RF Exposure Report

Report No.:	SABDYS-WTW-P21030161
FCC ID:	Q6G-AP430CR
Test Model:	AP430CR
Received Date:	Mar. 11, 2021
Test Date:	Mar. 18 ~ Apr. 19, 2021
Issued Date:	May 03, 2021
Applicant:	WatchGuard Technologies, Inc.
Address:	505 Fifth Avenue South, Suite 500 Seattle WA United States 98104
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
SABDYS-WTW-P21030161	Original release	May 03, 2021

1 Certificate of Conformity

Product:	Wireless Access Point
Brand:	WatchGuard
Test Model:	AP430CR
Sample Status:	Engineering sample
Applicant:	WatchGuard Technologies, Inc.
Test Date:	Mar. 18 ~ Apr. 19, 2021
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 RF characteristics under the conditions specified in this report.

Prepared by : Pettie Chen , **Date:** May 03, 2021

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** May 03, 2021

Bruce Chen / Senior 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 40cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Average Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN					
2G traffic radio (Radio 1): CDD Mode					
2412-2462	26.28	8.51	40	0.150	1
5G traffic radio (Radio 2): CDD Mode					
5180-5240	22.81	12.52	40	0.170	1
5745-5825	28.79	13.02	40	0.755	1
2G traffic radio (Radio 1): Beamforming Mode					
2412-2462	22.71	8.51	40	0.066	1
5G traffic radio (Radio 2): Beamforming Mode					
5180-5240	16.79	12.52	40	0.042	1
5745-5825	22.77	13.02	40	0.189	1
Scanning radio (Radio 3): CDD Mode					
2412-2462	24.98	8.51	40	0.111	1
5180-5240	23.09	9.51	40	0.091	1
5745-5825	23.65	10.01	40	0.116	1
BT LE					
2402-2480	6.83	5.5	40	0.001	1

Note:
1. Directional gain:
   2G traffic radio: Directional gain = 5.5 dBi + 10log(2) = 8.51 dBi
   5G traffic radio: 5180-5240MHz: Directional gain = 6.5 dBi + 10log(4) = 12.52 dBi
   5G traffic radio: 5745-5825MHz: Directional gain = 7.0 dBi + 10log(4) = 13.02 dBi
   2G Scanning radio: Directional gain = 5.5 dBi + 10log(2) = 8.51 dBi
   5G Scanning radio: 5180-5240MHz: Directional gain = 6.5 dBi + 10log(2) = 9.51dBi
   5G Scanning radio: 5745-5825MHz: Directional gain = 7.0 dBi + 10log(2) = 10.01dBi
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. 5GHz traffic radio (Radio 2) and 5G Scanning radio (Radio 3) cannot transmit in the same band at same time. 2G traffic radio (Radio 1) and 2G Scanning radio (Radio 3) cannot transmit at same time.

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

2G traffic radio (Radio 1) + 5GHz traffic radio (Radio 2) + 5G Scanning radio (Radio 3) + BLE
= 0.150 / 1 + 0.755 / 1 + 0.091 / 1 + 0.001 / 1 = 0.997 < 1

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

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