Lab Code: 200167-0

FCC PART 15.407

MEASUREMENT AND TEST REPORT

For

Motion Computing, Inc.

8601 Ranch Road 2222, Building 2
Austin, TX 78730, USA

FCC ID: Q3QIWM3945ABG

Report Type:	**Product Type:**
☒ Original Report	802.11 a/b/g Wireless Tablet PC

Test Engineer:	Dan Coronia
Report Number:	R0705223-407
Report Date:	2007-06-01
Reviewed By:	Daniel Deng, RF Engineering Lead
Prepared By: (63)	**Bay Area Compliance Laboratories Corp. (BACL)** 1274 Anvilwood Ave. Sunnyvale, CA 94089 Tel: (408) 732-9162 Fax: (408) 732 9164

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

This BACL measurement and test report has been compiled on behalf of *Motion Computing Inc.* and their product *FCC ID: Q3QIWM3945ABG*, or the EUT as referred to in the rest of this report which is a mobile computing and wireless communications device that supports 802.11 a/b/g wireless data protocol that operates on 2412-2462 MHz, 5150-5350 MHz and 5745-5825 MHz. The EUT is designed for field sales, service, healthcare and government applications.

** The test data gathered in this report were from a production sample provided by the manufacturer with the serial number: 00214569-LE1700.*

Antenna Information

Yageo Multi-band Wireless LAN Antennae			
Frequency (MHz)	**Main Antenna Gain (dBi)**	**Aux Antenna Gain (dBi)**	**Aux (bottom) Antenna Gain (dBi)**
2450	-0.83	-1.90	-0.33
5150	-0.76	-0.14	1.49
5725	1.51	-0.47	2.26

EUT Photo

Additional EUT photos in Exhibit C

Mechanical Description

The *Motion Computing Inc.* product measures approximately 298 mm (L) x 245 mm (W) x 22 mm (H) and weighs approximately 1474 g; it is of Polycarbon and Magnesium-alloy construction.

Objective

This type approval report is prepared on behalf of *Motion Computing Inc.* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for the following test items: Conducted Output Power, Antenna Requirements, AC Line Conducted Emission and Radiated Emissions in Restricted Bands.

As declared by *Motion Computing Inc.*, the transmitter module used in the model T006, is identical to the module which has been certified for Intel Corporation (FCC ID: PD9WM3945ABG, Model: WM3945ABG), with exception being the antenna. The antenna used in T006 model has less gain than the antenna in the certified WM3945ABG model. Thus, the output power has been reduced through software to comply with RF exposure (SAR) requirements.

Related Submittal(s)/Grant(s)

This submittal is related to certified transmitter module manufactured by Intel Corporation (FCC ID: PD9WM3945ABG, Model WM3945ABG tested by Aegis Labs Inc. in report: INTEL-050902F).

Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the values range from $\pm$2.0 for Conducted Emissions tests and $\pm$4.0 dB for Radiated Emissions tests are the most accurate estimates pertaining to uncertainty of EMC measurements at BACL.

Detailed instrumentation measurement uncertainties can be found in BACL report QAP-018.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by BACL Corp. to collect radiated and conducted emissions measurement data is located at it's facility in Sunnyvale, California, USA.

Test site at BACL has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission and Voluntary Control Council for Interference have the reports on file and is listed under FCC registration number: 90464 and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The current scope of accreditations can be found at http://ts.nist.gov/ts/htdocs/210/214/scopes/2001670.htm

SYSTEM TEST CONFIGURATION

Justification

The host system was configured for testing according to ANSI C63.4-2003.

The EUT was tested in the testing mode to represent *worst*-case results during the final qualification test.

EUT Exercise Software

The EUT is programmed with the following data rate settings that were used during testing:

Channel	Mode	Frequency (MHz)	Date Rate (Mbps)
36	802.11a	5180	6
52	802.11a	5260	6
64	802.11a	5320	6
149	802.11a	5745	6
157	802.11a	5785	6
165	802.11a	5825	6

Special Accessories

There were no special accessories were required, included, or intended for use with EUT during these tests.

Equipment Modifications

No modifications were made to the EUT.

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Motion Computing	LE-Series Convertible Keyboard	KB004	23736UU
Motion Computing	DVD-ROM / CD-RW Drive	EDW085	CN-042020006-00381-69E-00A8
Dell	VGA Monitor	E153FPB	CN-0D5421-46633-4BR-2J8U
LEXAR	USB Flash Drive	256MB	Not labeled
LEXAR	USB Flash Drive	256MB	Not labeled
Logitek	Desktop Speakers	SP-12	Not labeled
LEXAR	SD Card	256MB	Not labeled

Interface Ports and Cabling

Cable Description	Length (M)	Cable Type	From	To
VGA	3	Shielded	Dell Monitor	EUT
Speaker	>1	Un-shielded	Desktop Speakers	EUT
Optical Disk Drive	>1	Un-shielded	ODD	EUT
DC Power Supply	3	Shielded	Delta ADP-50HH	EUT

SUMMARY OF TEST RESULTS

Results reported relate only to the product tested.

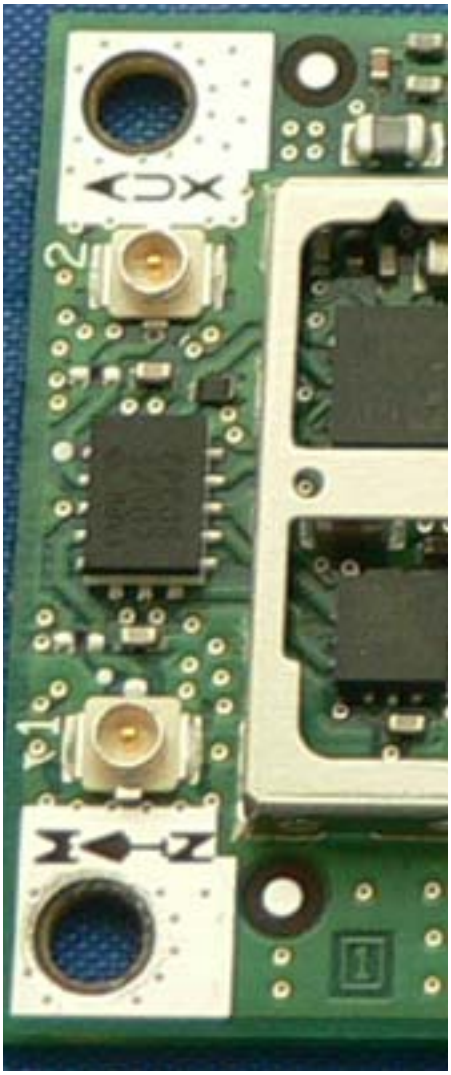
Fcc Rules	Description of Test	Result
§15.407 (f) §2.1093	RF Exposure	Compliant, Please refer to BACL SAR report R0705223-SAR
§15.203	Antenna Requirement	Compliant
§ 15.207 (a)	Conducted Emissions	Compliant
§ 15.407 (b)(1) & (b)(2)	Spurious Emissions at Antenna Port	Compliant
§15.205	Restricted Band	Compliant
§15.209 (a) & §15.407(a)(1) & (a)(2)	Spurious Radiated Emissions	Compliant
§15.247 (a)(2)	99% & 26 dB Bandwidth	NA
§15.407 (a)(1) & (a)(2)	Maximum Peak Output Power	Compliant
§ 15.407 (a)(6)	Peak Excursion	Compliant, Please refer to Aegis Labs Report: INTEL-050902F
§15.407 (a)(1) & (a)(2)	Power Spectral Density	Compliant, Please refer to Aegis Labs Report: INTEL-050902F
§15.407 (h)	DFS	Please refer to DFS report by CCS Labs Report: 06U10569-1

§15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Result: Compliant, the antennae for this device are dual band antennae. Each antenna features a unique connector type (U.FL) and are integral to the device:



§15.107 - CONDUCTED EMISSIONS

Section 15.107 Conducted limits:

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 µH/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 (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

** Decreases with the logarithm of the frequency.*

Test Setup

The measurement was performed at shielded room, using the setup per ANSI C63.4 – 2003 measurement procedure. The specification used was FCC Class B limits.

External I/O cables were draped along the edge of the test table and bundle when necessary.

The EUT was connected to DC power via AC/DC adapter plugged into 120V/ 60 Hz AC Mains.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100337	2007-03-08
Solar Electronics	LISN	9252-R-24-BNC	511205	2006-07-07

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Procedure

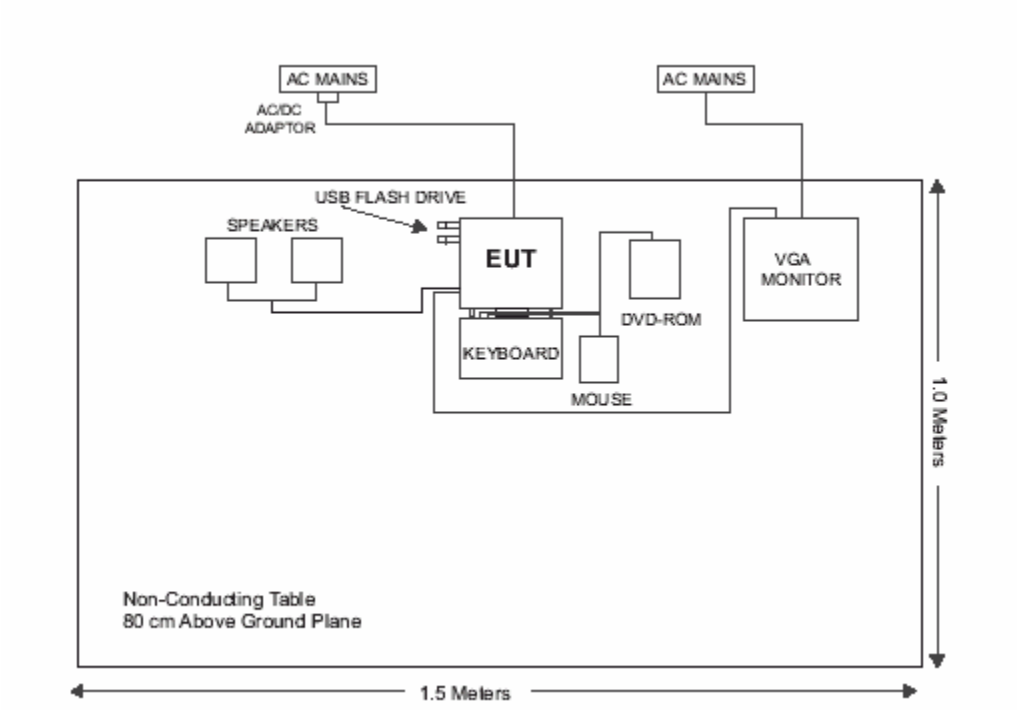
During the conducted emissions test, the power cord of the EUT was connected to the mains outlet of the LISN-1.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the peak detection mode, quasi-peak and average. Quasi-Peak readings are distinguished with a "QP". Average readings are distinguished with an "Ave".

Test Setup Diagram

Conducted Emissions



Environmental Conditions

Temperature:	20° C -23° C
Relative Humidity:	30% - 63%
ATM Pressure:	101.1 – 101.9 kPa

** The testing was performed by Dan Coronia from 2007-05-22 to 2007-05-30*

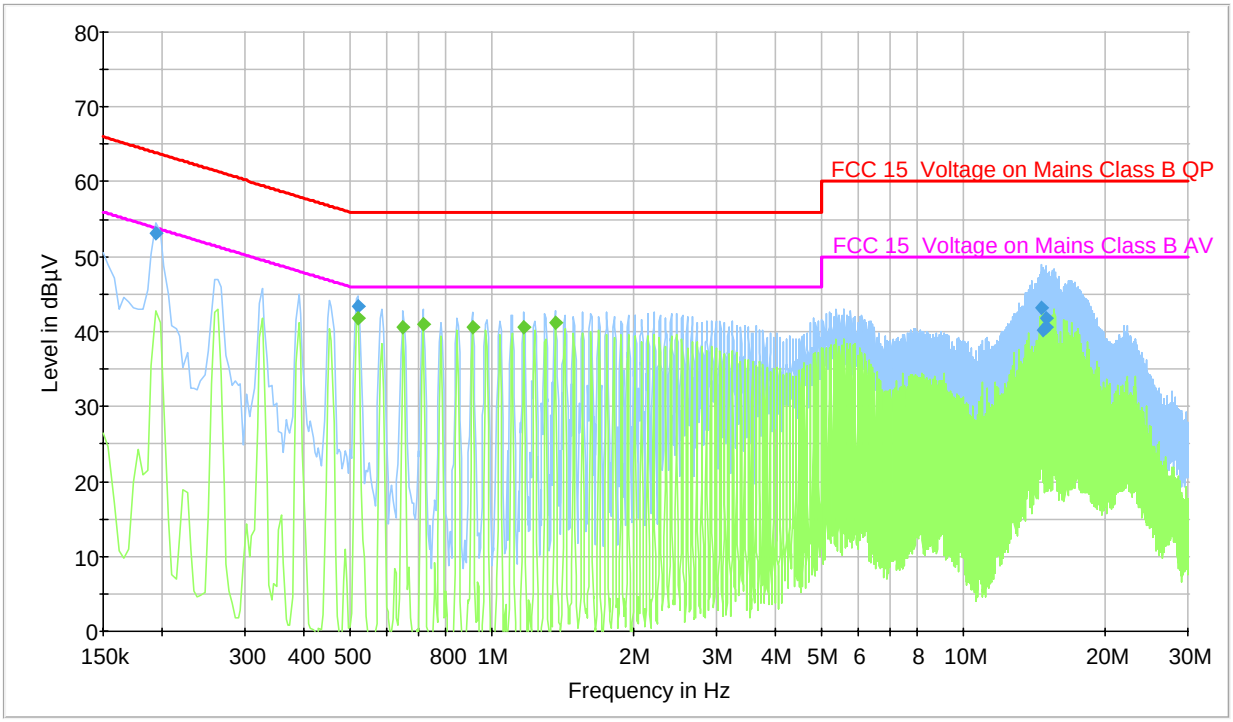
Summary of Test Results

According to the recorded data in following table, the EUT complied with the FCC standard's conducted emissions limits for Class B devices, with the *worst* margin reading of:

AC Adaptor:

-4.2 dB at **0.522000 MHz** in the Line conductor mode

120V/60 Hz Hot:



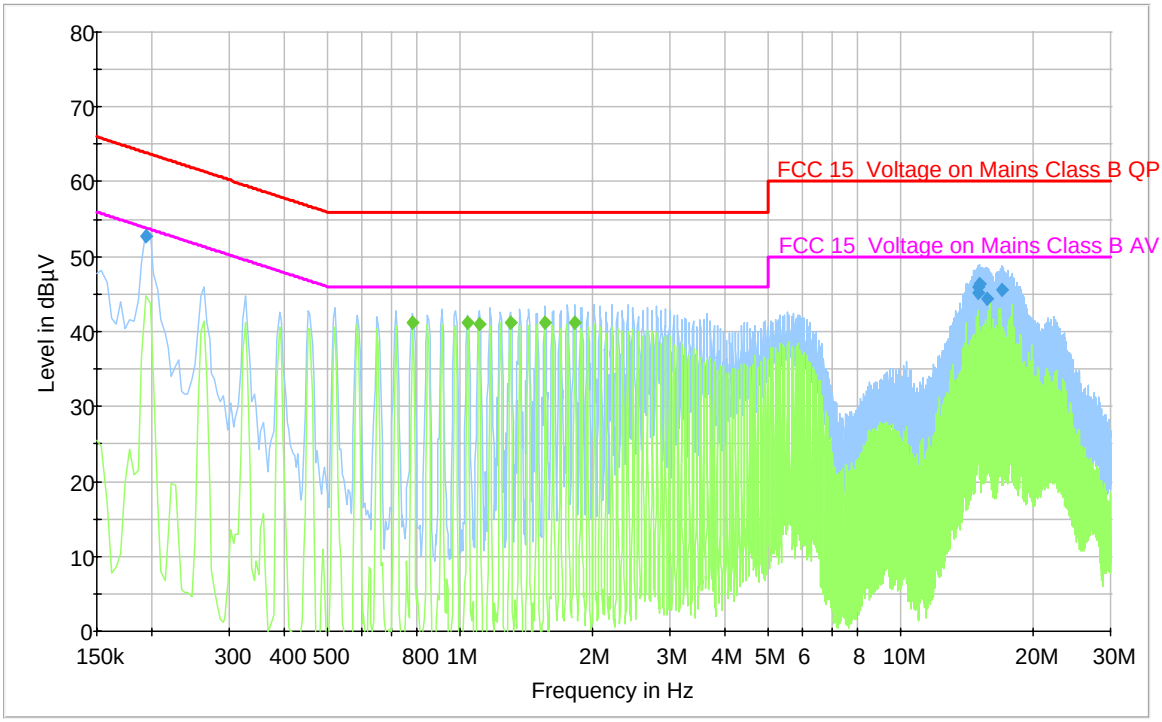
Quasi-Peak

Frequency (MHz)	Quasi Peak (dBµV)	Hot/Neutral	Correction Factor (dB)	Limit (dBµV)	Margin (dB)
0.194000	53.2	Hot	12.1	63.9	-10.7
0.522000	43.3	Hot	12.3	56.0	-12.7
14.694000	43.2	Hot	12.5	60.0	-16.8
14.954000	41.7	Hot	12.4	60.0	-18.3
15.018000	40.5	Hot	12.5	60.0	-19.5
14.758000	40.2	Hot	12.5	60.0	-19.8

Average

Frequency (MHz)	Average (dBµV)	Hot/Neutral	Correction Factor (dB)	Limit (dBµV)	Margin (dB)
0.522000	41.8	Hot	12.3	46.0	-4.2
1.366000	41.2	Hot	12.2	46.0	-4.8
0.714000	41.0	Hot	12.3	46.0	-5.0
0.910000	40.7	Hot	12.3	46.0	-5.3
0.650000	40.5	Hot	12.3	46.0	-5.5
1.170000	40.5	Hot	12.3	46.0	-5.5

120V/60 Hz Neutral:



Quasi-Peak

Frequency (MHz)	Quasi Peak (dBµV)	Hot/Neutral	Correction Factor (dB)	Limit (dBµV)	Margin (dB)
0.194000	52.7	Neutral	12.1	63.9	-11.1
14.970000	46.0	Neutral	12.4	60.0	-14.0
15.038000	45.1	Neutral	12.5	60.0	-14.9
15.166000	46.4	Neutral	12.5	60.0	-13.6
15.750000	44.4	Neutral	12.3	60.0	-15.6
17.054000	45.5	Neutral	12.6	60.0	-14.5

Average

Frequency (MHz)	Average (dBµV)	Hot/Neutral	Correction Factor (dB)	Limit (dBµV)	Margin (dB)
0.782000	41.2	Neutral	12.3	46.0	-4.8
1.042000	41.2	Neutral	12.3	46.0	-4.8
1.106000	41.1	Neutral	12.3	46.0	-4.9
1.302000	41.2	Neutral	12.3	46.0	-4.8
1.562000	41.1	Neutral	12.3	46.0	-4.9
1.822000	41.2	Neutral	12.3	46.0	-4.8

§15.205 & §15.109 & §15.407(b) - RADIATED SPURIOUS EMISSIONS

Applicable Standard

As per 15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz.

As per 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)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

** 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.

As Per 15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	960 – 1240	4. 5 – 5. 15
0.495 – 0.505	16.69475 – 16.69525	1300 – 1427	5. 35 – 5. 46
2.1735 – 2.1905	25.5 – 25.67	1435 – 1626.5	7.25 – 7.75
4.125 – 4.128	37.5 – 38.25	1645.5 – 1646.5	8.025 – 8.5
4.17725 – 4.17775	73 – 74.6	1660 – 1710	9.0 – 9.2
4.20725 – 4.20775	74.8 – 75.2	1718.8 – 1722.2	9.3 – 9.5
6.215 – 6.218	108 – 121.94	2200 – 2300	10.6 – 12.7
6.26775 – 6.26825	123 – 138	2310 – 2390	13.25 – 13.4
6.31175 – 6.31225	149.9 – 150.05	2483.5 – 2500	14.47 – 14.5
8.291 – 8.294	156.52475 – 156.52525	2690 – 2900	15.35 – 16.2
8.362 – 8.366	156.7 – 156.9	3260 – 3267	17.7 – 21.4
8.37625 – 8.38675	162.0125 –167.17	3332 – 3339	22.01 – 23.12
8.41425 – 8.41475	167.72 – 173.2	3345.8 – 3358	23.6 – 24.0
12.29 – 12.293	240 – 285	3600 – 4400	31.2 – 31.8
12.51975 – 12.52025	322 – 335.4		36.43 – 36.5
12.57675 – 12.57725	399.9 – 410		Above 38.6
13.36 – 13.41	608 – 614		

As per 15.407(b): Undesirable emission limits: Except as shown in paragraph (b)(6) of this section, the peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.

(4) For transmitters operating in the 5.725–5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of –17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of –27 dBm/MHz.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

Test Setup

The radiated emissions tests were performed in the 3-meter open area test site, using the setup in accordance with ANSI C63.4-2003. The specification used was the FCC 15 Subpart E limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle when necessary.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Sonoma	Amplifier, Pre	317	260406	2007-04-30
Agilent	Pre amplifier	8449B	3008A01978	2006-08-10
Sunol Science Corp	Combination Antenna	JB3 Antenna	A020106-3	2007-03-05
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.595 0K03	100337	2007-03-08
Sunol Science Corp	System Controller	S9V	113005-1	NR
Agilent	Spectrum Analyzer	E4440A	MY44303352	2007-02-23
A.R.A	Antenna Horn	DRG-118/A	1132	2006-08-17
Agilent	Spectrum Analyzer	8565EC	3946A00131	2007-01-24

* **Statement of Traceability:** BACL attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

For the radiated emissions test, the EUT, and all support equipment power cords was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 mete, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

The spectrum analyzer or receiver is set as:

Below 1000MHz:

RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000MHz:

(1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
(2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto

Corrected Amplitude & Margin Calculation

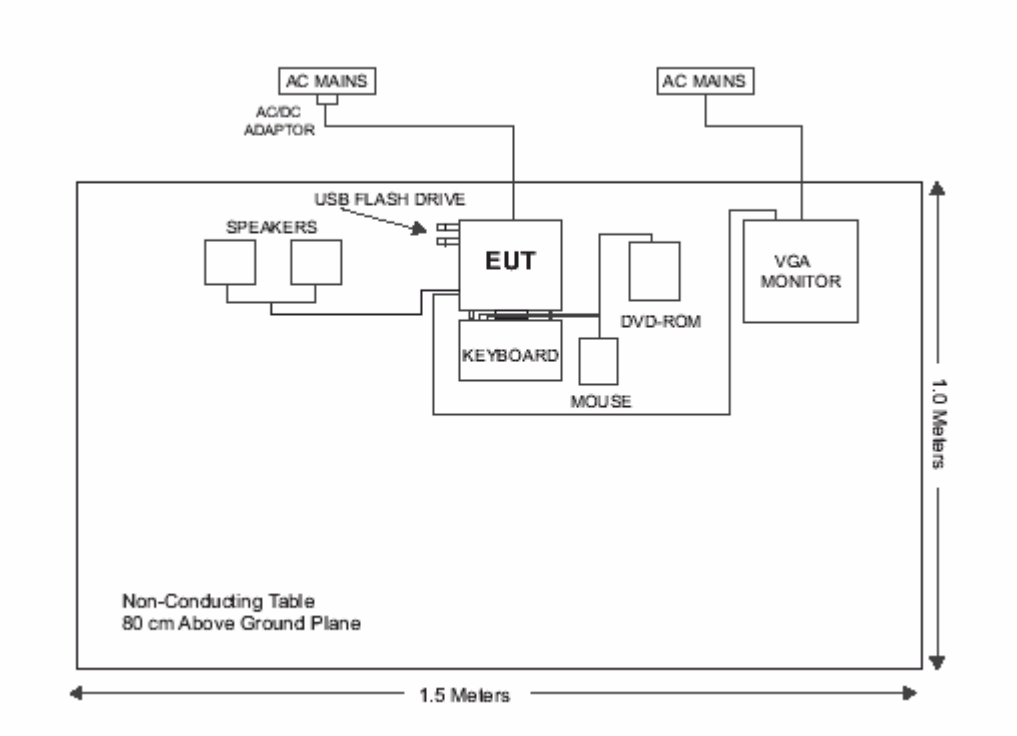
The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corrected Amplitude = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit.
The equation for margin calculation is as follows:

Margin = Corrected Amplitude - FCC Limit

Test Setup Diagram



Environmental Conditions

Temperature:	22° C
Relative Humidity:	56 %
ATM Pressure:	104.1 kPa

** The testing was performed by Dan Coronia from 2007-05-22 to 2007-05-30*

Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Title 47, Part 15, Subpart E, section 15.205, 15.209 and 15.407, and had the worst margin of:

Unintentional Emissions:

Mode: Receiver			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Channel**
-1.5	745.658750	Horizontal	NA, 30 MHz to 1000 MHz

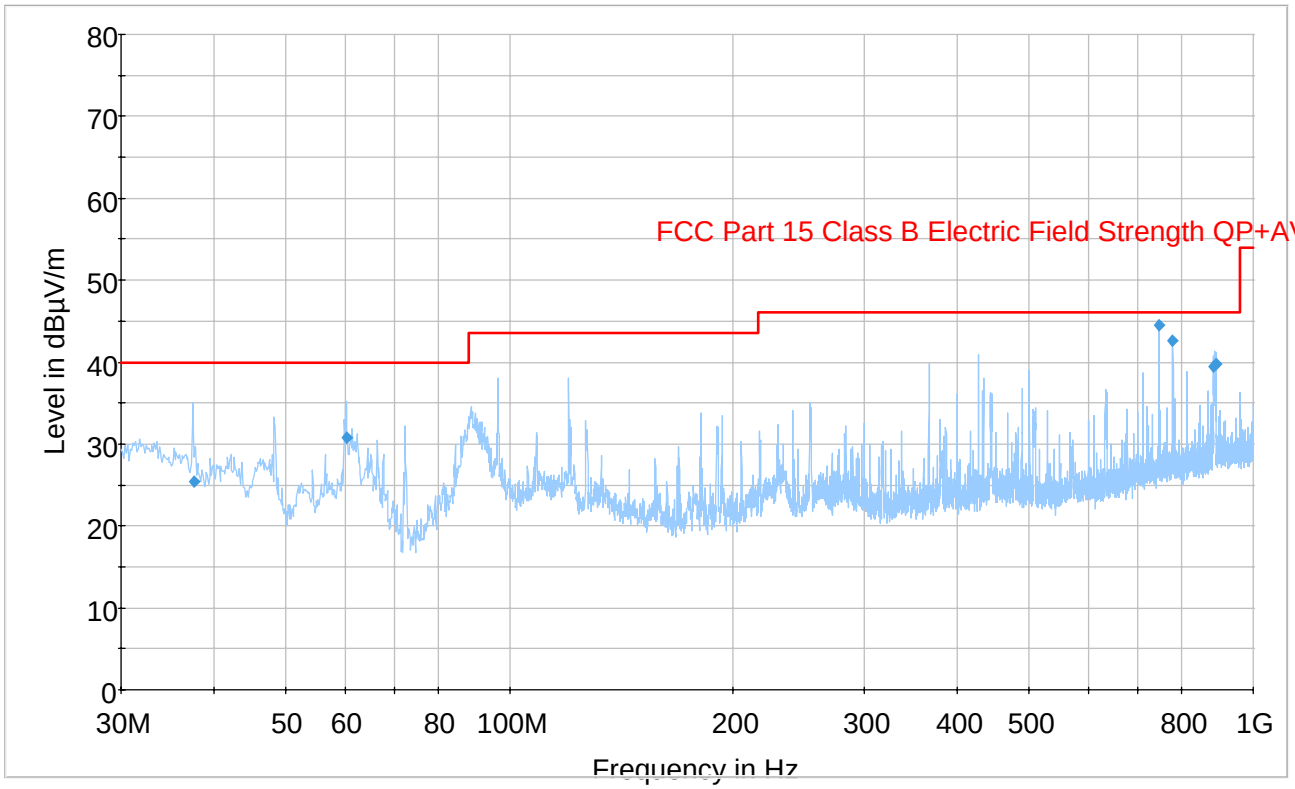
Intentional Emissions:

Mode: 802.11 a (5150 - 5250			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Channel**
-5.28	10360.13	Vertical	Low, 1 GHz – 25GHz
-6.52	10520.73	Vertical	Middle, 1 GHz – 25GHz
-7.43	10640.13	Vertical	High, 1 GHz – 25GHz

Please see the following plots and tables for full test result details

Radiated Emissions Test plot & data:

Primary scan 30MHz -1GHz



Frequency (MHz)	Quasi-Peak (dBµV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (degrees)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
745.658750	44.5	100.0	H	61.0	5.5	46.0	-1.5
779.568750	42.6	100.0	H	52.0	5.8	46.0	-3.4
890.107500	39.8	100.0	V	198.0	6.9	46.0	-6.2
885.303750	39.5	100.0	V	197.0	6.8	46.0	-6.5
60.312500	30.8	100.0	H	202.0	-8.1	40.0	-9.2
37.677500	25.4	100.0	V	100.0	0.2	40.0	-14.6

802.11a *5150 – 5250 MHz band***:**

Low channel

Frequency (MHz)	Reading (dBµV)	Cable loss (dB)	AF + Pre-Amplifier Gain (dB/m)	Corrected Reading (dBµV/m)	Azimuth (Degrees)	Height (cm)	Polarization (H / V)	FCC 15 E		Measurements Type
								Limit (dBµV/m)	Margin (dB)	
10360.13	35.85	4.79	7.53	48.17	98	241	V	54	-5.28	Average Max
10360.13	52.63	4.79	7.53	64.95	98	241	V	74	-9.05	Peak Max
*18000.00	24.31	6.53	13.11	43.95	110	3	V	54	-10.05	Average Max
*18000.00	24.31	6.53	13.11	43.95	129	244	V	54	-10.05	Average Max
*18000.00	41.00	6.53	13.11	60.64	129	244	V	74	-13.36	Peak Max
*18000.00	40.85	6.53	13.11	60.49	110	3	V	74	-13.51	Peak Max
15540.12	25.08	6.15	9.03	40.26	227	281	V	54	-13.74	Average Max
15540.12	40.82	6.15	9.03	56.00	248	355	H	74	-18.00	Peak Max

Middle channel

Frequency (MHz)	Reading (dBµV)	Cable loss (dB)	AF + Pre-Amplifier Gain (dB/m)	Corrected Reading (dBµV/m)	Azimuth (Degrees)	Height (cm)	Polarization (H / V)	FCC 15 E		Measurements Type
								Limit (dBµV/m)	Margin (dB)	
10520.73	35.09	4.81	7.58	47.48	139	215	V	54	-6.52	Average Max
10520.73	53.33	4.81	7.58	65.72	139	215	H	74	-8.28	Peak Max
15780.10	24.4	6.41	13.41	44.22	141	39	V	54	-9.78	Average Max
*17998.83	24.36	6.53	13.11	44.00	251	154	V	54	-10.00	Average Max
*17999.97	24.35	6.53	13.11	43.99	259	266	V	54	-10.01	Average Max
15780.12	40.26	6.41	13.41	60.08	129	169	V	74	-13.92	Peak Max
*17999.97	40.05	6.53	13.11	59.69	259	266	V	74	-14.31	Peak Max
*17998.83	40.02	6.53	13.11	59.66	251	154	V	74	-14.34	Peak Max

High channel

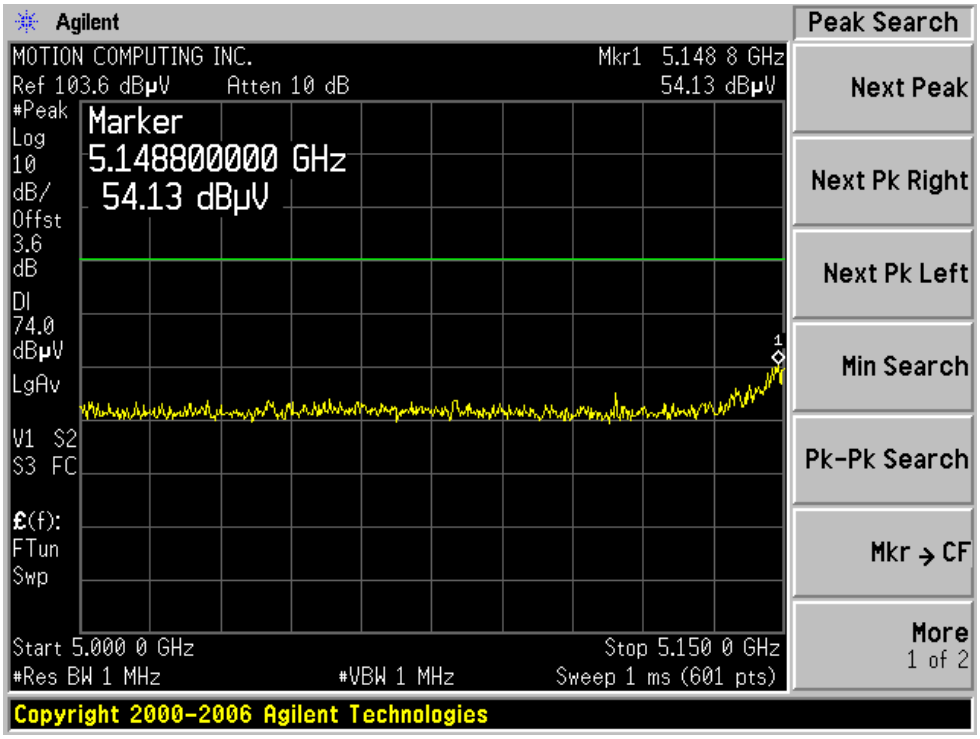
Frequency (MHz)	Reading (dBµV)	Cable loss (dB)	AF + Pre-Amplifier Gain (dB/m)	Corrected Reading (dBµV/m)	Azimuth (Degrees)	Height (cm)	Polarization (H / V)	FCC 15 E		Measurements Type
								Limit (dBµV/m)	Margin (dB)	
10640.13	34.13	4.84	7.6	46.57	191	123	V	54	-7.43	Average Max
10640.13	52.22	4.84	7.6	64.66	191	123	V	74	-9.34	Peak Max
*17928.29	24.77	6.52	13.16	44.45	269	314	V	54	-9.55	Average Max
*17997.11	24.36	6.53	13.11	44	208	215	H	54	-10	Average Max
*18000.00	24.36	6.53	13.11	44	210	76	V	54	-10	Average Max
*17928.29	41.37	6.52	13.16	61.05	299	356	H	74	-12.95	Peak Max
*17997.11	40.76	6.53	13.11	60.4	208	215	H	74	-13.6	Peak Max
*18000.00	40.48	6.53	13.11	60.12	210	76	V	74	-13.88	Peak Max
15960.14	24.91	6.12	8.87	39.9	130	91	H	54	-14.1	Average Max
15960.14	40.89	6.12	8.87	55.88	170	332	V	74	-18.12	Peak Max

***Note:** All frequencies from 1GHz to 40 GHz have been investigated.
The restricted band limit is 54 dBµV/m, the out of band limit is 68.3 dBµV/m.

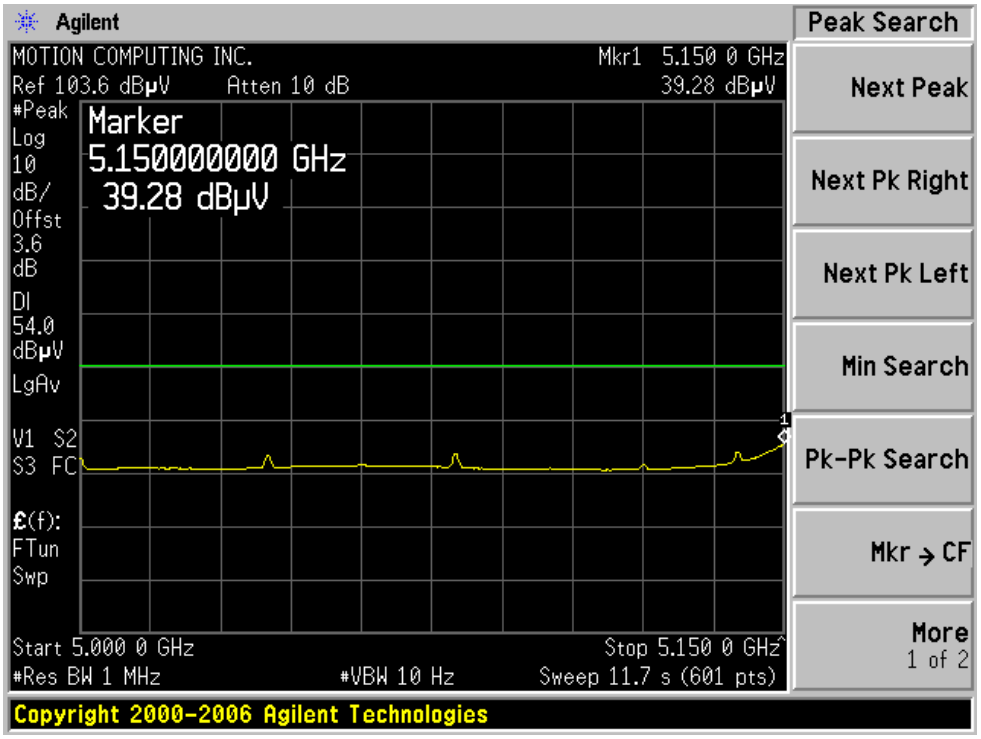
Restricted band edge

Low channel

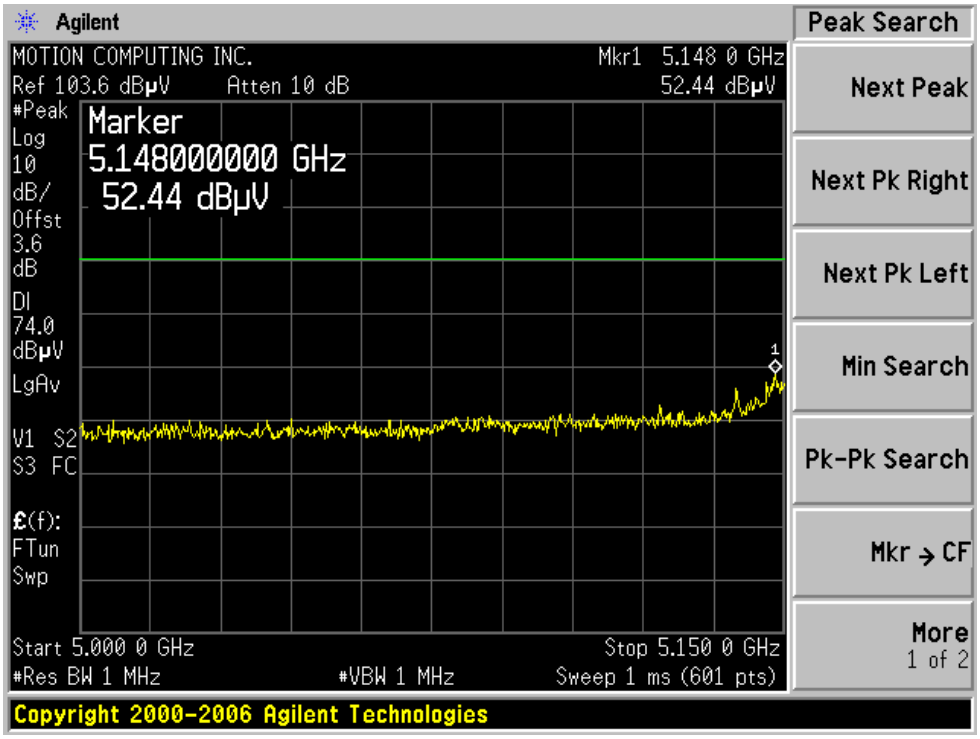
Peak, Horizontal



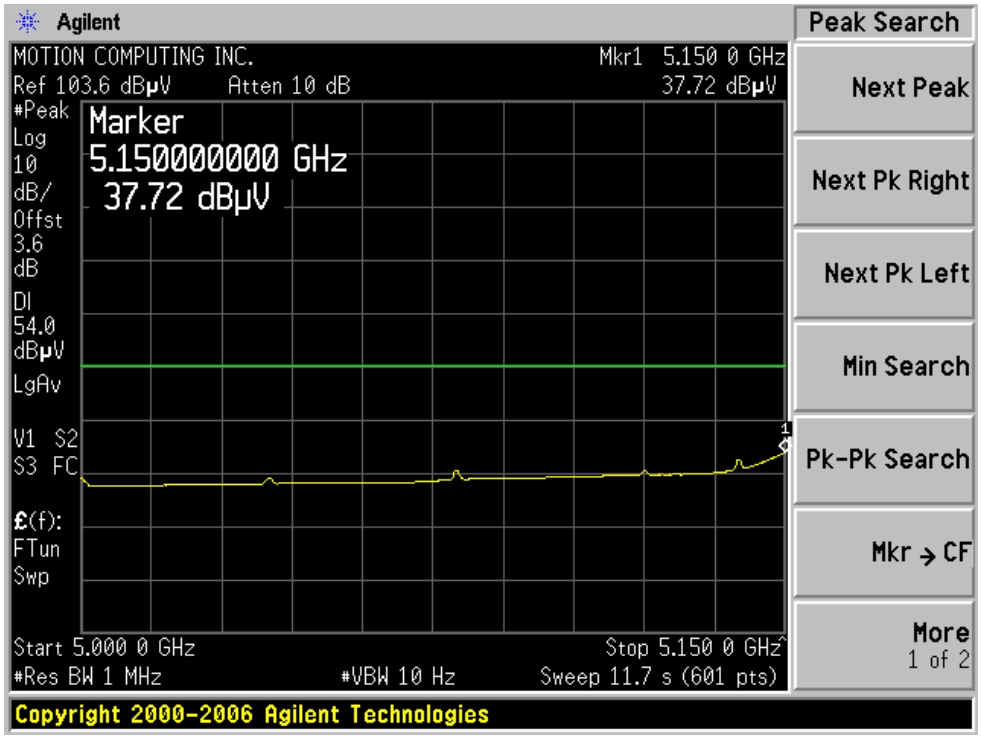
Average, Horizontal



Peak, Vertical

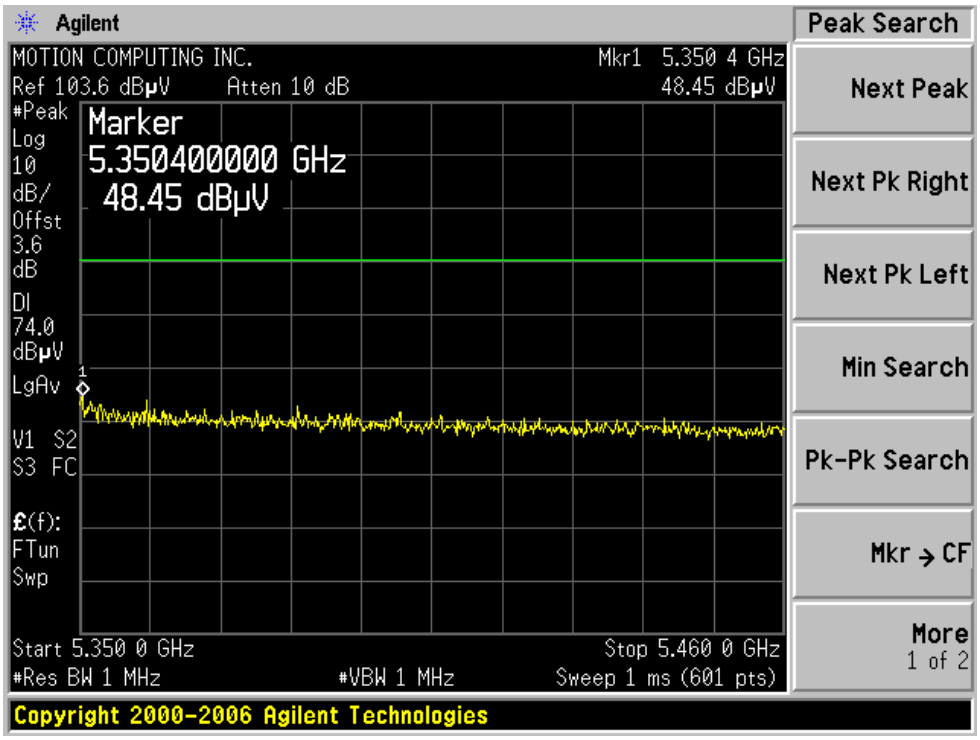


Average, Vertical

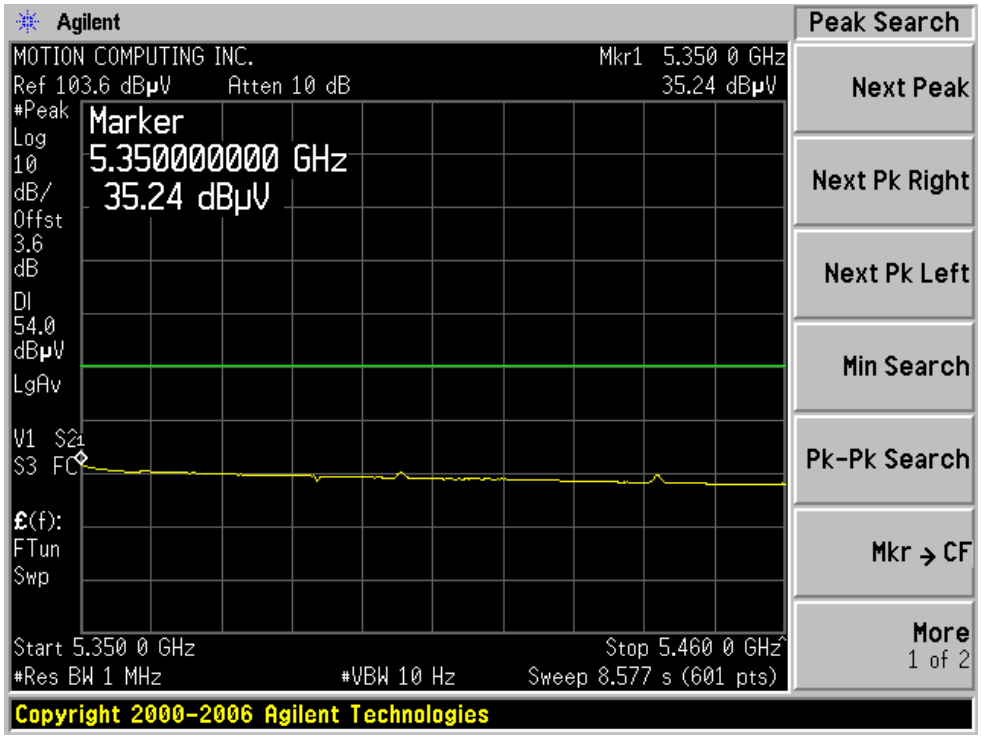


High channel

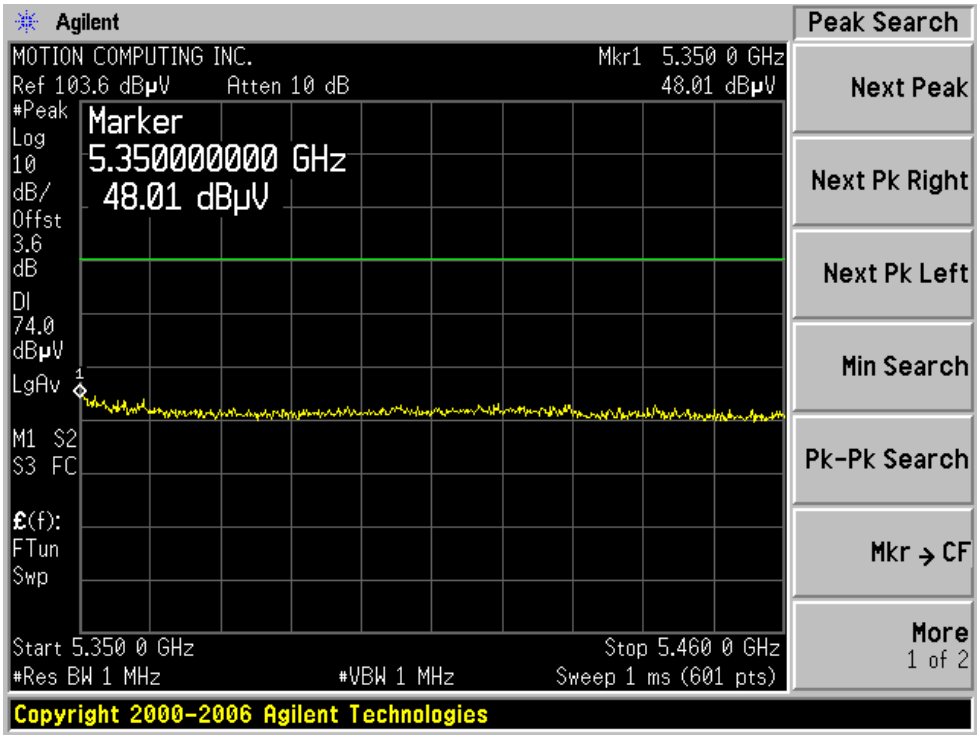
Peak, Horizontal



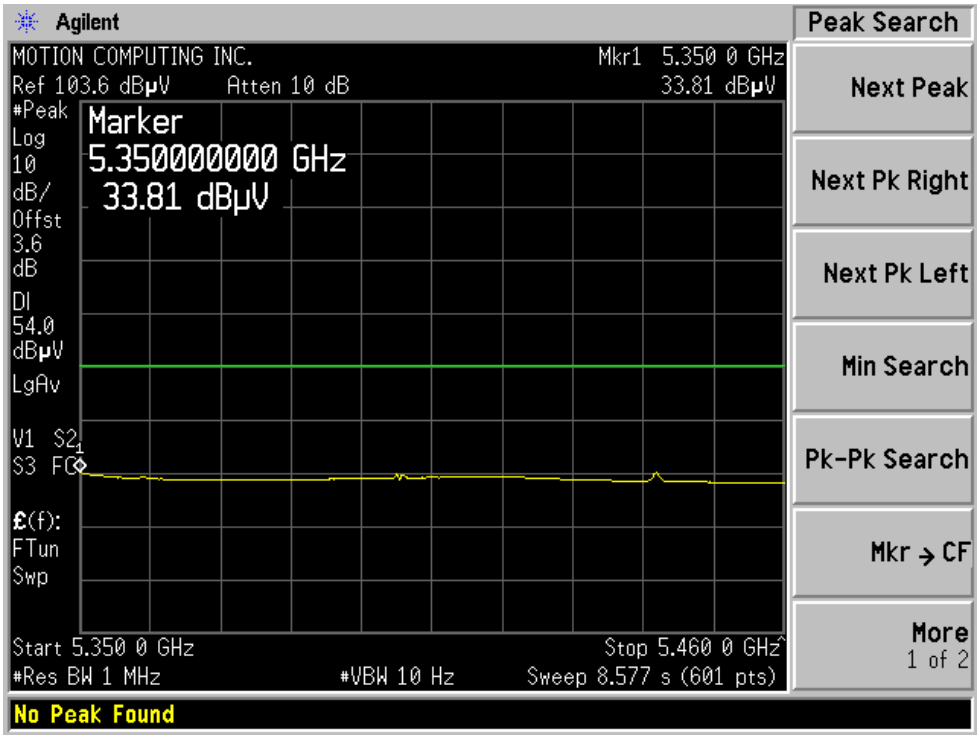
Average, Horizontal



Peak, Vertical



Average, Vertical



§15.407 (a) (1) & (a) (2) - MAXIMUM POWER

Applicable Standard

§15.407 (a)(1) For the band 5.15 – 5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measurement Procedure

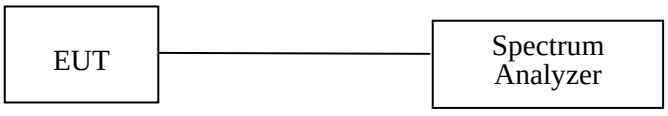
1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a spectrum analyzer.
3. Add a correction factor to the display.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Spectrum Analyzer	E4440A	Agilent	MY44303352	2007-02-23

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Setup Diagram



Environmental Conditions

Temperature:	22° C
Relative Humidity:	56 %
ATM Pressure:	104.1 kPa

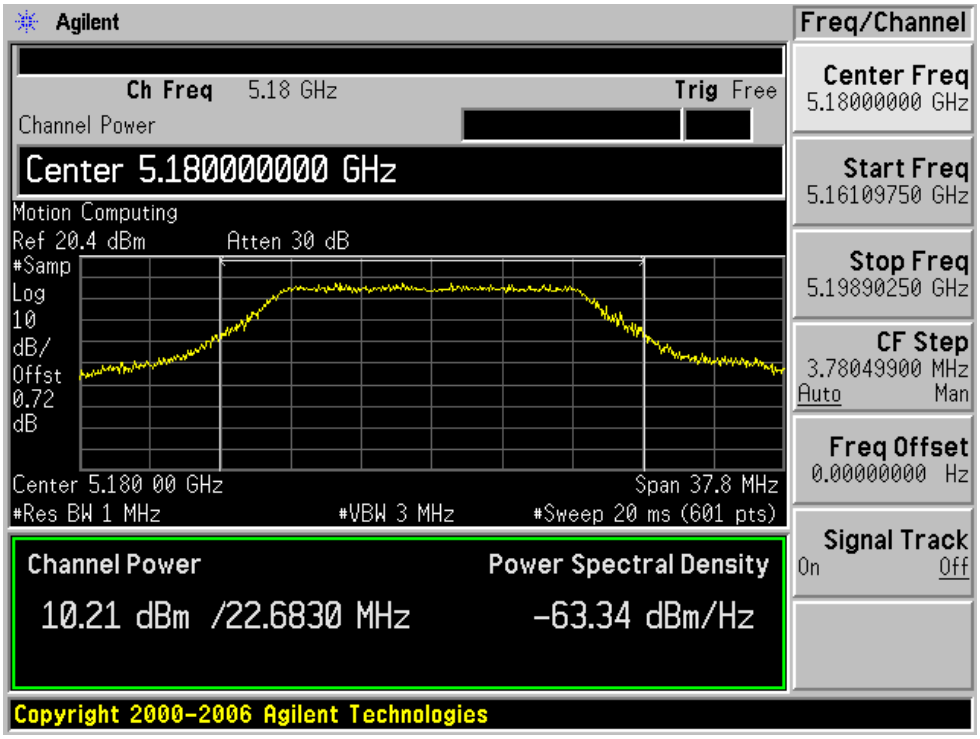
** The testing was performed by Dan Coronia from 2007-05-22 to 2007-05-30*

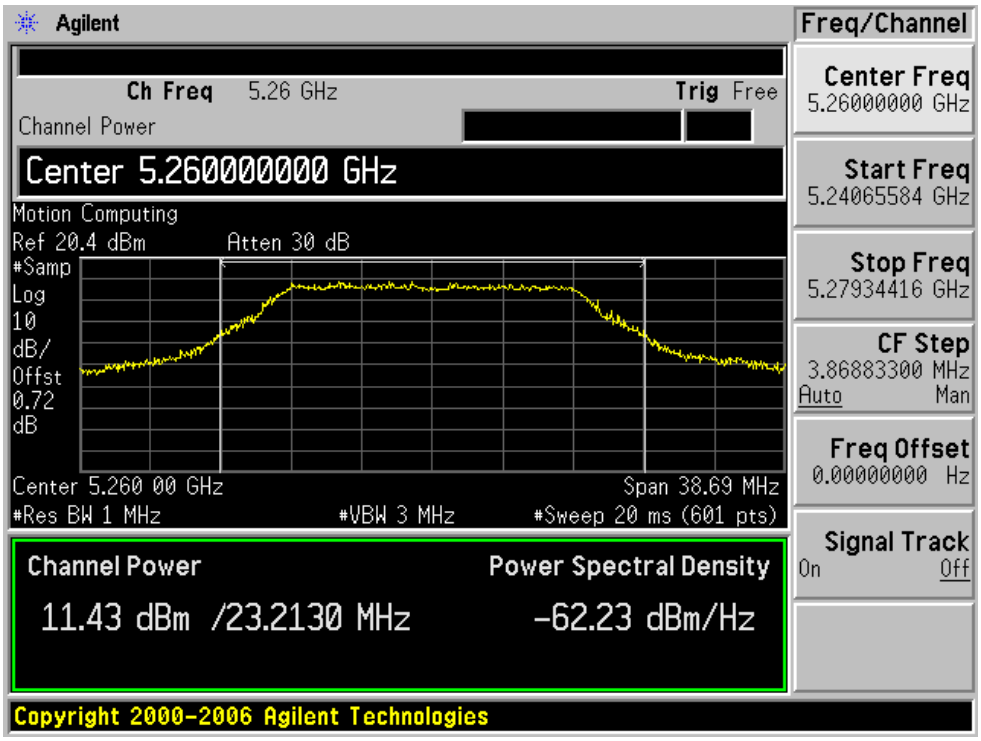
Test Result

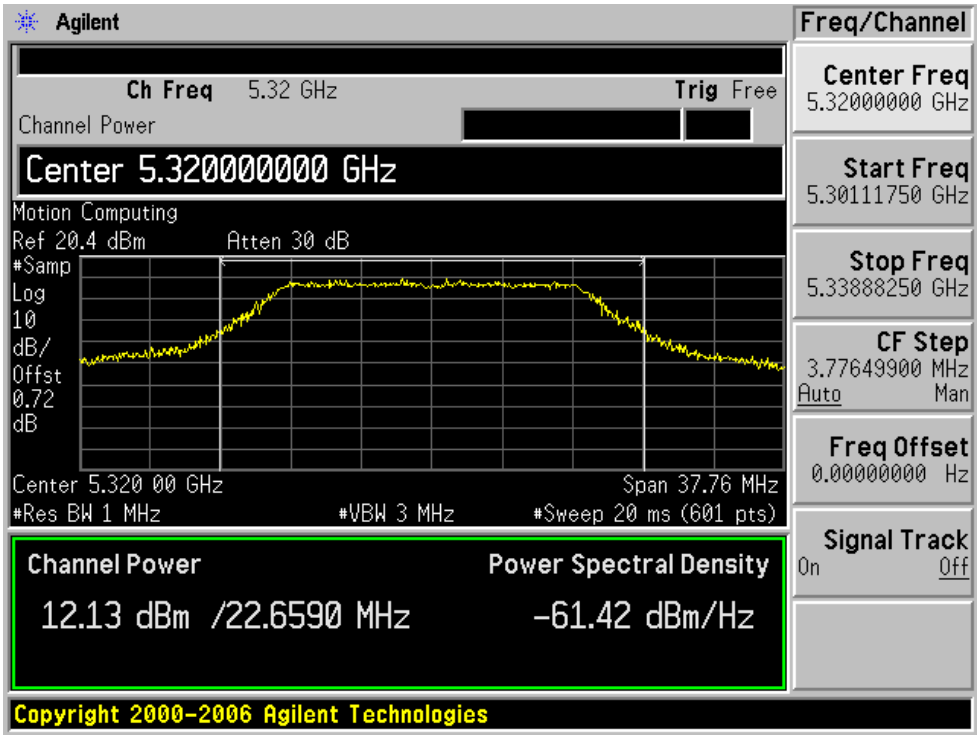
For 5150 – 5250 MHz: **802.11a**

Frequency (MHz)	Peak Power Output (dBm)	The lesser Limit (dBm)	Pass/Fail
5180	10.21	17.00	Pass
5260	11.43	17.00	Pass
5320	12.13	17.00	Pass

For 5150 – 5320 MHz: **802.11a**






Agilent
Freq/Channel
Ch Freq 5.32 GHz
Trig Free
Channel Power
Center 5.320000000 GHz
Motion Computing
Ref 20.4 dBm
Atten 30 dB
#Samp
Log
10
dB/
Offst
0.72
dB
Center 5.320 00 GHz
Span 37.76 MHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 20 ms (601 pts)
Channel Power
12.13 dBm /22.6590 MHz
Power Spectral Density
-61.42 dBm/Hz
Center Freq
5.32000000 GHz
Start Freq
5.30111750 GHz
Stop Freq
5.33888250 GHz
CF Step
3.77649900 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Copyright 2000-2006 Agilent Technologies

§15.407 (a) (1) & (a) (3)(5) – PEAK POWER SPECTRAL DENSITY

Applicable Standard

§15.407 (a)(1) For the band 5.15 – 5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.407 (a)(2) For the band 5.25 – 5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

§15.407 (a)(3) For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

§15.407 (a)(5) The peak power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A resolution bandwidth less than the measurement bandwidth can be used, provided that the measured power is integrated to show total power over the measurement bandwidth. If the resolution bandwidth is approximately equal to the measurement bandwidth, and much less than the emission bandwidth of the equipment under test, the measured results shall be corrected to account for any difference between the resolution bandwidth of the test instrument and its actual noise bandwidth.

Measurement Procedure

1. Using sample detector and power averaging mode, set RBW=1 MHz and VBW > 1 MHz.
2. PSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging.
3. When the emission bandwidth is less than 1 MHz, a measurement bandwidth equal to the emission bandwidth is used in accordance with section 15.407(a) (5).

Test Equipment

Please refer to the following test report:
(FCC ID: PD9WM3945ABG tested by Aegis Labs Inc. in report: INTEL-050902F).

Test Setup Diagram

Please refer to the following test report:
(FCC ID: PD9WM3945ABG tested by Aegis Labs Inc. in report: INTEL-050902F).

Environmental Conditions

Please refer to the following test report:
(FCC ID: PD9WM3945ABG tested by Aegis Labs Inc. in report: INTEL-050902F).

Measurement Results

Please refer to the following test report:
(FCC ID: PD9WM3945ABG tested by Aegis Labs Inc. in report: INTEL-050902F).

§15.407(a) (6) – Peak Excursion

Applicable Standard

According to §15.407 (a)(6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

Measurement Procedure

1. Set the SA span to view the entire emission bandwidth. The largest difference between the following two traces must be less than or equal to 13 dB for all frequencies across the emission bandwidth.
2. For the first trace, set RBW = 1MHz and VBW greater or equal to 3MHz utilizing the peak detector and max-hold function. Second trace is created using the setting as described in method # 3 as used in measuring conducted peak output power under FCC Public Notice for U-NII devices August 30, 2002.

Test Equipment

Please refer to the following test report:
(FCC ID: PD9WM3945ABG tested by Aegis Labs Inc. in report: INTEL-050902F).

Test Setup Diagram

Please refer to the following test report:
(FCC ID: PD9WM3945ABG tested by Aegis Labs Inc. in report: INTEL-050902F).

Environmental Conditions

Please refer to the following test report:
(FCC ID: PD9WM3945ABG tested by Aegis Labs Inc. in report: INTEL-050902F).

Measurement Results

Please refer to the following test report:
(FCC ID: PD9WM3945ABG tested by Aegis Labs Inc. in report: INTEL-050902F).