FCC TEST REPORT

According to

FCC Rules and Regulations Part 15 Subpart C

Applicant	:	Partner Tech Corp.
Address	:	10F, No. 233-2, Pao Chiao Rd., Shin Tien, Taipei, Taiwan 231, R.O.C.
Equipment	:	Handheld Terminal
Model No.	:	OT-100
FCC ID	:	NDPOT100
Trade Name	:	Partner

Laboratory Accreditation

Testing Laboratory
1332

- The test result refers exclusively to the test presented test model / sample.,
- Without written approval of ***Cerpass Technology Corp***. the test report shall not be reproduced except in full.
- The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

Contents

1. Report of Measurements and Examinations 5
1.1 List of Measurements and Examinations 5
2. Test Configuration of Equipment under Test 6
2.1 Feature of Equipment under Test 6
2.2 Carrier Frequency of Channels 6
2.3 Test Mode and Test Software 7
2.4 Description of Test System 7
2.5 Connection Diagram of Test System 7
2.6 General Information of Test 8
2.7 Measurement Uncertainty 8
2.8 History of this test report 9
3. Antenna Requirements 10
3.1 Standard Applicable 10
3.2 Antenna Construction and Directional Gain 10
4. Test of Conducted Emission 11
4.1 Test Limit 11
4.2 Test Procedures 11
4.3 Typical Test Setup 12
4.4 Measurement equipment 12
4.5 Test Result and Data 13
4.6 Test Photographs 15
5. Test of Radiated Emission 16
5.1 Test Limit 16
5.2 Test Procedures 16
5.3 Typical Test Setup 17
5.4 Measurement equipment 17
5.5 Test Result and Data 18
5.6 Test Photographs 32
6. 6dB Bandwidth Measurement Data 33
6.1 Test Limit 33
6.2 Test Procedures 33
6.3 Test Setup Layout 33
6.4 Measurement equipment 33
6.5 Test Result and Data 33
7. Maximum Peak Output Power 37
7.1 Test Limit 37
7.2 Test Procedures 37
7.3 Test Setup Layout 37
7.4 Measurement equipment 37
7.5 Test Result and Data 37
8. Band Edges Measurement 41
8.1 Test Limit 41
8.2 Test Procedure 41

8.3 Test Setup Layout 41
8.4 Measurement equipment 41
8.5 Test Result and Data 41
8.6 Restrict Band Emission Measurement Data 46
9. Power Spectral Density 47
9.1 Test Limit 47
9.2 Test Procedures 47
9.3 Test Setup Layout 47
9.4 Measurement equipment 47
9.5 Test Result and Data 47
10. Restricted Bands of Operation 51
10.1 Labeling Requirement 51
Appendix A. Photographs of EUT ..... A1 ~ A18

CERTIFICATE OF COMPLIANCE

According to

FCC Rules and Regulations Part 15 Subpart C

Applicant	:	Partner Tech Corp.
Address	:	10F, No. 233-2, Pao Chiao Rd., Shin Tien, Taipei, Taiwan 231, R.O.C.
Equipment	:	Handheld Terminal
Model No.	:	OT-100
FCC ID	:	NDPOT100

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 C (2007).**

The test was carried out on Jul. 11, 2009 at ***Cerpass Technology Corp.***

Signature

Anson Chou
EMC/RF B.U. Vice General 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 15.247(d)	. Radiated Emission	Pass
15.247(a)(2)	. 6dB Bandwidth	Pass
15.247(b)	. Maximum Peak Output Power	Pass
15.247(d)	. 100kHz Bandwidth of Frequency Band Edges	Pass
15.247(e)	. Power Spectral Density	Pass
1.1307 1.1310 2.1091 2.1093	. RF Exposure Compliance	Pass

2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

CPU	Freescale i.MX31/i.MX31L (Co-layout) CPU @ 532MHz/133MHz
RAM	Mobile DDR 128MB, NAND flash 128MB
LCD	4.3” widescreen (resolution 480*272)
WiFi	802.11b/g
Bluetooth	Class2
Audio	Line out, speaker, internal microphone, external mic jack
Storage	SD card
Connectors	Mini USB
Special features	Vibration Direction sensor
Battery	Li-ion 2200mAh
Ruggedness	IP54, 1.2 meter drop test
Accessories	Multi-charger, hand strap, leather pouch
Extension modules	MSR, IC card, RFID
OS	Windows CE 5.0
Weight	240g
Dimensions	133 * 82 * 19 mm(H x W x D)

2.2 Carrier Frequency of Channels

802.11b, 802.11g

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	12	---

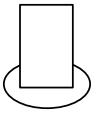
2.3 Test Mode and Test Software

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
b. The complete test system included EUT for EMI test.
c. The EUT was executed to keep transmitting and receiving data via Wireless.
d. The following test mode was performed for conduction and radiation test:
- 802.11b/g: CH01: 2412MHz, CH06: 2437MHz, CH11: 2462MHz

2.4 Description of Test System

The EUT was tested alone. No support devices is needed for testing.

2.5 Connection Diagram of Test System



EUT

* The EUT keeps to transmit and receive data via Wireless.

2.6 General Information of Test

Test Site :	Cerpass Technology Corp. 2F-11, No. 3, Yuan Qu St. (Nankang Software Park), Taipei, Taiwan 115, R.O.C.
Test Site Location (OATS1-SD):	No. 7-2, Moshihkeng, Fongtian Village, Shihding Township, Taipei County, Taiwan, R.O.C.
FCC Registration Number :	TW1049, 982971
IC Registration Number :	4934C-1
VCCI Registration Number :	T-338 for Telecommunication Test C-2188 for Conducted emission test R-1902 for Radiated emission test
Test Voltage:	AC 120V
Test in Compliance with:	ANSI C63.4-2003 FCC Part 15 Subpart C
Frequency Range Investigated:	Conducted: from 150kHz to 30MHz Radiation: from 30MHz to 24620MHz
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.

2.7 Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE/NEUTRAL	2.71 dB
Radiated Emission	30 MHz ~ 25GHz	Vertical	4.11 dB
		Horizontal	4.10 dB
6 dB Bandwidth	---	---	7500 Hz
Maximum Peak Output Power	---	---	1.4 dB
100kHz Bandwidth of Frequency Band Edges	---	---	2.2 dB
Power Spectral Density	---	---	2.2 dB

2.8 History of this test report

■ ORIGINAL.

☐ Additional attachment as following record:

Attachment No.	Issue Date	Description

3. Antenna Requirements

3.1 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.

3.2 Antenna Construction and Directional Gain

Antenna type: PCB Antenna
Antenna Gain: 3.49 dBi

4. Test of Conducted Emission

4.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 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.

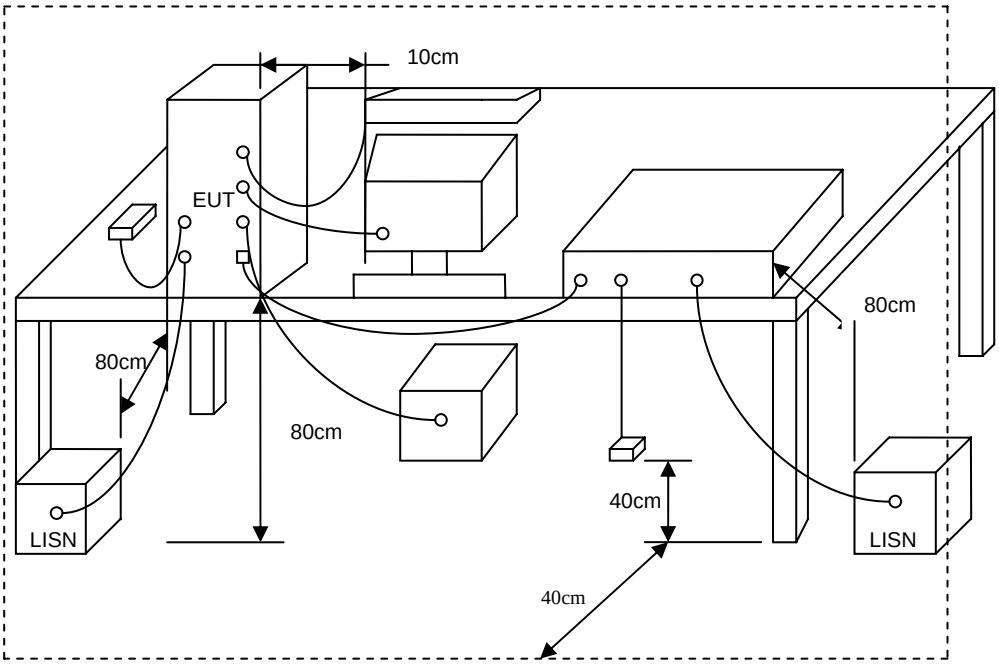
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

4.2 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 micro-Henry 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.

4.3 Typical Test Setup

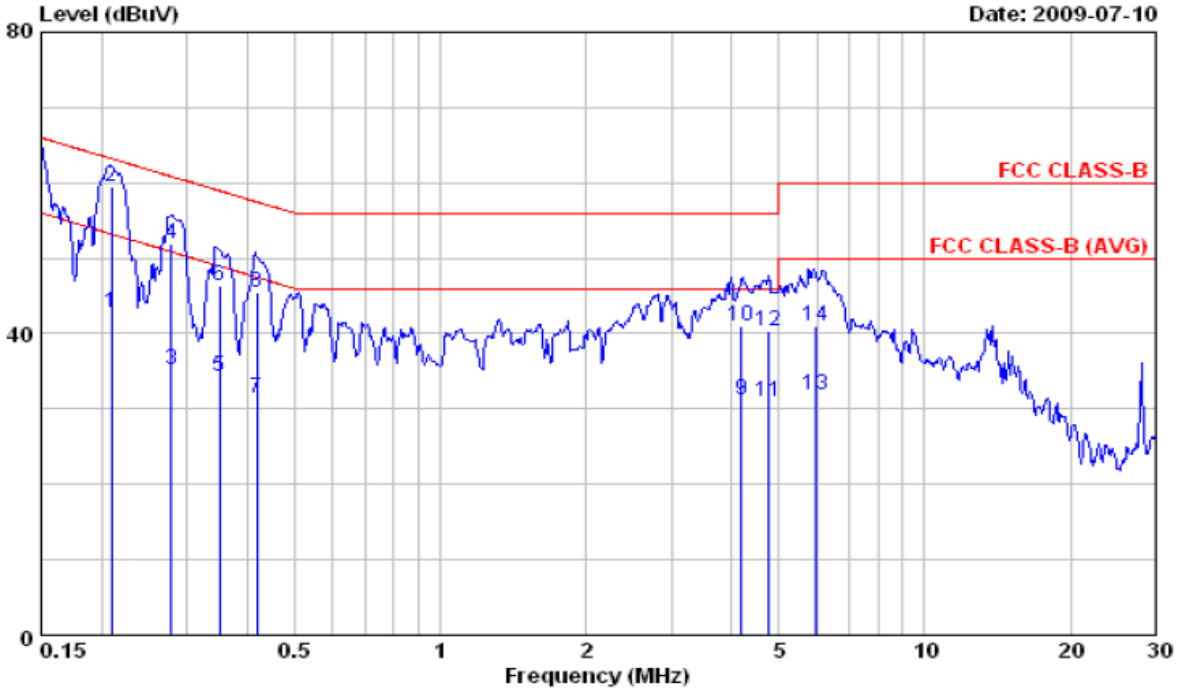


4.4 Measurement equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Receiver	R&S	ESCI	100443	2008/09/27	2009/09/26
LISN	NSLK 8127	Schwarzbeck	8127-516	2009/05/15	2010/05/14
LISN	ROLF HEINE	NNB-2/16Z	03/10058	2009/04/18	2010/04/17

4.5 Test Result and Data

Power	:	AC 120V	Pol/Phase	:	LINE
Test Mode	:	802.11g CH1	Temperature	:	25 °C
Memo	:		Humidity	:	56 %

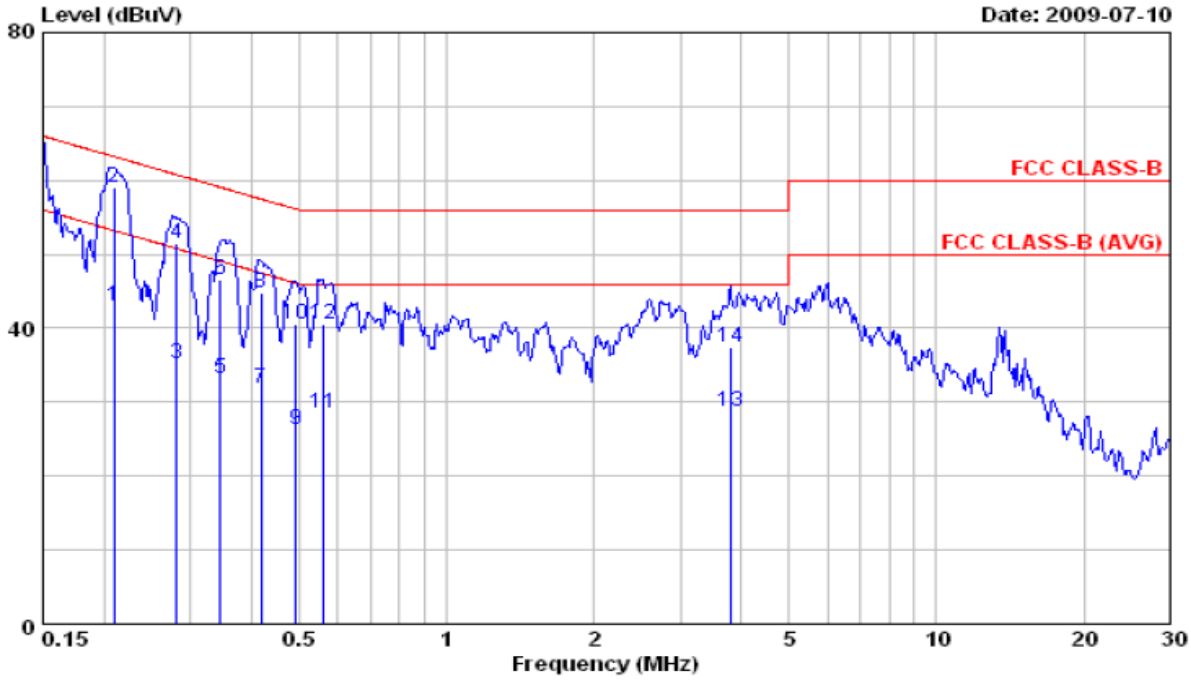


Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	
1	0.21	42.69	0.11	42.80	53.24	-10.44	Average
2	0.21	59.35	0.11	59.46	63.24	-3.78	QP
3	0.28	35.06	0.11	35.17	50.85	-15.68	Average
4	0.28	51.87	0.11	51.98	60.85	-8.87	QP
5	0.35	34.30	0.11	34.41	48.95	-14.54	Average
6	0.35	46.29	0.11	46.40	58.95	-12.55	QP
7	0.42	31.36	0.11	31.47	47.50	-16.03	Average
8	0.42	45.25	0.11	45.36	57.50	-12.14	QP
9	4.20	30.95	0.32	31.27	46.00	-14.73	Average
10	4.20	40.60	0.32	40.92	56.00	-15.08	QP
11	4.77	30.71	0.33	31.04	46.00	-14.96	Average
12	4.77	39.99	0.33	40.32	56.00	-15.68	QP
13	5.94	31.49	0.35	31.84	50.00	-18.16	Average
14	5.94	40.67	0.35	41.02	60.00	-18.98	QP

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
4. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
5. The data is worse case.

Power	:	AC 120V	Pol/Phase	:	NEUTRAL
Test Mode	:	802.11g CH1	Temperature	:	25 °C
Memo	:		Humidity	:	56 %



Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	
1	0.21	42.78	0.14	42.92	53.23	-10.31	Average
2	0.21	58.96	0.14	59.10	63.23	-4.13	QP
3	0.28	35.17	0.13	35.30	50.80	-15.50	Average
4	0.28	51.24	0.13	51.37	60.80	-9.43	QP
5	0.35	33.15	0.14	33.29	49.06	-15.77	Average
6	0.35	46.47	0.14	46.61	59.06	-12.45	QP
7	0.42	31.72	0.14	31.86	47.48	-15.62	Average
8	0.42	44.69	0.14	44.83	57.48	-12.65	QP
9	0.49	26.19	0.14	26.33	46.14	-19.81	Average
10	0.49	40.45	0.14	40.59	56.14	-15.55	QP
11	0.56	28.38	0.16	28.54	46.00	-17.46	Average
12	0.56	40.37	0.16	40.53	56.00	-15.47	QP
13	3.79	28.48	0.30	28.78	46.00	-17.22	Average
14	3.79	37.07	0.30	37.37	56.00	-18.63	QP

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
4. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
5. The data is worse case.

Test engineer: Ben

5. Test of Radiated Emission

5.1 Test Limit

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2003. 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

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance Meters	Radiated (μ V / M)	Radiated (dB μ V/ M)
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
Above 960	3	500	54.0

For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the below table.

Frequency (MHz)	Distance Meters	Radiated (dB μ V/ M)
30-230	10	30
230-1000	10	37

5.2 Test Procedures

a. The EUT was placed on a rotatable table top 0.8 meter above ground.

b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.

c. The table was rotated 360 degrees to determine the position of the highest radiation.

d. 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.

e. 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.

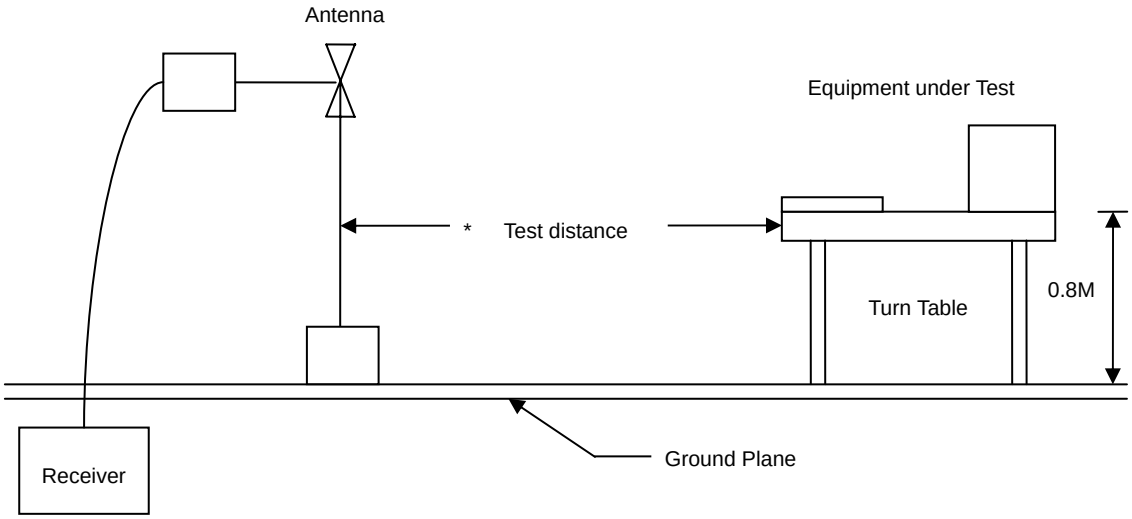
f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.

g. 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.

h. 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.

i. "Cone of radiation" has been considered to be 3dB beamwidth of the measurement antenna.

5.3 Typical Test Setup

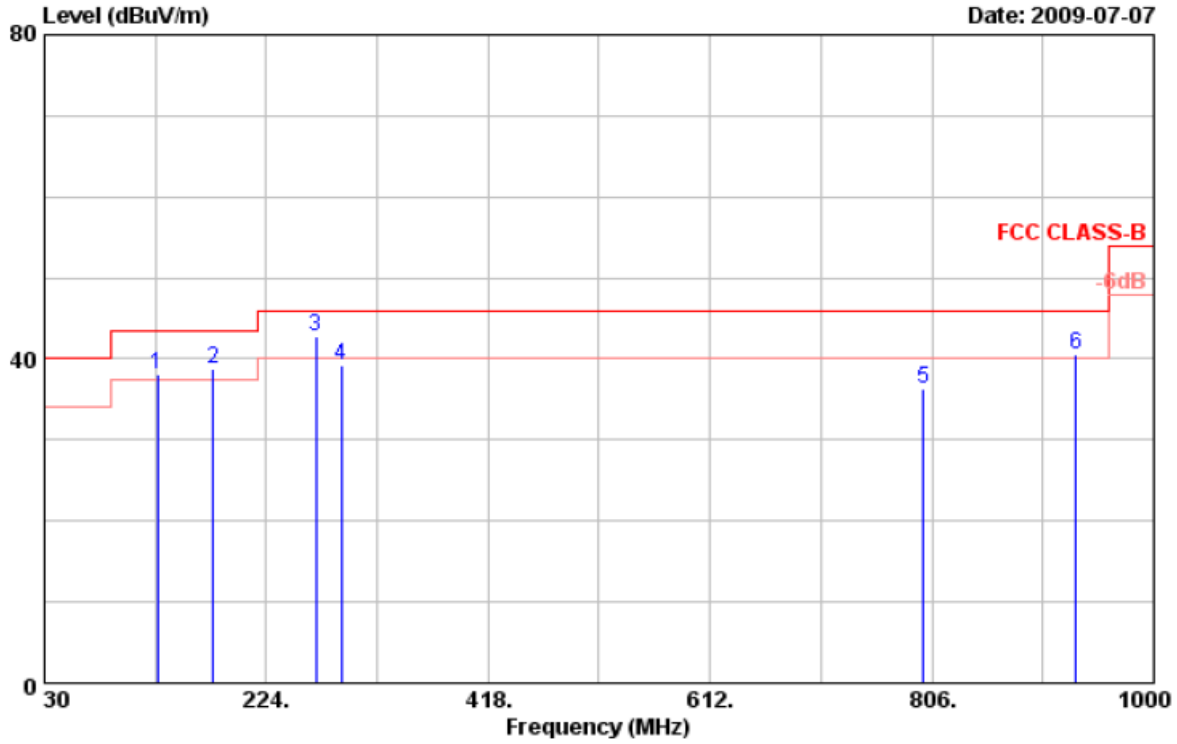


5.4 Measurement equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Bilog Antenna	Schaffner	CBL6112B	2840	2009/05/14	2010/05/13
Signal Generator	HP	8648B	3629U00612	2008/10/08	2009/10/07
Amplifier	Agilent	8447D	2944A10593	2009/05/21	2010/05/20
EMI Receiver	HP	8546A	3807A00454	2008/08/07	2009/08/06
RF Filter Section	HP	85460A	3704A00386	2008/08/07	2009/08/06
AC Power Converter	APC	AFC-11005	F103120008	N/A	N/A

5.5 Test Result and Data

Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Transmit / Receive	Temperature	:	25 °C
Operation Channel	:	1	Humidity	:	65 %
Modulation Type	:	802.11g	Atmospheric Pressure	:	1020 hPa
Memo	:		Rate	:	54 Mbps

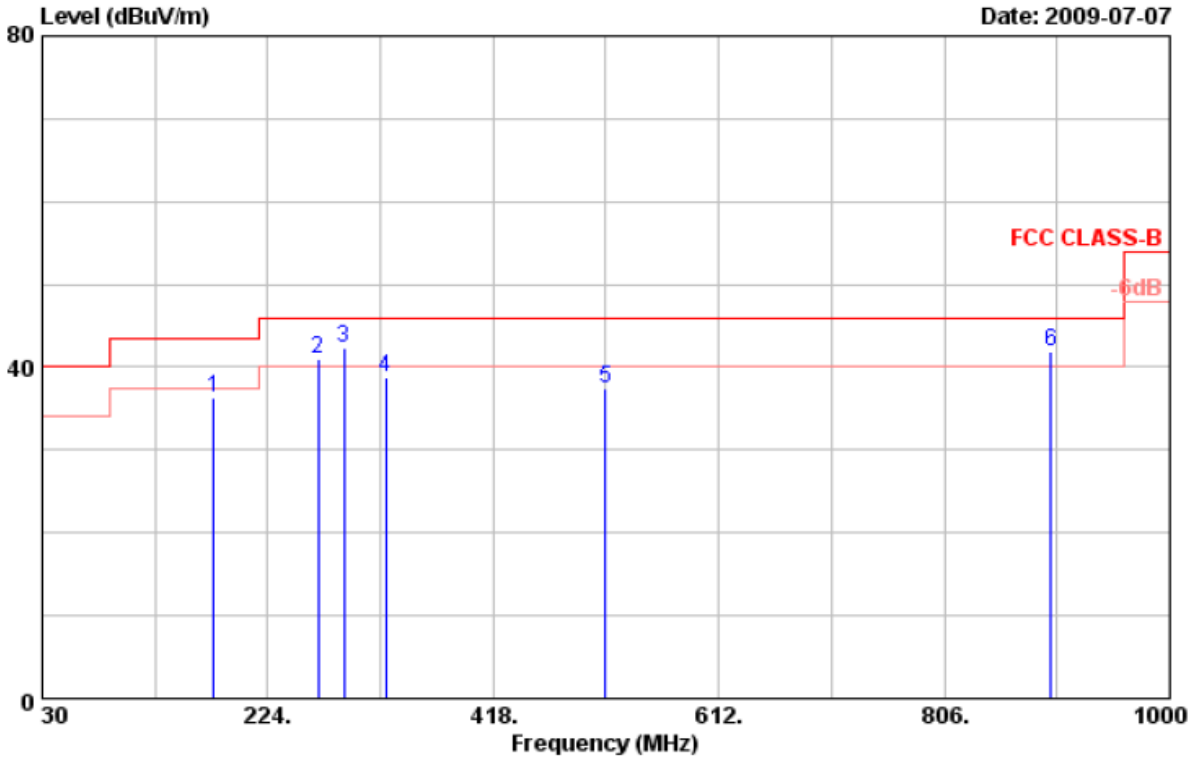


Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	128.94	46.91	-8.89	38.02	43.50	-5.48	QP	100	0
2	177.44	50.33	-11.63	38.70	43.50	-4.80	QP	100	0
3	267.65	55.33	-12.56	42.77	46.00	-3.23	QP	100	0
4	289.96	51.82	-12.60	39.22	46.00	-6.78	Peak	100	0
5	798.24	37.45	-1.23	36.22	46.00	-9.78	Peak	100	0
6	932.10	35.85	4.62	40.47	46.00	-5.53	QP	100	0

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
5. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
6. The data is worse case.

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature	:	25 °C
Operation Channel	:	1	Humidity	:	65 %
Modulation Type	:	802.11g	Atmospheric Pressure	:	1020 hPa
Memo	:		Rate	:	54 Mbps

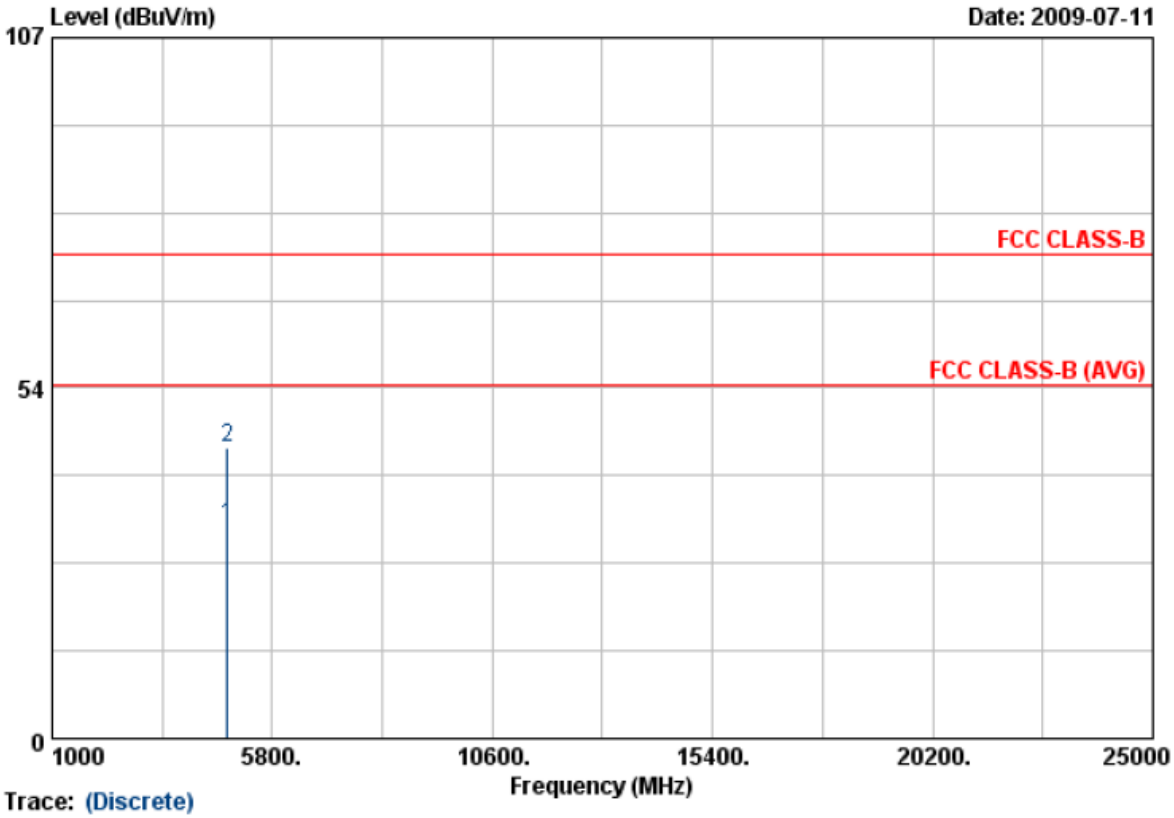


Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	177.44	53.48	-17.19	36.29	43.50	-7.21	Peak	100	0
2	267.65	54.45	-13.46	40.99	46.00	-5.01	QP	100	0
3	289.96	55.89	-13.45	42.44	46.00	-3.56	QP	100	0
4	325.85	50.66	-11.91	38.75	46.00	-7.25	Peak	100	0
5	515.00	43.33	-5.93	37.40	46.00	-8.60	Peak	100	0
6	898.15	40.53	1.44	41.97	46.00	-4.03	QP	100	0

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
5. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
6. The data is worse case.

Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	1	Humidity	:	70 %
Modulation Type	:	802.11b	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	11 Mbps



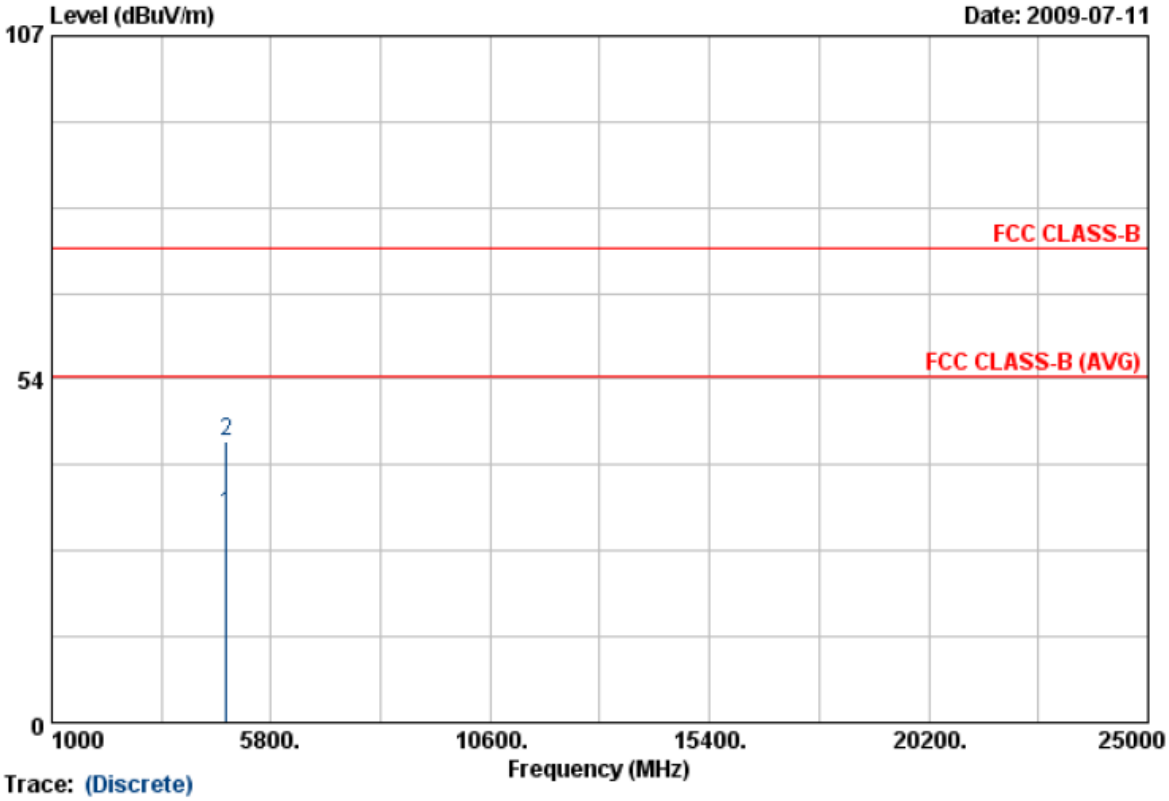
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4823.98	29.85	2.55	32.40	54.00	-21.60	Average	116	264
2	4823.98	41.82	2.55	44.37	74.00	-29.63	Peak	116	264

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	1	Humidity	:	70 %
Modulation Type	:	802.11b	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	11 Mbps



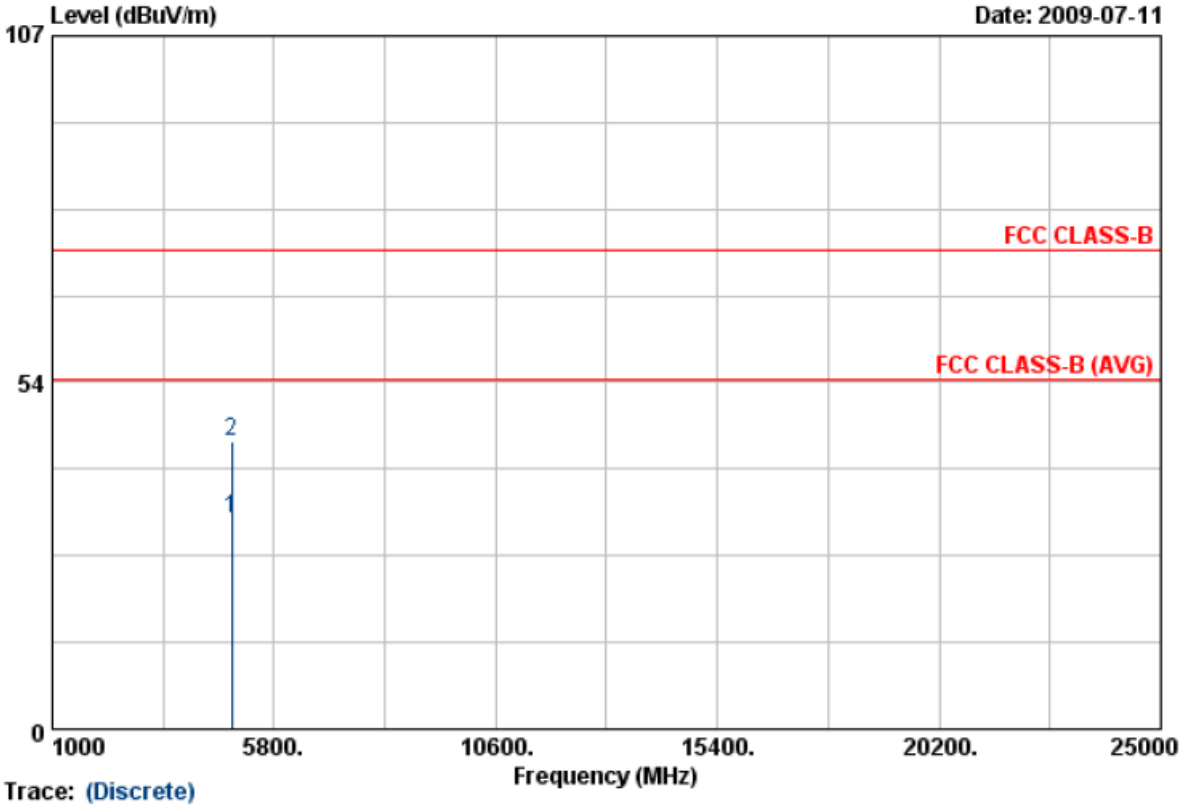
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4824.05	29.85	2.55	32.40	54.00	-21.60	Average	116	158
2	4824.05	41.41	2.55	43.96	74.00	-30.04	Peak	116	158

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	6	Humidity	:	70 %
Modulation Type	:	802.11b	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	11 Mbps



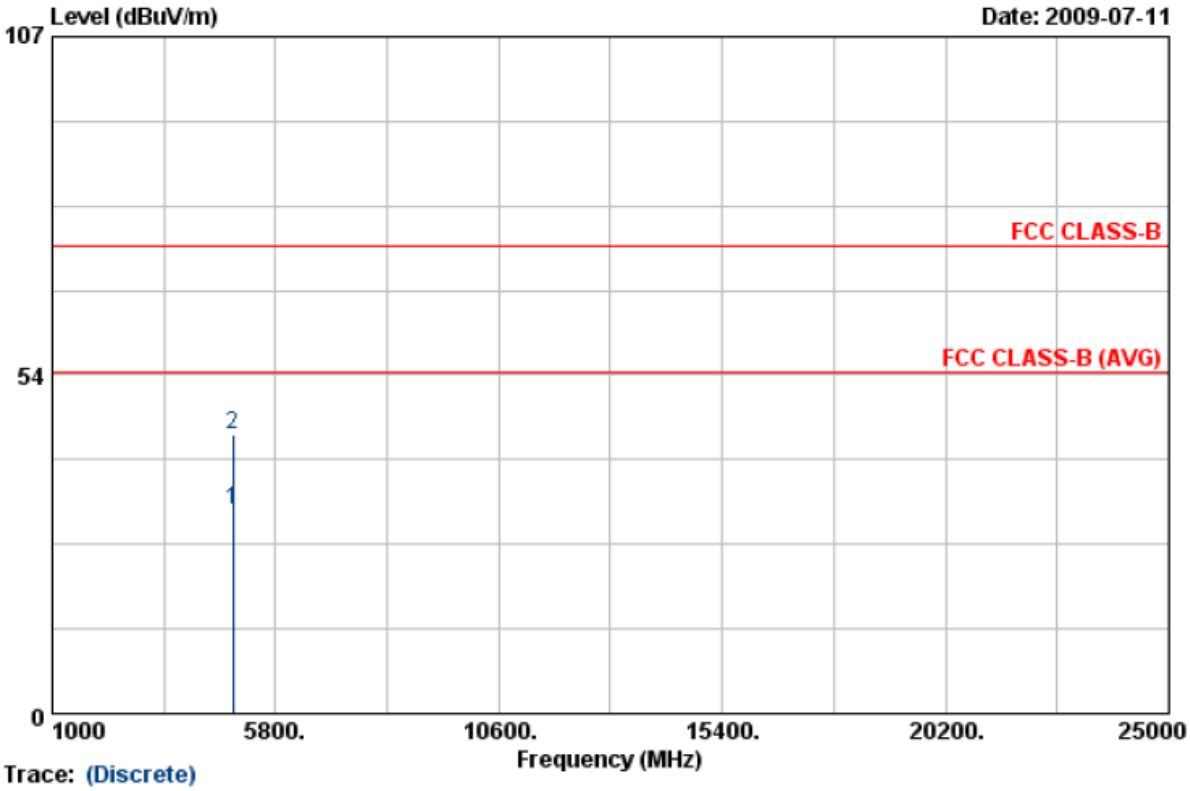
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4873.95	29.67	2.69	32.36	54.00	-21.64	Average	116	264
2	4873.95	41.69	2.69	44.38	74.00	-29.62	Peak	116	264

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	6	Humidity	:	70 %
Modulation Type	:	802.11b	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	11 Mbps



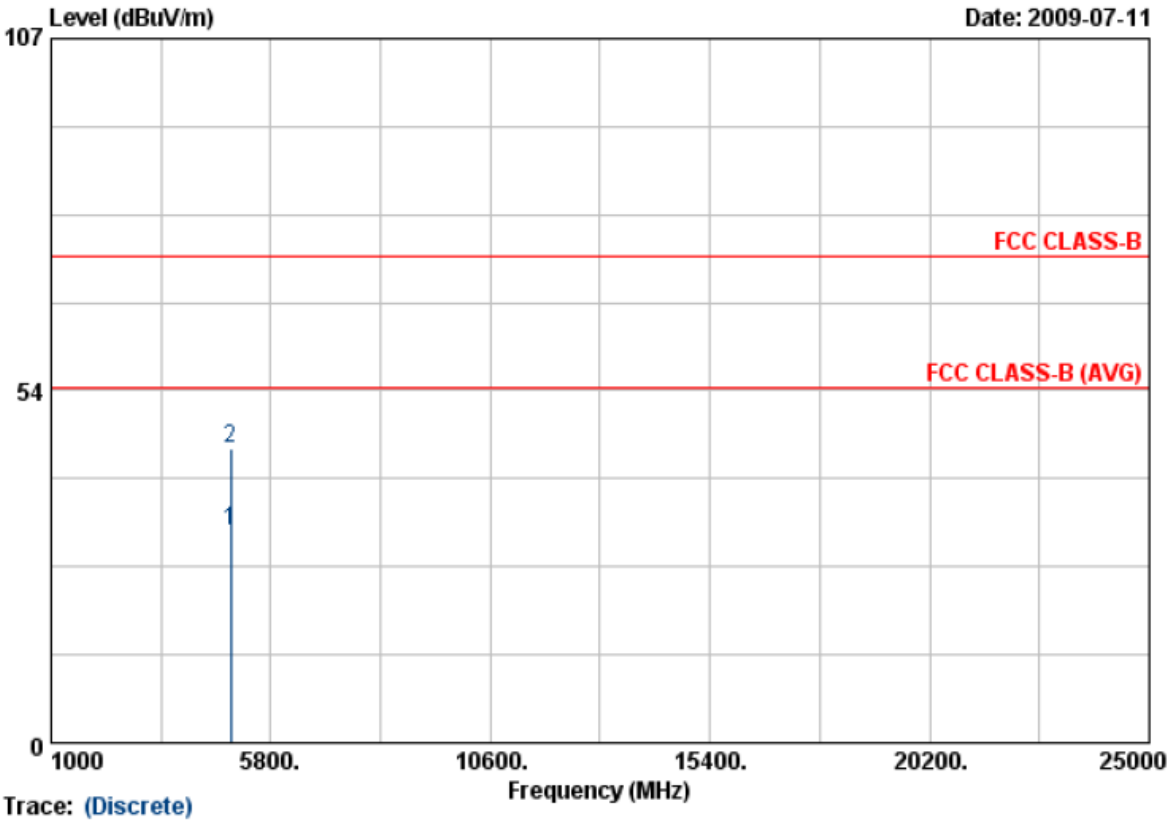
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4874.03	29.64	2.69	32.33	54.00	-21.67	Average	116	158
2	4874.03	41.36	2.69	44.05	74.00	-29.95	Peak	116	158

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	11	Humidity	:	70 %
Modulation Type	:	802.11b	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	11 Mbps



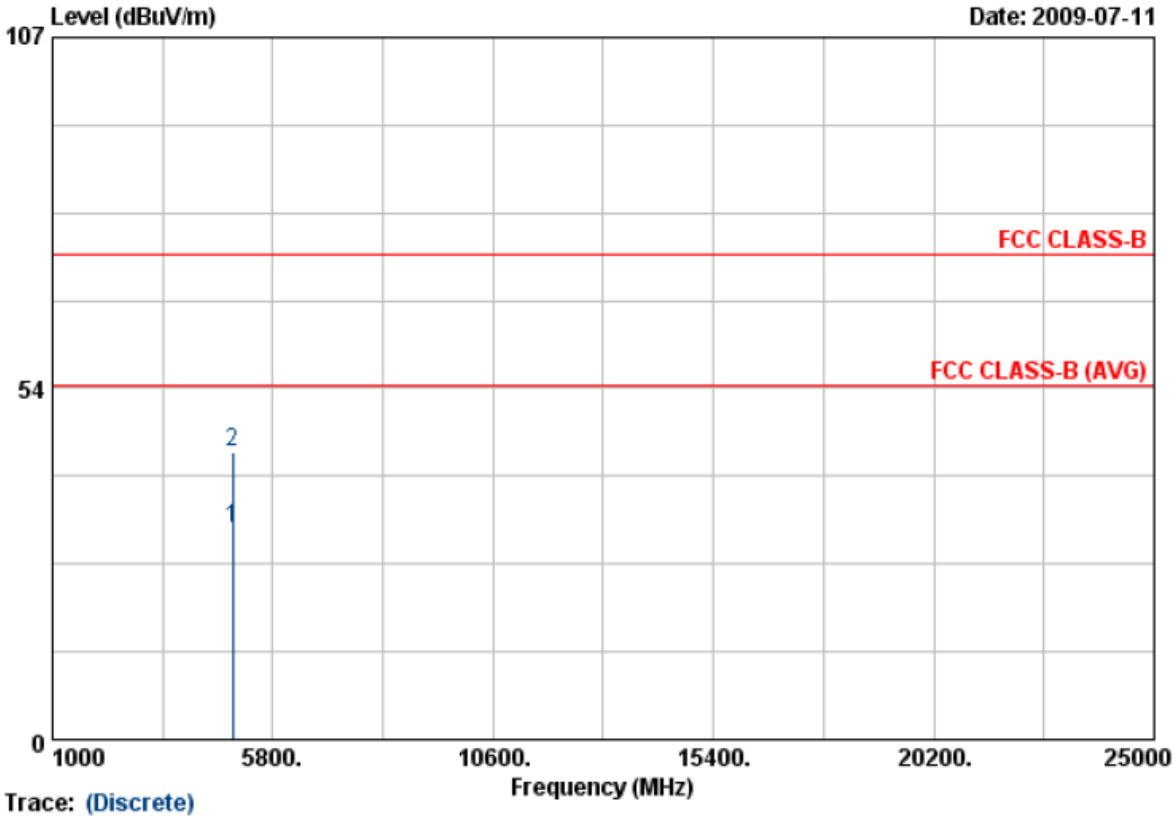
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4923.95	29.49	2.82	32.31	54.00	-21.69	Average	116	264
2	4923.95	41.86	2.82	44.68	74.00	-29.32	Peak	116	264

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	11	Humidity	:	70 %
Modulation Type	:	802.11b	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	11 Mbps



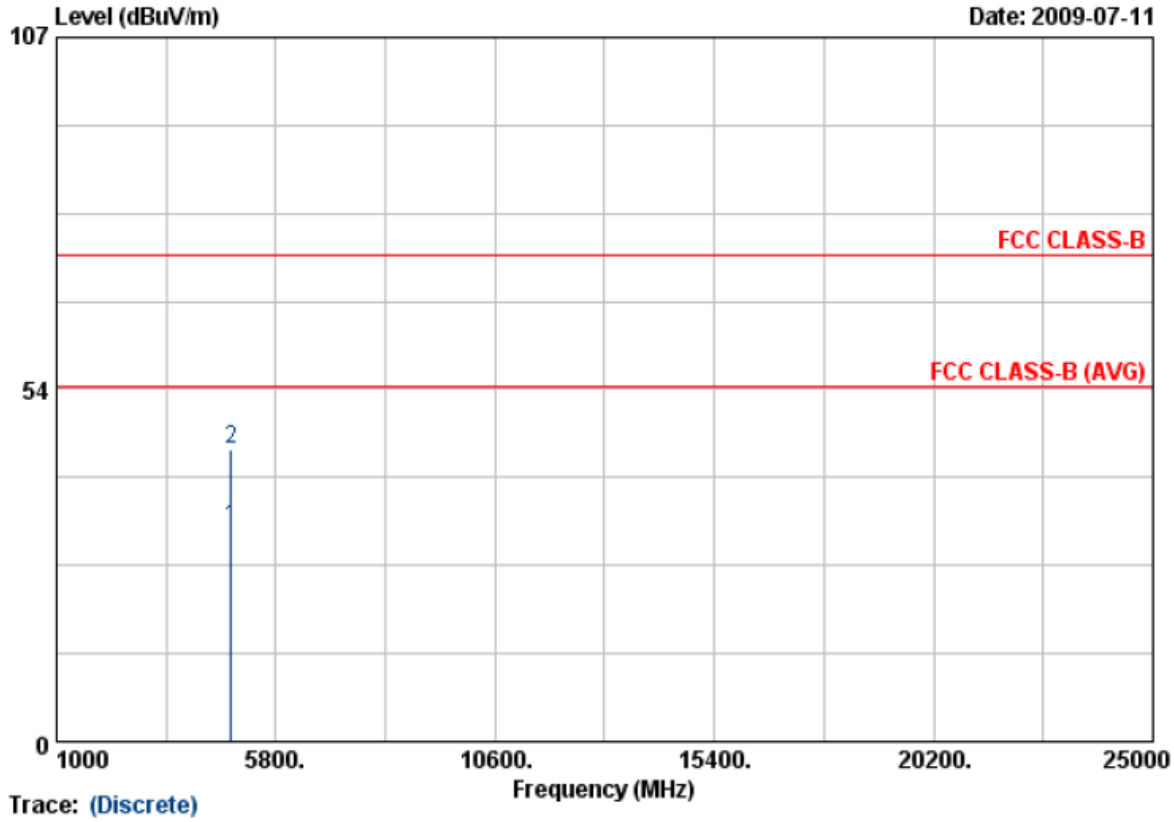
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4924.00	29.47	2.82	32.29	54.00	-21.71	Average	116	158
2	4924.00	41.08	2.82	43.90	74.00	-30.10	Peak	116	158

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	1	Humidity	:	70 %
Modulation Type	:	802.11g	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	54 Mbps



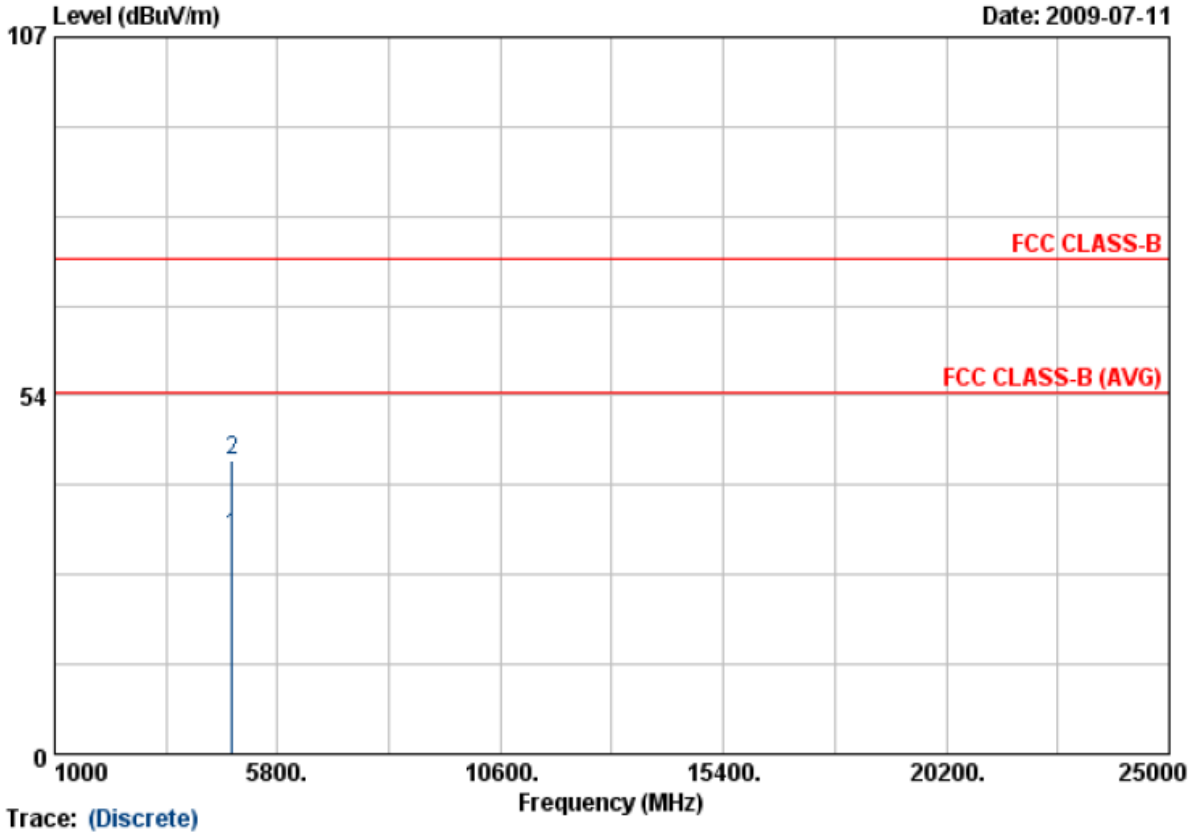
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4823.93	29.85	2.55	32.40	54.00	-21.60	Average	116	264
2	4823.93	41.89	2.55	44.44	74.00	-29.56	Peak	116	264

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	1	Humidity	:	70 %
Modulation Type	:	802.11g	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	54 Mbps



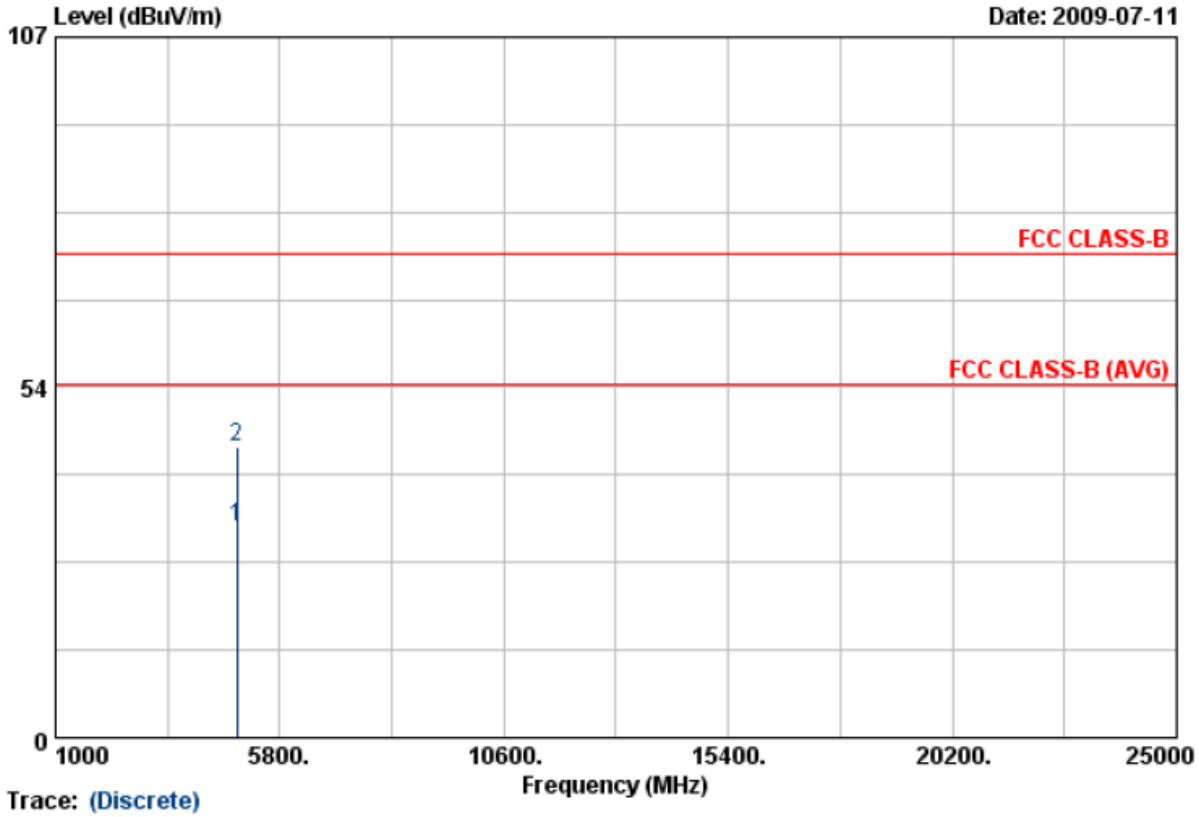
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4823.85	29.84	2.55	32.39	54.00	-21.61	Average	116	158
2	4823.85	41.34	2.55	43.89	74.00	-30.11	Peak	116	158

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	6	Humidity	:	70 %
Modulation Type	:	802.11g	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	54 Mbps



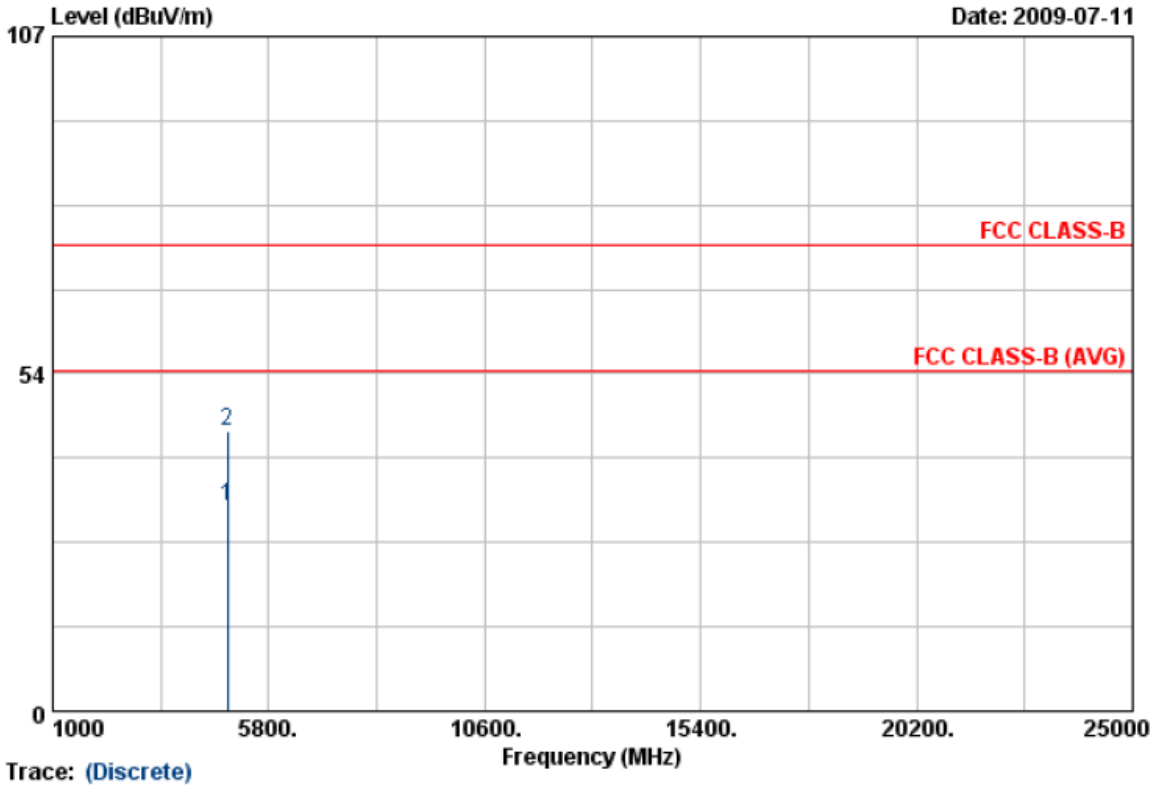
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4873.90	29.63	2.69	32.32	54.00	-21.68	Average	116	264
2	4873.90	41.67	2.69	44.36	74.00	-29.64	Peak	116	264

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	6	Humidity	:	70 %
Modulation Type	:	802.11g	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	54 Mbps



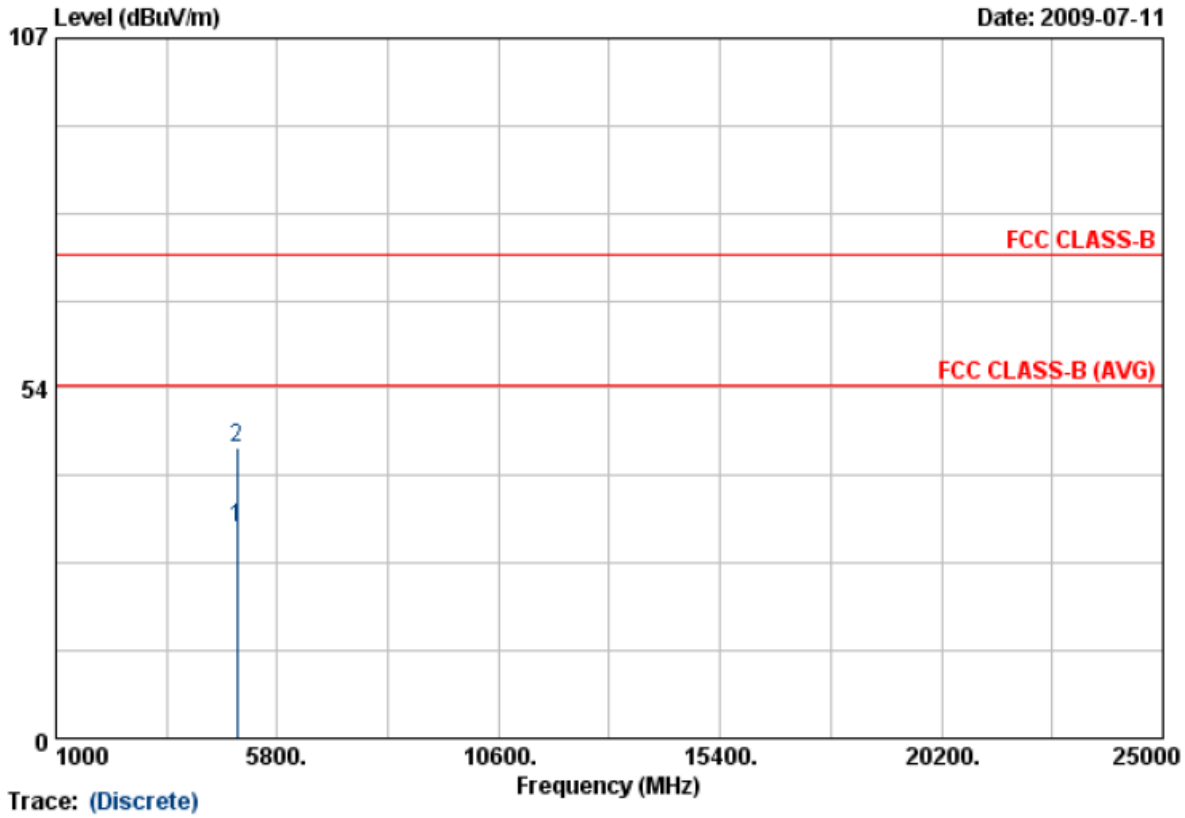
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4874.05	29.67	2.69	32.36	54.00	-21.64	Average	116	158
2	4874.05	41.58	2.69	44.27	74.00	-29.73	Peak	116	158

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	11	Humidity	:	70 %
Modulation Type	:	802.11g	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	54 Mbps



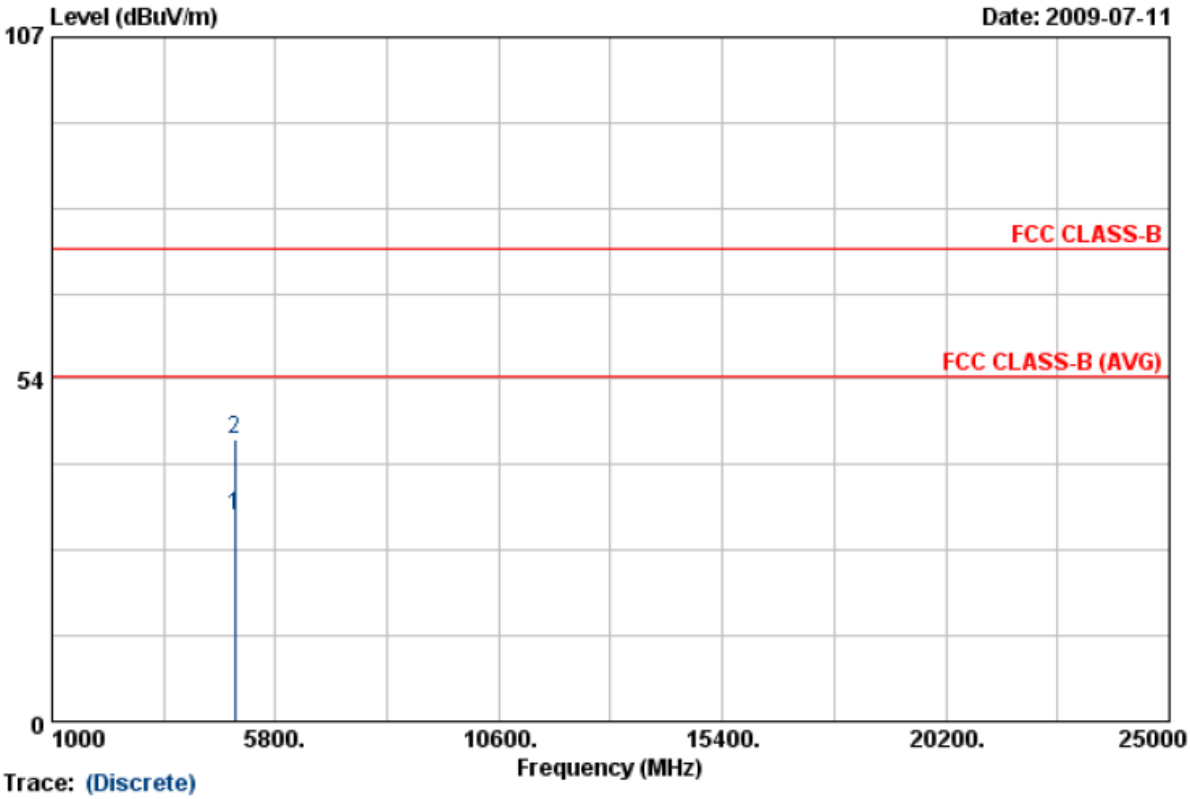
Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4924.15	29.47	2.82	32.29	54.00	-21.71	Average	116	264
2	4924.15	41.66	2.82	44.48	74.00	-29.52	Peak	116	264

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature	:	26 °C
Operation Channel	:	11	Humidity	:	70 %
Modulation Type	:	802.11g	Atmospheric Pressure	:	1010 hPa
Memo	:		Rate	:	54 Mbps



Trace: (Discrete)

Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	4923.93	29.46	2.82	32.28	54.00	-21.72	Average	116	158
2	4923.93	41.18	2.82	44.00	74.00	-30.00	Peak	116	158

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Test engineer: Ben

6. 6dB Bandwidth Measurement Data

6.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

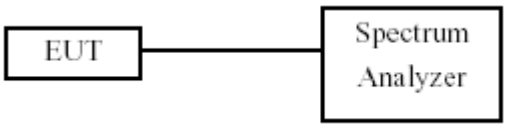
6.2 Test Procedures

a. The transmitter output was connected to the spectrum analyzer.

b. Set RBW of spectrum analyzer to 100 KHz and VBW to 100 KHz.

c. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

6.3 Test Setup Layout



6.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25

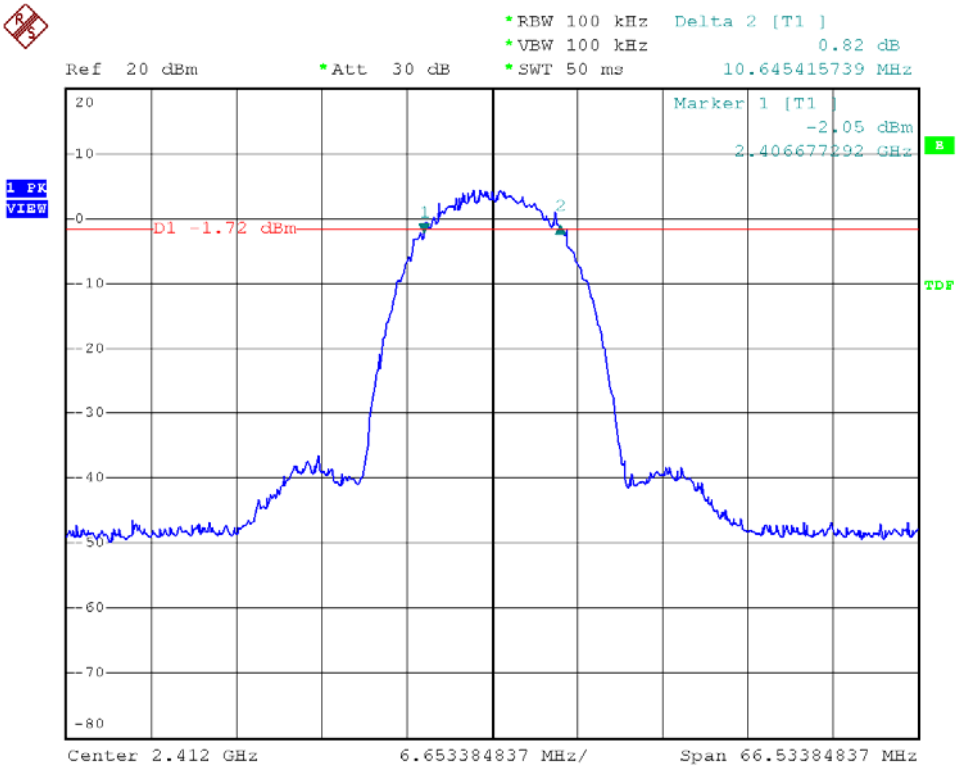
6.5 Test Result and Data

Test Date: Jul. 09, 2009 Temperature: 26℃

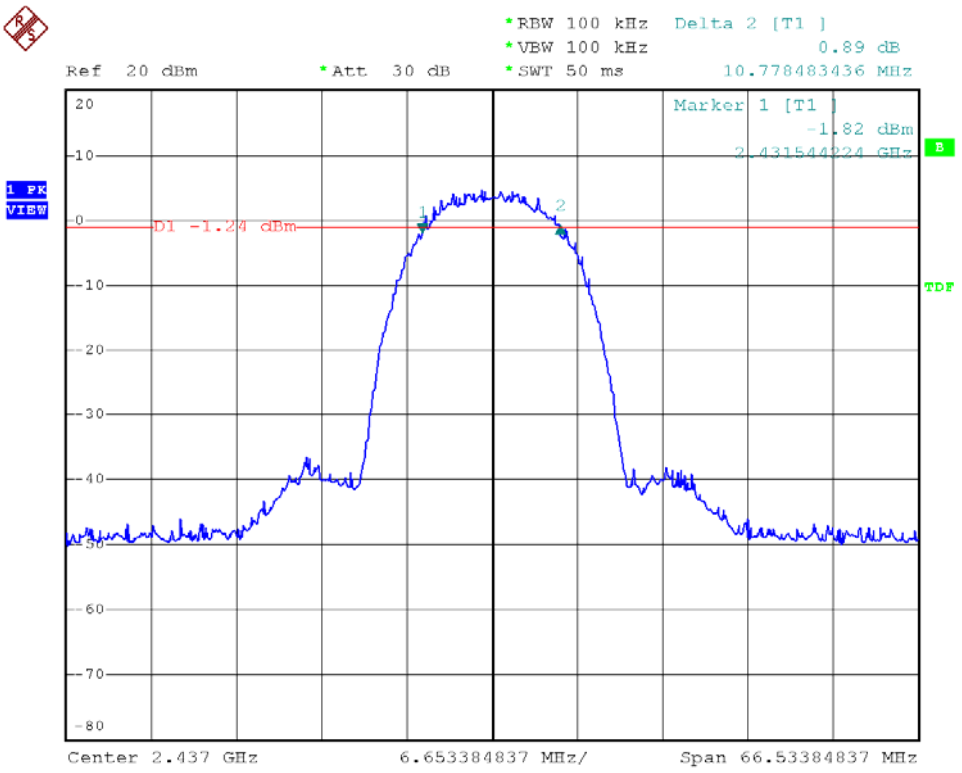
Atmospheric pressure: 1012 hPa Humidity: 65%

Modulation Standard	Channel	Frequency (MHz)	6dB Bandwidth (MHz)
802.11b (11Mbps)	01	2412	10.65
	06	2437	10.78
	11	2462	10.51
802.11g (54Mbps)	01	2412	16.50
	06	2437	16.50
	11	2462	16.50

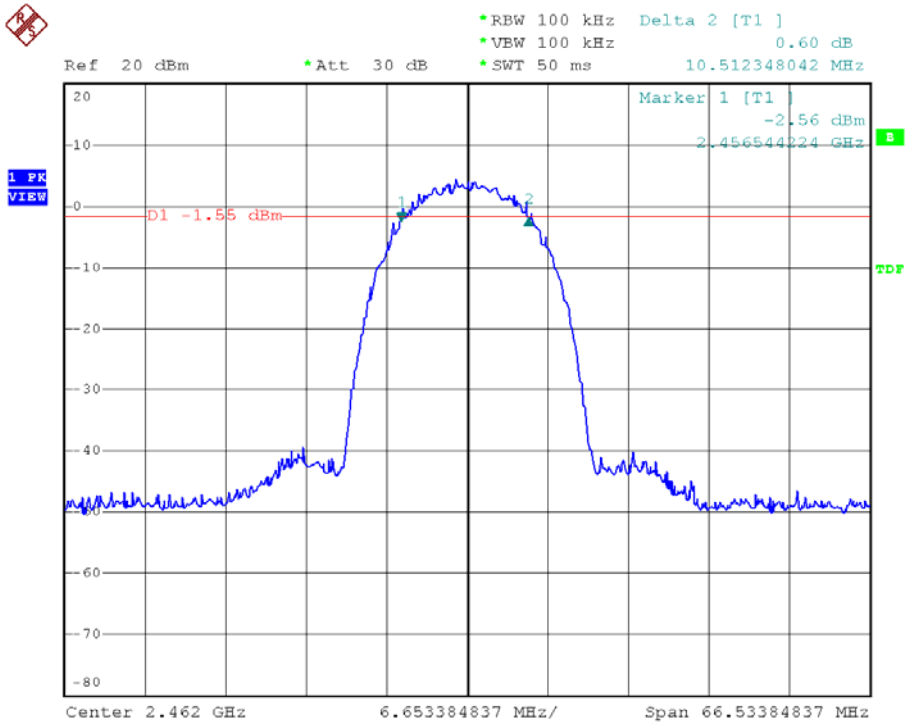
Modulation Standard: 802.11b (11Mbps)
Channel: 01



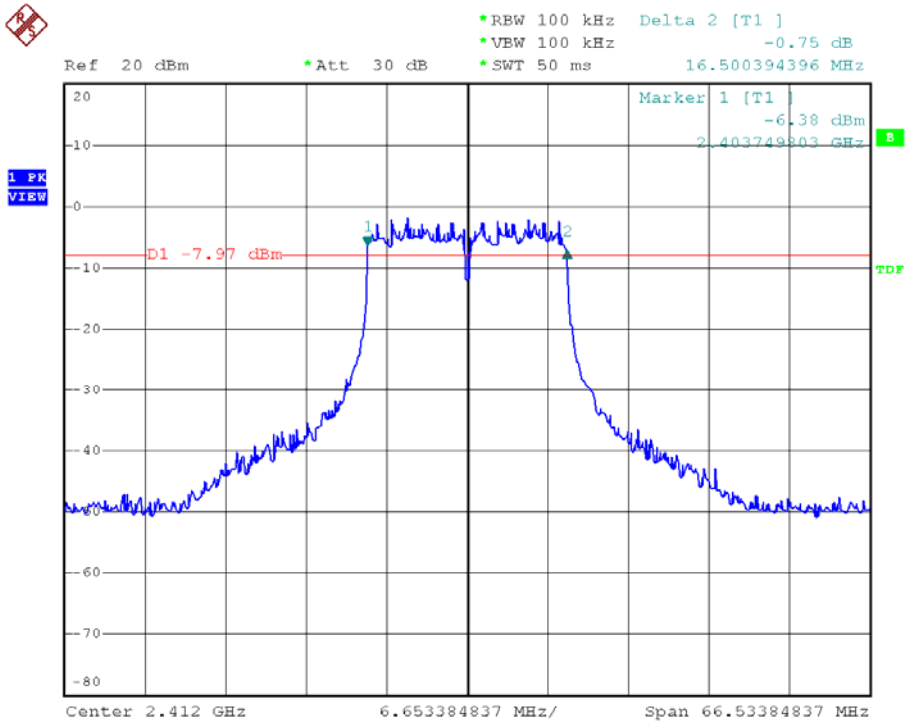
Modulation Standard: 802.11b (11Mbps)
Channel: 06



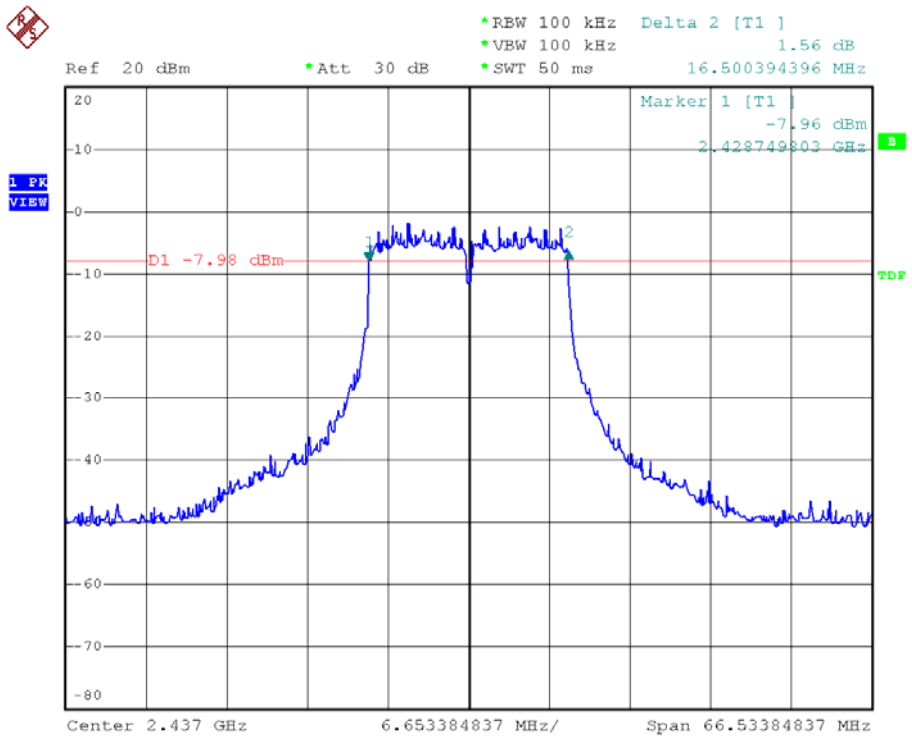
Modulation Standard: 802.11b (11Mbps)
Channel: 11



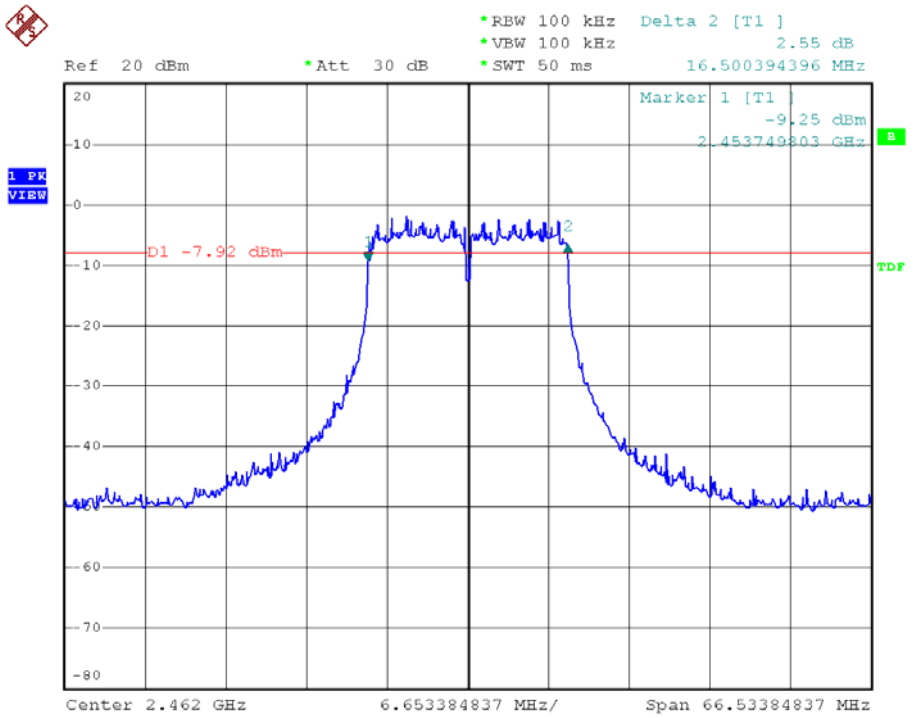
Modulation Standard: 802.11g (54Mbps)
Channel: 01



Modulation Standard: 802.11g (54Mbps)
Channel: 06



Modulation Standard: 802.11g (54Mbps)
Channel: 11



7. Maximum Peak Output Power

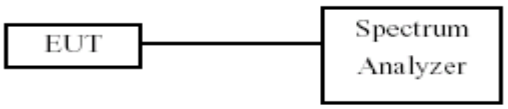
7.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.

7.2 Test Procedures

The antenna port（RF output）of the EUT was connected to the input（RF input）of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

7.3 Test Setup Layout



7.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25

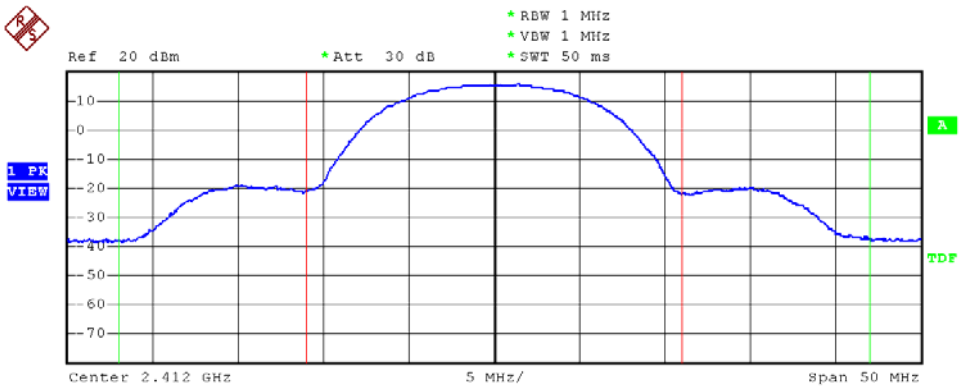
7.5 Test Result and Data

Test Date: Jul. 09, 2009 Temperature: 26℃

Atmospheric pressure: 1012 hPa Humidity: 65%

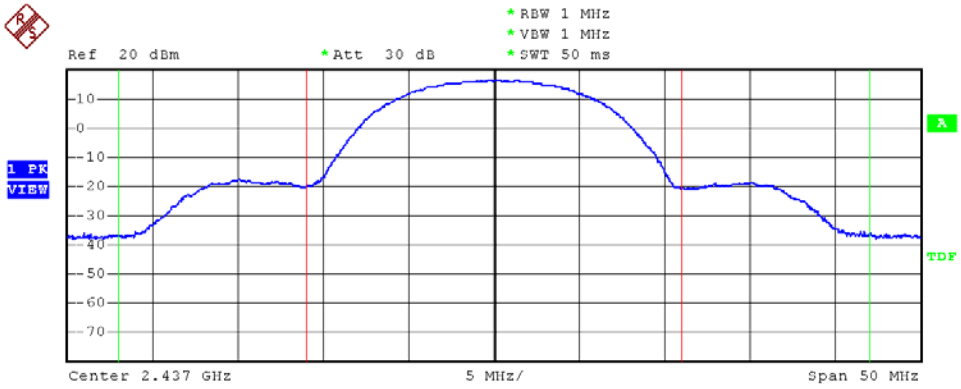
Modulation Standard	Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Output (mW)
802.11b (11Mbps)	01	2412	24.17	261.2
	06	2437	24.84	304.8
	11	2462	25.08	322.1
802.11g (54Mbps)	01	2412	21.70	147.9
	06	2437	22.37	172.6
	11	2462	22.96	197.7

Modulation Standard: 802.11b (11Mbps)
Channel: 01



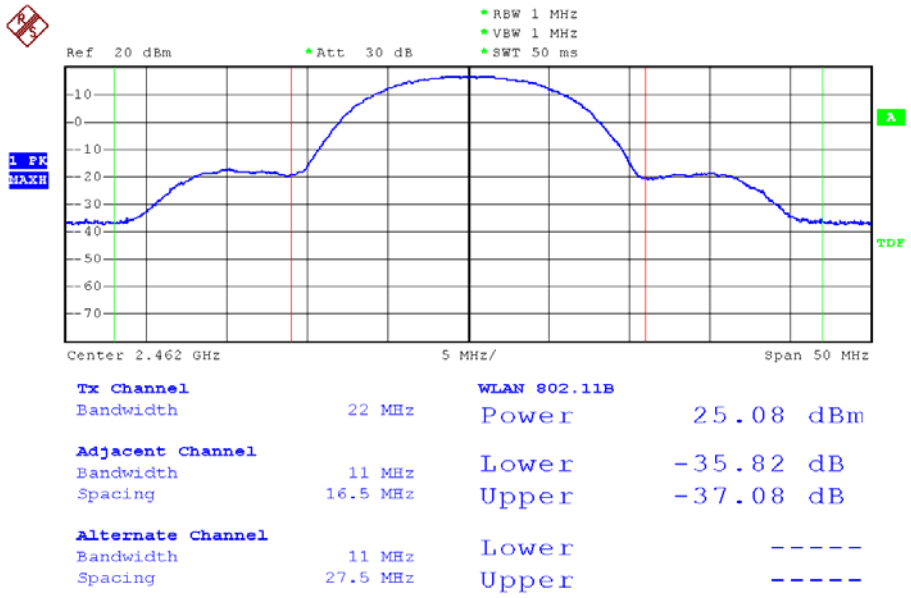
Tx Channel		**WLAN 802.11B**	
Bandwidth	22 MHz	Power	24.17 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-36.64 dB
Spacing	16.5 MHz	Upper	-37.46 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-----
Spacing	27.5 MHz	Upper	-----

Modulation Standard: 802.11b (11Mbps)
Channel: 06

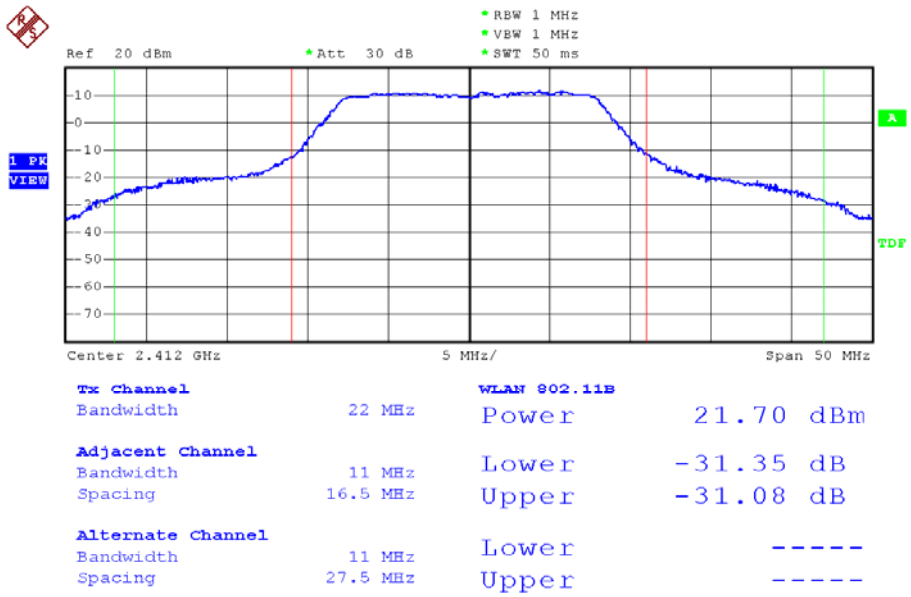


Tx Channel		**WLAN 802.11B**	
Bandwidth	22 MHz	Power	24.84 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-36.11 dB
Spacing	16.5 MHz	Upper	-37.11 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-----
Spacing	27.5 MHz	Upper	-----

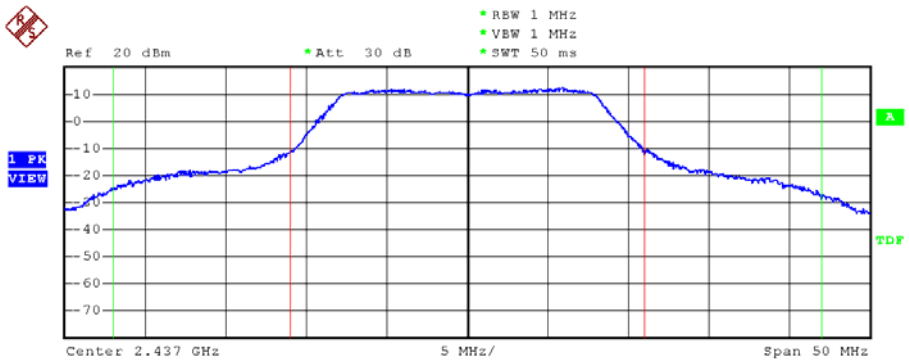
Modulation Standard: 802.11b (11Mbps)
Channel: 11



Modulation Standard: 802.11g (54Mbps)
Channel: 01

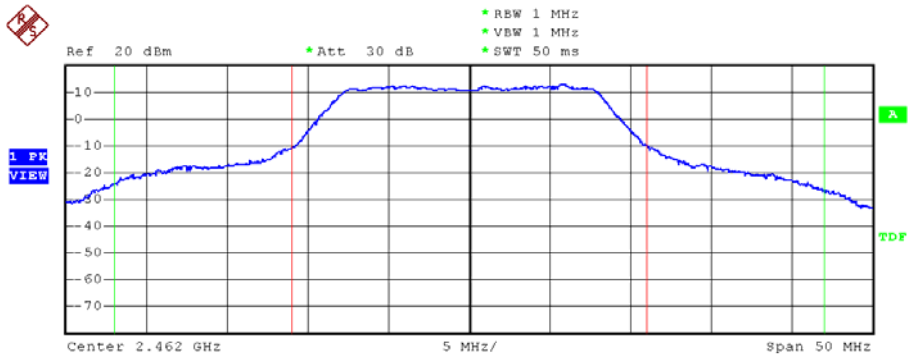


Modulation Standard: 802.11g (54Mbps)
Channel: 06



Tx Channel		**WLAN 802.11B**	
Bandwidth	22 MHz	Power	22.37 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-30.54 dB
Spacing	16.5 MHz	Upper	-30.62 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-----
Spacing	27.5 MHz	Upper	-----

Modulation Standard: 802.11g (54Mbps)
Channel: 11



Tx Channel		**WLAN 802.11B**	
Bandwidth	22 MHz	Power	22.96 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-30.15 dB
Spacing	16.5 MHz	Upper	-30.53 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-----
Spacing	27.5 MHz	Upper	-----

8. Band Edges Measurement

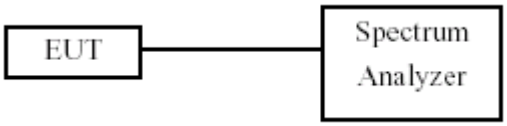
8.1 Test Limit

Below –20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

8.2 Test Procedure

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

8.3 Test Setup Layout



8.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25

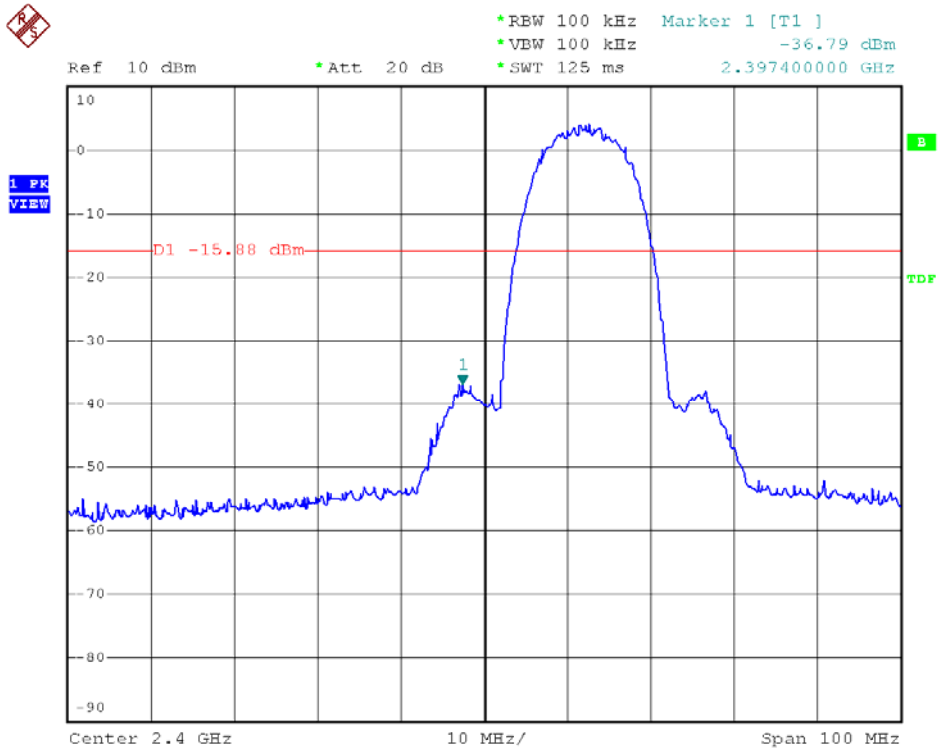
8.5 Test Result and Data

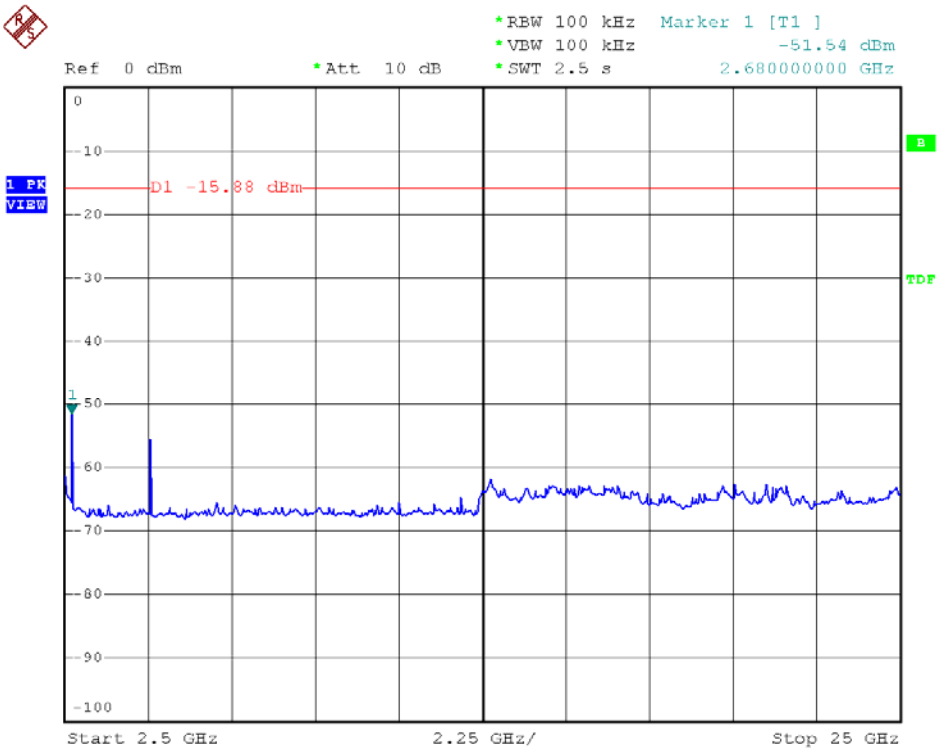
Test Date: Jul. 09, 2009 Temperature: 26℃

Atmospheric pressure: 1012 hPa Humidity: 65%

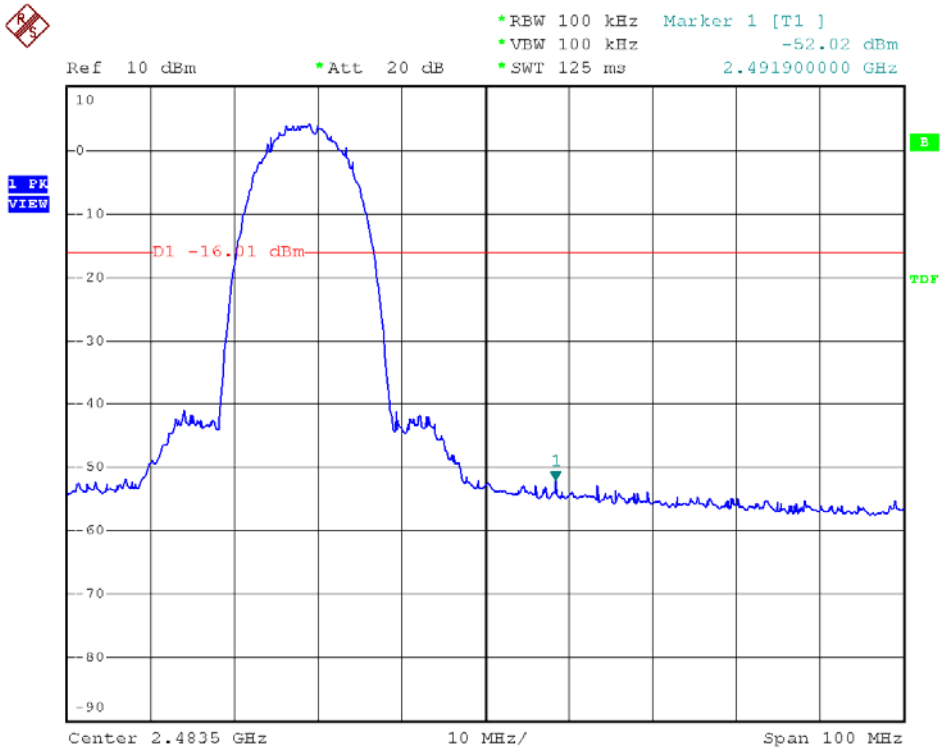
Modulation Standard	Channel	Frequency (MHz)	maximum value in frequency (MHz)	maximum value (dBm)
802.11b (11Mbps)	01	2412	2397.4	-36.79
	11	2462	2860.0	-46.93
802.11g (54Mbps)	01	2412	2399.8	-35.26
	11	2462	2483.7	-50.69

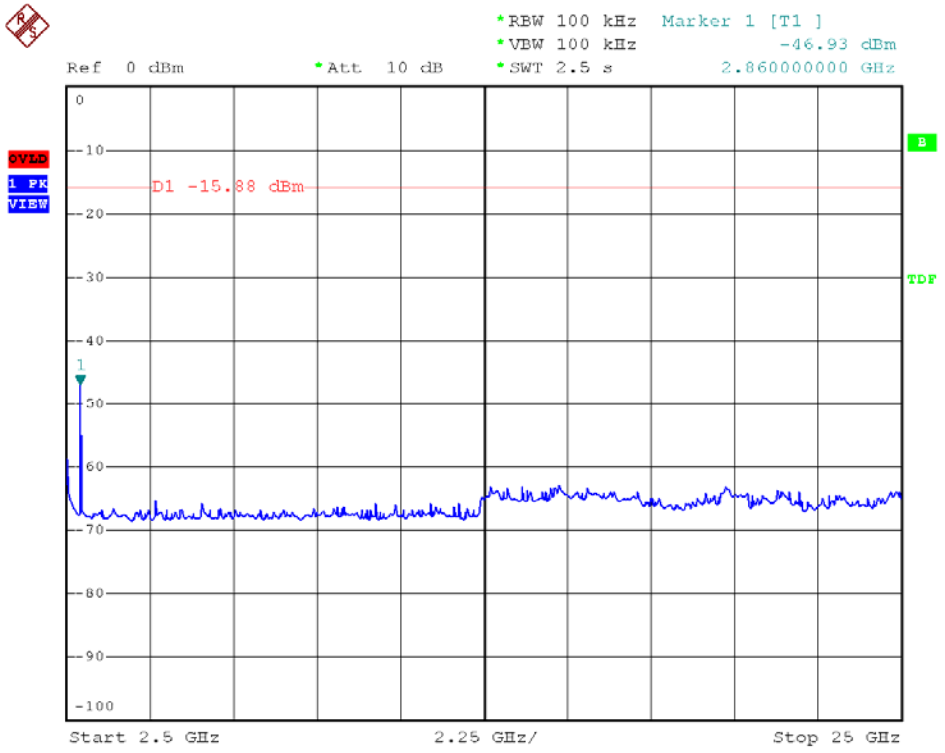
Modulation Standard: 802.11b (11Mbps)
Channel: 01



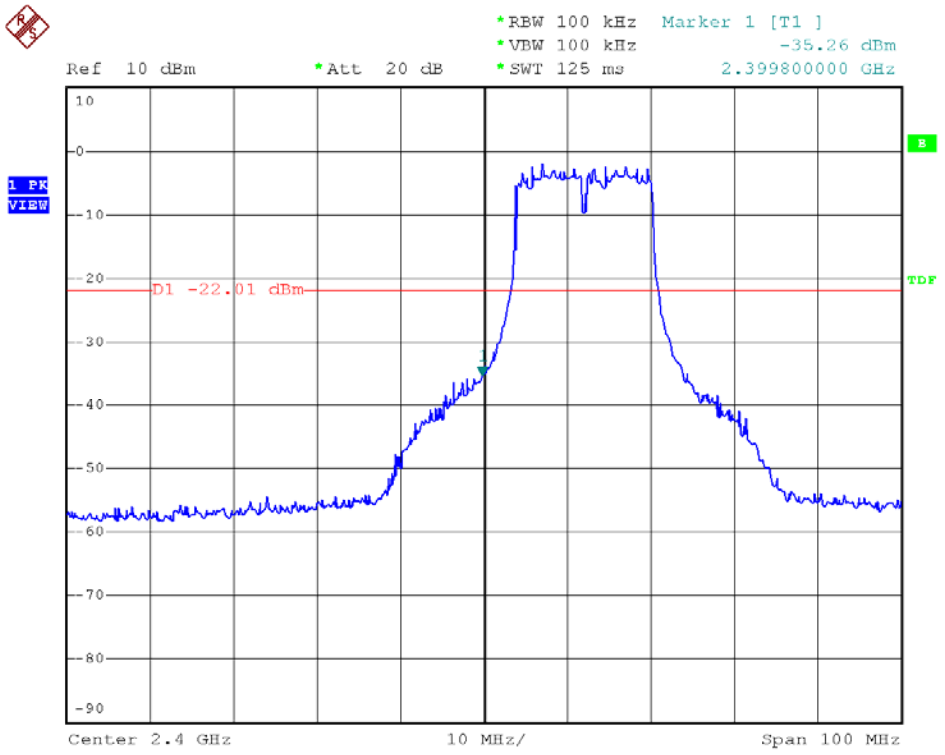


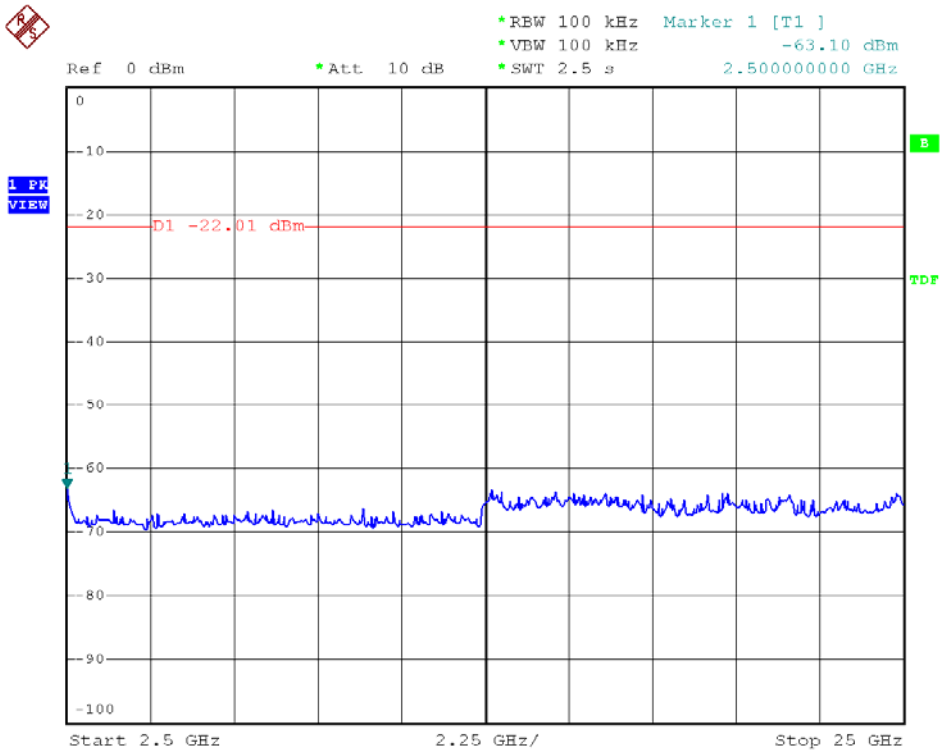
Modulation Standard: 802.11b (11Mbps)
Channel: 11



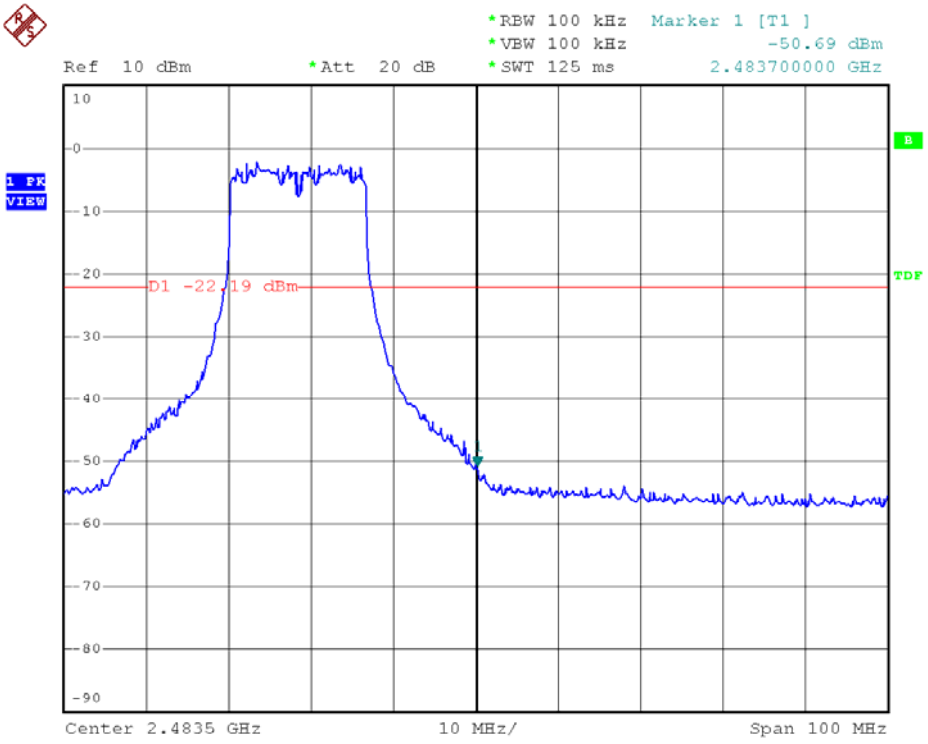


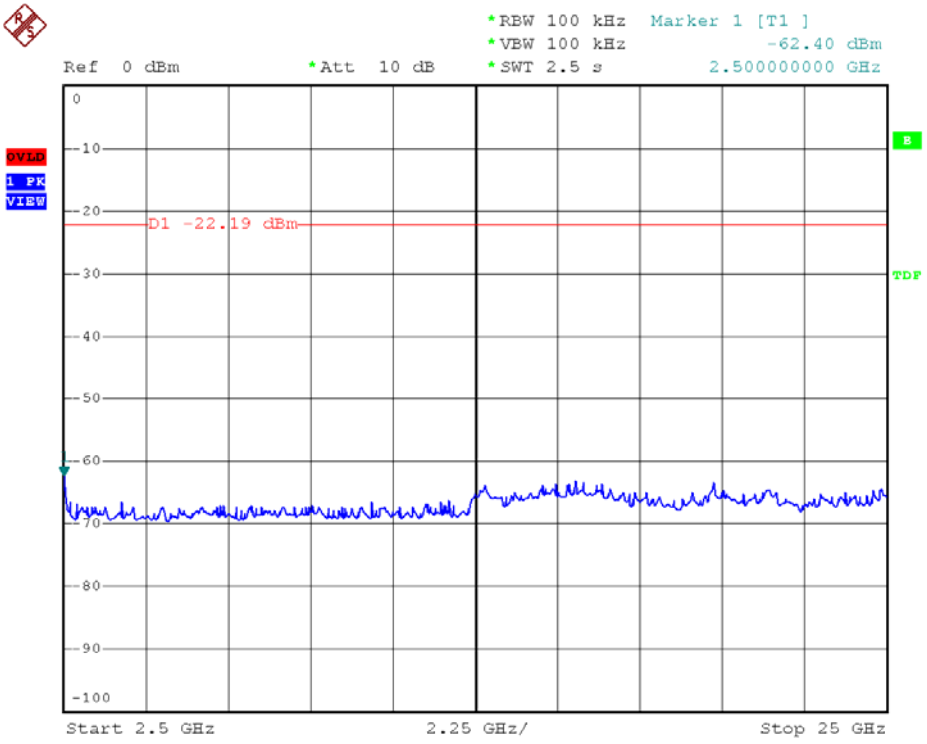
Modulation Standard: 802.11g (54Mbps)
Channel: 01





Modulation Standard: 802.11g (54Mbps)
Channel: 11





8.6 Restrict Band Emission Measurement Data

Test Date	:	Jul. 10, 2009
Temperature	:	26℃
Humidity	:	70%
Atmospheric Pressure	:	1007 hPa

Modulation Standard: IEEE 802.11b (11Mbps)

Channel 1										Fundamental Frequency: 2412 MHz
Frequency (MHz)	Ant-Pol H/V	Meter Reading	Corrected Factor	Result (dBuV/m)	Remark	Limit@3m (dBuV/m)		Margin (dB)	Table (Deg.)	Ant High (m)
						Peak	Ave.			
2390.07	H	50.93	-4.91	46.02	Peak	74	54	-27.98	151	1.18
2389.87	H	38.59	-4.91	33.68	Ave	74	54	-20.32	151	1.18
2389.76	V	57.30	-4.91	52.39	Peak	74	54	-21.61	266	1.18
2389.87	V	45.46	-4.91	40.55	Ave	74	54	-13.45	266	1.18
Channel 11										Fundamental Frequency: 2462 MHz
2484.38	H	50.28	-4.58	45.70	Peak	74	54	-28.30	151	1.18
2483.51	H	38.54	-4.59	33.95	Ave	74	54	-20.05	151	1.18
2483.74	V	59.76	-4.58	55.18	Peak	74	54	-18.82	266	1.18
2483.51	V	47.73	-4.59	43.14	Ave	74	54	-10.86	266	1.18

Modulation Standard: IEEE 802.11g (54Mbps)

Channel 1										Fundamental Frequency: 2412 MHz
Frequency (MHz)	Ant-Pol H/V	Meter Reading	Corrected Factor	Result (dBuV/m)	Remark	Limit@3m (dBuV/m)		Margin (dB)	Table (Deg.)	Ant High (m)
						Peak	Ave.			
2387.72	H	50.33	-4.91	45.42	Peak	74	54	-28.58	151	1.18
2389.87	H	38.45	-4.91	33.54	Ave	74	54	-20.46	151	1.18
2389.76	V	59.65	-4.91	54.74	Peak	74	54	-19.26	266	1.18
2389.87	V	42.97	-4.91	38.06	Ave	74	54	-15.94	266	1.18
Channel 11										Fundamental Frequency: 2462 MHz
2484.12	H	50.39	-4.58	45.81	Peak	74	54	-28.19	151	1.18
2483.51	H	38.59	-4.59	34.00	Ave	74	54	-20.00	151	1.18
2483.51	V	61.65	-4.59	57.06	Peak	74	54	-16.94	266	1.18
2483.51	V	45.05	-4.59	40.46	Ave	74	54	-13.54	266	1.18

Notes:
1. Result = Meter Reading + Factor
2. Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.

9. Power Spectral Density

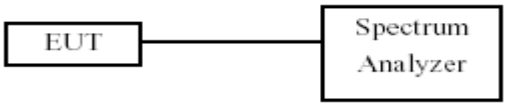
9.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

9.2 Test Procedures

a. The transmitter output was connected to spectrum analyzer.
b. 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.
c. The power spectral density was measured and recorded.
d. The Sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

9.3 Test Setup Layout



9.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25

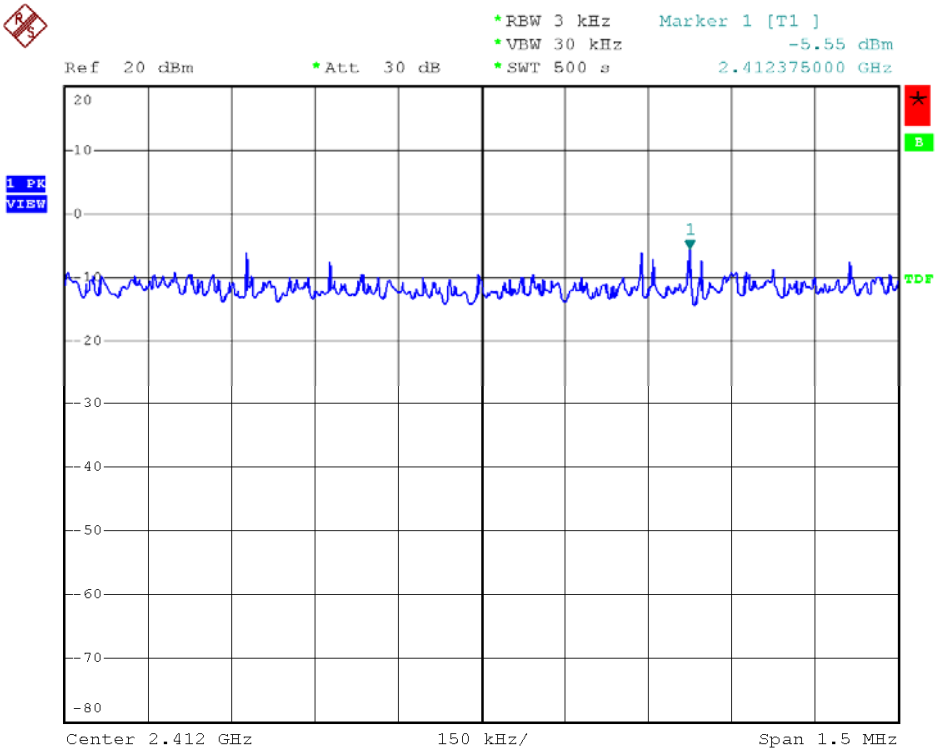
9.5 Test Result and Data

Test Date: Jul. 09, 2009 Temperature: 26℃

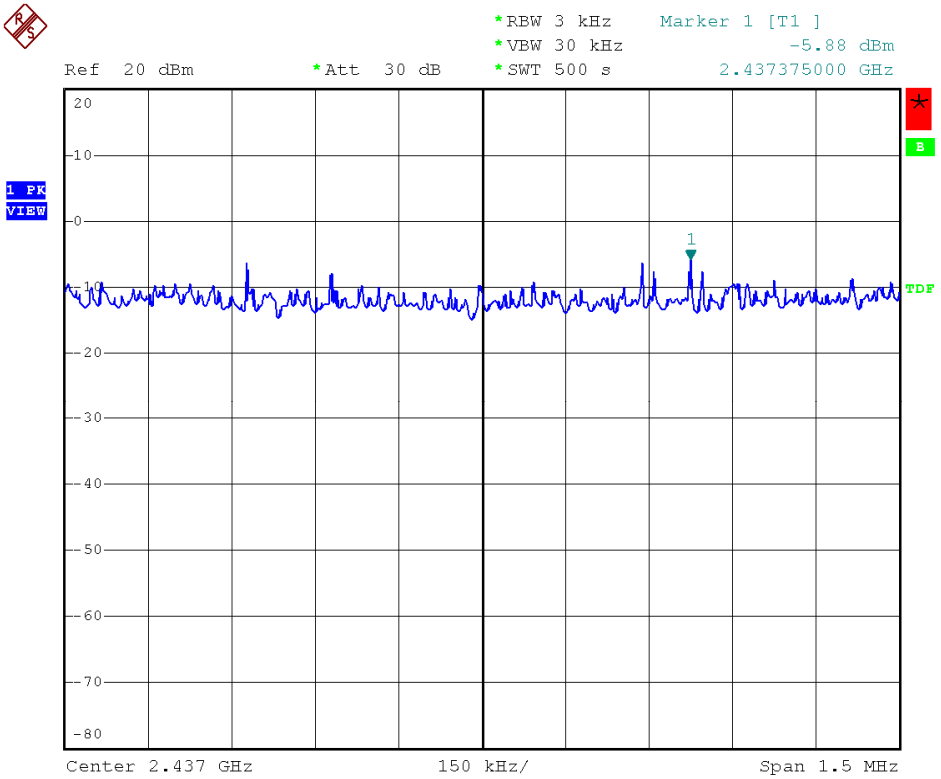
Atmospheric pressure: 1012 hPa Humidity: 65%

Modulation Standard	Channel	Frequency (MHz)	Maximum Power Density of 3 kHz Bandwidth (dBm)
802.11b (11Mbps)	01	2412	-5.55
	06	2437	-5.88
	11	2462	-6.02
802.11g (54Mbps)	01	2412	-15.89
	06	2437	-16.26
	11	2462	-16.14

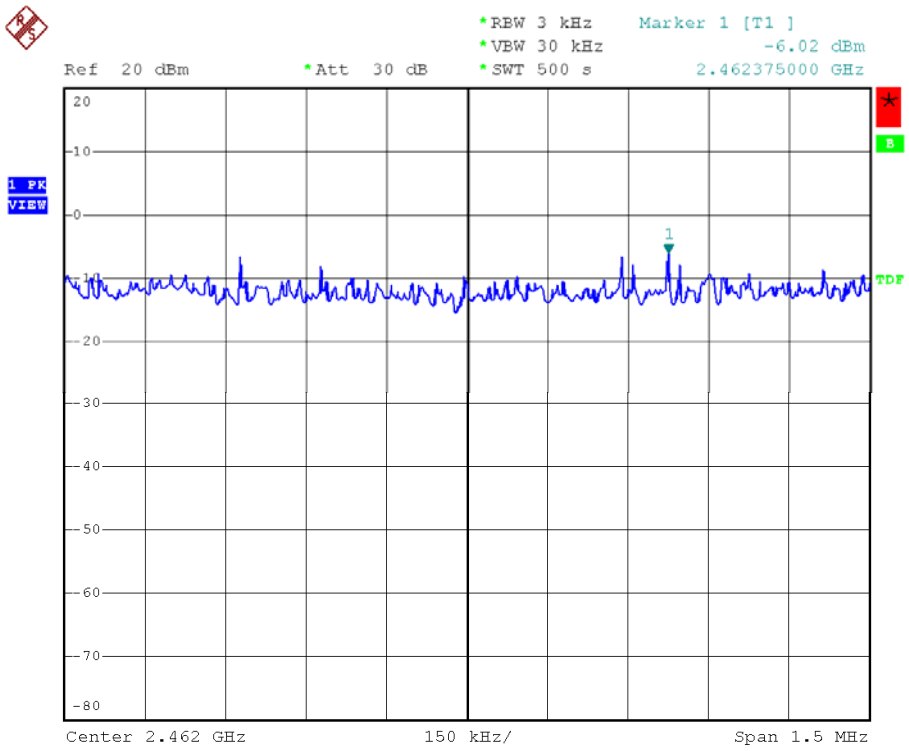
Modulation Standard: 802.11b (11Mbps)
Channel: 01



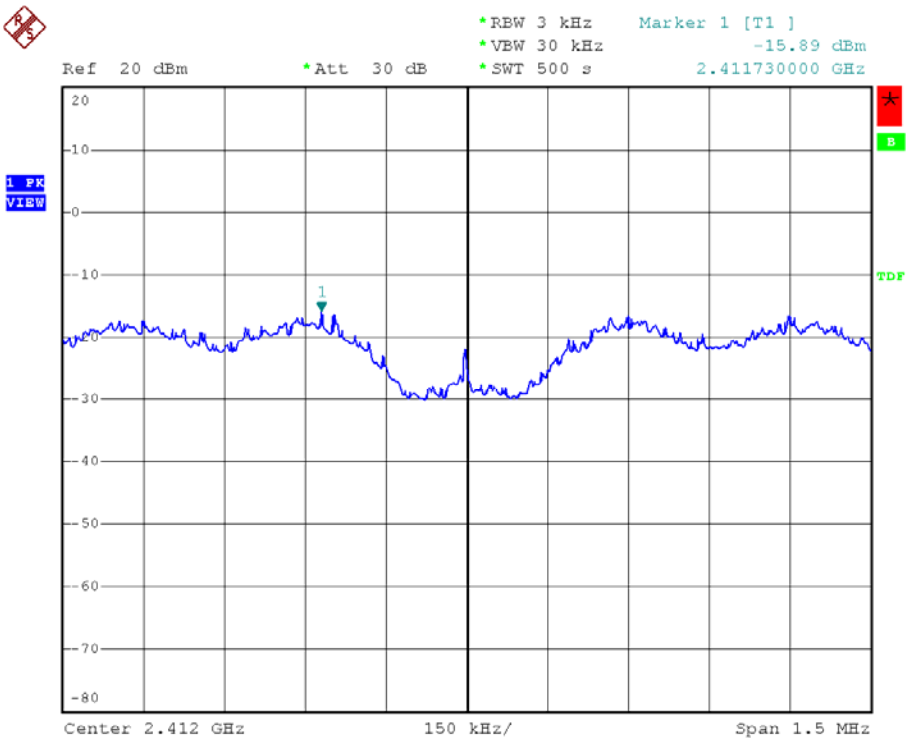
Modulation Standard: 802.11b (11Mbps)
Channel: 06



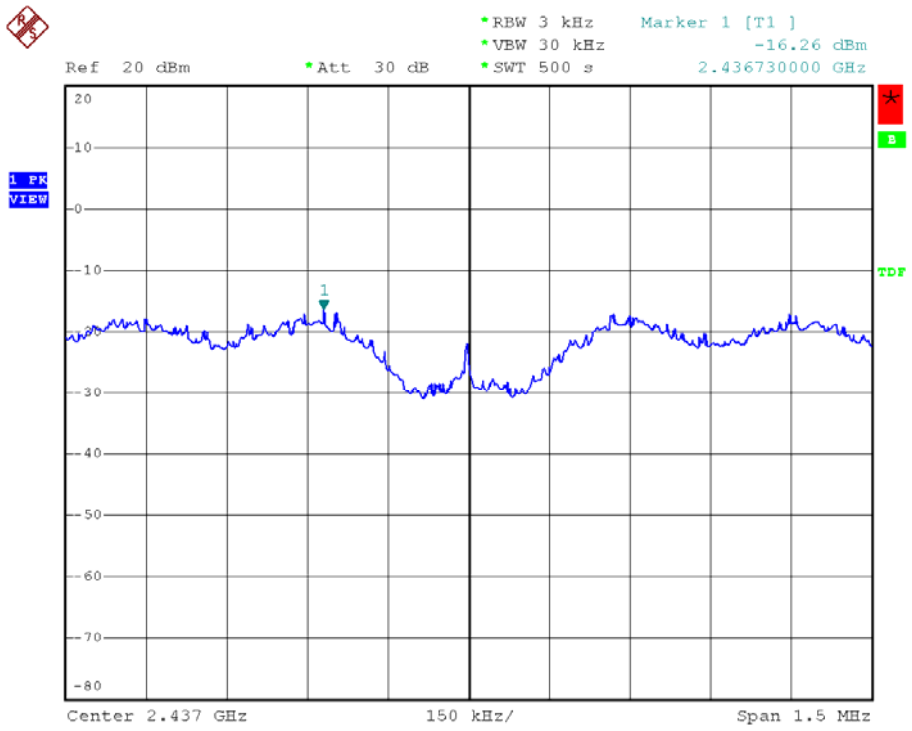
Modulation Standard: 802.11b (11Mbps)
Channel: 11



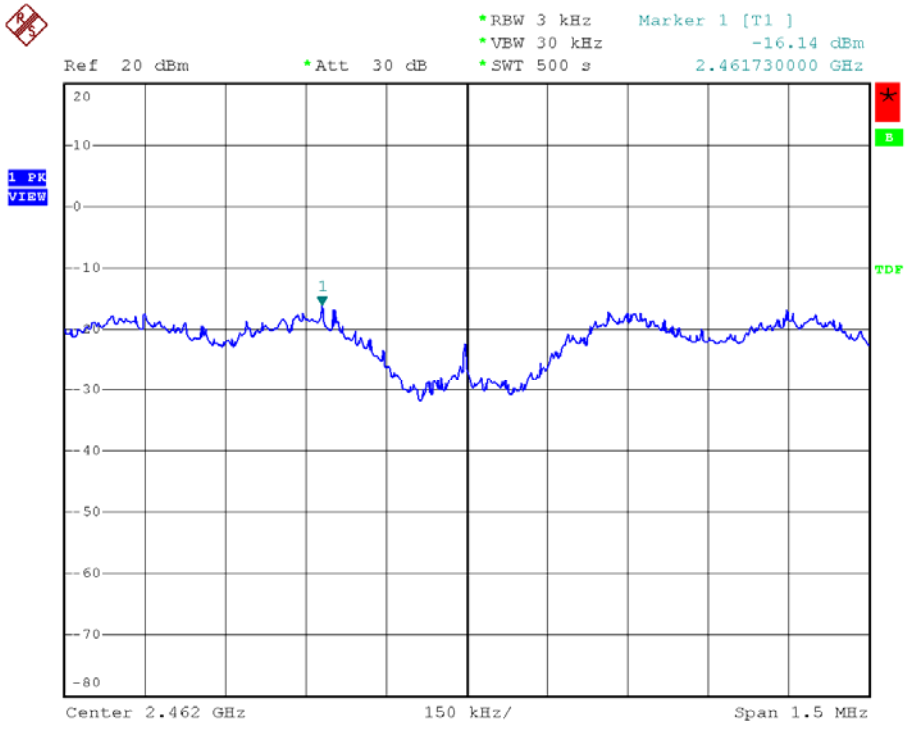
Modulation Standard: 802.11g (54Mbps)
Channel: 01



Modulation Standard: 802.11g (54Mbps)
Channel: 06



Modulation Standard: 802.11g (54Mbps)
Channel: 11



10. 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

10.1 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.