

Variant RF Exposure Report

Report No.: SABAYS-WTW-P20110319A

FCC ID: W23-WMU62XX

Test Model: WMU6202

Series Model: WMU6203, WMU6204, WMU6205, WMU6206, WMU6207

Received Date: Nov. 27, 2018

Date of Evaluation: Jan. 21, 2019

Issued Date: Jun. 03, 2021

Applicant: jjPlus Corporation

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

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**FCC Registration /
Designation Number:** 427177 / TW0011



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Release Control Record

Issue No.	Description	Date Issued
SABAYS-WTW-P20110319A	Original Release	Jun. 03, 2021

1 Certificate of Conformity

Product: 11ac 2T2R WIFI & BT Module

Brand: jjPlus

Test Model: WMU6202

Series Model: WMU6203, WMU6204, WMU6205, WMU6206, WMU6207

Sample Status: wifi module


Applicant: jjPlus Corporation


Date of Evaluation: Jan. 21, 2019

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 :  , **Date:** Jun. 03, 2021
Gina Liu / Specialist

Approved by :  , **Date:** Jun. 03, 2021
Dylan Chiou / 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. SA181127C08. Due to no effect on any test item, the original calculated MPE value was kept.

3 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

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

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

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

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

Antenna Type	Brand	Model	Antenna Gain (dBi)		
			BT	2.4G	5G
Dipole	LYNwave	AOA160-221020-000000	3.0	3.0	2.0
	LYNwave	AOA160-221034-000000	3.0	3.0	3.0
	LYNwave	AOA160-221050-000000	5.0	5.0	5.0
PCB	N/A	N/A	3.6	3.6	5.3
	N/A	N/A	3.6	3.6	4.7
PIFA	SINBON	A9706632	4.1	4.1	3.5
	SINBON	A9706633	4.8	4.8	4.1

* The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.5 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	8.01	20	0.609	1.00
	5180-5240	16.32	8.01	20	0.054	1.00
	5260-5320	16.30	8.01	20	0.054	1.00
	5500-5700	16.33	8.01	20	0.054	1.00
	5745-5825	16.30	8.01	20	0.054	1.00
BT	2402-2480	5.77	5.00	20	0.002	1.00

NOTE:

2.4GHz: Directional gain = $G_{ANT} + 10 \log(N_{ANT}/N_{SS}) = 8.01$ dBi

5.0GHz: Directional gain = $G_{ANT} + 10 \log(N_{ANT}/N_{SS}) = 8.01$ dBi

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + BT = 0.609 + 0.002 = 0.612

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

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