RF Exposure Report

Report No.:	SA191105E04
FCC ID:	XCNUBC1326
Test Model:	UBC1326
Received Date:	July 09, 2019
Test Date:	Feb. 07, 2020
Issued Date:	Mar. 06, 2020
Applicant:	Ubee Interactive Corp.
Address:	10F-1, No. 5, Taiyuan 1st St. Zhubei City, 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.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan.
FCC Registration / Designation Number:	723255 / TW2022

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
SA191105E04	Original release.	Mar. 06, 2020

1 Certificate of Conformity

Product:	Wireless eMTA
Brand:	Ubee
Test Model:	UBC1326
Applicant:	Ubee Interactive Corp.
Test Date:	Feb. 07, 2020
Standards:	FCC Part 2 (Section 2.1091) IEEE C95.3-2002
References Test Guidance:	KDB 447498 D01 General RF Exposure Guidance v06

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 : _____ , **Date:** Mar. 06, 2020

Claire Kuan / Specialist

Approved by : _____ , **Date:** Mar. 06, 2020

Clark Lin / Technical 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 42 cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Antenna NO.	RF Chain NO.	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type	Cable Length
WiFi 1	Chain1/2	3.9/4.14	2.4GHz/5GHz	PCB	i-pex(MHF)	155mm
WiFi 2	Chain2/1	3.97/4.84	2.4GHz/5GHz	PCB	i-pex(MHF)	87mm
WiFi 3	Chain0/3	3.9/3.85	2.4GHz/5GHz	PCB	i-pex(MHF)	75mm
WiFi 4	Chain3/0	3.08/3.59	2.4GHz/5GHz	PCB	i-pex(MHF)	100mm

2.5 Calculation Result of Maximum Conducted Power

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN 2.4GHz	2437	985.542	9.74	42	0.41876	1
WLAN U-NII-1	5230	759.186	10.14	42	0.35370	1
WLAN U-NII-3	5745	977.737	10.14	42	0.45553	1

NOTE:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: Directional gain = 10 $\log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4]$ = 9.74dBi
   5GHz: Directional gain = 10 $\log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4]$ = 10.14dBi

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 = 0.41876 / 1 + 0.45553 / 1 = 0.87429

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

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