



**FCC 47 CFR PART 15 SUBPART C AND ANSI C63.4 : 2003**

**TEST REPORT**

**For**

**G Wireless Router**

**Model : F5D7234-4 v4**

**Data Applies To : F5D7234-4-H v4**

**Trade Name : Belkin**

**Issued for**

**Belkin International, Inc.**

**501 West Walnut St. Compton, CA, 90220-5221, USA**

**Issued by**

**Compliance Certification Services Inc.**

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## Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	03/18/2009	Initial Issue	All Page 72	Jeter Wu
00	03/24/2009	Update Antenna Gain	Page 5, 30	Jeter Wu



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## 1. TEST REPORT CERTIFICATION

**Applicant** : Belkin International, Inc.  
**Address** : 501 West Walnut St. Compton, CA, 90220-5221, USA  
**Equipment Under Test** : G Wireless Router  
**Model** : F5D7234-4 v4  
**Data Applies To** : F5D7234-4-H v4  
**Trade Name** : Belkin  
**Tested Date** : March 09 ~ 17, 2009

APPLICABLE STANDARD	
STANDARD	TEST RESULT
FCC Part 15 Subpart C AND ANSI C63.4:2003	No non-compliance noted

Approved by:

**Jeter Wu**  
Section Manager

Reviewed by:

**Eric Yang**  
Senior Engineer

WE HEREBY CERTIFY THAT: The measurements shown in the attachment were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable. We assume full responsibility for the accuracy and completeness of these measurements and vouch for the qualifications of all persons taking them.



## 2. EUT DESCRIPTION

### 2.1 DESCRIPTION OF EUT & POWER

<b>Product Name</b>	G Wireless Router
<b>Model Number</b>	F5D7234-4 v4
<b>Data Applies To</b>	F5D7234-4-H v4
<b>Frequency Range</b>	IEEE 802.11b/g : 2412MHz to 2462MHz
<b>Transmit Power</b>	IEEE 802.11b : 19.26dBm IEEE 802.11g : 19.38dBm
<b>Channel Spacing</b>	IEEE 802.11b/g : 5MHz
<b>Channel Number</b>	IEEE 802.11b/g : 11 Channels
<b>Transmit Data Rate</b>	IEEE 802.11b : 11, 5.5, 2, 1 Mbps IEEE 802.11g : 54, 48, 36, 24, 18, 12, 9, 6 Mbps
<b>Type of Modulation</b>	IEEE 802.11b : DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g : OFDM (64QAM, 16QAM, QPSK, BPSK)
<b>Frequency Selection</b>	by software / firmware
<b>Antenna Type</b>	Tinplate IFA Antenna, Antenna Gain : 2.51dBi
<b>Power Source</b>	9VDC, 1A (From Power Adapter)

Power Adapter :

No.	Manufacturer	Model No.	Power Input	Power Output
1	LEI	MT12-Y090100-A1	120VAC / 60Hz, 0.3A	9VDC, 1A

**Remark:**

1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: K7S-F5D7234V4 filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.
3. For more details, please refer to the User's manual of the EUT.
4. The showed series model as for the marketing purpose.



### 3. DESCRIPTION OF TEST MODES

#### IEEE 802.11b/g mode (DTS Band)

The EUT had been tested under operating condition.

There are three channels have been tested as following :

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode : 1Mbps data rate (worst case) were chosen for full testing.

IEEE 802.11g mode : 6Mbps data rate (worst case) were chosen for full testing.

The worst-case data rates are determined according to the description above, based on the investigations by measuring the PSD, peak power and average power across all the data rates, bandwidths, modulations and spatial stream modes.

### 4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4:2003 and FCC CRF 47 15.207, 15.209 and 15.247.



## **5. FACILITIES AND ACCREDITATIONS**

### **5.1 FACILITIES**

All measurement facilities used to collect the measurement data are located at

No. 8, Jiu Cheng Ling, Jiaokeng Village, Sinhua Township, Tainan Hsien 712, Taiwan R.O.C.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

### **5.2 EQUIPMENT**

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.






All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### **5.3 LABORATORY ACCREDITATIONS LISTINGS**

The test facilities used to perform radiated and conducted emissions tests are accredited by Taiwan Accreditation Foundation for the specific scope of accreditation under Lab Code: 1109 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC 2324H-I for OATS -6.



## 5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	 455173 TW-1037
Japan	VCCI	3/10 meter Open Area Test Sites to perform conducted/radiated measurements	 C-2882 R-2635
Taiwan	TAF	CISPR 11, FCC METHOD-47 CFR Part 18, EN 55011, CNS 13803, CISPR 14, EN 55014, CNS 13783-1, CISPR 22, EN 55022, VCCI, FCC, Method-47 CFR Part 15 Subpart B, CNS 13438	 Testing Laboratory 1109
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS13439	 SL2-IN-E-0039 SL2-R1/R2-0039 SL2-A1-E-0039
Canada	Industry Canada	RSS-GEN Issue 2	 IC 2324H-I

\* No part of this report may be used to claim or imply product endorsement by TAF or any agency of the US Government.





## 6. CALIBRATION AND UNCERTAINTY

### 6.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 6.2 MEASUREMENT UNCERTAINTY

The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4.

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 1000 MHz	+/- 3.2 dB
Radiated Emission, 1 to 26.5GHz	+/- 3.2 dB
Power Line Conducted Emission	+/- 2.1 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



## 7. SETUP OF EQUIPMENT UNDER TEST

### SUPPORT EQUIPMENT

No.	Product	Manufacturer	Model No.	Serial No.	FCC ID
1	Notebook PC	DELL	Latitude D610	CN-0C4708-48643-625-5565	DoC
2	Notebook PC	IBM(LENOVO)	7663-AS6	L3F3864	DoC
3	Notebook PC	HP	nx6130	CNU543274R	DoC
4	ASUS	HOB	GX1008B	-----	-----

### SETUP DIAGRAM FOR TESTS

EUT & peripherals setup diagram is shown in appendix setup photos.

### EUT OPERATING CONDITION

#### **RF**

##### **TX Mode:**

1. Set up whole system for test as shown on diagram.
2. Enter hyper terminal machine select COM1  
Select :115200 / 8 / No / 1 / No  
NB IP address:192.168.2.2
3. Hyper terminal: READY → ENTER
4. Press → g
5. Input IP:192.168.2.2
6. Input TFTP:ap65art\_20071212\_flash.bin
7. RUN TFTP
8. Enter DOS open c:\ART\_V53\_Build59\_spider\_for\_AP65\art\bin > art  
\remote=192.168.2.1 \id=a065
9. Continuous Transmit mode :  
IEEE 802.11b Rate=1Mbps long  
IEEE 802.11g Rate=6Mbps  
(1) IEEE 802.11b output power → Low=17 Middle=16.5 High=16.5  
(2) IEEE 802.11g output power → Low=16.5 Middle=16.5 High=15

#### **For Normal operating :**

1. Setup whole system for test as shown on diagram
2. Notebook PC (1) (3) ping 192.168.2.1 -t to EUT.
3. Notebook PC (2) ping 192.168.1.1 -t to EUT.
4. All of the function are under run.
5. Start test.



## 8. APPLICABLE LIMITS AND TEST RESULTS

### 8.1 6dB BANDWIDTH

#### LIMIT

§ 15.207(a) (2) For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

#### TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
SPECTRUM ANALYZER	R & S	FSEK30	835253/002	10/25/2009
SPECTRUM ANALYZER	AGILENT	E4446A	MY43360132	06/24/2009

*Remark: Each piece of equipment is scheduled for calibration once a year.*

#### TEST SETUP



#### TEST PROCEDURE

The transmitter output was connected to a spectrum analyzer. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 100 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

**TEST RESULTS**

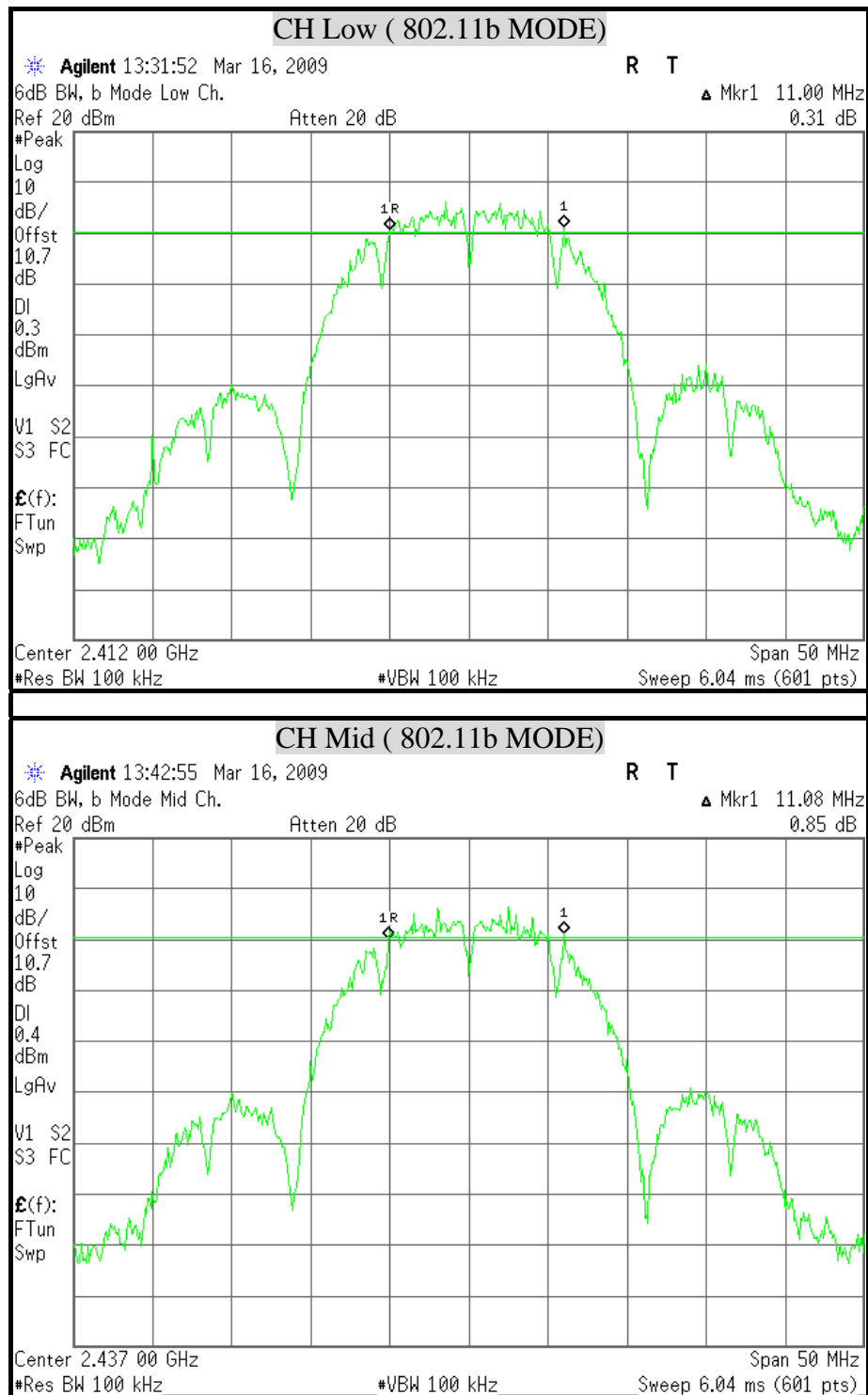
No non-compliance noted

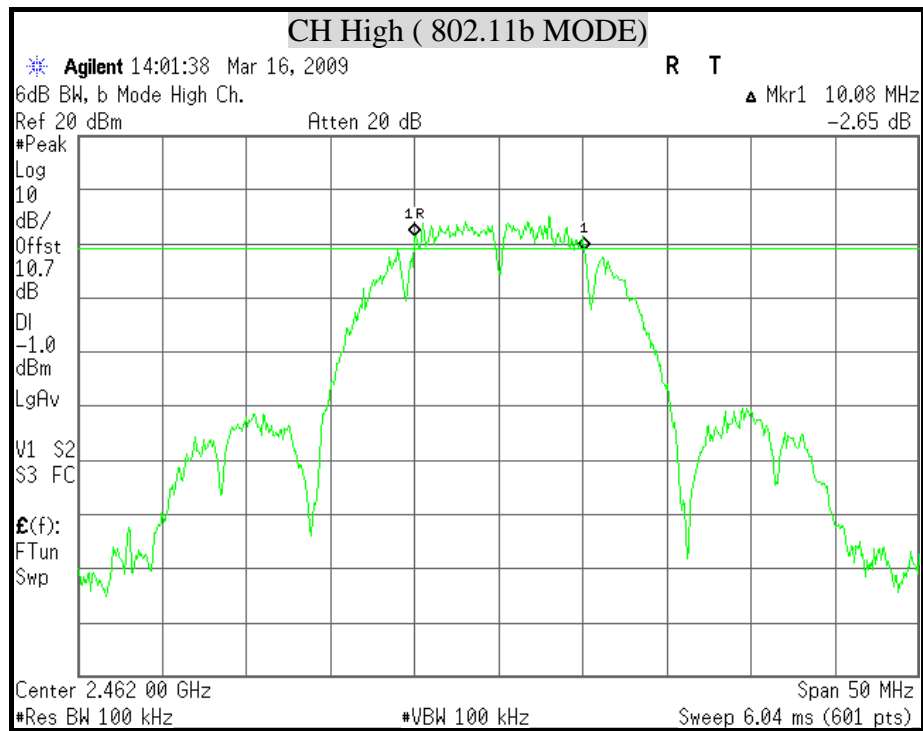
**IEEE 802.11b MODE**

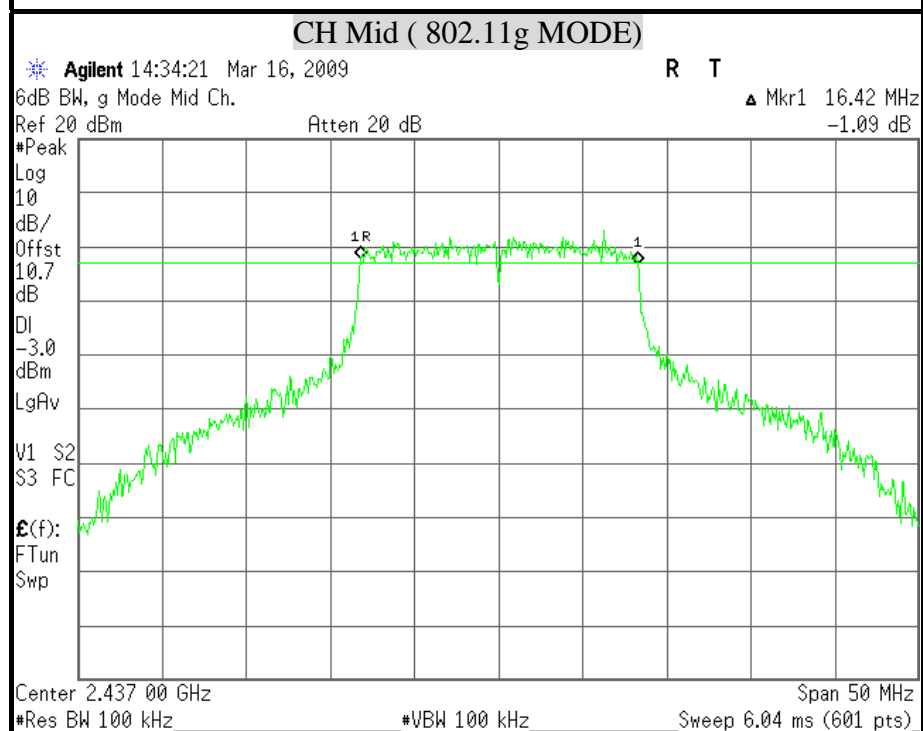
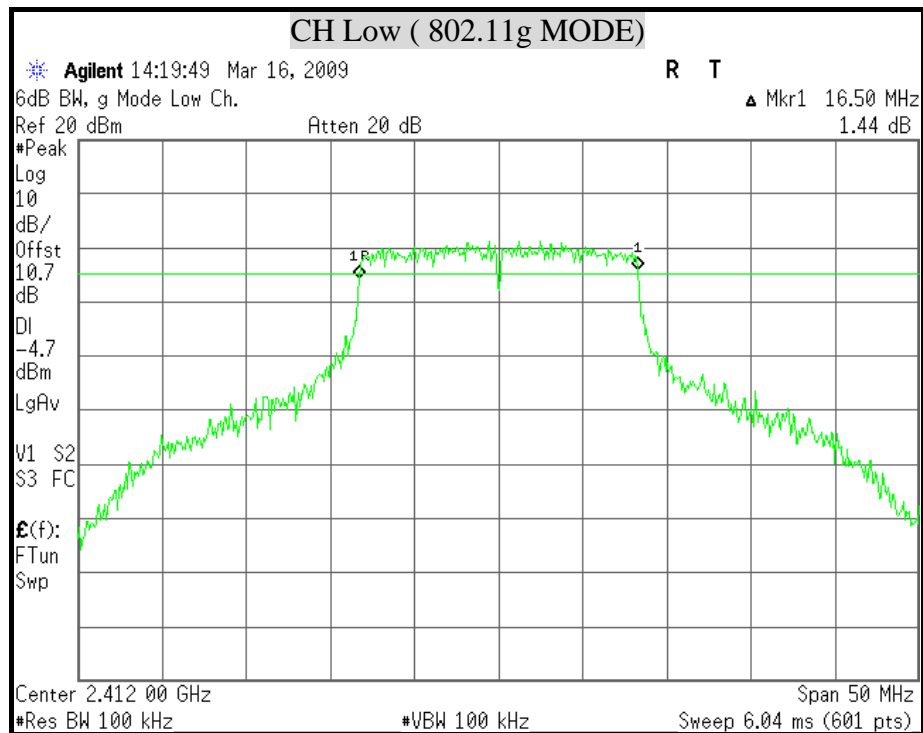
Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	11.00	500	PASS
Middle	2437	11.08	500	PASS
High	2462	10.08	500	PASS

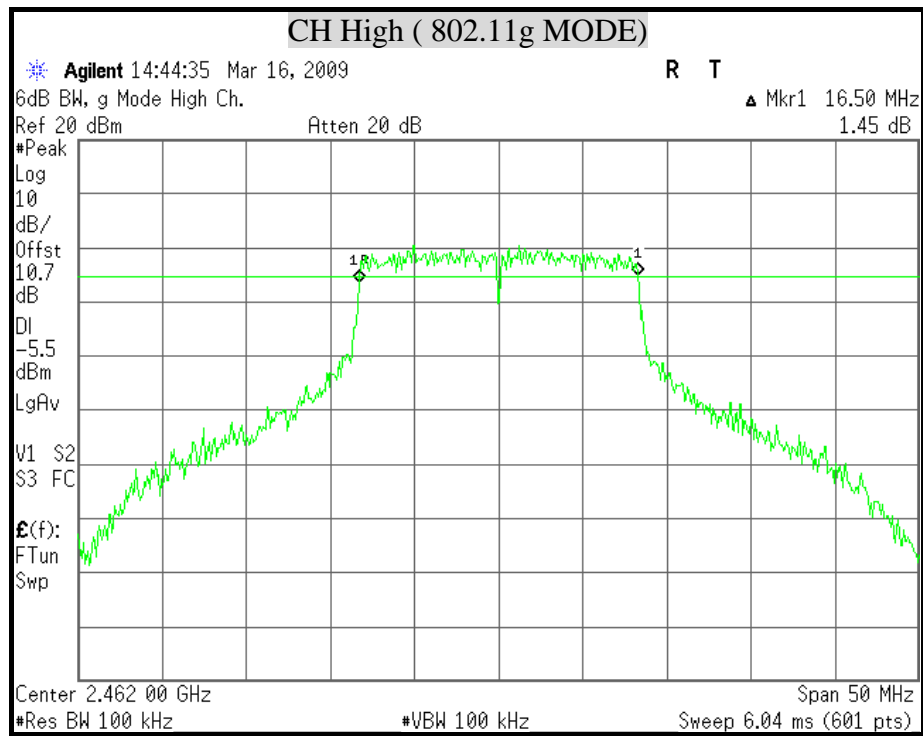
**IEEE 802.11g MODE**

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	16.50	500	PASS
Middle	2437	16.42	500	PASS
High	2462	16.50	500	PASS

**6dB BANDWIDTH ( 802.11b MODE)**



**6dB BANDWIDTH ( 802.11g MODE)**







## 8.2 99% BANDWIDTH

### LIMIT

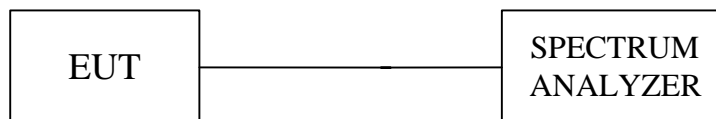
None; for reporting purposes only.

### TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
SPECTRUM ANALYZER	R & S	FSEK30	835253/002	10/25/2009
SPECTRUM ANALYZER	AGILENT	E4446A	MY43360132	06/24/2009

*Remark: Each piece of equipment is scheduled for calibration once a year.*

### TEST SETUP



### TEST PROCEDURE

1. The spectrum shall be set as follows :

Span : The minimum span to fully display the emission and approximately 20dB below peak level.

RBW : The set to 1% to 3% of the approximate emission width.

2. Compute the combined power of all signal responses contained in the trace by covering all the data points.

3. For 99% occupied BW, place the markers at the frequency at which 0.5% of the power lies to the right of the right marker and 0.5% of the power lies to the left of the left marker.

4. The 99% BW is the bandwidth between the right and left markers.

**TEST RESULTS**

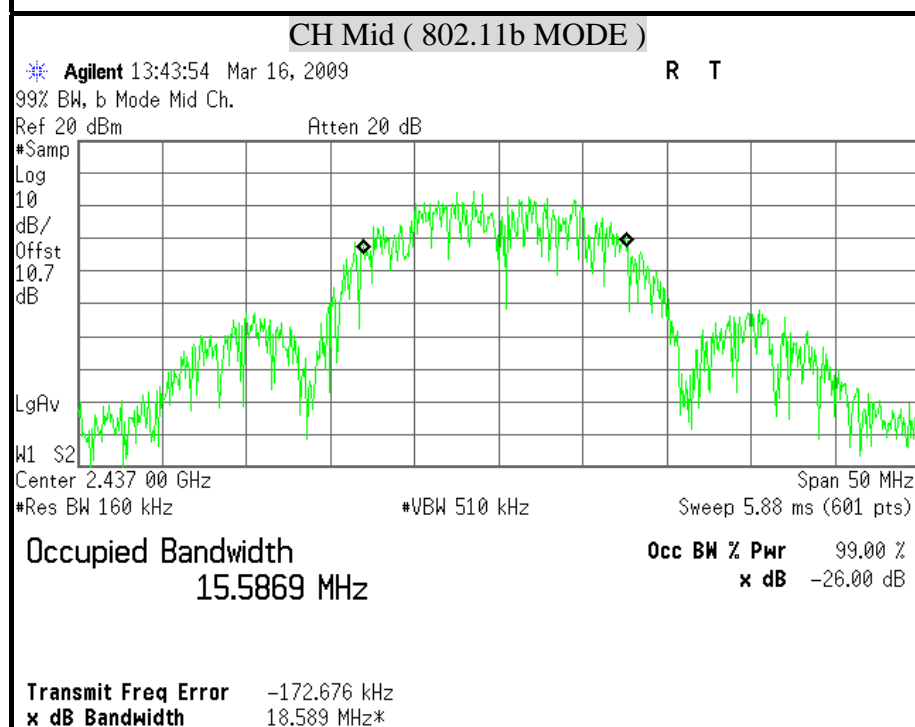
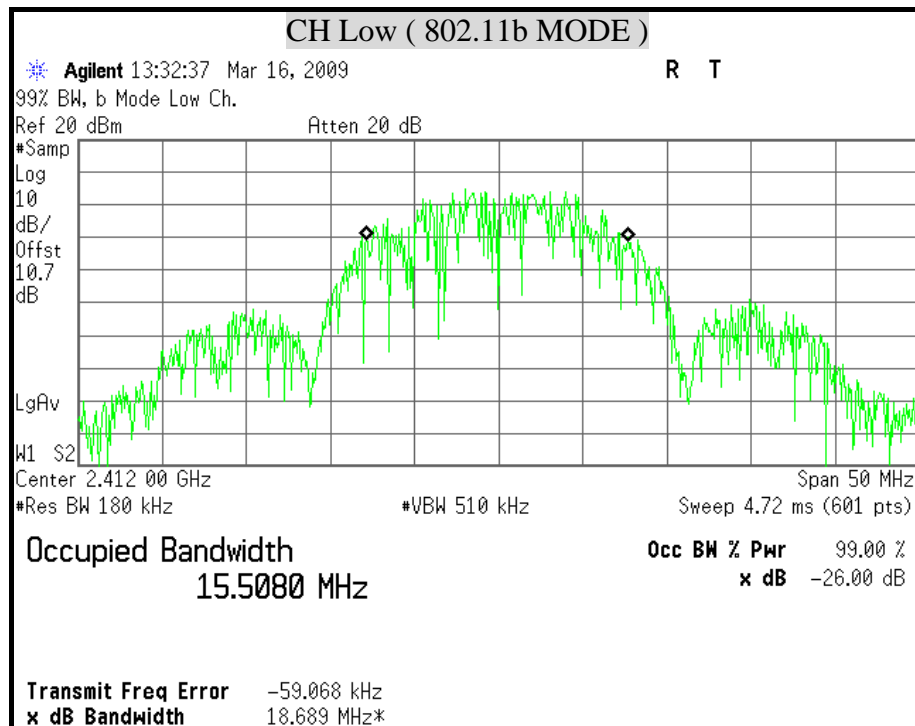
No non-compliance noted

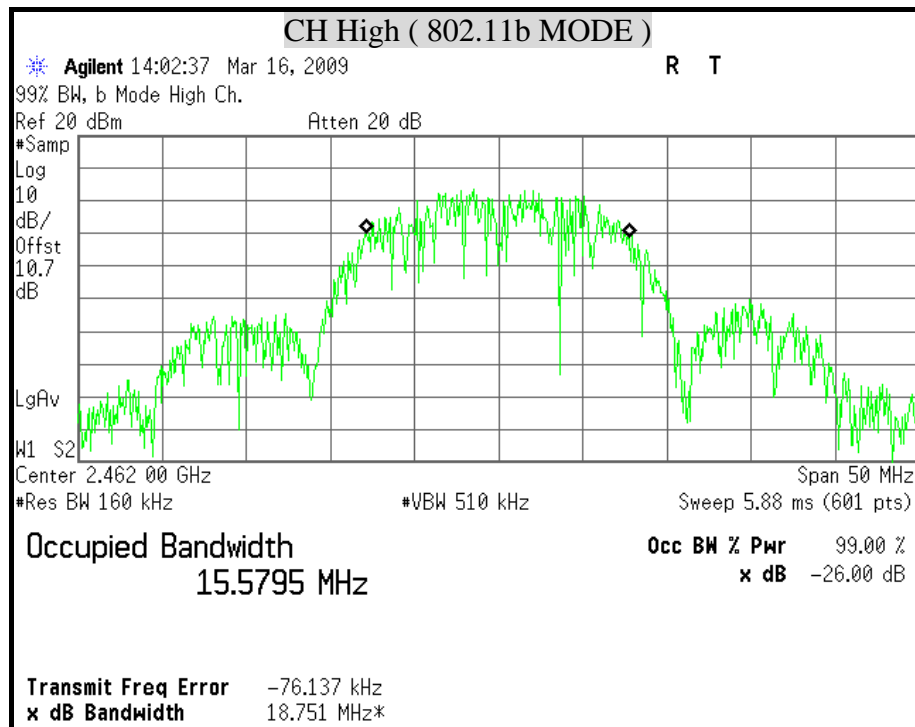
**IEEE 802.11b MODE**

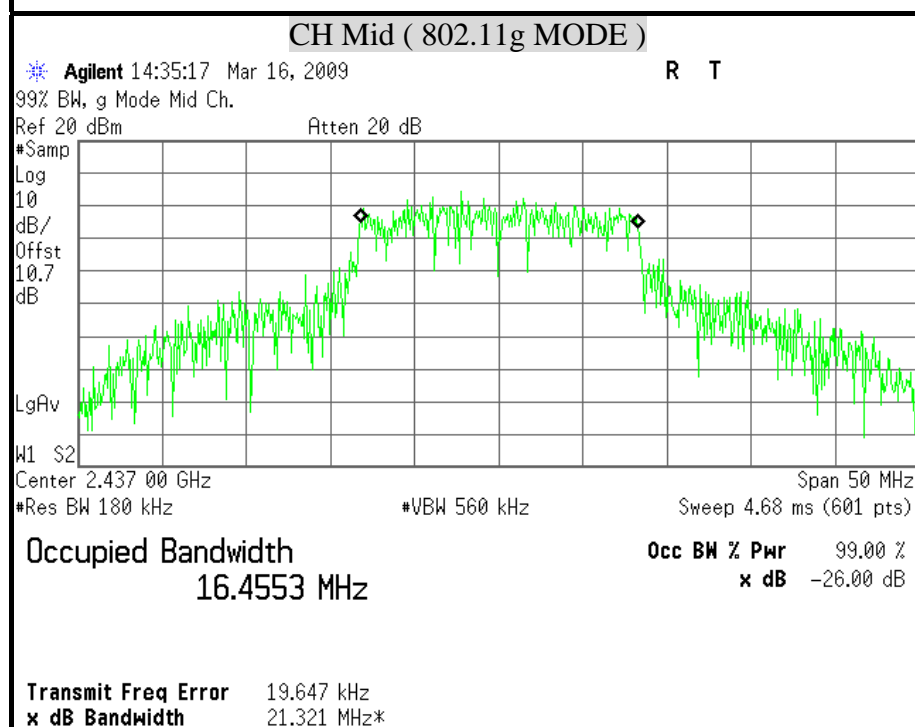
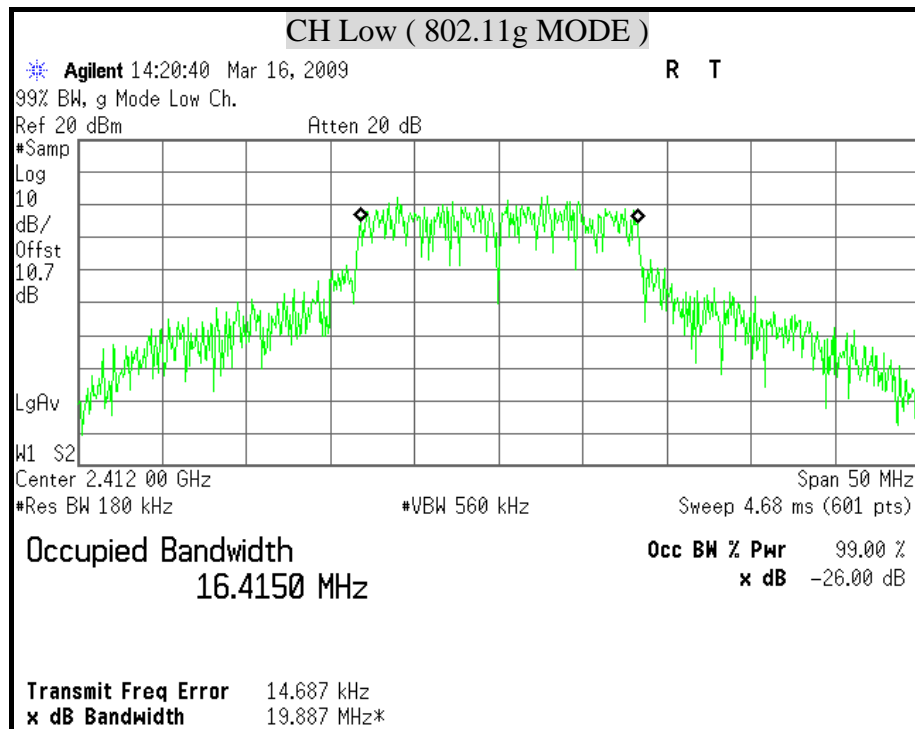
Channel	Channel Frequency (MHz)	99% Occupied power bandwidth (MHz)
Low	2412.00	15.508
Middle	2437.00	15.586
High	2462.00	15.579

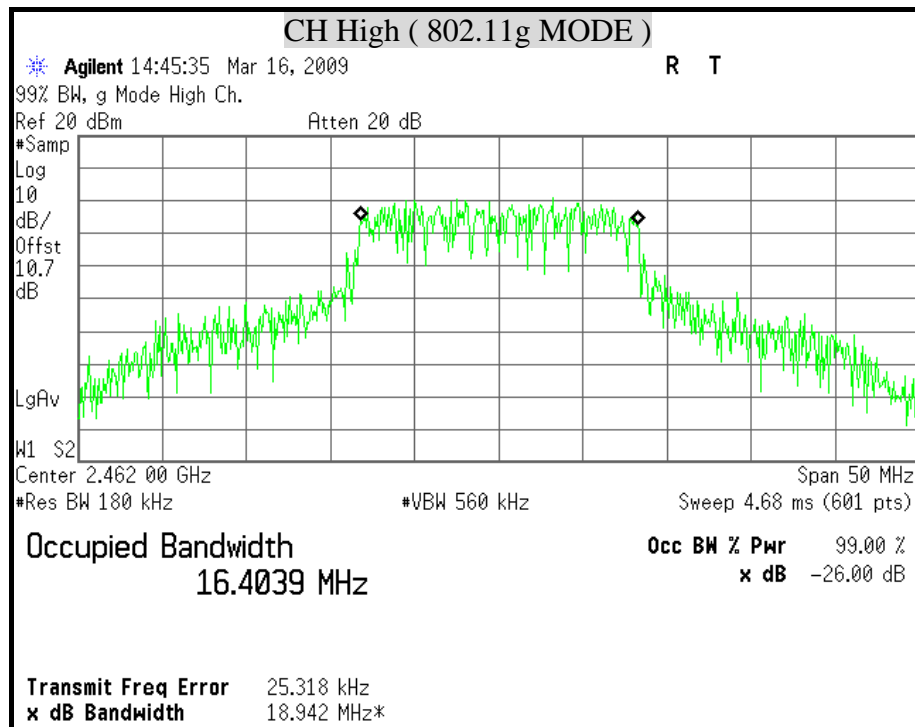
**IEEE 802.11g MODE**

Channel	Channel Frequency (MHz)	99% Occupied power bandwidth (MHz)
Low	2412.00	16.415
Middle	2437.00	16.455
High	2462.00	16.403

**99% BANDWIDTH ( 802.11b MODE)**



**99% BANDWIDTH ( 802.11g MODE)**





### 8.3 MAXIMUM PEAK OUTPUT POWER

#### LIMIT

§ 15.247(b) The maximum peak output power of the intentional radiator shall not exceed the following :

§ 15.247(b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands : 1 watt.

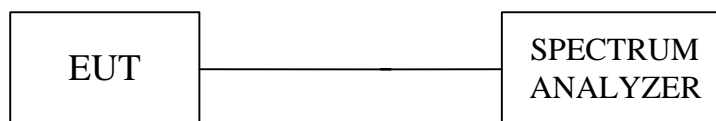
§ 15.247(b) (4) Except as shown in paragraphs (c) of this section , if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2), and (b)(3) of this section , as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
SPECTRUM ANALYZER	R & S	FSEK30	835253/002	10/25/2009
SPECTRUM ANALYZER	AGILENT	E4446A	MY43360132	06/24/2009

*Remark: Each piece of equipment is scheduled for calibration once a year.*

#### TEST SETUP



#### TEST PROCEDURE

1. The spectrum shall be set as follows :
  - Span : 1.5 times channel integration bandwidth.
  - RBW : 1MHz
  - VBW : 3MHz
  - Detector : Peak
  - Sweep : Single trace
2. Compute the combined power of all signal responses contained in the trace by covering all the data points.
3. For 99% occupied BW, place the markers at the frequency at which 0.5% of the power lies to the right of the right marker and 0.5% of the power lies to the left of the left marker.
4. The peak output power is the channel power integrated over 99% bandwidth.

**TEST RESULTS**

No non-compliance noted

**IEEE 802.11b MODE**

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2412	19.26	30	PASS
Middle	2437	19.08	30	PASS
High	2462	19.03	30	PASS

**Remark:**

1. At final test to get the worst-case emission at 1Mbps.
2. The cable assembly insertion loss of 10.7dB (including 10 dB pad and 0.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

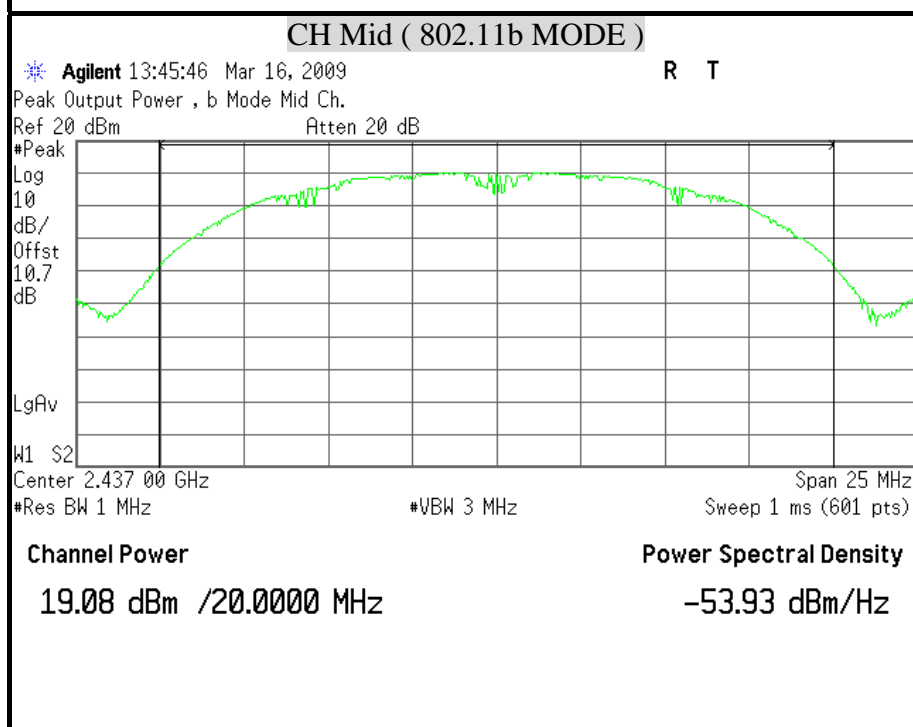
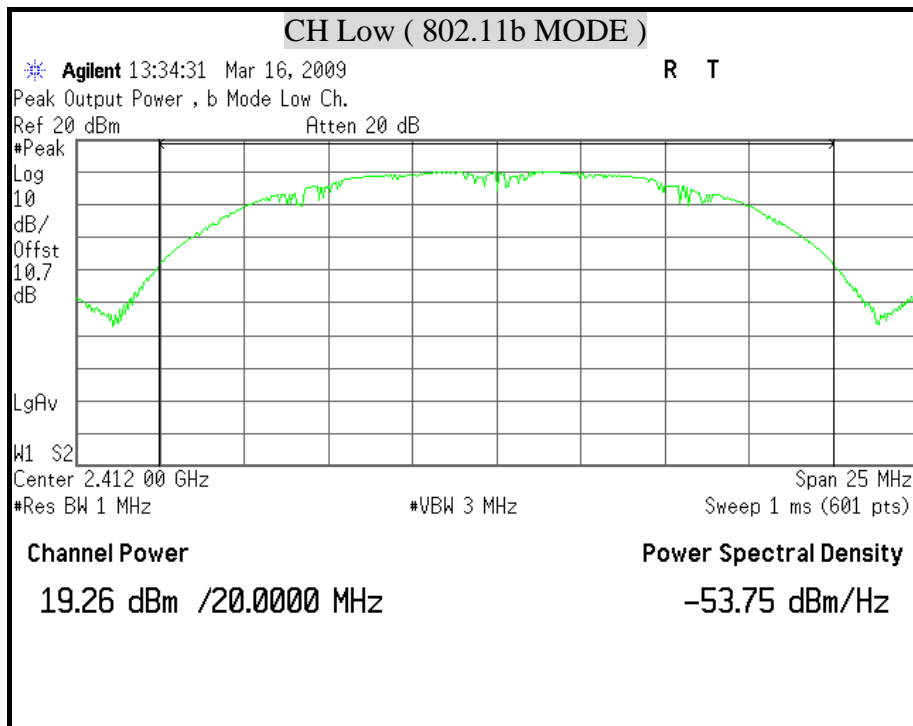
**IEEE 802.11g MODE**

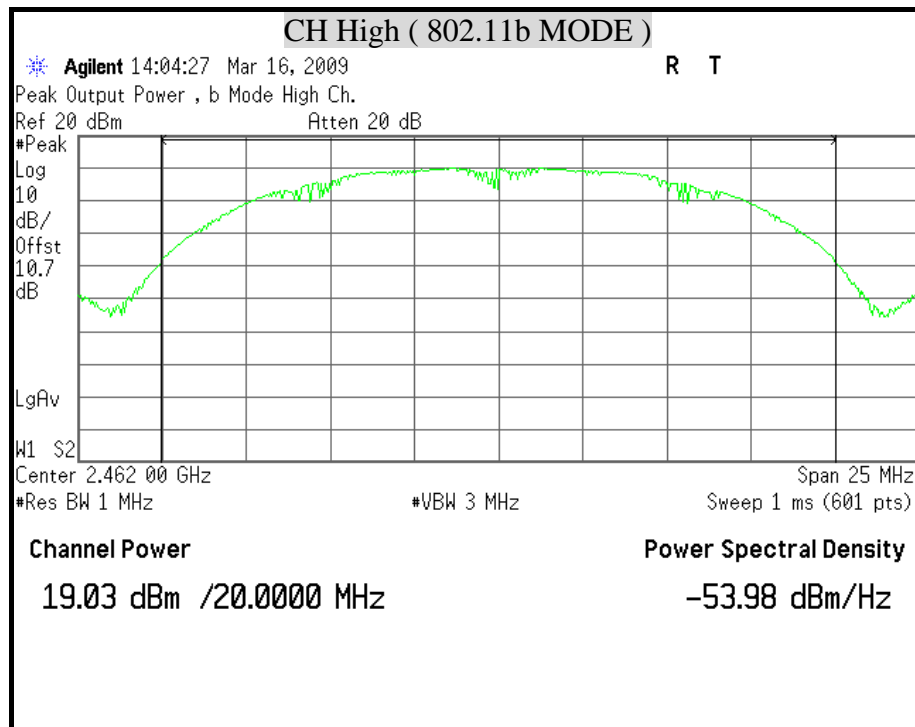
Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2412	19.09	30	PASS
Middle	2437	19.38	30	PASS
High	2462	18.01	30	PASS

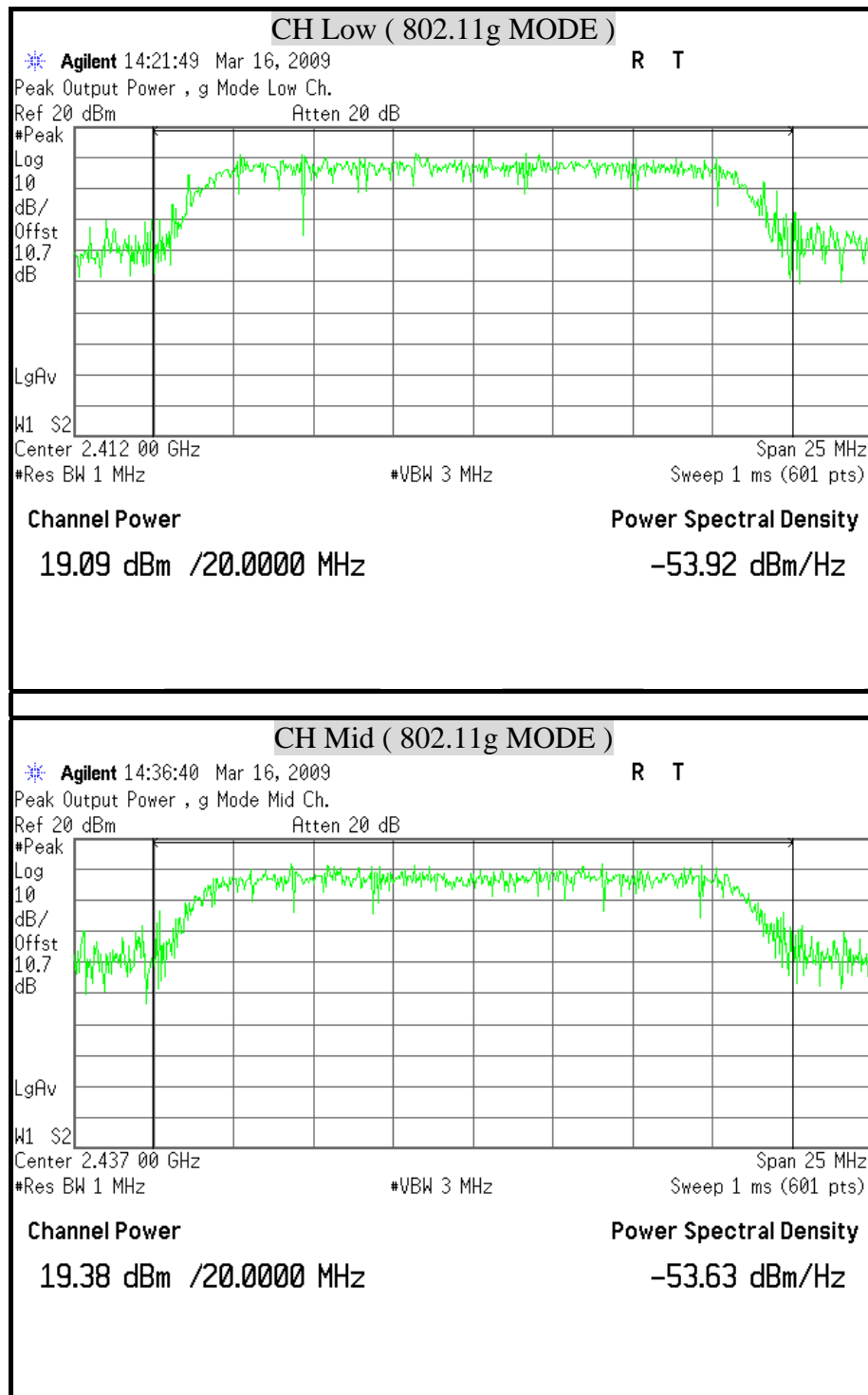
**Remark:**

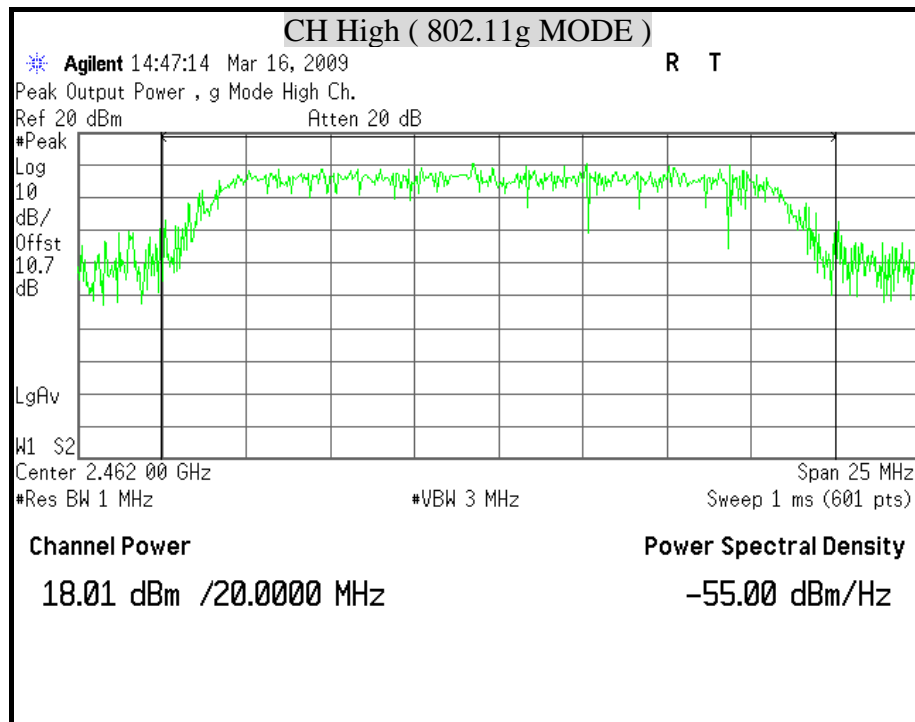
1. At final test to get the worst-case emission at 6Mbps.
2. The cable assembly insertion loss of 10.7dB (including 10 dB pad and 0.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.



**MAXIMUM PEAK OUTPUT POWER ( 802.11b MODE)**



**MAXIMUM PEAK OUTPUT POWER ( 802.11g MODE)**





## 8.4 MAXIMUM PERMISSIBLE EXPOSURE

According to FCC 1.1310 : The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b) LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time
(A) Limits for Occupational / Control Exposures				
300-1,500	--	--	F/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300-1,500	--	--	F/1500	6
1,500-100,000	--	--	1	30

### CALCULATIONS

Given  $E = \frac{\sqrt{30 \times P \times G}}{d}$  &  $S = \frac{E^2}{3770}$

Where  $E$  = Field strength in Volts / meter

$P$  = Power in Watts

$G$  = Numeric antenna gain

$d$  = Distance in meters

$S$  = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

$$P (mW) = P (W) / 1000 \text{ and}$$

$$d (cm) = d(m) / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$

Where  $d$  = Distance in cm

$P$  = Power in mW

$G$  = Numeric antenna gain

$S$  = Power density in mW / cm<sup>2</sup>

**LIMIT**

Power Density Limit,  $S=1.0\text{mW}/\text{cm}^2$

**TEST RESULTS**

No non-compliance noted

Mode	Minimum separation distance (cm)	Output Power (dBm)	Numeri Gain (dB)	Power Density Limit ( $\text{mW}/\text{cm}^2$ )	Power Density at 20cm ( $\text{mW}/\text{cm}^2$ )
IEEE 802.11b	20.0	19.26	1.78	1.00	0.029903
IEEE 802.11g	20.0	19.38	1.78	1.00	0.030741

**Remark:** For mobile or fixed location transmitters, the maximum power density is  $1.0\text{ mW}/\text{cm}^2$  even if the calculation indicates that the power density would be larger.



## 8.5 AVERAGE POWER

### LIMIT

None; for reporting purposes only.

### TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Peak Power Meter	ANRITSU & Wideband	ML2487A	6K00001783	05/03/2009
Peak Power Meter	ANRITSU & Wideband	MAL2491A	030982	05/02/2009

*Remark: Each piece of equipment is scheduled for calibration once a year.*

### TEST SETUP



### TEST PROCEDURE

The transmitter output is connected to a power meter.

**TEST RESULTS**

No non-compliance noted

**IEEE 802.11b MODE**

Channel	Channel Frequency (MHz)	Average Power Output (dBm)
Low	2412	16.76
Middle	2437	16.47
High	2462	16.50

**Remark:**

1. At final test to get the worst-case emission at 1Mbps.
2. The cable assembly insertion loss of 10.7dB (including 10 dB pad and 0.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

**IEEE 802.11g MODE**

Channel	Channel Frequency (MHz)	Average Power Output (dBm)
Low	2412	15.87
Middle	2437	15.92
High	2462	14.70

**Remark:**

1. At final test to get the worst-case emission at 6Mbps.
2. The cable assembly insertion loss of 10.7dB (including 10 dB pad and 0.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.





## 8.6 POWER SPECTRAL DENSITY

### LIMIT

§ 15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

### TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
SPECTRUM ANALYZER	R & S	FSEK30	835253/002	10/25/2009
SPECTRUM ANALYZER	AGILENT	E4446A	MY43360132	06/24/2009

*Remark: Each piece of equipment is scheduled for calibration once a year.*

### TEST SETUP



### TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using RBW = 3KHz and VBW = RBW, set sweep time = span / 3KHz.

The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span / 3KHz for a full response of the mixer in the spectrum analyzer.

**TEST RESULTS**

No non-compliance noted

**IEEE 802.11b MODE**

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Maximum Limit (dBm)	Pass / Fail
Low	2412	-6.5	8	PASS
Middle	2437	-7.19	8	PASS
High	2462	-7.7	8	PASS

**Remark:**

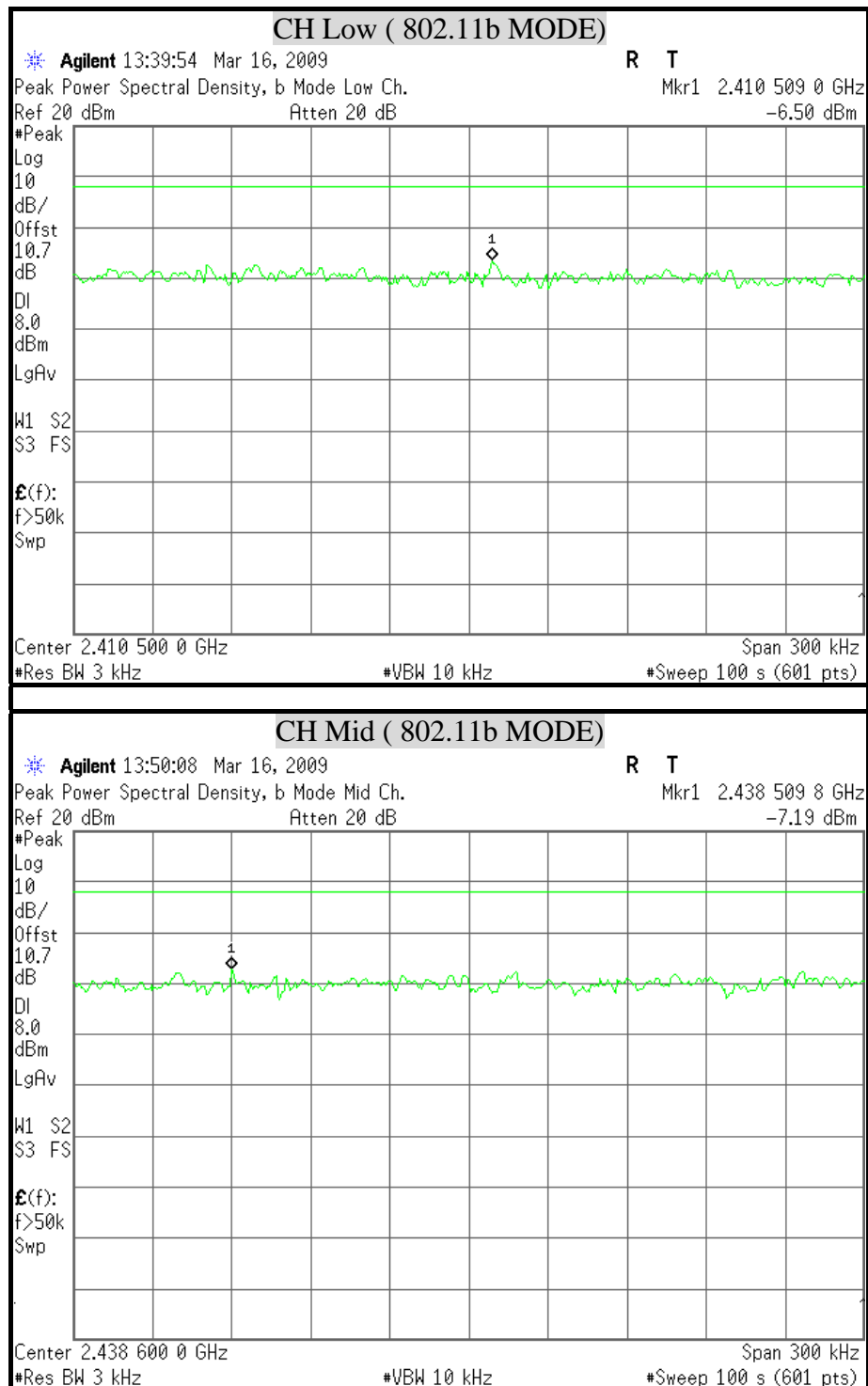
1. At final test to get the worst-case emission at 1Mbps.
2. The cable assembly insertion loss of 10.7dB (including 10 dB pad and 0.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

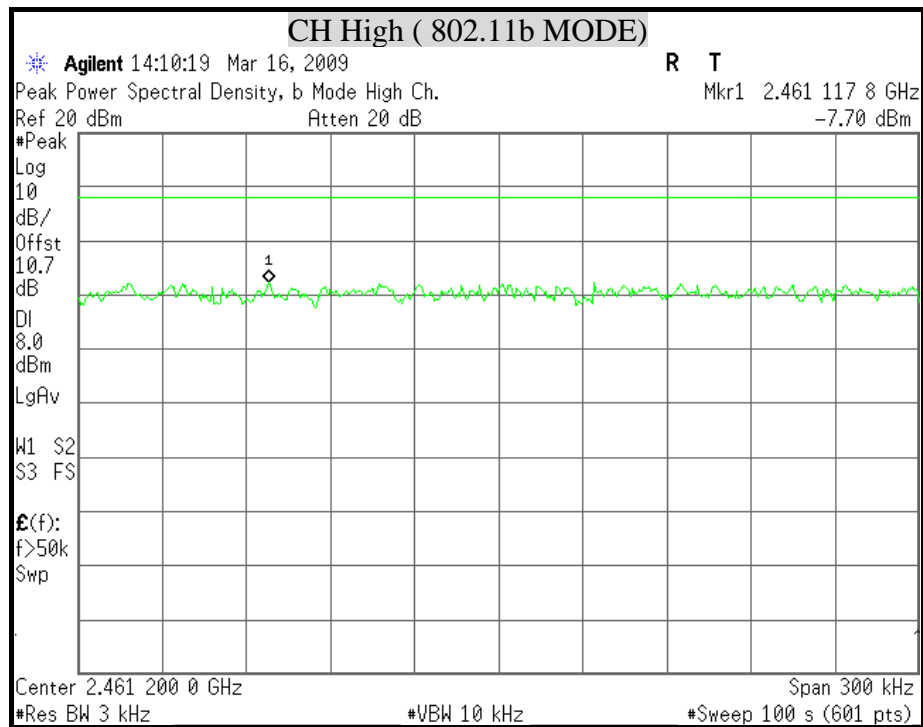
**IEEE 802.11g MODE**

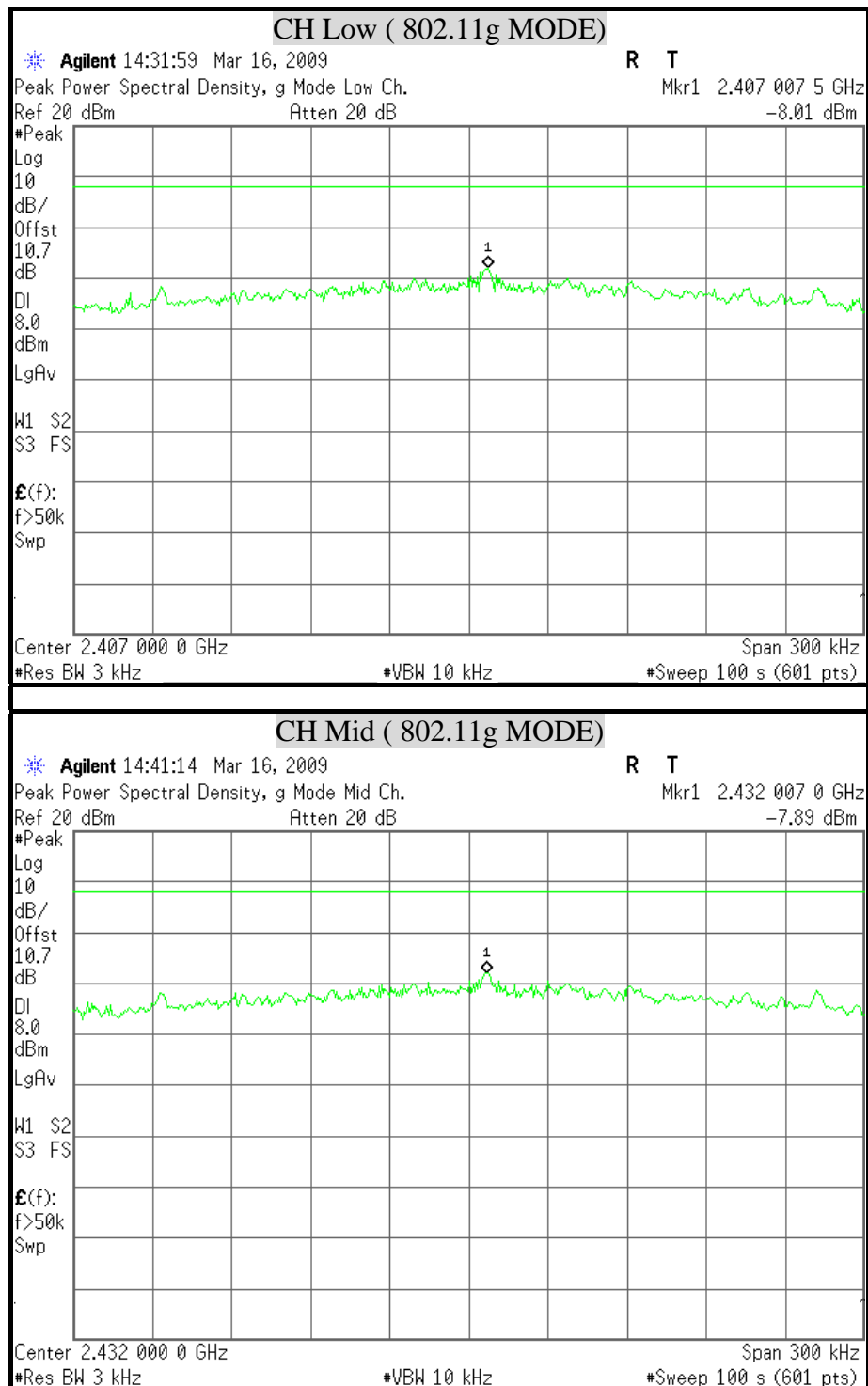
Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Maximum Limit (dBm)	Pass / Fail
Low	2412	-8.01	8	PASS
Middle	2437	-7.89	8	PASS
High	2462	-10.2	8	PASS

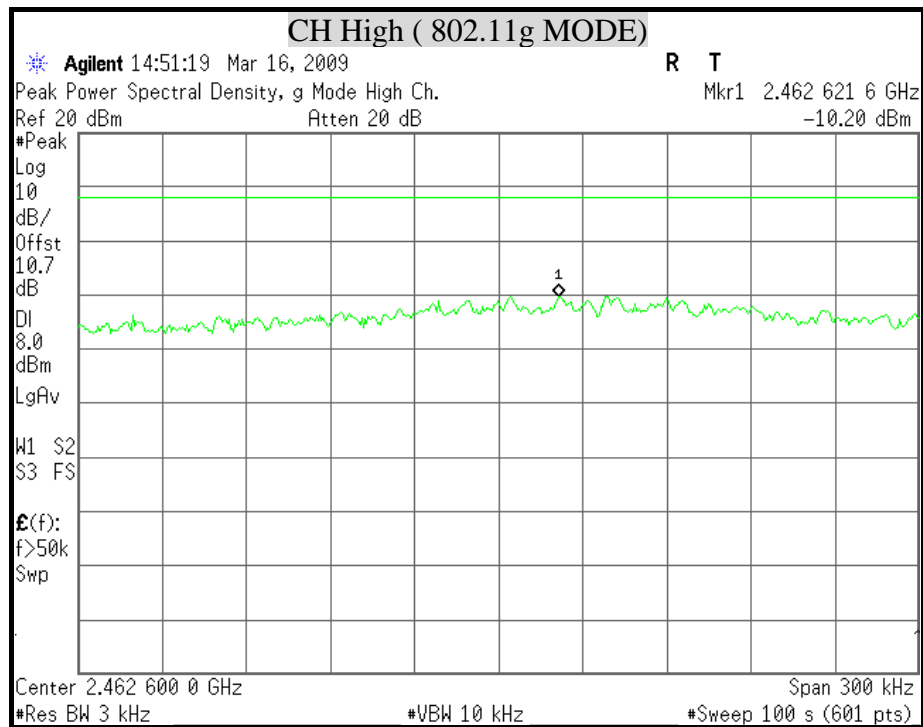
**Remark:**

1. At final test to get the worst-case emission at 6Mbps.
2. The cable assembly insertion loss of 10.7dB (including 10 dB pad and 0.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

**POWER SPECTRAL DENSITY ( IEEE 802.11b MODE)**



**POWER SPECTRAL DENSITY ( IEEE 802.11g MODE)**





## **8.7 CONDUCTED SPURIOUS EMISSION**

### **LIMITS**

§ 15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

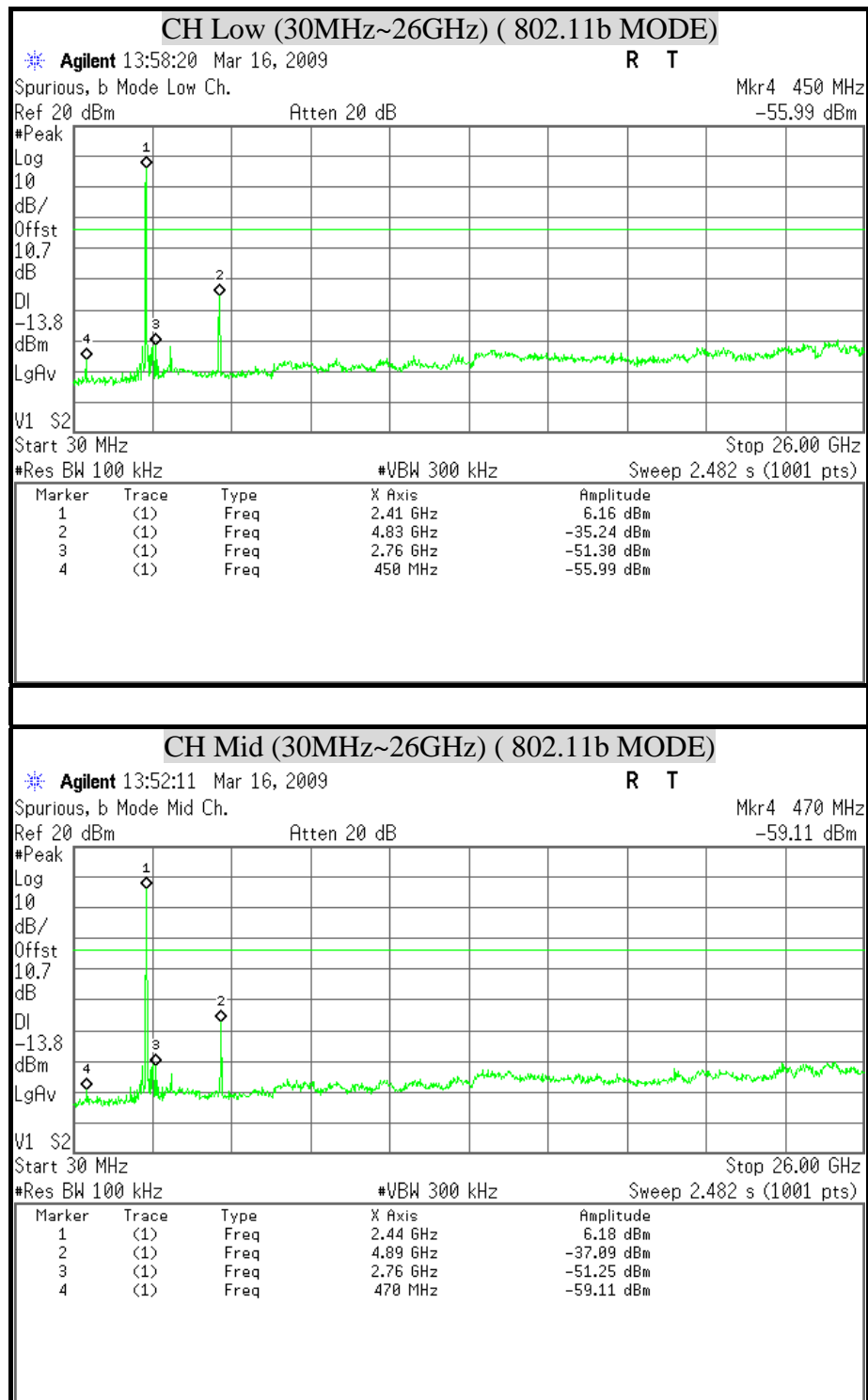
### **TEST PROCEDURE**

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

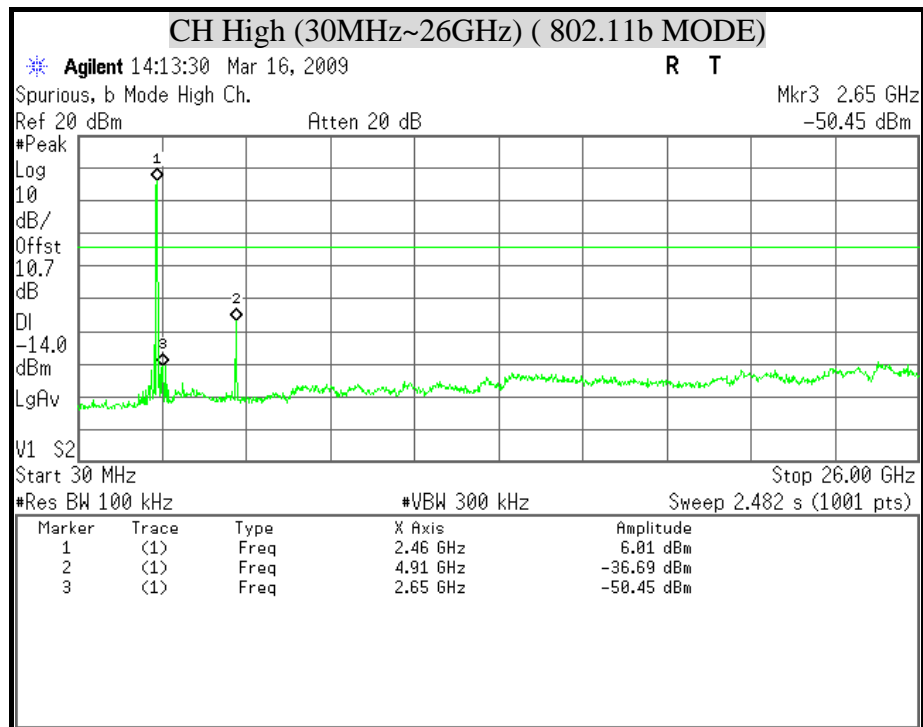
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

### **TEST RESULTS**

No non-compliance noted

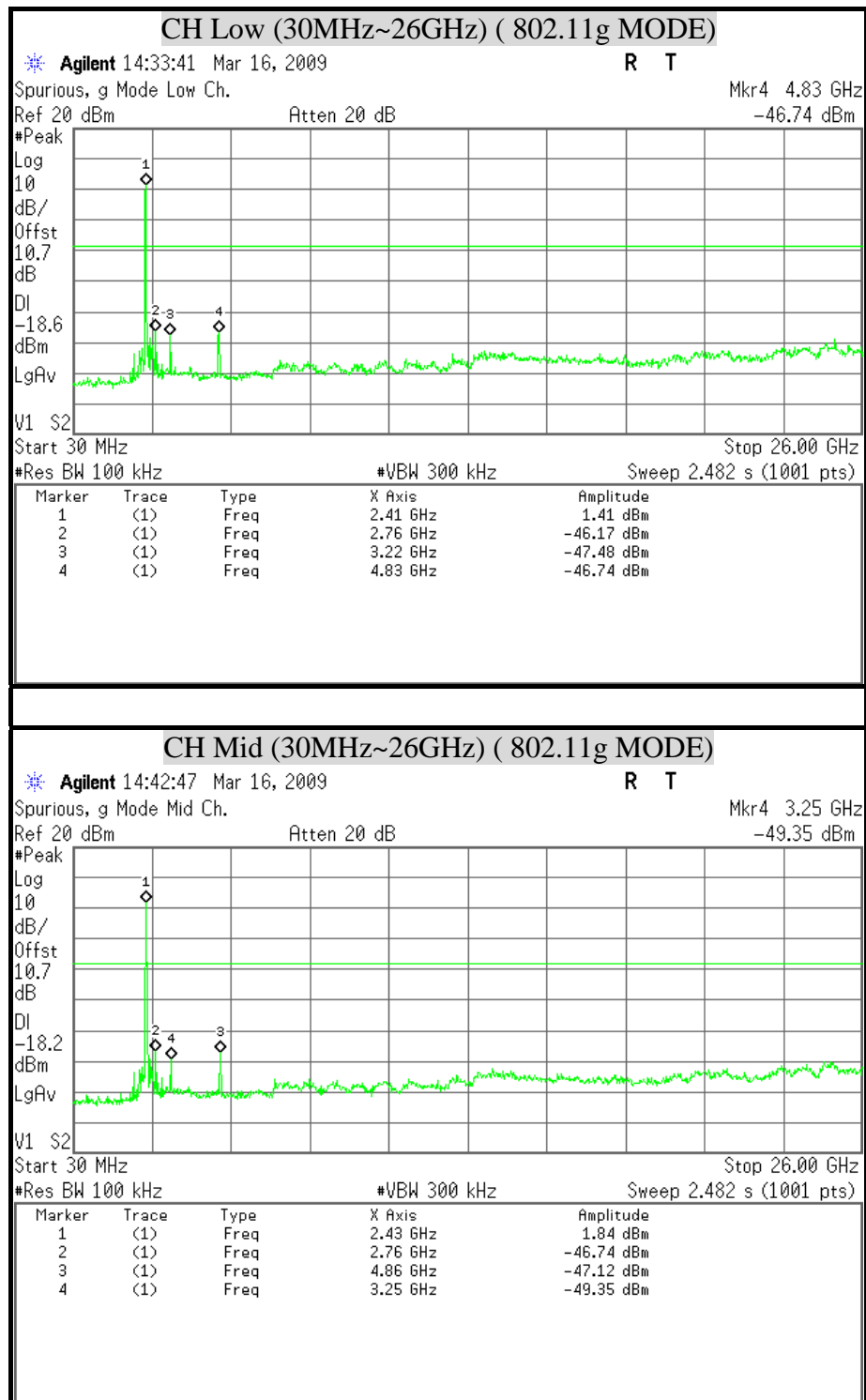
**OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT****( IEEE 802.11b MODE)**

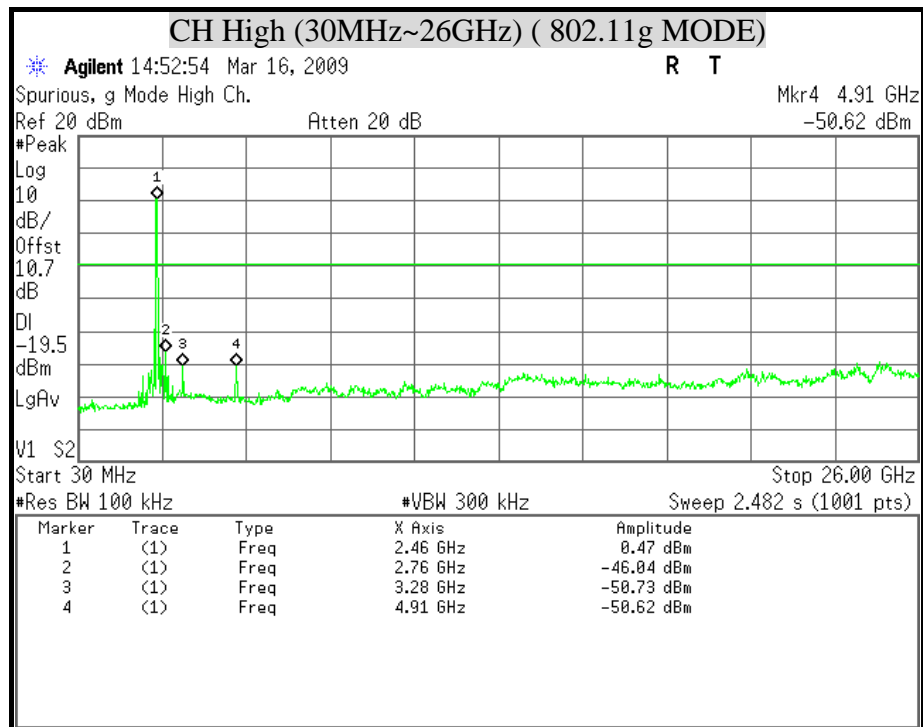






## OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT ( 802.11g MODE)







## 8.8 RADIATED EMISSIONS

### 8.8.1 TRANSMITTER RADIATED SUPURIOUS EMSSIONS

#### LIMITS

§ 15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3338	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

§ 15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



§ 15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table :

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz, However, operation within these frequency bands is permitted under other sections of this Part, e-g, Sections 15.231 and 15.241.

§ 15.209 (b) In the emission table above, the tighter limit applies at the band edges.

### **TEST EQUIPMENT**

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
SPECTRUM ANALYZER	AGILENT	E4446A	MY46180323	05/21/2009
EMI TEST RECEIVER	R & S	ESCI	100211	10/16/2009
BILOG ANTENNA	SCHWARZBECK	VNLB	9168	09/18/2009
HORN ANTENNA	ETS LINDGREN	3117	00078732	05/13/2009
PRE-AMPLIFIER	EM	EM30265	07032612	05/22/2009
Band Reject FILTER	Micro-Tronics	BRM50702-01	021	N.C.R.
RF COAXIAL CABLE	HUBERSUHNER	SUCOFLEX 104PEA	SN31350	07/21/2009

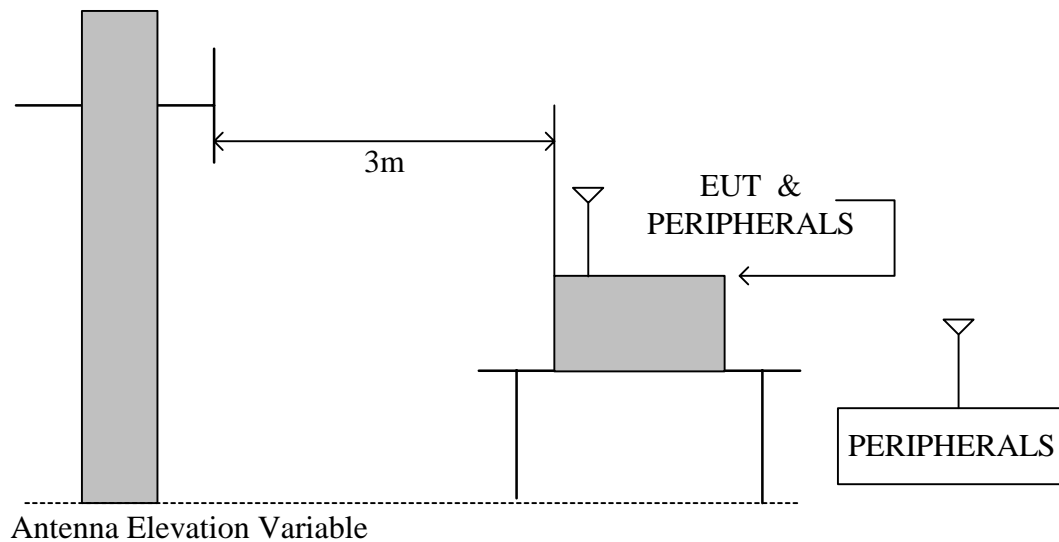
**Remark:** 1. Each piece of equipment is scheduled for calibration once a year.

2. N.C.R = No Calibration Request.

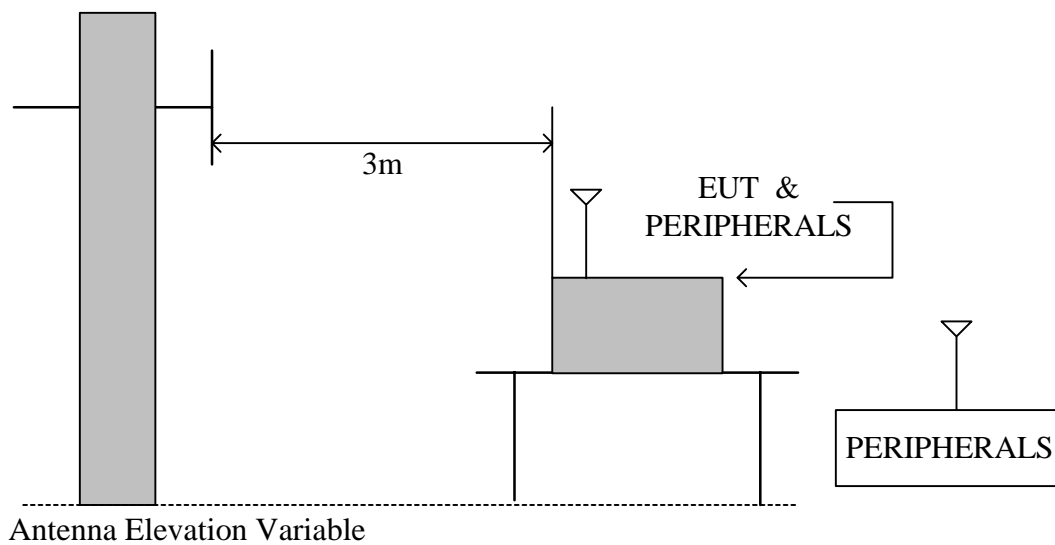


## **TEST SETUP**

The diagram below shows the test setup that is utilized to make the measurements for emission from below 1GHz.



The diagram below shows the test setup that is utilized to make the measurements for emission above 1GHz.





## **TEST PROCEDURE**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. While measuring the radiated emission below 1GHz, the EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. While measuring the radiated emission above 1GHz, the EUT was set 3 meters away from the interference-receiving antenna
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

### **Note :**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection and frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

## **TEST RESULTS**

No non-compliance noted

**8.8.2 WORST-CASE RADIATED EMISSION BELOW 1 GHz**

<b>Product Name</b>	G Wireless Router	<b>Test Date</b>	2009/03/13
<b>Model</b>	F5D7234-4 v4	<b>Test By</b>	Gundam Lin
<b>Test Mode</b>	Normal operating	<b>TEMP &amp; Humidity</b>	21.6°C, 67%

Horizontal						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
92.08	64.63	-36.35	28.28	43.50	-15.22	Peak
118.27	63.29	-33.99	29.30	43.50	-14.20	Peak
184.23	64.51	-32.39	32.12	43.50	-11.38	Peak
250.19	74.90	-30.29	44.61	46.00	-1.39	QP
375.32	62.84	-27.33	35.51	46.00	-10.49	Peak
500.45	69.60	-25.16	44.44	46.00	-1.56	QP
749.74	57.72	-20.76	36.96	46.00	-9.04	Peak
874.87	55.98	-19.39	36.59	46.00	-9.41	Peak
Vertical						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
38.73	67.72	-30.73	36.99	40.00	-3.01	Peak
43.58	67.23	-30.31	36.92	40.00	-3.08	Peak
51.34	65.77	-30.46	35.31	40.00	-4.69	Peak
92.08	73.10	-36.35	36.75	43.50	-6.75	Peak
250.19	73.22	-30.29	42.93	46.00	-3.07	Peak
375.32	64.52	-27.33	37.19	46.00	-8.81	Peak
500.45	69.07	-25.16	43.92	46.00	-2.08	Peak
624.61	56.87	-22.97	33.89	46.00	-12.11	Peak
874.87	55.94	-19.39	36.55	46.00	-9.45	Peak

**Remark:**

1. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Margin (dB) = Remark result (dBuV/m) - Quasi-peak limit (dBuV/m).





### 8.8.3 TRANSMITTER RADIATED EMISSION ABOVE 1 GHz

<b>Product Name</b>	G Wireless Router	<b>Test Date</b>	2009/03/13
<b>Model</b>	F5D7234-4 v4	<b>Test By</b>	Gundam Lin
<b>Test Mode</b>	IEEE 802.11b TX (CH Low)	<b>TEMP &amp; Humidity</b>	21.6°C, 67%

Horizontal									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
3686.00	51.73	---	-7.10	44.63	---	74.00	54.00	-9.37	Peak
4825.00	53.50	---	-4.55	48.95	---	74.00	54.00	-5.05	Peak
6720.50	49.76	---	-1.69	48.08	---	74.00	54.00	-5.92	Peak
9134.50	48.84	---	2.08	50.92	---	74.00	54.00	-3.08	Peak
13044.50	47.88	35.56	9.31	57.19	44.87	74.00	54.00	-9.13	AVG
Vertical									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1629.00	54.53	---	-12.48	42.05	---	74.00	54.00	-11.95	Peak
2045.50	54.13	---	-9.36	44.77	---	74.00	54.00	-9.23	Peak
4825.00	59.42	56.26	-4.55	54.87	51.71	74.00	54.00	-2.29	AVG
6661.00	50.41	---	-1.82	48.59	---	74.00	54.00	-5.41	Peak
10044.00	48.30	---	3.05	51.35	---	74.00	54.00	-2.65	Peak

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Result = Reading + Correction Factor  
Margin = Result – Limit  
Remark Peak = Result(PK) – Limit(AV)  
Remark AVG = Result(AV) – Limit(AV)



<b>Product Name</b>	G Wireless Router	<b>Test Date</b>	2009/03/13
<b>Model</b>	F5D7234-4 v4	<b>Test By</b>	Gundam Lin
<b>Test Mode</b>	IEEE 802.11b TX (CH Middle)	<b>TEMP &amp; Humidity</b>	21.6°C, 67%

Horizontal									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
2751.00	53.79	---	-8.48	45.31	---	74.00	54.00	-8.69	Peak
3660.50	52.35	---	-7.14	45.21	---	74.00	54.00	-8.79	Peak
4876.00	53.82	---	-4.42	49.40	---	74.00	54.00	-4.60	Peak
7978.50	48.01	---	0.35	48.36	---	74.00	54.00	-5.64	Peak
9457.50	48.76	---	2.27	51.03	---	74.00	54.00	-2.97	Peak
Vertical									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
2759.50	54.01	---	-8.47	45.54	---	74.00	54.00	-8.46	Peak
4408.50	51.59	---	-5.62	45.98	---	74.00	54.00	-8.02	Peak
4876.00	59.97	56.55	-4.42	55.55	52.13	74.00	54.00	-1.87	AVG
7383.50	48.63	---	-0.78	47.84	---	74.00	54.00	-6.16	Peak
9466.00	48.71	---	2.28	50.99	---	74.00	54.00	-3.01	Peak

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Result = Reading + Correction Factor  
Margin = Result - Limit  
Remark Peak = Result(PK) - Limit(AV)  
Remark AVG = Result(AV) - Limit(AV)



<b>Product Name</b>	G Wireless Router	<b>Test Date</b>	2009/03/13
<b>Model</b>	F5D7234-4 v4	<b>Test By</b>	Gundam Lin
<b>Test Mode</b>	IEEE 802.11b TX (CH High)	<b>TEMP &amp; Humidity</b>	21.6°C, 67%

Horizontal									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
1901.00	52.04	---	-10.23	41.81	---	74.00	54.00	-12.19	Peak
3915.50	51.91	---	-6.77	45.14	---	74.00	54.00	-8.86	Peak
4927.00	54.86	---	-4.29	50.57	---	74.00	54.00	-3.43	Peak
8582.00	49.22	---	1.18	50.41	---	74.00	54.00	-3.59	Peak
11633.50	49.77	36.12	6.05	55.82	42.17	74.00	54.00	-11.83	AVG
Vertical									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
2020.00	53.14	---	-9.39	43.75	---	74.00	54.00	-10.25	Peak
4927.00	59.61	56.58	-4.29	55.32	52.29	74.00	54.00	-1.71	AVG
6686.50	50.17	---	-1.77	48.40	---	74.00	54.00	-5.60	Peak
9364.00	48.08	---	2.22	50.30	---	74.00	54.00	-3.70	Peak

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Result = Reading + Correction Factor  
Margin = Result – Limit  
Remark Peak = Result(PK) – Limit(AV)  
Remark AVG = Result(AV) – Limit(AV)



<b>Product Name</b>	G Wireless Router	<b>Test Date</b>	2009/03/13
<b>Model</b>	F5D7234-4 v4	<b>Test By</b>	Gundam Lin
<b>Test Mode</b>	IEEE 802.11g TX (CH Low)	<b>TEMP &amp; Humidity</b>	21.6°C, 67%

Horizontal									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
2028.50	52.65	---	-9.38	43.27	---	74.00	54.00	-10.73	Peak
4825.00	52.45	---	-4.55	47.90	---	74.00	54.00	-6.10	Peak
5539.00	50.60	---	-3.24	47.35	---	74.00	54.00	-6.65	Peak
7468.50	49.28	---	-0.72	48.56	---	74.00	54.00	-5.44	Peak
9976.00	46.97	---	2.99	49.96	---	74.00	54.00	-4.04	Peak
Vertical									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
2020.00	54.98	---	-9.39	45.59	---	74.00	54.00	-8.41	Peak
4825.00	60.89	47.66	-4.55	56.34	43.11	74.00	54.00	-10.89	AVG
5683.50	50.64	---	-3.08	47.56	---	74.00	54.00	-6.44	Peak
9483.00	47.14	---	2.29	49.43	---	74.00	54.00	-4.57	Peak

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Result = Reading + Correction Factor  
Margin = Result - Limit  
Remark Peak = Result(PK) - Limit(AV)  
Remark AVG = Result(AV) - Limit(AV)



<b>Product Name</b>	G Wireless Router	<b>Test Date</b>	2009/03/13
<b>Model</b>	F5D7234-4 v4	<b>Test By</b>	Gundam Lin
<b>Test Mode</b>	IEEE 802.11g TX (CH Middle)	<b>TEMP &amp; Humidity</b>	21.6°C, 67%

Horizontal									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
2020.00	53.88	---	-9.39	44.49	---	74.00	54.00	-9.51	Peak
4876.00	55.04	---	-4.42	50.62	---	74.00	54.00	-3.38	Peak
6032.00	50.96	---	-2.69	48.27	---	74.00	54.00	-5.73	Peak
7392.00	49.22	---	-0.78	48.44	---	74.00	54.00	-5.56	Peak
10061.00	47.97	---	3.06	51.03	---	74.00	54.00	-2.97	Peak
Vertical									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
2020.00	54.52	---	-9.39	45.14	---	74.00	54.00	-8.86	Peak
4876.00	63.30	48.91	-4.42	58.88	44.49	74.00	54.00	-9.51	AVG
8072.00	49.11	---	0.49	49.60	---	74.00	54.00	-4.40	Peak
9874.00	47.81	---	2.84	50.66	---	74.00	54.00	-3.34	Peak
12492.00	49.33	35.86	7.88	57.21	43.74	74.00	54.00	-10.26	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Result = Reading + Correction Factor  
Margin = Result - Limit  
Remark Peak = Result(PK) - Limit(AV)  
Remark AVG = Result(AV) - Limit(AV)



<b>Product Name</b>	G Wireless Router	<b>Test Date</b>	2009/03/13
<b>Model</b>	F5D7234-4 v4	<b>Test By</b>	Gundam Lin
<b>Test Mode</b>	IEEE 802.11g TX (CH High)	<b>TEMP &amp; Humidity</b>	21.6°C, 67%

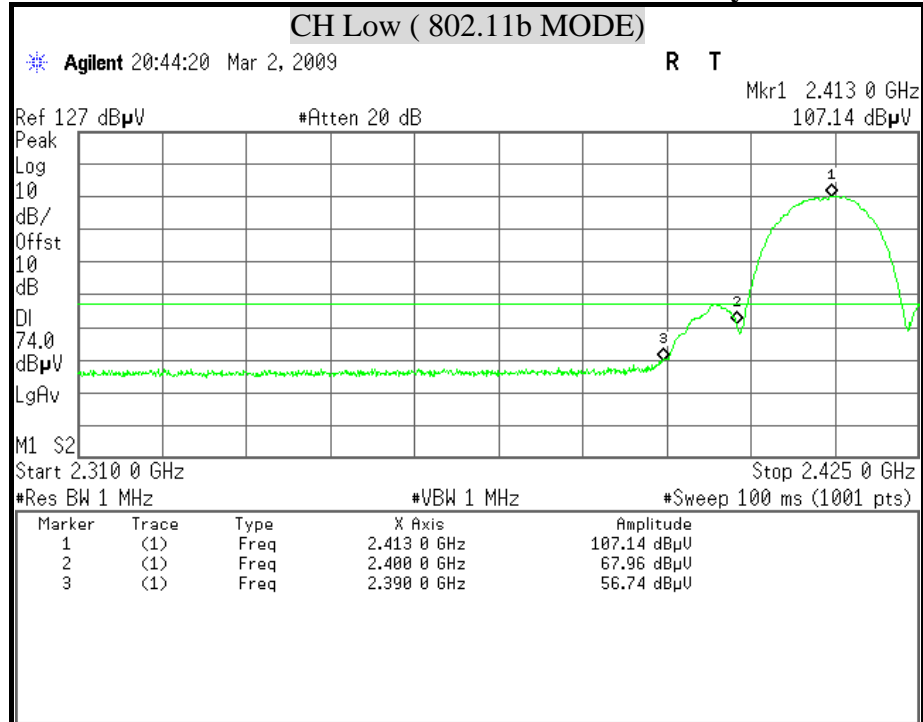
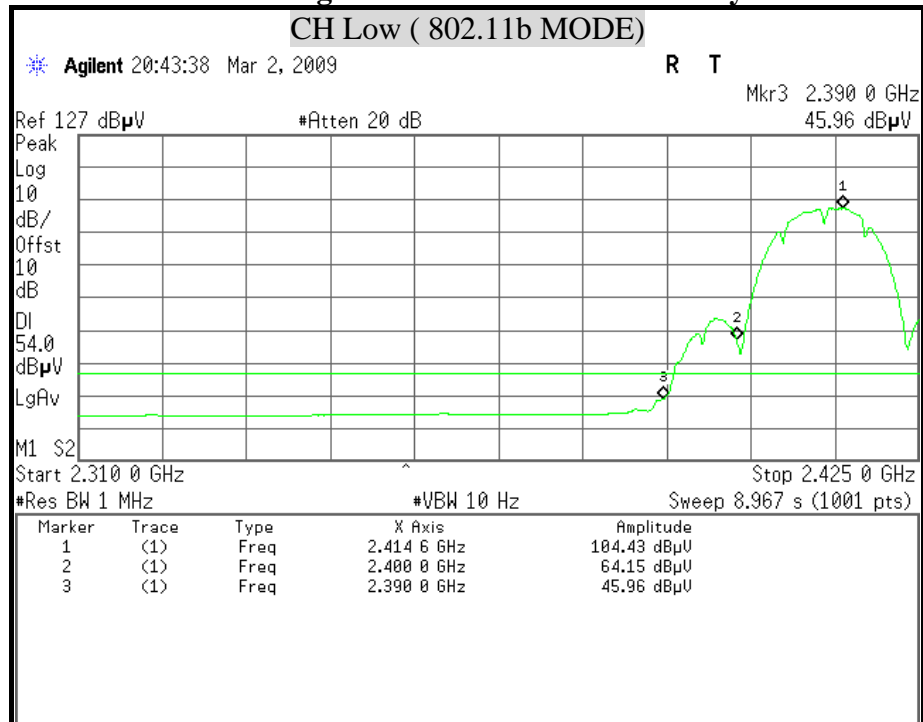
Horizontal									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
3414.00	52.33	---	-7.50	44.83	---	74.00	54.00	-9.17	Peak
4927.00	62.17	48.49	-4.29	57.88	44.20	74.00	54.00	-9.80	AVG
6754.50	49.37	---	-1.61	47.76	---	74.00	54.00	-6.24	Peak
9032.50	47.68	---	2.02	49.69	---	74.00	54.00	-4.31	Peak
10996.00	47.99	---	3.75	51.74	---	74.00	54.00	-2.26	Peak
Vertical									
Frequency (MHz)	Reading-PK (dBμV)	Reading-AV (dBμV)	Correction Factor (dB/m)	Result-PK (dBμV/m)	Result-AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-AV (dBμV/m)	Margin (dB)	Remark
2020.00	53.91	---	-9.39	44.52	---	74.00	54.00	-9.48	Peak
4927.00	64.10	49.12	-4.29	59.81	44.83	74.00	54.00	-9.17	AVG
5632.50	50.86	---	-3.14	47.72	---	74.00	54.00	-6.28	Peak
9117.50	47.78	---	2.07	49.84	---	74.00	54.00	-4.16	Peak
10817.50	47.56	---	3.60	51.17	---	74.00	54.00	-2.83	Peak

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Result = Reading + Correction Factor  
Margin = Result - Limit  
Remark Peak = Result(PK) - Limit(AV)  
Remark AVG = Result(AV) - Limit(AV)



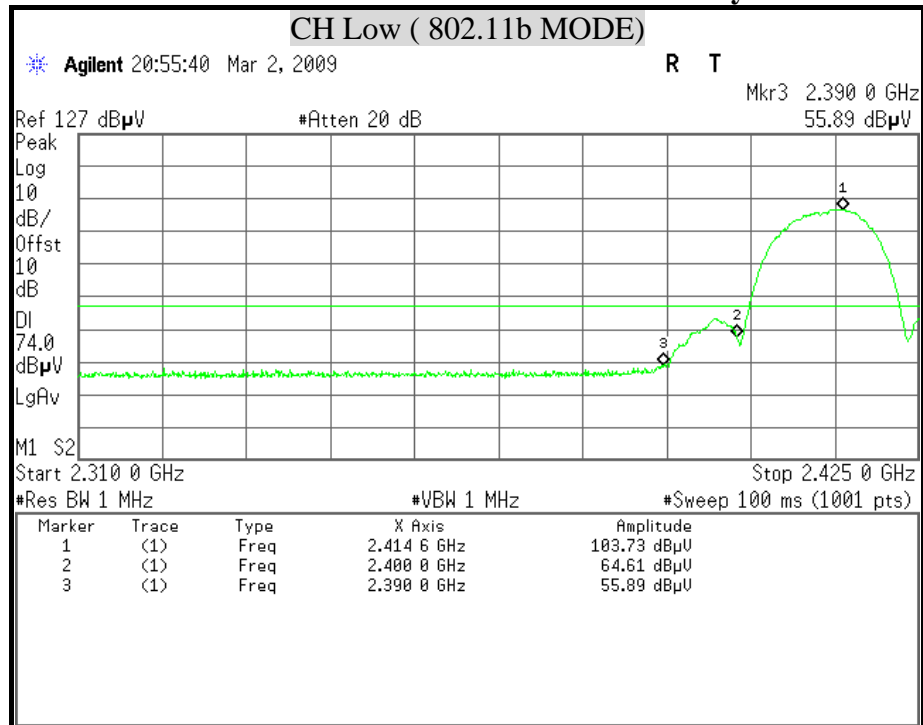
## 8.8.4 RESTRICTED BAND EDGES

**Detector mode : Peak****Polarity : Horizontal****Detector mode : Average****Polarity : Horizontal**



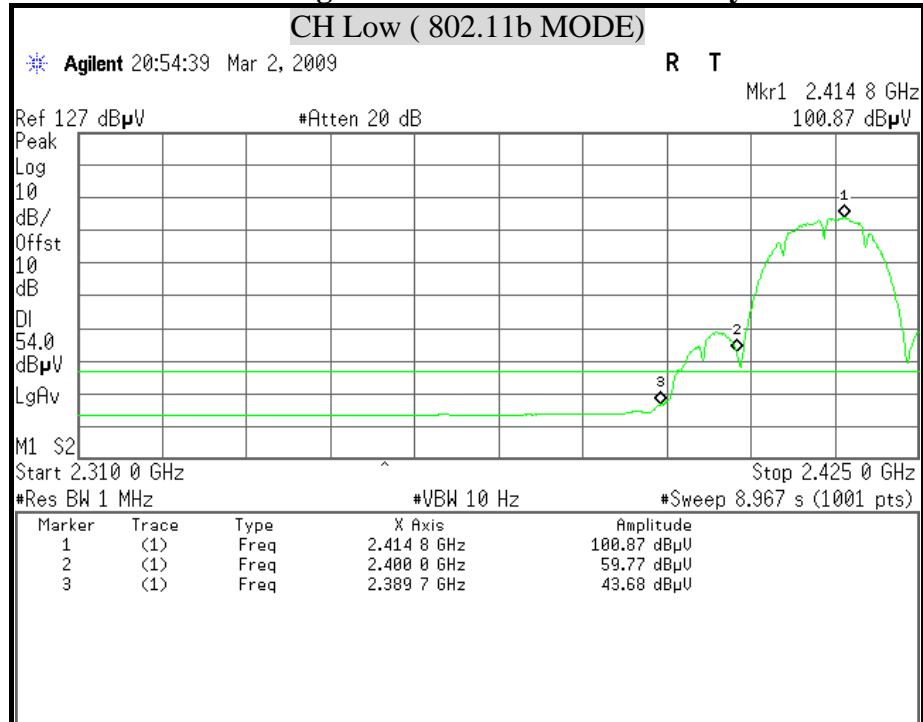
Detector mode : Peak

Polarity : Vertical



Detector mode : Average

Polarity : Vertical

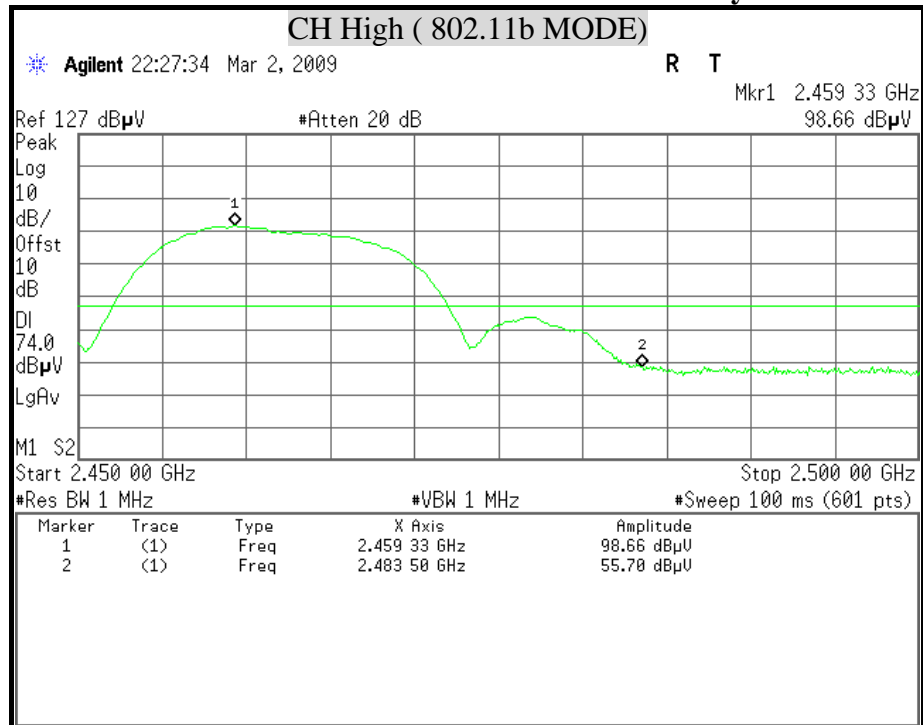






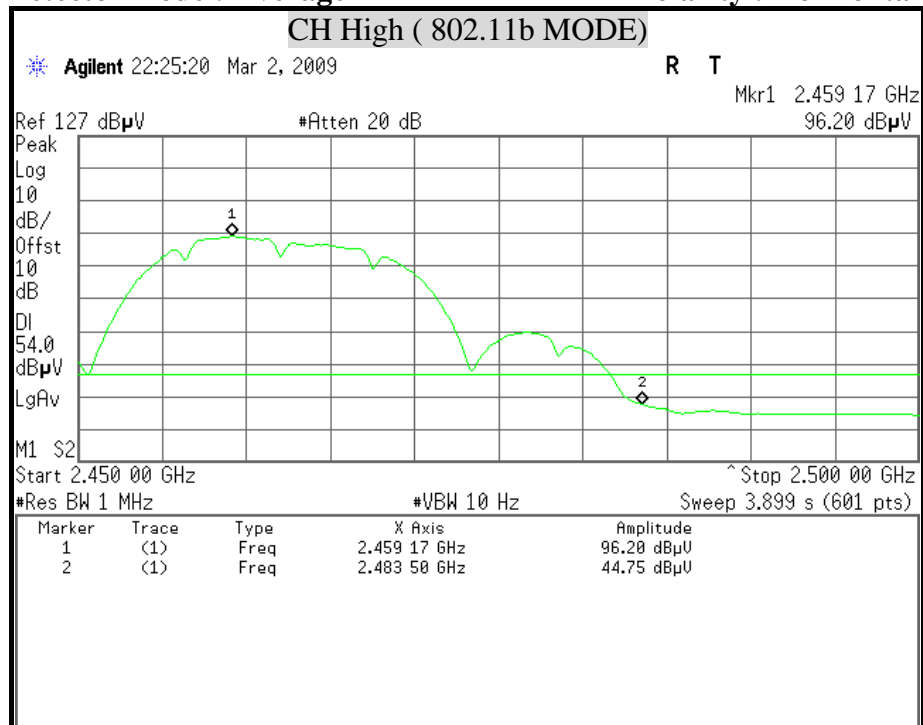
Detector mode : Peak

Polarity : Horizontal



Detector mode : Average

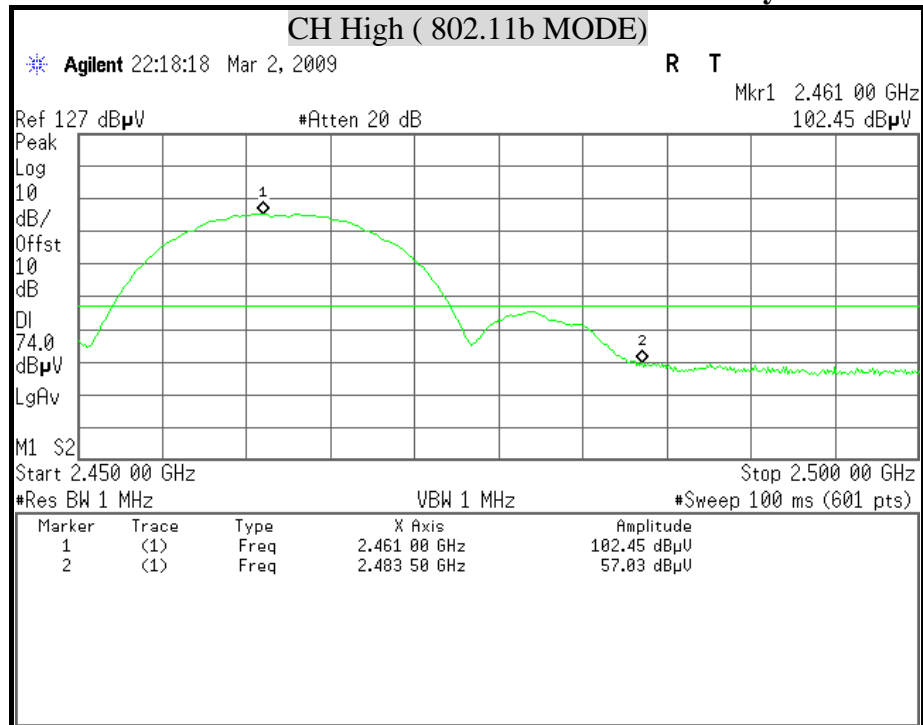
Polarity : Horizontal





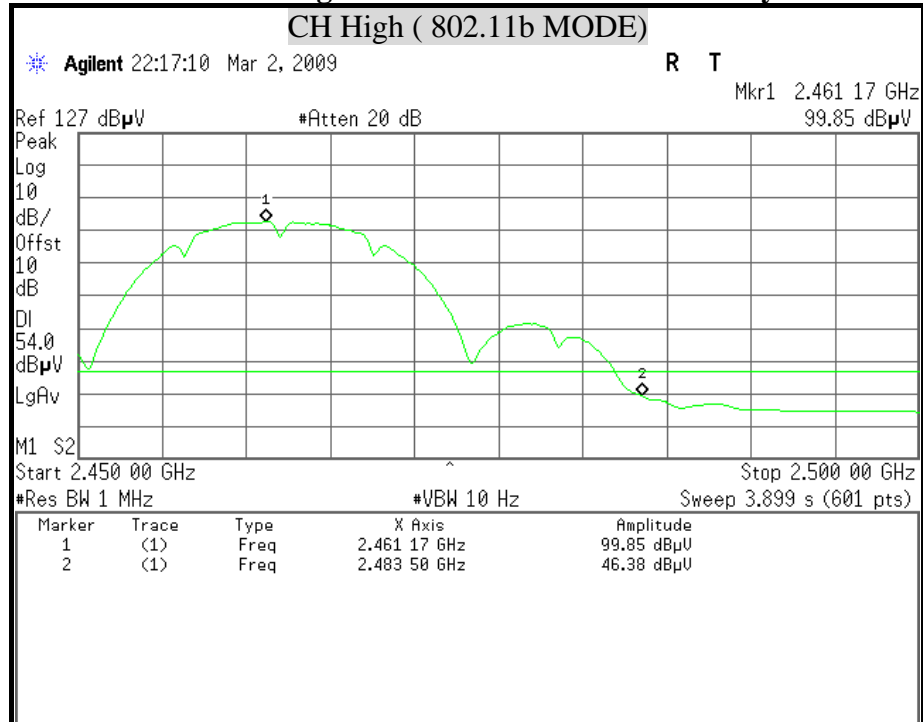
Detector mode : Peak

Polarity : Vertical



Detector mode : Average

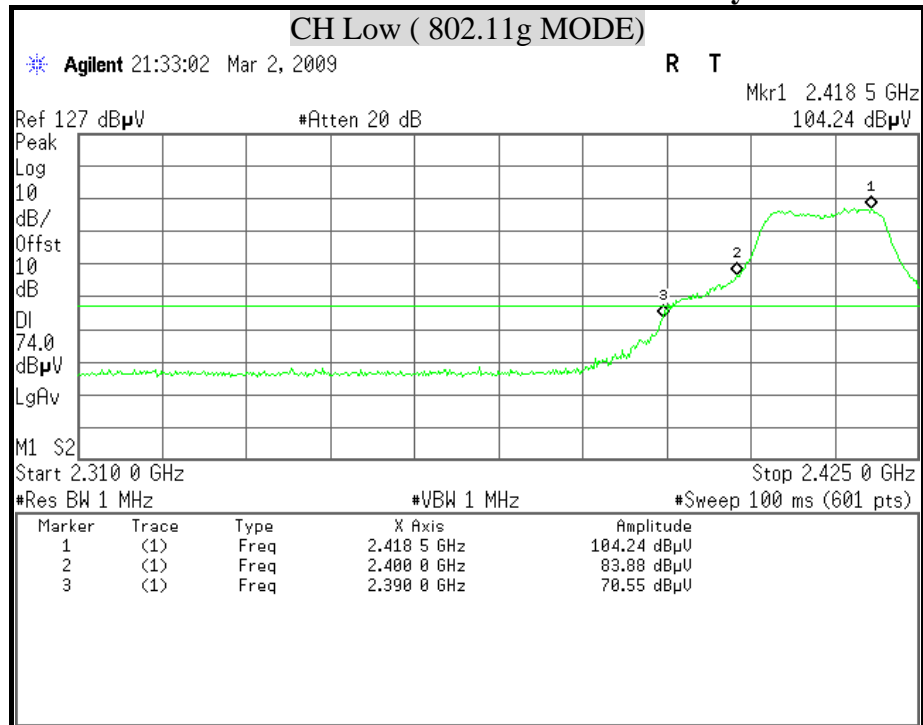
Polarity : Vertical





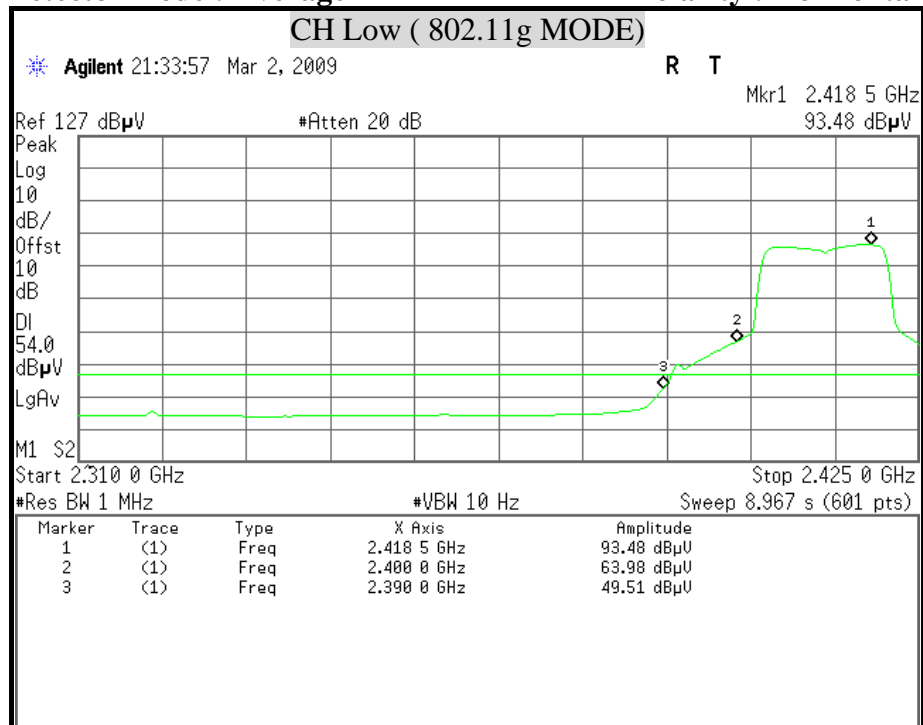
Detector mode : Peak

Polarity : Horizontal



Detector mode : Average

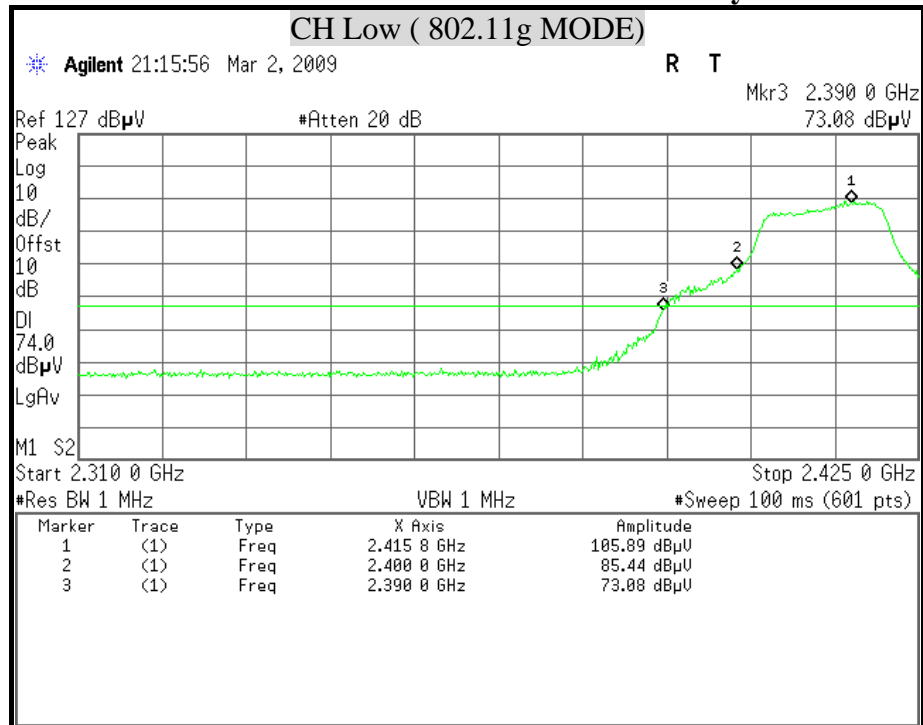
Polarity : Horizontal





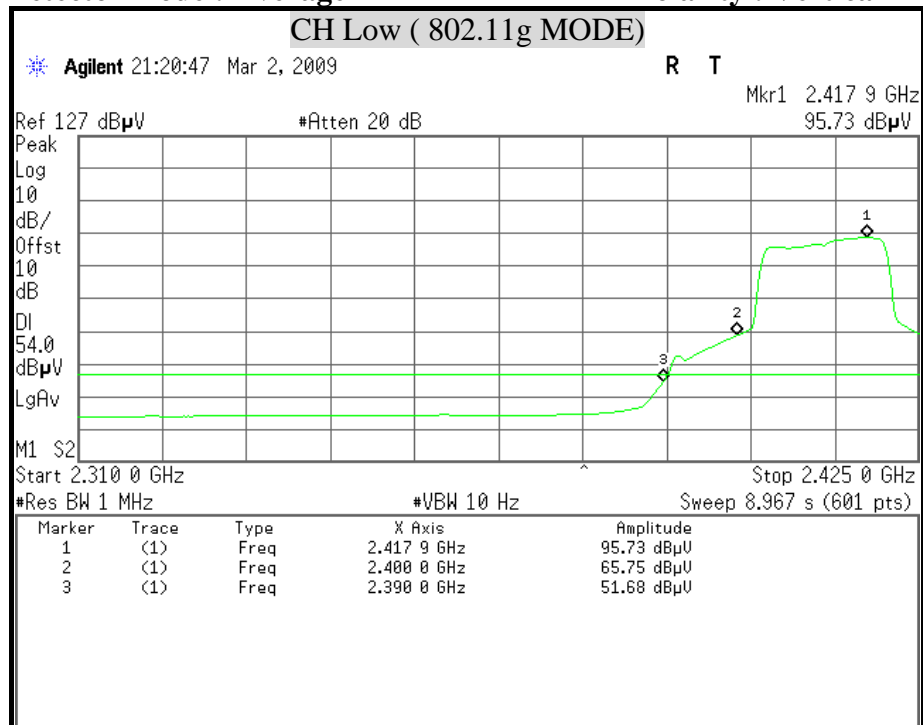
Detector mode : Peak

Polarity : Vertical



Detector mode : Average

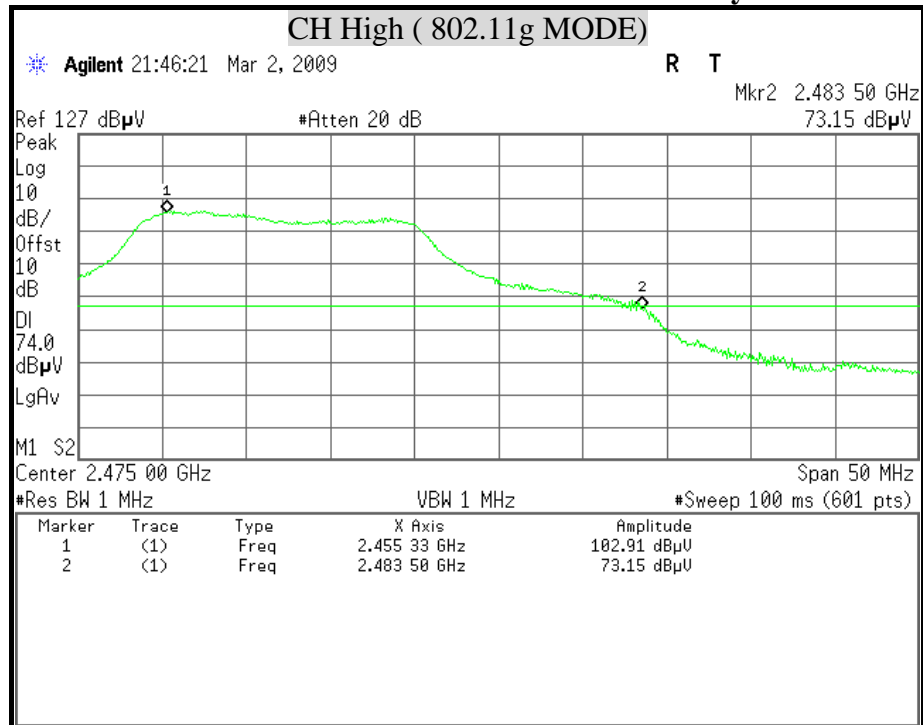
Polarity : Vertical





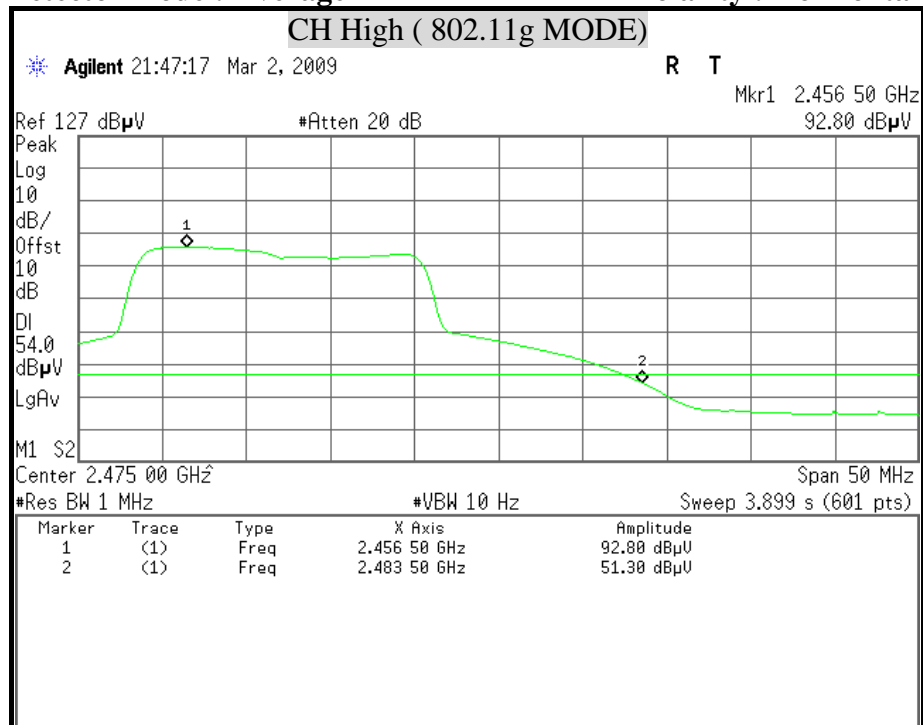
Detector mode : Peak

Polarity : Horizontal



Detector mode : Average

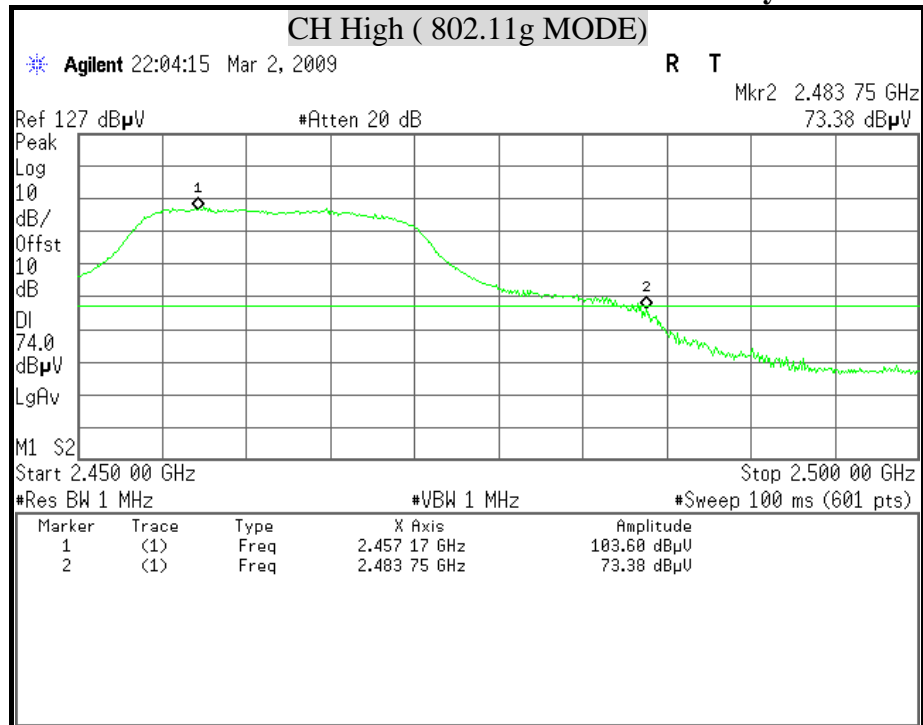
Polarity : Horizontal





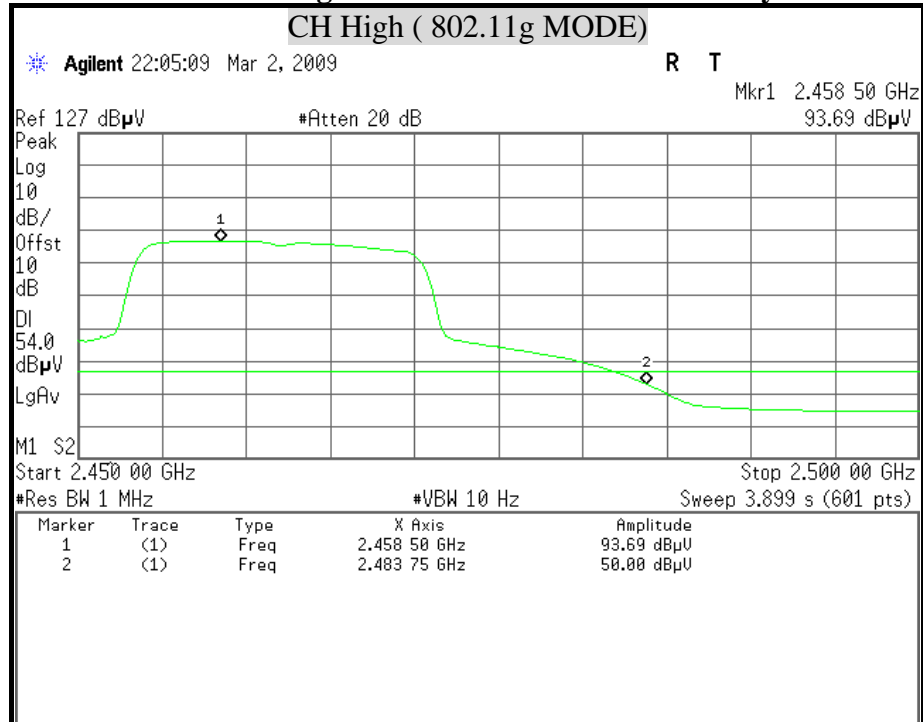
Detector mode : Peak

Polarity : Vertical



Detector mode : Average

Polarity : Vertical





## 8.9 POWERLINE CONDUCTED EMISSIONS

### LIMITS

§ 15.207 (a) Except as shown in paragraph (b) and (c) this section, for an intentional radiator that is designed to be connected to the public utility (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 the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance 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.

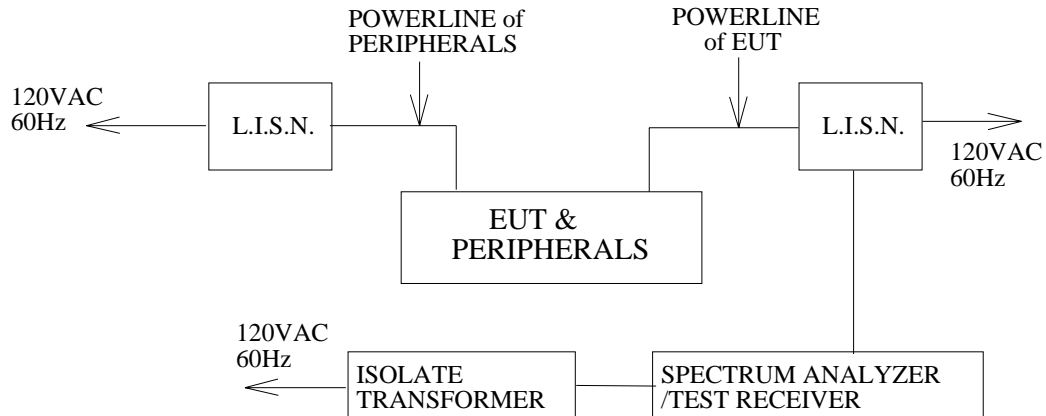
The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted limit (dB $\mu$ v)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.5 - 5	56	46
5 - 30	60	50

### TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
L.I.S.N	SCHWARZBECK	NSLK 8127	8127-465	08/14/2009
L.I.S.N	SCHWARZBECK	NSLK 8127	8127-473	10/13/2009
TEST RECEIVER	R & S	ESHS30	838550/003	02/03/2009
PULSE LIMIT	R & S	ESH3-Z2	100117	09/24/2009
N TYPE COAXIAL CABLE	BELDEN	8268 M17/164	003	09/14/2009

**Remark:** Each piece of equipment is scheduled for calibration once a year.

**TEST SETUP****TEST PROCEDURE**

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80cm above the horizontal ground plane. The EUT IS CONFIGURED IN ACCORDANCE WITH ANSI C63.4:2003.

The resolution bandwidth is set to 9 kHz for both quasi-peak detection and average detection measurements.

Line conducted data is recorded for both NEUTRAL and LINE.

**TEST RESULTS**

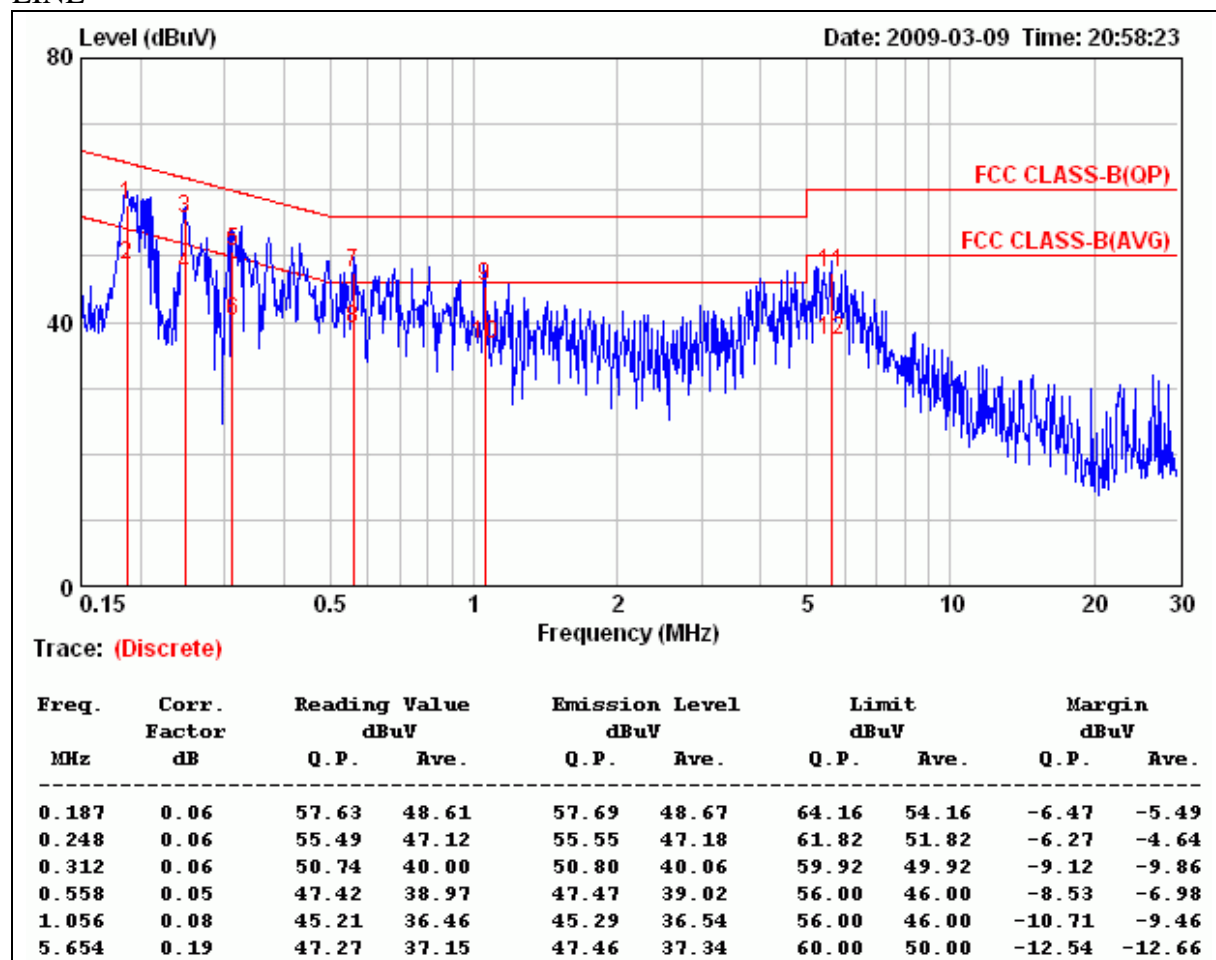
No non-compliance noted



**CONDUCTED RF VOLTAGE MEASUREMENT**

Product Name	G Wireless Router	Test Date	2009/03/09
Model Name	F5D7234-4 v4	Test By	Rueyyan Lin
Test Mode	Normal operating (worst case)	TEMP & Humidity	18.8°C, 66%

LINE

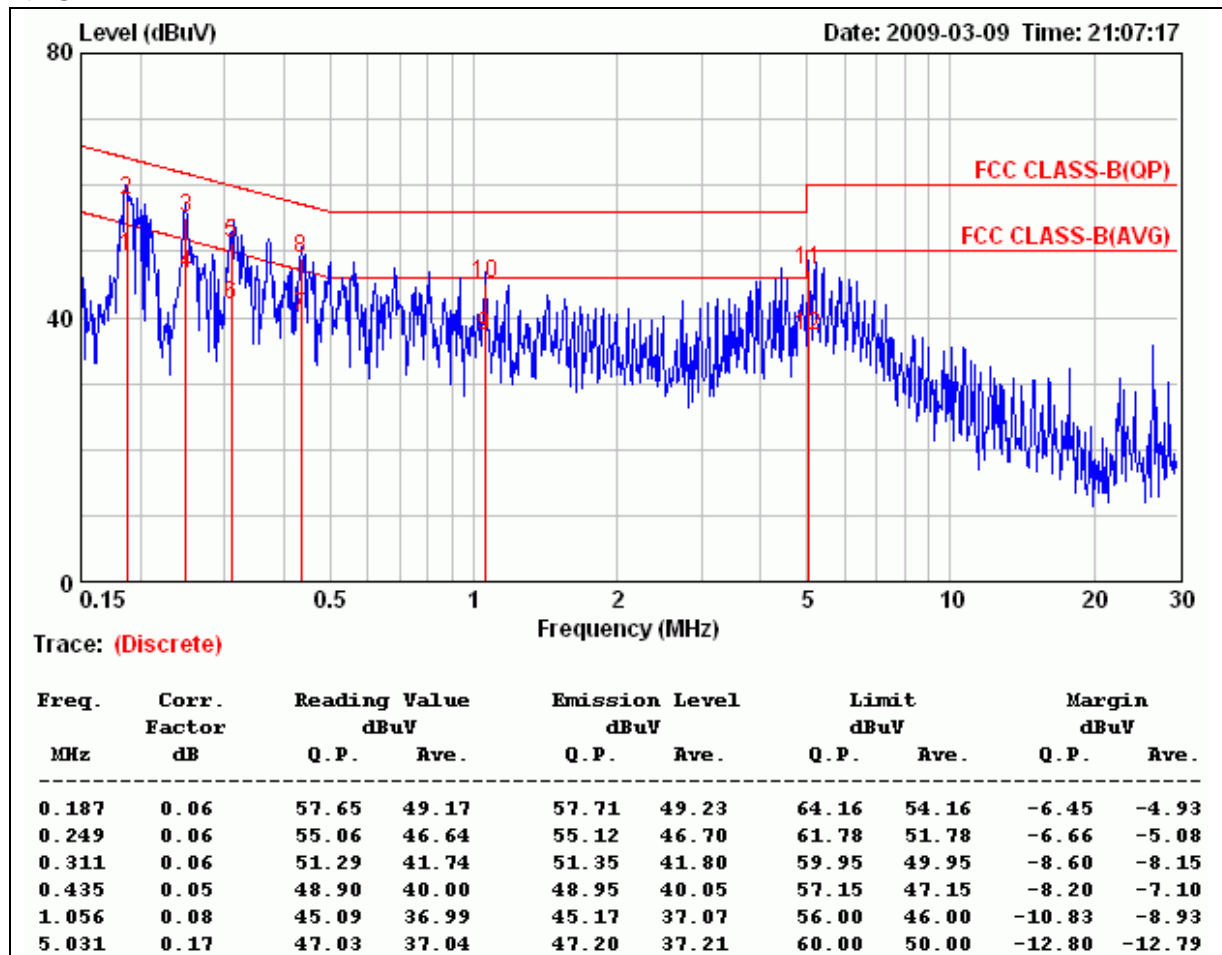
**Remark:**

1. Correction Factor = Insertion loss + cable loss
2. Margin value = Emission level – Limit value



Product Name	G Wireless Router	Test Date	2009/03/09
Model Name	F5D7234-4 v4	Test By	Rueyyan Lin
Test Mode	Normal operating (worst case)	TEMP & Humidity	18.8°C, 66%

## NEUTRAL



## Remark:

1. Correction Factor = Insertion loss + cable loss
2. Margin value = Emission level - Limit value