

EMC TEST REPORT

For

Global Tech China Limited

Solar Light(Mini)/8W, 4W

Model No.: 0003015/5/7

Additional Model No: 3016/6/7

Prepared for : Global Tech China Limited  
Address : 3 Flat A, Wai Yip Industrial Building, 171 Wai Yip Street,  
Kwun Tong, Kowloon, Hong Kong

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.  
Address : 1F., Xingyuan Industrial Park, Tongda Road, Bao'an Blvd.,  
Bao'an District, Shenzhen, Guangdong, China

Date of receipt of test sample : December 04, 2014  
Number of tested samples : 1  
Serial number : Prototype  
Date of Test : December 04, 2014 - December 09, 2014  
Date of Report : December 09, 2014



**EMC TEST REPORT****EN 55015: 2013**

Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

**EN 61547: 2009**

Equipment for general lighting purposes - EMC immunity requirements

**Report Reference No. .... : LCS1412090515E**

Date Of Issue ..... : December 09, 2014

**Testing Laboratory Name ..... : Shenzhen LCS Compliance Testing Laboratory Ltd.**Address ..... : 1F., Xingyuan Industrial Park, Tongda Road, Bao'an Blvd.,  
Bao'an District, Shenzhen, Guangdong, ChinaTesting Location/ Procedure..... : Full application of Harmonised standards   
Partial application of Harmonised standards   
Other standard testing method **Applicant's Name ..... : Global Tech China Limited**Address ..... : 3 Flat A, Wai Yip Industrial Building, 171 Wai Yip Street,  
Kwun Tong, Kowloon, Hong Kong**Test Specification:**Standard ..... : EN 55015: 2013  
EN 61547: 2009

Test Report Form No. .... : LCSEMC-1.0

TRF Originator ..... : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF..... : Dated 2011-03

**SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. All rights reserved.**

This publication may be reproduced in whole or in part for non-commercial purposes as long as the SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. is acknowledged as copyright owner and source of the material. SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

**Test Item Description. .... : Solar Light(Mini)/8W, 4W**

Trade Mark ..... : Mightylite

Model/ Type Reference ..... : 0003015/5/7

Ratings ..... : DC 5V, 8W

**Result ..... : Positive****Compiled by:****Supervised by:****Approved by:**

Yoyo Wang/ File administrators

Danny Huang Technique principal

Gavin Liang/ Manager

**EMC -- TEST REPORT****Test Report No. : LCS1412090515E**December 09, 2014

Date of issue

Type / Model..... : 0003015/5/7

EUT..... : Solar Light(Mini)/8W, 4W

**Applicant..... : Global Tech China Limited**Address..... : 3 Flat A, Wai Yip Industrial Building, 171 Wai Yip Street,  
Kwun Tong, Kowloon, Hong Kong

Telephone..... : /

Fax..... : /

**Manufacturer..... : Global Tech China Limited**Address..... : 3 Flat A, Wai Yip Industrial Building, 171 Wai Yip Street,  
Kwun Tong, Kowloon, Hong Kong

Telephone..... : /

Fax..... : /

**Factory..... : Global Tech China Limited**Address..... : 3 Flat A, Wai Yip Industrial Building, 171 Wai Yip Street,  
Kwun Tong, Kowloon, Hong Kong

Telephone..... : /

Fax..... : /

**Test Result** according to the standards on page 6:**Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

## TABLE OF CONTENTS

Test Report Description	Page
<b>1. SUMMARY OF STANDARDS AND RESULTS.....</b>	<b>6</b>
1.1.Description of Standards and Results .....	6
1.2.Description of Performance Criteria.....	7
<b>2. GENERAL INFORMATION.....</b>	<b>8</b>
2.1.Description of Device (EUT).....	8
2.2.Description of Test Facility .....	8
2.3.Statement of the measurement uncertainty .....	8
2.4.Measurement Uncertainty.....	9
<b>3. MEASURING DEVICES AND TEST EQUIPMENT.....</b>	<b>10</b>
3.1.Conducted Disturbance.....	10
3.2.Disturbance Power.....	10
3.3.Radiated Electromagnetic Disturbance.....	10
3.4.Radiated Disturbance (Electric Field).....	10
3.5.Harmonic Current .....	10
3.6.Voltage fluctuation and Flicker .....	10
3.7.Electrostatic Discharge .....	10
3.8.RF Field Strength Susceptibility.....	11
3.9.Electrical Fast Transient/Burst .....	11
3.10.Surge.....	11
3.11.Conducted Susceptibility .....	11
3.12.Power Frequency Magnetic Field Susceptibility .....	11
3.13.Voltage Dips .....	11
3.14.Voltage Short Interruptions .....	11
<b>4. MAGNETIC FIELD EMISSION MEASUREMENT .....</b>	<b>12</b>
4.1.Block Diagram of Test Setup .....	12
4.2.Magnetic Field Emission Measurement Standard and Limits .....	12
4.3.EUT Configuration on Test .....	12
4.4.Operating Condition of EUT .....	12
4.5.Test Procedure .....	13
4.6.Test Results .....	13
<b>5. RADIATED EMISSION MEASUREMENT .....</b>	<b>15</b>
5.1.Block Diagram of Test Setup .....	15
5.2.Test Standard .....	15
5.3.Radiated Emission Limits.....	15
5.4.EUT Configuration on Test .....	16
5.5.Operating Condition of EUT .....	16
5.6.Test Procedure .....	16
5.7.Test Results .....	16

<b>6. ELECTROSTATIC DISCHARGE TEST .....</b>	<b>18</b>
6.1.Block Diagram of Test Setup .....	18
6.2.Test Standard .....	18
6.3.Severity Levels and Performance Criterion .....	18
6.4.EUT Configuration on Test .....	18
6.5.Operating Condition of EUT .....	19
6.6.Test Procedure .....	19
6.7.Test Results .....	19
<b>7. RF FIELD STRENGTH SUSCEPTIBILITY TEST .....</b>	<b>21</b>
7.1.Block Diagram of Test Setup .....	21
7.2.Test Standard .....	21
7.3.Severity Levels and Performance Criterion .....	21
7.4.EUT Configuration on Test .....	22
7.5.Operating Condition of EUT .....	22
7.6.Test Procedure .....	22
7.7.Test Results .....	22
<b>8. MAGNETIC FIELD IMMUNITY TEST .....</b>	<b>24</b>
8.1.Block Diagram of Test Setup .....	24
8.2.Test Standard .....	24
8.3.Severity Levels and Performance Criterion .....	24
8.4.EUT Configuration on Test .....	24
8.5.Operating Condition of EUT .....	25
8.6.Test Procedure .....	25
8.7.Test Results .....	25
<b>9. PHOTOGRAPH .....</b>	<b>27</b>
9.1.Photo of Radiated Electromagnetic Disturbance Measurement .....	27
9.2.Photo of Radiated Measurement .....	27
9.3.Photo of Electrostatic Discharge Test .....	28
9.4.Photo of Magnetic Field Immunity Test .....	28
<b>10. EXTERNAL AND INTERNAL PHOTOS OF THE EUT .....</b>	<b>29</b>
<b>11. MANUFACTURER/ APPROVAL HOLDER DECLARATION .....</b>	<b>32</b>

# 1. SUMMARY OF STANDARDS AND RESULTS

## 1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

<b>EMISSION (EN 55015: 2013)</b>			
<b>Description of Test Item</b>	<b>Standard</b>	<b>Limits</b>	<b>Results</b>
Conducted disturbance at mains terminals	EN 55015: 2013	-----	N/A
Magnetic field emission	EN 55015: 2013	-----	PASS
Radiated disturbance	EN 55015: 2013	-----	PASS
Harmonic current emissions	EN 61000-3-2: 2006+A1: 2009+A2: 2009	Class C	N/A
Voltage fluctuations & flicker	EN 61000-3-3: 2013	-----	N/A
<b>IMMUNITY (EN 61547: 2009)</b>			
<b>Description of Test Item</b>	<b>Basic Standard</b>	<b>Performance Criteria</b>	<b>Results</b>
Electrostatic discharge (ESD)	EN 61000-4-2: 2009	B	PASS
Radio-frequency, Continuous radiated disturbance	EN 61000-4-3: 2006+A1: 2008	A	PASS
Electrical fast transient (EFT)	EN 61000-4-4: 2012	B	N/A
Surge (Input a.c. power ports)	EN 61000-4-5: 2006	B	N/A
Radio-frequency, Continuous conducted disturbance	EN 61000-4-6: 2013	A	N/A
Power frequency magnetic field	EN 61000-4-8: 2010	A	PASS
Voltage dips, 30% reduction	EN 61000-4-11: 2004	C	N/A
Voltage interruptions		B	N/A
N/A is an abbreviation for Not Applicable.			

## 1.2. Description of Performance Criteria

### General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;
- tests of all peripheral access (hard disks, floppy disks, printers, keyboard, mouse, etc.);
- quality of software execution;
- quality of data display and transmission;
- quality of speech transmission.

#### 1.2.1. Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

#### 1.2.2. Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

#### 1.2.3. Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacture's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

## 2. GENERAL INFORMATION

### 2.1. Description of Device (EUT)

EUT : Solar Light(Mini)/8W, 4W

Model Number : 0003015/5/7

Power Supply : DC 5V, 8W

### 2.2. Description of Test Facility

#### Site Description

EMC Lab. : Accredited by CNAS, April 28, 2013  
The Certificate Registration Number. is L4595.

Accredited by FCC, July 14, 2011  
The Certificate Registration Number. is 899208.

Accredited by Industry Canada, May. 02, 2011  
The Certificate Registration Number. is 9642A-1

Accredited by VCCI, Japan January 30, 2012  
The Certificate Registration Number. is C-4260 and R-3804

Accredited by ESMD, April 24, 2012  
The Certificate Registration Number. is ARCB0108.

Accredited by UL, July 25, 2013  
The Certificate Registration Number. is 100571-492.

Accredited by TUV, December 23, 2013  
The Certificate Registration Number. is SCN1134

Accredited by Intertek, October 30, 2013  
The Certificate Registration Number. is 2011-RTL-L1-50.

### 2.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.



## 2.4.Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	30MHz~200MHz	$\pm 2.96\text{dB}$	(1)
	:	200MHz~1000MHz	$\pm 3.10\text{dB}$	(1)
Conduction Uncertainty	:	150kHz~30MHz	$\pm 1.63\text{dB}$	(1)
Power disturbance	:	30MHz~300MHz	$\pm 1.60\text{dB}$	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

### 3. MEASURING DEVICES AND TEST EQUIPMENT

#### 3.1. Conducted Disturbance

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2014/06/18
2	10dB Attenuator	SCHWARZBECK	OSPAM236	9729	2014/06/18
3	Artificial Mains	ROHDE & SCHWARZ	ENV216	101288	2014/06/18
4	EMI Test Software	AUDIX	E3	N/A	2014/06/18

#### 3.2. Disturbance Power

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2014/06/18
2	Absorbing clamp	ROHDE & SCHWARZ	MDS 21	4033	2014/10/28
3	EMI Test Software	AUDIX	E3	N/A	2014/06/18

#### 3.3. Radiated Electromagnetic Disturbance

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1011423	2014/06/18
2	Triple-loop Antenna	EVERFINE	LLA-2	11050003	2014/06/18
3	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2014/06/18
4	EMI Test Software	AUDIX	E3	N/A	2014/06/18

#### 3.4. Radiated Disturbance (Electric Field)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2014/02/04
2	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2014/06/18
3	Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2014/06/18
4	EMI Test Software	AUDIX	E3	N/A	2014/06/18
5	Positioning Controller	MF	MF-7082	/	2014/06/18

#### 3.5. Harmonic Current

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power Analyzer Test System	Voltech	PM6000	20000670053	2014/06/18

#### 3.6. Voltage fluctuation and Flicker

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power Analyzer Test System	Voltech	PM6000	20000670053	2014/06/18

#### 3.7. Electrostatic Discharge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ESD Simulator	KIKUSUI	KC001311	KES4021	2014/09/02

### 3.8.RF Field Strength Susceptibility

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	SIGNAL GENERATOR	HP	8648A	625U00573	2014/06/18
2	Amplifier	AR	500A100	17034	2014/06/18
3	Amplifier	AR	100W/1000M1	17028	2014/06/18
4	Isotropic Field Monitor	AR	FM2000	16829	2014/06/18
5	Isotropic Field Probe	AR	FP2000	16755	2014/06/18
6	Bi-conic Antenna	EMCO	3108	9507-2534	2014/06/18
7	By-log-periodic Antenna	AR	AT1080	16812	2014/06/18
8	EMS Test Software	ROHDE & SCHWARZ	ESK1	N/A	2014/06/18

### 3.9.Electrical Fast Transient/Burst

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Electrical fast transient(EFT)generator	3CTEST	EFT-4021	EC0461044	2014/01/20
2	Coupling Clamp	3CTEST	EFTC	EC0441098	2014/06/18

### 3.10.Surge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Surge test system	3CTEST	SG5006G	EC5581070	2014/06/18
2	Coupling/decoupling network	3CTEST	SGN-5010G	CS5591033	2014/06/18

### 3.11.Conducted Susceptibility

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Simulator	EMTEST	CIT-10	A126A1195	2014/06/18
2	CDN	EMTEST	CDN-M2	A2210177	2014/06/18
3	CDN	EMTEST	CDN-M3	A2210177	2014/06/18
4	Attenuator	EMTEST	ATT6	50FP-006-H3B	2014/06/18

### 3.12.Power Frequency Magnetic Field Susceptibility

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power frequency mag-field generator System	EVERFINE	EMS61000-8K	906003	2014/06/18

### 3.13.Voltage Dips

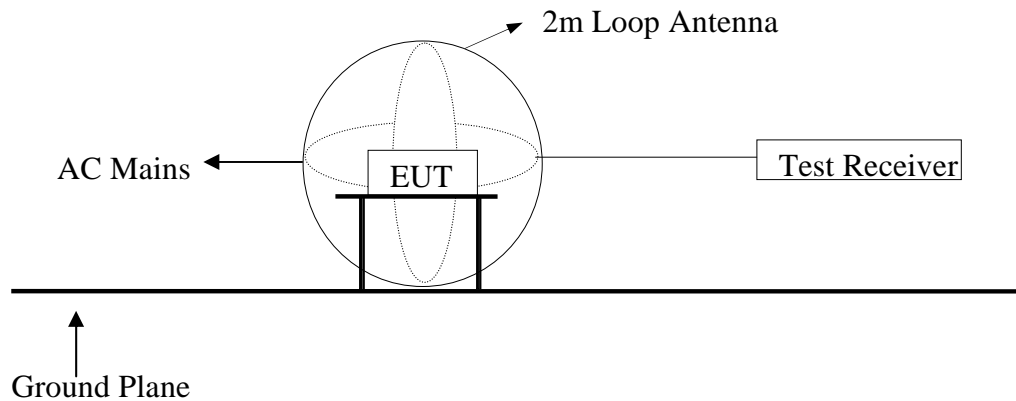
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2014/06/18

### 3.14.Voltage Short Interruptions

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2014/06/18

## 4. MAGNETIC FIELD EMISSION MEASUREMENT

### 4.1. Block Diagram of Test Setup



### 4.2. Magnetic Field Emission Measurement Standard and Limits

#### 4.2.1. Test Standard

EN 55015: 2013

#### 4.2.2. Test Limits

Frequency	Limits for loop diameter (dB $\mu$ A)
	2m
9kHz ~ 70kHz	88
70kHz ~ 150kHz	88 ~ 58*
150kHz ~ 3.0MHz	58 ~ 22*
3.0MHz ~ 30MHz	22

1. At the transition frequency the lower limit applies.
2. \* decreasing linearly with logarithm of the frequency.

### 4.3. EUT Configuration on Test

The configuration of the EUT is same as Section 2.1.

### 4.4. Operating Condition of EUT

- 4.4.1. Setup the EUT as shown in Section 4.1.
- 4.4.2. Turn on the power of all equipments.
- 4.4.3. Let the EUT work in test mode (On) and measure it.

### 4.5. Test Procedure

The EUT is placed on a wood table in the center of a loop antenna. The induced current in the loop antenna is measured by means of a current probe and the test receiver. Three field components are checked by means of a coaxial switch.

The frequency range from 9kHz to 30MHz is investigated. The receiver is measured with the quasi-peak detector. For frequency band 9kHz to 150kHz, the bandwidth of the field strength meter is set at 200Hz. For frequency band 150kHz to 30MHz, the bandwidth is set at 9kHz.

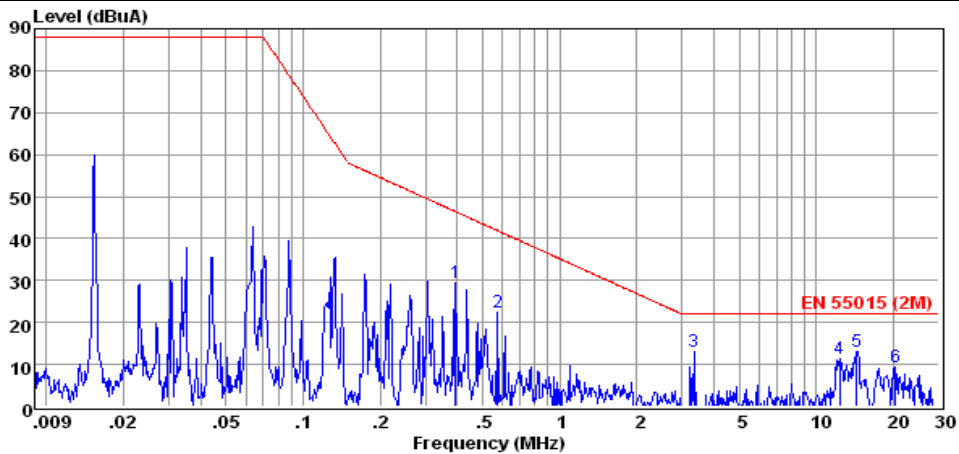
All the test results are listed in Section 4.6.

### 4.6. Test Results

**PASS.**

The frequency range from 9kHz to 30MHz is investigated.

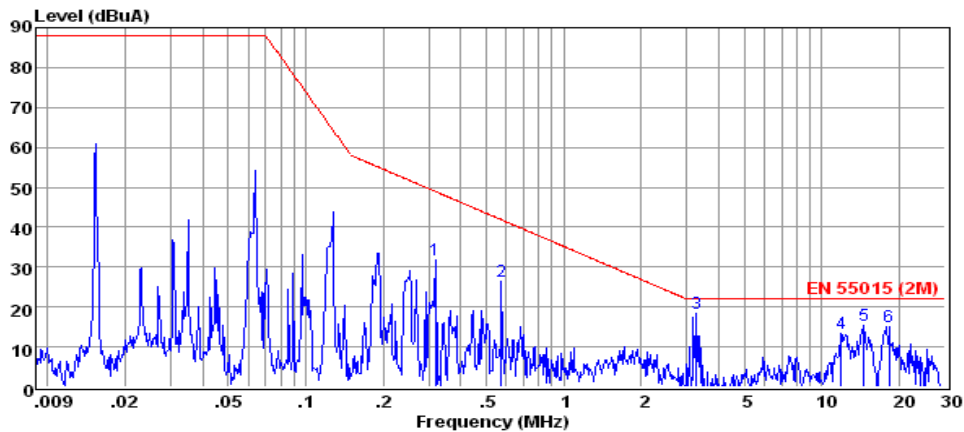
<b>Model No.</b>	0003015/5/7	<b>Test Mode</b>	ON
<b>Environmental Conditions</b>	24°C, 56% RH	<b>Test Engineer</b>	Kevin
<b>Pol</b>	X		



	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuA	dB	dB	dBuA	dBuA	dB	
1	0.39	19.25	9.61	0.61	29.47	46.38	-16.91	QP
2	0.57	12.31	9.62	0.64	22.57	41.90	-19.33	QP
3	3.33	2.62	9.65	0.70	12.97	22.00	-9.03	QP
4	12.29	0.83	9.73	0.83	11.39	22.00	-10.61	QP
5	14.34	2.44	9.74	0.84	13.02	22.00	-8.98	QP
6	20.32	-1.35	9.88	0.87	9.40	22.00	-12.60	QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.  
 2. The emission levels that are 20dB below the official limit are not reported.

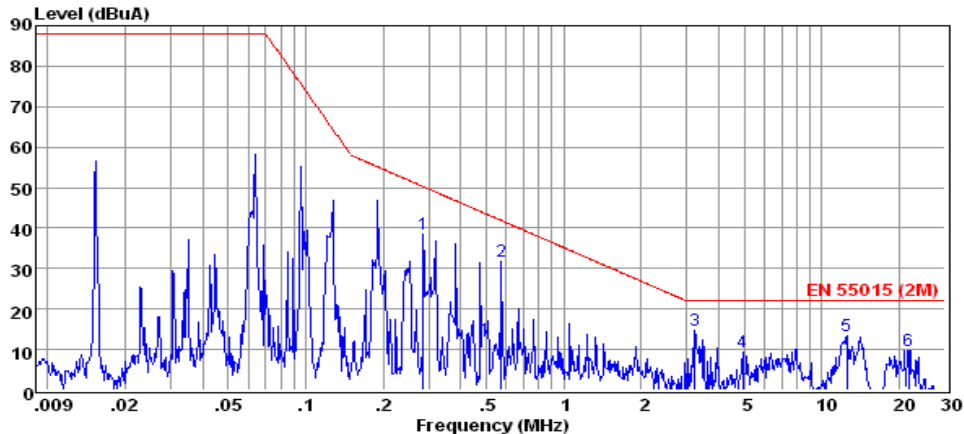
<b>Model No.</b>	0003015/5/7	<b>Test Mode</b>	ON
<b>Environmental Conditions</b>	24°C, 56% RH	<b>Test Engineer</b>	Kevin
<b>Pol</b>	Y		



Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
MHz	dBuA	dB	dB	dBuA	dBuA	dB	
1	0.32	21.68	9.61	0.60	31.89	48.92	-17.03 QP
2	0.57	16.30	9.62	0.64	26.56	41.90	-15.34 QP
3	3.28	7.95	9.65	0.70	18.30	22.00	-3.70 QP
4	11.90	2.90	9.73	0.82	13.45	22.00	-8.55 QP
5	14.57	4.72	9.74	0.84	15.30	22.00	-6.70 QP
6	18.29	4.45	9.82	0.86	15.13	22.00	-6.87 QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.  
 2. The emission levels that are 20dB below the official limit are not reported.

<b>Model No.</b>	0003015/5/7	<b>Test Mode</b>	ON
<b>Environmental Conditions</b>	24°C, 56% RH	<b>Test Engineer</b>	Kevin
<b>Pol</b>	Z		

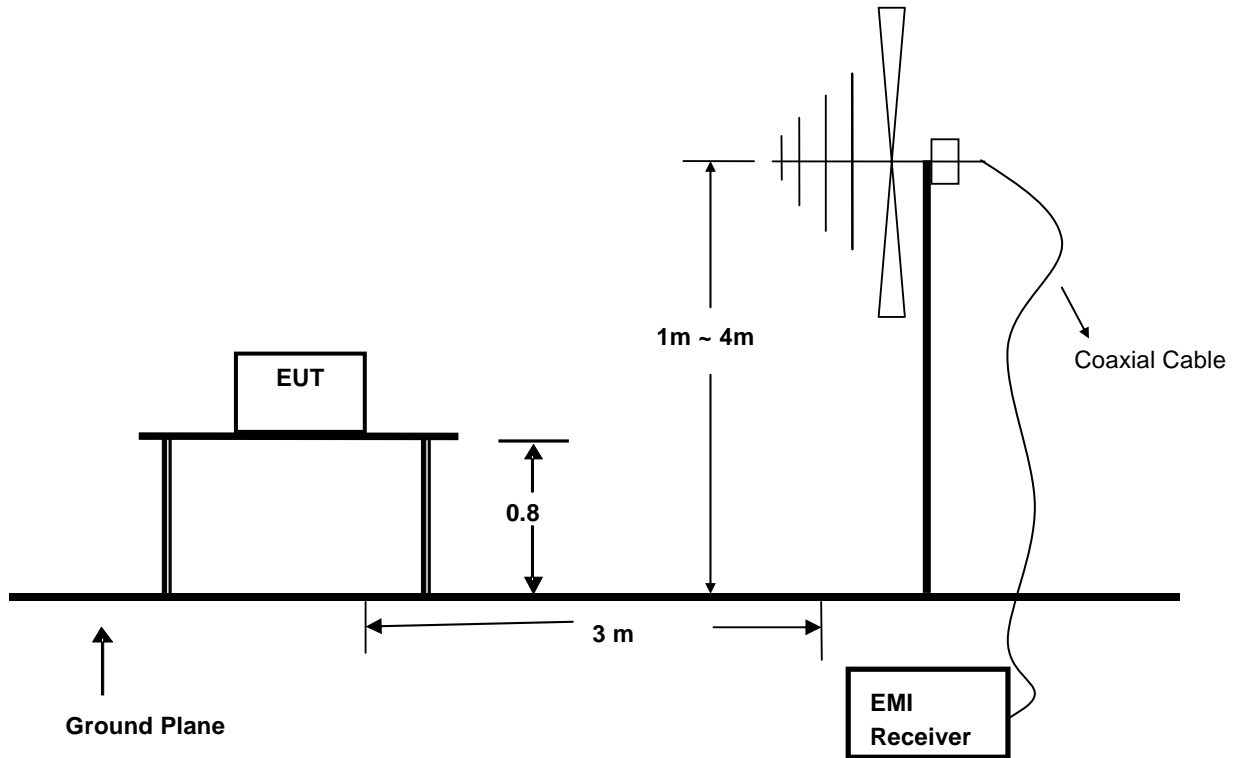


Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
MHz	dBuA	dB	dB	dBuA	dBuA	dB	
1	0.29	28.26	9.60	0.59	38.45	50.28	-11.83 QP
2	0.57	21.44	9.62	0.64	31.70	41.90	-10.20 QP
3	3.22	4.43	9.65	0.70	14.78	22.00	-7.22 QP
4	4.95	-0.87	9.66	0.72	9.51	22.00	-12.49 QP
5	12.49	2.85	9.73	0.83	13.41	22.00	-8.59 QP
6	21.69	-0.90	9.82	0.87	9.79	22.00	-12.21 QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.  
 2. The emission levels that are 20dB below the official limit are not reported.

## 5. RADIATED EMISSION MEASUREMENT

### 5.1. Block Diagram of Test Setup



### 5.2. Test Standard

EN 55015: 2013

### 5.3. Radiated Emission Limits

All emanations from a class B device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dB $\mu$ V/m)
30 ~ 230	3	40
230 ~ 300	3	47

- Note: (1) The smaller limit shall apply at the combination point between two frequency bands.  
 (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

#### 5.4.EUT Configuration on Test

The EN 55015 regulations test method must be used to find the maximum emission during radiated emission measurement.

#### 5.5.Operating Condition of EUT

5.5.1 Turn on the power.

5.5.2 After that, let the EUT work in test mode (ON) and measure it.

#### 5.6.Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 10 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. By-log antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

The bandwidth of the Receiver is set at 120kHz.

The frequency range from 30MHz to 300MHz is investigated.

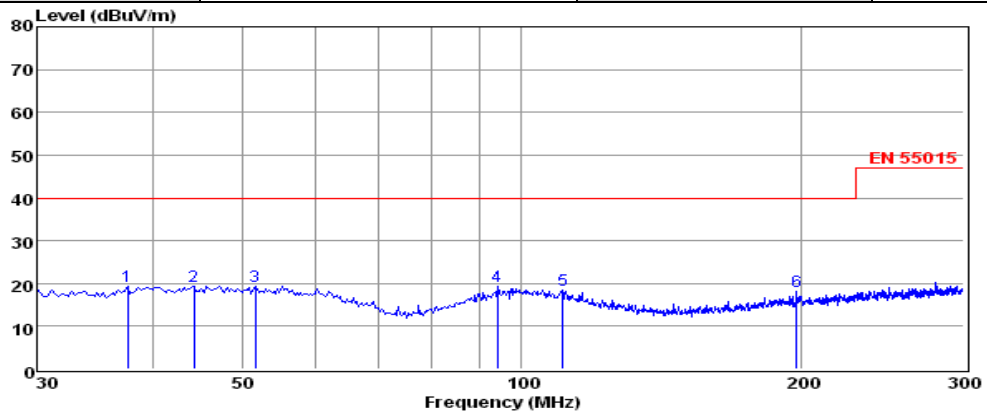
#### 5.7.Test Results

**PASS.**

The test result please refer to the next page.



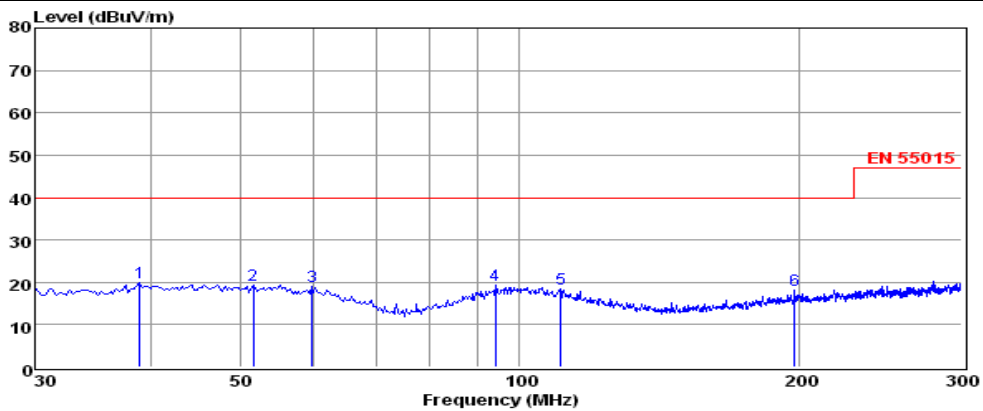
<b>Model No.</b>	0003015/5/7	<b>Test Mode</b>	ON
<b>Environmental Conditions</b>	24°C, 56% RH	<b>Detector Function</b>	Quasi-peak
<b>Pol</b>	Vertical	<b>Distance</b>	3m
<b>Test Engineer</b>	Kevin		



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	37.56	6.05	0.38	12.96	19.39	40.00	-20.61	QP
2	44.31	5.33	0.41	13.55	19.29	40.00	-20.71	QP
3	51.60	5.53	0.54	13.18	19.25	40.00	-20.75	QP
4	94.26	5.95	0.58	12.70	19.23	40.00	-20.77	QP
5	110.73	5.79	0.61	12.12	18.52	40.00	-21.48	QP
6	198.21	6.78	0.84	10.57	18.19	40.00	-21.81	QP

Note: 1. All readings are Quasi-peak values.  
 2. Measured= Reading + Antenna Factor + Cable Loss  
 3. The emission that ate 20db blow the official limit are not reported

<b>Model No.</b>	0003015/5/7	<b>Test Mode</b>	ON
<b>Environmental Conditions</b>	24°C, 56% RH	<b>Detector Function</b>	Quasi-peak
<b>Pol</b>	Horizontal	<b>Distance</b>	3m
<b>Test Engineer</b>	Kevin		

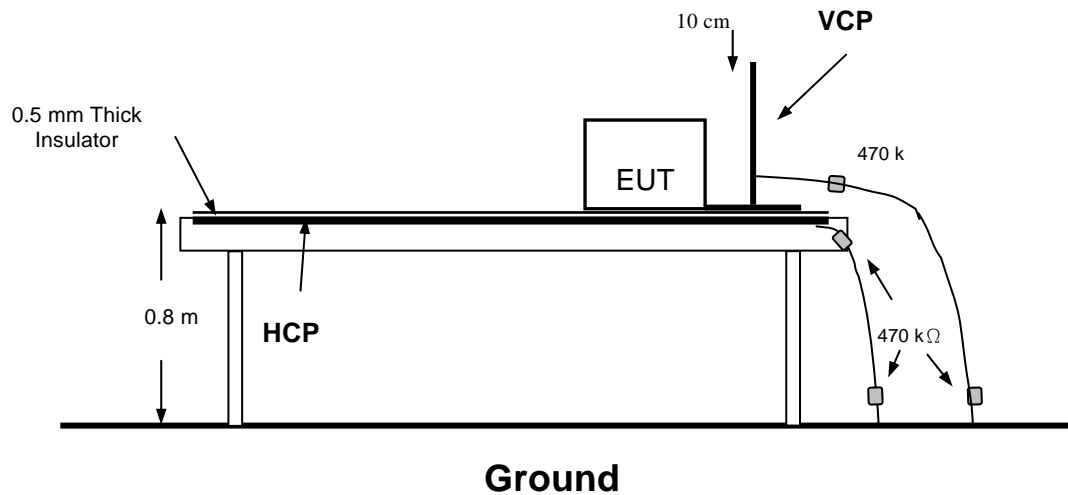


	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	38.91	6.10	0.38	13.30	19.78	40.00	-20.22	QP
2	51.60	5.53	0.54	13.18	19.25	40.00	-20.75	QP
3	59.70	5.79	0.49	12.71	18.99	40.00	-21.01	QP
4	94.26	5.95	0.58	12.70	19.23	40.00	-20.77	QP
5	110.73	5.79	0.61	12.12	18.52	40.00	-21.48	QP
6	198.21	6.78	0.84	10.57	18.19	40.00	-21.81	QP

Note: 1. All readings are Quasi-peak values.  
 2. Measured= Reading + Antenna Factor + Cable Loss  
 3. The emission that ate 20db blow the official limit are not reported

## 6. ELECTROSTATIC DISCHARGE TEST

### 6.1. Block Diagram of Test Setup



### 6.2. Test Standard

EN 61547: 2009 (EN 61000-4-2: 2009, Severity Level: Air Discharge: Level 3,  $\pm 8$ KV  
 Contact Discharge: Level 2,  $\pm 4$ KV)

### 6.3. Severity Levels and Performance Criterion

#### 6.3.1. Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	$\pm 2$	$\pm 2$
2.	$\pm 4$	$\pm 4$
3.	$\pm 6$	$\pm 8$
4.	$\pm 8$	$\pm 15$
X	Special	Special

#### 6.3.2. Performance criterion: **B**

### 6.4. EUT Configuration on Test

The configuration of EUT is listed in Section 2.1

## 6.5. Operating Condition of EUT

- 6.5.1. Setup the EUT as shown in Section 6.1.
- 6.5.2. Turn on the power of all equipments.
- 6.5.3. Let the EUT work in test mode (ON) and measure it.

## 6.6. Test Procedure

### 6.6.1. Air Discharge

This test is done on a non-conductive surfaces. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Because the case of the EUT is metal surface, so it does not need to be tested.

### 6.6.2. Contact Discharge

All the procedure shall be same as Section 6.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

### 6.6.3. Indirect Discharge For Horizontal Coupling Plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

### 6.6.4. Indirect Discharge For Vertical Coupling Plane

At least 20 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

## 6.7. Test Results

**PASS.**

Please refer to the following page.

# Electrostatic Discharger Test Results

<b>Standard</b>	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
<b>Applicant</b>	Global Tech China Limited		
<b>EUT</b>	Solar Light(Mini)/8W, 4W	<b>Temperature</b>	26°C
<b>M/N</b>	0003015/5/7	<b>Humidity</b>	51%
<b>Criterion</b>	B	<b>Pressure</b>	1021mbar
<b>Test Mode</b>	ON	<b>Test Engineer</b>	Kevin

### Air Discharge

Test Points	Test Levels			Results		
	± 2KV	± 4KV	± 8KV	Pass	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

### Contact Discharge

Test Points	Test Levels		Results		
	± 2 KV	± 4 KV	Pass	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

### Discharge To Horizontal Coupling Plane

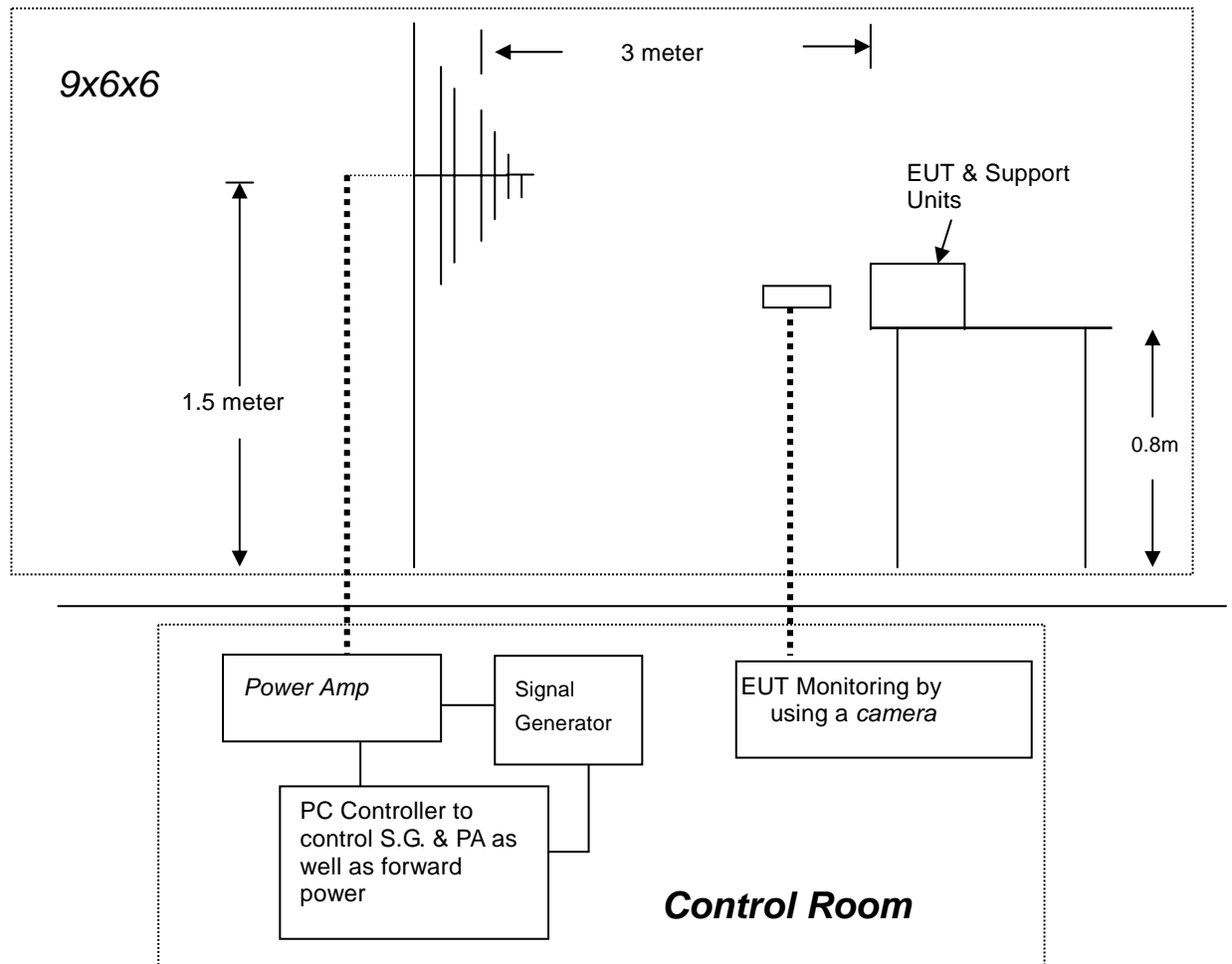
Side of EUT	Test Levels		Results		
	± 2 KV	± 4 KV	Pass	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

### Discharge To Vertical Coupling Plane

Side of EUT	Test Levels		Results		
	± 2 KV	± 4 KV	Pass	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

## 7. RF FIELD STRENGTH SUSCEPTIBILITY TEST

### 7.1. Block Diagram of Test Setup



### 7.2. Test Standard

EN 61547: 2009 (EN 61000-4-3: 2006+A1: 2008, Severity Level: 2, 3V / m)

### 7.3. Severity Levels and Performance Criterion

#### 7.3.1. Severity level

Level	Field Strength (V/m)
1	1
2	3
3	10
X	Special

#### 7.3.2. Performance criterion: A

#### 7.4.EUT Configuration on Test

The configuration of EUT are listed in Section 2.1.

#### 7.5.Operating Condition of EUT

7.5.1.Setup the EUT as shown in Section 7.1.

7.5.2.Turn on the power of all equipments.

7.5.3.Let the EUT work in test mode (On) and measure it.

#### 7.6.Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor EUT screen. All the scanning conditions are as follows:

Condition of Test	Remarks
-----	-----
1. Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	Unmodulated
3. Scanning Frequency	80 - 1000 MHz
4. Dwell time of radiated	0.0015 decade/s
5. Waiting Time	3 Sec.

#### 7.7.Test Results

**PASS.**

Please refer to the following page.

## RF Field Strength Susceptibility Test Results

<b>Standard</b>	<input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN 61000-4-3		
<b>Applicant</b>	Global Tech China Limited		
<b>EUT</b>	Solar Light(Mini)/8W, 4W	<b>Temperature</b>	26°C
<b>M/N</b>	0003015/5/7	<b>Humidity</b>	51%
<b>Field Strength</b>	3 V/m	<b>Criterion</b>	A
<b>Test Mode</b>	ON	<b>Test Engineer</b>	Kevin
<b>Frequency Range</b>	80 MHz to 1000 MHz		
<b>Modulation</b>	<input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1KHz 80%		
<b>Steps</b>	1%		

	Horizontal	Vertical
<b>Front</b>	PASS	PASS
<b>Right</b>	PASS	PASS
<b>Rear</b>	PASS	PASS
<b>Left</b>	PASS	PASS

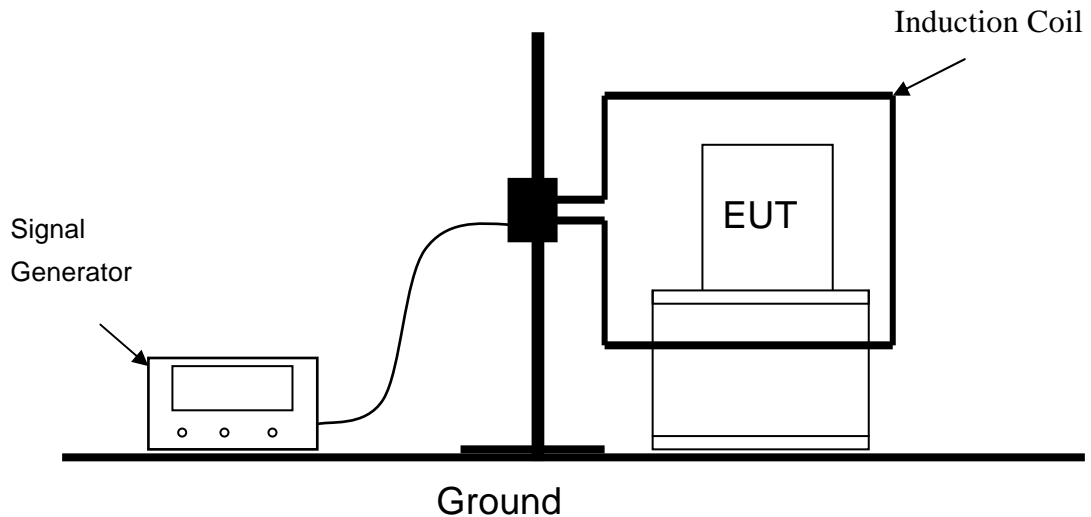
**Test Equipment:**

1. Signal Generator: 2031 (MARCONI)
2. Power Amplifier: 500A100 & 100W/1000M1 (A&R)
3. Power Antenna: 3108 (EMCO) & AT1080 (A&R)
4. Field Monitor: FM2000 (A&R)

Note:

## 8. MAGNETIC FIELD IMMUNITY TEST

### 8.1. Block Diagram of Test Setup



### 8.2. Test Standard

EN 61547: 2009 (EN 61000-4-8: 2010, Severity Level 2: 3A/m)

### 8.3. Severity Levels and Performance Criterion

#### 8.3.1. Severity level

Level	Magnetic Field Strength (A/m)
1.	1
2.	3
3.	10
4.	30
5.	100
X	Special

#### 8.3.2. Performance criterion: A

### 8.4. EUT Configuration on Test

The configuration of EUT are listed in Section 2.1.



## 8.5. Operating Condition of EUT

- 8.5.1. Setup the EUT as shown in Section 8.1.
- 8.5.2. Turn on the power of all equipments.
- 8.5.3. Let the EUT work in test mode (On) and measure it.

## 8.6. Test Procedure

- 8.6.1. Set up the EUT system as shown on Section 8.1.
- 8.6.2. The Induction coil is set up in horizontal or vertical.
- 8.6.3. Let the EUT work in test mode and measure it.

## 8.7. Test Results

**PASS.**

Please refer to the following page.

## Magnetic Field Immunity Test Result

<b>Standard</b>	<input type="checkbox"/> IEC 61000-4-8 <input checked="" type="checkbox"/> EN 61000-4-8		
<b>Applicant</b>	Global Tech China Limited		
<b>EUT</b>	Solar Light(Mini)/8W, 4W	<b>Temperature</b>	26°C
<b>M/N</b>	0003015/5/7	<b>Humidity</b>	51%
<b>Test Mode</b>	ON	<b>Criterion</b>	A
<b>Test Engineer</b>	Kevin		

Test Level (A/M)	Testing Duration	Coil Orientation	Criterion	Result
3	5 mins	X	A	PASS
3	5 mins	Y	A	PASS
3	5 mins	Z	A	PASS

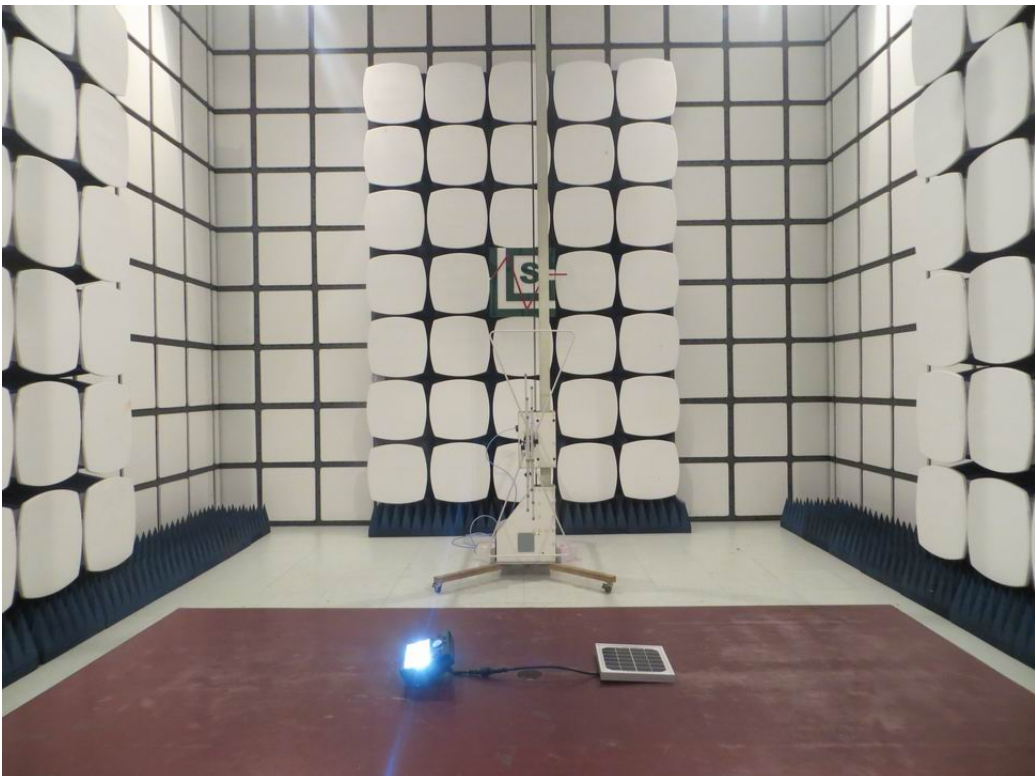
Note:

## 9. PHOTOGRAPH

### 9.1.Photo of Radiated Electromagnetic Disturbance Measurement



### 9.2.Photo of Radiated Measurement



### 9.3.Photo of Electrostatic Discharge Test



### 9.4.Photo of Magnetic Field Immunity Test



## 10. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

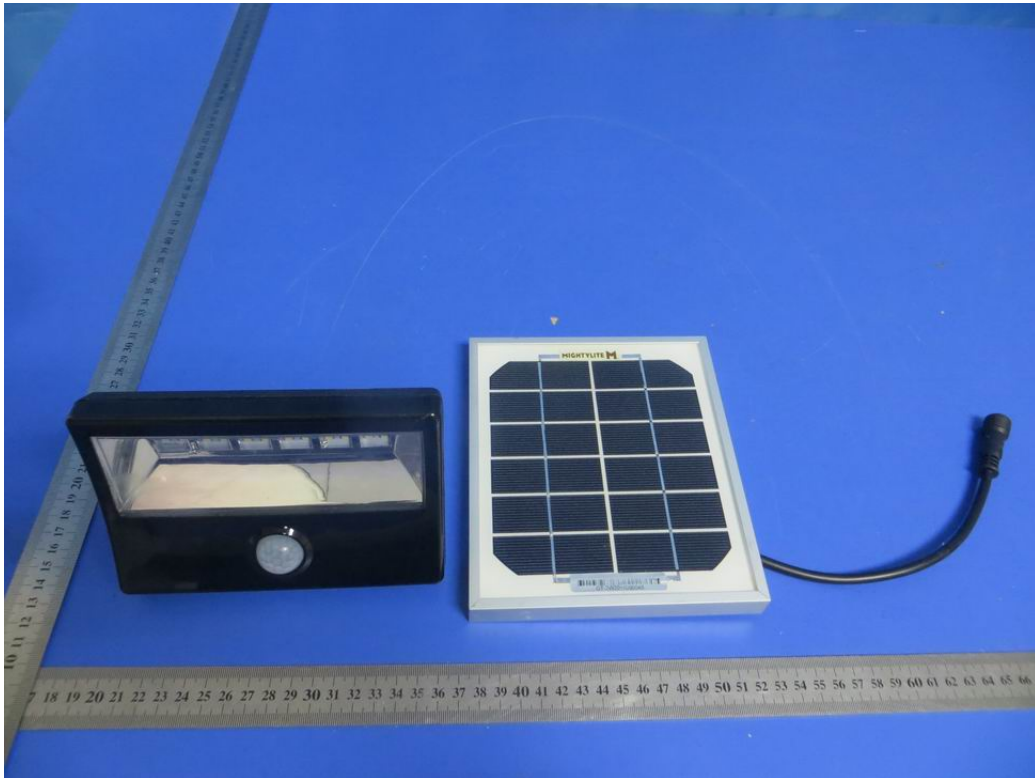


Fig. 1



Fig. 2



Fig. 3

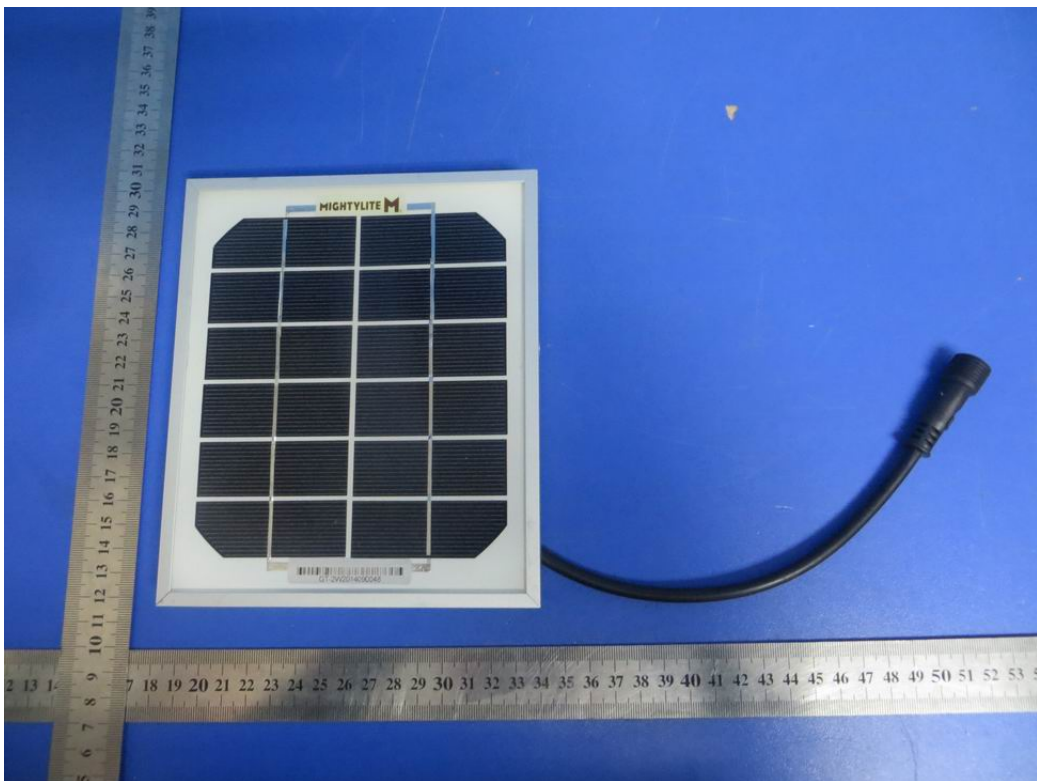


Fig. 4

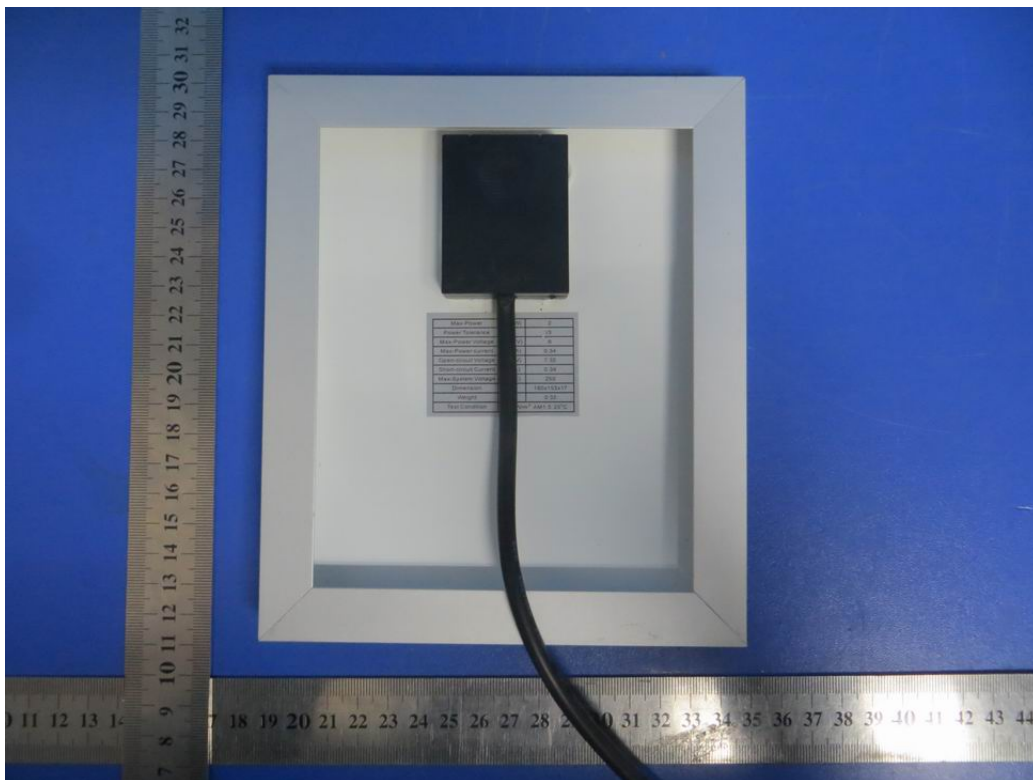


Fig. 5

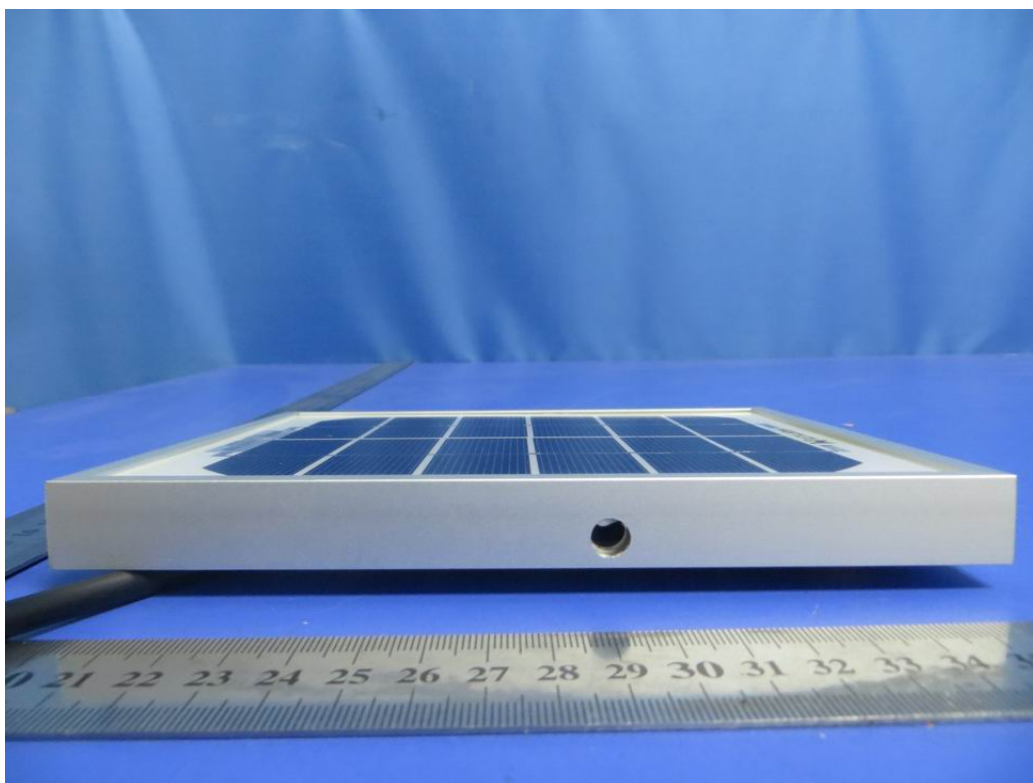


Fig. 6

### 11. MANUFACTURER/ APPROVAL HOLDER DECLARATION

The following identical model(s):

3016/6/7	--	--	--
----------	----	----	----

Belong to the tested device:

Product description : Solar Light(Mini)/8W, 4W  
Model name : 0003015/5/7

Remark: PCB board, structure and internal of these model(s) are the same,  
So no additional models were tested.

-----THE END OF REPORT-----