TEST REPORT

FROM

SIEMIC, INC.
Accessing global markets

FOR

802.11b/g Module

Part Number: 126720

TO

47 CFR 15.247:2005 & RSS-210 Issue 6:2005

Test Report Serial No.:
SL06041101-PAX-007

This report supersedes None

Remarks:	Equipment complied with the specification	[X]
	Equipment did not comply with the specification	[ ]

This Test Report is Issued Under the Authority of:

.....
Tested by: Kerwinn Corpuz, Test Engineer

.....
Reviewed by: Leslie Bai, Lab Manager

Issue date: 11 April 2006
Manufacturer: Paxar Americas, Inc.

FC	Industry Canada / Industrie Canada	MIC	OFTA 電訊管理局
Registration No. 783147	Registration No. 4842	Lab Code: KR0032	RTA No. D23/16V

NVLAP

NVLAP Lab Code: 200729-0

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CONTENTS

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Executive Summary

The purpose of this test programme was to demonstrate compliance of the Paxar Americas, Inc., 802.11b/g Module, part number: 802.11b/g Module against the current 47 CFR 15.247:2005 & RSS-210 Issue 6:2005. The 802.11b/g Module demonstrated compliance with the 47 CFR 15.247:2005 & RSS-210 Issue 6:2005.

Paxar Americas, Inc. is the applicant and claimed manufacturer of this tested product. For the detailed description of this product, please refer to the 802.11b/g Module User Manual.

The equipment under test is a DTS system operating in the 2400 – 2483.5 MHz band.

The equipment was tested with two modulations:

1) 802.11b with 11Mbps; typically bit rates of 1 to 11Mbps (worse case at 11Mbps).
2) 802.11g with 12Mbps; typically bit rates of 12 to 54Mbps (worse case at 12Mbps).

The equipment was tested with the following antenna:

HyperLink Technologies, model HG2402RD-RSF; 2.2 dBi Dipole antenna

The test has demonstrated that this unit complies with stipulated standards.

Radio Module Sample

1 Technical Details

Purpose	Compliance testing of 802.11b/g Module with 47 CFR 15.247:2005 & RSS-210 Issue 6:2005
Applicant / Client	Paxar Americas, Inc. 170 Monarch Lane Miamisburg, OH 45342
Manufacturer	Paxar Americas, Inc.
Laboratory performing the tests	SIEMIC Labs 2206 Ringwood Avenue San Jose, CA 95131
Test location(s)	SIEMIC Labs 2206 Ringwood Avenue San Jose, CA 95131
Test report reference number	SL06041101-PAX-007
Date EUT received	13 April 2006
Standard applied	47 CFR 15.247:2005 & RSS-210 Issue 6:2005
Dates of test (from – to)	18 April 2006 to 19 April 2006
No of Units:	1
Equipment Category:	DSS
Trade/Product Name:	Monarch
Part Number:	126720
Technical Variants:	none
FCC ID No.	GU6CNWLG500
IC ID No.	1502A-CNWLG500

2 Tests Required

The product was tested in accordance with the following specifications.
The test results recorded in this Test Report are exclusively referred to the tested sample(s).

Test Standard		Description	Pass / Fail
47 CFR Part 15.247: 2005	RSS 210 Issue6: 2005		
15.203		Antenna Requirement	Pass
15.205	RSS210(A8.5)	Restricted Band of Operation	Pass
15.207(a)	RSSGen(7.2.2)	Conducted Emissions Voltage	Pass
15.247(a)(1)	RSS210(A8.1)	Channel Separation	N/A*
15.247(a)	RSS210(A8.1)	Occupied Bandwidth	Pass
15.247(a)(1)	RSS210(A8.1)	Number of Hopping Channels	N/A*
15.247(a)(1)	RSS210(A8.1)	Time of Occupancy	N/A*
15.247(b)	RSS210(A8.4)	Output Power	Pass
15.247(c)	RSS210(A8.4)	Antenna Gain > 6 dBi	N/A
15.247(d)	RSS210(A8.5)	Conducted Spurious Emissions	Pass
15.209; 15.247(d)	RSS210(A8.5)	Radiated Spurious Emissions	Pass
15.247(e)	RSS210(A8.3)	Power Spectral Density	Pass
15.247(f)	RSS210(A8.3)	Hybrid System Requirement	N/A*
15.247(g)	RSS210(A8.1)	Hopping Capability	N/A*
15.247(h)	RSS210(A8.1)	Hopping Coordination Requirement	N/A*
15.247(i)	RSSGen(5.5)	Maximum Permissible Exposure	Pass
	RSSGen(4.8)	Receiver Spurious Emissions	Pass
ANSI C63.4: 2003			

Notes: Deviations to above standards are outlined in specific test sections if applicable.
Cable loss and external attenuation are compensated for in the measurement system when applicable.
** Equipment is a Direct Sequence Spread Spectrum System.*

3 Antenna Requirement

Requirement(s): 47 CFR §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna requirement must meet at least one of the following:

a) Antenna must be permanently attached to the device.

b) Antenna must use a unique type of connector to attach to the device.

c) Device must be professionally installed. Installer shall be responsible for ensuring that the correct antenna is employed with the device.

The antenna has its own unique reverse polarity SMA type of connector which meets the requirement.

1) HyperLink Technology, model HG2402RD; 2.2 dBi dipole antenna
2) MaxRad, model MMSO2300; ?? dBi monopole antenna

Dipole antenna

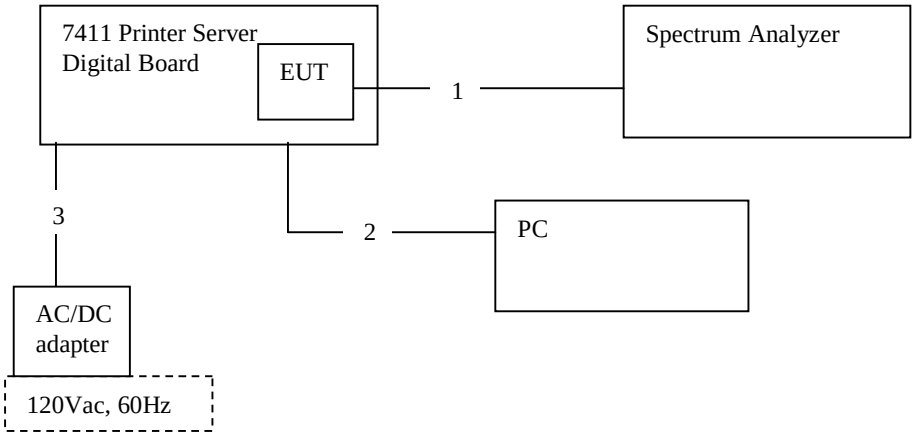
Monopole antenna

4 Measurements, Examinations and Derived Results

4.1 General observations

Equipment serial number(s)		
Module:	Part number:	Serial number:
Monarch	126720	C6100004705

4.2 Test Configuration



Note: during radiated and conducted emission test, the spectrum analyzer was replaced with an antenna.

EUT Cabling Information:

Cable #	Type of Cable	Connector Type	Length (m)	Shield (Y/N)	Remark
1	Antenna	SMA to SMT(U.FL)	0.3	Yes	Connected to spectrum analyzer
2	Data	DB9	2	No	Connected to PC
3	5VDC cord	Standard 2 prong	2	No	Connected to outlet

Support Equipment:

Type of Equipment	Manufacturer	Model
PC	COMPAQ	Presario 2100
AC/DC Adapter	COBY	CA-989

4.3 Test Results

4.3.1 Conducted Emissions Voltage

Requirement(s): 47 CFR §15.207 & RSS-Gen Issue 1(7.2.2)

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

*Decreases with the logarithm of the frequency

Procedures:

The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table. The power supply for the EUT was fed through a 50Ω/50µH EUT LISN, connected to filtered mains. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. All other supporting equipment were powered separately from another mains.

The EUT was switched on and allowed to warm up to its normal operating condition. A scan was made on the NEUTRAL line over the required frequency range using an EMI test receiver. High peaks, relative to the limit line, were then selected. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10kHz. Quasi-peak and Average measurements were made. The procedure was then repeated for the PHASE line.

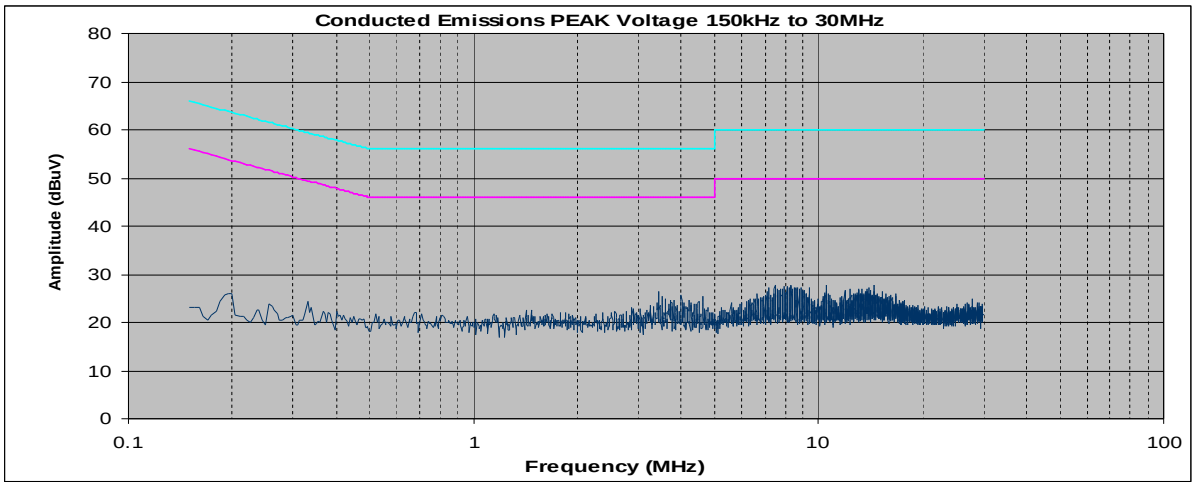
The device was tested with two protocols at mid channel with the worse case protocol (802.11b, 11Mbps) reported.

Sample Calculation

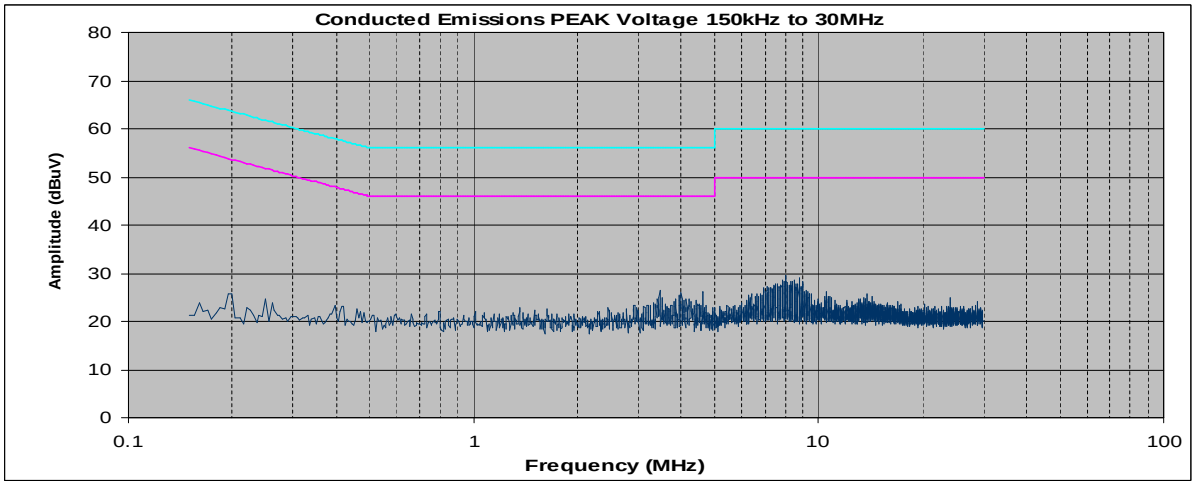
Corrected Reading = EMI Receiver reading + Transducer Factor of LISN + Cable Loss + Transient Limiter (if applicable).

Margin = Corrected Reading – Limit.

Results: **Note – PK = peak; QP = quasi-peak; AVG = average detector.**



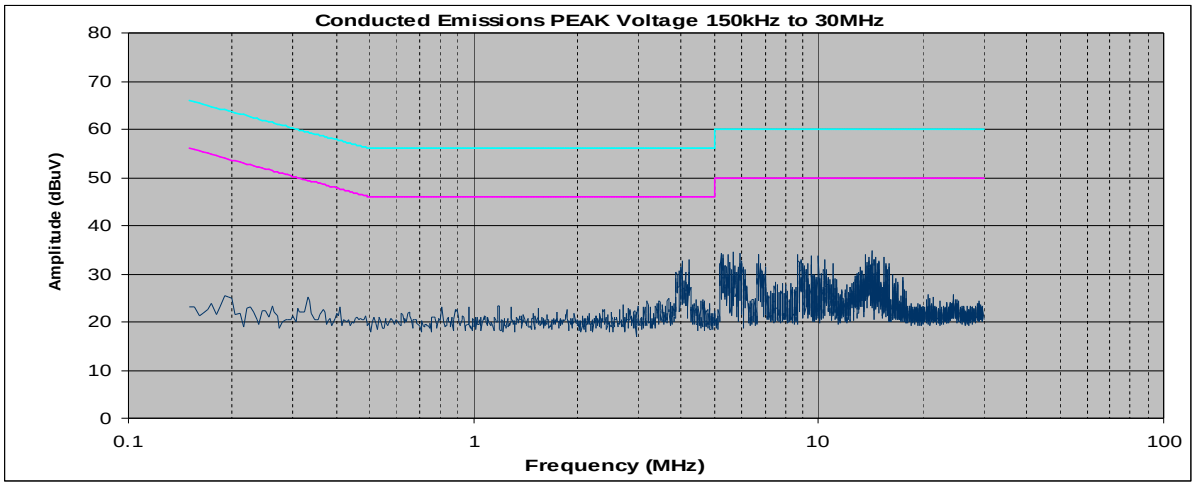
Transmit – Neutral Line Plot at 120Vac, 60Hz



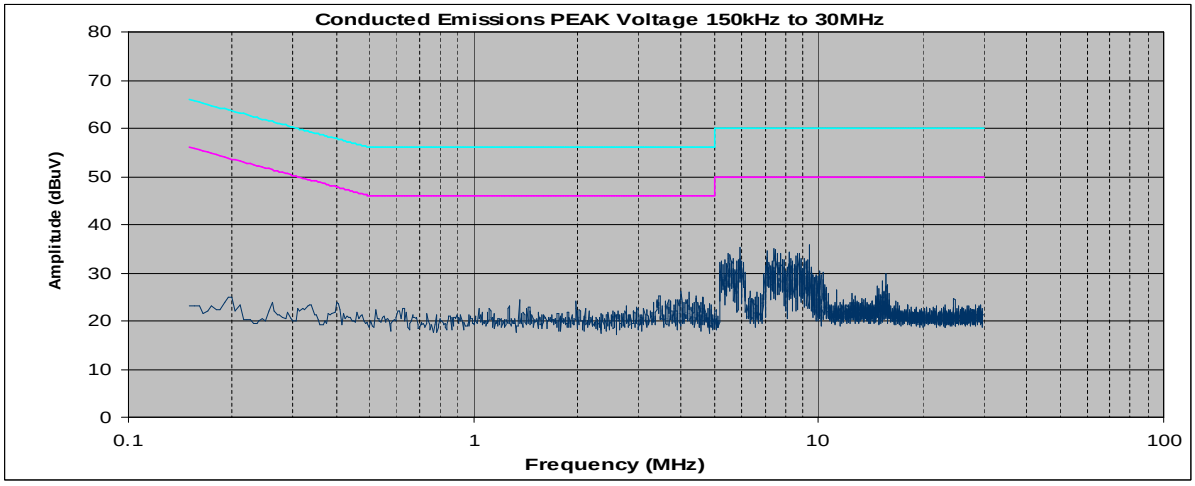
Transmit – Phase Line Plot at 120Vac, 60Hz

Line	Freq. (MHz)	Corrected Amplitude (dBµV) PK	Limit (dBµV) QP	Margin (dB) QP	Corrected Amplitude (dBµV) PK	Limit (dBµV) AVG	Margin (dB) AVG
Neutral	3.465	25.5	56	-30.5	25.5	46	-20.5
Neutral	4.0	25.8	56	-30.2	25.8	46	-20.2
Neutral	4.62	24.3	56	-31.7	24.3	46	-21.7
Phase	3.465	26.4	56	-29.6	26.4	46	-19.6
Phase	4.0	26.1	56	-29.9	26.1	46	-19.9
Phase	4.62	26.3	56	-29.7	26.3	46	-19.7

Transmit – Conducted Emission Table



Receive – Neutral Line Plot at 120Vac, 60Hz



Receive – Phase Line Plot at 120Vac, 60Hz

Line	Freq. (MHz)	Corrected Amplitude (dBµV) PK	Limit (dBµV) QP	Margin (dB) QP	Corrected Amplitude (dBµV) PK	Limit (dBµV) AVG	Margin (dB) AVG
Neutral	3.985	31.3	56	-24.7	31.3	46	-14.7
Neutral	4.015	32.7	56	-23.3	32.7	46	-13.3
Neutral	4.235	33.1	56	-22.9	33.1	46	-12.9
Phase	5.895	35.4	60	-24.6	35.4	50	-14.6
Phase	7.46	35.1	60	-24.9	35.1	50	-14.9
Phase	9435	35.8	60	-24.2	35.8	50	-14.2

Receive – Conducted Emission Table

Tested By: Kerwinn Corpuz

Date Tested: 19 April 2006

4.3.2 Occupied Bandwidth

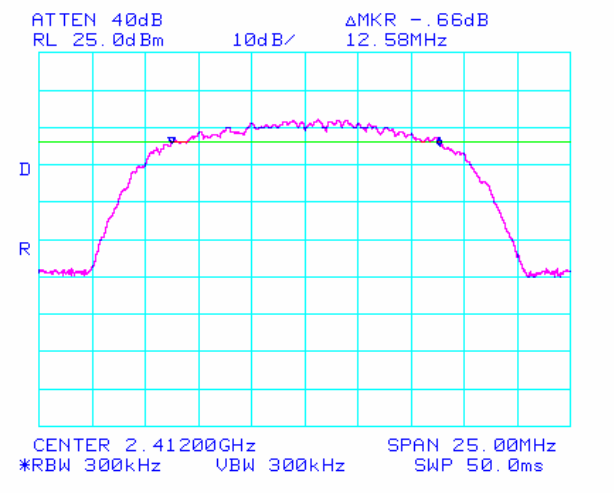
Requirement(s): 47 CFR §15.247(a)(2) & RSS-210 Issue 6(A8.2)

6 dB Bandwidth Limit: > 500 kHz.

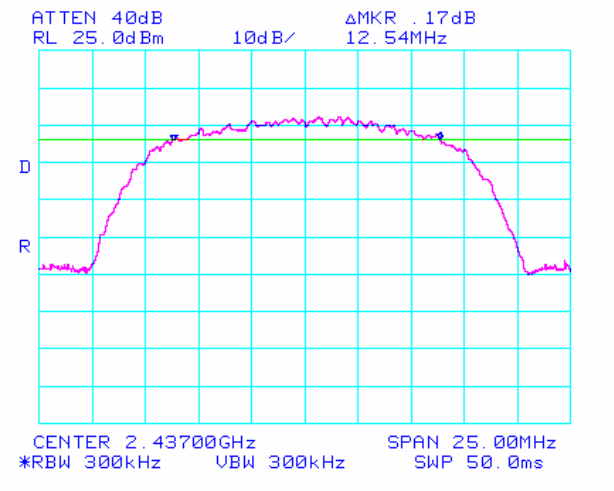
Procedures: The 6dB bandwidth was measured conducted using a spectrum analyzer for low, mid, and hi channel. Spectrum analyzer setting: RBW = VBW = approximately 1% emission BW.

Results:

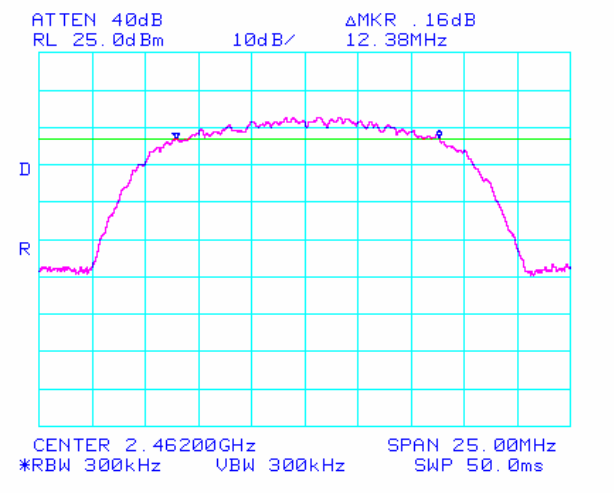
Plot #	Protocol	Channel	Frequency (MHz)	Occupied Bandwidth	Measured Bandwidth (MHz)
1	802.11b	Low	2412	6 dB	12.58
2	802.11b	Mid	2437	6 dB	12.54
3	802.11b	High	2462	6 dB	12.38
4	802.11g	Low	2412	6 dB	16.58
5	802.11g	Mid	2437	6 dB	16.46
6	802.11g	High	2462	6 dB	16.58
A	802.11b	Low	2412	99%	15.33
B	802.11b	Mid	2437	99%	15.38
C	802.11b	High	2462	99%	15.38
D	802.11g	Low	2412	99%	16.63
E	802.11g	Mid	2437	99%	16.75
F	802.11g	High	2462	99%	16.75



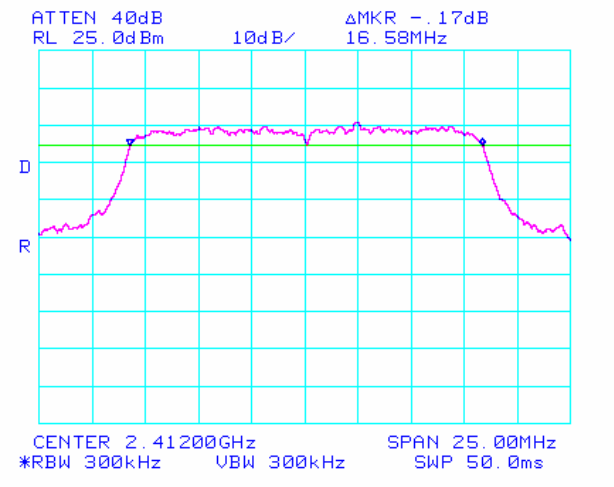
Plot 1: 6dB Bandwidth with 802.11b protocol (low)



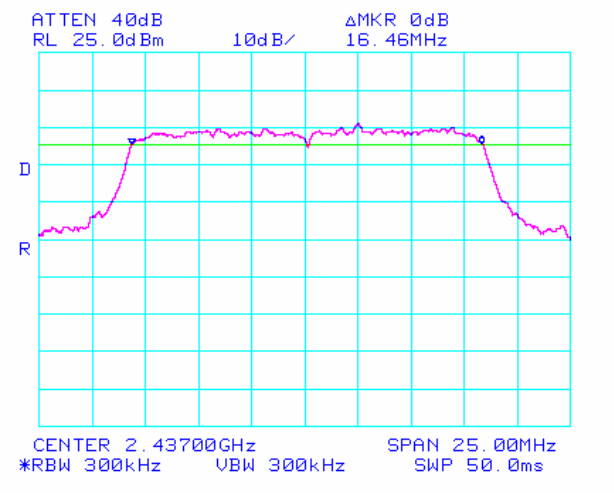
Plot 2: 6dB Bandwidth with 802.11b (mid)



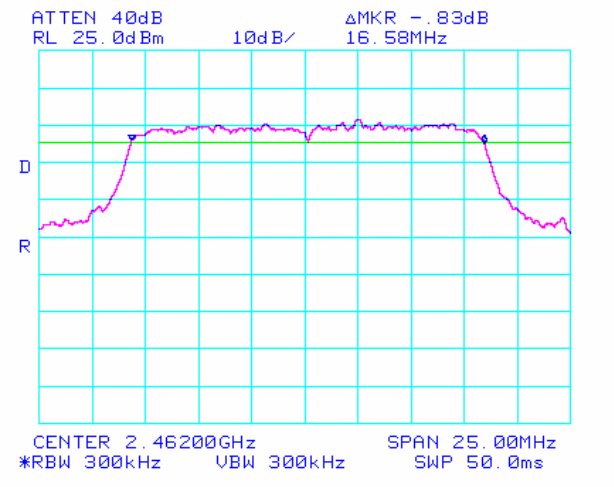
Plot 3: 6dB Bandwidth with 802.11b (high)



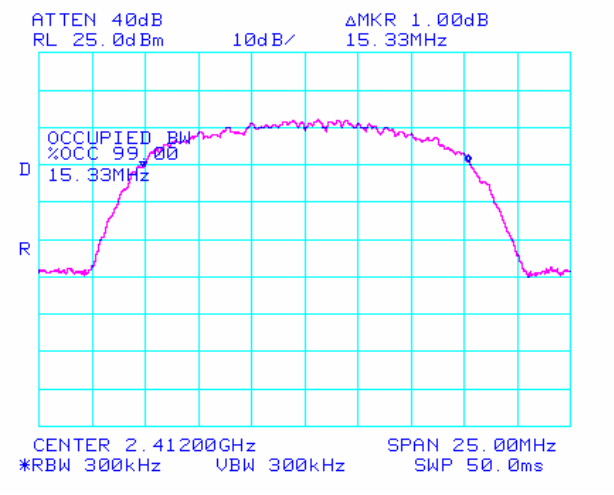
Plot 4: 6dB Bandwidth with 802.11g (low)



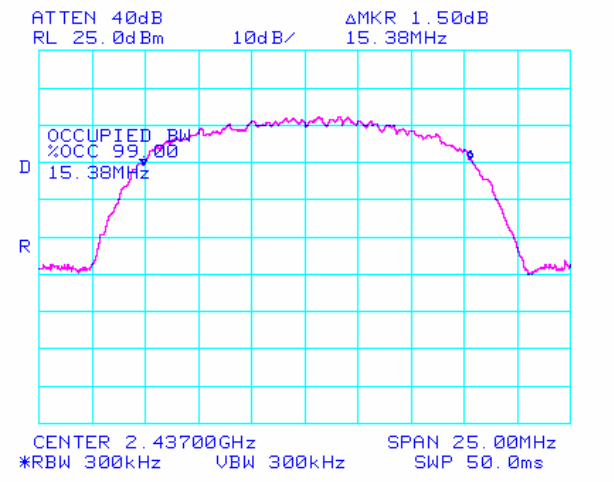
Plot 5: 6dB Bandwidth with 802.11g (mid)



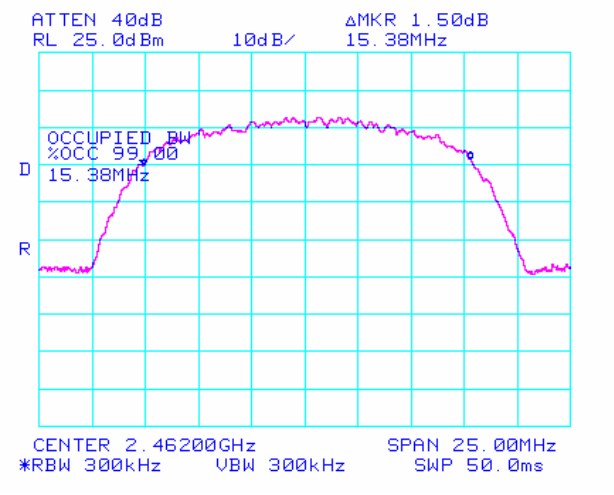
Plot 6: 6dB Bandwidth with 802.11g (high)



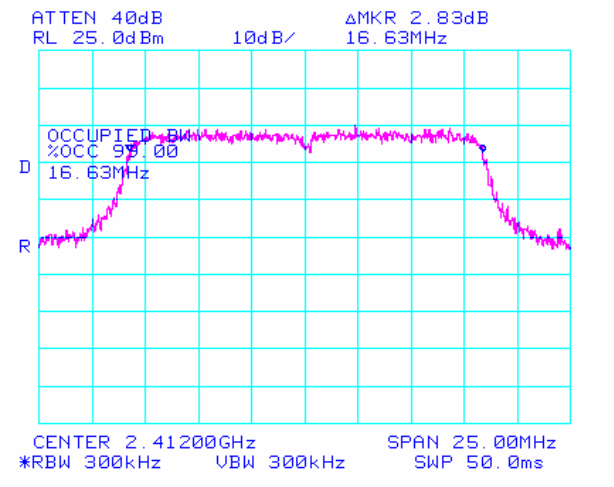
Plot A: 99% Bandwidth with 802.11b (low)



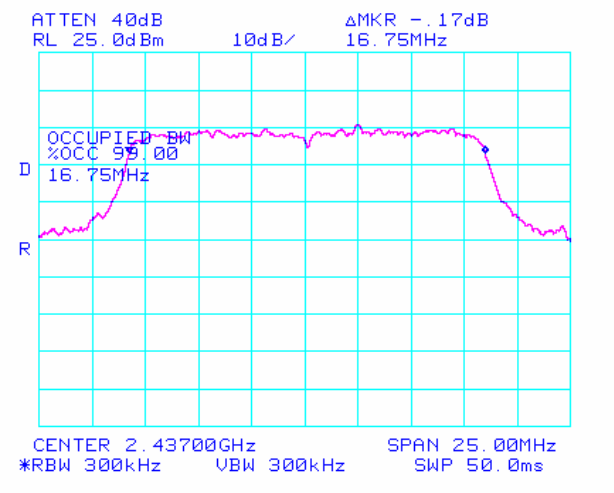
Plot B: 99% Bandwidth with 802.11b (mid)



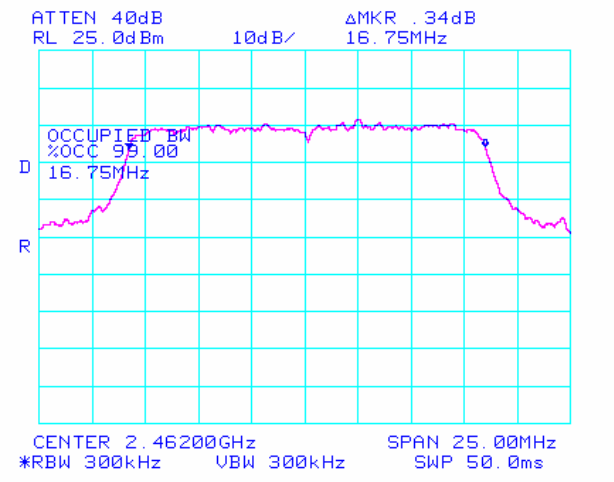
Plot C: 99% Bandwidth with 802.11b (high)



Plot D: 99% Bandwidth with 802.11g (low)



Plot E: 99% Bandwidth with 802.11g (mid)



Plot F: 99% Bandwidth with 802.11g (high)

Tested By: Kerwinn Corpuz

Date Tested: 18 April 2006

4.3.3 Peak Output Power

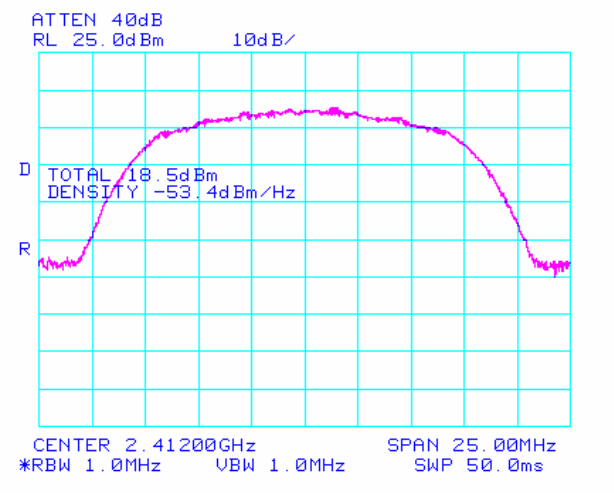
Requirement(s): 47 CFR §15.247(b) & RSS-210 (A8.4)

Limit = 1 watt (30 dBm).

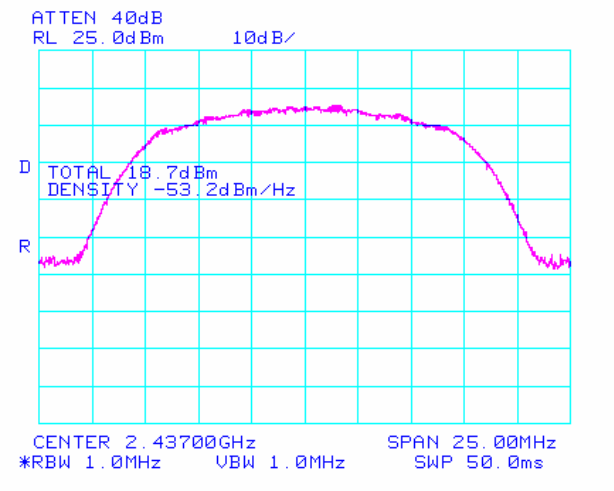
Procedures: The peak output power was measured conducted using a spectrum analyzer for low, mid, and hi channel. Spectrum analyzer setting: RBW = 1 MHz BW; VBW = 1 MHz. The channel power was set to measure over the 6dB bandwidth.

Results:

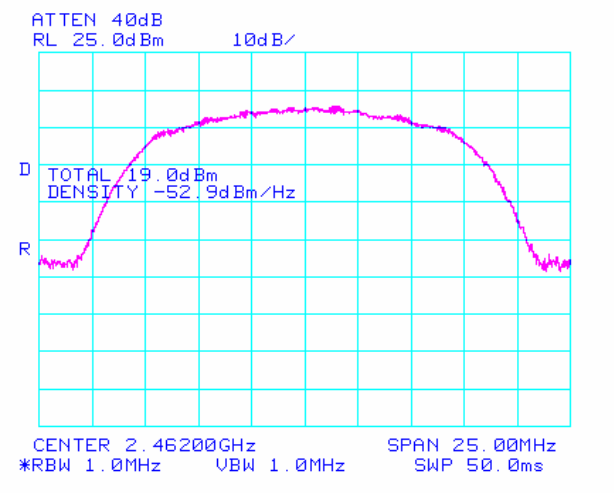
Plot #	Protocol	Channel	Frequency (MHz)	Measured Peak Power (dBm)
7	802.11b	Low	2412	18.5
8	802.11b	Mid	2437	18.7
9	802.11b	High	2462	19
10	802.11g	Low	2412	19.7
11	802.11g	Mid	2437	19.7
12	802.11g	High	2462	20.2



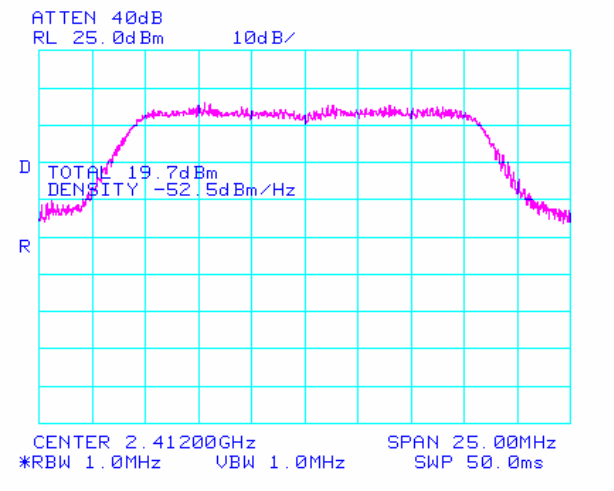
Plot 7: Peak Power with 802.11b (low)



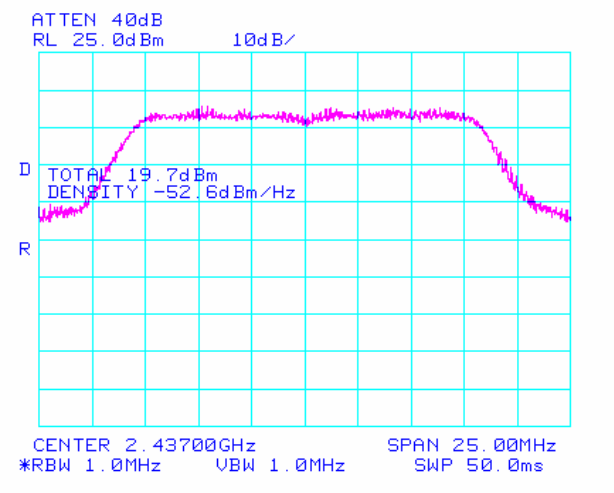
Plot 8: Peak Power with 802.11b (mid)



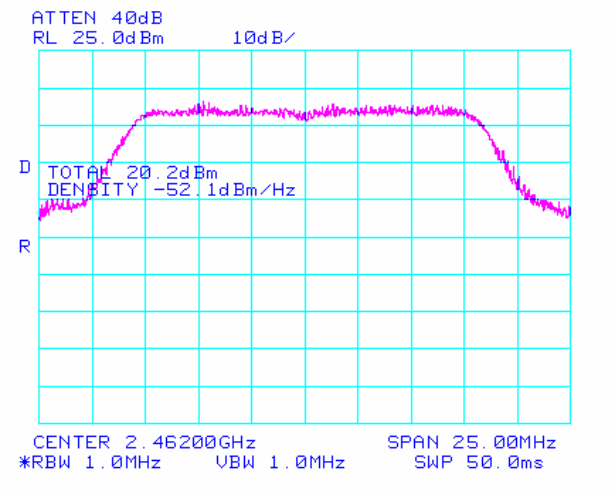
Plot 9: Peak Power with 802.11b (high)



Plot 10: Peak Power with 802.11g (low)



Plot 11: Peak Power with 802.11g (mid)



Plot 12: Peak Power with 802.11g (high)

Tested By: Kerwinn Corpuz

Date Tested: 18 April 2006

4.3.4 Power Spectral Density

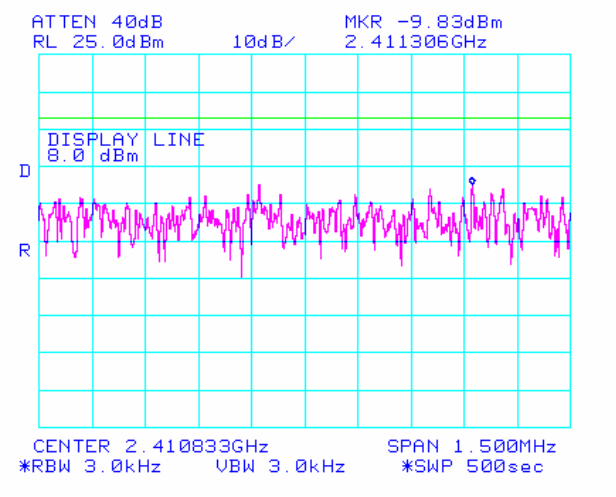
Requirement(s): 47 CFR §15.247(e) & RSS-210 (A8.2)

Limit = 8 dBm in any 3kHz band.

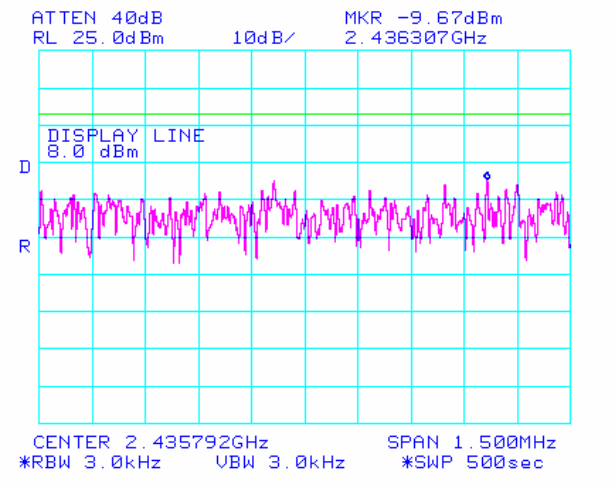
Procedures: The transmitter power spectral density was measured conducted using a spectrum analyzer for low, mid, and hi channel. Spectrum analyzer setting: RBW = VBW = 3 kHz BW with a sweep time of 500 seconds. The highest peak from the envelope was determined before narrowing down the SPAN.

Results:

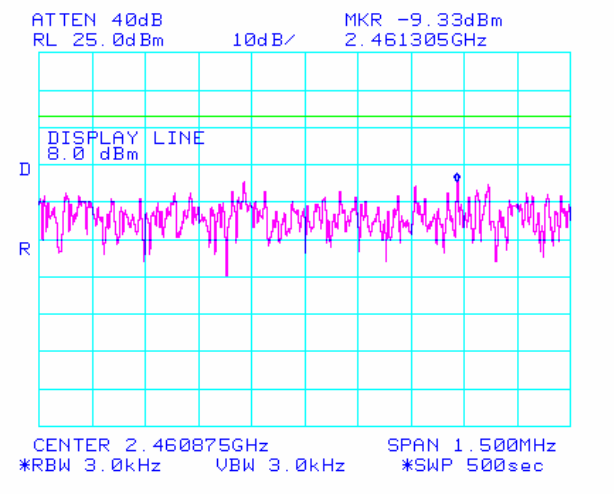
Plot #	Protocol	Channel	Frequency (MHz)	Measured PSD (dBm)
13	802.11b	Low	2412	-9.83
14	802.11b	Mid	2437	-9.67
15	802.11b	High	2462	-9.33
16	802.11g	Low	2412	-14
17	802.11g	Mid	2437	-13.83
18	802.11g	High	2462	-13.83



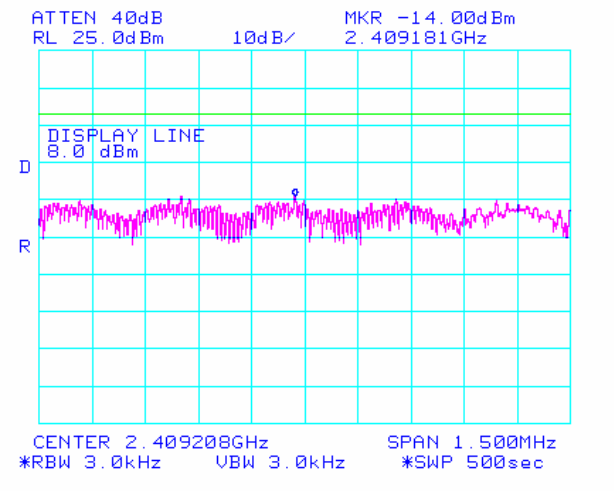
Plot 13: Power Spectral Density with 802.11b (low)



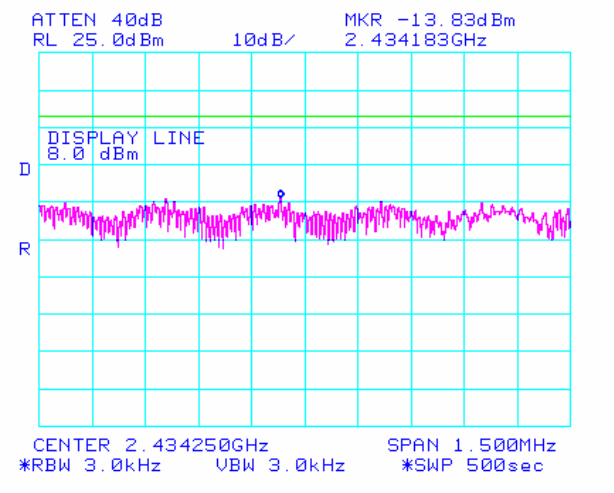
Plot 14: Power Spectral Density with 802.11b (mid)



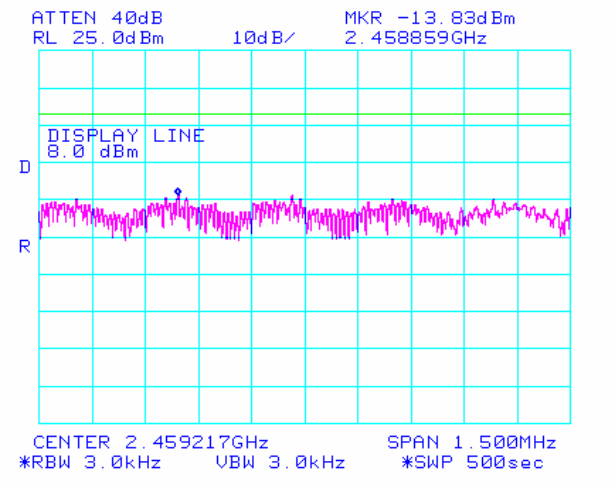
Plot 15: Power Spectral Density with 802.11b (high)



Plot 16: Power Spectral Density with 802.11g (low)



Plot 17: Power Spectral Density with 802.11g (mid)



Plot 18: Power Spectral Density with 802.11g (high)

Tested By: Kerwinn Corpuz

Date Tested: 18 April 2006

4.3.5 Spurious Emissions at Antenna Terminals

Requirement(s): 47 CFR §15.247(d) & RSS-210 (A8.5)

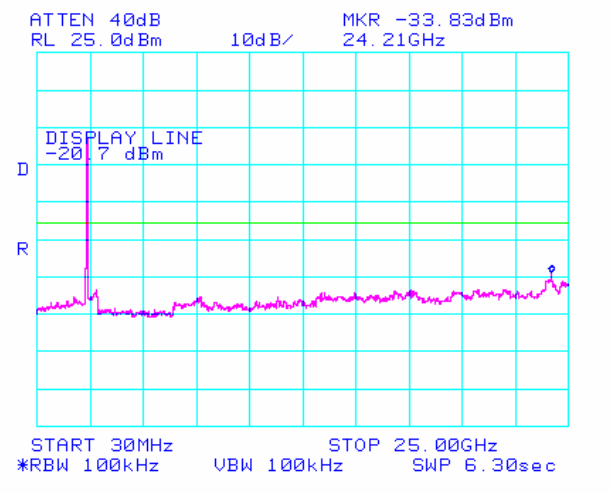
Limit = 20 dB below the Peak Power.

Procedures: The conducted spurious emissions were measured conducted using a spectrum analyzer for the low, mid, and hi channel. Spectrum analyzer setting: RBW = VBW = 100kHz.

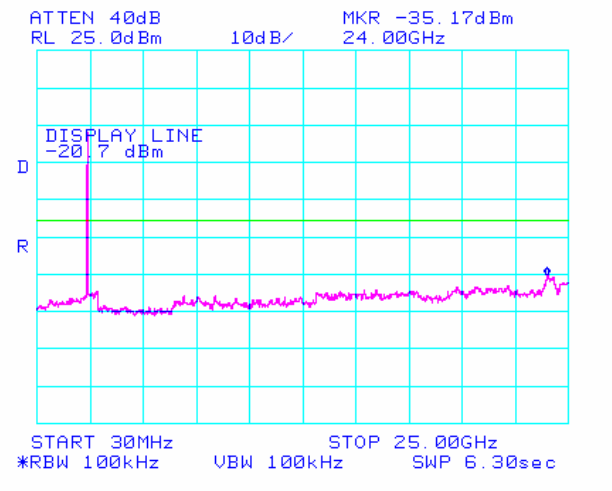
Results:

Plots #	Protocol	Channel	Frequency (MHz)	Pass/Fail
19	802.11b	Low	2412	Pass
20	802.11b	Mid	2437	Pass
21	802.11b	High	2462	Pass
22	802.11g	Low	2412	Pass
23	802.11g	Mid	2437	Pass
24	802.11g	High	2462	Pass

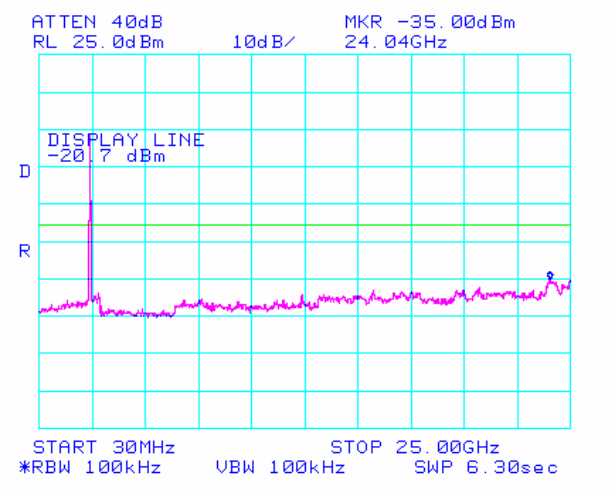
Note: Emission over the limit line in the following plots is the fundamental.



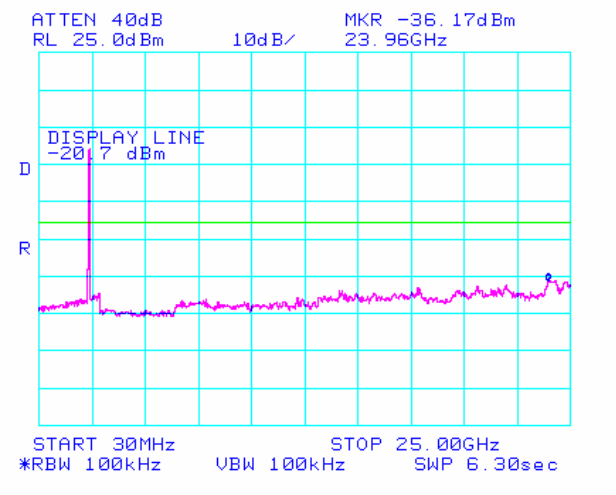
Plot 19: Conducted Spurious Emissions with 802.11b (low)



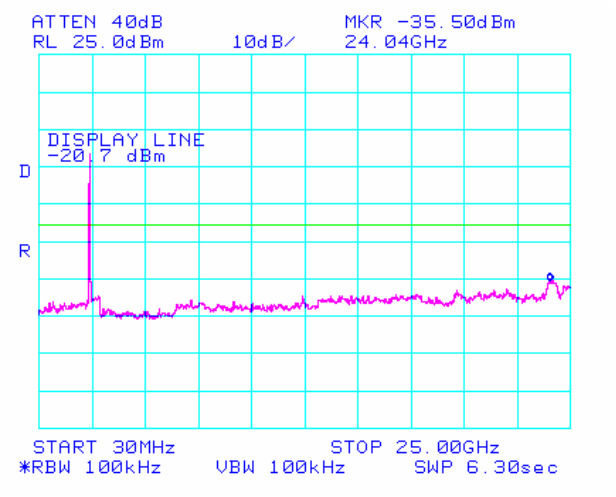
Plot 20: Conducted Spurious Emissions with 802.11b (mid)



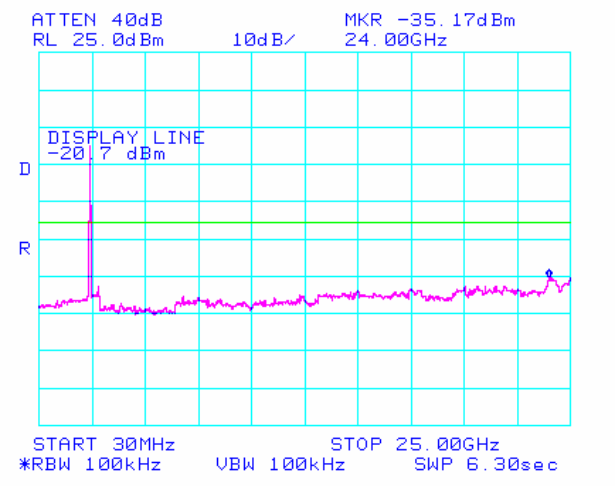
Plot 21: Conducted Spurious Emissions with 802.11b (high)



Plot 22: Conducted Spurious Emissions with 802.11g (low)



Plot 23: Conducted Spurious Emissions with 802.11g (mid)



Plot 24: Conducted Spurious Emissions with 802.11g (high)

Tested By: Kerwinn Corpuz

Date Tested: 18 April 2006

4.3.6 Radiated Spurious Emissions < 1 GHz

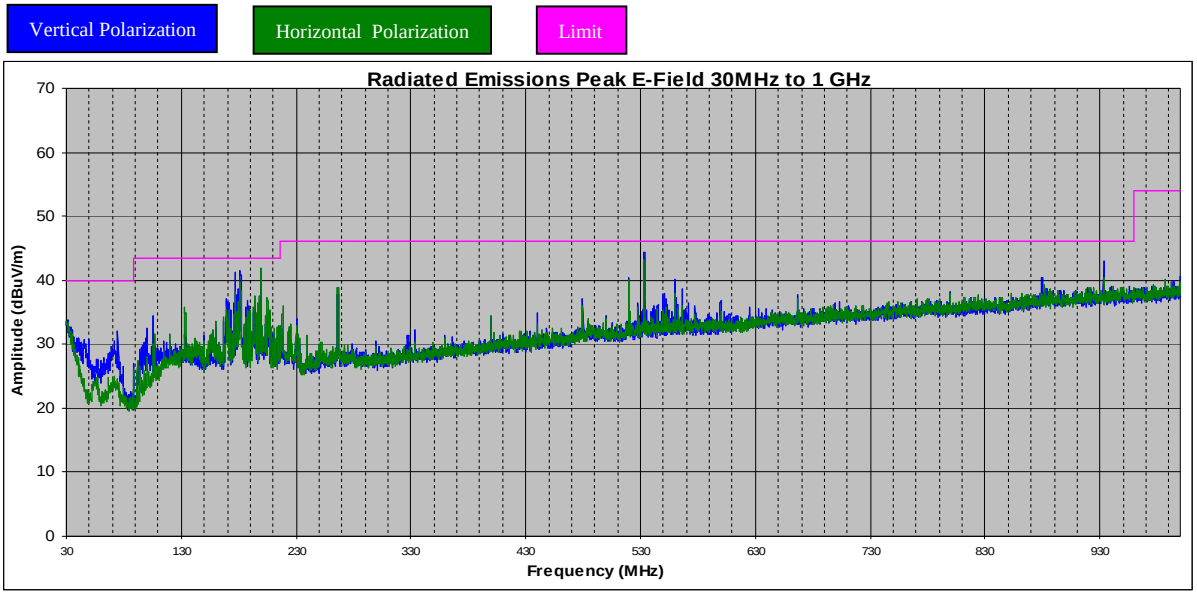
Requirement(s): 47 CFR §15.205; 47 CFR §15.209; 47 CFR §15.247(d) & RSS-210 (A8.5)

Limit = as specified in 15.247(d)

Procedures: Radiated emissions were measured according to ANSI C63.4 at 3 meter distance. The device was tested with two protocols at low, mid and high with the worse case protocol (802.11b, 11Mbps) reported. Spectrum analyzer setting: RBW = 100kHz; VBW = approximately 3 times RBW.

Sample Calculation: Corrected Amplitude = Raw Amplitude + ACF + Cable Loss

Results:



Radiated Emissions Plot

Frequency	Detector	Antenna Polarization	Raw Amplitude @ 3m	ACF	Cable Loss	PreAmp Gain	Corrected Amplitude @ 3m	Limit @3m	Delta
(MHz)	(Avg/QP/PK)	(H/V)	(dBuV/m)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)
199.74	peak	h	27.50	13.343	1.10	0.00	41.94	43.50	-1.56
533.24	peak	v	24.60	17.897	1.82	0.00	44.32	46.00	-1.68
181.42	peak	v	28.40	11.943	1.06	0.00	41.40	43.50	-2.10
177.54	peak	v	28.00	12.098	1.06	0.00	41.16	43.50	-2.34

Radiated Emissions Data

Tested By: Kerwinn Corpuz

Date Tested: 19 April 2006

4.3.7 Radiated Spurious Emissions > 1 GHz

Requirement(s): 47 CFR §15.205; 47 CFR §15.209; 47 CFR §15.247(d) & RSS-210 (A8.5)

Limit = as specified in 15.247(d)

Procedures: Equipment was setup in a semi-anechoic chamber. The device was tested with two protocols at low, mid and high with the worse case protocol (802.11b, 11Mbps) reported. Spectrum analyzer setting: at peak measurement, RBW = VBW = 1MHz; at average measurement, RBW = 1MHz, VBW = 10Hz.

Sample Calculation:

EUT Field Strength = Raw Amplitude – Amplifier Gain(dB) + Antenna Factor(dB) + Cable Loss(dB) + Filter Attenuation(dB, if used)

Limit = Fundamental Field Strength – 20 dB. Measured Fundamental Field Strength = 118.4 dBµV/m

Results:

f_o = 2.412 GHz (Low)

Frequency	Azimuth	Detector	Antenna Polarization	Antenna Height	Raw Amplitude @ 1m	Pre Amp	ACF	Cable Loss	Corrected Amplitude @ 1m	Limit	Delta
(GHz)	(degrees)	(Pk/Avg)	(v/h)	(m)	(dBµV/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
4.824	-	-	-	-	-	-	-	-	-	-	-
7.236	-	-	-	-	-	-	-	-	-	-	-
9.648	35	Pk	v	1.3	53.2	32.50	38.59	4.45	63.73	98.4	-34.67
9.648	320	Pk	h	1.4	48.5	32.50	38.63	4.45	59.07	98.4	-39.33

Note: 4.824 GHz and 7.236 GHz measured noise floor including 5th harmonic and up.

f_o = 2.437 GHz (Mid)

Frequency	Azimuth	Detector	Antenna Polarization	Antenna Height	Raw Amplitude @ 1m	Pre Amp	ACF	Cable Loss	Corrected Amplitude @ 1m	Limit	Delta
(GHz)	(degrees)	(Pk/Avg)	(v/h)	(m)	(dBµV/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
4.874	-	-	-	-	-	-	-	-	-	-	-
7.311	-	-	-	-	-	-	-	-	-	-	-
9.748	35	Pk	v	1.3	54.5	32.41	38.79	4.60	65.48	98.4	-32.92
9.748	320	Pk	h	1.4	49	32.41	38.83	4.60	60.02	98.4	-38.38

Note: 4.874 GHz and 7.311 GHz measured noise floor including 5th harmonic and up.

f_o = 2.462 GHz (High)

Frequency	Azimuth	Detector	Antenna Polarization	Antenna Height	Raw Amplitude @ 1m	Pre Amp	ACF	Cable Loss	Corrected Amplitude @ 1m	Limit	Delta
(GHz)	(degrees)	(Pk/Avg)	(v/h)	(m)	(dBµV/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
4.924	-	-	-	-	-	-	-	-	-	-	-
7.386	-	-	-	-	-	-	-	-	-	-	-
9.848	30	Pk	v	1.3	54.7	32.34	38.99	4.77	66.13	98.4	-32.27
9.848	330	Pk	h	1.4	49.3	32.34	39.02	4.77	60.76	98.4	-37.64

Note: 4.924 GHz and 7.386 GHz measured noise floor including 5th harmonic and up.

Tested By: Kerwinn Corpuz

Date Tested: 19 April 2006

4.3.8 Radiated Emissions – Band Edge

Requirement(s): 47 CFR §15.247(d) & RSS-210 (A8.5)

Limit = 47 CFR §15.205

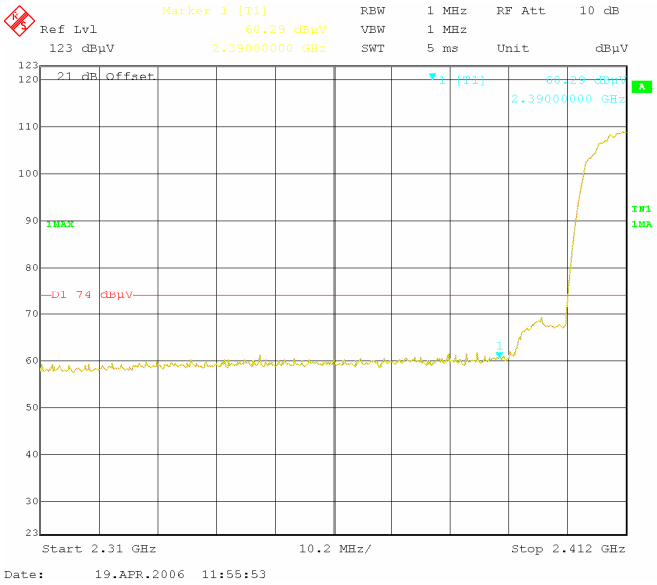
Procedures: Radiated emissions were measured according to ANSI C63.4. The device was tested with two protocols at low and high channel. An offset was set to spectrum analyzer with 21 dB. Spectrum analyzer setting: at peak measurement, RBW = VBW = 1MHz; at average measurement, RBW = 1MHz, VBW = 10Hz.

Sample Calculation:
EUT Field Strength = Raw Amplitude + Antenna Factor(dB) + Cable Loss(dB) – Distance Correction Factor

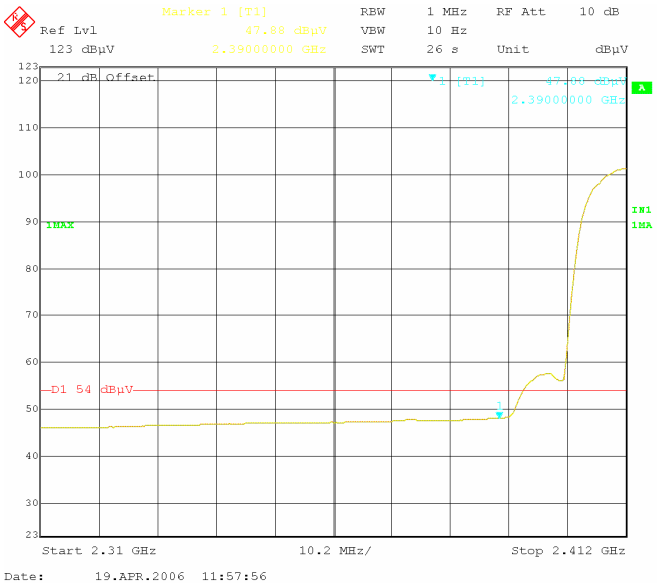
Results:

Plot #	Protocol	Freq (MHz)	Peak Corrected at 3m (dBµV/m)	Limit (dBµV/m)	Delta (dB)	Detector (Pk/Avg)
25	802.11b	2390	60.29	74	-13.71	Peak
26	802.11b	2390	47.88	54	-6.12	Average
27	802.11b	2483.5	60.06	74	-13.94	Peak
28	802.11b	2483.5	47.21	54	-6.79	Average
29	802.11g	2390	69.71	74	-4.29	Peak
30	802.11g	2390	53.04	54	-0.96	Average
31	802.11g	2483.5	68.83	74	-5.17	Peak
32	802.11g	2483.5	52.50	54	-1.50	Average

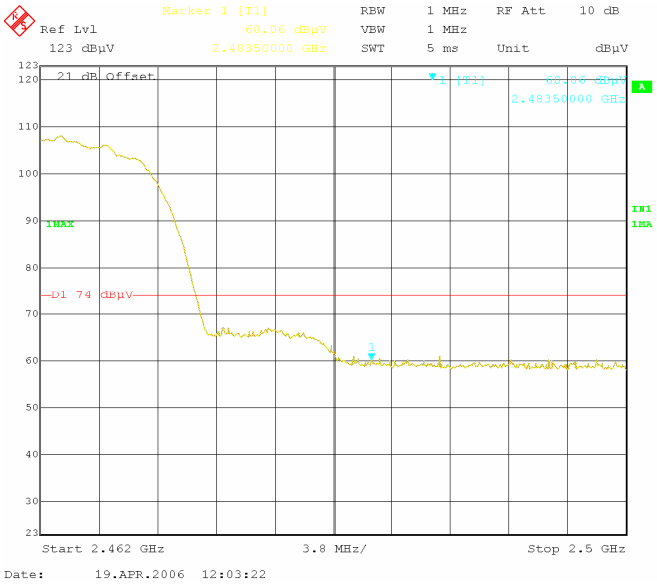
Note: Investigated Emissions with vertical and horizontal polarization, worse case at vertical polarization.



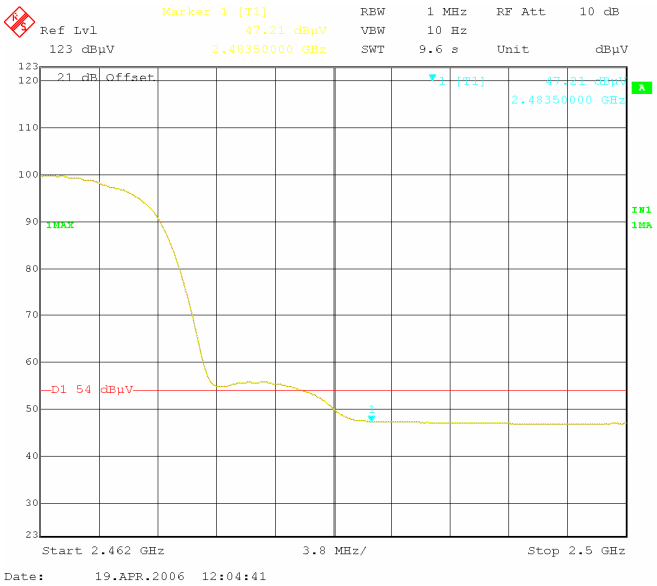
Plot 25: Lower Edge with 802.11b (Peak)



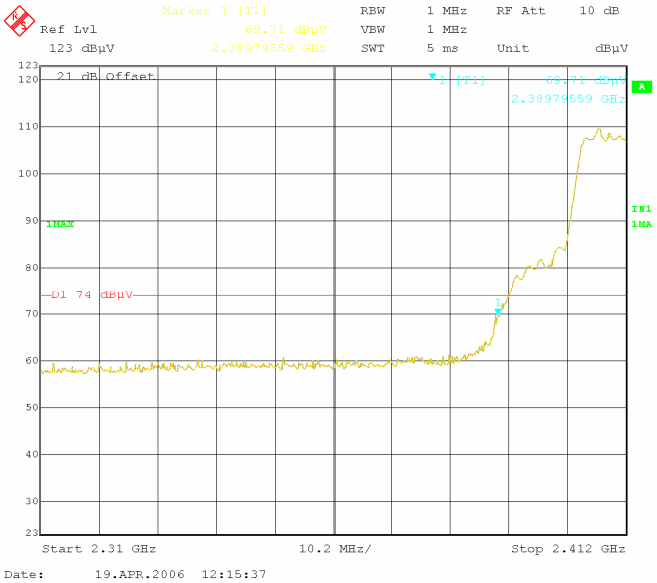
Plot 26: Lower Edge with 802.11b (Average)



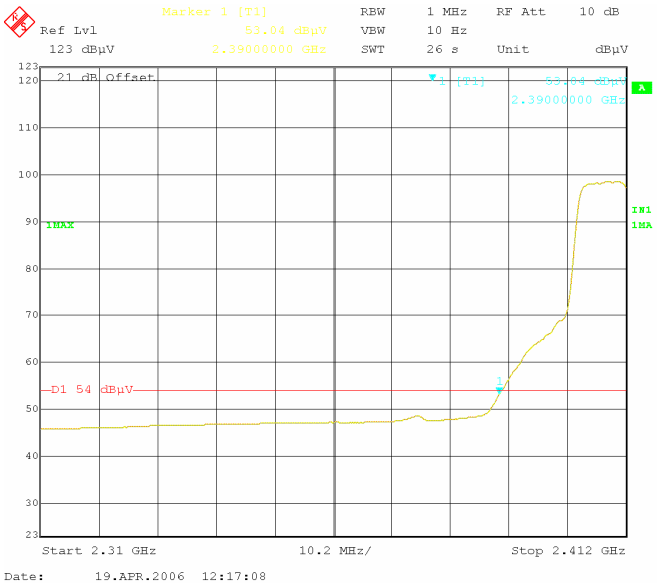
Plot 27: Upper Edge with 802.11b (Peak)



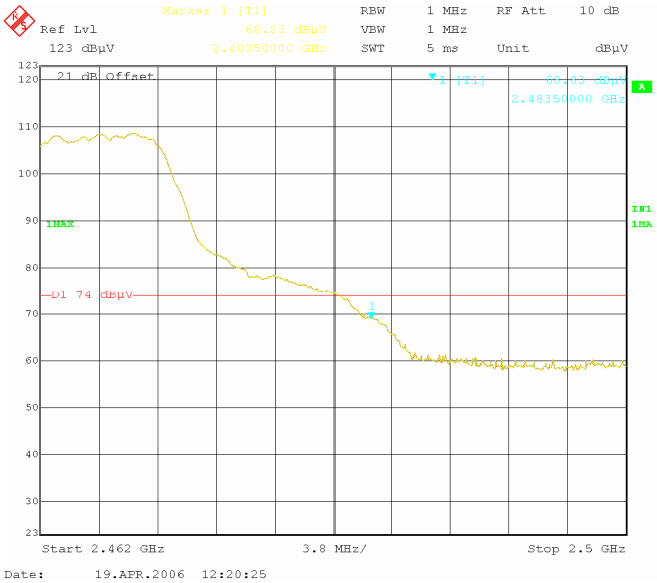
Plot 28: Upper Edge with 802.11b (Average)



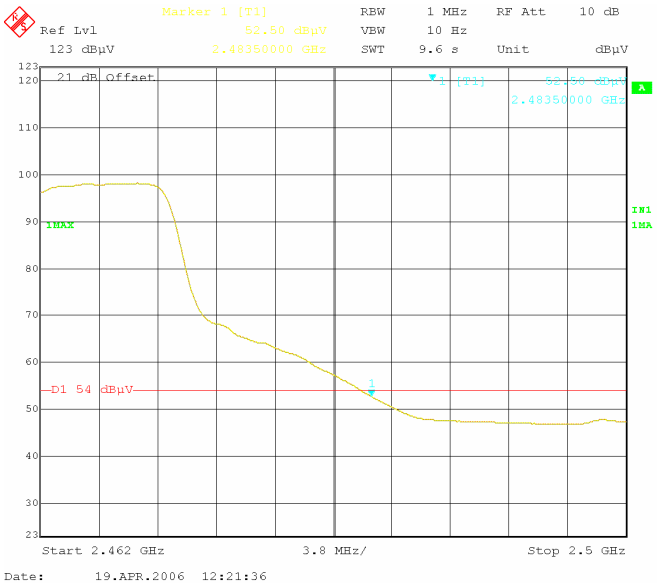
Plot 29: Lower Edge with 802.11g (Peak)



Plot 30: Lower Edge with 802.11g (Average)



Plot 31: Upper Edge with 802.11g (Peak)



Plot 32: Upper Edge with 802.11g (Average)

Tested By: Kerwinn Corpuz

Date Tested: 19 April 2006

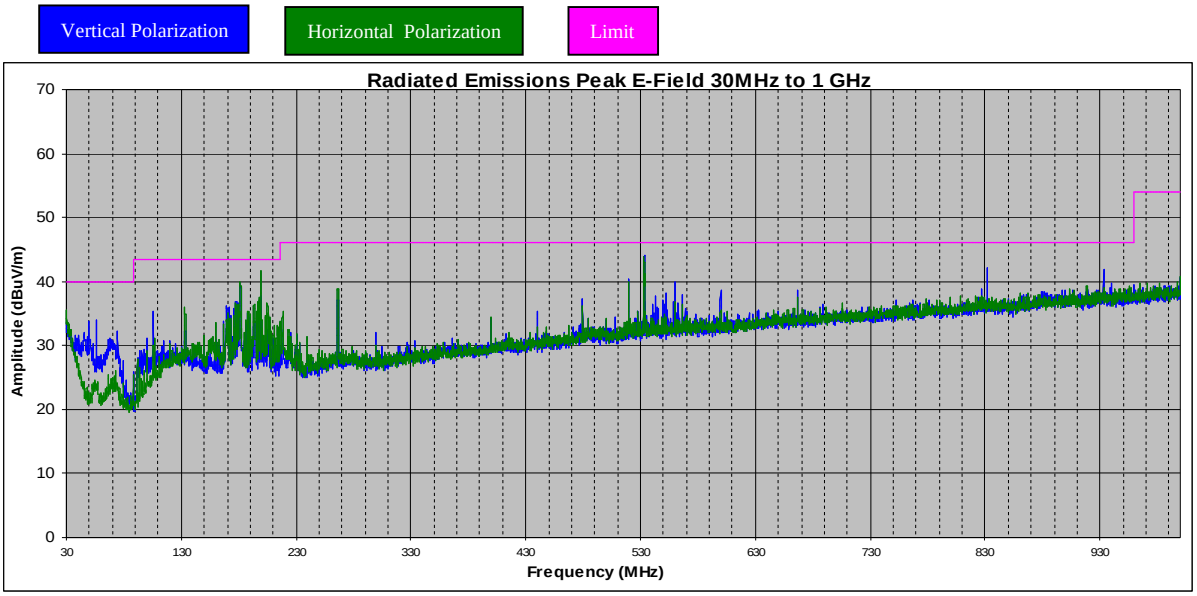
4.3.9 Receiver Spurious Emissions

Requirement(s): RSS-GEN (4.8)

Procedures: Radiated emissions were measured according to RSS-GEN. Measurement was taken with spectrum analyzer. Spectrum analyzer setting: RBW = 100kHz; VBW = approximately 3 times RBW. The EUT was set to receive at 802.11b, 11Mbps, mid channel.

Sample Calculation: Corrected Amplitude = Raw Amplitude + ACF + Cable Loss

Results:



Radiated Emissions Plot

Frequency	Detector	Antenna Polarization	Raw Amplitude @ 3m	ACF	Cable Loss	PreAmp Gain	Corrected Amplitude @ 3m	Limit @3m	Delta
(MHz)	(Avg/QP/PK)	(H/V)	(dBuV/m)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)
199.56	peak	h	27.50	13.300	1.00	0.00	41.80	43.50	-1.70
533.24	peak	h	23.10	18.164	1.83	0.00	43.09	46.00	-2.91
181.51	peak	h	27.60	11.400	0.98	0.00	39.98	43.50	-3.52
832.09	peak	v	18.50	21.400	2.26	0.00	42.16	46.00	-3.84

Radiated Emissions Data

Tested By: Kerwinn Corpuz

Date Tested: 19 April 2006

5 TEST INSTRUMENTATION

5.1 TEST INSTRUMENTATION

Instrument	Manufacturer	Model	CAL Due Date
Spectrum Analyzer	Hewlett Packard	8568B	04/26/2006
Quasi-Peak Adapter	Hewlett Packard	85650A	04/26/2006
RF Pre-Selector	Hewlett Packard	85685A	04/26/2006
Spectrum Analyzer	Hewlett Packard	8564E	12/29/2006
EMI Receiver	Rohde & Schwarz	ESIB 40	02/07/2007
Power Meter	Hewlett Packard	437B	04/26/2006
Power Sensor	Hewlett Packard	8485A	04/26/2006
Bilog Antenna	Sunol Sciences	JB1	03/18/07
Antenna	Emco	3115	07/12/2006
Antenna	Emco	3115	See Note1
Signal Generator	Wiltron	68169B	04/26/2006
Chamber	Lingren	3m	08/21/2006
Pre-Amplifier	Hewlett Packard	8449	07/19/2006
DMM	Fluke	73III	07/04/2006
Variac	KRM	AEEC-2090	See Note1
Environment Chamber	TestEquity	1007H	10/27/2006
DMM	Fluke	51II	See Note1
HPF	Lorch	4HPD-X4000-3R	See Note1
HPF	Lorch	4HPD-X6000-3R	See Note1

Note: Functional Verification

APPENDIX A: EUT TEST CONDITIONS

The following is the description of supporting equipment and details of cables used with the EUT.

Equipment Description (Including Brand Name)	Cable Description
Compaq Laptop	1. Antenna cable 2. Serial cable 3. AC/DC adapter

EUT Description	:	802.11b/g Module
Model No	:	Monarch
Serial No	:	none

The following is the description of how the EUT is exercised during testing.

Test	Description Of Operation
	The EUT was controlled via PC to enter test modes necessary to complete the testing.

APPENDIX B: EXTERNAL PHOTOS

See Attachment

APPENDIX C: CIRCUIT/BLOCK DIAGRAMS

See Attachment

APPENDIX D: INTERNAL PHOTOS

See Attachment

APPENDIX E: PRODUCT DESCRIPTION

Detail description of this product is shown in the User's Guide.

APPENDIX F: FCC LABEL LOCATION

See Attachment

APPENDIX G: USER MANUAL

See Attachment

END OF REPORT