

RF Exposure Report

Report No.: SABDYS-WTW-P21040408

FCC ID: 2AKCZ-106

Test Model: APL66-106

Received Date: Apr. 20, 2021

Test Date: Apr. 29 ~ Jul. 09, 2021

Issued Date: Oct. 04, 2021

Applicant: SonicWall Inc.

Address: 1033 McCarthy Blvd., Milpitas, CA 95035, USA

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



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Release Control Record

Issue No.	Description	Date Issued
SABDYS-WTW-P21040408	Original release	Oct. 04, 2021

1 Certificate of Conformity

Product: Wireless Access Point

Brand: SONICWALL

Test Model: APL66-106

Sample Status: Engineering sample

Applicant: SonicWall Inc.

Test Date: Apr. 29 ~ Jul. 09, 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:** Oct. 04, 2021
Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Oct. 04, 2021
Bruce Chen / Senior 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

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

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 54cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Conducted Power

Radio	Frequency Band (MHz)	Max AV Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2G traffic radio (Radio 2)	CDD Mode					
	2412-2462	28.59	10.41	54	0.217	1
	Beamforming Mode					
	2412-2462	24.56	10.41	54	0.086	1
5GHz traffic radio (Radio 1)	CDD Mode					
	5180-5240	24.27	13.49	54	0.163	1
	5745-5825	29.70	13.39	54	0.556	1
	Beamforming Mode					
	5180-5240	22.46	13.49	54	0.107	1
	5745-5825	22.54	13.39	54	0.107	1
2G+5G Scanning radio (Radio 3)	2412-2462	22.69	4.91	54	0.016	1
	5180-5240	21.58	4.85	54	0.012	1
	5745-5825	20.88	5.23	54	0.011	1
BT LE	2402-2480	2.26	4.05	54	0.0001	1

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 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.
- Directional gain:

2G traffic radio: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.41\text{dBi}$

5G traffic radio: 5180-5240MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/8] = 13.49\text{dBi}$

5G traffic radio: 5745-5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/8] = 13.39\text{dBi}$

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

No	Mode
1	2GHz traffic radio (Radio 2) + 5GHz traffic radio (Radio 1) + 5GHz Scanning radio (Radio 3) + BLE $=0.217/1+0.556/1+0.012/1+0.0001/1=0.785$
2	5GHz traffic radio (Radio 1) + 2GHz Scanning radio (Radio 3) + BLE $=0.556/1+0.016/1+0.0001/1=0.572$

* 5GHz traffic radio (Radio 1) and 5GHz Scanning radio (Radio 3) cannot transmit in the same band at same time.

* 2GHz traffic radio (Radio 2) and 2GHz Scanning radio (Radio 3) cannot transmit at same time.

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

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