



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:

2'T8 Lamps -- 3-Lamp External Driver (UL Type C) Lamps

### Product Model No.:

RP-T8C-G2-30W-2FT-3L-830-[OCN, Blank]-10V,  
RP-T8C-G2-30W-2FT-3L-850-[OCN, Blank]-10V,  
RP-T8C-G2-35W-2FT-3L-830-[OCN, Blank]-10V,  
RP-T8C-G2-35W-2FT-3L-850-[OCN, Blank]-10V,  
RP-T8C-G2-40W-2FT-3L-830-[OCN, Blank]-10V,  
RP-T8C-G2-40W-2FT-3L-850-[OCN, Blank]-10V,  
RP-T8C-G2-45W-2FT-3L-830-[OCN, Blank]-10V,  
RP-T8C-G2-45W-2FT-3L-850-[OCN, Blank]-10V

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.

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Complied by: Jarvis zhang

Review by: Jason zhou

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Project Engineer

Technical Manager

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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

<b>Manufacturer</b>	LIGHT EFFICIENT DESIGN
<b>Manufacturer Address</b>	188 S. Northwest Highway Cary, IL 60013 USA
<b>Brand Name</b>	REMPHOS OR LIGHT EFFICIENT DESIGN
<b>Luminaire Type</b>	2'T8 Lamps -- 3-Lamp External Driver (UL Type C) Lamps
<b>Test Model Number</b>	RP-T8C-G2-30W-2FT-3L-830-[OCN, Blank]-10V, RP-T8C-G2-30W-2FT-3L-850-[OCN, Blank]-10V, RP-T8C-G2-35W-2FT-3L-830-[OCN, Blank]-10V, RP-T8C-G2-35W-2FT-3L-850-[OCN, Blank]-10V, RP-T8C-G2-40W-2FT-3L-830-[OCN, Blank]-10V, RP-T8C-G2-40W-2FT-3L-850-[OCN, Blank]-10V, RP-T8C-G2-45W-2FT-3L-830-[OCN, Blank]-10V, RP-T8C-G2-45W-2FT-3L-850-[OCN, Blank]-10V
<b>Rated Inputs</b>	AC 100-277V 50/60Hz
<b>Field-Adjustable Product</b>	Yes, Wattage setting: 30W, 35W, 40W, 45W
<b>Nominal CCT</b>	3000K, 5000K
<b>Dimming Capability</b>	Continuous
<b>Integral Control Sensors</b>	Optional
<b>Date of Receipt Samples</b>	2020-12-21
<b>Date of test</b>	2020-12-23 to 2021-01-22
<b>Burning Time Before Test</b>	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  $\pm 0.2$  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.  $4\pi$  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-G2-30W-2FT-3L-830-[OCN, Blank]-10V(Bare lamp)

##### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.93	60	0.089	10.64	0.996

##### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1308.90	123.06	3004

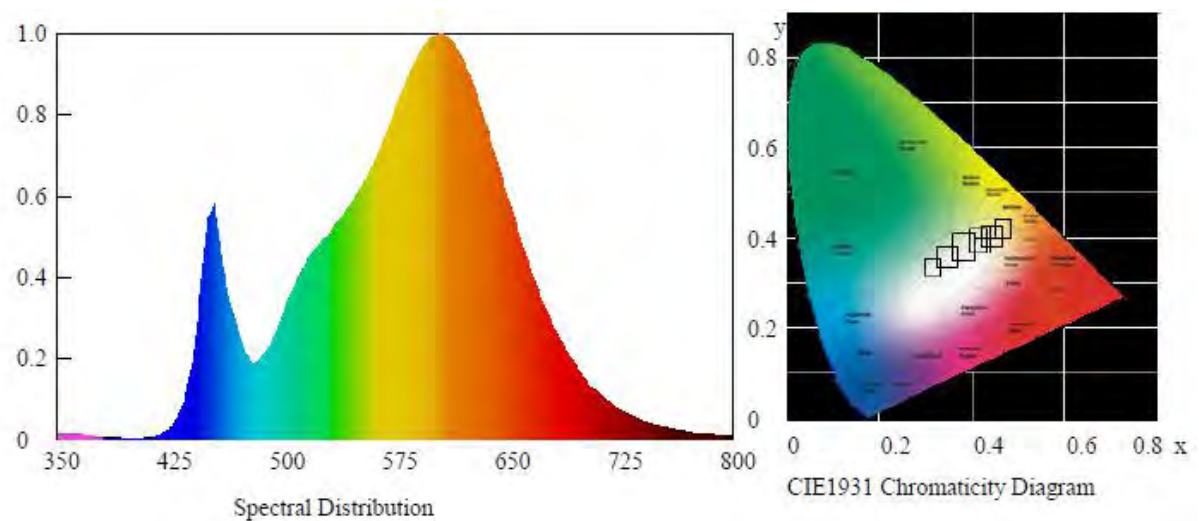
##### Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00132	0.4347	0.4000	0.2509	0.5195

##### Color Rendering

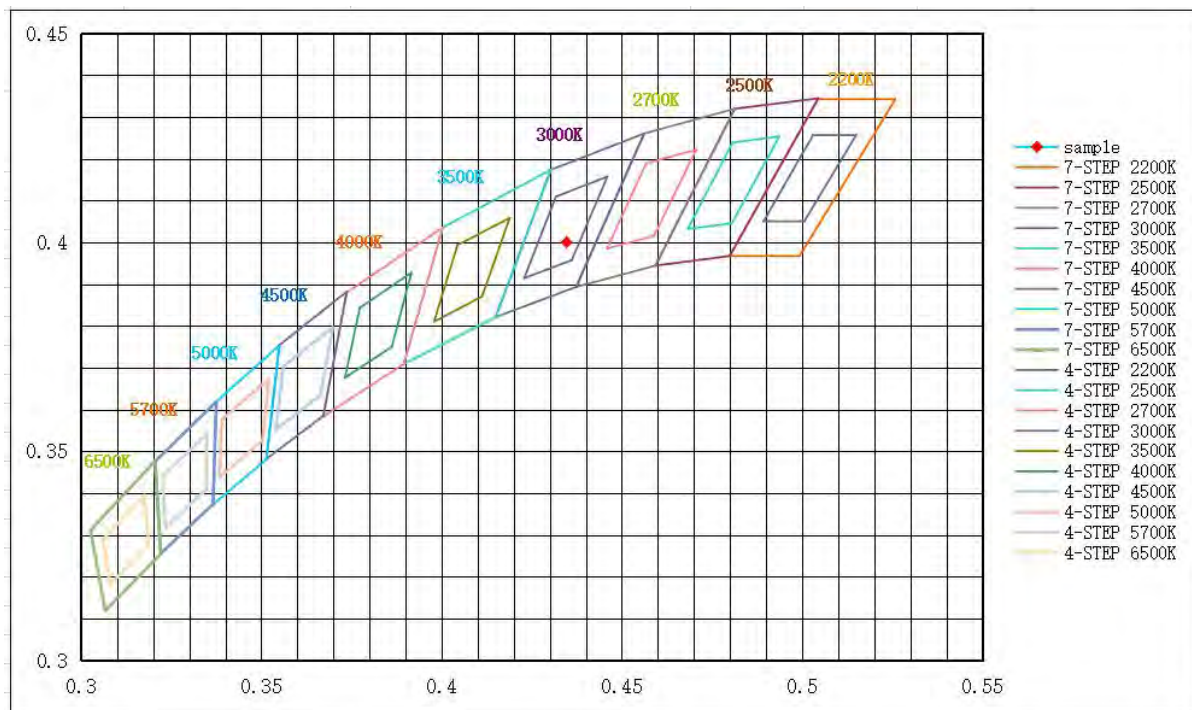
CRI	R9	Rf	Rg	Rcs,h1(%)
83.3	11	85	96	-11

##### Spectral Distribution





## 7/4 Step Quadrangle







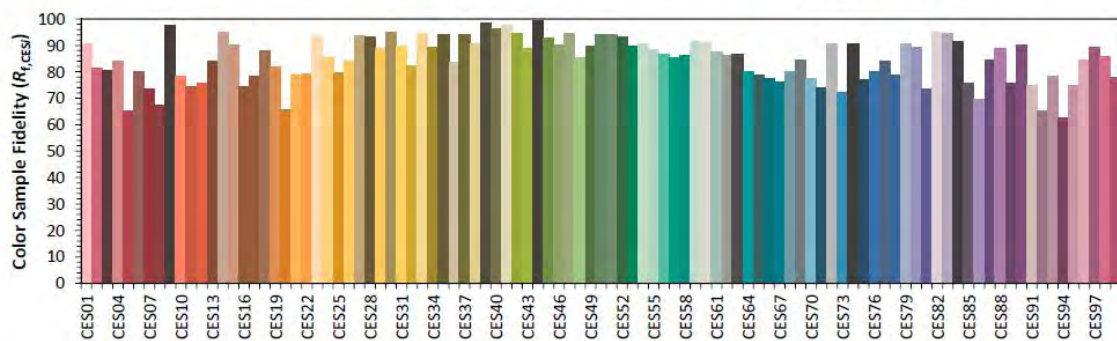
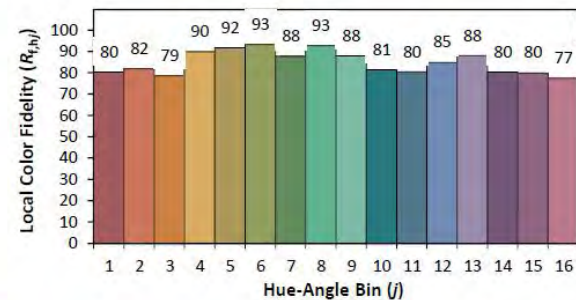
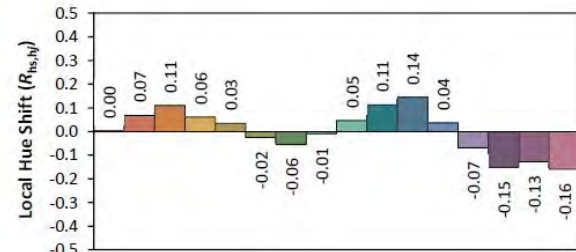
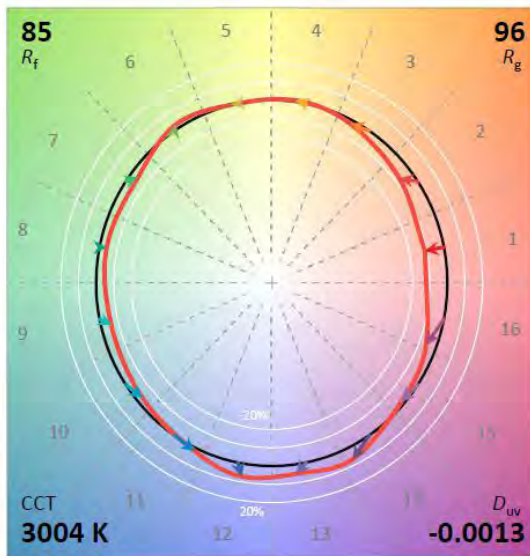
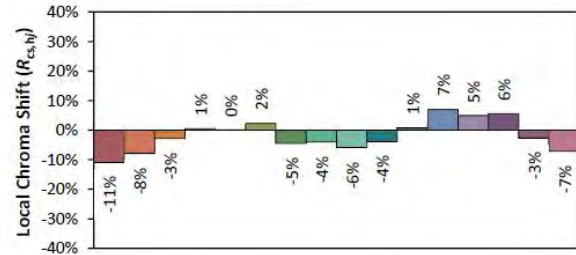
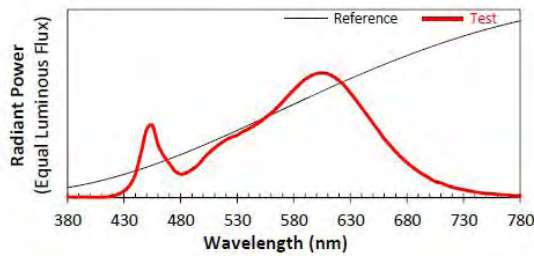
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126011-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-30W-2FT-3L-830-[OCN, Blank]-10V



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

 $x$  0.4347 $y$  0.4000 $u'$  0.2509 $v'$  0.5195CIE 13.3-1995  
(CRI) $R_a$  83 $R_g$  11

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-G2-30W-2FT-3L-850-[OCN, Blank]-10V(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.18	60	0.088	10.59	0.996

**Photometric data**

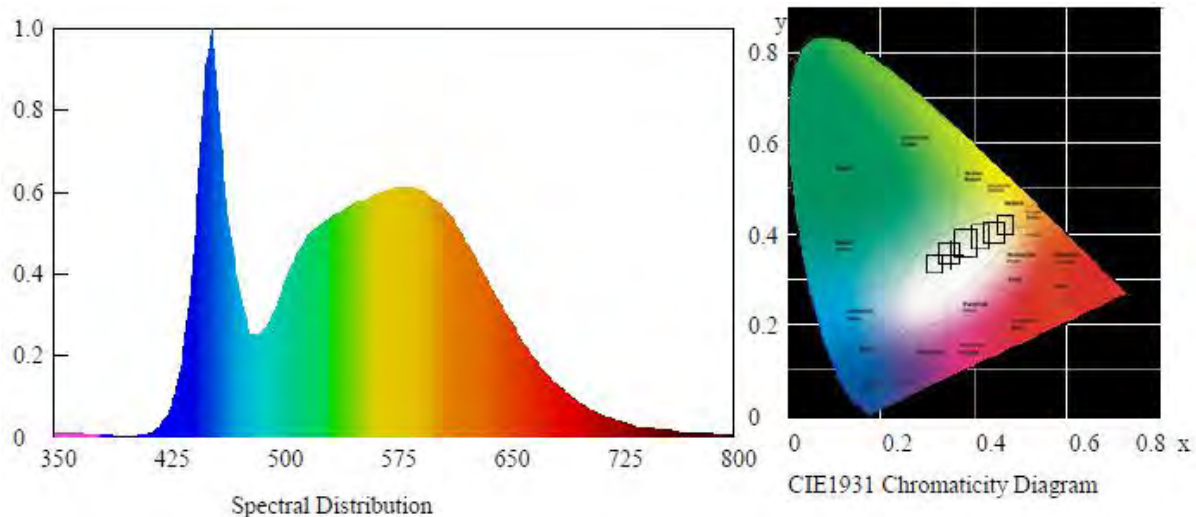
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1331.13	125.74	5008

**Chromaticity Coordinate**

Duv	x	y	u'	v'
+0.00217	0.3453	0.3561	0.2098	0.4869

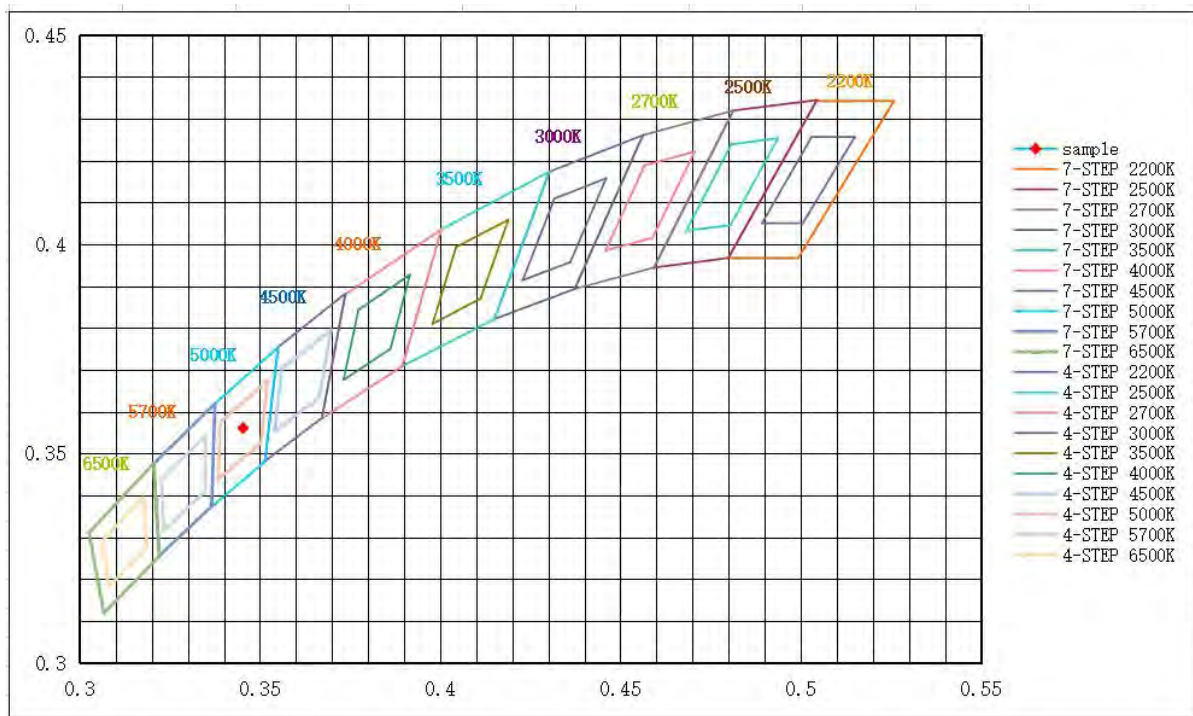
**Color Rendering**

CRI	R9	Rf	Rg	Rcs,h1(%)
83.5	11	84	95	-12

**Spectral Distribution**



## 7/4 Step Quadrangle





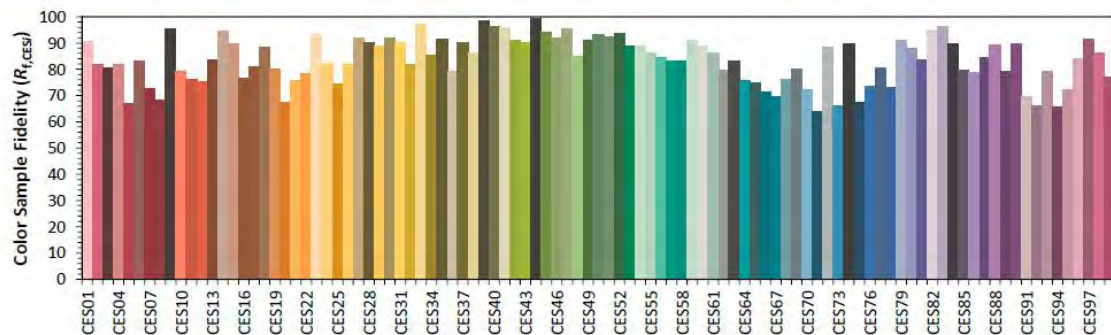
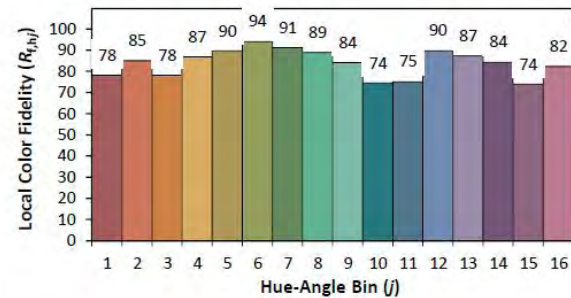
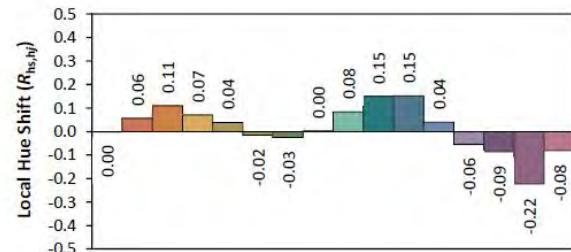
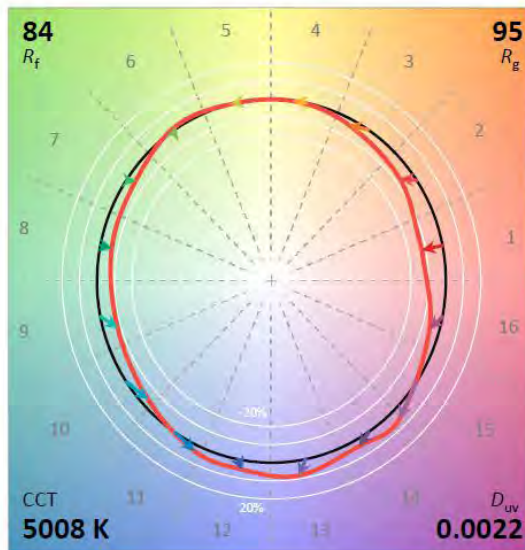
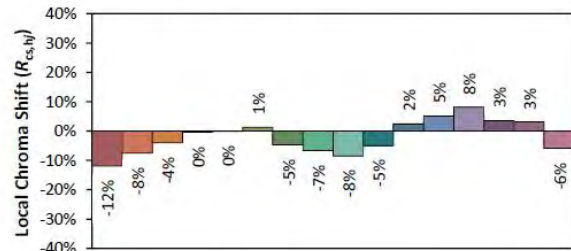
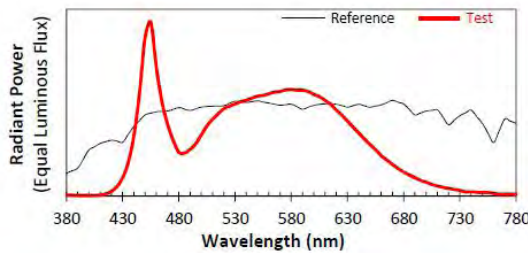
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126011-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-30W-2FT-3L-850-[OCN, Blank]-10V



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

$x$  0.3453  
 $y$  0.3561  
 $u'$  0.2098  
 $v'$  0.4869

CIE 13.3-1995  
(CRI)

$R_a$  83

$R_g$  11

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-G2-35W-2FT-3L-830-[OCN, Blank]-10V(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.15	60	0.101	12.13	0.996

**Photometric data**

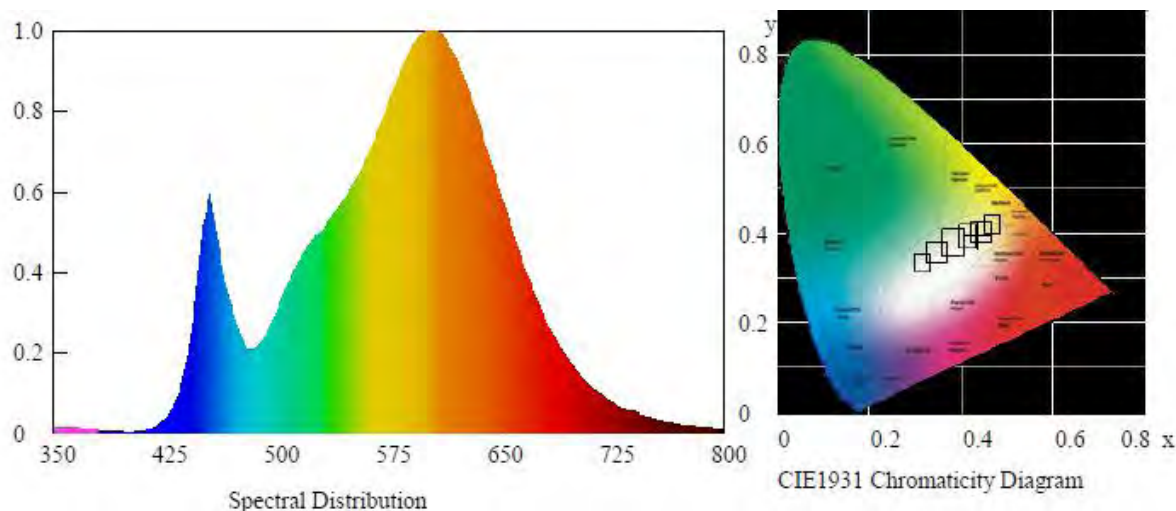
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1472.60	121.37	3028

**Chromaticity Coordinate**

Duv	x	y	u'	v'
-0.00169	0.4325	0.3984	0.2502	0.5185

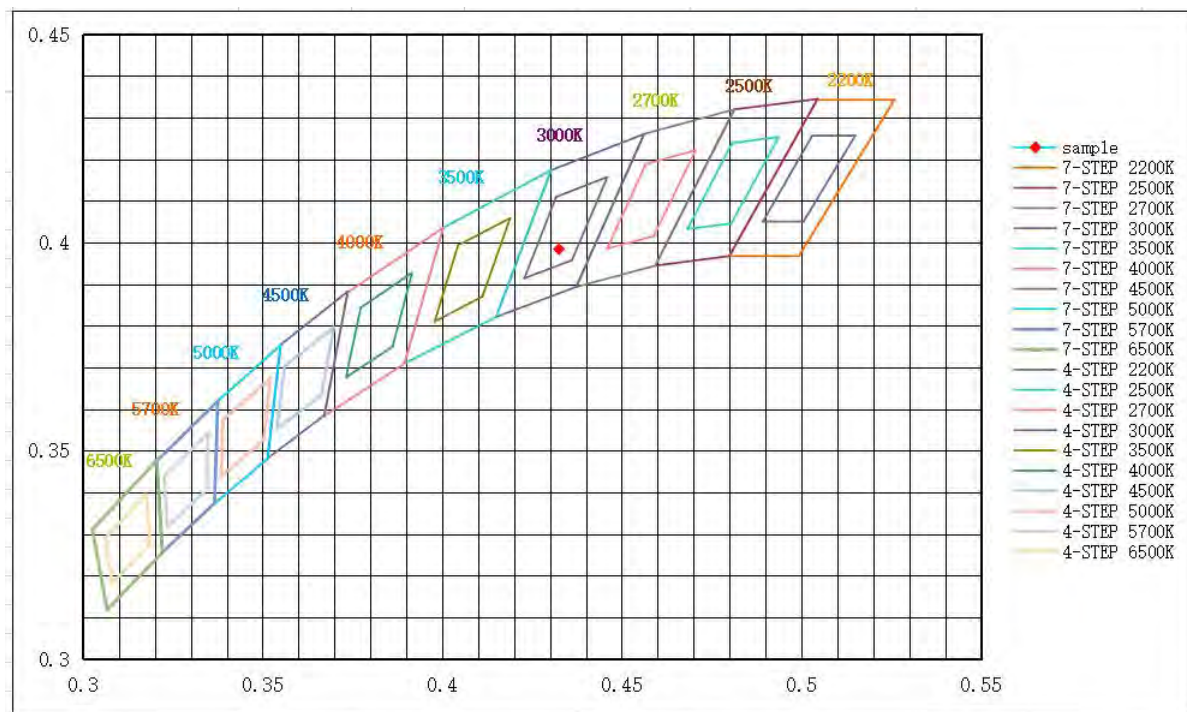
**Color Rendering**

CRI	R9	Rf	Rg	Rcs,h1(%)
83.0	10	84	96	-11

**Spectral Distribution**



## 7/4 Step Quadrangle







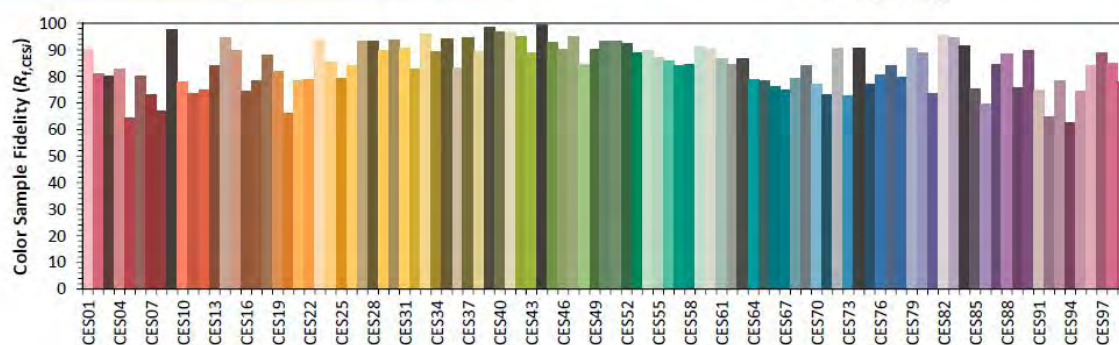
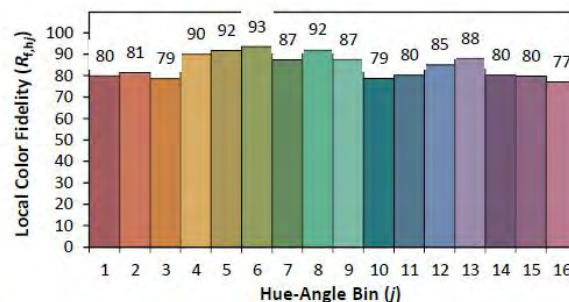
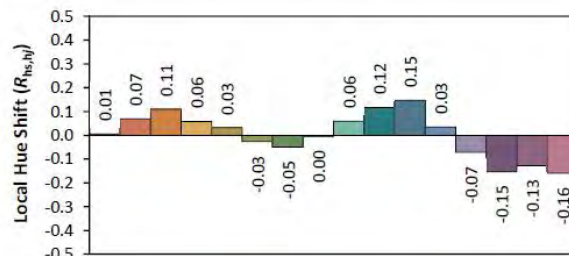
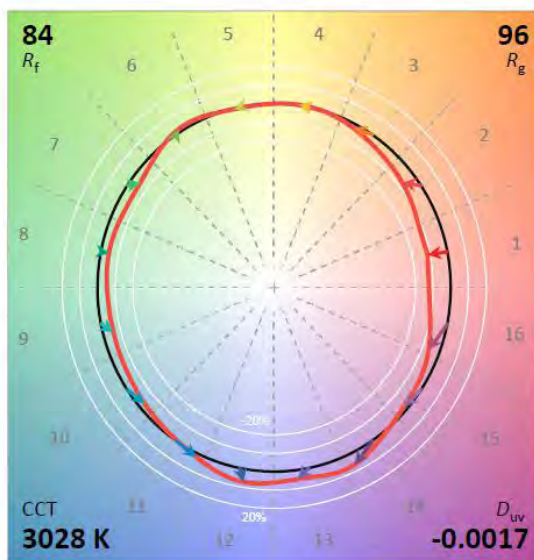
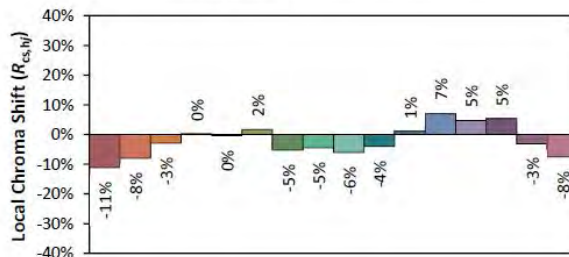
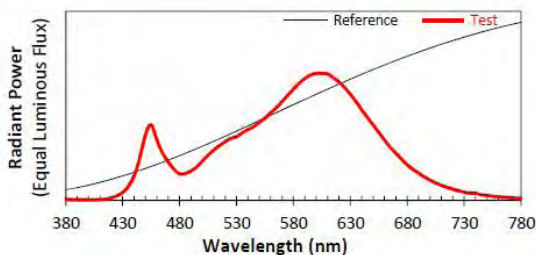
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126011-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-35W-2FT-3L-830-[OCN, Blank]-10V



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

 $x$  0.4325 $y$  0.3984 $u'$  0.2502 $v'$  0.5185CIE 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.

**3.1.4 Model Number: RP-T8C-G2-35W-2FT-3L-850-[OCN, Blank]-10V(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.13	60	0.102	12.16	0.996

**Photometric data**

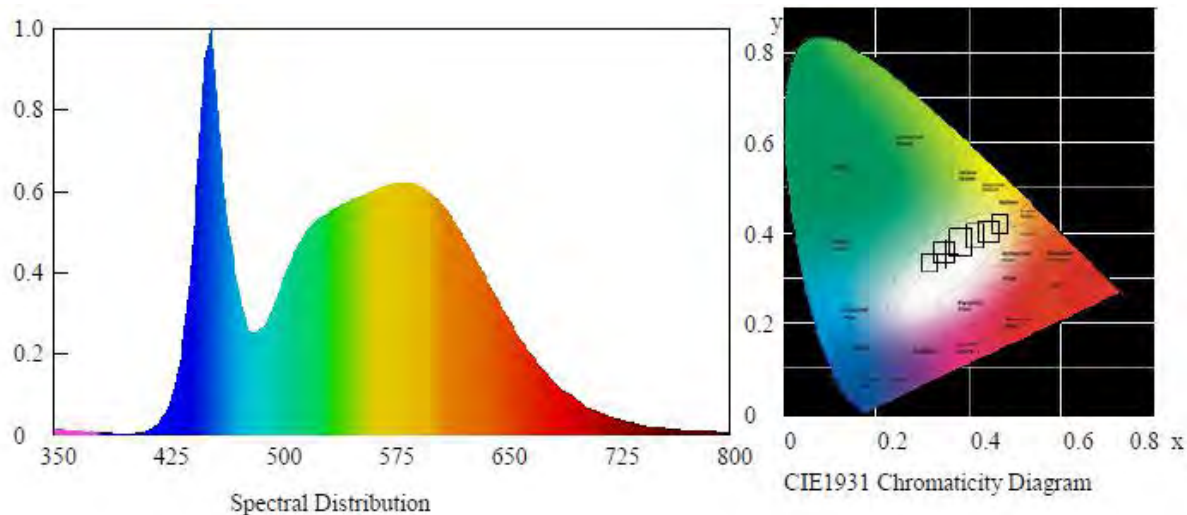
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1499.50	123.31	5006

**Chromaticity Coordinate**

Duv	x	y	u'	v'
+0.00217	0.3454	0.3562	0.2098	0.4869

**Color Rendering**

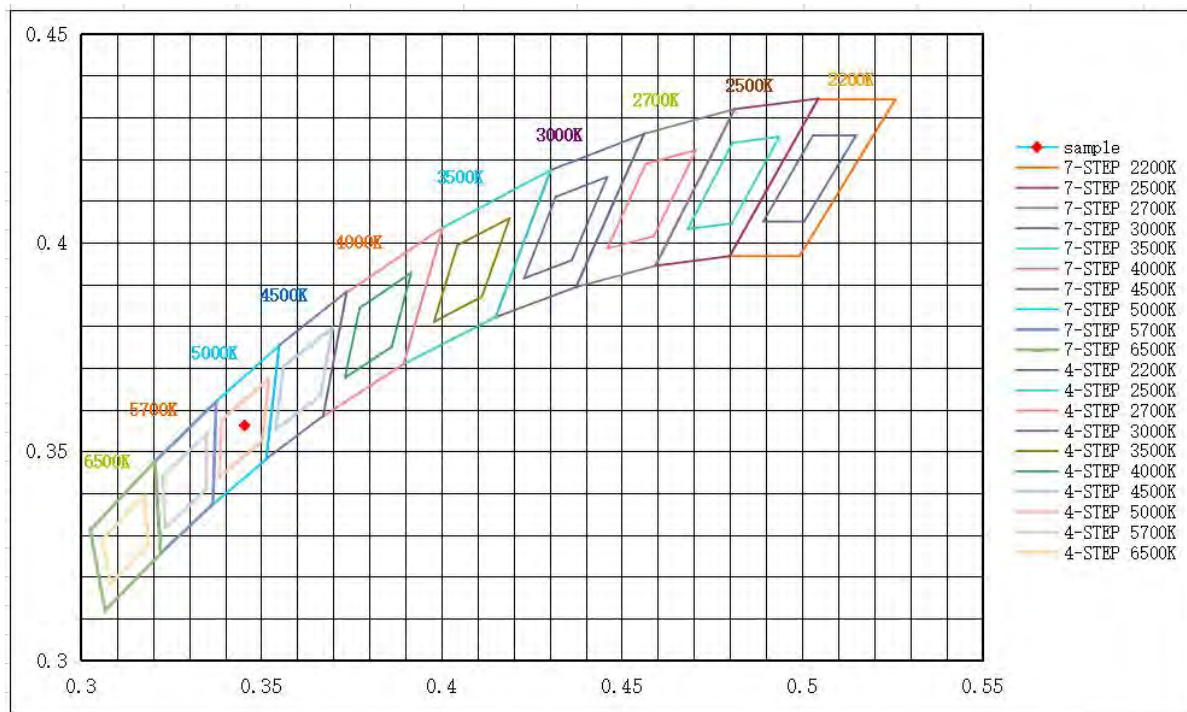
CRI	R9	Rf	Rg	Rcs,h1(%)
83.4	11	84	95	-12

**Spectral Distribution**





### 7/4 Step Quadrangle





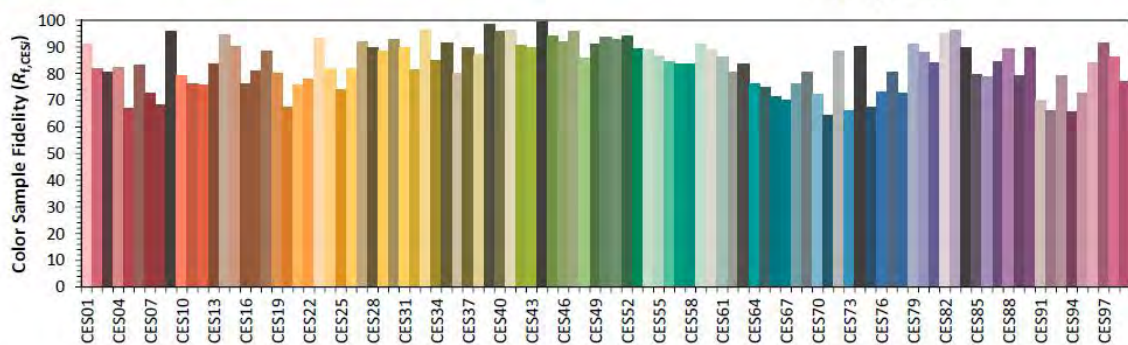
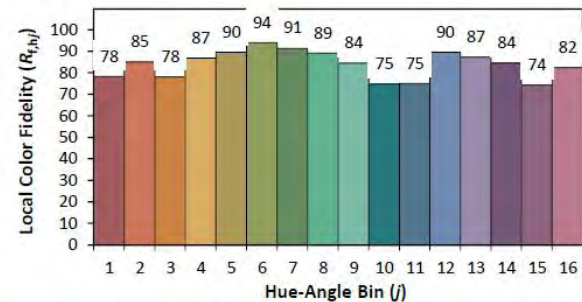
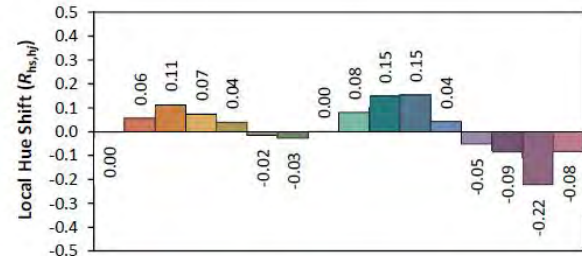
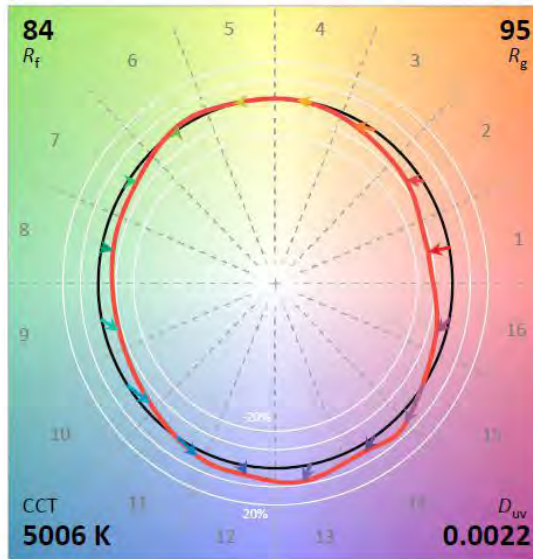
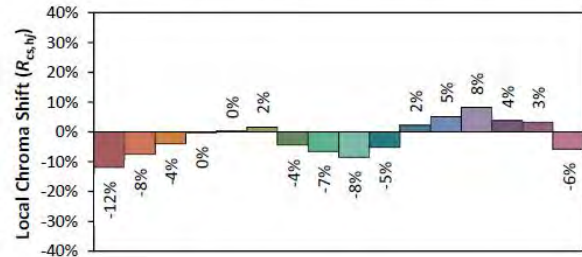
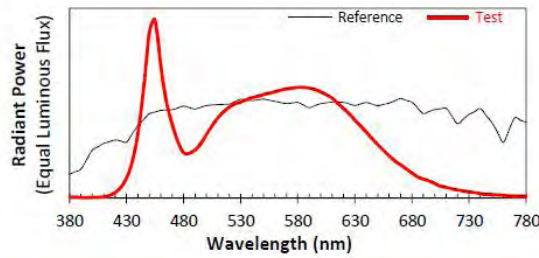
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126011-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-35W-2FT-3L-850-[OCN, Blank]-10V



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

$x$  0.3454  
 $y$  0.3562  
 $u'$  0.2098  
 $v'$  0.4869

CIE 13.3-1995  
(CRI)

$R_a$  83  
 $R_g$  11

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-G2-40W-2FT-3L-830-[OCN, Blank]-10V(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.88	60	0.115	13.67	0.996

**Photometric data**

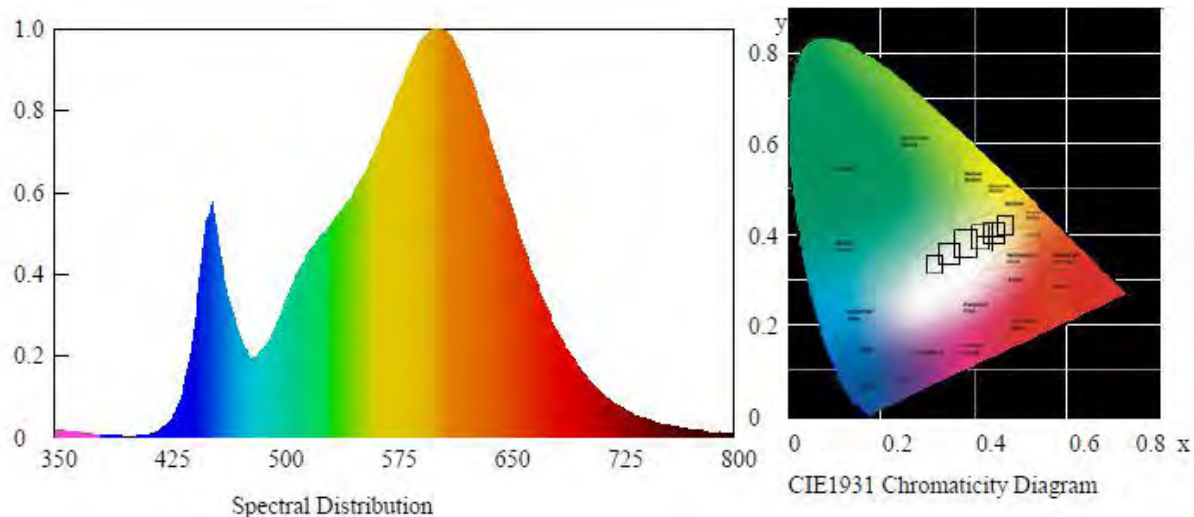
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1630.58	119.25	3020

**Chromaticity Coordinate**

Duv	x	y	u'	v'
-0.00137	0.4336	0.3995	0.2504	0.5191

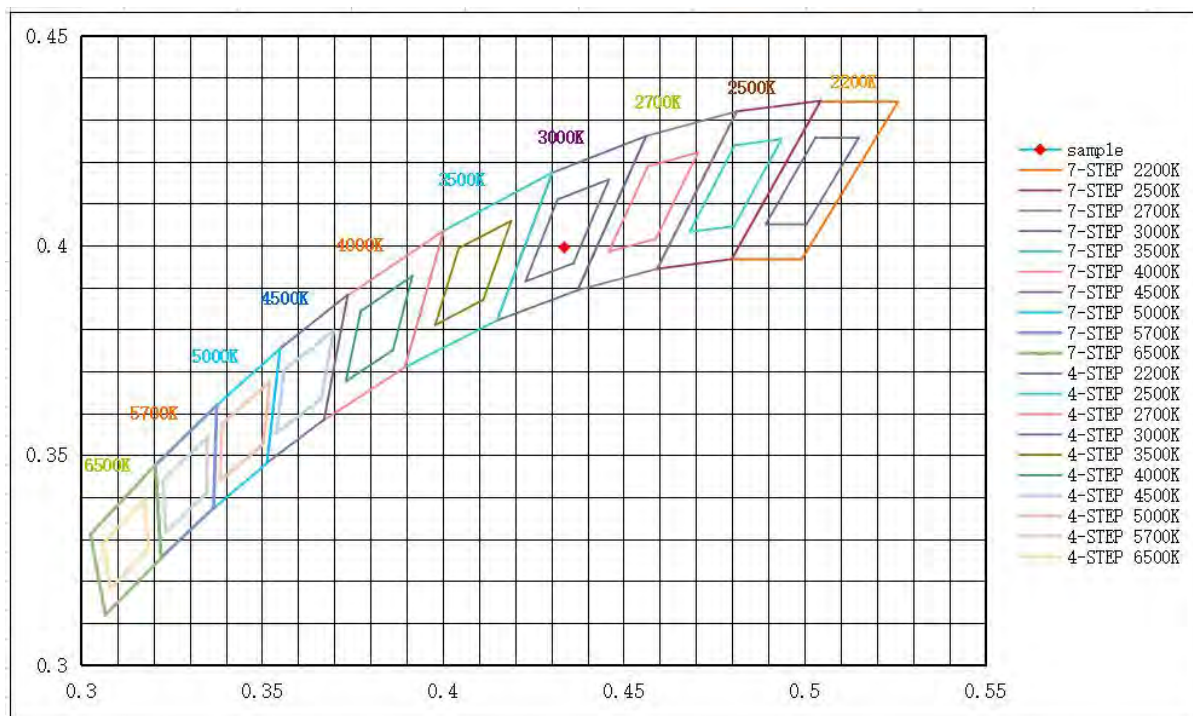
**Color Rendering**

CRI	R9	Rf	Rg	Rcs,h1(%)
83.0	10	85	96	-11

**Spectral Distribution**



### 7/4 Step Quadrangle







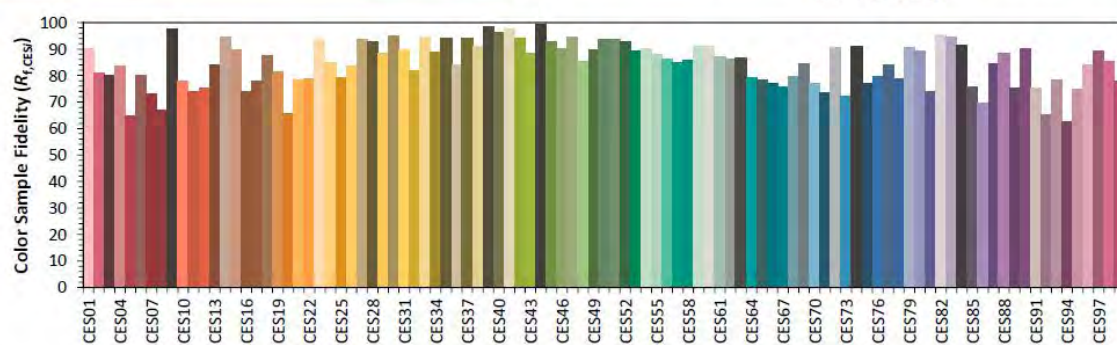
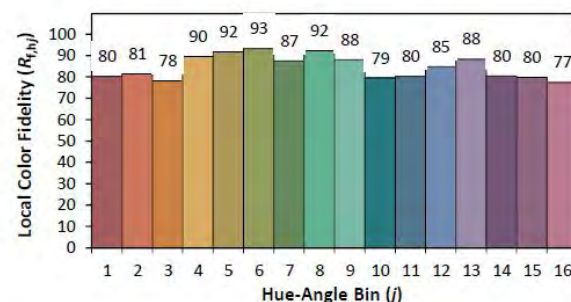
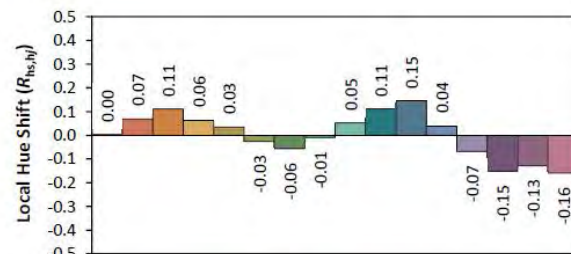
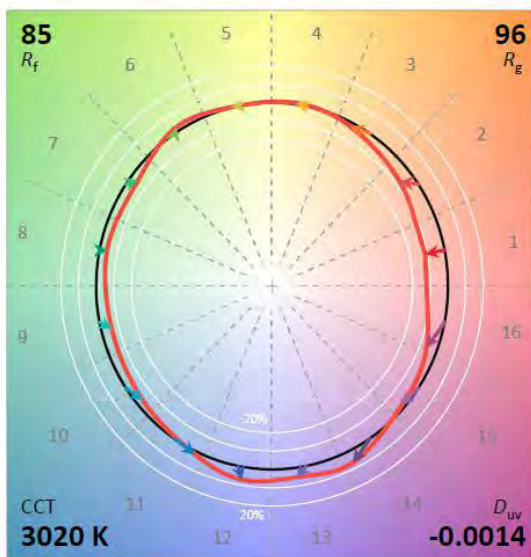
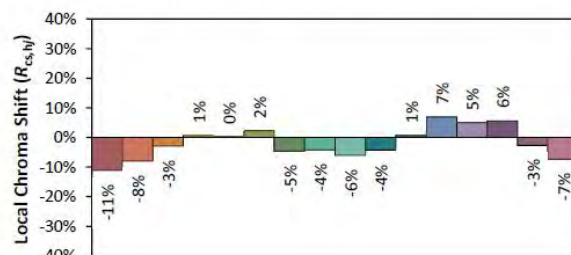
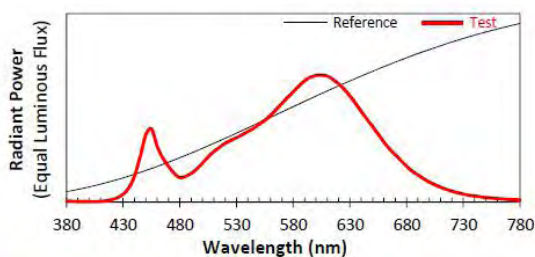
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126011-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-40W-2FT-3L-830-[OCN, Blank]-10V



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

$x$  0.4336  
 $y$  0.3995  
 $u'$  0.2504  
 $v'$  0.5191

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.

**3.1.6 Model Number: RP-T8C-G2-40W-2FT-3L-850-[OCN, Blank]-10V(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.11	60	0.114	13.67	0.996

**Photometric data**

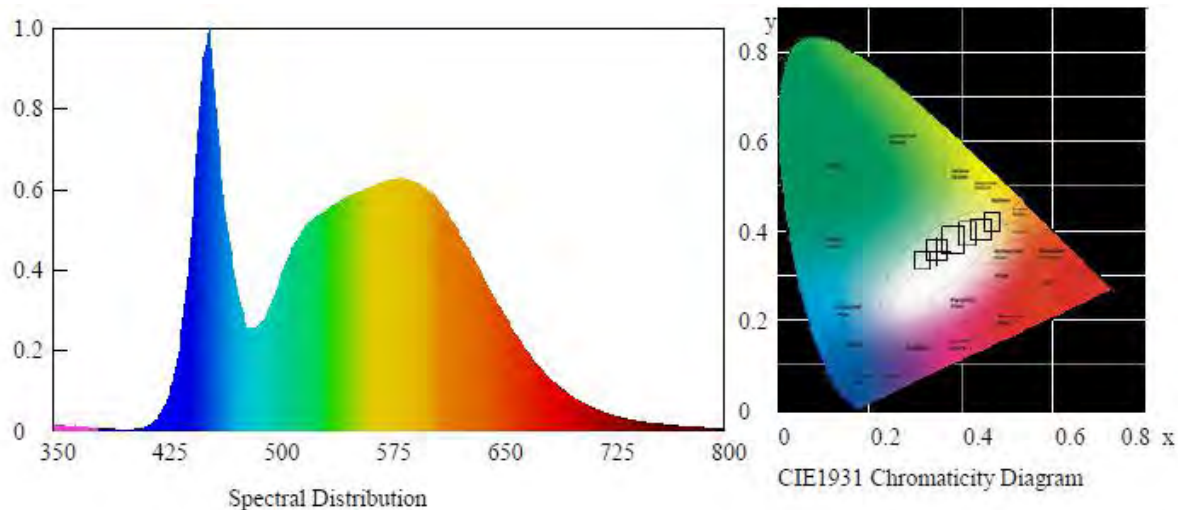
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1662.70	121.66	5018

**Chromaticity Coordinate**

Duv	x	y	u'	v'
+0.00191	0.3450	0.3554	0.2099	0.4865

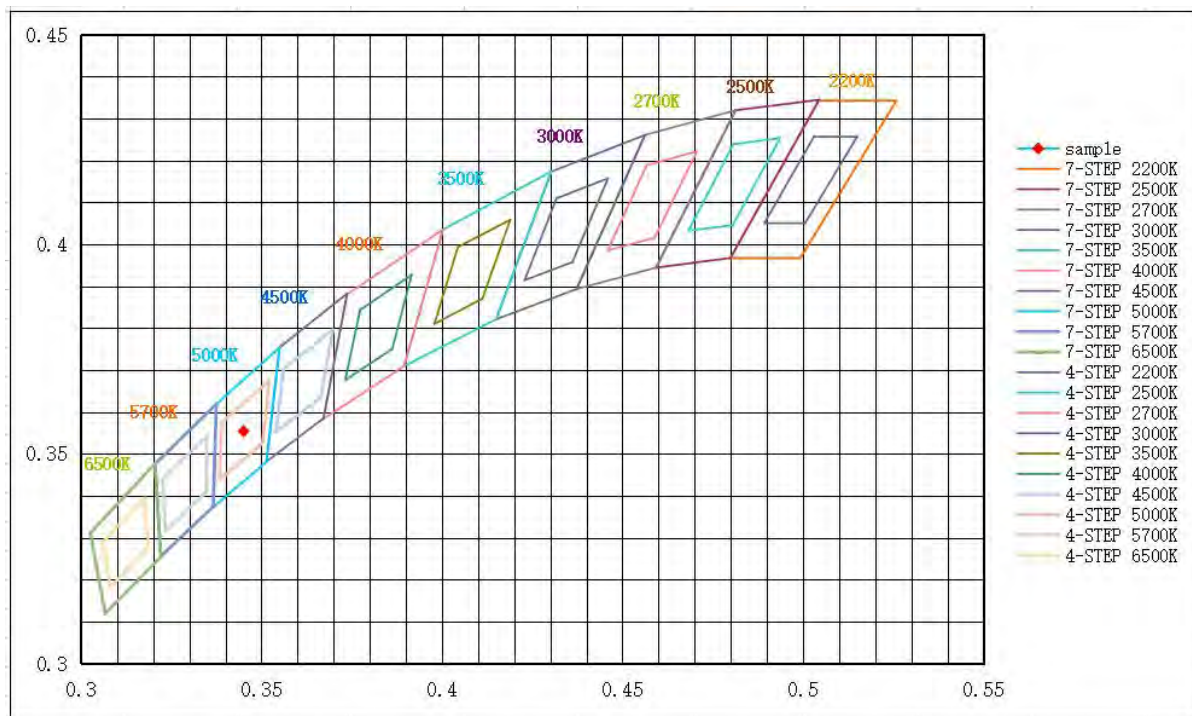
**Color Rendering**

CRI	R9	Rf	Rg	Rcs,h1(%)
83.4	11	84	96	-12

**Spectral Distribution**



## 7/4 Step Quadrangle







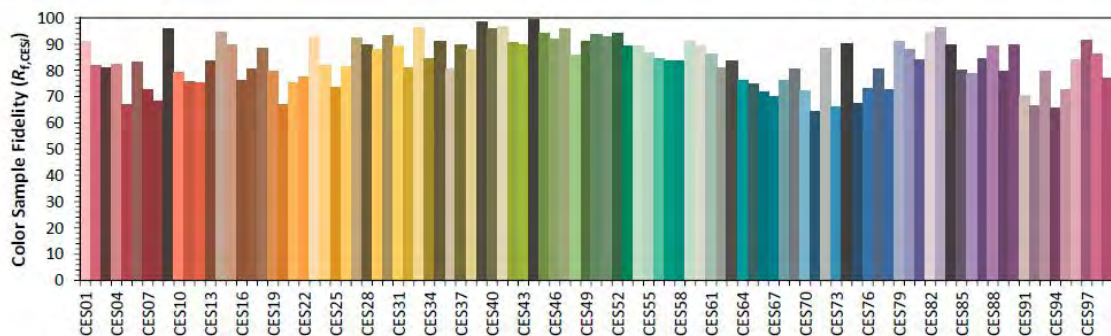
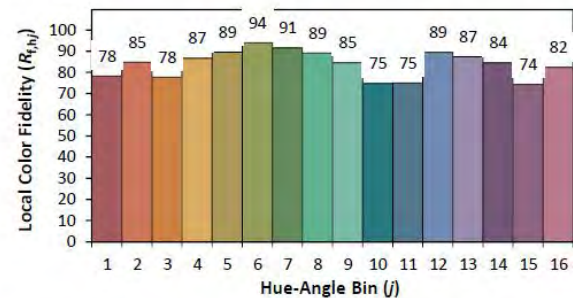
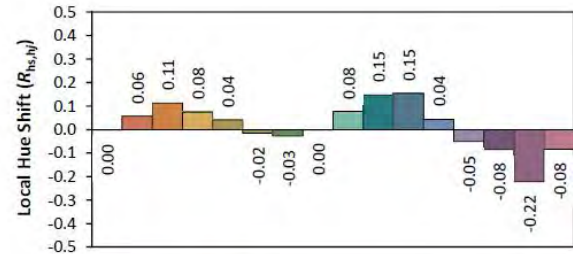
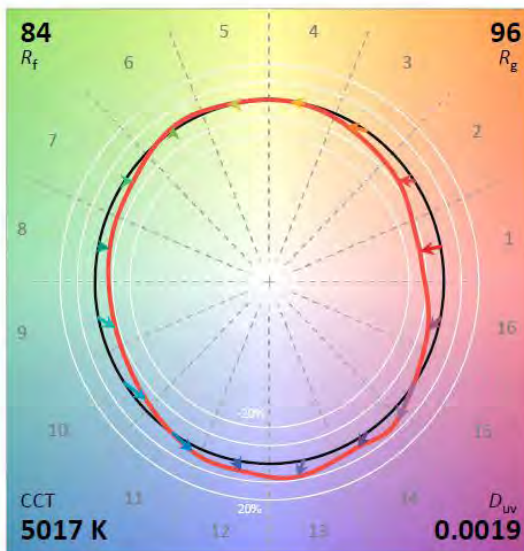
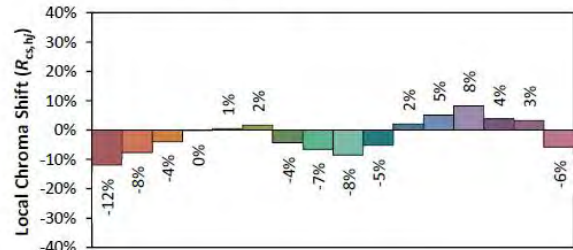
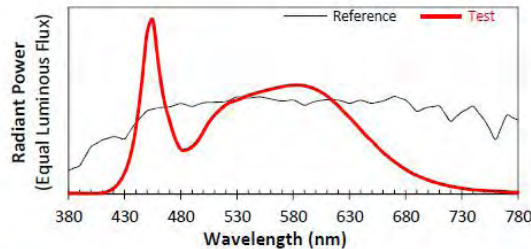
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126011-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-40W-2FT-3L-850-[OCN, Blank]-10V



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

 $x$  0.3450 $y$  0.3554 $u'$  0.2099 $v'$  0.4865CIE 13.3-1995  
(CRI) $R_a$  83 $R_g$  11

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-G2-45W-2FT-3L-830-[OCN, Blank]-10V(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.09	60	0.120	14.35	0.996

**Photometric data**

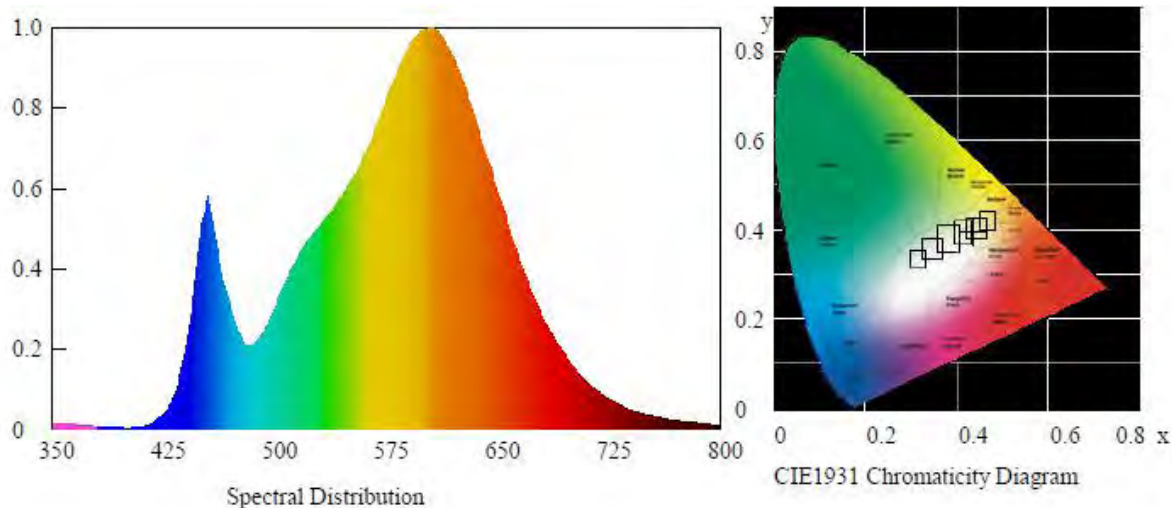
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1677.09	116.90	3035

**Chromaticity Coordinate**

Duv	x	y	u'	v'
-0.00171	0.4321	0.3981	0.2500	0.5183

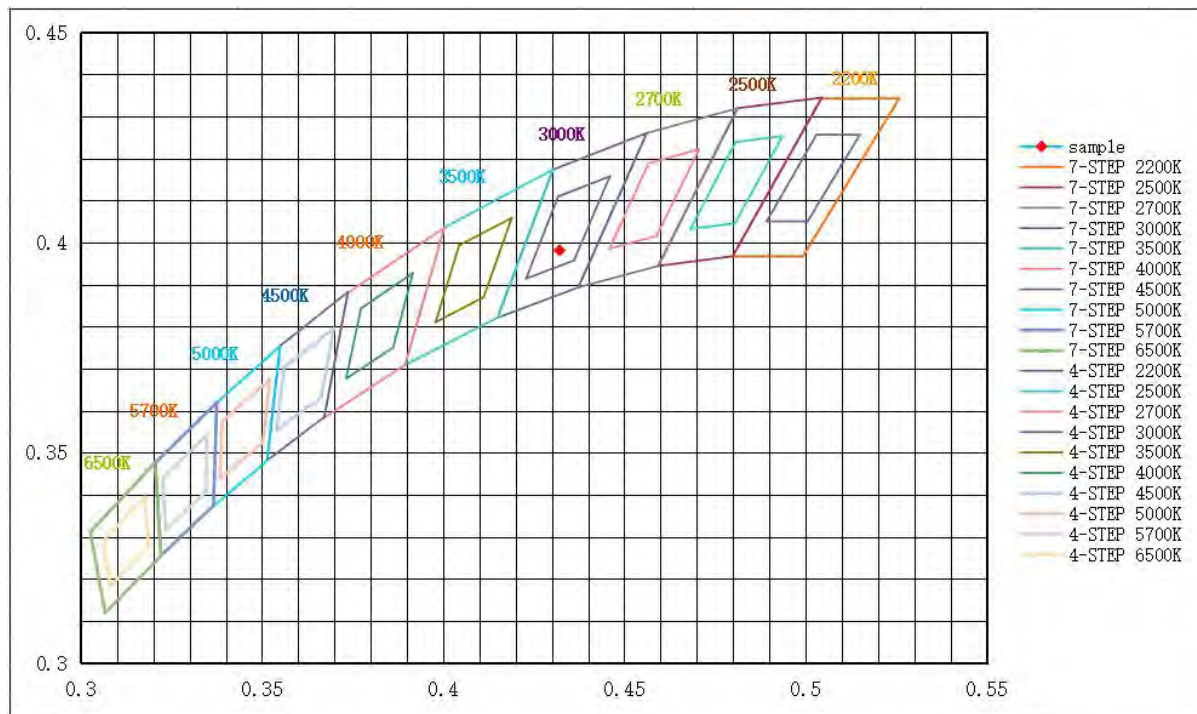
**Color Rendering**

CRI	R9	Rf	Rg	Rcs,h1(%)
82.9	10	84	96	-11

**Spectral Distribution**



## 7/4 Step Quadrangle







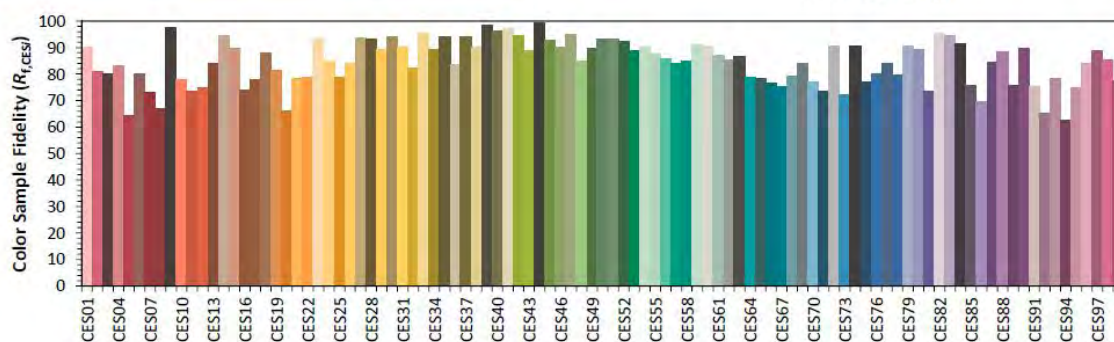
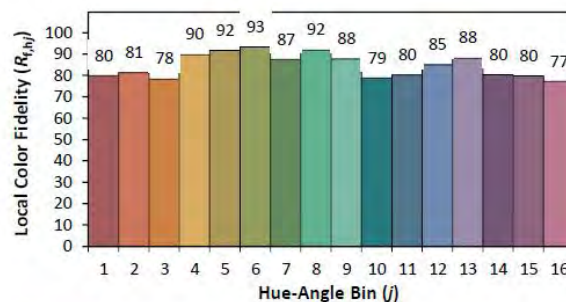
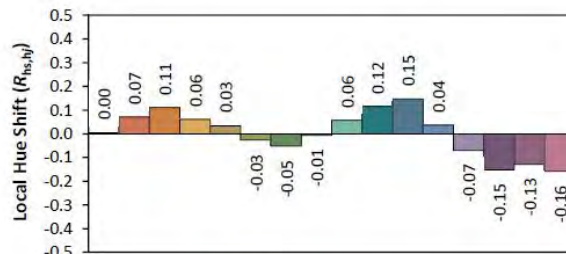
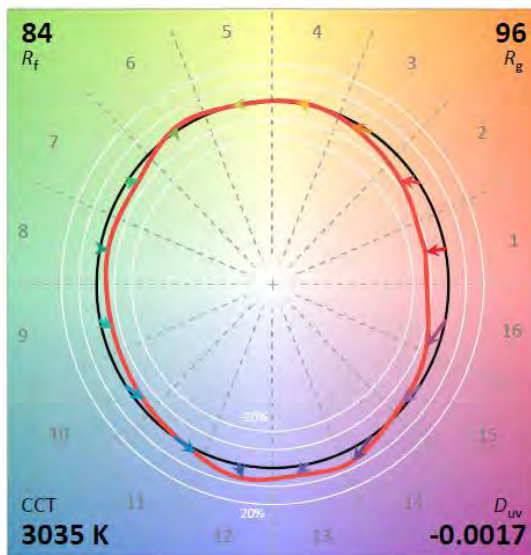
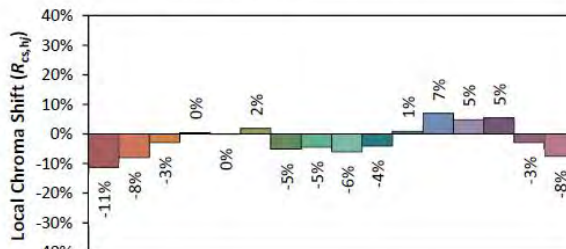
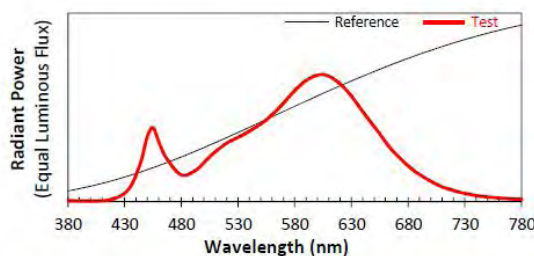
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126011-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-45W-2FT-3L-830-[OCN, Blank]-10V



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

$x$  0.4321  
 $y$  0.3981  
 $u'$  0.2500  
 $v'$  0.5183

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.

**3.1.8 Model Number: RP-T8C-G2-45W-2FT-3L-850-[OCN, Blank]-10V(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.08	60	0.120	14.37	0.996

**Photometric data**

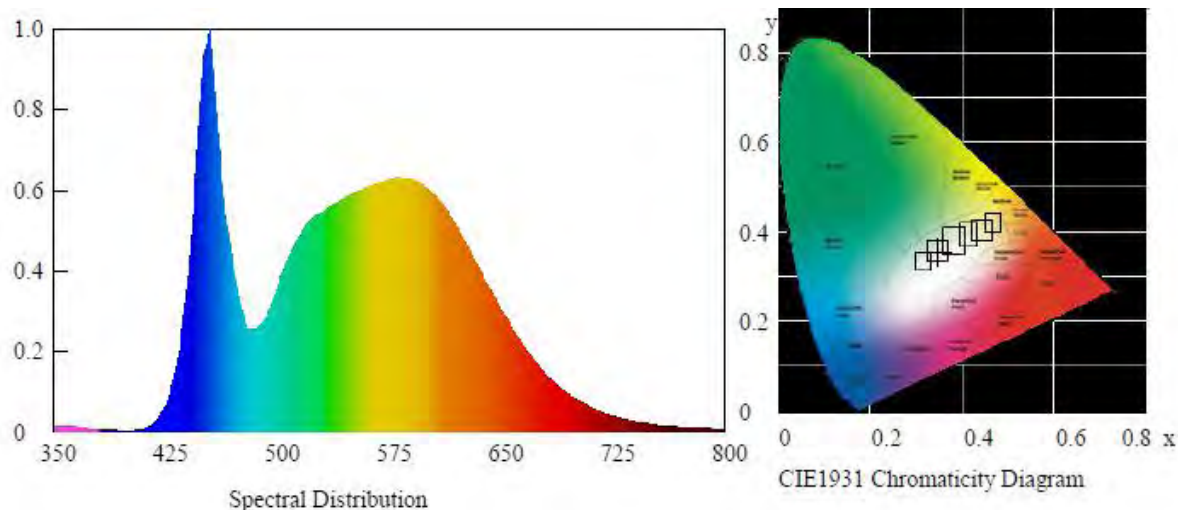
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1713.00	119.23	5014

**Chromaticity Coordinate**

Duv	x	y	u'	v'
+0.00203	0.3451	0.3557	0.2099	0.4867

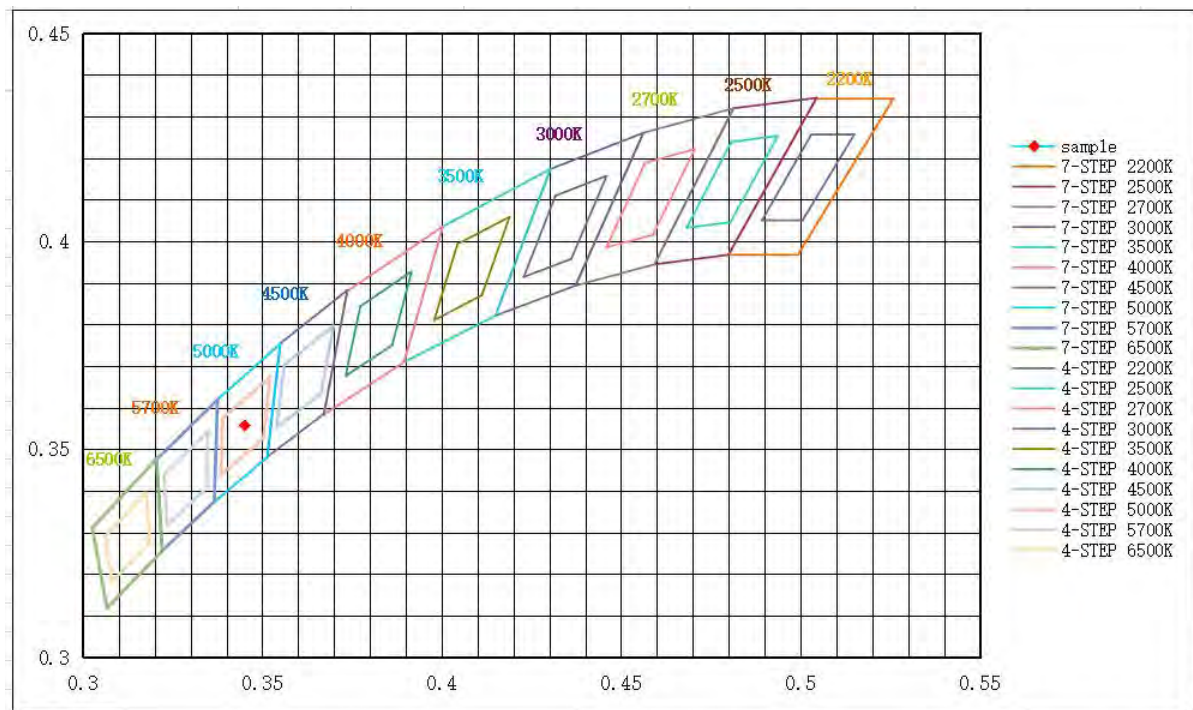
**Color Rendering**

CRI	R9	Rf	Rg	Rcs,h1(%)
83.3	11	84	96	-12

**Spectral Distribution**



## 7/4 Step Quadrangle







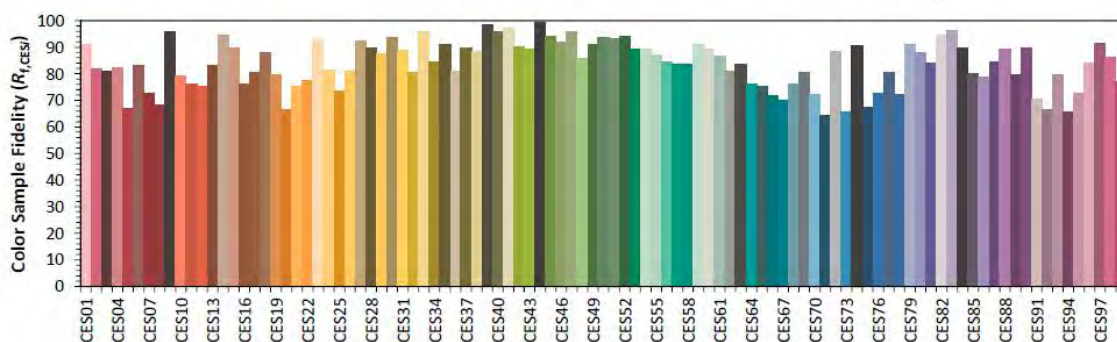
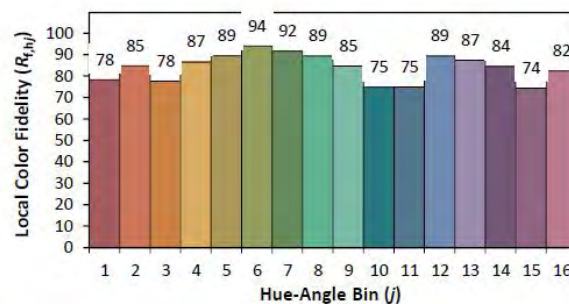
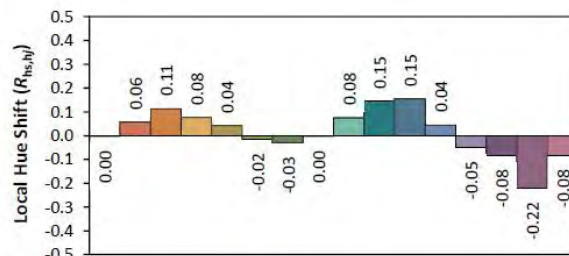
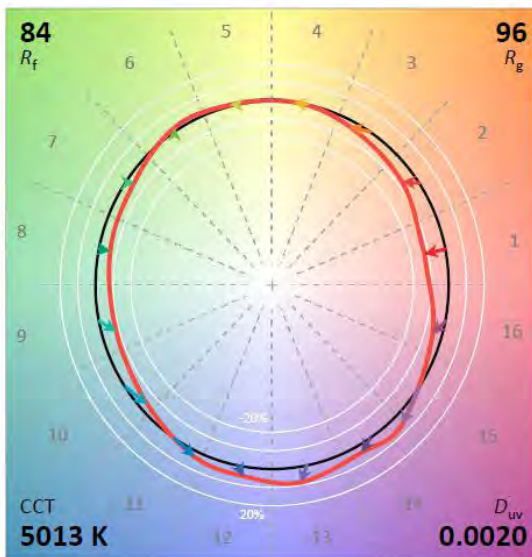
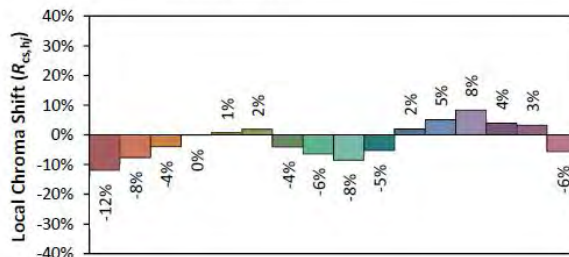
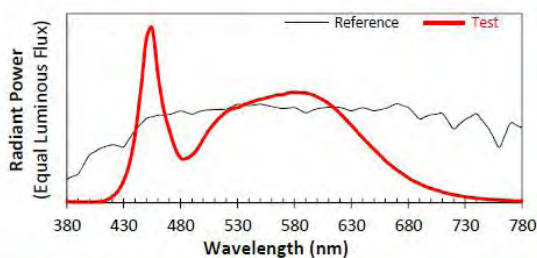
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126011-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-45W-2FT-3L-850-[OCN, Blank]-10V



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

 $x$  0.3451 $y$  0.3557 $u'$  0.2099 $v'$  0.4866CIE 13.3-1995  
(CRI) $R_a$  83 $R_g$  11

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-G2-45W-2FT-3L-830-[OCN, Blank]-10V(Bare lamp)

##### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.020	60	0.120	14.347	0.995

##### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	Beam Angle(° )
1678.84	117.02	184.5

**Zonal Flux Diagram**

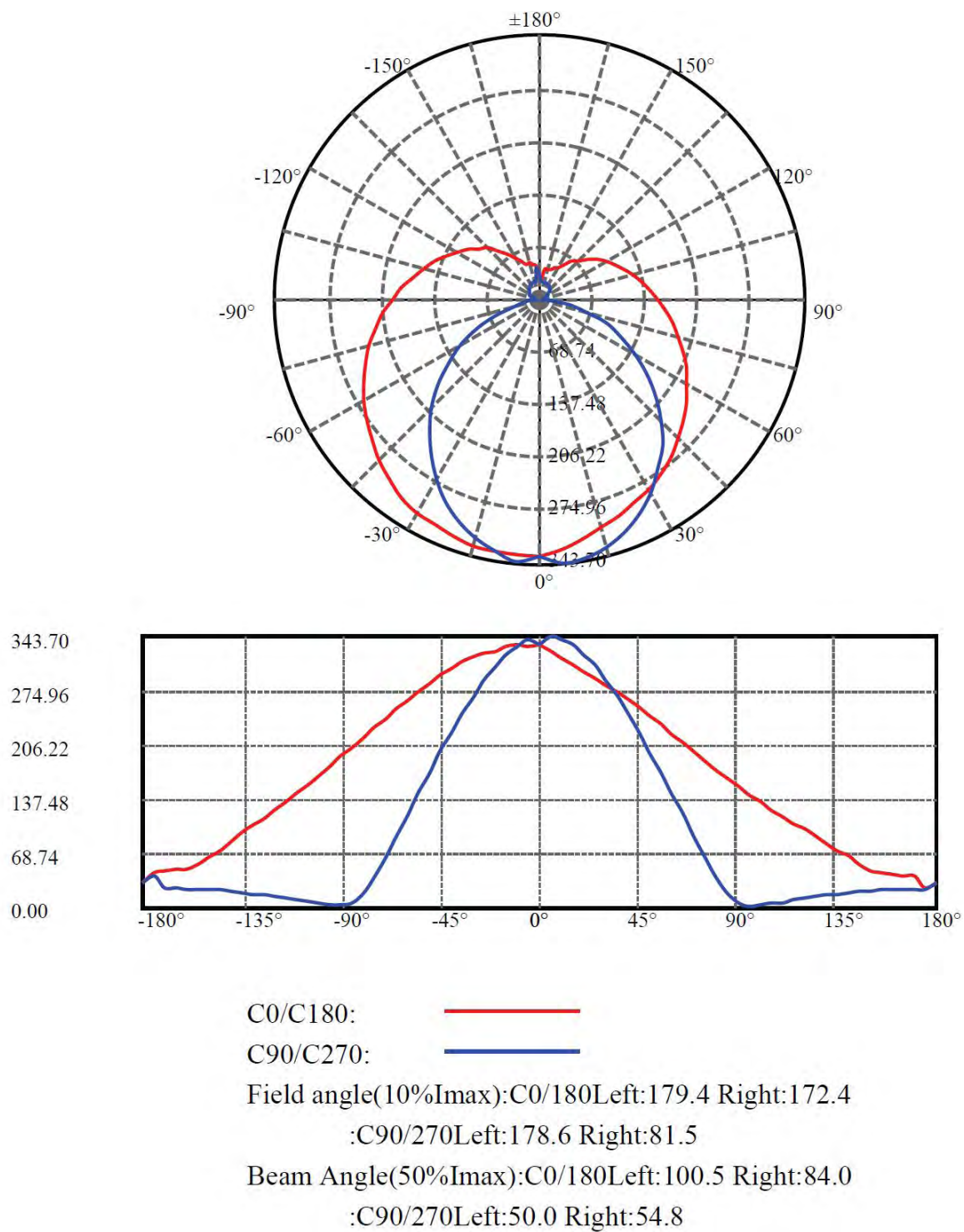
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	332.595	0.000	0	0.00%	0.00%
5.0	331.532	7.939	7.939	0.00%	0.47%
10.0	327.274	23.568	31.507	0.00%	1.88%
15.0	320.414	38.420	69.927	0.00%	4.17%
20.0	311.440	52.074	122.001	0.00%	7.27%
25.0	300.411	64.172	186.173	0.00%	11.09%
30.0	287.845	74.444	260.617	0.00%	15.52%
35.0	273.608	82.678	343.295	0.00%	20.45%
40.0	258.173	88.724	432.019	0.00%	25.73%
45.0	241.320	92.485	524.504	0.00%	31.24%
50.0	224.377	94.101	618.605	0.00%	36.85%
55.0	207.095	93.816	712.421	0.00%	42.44%
60.0	189.930	91.771	804.193	0.00%	47.90%
65.0	173.254	88.291	892.483	0.00%	53.16%
70.0	157.125	83.654	976.137	0.00%	58.14%
75.0	142.045	78.198	1054.335	0.00%	62.80%
80.0	128.178	72.304	1126.639	0.00%	67.11%
85.0	116.217	66.408	1193.047	0.00%	71.06%
90.0	106.075	60.865	1253.913	0.00%	74.69%
95.0	97.737	55.805	1309.718	0.00%	78.01%
100.0	90.597	51.175	1360.893	0.00%	81.06%
105.0	84.210	46.773	1407.666	0.00%	83.85%
110.0	78.252	42.465	1450.131	0.00%	86.38%
115.0	72.959	38.288	1488.419	0.00%	88.66%
120.0	67.888	34.240	1522.659	0.00%	90.70%
125.0	62.980	30.250	1552.909	0.00%	92.50%
130.0	58.811	26.481	1579.39	0.00%	94.08%
135.0	54.686	22.934	1602.324	0.00%	95.44%
140.0	48.506	19.107	1621.431	0.00%	96.58%
145.0	42.179	15.130	1636.561	0.00%	97.48%
150.0	38.571	11.891	1648.452	0.00%	98.19%
155.0	36.738	9.531	1657.982	0.00%	98.76%
160.0	36.058	7.635	1665.617	0.00%	99.21%
165.0	35.925	5.932	1671.55	0.00%	99.57%
170.0	34.077	4.152	1675.702	0.00%	99.81%
175.0	32.155	2.369	1678.072	0.00%	99.95%
180.0	31.780	0.764	1678.836	0.00%	100.00%



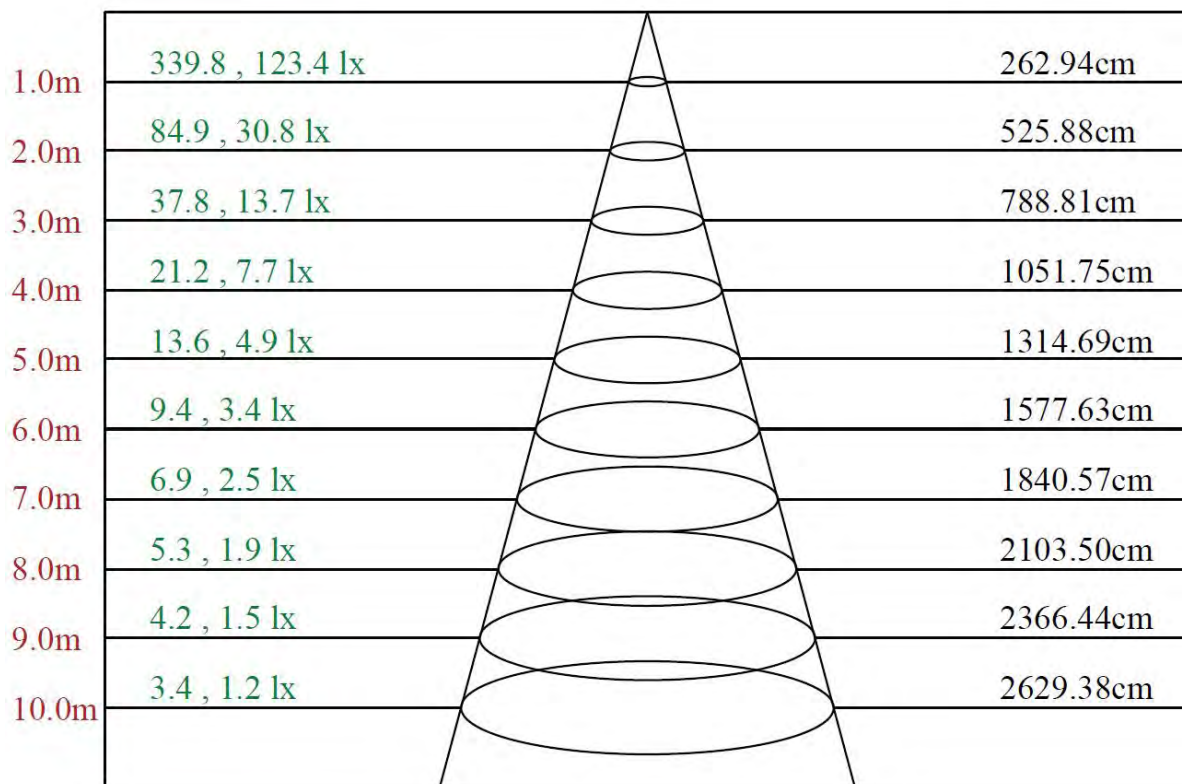
### Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]





## Lux distance Curve



Max , Ave

Beam angle of C90 plane 105.48



**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	332.60	324.30	315.55	306.56	298.76	290.71	282.43	274.16	265.40
22.5	332.60	323.59	316.50	308.69	300.18	289.77	278.65	266.82	254.76
45.0	332.60	320.75	314.84	306.56	296.15	283.14	269.19	253.58	237.96
67.5	332.60	327.38	320.52	310.11	296.63	281.72	263.98	244.35	224.48
90.0	332.60	343.70	339.68	332.11	321.23	306.56	288.82	268.48	246.95
112.5	332.60	340.86	338.73	332.58	323.59	311.06	295.21	277.94	257.83
135.0	332.60	336.84	336.37	332.58	326.20	317.44	306.80	293.55	279.83
157.5	332.60	336.37	336.60	334.95	330.93	325.49	318.63	309.87	300.18
180.0	332.60	331.16	332.11	330.22	325.49	321.70	317.68	311.53	303.01
202.5	332.60	330.93	330.93	329.51	326.20	320.75	313.89	305.62	295.21
225.0	332.60	325.01	323.36	318.63	311.77	302.54	291.90	279.36	266.35
247.5	332.60	331.16	328.09	321.70	312.00	298.99	283.38	265.64	245.06
270.0	332.60	339.68	331.87	319.81	305.85	287.88	267.77	246.01	222.83
292.5	332.60	334.71	326.67	315.31	300.88	284.33	266.59	246.95	225.19
315.0	332.60	329.27	321.94	312.24	300.65	288.35	275.10	260.20	244.59
337.5	332.60	328.80	322.65	315.08	306.56	296.15	285.51	273.68	261.15
360.0	332.60	324.30	315.55	306.56	298.76	290.71	282.43	274.16	265.40

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	255.00	243.88	232.52	220.70	209.34	197.75	186.16	174.57	164.16
22.5	242.22	229.69	217.62	204.85	192.78	181.19	171.26	160.61	151.39
45.0	220.70	204.61	188.29	173.39	159.19	145.95	133.41	122.53	113.31
67.5	202.96	181.19	159.19	137.43	117.09	97.69	80.90	66.47	56.30
90.0	222.12	196.57	170.55	144.53	118.98	92.25	65.05	40.45	19.63
112.5	236.31	214.31	193.02	171.02	149.26	129.15	110.23	93.67	79.72
135.0	263.75	248.37	231.81	215.26	200.59	186.16	172.68	158.72	147.37
157.5	289.29	277.94	265.40	253.10	240.09	226.85	215.02	203.43	190.89
180.0	293.55	284.09	273.92	263.04	251.45	240.09	228.27	215.73	203.67
202.5	283.85	271.32	259.25	247.43	235.13	222.83	210.29	197.52	185.92
225.0	251.45	237.25	221.64	206.98	192.07	177.65	164.16	151.63	139.33
247.5	223.53	201.30	179.30	157.07	135.78	116.38	99.35	83.97	70.96
270.0	197.75	171.73	144.53	117.56	90.12	63.39	38.32	18.69	5.91
292.5	203.19	181.19	159.19	137.91	118.75	100.30	84.45	71.20	61.03
315.0	227.32	211.47	195.15	179.77	165.11	151.39	138.38	127.50	117.09
337.5	248.14	235.13	222.12	208.87	196.33	184.98	174.81	164.16	152.81
360.0	255.00	243.88	232.52	220.70	209.34	197.75	186.16	174.57	164.16

C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	153.99	143.58	133.65	124.42	115.43	107.39	99.35	90.83	82.08
22.5	141.45	132.23	122.77	113.07	103.84	96.04	88.47	81.14	73.33
45.0	104.79	96.04	87.76	81.14	75.22	69.07	63.87	58.43	54.41
67.5	47.78	42.11	37.85	35.01	31.93	29.81	28.15	27.44	29.57
90.0	5.68	3.08	4.02	5.68	7.33	9.70	12.06	14.19	16.32
112.5	69.07	60.56	54.41	50.38	46.36	43.76	39.27	35.96	34.06
135.0	135.54	125.13	116.14	107.63	99.35	92.02	85.39	79.24	73.09
157.5	178.35	166.53	155.17	144.77	134.12	123.95	114.72	105.26	96.75
180.0	191.36	179.30	167.47	155.65	144.77	133.65	123.00	113.07	103.61
202.5	174.10	162.74	151.86	140.98	130.81	121.35	112.12	103.61	96.04
225.0	128.44	118.75	109.99	101.48	94.62	87.76	81.84	76.17	70.25
247.5	61.03	53.93	48.49	44.94	42.58	40.21	37.14	34.06	32.41
270.0	3.55	4.26	5.91	7.81	9.70	12.06	13.96	16.09	17.98
292.5	52.51	46.36	42.58	39.27	35.48	34.06	33.12	31.93	32.88
315.0	107.39	97.93	89.65	82.55	76.40	70.49	65.05	58.66	54.88
337.5	142.16	131.28	121.82	112.60	104.08	96.04	88.70	81.61	73.33
360.0	153.99	143.58	133.65	124.42	115.43	107.39	99.35	90.83	82.08



C/ $\gamma$ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	72.62	66.00	56.53	47.07	45.18	42.58	41.40	40.21	25.78
22.5	66.94	60.56	46.13	43.76	41.87	40.21	38.56	29.10	22.71
45.0	49.44	41.40	39.27	37.37	36.19	35.25	30.75	22.24	30.75
67.5	30.04	30.51	28.39	30.75	29.57	28.39	24.36	22.71	33.59
90.0	17.98	19.63	21.05	22.24	22.95	23.42	23.65	23.65	23.42
112.5	33.35	34.06	36.19	35.25	34.30	33.35	31.22	27.20	24.13
135.0	65.76	52.04	41.63	34.54	33.83	35.72	37.85	32.17	23.65
157.5	88.94	72.86	57.48	51.80	44.94	42.58	42.58	42.11	31.70
180.0	95.33	84.21	72.86	63.87	56.53	49.91	48.73	46.13	44.00
202.5	88.00	72.38	61.98	50.38	44.23	45.42	46.13	45.42	44.23
225.0	64.10	57.01	44.23	36.66	35.01	35.01	36.66	41.40	41.63
247.5	31.93	34.06	35.72	32.88	30.28	30.04	35.01	35.72	28.86
270.0	19.87	21.29	22.47	23.65	24.36	24.36	24.60	24.60	41.16
292.5	33.59	30.99	27.91	28.15	30.28	32.17	33.35	32.41	36.90
315.0	50.86	39.27	35.72	34.06	36.19	37.61	39.27	39.98	32.64
337.5	66.23	59.85	47.31	44.71	42.11	40.92	40.69	40.21	29.33
360.0	72.62	66.00	56.53	47.07	45.18	42.58	41.40	40.21	25.78
C/ $\gamma$ (°)	180.0								
0.0	31.78								
22.5	31.78								
45.0	31.78								
67.5	31.78								
90.0	31.78								
112.5	31.78								
135.0	31.78								
157.5	31.78								
180.0	31.78								
202.5	31.78								
225.0	31.78								
247.5	31.78								
270.0	31.78								
292.5	31.78								
315.0	31.78								
337.5	31.78								
360.0	31.78								



## 4 Additional Test

### Electrical data at 277V

Model Number	Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
RP-T8C-G2-45W-2FT-3L-830-[OCN, Blank]-10V	Power Factor	277	60	0.970
	THD	277	60	6.1%

## 5 Performance Assessment

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-30W-2FT-3L-830-[OCN, Blank]-10V	3000	1308.90	10.64	123.06
RP-T8C-G2-30W-2FT-3L-835-[OCN, Blank]-10V	3500	1314.46 <sup>*1</sup>	10.62 <sup>*2</sup>	123.83 <sup>*3</sup>
RP-T8C-G2-30W-2FT-3L-840-[OCN, Blank]-10V	4000	1320.02 <sup>*1</sup>	10.62 <sup>*2</sup>	124.35 <sup>*3</sup>
RP-T8C-G2-30W-2FT-3L-850-[OCN, Blank]-10V	5000	1331.13	10.59	125.74

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

$$1314.46 = (1331.13 - 1308.90) / 4 + 1308.90$$

$$1320.02 = (1331.13 - 1308.90) / 4 + 1314.46$$

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

$$10.62 = (10.64 + 10.59) / 2$$

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

$$123.83 = 1314.46 / 10.62$$

$$124.35 = 1320.02 / 10.62$$





Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-35W-2FT-3L -830-[OCN, Blank]-10V	3000	1472.60	12.13	121.37
RP-T8C-G2-35W-2FT-3L -835-[OCN, Blank]-10V	3500	1479.33 <sup>*1</sup>	12.15 <sup>*2</sup>	121.81 <sup>*3</sup>
RP-T8C-G2-35W-2FT-3L -840-[OCN, Blank]-10V	4000	1486.05 <sup>*1</sup>	12.15 <sup>*2</sup>	122.36 <sup>*3</sup>
RP-T8C-G2-35W-2FT-3L -850-[OCN, Blank]-10V	5000	1499.50	12.16	123.31

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

$$1479.33 = (1499.50 - 1472.60) / 4 + 1472.60$$

$$1486.05 = (1499.50 - 1472.60) / 4 + 1479.33$$

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

$$12.15 = (12.13 + 12.16) / 2$$

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

$$121.81 = 1479.33 / 12.15$$

$$122.36 = 1486.05 / 12.15$$

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-40W-2FT-3L -830-[OCN, Blank]-10V	3000	1630.58	13.67	119.25
RP-T8C-G2-40W-2FT-3L -835-[OCN, Blank]-10V	3500	1638.61 <sup>*1</sup>	13.67 <sup>*2</sup>	119.87 <sup>*3</sup>
RP-T8C-G2-40W-2FT-3L -840-[OCN, Blank]-10V	4000	1646.64 <sup>*1</sup>	13.67 <sup>*2</sup>	120.46 <sup>*3</sup>
RP-T8C-G2-40W-2FT-3L -850-[OCN, Blank]-10V	5000	1662.70	13.67	121.66

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

$$1638.61 = (1662.70 - 1630.58) / 4 + 1630.58$$

$$1646.64 = (1662.70 - 1630.58) / 4 + 1638.61$$

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

$$13.67 = (13.67 + 13.67) / 2$$

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

$$119.87 = 1638.61 / 13.67$$

$$120.46 = 1646.64 / 13.67$$



Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-45W-2FT-3L -830-[OCN, Blank]-10V	3000	1677.09	14.35	116.90
RP-T8C-G2-45W-2FT-3L -835-[OCN, Blank]-10V	3500	1686.07 <sup>*1</sup>	14.36 <sup>*2</sup>	117.41 <sup>*3</sup>
RP-T8C-G2-45W-2FT-3L -840-[OCN, Blank]-10V	4000	1695.05 <sup>*1</sup>	14.36 <sup>*2</sup>	118.04 <sup>*3</sup>
RP-T8C-G2-45W-2FT-3L -850-[OCN, Blank]-10V	5000	1713.00	14.37	119.23

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

$$1686.07 = (1713.00 - 1677.09) / 4 + 1677.09$$

$$1695.05 = (1713.00 - 1677.09) / 4 + 1686.07$$

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

$$14.36 = (14.35 + 14.37) / 2$$

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

$$117.41 = 1686.07 / 14.36$$

$$118.04 = 1695.05 / 14.36$$



## **Photo Document**



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