

RF Exposure Report

Report No.: SABDQY-WTW-P21010024

FCC ID: 2ASXXPAX1800

Test Model: PAX1800

Received Date: Jan. 05, 2021

Test Date: Jan. 26 to Feb. 02, 2021

Issued Date: Mar. 24, 2021

Applicant: Plasma Cloud Limited

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SABDQY-WTW-P21010024	Original release.	Mar. 24, 2021

1 Certificate of Conformity

Product: WiFi 6 AP
Brand: Plasma Cloud Limited
Test Model: PAX1800
Sample Status: Mass Market
Applicant: Plasma Cloud Limited
Test Date: Jan. 26 to Feb. 02, 2021
Standards: FCC Part 2 (Section 2.1091)
IEEE C95.3 -2002
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 EMC characteristics under the conditions specified in this report.

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Approved by : Clark Lin , **Date:** Mar. 24, 2021
Clark Lin / Technical Manager

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/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 20 cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Antenna No.	Chain No.	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
1	2.4GHz Chain1	3.9	2.4~2.5	PIFA	i-pex(MHF)
2	2.4GHz Chain0	3	2.4~2.5	PIFA	i-pex(MHF)
3	5GHz Chain1	4.7	5.15~5.85	PIFA	i-pex(MHF)
4	5GHz Chain0	5.6	5.15~5.85	PIFA	i-pex(MHF)

2.5 Calculation Result of Maximum Conducted Power

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN (2.4GHz)	2412~2462	273.688	6.47	20	0.24154	1
WLAN (U-NII-1)	5180~5240	380.504	8.17	20	0.49669	1
WLAN (U-NII-3)	5745~5825	426.857	8.17	20	0.5572	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20}) / 2] = 6.47$ dBi
3. 5GHz: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 8.17$ 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

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz} = 0.24154 / 1 + 0.5572 / 1 = 0.79874$$

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

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