



A D T

RF EXPOSURE REPORT

REPORT NO.: SA111227C09

MODEL NO.: APL22-09E

FCC ID: QWU-09E

RECEIVED: Dec. 27, 2011

TESTED: Jan. 07 ~ Jan. 17, 2012

ISSUED: Jan. 30, 2012

APPLICANT: SonicWALL, Inc.

ADDRESS: 2001 Logic Drive San Jose, CA 95124, USA

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

LAB ADDRESS: No. 47, 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 Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

This test report consists of 7 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced, except in full, without the written approval of our laboratory. The client should not use it to claim product, certification, approval, or endorsement by any government agency. The test results in the report only apply to the tested sample.



A D T

TABLE OF CONTENTS

RELEASE CONTROL RECORD	3
1. CERTIFICATION	4
2. RF EXPOSURE.....	5
2.1 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE).....	5
2.2 MPE CALCULATION FORMULA	5
2.3 CLASSIFICATION	5
2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER.....	6



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Jan. 30, 2012



1. CERTIFICATION

PRODUCT: Wireless 802.11 abgn Device

MODEL: APL22-09E

BRAND: SonicWALL

APPLICANT: SonicWALL, Inc.

TESTED: Jan. 07 ~ Jan. 17, 2012

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 2 (Section 2.1091)

FCC OET Bulletin 65, Supplement C (01-01)

IEEE C95.1

The above equipment (Model: APL22-09E) 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 : Pettie Chen, DATE : Jan. 30, 2012

Pettie Chen / Specialist

APPROVED BY : Gary Chang, DATE : Jan. 30, 2012

Gary Chang / Technical Manager



A D T

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				
300-1500	F/1500	30
1500-100,000	1.0	30

F = Frequency in MHz

2.2 MPE CALCULATION FORMULA

$$Pd = (Pout \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

Pd = power density in mW/cm²

Pout = 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 20cm away from the body of the user. So, this device is classified as **Mobile Device**.



A D T

2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

FREQUENCY BAND (MHz)	MODULATION MODE	MAX POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
2412-2462	802.11b	25.48	8.5	20	0.497	1
	802.11g	27.22	8.5	20	0.743	1
	802.11n (20MHz)	29.09	4	20	0.405	1
	802.11n (40MHz)	26.39	4	20	0.218	1
5180-5240	802.11a	11.06	8.8	20	0.019	1
	802.11n (20MHz)	14.33	4	20	0.014	1
	802.11n (40MHz)	16.61	4	20	0.023	1
5745-5825	802.11a	26.50	8.8	20	0.674	1
	802.11n (20MHz)	26.44	4	20	0.220	1
	802.11n (40MHz)	26.98	4	20	0.249	1

NOTE:

For 802.11b/g: Directional gain = $10\log(10^{4\text{dBi}/20} + 10^{3\text{dBi}/20} + 10^{4\text{dBi}/20})^2 / 3 = 8.5\text{dBi}$

For 802.11a: Directional gain = $4\text{dBi} + 10\log(3) = 8.8\text{dBi}$



A D T

FREQUENCY BAND	MAX POWER (W)	MAX POWER (dBm)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
2.4GHz Band	0.527	27.22	45	0.147	1
5GHz Band	0.447	26.50	45	0.133	1

DEVICE	MAX EIRP (W)	MAX EIRP (dBm)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
3G/4G USB DONGLE	11.48	40.6	45	0.451	0.549

This product can operate with a plug-in 3G/4G USB device which has maximum of 7W ERP(11.48W EIRP) output power. 2.4GHz and 5GHz cannot transmit at the same time.

Co-located mode is as below

1. Wi-Fi 2.4GHz + 3G/4G dongle = $0.147/1+0.451/0.549 = 0.968$
2. Wi-Fi 5GHz + 3G/4G dongle = $0.133/1+0.451/0.549 = 0.955$