



Date of issue 2021-02-20

Version 1.0

Total pages 39

Test report of

IES LM-79-08

Approved Method: Electrical and Photometric

Measurements of Solid-State Lighting Products

Applicant:

LIGHT EFFICIENT DESIGN

Address:

188 S. Northwest Highway Cary, IL 60013 USA

For Product:

4'T8 Lamps -- 4-Lamp External Driver (UL Type C) Lamps

Product Model No.:

RP-T8C-G2-50W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-50W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850,
RP-T8C-G2-60W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-60W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850,
RP-T8C-G2-70W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-70W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850,
RP-T8C-G2-80W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-80W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850

Test laboratory: Shenzhen Belling Efficiency Testing Lab Co.,Ltd, 1Floor, No.1 Building, Meibaohe Industrial Park, Dalang Street, Longhua District, Shenzhen, Guangdong Prov.518101 China.

Complied by: Jarvis zhang

Review by: Jason zhou

Project Engineer

Technical Manager

Note: The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Shenzhen Belling Efficiency Testing Lab Co.,Ltd. This report must not be used by the customer to claim product certification, approval, or endorsement By NVLAP, NIST, or any agency of the U.S. Government.



1 General

1.1 Product Information

Manufacturer	LIGHT EFFICIENT DESIGN
Manufacturer Address	188 S. Northwest Highway Cary, IL 60013 USA
Brand Name	REMPHOS OR LIGHT EFFICIENT DESIGN
Luminaire Type	4'T8 Lamps -- 4-Lamp External Driver (UL Type C) Lamps
Test Model Number	RP-T8C-G2-50W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-50W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850, RP-T8C-G2-60W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-60W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850, RP-T8C-G2-70W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-70W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850, RP-T8C-G2-80W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-80W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850
Rated Inputs	AC 100-277V 50/60Hz
Field-Adjustable Product	Yes, Wattage setting: 50W, 60W, 70W, 80W
Nominal CCT	3000K, 5000K
Dimming Capability	Continuous
Integral Control Sensors	Optional
Date of Receipt Samples	2020-12-21
Date of test	2020-12-23 to 2021-01-22
Burning Time Before Test	0hour(For New Products)

1.2 Standards or methods

- ANSI C78.377-2017:Specifications for the Chromaticity of Solid State Lighting Products
- ANSI C82.77-10:2014:Harmonic Emission Limits - Related Power Quality Requirements for Lighting Equipment - Solid State
- CIE Publication No.13.3-1995:Method of Measuring and Specifying Color Rendering of Light Sources
- IESNA LM-79-08 Approved Method: Electric & Photometric Measurement of Solid-state Lighting Products



1.3 Equipment list

Device	Manufacture	Model No.	Serial No.	Calibration due date
Goniophotometric System	SENSING	GMS-3000	N.A	2021-04-02
AC Power Source	ALL POWER	APW-110N	992257	2021-04-02
Total Luminous Flux Standard Lamp	SENSING	110V/100W	S1510065	2021-04-08
Total Spectral Radiant Flux Standard Lamp	SENSING	12V/20W	LSD12201731	2021-04-08
Digital Power Meter	YOKOGAWA	WT310	C2QM02030V	2021-04-02
Integral Sphere	SENSING	SPR-600M	N.A	2021-04-02
Digital Power Meter	YOKOGAWA	WT210	91L929742	2021-04-02
Optical Color and Electrical Measurement System	SENSING	SPR-3000	S1101108	2021-04-02
Environment Measurer	XUYAO	HS-1	N/A	2021-04-08
Environment Measurer	XUYAO	HS-1	N/A	2021-04-08
Stop watch	KISLO	K610	N/A	2021-04-27
Digital Anemometer	TECMAN	TD8901	026141	2021-09-09

Statement of Traceability: Shenzhen Belling Efficiency Testing Lab Co.,Ltd attests that all calibration has been performed using suitable standards traceable to national primary standards and International System of Unit (SI).



2 Test conducted and method

2.1 Ambient Condition

The ambient temperature in which measurements are being taken was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, the air flow around the sample(s) being tested did not affect the performance.

2.2 Power Supply Characteristics

The AC power supply had a sinusoidal voltage wave shape at the prescribed frequency (60 Hz) such that the RMS summation of the harmonic components does not exceed 3 percent of the fundamental during operation of the test item.

The voltage of AC power supply (RMS voltage) applied to the device under test was regulated to within ± 0.2 percent under load.

2.3 Seasoning and Stabilization

No seasoning was performed in accordance with IESNA LM-79-08. And before the measurement, the sample was stabilized until the light output and power variations were less than 0.5% in 30 minutes intervals (3 readings, 15 minutes apart).

2.4 Integrating Sphere System

The system includes AC power source, digital power meter, DC power supply, spectrophotometer, and integrating sphere. The integrating sphere system is calibrated by standard light source before measurement. The system and standard light source has been calibrated regularly and traceable to the National Primary Standards. 4π geometry was used during measurement. The product was operated in its intended orientation in application and was recorded in this report.

Integrating Sphere Uncertainty: The uncertainty of the light output (luminous flux) measurements is $U=1.8\%$ ($K=2$), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is $U=20\text{K}$ ($K=2$), at the 95% confidence level. The uncertainty of the CRI is $U=1.8(K=2)$, at the 95% confidence level. The uncertainty of power meter AC current $U=0.18\%$ of rdg, AC Voltage $U=0.16\%$ of rdg, Power $U=0.20\%$ ($K=2$), at the 95% confidence level.



2.5 Goniophotometer System

The goniophotometer system is calibrated by standard light source before measurement. The standard light source has been calibrated regularly and traceable to the National Primary Standards.

Type C goniophotometer was used for measuring total luminous flux, luminous intensity distribution, and color spatial uniformity. The product was operated in its intended orientation in application and was recorded in this report. The method according to IESNA LM-79-08 following chapter.

Goniophotometer Uncertainty :The uncertainty of the luminous intensity is $U=1.6\%$ ($K=2$), at the 95% confidence level.



3 Test Result Summary

3.1 Integrating Sphere System (Total operating time for integrating sphere test: 1.0 hour)

3.1.1 Model Number: RP-T8C-G2-50W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830(Bare lamp)

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.09	60	0.108	12.93	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1651.35	127.69	3002

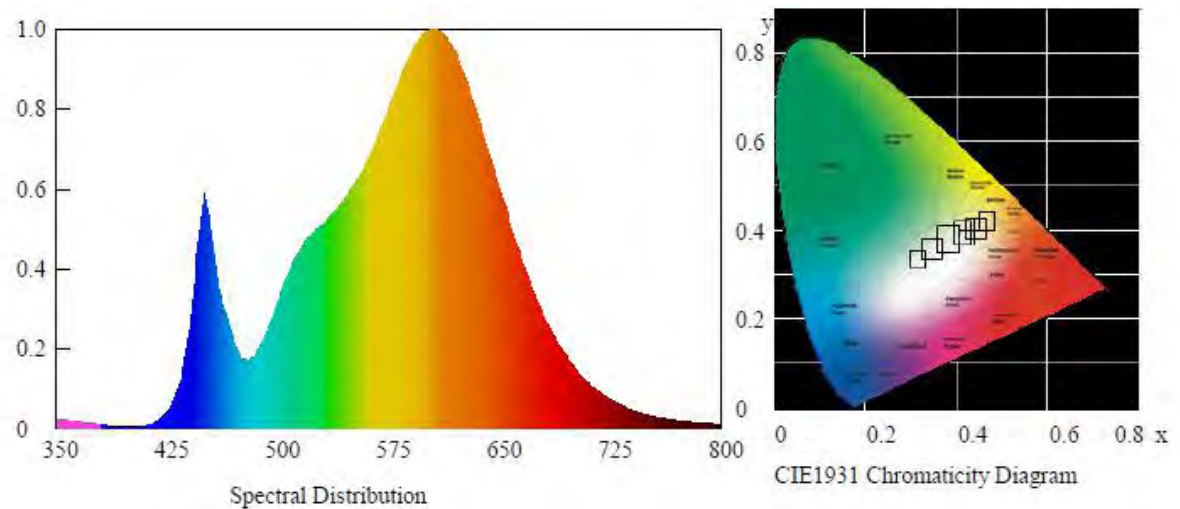
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00126	0.4350	0.4003	0.2510	0.5196

Color Rendering

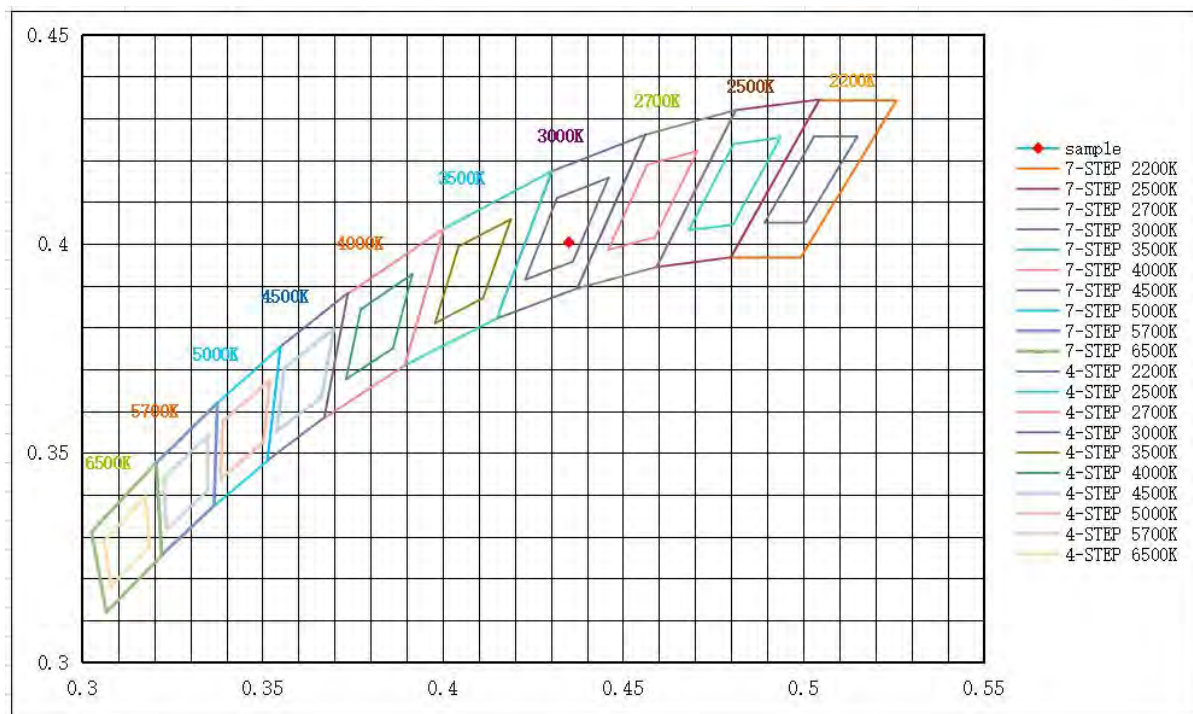
CRI	R9	Rf	Rg	Rcs,h1(%)
84.1	13	85	97	-11

Spectral Distribution





7/4 Step Quadrangle





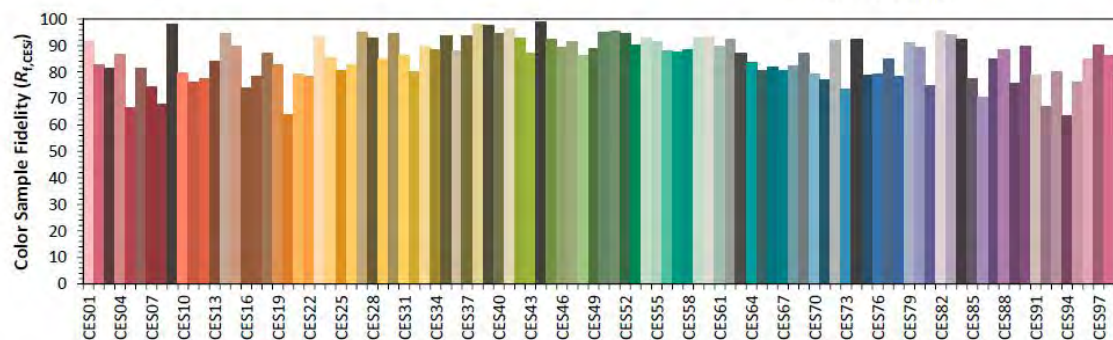
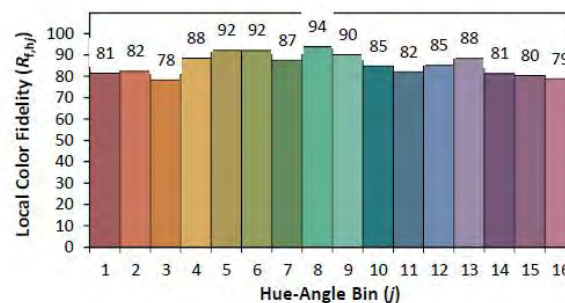
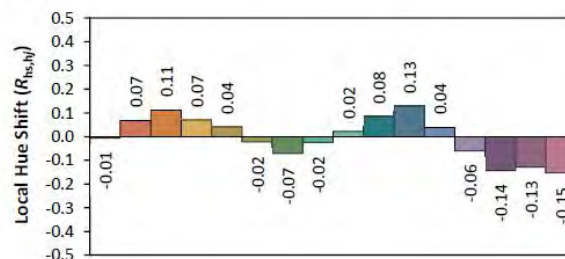
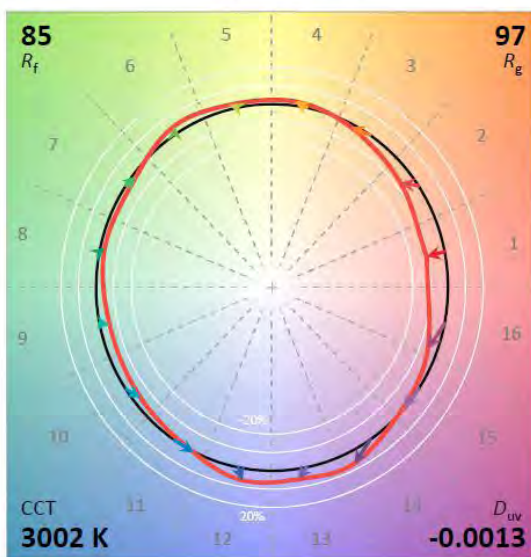
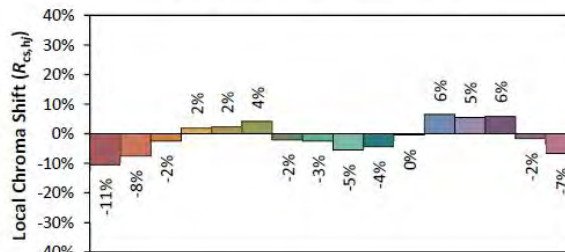
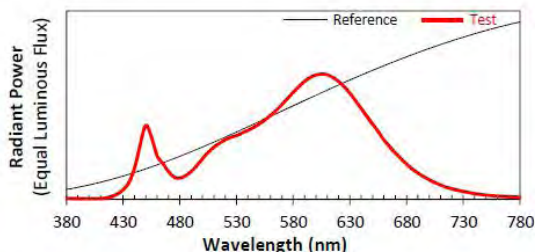
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126018-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-50W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830



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

x 0.4350
 y 0.4003
 u' 0.2510
 v' 0.5196

CIE 13.3-1995
(CRI)

R_a 84
 R_g 13

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

**3.1.2 Model Number: RP-T8C-G2-50W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.09	60	0.110	13.12	0.997

Photometric data

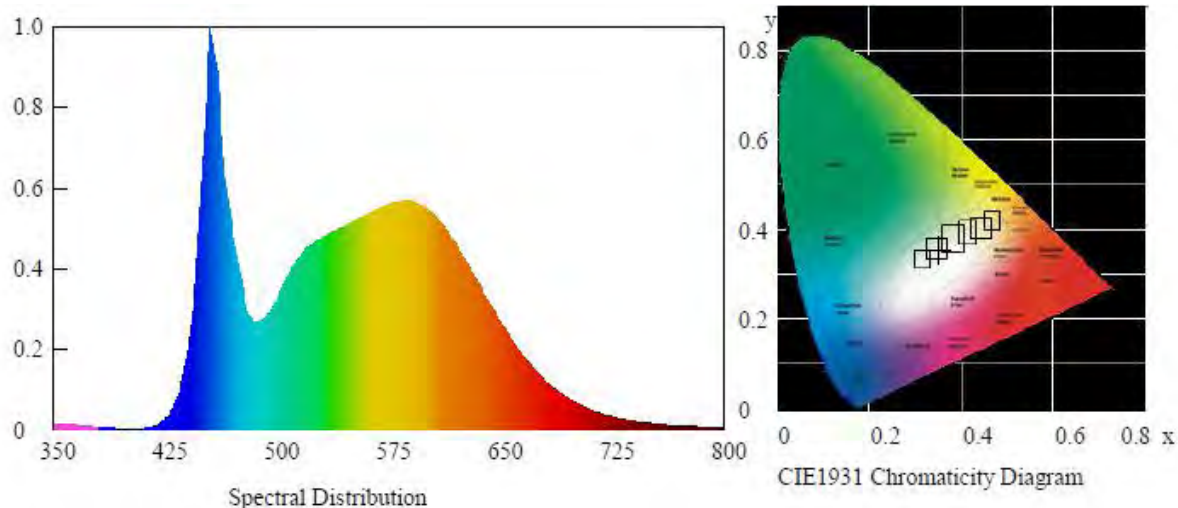
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1706.52	130.07	5012

Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00239	0.3452	0.3565	0.2096	0.4871

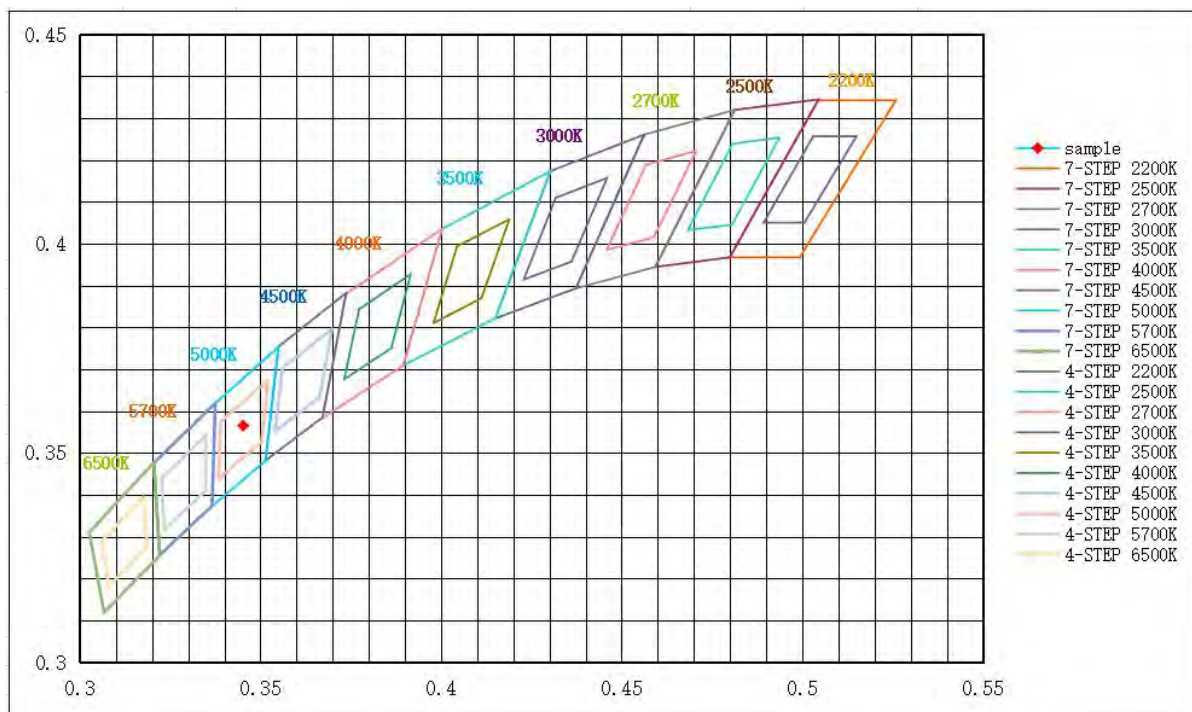
Color Rendering

CRI	R9	Rf	Rg	Rcs,h1(%)
84.3	13	83	93	-12

Spectral Distribution



7/4 Step Quadrangle





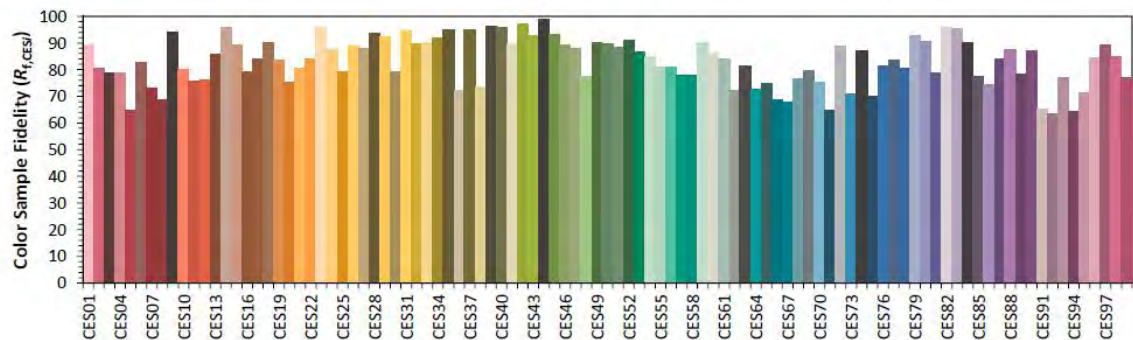
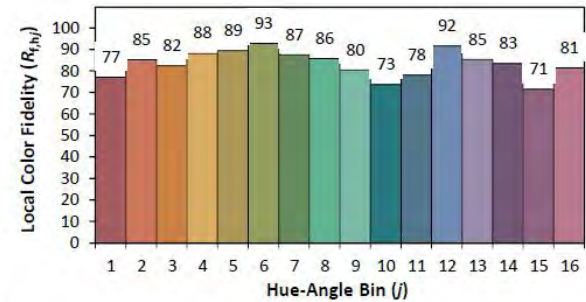
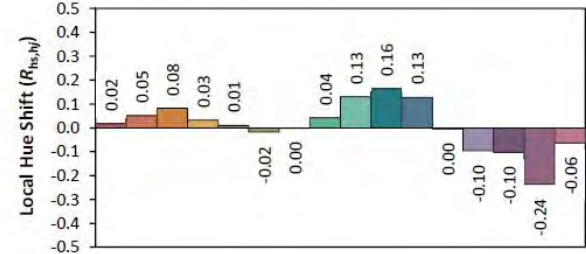
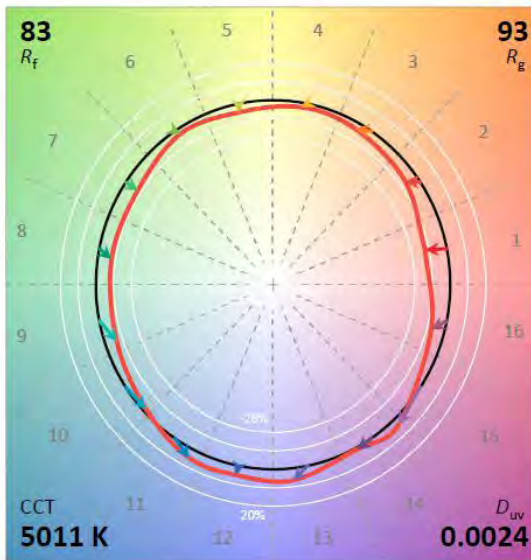
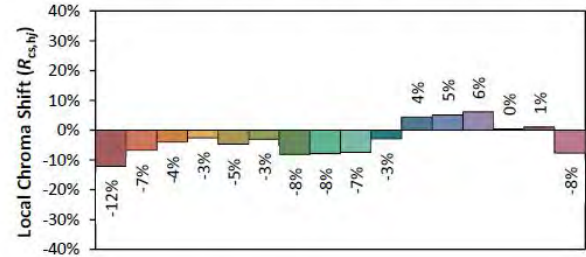
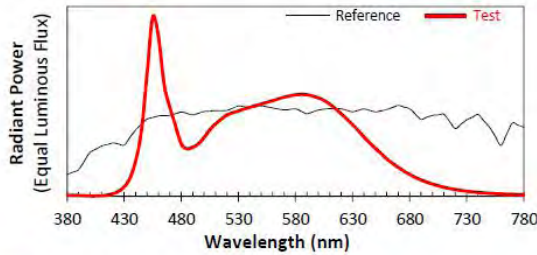
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126018-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-50W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850



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

x 0.3452
 y 0.3565
 u' 0.2096
 v' 0.4871

CIE 13.3-1995
(CRI)

R_a 84
 R_g 13

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



3.1.3 Model Number: RP-T8C-G2-60W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830(Bare lamp)

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.05	60	0.127	15.19	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1903.62	125.30	3001

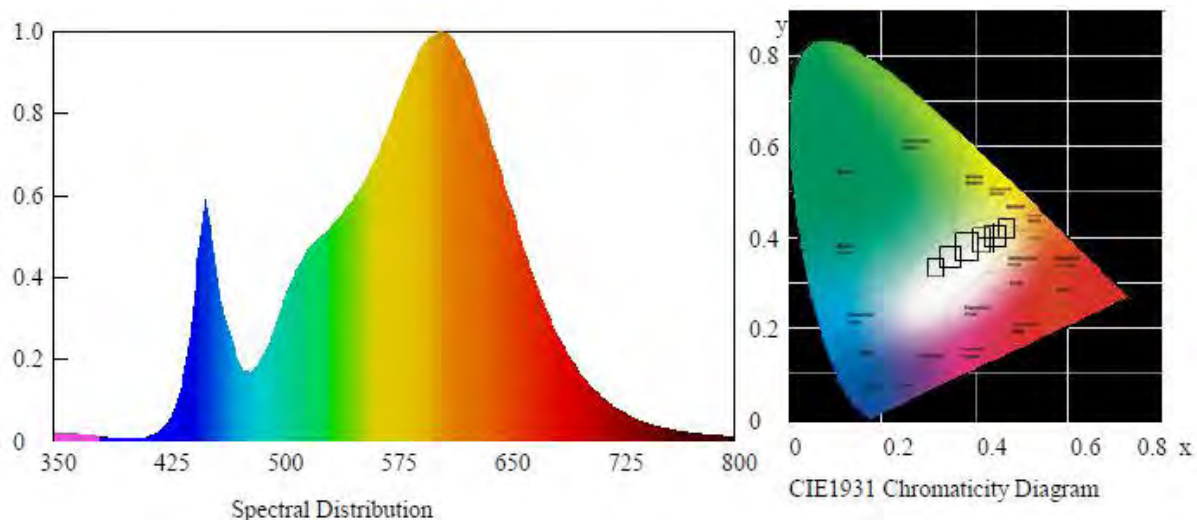
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00117	0.4352	0.4006	0.2509	0.5197

Color Rendering

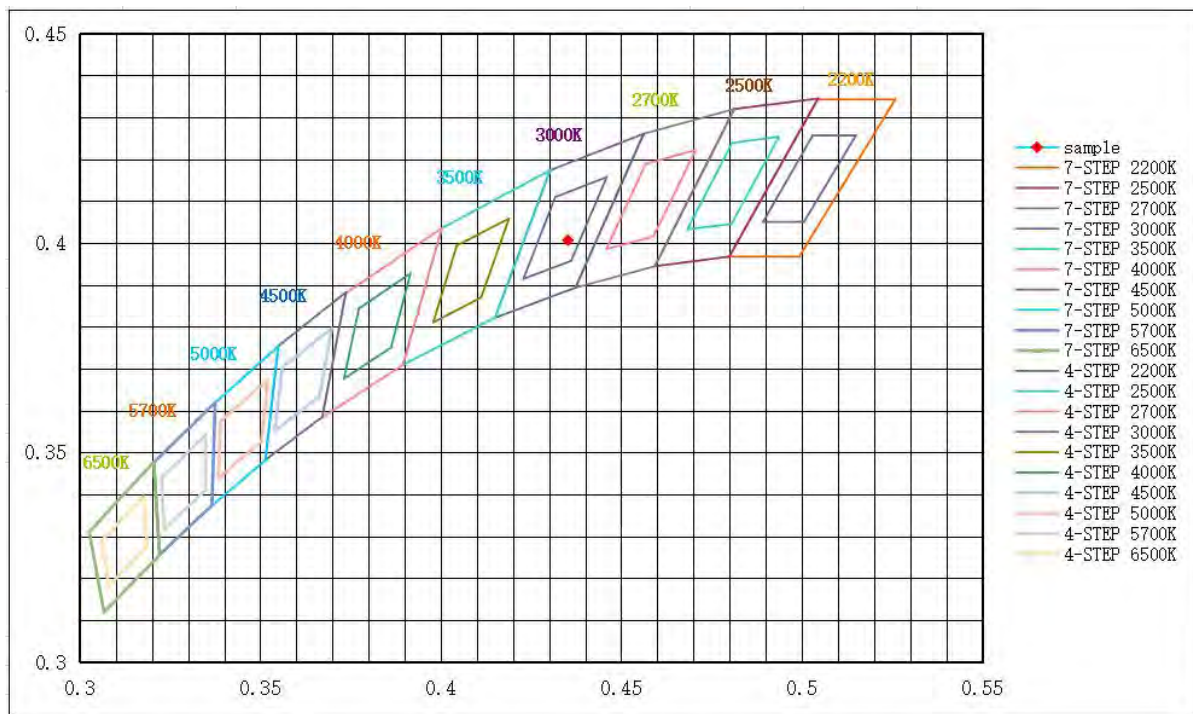
CRI	R9	Rf	Rg	Rcs,h1(%)
84.0	13	85	98	-11

Spectral Distribution





7/4 Step Quadrangle





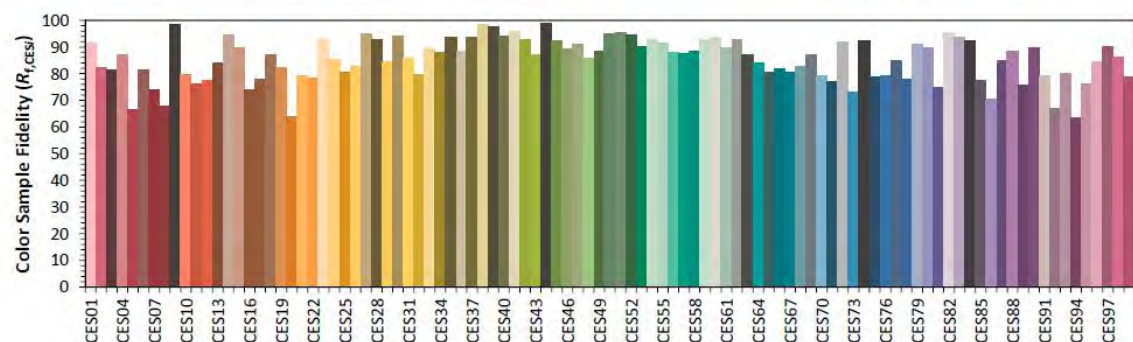
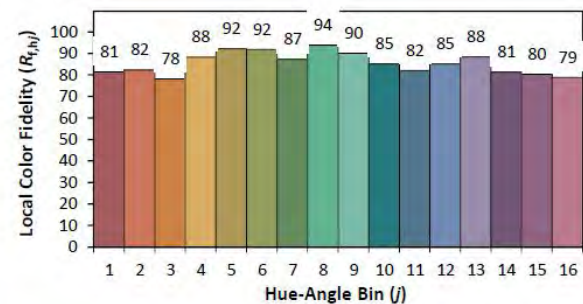
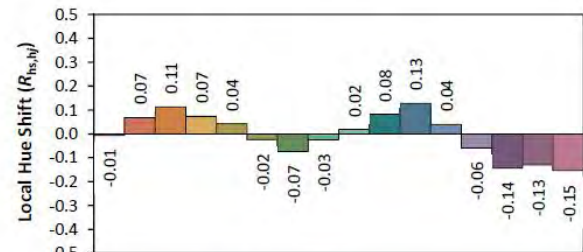
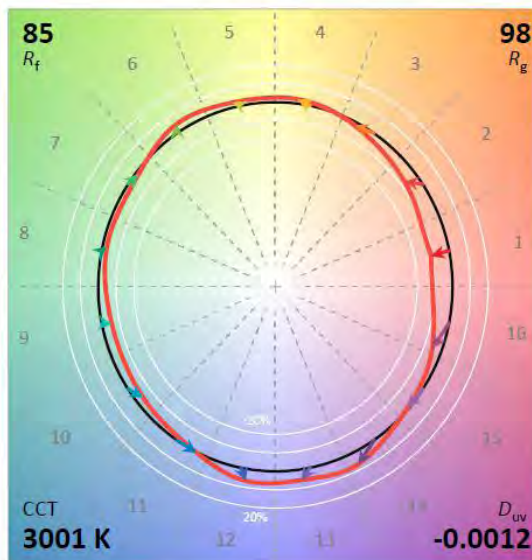
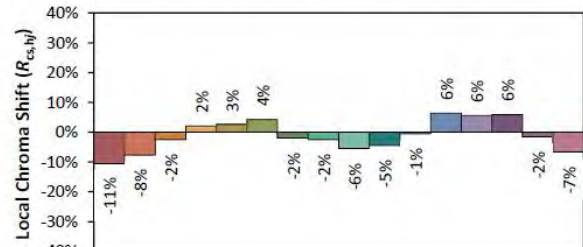
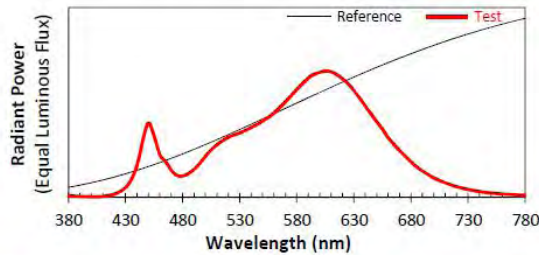
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126018-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-60W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CH0-G2-4FT-830



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

x 0.4352
 y 0.4006
 u' 0.2509
 v' 0.5197

CIE 13.3-1995
(CRI)

R_a 84
 R_g 13

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



3.1.4 Model Number: RP-T8C-G2-60W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850(Bare lamp)

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.03	60	0.128	15.34	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1959.84	127.76	5004

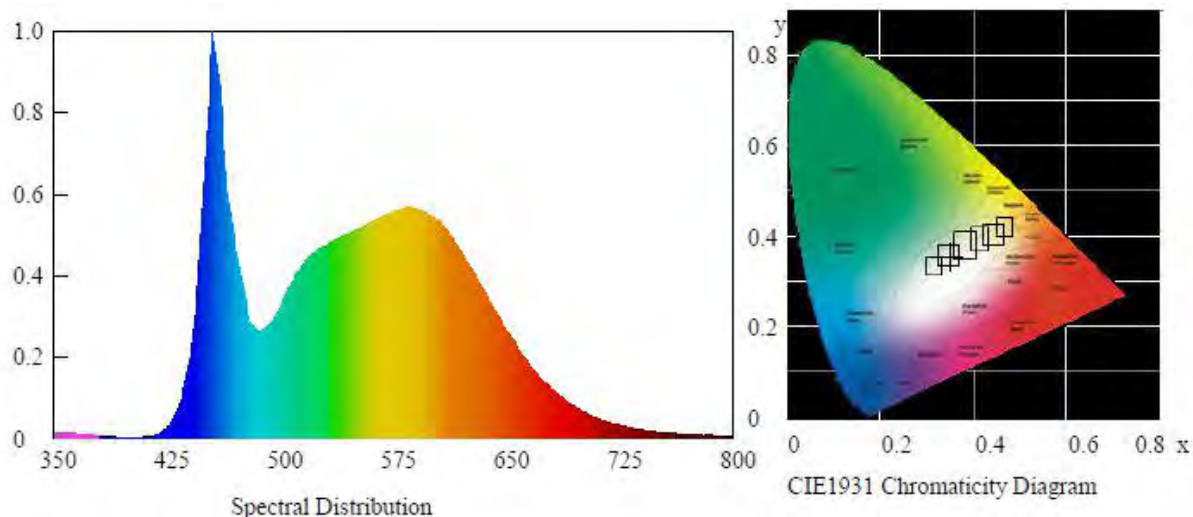
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00234	0.3455	0.3566	0.2098	0.4871

Color Rendering

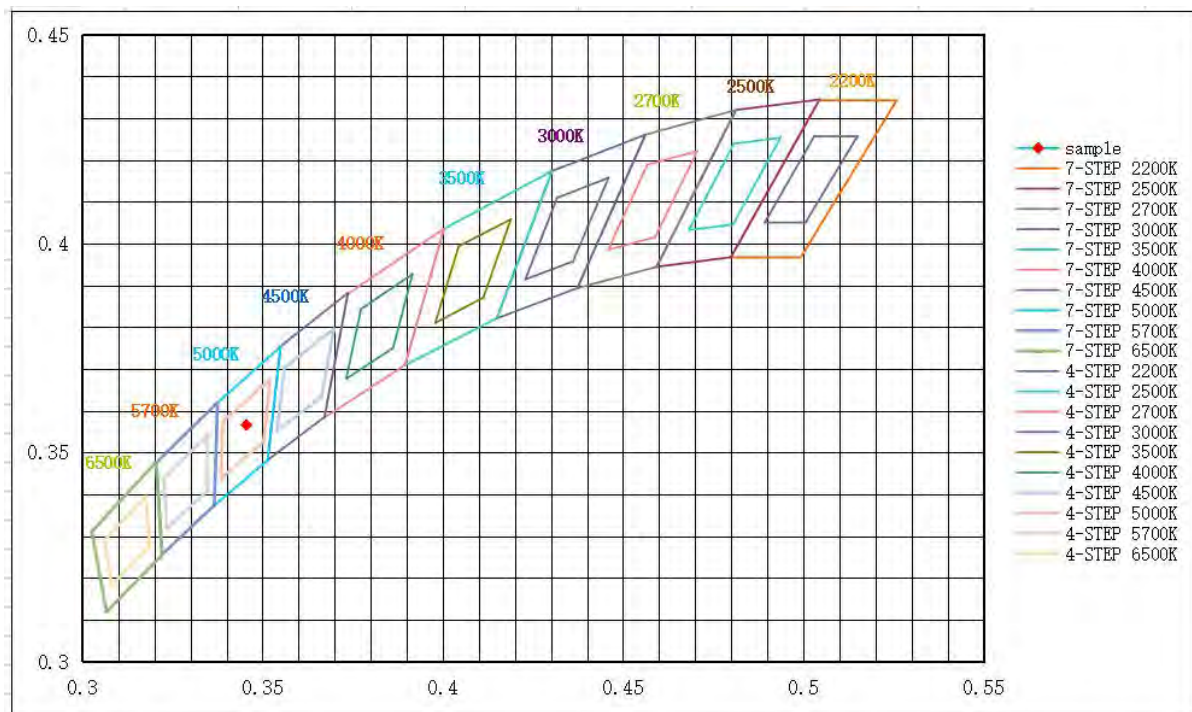
CRI	R9	Rf	Rg	Rcs,h1(%)
84.2	13	83	93	-12

Spectral Distribution





7/4 Step Quadrangle





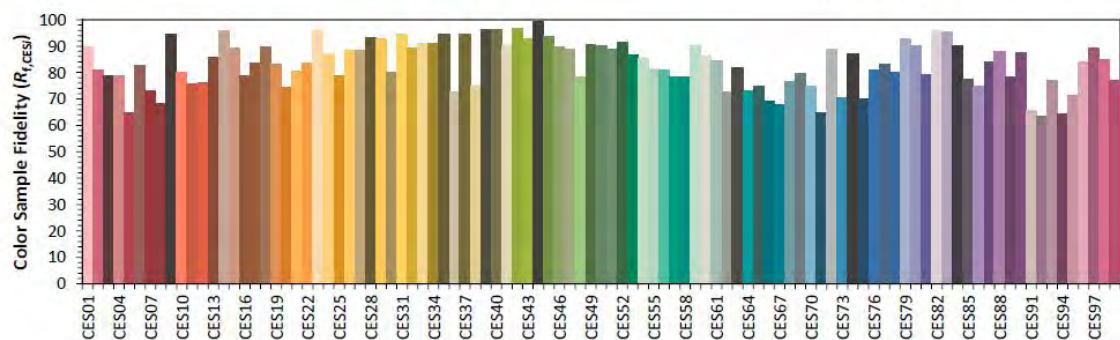
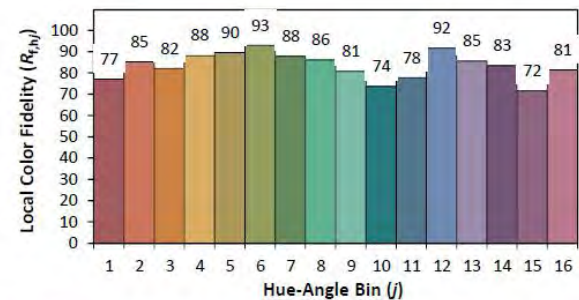
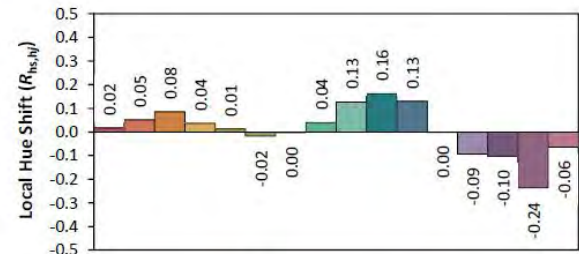
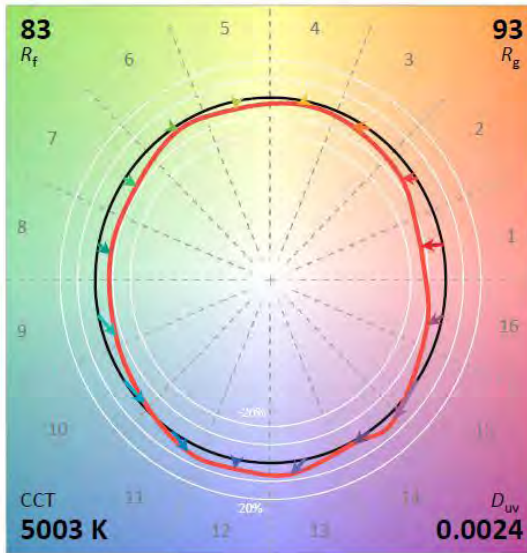
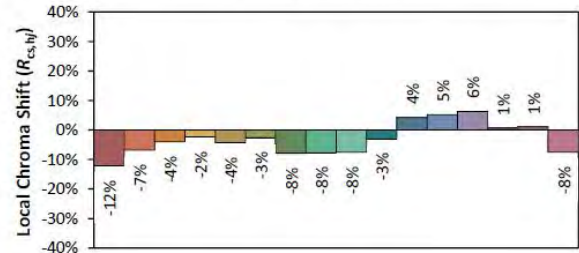
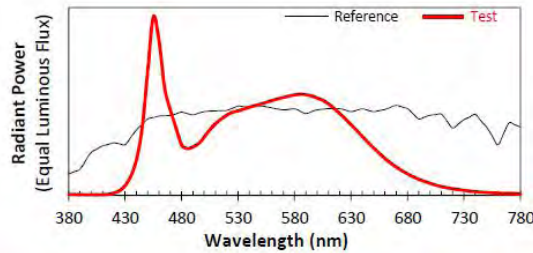
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126018-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-60W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850



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

x 0.3455
 y 0.3566
 u' 0.2098
 v' 0.4871

CIE 13.3-1995
(CRI)

R_a 84
 R_g 12

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



3.1.5 Model Number: RP-T8C-G2-70W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830(Bare lamp)

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.98	60	0.151	18.12	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2228.27	122.99	3006

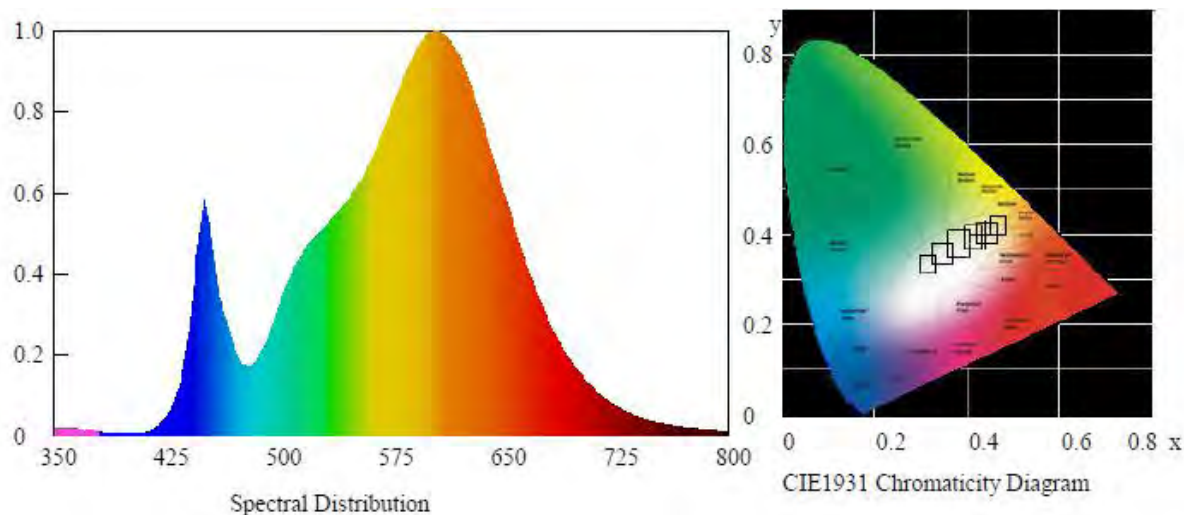
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00117	0.4348	0.4004	0.2508	0.5196

Color Rendering

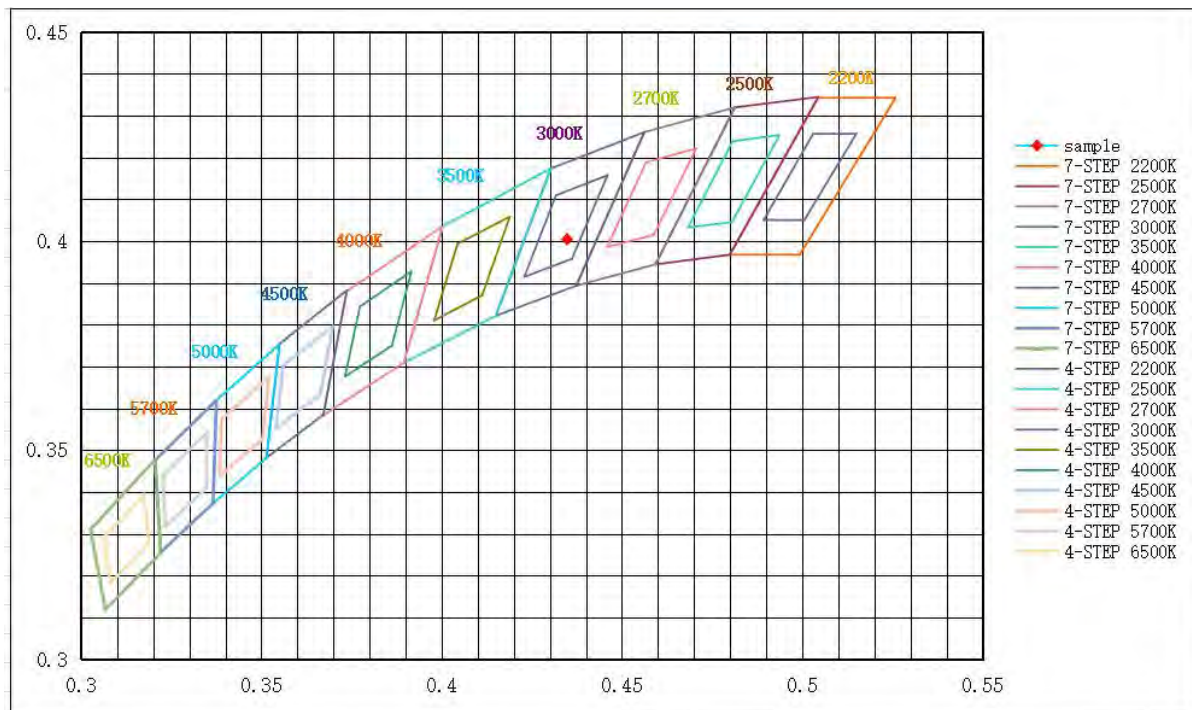
CRI	R9	Rf	Rg	Rcs,h1(%)
83.9	12	85	97	-11

Spectral Distribution





7/4 Step Quadrangle





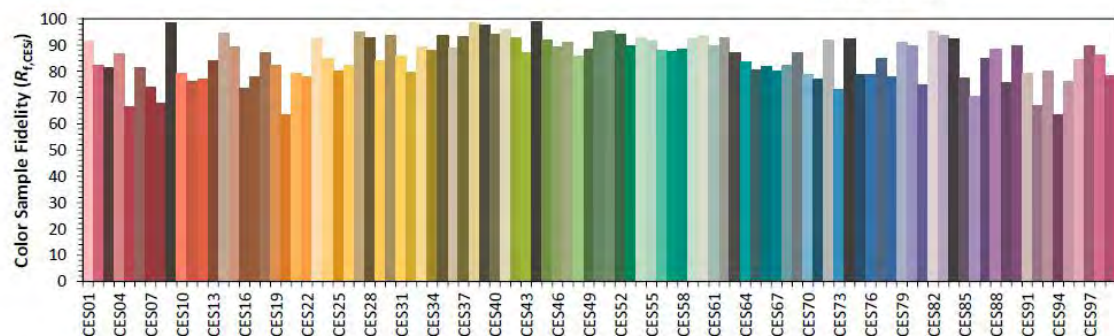
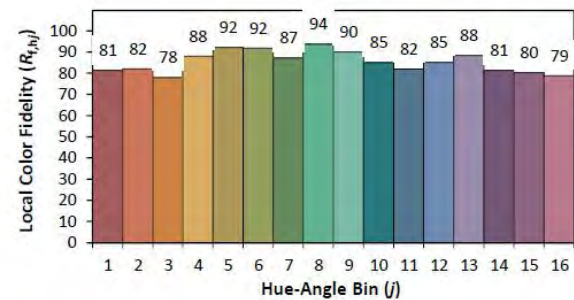
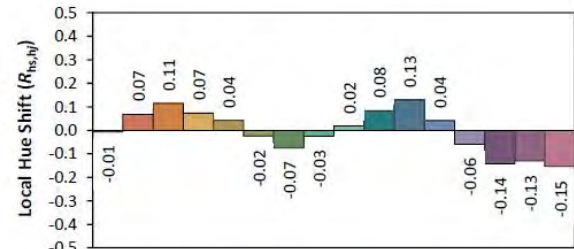
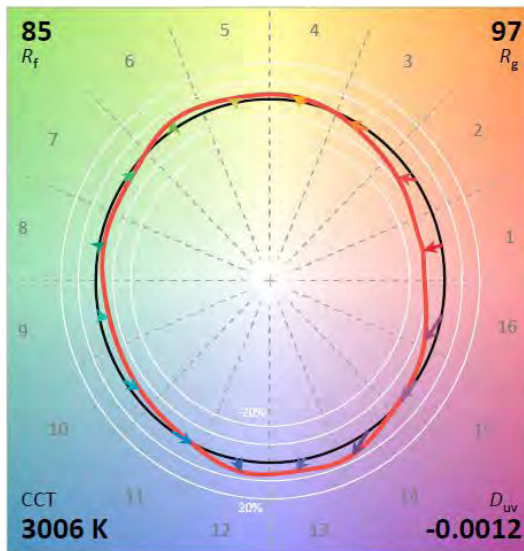
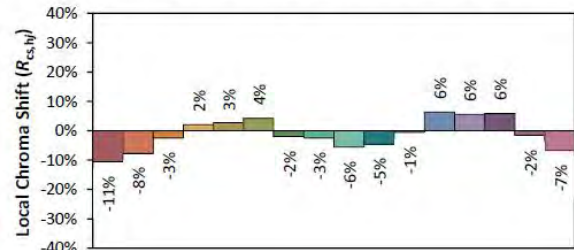
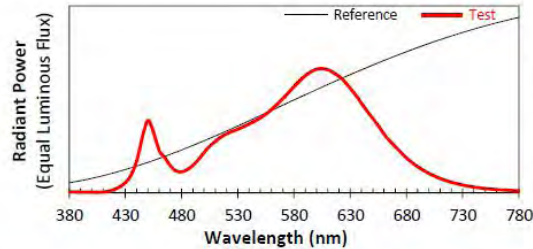
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126018-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-70W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830



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

x 0.4348
 y 0.4004
 u' 0.2508
 v' 0.5196

CIE 13.3-1995
(CRI)

R_a 84
 R_g 12

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



3.1.6 Model Number: RP-T8C-G2-70W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850(Bare lamp)

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.99	60	0.152	18.24	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2286.98	125.40	5028

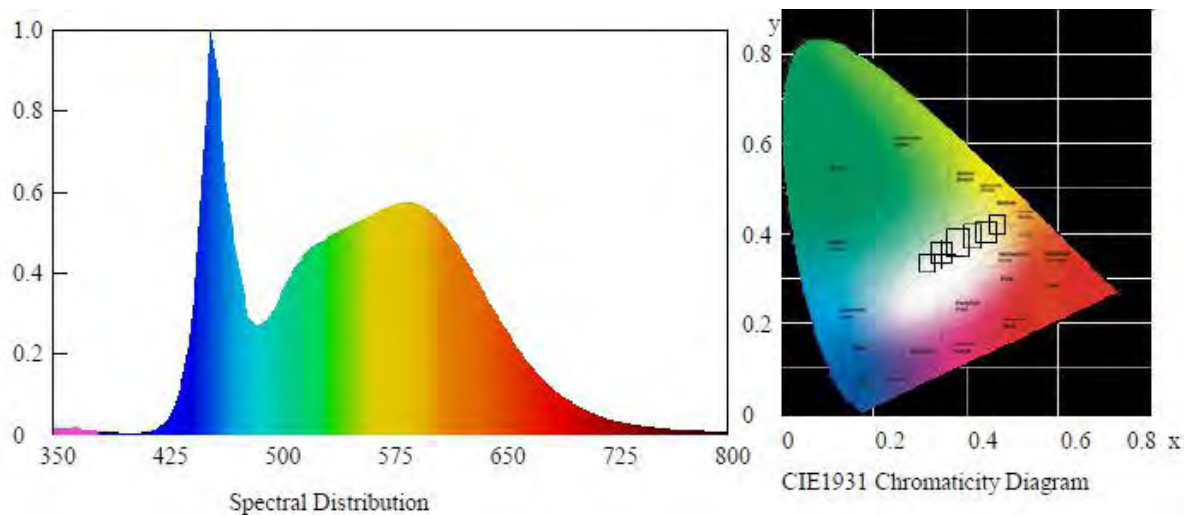
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00203	0.3447	0.3554	0.2097	0.4864

Color Rendering

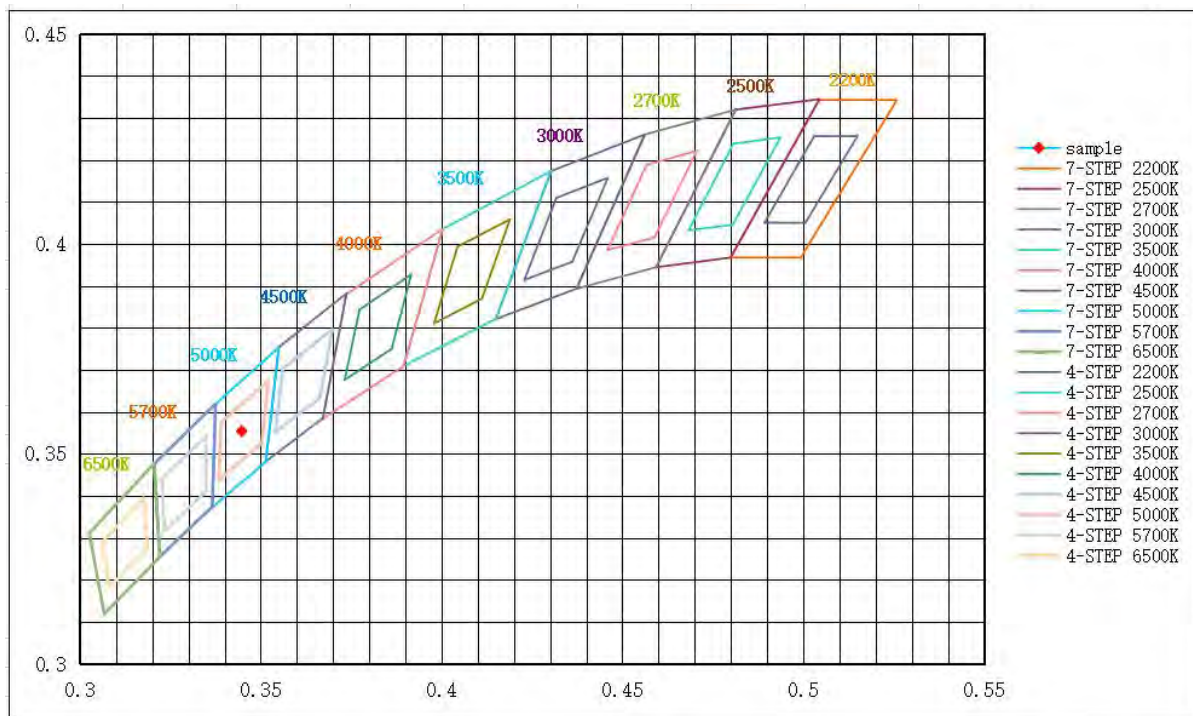
CRI	R9	Rf	Rg	Rcs,h1(%)
84.3	13	83	93	-12

Spectral Distribution





7/4 Step Quadrangle





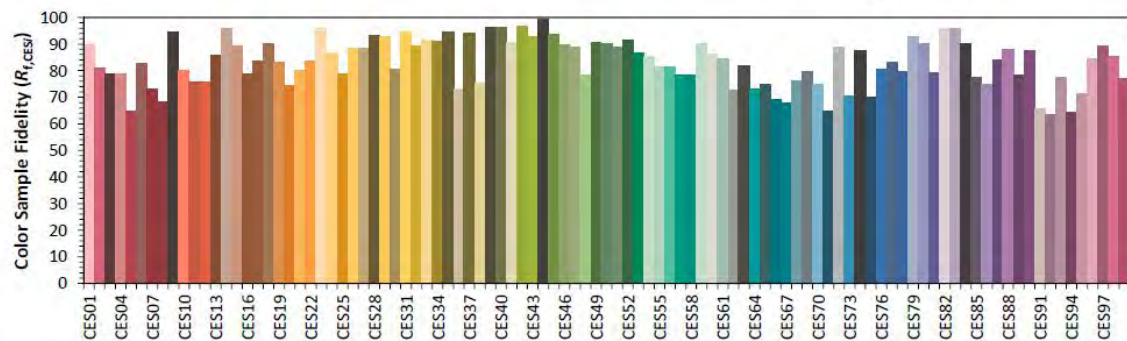
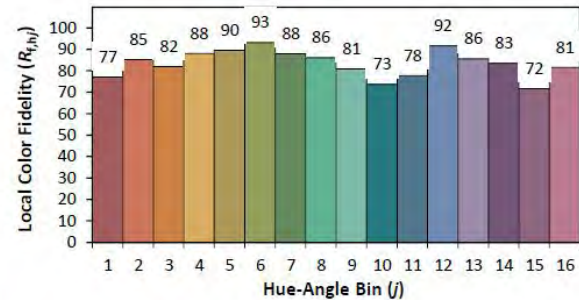
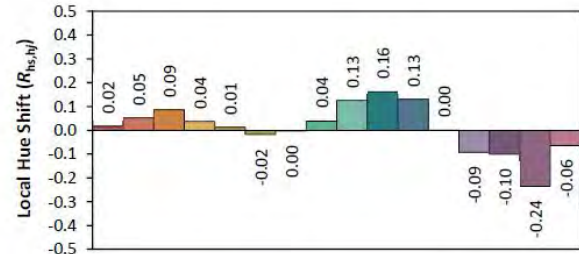
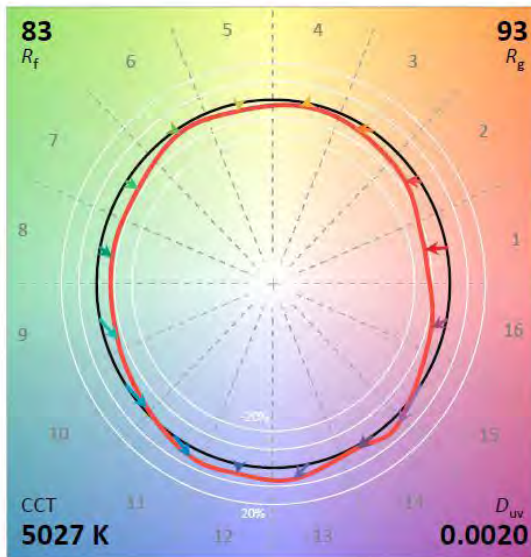
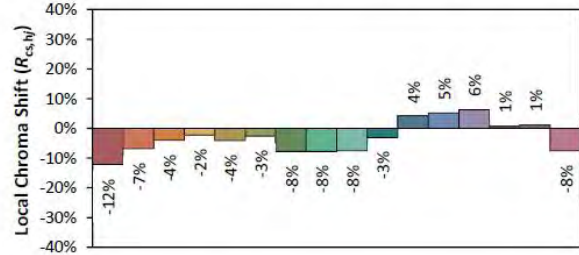
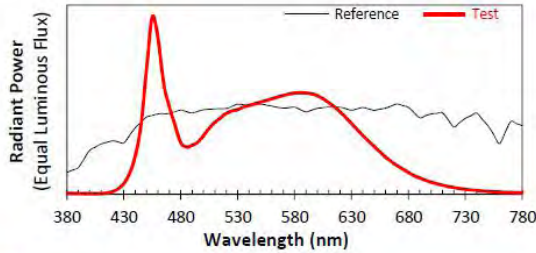
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126018-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-70W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850



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

x 0.3447
 y 0.3554
 u' 0.2097
 v' 0.4864

CIE 13.3-1995
(CRI)

R_a 84
 R_g 13

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



3.1.7 Model Number: RP-T8C-G2-80W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830(Bare lamp)

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.12	60	0.175	20.94	0.996

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2525.36	120.60	3001

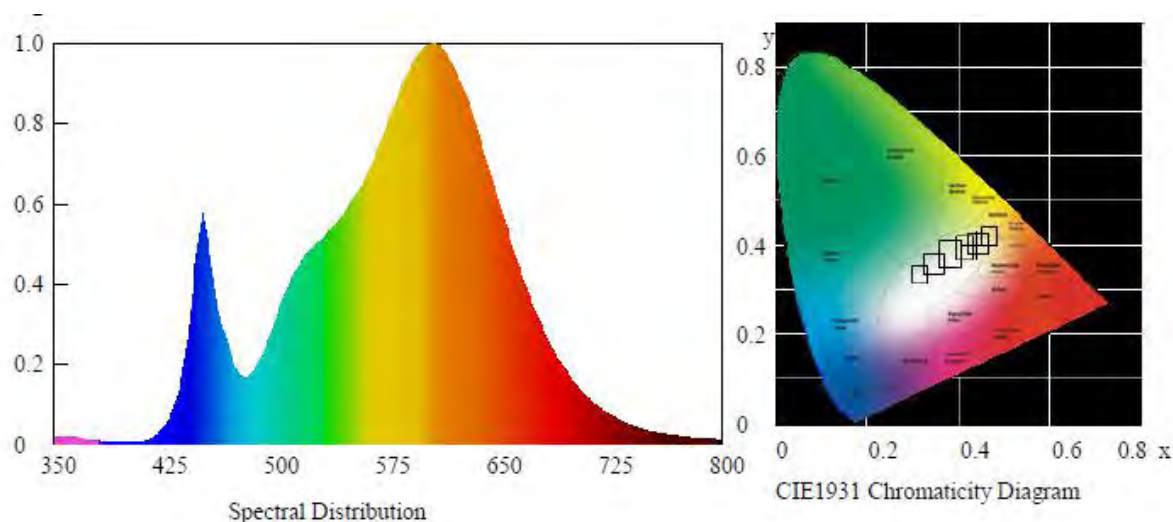
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00102	0.4354	0.4010	0.2509	0.5199

Color Rendering

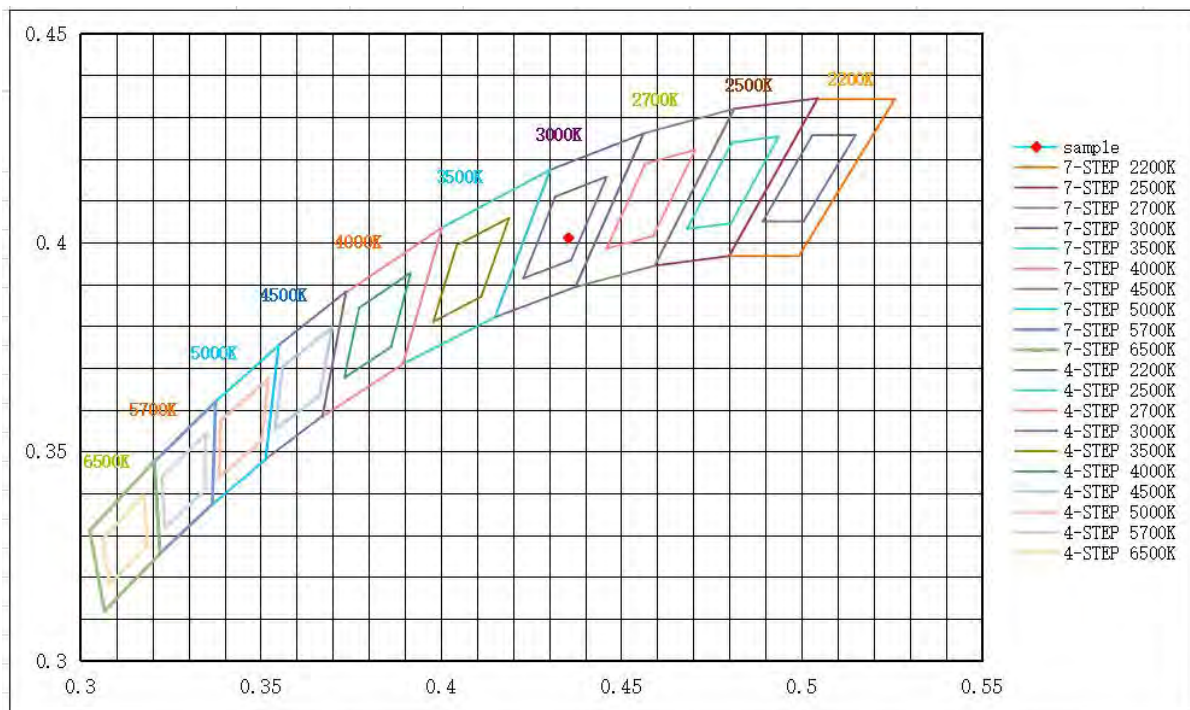
CRI	R9	Rf	Rg	Rcs,h1(%)
83.8	12	85	98	-11

Spectral Distribution





7/4 Step Quadrangle





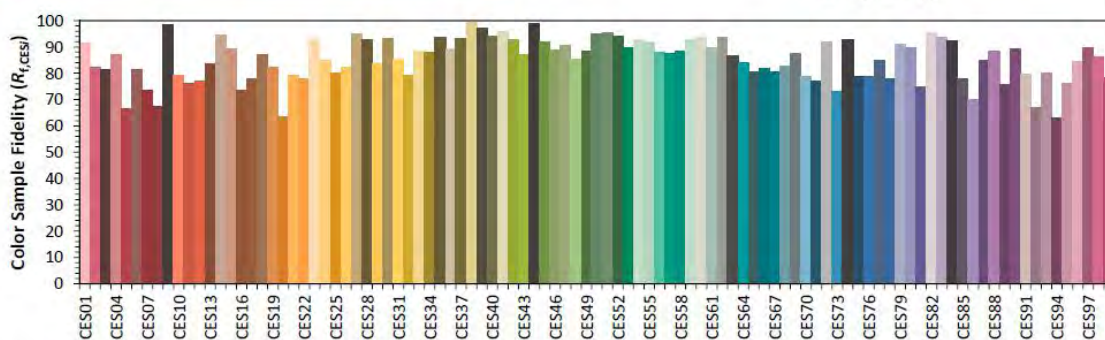
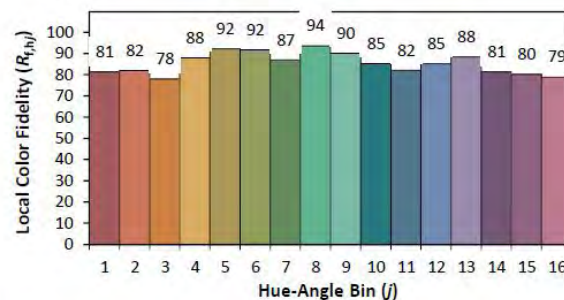
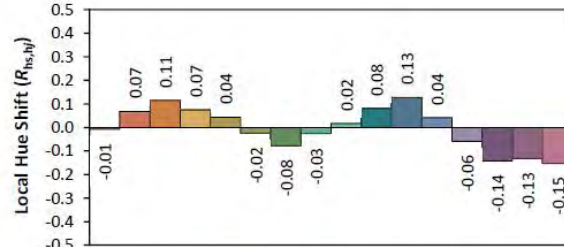
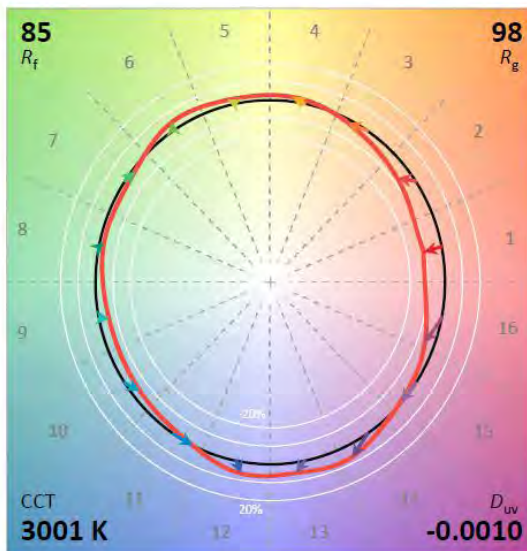
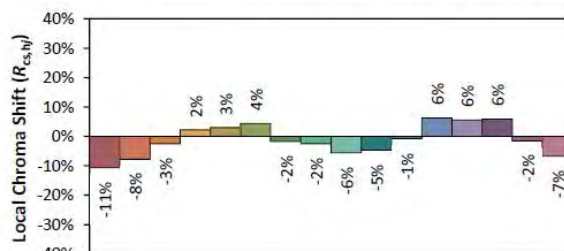
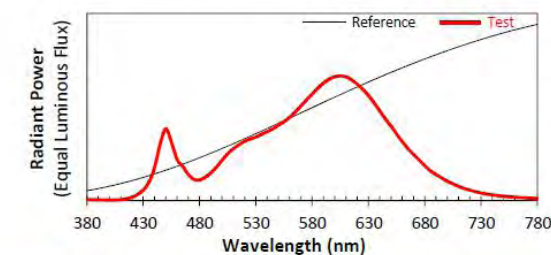
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126018-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-80W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830



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

x 0.4354
 y 0.4010
 u' 0.2509
 v' 0.5199

CIE 13.3-1995
(CRI)

R_a 84
 R_g 12

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

**3.1.8 Model Number: RP-T8C-G2-80W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.84	60	0.175	20.90	0.995

Photometric data

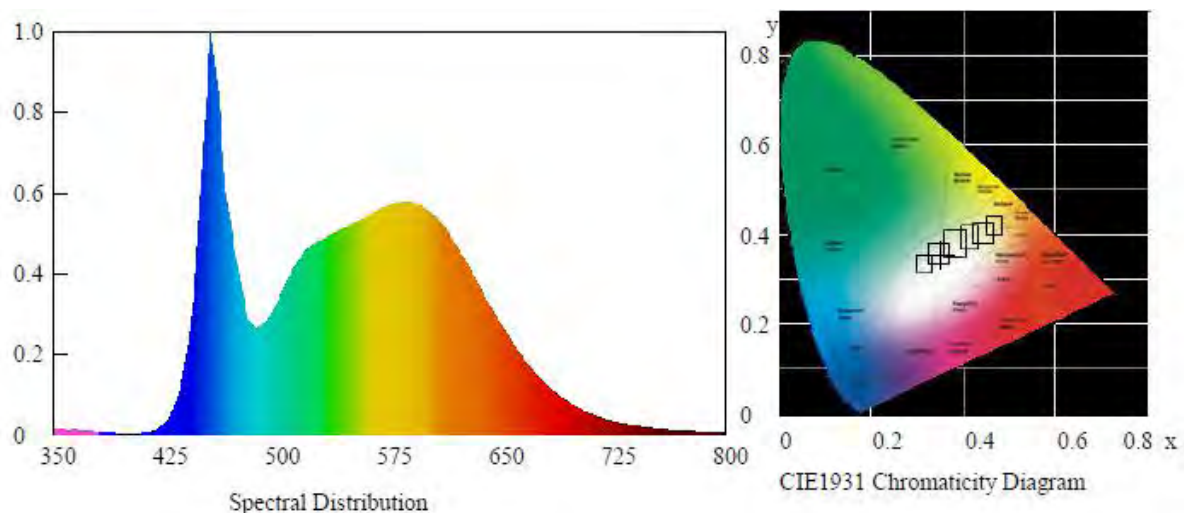
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2573.31	123.11	4998

Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00243	0.3456	0.3569	0.2097	0.4873

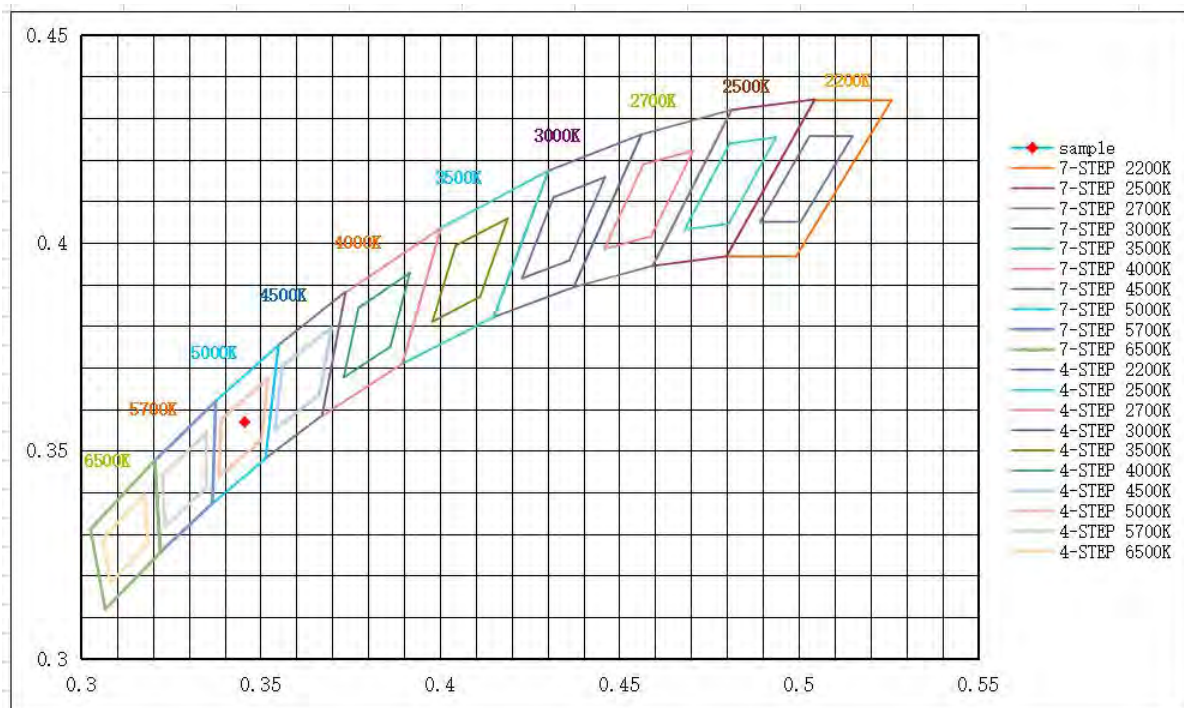
Color Rendering

CRI	R9	Rf	Rg	Rcs,h1(%)
83.8	13	83	93	-12

Spectral Distribution



7/4 Step Quadrangle





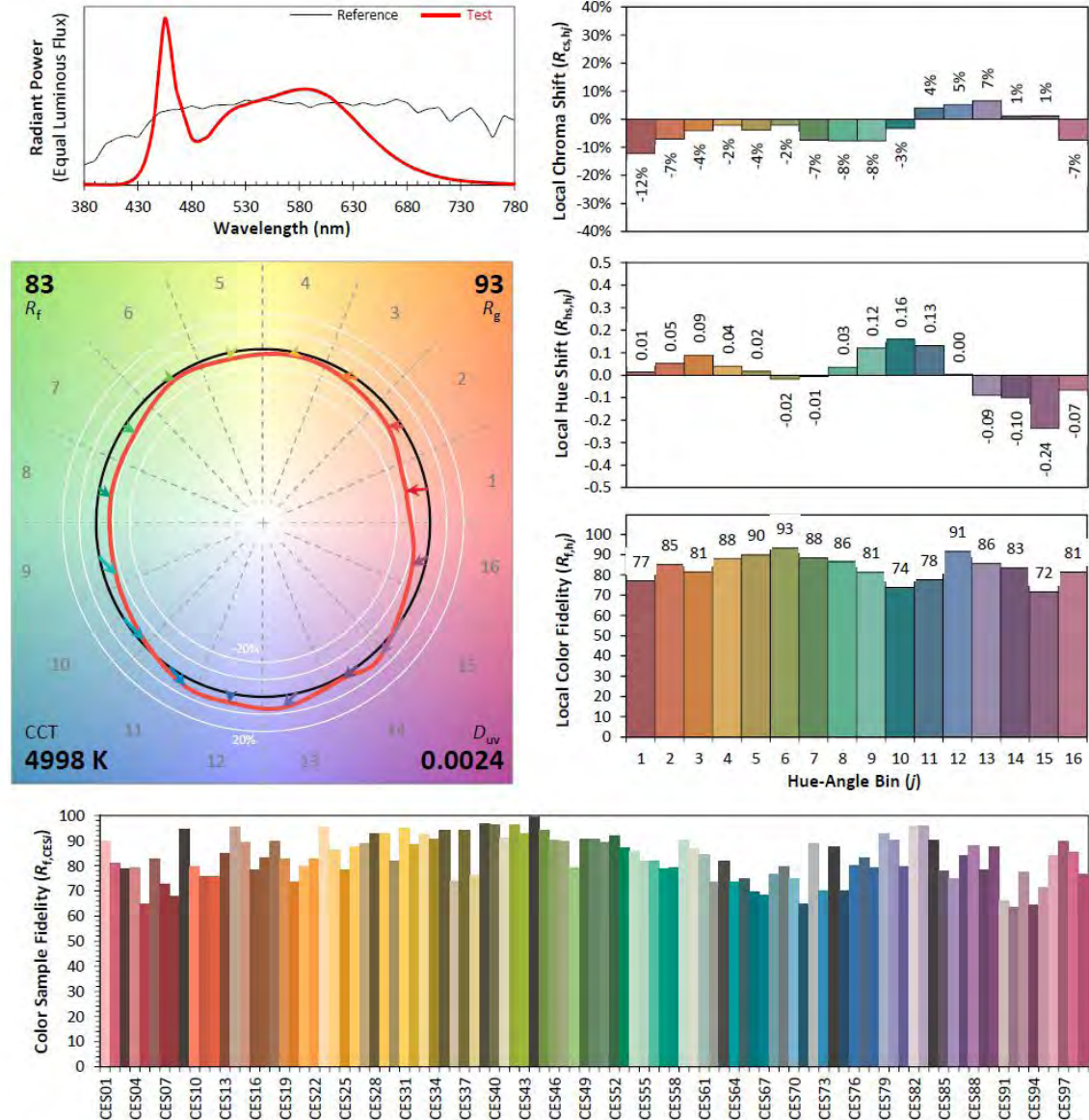
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126018-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-80W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850



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

x 0.3456
 y 0.3569
 u' 0.2097
 v' 0.4873

CIE 13.3-1995
(CRI)

R_a 84
 R_g 13

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



3.2 Goniophotometer System (Total operating time for luminous intensity distribution: 1.0 hour)

3.2.1 Model Number: RP-T8C-G2-80W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830(Bare lamp)

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.070	60	0.176	20.938	0.993

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	Beam Angle(°)
2523.94	120.54	185.3

**Zonal Flux Diagram**

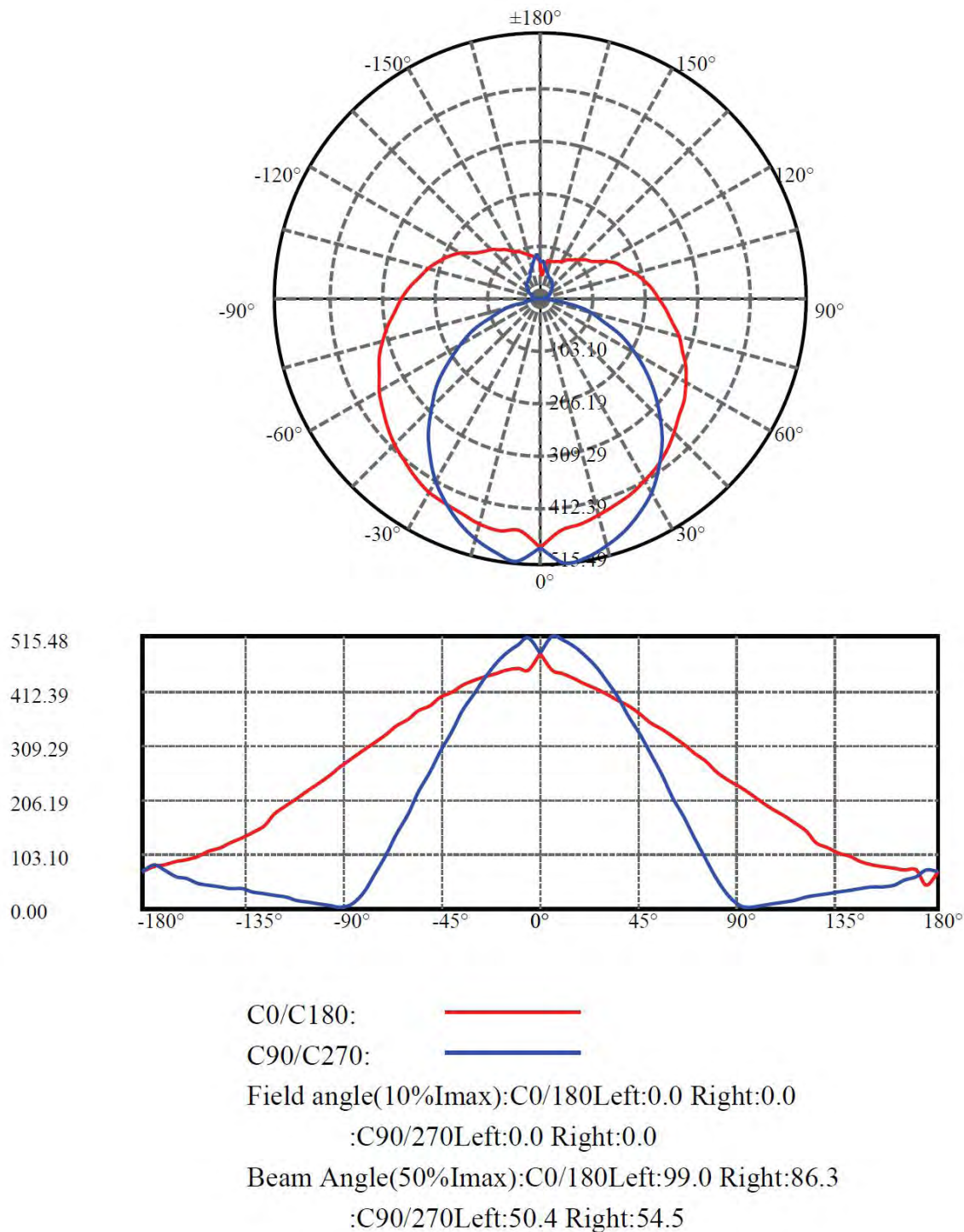
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	482.346	0.000	0	0.00%	0.00%
5.0	482.875	11.539	11.539	0.00%	0.46%
10.0	477.675	34.362	45.901	0.00%	1.82%
15.0	468.306	56.115	102.016	0.00%	4.04%
20.0	455.393	76.126	178.142	0.00%	7.06%
25.0	439.575	93.866	272.007	0.00%	10.78%
30.0	421.374	108.954	380.961	0.00%	15.09%
35.0	400.515	121.029	501.99	0.00%	19.89%
40.0	378.146	129.914	631.904	0.00%	25.04%
45.0	354.295	135.617	767.521	0.00%	30.41%
50.0	329.921	138.256	905.776	0.00%	35.89%
55.0	305.634	138.191	1043.967	0.00%	41.36%
60.0	281.260	135.659	1179.626	0.00%	46.74%
65.0	257.263	130.916	1310.542	0.00%	51.92%
70.0	233.950	124.378	1434.92	0.00%	56.85%
75.0	211.915	116.542	1551.462	0.00%	61.47%
80.0	191.593	107.967	1659.429	0.00%	65.75%
85.0	173.785	99.282	1758.711	0.00%	69.68%
90.0	159.506	91.258	1849.969	0.00%	73.30%
95.0	147.871	84.162	1934.131	0.00%	76.63%
100.0	137.921	77.656	2011.787	0.00%	79.71%
105.0	129.235	71.483	2083.27	0.00%	82.54%
110.0	121.347	65.498	2148.768	0.00%	85.14%
115.0	112.879	59.307	2208.076	0.00%	87.49%
120.0	103.553	52.615	2260.691	0.00%	89.57%
125.0	92.645	45.351	2306.042	0.00%	91.37%
130.0	88.054	39.290	2345.332	0.00%	92.92%
135.0	84.699	34.907	2380.239	0.00%	94.31%
140.0	82.360	30.932	2411.171	0.00%	95.53%
145.0	80.428	27.160	2438.331	0.00%	96.61%
150.0	77.944	23.321	2461.653	0.00%	97.53%
155.0	75.693	19.443	2481.096	0.00%	98.30%
160.0	74.139	15.715	2496.81	0.00%	98.93%
165.0	71.887	12.035	2508.845	0.00%	99.40%
170.0	69.781	8.404	2517.249	0.00%	99.73%
175.0	70.217	5.008	2522.257	0.00%	99.93%
180.0	70.694	1.685	2523.941	0.00%	100.00%



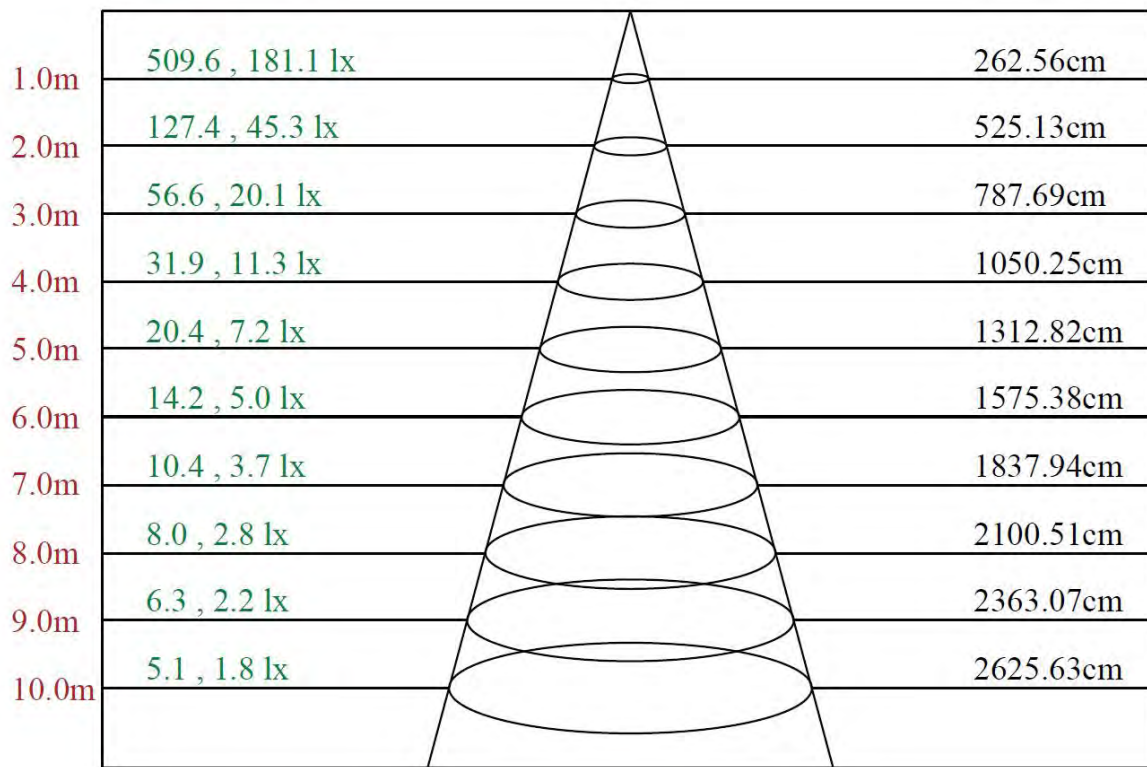
Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]





Lux distance Curve



Max , Ave

Beam angle of C90 plane 105.41

**Luminous Intensity Distribution Data**

C/ $\gamma(^{\circ})$	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	482.35	449.95	444.37	435.54	425.78	417.41	405.56	395.10	383.48
22.5	482.35	463.19	455.52	446.23	436.93	422.99	408.58	393.47	377.43
45.0	482.35	478.30	471.79	460.87	447.62	430.42	411.37	390.22	366.51
67.5	482.35	475.98	467.14	454.13	436.23	414.39	388.36	360.93	330.49
90.0	482.35	515.49	508.98	496.89	479.46	456.45	431.12	399.75	366.05
112.5	482.35	511.07	505.49	494.57	478.77	458.31	434.84	407.42	377.67
135.0	482.35	502.24	498.75	491.32	481.09	466.91	450.41	430.19	408.81
157.5	482.35	472.49	470.40	466.45	461.33	453.43	441.11	430.42	417.18
180.0	482.35	451.81	455.29	451.11	444.14	438.56	432.52	421.82	410.90
202.5	482.35	463.43	465.75	463.66	456.22	449.95	440.88	427.63	414.39
225.0	482.35	481.79	477.60	469.70	458.31	443.21	426.94	407.88	386.73
247.5	482.35	478.77	473.42	462.26	446.69	426.94	404.63	377.20	349.55
270.0	482.35	511.07	500.61	484.34	462.73	436.00	407.18	373.72	337.46
292.5	482.35	506.42	495.96	481.09	461.10	436.93	408.81	379.06	348.62
315.0	482.35	497.36	489.22	477.37	463.19	446.23	427.63	406.72	384.64
337.5	482.35	466.68	462.50	457.38	446.69	435.07	422.06	406.72	390.45
360.0	482.35	449.95	444.37	435.54	425.78	417.41	405.56	395.10	383.48
C/ $\gamma(^{\circ})$	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	368.14	353.50	340.95	327.23	310.73	293.07	277.03	260.76	244.73
22.5	358.61	342.57	327.23	310.50	293.30	276.80	260.53	245.19	231.71
45.0	342.57	319.33	296.09	274.01	252.17	231.48	212.66	195.22	180.35
67.5	298.88	267.27	236.83	206.15	176.63	147.58	123.64	102.26	86.22
90.0	330.26	293.30	253.56	212.66	172.91	133.87	93.89	57.41	26.73
112.5	347.45	313.75	280.52	249.14	218.70	187.79	158.97	135.03	115.28
135.0	385.80	362.56	338.85	316.78	294.23	275.17	256.12	236.59	219.16
157.5	403.46	387.43	371.62	354.19	339.78	324.44	307.71	291.91	274.01
180.0	398.82	385.80	373.25	358.38	344.20	330.72	314.92	301.20	283.77
202.5	399.98	386.27	370.00	355.12	336.53	320.73	304.69	288.19	270.53
225.0	366.51	346.29	324.21	302.13	280.75	260.30	241.94	223.81	207.08
247.5	321.19	290.05	257.74	225.90	195.92	168.03	143.40	122.25	104.35
270.0	299.34	260.76	220.79	179.19	140.61	101.33	63.45	30.45	8.37
292.5	315.61	281.91	249.61	217.30	188.25	159.90	135.96	114.58	97.85
315.0	358.38	333.28	310.27	287.49	264.95	243.57	223.81	206.61	191.74
337.5	373.72	354.66	338.62	323.98	306.55	288.42	271.92	254.02	238.69
360.0	368.14	353.50	340.95	327.23	310.73	293.07	277.03	260.76	244.73
C/ $\gamma(^{\circ})$	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	230.55	216.14	202.43	189.18	176.40	163.85	146.65	125.27	116.21
22.5	218.23	203.82	188.25	175.70	162.22	151.30	128.99	114.58	105.98
45.0	168.27	154.09	141.77	130.85	122.48	114.11	106.21	91.11	83.20
67.5	76.00	67.17	61.36	57.41	55.55	54.85	54.15	52.06	52.29
90.0	6.51	3.95	6.04	9.53	13.48	17.43	21.38	25.33	29.28
112.5	99.47	88.78	81.58	76.00	69.49	65.31	66.24	65.31	62.75
135.0	203.13	188.25	176.17	164.31	153.39	141.31	123.88	109.70	101.10
157.5	258.44	242.87	227.76	213.82	199.87	186.63	173.38	144.09	135.03
180.0	268.20	253.56	238.22	223.81	208.47	194.06	179.89	156.18	143.17
202.5	254.49	240.54	225.44	211.73	197.55	184.77	170.59	142.70	132.01
225.0	191.97	178.96	167.10	156.18	147.12	135.03	117.14	104.35	99.47
247.5	89.94	79.95	74.14	69.03	64.61	63.45	64.38	59.03	58.10
270.0	3.95	6.04	9.30	13.25	17.43	21.85	26.03	29.98	33.47
292.5	83.44	74.37	66.00	60.89	62.05	60.66	54.15	51.60	55.08
315.0	176.17	160.36	148.74	136.89	125.97	98.54	95.75	91.57	88.55
337.5	223.35	207.08	192.44	179.19	165.48	152.93	128.06	119.46	113.18
360.0	230.55	216.14	202.43	189.18	176.40	163.85	146.65	125.27	116.21



C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	105.75	98.31	91.11	82.74	79.48	77.16	75.07	74.37	45.79
22.5	97.15	91.80	85.53	77.86	77.39	69.49	60.19	43.23	61.82
45.0	81.58	75.07	73.44	72.74	65.31	57.64	51.13	58.34	74.37
67.5	55.31	58.57	60.66	56.48	51.13	53.69	57.41	64.38	78.09
90.0	32.54	36.02	38.58	40.90	43.00	45.79	52.99	60.19	72.51
112.5	63.45	67.17	69.96	66.93	60.89	58.10	60.89	65.08	71.82
135.0	97.15	93.20	88.08	87.15	81.81	70.65	63.68	56.48	65.77
157.5	122.48	114.35	107.14	98.31	92.27	88.55	78.09	64.15	44.62
180.0	133.40	124.11	114.35	107.37	99.70	94.36	88.32	84.37	79.72
202.5	122.95	115.04	111.79	106.21	101.10	97.15	93.20	87.62	82.51
225.0	95.06	92.96	88.32	88.08	89.94	91.34	90.41	87.62	74.84
247.5	61.36	64.84	67.63	70.89	75.77	79.48	81.11	73.91	73.91
270.0	37.19	39.98	42.76	44.62	46.48	56.94	61.82	73.67	84.60
292.5	59.27	63.45	68.10	72.05	76.00	79.48	72.98	72.05	79.25
315.0	84.60	81.81	83.67	85.29	84.83	84.13	83.44	72.28	73.67
337.5	105.98	101.10	95.75	89.48	85.99	82.27	79.48	78.79	60.19
360.0	105.75	98.31	91.11	82.74	79.48	77.16	75.07	74.37	45.79
C/γ(°)	180.0								
0.0	70.69								
22.5	70.69								
45.0	70.69								
67.5	70.69								
90.0	70.69								
112.5	70.69								
135.0	70.69								
157.5	70.69								
180.0	70.69								
202.5	70.69								
225.0	70.69								
247.5	70.69								
270.0	70.69								
292.5	70.69								
315.0	70.69								
337.5	70.69								
360.0	70.69								



4 Additional Test

Electrical data at 277V

Model Number	Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
RP-T8C-G2-80W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	Power Factor	277	60	0.976
	THD	277	60	7.2%

5 Performance Assessment

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-50W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	1651.35	12.93	127.69
RP-T8C-G2-50W-4FT-4L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	1665.14 * ¹	13.03 * ²	127.84 * ³
RP-T8C-G2-50W-4FT-4L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	1678.94 * ¹	13.03 * ²	128.90 * ³
RP-T8C-G2-50W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	1706.52	13.12	130.07

*1: This value is calculated and the calculation formula is as below:

$$1665.14 = (1706.52 - 1651.35) / 4 + 1651.35$$

$$1678.94 = (1706.52 - 1651.35) / 4 + 1665.14$$

*2: This value is calculated and the calculation formula is as below:

$$13.03 = (12.93 + 13.12) / 2$$

*3: This value is calculated and the calculation formula is as below:

$$127.84 = 1665.14 / 13.03$$

$$128.90 = 1678.94 / 13.03$$



Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-60W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	1903.62	15.19	125.30
RP-T8C-G2-60W-4FT-4L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	1917.68 * ¹	15.27 * ²	125.63 * ³
RP-T8C-G2-60W-4FT-4L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	1931.73 * ¹	15.27 * ²	126.55 * ³
RP-T8C-G2-60W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	1959.84	15.34	127.76

*1: This value is calculated and the calculation formula is as below:

$$1917.68 = (1959.84 - 1903.62) / 4 + 1903.62$$

$$1931.73 = (1959.84 - 1903.62) / 4 + 1917.68$$

*2: This value is calculated and the calculation formula is as below:

$$15.27 = (15.19 + 15.34) / 2$$

*3: This value is calculated and the calculation formula is as below:

$$125.63 = 1917.68 / 15.27$$

$$126.55 = 1931.73 / 15.27$$

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-70W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	2228.27	18.12	122.99
RP-T8C-G2-70W-4FT-4L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	2242.95 * ¹	18.18 * ²	123.37 * ³
RP-T8C-G2-70W-4FT-4L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	2257.63 * ¹	18.18 * ²	124.18 * ³
RP-T8C-G2-70W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	2286.98	18.24	125.40

*1: This value is calculated and the calculation formula is as below:

$$2242.95 = (2286.98 - 2228.27) / 4 + 2228.27$$

$$2257.63 = (2286.98 - 2228.27) / 4 + 2242.95$$

*2: This value is calculated and the calculation formula is as below:

$$18.18 = (18.12 + 18.24) / 2$$

*3: This value is calculated and the calculation formula is as below:

$$123.37 = 2242.95 / 18.18$$

$$124.18 = 2257.63 / 18.18$$



Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-80W-4FT-4L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	2525.36	20.94	120.60
RP-T8C-G2-80W-4FT-4L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	2537.35 * ¹	20.92 * ²	121.29 * ³
RP-T8C-G2-80W-4FT-4L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	2549.34 * ¹	20.92 * ²	121.86 * ³
RP-T8C-G2-80W-4FT-4L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	2573.31	20.90	123.11

*1: This value is calculated and the calculation formula is as below:

$$2537.35 = (2573.31 - 2525.36) / 4 + 2525.36$$

$$2549.34 = (2573.31 - 2525.36) / 4 + 2537.35$$

*2: This value is calculated and the calculation formula is as below:

$$20.92 = (20.94 + 20.90) / 2$$

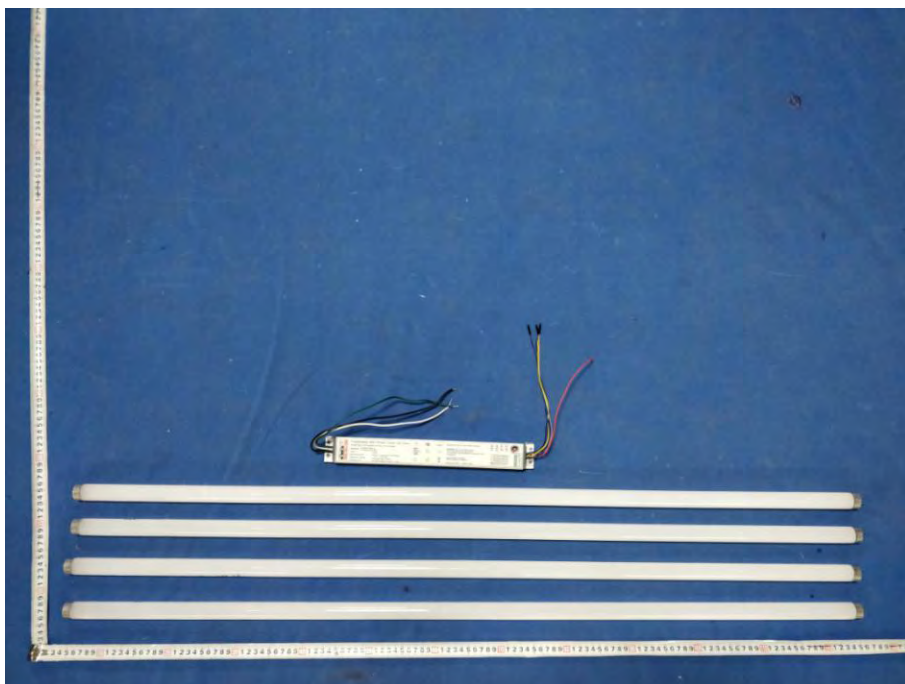
*3: This value is calculated and the calculation formula is as below:

$$121.29 = 2537.35 / 20.92$$

$$121.86 = 2549.34 / 20.92$$



Photo Document



****End of test report****