

RF Exposure Report

Report No.: MFBVSW-WTW-P20110319B

FCC ID: W23-WMU62XX

Test Model: WMU6202

Series Model: WMU6203, WMU6204, WMU6205

Received Date: Dec. 05, 2022

Date of Evaluation: Jan. 11, 2023

Issued Date: Jan. 30, 2023

Applicant: jjPlus Corporation

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(R.O.C.)

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

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Test Location (1): No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
33383, Taiwan

Test Location (2): No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan

**FCC Registration /
Designation Number (1):** 788550 / TW0003

**FCC Registration /
Designation Number(2):** 281270 / TW0032



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Release Control Record

Issue No.	Description	Date Issued
MFBVSW-WTW-P20110319B	Original Release	Jan. 30, 2023

1 Certificate of Conformity

Product: 11ac 2T2R WIFI & BT Module

Brand: jjPlus

Test Model: WMU6202

Series Model: WMU6203, WMU6204, WMU6205

Sample Status: Engineering Sample

Applicant: jjPlus Corporation

Date of Evaluation: Jan. 11, 2023

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 : Gina Liu , **Date:** Jan. 30, 2023
Gina Liu / Specialist

Approved by : Jeremy Lin , **Date:** Jan. 30, 2023
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. SABAYS-WTW-P20110319A. The difference compared with original report is adding new Antennas. Due to no effect on any test item, the original calculated MPE value was kept.

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/cm²

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 Antenna Gain

The antennas information is listed as below. (New antenna is marked in boldface.)

Antenna Type	Brand	Model	Antenna Gain (dBi)			Antenna Connector
			BT	2.4G	5G	
Dipole	LYNwave	AOA160-221020-000000	3.0	3.0	2.0	ipex(MHF)
	LYNwave	AOA160-221034-000000	3.0	3.0	3.0	ipex(MHF)
	LYNwave	AOA160-221050-000000	5.0	5.0	5.0	ipex(MHF)
PIFA	SINBON	A9706632	4.1	4.1	3.5	MHFI
	SINBON	A9706633	4.8	4.8	4.1	MHFI
Dipole	ARISTOTLE	RFA-25-AP152R-70-180	3.42	3.42	4.33	ipex(MHF)
	ARISTOTLE	RFA-25-AP152R-70B360	2.55	2.55	2.34	ipex(MHF)

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

3.5 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	26.85	6.43	20	0.423	1.00
	5180-5240	16.32	7.34	20	0.046	1.00
	5260-5320	16.30	7.34	20	0.046	1.00
	5500-5700	16.33	7.34	20	0.046	1.00
	5745-5825	16.30	7.34	20	0.046	1.00
BT	2402-2480	5.77	3.42	20	0.002	1.00

NOTE:

2.4GHz: Directional gain = $G_{ANT} + 10 \log(N_{ANT}/N_{SS}) = 6.43$ dBi

5.0GHz: Directional gain = $G_{ANT} + 10 \log(N_{ANT}/N_{SS}) = 7.34$ dBi

Conclusion:

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 = $0.423/1 + 0.002/1 = 0.425$

WLAN 5GHz + BT = $0.046/1 + 0.002/1 = 0.048$

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

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