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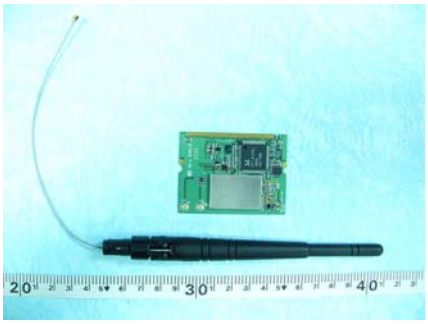
FCC RADIO TEST REPORT

Applicant's company	**Realtek Semiconductor Corp.**
Applicant Address	No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan
FCC ID	**TX2-RTL8185**
Manufacturer's company	**Realtek Semiconductor Corp.**
Manufacturer Address	No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan

Product Name	802.11b/g miniPCI module
Brand Name	Realtek
Model Name	RTL8185 miniPCI Zebra100
Test Rule	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz
Receive Date	Dec. 22, 2005
Test Date	Jan. 16, 2006
Submission Type	Original Equipment



Statement

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **47 CFR FCC Part 15 Subpart C**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.

Lab Code: 200079-0

Table of Contents

History of This Test Report

Original Issue Date: Jan. 16, 2006

Report No.: FR5D2219

■ No additional attachment.

□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

1. CERTIFICATE OF COMPLIANCE

Product Name	:	802.11b/g miniPCI module
Brand Name	:	Realtek
Model Name	:	RTL8185 miniPCI Zebra100
Applicant	:	Realtek Semiconductor Corp.
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart C § 15.247

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Dec. 22, 2005 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Wayne Hsu / Supervisor

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	15.68 dB
4.2	15.247(b)(3)	Maximum Peak Conducted Output Power	Complies	7.9 dB
4.3	15.247(e)	Power Spectral Density	Complies	19.48 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	1.17 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.82 dB
4.7	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.26dB	Confidence levels of 95%
Maximum Peak Conducted Output Power	±0.5dB	Confidence levels of 95%
Power Spectral Density	±0.71dB	Confidence levels of 95%
6dB Spectrum Bandwidth	±6.25×10-7	Confidence levels of 95%
Radiated Emissions/ Band Edge Emissions	±3.72dB	Confidence levels of 95%

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN
Radio Type	Intentional Transceiver
Power Type	Host (Notebook)
Interface Type	Mini-PCI
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11
Channel Band Width (99%)	11b: 14.72 MHz ; 11g: 16.36 MHz
Conducted Output Power	11b: 20.20 dBm ; 11g: 22.10 dBm
Carrier Frequencies	Please refer to section 3.3
Antenna	Please refer to section 3.2

3.2. Table for Filed Antenna

1.	Ant. Type	DIPOLE	PK Gain(dBi)	2.5	2.	Ant. Type	DIPOLE	PK Gain(dBi)	3
	Connector	IPEX	Model No.	9902-2406-200C		Connector	IPEX	Model No.	C5
3.	Ant. Type	PIFA	PK Gain(dBi)	2.39	4.	Ant. Type	PIFA	PK Gain(dBi)	2.11
	Connector	IPEX	Model No.	AR830WIPI02A		Connector	IPEX	Model No.	AR320WIPI02B
5.	Ant. Type	PIFA	PK Gain(dBi)	0.78	6.	Ant. Type	PIFA	PK Gain(dBi)	1.1
	Connector	IPEX	Model No.	WDAN-QMA6002-DF		Connector	IPEX	Model No.	DQ661500115
7.	Ant. Type	PIFA	PK Gain(dBi)	0.3	8.	Ant. Type	PIFA	PK Gain(dBi)	2.57
	Connector	IPEX	Model No.	AAFJ5050002LF0		Connector	IPEX	Model No.	AR620WIP02C
9.	Ant. Type	PIFA	PK Gain(dBi)	1.97	10.	Ant. Type	PIFA	PK Gain(dBi)	1
	Connector	IPEX	Model No.	ARMK8WIPI02A		Connector	IPEX	Model No.	ARMK8WIPI02A
11.	Ant. Type	PIFA	PK Gain(dBi)	2.37	12.	Ant. Type	PIFA	PK Gain(dBi)	2.11
	Connector	IPEX	Model No.	AAFA5050004LQ0		Connector	IPEX	Model No.	AR320WIPI01B
13.	Ant. Type	PIFA	PK Gain(dBi)	2.57	14.	Ant. Type	PIFA	PK Gain(dBi)	2.21
	Connector	IPEX	Model No.	B0785028000003		Connector	IPEX	Model No.	AR330WIPI01D
15.	Ant. Type	PIFA	PK Gain(dBi)	2.55	16.	Ant. Type	PIFA	PK Gain(dBi)	2.48
	Connector	IPEX	Model No.	AR621WIPI02D		Connector	IPEX	Model No.	ARW62WIPI01G
17.	Ant. Type	PIFA	PK Gain(dBi)	2.49	18.	Ant. Type	PIFA	PK Gain(dBi)	0.46
	Connector	IPEX	Model No.	ARK8MWIPI01B		Connector	IPEX	Model No.	AAFQ5050001LK0
19.	Ant. Type	PIFA	PK Gain(dBi)	2.86	20.	Ant. Type	PIFA	PK Gain(dBi)	2.45
	Connector	IPEX	Model No.	AAFQ5050002LK0		Connector	IPEX	Model No.	B0125028000004

3.3. Table for Carrier Frequencies

Freqeuncy Band	Channel No.	Frequency
2400~2483.5MHz	1	2412 MHz
	2	2417 MHz
	3	2422 MHz
	4	2427 MHz
	5	2432 MHz
	6	2437 MHz
	7	2442 MHz
	8	2447 MHz
	9	2452 MHz
	10	2457 MHz
	11	2462 MHz

3.4. Table for Test Modes

Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel	Antenna
AC Power Line Conducted Emissions	Normal Link	11 Mbps	6	19
Maximum Peak Conducted Output Power	11b/CCK	11 Mbps	1/6/11	NA
Power Spectral Density 6dB Spectrum Bandwidth	11g/BPSK	6 Mbps	1/6/11	NA
Radiated Emissions 9kHz~1GHz	11g/BPSK	6 Mbps	6	19/2
Radiated Emissions 1GHz~10th Harmonic	11b/CCK	11 Mbps	1/6/11	19/2
Band Edge Emissions	11g/BPSK	6 Mbps	1/6/11	19/2

3.5. Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
03CH03-HY	SAC	Hwa Ya	101377	IC 4088	-
CO04-HY	Conduction	Hwa Ya	101377	IC 4088	-
TH01-HY	OVEN Room	Hwa Ya	-	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC); Fully Anechoic Chamber (FAC).

Please refer section 6 for Test Site Address.

3.6. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	SONY	---	DoC
Printer	HP	1010	DoC

3.7. Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

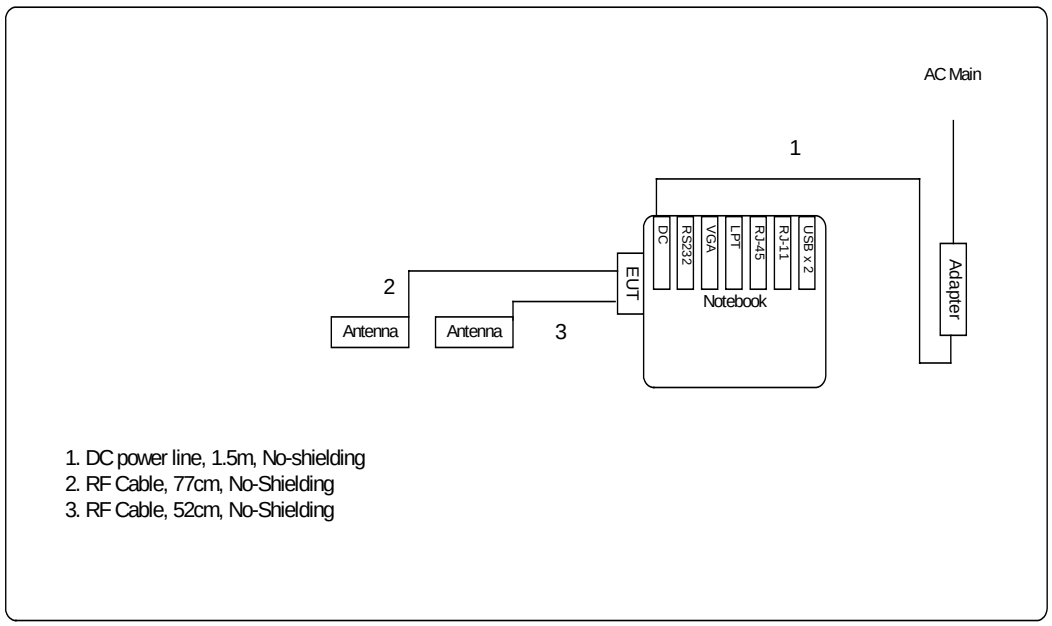
Power Parameters of IEEE 802.11b/g

Test Software Version	REALTEK RTL8185 WLAN NIC Massproduction Kit		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	13	13	12
IEEE 802.11g	23	23	21

3.8. Test Configurations

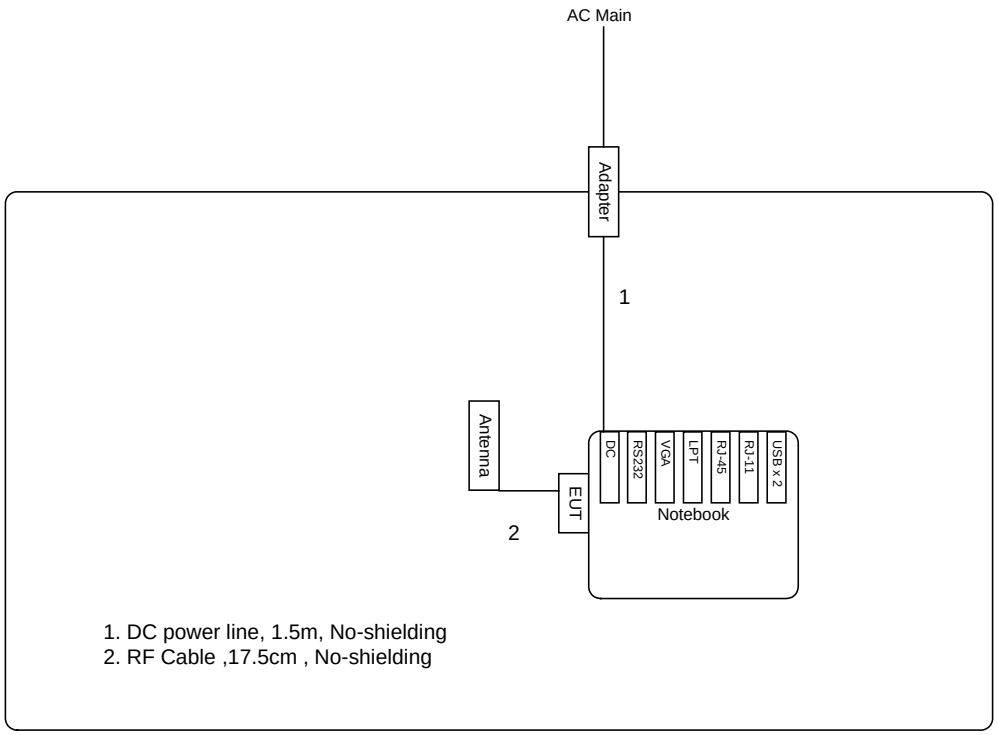
3.8.1. Radiation Emissions Test Configuration

Antenna 19



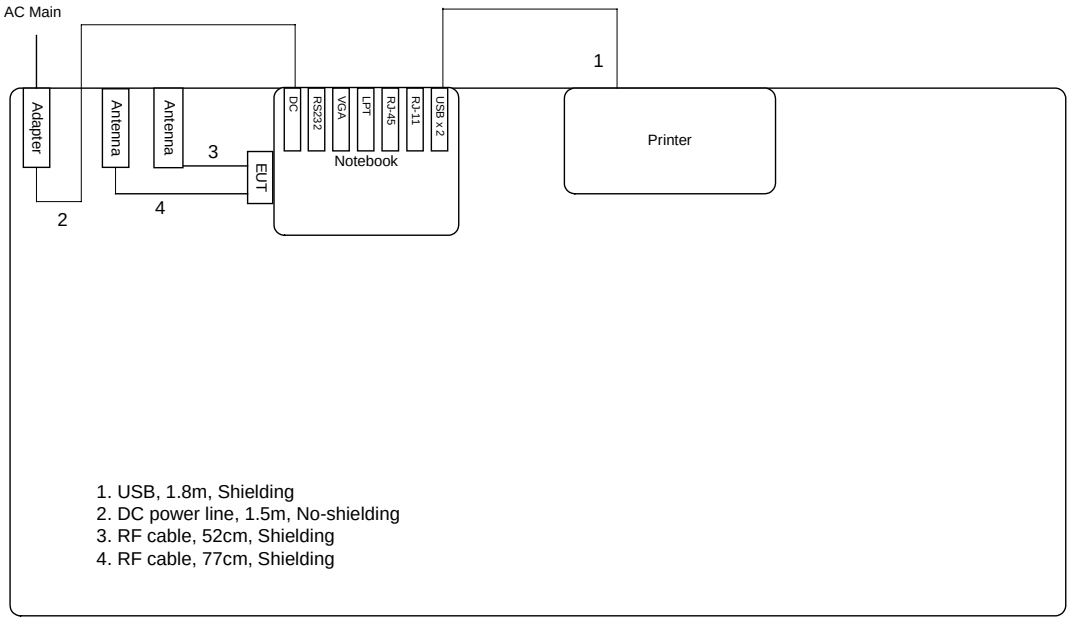
1. DC power line, 1.5m, No-shielding
2. RF Cable, 77cm, No-Shielding
3. RF Cable, 52cm, No-Shielding

Antenna 2



1. DC power line, 1.5m, No-shielding
2. RF Cable ,17.5cm , No-shielding

3.8.2. AC Power Line Conduction Emissions Test Configuration



1. USB, 1.8m, Shielding
2. DC power line, 1.5m, No-shielding
3. RF cable, 52cm, Shielding
4. RF cable, 77cm, Shielding

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For a Low-power Radio-frequency Device which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

4.1.2. Measuring Instruments and Setting

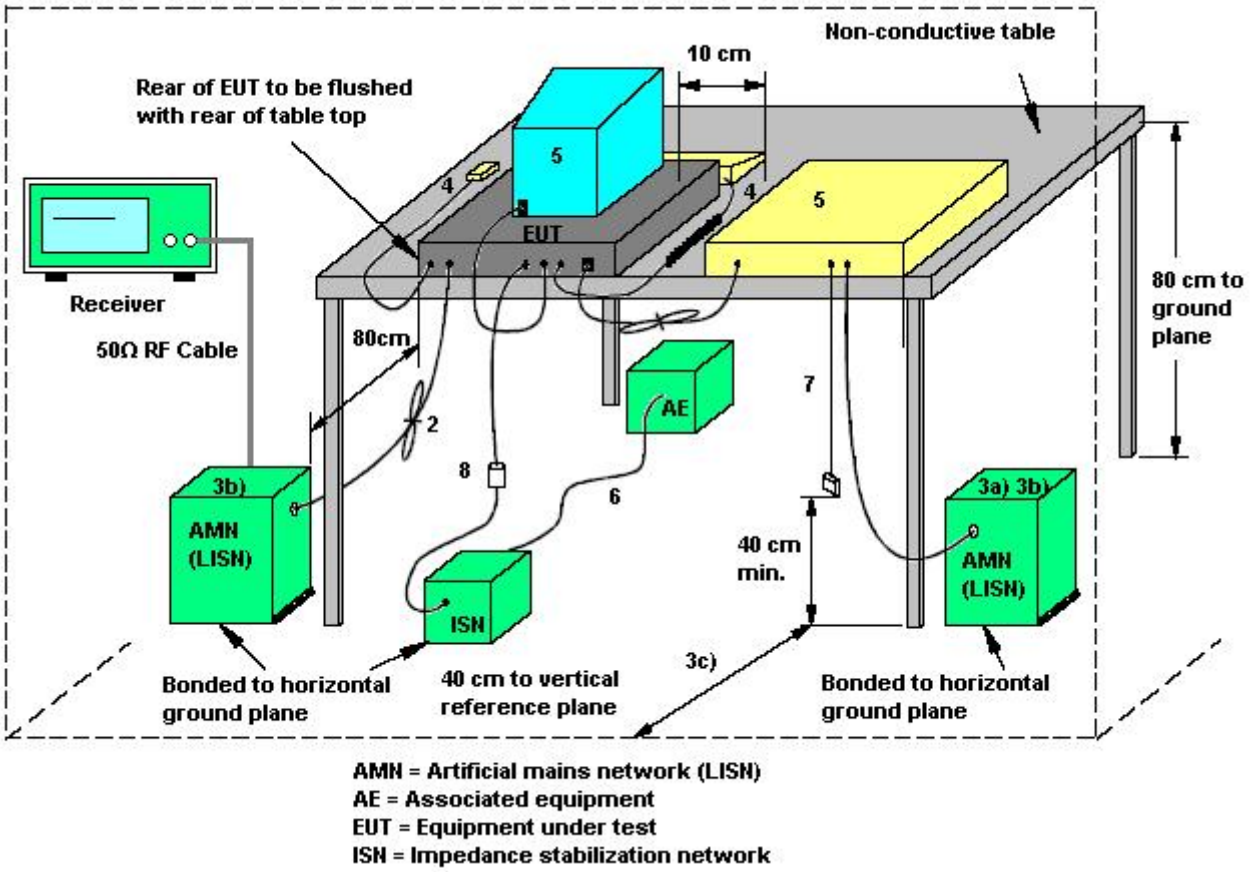
Please refer to section 5 in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 KHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. Test Setup Layout



1. If cables, which hang closer than 40 cm to the horizontal metal groundplane, cannot be shortened to appropriate length, the excess shall be folded back and forth forming a bundle 30 cm to 40 cm long.
2. Excess mains cord shall be bundled in the centre or shortened to appropriate length.
3. EUT is connected to one artificial mains network (AMN). All AMNs and ISNs may alternatively be connected to a vertical reference plane or metal wall.
4. All other units of a system are powered from a second AMN. A multiple outlet strip can be used for multiple mains cords.
5. AMN and ISN are 80 cm from the EUT and at least 80 cm from other units and other metal planes.
6. Mains cords and signal cables shall be positioned for their entire lengths, as far as possible, at 40 cm from the vertical reference plane.
7. Cables of hand operated devices, such as keyboards, mouses, etc. shall be placed as for normal usage.
8. Peripherals shall be placed at a distance of 10 cm from each other and from the controller, except for the monitor which, if this is an acceptable installation practice, shall be placed directly on the top of the controller.
9. I/O signal cable intended for external connection.
10. The end of the I/O signal cables which are not connected to an AE may be terminated, if required, using correct terminating impedance.
11. If used, the current probe shall be placed at 0,1 m from the ISN.

4.1.5. Test Deviation

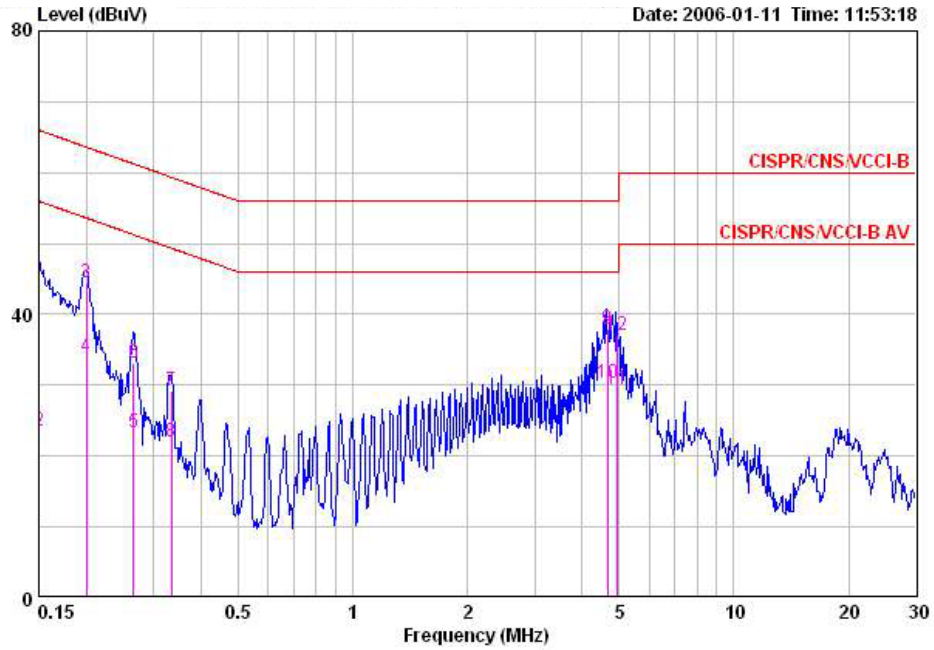
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

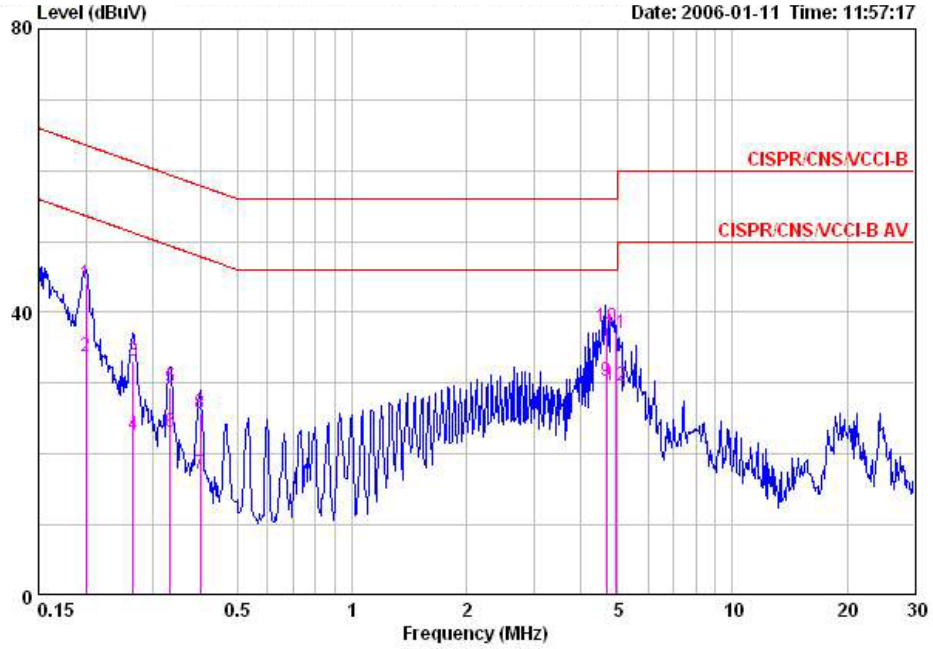
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	20℃	**Humidity**	70%
Test Engineer	Stan Peng	**Phase**	Line
Configuration	Normal		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15000	36.92	-29.08	66.00	34.72	2.00	0.20	QP
2	0.15000	23.50	-32.50	56.00	21.30	2.00	0.20	AVERAGE
3	0.19969	44.39	-19.23	63.62	42.89	1.30	0.20	QP
4	0.19969	33.98	-19.64	53.62	32.48	1.30	0.20	AVERAGE
5	0.26583	23.34	-27.91	51.25	22.24	0.90	0.20	AVERAGE
6	0.26583	33.18	-28.07	61.25	32.08	0.90	0.20	QP
7	0.33412	29.25	-30.10	59.35	28.35	0.70	0.20	QP
8	0.33412	22.03	-27.32	49.35	21.13	0.70	0.20	AVERAGE
9	4.651	37.95	-18.05	56.00	37.35	0.30	0.30	QP
10	4.651	30.23	-15.77	46.00	29.63	0.30	0.30	AVERAGE
11	4.919	29.49	-16.51	46.00	28.89	0.30	0.30	AVERAGE
12	4.919	37.09	-18.91	56.00	36.49	0.30	0.30	QP

Temperature	20℃	Humidity	70%
Test Engineer	Stan Peng	Phase	Line
Configuration	Normal		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.19969	44.04	-19.58	63.62	42.64	1.20	0.20	QP
2	0.19969	33.72	-19.90	53.62	32.32	1.20	0.20	AVERAGE
3	0.26583	33.22	-28.02	61.25	32.28	0.74	0.20	QP
4	0.26583	22.73	-28.51	51.25	21.79	0.74	0.20	AVERAGE
5	0.33208	29.45	-29.95	59.40	28.65	0.60	0.20	QP
6	0.33208	23.06	-26.34	49.40	22.26	0.60	0.20	AVERAGE
7	0.39974	17.24	-30.62	47.86	16.54	0.50	0.20	AVERAGE
8	0.39974	25.83	-32.03	57.86	25.13	0.50	0.20	QP
9	4.656	30.32	-15.68	46.00	29.72	0.30	0.30	AVERAGE
10	4.656	37.88	-18.12	56.00	37.28	0.30	0.30	QP
11	4.920	36.99	-19.01	56.00	36.39	0.30	0.30	QP
12	4.920	29.65	-16.35	46.00	29.05	0.30	0.30	AVERAGE

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. Maximum Peak Output Power Measurement

4.2.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. The limited has to be reduced by the amount in dB that the gain of the antenna exceed 6dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

4.2.2. Measuring Instruments and Setting

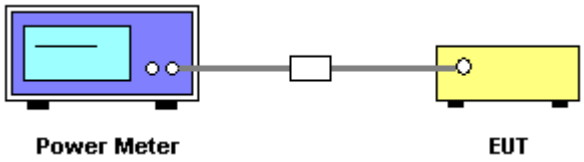
Please refer to section 5 in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Filter No.	Auto
Measurement time	0.135 s ~ 26 s
Used Peak Sensor	NRV-Z32 (model 04)

4.2.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Turn on the EUT and power meter and then record the peak power value.
3. Repeat above procedures on all channels needed to be tested.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Maximum Peak Output Power

Temperature	19℃	Humidity	62%
Test Engineer	Rush Kao	Configurations	802.11b/g

Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	19.30	30.00	**Complies**
6	2437 MHz	20.20	30.00	**Complies**
11	2462 MHz	20.10	30.00	**Complies**

Configuration IEEE 802.11g

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	21.60	30.00	**Complies**
6	2437 MHz	22.10	30.00	**Complies**
11	2462 MHz	21.40	30.00	**Complies**

4.3. Power Spectral Density Measurement

4.3.1. Limit

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.

4.3.2. Measuring Instruments and Setting

Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	1.5MHz
RB	3 kHz
VB	30 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	500s

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser.
2. Set RBW of spectrum analyzer to 3kHz and VBW to 30kHz. Set Detector to Peak, Trace to Max Hold.
3. Mark the frequency with maximum peak power as the center of the display of the spectrum.
4. Set the span to 1.5MHz and the sweep time to 500s and record the maximum peak value.

4.3.4. Test Setup Layout

4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Power Spectral Density

Temperature	19℃	**Humidity**	62%
Test Engineer	Rush Kao	**Configurations**	802.11b/g

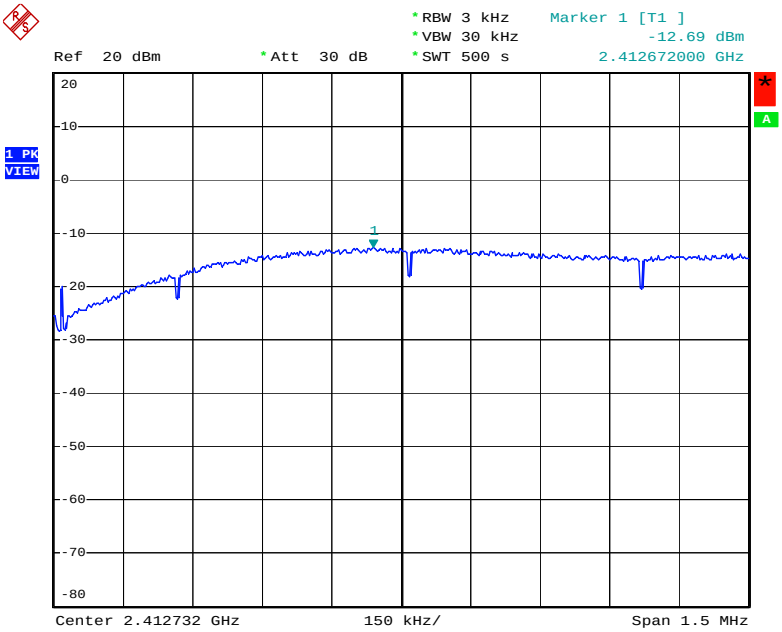
Configuration IEEE 802.11b

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-12.69	8.00	**Complies**
6	2437 MHz	-12.04	8.00	**Complies**
11	2462 MHz	-12.09	8.00	**Complies**

Configuration IEEE 802.11g

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-11.48	8.00	**Complies**
6	2437 MHz	-11.49	8.00	**Complies**
11	2462 MHz	-11.86	8.00	**Complies**

Power Density Plot on Configuration IEEE 802.11b / 2412 MHz



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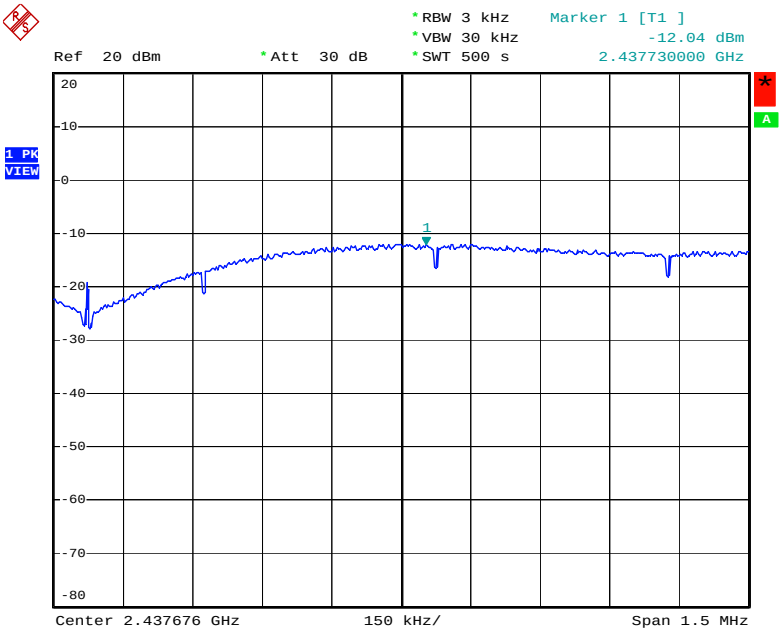
Power Density Plot on Configuration IEEE 802.11b / 2437 MHz



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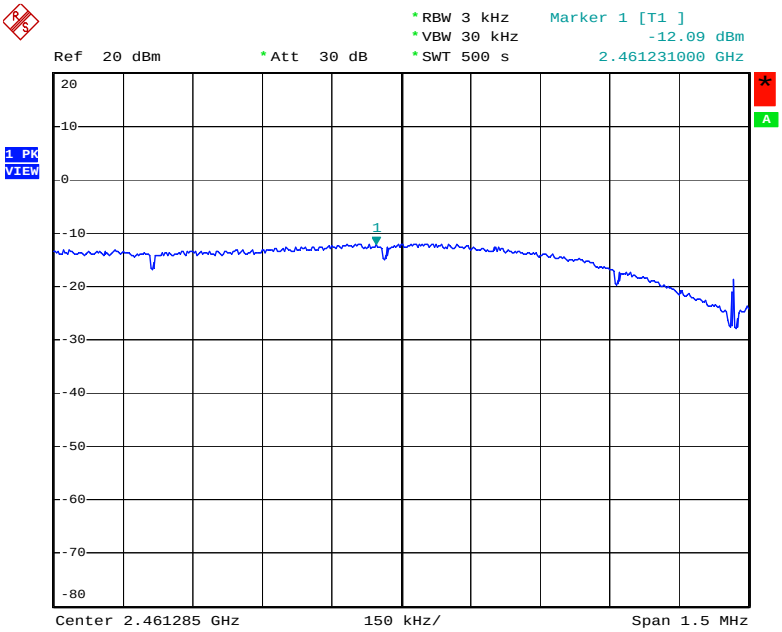
Power Density Plot on Configuration IEEE 802.11b / 2462 MHz



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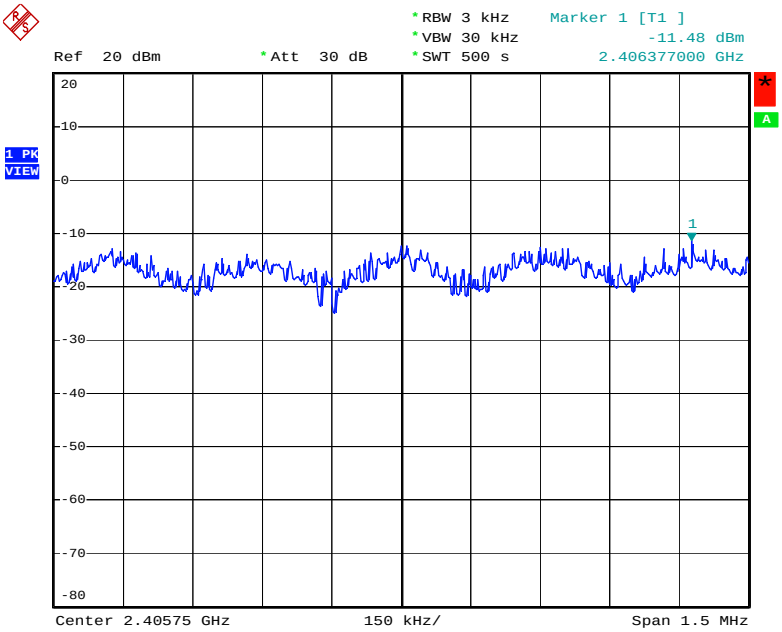
Power Density Plot on Configuration IEEE 802.11g / 2412 MHz



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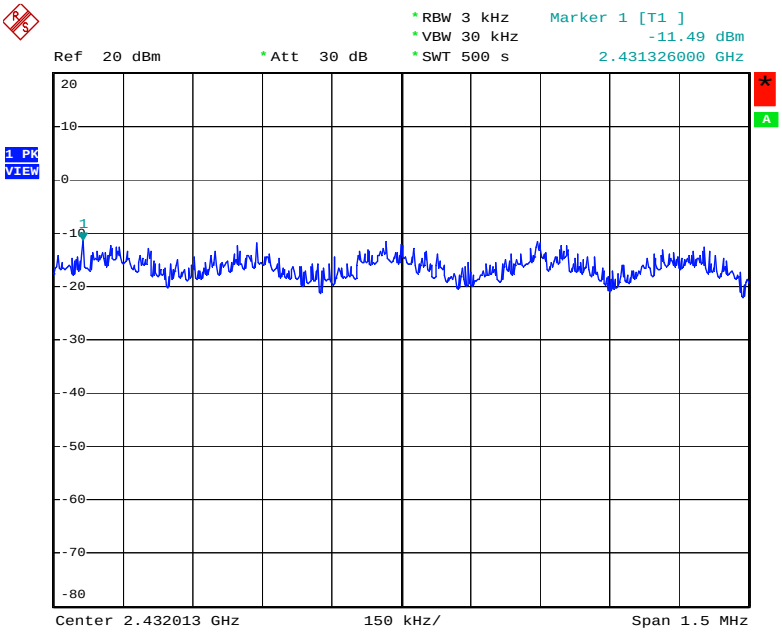
Power Density Plot on Configuration IEEE 802.11g / 2437 MHz



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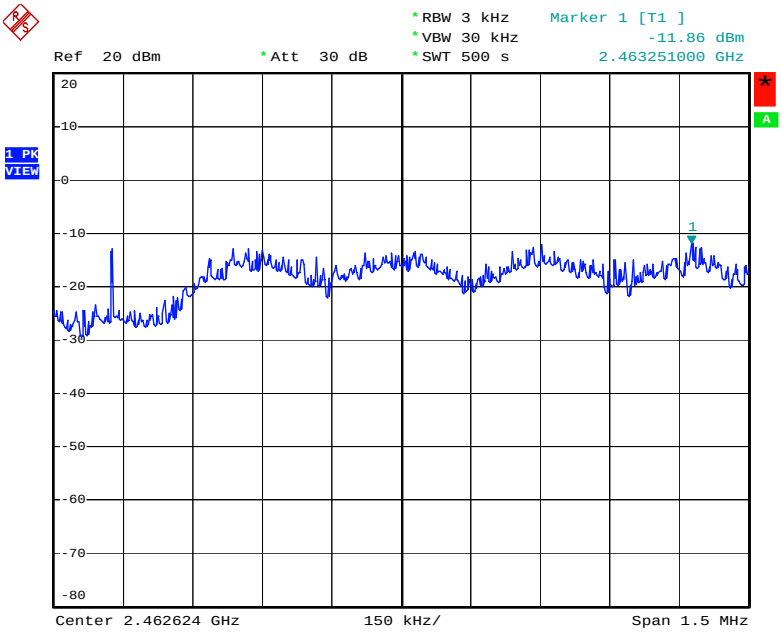
Power Density Plot on Configuration IEEE 802.11g / 2462 MHz



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4.4. 6dB Spectrum Bandwidth Measurement

4.4.1. Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

4.4.2. Measuring Instruments and Setting

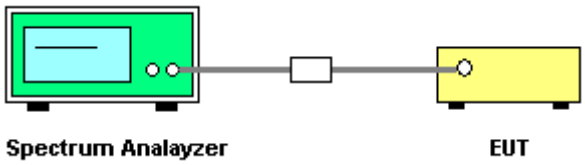
Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RB	100 kHz
VB	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
2. The resolution bandwidth of 100 kHz and the video bandwidth of 100 kHz were used.
3. Measured the spectrum width with power higher than 6dB below carrier.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of 6dB Spectrum Bandwidth

Temperature	19℃	Humidity	62%
Test Engineer	Rush Kao	Configurations	802.11b/g

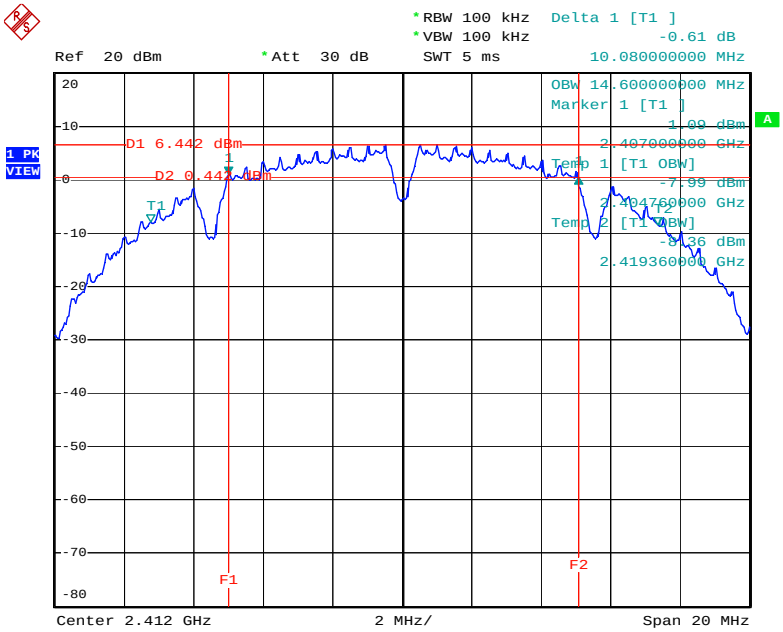
Configuration IEEE 802.11b

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	10.08	14.60	500	**Complies**
6	2437 MHz	10.08	14.72	500	**Complies**
11	2462 MHz	10.04	14.64	500	**Complies**

Configuration IEEE 802.11g

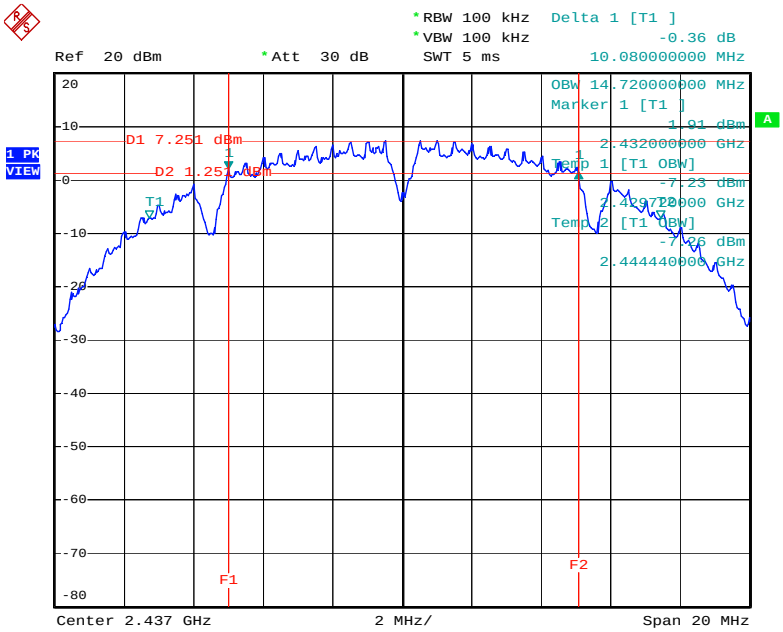
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.04	16.32	500	**Complies**
6	2437 MHz	15.68	16.32	500	**Complies**
11	2462 MHz	15.84	16.36	500	**Complies**

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2412 MHz



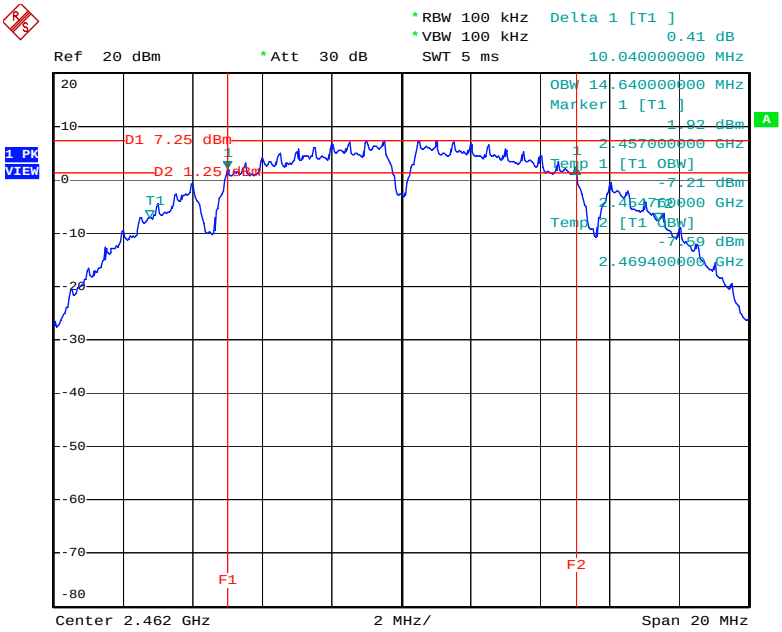
Date: 4.JAN.2006 22:53:02

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437 MHz



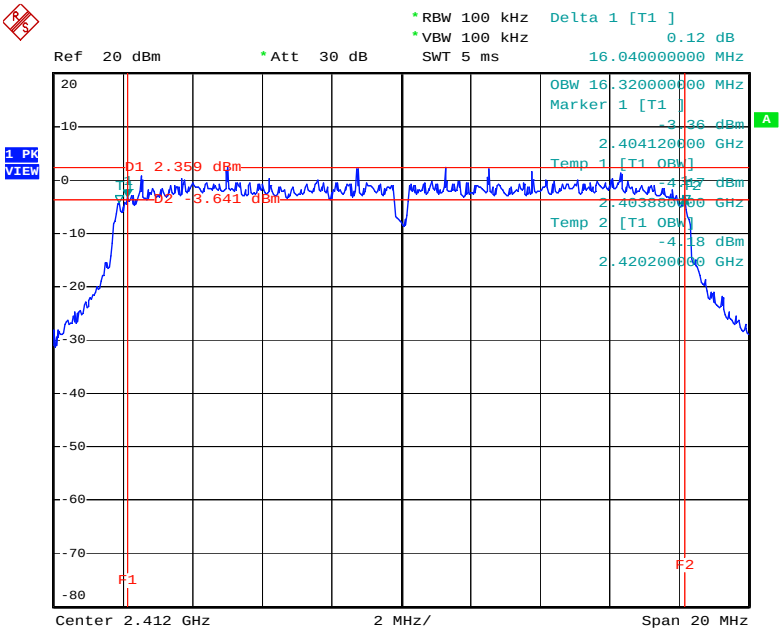
Date: 4.JAN.2006 22:54:05

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2462 MHz



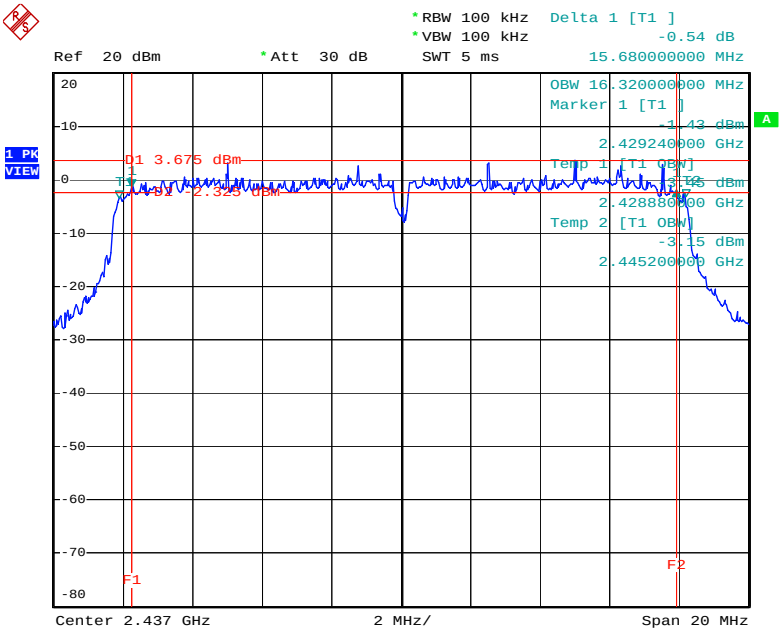
Date: 4.JAN.2006 22:54:58

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2412 MHz



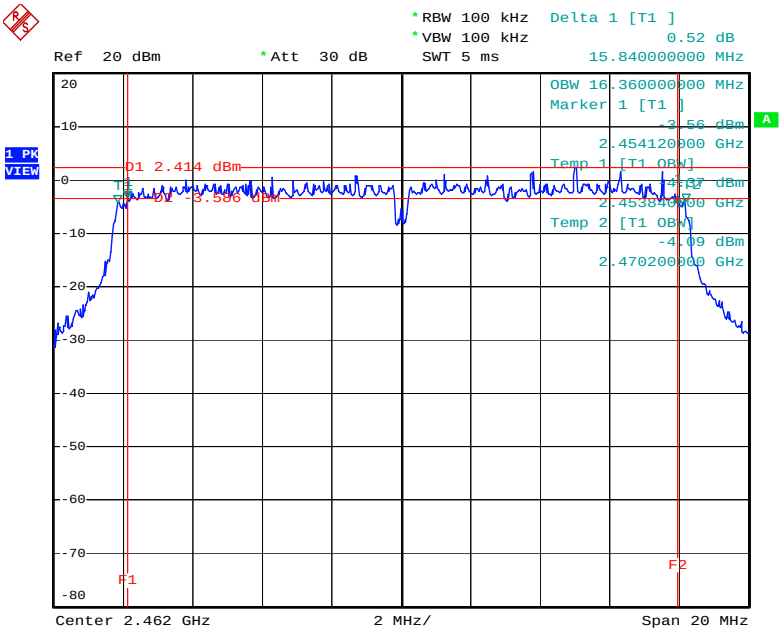
Date: 4.JAN.2006 22:47:22

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2437 MHz



Date: 4.JAN.2006 22:50:16

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2462 MHz



Date: 4.JAN.2006 22:51:05

4.5. Radiated Emissions Measurement

4.5.1. Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.5.2. Measuring Instruments and Setting

Please refer to section 5 in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100KHz / 100KHz for peak

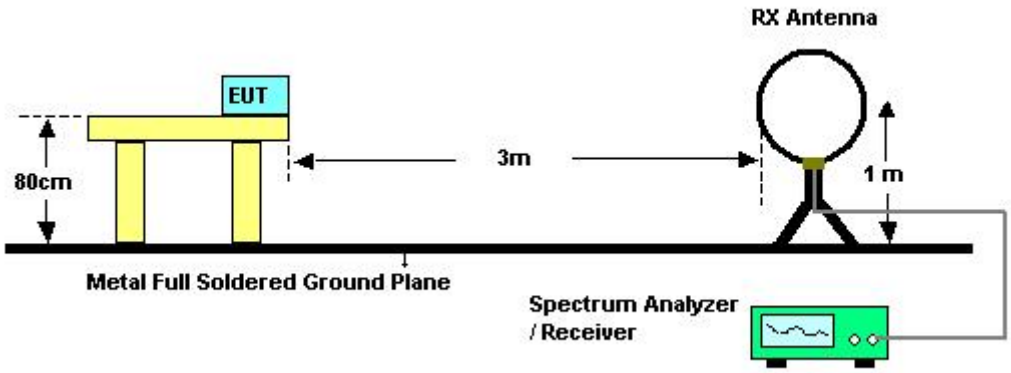
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.5.3. Test Procedures

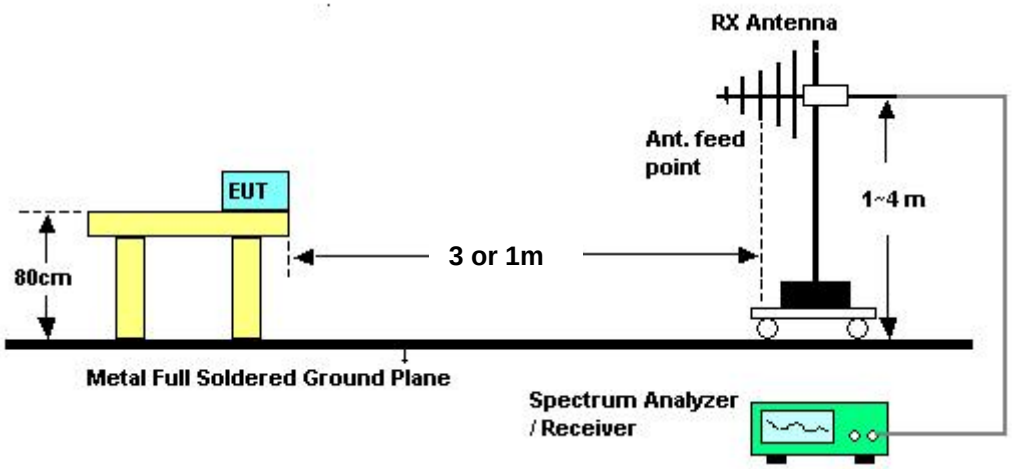
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average 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 for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions 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.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.5.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1m.

Distance extrapolation factor = 20 log (specific distanc [3m] / test distance [1m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Results of Radiated Emissions (9kHz~30MHz)

Temperature	20℃	Humidity	64%
Test Engineer	Rush Kao	Configurations	802.11g channel 6

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

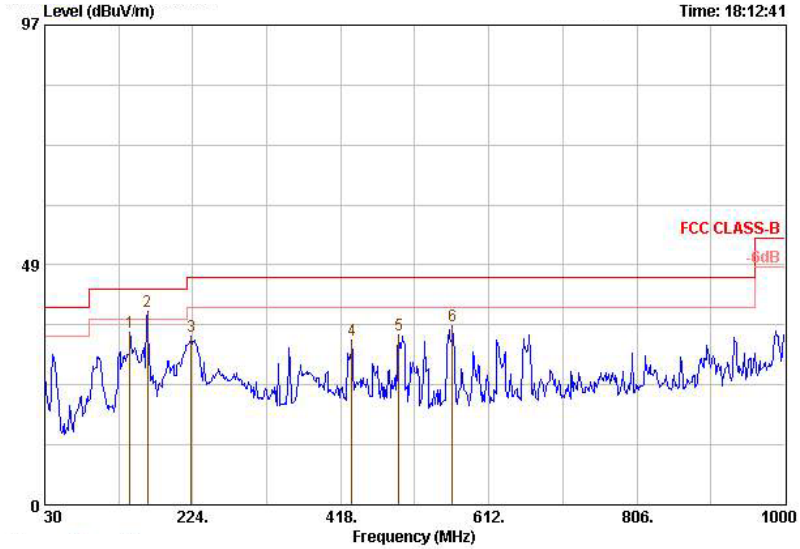
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

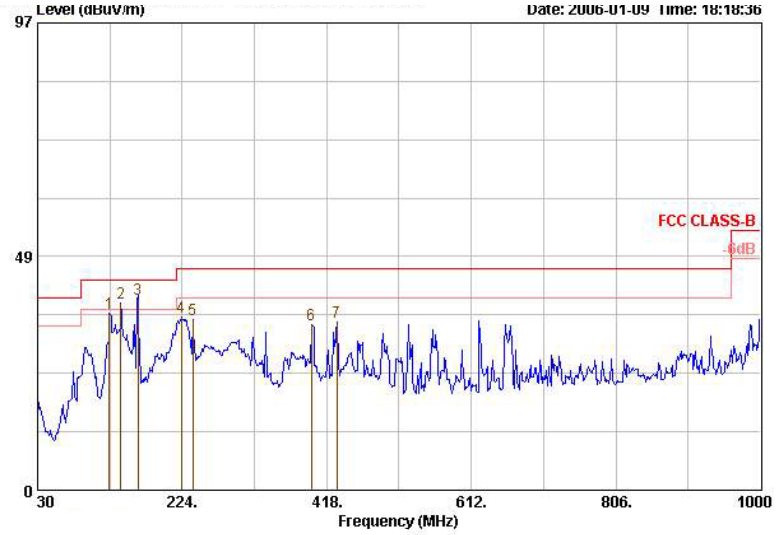
4.5.8. Results of Radiated Emissions (30MHz~1GHz)

Temperature	20℃	Humidity	64%
Test Engineer	Rush Kao	Configurations	V / Ant 19 / 802.11g ch 6



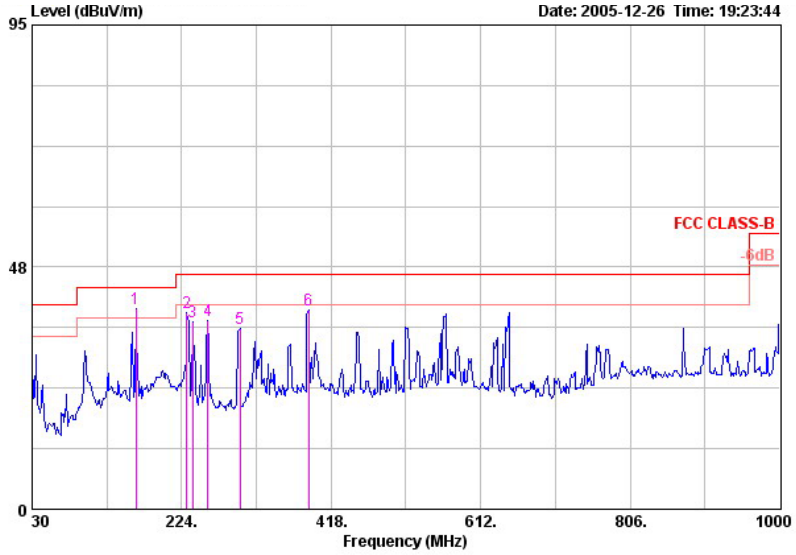
	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	141.550	34.78	-8.72	43.50	10.85	0.94	30.04	53.03	Peak	---	---
2 !	164.830	39.21	-4.29	43.50	9.35	1.02	30.19	59.03	Peak	---	---
3	222.060	34.04	-11.96	46.00	8.70	1.18	30.03	54.19	Peak	---	---
4	432.550	33.37	-12.63	46.00	16.37	1.64	30.43	45.79	Peak	---	---
5	493.660	34.26	-11.74	46.00	17.27	1.76	30.56	45.79	Peak	---	---
6	564.470	36.23	-9.77	46.00	18.65	1.88	30.70	46.41	Peak	---	---

Temperature	20℃	Humidity	64%
Test Engineer	Rush Kao	Configurations	H / Ant 19 / 802.11g ch 6



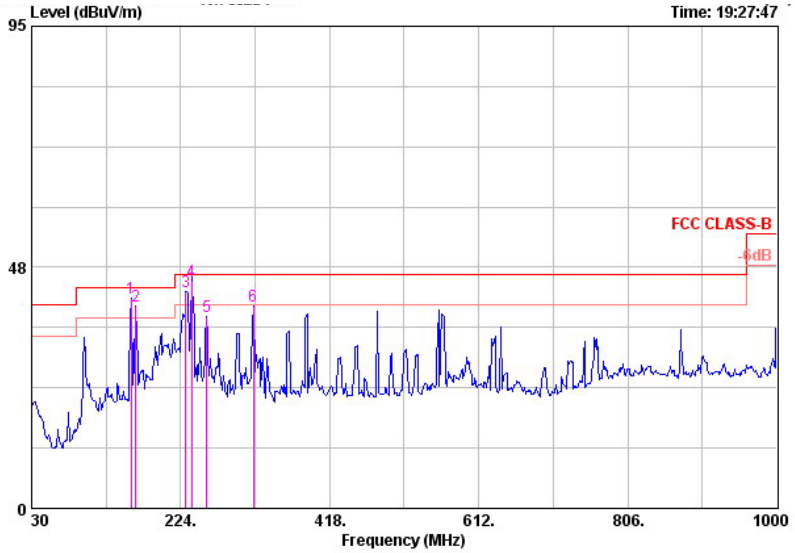
	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	126.030	36.83	-6.67	43.50	11.84	0.90	30.03	54.13	Peak	---	---
2 !	141.550	38.92	-4.58	43.50	10.85	0.94	30.04	57.18	Peak	---	---
3 @	164.830	39.63	-3.87	43.50	9.35	1.02	30.19	59.45	QP	---	---
4	223.030	35.93	-10.07	46.00	8.80	1.18	30.04	55.99	Peak	---	---
5	238.550	35.53	-10.47	46.00	10.80	1.22	30.08	53.60	Peak	---	---
6	397.630	34.41	-11.59	46.00	15.80	1.59	30.37	47.39	Peak	---	---
7	431.580	34.88	-11.12	46.00	16.38	1.64	30.42	47.28	Peak	---	---

Temperature	20℃	Humidity	64%
Test Engineer	Rush Kao	Configurations	V / Ant 2 / 802.11g ch 6



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 *	164.830	39.23	-4.27	43.50	58.06	10.71	2.00	31.54	Peak	---	---
2	230.790	38.63	-7.37	46.00	55.95	11.86	2.21	31.38	Peak	---	---
3	238.550	36.84	-9.16	46.00	53.51	12.42	2.28	31.37	Peak	---	---
4	257.950	36.97	-9.03	46.00	52.46	13.38	2.48	31.35	Peak	---	---
5	299.660	35.36	-10.64	46.00	50.52	13.96	2.20	31.32	Peak	---	---
6	388.900	39.12	-6.88	46.00	50.25	17.31	2.63	31.08	Peak	---	---

Temperature	20℃	Humidity	64%
Test Engineer	Rush Kao	Configurations	H / Ant 2 / 802.11g ch 6



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 *	159.980	41.37	-2.13	43.50	59.80	11.08	2.00	31.51	QP	---	---
2 *	165.800	39.86	-3.64	43.50	58.77	10.64	2.00	31.55	Peak	---	---
3 *	230.790	42.80	-3.20	46.00	60.12	11.86	2.21	31.38	Peak	---	---
4 @	238.550	44.83	-1.17	46.00	61.50	12.42	2.28	31.37	QP	---	---
5	257.950	37.80	-8.20	46.00	53.29	13.38	2.48	31.35	Peak	---	---
6	319.060	39.74	-6.26	46.00	54.06	14.69	2.28	31.29	Peak	---	---

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

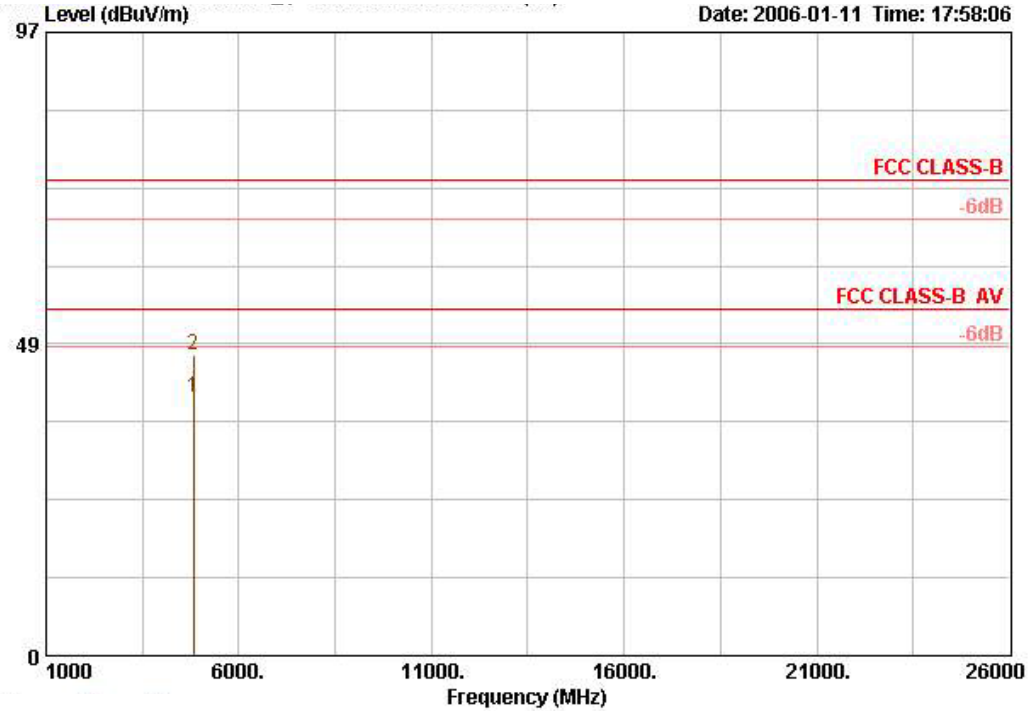
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Pol. : V is Vertical Polarization ; H is Horizontal Polarization.

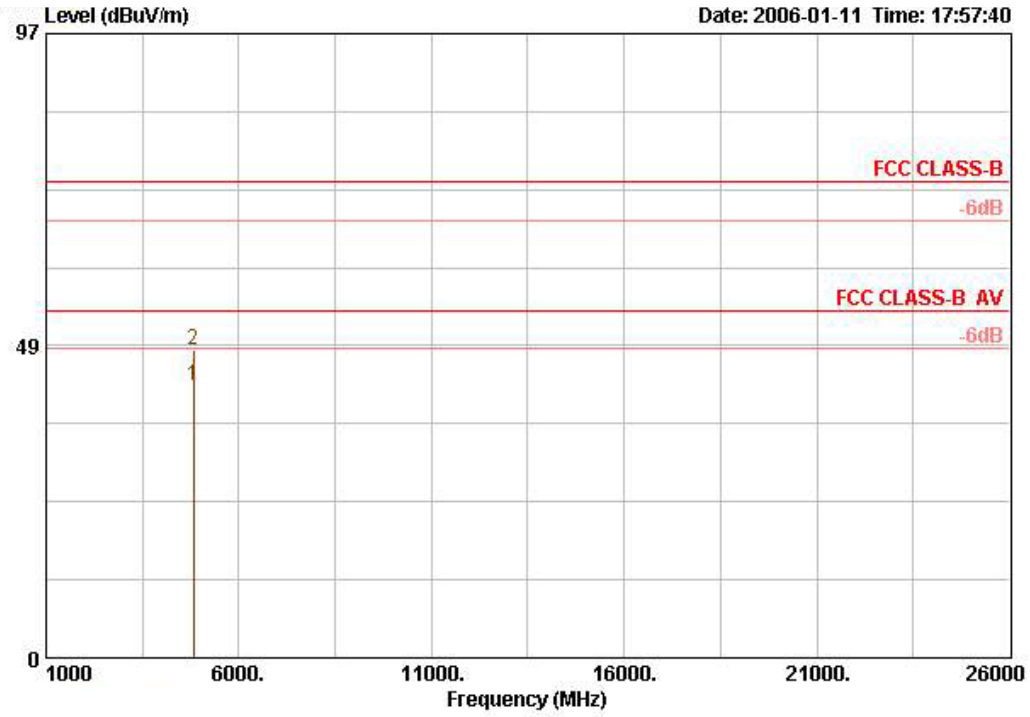
4.5.9. Results for Radiated Emissions (1GHz~10th Harmonic)

Temperature	20℃	Humidity	64%
Test Engineer	Rush Kao	Configurations	V / Ant 19 / 802.11b ch 1



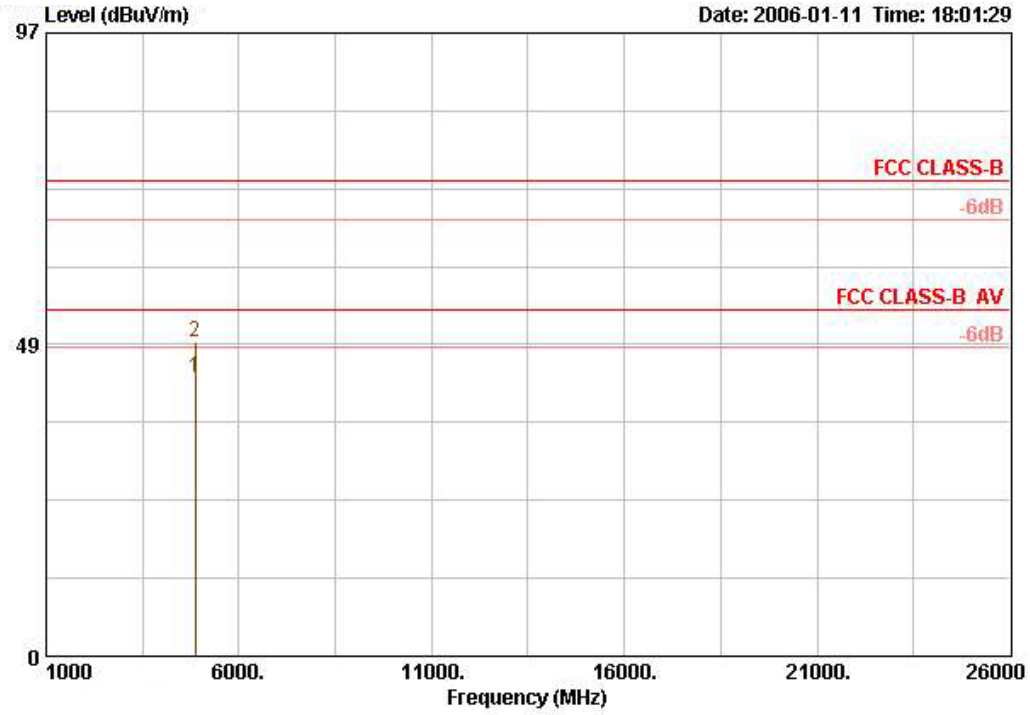
	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	4824.030	40.22	-13.78	54.00	33.22	4.68	35.10	37.43	AVERAGE	101	44
2	4824.030	46.89	-27.11	74.00	33.22	4.68	35.10	44.09	PEAK	101	44

Temperature	20℃	Humidity	64%
Test Engineer	Rush Kao	Configurations	H / Ant 19 / 802.11b ch 1



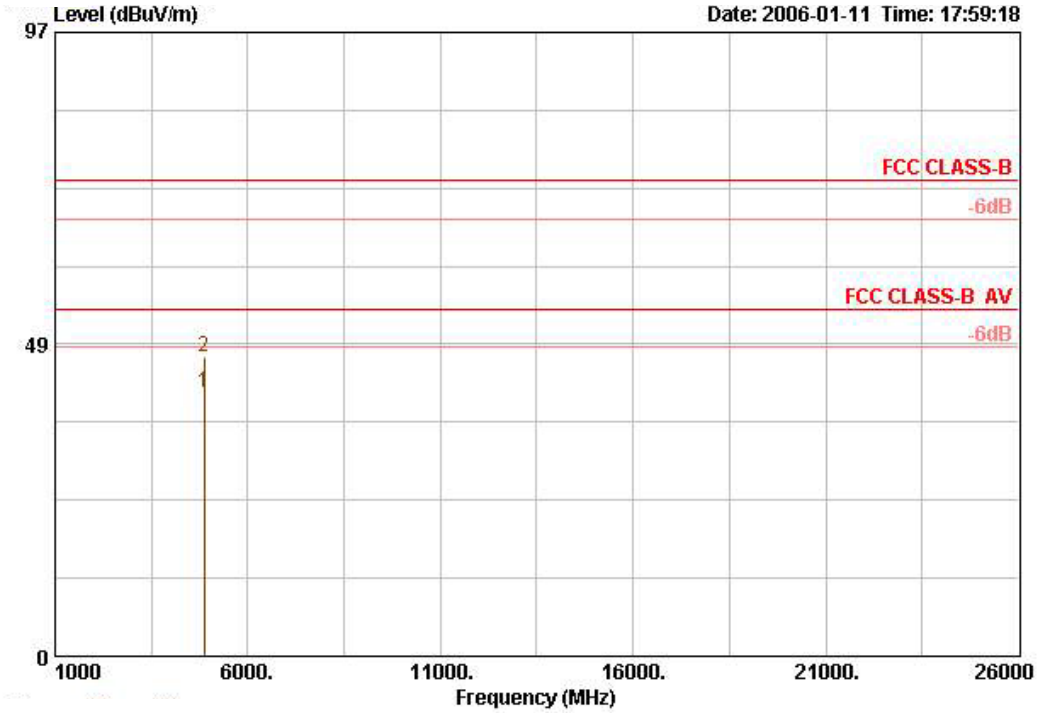
	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	4824.060	42.30	-11.70	54.00	33.22	4.68	35.10	39.50	AVERAGE	103	20
2	4824.060	47.88	-26.12	74.00	33.22	4.68	35.10	45.08	PEAK	103	20

Temperature	20℃	Humidity	64%
Test Engineer	Rush Kao	Configurations	V / Ant 19 / 802.11b ch 6



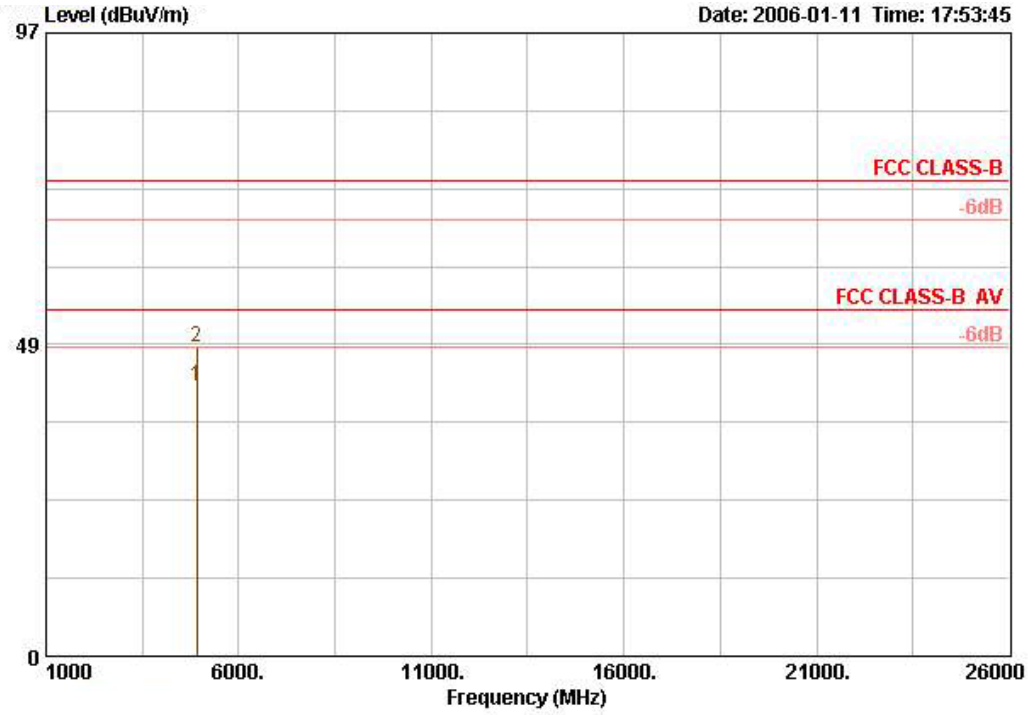
	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	4873.980	43.46	-10.54	54.00	33.33	4.69	35.10	40.53	AVERAGE	100	202
2	4873.980	48.85	-25.15	74.00	33.33	4.69	35.10	45.92	PEAK	100	202

Temperature	20℃	Humidity	64%
Test Engineer	Rush Kao	Configurations	H / Ant 19 / 802.11b ch 6



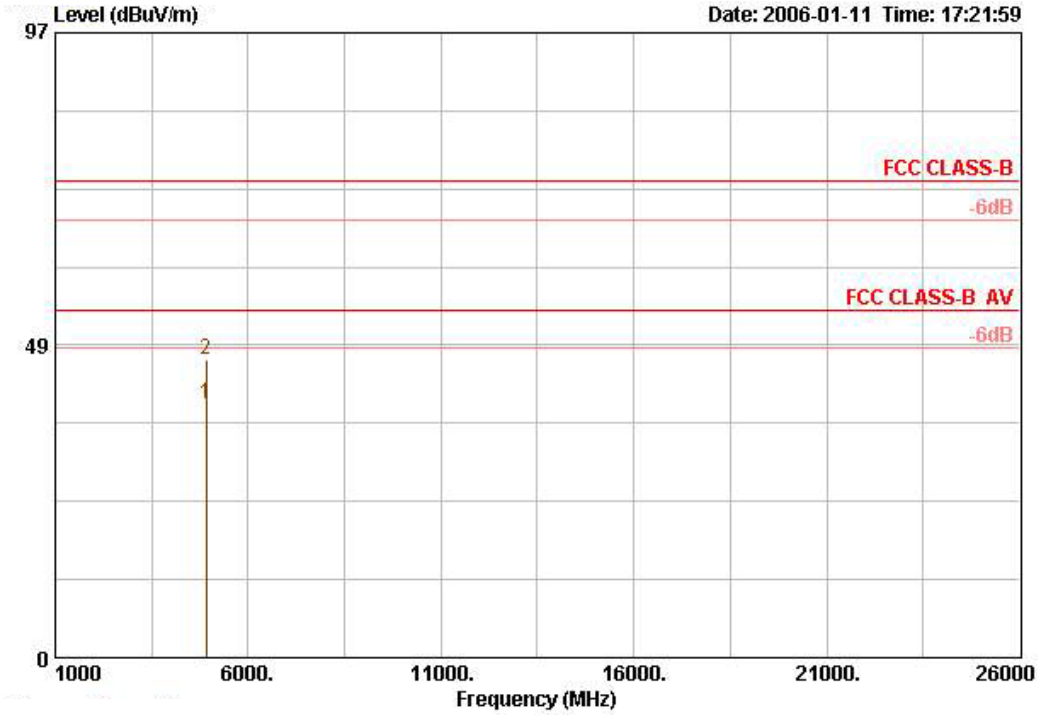
	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	4874.020	41.07	-12.93	54.00	33.33	4.69	35.10	38.15	AVERAGE	102	363
2	4874.020	46.57	-27.43	74.00	33.33	4.69	35.10	43.64	PEAK	102	363

Temperature	20℃	Humidity	64%
Test Engineer	Rush Kao	Configurations	V / Ant 19 / 802.11b ch 11



	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	4923.990	41.98	-12.02	54.00	33.45	4.73	35.10	38.90	AVERAGE	101	265
2	4923.990	48.06	-25.94	74.00	33.45	4.73	35.10	44.98	PEAK	101	265

Temperature	20℃	Humidity	64%
Test Engineer	Rush Kao	Configurations	H / Ant 19 / 802.11b ch 11



	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1	4924.040	39.51	-14.49	54.00	33.45	4.73	35.10	36.43	AVERAGE	100	19
2	4924.040	46.19	-27.81	74.00	33.45	4.73	35.10	43.12	PEAK	100	19