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.
Address:	101 Merritt 7, Norwalk, CT 06851 USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
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 : , **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

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

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 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	RFPCA291200NNLB001	3.5 3.8	2.4~2.5 5.15~5.85	PIFA	None	-
2	Chain 1	Walsin	RFMTA311207IMLB301	3.3 3.8	2.4~2.5 5.15~5.85	PCB	i-pex(MHF)	75
3 (Background Ant)	-	Walsin	RFPCA291725IMLB301	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] = 6.41dBi
3. 5GHz: The directional gain = 3.8 dBi + 10log(2) = 6.81 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 + 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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