RF Exposure Evaluation

Test report
On Behalf of
InnoSun LLC
For
Cubibot

Model No.: Cubibot

FCC ID: 2AU9W-CUBIBOT

Prepared for :	**InnoSun LLC** **7310 Miramar Rd #100, San Diego, CA 92126**
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Date of Report:	**Dec. 30, 2020**

1 General Description of EUT

Equipment	Cubibot
Model Name	Cubibot
Serial No.	N/A
Trade Mark	Cubibot 3D Printer
FCC ID	2AU9W-CUBIBOT
Hardware Version:	V1.0
Software Version:	V2.2.3
Operation frequency	802.11b/g/n 20: 2412~2462 MHz
Number of Channels	802.11b/g/n20: 11CH
Antenna Type	PCB Antenna
Antenna Gain	0dBi
Modulation Type	CCK/DSSS/OFDM
Power Source	DC 12V from adapter

2 RF Exposure Compliance Requirement

2.1 Standard Requirement

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 . 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.

3 EUT RF Exposure

Antenna Gain: 0Bi

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

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data				
802.11b mode				
Test channel	Peak OutputPower (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2412MHz)	14.03	14±1	15	31.623
Middle(2437MHz)	13.44	14±1	15	31.623
Highest(2462MHz)	13.77	14±1	15	31.623

802.11g mode				
Test channel	Peak OutputPower (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2412MHz)	15.80	15±1	16	39.811
Middle(2437MHz)	15.28	15±1	16	39.811
Highest(2462MHz)	14.56	15±1	16	39.811

802.11n20 mode				
Test channel	Peak OutputPower (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2412MHz)	15.64	15±1	16	39.811
Middle(2437MHz)	15.13	15±1	16	39.811
Highest(2462MHz)	14.52	15±1	16	39.811

Worst case: 802.11g mode -Lowest(2412MHz) (Using the maximum value of the test report）

Maximum tune-up Power (mW)	**Antenna Gain (dBi)**	**Power Density at R = 20 cm (mW/cm2)**	**Limit**	**Result**
39.811	0	0.00792	**1**	PASS

Remark: 1) The Max Conducted Peak Output Power data refer to report Report No.: HK1912033081-E

2) Pd = (Pout*G)/(4* Pi * R2)=(39.811*1)/(4*3.1416*20^2)= 0.00792 mW/cm2