RF Exposure Report

Report No.: SA170220E09

FCC ID: XCNRAC2V1U

Test Model: RAC2V1U

Received Date: Feb. 20, 2017

Test Date: Mar. 15, 2017

Issued Date: June 21, 2017

Applicant: Ubee Interactive Corp.

Address: 10F-1, No. 5, Taiyuan 1st St. Jhubei Ci, Hsinchu County 302, Taiwan , R.O.C.

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
SA170220E09	Original release.	June 21, 2017

1   Certificate of Conformity

Product:	Wave 2 WiFi Router
Brand:	Ubee
Test Model:	RAC2V1U
Sample Status:	ENGINEERING SAMPLE
Applicant:	Ubee Interactive Corp.
Test Date:	Mar. 15, 2017
Standards:	FCC Part 2 (Section 2.1091)
	KDB 447498 D01 General RF Exposure Guidance v06
	IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : _Cindy Hsin_ , **Date:** June 21, 2017

Cindy Hsin / Specialist

Approved by : _____ , **Date:** June 21, 2017

May Chen / Manager

2   RF Exposure

2.1   Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
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 ; *Plane-wave equivalent power density

2.2   MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in mW/cm^2

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

2.3   Classification

The antenna of this product, under normal use condition, is at least 44cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

2.4GHz Band							
Antenna No.	Brand	Model	Antenna Net. Gain(dBi)	Frequency range (GHz)	Antenna Type	Connecter Type	Cable Length (mm)
1	FOXCONN	ANTP2M1-CZZ0R-EF	4.5	2.4~2.4835	Dipole	i-pex(MHF)	248
2	FOXCONN	ANTP2M1-CZZ0S-EF	4.9	2.4~2.4835			200
3	FOXCONN	ANTP2M1-CZZ0P-EF	4.53	2.4~2.4835			70
5GHz Band							
Antenna No.	Brand	Model	Antenna Net. Gain(dBi)	Frequency range (GHz)	Antenna Type	Connecter Type	Cable Length
1	FOXCONN	ANTP2M1-CZZ0M-EF	4.37	5.15~5.25	Dipole	i-pex(MHF)	78
			4.47	5.25~5.35			
			4.5	5.47~5.725			
			4.73	5.725~5.85			
2	FOXCONN	ANTP2M1-CZZ0Q-EF	5.06	5.15~5.25	Dipole	i-pex(MHF)	133
			5.35	5.25~5.35			
			5.18	5.47~5.725			
			5.36	5.725~5.85			
3	FOXCONN	ANTP2M1-CZZ0L-EF	5.35	5.15~5.25	Dipole	i-pex(MHF)	162
			4.20	5.25~5.35			
			3.54	5.47~5.725			
			3.41	5.725~5.85			
4	FOXCONN	ANTP2M1-CZZ0N-EF	4.53	5.15~5.25	Dipole	i-pex(MHF)	153
			4.88	5.25~5.35			
			5.53	5.47~5.725			
			5.69	5.725~5.85			

2.5 Calculation Result of Maximum Conducted Power

Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	995.285	9.42	44	0.35796	1
5180-5240	325.677	10.86	44	0.16318	1
5745-5825	986.213	10.86	44	0.49415	1

NOTE:

2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3]$ = 9.42dBi

5GHz:

UNII-1: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4]$ = 10.86dBi

UNII-3: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4]$ = 10.86dBi

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.35796 / + 0.49415 / 1 = 0.85211

Therefore the maximum calculations of above situations are less than the "1" limit.

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