



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 -- 3-Lamp External Driver (UL Type C) Lamps

Product Model No.:

RP-T8C-G2-50W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-50W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850,
RP-T8C-G2-60W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-60W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850,
RP-T8C-G2-70W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-70W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850,
RP-T8C-G2-80W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-80W-4FT-3L-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.

Jarvis zhang

Jason zhou

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 -- 3-Lamp External Driver (UL Type C) Lamps
Test Model Number	RP-T8C-G2-50W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-50W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850, RP-T8C-G2-60W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-60W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850, RP-T8C-G2-70W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-70W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850, RP-T8C-G2-80W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-80W-4FT-3L-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 Mesurer	XUYAO	HS-1	N/A	2021-04-08
Environment Mesurer	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-3L-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	0.147	17.55	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2176.55	124.02	3006

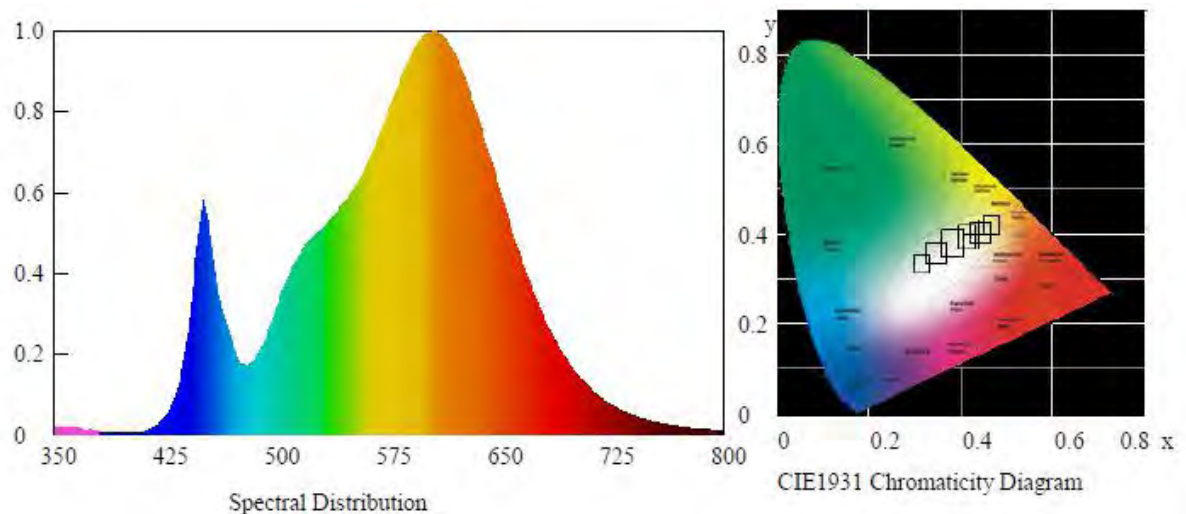
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.0012	0.4348	0.4004	0.2508	0.5196

Color Rendering

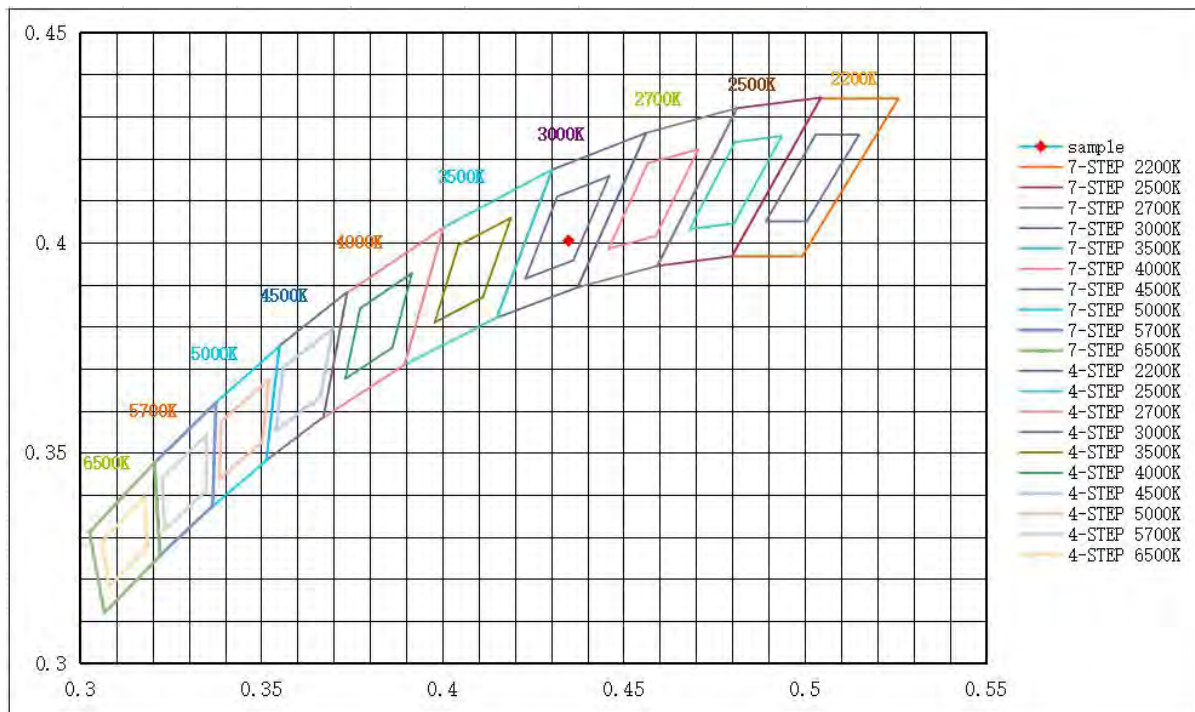
CRI	R9	Rf	Rg	Rcs,h1(%)
83.9	12	85	97	-11

Spectral Distribution





7/4 Step Quadrangle





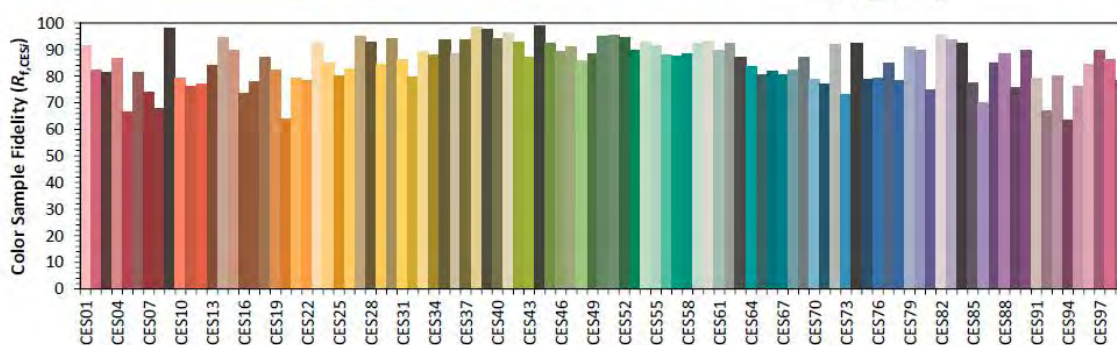
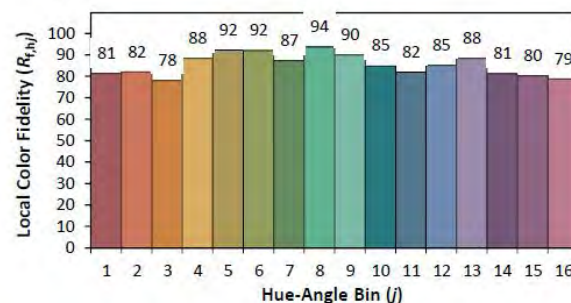
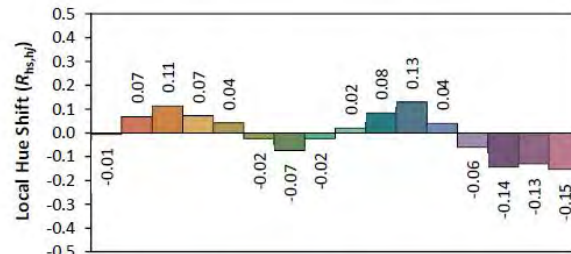
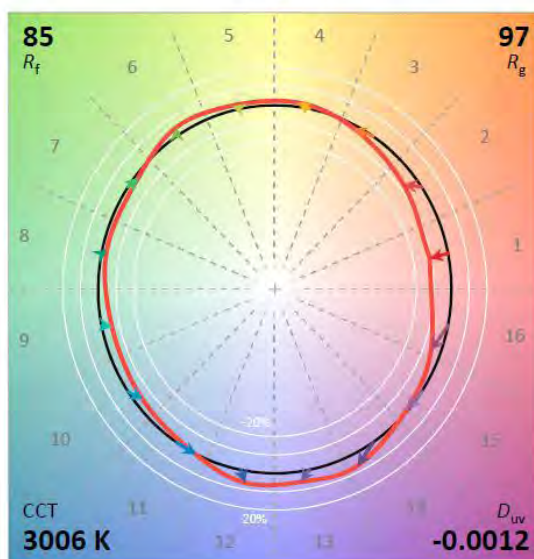
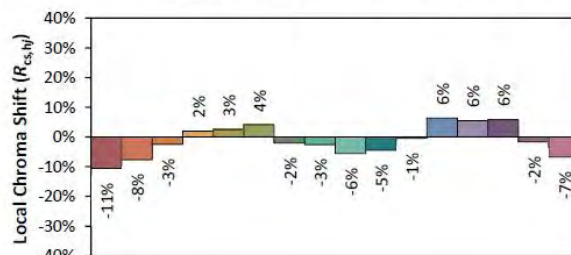
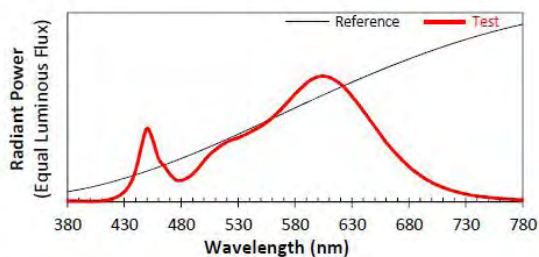
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126017-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-50W-4FT-3L-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.



3.1.2 Model Number: RP-T8C-G2-50W-4FT-3L-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
120.12	60	0.147	17.61	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2223.72	126.30	4964

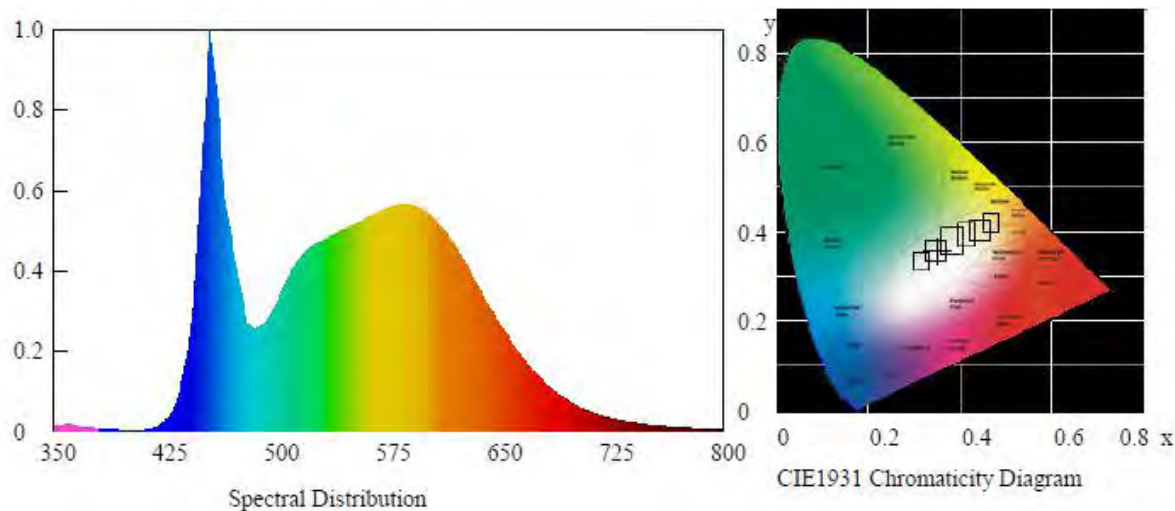
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00256	0.3467	0.3580	0.2100	0.4880

Color Rendering

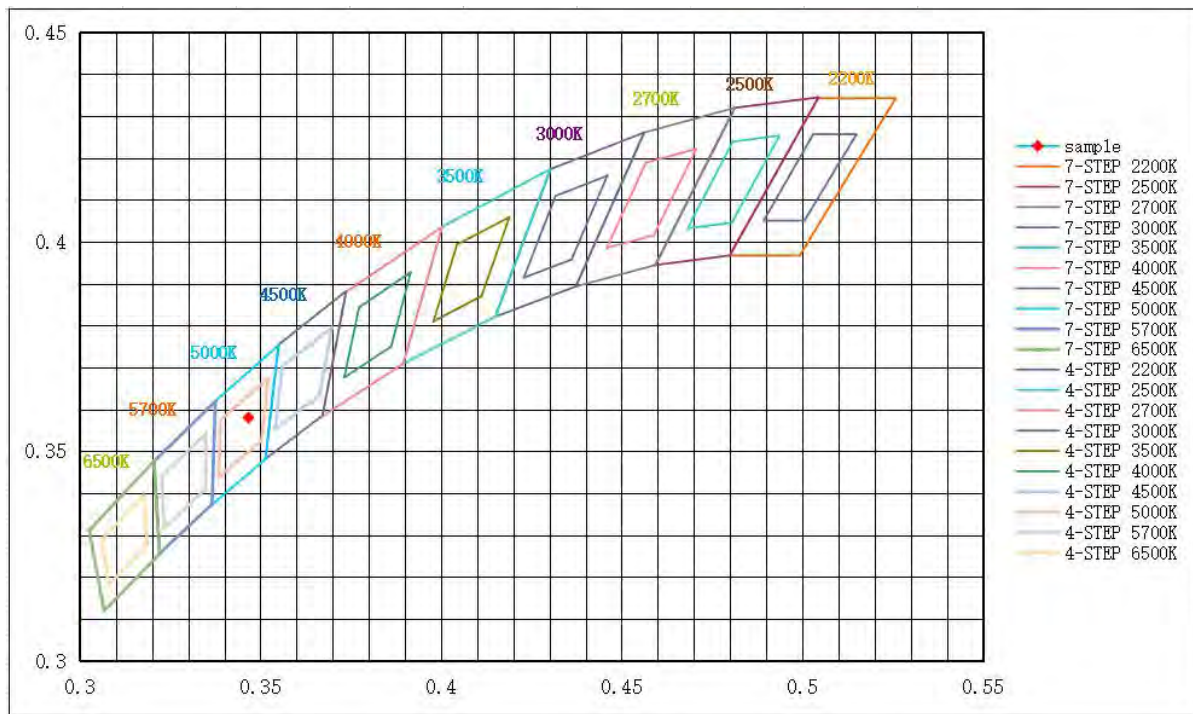
CRI	R9	Rf	Rg	Rcs,h1(%)
83.8	13	83	93	-12

Spectral Distribution





7/4 Step Quadrangle





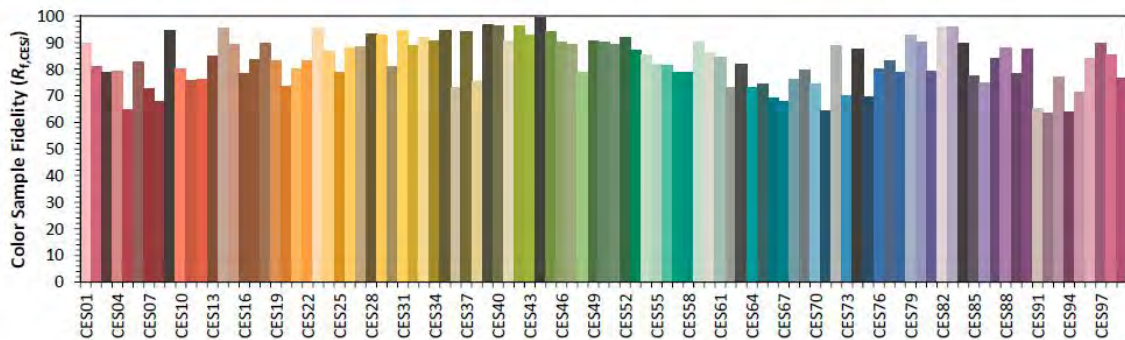
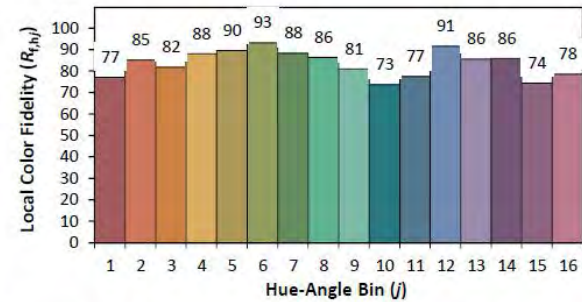
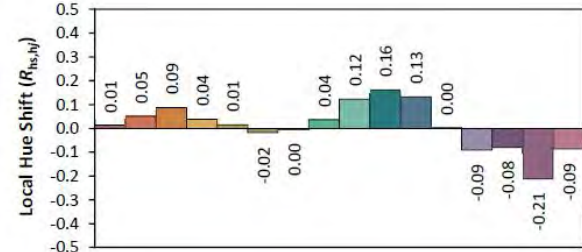
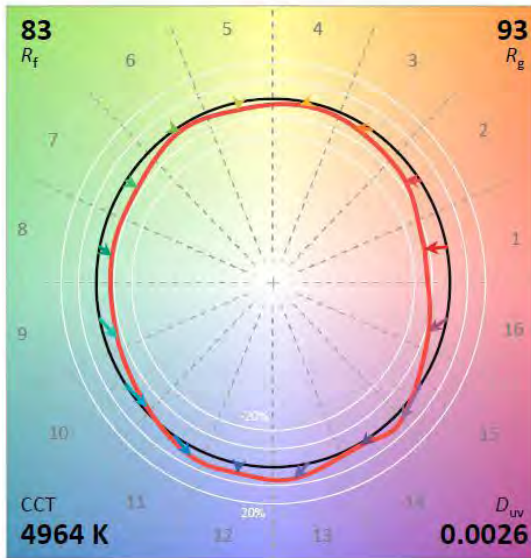
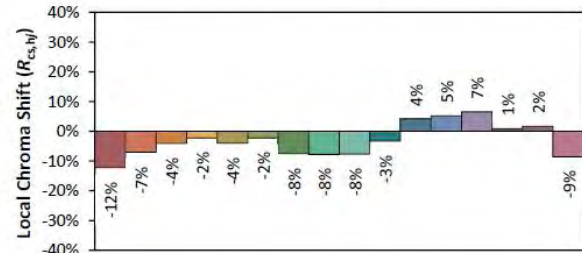
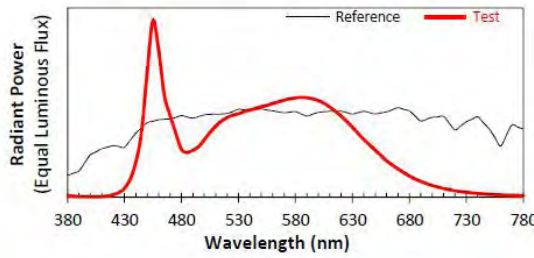
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126017-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-50W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850



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

x 0.3467
 y 0.3580
 u' 0.2100
 v' 0.4880

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-3L-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
120.03	60	0.171	20.52	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2499.96	121.85	3001

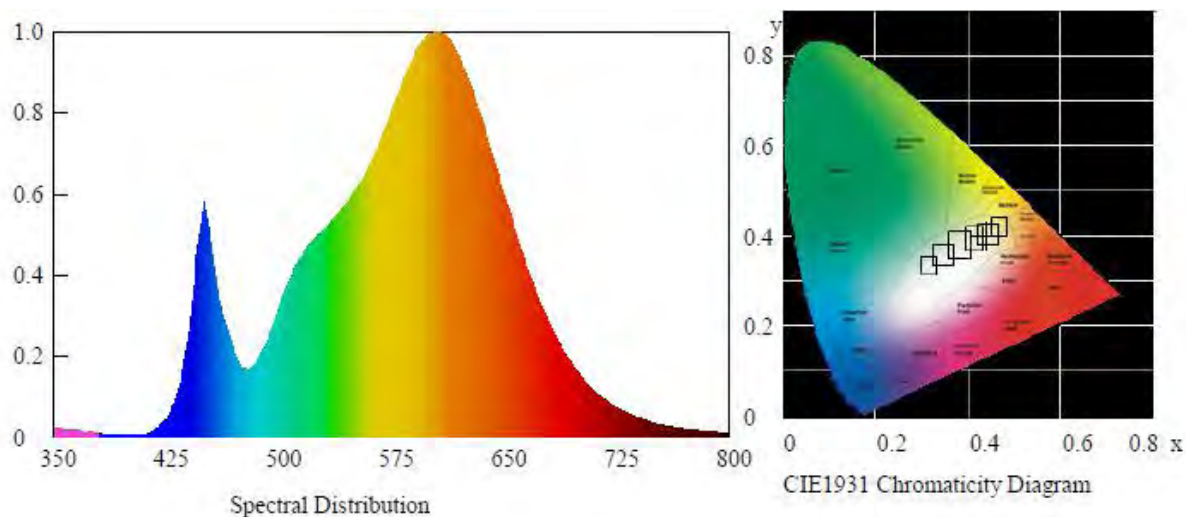
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00112	0.4352	0.4007	0.2509	0.5198

Color Rendering

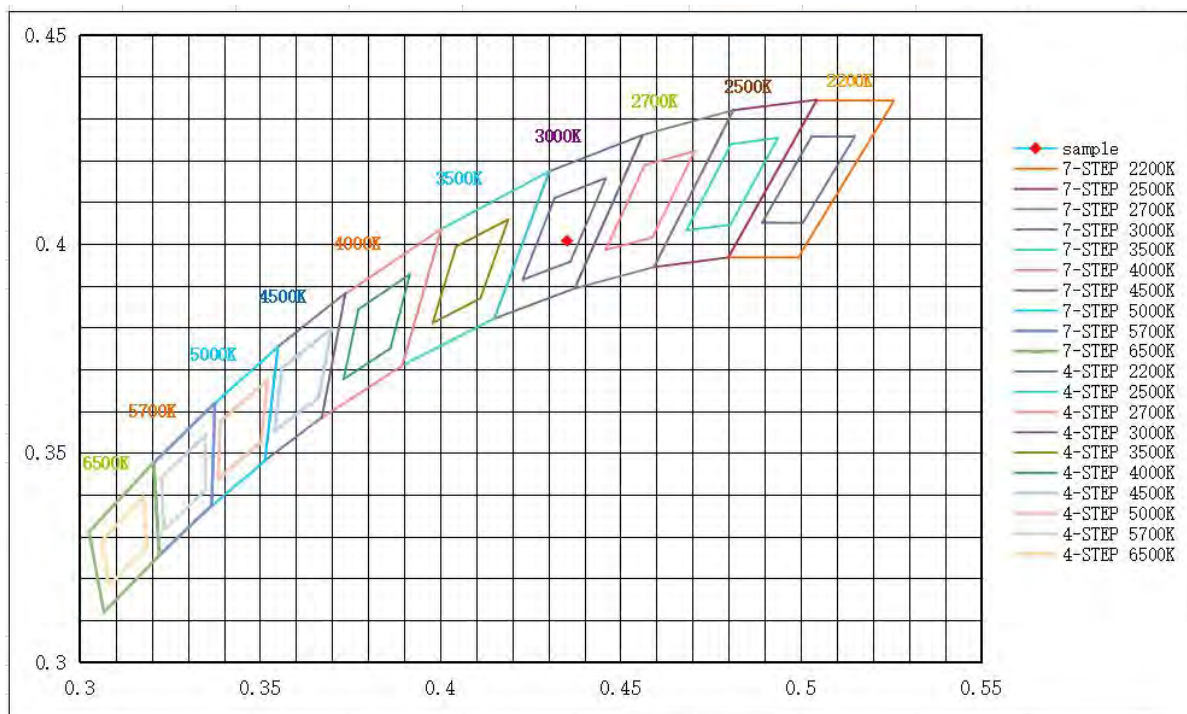
CRI	R9	Rf	Rg	Rcs,h1(%)
83.9	12	85	98	-11

Spectral Distribution





7/4 Step Quadrangle





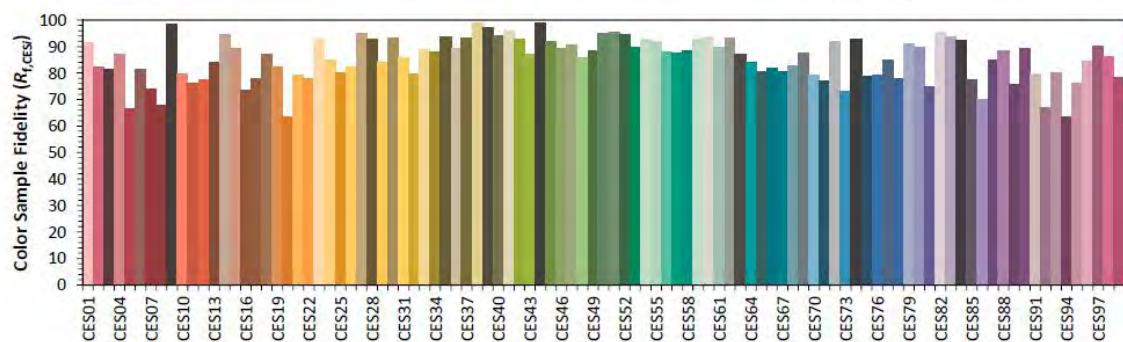
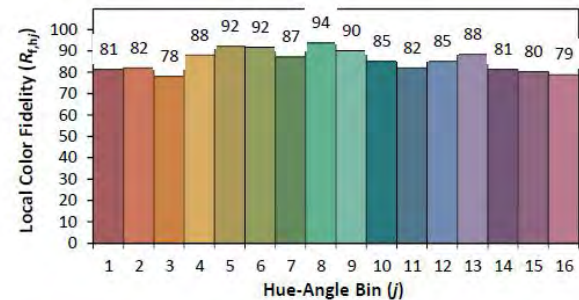
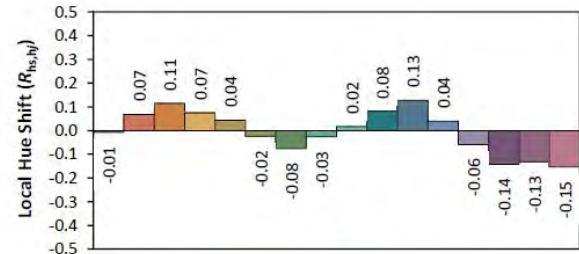
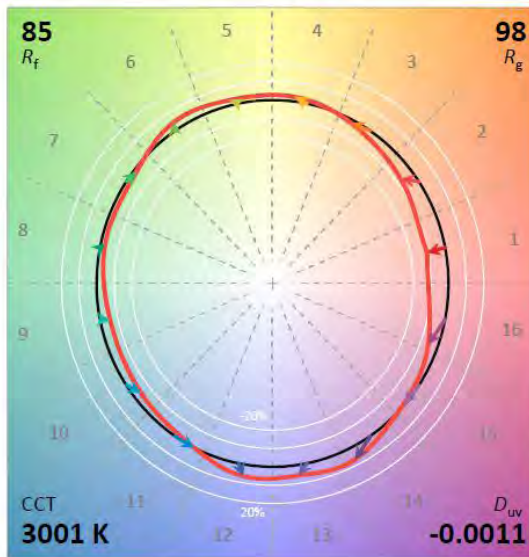
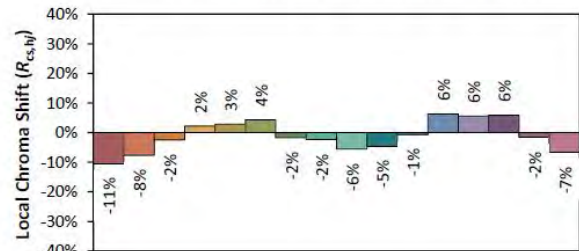
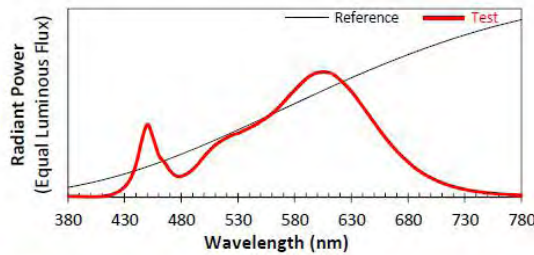
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126017-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-60W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830



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

x 0.4352
 y 0.4007
 u' 0.2509
 v' 0.5198

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.



3.1.4 Model Number: RP-T8C-G2-60W-4FT-3L-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
120.06	60	0.173	20.71	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2568.45	124.04	4979

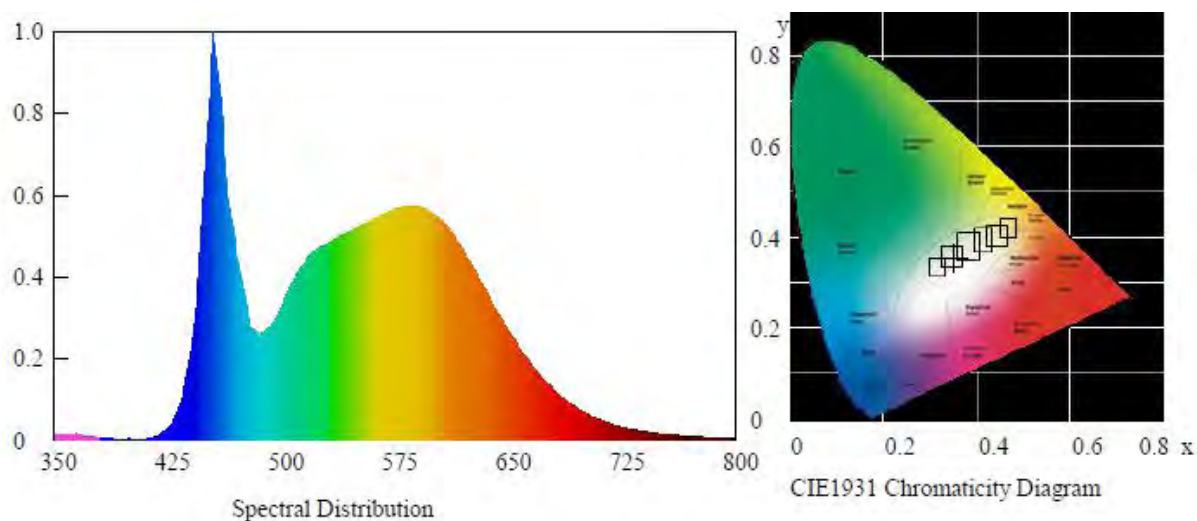
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00245	0.3462	0.3574	0.2099	0.4876

Color Rendering

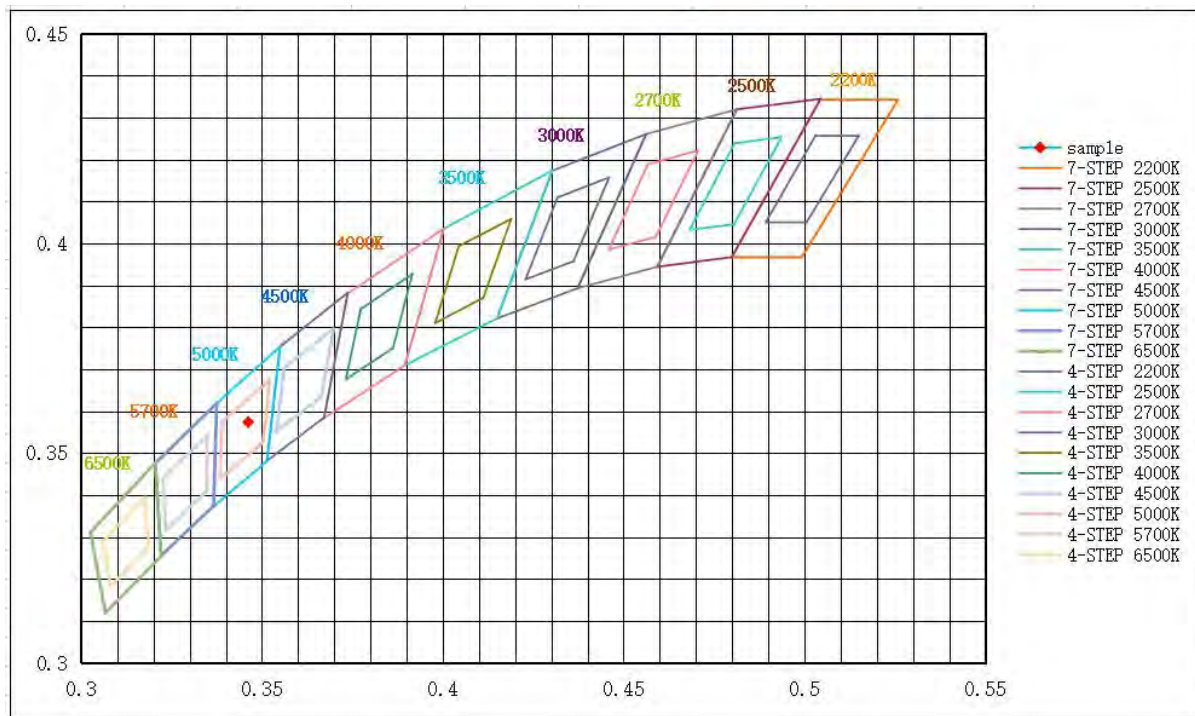
CRI	R9	Rf	Rg	Rcs,h1(%)
83.8	13	83	93	-12

Spectral Distribution





7/4 Step Quadrangle





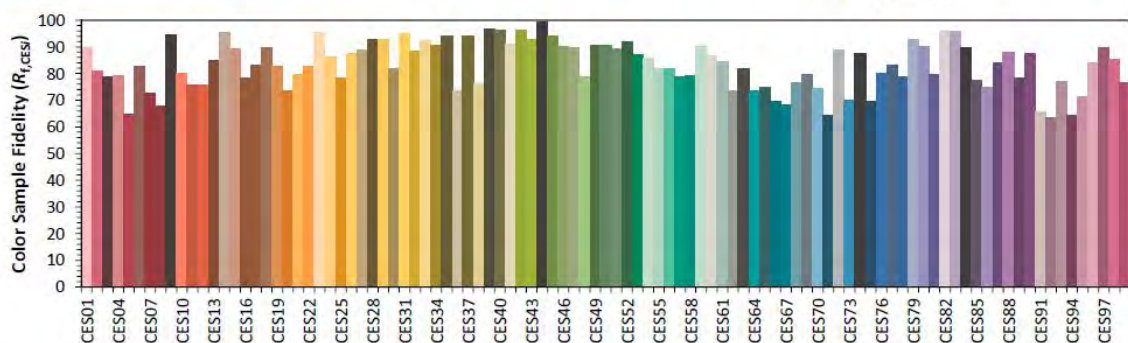
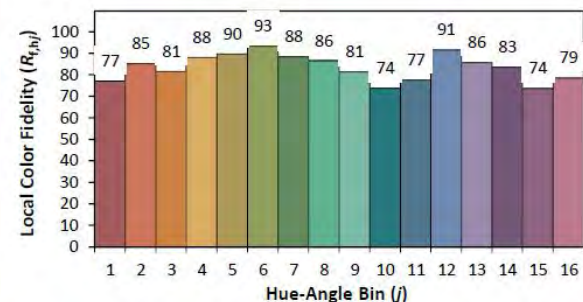
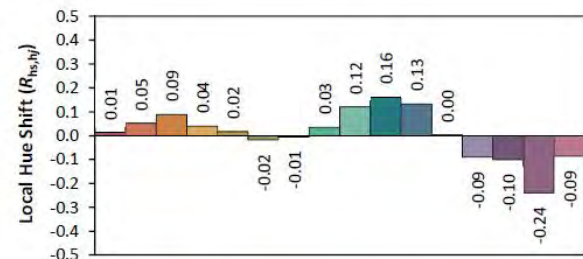
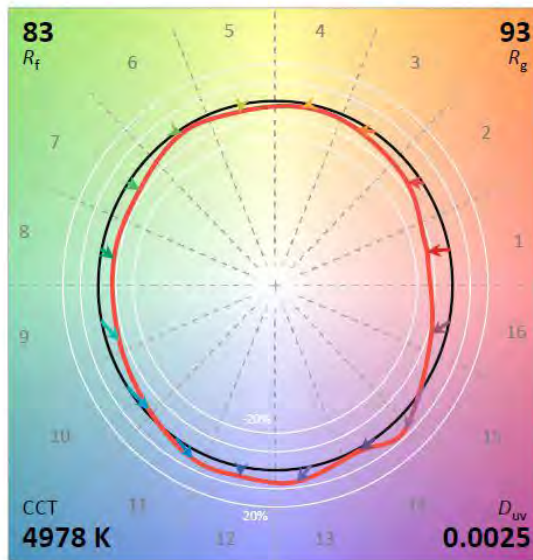
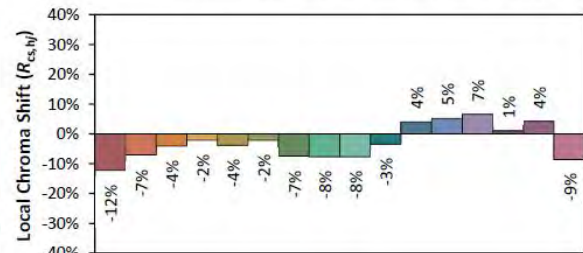
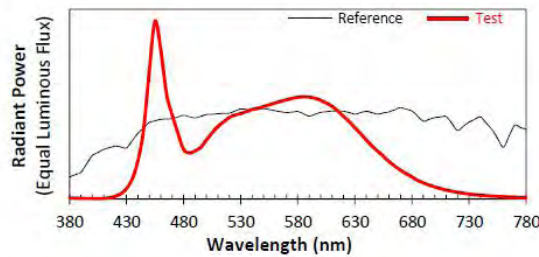
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126017-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-60W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850



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

x 0.3462
 y 0.3574
 u' 0.2099
 v' 0.4876

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.



3.1.5 Model Number: RP-T8C-G2-70W-4FT-3L-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
119.97	60	0.206	24.66	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2957.23	119.92	3010

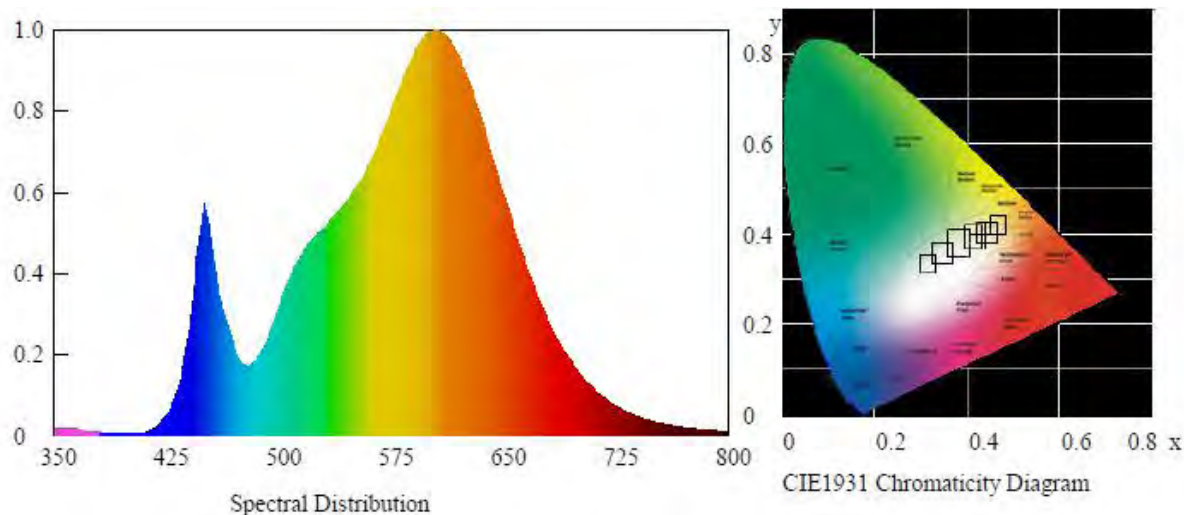
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00125	0.4344	0.4001	0.2507	0.5194

Color Rendering

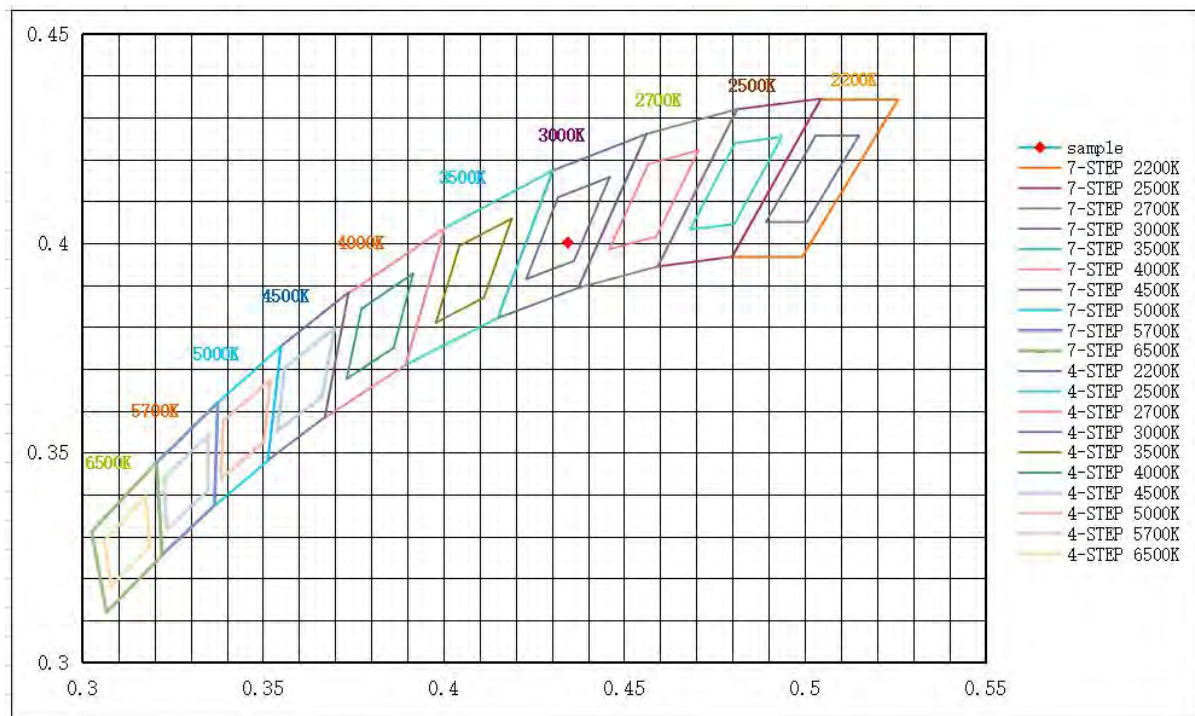
CRI	R9	Rf	Rg	Rcs,h1(%)
83.8	12	85	97	-11

Spectral Distribution





7/4 Step Quadrangle





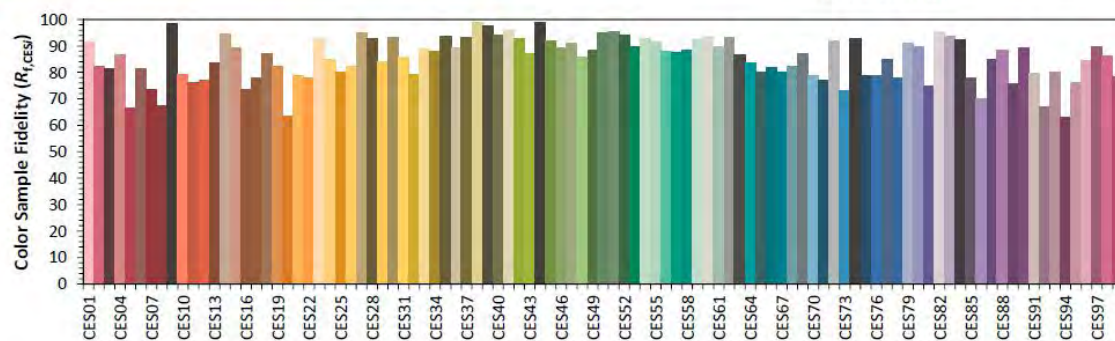
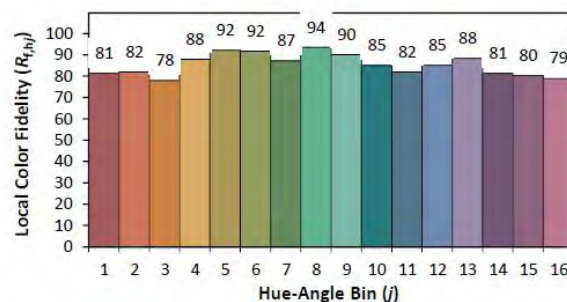
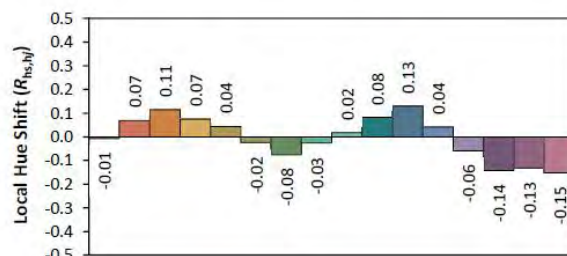
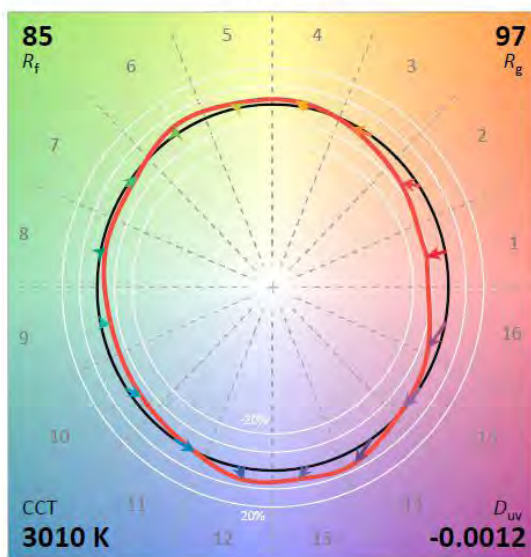
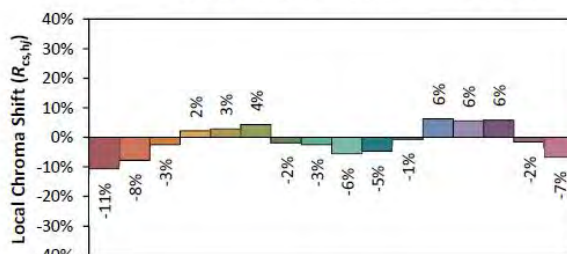
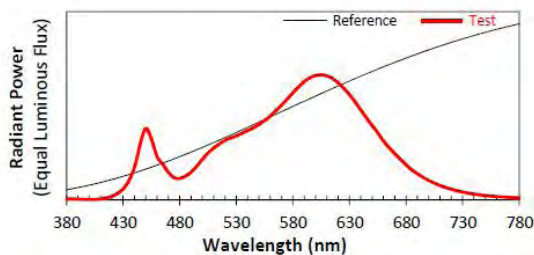
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126017-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-70W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830



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

x 0.4344
 y 0.4001
 u' 0.2507
 v' 0.5194

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-3L-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
119.95	60	0.208	24.79	0.996

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
3024.79	122.00	4987

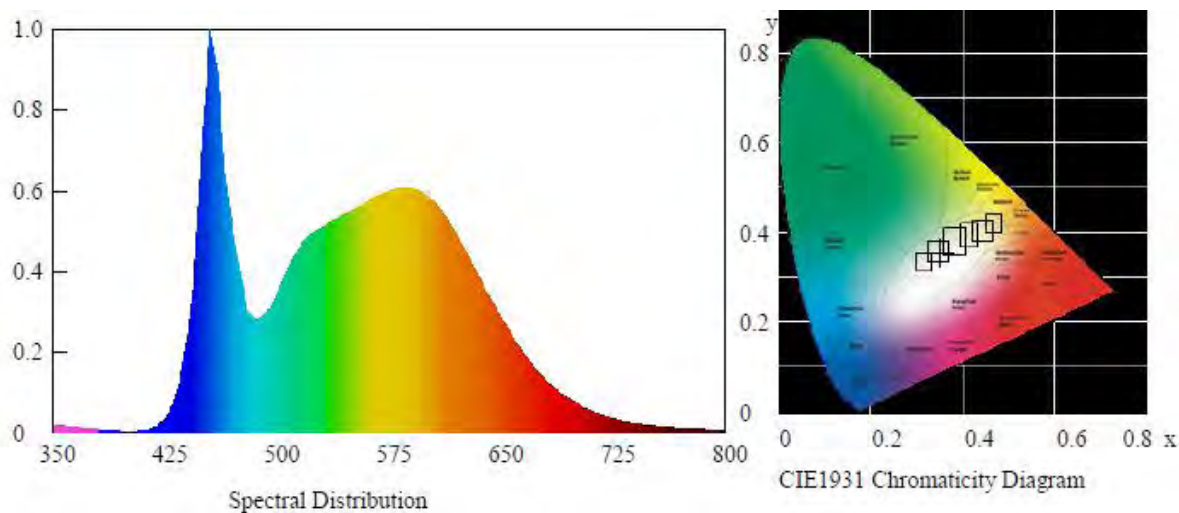
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00241	0.3460	0.3571	0.2099	0.4875

Color Rendering

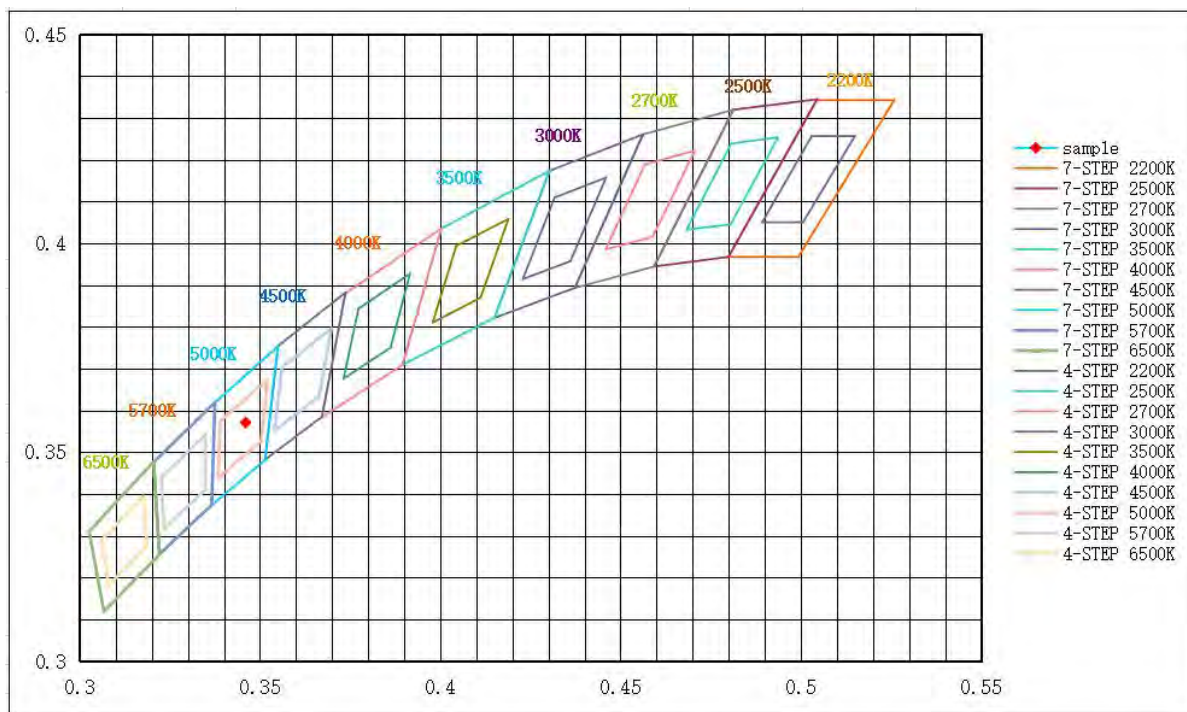
CRI	R9	Rf	Rg	Rcs,h1(%)
83.7	13	83	93	-12

Spectral Distribution





7/4 Step Quadrangle





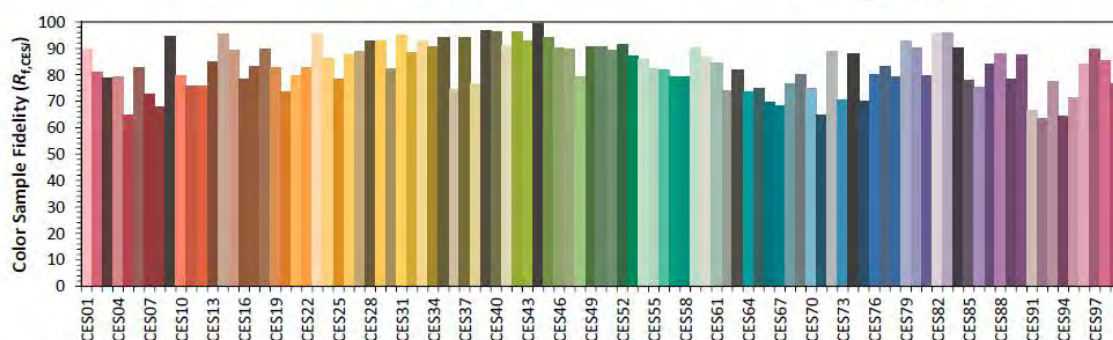
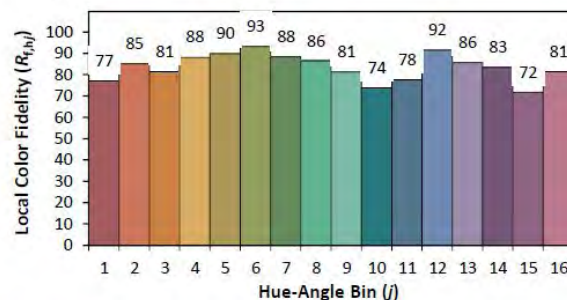
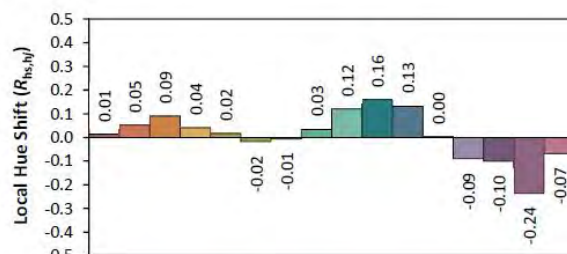
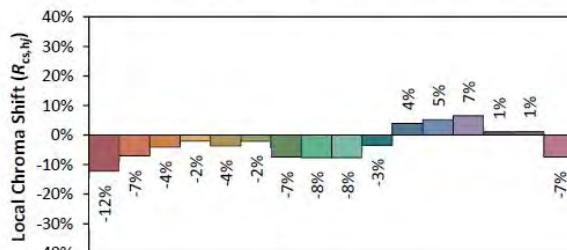
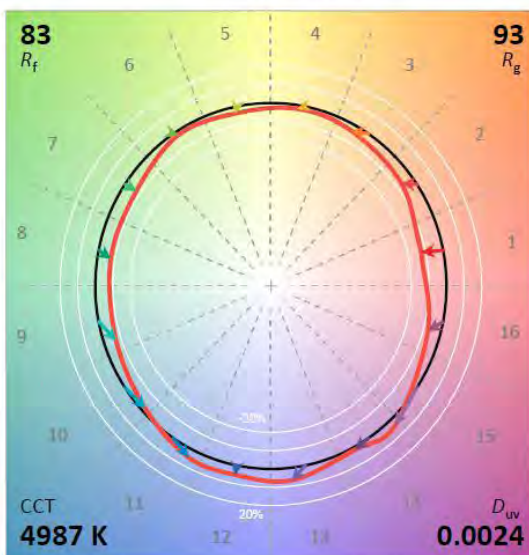
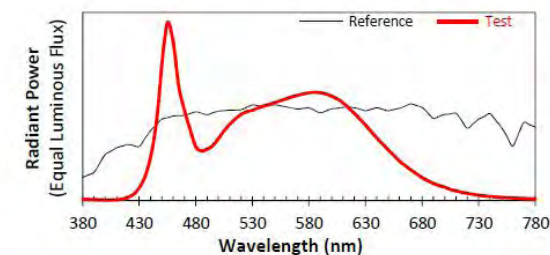
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126017-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-70W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850



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

x 0.3460
 y 0.3571
 u' 0.2099
 v' 0.4875

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.

**3.1.7 Model Number: RP-T8C-G2-80W-4FT-3L-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
119.92	60	0.238	28.40	0.995

Photometric data

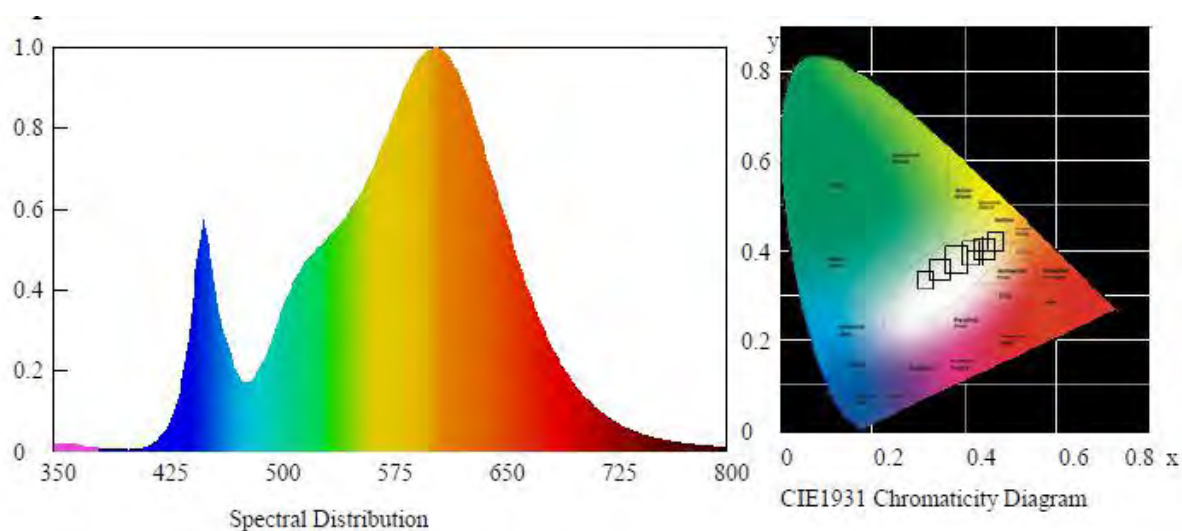
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
3345.52	117.80	3013

Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00111	0.4344	0.4004	0.2505	0.5196

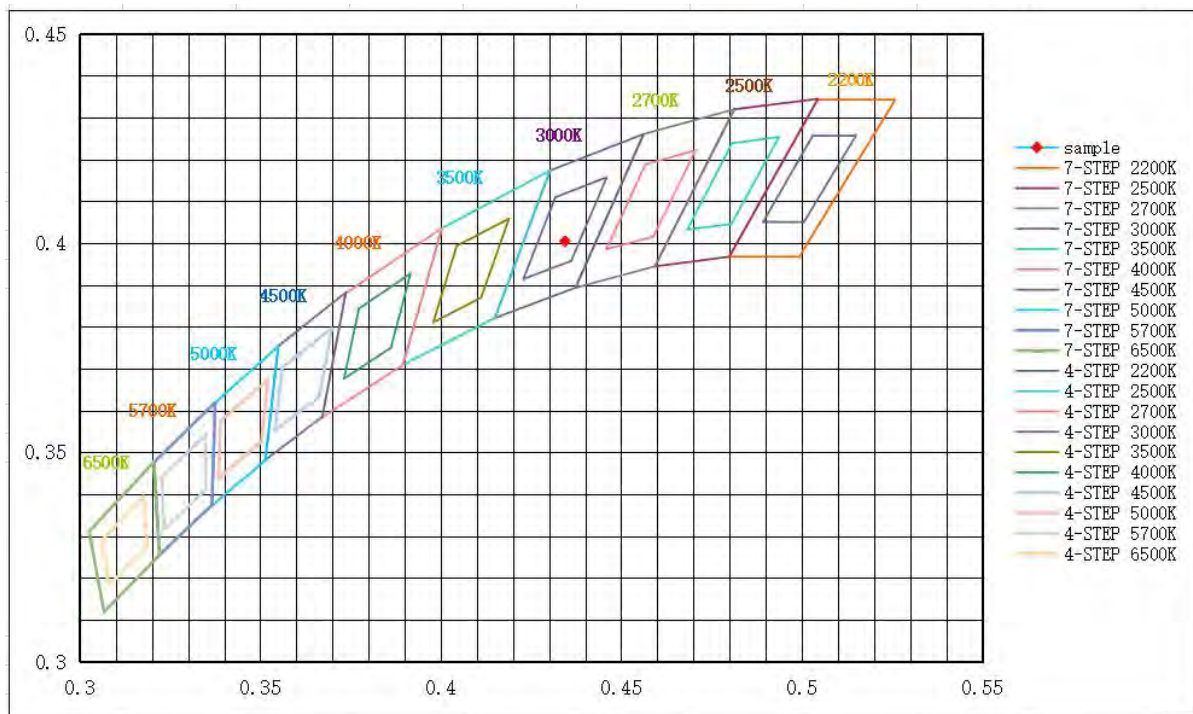
Color Rendering

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

Spectral Distribution



7/4 Step Quadrangle





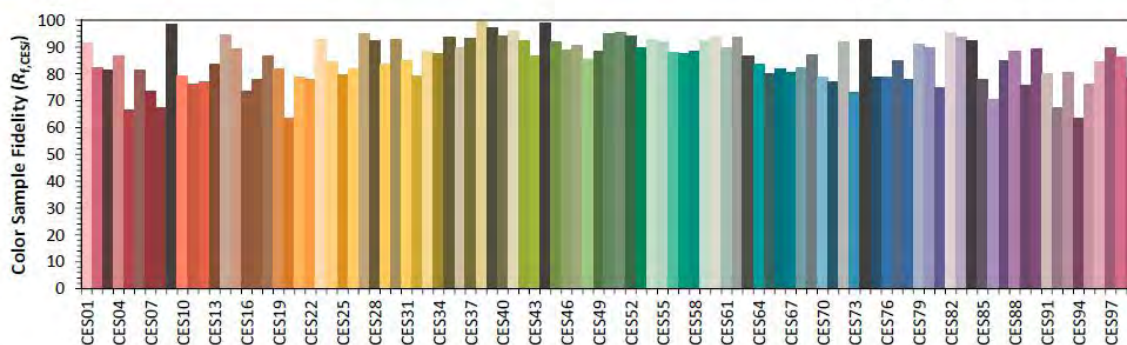
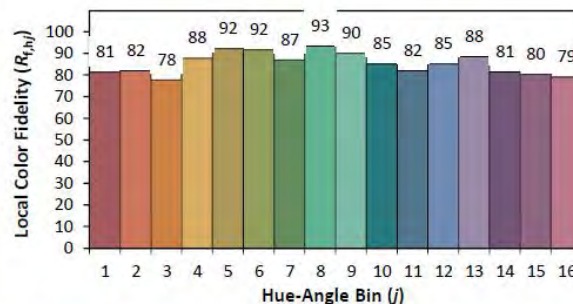
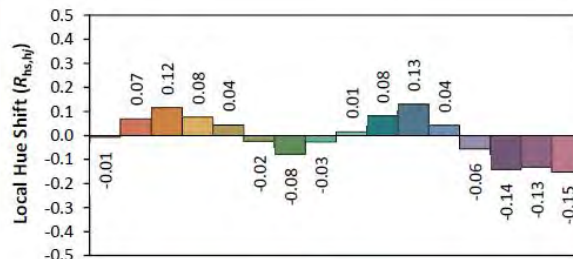
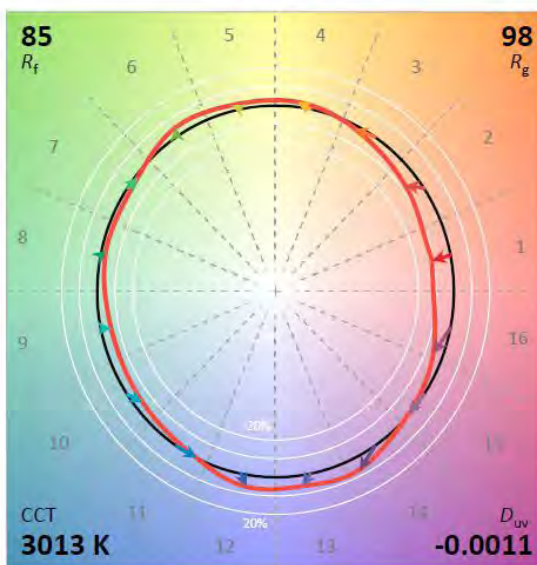
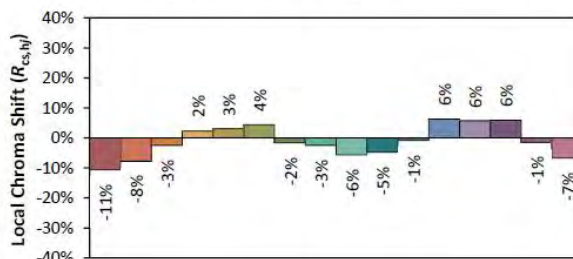
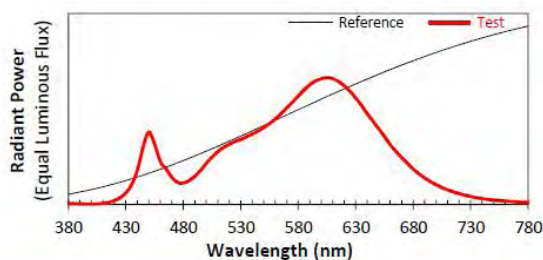
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126017-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-80W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830



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

x 0.4344
 y 0.4004
 u' 0.2505
 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.



3.1.8 Model Number: RP-T8C-G2-80W-4FT-3L-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
119.90	60	0.239	28.50	0.994

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
3425.70	120.20	4934

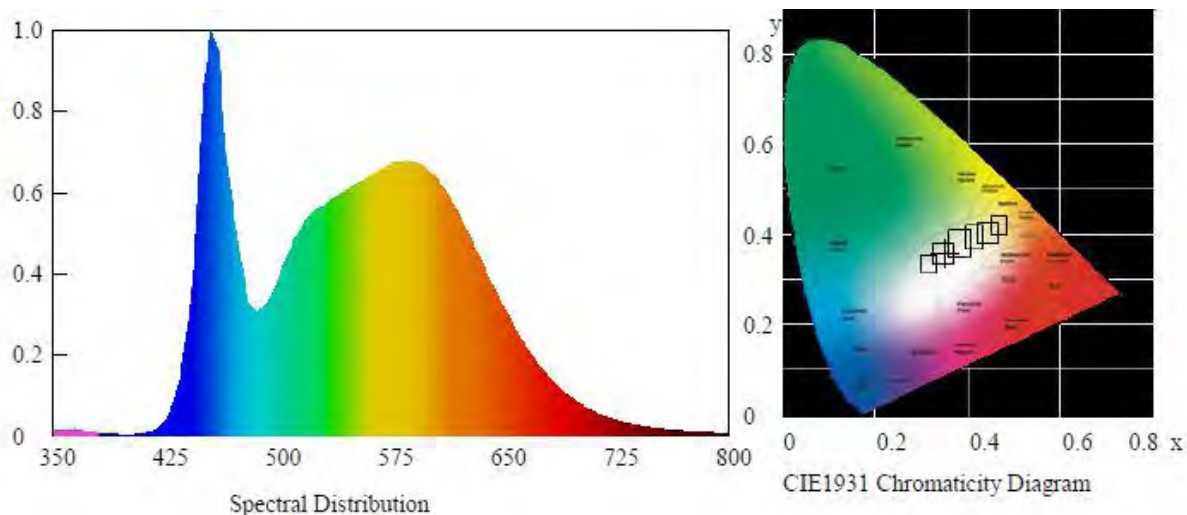
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00322	0.3477	0.3602	0.2099	0.4892

Color Rendering

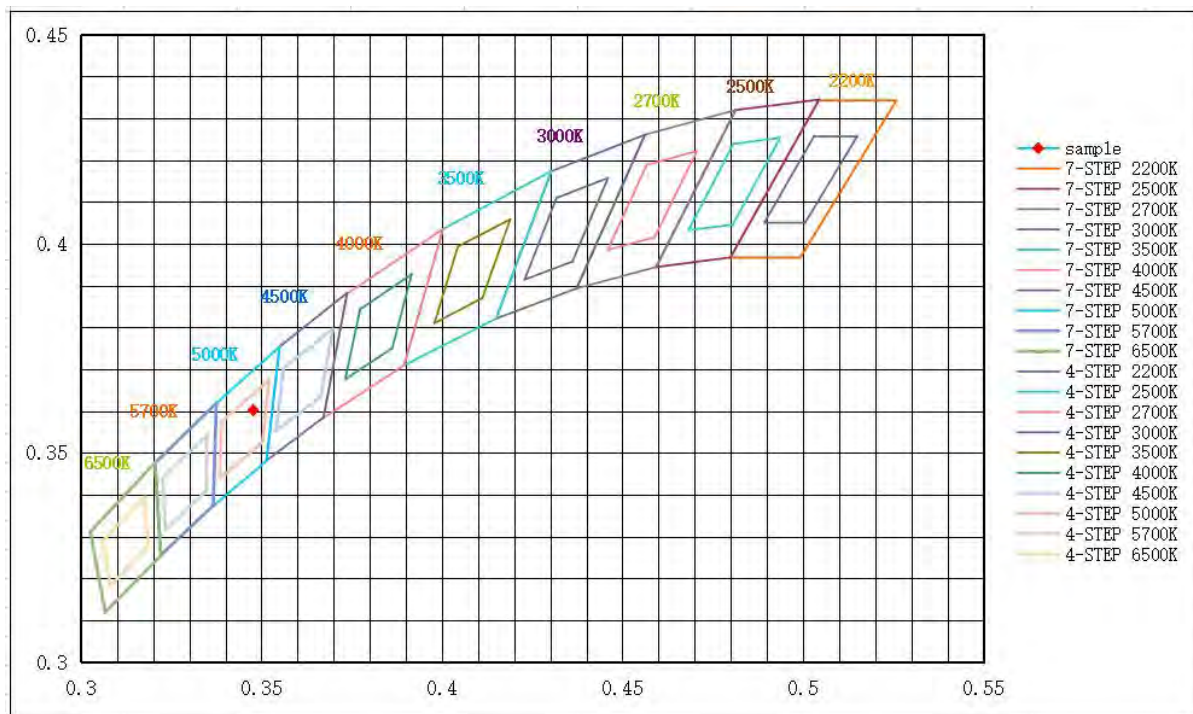
CRI	R9	Rf	Rg	Rcs,h1(%)
83.4	10	83	93	-12

Spectral Distribution





7/4 Step Quadrangle





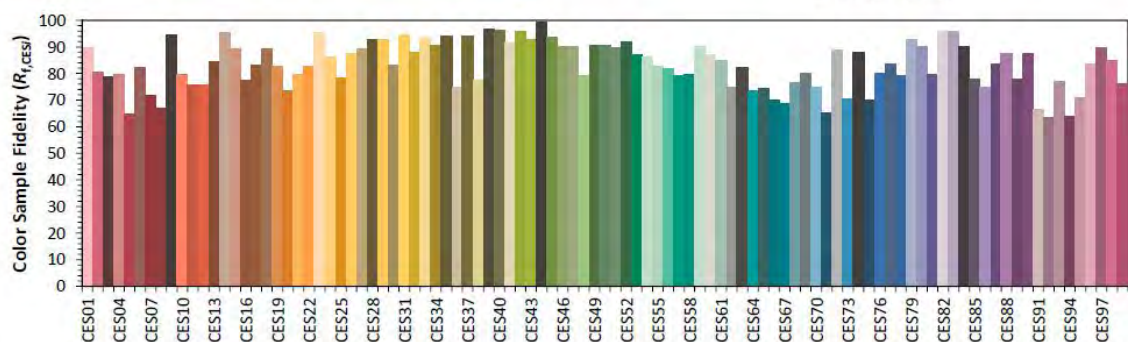
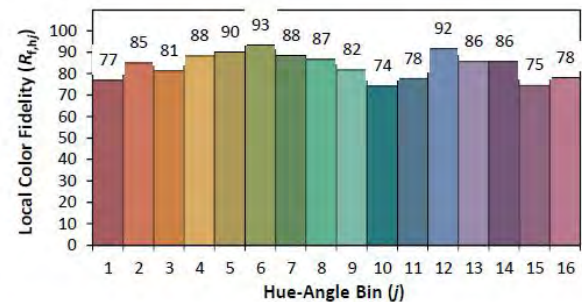
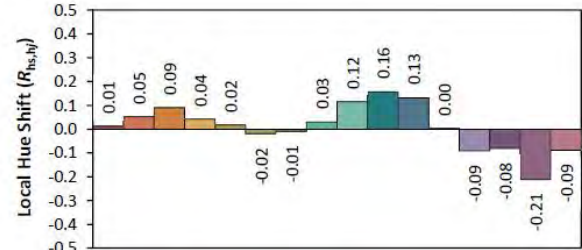
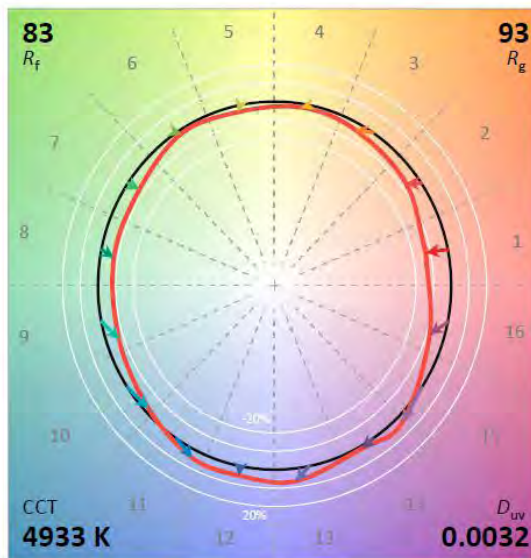
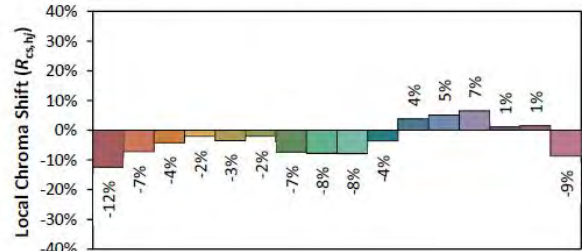
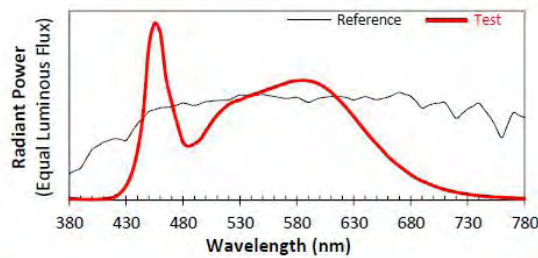
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126017-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-80W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850



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

x 0.3477
 y 0.3602
 u' 0.2099
 v' 0.4892

CIE 13.3-1995
(CRI)

R_a 83
 R_g 10

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-3L-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
120.060	60	0.238	28.343	0.992

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	Beam Angle(°)
3338.07	117.77	188.7

**Zonal Flux Diagram**

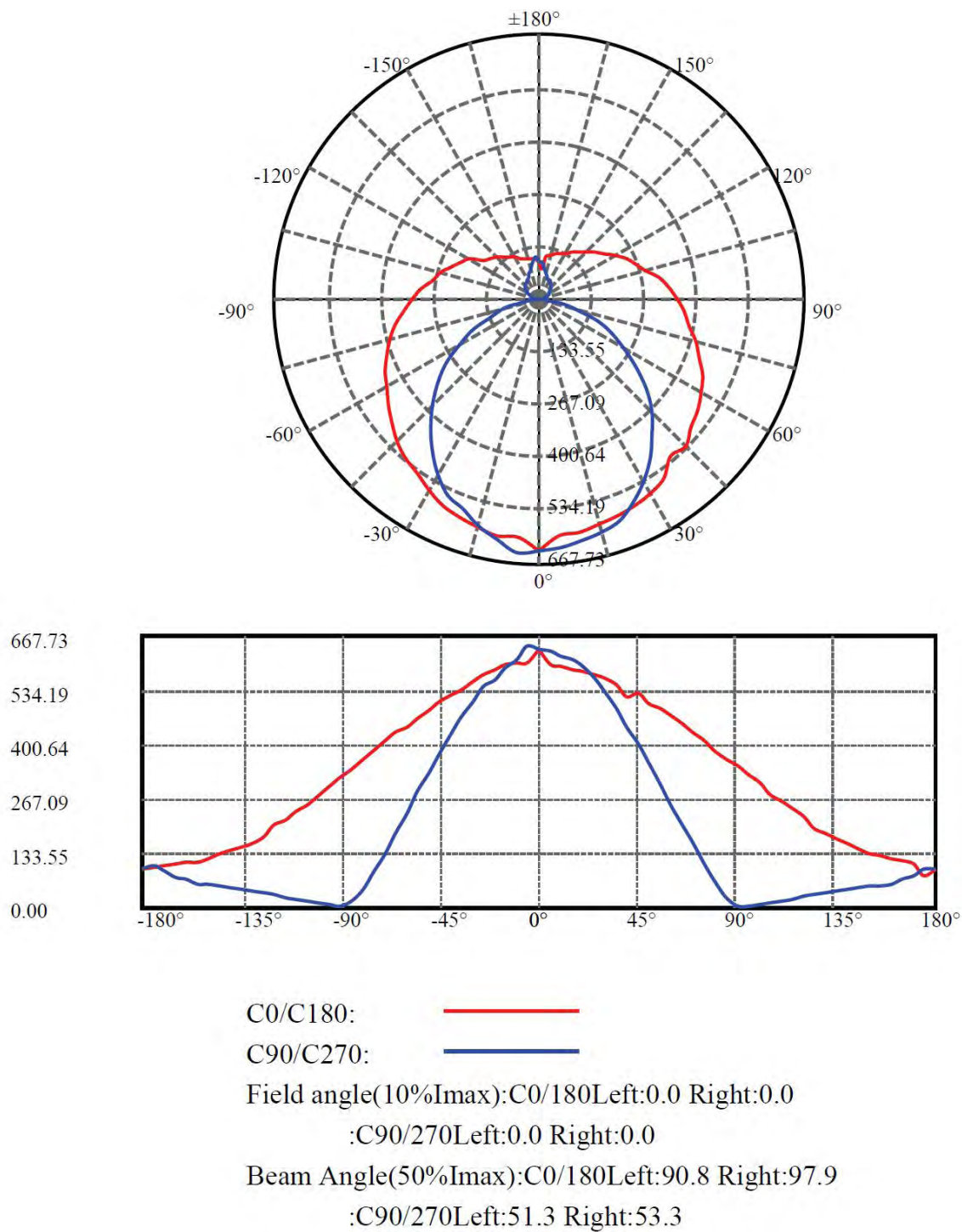
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	634.248	0.000	0	0.00%	0.00%
5.0	635.810	15.183	15.183	0.00%	0.45%
10.0	629.053	45.248	60.431	0.00%	1.81%
15.0	616.251	73.871	134.302	0.00%	4.02%
20.0	600.153	100.249	234.551	0.00%	7.03%
25.0	581.049	123.886	358.437	0.00%	10.74%
30.0	555.869	143.878	502.315	0.00%	15.05%
35.0	528.675	159.707	662.021	0.00%	19.83%
40.0	498.053	171.302	833.323	0.00%	24.96%
45.0	467.968	178.867	1012.19	0.00%	30.32%
50.0	435.851	182.630	1194.82	0.00%	35.79%
55.0	404.206	182.657	1377.476	0.00%	41.27%
60.0	372.691	179.578	1557.054	0.00%	46.65%
65.0	341.127	173.531	1730.585	0.00%	51.84%
70.0	310.798	165.072	1895.656	0.00%	56.79%
75.0	281.687	154.866	2050.523	0.00%	61.43%
80.0	254.136	143.371	2193.894	0.00%	65.72%
85.0	229.801	131.497	2325.391	0.00%	69.66%
90.0	211.265	120.767	2446.158	0.00%	73.28%
95.0	196.141	111.551	2557.709	0.00%	76.62%
100.0	181.667	102.660	2660.369	0.00%	79.70%
105.0	169.613	93.993	2754.362	0.00%	82.51%
110.0	158.794	85.840	2840.202	0.00%	85.09%
115.0	148.739	77.869	2918.072	0.00%	87.42%
120.0	135.629	69.130	2987.202	0.00%	89.49%
125.0	123.380	59.869	3047.071	0.00%	91.28%
130.0	117.483	52.372	3099.443	0.00%	92.85%
135.0	113.243	46.622	3146.065	0.00%	94.25%
140.0	110.287	41.388	3187.453	0.00%	95.49%
145.0	107.476	36.332	3223.785	0.00%	96.58%
150.0	104.162	31.165	3254.95	0.00%	97.51%
155.0	100.930	25.955	3280.905	0.00%	98.29%
160.0	99.208	20.991	3301.896	0.00%	98.92%
165.0	95.666	16.060	3317.956	0.00%	99.40%
170.0	92.807	11.180	3329.136	0.00%	99.73%
175.0	94.172	6.689	3335.825	0.00%	99.93%
180.0	93.846	2.248	3338.073	0.00%	100.00%



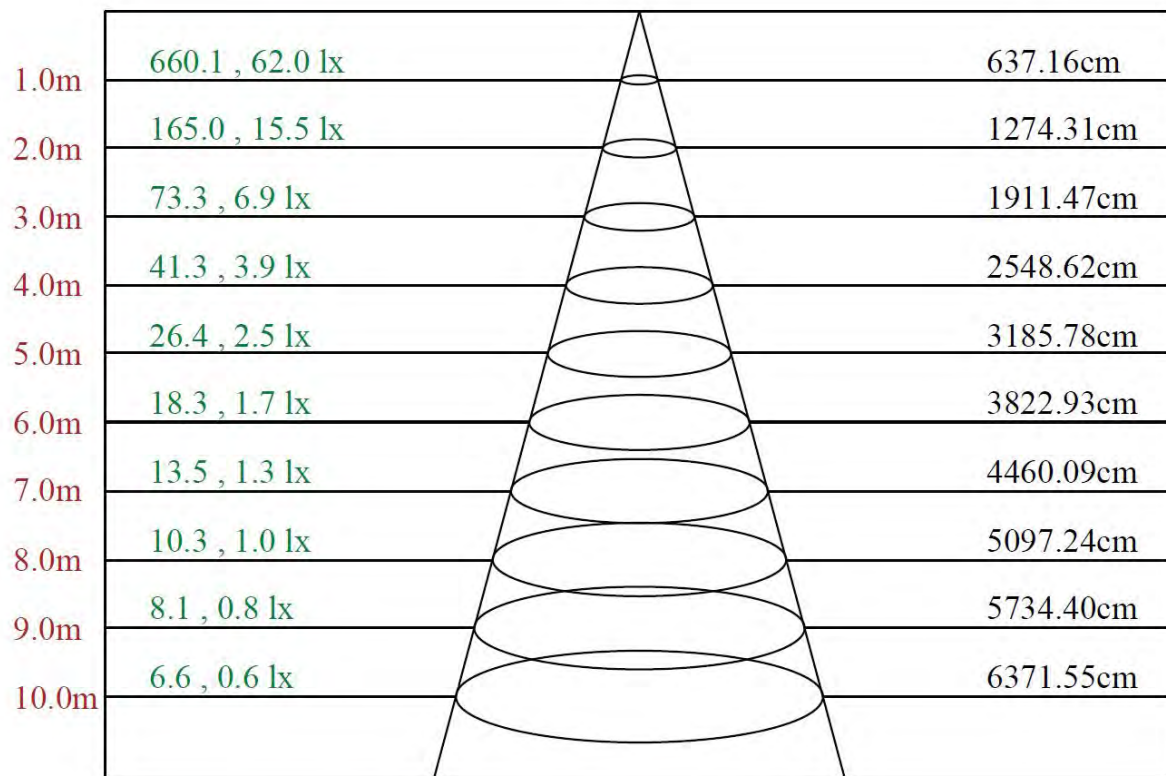
Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]





Lux distance Curve



Max , Ave

Beam angle of C135 plane 145.15

**Luminous Intensity Distribution Data**

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	634.25	596.77	593.92	585.86	579.10	572.34	562.72	548.17	519.06
22.5	634.25	620.17	612.11	605.09	592.88	577.54	559.35	541.67	518.54
45.0	634.25	639.14	639.92	613.93	588.72	571.30	546.35	521.66	489.69
67.5	634.25	644.86	635.50	611.85	590.80	562.21	526.86	488.13	447.84
90.0	634.25	629.26	618.09	607.69	591.06	562.46	529.46	489.69	445.24
112.5	634.25	654.22	644.60	630.04	610.29	580.92	546.61	508.92	469.41
135.0	634.25	667.73	661.49	650.58	634.46	613.93	590.28	561.95	530.49
157.5	634.25	637.32	632.12	624.33	615.49	603.01	584.82	567.14	545.83
180.0	634.25	600.41	602.75	595.99	584.56	573.90	556.75	536.47	521.92
202.5	634.25	622.51	623.29	617.05	609.25	595.47	581.96	561.69	541.41
225.0	634.25	643.30	629.52	626.92	612.63	593.14	561.43	533.87	507.10
247.5	634.25	633.94	641.48	619.65	601.71	576.76	542.97	507.36	471.75
270.0	634.25	642.26	611.59	588.20	560.91	545.05	506.32	468.37	426.53
292.5	634.25	641.74	629.00	611.59	587.16	558.57	524.00	493.85	453.30
315.0	634.25	665.13	658.12	644.86	628.48	608.73	586.64	560.39	531.27
337.5	634.25	634.20	631.34	626.41	614.97	601.45	587.42	569.48	549.47
360.0	634.25	596.77	593.92	585.86	579.10	572.34	562.72	548.17	519.06
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	525.56	502.16	489.69	472.27	453.30	429.91	409.63	385.46	365.97
22.5	497.49	476.95	459.28	437.18	407.81	393.00	372.46	362.07	338.93
45.0	460.84	427.83	400.02	376.62	351.15	324.38	297.87	274.99	258.10
67.5	404.69	361.81	319.96	280.45	240.17	202.22	168.69	142.44	122.94
90.0	401.58	354.79	303.59	252.38	203.78	160.11	107.61	66.02	26.51
112.5	428.35	388.32	346.73	305.15	264.08	223.79	188.44	156.47	130.22
135.0	498.27	466.29	433.03	401.06	371.94	343.35	315.02	288.25	264.08
157.5	525.04	500.34	475.91	450.18	428.35	405.21	378.96	357.39	332.44
180.0	505.80	484.49	463.70	443.68	429.39	408.59	385.72	365.45	342.05
202.5	519.58	498.01	470.71	455.90	425.75	403.13	389.36	363.89	330.62
225.0	475.13	447.32	417.69	387.02	357.65	330.36	302.03	276.03	254.72
247.5	430.69	390.40	349.85	305.67	269.02	229.25	194.68	165.05	138.54
270.0	378.96	333.48	284.35	231.85	181.42	132.82	87.59	44.71	14.56
292.5	411.45	369.87	330.62	290.85	254.46	217.03	185.58	157.77	135.68
315.0	496.71	468.37	438.22	407.29	377.40	349.59	323.34	299.43	280.71
337.5	527.38	503.20	483.97	465.52	442.38	420.03	400.02	360.77	340.75
360.0	525.56	502.16	489.69	472.27	453.30	429.91	409.63	385.46	365.97
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	348.29	329.32	308.52	279.41	259.92	244.58	222.49	196.76	184.54
22.5	321.26	301.25	281.49	267.20	244.84	230.29	192.08	173.63	166.61
45.0	241.98	223.01	208.46	195.46	180.90	163.75	139.84	132.56	127.36
67.5	110.47	100.59	94.09	86.55	84.21	84.73	80.58	75.90	79.02
90.0	5.72	4.68	7.80	12.48	17.93	22.61	27.29	32.23	37.17
112.5	114.88	99.03	87.59	82.91	80.58	79.54	75.64	66.80	67.06
135.0	240.17	220.41	201.96	185.84	172.85	156.47	132.82	128.40	124.24
157.5	309.30	287.73	266.94	247.96	228.21	212.61	200.14	168.43	159.85
180.0	320.22	300.21	274.21	254.98	235.49	217.55	203.78	173.63	158.29
202.5	314.24	295.79	274.47	254.72	234.97	218.07	202.74	170.25	157.51
225.0	232.37	215.47	197.54	180.12	166.35	156.73	146.07	135.42	117.74
247.5	116.18	100.07	89.41	81.62	78.50	78.24	78.50	77.72	73.56
270.0	5.46	7.80	11.18	16.12	21.31	26.51	32.49	38.73	42.11
292.5	120.08	108.13	99.81	92.53	86.55	88.11	87.33	82.39	80.58
315.0	260.96	239.91	222.75	210.01	196.24	169.99	148.15	137.24	132.82
337.5	318.66	304.89	280.45	265.90	251.86	230.03	200.14	184.02	171.29
360.0	348.29	329.32	308.52	279.41	259.92	244.58	222.49	196.76	184.54



C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	169.73	155.69	146.33	134.64	126.58	120.08	115.14	109.69	78.50
22.5	154.91	150.23	139.84	134.38	129.96	118.26	97.99	69.66	85.77
45.0	124.24	118.26	115.40	112.81	101.89	92.79	81.10	85.77	101.89
67.5	83.95	89.41	88.89	83.17	81.62	88.11	86.29	95.91	108.65
90.0	41.59	45.23	49.39	53.28	54.32	59.52	69.66	80.06	95.13
112.5	70.96	78.76	84.99	82.91	77.98	79.28	77.46	85.77	96.43
135.0	118.78	111.77	109.43	112.03	106.31	91.75	86.29	78.76	86.29
157.5	152.57	145.81	137.24	128.66	121.38	114.88	97.99	76.94	58.48
180.0	150.23	139.84	131.52	121.38	113.07	109.95	106.05	102.93	101.37
202.5	147.89	136.98	127.62	117.22	109.17	108.39	106.31	105.01	105.53
225.0	110.99	107.35	103.97	101.63	104.49	103.45	103.97	104.75	93.31
247.5	73.82	78.50	83.43	89.15	92.79	95.39	98.77	93.57	95.65
270.0	46.79	49.90	53.80	56.40	59.00	68.88	75.12	90.45	105.53
292.5	83.17	90.19	94.35	99.55	100.33	105.53	101.37	97.99	107.87
315.0	128.14	121.64	118.78	115.92	116.18	113.59	112.03	96.17	101.37
337.5	154.13	145.04	134.64	123.46	119.82	117.48	115.14	111.51	84.99
360.0	169.73	155.69	146.33	134.64	126.58	120.08	115.14	109.69	78.50
C/γ(°)	180.0								
0.0	93.85								
22.5	93.85								
45.0	93.85								
67.5	93.85								
90.0	93.85								
112.5	93.85								
135.0	93.85								
157.5	93.85								
180.0	93.85								
202.5	93.85								
225.0	93.85								
247.5	93.85								
270.0	93.85								
292.5	93.85								
315.0	93.85								
337.5	93.85								
360.0	93.85								



4 Additional Test

Electrical data at 277V

Model Number	Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
RP-T8C-G2-80W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	Power Factor	277	60	0.977
	THD	277	60	7.3%

5 Performance Assessment

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-50W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	2176.55	17.55	124.02
RP-T8C-G2-50W-4FT-3L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	2188.34 * ¹	17.58 * ²	124.48 * ³
RP-T8C-G2-50W-4FT-3L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	2200.14 * ¹	17.58 * ²	125.15 * ³
RP-T8C-G2-50W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	2223.72	17.61	126.30

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

$$2188.34 = (2223.72 - 2176.55) / 4 + 2176.55$$

$$2200.14 = (2223.72 - 2176.55) / 4 + 2188.34$$

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

$$17.58 = (17.55 + 17.61) / 2$$

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

$$124.48 = 2188.34 / 17.58$$

$$125.15 = 2200.14 / 17.58$$



Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-60W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	2499.96	20.52	121.85
RP-T8C-G2-60W-4FT-3L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	2517.08 * ¹	20.62 * ²	122.10 * ³
RP-T8C-G2-60W-4FT-3L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	2534.21 * ¹	20.62 * ²	122.93 * ³
RP-T8C-G2-60W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	2568.45	20.71	124.04

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

$$2517.08 = (2568.45 - 2499.96) / 4 + 2499.96$$

$$2534.21 = (2568.45 - 2499.96) / 4 + 2517.08$$

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

$$20.62 = (20.52 + 20.71) / 2$$

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

$$122.10 = 2517.08 / 20.62$$

$$122.93 = 2534.21 / 20.62$$

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-70W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	2957.23	24.66	119.92
RP-T8C-G2-70W-4FT-3L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	2974.12 * ¹	24.73 * ²	120.29 * ³
RP-T8C-G2-70W-4FT-3L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	2991.01 * ¹	24.73 * ²	120.97 * ³
RP-T8C-G2-70W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	3024.79	24.79	122.00

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

$$2974.12 = (3024.79 - 2957.23) / 4 + 2957.23$$

$$2991.01 = (3024.79 - 2957.23) / 4 + 2974.12$$

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

$$24.73 = (24.66 + 24.79) / 2$$

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

$$120.29 = 2974.12 / 24.73$$

$$120.97 = 2991.01 / 24.73$$



Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-80W-4FT-3L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	3345.52	28.40	117.80
RP-T8C-G2-80W-4FT-3L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	3365.57 ^{*1}	28.45 ^{*2}	118.30 ^{*3}
RP-T8C-G2-80W-4FT-3L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	3385.61 ^{*1}	28.45 ^{*2}	119.00 ^{*3}
RP-T8C-G2-80W-4FT-3L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	3425.70	28.50	120.20

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

$$3365.57 = (3425.70 - 3345.52) / 4 + 3345.52$$

$$3385.61 = (3425.70 - 3345.52) / 4 + 3365.57$$

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

$$28.45 = (28.40 + 28.50) / 2$$

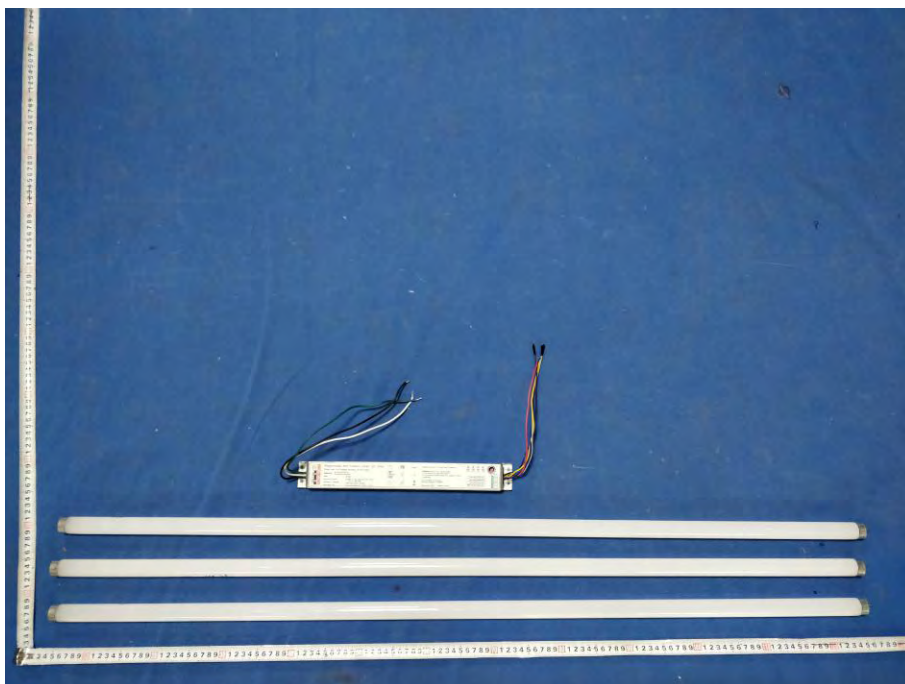
*3: This value is calculated and the calculation formula is as below:

$$118.30 = 3365.57 / 28.45$$

$$119.00 = 3385.61 / 28.45$$



Photo Document



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