EMC Test Report

Applicant	:	**FOSHAN KAICHENG LIGHTING CO.,LTD**
Address	:	**No.16 Xingye West Road, Shishan Town, Nanhai District, Foshan City, Guangdong Province, China.**
Product Name	:	**Solar Flood Light**
Report Date	:	**Jan. 06, 2025**

Shenzhen Anbotek Compliance Laboratory Limited

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TEST REPORT

Applicant	:	FOSHAN KAICHENG LIGHTING CO.,LTD
Manufacturer	:	FOSHAN KAICHENG LIGHTING CO.,LTD
Product Name	:	Solar Flood Light
Model No.	:	TK-N 300W, TK-N 30W, TK-N 50W, TK-N 80W, TK-N 100W, TK-N 120W, TK-N 150W, TK-N 200W, TK-N 250W, TK-N-A(PIR/CCT/RGBW), TK-N-B(PIR/CCT/RGBW), TK-N-C(PIR/CCT/RGBW), TK-N-D(PIR/CCT/RGBW)
Trade Mark	:	N/A
Rating(s)	:	DC3.2V
Test Standard(s)	:	**EN IEC 55015:2019+A11:2020** **EN IEC 61547:2023**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with above listed standard(s) requirements.
This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt: Nov. 28, 2024

Date of Test: Nov. 28, 2024 to Dec. 06, 2024

Prepared By: (Yee Huang)

Approved & Authorized Signer: (KingKong Jin)

1. General Information

1.1. Client Information

Applicant	:	FOSHAN KAICHENG LIGHTING CO.,LTD
Address	:	No.16 Xingye West Road, Shishan Town, Nanhai District, Foshan City, Guangdong Province, China.
Manufacturer	:	FOSHAN KAICHENG LIGHTING CO.,LTD
Address	:	No.16 Xingye West Road, Shishan Town, Nanhai District, Foshan City, Guangdong Province, China.
Factory	:	FOSHAN KAICHENG LIGHTING CO.,LTD
Address	:	No.16 Xingye West Road, Shishan Town, Nanhai District, Foshan City, Guangdong Province, China.

1.2. Description of Device (EUT)

Product Name	:	Solar Flood Light
Model No.	:	TK-N 300W, TK-N 30W, TK-N 50W, TK-N 80W, TK-N 100W, TK-N 120W, TK-N 150W, TK-N 200W, TK-N 250W, TK-N-A(PIR/CCT/RGBW), TK-N-B(PIR/CCT/RGBW), TK-N-C(PIR/CCT/RGBW), TK-N-D(PIR/CCT/RGBW)
Trade Mark	:	N/A
Test Power Supply	:	DC 3.2V
Test Sample No.	:	1-1-1
Adapter	:	N/A

Remark:
(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
(2) All samples are the same except the model number and power, so we prepare "TK-N 300W" for test only.

1.3. Auxiliary Equipment Used During Test

Title	Manufacturer	Model No.	Serial No.
/	/	/	/

1.4. Description of Test Modes

Pretest Modes	Descriptions
TM1	Lighting mode

For Mode 1 Block Diagram of Test Setup



1.5. Measurement Uncertainty

Parameter	Uncertainty
Radiated emissions (30MHz~1000MHz)	Horizontal: 3.96dB; Vertical: 4.60dB
This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

1.6. Test Summary

Test Items	Test Modes	Status
LLAS radiated disturbance (9kHz-30MHz)	Mode1	P
Radiated disturbance (30MHz-1GHz)	Mode1	P
Electrostatic discharges	Mode1	P
Radio-frequency electromagnetic fields	Mode1	P
Note: P: Pass N: N/A, not applicable		

1.7. Description of Test Facility

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

FCC-Registration No.:434132
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. 434132.

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.
Sogood Industrial Zone Laboratory & 1/F. of Building D, Sogood Science and Technology Park, Sanwei Community, Hangcheng Subdistrict, Bao'an District, Shenzhen, Guangdong, China.

1.8. EMS Performance Criteria

Performance Criteria

General

For the various immunity tests that apply, the performance of the following functions shall be assessed, as far as applicable or specified by the manufacturer:
– the luminous intensity of the luminaire or of the light source(s);
– the control function, for example on/off switching, light level setting, colour adjustment, wireless control.
functions assessed and the performance criteria for each individual test shall be noted in the test report.
The effects of electromagnetic disturbances on the life of the equipment under test are excluded from this document.

Categorization of performance criteria

The following three categories of performance criteria apply.
a) Performance 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.
b) Performance 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 (30 min for high pressure gas discharge lamps). 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.
For emergency lighting equipment designed to operate in high-risk task areas, after the test, the luminous intensity shall be restored to its initial value within 0,5 s.
c) Performance criterion C
During and after the test, any change of the luminous intensity is allowed and the light source(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.
The following additional requirement applies to lighting equipment incorporating a starting device: after the test, the lighting equipment is switched off for 30 min and back on again. The lighting equipment shall start and operate as intended.
The application of the different performance criteria for the various types of tests and for different lighting equipment are specified in Clause 6.

Objective assessment of luminous intensity performance

A change of luminous intensity shall be checked by either one of the following requirements:
• no change of luminous intensity by visual observation, or
• the luminous intensity of a lighting equipment by measurement.
When being measured, the luminous intensity of lighting equipment shall be measured by means of an illuminance (lux) meter which is positioned in an axis perpendicular to the main plane of the lighting equipment, in its centre and at a distance for proper operation of the lux meter. The luminous intensity shall be deemed to be unchanged if the measured intensities during and after the test do not deviate by more than 15 %. In stand-by mode the change of the luminous intensity shall be less than 5 % of the maximum luminous intensity (100 % light output).
Care shall be taken to ensure the ambient light level does not influence the measurement results.
Precautions to achieve reproducible results given in the relevant light source performance standards shall be observed.

1.9. Test Equipment List

LLAS radiated disturbance (9kHz-30MHz)						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due Date
1	EMI Test Receiver(CE1#)	Rohde & Schwarz	ESCI	100627	2024-01-17	2025-01-16
2	Triple-Loop Antenna(2M)	EVERFINE	LLA-2	905003	2024-10-30	2025-10-29
3	Software Name EZ-EMC	Farad Technology	ANB-03A	N/A	/	/

Radiated disturbance (30MHz-1GHz)						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due Date
1	Pre-amplifier	Schwarzbeck	BBV-9745	9745-075	2024-01-17	2025-01-16
2	Bilog Broadband Antenna	SCHWARZBECK	VULB 9163	01109	2022-10-16	2025-10-15
3	Software Name EZ-EMC	Farad Technology	EMEC-3A1	N/A	/	/
4	EMI Test Receiver(RE1#)	Rohde & Schwarz	ESPI3	100297	2024-02-21	2025-02-20

Electrostatic discharges						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due Date
1	ESD Simulators	emtest	ESD NX30.1	11936	2024-03-11	2025-03-10

Radio-frequency electromagnetic fields						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due Date
1	Signal Generator	Agilent	N5181A	MY50143107	2024-01-23	2025-01-22
2	Power Meter	Agilent	E4417A	MY45101384	2024-01-23	2025-01-22
3	Amplifier	Micotop	MPA-80-1000-600	MPA2110318	2024-01-17	2025-01-16
4	Amplifier	Micotop	MPA-1000-6000-100	MPA2110327	2024-01-17	2025-01-16
5	Log.-Per.-Antenna	Schwarzbeck	VULP 9118E	01012	/	/
6	Microwave Log.-Per. Antenna	Schwarzbeck	STLP 9149	00788	/	/
7	Power Sensor	KEYSIGHT	E9323A	US40410647	2024-01-23	2025-01-22
8	Power Sensor	KEYSIGHT	E9323A	MY53100007	2024-01-23	2025-01-22
9	Electric field Probe	Narda S.T.S /PMM	EP 601	811ZX10351	2024-01-19	2025-01-18
10	Software	EMtrace	EM 3	/	/	/

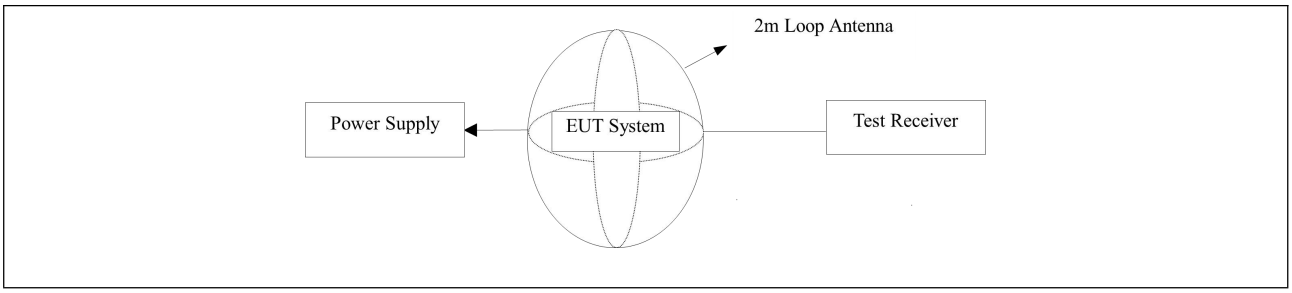
2. LLAS radiated disturbance (9kHz-30MHz)

Test Requirement:	Table 8	
Test Limit:	0.009MHz-0.07MHz	88dB(μA) quasi-peak
	0.07MHz-0.15MHz	88dB(μA)-58dB(μA) quasi-peak
	0.15MHz-3MHz	58dB(μA)-22dB(μA) quasi-peak
	3MHz-30MHz	22dB(μA) quasi-peak
	Detector:	Peak for pre-scan (200Hz resolution bandwidth) 0.009M to 0.15MHz Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz
Test Method:	EN IEC 55015:2019+A11:2020	
Procedure:	An initial pre-scan was performed in the 2m loop antenna using the spectrum analyser in peak detection mode. The EUT was measured for X(A), Y(B), Z(C) polarities.	

2.1. EUT Operation

Operating Environment:	
Test mode:	1: TM1: Lighting mode

2.2. Test Setup



2.3. Test Data

Temperature:	24.1 °C	Humidity:	59 %	Atmospheric Pressure:	101 kPa

TM1 / Axis: X



No.	Freq. (MHz)	Reading (dBuA)	Factor (dB)	Result (dBuA)	Limit (dBuA)	Over Limit (dB)	Detector	Remark
1	3.8380	4.99	0.03	5.02	22.00	-16.98	QP	
2	6.0380	4.96	0.06	5.02	22.00	-16.98	QP	
3	7.2580	4.94	0.07	5.01	22.00	-16.99	QP	
4	11.6020	5.01	0.01	5.02	22.00	-16.98	QP	
5	14.8536	4.96	0.02	4.98	22.00	-17.02	QP	
6	23.0457	7.87	0.02	7.89	22.00	-14.11	QP	

Temperature:	24.1 °C	Humidity:	59 %	Atmospheric Pressure:	101 kPa

TM1 / Axis: Y



No.	Freq. (MHz)	Reading (dBuA)	Factor (dB)	Result (dBuA)	Limit (dBuA)	Over Limit (dB)	Detector	Remark
1	3.0979	5.50	0.02	5.52	22.00	-16.48	QP	
2	7.2099	5.37	0.08	5.45	22.00	-16.55	QP	
3	11.6257	5.50	0.01	5.51	22.00	-16.49	QP	
4	13.9740	5.53	0.02	5.55	22.00	-16.45	QP	
5	16.5654	5.47	0.02	5.49	22.00	-16.51	QP	
6	29.2576	5.60	0.02	5.62	22.00	-16.38	QP	

Temperature:	24.1 °C	Humidity:	59 %	Atmospheric Pressure:	101 kPa

TM1 / Axis: Z



No.	Freq. (MHz)	Reading (dBuA)	Factor (dB)	Result (dBuA)	Limit (dBuA)	Over Limit (dB)	Detector	Remark
1	3.6499	6.45	0.03	6.48	22.00	-15.52	QP	
2	7.5380	6.36	0.07	6.43	22.00	-15.57	QP	
3	9.5579	6.46	0.02	6.48	22.00	-15.52	QP	
4	11.7140	6.48	0.01	6.49	22.00	-15.51	QP	
5	16.1140	6.47	0.02	6.49	22.00	-15.51	QP	
6	25.9375	6.46	0.02	6.48	22.00	-15.52	QP	

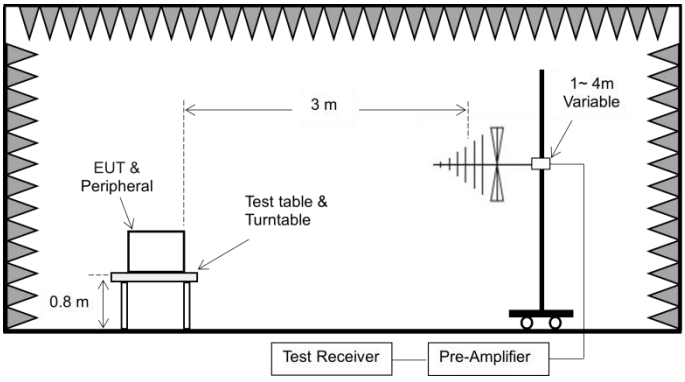
3. Radiated disturbance (30MHz-1GHz)

Test Requirement:	Table 10
Test Limit:	FREQUENCY (MHz) / dB(μV/m) At 10m / dB(μV/m) At 3m 30MHz-230MHz / 30 / 40 230MHz-1GHz / 37 / 47 Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz
Test Method:	EN IEC 55015:2019+A11:2020
Procedure:	An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

3.1. EUT Operation

Operating Environment:	
Test mode:	1: TM1: Lighting mode

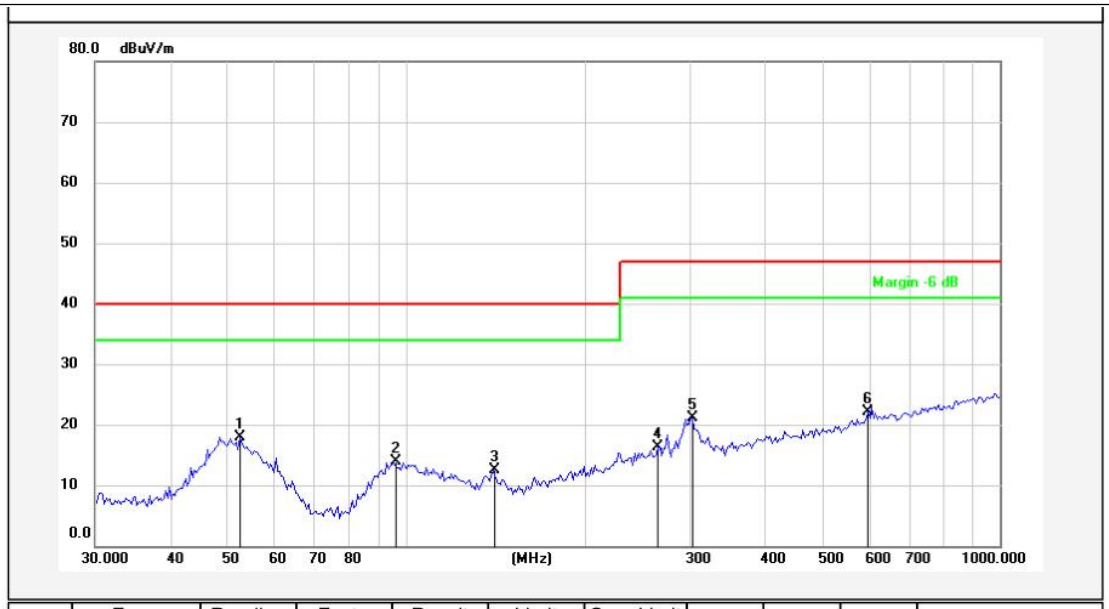
3.2. Test Setup



3.3. Test Data

Temperature:	25.1 °C	Humidity:	51 %	Atmospheric Pressure:	101 kPa

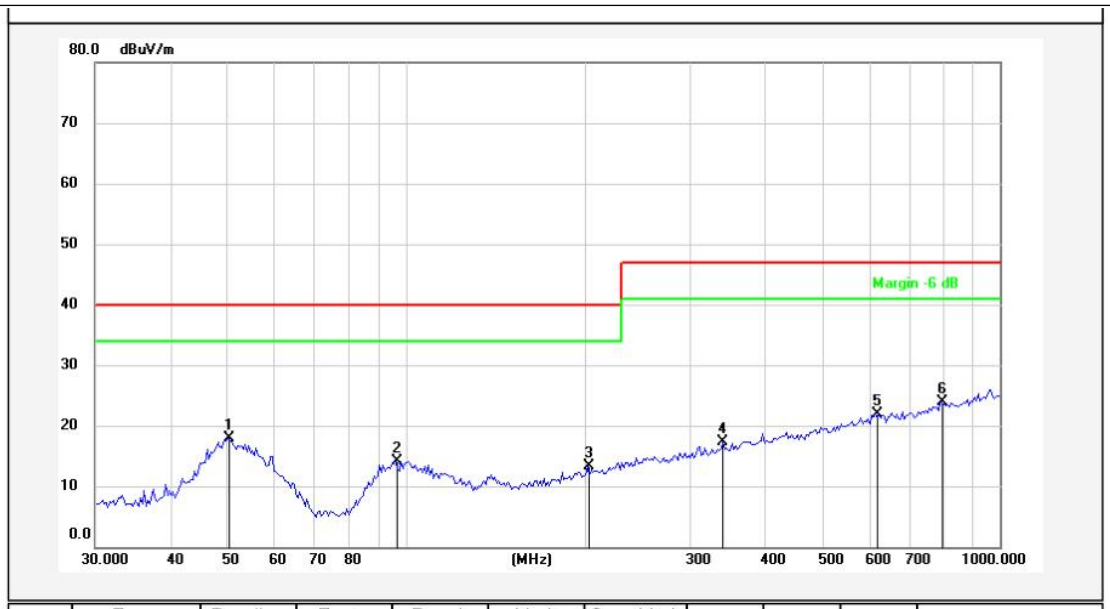
TM1 / Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	52.5753	33.15	-15.29	17.86	40.00	-22.14	QP			
2	95.4270	32.69	-18.88	13.81	40.00	-26.19	QP			
3	140.3421	33.50	-20.96	12.54	40.00	-27.46	QP			
4	265.6757	34.25	-17.86	16.39	47.00	-30.61	QP			
5	303.5437	38.23	-17.13	21.10	47.00	-25.90	QP			
6	599.3212	33.93	-11.83	22.10	47.00	-24.90	QP			

Temperature:	25.1 °C	Humidity:	51 %	Atmospheric Pressure:	101 kPa

TM1 / Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	50.4089	32.22	-14.29	17.93	40.00	-22.07	QP			
2	96.0986	32.93	-18.80	14.13	40.00	-25.87	QP			
3	202.1005	33.23	-19.93	13.30	40.00	-26.70	QP			
4	341.9786	33.75	-16.36	17.39	47.00	-29.61	QP			
5	616.3718	33.69	-11.74	21.95	47.00	-25.05	QP			
6	793.3960	34.09	-10.15	23.94	47.00	-23.06	QP			

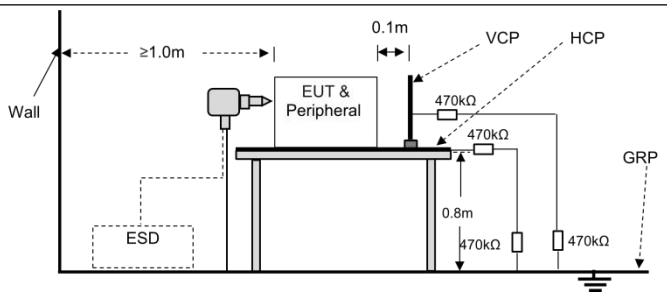
4. Electrostatic discharges

Test Requirement:	Contact Discharge: +/- 4kV Air Discharge: +/- 8kV
Test Method:	EN 61000-4-2: 2009
Procedure:	Discharge Impedance: 330Ω/150pF Number of Discharge: Minimum 10 times at each test point Discharge Mode: Single Discharge Discharge Period: 1 second minimum
Performance Criteria:	B

4.1. EUT Operation

Operating Environment:	
Test mode:	1: TM1: Lighting mode

4.2. Test Setup



4.3. Test Data

Temperature:	23.1 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa

Discharge type	Volt (kV)	Polarity	Test Point	Result/ Observations
Air discharge	2,4,8	+	1	A
Air discharge	2,4,8	-	1	A
Contact discharge	4	+	2	A
Contact discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

Test Point: 1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side.
A: No degradation in the performance of the EUT was observed.

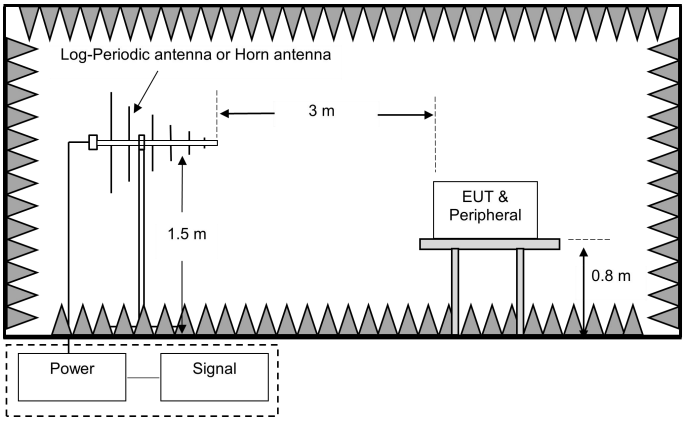
5. Radio-frequency electromagnetic fields

Test Requirement:	3V/m, 80%, 1kHz Amp. Mod.
Test Method:	EN IEC 61000-4-3: 2020
Procedure:	Frequency Range: 80MHz to 1GHz Antenna Polarisation: Vertical and Horizontal Modulation: 1kHz,80% Amp. Mod,1% increment
Performance Criteria:	A

5.1. EUT Operation

Operating Environment:	
Test mode:	1: TM1: Lighting mode

5.2. Test Setup



5.3. Test Data

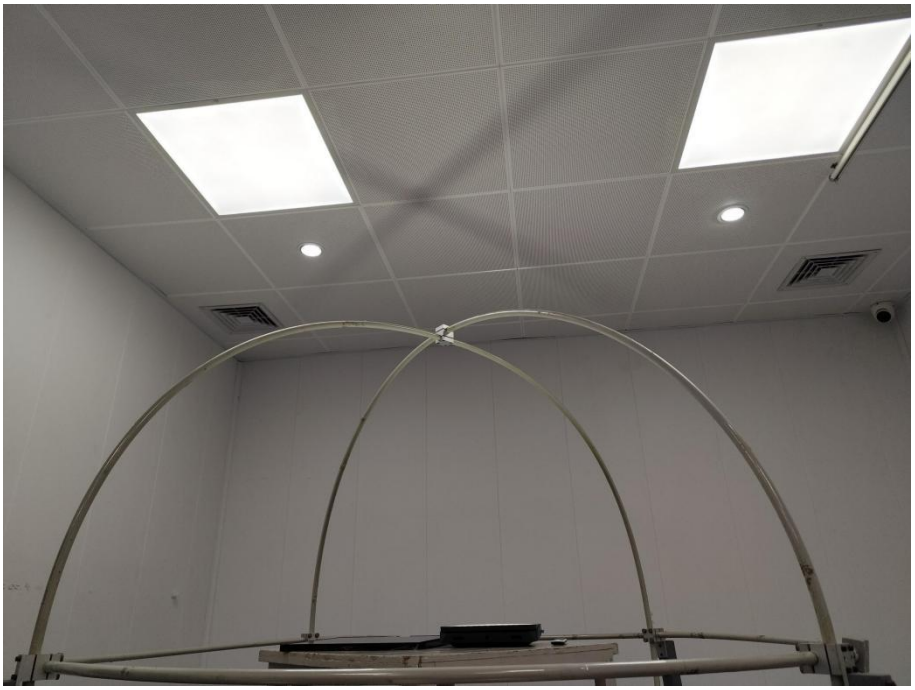
Temperature:	23.5 °C	Humidity:	50 %	Atmospheric Pressure:	101 kPa

Frequency	Field Strength (V/m)	EUT face	Dwell time	Result/ Observations
80MHz-1GHz	3	Front	3s	A
80MHz-1GHz	3	Back	3s	A
80MHz-1GHz	3	Left	3s	A
80MHz-1GHz	3	Right	3s	A
80MHz-1GHz	3	Top	3s	A
80MHz-1GHz	3	Bottom	3s	A

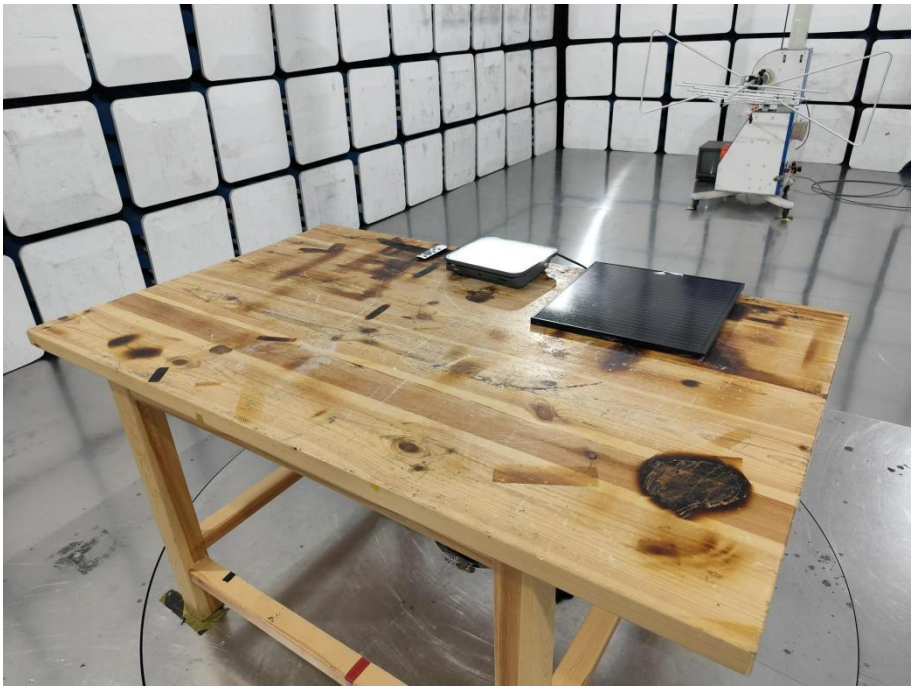
A: No degradation in the performance of the EUT was observed.

APPENDIX I -- TEST SETUP PHOTOGRAPH

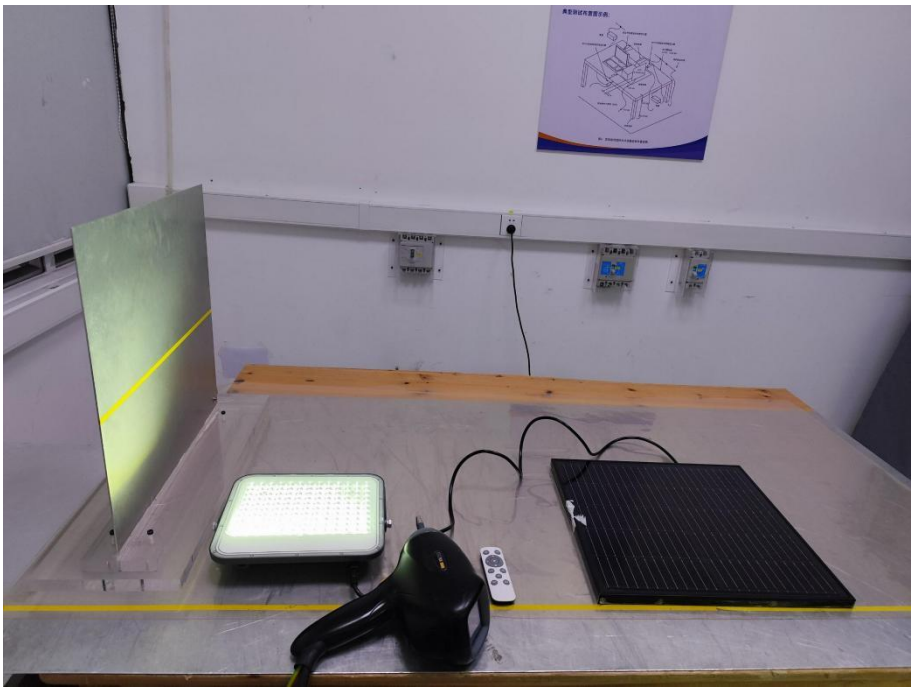
LLAS radiated disturbance (9kHz-30MHz)



Radiated disturbance (30MHz-1GHz)



Electrostatic discharges

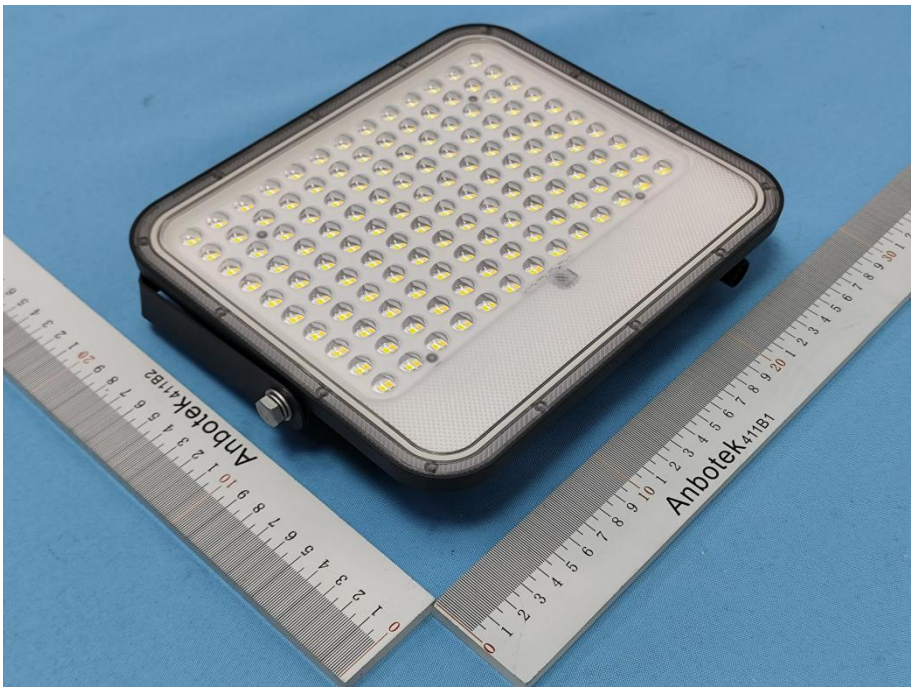


Radio-frequency electromagnetic fields



APPENDIX II -- EXTERNAL PHOTOGRAPH

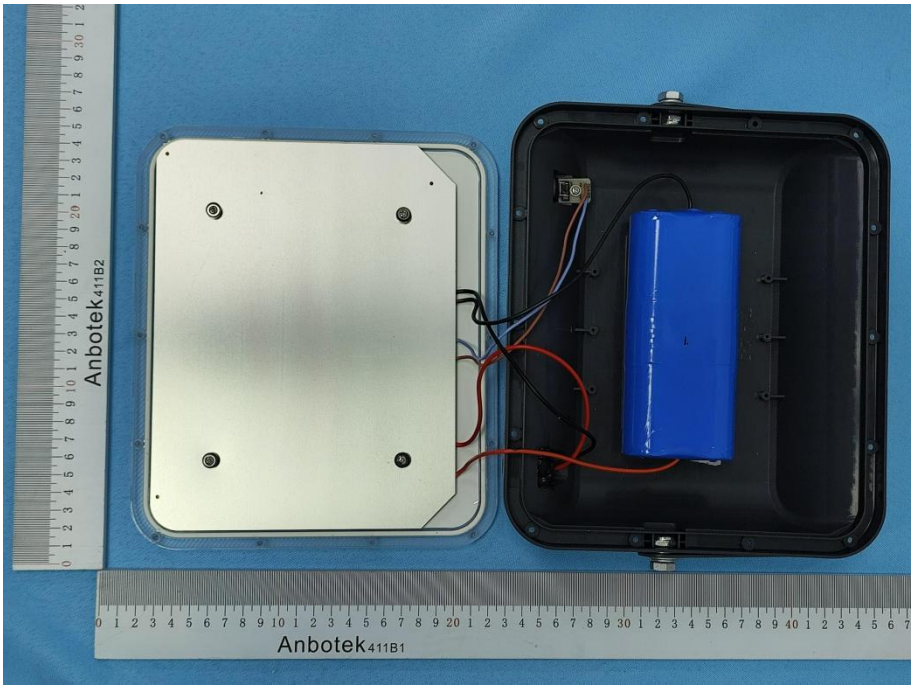


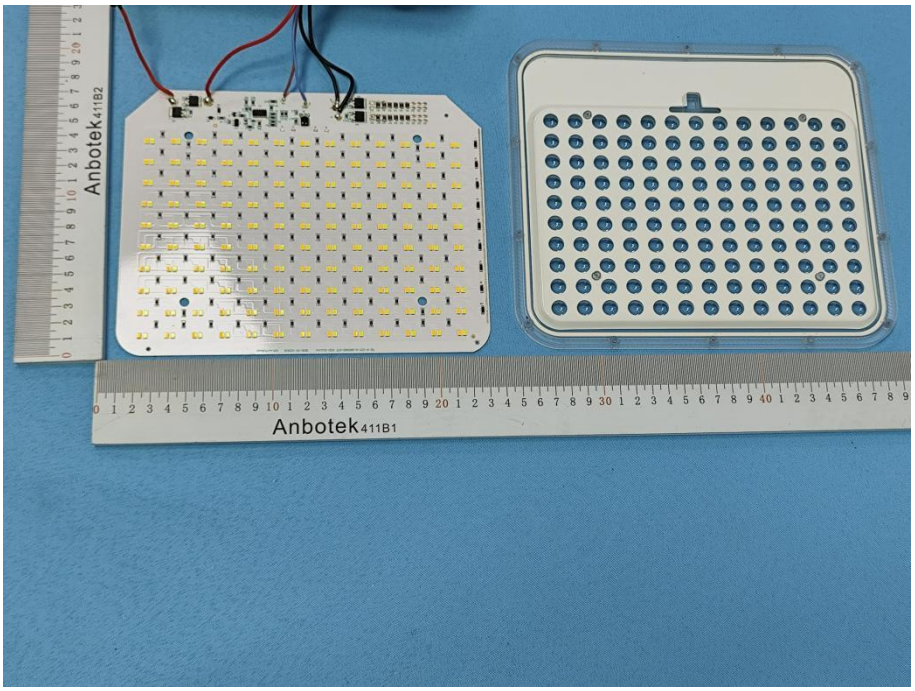


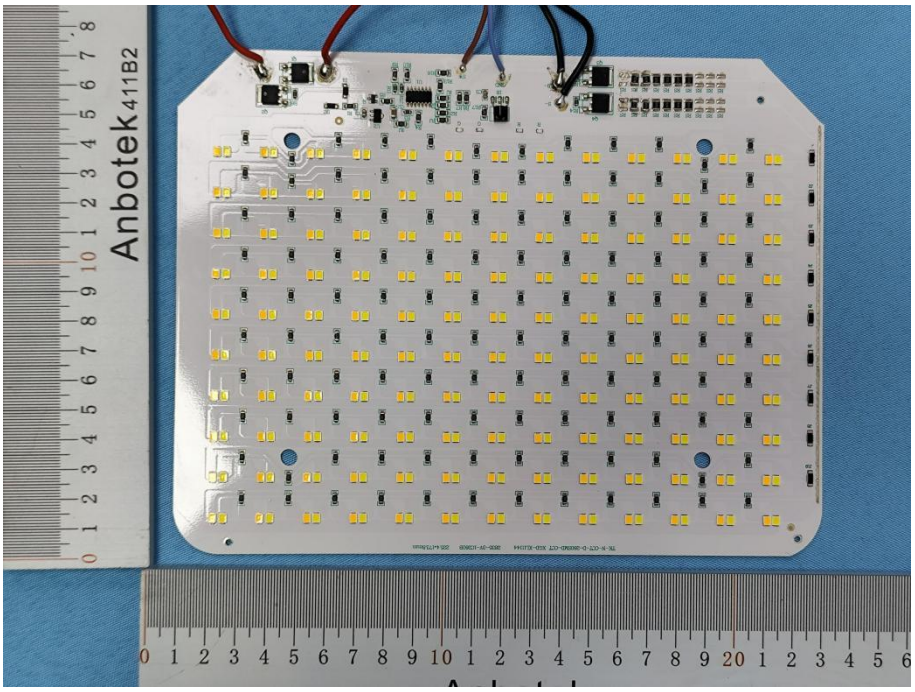

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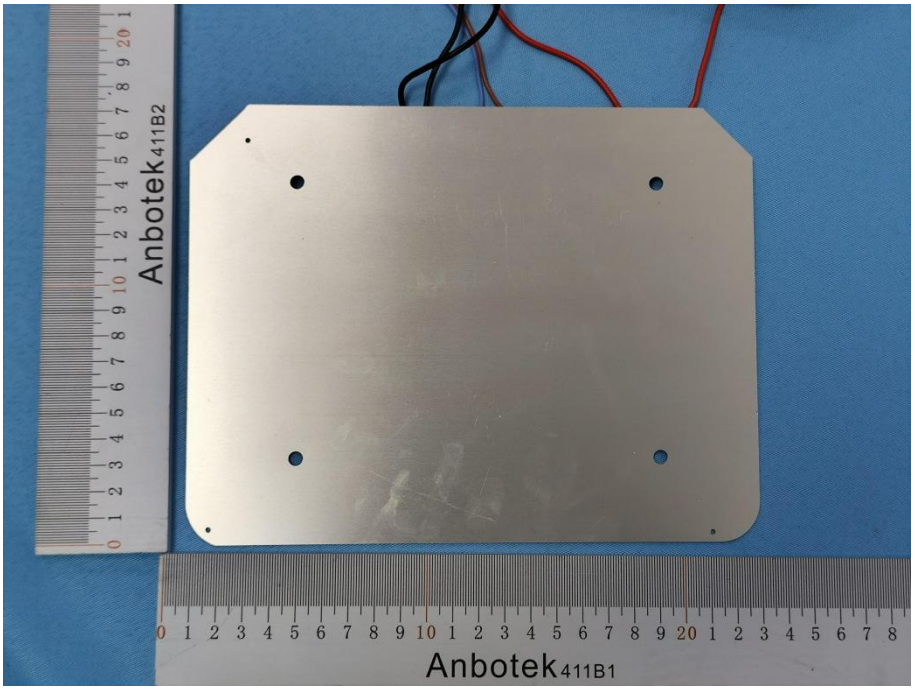


APPENDIX III -- INTERNAL PHOTOGRAPH






Anbotek411B2


Anbotek411B2
Anbotek411B1

CE Label

1. The CE conformity marking must consist of the initials ‘CE’ taking the following form:
   If the CE marking is reduced or enlarged, the proportions given in the above graduated drawing must be respected.
2. The CE marking must have a height of at least 5 mm except where this is not possible on account of the nature of the apparatus.
3. The CE marking must be affixed to the product or to its data plate. Additionally it must be affixed to the packaging, if any, and to the accompanying documents.
4. The CE marking must be affixed visibly, legibly and indelibly.
   It must have the same height as the initials ‘CE’.

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