

## 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

### LED Security Light

Model name(s):

514022##

Representative (Tested) Model:

51402241

**Model Difference: ##=41-50 intends CCT is 4000K.**

Prepare By:



Engineer: Leo Liu

Date: 2017-10-10

Review By:



Technical Lead: Vincent Yuan

Date: 2017-10-10

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:	514022##(##=41-50)
Product type:	Outdoor, LED Security Light
Rating Input:	AC120V, 60Hz, 20W
Declared CCT:	4000K
Declared Light output:	1800lm
LED Manufacturer:	EVERLIGHT
LED Model:	2835S 0.2W Series
LED Quantity:	80 pcs
Forward current of LED Chip:	180 mA
Date of Receipt Samples:	2017-09-15
Quantity of Receipt Samples:	3
Sample Number:	170915001-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:	Neil_ntc@163.com

**Report Information**

Issued Date of Test Report:	2017-10-10
Revised Date of Test Report:	N/A
Test Report No.:	NTCR17100001
Remark (If applicable)	N/A

<b>Test Specifications:</b>	
Date of Test	2017-09-27
Test item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate
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

<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^{\circ}\text{C} \pm 1^{\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 120 Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at <math>1^{\circ}</math> vertical intervals and <math>22.5^{\circ}</math> Vertical intervals.</p>
<p><b>2. Photometric and Electrical Measurements – Integrating Sphere Method:</b></p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at <math>25^{\circ}\text{C} \pm 1^{\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 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.</p>

**Integrating Sphere Test Results**

**Test Condition:**

Test Ambient	Test Humidity	Orientation	Stabilization Time	Test Time
25.2 °C	41 %	Face Down	90 mins	25 mins

**Electrical Data:**

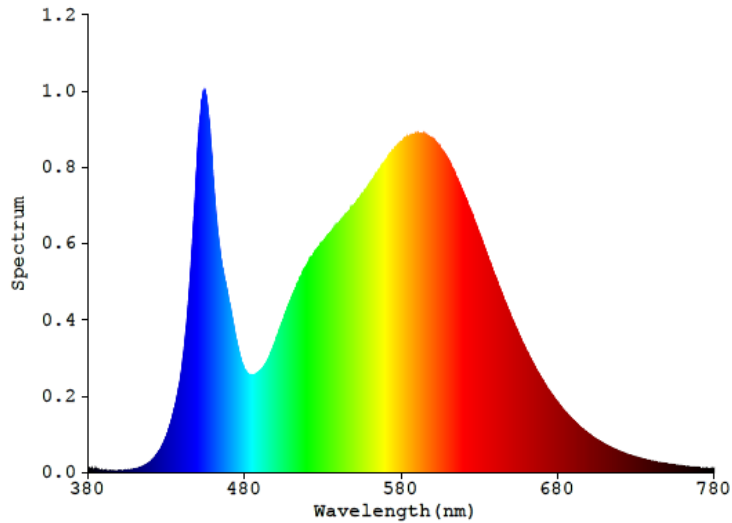
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.1627	19.17	0.9820

**Color Data:**

Parameter	Result
CCT (K)	3917
Color Rendering Index (CRI)	80.0
R9	-5
Chromaticity, x	0.3823
Chromaticity, y	0.3795
Chromaticity u'	0.2252
Chromaticity v'	0.5031
Duv	0.00075

Special Color Rendering			
R1	78	R9	-5
R2	88	R10	72
R3	95	R11	74
R4	77	R12	55
R5	77	R13	81
R6	83	R14	97
R7	84	R15	71
R8	59	-	-

**Spectrum Diagram:**



**Goniophotometer Test Results:**

**Test Condition:**

Test Ambient	Test Humidity	Orientation	Stabilization Time	Test Time
25.0 °C	45 %	Face Down	90 mins	25 mins

**Electrical Data:**

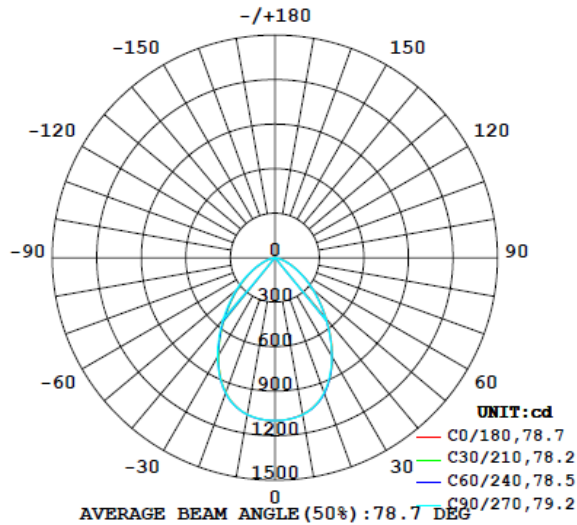
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.1627	19.18	0.9821

**Goniophotometer Data:**

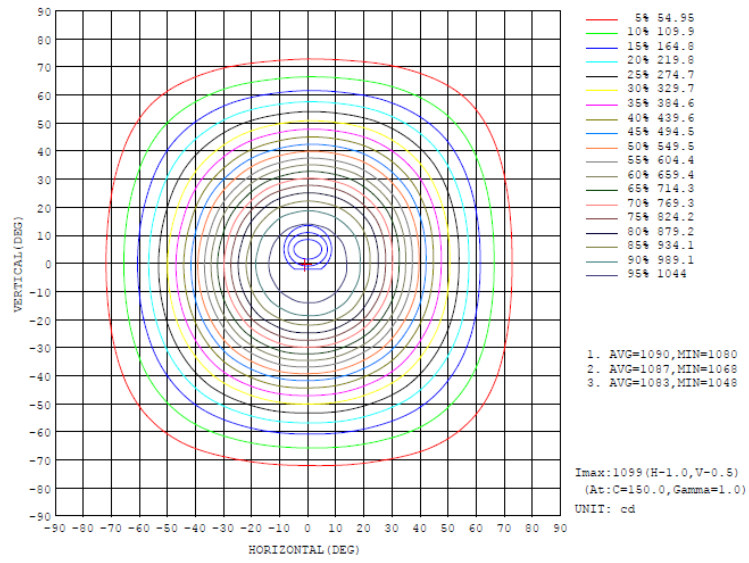
Parameter	Result
Total Luminous (lm)	1931.5
Total Luminous per foot (lm/ft)	N/A
Luminous Efficacy (lm/w)	100.71
Zonal Lumens Distribution (0-85°)	99.9%
Zonal Lumens Distribution (90-180°)	0%
Beam Angle (°)	78.7

**Luminous Intensity Distribution Diagram:**

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



**Isocandela Diagram:**



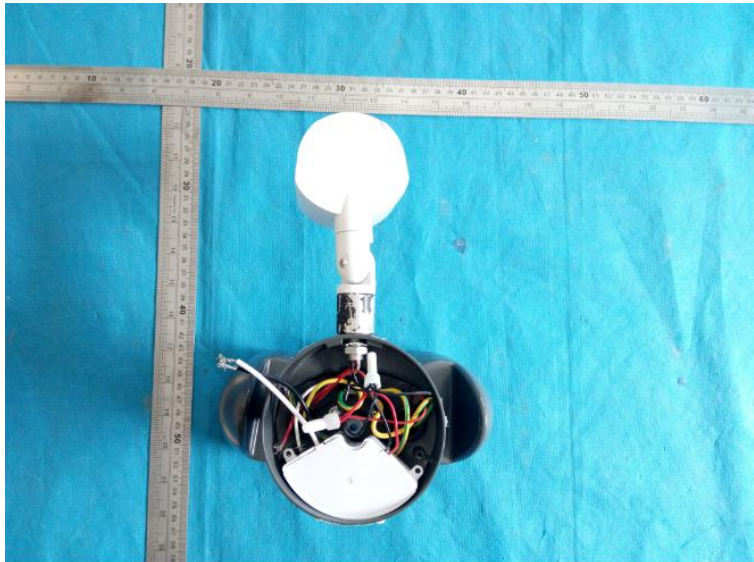
**Zonal Flux Diagram:**

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	Φlum, Lamp
10	1072	1075	1074	1073	1074	1072	1073	1072	0- 10	103.7	103.7	5.37,5.97
20	970.6	977.5	966.2	970.6	966.6	968.4	970.2	977.4	10- 20	290.6	294.3	20.4,20.4
30	773.3	773.3	765.3	776.3	765.4	761.3	776.2	791.5	20- 30	402.7	798.0	61.3,41.3
40	540.3	535.7	532.9	542.4	530.8	523.6	546.6	562.1	30- 40	408.9	1207	62.5,62.5
50	339.5	338.0	330.8	336.6	328.4	328.2	343.7	355.6	40- 50	334.4	1541	79.8,79.8
60	183.1	182.8	175.1	174.8	173.1	174.6	185.4	190.8	50- 60	227.5	1769	51.6,51.6
70	78.21	76.51	71.33	69.30	69.62	71.52	76.95	79.93	60- 70	121.2	1890	37.6,37.6
80	10.35	9.183	7.477	5.143	6.217	8.030	9.704	11.01	70- 80	39.81	1930	99.9,99.9
90	0.0481	0.0192	0.0020	0	0.0018	0.0024	0.0045	0.0582	80- 90	1.610	1931	100,100
100	0.0009	0.0015	0.0004	0.0024	0.0058	0.0037	0.0049	0.0039	90-100	0.0022	1931	100,100
110	0.0042	0.0055	0.0043	0.0070	0.0128	0.0101	0.0110	0.0101	100-110	0.0056	1931	100,100
120	0.0115	0.0128	0.0131	0.0161	0.0177	0.0177	0.0174	0.0174	110-120	0.0117	1931	100,100
130	0.0201	0.0217	0.0228	0.0247	0.0217	0.0207	0.0220	0.0210	120-130	0.0160	1931	100,100
140	0.0292	0.0299	0.0265	0.0332	0.0467	0.0423	0.0427	0.0429	130-140	0.0230	1931	100,100
150	0.0496	0.0439	0.0460	0.0466	0.0557	0.0700	0.0705	0.0715	140-150	0.0303	1931	100,100
160	0.0594	0.0564	0.0524	0.0585	0.0905	0.0892	0.0929	0.0917	150-160	0.0314	1931	100,100
170	0.0609	0.0569	0.0591	0.0600	0.0984	0.0984	0.1033	0.1011	160-170	0.0221	1932	100,100
180	0.0719	0.0725	0.0759	0.0743	0.0725	0.0716	0.0759	0.0746	170-180	0.0069	1932	100,100
DEG	LUMINOUS INTENSITY:cd Less than 25% Percent = 10.3 %									UNIT:lm		







**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



NVLAP LAB CODE 600150-0

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