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

Model name(s):
533042xx

Representative (Tested) Model:
53304261

Model Difference: XX=61-70 intends CCT is 5000K

Prepare By:

Engineer: Leo Liu
Date: 2017-06-22

Review By:

Technical Lead:Vincent Yuan
Date: 2017-06-22

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

Product Information:

Client Name:	ELEC-TECH INTERNATIONAL CO LTD
Brand Name:	ETI
Model Number:	53304261
Product type:	Outdoor Non-Cutoff and Semi-Cutoff Wall-Mounted Area Luminaires
Rating Input:	AC120-277V, 50/ 60Hz, 32W
Declared CCT:	5000K
Declared Light Output:	3500lm
LED Manufacturer:	Samsung
LED Model:	2835 Series
LED Quantity:	78 pcs
Forward current of LED Chip:	200mA
Date of Receipt Samples:	2017-06-14
Quantity of Receipt Samples:	1
Sample Number:	170614005-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:	2017-06-22
Revised Date of Test Report:	N/A
Test Report No.:	NTCR17060037
Remark (*If applicable*)	N/A

Test Specifications:	
Date of Test	2017-06-19
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 C78.377-2008 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 120 Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° Vertical intervals.

2. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º 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 120 Volts AC, 60Hz. 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 5 nm intervals over the range 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 rated voltage and was stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.

Integrating Sphere Test Results

Test Condition:

Test Ambient	Test Humidity	Orientation	Stabilization Time	Test Time
25.1	51	Face Down	90	25

Electrical Data:

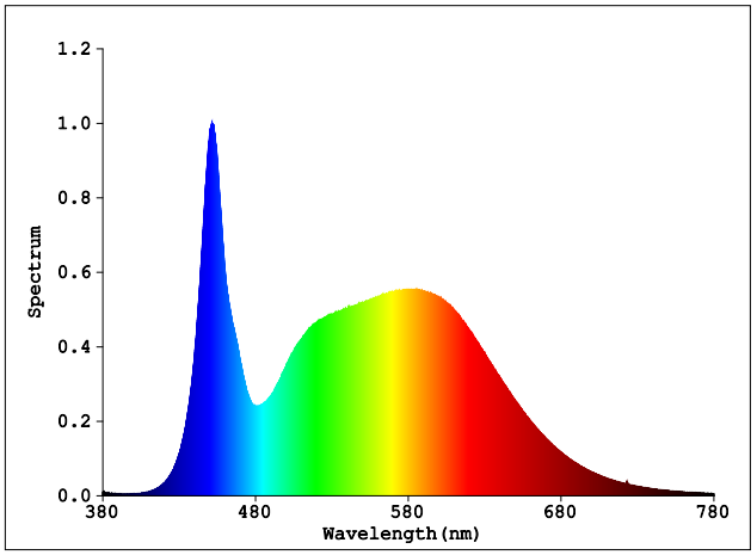
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.2702	31.98	0.9862

Color Data:

Parameter	Result
CCT (K)	5220
Color Rendering Index (CRI)	84.1
R9	12
Chromaticity, x	0.3394
Chromaticity, y	0.3502
Chromaticity u′	0.2081
Chromaticity v′	0.4831
Duv	0.00163

Special Color Rendering			
R1	83	R9	12
R2	89	R10	74
R3	93	R11	83
R4	84	R12	62
R5	83	R13	84
R6	85	R14	96
R7	87	R15	78
R8	69	-	-

Spectrum Diagram:



Goniophotemeter Test Results:

Test Condition:

Test Ambient	Test Humidity	Orientation	Stabilization Time	Test Time
25.1	52	Face Down	90	25

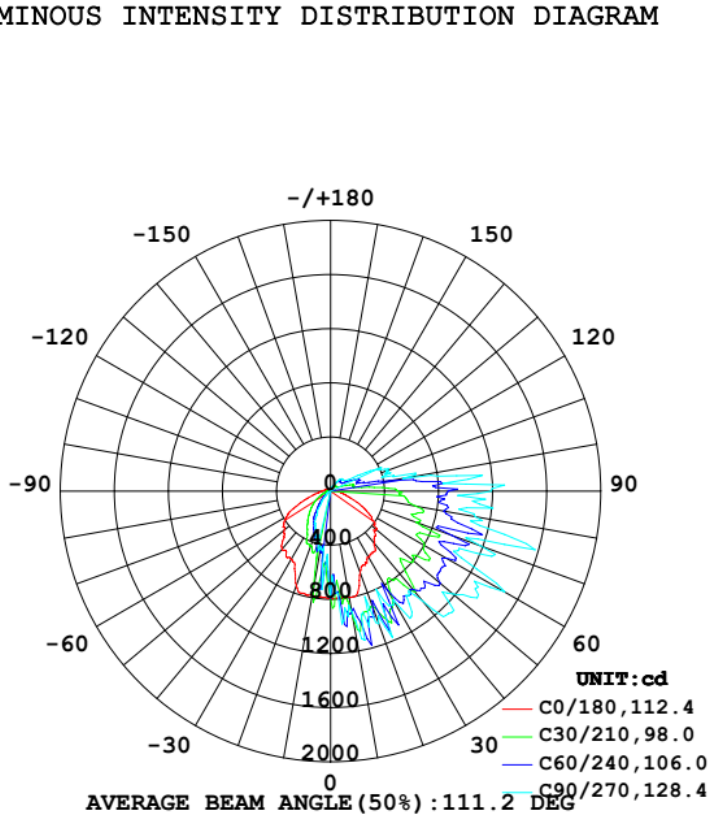
Electrical Data:

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.2702	31.98	0.9862

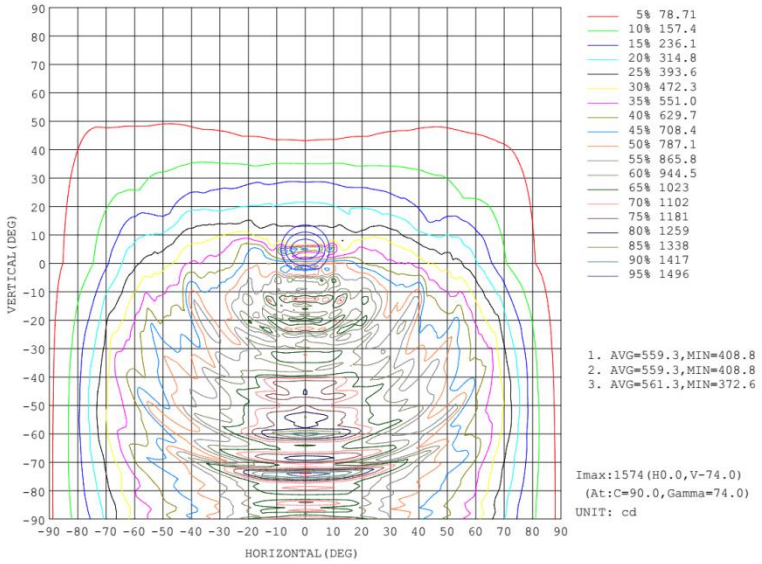
Goniophotometer Data:

Parameter	Result
Total Luminous (lm)	3655.4
Total Luminous per foot (lm/ft)	N/A
Luminous Efficacy (lm/w)	114.3
Zonal Lumens (0-90°) (lm)	3059
Zonal Luminous Efficacy(0-90°) (lm/w)	95.56
Zonal Lumens Distribution (80-90°)	11.73%
Beam Angle (°)	111.2
Center Beam Candle Power (cd)	1574

Luminous Intensity Distribution Diagram:



Isocandela Diagram:



Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	794.8	934.7	905.9	862.1	782.4	438.6	414.3	391.7	0- 10	67.27	67.27	1.84,1.84
20	639.6	975.2	1044	939.0	740.9	353.6	331.0	350.8	10- 20	197.8	265.0	7.25,7.25
30	565.3	954.2	927.0	874.8	586.7	290.1	206.7	278.1	20- 30	297.2	562.2	15.4,15.4
40	503.2	861.3	1061	825.9	558.7	194.8	103.4	185.5	30- 40	356.0	918.2	25.1,25.1
50	442.9	971.9	1183	938.9	446.4	125.7	41.43	118.5	40- 50	417.2	1335	36.5,36.5
60	324.4	945.8	1489	868.2	376.3	61.60	22.24	60.12	50- 60	454.7	1790	49,49
70	167.6	800.9	1177	776.9	219.4	22.02	1.905	23.30	60- 70	455.3	2245	61.4,61.4
80	84.09	753.1	1087	710.0	108.2	9.921	2.767	10.87	70- 80	438.6	2684	73.4,73.4
90	55.45	658.2	1187	646.5	63.75	5.911	3.320	6.350	80- 90	375.3	3059	83.7,83.7
100	33.75	330.2	542.8	252.8	39.81	4.926	5.715	4.786	90-100	292.5	3352	91.7,91.7
110	36.32	176.1	437.6	198.4	40.52	3.795	5.714	3.556	100-110	124.4	3476	95.1,95.1
120	26.11	90.15	234.8	91.71	28.72	3.416	4.605	3.045	110-120	85.73	3562	97.4,97.4
130	14.49	78.16	125.7	76.61	18.81	2.825	2.825	2.484	120-130	40.71	3603	98.6,98.6
140	5.687	75.58	117.0	74.64	6.262	2.256	1.966	2.088	130-140	28.54	3631	99.3,99.3
150	2.422	36.42	64.50	36.32	2.527	2.117	1.895	2.025	140-150	16.91	3648	99.8,99.8
160	2.393	1.843	36.28	1.739	2.357	1.951	1.825	1.887	150-160	5.988	3654	100,100
170	2.365	3.684	4.805	2.980	2.305	1.885	1.858	1.873	160-170	1.137	3655	100,100
180	2.345	2.102	2.028	1.987	2.269	1.839	1.905	1.862	170-180	0.2145	3655	100,100
DEG	LUMINOUS INTENSITY:cd Less than 25% Percent = 10.5 %									UNIT:lm		

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	796	788	796	782	792	773	788	777	782	780	801	786	796	788	796	782	792	773	788
5	788	870	738	773	803	897	985	917	817	723	776	692	784	612	539	612	686	745	729
10	795	742	938	935	909	860	906	859	872	862	947	754	782	568	734	439	451	411	414
15	778	806	932	955	1182	937	927	916	1107	940	868	760	781	693	468	458	394	330	335
20	640	879	907	975	913	1056	1044	1058	885	939	852	875	741	703	427	354	354	326	331
25	605	844	1073	882	919	975	801	964	911	846	980	777	633	587	423	345	299	273	264
30	565	768	916	954	847	979	927	949	828	875	869	746	587	501	350	290	244	223	207
35	545	778	808	830	945	1055	1015	1052	922	781	770	716	575	442	298	238	196	168	157
40	503	883	975	861	949	1016	1061	992	905	826	937	849	559	405	259	195	143	105	103
45	471	678	735	912	991	1106	1268	1122	964	874	688	618	486	348	219	157	106	74.3	63.2
50	443	639	797	972	1060	1085	1183	1079	1039	939	751	619	446	239	183	126	70.9	48.1	41.4
55	398	729	891	886	998	1215	1336	1205	973	815	801	639	424	197	148	90.3	43.6	34.0	32.1
60	324	661	801	946	993	1341	1489	1324	948	868	745	633	376	175	119	61.6	25.6	24.1	22.2
65	244	609	728	805	886	1022	1042	1016	858	768	672	573	304	135	86.7	39.3	12.7	10.1	8.04
70	168	588	670	801	955	1139	1177	1162	996	777	669	609	219	107	59.9	22.0	2.27	3.81	1.91
75	119	482	653	818	1084	1410	1501	1444	1090	817	603	492	152	84.7	43.7	11.8	2.40	2.83	2.40
80	84.1	408	638	753	851	1062	1087	1057	834	710	650	429	108	68.0	33.4	9.92	2.71	2.12	2.77
85	62.8	300	558	698	816	1108	1109	1109	783	673	553	322	79.5	53.8	26.5	7.89	2.77	2.47	3.01
90	55.4	226	501	658	870	1153	1187	1112	820	646	508	244	63.8	46.6	22.4	5.91	2.83	2.66	3.32
95	48.7	120	324	562	814	985	1027	926	738	498	270	116	58.2	42.6	18.8	5.10	3.60	3.46	4.44
100	33.8	66.7	172	330	442	544	543	535	404	253	157	76.4	39.8	28.2	12.0	4.93	3.60	4.57	5.71
105	22.4	42.9	174	133	259	409	392	445	204	130	186	52.8	26.8	17.8	7.66	4.21	3.60	4.82	5.79
110	36.3	38.4	122	176	237	363	438	387	221	198	132	40.4	40.5	23.3	9.36	3.80	3.60	4.82	5.71
115	31.0	31.5	78.1	129	202	344	416	341	212	140	79.7	33.9	34.3	18.6	7.30	3.61	3.60	4.82	5.10
120	26.1	27.5	60.1	90.1	141	204	235	207	150	91.7	58.2	29.7	28.7	14.8	5.65	3.42	3.53	4.82	4.61
125	21.9	25.1	58.3	77.2	104	129	141	131	107	75.6	56.1	27.5	24.3	11.9	4.19	3.17	3.13	4.45	3.87
130	14.5	11.9	55.6	78.2	99.7	117	126	118	99.2	76.6	53.3	16.4	18.8	8.73	3.30	2.83	2.59	3.21	2.82
135	8.24	7.74	52.9	80.2	101	115	123	115	97.8	77.9	50.8	6.14	8.32	6.49	2.41	2.43	2.21	2.87	2.52
140	5.69	12.5	44.1	75.6	102	110	117	111	100	74.6	43.9	11.1	6.26	5.41	2.05	2.26	1.77	2.54	1.97
145	3.56	6.90	26.6	57.4	80.0	87.3	89.1	86.2	78.5	56.8	27.8	7.99	3.62	3.75	2.02	2.19	1.77	2.16	1.93
150	2.42	3.42	2.24	36.4	54.1	65.2	64.5	64.4	55.2	36.3	7.02	3.27	2.53	2.45	2.00	2.12	1.77	2.14	1.90
155	2.41	3.03	5.82	27.0	40.1	45.5	44.8	45.8	40.6	30.8	1.86	2.09	2.38	2.41	2.14	2.01	1.77	2.12	1.86
160	2.39	2.63	5.86	1.84	14.0	33.3	36.3	33.9	17.8	1.74	6.60	2.03	2.36	2.37	2.14	1.95	1.77	2.04	1.82
165	2.38	2.37	2.27	6.02	10.5	1.77	1.78	1.72	7.16	5.70	2.72	2.10	2.33	2.33	2.14	1.92	1.77	1.96	1.79
170	2.36	2.31	2.24	3.68	2.22	3.89	4.81	4.56	2.70	2.98	2.50	2.21	2.31	2.29	2.13	1.89	1.77	1.94	1.86
175	2.35	2.26	2.21	2.55	2.12	2.57	2.03	2.74	1.96	2.27	2.27	2.25	2.28	2.25	2.13	1.85	1.77	1.92	1.89
180	2.34	2.23	2.20	2.10	2.08	2.04	2.03	2.01	1.96	1.99	2.18	2.27	2.27	2.23	2.13	1.84	1.77	1.91	1.90

Table--2 UNIT: cd

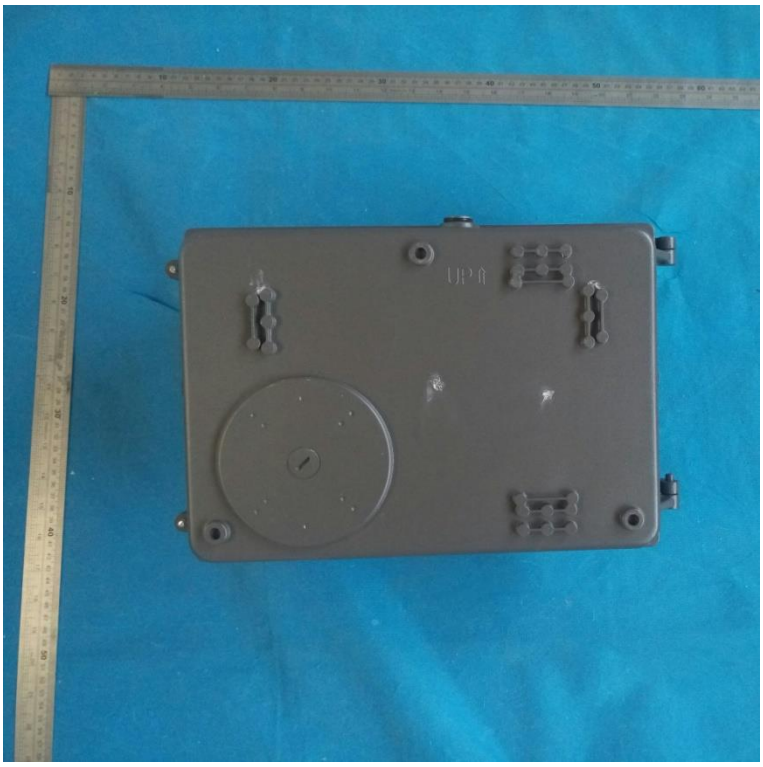
γ (DEG) \ C (DEG)	285	300	315	330	345
0	777	782	780	801	786
5	714	605	517	496	655
10	404	449	392	750	492
15	326	394	411	391	492
20	321	351	351	402	562
25	269	294	323	371	527
30	225	238	278	341	466
35	164	199	234	280	393
40	109	141	185	237	316
45	75.7	103	151	197	238
50	48.9	71.5	118	167	215
55	33.9	44.7	86.7	136	197
60	23.5	25.7	60.1	110	147
65	10.3	12.6	38.8	79.8	121
70	2.94	2.39	23.3	57.2	95.3
75	1.98	2.33	13.0	42.2	75.9
80	2.00	2.57	10.9	32.2	60.3
85	2.31	2.66	8.51	26.3	48.9
90	2.53	2.69	6.35	22.0	44.2
95	3.53	3.31	5.22	18.0	40.2
100	4.51	3.36	4.79	12.2	29.2
105	4.75	3.42	4.17	6.53	16.8
110	4.93	3.47	3.56	9.29	23.1
115	4.90	3.53	3.38	7.10	18.5
120	4.81	3.42	3.04	5.69	15.0
125	4.08	2.58	2.70	4.41	12.2
130	2.68	2.37	2.48	3.26	9.49
135	2.54	2.02	2.23	2.36	5.40
140	2.41	1.94	2.09	1.92	5.27
145	2.19	1.92	2.06	1.92	3.60
150	2.08	1.91	2.02	1.92	2.21
155	2.03	1.89	1.97	1.92	2.18
160	1.98	1.87	1.89	1.92	2.16
165	1.89	1.85	1.88	1.92	2.13
170	1.86	1.84	1.87	1.92	2.10
175	1.84	1.84	1.87	1.92	2.08
180	1.83	1.84	1.86	1.92	2.07

THD and PF Measurement Test Result:

Electrical Measurement:

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	iTHD
277.06	60	0.1247	30.67	0.8873	14.52

Photo of Sample:



Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2016-12-03	2017-12-02
NTC-F01-006	2.0 meter Integrating Sphere	2016-12-03	2017-12-02
NTC-F01-013	Standard Lamp	2016-12-27	2017-12-26
NTC-F01-031	Digital Power Meter	2016-12-05	2017-12-04
NTC-F01-019	Temperature & Humidity Meter	2016-11-28	2017-11-27

*******END OF DATASHEET*******