

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.

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

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TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei
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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 :  , DATE : Jan. 30, 2012
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APPROVED BY :  , DATE : Jan. 30, 2012
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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

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

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

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 = $4\text{dBi} + 10\log(3) = 8.8\text{dBi}$

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 = $0.133/1+0.451/0.549 = 0.955$