

## 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):

533072##

Representative (Tested) Model:

53307261

**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:	533072##(##=61-70)
Product Type:	Outdoor Full-Cutoff Wall-mounted Area Luminaires
Rating Input:	120-277Vac, 50/60Hz, 30W
Declared CCT:	5000K
Declared Light Output:	3900lm
LED Manufacturer:	Samsung
LED Model:	SPMWH1228XXXXXXXXXX
LED Quantity:	132 PCS
Driver Manufacturer:	ECU ELECTRONICS INDUSTRIAL CO., LTD
Driver Model:	ELP-30-780mA

**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:	S18072302-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.:	NTCR18080005
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)
25.0	40.3	Face Down	90	10

**Electrical Data:**

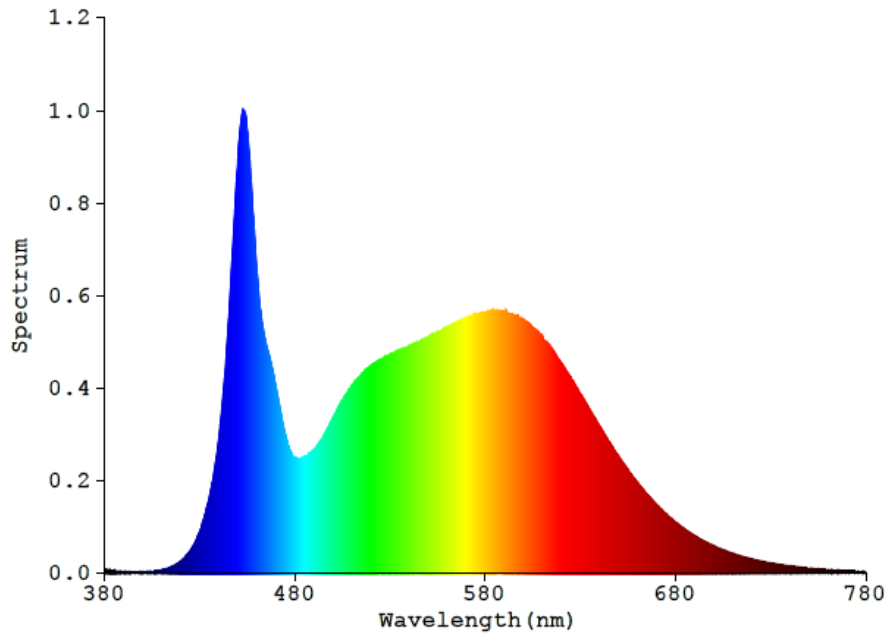
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.2547	30.39	0.9918

**Color Data:**

Parameter	Result
CCT(K)	5048
Color Rendering Index (CRI)	83.8
R9	8
Chromaticity, x	0.3439
Chromaticity, y	0.3527
Chromaticity, u'	0.2102
Chromaticity, v'	0.4850
Duv	0.00067

Special Color Rendering			
R1	82	R9	8
R2	90	R10	76
R3	94	R11	82
R4	83	R12	62
R5	83	R13	85
R6	86	R14	97
R7	86	R15	77
R8	66	-	-

**Spectrum Diagram:**



**Goniophotometer Test Results:**

**Test Condition:**

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
25.0	40.3	Face Down	90	25

**Electrical Data:**

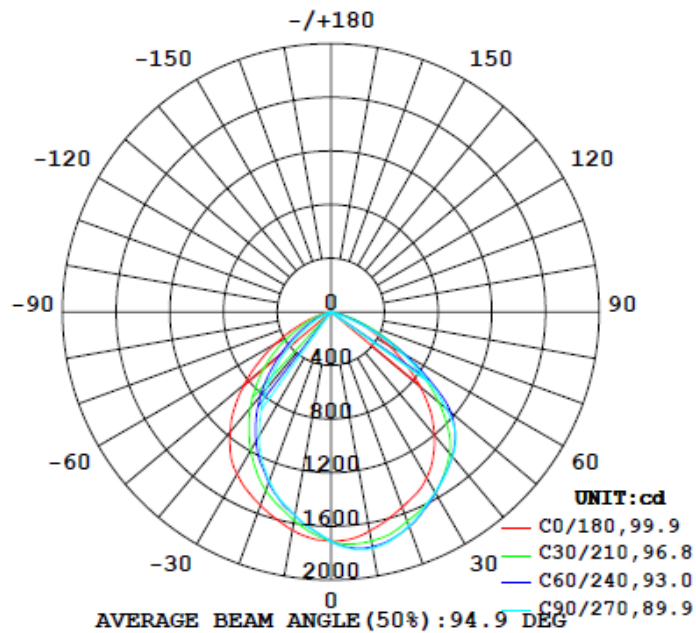
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.2547	30.39	0.9918

**Goniophotometer Data:**

Parameter	Results
Total Luminous (lm)	3724.12
Total Luminous per foot (lm/ft)	N/A
Luminous Efficacy (lm/w)	122.52
Zonal Lumens Distribution (0-90°)	100%
Beam Angle (°)	94.9

**Luminous Intensity Distribution Diagram:**

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

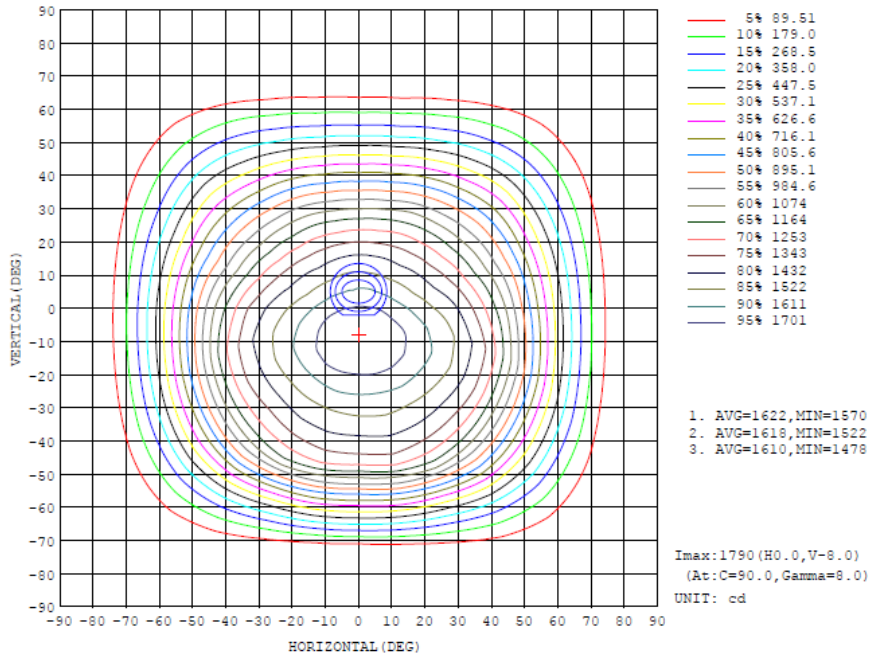


**Zonal Flux Diagram:**

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total	lum, lamp
10	1659	1761	1790	1759	1653	1554	1542	1562	0- 10	160.9	160.9	4.22,4.22
20	1552	1694	1699	1670	1526	1378	1343	1397	10- 20	452.1	613.0	16.5,16.5
30	1428	1557	1554	1517	1398	1143	1071	1165	20- 30	668.3	1281	34.4,34.4
40	1202	1388	1409	1327	1169	868.4	745.9	906.4	30- 40	781.4	2063	55.4,55.4
50	868.7	1110	1117	1067	842.2	560.0	415.8	582.0	40- 50	762.5	2825	75.9,75.9
60	494.0	667.1	597.8	615.2	477.8	284.2	157.1	279.8	50- 60	567.3	2392	91.1,91.1
70	179.4	231.5	132.2	192.4	172.5	68.67	18.80	64.31	60- 70	275.3	3669	98.5,98.5
80	9.751	7.922	5.926	5.640	8.581	4.995	5.585	5.170	70- 80	54.05	3722	99.9,99.9
90	0	0	0	0	0	0	0	0	80- 90	2.270	3724	100,100
100	0	0	0	0	0	0	0	0	90-100	0	3724	100,100
110	0	0	0	0	0	0	0	0	100-110	0	3724	100,100
120	0	0	0	0	0	0	0	0	110-120	0	3724	100,100
130	0	0	0	0	0	0	0	0	120-130	0	3724	100,100
140	0	0	0	0	0	0	0	0	130-140	0	3724	100,100
150	0	0	0	0	0	0.0094	0	0	140-150	0.0001	3724	100,100
160	0	0	0	0	0.0047	0.0276	0.0187	0.0124	150-160	0.0018	3724	100,100
170	0	0	0	0	0.0161	0.0194	0.0141	0.0007	160-170	0.0023	3724	100,100
180	0	0	0	0	0	0	0	0	170-180	0.0002	3724	100,100
DEG	LUMINOUS INTENSITY:cd Less than 35% Percent = 8.7 %									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	1712	1710	1711	1710	1712	1709	1712	1710	1712	1710	1711	1712	1712	1710	1711	1710	1712	1709	1712
5	1701	1721	1737	1751	1764	1771	1774	1769	1764	1750	1734	1714	1694	1671	1654	1635	1627	1622	1627
10	1659	1699	1735	1761	1779	1787	1790	1784	1775	1759	1731	1693	1653	1610	1579	1554	1544	1541	1542
15	1609	1665	1716	1744	1755	1761	1760	1755	1746	1730	1690	1646	1595	1534	1498	1468	1459	1453	1453
20	1552	1621	1664	1694	1704	1706	1699	1698	1692	1670	1639	1597	1536	1461	1417	1378	1354	1343	1343
25	1499	1580	1618	1626	1634	1629	1627	1623	1609	1596	1582	1544	1473	1384	1315	1263	1242	1219	1217
30	1428	1520	1556	1557	1560	1563	1554	1548	1537	1517	1507	1477	1398	1282	1195	1143	1116	1082	1071
35	1328	1442	1474	1473	1483	1492	1484	1475	1456	1433	1421	1398	1304	1158	1067	1013	973	926	910
40	1202	1341	1378	1388	1409	1422	1409	1406	1377	1337	1326	1289	1169	1019	935	868	817	763	746
45	1051	1183	1235	1272	1311	1340	1317	1319	1279	1229	1181	1130	1019	874	794	715	652	594	573
50	869	998	1050	1110	1169	1169	1117	1138	1138	1067	1000	937	842	725	650	560	491	434	416
55	679	791	845	904	910	911	858	879	871	865	797	741	658	561	502	414	342	290	272
60	494	586	633	667	632	632	598	610	602	615	594	543	478	401	350	284	218	172	157
65	322	395	433	430	387	377	364	363	359	382	387	358	313	256	220	167	113	77	67.3
70	179	232	249	232	187	151	132	136	157	192	211	203	172	138	111	68.7	30.5	18.1	18.8
75	75.3	102	104	83.4	38.7	24.1	11.1	11.5	21.8	54.5	80.0	81.1	69.8	52.2	37.0	10.2	7.89	7.75	7.83
80	9.75	19.9	17.4	7.93	6.08	6.03	5.93	5.80	5.47	5.64	8.58	9.81	8.58	9.34	4.78	5.00	5.29	5.43	5.99
85	1.53	1.13	0.81	1.03	0.46	0.06	0.01	0.00	0.13	0.54	0.60	1.02	1.55	1.70	1.68	1.75	2.04	2.41	2.74
90	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
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	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	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	0.00	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	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	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
145	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
150	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	0.01	0.01	0.01	0.01
155	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	0.02	0.02	0.01	0.01
160	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	0.02	0.02
165	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	0.02	0.02	0.03	0.02	0.02	0.02
170	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	0.02	0.01	0.01	0.01
175	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
180	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

Table--2 UNIT: cd

C (DEG)	285	300	315	330	345
0	1710	1712	1710	1711	1712
5	1631	1639	1646	1663	1680
10	1539	1552	1562	1585	1621
15	1458	1473	1482	1514	1549
20	1349	1369	1397	1437	1484
25	1231	1267	1296	1340	1407
30	1095	1143	1185	1234	1320
35	933	997	1051	1113	1196
40	771	837	906	983	1067
45	597	666	747	845	923
50	436	498	582	686	763
55	289	345	423	518	588
60	169	215	280	354	420
65	74.2	110	159	217	269
70	17.6	29.8	64.3	108	143
75	7.82	8.04	10.5	34.6	56.4
80	5.57	5.46	5.17	4.97	10.7
85	2.52	2.22	2.06	1.95	2.01
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	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00
125	0.00	0.00	0.00	0.00	0.00
130	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00
140	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00
155	0.01	0.01	0.01	0.00	0.00
160	0.02	0.02	0.01	0.00	0.00
165	0.02	0.02	0.02	0.00	0.00
170	0.01	0.01	0.00	0.00	0.01
175	0.00	0.00	0.00	0.00	0.00
180	0.00	0.00	0.00	0.00	0.00

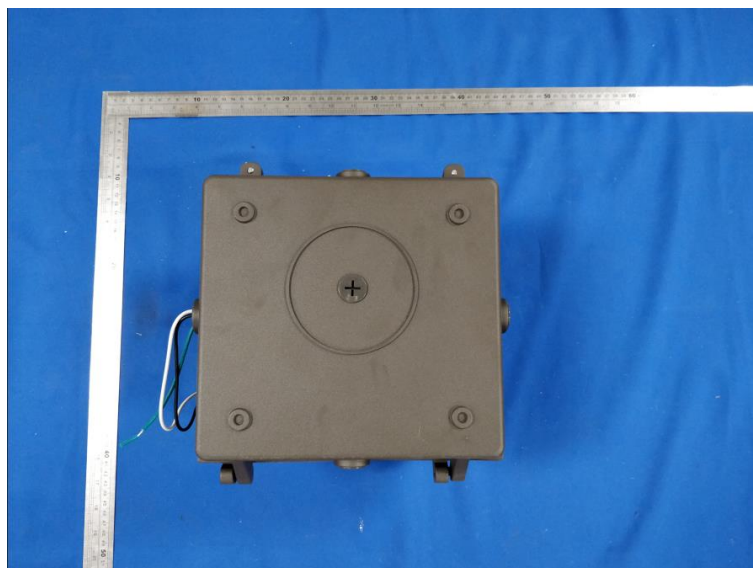
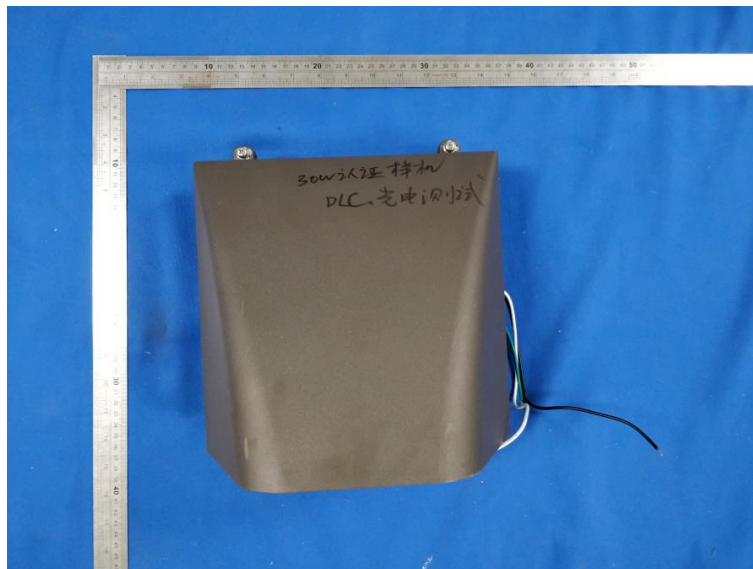
**THD and PF Measurement Test Results:**

**Electrical Measurement:**

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
277.0	60	0.1138	30.48	0.9675	14.90



**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