

RF Exposure Report

Report No.: MFBEMV-WTW-P22040202A

FCC ID: XCNUBC1338

Test Model: UBC1338

Received Date: 2022/8/2

Date of Evaluation: 2022/8/28

Issued Date: 2022/10/7

Applicant: Ubee Interactive Corp.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
MFBEV-WTW-P22040202A	Original Release	2022/10/7

1 Certificate of Conformity

Product: Wireless eMTA

Brand: Ubee

Test Model: UBC1338

Sample Status: Engineering sample

Applicant: Ubee Interactive Corp.

Date of Evaluation: 2022/8/28

FCC Rule Part: FCC Part 2 (Section 2.1091)

Standards: 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 RF characteristics under the conditions specified in this report.

Prepared by : Lena Wang , **Date:** 2022/10/7
Lena Wang / Specialist

Approved by : Jeremy Lin , **Date:** 2022/10/7
Jeremy Lin / Project Engineer

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

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

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 25cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max AV Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
CDD Mode					
2412-2462	29.10	3.97	25	0.258	1
5180-5240	28.17	4.15	25	0.217	1
5250-5320	23.95	4.84	25	0.096	1
5500-5720	23.81	4.76	25	0.092	1
5745-5825	29.13	4.78	25	0.313	1
Beamforming Mode					
2412-2462	26.12	9.74	25	0.491	1
5180-5240	26.27	9.69	25	0.502	1
5250-5320	19.85	10.08	25	0.125	1
5500-5720	20.47	9.35	25	0.122	1
5745-5825	26.35	9.29	25	0.467	1

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the original report (BV CPS report no.: MFBEMV-WTW-P22040202) is adding 5.25GHz to 5.32GHz and 5.50GHz to 5.72GHz by software.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

2412-2462MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.74\text{dBi}$
 5180-5240MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.69\text{dBi}$.
 5250-5320MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.08\text{dBi}$.
 5500-5720MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.35\text{dBi}$.
 5745-5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.29\text{dBi}$.

Conclusion:

Both of the WLAN 2.4G & WLAN 5G can transmit simultaneously, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$$2.4G + 5G = 0.491 / 1 + 0.502 / 1 = 0.993$$

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

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