



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

Product Model No.:

RP-T8C-G2-15W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-15W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850,
RP-T8C-G2-18W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-18W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850,
RP-T8C-G2-20W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-20W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850,
RP-T8C-G2-25W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830,
RP-T8C-G2-25W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850

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

Complied by: Jarvis zhang

Review by: Jason zhou

Project Engineer

Technical Manager

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



1 General

1.1 Product Information

Manufacturer	LIGHT EFFICIENT DESIGN
Manufacturer Address	188 S. Northwest Highway Cary, IL 60013 USA
Brand Name	REMPHOS OR LIGHT EFFICIENT DESIGN
Luminaire Type	4'T8 Lamps -- 1-Lamp External Driver (UL Type C) Lamps
Test Model Number	RP-T8C-G2-15W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-15W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850, RP-T8C-G2-18W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-18W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850, RP-T8C-G2-20W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-20W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850, RP-T8C-G2-25W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830, RP-T8C-G2-25W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850
Rated Inputs	AC 100-277V 50/60Hz
Field-Adjustable Product	Yes, Wattage setting: 15W, 18W, 20W, 25W
Nominal CCT	3000K, 5000K
Dimming Capability	Continuous
Integral Control Sensors	Optional
Date of Receipt Samples	2020-12-21
Date of test	2020-12-23 to 2021-01-22
Burning Time Before Test	0hour(For New Products)

1.2 Standards or methods

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



1.3 Equipment list

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

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



2 Test conducted and method

2.1 Ambient Condition

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

2.2 Power Supply Characteristics

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

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

2.3 Seasoning and Stabilization

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

2.4 Integrating Sphere System

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

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



2.5 Goniophotometer System

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

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

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



3 Test Result Summary

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

3.1.1 Model Number: RP-T8C-G2-15W-4FT-1L-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	0.122	14.51	0.994

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1803.24	124.28	2993

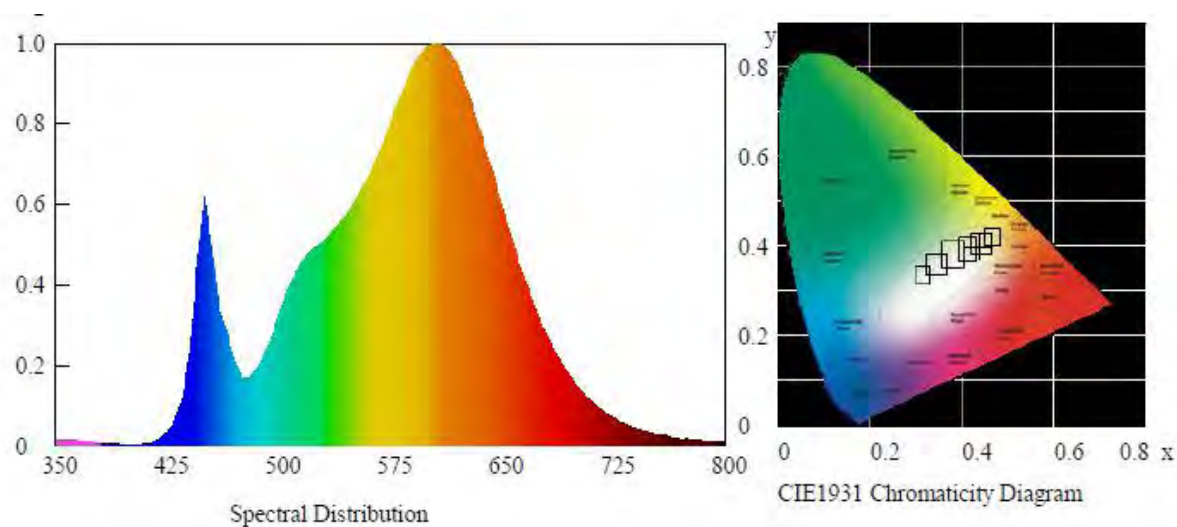
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00122	0.4357	0.4006	0.2513	0.5198

Color Rendering

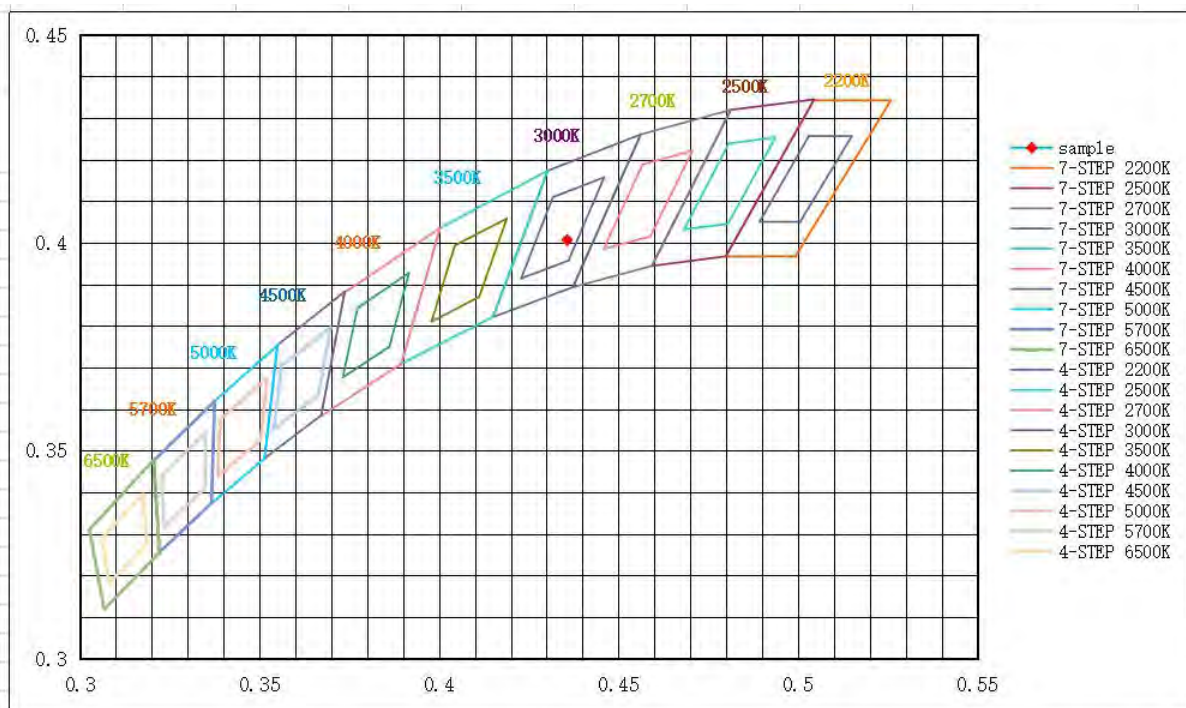
CRI	R9	Rf	Rg	Rcs,h1(%)
84.4	14	86	98	-10

Spectral Distribution





7/4 Step Quadrangle





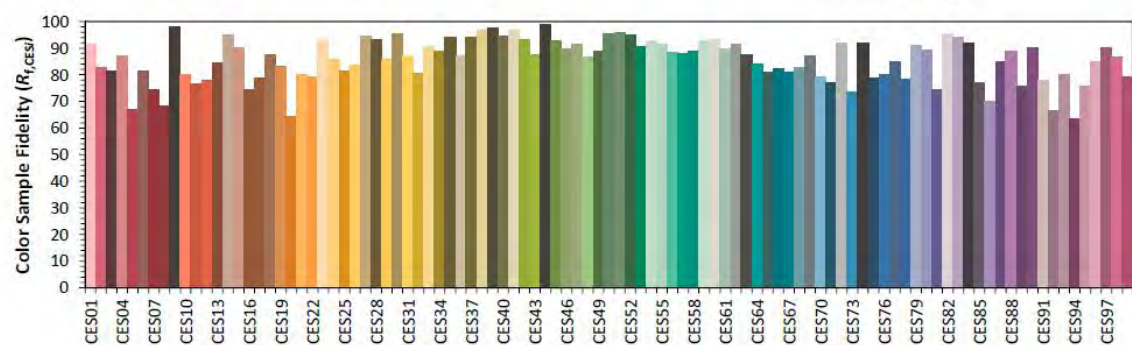
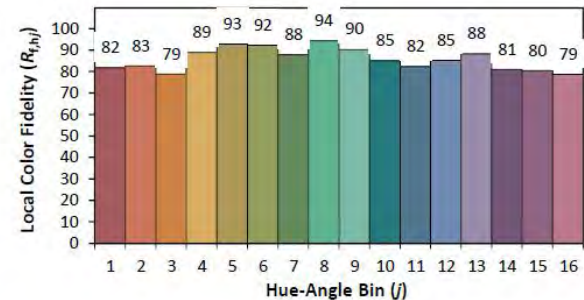
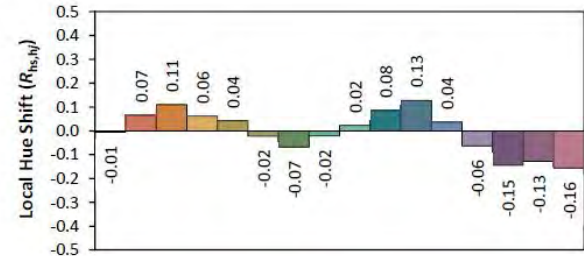
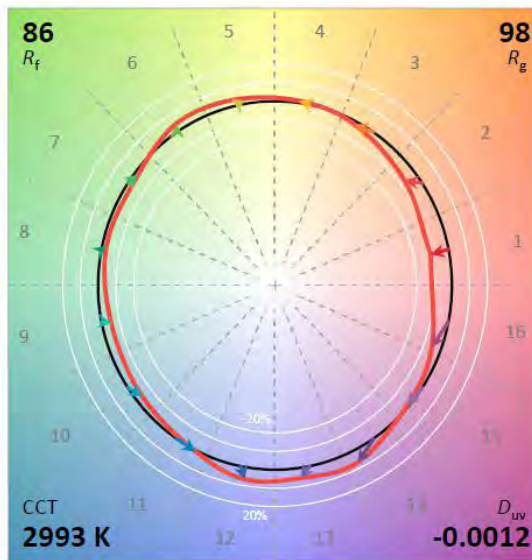
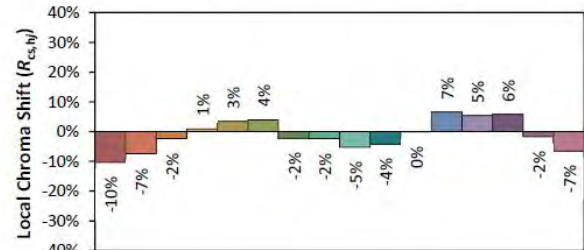
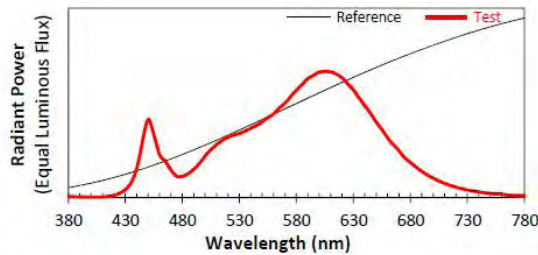
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126008-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-15W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830



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

x 0.4357
 y 0.4006
 u' 0.2513
 v' 0.5198

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.



3.1.2 Model Number: RP-T8C-G2-15W-4FT-1L-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
120.14	60	0.122	14.53	0.994

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
1832.32	126.11	5004

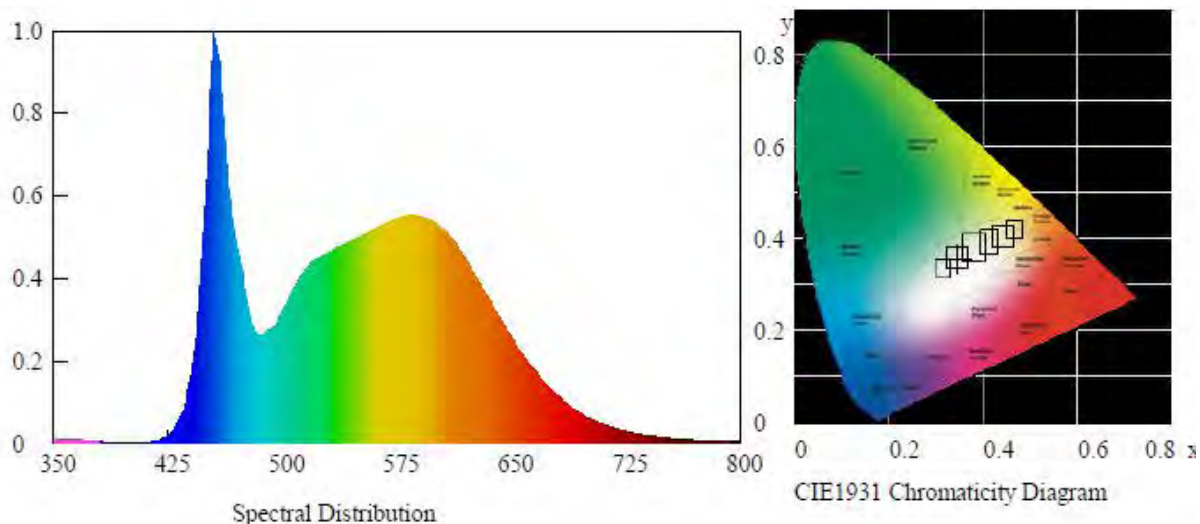
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00257	0.3455	0.3571	0.2096	0.4874

Color Rendering

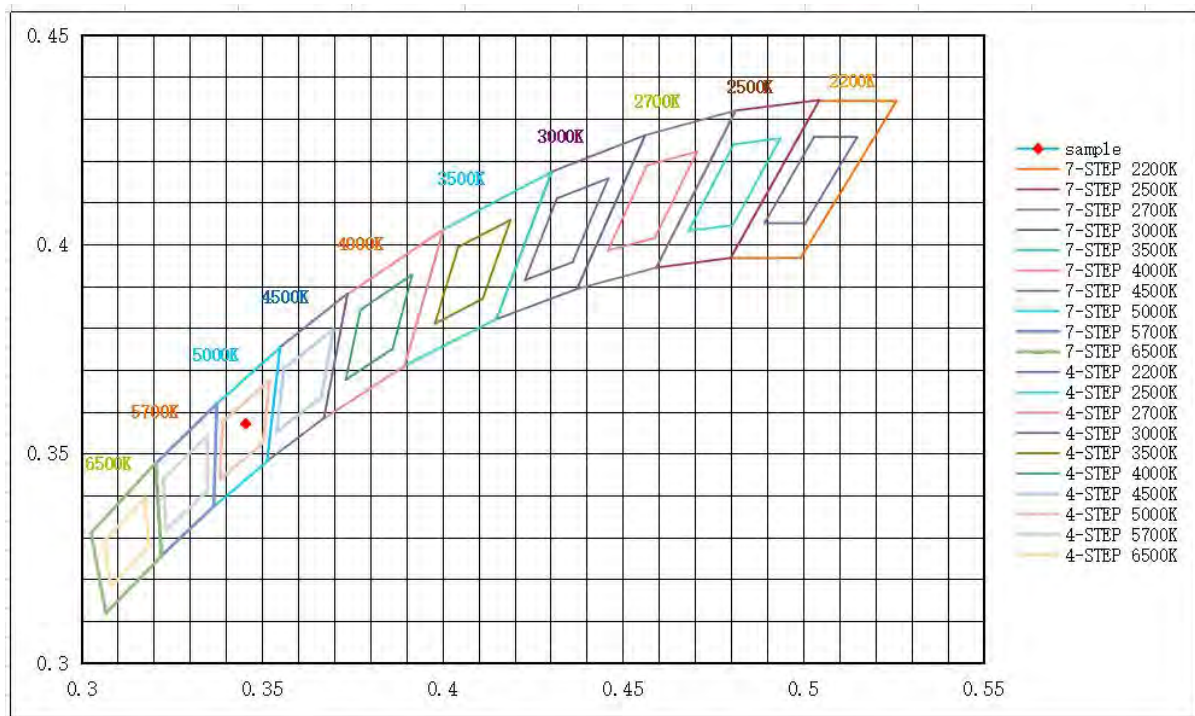
CRI	R9	Rf	Rg	Rcs,h1(%)
84.3	13	83	92	-12

Spectral Distribution





7/4 Step Quadrangle





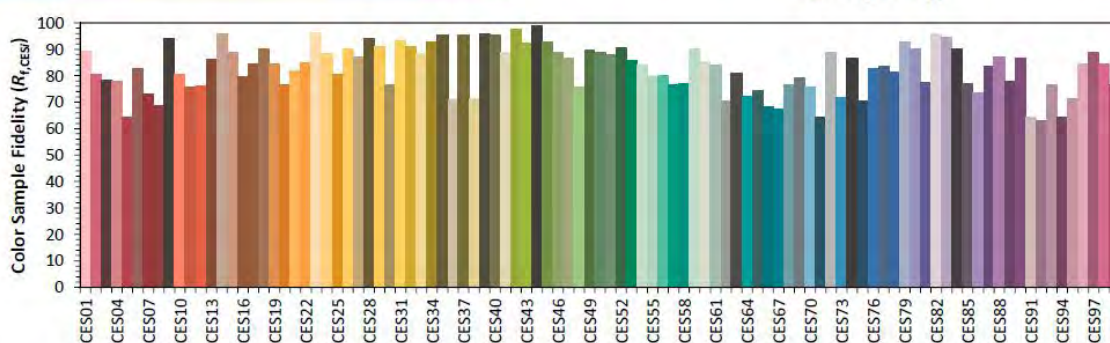
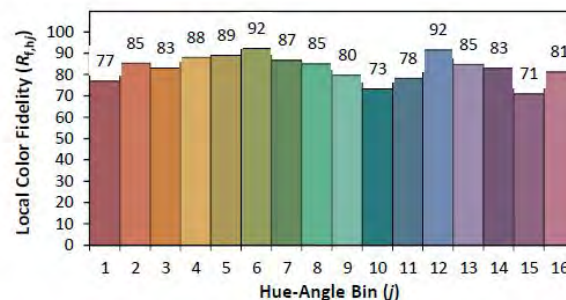
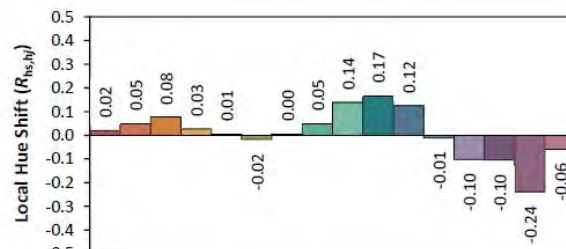
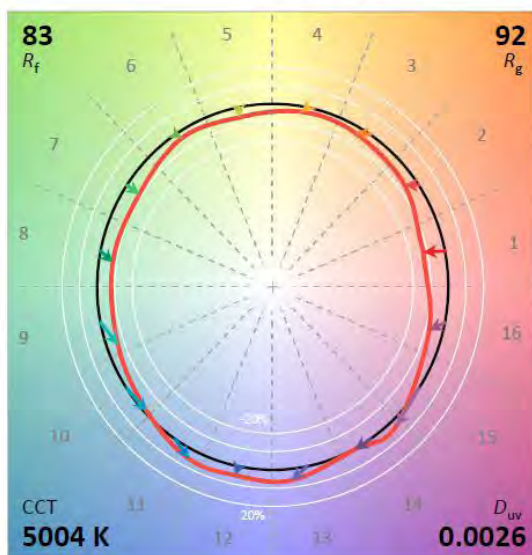
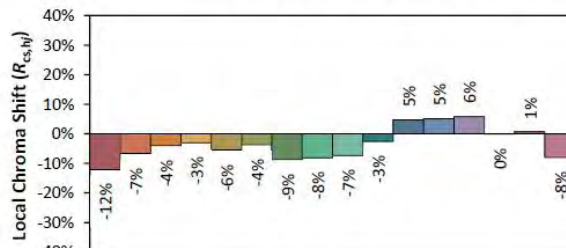
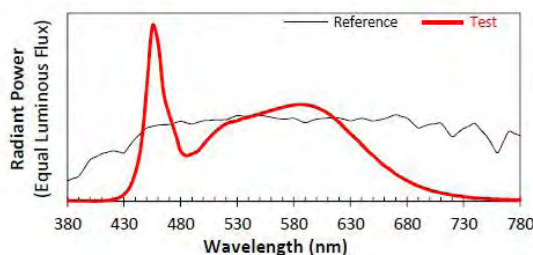
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126008-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-15W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CH0-G2-4FT-850



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

x 0.3455
 y 0.3571
 u' 0.2096
 v' 0.4874

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-G2-18W-4FT-1L-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
120.08	60	0.145	17.29	0.995

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2111.02	122.09	2994

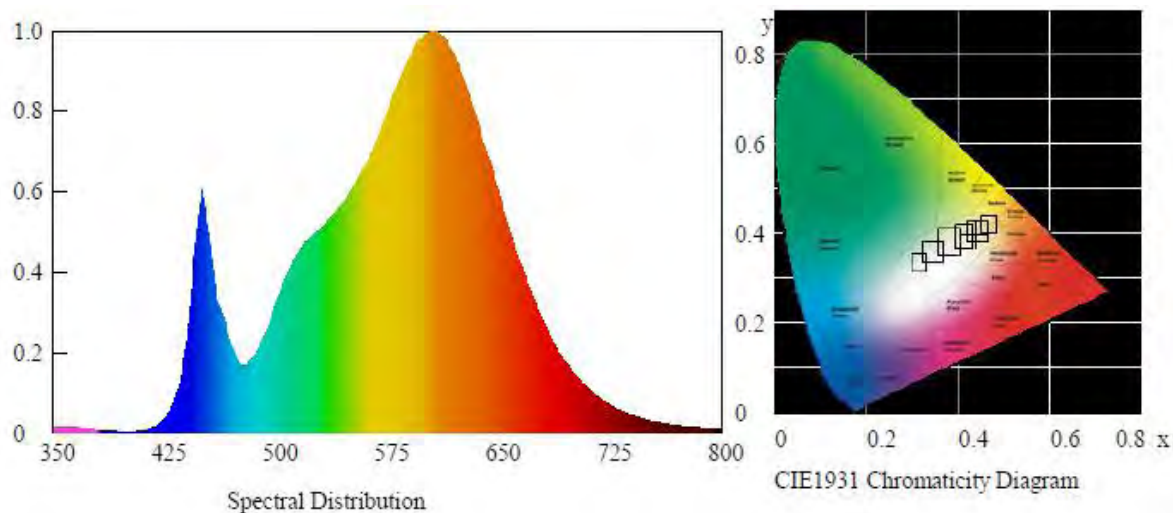
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00123	0.4356	0.4005	0.2512	0.5198

Color Rendering

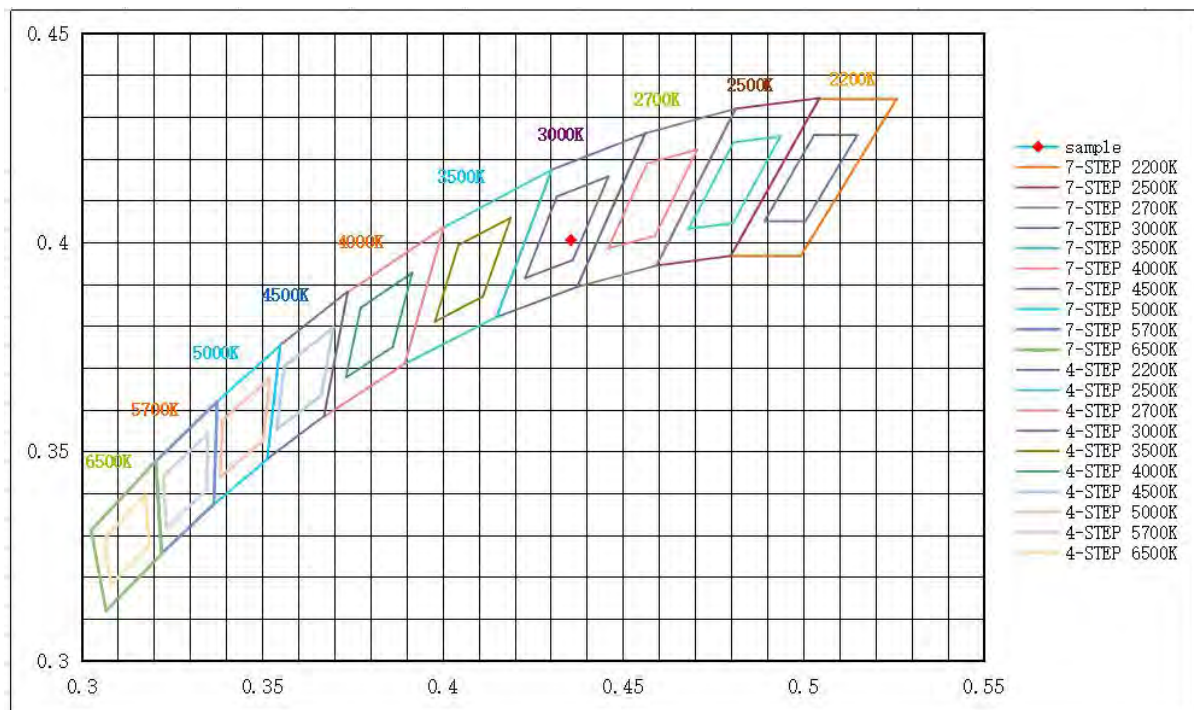
CRI	R9	Rf	Rg	Rcs,h1(%)
84.3	14	86	97	-10

Spectral Distribution





7/4 Step Quadrangle





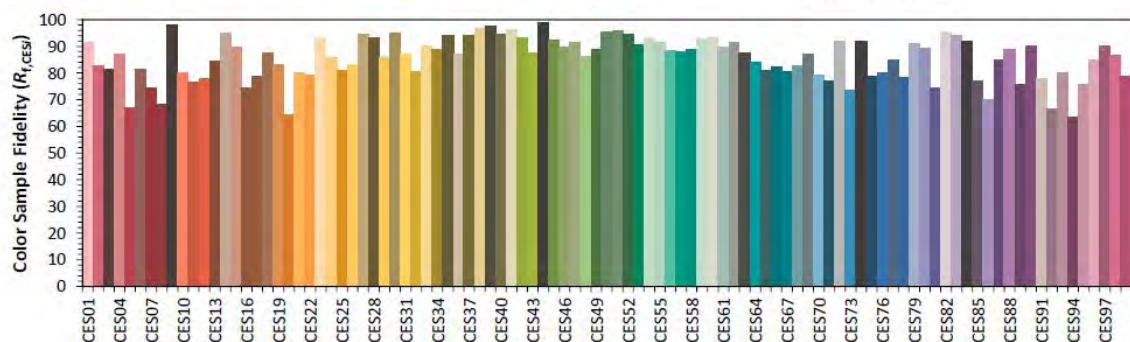
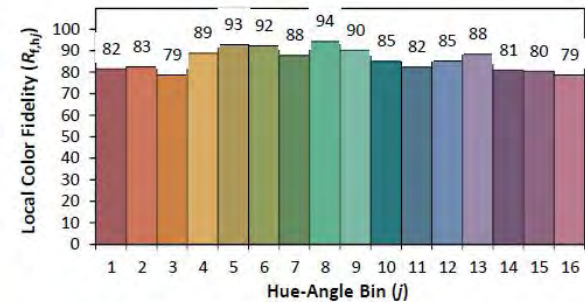
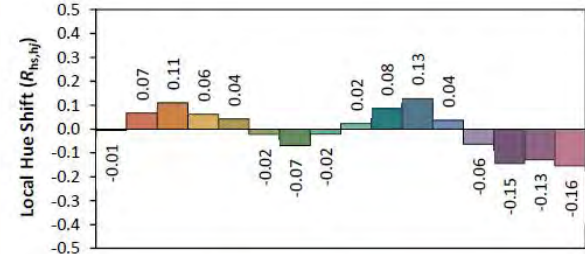
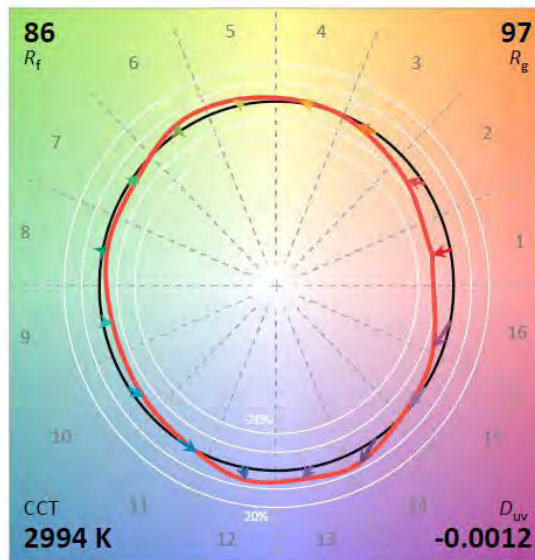
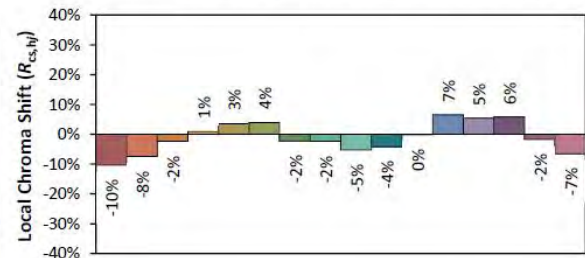
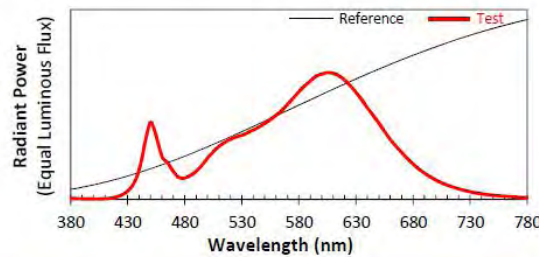
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126008-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-18W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830



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

x 0.4356
 y 0.4005
 u' 0.2512
 v' 0.5198

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.



3.1.4 Model Number: RP-T8C-G2-18W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850(Bare lamp)

Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.09	60	0.145	17.29	0.995

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2152.35	124.49	4996

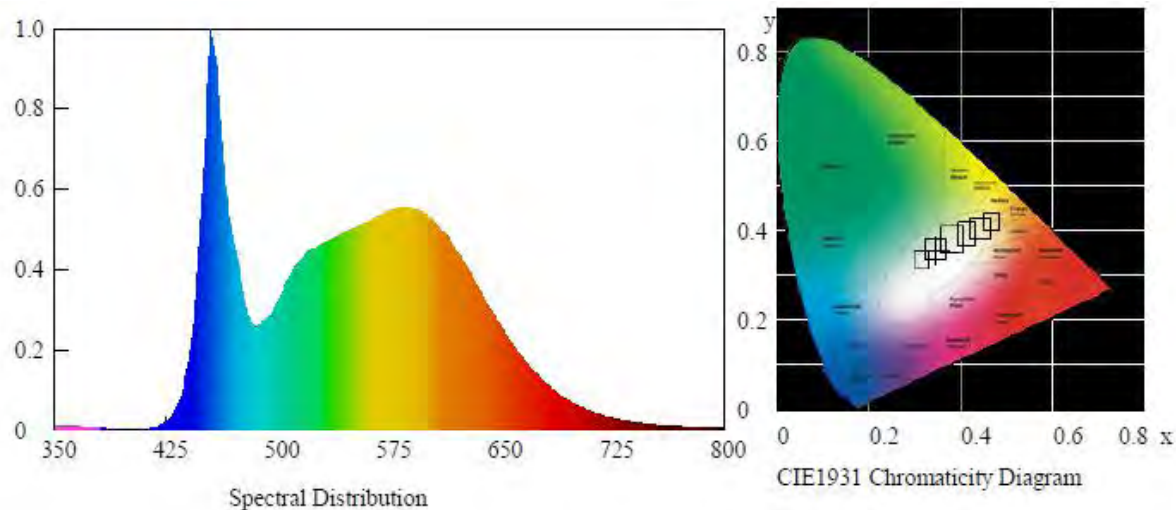
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00268	0.3458	0.3575	0.2096	0.4876

Color Rendering

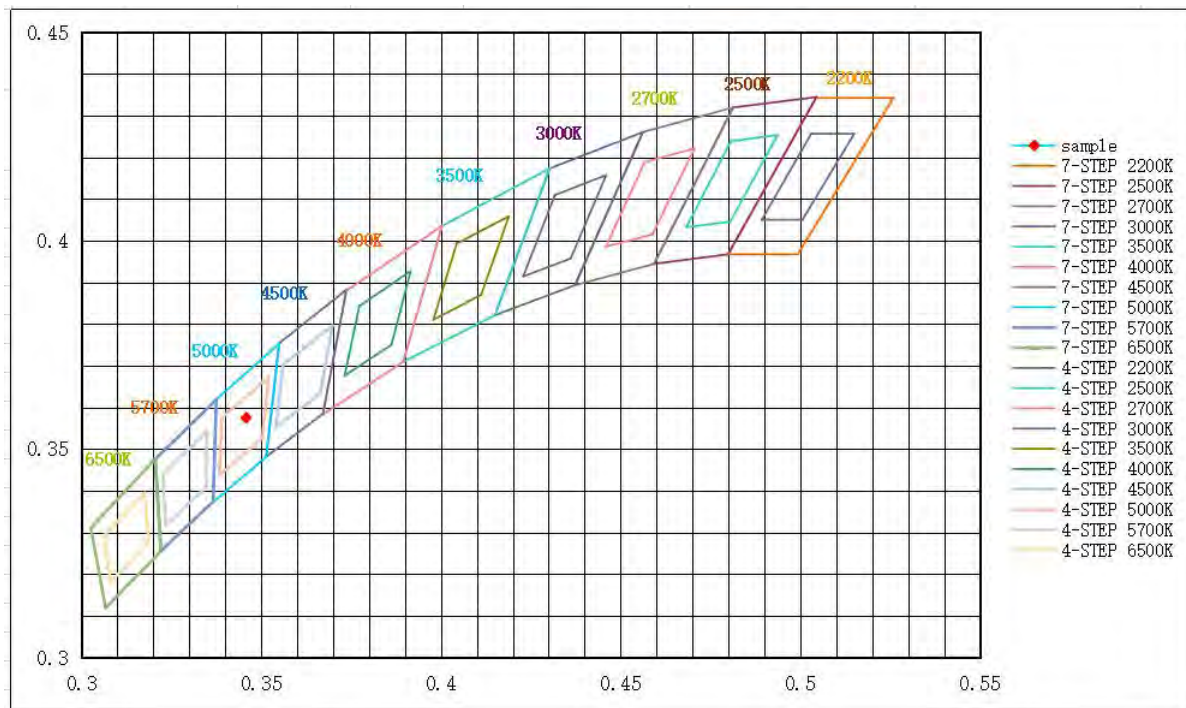
CRI	R9	Rf	Rg	Rcs,h1(%)
84.0	15	83	93	-12

Spectral Distribution





7/4 Step Quadrangle





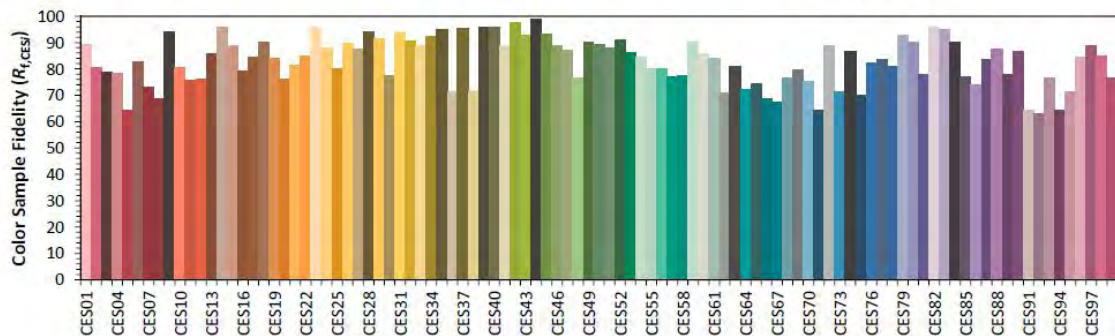
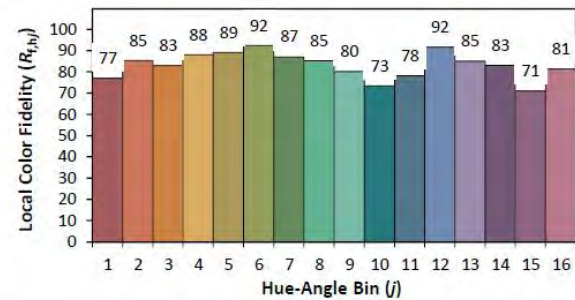
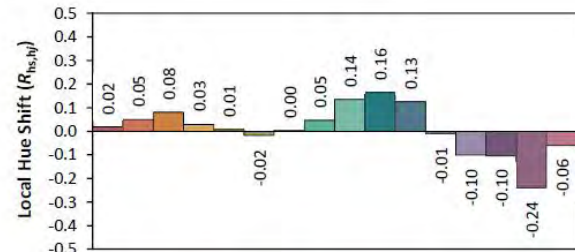
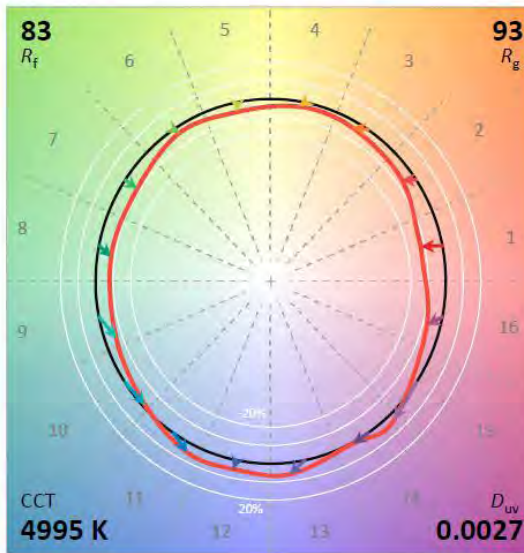
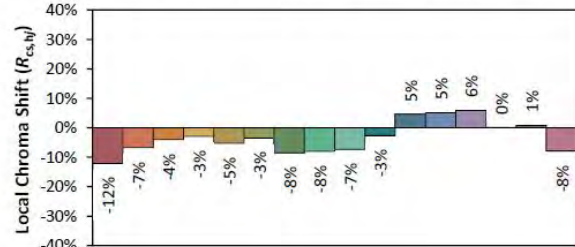
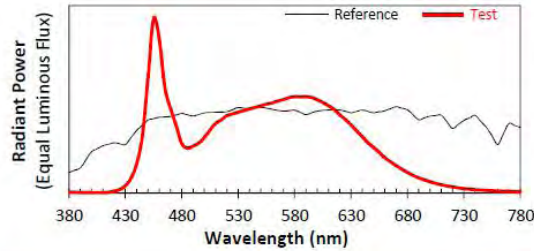
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126008-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-18W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850



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

 x 0.3458 y 0.3575 u' 0.2096 v' 0.4876CIE 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-G2-20W-4FT-1L-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
120.06	60	0.161	19.30	0.996

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2329.17	120.68	2995

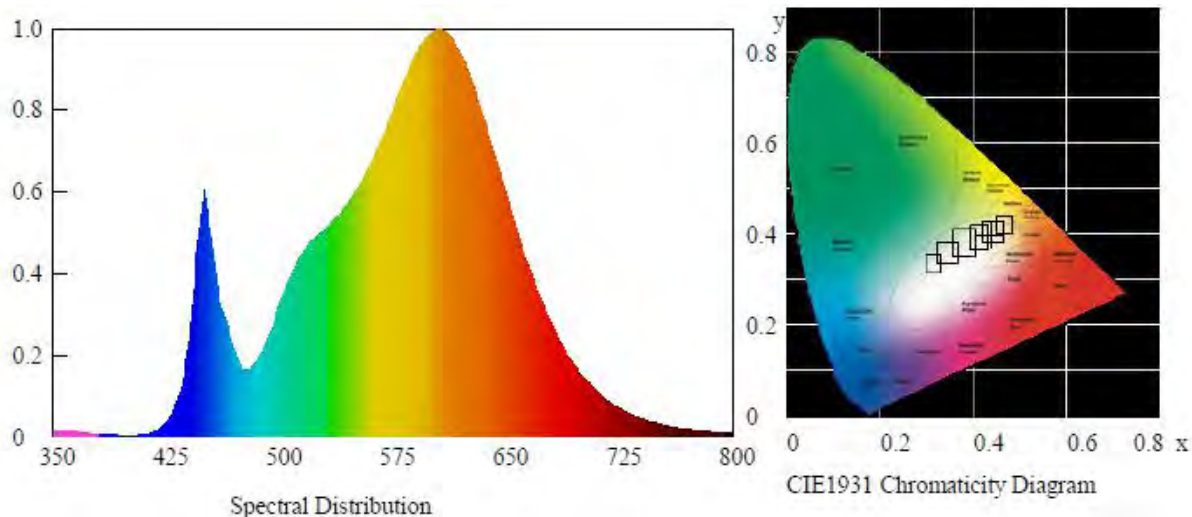
Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00114	0.4356	0.4008	0.2511	0.5199

Color Rendering

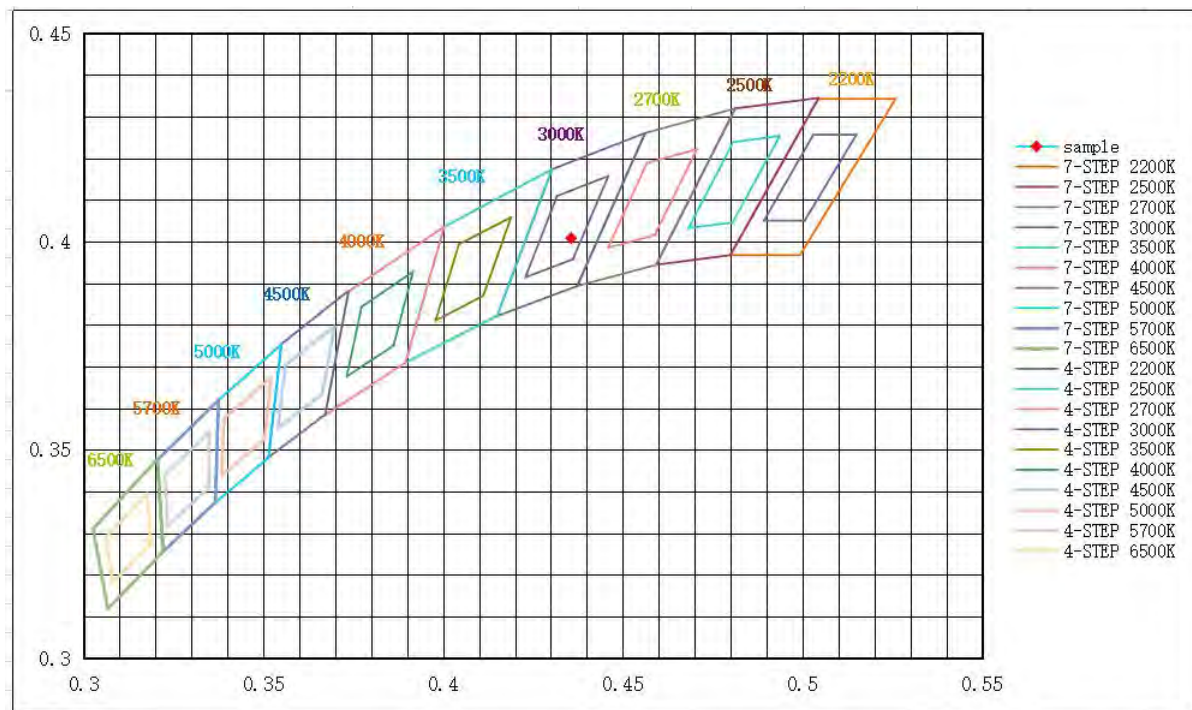
CRI	R9	Rf	Rg	Rcs,h1(%)
84.2	14	85	98	-10

Spectral Distribution





7/4 Step Quadrangle





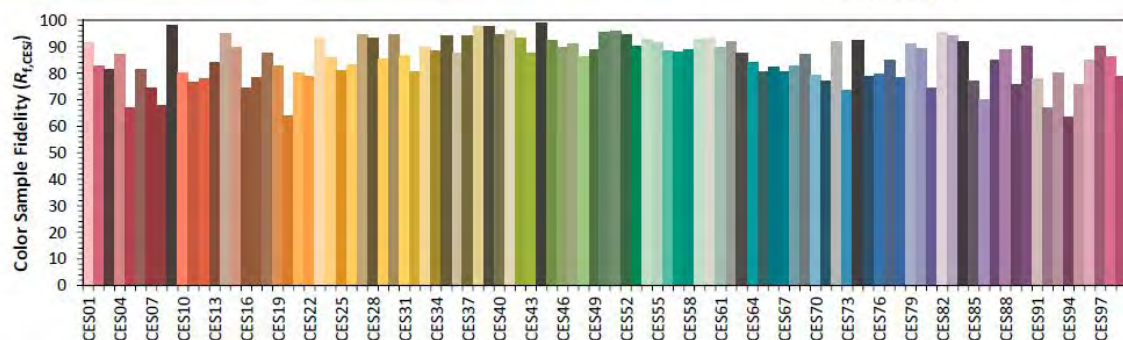
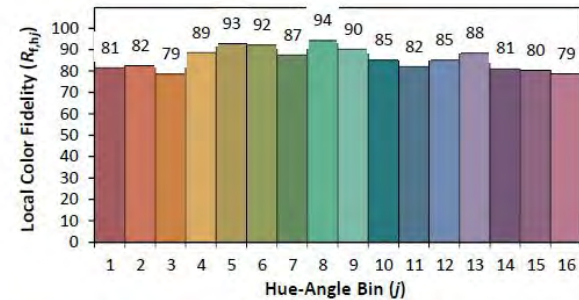
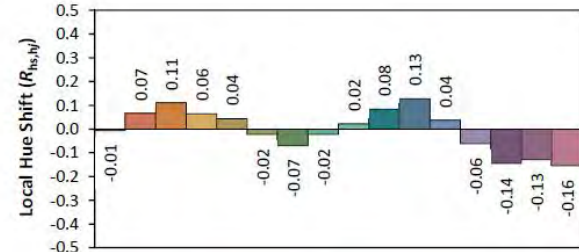
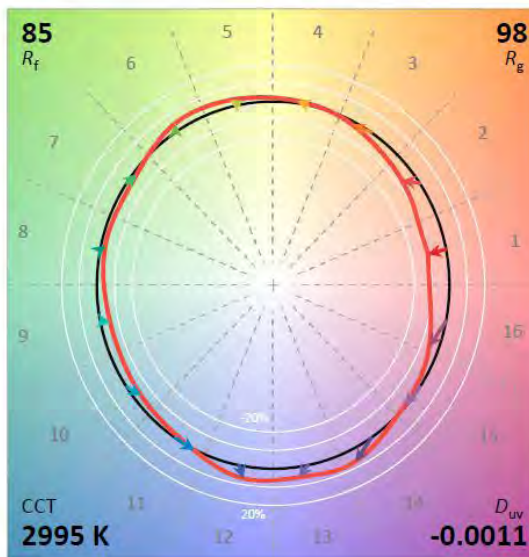
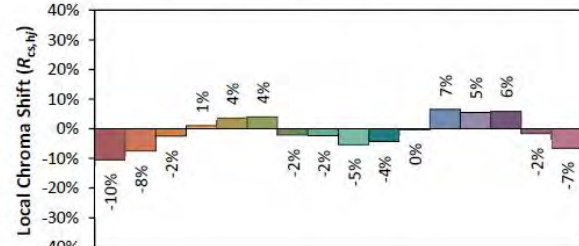
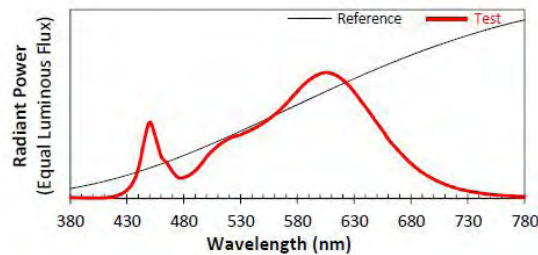
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126008-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-20W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830



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

x 0.4356
 y 0.4008
 u' 0.2511
 v' 0.5199

CIE 13.3-1995
(CRI)

R_a 84
 R_9 13

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-G2-20W-4FT-1L-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
120.05	60	0.162	19.31	0.996

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2358.23	122.12	4990

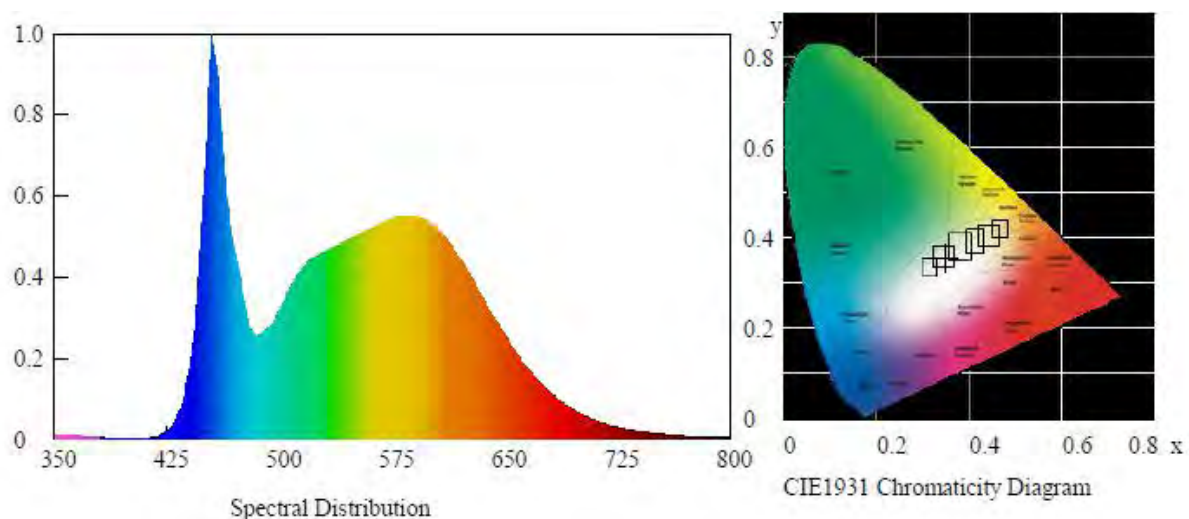
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00266	0.3459	0.3576	0.2097	0.4877

Color Rendering

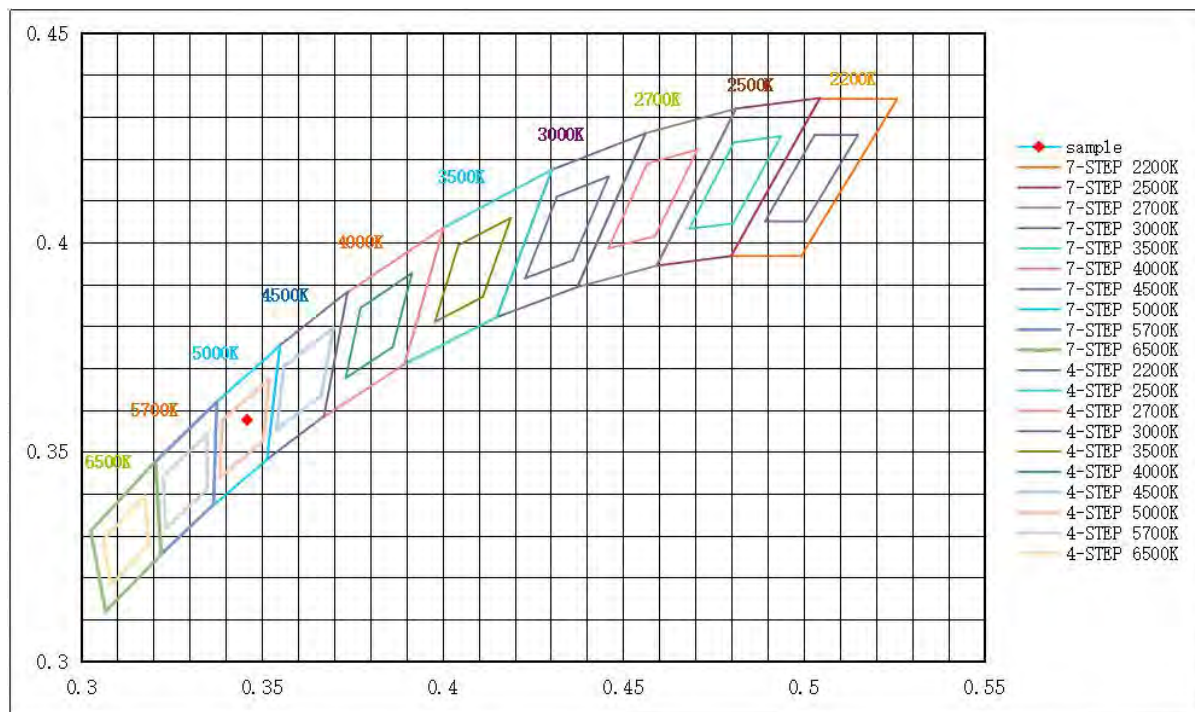
CRI	R9	Rf	Rg	Rcs,h1(%)
83.9	14	83	93	-12

Spectral Distribution





7/4 Step Quadrangle





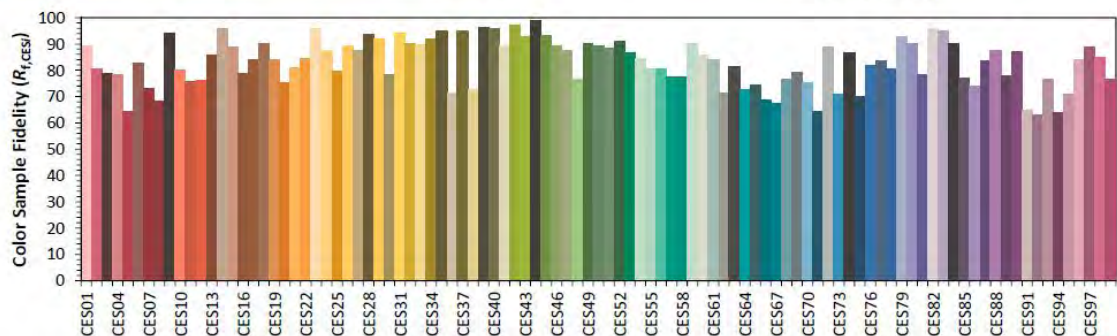
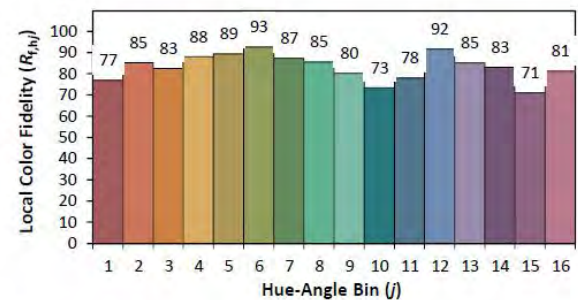
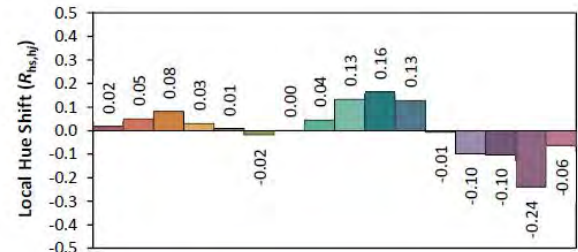
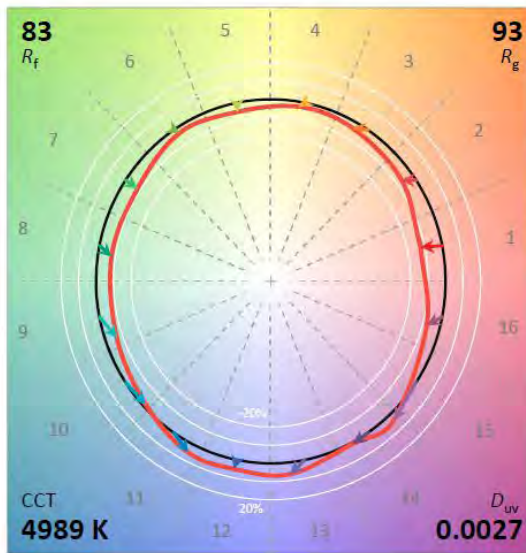
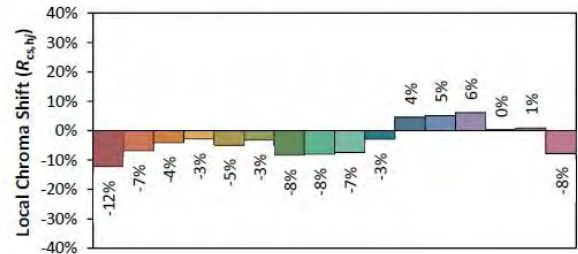
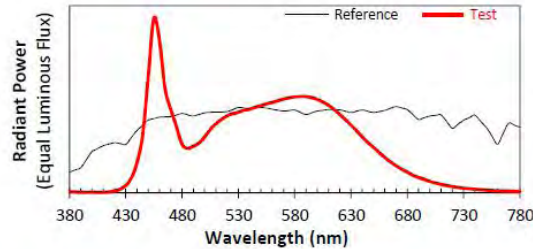
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126008-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-20W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850



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

x 0.3459
 y 0.3576
 u' 0.2097
 v' 0.4877

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-G2-25W-4FT-1L-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
120.00	60	0.209	25.06	0.997

Photometric data

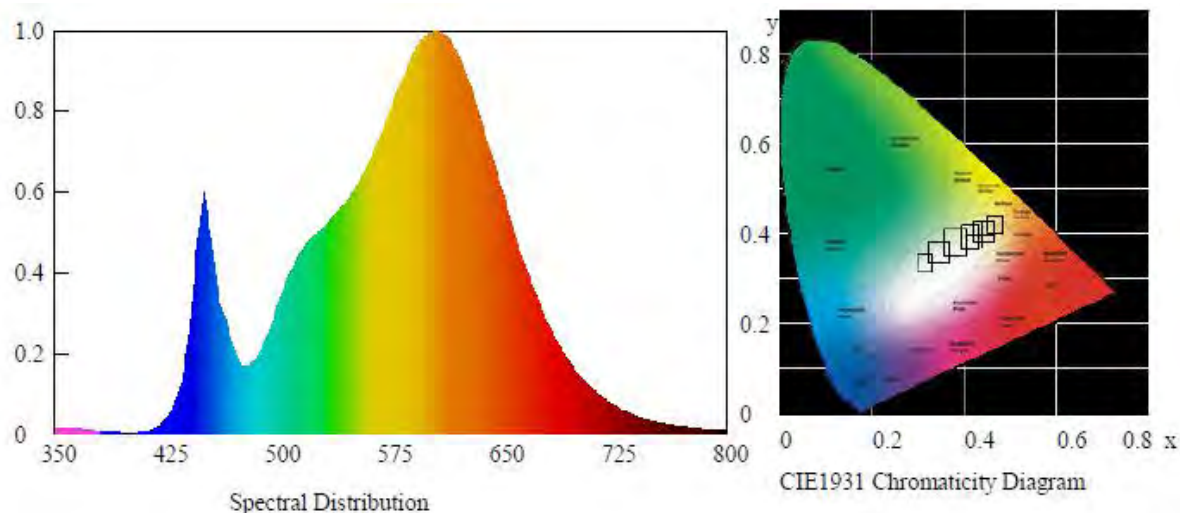
Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
2968.18	118.44	2999

Chromaticity Coordinate

Duv	x	y	u'	v'
-0.00112	0.4354	0.4008	0.2510	0.5198

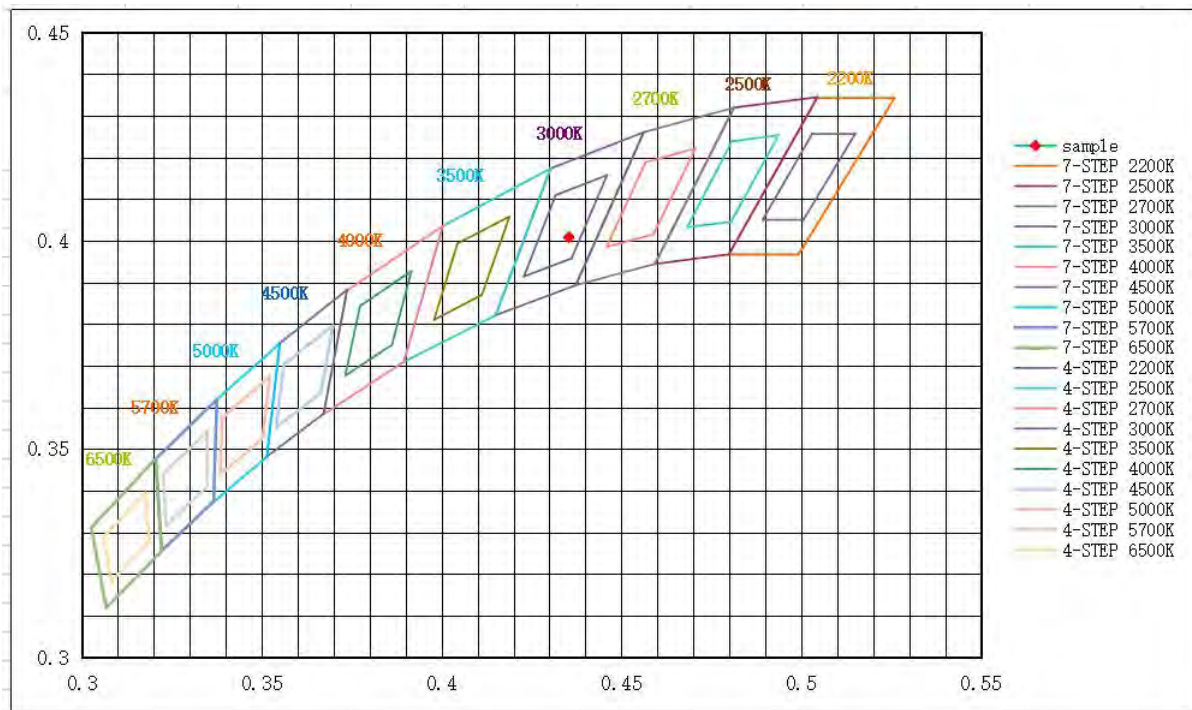
Color Rendering

CRI	R9	Rf	Rg	Rcs,h1(%)
84.2	14	86	98	-10

Spectral Distribution



7/4 Step Quadrangle





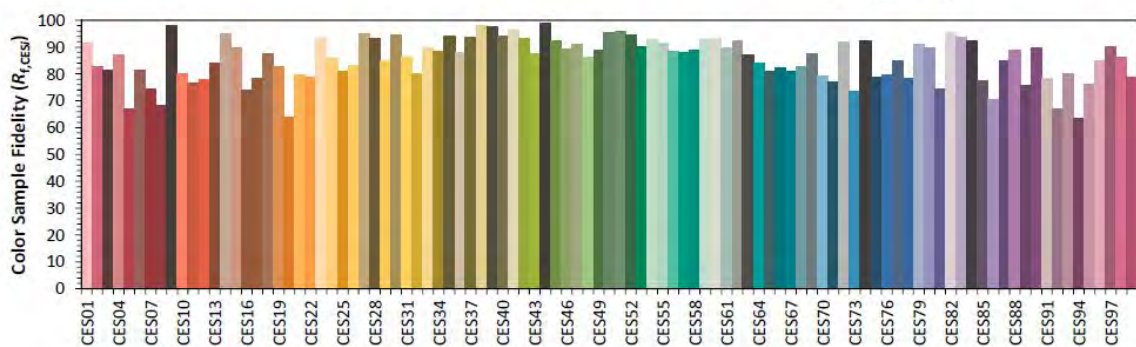
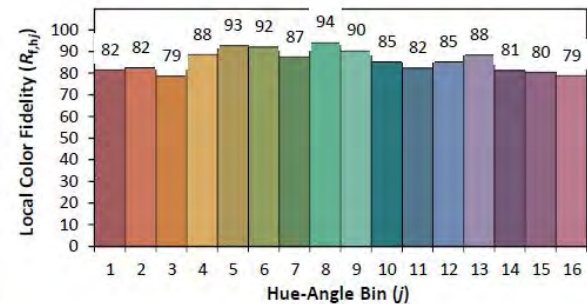
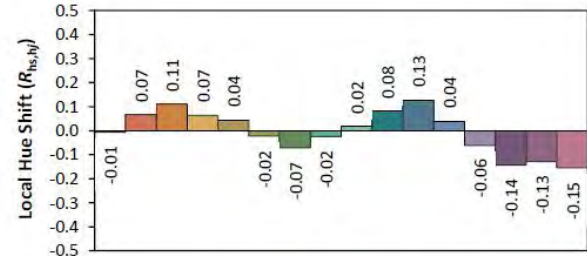
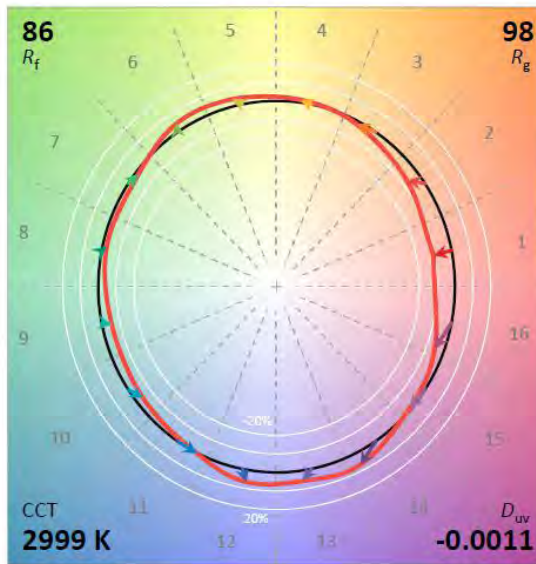
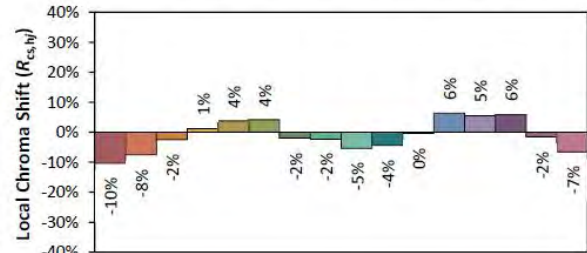
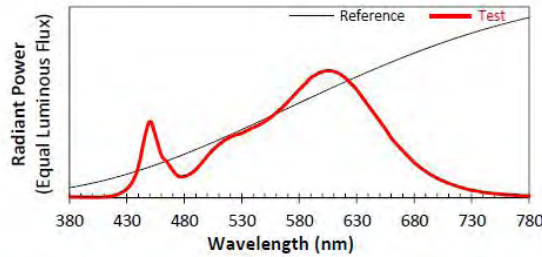
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126008-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-25W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CH0-G2-4FT-830



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

x 0.4354
 y 0.4008
 u' 0.2510
 v' 0.5198

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.



3.1.8 Model Number: RP-T8C-G2-25W-4FT-1L-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
119.98	60	0.210	25.07	0.997

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)
3030.68	120.89	4992

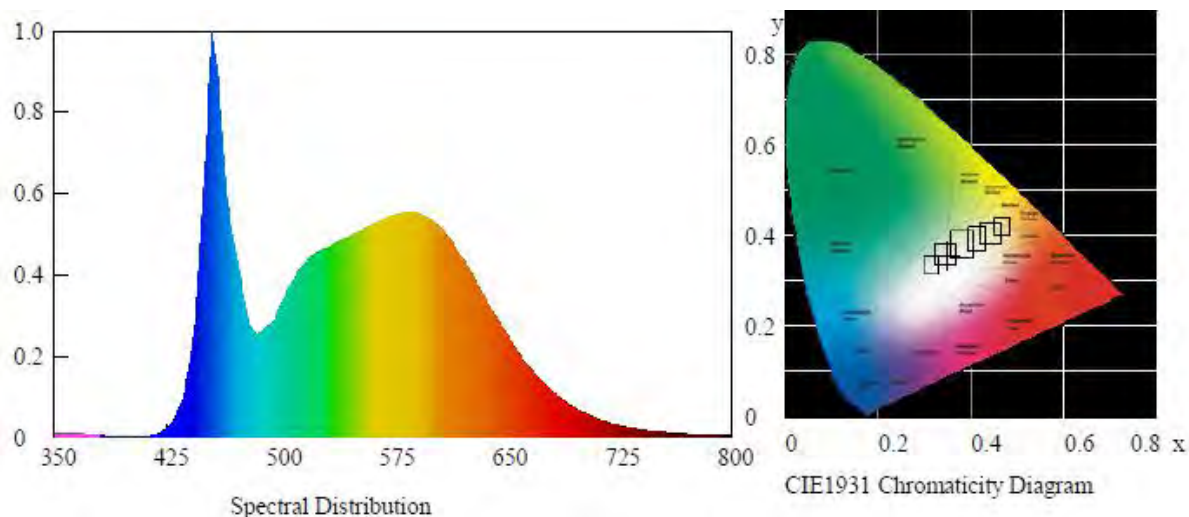
Chromaticity Coordinate

Duv	x	y	u'	v'
+0.00261	0.3459	0.3575	0.2097	0.4876

Color Rendering

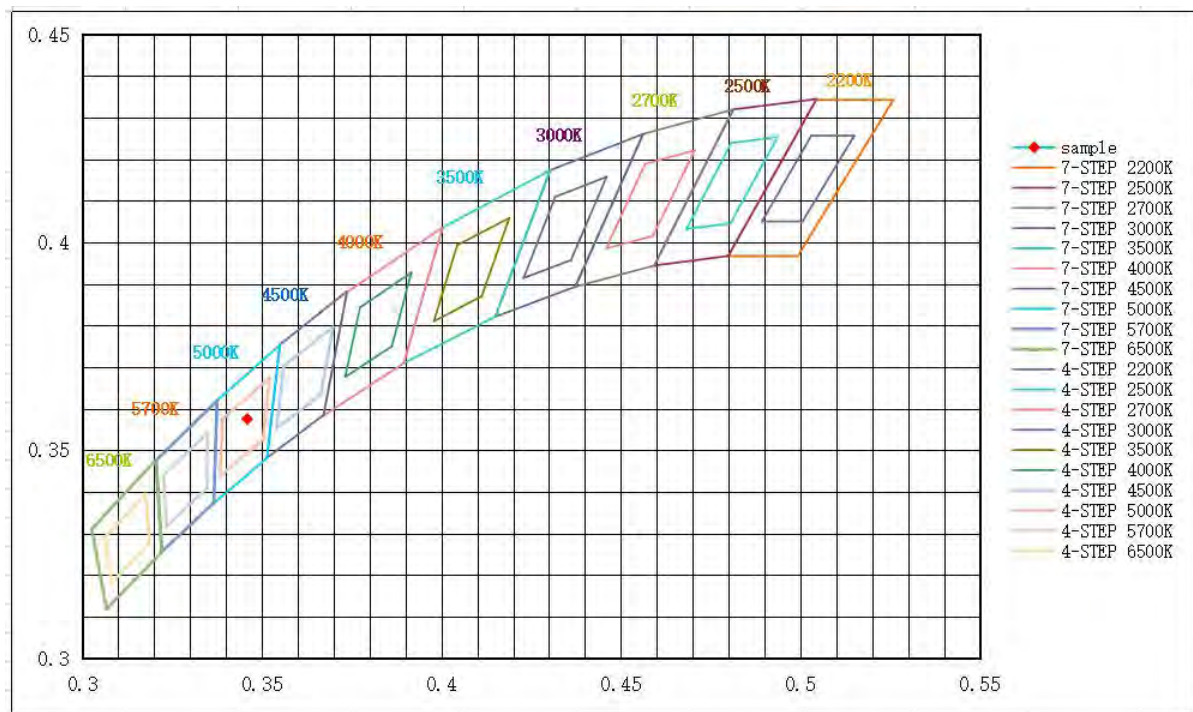
CRI	R9	Rf	Rg	Rcs,h1(%)
83.9	14	83	93	-12

Spectral Distribution





7/4 Step Quadrangle





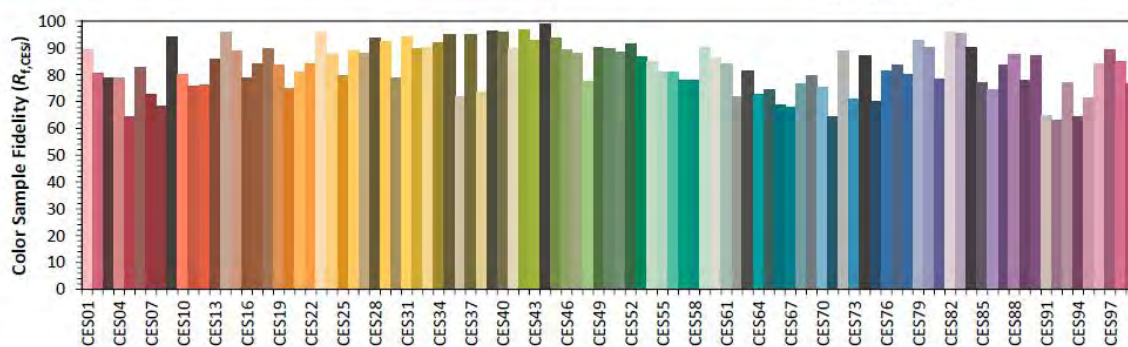
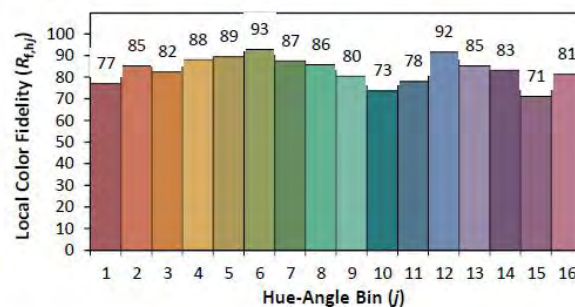
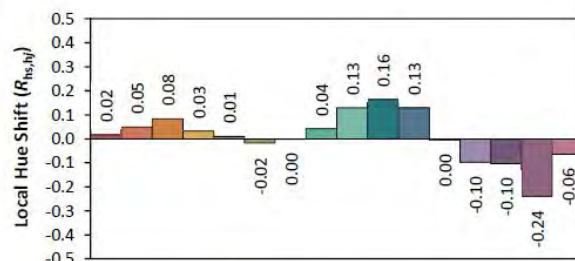
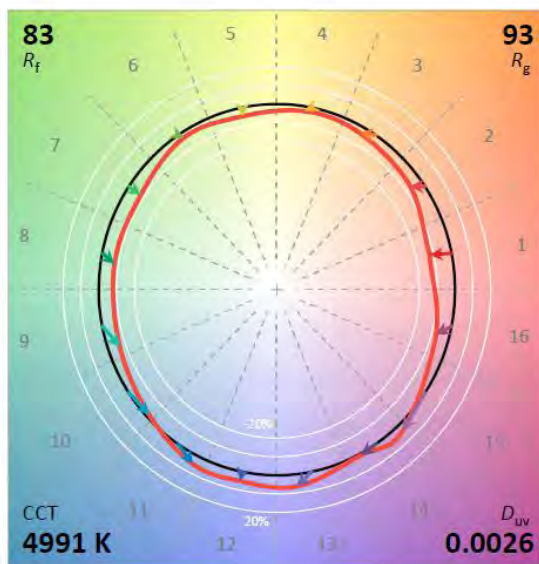
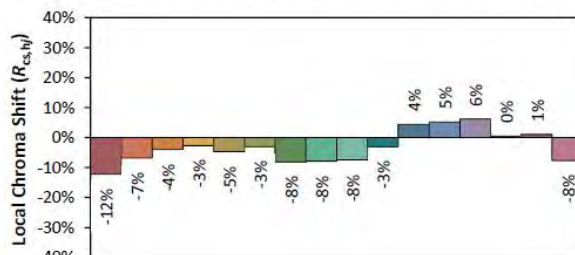
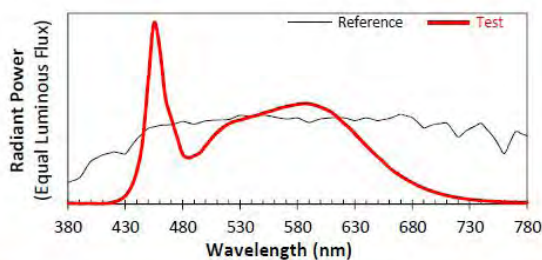
ANSI/IES TM-30-18 Color Rendition Report

Source: BL210126008-9

Manufacturer: LIGHT EFFICIENT DESIGN

Date: 2020/1/27

Model: RP-T8C-G2-25W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850



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

x 0.3459
 y 0.3575
 u' 0.2097
 v' 0.4876

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.



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

3.2.1 Model Number: RP-T8C-G2-25W-4FT-1L-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
120.010	60	0.210	25.030	0.995

Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	Beam Angle(°)
2970.83	118.69	183.5

**Zonal Flux Diagram**

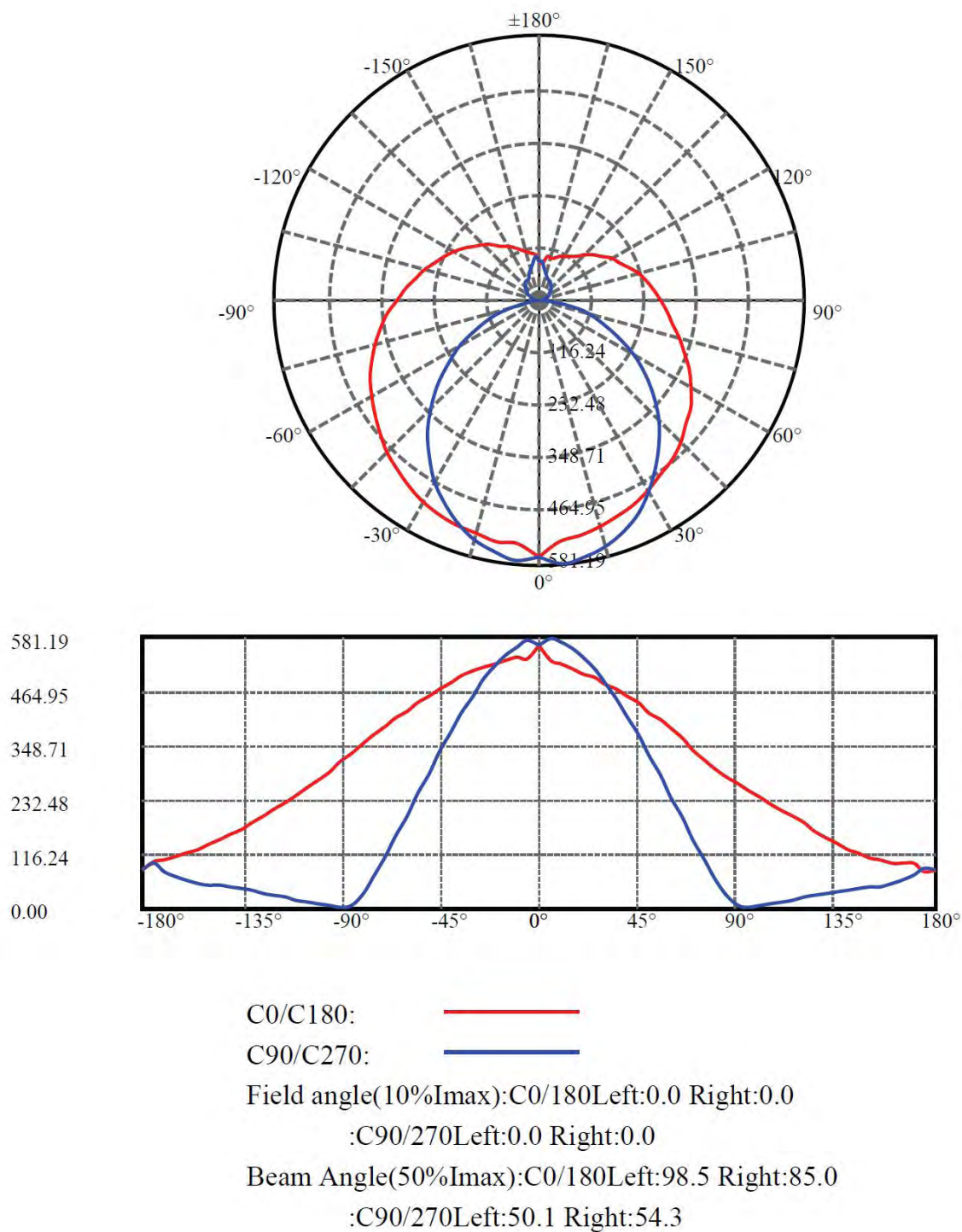
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	561.375	0.000	0	0.00%	0.00%
5.0	561.767	13.427	13.427	0.00%	0.45%
10.0	555.936	39.984	53.411	0.00%	1.80%
15.0	545.075	65.311	118.722	0.00%	4.00%
20.0	530.360	88.631	207.353	0.00%	6.98%
25.0	512.445	109.371	316.724	0.00%	10.66%
30.0	491.034	126.991	443.715	0.00%	14.94%
35.0	466.731	141.038	584.753	0.00%	19.68%
40.0	441.032	151.453	736.206	0.00%	24.78%
45.0	413.505	158.224	894.43	0.00%	30.11%
50.0	385.026	161.355	1055.785	0.00%	35.54%
55.0	356.794	161.296	1217.082	0.00%	40.97%
60.0	328.081	158.307	1375.388	0.00%	46.30%
65.0	299.627	152.597	1527.985	0.00%	51.43%
70.0	271.654	144.652	1672.637	0.00%	56.30%
75.0	245.511	135.179	1807.816	0.00%	60.85%
80.0	221.294	124.904	1932.72	0.00%	65.06%
85.0	199.870	114.441	2047.16	0.00%	68.91%
90.0	182.993	104.831	2151.991	0.00%	72.44%
95.0	170.354	96.749	2248.741	0.00%	75.69%
100.0	159.963	89.755	2338.496	0.00%	78.72%
105.0	150.783	83.147	2421.643	0.00%	81.51%
110.0	142.518	76.664	2498.307	0.00%	84.09%
115.0	134.524	70.149	2568.456	0.00%	86.46%
120.0	127.778	63.766	2632.221	0.00%	88.60%
125.0	121.081	57.523	2689.745	0.00%	90.54%
130.0	115.250	51.386	2741.131	0.00%	92.27%
135.0	110.999	45.717	2786.848	0.00%	93.81%
140.0	107.009	40.366	2827.214	0.00%	95.17%
145.0	103.858	35.182	2862.395	0.00%	96.35%
150.0	99.991	30.018	2892.413	0.00%	97.36%
155.0	96.124	24.818	2917.232	0.00%	98.20%
160.0	93.616	19.900	2937.132	0.00%	98.87%
165.0	89.736	15.111	2952.243	0.00%	99.37%
170.0	85.461	10.393	2962.635	0.00%	99.72%
175.0	86.363	6.147	2968.782	0.00%	99.93%
180.0	84.551	2.043	2970.825	0.00%	100.00%



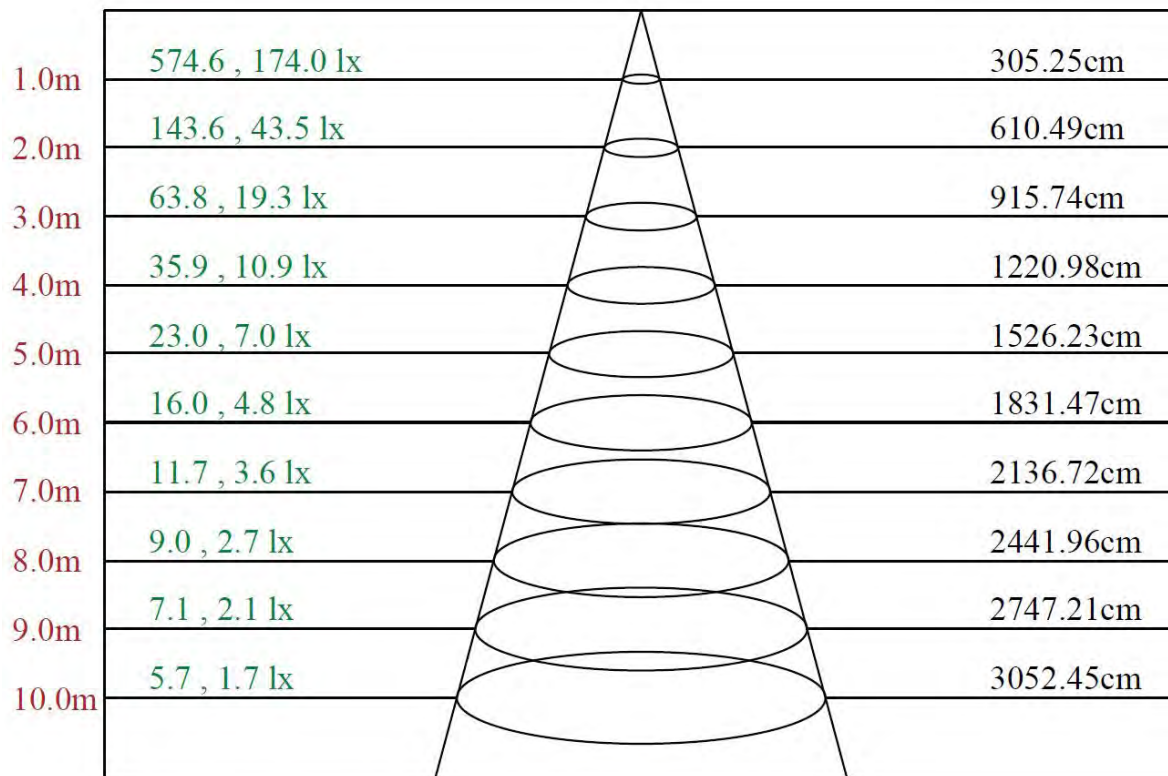
Luminous Intensity Distribution Diagram

Light Distribution Curve [Unit:cd]





Lux distance Curve



Max , Ave

Beam angle of C112.5 plane 113.53

**Luminous Intensity Distribution Data**

$C/\gamma(^{\circ})$	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	561.38	530.19	523.07	513.38	502.51	493.62	479.78	467.72	454.28
22.5	561.38	547.58	542.05	531.97	521.49	506.27	490.06	471.67	452.70
45.0	561.38	568.34	561.42	550.35	535.72	517.14	494.80	469.89	443.60
67.5	561.38	568.34	559.84	545.41	526.63	502.12	472.86	439.65	405.45
90.0	561.38	578.62	571.50	557.67	537.90	513.58	483.73	448.35	410.39
112.5	561.38	581.19	574.67	562.61	545.41	522.28	495.00	464.36	430.36
135.0	561.38	577.43	573.88	565.97	553.91	537.90	519.32	496.98	471.08
157.5	561.38	553.12	551.34	546.40	540.47	531.18	517.54	505.08	489.27
180.0	561.38	534.73	536.91	530.58	525.05	517.54	508.44	496.38	484.52
202.5	561.38	546.40	550.94	547.19	538.29	530.19	519.51	503.30	487.49
225.0	561.38	568.93	563.00	553.12	538.10	520.30	499.15	475.63	451.71
247.5	561.38	568.14	559.25	544.42	525.25	500.73	471.67	439.25	406.44
270.0	561.38	573.68	561.22	542.64	519.32	490.06	456.06	417.90	378.17
292.5	561.38	575.26	563.79	546.60	522.87	495.79	464.75	430.36	395.17
315.0	561.38	570.91	561.82	548.37	530.58	511.80	490.45	466.34	440.04
337.5	561.38	545.41	540.27	534.54	522.28	508.64	493.42	474.84	455.86
360.0	561.38	530.19	523.07	513.38	502.51	493.62	479.78	467.72	454.28
$C/\gamma(^{\circ})$	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	438.66	420.28	404.66	386.47	363.15	338.63	318.86	298.50	280.71
22.5	430.56	411.18	393.79	372.44	348.71	324.60	303.44	284.27	266.28
45.0	415.53	387.46	360.38	333.69	306.41	280.12	253.43	230.10	210.34
67.5	368.48	330.73	293.36	256.79	222.79	188.20	156.76	127.70	104.97
90.0	371.45	328.16	283.48	239.00	193.73	148.86	105.96	64.64	29.06
112.5	394.77	358.20	320.05	283.68	247.70	212.31	180.68	152.41	129.68
135.0	444.39	417.71	391.02	364.53	339.82	317.48	294.75	271.62	251.45
157.5	473.26	455.86	436.49	415.53	399.12	380.34	361.17	342.19	320.45
180.0	471.08	454.67	440.24	423.64	407.03	390.23	372.04	354.45	333.30
202.5	470.88	454.28	436.68	417.31	395.17	378.17	358.20	339.62	315.90
225.0	427.99	403.47	377.97	352.08	327.76	304.24	282.49	261.93	241.77
247.5	371.05	333.49	295.54	257.78	222.79	191.36	164.67	140.55	120.39
270.0	335.07	290.60	245.52	200.25	155.38	110.70	69.98	32.82	8.30
292.5	357.61	319.06	280.51	243.55	211.52	178.90	149.84	123.75	103.78
315.0	409.40	381.53	354.84	327.36	299.89	274.19	248.09	226.74	210.53
337.5	435.89	413.75	394.18	375.20	353.06	328.16	307.79	289.41	271.02
360.0	438.66	420.28	404.66	386.47	363.15	338.63	318.86	298.50	280.71
$C/\gamma(^{\circ})$	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	266.28	254.22	239.00	224.57	210.93	196.89	182.66	166.25	153.01
22.5	253.63	241.37	225.16	208.75	195.71	181.87	168.82	154.19	141.54
45.0	196.89	184.24	170.01	157.36	146.09	135.81	127.11	119.20	109.71
67.5	91.13	81.45	74.53	69.19	65.43	61.08	62.67	64.64	68.20
90.0	6.72	3.76	6.33	10.28	15.22	19.37	23.92	28.27	32.62
112.5	109.91	94.30	89.16	84.61	80.66	77.89	77.49	78.28	79.86
135.0	230.89	211.32	198.08	185.43	175.15	164.67	154.59	145.69	137.00
157.5	299.49	279.13	261.73	246.91	231.29	217.25	203.22	189.18	176.14
180.0	312.54	294.15	275.18	259.16	242.76	227.53	211.92	197.29	183.25
202.5	296.72	277.94	260.55	245.92	231.49	217.45	203.42	190.17	177.52
225.0	220.81	203.61	192.74	183.06	173.96	163.48	154.79	146.68	139.17
247.5	100.42	90.14	87.18	83.82	82.63	82.43	83.03	83.03	84.61
270.0	3.16	5.73	9.49	14.23	19.18	24.12	29.26	33.80	38.35
292.5	89.16	81.25	74.92	69.98	65.63	63.06	66.22	68.40	71.56
315.0	194.13	181.47	169.02	157.75	146.88	136.20	126.32	117.03	108.33
337.5	256.00	241.57	226.35	211.52	197.29	183.25	169.02	155.18	143.12
360.0	266.28	254.22	239.00	224.57	210.93	196.89	182.66	166.25	153.01



C/ γ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	139.37	126.52	118.61	109.52	104.18	98.84	97.46	96.47	80.26
22.5	131.26	119.99	113.67	107.15	103.78	96.47	84.81	64.84	68.79
45.0	106.75	102.60	99.63	97.06	89.35	80.46	71.76	70.18	87.18
67.5	72.75	78.28	82.04	77.29	72.35	74.72	69.78	75.91	92.32
90.0	36.57	40.13	43.29	46.06	48.43	52.78	59.90	71.17	86.98
112.5	83.42	86.98	90.14	87.18	80.66	79.67	75.12	75.12	84.61
135.0	129.29	122.56	116.04	113.08	104.38	90.54	83.62	75.52	78.48
157.5	163.68	152.81	141.74	130.27	121.97	115.05	99.44	78.48	59.50
180.0	171.00	158.74	146.68	136.01	124.94	118.02	110.70	104.38	100.62
202.5	166.25	154.59	144.31	132.65	123.75	118.22	112.28	106.95	102.80
225.0	132.84	127.31	120.79	117.62	115.25	112.09	108.73	105.17	91.73
247.5	87.38	90.74	93.50	97.06	99.24	101.41	102.20	88.37	89.16
270.0	42.90	46.26	49.22	51.99	53.77	62.27	68.00	80.06	97.66
292.5	75.91	80.85	85.00	88.37	91.33	94.69	90.54	84.81	92.32
315.0	105.56	102.99	101.61	100.23	100.42	100.62	101.02	90.14	89.95
337.5	131.06	120.79	115.45	108.33	104.18	102.01	100.42	99.83	79.47
360.0	139.37	126.52	118.61	109.52	104.18	98.84	97.46	96.47	80.26
C/ γ (°)	180.0								
0.0	84.55								
22.5	84.55								
45.0	84.55								
67.5	84.55								
90.0	84.55								
112.5	84.55								
135.0	84.55								
157.5	84.55								
180.0	84.55								
202.5	84.55								
225.0	84.55								
247.5	84.55								
270.0	84.55								
292.5	84.55								
315.0	84.55								
337.5	84.55								
360.0	84.55								



4 Additional Test

Electrical data at 277V

Model Number	Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
RP-T8C-G2-25W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	Power Factor	277	60	0.958
	THD	277	60	10.4%

5 Performance Assessment

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-15W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	1803.24	14.51	124.28
RP-T8C-G2-15W-4FT-1L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	1810.51 * ¹	14.52 * ²	124.69 * ³
RP-T8C-G2-15W-4FT-1L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	1817.78 * ¹	14.52 * ²	125.19 * ³
RP-T8C-G2-15W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	1832.32	14.53	126.11

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

$$1810.51 = (1832.32 - 1803.24) / 4 + 1803.24$$

$$1817.78 = (1832.32 - 1803.24) / 4 + 1810.51$$

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

$$14.52 = (14.51 + 14.53) / 2$$

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

$$124.69 = 1810.51 / 14.52$$

$$125.19 = 1817.78 / 14.52$$



Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-18W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	2111.02	17.29	122.09
RP-T8C-G2-18W-4FT-1L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	2121.35 * ¹	17.29 * ²	122.69 * ³
RP-T8C-G2-18W-4FT-1L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	2131.69 * ¹	17.29 * ²	123.29 * ³
RP-T8C-G2-18W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	2152.35	17.29	124.49

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

$$2121.35 = (2152.35 - 2111.02) / 4 + 2111.02$$

$$2131.69 = (2152.35 - 2111.02) / 4 + 2121.35$$

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

$$17.29 = (17.29 + 17.29) / 2$$

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

$$122.69 = 2121.35 / 17.29$$

$$123.29 = 2131.69 / 17.29$$

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-20W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	2329.17	19.30	120.68
RP-T8C-G2-20W-4FT-1L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	2336.44 * ¹	19.31 * ²	121.03 * ³
RP-T8C-G2-20W-4FT-1L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	2343.70 * ¹	19.31 * ²	121.40 * ³
RP-T8C-G2-20W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	2358.23	19.31	122.12

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

$$2336.44 = (2358.23 - 2329.17) / 4 + 2329.17$$

$$2343.70 = (2358.23 - 2329.17) / 4 + 2336.44$$

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

$$19.31 = (19.30 + 19.31) / 2$$

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

$$121.03 = 2336.44 / 19.31$$

$$121.40 = 2343.70 / 19.31$$



Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-T8C-G2-25W-4FT-1L-830-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-830	3000	2968.18	25.06	118.44
RP-T8C-G2-25W-4FT-1L-835-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-835	3500	2983.81 ^{*1}	25.07 ^{*2}	119.04 ^{*3}
RP-T8C-G2-25W-4FT-1L-840-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-840	4000	2999.43 ^{*1}	25.07 ^{*2}	119.67 ^{*3}
RP-T8C-G2-25W-4FT-1L-850-[OCN, Blank]-10V/RP-T8CHO-G2-4FT-850	5000	3030.68	25.07	120.89

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

$$2983.81 = (3030.68 - 2968.18) / 4 + 2968.18$$

$$2999.43 = (3030.68 - 2968.18) / 4 + 2983.81$$

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

$$25.07 = (25.06 + 25.07) / 2$$

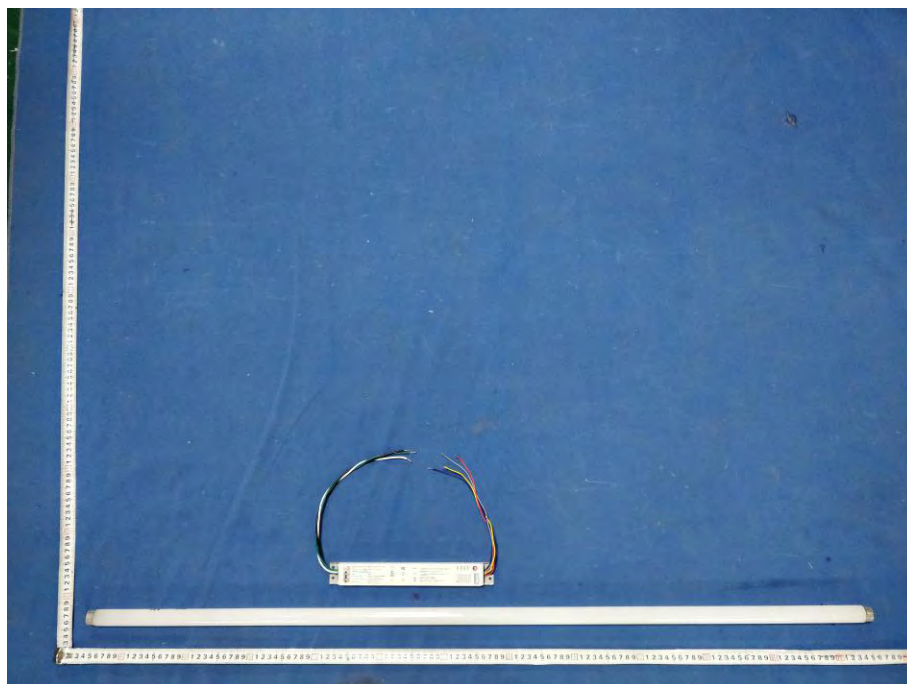
*3: This value is calculated and the calculation formula is as below:

$$119.04 = 2983.81 / 25.07$$

$$119.67 = 2999.43 / 25.07$$



Photo Document



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