

## RF Exposure Report

**Report No.:** SA170810E01B

**FCC ID:** 2AKCZ-0C3

**Test Model:** APL43-0C3

**Received Date:** June 01, 2017

**Test Date:** Aug. 01, 2017

**Issued Date:** Nov. 30, 2017

**Applicant:** SonicWall Inc.

**Address:** 5455 Great America Parkway, Santa Clara, CA 95054 USA

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

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Taiwan R.O.C.

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### Release Control Record

Issue No.	Description	Date Issued
SA170810E01B	Original release.	Nov. 30, 2017

## 1 Certificate of Conformity

**Product:** Wireless Access Point

**Brand:** SONICWALL

**Test Model:** APL43-0C3

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** SonicWall Inc.

**Test Date:** Aug. 01, 2017

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

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1

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 :**

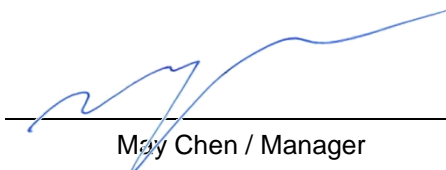


**Date:**

Nov. 30, 2017

Claire Kuan / Specialist

**Approved by :**



**Date:**

Nov. 30, 2017

May Chen / 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 <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 50cm away from the body of the user. So, this device is classified as Mobile Device.

### 2.4 Classification

Internal antenna										
Type	PIFA									
Connector	IPEX									
Radio	1				2				3	4
Frequency	2.4GHz				5GHz				2.4GHz	BT-LE
Antenna	1	2	3	4	5	6	7	8	9	10
Gain (dBi)	3.15	3.52	3.39	4.57	4.92	5.87	5.47	5.95	2.91	3.13

### 3 Calculation Result of Maximum Conducted Power

Radio	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
1	WLAN 2412~2462 (CDD mode)	27.55	9.7	50	0.16884	1
	WLAN 2412~2462 (Beamforming mode)	24.21	9.7	50	0.07830	1
2	WLAN 5180-5240 (CDD mode)	24.20	11.58	50	0.12056	1
	WLAN 5260-5320 (CDD mode)	18.54	11.58	50	0.03274	1
	WLAN 5500-5700 (CDD mode)	21.49	11.58	50	0.06457	1
	WLAN 5745-5825 (CDD mode)	27.54	11.58	50	0.25966	1
	WLAN 5180-5240 (Beamforming mode)	21.37	11.58	50	0.06279	1
	WLAN 5260-5320 (Beamforming mode)	16.60	11.58	50	0.02095	1
	WLAN 5500-5700 (Beamforming mode)	16.55	11.58	50	0.02071	1
	WLAN 5745-5825 (Beamforming mode)	21.48	11.58	50	0.06435	1
3	WLAN 2412~2462	20.66	2.91	50	0.00724	1
4	BT-LE 2402-2480	6.04	3.13	50	0.00026	1

Note:

For radio 1

2.4GHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 9.7\text{dBi}$

For radio 2

5GHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 11.58\text{dBi}$

For radio 3

2.4GHz: Directional gain = 2.91dBi

For radio 4

BT-LE: Directional gain = 3.13dBi

#### 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 + Radio 2 + Radio 3 + Radio 4

$= 0.16884 / 1 + 0.25966 / 1 + 0.00724 / 1 + 0.00026 / 1 = 0.43600 < 1$

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

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