



Guangdong Meide Testing Technology Co., Ltd.



## TEST REPORT OF IES LM-79-08

### Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products

Client..... : ROYALUX EXPORTS

Address..... : SDF BLOCK M-13, M-14, M-15 & M-16,NOIDA SPECIAL ECONOMIC ZONE,NOIDA  
DADRI ROAD, PHASE-II,NOIDA, DSTT. GAUTAM BUDH NAGAR, UP-201305

Test Model..... : 401Y0100W30L70AY,401Y0100W57L70AY

Product Description .... : Outdoor Pole/Arm-Mounted Area and Roadway Luminaires

Brand Name..... :  

Testing Laboratory.... : Guangdong Meide Testing Technology Co., Ltd.

Address..... : 1st floor, B Area, Jinbaisheng Industrial Park, Headquarters 2 Road,SongshanLake  
Hi-tech Industrial Development Zone,Dongguan City,Guangdong Pr., China.

Report No..... : CA1905127L 01001

Test Date..... : 2019-05-23 to 2019-05-28

Report Date..... : 2019-05-30

Compiled by:



Luke Lei/ Project Engineer

Approved by:



Jessie Li/ Technical Manager



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## 1.Product Information

Model Number.....: 401Y0100W30L70AY,401Y0100W57L70AY  
 Manufacturer.....: ROYALUX EXPORTS  
 Product Type.....: Outdoor Pole/Arm-Mounted Area and Roadway Luminaires  
 Rated Voltage/Frequency.....: 100-277V AC 50/60Hz  
 Rated Power.....: 100W  
 Declared CCT.....: 3000K,5700K  
 LED Manufacturer.....: CREE Venture LED Company Limited  
 LED Model No.....: JK3030AWT-00-0000-000B0HH422E

## 2.Standards Used

- IES LM-79-08:Approved Method:Electrical and Photometric Measurements of Solid-State Lighting Products
- ANSI C82.77-2002: Harmonic Emission Limits – Related Power Quality Requirements for Lighting Equipment

## 3.Test equipment list

Test Equipment	Serial No	Model No	Range Used	Calibration date	Calibration due date
Full-field Speed Goniophotometer	MD-E028	GO-R5000	1600mm,3000W/10A	2018/10/19	2019/10/18
Digital Power Meter	MD-E001	PF2010	0-600V,0-20A,0-4KW	2018/10/08	2019/10/07
AC Testing Power Source	MD-E002	DPS1060	0-300Vac,0-20A,0-5 KW	2018/10/08	2019/10/07
Total Spectral Radiant Flux Standard Lamp	MD-E007	D908S	7.295A,2856K,11227 lm,94.35V	2018/10/19	2019/10/18
Integrating Sphere System	MD-E029	2M	--	2018/10/10	2019/10/09
High Accuracy Array Spectoradio Meter	MD-E011	HAAS-3000	380-780nm	2018/10/10	2019/10/09
Digital Power Meter	MD-E008	PF310	0-600Vac,0-20A	2018/10/08	2019/10/07
AC Testing Power Source	MD-E010	DPS1010	0-300Vac,0-10A,0-10 00W	2018/10/08	2019/10/07
Standard Lamp	MD-E012	D204	3.9424A,20.75V,285 6K,1332.3lm	2019/02/21	2020/02/20

Statement of Traceability: Guangdong Meide Testing Technology Co., Ltd.attested that all calibration has been performed using suitable standards traceable to national primary standards and International System of Unit(SI).



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## 4. Test Method

### Requirements of Ambient Condition

Product was tested with no seasoning. All stabilization and measurements were made in compliance with IES LM-79-08. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$  during measurement.

### Goniophotometer System

The sample was tested according to the IES LM-79-2008.

Photometric parameters were measured using a type C goniophotometer and software. The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, Luminous efficacy, zonal flux were calculated from the software taken at  $0.5^{\circ}$  vertical intervals and  $10^{\circ}$  horizontal intervals.

### Integrating Sphere System

The sample was tested according to the IES LM-79-2008.

The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

### THD and PF Test

The sample was tested according to the ANSI C82.77-2002.

The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.



## 5.Integrating Sphere Test Results

### 5.1 Test Data

Test Ambient Temperature	25.1℃	Test orientation	Downward
Operate time(Min.)	90	stabilization time(Min.)	60

#### Photometric and Electrical Measurement Result

Model Number	Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
401Y0100W30L70AY	120.0	60	0.8315	99.12	0.9934
401Y0100W57L70AY	120.0	60	0.8319	99.25	0.9942

Model Number	Luminous Flux(lm)	Efficacy (lm/W)	CCT (K)	Ra	R9
401Y0100W30L70AY	13085	132.01	2979	73.5	0
401Y0100W57L70AY	13524	136.26	5504	74.5	0

Model Number	duv	x	y	u'	v'
401Y0100W30L70AY	0.0000635	0.4385	0.4048	0.2513	0.5219
401Y0100W57L70AY	0.00271	0.3324	0.3460	0.2050	0.4800

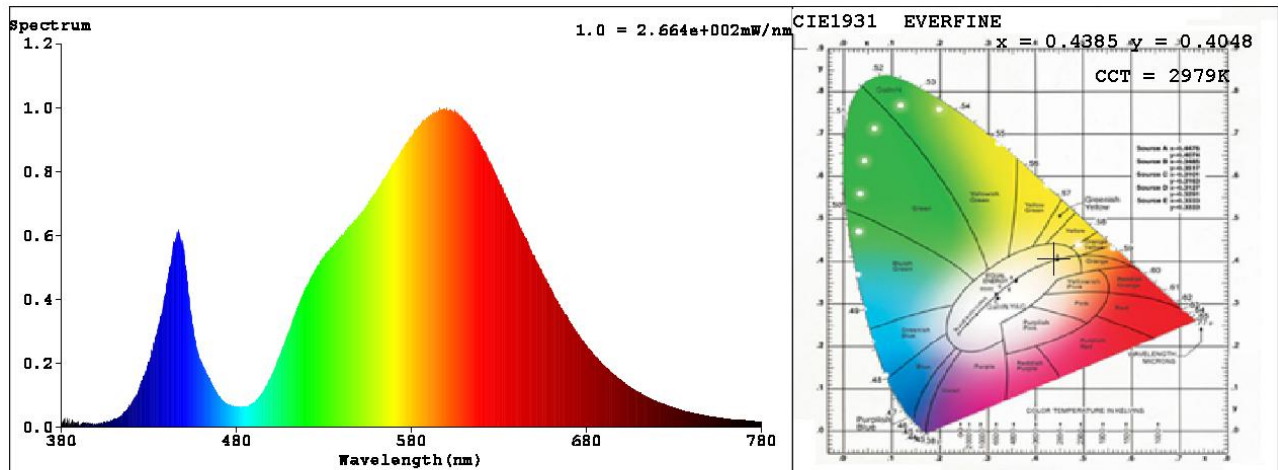


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## 5.2 Spectrum

401Y0100W30L70AY



## Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.4385$   $y = 0.4048$  /  $u' = 0.2513$   $v' = 0.5219$  ( $duv=6.33e-05$ )

CCT= 2979K Prcp WL: Ld=582.9nm Purity=53.1%

Peak WL: Lp=600nm FWHM: =127.3nm Ratio:R=21.8% G=76.8% B=1.4%

Render Index: Ra = 73.5 TM30:Rf=71 Rg=97

R1 =71 R2 =81 R3 =89 R4 =72 R5 =69 R6 =73 R7 =80

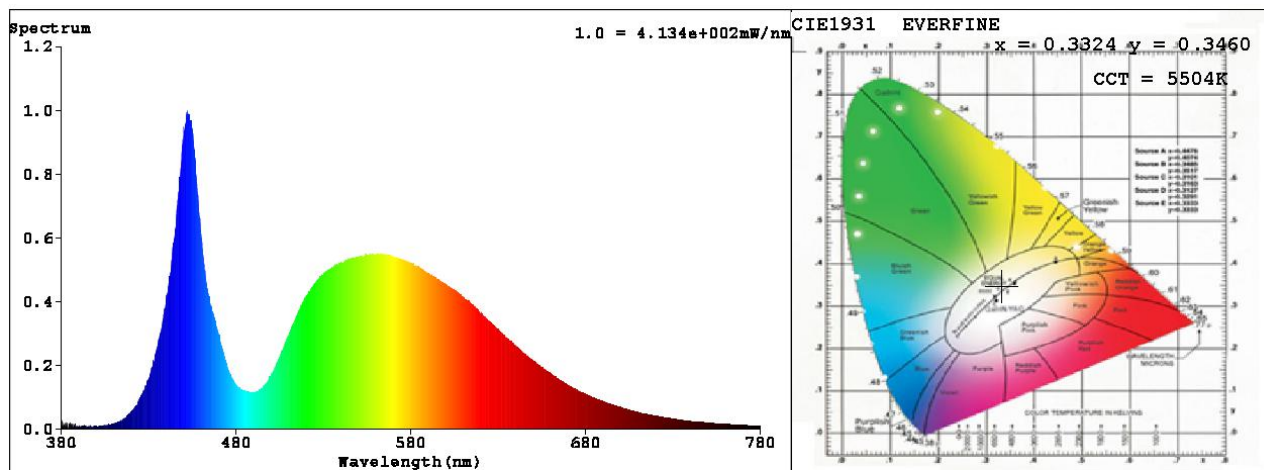
R8 =51 R9 =0 R10=55 R11=68 R12=47 R13=73 R14=93 R15=65



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401Y0100W57L70AY



### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.3324$   $y = 0.3460$  /  $u' = 0.2050$   $v' = 0.4800$  ( $duv=2.71e-03$ )

CCT= 5504K Prop WL:  $L_d=550.8nm$  Purity=3.6%

Peak WL:  $L_p=452nm$  FWHM: =19.5nm Ratio:R=13.9% G=82.5% B=3.6%

Render Index:  $R_a = 74.5$  TM30:  $R_f=73$   $R_g=94$

R1 =72 R2 =79 R3 =81 R4 =74 R5 =72 R6 =70 R7 =84

R8 =63 R9 =0 R10=48 R11=70 R12=41 R13=73 R14=89 R15=69





## 6. Goniophotometer Test results

### 6.1 Test Data

Test Ambient Temperature	25.1℃	Test orientation	Downward
Operate time(Min.)	120	stabilization time(Min.)	90

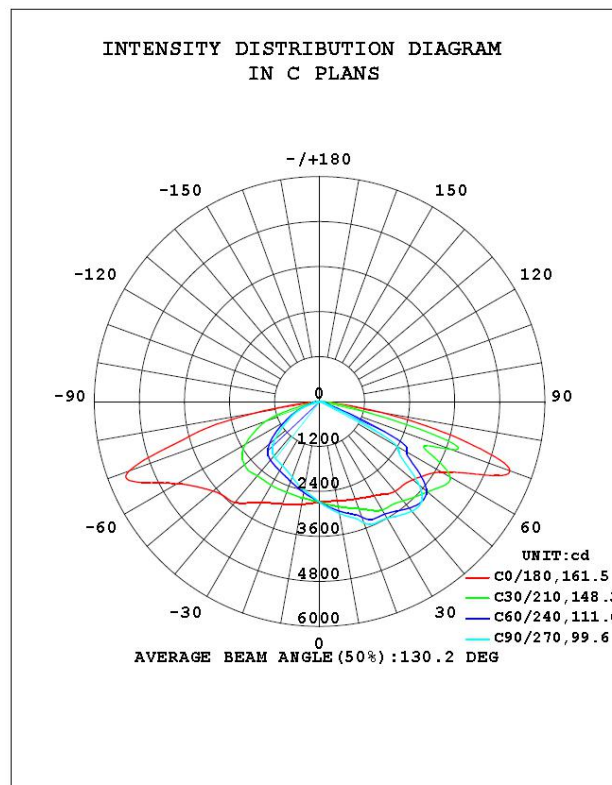
### Electrical Measurement

Model Number	Input Voltage (V)	Frequency (Hz)	Input Current(A)	Power Factor	Power(W)
401Y0100W30L70AY	120.0	60	0.8314	0.9938	99.15

### Photometric Measurement

Model Number	Luminous Flux (lm)	Efficacy (lm/W)	ZL (0-90° )	ZL (80-90° )
401Y0100W30L70AY	13096.1	132.08	99.9%	2.1%

### 6.2 Luminous Intensity Distribution Diagram





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### 6.3 Zonal Flux Diagram

$\gamma$	CD	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	$\Phi$ lum, lamp
10	2689	2907	3029	2980	2784	2532	2397	2469	0- 10	258.2	258.2	1.97, 1.97
20	2772	3155	3445	3307	2904	2406	2147	2329	10- 20	783.2	1041	7.95, 7.95
30	2903	3409	3596	3672	3119	2306	1983	2231	20- 30	1329	2370	18.1, 18.1
40	3127	3617	3819	3843	3513	2236	1901	2156	30- 40	1860	4230	32.3, 32.3
50	3245	3858	3457	4119	3715	2073	1551	1999	40- 50	2350	6580	50.2, 50.2
60	3759	3212	2378	3496	4385	1436	938.6	1430	50- 60	2535	9114	69.6, 69.6
70	5391	1526	212.1	1996	5395	689.5	437.6	709.2	60- 70	2294	11408	87.1, 87.1
80	1612	178.7	75.18	206.8	1732	180.5	102.4	175.3	70- 80	1405	12814	97.8, 97.8
90	2.051	0.9600	0.7493	0.8871	3.753	1.673	0.8309	1.959	80- 90	267.2	13081	99.9, 99.9
100	2.178	1.145	0.9182	0.9984	3.935	2.497	1.615	2.917	90-100	1.977	13083	99.9, 99.9
110	2.703	1.309	1.207	1.232	3.249	2.612	2.246	2.949	100-110	2.244	13085	99.9, 99.9
120	3.313	1.538	1.714	1.544	2.568	2.258	2.495	2.520	110-120	2.171	13087	99.9, 99.9
130	3.799	1.961	2.312	1.882	2.538	2.449	3.140	2.783	120-130	2.138	13089	99.9, 99.9
140	3.201	2.236	2.824	2.074	2.753	3.149	4.119	3.397	130-140	2.186	13092	100, 100
150	2.217	2.202	3.062	1.961	2.898	3.487	4.773	3.643	140-150	1.908	13093	100, 100
160	2.060	2.508	3.550	2.274	2.885	3.421	4.852	3.741	150-160	1.442	13095	100, 100
170	2.386	2.704	3.873	2.587	2.841	2.885	4.372	3.508	160-170	0.8950	13096	100, 100
180	2.776	2.950	3.918	2.858	2.758	2.729	3.834	3.123	170-180	0.3011	13096	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

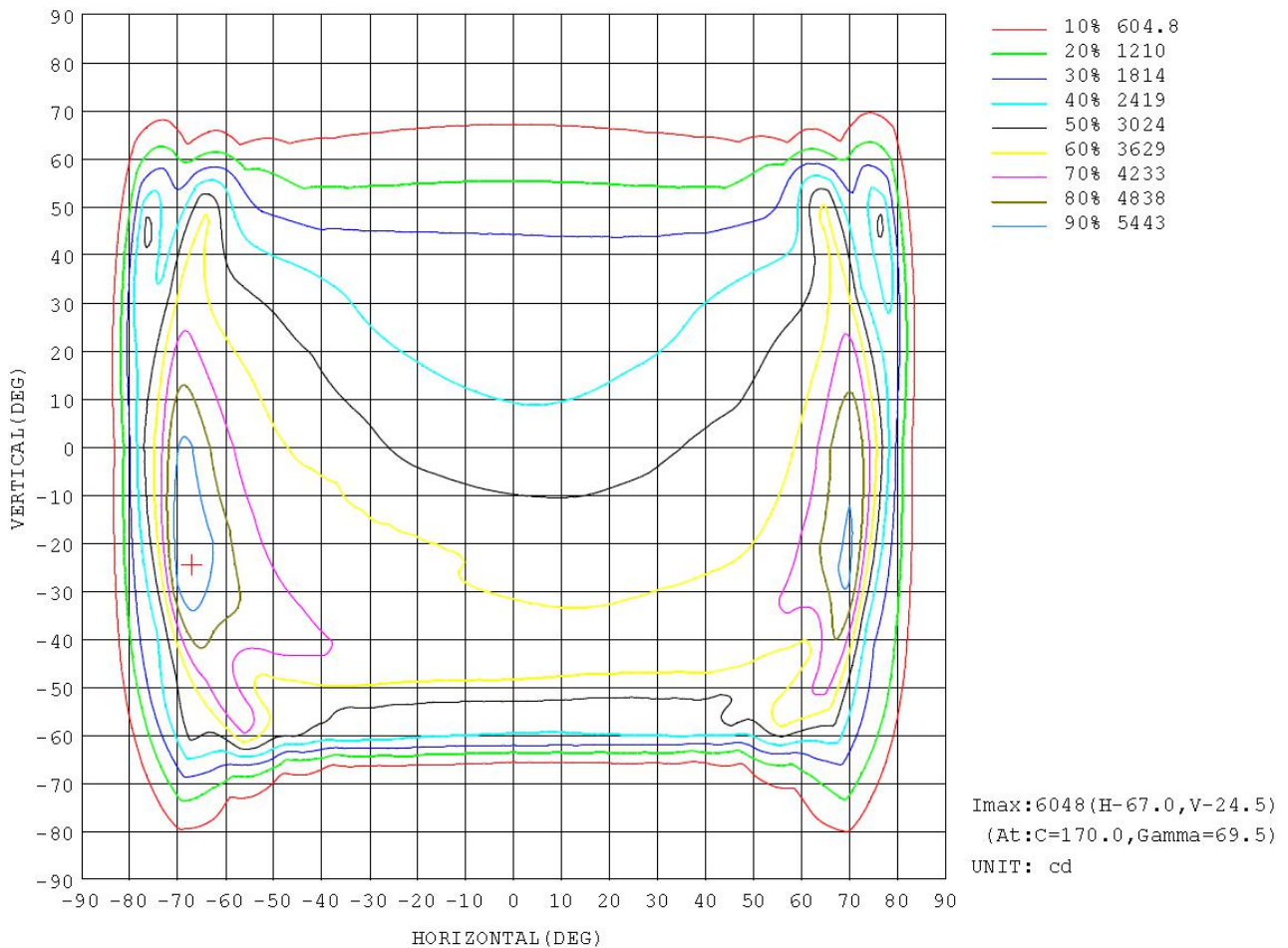




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#### 6.4 Isocandela Diagram





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## 6.5 Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684
5	2673	2701	2728	2754	2777	2800	2819	2835	2846	2853	2856	2854	2848	2837	2822	2803	2780	2754	2725
10	2689	2744	2794	2841	2886	2927	2964	2994	3016	3029	3033	3029	3016	2994	2965	2929	2888	2840	2784
15	2727	2803	2871	2936	2996	3051	3099	3141	3174	3192	3200	3196	3180	3153	3112	3058	2995	2924	2842
20	2772	2869	2958	3042	3117	3193	3279	3355	3411	3445	3455	3441	3400	3343	3272	3190	3101	3010	2904
25	2824	2945	3068	3194	3317	3397	3448	3494	3534	3570	3598	3621	3635	3614	3535	3383	3234	3113	2988
30	2903	3052	3225	3338	3392	3426	3466	3513	3559	3596	3619	3633	3647	3667	3678	3635	3483	3284	3119
35	3012	3213	3314	3363	3436	3509	3568	3620	3670	3707	3730	3739	3731	3717	3698	3680	3654	3558	3300
40	3127	3255	3348	3458	3576	3658	3709	3742	3782	3819	3842	3862	3874	3864	3822	3750	3703	3674	3513
45	3149	3312	3466	3599	3727	3800	3808	3785	3791	3822	3859	3918	3985	4019	3998	3926	3834	3730	3580
50	3245	3422	3584	3748	3868	3849	3709	3544	3462	3457	3518	3677	3895	4082	4155	4095	3998	3899	3715
55	3428	3629	3806	3959	3908	3574	3167	2872	2734	2708	2778	2998	3379	3865	4258	4348	4284	4213	3971
60	3759	4048	4165	4008	3481	2942	2669	2520	2398	2378	2461	2611	2780	3166	3827	4429	4682	4759	4385
65	4576	4731	4092	3187	2984	2789	1929	1200	877	775	945	1363	2214	2950	3152	3679	4781	5578	5116
70	5391	5454	3633	3740	2215	836	320	257	219	212	237	284	368	1015	2978	4148	4535	6068	5395
75	3890	3662	4135	2463	376	238	187	147	131	130	135	172	216	259	705	3461	3652	3752	3600
80	1612	1625	2249	637	223	135	102	82.4	79.2	75.2	80.1	92.4	128	166	248	905	2785	2058	1732
85	192	490	1018	199	53.7	37.1	27.1	22.2	20.2	17.1	21.4	25.1	31.6	47.1	91.5	267	1010	496	290
90	2.05	1.91	1.65	1.46	1.07	0.85	0.74	0.69	0.71	0.75	0.64	0.68	0.77	0.82	0.96	2.25	1.49	1.57	3.75
95	2.11	2.01	1.76	1.46	1.18	0.94	0.78	0.74	0.76	0.80	0.66	0.69	0.78	0.85	1.02	1.22	1.42	1.59	4.01
100	2.18	2.08	1.86	1.54	1.24	1.05	0.87	0.84	0.88	0.92	0.76	0.79	0.89	0.90	1.09	1.30	1.49	1.67	3.94
105	2.32	2.22	2.01	1.68	1.34	1.10	0.97	0.96	1.02	1.05	0.89	0.92	1.01	0.99	1.21	1.47	1.63	1.85	3.59
110	2.70	2.51	2.23	1.80	1.45	1.17	1.08	1.11	1.17	1.21	1.04	1.07	1.16	1.14	1.32	1.61	1.93	2.20	3.25
115	3.02	2.71	2.39	1.93	1.52	1.27	1.24	1.33	1.38	1.43	1.26	1.24	1.30	1.28	1.44	1.76	2.18	2.47	2.89
120	3.31	2.94	2.55	2.06	1.65	1.43	1.49	1.56	1.63	1.71	1.52	1.49	1.49	1.45	1.64	1.98	2.35	2.70	2.57
125	3.58	3.20	2.73	2.23	1.90	1.68	1.77	1.85	1.93	2.03	1.82	1.75	1.71	1.63	1.87	2.26	2.71	3.01	2.47
130	3.80	3.50	3.00	2.54	2.04	1.88	2.01	2.14	2.23	2.31	2.11	2.02	1.97	1.76	2.01	2.52	3.01	3.37	2.54
135	3.73	3.42	2.94	2.52	2.17	2.10	2.23	2.40	2.50	2.59	2.38	2.25	2.17	1.99	2.10	2.45	2.88	3.34	2.73
140	3.20	2.99	2.69	2.40	2.22	2.25	2.41	2.58	2.71	2.82	2.60	2.44	2.29	2.02	2.13	2.32	2.55	2.88	2.75
145	2.74	2.59	2.45	2.28	2.18	2.37	2.54	2.71	2.83	2.96	2.74	2.56	2.36	2.04	2.01	2.16	2.33	2.52	2.93
150	2.22	2.17	2.09	2.02	2.02	2.38	2.56	2.80	2.94	3.06	2.85	2.67	2.43	2.01	1.91	1.87	2.02	2.12	2.90
155	2.05	2.05	2.03	2.02	2.09	2.53	2.78	3.00	3.14	3.30	3.10	2.90	2.67	2.18	1.97	1.92	1.97	2.05	2.94
160	2.06	2.10	2.12	2.14	2.30	2.72	2.93	3.21	3.41	3.55	3.32	3.11	2.81	2.44	2.10	1.99	2.06	2.07	2.89
165	2.22	2.19	2.25	2.29	2.42	2.81	3.04	3.37	3.56	3.69	3.49	3.30	2.97	2.61	2.29	2.15	2.19	2.13	2.86
170	2.39	2.31	2.35	2.38	2.52	2.89	3.18	3.56	3.79	3.87	3.67	3.47	3.11	2.72	2.46	2.26	2.26	2.37	2.84
175	2.53	2.53	2.55	2.60	2.68	3.02	3.34	3.71	3.93	3.92	3.81	3.62	3.26	2.94	2.80	2.63	2.63	2.56	2.76
180	2.78	2.62	2.62	2.69	2.81	3.10	3.36	3.66	3.80	3.92	3.65	3.52	3.25	2.91	2.81	2.70	2.68	2.64	2.76



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Table--2

UNIT: cd

C (DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684	2684		
5	2696	2667	2639	2612	2587	2566	2550	2538	2529	2527	2530	2539	2552	2569	2591	2617	2644		
10	2726	2668	2612	2557	2507	2464	2432	2409	2397	2395	2403	2422	2450	2487	2531	2581	2635		
15	2760	2675	2591	2508	2430	2363	2315	2287	2275	2277	2289	2318	2365	2424	2493	2567	2647		
20	2798	2691	2578	2460	2353	2270	2206	2165	2147	2150	2174	2220	2288	2370	2469	2567	2670		
25	2869	2737	2579	2421	2288	2191	2120	2072	2048	2053	2084	2139	2224	2329	2457	2583	2702		
30	2976	2794	2581	2377	2235	2135	2060	2007	1983	1990	2024	2082	2170	2292	2441	2601	2758		
35	3074	2835	2575	2340	2191	2089	2015	1965	1944	1948	1980	2038	2125	2256	2426	2616	2807		
40	3206	2895	2590	2321	2151	2043	1967	1920	1901	1902	1930	1985	2081	2232	2430	2646	2898		
45	3349	3006	2639	2304	2089	1953	1859	1807	1787	1793	1829	1899	2016	2203	2456	2724	2979		
50	3435	3047	2619	2211	1935	1749	1632	1572	1551	1565	1617	1716	1881	2118	2439	2763	3045		
55	3588	3100	2529	1981	1641	1428	1309	1247	1230	1246	1305	1420	1616	1922	2357	2810	3182		
60	3744	3075	2290	1606	1266	1085	995	950	939	954	995	1087	1270	1590	2163	2790	3327		
65	3917	2978	1927	1190	924	805	751	722	713	722	749	811	935	1202	1846	2665	3543		
70	4140	3294	1529	788	591	507	467	444	438	445	467	506	607	811	1573	2976	4058		
75	2779	3138	709	359	305	280	251	205	184	210	252	277	302	361	786	3403	2558		
80	3167	633	211	180	181	164	116	105	102	103	116	162	176	175	207	718	3080		
85	618	102	87.0	62.0	74.0	55.4	38.9	35.6	31.8	34.2	35.5	50.2	64.5	57.1	78.5	93.4	850		
90	3.73	3.21	2.55	1.96	1.38	0.99	0.86	0.84	0.83	0.83	0.96	1.16	1.62	2.30	3.02	3.59	3.95		
95	3.99	3.56	2.96	2.40	1.84	1.39	1.21	1.17	1.16	1.17	1.34	1.61	2.12	2.86	3.58	4.04	4.36		
100	3.88	3.58	3.15	2.68	2.31	1.92	1.69	1.63	1.62	1.62	1.81	2.10	2.59	3.25	3.76	4.13	4.34		
105	3.55	3.40	3.16	2.79	2.53	2.30	2.13	2.10	2.09	2.08	2.23	2.38	2.83	3.35	3.74	4.00	4.06		
110	3.22	3.13	2.92	2.69	2.53	2.40	2.27	2.25	2.25	2.23	2.36	2.42	2.75	3.15	3.51	3.71	3.66		
115	2.85	2.78	2.62	2.47	2.37	2.34	2.35	2.36	2.32	2.26	2.36	2.35	2.53	2.86	3.16	3.25	3.19		
120	2.60	2.45	2.33	2.26	2.26	2.29	2.43	2.52	2.50	2.38	2.42	2.33	2.39	2.65	2.86	2.87	2.84		
125	2.46	2.34	2.17	2.19	2.28	2.37	2.59	2.73	2.72	2.62	2.62	2.49	2.48	2.70	2.85	2.84	2.72		
130	2.60	2.57	2.43	2.42	2.48	2.78	2.95	3.14	3.14	3.04	2.99	2.79	2.69	2.87	3.10	3.05	2.88		
135	2.75	2.73	2.64	2.71	2.92	3.11	3.41	3.66	3.64	3.53	3.46	3.19	3.06	3.16	3.25	3.25	3.13		
140	2.78	2.76	2.91	3.06	3.24	3.47	3.82	4.08	4.12	3.99	3.90	3.63	3.40	3.39	3.39	3.33	3.19		
145	2.97	3.02	3.11	3.25	3.45	3.76	4.22	4.46	4.51	4.35	4.30	3.95	3.61	3.55	3.53	3.44	3.29		
150	2.98	3.08	3.15	3.35	3.62	4.00	4.48	4.73	4.77	4.60	4.50	4.09	3.69	3.60	3.50	3.44	3.32		
155	2.99	3.07	3.20	3.37	3.68	4.17	4.54	4.79	4.85	4.65	4.49	4.22	3.79	3.61	3.49	3.40	3.26		
160	2.95	3.03	3.13	3.23	3.61	4.01	4.41	4.73	4.85	4.70	4.52	4.26	3.84	3.64	3.45	3.37	3.24		
165	2.85	2.88	2.91	3.00	3.25	3.65	4.06	4.44	4.59	4.54	4.33	4.14	3.68	3.46	3.32	3.23	3.08		
170	2.83	2.79	2.78	2.79	2.98	3.42	3.77	4.16	4.37	4.43	4.24	4.06	3.66	3.35	3.24	3.15	3.01		
175	2.76	2.83	2.78	2.75	2.94	3.32	3.61	3.95	4.21	4.28	4.12	3.92	3.57	3.18	3.08	3.01	2.88		
180	2.75	2.62	2.62	2.67	2.79	3.10	3.35	3.67	3.83	3.91	3.72	3.56	3.30	2.95	2.85	2.76	2.72		

## 7. THD and PF Test

Test type	Voltage (V AC)	Frequency (Hz)	Current(A)	Power Factor	Power(W)	Current THD
Results	277.0	60	0.3793	0.9355	98.28	14.54%





## 8. Photo of sample



Figure 1



Figure 2

\*\*\*\*\* END OF THE TEST REPORT\*\*\*\*\*