RF Exposure Report

Report No.:	MFBERD-WTW-P21100651A
FCC ID:	COF-WMBACBM25
Test Model:	WM-BAC-BM-25-FF3
Series Model:	WM-BAC-BM-25, WM-BAC-BM-25_FF2
Received Date:	2023/4/14
Date of Evaluation:	2023/6/2
Issued Date:	2023/6/16
Applicant:	Universal Global Scientific Industrial Co., Ltd.
Address:	141, Lane 351, Sec. 1, Taiping Road., Tsaotuen, Nantou 542007, Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
MFBERD-WTW-P21100651A	Original Release	2023/6/16

1 Certificate of Conformity

Product:	802.11a/b/g/n/ac + BT 4.1 Module
Brand:	USI
Test Model:	WM-BAC-BM-25-FF3
Series Model:	WM-BAC-BM-25, WM-BAC-BM-25_FF2
Sample Status:	Engineering Sample
Applicant:	Universal Global Scientific Industrial Co., Ltd.
Date of Evaluation:	2023/6/2
Standards:	FCC Part 2 (Section 2.1091)
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 RF characteristics under the conditions specified in this report.

Prepared by : Gina Liu , **Date:** 2023/6/16

Gina Liu / Specialist

Approved by : Jeremy Lin , **Date:** 2023/6/16

Jeremy Lin / Project Engineer

2 General Information

This report is prepared for FCC class II permissive change. This report is issued as a supplementary report to BV CPS report no. SA190103E03 and SABERD-WTW-P21100651. The difference compared with original report is listed as below, only test item of Radiated Emissions and Maximum Peak Output Power were performed for this report.

- Added one Model Name: WM-BAC-BM-25-FF3
- Change Ant. Matching , power reduce

3 RF Exposure

3.1 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

3.2 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

3.3 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**.

3.4 Calculation Result of Maximum Conducted Power

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN	2412-2462	20.28	1.59	20	0.031	1.00
	5180-5240	19.65	2.23	20	0.031	1.00
	5260-5320	19.17	2.23	20	0.027	1.00
	5500-5700	19.31	2.23	20	0.028	1.00
	5745-5825	21.77	2.23	20	0.050	1.00
BT EDR	2402-2480	10.02	1.59	20	0.003	1.00
BLE	2402-2480	7.17	1.59	20	0.001	1.00

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

Conclusion:

Both of the 2.4GHz, 5GHz and BT can transmit simultaneously, 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 + BT = 0.031 / 1 + 0.003 / 1 = 0.034

WLAN 5GHz + BT = 0.050 / 1 + 0.003 / 1 = 0.053

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

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