315	317	316	312	305	297	286	275	266	259		
45	235	244	256	269	282	293	302	309	311	310	306	297	286	273	260	248	239		
50	213	225	239	255	270	284	294	302	305	304	299	289	276	260	243	228	217		
55	190	204	221	241	259	274	286	295	298	297	291	280	264	246	226	207	192		
60	165	182	203	226	246	264	277	287	290	289	282	270	253	231	208	184	167		
65	140	161	185	211	234	253	268	278	282	280	273	260	241	217	189	163	140		
70	114	140	168	197	222	242	258	269	273	271	263	249	229	202	172	140	112		
75	88.0	119	152	182	209	231	247	258	262	261	253	238	216	188	156	119	85.0		
80	64.1	99.7	136	169	197	219	236	247	252	250	242	226	204	174	140	99.6	60.2		
85	44.1	83.5	122	157	184	208	225	237	240	238	230	214	192	162	126	84.0	40.8		
90	30.6	70.6	110	145	173	196	213	225	229	227	219	203	180	151	114	72.1	29.3		
95	23.4	61.1	99.1	133	161	184	201	213	216	214	206	190	168	139	103	63.1	24.0		
100	21.6	54.3	89.8	123	151	172	188	200	203	201	193	178	157	129	94.4	56.9	23.8		
105	22.7	50.1	82.3	113	140	160	175	187	190	188	180	166	146	119	86.9	53.7	26.1		
110	25.8	48.8	76.3	104	129	149	163	174	177	175	168	155	135	110	81.2	52.5	30.3		
115	29.7	49.0	72.4	96.9	119	138	152	161	164	162	156	143	124	102	77.0	52.8	34.8		
120	33.5	50.3	69.7	90.9	110	127	139	149	152	150	144	132	115	95.6	74.1	54.1	39.3		
125	36.9	52.1	68.0	86.0	103	117	128	137	139	138	132	122	107	90.3	72.2	56.1	43.3		
130	39.5	54.1	67.1	82.1	96.6	109	118	126	128	127	122	113	101	85.9	71.2	58.3	46.8		
135	41.1	56.3	66.7	78.9	90.8	101	109	116	118	117	112	105	94.3	82.5	70.7	60.4	49.2		
140	41.3	57.6	66.0	76.2	85.8	94.4	101	106	108	107	104	97.3	89.0	79.7	70.5	62.3	50.2		
145	40.3	58.9	65.5	73.1	81.9	88.4	93.6	98.1	99.5	98.9	96.1	91.1	84.6	77.4	70.1	63.9	49.4		
150	40.1	58.7	65.4	69.2	76.2	83.1	87.1	90.6	92.0	91.6	89.5	85.8	81.0	75.5	70.1	64.3	47.4		
155	40.2	48.8	57.6	62.8	66.7	74.4	81.8	84.1	85.2	85.3	84.1	81.4	77.9	74.4	68.9	57.6	47.9		
160	40.9	37.6	45.8	51.4	55.5	59.1	65.5	76.6	79.5	79.9	79.1	77.6	75.6	73.7	61.2	48.0	44.9		
165	37.8	34.0	33.3	41.4	46.0	50.6	48.5	57.5	70.6	75.2	74.8	72.5	70.3	60.6	45.6	42.7	43.6		
170	43.4	40.9	39.9	41.4	44.4	49.1	51.4	49.7	43.6	64.4	56.9	53.0	48.1	45.5	43.8	40.8	43.6		
175	45.7	46.4	47.7	51.0	53.6	54.9	55.2	51.3	7.58	51.5	55.0	54.3	52.5	51.8	52.3	51.6	53.5		
180	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2		

Table 7: Luminous Intensity Data

TEST RESULTS (3500K Setting)

Test ambient temperature was 26.0 °C.

Base orientation was base up. Test was conducted without a dimmer in the circuit.

The stabilization time of the sample was 50 minutes, and the total operating time including stabilization was 55 minutes.

Sphere-Spectroradiometer Method

Parameter	Result	
Test Voltage (V)	120.0	277.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.120	0.057
Power Factor	0.9755	0.9062
Test Power (W)	14.06	14.40
THD A%	17.51	19.67
Luminous Efficacy (lm/W)	153.4	150.5
Total Luminous Flux (lm)	2156.9	2166.6
Color Rendering Index (CRI)	85.3	
R9	18.8	
Correlated Color Temperature (CCT)(K)	3568	
Chromaticity Chroma x	0.3985	
Chromaticity Chroma y	0.3804	
Chromaticity Chroma u	0.2355	
Chromaticity Chroma v	0.3373	
Duv	-0.0030	
Chromaticity Chroma u'	0.2355	
Chromaticity Chroma v'	0.5059	

Special Color Rendering Indices	
R1	84.6
R2	92.9
R3	96
R4	83.5
R5	84.8
R6	89.8
R7	84.8
R8	65.7
R9	18.8
R10	82.8
R11	83.2
R12	69.7
R13	86.9
R14	98.6

Table 8: Test data per Sphere-Spectroradiometer Method

Note: According to CIE 1976 (u', v') diagram, $u' = u = 4x/(-2x+12y+3)$, $v' = 3v/2 = 9y/(-2x+12y+3)$.

Spectral Power Distribution - Sphere Spectroradiometer Method

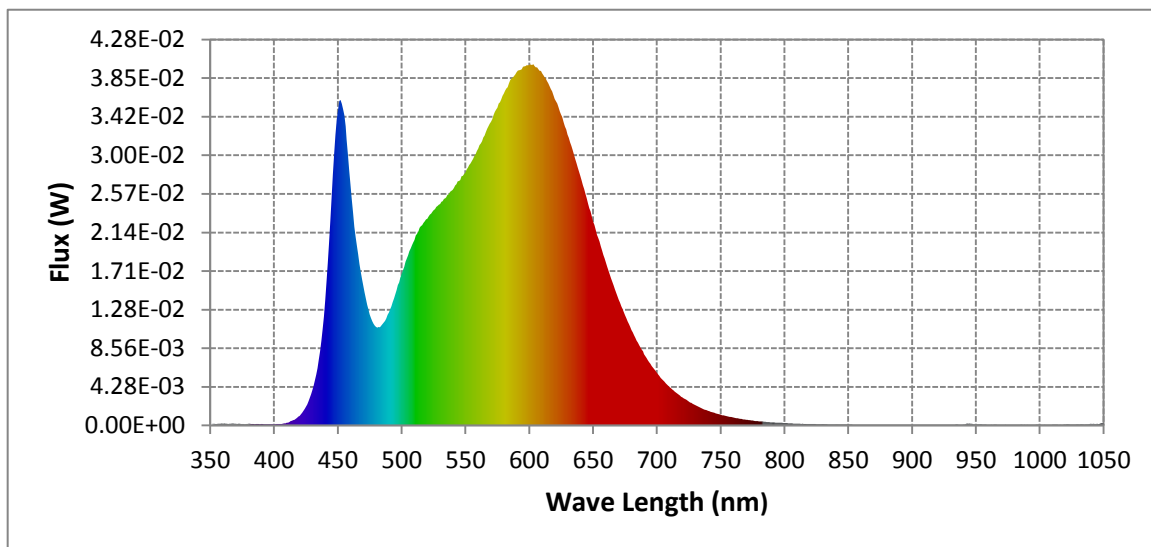
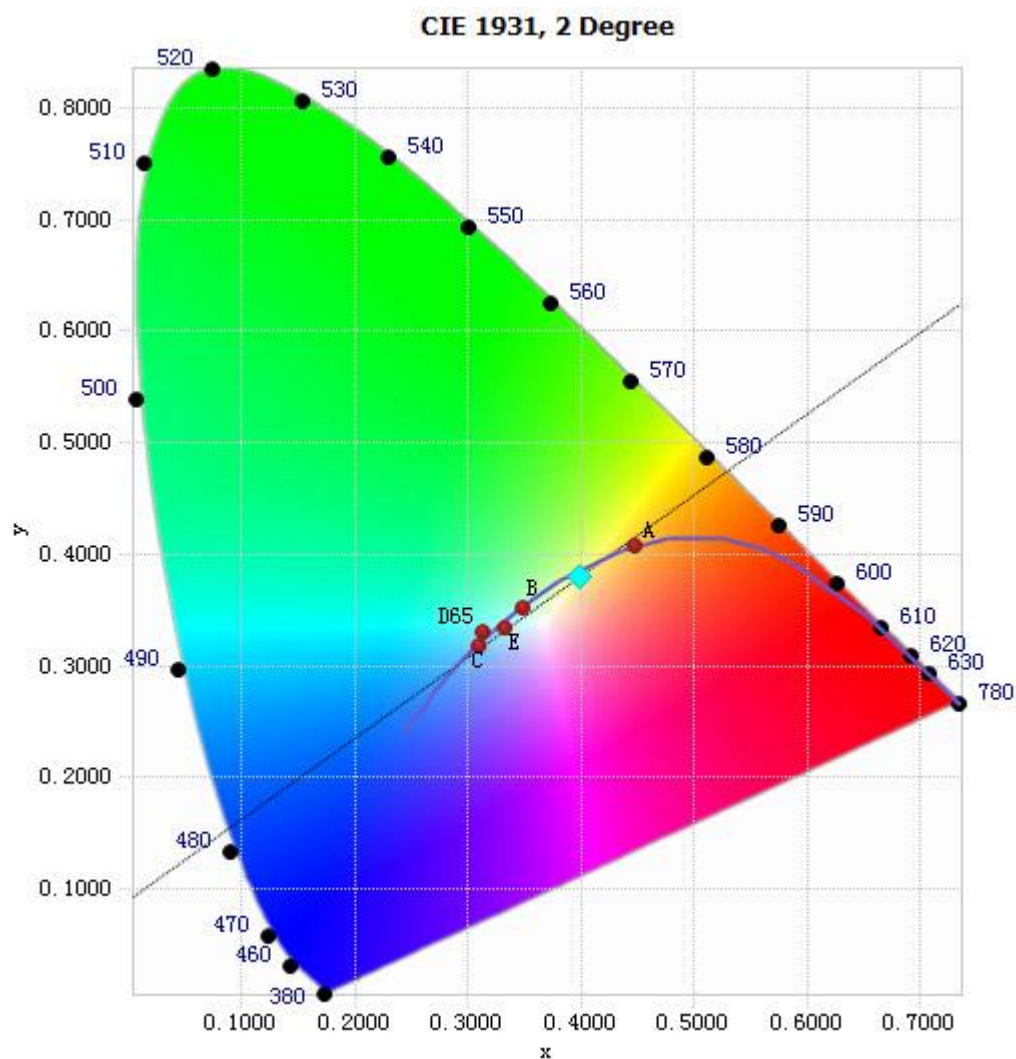


Chart 8: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	2.03E-04	485	1.12E-02	590	3.92E-02	695	6.82E-03
385	1.33E-04	490	1.25E-02	595	3.98E-02	700	5.83E-03
390	1.55E-04	495	1.45E-02	600	4.00E-02	705	4.98E-03
395	1.14E-04	500	1.68E-02	605	3.97E-02	710	4.25E-03
400	1.21E-04	505	1.89E-02	610	3.90E-02	715	3.62E-03
405	1.76E-04	510	2.06E-02	615	3.79E-02	720	3.11E-03
410	2.84E-04	515	2.21E-02	620	3.62E-02	725	2.64E-03
415	5.79E-04	520	2.29E-02	625	3.44E-02	730	2.27E-03
420	1.06E-03	525	2.39E-02	630	3.22E-02	735	1.91E-03
425	2.08E-03	530	2.45E-02	635	3.00E-02	740	1.63E-03
430	3.91E-03	535	2.53E-02	640	2.77E-02	745	1.40E-03
435	7.29E-03	540	2.61E-02	645	2.52E-02	750	1.17E-03
440	1.38E-02	545	2.71E-02	650	2.26E-02	755	1.00E-03
445	2.52E-02	550	2.80E-02	655	2.04E-02	760	8.63E-04
450	3.50E-02	555	2.93E-02	660	1.81E-02	765	7.32E-04
455	3.44E-02	560	3.07E-02	665	1.59E-02	770	6.27E-04
460	2.67E-02	565	3.21E-02	670	1.39E-02	775	5.38E-04
465	1.99E-02	570	3.37E-02	675	1.22E-02	780	4.57E-04
470	1.55E-02	575	3.52E-02	680	1.06E-02		
475	1.23E-02	580	3.68E-02	685	9.18E-03		
480	1.09E-02	585	3.83E-02	690	7.89E-03		

Table 9: Spectral Power Distribution Numerical Data per Sphere - Spectroradiometer Method

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3985, 0.3804)

Chart 9: 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

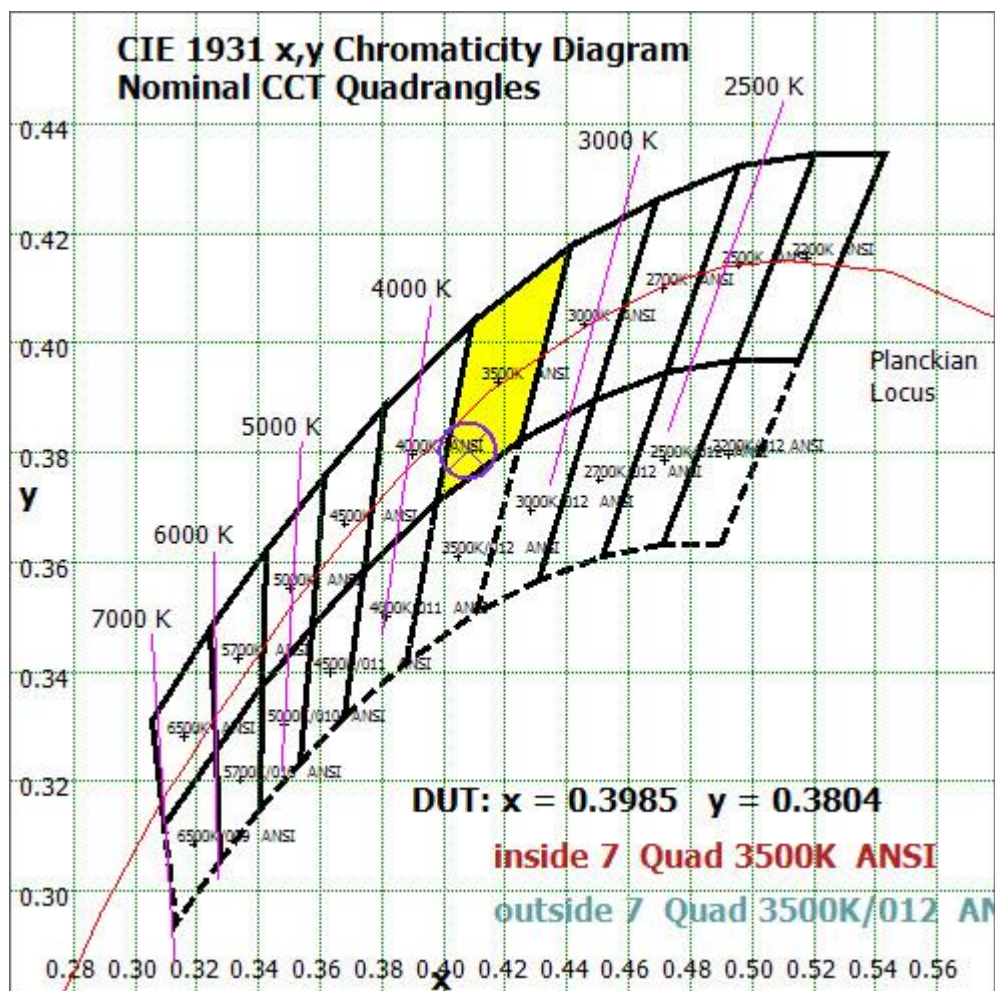


Chart 10: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

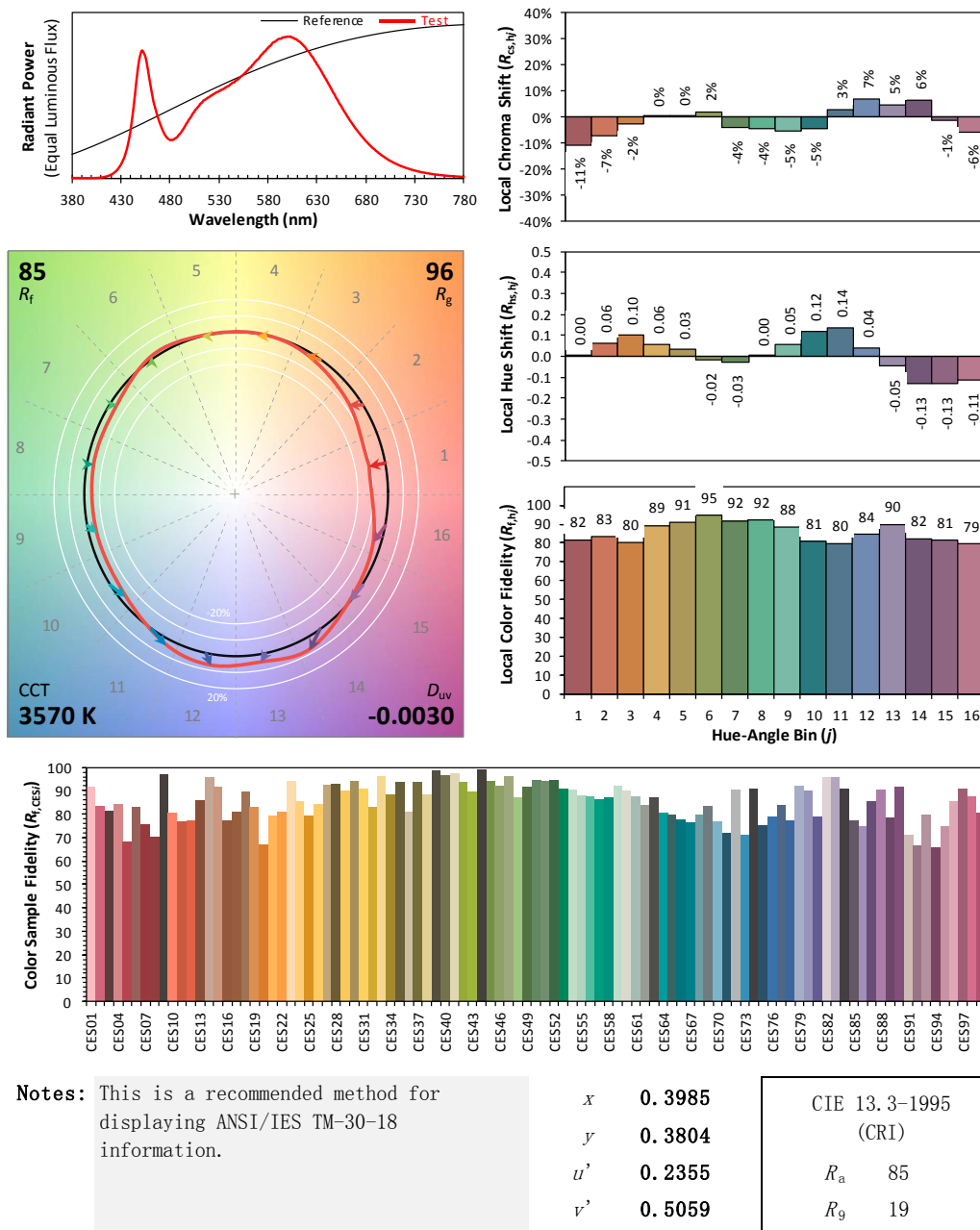
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/09/12

Model: 15T8/4F/8CCTS/UEB/C



Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Chart 11: 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 8 due to rounding.

TEST RESULTS (4000K Setting)

Test ambient temperature was 26.0 °C.

Base orientation was base up. Test was conducted without a dimmer in the circuit.

The stabilization time of the sample was 50 minutes, and the total operating time including stabilization was 55 minutes.

Sphere-Spectroradiometer Method

Parameter	Result	
Test Voltage (V)	120.0	277.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.119	0.057
Power Factor	0.9762	0.9042
Test Power (W)	13.88	14.24
THD A%	17.15	19.76
Luminous Efficacy (lm/W)	162.3	159.3
Total Luminous Flux (lm)	2252.1	2268.6
Color Rendering Index (CRI)	86.4	
R9	24.7	
Correlated Color Temperature (CCT)(K)	4153	
Chromaticity Chroma x	0.3719	
Chromaticity Chroma y	0.3644	
Chromaticity Chroma u	0.2244	
Chromaticity Chroma v	0.3298	
Duv	-0.0033	
Chromaticity Chroma u'	0.2244	
Chromaticity Chroma v'	0.4947	

Special Color Rendering Indices	
R1	86.2
R2	93.8
R3	95.8
R4	84.3
R5	85.9
R6	89.4
R7	86.3
R8	69.5
R9	24.7
R10	84
R11	84
R12	65.2
R13	88.7
R14	98.5

Table 10: Test data per Sphere-Spectroradiometer Method

Note: According to CIE 1976 (u', v') diagram, $u' = u = 4x/(-2x+12y+3)$, $v' = 3v/2 = 9y/(-2x+12y+3)$.

Spectral Power Distribution - Sphere Spectroradiometer Method

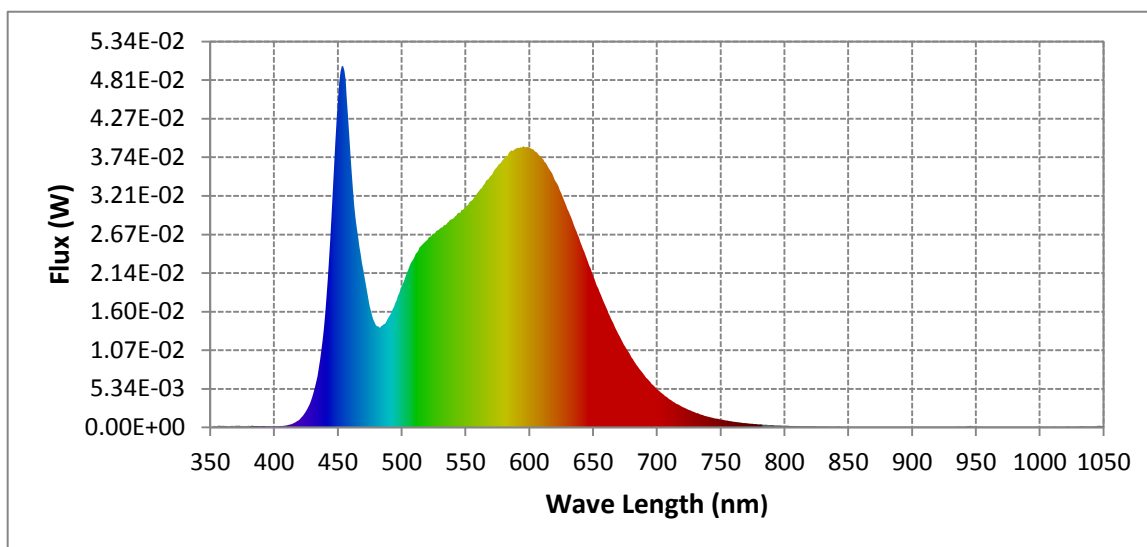
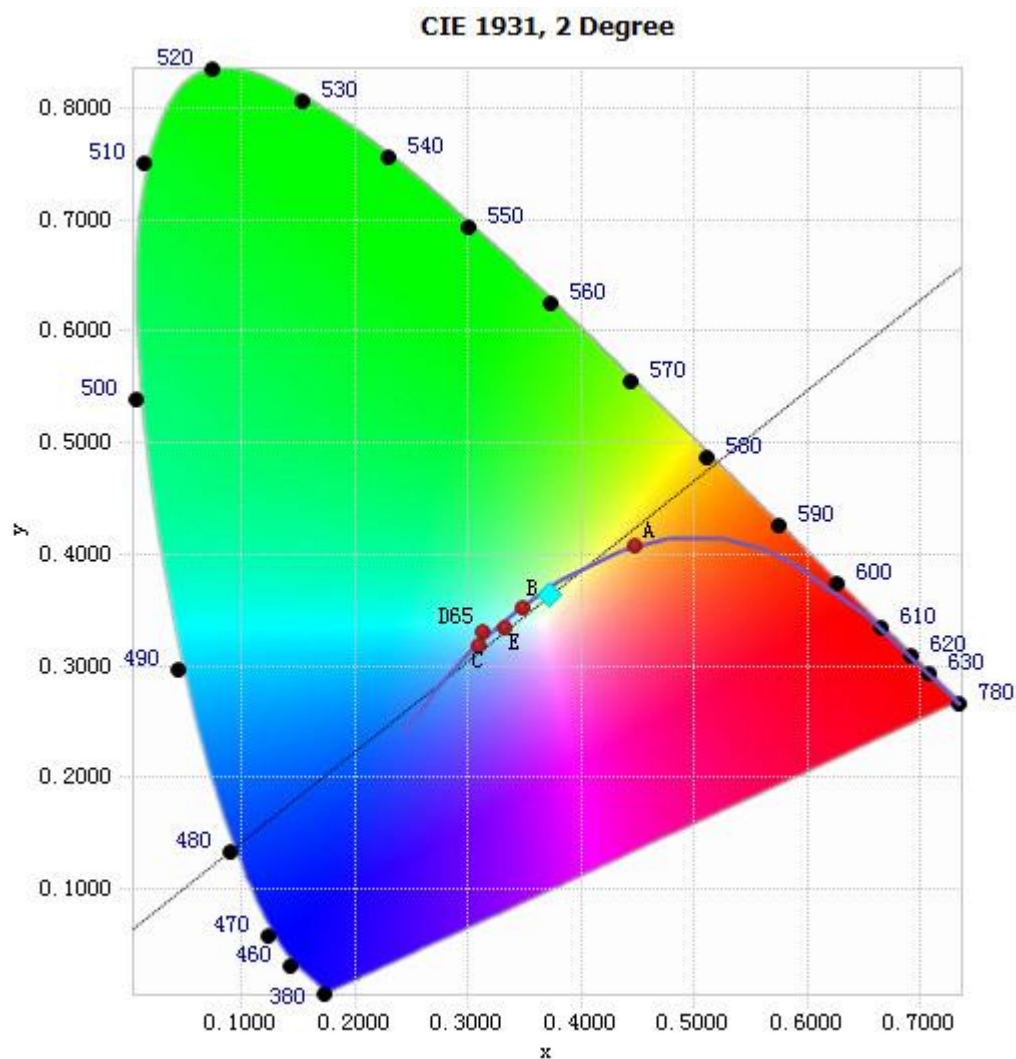


Chart 12: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	2.24E-04	485	1.41E-02	590	3.87E-02	695	6.25E-03
385	2.08E-04	490	1.53E-02	595	3.89E-02	700	5.33E-03
390	1.84E-04	495	1.72E-02	600	3.87E-02	705	4.60E-03
395	1.56E-04	500	1.96E-02	605	3.81E-02	710	3.89E-03
400	1.54E-04	505	2.18E-02	610	3.72E-02	715	3.32E-03
405	1.94E-04	510	2.36E-02	615	3.59E-02	720	2.83E-03
410	2.91E-04	515	2.51E-02	620	3.43E-02	725	2.42E-03
415	5.63E-04	520	2.59E-02	625	3.24E-02	730	2.05E-03
420	1.08E-03	525	2.68E-02	630	3.02E-02	735	1.76E-03
425	2.22E-03	530	2.75E-02	635	2.80E-02	740	1.50E-03
430	4.28E-03	535	2.81E-02	640	2.57E-02	745	1.28E-03
435	8.21E-03	540	2.89E-02	645	2.34E-02	750	1.08E-03
440	1.57E-02	545	2.97E-02	650	2.10E-02	755	9.30E-04
445	2.94E-02	550	3.05E-02	655	1.88E-02	760	7.89E-04
450	4.54E-02	555	3.14E-02	660	1.67E-02	765	6.89E-04
455	4.94E-02	560	3.26E-02	665	1.47E-02	770	5.87E-04
460	3.78E-02	565	3.37E-02	670	1.28E-02	775	5.09E-04
465	2.75E-02	570	3.48E-02	675	1.12E-02	780	4.34E-04
470	2.18E-02	575	3.61E-02	680	9.68E-03		
475	1.68E-02	580	3.71E-02	685	8.40E-03		
480	1.41E-02	585	3.82E-02	690	7.27E-03		

Table 11: Spectral Power Distribution Numerical Data per Sphere - Spectroradiometer Method

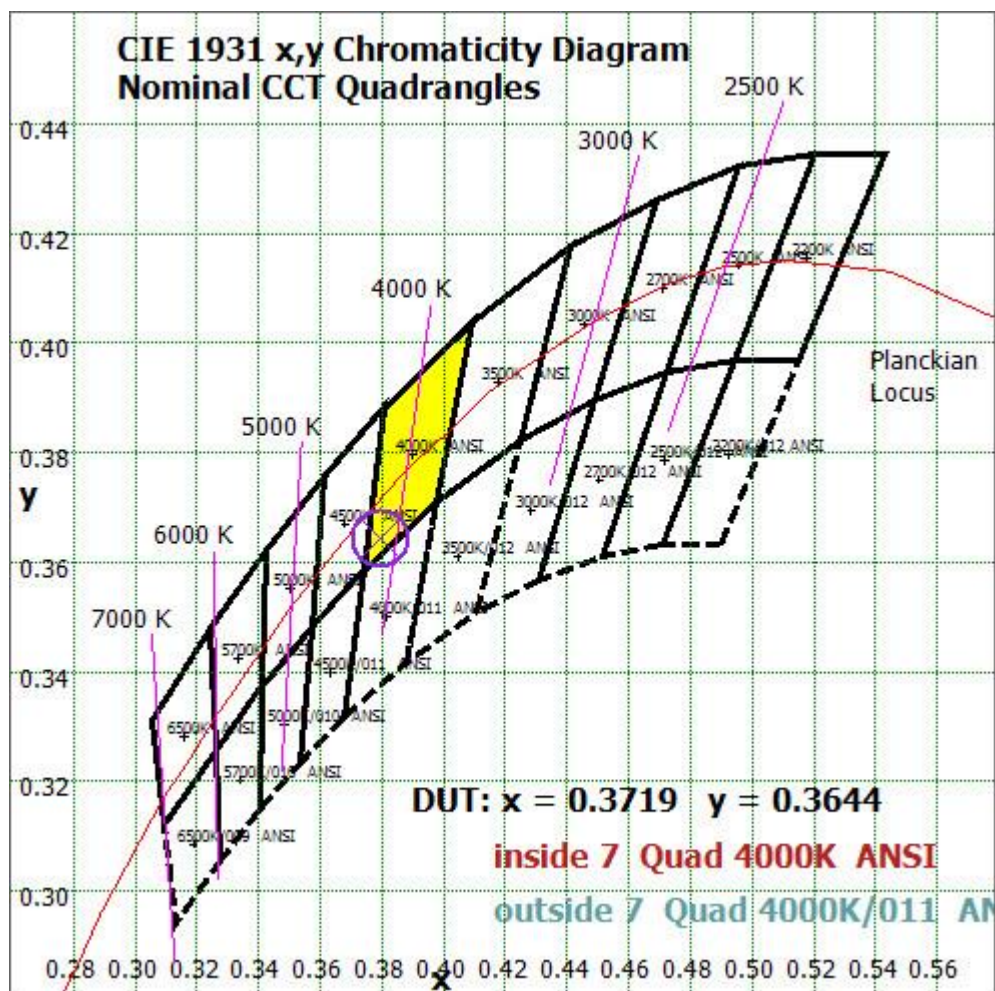
Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3719, 0.3644)

Chart 13: Chromaticity Diagram per Sphere - Spectroradiometer Method

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



Color Rendition Report – Sphere Spectroradiometer Method

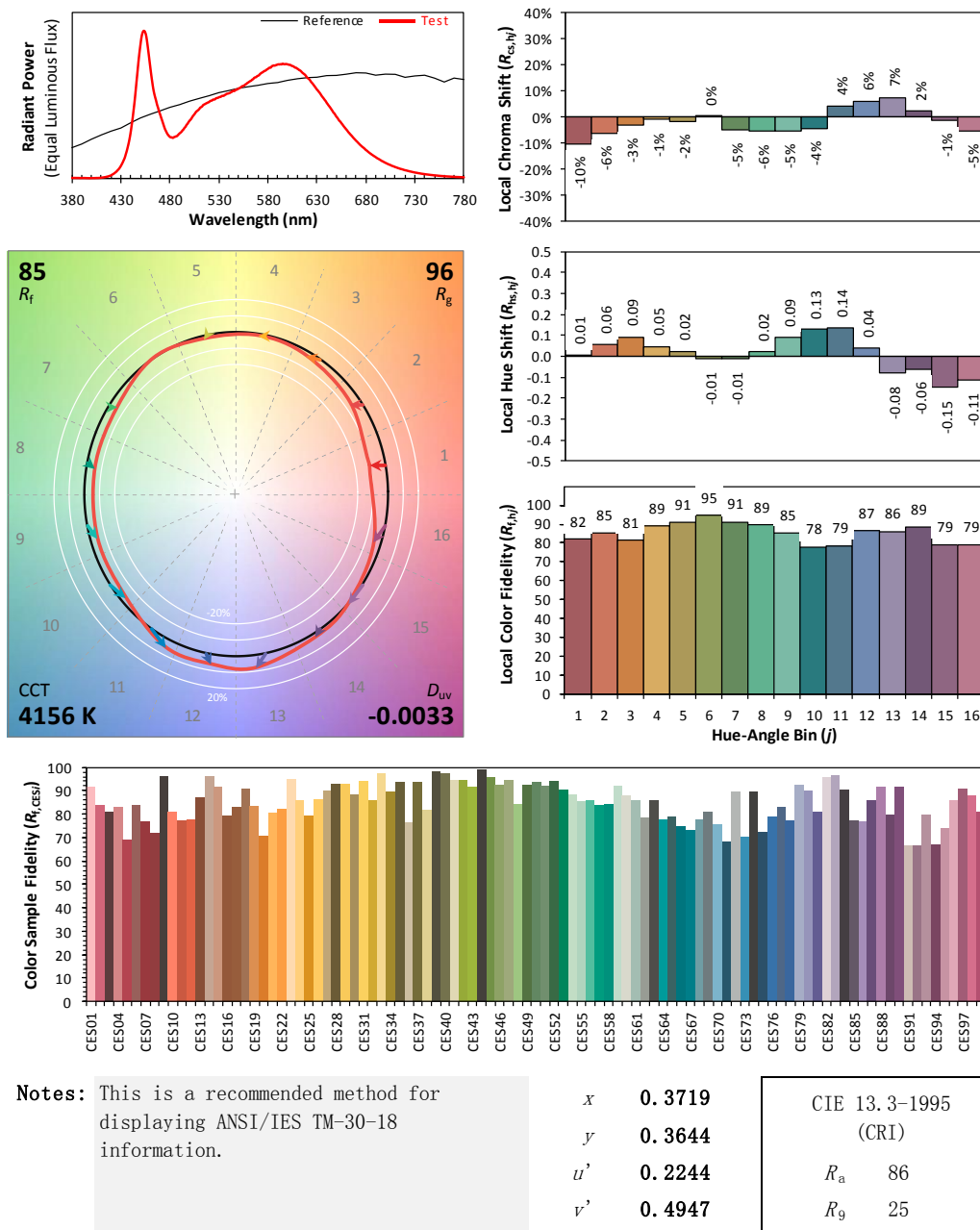
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/09/12

Model: 15T8/4F/8CCTS/UEB/C



Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Chart 15: 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 10 due to rounding.

TEST RESULTS (5000K Setting)

Test ambient temperature was 26.0 °C.

Base orientation was base up. Test was conducted without a dimmer in the circuit.

The stabilization time of the sample was 50 minutes, and the total operating time including stabilization was 55 minutes.

Sphere-Spectroradiometer Method

Parameter	Result	
Test Voltage (V)	120.0	277.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.119	0.057
Power Factor	0.9760	0.9048
Test Power (W)	13.93	14.28
THD A%	17.18	19.72
Luminous Efficacy (lm/W)	162.4	159.3
Total Luminous Flux (lm)	2261.7	2275.2
Color Rendering Index (CRI)	86.5	
R9	23.7	
Correlated Color Temperature (CCT)(K)	5142	
Chromaticity Chroma x	0.3410	
Chromaticity Chroma y	0.3458	
Chromaticity Chroma u	0.2109	
Chromaticity Chroma v	0.3208	
Duv	-0.0012	
Chromaticity Chroma u'	0.2109	
Chromaticity Chroma v'	0.4812	

Special Color Rendering Indices	
R1	86.3
R2	93.3
R3	95
R4	84.8
R5	86.1
R6	88
R7	87
R8	71.2
R9	23.7
R10	82.8
R11	84.7
R12	64.2
R13	88.9
R14	98

Table 12: Test data per Sphere-Spectroradiometer Method

Note: According to CIE 1976 (u', v') diagram, $u' = u = 4x/(-2x+12y+3)$, $v' = 3v/2 = 9y/(-2x+12y+3)$.

Spectral Power Distribution - Sphere Spectroradiometer Method

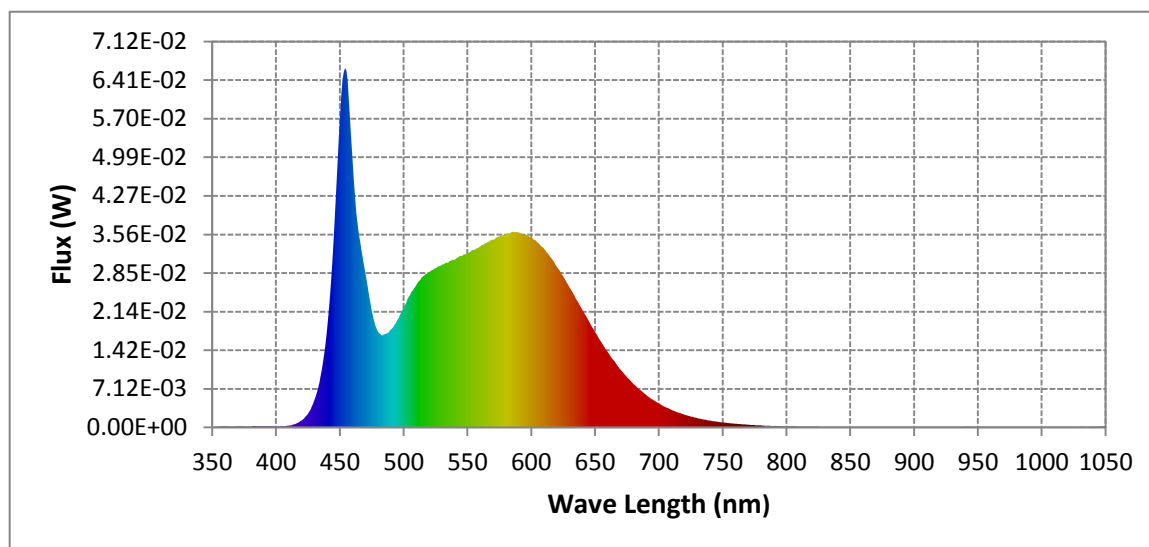
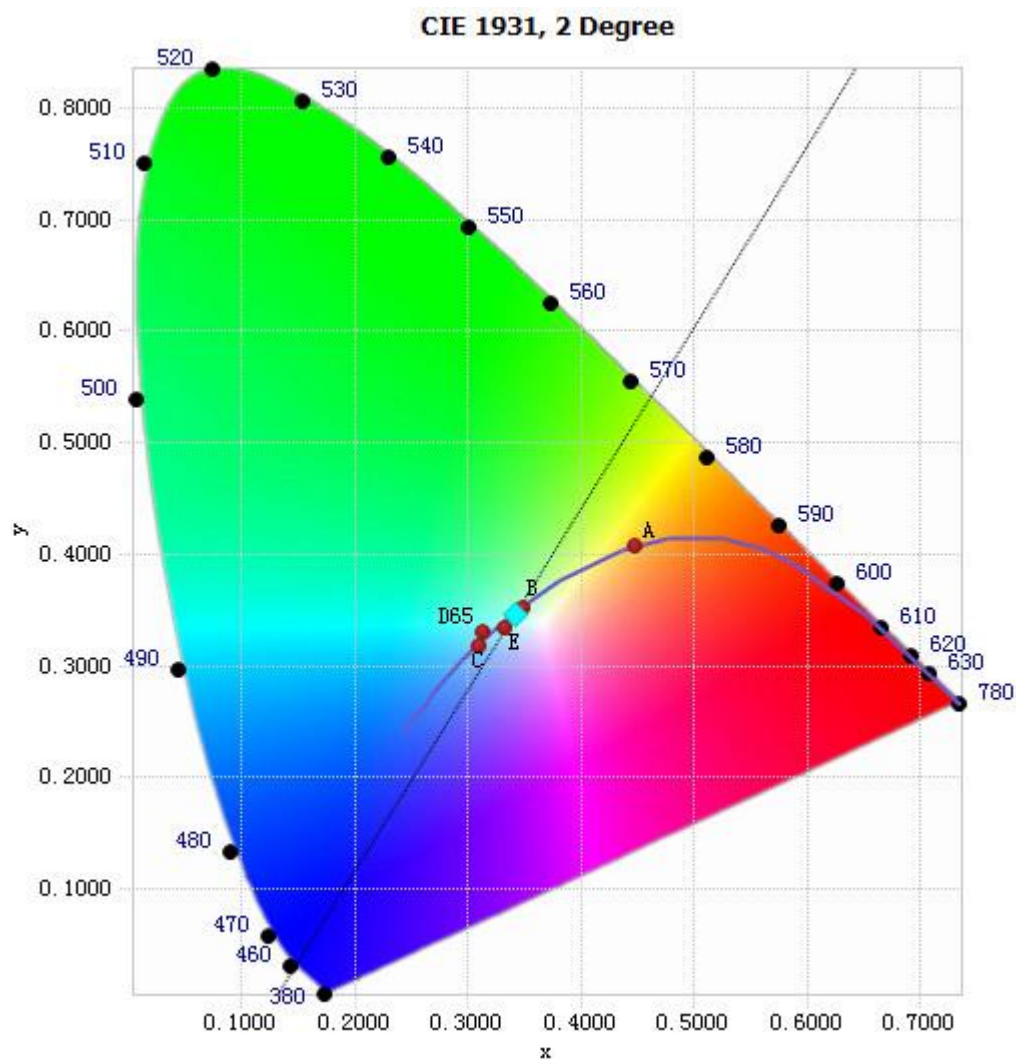


Chart16: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	2.54E-04	485	1.72E-02	590	3.60E-02	695	5.17E-03
385	2.04E-04	490	1.81E-02	595	3.57E-02	700	4.42E-03
390	2.09E-04	495	1.98E-02	600	3.50E-02	705	3.80E-03
395	2.14E-04	500	2.22E-02	605	3.41E-02	710	3.22E-03
400	1.47E-04	505	2.44E-02	610	3.29E-02	715	2.76E-03
405	1.97E-04	510	2.63E-02	615	3.15E-02	720	2.36E-03
410	3.29E-04	515	2.78E-02	620	2.97E-02	725	2.00E-03
415	6.34E-04	520	2.86E-02	625	2.79E-02	730	1.72E-03
420	1.29E-03	525	2.94E-02	630	2.58E-02	735	1.46E-03
425	2.53E-03	530	3.00E-02	635	2.37E-02	740	1.24E-03
430	5.03E-03	535	3.04E-02	640	2.17E-02	745	1.09E-03
435	9.68E-03	540	3.09E-02	645	1.97E-02	750	9.13E-04
440	1.84E-02	545	3.16E-02	650	1.76E-02	755	7.80E-04
445	3.45E-02	550	3.21E-02	655	1.57E-02	760	6.75E-04
450	5.72E-02	555	3.27E-02	660	1.38E-02	765	5.86E-04
455	6.58E-02	560	3.34E-02	665	1.22E-02	770	4.98E-04
460	4.96E-02	565	3.40E-02	670	1.06E-02	775	4.27E-04
465	3.56E-02	570	3.46E-02	675	9.25E-03	780	3.68E-04
470	2.86E-02	575	3.52E-02	680	7.98E-03		
475	2.16E-02	580	3.56E-02	685	6.97E-03		
480	1.76E-02	585	3.61E-02	690	5.97E-03		

Table 13: Spectral Power Distribution Numerical Data per Sphere - Spectroradiometer Method

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3410, 0.3458)

Chart 17: 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

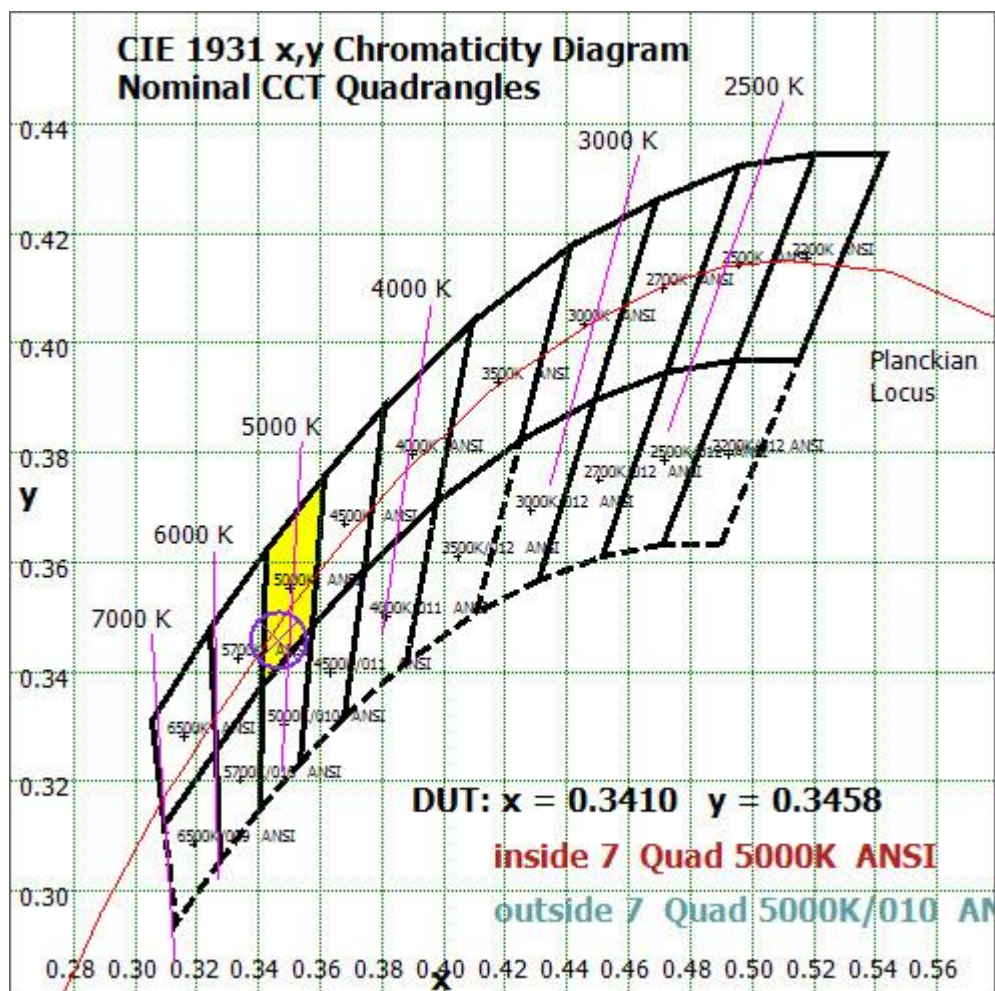


Chart 18: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

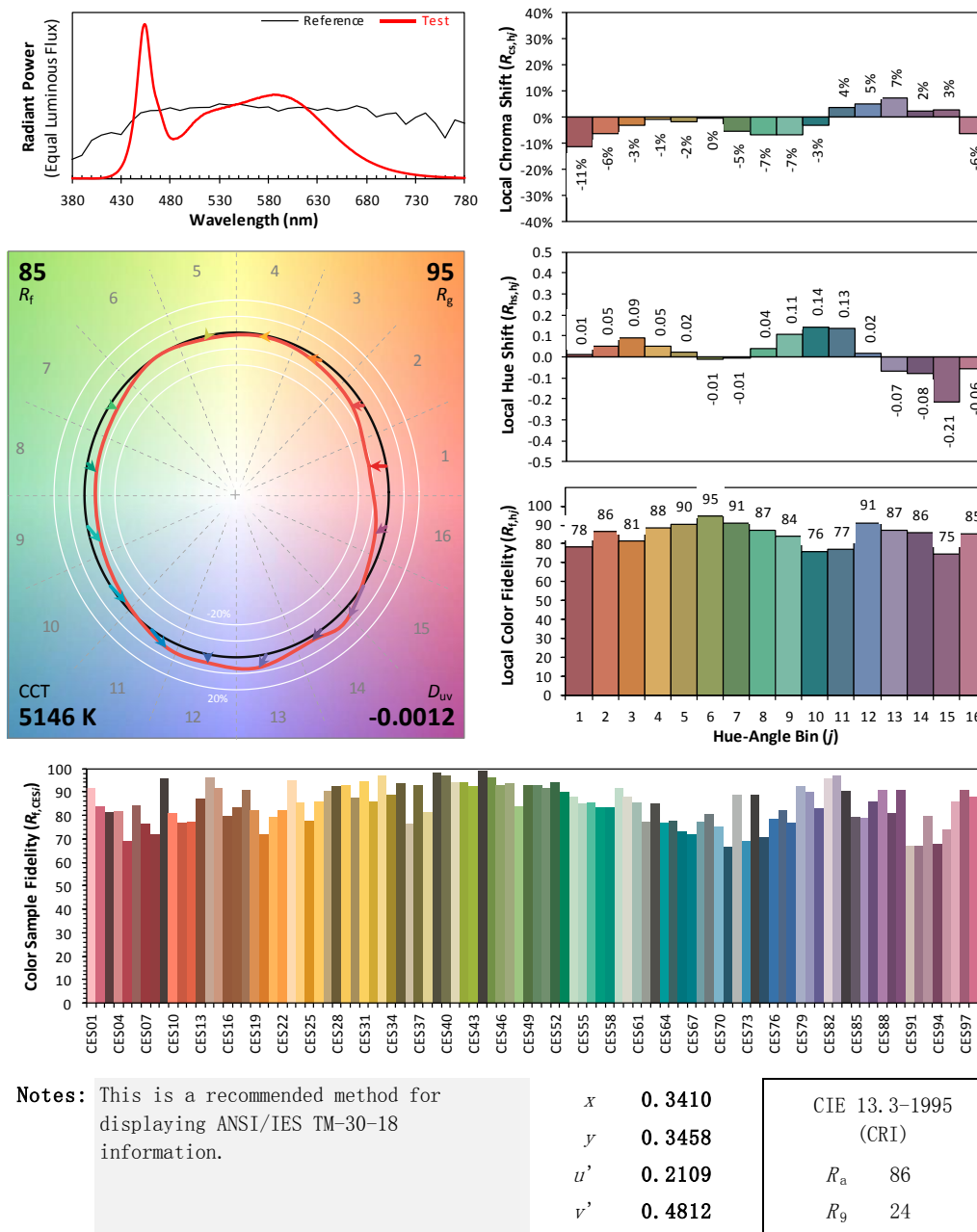
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/09/12

Model: 15T8/4F/8CCTS/UEB/C



Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Chart 19: 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 12 due to rounding.

TEST RESULTS (6500K Setting)

Test ambient temperature was 26.0 °C.

Base orientation was base up. Test was conducted without a dimmer in the circuit.

The stabilization time of the sample was 50 minutes, and the total operating time including stabilization was 55 minutes.

Sphere-Spectroradiometer Method

Parameter	Result	
Test Voltage (V)	120.0	277.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.121	0.057
Power Factor	0.9752	0.9070
Test Power (W)	14.12	14.44
THD A%	17.63	18.32
Luminous Efficacy (lm/W)	154.2	151.5
Total Luminous Flux (lm)	2176.6	2187.9
Color Rendering Index (CRI)	85.0	
R9	15.7	
Correlated Color Temperature (CCT)(K)	6376	
Chromaticity Chroma x	0.3148	
Chromaticity Chroma y	0.3304	
Chromaticity Chroma u	0.1988	
Chromaticity Chroma v	0.3129	
Duv	0.0029	
Chromaticity Chroma u'	0.1988	
Chromaticity Chroma v'	0.4694	

Special Color Rendering Indices	
R1	83.9
R2	92.1
R3	94.1
R4	82
R5	83.3
R6	86
R7	87.6
R8	70.7
R9	15.7
R10	79.4
R11	81.7
R12	57.7
R13	87
R14	97.4

Table 14: Test data per Sphere-Spectroradiometer Method

Note: According to CIE 1976 (u', v') diagram, $u' = u = 4x/(-2x+12y+3)$, $v' = 3v/2 = 9y/(-2x+12y+3)$.

Spectral Power Distribution - Sphere Spectroradiometer Method

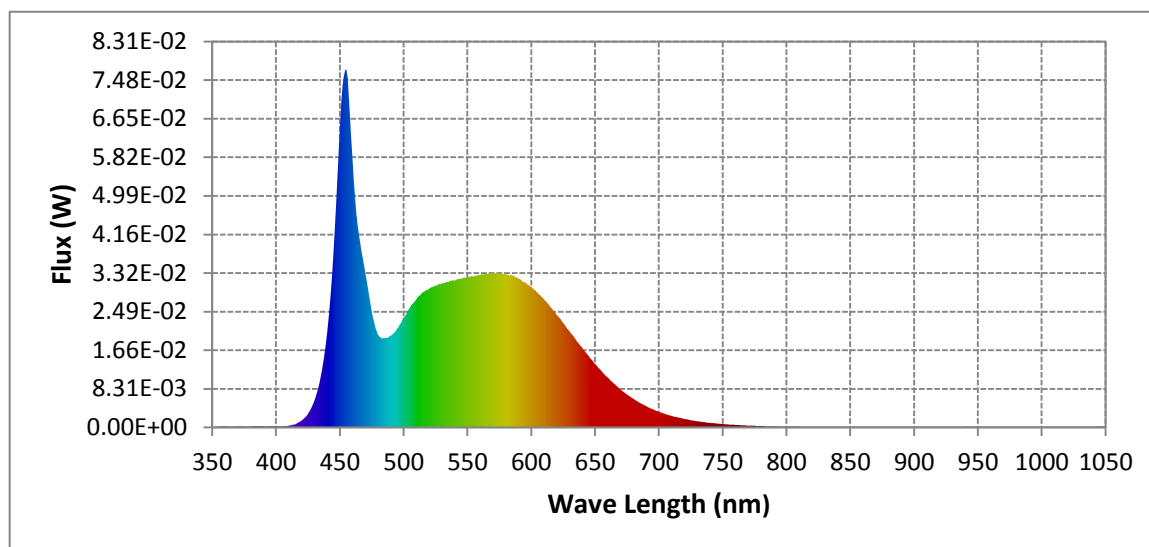
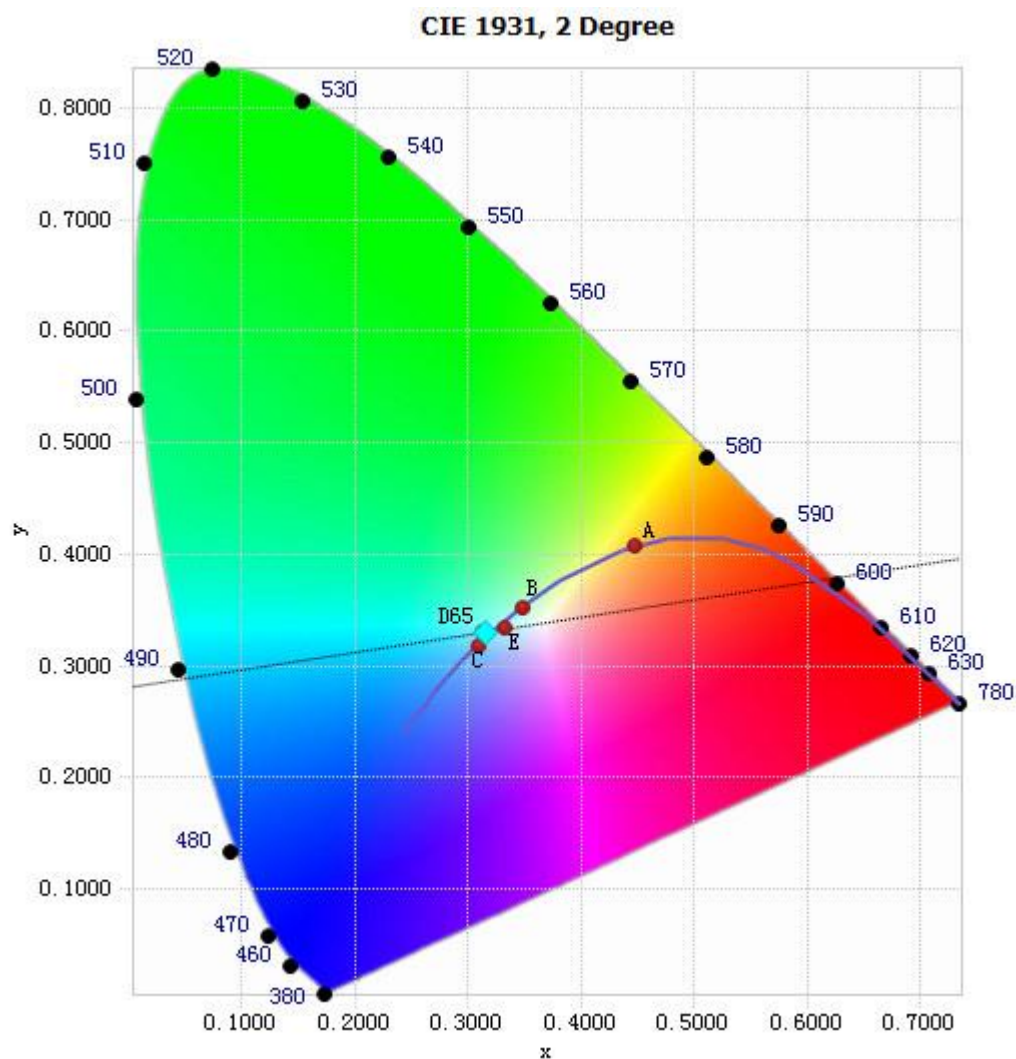


Chart 20: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	2.37E-04	485	1.92E-02	590	3.21E-02	695	3.94E-03
385	2.44E-04	490	1.98E-02	595	3.12E-02	700	3.37E-03
390	2.07E-04	495	2.13E-02	600	3.02E-02	705	2.87E-03
395	2.33E-04	500	2.36E-02	605	2.89E-02	710	2.49E-03
400	2.01E-04	505	2.59E-02	610	2.75E-02	715	2.12E-03
405	1.88E-04	510	2.76E-02	615	2.60E-02	720	1.82E-03
410	3.50E-04	515	2.91E-02	620	2.42E-02	725	1.57E-03
415	6.87E-04	520	2.99E-02	625	2.25E-02	730	1.32E-03
420	1.47E-03	525	3.05E-02	630	2.06E-02	735	1.14E-03
425	2.95E-03	530	3.11E-02	635	1.88E-02	740	9.75E-04
430	5.76E-03	535	3.13E-02	640	1.71E-02	745	8.31E-04
435	1.10E-02	540	3.16E-02	645	1.54E-02	750	7.35E-04
440	2.05E-02	545	3.21E-02	650	1.36E-02	755	6.18E-04
445	3.80E-02	550	3.23E-02	655	1.21E-02	760	5.43E-04
450	6.47E-02	555	3.25E-02	660	1.07E-02	765	4.63E-04
455	7.70E-02	560	3.28E-02	665	9.39E-03	770	3.99E-04
460	5.79E-02	565	3.30E-02	670	8.10E-03	775	3.49E-04
465	4.15E-02	570	3.32E-02	675	7.09E-03	780	3.02E-04
470	3.33E-02	575	3.31E-02	680	6.14E-03		
475	2.50E-02	580	3.30E-02	685	5.30E-03		
480	1.99E-02	585	3.28E-02	690	4.58E-03		

Table 15: Spectral Power Distribution Numerical Data per Sphere - Spectroradiometer Method

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3148, 0.3304)

Chart 21: 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

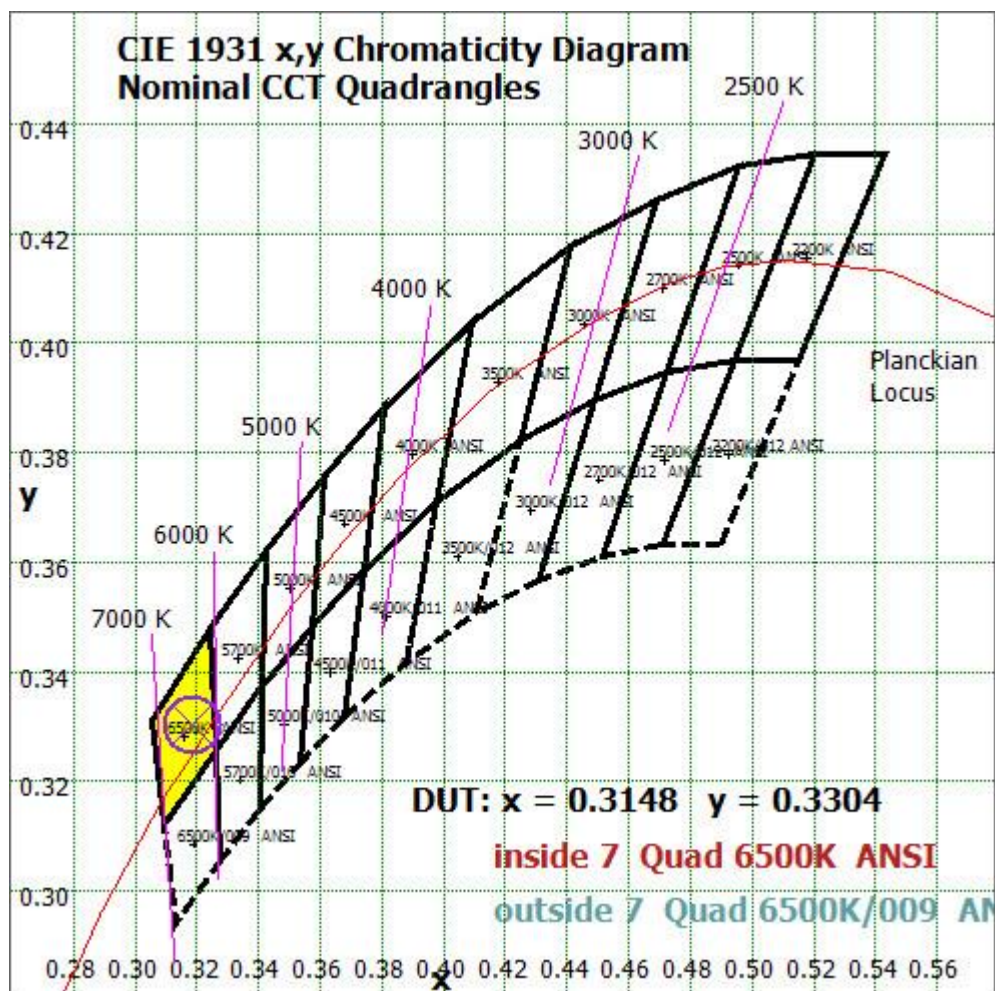


Chart 22: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

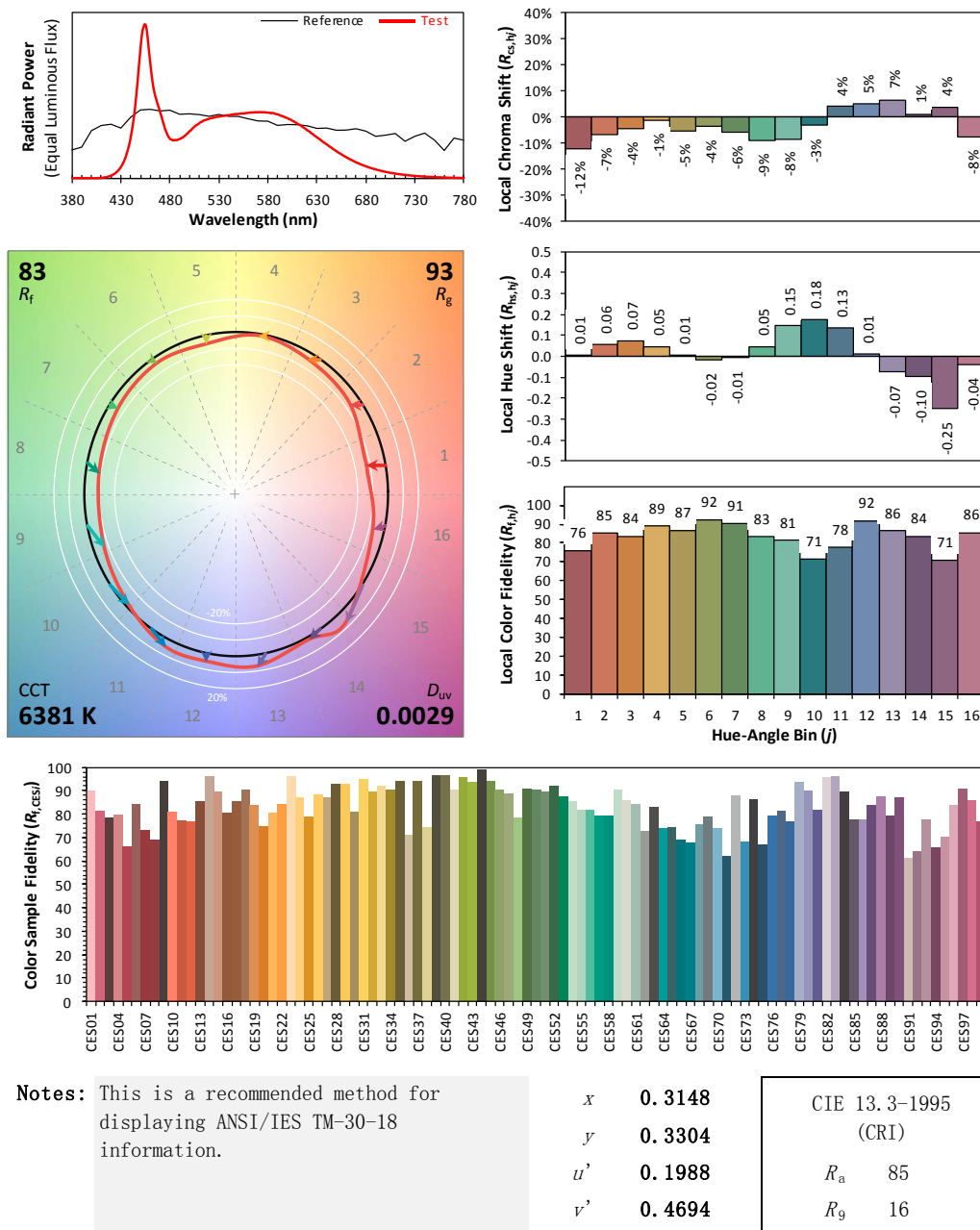
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/09/12

Model: 15T8/4F/8CCTS/UEB/C



Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Chart 23: 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 14 due to rounding.

EQUIPMENT LIST

Test Equipment	Model	Equipment No.	Calibration Date	Calibration Due date
Goniophotometer system	GO-R5000	HZTE011-01	Aug.15, 2025	-
Digital Power Meter	PF2010A	HZTE028-01	Aug. 07, 2025	Aug. 06, 2026
AC Power Supply	DPS1060	HZTE001-06	Aug. 07, 2025	Aug. 06, 2026
DC Power Supply	WY12010	HZTE004-03	Aug. 07, 2025	Aug. 06, 2026
Temperature recorder	JM624U	HZTE018-08	Aug. 07, 2025	Aug. 06, 2026
Temperature and humidity recorder	JR900	HZTE018-01	Aug. 07, 2025	Aug. 06, 2026
Standard source	D908	HZTE012-01	Aug. 14, 2018	-
Integrate Sphere system	3M	HZTE015-04	Aug. 07, 2025	-
Digital Power Meter	WT210	HZTE008-01	Aug. 07, 2025	Aug. 06, 2026
AC Power Supply	PCR 500L	HZTE001-07	Aug. 07, 2025	Aug. 06, 2026
DC Power Supply	IT6154	HZTE004-04	Aug. 07, 2025	Aug. 06, 2026
Standard source	SCL-1400	HZTE012-06	Nov. 04, 2021	-
Temperature and humidity recorder	JR900	HZTE018-02	Aug. 07, 2025	Aug. 06, 2026
Temperature Meter	TES1310	HZTE017-01	Aug. 07, 2025	Aug. 06, 2026

Table 16: 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 3 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 20 min, taken 10 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 20 min, taken 10 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.

*** End of Report ***

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