



NVLAP LAB CODE:201045-0



Shenzhen Anbotek Compliance Laboratory Limited

IES LM-79-08 TEST REPORT

For

Jiangmen Brandon Lighting Co., Ltd

Report Number: R011510131L

Product Type: High-bay Luminaires for Commercial and Industrial Buildings

Date of Receipt: 2015-10-14

Date of Test: 2015-10-15 to 2015-10-21

Date of Report: 2015-10-22

Product Model: MX898X-120W

Product Description: AC100-277V 50/60Hz 120W 5000K

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

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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	Jiangmen Brandon Lighting Co., Ltd
Applicant Address	No.12, Dong Mu Street, Hi-Tech Industrial Park, JiangMen City, GuangDong, China 529020
Manufacturer	Jiangmen Brandon Lighting Co., Ltd
Manufacturer Address	No.12, Dong Mu Street, Hi-Tech Industrial Park, JiangMen City, GuangDong, China 529020
Brand name	Brandon Lighting
Test Model Number	MX898X-120W
Burning time before test	0 Hours (For new products)

Rated Values

Rated Inputs	AC100-277V 50/60Hz
Rated Power	120W
Nominal CCT	5000K

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/0-10 OHZ	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,0.011 m~6.00×10 ⁵ lm	2015-03-16	2016-03-15
Spectrum analyzer	SENSING	SPR-3000	-	380nm-780nm,0.011 m~6.00×10 ⁵ lm	2015-03-16	2016-03-15
AC Power Source	ALL POWER	APW-110N	997079	0-300V, 0-1000VA	2015-07-15	2016-07-14
Digital Power Meter	YOKOGAWA	WT210	-	0-600V/0-10A/0-10 OHZ	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

4.1.1 Model:MX898X-120W

Electrical data

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
120.0	60	1.0209	122.02	0.996

Photometric data

Luminous Flux (lm)	Radiant Flux (W)	Efficacy (lm/W)	CCT (K)	Duv
15198.188	30.05	125.129	5244	0.0006

Chromaticity Coordinate

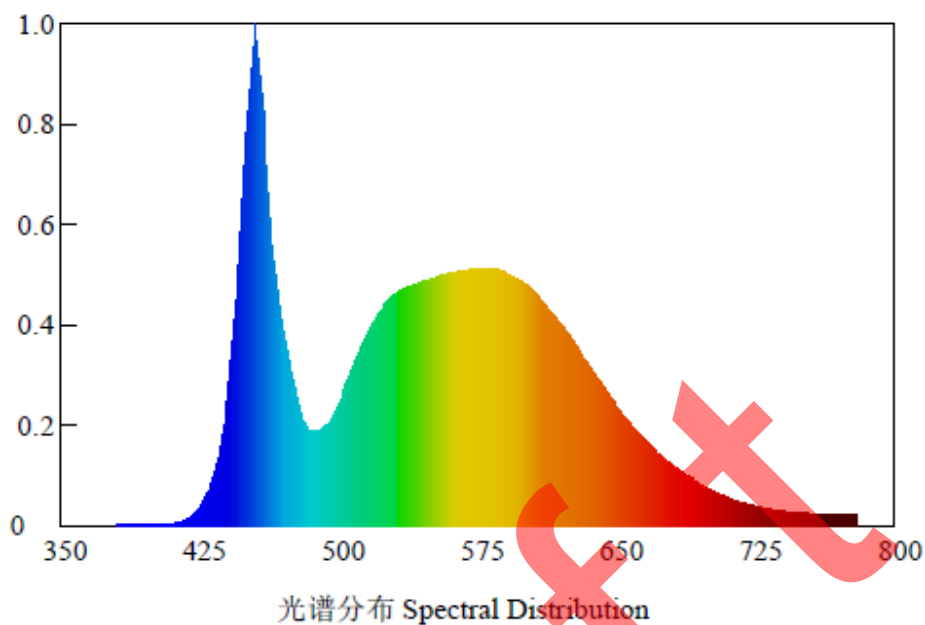
x	y	u	v	u'	v'
0.3387	0.3476	0.2086	0.3211	0.2086	0.4817

Color Rendering Details

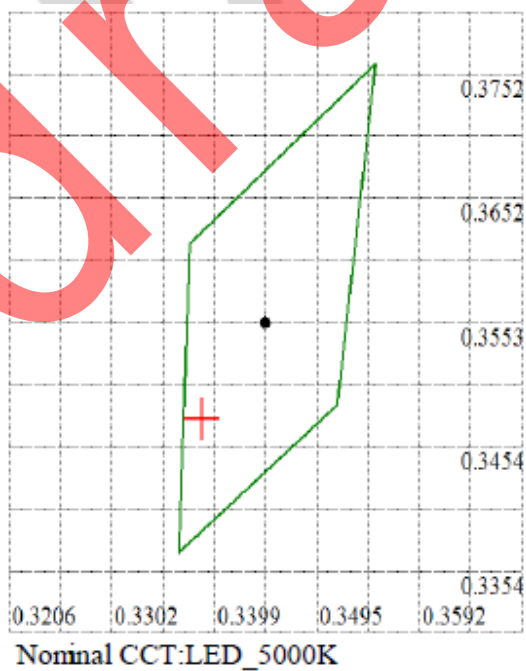
Ra
82.6

R1	R2	R3	R4	R5
82	89	91	80	80
R6	R7	R8	R9	R10
82	87	69	13	71
R11	R12	R13	R14	R15
78	53	85	95	78

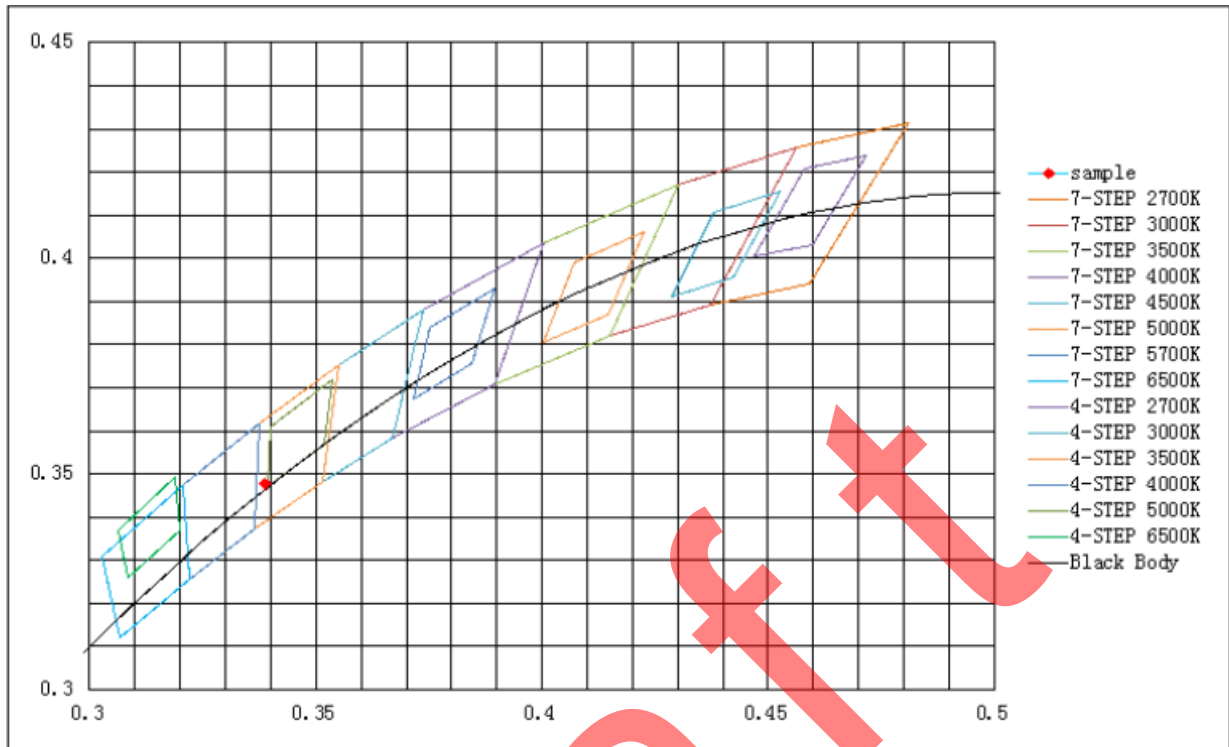
Spectral Distribution



Chromaticity Diagram (CIE 1931)



ANSI Chromaticity Quadrangles Diagram



4.2 Photometric test with Goniophotometer System

4.2.1 Model:MX898X-120W

Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
119.93	60	1.0180	121.61	0.996

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	CBCP (cd)	Zonal Lumen Density(20-50°)
15299.36	125.81	5731.228	57.496%

Zonal Lumen Summary

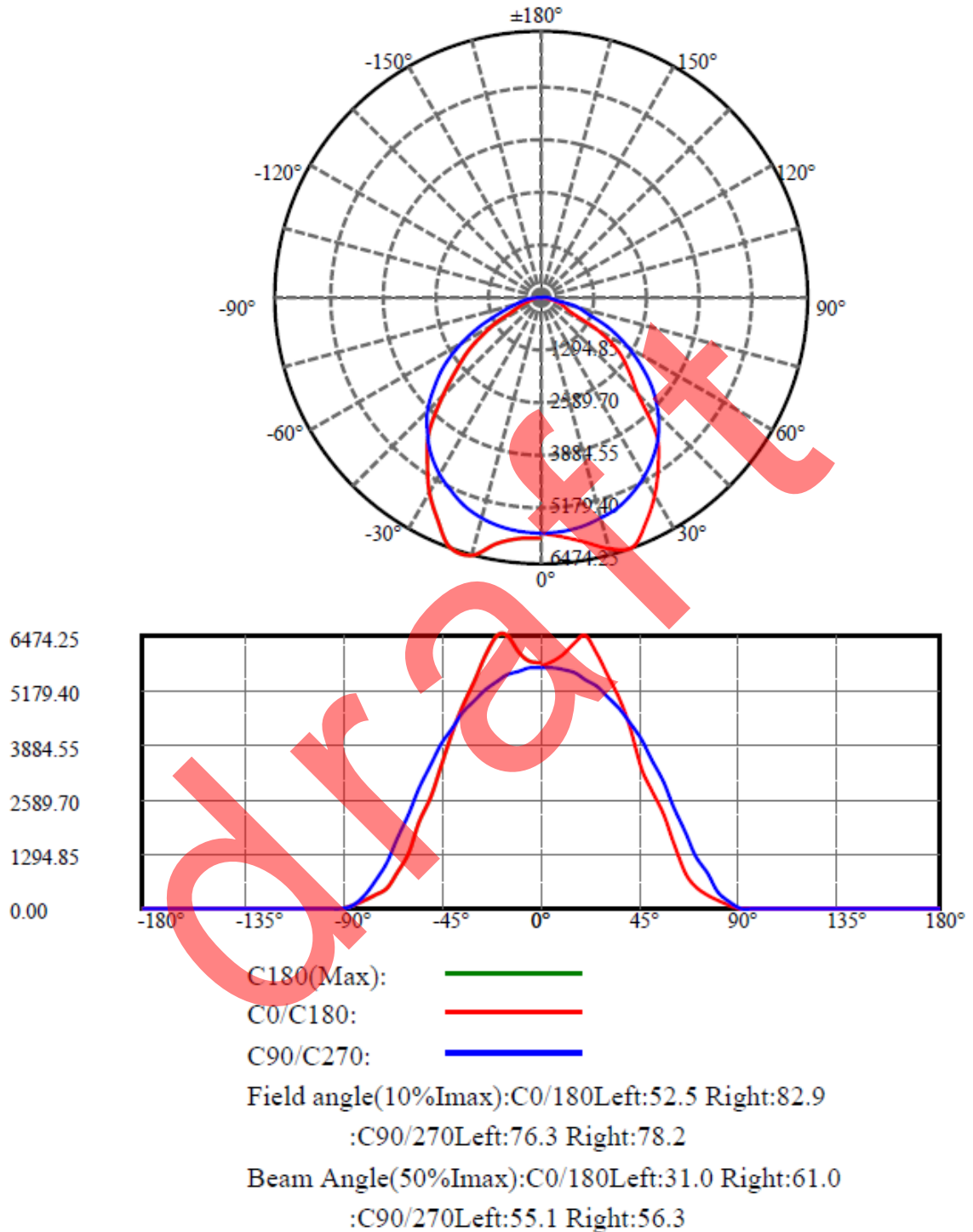
ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-30	4877.86	31.88%
0-40	8011.52	52.37%
0-60	13320.38	87.06%
0-90	15271.60	99.82%
0-120	15281.30	99.88%
0-180	15299.36	100.00%
60-90	2984.59	19.51%
90-120	38.84	0.25%
90-130	42.93	0.28%
90-150	51.28	0.34%
90-180	56.74	0.37%
0-54.81	12239.49	80.00%

ZONAL LUMEN SUMMARY

0-10	550.68
10-20	1674.64
20-30	2652.55
30-40	3133.66
40-50	3010.27
50-60	2298.59
60-70	1282.80
70-80	538.57
80-90	129.85
90-100	3.79
100-110	2.59
110-120	3.31
120-130	4.09
130-140	4.37
140-150	3.98
150-160	3.08
160-170	1.90
170-180	0.48

Light Distribution Curve [Unit: cd]



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	5731.23	5856.42	6012.50	6332.80	6458.00	6022.26	5539.37	4993.08	4347.60
22.5	5721.47	5734.48	5830.41	6049.90	6300.29	6036.89	5542.63	5023.97	4450.03
45.0	5710.09	5703.59	5718.22	5781.63	5890.56	5991.37	5765.37	5277.61	4742.69
67.5	5690.58	5677.57	5635.30	5568.64	5474.34	5350.77	5202.82	5049.98	4832.12
90.0	5726.35	5714.97	5666.19	5570.27	5436.94	5248.34	5015.84	4729.69	4415.89
112.5	5736.11	5740.98	5724.72	5692.21	5651.56	5619.04	5571.89	5384.92	4993.08
135.0	5752.36	5781.63	5840.16	5983.24	6220.62	6136.07	5723.10	5193.06	4565.47
157.5	5799.51	5851.54	5983.24	6368.57	6438.49	6045.02	5474.34	4866.26	4285.82
180.0	5836.91	5888.94	6058.03	6474.25	6461.25	5973.48	5409.30	4807.73	4228.91
202.5	5721.47	5758.87	5875.93	6210.86	6306.79	5937.71	5388.17	4776.84	4181.76
225.0	5710.09	5724.72	5752.36	5836.91	6010.88	6017.38	5671.07	5132.90	4536.21
247.5	5690.58	5679.20	5643.43	5580.02	5487.35	5352.40	5207.69	5051.61	4793.10
270.0	5726.35	5705.21	5645.06	5542.63	5397.92	5188.18	4936.17	4645.14	4315.09
292.5	5736.11	5716.60	5671.07	5630.42	5573.52	5510.11	5417.43	5261.35	4893.90
315.0	5752.36	5742.61	5781.63	5885.69	6058.03	6062.91	5666.19	5149.16	4578.48
337.5	5799.51	5804.39	5913.33	6173.47	6360.44	6009.25	5500.35	4967.06	4345.98
360.0	5731.23	5856.42	6012.50	6332.80	6458.00	6022.26	5539.37	4993.08	4347.60
<i>C/γ</i> (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	3344.44	2805.78	2249.89	1551.58	831.31	509.06	334.12	195.76	80.32
22.5	3739.52	2897.32	2346.15	1710.43	1055.20	607.43	392.00	232.66	99.18
45.0	4172.01	3476.13	2685.95	1962.44	1368.99	847.08	521.58	296.40	125.19
67.5	4484.18	3933.00	3242.01	2523.37	1764.08	1151.12	705.63	388.75	151.04
90.0	4035.43	3549.30	3020.89	2412.81	1799.85	1234.04	843.83	416.23	159.01
112.5	4451.66	3809.44	3081.04	2333.14	1635.64	1042.19	637.51	357.86	132.83
135.0	3933.00	3266.39	2443.70	1773.84	1188.52	708.88	445.17	259.00	107.15
157.5	3596.45	2742.86	2113.64	1474.67	860.09	526.30	345.34	203.24	80.32
180.0	3373.70	2656.69	2064.87	1342.98	835.70	466.47	314.77	189.09	73.49
202.5	3526.53	2688.72	2061.45	1439.07	824.16	511.34	321.44	182.42	62.76
225.0	3890.73	3241.19	2439.31	1733.19	1160.07	704.17	432.65	224.05	71.21
247.5	4345.98	3718.39	3016.01	2239.16	1558.89	975.85	588.08	306.80	84.55
270.0	3889.11	3414.35	2872.77	2242.58	1639.38	1068.69	654.42	335.74	98.53
292.5	4331.35	3667.99	2951.14	2211.20	1513.86	944.96	577.35	299.16	100.48
315.0	3962.27	3228.19	2388.91	1773.67	1178.11	700.75	435.25	245.02	86.82
337.5	3560.68	2792.12	2236.89	1591.09	894.88	541.09	352.65	202.58	81.94
360.0	3344.44	2805.78	2249.89	1551.58	831.31	509.06	334.12	195.76	80.32
<i>C/γ</i> (°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	6.34	2.44	1.63	1.63	1.95	2.44	2.76	3.41	3.90
22.5	11.54	2.76	2.11	1.95	2.44	2.76	3.09	3.58	4.23
45.0	13.17	2.60	2.11	2.11	2.44	3.09	3.74	4.55	5.04
67.5	10.08	2.60	2.28	2.44	2.60	3.25	3.90	4.72	5.20
90.0	10.08	2.28	2.28	2.60	2.93	3.58	4.39	5.20	6.02
112.5	9.59	2.44	2.28	2.44	2.93	3.58	4.23	4.88	5.69
135.0	8.13	2.60	2.28	2.28	2.76	3.41	4.23	4.88	5.53
157.5	6.99	2.93	2.28	2.28	2.60	3.09	3.58	3.90	4.72
180.0	5.04	2.93	2.11	1.95	2.11	2.60	2.93	3.58	4.06
202.5	4.06	2.28	2.11	2.28	2.60	3.25	3.74	4.23	4.88
225.0	3.58	2.11	2.11	2.44	3.09	3.74	5.04	5.53	5.69
247.5	2.44	2.11	2.44	3.25	3.58	3.90	4.88	5.85	6.18
270.0	2.11	2.28	2.93	3.58	3.90	4.39	4.88	5.85	6.34
292.5	3.41	2.11	2.28	2.76	3.90	3.90	4.23	4.88	5.85
315.0	6.02	2.28	2.11	2.28	2.60	3.41	4.06	4.72	5.04
337.5	5.69	2.60	1.95	2.11	2.28	2.76	3.25	3.74	4.23
360.0	6.34	2.44	1.63	1.63	1.95	2.44	2.76	3.41	3.90

C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	4.72	5.04	5.53	5.69	5.85	6.02	6.02	6.18	6.34
22.5	4.88	5.37	5.85	6.18	6.18	6.34	6.50	6.50	6.50
45.0	5.69	6.02	6.18	6.50	6.83	6.83	6.83	6.67	6.67
67.5	6.18	6.50	6.83	6.99	6.99	7.15	6.99	6.99	6.83
90.0	6.34	7.15	7.32	7.48	7.48	7.48	7.32	7.15	6.99
112.5	6.18	6.67	6.99	7.15	7.48	7.48	7.48	7.15	6.99
135.0	6.02	6.34	6.50	6.67	6.99	7.15	7.15	7.15	6.99
157.5	5.20	5.69	6.18	6.34	6.50	6.50	6.50	6.83	6.99
180.0	4.72	5.37	6.02	6.02	6.18	6.34	6.34	6.18	6.34
202.5	5.37	5.85	5.85	5.85	6.02	6.02	6.02	6.34	6.67
225.0	6.02	6.18	6.34	6.50	6.50	6.67	6.67	6.67	6.67
247.5	6.50	6.67	6.99	6.99	7.15	7.15	6.99	6.67	6.50
270.0	6.83	6.99	7.15	7.32	7.32	7.15	6.99	6.83	6.83
292.5	6.02	6.34	6.67	6.83	6.83	6.83	6.83	6.67	6.83
315.0	5.53	5.85	6.02	6.18	6.50	6.50	6.34	6.50	6.67
337.5	4.88	5.20	5.53	5.85	5.85	6.02	6.34	6.34	6.50
360.0	4.72	5.04	5.53	5.69	5.85	6.02	6.02	6.18	6.34

C/γ(°)	180.0
0.0	6.99
22.5	6.50
45.0	6.83
67.5	6.83
90.0	6.99
112.5	6.99
135.0	6.83
157.5	6.83
180.0	6.99
202.5	6.50
225.0	6.83
247.5	6.83
270.0	6.99
292.5	6.99
315.0	6.83
337.5	6.83
360.0	6.99

5-Additional Test

Test item	Test Voltage (V)	Frequency(Hz)	Test Result
Power Factor	277	60	0.915
Total harmonic Distortion	277	60	16.48%
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-----