

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):

533071##

Representative (Tested) Model:

53307161

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.
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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

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Tel: 86-769-89874553

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

Product Information:

Client Name:	ELEC-TECH INTERNATIONAL CO LTD
Brand Name:	ETI
Model Number:	533071##(##=61-70)
Product Type:	Outdoor Full-Cutoff Wall-mounted Area Luminaires
Rating Input:	120-277Vac, 50/60Hz, 60W
Declared CCT:	5000K
Declared Light Output:	7800lm
LED Manufacturer:	Samsung
LED Model:	SPMWH1228XXXXXXXXXX
LED Quantity:	266 PCS
Driver Manufacturer:	ECU ELECTRONICS INDUSTRIAL CO., LTD
Driver Model:	ELP-60-1.33A

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:	S18072301-S1

Laboratory Information:

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

Report Information:

Issued Date of Test Report:	2018-09-07
Revised Date of Test Report:	N/A
Test Report No.:	NTCR18080003
Remark (If applicable):	N/A

Test Specification:	
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

Test Methods:
<p>1. Photometric and Electrical Measurements – Light Distribution Method:</p> <p>Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, 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 1° vertical intervals and 15° horizontal intervals.</p>
<p>2. Photometric and Electrical Measurements – Integrating Sphere Method:</p> <p>Photometric parameters were measured using an integrating sphere, as spectroradiometer and software. The ambient temperature condition inside the sphere was measured at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. 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>3. THD and PF Measurements:</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)
24.8	40.5	Face Down	90	10

Electrical Data:

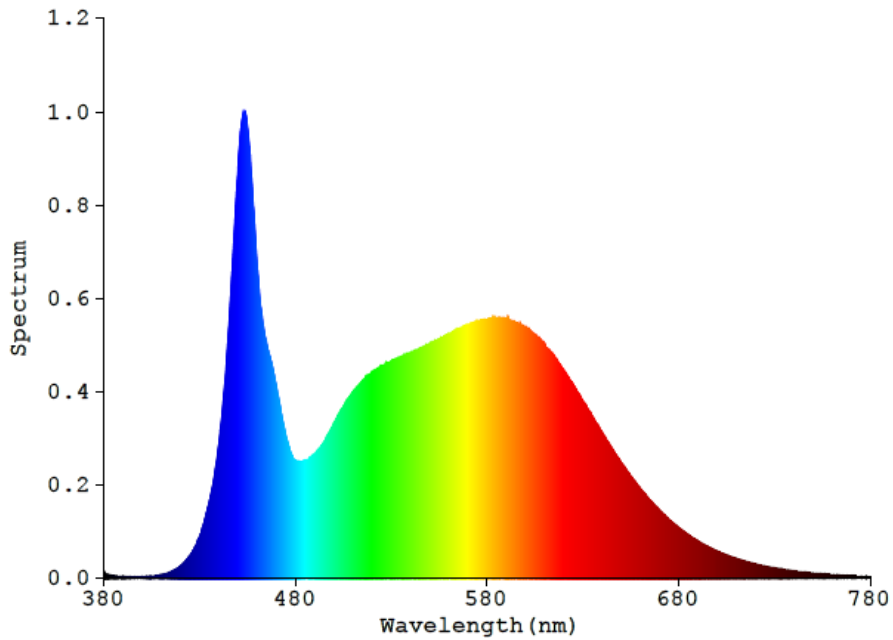
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.5015	59.76	0.9907

Color Data:

Parameter	Result
CCT(K)	5101
Color Rendering Index (CRI)	84.1
R9	10
Chromaticity, x	0.3424
Chromaticity, y	0.3508
Chromaticity, u'	0.2099
Chromaticity, v'	0.4839
Duv	0.00067

Special Color Rendering			
R1	82	R9	10
R2	91	R10	77
R3	94	R11	82
R4	83	R12	62
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)
24.8	40.5	Face Down	90	25

Electrical Data:

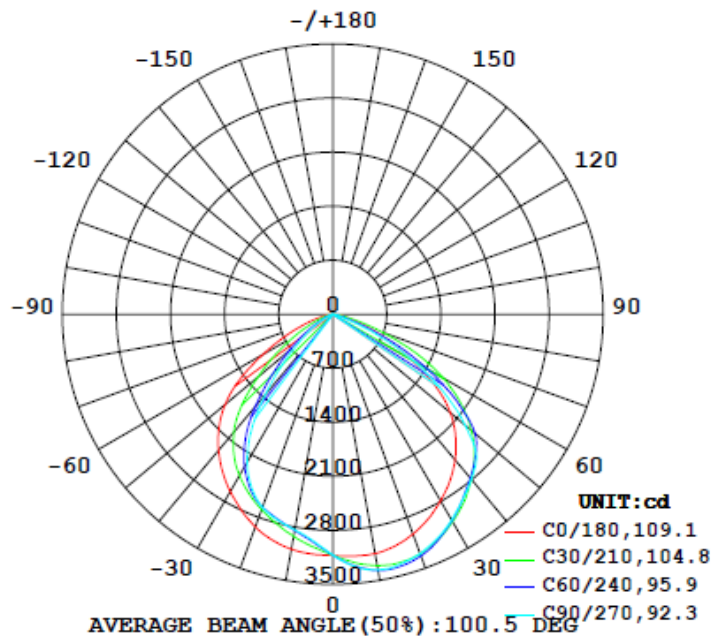
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.5015	59.76	0.9907

Goniophotometer Data:

Parameter	Results
Total Luminous (lm)	7451.35
Total Luminous per foot (lm/ft)	N/A
Luminous Efficacy (lm/w)	124.69
Zonal Lumens Distribution (0-90°)	100%
Beam Angle (°)	100.5

Luminous Intensity Distribution Diagram:

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

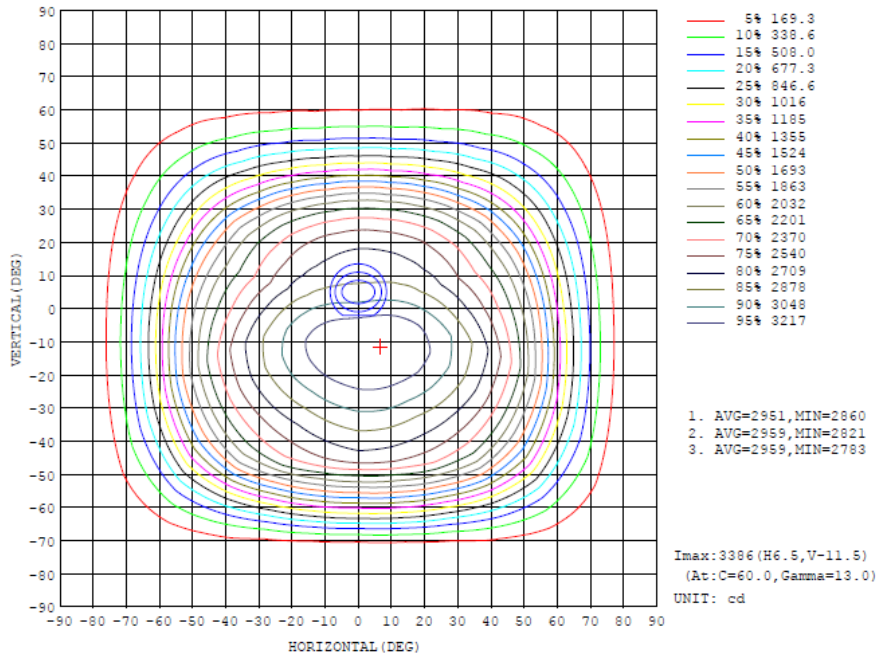


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	● zone	● total	lum./lamp
10	3147	3345	3364	3302	3089	2870	2836	2898	0- 10	297.4	297.4	3.99,2.99
20	3032	3329	3301	3238	2923	2668	2664	2726	10- 20	864.8	1162	15.6,15.6
30	2790	3107	3076	2987	2652	2366	2215	2451	20- 30	1319	2482	32.2,32.3
40	2462	2779	2792	2648	2301	1780	1365	1877	30- 40	1561	4042	54.2,54.3
50	1988	2390	2238	2239	1819	960.5	581.2	1018	40- 50	1521	5564	74.7,74.7
60	1179	1612	1205	1454	1050	369.1	165.9	406.1	50- 60	1162	6727	90.2,90.3
70	470.3	526.2	194.6	440.1	402.1	83.33	24.92	102.8	60- 70	578.4	7206	98,98
80	86.23	30.16	16.99	26.76	65.05	9.202	10.16	9.577	70- 80	135.4	7441	99.9,99.9
90	0.0029	0	0	0	0	0	0	0	80- 90	10.20	7451	100,100
100	0	0	0	0	0	0	0	0	90-100	0.0000	7451	100,100
110	0	0	0	0	0	0	0	0	100-110	0	7451	100,100
120	0	0	0	0	0	0	0	0	110-120	0	7451	100,100
130	0	0	0	0	0	0	0	0	120-130	0.0000	7451	100,100
140	0	0	0	0	0.0128	0.0570	0.0112	0.0245	130-140	0.0025	7451	100,100
150	0	0	0	0.0060	0.0569	0.0986	0.0928	0.0957	140-150	0.0172	7451	100,100
160	0	0	0.0052	0.0181	0.0896	0.1160	0.1390	0.1318	150-160	0.0236	7451	100,100
170	0.0164	0.0088	0.0157	0.0174	0.1147	0.0852	0.1166	0.1020	160-170	0.0178	7451	100,100
180	0.0640	0.0612	0.0669	0.0429	0.0626	0.0622	0.0675	0.0462	170-180	0.0045	7451	100,100
DEG	LUMINOUS INTENSITY:cd Less than 95% Percent = 7.0 %									UNIT:lm		

Isocandela Diagram:



Luminous Distribution Intensity Data:

Table--1 UNIT: cd

C (DEG) Y (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	3124	3121	3122	3119	3121	3119	3119	3118	3120	3118	3118	3118	3124	3121	3122	3119	3121	3119	3119
5	3144	3187	3228	3252	3273	3280	3279	3274	3259	3233	3200	3159	3118	3066	3023	2985	2962	2950	2947
10	3147	3237	3307	3345	3369	3371	3364	3353	3338	3302	3252	3174	3089	2994	2922	2870	2844	2835	2836
15	3110	3242	3330	3373	3381	3369	3354	3340	3331	3303	3249	3153	3029	2896	2811	2768	2752	2753	2761
20	3032	3205	3304	3329	3332	3321	3301	3282	3259	3238	3196	3088	2933	2771	2695	2668	2660	2656	2664
25	2924	3132	3223	3239	3226	3216	3202	3168	3145	3132	3094	2990	2803	2619	2564	2545	2514	2481	2486
30	2790	3025	3102	3107	3086	3091	3076	3036	3001	2987	2961	2869	2652	2461	2415	2366	2286	2222	2215
35	2641	2899	2964	2950	2927	2938	2932	2884	2835	2826	2808	2723	2489	2290	2231	2122	1973	1857	1842
40	2463	2740	2791	2779	2769	2786	2792	2736	2674	2648	2625	2553	2301	2096	1992	1780	1560	1399	1365
45	2250	2535	2596	2595	2609	2632	2634	2575	2512	2458	2422	2339	2085	1864	1668	1349	1116	961	923
50	1988	2276	2344	2390	2405	2293	2238	2235	2297	2239	2158	2066	1819	1548	1265	960	741	608	581
55	1623	1940	2030	2099	1956	1814	1745	1760	1843	1944	1843	1736	1463	1154	897	625	451	353	333
60	1179	1515	1647	1612	1407	1283	1205	1233	1304	1454	1457	1315	1050	788	574	369	249	179	166
65	787	1053	1185	1037	837	710	647	670	746	899	1008	888	689	491	327	192	114	78.6	70.7
70	470	662	682	526	343	247	195	229	298	440	564	545	403	266	160	83.3	41.0	26.5	24.9
75	237	356	303	172	73.8	33.2	27.4	31.2	64.7	138	241	284	201	117	62.0	19.6	13.1	13.2	13.7
80	86.3	131	84.3	30.2	20.9	18.1	17.0	17.4	18.9	26.8	61.3	93.3	65.1	35.5	9.27	9.20	9.68	9.62	10.2
85	9.74	17.5	9.18	6.62	3.99	0.71	0.27	0.36	0.97	3.70	5.62	4.24	3.85	3.19	3.62	3.60	4.26	4.72	4.89
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	0.01	0.03	0.02	0.01	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	0.01	0.04	0.06	0.06	0.03	0.02	0.01
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	0.03	0.05	0.08	0.07	0.07	0.05	0.04
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.06	0.06	0.07	0.10	0.10	0.09	0.09
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.01	0.05	0.05	0.09	0.11	0.12	0.12	0.12
160	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.09	0.09	0.10	0.12	0.12	0.13	0.14
165	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.10	0.09	0.09	0.11	0.12	0.13	0.14
170	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.11	0.10	0.08	0.09	0.10	0.11	0.12
175	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.08	0.07	0.05	0.06	0.05	0.06	0.06
180	0.06	0.05	0.05	0.06	0.06	0.06	0.07	0.05	0.04	0.04	0.04	0.05	0.06	0.05	0.05	0.06	0.07	0.06	0.07

Table--2 UNIT: cd

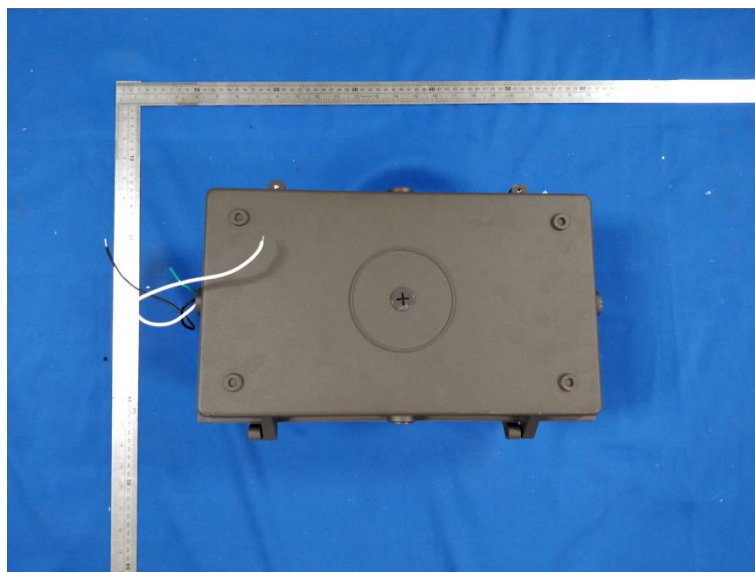
C (DEG) Y (DEG)	285	300	315	330	345														
0	3118	3120	3118	3118	3118														
5	2954	2972	2999	3041	3088														
10	2839	2859	2898	2961	3044														
15	2763	2778	2811	2869	2967														
20	2675	2700	2726	2771	2862														
25	2504	2560	2621	2659	2732														
30	2251	2349	2451	2525	2588														
35	1889	2034	2215	2349	2426														
40	1427	1620	1877	2112	2248														
45	978	1157	1433	1792	2022														
50	624	772	1018	1368	1708														
55	363	475	671	974	1290														
60	189	267	406	635	899														
65	85.3	131	221	374	570														
70	28.6	49.7	103	193	323														
75	13.2	14.0	26.7	84.7	152														
80	9.91	10.2	9.58	13.2	52.4														
85	5.01	4.78	4.36	4.31	6.83														
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	0.01	0.00														
140	0.01	0.02	0.03	0.03	0.02														
145	0.05	0.06	0.06	0.06	0.04														
150	0.09	0.09	0.10	0.09	0.05														
155	0.12	0.12	0.12	0.10	0.05														
160	0.14	0.14	0.13	0.11	0.09														
165	0.14	0.14	0.13	0.11	0.10														
170	0.12	0.11	0.10	0.10	0.10														
175	0.07	0.06	0.06	0.07	0.07														
180	0.05	0.04	0.05	0.04	0.05														

THD and PF Measurement Test Results:

Electrical Measurement:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
277.0	60	0.2235	59.48	0.9613	8.20

Photo of Sample:



Laboratory: Dongguan New Testing Centre Co., Ltd

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

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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