EMC TEST REPORT

Product Name： LED Solar Flood Light

Trade Mark： LUMIO

Main Model： LM147

Additional Model： Additional model see the table in page 07.

Report No.： UNIA20052215ER-01

Prepared for

ZhongShan LUMIO Lighting Co., Ltd

The 4th floor, Building B, No.5, XingTai North 3rd Road, GuZhen Town, ZhongShan City, Guangdong Province, China

Prepared by

Shenzhen United Testing Technology Co., Ltd.

2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China

TEST RESULT CERTIFICATION

Applicant	:	ZhongShan LUMIO Lighting Co., Ltd
Address	:	The 4th floor, Building B, No.5, XingTai North 3rd Road, GuZhen Town, ZhongShan City, Guangdong Province, China
Manufacturer	:	ZhongShan LUMIO Lighting Co., Ltd
Address	:	The 4th floor, Building B, No.5, XingTai North 3rd Road, GuZhen Town, ZhongShan City, Guangdong Province, China

Product description

Product Name	:	LED Solar Flood Light
Trade Mark	:	LUMIO
Model Name	:	LM147, Additional model see the table in page 07.
Test Methods	:	EN IEC 55015:2019/A11:2020 EN 61547:2009

This device described above has been tested by Shenzhen United Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the EMC Directive 2014/30/EU requirements. And it is applicable only to the tested sample identified in the report.
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Date of Test	:	
Date (s) of performance of tests	:	May, 22, 2020 ~ May, 29, 2020
Date of Issue	:	Jun. 09, 2020
Test Result	:	Pass

Prepared by: Bob Liao

Bob Liao/Editor

Reviewer: Kahn Yang

Kahn yang/Supervisor

Approved & Authorized Signer: liuze

Liuze/Manager

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1 TEST SUMMARY

1.1 TEST RESULTS

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
EN IEC 55015:2019/A11:2020	Conducted Emission	Class B	N/A	
	Radiated Emission	Class B	PASS	
EN IEC 61000-3-2:2019	Harmonic Current Emission	——	N/A	
EN 61000-3-3:2013/A1:2019	Voltage Fluctuations & Flicker	——	N/A	
EMC Immunity				
Section EN 61547:2009	Test Item	Performance Criteria	Judgment	Remark
EN 61000-4-2:2009	Electrostatic Discharge	B	PASS	
EN 61000-4-3:2006 +A1:2008+A2:2010	RF Electromagnetic Field	A	PASS	
EN 61000-4-4:2012	Fast Transients	B	N/A	
EN 61000-4-5:2014 /A1:2017	Surges	B	N/A	
EN 61000-4-6:2014 /AC:2015	Injected Current	A	N/A	
EN 61000-4-8:2010	Power Frequency Magnetic Field	A	N/A	
EN IEC 61000-4-11:2020	Volt. Interruptions Volt. Dips	B / C	N/A	NOTE (2)

Note:
(1) “N/A” denotes test is not applicable in this test Report.
(2) Voltage Dip: 100% reduction – Performance Criteria B
Voltage Dip: 30% reduction – Performance Criteria C
(3) For client’s request and manual description, the test will not be executed.

1.2 TEST FACTORY

Test Firm	:	Shenzhen United Testing Technology Co., Ltd.
Address	:	2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.The testing quality system of our laboratory meets with ISO/IEC-17025 requirements. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

A2LA Certificate Number: 4747.01
The EMC Laboratory has been accredited by A2LA, and in compliance with ISO/IEC 17025:2017 General Requirements for testing Laboratories.

FCC Registration Number: 674885
The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission.

IC Registration Number: 21947
The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada.

1.3 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k = 2, providing a level of confidence of approximately 95%.

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
UNI	ANSI	9kHz ~ 150kHz	2.96	
		150kHz ~ 30MHz	2.44	

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
UNI	ANSI	9kHz ~ 30MHz	2.50	
		30MHz ~ 1000MHz	4.80	
		1000MHz ~ 6000MHz	4.13	

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	LED Solar Flood Light
Trade Mark:	LUMIO
Main Model:	LM147
Additional Model:	LM144, LM146, LM202, LM204, LFT119, LFT120, LFT121, LFT122, LM323, LM137, LM138, LM139, LM140, LM141, LM142, LM143, LM144, LM145, LM146, LM147, LM148, LM149, LM150, LM151, LM201, LM203, LS148, LS149, LS150, LS151, LMS135, LMS136, LMS137, LMS138, LMS139, LMS140, LMS141, LMS142, LMS143, LMS144, LMS145, LMS146, LMS147, LMS148, LMS149, LMS150, LMS151, LMS152, LMS153, LMS154, LMS155, LMS156, LMS157, LMS158, LMS159, LMS160, LMS161, LMS162, LMS163, LMS164, LMS165, LMS166, LMS167, LMS168, LMS169, LMS170, LMS171, LMS172, LMS173, LMS174, LMS175, LMS176, LMS177, LMS178, LMS179
Model Difference:	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: LM147.
Product Description:	The EUT is an LED Solar Flood Light. Operating frequency: N/A Connecting I/O port: N/A Based on the application, features, or specification exhibited in User's Manual, more details of EUT technical specification, please refer to the User's Manual.

2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

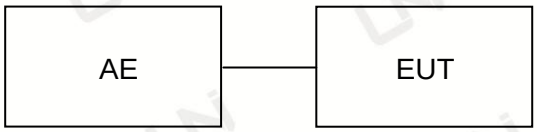
Pretest Mode	Description
Mode 1	Running

For Radiated Test	
Pretest Mode	Description
Mode 1	Running

For EMS Test	
Pretest Mode	Description
Mode 1	Running

Note: The test modes were carried out for all operation modes (include link and idle).

2.3 DESCRIPTION OF TEST SETUP



Note: The EUT tested system was configured as upper figure, unless otherwise a special operating condition is specified in the following during the testing.

2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Note
E-1	LED Solar Flood Light	LUMIO	LM147	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

1. The support equipment was authorized by Declaration of Confirmation.
2. For detachable type I/O cable should be specified the length in cm in『Length』column.
3. “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

2.5 MEASUREMENT INSTRUMENTS LIST

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
Conduction Emissions Measurement					
1	Conducted Emission Test Software	EZ-EMC	Ver.CCS-3A1-CE	N/A	N/A
2	AMN	Schwarzbeck	NNLK8121	8121370	2020.10.15
3	AMN	ETS	3810/2	00020199	2020.10.15
4	AAN	TESEQ	T8-Cat6	38888	2020.10.15
5	Pulse Limiter	CYBRTEK	EM5010	E115010056	2021.05.20
6	EMI Test Receiver	Rohde&Schwarz	ESCI	101210	2020.10.15
Radiated Emissions Measurement					
1	Radiated Emission Test Software	EZ-EMC	Ver.CCS-03A1	N/A	N/A
2	Horn Antenna	Sunol	DRH-118	A101415	2020.10.18
3	Broadband Hybrid Antenna	Sunol	JB1	A090215	2022.03.01
4	PREAMP	HP	8449B	3008A00160	2020.10.21
5	PREAMP	HP	8447D	2944A07999	2021.05.20
6	EMI Test Receiver	Rohde&Schwarz	ESR3	101891	2020.10.15
7	MXA Signal Analyzer	Keysight	N9020A	MY51110104	2020.10.15
8	Active Loop Antenna	Com-Power	AL-310R	10160009	2021.05.20
9	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1680	2021.05.20
10	Horn Antenna	A-INFOMW	LB-180400-KF	J211060660	2020.10.23
11	Loop Antenna	Beijing daze Technology	ZN30401	13015	2020.10.15
12	EM Clamp	Schwarzbeck	MDS21	03350	2020.10.20
Harmonic / Flicker Measurement					
1	Power Analyzer	California Instrumnets	PACS-1	X71719	2020.10.15
2	AC Power Source	California Instrumnets	5001ix	HK53570	2020.10.15
Electrostatic Discharge Test					
1	ESD Generator	EVERFINE	EMS61000-2A	P185811CA8371121	2020.10.17
RS Test					
1	Power Meter	Agilent	E4419B	QB4331226	2020.10.10
2	Power Sensor	Agilent	8481A	MY41092622	2020.10.10
3	Power Sensor	Agilent	8481A	US37296783	2020.10.10
4	Signal Generator	Agilent	N5182A	MY46240556	2020.10.10
5	Power Amplifier	MICOTOP	MPA-80-1000-250	1711489	2020.10.10
6	Power Amplifier	MICOTOP	MPA-1000-3000-75	1711488	2020.10.10
7	Power Amplifier	MICOTOP	MPA-3000-6000-50	MPA1706275	2020.10.10
8	Bilog Antenna	TESEQ	CBL6111D	34678	2020.10.10
9	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1680	2021.05.20

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
Electrical Fast Transient / Burst Immunity Test					
1	EMS Test Control System	Shanghai Lioncel	SCU-614AS	SCU614S0160601	N/A
2	EFT/B Generator	Shanghai Lioncel	EFT-404S	EFT404S0160601	2020.10.15
Surge Test					
1	EMS Test Control System	Shanghai Lioncel	SCU-614AS	SCU614S0160601	N/A
2	Surge Generator	Shanghai Lioncel	LSG-506S	LSG506S0160601	2020.10.15
3	CDN	Shanghai Lioncel	CDN-532S	CDN532S0160601	2020.10.15
CS Test					
1	CS	SCHLODER	CDG-6000-25	126A1280/2014	2020.10.10
2	CDN	SCHLODER	CDN-M2+3	A2210275/2014	2020.10.10
3	EM Clamp	SCHLODER	EMCL-20	132A1283	2020.10.10
4	Attenuator	Nemtest	ATT-6DB-100	A100W224	2020.10.10
5	Audio Analyzer	R&S	UPL	100419	2020.10.10
6	Universal Radio Communication Tester	R&S	CMW500	117239	2020.10.10
7	Universal Radio Communication Tester	R&S	CMU200	111764	2020.10.10
8	Audio Analyzer	R&S	UPL	100689	2020.10.10
9	Audio Breakthrough Shielding Box	SKET	SB_ABT/C35	N/A	2020.10.10
10	Ear Simulator	SKET	AE_ABT/C35	N/A	2020.10.10
11	Mouth Simulator	SKET	AM_ABT/C35	N/A	2020.10.10
12	1KHz Standard Source	SKET	MSC_ABT/C35	N/A	2020.10.10
Power-frequency magnetic fields Test					
1	Magnetic Field Test System	Shanghai Lioncel	PMF801C-T	PMF801C-T0160701	2021.05.20
Voltage dips and interruptions Test					
1	Voltage SAG Simulator	Shanghai Lioncel	VDS-1101	VDS11010160601	2020.10.15
2	Adjustable Power Supply	Shanghai Lioncel	RGL-210	RGL2100151001	N/A

3 RADIATED EMISSIONS MEASUREMENT

3.1 RADIATION EMISSION LIMIT

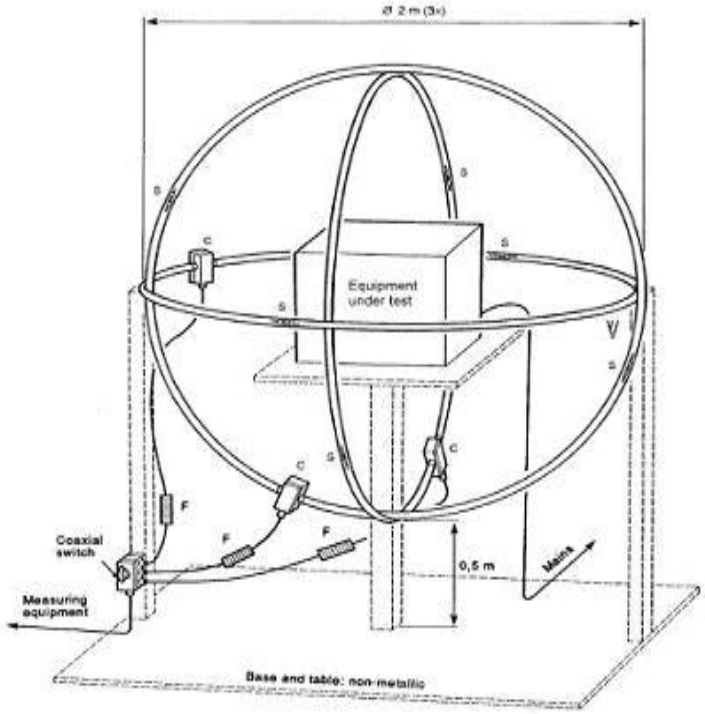
Frequency (MHz)	☒ 2m	☐ 3m	☐ 4m
	dB(μA)	dB(μA)	dB(μA)
0.009~0.07	88	81	75
0.07~0.15	88 - 58 *	81 - 51 *	75 - 45 *
0.15~3.0	58 - 22 *	51 - 15 *	45 - 9 *
3.0~30.0	22	15 - 16 *	9 - 12 *

Frequency (MHz)	10m	3m
	dBuV/m	dBuV/m
30~230	30	40
230~300	37	47

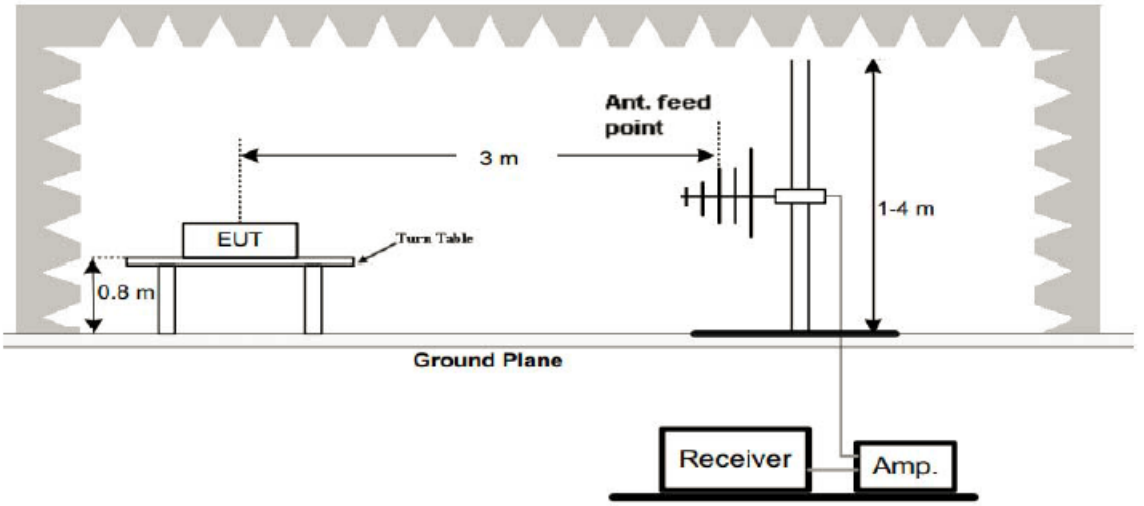
Note:
1. The limit for radiated test was performed according to as following:CISPR 15.
2. The tighter limit applies at the band edges.
2. Emission level (dBuV/m)=20log Emission level (uV/m).

3.2 TEST SETUP

1. Radiated Emission Test-Up Frequency Below 30MHz



2. Radiated Emission Test-Up Frequency Above 30MHz



3.3 TEST PROCEDURE

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.
6. For the actual test configuration, please refer to the related Item EUT Test Photos.

3.4 TEST RESULT

PASS

Below 30MHz Test Results:

Note: The peak value is too low against the limit, so the test data is not record.

Above 30MHz Test Results:

Temperature:	24℃	Relative Humidity:	48%
Test Mode:	Running	Pressure:	1010hPa
Polarization:	Horizontal		

No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	43.9664	37.57	-17.64	19.93	40.00	-20.07			peak
2	126.8006	37.35	-16.43	20.92	40.00	-19.08			peak
3	153.1515	40.66	-17.33	23.33	40.00	-16.67			peak
4	206.5957	49.95	-17.45	32.50	40.00	-7.50			peak
5	232.8741	51.06	-18.08	32.98	47.00	-14.02			peak
6*	279.3324	55.27	-15.25	40.02	47.00	-6.98			peak

Remark: Absolute Level = Reading Level + Factor, Margin = Absolute Level – Limit
Factor = Ant. Factor + Cable Loss – Pre-amplifier

Temperature:	24℃	Relative Humidity:	48%
Test Mode:	Running	Pressure:	1010hPa
Polarization:	Vertical		

No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	43.7644	48.35	-17.49	30.86	40.00	-9.14			peak
2	124.7732	40.24	-16.51	23.73	40.00	-16.27			peak
3	163.7274	48.81	-17.21	31.60	40.00	-8.40			peak
4	191.4790	50.34	-17.89	32.45	40.00	-7.55			peak
5*	205.6465	50.80	-17.39	33.41	40.00	-6.59			peak
6	281.9170	49.06	-15.21	33.85	47.00	-13.15			peak

Remark: Absolute Level = Reading Level + Factor, Margin = Absolute Level – Limit
Factor = Ant. Factor + Cable Loss – Pre-amplifier

4 EMC IMMUNITY TEST

4.1 STANDARD COMPLIANCE/SERVRITY LEVEL/CRITERIA

Tests Standard No.	TEST SPECIFICATION	Test Mode Test Ports	Perform Criteria
ESD IEC/EN 61000-4-2	8kV air discharge 4kV contact discharge	Direct Mode	B
	4kV HCP discharge 4kV VCP discharge	Indirect Mode	B
RS IEC/EN 61000-4-3	80 MHz to 1000 MHz, 1000Hz, 80%, AM modulated	Enclosure	A

4.2 GENERAL PERFORMANCE CRITERIA

According to EN 61547 standard, the general performance criteria as following:

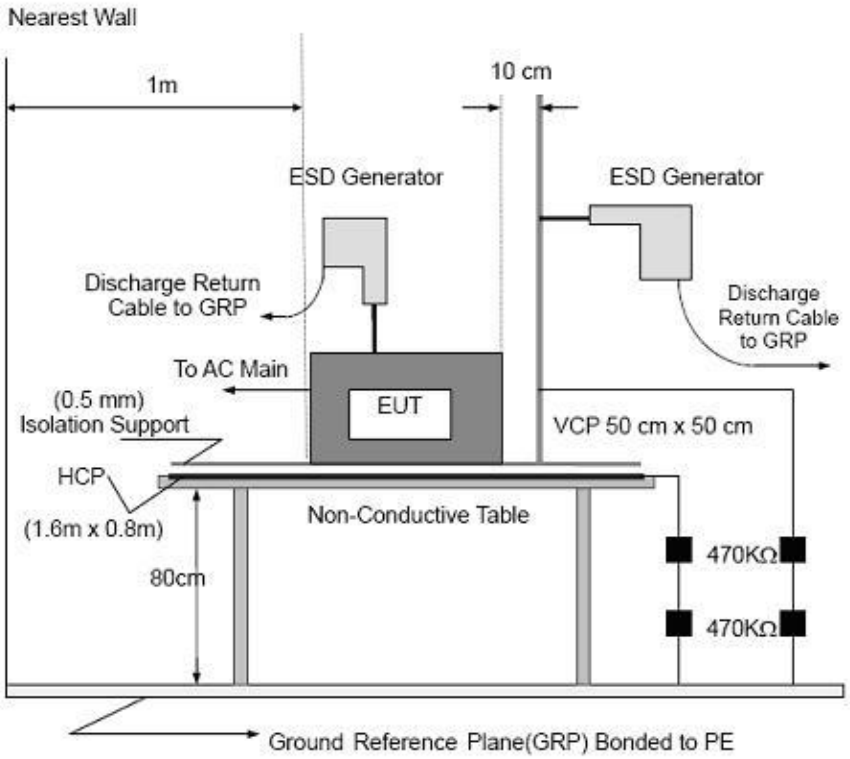
Criterion A	During the test, no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.
Criterion B	During the test, the luminous intensity may change to any value. After the test, the luminous intensity shall be restored to its initial value within 1 min. Regulating controls need not function during the test, but after the test, the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.
Criterion C	During and after the test, any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal, if necessary by temporary interruption of the mains supply and/or operating the regulating control. Additional requirement for lighting equipment incorporating a starting device: After the test, the lighting equipment is switched off. After half an hour, it is switched on again. The lighting equipment shall start and operate as intended.

5 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

5.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Required Performance:	B
Discharge Voltage:	Air Discharge：2kV/4kV/8kV (Direct) Contact Discharge：2kV/4kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: min. 20 times at each test point Contact Discharge: min. 200 times in total
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

5.2 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC /EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of0.8-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC/EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1 meter thickness. The GRP was consisted of a sheet of aluminum that is at least 0.25mm thick, and extended at least 0.5 meters from the EUT on all sides.

5.3 TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manners:

1. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.
   The time interval between two successive single discharges was at least 1 second.
   The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the EUT.
   Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
   Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
   Vertical Coupling Plane (VCP):
   The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.
   The four faces of the EUT will be performed with electrostatic discharge.
   Horizontal Coupling Plane (HCP):
   The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.
   The four faces of the EUT will be performed with electrostatic discharge.
2. Air discharges at insulation surfaces of the EUT.
   It was at least ten single discharges with positive and negative at the same selected point.

5.4 TEST RESULT

Temperature:	22℃	Relative Humidity:	48%
Test Mode:	Running	Pressure:	1010hPa

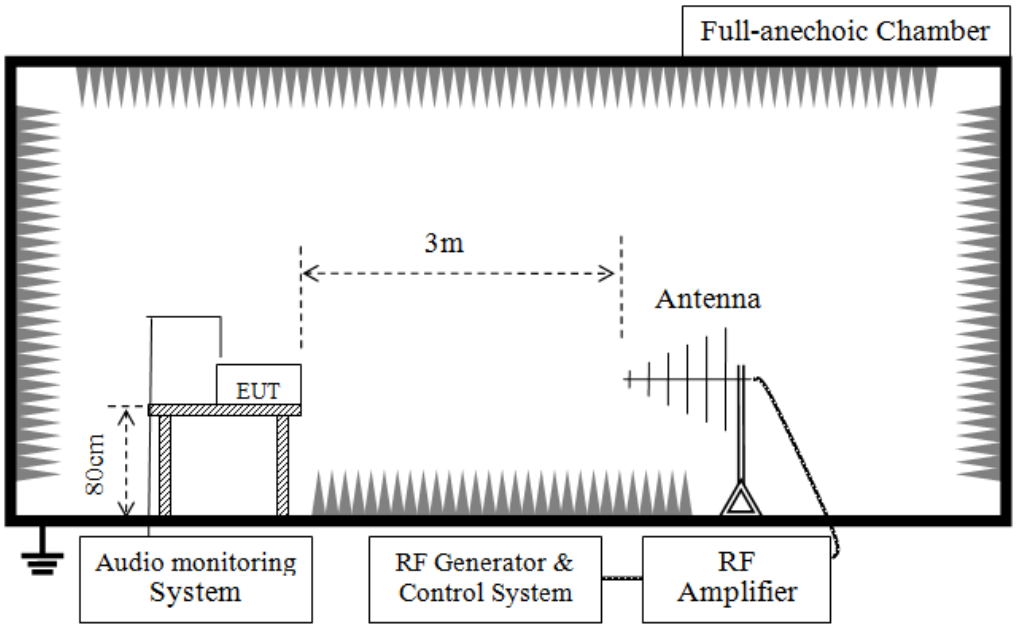
Mode	Air Discharge								Contact Discharge								Perform Criteria	Result
Test level (kV)	4		8		10		15		2		4		6		8			
Test Location	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-		
HCP									A	A	A	A					B	PASS
VCP									A	A	A	A						PASS
Slots	A	A	A	A														PASS
Surface	A	A	A	A														PASS

6 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)

6.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-3
Required Performance:	A
Frequency Range:	80 MHz ~ 1000 MHz
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5 m
Dwell Time:	1.5x 10^{-3} decade/s

6.2 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

6.3 TEST PROCEDURE

The EUT and support equipment, which are placed on a table that is 0.8 meter above ground and the testing was performed in a fully-anechoic chamber.
The testing distance from antenna to the EUT was 3 meters.
The other condition need as following manners:

1. The frequency range is swept from 80 MHz to 1000 MHz with the signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
2. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
3. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

6.4 TEST RESULT

Temperature:	22℃	Relative Humidity:	48%
Test Mode:	Running	Pressure:	1010hPa

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Perform Criteria	Result
80~1000	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	PASS
			Rear		
			Left		
			Right		

Note: "A" stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.
1) N/A - denotes test is not applicable in this test report.
2) Criteria A: There was no change operated with initial operating during the test.
3) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
4) Criteria C: The system shut down during the test.

7 PHOTO OF EUT

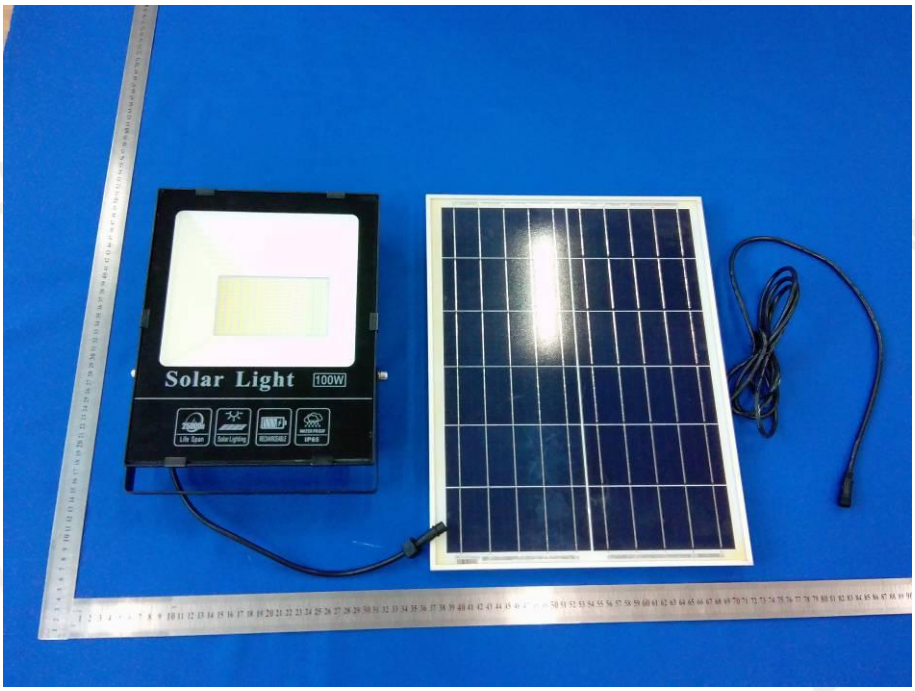
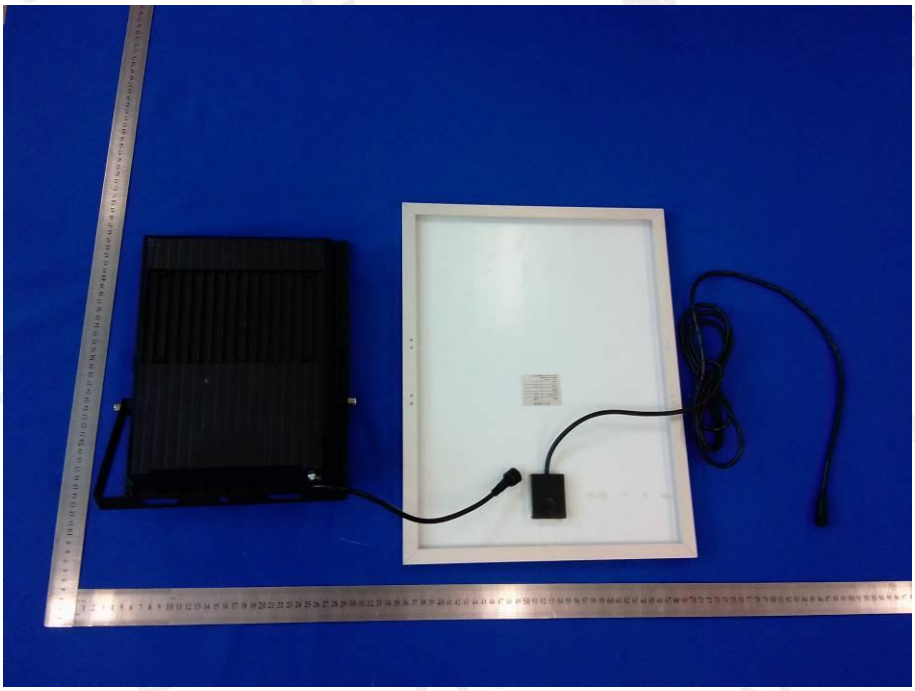


PHOTO 01



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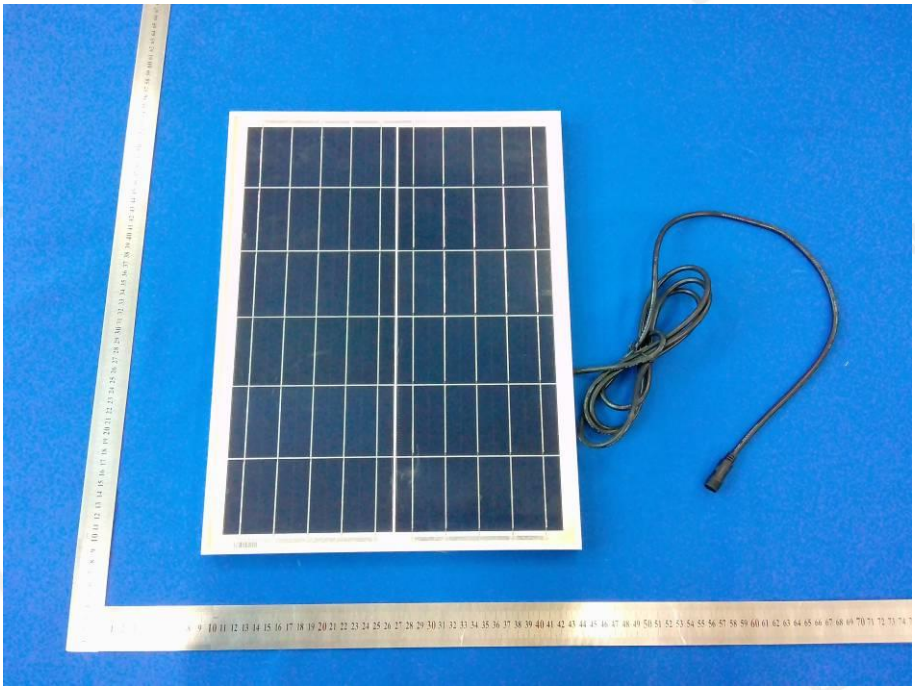

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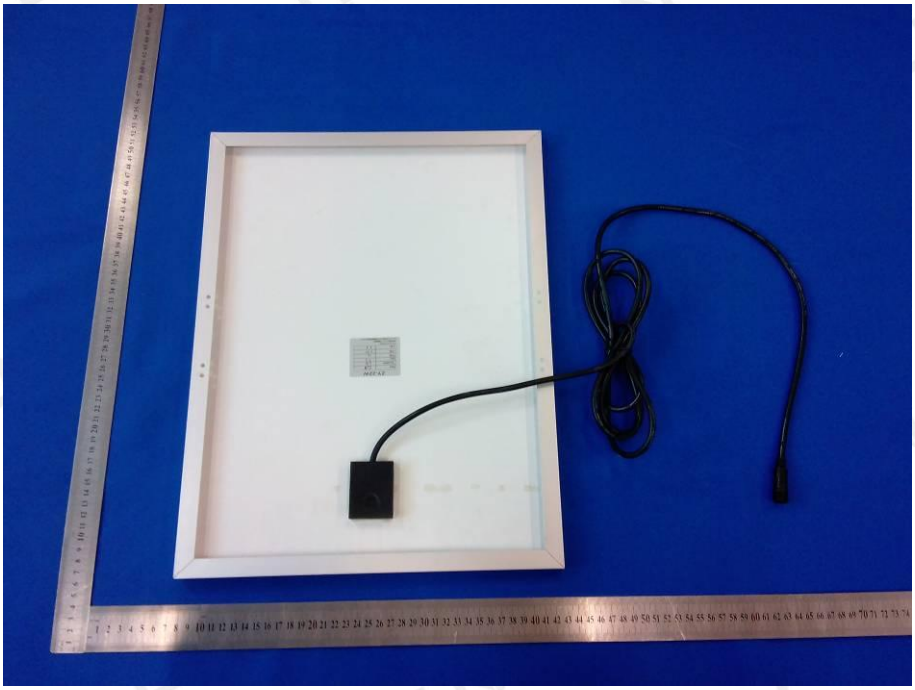


PHOTO 04

PHOTO 05

PHOTO 06

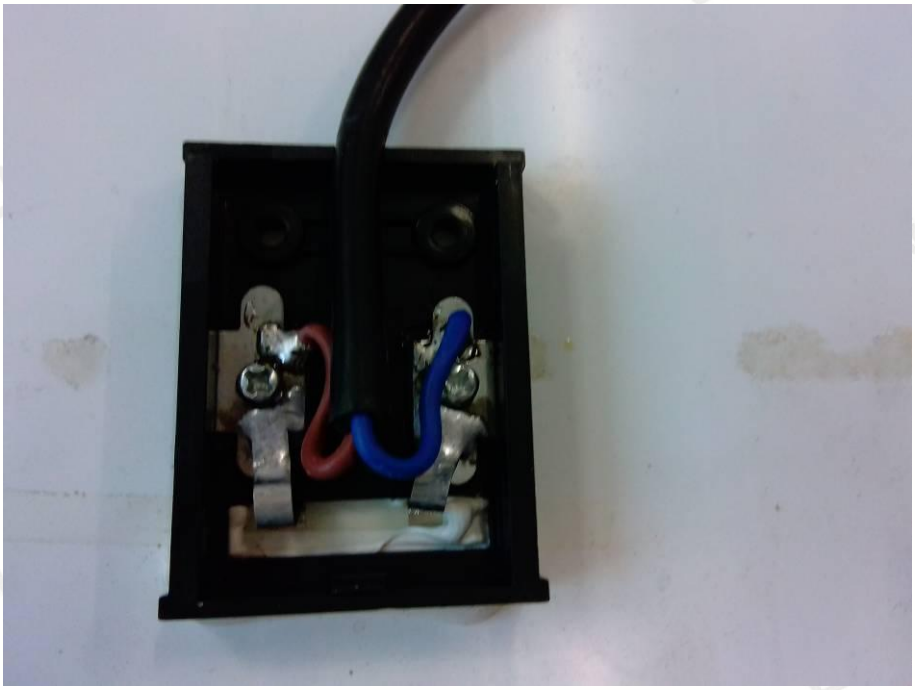


PHOTO 07

PHOTO 08

PHOTO 09

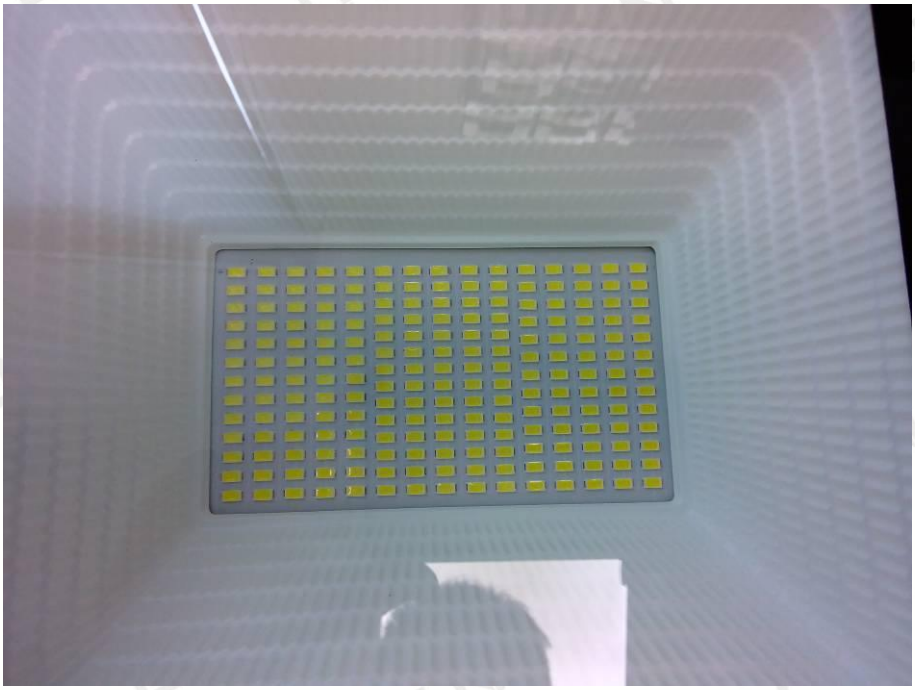
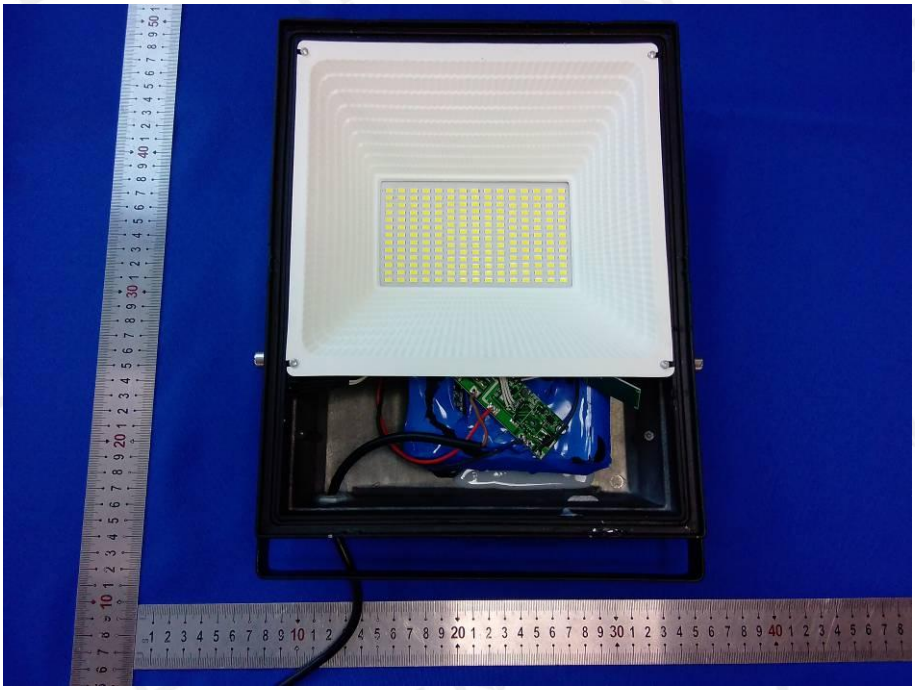


PHOTO 10

PHOTO 11



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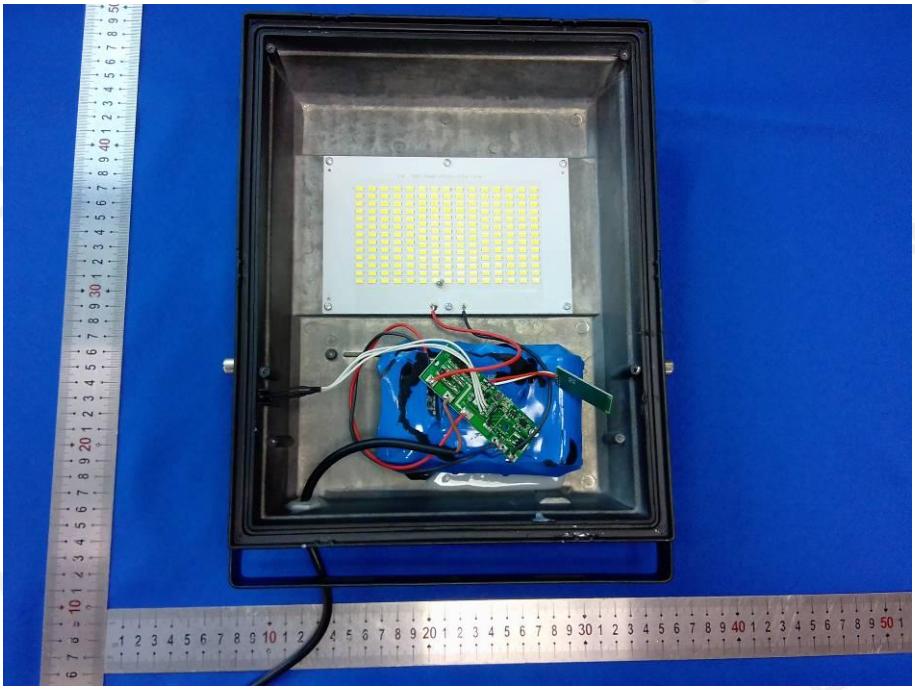

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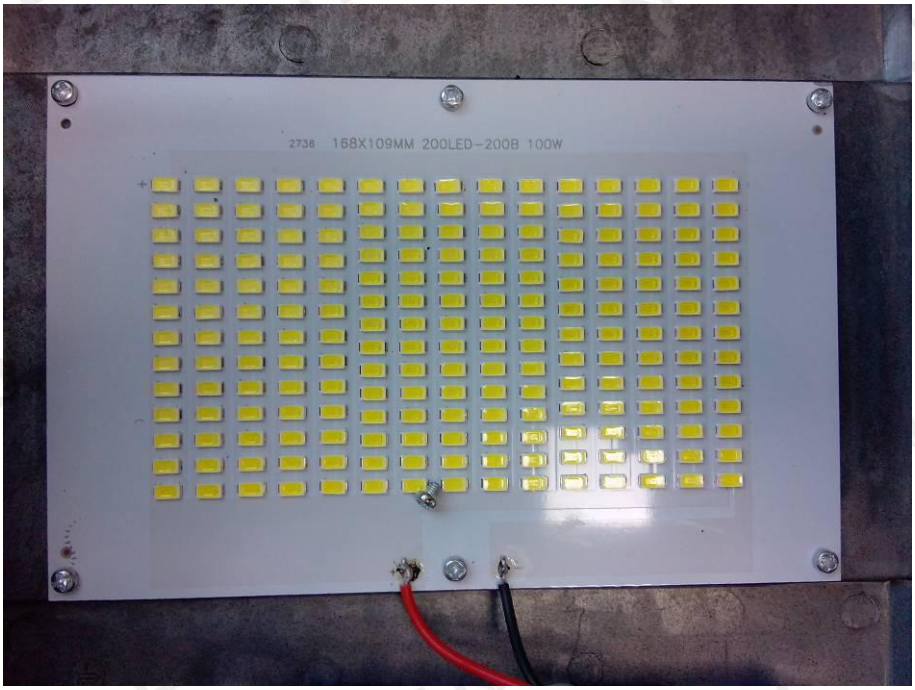

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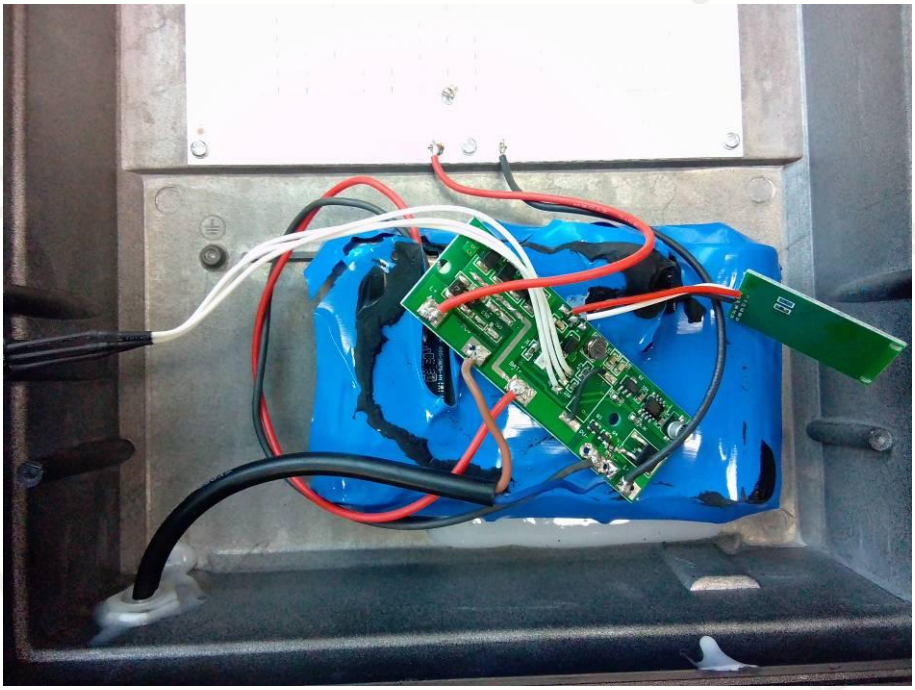

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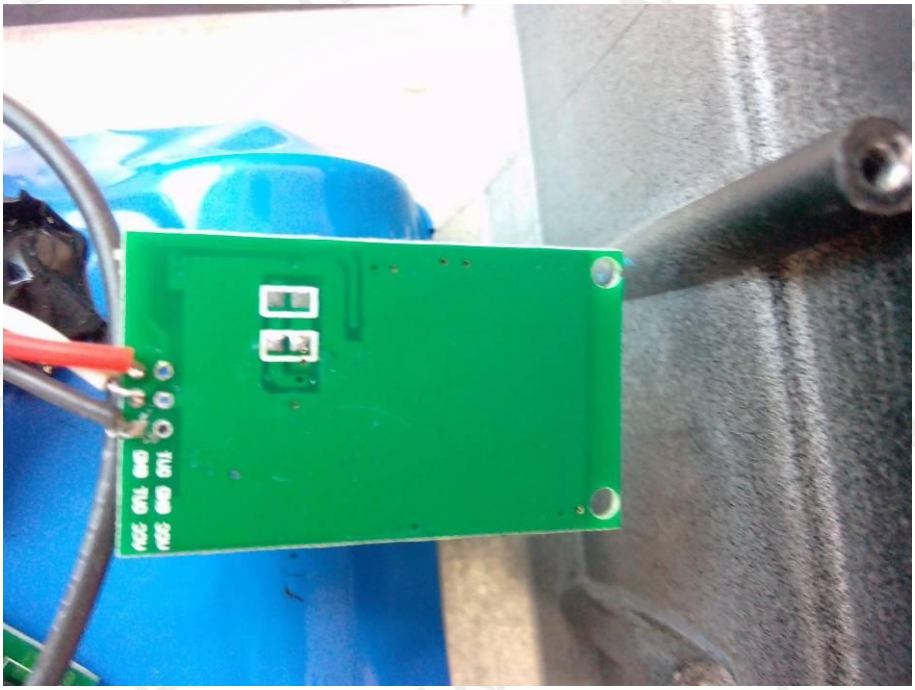

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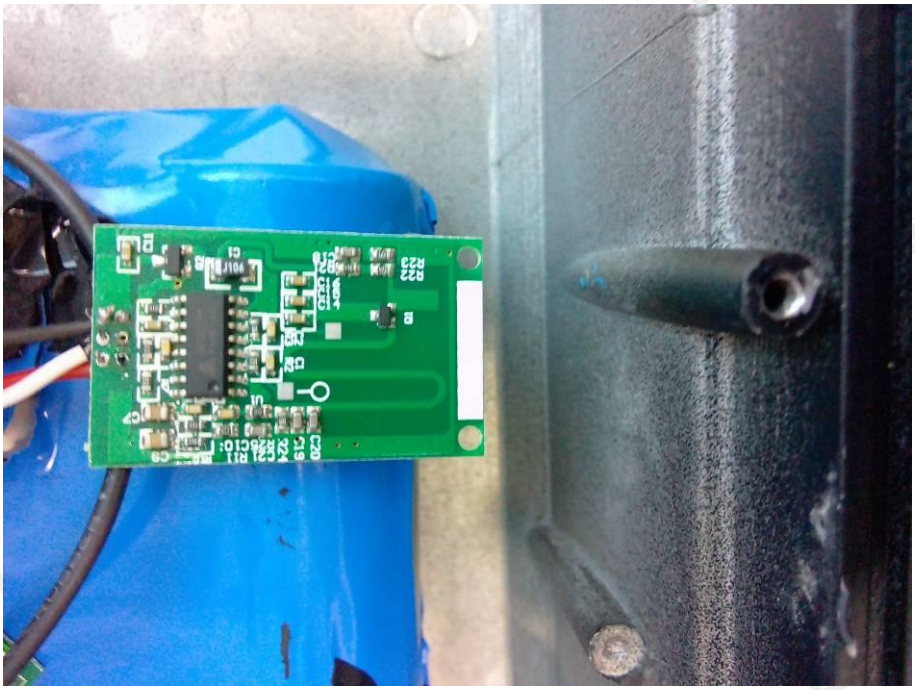
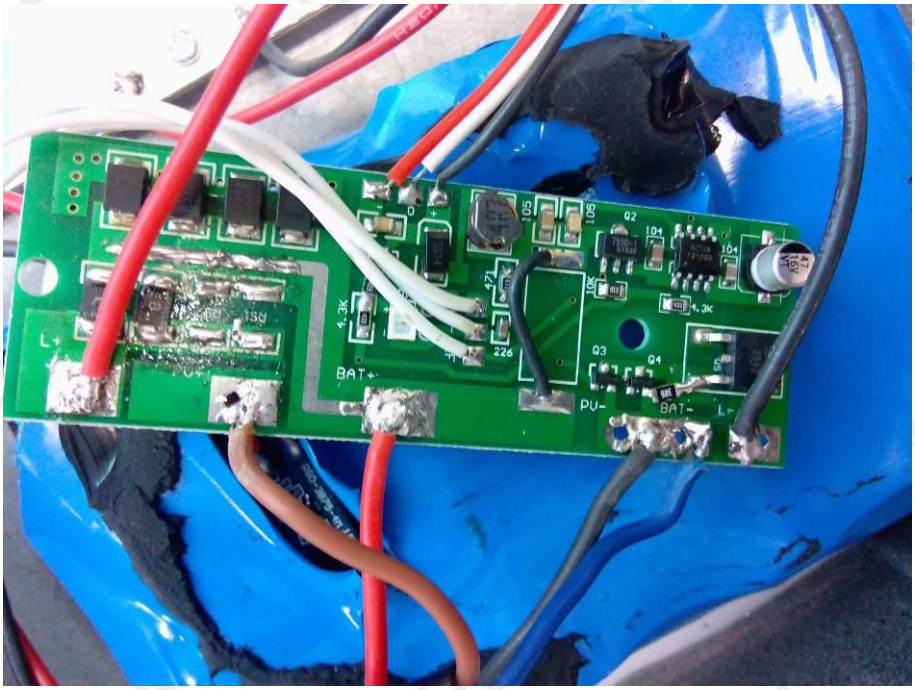


PHOTO 17



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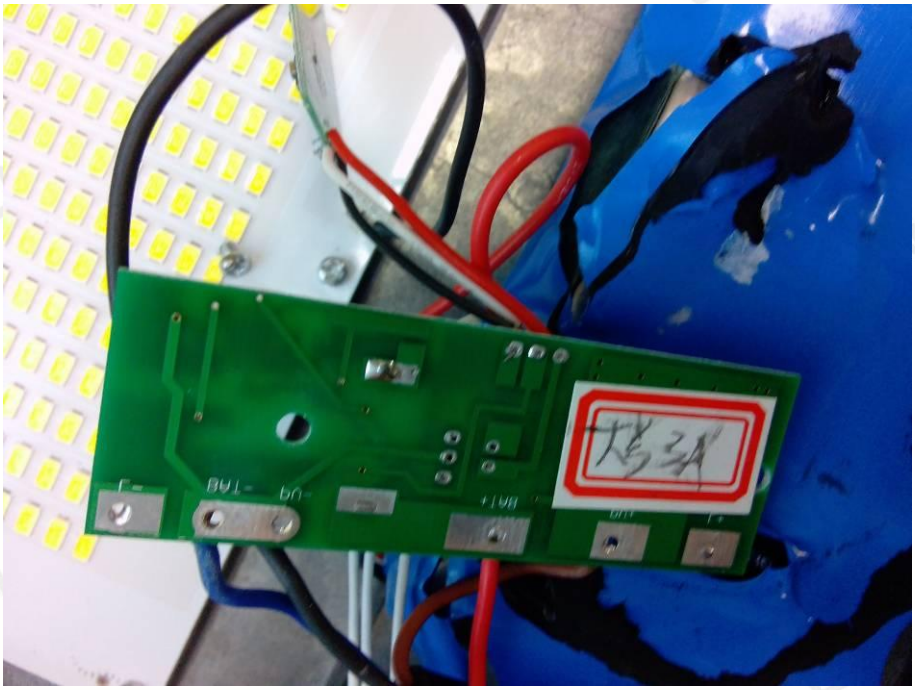

PHOTO 19

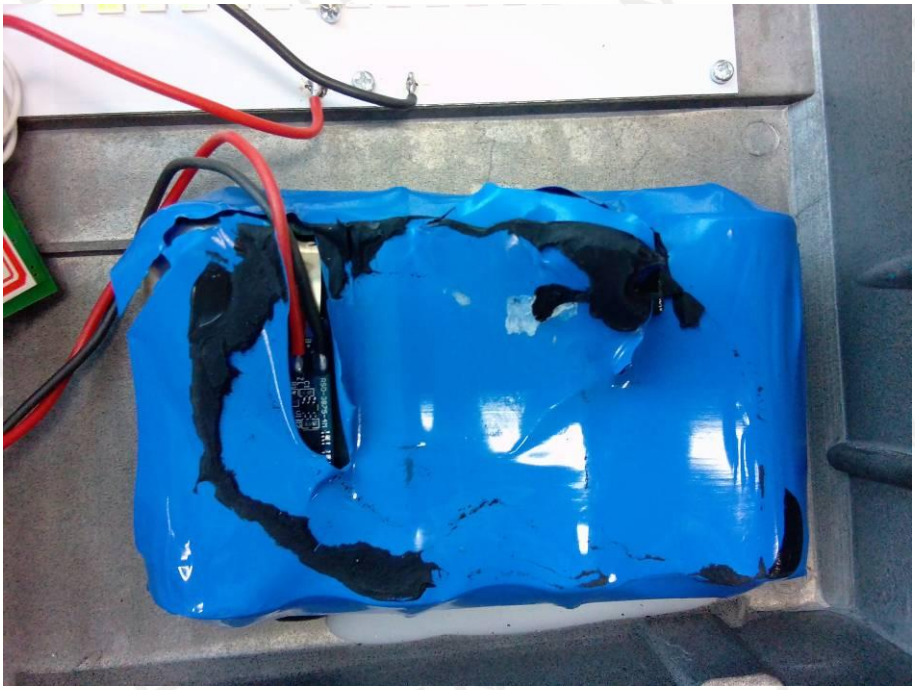

PHOTO 20

PHOTO 21

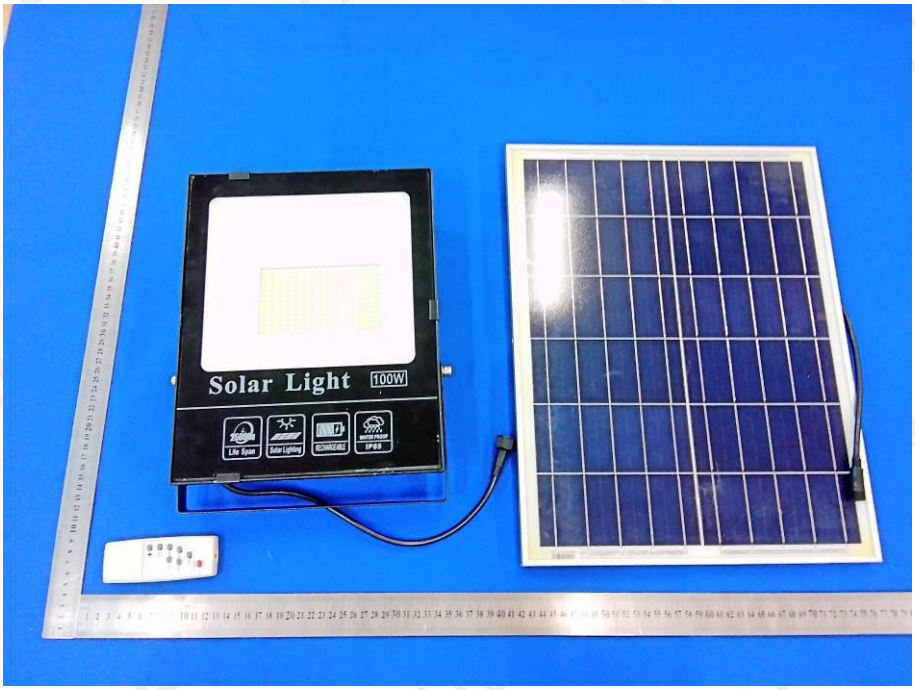

PHOTO 22

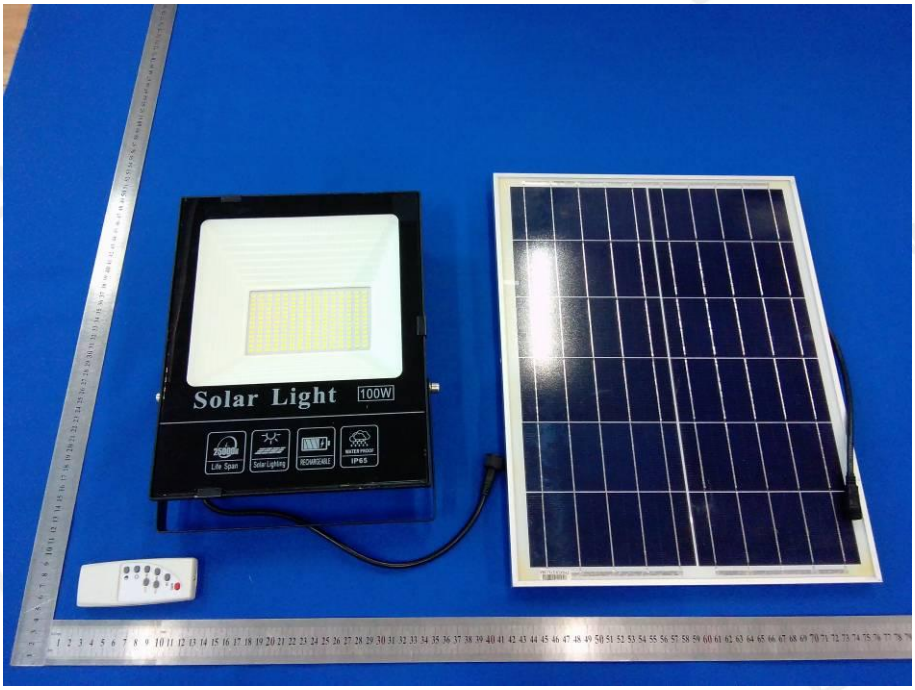

PHOTO 23

PHOTO 24

PHOTO 25

8 PHOTO OF TEST

PHOTO 01

PHOTO 02

End of Report