

Class II Permissive Change Portable Approval Test Report And Application for Grant of Equipment Authorization

Pertaining To:

# EUTFCC ID:HP Heavenly Tablet,<br/>MN: HSTNN-C02CB94WM3945ABG

Configuration

## Tested with an Intel PRO/Wireless 3945ABG Network Connection, MN: WM3945ABG

## MEASUREMENTS PERFORMED IN ACCORDANCE WITH

**Regulatory Standard(s)** 

## 47 CFR Part 15, Subpart C Section 15.247

Test Method:

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



Certificate Number: 1111.01

APPLICANT: Hewlett-Packard Company 20555 SH 249 Mail Stop 060607 Houston, TX 77070-2698 Contact(s): Mr. Walter Overcash

	REPORT	APPENDICES	TOTAL
	BODY	A	PAGES
PAGES	18	72	90

#### PREPARED BY:

Aegis Labs, Inc. 22431 Antonio Parkway B160-417 Rancho S. Margarita, CA 92688

Agent(s): Mr. Steve Kuiper Mr. Rick Candelas Mr. Johnny Candelas Test Report #: INTEL-060213F Test Report Revision: None

The contents of this report shall not be reproduced except in full, without the written approval of Aegis Labs, Inc.

Page 1 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



## TABLE OF CONTENTS

SECTION	TITLE	PAGE
	COVER SHEET	01
	TABLE OF CONTENTS	02
1.0	CERTIFICATION OF TEST DATA	03
2.0	SUMMARY OF TEST RESULTS	04
3.0	ADMINISTRATIVE DATA AND TEST DESCRIPTION	07
4.0	DESCRIPTION OF EUT	08
4.1	EUT Description	08
4.1.1	Channel Number and Frequencies	09
4.2	EUT Configuration	10
4.3	List of EUT Sub-Assemblies and Host Equipment	11
4.4	I/O Cabling Diagram and Description	12
5.0	TEST EQUIPMENT AND TEST SETUPS	13
5.1	AC Power Line Conducted Emissions	13
5.2	Spurious Radiated Emissions	14
5.3	Conducted Emissions At The Antenna Port	14
5.4	Test and Measurement Equipment Used	15
6.0	SAMPLE CALCULATIONS	16
7.0	MODIFICATIONS AND RECOMMENDATIONS	18

APPENDICES	
Α	Test Data

Page 2 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 1.0 CERTIFICATION OF TEST DATA

Aegis Labs, Inc. operates as both a Nevada and California Corporation with no organizational or financial relationship with any company, institution, or private individual.

Testing and engineering functions provided by Aegis Labs are furnished through the use of part-time, full-time or consulting engineers with the appropriate qualifications to carry out their duties. The intended purpose of this test report is to describe the measurement procedure and to determine whether the equipment under test "EUT" complies with both the conducted and radiated limits. Limits for emissions testing are described under Subpart C of Part 15 of the FCC rules.

The data, data evaluation and equipment configuration represented herein are a true and accurate representation of the Equipment Under Test (EUT) under the requirements specified in the emissions standard as described below. The test results contained in this report are only representative of the test sample tested as described in Section 3.0 of this report. Certification of the EUT is required as a prerequisite to marketing as defined in Part 2 of the FCC Rules.

**Report Prepared By:** 

Johnny Candelas Test Technician Aegis Labs, Inc

<u>02/27/06</u> Date: **Report Reviewed By:** 

Rick Candelas Lab Manager Aegis Labs, Inc.

<u>02/27/06</u> Date:

**Report Approved By:** 

02/27/06

Steve J. Kuiper Date: Quality Assurance Manager Aegis Labs, Inc.

> Page 3 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 2.0 SUMMARY OF TEST RESULTS

The test results provided within this report, indicate that the EUT has been found to be in **<u>COMPLIANCE</u>** with the test specifications based upon the following RF compliance standards:

Pass/Fail determination is based upon the nominal values of the test data.

	EMISSIONS STANDARD					
FCC Part 15 Section	Description	Results	Comments			
15.247(a)(2)	The minimum 6dB bandwidth shall be at least 500 kHz.	PASSED	5745 MHz = 16.58 MHz 5785 MHz = 16.58 MHz 5825 MHz = 16.67 MHz			
15.247(b)(3)	The maximum peak output power of the intentional radiator shall not exceed 1 watt.	PASSED	5745 MHz = 19.60 dBm = 91.20 mW 5785 MHz = 19.70 dBm = 93.33 mW 5825 MHz = 19.80 dBm = 95.50 mW			
15.247(b)(5)	The intentional radiator shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the FCC guidelines per Section 1.1307(b)(1).	PASSED	Refer to SAR Test Report			
15.247(c)	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.	PASSED	See Data Sheets			
15.247(c)	Radiated emissions, which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a). All others must be < -20dBc.	PASSED	See Data Sheets			
15.247(d)	The peak 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.	PASSED	5745 MHz = -11.00 dB 5785 MHz = -9.50 dB 5825 MHz = -9.50 dB			
15.207	AC Conducted Emissions	PASSED	See Data Sheets			
15.209	Radiated Emissions (30-1000 MHz)	PASSED	See Data Sheets			

## 802.11a Mode (5745-5825 MHz)

Page 4 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 2.0 Summary of Test Results (Continued)

The test results provided within this report, indicate that the EUT has been found to be in <u>COMPLIANCE</u> with the test specifications based upon the following RF compliance standards:

Pass/Fail determination is based upon the nominal values of the test data.

	EMISSIONS STANDARD					
FCC Part 15 Section	Description	Results	Comments			
15.247(a)(2)	The minimum 6dB bandwidth shall be at least 500 kHz.	PASSED	2412 MHz = 8.67 MHz 2437 MHz = 9.08 MHz 2462 MHz = 9.00 MHz			
15.247(b)(3)	The maximum peak output power of the intentional radiator shall not exceed 1 watt.	PASSED	2412 MHz = 19.80 dBm = 95.50 mW 2437 MHz = 20.43 dBm = 110.41 mW 2462 MHz = 20.52 dBm = 112.72 mW			
15.247(b)(5)	The intentional radiator shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the FCC guidelines per Section 1.1307(b)(1).	PASSED	Refer to SAR Test Report			
15.247(c)	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.	PASSED	See Data Sheets			
15.247(c)	Radiated emissions, which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a). All others must be < -20dBc.	PASSED	See Data Sheets			
15.247(d)	The peak 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.	PASSED	2412 MHz = -7.50 dB 2437 MHz = -6.67 dB 2462 MHz = -7.33 dB			
15.207	AC Conducted Emissions	PASSED	See Data Sheets			
15.209	Radiated Emissions (30-1000 MHz)	PASSED	See Data Sheets			

## 802.11b Mode (2412-2462 MHz)

Page 5 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 2.0 Summary of Test Results (Continued)

The test results provided within this report, indicate that the EUT has been found to be in <u>COMPLIANCE</u> with the test specifications based upon the following RF compliance standards:

Pass/Fail determination is based upon the nominal values of the test data.

	EMISSIONS STANDARD					
FCC Part 15 Section	Description	Results	Comments			
15.247(a)(2)	The minimum 6dB bandwidth shall be at least 500 kHz.	PASSED	2412 MHz = 16.58 MHz 2437 MHz = 16.67 MHz 2462 MHz = 16.67 MHz			
15.247(b)(3)	The maximum peak output power of the intentional radiator shall not exceed 1 watt.	PASSED	2412 MHz = 24.22 dBm = 264.24 mW 2437 MHz = 24.71 dBm = 295.80 mW 2462 MHz = 24.03 dBm = 252.93 mW			
15.247(b)(5)	The intentional radiator shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the FCC guidelines per Section 1.1307(b)(1).	PASSED	Refer to SAR Test Report			
15.247(c)	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.	PASSED	See Data Sheets			
15.247(c)	Radiated emissions, which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a). All others must be < -20dBc.	PASSED	See Data Sheets			
15.247(d)	The peak 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.	PASSED	2412 MHz = -10.83 dB 2437 MHz = -8.33 dB 2462 MHz = -11.33 dB			
15.207	AC Conducted Emissions	PASSED	See Data Sheets			
15.209	Radiated Emissions (30-1000 MHz)	PASSED	See Data Sheets			

## 802.11g Mode (2412-2462 MHz)

Page 6 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### **3.0 ADMINISTRATIVE DATA AND TEST DESCRIPTION**

DEVICE TESTED:	ITE Type: HP Heavenly Tablet Model Number(s): HSTNN-C02C Serial Number: 2022938600018 FCC ID: B94WM3945ABG
TEST DATE (S).	February 13-28, 2006
TEST DATE (S): DATE EUT RECEIVED:	February 10, 2006
DATE EUT RECEIVED:	February 10, 2006
ORIGIN OF TEST SAMPLE(S):	Production Unit
<b>RESPONSIBLE PARTY:</b>	Hewlett-Packard Company 20555 SH 249 Mail Stop 060607 Houston, TX 77070-2698
CLIENT CONTACT:	Mr. Walter Overcash
MANUFACTURER:	Hewlett-Packard Company
TEST LOCATION:	Aegis Labs, Inc. 32231 Trabuco Creek Road Trabuco Canyon, CA 92678 Conducted Site #2 Radiated Site #2
A2LA CERTIFICATE:	1111.01, Valid through April 30, 2006
PURPOSE OF TEST:	To demonstrate compliance with the relevant standards described in Section 2.0 of this report.
TEST(S) PERFORMED:	Refer to Table in Section 2.0 of this report.

All calibration vendors were responsible for certifying Aegis Labs, Inc. test equipment as per the manufacturer's specifications and that the equipment is calibrated using instruments and standards where the accuracy is traceable to the National Institute of Standards and Technology (NIST). Calibration of all test equipment conforms to ANSI/NCSL Z540-1 and ISO 10012-1 and/or ISO/IEC Guide 17025 compliance (Additionally, other pertinent test equipment will carry MIL-STD-45662A). All calibration documents are on file with Aegis Labs, Inc., with copies provided upon request.

Page 7 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 4.0 **DESCRIPTION OF EUT**

#### 4.1 EUT Description

Equipment Under Test (EUT)				
Trade Name:	HP Heavenly Tablet			
Model Number:	HSTNN-C02C			
Frequency Range:	802.11a = 5745 - 5825 MHz 802.11b/g = 2412 - 2462MHz			
Type of Transmission:	Direct Sequence Spread Spectrum			
Transfer Rate:	1/5.5/11 Mbps for 802.11b mode 6/36/54 Mbps for 802.11g and 802.11a modes			
Number of Channels:	802.11a mode (5725-5850 MHz) = 5 802.11b mode (2400-2483.5 MHz) = 11 802.11g mode (2400-2483.5 MHz)= 11			
Modulation Type:	DBPSK, DQPSK, CCK, OFDM			
Antenna Type:	Main/Aux = PIFA			
Antenna Gain (See Note 2):	3.34 dBi @ 5 GHz / 0.09 dBi @ 2.4 GHz			
Transmit Output Power:	<ul> <li>18-20 dBm (Typical) for 802.11a mode</li> <li>20 dBm (Typical) for 802.11b mode</li> <li>24-25 dBm (Typical) for 802.11g mode</li> <li>Please see Appendix A (Data Sheets) for actual output power.</li> </ul>			
Power Supply:	3.3VDC from computer MPCI slot.			
Number of External Test Ports Exercised:	2 Antenna Ports (1 Main & 1 Auxiliary)			

The HP Heavenly Tablet was tested with an Intel PRO/Wireless 3945ABG Network Connection, operating in the 2.4 GHz and 5 GHz spectrum. The Mini-PCI-E form factor is designed to meet the space and size requirements for thin and light notebook PCs. It is capable of a data rate of up to 52 Mbps.

**NOTE 1:** For a more detailed description, please refer to the manufacture's specifications or User's Manual.

**NOTE 2:** The EUT was tested with a set of antennas. (Refer to the antenna specifications exhibits).

Page 8 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



### 4.1.1 Channel Number and Frequencies

802.11	a Mode	802.11	b Mode	802.11	g Mode
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	1	2412	1	2412
153	5765	2	2417	2	2417
157	5785	3	2422	3	2422
161	5805	4	2427	4	2427
165	5825	5	2432	5	2432
		6	2437	6	2437
		7	2442	7	2442
		8	2447	8	2447
		9	2452	9	2452
		10	2457	10	2457
		11	2462	11	2462

Page 9 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 4.2 EUT Configuration

The EUT was tested with an Intel PRO/Wireless 3945ABG Network Connection installed in its Mini PCI-E slot of the host computer and was connected to a set of Wistron NeWeb Corp. multi-band antennas via its main and auxiliary antenna ports. Data can be found in Appendix A.

For conducted emissions at the AC mains port and radiated emissions, the EUT was connected to a Compaq monitor, Logitech keyboard, and mouse via its video and USB ports respectively.

The low, middle, and high channels were tested in 802.11a, b, & g modes. Also, the EUT was tested once transmitting from the MAIN antenna port and once transmitting from the AUX antenna port. The EUT was placed in either continuous transmit or continuous receive mode by a program provided by the manufacturer (*CRTU Version 4.0.22.0000*).

Page 10 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 4.3 List of EUT, Sub-Assemblies, and Host Equipment

LIST OF EUT AND SUB-ASSEMBLIES						
Equipment Name	Manufacturer	Model Number	Serial Number			
	Hewlett-Packard					
HP Heavenly Tablet	Company	HSTNN-C02C	2022938600018			
EUT Sub-Assemblies	EUT Sub-Assemblies					
Intel PRO/Wireless 3945ABG Network Connection	Intel Corporation	WM3945ABG	00F8F8365CVD 26436002			
Main Multi Band Antenna	Wistron NeWeb Corp.	EBC-C	N/A			
Auxiliary Multi Band Antenna	Wistron NeWeb Corp.	EBC-C	N/A			

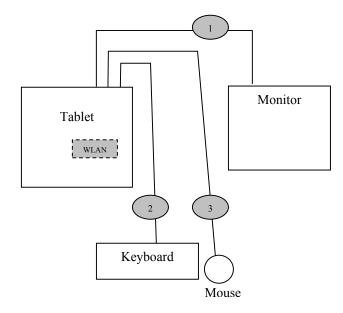
HOST EQUIPMENT LIST						
Equipment NameManufacturerModel NumberSerial Number						
Monitor	Compaq	473A	545AF16AD243			
Keyboard	Logitech	Y-BF37	MCTZ5200581			
Mouse	Logitech	M-BJ58	LZE14759424			

NOTE: All the power cords of the above support equipment are standard non-shielded, 1.8 meters long.

Page 11 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 4.4 I/O Cabling Diagram and Description



- Cable 1: This is a 6-foot braid and foil shielded round cable connecting the host computer with the monitor. It has metallic DB-15 type connector at the computer end and is hardwired to the monitor. The cable is bundled to a length of one meter and the shield of the cable is grounded to the chassis of both devices via the connector shells.
- Cable 2: This is a 6-foot braid and foil shielded round cable connecting the host computer to the keyboard. It has a metallic 6-pin mini din type connector at the computer end and is hardwired to the keyboard. The shield of the cable is grounded to the chassis of the computer via the connector shell.
- Cable 3: This is a 6-foot braid and foil shielded round cable connecting the host computer to the mouse. It has a metallic 6pin mini din type connector at the computer end and is hardwired to the mouse. The shield of the cable is grounded to the chassis of the computer via the connector shell.

Page 12 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 5.0 TEST EQUIPMENT AND TEST SETUPS

The test equipment settings and functions are selected using the guidance of ANSI C63.4-2003. All test equipment setups and operations during conducted and radiated emissions testing are in accordance with this reference document.

#### 5.1 AC Power Line Conducted Emissions

During conducted emissions measurements, a spectrum analyzer was used as the measuring instrument along with a preselector and quasi-peak detector. A 10 dB attenuation pad was used for the protection of the spectrum analyzer input stage. The conducted emissions from the EUT in the frequency range from 150 kHz to 30 MHz were captured for graphical display through the use of automated LABVIEW EMI measurement software. All graphical readings were measured in the "Peak" mode only to reduce testing time. Upon completion of the graphical scan, the test lab personnel performed the conducted measurement scan manually using the spectrum analyzer front panel keys. All peak measurements coming within 3 dB of the limit line were "Averaged" and/or "Quasi-Peaked" and denoted appropriately in the EXCEL spreadsheet.

The Equipment Under Test (EUT) was configured as a system with peripherals connected, so that at least one interface port of each type is connected to one external peripheral when tested for conducted emissions according to ANSI C63.4: 2003. Excess power cord length was wrapped in a bundle 30 to 40 centimeters in length near the center of the cord. The EUT was tested in a tabletop configuration.

The emission readings for Line 1 and Line 2 are highlighted on the data sheets in Appendix A. The graphical scans only reflects peak readings while the tabulated data sheets reflect peak, average, and/or quasi-peak readings which ever applies.

Page 13 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 5.2 Spurious Radiated Emissions

A spectrum analyzer was used as the measuring instrumentation along with a preselector and quasi-peakdetector. The pre-amplifiers were used to increase the sensitivity of the instrument. The spectrum analyzer was used in the peak detector mode with the "max-hold" feature activated and in Positive Peak mode. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps. The quasi-peak detector was used only for those readings, which are marked accordingly in the data sheet. The effective measurement bandwidth used for the radiated emissions test was 120 kHz for (30 MHz- 1000 MHz). The spectrum analyzer operated such that the modulation of the signal was filtered out to set the analyzer in linear mode. For testing beyond 1000 MHz a spectrum analyzer capable of taking reading above 1000 MHz was connected to the high frequency amplifier, where these measurement readings were taken with the transducer placed at a 3-meter test distance from the EUT.

The Open Area Test Sites (OATS) was used for radiated emission testing. These test sites are designed according to ANSI C63.4: 2003 and ANSI C63.7: 1992 guidelines. The Measurements were conducted in accordance with ANSI C63.4: 2003 and ANSI C63.7: 1992 requirements.

Broadband biconical, log periodic, and horn antennas were used as transducers during the measurement reading phase. The frequency spans were wide (30 MHz-88 MHz, 88 MHz- 216 MHz, 216 MHz- 300 MHz, and 300 MHz- 1000 MHz). After 1000 MHz the horn antenna was used to measure emissions. The emission readings in both horizontal and vertical polarities are highlighted on the data sheets in Appendix A.

5.3 Conducted Emissions at the Antenna Port

A spectrum analyzer or power meter was used as the measuring instrumentation along with an attenuator and/or filter connected to the EUT antenna port. The attenuator and filters are used to ensure that the front end of the measurement instrument is not overloaded by the fundamental transmission. The instruments recorded the measured readings with the bandwidths (video and resolution) set in accordance with the FCC Rules and regulations.

For the power out measurements in 802.11b and 802.11g modes a peak power meter was used along with a peak power sensor with a wide enough bandwidth to capture the entire fundamental transmission. For 802.11a mode a spectrum analyzer with "Channel Power Measurement" function was used to measure the peak output power.

The measured readings are on the data sheets in Appendix A.

Page 14 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



### 5.4 Test and Measurement Equipment Used

TEST EQUIPMENT USED						
Equipment Name	Manufacturer	Model Number	Serial Number	Calibration Due Date	Calibration Cycle	
Spectrum Analyzer	Agilent	8564EC	4046A00387	08/15/06	1 Year	
Preamp	Miteq	JS42-01001800-25- 10P	815980	07/21/06	1 Year	
2.4 GHz Notch Filter	Micro-Tronics	BRM50702-02	003	04/21/06	1 Year	
5.15-5.35 GHz Notch Filter	Microwave Circuits	N0452502	3173-01	06/27/06	1 Year	
5.725-5.850 GHz Notch Filter	Microwave Circuits	N0257881	3173-01	06/27/06	1 Year	
Horn Antenna	ETS	3117	57423	12/21/06	1 Year	
Antenna - 18-26.5 GHz Pre- amplified Horn	Aegis Labs, Inc.	H042	SLK-35-3W	02/08/07	1 Year	
Antenna - 26.5-40 GHz Pre- amplified Horn	Aegis Labs, Inc.	H028	GM1260-10	02/08/07	1 Year	
Cable	Semflex	X116BFSX10216	546	12/14/06	1 Year	
Temperature/Humidity Monitor	Dickson	TH550	7255185	N/A	N/A	
Power Meter	Anritsu	ML2487A	6K00001785	04/12/06	1 Year	
Wide Bandwidth Sensor	Anritsu	MA2491A	31193	04/12/06	1 Year	
12dB Attenuator	Narda	4779-12	203	08/06/06	1 Year	
EMI Receiver - RF Section	Hewlett Packard	8546A	3737A00407	09/02/06	1 Year	
EMI Receiver - RF Filter Section	Hewlett Packard	85460A	3704A00399	09/02/06	1 Year	
Antenna - Biconical	EMCO	3110B	3383	03/18/06	1 Year	
Antenna - Log Periodic	EMCO	3148	47943	05/23/06	1 Year	
EUT LISN	Solar	9252-50-R-24-BNC	961025	04/01/06	2 Year	
Accessory LISN	Solar	9252-50-R-24-BNC	961024	07/05/07	2 Year	

Page 15 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 6.0 SAMPLE CALCULATIONS

If a preamplifier is used during the Radiated Emissions Testing, it is required that the amplifier gain be subtracted from the Spectrum Analyzer (Meter) Reading. In addition, a correction factor for the antenna, cable and a distance factor, if any, must be applied to the Meter Reading before a true field strength reading can be obtained. In the Automatic Mode of A.R.M.S. measurements, these considerations are automatically presented as a part of the printout. In the case of manual measurements and for greater efficiency and convenience, usage of the calibration correction factors in the Appendices is necessary to calculate the Corrected Meter Reading. These correlation factors for each meter reading, shall be modified to reflect these correlation factors at each frequency value so that the meter readings can be compared directly to the modified specification limit. This modified specification limit is referred to as the "Corrected Meter Reading Limit" (CML).

The equation shall be derived in the following manner:

Corrected Meter Reading = Meter Reading + F + C - G - D

Where, F = Antenna Factor

C = Cable Factor

G = Amplifier Gain

D = Distance Factor

Therefore, the equation for determining the Corrected Meter Reading Limit (CML) is:

CML = Specification Limit - F - C + G + D

For the manual mode of measurement, a table of corrected meter reading limits shall be used to permit immediate comparison of the meter reading to determine if the measured emission amplitude exceeded the specification limit at that specific frequency. There shall be two calculation sheets done, one for three meter and one for ten-meter measurement distances, where applicable. The correction factors for the antenna and the amplifier gain are attached in the Appendices.

> Page 16 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



6.0 Sample Calculations (Continued)

Peak Transmit Power Output:

A correction factor for the cable must be applied to the Conducted Power before a true power reading can be obtained. This is referred to as the "Corrected Power" (CP).

The equation shall be derived in the following manner:

Corrected Power Reading = Conducted Power Reading + C

Where, C = Cable Factor

The conducted power is taken in units of dBm. To obtain units of mW the following equation is used:

 $\mathrm{mW} = 10^{(\mathrm{dBm}/10)}$ 

Page 17 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 7.0 MODIFICATIONS AND RECOMMENDATIONS

No modifications were made to the EUT.

Page 18 of 18 Report Number: INTEL-060213F FCC ID: B94WM3945ABG



## **APPENDIX A**

## TEST DATA

Page 1 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### AC POWER LINE CONDUCTED EMISSIONS TEST RESULTS

CLIENT:	Hewlett-Packard Company DATE: 02/24/06				
EUT:	HP Heavenly Tablet	PROJECT NUMBER:   INTEL-0			
<b>MODEL NUMBER:</b>	HSTNN-C02C	<b>TEST ENGINEER:</b>	JC/RJ		
SERIAL NUMBER:	2022938600018	SITE #:	1		
<b>CONFIGURATION:</b>	CONFIGURATION: Tested with an Intel PRO/Wireless		20 C		
	3945ABG Network Connection installed in	HUMIDITY:	33% RH		
	its mini PCI-E slot.	TIME:	4:25 PM		

Standard:	FCC CFR 47, Part 15.207			
Description:	AC Power Line Conducted Emissions			
Results:	Passes the conducted limits by -3.06 @ 0.1600 MHz			

Conducted Limits					
Frequency (MHz)Quasi-Peak Limit (dBuV)Average Limit (dBuV)					
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.

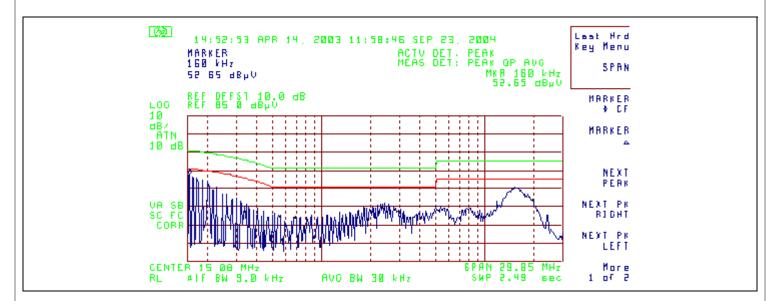
NOTE: During preliminary scans, there wasn't any difference which mode, channel, or data rate was used with the EUT; therefore only 802.11b mode at Channel 1 with a data rate of 1 Mbps was used for final testing.

Page 2 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



**CONDUCTED EMISSIONS – LINE 1** Meter Quasi-Peak Quasi-Peak Freq. Detector Average Average Limit (dBuV) Limit (dBuV) (MHz) Reading (dBuV) (PK/OP/AV)Delta(dB)Delta(dB)52.65 PK 0.1600 55.71 -3.06 65.71 -13.06 0.1600 51.17 PK 55.71 -4.54 65.71 -14.54 PK -4.91 -14.91 0.1700 50.52 55.43 65.43 0.1900 49.45 PK 54.86 -5.41 64.86 -15.41 PK 54.57 0.2000 48.49 -6.0864.57 -16.08PK -7.97 -17.97 0.2300 45.74 53.71 63.71

#### AC Power Line Conducted Emissions Test Results (Continued)

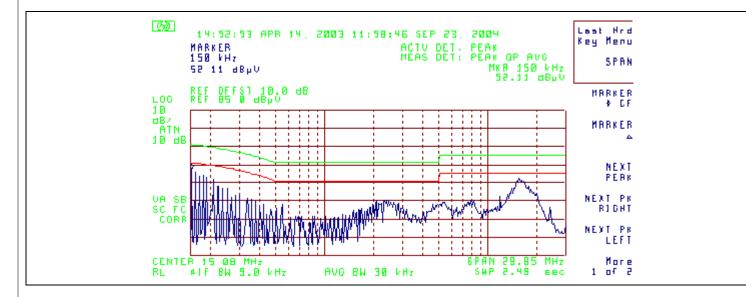


Page 3 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



	<b>CONDUCTED EMISSIONS - LINE 2</b>						
Freq. (MHz)	Meter Reading (dBuV)	Detector (PK/QP/AV)	Average Limit (dBuV)	Average Delta(dB)	Quasi-Peak Limit (dBuV)	Quasi-Peak Delta(dB)	
0.1500	52.11	РК	56.00	-3.89	66.00	-13.89	
0.1600	50.47	РК	55.71	-5.24	65.71	-15.24	
0.1800	48.69	РК	55.14	-6.45	65.14	-16.45	
0.1700	48.48	РК	55.43	-6.95	65.43	-16.95	
0.1900	47.74	РК	54.86	-7.12	64.86	-17.12	
15.4500	47.29	РК	50.00	-2.71	60.00	-12.71	
15.4500	37.29	AV	50.00	-12.71	60.00	-22.71	

#### AC Power Line Conducted Emissions Test Results (Continued)



Page 4 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### SPURIOUS RADIATED EMISSIONS TEST RESULTS

CLIENT:	Hewlett-Packard Company	02/27/06		
EUT:	HP Heavenly Tablet	PROJECTINNUMBER:		
<b>MODEL NUMBER:</b>	HSTNN-C02C	<b>TEST ENGINEER:</b>	RJ	
SERIAL NUMBER:	2022938600018	SITE #:	1	
<b>CONFIGURATION:</b>	Tested with an Intel PRO/Wireless	<b>TEMPERATURE:</b>	12 C	
	3945ABG Network Connection installed in its mini PCI-E slot.	HUMIDITY:	52% RH	
	Its IIIIII PCI-E SIOL	TIME:	8:40 AM	

Standard:	FCC Pt. 15.209
Description:	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Sec. 15.209.
Results:	Passes the radiated limits by -2.14 @ 472.00 MHz (Vertical antenna polarization)

Radiate	Radiated Limits				
Frequency (MHz)	Quasi-Peak Limit (dBuV)				
30-88	40				
88-216	43.52				
216-960	46.02				
960-1000	54				

NOTE: During preliminary scans, there wasn't any difference which mode, channel, or data rate was used with the EUT; therefore only 802.11b mode at Channel 1 with a data rate of 1 Mbps was used for final testing.

Page 5 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### SPURIOUS RADIATED EMISSIONS TEST RESULTS

		RADI	ATED E	MISSIO	NS -	Horizo	ntal Ant	tenna Polai	rization		
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dBi		Cable Factor (dB)	Ant. Factor (dB)	10 Meter Distance Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff(dB) +=FAIL
145.80	9.68	400	90			2.09	12.23	10.46	34.46	43.50	-9.04
199.09	10.95	400	225	8.51	Q	2.37	15.05	10.46	38.83	43.50	-4.67
238.27	12.22	400	225			2.52	16.88	10.46	42.08	46.00	-3.92
241.30	14.62	400	225	12.41	Q	2.53	17.02	10.46	42.41	46.00	-3.59
250.00	11.62	375	225			2.55	17.40	10.46	30.41	46.00	-15.59
271.45	5.72	400	270			2.63	19.29	10.46	38.09	46.00	-7.91
283.50	7.77	400	90			2.68	19.97	10.46	40.88	46.00	-5.12
301.64	6.27	375	225			2.77	14.37	10.46	33.87	46.00	-12.13
304.62	6.61	400	225			2.78	14.50	10.46	34.36	46.00	-11.64
307.62	7.58	400	225			2.80	14.64	10.46	35.47	46.00	-10.53
310.66	7.77	400	225			2.81	14.77	10.46	28.04	46.00	-17.96
313.64	6.57	400	225			2.83	14.90	10.46	28.19	46.00	-17.81
319.71	5.58	375	270			2.86	15.17	10.46	34.07	46.00	-11.93
337.77	6.27	400	270			2.95	15.35	10.46	35.03	46.00	-10.97
386.03	9.86	400	225			3.14	15.45	10.46	38.91	46.00	-7.09
431.30	9.25	400	270			3.30	16.38	10.46	39.39	46.00	-6.61
472.01	5.29	400	225			3.47	17.90	10.46	37.13	46.00	-8.87
575.05	5.60	400	270			3.92	19.50	10.46	33.87	46.00	-12.13
622.99	6.94	400	270			4.09	20.11	10.46	34.67	46.00	-11.33

Page 6 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### SPURIOUS RADIATED EMISSIONS TEST RESULTS

	<b>RADIATED EMISSIONS - Vertical Antenna Polarization</b>									
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Cable Factor (dB)	Ant. Factor (dB)	10 Meter Distance Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff(dB) +=FAIL
145.80	10.57	100	180		2.09	10.73	10.46	33.84	43.50	-9.66
238.27	7.15	100	45		2.52	17.88	10.46	38.01	46.00	-7.99
241.30	9.69	100	45		2.53	18.02	10.46	40.69	46.00	-5.31
250.00	8.83	100	315		2.55	18.40	10.46	31.41	46.00	-14.59
277.48	6.50	100	315		2.65	20.95	10.46	34.06	46.00	-11.94
283.50	8.81	100	315		2.68	21.07	10.46	43.02	46.00	-2.98
301.64	7.58	100	315		2.77	14.28	10.46	35.09	46.00	-10.91
304.61	7.01	100	315		2.78	14.42	10.46	34.67	46.00	-11.33
307.64	8.57	100	315		2.80	14.57	10.46	36.39	46.00	-9.61
310.64	8.06	100	315		2.81	14.71	10.46	36.04	46.00	-9.96
313.65	6.36	100	315		2.83	14.86	10.46	28.14	46.00	-17.86
319.70	6.59	100	315		2.86	15.15	10.46	28.46	46.00	-17.54
335.45	11.85	100	315		2.94	15.40	10.46	40.65	46.00	-5.35
383.37	11.70	100	315		3.13	15.53	10.46	40.82	46.00	-5.18
431.30	12.81	100	315		3.30	16.58	10.46	43.15	46.00	-2.85
472.00	12.18	100	315		3.47	17.75	10.46	43.86	46.00	-2.14
575.05	6.20	100	315		3.92	19.50	10.46	40.08	46.00	-5.92
621.26	6.49	100	315		4.09	19.93	10.46	34.47	46.00	-11.53

NOTE: The measurements were taken at 10 meters and extrapolated to 3 meters.

Page 7 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



## HP Heavenly Tablet TEST DATA

Page 8 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



## Spurious Radiated Emissions Test Results (Continued)

CLIENT:	Hewlett-Packard Company	DATE:	02/13/06
EUT:	HP Heavenly Tablet	PROJECT NUMBER:	INTEL-060213
<b>MODEL NUMBER:</b>	HSTNN-C02C	<b>TEST ENGINEER:</b>	BM
SERIAL NUMBER:	2022938600018	SITE #:	2
<b>CONFIGURATION:</b>	Tested with an Intel PRO/Wireless	<b>TEMPERATURE:</b>	15 C
	3945ABG Network Connection installed in		39% RH
its mini PCI-E slot in <b>802.11a (5745-5825</b> <b>MHz) mode.</b>		TIME:	7:00 PM

Standard:	FCC CFR 47, Part 15.247(c)
Description:	Radiated emissions, which fall in the restricted bands, as defined in Sec. $15.205(a)$ , must also comply with the radiated emission limits specified in Sec. $15.209(a)$ . All others must be $< -20$ dBc.
Results:	Passes (See Data Sheets)

Unwanted Spurious Emissions Limits					
Frequency (MHz)Field Strength (uV/m)Field Strength (dBuV/m) (Emissions in the restricted bands)			Field Strength (dBm/MHz) (Emissions outside the restricted bands)		
Above 960	500	54.00 (Average) 74.00 (Peak)	< -20 dBc		

Page 9 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

Fundamental Measurements in **802.11a mode (5745-5825 MHz)** Channels 149, 157, & 165 **Continuous TX** at MAIN Antenna port with **Wistron NeWeb Corp. Antennas** Aegis Labs, Inc. File #: INTEL-060213-06

	<b>RADIATED EMISSIONS - Horizontal Antenna Polarization</b>										
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dBt		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL
5745.00	67.50	100	225				4.99	37.34	109.83		
5745.00				56.52	Α		4.99	37.34	98.85		
5785.00	69.17	150	225				5.01	37.41	111.59		
5785.00				59.32	Α		5.01	37.41	101.74		
5825.00	71.00	150	225				5.02	37.49	113.51		
5825.00				61.46	Α		5.02	37.49	103.97		

	<b>RADIATED EMISSIONS – Vertical Antenna Polarization</b>										
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dBi		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL
5745.00	65.67	100	135				4.99	36.50	107.15		
5745.00				55.46	Α		4.99	36.50	96.94		
5785.00	65.67	100	135				5.01	36.53	107.20		
5785.00				55.47	Α		5.01	36.53	97.00		
5825.00	67.17	100	135				5.02	36.56	108.75		
5825.00				57.37	Α		5.02	36.56	98.95		

Page 10 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

Band Edge Field Strength Measurements in 802.11a mode (5745-5825 MHz) Channels 149, 157, & 165 Continuous TX at MAIN Antenna port with Wistron NeWeb Corp. Antennas Aegis Labs, Inc. File #: INTEL-060213-06

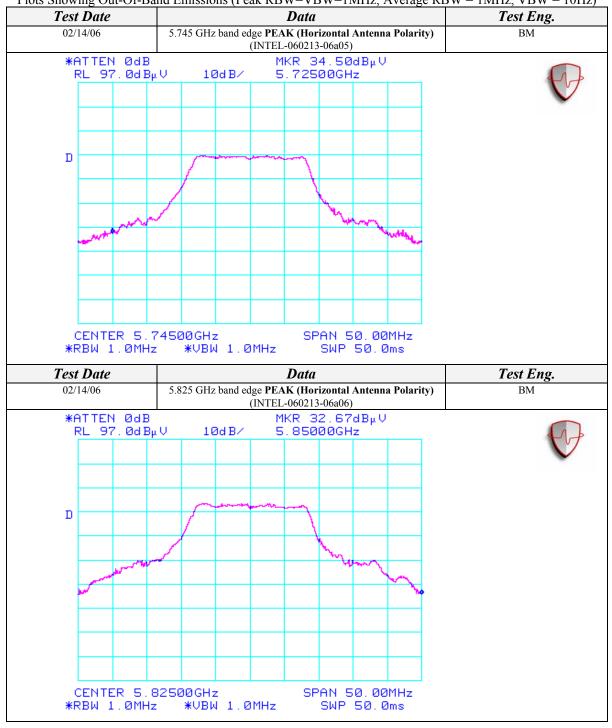
	<b>RADIATED EMISSIONS - Horizontal Antenna Polarization</b>									
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff(dB) +=FAIL
5725.00	34.50	100	225			4.98	37.31	76.78	89.83	-13.04
5850.00	32.67	100	225			5.03	37.53	75.23	93.51	-18.27

	<b>RADIATED EMISSIONS – Vertical Antenna Polarization</b>									
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL
5725.00	33.83	100	135			4.98	36.48	75.29	87.15	-11.86
5850.00	31.17	100	135			5.03	36.58	72.78	88.75	-15.97

Page 11 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### Spurious Radiated Emissions Test Results (Continued)

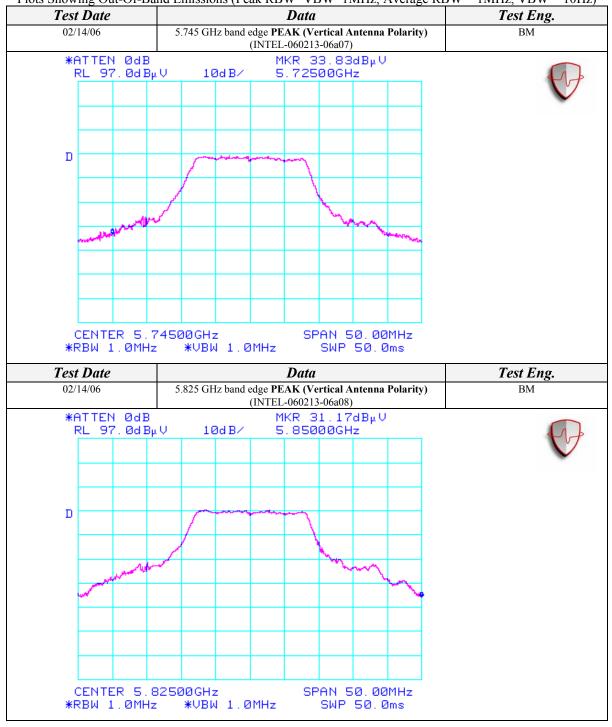


Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)

Page 12 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### Spurious Radiated Emissions Test Results (Continued)



Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)

Page 13 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

Spurious Emissions Measurements in 802.11a mode (5745-5825 MHz) Channels 149, 157, & 165 Continuous TX at MAIN Antenna port with Wistron NeWeb Corp. Antennas Aegis Labs, Inc. File #: INTEL-060213-08

		RADIA	TED EM	ISSIO	NS -	Horizon	tal Ant	enna Pol	arization		
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dB		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL
EUT in Co	ontinuous	Transmit	Mode on C	Channel 1	49 (5	5.745 GHz)	)				
3830.00	52.17	100	225			46.75	4.05	34.39	43.87	74.00	-30.13
3830.00				40.00	Α	46.75	4.05	34.39	31.70	54.00	-22.30
7660.00	50.50	100	225			45.56	5.81	38.77	49.52	74.00	-24.48
7660.00				38.63	Α	45.56	5.81	38.77	37.65	54.00	-16.35
EUT in Co	EUT in Continuous Transmit Mode on Channel 157 (5.785 GHz)										
3856.66	52.83	100	180			46.74	4.07	34.46	44.61	74.00	-29.39
3856.66				40.68	Α	46.74	4.07	34.46	32.46	54.00	-21.54
11570.00	50.33	100	180			44.97	7.42	41.09	53.87	74.00	-20.13
11570.00				38.00	A	44.97	7.42	41.09	41.54	54.00	-12.46
EUT in Co	ontinuous	Transmit	Mode on <b>C</b>	Channel 1	65 (5	5.825 GHz	)				
3883.33	53.67	100	225			46.74	4.08	34.52	45.54	74.00	-28.46
3883.33				40.80	Α	46.74	4.08	34.52	32.67	54.00	-21.33
11650.00	51.50	100	225			44.96	7.42	41.07	55.02	74.00	-18.98
11650.00				39.08	Α	44.96	7.42	41.07	42.60	54.00	-11.40

Page 14 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### **RADIATED EMISSIONS - Vertical Antenna Polarization** Cable Limits Freq. Meter Antenna Azimuth Quasi pk or Preamp Ant. Corrected Diff(dB)(MHz) Reading (dBuV) Height (degrees) AVG (dBuV) Factor Factor Factor Reading +=FAIL(dBuV) (dBuV) (cm)(dB)(dB)(dB)EUT in Continuous Transmit Mode on Channel 149 (5.745 GHz) 3830.00 53.17 100 90 46.75 44.64 74.00 -29.36 4.05 34.16 3830.00 40.35 А 46.75 4.05 34.16 31.82 54.00 -22.1811490.00 51.00 100 44.97 7.41 39.89 225 53.33 74.00 -20.67 11490.00 38.56 A 44.97 7.41 39.89 54.00 40.89 -13.11 EUT in Continuous Transmit Mode on Channel 157 (5.785 GHz) 45.20 3856.66 53.67 100 90 46.74 4.07 34.20 74.00 -28.803856.66 34.20 41.51 А 46.74 4.07 33.04 54.00 -20.96 11570.01 54.17 100 270 44.97 7.42 39.94 56.56 74.00 -17.44 11570.01 39.97 44.97 7.42 39.94 А 42.36 54.00 -11.64 EUT in Continuous Transmit Mode on Channel 165 (5.825 GHz) 3883.33 53.50 100 46.74 45.09 135 4.08 34.24 74.00 -28.91 3883.33 41.04 46.74 4.08 34.24 32.63 54.00 -21.37 А 11650.00 53.83 100 270 44.96 7.42 39.99 56.27 74.00 -17.73 11650.00 40.59 А 44.96 7.42 39.99 43.03 54.00 -10.97

Spurious Radiated Emissions Test Results (Continued)

Page 15 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

Spurious Emissions Measurements in **802.11a mode (5745-5825 MHz)** Channels 149, 157, & 165 **Continuous TX** at MAIN Antenna port with **Wistron NeWeb Corp. Antennas** Aegis Labs, Inc. File #: INTEL-060213-09

	<b>RADIATED EMISSIONS - Horizontal Antenna Polarization</b>										
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Antenna/ Preamp Factor (dB)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Diff(dB) +=FAIL		
EUT in Cont	tinuous Tr	ansmit N	lode on C	hannel 149	(5745 MHz)						
22980.00	42.17	100	225		10.62	-5.02	47.77	74.00	-26.23		
22980.00				29.36 A	10.62	-5.02	34.96	54.00	-19.04		
EUT in Cont	tinuous Tr	ansmit N	Iode on C	hannel 157	(5785 MHz)						
23140.00	42.17	100	225		10.66	-5.12	47.72	87.01	-39.29		
EUT in Cont	tinuous Tr	ansmit N	lode on C	hannel 165	(5825 MHz)						
23300.00	43.67	100	225		10.71	-5.20	49.18	88.21	-39.03		

	R	ADIAT	ED EM	ISSIONS	- V	ertical Ar	ntenna Pol	arization		
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV		Cable Factor (dB)	Antenna/ Preamp Factor (dB)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Diff(dB) +=FAIL
EUT in Cont	EUT in Continuous Transmit Mode on Channel 149 (5745 MHz)									
22980.00	43.50	100	225			10.62	-4.99	49.13	74.00	-24.88
22980.00				30.35	A	10.62	-4.99	35.98	54.00	-18.03
EUT in Cont	tinuous Tr	ansmit N	lode on C	hannel 157	(57	85 MHz)				
23140.00	43.17	100	225			10.66	-5.09	48.74	84.81	-36.07
EUT in Cont	tinuous Tr	ansmit N	Iode on C	hannel 165	(58)	25 MHz)				
23300.00	45.67	100	225			10.71	-5.16	51.21	84.01	-32.80

Page 16 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

Spurious Emissions Measurements in **802.11a mode (5745-5825 MHz)** Channels 149, 157, & 165 **Continuous RX** at MAIN Antenna port with **Wistron NeWeb Corp. Antennas** Aegis Labs, Inc. File #: INTEL-060213-08

	<b>RADIATED EMISSIONS - Horizontal Antenna Polarization</b>										
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dB		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL
EUT in C	EUT in Continuous Receive Mode on Channel 149 (5.745 GHz)										
3830.00	52.00	100	135			46.75	4.05	34.39	43.70	74.00	-30.30
3830.00				40.00	Α	46.75	4.05	34.39	31.70	54.00	-22.30
EUT in C	ontinuous	Receive I	Mode on C	hannel 1	57 (5	5.785 GHz	)				
3856.62	53.33	125	135			46.74	4.07	34.46	45.11	74.00	-28.89
3856.62				40.89	Α	46.74	4.07	34.46	32.67	54.00	-21.33
EUT in C	EUT in Continuous Receive Mode on Channel 165 (5.825 GHz)										
3883.34	54.17	100	135			46.73	4.08	34.52	46.04	74.00	-27.96
3883.34				41.12	Α	46.73	4.08	34.52	32.99	54.00	-21.01

	<b>RADIATED EMISSIONS - Vertical Antenna Polarization</b>										
Freq.	Meter	Antenna	Azimuth	Quasi pk		Preamp	Cable	Ant.	Corrected	Limits	Diff (dB)
(MHz)	Reading	Height	(degrees)	AVG (dBı	$\iota V)$	Factor	Factor	Factor	Reading	(dBuV)	+=FAIL
	(dBuV)	(cm)				( <i>dB</i> )	( <i>dB</i> )	(dB)	(dBuV)		
EUT in C	EUT in Continuous Receive Mode on Channel 149 (5.745 GHz)										
3830.00	52.33	100	135			46.75	4.05	34.39	44.03	74.00	-29.97
3830.00				40.32	Α	46.75	4.05	34.39	32.02	54.00	-21.98
EUT in C	ontinuous	Receive I	Mode on C	hannel 15	57 (5	5.785 GHz	)				
3856.65	53.00	100	135			46.74	4.07	34.20	44.53	74.00	-29.47
3856.65				41.37	Α	46.74	4.07	34.20	32.90	54.00	-21.10
EUT in C	ontinuous	Receive I	Mode on C	hannel 16	65 (5	5.825 GHz	)				
3883.35	53.67	100	135			46.73	4.08	34.24	45.26	74.00	-28.74
3883.35				41.62	Α	46.73	4.08	34.24	33.21	54.00	-20.79

Page 17 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



## Spurious Radiated Emissions Test Results (Continued)

CLIENT:	Hewlett-Packard Company	DATE:	02/13/06
EUT:	HP Heavenly Tablet	PROJECT NUMBER:	INTEL-060213
<b>MODEL NUMBER:</b>	HSTNN-C02C	<b>TEST ENGINEER:</b>	BM
SERIAL NUMBER:	2022938600018	SITE #:	2
<b>CONFIGURATION:</b>	Tested with an Intel PRO/Wireless	<b>TEMPERATURE:</b>	15 C
	3945ABG Network Connection installed in	HUMIDITY:	39% RH
	its mini PCI-E slot in <b>802.11b (2412-2462 MHz) mode.</b>	TIME:	7:00 PM

Standard:	FCC CFR 47, Part 15.247(c)
Description:	Radiated emissions, which fall in the restricted bands, as defined in Sec. $15.205(a)$ , must also comply with the radiated emission limits specified in Sec. $15.209(a)$ . All others must be $< -20$ dBc.
Results:	Passes (See Data Sheets)

	Unwanted Spurious Emissions Limits									
Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m) (Emissions in the restricted bands)	Field Strength (dBm/MHz) (Emissions outside the restricted bands)							
Above 960	500	54.00 (Average) 74.00 (Peak)	< -20 dBc							

Page 18 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

## Fundamental Measurements in **802.11b mode (2412-2462 MHz)** Channels 1, 6, & 11 **Continuous TX** at MAIN Antenna port with **Wistron NeWeb Corp. Antennas** Aegis Labs, Inc. File #: INTEL-060213-06

	<b>RADIATED EMISSIONS - Horizontal Antenna Polarization</b>										
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dBi		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff(dB) +=FAIL
2412.00	67.67	100	180				3.19	32.60	103.46		
2412.00				63.73	Α		3.19	32.60	99.52		
2437.00	69.50	100	135				3.20	32.60	105.30		
2437.00				65.99	Α		3.20	32.60	101.79		
2462.00	69.17	150	225				3.22	32.60	104.99		
2462.00				65.52	Α		3.22	32.60	101.34		

	<b>RADIATED EMISSIONS – Vertical Antenna Polarization</b>										
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dBı		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff(dB) +=FAIL
2412.00	70.67	100	90				3.19	32.46	106.32		
2412.00				66.83	Α		3.19	32.46	102.48		
2437.00	74.00	100	90				3.20	32.47	109.68		
2437.00				70.50	Α		3.20	32.47	106.18		
2462.00	73.50	100	180				3.22	32.48	109.21		
2462.00				69.80	Α		3.22	32.48	105.51		

NOTE: Fundamental signals measured to calculate the band edge field strengths using the "Marker Delta Method".

Page 19 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

Band Edge Field Strength Measurements in 802.11b mode (2412-2462 MHz) Channels 1, 6, & 11 Continuous TX at MAIN Antenna port with Wistron NeWeb Corp. Antennas Aegis Labs, Inc. File #: INTEL-060213-06

	<b>RADIATED EMISSIONS - Horizontal Antenna Polarization</b>											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dBu		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	
2390.00									49.96	74.00	-24.04	
2390.00					A				39.69	54.00	-14.31	
2386.70									50.80	74.00	-23.20	
2386.70					A				41.19	54.00	-12.81	
2400.00	31.17	100	180				3.18	32.60	66.95	83.46	-16.51	
2483.50									50.66	74.00	-23.34	
2483.50					A				39.50	54.00	-14.50	
2487.70									52.83	74.00	-21.17	
2487.70					A				42.34	54.00	-11.66	

Page 20 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

	<b>RADIATED EMISSIONS – Vertical Antenna Polarization</b>											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff(dB) +=FAIL		
2390.00								52.82	74.00	-21.18		
2390.00				A				42.65	54.00	-11.35		
2386.70								53.66	74.00	-20.34		
2386.70				Α				44.15	54.00	-9.85		
2400.00	31.50	100	90			3.18	32.46	67.14	86.32	-19.18		
2483.50								54.88	74.00	-19.12		
2483.50				Α				43.67	54.00	-10.33		
2487.70								57.05	74.00	-16.95		
2487.70				A				46.51	54.00	-7.49		

NOTE: The "Band Edge Field Strength" was calculated using the "Fundamental" and "Conducted Band Edge" measurements per the "Marker-Delta Method" with the following formula:

 $BE = Fm - \Delta m$ 

Where

BE = Band Edge Field Strength

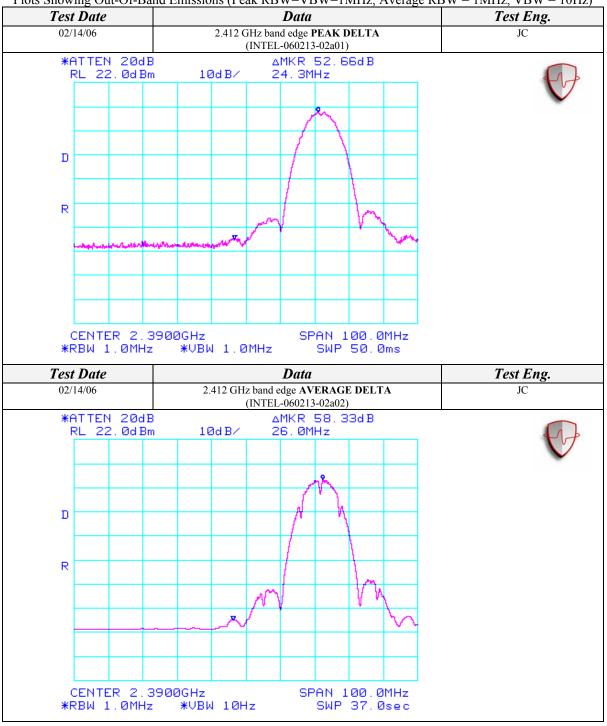
Fm = Measured Fundamental (Peak or Average)

 $\Delta m$  = Measured Conducted Band Edge Delta (Peak or Average)

Page 21 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### Spurious Radiated Emissions Test Results (Continued)

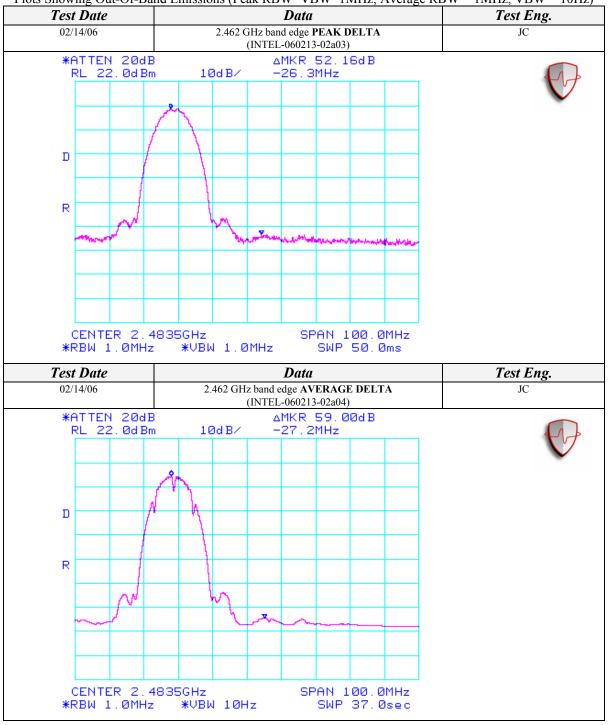


Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)

Page 22 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### Spurious Radiated Emissions Test Results (Continued)



Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)

Page 23 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

Spurious Emissions Measurements in 802.11b mode (2412-2462 MHz) Channels 1, 6, & 11 Continuous TX at MAIN Antenna port with Wistron NeWeb Corp. Antennas Aegis Labs, Inc. File #: INTEL-060213-07

		RADIA	red emi	SSIONS - I	Horizont	al Ante	nna Pola	rization		
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	1 Meter Distance Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL
EUT in Co	ntinuous	Transmit N	Mode on C	hannel 1 (2.41	2 GHz)					
2312.00	31.00	100	270		9.54	1.97	31.09	54.51	74.00	-19.49
2312.00				14.84 A	9.54	1.97	31.09	38.35	54.00	-15.65
EUT in Co	ntinuous	Transmit <b>I</b>	Mode on C	hannel 6 (2.43	67 GHz)					
2336.00	31.17	100	225		9.54	1.98	31.14	54.75	74.00	-19.25
2336.00				14.71 A	9.54	1.98	31.14	38.29	54.00	-15.71
EUT in Co	ntinuous	Transmit <b>I</b>	Mode on C	hannel 11 (2.4	62 GHz)					
2358.66	31.33	100	225		9.54	1.99	31.19	54.97	74.00	-19.03
2358.66				14.73 A	9.54	1.99	31.19	38.37	54.00	-15.63

		RADIA	TED EN	IISSIONS -	Vertical	Anten	na Polari	zation		
Freq.	Meter	Antenna	Azimuth	Quasi pk or	1 Meter	Cable	Ant.	Corrected	Limits	Diff (dB)
(MHz)	Reading (dBuV)	Height (cm)	(degrees)	AVG (dBuV)	Distance Factor	Factor (dB)	Factor (dB)	Reading (dBuV)	(dBuV)	+=FAIL
ļ					( <i>dB</i> )					
EUT in Co	ntinuous	Transmit <b>I</b>	Mode on C	hannel 1 (2.41	2 GHz)					
2312.00	31.50	100	225		9.54	1.97	30.07	54.00	74.00	-20.00
2312.00				14.63 A	9.54	1.97	30.07	37.13	54.00	-16.87
EUT in Co	ntinuous	Transmit <b>I</b>	Mode on C	hannel 6 (2.43	7 GHz)					
2336.00	31.67	100	225		9.54	1.98	30.10	54.21	74.00	-19.79
2336.00				14.65 A	9.54	1.98	30.10	37.19	54.00	-16.81
EUT in Co	ntinuous	Transmit <b>I</b>	Mode on C	hannel 11 (2.4	62 GHz)					
2358.66	30.67	100	225		9.54	1.99	30.13	53.25	74.00	-20.75
2358.66				14.80 A	9.54	1.99	30.13	37.38	54.00	-16.62

NOTE: These spurious emissions measurements were taken without a preamp at a distance on 1 meter to avoid saturating the preamp and analyzer because the signals were close to the fundamental frequency. The readings were extrapolated to 3 meters.

Page 24 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

## Spurious Emissions Measurements in802.11b mode (2412-2462 MHz) Channels 1, 6, & 11 Continuous TX at MAIN Antenna port with Wistron NeWeb Corp. Antennas Aegis Labs, Inc. File #: INTEL-060213-08

		RADIA	FED EM	ISSION	S - I	Horizont	al Ante	nna Pola	rization		
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff(dB) +=FAIL
EUT in Co	ontinuous	Transmit I	Mode on C	hannel 1	(2.41	2 GHz)					
3216.00	53.00	100	135			46.82	3.71	33.53	43.42	87.45	-44.03
4824.01	54.33	100	90			46.57	4.57	35.34	47.66	74.00	-26.34
4824.01				42.39	Α	46.57	4.57	35.34	35.72	54.00	-18.28
9648.01	54.33	100	180			44.78	6.56	38.45	54.55	87.45	-32.90
EUT in Co	ontinuous	Transmit I	Mode on C	hannel 6	(2.43	7 GHz)					
3249.32	53.67	150	180			46.82	3.72	33.55	44.12	88.86	-44.74
4873.99	52.83	100	135			46.57	4.59	35.33	46.17	74.00	-27.83
4873.99				41.37	A	46.57	4.59	35.33	34.71	54.00	-19.29
9747.96	52.83	125	270			44.80	6.60	38.55	53.17	88.86	-35.69
EUT in Co	ontinuous	Transmit I	Mode on C	hannel 11	l <b>(2.4</b>	62 GHz)					
3282.66	53.17	100	135			46.82	3.74	33.57	43.66	89.08	-45.42
4924.00	52.83	175	180			46.58	4.61	35.32	46.18	74.00	-27.82
4924.00				42.04	A	46.58	4.61	35.32	35.39	54.00	-18.61
9848.01	53.00	100	180			44.83	6.64	38.65	53.46	89.08	-35.62

Page 25 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



		RADIA	TED EN	<b>AISSIO</b>	NS -	Vertical	Anten	na Polari	zation		
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL
EUT in Co	ontinuous '	Transmit <b>I</b>	Mode on C	hannel 1	(2.41	2 GHz)					
3216.00	52.67	100	225			46.82	3.71	33.43	42.99	87.25	-44.26
4824.00	55.33	100	225			46.57	4.57	35.90	49.23	74.00	-24.77
4824.00				44.84	Α	46.57	4.57	35.90	38.74	54.00	-15.26
9648.01	52.50	100	180			44.78	6.56	39.25	53.52	87.25	-33.73
EUT in Co	ontinuous '	Transmit I	Mode on C	hannel 6	(2.43	7 GHz)					
3249.32	52.50	100	135			46.82	3.72	33.45	42.85	88.81	-45.96
4873.99	52.50	100	225			46.57	4.59	35.90	46.41	74.00	-27.59
4873.99				41.54	Α	46.57	4.59	35.90	35.45	54.00	-18.55
9747.96	52.17	100	225			44.80	6.60	39.35	53.31	88.81	-35.50
EUT in Co	ontinuous '	Transmit I	Mode on C	hannel 11	1 (2.4	62 GHz)					
3282.66	53.67	100	225			46.82	3.74	33.47	44.06	88.71	-44.65
4924.00	54.17	125	180			46.58	4.61	35.90	48.10	74.00	-25.90
4924.00				44.77	A	46.58	4.61	35.90	38.70	54.00	-15.30
9848.01	52.33	100	135			44.83	6.64	39.45	53.59	88.71	-35.12

Spurious Radiated Emissions Test Results (Continued)

Page 26 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

Spurious Emissions Measurements in in**802.11b mode (2412-2462 MHz)** Channels 1, 6, & 11 **Continuous RX** at MAIN Antenna port with **Wistron NeWeb Corp. Antennas** Aegis Labs, Inc. File #: INTEL-060213-08

	<b>RADIATED EMISSIONS - Horizontal Antenna Polarization</b>										
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dBı		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff(dB) +=FAIL
EUT in C	EUT in Continuous Receive Mode on Channel 1 (2.412 GHz)										
3216.02	53.00	100	180			46.82	3.71	33.43	43.32	74.00	-30.68
3216.02				40.68	A	46.82	3.71	33.43	31.00	54.00	-23.00
EUT in C	Continuous	Receive I	Mode on C	hannel 6	(2.4	37 GHz)					
3249.32	53.00	125	180			46.82	3.72	33.45	43.35	74.00	-30.65
3249.32				40.53	Α	46.82	3.72	33.45	30.88	54.00	-23.12
EUT in C	Continuous	Receive I	Mode on C	hannel 11	(2.4	462 GHz)					
3282.66	52.67	100	180			46.82	3.74	33.47	43.06	74.00	-30.94
3282.66				40.41	A	46.82	3.74	33.47	30.80	54.00	-23.20

_	<b>RADIATED EMISSIONS - Vertical Antenna Polarization</b>											
Freq.	Meter	Antenna	Azimuth	Quasi pk		Preamp Factor	Cable	Ant.	Corrected	Limits	Diff(dB)	
(MHz)	Reading	Height	(degrees)	AVG (dBı	AVG (dBuV)		Factor	Factor	Reading	(dBuV)	+=FAIL	
	(dBuV)	( <i>cm</i> )				( <i>dB</i> )	( <i>dB</i> )	( <i>dB</i> )	(dBuV)			
EUT in C	CUT in Continuous Receive Mode on Channel 1 (2.412 GHz)											
3216.00	53.17	100	135			46.82	3.71	33.53	43.59	74.00	-30.41	
3216.00				40.00	Α	46.82	3.71	33.53	30.42	54.00	-23.58	
EUT in C	Continuous	s Receive I	Mode on C	Channel 6	(2.4	37 GHz)						
3249.32	53.33	100	135			46.82	3.72	33.55	43.78	74.00	-30.22	
3249.32				41.15	Α	46.82	3.72	33.55	31.60	54.00	-22.40	
EUT in C	Continuous	s Receive I	Mode on C	hannel 11	l (2.	462 GHz)						
3282.67	52.50	100	135			46.82	3.74	33.57	42.99	74.00	-31.01	
3282.67				41.01	A	46.82	3.74	33.57	31.50	54.00	-22.50	

Page 27 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



# Spurious Radiated Emissions Test Results (Continued)

CLIENT:	Hewlett-Packard Company	DATE:	02/13/06
EUT:	HP Heavenly Tablet	PROJECT NUMBER:	INTEL-060213
<b>MODEL NUMBER:</b>	HSTNN-C02C	<b>TEST ENGINEER:</b>	BM
SERIAL NUMBER:	2022938600018	SITE #:	2
<b>CONFIGURATION:</b>	Tested with an Intel PRO/Wireless	TEMPERATURE:	15 C
	3945ABG Network Connection installed in	HUMIDITY:	39% RH
	its mini PCI-E slot in <b>802.11g (2412-2462 MHz) mode.</b>	TIME:	7:00 PM

Standard:	FCC CFR 47, Part 15.247(c)
Description:	Radiated emissions, which fall in the restricted bands, as defined in Sec. $15.205(a)$ , must also comply with the radiated emission limits specified in Sec. $15.209(a)$ . All others must be $< -20$ dBc.
Results:	Passes (See Data Sheets)

	Unwanted Spurious Emissions Limits										
Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m) (Emissions in the restricted bands)	Field Strength (dBm/MHz) (Emissions outside the restricted bands)								
Above 960	500	54.00 (Average) 74.00 (Peak)	< -20 dBc								

Page 28 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

## Fundamental Measurements in 802.11g mode (2412-2462 MHz) Channels 1, 6, & 11 Continuous TX at MAIN Antenna port with Wistron NeWeb Corp. Antennas Aegis Labs, Inc. File #: INTEL-060213-06

	<b>RADIATED EMISSIONS - Horizontal Antenna Polarization</b>										
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dBı		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff(dB) +=FAIL
2412.00	68.67	100	225				3.19	32.60	104.46		
2412.00				59.50	A		3.19	32.60	95.29		
2437.00	68.83	100	180				3.20	32.60	104.63		
2437.00				59.74	Α		3.20	32.60	95.54		
2462.00	66.83	150	180				3.22	32.60	102.65		
2462.00				57.80	Α		3.22	32.60	93.62		

	<b>RADIATED EMISSIONS – Vertical Antenna Polarization</b>										
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dBı		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff(dB) +=FAIL
2412.00	71.33	100	90				3.19	32.46	106.98		
2412.00				61.14	Α		3.19	32.46	96.79		
2437.00	72.33	100	180				3.20	32.47	108.01		
2437.00				63.23	Α		3.20	32.47	98.91		
2462.00	70.00	100	90				3.22	32.48	105.71		
2462.00				60.89	Α		3.22	32.48	96.60		

NOTE: Fundamental signals measured to calculate the band edge field strengths using the "Marker Delta Method".

Page 29 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

Band Edge Field Strength Measurements in 802.11g mode (2412-2462 MHz) Channels 1, 6, & 11 Continuous TX at MAIN Antenna port with Wistron NeWeb Corp. Antennas Aegis Labs, Inc. File #: INTEL-060213-06

	<b>RADIATED EMISSIONS - Horizontal Antenna Polarization</b>										
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk o AVG (dBu		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL
2390.00									65.96	74.00	-8.04
2390.00					A				52.29	54.00	-1.71
2400.00	45.50	100	225				3.18	32.60	81.28	84.46	-3.18
2483.50									65.31	74.00	-8.69
2483.50					A				49.62	54.00	-4.38

	<b>RADIATED EMISSIONS – Vertical Antenna Polarization</b>										
Freq.	Meter	Antenna	Azimuth	Quasi pk of	r	Preamp	Cable	Ant.	Corrected	Limits	Diff (dB)
(MHz)	Reading	Height	(degrees)	AVG (dBuV	2	Factor	Factor	Factor	Reading	(dBuV)	+=FAIL
]	(dBuV)	(cm)				(dB)	(dB)	( <i>dB</i> )	(dBuV)		
2390.00									68.48	74.00	-5.52
2390.00					A				53.79	54.00	-0.21
2400.00	46.50	100	90				3.18	32.46	82.14	86.98	-4.84
2483.50									68.37	74.00	-5.63
2483.50					A				52.60	54.00	-1.40

NOTE: The "Band Edge Field Strength" was calculated using the "Fundamental" and "Conducted Band Edge" measurements per the "Marker-Delta Method" with the following formula:

 $BE = Fm - \Delta m$ 

Where

BE = Band Edge Field Strength

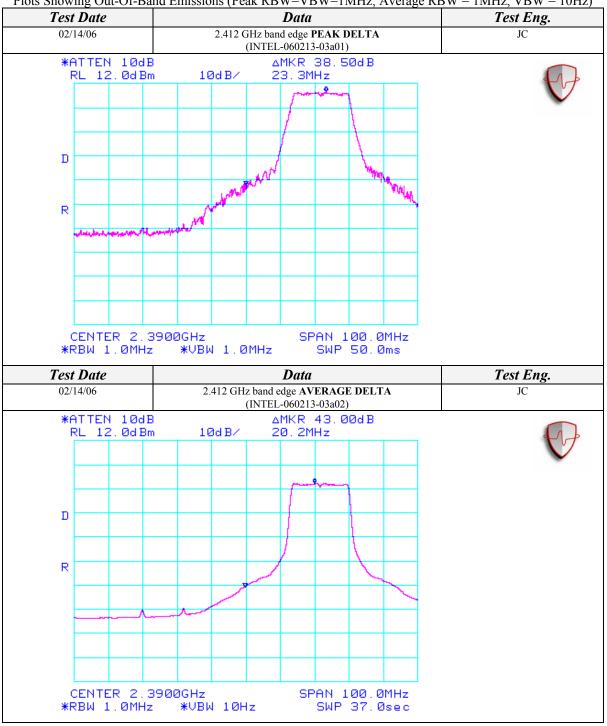
Fm = Measured Fundamental (Peak or Average)

 $\Delta m$  = Measured Conducted Band Edge Delta (Peak or Average)

Page 30 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### Spurious Radiated Emissions Test Results (Continued)

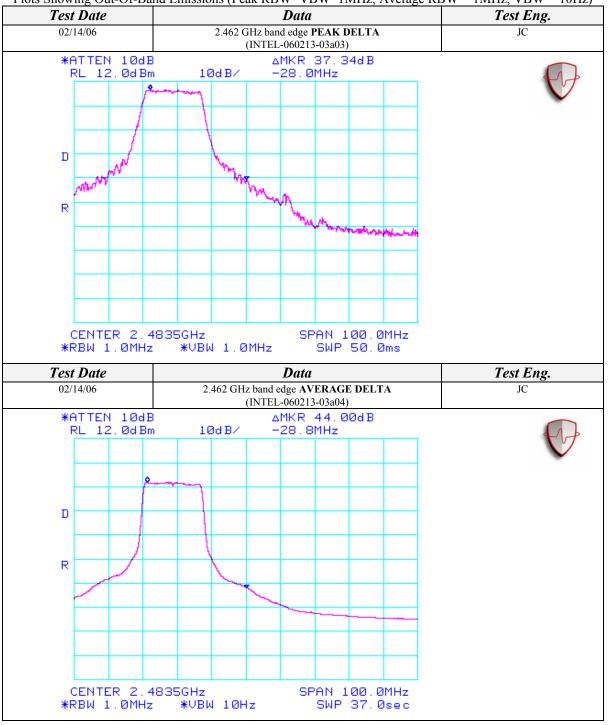


Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)

Page 31 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### Spurious Radiated Emissions Test Results (Continued)



Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)

Page 32 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

Spurious Emissions Measurements in 802.11g mode (2412-2462 MHz) Channels 1, 6, & 11 Continuous TX at MAIN Antenna port with Wistron NeWeb Corp. Antennas Aegis Labs, Inc. File #: INTEL-060213-07

		RADIA	red emi	SSIONS - I	Horizont	al Ante	nna Pola	rization					
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	1 Meter Distance Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL			
EUT in Co	EUT in Continuous Transmit Mode on Channel 1 (2.412 GHz)												
2312.00	31.50	100	225		9.54	1.97	31.09	55.01	74.00	-18.99			
2312.00				14.60 A	9.54	1.97	31.09	38.11	54.00	-15.89			
EUT in Co	ntinuous	Transmit I	Mode on C	hannel 6 (2.43	67 GHz)								
2336.00	30.50	100	225		9.54	1.98	31.14	54.08	74.00	-19.92			
2336.00				14.65 A	9.54	1.98	31.14	38.23	54.00	-15.77			
EUT in Co	ntinuous	Transmit <b>I</b>	Mode on C	hannel 11 (2.4	62 GHz)								
2358.66	31.17	100	225		9.54	1.99	31.19	54.81	74.00	-19.19			
2358.66				14.65 A	9.54	1.99	31.19	38.29	54.00	-15.71			

		RADIA	TED EN	IISSIONS -	Vertical	Anteni	na Polari	zation					
Freq.	Meter	Antenna	Azimuth	Quasi pk or	1 Meter	Cable	Ant.	Corrected	Limits	Diff(dB)			
(MHz)	Reading	Height	(degrees)	AVG (dBuV)	Distance	Factor	Factor	Reading	(dBuV)	+=FAIL			
	(dBuV)	( <i>cm</i> )			Factor (dB)	( <i>dB</i> )	( <i>dB</i> )	(dBuV)					
EUT in Co	EUT in Continuous Transmit Mode on Channel 1 (2.412 GHz)												
2312.00	31.50	100	225		9.54	1.97	30.07	54.00	74.00	-20.00			
2312.00				14.65 A	9.54	1.97	30.07	37.15	54.00	-16.85			
EUT in Co	ntinuous	Transmit I	Mode on C	hannel 6 (2.43	7 GHz)								
2336.00	31.67	100	225		9.54	1.98	30.10	54.21	74.00	-19.79			
2336.00				14.82 A	9.54	1.98	30.10	37.36	54.00	-16.64			
EUT in Co	CUT in Continuous Transmit Mode on Channel 11 (2.462 GHz)												
2358.66	31.17	100	225		9.54	1.99	30.13	53.75	74.00	-20.25			
2358.66				14.67 A	9.54	1.99	30.13	37.25	54.00	-16.75			

NOTE: These spurious emissions measurements were taken without a preamp at a distance on 1 meter to avoid saturating the preamp and analyzer because the signals were close to the fundamental frequency. The readings were extrapolated to 3 meters.

Page 33 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

Spurious Emissions Measurements in 802.11g mode (2412-2462 MHz) Channels 1, 6, & 11 Continuous TX at MAIN Antenna port with Wistron NeWeb Corp. Antennas Aegis Labs, Inc. File #: INTEL-060213-08

	<b>RADIATED EMISSIONS - Horizontal Antenna Polarization</b>											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL		
EUT in Co	EUT in Continuous Transmit Mode on Channel 1 (2.412 GHz)											
3216.00	52.33	100	225		46.82	3.71	33.43	42.65	86.92	-44.27		
EUT in Co	ontinuous '	Transmit 1	Mode on C	hannel 6 (2.43	7 GHz)							
3249.32	52.83	100	180		46.82	3.72	33.45	43.18	88.81	-45.63		
EUT in Co	ontinuous '	Transmit 1	Mode on C	hannel 11 (2.4	62 GHz)							
3282.66	52.83	100	180		46.82	3.74	33.47	43.22	87.55	-44.33		

	<b>RADIATED EMISSIONS - Vertical Antenna Polarization</b>										
Freq.	Meter	Antenna	Azimuth	Quasi pk or	Preamp	Cable	Ant.	Corrected	Limits	Diff (dB)	
(MHz)	Reading	Height	(degrees)	AVG (dBuV)	Factor	Factor	Factor	Reading	(dBuV)	+=FAIL	
	(dBuV)	(cm)			( <i>dB</i> )	( <i>dB</i> )	( <i>dB</i> )	(dBuV)			
EUT in Co	ntinuous '	Transmit I	Mode on C	hannel 1 (2.41	2 GHz)						
3216.00	52.83	150	135		46.82	3.71	33.53	43.25	86.95	-43.70	
EUT in Co	ntinuous '	Transmit I	Mode on C	hannel 6 (2.43	7 GHz)						
3249.32	53.17	100	135		46.82	3.72	33.55	43.62	89.01	-45.39	
EUT in Co	ntinuous '	Transmit I	Mode on C	hannel 11 (2.4	62 GHz)						
3282.66	52.83	100	135		46.82	3.74	33.57	43.32	87.25	-43.93	

Page 34 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



Spurious Radiated Emissions Test Results (Continued)

## Spurious Emissions Measurements in 802.11g mode (2412-2462 MHz) Channels 1, 6, & 11 Continuous RX at MAIN Antenna port with Wistron NeWeb Corp. Antennas Aegis Labs, Inc. File #: INTEL-060213-08

	<b>RADIATED EMISSIONS - Horizontal Antenna Polarization</b>											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk AVG (dBi		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff(dB) +=FAIL	
EUT in C	EUT in Continuous Receive Mode on Channel 1 (2.412 GHz)											
3216.00	51.67	100	135			46.82	3.71	33.43	41.99	74.00	-32.01	
3216.00				39.71	Α	46.82	3.71	33.43	30.03	54.00	-23.97	
EUT in C	Continuous	s Receive I	Mode on C	hannel 6	(2.4	37 GHz)						
3249.32	52.67	125	135			46.82	3.72	33.45	43.02	74.00	-30.98	
3249.32				40.41	Α	46.82	3.72	33.45	30.76	54.00	-23.24	
EUT in C	Continuous	s Receive I	Mode on C	hannel 11	l (2.	462 GHz)						
3282.66	53.00	100	135			46.82	3.74	33.47	43.39	74.00	-30.61	
3282.66				40.44	A	46.82	3.74	33.47	30.83	54.00	-23.17	

_	<b>RADIATED EMISSIONS - Vertical Antenna Polarization</b>											
Freq.	Meter	Antenna	Azimuth	Quasi pk	or	Preamp	Cable	Ant.	Corrected	Limits	Diff(dB)	
(MHz)	Reading	Height	(degrees)	AVG (dBı	$\iota V)$	Factor	Factor	Factor	Reading	(dBuV)	+=FAIL	
	(dBuV)	(cm)				( <i>dB</i> )	( <i>dB</i> )	( <i>dB</i> )	(dBuV)			
EUT in C	EUT in Continuous Receive Mode on Channel 1 (2.412 GHz)											
3216.00	53.17	100	135			46.82	3.71	33.53	43.59	74.00	-30.41	
3216.00				40.22	Α	46.82	3.71	33.53	30.64	54.00	-23.36	
EUT in C	Continuous	s Receive 1	Mode on C	Channel 6	(2.4	37 GHz)						
3249.33	53.00	100	90			46.82	3.72	33.55	43.45	74.00	-30.55	
3249.33				41.46	Α	46.82	3.72	33.55	31.91	54.00	-22.09	
EUT in C	Continuous	s Receive 1	Mode on C	hannel 1	l (2.	462 GHz)						
3282.67	54.00	100	90			46.82	3.74	33.57	44.49	74.00	-29.51	
3282.67				42.09	Α	46.82	3.74	33.57	32.58	54.00	-21.42	

Page 35 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



# PEAK TRANSMIT POWER

CLIENT:	Hewlett-Packard Company	DATE:	02/13/06
EUT:	HP Heavenly Tablet	PROJECT NUMBER:	INTEL-060213
<b>MODEL NUMBER:</b>	HSTNN-C02C	<b>TEST ENGINEER:</b>	BM
SERIAL NUMBER:	2022938600018	SITE #:	2
<b>CONFIGURATION:</b>	Tested with an Intel PRO/Wireless	<b>TEMPERATURE:</b>	24 C
	3945ABG Network Connection installed in its mini PCI-E slot.	HUMIDITY:	18% RH
	Its IIIIII PCI-E SIOL	TIME:	5:00 PM

Standard:	FCC CFR 47, Part 15.247(b)(3)
Description:	The maximum peak output power of the intentional radiator shall not exceed 1 watt.
Results:	See Data Sheet

Peak Transmit Power Limits		
Frequency (MHz)	Output Power (W)	
5725-5850	1	
2412-2462	1	

Page 36 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



# Peak Transmit Power (Continued)

Mode	Channel	Frequency (MHz)	Rate (Mbps)	Average Power (dBm)	Average Power (mW)	Peak Power (dBm)	Peak Power (mW)
802.11a	149	5745	6	16.85	48.42	19.60	91.20
802.11a	157	5785	6	16.79	47.75	19.70	93.33
802.11a	165	5825	6	17.21	52.60	19.80	95.50
802.11b	1	2412	1	17.22	52.72	19.80	95.50
802.11b	6	2437	1	17.88	61.38	20.43	110.41
802.11b	11	2462	1	18.15	65.31	20.52	112.72
802.11g	1	2412	6	16.21	41.78	24.22	264.24
802.11g	6	2437	6	17.36	54.45	24.71	295.80
802.11g	11	2462	6	15.31	33.96	24.03	252.93

NOTE: The output power measurement is conducted.

Page 37 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



## **6 dB EMISSIONS BANDWIDTH**

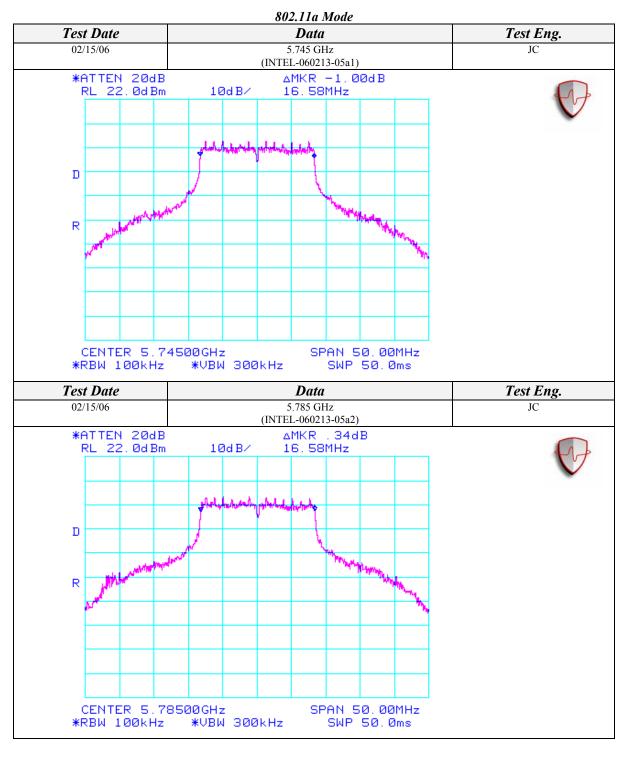
CLIENT:	Hewlett-Packard Company	DATE:	02/14/06
EUT:	HP Heavenly Tablet	PROJECT NUMBER:	INTEL-060213
<b>MODEL NUMBER:</b>	HSTNN-C02C	<b>TEST ENGINEER:</b>	JC
SERIAL NUMBER:	2022938600018	SITE #:	2
<b>CONFIGURATION:</b>	Tested with an Intel PRO/Wireless	<b>TEMPERATURE:</b>	21 C
	3945ABG Network Connection installed in its mini PCLE slot	HUMIDITY:	25% RH
its mini PCI-E slot.		TIME:	10:30 AM

Standard:	FCC CFR 47, Part 15.247(a)(2)
Description:	The minimum 6 dB bandwidth shall be at least 500 kHz.
Results:	See Data Sheets

Page 38 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



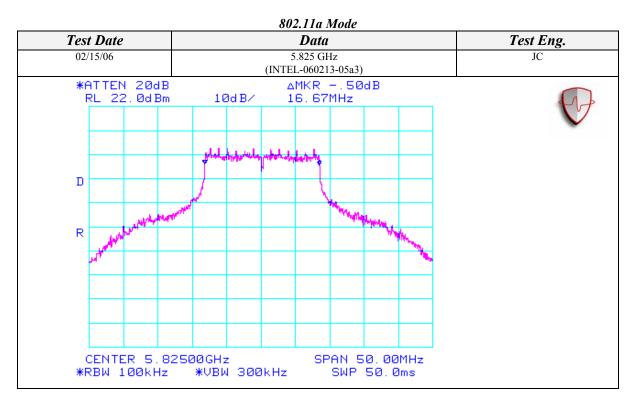
#### 6 dB Emissions Bandwidth (Continued)



Page 39 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



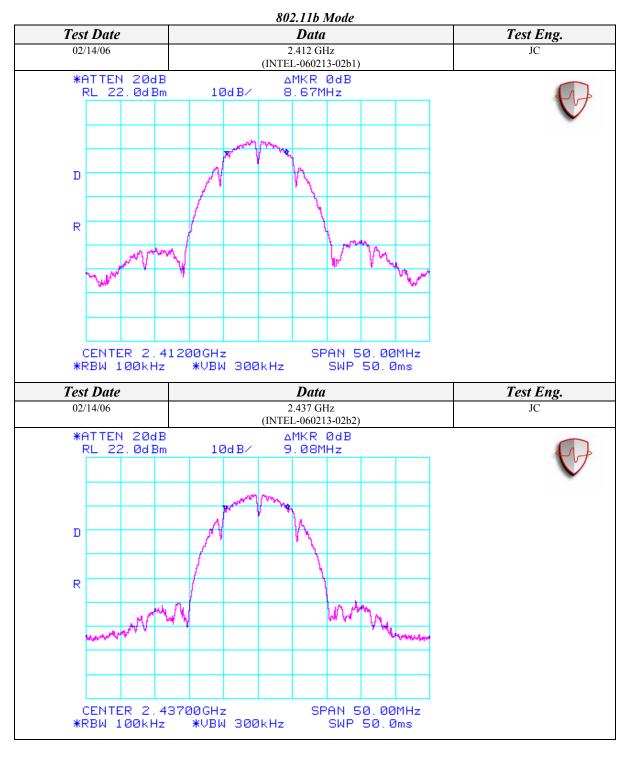
#### 6 dB Emissions Bandwidth (Continued)



Page 40 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



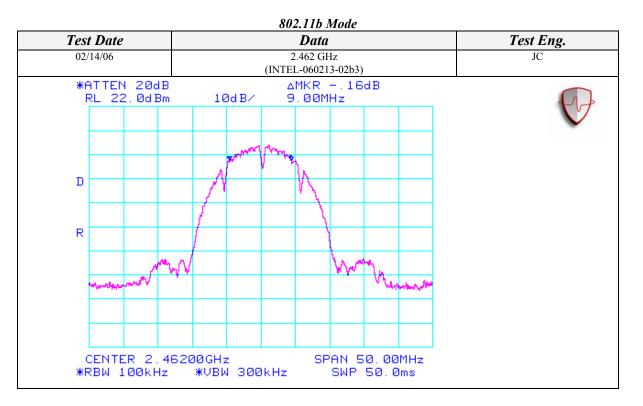
## 6 dB Emissions Bandwidth (Continued)



Page 41 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



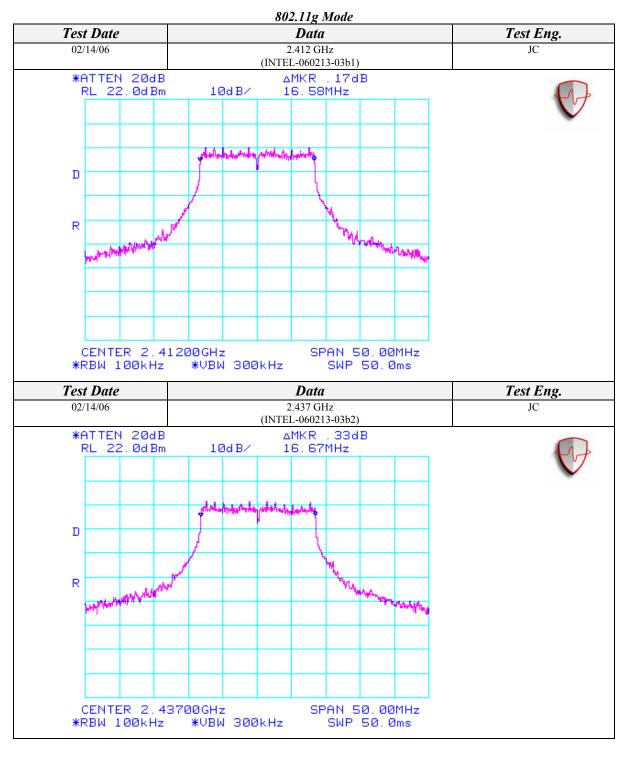
## 6 dB Emissions Bandwidth (Continued)



Page 42 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



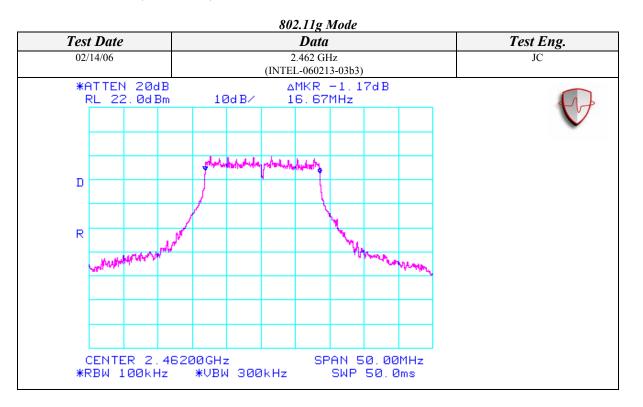
## 6 dB Emissions Bandwidth (Continued)



Page 43 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### 6 dB Emissions Bandwidth (Continued)



Page 44 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



# PEAK POWER SPECTRAL DENSITY

CLIENT:	Hewlett-Packard Company	DATE:	02/14/06
EUT:	HP Heavenly Tablet	PROJECT NUMBER:	INTEL-060213
<b>MODEL NUMBER:</b>	HSTNN-C02C	<b>TEST ENGINEER:</b>	JC
SERIAL NUMBER:	2022938600018	SITE #:	2
<b>CONFIGURATION:</b>	Tested with an Intel PRO/Wireless	<b>TEMPERATURE:</b>	21 C
	3945ABG Network Connection installed in its mini PCI-E slot.	HUMIDITY:	25% RH
		TIME:	10:30 AM

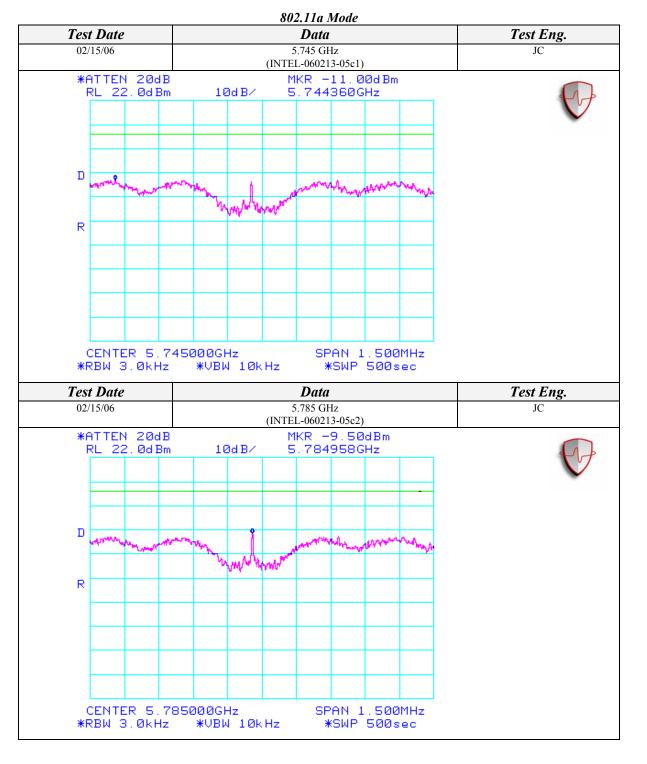
Standard:	FCC CFR 47, Part 15.247(d)
Description:	The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
Results:	See Data Sheets

Peak Power Spectral Density Limits		
Frequency (MHz)	Limit (dBm)	
5725-5850	8	
2412-2462	8	

Page 45 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



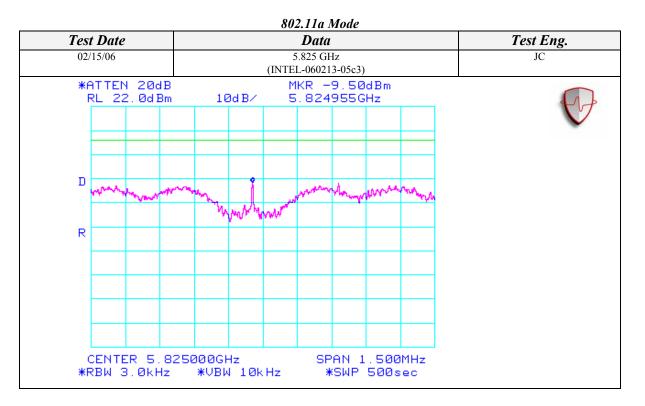
## Peak Power Spectral Density (Continued)



Page 46 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



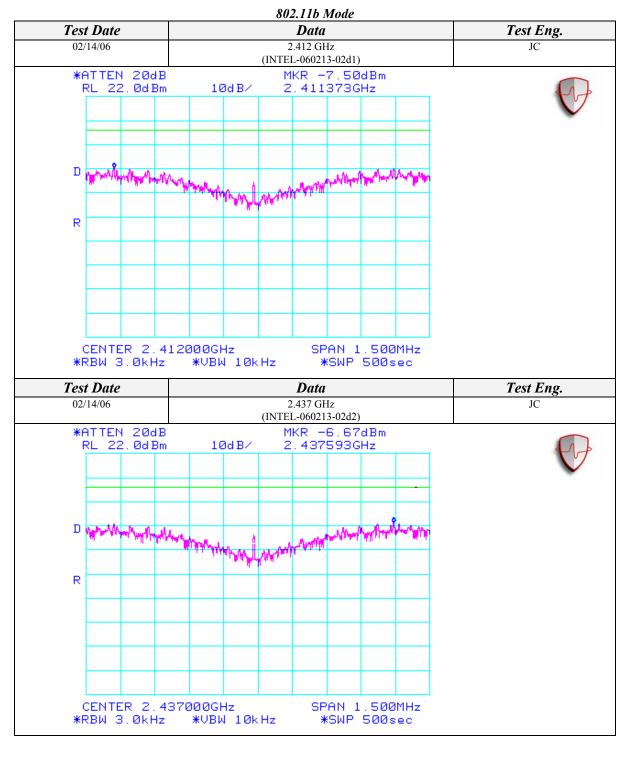
#### Peak Power Spectral Density (Continued)



Page 47 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



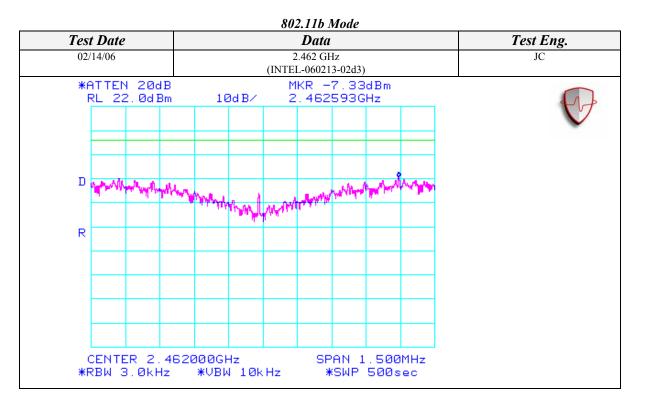
#### Peak Power Spectral Density (Continued)



Page 48 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



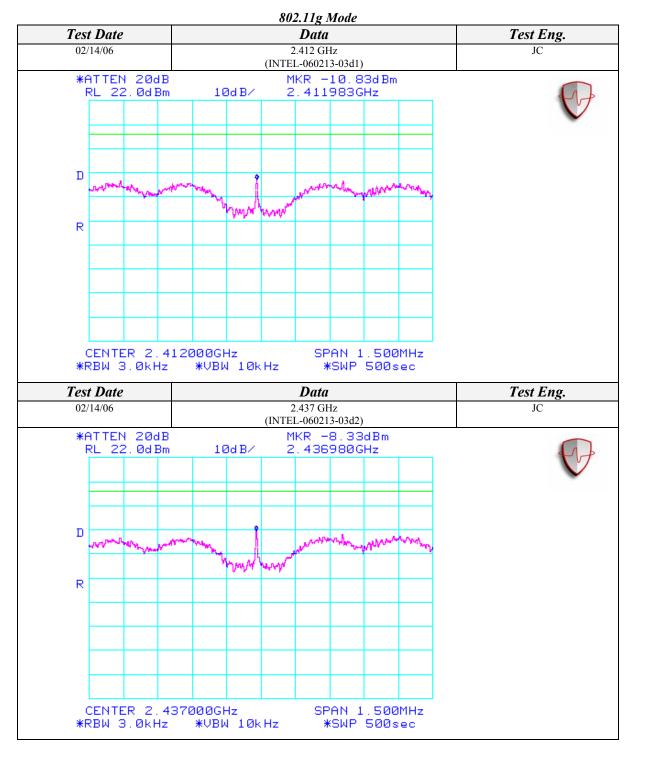
#### Peak Power Spectral Density (Continued)



Page 49 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



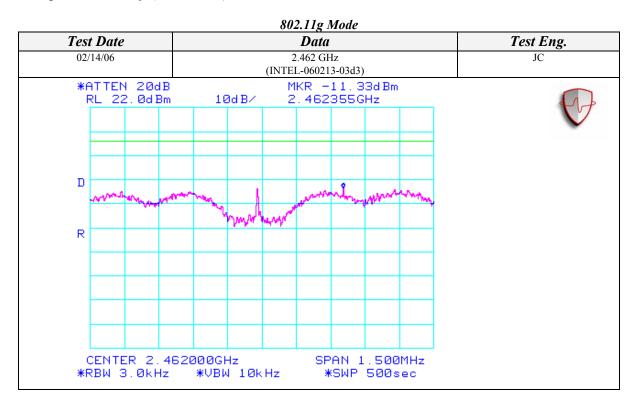
## Peak Power Spectral Density (Continued)



Page 50 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



#### Peak Power Spectral Density (Continued)



Page 51 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



## **CONDUCTED OUT OF BAND EMISSIONS**

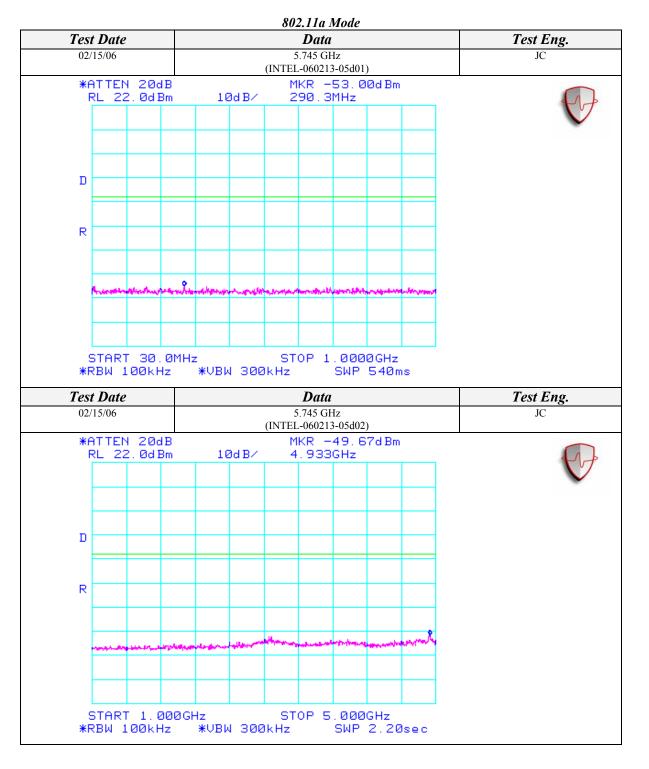
CLIENT:	Hewlett-Packard Company	DATE:	02/14/06
EUT:	HP Heavenly Tablet	PROJECT NUMBER:	INTEL-060213
<b>MODEL NUMBER:</b>	HSTNN-C02C	<b>TEST ENGINEER:</b>	JC
SERIAL NUMBER:	2022938600018	SITE #:	2
<b>CONFIGURATION:</b>	Tested with an Intel PRO/Wireless	<b>TEMPERATURE:</b>	21 C
	3945ABG Network Connection installed in	HUMIDITY:	25% RH
its mini PCI-E slot.		TIME:	10:30 AM

Standard:	FCC CFR 47, Part 15.247(c)
Description:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Page 52 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



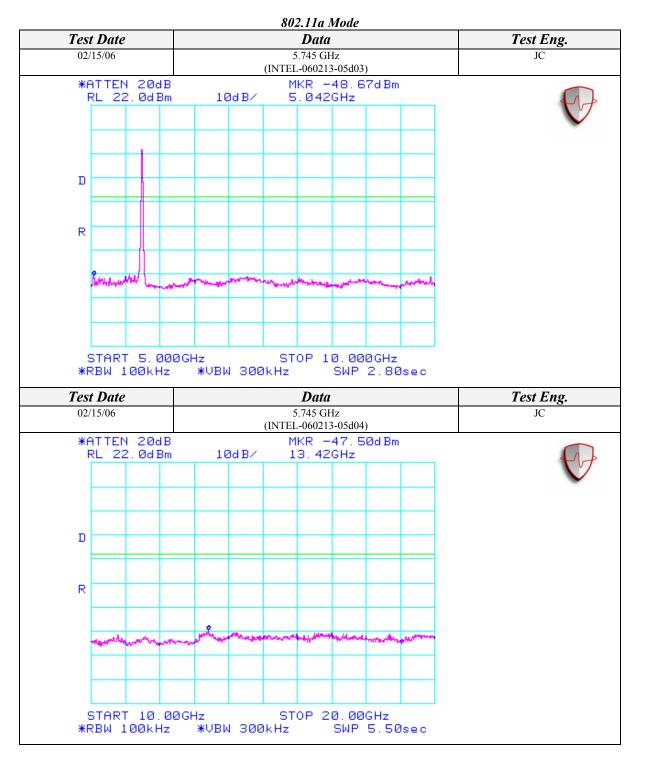
#### Conducted Out Of Band Emissions (Continued)



Page 53 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



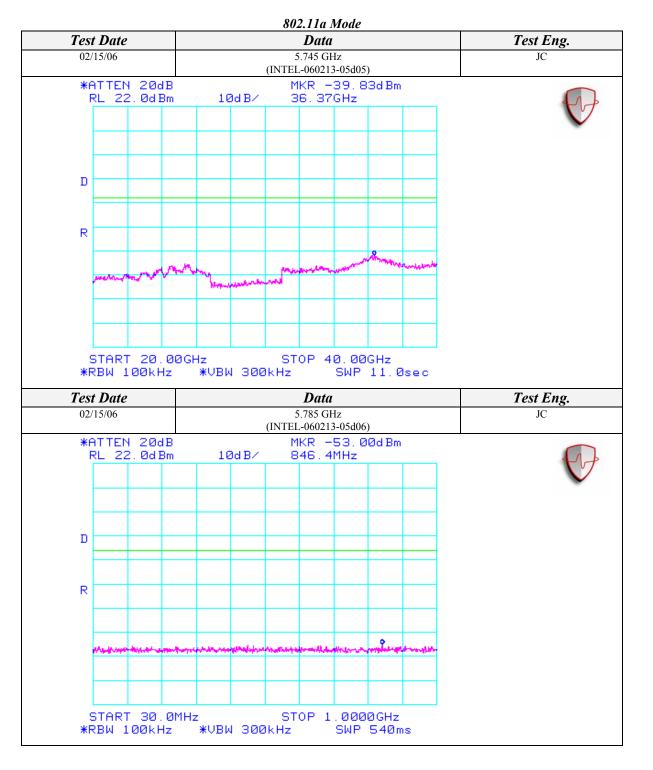
#### Conducted Out Of Band Emissions (Continued)



Page 54 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



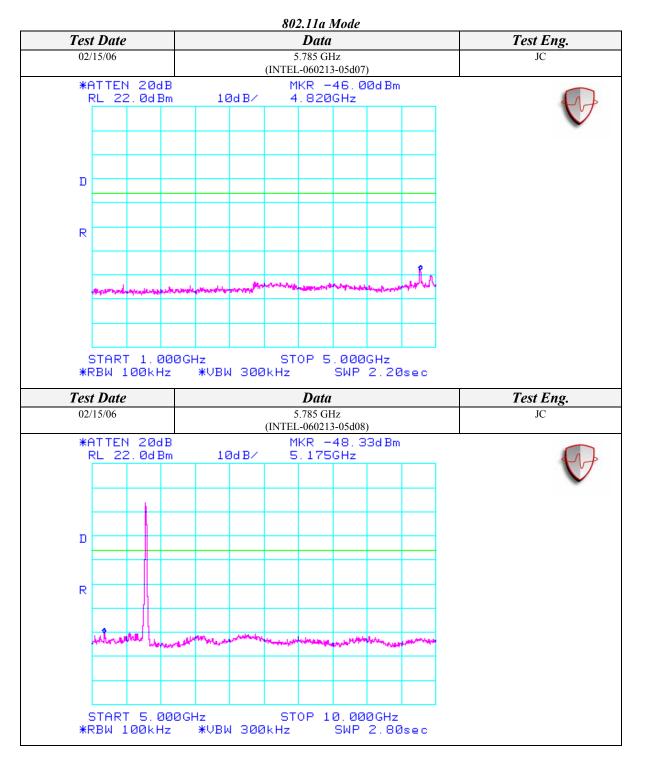
## Conducted Out Of Band Emissions (Continued)



Page 55 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



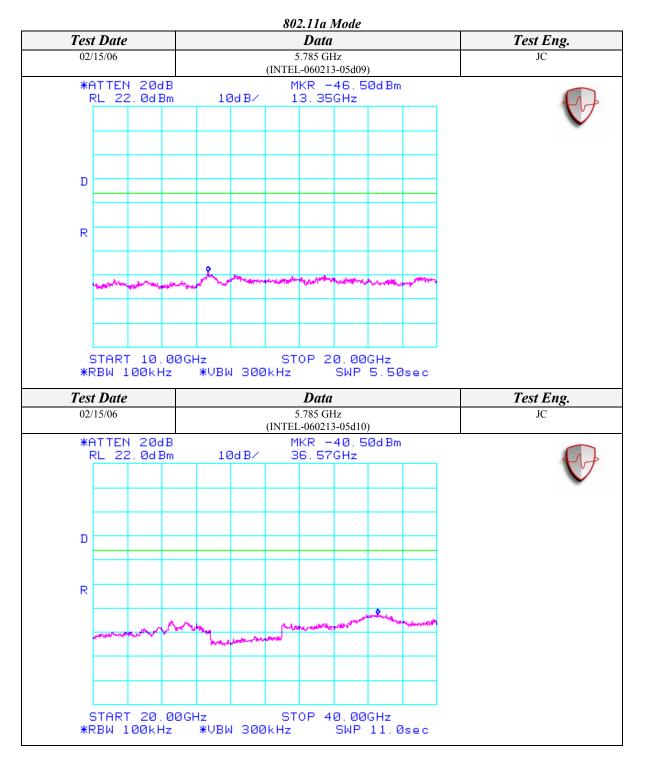
## Conducted Out Of Band Emissions (Continued)



Page 56 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



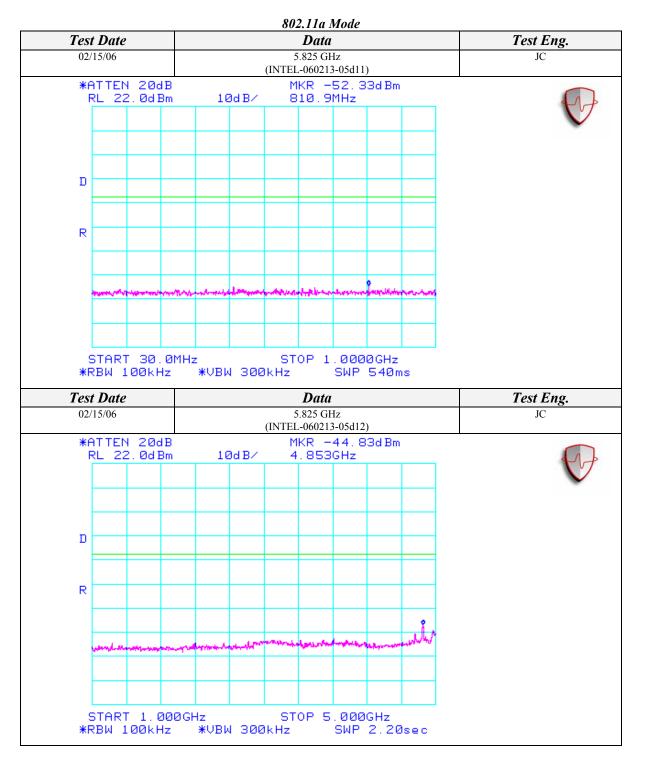
## Conducted Out Of Band Emissions (Continued)



Page 57 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



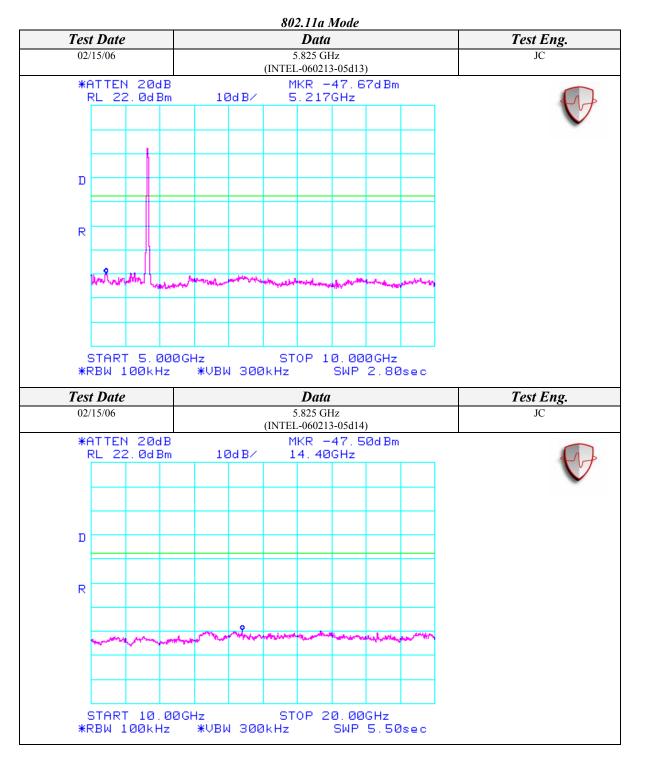
## Conducted Out Of Band Emissions (Continued)



Page 58 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



## Conducted Out Of Band Emissions (Continued)



Page 59 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



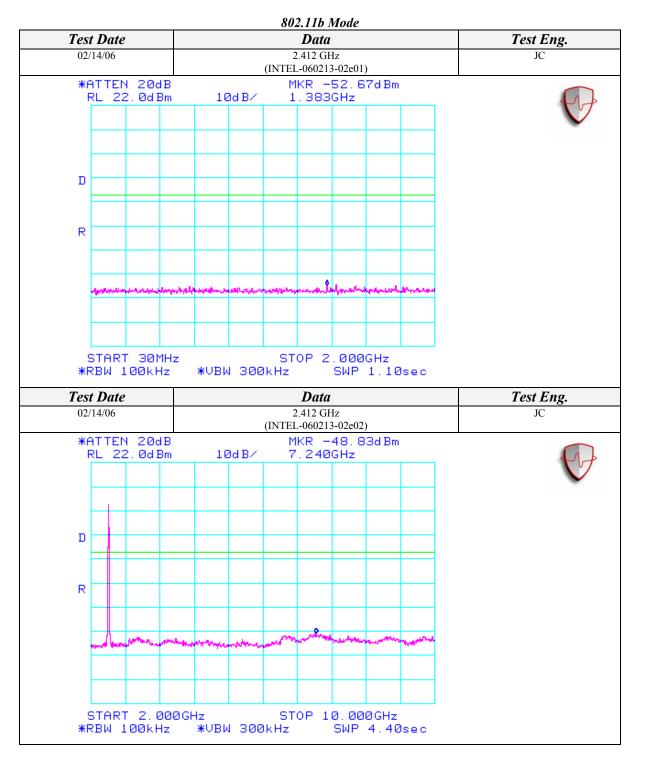
## 802.11a Mode Test Date Test Eng. Data JC 02/15/06 5.825 GHz (INTEL-060213-05d15) \*ATTEN 20dB MKR -40.00dBm RL 22.0dBm 10d B/ 36.10GHz D R w START 20.00GHz STOP 40.00GHz \*RBW 100kHz ¥VBW 300kHz SWP 11.0sec

# Conducted Out Of Band Emissions (Continued)

Page 60 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



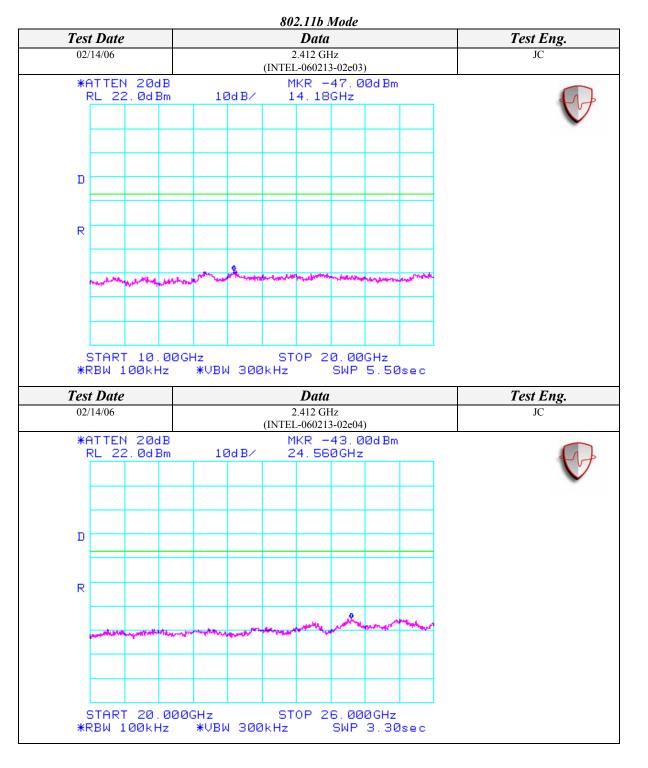
## Conducted Out Of Band Emissions (Continued)



Page 61 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



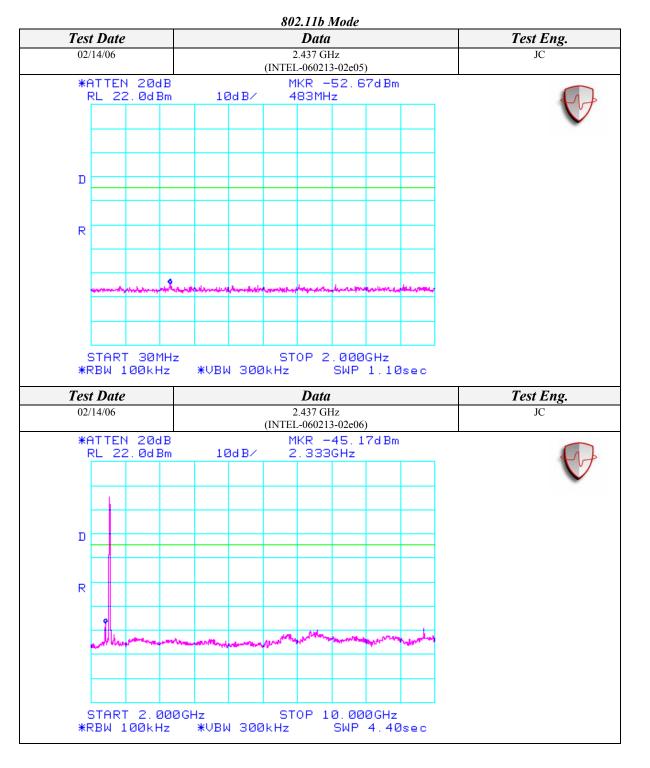
## Conducted Out Of Band Emissions (Continued)



Page 62 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



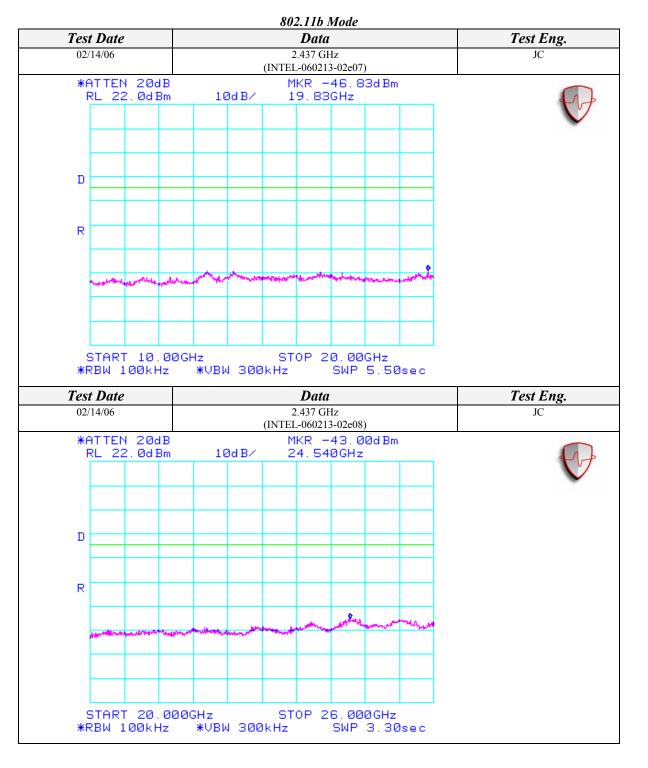
## Conducted Out Of Band Emissions (Continued)



Page 63 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



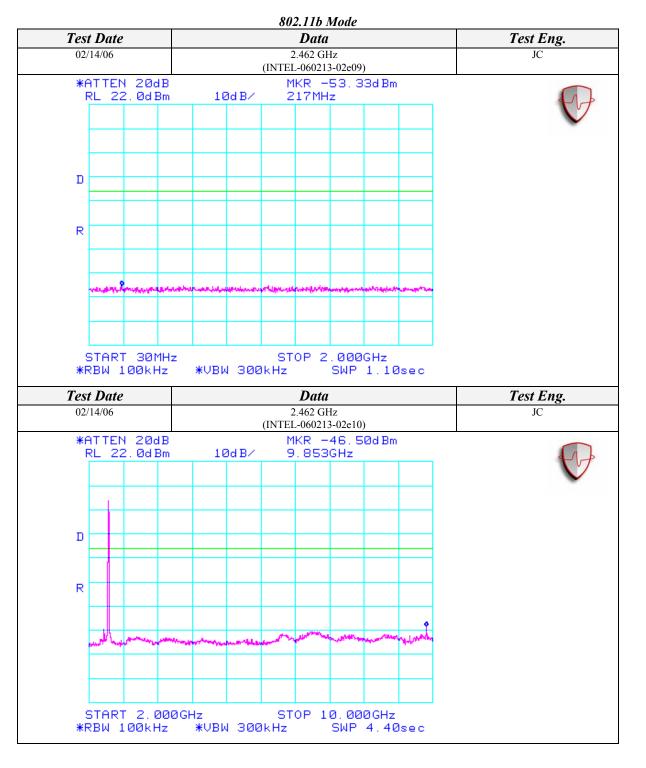
## Conducted Out Of Band Emissions (Continued)



Page 64 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



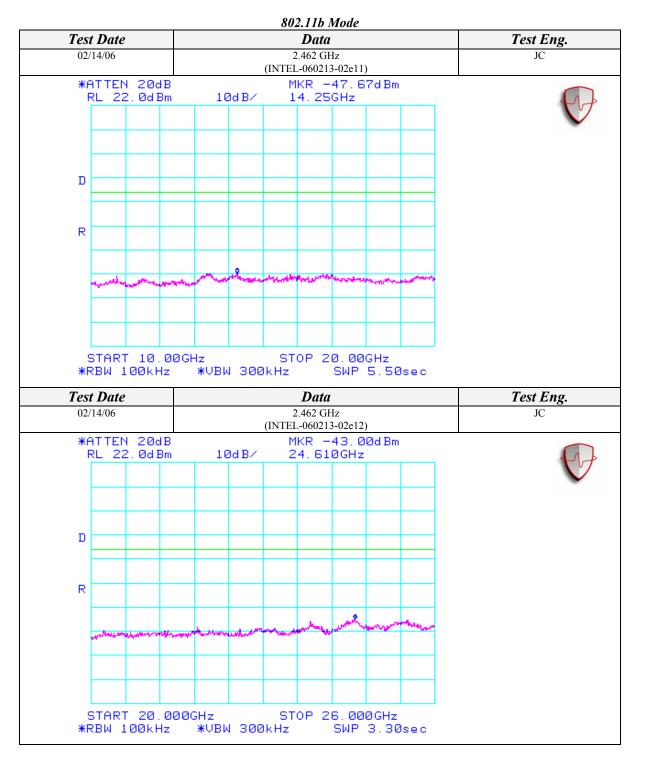
## Conducted Out Of Band Emissions (Continued)



Page 65 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



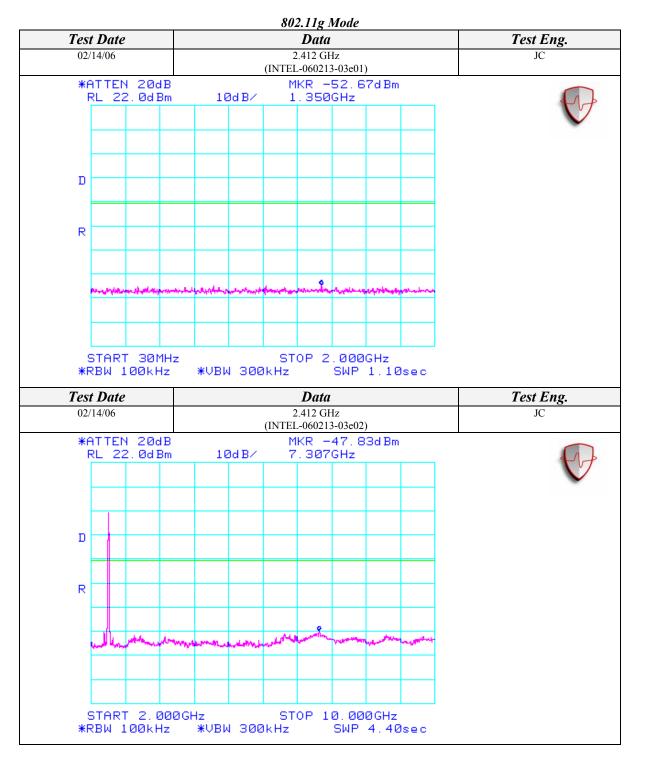
## Conducted Out Of Band Emissions (Continued)



Page 66 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



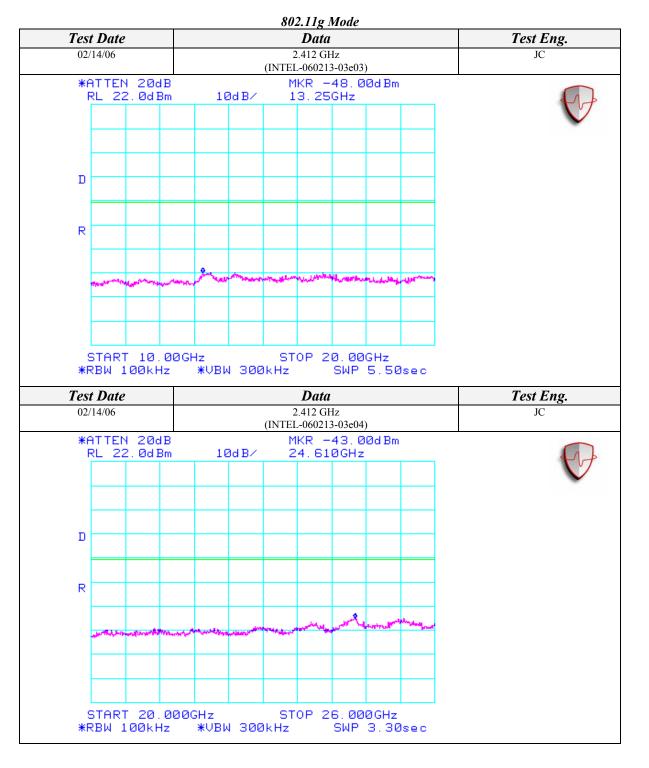
## Conducted Out Of Band Emissions (Continued)



Page 67 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



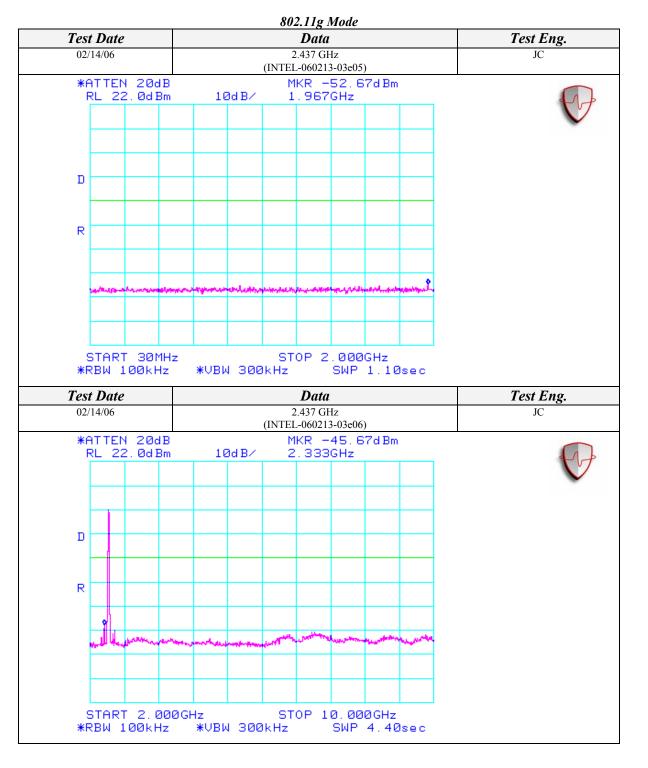
## Conducted Out Of Band Emissions (Continued)



Page 68 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



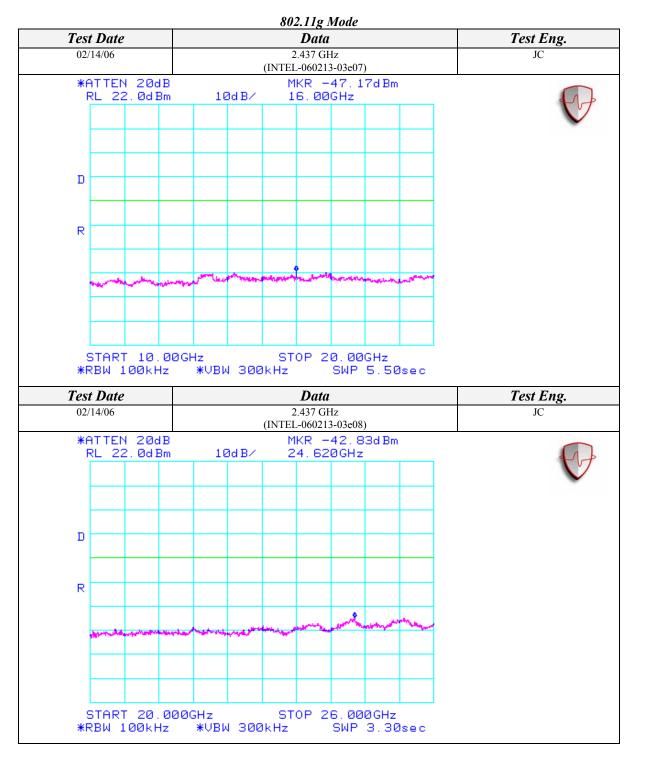
## Conducted Out Of Band Emissions (Continued)



Page 69 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



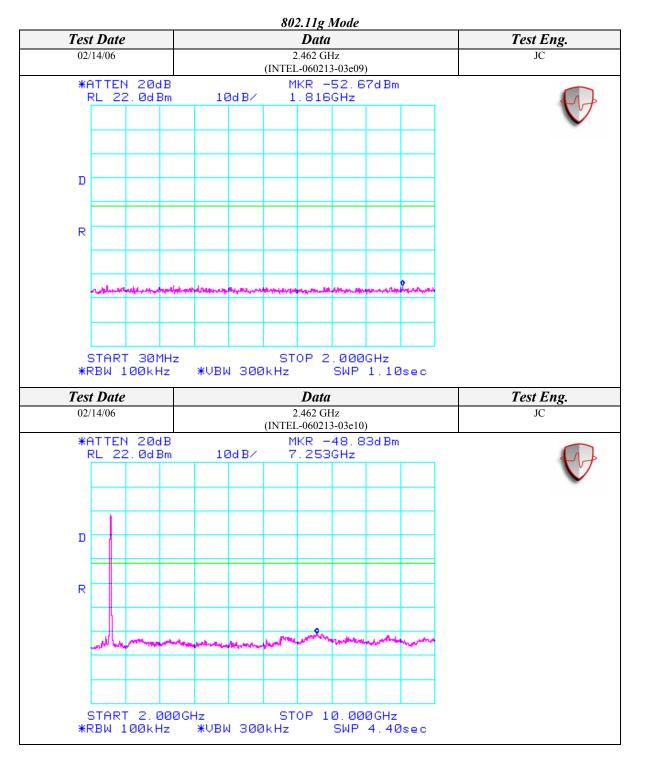
## Conducted Out Of Band Emissions (Continued)



Page 70 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



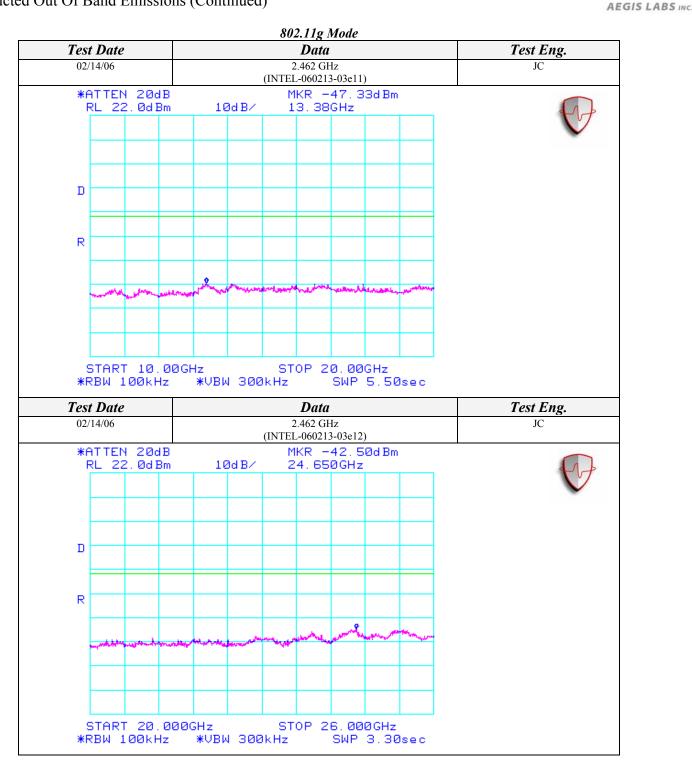
## Conducted Out Of Band Emissions (Continued)



Page 71 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG



## Conducted Out Of Band Emissions (Continued)



Page 72 of 72 (Appendix A) Report Number: INTEL-060213F FCC ID: B94WM3945ABG