



NVLAP LAB CODE 200707-0



FCC PART 15.247

MEASUREMENT AND TEST REPORT

For

RFNet Technologies Pte Ltd.

801, Lorong 7 Toa Payoh, #05-02 Wearnes Technology Building,
Singapore 319319.

FCC ID: PXPAP2061

Report Type: Original Report	Product Type: Wireless Access Point
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Report Number: RSZ08070106	
Report Date: 2008-12-08	
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP*, NIST, or any agency of the Federal Government.

* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "*" (Rev.2)

TABLE OF CONTENTS

GENERAL INFORMATION.....	4
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	4
OBJECTIVE	4
RELATED SUBMITTAL(S)/GRANT(S).....	4
TEST METHODOLOGY	4
TEST FACILITY	5
SYSTEM TEST CONFIGURATION.....	6
DESCRIPTION OF TEST CONFIGURATION	6
EQUIPMENT MODIFICATIONS	6
HOST SYSTEM CONFIGURATION LIST AND DETAILS	6
LOCAL SUPPORT EQUIPMENT LIST AND DETAILS	6
EXTERNAL I/O CABLE.....	6
CONFIGURATION OF TEST SETUP	7
BLOCK DIAGRAM OF TEST SETUP	7
SUMMARY OF TEST RESULTS	8
§15.247 (i) and §1.1307(b) (1) - MAXIMUN PERMISSIBLE EXPOSURE.....	9
STANDARD APPLICABLE	9
TEST DATA	9
§15.203 - ANTENNA REQUIREMENT.....	11
STANDARD APPLICABLE	11
ANTENNA CONNECTOR CONSTRUCTION	11
CFR47 §15.207 (a) - CONDUCTED EMISSIONS	12
APPLICABLE STANDARD	12
MEASUREMENT UNCERTAINTY	12
EUT SETUP.....	12
EMI TEST RECEIVER SETUP.....	13
TEST EQUIPMENT LIST AND DETAILS.....	13
TEST PROCEDURE	13
TEST RESULTS SUMMARY.....	13
TEST DATA	14
PLOT(S) OF TEST DATA	15
CFR47 §15.205, §15.209, §15.109, §15.247 - RADIATED EMISSIONS.....	20
APPLICABLE STANDARD	20
MEASUREMENT UNCERTAINTY	20
EUT SETUP.....	20
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP	21
TEST EQUIPMENT LIST AND DETAILS.....	21
TEST PROCEDURE	21
CORRECTED AMPLITUDE & MARGIN CALCULATION	21
TEST RESULTS SUMMARY.....	22
TEST DATA	22
§15.247(a) (2) –6dB BANDWIDTH TESTING.....	29

APPLICABLE STANDARD29
TEST DATA29
§15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER30
APPLICABLE STANDARD30
TEST DATA30
§15.247(e) - POWER SPECTRAL DENSITY.....31
APPLICABLE STANDARD31
TEST DATA31

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *RFNet Technologies Pte Ltd's* product, model number: *AP-2061* or the "EUT" as referred to in this report is a *Wireless Access Point*, which measures approximately: 21.0 cm L x 11.0 cm W x 4.5 cm H, input voltage: DC 48V adapter.

Adapter Information:

Model: PW130;

Input: 100V-250V~50/60Hz, 500mA;

Output: 48V---350mA

** All measurement and test data in this report was gathered from production sample serial number: 0807006 (Assigned by BACL, Shenzhen). The EUT was received on 2008-07-01.*

Note: The radio module was certified on 2008-01-31, the conducted output power keeps same as the original certified product only antenna, adaper and appearance differ, so we did AC conducted and radiated test only.

Objective

This Type approval report is prepared on behalf of *RFNet Technologies Pte Ltd* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

FCC ID: DXAAWWIFIAP, mudule granted on 2008-01-31.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



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The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

Equipment Modifications

No modification was made to the unit tested.

Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
DELL	PC	DELL 170L	CN-0TC670-70821-560-F4Q6	DoC
ProMOS	Memory	V826632K24SATG-C0	0525-K1933700	N/A
Intel	CPU	Celeron D-2533	N/A	N/A
DELL	Motherboard	OWC297	CN-OWC297-70821-564-00NI	DoC
DELL	Power	NPS-250KB D	CN-0H2678-17972-56E-80BM	DoC
Seagate	Hard Disk	ST340014A	5JXK3GXE	DoC
DELL	3.5' Floppy	N/A	CN-0N8893-69802-54Q-02P0	DoC
Lite-ON	CD-Rom	LTN-489S	N/A	DoC
Intel	Ethernet	PRO 10/100 VE	N/A	DoC

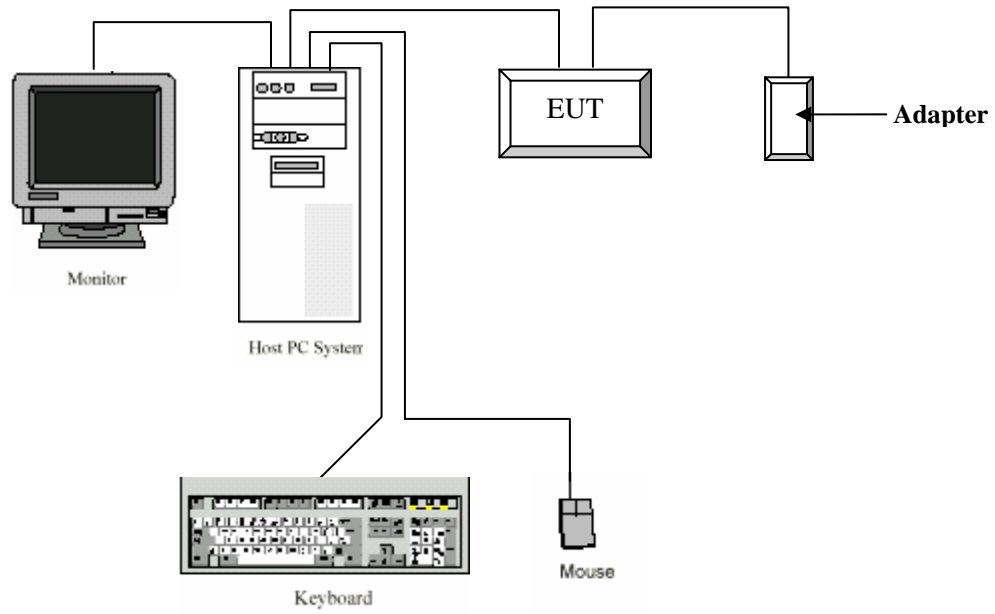
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
DELL	Keyboard	SK-8110	CN07N244-71616-56A-1B1E	DoC
DELL	Mouse	M071KC	520027907	DoC
DELL	LCD Monitor	1505FP	Y4287-7168-571-GBSH	DoC

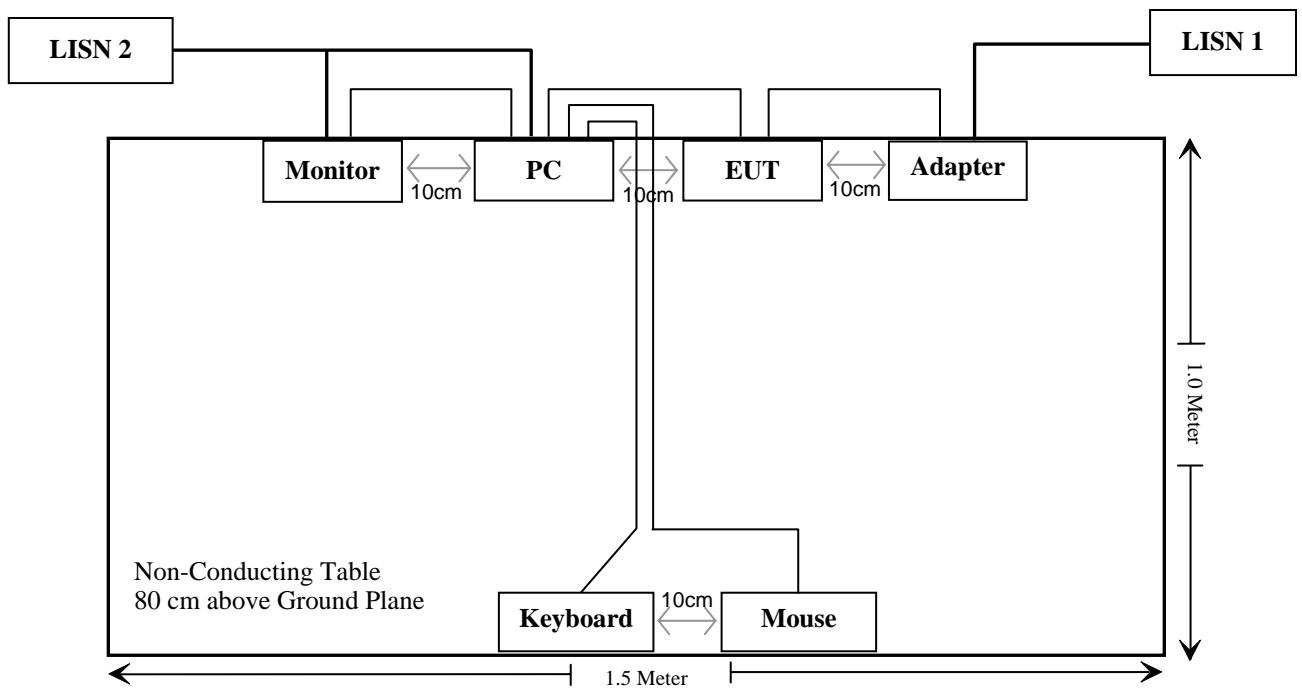
External I/O Cable

Cable Description	Length (m)	From Port	To
Shielded Detachable K/B Cable	1.5	K/B Port	K/B
Shielded Detachable Mouse Cable	1.5	Mouse Port	Mouse
Shielded Detachable VGA Cable	1.5	VGA Port	Monitor

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b)(1)	Maximum Permissible exposure (MPE)	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	Conducted Emissions	Compliant
§15.247(d), §15.205, §15.209	Spurious Emissions and Band Edges	Compliant
§15.247 (a)(2)	6 dB Bandwidth	Compliant*
§15.247(b)(3)	Peak Output Power Measurement	Compliant**
§15.247(e)	Power Spectral Density	Compliant**

Note: * Please refer to FCC ID: DXAAWIFIAP certified on 2008-01-31, Report No.: RSZ07121201.

** The antenna port conducted output power keeps the same as the original certified product.

§15.247 (i) and §1.1307(b) (1) - MAXIMUM PERMISSIBLE EXPOSURE

Standard Applicable

According to §15.247 (i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Radio frequency radiation exposure was calculated based on § 1.1310 limits.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
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

Test Data

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW) .

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally *numeric* gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

For 802.11b Mode:

Maximum peak output power at antenna input terminal: 19.78(dBm)

Maximum peak output power at antenna input terminal: 95.06 (mW)

Prediction distance: 20 (cm)

Predication frequency: 2442 (MHz)

Antenna Gain (typical): 2.0 (dBi)

Antenna Gain (typical): 1.585 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.03 (mW/cm²)

MPE limit for general population exposure at prediction frequency: 1.0 (mW/cm²)

For 802.11g Mode:

Maximum peak output power at antenna input terminal: 19.32 (dBm)

Maximum peak output power at antenna input terminal: 85.51 (mW)

Prediction distance: 20 (cm)

Predication frequency: 2442 (MHz)

Antenna Gain (typical): 2.0(dBi)

Antenna Gain (typical): 1.585 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.027 (mW/cm²)

MPE limit for general population exposure at prediction frequency: 1.0 (mW/cm²)

Result: EUT complies with 20 cm distance.

§15.203 - ANTENNA REQUIREMENT

Standard Applicable

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

And according to § 15.247 (b) (4), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT uses a unique coupling antenna. The maximum gain is 2.0dB; please refer to the antenna photo.



CFR47 §15.207 (a) - CONDUCTED EMISSIONS

Applicable Standard

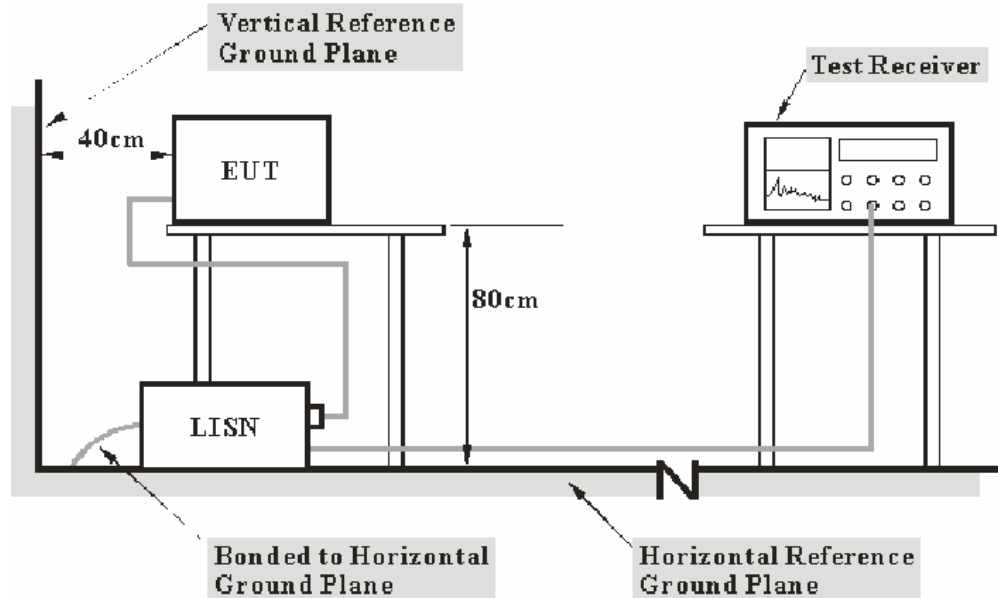
CFR47 §15.207

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratory Corp. (Shenzhen) is ± 2.4 dB.

EUT Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter of EUT was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

<i>Frequency Range</i>	<i>IF B/W</i>
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12208	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCS30	DE25330	2008-03-25	2009-03-25
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2008-03-25	2009-03-25

* Com-Power's LISN were used as the supporting equipment.

* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207, with the worst margin reading of:

Transmitting (802.11b) Mode: 8.50 dB at 23.1300 MHz in the Line conductor mode
Transmitting (802.11g) Mode: 8.90 dB at 23.1300 MHz in the Line conductor mode

Test Data**Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

* The testing was performed by Alvin Huang on 2008-12-05.

Test Mode: Transmitting (802.11b)

Line Conducted Emissions				FCC Part 15.207	
Frequency (MHz)	Amplitude (dB μ V)	Detector (QP/AV)	Conductor (Line/Neutral)	Limit (dB μ V)	Margin (dB)
23.1300	41.50	AV	Line	50.00	8.50
23.1300	40.80	AV	Neutral	50.00	9.20
4.2300	35.20	AV	Line	46.00	10.80
0.4000	34.10	AV	Neutral	47.85	13.75
23.1300	45.30	QP	Line	60.00	14.70
23.1300	44.80	QP	Neutral	60.00	15.20
1.7400	30.60	AV	Neutral	46.00	15.40
0.4050	32.30	AV	Line	47.75	15.45
1.7400	40.00	QP	Neutral	56.00	16.00
4.2300	38.30	QP	Line	56.00	17.70
0.4000	39.20	QP	Neutral	57.85	18.65
0.2700	29.40	AV	Line	51.12	21.72
0.3350	27.00	AV	Neutral	49.33	22.33
0.3350	27.00	AV	Line	49.33	22.33
0.4050	35.10	QP	Line	57.75	22.65
0.2700	26.80	AV	Neutral	51.12	24.32
0.3350	32.40	QP	Neutral	59.33	26.93
0.2000	26.10	AV	Line	53.61	27.51
0.2700	33.60	QP	Line	61.12	27.52
0.3350	31.70	QP	Line	59.33	27.63
0.2700	33.10	QP	Neutral	61.12	28.02
0.2000	22.90	AV	Neutral	53.61	30.71
0.2000	32.10	QP	Line	63.61	31.51
0.2000	31.90	QP	Neutral	63.61	31.71

Test Mode: Transmitting (802.11g)

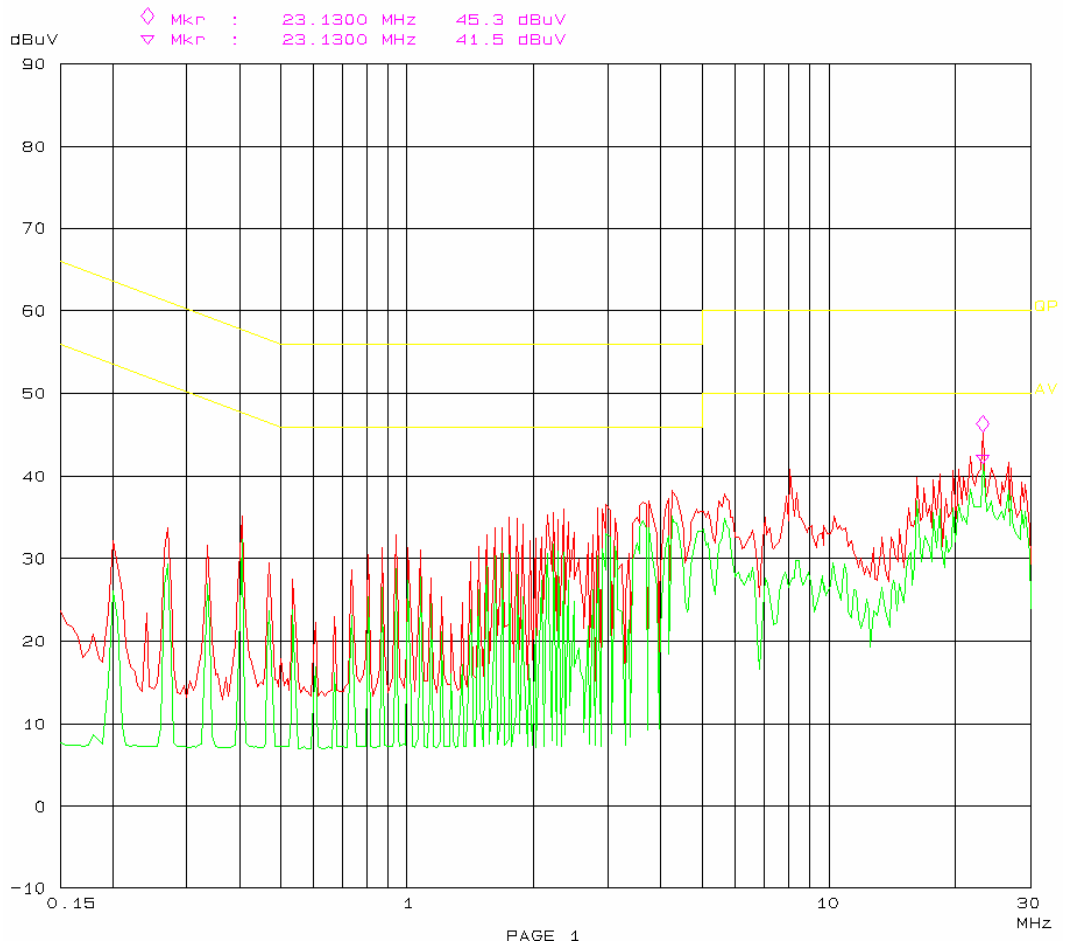
Line Conducted Emissions				FCC Part 15.207	
Frequency (MHz)	Amplitude (dB μ V)	Detector (QP/AV)	Conductor (Line/Neutral)	Limit (dB μ V)	Margin (dB)
23.1300	41.10	AV	Line	50.00	8.90
23.1300	40.80	AV	Neutral	50.00	9.20
0.4000	34.90	AV	Line	47.85	12.95
0.4000	34.40	AV	Neutral	47.85	13.45
2.2100	32.10	AV	Line	46.00	13.90
23.1300	45.10	QP	Line	60.00	14.90
23.1300	44.90	QP	Neutral	60.00	15.10
1.7400	39.90	QP	Neutral	56.00	16.10
1.7400	29.80	AV	Neutral	46.00	16.20
2.2100	39.20	QP	Line	56.00	16.80
0.4000	39.50	QP	Line	57.85	18.35
0.4000	39.20	QP	Neutral	57.85	18.65
0.3350	28.70	AV	Line	49.33	20.63
0.2700	29.70	AV	Line	51.12	21.42
0.3350	25.90	AV	Neutral	49.33	23.43
0.2700	26.80	AV	Neutral	51.12	24.32
0.3350	33.70	QP	Line	59.33	25.63
0.2000	27.70	AV	Line	53.61	25.91
0.2700	34.20	QP	Line	61.12	26.92
0.3350	32.10	QP	Neutral	59.33	27.23
0.2700	32.50	QP	Neutral	61.12	28.62
0.2000	33.00	QP	Line	63.61	30.61
0.2000	23.00	AV	Neutral	53.61	30.61
0.2000	32.20	QP	Neutral	63.61	31.41

Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.

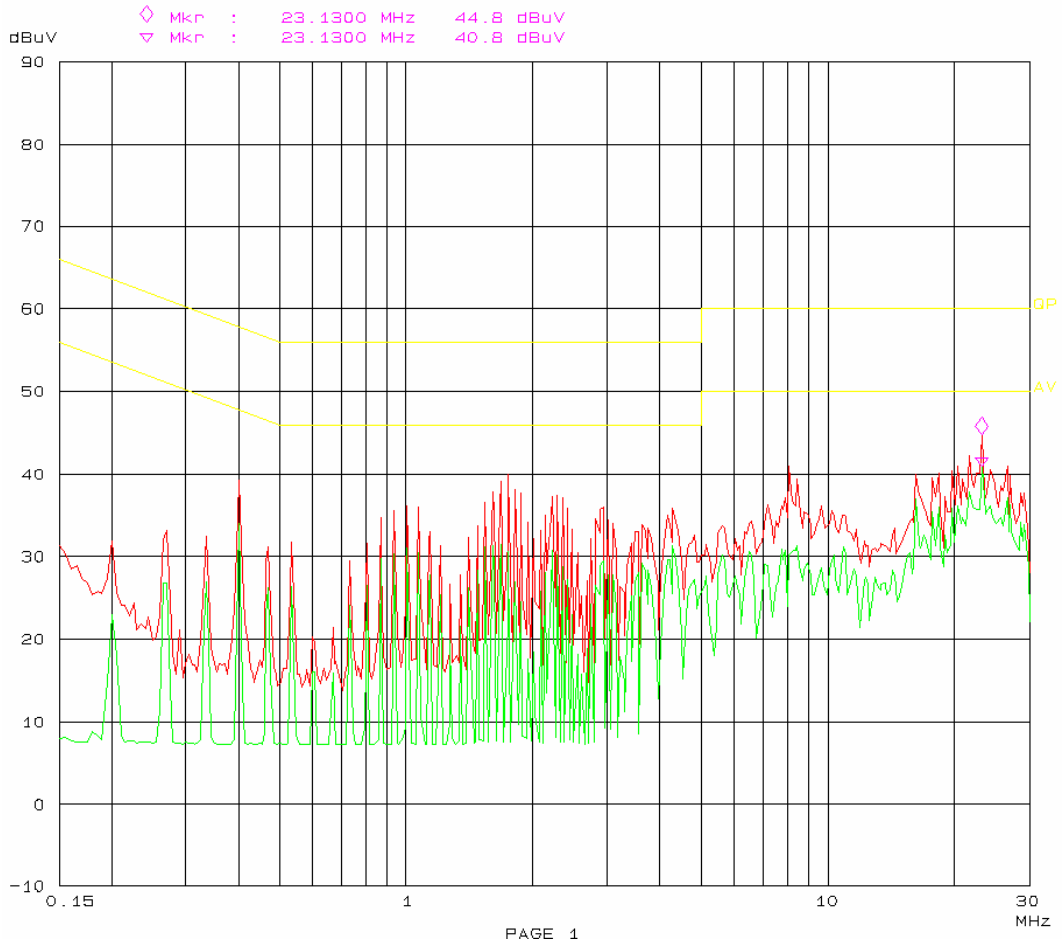
Conducted emission
fcc 15

EUT: wireless access point M/N: AP-2061
Manuf: RFNet
Op Cond: transmitting-802.11b
Operator: alvin
Test Spec: AC 120V/60Hz L
Comment: Temp: 25 Hum: 56%
BACL



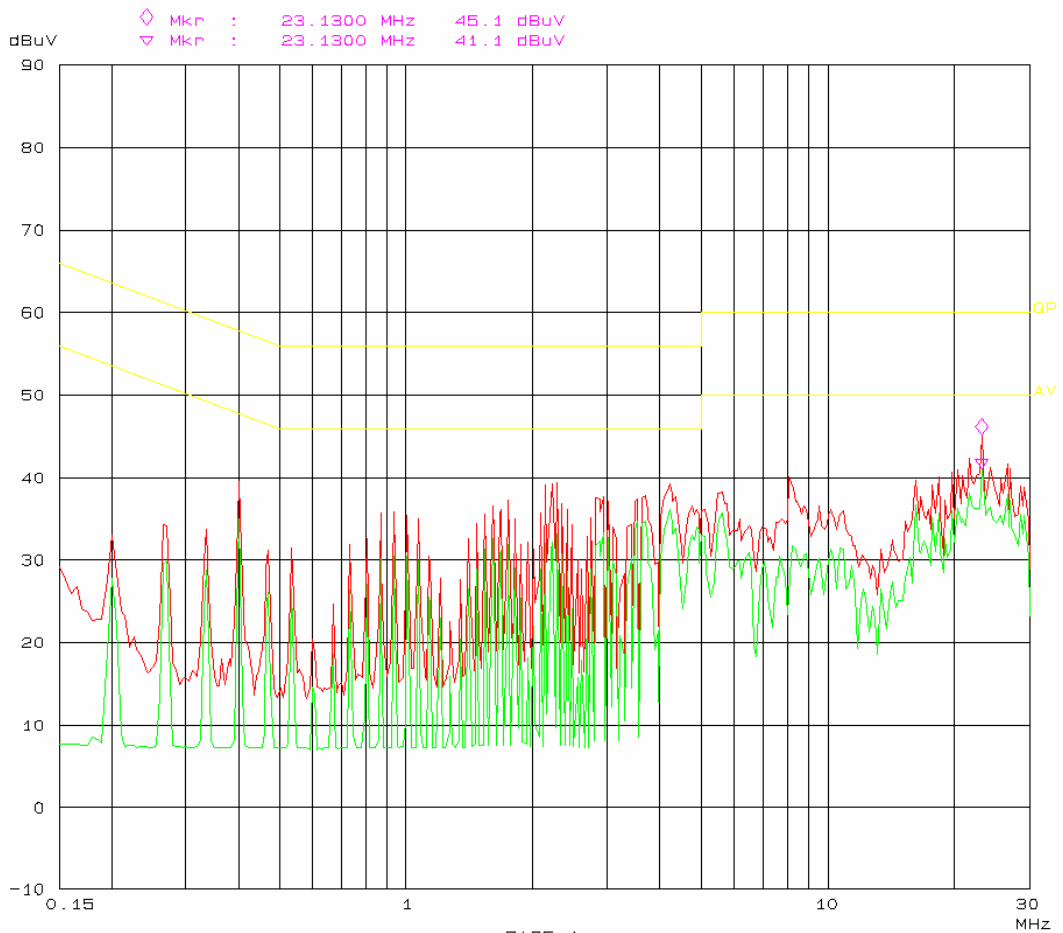
Conducted emission
fcc 15

EUT: wireless access point M/N: AP-2061
Manuf: RFNet
Op Cond: transmitting-802.11b
Operator: alvin
Test Spec: AC 120V/60Hz N
Comment: Temp: 25 Hum: 56%
BACL



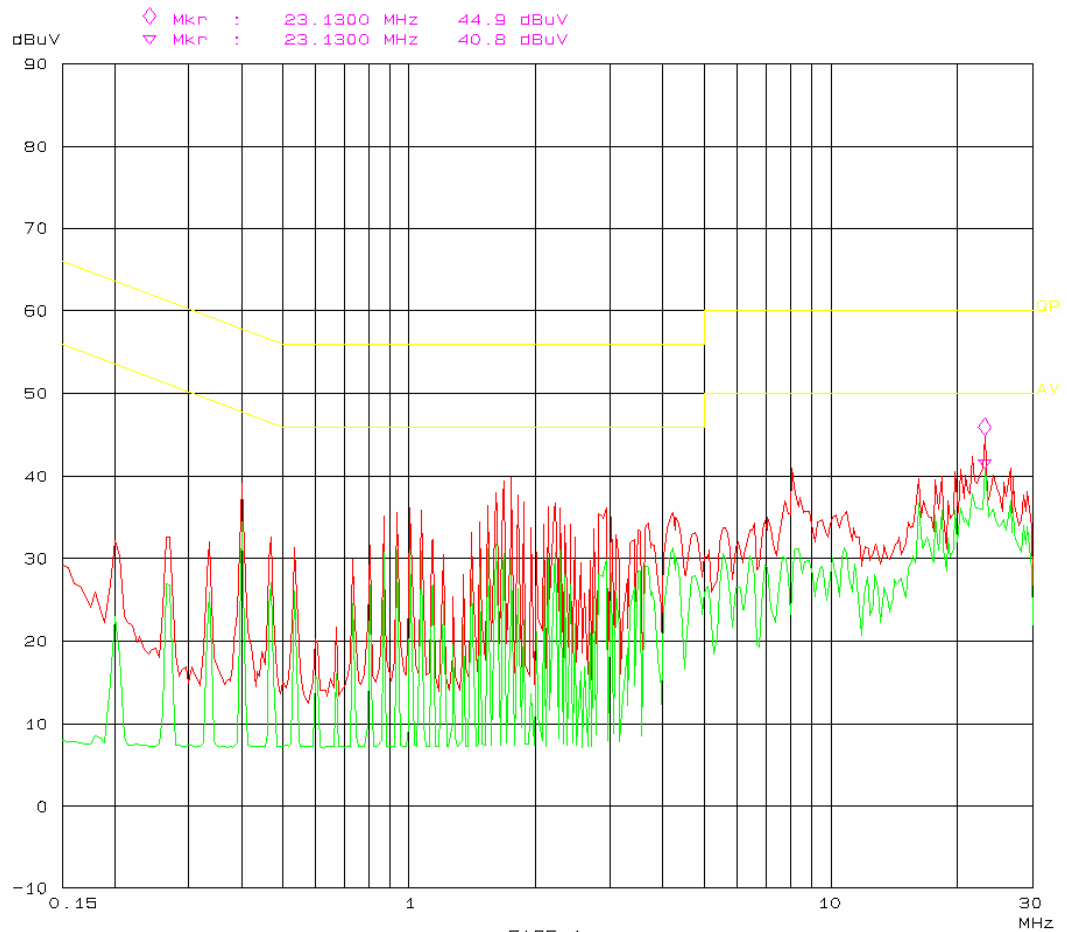
Conducted emission
fcc 15

EUT: wireless access point M/N: AP-2061
Manuf: RFNet
Op Cond: transmitting-802.11g
Operator: alvin
Test Spec: AC 120V/60Hz L
Comment: Temp: 25 Hum: 56%
BACL



Conducted emission
fcc 15

EUT: wireless access point M/N: AP-2061
Manuf: RFNet
Op Cond: transmitting-802.11g
Operator: alvin
Test Spec: AC 120V/60Hz N
Comment: Temp: 25 Hum: 56%
BACL



CFR47 §15.205, §15.209, §15.247 - RADIATED EMISSIONS

Applicable Standard

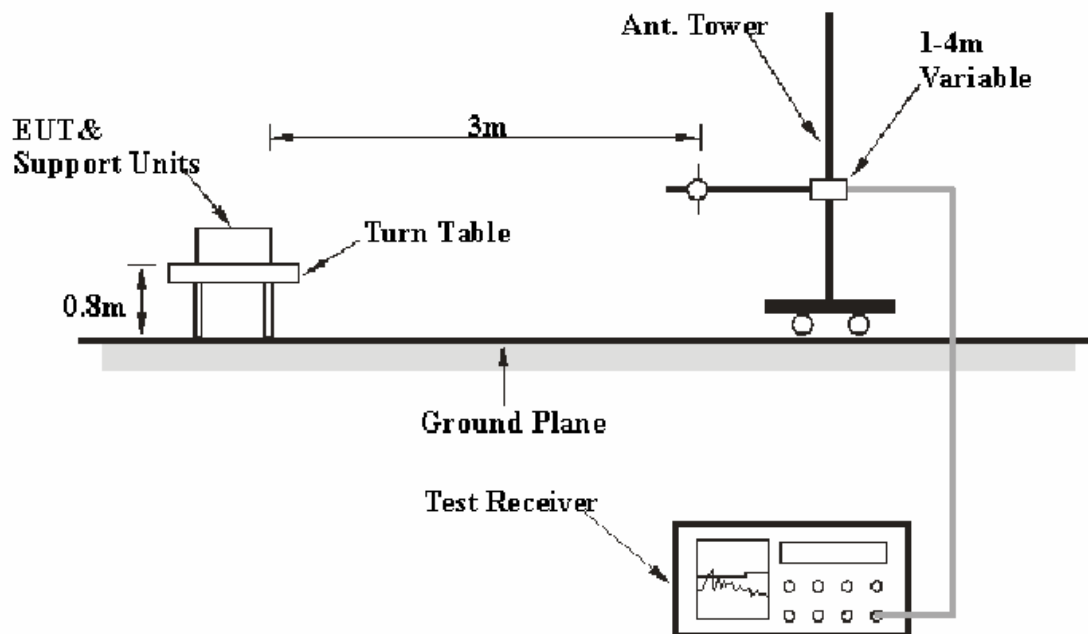
CFR47 §15.205; §15.209; §15.109; §15.247 (d).

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ± 4.0 dB.

EUT Setup



The radiated emission tests were performed in the 3 meters chamber B test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209 and FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter of EUT was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

<i>Frequency Range</i>	<i>RBW</i>	<i>Video B/W</i>
30MHz – 1000 MHz	100 kHz	300 kHz
1000 MHz – 25 GHz	1 MHz	3 MHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2008-11-15	2009-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2008-10-16	2009-10-16
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2008-03-11	2009-03-11
HP	Amplifier	8449B	3008A00277	2008-09-29	2009-09-29
Sunol Sciences	Horn Antenna	DRH-118	A052604	2008-09-25	2009-09-25
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2008-05-09	2009-05-09

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

For the radiated emissions test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz and peak and Average detection modes for frequencies above 1GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209, and 15.247, with the worst margin reading of:

Transmitting (802.11b) (Blew 1GHz):

0.8 dB at 47.807850 MHz in the Vertical polarization

Transmitting (802.11g) (Blew 1GHz):

1.0 dB at 47.807850 MHz in the Vertical polarization

Transmitting (802.11b) (Above 1 GHz):

1.12 dB at 4824 MHz in the Vertical polarization (Low Channel)
1.49 dB at 4874 MHz in the Vertical polarization (Middle Channel)
2.46 dB at 4924 MHz in the Vertical polarization (High Channel)

Transmitting (802.11g) (Above 1 GHz):

3.37 dB at 7236 MHz in the Vertical polarization (Low Channel)
3.80 dB at 4874MHz in the Vertical polarization (Middle Channel)
4.46 dB at 4924 MHz in the Vertical polarization (High Channel)

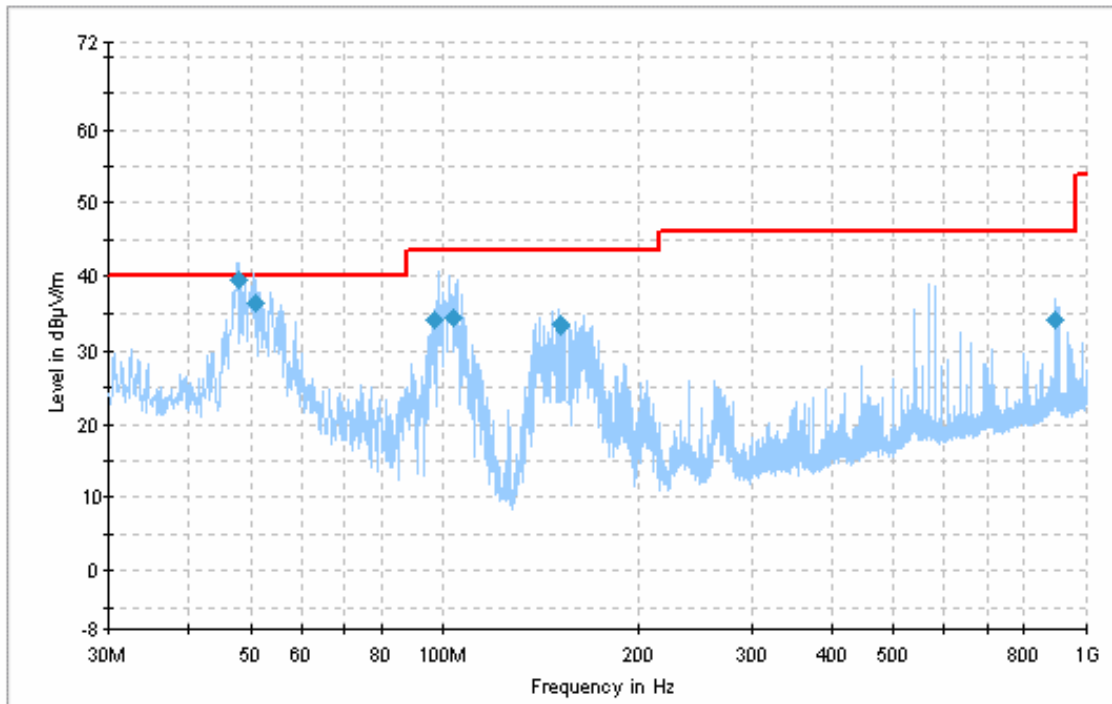
Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	56 %
ATM Pressure:	100.9 kPa

** The testing was performed by Alvin Huang on 2008-11-18.*

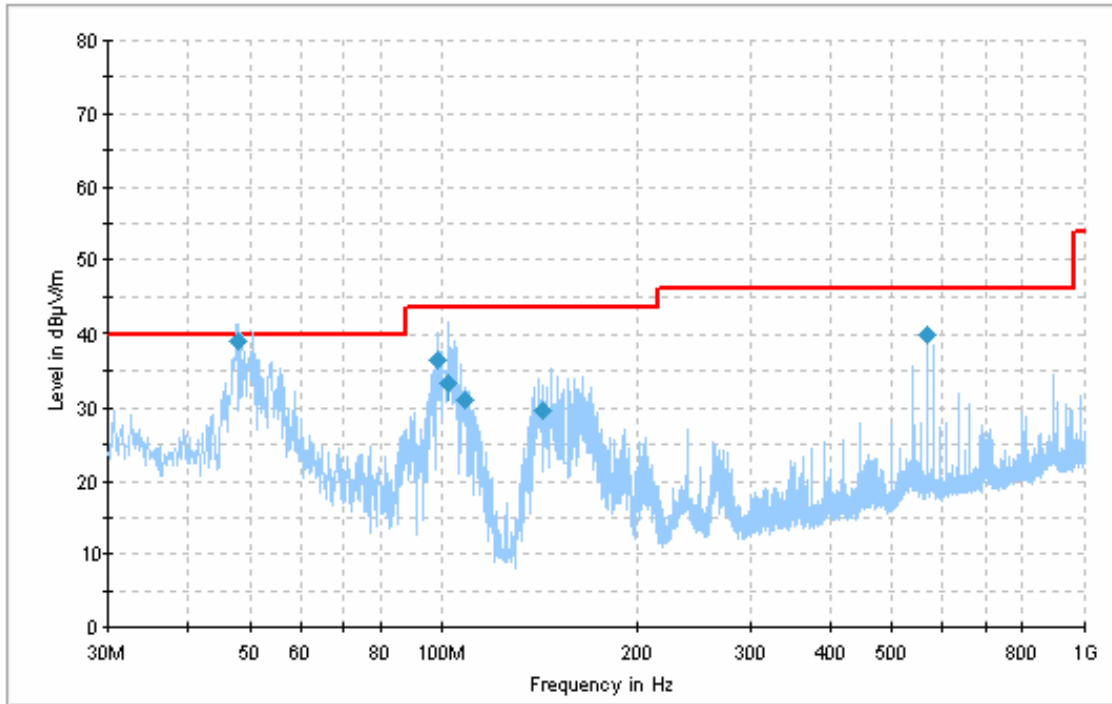
Test Mode: *Transmitting (802.11b) (Blew 1GHz)*



Frequency (MHz)	Corrected Amplitude (dBµV/m)	An. Height (cm)	Ant. Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
47.807850	39.2	99.0	V	124.0	-28.0	40.0	0.8*
51.076225	36.4	100.0	V	175.0	-29.1	40.0	3.6*
103.528975	34.3	198.0	V	23.0	-9.4	43.5	9.2
96.687700	33.9	141.0	V	75.0	-9.4	43.5	9.6
151.285275	33.5	205.0	V	257.0	-9.3	43.5	10.0
895.077175	33.9	127.0	H	7.0	-9.5	46.0	12.1

* Within measurement uncertainty.

Test Mode: *Transmitting (802.11g) (Blew 1GHz)*



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Ant. Height (cm)	Ant. Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
47.807850	39.0	101.0	V	104.0	-24.0	40.0	1.0*
567.017174	40.0	142.0	H	97.0	-11.1	46.0	6.0
99.351287	36.8	142.0	V	184.0	-25.1	43.5	6.7
96.687700	33.9	141.0	V	95.0	-9.2	43.5	9.6
101.653941	32.4	168.0	V	17.0	-9.1	43.5	11.1
105.295254	29.5	197.0	V	267.0	-10.3	43.5	14.0

* *Within measurement uncertainty.*

Test Mode: *Transmitting (802.11b) (Above 1GHz)*

Freq. (MHz)	S.A. Reading (dBµV)	Detector PK/QP/AV	Direction Degree	Antenna			Cable Loss (dB)	Pre- Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC Part 15.247/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	Remarks
Low Channel (2412 MHz)												
4824	44.02	AV	180	1.3	V	35	7.56	33.7	52.88	54	1.12	Harmonic
7236	37.56	AV	186	1.2	V	38	9.12	33.6	51.08	54	2.92	Harmonic
4824	40.19	AV	180	1.6	H	35	7.56	33.7	49.05	54	4.95	Harmonic
7236	35.29	AV	360	1.5	H	38	9.12	33.6	48.81	54	5.19	Harmonic
9656	31.24	AV	0	1.3	V	40.1	10.36	33.6	48.1	54	5.9	Harmonic
9656	29.68	AV	180	1.5	H	40.1	10.36	33.6	46.54	54	7.46	Harmonic
4824	54.08	PK	360	1.2	V	35	7.56	33.7	62.94	74	11.06	Harmonic
7236	48.06	PK	178	1.1	V	38	9.12	33.6	61.58	74	12.42	Harmonic
4824	51.06	PK	90	1.8	H	35	7.56	33.7	59.92	74	14.08	Harmonic
7236	46.13	PK	360	1.7	H	38	9.12	33.6	59.65	74	14.35	Harmonic
9656	42.15	PK	0	1.2	V	40.1	10.36	33.6	59.01	74	14.99	Harmonic
9656	40.16	PK	0	1.7	H	40.1	10.36	33.6	57.02	74	16.98	Harmonic
Middle Channel (2437 MHz)												
4874	43.65	AV	0	1.1	V	35	7.56	33.7	52.51	54	1.49	Harmonic
7311	37.15	AV	360	1	V	38	9.12	33.6	50.67	54	3.33	Harmonic
7311	36.15	AV	0	1.5	H	38	9.12	33.6	49.67	54	4.33	Harmonic
4874	40.13	AV	180	1.6	H	35	7.56	33.7	48.99	54	5.01	Harmonic
9748	31.05	AV	0	1.3	V	40.1	10.36	33.6	47.91	54	6.09	Harmonic
9748	30.96	AV	180	1.5	H	40.1	10.36	33.6	47.82	54	6.18	Harmonic
4874	53.12	PK	180	1.2	V	35	7.56	33.7	61.98	74	12.02	Harmonic
7311	48.32	PK	10	1	V	38	9.12	33.6	61.84	74	12.16	Harmonic
7311	46.52	PK	0	1.8	H	38	9.12	33.6	60.04	74	13.96	Harmonic
9748	41.35	PK	0	1.1	V	40.1	10.36	33.6	58.21	74	15.79	Harmonic
9748	41.12	PK	0	1.6	H	40.1	10.36	33.6	57.98	74	16.02	Harmonic
4874	48.52	PK	360	1.7	H	35	7.56	33.7	57.38	74	16.62	Harmonic
High Channel (2462 MHz)												
4924	42.68	AV	0	1	V	35	7.56	33.7	51.54	54	2.46	Harmonic
7386	36.9	AV	180	1	V	38	9.12	33.6	50.42	54	3.58	Harmonic
4924	41.05	AV	180	1.7	H	35	7.56	33.7	49.91	54	4.09	Harmonic
7386	34.15	AV	0	1.5	H	38	9.12	33.6	47.67	54	6.33	Harmonic
9848	30.49	AV	360	1	V	40.3	10.36	33.6	47.55	54	6.45	Harmonic
9848	29.68	AV	360	1.5	H	40.3	10.36	33.6	46.74	54	7.26	Harmonic
4924	54.39	PK	180	1.1	V	35	7.56	33.7	63.25	74	10.75	Harmonic
7386	47.39	PK	180	1.2	V	38	9.12	33.6	60.91	74	13.09	Harmonic
7386	45.69	PK	0	1.6	H	38	9.12	33.6	59.21	74	14.79	Harmonic
4924	50.28	PK	180	1.6	H	35	7.56	33.7	59.14	74	14.86	Harmonic
9848	41.56	PK	360	1.1	V	40.3	10.36	33.6	58.62	74	15.38	Harmonic
9848	40.58	PK	0	1.6	H	40.3	10.36	33.6	57.64	74	16.36	Harmonic

Spurious emission in restricted band:

Freq. (MHz)	S.A. Reading (dB μ V)	Detector PK/QP/AV	Direction Degree	Antenna			Cable Loss (dB)	Pre- Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	FCC Part 15.247/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)	Result
Out of left side band (802.11b) (2310-2390 MHz)												
2358.2	46.2	PK	180	1.2	H	30.6	7.1	33	50.9	54	3.1	Compliant
2346.7	45.9	PK	60	1.5	H	30.6	7.1	33	50.6	54	3.4	Compliant
2389.03	44.3	PK	180	1.2	V	30.6	7.1	33	49	54	5.0	Compliant
2352.2	43.2	PK	90	1	V	30.6	7.1	33	47.9	54	6.1	Compliant
2388.2	42.3	PK	45	1.2	V	30.6	7.1	33	47	54	7.0	Compliant
Out of left side band (802.11b) (2483.5-2500 MHz)												
2491.08	42.6	PK	234	1.6	V	30.6	7.1	33	47.3	54	6.7	Compliant
2490.2	42.2	PK	156	1.4	V	30.6	7.1	33	46.9	54	7.1	Compliant
2489.08	41.5	PK	153	1.5	H	30.6	7.1	33	46.2	54	7.8	Compliant
2492.69	40.6	PK	243	1.4	H	30.6	7.1	33	45.3	54	8.7	Compliant

Note: The above are the highest points in restricted band.

Note: Above all spurious emission strength in PK detector is below the spurious emission limit (54 dB μ V/m) in AV detector, so measurement in AV detector needn't.

Test Mode: *Transmitting (802.11g) (Above 1GHz)*

Freq. (MHz)	S.A. Reading (dBµV)	Detector PK/QP/AV	Direction Degree	Antenna			Cable Loss (dB)	Pre- Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC Part 15.247/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	Remarks
Low Channel (2412 MHz)												
7236	37.11	AV	180	1.0	V	38.0	9.12	33.6	50.63	54	3.37	Harmonic
4824	41.34	AV	360	1.2	V	35.0	7.56	33.7	50.20	54	3.80	Harmonic
7236	34.58	AV	360	1.5	H	38.0	9.12	33.6	48.10	54	5.90	Harmonic
9656	30.02	AV	360	1.2	V	40.1	10.36	33.6	46.88	54	7.12	Harmonic
9656	29.68	AV	180	1.7	H	40.1	10.36	33.6	46.54	54	7.46	Harmonic
4824	37.58	AV	180	1.9	H	35.0	7.56	33.7	46.44	54	7.56	Harmonic
7236	48.16	PK	0	1.0	V	38.0	9.12	33.6	61.68	74	12.32	Harmonic
4824	52.13	PK	10	1.3	V	35.0	7.56	33.7	60.99	74	13.01	Harmonic
9656	41.26	PK	360	1.2	V	40.1	10.36	33.6	58.12	74	15.88	Harmonic
7236	44.33	PK	180	1.9	H	38.0	9.12	33.6	57.85	74	16.15	Harmonic
4824	48.16	PK	180	1.8	H	35.0	7.56	33.7	57.02	74	16.98	Harmonic
9656	40.15	PK	0	1.6	H	40.1	10.36	33.6	57.01	74	16.99	Harmonic
Middle Channel (2437 MHz)												
4874	41.34	AV	360	1.2	V	35.0	7.56	33.7	50.2	54	3.80	Harmonic
7311	35.77	AV	180	1.2	V	38.0	9.12	33.6	49.29	54	4.71	Harmonic
9748	30.29	AV	180	1.8	H	40.1	10.36	33.6	47.15	54	6.85	Harmonic
7311	33.25	AV	360	1.6	H	38.0	9.12	33.6	46.77	54	7.23	Harmonic
9748	29.76	AV	360	1.3	V	40.1	10.36	33.6	46.62	54	7.38	Harmonic
4874	35.97	AV	160	1.4	H	35.0	7.56	33.7	44.83	54	9.17	Harmonic
4874	52.13	PK	360	1.1	V	35.0	7.56	33.7	60.99	74	13.01	Harmonic
7311	45.16	PK	180	1.1	V	38.0	9.12	33.6	58.68	74	15.32	Harmonic
9748	41.67	PK	180	1.7	H	40.1	10.36	33.6	58.53	74	15.47	Harmonic
7311	43.68	PK	30	1.3	H	38.0	9.12	33.6	57.2	74	16.8	Harmonic
9748	40.26	PK	360	1.2	V	40.1	10.36	33.6	57.12	74	16.88	Harmonic
4874	45.78	PK	180	1.5	H	35.0	7.56	33.7	54.64	74	19.36	Harmonic
High Channel (2462 MHz)												
4924	40.68	AV	360	1.0	V	35.0	7.56	33.7	49.54	54	4.46	Harmonic
7386	35.13	AV	360	1.0	V	38.0	9.12	33.6	48.65	54	5.35	Harmonic
4924	37.68	AV	180	1.7	H	35.0	7.56	33.7	46.54	54	7.46	Harmonic
9848	29.46	AV	360	1.5	H	40.3	10.36	33.6	46.52	54	7.48	Harmonic
9848	28.64	AV	360	1.0	V	40.3	10.36	33.6	45.70	54	8.30	Harmonic
7386	31.68	AV	0	1.5	H	38.0	9.12	33.6	45.20	54	8.80	Harmonic
4924	51.29	PK	180	1.1	V	35.0	7.56	33.7	60.15	74	13.85	Harmonic
7386	45.69	PK	180	1.2	V	38.0	9.12	33.6	59.21	74	14.79	Harmonic
9848	39.98	PK	360	1.1	V	40.3	10.36	33.6	57.04	74	16.96	Harmonic
9848	39.88	PK	0	1.6	H	40.3	10.36	33.6	56.94	74	17.06	Harmonic
7386	42.59	PK	180	1.6	H	38.0	9.12	33.6	56.11	74	17.89	Harmonic
4924	46.76	PK	180	1.6	H	35.0	7.56	33.7	55.62	74	18.38	Harmonic

Spurious emission in restricted band:

Freq. (MHz)	S.A. Reading (dB μ V)	Detector PK/QP/AV	Direction Degree	Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	FCC Part 15.247/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)	Result
Out of left side band (802.11g) (2310 - 2390 MHz)												
2358.9	42.8	PK	234	1.6	V	30.6	7.1	33	47.5	54	6.5	Compliant
2580.5	41.9	PK	156	1.4	V	30.6	7.1	33	46.6	54	7.4	Compliant
2358.5	40.9	PK	153	1.5	H	30.6	7.1	33	45.6	54	8.4	Compliant
23.56.2	40.4	PK	243	1.4	H	30.6	7.1	33	45.1	54	8.9	Compliant
Out of left side band (802.11g) (2483.5 – 2500 MHz)												
2488.5	43.2	PK	234	1.6	V	30.6	7.1	33	47.9	54	6.1	Compliant
2496.66	44.1	PK	156	1.4	V	30.6	7.1	33	48.8	54	5.2	Compliant
2487.6	42.4	PK	153	1.5	H	30.6	7.1	33	47.1	54	6.9	Compliant
2492.55	41.3	PK	243	1.4	H	30.6	7.1	33	46	54	8	Compliant

Note: The above are the highest points in restricted band.

Note: Above all spurious emission strength in PK detector is below the spurious emission limit (54 dB μ V/m) in AV detector, so measurement in AV detector needn't.

§15.247(a) (2) –6dB BANDWIDTH TESTING

Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Data

Please refer to FCC ID: DXAAWIFIAP certified on January 31, 2008, report No.: RSZ07121201.

§15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER

Applicable Standard

According to §15.247(b) (3), for systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Data

Please refer to FCC ID: DXAAWIFIAP certified on January 31, 2008, report No.: RSZ07121201.

§15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Data

Please refer to FCC ID: DXAAWIFIAP certified on January 31, 2008, report No.: RSZ07121201.

******* END OF REPORT *******