



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: 40T8/8F/8CCTS/DEB/SD/C

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Report No.: HZ24120035a

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

Review by:

Wei Fei

Approved by:



April Zou
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Engineer: Wei Fei

Jan. 03, 2025

Jan. 03, 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	40T8/8F/8CCTS/DEB/SD/C 3000K Setting	40T8/8F/8CCTS/DEB/SD/C 3500K Setting	40T8/8F/8CCTS/DEB/SD/C 4000K Setting
Luminous Efficacy (Lumens /Watt)	128.4	131.0	133.1
Total Luminous Flux (Lumens)	5383.9	5496.3	5593.2
Power (Watts)	41.94	41.96	42.03
Power Factor	0.9770	0.9767	0.9753
CCT (K)	3072	3400	3938
CRI	81.8	83.4	84.8
Stabilization Time(Light & Power)	50	50	50
Note	3000K	3500K	4000K

Tested Model	40T8/8F/8CCTS/DEB/SD/C 5000K Setting	40T8/8F/8CCTS/DEB/SD/C 6500K Setting
Luminous Efficacy (Lumens /Watt)	134.0	132.8
Total Luminous Flux (Lumens)	5632.9	5560.1
Power (Watts)	42.05	41.87
Power Factor	0.9748	0.9765
CCT (K)	5053	6476
CRI	85.2	84.2
Stabilization Time(Light & Power)	50	50
Note	5000K	6500K

Table 1: Executive Data Summary

Test specifications:

Date of Receipt	: Dec. 30, 2024
Date of Test	: Jan. 02, 2025
Test item	: Total Luminous Flux, 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
TEST RESULTS (3500K Setting).....	11
Sphere-Spectroradiometer Method	11
Spectral Power Distribution - Sphere Spectroradiometer Method.....	12
Chromaticity Diagram - Sphere Spectroradiometer Method	13
Nominal CCT Quadrangles – Sphere Spectroradiometer Method.....	14
Color Rendition Report – Sphere Spectroradiometer Method.....	15
TEST RESULTS (4000K Setting).....	16
Sphere-Spectroradiometer Method	16
Spectral Power Distribution - Sphere Spectroradiometer Method.....	17
Chromaticity Diagram - Sphere Spectroradiometer Method	18
Nominal CCT Quadrangles – Sphere Spectroradiometer Method.....	19
Color Rendition Report – Sphere Spectroradiometer Method.....	20
TEST RESULTS (5000K Setting).....	21
Sphere-Spectroradiometer Method	21
Spectral Power Distribution - Sphere Spectroradiometer Method.....	22
Chromaticity Diagram - Sphere Spectroradiometer Method	23
Nominal CCT Quadrangles – Sphere Spectroradiometer Method.....	24
Color Rendition Report – Sphere Spectroradiometer Method.....	25

TEST RESULTS (6500K Setting).....	26
Sphere-Spectroradiometer Method.....	26
Spectral Power Distribution - Sphere Spectroradiometer Method.....	27
Chromaticity Diagram - Sphere Spectroradiometer Method.....	28
Nominal CCT Quadrangles – Sphere Spectroradiometer Method.....	29
Color Rendition Report – Sphere Spectroradiometer Method.....	30
EQUIPMENT LIST.....	31
TEST METHODS	31
Seasoning of SSL Product	31
Sphere-Spectroradiometer Method- Photometric and Electrical Measurements	31

SAMPLE PHOTO



Figure 1- Overview of the sample

Equipment Under Test(EUT)

Name	: LED Tube
Model	: 40T8/8F/8CCTS/DEB/SD/C
Electrical Ratings	: 120-277V, 50/60Hz
Product Description	: Field-Adjustable 24W/32W/40W 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)	0.358	0.149
Power Factor	0.9770	0.9667
Test Power (W)	41.94	39.80
THD A%	16.97	12.94
Luminous Efficacy (lm/W)	128.4	133.0
Total Luminous Flux (lm)	5383.9	5295.1
Color Rendering Index (CRI)	81.8	
R9	4.5	
Correlated Color Temperature (CCT)(K)	3072	
Chromaticity Chroma x	0.4321	
Chromaticity Chroma y	0.4029	
Chromaticity Chroma u	0.2479	
Chromaticity Chroma v	0.3468	
Duv	0.0003	
Chromaticity Chroma u'	0.2479	
Chromaticity Chroma v'	0.5202	

Special Color Rendering Indices	
R1	79.9
R2	89.9
R3	96.5
R4	79.7
R5	79.9
R6	87.3
R7	82.9
R8	58.5
R9	4.5
R10	76.9
R11	78.7
R12	68.1
R13	82.2
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

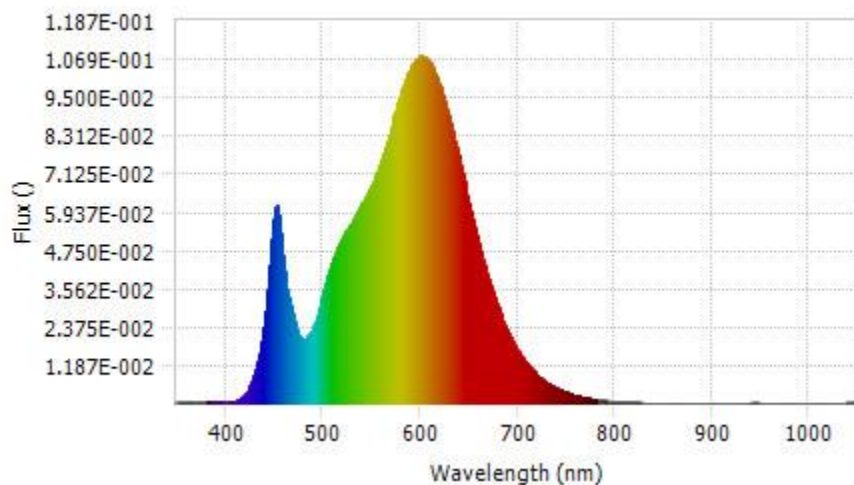


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	4.42E-04	485	2.12E-02	590	1.04E-01	695	1.93E-02
385	3.38E-04	490	2.41E-02	595	1.07E-01	700	1.65E-02
390	3.19E-04	495	2.87E-02	600	1.08E-01	705	1.42E-02
395	3.75E-04	500	3.42E-02	605	1.07E-01	710	1.23E-02
400	3.68E-04	505	3.96E-02	610	1.05E-01	715	1.04E-02
405	4.76E-04	510	4.42E-02	615	1.03E-01	720	8.95E-03
410	8.73E-04	515	4.86E-02	620	9.86E-02	725	7.72E-03
415	1.61E-03	520	5.16E-02	625	9.38E-02	730	6.54E-03
420	2.94E-03	525	5.43E-02	630	8.81E-02	735	5.59E-03
425	5.40E-03	530	5.69E-02	635	8.18E-02	740	4.79E-03
430	9.36E-03	535	5.92E-02	640	7.57E-02	745	4.13E-03
435	1.59E-02	540	6.19E-02	645	6.89E-02	750	3.49E-03
440	2.61E-02	545	6.47E-02	650	6.21E-02	755	2.97E-03
445	4.29E-02	550	6.77E-02	655	5.58E-02	760	2.58E-03
450	5.97E-02	555	7.15E-02	660	4.98E-02	765	2.20E-03
455	5.57E-02	560	7.57E-02	665	4.40E-02	770	1.91E-03
460	4.11E-02	565	8.06E-02	670	3.86E-02	775	1.60E-03
465	3.31E-02	570	8.57E-02	675	3.38E-02	780	1.37E-03
470	2.69E-02	575	9.10E-02	680	2.96E-02		
475	2.13E-02	580	9.63E-02	685	2.57E-02		
480	1.99E-02	585	1.01E-01	690	2.23E-02		

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

Chromaticity Diagram - Sphere Spectroradiometer Method

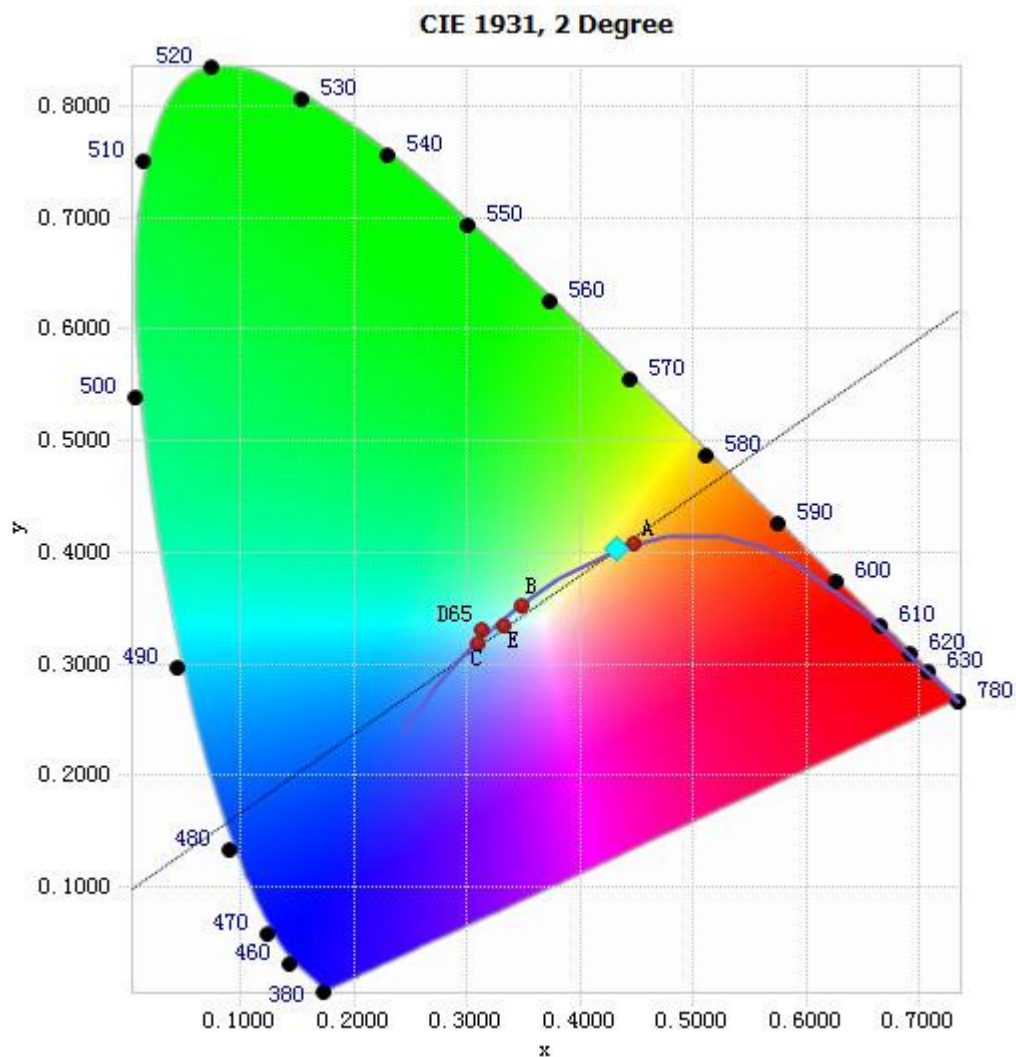


Chart 2: Chromaticity Diagram per Sphere - Spectroradiometer Method

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

Nominal CCT Quadrangles – Sphere Spectroradiometer Method

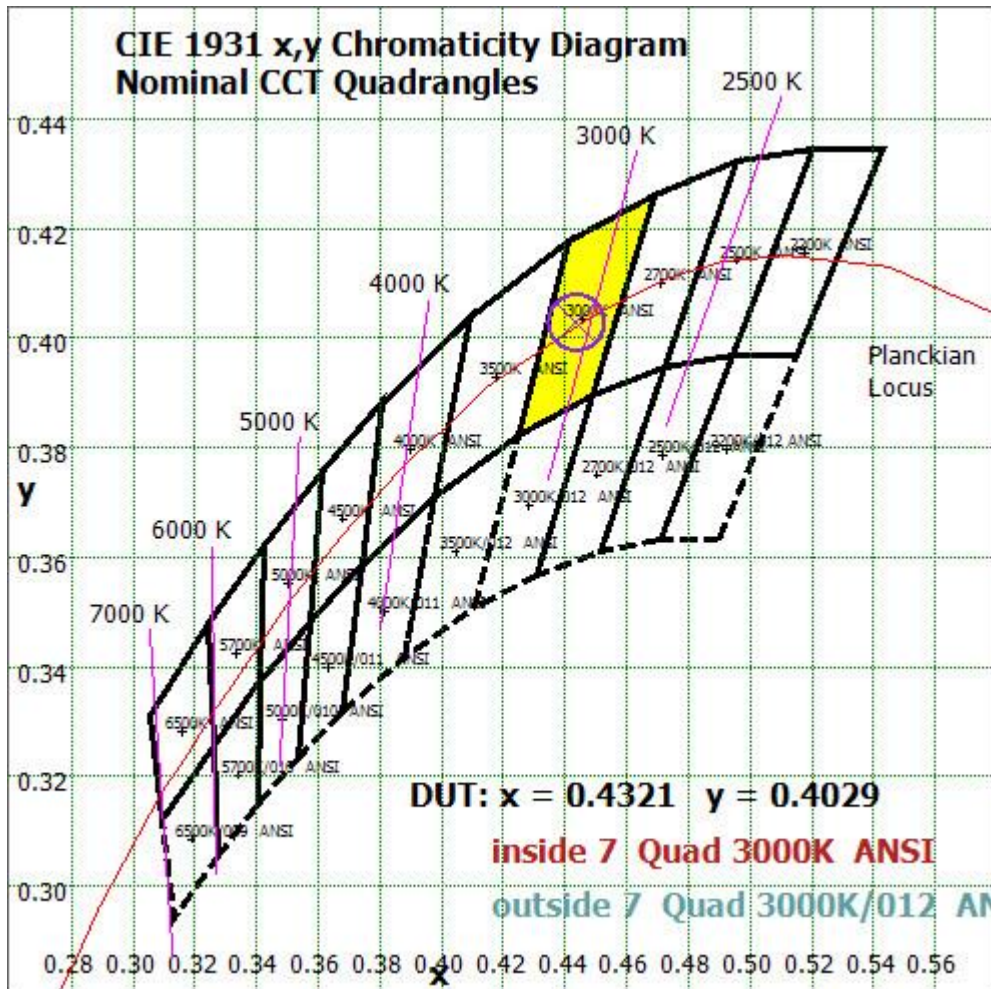


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

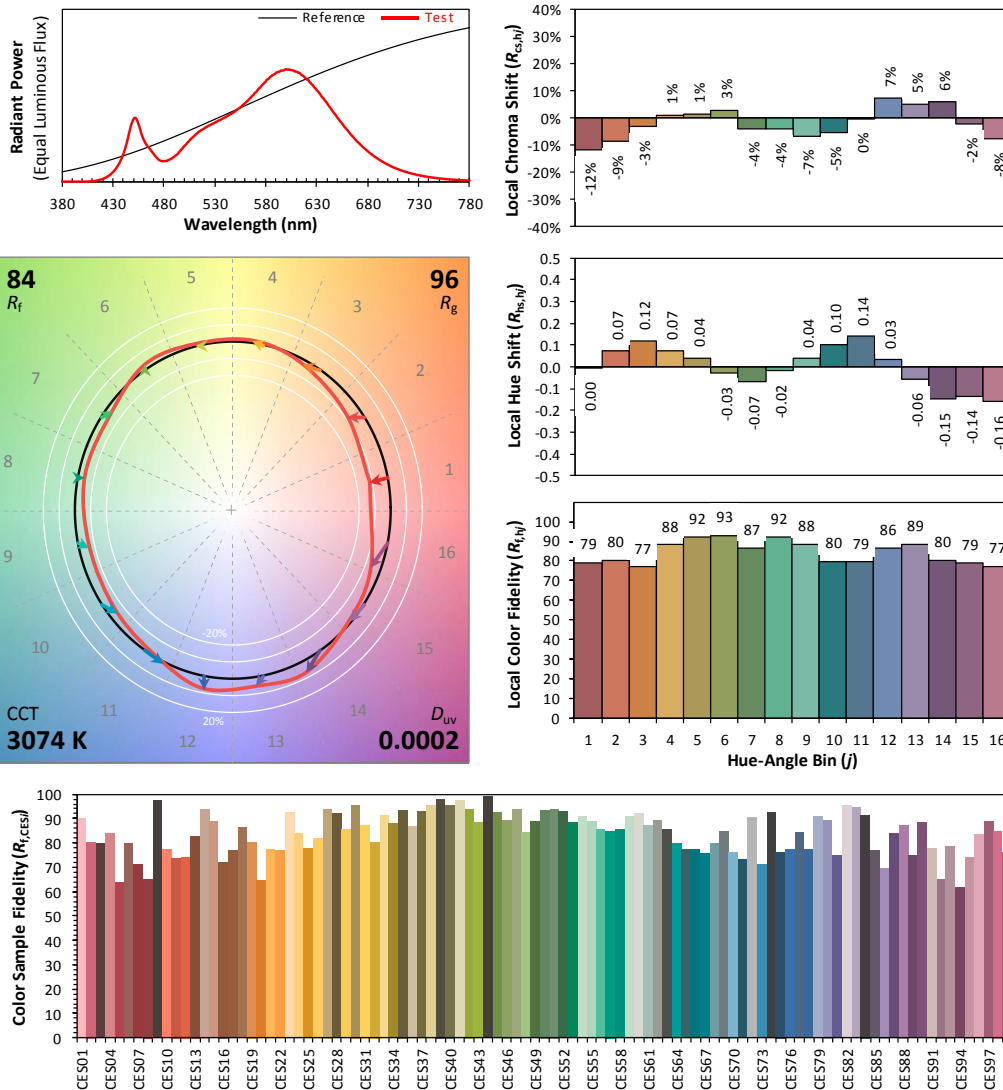
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/01/02

Model:40T8/8F/8CCTS/DEB/SD/C



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

x 0.4321
 y 0.4029
 u' 0.2479
 v' 0.5202

CIE 13.3-1995
(CRI)

R_a 82
 R_9 5

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.

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)	0.358	0.149
Power Factor	0.9767	0.9667
Test Power (W)	41.96	39.85
THD A%	17.54	13.00
Luminous Efficacy (lm/W)	131.0	135.5
Total Luminous Flux (lm)	5496.3	5400.1
Color Rendering Index (CRI)	83.4	
R9	11	
Correlated Color Temperature (CCT)(K)	3400	
Chromaticity Chroma x	0.4091	
Chromaticity Chroma y	0.3890	
Chromaticity Chroma u	0.2389	
Chromaticity Chroma v	0.3407	
Duv	-0.0016	
Chromaticity Chroma u'	0.2389	
Chromaticity Chroma v'	0.5111	

Special Color Rendering Indices	
R1	82
R2	90.7
R3	96.1
R4	81.7
R5	82.1
R6	87.5
R7	84.3
R8	62.6
R9	11
R10	78
R11	80.9
R12	67.7
R13	84.2
R14	98.3

Table 4: 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

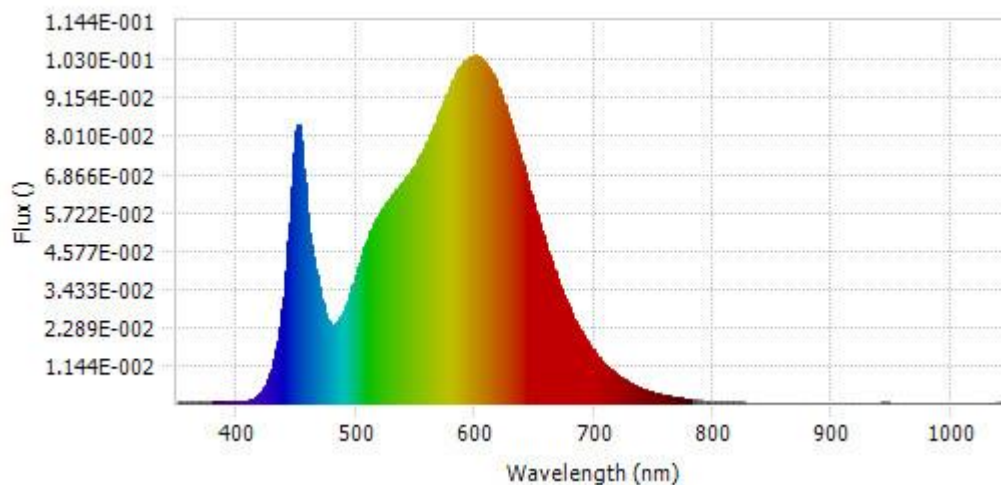
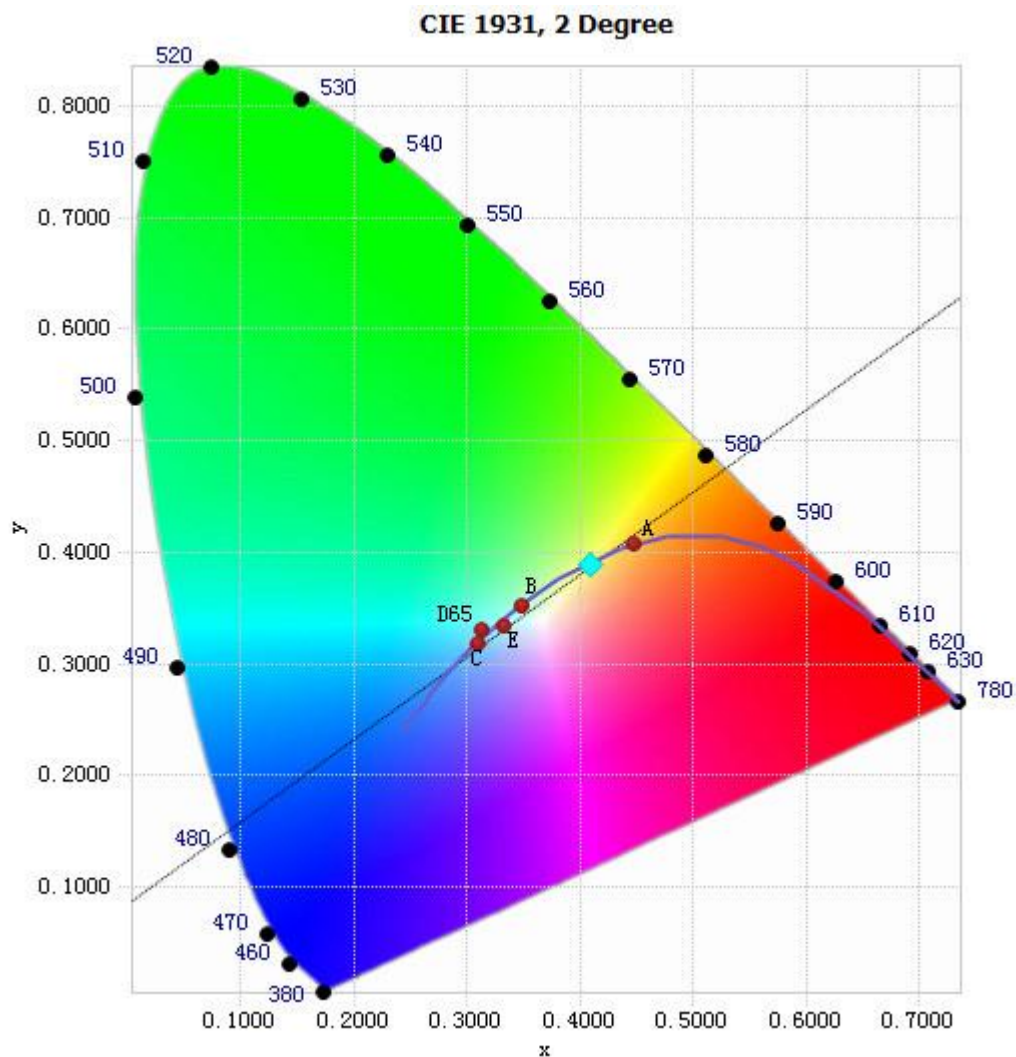


Chart 5: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	5.73E-04	485	2.48E-02	590	1.02E-01	695	1.80E-02
385	5.49E-04	490	2.77E-02	595	1.03E-01	700	1.55E-02
390	4.14E-04	495	3.27E-02	600	1.04E-01	705	1.33E-02
395	4.39E-04	500	3.87E-02	605	1.03E-01	710	1.14E-02
400	4.28E-04	505	4.46E-02	610	1.01E-01	715	9.80E-03
405	5.24E-04	510	4.93E-02	615	9.80E-02	720	8.39E-03
410	9.33E-04	515	5.40E-02	620	9.39E-02	725	7.21E-03
415	1.78E-03	520	5.68E-02	625	8.91E-02	730	6.13E-03
420	3.35E-03	525	5.97E-02	630	8.36E-02	735	5.24E-03
425	6.37E-03	530	6.21E-02	635	7.75E-02	740	4.47E-03
430	1.19E-02	535	6.42E-02	640	7.15E-02	745	3.83E-03
435	2.06E-02	540	6.66E-02	645	6.51E-02	750	3.28E-03
440	3.53E-02	545	6.89E-02	650	5.86E-02	755	2.80E-03
445	5.91E-02	550	7.16E-02	655	5.27E-02	760	2.41E-03
450	8.14E-02	555	7.49E-02	660	4.68E-02	765	2.08E-03
455	7.49E-02	560	7.85E-02	665	4.14E-02	770	1.79E-03
460	5.35E-02	565	8.24E-02	670	3.63E-02	775	1.55E-03
465	4.20E-02	570	8.67E-02	675	3.19E-02	780	1.30E-03
470	3.34E-02	575	9.13E-02	680	2.77E-02		
475	2.58E-02	580	9.55E-02	685	2.41E-02		
480	2.34E-02	585	9.96E-02	690	2.10E-02		

Table 5: Spectral Power Distribution Numerical Data per Sphere - Spectroradiometer Method

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4091, 0.3890)

Chart 6: 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

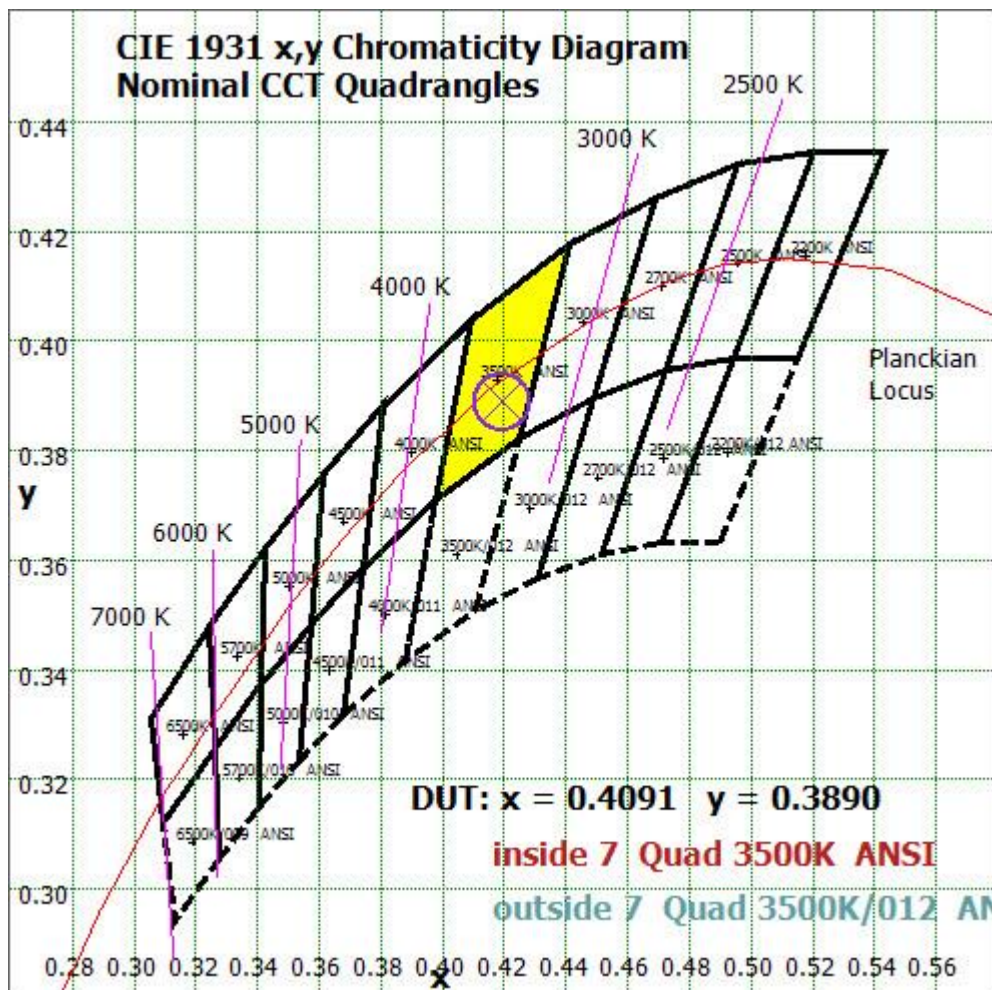


Chart 7: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

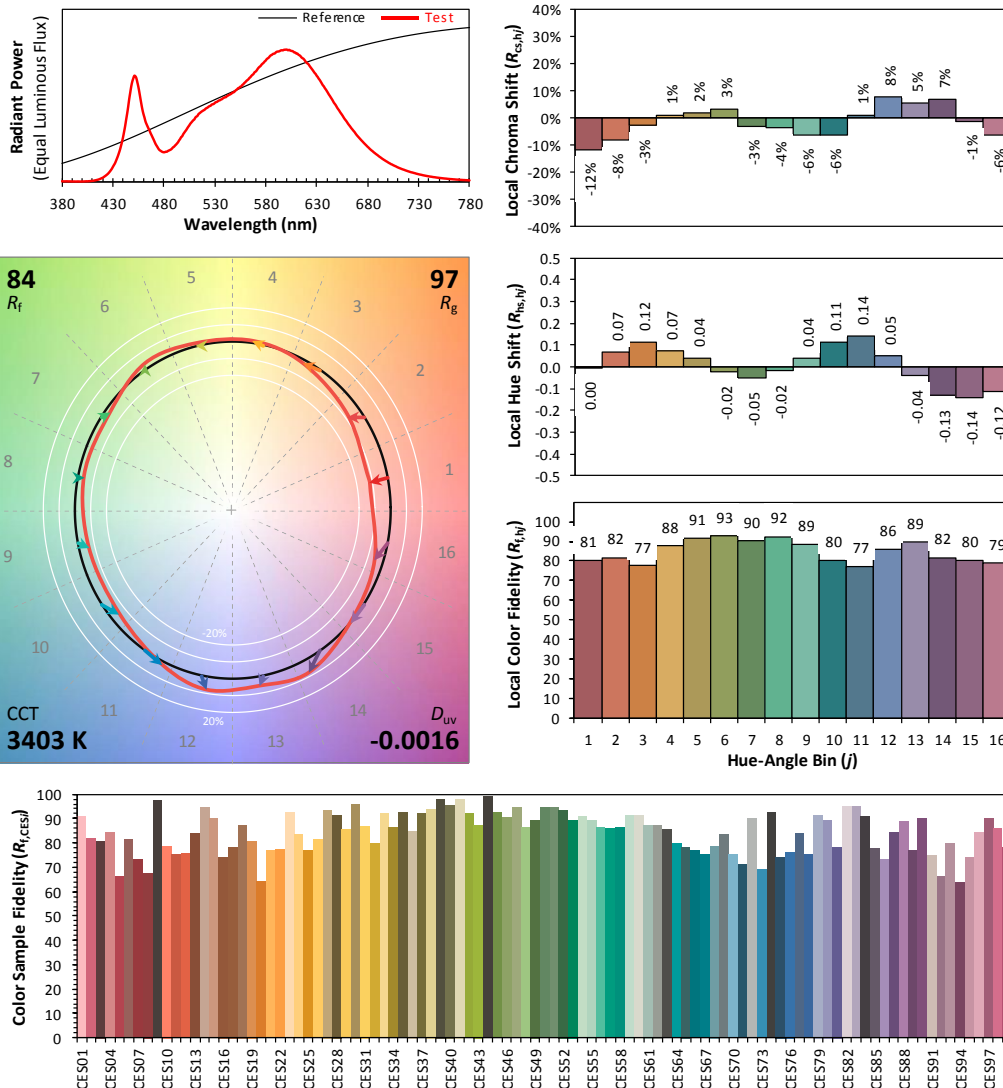
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/01/02

Model: 40T8/8F/8CCTS/DEB/SD/C



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

x 0.4091
 y 0.3890
 u' 0.2389
 v' 0.5111

CIE 13.3-1995
(CRI)
 R_a 83
 R_9 11

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

Chart 8: 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 4 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)	0.359	0.149
Power Factor	0.9753	0.9666
Test Power (W)	42.03	39.87
THD A%	17.21	12.93
Luminous Efficacy (lm/W)	133.1	137.8
Total Luminous Flux (lm)	5593.2	5492.5
Color Rendering Index (CRI)	84.8	
R9	17.9	
Correlated Color Temperature (CCT)(K)	3938	
Chromaticity Chroma x	0.3812	
Chromaticity Chroma y	0.3718	
Chromaticity Chroma u	0.2276	
Chromaticity Chroma v	0.3330	
Duv	-0.0026	
Chromaticity Chroma u'	0.2276	
Chromaticity Chroma v'	0.4995	

Special Color Rendering Indices	
R1	83.9
R2	91.1
R3	95.1
R4	83.6
R5	83.9
R6	86.9
R7	86.2
R8	67.3
R9	17.9
R10	78.1
R11	82.9
R12	65.2
R13	85.9
R14	97.6

Table 6: 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

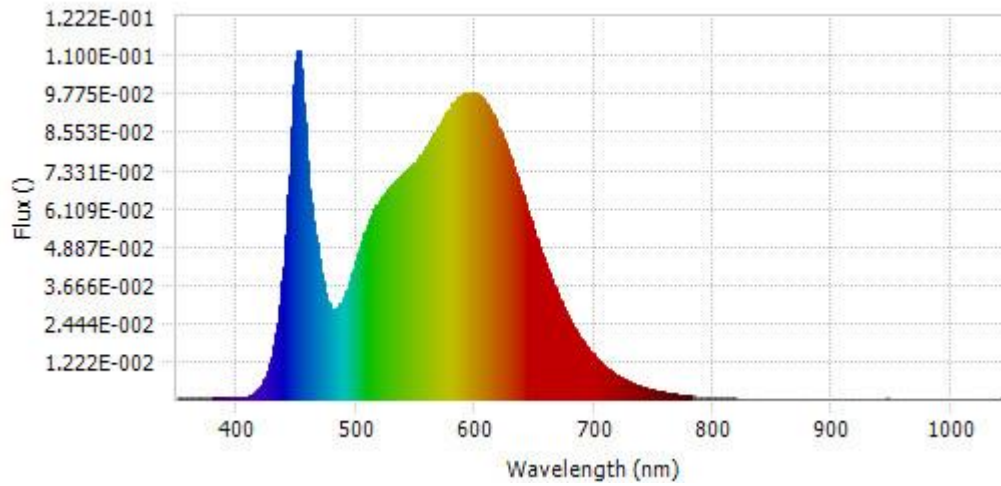
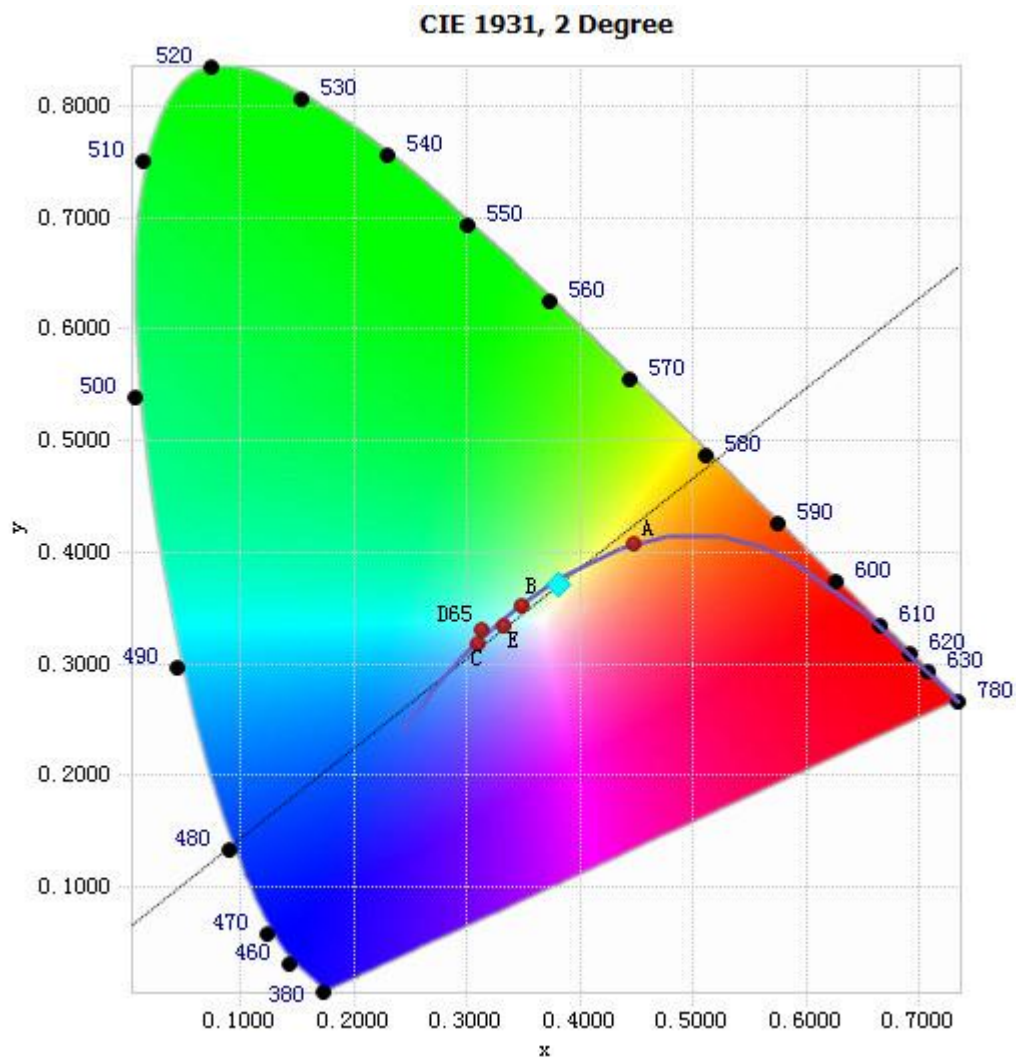


Chart 9: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	6.17E-04	485	2.97E-02	590	9.76E-02	695	1.63E-02
385	5.14E-04	490	3.28E-02	595	9.82E-02	700	1.40E-02
390	5.16E-04	495	3.80E-02	600	9.78E-02	705	1.20E-02
395	4.91E-04	500	4.44E-02	605	9.65E-02	710	1.02E-02
400	4.21E-04	505	5.06E-02	610	9.42E-02	715	8.86E-03
405	6.19E-04	510	5.57E-02	615	9.09E-02	720	7.56E-03
410	1.06E-03	515	6.08E-02	620	8.67E-02	725	6.47E-03
415	2.05E-03	520	6.36E-02	625	8.19E-02	730	5.54E-03
420	4.13E-03	525	6.62E-02	630	7.66E-02	735	4.74E-03
425	8.00E-03	530	6.84E-02	635	7.09E-02	740	4.05E-03
430	1.52E-02	535	7.01E-02	640	6.51E-02	745	3.48E-03
435	2.72E-02	540	7.23E-02	645	5.93E-02	750	2.97E-03
440	4.74E-02	545	7.40E-02	650	5.33E-02	755	2.57E-03
445	7.88E-02	550	7.58E-02	655	4.76E-02	760	2.18E-03
450	1.08E-01	555	7.84E-02	660	4.25E-02	765	1.89E-03
455	1.01E-01	560	8.12E-02	665	3.75E-02	770	1.61E-03
460	7.17E-02	565	8.42E-02	670	3.27E-02	775	1.39E-03
465	5.44E-02	570	8.72E-02	675	2.88E-02	780	1.20E-03
470	4.28E-02	575	9.06E-02	680	2.52E-02		
475	3.25E-02	580	9.36E-02	685	2.18E-02		
480	2.87E-02	585	9.65E-02	690	1.89E-02		

Table 7: Spectral Power Distribution Numerical Data per Sphere - Spectroradiometer Method

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3812, 0.3718)

Chart 10: 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

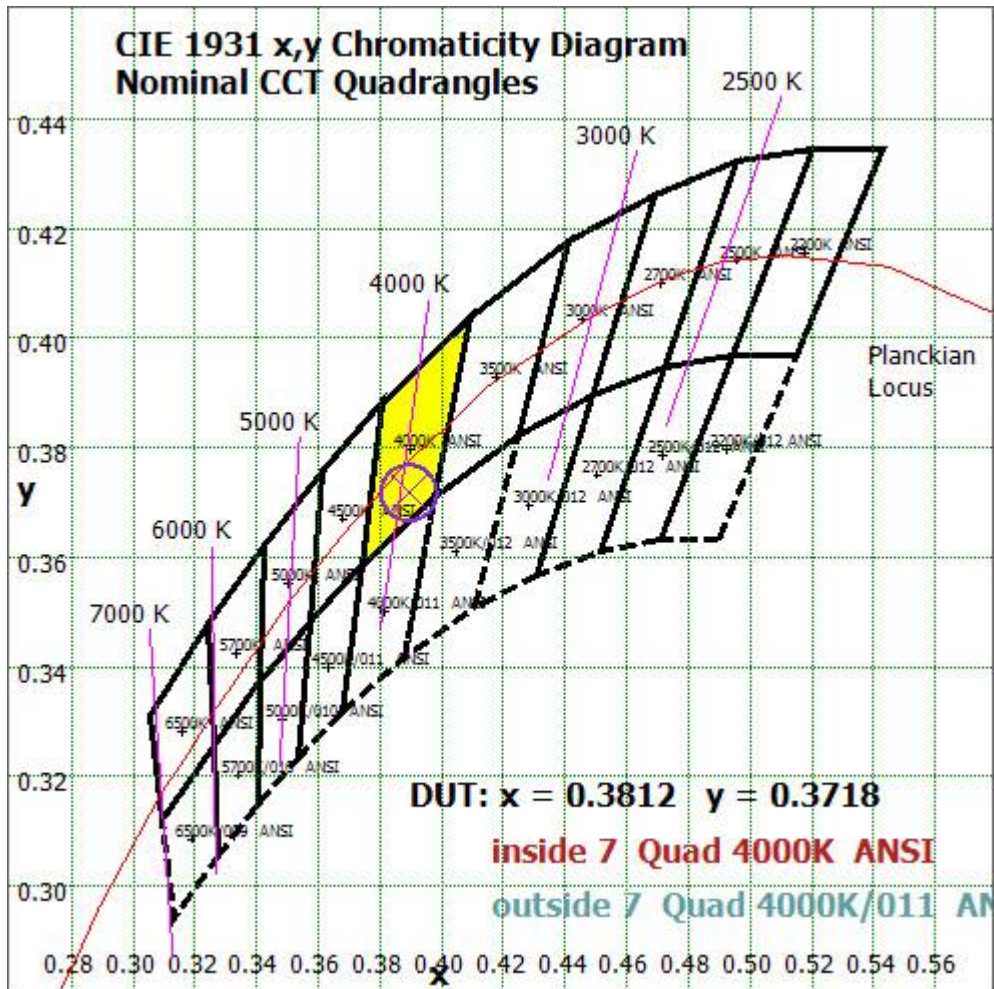


Chart 11: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

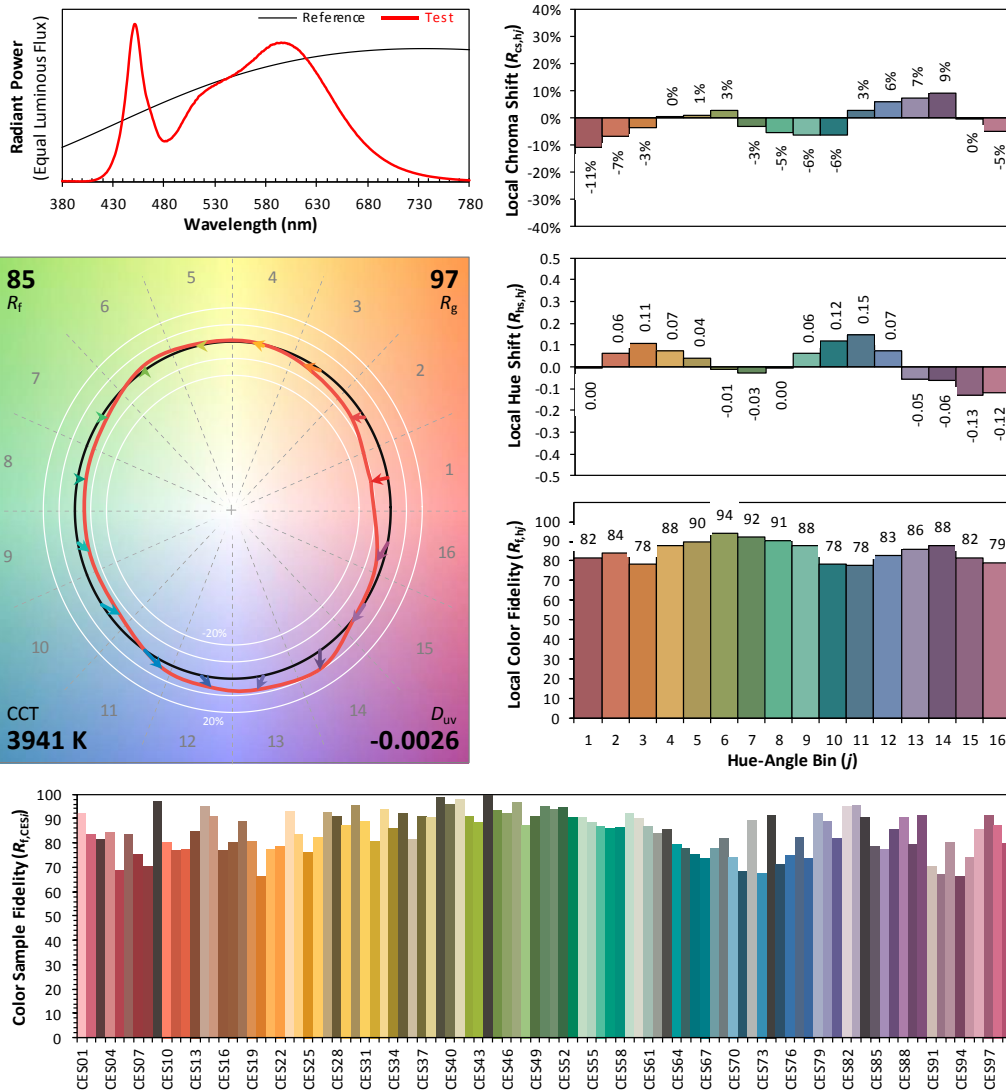
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/01/02

Model: 40T8/8F/8CCTS/DEB/SD/C



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

x 0.3812
 y 0.3718
 u' 0.2276
 v' 0.4995

CIE 13.3-1995
(CRI)
 R_a 85
 R_9 18

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

Chart 12: 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 6 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)	0.360	0.149
Power Factor	0.9748	0.9662
Test Power (W)	42.05	39.76
THD A%	17.74	13.08
Luminous Efficacy (lm/W)	134.0	139.0
Total Luminous Flux (lm)	5632.9	5526.6
Color Rendering Index (CRI)	85.2	
R9	19.5	
Correlated Color Temperature (CCT)(K)	5053	
Chromaticity Chroma x	0.3434	
Chromaticity Chroma y	0.3481	
Chromaticity Chroma u	0.2116	
Chromaticity Chroma v	0.3218	
Duv	-0.0011	
Chromaticity Chroma u'	0.2116	
Chromaticity Chroma v'	0.4827	

Special Color Rendering Indices	
R1	84.5
R2	90.3
R3	92.9
R4	85.1
R5	84.8
R6	85.2
R7	87.5
R8	70.9
R9	19.5
R10	75.9
R11	84.6
R12	64.3
R13	86.3
R14	96.3

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

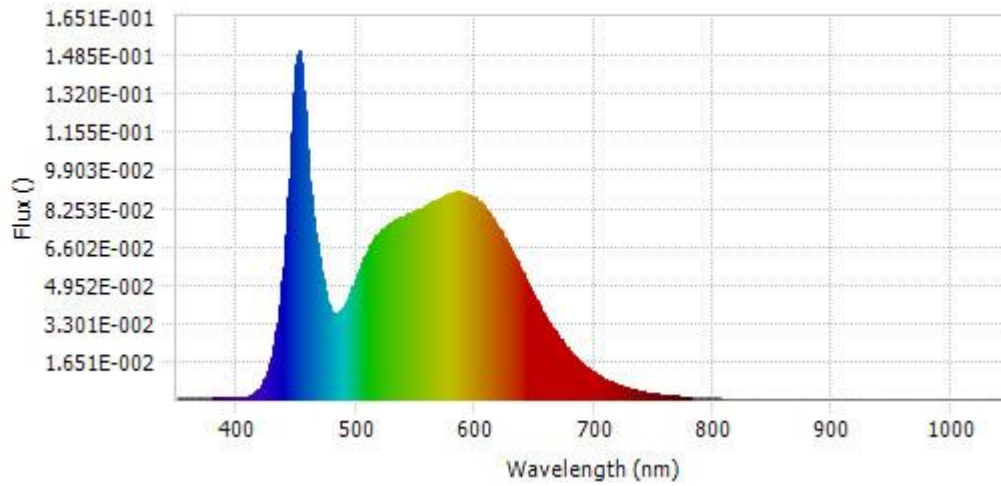
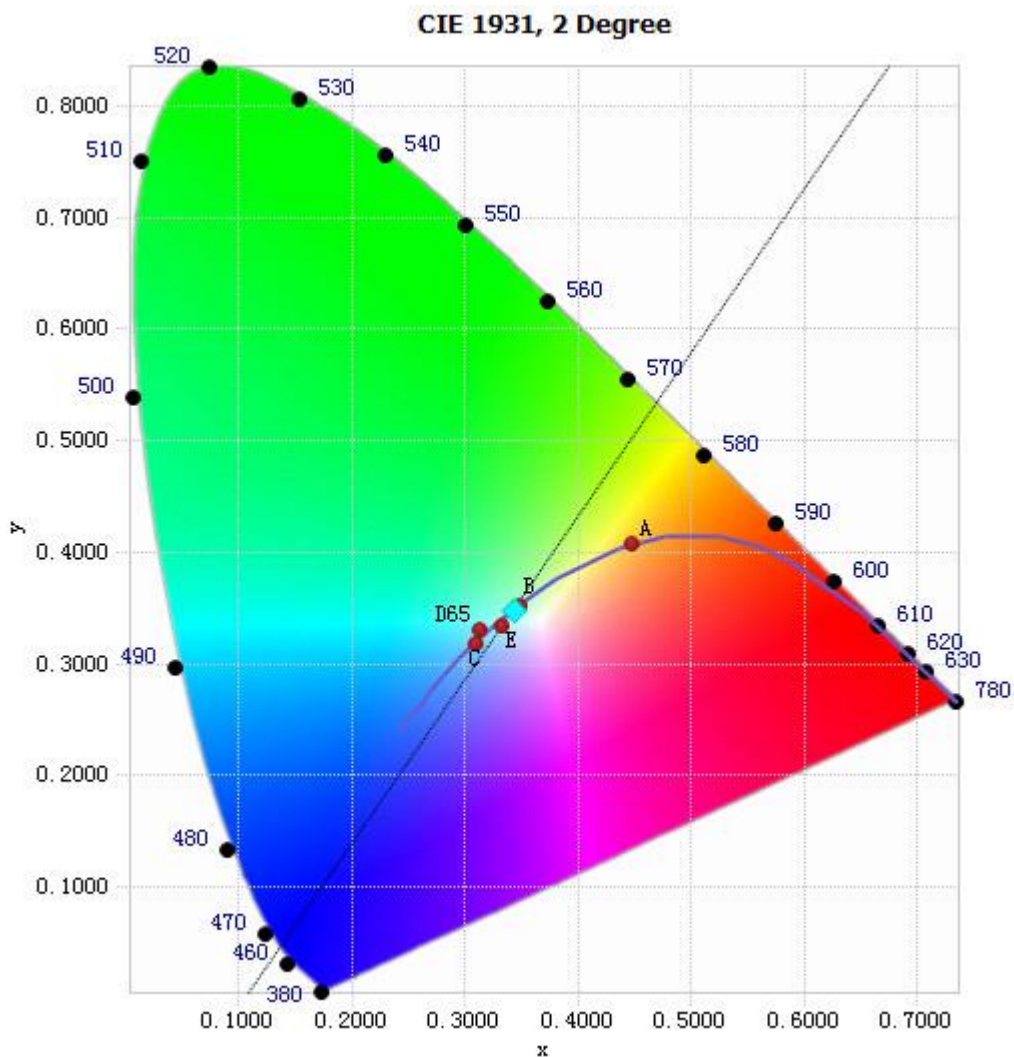


Chart 13: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	8.02E-04	485	3.73E-02	590	8.93E-02	695	1.33E-02
385	6.21E-04	490	4.01E-02	595	8.83E-02	700	1.15E-02
390	6.42E-04	495	4.54E-02	600	8.69E-02	705	9.83E-03
395	5.97E-04	500	5.23E-02	605	8.44E-02	710	8.48E-03
400	5.54E-04	505	5.90E-02	610	8.15E-02	715	7.24E-03
405	7.29E-04	510	6.42E-02	615	7.80E-02	720	6.21E-03
410	1.36E-03	515	6.94E-02	620	7.37E-02	725	5.36E-03
415	2.66E-03	520	7.21E-02	625	6.92E-02	730	4.57E-03
420	5.37E-03	525	7.45E-02	630	6.44E-02	735	3.97E-03
425	1.08E-02	530	7.65E-02	635	5.93E-02	740	3.37E-03
430	2.05E-02	535	7.77E-02	640	5.44E-02	745	2.88E-03
435	3.68E-02	540	7.91E-02	645	4.92E-02	750	2.49E-03
440	6.39E-02	545	8.02E-02	650	4.40E-02	755	2.14E-03
445	1.05E-01	550	8.11E-02	655	3.94E-02	760	1.84E-03
450	1.45E-01	555	8.26E-02	660	3.50E-02	765	1.59E-03
455	1.40E-01	560	8.40E-02	665	3.08E-02	770	1.38E-03
460	1.01E-01	565	8.53E-02	670	2.69E-02	775	1.15E-03
465	7.49E-02	570	8.65E-02	675	2.36E-02	780	1.02E-03
470	5.82E-02	575	8.78E-02	680	2.05E-02		
475	4.41E-02	580	8.89E-02	685	1.78E-02		
480	3.74E-02	585	8.96E-02	690	1.55E-02		

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

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.3434, 0.3481)

Chart 14: 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

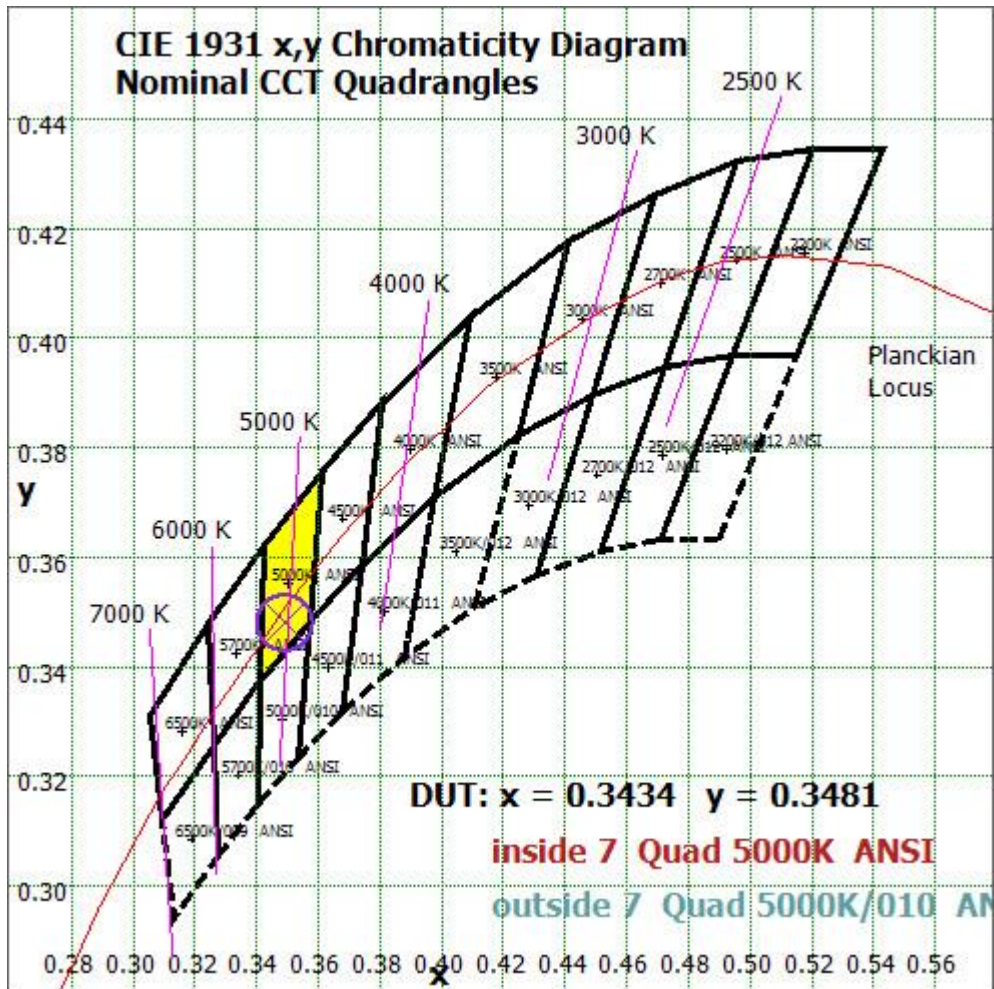


Chart 15: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

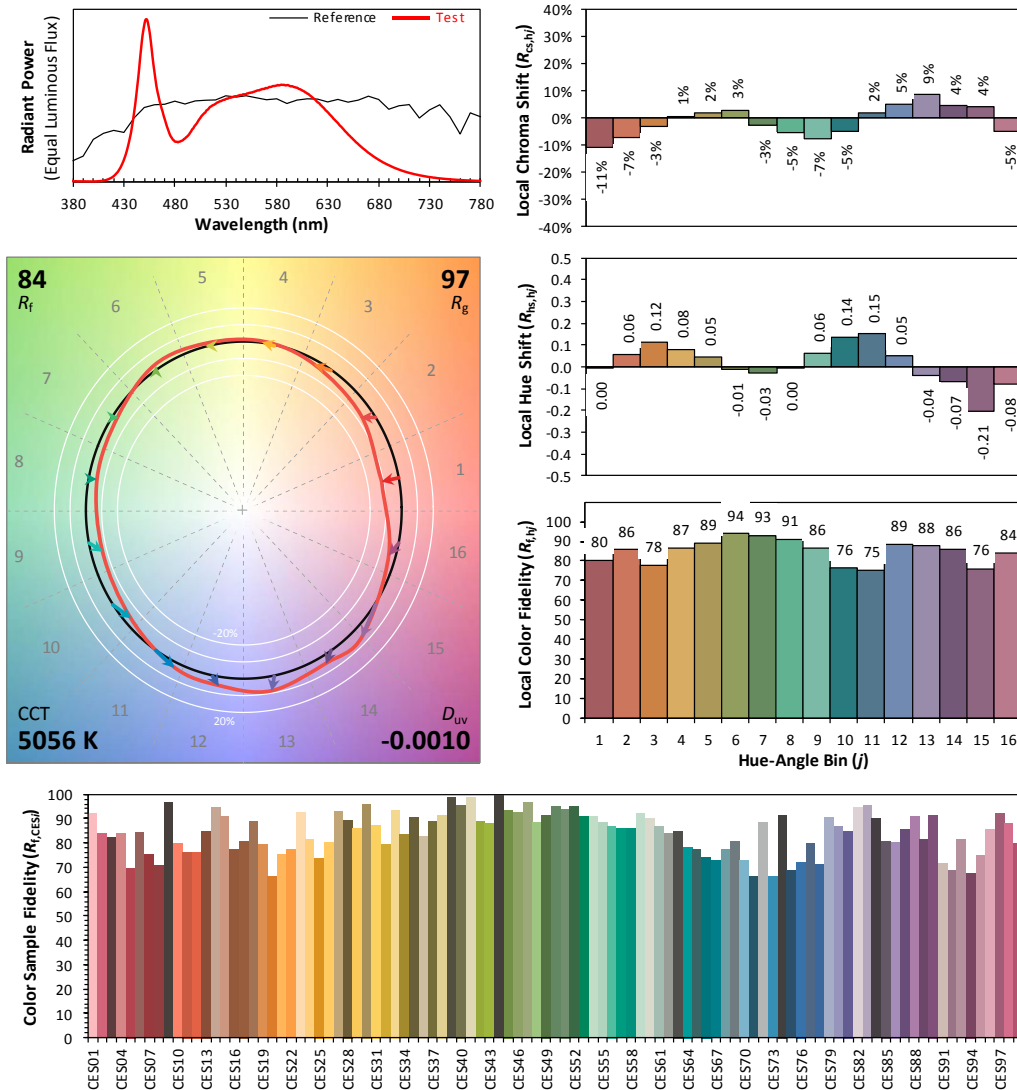
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/01/02

Model: 40T8/8F/8CCTS/DEB/SD/C



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

x 0.3434
 y 0.3481
 u' 0.2116
 v' 0.4827

CIE 13.3-1995
(CRI)

R_a 85
 R_9 19

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

Chart 16: 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 (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)	0.357	0.148
Power Factor	0.9765	0.9661
Test Power (W)	41.87	39.68
THD A%	16.96	13.28
Luminous Efficacy (lm/W)	132.8	137.8
Total Luminous Flux (lm)	5560.1	5469.6
Color Rendering Index (CRI)	84.2	
R9	14.2	
Correlated Color Temperature (CCT)(K)	6476	
Chromaticity Chroma x	0.3131	
Chromaticity Chroma y	0.3290	
Chromaticity Chroma u	0.1982	
Chromaticity Chroma v	0.3122	
Duv	0.0030	
Chromaticity Chroma u'	0.1982	
Chromaticity Chroma v'	0.4684	

Special Color Rendering Indices	
R1	82.7
R2	89
R3	91.6
R4	83.4
R5	82.8
R6	83.2
R7	88.9
R8	71.8
R9	14.2
R10	72.5
R11	82.5
R12	58.1
R13	84.9
R14	95.6

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

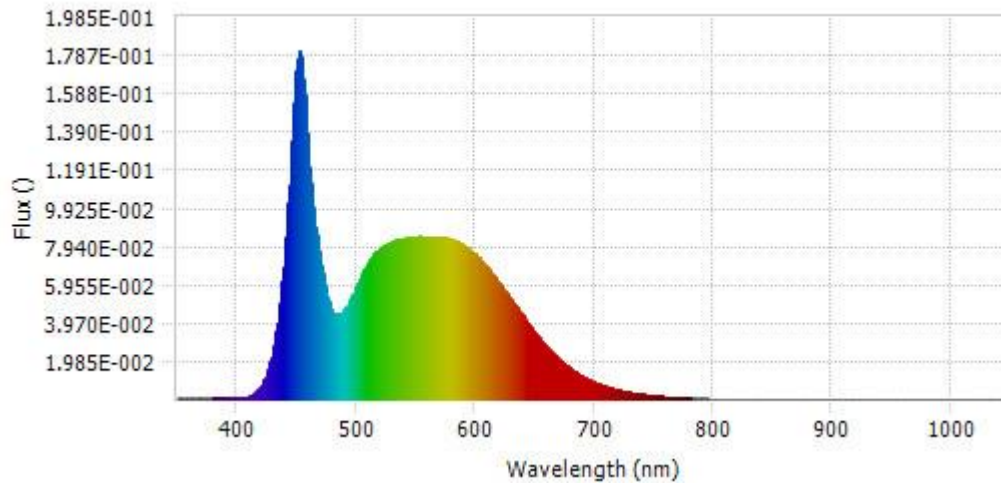


Chart 17: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	7.41E-04	485	4.45E-02	590	8.03E-02	695	1.06E-02
385	7.42E-04	490	4.65E-02	595	7.80E-02	700	9.09E-03
390	6.30E-04	495	5.17E-02	600	7.55E-02	705	7.82E-03
395	6.52E-04	500	5.82E-02	605	7.22E-02	710	6.76E-03
400	6.22E-04	505	6.51E-02	610	6.88E-02	715	5.84E-03
405	8.49E-04	510	7.03E-02	615	6.50E-02	720	4.97E-03
410	1.61E-03	515	7.55E-02	620	6.06E-02	725	4.30E-03
415	3.44E-03	520	7.81E-02	625	5.64E-02	730	3.71E-03
420	6.75E-03	525	8.04E-02	630	5.21E-02	735	3.19E-03
425	1.34E-02	530	8.20E-02	635	4.77E-02	740	2.76E-03
430	2.49E-02	535	8.28E-02	640	4.35E-02	745	2.34E-03
435	4.47E-02	540	8.36E-02	645	3.91E-02	750	2.04E-03
440	7.59E-02	545	8.41E-02	650	3.50E-02	755	1.76E-03
445	1.22E-01	550	8.39E-02	655	3.11E-02	760	1.51E-03
450	1.70E-01	555	8.43E-02	660	2.76E-02	765	1.32E-03
455	1.73E-01	560	8.46E-02	665	2.42E-02	770	1.13E-03
460	1.30E-01	565	8.45E-02	670	2.13E-02	775	9.80E-04
465	9.43E-02	570	8.42E-02	675	1.86E-02	780	8.73E-04
470	7.37E-02	575	8.39E-02	680	1.62E-02		
475	5.56E-02	580	8.32E-02	685	1.41E-02		
480	4.59E-02	585	8.22E-02	690	1.22E-02		

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

Chromaticity Diagram - Sphere Spectroradiometer Method

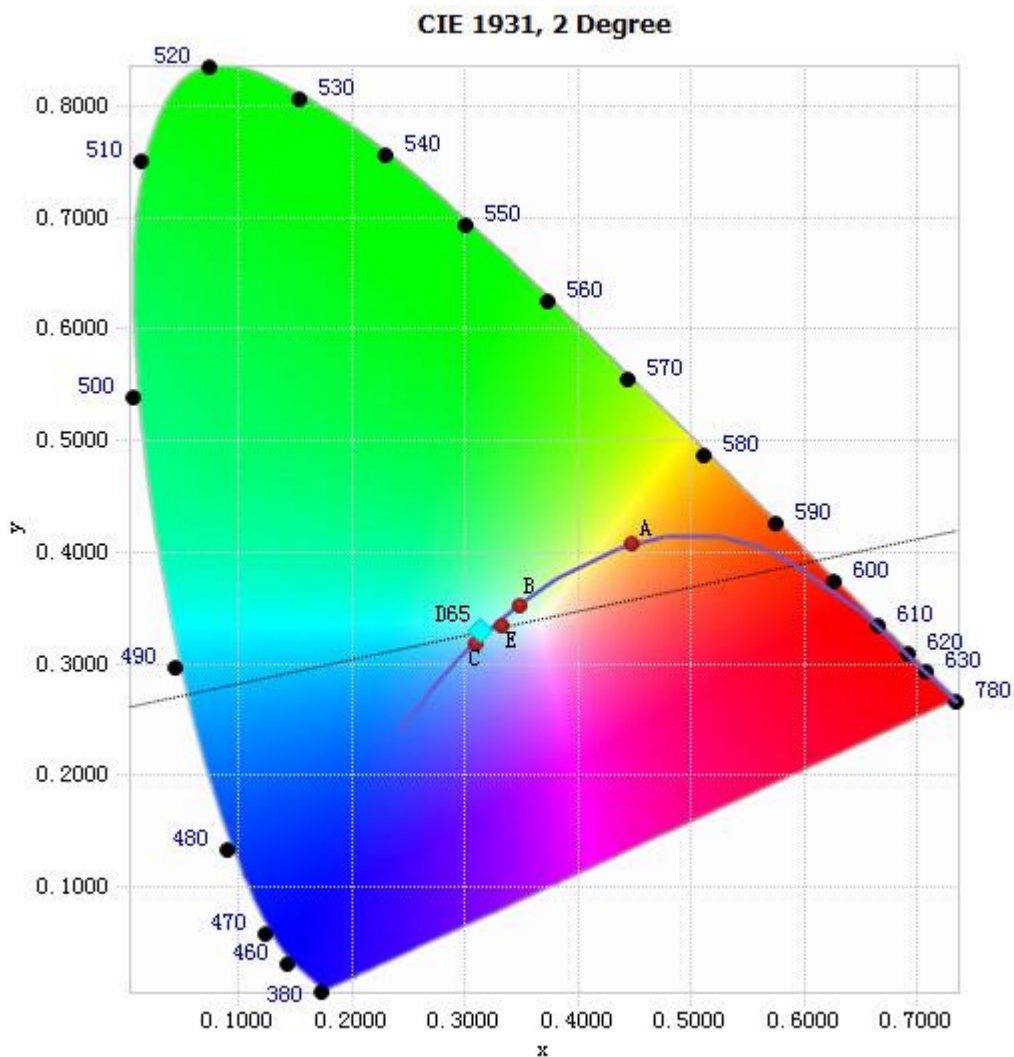


Chart 18: Chromaticity Diagram per Sphere - Spectroradiometer Method

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

Nominal CCT Quadrangles – Sphere Spectroradiometer Method

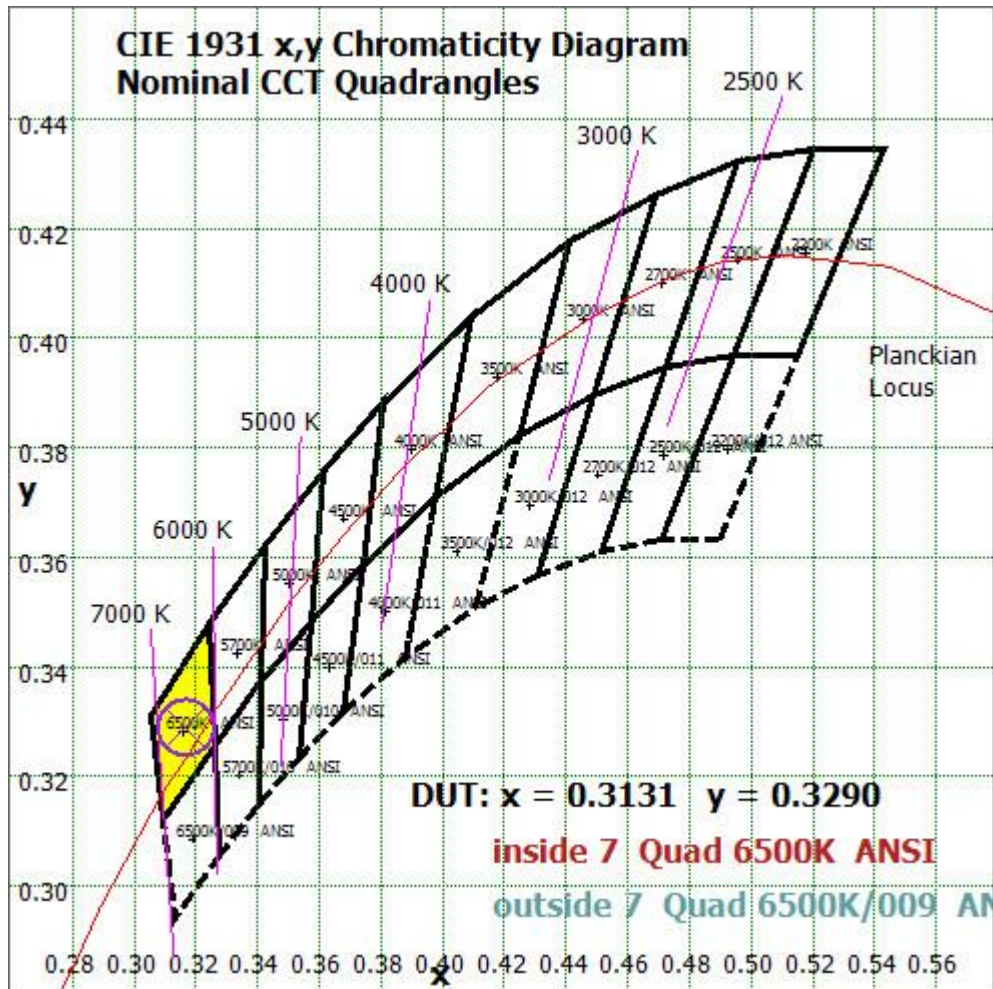


Chart 19: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

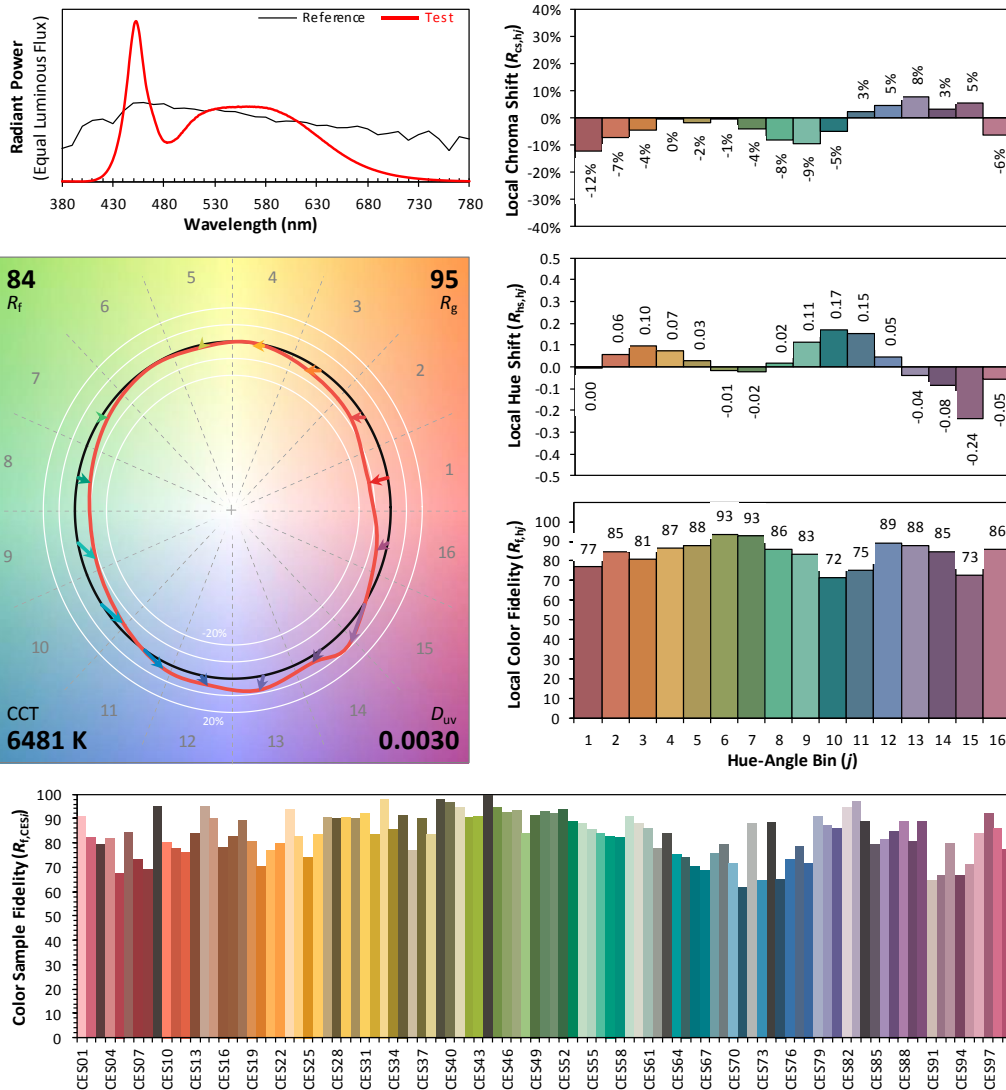
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2025/01/02

Model: 40T8/8F/8CCTS/DEB/SD/C



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

x 0.3131
 y 0.3290
 u' 0.1982
 v' 0.4684

CIE 13.3-1995
(CRI)
 R_a 84
 R_9 14

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

Chart 20: 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.

EQUIPMENT LIST

Test Equipment	Model	Equipment No.	Calibration Date	Calibration Due date
Integrate Sphere system	3M	HZTE015-04	Dec. 10, 2024	-
Digital Power Meter	WT210	HZTE008-01	Aug. 08, 2024	Aug. 07, 2025
AC Power Supply	PCR 500L	HZTE001-07	Aug. 08, 2024	Aug. 07, 2025
DC Power Supply	IT6154	HZTE004-04	Aug. 08, 2024	Aug. 07, 2025
Temperature and humidity recorder	JR900	HZTE018-02	Aug. 08, 2024	Aug. 07, 2025
Standard source	SCL-1400	HZTE012-06	Nov. 04, 2021	-
Temperature Meter	TES1310	HZTE017-01	Aug. 08, 2024	Aug. 07, 2025

Table 12: 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 expended uncertainty is 2.1% with a coverage factor $k=2$.

*** End of Report ***

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