



# 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 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:	2017-10-10
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						

#### **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  $25^{\circ}$  C  $\pm$   $1^{\circ}$  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  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  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  $25^{\circ}$  C  $\pm$   $1^{\circ}$  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.





### **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:**

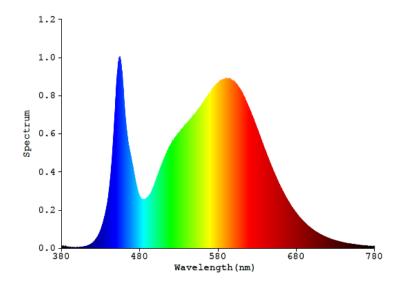
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	
120.0	60	0.1627	19.17	0.9820	

#### **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:**



Tel: 86-755-2344 3526 Website: http://www.ntc-cert.com





#### **Goniophotemeter 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:**

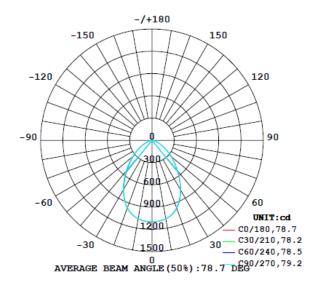
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.1627	19.18	0.9821

#### **Goniophotometer Data:**

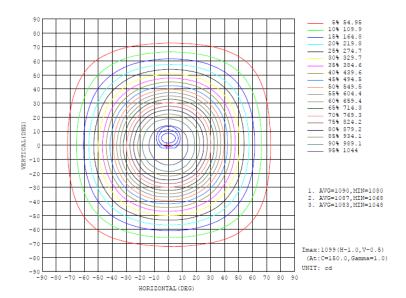
Parameter	Result
Total Luminous (lm)	1931.5
Total Luminous per foot (lm/ft)	N/A
Luminous Efficacy (lm/w)	100.71
Zonal Lumens Distribution (0-85°)	99.9%
Zonal Lumens Distribution (90-180°)	0%
Beam Angle (°)	78.7

#### **Luminous Intensity Distribution Diagram:**

#### LUMINOUS INTENSITY DISTRIBUTION DIAGRAM









#### ZONAL FLUX DIAGRAM:

									1			T
Υ	C0	C45	C90	C135	C180	C225	C270	C315	Y	Φ zone	⊕ total	*lum, lam
10	1072	1075	1074	1073	1074	1072	1073	1072	0- 10	103.7	103.7	5.37,5.37
20	970.6	977.5	966.2	970.6	966.6	968.4	970.2	977.4	10- 20	290.6	394.3	20.4,20.4
30	773.3	773.3	765.3	776.3	765.4	761.3	776.2	791.5	20- 30	403.7	798.0	41.3,41.3
40	540.3	535.7	532.9	542.4	520.8	523.6	546.6	562.1	30- 40	408.9	1207	62.5,62.5
50	339.5	228.0	330.8	336.6	328.4	328.2	343.7	355.6	40- 50	234.4	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	91.6,91.6
70	78.21	76.51	71.33	69.30	69.63	71.52	76.95	79.93	60- 70	121.2	1890	97.8,97.8
80	10.35	9.183	7.477	5.143	6.217	8.020	9.704	11.01	70- 80	39.81	1930	99.9,99.9
90	0.0481	0.0192	0.0020	0	0.0018	0.0034	0.0045	0.0582	80- 90	1.610	1931	100,100
100	0.0009	0.0015	0.0006	0.0024	0.0058	0.0037	0.0049	0.0039	90-100	0.0032	1931	100,100
110	0.0043	0.0055	0.0042	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	0.0365	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	0.0857	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		LUM	INOUS INTE	NSITY:cd	Less than	25% Percent	b = 10.3 %			UNI	T:lm	





## **Luminous Distribution Intensity Data:**

Table1																UNI	T: ed		
C (DEG)																			
y (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1098	1098	1099	1099	1098	1097	1098	1099	1098	1099	1098	1099	1098	1098	1099	1099	1098	1097	1098
5	1092	1093	1092	1091	1093	1093	1093	1094	1092	1093	1093	1094	1093	1093	1093	1092	1093	1091	1093
10	1072	1073	1074	1075	1075	1075	1074	1075	1074	1073	1073	1074	1074	1074	1074	1072	1074	1074	1073
15	1033	1037	1036	1039	1036	1038	1035	1034	1032	1033	1032	1033	1032	1030	1035	1034	1036	1034	1035
20	971	974	973	978	974	972	966	968	966	971	968	967	967	963	968	968	972	968	970
25	881	884	883	886	881	880	874	879	879	883	879	877	875	869	875	876	882	879	881
30	773	775	772	773	769	768	765	771	771	776	769	767	765	757	762	761	769	769	776
35	657	658	651	653	647	651	649	655	656	659	652	650	647	637	640	639	648	651	662
40	540	541	534	536	531	534	533	540	540	542	536	533	531	520	524	524	533	536	547
45	434	434	429	431	426	429	426	432	431	434	428	426	423	414	419	420	428	431	439
50	339	340	336	338	334	334	331	334	333	337	331	329	328	322	327	328	335	337	344
55	257	258	254	256	251	251	248	249	248	250	245	245	245	240	245	246	253	254	260
60	183	185	181	183	179	179	175	176	174	175	172	171	173	170	173	175	180	180	185
65	124	125	123	123	120	120	117	117	116	116	114	114	115	113	116	117	121	121	125
70	78.2	78.4	76.6	76.5	74.2	73.3	71.3	70.8	69.1	69.3	68.0	68.1	69.6	68.4	70.5	71.5	73.9	74.9	77.0
75	39.1	40.3	38.5	38.5	36.3	35.6	33.6	33.3	31.8	31.9	30.8	31.3	32.9	31.9	33.8	34.2	36.4	36.7	38.7
80	10.4	10.9	9.60	9.18	8.85	7.46	7.48	6.09	5.74	5.14	5.28	5.16	6.22	6.85	6.83	8.03	8.27	8.51	9.70
85	0.51	0.53	0.49	0.48	0.46	0.45	0.44	0.44	0.43	0.42	0.42	0.43	0.44	0.43	0.44	0.45	0.46	0.47	0.48
90	0.05	0.05	0.03	0.02	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	0.01	0.00	0.01	0.00	0.01	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	0.01	0.01	0.01	0.01	0.01	0.01	0.01
110	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
115	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.02
120	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02
125	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
130	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
135	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03
140	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.03	0.05	0.06	0.04	0.04	0.04	0.04	0.04
145	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.07	0.07	0.06	0.06	0.06	0.06	0.06
150	0.05	0.05	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.09	0.07	0.07	0.07	0.07	0.07	0.07
155	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.07	0.09	0.08	0.08	0.08	0.08	0.08	0.08
160	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.09	0.09	0.09	0.09	0.09	0.09	0.09
165	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.10	0.09	0.10	0.10	0.10	0.10	0.10
170	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.10	0.10	0.10	0.10	0.10	0.10	0.10
175	0.05	0.05	0.05	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.04	0.08	0.08	0.08	0.09	0.09	0.09	0.09
180	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08

Table2											UNI	T: ed	
C (DEG)													
y (DEG)	285	300	315	330	345								
0	1099	1098	1099	1098	1099								
5	1093	1093	1093	1093	1093								
10	1072	1073	1072	1075	1072								
15	1033	1036	1036	1038	1035								
20	970	975	977	979	976								
25	883	892	895	897	889								
30	780	789	791	793	784								
35	666	676	677	678	669								
40	552	562	562	563	553								
45	444	453	454	455	446								
50	347	355	356	357	349								
55	262	268	269	270	264								
60	186	192	191	193	188								
65	125	129	129	130	128								
70	78.2	79.9	79.9	81.1	79.7								
75	39.1	41.0	40.9	42.0	41.1								
80	9.93	11.0	11.0	11.9	11.4								
85	0.48	0.50	0.51	0.54	0.54								
90	0.02	0.05	0.06	0.08	0.07								
95	0.00	0.00	0.00	0.00	0.00								Г
100	0.00	0.01	0.00	0.01	0.00								
105	0.01	0.01	0.01	0.01	0.01								
110	0.01	0.01	0.01	0.01	0.01								
115	0.01	0.02	0.01	0.02	0.01								
120	0.02	0.02	0.02	0.02	0.02								
125	0.02	0.02	0.02	0.02	0.02								
130	0.02	0.02	0.02	0.02	0.02								
135	0.03	0.03	0.03	0.03	0.03								
140	0.04	0.04	0.04	0.04	0.04								
145	0.06	0.06	0.06	0.06	0.05								
150	0.07	0.07	0.07	0.07	0.07								
155	0.08	0.08	0.08	0.08	0.09								
160	0.09	0.09	0.09	0.10	0.10								
165	0.10	0.10	0.10	0.10	0.10								
170	0.10	0.10	0.10	0.10	0.10								
175	0.09	0.09	0.09	0.09	0.09								
180	0.00	0.07	0.07	0.07	0 07								-











**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\*\*\*\*