

FCC Test Report

Client Name : Foshan Kaichengde Lighting CO.,LTD
Address : CN, 528225, Guangdong, Foshan, Shishan Town,
Nanhai District, No.1, Workshop NO.16, Xingye West
Road, Foshan, Guangdong, China
Product Name : LED SOLAR FLOOD LIGHT
Date : Feb. 23, 2022

Shenzhen Anbotech Compliance Laboratory Limited



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TEST REPORT

Applicant : Foshan Kaichengde Lighting CO.,LTD
Manufacturer : Foshan Kaichengde Lighting CO.,LTD
Product Name : LED SOLAR FLOOD LIGHT
Model No. : TK-E500W, TK-E30W, TK-E50W, TK-E100W, TK-E200W, TK-E300W,
TK-E400W
Trade Mark : N.A.
Rating(s) : Input: DC 3.2V, 50000mAh Battery inside
Test Standard(s) : FCC Rules and Regulations Part 15 Subpart B
Test Method(s) : ANSI C63.4-2014

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited Is assumed full responsibility for the accuracy and completeness of these measurements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited

Date of Receipt

Dec. 21, 2021

Date of Test

Dec. 21~27, 2021

Prepared By

Ella Liang

(Ella Liang)

Approved & Authorized Signer

Kingkong Jin

(Kingkong Jin)

1. General Information

1.1. Client Information

Applicant	:	Foshan Kaichengde Lighting CO.,LTD
Address	:	CN, 528225, Guangdong, Foshan, Shishan Town, Nanhai District, No.1, Workshop NO.16, Xingye West Road, Foshan, Guangdong, China
Manufacturer	:	Foshan Kaichengde Lighting CO.,LTD
Address	:	CN, 528225, Guangdong, Foshan, Shishan Town, Nanhai District, No.1, Workshop NO.16, Xingye West Road, Foshan, Guangdong, China
Factory	:	Foshan Kaichengde Lighting CO.,LTD
Address	:	CN, 528225, Guangdong, Foshan, Shishan Town, Nanhai District, No.1, Workshop NO.16, Xingye West Road, Foshan, Guangdong, China

1.2. Description of Device (EUT)

Product Name	:	LED SOLAR FLOOD LIGHT
Model No.	:	TK-E500W, TK-E30W, TK-E50W, TK-E100W, TK-E200W, TK-E300W, TK-E400W (Note: All samples are the same except the model number, Lamp body power, Lamp body size, battery capacity, solar panel power and solar panel size, so we prepare "TK-E500W" for test only.)
Trade Mark	:	N.A.
Test Power Supply	:	DC 3.2V Battery inside
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Product Description	:	Adapter: N/A
Remark: (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		

1.3. Auxiliary Equipment Used During Test

N/A

1.4. Description of Test Mode

Pretest Mode	Description
Mode 1	Lighting+remote control

For Mode 1 Block Diagram of Test Setup

EUT

remote control

1.5. Test Summary

Test Items	Standard Section	Test Mode	Status
Power Line Conducted Emission Test (150KHz To 30MHz)	Part 15.107	Mode 1	N
Radiated Emission Test (30MHz To 960MHz)	Part 15.109	Mode 1	P
Radiated Emission Test (above 960MHz)	Part 15.109	Mode 1	N
P) Indicates "PASS". N) Indicates "Not applicable".			

1.6. Test Equipment List

Conducted Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Oct. 22, 2021	1 Year
2.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040D T001	Jul 05, 2021	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 22, 2021	1 Year
4.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Oct. 22, 2021	1 Year
5.	Software Name EZ-EMC	Ferrari Technology	ANB-03A	N/A	N/A	N/A

Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 22, 2021	1 Year
2.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Oct. 22, 2021	2 Year
3.	Pre-amplifier	SONOMA	310N	186860	Oct. 22, 2021	1 Year
4.	Software Name EZ-EMC	Ferrari Technology	ANB-03A	N/A	N/A	N/A
5.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	Oct. 22, 2021	1 Year
6.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Oct. 22, 2021	2 Year

1.7. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 184111.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518128

1.8. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
		Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB

2. Power Line Conducted Emission Test

2.1. Test Standard and Limit

Test Standard	FCC Part 15 Subpart B
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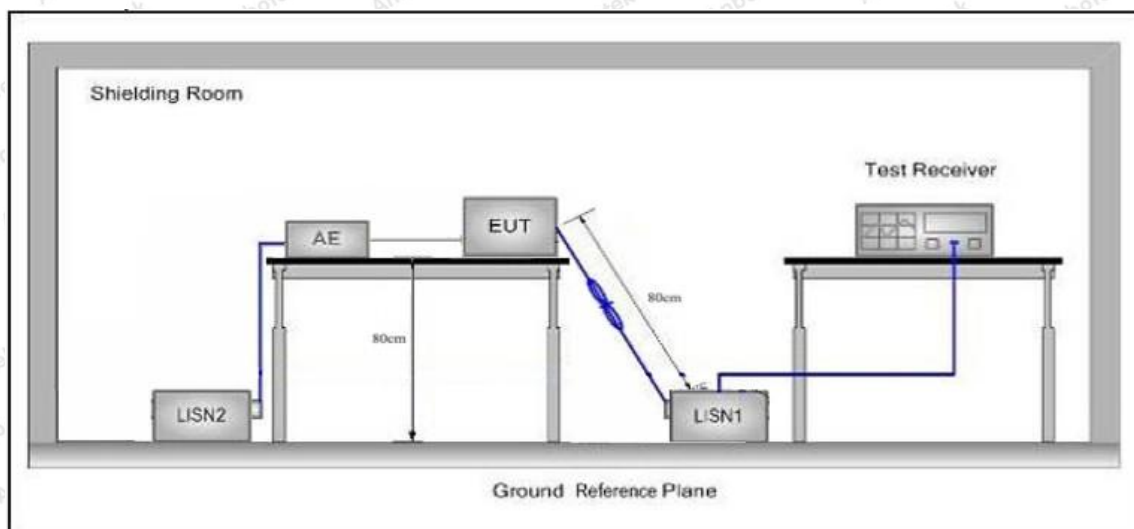
Power Line Conducted Emission Measurement Limits (FCC Part 15 Class B)

Test Limit	Frequency (MHz)	At mains terminals (dB μ V)	
		Quasi-peak Level	Average Level
	0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
	0.50 ~ 5.00	56	46
	5.00 ~ 30.00	60	50

Remark: (1) The lower limit shall apply at the transition frequencies.

(2) * Decreasing linearly with logarithm of frequency.

2.2. Test Setup



2.3. EUT Configuration on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

2.4. Operating Condition of EUT

2.4.1. Setup the EUT as shown in Section 2.2.

2.4.2. Turn on the power of all equipments.

2.4.3. Let the EUT work in test mode and measure it.

2.5. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2014 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

All the test results are listed in Section 2.6.

2.6. Test Results

Not applicable for equipment operated with DC power supply.

3. Radiated Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part 15 Subpart B
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Radiated Emission Test Limit (Subpart B Class B)

Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	Above 960MHz	500	54.0	Average	3
		-	74.0	Peak	3

Remark:

(1)The lower limit shall apply at the transition frequency.

(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

3.2. Test Setup

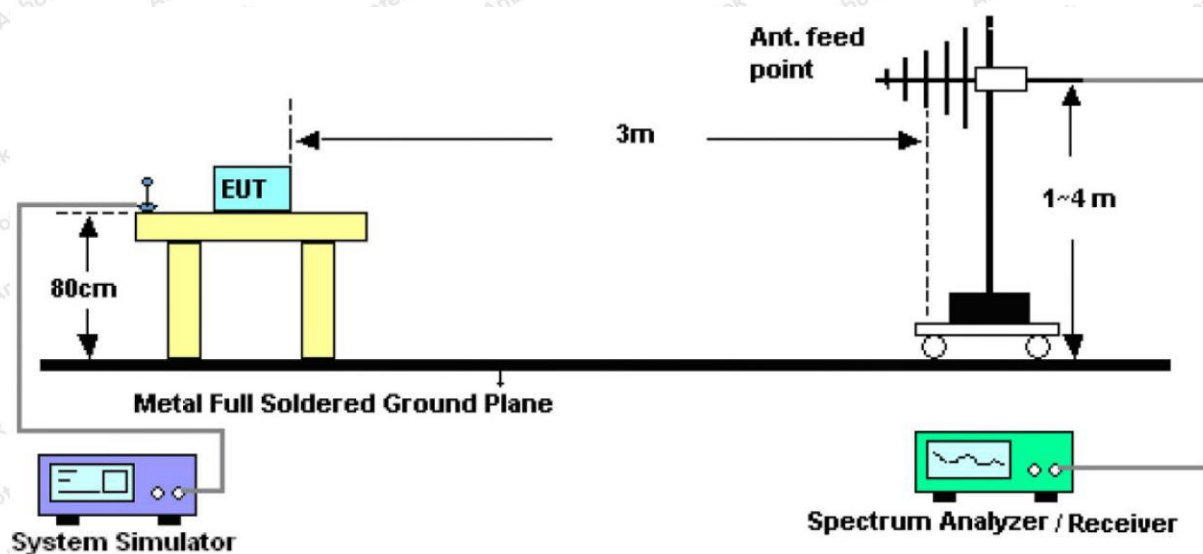


Figure 1. 30MHz to 1GHz

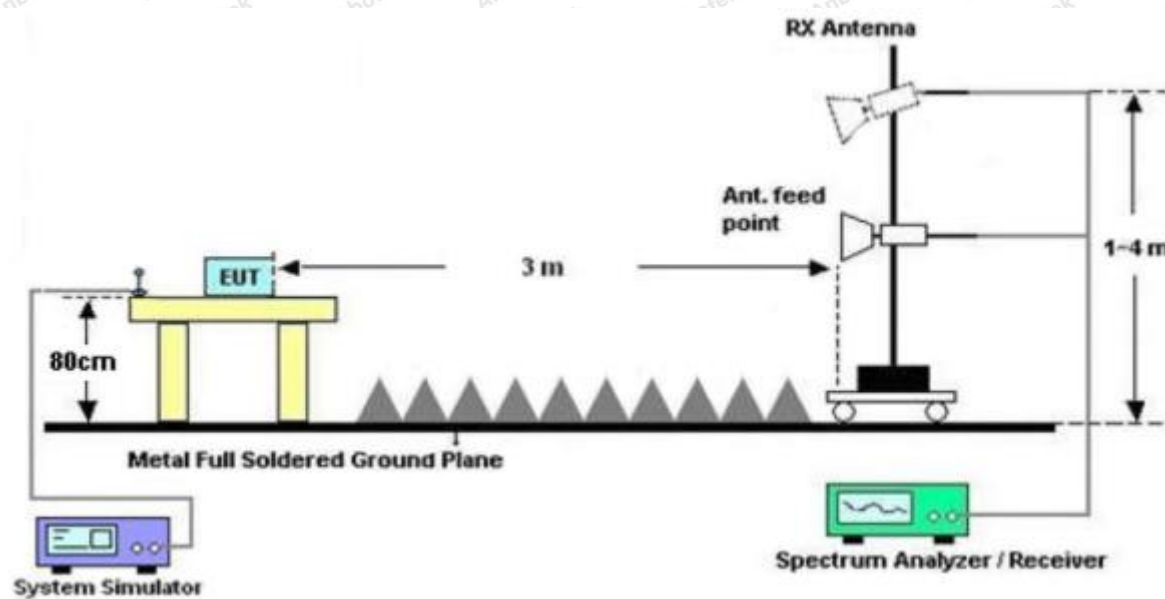


Figure 2. Above 1 GHz

3.3. EUT Configuration on Measurement

The following equipments are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.4. Operating Condition of EUT

3.4.1. Setup the EUT as shown in Section 3.2.

3.4.2. Turn on the power of all equipments.

3.4.3. Let the EUT work in test mode and measure it.

3.5. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (Trilog Broadband Antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

The bandwidth of the EMI test receiver (ESCI) is set at 120kHz.

The frequency range from 30MHz to 6000MHz is checked.

The test results are listed in Section 3.6.

3.6. Test Results

PASS

The test curves are shown in the following pages.

Only the worst case data was showed in the report, please to see the following pages.



Test item: Radiation Test

Polarization:

Horizontal

Standard: (RE)FCC Part 15 Subpart B

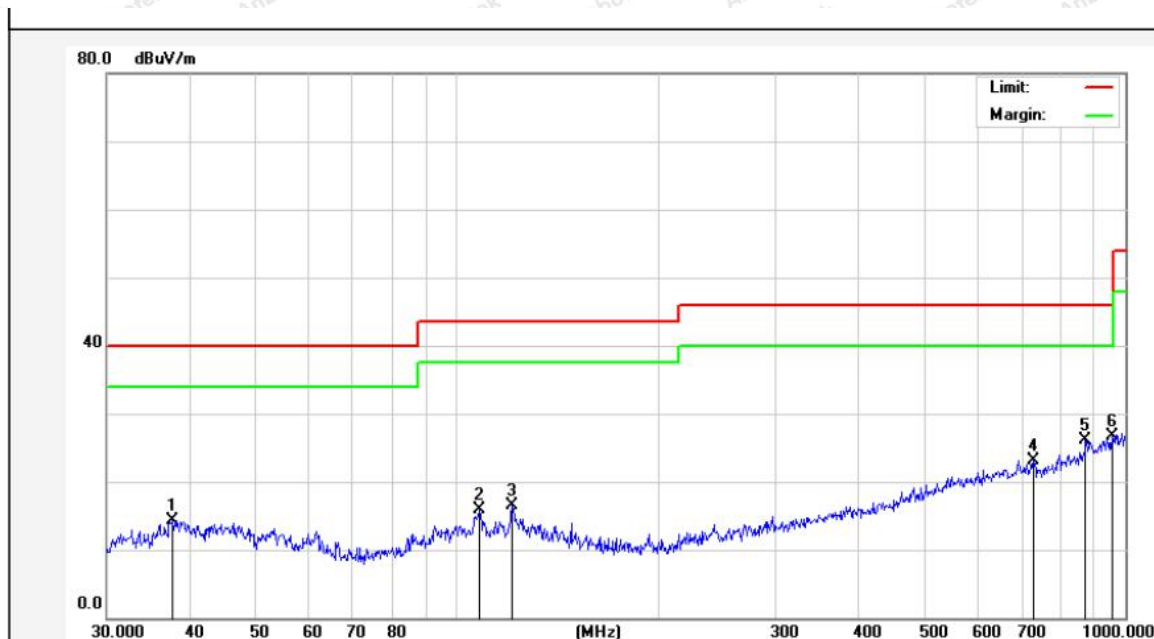
Power Source:

DC 3.2V Battery inside

Test Mode: Mode 1

Temp.(°C)/Hum.(%RH):

23.4°C/50%RH

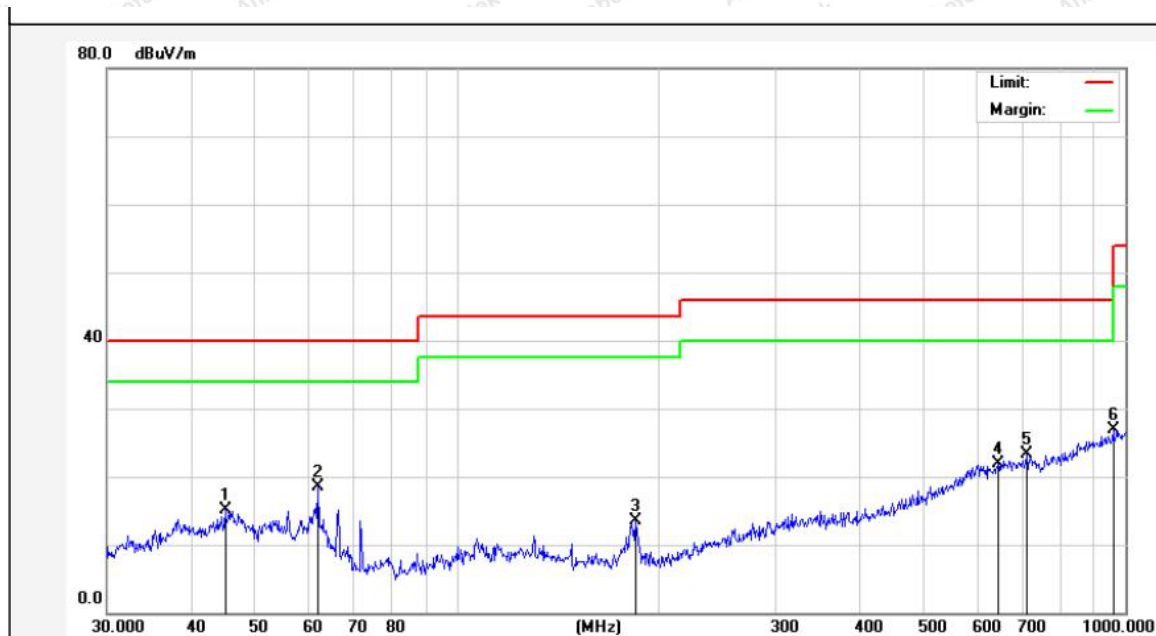


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	37.6798	31.53	-17.16	14.37	40.00	-25.63	QP			
2	108.2667	38.74	-22.86	15.88	43.50	-27.62	QP			
3	121.1230	40.24	-23.79	16.45	43.50	-27.05	QP			
4	729.3582	32.71	-9.52	23.19	46.00	-22.81	QP			
5	872.1832	32.96	-6.93	26.03	46.00	-19.97	QP			
6	955.4380	32.32	-5.55	26.77	46.00	-19.23	QP			

Note: Result=Reading+Factor Over Limit=Result-Limit



Test item: Radiation Test Polarization: Vertical
Standard: (RE)FCC Part 15 Subpart B Power Source: DC 3.2V Battery inside
Test Mode: Mode 1 Temp.(°C)/Hum.(%RH): 23.4°C/50%RH

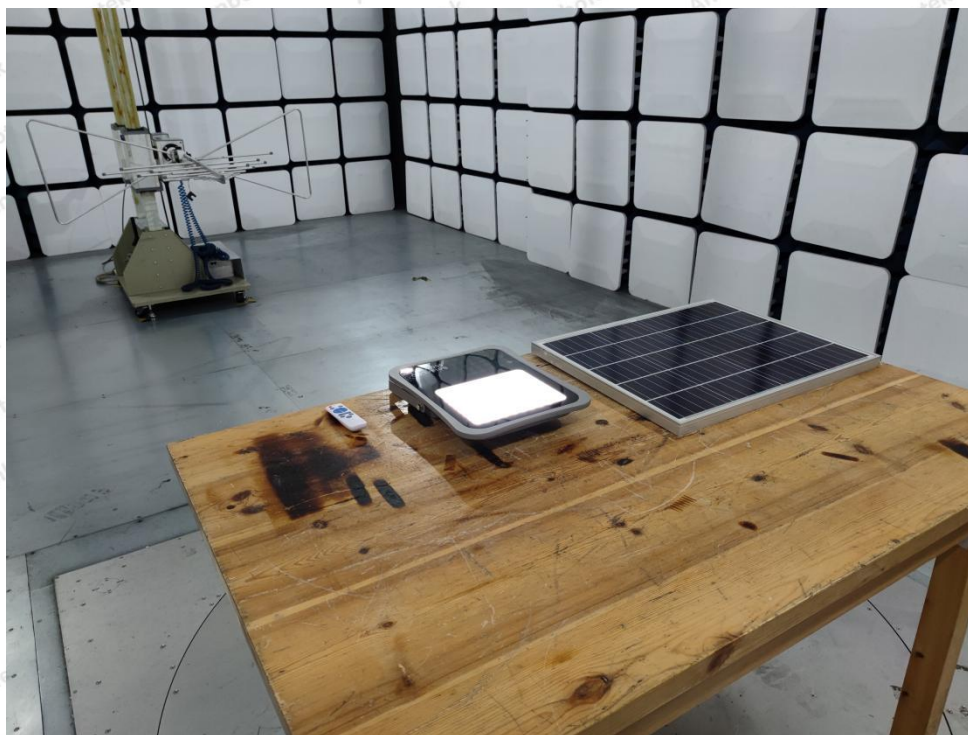


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	45.0583	30.15	-15.06	15.09	40.00	-24.91	QP			
2	61.9951	36.70	-18.22	18.48	40.00	-21.52	QP			
3	185.1379	33.89	-20.35	13.54	43.50	-29.96	QP			
4	645.1195	32.55	-10.65	21.90	46.00	-24.10	QP			
5	711.6734	33.04	-9.76	23.28	46.00	-22.72	QP			
6	958.7943	32.48	-5.49	26.99	46.00	-19.01	QP			

Note: Result=Reading+Factor Over Limit=Result-Limit

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Radiation Emission Test

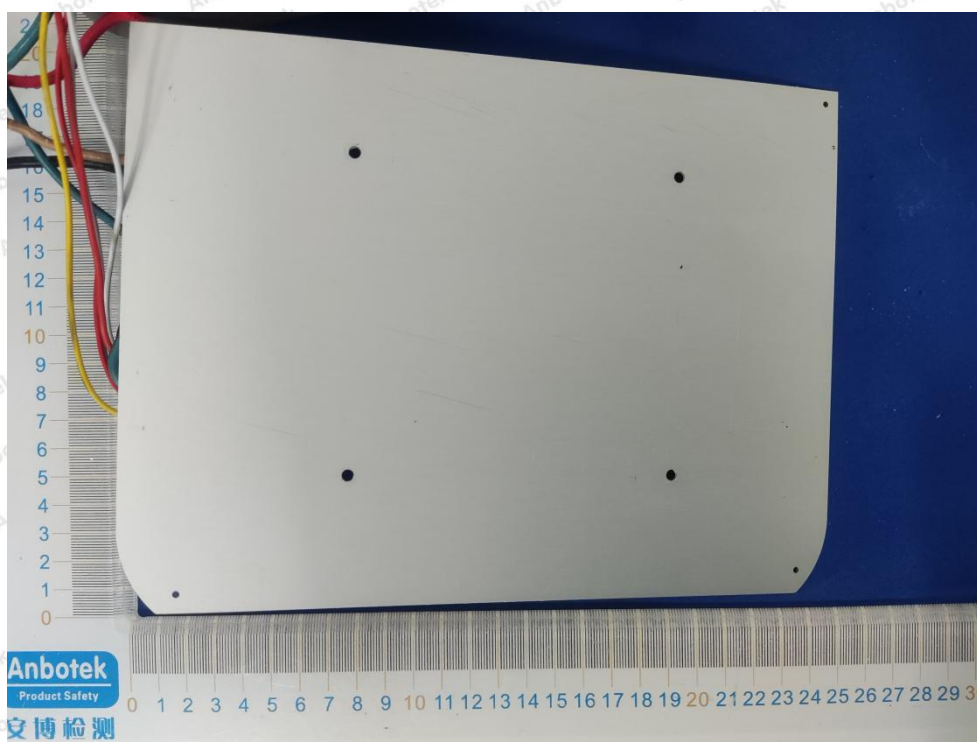


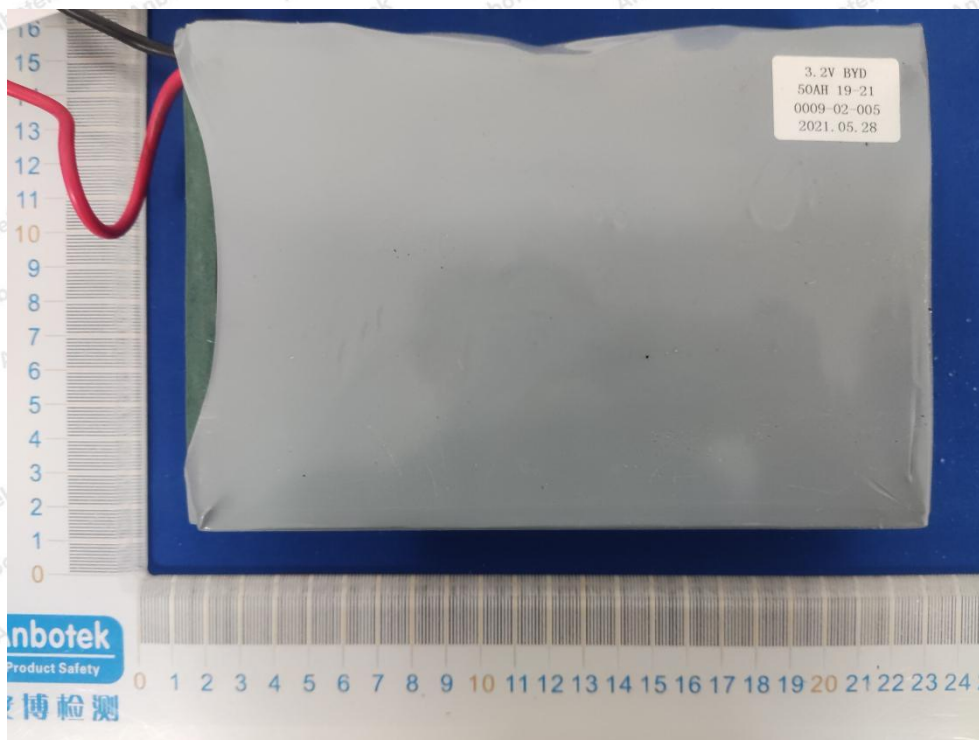
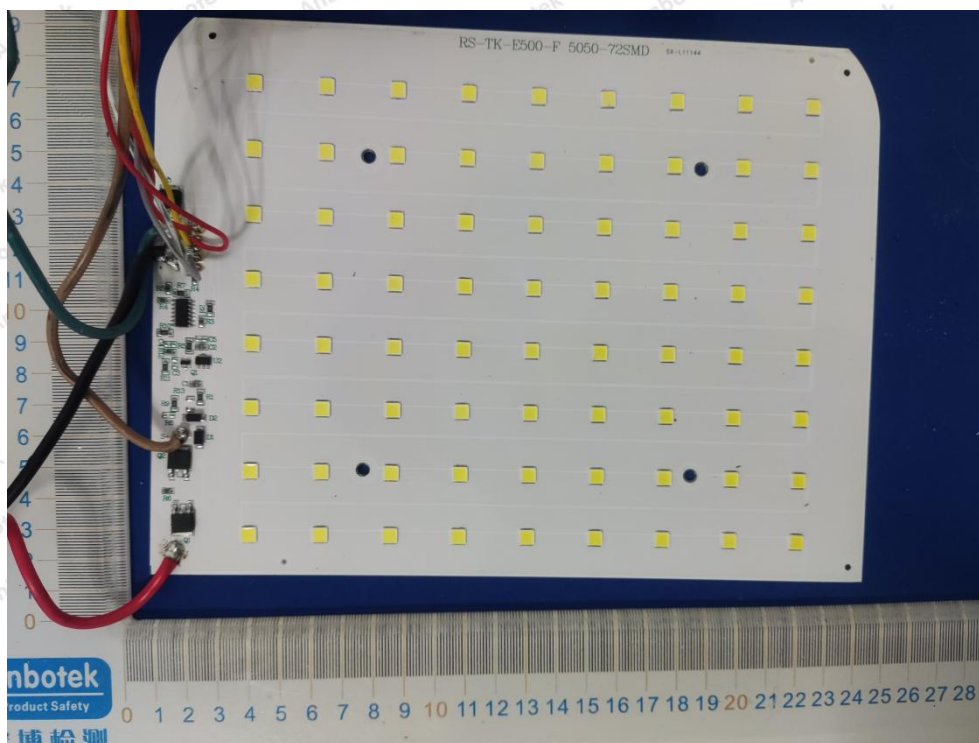
APPENDIX II -- EXTERNAL PHOTOGRAPH







APPENDIX III -- INTERNAL PHOTOGRAPH



----- End of Report -----

Shenzhen Anbotek Compliance Laboratory Limited

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