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Report Template Version: V03
Report Template Revision Date: Mar.1st, 2017

RF Exposure Evaluation Report

Report No. :	CQASZ20180400015E-02
Applicant:	Weccan Industrial Ltd
Address of Applicant:	Room209, 2/F, Building W1-A, No.34 Gaoxin South 4th Street, Hi-tech Industrial Park, Nanshan District, Shenzhen, China
Manufacturer:	Weccan Industrial Ltd
Address of Manufacturer:	Room209, 2/F, Building W1-A, No.34 Gaoxin South 4th Street, Hi-tech Industrial Park, Nanshan District, Shenzhen, China
Factory:	DongGuan Adoree Industrial Limited
Address of Factory:	Building 10, Fuxing Industrial Area, Fucing Road, Xiagang Village, Changan Town, Dongguang City, Guangdong Province China.
Equipment Under Test (EUT):	
Product:	2.4 G RC Drone With WIFI Camera
Model No.:	DRW328
Adding Model No.:	Please see Page 6
Brand Name:	N/A
FCC ID:	Z3CDRW328F33W
Standards:	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB447498D01 General RF Exposure Guidance v06
Date of Test:	2018-04-20 to 2018-04-27
Date of Issue:	2018-04-27
Test Result :	**PASS***

Tested By: Aaron Ma

(Aaron Ma)

Reviewed By: Owen Zhou

(Owen Zhou)

Approved By:

(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO.,LTD 华夏准测 APPROVED

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

2 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20180400015E-02	Rev.01	Initial report	2018-04-27

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4 General Information

4.1 Client Information

Applicant:	Weccan Industrial Ltd
Address of Applicant:	Room209, 2/F, Building W1-A, No.34 Gaoxin South 4th Street, Hi-tech Industrial Park, Nanshan District, Shenzhen, China
Manufacturer:	Weccan Industrial Ltd
Address of Manufacturer:	Room209, 2/F, Building W1-A, No.34 Gaoxin South 4th Street, Hi-tech Industrial Park, Nanshan District, Shenzhen, China
Factory:	DongGuan Adoree Industrial Limited
Address of Factory:	Building 10, Fuxing Industrial Area, Fucing Road, Xiagang Village, Changan Town, Dongguang City, Guangdong Province China.

4.2 General Description of EUT

Product Name:	2.4 G RC Drone With WIFI Camera
Model No.:	DRW328
Adding Model No.:	SG-F33, SG-F1, SG-F2, SG-F3, SG-F4, SG-F5, SG-F6, SG-F7, SG-F8, SG-F9, SG-F10, SG-F11, SG-F12,SG-F13, SG-F14, SG-F15, SG-F16, SG-F17, SG-F18, SG-F19, SG-F20, SG-F21, SG-F22, SG-F23, SG-F24, SG-F25, SG-F26, SG-F27, SG-F28, SG-F29, SG-F30, SG-F31, SG-F32, SG-F34, SG-F35, SG-F36, SG-F37, SG-F38, SG-F39, SG-F40, SG-F41, SG-F42, SG-F43, SG-F44, SG-F45, SG-F46, SG-F47, SG-F48, SG-F49, SG-F50, SG-F51, SG-F52, SG-F53, SG-F54, SG-F55, SG-F56, SG-F57, SG-F58, SG-F59, SG-F60, SG-F61, SG-F62, SG-F63, SG-F64, SG-F65, SG-F66, SG-F67, SG-F68, SG-F69, SG-F70, SG-F71, SG-F72, SG-F73, SG-F74, SG-F75, SG-F76, SG-F77, SG-F78, SG-F79, SG-F80, SG-F81, SG-F82, SG-F83, SG-F84, SG-F85, SG-F86, SG-F87, SG-F88, SG-F89, SG-F90, SG-F91, SG-F92, SG-F93, SG-F94, SG-F95, SG-F96, SG-F97, SG-F98, SG-F99, SG-F100
Trade Mark:	N/A
Hardware version：	V1.0
Software version：	V1.0
Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 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) : OFDM (64QAM, 16QAM, QPSK, BPSK)
Sample Type:	portable production
Test Software of EUT:	SSCOM3.2 (manufacturer declare)
Antenna Type:	integral antenna
Antenna Gain:	1.3dBi
Power Supply:	Li-ion battery: DC3.7V, 400mAh; Charge by USB

Remark: Only the model DRW328 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.

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.

5.2 1.1.3 EUT RF Exposure Evaluation

For WIFI：

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

802.11b mode	
Test channel	Average Output Power (dBm)
Lowest(2412MHz)	12.35
Middle(2437MHz)	12.29
Highest(2462MHz)	12.39
802.11g mode	
Test channel	Average Output Power (dBm)
Lowest(2412MHz)	11.09
Middle(2437MHz)	11.02
Highest(2462MHz)	11.15
802.11n(HT20)mode	
Test channel	Average Output Power (dBm)
Lowest(2412MHz)	11.02
Middle(2437MHz)	10.98
Highest(2462MHz)	11.08

802.11b(worst case)

Channel	Frequency (MHz)	Max Conducted average Output Power (dBm)	Output Power to Antenna (mW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm^2)	Limit	Result
Highest	2462	12.39	17.34	1.3	0.0047	1.0	PASS

Note: 1) Refer to report No. CQASZ20180400015E-02 for EUT test Max Conducted average Output Power value.

2) Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.35 in linear scale.

2) Pd = (Pout*G)/(4* Pi * R^2)=(17.34*1.35)/(4*3.1416*20^2)=0.0047