

## 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 Lamp

**Model: 5.5PLS/8CCTS/HYBM/GX23**

**5.5PLS/8CCTS/BYP/2GX7**

### Laboratory: Leading Testing Laboratories

**NVLAP CODE: 200960-0**

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Report No.: HZ25080010b

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

Review by:

*Wei Fei*

Engineer: Wei Fei  
Aug. 27, 2025

Approved by:



*April Zou*

Manager: April Zou  
Aug. 27, 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	5.5PLS/8CCTS/ HYBM/GX23 2700K Setting	5.5PLS/8CCTS/ HYBM/GX23 3000K Setting	5.5PLS/8CCTS/ HYBM/GX23 3500K Setting	5.5PLS/8CCTS/ HYBM/GX23 4000K Setting
Luminous Efficacy (Lumens /Watt)	137.4	142.4	145.5	143.9
Total Luminous Flux (Lumens)	671.9	687.7	699.6	704.9
Power (Watts)	4.89	4.83	4.81	4.90
Power Factor	0.9726	0.9729	0.9730	0.9724
CCT (K)	2738	3088	3509	4072
CRI	82.2	84.0	84.8	84.1
Stabilization Time (Light & Power)	50 mins	50 mins	50 mins	50 mins
Note	2700K	3000K	3500K	4000K

Table 1: Executive Data Summary

### Test specifications:

Date of Receipt	: Aug. 07, 2025
Date of Test	: Aug. 15, 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

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## SAMPLE PHOTO

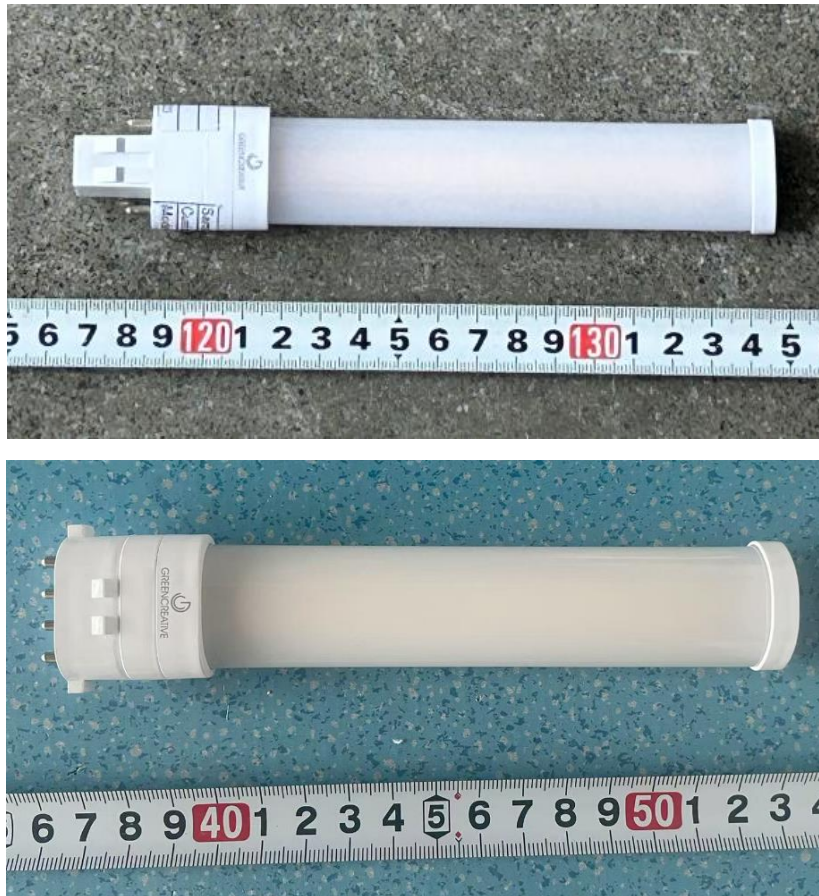


Figure 1- Overview of the sample

### Equipment Under Test(EUT)

<b>Name</b>	: LED Lamp
<b>Model</b>	: 5.5PLS/8CCTS/HYBM/GX23 5.5PLS/8CCTS/BYP/2GX7
<b>Electrical Ratings</b>	: 120-277V, 60Hz, 5.5W
<b>Product Description</b>	: Color- Tunable 2700K/3000K/3500K/4000K
<b>Manufacturer</b>	: GREEN CREATIVE LTD
<b>Address</b>	: Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, KL, Hong Kong

## TEST RESULTS (2700K 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)	0.042	0.020
Power Factor	0.9726	0.8511
Test Power (W)	4.89	5.02
THD A%	17.73	14.08
Luminous Efficacy (lm/W)	137.4	134.3
Total Luminous Flux (lm)	671.9	674.1
Color Rendering Index (CRI)	82.2	
R9	6.5	
Correlated Color Temperature (CCT)(K)	2738	
Chromaticity Chroma x	0.4542	
Chromaticity Chroma y	0.4054	
Chromaticity Chroma u	0.2611	
Chromaticity Chroma v	0.3497	
Duv	-0.0015	
Chromaticity Chroma u'	0.2611	
Chromaticity Chroma v'	0.5245	

Special Color Rendering Indices	
R1	81.1
R2	92.4
R3	94
R4	79.7
R5	81.7
R6	91.8
R7	80.4
R8	56.4
R9	6.5
R10	83.4
R11	79.6
R12	77.7
R13	83.9
R14	97.4

Table 2: Test data per Sphere-Spectroradiometer Method

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

### Spectral Power Distribution - Sphere Spectroradiometer Method

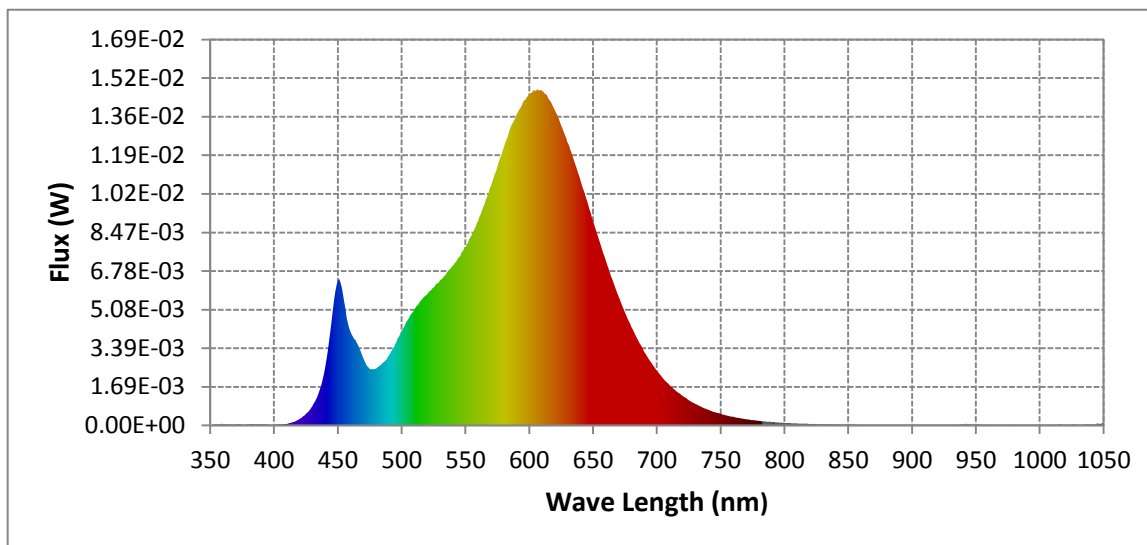


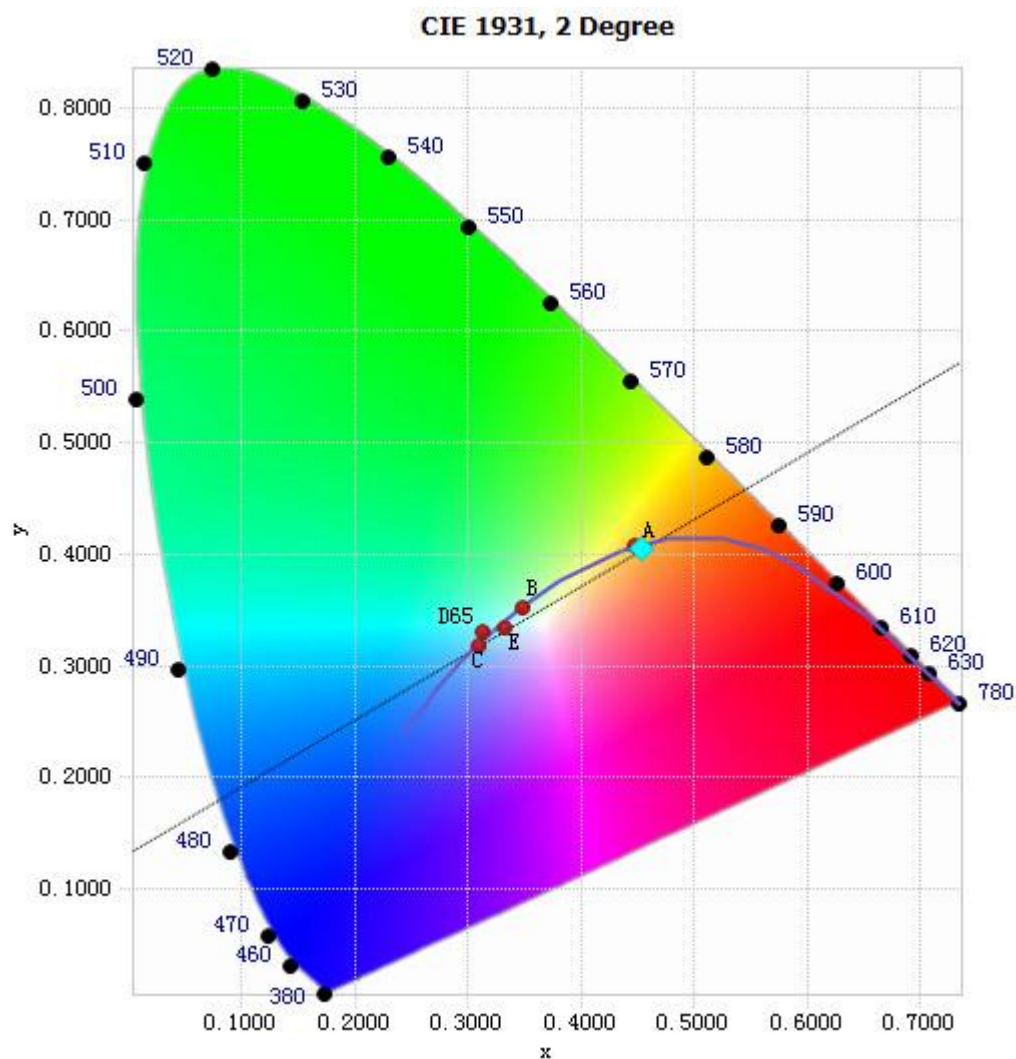
Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	4.59E-05	485	2.73E-03	590	1.36E-02	695	2.80E-03
385	3.84E-05	490	3.06E-03	595	1.42E-02	700	2.40E-03
390	3.30E-05	495	3.58E-03	600	1.46E-02	705	2.06E-03
395	2.90E-05	500	4.13E-03	605	1.47E-02	710	1.76E-03
400	2.60E-05	505	4.64E-03	610	1.47E-02	715	1.51E-03
405	4.01E-05	510	5.08E-03	615	1.44E-02	720	1.30E-03
410	6.60E-05	515	5.48E-03	620	1.38E-02	725	1.11E-03
415	1.44E-04	520	5.76E-03	625	1.32E-02	730	9.49E-04
420	2.82E-04	525	6.05E-03	630	1.24E-02	735	8.03E-04
425	5.09E-04	530	6.36E-03	635	1.16E-02	740	6.96E-04
430	8.55E-04	535	6.65E-03	640	1.08E-02	745	5.87E-04
435	1.44E-03	540	7.00E-03	645	9.89E-03	750	5.09E-04
440	2.55E-03	545	7.38E-03	650	8.95E-03	755	4.29E-04
445	4.58E-03	550	7.80E-03	655	8.08E-03	760	3.71E-04
450	6.35E-03	555	8.36E-03	660	7.22E-03	765	3.16E-04
455	5.37E-03	560	8.99E-03	665	6.41E-03	770	2.72E-04
460	4.10E-03	565	9.71E-03	670	5.63E-03	775	2.31E-04
465	3.62E-03	570	1.05E-02	675	4.94E-03	780	1.98E-04
470	2.95E-03	575	1.14E-02	680	4.31E-03		
475	2.48E-03	580	1.22E-02	685	3.75E-03		
480	2.50E-03	585	1.30E-02	690	3.24E-03		

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



## Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4542, 0.4054)

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

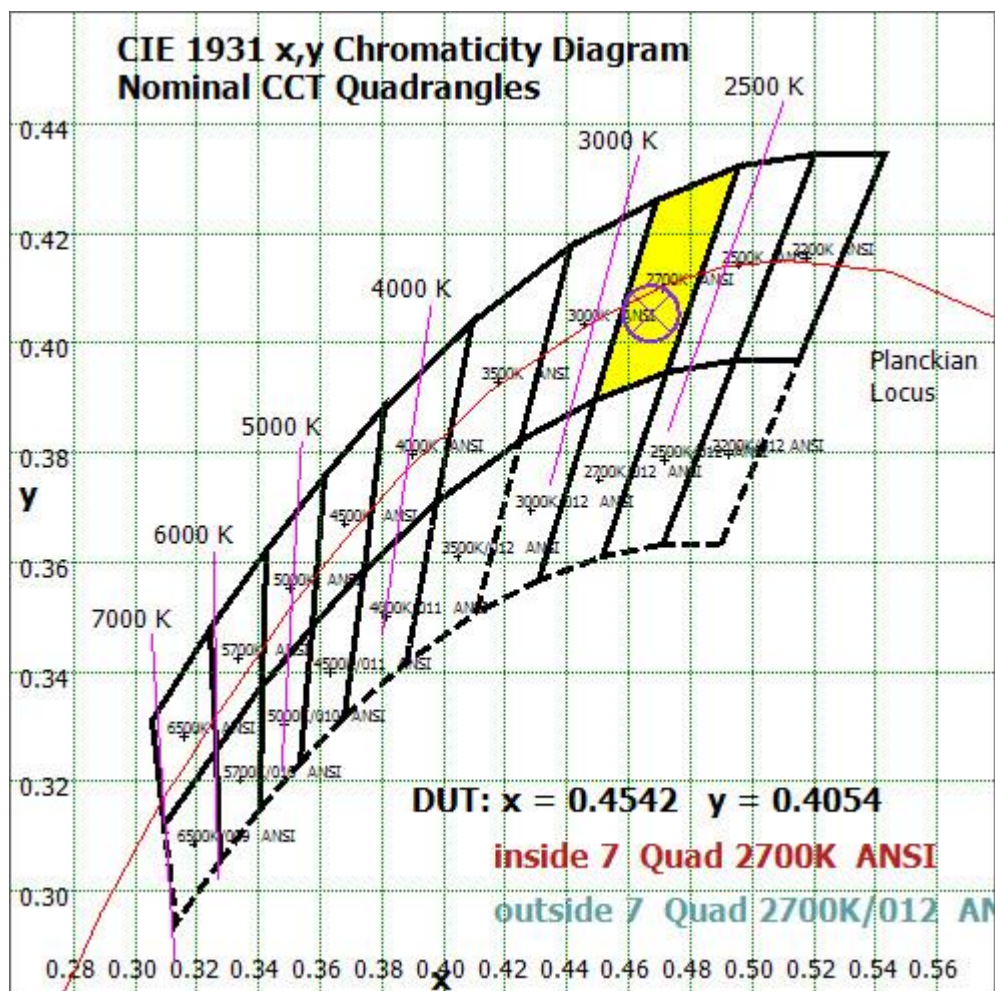


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

# Color Rendition Report – Sphere Spectroradiometer Method

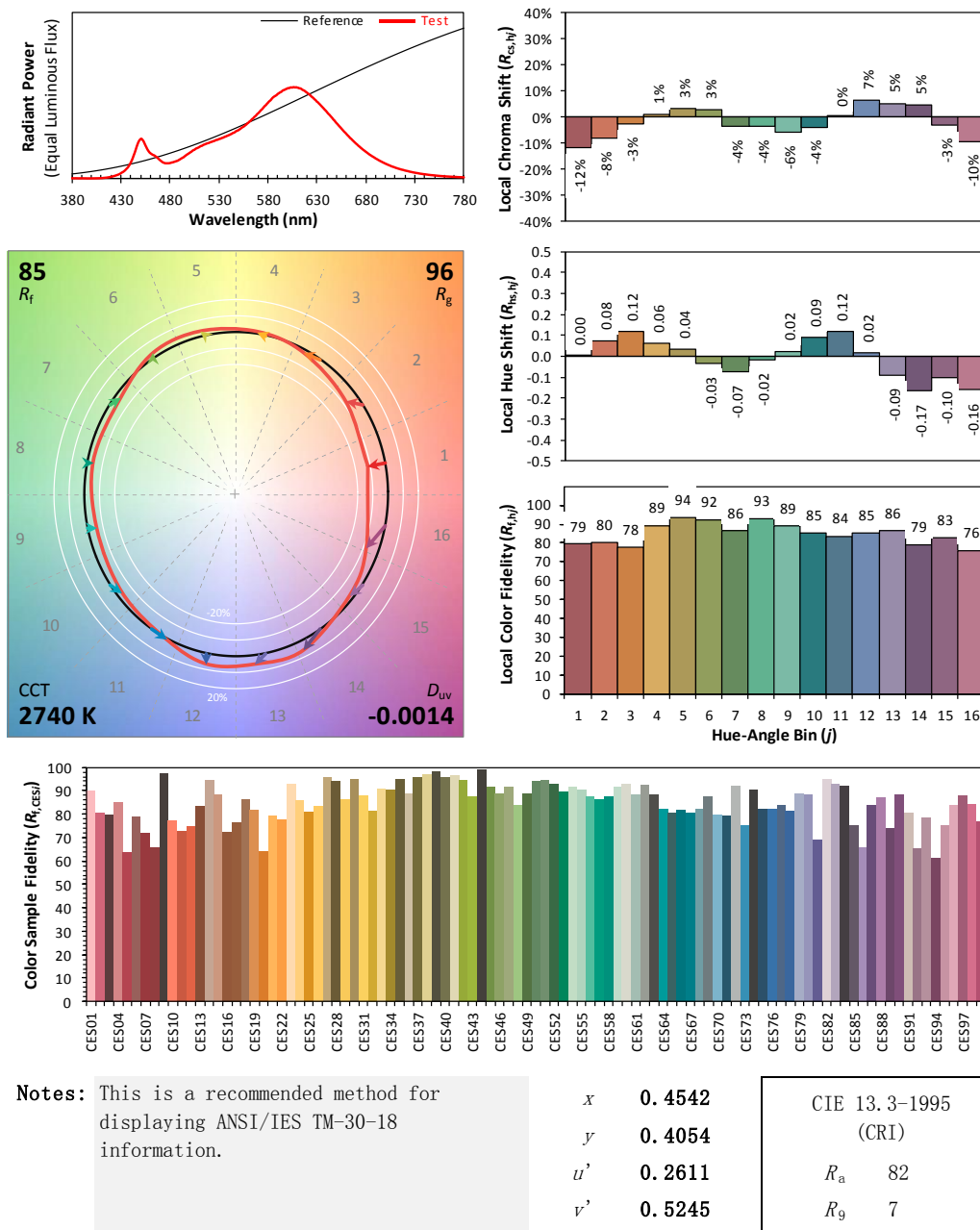
## ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/08/15

Model: 5.5PLS/8CCTS/HYBM/GX23



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 2.47 m.

Luminous data was taken at 0.5 ° vertical intervals and 10 ° horizontal intervals.

Parameter	Result
Test Voltage (V)	120.0
Voltage frequency (Hz)	60
Test Current (A)	0.042
Power Factor	0.9768
Power (W)	4.90
Luminous Efficacy (lm/W)	138.2
Total Luminous Flux (lm)	677.2
Beam Angle (°)	103.2 (0°-180°) / 123.4 (90°-270°)
Center Beam Candle Power (cd)	205
Maximum Beam Candle Power (cd)	205.1 (At: C=0.0, Gamma=0.0)
Spacing Criteria	1.18 (0°-180°) / 1.27 (90°-270°)
Zonal Lumens in the 0 °-60 °Zone	66.94%
Zonal Lumens in the 60 °-90 °Zone	24.56%
Zonal Lumens in the 90 °-120 °Zone	5.74%
Zonal Lumens in the 120 °-180 °Zone	2.77%

Table 4: Test data per Goniophotometer Method

### Zonal Lumen Tabulation- Goniophotometer Method

$\gamma(^{\circ})$	Lumens	% Total
0- 10	19.328	2.85%
10- 20	55.04	8.13%
20- 30	82.622	12.20%
30- 40	98.943	14.61%
40- 50	102.672	15.16%
50- 60	94.667	13.98%
60- 70	77.572	11.46%
70- 80	55.17	8.15%
80- 90	33.554	4.96%
90-100	20.357	3.01%
100-110	11.836	1.75%
110-120	6.687	0.99%
120-130	5.229	0.77%
130-140	4.524	0.67%
140-150	3.84	0.57%
150-160	2.943	0.43%
160-170	1.791	0.26%
170-180	0.399	0.06%
Total	677.2	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	453.272	66.94%
60- 90	166.296	24.56%
0-90	619.568	91.49%
90- 180	57.606	8.51%
0- 180	677.2	100%

Table 5: Zonal Lumen

## Illuminance Plots- Goniophotometer Method

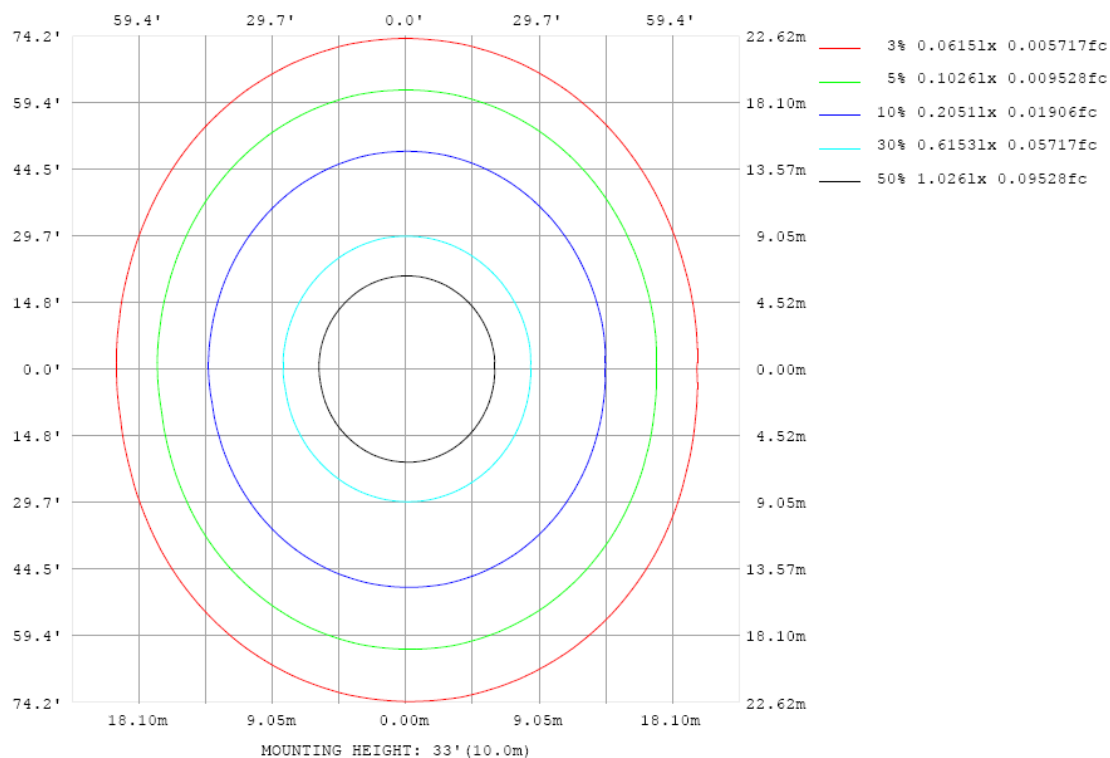


Chart 5: Illuminance Plot (Footcandles)

## Luminous Intensity Distribution Plots- Goniophotometer Method

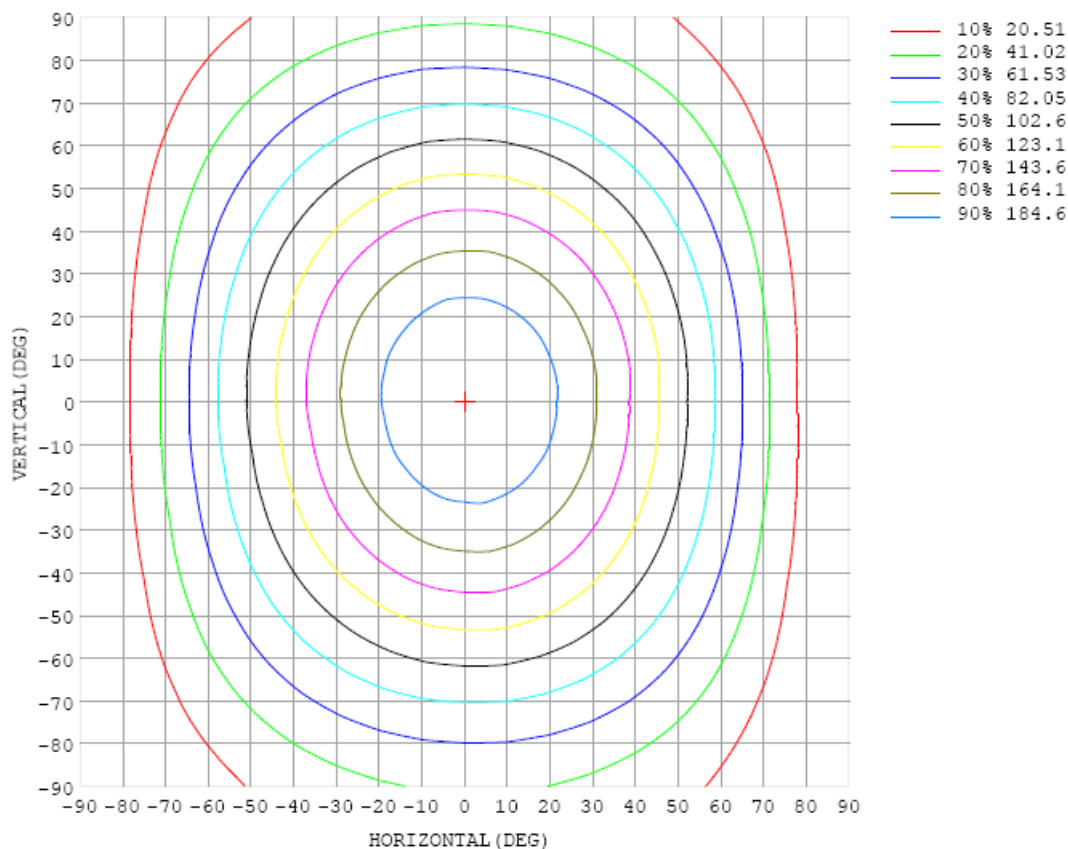


Chart 6: Isocandela Plot

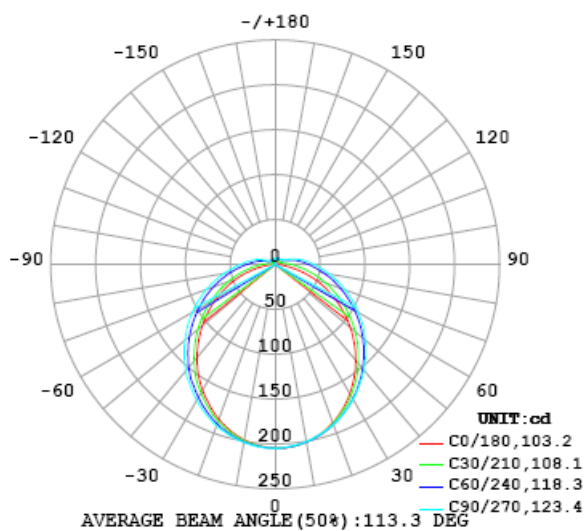


Chart 7: Polar Candela Distribution



## 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	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205
5	204	204	204	204	203	204	204	204	204	203	203	203	203	203	203	203	203	203	203
10	201	201	201	201	200	201	201	201	201	200	200	200	199	199	199	199	198	198	199
15	195	195	196	196	196	196	196	196	196	196	195	195	194	193	193	192	192	192	192
20	188	188	188	189	189	189	190	190	191	190	189	188	187	186	185	184	183	183	183
25	178	178	179	179	180	181	182	183	183	182	182	181	179	177	176	174	173	173	173
30	166	167	167	169	170	171	173	174	175	174	173	171	169	167	165	163	162	161	162
35	154	154	155	157	159	161	163	164	165	164	163	161	159	156	153	151	149	148	149
40	140	140	142	144	147	149	152	153	155	154	153	151	147	144	141	138	136	134	135
45	125	126	128	130	134	137	140	142	143	143	142	139	135	132	128	124	121	119	121
50	109	110	113	116	120	124	128	130	132	131	130	127	123	119	115	110	107	105	106
55	93.4	94.9	97.8	102	106	111	115	118	120	119	118	115	111	106	101	96.3	92.5	89.8	90.6
60	77.3	79.1	82.6	87.5	92.6	97.8	102	106	107	107	106	103	97.9	92.9	87.6	82.4	77.9	74.8	75.3
65	61.5	63.6	67.7	73.2	79.1	84.8	89.6	93.2	95.2	95.0	93.7	90.5	85.9	80.3	74.4	68.7	64.0	60.4	59.9
70	45.1	47.9	53.2	59.9	66.4	72.1	77.3	81.0	83.2	83.1	81.7	78.5	73.8	68.4	62.3	55.7	49.8	45.5	44.7
75	29.2	32.6	39.1	46.7	54.0	60.6	66.1	69.4	71.5	71.5	70.0	67.4	62.9	57.0	50.1	42.9	36.2	31.0	29.7
80	14.9	19.1	26.4	34.6	42.4	49.4	55.0	58.9	61.2	61.3	60.1	56.9	52.1	46.1	38.8	31.2	23.8	17.6	15.9
85	4.74	9.05	16.5	24.7	32.6	39.5	45.1	49.0	51.1	51.4	50.2	47.3	42.6	36.5	29.1	21.3	13.8	7.23	5.11
90	0.38	4.08	10.5	17.9	25.3	31.9	37.2	40.9	43.1	43.3	42.1	39.2	34.8	28.8	21.6	14.0	7.16	1.79	0.20
95	0.71	2.61	7.12	13.3	19.8	25.8	30.7	34.3	36.4	36.6	35.5	32.8	28.6	23.0	16.5	9.80	4.02	0.69	0.21
100	1.21	2.34	5.16	9.79	15.1	20.2	24.7	27.8	29.7	29.9	28.8	26.3	22.4	17.3	11.5	5.58	1.17	0.23	0.17
105	1.84	2.53	4.19	7.20	11.2	15.4	19.2	22.0	23.5	23.7	22.7	20.3	16.7	12.0	6.59	2.94	1.17	0.17	0.34
110	2.53	3.07	4.18	5.97	8.46	11.3	13.9	16.0	17.3	17.4	16.3	13.9	10.6	7.35	4.62	2.73	1.48	0.63	0.68
115	3.20	3.65	4.51	5.77	7.45	9.32	11.0	12.2	12.7	12.4	11.5	9.98	8.10	6.04	4.29	2.85	1.85	1.15	0.94
120	3.85	4.21	4.90	5.86	7.00	8.35	9.53	10.4	10.7	10.5	9.74	8.59	7.14	5.69	4.29	3.09	2.10	1.16	1.22
125	4.45	4.75	5.31	6.06	6.90	7.87	8.71	9.28	9.51	9.30	8.75	7.88	6.74	5.56	4.38	3.38	2.64	1.83	1.60
130	5.00	5.26	5.70	6.30	6.94	7.63	8.24	8.63	8.78	8.59	8.16	7.40	6.52	5.52	4.54	3.69	3.07	2.20	2.03
135	5.50	5.70	6.06	6.52	7.03	7.50	8.00	8.26	8.34	8.16	7.80	7.15	6.41	5.58	4.77	3.96	3.06	2.55	2.44
140	5.93	6.10	6.38	6.74	7.12	7.48	7.86	8.04	8.09	7.92	7.51	6.98	6.40	5.70	5.03	4.44	3.86	2.88	2.90
145	6.32	6.45	6.66	6.93	7.22	7.48	7.80	7.92	7.93	7.75	7.36	6.77	6.43	5.87	5.35	4.93	4.31	3.15	3.03
150	6.64	6.74	6.90	7.10	7.31	7.52	7.74	7.82	7.82	7.56	7.26	6.69	6.43	6.09	5.68	5.27	4.63	3.17	2.54
155	6.90	6.97	7.08	7.23	7.38	7.52	7.63	7.73	7.73	7.47	7.22	6.74	6.50	6.29	5.80	5.62	4.40	3.50	2.92
160	7.09	7.14	7.20	7.30	7.40	7.46	7.52	7.53	7.51	7.38	7.23	6.81	6.47	6.37	6.24	5.74	4.56	3.58	3.22
165	7.21	7.25	7.29	7.34	7.37	7.40	7.42	7.41	7.39	7.30	7.21	6.94	6.64	6.14	5.45	5.35	4.09	2.46	2.41
170	7.24	7.33	6.90	5.93	5.78	5.90	6.86	7.30	7.26	7.19	7.04	6.69	6.22	6.04	5.37	3.67	1.69	1.06	1.02
175	6.30	6.45	6.84	6.13	6.64	5.43	3.59	2.39	1.49	0.50	0.18	0.22	0.22	0.23	0.23	0.23	0.23	0.23	0.23
180	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21

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	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205		
5	203	203	203	204	204	203	204	204	204	204	204	204	204	204	204	204	204		
10	199	199	199	200	200	201	201	201	201	202	202	201	202	202	201	201	201		
15	193	193	194	194	195	196	196	197	197	197	197	197	197	197	196	196	196		
20	184	185	186	187	188	189	190	191	191	191	191	191	190	190	189	189	188		
25	174	175	176	177	179	181	182	184	183	184	184	183	182	181	180	179	179		
30	163	163	165	167	169	171	173	174	175	175	174	173	172	171	170	168	168		
35	150	152	154	156	159	161	163	164	165	165	164	163	162	160	158	157	156		
40	136	138	140	143	146	150	152	155	155	155	154	152	150	148	145	143	142		
45	122	124	127	130	134	137	141	143	143	143	142	139	137	134	131	128	127		
50	107	109	112	116	120	125	128	131	131	131	129	126	123	119	116	113	112		
55	91.7	94.0	97.7	102	107	112	116	118	119	119	116	113	109	105	100	97.4	95.6		
60	76.4	79.1	83.2	88.1	93.4	98.6	103	106	106	106	104	99.7	95.0	90.0	85.2	81.6	79.4		
65	61.2	64.1	69.0	74.5	80.3	85.8	90.1	93.1	93.8	93.2	90.7	86.5	81.3	75.6	69.9	65.6	63.0		
70	46.2	49.9	55.3	61.3	67.5	73.2	77.6	80.7	81.4	80.6	77.9	73.5	67.9	61.7	55.4	50.0	46.7		
75	31.6	36.2	42.3	48.9	55.4	61.2	65.6	68.7	69.3	68.5	65.6	61.1	55.2	48.5	41.6	35.3	31.1		
80	18.6	24.0	30.8	37.7	44.2	50.0	54.4	57.2	57.9	57.0	54.1	49.6	43.6	36.8	29.4	22.5	17.2		
85	8.46	14.3	21.2	27.9	34.3	39.8	44.1	46.8	47.5	46.5	43.8	39.3	33.6	26.9	19.7	12.6	6.99		
90	3.29	8.18	14.1	20.5	26.3	31.6	35.6	38.1	38.8	38.0	35.4	31.3	26.0	19.9	13.2	7.22	2.61		
95	1.41	4.96	10.0	15.5	20.9	25.6	29.3	31.7	32.4	31.7	29.4	25.7	20.9	15.2	9.64	4.78	1.62		
100	0.38	2.08	6.35	11.1	15.9	20.3	23.6	25.9	26.6	26.0	23.9	20.6	16.3	11.6	7.08	3.57	1.63		
105	0.30	1.27	3.47	7.11	11.4	15.2	18.4	20.4	21.2	20.7	18.9	15.9	12.3	8.58	5.27	3.03	1.97		
110	0.52	1.46	2.67	4.69	7.11	10.2	13.0	14.9	15.7	15.2	13.7	11.4	8.93	6.48	4.47	3.19	2.56		
115	1.14	1.89	2.76	4.02	5.63	7.34	8.92	10.1	10.8	10.8	10.2	8.92	7.35	5.78	4.47	3.63	3.19		
120	1.52	2.43	3.03	3.94	5.13	6.37	7.52	8.45	8.94	9.00	8.56	7.71	6.64	5.57	4.71	4.11	3.80		
125	1.82	2.89	3.37	4.07	4.98	5.94	6.82	7.52	7.88	7.95	7.65	7.06	6.33	5.63	5.03	4.60	4.38		
130	2.12	3.24	3.77	4.32	5.00	5.75	6.43	6.97	7.25	7.33	7.14	6.75	6.28	5.81	5.38	5.06	4.93		
135	2.40	3.53	4.19	4.62	5.16	5.73	6.25	6.67	6.89	6.99	6.89	6.66	6.36	6.04	5.73	5.52	5.43		
140	2.66	3.88	4.47	4.94	5.36	5.81	6.22	6.57	6.74	6.86	6.83	6.69	6.50	6.27	6.07	5.93	5.89		
145	2.97	4.29	4.69	5.21	5.59	5.95	6.28	6.56	6.71	6.83	6.84	6.76	6.64	6.51	6.37	6.29	6.28		
150	3.32	4.73	4.98	5.40	5.80	6.11	6.37	6.60	6.72	6.84	6.88	6.84	6.78	6.70	6.63	6.59	6.61		
155	3.56	5.17	5.29	5.59	5.92	6.22	6.46	6.66	6.77	6.87	6.91	6.92	6.89	6.88	6.84	6.84	6.87		
160	3.66	5.48	5.60	5.80	6.04	6.27	6.49	6.68	6.79	6.89	6.95	6.97	6.98	7.00	7.00	7.01	7.05		
165	3.31	5.02	6.01	6.02	6.18	6.34	6.50	6.67	6.78	6.89	6.97	7.01	7.05	7.04	7.04	7.08	7.16		
170	2.77	4.25	5.05	5.44	5.51	5.57	5.75	6.07	6.16	6.72	6.97	7.02	7.06	7.07	7.01	7.17	7.21		
175	0.22	0.31	0.71	0.77	1.46	2.92	4.61	5.88	6.14	6.21	6.10	6.00	5.67	6.38	6.01	5.82	6.13		
180	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21		

Table 7: Luminous Intensity Data

## 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)	0.041	0.020
Power Factor	0.9729	0.9069
Test Power (W)	4.83	4.95
THD A%	17.05	14.11
Luminous Efficacy (lm/W)	142.4	139.2
Total Luminous Flux (lm)	687.7	689.2
Color Rendering Index (CRI)	84.0	
R9	13.2	
Correlated Color Temperature (CCT)(K)	3088	
Chromaticity Chroma x	0.4269	
Chromaticity Chroma y	0.3936	
Chromaticity Chroma u	0.2485	
Chromaticity Chroma v	0.3438	
Duv	-0.0028	
Chromaticity Chroma u'	0.2485	
Chromaticity Chroma v'	0.5157	

Special Color Rendering Indices	
R1	83.3
R2	93.3
R3	94.8
R4	81.7
R5	83.9
R6	91.6
R7	82.3
R8	60.9
R9	13.2
R10	84.5
R11	81.7
R12	75.3
R13	85.9
R14	97.9

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

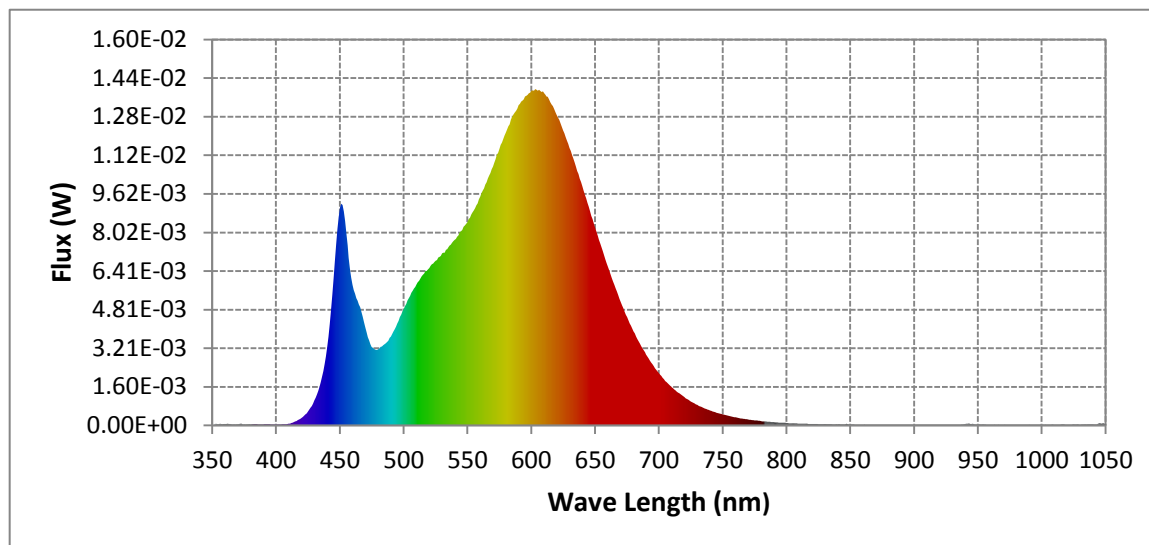
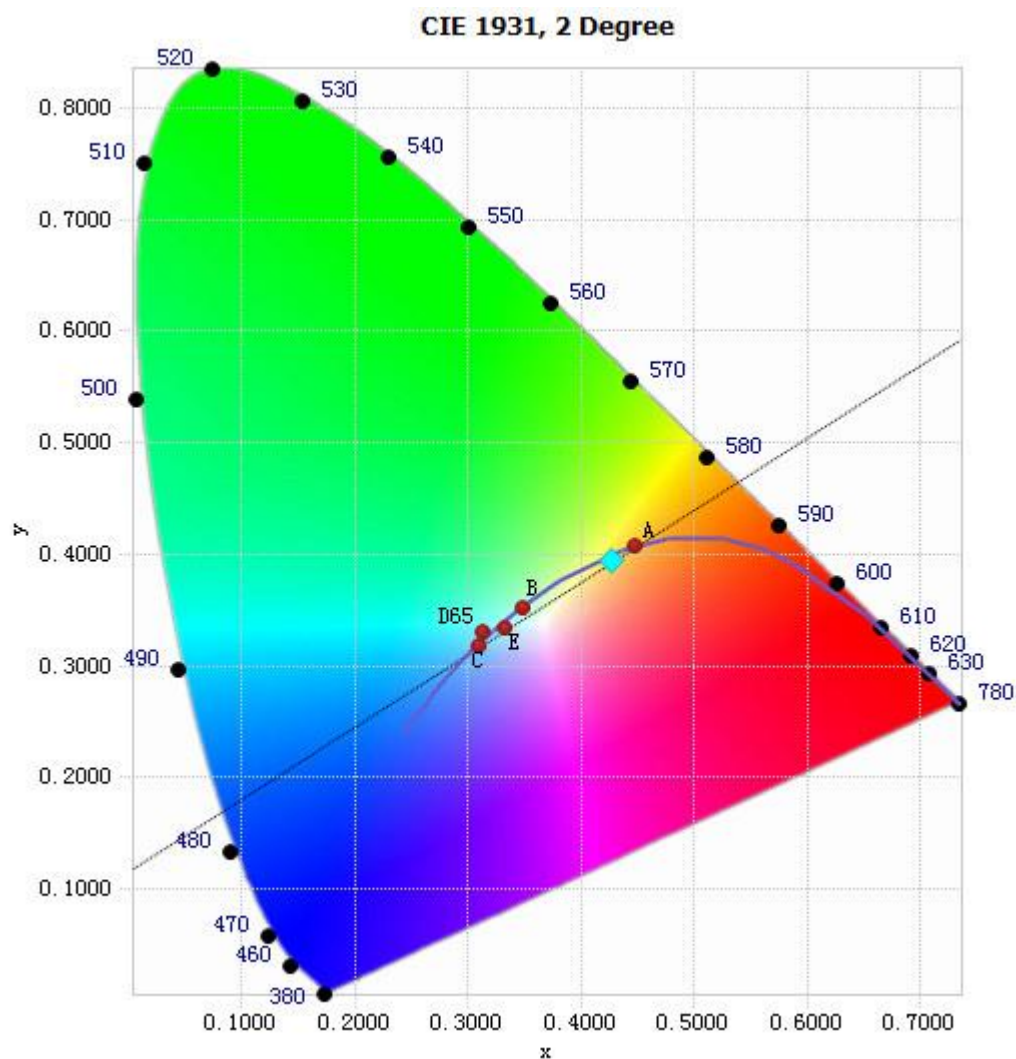


Chart 8: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	4.90E-05	485	3.36E-03	590	1.33E-02	695	2.54E-03
385	4.42E-05	490	3.69E-03	595	1.37E-02	700	2.17E-03
390	2.92E-05	495	4.24E-03	600	1.39E-02	705	1.84E-03
395	4.51E-05	500	4.83E-03	605	1.39E-02	710	1.59E-03
400	3.05E-05	505	5.38E-03	610	1.38E-02	715	1.37E-03
405	4.47E-05	510	5.85E-03	615	1.34E-02	720	1.17E-03
410	7.10E-05	515	6.26E-03	620	1.29E-02	725	9.90E-04
415	1.62E-04	520	6.53E-03	625	1.22E-02	730	8.54E-04
420	3.14E-04	525	6.84E-03	630	1.15E-02	735	7.26E-04
425	5.79E-04	530	7.14E-03	635	1.07E-02	740	6.22E-04
430	1.04E-03	535	7.38E-03	640	9.93E-03	745	5.30E-04
435	1.80E-03	540	7.71E-03	645	9.09E-03	750	4.53E-04
440	3.26E-03	545	8.06E-03	650	8.21E-03	755	3.86E-04
445	6.10E-03	550	8.43E-03	655	7.39E-03	760	3.36E-04
450	9.04E-03	555	8.93E-03	660	6.59E-03	765	2.87E-04
455	7.97E-03	560	9.50E-03	665	5.84E-03	770	2.40E-04
460	5.84E-03	565	1.01E-02	670	5.13E-03	775	2.12E-04
465	5.01E-03	570	1.08E-02	675	4.50E-03	780	1.75E-04
470	4.08E-03	575	1.15E-02	680	3.90E-03		
475	3.25E-03	580	1.22E-02	685	3.40E-03		
480	3.16E-03	585	1.28E-02	690	2.94E-03		

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

### Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4269, 0.3936)

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

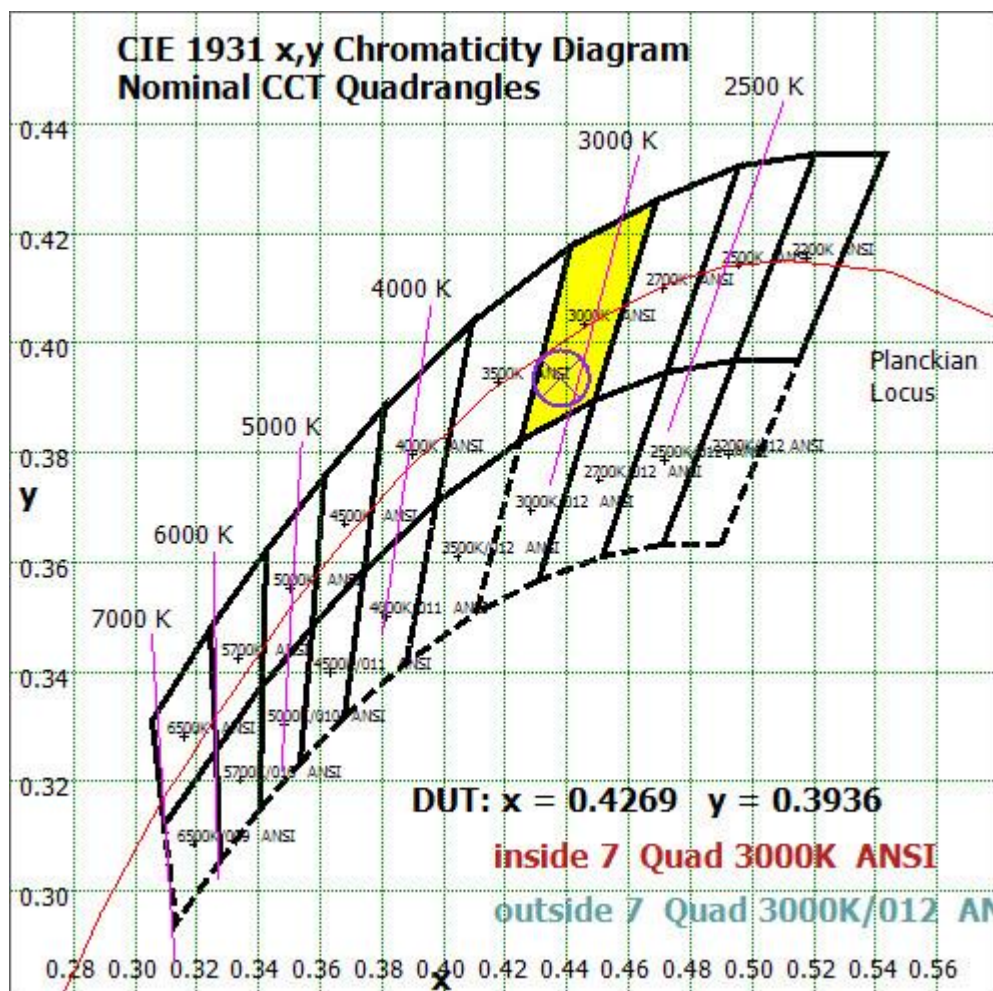


Chart 10: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram



# Color Rendition Report – Sphere Spectroradiometer Method

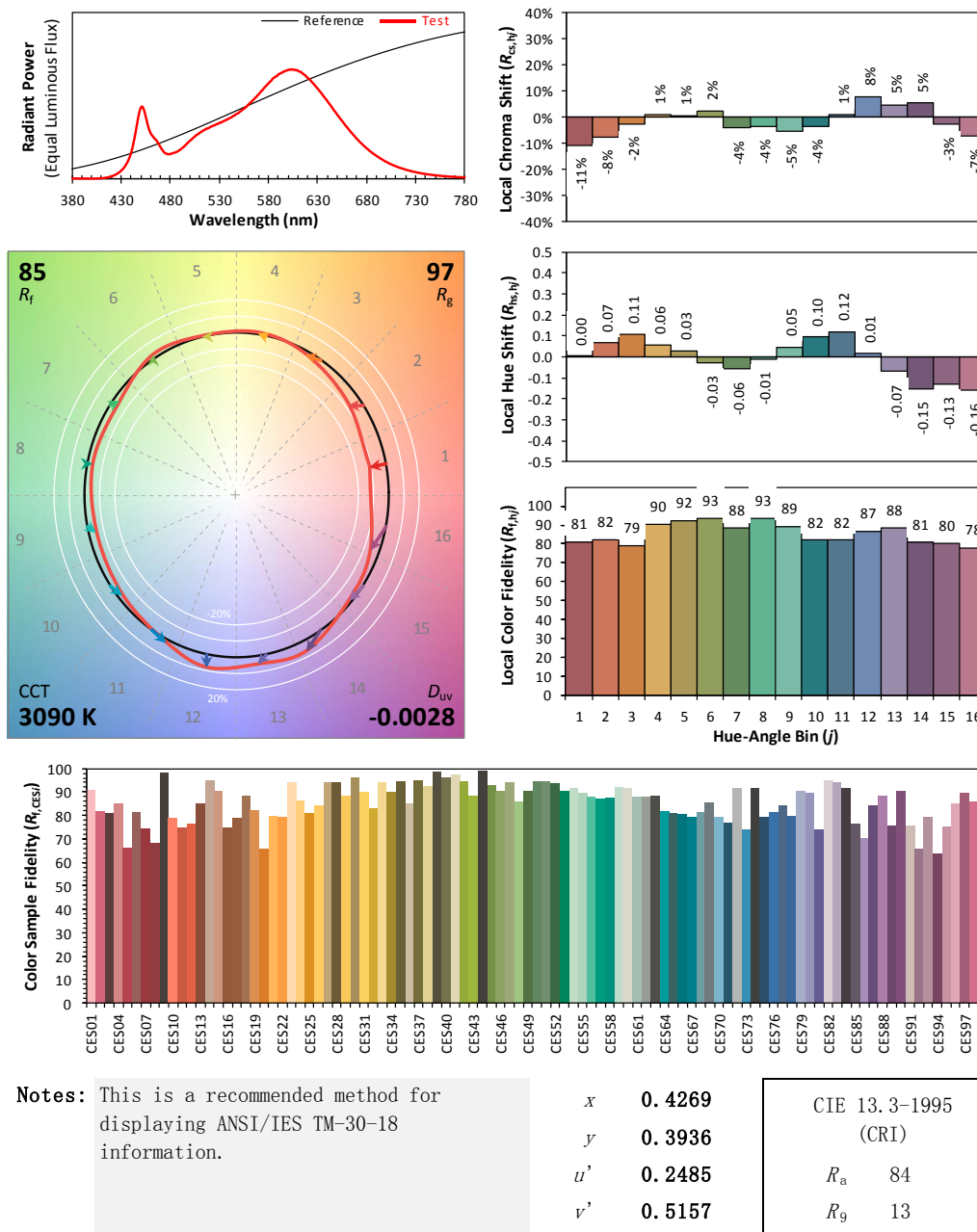
## ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/08/15

Model: 5.5PLS/8CCTS/HYBM/GX23



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 (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)	0.041	0.020
Power Factor	0.9730	0.9061
Test Power (W)	4.81	4.93
THD A%	16.87	14.21
Luminous Efficacy (lm/W)	145.5	142.0
Total Luminous Flux (lm)	699.6	700.0
Color Rendering Index (CRI)	84.8	
R9	15.8	
Correlated Color Temperature (CCT)(K)	3509	
Chromaticity Chroma x	0.4021	
Chromaticity Chroma y	0.3835	
Chromaticity Chroma u	0.2366	
Chromaticity Chroma v	0.3385	
Duv	-0.0025	
Chromaticity Chroma u'	0.2366	
Chromaticity Chroma v'	0.5077	

Special Color Rendering Indices	
R1	83.9
R2	92.7
R3	95.9
R4	82.9
R5	84.3
R6	89.9
R7	84.3
R8	64.2
R9	15.8
R10	82.7
R11	82.5
R12	71
R13	86.3
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

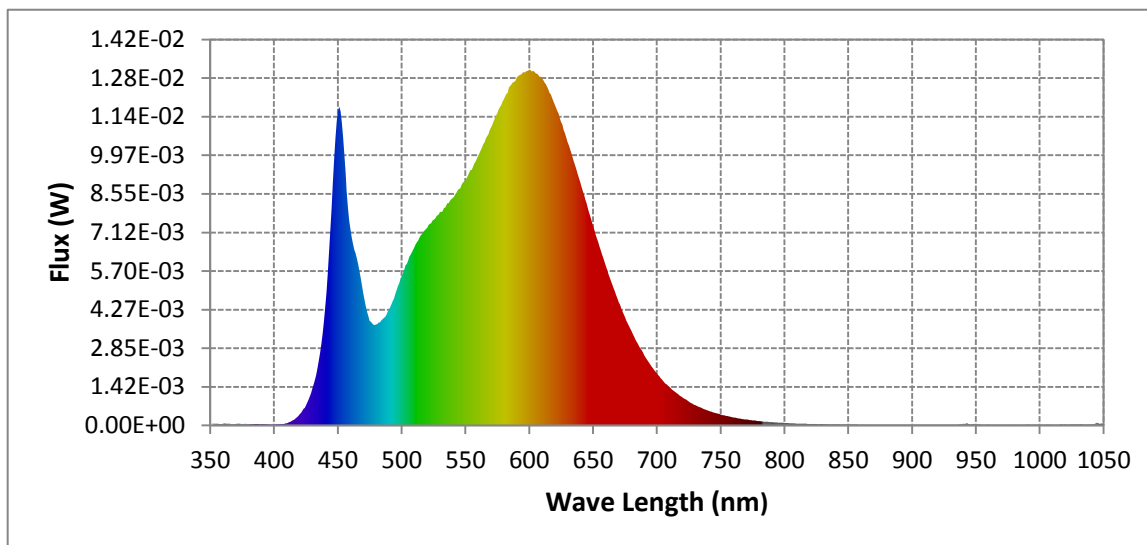
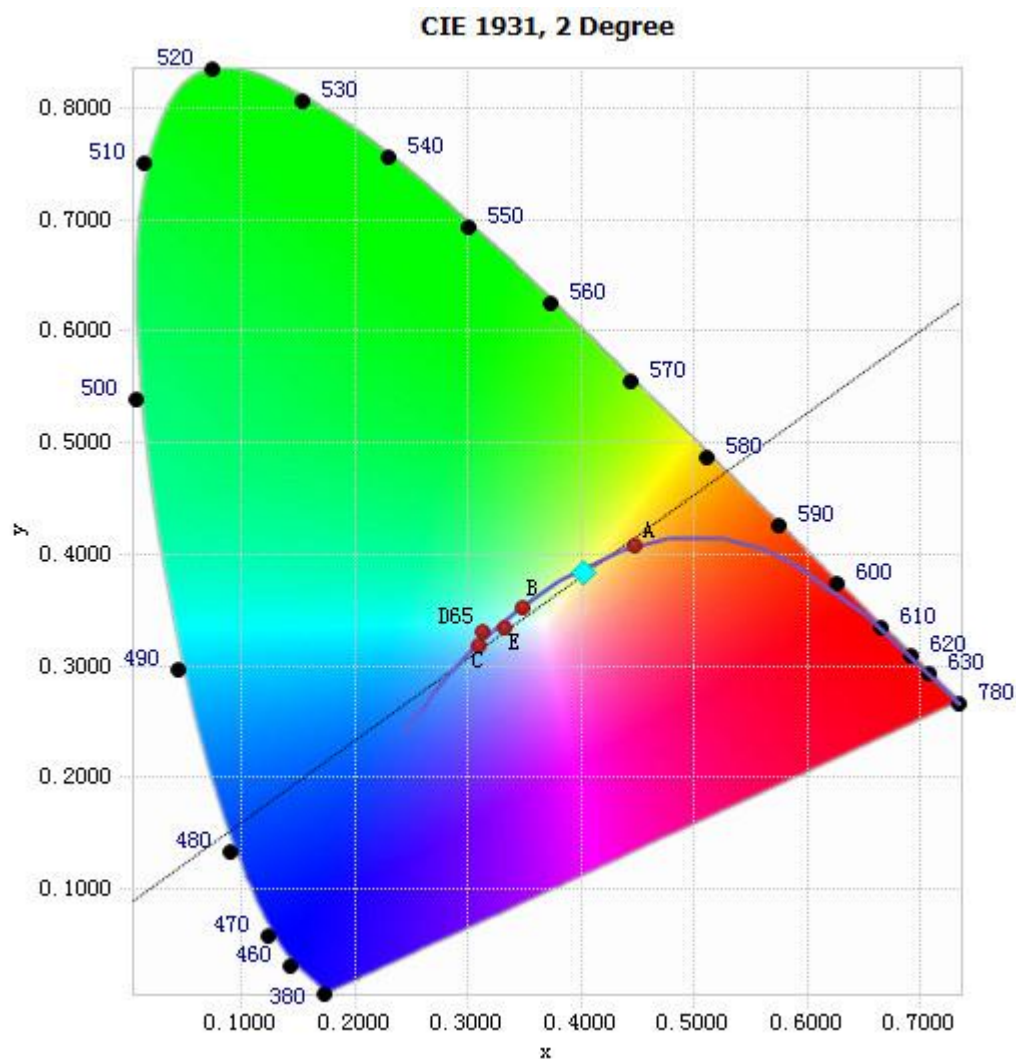


Chart 12: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	5.50E-05	485	3.92E-03	590	1.28E-02	695	2.24E-03
385	5.15E-05	490	4.27E-03	595	1.30E-02	700	1.92E-03
390	4.48E-05	495	4.85E-03	600	1.31E-02	705	1.64E-03
395	4.66E-05	500	5.51E-03	605	1.30E-02	710	1.41E-03
400	3.03E-05	505	6.08E-03	610	1.28E-02	715	1.21E-03
405	4.62E-05	510	6.59E-03	615	1.24E-02	720	1.03E-03
410	8.24E-05	515	7.02E-03	620	1.18E-02	725	8.82E-04
415	1.92E-04	520	7.29E-03	625	1.12E-02	730	7.47E-04
420	4.06E-04	525	7.58E-03	630	1.05E-02	735	6.40E-04
425	7.40E-04	530	7.89E-03	635	9.73E-03	740	5.48E-04
430	1.37E-03	535	8.11E-03	640	8.97E-03	745	4.67E-04
435	2.39E-03	540	8.40E-03	645	8.18E-03	750	3.96E-04
440	4.35E-03	545	8.73E-03	650	7.35E-03	755	3.43E-04
445	8.00E-03	550	9.04E-03	655	6.60E-03	760	2.92E-04
450	1.16E-02	555	9.44E-03	660	5.88E-03	765	2.51E-04
455	9.98E-03	560	9.95E-03	665	5.19E-03	770	2.19E-04
460	7.24E-03	565	1.05E-02	670	4.54E-03	775	1.88E-04
465	6.17E-03	570	1.10E-02	675	3.98E-03	780	1.58E-04
470	4.88E-03	575	1.15E-02	680	3.48E-03		
475	3.86E-03	580	1.20E-02	685	3.01E-03		
480	3.72E-03	585	1.25E-02	690	2.61E-03		

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

## Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4021, 0.3835)

Chart 13: 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

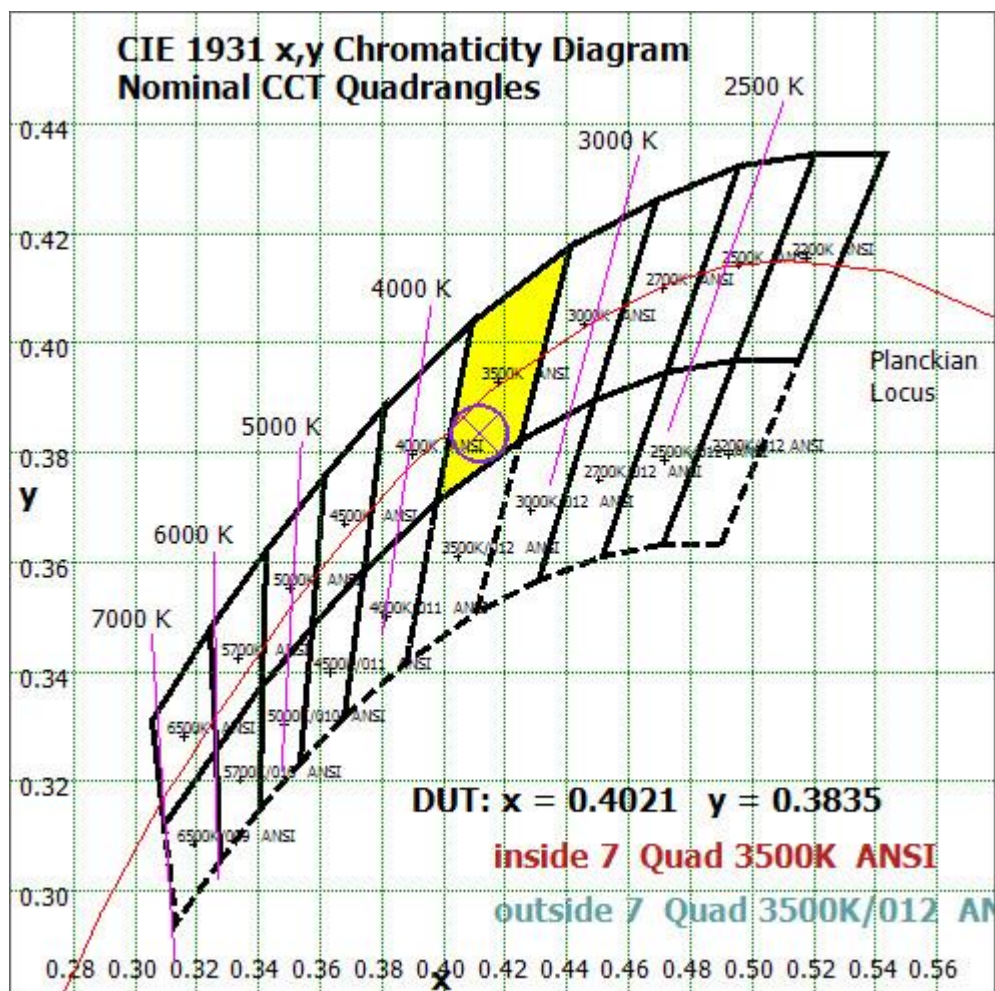


Chart14: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

# Color Rendition Report – Sphere Spectroradiometer Method

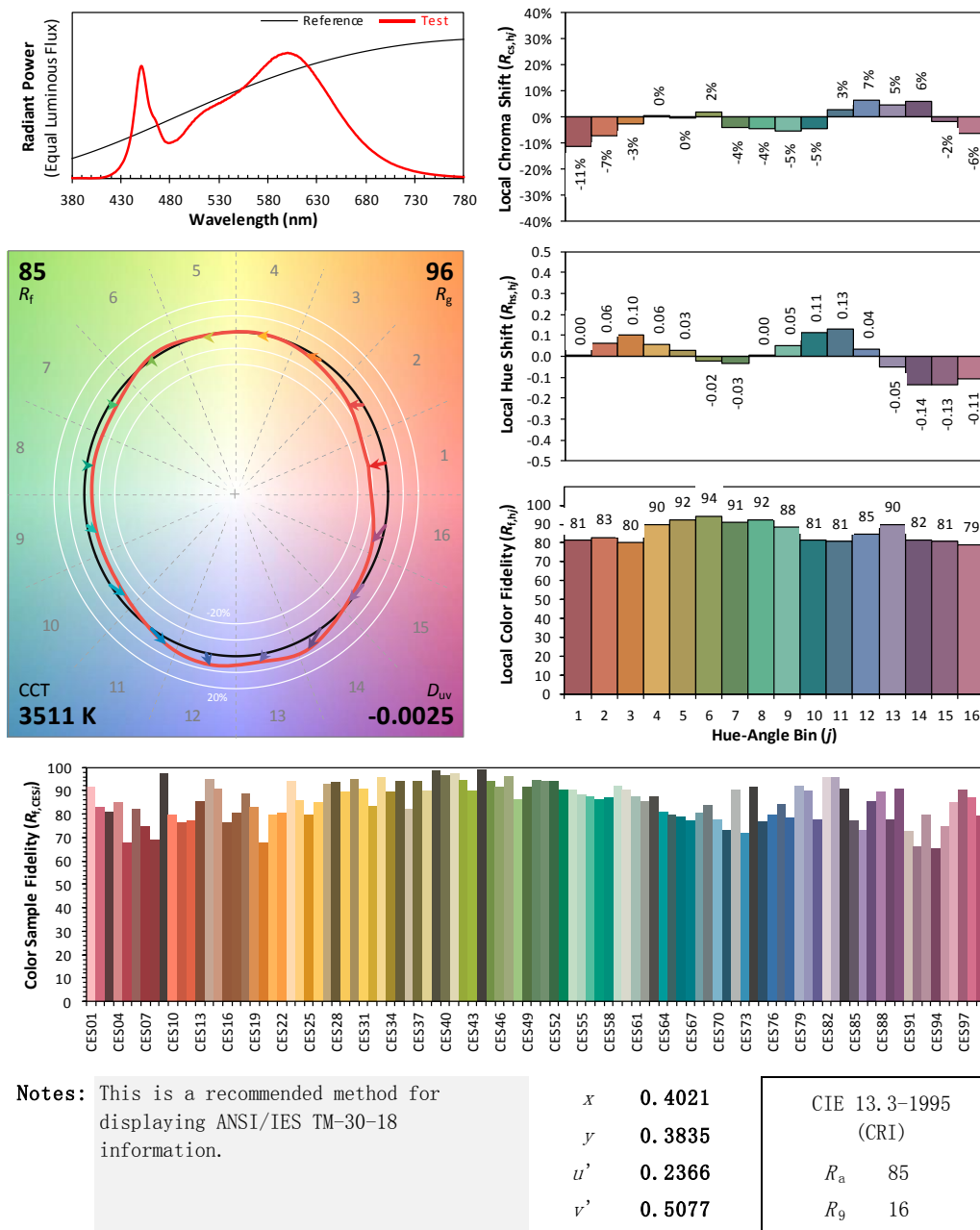
## ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/08/15

Model: 5.5PLS/8CCTS/HYBM/GX23



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 (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)	0.042	0.020
Power Factor	0.9724	0.9096
Test Power (W)	4.90	5.01
THD A%	17.67	14.32
Luminous Efficacy (lm/W)	143.9	140.5
Total Luminous Flux (lm)	704.9	703.8
Color Rendering Index (CRI)	84.1	
R9	12.2	
Correlated Color Temperature (CCT)(K)	4072	
Chromaticity Chroma x	0.3769	
Chromaticity Chroma y	0.3736	
Chromaticity Chroma u	0.2240	
Chromaticity Chroma v	0.3331	
Duv	-0.0004	
Chromaticity Chroma u'	0.2240	
Chromaticity Chroma v'	0.4997	

Special Color Rendering Indices	
R1	82.6
R2	90.9
R3	95.8
R4	82.5
R5	82.8
R6	87
R7	85.9
R8	65.5
R9	12.2
R10	78.2
R11	81.7
R12	65
R13	84.8
R14	98.1

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

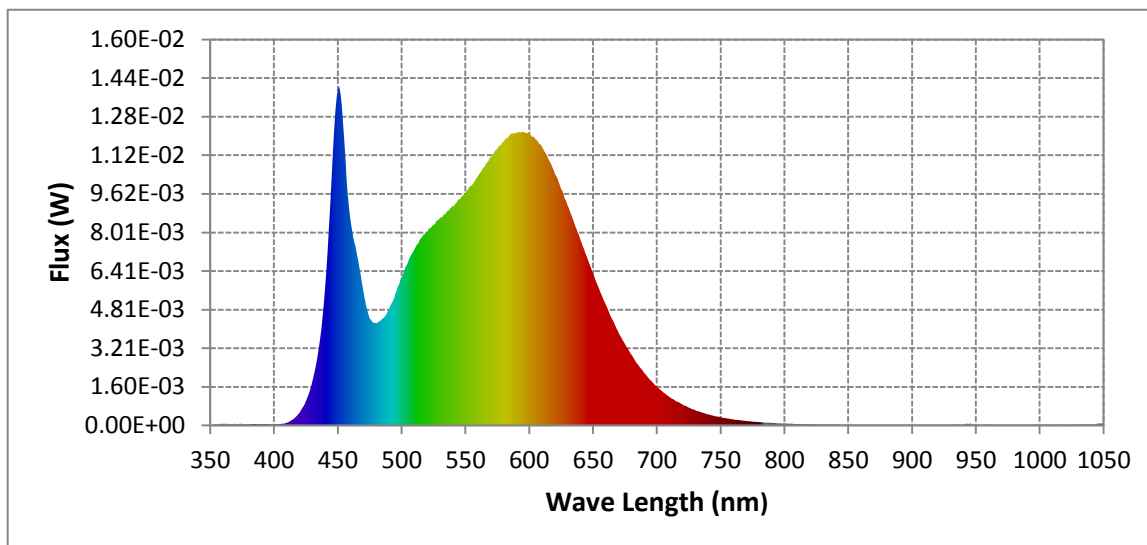


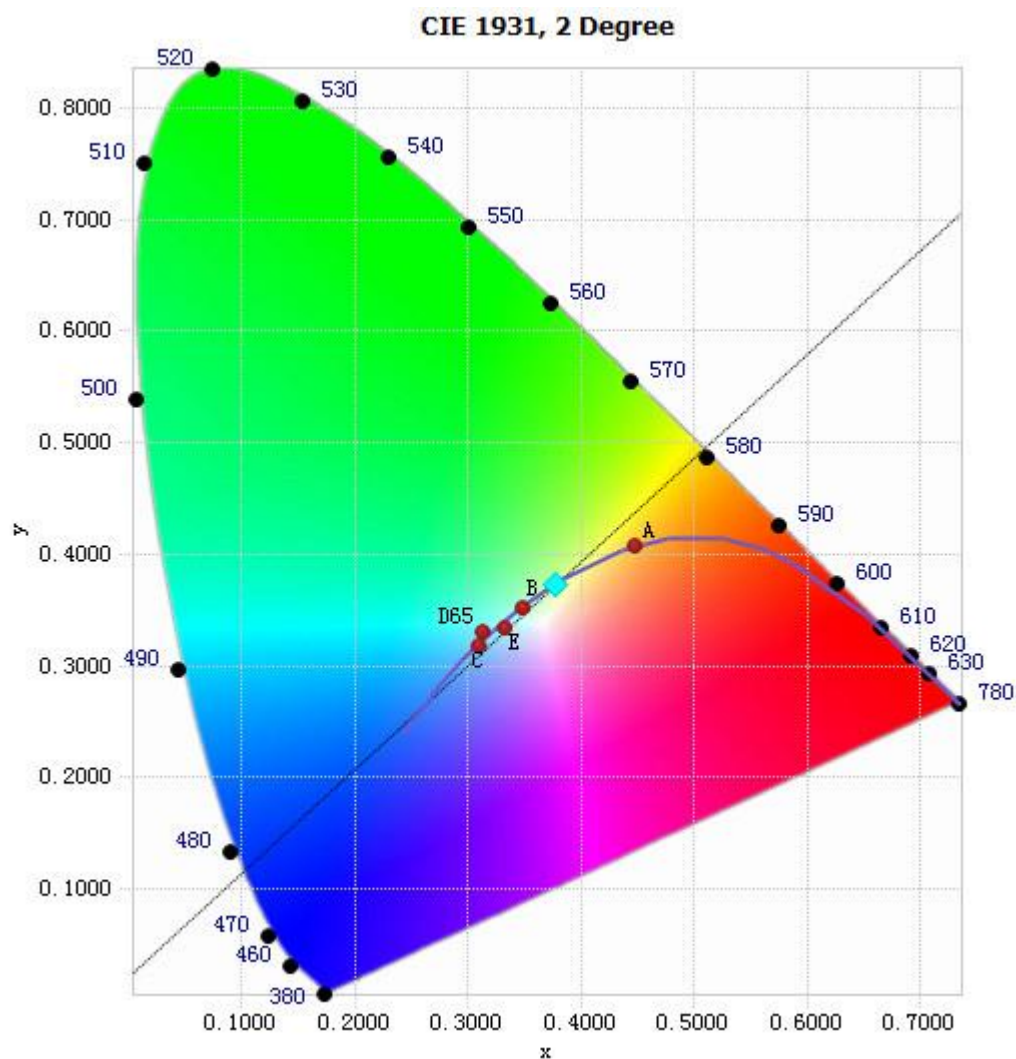
Chart16: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	5.64E-05	485	4.43E-03	590	1.22E-02	695	1.89E-03
385	5.45E-05	490	4.82E-03	595	1.22E-02	700	1.61E-03
390	5.01E-05	495	5.46E-03	600	1.21E-02	705	1.38E-03
395	4.63E-05	500	6.16E-03	605	1.19E-02	710	1.17E-03
400	4.18E-05	505	6.79E-03	610	1.16E-02	715	1.01E-03
405	4.96E-05	510	7.32E-03	615	1.11E-02	720	8.72E-04
410	1.17E-04	515	7.77E-03	620	1.05E-02	725	7.42E-04
415	2.55E-04	520	8.02E-03	625	9.82E-03	730	6.38E-04
420	5.19E-04	525	8.33E-03	630	9.14E-03	735	5.38E-04
425	1.01E-03	530	8.63E-03	635	8.44E-03	740	4.58E-04
430	1.83E-03	535	8.83E-03	640	7.73E-03	745	3.92E-04
435	3.21E-03	540	9.11E-03	645	7.02E-03	750	3.39E-04
440	5.76E-03	545	9.40E-03	650	6.29E-03	755	2.90E-04
445	1.02E-02	550	9.65E-03	655	5.63E-03	760	2.46E-04
450	1.40E-02	555	9.98E-03	660	5.00E-03	765	2.16E-04
455	1.18E-02	560	1.04E-02	665	4.41E-03	770	1.84E-04
460	8.53E-03	565	1.07E-02	670	3.84E-03	775	1.59E-04
465	7.11E-03	570	1.12E-02	675	3.37E-03	780	1.38E-04
470	5.61E-03	575	1.15E-02	680	2.94E-03		
475	4.43E-03	580	1.18E-02	685	2.53E-03		
480	4.25E-03	585	1.21E-02	690	2.19E-03		

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



# Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3769, 0.3736)

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

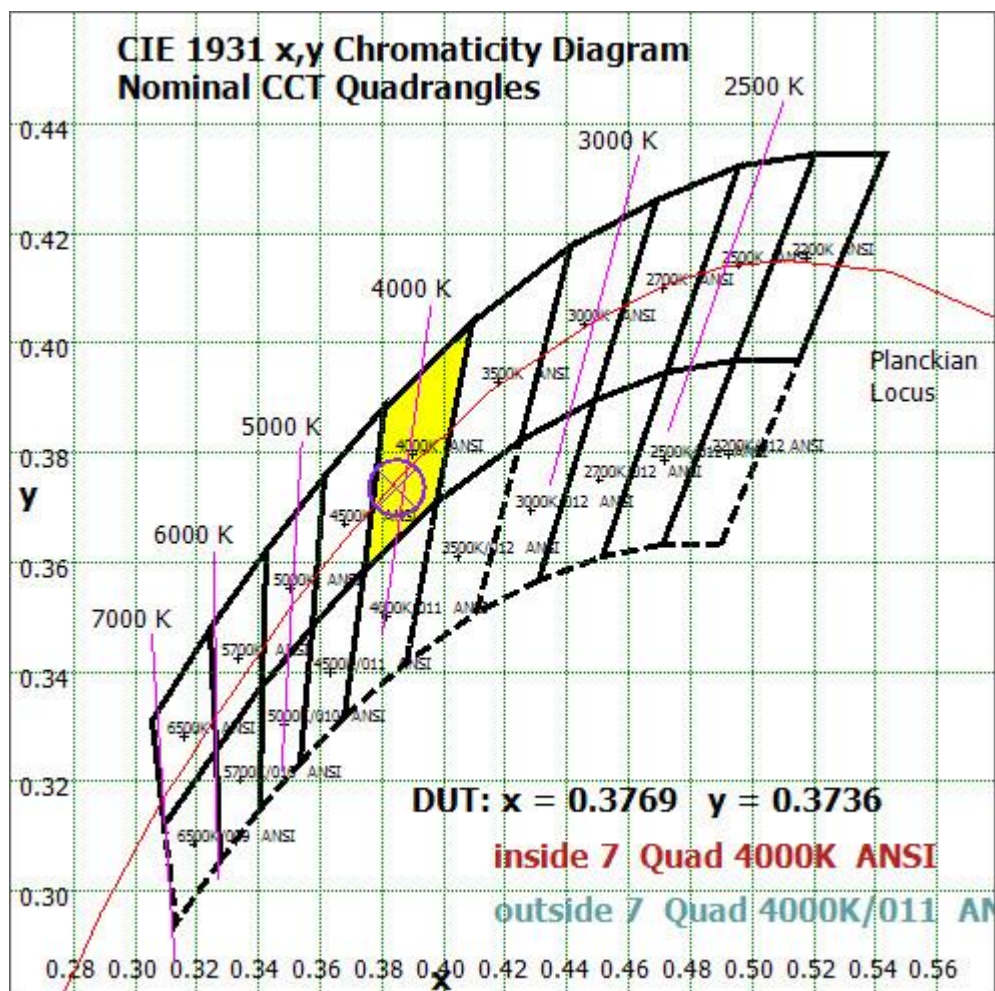


Chart 18: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

# Color Rendition Report – Sphere Spectroradiometer Method

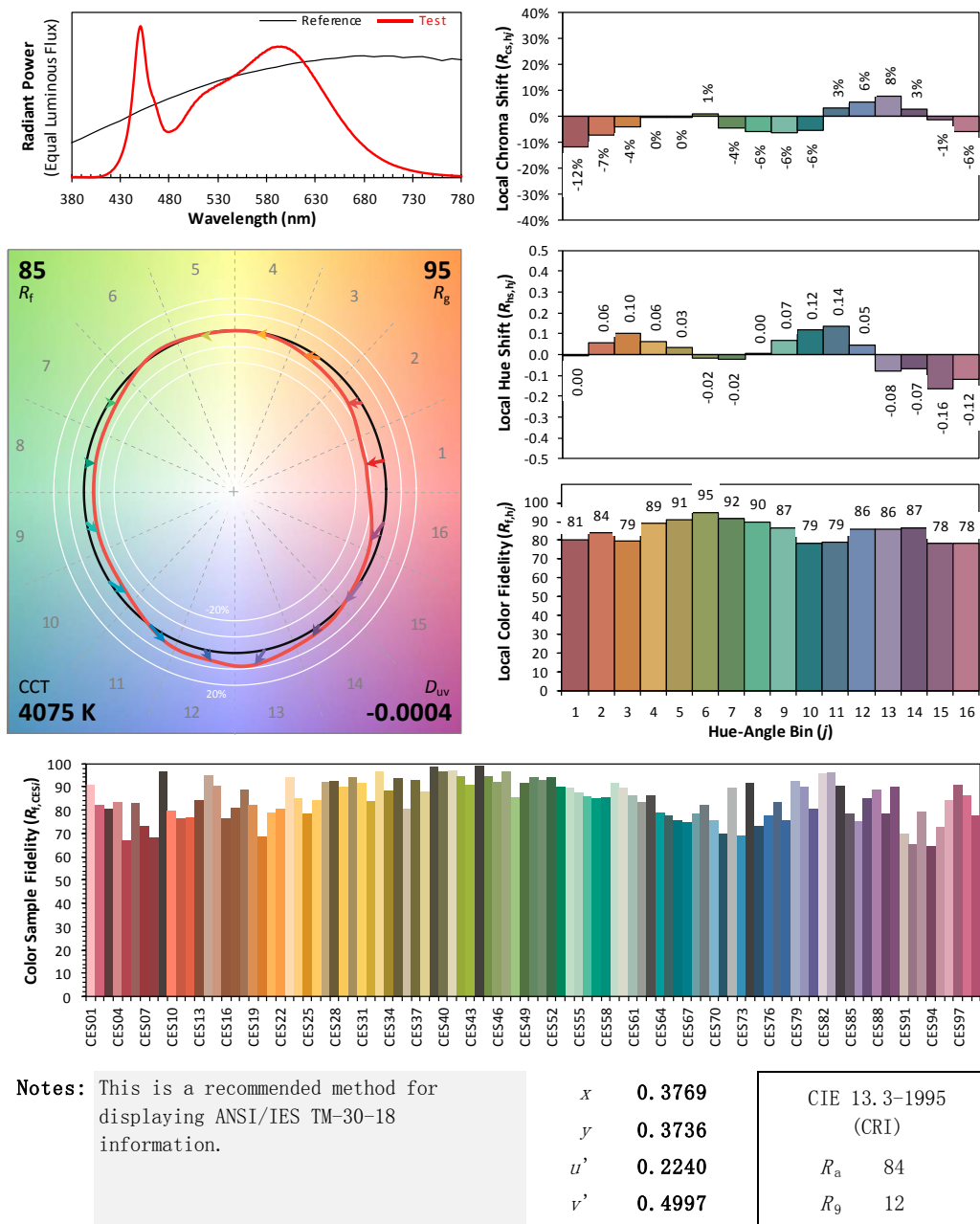
## ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/08/15

Model: 5.5PLS/8CCTS/HYBM/GX23



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.

## 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 14: 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  $4\pi$ . 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

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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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