



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, DIST. GAUTAM BUDH NAGAR, UP-201305

Test Model..... : 401Y0150W30L70AY, 401Y0150W57L70AY

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, Songshan Lake
Hi-tech Industrial Development Zone, Dongguan City, Guangdong Pr., China.

Report No..... : CA1905127L 01002

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



Note 1: 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 Guangdong Meide Testing Technology 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 Federal Government.

Note 2: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.



1.Product Information

Model Number.....: 401Y0150W30L70AY,401Y0150W57L70AY

Manufacturer.....: ROYALUX EXPORTS

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

Rated Voltage/Frequency.....: 100-277V AC 50/60Hz

Rated Power.....: 150W

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).



Guangdong Meide Testing Technology Co., Ltd.



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° vertical intervals and 10° 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
401Y0150W30L70AY	120.0	60	1.244	148.3	0.9935
401Y0150W57L70AY	120.0	60	1.249	149.1	0.9947

Model Number	Luminous Flux(lm)	Efficacy (lm/W)	CCT (K)	Ra	R9
401Y0150W30L70AY	19541	131.77	2995	73.5	0
401Y0150W57L70AY	20129	135	5494	74.9	0

Model Number	duv	x	y	u'	v'
401Y0150W30L70AY	-0.000387	0.4367	0.4030	0.2509	0.5210
401Y0150W57L70AY	0.00239	0.3326	0.3457	0.2052	0.4799

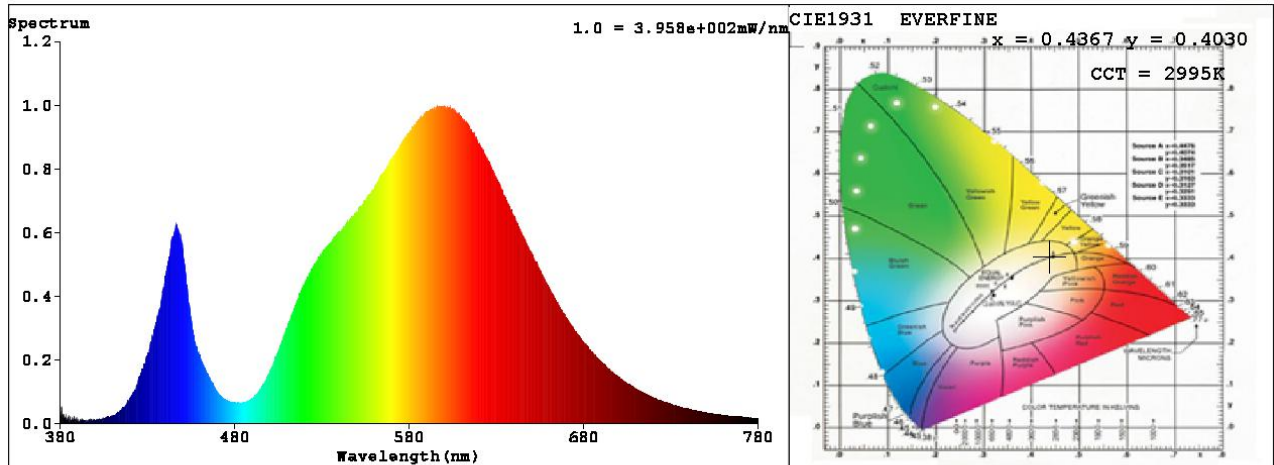


Guangdong Meide Testing Technology Co., Ltd.



5.2 Spectrum

401Y0150W30L70AY



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4367$ $y = 0.4030$ / $u' = 0.2509$ $v' = 0.5210$ ($duv = -3.87e-04$)

CCT= 2995K Prcp WL: Ld=583.0nm Purity=52.1%

Peak WL: Lp=604nm FWHM: =128.0nm Ratio:R=21.7% G=76.9% B=1.4%

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

R1 =71 R2 =81 R3 =89 R4 =72 R5 =70 R6 =73 R7 =80

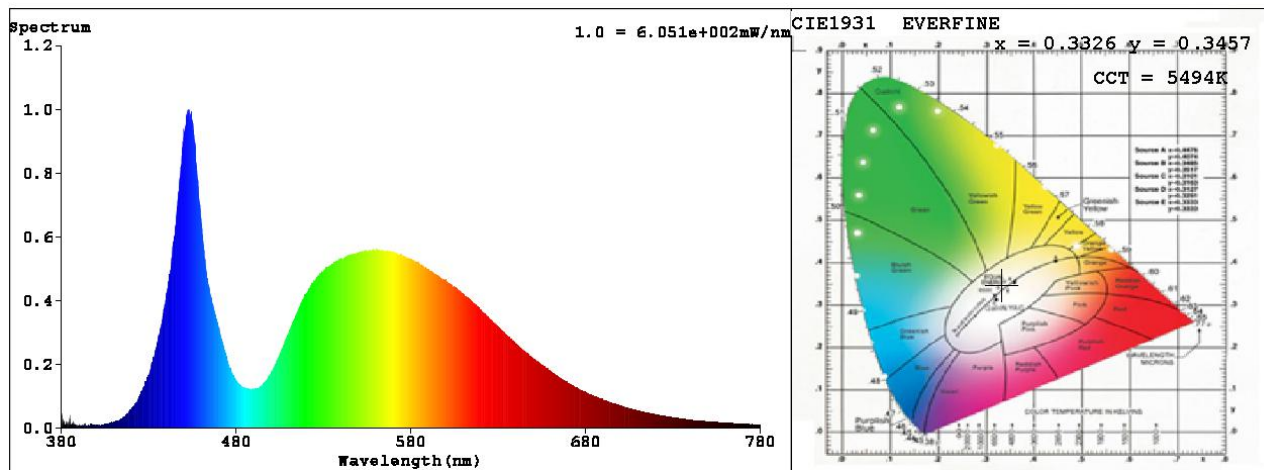
R8 =51 R9 =0 R10=55 R11=68 R12=47 R13=73 R14=93 R15=65



Guangdong Meide Testing Technology Co., Ltd.



401Y0150W57L70AY



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.3326$ $y = 0.3457$ / $u' = 0.2052$ $v' = 0.4799$ ($duv=2.39e-03$)

CCT= 5494K Prcp WL: Ld=551.5nm Purity=3.5%

Peak WL: Lp=453nm FWHM: =20.3nm Ratio:R=13.9% G=82.4% B=3.7%

Render Index: Ra = 74.9 TM30:Rf=73 Rg=94

R1 =73 R2 =79 R3 =82 R4 =75 R5 =73 R6 =70 R7 =85

R8 =63 R9 =0 R10=49 R11=70 R12=42 R13=74 R14=89 R15=70



6. Goniophotometer Test results

6.1 Test Data

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

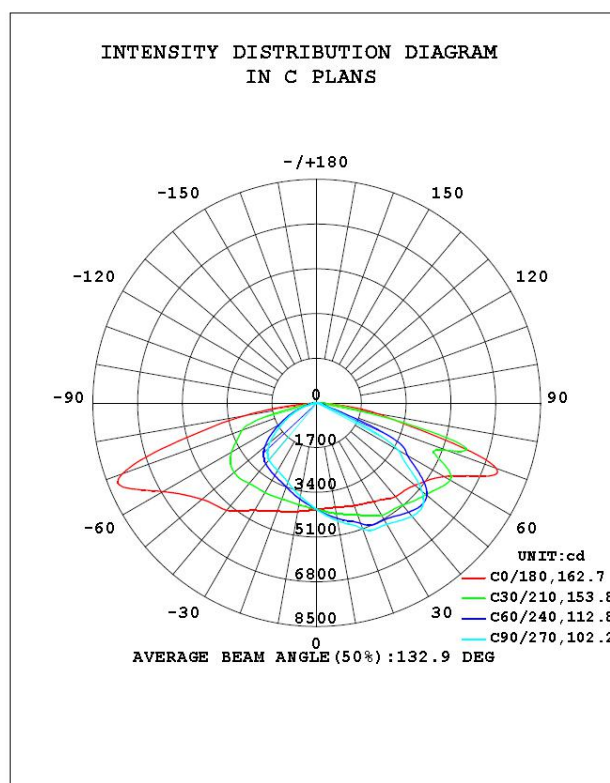
Electrical Measurement

Model Number	Input Voltage (V)	Frequency (Hz)	Input Current(A)	Power Factor	Power(W)
401Y0150W30L70AY	120.0	60	1.243	0.9939	148.3

Photometric Measurement

Model Number	Luminous Flux (lm)	Efficacy (lm/W)	ZL (0-90°)	ZL (80-90°)
401Y0150W30L70AY	19546.2	131.8	99.9%	2.1%

6.2 Luminous Intensity Distribution Diagram





Guangdong Meide Testing Technology Co., Ltd.



6.3 Zonal Flux Diagram

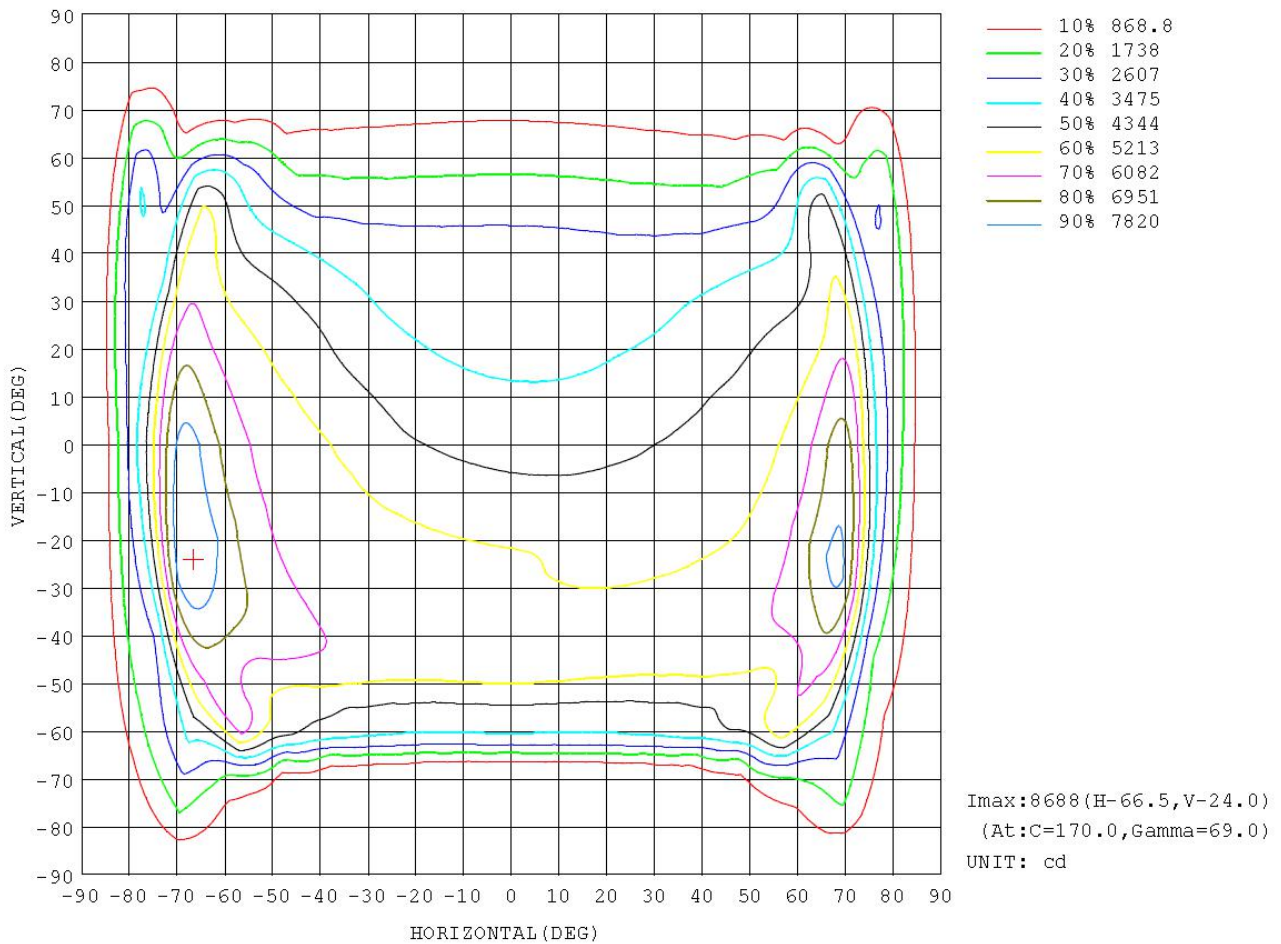
γ	CD	C45	C90	C135	C180	C225	C270	C315	γ	ϕ zone	ϕ total	Φ lum, lamp
10	4037	4367	4546	4479	4185	3815	3605	3711	0- 10	388.7	388.7	1.99, 1.99
20	4148	4702	5096	4924	4375	3623	3217	3484	10- 20	1174	1563	7.99, 7.99
30	4332	5040	5324	5414	4715	3478	2973	3319	20- 30	1981	3543	18.1, 18.1
40	4646	5273	5619	5608	5321	3376	2828	3174	30- 40	2764	6307	32.3, 32.3
50	4870	5566	5220	5903	5700	3121	2320	2859	40- 50	3476	9783	50, 50
60	5594	4884	3561	5184	6738	2265	1432	2048	50- 60	3774	13556	69.4, 69.4
70	7242	3026	308.1	3186	7853	1137	685.3	1026	60- 70	3477	17033	87.1, 87.1
80	2314	281.0	108.2	305.3	2780	281.8	139.4	264.8	70- 80	2079	19112	97.8, 97.8
90	2.774	1.348	0.9309	1.118	5.098	2.583	1.133	2.797	80- 90	411.8	19524	99.9, 99.9
100	3.147	1.700	1.210	1.304	5.563	3.704	2.348	4.247	90-100	2.804	19527	99.9, 99.9
110	3.976	1.988	1.647	1.687	4.663	3.784	3.261	4.261	100-110	3.242	19530	99.9, 99.9
120	4.940	2.342	2.364	2.179	3.639	3.259	3.600	3.643	110-120	3.147	19533	99.9, 99.9
130	5.521	2.999	3.213	2.699	3.641	3.574	4.502	4.108	120-130	3.103	19536	99.9, 99.9
140	4.735	3.346	3.949	3.026	3.991	4.619	5.902	5.040	130-140	3.197	19540	100, 100
150	3.246	3.252	4.282	2.908	4.241	5.115	6.845	5.429	140-150	2.792	19542	100, 100
160	3.016	3.701	5.005	3.395	4.245	5.056	6.969	5.611	150-160	2.113	19544	100, 100
170	3.502	4.003	5.533	3.871	4.185	4.268	6.321	5.300	160-170	1.315	19546	100, 100
180	4.067	4.346	5.636	4.240	4.034	4.025	5.543	4.669	170-180	0.4432	19546	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



Guangdong Meide Testing Technology Co., Ltd.



6.4 Isocandela Diagram





Guangdong Meide Testing Technology Co., Ltd.



6.5 Luminous Distribution Intensity Data

Table--1

UNIT: cd

C(°)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050
5	4024	4067	4108	4148	4185	4218	4246	4269	4286	4297	4302	4299	4290	4274	4252	4222	4188	4150	4106
10	4037	4118	4196	4268	4336	4398	4451	4495	4526	4546	4554	4549	4531	4500	4457	4405	4343	4271	4185
15	4086	4198	4301	4394	4484	4568	4640	4699	4746	4772	4784	4778	4756	4717	4661	4585	4497	4397	4275
20	4148	4291	4417	4536	4647	4757	4870	4977	5050	5096	5113	5097	5047	4971	4877	4770	4651	4527	4375
25	4222	4393	4556	4728	4890	5017	5107	5179	5238	5289	5327	5352	5358	5320	5217	5031	4834	4678	4515
30	4332	4540	4758	4934	5013	5068	5128	5206	5272	5324	5359	5367	5379	5408	5420	5363	5172	4939	4715
35	4475	4761	4911	4977	5055	5152	5247	5337	5414	5469	5495	5490	5469	5455	5454	5449	5420	5318	5004
40	4646	4848	4964	5076	5214	5333	5422	5495	5564	5619	5635	5634	5637	5626	5589	5538	5529	5518	5321
45	4711	4923	5104	5248	5396	5509	5553	5566	5599	5640	5660	5686	5747	5798	5798	5747	5706	5644	5476
50	4870	5092	5262	5420	5556	5575	5457	5299	5222	5220	5250	5368	5596	5833	5974	5965	5934	5891	5700
55	5136	5407	5552	5650	5625	5298	4816	4439	4267	4239	4265	4474	4917	5542	6088	6283	6322	6352	6101
60	5594	6015	6004	5851	5277	4491	3968	3705	3570	3561	3597	3741	4031	4688	5680	6490	6868	7128	6738
65	6575	7102	6300	5182	4423	4033	3200	2251	1671	1456	1629	2216	3200	4130	4733	5769	7157	8209	7734
70	7242	8102	6218	5274	4175	1876	729	389	329	308	340	420	763	1935	4437	5937	6840	8647	7853
75	4275	5615	5583	5114	1154	369	272	219	192	190	195	236	307	393	1127	5594	5612	5492	5144
80	2314	1720	3045	1571	368	194	148	120	112	108	114	127	175	234	377	1360	3458	2228	2780
85	699	493	1734	470	83.6	53.1	38.4	31.9	29.0	24.0	30.4	35.7	45.1	71.9	105	421	1892	1074	600
90	2.77	2.56	2.23	1.91	1.51	1.19	0.96	0.88	0.89	0.93	0.86	0.80	0.96	1.01	1.22	1.53	8.91	2.06	5.10
95	2.94	2.76	2.44	2.03	1.71	1.38	1.05	0.98	1.00	1.03	0.93	0.85	1.02	1.09	1.28	1.54	1.84	2.10	5.51
100	3.15	2.98	2.69	2.24	1.84	1.56	1.21	1.15	1.18	1.21	1.11	1.02	1.19	1.19	1.42	1.73	2.01	2.27	5.56
105	3.46	3.28	2.95	2.46	2.03	1.66	1.38	1.33	1.39	1.41	1.30	1.22	1.38	1.33	1.59	1.97	2.27	2.53	5.16
110	3.98	3.65	3.22	2.65	2.20	1.77	1.54	1.56	1.63	1.65	1.54	1.46	1.62	1.58	1.79	2.17	2.64	3.00	4.66
115	4.50	4.05	3.58	2.93	2.33	1.92	1.78	1.88	1.92	1.97	1.85	1.72	1.85	1.80	2.00	2.43	3.07	3.47	4.15
120	4.94	4.43	3.83	3.09	2.52	2.16	2.15	2.23	2.29	2.36	2.25	2.09	2.15	2.06	2.30	2.70	3.26	3.82	3.64
125	5.22	4.77	4.08	3.35	2.92	2.56	2.59	2.65	2.73	2.81	2.69	2.49	2.49	2.36	2.64	3.14	3.67	4.20	3.45
130	5.52	5.17	4.49	3.85	3.15	2.84	2.95	3.08	3.16	3.21	3.12	2.90	2.89	2.56	2.84	3.56	4.19	4.69	3.64
135	5.51	5.10	4.43	3.82	3.31	3.15	3.25	3.45	3.56	3.61	3.53	3.25	3.19	2.92	3.00	3.50	4.11	4.73	3.98
140	4.74	4.46	4.03	3.60	3.36	3.33	3.51	3.71	3.86	3.95	3.84	3.53	3.38	2.97	3.08	3.35	3.67	4.16	3.99
145	4.05	3.84	3.64	3.39	3.26	3.51	3.69	3.90	4.02	4.14	4.05	3.74	3.52	3.04	2.92	3.14	3.38	3.67	4.26
150	3.25	3.19	3.08	2.98	3.00	3.50	3.71	4.02	4.18	4.28	4.22	3.91	3.64	3.03	2.79	2.71	2.93	3.09	4.24
155	3.00	3.01	2.98	2.96	3.09	3.72	4.04	4.31	4.48	4.63	4.58	4.25	4.00	3.29	2.89	2.81	2.89	3.00	4.31
160	3.02	3.08	3.12	3.14	3.40	4.00	4.27	4.63	4.87	5.00	4.90	4.57	4.21	3.68	3.11	2.91	3.01	3.03	4.25
165	3.23	3.21	3.30	3.37	3.59	4.14	4.43	4.87	5.10	5.22	5.14	4.86	4.47	3.94	3.39	3.14	3.19	3.12	4.20
170	3.50	3.39	3.44	3.50	3.74	4.27	4.65	5.15	5.44	5.53	5.39	5.11	4.70	4.10	3.65	3.32	3.31	3.47	4.18
175	3.72	3.72	3.74	3.82	3.97	4.45	4.88	5.39	5.65	5.66	5.59	5.36	4.91	4.42	4.15	3.87	3.86	3.77	4.06
180	4.07	3.84	3.83	3.93	4.13	4.57	4.92	5.38	5.58	5.64	5.49	5.25	4.85	4.34	4.14	3.98	3.92	3.86	4.03



Guangdong Meide Testing Technology Co., Ltd.



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	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050		
5	4064	4022	3980	3940	3904	3872	3846	3827	3815	3810	3814	3825	3844	3869	3901	3938	3979		
10	4100	4015	3931	3852	3779	3714	3663	3626	3605	3602	3614	3642	3684	3738	3803	3874	3953		
15	4151	4022	3895	3772	3656	3554	3475	3427	3408	3410	3432	3480	3552	3643	3743	3853	3967		
20	4223	4062	3888	3706	3540	3401	3297	3238	3217	3224	3253	3318	3418	3549	3697	3847	3994		
25	4351	4155	3914	3657	3439	3281	3169	3101	3070	3074	3110	3186	3310	3476	3668	3865	4047		
30	4517	4259	3936	3606	3351	3194	3082	3008	2973	2975	3016	3097	3226	3412	3640	3884	4123		
35	4702	4349	3948	3560	3280	3112	3005	2940	2908	2909	2945	3019	3149	3347	3608	3901	4191		
40	4934	4474	3997	3541	3211	3020	2909	2852	2828	2829	2856	2922	3058	3290	3604	3948	4307		
45	5153	4654	4090	3515	3103	2866	2733	2668	2646	2653	2686	2765	2922	3208	3620	4048	4437		
50	5331	4761	4100	3370	2873	2580	2413	2343	2320	2333	2376	2478	2685	3034	3555	4092	4544		
55	5570	4847	4009	3066	2483	2153	1978	1894	1869	1882	1937	2064	2310	2723	3396	4112	4709		
60	5814	4830	3747	2560	1971	1667	1518	1453	1432	1441	1489	1591	1831	2265	3075	4033	4841		
65	6136	4788	3346	1950	1463	1233	1125	1082	1065	1066	1101	1172	1349	1718	2599	3853	5000		
70	6264	5256	3017	1317	956	804	734	697	685	686	713	762	883	1169	2079	4273	5526		
75	4053	4784	2010	661	516	450	403	346	319	333	380	423	474	578	1115	4469	4151		
80	3160	1304	445	291	273	240	173	144	139	141	155	217	257	273	322	916	2573		
85	2201	176	142	97.3	105	82.4	54.0	49.6	43.5	46.2	48.3	65.6	90.5	87.2	112	151	1395		
90	17.5	4.93	3.92	3.00	2.16	1.49	1.22	1.16	1.13	1.11	1.30	1.64	2.31	3.28	4.28	5.04	5.54		
95	5.64	5.17	4.38	3.57	2.82	2.12	1.78	1.69	1.65	1.65	1.88	2.33	3.10	4.13	5.09	5.75	6.21		
100	5.66	5.23	4.65	3.97	3.44	2.92	2.53	2.40	2.35	2.36	2.62	3.08	3.79	4.70	5.42	6.00	6.32		
105	5.20	4.94	4.59	4.09	3.70	3.45	3.21	3.12	3.07	3.05	3.23	3.50	4.11	4.83	5.40	5.84	5.98		
110	4.69	4.53	4.21	3.88	3.69	3.54	3.42	3.32	3.26	3.24	3.42	3.55	3.99	4.54	5.03	5.38	5.38		
115	4.17	4.02	3.78	3.55	3.46	3.44	3.50	3.48	3.36	3.28	3.42	3.46	3.67	4.13	4.57	4.76	4.72		
120	3.78	3.56	3.38	3.24	3.28	3.39	3.58	3.67	3.60	3.47	3.51	3.44	3.48	3.80	4.12	4.21	4.18		
125	3.57	3.43	3.16	3.16	3.33	3.50	3.81	3.95	3.90	3.80	3.80	3.72	3.66	3.91	4.10	4.13	3.99		
130	3.70	3.78	3.55	3.51	3.64	4.06	4.35	4.55	4.50	4.42	4.35	4.17	4.00	4.22	4.51	4.43	4.20		
135	4.01	3.99	3.89	3.98	4.28	4.57	4.97	5.27	5.23	5.14	5.06	4.78	4.55	4.64	4.77	4.78	4.62		
140	4.06	4.02	4.24	4.49	4.75	5.08	5.57	5.87	5.90	5.81	5.70	5.45	5.07	5.01	4.99	4.92	4.71		
145	4.32	4.39	4.54	4.75	5.05	5.48	6.12	6.41	6.47	6.33	6.27	5.91	5.40	5.25	5.21	5.08	4.85		
150	4.36	4.50	4.61	4.92	5.31	5.84	6.51	6.80	6.85	6.71	6.59	6.12	5.53	5.32	5.18	5.08	4.91		
155	4.39	4.50	4.70	4.97	5.43	6.11	6.60	6.91	6.96	6.78	6.60	6.33	5.69	5.37	5.17	5.04	4.81		
160	4.32	4.45	4.62	4.78	5.33	5.89	6.44	6.86	6.97	6.86	6.65	6.36	5.81	5.41	5.12	4.99	4.81		
165	4.18	4.23	4.28	4.45	4.82	5.38	5.94	6.44	6.60	6.58	6.36	6.14	5.61	5.19	4.94	4.77	4.56		
170	4.17	4.09	4.08	4.12	4.42	5.04	5.53	6.06	6.32	6.44	6.27	6.02	5.56	5.04	4.82	4.66	4.46		
175	4.06	4.17	4.10	4.06	4.36	4.92	5.31	5.77	6.09	6.17	6.07	5.79	5.40	4.81	4.59	4.46	4.26		
180	4.04	3.83	3.83	3.92	4.13	4.56	4.91	5.33	5.54	5.59	5.47	5.23	4.92	4.42	4.20	4.05	3.99		

7. THD and PF Test

Test type	Voltage (V AC)	Frequency (Hz)	Current(A)	Power Factor	Power(W)	Current THD
Results	277.0	60	0.5675	0.9298	146.15	13.31%



Guangdong Meide Testing Technology Co., Ltd.



8. Photo of sample



Figure 1



Figure 2

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