



Engineering Solutions & Electromagnetic Compatibility Services

FCC Part 15.247 & RSS-210 Intentional Radiated Emissions Test Report

Test Lab: Rhein Tech Laboratories, Inc. Tel: 703-689-0368 360 Herndon Parkway Fax: 703-689-2056 Suite 1400 Herndon, VA 20170 www.rheintech.com		Applicant: Honeywell International 2 Corporate Center Drive Tel: 516-577-5935 Melville, NY 11747 Contact: Andrew Roussin	
FCC ID:	CFS8DLWIFI	Test Report Date	April 14, 2014
IC:	573F-WIFI		
Platform	N/A	RTL Work Order Number	2014069
Model #	WIFI	RTL Quote Number	QRTL14-069A
American National Standard Institute	ANSI C63.4-2003: Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz		
American National Standard Institute	ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices		
FCC Classification	DTS – Part 15 Digital Transmission System		
FCC Rule Part(s)	FCC Rules Part 15.247: Operation within the bands 920-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz Direct Sequence System (10-01-13)		
IC Rule Part(s)	RSS-210 Issue 8: Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment RSS-Gen Issue 3: General Requirements and Information for the Certification of Radio Apparatus		

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards. Furthermore, there was no deviation from, additions to, or exclusions from, the applicable parts of FCC Part 2, FCC Part 15, IC RSS-210, IC RSS-Gen, ANSI C63.4 and ANSI C63.10.

Signature: 

Date: April 16, 2014

Typed/Printed Name: Desmond A. Fraser

Position: President

This report may not be reproduced, except in full, without the written approval of Rhein Tech Laboratories and Honeywell International. The test results relate only to the item(s) tested.

These tests are accredited and meet the requirements of ISO/IEC 17025 as verified by ANSI-ASQ National Accreditation Board/ACLASS. Refer to certificate and scope of accreditation AT-1445.

Table of Contents

1	General Information	4
1.1	Scope	4
1.2	Description of EUT	4
1.3	Test Facility	4
1.4	Modifications	4
2	Test Information	5
2.1	Description of Test Modes	5
2.2	Exercising the EUT	5
2.3	Test Result Summary.....	5
2.4	Related Submittal(s)/Grant(s)	5
2.5	Test System Details	5
3	Radiated Emissions – FCC 15.209; IC RSS-210	7
3.1	Limits of Radiated Emissions Measurement.....	7
3.2	Radiated Emissions Measurement Test Procedure	7
3.3	Radiated Emissions Test Results	9
3.3.1	Radiated Emissions Harmonics/Spurious.....	9
4	Compliance with the Band Edge – FCC 15.247(d); RSS-210 2.2.....	15
4.1	Band Edge Test Procedure.....	15
4.2	Restricted Band Edge Test Results	16
4.2.1	Lower Band Edge – 802.11b.....	16
4.2.2	Upper Band Edge – 802.11b.....	17
4.2.3	Lower Band Edge – 802.11g.....	18
4.2.4	Upper Band Edge – 802.11g.....	19
4.2.5	Lower Band Edge – 802.11n.....	20
4.2.6	Upper Band Edge – 802.11n.....	21
5	Conclusion	22

Table Index

Table 2-1:	Frequencies Tested	5
Table 2-2:	Test Result Summary – FCC Part 15, Subpart C (Section 15.247), IC RSS-210/RSS-Gen 5	
Table 2-3:	Equipment Under Test	5
Table 3-1:	Radiated Emissions Test Equipment	8
Table 3-2:	2412 MHz; 802.11b; 11 mbps; Channel 1; Average Mode	9
Table 3-3:	2437 MHz; 802.11b; 11 mbps; Channel 6; Average Mode	9
Table 3-4:	2462 MHz; 802.11b; 11 mbps; Channel 11; Average Mode	9
Table 3-5:	2412 MHz; 802.11g; 54 mbps; Channel 1; Average Mode	10
Table 3-6:	2437 MHz; 802.11g; 54 mbps; Channel 6; Average Mode	10
Table 3-7:	2462 MHz; 802.11g; 54 mbps; Channel 11; Average Mode	10
Table 3-8:	2412 MHz; 802.11n; 65 mbps; Channel 1; Average Mode	11
Table 3-9:	2437 MHz; 802.11n; 65 mbps; Channel 6; Average Mode	11
Table 3-10:	2462 MHz; 802.11n; 65 mbps; Channel 11; Average Mode	11
Table 3-11:	2412 MHz; 802.11b; 11 mbps; Channel 1; Peak Mode	12
Table 3-12:	2437 MHz; 802.11b; 11 mbps; Channel 6; Peak Mode	12
Table 3-13:	2462 MHz; 802.11b; 11 mbps; Channel 11; Peak Mode	12
Table 3-14:	2412 MHz; 802.11g; 54 mbps; Channel 1; Peak Mode	13
Table 3-15:	2437 MHz; 802.11g; 54 mbps; Channel 6; Peak Mode	13
Table 3-16:	2462 MHz; 802.11g; 54 mbps; Channel 11; Peak Mode	13
Table 3-17:	2412 MHz; 802.11n; 65 mbps; Channel 1; Peak Mode	14
Table 3-18:	2437 MHz; 802.11n; 65 mbps; Channel 6; Peak Mode	14
Table 3-19:	2462 MHz; 802.11n; 65 mbps; Channel 11; Peak Mode	14
Table 4-1:	Band Edge Test Equipment	15

Plot Index

Plot 4-1:	In Band Emissions - Channel 1 (2412 MHz); 802.11b (11 Mbps)	16
Plot 4-2:	In Band Emissions - Channel 13 (2462 MHz); 802.11b (11 Mbps)	17
Plot 4-3:	In Band Emissions - Channel 1 (2412 MHz); 802.11g (54 Mbps)	18
Plot 4-4:	In Band Emissions - Channel 13 (2462 MHz); 802.11g (54 Mbps)	19
Plot 4-5:	In Band Emissions - Channel 1 (2412 MHz); 802.11n (65 Mbps)	20
Plot 4-6:	In Band Emissions - Channel 13 (2462 MHz); 802.11n (65 Mbps)	21

Appendix Index

Appendix A:	Test Photographs	23
-------------	------------------------	----

Photograph Index

Photograph 1:	Radiated Testing – Front View	23
Photograph 2:	Radiated Testing – Back View	24

1 General Information

1.1 Scope

Applicable Standards:

- FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz.
- RSS-210 Issue 8: Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment
- RSS-Gen Issue 3: General Requirements and Information for the Certification of Radio Apparatus

This test report addresses the intentional radiated emissions requirements per FCC 15.247, which are the harmonic/spurious radiated emissions occurring in the restricted bands per FCC 15.205 (against the FCC 15.209 limits).

1.2 Description of EUT

Equipment Under Test	WIFI
Power Supply	9 VAC Adapter
Modulation Type	DSSS
Frequency Range	2412 – 2462 MHz
Antenna Connector Type	N/A
Antenna Types	Internal Wire

1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report and approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing (ANSI C63.4 2003).

1.4 Modifications

No physical modifications were required for compliance. Power levels were reduced to pass band edge testing, using supplied firmware which was uploaded to the device.

2 Test Information

2.1 Description of Test Modes

In accordance with FCC 15.31(m), and because the EUT utilizes an operating band greater than 10 MHz, the following frequencies were tested:

Table 2-1: Frequencies Tested

Channel	Frequency
Low	2412
Mid	2437
High	2462

2.2 Exercising the EUT

The EUT was tested in all three orthogonal planes in order to determine worst-case emissions. The EUT was provided with software to continuously transmit during testing. The carrier was also checked to verify that information was being transmitted. There were no deviations from the test standard(s) and/or methods. The test results reported relate only to the item tested.

2.3 Test Result Summary

Table 2-2: Test Result Summary – FCC Part 15, Subpart C (Section 15.247), IC RSS-210/RSS-Gen

FCC Reference	IC Reference	C63.10 Procedure	Test	Pass/Fail or N/A
FCC 15.209	RSS-Gen 7.2.5	6.5, 6.6	Radiated Emissions	Pass

2.4 Related Submittal(s)/Grant(s)

This report is to support an application for certification under FCC ID: CFS8DLWIFI, IC: 573F-WIFI.

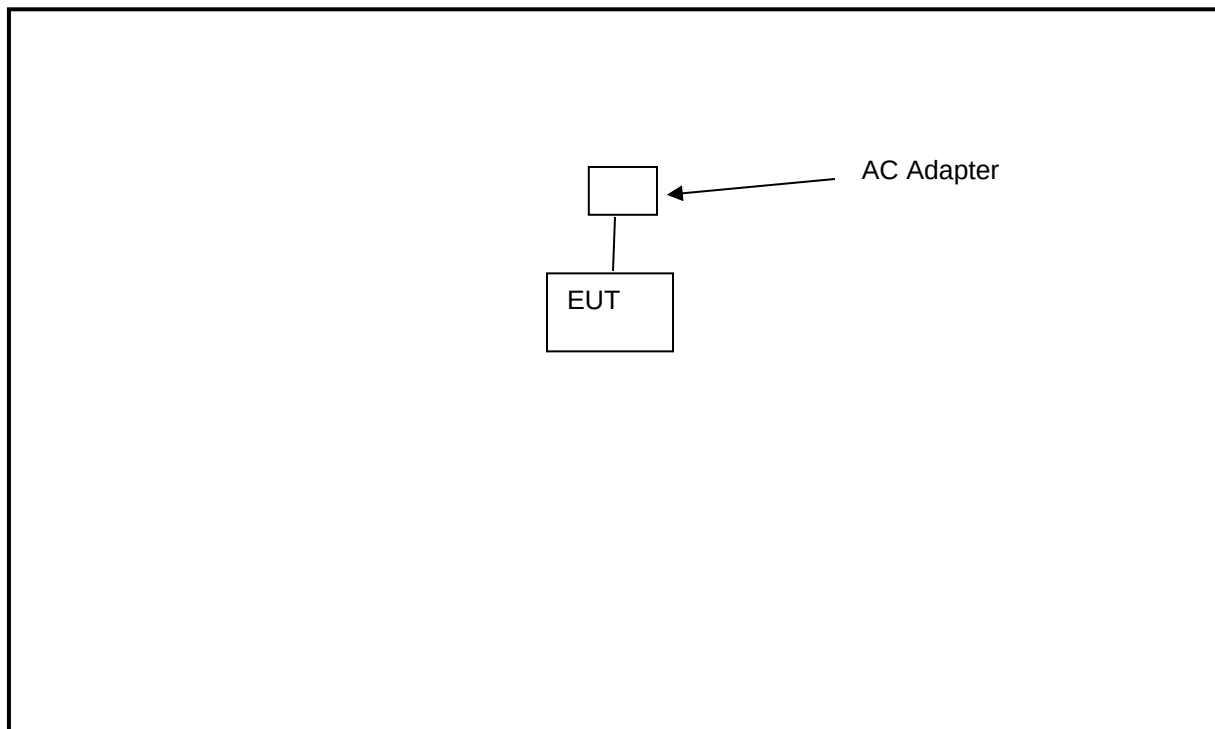
2.5 Test System Details

The test samples were received on April 10 and 16, 2014. The FCC identifiers for all applicable equipment, plus descriptions of all cables used in the tested system, are identified in the following tables.

Table 2-3: Equipment Under Test

Part	Manufacturer	Model #	Serial Number	FCC ID	RTL Bar Code
802.11 b/g/n Wi-Fi	Honeywell International	WIFI	23931373	CFS8DLWIFI	21120
9 VAC Adapter	Honeywell International	300-04705V1	886618145834	N/A	21122

Figure 2-1: Configuration of Tested System



3 Radiated Emissions – FCC 15.209; IC RSS-210

3.1 Limits of Radiated Emissions Measurement

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009-0.490	2400/f (kHz)	300
0.490-1.705	2400/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

As shown in 15.35(b), for frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any circumstances of modulation.

3.2 Radiated Emissions Measurement Test Procedure

Procedure: C63.10-2009 6.5, 6.6

Before final measurements of radiated emissions were made on the open-field three/ten meter range, the EUT was scanned indoors at one and three meter distances. This was done in order to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, in order to ensure that maximum emission amplitudes were attained.

Final radiated emissions measurements were made on the three/ten-meter, open-field test site. The EUT was placed on a nonconductive turntable 0.8 meters above the ground plane. The spectrum was examined from 9 kHz to the 10th harmonic of the highest fundamental transmitter frequency (24.8 GHz).

At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations. For frequencies between 30 and 1000 MHz, the spectrum analyzer's 6 dB bandwidth was set to 120 kHz, and the analyzer was operated in the CISPR quasi-peak detection mode. For emissions above 1,000 MHz, emissions are measured using the average detector function with a minimum resolution bandwidth of 1 MHz. No video filter less than 10 times the resolution bandwidth was used. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

Table 3-1: Radiated Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900932	Hewlett Packard	8449B OPT H02	Preamplifier (1 - 26.5 GHz)	3008A00505	8/27/14
900878	Rhein Tech Laboratories, Inc.	AM3-1197-0005	3 meter antenna mast, polarizing	OATS1	N/A
901592	Insulated Wire Inc.	KPS-1503-3600-KPR	SMK RF Cables 20'	NA	8/27/14
901593	Insulated Wire Inc.	KPS-1503-360-KPR	SMK RF Cables 36"	NA	8/27/14
901242	Rhein Tech Laboratories, Inc.	WRT-000-0003	Wood rotating table	N/A	N/A
900724	Antenna Research Associates, Inc.	LPB-2520	BiLog Antenna (25 – 1000 MHz)	1037	4/19/14
901218	EMCO	3160-09	Horn Antenna (18 - 26.5 GHz)	960281-003	4/20/15
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	4/20/15
900321	EMCO	3161-03	Horn Antennas (4 – 8.2 GHz)	9508-1020	4/20/15
900323	EMCO	3160-07	Horn Antennas (8.2 – 12.4 GHz)	9605-1054	4/20/15
900356	EMCO	3160-08	Horn Antennas (12.4 – 18 GHz)	9607-1044	4/20/15

3.3 Radiated Emissions Test Results

3.3.1 Radiated Emissions Harmonics/Spurious

Table 3-2: 2412 MHz; 802.11b; 11 mbps; Channel 1; Average Mode

Frequency (MHz)	Spectrum Analyzer Average Level (1 MHz RBW/10 Hz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2412.0	104.9	-9.0	95.9	Fundamental	
4824.0	22.0	-1.1	20.9	54.0	-33.1
12060.0	20.5	10.2	30.7	54.0	-23.3
14472.0	18.9	14.7	33.6	54.0	-20.4
19296.0	20.5	20.5	41.0	54.0	-13.0

Table 3-3: 2437 MHz; 802.11b; 11 mbps; Channel 6; Average Mode

Frequency (MHz)	Spectrum Analyzer Average Level (1 MHz RBW/10 Hz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4874.0	22.1	-1.0	21.1	54.0	-32.9
7311.0	19.2	0.9	20.1	54.0	-33.9
12185.0	20.1	11.1	31.2	54.0	-22.8
19496.0	20.3	20.2	40.5	54.0	-13.5

Table 3-4: 2462 MHz; 802.11b; 11 mbps; Channel 11; Average Mode

Frequency (MHz)	Spectrum Analyzer Average Level (1 MHz RBW/10 Hz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2462.0	102.7	-9.1	93.6	Fundamental	
4924.0	21.5	-1.0	20.5	54.0	-33.5
7386.0	20.8	1.0	21.8	54.0	-32.2
12310.0	19.9	12.0	31.9	54.0	-22.1
19696.0	20.8	20.4	41.2	54.0	-12.8
22158.0	16.3	21.9	38.2	54.0	-15.8

Table 3-5: 2412 MHz; 802.11g; 54 mbps; Channel 1; Average Mode

Frequency (MHz)	Spectrum Analyzer Average Level (1 MHz RBW/10 Hz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2412.0	99.7	-9.0	90.7	Fundamental	
4824.0	21.2	-1.1	20.1	54.0	-33.9
12060.0	21.4	10.2	31.6	54.0	-22.4
14472.0	18.5	14.7	33.2	54.0	-20.8
19296.0	20.3	20.5	40.8	54.0	-13.2

Table 3-6: 2437 MHz; 802.11g; 54 mbps; Channel 6; Average Mode

Frequency (MHz)	Spectrum Analyzer Average Level (1 MHz RBW/10 Hz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4874.0	20.7	-1.0	19.7	54.0	-34.3
7311.0	18.9	0.9	19.8	54.0	-34.2
12185.0	19.9	11.1	31.0	54.0	-23.0
19496.0	20.4	20.2	40.6	54.0	-13.4

Table 3-7: 2462 MHz; 802.11g; 54 mbps; Channel 11; Average Mode

Frequency (MHz)	Spectrum Analyzer Average Level (1 MHz RBW/10 Hz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2462.0	97.9	-9.1	88.8	Fundamental	
4924.0	20.9	-1.0	19.9	54.0	-34.1
7386.0	19.2	1.0	20.2	54.0	-33.8
12310.0	20.1	12.0	32.1	54.0	-21.9
19696.0	20.8	20.4	41.2	54.0	-12.8
22158.0	16.0	21.9	37.9	54.0	-16.1

Table 3-8: 2412 MHz; 802.11n; 65 mbps; Channel 1; Average Mode

Frequency (MHz)	Spectrum Analyzer Average Level (1 MHz RBW/10 Hz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2412.0	99.7	-9.0	90.7	Fundamental	
4824.0	21.4	-1.1	20.3	54.0	-33.7
12060.0	20.0	10.2	30.2	54.0	-23.8
14472.0	18.9	14.7	33.6	54.0	-20.4
19296.0	20.5	20.5	41.0	54.0	-13.0

Table 3-9: 2437 MHz; 802.11n; 65 mbps; Channel 6; Average Mode

Frequency (MHz)	Spectrum Analyzer Average Level (1 MHz RBW/10 Hz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4874.0	21.7	-1.0	20.7	54.0	-33.3
7311.0	19.0	0.9	19.9	54.0	-34.1
12185.0	20.0	11.1	31.1	54.0	-22.9
19496.0	20.4	20.2	40.6	54.0	-13.4

Table 3-10: 2462 MHz; 802.11n; 65 mbps; Channel 11; Average Mode

Frequency (MHz)	Spectrum Analyzer Average Level (1 MHz RBW/10 Hz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2462.0	98.0	-9.1	88.9	Fundamental	
4924.0	21.1	-1.0	20.1	54.0	-33.9
7386.0	19.2	1.0	20.2	54.0	-33.8
12310.0	20.2	12.0	32.2	54.0	-21.8
19696.0	20.8	20.4	41.2	54.0	-12.8
22158.0	16.0	21.9	37.9	54.0	-16.1
4924.0	21.1	-1.0	20.1	54.0	-33.9

Table 3-11: 2412 MHz; 802.11b; 11 mbps; Channel 1; Peak Mode

Frequency (MHz)	Spectrum Analyzer Peak Level (1 MHz RBW/3 MHz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Peak Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2412.0	113.8	-9.0	104.8	Fundamental	
4824.0	37.4	-1.1	20.9	74.0	-53.1
12060.0	35.0	10.2	30.7	74.0	-43.3
14472.0	34.0	14.7	33.6	74.0	-40.4
19296.0	35.4	20.5	41.0	74.0	-33.0

Table 3-12: 2437 MHz; 802.11b; 11 mbps; Channel 6; Peak Mode

Frequency (MHz)	Spectrum Analyzer Peak Level (1 MHz RBW/3 MHz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Peak Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4874.0	36.9	-1.0	21.1	74.0	-52.9
7311.0	32.9	0.9	20.1	74.0	-53.9
12185.0	34.2	11.1	31.2	74.0	-42.8
19496.0	34.3	20.2	40.5	74.0	-33.5

Table 3-13: 2462 MHz; 802.11b; 11 mbps; Channel 11; Peak Mode

Frequency (MHz)	Spectrum Analyzer Peak Level (1 MHz RBW/3 MHz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Peak Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2462.0	111.3	-9.1	102.2	Fundamental	
4924.0	37.3	-1.0	20.5	74.0	-53.5
7386.0	34.9	1.0	21.8	74.0	-52.2
12310.0	34.8	12.0	31.9	74.0	-42.1
19696.0	35.3	20.4	41.2	74.0	-32.8
22158.0	30.0	21.9	38.2	74.0	-35.8

Table 3-14: 2412 MHz; 802.11g; 54 mbps; Channel 1; Peak Mode

Frequency (MHz)	Spectrum Analyzer Peak Level (1 MHz RBW/3 MHz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Peak Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2412.0	112.2	-9.0	103.2	Fundamental	
4824.0	35.3	-1.1	20.1	74.0	-53.9
12060.0	35.4	10.2	31.6	74.0	-42.4
14472.0	32.1	14.7	33.2	74.0	-40.8
19296.0	35.8	20.5	40.8	74.0	-33.2

Table 3-15: 2437 MHz; 802.11g; 54 mbps; Channel 6; Peak Mode

Frequency (MHz)	Spectrum Analyzer Peak Level (1 MHz RBW/3 MHz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Peak Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4874.0	35.8	-1.0	19.7	74.0	-54.3
7311.0	33.5	0.9	19.8	74.0	-54.2
12185.0	34.6	11.1	31.0	74.0	-43.0
19496.0	35.1	20.2	40.6	74.0	-33.4

Table 3-16: 2462 MHz; 802.11g; 54 mbps; Channel 11; Peak Mode

Frequency (MHz)	Spectrum Analyzer Peak Level (1 MHz RBW/3 MHz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Peak Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2462.0	110.4	-9.1	101.3	Fundamental	
4924.0	37.1	-1.0	19.9	74.0	-54.1
7386.0	38.8	1.0	20.2	74.0	-53.8
12310.0	34.9	12.0	32.1	74.0	-41.9
19696.0	35.1	20.4	41.2	74.0	-32.8
22158.0	30.5	21.9	37.9	74.0	-36.1
4924.0	37.1	-1.0	19.9	74.0	-54.1

Table 3-17: 2412 MHz; 802.11n; 65 mbps; Channel 1; Peak Mode

Frequency (MHz)	Spectrum Analyzer Peak Level (1 MHz RBW/3 MHz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Peak Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2412.0	111.9	-9.0	102.9	Fundamental	
4824.0	36.1	-1.1	20.3	74.0	-53.7
12060.0	34.4	10.2	30.2	74.0	-43.8
14472.0	34.0	14.7	33.6	74.0	-40.4
19296.0	35.2	20.5	41.0	74.0	-33.0

Table 3-18: 2437 MHz; 802.11n; 65 mbps; Channel 6; Peak Mode

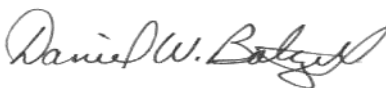
Frequency (MHz)	Spectrum Analyzer Peak Level (1 MHz RBW/3 MHz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Peak Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4874.0	35.0	-1.0	20.7	74.0	-53.3
7311.0	33.7	0.9	19.9	74.0	-54.1
12185.0	34.3	11.1	31.1	74.0	-42.9
19496.0	35.0	20.2	40.6	74.0	-33.4

Table 3-19: 2462 MHz; 802.11n; 65 mbps; Channel 11; Peak Mode

Frequency (MHz)	Spectrum Analyzer Peak Level (1 MHz RBW/3 MHz VBW) (dBuV)	Site Correction Factor (dB/m)	Corrected Peak Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2462.0	110.5	-9.1	101.4	Fundamental	
4924.0	35.9	-1.0	20.1	74.0	-53.9
7386.0	33.4	1.0	20.2	74.0	-53.8
12310.0	34.5	12.0	32.2	74.0	-41.8
19696.0	36.7	20.4	41.2	74.0	-32.8
22158.0	30.5	21.9	37.9	74.0	-36.1

Test Personnel:

Daniel W. Baltzell
EMC Test Engineer



Signature

April 13, 2014
Date of Test

4 Compliance with the Band Edge – FCC 15.247(d); RSS-210 2.2

4.1 Band Edge Test Procedure

The transmitter output was connected to its appropriate antenna. Peak (1 MHz RBW/3 MHz VBW) and average (1 MHz RBW/10 Hz VBW) corrected radiated measurements were taken within the restricted band to show compliance.

Table 4-1: Band Edge Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900878	Rhein Tech Laboratories, Inc.	AM3-1197-0005	3 meter antenna mast, polarizing	Outdoor Range 1	Not Required
901592	Insulated Wire Inc.	KPS-1503-3600-KPR	SMK RF Cables 20'	NA	8/27/14
901242	Rhein Tech Laboratories, Inc.	WRT-000-0003	Wood rotating table	N/A	Not Required
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	4/20/15
901581	Rohde & Schwarz	FSU	Spectrum Analyzer	1166.1660.50	11/13/14

4.2 Restricted Band Edge Test Results

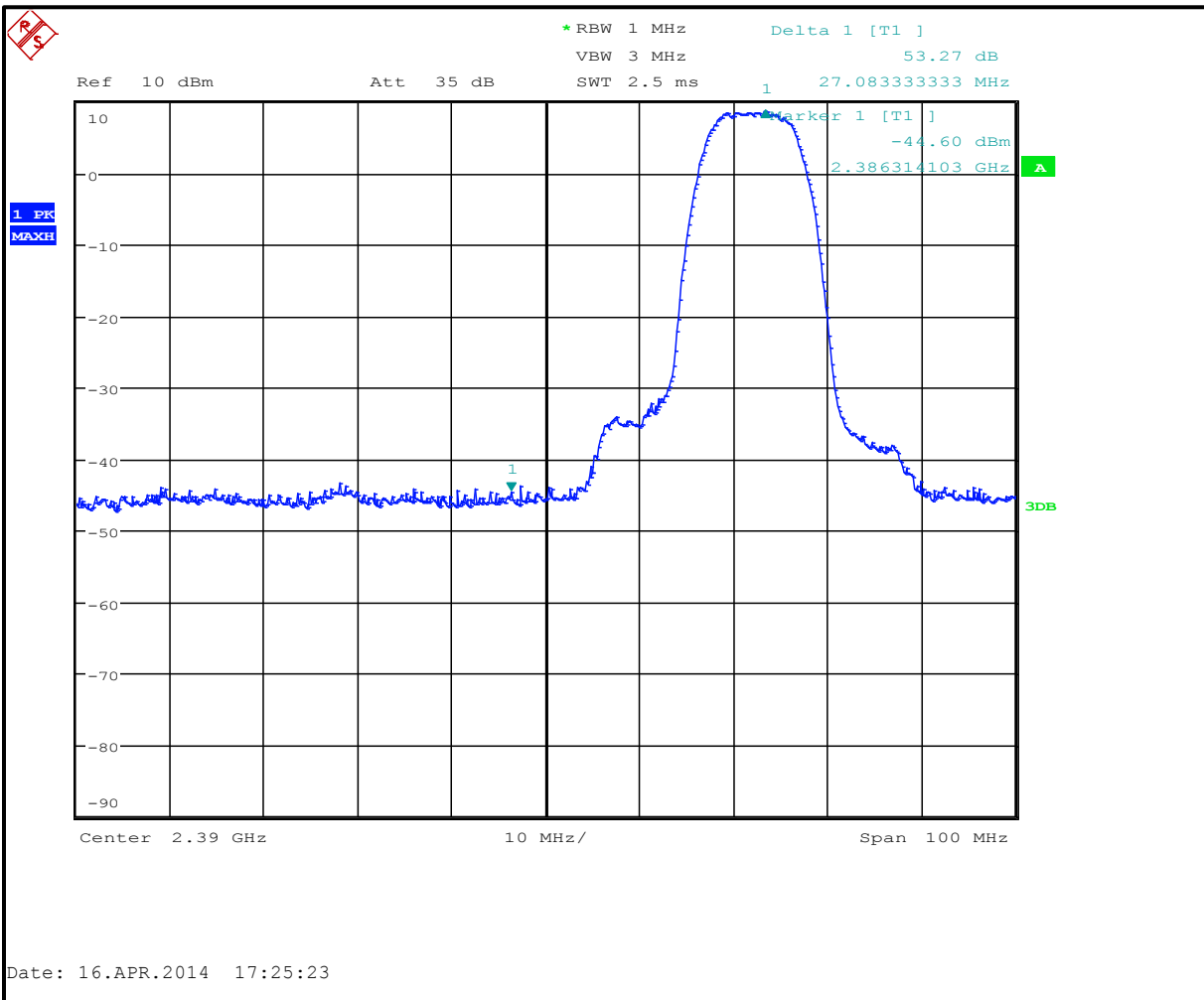
4.2.1 Lower Band Edge – 802.11b

95.9 dBuV/m is the average field strength measurement, from which the delta measurement of 53.3 dB is subtracted (reference plots), resulting in a level 42.6 dB. This level has a margin of 11.4 dB below the limit of 54 dBuV/m.

Calculation: $95.9 \text{ dBuV/m} - 53.3 \text{ dB} - 54 \text{ dBuV/m} = -11.4 \text{ dB}$

Peak Field Strength of Lower Band Edge (1 MHz RBW/3 MHz VBW) = 104.8 dBuV/m
 Average Field Strength of Lower Band Edge (1 MHz RBW/10 Hz VBW) = 95.9 dBuV/m
 Delta measurement = 53.3 dB

Plot 4-1: In Band Emissions - Channel 1 (2412 MHz); 802.11b (11 Mbps)



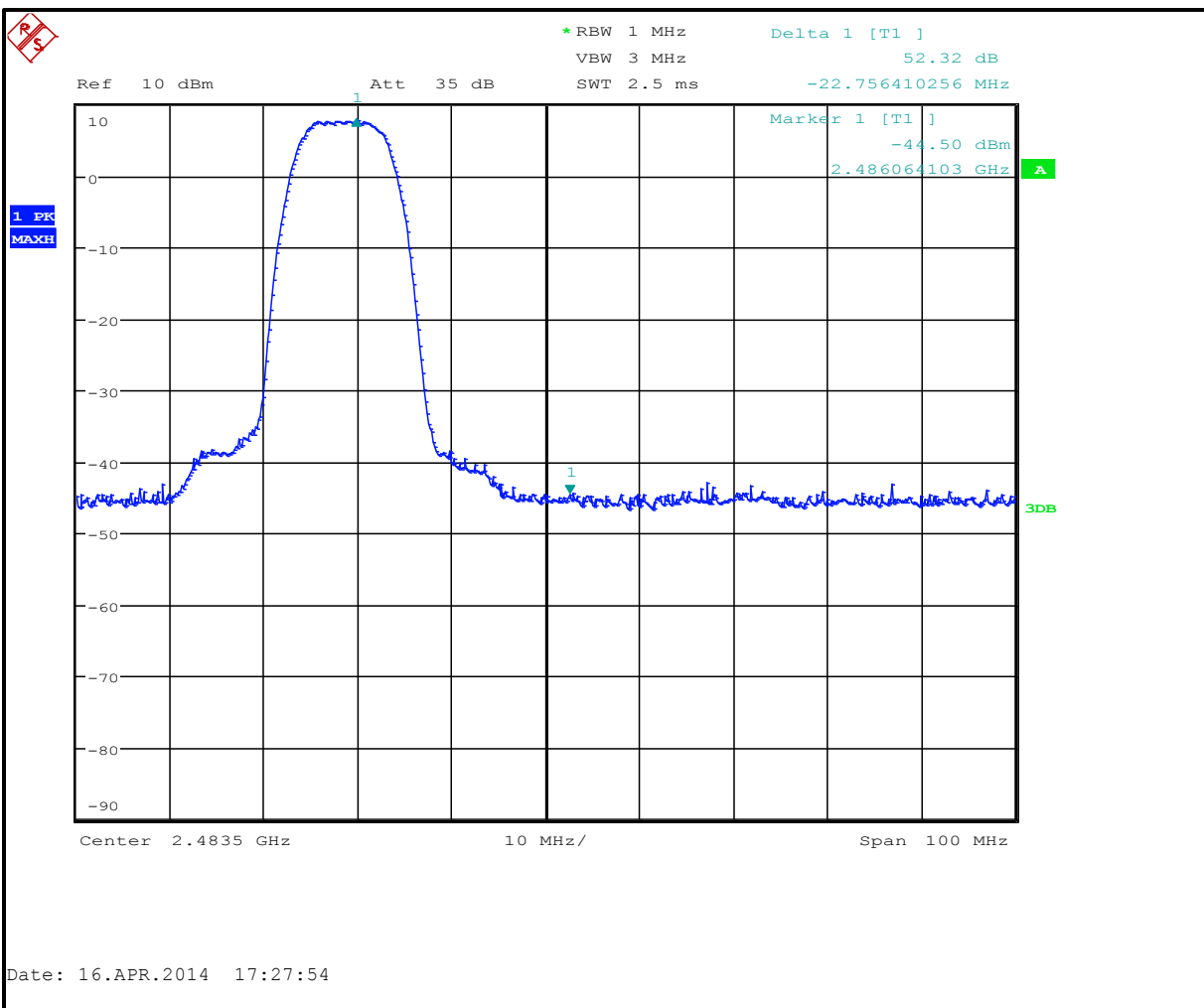
4.2.2 Upper Band Edge – 802.11b

93.6 dBuV/m is the average field strength measurement, from which the delta measurement of 52.3 dB is subtracted (reference plots), resulting in a level 41.3 dB. This level has a margin of 12.7 dB below the limit of 54 dBuV/m.

Calculation: $93.6 \text{ dBuV/m} - 52.3 \text{ dB} - 54 \text{ dBuV/m} = -12.7 \text{ dB}$

Peak Field Strength of Upper Band Edge (1 MHz RBW/1 MHz VBW) = 102.2 dBuV/m
Average Field Strength of Upper Band Edge (1 MHz RBW/10 Hz VBW) = 93.6 dBuV/m
Delta measurement = 52.3 dB

Plot 4-2: In Band Emissions - Channel 13 (2462 MHz); 802.11b (11 Mbps)



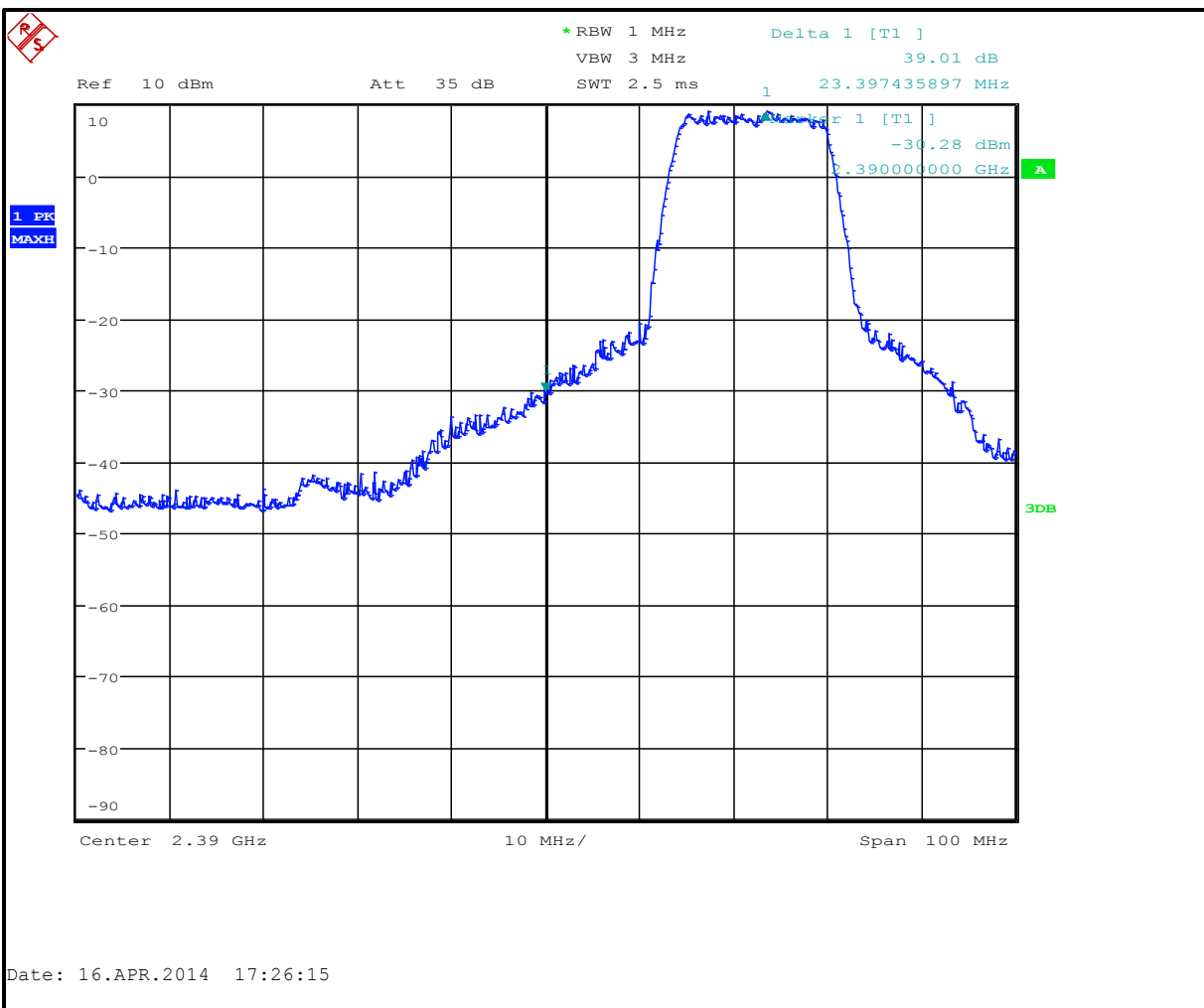
4.2.3 Lower Band Edge – 802.11g

90.7 dBuV/m is the average field strength measurement, from which the delta measurement of 39.0 dB is subtracted (reference plots), resulting in a level 51.7 dB. This level has a margin of 2.3 dB below the limit of 54 dBuV/m.

Calculation: $90.7 \text{ dBuV/m} - 39.0 \text{ dB} - 54 \text{ dBuV/m} = -2.3 \text{ dB}$

Peak Field Strength of Lower Band Edge (1 MHz RBW/3 MHz VBW) = 103.2 dBuV/m
 Average Field Strength of Lower Band Edge (1 MHz RBW/10 Hz VBW) = 90.7 dBuV/m
 Delta measurement = 39.0 dB

Plot 4-3: In Band Emissions - Channel 1 (2412 MHz); 802.11g (54 Mbps)



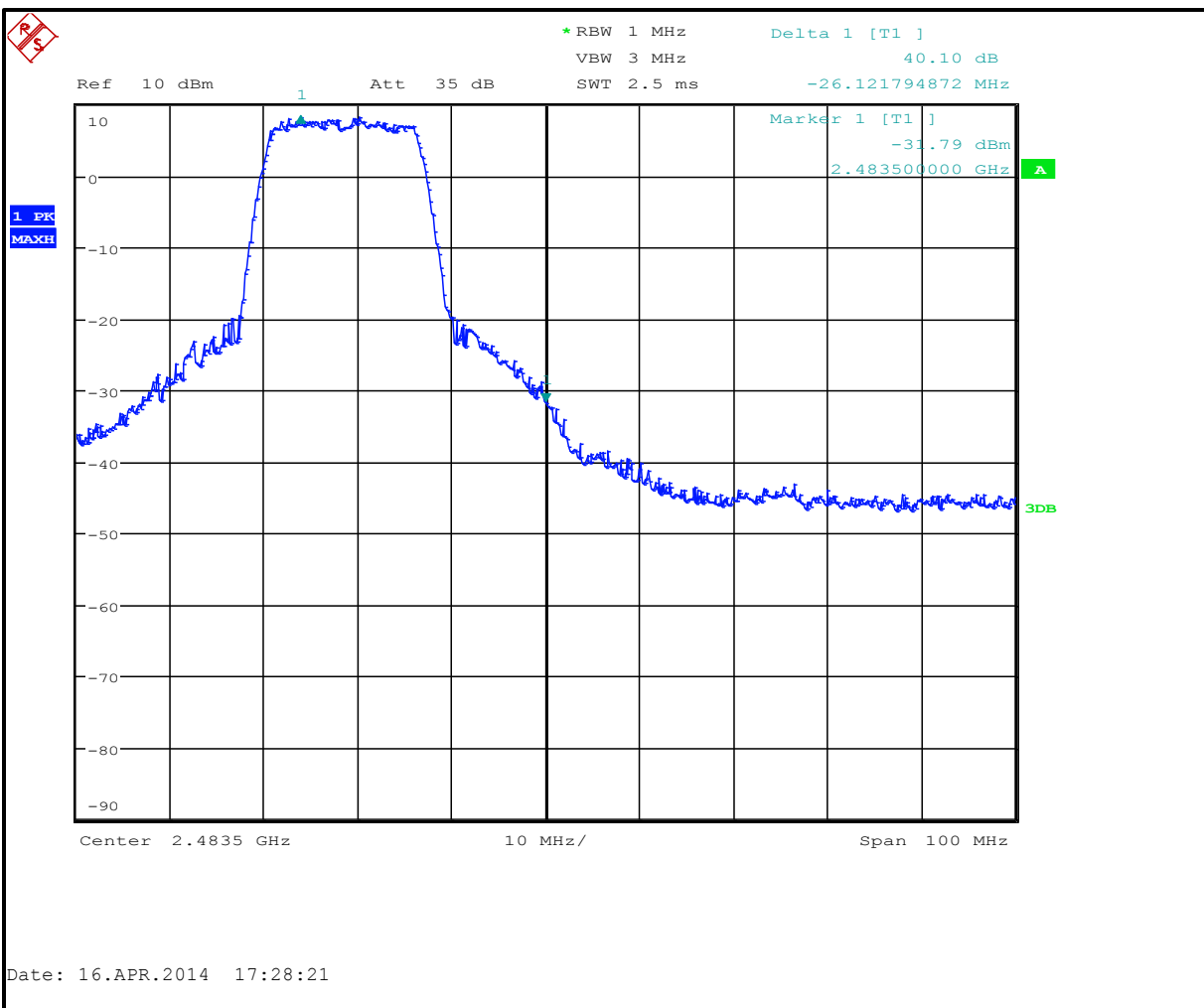
4.2.4 Upper Band Edge – 802.11g

88.8 dBuV/m is the average field strength measurement, from which the delta measurement of 40.1 dB is subtracted (reference plots), resulting in a level 48.7 dB. This level has a margin of 5.3 dB below the limit of 54 dBuV/m.

Calculation: $88.8 \text{ dBuV/m} - 40.1 \text{ dB} - 54 \text{ dBuV/m} = -5.3 \text{ dB}$

Peak Field Strength of Upper Band Edge (1 MHz RBW/1 MHz VBW) = 101.3 dBuV/m
 Average Field Strength of Upper Band Edge (1 MHz RBW/10 Hz VBW) = 88.8 dBuV/m
 Delta measurement = 40.1 dB

Plot 4-4: In Band Emissions - Channel 13 (2462 MHz); 802.11g (54 Mbps)



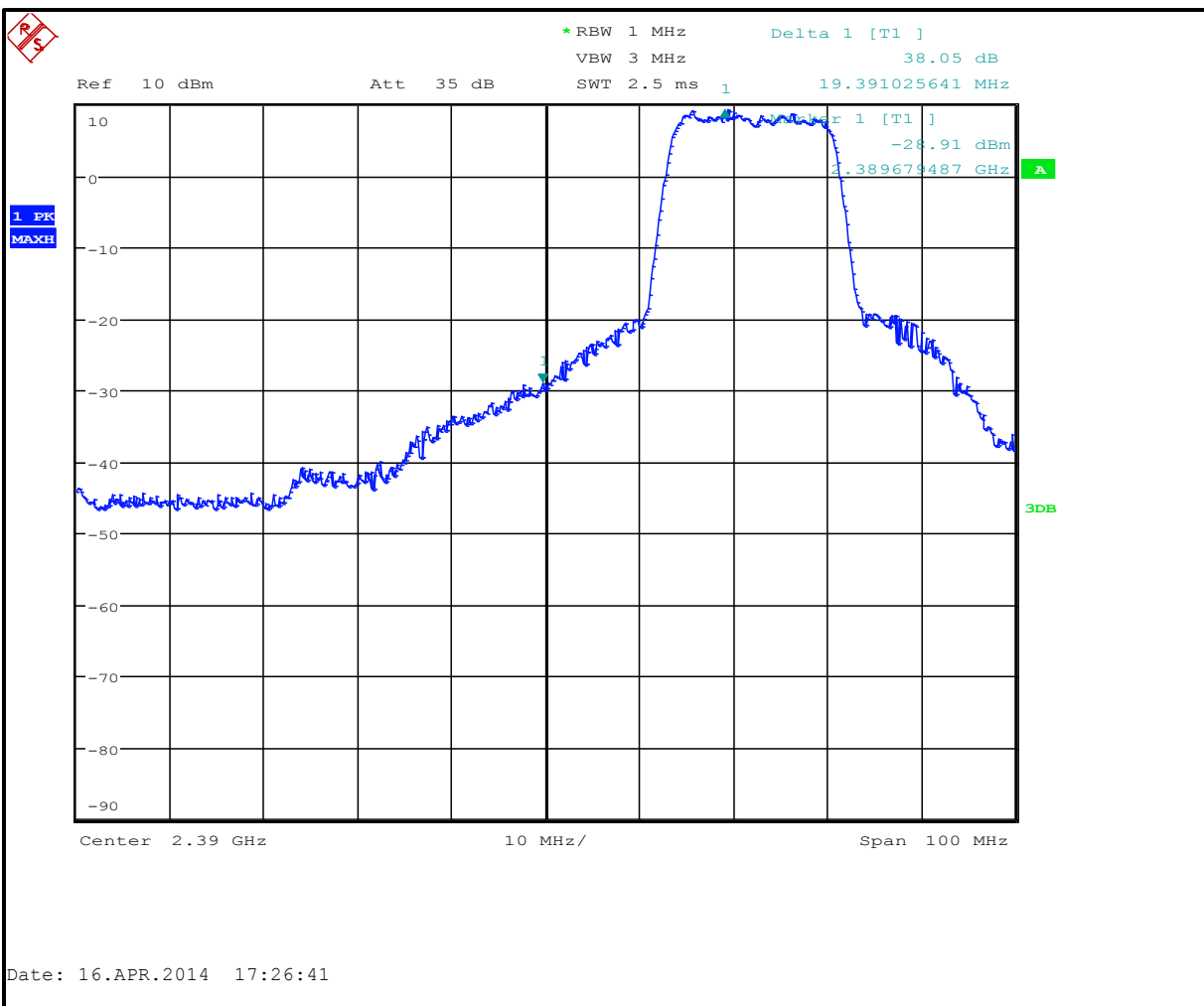
4.2.5 Lower Band Edge – 802.11n

90.7 dBuV/m is the average field strength measurement, from which the delta measurement of 38.1 dB is subtracted (reference plots), resulting in a level 52.6 dB. This level has a margin of 1.4 dB below the limit of 54 dBuV/m.

Calculation: $90.7 \text{ dBuV/m} - 38.1 \text{ dB} - 54 \text{ dBuV/m} = -1.4 \text{ dB}$

Peak Field Strength of Lower Band Edge (1 MHz RBW/3 MHz VBW) = 102.9 dBuV/m
 Average Field Strength of Lower Band Edge (1 MHz RBW/10 Hz VBW) = 90.7 dBuV/m
 Delta measurement = 38.1 dB

Plot 4-5: In Band Emissions - Channel 1 (2412 MHz); 802.11n (65 Mbps)



5 Conclusion

The data in this measurement report shows that the Honeywell International Model WIFI, FCC ID: CFS8DLWIFI, IC: 573F-WIFI, complies with the applicable intentional radiated requirements of Parts 2 and 15 of the FCC rules and regulations and Industry Canada RSS-Gen and RSS-210.

Appendix A: Test Photographs



Photograph 1: Radiated Testing – Front View



Photograph 2: Radiated Testing – Back View