

## RF Exposure Report

**Report No.:** SA190103E03

**FCC ID:** COF-WMBACBM25

**Test Model:** WM-BAC-BM-25

**Received Date:** Jan. 03, 2019

**Test Date:** Mar. 14, 2019

**Issued Date:** Mar. 22, 2019

**Applicant:** UNIVERSAL GLOBAL SCIENTIFIC INDUSTRIAL CO., LTD.

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**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.

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

**FCC Registration /  
Designation Number:** 723255 / TW2022

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### Release Control Record

Issue No.	Description	Date Issued
SA190103E03	Original release.	Mar. 22, 2019

## 1 Certificate of Conformity

**Product:** 802.11a/b/g/n/ac + BT 4.1 Module

**Brand:** USI

**Test Model:** WM-BAC-BM-25

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** UNIVERSAL GLOBAL SCIENTIFIC INDUSTRIAL CO., LTD.

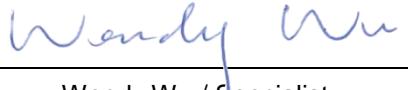
**Test Date:** Mar. 14, 2019

**Standards:** FCC Part 2 (Section 2.1091)

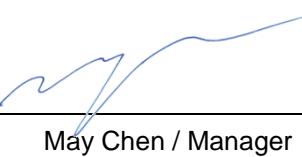
KDB 447498 D01 General RF Exposure Guidance v06

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 :**   
Wendy Wu / Specialist

, **Date:** Mar. 22, 2019

**Approved by :**   
May Chen / Manager

, **Date:** Mar. 22, 2019

## 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

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

where

Pd = power density in mW/cm<sup>2</sup>

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 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

Antenna No.	Brand	Model	Ant. Net Gain (dBi)	Frequency range (GHz)	Antenna Type	Connector Type
1	YANGO	ANT3216A063R2455A	1.59 2.23	2.4~2.4835 5.15~5.85	Ceramic Chip Antenna	None

## 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 <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN 2.4GHz	2437	292.415	1.59	20	0.08389	1
WLAN 5GHz	5795	181.134	2.23	20	0.06022	1
Bluetooth	2441	11.143	1.59	20	0.00320	1

The Max. Power = Max. tune up power including tolerance.

### 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 + Bluetooth = 0.08389 / 1 + 0.00320 / 1 = 0.08709

WLAN 5GHz + Bluetooth = 0.06022 / 1 + 0.00320 / 1 = 0.06342

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

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