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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-3FT-1L-835-[OCN, Blank]-10V,  
RP-LBE-G2-6W-3FT-1L-850-[OCN, Blank]-10V,  
RP-LBE-G2-8W-3FT-1L-835-[OCN, Blank]-10V,  
RP-LBE-G2-8W-3FT-1L-850-[OCN, Blank]-10V,  
RP-LBE-G2-10W-3FT-1L-835-[OCN, Blank]-10V,  
RP-LBE-G2-10W-3FT-1L-850-[OCN, Blank]-10V,  
RP-LBE-G2-12W-3FT-1L-835-[OCN, Blank]-10V,  
RP-LBE-G2-12W-3FT-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.

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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. SEP296
<b>Test Model Number</b>	RP-LBE-G2-6W-3FT-1L-835-[OCN, Blank]-10V, RP-LBE-G2-6W-3FT-1L-850-[OCN, Blank]-10V, RP-LBE-G2-8W-3FT-1L-835-[OCN, Blank]-10V, RP-LBE-G2-8W-3FT-1L-850-[OCN, Blank]-10V, RP-LBE-G2-10W-3FT-1L-835-[OCN, Blank]-10V, RP-LBE-G2-10W-3FT-1L-850-[OCN, Blank]-10V, RP-LBE-G2-12W-3FT-1L-835-[OCN, Blank]-10V, RP-LBE-G2-12W-3FT-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-3FT-1L-835-[OCN, Blank]-10V

##### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.06	60	0.048	5.72	0.986

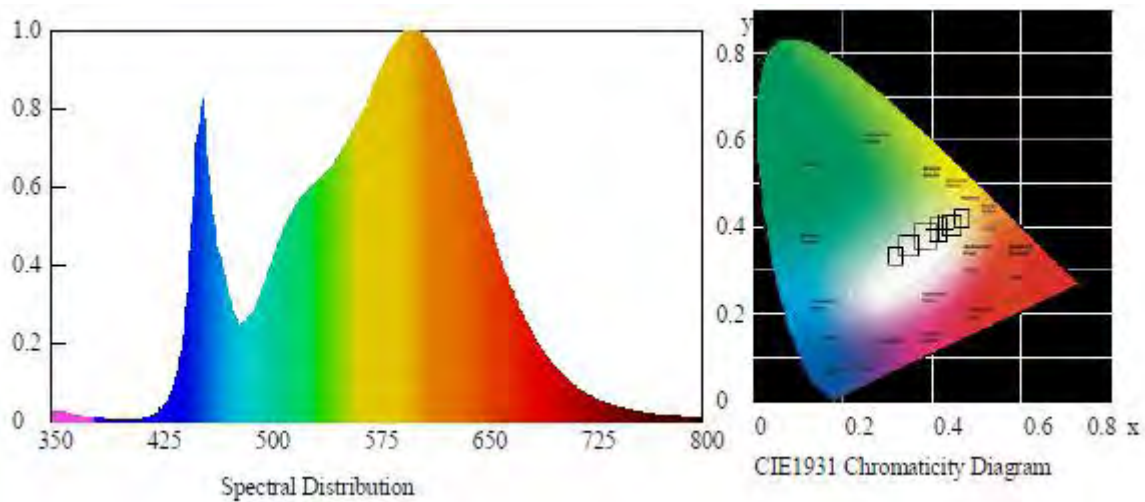
##### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
930.07	162.6	3406	83.0	7

##### Chromaticity Coordinate

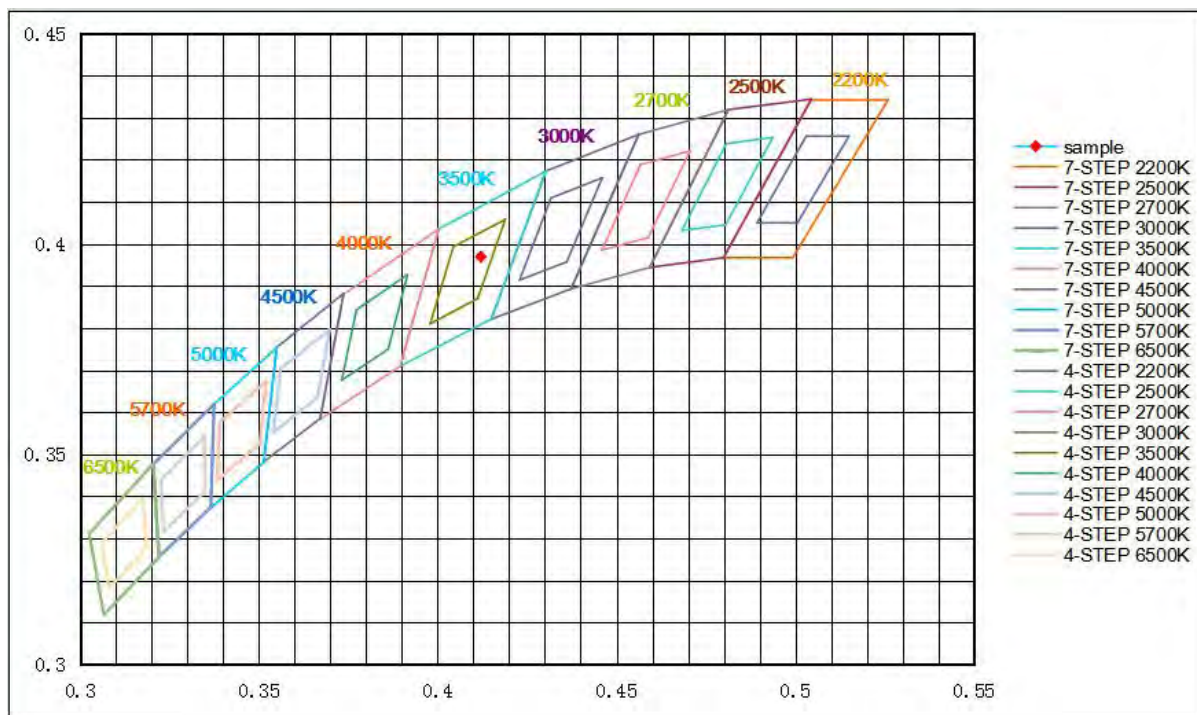
Duv	x	y	u'	v'
+0.00124	0.4121	0.3969	0.2376	0.5148

##### Spectral Distribution





### 7/4 Step Quadrangle



**3.1.2 Model Number: RP-LBE-G2-6W-3FT-1L-850-[OCN, Blank]-10V****Electrical data**

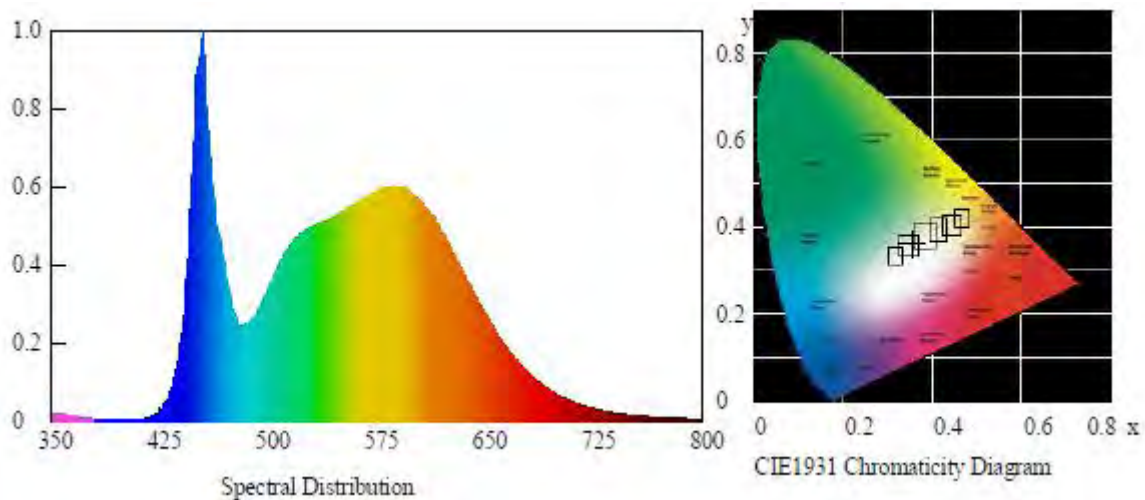
Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.07	60	0.048	5.72	0.986

**Photometric data**

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
942.08	164.7	4793	83.1	8

**Chromaticity Coordinate**

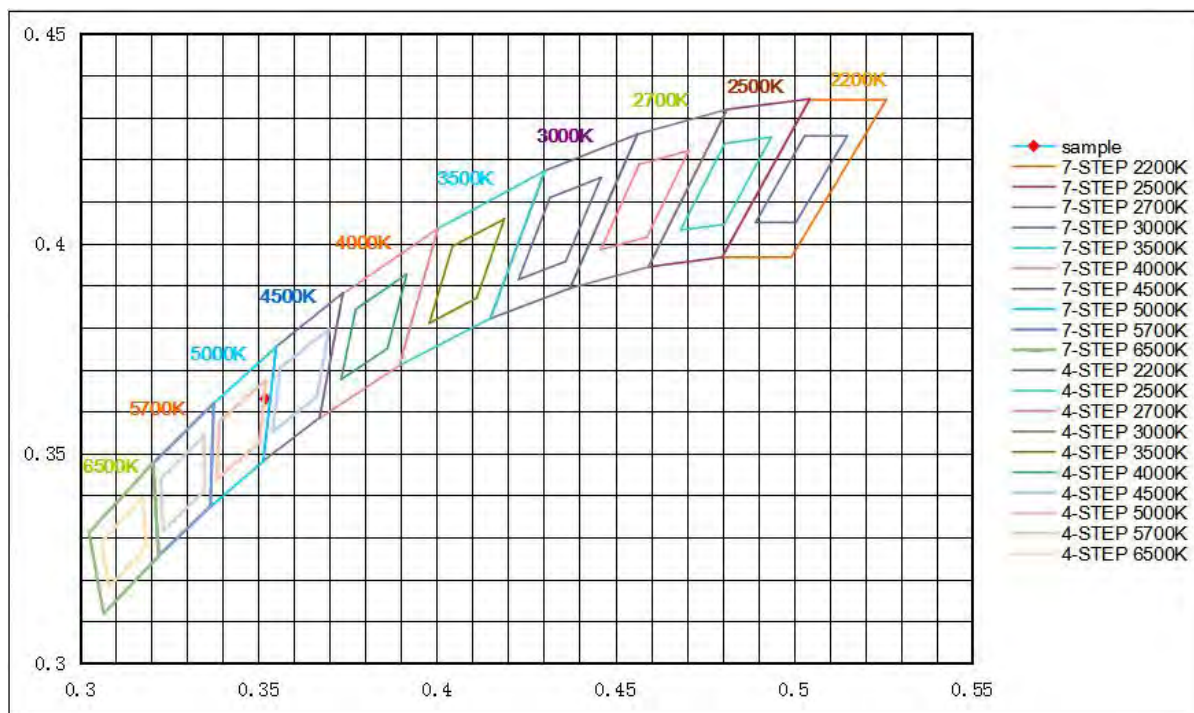
Duv	x	y	u'	v'
+0.00293	0.3520	0.3630	0.2117	0.4911

**Spectral Distribution**





### 7/4 Step Quadrangle





### 3.1.3 Model Number: RP-LBE-G2-8W-3FT-1L-835-[OCN, Blank]-10V

#### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.07	60	0.064	7.61	0.991

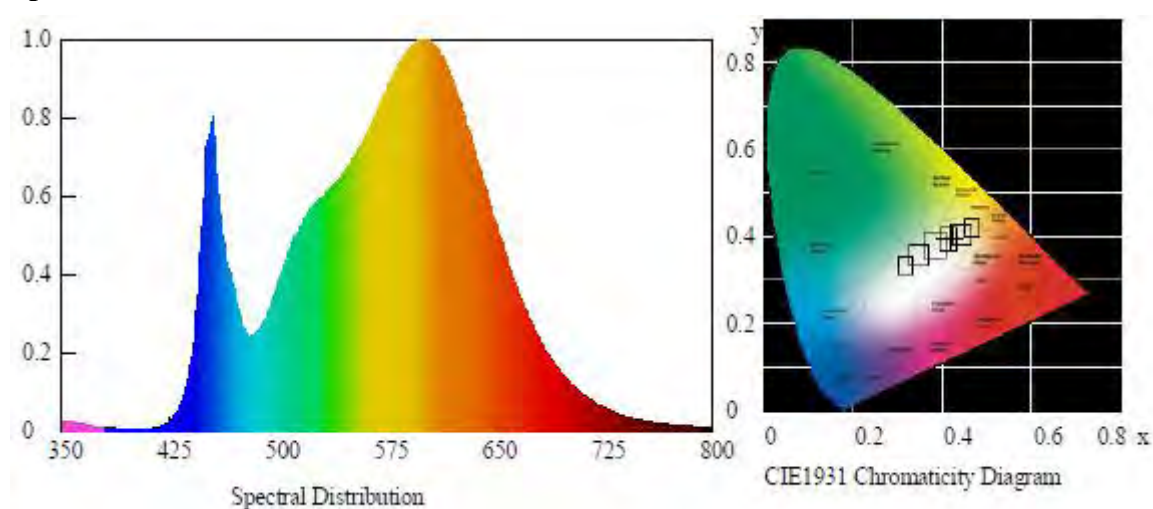
#### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1232.06	161.9	3396	83.0	7

#### Chromaticity Coordinate

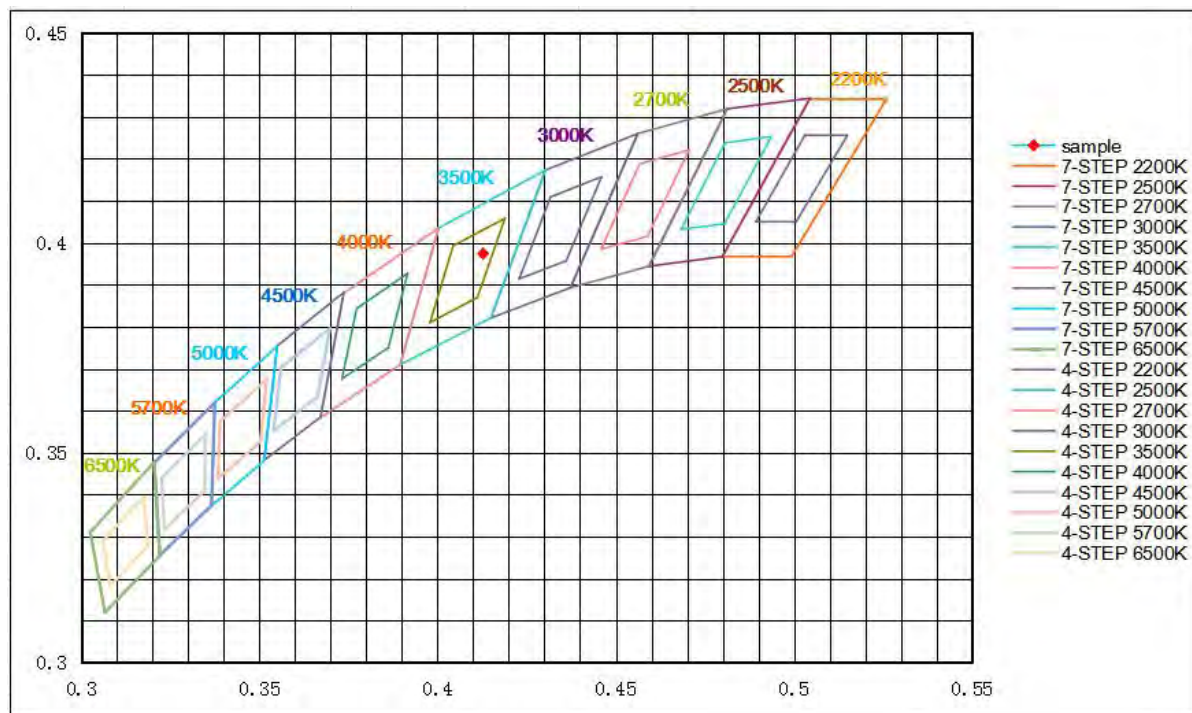
Duv	x	y	u'	v'
+0.00132	0.4128	0.3974	0.2378	0.5151

#### Spectral Distribution





### 7/4 Step Quadrangle





### 3.1.4 Model Number: RP-LBE-G2-8W-3FT-1L-850-[OCN, Blank]-10V

#### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.07	60	0.064	7.61	0.991

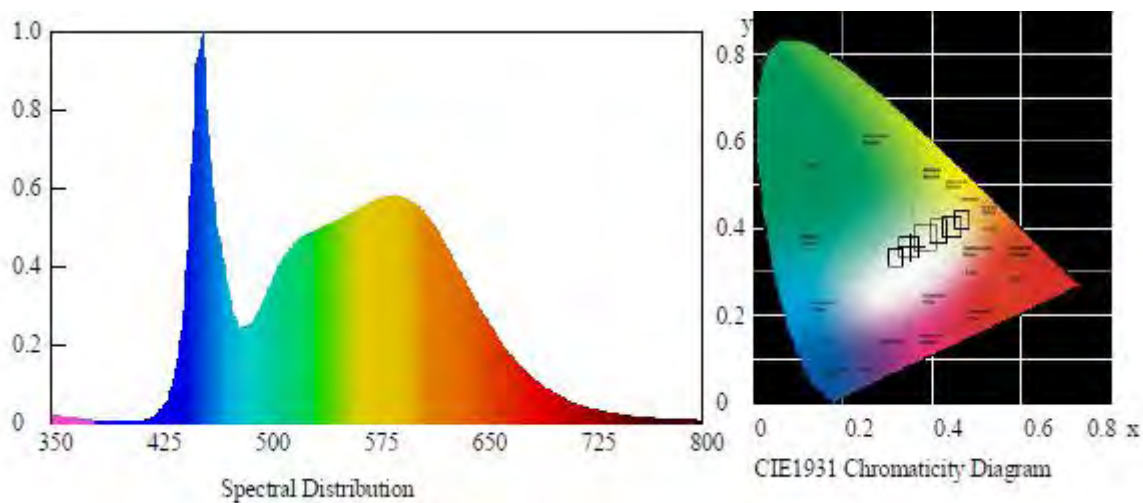
#### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1248.80	164.1	4905	83.6	10

#### Chromaticity Coordinate

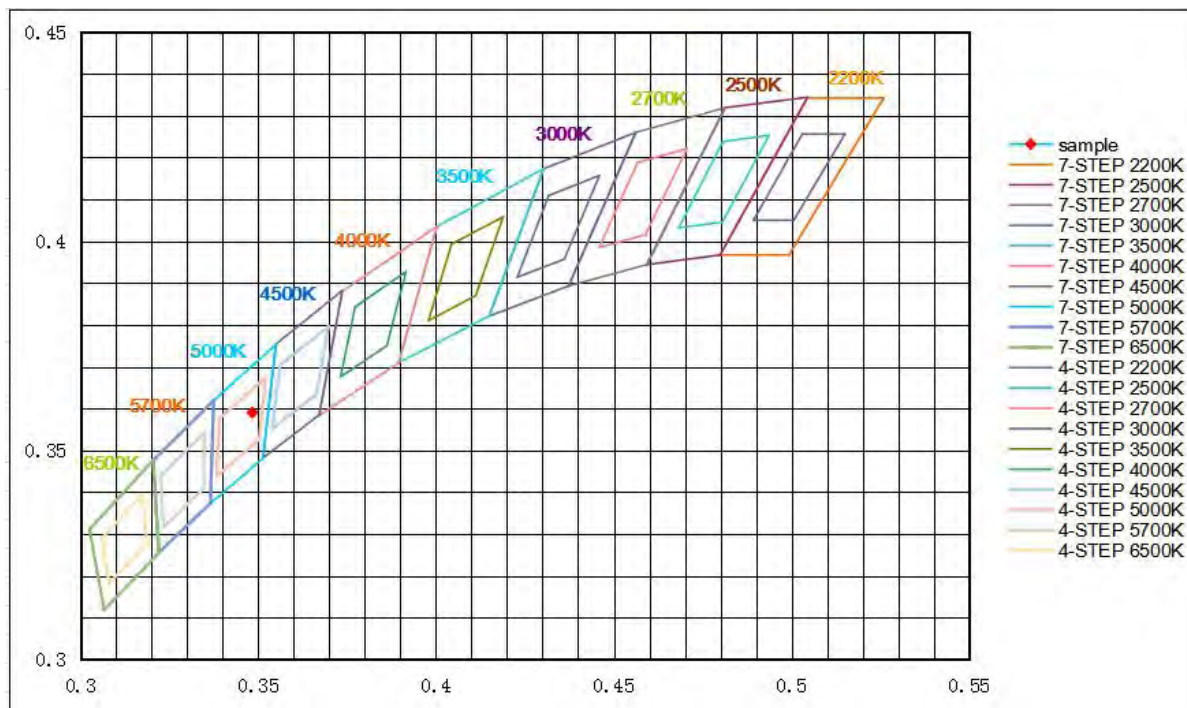
Duv	x	y	u'	v'
+0.00236	0.3484	0.3590	0.2108	0.4887

#### Spectral Distribution





### 7/4 Step Quadrangle



**3.1.5 Model Number: RP-LBE-G2-10W-3FT-1L-835-[OCN, Blank]-10V****Electrical data**

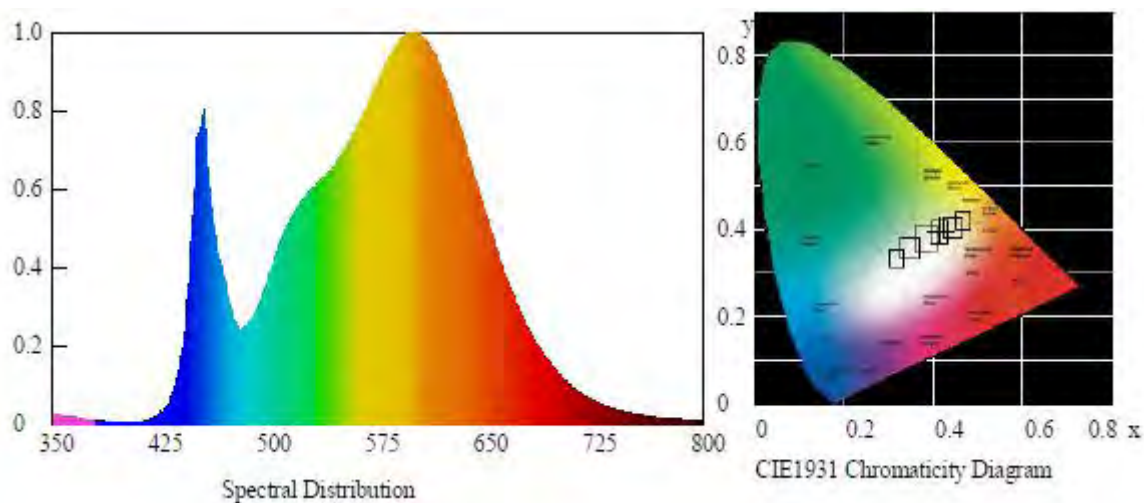
Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.03	60	0.079	9.48	0.994

**Photometric data**

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1532.92	161.7	3418	82.8	5

**Chromaticity Coordinate**

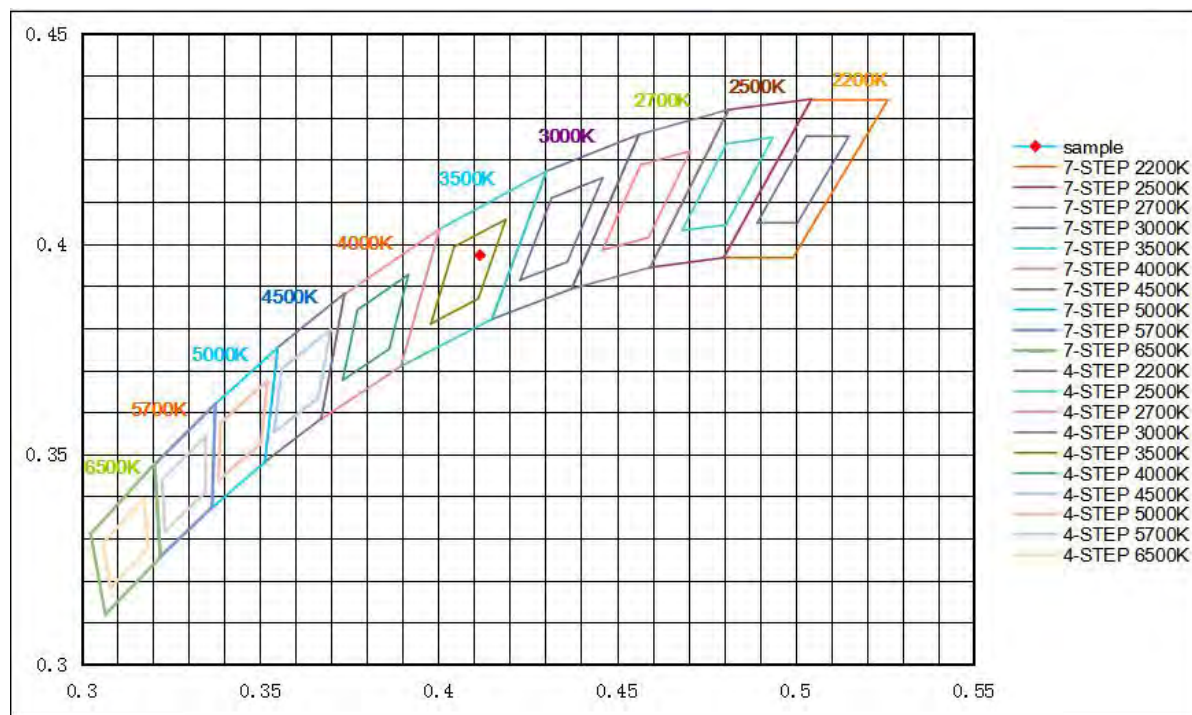
Duv	x	y	u'	v'
+0.0015	0.4116	0.3973	0.2371	0.5149

**Spectral Distribution**





### 7/4 Step Quadrangle



**3.1.6 Model Number: RP-LBE-G2-10W-3FT-1L-850-[OCN, Blank]-10V****Electrical data**

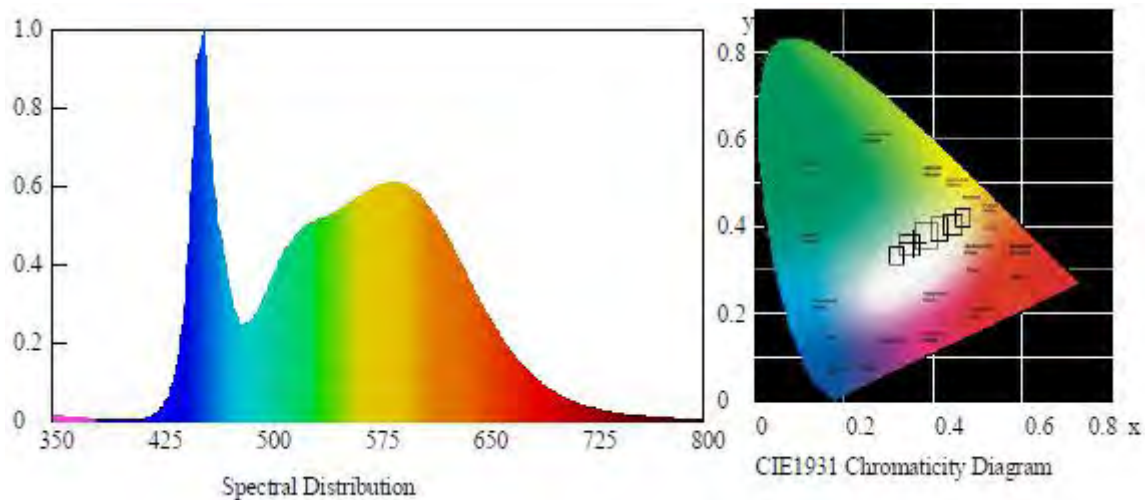
Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.20	60	0.080	9.50	0.994

**Photometric data**

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1557.05	163.9	4823	82.8	6

**Chromaticity Coordinate**

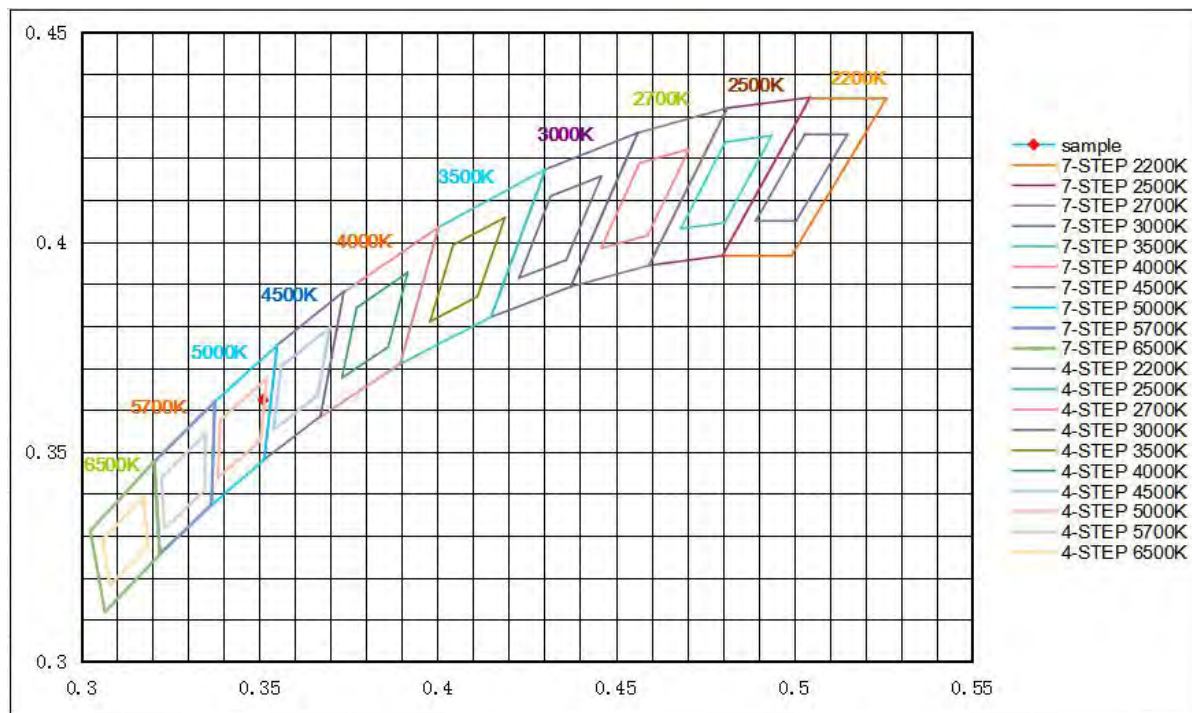
Duv	x	y	u'	v'
+0.00299	0.3511	0.3624	0.2113	0.4907

**Spectral Distribution**





### 7/4 Step Quadrangle



**3.1.7 Model Number: RP-LBE-G2-12W-3FT-1L-835-[OCN, Blank]-10V****Electrical data**

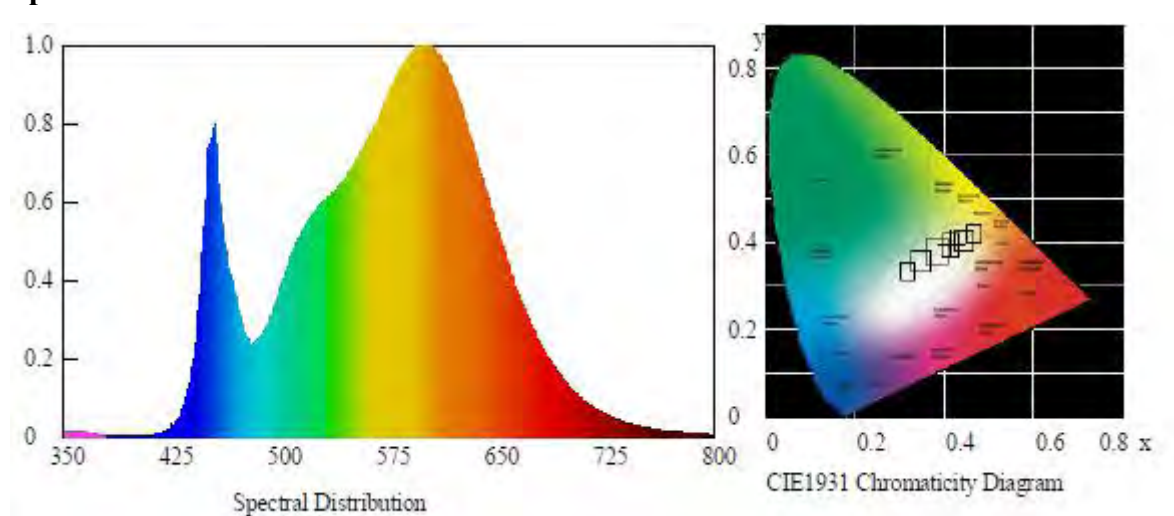
Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.97	60	0.096	11.52	0.995

**Photometric data**

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1853.57	160.9	3408	82.7	5

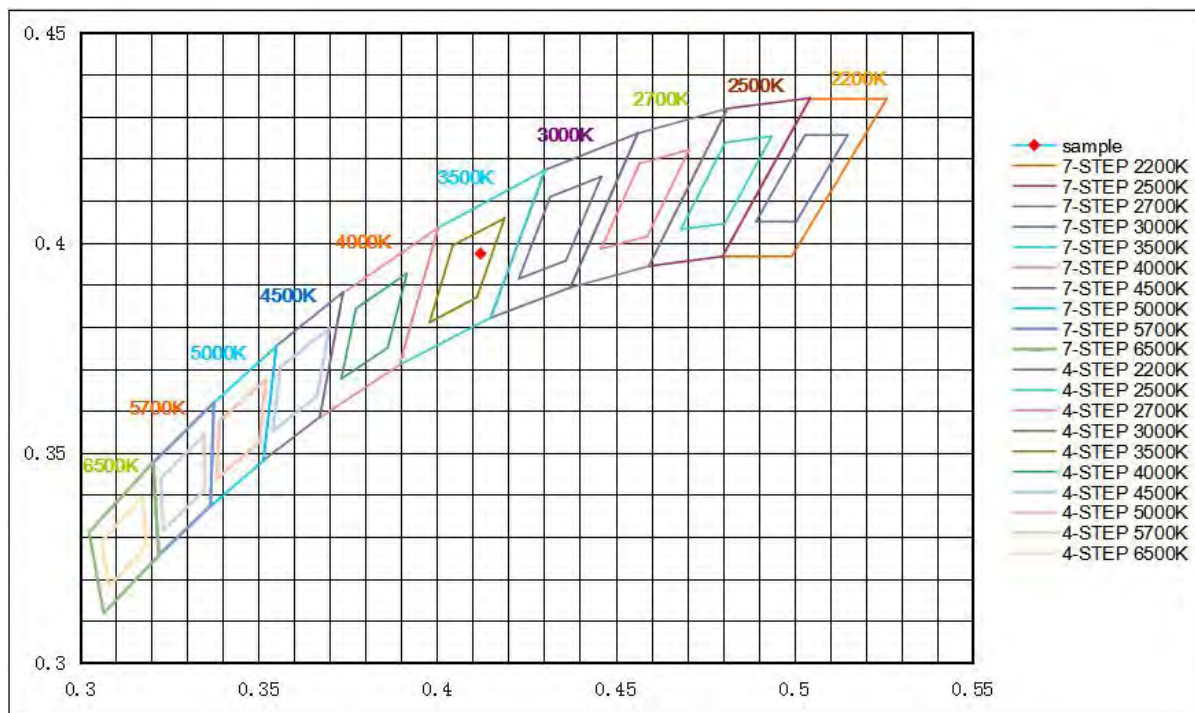
**Chromaticity Coordinate**

Duv	x	y	u'	v'
+0.00143	0.4122	0.3974	0.2374	0.515

**Spectral Distribution**



### 7/4 Step Quadrangle



**3.1.8 Model Number: RP-LBE-G2-12W-3FT-1L-850-[OCN, Blank]-10V****Electrical data**

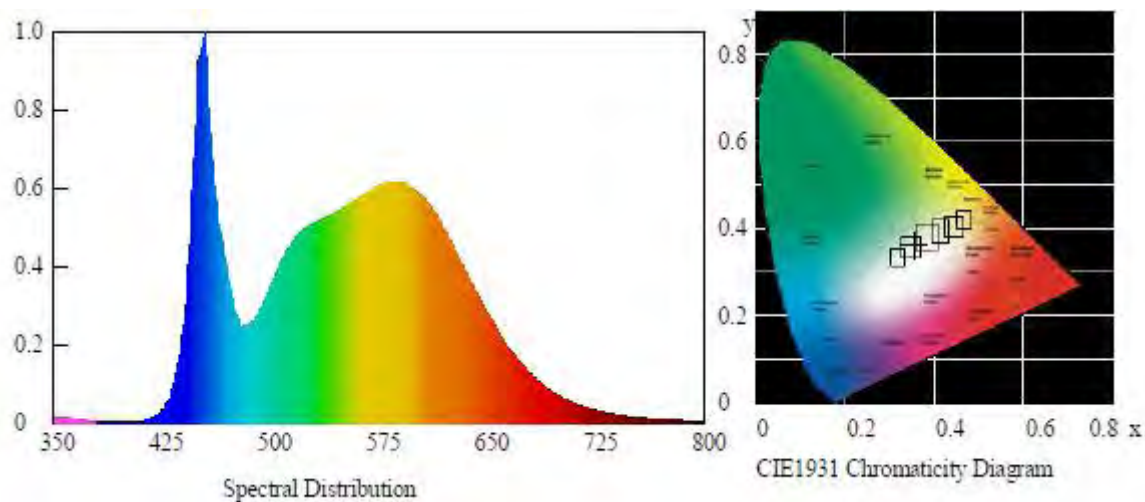
Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.05	60	0.096	11.49	0.995

**Photometric data**

Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9
1872.87	163.0	4804	82.9	7

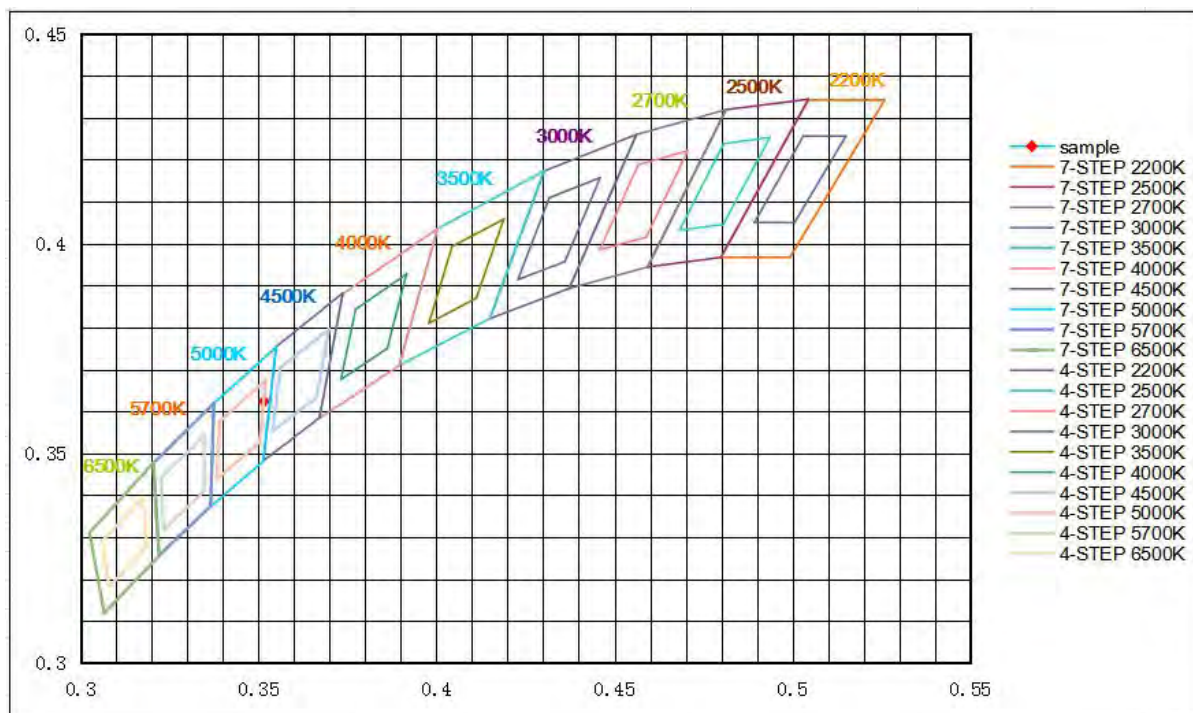
**Chromaticity Coordinate**

Duv	x	y	u'	v'
+0.00278	0.3516	0.3624	0.2117	0.4908

**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-3FT-1L-835-[OCN, Blank]-10V

##### Electrical data

Input Voltage(V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.09	60	0.096	11.49	0.9955

##### Photometric data

Luminous Flux (lm)	Efficacy (lm/W)	Zonal Lumen in 0-60°(%lm)
1839.70	160.18	73.98



**Zonal Flux Diagram**

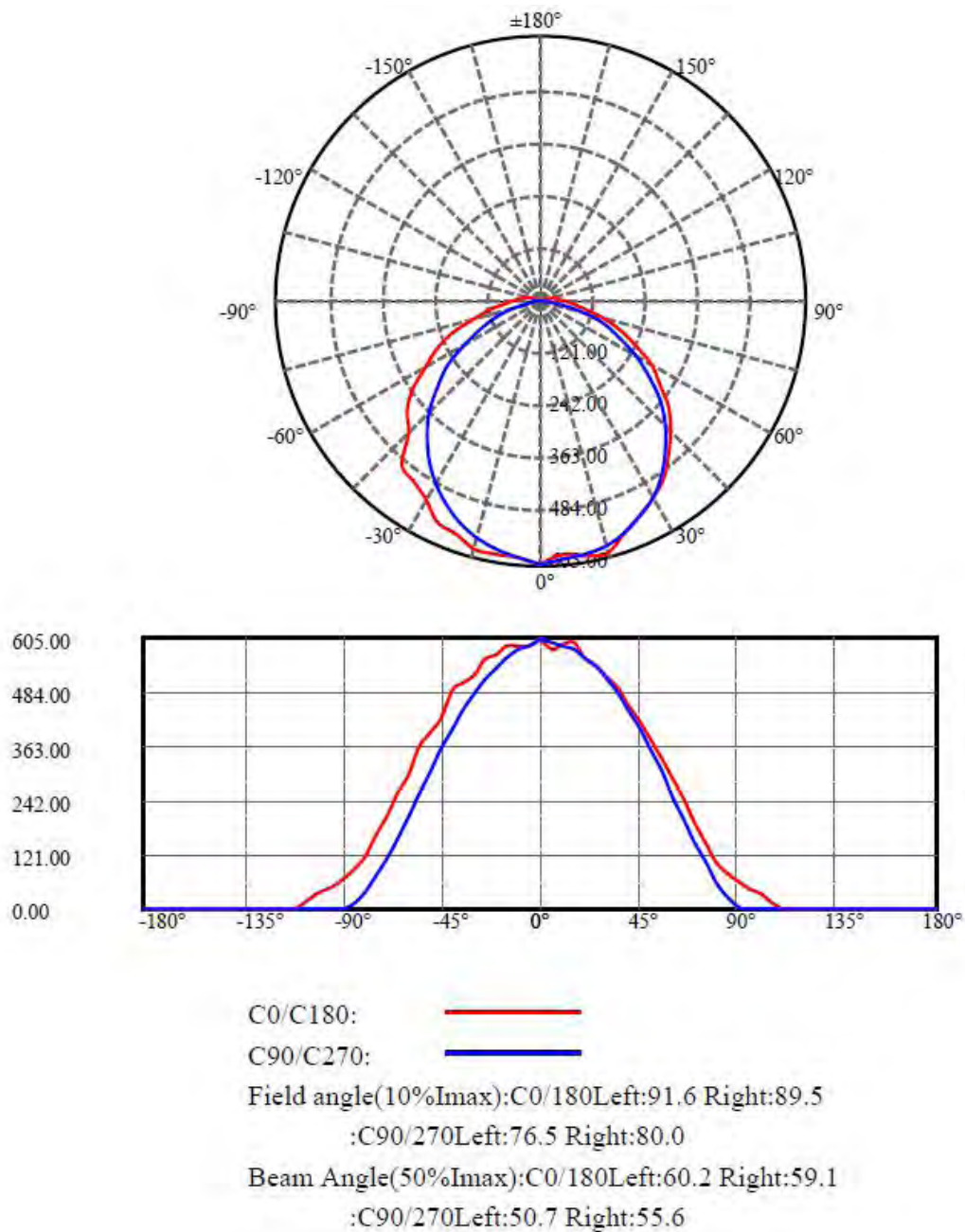
Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	600.749	0.000	0	0.00%	0.00%
5.0	594.974	14.295	14.295	0.00%	0.78%
10.0	589.247	42.363	56.658	0.00%	3.08%
15.0	578.797	69.288	125.945	0.00%	6.85%
20.0	560.096	93.861	219.806	0.00%	11.95%
25.0	537.779	115.147	334.953	0.00%	18.21%
30.0	510.134	132.614	467.568	0.00%	25.42%
35.0	479.439	145.722	613.289	0.00%	33.34%
40.0	444.329	154.124	767.413	0.00%	41.71%
45.0	403.042	156.898	924.311	0.00%	50.24%
50.0	360.905	154.367	1078.677	0.00%	58.63%
55.0	316.155	147.215	1225.893	0.00%	66.64%
60.0	268.407	135.120	1361.013	0.00%	73.98%
65.0	221.186	119.021	1480.034	0.00%	80.45%
70.0	175.266	100.384	1580.418	0.00%	85.91%
75.0	132.087	80.337	1660.755	0.00%	90.27%
80.0	93.862	60.458	1721.213	0.00%	93.56%
85.0	64.415	43.008	1764.22	0.00%	95.90%
90.0	44.750	29.890	1794.11	0.00%	97.52%
95.0	31.699	20.932	1815.043	0.00%	98.66%
100.0	19.872	14.013	1829.056	0.00%	99.42%
105.0	6.950	7.177	1836.232	0.00%	99.81%
110.0	0.528	1.955	1838.187	0.00%	99.92%
115.0	0.129	0.166	1838.353	0.00%	99.93%
120.0	0.193	0.078	1838.431	0.00%	99.93%
125.0	0.283	0.110	1838.541	0.00%	99.94%
130.0	0.335	0.134	1838.676	0.00%	99.94%
135.0	0.399	0.148	1838.824	0.00%	99.95%
140.0	0.386	0.145	1838.97	0.00%	99.96%
145.0	0.476	0.144	1839.113	0.00%	99.97%
150.0	0.476	0.140	1839.254	0.00%	99.98%
155.0	0.554	0.130	1839.384	0.00%	99.98%
160.0	0.541	0.115	1839.499	0.00%	99.99%
165.0	0.541	0.089	1839.588	0.00%	99.99%
170.0	0.502	0.062	1839.65	0.00%	100.00%
175.0	0.528	0.037	1839.687	0.00%	100.00%
180.0	0.606	0.014	1839.7	0.00%	100.00%



## Luminous Intensity Distribution Diagram

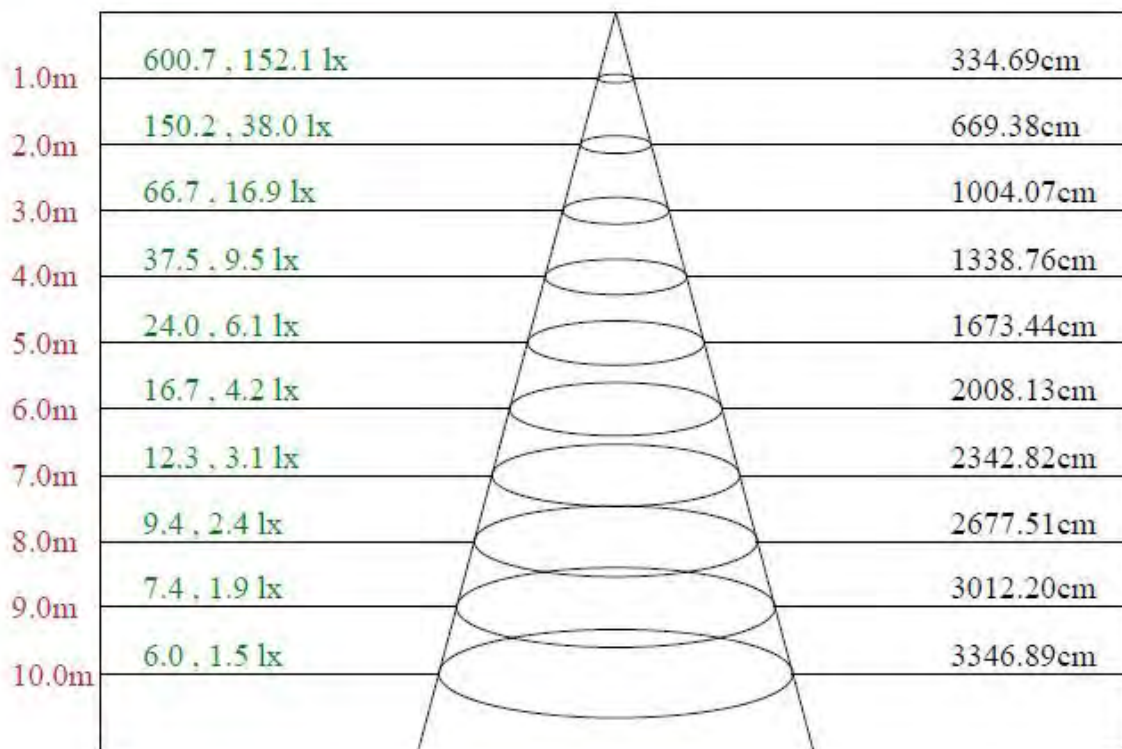
Light Distribution Curve [Unit:cd]







## Lux distance Curve



Max , Ave

Beam angle of C157.5 plane 118.28

**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	600.75	578.85	590.59	594.70	560.93	539.93	516.87	492.98	453.85
22.5	600.75	596.76	587.91	576.79	560.52	538.90	511.92	483.51	452.82
45.0	600.75	591.41	586.26	575.97	561.76	542.40	517.48	485.57	450.76
67.5	600.75	596.35	589.97	579.67	562.99	541.16	515.01	483.51	443.76
90.0	600.75	592.65	587.09	577.00	561.76	540.34	513.98	481.04	443.56
112.5	600.75	602.32	596.76	585.44	569.58	548.78	524.49	492.36	453.44
135.0	600.75	603.15	598.82	588.53	572.67	552.08	526.54	494.83	460.44
157.5	600.75	605.00	599.65	588.94	570.82	546.52	521.81	498.74	467.24
180.0	600.75	586.67	587.09	586.67	566.91	555.37	522.63	505.33	489.48
202.5	600.75	604.59	598.00	585.85	567.52	542.40	515.01	484.95	453.03
225.0	600.75	591.41	581.94	567.52	550.64	529.02	501.83	469.50	434.09
247.5	600.75	594.29	587.50	572.47	550.23	523.66	491.74	456.32	415.76
270.0	600.75	587.91	577.00	560.11	538.69	511.72	480.62	443.15	401.14
292.5	600.75	596.56	584.82	568.55	549.40	524.49	493.60	457.97	419.26
315.0	600.75	591.82	582.35	571.64	555.37	532.10	502.25	466.21	428.94
337.5	600.75	599.85	592.23	580.91	561.76	535.60	506.36	475.06	441.70
360.0	600.75	578.85	590.59	594.70	560.93	539.93	516.87	492.98	453.85
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	416.99	380.13	332.57	293.23	243.19	194.19	146.82	105.43	77.22
22.5	417.41	378.69	337.51	294.47	248.55	199.75	150.53	109.35	80.72
45.0	411.02	369.01	326.39	282.32	238.46	194.60	151.35	110.58	77.02
67.5	400.31	354.19	305.59	253.70	206.95	161.44	122.11	87.52	57.86
90.0	401.55	356.04	307.24	252.05	200.57	150.74	103.37	60.13	26.36
112.5	412.26	366.75	319.59	268.73	218.90	171.95	130.76	94.11	64.25
135.0	423.17	383.43	340.80	295.09	250.20	204.07	160.62	119.85	85.05
157.5	433.06	394.75	352.13	306.41	259.26	211.48	163.09	121.49	89.16
180.0	423.99	395.17	358.92	302.09	257.40	207.98	160.62	117.79	86.49
202.5	418.44	378.69	336.89	290.15	244.64	196.66	150.74	110.17	80.52
225.0	394.34	350.48	307.44	263.17	217.66	175.86	136.32	98.64	70.22
247.5	372.31	327.21	280.06	232.90	185.54	141.68	103.58	73.10	46.13
270.0	357.28	307.24	256.79	204.89	154.65	111.20	70.43	36.04	10.50
292.5	372.31	322.89	273.26	224.25	175.45	133.85	98.23	69.19	42.63
315.0	388.58	344.71	299.62	253.29	209.22	166.80	126.85	89.99	63.22
337.5	405.67	365.10	323.71	277.79	228.37	182.04	137.97	98.43	73.31
360.0	416.99	380.13	332.57	293.23	243.19	194.19	146.82	105.43	77.22
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	58.28	44.07	34.60	16.47	1.03	0.21	0.41	0.41	0.41
22.5	60.75	46.13	34.60	13.80	0.41	0.21	0.41	0.41	0.41
45.0	56.42	40.98	26.56	1.03	0.21	0.21	0.41	0.21	0.41
67.5	34.18	19.77	0.62	0.00	0.00	0.21	0.41	0.41	0.21
90.0	4.12	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.21
112.5	38.71	23.48	1.44	0.00	0.00	0.00	0.00	0.00	0.21
135.0	62.60	45.30	32.33	6.18	0.00	0.00	0.00	0.21	0.00
157.5	67.54	49.83	39.13	21.62	1.65	0.00	0.00	0.21	0.21
180.0	64.87	49.83	38.10	23.27	3.50	0.00	0.00	0.21	0.00
202.5	60.75	46.13	35.01	16.47	0.21	0.00	0.00	0.00	0.21
225.0	51.07	37.27	23.89	0.62	0.00	0.00	0.00	0.00	0.21
247.5	27.80	15.03	0.21	0.00	0.00	0.00	0.00	0.21	0.21
270.0	1.03	1.03	1.03	0.62	0.41	0.41	0.62	0.62	1.03
292.5	26.36	12.56	0.62	0.21	0.41	0.41	0.41	0.21	0.62
315.0	46.74	34.39	18.33	0.41	0.41	0.21	0.21	0.62	0.62
337.5	54.78	41.39	31.51	10.50	0.21	0.21	0.21	0.41	0.41
360.0	58.28	44.07	34.60	16.47	1.03	0.21	0.41	0.41	0.41





C/ $\gamma$ (°)	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	0.62	0.62	0.62	0.41	0.41
22.5	0.41	0.62	0.62	0.41	0.62	0.62	0.62	0.62	0.62
45.0	0.41	0.41	0.62	0.62	0.62	0.62	0.62	0.41	0.41
67.5	0.41	0.41	0.62	0.41	0.62	0.62	0.62	0.62	0.41
90.0	0.41	0.41	0.41	0.62	0.62	0.62	0.62	0.62	0.82
112.5	0.21	0.21	0.21	0.41	0.41	0.41	0.62	0.62	0.41
135.0	0.21	0.00	0.21	0.21	0.41	0.41	0.41	0.41	0.62
157.5	0.21	0.00	0.21	0.41	0.21	0.41	0.41	0.41	0.41
180.0	0.21	0.21	0.21	0.21	0.62	0.41	0.41	0.41	0.41
202.5	0.21	0.21	0.21	0.21	0.41	0.41	0.41	0.41	0.62
225.0	0.21	0.21	0.41	0.21	0.41	0.41	0.62	0.21	0.41
247.5	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.21
270.0	1.03	0.82	1.24	1.03	1.24	0.82	1.03	1.03	0.82
292.5	0.82	0.62	0.62	0.62	0.62	0.62	0.41	0.41	0.62
315.0	0.41	0.62	0.41	0.82	0.62	0.41	0.41	0.62	0.62
337.5	0.41	0.41	0.62	0.41	0.41	0.82	0.41	0.41	0.62
360.0	0.41	0.62	0.62	0.62	0.62	0.62	0.62	0.41	0.41
C/ $\gamma$ (°)	180.0								
0.0	0.61								
22.5	0.61								
45.0	0.61								
67.5	0.61								
90.0	0.61								
112.5	0.61								
135.0	0.61								
157.5	0.61								
180.0	0.61								
202.5	0.61								
225.0	0.61								
247.5	0.61								
270.0	0.61								
292.5	0.61								
315.0	0.61								
337.5	0.61								
360.0	0.61								



## 4 Additional Test

### Electrical data at 277V

Model Number	Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
RP-LBE-G2-12W-3FT-1L-835-[OCN, Blank]-10V	Power Factor	277	60	0.941
	THD	277	60	11.9%

## 5 Performance Assessment

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-LBE-G2-6W-3FT-1L-835-[OCN, Blank]-10V	3500	930.07	5.72	162.6
RP-LBE-G2-6W-3FT-1L-840-[OCN, Blank]-10V	4000	934.07 * <sup>1</sup>	5.72 * <sup>2</sup>	163.3 * <sup>3</sup>
RP-LBE-G2-6W-3FT-1L-850-[OCN, Blank]-10V	5000	942.08	5.72	164.7

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

$$934.07 = (942.08 - 930.07) / 3 + 930.07$$

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

$$5.72 = (5.72 + 5.72) / 2$$

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

$$163.3 = 934.07 / 5.72$$

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-LBE-G2-8W-3FT-1L-835-[OCN, Blank]-10V	3500	1232.06	7.61	161.9
RP-LBE-G2-8W-3FT-1L-840-[OCN, Blank]-10V	4000	1237.64 * <sup>1</sup>	7.61 * <sup>2</sup>	162.6 * <sup>3</sup>
RP-LBE-G2-8W-3FT-1L-850-[OCN, Blank]-10V	5000	1248.80	7.61	164.1

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

$$1237.64 = (1248.80 - 1232.06) / 3 + 1232.06$$

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

$$7.61 = (7.61 + 7.61) / 2$$

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

$$162.6 = 1237.64 / 7.61$$



Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-LBE-G2-10W-3FT-1L -835-[OCN, Blank]-10V	3500	1532.92	9.48	161.7
RP-LBE-G2-10W-3FT-1L -840-[OCN, Blank]-10V	4000	1540.96 * <sup>1</sup>	9.49 * <sup>2</sup>	162.4 * <sup>3</sup>
RP-LBE-G2-10W-3FT-1L -850-[OCN, Blank]-10V	5000	1557.05	9.50	163.9

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

$$1540.96 = (1557.05 - 1532.92) / 3 + 1532.92$$

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

$$9.49 = (9.48 + 9.50) / 2$$

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

$$162.4 = 1540.96 / 9.49$$

Model name	CCT(K)	Total Luminous(lm)	Power(W)	Luminous Efficacy(lm/W)
RP-LBE-G2-12W-3FT-1L -835-[OCN, Blank]-10V	3500	1853.57	11.52	160.9
RP-LBE-G2-12W-3FT-1L -840-[OCN, Blank]-10V	4000	1860.00 * <sup>1</sup>	11.51 * <sup>2</sup>	161.7 * <sup>3</sup>
RP-LBE-G2-12W-3FT-1L -850-[OCN, Blank]-10V	5000	1872.87	11.49	163.0

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

$$1860.00 = (1872.87 - 1853.57) / 3 + 1853.57$$

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

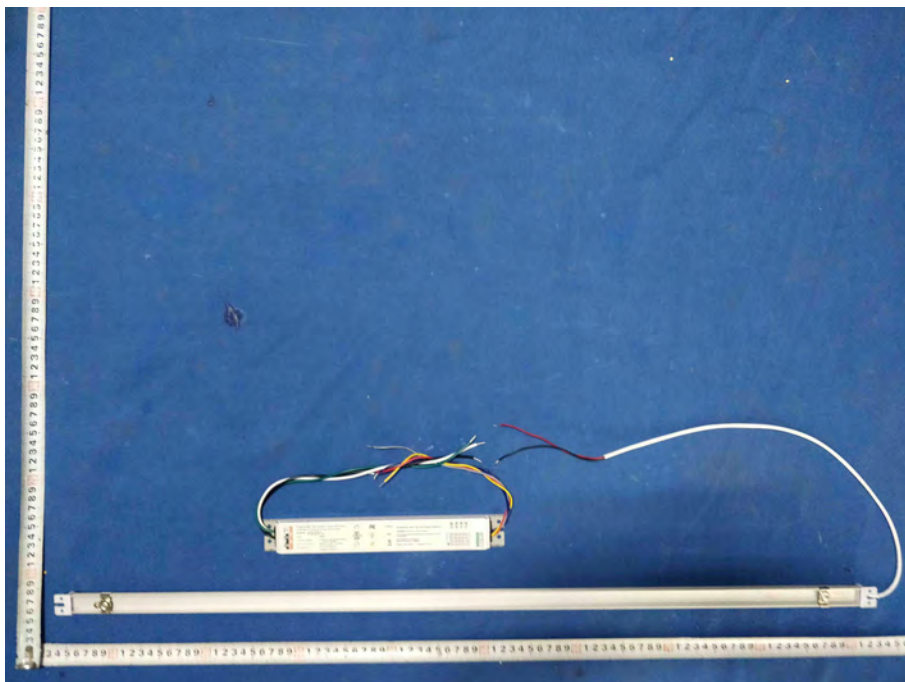
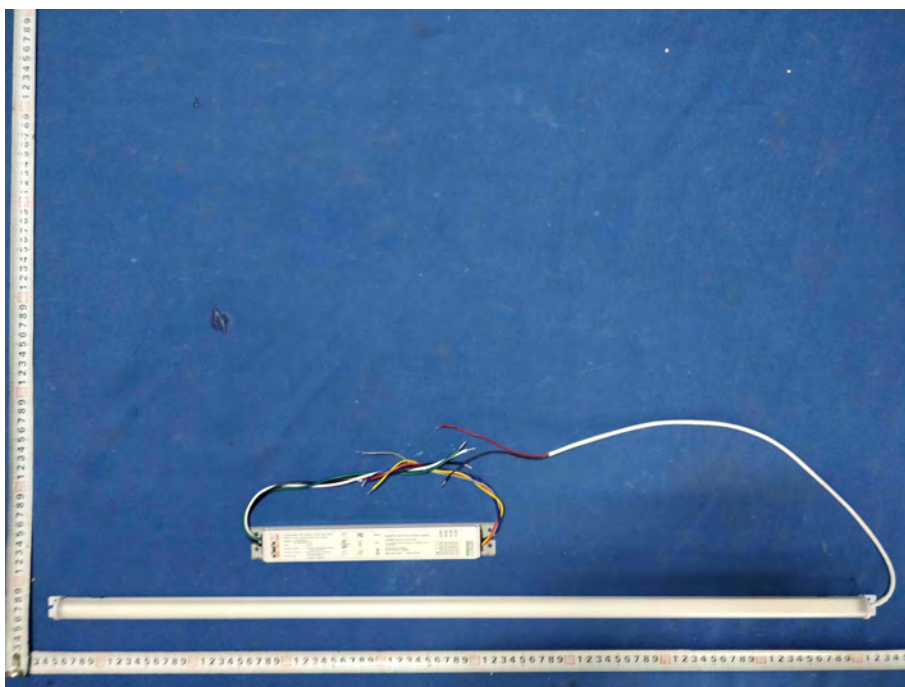
$$11.51 = (11.52 + 11.49) / 2$$

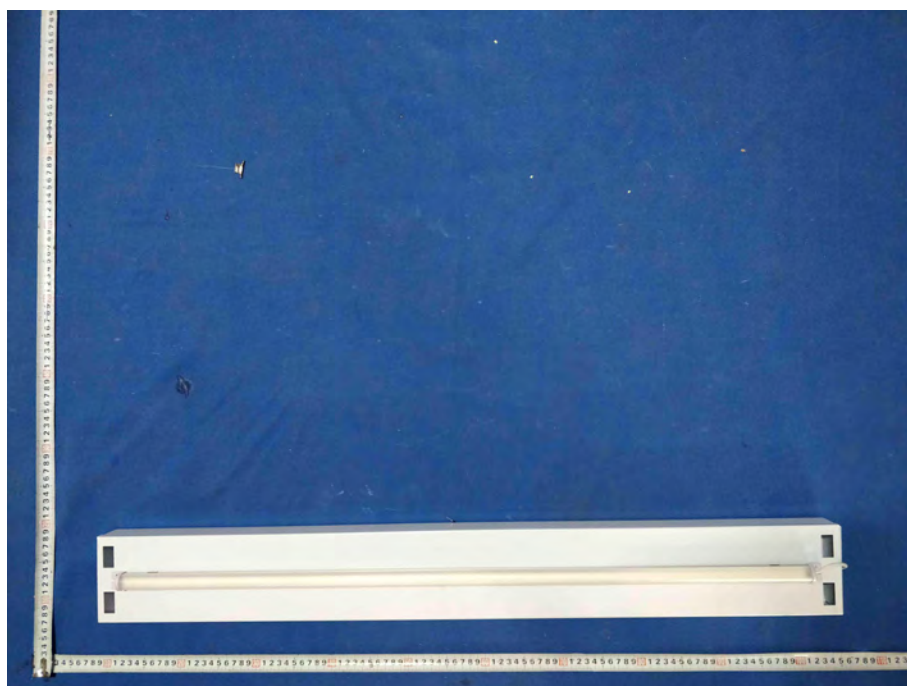
\*3: This value is calculated and the calculation formula is as below:

$$161.7 = 1860.00 / 11.51$$



## Photo Document





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