RF Exposure Report

Report No.:	SA181127C08
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:	Jan. 28, 2019
Applicant:	jjPlus Corporation
Address:	13F., No.120-3, Qiaohe Rd. Zhonghe Dist., New Taipei City 23584 Taiwan (R.O.C.)
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
Test Location:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City 33383, Taiwan (R.O.C)
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
SA181127C08	Original Release	Jan. 28, 2019

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) 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 RF characteristics under the conditions specified in this report.

Prepared by : Gina Liu , **Date:** Jan. 28, 2019

Gina Liu / Specialist

Approved by : , **Date:** Jan. 28, 2019

Dylan Chiou / Project Engineer

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^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/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

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 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

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 + ……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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