

# Shanghai Xiaojia Data & Technology Co.,LTD

## MPE ASSESSMENT REPORT

**Report Type:**

FCC MPE assessment report

**Model:**

G10, G20, G30

**REPORT NUMBER:**

2402B0409SHA-002

**ISSUE DATE:**

March 25, 2024

**DOCUMENT CONTROL NUMBER:**

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**Applicant:** Shanghai Xiaojia Data & Technology Co.,LTD  
2F, No. 979 Yunhan Road, Lingang New Zone, China (Shanghai) Pilot  
Free Trade Zone, 201306

**Manufacturer:** Shanghai Xiaojia Data & Technology Co.,LTD  
2F, No. 979 Yunhan Road, Lingang New Zone, China (Shanghai) Pilot  
Free Trade Zone, 201306

**Manufacturing site:** Suzhou Sunray power mechanical co.,ltd.  
No.20-19, Yingchun Road, Xinqu, Shuangfeng Town, Taicang City,  
Suzhou City, Jiangsu Province, 215415, China

**FCC ID:** 2BEYJ-ISWARD001

## SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06  
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

**PREPARED BY:**

**REVIEWED BY:**

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### Revision History

Report No.	Version	Description	Issued Date
2402B0409SHA-002	Rev. 01	Initial issue of report	March 25, 2024

## 1 GENERAL INFORMATION

### 1.1 Description of Equipment Under Test (EUT)

Product name:	Robotic lawnmower
Type/Model:	G10, G20, G30
Description of EUT:	The robotic lawnmower is powered by a lithium battery and can also be charged by the charging station, the robotic lawnmower is equipped with certified module including BLE module, FCC ID: 2ADXE-HY-40R204PC, IC: 23267-HY40R204PC. Wi-Fi module, FCC ID: 2ACOE-WG217, IC: 20742-WG2175ES. LTE module, FCC ID: XMR201606EC21A, IC: 10224A-201611EC21A. LORA module and GNSS module. model G20 is identical with model G10 except model name, G30 is identical with G10 except model name, the size and location of the cutter head. After review, model G10 was selected to perform all tests.
Brand name:	iSward
Rating:	Charging station: 100-240 V; 50/60 Hz Robot: 25.2 VDC; 6A
Category of EUT:	Class B
EUT type:	<input type="checkbox"/> Table top <input checked="" type="checkbox"/> Floor standing
Software Version:	/
Hardware Version:	/
Sample identification number:	A240220-24-001
Sample received date:	February 23, 2024
Date of test:	February 23, 2024– March 25, 2024

### 1.2 Technical Specification

Frequency Range:	902MHz ~ 928MHz
Support Standards:	LORA
Type of Modulation:	CSS
Channel Number:	24
Channel Separation:	1MHz
Antenna Information:	Antenna: 0.5dBi, PCB antenna

**TEST REPORT**

**1.3 Description of Test Facility**

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

**TEST REPORT**

**2 MPE Assessment**

**Test result: Pass**

**2.1 MPE Assessment Limit**

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	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

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

**TEST REPORT**

**2.2 Assessment Results**

Power density (S) is calculated according to the formula:

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

Where S = power density in mW/cm<sup>2</sup>

P = Conducted power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 2402B0409SHA-001, Wi-Fi module report, BLE module report and LTE module report:

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

Mode	Frequency band	Max Power	Antenna Gain	R	S	Limits
	(MHz)	dBm	dBi	(cm)	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )
LORA	902-928MHz	13.55	0.5	20	0.0051	0.6013
WCDMA band II	1850-1910MHz	23.5	-0.22	20	0.0424	1
WCDMA band IV	824-849MHz	23.5	-2.4	20	0.0256	0.5493
WCDMA band V	1710-1755MHz	23.5	-0.19	20	0.0427	1
LTE band 2	1850-1910MHz	23.5	-0.22	20	0.0424	1
LTE band 4	824-849MHz	23.5	-2.4	20	0.0256	0.5493
LTE band 12	699-716MHz	23.5	-5.7	20	0.0120	0.466
BLE	2402-2480MHz	3.7	1.5	20	0.0007	1
2.4G Wi-Fi	2412-2462MHz	16.23	1.5	20	0.0118	1

Note: 1 mW/cm<sup>2</sup> from §1.1310 Table 1

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Considering the worst case: BLE, Wi-Fi, WCDMA Band IV and LORA transmit simultaneously:

$$0.0007/1+0.0118/1+0.0051/0.6013+0.0256/0.5493=0.0676 < 1$$

**Result: Compliance**, the device meets MPE requirement for Devices Used by the General Public (Uncontrolled Environment) at distance ≥ 20 cm.

**TEST REPORT**

**Appendix I**

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

\*\*\*\*\* END \*\*\*\*\*