

## LM-79-08 Test Report

For

### ELEC-TECH INTERNATIONAL CO LTD

No. 1 Jinfeng Road, Tangjiawan Town, Xiangzhou District, Zhuhai City, Guangdong Province, P.R. China, 519085

### Wall Pack Light

Model Name(s):

533082##

Representative (Tested) Model:

53308261

**Model Difference: ## can be 61-70 intends CCT is 5000K**

Prepare by:

*Derek Lai*

Engineer: Derek Lai

Date: 2018-08-02

Review by:

*Vincent Yuan*

Technical Lead: Vincent Yuan

Issue Date: 2018-09-07

Revised Date: N/A

Note:

1. The results contained in this report pertain only to the tested samples.
2. This report shall not be reproduced, no limited part or full, without approval of Dongguan New Testing Centre Co., Ltd
3. This report does not imply product certification, approval, or endorsement by NVLAP, or any agency of the Federal Government.

**Laboratory: Dongguan New Testing Centre Co., Ltd**

Address: 3F, No. 1 the 1<sup>st</sup> North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China

Tel: 86-769-89874553

Website: <http://www.ntc-cert.com>

**Product Information:**

Client Name:	ELEC-TECH INTERNATIONAL CO LTD
Brand Name:	ETI
Model Number:	533082##(##=61-70)
Product Type:	Outdoor Full-Cutoff Wall-mounted Area Luminaires
Rating Input:	120-277Vac, 50/60Hz, 75W
Declared CCT:	5000K
Declared Light Output:	9750lm
LED Manufacturer:	Samsung
LED Model:	SPMWH1228XXXXXXXXXX
LED Quantity:	336 pcs
Driver Manufacturer:	ECU ELECTRONICS INDUSTRIAL CO., LTD
Driver Model:	ELP-75-1.95A

**Test Information:**

Standard Lamp:	Total Spectral Radiant Flux Standard Lamp, trace to NIST. 1. D908S for Gonio 2. D215S for Integrating Sphere
Date of Receipt Samples:	2018-07-23
Quantity of Receipt Samples:	2 pcs
Sample Number:	S18072305-S1

**Laboratory Information:**

Test Laboratory:	Dongguan New Testing Centre Co., Ltd
Laboratory Address:	3F, No. 1 the 1 <sup>st</sup> North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China
Laboratory Contact Name:	Neil Zhong
Laboratory Contact E-mail:	<a href="mailto:Neil_ntc@163.com">Neil_ntc@163.com</a>

**Report Information:**

Issued Date of Test Report:	2018-09-07
Revised Date of Test Report:	N/A
Test Report No.:	NTCR18080011
Remark (If applicable):	N/A

<b>Test Specification:</b>	
Date of Test	2018-08-01
Test Item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. THD and PF
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2017 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Color Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry

<b>Test Methods:</b>
<p><b>1. Photometric and Electrical Measurements – Light Distribution Method:</b></p> <p>Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at <math>25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}</math>, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at required Voltage and Frequency. It was stabilized before measurement was made. Luminous Flux, Luminaire Efficacy and Zonal Lumen were calculated from the software taken at <math>1^{\circ}</math> vertical intervals and <math>15^{\circ}</math> horizontal intervals.</p>
<p><b>2. Photometric and Electrical Measurements – Integrating Sphere Method:</b></p> <p>Photometric parameters were measured using an integrating sphere, as spectroradiometer and software. The ambient temperature condition inside the sphere was measured at <math>25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}</math>. 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 require Voltage and Frequency. It was stabilized before measurement was made. Chromaticity Coordinates, Correlated Color Temperature and Color Rendering Index were calculated from the spectral radiant flux measurements taken at least 1 nm intervals over the rage of 380 to 780 nm.</p>
<p><b>3. THD and PF Measurements:</b></p> <p>The sample was tested according to the ANSI C82.77-2002, the sample was operated at requirement Voltage and Frequency, and was stabilized before measurement. The Total Harmonic Distortion was calculated from the Digital Power Meter.</p>

**Integrating Sphere Test Results:**

**Test Condition:**

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
24.6	40.2	Face Down	90	10

**Electrical Data:**

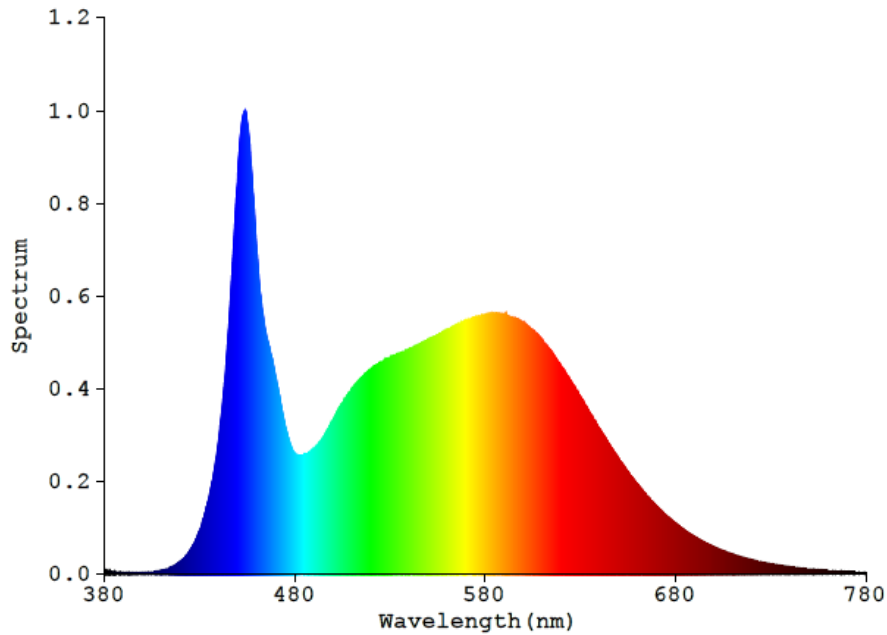
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.6172	73.75	0.9935

**Color Data:**

Parameter	Result
CCT(K)	5115
Color Rendering Index (CRI)	884.2
R9	10
Chromaticity, x	0.3420
Chromaticity, y	0.3500
Chromaticity, u'	0.2100
Chromaticity, v'	0.4834
Duv	0.00045

Special Color Rendering			
R1	83	R9	10
R2	91	R10	78
R3	94	R11	82
R4	83	R12	63
R5	83	R13	85
R6	86	R14	97
R7	86	R15	78
R8	67	-	-

**Spectrum Diagram:**



**Goniophotometer Test Results:**

**Test Condition:**

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
24.6	40.2	Face Down	90	25

**Electrical Data:**

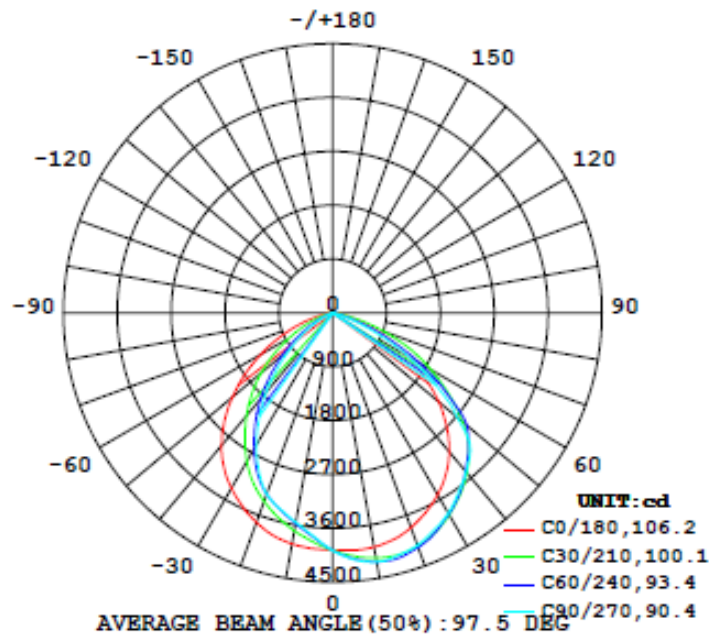
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.6172	73.75	0.9935

**Goniophotometer Data:**

Parameter	Results
Total Luminous (lm)	9334.89
Total Luminous per foot (lm/ft)	N/A
Luminous Efficacy (lm/w)	126.58
Zonal Lumens Distribution (0-90°)	100%
Beam Angle (°)	97.5

**Luminous Intensity Distribution Diagram:**

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

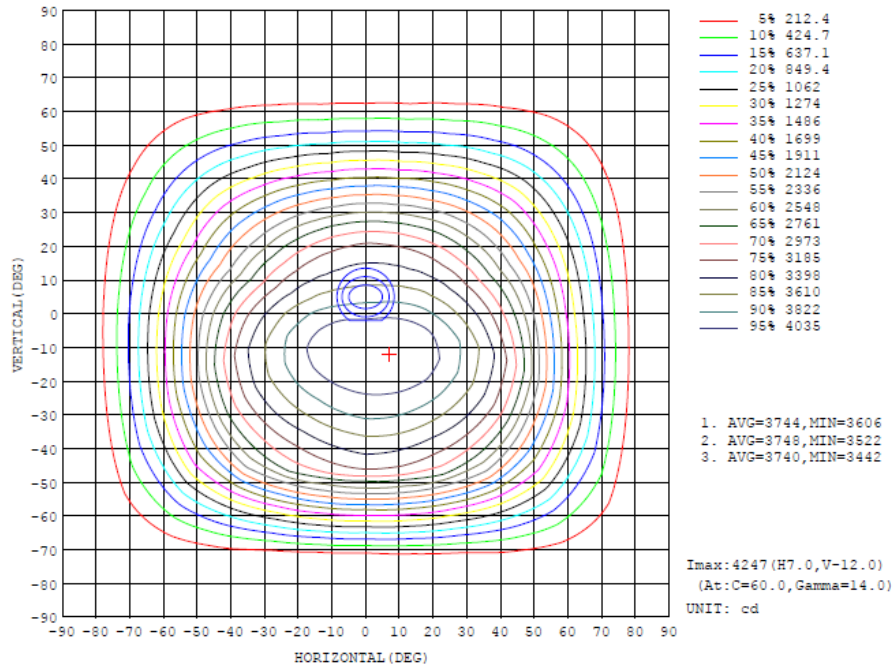


**Zonal Flux Diagram:**

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ none	Φ total	lum.lamp
10	3973	4205	4224	4163	3922	3623	3553	3656	0- 10	276.3	276.3	4.02,4.03
20	2821	4188	4123	4059	3725	3273	3225	3247	10- 20	1084	1460	15.6,15.6
30	3509	3903	3862	3770	3284	2742	2552	2882	20- 30	1623	3092	22.1,22.1
40	3032	3472	3468	3346	2892	2052	1732	2184	30- 40	1911	5004	52.6,52.6
50	2216	2877	2717	2749	2189	1299	919.2	1407	40- 50	1891	6885	72.8,72.8
60	1442	1867	1462	1747	1385	627.8	316.3	672.8	50- 60	1456	8241	89.4,89.4
70	662.4	709.9	305.4	625.2	646.6	142.8	30.30	158.2	60- 70	775.6	9116	97.7,97.7
80	122.6	29.66	19.08	25.22	120.7	12.49	12.29	12.22	70- 80	204.1	9220	99.8,99.8
90	0.0006	0	0	0	0	0	0	0	80- 90	14.29	9225	100,100
100	0	0	0	0	0	0	0	0	90-100	0.0000	9225	100,100
110	0	0	0	0	0	0	0	0	100-110	0	9225	100,100
120	0	0	0	0	0	0.0209	0.0019	0.0023	110-120	0.0020	9225	100,100
130	0	0	0	0	0	0.0254	0.0099	0.0013	120-130	0.0017	9225	100,100
140	0	0	0	0.0000	0.0450	0.1021	0.0427	0.0755	130-140	0.0125	9225	100,100
150	0.0026	0	0.0092	0.0341	0.1029	0.1590	0.1409	0.1528	140-150	0.0222	9225	100,100
160	0.0308	0.0207	0.0257	0.0567	0.1420	0.1848	0.2035	0.1976	150-160	0.0411	9225	100,100
170	0.0567	0.0479	0.0492	0.0570	0.1790	0.1446	0.1926	0.1606	160-170	0.0218	9225	100,100
180	0.1188	0.1124	0.1182	0.0950	0.1154	0.1147	0.1182	0.0957	170-180	0.0090	9225	100,100
DEG	LUMINOUS INTENSITY:cd Less than 25% Percent = 0.9 %									UNIT:lm		

**Isocandela Diagram:**



**Luminous Distribution Intensity Data:**

Table--1 UNIT: cd

C (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	3970	3967	3970	3969	3969	3969	3971	3971	3970	3969	3976	3973	3970	3967	3970	3969	3969	3969	3971
5	3983	4037	4081	4106	4129	4136	4140	4131	4119	4099	4065	4017	3954	3691	3637	3792	3762	3744	3744
10	3973	4082	4159	4205	4224	4229	4224	4211	4195	4163	4121	4032	3922	3798	3701	3623	3576	3553	3553
15	3921	4085	4190	4234	4241	4221	4199	4194	4189	4160	4111	4000	3852	3671	3536	3445	3402	3394	3396
20	3821	4031	4153	4188	4170	4148	4133	4116	4098	4089	4039	3917	3725	3502	3356	3273	3226	3209	3225
25	3679	3930	4048	4073	4051	4022	4004	3976	3957	3953	3917	3798	3572	3305	3140	3045	2970	2926	2922
30	3509	3790	3898	3903	3881	3875	3862	3817	3784	3770	3748	3638	3384	3066	2874	2743	2628	2555	2552
35	3297	3612	3713	3697	3694	3684	3659	3617	3578	3568	3552	3451	3166	2774	2560	2409	2260	2158	2142
40	3032	3392	3487	3472	3449	3459	3468	3403	3350	3346	3322	3216	2892	2458	2243	2053	1874	1748	1732
45	2697	3102	3216	3211	3211	3246	3258	3185	3110	3065	3043	2900	2560	2130	1913	1675	1477	1332	1309
50	2316	2698	2844	2877	2928	2793	2717	2733	2832	2749	2677	2502	2189	1782	1563	1299	1088	949	919
55	1879	2242	2372	2449	2310	2180	2117	2137	2231	2348	2225	2071	1794	1418	1206	941	741	611	581
60	1442	1783	1890	1867	1679	1528	1463	1487	1601	1747	1776	1637	1385	1062	851	628	450	343	316
65	1032	1329	1430	1261	1049	919	839	883	981	1158	1310	1210	999	729	545	361	219	134	118
70	662	907	909	710	496	362	305	334	440	625	797	806	647	435	294	143	57.1	31.8	30.3
75	356	534	456	278	97.4	35.4	32.3	33.7	85.7	214	369	457	349	205	102	25.3	19.8	18.4	19.0
80	124	223	130	29.7	22.5	20.1	19.1	19.7	21.0	25.3	92.4	157	121	56.9	12.9	12.5	13.0	12.8	13.4
85	9.51	27.4	9.07	7.31	4.99	1.71	3.58	1.09	4.03	4.69	5.72	4.14	5.45	4.27	4.72	4.57	5.26	5.83	6.13
90	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.01	0.00
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.03	0.02	0.01
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.07	0.06	0.04	0.03
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.05	0.08	0.11	0.10	0.07	0.05	0.04
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.03	0.07	0.10	0.13	0.13	0.11	0.09	0.08
150	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.10	0.11	0.13	0.16	0.15	0.15	0.14
155	0.01	0.00	0.00	0.01	0.01	0.02	0.02	0.03	0.03	0.05	0.05	0.04	0.09	0.09	0.14	0.18	0.18	0.17	0.18
160	0.03	0.02	0.01	0.02	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.14	0.14	0.16	0.18	0.19	0.19	0.20
165	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.07	0.07	0.07	0.17	0.15	0.15	0.17	0.18	0.20	0.21
170	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.07	0.08	0.18	0.16	0.14	0.14	0.16	0.18	0.19
175	0.03	0.02	0.02	0.03	0.05	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.14	0.12	0.10	0.11	0.10	0.12	0.12
180	0.12	0.10	0.10	0.11	0.12	0.11	0.12	0.09	0.08	0.10	0.09	0.09	0.12	0.10	0.10	0.11	0.12	0.11	0.12

Table--2 UNIT: cd

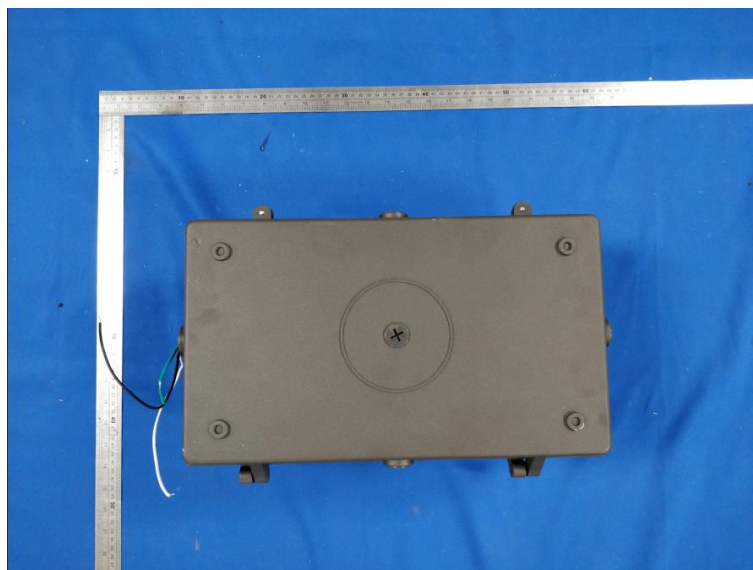
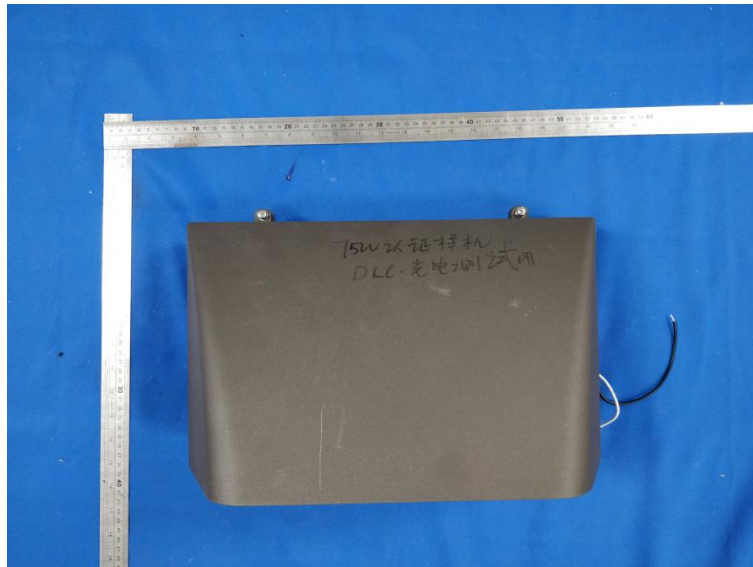
C (DEG)	285	300	315	330	345														
0	3971	3970	3969	3976	3973														
5	3754	3778	3811	3866	3927														
10	3569	3599	3656	3751	3854														
15	3411	3440	3501	3610	3758														
20	3243	3279	3347	3457	3612														
25	2966	3055	3155	3268	3445														
30	2600	2723	2883	3038	3226														
35	2198	2350	2551	2742	2959														
40	1790	1956	2184	2422	2655														
45	1368	1552	1798	2074	2316														
50	973	1147	1407	1712	1963														
55	624	780	1018	1331	1572														
60	349	473	673	945	1185														
65	138	232	387	599	818														
70	33.0	63.6	158	324	495														
75	18.5	20.6	29.8	121	242														
80	13.1	13.7	13.2	20.5	74.2														
85	6.15	5.87	5.46	5.74	7.75														
90	0.00	0.00	0.00	0.00	0.00														
95	0.00	0.00	0.00	0.00	0.00														
100	0.00	0.00	0.00	0.00	0.00														
105	0.00	0.00	0.00	0.00	0.00														
110	0.00	0.00	0.00	0.00	0.00														
115	0.00	0.01	0.01	0.00	0.00														
120	0.00	0.01	0.00	0.00	0.00														
125	0.00	0.00	0.00	0.00	0.00														
130	0.00	0.00	0.00	0.01	0.00														
135	0.02	0.02	0.03	0.04	0.02														
140	0.04	0.05	0.08	0.07	0.06														
145	0.09	0.10	0.11	0.11	0.08														
150	0.14	0.15	0.15	0.14	0.10														
155	0.18	0.18	0.18	0.15	0.09														
160	0.21	0.21	0.20	0.17	0.14														
165	0.22	0.21	0.19	0.17	0.15														
170	0.19	0.17	0.16	0.16	0.16														
175	0.12	0.11	0.12	0.12	0.12														
180	0.09	0.09	0.10	0.09	0.09														

**THD and PF Measurement Test Results:**

**Electrical Measurement:**

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
277.0	60	0.2821	74.47	0.9525	10.63

**Photo of Sample:**



**Laboratory: Dongguan New Testing Centre Co., Ltd**

Address: 3F, No. 1 the 1<sup>st</sup> North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China

Tel: 86-769-89874553

Website: <http://www.ntc-cert.com>



**Equipment List:**

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2017-11-18	2018-11-17
NTC-F01-006	2.0 meter Integrating Sphere	2017-11-18	2018-11-17
NTC-F01-012	Standard Lamp	2017-11-18	2018-11-17
NTC-F01-013	Standard Lamp	2017-11-18	2018-11-17
NTC-F01-031	Digital Power Meter	2017-11-18	2018-11-17
NTC-F01-019	Temperature & Humidity Meter	2017-11-23	2018-11-22