

## RF Exposure Report

**Report No.:** SA191105E04A

**FCC ID:** XCNUBC1326

**Test Model:** UBC1326

**Received Date:** July 21, 2020

**Test Date:** Aug. 07 to 08, 2020

**Issued Date:** Aug. 25, 2020

**Applicant:** Ubee Interactive Corp.

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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

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### Release Control Record

Issue No.	Description	Date Issued
SA191105E04A	Original release.	Aug. 25, 2020

## 1 Certificate of Conformity

**Product:** Wireless eMTA

**Brand:** Ubee

**Test Model:** UBC1326

**Applicant:** Ubee Interactive Corp.

**Test Date:** Aug. 07 to 08, 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 :** Phoenix Huang , **Date:** Aug. 25, 2020  
Phoenix Huang / Specialist

**Approved by :** Clark Lin , **Date:** Aug. 25, 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 <sup>2</sup> )	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 <sup>2</sup> )*	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

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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 (mm)
WiFi 1	Chain1/2	3.9/4.14	2.4GHz/5GHz	PCB	i-pex(MHF)	155
WiFi 2	Chain2/1	3.97/4.84	2.4GHz/5GHz	PCB	i-pex(MHF)	87
WiFi 3	Chain0/3	3.9/3.85	2.4GHz/5GHz	PCB	i-pex(MHF)	75
WiFi 4	Chain3/0	3.08/3.59	2.4GHz/5GHz	PCB	i-pex(MHF)	100

Note: The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

## 2.5 Calculation Result of Maximum Conducted Power

For 2.4GHz and 5GHz (U-NII-1 & U-NII-3 band) data was copied from the original test report (Report No.: SA191105E04)

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN (2.4GHz)	2412~2462	985.542	9.74	42	0.41876	1
WLAN (U-NII-1)	5180~5240	759.186	10.14	42	0.35370	1
WLAN (U-NII-2A)	5250~5320	187.652	10.14	42	0.08743	1
WLAN (U-NII-2C)	5500~5720	249.634	10.14	42	0.11630	1
WLAN (U-NII-3)	5745~5825	977.737	10.14	42	0.45553	1

### NOTE:

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

### Conclusion:

The formula of calculated the MPE is:

$$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz} = 0.41876 / 1 + 0.45553 / 1 = 0.87429$$

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

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