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Version 1.0

Total pages 31

## 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:

Indoor Retrofit Kit -- Retrofit Kits for Direct Linear Ambient Luminaires

### Product Model No.:

RP-LBE-G2-6W-4FT-1L-835-[OCN, Blank]-10V,  
RP-LBE-G2-6W-4FT-1L-850-[OCN, Blank]-10V,  
RP-LBE-G2-8W-4FT-1L-835-[OCN, Blank]-10V,  
RP-LBE-G2-8W-4FT-1L-850-[OCN, Blank]-10V,  
RP-LBE-G2-10W-4FT-1L-835-[OCN, Blank]-10V,  
RP-LBE-G2-10W-4FT-1L-850-[OCN, Blank]-10V,  
RP-LBE-G2-12W-4FT-1L-835-[OCN, Blank]-10V,  
RP-LBE-G2-12W-4FT-1L-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.

*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>	Indoor Retrofit Kit -- Retrofit Kits for Direct Linear Ambient Luminaires
<b>Test in fixture</b>	A.L.P. SEP240
<b>Test Model Number</b>	RP-LBE-G2-6W-4FT-1L-835-[OCN, Blank]-10V, RP-LBE-G2-6W-4FT-1L-850-[OCN, Blank]-10V, RP-LBE-G2-8W-4FT-1L-835-[OCN, Blank]-10V, RP-LBE-G2-8W-4FT-1L-850-[OCN, Blank]-10V, RP-LBE-G2-10W-4FT-1L-835-[OCN, Blank]-10V, RP-LBE-G2-10W-4FT-1L-850-[OCN, Blank]-10V, RP-LBE-G2-12W-4FT-1L-835-[OCN, Blank]-10V, RP-LBE-G2-12W-4FT-1L-850-[OCN, Blank]-10V
<b>Rated Inputs</b>	AC 100-277V 50/60Hz
<b>Field-Adjustable Product</b>	Yes, Wattage setting: 6W, 8W, 10W, 12W
<b>Nominal CCT</b>	3500K, 5000K
<b>Dimming Capability</b>	Continuous
<b>Integral Control Sensors</b>	Optional
<b>Date of Receipt Samples</b>	2020-10-12
<b>Date of test</b>	2020-10-20 to 2020-11-23
<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-LBE-G2-6W-4FT-1L-835-[OCN, Blank]-10V

##### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.14	60	0.048	5.69	0.986

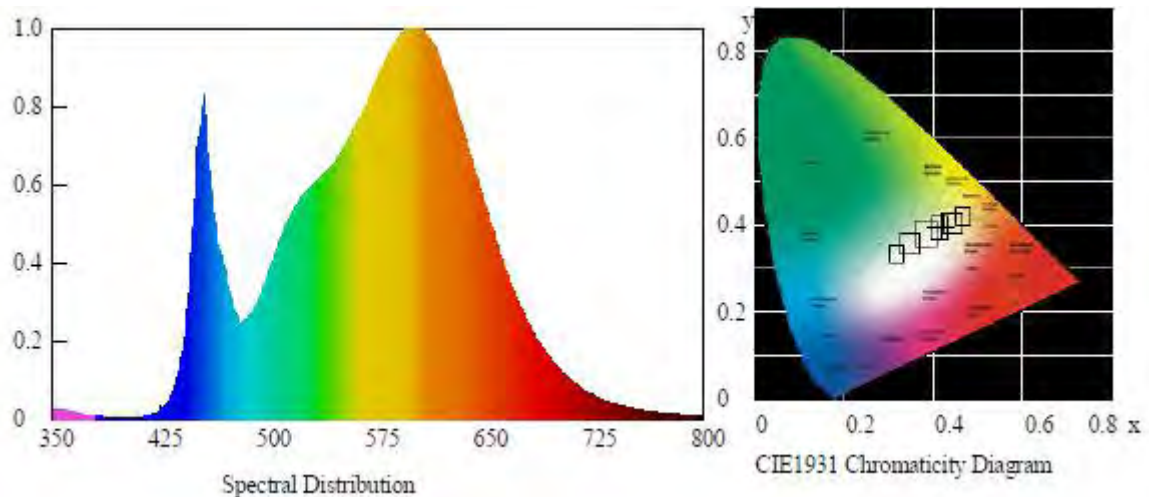
##### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
929.75	163.4	3400	83.0	7

##### Chromaticity Coordinate

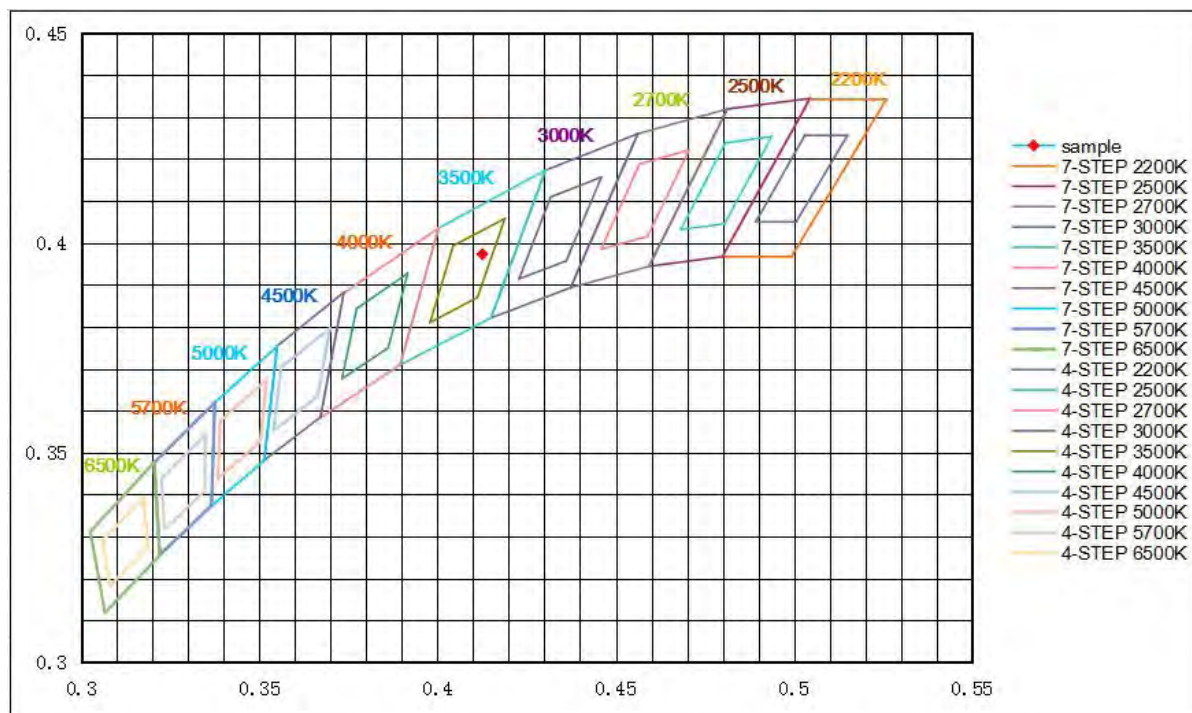
Duv	x	y	u'	v'
+0.00133	0.4126	0.3973	0.2377	0.5151

##### Spectral Distribution





### 7/4 Step Quadrangle



**3.1.2 Model Number: RP-LBE-G2-6W-4FT-1L-850-[OCN, Blank]-10V****Electrical data**

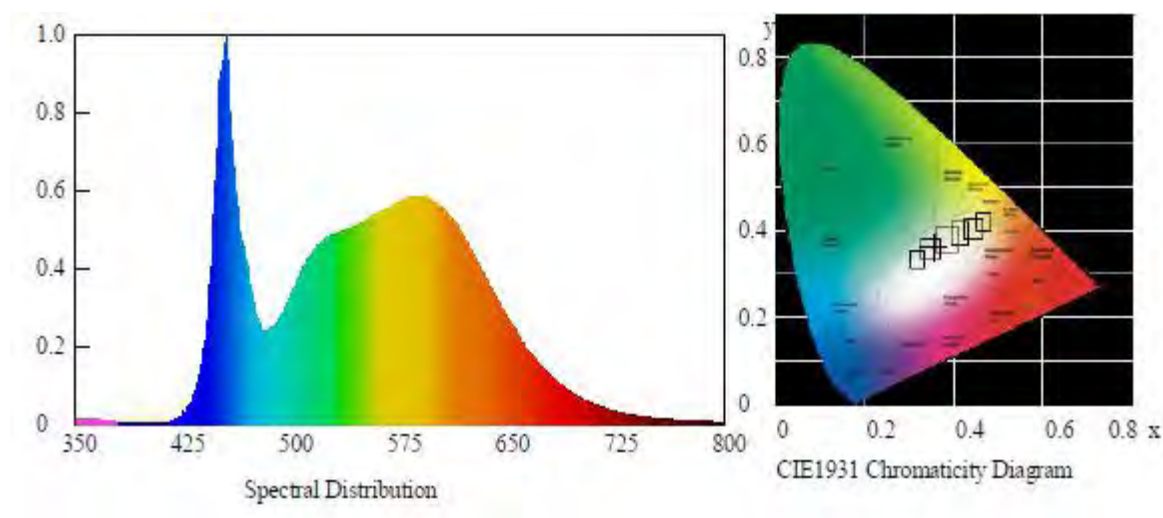
Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.14	60	0.048	5.68	0.986

**Photometric data**

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
940.61	165.6	4819	83.6	10

**Chromaticity Coordinate**

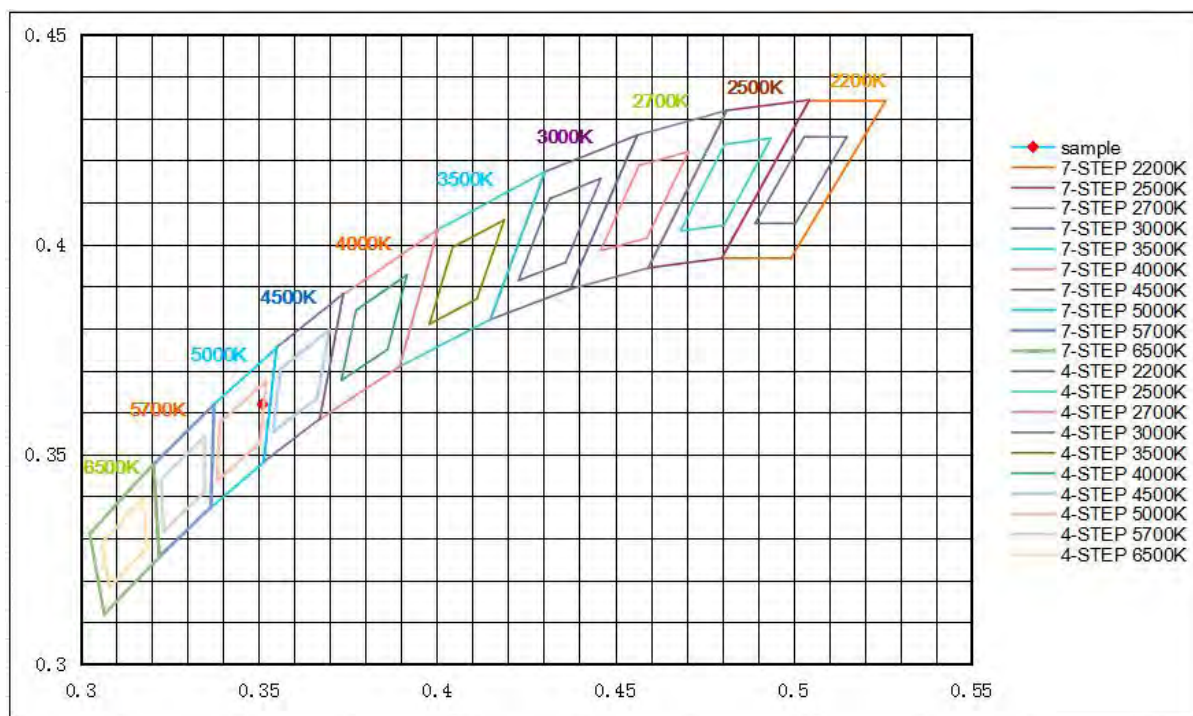
Duv	x	y	u'	v'
+0.00273	0.3511	0.3619	0.2115	0.4905

**Spectral Distribution**





### 7/4 Step Quadrangle





### 3.1.3 Model Number: RP-LBE-G2-8W-4FT-1L-835-[OCN, Blank]-10V

#### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.09	60	0.063	7.54	0.991

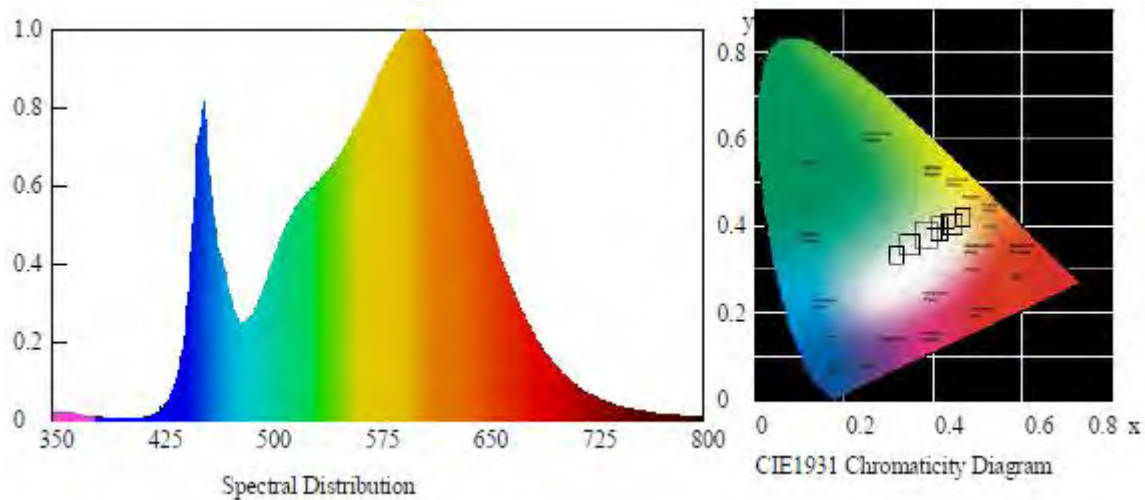
#### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1227.51	162.8	3399	83.0	7

#### Chromaticity Coordinate

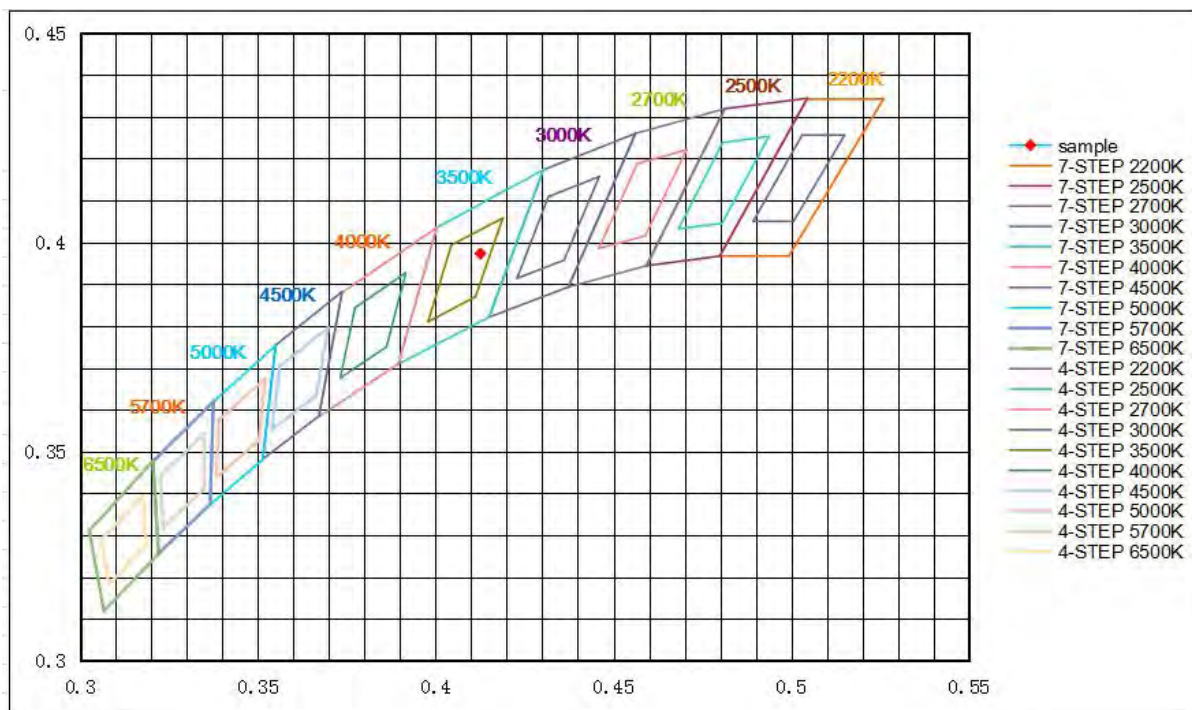
Duv	x	y	u'	v'
+0.00131	0.4126	0.3973	0.2377	0.5151

#### Spectral Distribution





### 7/4 Step Quadrangle





### 3.1.4 Model Number: RP-LBE-G2-8W-4FT-1L-850-[OCN, Blank]-10V

#### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.07	60	0.063	7.55	0.991

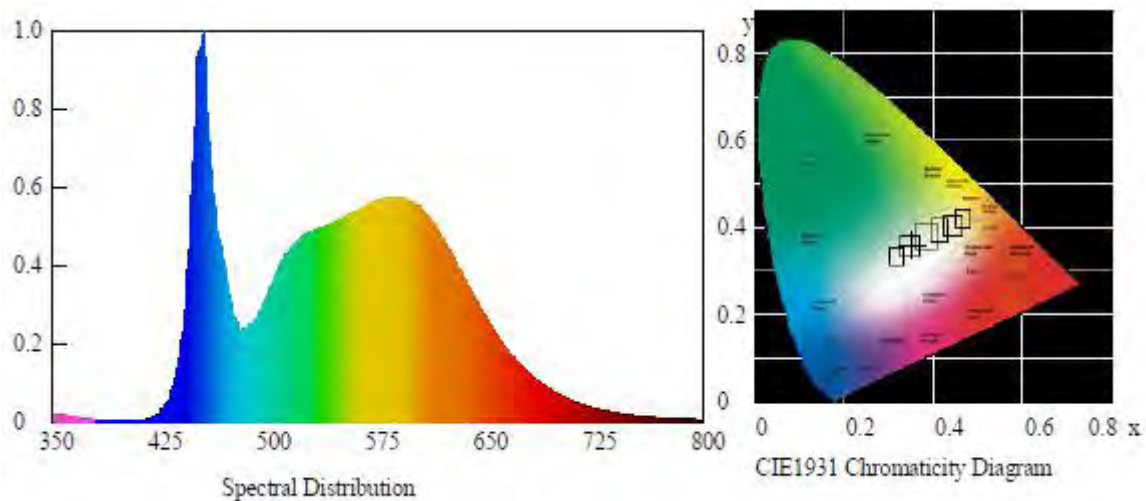
#### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1247.26	165.2	4902	83.7	11

#### Chromaticity Coordinate

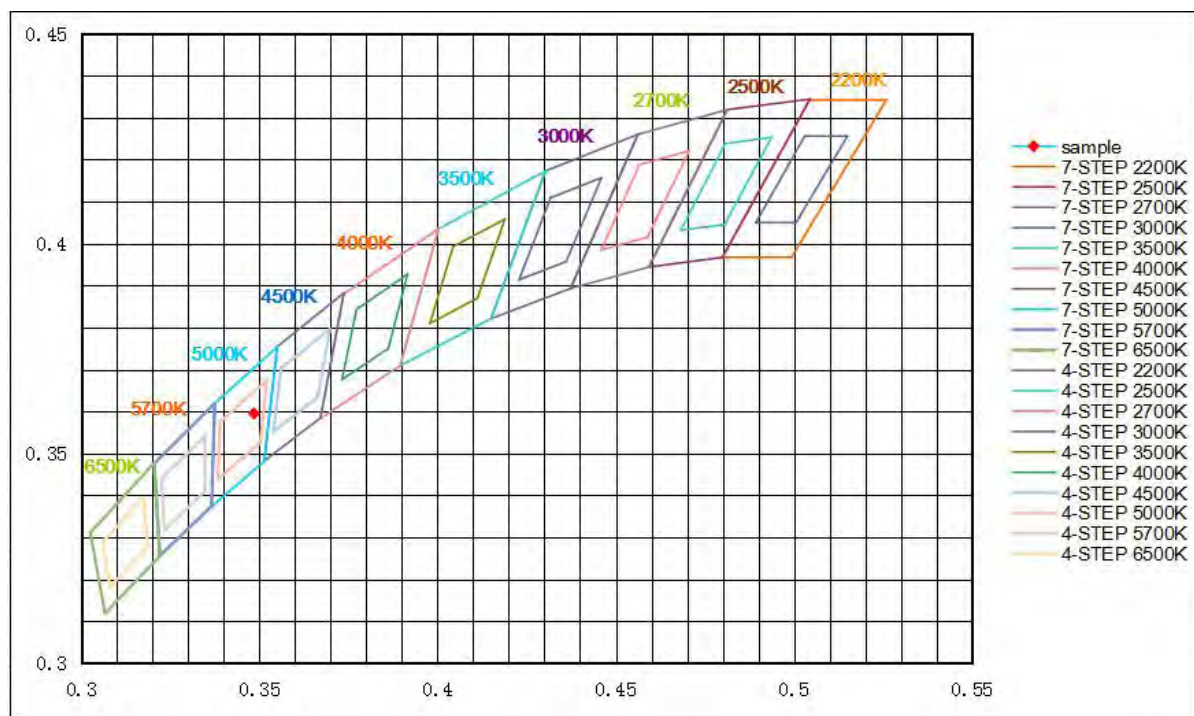
Duv	x	y	u'	v'
+0.00254	0.3485	0.3595	0.2107	0.4889

#### Spectral Distribution





### 7/4 Step Quadrangle



**3.1.5 Model Number: RP-LBE-G2-10W-4FT-1L-835-[OCN, Blank]-10V****Electrical data**

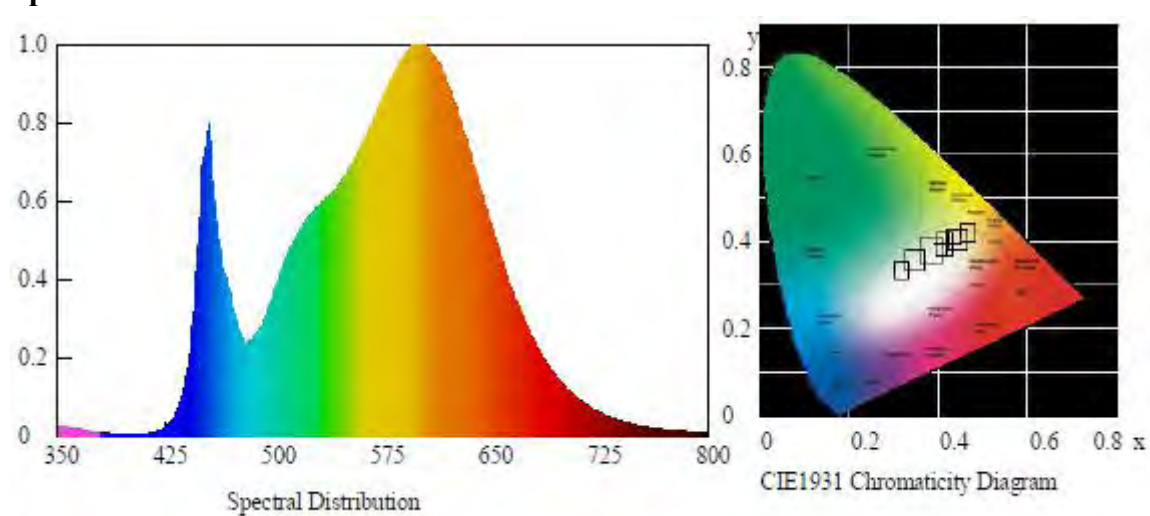
Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.10	60	0.079	9.37	0.993

**Photometric data**

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1518.88	162.1	3348	83.0	7

**Chromaticity Coordinate**

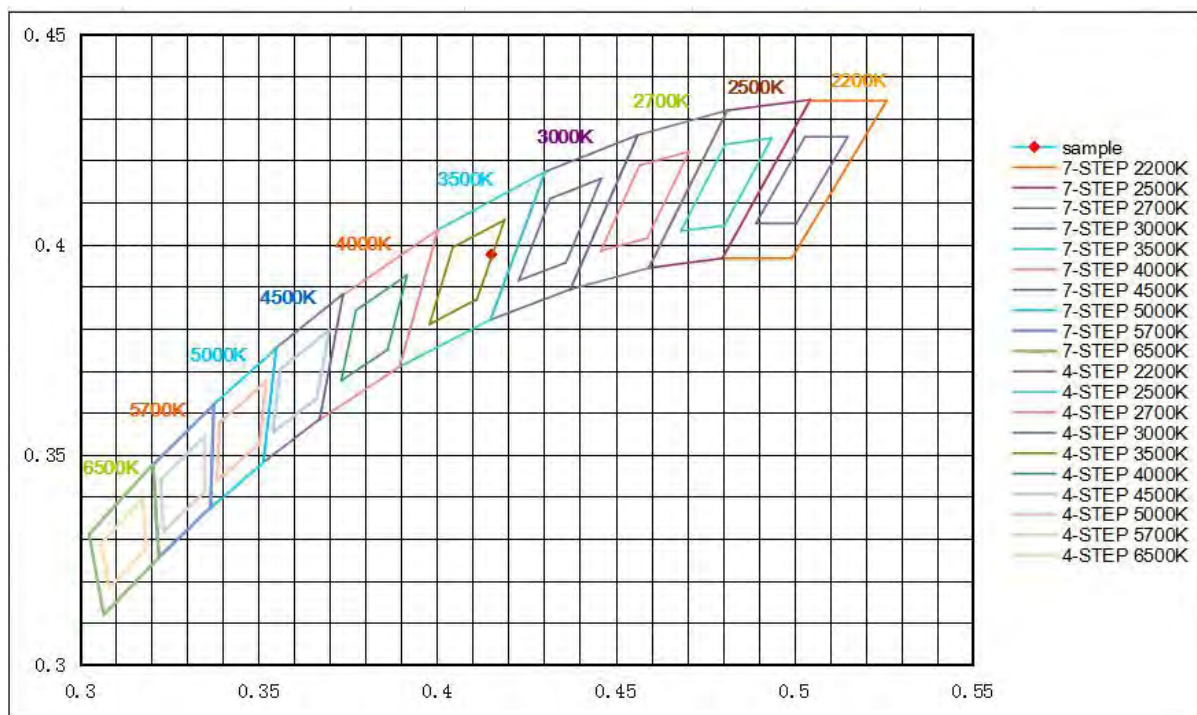
Duv	x	y	u'	v'
+0.00093	0.4152	0.3976	0.2393	0.5156

**Spectral Distribution**





### 7/4 Step Quadrangle



**3.1.6 Model Number: RP-LBE-G2-10W-4FT-1L-850-[OCN, Blank]-10V****Electrical data**

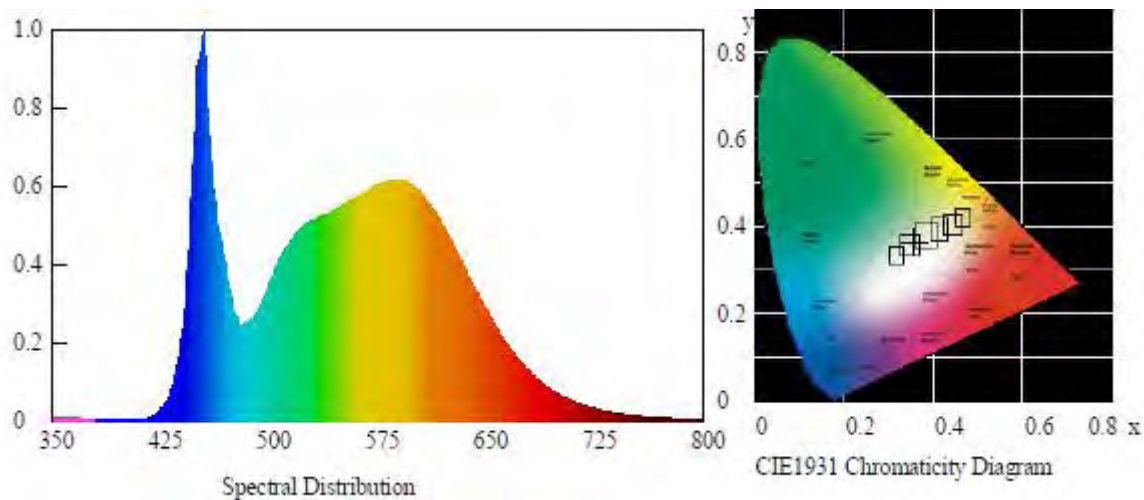
Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.17	60	0.079	9.38	0.993

**Photometric data**

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1545.82	164.8	4759	83.1	7

**Chromaticity Coordinate**

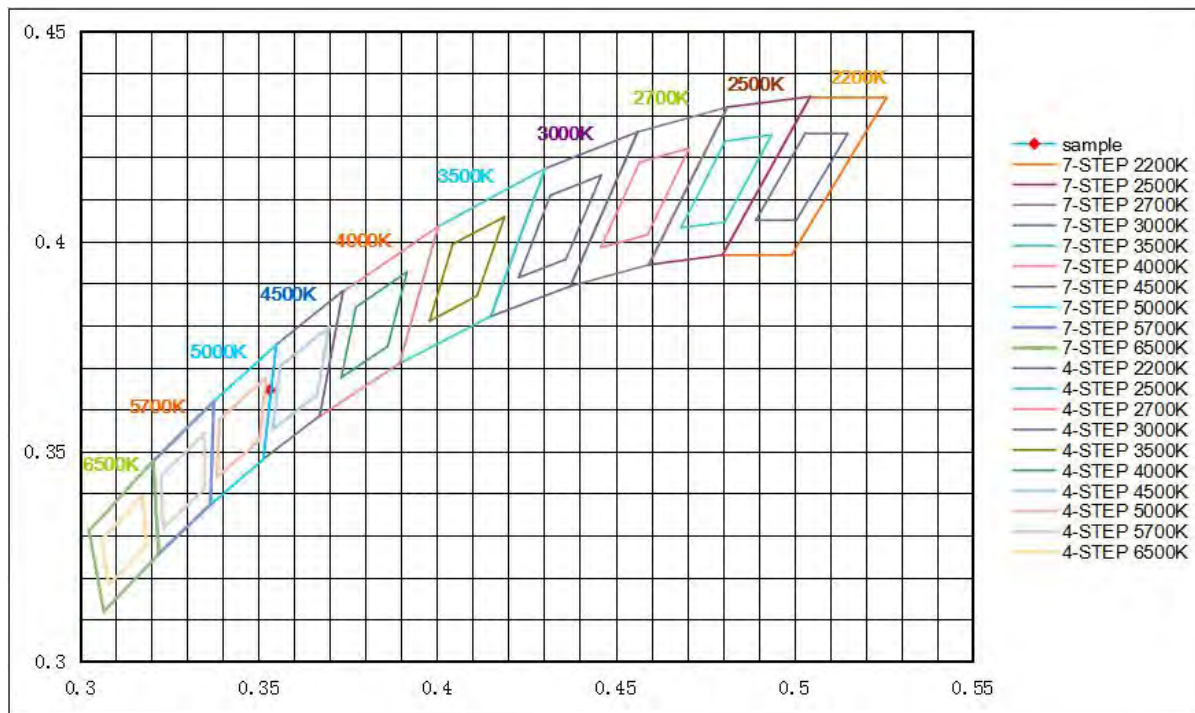
Duv	x	y	u'	v'
+0.00324	0.3532	0.3646	0.2119	0.492

**Spectral Distribution**





### 7/4 Step Quadrangle



**3.1.7 Model Number: RP-LBE-G2-12W-4FT-1L-835-[OCN, Blank]-10V****Electrical data**

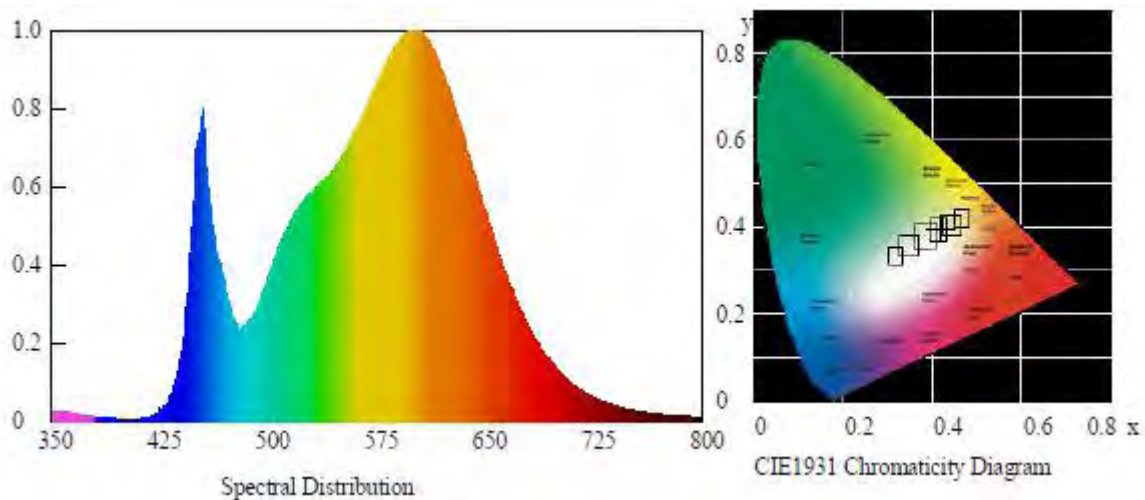
Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.07	60	0.096	11.48	0.995

**Photometric data**

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1854.02	161.5	3350	83.0	7

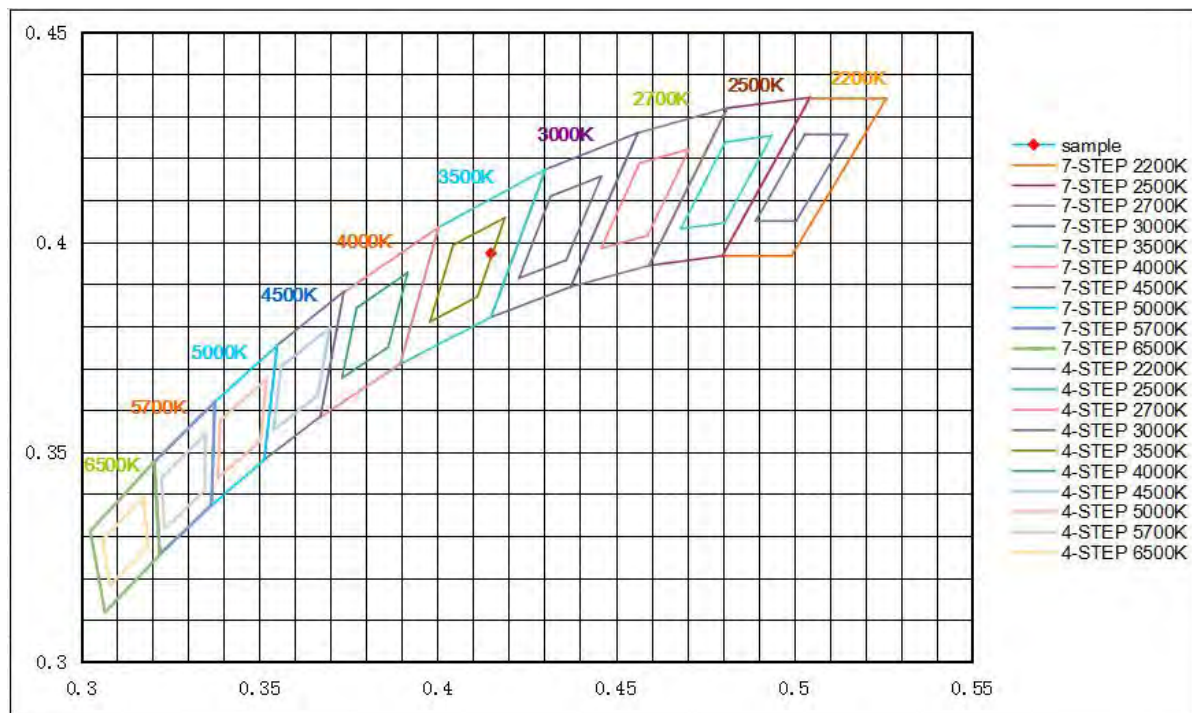
**Chromaticity Coordinate**

Duv	x	y	u'	v'
+0.00085	0.4150	0.3973	0.2393	0.5154

**Spectral Distribution**



### 7/4 Step Quadrangle



**3.1.8 Model Number: RP-LBE-G2-12W-4FT-1L-850-[OCN, Blank]-10V****Electrical data**

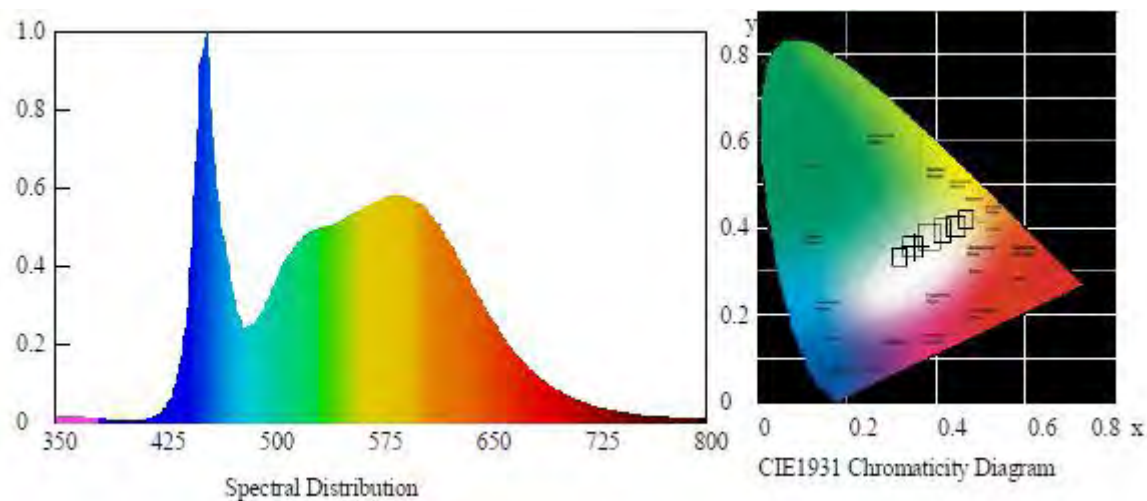
Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.06	60	0.096	11.44	0.995

**Photometric data**

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1877.30	164.1	4903	84.0	12

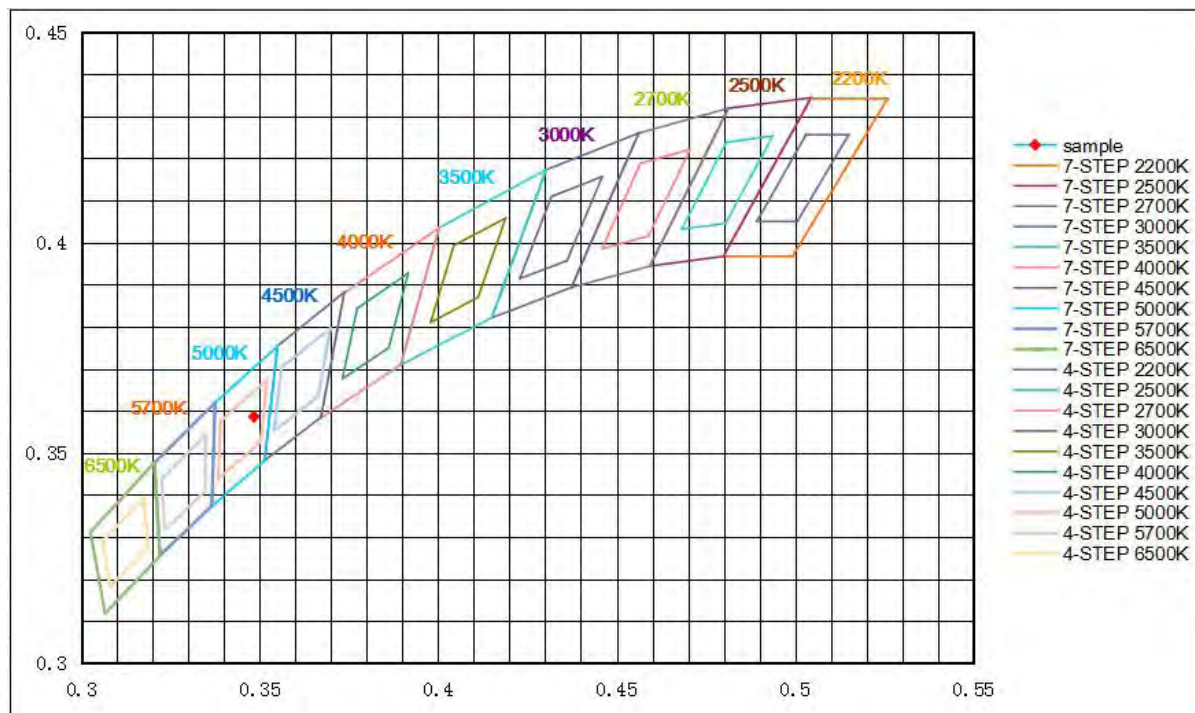
**Chromaticity Coordinate**

Duv	x	y	u'	v'
+0.00215	0.3484	0.3586	0.211	0.4885

**Spectral Distribution**



### 7/4 Step Quadrangle





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

#### 3.2.1 Model Number: RP-LBE-G2-12W-4FT-1L-835-[OCN, Blank]-10V

##### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.05	60	0.096	11.44	0.995

##### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	Zonal Lumen in 0-60°(%lm)
1838.92	160.74	74.06



**Zonal Flux Diagram**

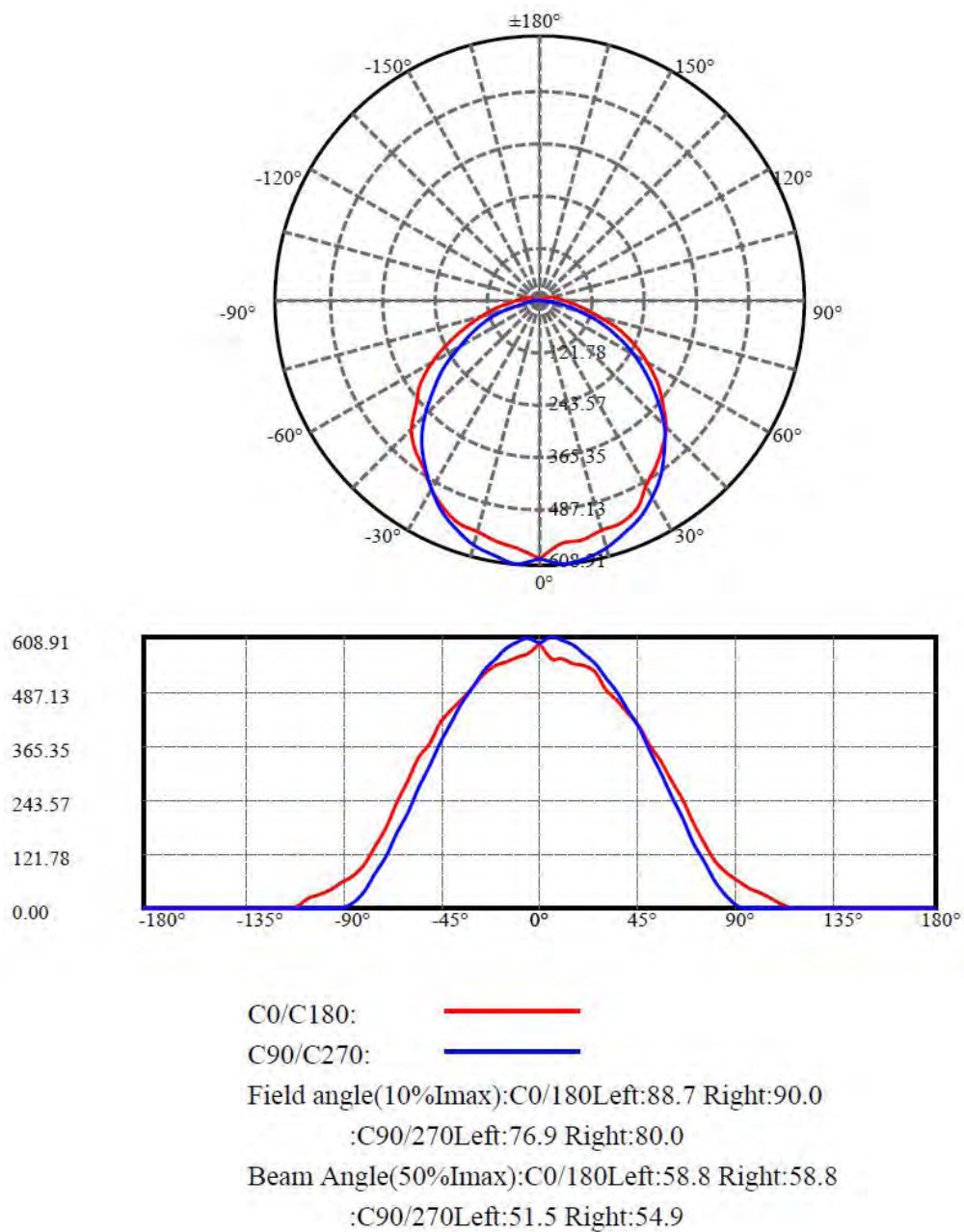
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	594.498	0.000	0	0.00%	0.00%
5.0	594.537	14.215	14.215	0.00%	0.77%
10.0	588.501	42.321	56.536	0.00%	3.07%
15.0	576.673	69.117	125.653	0.00%	6.83%
20.0	561.165	93.774	219.427	0.00%	11.93%
25.0	538.989	115.386	334.813	0.00%	18.21%
30.0	510.778	132.849	467.662	0.00%	25.43%
35.0	479.143	145.773	613.434	0.00%	33.36%
40.0	444.252	154.061	767.496	0.00%	41.74%
45.0	404.715	157.193	924.689	0.00%	50.28%
50.0	360.545	154.632	1079.321	0.00%	58.69%
55.0	316.323	147.174	1226.494	0.00%	66.70%
60.0	269.154	135.331	1361.826	0.00%	74.06%
65.0	221.380	119.250	1481.075	0.00%	80.54%
70.0	174.133	100.146	1581.221	0.00%	85.99%
75.0	130.233	79.556	1660.778	0.00%	90.31%
80.0	92.344	59.555	1720.333	0.00%	93.55%
85.0	63.334	42.301	1762.635	0.00%	95.85%
90.0	43.372	29.217	1791.852	0.00%	97.44%
95.0	31.326	20.453	1812.305	0.00%	98.55%
100.0	19.820	13.898	1826.202	0.00%	99.31%
105.0	9.472	7.838	1834.04	0.00%	99.73%
110.0	1.454	2.856	1836.896	0.00%	99.89%
115.0	0.232	0.427	1837.323	0.00%	99.91%
120.0	0.283	0.125	1837.448	0.00%	99.92%
125.0	0.335	0.143	1837.591	0.00%	99.93%
130.0	0.386	0.157	1837.748	0.00%	99.94%
135.0	0.438	0.167	1837.914	0.00%	99.95%
140.0	0.502	0.174	1838.088	0.00%	99.95%
145.0	0.528	0.172	1838.26	0.00%	99.96%
150.0	0.528	0.155	1838.416	0.00%	99.97%
155.0	0.592	0.142	1838.557	0.00%	99.98%
160.0	0.618	0.127	1838.684	0.00%	99.99%
165.0	0.631	0.103	1838.787	0.00%	99.99%
170.0	0.605	0.073	1838.861	0.00%	100.00%
175.0	0.644	0.045	1838.905	0.00%	100.00%
180.0	0.666	0.016	1838.921	0.00%	100.00%



## Luminous Intensity Distribution Diagram

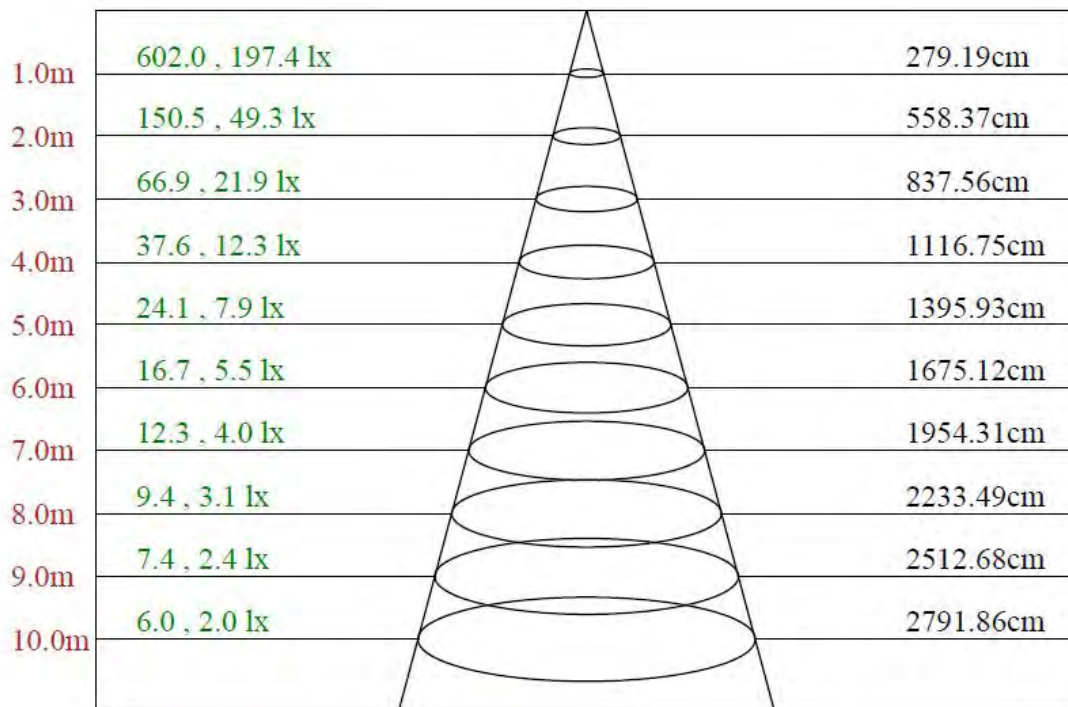
Light Distribution Curve [Unit:cd]







## Lux distance Curve



Max , Ave

Beam angle of C112.5 plane 108.77

**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	594.50	560.73	560.73	547.75	545.49	528.19	490.71	463.94	437.79
22.5	594.50	584.20	577.82	564.02	548.58	526.13	500.19	474.24	443.35
45.0	594.50	604.59	598.00	586.26	572.05	550.43	525.10	493.80	461.27
67.5	594.50	601.50	594.70	582.76	564.23	543.22	516.04	481.65	441.91
90.0	594.50	608.50	601.29	589.35	571.23	548.17	519.34	485.57	447.47
112.5	594.50	608.91	603.15	592.03	574.52	550.02	521.60	490.10	452.82
135.0	594.50	603.35	598.62	588.94	575.14	555.99	526.34	494.83	459.21
157.5	594.50	591.41	583.58	574.73	560.73	537.87	510.89	482.48	451.38
180.0	594.50	571.23	563.40	552.08	545.49	524.28	499.98	469.09	447.26
202.5	594.50	582.14	584.82	577.61	561.96	541.78	516.04	486.80	453.85
225.0	594.50	601.09	591.62	577.61	561.96	539.52	513.98	481.86	445.62
247.5	594.50	596.97	588.32	575.14	553.11	528.60	500.80	468.27	426.67
270.0	594.50	606.03	596.35	580.91	559.90	533.13	500.19	461.88	419.46
292.5	594.50	606.65	596.76	581.11	561.55	536.63	504.30	469.30	428.94
315.0	594.50	599.85	592.65	580.70	564.02	542.19	515.22	481.86	442.53
337.5	594.50	585.44	584.20	575.76	558.67	537.66	511.72	480.62	448.50
360.0	594.50	560.73	560.73	547.75	545.49	528.19	490.71	463.94	437.79
C/ $\gamma(^{\circ})$	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	408.76	367.16	329.48	287.26	243.40	192.33	144.97	107.08	78.46
22.5	407.93	372.51	337.51	294.26	246.90	201.39	155.88	114.29	85.05
45.0	422.76	379.72	337.30	291.17	243.40	198.92	156.91	116.35	83.81
67.5	401.76	356.45	306.62	257.61	211.07	165.77	125.82	91.64	60.95
90.0	403.20	354.81	303.32	251.84	199.33	148.06	102.34	61.16	25.33
112.5	409.58	359.13	311.77	260.49	208.60	162.47	119.44	83.81	52.92
135.0	417.20	374.57	329.06	282.73	237.02	191.51	146.21	104.61	74.96
157.5	416.58	378.28	335.04	291.38	245.67	193.77	146.41	105.84	77.84
180.0	416.79	370.66	334.83	285.62	235.58	182.24	135.50	98.64	72.69
202.5	414.52	373.75	332.98	285.82	236.61	188.01	138.59	100.90	75.99
225.0	405.67	362.42	316.09	269.55	224.04	177.92	133.64	95.96	70.22
247.5	380.96	333.80	288.70	238.87	191.30	146.82	108.93	77.43	48.19
270.0	371.07	319.80	267.70	216.43	166.18	117.99	74.54	38.30	11.12
292.5	383.02	333.39	282.32	232.69	185.33	141.47	102.55	71.87	43.45
315.0	402.58	358.92	314.03	268.73	222.60	180.39	140.03	99.46	71.25
337.5	413.08	373.34	334.42	292.00	245.05	197.07	151.97	110.17	81.13
360.0	408.76	367.16	329.48	287.26	243.40	192.33	144.97	107.08	78.46
C/ $\gamma(^{\circ})$	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	59.51	45.30	34.18	23.89	6.59	0.41	0.62	0.41	0.62
22.5	61.78	47.98	36.04	23.27	3.91	0.41	0.41	0.62	0.62
45.0	59.92	44.27	31.09	9.88	0.62	0.21	0.41	0.62	0.41
67.5	37.89	23.27	3.30	0.41	0.41	0.21	0.41	0.41	0.41
90.0	3.71	0.21	0.00	0.21	0.21	0.00	0.21	0.21	0.21
112.5	30.89	17.92	0.21	0.00	0.00	0.00	0.00	0.00	0.21
135.0	53.13	39.54	27.59	4.94	0.00	0.21	0.00	0.21	0.21
157.5	57.66	44.48	33.77	22.03	1.85	0.00	0.00	0.21	0.00
180.0	54.98	41.19	31.51	22.86	5.35	0.00	0.00	0.21	0.21
202.5	54.98	41.39	32.12	19.97	1.44	0.00	0.00	0.00	0.21
225.0	50.66	37.27	27.18	3.50	0.00	0.00	0.21	0.00	0.21
247.5	30.27	18.95	0.00	0.00	0.00	0.00	0.00	0.00	0.41
270.0	1.44	1.24	0.62	0.41	0.82	0.82	0.82	0.82	1.03
292.5	25.74	12.77	0.62	0.21	0.41	0.62	0.62	0.62	0.62
315.0	51.48	38.71	24.51	0.62	0.41	0.41	0.41	0.62	0.41
337.5	59.92	46.74	34.39	19.36	1.24	0.41	0.41	0.41	0.41
360.0	59.51	45.30	34.18	23.89	6.59	0.41	0.62	0.41	0.62



C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.41	0.62	0.62	0.62	0.41	0.82	0.62	0.62	0.62
22.5	0.82	0.62	0.62	0.41	0.82	0.41	0.62	0.62	0.82
45.0	0.82	0.41	0.62	0.62	0.62	0.62	0.62	0.62	0.62
67.5	0.62	0.41	0.62	0.82	0.62	0.62	0.62	0.41	0.62
90.0	0.41	0.62	0.62	0.62	0.62	0.62	0.82	0.62	0.62
112.5	0.00	0.21	0.41	0.21	0.41	0.62	0.21	0.62	0.62
135.0	0.21	0.41	0.21	0.21	0.41	0.62	0.62	0.41	0.62
157.5	0.21	0.41	0.21	0.21	0.62	0.41	0.62	0.62	0.41
180.0	0.00	0.21	0.21	0.41	0.41	0.82	0.62	0.62	0.62
202.5	0.21	0.21	0.62	0.41	0.41	0.41	0.62	0.41	0.41
225.0	0.00	0.41	0.21	0.62	0.41	0.41	0.41	0.41	0.62
247.5	0.21	0.41	0.62	0.41	0.62	0.62	0.41	0.62	0.21
270.0	1.03	1.24	1.24	1.03	1.24	1.24	1.44	1.24	1.44
292.5	0.82	0.82	0.62	0.62	0.62	0.41	0.82	0.62	0.82
315.0	0.62	0.41	0.62	0.62	0.62	0.62	0.62	0.62	0.62
337.5	0.62	0.62	0.41	0.62	0.62	0.62	0.41	0.62	0.62
360.0	0.41	0.62	0.62	0.62	0.41	0.82	0.62	0.62	0.62
C/γ(°)	180.0								
0.0	0.67								
22.5	0.67								
45.0	0.67								
67.5	0.67								
90.0	0.67								
112.5	0.67								
135.0	0.67								
157.5	0.67								
180.0	0.67								
202.5	0.67								
225.0	0.67								
247.5	0.67								
270.0	0.67								
292.5	0.67								
315.0	0.67								
337.5	0.67								
360.0	0.67								





## 4 Additional Test

### Electrical data at 277V

Model Number	Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
RP-LBE-G2-12W-4FT-1L-835-[OCN, Blank]-10V	Power Factor	277	60	0.941
	THD	277	60	12.0%

## 5 Performance Assessment

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-LBE-G2-6W-4FT-1L-835-[OCN, Blank]-10V	3500	929.75	5.69	163.4
RP-LBE-G2-6W-4FT-1L-840-[OCN, Blank]-10V	4000	933.37 * <sup>1</sup>	5.69 * <sup>2</sup>	164.2 * <sup>3</sup>
RP-LBE-G2-6W-4FT-1L-850-[OCN, Blank]-10V	5000	940.61	5.68	165.6

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

$$933.37 = (940.61 - 929.75) / 3 + 929.75$$

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

$$5.69 = (5.69 + 5.68) / 2$$

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

$$164.2 = 933.37 / 5.69$$

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-LBE-G2-8W-4FT-1L-835-[OCN, Blank]-10V	3500	1227.51	7.54	162.8
RP-LBE-G2-8W-4FT-1L-840-[OCN, Blank]-10V	4000	1234.09 * <sup>1</sup>	7.55 * <sup>2</sup>	163.6 * <sup>3</sup>
RP-LBE-G2-8W-4FT-1L-850-[OCN, Blank]-10V	5000	1247.26	7.55	165.2

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

$$1234.09 = (1247.26 - 1227.51) / 3 + 1227.51$$

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

$$7.55 = (7.54 + 7.55) / 2$$

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

$$163.6 = 1234.09 / 7.55$$



Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-LBE-G2-10W-4FT-1L-835-[OCN, Blank]-10V	3500	1518.88	9.37	162.1
RP-LBE-G2-10W-4FT-1L-840-[OCN, Blank]-10V	4000	1527.86 * <sup>1</sup>	9.38 * <sup>2</sup>	163.0 * <sup>3</sup>
RP-LBE-G2-10W-4FT-1L-850-[OCN, Blank]-10V	5000	1545.82	9.38	164.8

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

$$1527.86 = (1545.82 - 1518.88) / 3 + 1518.88$$

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

$$9.38 = (9.37 + 9.38) / 2$$

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

$$163.0 = 1527.86 / 9.38$$

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-LBE-G2-12W-4FT-1L-835-[OCN, Blank]-10V	3500	1854.02	11.48	161.5
RP-LBE-G2-12W-4FT-1L-840-[OCN, Blank]-10V	4000	1861.78 * <sup>1</sup>	11.46 * <sup>2</sup>	162.5 * <sup>3</sup>
RP-LBE-G2-12W-4FT-1L-850-[OCN, Blank]-10V	5000	1877.30	11.44	164.1

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

$$1861.78 = (1877.30 - 1854.02) / 3 + 1854.02$$

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

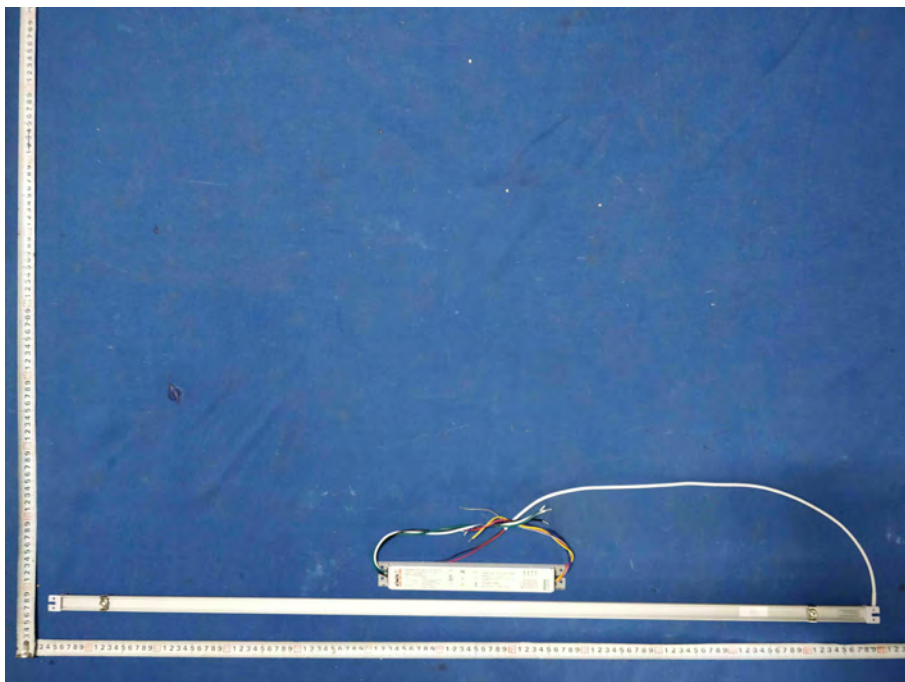
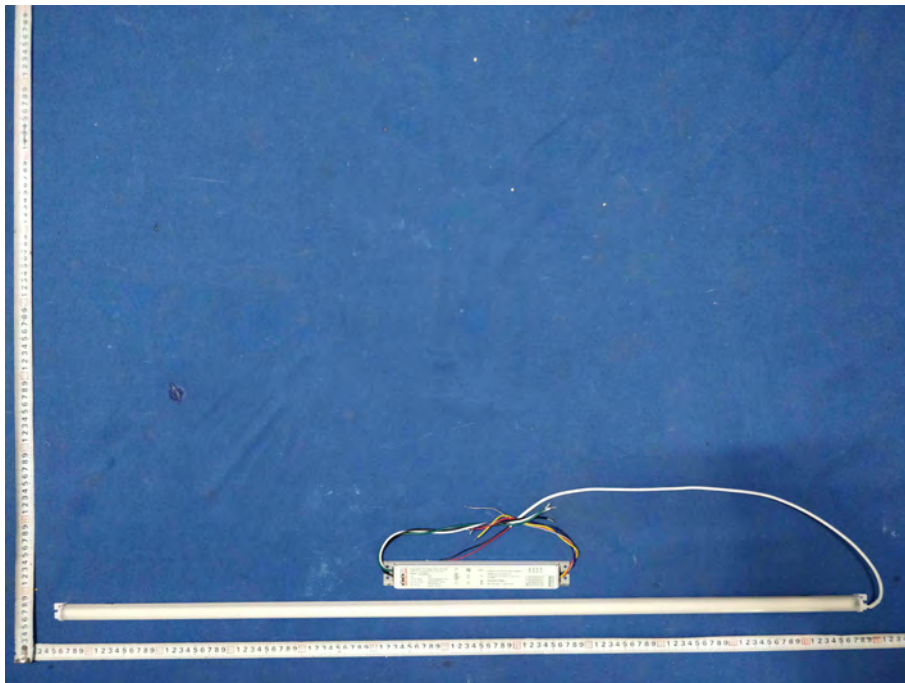
$$11.46 = (11.48 + 11.44) / 2$$

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

$$162.5 = 1861.78 / 11.46$$



## Photo Document





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