RF EXPOSURE REPORT

REPORT NO.:	SA110831C15
MODEL NO.:	APL25-091
FCC ID:	QWU-091
RECEIVED:	Aug. 31, 2011
TESTED:	Oct. 07, 2011
ISSUED:	Oct. 19, 2011
APPLICANT:	SonicWALL, Inc.
ADDRESS:	2001 Logic Drive San Jose, CA 95124, USA
ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
LAB ADDRESS:	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA110831C15	Original release	Oct. 19, 2011

1. CERTIFICATION

PRODUCT:	Wireless 802.11 abgn Device
BRAND NAME:	SonicWALL
MODEL NO.:	APL25-091
TEST SAMPLE:	ENGINEERING SAMPLE
APPLICANT:	SonicWALL, Inc.
STANDARDS:	FCC Part 2 (Section 2.1091)
	FCC OET Bulletin 65, Supplement C (01-01)
	IEEE C95.1

The above equipment (Model: APL25-091) 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:** *Oct. 19, 2011*
(Lori Chung, Specialist)

APPROVED BY : _____ , **DATE:** *Oct. 19, 2011*
(May Chen, Deputy Manager)

2. RF EXPOSURE LIMIT

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

3. MPE CALCULATION FORMULA

Pd = (Pout*G) / (4*pi*r2)

where

Pd = power density in mW/cm2

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

4. 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**.

5. ANTENNA GAIN

The antennas used in this EUT are listed as below table:

Transmitter Circuit	ANTENNA TYPE	ANTENNA CONNECTOR	GAIN (dBi)	
			2.4GHz BAND	5.0GHz BAND
Chain (0)	Dipole	RTNC	2.5	2.5
Chain (1)	Dipole	RSMA	3.0	3.0
Chain (2)	Dipole	RTNC	2.5	2.5

6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

For 15.247(2.4GHz):

802.11b:

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2412-2462	154.8	7.4	20	0.169	1.00

Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$ + $10^{G3/20}$)^2 / 3]
Effective Legacy Gain (dBi) = 7.4

802.11g:

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2412-2462	504.2	7.4	20	0.551	1.00

Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$ + $10^{G3/20}$)^2 / 3]
Effective Legacy Gain (dBi) = 7.4

802.11n(20MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2412-2462	484.4	3	20	0.192	1.00

802.11n(40MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2422-2452	741.4	3	20	0.294	1.00

For 15.247(5GHz):

802.11a:

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5745 ~ 5825	426.6	7.4	20	0.466	1.00

Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$ + $10^{G3/20}$)^2 / 3]
Effective Legacy Gain (dBi) = 7.4

802.11n(20MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5745 ~ 5825	493.6	3	20	0.196	1.00

802.11n(40MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5755 ~ 5795	510.7	3	20	0.203	1.00

For 15.407(5GHz):

802.11a:

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5180-5240	19.5	7.4	20	0.021	1.00

Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$ + $10^{G3/20}$)^2 / 3]
Effective Legacy Gain (dBi) = 7.4

802.11n(20MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5180-5240	28.6	3	20	0.011	1.00

802.11n(40MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5190-5230	29.1	3	20	0.012	1.00

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