



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-G2-30W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830,  
RP-T8C-G2-30W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850,  
RP-T8C-G2-35W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830,  
RP-T8C-G2-35W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850,  
RP-T8C-G2-40W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830,  
RP-T8C-G2-40W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850,  
RP-T8C-G2-45W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830,  
RP-T8C-G2-45W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-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*

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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>	4'T8 Lamps -- 3-Lamp External Driver (UL Type C) Lamps
<b>Test Model Number</b>	RP-T8C-G2-30W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830, RP-T8C-G2-30W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850, RP-T8C-G2-35W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830, RP-T8C-G2-35W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850, RP-T8C-G2-40W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830, RP-T8C-G2-40W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850, RP-T8C-G2-45W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830, RP-T8C-G2-45W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850
<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-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830(Bare lamp)

##### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.18	60	0.085	10.23	0.996

##### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1285.40	125.65	2989

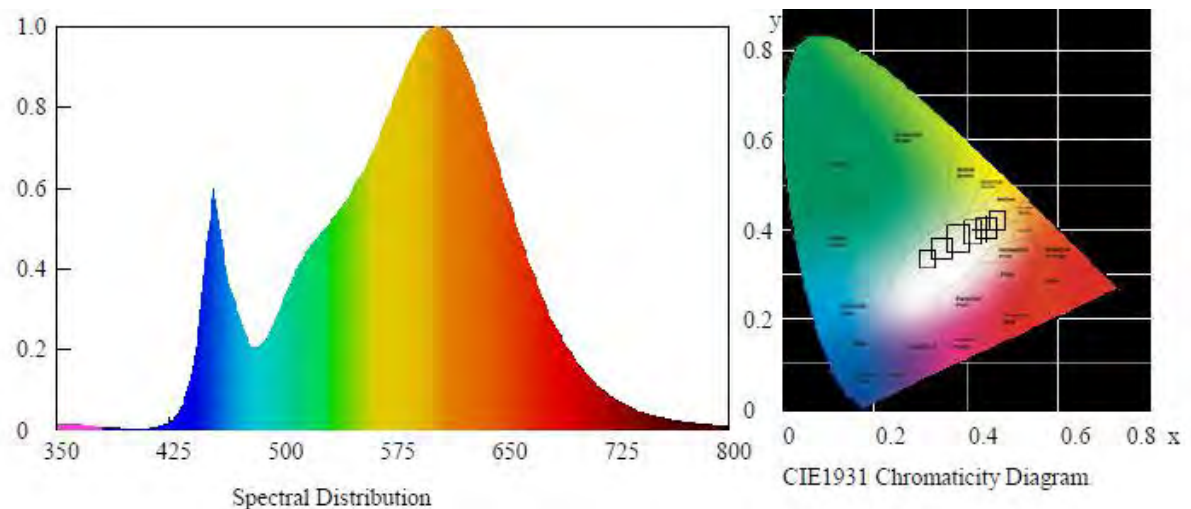
##### Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00026	0.4374	0.4036	0.2511	0.5213

##### Color Rendering

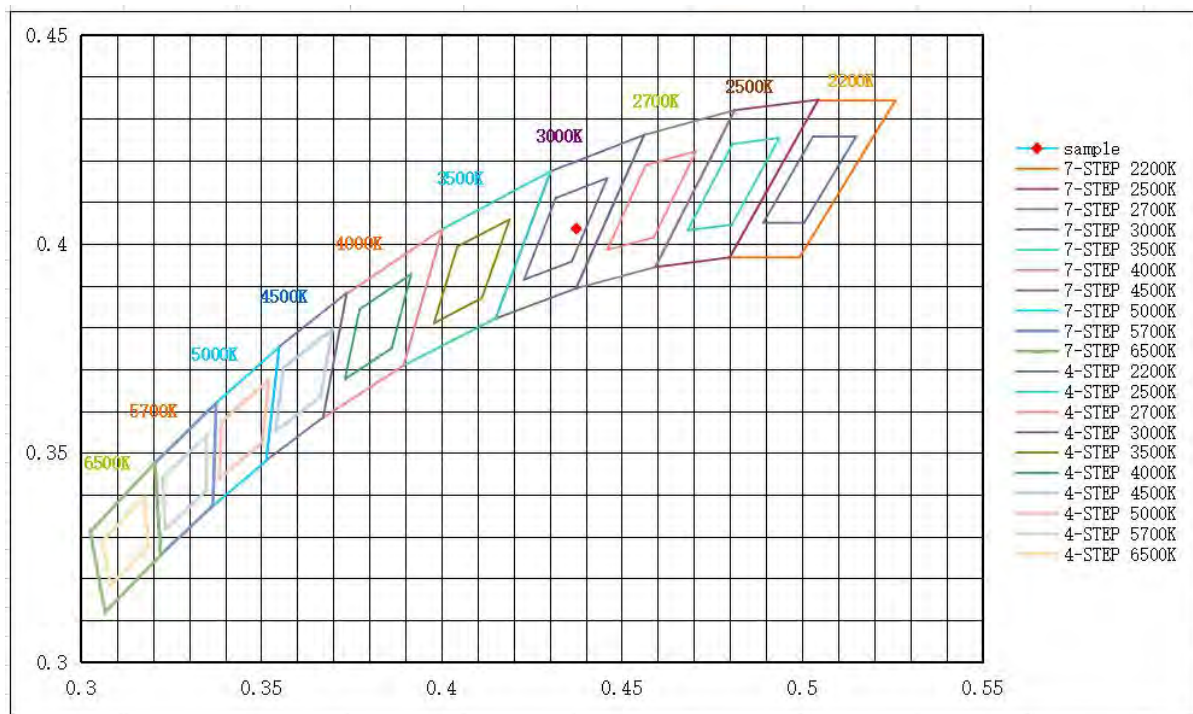
CRI	R9	Rf	Rg	Rcs,h1(%)
83.3	11	85	94	-11

##### Spectral Distribution





## 7/4 Step Quadrangle







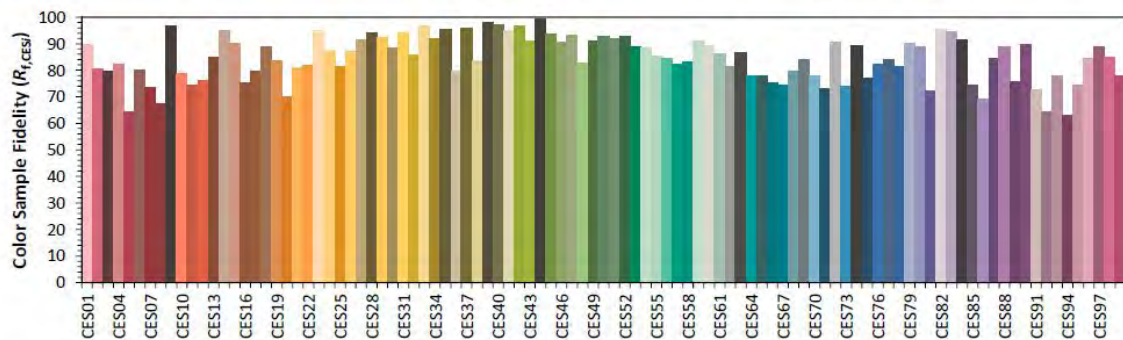
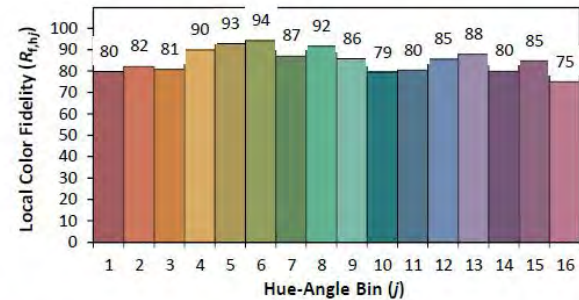
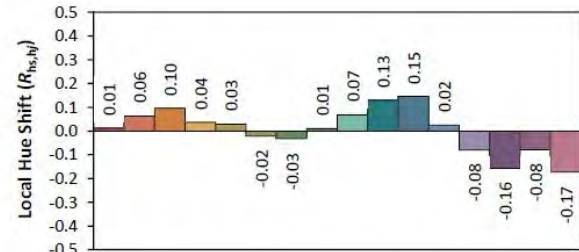
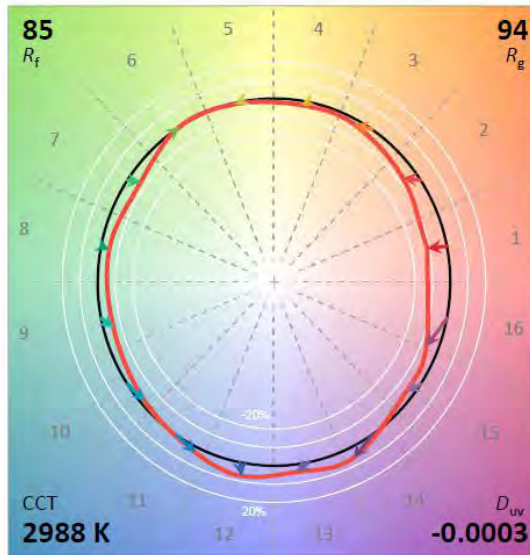
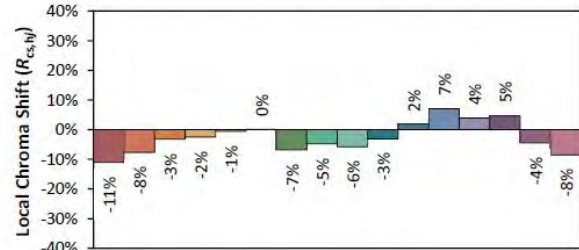
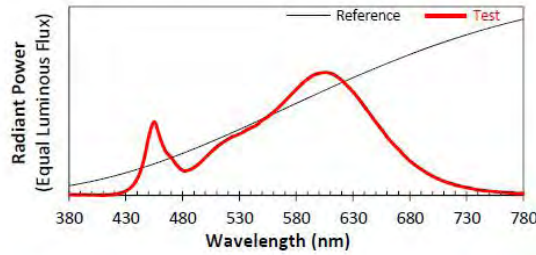
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126013-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-30W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830



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

$x$  0.4374  
 $y$  0.4036  
 $u'$  0.2511  
 $v'$  0.5213

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.





### 3.1.2 Model Number: RP-T8C-G2-30W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850(Bare lamp)

#### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.95	60	0.086	10.23	0.996

#### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1308.01	127.86	5002

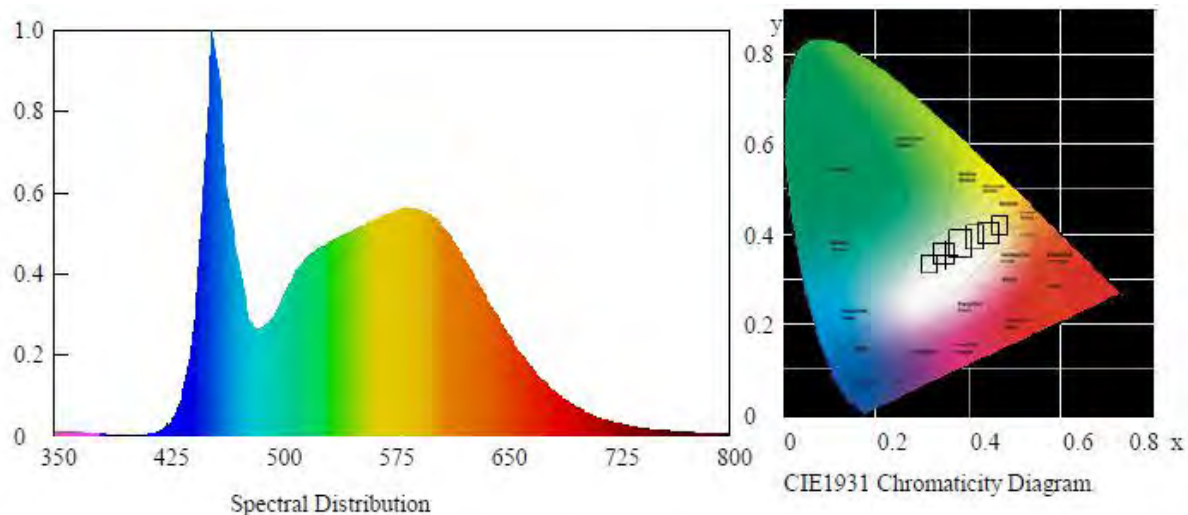
#### Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00231	0.3455	0.3566	0.2098	0.4871

#### Color Rendering

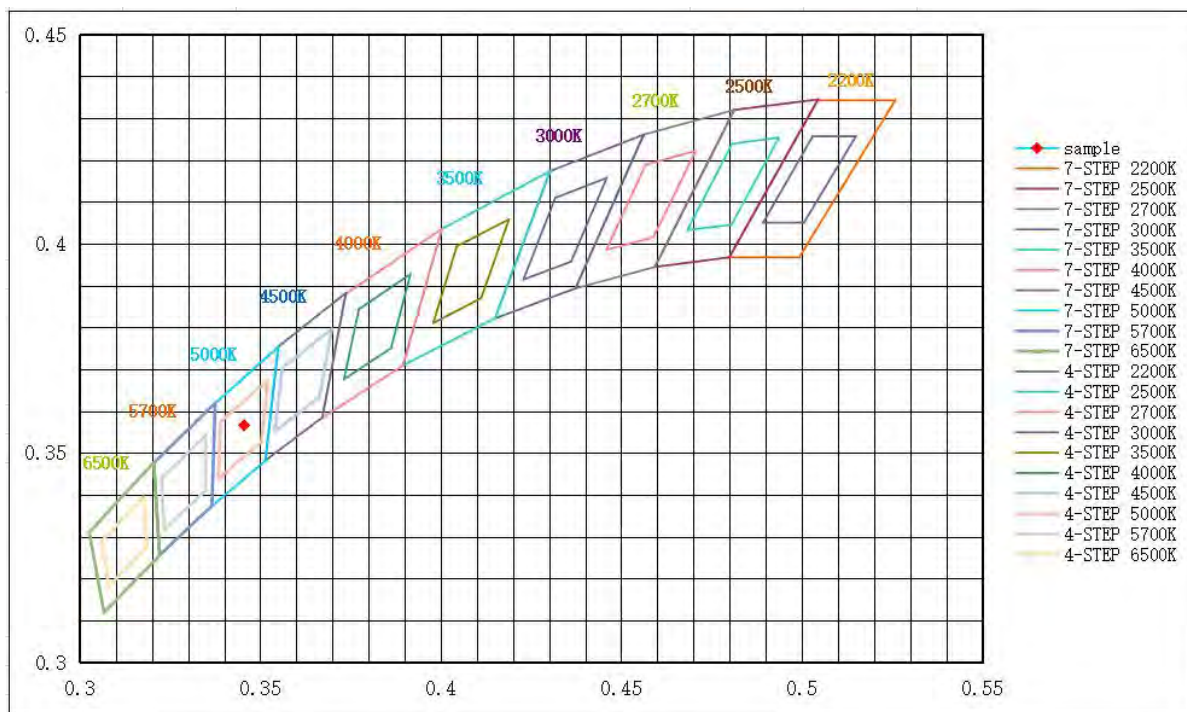
CRI	R9	Rf	Rg	Rcs,h1(%)
84.3	13	83	93	-12

#### Spectral Distribution





## 7/4 Step Quadrangle





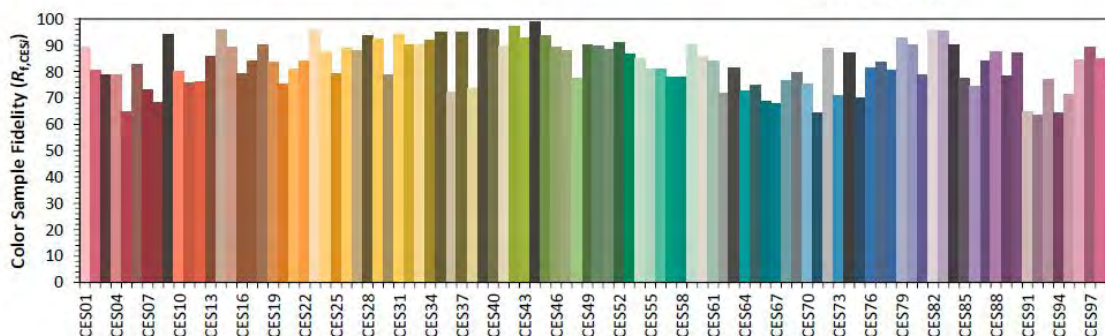
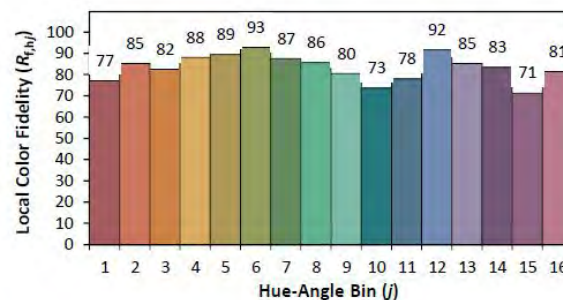
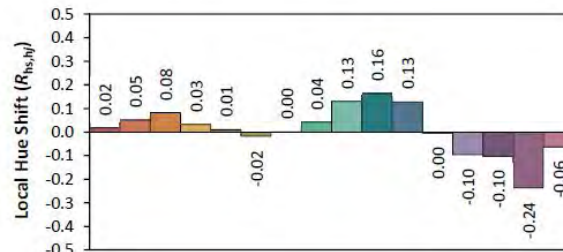
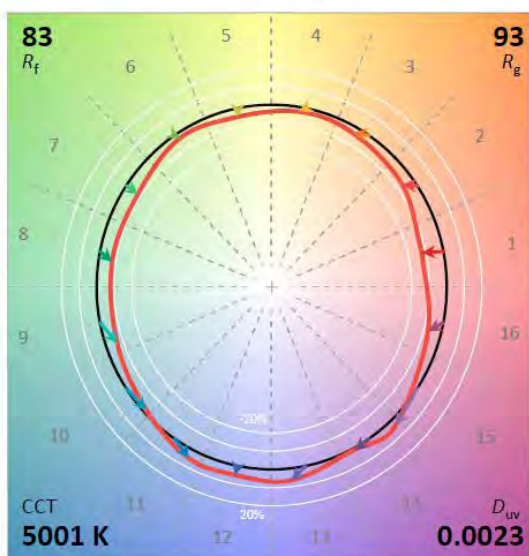
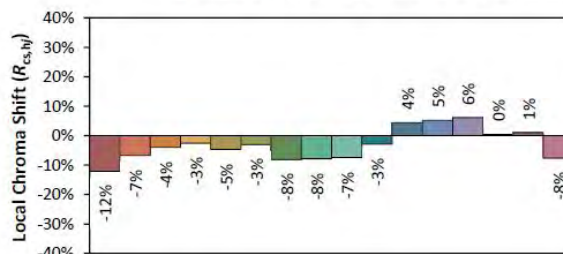
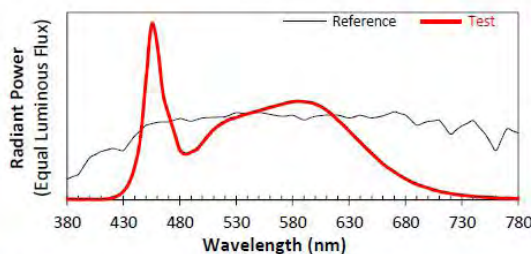
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126013-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-30W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-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  
 $R_g$  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-G2-35W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830(Bare lamp)

#### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.19	60	0.098	11.71	0.996

#### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1448.23	123.71	2986

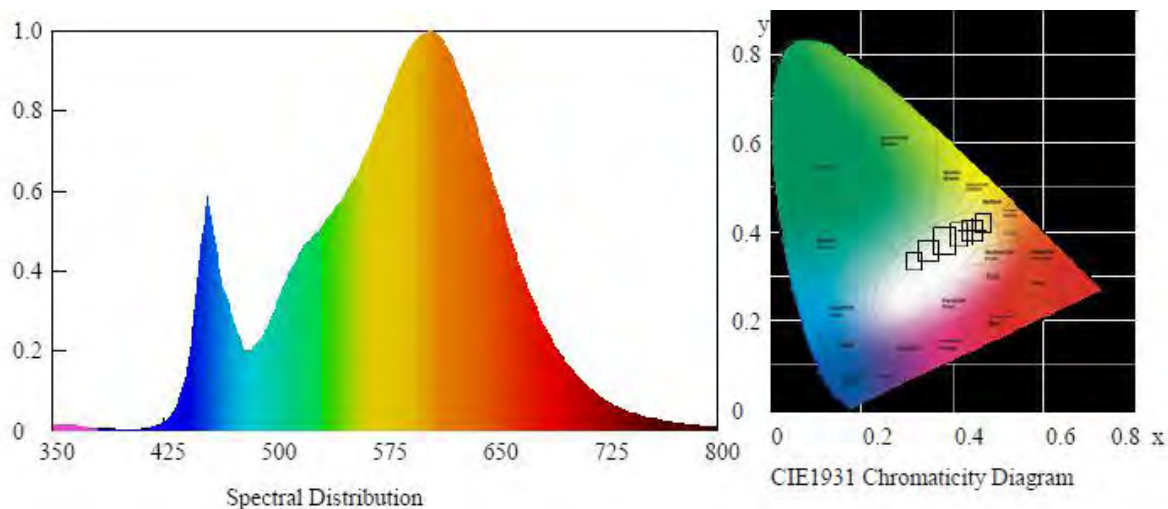
#### Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00022	0.4376	0.4038	0.2511	0.5214

#### Color Rendering

CRI	R9	Rf	Rg	Rcs,h1(%)
83.2	11	85	95	-11

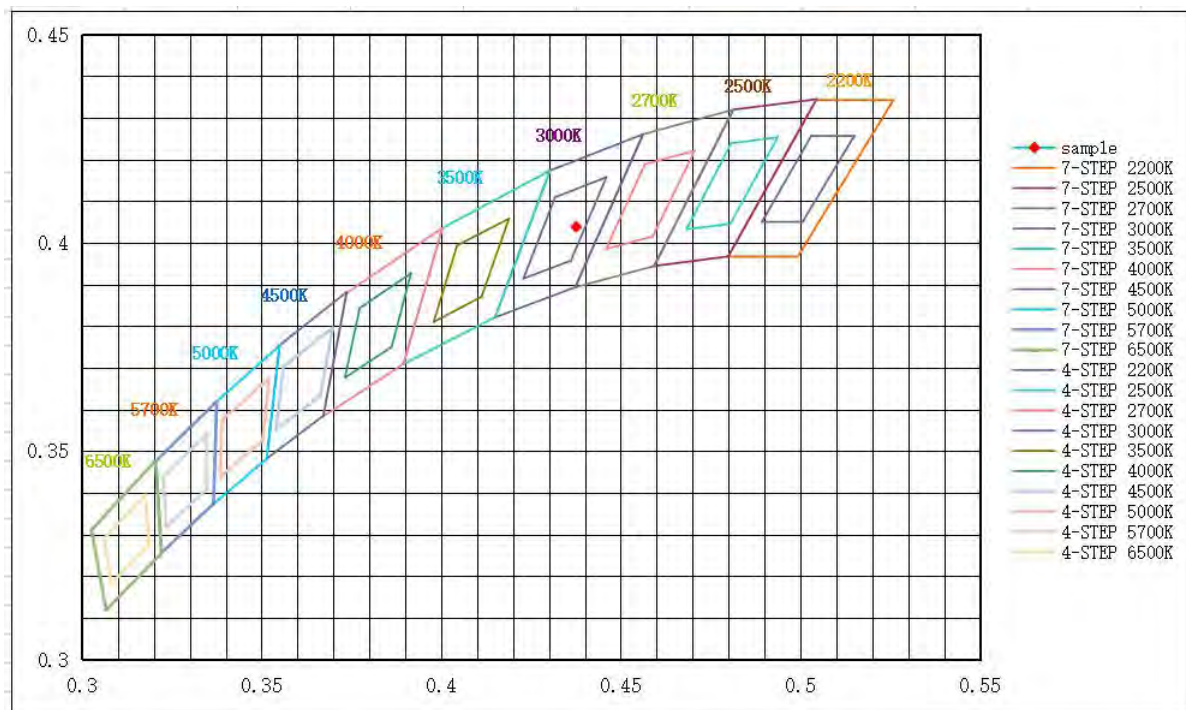
#### Spectral Distribution







## 7/4 Step Quadrangle





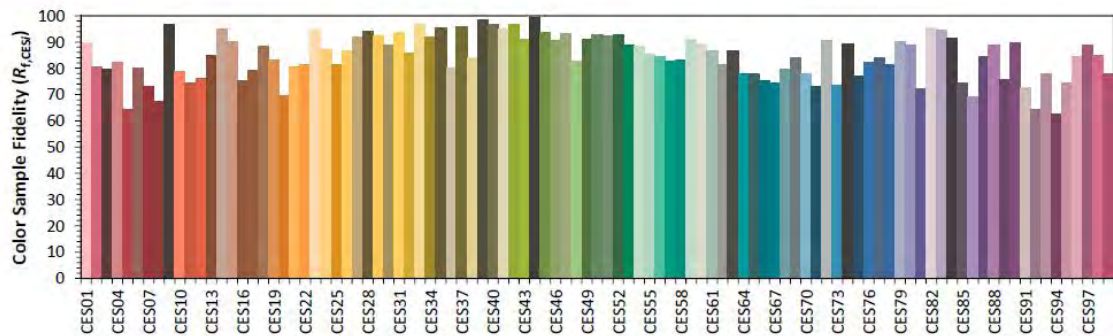
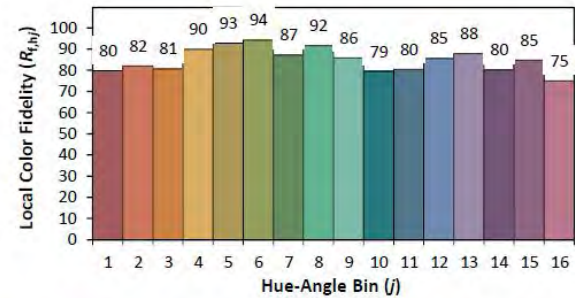
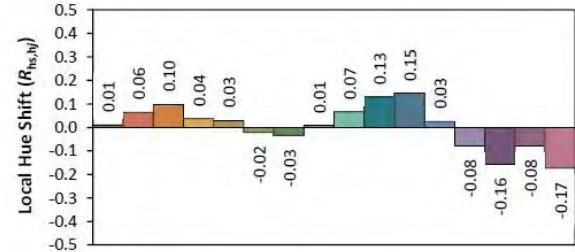
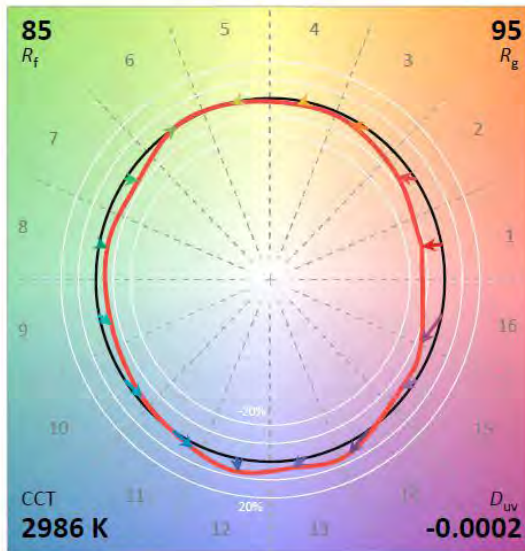
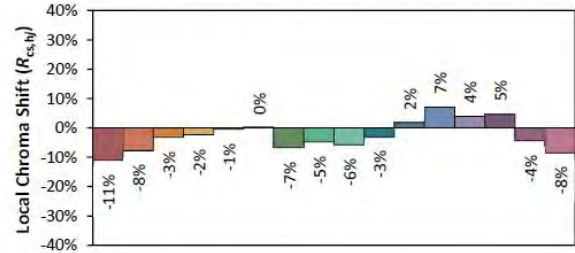
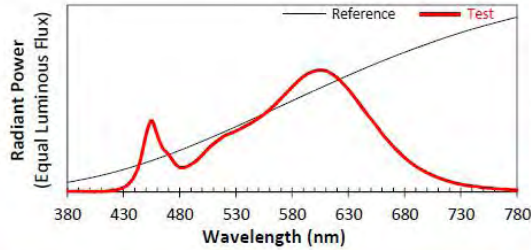
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126013-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-35W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830



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

 $x$  0.4376 $y$  0.4038 $u'$  0.2511 $v'$  0.5214CIE 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.





### 3.1.4 Model Number: RP-T8C-G2-35W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850(Bare lamp)

#### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.20	60	0.098	11.69	0.996

#### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1472.19	125.90	4993

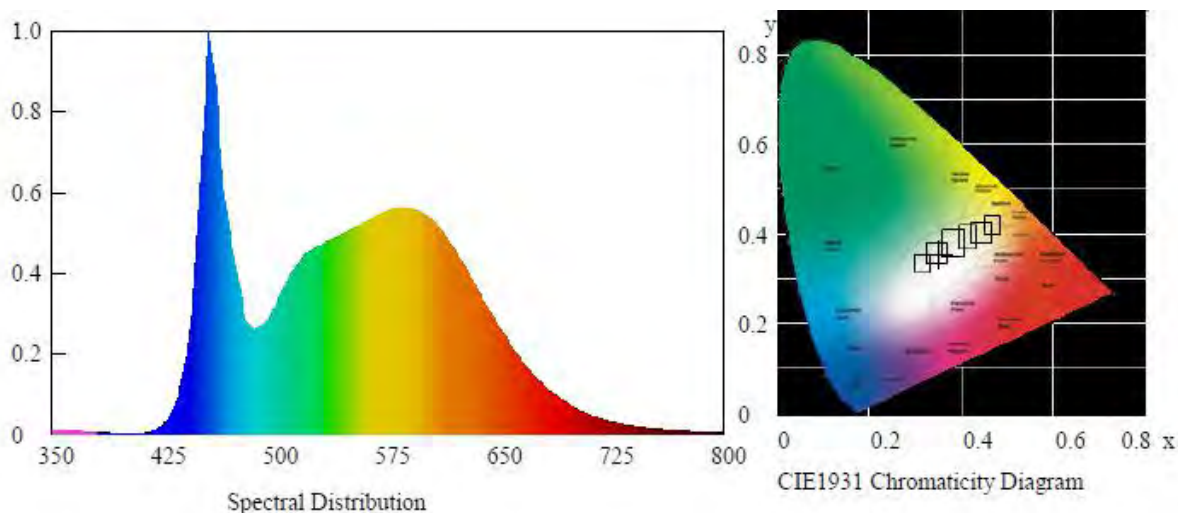
#### Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00227	0.3458	0.3567	0.2099	0.4872

#### Color Rendering

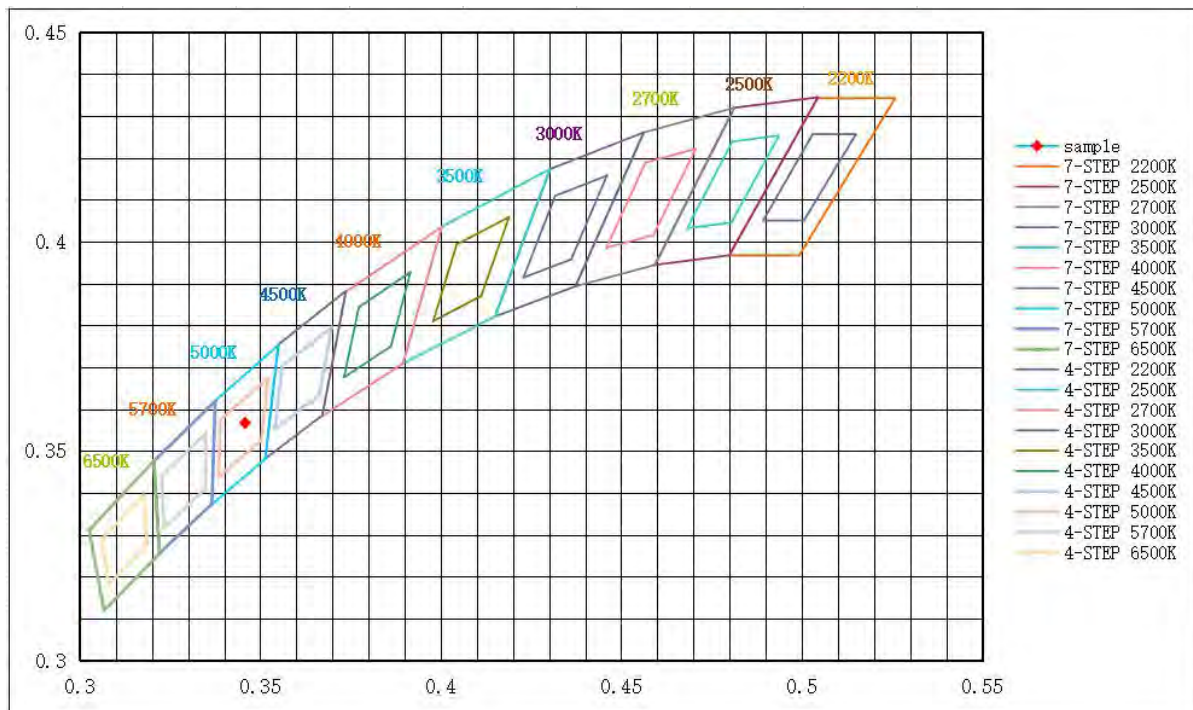
CRI	R9	Rf	Rg	Rcs,h1(%)
83.9	14	83	93	-12

#### Spectral Distribution





## 7/4 Step Quadrangle





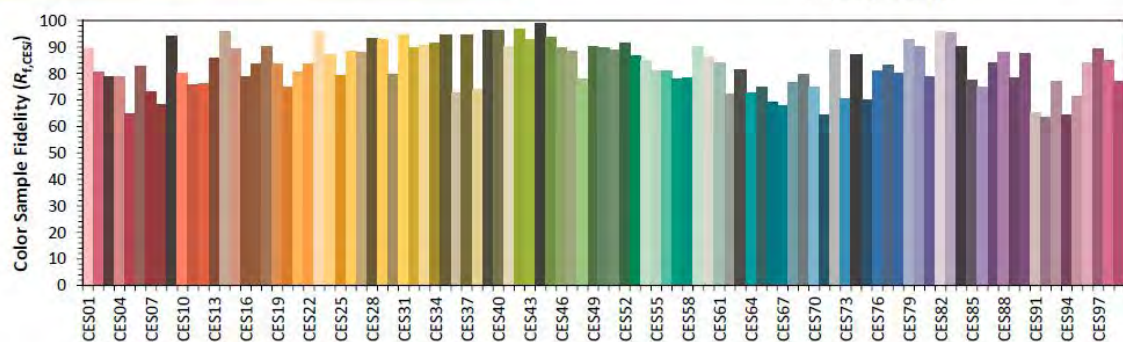
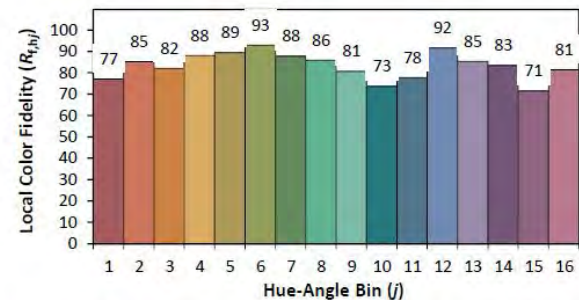
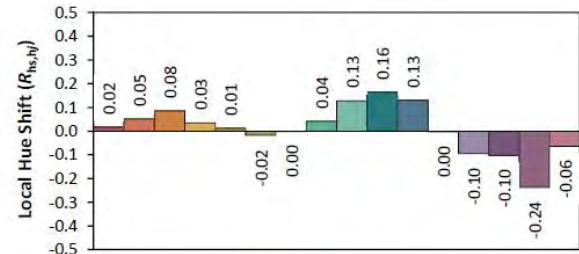
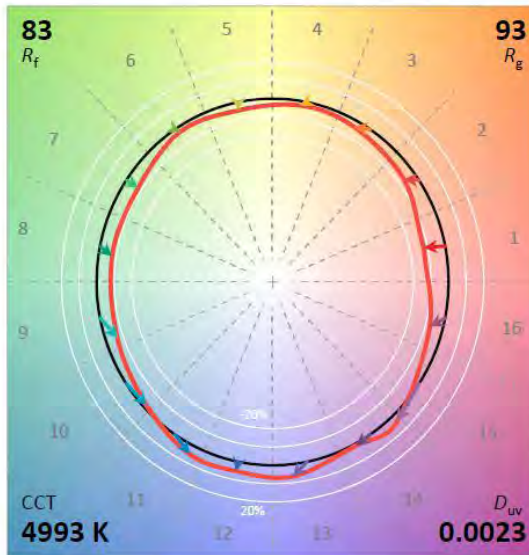
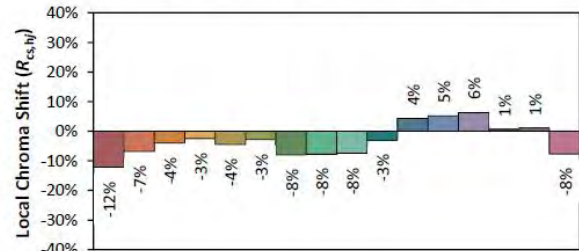
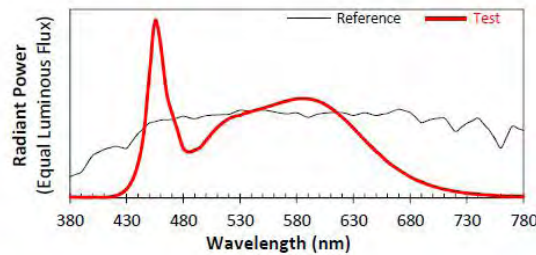
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126013-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-35W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850



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

$x$  0.3458  
 $y$  0.3567  
 $u'$  0.2099  
 $v'$  0.4872

CIE 13.3-1995  
(CRI)

$R_a$  84  
 $R_g$  14

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-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.17	60	0.110	13.11	0.996

**Photometric data**

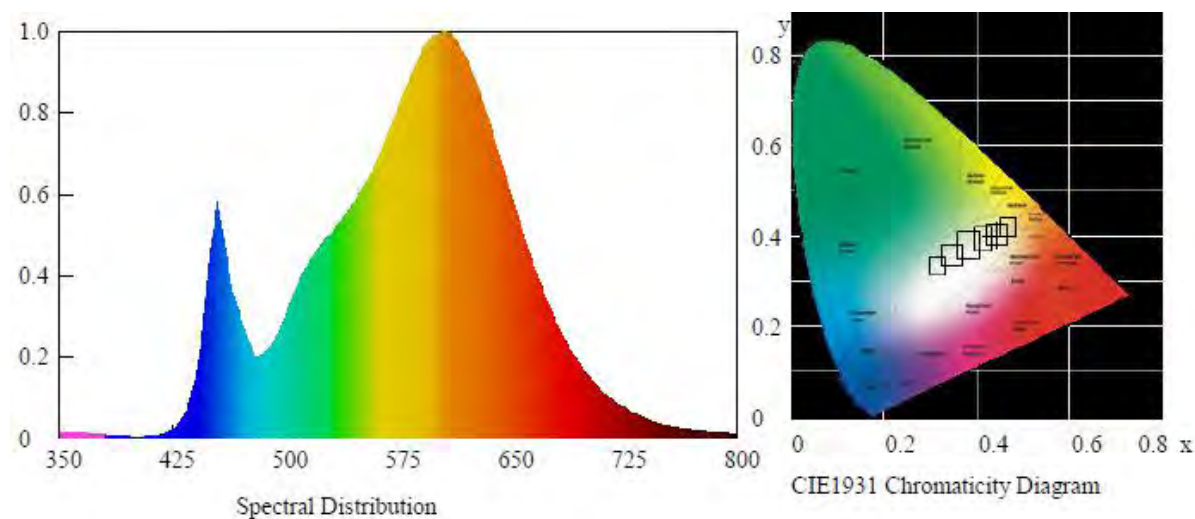
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1595.49	121.70	2992

**Chromaticity Coordinate**

Duv	x	y	u'	v'
-0.00021	0.4372	0.4036	0.2509	0.5212

**Color Rendering**

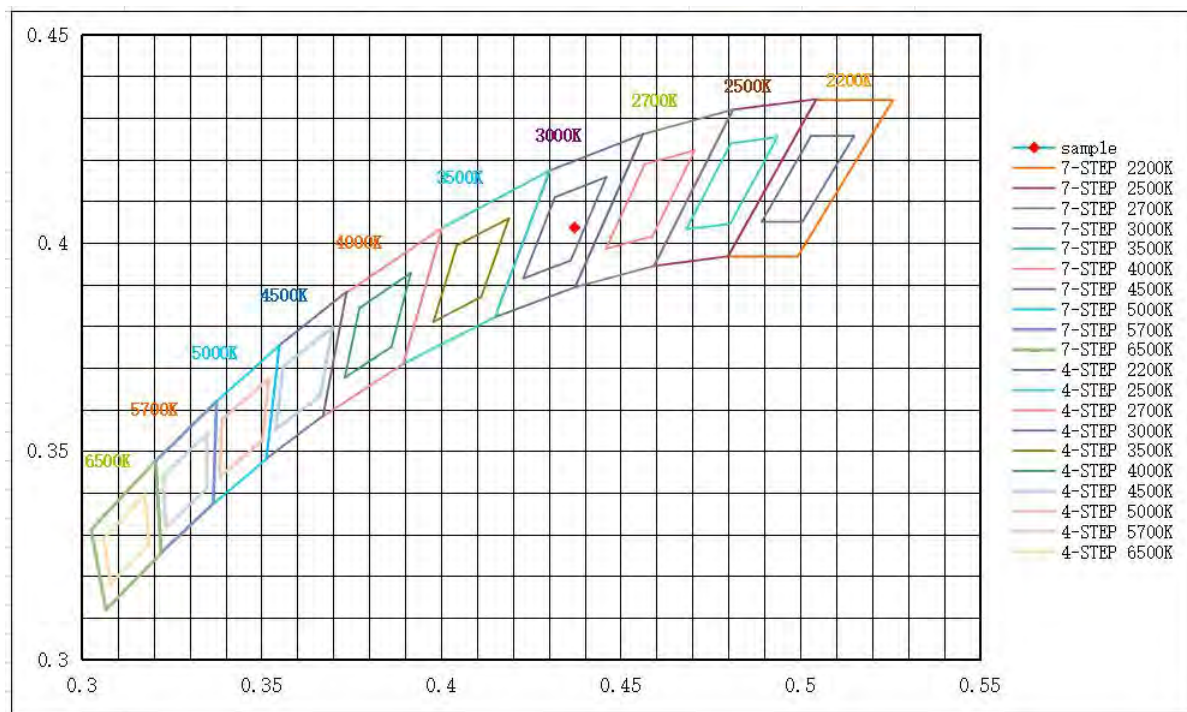
CRI	R9	Rf	Rg	Rcs,h1(%)
83.1	11	85	95	-11

**Spectral Distribution**





### 7/4 Step Quadrangle





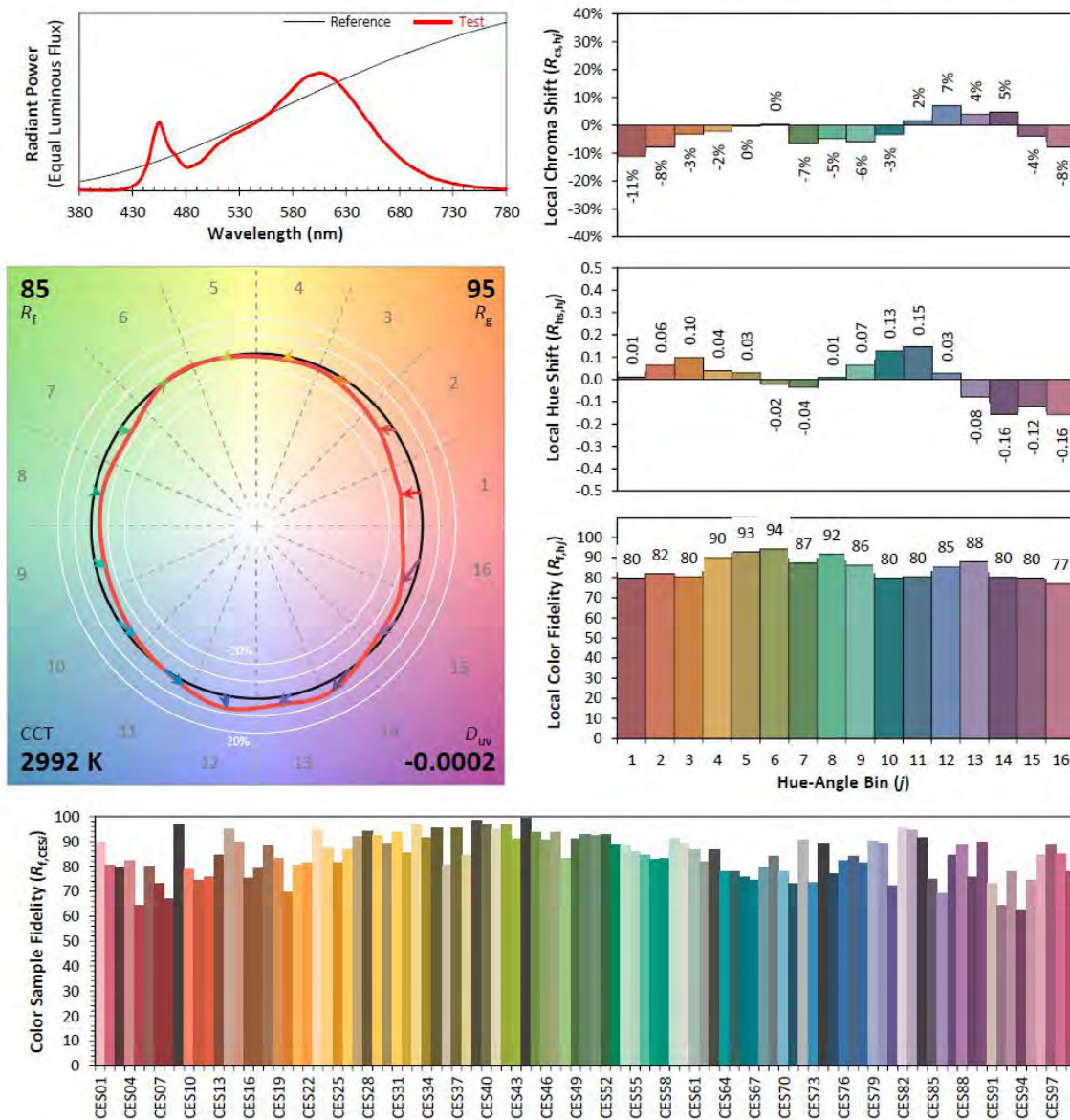
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126013-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-40W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830



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

$x$  0.4372  
 $y$  0.4036  
 $u'$  0.2509  
 $v'$  0.5212

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-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.16	60	0.110	13.11	0.996

**Photometric data**

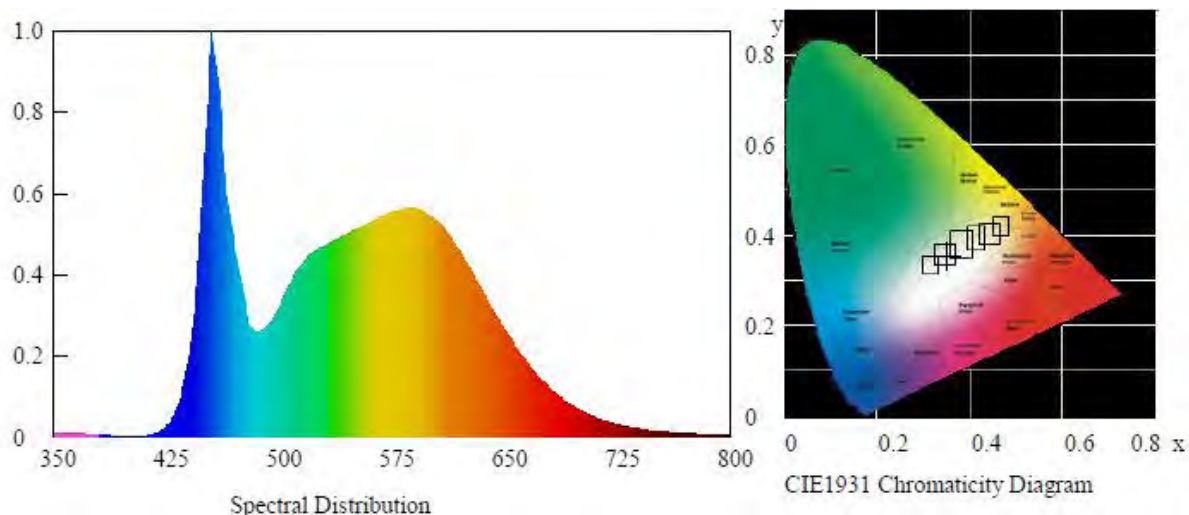
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1624.85	123.94	4990

**Chromaticity Coordinate**

Duv	x	y	u'	v'
+0.00221	0.3458	0.3566	0.2100	0.4872

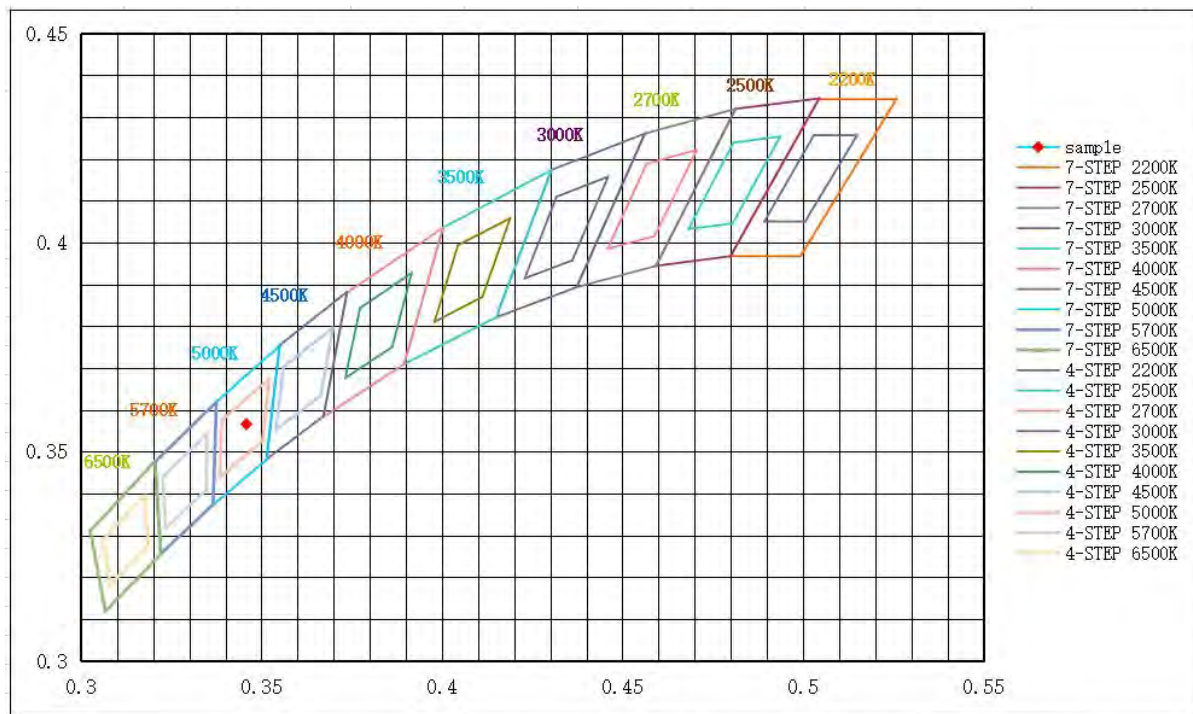
**Color Rendering**

CRI	R9	Rf	Rg	Rcs,h1(%)
84.0	14	83	93	-12

**Spectral Distribution**



## 7/4 Step Quadrangle





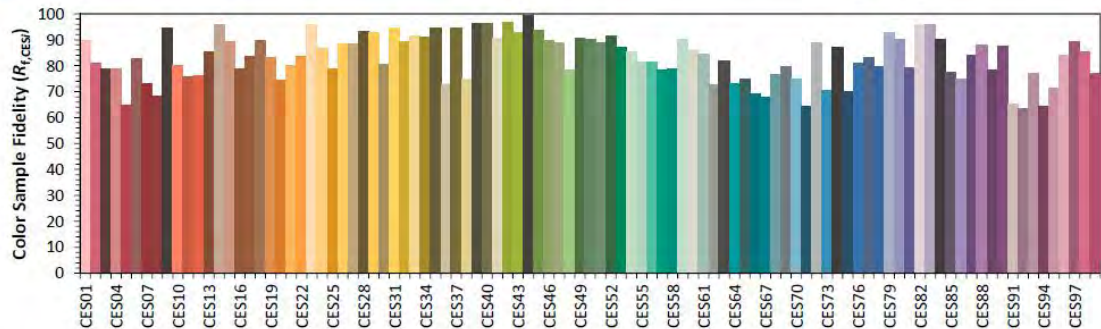
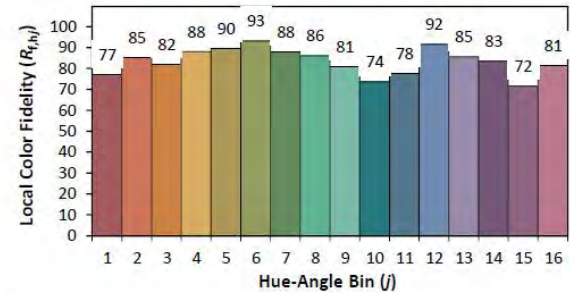
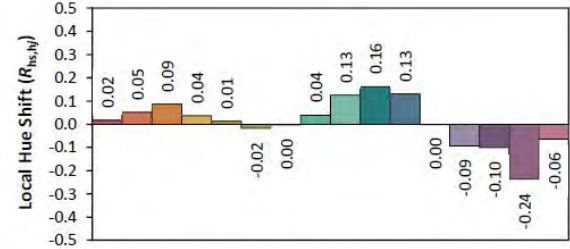
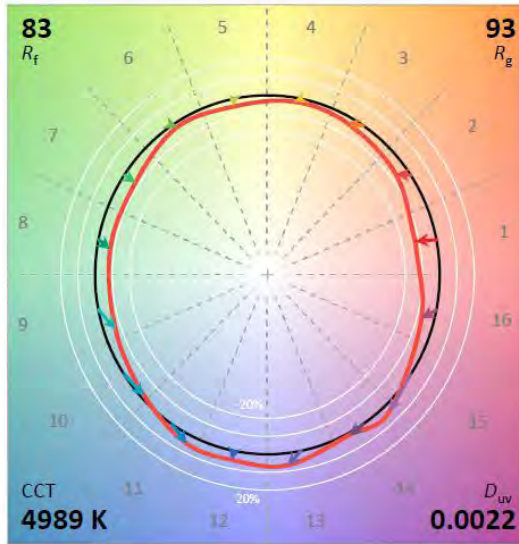
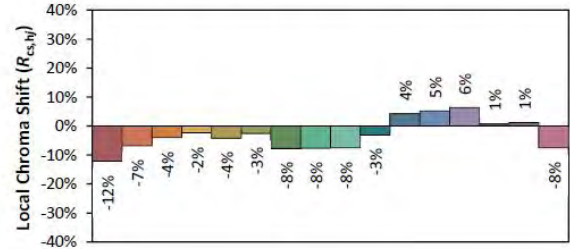
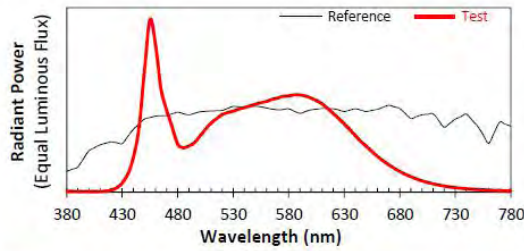
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126013-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-40W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850



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

$x$  0.3458  
 $y$  0.3566  
 $u'$  0.2100  
 $v'$  0.4872

CIE 13.3-1995  
(CRI)

$R_a$  84  
 $R_g$  14

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-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830(Bare lamp)****Electrical data**

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.14	60	0.119	14.29	0.996

**Photometric data**

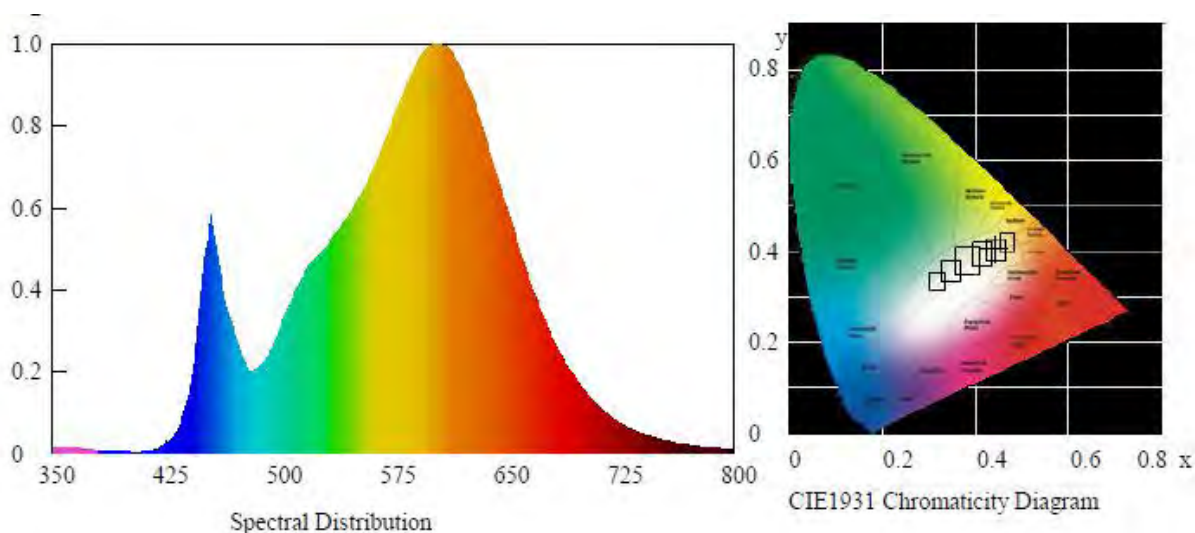
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1709.48	119.60	2991

**Chromaticity Coordinate**

Duv	x	y	u'	v'
-0.00018	0.4373	0.4038	0.2510	0.5213

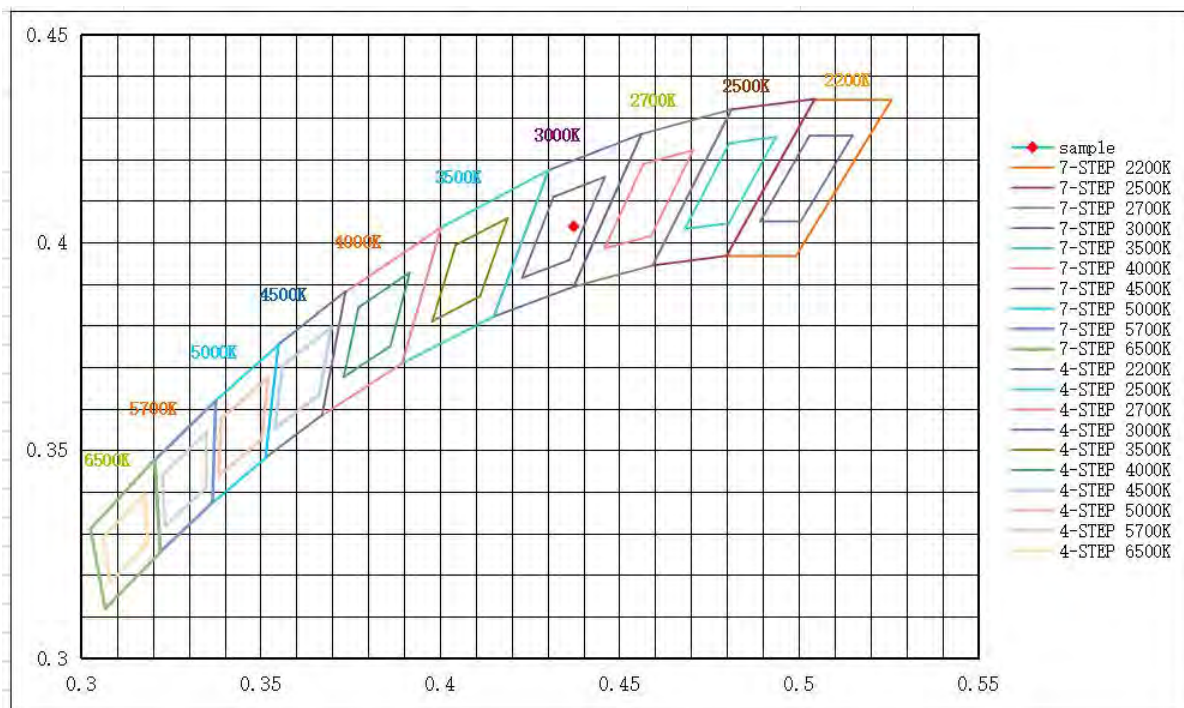
**Color Rendering**

CRI	R9	Rf	Rg	Rcs,h1(%)
83.1	11	85	95	-11

**Spectral Distribution**



### 7/4 Step Quadrangle







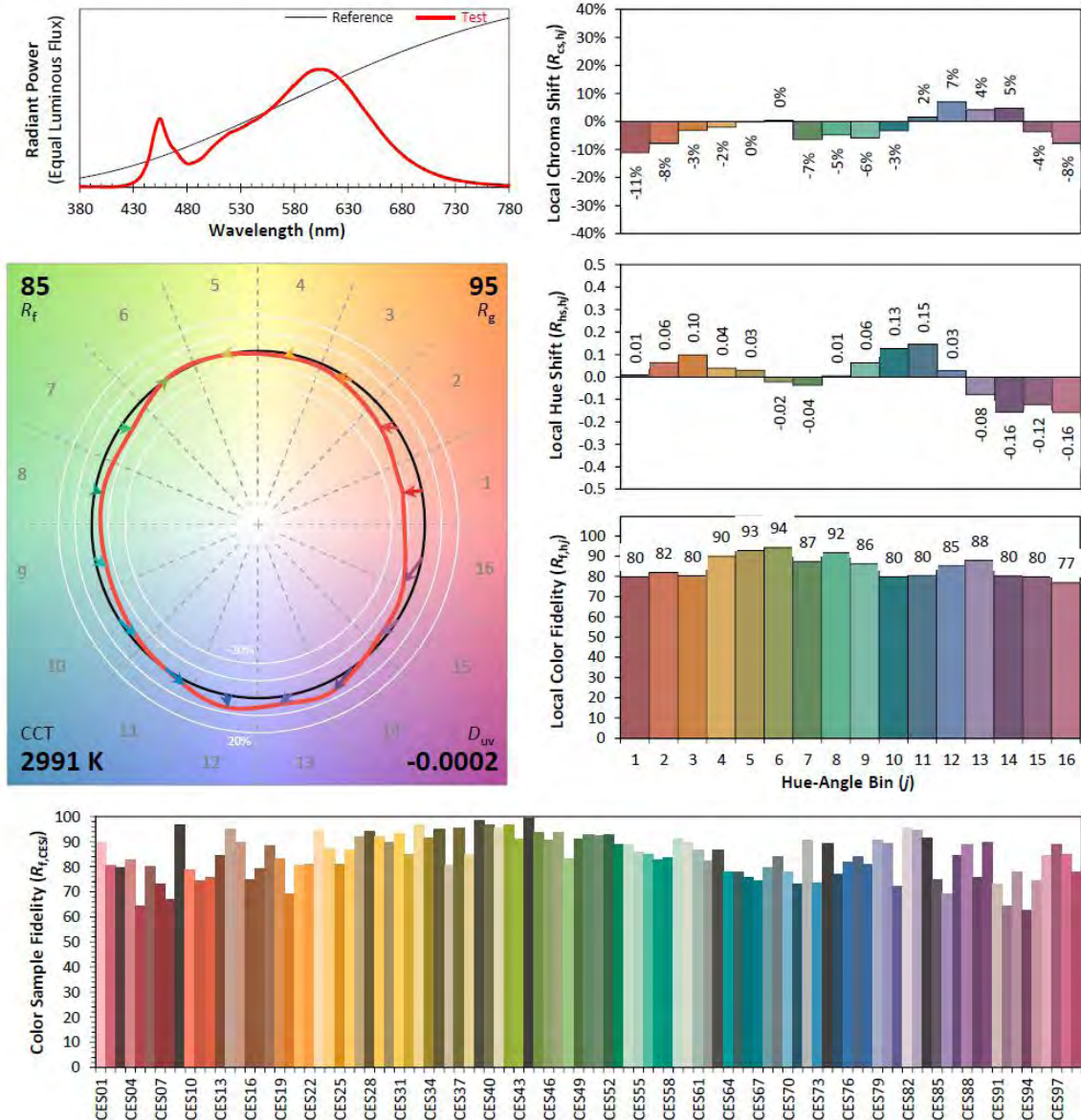
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126013-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-45W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830



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

$x$  0.4373  
 $y$  0.4037  
 $u'$  0.2510  
 $v'$  0.5213

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-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850(Bare lamp)

#### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.13	60	0.120	14.32	0.996

#### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1744.63	121.86	4963

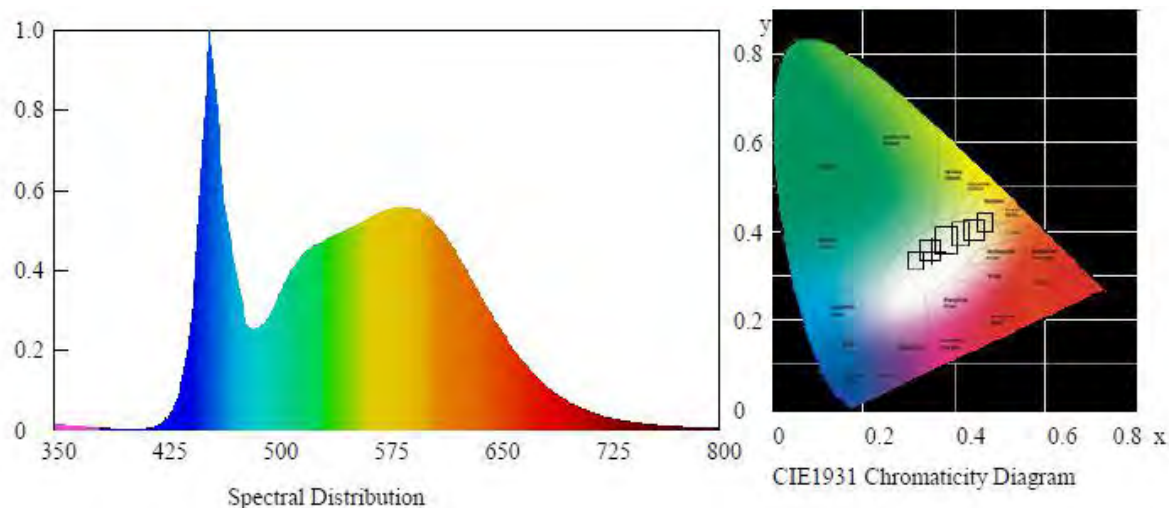
#### Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00243	0.3467	0.3578	0.2101	0.4879

#### Color Rendering

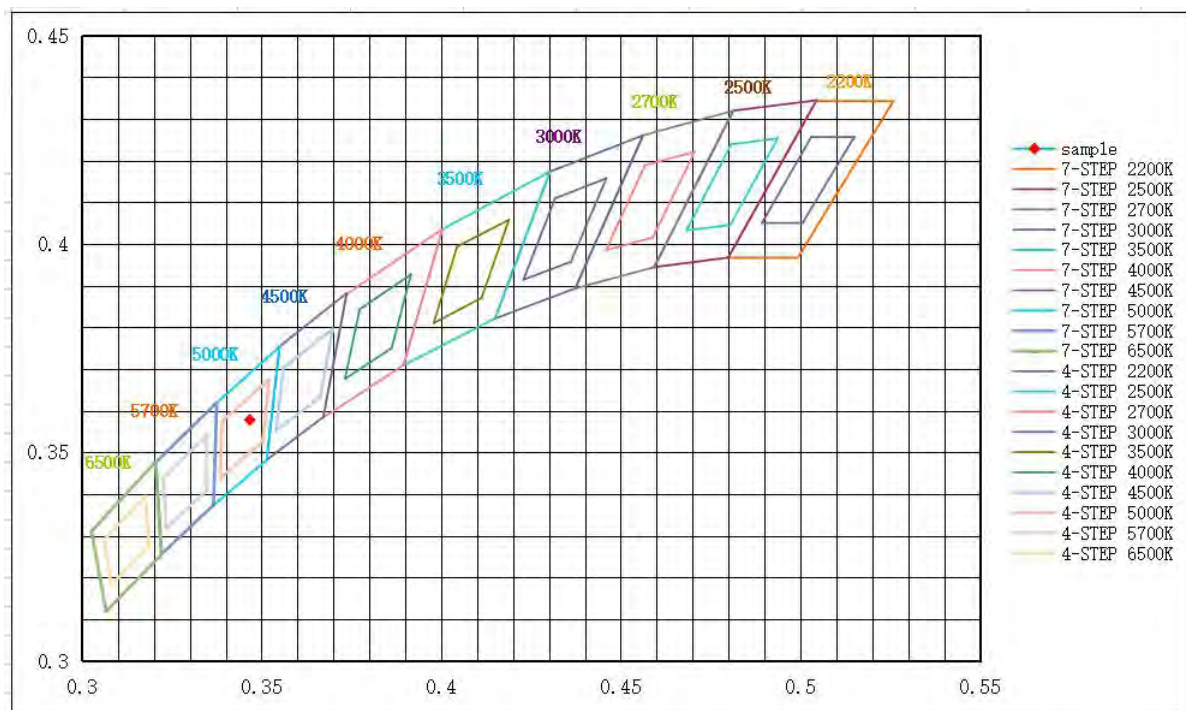
CRI	R9	Rf	Rg	Rcs,h1(%)
83.8	13	83	93	-12

#### Spectral Distribution





## 7/4 Step Quadrangle





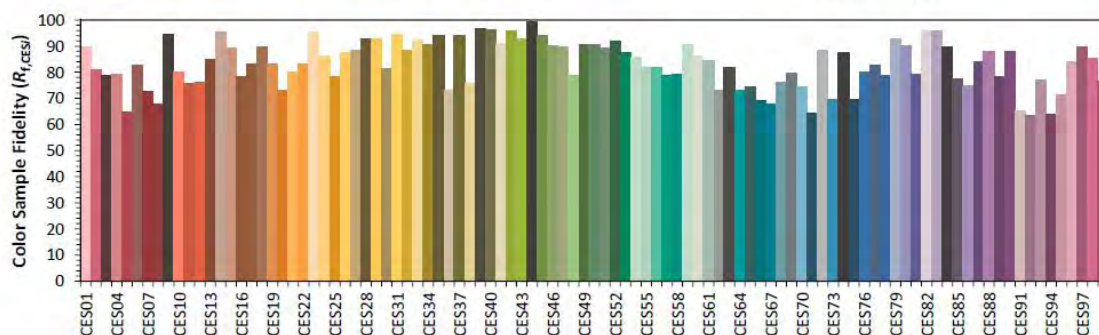
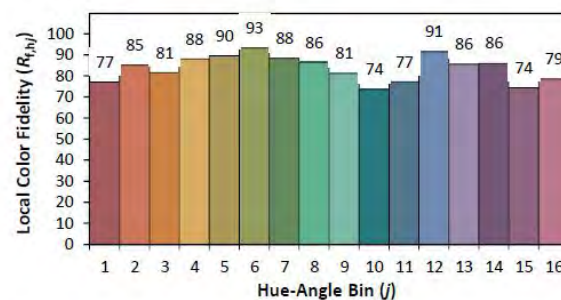
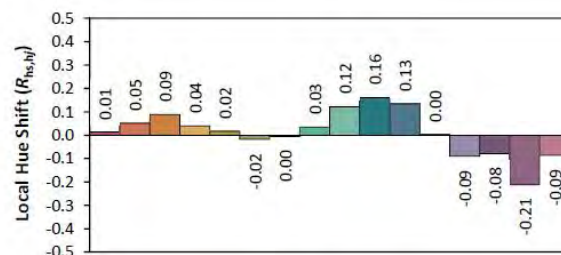
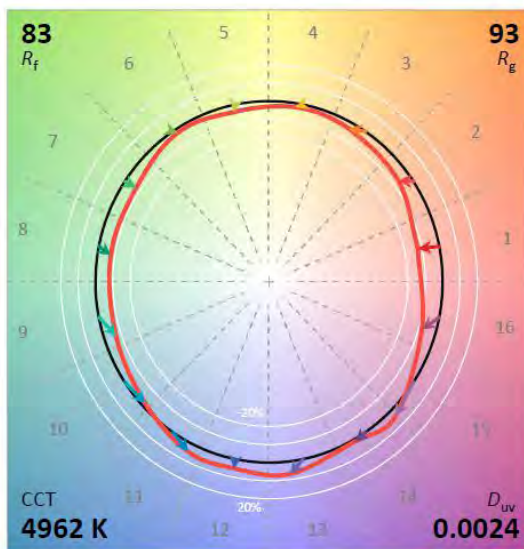
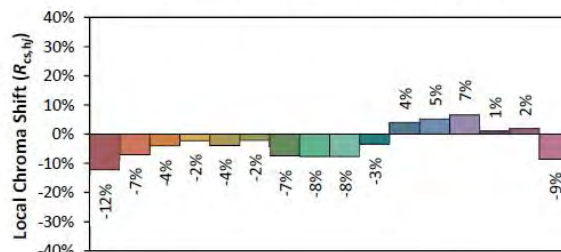
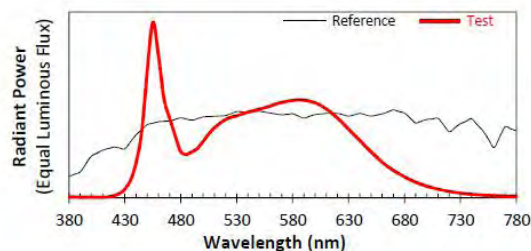
## ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126013-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-45W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850



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

$x$  0.3467  
 $y$  0.3578  
 $u'$  0.2101  
 $v'$  0.4879

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-G2-45W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830(Bare lamp)

##### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.980	60	0.119	14.230	0.996

##### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	Beam Angle(° )
1695.87	119.18	188.4



**Zonal Flux Diagram**

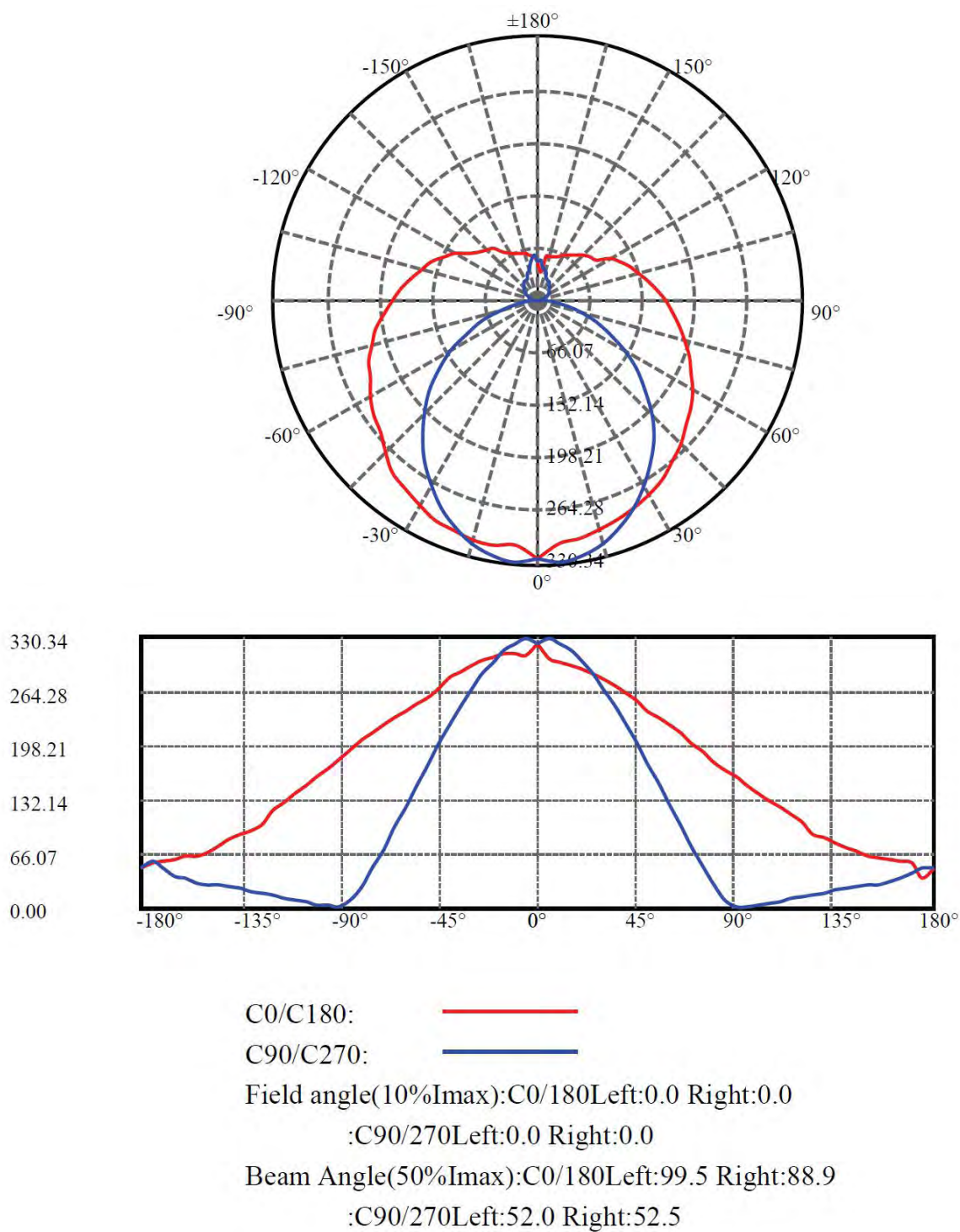
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	322.302	0.000	0	0.00%	0.00%
5.0	322.190	7.705	7.705	0.00%	0.45%
10.0	318.827	22.931	30.636	0.00%	1.81%
15.0	313.031	37.481	68.117	0.00%	4.02%
20.0	304.697	50.909	119.027	0.00%	7.02%
25.0	294.351	62.829	181.856	0.00%	10.72%
30.0	281.904	72.926	254.781	0.00%	15.02%
35.0	268.179	81.003	335.785	0.00%	19.80%
40.0	253.059	86.965	422.749	0.00%	24.93%
45.0	236.406	90.628	513.378	0.00%	30.27%
50.0	219.438	92.110	605.488	0.00%	35.70%
55.0	203.026	91.858	697.346	0.00%	41.12%
60.0	187.125	90.182	787.528	0.00%	46.44%
65.0	171.478	87.177	874.705	0.00%	51.58%
70.0	156.238	82.980	957.685	0.00%	56.47%
75.0	141.733	77.885	1035.57	0.00%	61.06%
80.0	128.729	72.368	1107.937	0.00%	65.33%
85.0	117.047	66.783	1174.721	0.00%	69.27%
90.0	107.422	61.461	1236.182	0.00%	72.89%
95.0	99.689	56.708	1292.89	0.00%	76.24%
100.0	93.007	52.360	1345.25	0.00%	79.33%
105.0	87.421	48.277	1393.528	0.00%	82.17%
110.0	82.165	44.327	1437.855	0.00%	84.79%
115.0	76.385	40.146	1478.001	0.00%	87.15%
120.0	70.363	35.675	1513.676	0.00%	89.26%
125.0	63.396	30.918	1544.594	0.00%	91.08%
130.0	61.069	27.063	1571.656	0.00%	92.68%
135.0	59.477	24.358	1596.014	0.00%	94.11%
140.0	57.420	21.644	1617.659	0.00%	95.39%
145.0	55.348	18.814	1636.473	0.00%	96.50%
150.0	53.846	16.080	1652.553	0.00%	97.45%
155.0	52.705	13.484	1666.037	0.00%	98.24%
160.0	51.789	10.959	1676.996	0.00%	98.89%
165.0	49.912	8.382	1685.378	0.00%	99.38%
170.0	48.426	5.833	1691.211	0.00%	99.73%
175.0	49.116	3.489	1694.7	0.00%	99.93%
180.0	48.545	1.168	1695.868	0.00%	100.00%



## Luminous Intensity Distribution Diagram

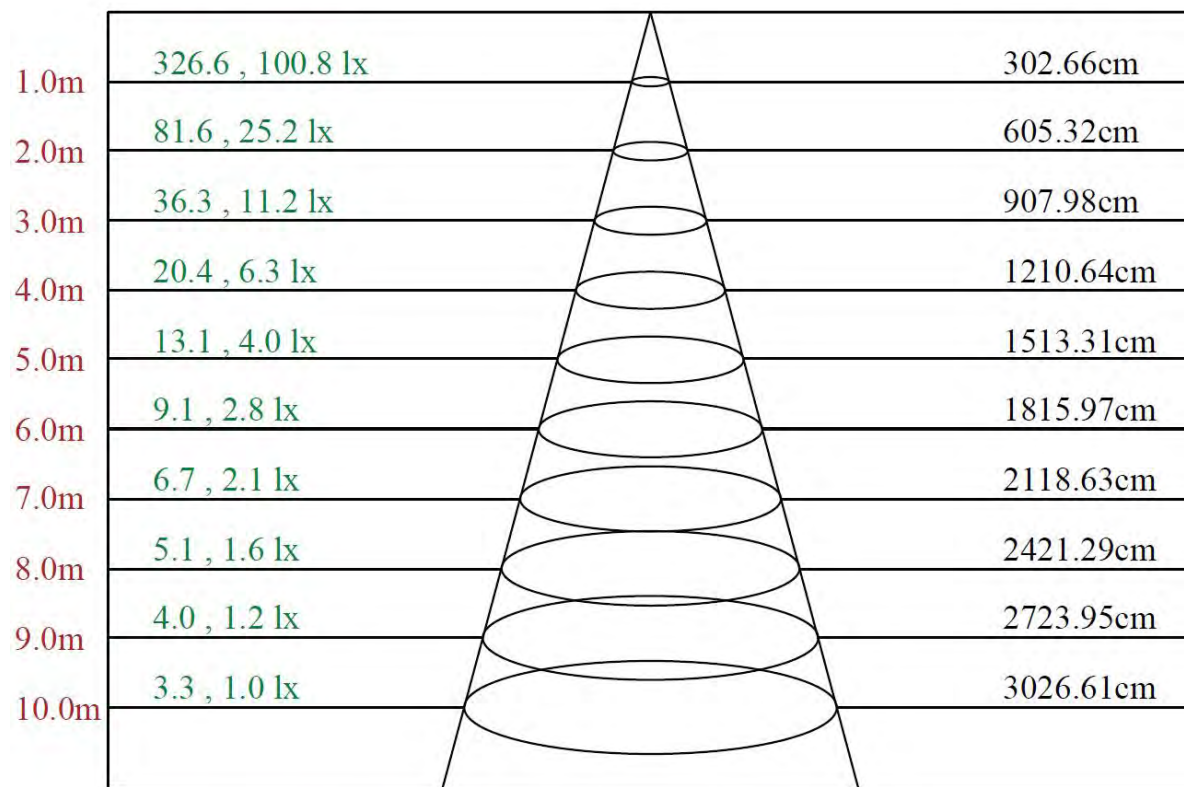
Light Distribution Curve [Unit:cd]







## Lux distance Curve



Max , Ave

Beam angle of C112.5 plane 113.09

**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	322.30	303.92	300.55	295.75	290.46	285.66	278.45	271.24	262.11
22.5	322.30	316.41	312.09	305.60	298.63	288.78	278.45	268.12	256.59
45.0	322.30	323.86	317.85	309.68	299.83	287.34	273.41	258.03	242.65
67.5	322.30	322.90	315.93	305.12	291.42	275.57	257.07	236.65	215.75
90.0	322.30	327.94	322.18	313.05	300.79	285.42	267.16	246.74	225.36
112.5	322.30	330.34	325.30	317.37	306.56	292.14	275.33	257.31	237.37
135.0	322.30	328.90	326.26	321.21	313.29	303.68	292.14	278.69	263.80
157.5	322.30	318.81	316.89	314.01	310.64	305.84	297.19	289.74	279.65
180.0	322.30	307.28	310.16	308.96	305.60	301.27	295.03	287.58	280.61
202.5	322.30	318.33	319.53	319.77	315.93	311.60	306.32	298.15	288.30
225.0	322.30	327.94	326.26	322.66	315.93	307.52	296.23	284.22	270.04
247.5	322.30	327.94	325.54	320.01	311.12	298.87	283.98	267.64	248.66
270.0	322.30	328.18	322.18	313.05	300.55	284.70	265.96	245.06	223.43
292.5	322.30	330.10	324.82	315.93	303.68	289.02	272.20	253.70	232.32
315.0	322.30	326.98	322.90	316.65	307.76	297.43	285.66	272.20	257.31
337.5	322.30	315.21	312.81	309.68	302.96	294.79	285.90	275.81	265.00
360.0	322.30	303.92	300.55	295.75	290.46	285.66	278.45	271.24	262.11
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	251.78	240.97	232.56	222.95	212.38	201.09	190.28	178.99	168.42
22.5	244.09	232.80	222.95	211.90	200.61	189.80	178.51	169.14	159.53
45.0	226.32	210.46	195.08	180.67	166.25	152.80	140.55	129.74	121.57
67.5	194.60	172.74	152.08	131.66	112.68	93.94	78.08	65.35	57.18
90.0	201.33	176.82	151.60	126.61	100.67	75.92	51.89	29.79	11.05
112.5	216.71	195.56	174.90	154.48	133.58	111.96	93.70	79.28	68.47
135.0	248.66	231.84	213.10	197.49	184.27	171.78	160.49	149.68	138.87
157.5	266.68	252.02	241.45	231.36	222.71	214.06	203.25	194.12	181.87
180.0	267.16	256.35	248.42	239.77	230.88	224.15	214.30	204.93	192.20
202.5	275.09	262.83	251.78	242.17	231.60	222.47	210.94	200.37	188.12
225.0	256.11	241.45	222.71	207.82	193.64	179.47	167.94	157.12	145.11
247.5	228.96	208.06	186.91	164.33	142.71	121.57	102.83	87.69	75.44
270.0	199.17	174.42	148.47	123.25	97.78	72.80	48.29	25.95	9.37
292.5	211.90	190.04	167.94	146.55	128.05	108.59	91.54	76.64	65.11
315.0	240.01	223.67	208.54	192.92	177.55	163.61	149.92	137.66	127.09
337.5	253.94	240.97	229.92	220.07	208.30	195.80	185.23	173.22	163.37
360.0	251.78	240.97	232.56	222.95	212.38	201.09	190.28	178.99	168.42
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	159.05	148.96	139.83	131.18	122.77	114.12	103.79	89.85	85.29
22.5	149.92	139.59	130.46	121.57	113.64	105.71	90.09	84.33	79.76
45.0	112.20	103.79	96.58	90.57	82.89	71.84	67.03	64.87	62.95
67.5	50.45	45.65	42.77	41.32	41.08	41.08	37.72	37.72	39.64
90.0	2.16	2.88	4.32	6.73	9.13	12.25	14.66	17.30	19.46
112.5	59.82	53.34	49.49	45.89	44.45	42.77	40.60	35.80	38.44
135.0	128.05	119.16	111.48	104.03	94.42	82.65	74.00	70.15	67.27
157.5	170.10	160.73	150.40	141.51	132.38	120.61	111.96	94.66	90.09
180.0	181.39	171.06	160.01	149.92	140.07	128.77	118.68	101.63	93.94
202.5	175.86	164.81	154.24	144.39	134.54	123.97	114.60	96.10	90.33
225.0	133.58	123.25	114.12	106.43	98.50	90.81	85.29	74.48	69.43
247.5	65.35	56.70	51.41	47.81	45.41	44.69	42.77	39.64	38.44
270.0	2.40	3.36	5.05	7.69	10.57	13.21	16.10	18.98	21.14
292.5	56.70	49.73	44.69	43.01	42.28	42.28	42.28	41.08	39.64
315.0	117.72	107.87	99.70	92.50	86.25	79.76	73.04	64.15	61.74
337.5	154.00	144.15	133.58	124.21	116.28	107.63	93.22	83.61	79.52
360.0	159.05	148.96	139.83	131.18	122.77	114.12	103.79	89.85	85.29





$C/\gamma(^{\circ})$	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	79.04	74.48	69.91	64.63	61.02	58.86	56.46	55.74	36.52
22.5	76.16	73.04	70.39	67.27	64.63	57.18	47.57	34.12	43.73
45.0	61.02	58.38	57.66	55.74	50.69	47.09	42.77	43.25	52.62
67.5	42.04	44.21	43.73	41.32	42.04	43.97	43.73	47.81	55.50
90.0	22.10	24.51	26.19	27.87	28.83	31.95	36.76	42.28	49.97
112.5	40.36	42.28	43.97	43.01	41.08	42.52	41.80	44.45	48.53
135.0	63.91	59.82	57.42	58.86	55.50	49.25	46.13	43.01	44.93
157.5	85.29	80.48	75.44	71.11	69.19	64.63	55.50	43.97	32.19
180.0	89.37	83.85	75.68	67.75	64.15	63.43	60.30	57.42	55.74
202.5	86.97	79.76	71.84	63.19	63.43	60.78	57.66	56.46	57.42
225.0	65.35	58.62	53.82	58.86	57.42	55.74	55.26	56.46	49.97
247.5	40.60	41.80	44.21	47.09	49.73	52.13	53.34	49.25	50.45
270.0	24.03	25.95	27.87	29.31	30.75	36.04	39.64	48.29	56.94
292.5	40.60	43.49	45.89	48.77	50.69	52.13	50.21	48.77	55.02
315.0	59.82	56.94	55.26	55.50	55.26	55.74	55.50	48.05	52.37
337.5	74.96	71.11	66.31	61.26	58.86	57.18	55.98	55.50	43.97
360.0	79.04	74.48	69.91	64.63	61.02	58.86	56.46	55.74	36.52
$C/\gamma(^{\circ})$	180.0								
0.0	48.55								
22.5	48.55								
45.0	48.55								
67.5	48.55								
90.0	48.55								
112.5	48.55								
135.0	48.55								
157.5	48.55								
180.0	48.55								
202.5	48.55								
225.0	48.55								
247.5	48.55								
270.0	48.55								
292.5	48.55								
315.0	48.55								
337.5	48.55								
360.0	48.55								



## 4 Additional Test

### Electrical data at 277V

Model Number	Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
RP-T8C-G2-45W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830	Power Factor	277	60	0.971
	THD	277	60	6.2%

## 5 Performance Assessment

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-30W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830	3000	1285.40	10.23	125.65
RP-T8C-G2-30W-4FT-3L-835-[OCN, Blank]-10V/RP-T8C-G2-4FT-835	3500	1291.05 * <sup>1</sup>	10.23 * <sup>2</sup>	126.20 * <sup>3</sup>
RP-T8C-G2-30W-4FT-3L-840-[OCN, Blank]-10V/RP-T8C-G2-4FT-840	4000	1296.71 * <sup>1</sup>	10.23 * <sup>2</sup>	126.76 * <sup>3</sup>
RP-T8C-G2-30W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850	5000	1308.01	10.23	127.86

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

$$1291.05 = (1308.01 - 1285.40) / 4 + 1285.40$$

$$1296.71 = (1308.01 - 1285.40) / 4 + 1291.05$$

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

$$10.23 = (10.23 + 10.23) / 2$$

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

$$126.20 = 1291.05 / 10.23$$

$$126.76 = 1296.71 / 10.23$$





Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-35W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830	3000	1448.23	11.71	123.71
RP-T8C-G2-35W-4FT-3L-835-[OCN, Blank]-10V/RP-T8C-G2-4FT-835	3500	1454.22 <sup>*1</sup>	11.70 <sup>*2</sup>	124.29 <sup>*3</sup>
RP-T8C-G2-35W-4FT-3L-840-[OCN, Blank]-10V/RP-T8C-G2-4FT-840	4000	1460.21 <sup>*1</sup>	11.70 <sup>*2</sup>	124.80 <sup>*3</sup>
RP-T8C-G2-35W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850	5000	1472.19	11.69	125.90

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

$$1454.22=(1472.19-1448.23)/4+1448.23$$

$$1460.21=(1472.19-1448.23)/4+1454.22$$

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

$$11.70=(11.71+11.69)/2$$

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

$$124.29=1454.22/11.70$$

$$124.80=1460.21/11.70$$

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-40W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830	3000	1595.49	13.11	121.70
RP-T8C-G2-40W-4FT-3L-835-[OCN, Blank]-10V/RP-T8C-G2-4FT-835	3500	1602.83 <sup>*1</sup>	13.11 <sup>*2</sup>	122.26 <sup>*3</sup>
RP-T8C-G2-40W-4FT-3L-840-[OCN, Blank]-10V/RP-T8C-G2-4FT-840	4000	1610.17 <sup>*1</sup>	13.11 <sup>*2</sup>	122.82 <sup>*3</sup>
RP-T8C-G2-40W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850	5000	1624.85	13.11	123.94

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

$$1602.83=(1624.85-1595.49)/4+1595.49$$

$$1610.17=(1624.85-1595.49)/4+1602.83$$

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

$$13.11=(13.11+13.11)/2$$

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

$$122.26=1602.83/13.11$$

$$122.82=1610.17/13.11$$



Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-45W-4FT-3L-830-[OCN, Blank]-10V/RP-T8C-G2-4FT-830	3000	1709.48	14.29	119.60
RP-T8C-G2-45W-4FT-3L-835-[OCN, Blank]-10V/RP-T8C-G2-4FT-835	3500	1718.27 <sup>*1</sup>	14.31 <sup>*2</sup>	120.12 <sup>*3</sup>
RP-T8C-G2-45W-4FT-3L-840-[OCN, Blank]-10V/RP-T8C-G2-4FT-840	4000	1727.06 <sup>*1</sup>	14.31 <sup>*2</sup>	120.73 <sup>*3</sup>
RP-T8C-G2-45W-4FT-3L-850-[OCN, Blank]-10V/RP-T8C-G2-4FT-850	5000	1744.63	14.32	121.86

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

$$1718.27 = (1744.63 - 1709.48) / 4 + 1709.48$$

$$1727.06 = (1744.63 - 1709.48) / 4 + 1718.27$$

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

$$14.31 = (14.29 + 14.32) / 2$$

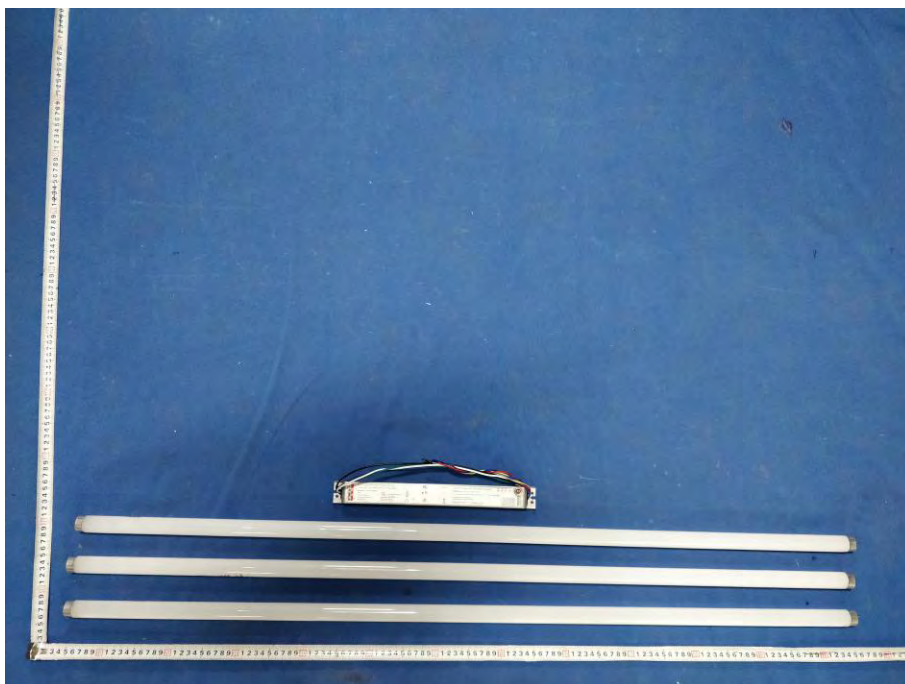
\*3: This value is calculated and the calculation formula is as below:

$$120.12 = 1718.27 / 14.31$$

$$120.73 = 1727.06 / 14.31$$



## **Photo Document**



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