

## RF Exposure Report

**Report No.:** SA180524C28

**FCC ID:** 2AKCZ-0D1

**Test Model:** APL46-0D1

**Received Date:** May 04, 2018

**Test Date:** May 04 ~ Jun. 20, 2018

**Issued Date:** Jul. 17, 2018

**Applicant:** SonicWall Inc.

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

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

**FCC Registration /  
Designation Number:** 788550 / TW0003



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### Release Control Record

Issue No.	Description	Date Issued
SA180524C28	Original release	Jul. 17, 2018

## 1 Certificate of Conformity

**Product:** Wireless Access Point

**Brand:** SONICWALL

**Test Model:** APL46-0D1

**Sample Status:** Engineering sample

**Applicant:** SonicWall Inc.

**Test Date:** May 04 ~ Jun. 20, 2018

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

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 :** Celine Chou , **Date:** Jul. 17, 2018  
Celine Chou / Specialist

**Approved by :** Bruce Chen , **Date:** Jul. 17, 2018  
Bruce Chen / 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 <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 2.2 MPE Calculation Formula

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

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

Function	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN	Radio 1, Dipole Ant., CDD Mode					
	2412-2462	22.56	7.51	40	0.05054	1
	Radio 1, Dipole Ant., Beamforming Mode					
	2412-2462	19.22	7.51	40	0.02342	1
	Radio 1, Sector Ant., CDD Mode					
	2412-2462	21.72	15.61	40	0.26895	1
	Radio 1, Sector Ant., Beamforming Mode					
	2412-2462	18.47	15.61	40	0.12725	1
	Radio 2, Dipole Ant., CDD Mode					
	5180-5240	23.19	9.31	40	0.08844	1
	5745-5825	23.00	9.31	40	0.08466	1
	Radio 2, Dipole Ant., Beamforming Mode					
	5180-5240	20.16	9.31	40	0.04402	1
	5745-5825	19.96	9.31	40	0.04204	1
	Radio 2, Sector Ant., CDD Mode					
	5180-5240	14.13	17.61	40	0.07425	1
	5745-5825	21.35	17.61	40	0.39144	1
	Radio 2, Sector Ant., Beamforming Mode					
	5180-5240	11.12	17.61	40	0.03713	1
	5745-5825	18.34	17.61	40	0.19574	1
	Radio 3, PIFA Ant.					
	2412-2462	16.92	3.67	40	0.00570	1
BT LE	2402-2480	-4.25	3.69	40	0.00004	1

Note:

1. For Radio 1, Dipole Ant. 2.4G Directional gain = 4.50dBi + 10log(2) = 7.51dBi
2. For Radio 1, Sector Ant. 2.4G Directional gain = 12.60dBi + 10log(2) = 15.61dBi
3. For Radio 2, Dipole Ant. 5G Directional gain = 6.30dBi + 10log(2) = 9.31dBi
4. For Radio 2, Sector Ant. 5G Directional gain = 14.60dBi + 10log(2) = 17.61dBi

Frequency Band	Max Power (dBm)			Total Power (dBm)	Power Limit (dBm)
	Radio 1 WLAN	Radio 3 WLAN	BT LE		
2.4GHz	22.56	16.92	-4.25	23.62	30

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

Radio 1 WLAN 2.4GHz + Radio 2 WLAN 5GHz + Radio 3 WLAN 2.4GHz + BT LE =  $0.26895 + 0.39144 + 0.00570 + 0.00004 = 0.66613 < 1$

**---END---**