FCC TEST REPORT

according to

FCC Rules and Regulations Part 15 Subpart B & C

Applicant	SparkLAN Communications, Ins.
Address	3FL, No. 246, Sec. 1, Neihu Chiu, Taipei Taiwan 114, Taiwan R.O.C
Equipment	Wireless 11g High Speed AP Router
Model No.	WX-6615M
FCC ID	RYK230200403M
Trade Name	SparkLAN

- The test result refers exclusively to the test presented test model / sample.
- Without written approval of ***E**xclusive **C**ertification **C**orp.* the test report shall not be reproduced except in full.

Contents

1. Report of Measurements and Examinations 4
   1.1. List of Measurements and Examinations 4
   1.2. Antenna Requirements 5
   1.3. Test of Conducted Emission 6
   1.4. Test of Radiated Emission 8
   1.5. 6dB Bandwidth 9
   1.6. Maximum Peak Output Power 9
   1.7. Band Edges Measurement 10
   1.8. Power Spectral Density 10
   1.9. Restricted Bands of Operation 11
   1.10. Labeling Requirement 11
   1.11. RF Exposure 12
2. Test Configuration of Equipment under Test 14
   2.1. Test Mode 14
   2.2. Description of Test System 14
   2.3. Connection Diagram of Test System 15
   2.4. Feature of Equipment under Test 15
   2.5. History of this test report 15
3. General Information of Test 16
4. Test Result and Data 17
   4.1. Antenna Requirement 17
   4.2. Test Result of Conducted Emission 18
   4.3. Test Result of Radiated Emission 31
   4.4. 6dB Bandwidth Measurement Data 46
   4.5. Peak Output Power Measurement Data 50
   4.6. Band Edges Measurement Data 50
   4.7. Power Spectral Density Measurement Data ..... 錯誤! 尚未定義書籤。
   4.8. Test Result of RF Exposure Evaluation 57
5. List of Measuring Equipment Used 58

Appendix A. Photographs of EUT ..... A1 ~ A4

CERTIFICATE OF COMPLIANCE

according to

FCC Rules and Regulations Part 15 Subpart B & C

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Model No.	WX-6615M
FCC ID	RYK230200403M

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4.** The equipment was ***passed*** the test performed according to **FCC Rules and Regulations Part 15 Subpart B & C (2002).** The test was carried out on Apr. 05, 2004 at ***E****xclusive* ***C****ertification* ***C****orp.*

Signature

Anson Chou

Anson Chou / Manager

1. Report of Measurements and Examinations

1.1. List of Measurements and Examinations

FCC Rule	. Description of Test	Result
15.203	. Antenna Requirement	Pass
15.207	. Conducted Emission	Pass
15.209	. Radiated Emission	Pass
15.247(a)(2)	. 6dB Bandwidth	Pass
15.247(b)	. Maximum Peak Output Power	Pass
15.247(c)	. 100kHz Bandwidth of Frequency Band Edges	Pass
15.247(d)	. Power Spectral Density	Pass
1.1307 1.1310 2.1091 2.1093	. RF Exposure Compliance	Pass

Test by: Tony

1.2. Antenna Requirements

1.2.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

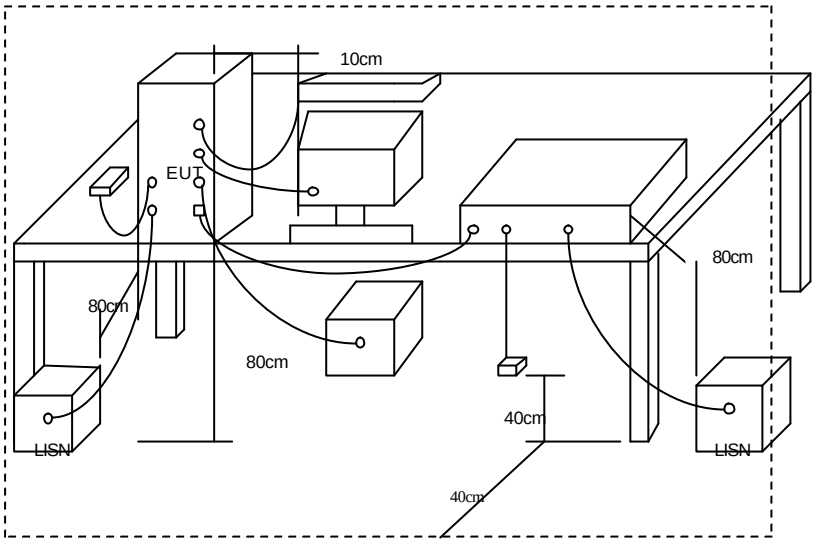
1.3. Test of Conducted Emission

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 115 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-1992 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

1.3.1. Test Procedures

a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

1.3.2. Typical Test Setup Layout of Conducted Emission



1.3.3. Conducted Emission Requirement

Except for A digital devices, for equpment that is designed to be connected to the public utility (AC) power line on any frequency voltage that is conducted back onto the AC power line on ant frequency or frequencies within the band 150KHz to 30MHz shall not exceed the limits in the following table, as measured using a 50µH/50 ohms line impeddance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the Radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency (MHz)	Quasi Peak (dB µV)	Average (dB µV)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

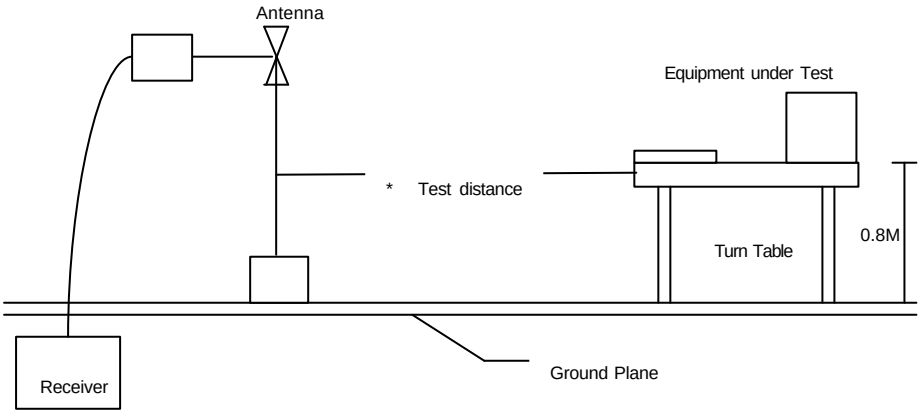
1.4. Test of Radiated Emission

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2001. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

1.4.1. Test Procedures

1. The EUT was placed on a rotatable table top 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
5. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

1.4.2. Typical Test Setup Layout of Radiated Emission

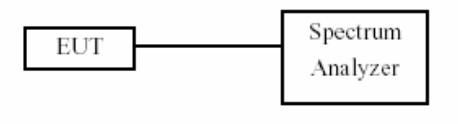


1.5. 6dB Bandwidth

1.5.1. Test Procedure：

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 100 KHz and VBW to 100 KHz.
3. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

1.5.2. Test Setup Layout：



1.6. Maximum Peak Output Power

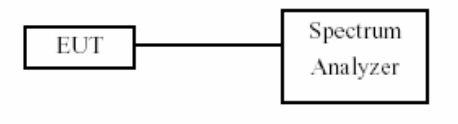
1.6.1 RF Power Output

The output from the transmitter was connected to the input of the RF Spectrum Analyzer (R&S FSP40). The method of measurement chosen was one that has been an acceptable test procedure per the FCC. The following describes the test procedure used.

Using the spectrum analyzers Band Power Measurement Function over the appropriate emission bandwidth (22MHz) gives the peak output reading. The following table lists the conducted power measurements.

1.6.2 Test Setup Layout：

格式化:項目符號及編號



1.7. Band Edges Measurement

1.7.1. Test Procedure：

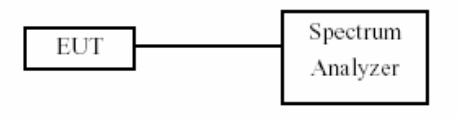
1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
3. The band edges was measured and recorded.

1.8. Power Spectral Density

1.8.1. Test Procedure：

1. The transmitter output was connected to spectrum analyzer.
2. The spectrum analyzer' s resolution bandwidth were set at 3KHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=span/3KHz.
3. The power spectral density was measured and recorded.
4. The Sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

1.8.2. Test Setup Layout：



1.9. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

**: Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

1.10. Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

1.11. RF Exposure

FCC Rules and Regulations Part 1.1307, 1.1310, 2.1091, 2.1093:

RF Exposure Compliance

1.11.1. Limit For Maximum Permissible Exposure (MPE)

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm²)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	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

1.11.2. MPE Calculations

E (V/m) $= \frac{\sqrt{30 \times P \times G}}{d}$ Power Density: Pd (mW/cm²) $= \frac{E^2}{3770}$

E= Electric field (V/m)

P= Peak output power (W)

G= Antenna numeric gain (numeric)

d= Separation distance (m)

Because the EUT is belong to General Population/ Uncontrolled Exposure. So the Limit of Power Density is 10 W/m². We can change the formula to:

$$d = \sqrt{\frac{30 \times P \times G}{3770}}$$

1.11.3. FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation. Proposed RF exposure safety information to include in User's Manual.

2. Test Configuration of Equipment under Test

2.1. Test Mode

The following test mode was performed for conduction test:

- 802.11b (CH 1)
- 802.11b (CH 6)
- 802.11b (CH 11)
- 802.11g (CH 1)
- 802.11g (CH 6)
- 802.11g (CH 11)

The following test mode was performed for radiation test:

- Receiving / Transmitting

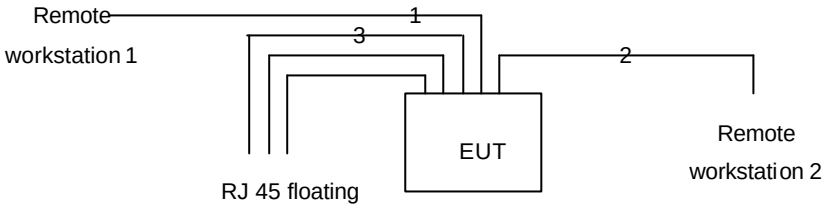
2.2. Description of Test System

Device	Model No.	Manufacturer	Description
PC (Remote site)	IGV	IBM	Power Cord, Unshielding, 1.8m
Monitor (Remote site)	510A	SlimAGE	Power Cord, Unshielding, 1.8m Data Cable, Shielding, 1.35m
Keyboard (Remote site)	KB-0225	IBM	Data Cable, Shielding, 1.85m
Mouse (Remote site)	MO28VO	IBM	Data Cable, Shielding, 1.85m
Notebook(Remote site)	R40(2723-BV1)	IBM	Power Cord, Unshielding, 1.8m

Use Cable:

Cable	Description
RJ-45*2	Unshielding, 10 m
RJ-45*3	Unshielding, 1.8 m

2.3. Connection Diagram of Test System



1. The TP cable is connected from remote workstation1 to the EUT.
2. The TP cable is connected from remote workstation2 to the EUT.
3. These cables are floating.

2.4. Feature of Equipment under Test

The Wireless Router incorporates many advanced features, carefully designed to provide sophisticated functions while being easy to use.

2.5. History of this test report

ORIGINAL.

3. General Information of Test

Test Site:	Exclusive Certification Corp. 4F-2, No. 28, Lane 78, Xing-Ai Rd. Nei-hu, Taipei City 114 Taiwan R.O.C.
Test Site Location (OATS1-SD):	No.68-1, Shihbachongsi, shihding Township, Taipei County 223, Taiwan, R.O.C.
Test Voltage: Test in Compliance with:	AC 110V/ 60Hz ANSI C63.4-1992 FCC Part 15 Subpart C
Frequency Range Investigated:	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 24620MHz
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.

4. Test Result and Data

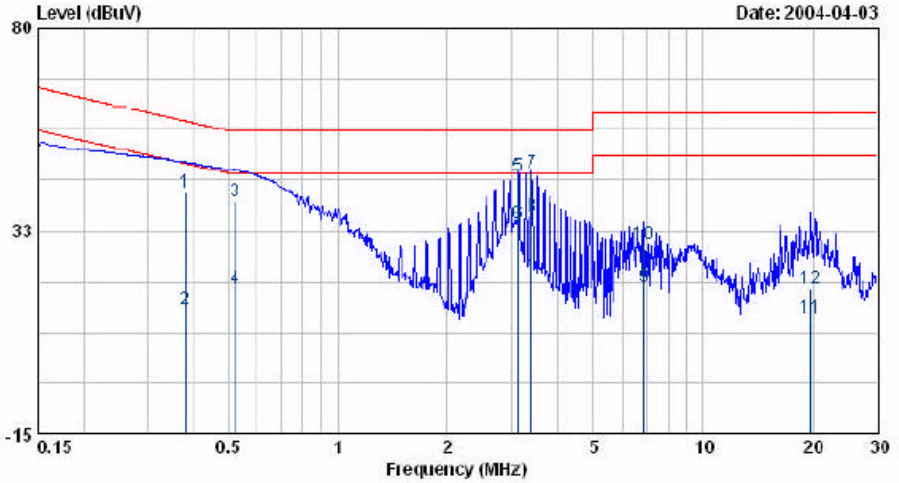
4.1. Antenna Requirement

4.1.1. Antenna Construction and Directional Gain

Antenna type: A 1.8 dBi gain dipole antenna with reverse SMA connector is employed.

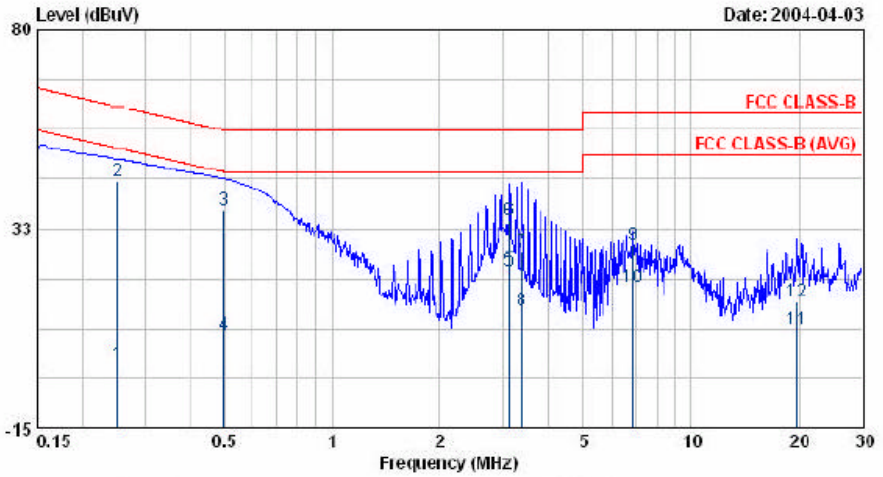
Test Result of Conducted Emission

EUT	: WX6615M		
Power	: 110V 60Hz	Pol/Phase	: NEUTRAL
Test Mode	: 802.11b CH1	Temperature	: 24 ℃
Memo	:	Humidity	: 62 %



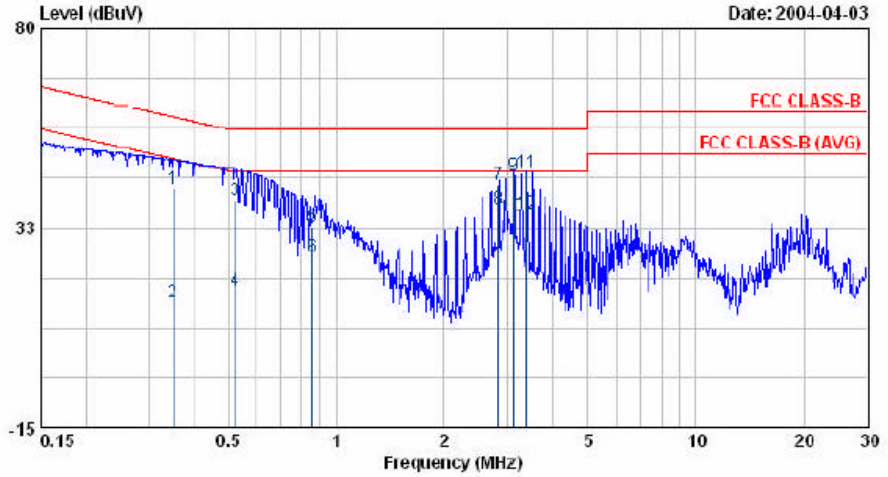
	Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
	0	40.92	0.36	41.28	58.28	-17.00	QP
	0	13.84	0.36	14.20	48.28	-34.08	AVERAGE
	1	38.85	0.37	39.22	56.00	-16.78	QP
	1	18.71	0.37	19.08	46.00	-26.92	AVERAGE
	8	44.57	0.46	45.03	56.00	-10.97	QP
	8	33.45	0.46	33.91	46.00	-12.09	AVERAGE
	2	45.39	0.47	45.86	56.00	-10.14	QP
@	2	35.51	0.47	35.98	46.00	-10.02	AVERAGE
	8	19.07	0.50	19.57	50.00	-30.43	AVERAGE
	8	28.68	0.50	29.18	60.00	-30.82	QP
	0	11.67	0.57	12.24	50.00	-37.76	AVERAGE
	0	18.57	0.57	19.14	60.00	-40.86	QP

EUT	: WX6615M		
Power	: 110V 60Hz	Pol/Phase	: LINE
Test Mode	: 802.11b CH1	Temperature	: 24 ℃
Memo	:	Humidity	: 62 %



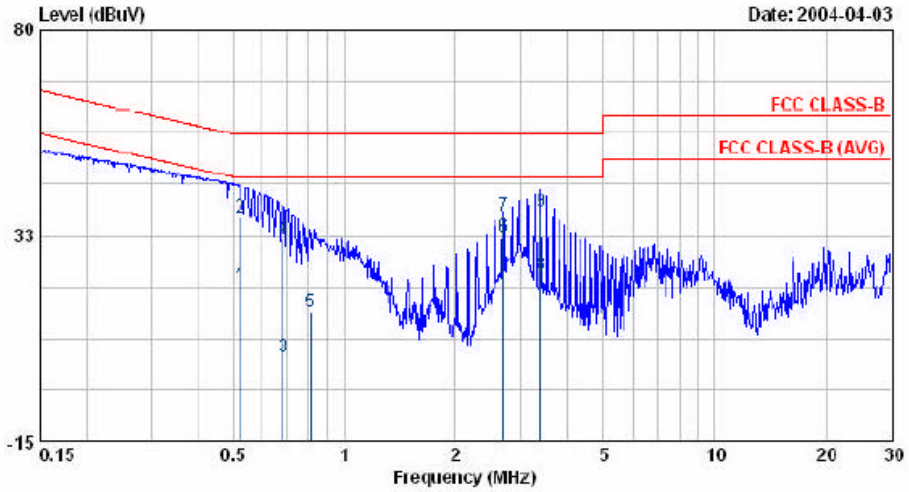
Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.251	---	0.33	0.33	51.73	-51.40	AVERAGE
0.251	43.53	0.33	43.86	61.73	-17.87	QP
0.497	36.64	0.37	37.01	56.06	-19.04	QP
0.497	6.89	0.37	7.26	46.06	-38.79	AVERAGE
3.106	21.96	0.46	22.42	46.00	-23.58	AVERAGE
3.107	33.78	0.46	34.24	56.00	-21.76	QP
3.361	26.41	0.47	26.88	56.00	-29.12	QP
3.361	12.70	0.47	13.17	46.00	-32.83	AVERAGE
6.868	27.99	0.50	28.49	60.00	-31.51	QP
6.868	18.19	0.50	18.69	50.00	-31.31	AVERAGE
19.735	8.23	0.57	8.80	50.00	-41.20	AVERAGE
19.735	14.69	0.57	15.26	60.00	-44.74	QP

EUT	: WX6615M		
Power	: 110V 60Hz	Pol/Phase	: NEUTRAL
Test Mode	: 802.11b CH6	Temperature	: 24 ℃
Memo	:	Humidity	: 62 %



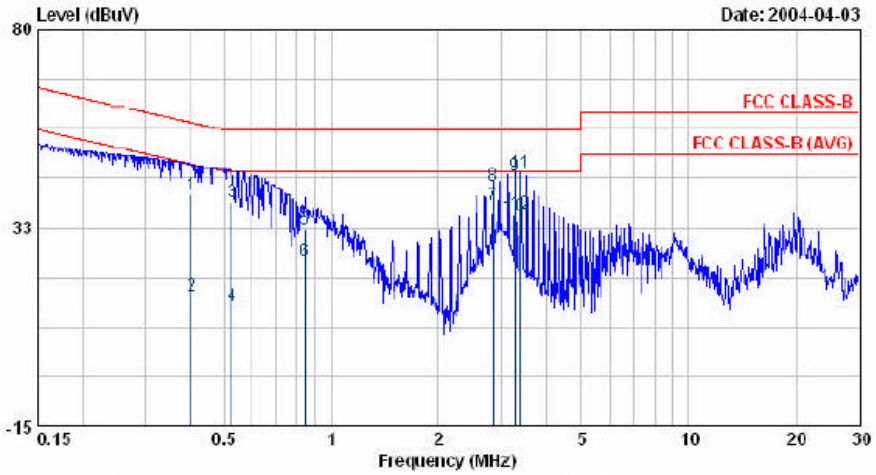
	Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
	0	41.45	0.35	41.80	58.97	-17.17	QP
	0	14.53	0.35	14.88	48.97	-34.09	AVERAGE
	0	38.61	0.37	38.98	56.00	-17.02	QP
	0	17.48	0.37	17.85	46.00	-28.15	AVERAGE
	6	32.26	0.40	32.66	56.00	-23.34	QP
	6	24.04	0.40	25.24	46.00	-20.76	AVERAGE
	4	42.17	0.46	42.63	56.00	-13.37	QP
@	4	36.33	0.46	36.79	46.00	-9.21	AVERAGE
	9	44.52	0.46	44.98	56.00	-11.02	QP
	9	34.72	0.46	35.18	46.00	-10.82	AVERAGE
	3	45.25	0.47	45.72	56.00	-10.28	QP
	3	35.33	0.47	35.80	46.00	-10.20	AVERAGE

EUT	: WX6615M		
Power	: 110V 60Hz	Pol/Phase	: LINE
Test Mode	: 802.11b CH6	Temperature	: 24 ℃
Memo	:	Humidity	: 62 %



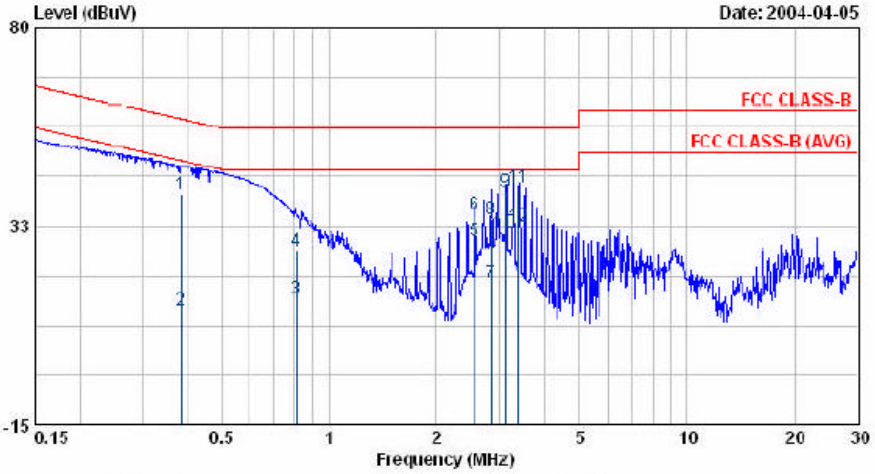
Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.520	20.48	0.37	20.85	46.00	-25.15	AVERAGE
0.520	36.28	0.37	36.65	56.00	-19.35	QP
0.683	3.93	0.39	4.32	46.00	-41.68	AVERAGE
0.683	31.30	0.39	31.69	56.00	-24.31	QP
0.811	14.42	0.40	14.82	46.00	-31.18	AVERAGE
2.693	31.58	0.46	32.04	46.00	-13.96	AVERAGE
2.693	36.27	0.46	36.73	56.00	-19.27	QP
3.381	22.96	0.47	23.43	46.00	-22.57	AVERAGE
3.381	37.53	0.47	38.00	56.00	-18.00	QP

EUT	: WX6615M		
Power	: 110V 60Hz	Pol/Phase	: NEUTRAL
Test Mode	: 802.11b CH11	Temperature	: 24 ℃
Memo	:	Humidity	: 62 %



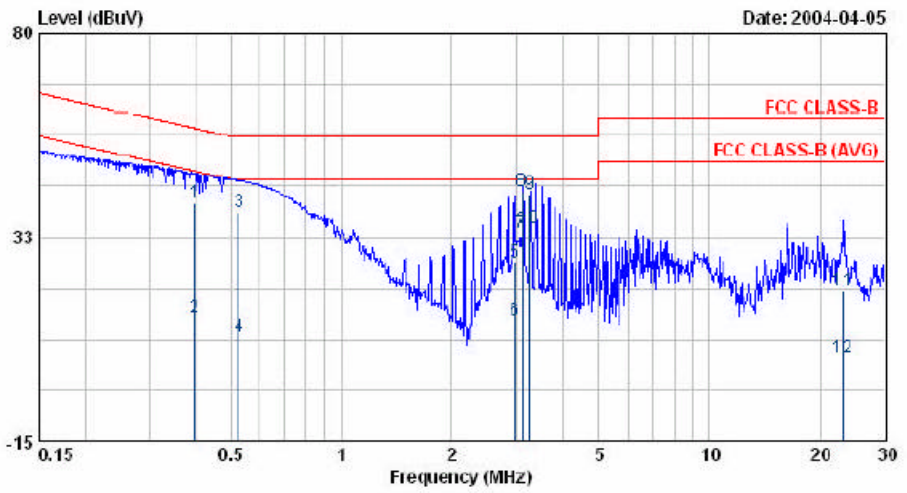
	Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
	4	40.05	0.36	40.41	57.77	-17.36	QP
	4	15.82	0.36	16.18	47.77	-31.59	AVERAGE
	7	38.38	0.38	38.76	56.00	-17.24	QP
	7	13.59	0.38	13.97	46.00	-32.03	AVERAGE
	4	31.67	0.40	32.07	56.00	-23.93	QP
	4	23.99	0.40	24.39	46.00	-21.61	AVERAGE
@	5	37.40	0.46	37.86	46.00	-8.14	AVERAGE
	5	42.12	0.46	42.58	56.00	-13.42	QP
	6	44.44	0.46	44.90	56.00	-11.10	QP
	6	34.73	0.46	35.19	46.00	-10.81	AVERAGE
	4	45.06	0.47	45.53	56.00	-10.47	QP
	4	35.20	0.47	35.67	46.00	-10.33	AVERAGE

EUT	: WX6615M		
Power	: 110V 60Hz	Pol/Phase	: LINE
Test Mode	: 802.11b CH11	Temperature	: 24 ℃
Memo	:	Humidity	: 62 %



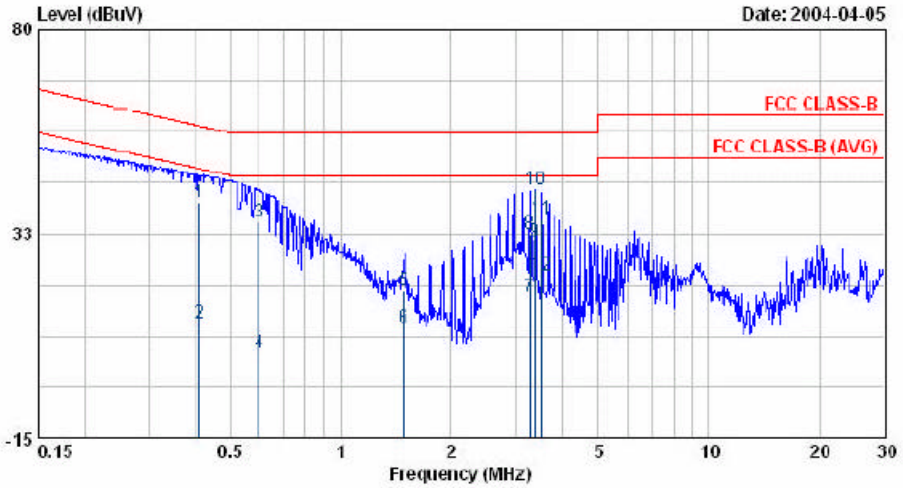
Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.385	39.71	0.36	40.07	58.17	-18.10	QP
0.385	11.98	0.36	12.34	48.17	-35.83	AVERAGE
0.811	14.88	0.40	15.28	46.00	-30.72	AVERAGE
0.811	25.85	0.40	26.25	56.00	-29.75	QP
2.567	28.37	0.45	28.82	46.00	-17.18	AVERAGE
2.567	34.65	0.45	35.10	56.00	-20.90	QP
2.839	18.51	0.46	18.97	46.00	-27.03	AVERAGE
2.839	33.65	0.46	34.11	56.00	-21.89	QP
3.107	40.12	0.46	40.58	56.00	-15.42	QP
3.107	30.52	0.46	30.98	46.00	-15.02	AVERAGE
3.374	41.42	0.47	41.89	56.00	-14.11	QP
3.374	31.98	0.47	32.45	46.00	-13.55	AVERAGE

EUT	: WX6615M	Pol/Phase	: NEUTRAL
Power	: 110V 60Hz	Temperature	: 24 ℃
Test Mode	: 802.11g CH1	Humidity	: 62 %
Memo	:		



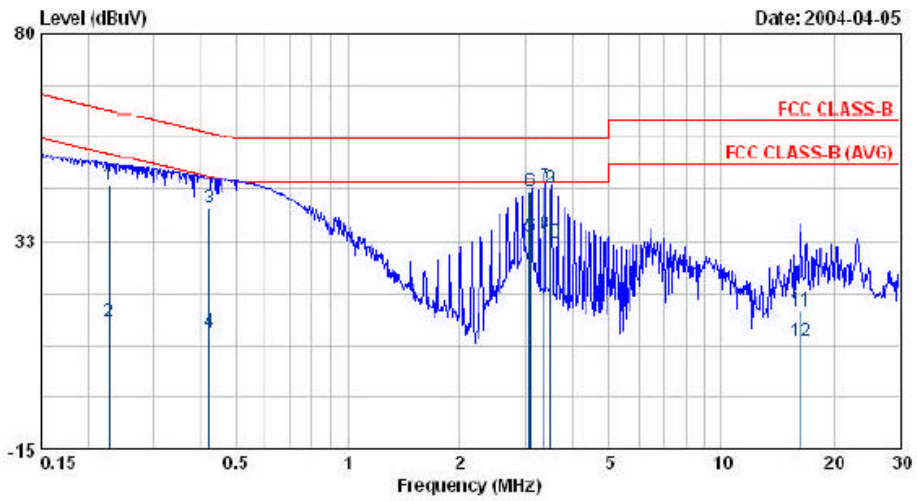
Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.397	40.08	0.36	40.44	57.92	-17.48	QP
0.397	13.61	0.36	13.97	47.92	-33.95	AVERAGE
0.527	37.88	0.38	38.26	56.00	-17.74	QP
0.527	8.97	0.38	9.35	46.00	-36.65	AVERAGE
2.976	25.98	0.46	26.44	56.00	-29.56	QP
2.976	12.88	0.46	13.34	46.00	-32.66	AVERAGE
3.088	32.83	0.46	33.29	46.00	-12.71	AVERAGE
3.088	42.72	0.46	43.18	56.00	-12.82	QP
3.227	42.01	0.46	42.47	56.00	-13.53	QP
3.227	34.07	0.46	34.53	46.00	-11.47	AVERAGE
23.140	19.71	0.58	20.29	60.00	-39.71	QP
23.140	4.07	0.58	4.65	50.00	-45.35	AVERAGE

EUT	: WX6615M		
Power	: 110V 60Hz	Pol/Phase	: LINE
Test Mode	: 802.11g CH1	Temperature	: 24 ℃
Memo	:	Humidity	: 62 %



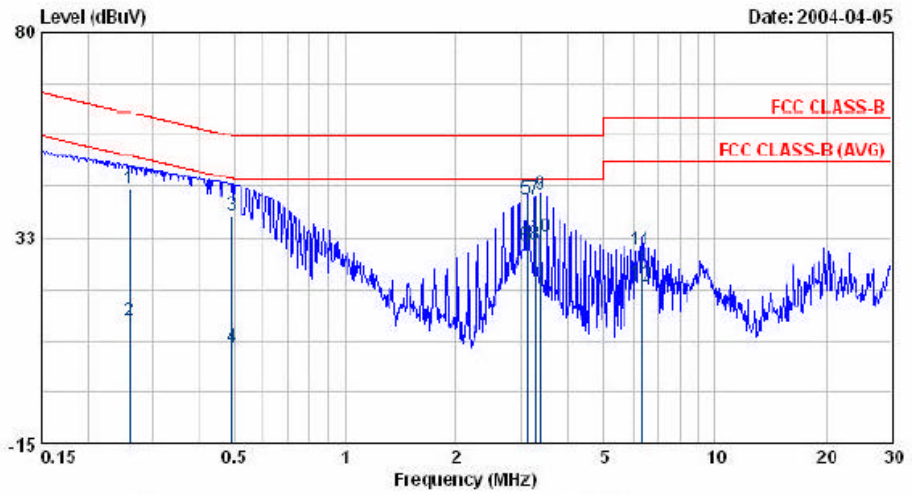
Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.413	39.20	0.36	39.56	57.59	-18.03	QP
0.413	11.50	0.36	11.86	47.59	-35.73	AVERAGE
0.599	34.56	0.38	34.94	56.00	-21.06	QP
0.599	4.37	0.38	4.75	46.00	-41.25	AVERAGE
1.485	18.98	0.43	19.41	56.00	-36.59	QP
1.485	10.24	0.43	10.67	46.00	-35.33	AVERAGE
3.241	17.55	0.46	18.01	46.00	-27.99	AVERAGE
3.241	31.76	0.46	32.22	56.00	-23.78	QP
3.366	30.02	0.47	30.49	46.00	-15.51	AVERAGE
3.366	42.16	0.47	42.63	56.00	-13.37	QP
3.509	35.18	0.47	35.65	56.00	-20.35	QP
3.509	22.44	0.47	22.91	46.00	-23.09	AVERAGE

EUT	: WX6615M		
Power	: 110V 60Hz	Pol/Phase	: NEUTRAL
Test Mode	: 802.11g CH6	Temperature	: 24 ℃
Memo	:	Humidity	: 62 %



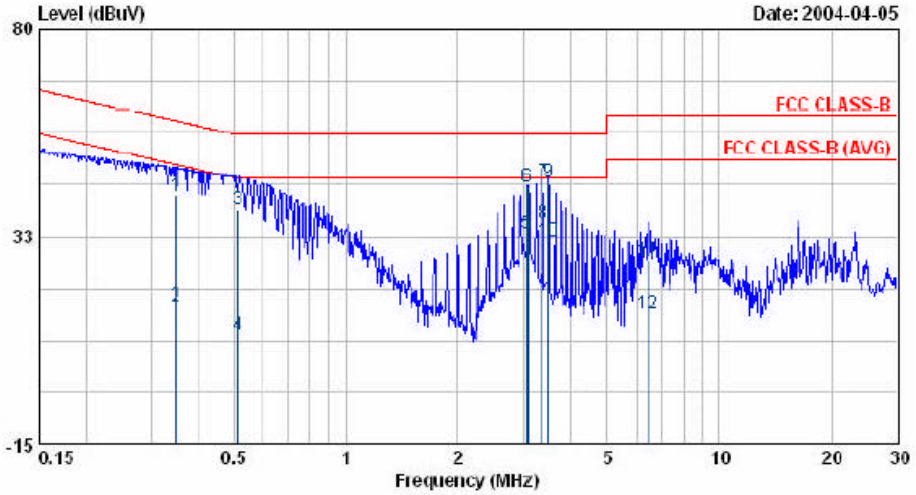
Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.228	44.90	0.33	45.23	62.52	-17.30	QP
0.228	14.06	0.33	14.39	52.52	-38.14	AVERAGE
0.424	39.50	0.36	39.86	57.38	-17.51	QP
0.424	11.58	0.36	11.94	47.38	-35.43	AVERAGE
3.079	33.07	0.46	33.53	46.00	-12.47	AVERAGE
3.079	43.51	0.46	43.97	56.00	-12.03	QP
3.349	44.28	0.47	44.75	56.00	-11.25	QP
3.349	33.72	0.47	34.19	46.00	-11.81	AVERAGE
3.480	43.91	0.47	44.38	56.00	-11.62	QP
3.480	31.40	0.47	31.87	46.00	-14.13	AVERAGE
16.303	15.99	0.56	16.55	60.00	-43.45	QP
16.303	9.19	0.56	9.75	50.00	-40.25	AVERAGE

EUT	: WX6615M		
Power	: 110V 60Hz	Pol/Phase	: LINE
Test Mode	: 802.11g CH6	Temperature	: 24 ℃
Memo	:	Humidity	: 62 %



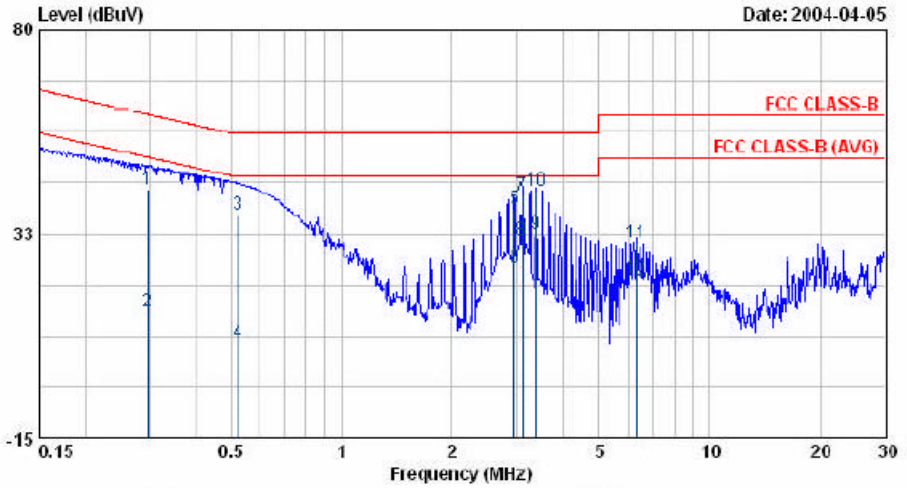
Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.260	43.55	0.33	43.88	61.42	-17.54	QP
0.260	13.14	0.33	13.47	51.42	-37.95	AVERAGE
0.492	37.04	0.37	37.41	56.14	-18.73	QP
0.492	7.04	0.37	7.41	46.14	-38.73	AVERAGE
3.090	40.98	0.46	41.44	56.00	-14.56	QP
3.090	30.25	0.46	30.71	46.00	-15.29	AVERAGE
3.232	41.00	0.46	41.46	56.00	-14.54	QP
3.232	30.63	0.46	31.09	46.00	-14.91	AVERAGE
3.363	42.00	0.47	42.47	56.00	-13.53	QP
3.363	32.24	0.47	32.71	46.00	-13.29	AVERAGE
6.319	28.99	0.50	29.49	60.00	-30.51	QP
6.319	21.15	0.50	21.65	50.00	-28.35	AVERAGE

EUT	: WX6615M		
Power	: 110V 60Hz	Pol/Phase	: NEUTRAL
Test Mode	: 802.11g CH11	Temperature	: 24 ℃
Memo	:	Humidity	: 62 %



Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.348	41.21	0.35	41.56	59.00	-17.44	QP
0.348	16.37	0.35	16.72	49.00	-32.28	AVERAGE
0.511	38.20	0.37	38.57	56.00	-17.43	QP
0.511	9.71	0.37	10.08	46.00	-35.92	AVERAGE
3.067	32.56	0.46	33.02	46.00	-12.98	AVERAGE
3.067	43.52	0.46	43.98	56.00	-12.02	QP
3.340	44.30	0.47	44.77	56.00	-11.23	QP
3.340	35.13	0.47	35.60	46.00	-10.40	AVERAGE
3.472	44.28	0.47	44.75	56.00	-11.25	QP
3.472	30.72	0.47	31.19	46.00	-14.81	AVERAGE
6.420	26.41	0.50	26.91	60.00	-33.09	QP
6.420	14.54	0.50	15.04	50.00	-34.96	AVERAGE

EUT	: WX6615M		
Power	: 110V 60Hz	Pol/Phase	: LINE
Test Mode	: 802.11g CH11	Temperature	: 24 ℃
Memo	:	Humidity	: 62 %



Freq	Read Level	Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB	dBuV	dBuV	dBuV	
0.296	42.33	0.34	42.67	60.37	-17.70	QP
0.296	14.17	0.34	14.51	50.37	-35.86	AVERAGE
0.524	36.32	0.37	36.69	56.00	-19.31	QP
0.524	6.88	0.37	7.25	46.00	-38.75	AVERAGE
2.966	37.67	0.46	38.13	56.00	-17.87	QP
2.966	23.91	0.46	24.37	46.00	-21.63	AVERAGE
3.091	40.74	0.46	41.20	56.00	-14.80	QP
3.091	30.62	0.46	31.08	46.00	-14.92	AVERAGE
3.365	31.81	0.47	32.28	46.00	-13.72	AVERAGE
3.365	41.97	0.47	42.44	56.00	-13.56	QP
6.319	29.58	0.50	30.08	60.00	-29.92	QP
6.319	21.47	0.50	21.97	50.00	-28.03	AVERAGE

4.1.2. Photographs of Conducted Emission Test

FRONT VIEW

REAR VIEW

4.2. Test Result of Radiated Emission

4.2.1. RF Portion

Modulation Standard: IEEE 802.11b
Operation Mode: Receiving/ Transmitting
Test Date: Apr. 02, 2004 Temperature: 24 ℃ Humidity: 65%

a) Channel 1

Fundamental Frequency: 2412 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4824	48.2	36.1	48.9	35.3	-6.4	42.5	29.7	74	54	-24.3	170	2
7236	59.7	46.8	58.3	45.7	-10.5	49.2	36.3	74	54	-17.7	170	2
12060	65.7	51.8	66.1	52.4	-14.5	51.6	37.9	74	54	-16.1	170	2
14472	---	---	---	---	---	---	---	74	54	---	---	---
19296	---	---	---	---	---	---	---	74	54	---	---	---

b) Channel 6

Fundamental Frequency: 2437 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4874	48.1	35.4	47.5	36.4	-6.4	41.7	30	74	54	-24.0	170	2
7311	58.4	45.3	59.7	46.8	-10.5	49.2	36.3	74	54	-17.7	170	2
12185	66.0	52.3	65.4	51.7	-14.5	51.5	37.8	74	54	-16.2	170	2
19496	---	---	---	---	---	---	---	74	54	---	---	---

c) Channel 11

Fundamental Frequency: 2462 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4924	48.5	36.3	49.0	35.9	-6.4	42.6	29.9	74	54	-24.1	170	2
7386	59.7	46.9	58.5	45.7	-10.5	49.2	36.4	74	54	-17.6	170	2
19696	---	---	---	---	---	---	---	74	54	---	---	---
22158	---	---	---	---	---	---	---	74	54	---	---	---

Note:

1. Item of margin shown in above table refer to average limit.
2. Remark" ----" means that the emissions level is too low to be measured.
3. Item "Margin" referred to Average limit while there is only peak result.

Modulation Standard: IEEE 802.11g
Operation Mode: Receiving/ Transmitting
Test Date: Apr. 02, 2004 Temperature: 24 ℃ Humidity: 65%

d) Channel 1

Fundamental Frequency: 2412 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4824	48.2	36.2	48.7	35.3	-6.4	42.3	29.8	74	54	-24.3	170	2
7236	59.7	46.8	58.7	46.3	-10.5	49.2	36.3	74	54	-17.7	170	2
12060	65.9	50.9	65.8	51.5	-14.5	51.3	37.0	74	54	-17.0	170	2
14472	---	---	---	---	---	---	---	74	54	---	---	---
19296	---	---	---	---	---	---	---	74	54	---	---	---

e) Channel 6

Fundamental Frequency: 2437 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4874	48.7	36.3	48.2	35.2	-6.4	42.3	29.9	74	54	-24.1	170	2
7311	59.4	45.3	59.7	46.7	-10.5	49.2	36.2	74	54	-17.8	170	2
12185	65.8	51.9	64.3	52.3	-14.5	51.3	37.8	74	54	-16.2	170	2
19496	---	---	---	---	---	---	---	74	54	---	---	---

f) Channel 11

Fundamental Frequency: 2462 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
4924	48.9	35.7	48.4	36.4	-6.4	42.5	30.0	74	54	-24.0	170	2
7386	58.7	46.8	59.2	45.2	-10.5	48.7	36.3	74	54	-17.7	170	2
19696	---	---	---	---	---	---	---	74	54	---	---	---
22158	---	---	---	---	---	---	---	74	54	---	---	---

Note:

1. Item of margin shown in above table refer to average limit.
2. Remark" ----"means that the emissions level is too low to be measured.
3. Item "Margin" referred to Average limit while there is only peak result.

Modulation Standard: IEEE 802.11b

a) Emission frequencies below 1 GHz

Test Date: Apr. 02, 2004 Temperature: 24 ℃ Humidity: 65%

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result@3m (dBuV/m)	Limit@3m (dBuV/m)	Margin (dB)	Table Deg.	Ant High (m)
55.32	V	56.94	-20.04	36.9	40.0	-3.1	240	1
58.15	H	56.34	-20.04	36.3	40.0	-3.7	180	2
126.04	V	61.27	-26.87	34.4	43.5	-9.1	240	1
162.89	H	64.38	-26.48	37.9	43.5	-5.6	180	2
255.04	H	62.49	-25.59	36.9	46.0	-9.1	180	2
255.04	V	60.79	-25.59	35.2	46.0	-10.8	240	1
324.83	H	62.86	-25.36	37.5	46.0	-8.5	180	2
324.88	V	61.26	-25.36	35.9	46.0	-10.1	240	1
484.93	V	63.12	-25.52	37.6	46.0	-8.4	240	1
487.85	H	66.32	-25.52	40.8	46.0	-5.2	180	2
644.97	H	67.16	-25.16	45.0	46.0	-4.0	180	2
644.98	V	67.36	-25.16	42.2	46.0	-3.8	240	1

b) Emission frequencies above 1 GHz

Radiated emission frequencies above 1 GHz to 25 GHz were too low to be measured.

Modulation Standard: IEEE 802.11g

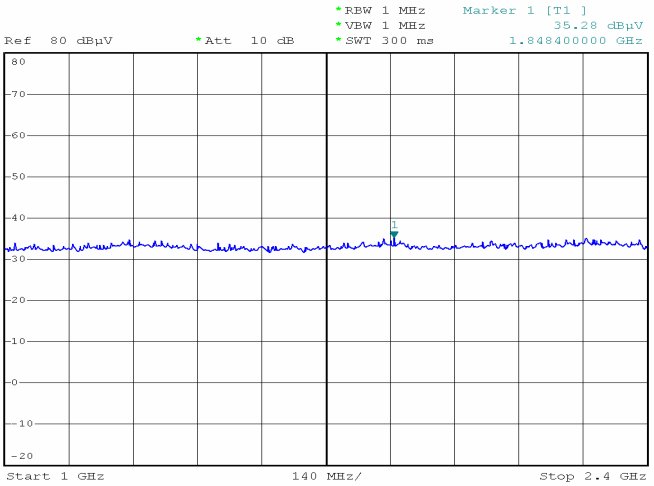
a) Emission frequencies below 1 GHz

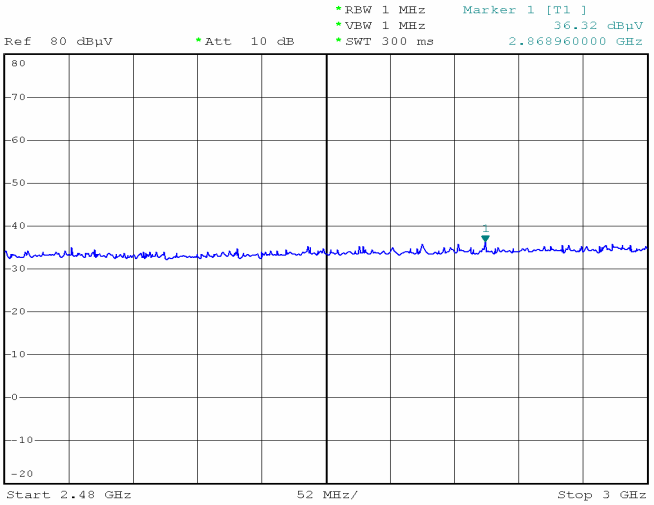
Test Date: Apr. 02, 2004 Temperature: 24 ℃ Humidity: 65%

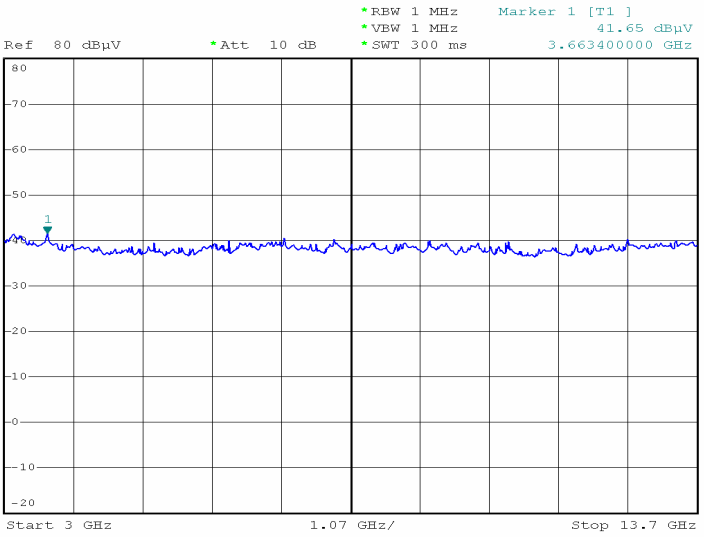
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result@3m (dBuV/m)	Limit@3m (dBuV/m)	Margin (dB)	Table Deg.	Ant High (m)
55.24	V	57.04	-20.04	37.0	40.0	-3.0	240	1
57.25	H	56.54	-20.04	36.5	40.0	-3.5	180	2
125.63	V	63.37	-26.87	36.5	43.5	-7.0	240	1
251.14	H	66.59	-25.59	41.0	46.0	-5.0	180	2
251.13	V	67.09	-25.59	41.5	46.0	-4.5	240	1
481.40	H	66.02	-25.52	40.5	46.0	-5.5	180	2
481.30	V	647.82	-25.52	39.3	46.0	-6.7	240	1
640.80	H	62.96	-25.16	37.8	46.0	-8.2	180	2
640.90	V	64.16	-25.16	39.0	46.0	-7.0	240	1
799.90	H	65.73	-23.93	41.8	46.0	-4.2	180	2
799.80	V	64.13	-23.93	40.2	46.0	-5.8	240	1

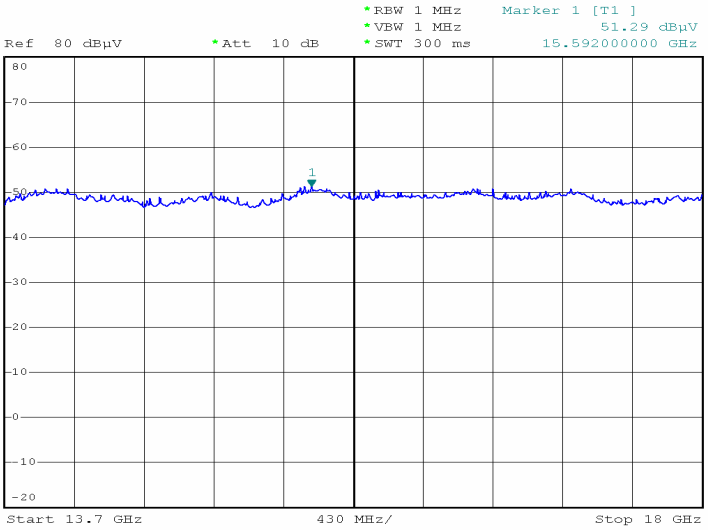
b) Emission frequencies above 1 GHz

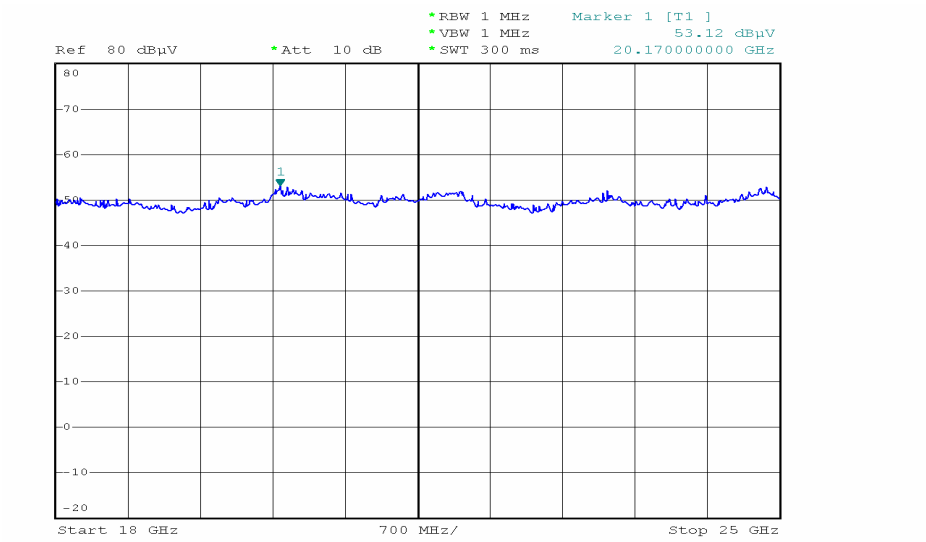
Radiated emission frequencies above 1 GHz to 25 GHz were too low to be measured.

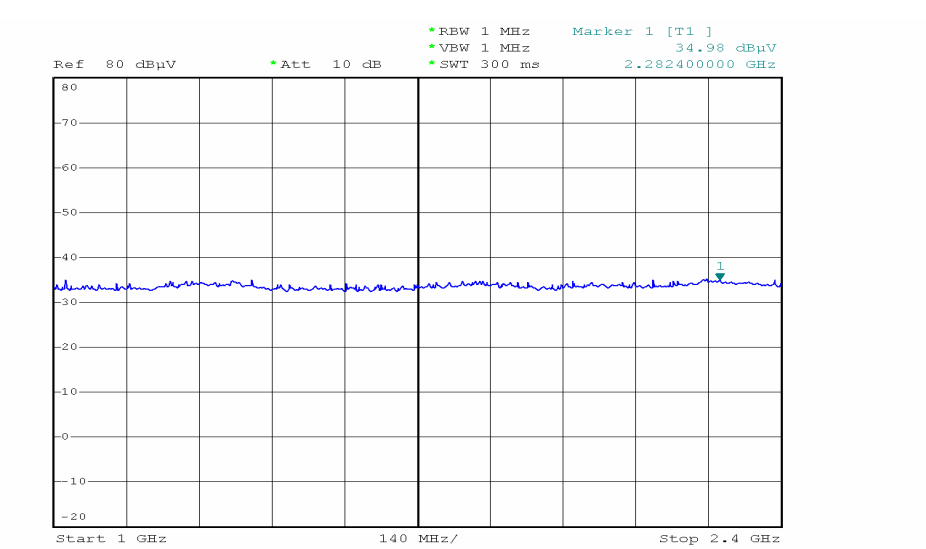

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
35.28 dBµV
1.848400000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
40
30
20
10
0
-10
-20
Start 1 GHz
140 MHz/
Stop 2.4 GHz

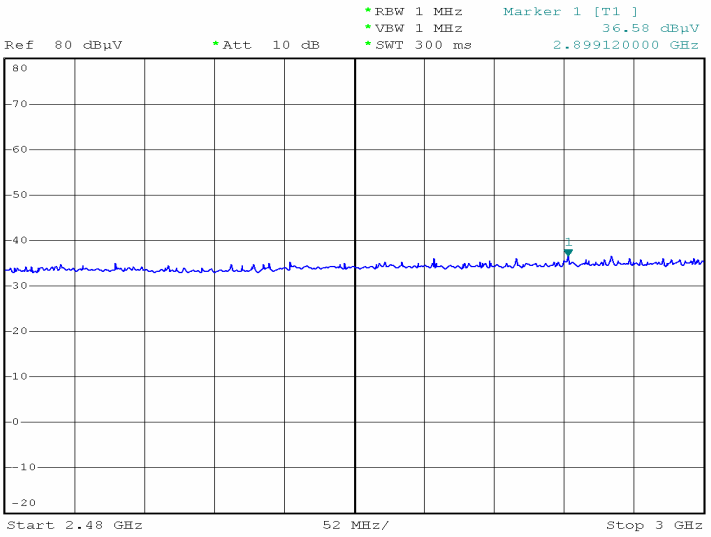

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
36.32 dBµV
2.868960000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
40
30
20
10
0
-10
-20
Start 2.48 GHz
52 MHz/
Stop 3 GHz

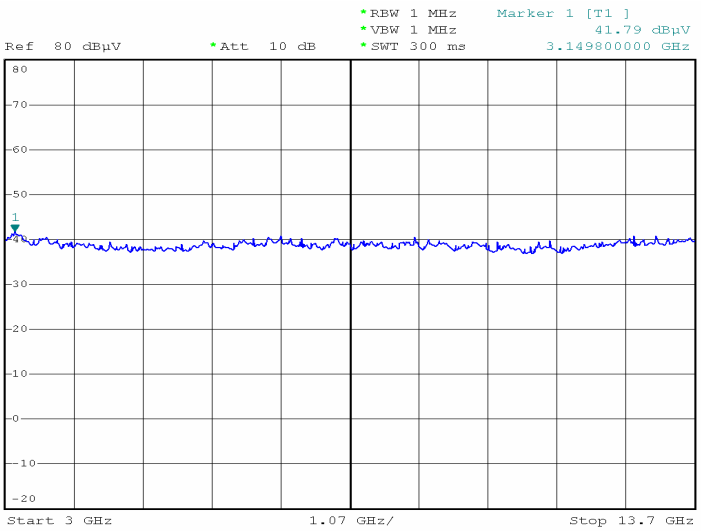

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
41.65 dBµV
3.663400000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
30
20
10
0
-10
-20
1
Start 3 GHz
1.07 GHz/
Stop 13.7 GHz

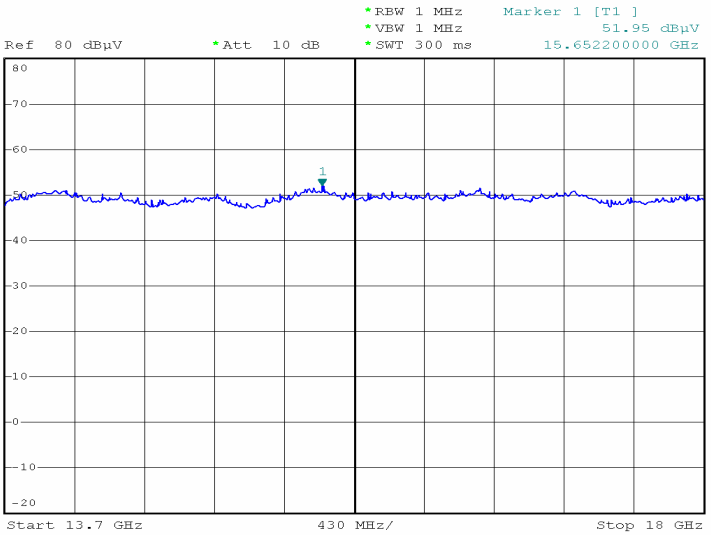

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
51.29 dBµV
15.592000000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
40
30
20
10
0
-10
-20
1
Start 13.7 GHz
430 MHz/
Stop 18 GHz

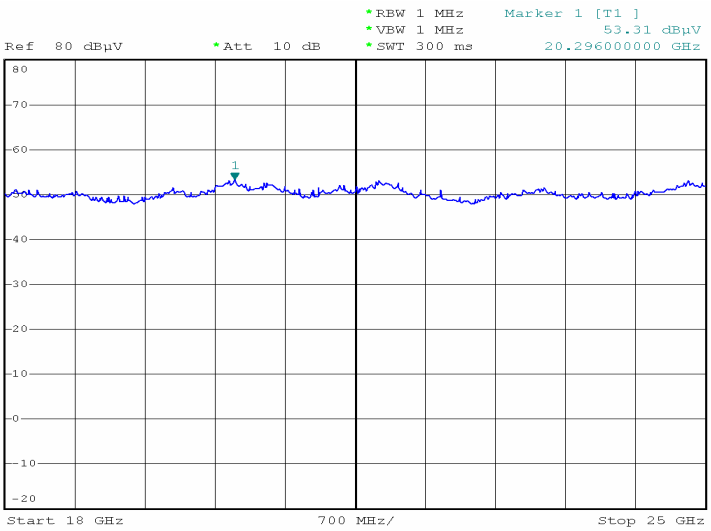

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
53.12 dBµV
20.170000000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
40
30
20
10
0
-10
-20
1
Start 18 GHz
700 MHz/
Stop 25 GHz

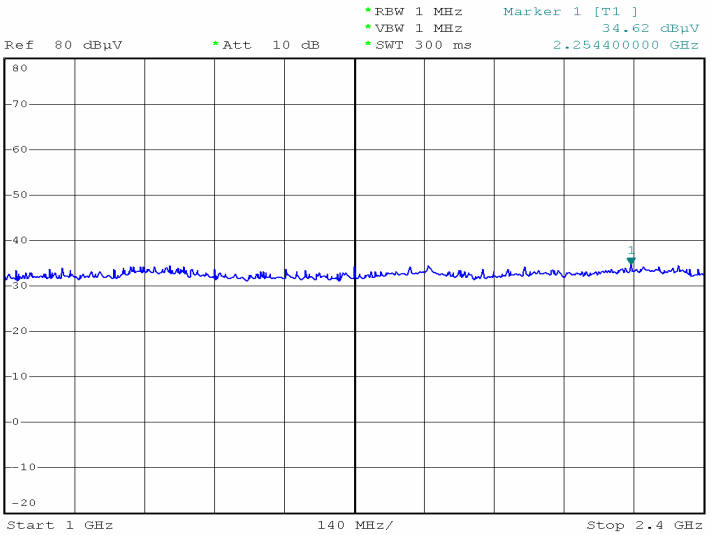

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
34.98 dBµV
2.282400000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
40
30
20
10
0
-10
-20
1
Start 1 GHz
140 MHz/
Stop 2.4 GHz

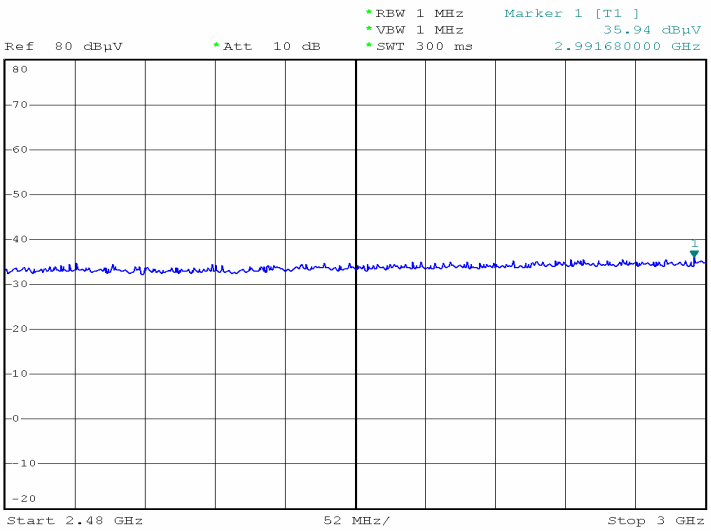

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
36.58 dBµV
2.899120000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
40
30
20
10
0
-10
-20
Start 2.48 GHz
52 MHz/
Stop 3 GHz

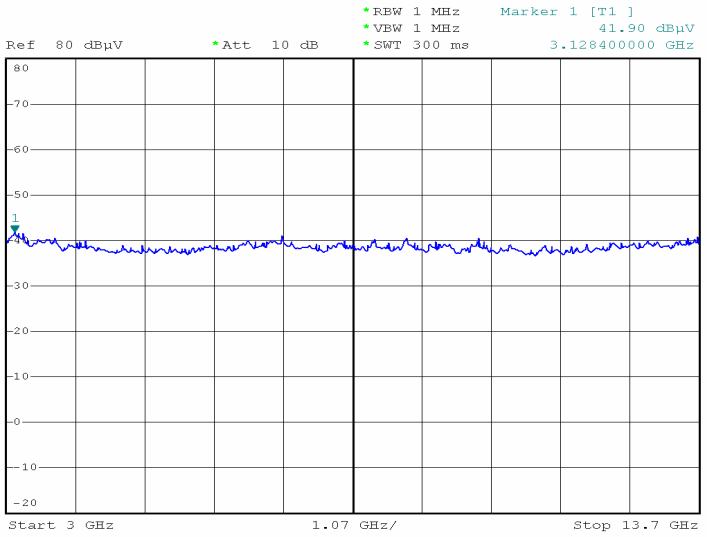

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
41.79 dBµV
3.149800000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
30
20
10
0
-10
-20
Start 3 GHz
1.07 GHz/
Stop 13.7 GHz

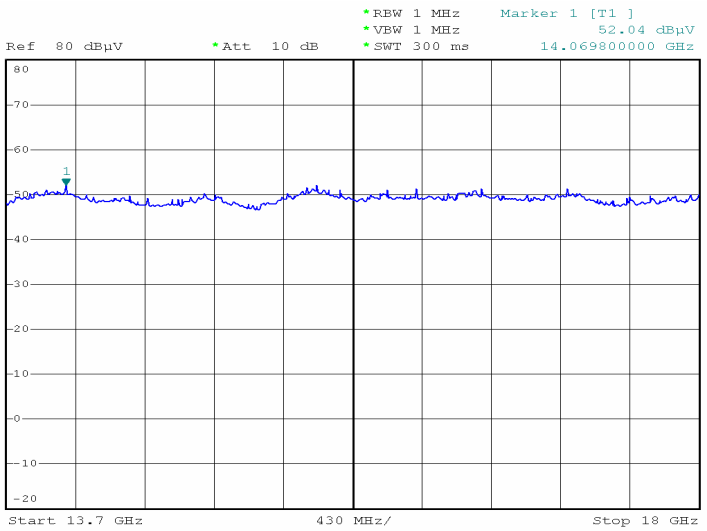

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
51.95 dBµV
15.652200000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
40
30
20
10
0
-10
-20
1
Start 13.7 GHz
430 MHz/
Stop 18 GHz

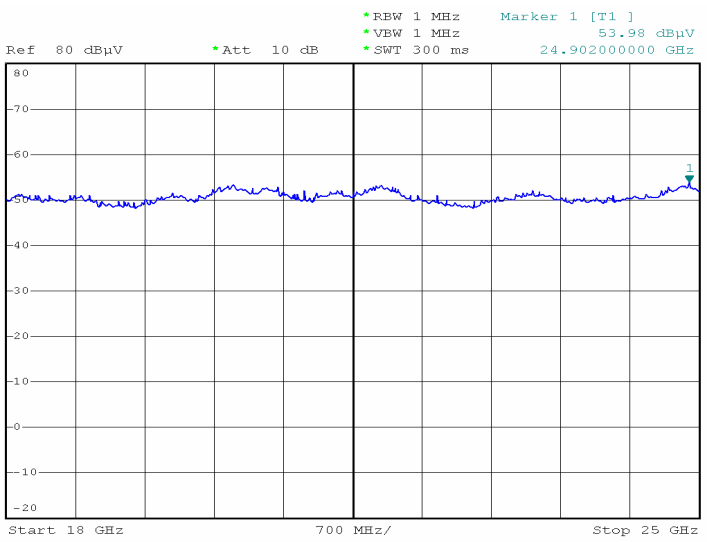

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
53.31 dBµV
20.296000000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
40
30
20
10
0
-10
-20
1
Start 18 GHz
700 MHz/
Stop 25 GHz

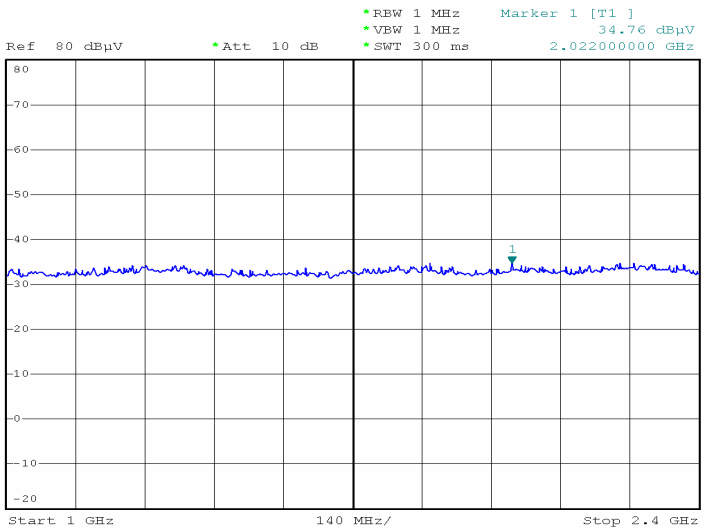

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
34.62 dBµV
2.254400000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
40
30
20
10
0
-10
-20
Start 1 GHz
140 MHz/
Stop 2.4 GHz

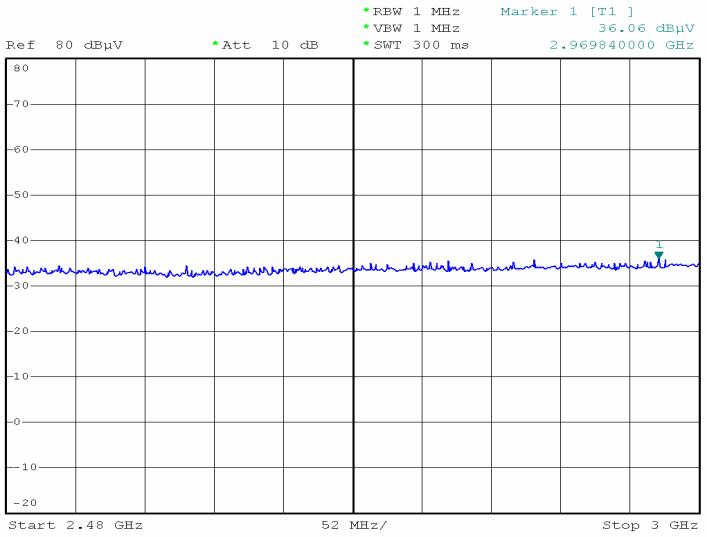

*RBW 1 MHz
*VBW 1 MHz
*SWT 300 ms
Marker 1 [T1]
35.94 dBµV
2.991680000 GHz
Ref 80 dBµV
*Att 10 dB
80
70
60
50
40
30
20
10
0
-10
-20
Start 2.48 GHz
52 MHz/
Stop 3 GHz

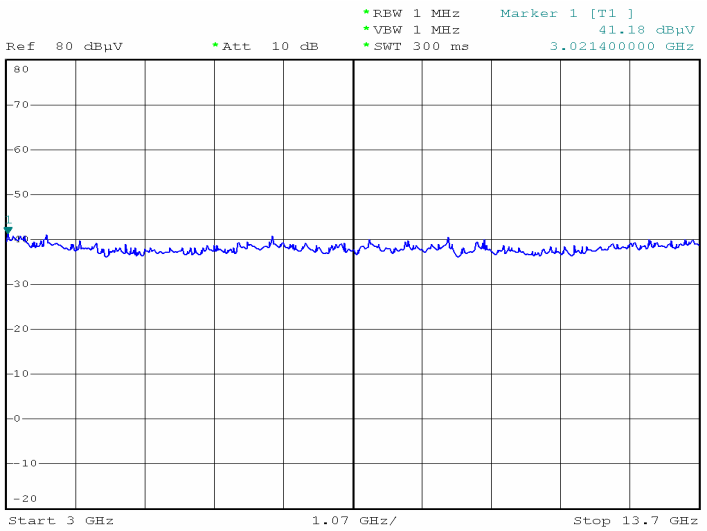

*RBW 1 MHz
Marker 1 [T1]
*VBW 1 MHz
41.90 dBµV
Ref 80 dBµV
*Att 10 dB
*SWT 300 ms
3.128400000 GHz
80
70
60
50
1
30
20
10
0
-10
-20
Start 3 GHz
1.07 GHz/
Stop 13.7 GHz

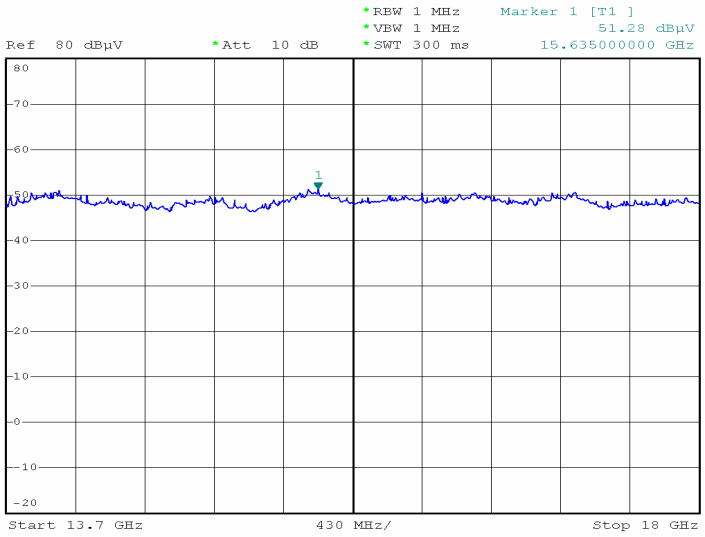

*RBW 1 MHz
Marker 1 [T1]
*VBW 1 MHz
52.04 dBµV
Ref 80 dBµV
*Att 10 dB
*SWT 300 ms
14.069800000 GHz
80
70
60
1
50
40
30
20
10
0
-10
-20
Start 13.7 GHz
430 MHz/
Stop 18 GHz

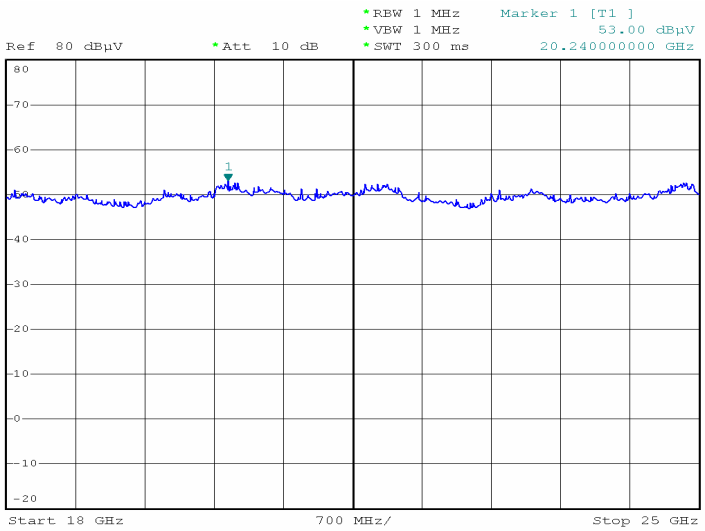

*RBW 1 MHz
Marker 1 [T1]
*VBW 1 MHz
53.98 dBµV
Ref 80 dBµV
*Att 10 dB
*SWT 300 ms
24.902000000 GHz
80
70
60
50
40
30
20
10
0
-10
-20
1
Start 18 GHz
700 MHz/
Stop 25 GHz


*RBW 1 MHz
Marker 1 [T1]
*VBW 1 MHz
34.76 dBµV
Ref 80 dBµV
*Att 10 dB
*SWT 300 ms
2.022000000 GHz
80
70
60
50
40
30
20
10
0
-10
-20
1
Start 1 GHz
140 MHz/
Stop 2.4 GHz


*RBW 1 MHz
Marker 1 [T1]
*VBW 1 MHz
36.06 dBµV
Ref 80 dBµV
*Att 10 dB
*SWT 300 ms
2.969840000 GHz
80
70
60
50
40
30
20
10
0
-10
-20
Start 2.48 GHz
52 MHz/
Stop 3 GHz


*RBW 1 MHz
Marker 1 [T1]
*VBW 1 MHz
41.18 dBµV
Ref 80 dBµV
*Att 10 dB
*SWT 300 ms
3.021400000 GHz
80
70
60
50
30
20
10
0
-10
-20
Start 3 GHz
1.07 GHz/
Stop 13.7 GHz


*RBW 1 MHz
Marker 1 [T1]
*VBW 1 MHz
51.28 dBµV
Ref 80 dBµV
*Att 10 dB
*SWT 300 ms
15.635000000 GHz
80
70
60
50
40
30
20
10
0
-10
-20
1
Start 13.7 GHz
430 MHz/
Stop 18 GHz


*RBW 1 MHz
Marker 1 [T1]
*VBW 1 MHz
53.00 dBµV
Ref 80 dBµV
*Att 10 dB
*SWT 300 ms
20.240000000 GHz
80
70
60
50
40
30
20
10
0
-10
-20
1
Start 18 GHz
700 MHz/
Stop 25 GHz

4.2.2. Photographs of Radiated Emission Test

FRONT VIEW

EAR VIEW

4.3. 6dB Bandwidth Measurement Data

(1) Modulation Standard: IEEE 802.11b

Test Date: Apr. 02. 2004 Temperature: 24℃ Humidity: 65%

a) Channel 01: 6dB Emission Bandwidth is 8.88 MHz

b) Channel 06: 6dB Emission Bandwidth is 8.88 MHz

c) Channel 11: 6dB Emission Bandwidth is 8.96MHz

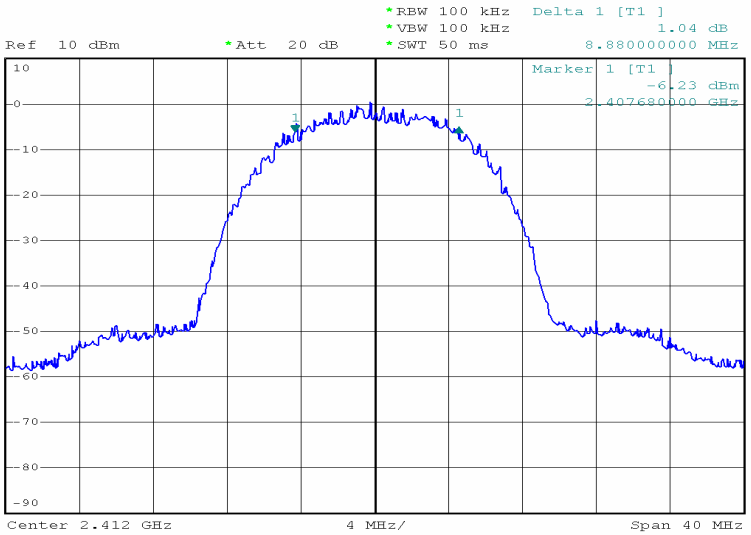
(2) Modulation Standard: IEEE 802.11g

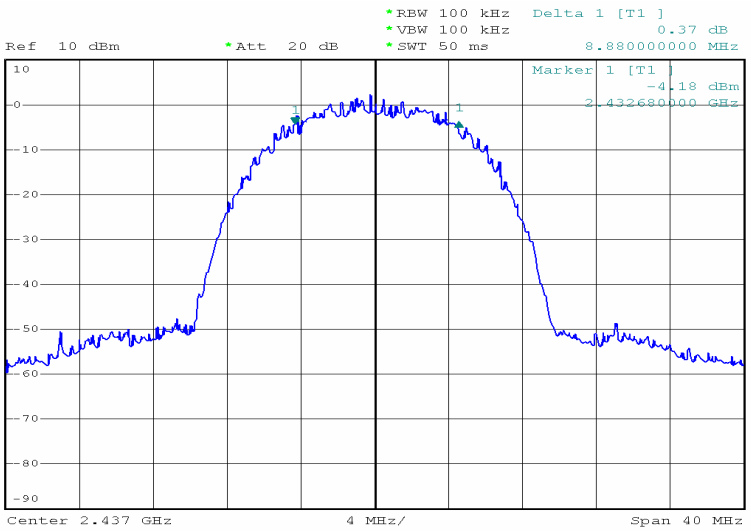
Test Date: Apr. 02. 2004 Temperature: 24℃ Humidity: 65%

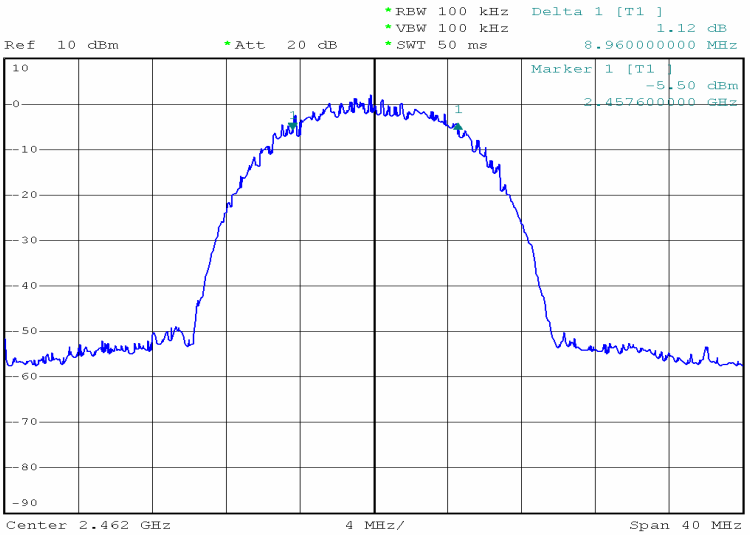
a) Channel 01: 6dB Emission Bandwidth is 16.24 MHz

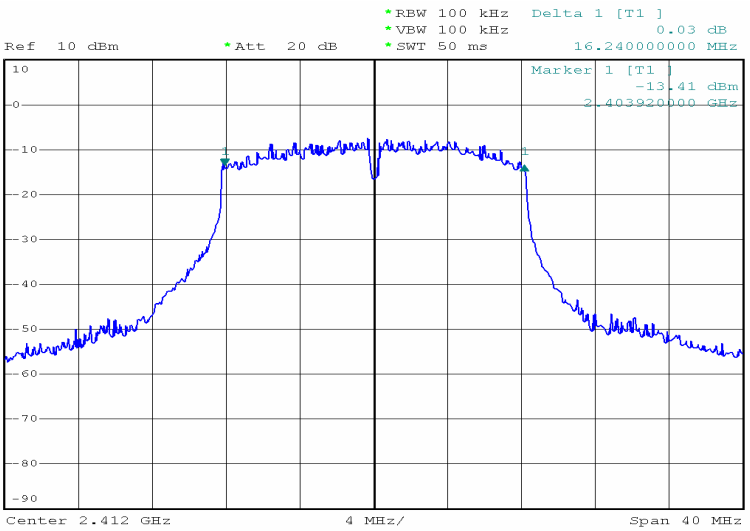
b) Channel 06: 6dB Emission Bandwidth is 16.16 MHz

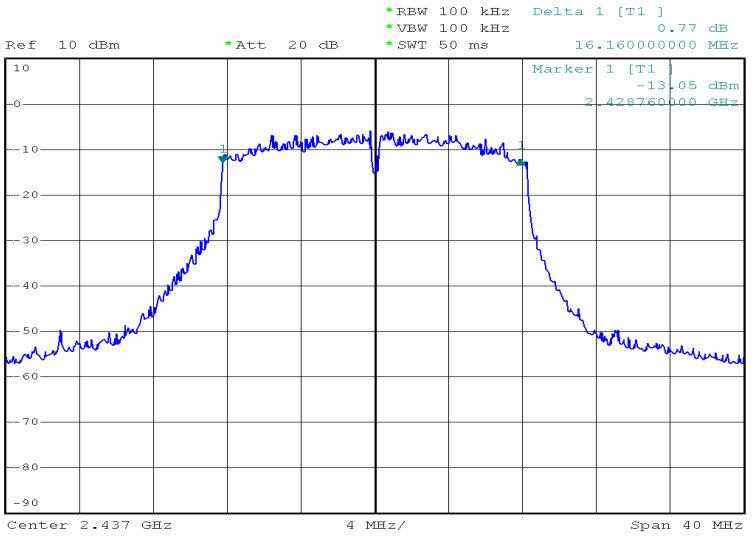
c) Channel 11: 6dB Emission Bandwidth is 16.16 MHz

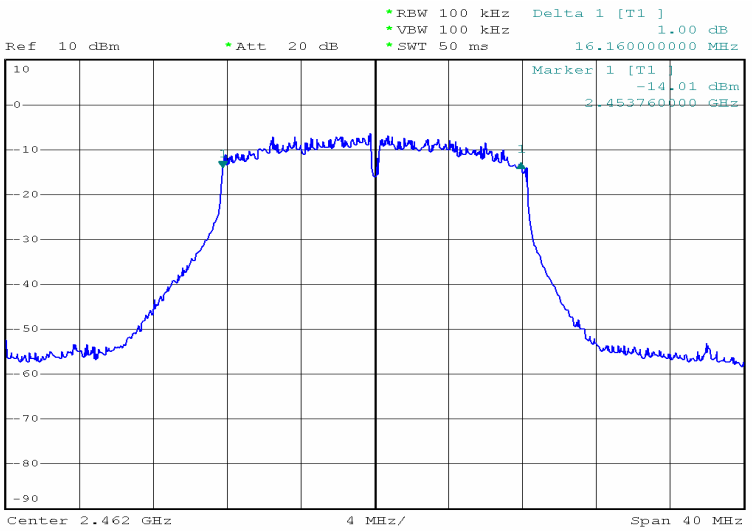

*RBW 100 kHz
*VBW 100 kHz
*SWT 50 ms
Delta 1 [T1]
1.04 dB
8.880000000 MHz
Ref 10 dBm
*Att 20 dB
Marker 1 [T1]
-6.23 dBm
2.407680000 GHz
Center 2.412 GHz
4 MHz/
Span 40 MHz


*RBW 100 kHz
*VBW 100 kHz
*SWT 50 ms
Delta 1 [T1]
0.37 dB
8.880000000 MHz
Ref 10 dBm
*Att 20 dB
Marker 1 [T1]
-4.18 dBm
2.432680000 GHz
Center 2.437 GHz
4 MHz/
Span 40 MHz


*RBW 100 kHz
*VBW 100 kHz
*SWT 50 ms
Delta 1 [T1]
1.12 dB
8.960000000 MHz
Ref 10 dBm
*Att 20 dB
Marker 1 [T1]
-5.50 dBm
2.457600000 GHz
Center 2.462 GHz
4 MHz/
Span 40 MHz


*RBW 100 kHz
*VBW 100 kHz
*SWT 50 ms
Delta 1 [T1]
0.03 dB
16.240000000 MHz
Ref 10 dBm
*Att 20 dB
Marker 1 [T1]
-13.41 dBm
2.403920000 GHz
Center 2.412 GHz
4 MHz/
Span 40 MHz


*RBW 100 kHz
*VBW 100 kHz
*SWT 50 ms
Delta 1 [T1]
0.77 dB
16.160000000 MHz
Ref 10 dBm
*Att 20 dB
Marker 1 [T1]
-13.05 dBm
2.428760000 GHz
Center 2.437 GHz
4 MHz/
Span 40 MHz


*RBW 100 kHz
*VBW 100 kHz
*SWT 50 ms
Delta 1 [T1]
1.00 dB
16.160000000 MHz
Ref 10 dBm
*Att 20 dB
Marker 1 [T1]
-14.01 dBm
2.453760000 GHz
Center 2.462 GHz
4 MHz/
Span 40 MHz

4.4. Peak Output Power Measurement Data

(1) Modulation Standard: IEEE 802.11b

Test Date: Apr. 02. 2004 Temperature: 24℃ Humidity: 65%

a) Channel 01: Output Peak Power is 14.97dBm or 31.4mW

b) Channel 06: Output Peak Power is 16.62dBm or 45.9mW

c) Channel 11: Output Peak Power is 16.15dBm or 41.2mW

(2) Modulation Standard: IEEE 802.11g

Test Date: Apr. 02. 2004 Temperature: 24℃ Humidity: 65%

a) Channel 01: Output Peak Power is 11.85dBm or 15.3mW

b) Channel 06: Output Peak Power is 13.65dBm or 23.2mW

c) Channel 11: Output Peak Power is 13.13dBm or 20.6mW

Band Edges Measurement Data

格式化:項目符號及編號

(1) Modulation Standard: IEEE 802.11b

Test Date: Apr. 02. 2004 Temperature: 24℃ Humidity: 65%

a) Lower Band Edge: maximum value is -45.66dBm that is attenuated more than 20dB

b) Upper Band Edge: maximum value is -49.12dBm that is attenuated more than 20dB

(2) Modulation Standard: IEEE 802.11g

Test Date: Apr. 02. 2004 Temperature: 24℃ Humidity: 65%

a) Lower Band Edge: maximum value is -43.48dBm that is attenuated more than 20dB

b) Upper Band Edge: maximum value is -44.53dBm that is attenuated more than 20dB

Modulation Standard: IEEE 802.11b
Operation Mode: Receiving/ Transmitting
Test Date: Apr. 02. 2004 Temperature: 24℃ Humidity: 65%

a) Channel 1
Fundamental Frequency: 2412 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2390.0	56.7	46.9	57.2	47.7	1	58.2	48.4	74	54	-5.6	180	1
2483.5	57.2	46.5	57.8	46.1	1	58.8	47.5	74	54	-6.5	180	1

b) Channel 6
Fundamental Frequency: 2437 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2390.0	57.1	47.5	56.5	46.9	1	58.1	48.5	74	54	-5.5	180	1
2483.5	56.9	43.8	57.4	44.3	1	58.4	45.3	74	54	-8.7	180	1

c) Channel 11
Fundamental Frequency: 2462 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2390.0	56.9	47.3	56.1	47.9	1	57.9	48.9	74	54	-5.1	180	1
2483.5	57.2	45.0	57.6	44.3	1	58.6	46.0	74	54	-8.0	180	1

Modulation Standard: IEEE 802.11g
Operation Mode: Receiving/ Transmitting
Test Date: Apr. 02. 2004 Temperature: 24℃ Humidity: 65%

a) Channel 1
Fundamental Frequency: 2412 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2390.0	57.2	48.3	56.8	47.9	1	58.2	49.3	74	54	-4.7	180	1
2483.5	65.8	46.5	64.3	47.0	1	66.8	48.0	74	54	-6.0	180	1

b) Channel 6
Fundamental Frequency: 2437 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2390.0	54.8	46.2	55.7	47.8	1	56.7	48.8	74	54	-5.2	180	1
2483.5	56.8	43.9	55.3	44.3	1	57.8	45.3	74	54	-8.7	180	1

c) Channel 11
Fundamental Frequency: 2462 MHz

Frequency (MHz)	Reading(dBuV)				Factor (dB) Corr.	Result@3m (dBuV/m)		Limit@3m (dBuV/m)		Margin (dB)	Table Deg. (Deg.)	Ant High (m)
	H		V									
	Peak	Ave.	Peak	Ave.		Peak	Ave.	Peak	Ave.			
2390.0	56.6	48.0	57.1	47.3	1	58.1	49.0	74	54	-5.0	180	1
2483.5	57.5	44.8	56.8	44.2	1	58.5	45.8	74	54	-8.2	180	1

(1) Modulation Standard: IEEE 802.11b

Test Date: Apr. 02. 2004 Temperature: 24℃ Humidity: 65%

a) Channel 01: Maximum Power Density of 3 kHz Bandwidth is -11.08dBm

b) Channel 06: Maximum Power Density of 3 kHz Bandwidth is -12.43dBm

c) Channel 11: Maximum Power Density of 3 kHz Bandwidth is -10.22dBm

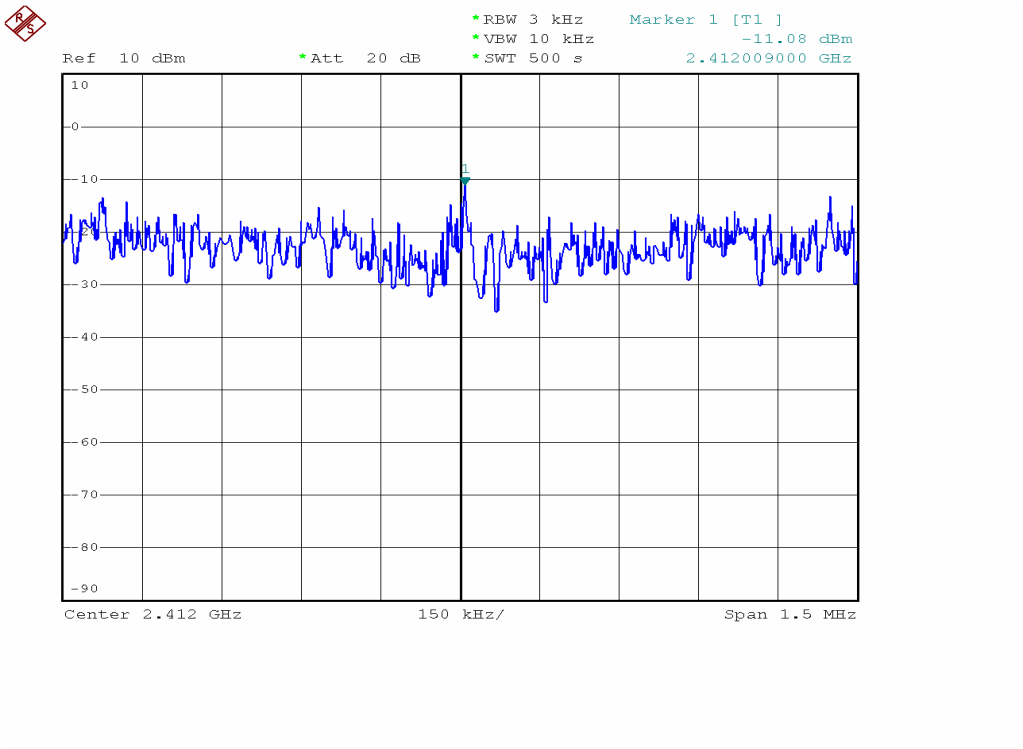
(2) Modulation Standard: IEEE 802.11g

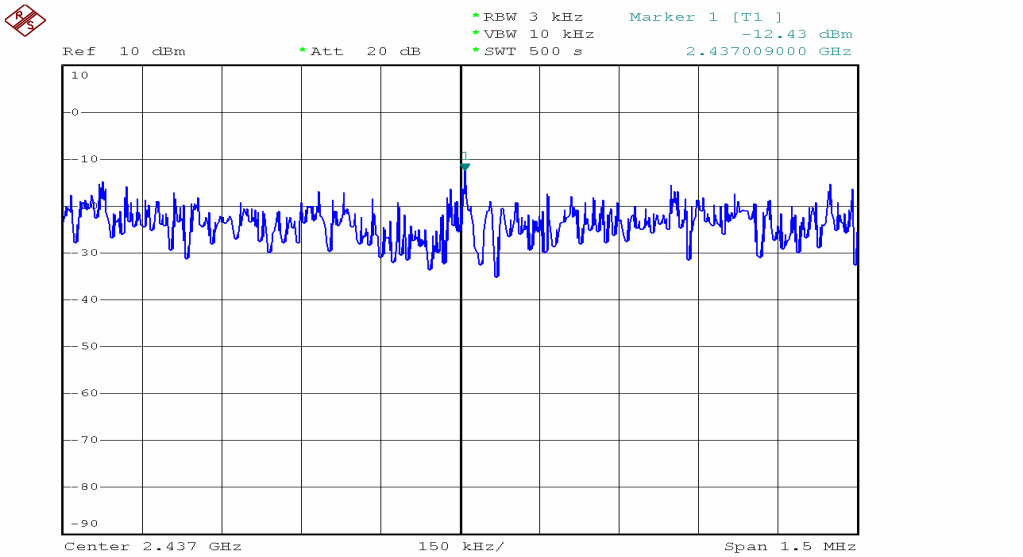
Test Date: Apr. 02. 2004 Temperature: 24℃ Humidity: 65%

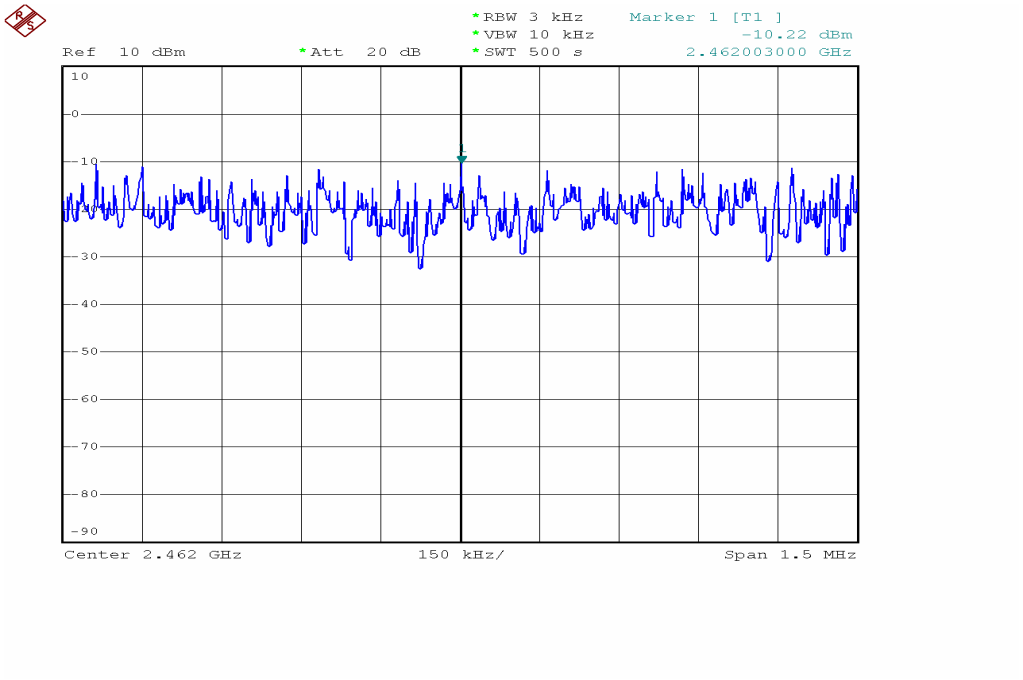
a) Channel 01: Maximum Power Density of 3 kHz Bandwidth is -19.71dBm

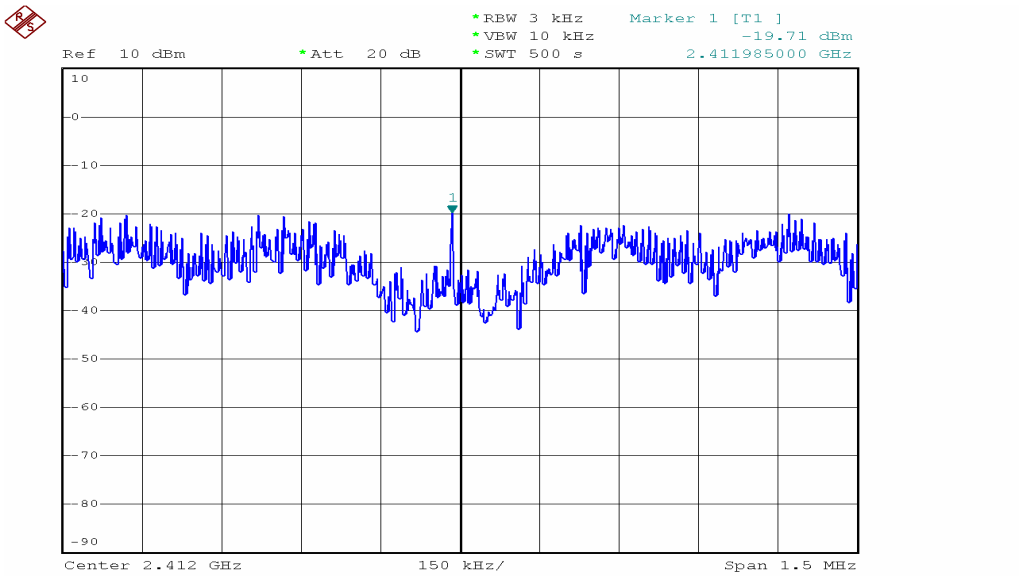
b) Channel 06: Maximum Power Density of 3 kHz Bandwidth is -19.89dBm

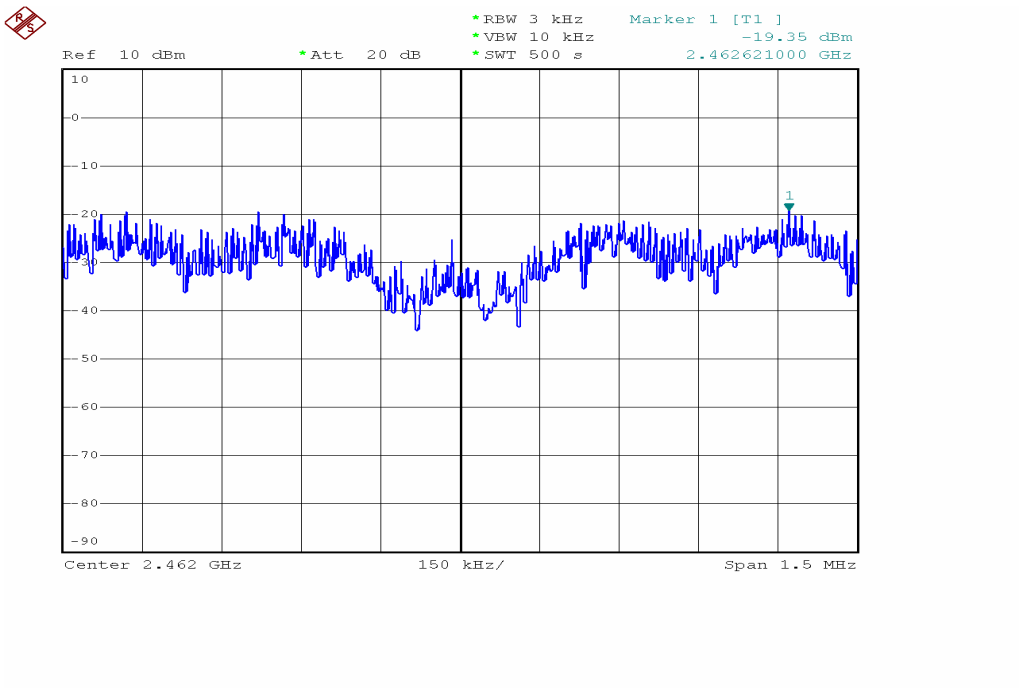
c) Channel 11: Maximum Power Density of 3 kHz Bandwidth is -19.35dBm

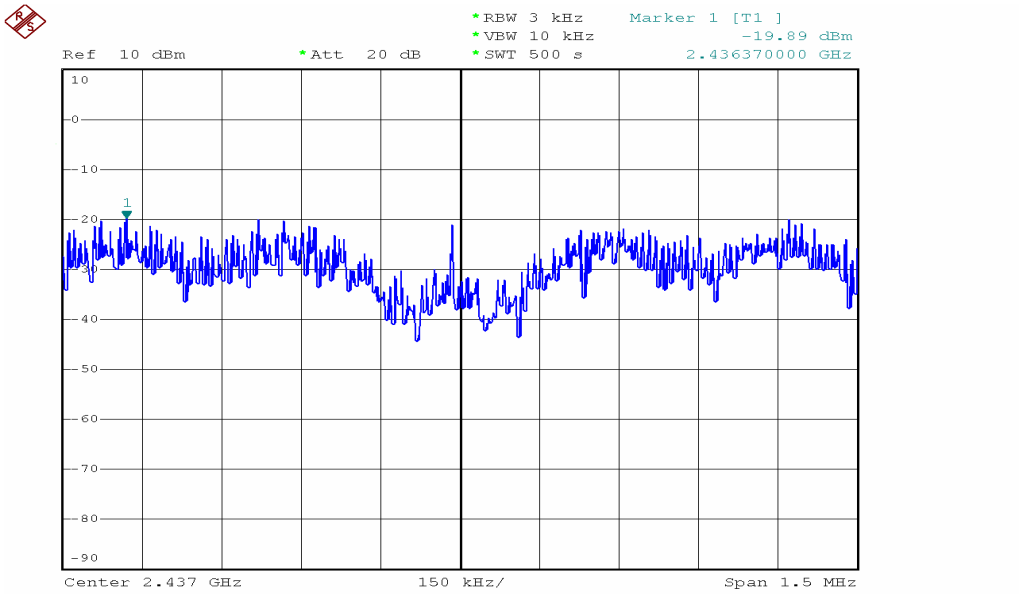

*RBW 3 kHz
*VBW 10 kHz
*SWT 500 s
Marker 1 [T1]
-11.08 dBm
2.412009000 GHz
Ref 10 dBm
*Att 20 dB
10
0
-10
-30
-40
-50
-60
-70
-80
-90
Center 2.412 GHz
150 kHz/
Span 1.5 MHz


*RBW 3 kHz
*VBW 10 kHz
*SWT 500 s
Marker 1 [T1]
-12.43 dBm
2.437009000 GHz
Ref 10 dBm
*Att 20 dB
10
0
-10
-30
-40
-50
-60
-70
-80
-90
Center 2.437 GHz
150 kHz/
Span 1.5 MHz


*RBW 3 kHz
Marker 1 [T1]
*VBW 10 kHz
-10.22 dBm
Ref 10 dBm
*Att 20 dB
*SWT 500 s
2.462003000 GHz
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
Center 2.462 GHz
150 kHz/
Span 1.5 MHz


*RBW 3 kHz
Marker 1 [T1]
*VBW 10 kHz
-19.71 dBm
Ref 10 dBm
*Att 20 dB
*SWT 500 s
2.411985000 GHz
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
Center 2.412 GHz
150 kHz/
Span 1.5 MHz


*RBW 3 kHz
*VBW 10 kHz
*SWT 500 s
Marker 1 [T1]
-19.35 dBm
2.462621000 GHz
Ref 10 dBm
*Att 20 dB
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
1
Center 2.462 GHz
150 kHz/
Span 1.5 MHz


*RBW 3 kHz
*VBW 10 kHz
*SWT 500 s
Marker 1 [T1]
-19.89 dBm
2.436370000 GHz
Ref 10 dBm
*Att 20 dB
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
1
Center 2.437 GHz
150 kHz/
Span 1.5 MHz

4.5. Test Result of RF Exposure Evaluation

. Product: Wireless Router

. Test Item: RF Exposure Evaluation Data

. Test site: OATS1-SD

. Test Mode: Normal Operation

4.5.1. Antenna Gain

The maximum Gain is 1.8 dBi.

4.5.2. EUT Operation condition

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.5.3. Output Power into Antenna & RF Exposure Evaluation Distance

Modulation Standard: IEEE 802.11b

Test Date: Apr. 02, 2004 Temperature: 25℃ Humidity: 63%

Channel	Channel Frequency (MHz)	Output Power to Antenna (dBm)	Power Density (S) (mW/cm^2)
01	2412	14.47	0.125
06	2437	15.71	0.182
11	2462	16.86	0.164

Modulation Standard: IEEE 802.11g

Test Date: Apr. 02, 2004 Temperature: 25℃ Humidity: 63%

Channel	Channel Frequency (MHz)	Output Power to Antenna (dBm)	Power Density (S) (mW/cm^2)
01	2412	11.55	0.057
06	2437	12.83	0.076
11	2462	13.97	0.099

The distance r (4th column) calculated from the Friis transmission formula is far shorter than 20 cm separation requirement. So, RF exposure limit warning or SAR test are not required.

5. List of Measuring Equipment Used

No	Instrument/Ancillary	Type	Manufacturer	Serial No.	Valid Date.
1	BILOG ANTENNA	CBL6111C	SCHAFFNER	2762	2004/11/03
2	PREAMPLIFIER	RFP4002	SCHAFFNER	010	2004/11/03
3	RECEIVER	SCR3501	SCHAFFNER	437	2004/11/03
4	SIGNAL GENERATOR	8648B	HP	3629U00612	2006/02/08
5	SPECTRUM ANALYZER	8594E	HP	3520A01913	2005/01/15
6	AMPLIFIER	8447D	AGILENT	2944A10593	2004/10/09
7	AMPLIFIER	8447D	AGILENT	2944A10531	2004/07/08
8	SERIES POWER METER	E4416A	AGILENT	GB41292146	2004/11/05
9	POWER SENSOR	E9327A	AGILENT	US40441392	2004/10/06
10	DIPOLE ANTENNA	AD-100	COM- POWER	721011	2004/12/02
11	DIPOLE ANTENNA	AD-100	COM- POWER	721010	2004/12/02
12	SPECTRUM ANALYZER	R3131A	ADVANTEST	131000021	2004/11/24
13	SPECTRUM ANALYZER	FSP40	R&S	100047	2004/12/16
14	PREAMPLIFIER	8449B	AGILENT	3008A01954	2005/01/04
15	HORN ANTENNA	3115	EMCO	31601	2005/01/13
16	HORN ANTENNA	3115	EMCO	31589	2005/01/14
17	HORN ANTENNA	3116	EMCO	31970	2005/01/29
18	HORN ANTENNA	3116	EMCO	31974	2005/01/29
19	EMI RECEIVER	8546A	HP	3807A00454	2005/02/12
20	RF FILTER SECTION	85460A	HP	3704A00386	2005/02/12
21	SIGNAL GENERATOR	83640A	HP	2927A00107	2006/03/16
22	ATTENUATOR	8491B	AGILENT	50703	2004/12/16
23	ATTENUATOR	8491B	AGILENT	50705	2004/12/16
24	TEMPERATURE CHAMBER	TMJ-9712	T MACHINE	T-12-040111	2005/03/05
25	HIGH PASS FILTER	84300-80038	HP	002	N/A
26	HIGH PASS FILTER	84300-80038	HP	006	N/A
27	DC Power Supply	GPD-3030	GM	7020936	N/A
28	AC POWER CONVERTER	AFC-11005	APC	F103120008	N/A