



NVLAP LAB CODE:201045-0



Shenzhen Anbotek Compliance Laboratory Limited

## IES LM-79-08 TEST REPORT

For  
KINGLUMI CO., LTD

**Report Number:** R0116011000L1

**Product Type:** Track or Mono-point Directional Luminaires

**Date of Receipt:** 2016-05-20

**Date of Test:** 2016-05-20 to 2016-09-05

**Date of Report:** 2016-09-06

**Model name(s):** X-TR015-36-YYZZ-UU

**Representative (Tested) Model:** X-TR015-36-2740-UU/X-TR015-36-3040-UU/X-TR015-36-4040-UU/X-TR015-36-5040-UU

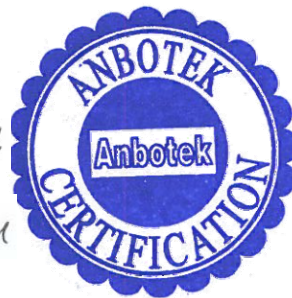
**Product Description:** AC 120V 60Hz 36W 2700K/3000K/4000K/5000K

**Product Criteria:** IES LM-79-08: Electrical and Photometric Measurements of Solid-State Lighting Products

**Prepared By:** Shenzhen Anbotek Compliance Laboratory Limited  
1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China  
Tel: +86 755 2606 6544  
Fax: +86 755 26014772  
Web: www.anbotek.com

**Tested By:** Alcander Lou *Alcander Lou*

**Reviewed By:** Vic Zhou *Vic Zhou*



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Shenzhen Anbotek Compliance Laboratory Limited  
Tel:(86)755-26066544 Fax:(86)755-26014772 www.anbotek.com

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## 1 – GENERAL

### 1.1 Product description

#### General Information

<b>Applicant</b>	KINGLUMI CO., LTD
<b>Applicant Address</b>	Bldg 3, Nangang Third Industrial Zone, Tangtou, Shiyan Town, Baoan District, Shenzhen City, China
<b>Manufacturer</b>	KINGLUMI CO., LTD
<b>Manufacturer Address</b>	Bldg 3, Nangang Third Industrial Zone, Tangtou, Shiyan Town, Baoan District, Shenzhen City, China
<b>Brand name</b>	CAMETA
<b>Test Model Number</b>	X-TR015-36-2740-UU/X-TR015-36-3040-UU/ X-TR015-36-4040-UU/X-TR015-36-5040-UU
<b>Burning time before test</b>	0 Hours (For new products)

#### Rated Values

<b>Rated Inputs</b>	AC 120V 60Hz
<b>Rated Power</b>	36W
<b>Nominal CCT</b>	2700K/3000K/4000K/5000K

### 1.2 Standard of method

- ANSI C78.377-2015: Specifications for the Chromaticity of Solid State Lighting Products
- ANSI C82.77-2002: Harmonic Emission Limits-Related Power Quality Requirements for Lighting Equipment
- 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 Test Facility

The test facility used by Shenzhen Anbotek Compliance Laboratory Limited is located at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China.

## 2 – Test Equipment List and Details

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
Digital Power Meter	YOKOGAWA	WT210	SE-074	0-600V/0-10A/0-100Hz	2016-04-06	2017-04-05
Temperature & Humidity meter	XINIXI	CTH-608	SE-260	0°C~50°C, 10% to 90%RH	2016-04-06	2017-04-05
Digital Power Meter	YOKOGAWA	WT310	SE-381	0-600V/0-10A/0-100Hz	2016-04-06	2017-04-05
DC power supply	LINKCOLOR	DC 30V,5A	SE-433	DC 30V, 5A	2016-03-28	2017-03-27
AC power source	Ainuo	AN97001W	SE-434	0-300V, 1000VA	2016-04-06	2017-04-05
Standard lamp	SENSING	220V/500W	SE-448	220V/500W	2016-03-30	2017-03-29
Standard lamp	SENSING	220V/500W	SE-449	220V/500W	2016-03-30	2017-03-29
Spatial distribution of rapid colorimetric measurement system	SENSING	GMS3000	SE-450	/	2016-03-30	2017-03-29
DC power supply	ITECH	IT6832	SE-598	30V 3A	2016-06-23	2017-06-22
Integrating sphere (2.0m)	EVERFINE	2.0m	SE-599	2m	2016-06-23	2017-06-22
Light flickering analyzer	EVERFINE	LFA-2000	SE-600	/	2016-06-25	2017-06-24
AC power source	EVERFINE	DPS1010	SE-602	0-300V, 1000VA	2016-06-23	2017-06-22
Standard lamp	EVERFINE	D215S	SE-603	4.802A	2016-07-02	2017-07-01
DC power supply	EVERFINE	WY605	SE-605	DC 60V, 5A	2016-06-23	2017-06-22
Standard lamp	EVERFINE	D062	SE-606	1.5445A	2016-07-02	2017-07-01
Spectrum analyzer	EVERFINE	HAAS-2000	SE-607	380-780nm 1000-100000K	2016-06-23	2017-06-22

Statement of Traceability: Shenzhen Anbotek Compliance Laboratory Limited attests that all calibration has been performed using suitable standards traceable to national primary standards and International System of Unit (SI).

## 3 – Test Method

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### 3.1 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.

### 3.2 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.

### 3.3 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).

### 3.4 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.

### 3.5 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.

## 4 – Test Result

### 4.1 Photometric test with Integrating Sphere System

#### 4.1.1 Model: X-TR015-36-2740-UU

##### Electrical data

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.08	60	0.2963	34.88	0.981

##### Photometric data

Luminous Flux (lm)	Radiant Flux (W)	Efficacy (lm/W)	CCT (K)	Duv
3909.316	11.68	112.079	2683	0.00012

##### Chromaticity Coordinate

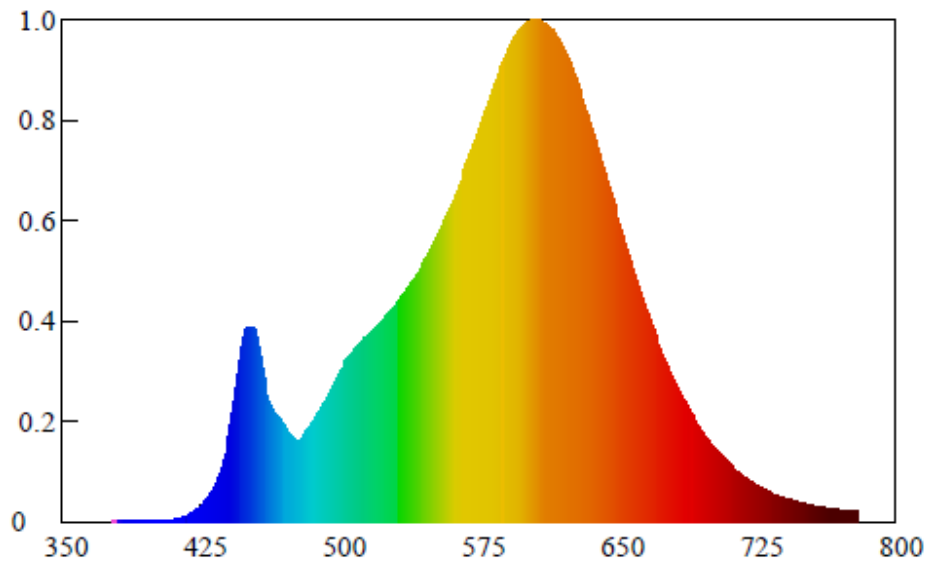
x	y	u	v	u'	v'
0.4614	0.4113	0.2632	0.3519	0.2632	0.5278

##### Color Rendering Details

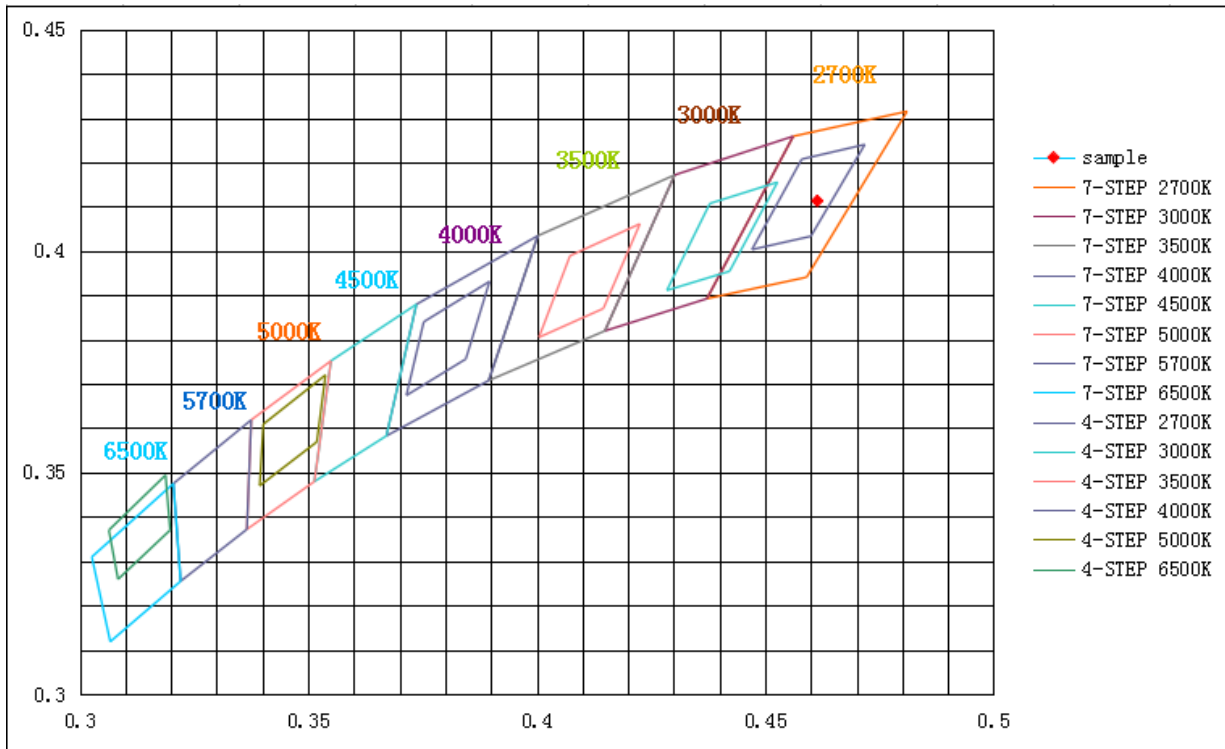
Ra
82.8

R1	R2	R3	R4	R5
82	93	95	80	82
R6	R7	R8	R9	R10
92	81	57	9	84
R11	R12	R13	R14	R15
80	76	85	98	74

**Spectral Distribution**



**ANSI Chromaticity Quadrangles Diagram**





**4.1.2 Model: X-TR015-36-3040-UU****Electrical data**

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.03	60	0.2959	34.91	0.983

**Photometric data**

Luminous Flux (lm)	Radiant Flux (W)	Efficacy (lm/W)	CCT (K)	Duv
4005.957	12.204	114.751	2962	0.00053

**Chromaticity Coordinate**

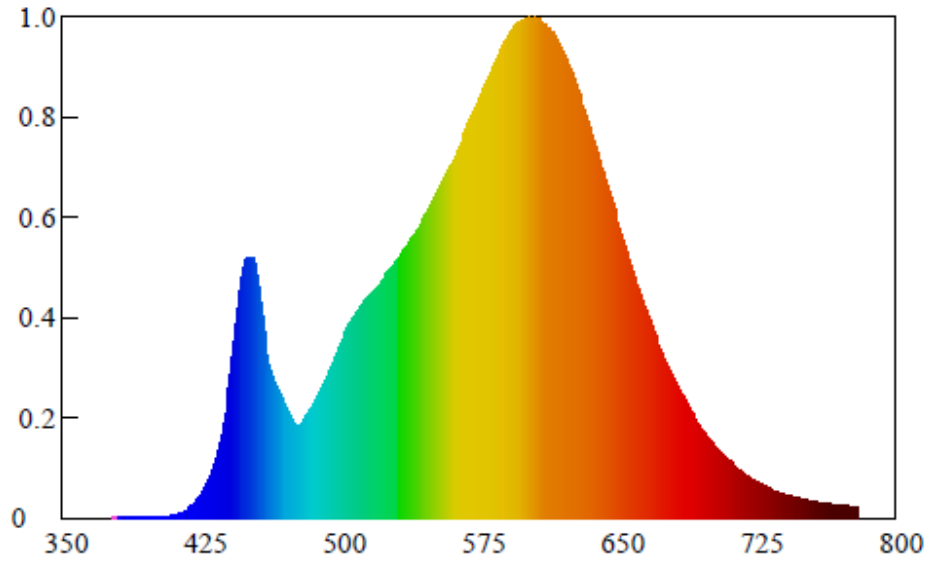
x	y	u	v	u'	v'
0.4405	0.4066	0.2518	0.3486	0.2518	0.5229

**Color Rendering Details**

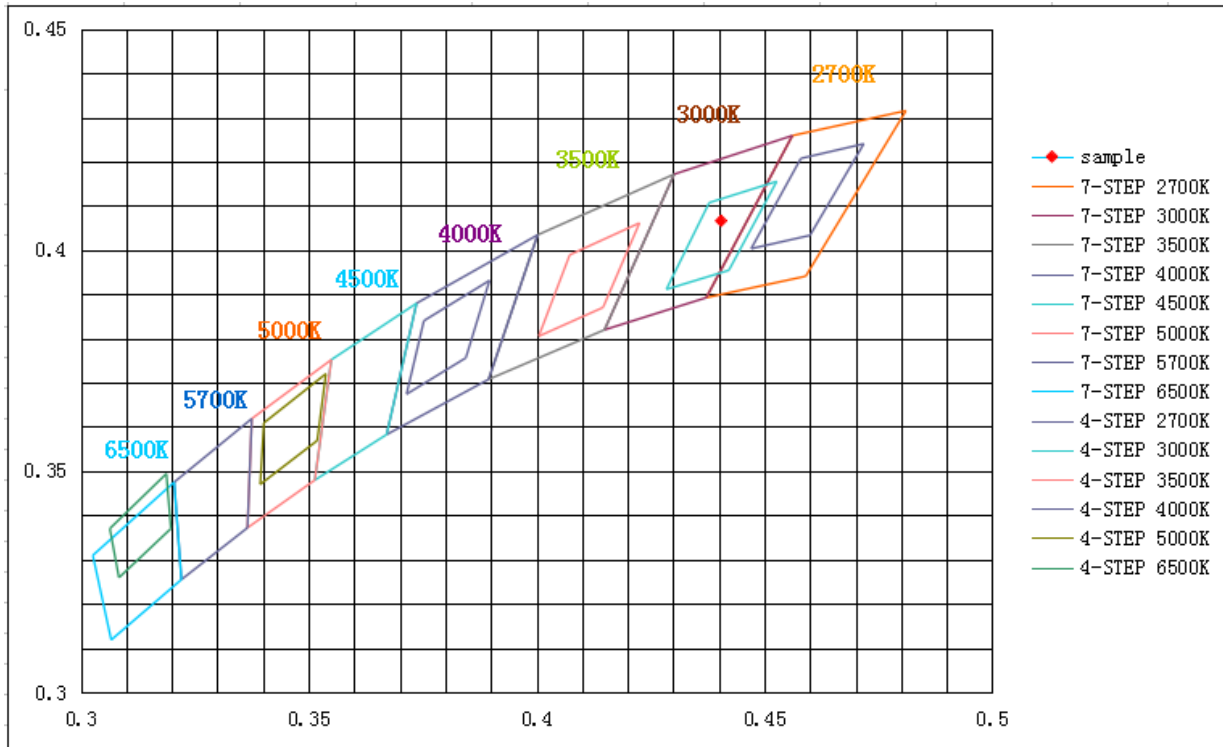
Ra
83.2

R1	R2	R3	R4	R5
82	91	97	81	82
R6	R7	R8	R9	R10
89	83	60	11	80
R11	R12	R13	R14	R15
80	71	85	99	75

**Spectral Distribution**



### ANSI Chromaticity Quadrangles Diagram



**4.1.3 Model: X-TR015-36-4040-UU****Electrical data**

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.09	60	0.2953	34.87	0.984

**Photometric data**

Luminous Flux (lm)	Radiant Flux (W)	Efficacy (lm/W)	CCT (K)	Duv
4112.254	13.053	117.931	3857	0.00212

**Chromaticity Coordinate**

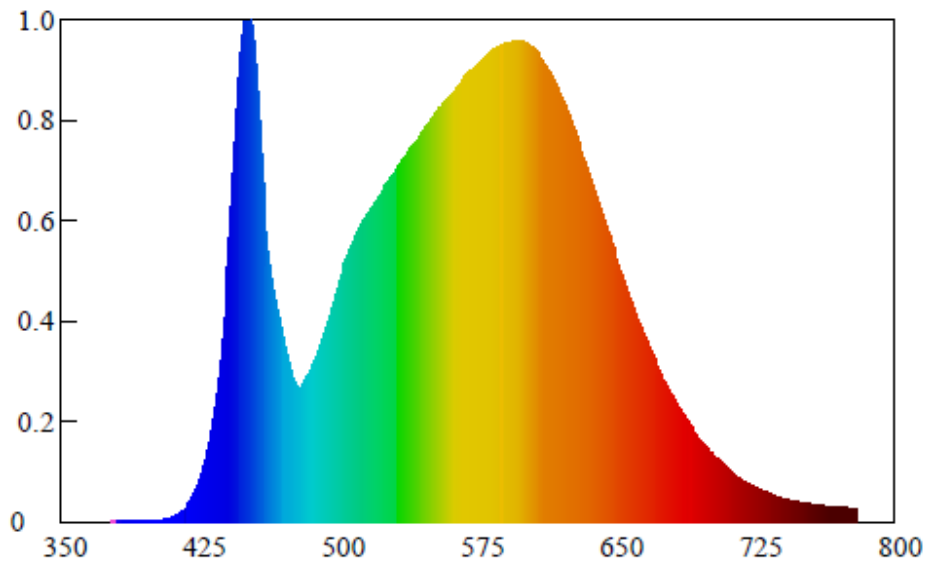
x	y	u	v	u'	v'
0.3887	0.3864	0.2267	0.3380	0.2267	0.507

**Color Rendering Details**

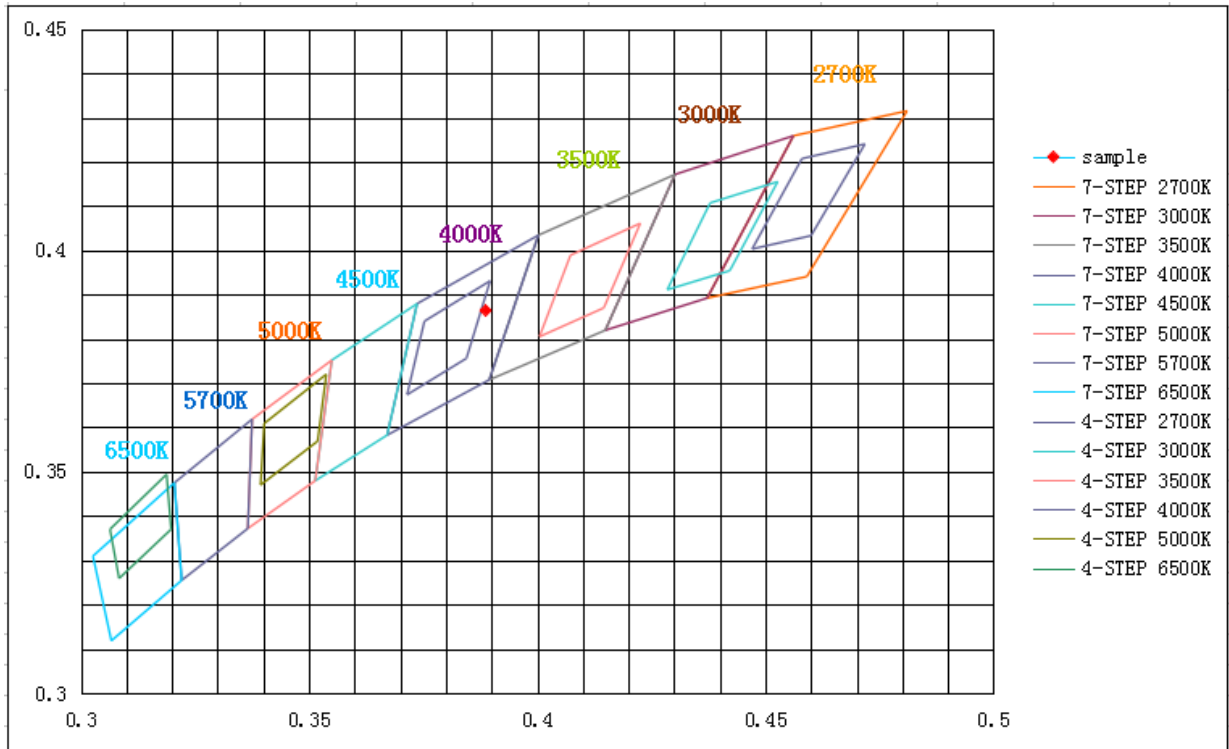
Ra
83.1

R1	R2	R3	R4	R5
81	89	95	82	81
R6	R7	R8	R9	R10
84	87	66	13	74
R11	R12	R13	R14	R15
80	59	84	97	76

**Spectral Distribution**



### ANSI Chromaticity Quadrangles Diagram



**4.1.4 Model: X-TR015-36-5040-UU****Electrical data**

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.07	60	0.2949	34.89	0.986

**Photometric data**

Luminous Flux (lm)	Radiant Flux (W)	Efficacy (lm/W)	CCT (K)	Duv
4240.670	12.703	121.544	4918	0.00424

**Chromaticity Coordinate**

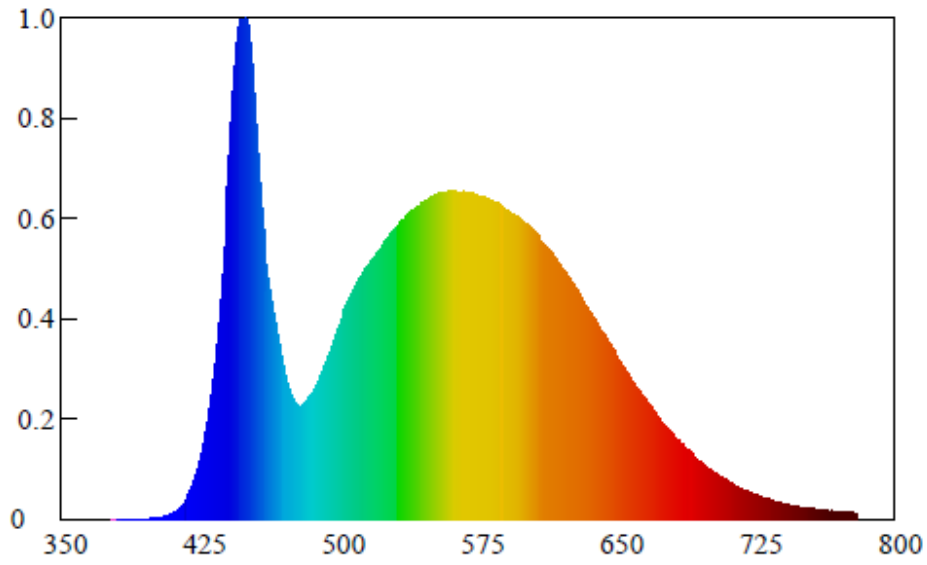
x	y	u	v	u'	v'
0.3484	0.3629	0.2094	0.3270	0.2094	0.4905

**Color Rendering Details**

Ra
80.5

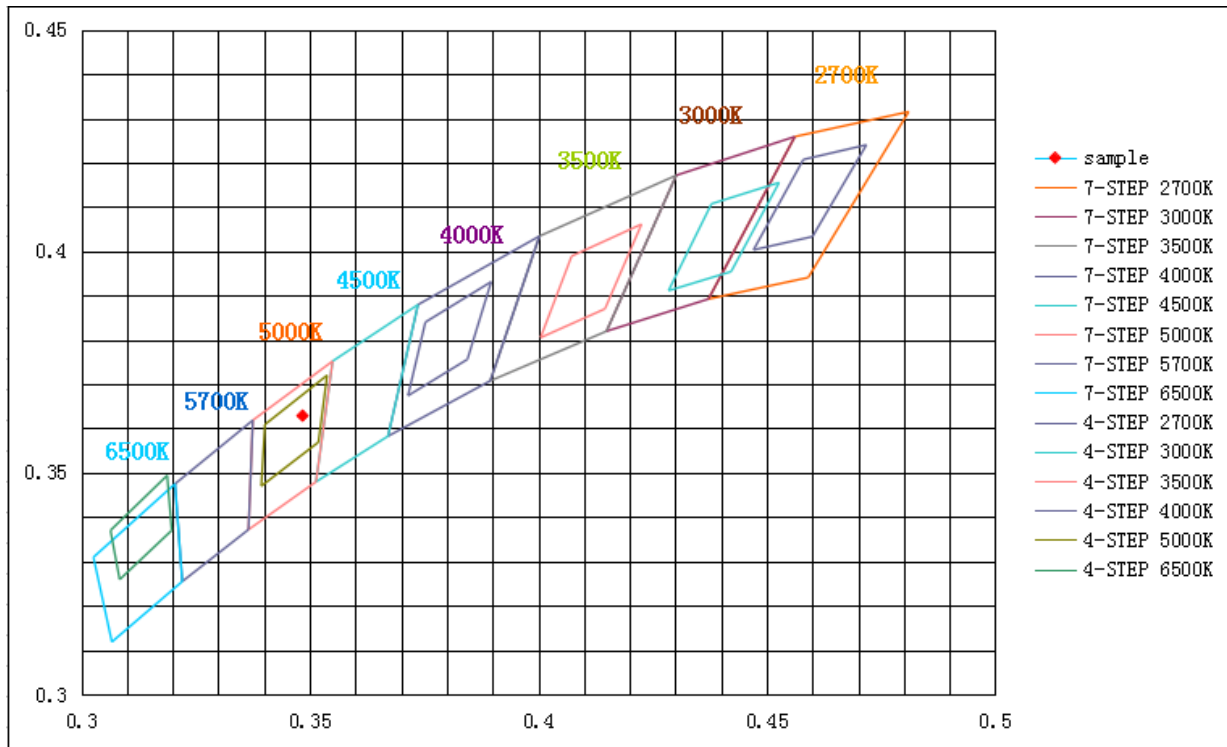
R1	R2	R3	R4	R5
78	85	89	80	78
R6	R7	R8	R9	R10
78	88	68	8	63
R11	R12	R13	R14	R15
77	51	80	94	74

**Spectral Distribution**





### ANSI Chromaticity Quadrangles Diagram



## 4.2 Photometric test with Goniophotometer System

### 4.2.1 Model: X-TR015-36-2740-UU

#### Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.98	60	0.2960	34.86	0.982

#### Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	CBCP (cd)	Zonal Lumen Density(0~90° )
3948.18	113.26	4592.691	99.84%

**Zonal Lumen Summary**

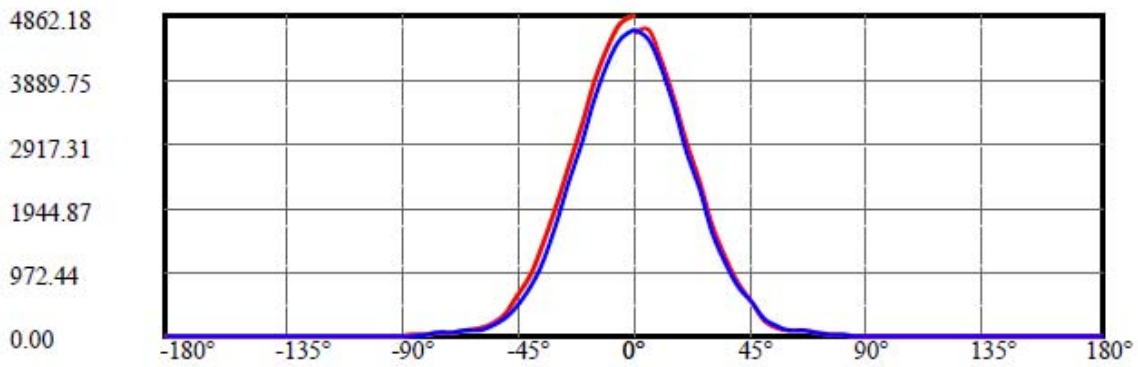
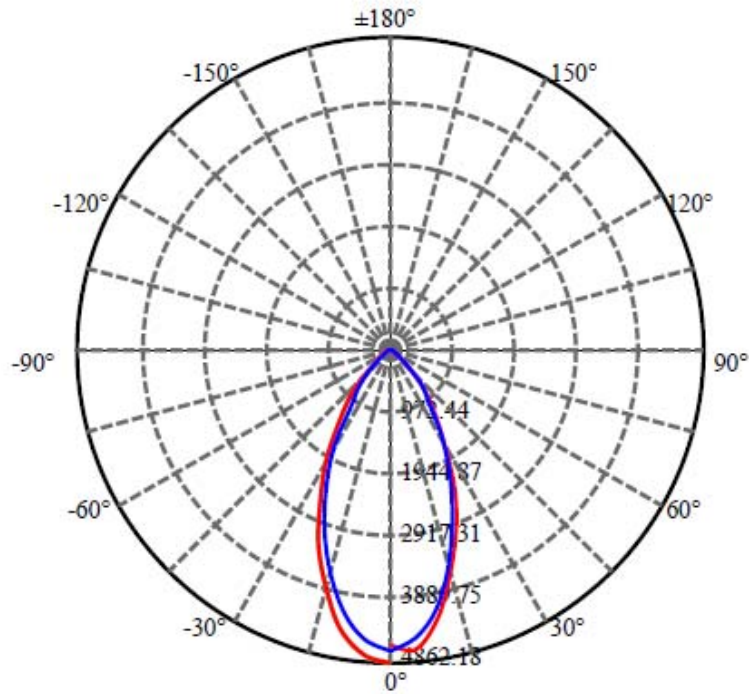
## ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-30	2484.96	62.94%
0-40	3242.70	82.13%
0-60	3798.83	96.22%
0-90	3941.70	99.84%
0-120	3942.57	99.86%
0-180	3948.18	100.00%
60-90	199.25	5.05%
90-120	4.80	0.12%
90-130	5.33	0.14%
90-150	7.55	0.19%
90-180	10.31	0.26%
0-38.73	3158.54	80.00%

## ZONAL LUMEN SUMMARY

0-10	421.88
10-20	997.69
20-30	1065.40
30-40	757.73
40-50	407.87
50-60	148.26
60-70	79.08
70-80	48.11
80-90	15.68
90-100	0.35
100-110	0.21
110-120	0.30
120-130	0.54
130-140	0.91
140-150	1.31
150-160	1.41
160-170	1.06
170-180	0.29

**Light Distribution Curve [Unit: cd]**



C180(Max): ———

C0/C180: ———

C90/C270: ———

Field angle(10%Imax):C0/180Left:47.2 Right:45.7

:C90/270Left:44.9 Right:45.8

Beam Angle(50%Imax):C0/180Left:26.2 Right:24.1

:C90/270Left:24.8 Right:23.9

**Luminous Intensity (cd) Distribution Data**

<b>C/γ(°)</b>	<b>0.0</b>	<b>5.0</b>	<b>10.0</b>	<b>15.0</b>	<b>20.0</b>	<b>25.0</b>	<b>30.0</b>	<b>35.0</b>	<b>40.0</b>
0.0	4592.69	4665.75	4219.30	3592.66	2949.45	2319.40	1676.84	1186.57	827.14
22.5	4605.68	4418.98	4000.14	3399.47	2779.32	2191.63	1602.33	1102.31	840.94
45.0	4618.67	4436.84	4022.87	3414.08	2777.69	2178.65	1558.50	1099.06	839.31
67.5	4643.02	4469.31	4047.22	3443.30	2779.32	2160.79	1569.86	1073.09	753.76
90.0	4662.50	4488.79	4094.30	3479.02	2818.28	2201.38	1581.22	1073.09	747.27
112.5	4688.47	4527.75	4151.12	3550.45	2907.57	2279.30	1681.88	1129.91	837.69
135.0	4751.79	4608.93	4225.80	3652.72	3017.96	2397.81	1806.88	1225.69	878.28
157.5	4805.36	4672.24	4319.95	3750.13	3126.73	2501.71	1905.91	1326.34	907.50
180.0	4862.18	4743.67	4401.13	3852.41	3229.01	2579.64	1982.21	1397.78	948.08
202.5	4605.68	4475.80	4139.75	3630.00	3011.47	2421.19	1855.75	1256.38	857.01
225.0	4618.67	4485.54	4154.36	3621.88	3027.22	2393.59	1809.97	1220.98	833.80
247.5	4643.02	4498.53	4154.36	3621.88	2992.47	2368.26	1743.73	1148.58	781.52
270.0	4662.50	4514.77	4155.99	3597.53	2950.91	2310.96	1708.34	1105.23	753.27
292.5	4688.47	4539.12	4133.26	3573.18	2937.76	2289.20	1676.19	1116.92	746.13
315.0	4751.79	4586.20	4173.85	3571.55	2937.60	2330.11	1669.54	1128.61	784.44
337.5	4805.36	4612.17	4177.09	3586.16	2929.65	2313.88	1676.36	1143.71	783.63
360.0	4592.69	4665.75	4219.30	3592.66	2949.45	2319.40	1676.84	1186.57	827.14
<b>C/γ(°)</b>	<b>45.0</b>	<b>50.0</b>	<b>55.0</b>	<b>60.0</b>	<b>65.0</b>	<b>70.0</b>	<b>75.0</b>	<b>80.0</b>	<b>85.0</b>
0.0	521.93	253.09	134.10	97.89	76.63	57.14	42.86	26.14	9.74
22.5	493.69	241.40	125.82	92.21	72.57	54.55	41.88	25.81	10.71
45.0	504.40	241.24	127.44	92.05	73.38	55.20	41.40	23.54	9.58
67.5	496.45	264.46	137.18	93.67	74.68	56.66	43.18	25.49	11.36
90.0	500.83	286.21	142.38	96.43	77.28	57.96	45.13	29.06	12.50
112.5	525.18	293.03	150.98	101.46	80.04	60.88	46.59	30.20	14.29
135.0	559.76	318.36	157.15	105.85	84.42	64.45	48.70	32.31	16.07
157.5	577.78	331.18	165.91	109.58	86.04	67.21	51.14	33.61	17.37
180.0	601.81	342.71	171.76	117.70	91.40	69.81	52.60	35.55	18.34
202.5	548.56	300.01	150.82	105.69	83.61	63.31	48.38	32.47	16.56
225.0	519.99	298.39	148.87	104.06	81.17	63.15	48.70	32.31	16.40
247.5	489.63	285.72	147.08	101.79	80.68	62.18	48.05	31.82	15.42
270.0	460.73	262.67	140.43	98.54	79.39	61.04	46.92	31.01	14.77
292.5	468.69	254.07	135.39	96.76	77.92	58.28	45.78	29.22	13.31
315.0	483.95	258.45	133.61	96.43	76.30	57.14	44.16	27.76	11.69
337.5	496.45	233.61	128.25	94.81	75.16	56.82	43.51	26.46	10.71
360.0	521.93	253.09	134.10	97.89	76.63	57.14	42.86	26.14	9.74
<b>C/γ(°)</b>	<b>90.0</b>	<b>95.0</b>	<b>100.0</b>	<b>105.0</b>	<b>110.0</b>	<b>115.0</b>	<b>120.0</b>	<b>125.0</b>	<b>130.0</b>
0.0	0.00	0.32	0.16	0.16	0.16	0.16	0.32	0.65	0.97
22.5	0.16	0.32	0.32	0.16	0.32	0.32	0.32	0.65	0.97
45.0	0.32	0.16	0.32	0.16	0.32	0.32	0.49	0.65	0.81
67.5	0.32	0.32	0.32	0.16	0.32	0.32	0.49	0.65	0.81
90.0	0.32	0.16	0.16	0.32	0.32	0.32	0.32	0.65	0.97
112.5	0.32	0.16	0.32	0.16	0.16	0.49	0.32	0.65	0.81
135.0	0.65	0.16	0.16	0.16	0.32	0.32	0.49	0.65	0.65
157.5	1.46	0.16	0.16	0.16	0.16	0.32	0.32	0.65	0.81
180.0	2.11	0.16	0.16	0.16	0.16	0.32	0.49	0.49	0.81
202.5	1.30	0.16	0.16	0.16	0.32	0.16	0.32	0.49	0.81
225.0	0.49	0.16	0.16	0.16	0.16	0.16	0.32	0.49	0.65
247.5	0.16	0.16	0.16	0.16	0.16	0.32	0.32	0.49	0.81
270.0	0.16	0.16	0.16	0.16	0.16	0.32	0.49	0.49	0.65
292.5	0.16	0.16	0.16	0.16	0.16	0.32	0.32	0.65	0.81
315.0	0.65	0.16	0.16	0.16	0.32	0.32	0.49	0.65	0.97
337.5	1.46	0.16	0.16	0.16	0.16	0.32	0.32	0.65	0.81
360.0	0.00	0.32	0.16	0.16	0.16	0.16	0.32	0.65	0.97

C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	1.14	1.79	2.11	2.60	3.08	3.57	3.90	4.06	4.38
22.5	1.30	1.79	2.11	2.92	3.25	3.41	3.73	3.90	3.90
45.0	1.30	1.62	2.11	2.76	3.25	3.57	3.90	3.90	4.06
67.5	1.30	1.79	2.27	2.76	3.25	3.73	3.90	4.06	4.06
90.0	1.30	1.62	2.27	2.76	3.25	3.73	4.06	4.06	4.22
112.5	1.14	1.62	2.27	2.76	3.25	3.57	3.90	4.22	4.06
135.0	1.30	1.46	2.27	2.60	3.25	3.73	3.90	4.22	4.22
157.5	1.14	1.62	2.27	2.76	3.25	3.57	3.90	4.06	4.22
180.0	1.14	1.62	2.11	2.76	3.25	3.57	3.90	4.06	4.22
202.5	0.97	1.46	1.79	2.44	2.76	3.25	3.57	3.73	4.06
225.0	0.97	1.30	1.95	2.27	2.92	3.25	3.41	3.73	4.06
247.5	0.97	1.46	1.95	2.27	2.76	3.25	3.41	3.90	4.06
270.0	1.14	1.46	1.95	2.44	2.76	3.41	3.73	3.90	4.06
292.5	1.14	1.46	1.95	2.44	3.08	3.41	3.73	3.90	4.06
315.0	1.14	1.62	2.11	2.44	2.92	3.57	3.73	4.06	4.06
337.5	1.30	1.62	2.11	2.60	2.92	3.41	3.90	4.06	4.22
360.0	1.14	1.79	2.11	2.60	3.08	3.57	3.90	4.06	4.38

C/γ(°)	180.0
0.0	4.38
22.5	3.90
45.0	4.22
67.5	4.22
90.0	4.22
112.5	4.38
135.0	4.22
157.5	4.22
180.0	4.38
202.5	3.90
225.0	4.22
247.5	4.22
270.0	4.22
292.5	4.38
315.0	4.22
337.5	4.22
360.0	4.38

## 5 – Additional Test

X-TR015-36-2740-UU

Test item	Test Voltage (V)	Frequency(Hz)	Test Result
Power Factor	120	60	0.981
Total harmonic Distortion	120	60	18.19%

X-TR015-36-3040-UU

Test item	Test Voltage (V)	Frequency(Hz)	Test Result
Power Factor	120	60	0.983
Total harmonic Distortion	120	60	18.11%

X-TR015-36-4040-UU

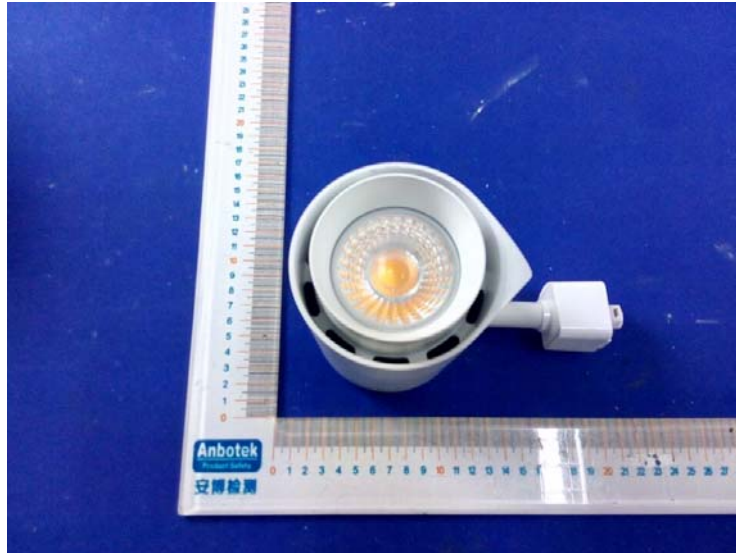
Test item	Test Voltage (V)	Frequency(Hz)	Test Result
Power Factor	120	60	0.984
Total harmonic Distortion	120	60	17.93%

X-TR015-36-5040-UU

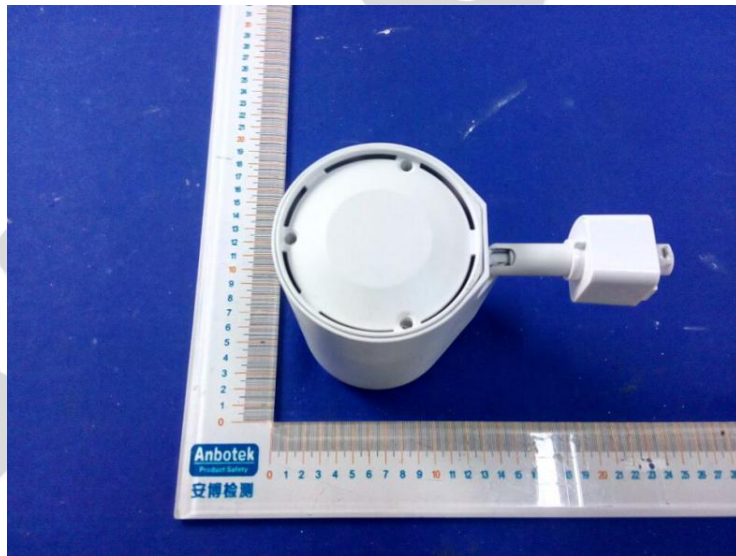
Test item	Test Voltage (V)	Frequency(Hz)	Test Result
Power Factor	120	60	0.986
Total harmonic Distortion	120	60	17.81%

*The test data was only good for the test sample. It may have deviation for other test sample.*

**Attachment A – Product PHOTO**



**PHOTO 1**



**PHOTO 2**

-----End of Report-----