



NVLAP LAB CODE:201045-0



Shenzhen Anbotek Compliance Laboratory Limited

IES LM-79-08 TEST REPORT

For

Shenzhen sunper opto co., ltd

Report Number: R011506614L

Product Type: Architectural Flood and Spot Luminaires

Test Date: 2015-06-17 to 2015-06-30


Report Date: 2015-07-01

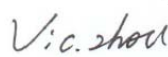
Product Model: SP-FL-200WA

Product Description: AC100-277V 50/60Hz 200W 5700K

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: Rain chen 

Reviewed By: Vic zhou/Energy Lab Manager 



Note: 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 Anbotek Compliance Laboratory Limited. This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

TABLE OF CONTENTS

1 – GENERAL..... 3
 1.1 Product description..... 3
 1.2 Standard of method..... 3
 1.3 Test Facility..... 3
2 – Test Equipment List and Details..... 4
3 – Test Method..... 5
 3.1 Ambient Condition..... 5
 3.2 Power Supply Characteristics..... 5
 3.3 Seasoning and Stabilization..... 5
 3.4 Integrating Sphere System..... 5
 3.5 Goniophotometer System..... 5
4 – Test Result..... 6
 4.1 Photometric test with Integrating Sphere System..... 6
 4.2 Photometric test with Goniophotometer System..... 9
5 – Additional Test..... 14
Attachment A – Product PHOTO..... 15

1 – GENERAL

1.1 Product description

General Information

Applicant	Shenzhen sunper opto co., ltd
Applicant Address	Blok C, Sanmin Industrial Park, Shiyan Street, Bao'an District, Shenzhen 518108, Guangdong, China
Manufacturer	Shenzhen sunper opto co., ltd
Manufacturer Address	Blok C, Sanmin Industrial Park, Shiyan Street, Bao'an District, Shenzhen 518108, Guangdong, China
Brand name	sunper
Test Model Number	SP-FL-200WA
Burning time before test	0 Hours (For new products)

Rated Values

Rated Inputs	AC100-277V 50/60Hz
Rated Power	200W
Nominal CCT	5700K

1.2 Standard of method

- ANSI C78.377-2011: 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
Goniophotometric System	SENSING	GMS-3000	-	-	2015-03-16	2016-03-15
AC Power Source	Ainuo	AN97001W	-	0-300V, 1000VA	2015-03-16	2016-03-15
Digital Power Meter	YOKOGAWA	WT310		0-600V/0-10A/0-100Hz	2015-03-16	2016-03-15
Temperature & Humidity meter	XINIXI	CTH-608	-	0°C~50°C, 10% to 90%RH	2015-03-16	2016-03-15
Total Luminous Flux Standard Lamp	SENSING	220V/500W	S135009	220V/500W	2015-03-16	2016-03-15
Total Luminous Flux Standard Lamp	SENSING	220V/500W	S1350014	220V/500W	2015-03-16	2016-03-15
1.5m Integral Sphere	SENSING	SPR-600M	-	380nm-780nm,0.011m~6.00×10 ⁵ lm	2015-03-16	2016-03-15
Spectrum analyzer	SENSING	SPR-3000	-	380nm-780nm,0.011m~6.00×10 ⁵ lm	2015-03-16	2016-03-15
AC Power Source	ALL POWER	APW-110N	997079	0-300V, 0-1000VA	2014-07-14	2015-07-13
Digital Power Meter	YOKOGAWA	WT210	-	0-600V/0-10A/0-100Hz	2015-03-16	2016-03-15
DC Power Supply	Linkcolor	Linkcolor	-	DC 30V, 5A	2015-03-16	2016-03-15
Total Luminous Flux Standard Lamp	SENSING	110 V / 100 W	S13100190	Refer specification	2015-03-16	2016-03-15
Total Luminous Flux Standard Lamp	SENSING	110 V / 100 W	S1310034	Refer specification	2015-03-16	2016-03-15
Temperature & Humidity meter	XINIXI	CTH-608	-	0°C~50°C, 10% to 90%RH	2015-03-16	2016-03-15

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

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 ± 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. 4π 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

Electrical data

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.9	60	1.7101	204.02	0.995

Photometric data

Luminous Flux (lm)	Radiant Flux (W)	Efficacy (lm/W)	CCT (K)	Duv
16603.623	29.596	81.38	5854	0.00114

Chromaticity Coordinate

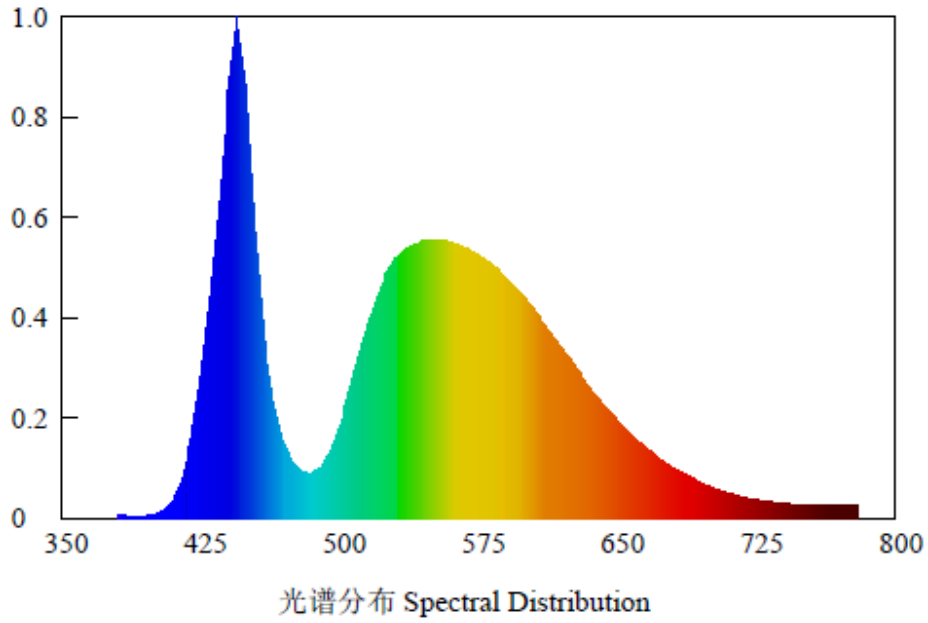
x	y	u	v	u'	v'
0.3248	0.3365	0.2034	0.3161	0.2034	0.4741

Color Rendering Details

Ra
70.5

R1	R2	R3	R4	R5
71	73	73	73	71
R6	R7	R8	R9	R10
64	77	62	-20	34
R11	R12	R13	R14	R15
72	43	70	84	67

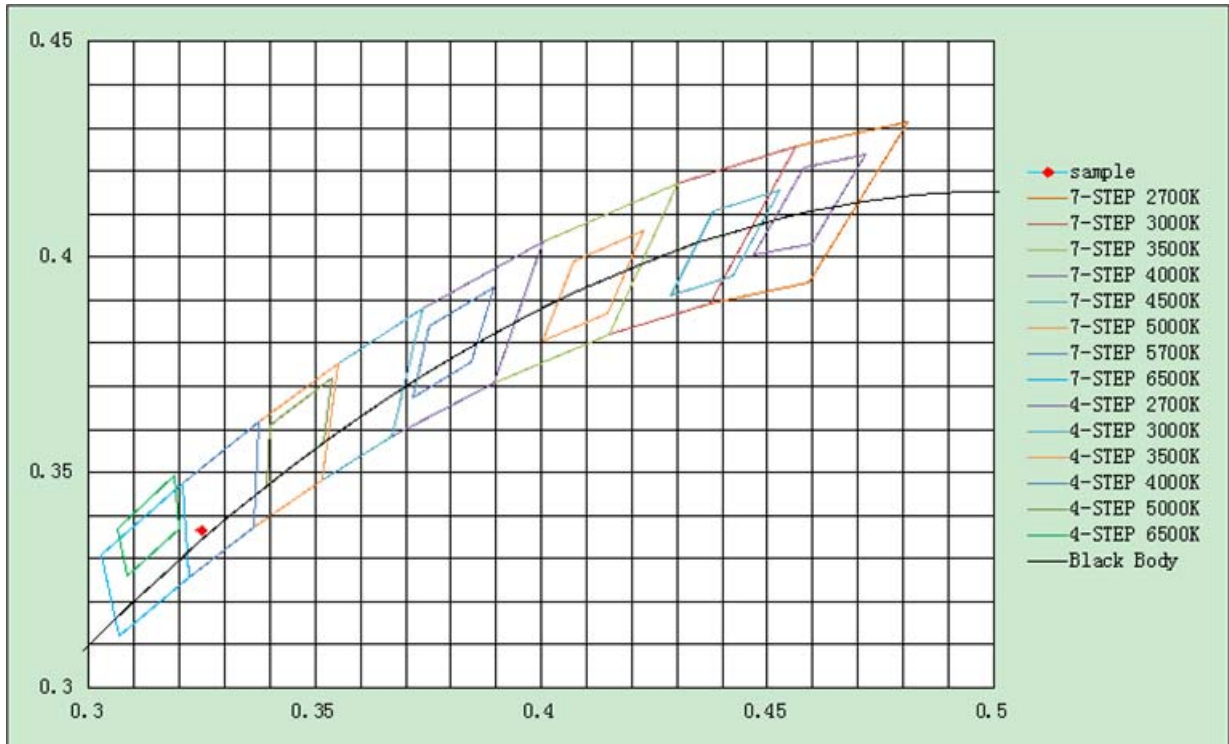
Spectral Distribution



Chromaticity Diagram (CIE 1931)



ANSI Chromaticity Quadrangles Diagram



4.2 Photometric test with Goniophotometer System

Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.03	60	1.7075	203.93	0.995

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	CBCP (cd)	Zonal Lumen Density(0~90°)
16630.57	81.55	5872.741	99.81%

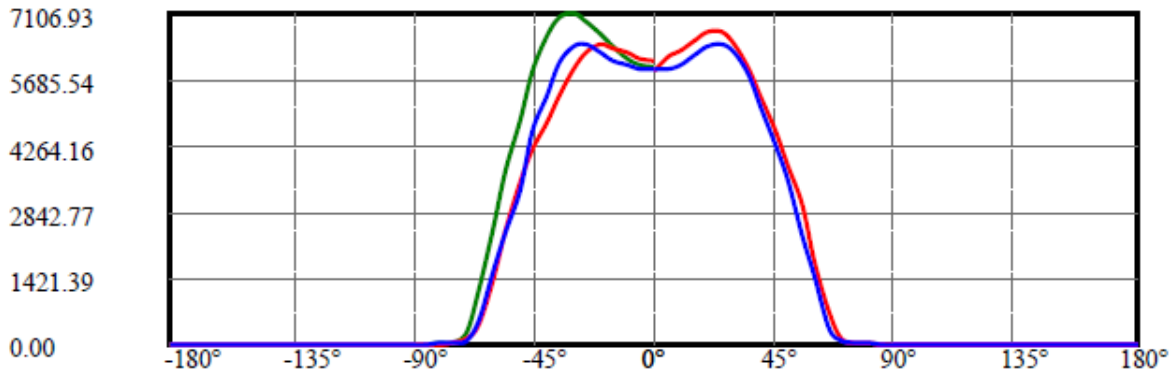
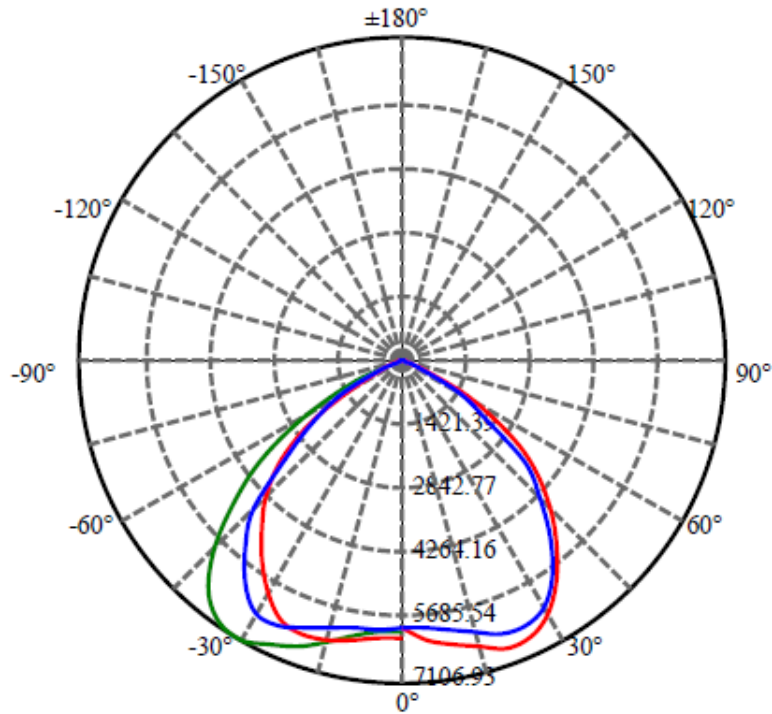
Zonal Lumen Summary**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Fixt
0-30	5393.40	32.43%
0-40	9234.96	55.53%
0-60	15617.21	93.91%
0-90	16598.43	99.81%
0-120	16609.13	99.87%
0-180	16630.58	100.00%
60-90	2101.91	12.64%
90-120	16.04	0.10%
90-130	20.48	0.12%
90-150	30.50	0.18%
90-180	37.29	0.22%
0-51.09	13304.46	80.00%

ZONAL LUMEN SUMMARY

0-10	574.44
10-20	1785.98
20-30	3032.98
30-40	3841.56
40-50	3737.79
50-60	2644.47
60-70	892.52
70-80	72.42
80-90	16.27
90-100	4.24
100-110	2.93
110-120	3.54
120-130	4.43
130-140	5.12
140-150	4.90
150-160	3.84
160-170	2.36
170-180	0.59

Light Distribution Curve [Unit: cd]



C315(Max): ——
 C0/C180: ——
 C90/C270: ——

Field angle(10%Imax):C0/180Left:64.3 Right:66.2
 :C90/270Left:64.8 Right:63.9

Beam Angle(50%Imax):C0/180Left:52.7 Right:55.2
 :C90/270Left:52.0 Right:52.4

Luminous Intensity (cd) Distribution Data

<i>C/γ</i> (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	5872.74	6172.59	6326.66	6537.05	6729.22	6710.99	6435.99	5904.22	5279.67
22.5	5890.96	5937.35	6091.42	6321.69	6537.05	6653.01	6462.50	6073.19	5551.36
45.0	5890.96	5919.13	6071.54	6331.63	6628.16	6883.28	7010.84	6820.33	6334.94
67.5	5900.90	5914.16	6048.34	6210.69	6543.67	6689.46	6737.50	6412.80	5821.39
90.0	5902.56	5925.75	6023.49	6207.38	6392.92	6459.19	6283.58	5778.31	5092.47
112.5	5914.16	5929.07	6050.00	6237.20	6475.75	6590.06	6535.39	6136.15	5490.06
135.0	5978.77	5990.36	6117.92	6338.25	6593.37	6792.17	6762.35	6487.35	5927.41
157.5	6011.90	6038.40	6164.31	6354.82	6465.81	6427.71	6197.44	5781.63	5213.40
180.0	6104.67	6146.08	6250.45	6378.01	6426.05	6276.96	5914.16	5360.84	4757.83
202.5	5890.96	5919.13	6000.30	6141.11	6223.95	6185.84	5957.23	5554.67	4988.10
225.0	5890.96	5904.22	5998.64	6162.65	6382.98	6513.86	6580.12	6382.98	5919.13
247.5	5900.90	5889.31	5995.33	6122.89	6285.24	6523.80	6593.37	6373.04	5715.36
270.0	5902.56	5930.72	5987.05	6103.01	6267.02	6442.62	6421.08	6028.46	5345.93
292.5	5914.16	5955.57	6026.81	6190.81	6411.15	6686.15	6782.23	6604.97	6051.66
315.0	5978.77	6020.18	6144.43	6397.89	6677.86	6909.79	7106.93	7022.44	6614.91
337.5	6011.90	6089.76	6240.51	6454.22	6669.58	6818.67	6679.52	6271.99	5733.58
360.0	5872.74	6172.59	6326.66	6537.05	6729.22	6710.99	6435.99	5904.22	5279.67
<i>C/γ</i> (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	4612.05	3820.18	2984.91	1760.00	726.27	142.64	62.79	26.34	11.60
22.5	4848.95	4222.74	3051.51	2011.15	942.62	153.40	61.46	27.67	13.58
45.0	5526.51	4554.07	3523.65	2291.11	1184.49	324.04	47.05	27.00	14.74
67.5	4991.42	4134.94	3018.37	1729.52	879.67	96.75	43.57	26.84	14.41
90.0	4290.66	3520.33	2339.16	1452.86	336.13	79.52	40.92	25.18	12.42
112.5	4602.11	3748.95	2740.06	1485.99	498.98	83.99	40.42	23.86	13.09
135.0	5095.78	4186.30	3260.24	2125.45	1088.40	194.32	43.40	26.34	15.41
157.5	4567.32	3954.37	2864.31	1863.71	861.45	125.57	52.35	25.84	15.24
180.0	4194.58	3465.66	2476.66	1429.67	454.58	121.60	51.69	21.54	10.60
202.5	4348.65	3755.57	2779.82	1606.93	660.83	130.21	54.83	24.35	12.09
225.0	5167.02	4196.24	3284.93	2005.84	926.39	246.84	58.98	32.14	16.90
247.5	4911.90	4012.35	2862.49	1716.27	802.30	113.81	53.18	29.82	16.90
270.0	4590.51	3304.80	2439.55	1583.24	546.36	85.98	38.10	22.86	14.41
292.5	5243.22	4303.92	3165.32	2099.44	906.17	92.77	40.09	23.86	15.57
315.0	5849.55	4809.19	3765.51	2531.16	1194.26	253.96	47.21	26.84	15.57
337.5	5062.65	4370.18	3211.37	2114.52	943.28	147.94	60.63	27.00	13.75
360.0	4612.05	3820.18	2984.91	1760.00	726.27	142.64	62.79	26.34	11.60
<i>C/γ</i> (°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	3.64	1.49	1.16	0.99	1.49	2.15	3.15	3.98	4.97
22.5	5.63	3.64	3.15	2.98	3.31	3.48	3.98	4.80	5.47
45.0	6.79	5.14	3.98	3.98	4.14	4.64	4.14	5.63	6.30
67.5	6.96	6.79	3.64	3.48	3.98	4.64	4.64	5.14	6.13
90.0	6.30	6.63	2.98	3.15	3.48	4.14	4.80	5.30	6.63
112.5	7.95	7.29	4.31	3.98	4.64	5.30	5.14	6.13	7.62
135.0	9.28	7.29	5.80	5.14	5.63	5.96	6.63	7.29	7.45
157.5	8.12	6.13	5.80	4.97	4.80	4.97	5.80	6.30	6.79
180.0	4.80	3.48	3.31	3.31	3.48	4.14	4.97	5.63	6.13
202.5	3.98	2.82	2.65	2.65	2.82	3.31	3.81	4.64	5.30
225.0	3.98	2.48	2.15	2.15	2.48	2.82	3.31	4.31	5.14
247.5	2.82	1.33	1.33	1.16	1.66	2.32	3.31	4.14	4.97
270.0	2.32	0.83	0.66	0.99	1.49	2.15	3.15	3.98	4.97
292.5	2.82	0.83	0.66	0.99	1.66	2.32	3.31	4.14	4.97
315.0	5.14	1.49	0.99	1.16	1.82	2.32	3.15	3.98	4.80
337.5	4.97	1.99	1.33	1.33	1.49	2.32	2.98	3.81	4.80
360.0	3.64	1.49	1.16	0.99	1.49	2.15	3.15	3.98	4.97

C/ γ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	5.96	6.79	7.29	7.79	7.95	8.12	8.12	8.28	8.45
22.5	6.30	7.12	7.62	7.95	8.28	8.28	8.28	8.12	7.95
45.0	6.79	7.45	7.79	8.12	8.28	8.45	8.45	8.28	8.12
67.5	7.29	7.95	8.45	8.61	8.61	8.45	8.45	8.28	8.12
90.0	7.62	8.45	8.95	9.11	8.95	8.95	8.61	8.45	8.28
112.5	8.45	8.95	9.28	9.44	9.11	8.95	8.78	8.61	8.28
135.0	7.79	8.28	8.61	8.78	8.95	9.11	8.78	8.61	8.28
157.5	7.45	8.12	8.45	8.61	8.95	8.95	8.78	8.61	8.45
180.0	7.12	7.79	8.45	8.78	8.95	8.95	8.78	8.45	8.28
202.5	6.30	6.96	7.29	7.79	7.95	7.79	7.95	7.79	7.95
225.0	6.13	6.79	7.29	7.62	7.95	8.12	8.28	8.12	8.12
247.5	5.96	6.79	7.29	7.79	8.12	8.28	8.28	7.95	7.95
270.0	6.13	6.96	7.45	7.95	8.28	8.12	8.12	7.95	8.12
292.5	5.96	6.63	7.29	7.45	7.79	7.79	7.95	7.79	8.12
315.0	5.96	6.46	6.96	7.45	7.62	7.79	7.95	8.12	8.28
337.5	5.80	6.46	7.12	7.45	7.79	7.95	7.95	8.12	8.12
360.0	5.96	6.79	7.29	7.79	7.95	8.12	8.12	8.28	8.45

C/ γ (°)	180.0
0.0	8.28
22.5	8.12
45.0	8.28
67.5	8.28
90.0	8.28
112.5	8.28
135.0	8.28
157.5	8.45
180.0	8.28
202.5	8.12
225.0	8.28
247.5	8.28
270.0	8.28
292.5	8.28
315.0	8.28
337.5	8.45
360.0	8.28

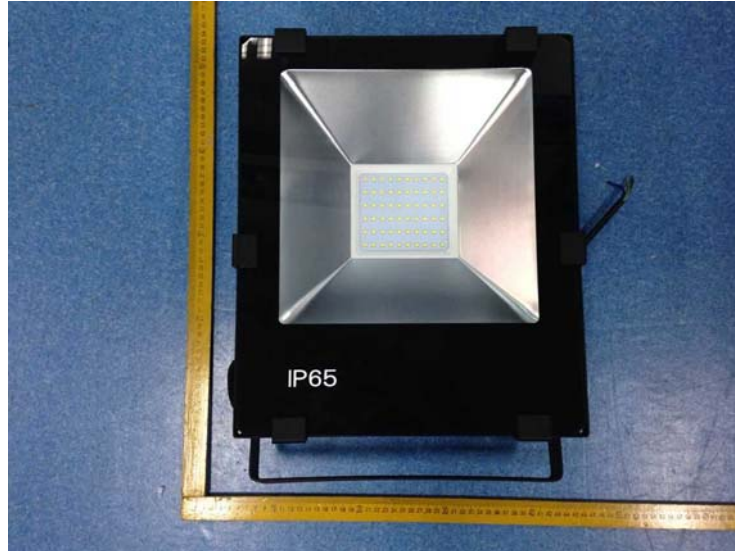
5 – Additional Test

Test item	Test Voltage (V)	Frequency(Hz)	Test Result
Power Factor	277	60	0.910
Total harmonic Distortion	277	60	11.28%
Off State Power (W)	120	60	0

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

Attachment A – Product PHOTO

FRONT PHOTO



REVERSE PHOTO



PHOTO

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