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Report No.: CQASZ160501307E-02
Report Version: V01

MEASUREMENT REPORT
MPE Report

Applicant:	Shenzhen Jisiwei Intelligent Technology Co., Ltd
Address of Applicant:	7010, B2 District, Wan Zhong Cheng Home Square, Minzhi Street, Longhua New District, Shenzhen City, Guangdong Province, P. R. China
Manufacturer:	Shenzhen Jisiwei Intelligent Technology Co., Ltd
Address of Manufacturer:	7010, B2 District, Wan Zhong Cheng Home Square, Minzhi Street, Longhua New District, Shenzhen City, Guangdong Province, P. R. China
Equipment Under Test (EUT):	
Product:	Cloud Robot Vacuum Cleaner
Model No.:	S+
Brand Name:	JISIWEI
FCC ID:	2AILE-S
Standards:	47 CFR Part 1.1307 47 CFR Part 1.1310
Date of Test:	2016-05-10 to 2016-05-17
Date of Issue:	2016-05-17
Test Result :	**PASS***

Reviewed By: _____
(Aaron Ma)

Approved By: _____
(Owen Zhou)

Shenzhen Centre Quality Accreditation Technology Co., Ltd.

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* In the configuration tested, the EUT complied with the standards specified above.

2 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ160501307E-02	Rev.01	Initial report	2016-05-17

3 Contents

4 General Information

4.1 Client Information

Applicant:	Shenzhen Jisiwei Intelligent Technology Co., Ltd
Address of Applicant:	7010, B2 District, Wan Zhong Cheng Home Square, Minzhi Street, Longhua New District, Shenzhen City, Guangdong Province, P. R. China
Manufacturer:	Shenzhen Jisiwei Intelligent Technology Co., Ltd
Address of Manufacturer:	7010, B2 District, Wan Zhong Cheng Home Square, Minzhi Street, Longhua New District, Shenzhen City, Guangdong Province, P. R. China

4.2 General Description of EUT

Product Name:	Cloud Robot Vacuum Cleaner	
Model No.:	S+	
Trade Mark:	JISIWEI	
Hardware version：	V1.0	
Software version：	V1.0	
Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz	
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels	
Channel Separation:	5MHz	
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM, QPSK,BPSK)	
Sample Type:	mobile production	
Test Software of EUT:	RF test tool (manufacturer declare)	
Antenna Type and Gain:	Type: internal antenna with ipex connector Gain:5.0dBi	
Power Supply:	Adapter:	Mode : K25V190100U Input: AC 100V-240V 50/60Hz 0.6A Output: DC 19.0V 1.0A
	Battery:	Rechargeable battery 1: DC14.8V, 2600mAh Model: 18650 Date of manufacture :2015.11.11
		Rechargeable battery 2: DC14.8V, 2600mAh Model: 18650 Date of manufacture :2016.04.14

Note:

Rechargeable battery 1 and Rechargeable battery 2 are used in test, Using rechargeable battery 1 is the worst case. Only the worst case is recorded in the report.

4.3 Test Location

All tests were performed at:

Shenzhen CTL Testing Technology Co., Ltd., Shenzhen EMC Laboratory,

1/F.-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, Guangdong, China

4.4 Test Facility

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

FCC – Registration No.: 970318

Shenzhen CTL Testing Technology Co., Ltd. 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 970318

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
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
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	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

Friis Formula

Friis transmission formula: $Pd = (Pout*G)/(4* Pi * R^2)$

Where

Pd = power density in mW/cm2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm2 . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure Evaluation

Antenna Gain: 5dBi
Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.16 in linear scale.
Output Power Into Antenna & RF Exposure Evaluation Distance:

802.11g(worst case)

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)	Limit	Result
Lowest	2402	20.65	116.14	0.073	1.0	PASS

Note: Refer to report No. CQASZ160501307E-01 for EUT test Max Conducted Peak Output Power value.