RF Exposure Report

Report No.:	SABAOZ-WTW-P20080586
FCC ID:	WT8DNWAP840
Test Model:	AP840
Received Date:	Aug. 12, 2020
Test Date:	Aug. 29, 2020
Issued Date:	Aug. 11, 2021
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-P20080586	Original release.	Aug. 11, 2021

1   Certificate of Conformity

Product: WiFi6 indoor Access Point

Brand: datto

Test Model: AP840

Sample Status: Engineering Sample

Applicant: Datto, Inc.

Test Date: Aug. 29, 2020

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 EMC characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** _____Aug. 11, 2021_____

Claire Kuan / Specialist

Approved by : _____ , **Date:** _____Aug. 11, 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/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 44 cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4   Antenna Gain

Antenna No.	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (mm)
1	290-20458	3.97	2.4~2.4835	PIFA	i-pex(MHF)	210
2	290-20458	3.4	2.4~2.4835	PIFA	i-pex(MHF)	45
3	290-20458	3.79	2.4~2.4835	PIFA	i-pex(MHF)	130
4	290-20458	3.01	2.4~2.4835	PIFA	i-pex(MHF)	225
5	290-20458	5.22	5.15~5.85	PIFA	i-pex(MHF)	250
6	290-20458	5.71	5.15~5.85	PIFA	i-pex(MHF)	150
7	290-20458	5.45	5.15~5.85	PIFA	i-pex(MHF)	60
8	290-20458	4.69	5.15~5.85	PIFA	i-pex(MHF)	200
9 (Background Ant.)	290-20458	6.45 4.5	2.4~2.4835 5.15~5.85	PIFA	i-pex(MHF)	140
10 (BT Ant.)	-	3.2	2.4~2.4835	PCB	i-pex(MHF)	None

Note: 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

For 2.4GHz, 5GHz (U-NII-1 & UNII-3 band) and BT-LE data was copied from the original test report (Report No.: SABAOZ-WTW-P20080227)

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	952.722	9.57	44	0.35469	1
WLAN (U-NII-1)	5180~5240	610.7	11.30	44	0.33862	1
WLAN (U-NII-2A)	5240~5320	200.584	11.30	44	0.11122	1
WLAN (U-NII-2C)	5500~5720	203.697	11.30	44	0.11295	1
WLAN (U-NII-3)	5745~5825	963.3	11.30	44	0.53413	1
BT-LE	2402~2480	6.998	3.20	44	0.00060	1

Note:
1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: Directional gain = $10 \log[10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4]$ = 9.57 dBi
3. 5GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4]$ = 11.30 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 + Bluetooth = 0.35469 / 1 + 0.53413 / 1 + 0.00060 / 1 = 0.88942

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

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