



RF Exposure Evaluation

For

Shenzhen Shimu Technology Co., Ltd.

Permanent Outdoor lights Pro

Test Model: S108F

Additional Model No.: Please Refer to Page 6

Prepared for : Shenzhen Shimu Technology Co., Ltd.
Address : Room 703, East Commercial Building, 222 Minzhi Avenue, Minkang Community, Minzhi Street, Longhua District, Shenzhen, 518000 Guangdong, China(Peoples Republic Of)

Prepared by : Guangzhou LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : June 23, 2025
Number of tested samples : 2
Sample number : A250620053-1, A250620053-2
Serial number : Prototype
Date of Test : June 23, 2025 ~ July 08, 2025
Date of Report : July 09, 2025



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**RF Exposure Evaluation****Report Reference No. : LCSC06205009EC**

Date of Issue..... : July 09, 2025

Testing Laboratory Name..... : Guangzhou LCS Compliance Testing Laboratory Ltd.

Address..... : No.44-1,Qianfeng North Road, Shiqi, Panyu District, Guangzhou, Guangdong, China

Testing Location/ Procedure..... : Full application of Harmonised standards ☒
Partial application of Harmonised standards ☐
Other standard testing method ☐**Applicant's Name..... : Shenzhen Shimu Technology Co., Ltd.**

Address..... : Room 703, East Commercial Building, 222 Minzhi Avenue, Minkang Community, Minzhi Street, Longhua District, Shenzhen, 518000 Guangdong, China(Peoples Republic Of)

Test SpecificationStandard..... : FCC KDB publication 447498 D01 General RF Exposure Guidance v06
FCC CFR 47 part1 1.1310
FCC CFR 47 part2 2.1091**Test Report Form No..... : TRF-4-E-214 A/0**

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

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

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EUT Description..... : Permanent Outdoor lights Pro

Trade Mark..... : ASAHOM

Test Model..... : S108F

Ratings..... : Please Refer to Page 6

Result : **PASS****Compiled by:****Supervised by:****Approved by:**

Lifeng Le / File administrators

Justin Zhu / Technique Director

Gavin Liang/ Manager



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RF Exposure Evaluation

Test Report No. : LCSC06205009EC	<u>July 09, 2025</u> Date of issue
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EUT.....	: Permanent Outdoor lights Pro
Test Model.....	: S108F
Applicant.....	: Shenzhen Shimu Technology Co., Ltd.
Address.....	: Room 703, East Commercial Building, 222 Minzhi Avenue, Minkang Community, Minzhi Street, Longhua District, Shenzhen, 518000 Guangdong, China(Peoples Republic Of)
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Telephone.....	: /
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Factory.....	: Shenzhen Shimu Technology Co., Ltd.
Address.....	: Room 703, East Commercial Building, 222 Minzhi Avenue, Minkang Community, Minzhi Street, Longhua District, Shenzhen, 518000 Guangdong, China(Peoples Republic Of)
Telephone.....	: /
Fax.....	: /

Test Result	PASS
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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.



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Revision History

Report Version	Issue Date	Revision Content	Revised By
000	July 09, 2025	Initial Issue	---



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TABLE OF CONTENTS

Description	Page
1. PRODUCT INFORMATION	6
2. EVALUATION METHOD	7
3. LIMIT	7
4. MPE CALCULATION METHOD	8
5. ANTENNA INFORMATION	8
6. CONDUCTED POWER	8
7. MANUFACTURING TOLERANCE	10
8. MEASUREMENT RESULTS	11
9. CONCLUSION	12
10. DESCRIPTION OF TEST FACILITY	12
11. MEASUREMENT UNCERTAINTY	12





1. Product Information

EUT	: Permanent Outdoor lights Pro
Test Model	: S108F
Additional Model No.	: S108A, S108B, S108C, S108D, S108E
Model Declaration	: The internal circuits and structures of all models are exactly the same. S108E and S108F used two power sources, but the number of connected lights was different. Therefore, they chose the test with the maximum power and the maximum number of lights. The S108A, S108B, S108C, and S108D all use one power supply. S108D is the one with the maximum power in the power supply, so a differential test was conducted. The differences among S108A, S108B, S108C, and S108D are in terms of power and the number of light bulbs. Therefore, S108D, which has the highest power and the largest number of light bulbs, was selected for the test.
Ratings	: Input: 100-240V~, 50/60Hz Output: DC 28.8V, 4.1A, Max 240W
Hardware Version	: N/A
Software Version	: V2.00.35
Bluetooth	
Frequency Range	: 2402MHz~2480MHz
Channel Number	: 40 channels for Bluetooth V5.0 (DTS)
Channel Spacing	: 2MHz for Bluetooth V5.0 (DTS)
Modulation Type	: GFSK for Bluetooth V5.0 (DTS)
Bluetooth Version	: V5.0
Antenna Description	: PCB Antenna 0, 2.2dBi(Max.) PCB Antenna 1, 2.2dBi(Max.)
WIFI(2.4G Band)	
Frequency Range	: 2412MHz~2462MHz
Channel Spacing	: 5MHz
Channel Number	: 11 Channels for 20MHz bandwidth (2412~2462MHz)
Modulation Type	: IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: PCB Antenna 0, 2.2dBi(Max.) PCB Antenna 1, 2.2dBi(Max.)
Exposure category	: General population/uncontrolled environment
EUT Type	: Production Unit
Device Type	: Mobile Devices

Note: For a more detailed antenna description, please refer to the antenna specifications or the antenna report provided by the customer.



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2. Evaluation Method

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modelled or measured field strengths or power density, is ≤ 1.0 . The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

3. Limit

3.1 Refer Evaluation Method

[ANSI C95.1-2019](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz

[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

[FCC CFR 47 part2 2.1091](#): Radiofrequency radiation exposure evaluation: mobile devices.

3.2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f ²)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Uncontrolled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density



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4. MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

5. Antenna Information

EUT can only use antennas certificated as follows provided by manufacturer;

Internal/External Identification	Antenna type and antenna number	Operate frequency band	Maximum antenna gain	Notes
Internal	PCB Antenna 0	2400-2500MHz	2.2dBi	BT/WIFI Antenna
Internal	PCB Antenna 1	2400-2500MHz	2.2dBi	BT/WIFI Antenna

6. Conducted Power

[BT LE Antenna 0]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	0.62
	19	2440	0.31
	39	2480	-0.69

[BT LE Antenna 1]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	-1.79
	19	2440	0.77
	39	2480	-0.16



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[2.4G WIFI Antenna 0]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11B	1	2412	14.19
	6	2437	13.31
	11	2462	13.58
11G	1	2412	12.65
	6	2437	11.61
	11	2462	12.08
11N20 SISO	1	2412	13.22
	6	2437	12.1
	11	2462	12.68

[2.4G WIFI Antenna 1]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11B	1	2412	14.12
	6	2437	13.11
	11	2462	13.39
11G	1	2412	13.34
	6	2437	12.48
	11	2462	12.77
11N20 SISO	1	2412	13.85
	6	2437	13.15
	11	2462	13.3



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7. Manufacturing Tolerance

[BT LE Antenna 0]

GFSK(Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	0	0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[BT LE Antenna 1]

GFSK(Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	0	0	0
Tolerance $\pm$ (dB)	2.0	1.0	1.0

[2.4G WIFI Antenna 0]

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	12.0	11.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[2.4G WIFI Antenna 1]

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0



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8. Measurement Results

8.1 Standalone MPE Evaluation

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, $r=20\text{cm}$, as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

[BT LE Antenna 0]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
GFSK	1.0	1.2589	2.2	1.6596	0.0004	1.0000

[BT LE Antenna 1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
GFSK	1.0	1.5849	2.2	1.6596	0.0005	1.0000

[2.4GWLAN Antenna 0]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11b	15.0	31.6228	2.2	1.6596	0.0104	1.0000
IEEE 802.11g	13.0	19.9526	2.2	1.6596	0.0066	1.0000
IEEE 802.11n HT20	14.0	25.1189	2.2	1.6596	0.0083	1.0000

[2.4GWLAN Antenna 1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11b	15.0	31.6228	2.2	1.6596	0.0104	1.0000
IEEE 802.11g	14.0	25.1189	2.2	1.6596	0.0083	1.0000
IEEE 802.11n HT20	15.0	31.6228	2.2	1.6596	0.0104	1.0000

Remark:

1. Output power including tune-up tolerance;
2. Output power was adjust to duty cycle at 100% if measured duty cycle less than 98%;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer.

8.2 Simultaneous Transmission MPE Evaluation

The sample support one Bluetooth/2.4G WIFI antenna, another one Bluetooth/2.4G WIFI antenna, so need consider simultaneous transmission;

Simultaneous transmission MPE

According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;



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$$TER = \sum_{k=1}^{N_s} \left(\frac{SAR_k}{SAR_{lim}} \right) + \sum_{k=1}^{N_f} \left(\frac{MPE_{field,k}}{MPE_{field,lim}} \right)^2 + \sum_{k=1}^{N_{PD}} \left(\frac{MPE_{PD,k}}{MPE_{PD,lim}} \right)$$

$\sum \text{of MPE ratios} \leq 1.0$

Mode	$\sum$ MPE ratios	Limit	Results
MPE ratios1+ MPE ratios2	0.0108=0.0004+0.0104	1.000	Pass
MPE ratios1+ MPE ratios2	0.0109=0.0005+0.0104	1.000	Pass

9. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

10. Description of Test Facility

CNAS Registration Number is L11555
A2LA Certificate Number: 5099.01
FCC Designation Number is CN1379
Test Firm Registration Number: 729882

11. Measurement Uncertainty

BLE&2.4GWIFI

Test Item	Frequency Range	Uncertainty	Note
Output power	1GHz-40GHz	±0.57dB	(1)

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

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



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