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):
533081##

Representative (Tested) Model:
53308161

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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Laboratory: Dongguan New Testing Centre Co., Ltd
Address: 3F, No. 1 the 1st 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:	533081##(##=61-70)
Product Type:	Outdoor Full-Cutoff Wall-mounted Area Luminaires
Rating Input:	120-277Vac, 50/60Hz, 100W
Declared CCT:	5000K
Declared Light Output:	13000lm
LED Manufacturer:	Samsung
LED Model:	SPMWH1228XXXXXXXXX
LED Quantity:	420 PCS
Driver Manufacturer:	ECU ELECTRONICS INDUSTRIAL CO., LTD
Driver Model:	ELP-100-2.26A

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:	S18072304-S1

Laboratory Information:

Test Laboratory:	Dongguan New Testing Centre Co., Ltd
Laboratory Address:	3F, No. 1 the 1st 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.:	NTCR18080009
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:

1. Photometric and Electrical Measurements – Light Distribution Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25 °C ± 1°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° horizonal intervals.

2. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, as spectroradiometer and software. The ambient temperature condition inside the sphere was measured at 25 °C± 1°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.

3. THD and PF Measurements:

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.

Integrating Sphere Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
24.7	41.0	Face Down	90	10

Electrical Data:

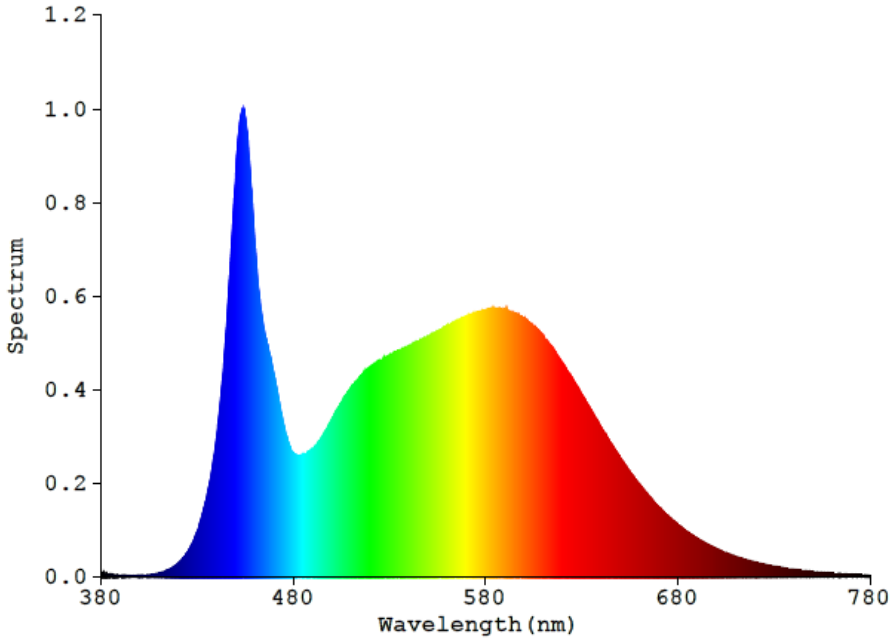
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.8240	98.90	0.9983

Color Data:

Parameter	Result
CCT(K)	5084
Color Rendering Index (CRI)	84.1
R9	10
Chromaticity, x	0.3428
Chromaticity, y	0.3507
Chromaticity, u'	0.2102
Chromaticity, v'	0.4839
Duv	0.00044

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

Spectrum Diagram:



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Goniophotometer Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
24.7	41.0	Face Down	90	25

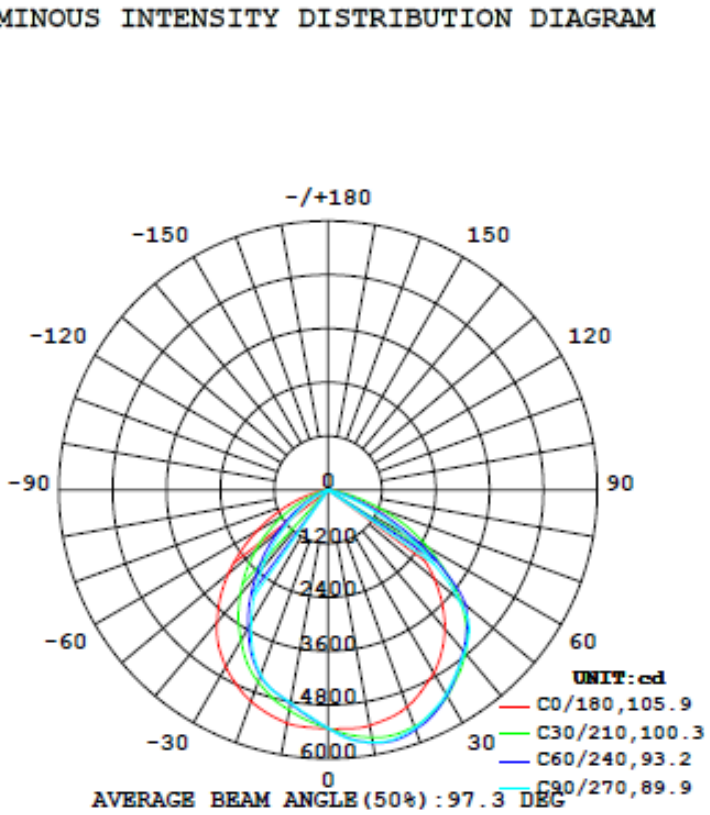
Electrical Data:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.8240	98.90	0.9983

Goniophotometer Data:

Parameter	Results
Total Luminous (lm)	12661.80
Total Luminous per foot (lm/ft)	N/A
Luminous Efficacy (lm/w)	128.02
Zonal Lumens Distribution (0-90°)	100%
Beam Angle (°)	97.3

Luminous Intensity Distribution Diagram:

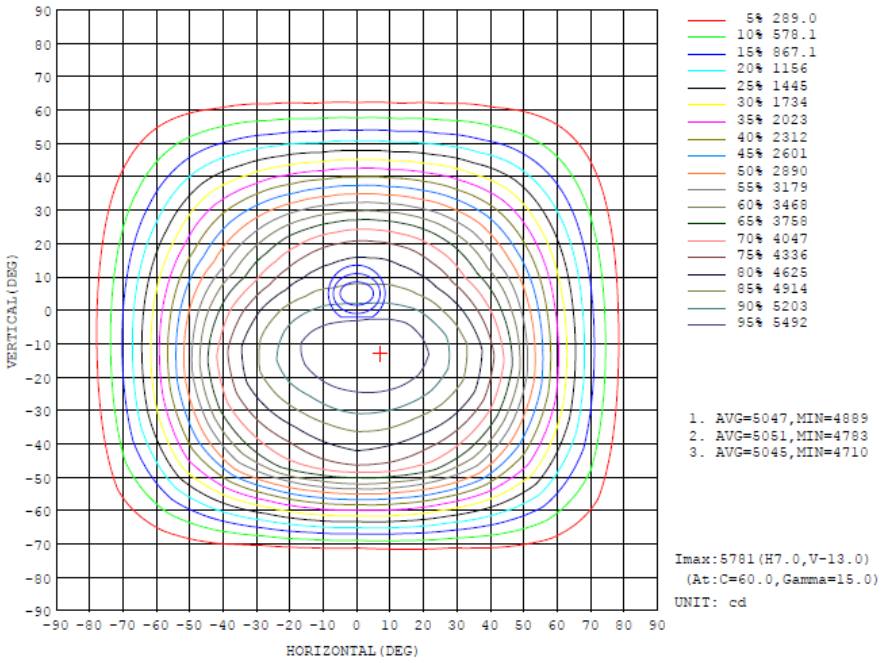


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	5338	5690	5715	5631	5282	4892	4822	4941	0- 10	506.8	506.8	4,4
20	5149	5718	5649	5570	5023	4474	4389	4563	10- 20	1471	1977	15.6,15.6
30	4712	5335	5255	5155	4558	3745	3429	3907	20- 30	2217	4194	33.1,33.1
40	4048	4741	4728	4552	3858	2775	2296	2933	30- 40	2586	6781	53.6,53.6
50	3092	3923	3778	3765	2901	1761	1226	1857	40- 50	2544	9325	73.6,73.6
60	1962	2560	2004	2387	1835	865.7	418.0	883.0	50- 60	1974	11299	89.2,89.2
70	933.5	987.8	436.2	865.6	861.1	193.5	39.56	202.8	60- 70	1056	12355	97.6,97.6
80	187.7	51.63	27.06	40.77	158.6	17.48	18.63	18.43	70- 80	285.7	12640	99.8,99.8
90	0.0144	0	0	0	0	0	0	0.0001	80- 90	21.12	12662	100,100
100	0	0	0	0	0	0	0	0	90-100	0.0001	12662	100,100
110	0	0	0	0	0.0003	0.0278	0.0000	0.0356	100-110	0.0013	12662	100,100
120	0	0	0	0	0.0260	0.0684	0.0426	0.0426	110-120	0.0183	12662	100,100
130	0.0006	0	0	0.0013	0.0179	0.0726	0.0555	0.0406	120-130	0.0172	12662	100,100
140	0.0243	0.0076	0.0085	0.0370	0.0979	0.1789	0.0997	0.1403	130-140	0.0371	12662	100,100
150	0.0443	0.0338	0.0527	0.0831	0.1722	0.2539	0.2340	0.2452	140-150	0.0661	12662	100,100
160	0.0792	0.0656	0.0891	0.1151	0.2315	0.2884	0.3186	0.3032	150-160	0.0733	12662	100,100
170	0.1127	0.1029	0.1055	0.1170	0.2772	0.2344	0.2890	0.2557	160-170	0.0536	12662	100,100
180	0.1944	0.1898	0.1967	0.1659	0.1914	0.1927	0.1976	0.1668	170-180	0.0158	12662	100,100
DEG	LUMINOUS INTENSITY:cd Less than 35% Percent = 9.1 %									UNIT:lm		

Isocandela Diagram:



Luminous Distribution Intensity Data:

Table--1 UNIT: cd

γ (DEG) \ C (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	5330	5325	5325	5320	5321	5319	5321	5318	5320	5317	5318	5316	5330	5325	5325	5320	5321	5319	5321
5	5344	5419	5487	5535	5570	5583	5586	5574	5553	5504	5444	5374	5316	5236	5169	5111	5072	5049	5047
10	5338	5489	5612	5690	5734	5737	5715	5704	5686	5631	5533	5406	5282	5121	4992	4892	4843	4826	4822
15	5269	5507	5659	5743	5782	5776	5750	5731	5701	5647	5544	5388	5170	4945	4806	4709	4653	4652	4661
20	5149	5423	5618	5718	5692	5678	5649	5635	5604	5570	5475	5279	5023	4730	4561	4474	4419	4380	4389
25	4942	5301	5496	5552	5536	5502	5470	5437	5414	5394	5312	5114	4810	4466	4270	4131	4044	3962	3970
30	4712	5113	5314	5335	5295	5268	5255	5202	5152	5155	5109	4908	4558	4145	3882	3745	3564	3449	3429
35	4411	4877	5052	5044	4998	4989	4983	4916	4872	4870	4850	4666	4256	3729	3487	3271	3052	2896	2869
40	4048	4564	4761	4741	4690	4710	4728	4648	4559	4552	4539	4358	3858	3314	3045	2775	2507	2334	2296
45	3599	4149	4364	4372	4373	4430	4451	4360	4250	4199	4158	3928	3406	2867	2596	2272	1987	1779	1746
50	3092	3613	3847	3923	4005	3886	3778	3794	3890	3765	3644	3371	2901	2417	2117	1761	1472	1269	1226
55	2534	3002	3218	3338	3182	2981	2879	2913	3050	3201	3023	2782	2365	1934	1651	1280	1006	824	776
60	1962	2392	2570	2560	2284	2105	2004	2049	2167	2387	2404	2189	1835	1450	1174	866	613	456	418
65	1423	1796	1947	1730	1448	1273	1174	1223	1339	1581	1780	1624	1323	997	756	494	293	173	150
70	934	1231	1255	988	714	522	436	476	618	866	1085	1092	861	606	410	193	72.2	41.7	39.6
75	516	735	644	395	158	59.6	70.0	53.4	113	315	509	629	467	290	142	32.8	24.3	25.1	25.7
80	188	311	197	51.6	35.1	29.5	27.1	28.0	30.9	40.8	122	231	159	82.8	23.1	17.5	17.9	18.0	18.6
85	9.89	39.6	13.2	11.7	9.32	3.49	4.90	2.60	5.60	7.47	9.21	6.61	6.11	7.87	6.95	6.85	7.88	8.56	9.27
90	0.01	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	0.04	0.03	0.03	0.01	0.01	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	0.03	0.06	0.06	0.06	0.04	0.03	0.03
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	0.03	0.06	0.07	0.07	0.06	0.04	0.04
125	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	0.04	0.04	0.06	0.05	0.04	0.04
130	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	0.04	0.08	0.07	0.07	0.06	0.06
135	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.04	0.04	0.10	0.13	0.12	0.09	0.09	0.08
140	0.02	0.01	0.01	0.01	0.00	0.01	0.01	0.02	0.02	0.04	0.05	0.05	0.10	0.14	0.18	0.18	0.14	0.12	0.10
145	0.03	0.02	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.07	0.07	0.13	0.17	0.22	0.21	0.19	0.17	0.15
150	0.04	0.03	0.02	0.03	0.04	0.05	0.05	0.06	0.06	0.08	0.09	0.08	0.17	0.18	0.21	0.25	0.25	0.24	0.23
155	0.05	0.04	0.04	0.05	0.06	0.06	0.07	0.07	0.08	0.10	0.11	0.09	0.15	0.17	0.23	0.28	0.29	0.28	0.29
160	0.08	0.06	0.06	0.07	0.08	0.08	0.09	0.10	0.10	0.12	0.12	0.12	0.23	0.23	0.25	0.29	0.29	0.30	0.32
165	0.09	0.09	0.08	0.09	0.09	0.09	0.10	0.09	0.11	0.13	0.13	0.13	0.26	0.24	0.24	0.27	0.29	0.31	0.32
170	0.11	0.11	0.11	0.10	0.11	0.11	0.11	0.11	0.12	0.12	0.13	0.14	0.28	0.25	0.23	0.23	0.25	0.28	0.29
175	0.08	0.06	0.06	0.08	0.10	0.09	0.09	0.09	0.08	0.08	0.09	0.09	0.23	0.20	0.18	0.18	0.18	0.20	0.19
180	0.19	0.17	0.17	0.19	0.20	0.19	0.20	0.17	0.15	0.17	0.16	0.16	0.19	0.17	0.17	0.19	0.20	0.19	0.20

Table--2 UNIT: cd

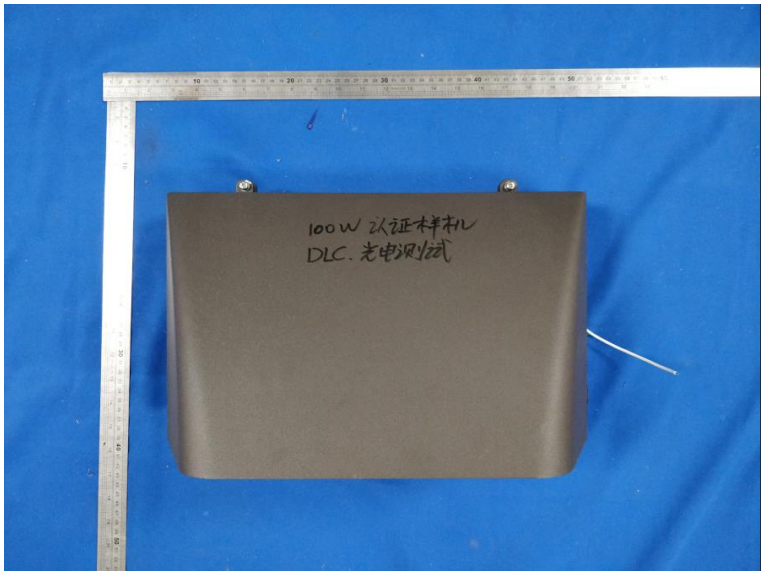
γ (DEG) \ C (DEG)	285	300	315	330	345
0	5318	5320	5317	5318	5316
5	5054	5078	5116	5181	5252
10	4841	4876	4941	5038	5166
15	4668	4722	4765	4876	5025
20	4419	4491	4563	4680	4850
25	4023	4143	4299	4433	4615
30	3507	3694	3907	4111	4320
35	2939	3153	3445	3711	3950
40	2379	2607	2933	3275	3542
45	1810	2056	2396	2790	3113
50	1284	1519	1857	2285	2639
55	829	1028	1339	1778	2129
60	457	620	883	1264	1606
65	175	299	504	803	1107
70	42.6	78.6	203	435	676
75	25.3	24.8	36.5	157	332
80	18.5	18.9	18.4	26.8	95.5
85	8.97	8.90	8.10	8.70	8.50
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	0.01	0.04	0.00	0.01
115	0.03	0.05	0.05	0.02	0.04
120	0.05	0.06	0.04	0.03	0.04
125	0.03	0.02	0.03	0.02	0.02
130	0.04	0.04	0.04	0.05	0.03
135	0.06	0.06	0.08	0.10	0.07
140	0.10	0.11	0.14	0.14	0.12
145	0.16	0.17	0.18	0.19	0.15
150	0.23	0.24	0.25	0.23	0.17
155	0.29	0.29	0.28	0.24	0.16
160	0.32	0.31	0.30	0.26	0.22
165	0.33	0.32	0.29	0.26	0.24
170	0.29	0.26	0.26	0.25	0.25
175	0.20	0.19	0.20	0.20	0.20
180	0.17	0.15	0.17	0.16	0.16

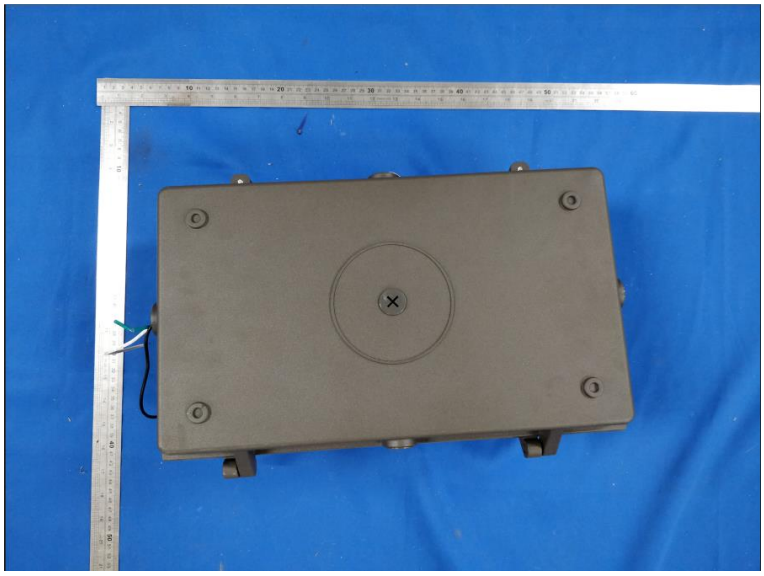
THD and PF Measurement Test Results:

Electrical Measurement:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
277.0	60	0.3620	97.14	0.9687	8.30

Photo of Sample:





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