



**FCC 47 CFR PART 15 SUBPART C**

**TEST REPORT**

**For**

**Pocket PC Phone**

**Model: PB74120**

**Trade Name: HTC**

*Issued to*

**HTC Corporation  
No. 23, Xinghua Rd., Taoyuan City,  
Taiwan County, 330 R.O.C.**

*Issued by*

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# 1. TEST RESULT CERTIFICATION

**Applicant:** HTC Corporation  
No. 23, Xinghua Rd., Taoyuan City,  
Taiwan County, 330 R.O.C.

**Equipment Under Test:** Pocket PC Phone

**Trade Name:** HTC

**Model:** PB74120

**Date of Test:** July 1 ~ August 5, 2009

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart C	No non-compliance noted

### We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in **ANSI C63.4: 2003** and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

*Approved by:*

*Reviewed by:*

*Rex Lai*

*Gina Lo*

\_\_\_\_\_  
Rex Lai  
Section Manager  
Compliance Certification Services Inc.

\_\_\_\_\_  
Gina Lo  
Section Manager  
Compliance Certification Services Inc.



## 2. EUT DESCRIPTION

<b>Product</b>	Pocket PC Phone		
<b>Trade Name</b>	HTC		
<b>Model Number</b>	PB74120		
<b>Model Discrepancy</b>	N/A		
<b>Power Supply</b>	1. VDC from Power Adapter 2. Battery: 3.7V, 1100mAh 3. Powered from Host device via USB cable		
<b>Power Adapter Manufacturer</b>	PHIHONG	<b>Model</b>	PSAI05R-050Q
<b>Power Adapter Power Rating</b>	<b>For PSAI05R-050Q</b> I/P: 100-240VAC, 50-60Hz, 0.3A O/P: 5V, 1.0A		
<b>AC Power Cord Type</b>	Unshielded, 1.0m (Detachable) to Power Adapter		
<b>LCD Panel Manufacturer</b>	SAMSUNG	<b>Model</b>	60H00238-00P
	Wintek	<b>Model</b>	60H00274-00M
<b>Camera Manufacturer</b>	Liteon	<b>Model</b>	54H00305-00M
	Foxconn	<b>Model</b>	54H00306-00M
<b>Accessories</b>	1. USB Cable: <ul style="list-style-type: none"> <li>◆ Acon (Model: DC U200 / 1m)</li> <li>◆ MEC (Model: DC U200 / 1m)</li> <li>◆ Foxlink (Model: DC U200 / 1m)</li> </ul> 2. Battery: <ul style="list-style-type: none"> <li>◆ TWS (model name: TOPA160 (3.7V, 1100mAh))</li> <li>◆ HT energy (model name: TOPA160 (3.7V, 1100mAh))</li> </ul> 3. Earphone: <ul style="list-style-type: none"> <li>◆ KINGSTATE (model name: HS G235)</li> </ul>		
<b>Frequency Range</b>	2412 ~ 2462 MHz		
<b>Transmit Power</b>	IEEE 802.11b: 20.42 dBm IEEE 802.11g: 21.14 dBm		
<b>Modulation Technique</b>	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: DSSS (CCK, DQPSK, DBPSK) + OFDM (QPSK, BPSK, 16-QAM, 64-QAM)		
<b>Transmit Data Rate</b>	IEEE 802.11b Mode: 11, 5.5, 2, 1 Mbps IEEE 802.11g Mode: 54, 48, 36, 24, 18, 12, 11, 9, 6Mbps		
<b>Number of Channels</b>	11 Channels		
<b>Antenna Specification</b>	Gain: 1.0 dBi		
<b>Antenna Designation</b>	PIFA Antenna		

### 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: **NM8PB74120** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.



### **3. TEST METHODOLOGY**

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

#### **3.1 EUT CONFIGURATION**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

#### **3.2 EUT EXERCISE**

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

#### **3.3 GENERAL TEST PROCEDURES**

##### **Conducted Emissions**

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4: 2003 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

##### **Radiated Emissions**

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4: 2003.



### 3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(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 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41	322 - 335.4		

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

<sup>2</sup> Above 38.6

(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.



### 3.5 DESCRIPTION OF TEST MODES

The EUT (model: PB74120) had been tested under operating and standby condition. The following test modes were scanned during the preliminary test:

Pre-Test Mode
<b>Mode 1:</b> LCD Panel (SAMSUNG) + Camera (Liteon) + USB cable (Acon)+ Power Adapter + Battery (TWS) + Headset
<b>Mode 2:</b> LCD Panel (SAMSUNG) + Camera (Liteon) + USB cable (MEC)+ Power Adapter + Battery (TWS) + Headset
<b>Mode 3:</b> LCD Panel (SAMSUNG) + Camera (Liteon) + USB cable (Flxlink)+ Power Adapter + Battery (TWS) + Headset
<b>Mode 4:</b> LCD Panel (SAMSUNG) + Camera (Liteon) + USB cable (Acon)+ Power Adapter + Battery (HT energy) + Headset
<b>Mode 5:</b> LCD Panel (SAMSUNG) + Camera (Liteon) + USB cable (MEC)+ Power Adapter + Battery (HT energy) + Headset
<b>Mode 6:</b> LCD Panel (SAMSUNG) + Camera (Liteon) + USB cable (Flxlink)+ Power Adapter + Battery (HT energy) + Headset
<b>Mode 7:</b> LCD Panel (Wintek) + Camera (Foxconn) + USB cable (Acon)+ Power Adapter + Battery (TWS) + Headset
<b>Mode 8:</b> LCD Panel (Wintek) + Camera (Foxconn) + USB cable (MEC)+ Power Adapter + Battery (TWS) + Headset
<b>Mode 9:</b> LCD Panel (Wintek) + Camera (Foxconn) + USB cable (Flxlink)+ Power Adapter + Battery (TWS) + Headset
<b>Mode 10:</b> LCD Panel (Wintek) + Camera (Foxconn) + USB cable (Acon)+ Power Adapter + Battery (HT energy) + Headset
<b>Mode 11:</b> LCD Panel (Wintek) + Camera (Foxconn) + USB cable (MEC)+ Power Adapter + Battery (HT energy) + Headset
<b>Mode 12:</b> LCD Panel (Wintek) + Camera (Foxconn) + USB cable (Flxlink)+ Power Adapter + Battery (HT energy) + Headset

After the preliminary scan, the following test mode was found to produce the highest emission level.

Final Test Mode: Mode 7

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

IEEE 802.11b mode:

Channel 1(2412MHz), Channel 6(2437MHz) and Channel 11(2462MHz) with 1Mbps data rate were chosen for the final testing.

IEEE 802.11g mode:

Channel 1(2412MHz), Channel 6(2437MHz) and Channel 11(2462MHz) with 6Mbps data rate were chosen for the final testing.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.



## 4. INSTRUMENT CALIBRATION

### 4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

### 4.2 MEASUREMENT EQUIPMENT USED

#### Equipment Used for Emissions Measurement

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

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	03/05/2010

3M Semi Anechoic Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510252	10/07/2009
Test Receiver	Rohde&Schwarz	ESCI	100064	11/29/2009
Switch Controller	TRC	Switch Controller	SC94050010	05/02/2010
4 Port Switch	TRC	4 Port Switch	SC94050020	05/02/2010
Loop Antenna	EMCO	6502	8905/2356	05/29/2010
Horn-Antenna	TRC	HA-0502	06	06/03/2010
Horn-Antenna	TRC	HA-0801	04	10/20/2009
Horn-Antenna	TRC	HA-1201A	01	10/15/2009
Horn-Antenna	TRC	HA-1301A	01	10/15/2009
Bilog- Antenna	Sunol Sciences	JB3	A030205	03/27/2010
Turn Table	Max-Full	MFT-120S	T120S940302	N.C.R.
Antenna Tower	Max-Full	MFA-430	A440940302	N.C.R.
Controller	Max-Full	MF-CM886	CC-C-1F-13	N.C.R.
Site NSA	CCS	N/A	FCC MRA: TW1039 IC: IC 2324G-1/-2	10/17/2010 11/04/2010
Test S/W	LABVIEW (V 6.1)			

Powerline Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver 9kHz-30MHz	Rohde & Schwarz	ESHS30	828144/003	11/18/2009
Two-Line V-Network 9kHz-30MHz	Schaffner	NNB41	03/10013	06/10/2010
LISN 10kHz-100MHz	EMCO	3825/2	9106-1809	04/08/2010
Test S/W	LABVIEW (V 6.1)			





### 4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/- 2.81
3M Semi Anechoic Chamber / 30MHz ~ 1GHz	+/-3.7046
3M Semi Anechoic Chamber / Above 1GHz	+/-3.0958

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



## 5. FACILITIES AND ACCREDITATIONS

### 5.1 FACILITIES

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

No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan

Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan

Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, 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 pre-selectors 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 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	 FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12.2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method -47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2

\* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.



## 6. SETUP OF EQUIPMENT UNDER TEST

### 6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

### 6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	Notebook PC	IBM	2672 (X31)	9985H9M	WLAN: ANO20030400LEG Bluetooth: ANO20020100MTN	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
2.	Notebook PC	DELL	PP10L	50XP51J	FCC DoC	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
3.	LCD Monitor	Samsung	173P	D117H4JXB04968Y	FCC DoC	Shielded, 1.8m with 2 cores	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
4.	USB 2.0 External HDD	TeraSyS	F12-U	A0100214-2Bq0039	FCC DoC	Shielded, 1.8m	N/A
5.	USB Mouse	HP	MO19UCA	20440964	FCC DoC	Shielded, 1.8m	N/A
6.	Universal Radio Communication Tester (Remote)	R&S	CMU200	1100.000.8.02	N/A	N/A	Unshielded, 1.8m
7.	Super a/g 108Mbps Wireless Lan Router (Remote)	PLANEX	BLW-04SAG	40DDA0421	SJ9-BLW54SAG	N/A	Unshielded, 1.8m
8.	Notebook PC (Remote)	DELL	PP05L	7T390 A03	E2K5HCKT	N/A	N/A

**Remark:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



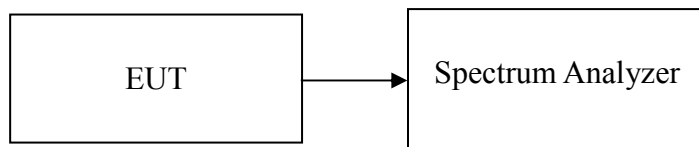
## 7. FCC PART 15.247 REQUIREMENTS

### 7.1 6DB BANDWIDTH

#### LIMIT

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

#### Test Configuration



#### TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100kHz, VBW = RBW, Span = 50MHz, Sweep = auto.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

#### TEST RESULTS

*No non-compliance noted.*



**Test mode: IEEE 802.11b**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	7.08	>500	PASS
Mid	2437	7.67		PASS
High	2462	6.92		PASS

**Test mode: IEEE 802.11g**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	11.00	>500	PASS
Mid	2437	14.42		PASS
High	2462	16.33		PASS



### Test Plot

### IEEE 802.11b

### 6dB Bandwidth (CH Low)

Agilent 16:05:31 Jul 6, 2009

R T

6dB BW, b Mode Low Ch.

Δ Mkr1 7.08 MHz

Ref 20 dBm

Atten 10 dB

1.09 dB

#Peak

Log

10

dB/

Offst

20.8

dB

DI

4.6

dBm

LgAv

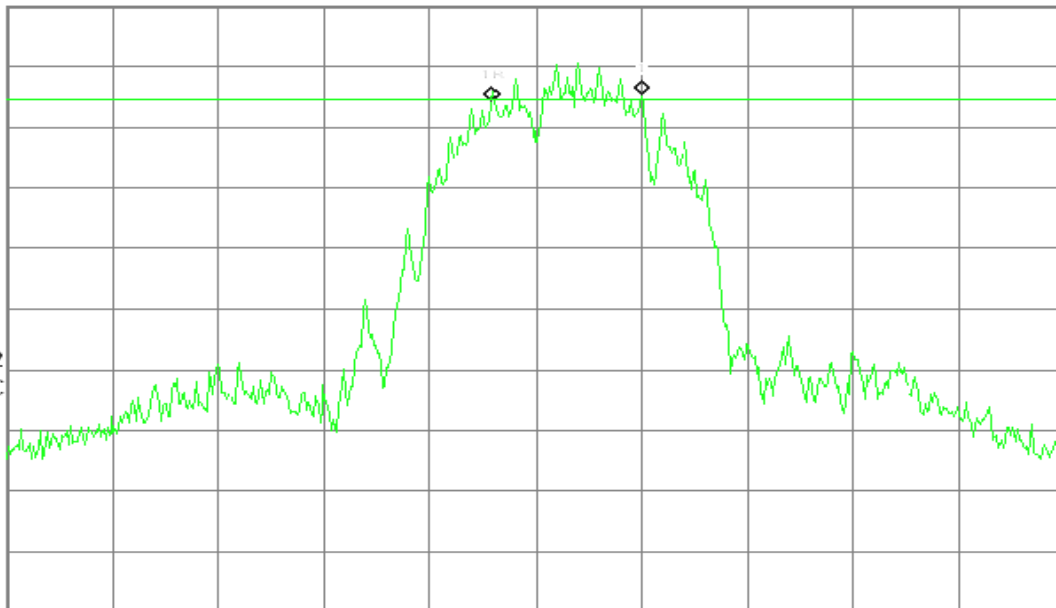
V1 S2

S3 FC

□(f):

FTun

Swp



Center 2.412 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)

### 6dB Bandwidth (CH Mid)

Agilent 16:18:04 Jul 6, 2009

R T

6dB BW, b Mode Mid Ch.

Δ Mkr1 7.67 MHz

Ref 20 dBm

Atten 10 dB

-0.23 dB

#Peak

Log

10

dB/

Offst

20.8

dB

DI

0.6

dBm

LgAv

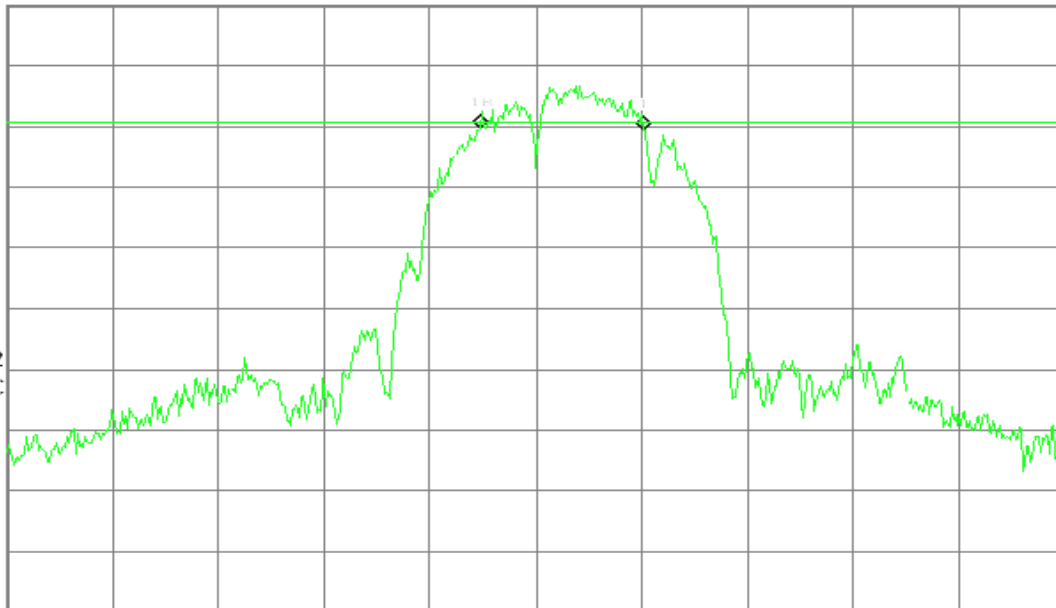
V1 S2

S3 FC

□(f):

FTun

Swp



Center 2.437 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)



### 6dB Bandwidth (CH High)

Agilent 16:40:19 Jul 6, 2009

R T

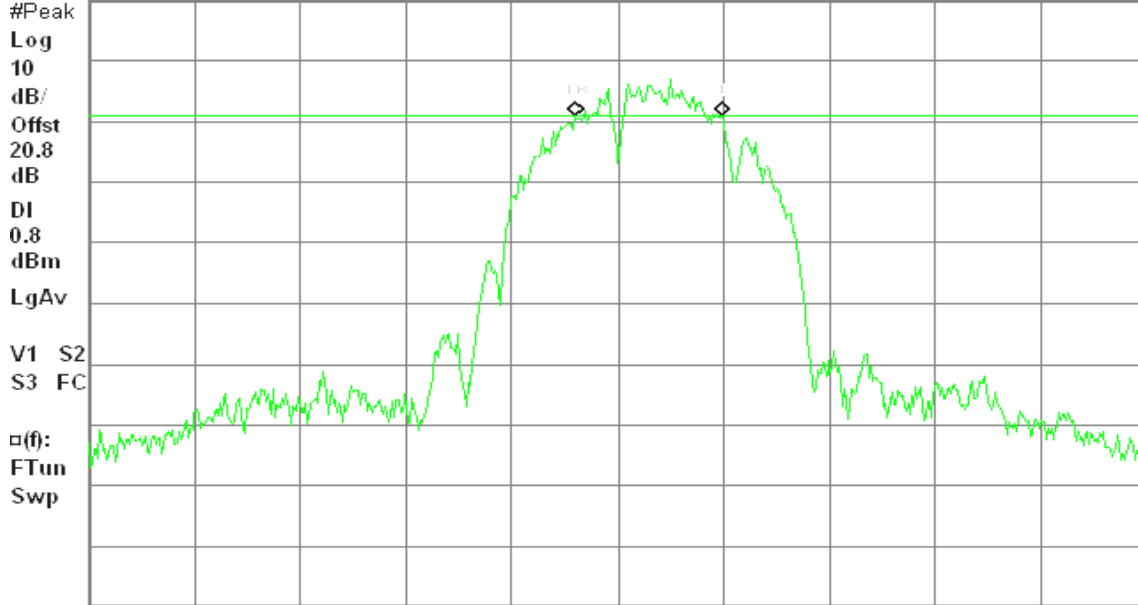
6dB BW, b Mode High Ch.

Δ Mkr1 6.92 MHz

Ref 20 dBm

Atten 10 dB

0.00 dB



Center 2.462 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)

### IEEE 802.11g

### 6dB Bandwidth (CH Low)

Agilent 16:45:34 Jul 6, 2009

R T

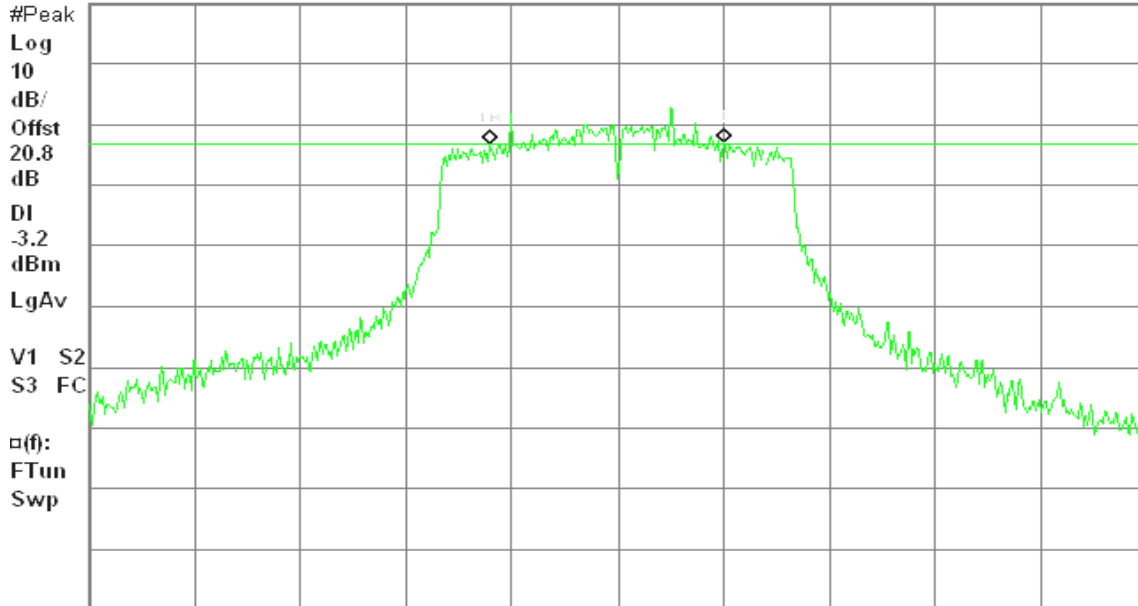
6dB BW, g Mode Low Ch.

Δ Mkr1 11.00 MHz

Ref 20 dBm

Atten 10 dB

0.22 dB



Center 2.412 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)





### 6dB Bandwidth (CH Mid)

Agilent 16:50:52 Jul 6, 2009

R T

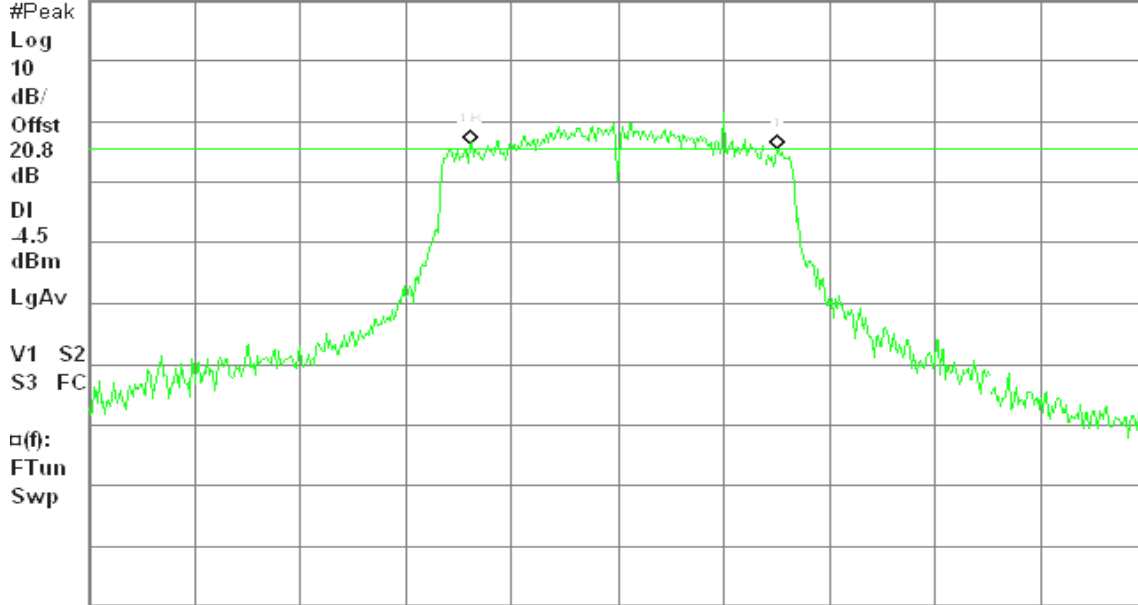
6dB BW, g Mode Mid Ch.

Δ Mkr1 14.42 MHz

Ref 20 dBm

Atten 10 dB

-0.68 dB



Center 2.437 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)

### 6dB Bandwidth (CH High)

Agilent 16:57:06 Jul 6, 2009

R T

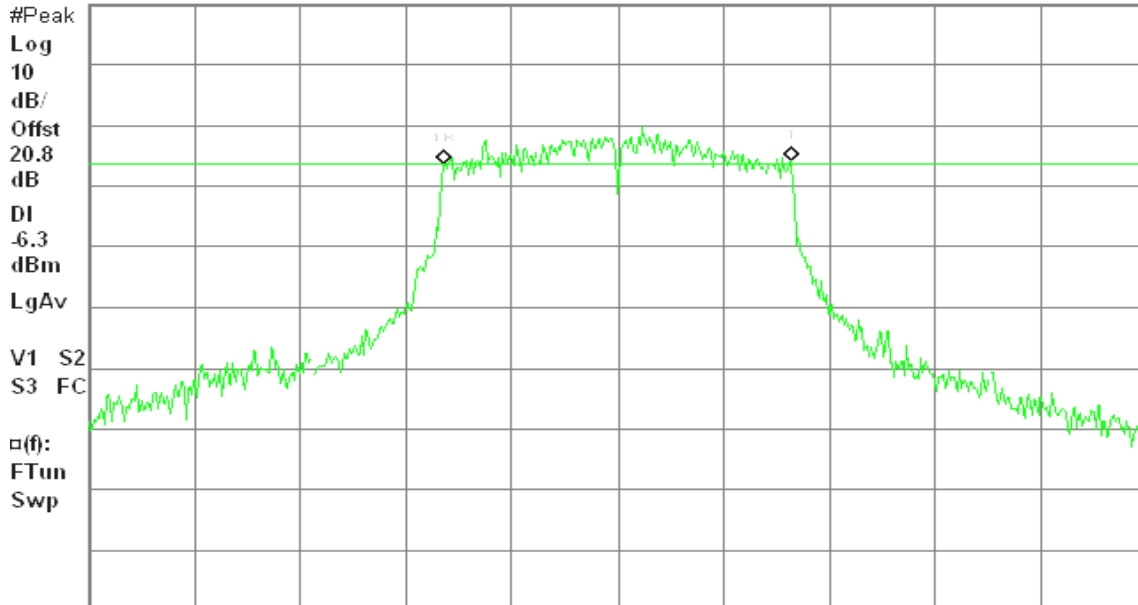
6dB BW, g Mode High Ch.

Δ Mkr1 16.33 MHz

Ref 20 dBm

Atten 10 dB

0.36 dB



Center 2.462 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 6.04 ms (601 pts)



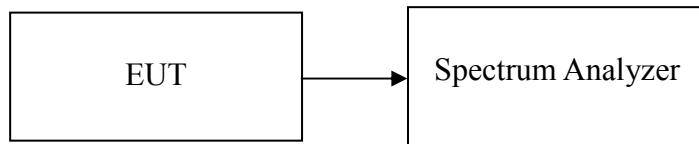
## 7.2 PEAK POWER

### LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (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 Configuration



### TEST PROCEDURE

1. Peak power is measured using the spectrum analyzer's internal channel power integration function.
2. Power is integrated over a bandwidth greater than or equal to the 99% bandwidth.

### TEST RESULTS

*No non-compliance noted.*



**Test Data**

**Test mode: IEEE 802.11b**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	19.92	0.0982	1.00	PASS
Mid	2437	20.42	0.1102		PASS
High	2462	19.99	0.0998		PASS

**Test mode: IEEE 802.11g**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	20.79	0.1199	1.00	PASS
Mid	2437	21.14	0.1300		PASS
High	2462	20.86	0.1219		PASS



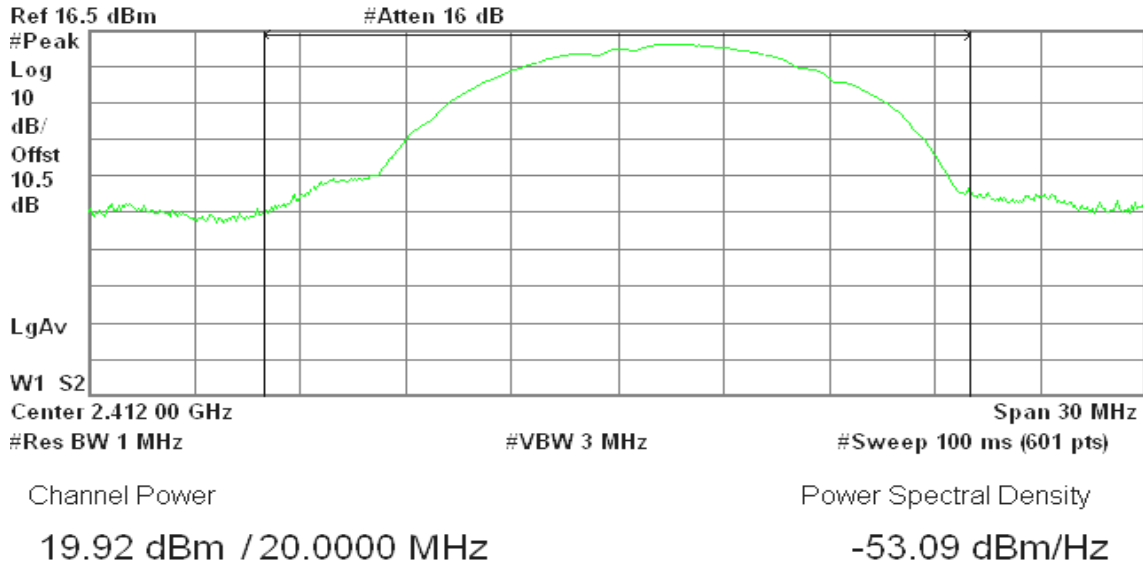
**Test Plot**

**IEEE 802.11b**

**Peak Power (CH Low)**

Agilent 14:50:38 Aug 5, 2009

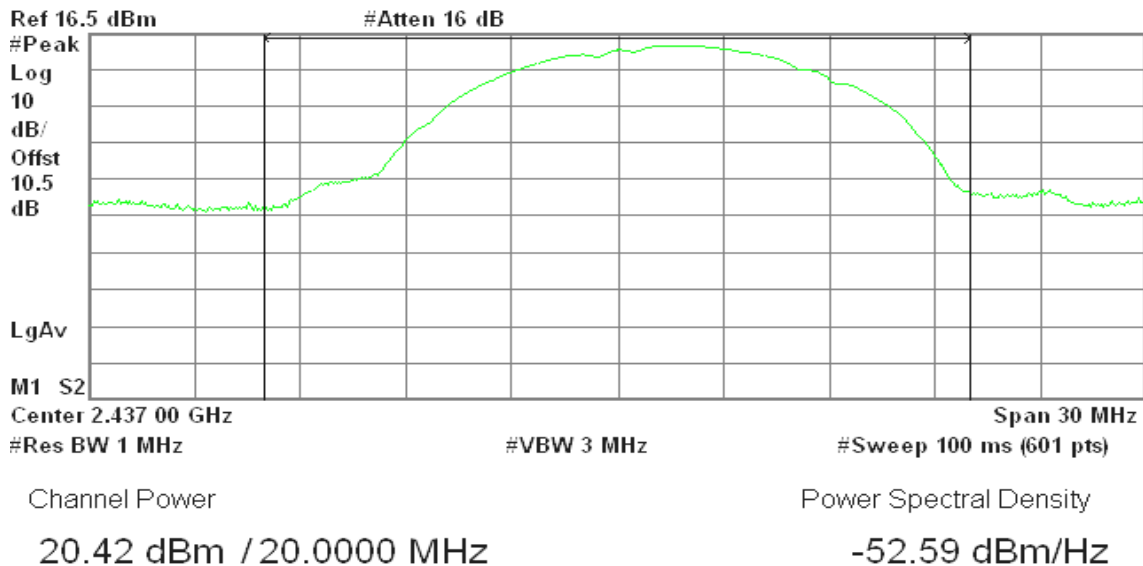
R T



**Peak Power (CH Mid)**

Agilent 14:47:58 Aug 5, 2009

R T





### Peak Power (CH High)

Agilent 14:48:40 Aug 5, 2009

R T



Channel Power

19.99 dBm / 20.0000 MHz

Power Spectral Density

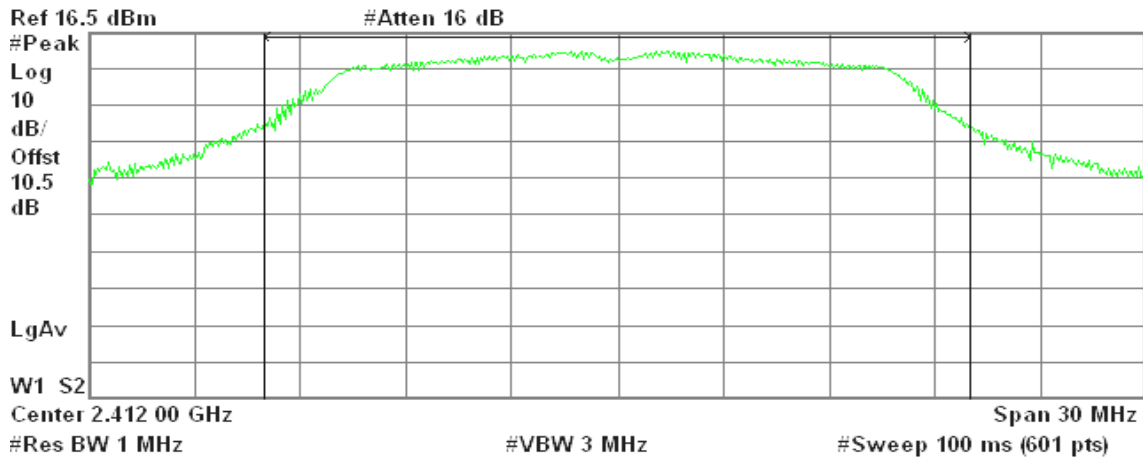
-53.02 dBm/Hz

### IEEE 802.11g

#### Peak Power (CH Low)

Agilent 14:52:31 Aug 5, 2009

R T



Channel Power

20.79 dBm / 20.0000 MHz

Power Spectral Density

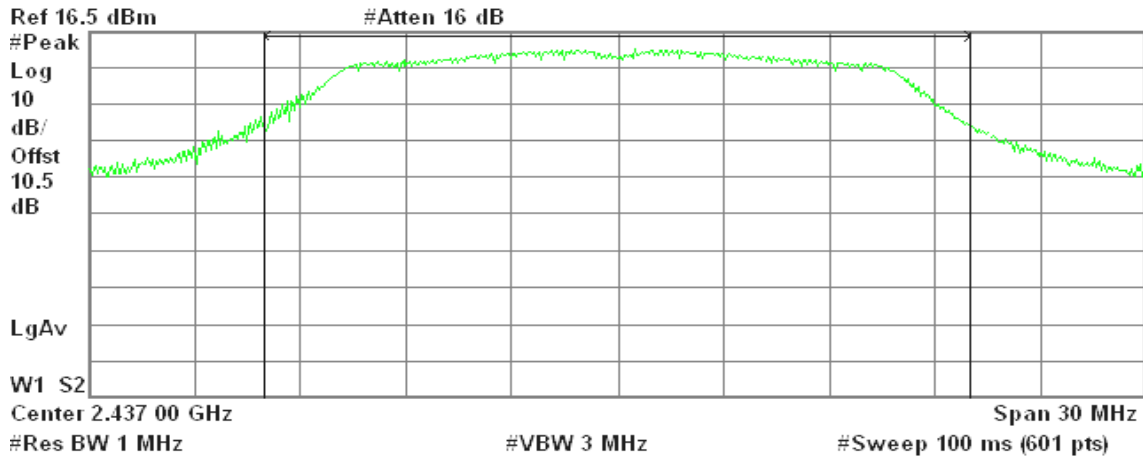
-52.22 dBm/Hz



### Peak Power (CH Mid)

Agilent 14:53:05 Aug 5, 2009

R T



Channel Power

21.14 dBm / 20.0000 MHz

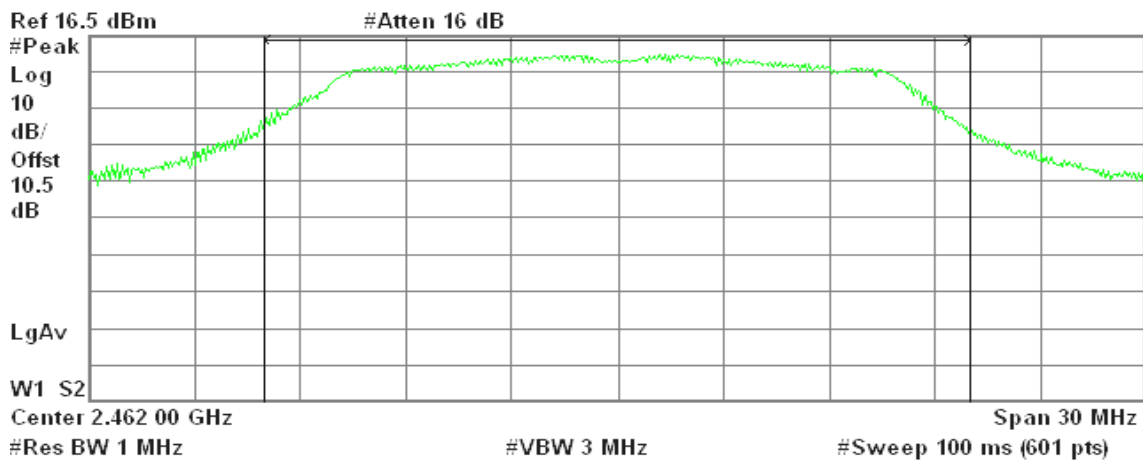
Power Spectral Density

-51.87 dBm/Hz

### Peak Power (CH High)

Agilent 14:55:14 Aug 5, 2009

R T



Channel Power

20.86 dBm / 20.0000 MHz

Power Spectral Density

-52.15 dBm/Hz

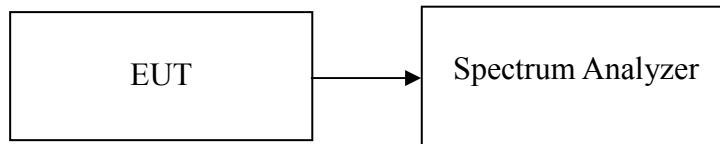


### **7.3 AVERAGE POWER**

#### **LIMIT**

None; for reporting purposes only.

#### **Test Configuration**



#### **TEST PROCEDURE**

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the average power detection.

#### **TEST RESULTS**

*No non-compliance noted.*



**Test Data**

**Test mode: IEEE 802.11b mode**

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	16.72
Mid	2437	16.95
High	2462	16.87

**Test mode: IEEE 802.11g mode**

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	12.93
Mid	2437	12.87
High	2462	12.86





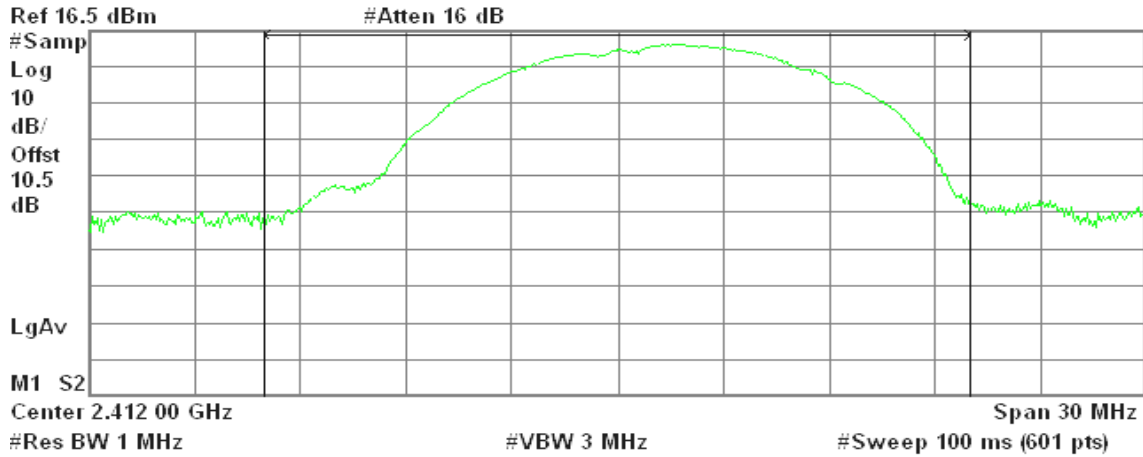
**Test Plot**

**IEEE 802.11b**

**Average Power (CH Low)**

Agilent 14:43:50 Aug 5, 2009

R T



Channel Power

16.72 dBm / 20.0000 MHz

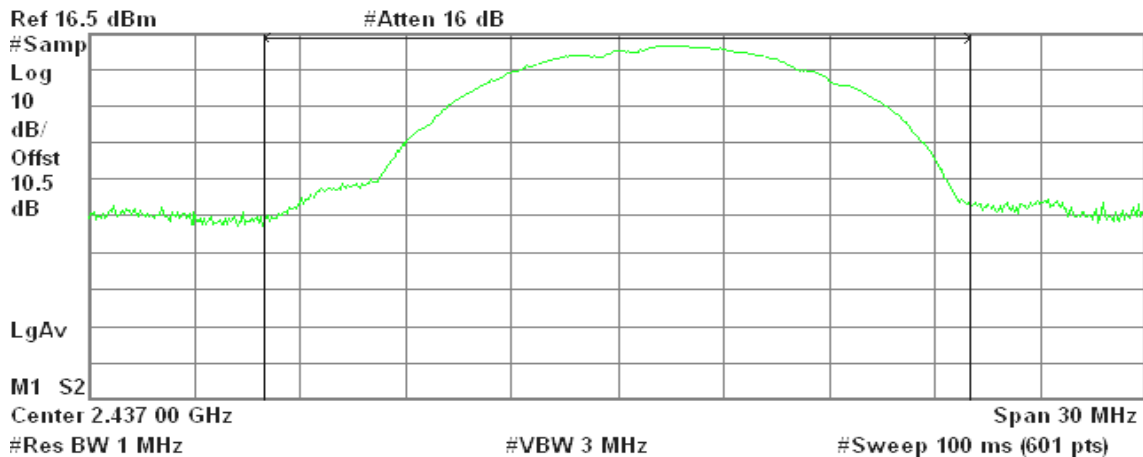
Power Spectral Density

-56.30 dBm/Hz

**Average Power (CH Mid)**

Agilent 14:47:22 Aug 5, 2009

R T



Channel Power

16.95 dBm / 20.0000 MHz

Power Spectral Density

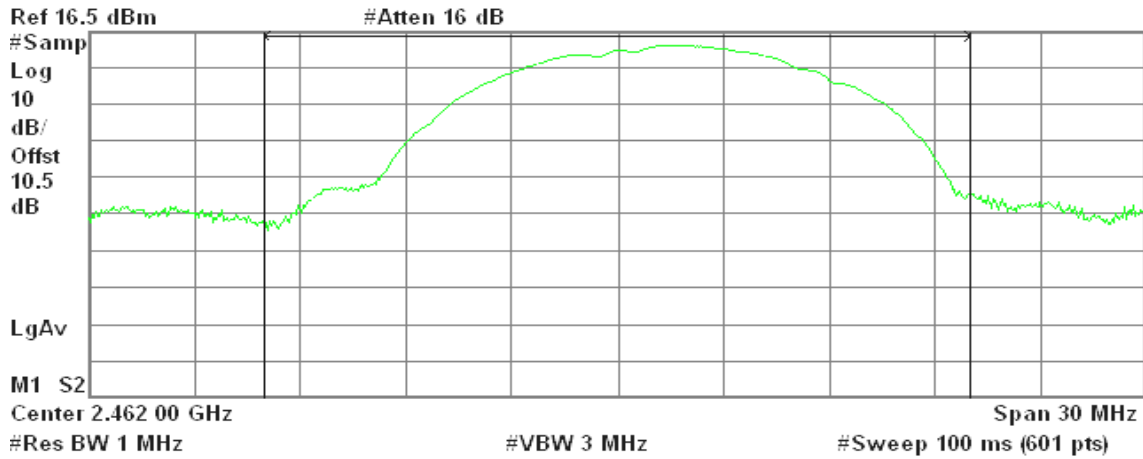
-56.06 dBm/Hz



### Average Power (CH High)

Agilent 14:49:19 Aug 5, 2009

R T



Channel Power

16.87 dBm / 20.0000 MHz

Power Spectral Density

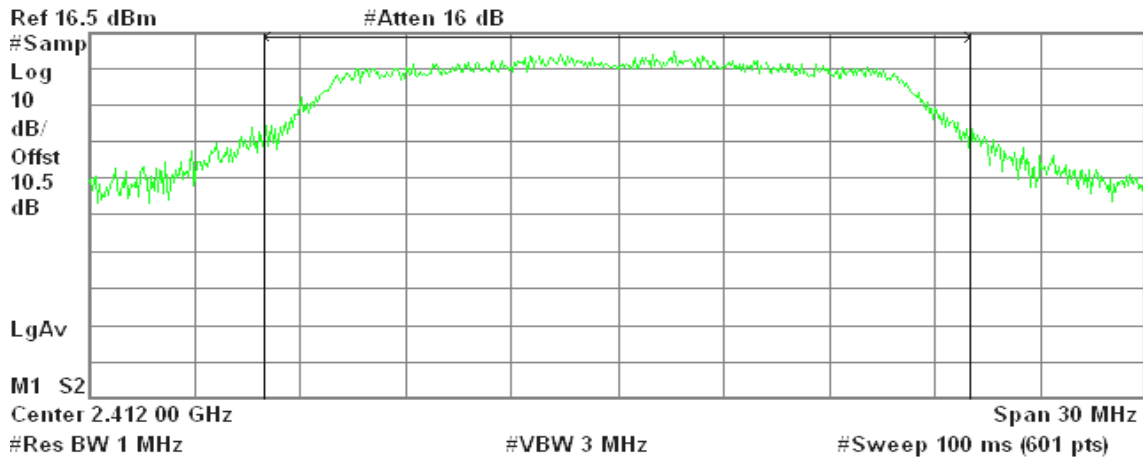
-56.14 dBm/Hz

### IEEE 802.11g

#### Average Power (CH Low)

Agilent 14:52:08 Aug 5, 2009

R T



Channel Power

12.93 dBm / 20.0000 MHz

Power Spectral Density

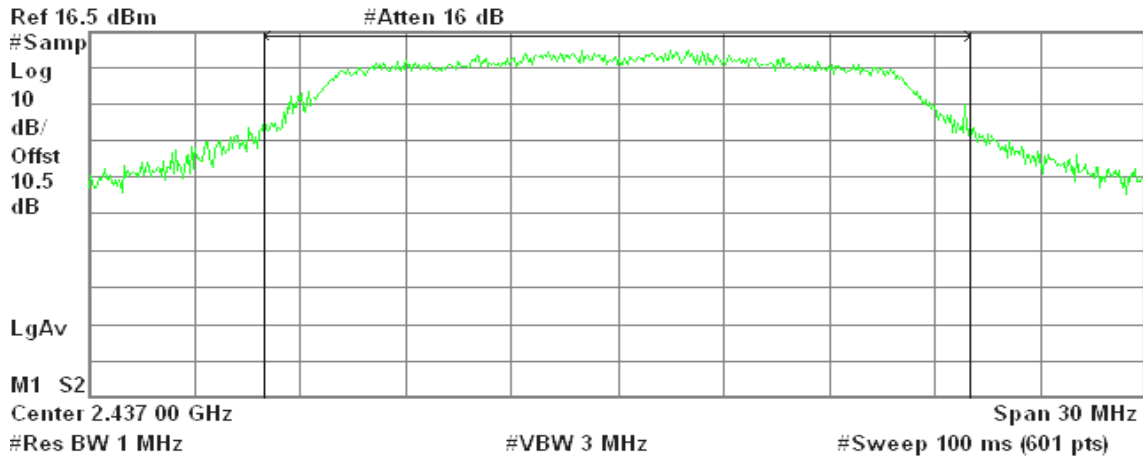
-60.08 dBm/Hz



### Average Power (CH Mid)

Agilent 14:54:10 Aug 5, 2009

R T



Channel Power

12.87 dBm / 20.0000 MHz

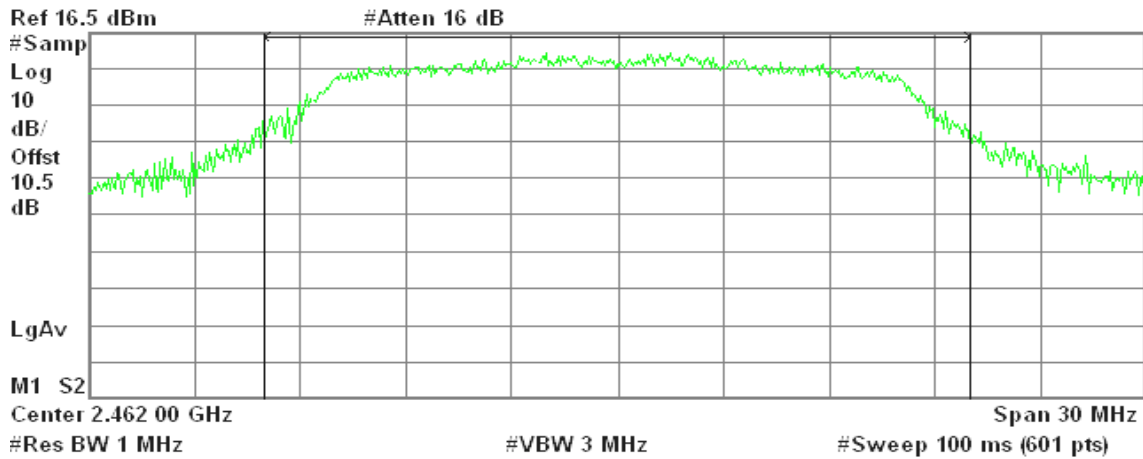
Power Spectral Density

-60.14 dBm/Hz

### Average Power (CH High)

Agilent 14:54:53 Aug 5, 2009

R T



Channel Power

12.86 dBm / 20.0000 MHz

Power Spectral Density

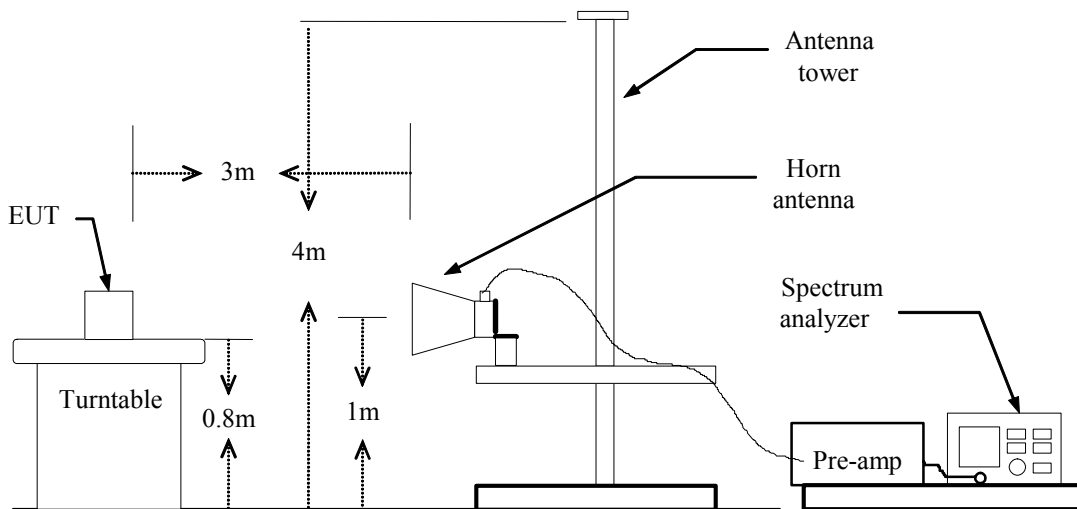
-60.15 dBm/Hz

## 7.4 BAND EDGES MEASUREMENT

### LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands 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, provided the transmitter demonstrates compliance with the peak conducted power limits. 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 Section 15.205(c)).

### Test Configuration



### TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
  - (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
  - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

### TEST RESULTS

Refer to attach spectrum analyzer data chart.



### Band Edges (IEEE 802.11b / CH Low)

Detector mode: Peak

Polarity: Vertical

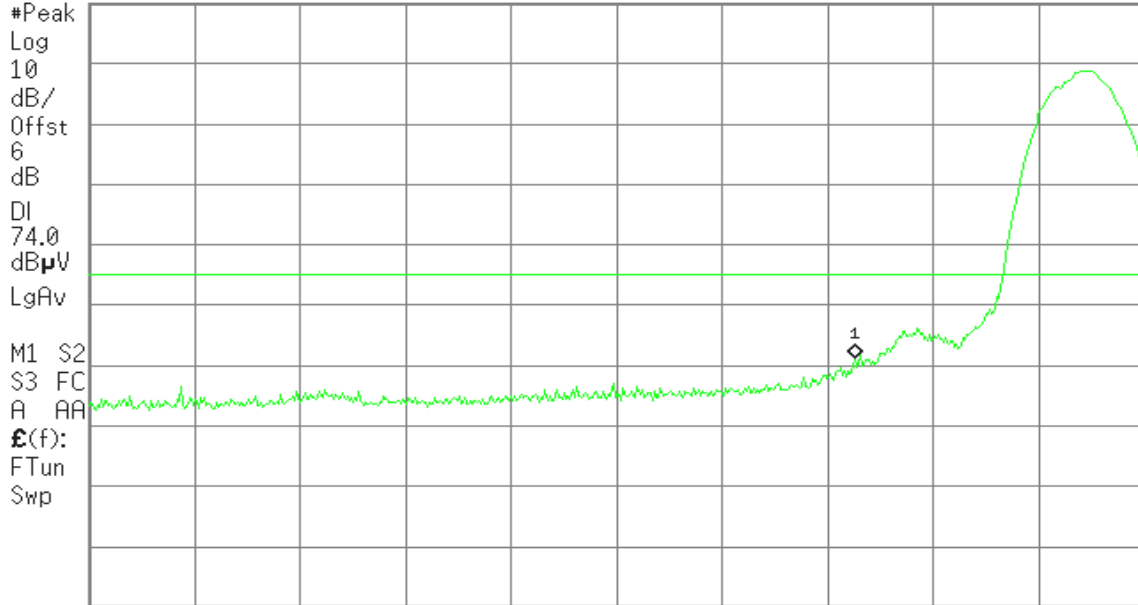
Agilent

R T

Mkr1 2.390 0 GHz  
60.37 dBμV

Ref 119 dBμV

#Atten 16 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Vertical

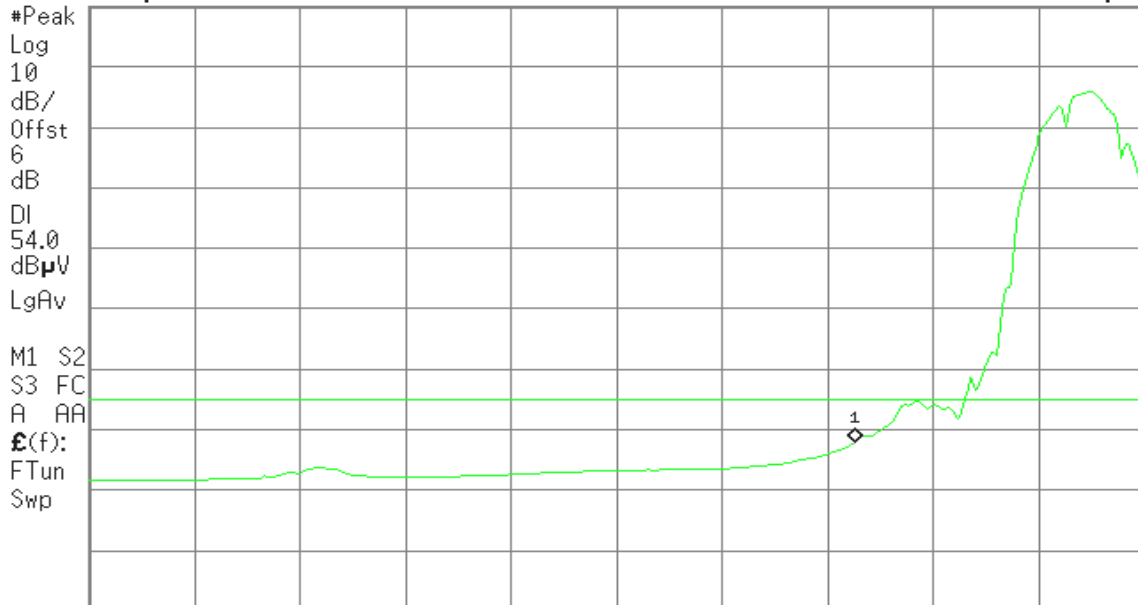
Agilent

R T

Mkr1 2.390 0 GHz  
46.97 dBμV

Ref 119 dBμV

#Atten 16 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

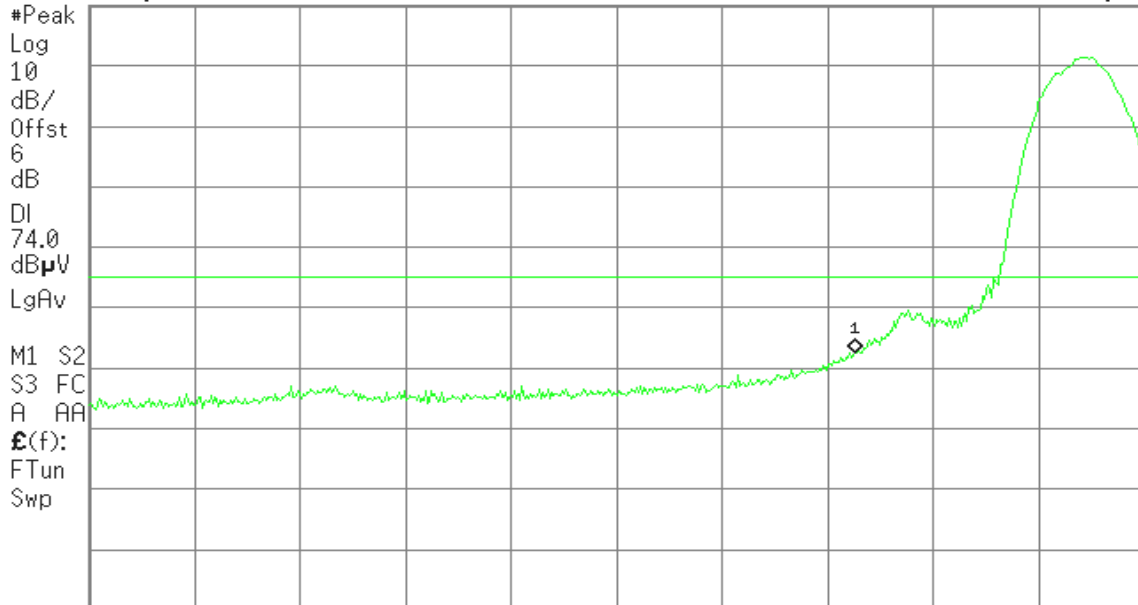
Agilent

R T

Mkr1 2.390 0 GHz  
61.45 dBμV

Ref 119 dBμV

#Atten 16 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

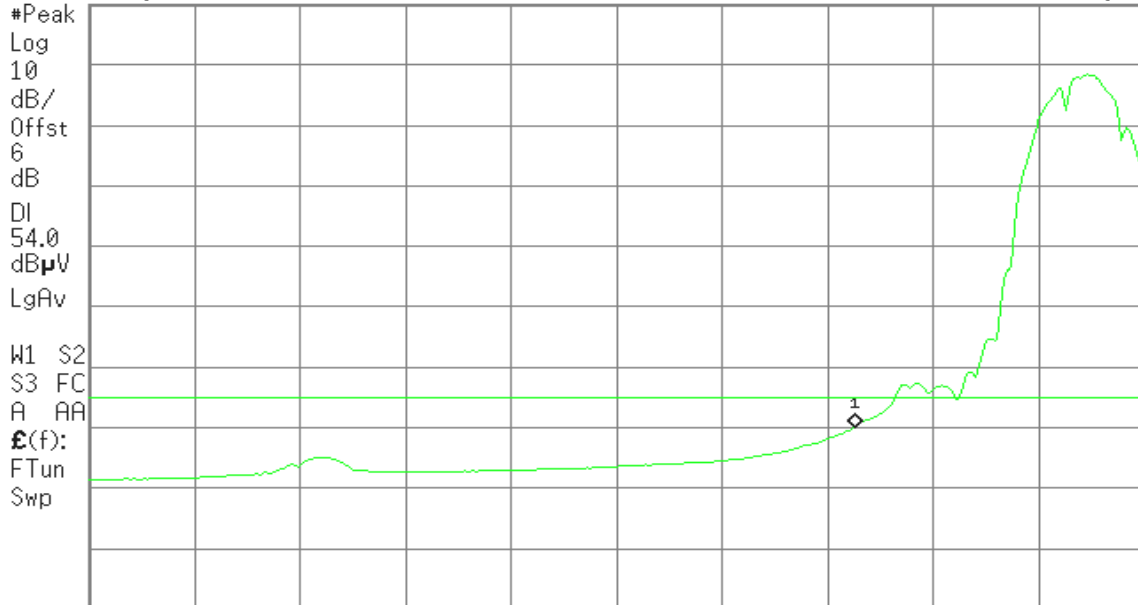
Agilent

R T

Mkr1 2.390 0 GHz  
49.12 dBμV

Ref 119 dBμV

#Atten 16 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



### Band Edges (IEEE 802.11b / CH High)

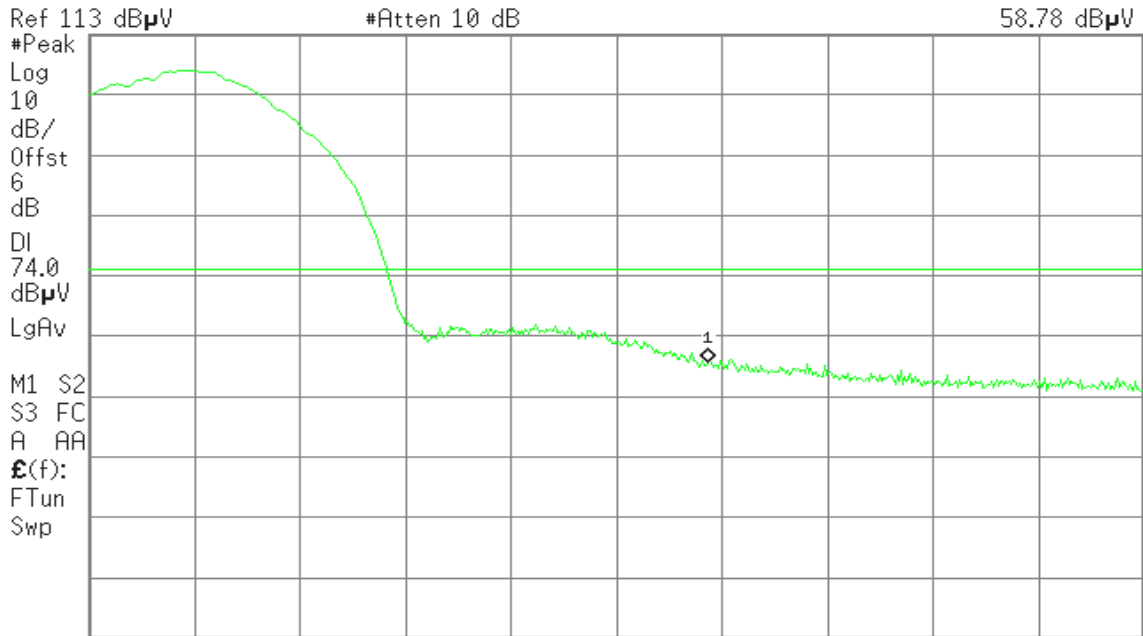
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz  
58.78 dB $\mu$ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 1 MHz Stop 2.500 00 GHz #Sweep 100 ms (601 pts)

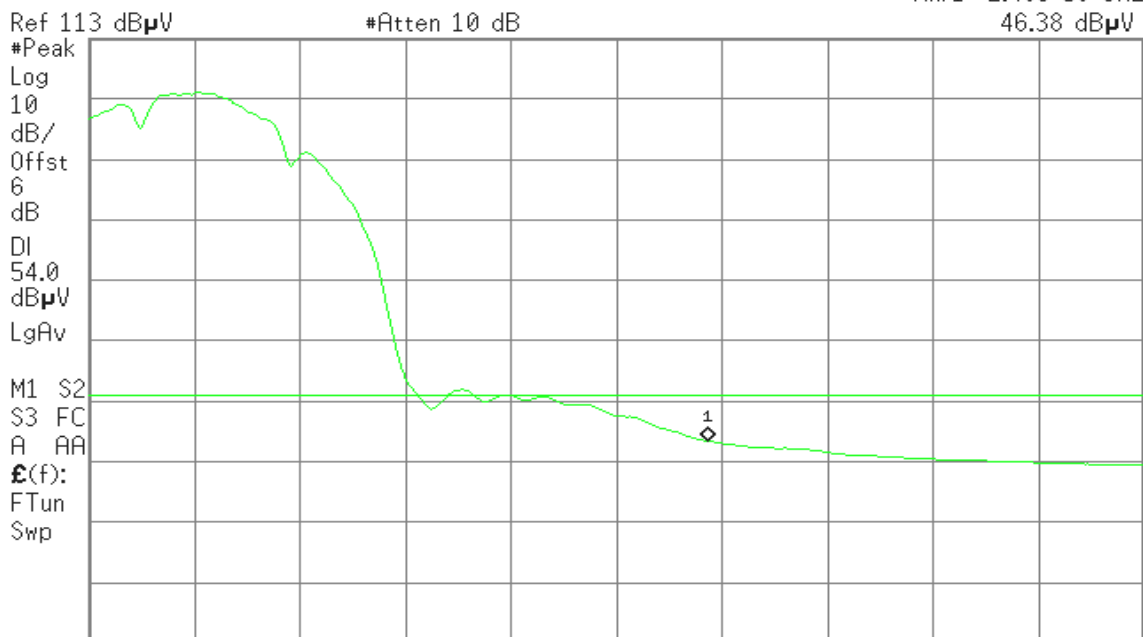
Detector mode: Average

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz  
46.38 dB $\mu$ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 10 Hz Stop 2.500 00 GHz Sweep 3.119 s (601 pts)



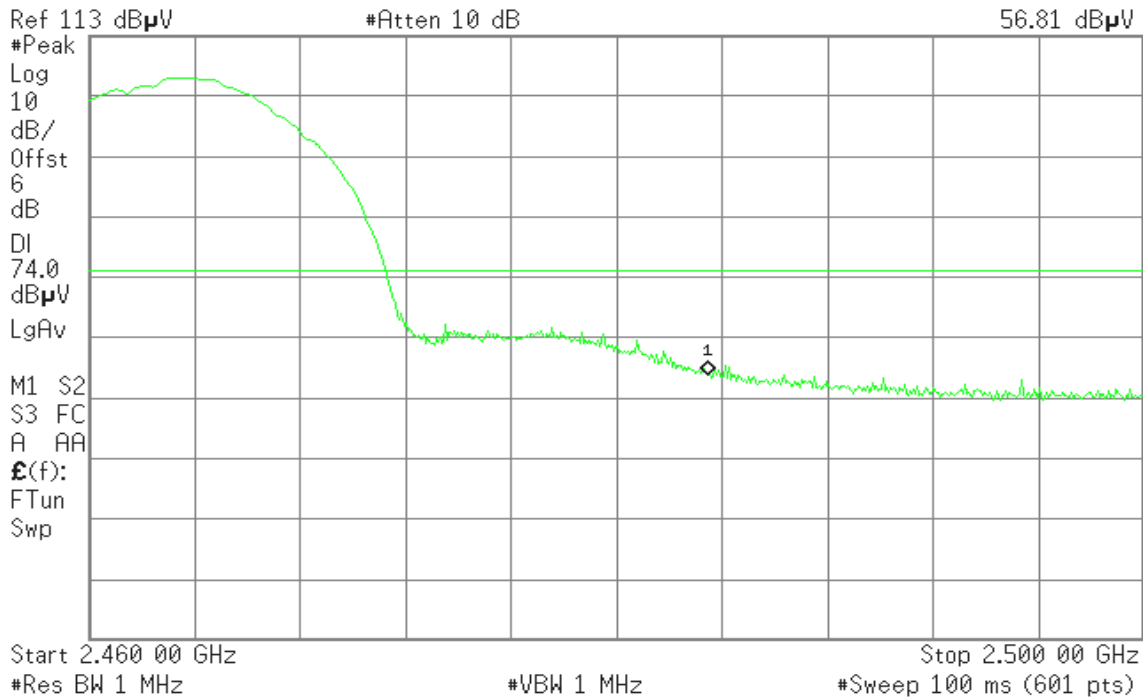
Detector mode: Peak

Polarity: Horizontal

Agilent

R T

Mkr1 2.483 50 GHz  
56.81 dBμV



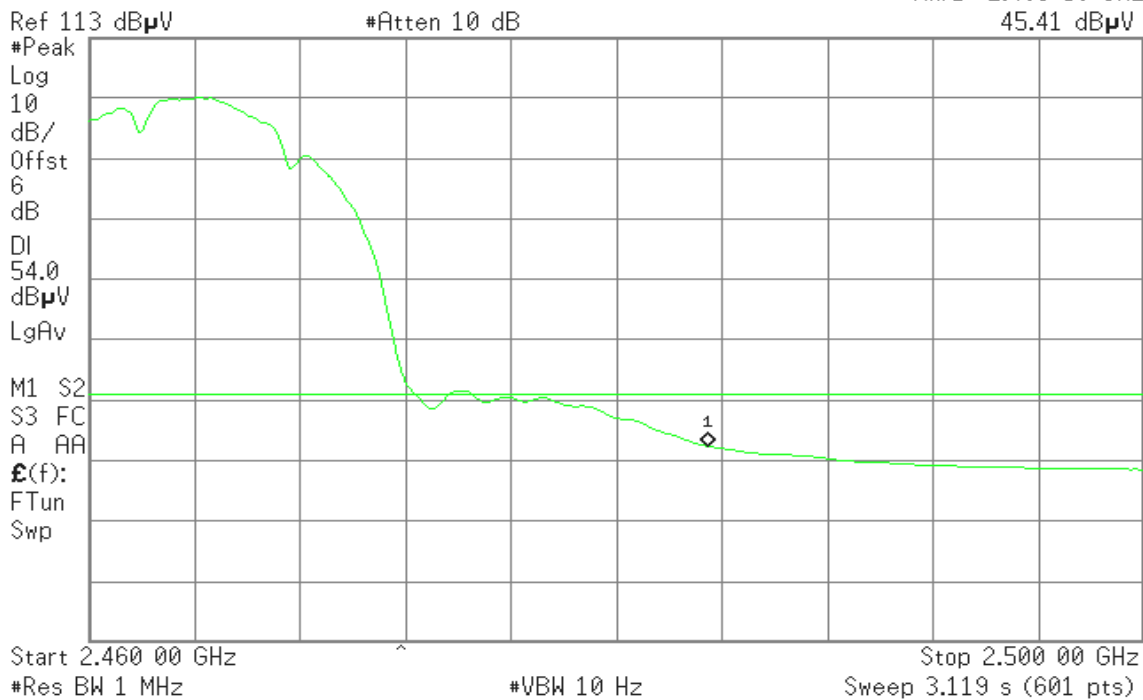
Detector mode: Average

Polarity: Horizontal

Agilent

R T

Mkr1 2.483 50 GHz  
45.41 dBμV



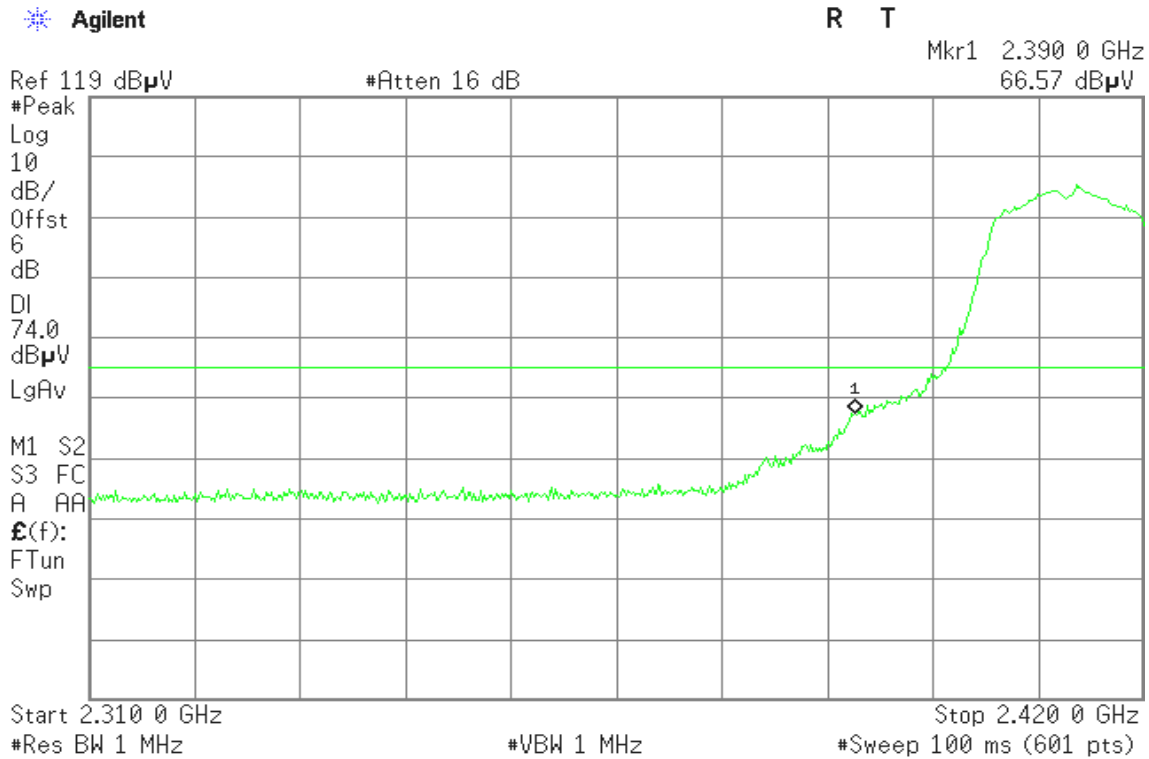




### Band Edges (IEEE 802.11g / CH Low)

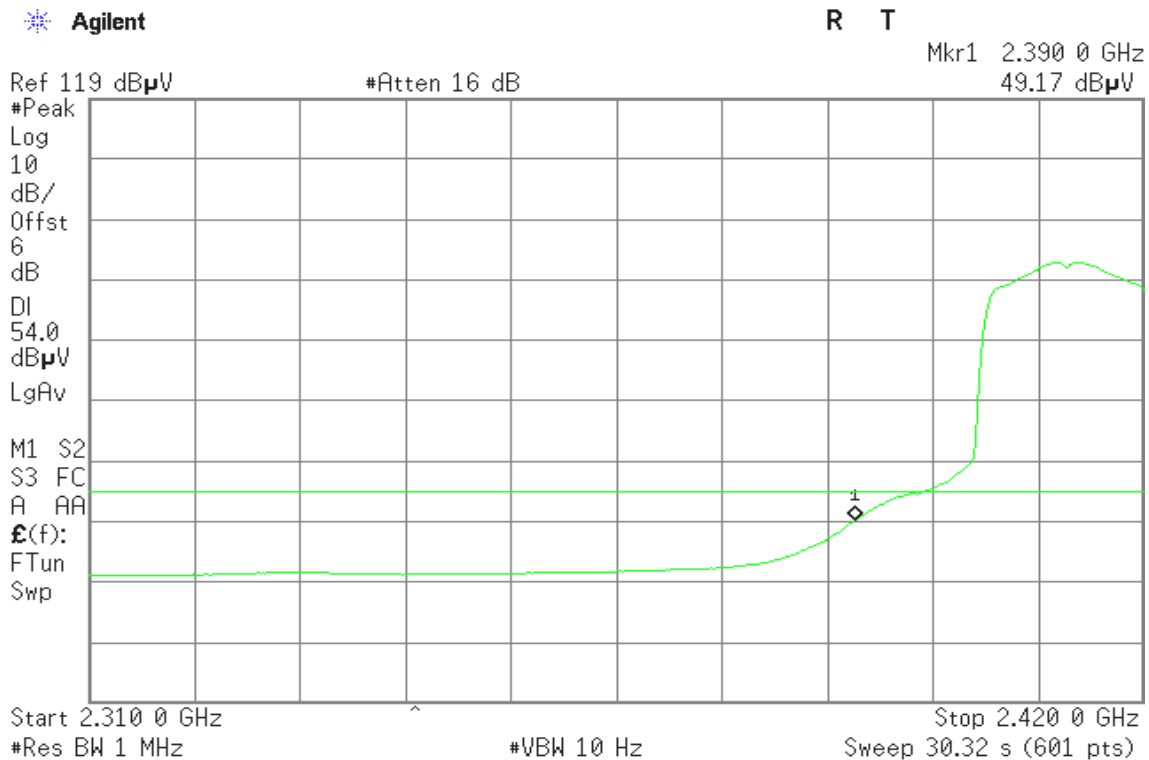
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

Polarity: Vertical





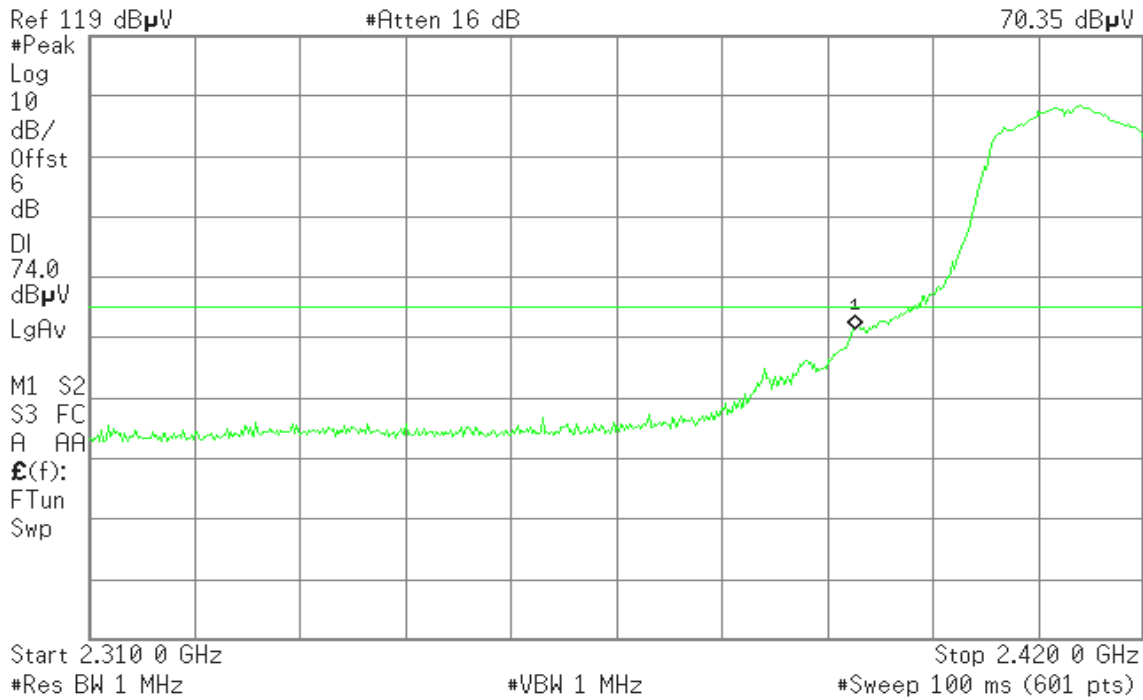
Detector mode: Peak

Polarity: Horizontal

Agilent

R T

Mkr1 2.390 0 GHz  
70.35 dBμV



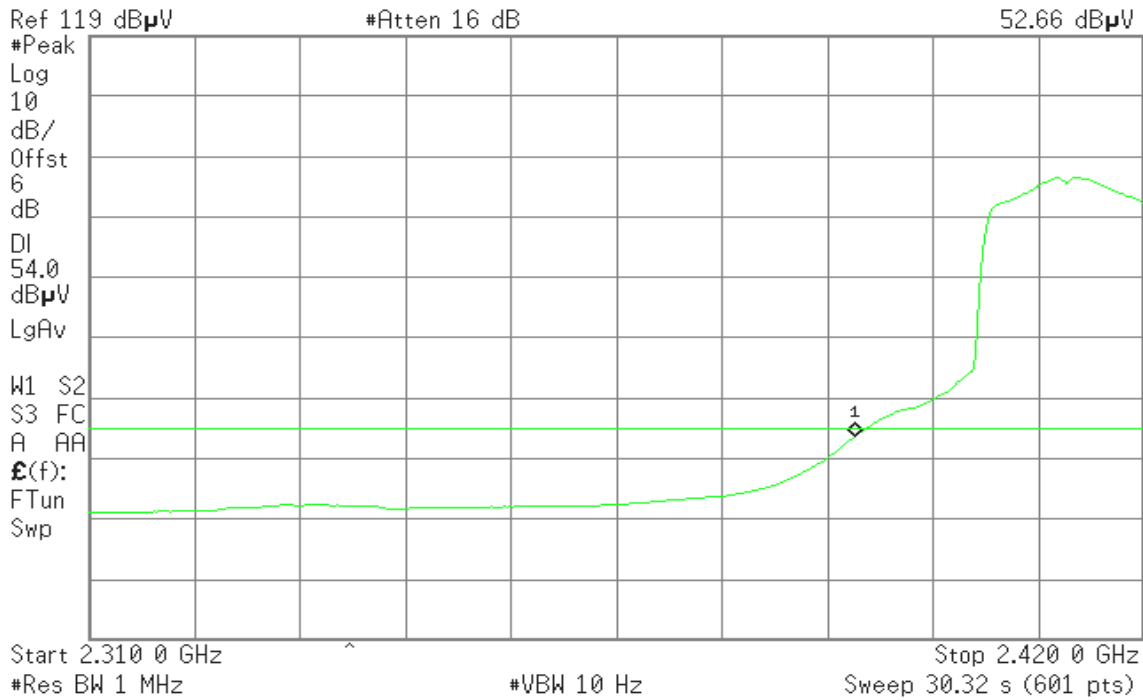
Detector mode: Average

Polarity: Horizontal

Agilent

R T

Mkr1 2.390 0 GHz  
52.66 dBμV





### Band Edges (IEEE 802.11g / CH High)

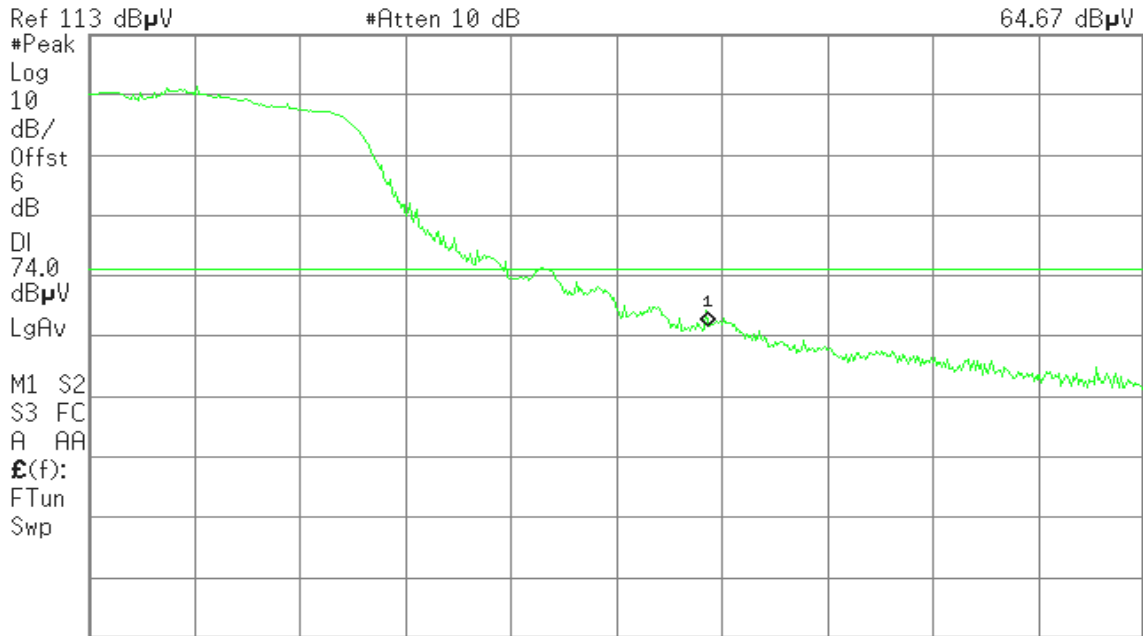
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz  
64.67 dB $\mu$ V



Start 2.460 00 GHz Stop 2.500 00 GHz  
#Res BW 1 MHz #VBW 1 MHz #Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz  
48.31 dB $\mu$ V



Start 2.460 00 GHz Stop 2.500 00 GHz  
#Res BW 1 MHz #VBW 10 Hz Sweep 3.119 s (601 pts)



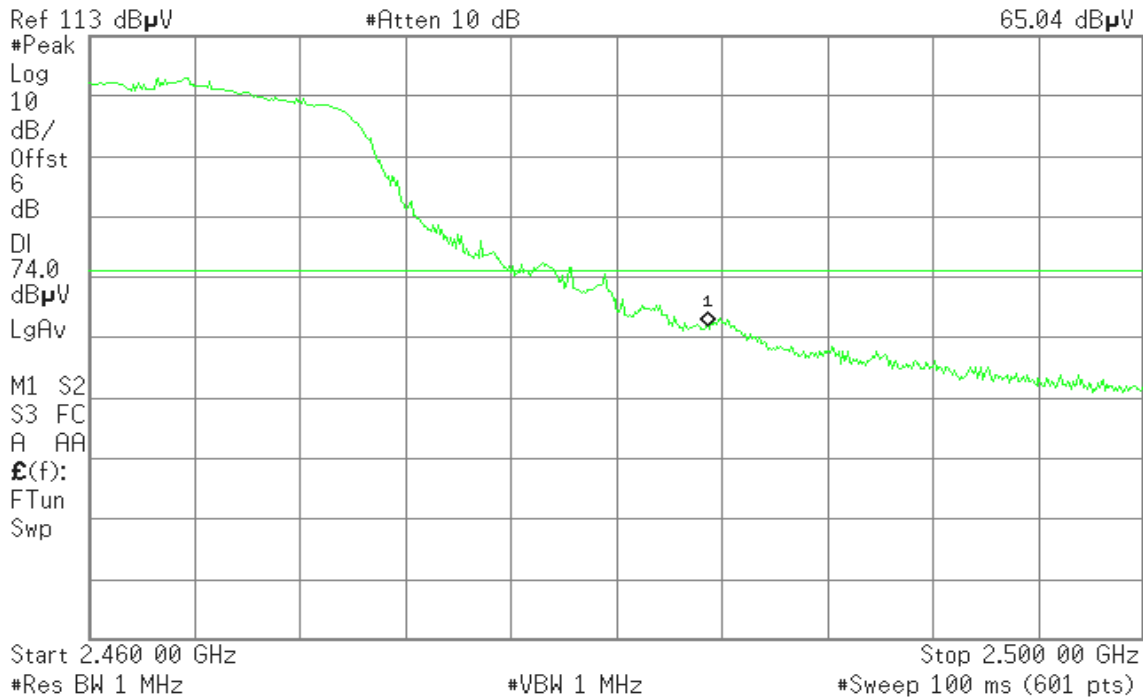
Detector mode: Peak

Polarity: Horizontal

Agilent

R T

Mkr1 2.483 50 GHz  
65.04 dBμV



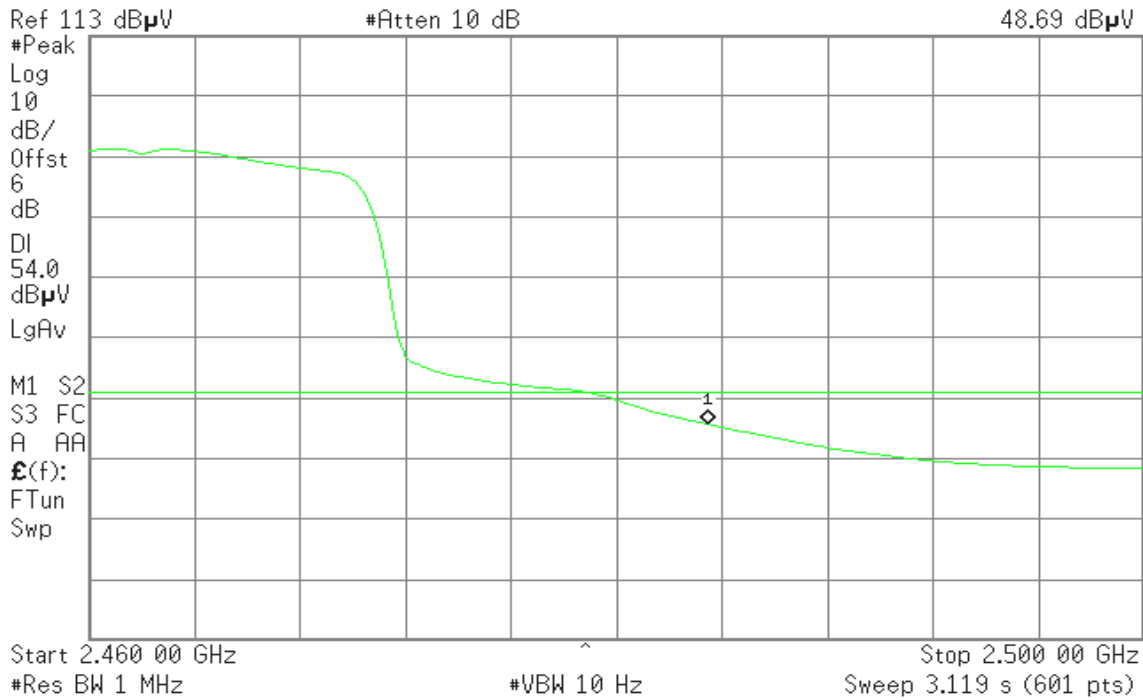
Detector mode: Average

Polarity: Horizontal

Agilent

R T

Mkr1 2.483 50 GHz  
48.69 dBμV



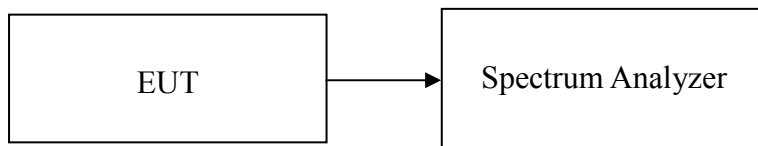


## 7.5 PEAK POWER SPECTRAL DENSITY

### LIMIT

1. According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

### Test Configuration



### TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.  
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

### TEST RESULTS

*No non-compliance noted.*



**Test Data**

**Test mode: IEEE 802.11b**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-6.17	8.00	PASS
Mid	2437	-6.03		PASS
High	2462	-8.13		PASS

**Test mode: IEEE 802.11g**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-11.93	8.00	PASS
Mid	2437	-12.09		PASS
High	2462	-13.34		PASS



Test Plot

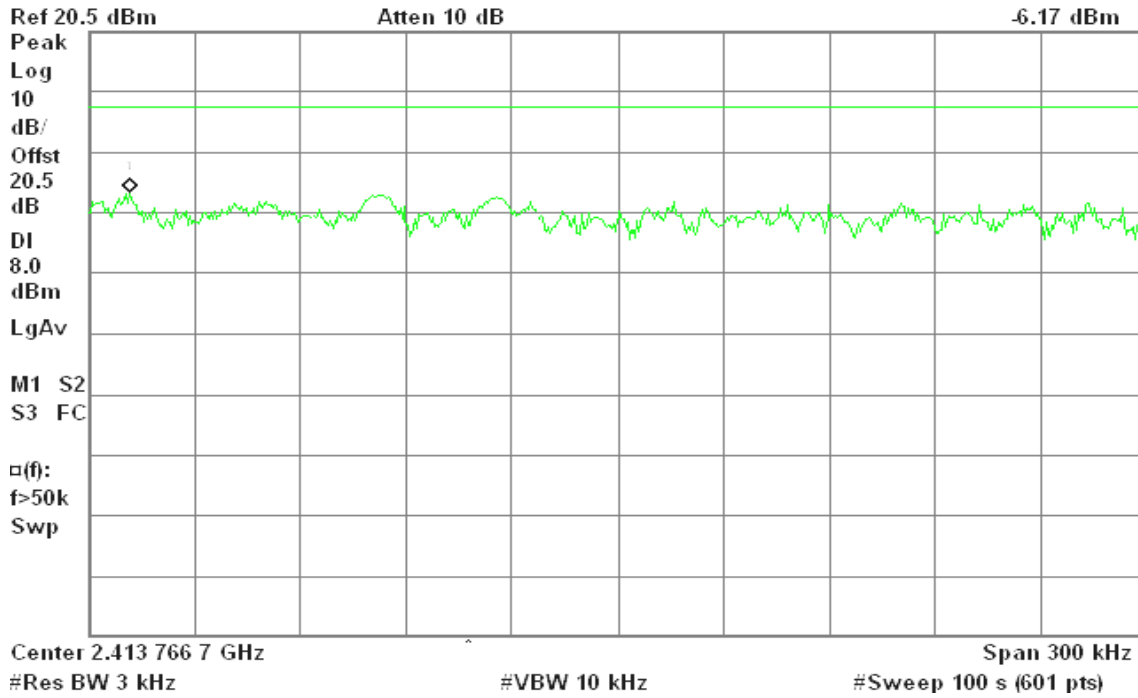
IEEE 802.11b

PPSD (CH Low)

Agilent 13:18:45 Jul 20, 2009

R T

Mkr1 2.413 627 1 GHz  
-6.17 dBm

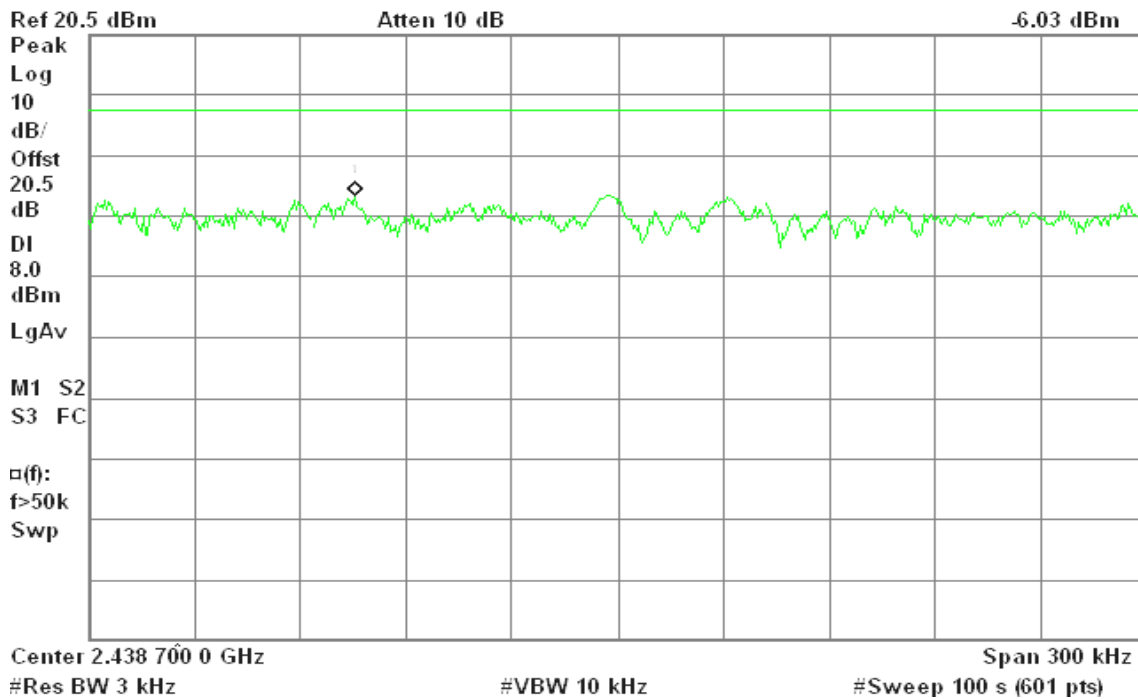


PPSD (CH Mid)

Agilent 13:21:28 Jul 20, 2009

R T

Mkr1 2.438 625 3 GHz  
-6.03 dBm





### PPSD (CH High)

Agilent 16:43:57 Jul 6, 2009

R T

Peak Power Spectral Density, b Mode High Ch.

Mkr1 2.463 295 0 GHz

Ref 20 dBm

Atten 10 dB

-8.13 dBm

#Peak

Log

10

dB/

Offst

20.8

dB

Dl

8.0

dBm

LgAv

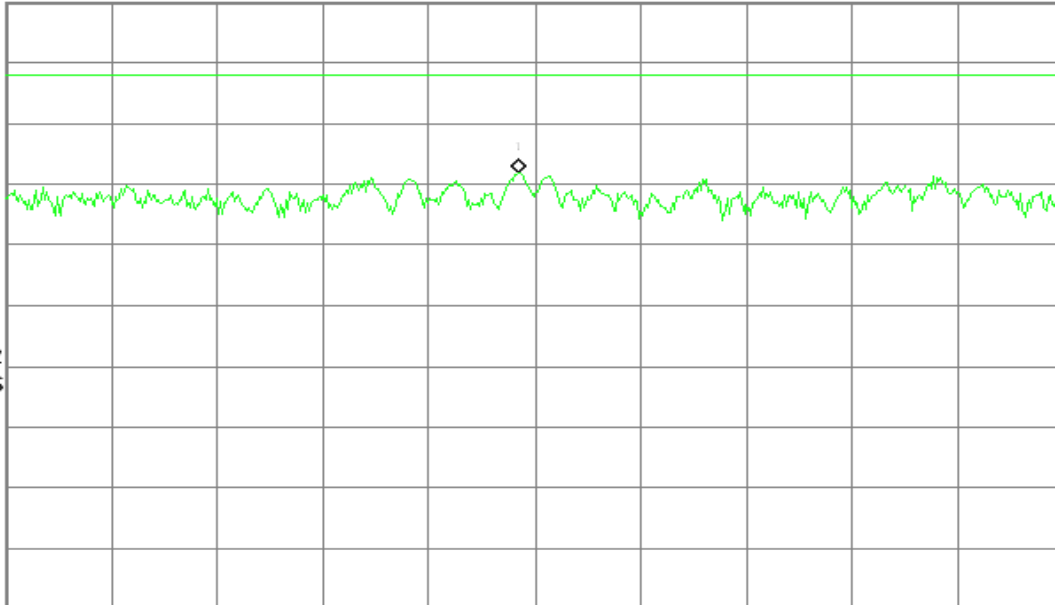
W1 S2

S3 FS

□(f):

f>50k

Swp



Center 2.463 300 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

### IEEE 802.11g

### PPSD (CH Low)

Agilent 16:49:08 Jul 6, 2009

R T

Peak Power Spectral Density, g Mode Low Ch.

Mkr1 2.412 596 1 GHz

Ref 20 dBm

Atten 10 dB

-11.93 dBm

#Peak

Log

10

dB/

Offst

20.8

dB

Dl

8.0

dBm

LgAv

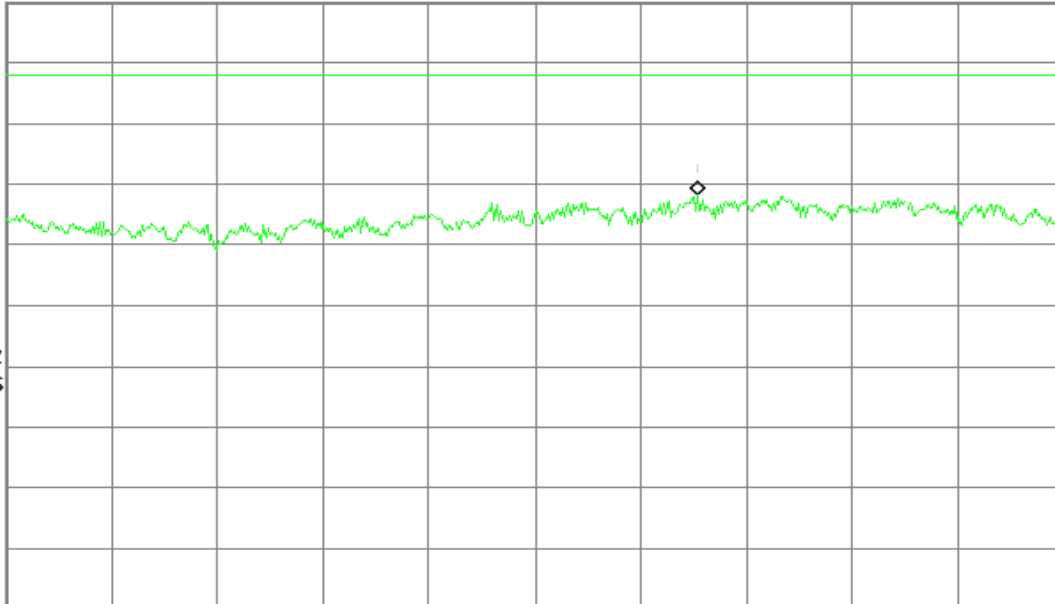
W1 S2

S3 FS

□(f):

f>50k

Swp



Center 2.412 550 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)





### PPSD (CH Mid)

Agilent 16:55:52 Jul 6, 2009

R T

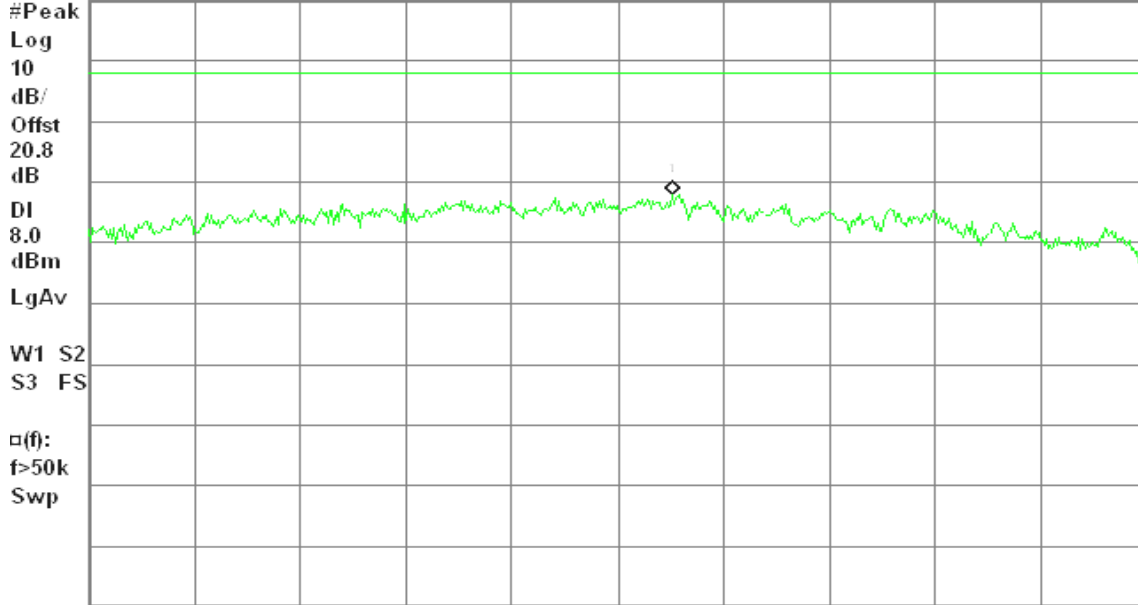
Peak Power Spectral Density, g Mode Mid Ch.

Mkr1 2.436 715 6 GHz

Ref 20 dBm

Atten 10 dB

-12.09 dBm



Center 2.436 700 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

### PPSD (CH High)

Agilent 17:05:29 Jul 6, 2009

R T

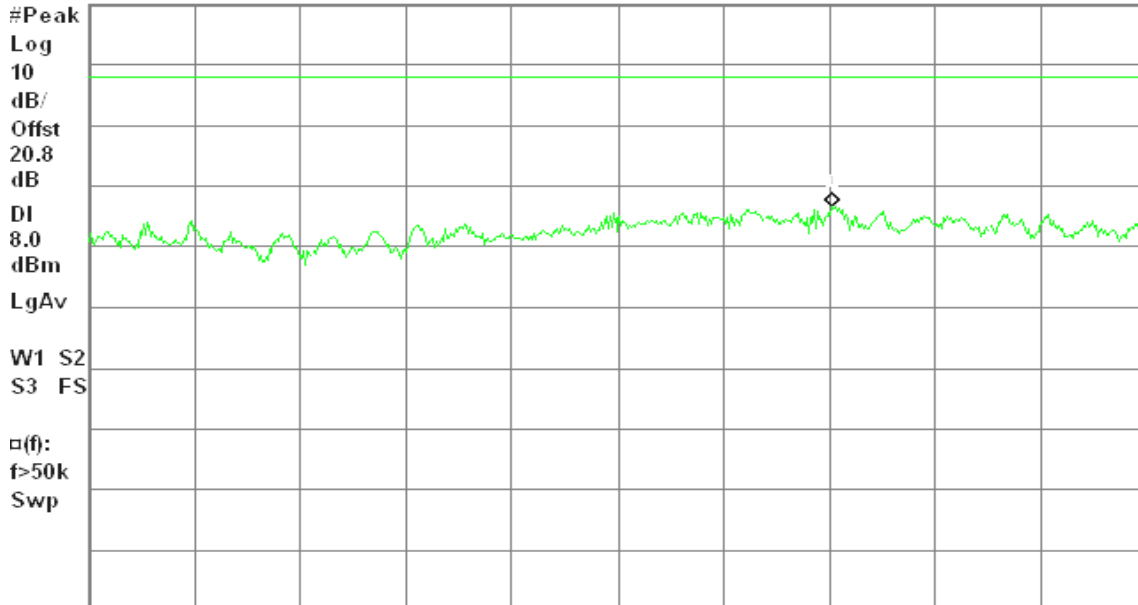
Peak Power Spectral Density, g Mode High Ch.

Mkr1 2.461 061 4 GHz

Ref 20 dBm

Atten 10 dB

-13.34 dBm



Center 2.461 000 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



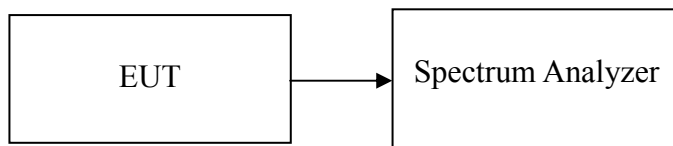
## 7.6 SPURIOUS EMISSIONS

### 7.6.1 Conducted Measurement

#### LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands 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, provided the transmitter demonstrates compliance with the peak conducted power limits. 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 Section 15.205(c)).

#### Test Configuration



#### TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

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

Measurements are made over the 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

#### TEST RESULTS

*No non-compliance noted.*



### Test Plot

### IEEE 802.11b

### CH Low

Agilent 16:12:44 Jul 6, 2009

R T

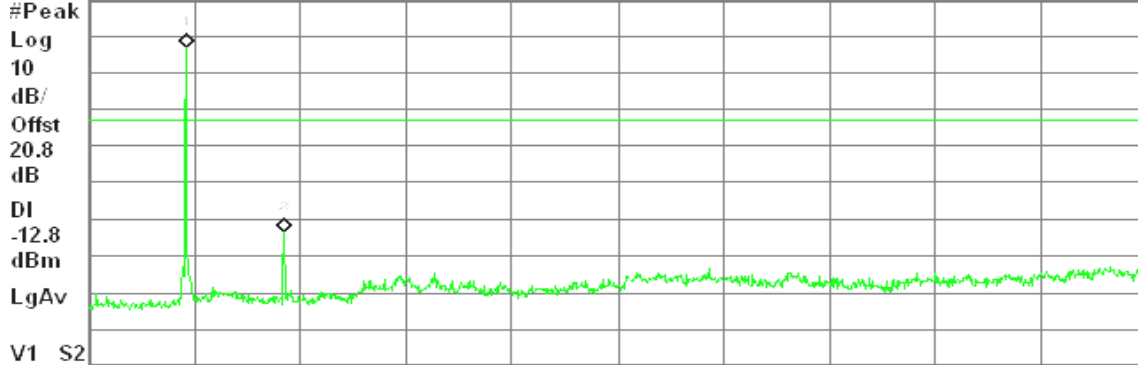
Spurious, b Mode Low Ch.

Mkr2 4.83 GHz

Ref 20 dBm

Atten 10 dB

-43.43 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.42 GHz	7.23 dBm
2	(1)	Freq	4.83 GHz	-43.43 dBm

### CH Mid

Agilent 16:22:44 Jul 6, 2009

R T

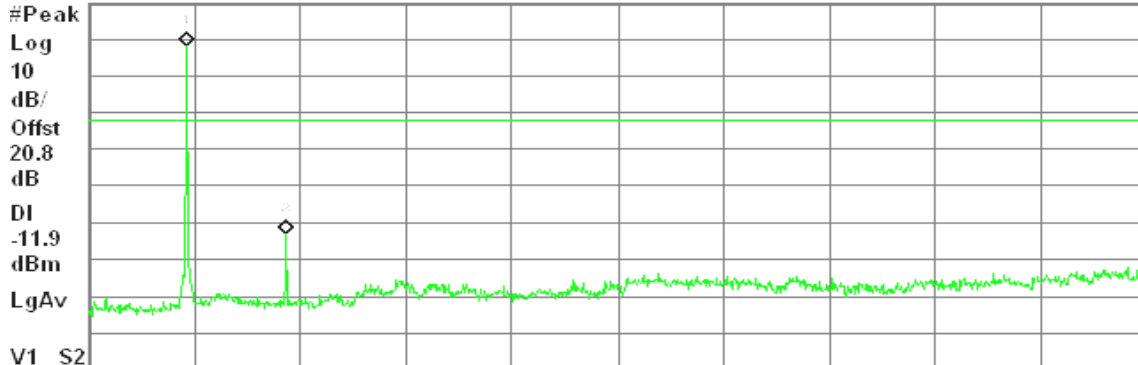
Spurious, b Mode Mid Ch.

Mkr2 4.89 GHz

Ref 20 dBm

Atten 10 dB

-43.12 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.46 GHz	8.12 dBm
2	(1)	Freq	4.89 GHz	-43.12 dBm



### CH High

Agilent 16:44:45 Jul 6, 2009

R T

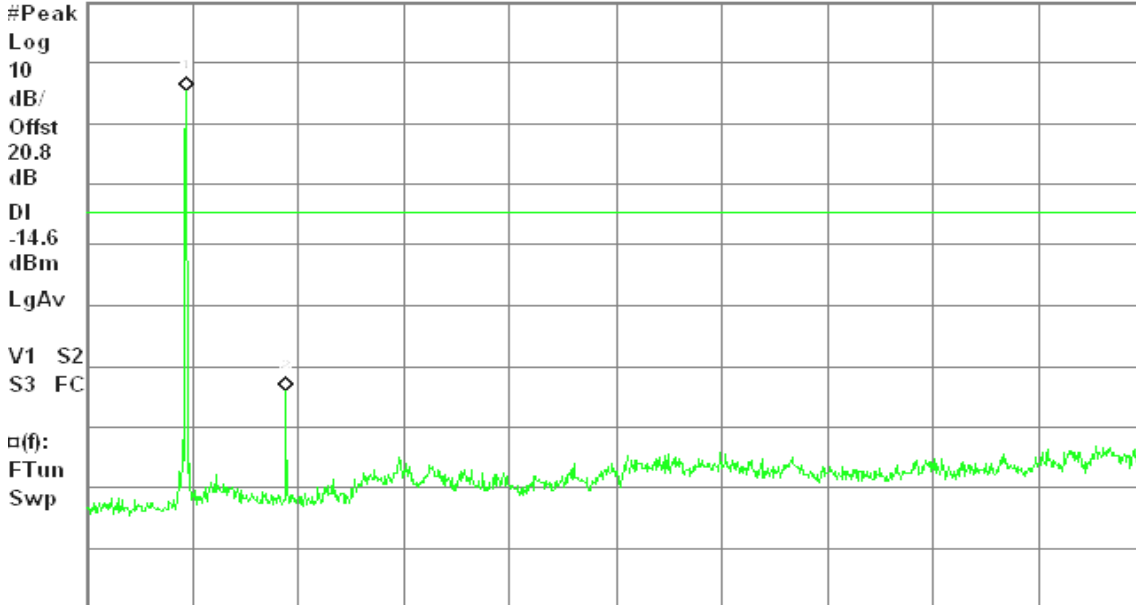
Spurious, b Mode High Ch.

Mkr2 4.91 GHz

Ref 20 dBm

Atten 10 dB

-43.88 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

### IEEE 802.11g

#### CH Low

Agilent 16:49:50 Jul 6, 2009

R T

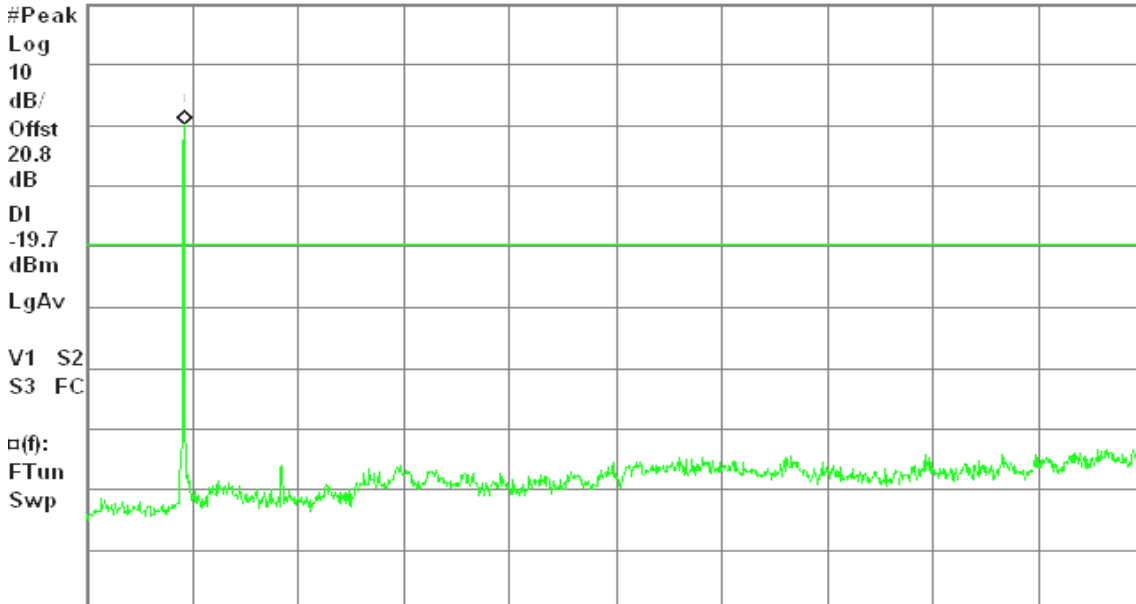
Spurious, g Mode Low Ch.

Mkr1 2.42 GHz

Ref 20 dBm

Atten 10 dB

0.29 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)



### CH Mid

Agilent 16:56:30 Jul 6, 2009

R T

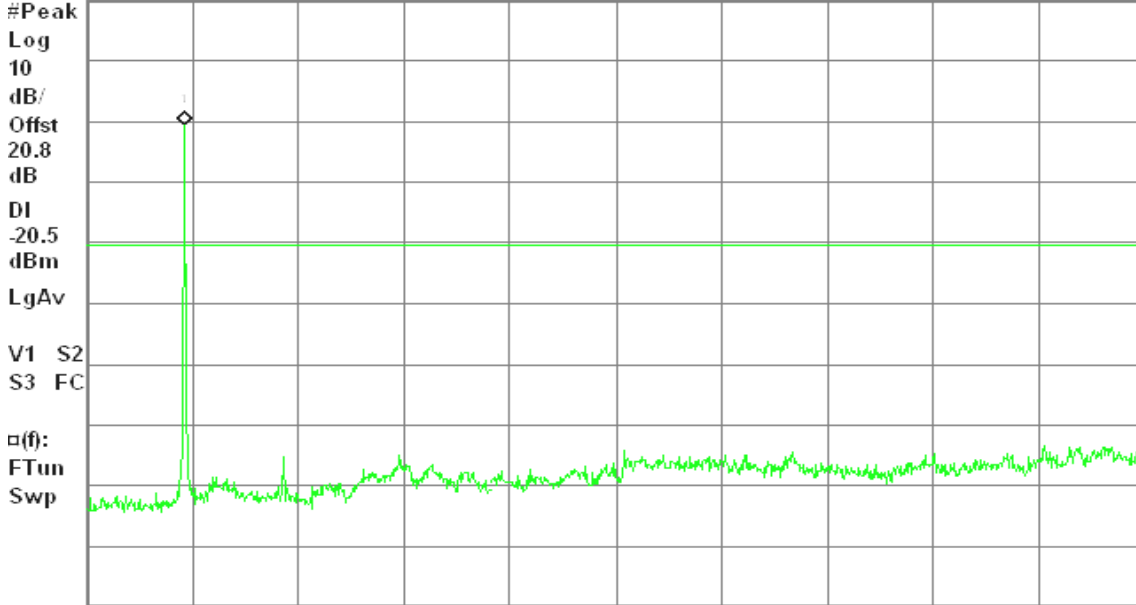
Spurious, g Mode Mid Ch.

Mkr1 2.45 GHz

Ref 20 dBm

Atten 10 dB

-0.50 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)

### CH High

Agilent 17:06:09 Jul 6, 2009

R T

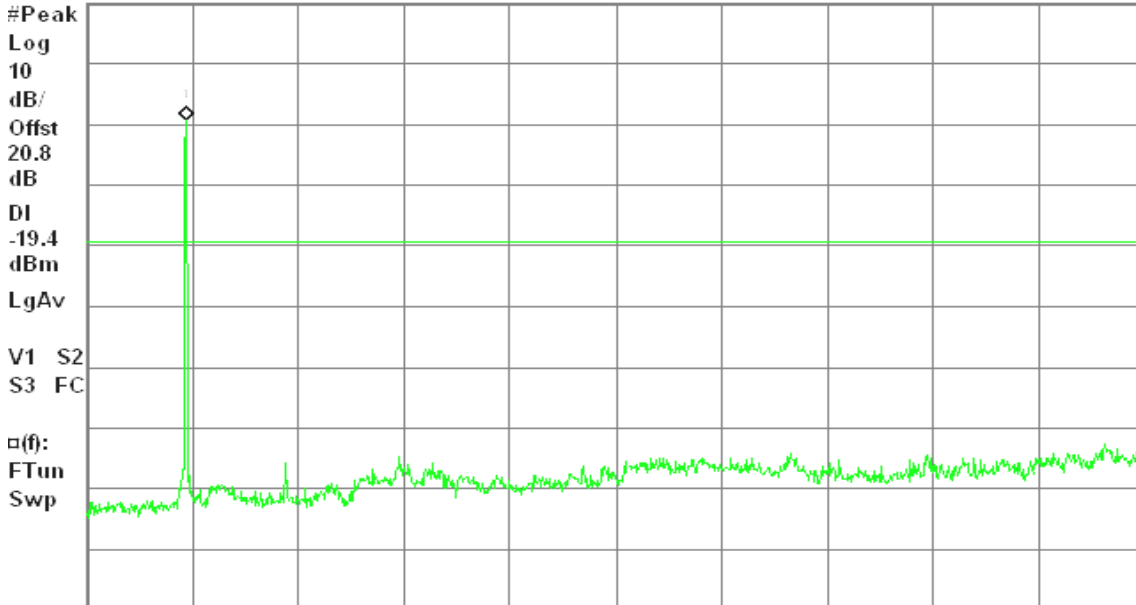
Spurious, g Mode High Ch.

Mkr1 2.47 GHz

Ref 20 dBm

Atten 10 dB

0.58 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.131 s (1001 pts)



### 7.6.2 Radiated Emissions

#### LIMIT

1. According to §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 (µV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

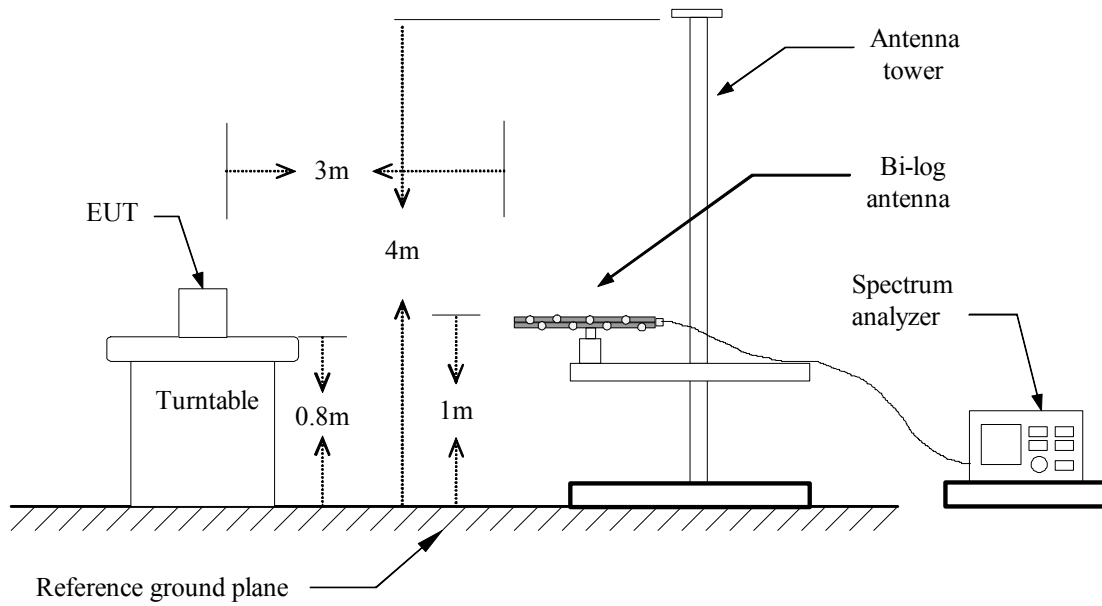
*Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

2. In the emission table above, the tighter limit applies at the band edges.

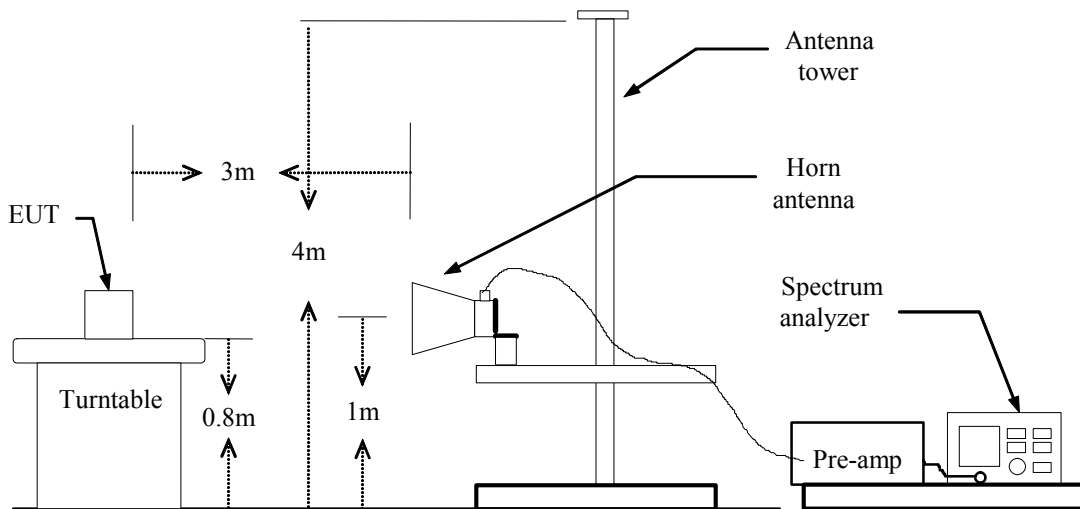
Frequency (MHz)	Field Strength (µV/m at 3-meter)	Field Strength (dBµV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

### Test Configuration

#### Below 1 GHz



#### Above 1 GHz





## **TEST PROCEDURE**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:  
Below 1GHz:  
RBW=100kHz / VBW=300kHz / Sweep=AUTO  
Above 1GHz:  
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO  
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.



**Below 1 GHz****Operation Mode:** Normal Link**Test Date:** July 8, 2009**Temperature:** 25°C**Tested by:** Ryan Chen**Humidity:** 50 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
67.18	V	40.08	-14.81	25.27	40.00	-14.73	Peak
144.78	V	34.83	-9.39	25.44	43.50	-18.06	Peak
240.17	V	31.16	-9.83	21.33	46.00	-24.67	Peak
448.72	V	29.01	-5.73	23.29	46.00	-22.71	Peak
599.07	V	36.64	-2.54	34.10	46.00	-11.90	Peak
666.97	V	36.33	-2.20	34.13	46.00	-11.87	Peak
30.00	H	25.22	-1.33	23.89	40.00	-16.11	Peak
167.42	H	31.58	-10.67	20.91	43.50	-22.59	Peak
240.17	H	41.07	-9.83	31.24	46.00	-14.76	Peak
599.07	H	31.46	-2.54	28.92	46.00	-17.08	Peak
663.73	H	29.55	-2.22	27.33	46.00	-18.67	Peak
718.70	H	27.88	-1.38	26.49	46.00	-19.51	Peak

**Remark:**

1. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz)
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.
3. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.
4. 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.
5. Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).



**Above 1 GHz**

**Operation Mode:** IEEE 802.11b / TX / CH Low

**Test Date:** July 8, 2009

**Temperature:** 25°C

**Tested by:** Ryan Chen

**Humidity:** 50 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1696.67	V	51.07	---	-5.15	45.92	---	74.00	54.00	-8.08	Peak
N/A										
1706.67	H	50.76	---	-5.05	45.71	---	74.00	54.00	-8.29	Peak
N/A										

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. 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.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: IEEE 802.11b / TX / CH Mid

Test Date: July 8, 2009

Temperature: 25°C

Tested by: Ryan Chen

Humidity: 50 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1326.67	V	51.48	---	-7.35	44.12	---	74.00	54.00	-9.88	Peak
N/A										
2360.00	H	53.55	---	-1.65	51.89	---	74.00	54.00	-2.11	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. 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.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: IEEE 802.11b / TX / CH High

Test Date: July 8, 2009

Temperature: 25°C

Tested by: Ryan Chen

Humidity: 50 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1483.33	V	50.73	---	-7.06	43.66	---	74.00	54.00	-10.34	Peak
N/A										
2046.67	H	50.59	---	-2.17	48.42	---	74.00	54.00	-5.58	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. 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.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: IEEE 802.11g / TX / CH Low

Test Date: July 8, 2009

Temperature: 25°C

Tested by: Ryan Chen

Humidity: 50 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
2243.33	V	50.24	---	-1.85	48.39	---	74.00	54.00	-5.61	Peak
N/A										
1330.00	H	49.94	---	-2.16	47.79	---	74.00	54.00	-6.21	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. 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.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: IEEE 802.11g / TX / CH Mid

Test Date: July 8, 2009

Temperature: 25°C

Tested by: Ryan Chen

Humidity: 50 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1793.33	V	51.11	---	-4.23	46.89	---	74.00	54.00	-7.11	Peak
N/A										
1876.67	H	48.94	---	-3.43	45.51	---	74.00	54.00	-8.49	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. 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.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: IEEE 802.11g / TX / CH High

Test Date: July 8, 2009

Temperature: 25°C

Tested by: Ryan Chen

Humidity: 50 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
2113.33	V	50.31	---	-2.06	48.25	---	74.00	54.00	-5.75	Peak
N/A										
1850.00	H	50.74	---	-3.68	47.06	---	74.00	54.00	-6.94	Peak
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. 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.
5. 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.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



## 7.7 POWERLINE CONDUCTED EMISSIONS

### LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of 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 Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

### Test Configuration

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

### TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.





## TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

### Test Data

**Operation Mode:** Normal Link

**Test Date:** July 1, 2009

**Temperature:** 22°C

**Tested by:** Ryan Chen

**Humidity:** 45% RH

Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB)	QP Result (dBuV)	AV Result (dBuV)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.3550	46.63	38.23	0.07	46.70	38.30	58.84	48.84	-12.14	-10.54	L1
0.4000	46.73	39.73	0.07	46.80	39.80	57.85	47.85	-11.05	-8.05	L1
0.6000	44.24	36.34	0.06	44.30	36.40	56.00	46.00	-11.70	-9.60	L1
1.0300	42.55	31.95	0.05	42.60	32.00	56.00	46.00	-13.40	-14.00	L1
1.5200	41.94	30.74	0.06	42.00	30.80	56.00	46.00	-14.00	-15.20	L1
7.9700	44.40	32.00	0.10	44.50	32.10	60.00	50.00	-15.50	-17.90	L1
0.3550	48.13	41.33	0.07	48.20	41.40	58.84	48.84	-10.64	-7.44	L2
0.4000	47.23	39.23	0.07	47.30	39.30	57.85	47.85	-10.55	-8.55	L2
0.5150	45.34	39.04	0.06	45.40	39.10	56.00	46.00	-10.60	-6.90	L2
1.0300	43.35	32.65	0.05	43.40	32.70	56.00	46.00	-12.60	-13.30	L2
1.6650	41.04	30.04	0.06	41.10	30.10	56.00	46.00	-14.90	-15.90	L2
8.4850	46.80	35.10	0.10	46.90	35.20	60.00	50.00	-13.10	-14.80	L2

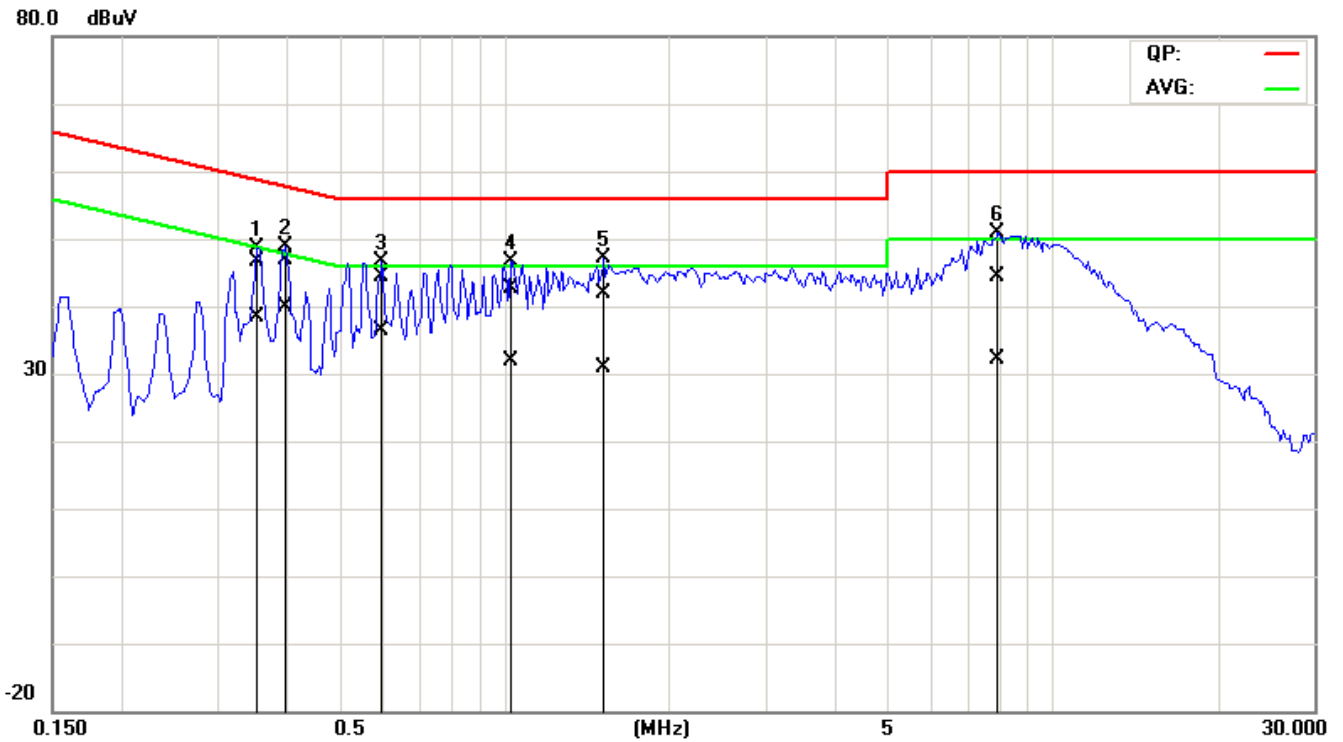
### **Remark:**

1. Measuring frequencies from 0.15 MHz to 30MHz.
2. The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
3. The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

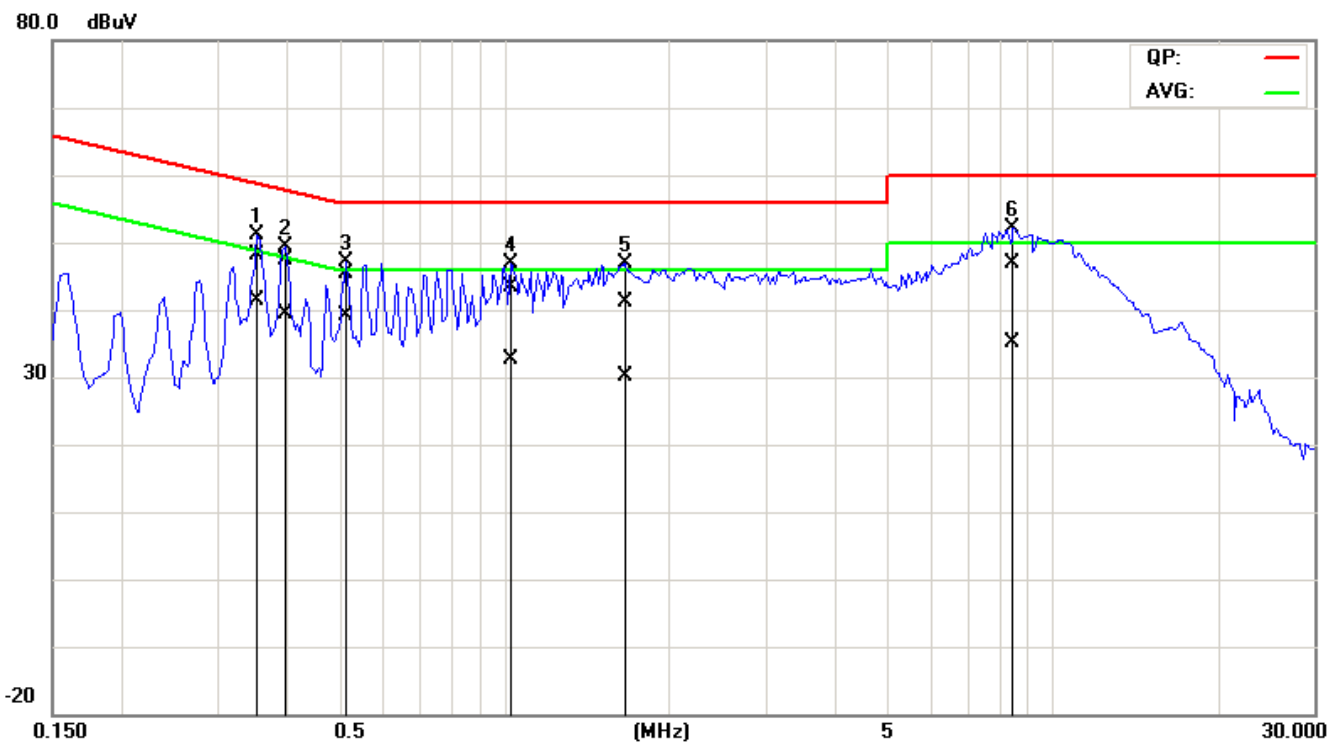


### Test Plots

#### Conducted emissions (Line 1)



#### Conducted emissions (Line 2)





# APPENDIX I RADIO FREQUENCY EXPOSURE

## LIMIT

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

## EUT Specification

<b>EUT</b>	Pocket PC Phone
<b>Frequency band (Operating)</b>	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input type="checkbox"/> Bluetooth: <u>2.402GHz ~ 2.480 GHz</u>
<b>Device category</b>	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation)
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm2) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm2)
<b>Antenna diversity</b>	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
<b>Max. output power</b>	IEEE 802.11b: 20.42 dBm (110.15mW) IEEE 802.11g: 21.14 dBm (130.01mW)
<b>Antenna gain (Max)</b>	1.0 dBi (Numeric gain: 1.25)
<b>Evaluation applied</b>	<input type="checkbox"/> MPE Evaluation <input checked="" type="checkbox"/> SAR Evaluation* <input type="checkbox"/> N/A

### Remark:

1. The maximum output power is 21.14dBm (130.01mW) at 2437MHz (with 1.25 numeric antenna gain.)
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.
3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is  $1.0 \text{ mW/cm}^2$  even if the calculation indicates that the power density would be larger.

## TEST RESULTS

No non-compliance noted.

**Remark:** Please refer to the separated SAR report.