

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., Tsautuen, 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



This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 RF Exposure	5
2.1 Limits for Maximum Permissible Exposure (MPE)	5
2.2 MPE Calculation Formula	5
2.3 Classification	5
2.4 Calculation Result of Maximum Conducted Power	6

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

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

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

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:

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

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.

--- END ---