RF Exposure Report

Report No.:	SA200717C09 R1
FCC ID:	2AKCZ-101
Test Model:	APL57-0F2, APL57-101 (refer to section 1 for more details)
Received Date:	Jul. 17, 2020
Date of Evaluation:	Nov. 05, 2021
Issued Date:	Mar. 03, 2022
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
SA200717C09	Original Release	May 18, 2021
SA200717C09 R1	Update beamforming power	Mar. 03, 2022

1 Certificate of Conformity

Product: Wireless Network Security Appliance

Brand: SONICWALL

Test Model: APL57-0F2, APL57-101

Sample Status: Engineering sample

Applicant: SonicWall Inc.

Date of Evaluation: Nov. 05, 2021

Standards: FCC Part 2 (Section 2.1091)

References Test Guidance: KDB 447498 D01 General RF Exposure Guidance v06
IEEE C95.3 -2002

Note:

1. The following models are provided to this EUT.
   (a) The EUT using the same PCB Layout.
   (b) Due to series models, the parts are different as below:

Model	APL57-0F2	APL57-101
PSE Out	N/A	N/A
Copper Ports	x8 GbE	x8 GbE
SFP Ports	x2 SFP (Max: 2.5Gbps)	NO
mPCIe WiFi Module	2x2 11ac Wave 2 (Module)	2x2 11ac Wave 2 (Module)
WiFi SPEC	2.4G+5G 11ac+abgn support Beamforming	2.4G+5G 11ac+abgn support Beamforming
ANT for WiFi	x2 ANTs (EXT)	x2 ANTs (EXT)
Console (RJ45)	YES	YES
USB Port	3.0 x2	3.0 x2
FAN(s)	YES	YES
Outer covering	Metal	Metal
CPU	1.4GHz	1.2GHz

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 : Vera Huang , **Date:** Mar. 03, 2022

Vera Huang / Specialist

Approved by : Jeremy Lin , **Date:** Mar. 03, 2022

Jeremy Lin / 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 20cm 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 AV Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
CDD Mode					
2412-2462	23.53	6.20	20	0.187	1
5180-5240	21.43	8.86	20	0.213	1
5260-5320	22.12	8.86	20	0.249	1
5500-5700	21.15	8.86	20	0.199	1
5745-5825	24.02	8.86	20	0.386	1
Beamforming Mode					
2412-2462	19.98	6.20	20	0.083	1
5180-5240	21.43	8.86	20	0.213	1
5260-5320	21.21	8.86	20	0.202	1
5500-5700	21.15	8.86	20	0.199	1
5745-5825	23.89	8.86	20	0.375	1

Note:

1. This report is issued as a supplementary report to BV CPS report no. SA200717C08. The difference compared with the original report is adding 5.26GHz to 5.32GHz and 5.50GHz to 5.70GHz by software.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. 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.
4. WLAN 2.4GHz & WLAN 5GHz technology cannot transmit at same time.

2.4GHz: Directional gain = 3.19dBi +10log(2) = 6.20dBi
5.0GHz: Directional gain = 5.85dBi+10log(2) = 8.86dBi

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