

RF Exposure Report

Report No.: SABAOZ-WTW-P21060932

FCC ID: WT8DNWAP440

Test Model: AP440

Received Date: 2021/7/8

Test Date: 2021/8/17 ~ 2021/8/19

Issued Date: 2021/9/22

Applicant: Datto, Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory

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Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
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**FCC Registration /
Designation Number:** 723255 / TW2022



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Release Control Record

Issue No.	Description	Date Issued
SABAOZ-WTW-P21060932	Original release.	2021/9/22

1 Certificate of Conformity

Product: 2x2 WiFi 6 Access Point
Brand: datto
Test Model: AP440
Sample Status: Engineering sample
Applicant: Datto, Inc.
Test Date: 2021/8/17 ~ 2021/8/19
Standards: FCC Part 2 (Section 2.1091)
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.

Prepared by : Phoenix Huang , **Date:** 2021/9/22
Phoenix Huang / Specialist

Approved by : Clark Lin , **Date:** 2021/9/22
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

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

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

2.3 Classification

The antenna of this product, under normal use condition, is at least 22 cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Ant. No.	RF Chain No.	Brand	Model No.	Ant. Net Gain (dBi)	Freq. Range (GHz)	Ant. Type	Connector Type	Cable Length (mm)
1	Chain 0	Walsin	RFPCA29120 0NNLB001	3.5 3.8	2.4~2.5 5.15~5.85	PIFA	None	-
2	Chain 1	Walsin	RFMTA31120 7IMLB301	3.3 3.8	2.4~2.5 5.15~5.85	PCB	i-pex(MHF)	75
3 (Background Ant)	-	Walsin	RFPCA29172 5IMLB301	0.9 3.8	2.4~2.5 5.15~5.85	PCB	i-pex(MHF)	250

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	427.847	6.41	22	0.30777	1
WLAN U-NII-1	5180~5240	660.155	6.81	22	0.5207	1
WLAN U-NII-3	5745~5825	741.793	6.81	22	0.5851	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 = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.41 \text{ dBi}$
3. 5GHz: The directional gain = $3.8 \text{ dBi} + 10 \log(2) = 6.81 \text{ dBi}$

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

$WLAN \ 2.4GHz + WLAN \ 5GHz = 0.30777 / 1 + 0.5851 / 1 = 0.89287$

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

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