

The University of Michigan
Radiation Laboratory
3228 EECS Building
Ann Arbor, MI 48109-2122
Tel: (734) 764-0500

Measured Radio Frequency Emissions
From

**Hyperlink Technologies 802.11b / 802.11g DSS System
Amplifier Series: HA2401GI, HA2401G**

Report No. 415031-190a
February 28, 2004

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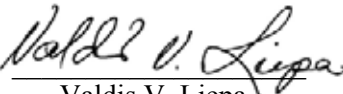
For:
Hyperlink Technologies, Inc
1200 Clint Moore Road, Suite 14
Boca Raton, Florida 33487

Contact:
Peter Roth
Tel: (561) 995-2256
Fax: (561) 995-2432
PO: Verbal

Measurements made by:

Joseph D. Brunett

Tests supervised by:
Report approved by:


Valdis V. Liepa
Research Scientist

Summary

Tests for compliance with FCC Regulations, Part 15.247, and with Industry Canada Regulations, RSS-210, Section 6.2.2 (o), were performed on Hyperlink spread spectrum RF Extended Range LAN System. The DUT is subject to the Rules and Regulations as a transmitter, a receiver, and a digital device. This link uses an FCC certified spread spectrum Proxim radio, but adds high gain antennas, amplifiers, filters, and cables. Here we report on measurements as required for combinations of antennas and amplifiers. We also report on measurements of conducted emissions for a two power supplies used by the power amplifiers.

In testing completed on February 27, 2004, worst case radiated emissions in the restricted bands were met by 0.5 dB at a frequency of 2390 MHz (see p. 13). Power supply conducted emissions, Class B, were met by 1.0 dB at a frequency of 19.50 MHz (see p. 13).

1. Introduction

Hyperlink/Proxim extended range radio configurations were tested for compliance with FCC Regulations, Part 15, adopted under Docket 87-389, April 18, 1989, and with Industry Canada RSS-210, Issue 5, November, 2001. The tests were performed at the University of Michigan Radiation Laboratory Willow Run Test Range following the procedures described in ANSI C63.4-1992 "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz". The Site description and attenuation characteristics of the Open Site facility are on file with FCC Laboratory, Columbia, Maryland (FCC Reg. No: 91050) and with Industry Canada, Ottawa, ON (File Ref. No: IC 2057).

2. Test Procedure and Equipment Used

The test equipment commonly used in our facility is listed in Table 2.1 below. The HP 8593E spectrum analyzer is used for primary amplitude and frequency reference.

Table 2.1 Test Equipment

Test Instrument	Eqpt. Used	Manufacturer/Model
Spectrum Analyzer (0.1-1500 MHz)		Hewlett-Packard, 182T/8558B
Spectrum Analyzer (9kHz-22GHz)	X	Hewlett-Packard 8593A SN: 3107A01358
Spectrum Analyzer (9kHz-26GHz)	X	Hewlett-Packard 8593E, SN: 3412A01131
Spectrum Analyzer (9kHz-26GHz)		Hewlett-Packard 8563E, SN: 3310A01174
Spectrum Analyzer (9kHz-40GHz)		Hewlett-Packard 8564E, SN: 3745A01031
Power Meter	X	Hewlett-Packard, 432A
Power Meter		Anritsu, ML4803A/MP
Crystal Detector	X	Hewlett-Packard, 8472A (25 ns rise-time)
Oscilloscope	X	Hewlett-Packard, 54510A
Harmonic Mixer (26-40 GHz)		Hewlett-Packard 11970A, SN: 3003A08327
Harmonic Mixer (40-60 GHz)		Hewlett-Packard 11970U, SN: 2332A00500
Harmonic Mixer (75-110 GHz)		Hewlett-Packard 11970W, SN: 2521A00179
Harmonic Mixer (140-220 GHz)		Pacific Millimeter Prod., GMA, SN: 26
S-Band Std. Gain Horn	X	S/A, Model SGH-2.6
C-Band Std. Gain Horn	X	University of Michigan, NRL design
XN-Band Std. Gain Horn	X	University of Michigan, NRL design
X-Band Std. Gain Horn	X	S/A, Model 12-8.2
X-band horn (8.2- 12.4 GHz)	X	Narda 640
X-band horn (8.2- 12.4 GHz)		Scientific Atlanta , 12-8.2, SN: 730
K-band horn (18-26.5 GHz)	X	FXR, Inc., K638KF
Ka-band horn (26.5-40 GHz)	X	FXR, Inc., U638A
U-band horn (40-60 GHz)		Custom Microwave, HO19
W-band horn(75-110 GHz)		Custom Microwave, HO10
G-band horn (140-220 GHz)		Custom Microwave, HO5R
Bicone Antenna (30-250 MHz)	X	University of Michigan, RLBC-1
Bicone Antenna (200-1000 MHz)	X	University of Michigan, RLBC-2
Dipole Antenna Set (30-1000 MHz)	X	University of Michigan, RLDP-1,-2,-3
Dipole Antenna Set (30-1000 MHz)		EMCO 2131C, SN: 992
Active Rod Antenna (30 Hz-50 MHz)		EMCO 3301B, SN: 3223
Active Loop Antenna (30 Hz-50 MHz)		EMCO 6502, SN:2855
Ridge-horn Antenna (300-5000 MHz)	X	University of Michigan
Amplifier (5-1000 MHz)	X	Avantek, A11-1, A25-1S
Amplifier (5-4500 MHz)	X	Avantek
Amplifier (4.5-13 GHz)	X	Avantek, AFT-12665
Amplifier (6-16 GHz)	X	Trek
Amplifier (16-26 GHz)	X	Avantek
LISN Box	X	University of Michigan
Signal Generator		Hewlett-Packard 8657B

3. Configuration and Identification of Device Under Test

The DUT is a spread spectrum RF wireless link operating in 2400 - 2483.5 MHz band. The system tested consists of a laptop computer, PCMCIA radio, coax cable, (choice of) amplifier, (choice of) band-pass filter, and (choice of) antenna. There are three primary configurations for this system: 1) outdoor amplifier and separate antenna with DC injector coaxial power feed, 2) indoor amplifier (model number includes a "I") with DC power (fed directly into the amplifier) and separate antenna, 3) no amplifier with antenna connected directly to the Proxim radio. The system has been designed to operate with up to 12 channels from 2412 to 2462 MHz.; however, depending on the choice of components used (amplifier, filter, antenna), channels are restricted so as to meet the FCC and IC emissions limits (See the *Acceptable Configurations* exhibit).

The DUT was designed and manufactured by Hyperlink Technologies Inc, 1200 Clint Moore Road, Suite 14, Boca Raton, Florida 33487. Figure 3.1 shows the block diagram of the basic system. It is identified as:

Hyperlink Technologies, Inc.
Amplifier Model(s): HA2401GI-XXX, HA2401G-XXX
FCC ID: MYF-G11FNFPC
IC: 2837A-G11FNFPC

XXX stands for the amplifier power rating in milliwatts.

26 configurations were fully tested for compliance. It is demonstrated in this test report that the tested configurations accurately depict the worst case emissions from the DUT out of all configurations listed in the *Acceptable Configurations* exhibit, which is included in this filing. It is the intent of this test report to demonstrate compliance for all configurations listed in the *Acceptable Configurations* exhibit.

Note: All amplifier models consist of the same PCB, with an input attenuator/AGC circuit that IS TUNED ONLY BY THE MANUFACTURER FOR DIFFERENT OUTPUT POWER LEVELS. Since the amplifier models herein have an amplification stage biased independent from the input power level, the spectral integrity of the device is consistent across all models in this test report.

Note: The AMPLIFIERS USED IN THIS FILING WILL ONLY BE SOLD AS A COMPLETE SYSTEM as shown within this application (PCMCIA Card + DC Injector (if outdoor) + Amplifier + Filter + Antenna).

With components evaluated:

Radio:

Proxim Radio
Model 8800-FC

SN: 03MT39001496
FCC ID: HZB-G11FNFPC
CAN: 1856A-G11FNFPC

Laptop Computer:

Toshiba Satellite
Model: A10-S1291

SN: X3058741H
PN: PSA10U-0ZH6M3

Amplifier(s):

Table 3.1 AGC Amplifiers

Amplifier Model	Output Power Rating (dBm)	Power Setting used in Testing
HA2401GI-1000, HA2401G-1000	30	X
HA2401GI-800, HA2401G-800	29	
HA2401GI-630, HA2401G-630	28	
HA2401GI-500, HA2401G-500	27	
HA2401GI-400, HA2401G-400	26	
HA2401GI-250, HA2401G-250	24	
HA2401GI-200, HA2401G-200	23	
HA2401GI-100, HA2401G-100	20	
HA2401GI-060, HA2401G-060	18	
HA2401GI-050, HA2401G-50	17	
HA2401GI-025, HA2401G-025	14	X

Power Supply, for amplifier(s)

Model:ACSM-26

FCC: Class B

DC Injector

HyperLink, Model: BT2405

Filters

Bandpass Filter, 4-pole, Model: BPF24

Cables

Antenna cable, 50 feet, WBC400, with N-connectors - 3dB/50ft loss at 2.437 GHz

Antenna cable, 0.1 m with N-connectors - 0.1 dB loss at 2.437 GHz

Pigtail cable, 18 in., RG-214, HyperLink

Antennas

Table 3.2 Antennas

Antenna Model	Construction	Gain (dBi)	Used in Testing
HG2401U	whip/monopole	1	X
HG2402RD	whip/monopole	2	
HG2403RD	whip/monopole	3	
HG2403UR	whip/monopole	3	
HG2404CU	whip/monopole	3	
RE05E	whip/monopole	5	
RE05U	whip/monopole	5	X
HG2405	whip/monopole	5	
HG2406U	whip/monopole	6	
HG2407U	whip/monopole	7	
HG2408U	whip/monopole	8	
HG2409U	whip/monopole	8.5	
HGV-2409U	whip/monopole	8.5	
HG2410U	whip/monopole	10	
HG2412U	whip/monopole	12	
HG2415U-PRO	whip/monopole	15	X
HG2409P	patch	8	X
HG2408P	patch	8	
HG2412P	patch	12	
HG2414P	patch	14	
HG2416P	patch	16	X
HG2409Y	yagi-uda	9	X
HG2412Y	yagi-uda	12	
HG2415Y	yagi-uda	14.5	X

3.1 EMI Relevant Modifications

During the course of testing, amplifier (if included), filter (if included), and antenna were selected and then the available channels for the particular configuration were reduced (if necessary) to meet the band-edge and harmonic emission limits.

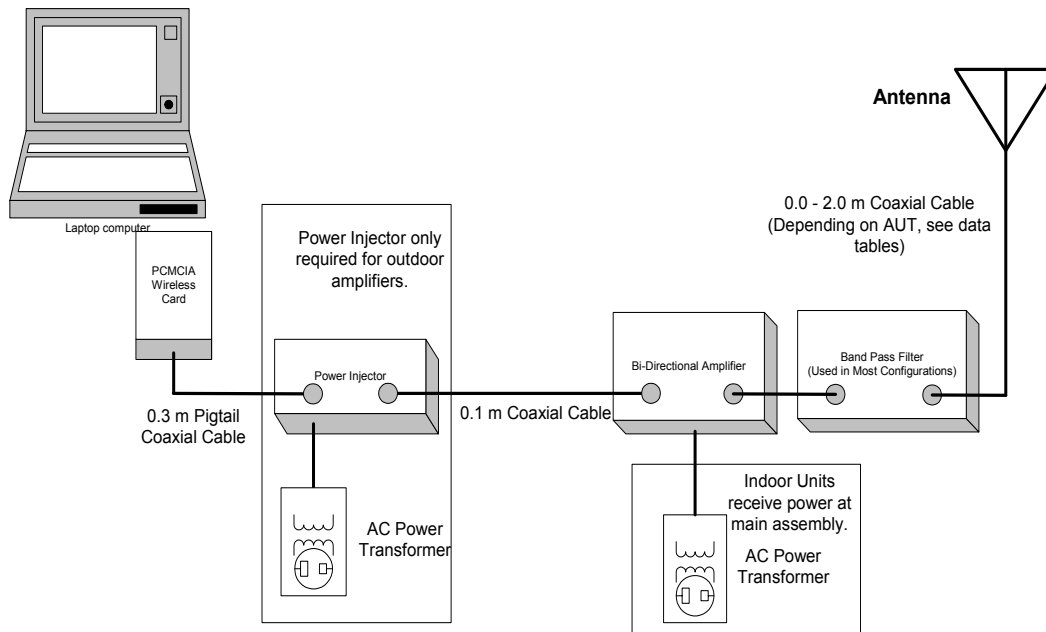


Figure 3.1 Basic block diagram of the system

4. Emission Limits

4.1 Radiated Emission Limits

Since the DUT is a spread spectrum device (15.247, 2.4 GHz), the radiated emissions are subject to emissions in restricted bands (15.205). The applicable frequencies, through ten harmonics, are given below in Table 4.1. Emission limits from digital circuitry are specified in Table 4.2.

Table 4.1 Radiated Emission Limits (FCC:15.205; IC:RSS-210, 6.3) - Transmitter

Frequency (MHz)	Fundamental Ave. Elim (3m)		Spurious* Ave. Elim (3m)	
	($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)	($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)
2400-2483.5	---		---	
2310-2390 2483.5-2500 4500-5250	Restricted Bands		500	54.0
7250-7750 14470-14500 17700-21400 22010-23120 23600-24000	Restricted Bands		500	54.0

* Measure up to tenth harmonic; 1 MHz res. BW, 100 Hz video BW (for average detection)

Table 4.2 Radiated Emission Limits (FCC:15.109;IC: RSS-210, 7.3) - Digital device.

Frequency (MHz)	Class A $d_s = 10$ m		Class B $d_s = 3$ m	
	($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)	($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)
30-88	90	39.0	100	40.0
88-216	150	43.5	150	43.5
219-960	210	46.4	200	46.0
960-	300	49.5	500	54.0

120 kHz BW up to 1 GHz, 1 MHz BW above 1 GHz

4.2 Conductive Emission Limits

Table 4.3 Conducted Emission Limits (FCC/CISPR:15.107; IC: RSS-210, 6.6).

Frequency MHz	Class A (dB μ V)		Class B (dB μ V)	
	Quasi-peak	Average	Quasi-peak	Average
.150 - 0.50	79	66	66 - 56*	56 - 46*
0.50 - 5	73	60	56	46
5 - 30	73	60	60	50

Notes:

1. The lower limit shall apply at the transition frequency
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15-0.50 MHz:

*Class B Quasi-peak: $\text{dB}\mu\text{V} = 50.25 - 19.12 \cdot \log(f)$

*Class B Average: $\text{dB}\mu\text{V} = 40.25 - 19.12 \cdot \log(f)$

3. 9 kHz RBW

5. Radiated Emission Tests and Results

Note: The following measurements for a given amplifier/radio configuration are performed with attenuation added between the radio and the amplifier to simulate decreased input power to the amplifier due to cable loss. Since these are AGC amplifiers, their compliance must be demonstrated over a range of input power levels (See Figure 5.0). IT WAS DETERMINED THAT, OVER THE FULL RANGE OF POWER SETTINGS, 6 DB OF ATTENUATION (EQUIVALENT TO 100 FT OF CABLE) PLACED AT THE INPUT OF THE AMPLIFIERS GIVES THE HIGHEST RADIATED EMISSIONS IN THE RESTRICTED BANDS. BECAUSE OF THE LARGE OUTPUT FILTER USED IN ALL AMPLIFIED CONFIGURATIONS, FUNDAMENTAL BAND-EDGE EMISSIONS ARE NOT THE LIMITING FACTOR IN SELECTING COMPLIANT CONFIGURATIONS. THUS, THIS LEVEL OF INPUT ATTENUATION WAS USED THROUGHOUT TESTING, UNLESS OTHERWISE STATED.

5.1 Anechoic Chamber Measurements

In our chamber, there is a set-up similar to that of an outdoor 3-meter site, with a turntable, an antenna mast, and a ground plane. Instrumentation includes spectrum analyzers and other equipment as needed. For these tests the receiver antennas were mounted on the antenna mast at about 1.2 m height, and the DUT on a turntable with foam blocks at 3 meter distance. Standard gain horn antennas were used for the measurements. At 2.4 GHz the horns were connected directly to a spectrum analyzer via RG-214 coaxial cable, and above 2.4 GHz a pre-amp was added. The cables and the pre-amplifier used were specially calibrated for these tests using a spectrum analyzer with built in sweep generator.

The DUT antenna was rotated in all possible ways and the maximum emission recorded. Photographs in the *Test Setup Photos* exhibit demonstrate the measurement set-up.

Note: Digital Radiated emissions limits were > 20 dB below the FCC Class B limit. No data is reported.

5.2 Outdoor Measurements

None made

5.3 Computations and Results

To convert the dBm measured on the spectrum analyzer to dB(μ V/m), we use expression

$$E_3(\text{dB}\mu\text{V/m}) = 107 + P_R + K_A - K_G + K_E$$

where

- P_R = power recorded on spectrum analyzer, dB, measured at 3m
- K_A = antenna factor, dB/m
- K_G = pre-amplifier gain, including cable loss, dB
- K_E = pulse operation correction factor, dB

When presenting the data, the dominant measured emissions at each frequency, under all of the possible orientations, are given. A listing of systems tested for emissions compliance is given in Table 5.0. Computations and results are given in Tables 5.1 through 5.26. There we see that in the worst case the DUT meets the limit by 0.5 dB at 2390 MHz in Table 5.26. Note, that besides the emission measurements, each table contains the frequency range of operation (in upper left section of the table). Please also note that these tables simply indicate that the configurations listed meet the restricted band limits set forth by the FCC and IC, and do not alone demonstrate compliance to all FCC/IC radiated emissions guidelines. Specifically, these configurations are still subject to FCC Part 15.247(b)(4)(i). A complete listing of FCC/IC compliant configurations is listed in the *Acceptable Configurations* exhibit.

5.4 Duty Factor for Normal Operation

No Duty Factor was used during testing of this device, as it was programmed to transmit continuous.

6. Other Measurements and Computations

Note: The following measurements for a given amplifier/radio configuration are performed with attenuation added between the radio and the amplifier to simulate decreased input power to the amplifier due to cable loss. Since these are AGC amplifiers, their compliance must be demonstrated over a range of input power levels (See Figure 5.0). IT WAS DETERMINED THAT, OVER THE FULL RANGE OF POWER SETTINGS, 6 DB OF ATTENUATION (EQUIVALENT TO 100 FT OF CABLE) PLACED AT THE INPUT OF THE AMPLIFIERS GIVES THE HIGHEST RADIATED EMISSIONS IN THE RESTRICTED BANDS. BECAUSE OF THE LARGE OUTPUT FILTER USED IN ALL AMPLIFIED CONFIGURATIONS, FUNDAMENTAL BAND-EDGE EMISSIONS ARE NOT THE LIMITING FACTOR IN SELECTING COMPLIANT CONFIGURATIONS. THUS, THIS LEVEL OF INPUT ATTENUATION WAS USED THROUGHOUT TESTING, UNLESS OTHERWISE STATED.

6.1 Peak-to-Average Ratio (15.35(b))

For the measurements presented here (for emissions in restricted bands), the DUT was programmed to transmit continuous, and such was verified with spectrum analyzer set to zero-span mode. See Figure 6.1. The average measurements were made using 1 MHz RBW and 100 Hz VBW. The peak measurements were made using 1 MHz RBW and 3 MHz VBW.

Typically the difference between peak and average was 12 to 13 dB, and never exceeded the 20 dB limit.

6.2 Potential Health Hazard EM Radiation Level

Please see the RF Exposure exhibit for a detailed listing of the potential health hazard radiation levels and appropriate safe operating distances for the configurations in this test report.

6.3 Peak Output Power (15.247(b))

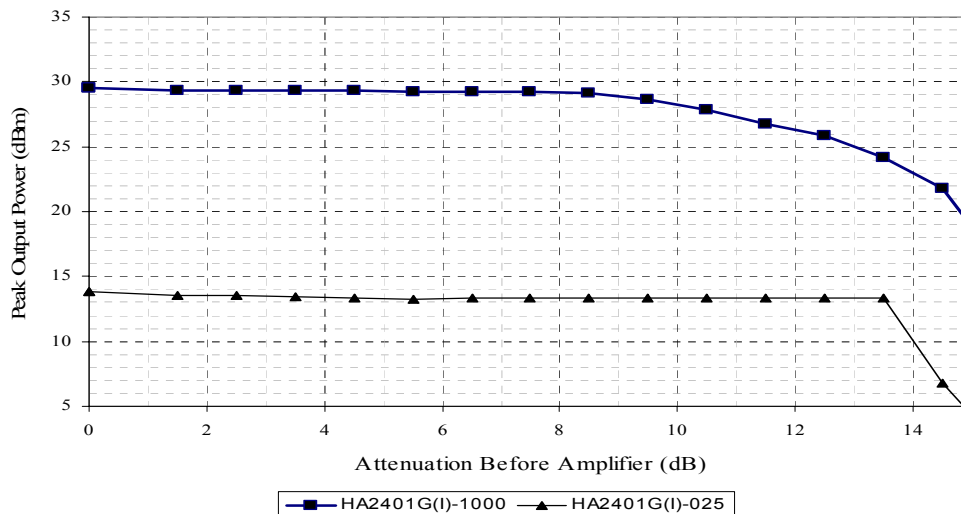
For this measurement, the DUT was set in a test mode for continuous data transmission. A direct comparison measurement was made between a known CW source and the radio/amplifier/filter setup using calibrated attenuators, an HP 8472A Crystal Detector (with HP 54510A, 250 MHz digitizing oscilloscope) and an HP 432A average power meter. The known CW source power was first verified using the HP 432A and correlated with the DC output voltage from the HP 8472A Crystal Detector. Next, the radio/amplifier/filter peak output power was recorded from the HP 8472A Crystal Detector's output waveform for both the 802.11b and 802.11g modes at the channels indicated below. The maximum input rise/fall time of the 802.11b/g waveforms was measured to be 60 ns, which is sufficiently greater than the calibrated 25 ns rise/fall time of the HP 8472A Crystal Detector when properly loaded with the 50 Ω input of the HP 54510A oscilloscope.

Since the DUT transmits in continuous mode, there is no adjustment needed to the readings. Table 6.2, below, presents the results. The peak output power limit is 30dBm.

Table 6.2 Peak and Average Output Power (Antenna Conducted)

Freq (MHz)	Peak Power to Antenna (dBm)		Comment
	IEEE 802.11b	IEEE 802.11g	
2427	27.4	28.9	HA2401G(I), 30 dBm with Output Filter
2437	28.4	29.2	
2447	27.7	28.9	
2427	13.2	13.3	HA2401G(I), 14 dBm with Output Filter
2437	13.1	13.5	
2447	13.2	13.3	
2412	13.5	17.1	Radio Alone
2437	13.7	17.5	
2462	13.9	17.4	

Figure 5.0 Peak Amplifier Output Power vs. Cable Attenuation



6.4 Power Line Conducted Emissions (15.270)

The RF amplifier is powered from a switching power supply (ASCM-26). Conducted emissions were measured using a LISN in the standard set-up. Photographs of the set-up are in the *Setup Photos* exhibits.

Certification for the PCMCIA radio demonstrates that the FCC Class B line conducted emissions limits are met by the PCMCIA card and an associated computer. Since the manufacturer of the system we are testing is not responsible for the sale or distribution of the computer used with the PCMCIA card, measurement of conducted emission from the particular computer used during testing has little relevance. In addition, since the amplifiers used in these configurations contain no internal oscillators or low frequency sources, it is unlikely that these added components could corrupt the AC conducted emissions demonstrated in the PCMCIA card filing. Essentially, the computer used in our emissions testing is a peripheral device, whose compliance has already been demonstrated in the PCMCIA radio filing and its own Document of Conformity. See the equipment list for PCMCIA card and Laptop FCC/IC identifier information. A copy of the PCMCIA test report has been included as an exhibit.

NOTE: This device has shown compliance with the conducted emissions limits in 15.107, 15.207, or 18.307 adopted under FCC 02-157 (ET Docket 98-80) and may be marketed after July 11, 2005 and is not affected by the 15.37(j) or 18.123 transition provisions.

6.5 Bandwidth (15.247(a)(2))

For this test, the DUT was put in a test mode for continuous data transmission, and the amplifier was attached, including 6 dB of attenuation, to the radio. The spectrum analyzer was connected where the antenna attaches to the system. The analyzer was set for RBW=100 kHz, VBW=300 kHz, SPAN=30 MHz. The 6-dB bandwidth was measured for the lowest, middle, and highest channels that could be used in a given configuration. Since the amplifier itself is identical, despite changes in the configured output power levels, results for only the highest and lowest power settings are reported here. It was verified that these reported emissions are consistent across all power settings. Because of the excessive number of plots taken to ascertain this data, only an example subset is shown in Figures 6.9-6.10. The complete readings obtained are:

30 dBm, (HA2401G(I)-1000 Amplifier)

<u>Frequency</u>	<u>802.11b 6 dB Bandwidth</u>	<u>802.11g 6 dB Bandwidth</u>
2.427 GHz	11.55 MHz	14.63 MHz
2.437 GHz	12.15 MHz	16.50 MHz
2.447 GHz	11.25 MHz	15.83 MHz

14 dBm, (HA2401G(I)-025 Amplifier)

<u>Frequency</u>	<u>802.11b 6 dB Bandwidth</u>	<u>802.11g 6 dB Bandwidth</u>
2.427 GHz	11.03 MHz	13.43 MHz
2.437 GHz	12.00 MHz	16.58 MHz
2.447 GHz	11.10 MHz	13.43 MHz

Radio Alone

<u>Frequency</u>	<u>802.11b 6 dB Bandwidth</u>	<u>802.11g 6 dB Bandwidth</u>
2.412 GHz	10.13 MHz	16.58 MHz
2.437 GHz	12.60 MHz	16.35 MHz
2.462 GHz	12.60 MHz	16.50 MHz

6.6 Peak Output Power Reduction (15.247(b)(4)(i))

For any configuration with a total EIRP greater than 36 dBm, the FCC/ IC rules state that the peak output power of the device must be decreased by 1 dB for every 3 dB that the EIRP is greater than 36 dBm. In this test report, this rule part is applied once all other rule parts are demonstrated compliant. See the *Peak Output Power Reduction* exhibit for tables relating the decrease in peak output power for the configurations deemed compliant in the *Acceptable Configurations* exhibit.

6.7 RF Antenna Conducted Spurious Emissions (15.247(c))

For this test, the DUT was put in a test mode for continuous data transmission, and the amplifier was attached, including 6 dB of attenuation, to the radio. The spectrum analyzer was connected where the antenna attaches to the system. The analyzer was set for RBW=100 kHz, VBW=300 kHz, the frequency was swept from 0 to 25 GHz. See Figures 6.2 through 6.5 and 6.18 through 6.19. In the plots, only the fundamental is seen, the rest is noise. In all cases, the noise is at least 25 dB below the carrier. (Limit -20.0 dB below carrier). Included in Figures 6.6 through 6.10 and 6.20 are plots demonstrating band-edge compliance at lower and upper edges of the operating band.

6.8 Power Spectral Density and Line Spacing (15.247(d))

For this test, the DUT was put in a test mode for continuous data transmission, and the amplifier was attached, including 6 dB of attenuation, to the radio. The spectrum analyzer was connected where the antenna attaches to the system. The spectrum was first scanned for the maximum spectrum peaks and then at these peaks the sweep was repeated with RBW=3 kHz, VBW=300 kHz, SPAN=300 kHz, and RBW=1 kHz, VBW=300 kHz, SPAN=100 kHz. Because of the excessive number of plots taken to ascertain this data, only one example set is shown in Figures 6.12-6.17. The complete readings obtained are:

Operating Mode: 802.11b

30 dBm, (HA2401G(I)-1000 Amplifier)

<u>Frequency</u>	<u>Analyzer Reading</u>	<u>Line Spacing</u>
2.42845 GHz	1.84 dBm (Limit 8.0 dBm)	4.3 kHz
2.43798 GHz	2.71 dBm (Limit 8.0 dBm)	4.3 kHz
2.44452 GHz	-1.98 dBm (Limit 8.0 dBm)	4.3 kHz

14 dBm, (HA2401G(I)-025 Amplifier)

<u>Frequency</u>	<u>Analyzer Reading</u>	<u>Line Spacing</u>
2.42945 GHz	-18.47 dBm (Limit 8.0 dBm)	4.8 kHz
2.43945 GHz	-17.61 dBm (Limit 8.0 dBm)	4.3 kHz
2.44745 GHz	-17.07 dBm (Limit 8.0 dBm)	4.5 kHz

Radio Alone

<u>Frequency</u>	<u>Analyzer Reading</u>	<u>Line Spacing</u>
2.41145 GHz	-10.98 dBm (Limit 8.0 dBm)	4.8 kHz
2.43649 GHz	-10.60 dBm (Limit 8.0 dBm)	4.8 kHz
2.46295 GHz	-10.54 dBm (Limit 8.0 dBm)	4.3 kHz

Operating Mode: 802.11g

30 dBm, (HA2401G(I)-1000 Amplifier)

<u>Frequency</u>	<u>Analyzer Reading</u>	<u>Line Spacing</u>
2.43214 GHz	-3.84 dBm (Limit 8.0 dBm)	4.0 kHz
2.44214 GHz	-0.38 dBm (Limit 8.0 dBm)	4.3 kHz
2.44333 GHz	-0.51 dBm (Limit 8.0 dBm)	4.5 kHz

14 dBm, (HA2401G(I)-025 Amplifier)

<u>Frequency</u>	<u>Analyzer Reading</u>	<u>Line Spacing</u>
2.42947 GHz	-17.33 dBm (Limit 8.0 dBm)	4.8 kHz
2.43824 GHz	-16.47 dBm (Limit 8.0 dBm)	4.8 kHz
2.44574 GHz	-17.90 dBm (Limit 8.0 dBm)	4.0 kHz

Radio Alone

<u>Frequency</u>	<u>Analyzer Reading</u>	<u>Line Spacing</u>
2.41685 GHz	-13.20 dBm (Limit 8.0 dBm)	4.3 kHz
2.43947 GHz	-11.51 dBm (Limit 8.0 dBm)	4.5 kHz
2.46447 GHz	-11.91 dBm (Limit 8.0 dBm)	4.3 kHz

Table 5.1 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2401U; 0130b
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-78.6	21.5	- 0.6	50.5	54.0	3.5	Low
6	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	Mid
7	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	High
8	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	Low
9	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	Mid
10	2483.5	Horn S	H/V	-78.9	21.5	- 0.6	50.2	54.0	3.8	High
11	4854.0	Horn C	H/V	-45.8	25.5	37.0	49.7	54.0	4.3	Low
12	4874.0	Horn C	H/V	-53.5	25.5	37.0	42.0	54.0	12.0	Mid
13	4894.0	Horn C	H/V	-47.4	25.5	37.0	48.1	54.0	5.9	High
14	7281.0	Horn XN	H/V	-55.1	25.5	36.0	41.4	54.0	12.6	Low
15	7311.0	Horn XN	H/V	-51.3	25.5	36.0	45.2	54.0	8.8	Mid
16	7341.0	Horn XN	H/V	-46.8	25.5	36.0	49.7	54.0	4.3	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-47.4	25.5	34.0	51.1	54.0	2.9	Low, noise
21	12185.0	Horn X	H/V	-54.2	25.5	34.0	44.3	54.0	9.7	Mid, noise
22	12235.0	Horn X	H/V	-48.3	25.5	34.0	50.2	54.0	3.8	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Low, noise
30	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Mid, noise
31	19576.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.2	32.3	32.0	38.1	54.0	15.9	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2401U
42										

Table 5.2 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2415U; 0130b
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-79.6	21.5	- 0.6	49.5	54.0	4.5	Low
6	2390.0	Horn S	H/V	-81.5	21.5	- 0.6	47.6	54.0	6.4	Mid
7	2390.0	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	High
8	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Low
9	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Mid
10	2483.5	Horn S	H/V	-81.3	21.5	- 0.6	47.8	54.0	6.2	High
11	4854.0	Horn C	H/V	-52.0	25.5	37.0	43.5	54.0	10.5	Low
12	4874.0	Horn C	H/V	-49.2	25.5	37.0	46.3	54.0	7.7	Mid
13	4894.0	Horn C	H/V	-46.5	25.5	37.0	49.0	54.0	5.0	High
14	7281.0	Horn XN	H/V	-45.3	25.5	36.0	51.2	54.0	2.8	Low
15	7311.0	Horn XN	H/V	-52.4	25.5	36.0	44.1	54.0	9.9	Mid
16	7341.0	Horn XN	H/V	-44.0	25.5	36.0	52.5	54.0	1.5	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-48.5	25.5	34.0	50.0	54.0	4.0	Low, noise
21	12185.0	Horn X	H/V	-47.3	25.5	34.0	51.2	54.0	2.8	Mid, noise
22	12235.0	Horn X	H/V	-47.6	25.5	34.0	50.9	54.0	3.1	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Low, noise
30	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Mid, noise
31	19576.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.0	32.3	32.0	38.3	54.0	15.7	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2415U
42										

Table 5.3 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2409Y; 0130b
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	Low
6	2390.0	Horn S	H/V	-81.4	21.5	- 0.6	47.7	54.0	6.3	Mid
7	2390.0	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	High
8	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Low
9	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Mid
10	2483.5	Horn S	H/V	-81.4	21.5	- 0.6	47.7	54.0	6.3	High
11	4854.0	Horn C	H/V	-52.4	25.5	37.0	43.1	54.0	10.9	Low
12	4874.0	Horn C	H/V	-52.7	25.5	37.0	42.8	54.0	11.2	Mid
13	4894.0	Horn C	H/V	-44.7	25.5	37.0	50.8	54.0	3.2	High
14	7281.0	Horn XN	H/V	-56.7	25.5	36.0	39.8	54.0	14.2	Low
15	7311.0	Horn XN	H/V	-53.7	25.5	36.0	42.8	54.0	11.2	Mid
16	7341.0	Horn XN	H/V	-48.2	25.5	36.0	48.3	54.0	5.7	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-50.9	25.5	34.0	47.6	54.0	6.4	Low, noise
21	12185.0	Horn X	H/V	-45.7	25.5	34.0	52.8	54.0	1.2	Mid, noise
22	12235.0	Horn X	H/V	-46.9	25.5	34.0	51.6	54.0	2.4	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Low, noise
30	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Mid, noise
31	19576.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.2	32.3	32.0	38.1	54.0	15.9	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2409Y
42										

Table 5.4 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2415Y; 0130b
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-77.4	21.5	- 0.6	51.7	54.0	2.3	Low
6	2390.0	Horn S	H/V	-80.2	21.5	- 0.6	48.9	54.0	5.1	Mid
7	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	High
8	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	Low
9	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Mid
10	2483.5	Horn S	H/V	-81.0	21.5	- 0.6	48.1	54.0	5.9	High
11	4854.0	Horn C	H/V	-47.7	25.5	37.0	47.8	54.0	6.2	Low
12	4874.0	Horn C	H/V	-48.5	25.5	37.0	47.0	54.0	7.0	Mid
13	4894.0	Horn C	H/V	-47.2	25.5	37.0	48.3	54.0	5.7	High
14	7281.0	Horn XN	H/V	-68.0	25.5	36.0	28.5	54.0	25.5	Low
15	7311.0	Horn XN	H/V	-58.2	25.5	36.0	38.3	54.0	15.7	Mid
16	7341.0	Horn XN	H/V	-53.9	25.5	36.0	42.6	54.0	11.4	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-52.5	25.5	34.0	46.0	54.0	8.0	Low, noise
21	12185.0	Horn X	H/V	-49.3	25.5	34.0	49.2	54.0	4.8	Mid, noise
22	12235.0	Horn X	H/V	-50.4	25.5	34.0	48.1	54.0	5.9	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Low, noise
30	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Mid, noise
31	19576.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.1	32.3	32.0	38.2	54.0	15.8	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2415Y
42										

Table 5.5 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2409P; 0130b	
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments	
1	2427.0									Low channel	
2	2437.0									Mid channel	
3	2437.0									High channel	
4											
5	2390.0	Horn S	H/V	-80.7	21.5	- 0.6	48.4	54.0	5.6	Low	
6	2390.0	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	Mid	
7	2390.0	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	High	
8	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	Low	
9	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	Mid	
10	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	High	
11	4854.0	Horn C	H/V	-44.6	25.5	37.0	50.9	54.0	3.1	Low	
12	4874.0	Horn C	H/V	-42.8	25.5	37.0	52.7	54.0	1.3	Mid	
13	4874.0	Horn C	H/V	-42.8	25.5	37.0	52.7	54.0	1.3	High	
14	7281.0	Horn XN	H/V	-57.7	25.5	36.0	38.8	54.0	15.2	Low	
15	7311.0	Horn XN	H/V	-57.5	25.5	36.0	39.0	54.0	15.0	Mid	
16	7311.0	Horn XN	H/V	-56.8	25.5	36.0	39.7	54.0	14.3	High	
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low	
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid	
19	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	High	
20	12135.0	Horn X	H/V	-55.4	25.5	34.0	43.1	54.0	10.9	Low, noise	
21	12185.0	Horn X	H/V	-52.3	25.5	34.0	46.2	54.0	7.8	Mid, noise	
22	12185.0	Horn X	H/V	-52.4	25.5	34.0	46.1	54.0	7.9	High, noise	
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low	
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid	
25	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High	
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low	
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid	
28	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High	
29	19416.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Low, noise	
30	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Mid, noise	
31	19496.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	High, noise	
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low	
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid	
34	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	High	
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low	
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid	
37	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High	
38											
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW				
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna	
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2409P	
42											

Table 5.6 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2416P; 0130b
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2437.0									High channel
4										
5	2390.0	Horn S	H/V	-78.5	21.5	- 0.6	50.6	54.0	3.4	Low
6	2390.0	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Mid
7	2390.0	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	High
8	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Low
9	2483.5	Horn S	H/V	-81.5	21.5	- 0.6	47.6	54.0	6.4	Mid
10	2483.5	Horn S	H/V	-81.5	21.5	- 0.6	47.6	54.0	6.4	High
11	4854.0	Horn C	H/V	-47.4	25.5	37.0	48.1	54.0	5.9	Low
12	4874.0	Horn C	H/V	-51.2	25.5	37.0	44.3	54.0	9.7	Mid
13	4874.0	Horn C	H/V	-51.2	25.5	37.0	44.3	54.0	9.7	High
14	7281.0	Horn XN	H/V	-58.4	25.5	36.0	38.1	54.0	15.9	Low
15	7311.0	Horn XN	H/V	-53.3	25.5	36.0	43.2	54.0	10.8	Mid
16	7311.0	Horn XN	H/V	-49.6	25.5	36.0	46.9	54.0	7.1	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-54.8	25.5	34.0	43.7	54.0	10.3	Low, noise
21	12185.0	Horn X	H/V	-51.6	25.5	34.0	46.9	54.0	7.1	Mid, noise
22	12185.0	Horn X	H/V	-54.9	25.5	34.0	43.6	54.0	10.4	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Low, noise
30	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Mid, noise
31	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	High
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2416P
42										

Table 5.7 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2401U; 0130g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-79.1	21.5	- 0.6	50.0	54.0	4.0	Low
6	2390.0	Horn S	H/V	-79.6	21.5	- 0.6	49.5	54.0	4.5	Mid
7	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	High
8	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Low
9	2483.5	Horn S	H/V	-79.6	21.5	- 0.6	49.5	54.0	4.5	Mid
10	2483.5	Horn S	H/V	-79.1	21.5	- 0.6	50.0	54.0	4.0	High
11	4854.0	Horn C	H/V	-63.4	25.5	37.0	32.1	54.0	21.9	Low
12	4874.0	Horn C	H/V	-58.9	25.5	37.0	36.6	54.0	17.4	Mid
13	4894.0	Horn C	H/V	-51.5	25.5	37.0	44.0	54.0	10.0	High
14	7281.0	Horn XN	H/V	-61.1	25.5	36.0	35.4	54.0	18.6	Low
15	7311.0	Horn XN	H/V	-58.5	25.5	36.0	38.0	54.0	16.0	Mid
16	7341.0	Horn XN	H/V	-55.0	25.5	36.0	41.5	54.0	12.5	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-60.5	25.5	34.0	38.0	54.0	16.0	Low, noise
21	12185.0	Horn X	H/V	-57.9	25.5	34.0	40.6	54.0	13.4	Mid, noise
22	12235.0	Horn X	H/V	-59.5	25.5	34.0	39.0	54.0	15.0	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Low, noise
30	19496.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Mid, noise
31	19576.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-68.9	32.3	32.0	38.4	54.0	15.6	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2401U
42										

Table 5.8 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2415U; 0130g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-79.1	21.5	- 0.6	50.0	54.0	4.0	Low
6	2390.0	Horn S	H/V	-79.6	21.5	- 0.6	49.5	54.0	4.5	Mid
7	2390.0	Horn S	H/V	-79.8	21.5	- 0.6	49.3	54.0	4.7	High
8	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Low
9	2483.5	Horn S	H/V	-79.3	21.5	- 0.6	49.8	54.0	4.2	Mid
10	2483.5	Horn S	H/V	-79.3	21.5	- 0.6	49.8	54.0	4.2	High
11	4854.0	Horn C	H/V	-57.6	25.5	37.0	37.9	54.0	16.1	Low
12	4874.0	Horn C	H/V	-55.0	25.5	37.0	40.5	54.0	13.5	Mid
13	4894.0	Horn C	H/V	-54.5	25.5	37.0	41.0	54.0	13.0	High
14	7281.0	Horn XN	H/V	-55.7	25.5	36.0	40.8	54.0	13.2	Low
15	7311.0	Horn XN	H/V	-55.5	25.5	36.0	41.0	54.0	13.0	Mid
16	7341.0	Horn XN	H/V	-51.4	25.5	36.0	45.1	54.0	8.9	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-57.7	25.5	34.0	40.8	54.0	13.2	Low, noise
21	12185.0	Horn X	H/V	-58.6	25.5	34.0	39.9	54.0	14.1	Mid, noise
22	12235.0	Horn X	H/V	-54.6	25.5	34.0	43.9	54.0	10.1	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Low, noise
30	19496.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Mid, noise
31	19576.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.0	32.3	32.0	38.3	54.0	15.7	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2415U
42										

Table 5.9 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2409Y; 0130g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-78.7	21.5	- 0.6	50.4	54.0	3.6	Low
6	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	Mid
7	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	High
8	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Low
9	2483.5	Horn S	H/V	-79.3	21.5	- 0.6	49.8	54.0	4.2	Mid
10	2483.5	Horn S	H/V	-79.1	21.5	- 0.6	50.0	54.0	4.0	High
11	4854.0	Horn C	H/V	-56.6	25.5	37.0	38.9	54.0	15.1	Low
12	4874.0	Horn C	H/V	-53.5	25.5	37.0	42.0	54.0	12.0	Mid
13	4894.0	Horn C	H/V	-47.6	25.5	37.0	47.9	54.0	6.1	High
14	7281.0	Horn XN	H/V	-59.2	25.5	36.0	37.3	54.0	16.7	Low
15	7311.0	Horn XN	H/V	-61.1	25.5	36.0	35.4	54.0	18.6	Mid
16	7341.0	Horn XN	H/V	-58.6	25.5	36.0	37.9	54.0	16.1	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-56.9	25.5	34.0	41.6	54.0	12.4	Low, noise
21	12185.0	Horn X	H/V	-56.3	25.5	34.0	42.2	54.0	11.8	Mid, noise
22	12235.0	Horn X	H/V	-59.4	25.5	34.0	39.1	54.0	14.9	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Low, noise
30	19496.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Mid, noise
31	19576.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-68.9	32.3	32.0	38.4	54.0	15.6	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2409Y
42										

Table 5.10 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2415Y; 0130g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-77.3	21.5	- 0.6	51.8	54.0	2.2	Low
6	2390.0	Horn S	H/V	-79.5	21.5	- 0.6	49.6	54.0	4.4	Mid
7	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	High
8	2483.5	Horn S	H/V	-79.5	21.5	- 0.6	49.6	54.0	4.4	Low
9	2483.5	Horn S	H/V	-79.0	21.5	- 0.6	50.1	54.0	3.9	Mid
10	2483.5	Horn S	H/V	-78.1	21.5	- 0.6	51.0	54.0	3.0	High
11	4854.0	Horn C	H/V	-60.0	25.5	37.0	35.5	54.0	18.5	Low
12	4874.0	Horn C	H/V	-52.3	25.5	37.0	43.2	54.0	10.8	Mid
13	4894.0	Horn C	H/V	-50.0	25.5	37.0	45.5	54.0	8.5	High
14	7281.0	Horn XN	H/V	-63.7	25.5	36.0	32.8	54.0	21.2	Low
15	7311.0	Horn XN	H/V	-61.4	25.5	36.0	35.1	54.0	18.9	Mid
16	7341.0	Horn XN	H/V	-60.1	25.5	36.0	36.4	54.0	17.6	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-58.3	25.5	34.0	40.2	54.0	13.8	Low, noise
21	12185.0	Horn X	H/V	-59.9	25.5	34.0	38.6	54.0	15.4	Mid, noise
22	12235.0	Horn X	H/V	-59.2	25.5	34.0	39.3	54.0	14.7	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Low, noise
30	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Mid, noise
31	19576.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.0	32.3	32.0	38.3	54.0	15.7	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2415Y
42										

Table 5.11 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2409P; 0130g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2437.0									High channel
4										
5	2390.0	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Low
6	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	Mid
7	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	High
8	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Low
9	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Mid
10	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	High
11	4854.0	Horn C	H/V	-60.9	25.5	37.0	34.6	54.0	19.4	Low
12	4874.0	Horn C	H/V	-55.0	25.5	37.0	40.5	54.0	13.5	Mid
13	4874.0	Horn C	H/V	-55.0	25.5	37.0	40.5	54.0	13.5	High
14	7281.0	Horn XN	H/V	-63.6	25.5	36.0	32.9	54.0	21.1	Low
15	7311.0	Horn XN	H/V	-61.3	25.5	36.0	35.2	54.0	18.8	Mid
16	7311.0	Horn XN	H/V	-61.3	25.5	36.0	35.2	54.0	18.8	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-62.6	25.5	34.0	35.9	54.0	18.1	Low, noise
21	12185.0	Horn X	H/V	-63.0	25.5	34.0	35.5	54.0	18.5	Mid, noise
22	12185.0	Horn X	H/V	-63.8	25.5	34.0	34.7	54.0	19.3	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Low, noise
30	19496.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Mid, noise
31	19496.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	High
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2409P
42										

Table 5.12 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2416P; 0130g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2437.0									High channel
4										
5	2390.0	Horn S	H/V	-78.7	21.5	- 0.6	50.4	54.0	3.6	Low
6	2390.0	Horn S	H/V	-79.2	21.5	- 0.6	49.9	54.0	4.1	Mid
7	2390.0	Horn S	H/V	-79.2	21.5	- 0.6	49.9	54.0	4.1	High
8	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Low
9	2483.5	Horn S	H/V	-79.3	21.5	- 0.6	49.8	54.0	4.2	Mid
10	2483.5	Horn S	H/V	-79.3	21.5	- 0.6	49.8	54.0	4.2	High
11	4854.0	Horn C	H/V	-55.8	25.5	37.0	39.7	54.0	14.3	Low
12	4874.0	Horn C	H/V	-50.6	25.5	37.0	44.9	54.0	9.1	Mid
13	4874.0	Horn C	H/V	-50.6	25.5	37.0	44.9	54.0	9.1	High
14	7281.0	Horn XN	H/V	-59.2	25.5	36.0	37.3	54.0	16.7	Low
15	7311.0	Horn XN	H/V	-57.8	25.5	36.0	38.7	54.0	15.3	Mid
16	7311.0	Horn XN	H/V	-57.8	25.5	36.0	38.7	54.0	15.3	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-60.4	25.5	34.0	38.1	54.0	15.9	Low, noise
21	12185.0	Horn X	H/V	-62.6	25.5	34.0	35.9	54.0	18.1	Mid, noise
22	12185.0	Horn X	H/V	-60.3	25.5	34.0	38.2	54.0	15.8	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Low, noise
30	19496.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Mid, noise
31	19496.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	High
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 30 dBm		Yes		HG2416P
42										

Table 5.13 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2401U; 0114b
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-79.8	21.5	- 0.6	49.3	54.0	4.7	Low
6	2390.0	Horn S	H/V	-79.8	21.5	- 0.6	49.3	54.0	4.7	Mid
7	2390.0	Horn S	H/V	-79.8	21.5	- 0.6	49.3	54.0	4.7	High
8	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Low
9	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Mid
10	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	High
11	4854.0	Horn C	H/V	-42.2	25.5	37.0	53.3	54.0	0.7	Low
12	4874.0	Horn C	H/V	-43.2	25.5	37.0	52.3	54.0	1.7	Mid
13	4894.0	Horn C	H/V	-41.7	25.5	37.0	53.8	54.0	0.2	High
14	7281.0	Horn XN	H/V	-62.1	25.5	36.0	34.4	54.0	19.6	Low
15	7311.0	Horn XN	H/V	-63.8	25.5	36.0	32.7	54.0	21.3	Mid
16	7341.0	Horn XN	H/V	-62.1	25.5	36.0	34.4	54.0	19.6	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	Low, noise
21	12185.0	Horn X	H/V	-69.1	25.5	34.0	29.4	54.0	24.6	Mid, noise
22	12235.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Low, noise
30	19496.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Mid, noise
31	19576.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.0	32.3	32.0	38.3	54.0	15.7	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2401U
42										

Table 5.14 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2415U; 0114b
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Low
6	2390.0	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Mid
7	2390.0	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	High
8	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Low
9	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	Mid
10	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	High
11	4854.0	Horn C	H/V	-46.1	25.5	37.0	49.4	54.0	4.6	Low
12	4874.0	Horn C	H/V	-48.0	25.5	37.0	47.5	54.0	6.5	Mid
13	4894.0	Horn C	H/V	-44.4	25.5	37.0	51.1	54.0	2.9	High
14	7281.0	Horn XN	H/V	-51.8	25.5	36.0	44.7	54.0	9.3	Low
15	7311.0	Horn XN	H/V	-55.1	25.5	36.0	41.4	54.0	12.6	Mid
16	7341.0	Horn XN	H/V	-55.3	25.5	36.0	41.2	54.0	12.8	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	Low, noise
21	12185.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	Mid, noise
22	12235.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Low, noise
30	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Mid, noise
31	19576.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.0	32.3	32.0	38.3	54.0	15.7	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2415U
42										

Table 5.15 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2409Y; 0114b
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	Low
6	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	Mid
7	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	High
8	2483.5	Horn S	H/V	-81.8	21.5	- 0.6	47.3	54.0	6.7	Low
9	2483.5	Horn S	H/V	-81.8	21.5	- 0.6	47.3	54.0	6.7	Mid
10	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	High
11	4854.0	Horn C	H/V	-42.0	25.5	37.0	53.5	54.0	0.5	Low
12	4874.0	Horn C	H/V	-43.1	25.5	37.0	52.4	54.0	1.6	Mid
13	4894.0	Horn C	H/V	-44.0	25.5	37.0	51.5	54.0	2.5	High
14	7281.0	Horn XN	H/V	-61.6	25.5	36.0	34.9	54.0	19.1	Low
15	7311.0	Horn XN	H/V	-63.0	25.5	36.0	33.5	54.0	20.5	Mid
16	7341.0	Horn XN	H/V	-63.3	25.5	36.0	33.2	54.0	20.8	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	Low, noise
21	12185.0	Horn X	H/V	-69.1	25.5	34.0	29.4	54.0	24.6	Mid, noise
22	12235.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Low, noise
30	19496.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Mid, noise
31	19576.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.0	32.3	32.0	38.3	54.0	15.7	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2409Y
42										

Table 5.16 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2415Y; 0114b
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-81.8	21.5	- 0.6	47.3	54.0	6.7	Low
6	2390.0	Horn S	H/V	-81.8	21.5	- 0.6	47.3	54.0	6.7	Mid
7	2390.0	Horn S	H/V	-81.8	21.5	- 0.6	47.3	54.0	6.7	High
8	2483.5	Horn S	H/V	-81.8	21.5	- 0.6	47.3	54.0	6.7	Low
9	2483.5	Horn S	H/V	-81.8	21.5	- 0.6	47.3	54.0	6.7	Mid
10	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	High
11	4854.0	Horn C	H/V	-44.4	25.5	37.0	51.1	54.0	2.9	Low
12	4874.0	Horn C	H/V	-44.1	25.5	37.0	51.4	54.0	2.6	Mid
13	4894.0	Horn C	H/V	-42.7	25.5	37.0	52.8	54.0	1.2	High
14	7281.0	Horn XN	H/V	-62.1	25.5	36.0	34.4	54.0	19.6	Low
15	7311.0	Horn XN	H/V	-62.4	25.5	36.0	34.1	54.0	19.9	Mid
16	7341.0	Horn XN	H/V	-62.7	25.5	36.0	33.8	54.0	20.2	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	Low, noise
21	12185.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	Mid, noise
22	12235.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Low, noise
30	19496.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Mid, noise
31	19576.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.0	32.3	32.0	38.3	54.0	15.7	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2415Y
42										

Table 5.17 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2409P; 0114b	
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments	
1	2427.0									Low channel	
2	2437.0									Mid channel	
3	2437.0									High channel	
4											
5	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	Low	
6	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	Mid	
7	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	High	
8	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	Low	
9	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	Mid	
10	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	High	
11	4854.0	Horn C	H/V	-61.2	25.5	37.0	34.3	54.0	19.7	Low	
12	4874.0	Horn C	H/V	-58.8	25.5	37.0	36.7	54.0	17.3	Mid	
13	4874.0	Horn C	H/V	-58.8	25.5	37.0	36.7	54.0	17.3	High	
14	7281.0	Horn XN	H/V	-54.8	25.5	36.0	41.7	54.0	12.3	Low	
15	7311.0	Horn XN	H/V	-58.1	25.5	36.0	38.4	54.0	15.6	Mid	
16	7311.0	Horn XN	H/V	-58.1	25.5	36.0	38.4	54.0	15.6	High	
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low	
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid	
19	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	High	
20	12135.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	Low, noise	
21	12185.0	Horn X	H/V	-69.1	25.5	34.0	29.4	54.0	24.6	Mid, noise	
22	12185.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	High, noise	
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low	
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid	
25	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High	
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low	
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid	
28	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High	
29	19416.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Low, noise	
30	19496.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Mid, noise	
31	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise	
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low	
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid	
34	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	High	
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low	
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid	
37	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High	
38											
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW				
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna	
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2409P	
42											

Table 5.18 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										HG2416P; 0114b
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2437.0									High channel
4										
5	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	Low
6	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	Mid
7	2390.0	Horn S	H/V	-81.9	21.5	- 0.6	47.2	54.0	6.8	High
8	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	Low
9	2483.5	Horn S	H/V	-81.7	21.5	- 0.6	47.4	54.0	6.6	Mid
10	2483.5	Horn S	H/V	-81.6	21.5	- 0.6	47.5	54.0	6.5	High
11	4854.0	Horn C	H/V	-47.3	25.5	37.0	48.2	54.0	5.8	Low
12	4874.0	Horn C	H/V	-44.3	25.5	37.0	51.2	54.0	2.8	Mid
13	4874.0	Horn C	H/V	-42.6	25.5	37.0	52.9	54.0	1.1	High
14	7281.0	Horn XN	H/V	-65.3	25.5	36.0	31.2	54.0	22.8	Low
15	7311.0	Horn XN	H/V	-60.9	25.5	36.0	35.6	54.0	18.4	Mid
16	7311.0	Horn XN	H/V	-61.7	25.5	36.0	34.8	54.0	19.2	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	Low, noise
21	12185.0	Horn X	H/V	-69.1	25.5	34.0	29.4	54.0	24.6	Mid, noise
22	12185.0	Horn X	H/V	-69.1	25.5	34.0	29.4	54.0	24.6	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Low, noise
30	19496.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Mid, noise
31	19496.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	High
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2416P
42										

Table 5.19 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2401U; 0114g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-79.1	21.5	- 0.6	50.0	54.0	4.0	Low
6	2390.0	Horn S	H/V	-79.6	21.5	- 0.6	49.5	54.0	4.5	Mid
7	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	High
8	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Low
9	2483.5	Horn S	H/V	-79.6	21.5	- 0.6	49.5	54.0	4.5	Mid
10	2483.5	Horn S	H/V	-79.1	21.5	- 0.6	50.0	54.0	4.0	High
11	4854.0	Horn C	H/V	-56.1	25.5	37.0	39.4	54.0	14.6	Low
12	4874.0	Horn C	H/V	-50.7	25.5	37.0	44.8	54.0	9.2	Mid
13	4894.0	Horn C	H/V	-50.2	25.5	37.0	45.3	54.0	8.7	High
14	7281.0	Horn XN	H/V	-56.4	25.5	36.0	40.1	54.0	13.9	Low
15	7311.0	Horn XN	H/V	-59.6	25.5	36.0	36.9	54.0	17.1	Mid
16	7341.0	Horn XN	H/V	-61.3	25.5	36.0	35.2	54.0	18.8	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Low, noise
21	12185.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Mid, noise
22	12235.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Low, noise
30	19496.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Mid, noise
31	19576.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.2	32.3	32.0	38.1	54.0	15.9	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2401U
42										

Table 5.20 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2415U; 0114g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-79.1	21.5	- 0.6	50.0	54.0	4.0	Low
6	2390.0	Horn S	H/V	-79.6	21.5	- 0.6	49.5	54.0	4.5	Mid
7	2390.0	Horn S	H/V	-79.8	21.5	- 0.6	49.3	54.0	4.7	High
8	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Low
9	2483.5	Horn S	H/V	-79.3	21.5	- 0.6	49.8	54.0	4.2	Mid
10	2483.5	Horn S	H/V	-79.3	21.5	- 0.6	49.8	54.0	4.2	High
11	4854.0	Horn C	H/V	-54.5	25.5	37.0	41.0	54.0	13.0	Low
12	4874.0	Horn C	H/V	-51.1	25.5	37.0	44.4	54.0	9.6	Mid
13	4894.0	Horn C	H/V	-50.1	25.5	37.0	45.4	54.0	8.6	High
14	7281.0	Horn XN	H/V	-57.0	25.5	36.0	39.5	54.0	14.5	Low
15	7311.0	Horn XN	H/V	-60.2	25.5	36.0	36.3	54.0	17.7	Mid
16	7341.0	Horn XN	H/V	-58.6	25.5	36.0	37.9	54.0	16.1	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-69.1	25.5	34.0	29.4	54.0	24.6	Low, noise
21	12185.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Mid, noise
22	12235.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Low, noise
30	19496.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Mid, noise
31	19576.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.2	32.3	32.0	38.1	54.0	15.9	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2415U
42										

Table 5.21 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2409Y; 0114g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-78.7	21.5	- 0.6	50.4	54.0	3.6	Low
6	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	Mid
7	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	High
8	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Low
9	2483.5	Horn S	H/V	-79.3	21.5	- 0.6	49.8	54.0	4.2	Mid
10	2483.5	Horn S	H/V	-79.1	21.5	- 0.6	50.0	54.0	4.0	High
11	4854.0	Horn C	H/V	-54.6	25.5	37.0	40.9	54.0	13.1	Low
12	4874.0	Horn C	H/V	-53.0	25.5	37.0	42.5	54.0	11.5	Mid
13	4894.0	Horn C	H/V	-51.0	25.5	37.0	44.5	54.0	9.5	High
14	7281.0	Horn XN	H/V	-65.6	25.5	36.0	30.9	54.0	23.1	Low
15	7311.0	Horn XN	H/V	-66.3	25.5	36.0	30.2	54.0	23.8	Mid
16	7341.0	Horn XN	H/V	-63.6	25.5	36.0	32.9	54.0	21.1	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Low, noise
21	12185.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Mid, noise
22	12235.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Low, noise
30	19496.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Mid, noise
31	19576.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.2	32.3	32.0	38.1	54.0	15.9	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2409Y
42										

Table 5.22 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2415Y; 0114g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2447.0									High channel
4										
5	2390.0	Horn S	H/V	-77.3	21.5	- 0.6	51.8	54.0	2.2	Low
6	2390.0	Horn S	H/V	-79.5	21.5	- 0.6	49.6	54.0	4.4	Mid
7	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	High
8	2483.5	Horn S	H/V	-79.5	21.5	- 0.6	49.6	54.0	4.4	Low
9	2483.5	Horn S	H/V	-79.0	21.5	- 0.6	50.1	54.0	3.9	Mid
10	2483.5	Horn S	H/V	-78.1	21.5	- 0.6	51.0	54.0	3.0	High
11	4854.0	Horn C	H/V	-55.7	25.5	37.0	39.8	54.0	14.2	Low
12	4874.0	Horn C	H/V	-58.1	25.5	37.0	37.4	54.0	16.6	Mid
13	4894.0	Horn C	H/V	-58.1	25.5	37.0	37.4	54.0	16.6	High
14	7281.0	Horn XN	H/V	-62.7	25.5	36.0	33.8	54.0	20.2	Low
15	7311.0	Horn XN	H/V	-63.8	25.5	36.0	32.7	54.0	21.3	Mid
16	7341.0	Horn XN	H/V	-68.4	25.5	36.0	28.1	54.0	25.9	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9788.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Low, noise
21	12185.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	Mid, noise
22	12235.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14682.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17129.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Low, noise
30	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Mid, noise
31	19576.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22023.0	Horn K	H/V	-69.2	32.3	32.0	38.1	54.0	15.9	High, noise
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24470.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2415Y
42										

Table 5.23 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2409P; 0114g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2437.0									High channel
4										
5	2390.0	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Low
6	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	Mid
7	2390.0	Horn S	H/V	-79.9	21.5	- 0.6	49.2	54.0	4.8	High
8	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Low
9	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	Mid
10	2483.5	Horn S	H/V	-79.7	21.5	- 0.6	49.4	54.0	4.6	High
11	4854.0	Horn C	H/V	-60.4	25.5	37.0	35.1	54.0	18.9	Low
12	4874.0	Horn C	H/V	-56.8	25.5	37.0	38.7	54.0	15.3	Mid
13	4874.0	Horn C	H/V	-56.8	25.5	37.0	38.7	54.0	15.3	High
14	7281.0	Horn XN	H/V	-63.9	25.5	36.0	32.6	54.0	21.4	Low
15	7311.0	Horn XN	H/V	-67.3	25.5	36.0	29.2	54.0	24.8	Mid
16	7311.0	Horn XN	H/V	-67.3	25.5	36.0	29.2	54.0	24.8	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Low, noise
21	12185.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Mid, noise
22	12185.0	Horn X	H/V	-68.9	25.5	34.0	29.6	54.0	24.4	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.2	32.3	32.0	35.1	54.0	18.9	Low, noise
30	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Mid, noise
31	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	High
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2409P
42										

Table 5.24 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										HG2416P; 0114g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2427.0									Low channel
2	2437.0									Mid channel
3	2437.0									High channel
4										
5	2390.0	Horn S	H/V	-78.1	21.5	- 0.6	51.0	54.0	3.0	Low
6	2390.0	Horn S	H/V	-78.1	21.5	- 0.6	51.0	54.0	3.0	Mid
7	2390.0	Horn S	H/V	-78.1	21.5	- 0.6	51.0	54.0	3.0	High
8	2483.5	Horn S	H/V	-77.5	21.5	- 0.6	51.6	54.0	2.4	Low
9	2483.5	Horn S	H/V	-77.5	21.5	- 0.6	51.6	54.0	2.4	Mid
10	2483.5	Horn S	H/V	-77.5	21.5	- 0.6	51.6	54.0	2.4	High
11	4854.0	Horn C	H/V	-61.9	25.5	37.0	33.6	54.0	20.4	Low
12	4874.0	Horn C	H/V	-58.1	25.5	37.0	37.4	54.0	16.6	Mid
13	4874.0	Horn C	H/V	-58.1	25.5	37.0	37.4	54.0	16.6	High
14	7281.0	Horn XN	H/V	-67.9	25.5	36.0	28.6	54.0	25.4	Low
15	7311.0	Horn XN	H/V	-63.1	25.5	36.0	33.4	54.0	20.6	Mid
16	7311.0	Horn XN	H/V	-63.1	25.5	36.0	33.4	54.0	20.6	High
17	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9748.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12135.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Low, noise
21	12185.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Mid, noise
22	12185.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	High, noise
23	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Low
24	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14622.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17059.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19416.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Low, noise
30	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Mid, noise
31	19496.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	High, noise
32	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	21933.0	Horn K	H/V		32.3	32.0	-	N/A	-	High
35	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24370.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	ACSM-26		No	6 dB		2401, 14 dBm		Yes		HG2416P
42										

Table 5.25 Highest Emissions Measured - IEEE 802.11b

Radiated Emissions										RE2405U; Card,11b
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2412.0									Low channel
2	2427.0									Mid channel
3	2462.0									High channel
4										
5	2390.0	Horn S	H/V	-79.0	21.5	- 0.6	50.1	54.0	3.9	Low
6	2390.0	Horn S	H/V	-78.1	21.5	- 0.6	51.0	54.0	3.0	Mid
7	2390.0	Horn S	H/V	-78.6	21.5	- 0.6	50.5	54.0	3.5	High
8	2483.5	Horn S	H/V	-79.4	21.5	- 0.6	49.7	54.0	4.3	Low
9	2483.5	Horn S	H/V	-78.9	21.5	- 0.6	50.2	54.0	3.8	Mid
10	2483.5	Horn S	H/V	-79.3	21.5	- 0.6	49.8	54.0	4.2	High
11	4824.0	Horn C	H/V	-69.5	25.5	37.0	26.0	54.0	28.0	Low
12	4854.0	Horn C	H/V	-62.0	25.5	37.0	33.5	54.0	20.5	Mid
13	4924.0	Horn C	H/V	-64.1	25.5	37.0	31.4	54.0	22.6	High
14	7236.0	Horn XN	H/V		25.5	36.0	-	N/A	-	Low
15	7281.0	Horn XN	H/V	-67.1	25.5	36.0	29.4	54.0	24.6	Mid
16	7386.0	Horn XN	H/V	-67.0	25.5	36.0	29.5	54.0	24.5	High
17	9648.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9848.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12060.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Low, noise
21	12135.0	Horn X	H/V	-69.1	25.5	34.0	29.4	54.0	24.6	Mid, noise
22	12310.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	High, noise
23	14472.0	Horn Ku	H/V	-72.1	25.5	17.3	43.1	54.0	10.9	Low
24	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14772.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16884.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17234.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19296.0	Horn K	H/V	-72.1	32.3	32.0	35.2	54.0	18.8	Low, noise
30	19416.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	Mid, noise
31	19696.0	Horn K	H/V	-72.0	32.3	32.0	35.3	54.0	18.7	High, noise
32	21708.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22158.0	Horn K	H/V	-69.0	32.3	32.0	38.3	54.0	15.7	High, noise
35	24120.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24620.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	none		No	0 dB		None		none		RE2405U
42										

Table 5.26 Highest Emissions Measured - IEEE 802.11g

Radiated Emissions										RE2405U; Card,11g
#	Freq. MHz	Ant. Used	Ant. Pol.	Pr. (avg) dBm	Ka dB/m	Kg dB	E3 dBμV/m	E3lim dBμV/m	Pass dB	Comments
1	2412.0									Low channel
2	2427.0									Mid channel
3	2462.0									High channel
4										
5	2390.0	Horn S	H/V	-75.6	21.5	- 0.6	53.5	54.0	0.5	Low
6	2390.0	Horn S	H/V	-79.5	21.5	- 0.6	49.6	54.0	4.4	Mid
7	2390.0	Horn S	H/V	-77.3	21.5	- 0.6	51.8	54.0	2.2	High
8	2483.5	Horn S	H/V	-79.2	21.5	- 0.6	49.9	54.0	4.1	Low
9	2483.5	Horn S	H/V	-79.2	21.5	- 0.6	49.9	54.0	4.1	Mid
10	2483.5	Horn S	H/V	-76.3	21.5	- 0.6	52.8	54.0	1.2	High
11	4824.0	Horn C	H/V	-74.1	25.5	37.0	21.4	54.0	32.6	Low
12	4854.0	Horn C	H/V	-71.3	25.5	37.0	24.2	54.0	29.8	Mid
13	4924.0	Horn C	H/V	-73.5	25.5	37.0	22.0	54.0	32.0	High
14	7236.0	Horn XN	H/V		25.5	36.0	-	N/A	-	Low
15	7281.0	Horn XN	H/V	-67.0	25.5	36.0	29.5	54.0	24.5	Mid, noise
16	7386.0	Horn XN	H/V	-67.0	25.5	36.0	29.5	54.0	24.5	High, noise
17	9648.0	Horn X	H/V		25.5	34.0	-	N/A	-	Low
18	9708.0	Horn X	H/V		25.5	34.0	-	N/A	-	Mid
19	9848.0	Horn X	H/V		25.5	34.0	-	N/A	-	High
20	12060.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Low, noise
21	12135.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	Mid, noise
22	12310.0	Horn X	H/V	-69.0	25.5	34.0	29.5	54.0	24.5	High, noise
23	14472.0	Horn Ku	H/V	-72.0	25.5	17.3	43.2	54.0	10.8	Low, noise
24	14562.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	Mid
25	14772.0	Horn Ku	H/V		25.5	17.3	-	N/A	-	High
26	16884.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Low
27	16989.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	Mid
28	17234.0	Horn Ku	H/V		32.3	34.0	-	N/A	-	High
29	19296.0	Horn K	H/V	-71.8	32.3	32.0	35.5	54.0	18.5	Low, noise
30	19416.0	Horn K	H/V	-71.8	32.3	32.0	35.5	54.0	18.5	Mid, noise
31	19696.0	Horn K	H/V	-71.8	32.3	32.0	35.5	54.0	18.5	High, noise
32	21708.0	Horn K	H/V		32.3	32.0	-	N/A	-	Low
33	21843.0	Horn K	H/V		32.3	32.0	-	N/A	-	Mid
34	22158.0	Horn K	H/V	-69.0	32.3	32.0	38.3	54.0	15.7	High, noise
35	24120.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Low
36	24270.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	Mid
37	24620.0	Horn Ka	H/V		32.3	32.0	-	N/A	-	High
38										
39	Configuration:						* Ave: measured with 1 MHz RBW and 100 Hz VBW			
40	Power Supply Used		DC Inj.	Input Attenuation		Amp / Pwr		Output Filter		Antenna
41	none		No	0 dB		None		none		RE2405U
42										

Table 6.3 Highest Conducted Emissions Measured

Hyperlink ACSM-26; FCC/CISPR B												
#	Freq. MHz	Line Side	Peak Det., dB μ V		Pass dB*	QP Det., dB μ V		Pass dB	Ave. Det., dB μ V		Pass dB	Comments
			Vtest	Vlim*		Vtest	Vlim		Vtest	Vlim		
1	0.15	Lo	65.3	55.8	- 9.5	63.6	65.8	2.2	41.5	55.8	14.3	
2	0.26	Lo	61.9	51.4	-10.5	58.1	61.4	3.3	40.9	51.4	10.5	
3	0.42	Lo	54.7	47.4	- 7.3	46.4	57.5	11.1	32.9	47.4	14.5	
4	0.76	Lo	55.3	46.0	- 9.3	44	56.0	12.0	30.6	46.0	15.4	
5	1.01	Lo	53.2	46.0	- 7.2	46.3	56.0	9.7	31.2	46.0	14.8	
6	1.38	Lo	51.4	46.0	- 5.4	43.8	56.0	12.2	28.6	46.0	17.4	
7	1.41	Lo	53.0	46.0	- 7.0	44.4	56.0	11.6	28.4	46.0	17.6	
8	2.13	Lo	54.5	46.0	- 8.5	46.6	56.0	9.4	31.4	46.0	14.6	
9	2.17	Lo	52.4	46.0	- 6.4	42.6	56.0	13.4	28.8	46.0	17.2	
10	2.64	Lo	55.1	46.0	- 9.1	47.5	56.0	8.5	30.3	46.0	15.7	
11	2.81	Lo	50.6	46.0	- 4.6	41.4	56.0	14.6	28.2	46.0	17.8	
12	2.97	Lo	54.1	46.0	- 8.1	43.8	56.0	12.2	30.8	46.0	15.2	
13	3.09	Lo	53.8	46.0	- 7.8	45.5	56.0	10.5	32.1	46.0	13.9	
14	3.42	Lo	57.1	46.0	-11.1	48.7	56.0	7.3	37.5	46.0	8.5	
15	3.56	Lo	58.9	46.0	-12.9	50.4	56.0	5.6	37.2	46.0	8.8	
16	4.45	Lo	47.8	46.0	- 1.8	38.5	56.0	17.5	25.3	46.0	20.7	
17	4.54	Lo	45.5	46.0	0.5	38.2	56.0	17.8	25.3	46.0	20.7	
18	4.85	Lo	46.1	46.0	- 0.1	22.3	56.0	33.7	7.6	46.0	38.4	
19	4.86	Lo	48.2	46.0	- 2.2	40.0	56.0	16.0	27.2	46.0	18.8	
20	19.50	Lo	48.0	50.0	2.0		60.0			50.0		
21												
22	0.21	Hi	63.5	53.3	-10.2	53.8	63.4	9.6	44.1	53.3	9.2	
23	0.32	Hi	55.5	49.6	- 5.9	45.3	59.7	14.4	32.8	49.6	16.8	
24	0.38	Hi	53.2	48.1	- 5.1	48.9	58.2	9.3	35.7	48.1	12.4	
25	0.81	Hi	49.7	46.0	- 3.7	41.5	56.0	14.5	29.2	46.0	16.8	
26	0.93	Hi	51.4	46.0	- 5.4	42.9	56.0	13.1	26.6	46.0	19.4	
27	0.99	Hi	38.0	46.0	8.0	33.2	56.0	22.8	31.2	46.0	14.8	
28	1.42	Hi	49.5	46.0	- 3.5	42.9	56.0	13.1	30.2	46.0	15.8	
29	1.72	Hi	50.4	46.0	- 4.4	43.2	56.0	12.8	30.4	46.0	15.6	
30	1.79	Hi	54.1	46.0	- 8.1	41.0	56.0	15.0	26.4	46.0	19.6	
31	1.88	Hi	53.1	46.0	- 7.1	41.3	56.0	14.7	31.2	46.0	14.8	
32	2.10	Hi	54.9	46.0	- 8.9	45.9	56.0	10.1	28.9	46.0	17.1	
33	2.23	Hi	52.9	46.0	- 6.9	45.4	56.0	10.6	31.3	46.0	14.7	
34	2.29	Hi	52.5	46.0	- 6.5	42.8	56.0	13.2	26.5	46.0	19.5	
35	2.79	Hi	51.6	46.0	- 5.6	44.0	56.0	12.0	31.1	46.0	14.9	
36	3.16	Hi	58.7	46.0	-12.7	47.5	56.0	8.5	34.9	46.0	11.1	
37	3.36	Hi	60.2	46.0	-14.2	48.0	56.0	8.0	35.9	46.0	10.1	
38	3.67	Hi	61.2	46.0	-15.2	48.4	56.0	7.6	36.2	46.0	9.8	
39	4.56	Hi	46.7	46.0	- 0.7	39.7	56.0	16.3	28.2	46.0	17.8	
40	5.57	Hi	55.6	50.0	- 5.6	45.3	60.0	14.7	31.7	50.0	18.3	
41	19.50	Hi	49.0	50.0	1.0		60.0			50.0		
42												
40												

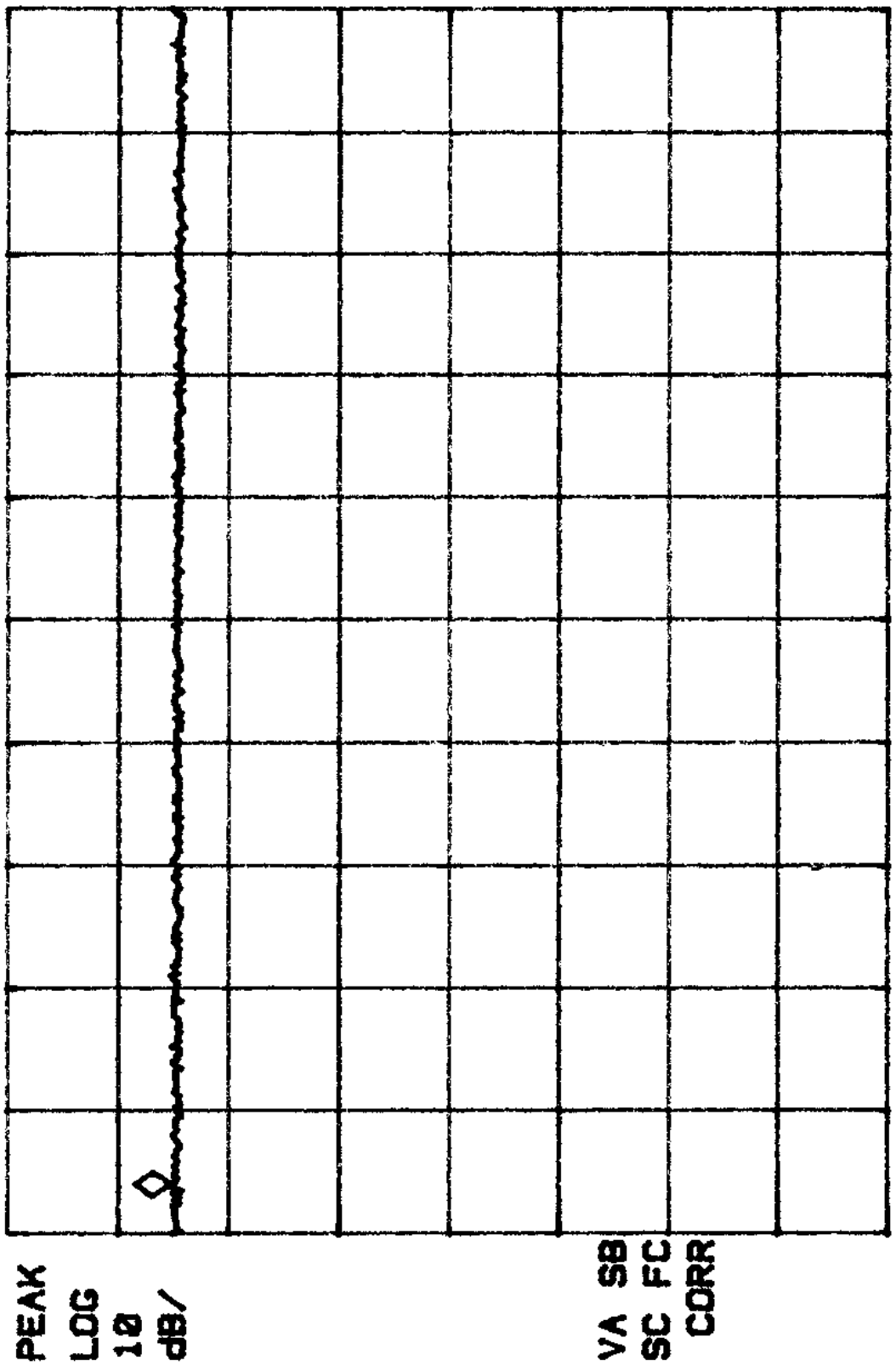
*Average limit

Meas. 12/12/2003; U of Mich.

Since $V_{peak} \geq V_{qp} \geq V_{ave}$ and if $V_{testpeak} < V_{velim}$, then V_{qplim} and V_{avelim} are met.

09:53:50 DEC 07, 2003

16:12:59 DEC 04, 2003 16:14:41 DEC 04 MKR 2000 000 μ sec
REF 40.0 dBm ATTEN 30 dB PG -28.0 dB 25.10 dBm



PEAK
LOG
10
dB/

VA SB
SC FC
CORR

CENTER 2.43700 GHz SPAN 0 Hz
#RES BW 3.0 MHz #VBW 3 MHz SWP 20 mhz

Figure 6.1 Demonstration of CW Operation 802.11b/g AMP: 30 dBm

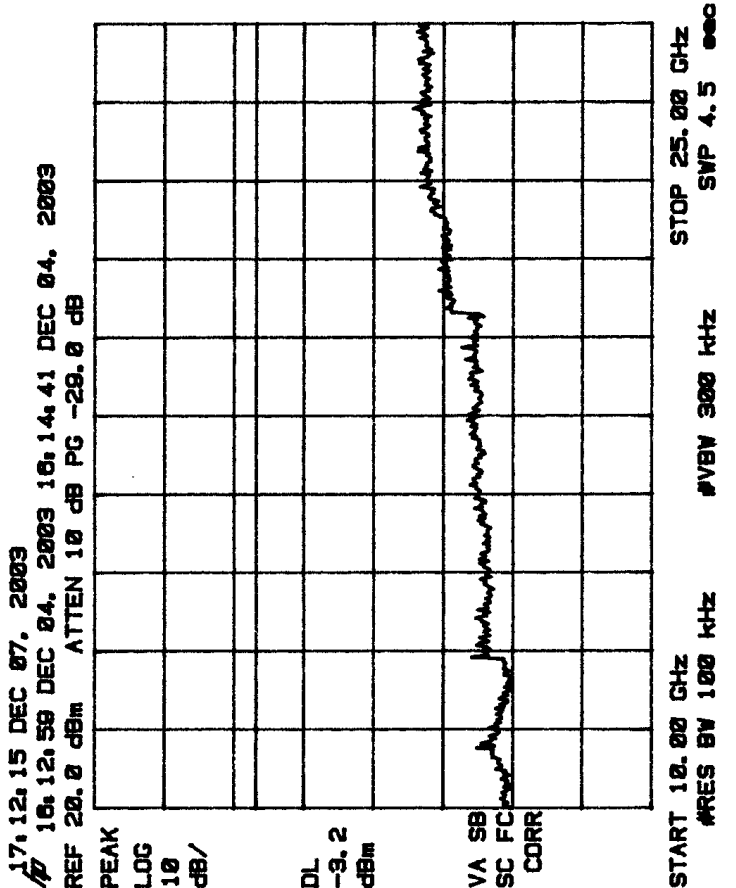
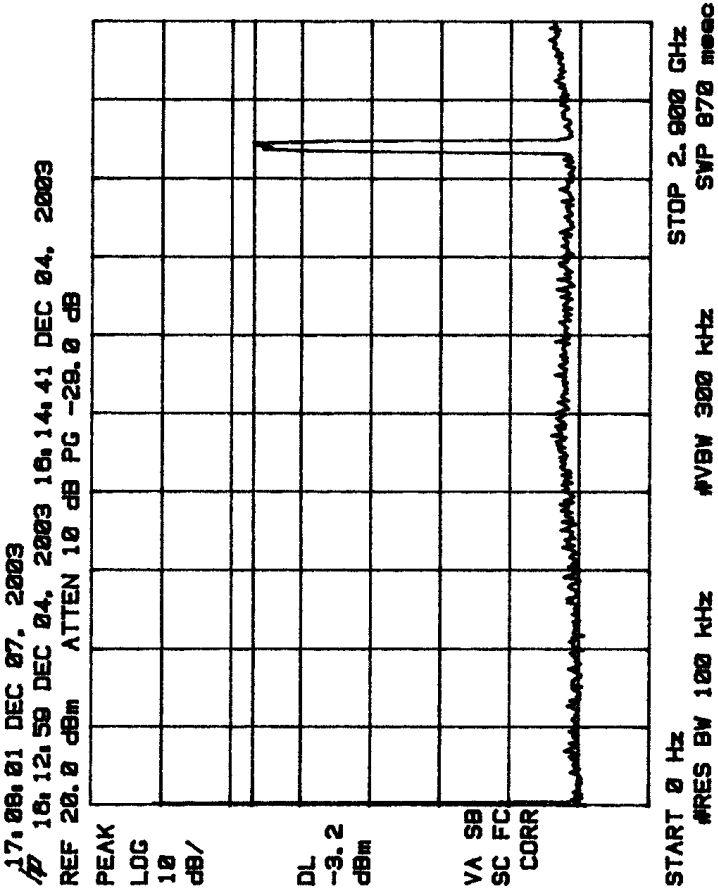
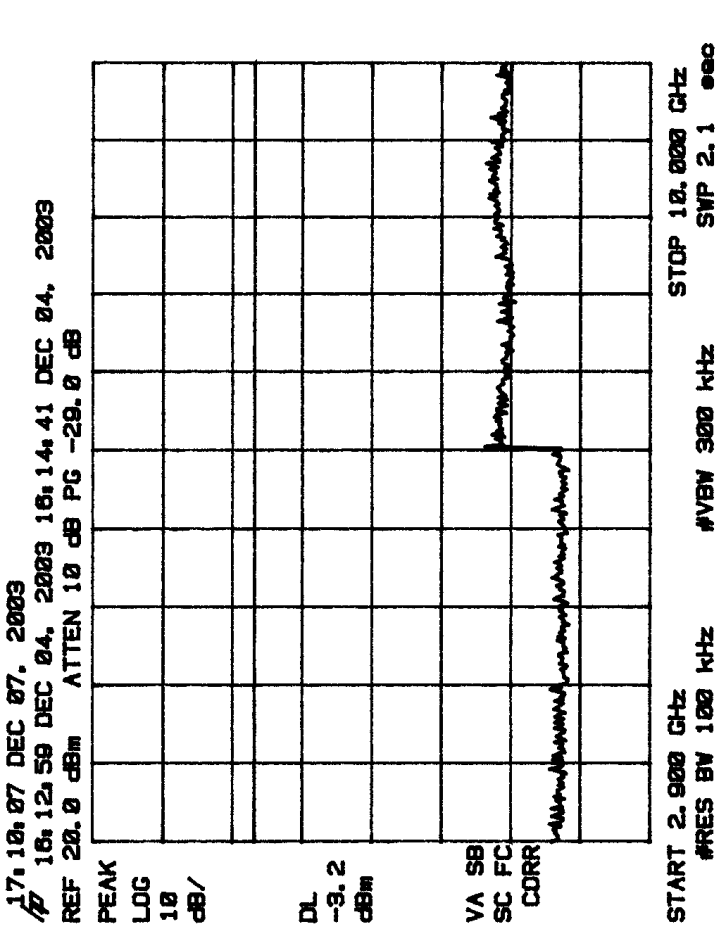
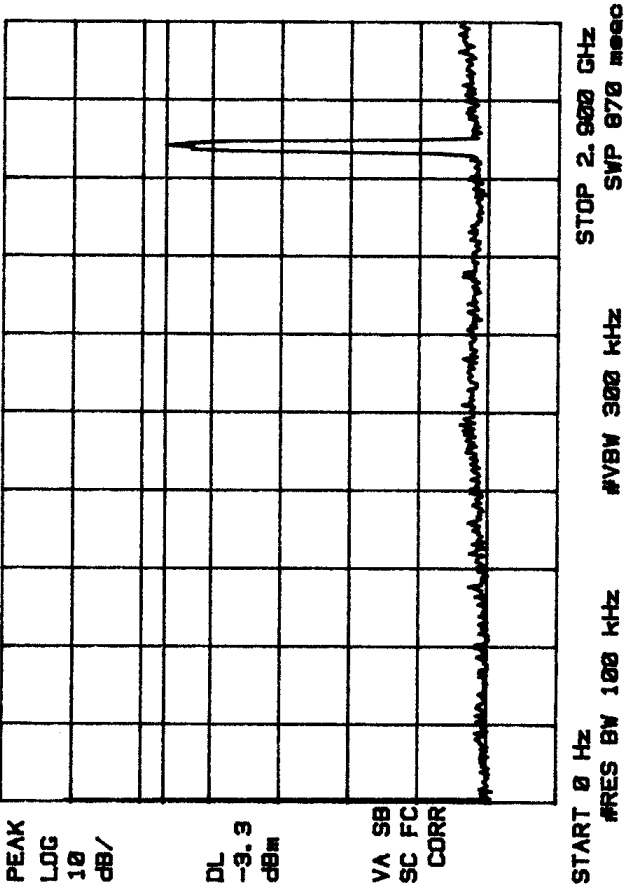


Figure 6.2 Spurious Emissions 802.11b AMP: 2401, PWR: 14 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2427,2437, 47

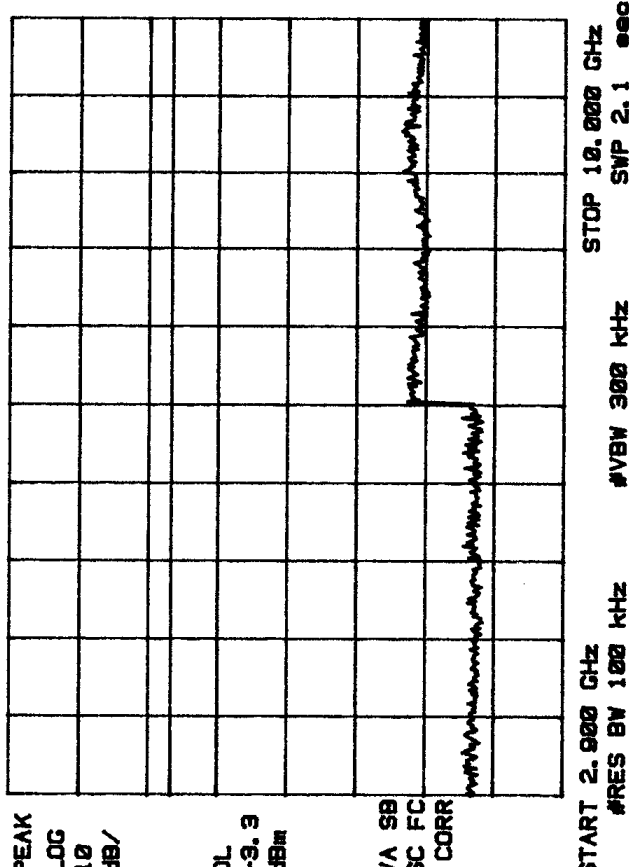
17:15:09 DEC 07, 2003

16:12:59 DEC 04, 2003 16:14:41 DEC 04, 2003
REF 20.0 dBm ATTN 10 dB PG -29.0 dB



17:17:10 DEC 07, 2003

16:12:59 DEC 04, 2003 16:14:41 DEC 04, 2003
REF 20.0 dBm ATTN 10 dB PG -29.0 dB



17:19:13 DEC 07, 2003

16:12:59 DEC 04, 2003 16:14:41 DEC 04, 2003
REF 20.0 dBm ATTN 10 dB PG -29.0 dB

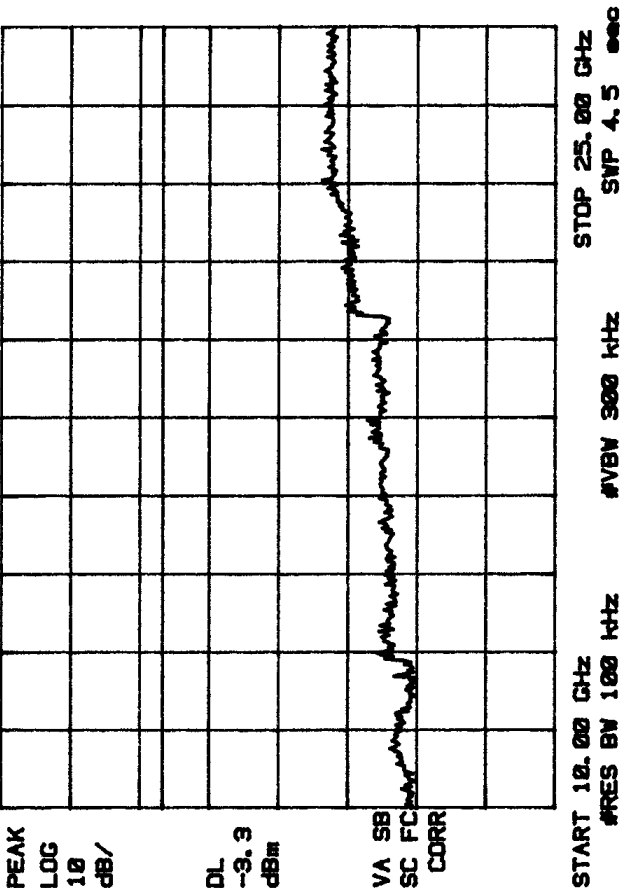


Figure 6.3 Spurious Emissions 802.11g AMP: 2401, PWR: 14 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2427,2437,2447

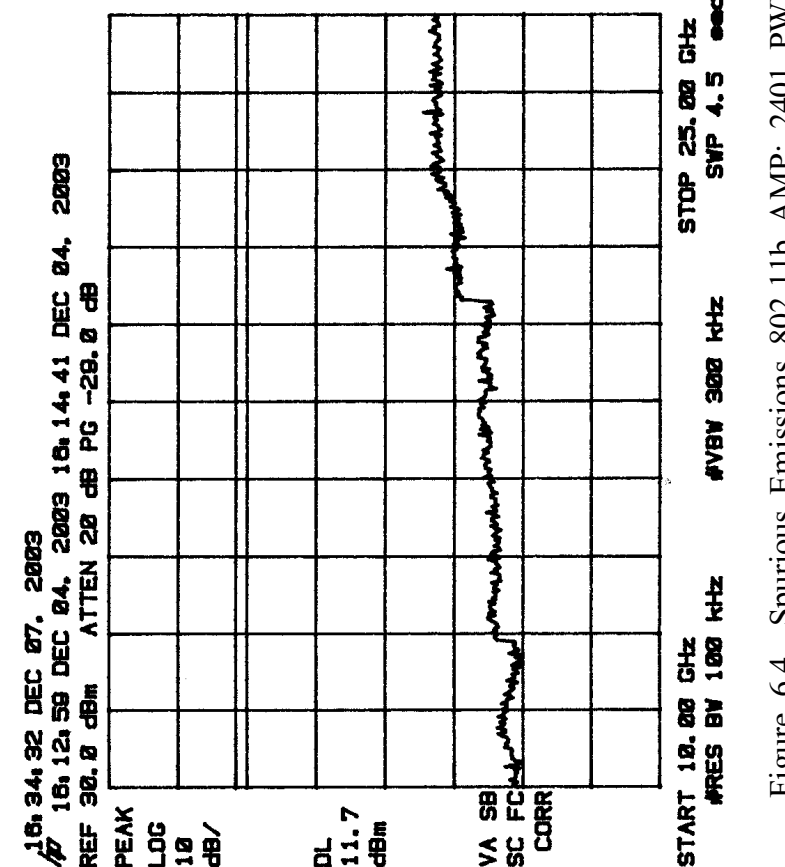
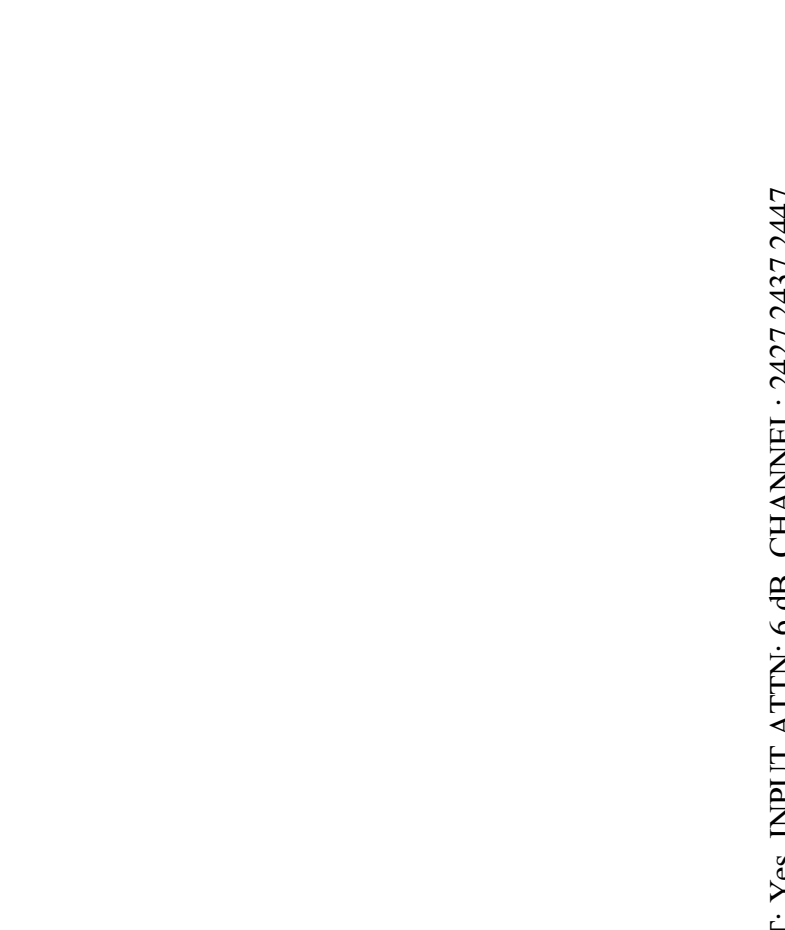
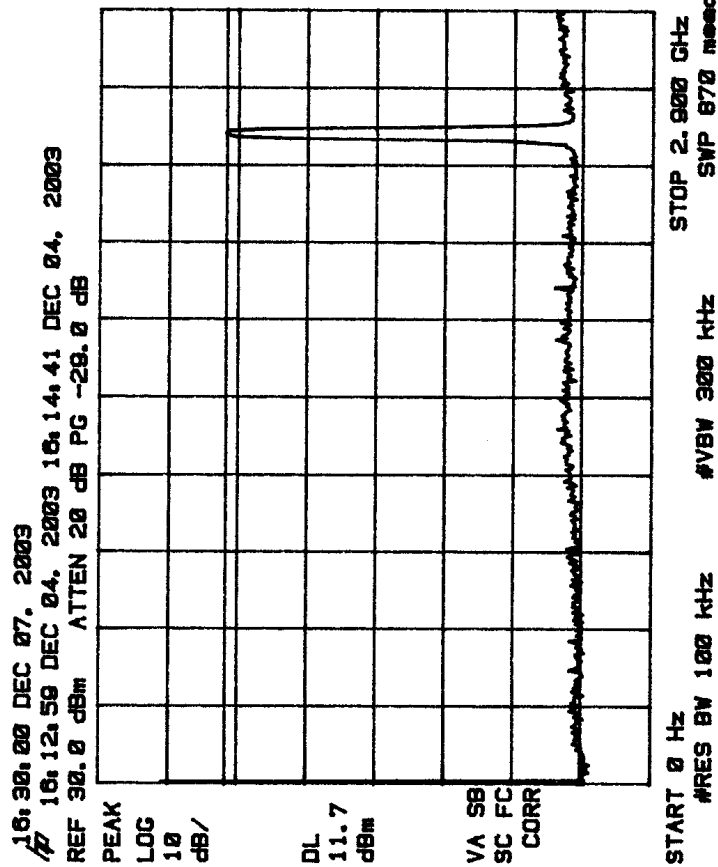
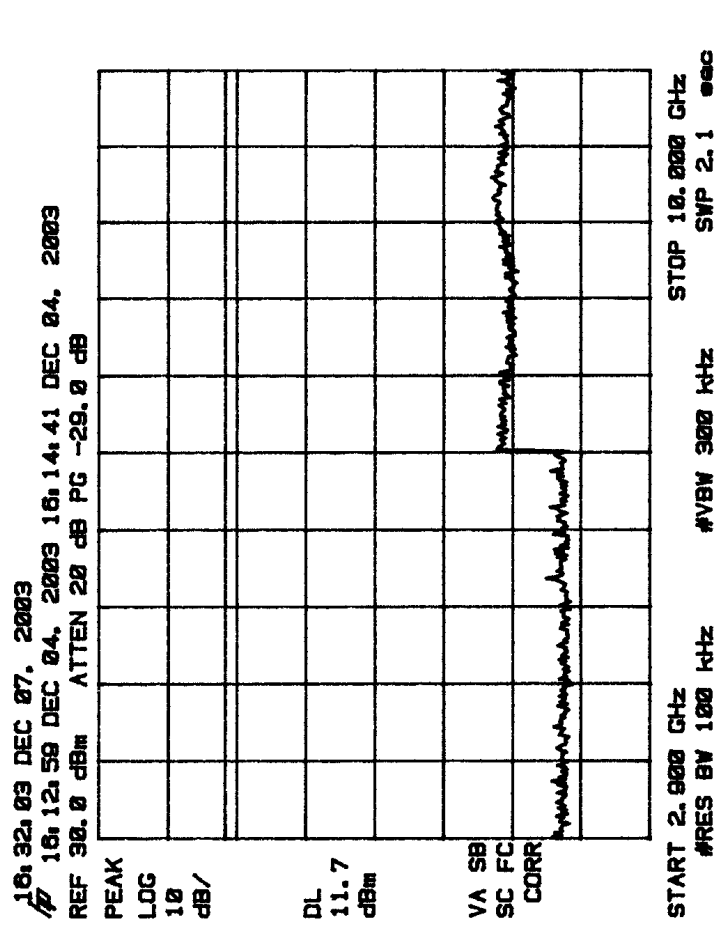
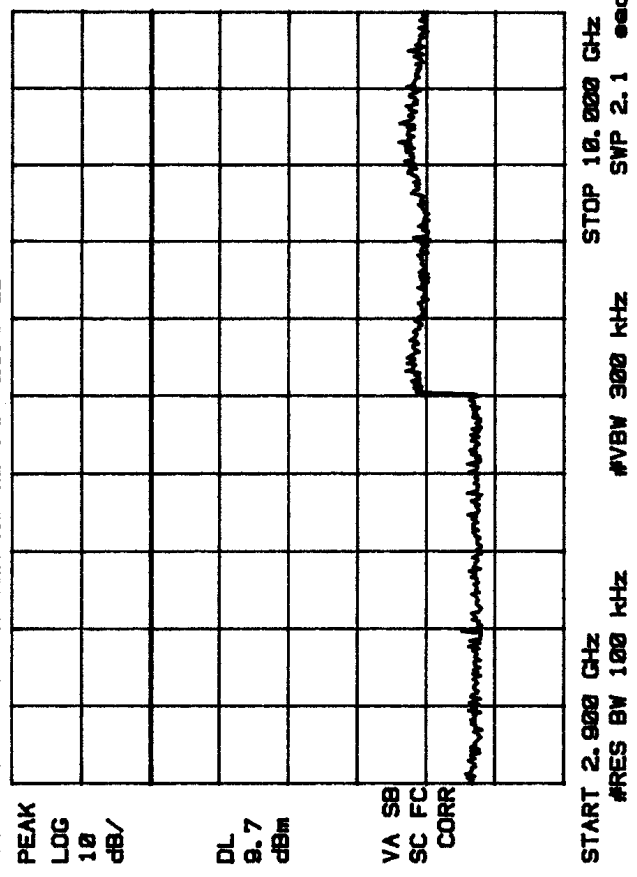
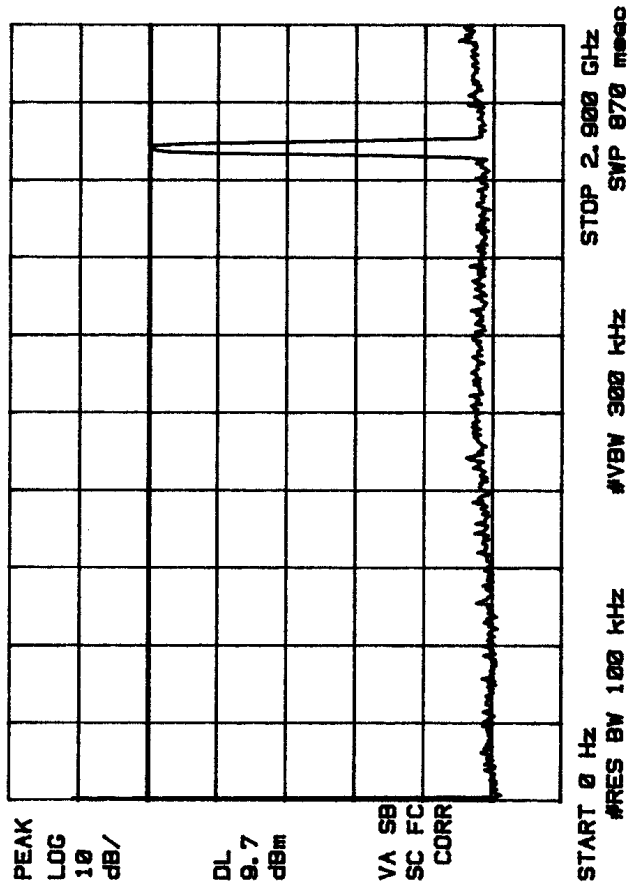


Figure 6.4 Spurious Emissions 802.11b AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2427,2437,2447

16:40:54 DEC 07, 2003
 16:12:59 DEC 04, 2003 16:14:41 DEC 04, 2003
 REF 30.0 dBm ATTN 20 dB PG -29.0 dB



16:37:59 DEC 07, 2003
 16:12:59 DEC 04, 2003 16:14:41 DEC 04, 2003
 REF 30.0 dBm ATTN 20 dB PG -29.0 dB



16:43:20 DEC 07, 2003
 16:12:59 DEC 04, 2003 16:14:41 DEC 04, 2003
 REF 30.0 dBm ATTN 20 dB PG -29.0 dB

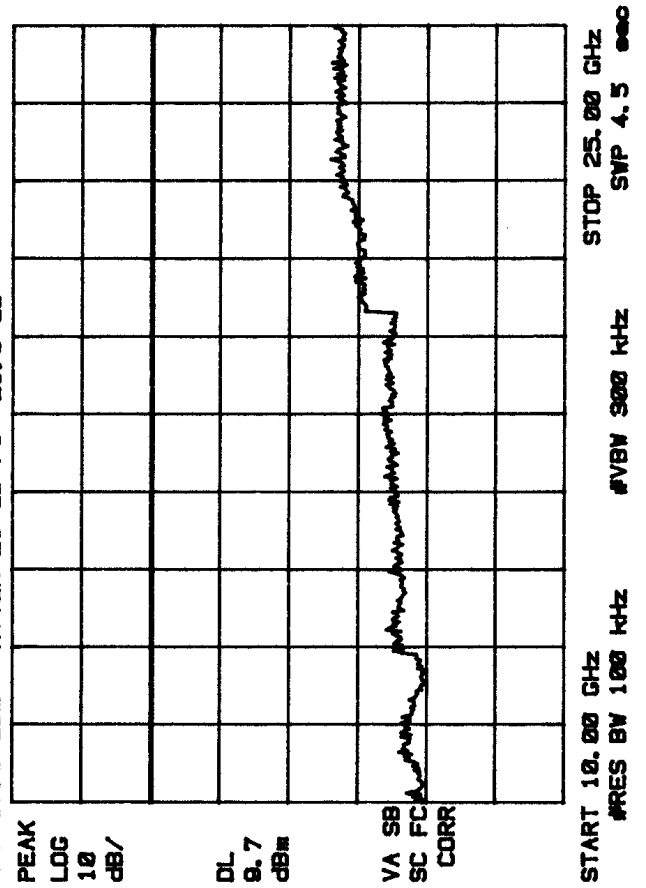


Figure 6.5 Spurious Emissions 802.11g AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2427,2437,2447

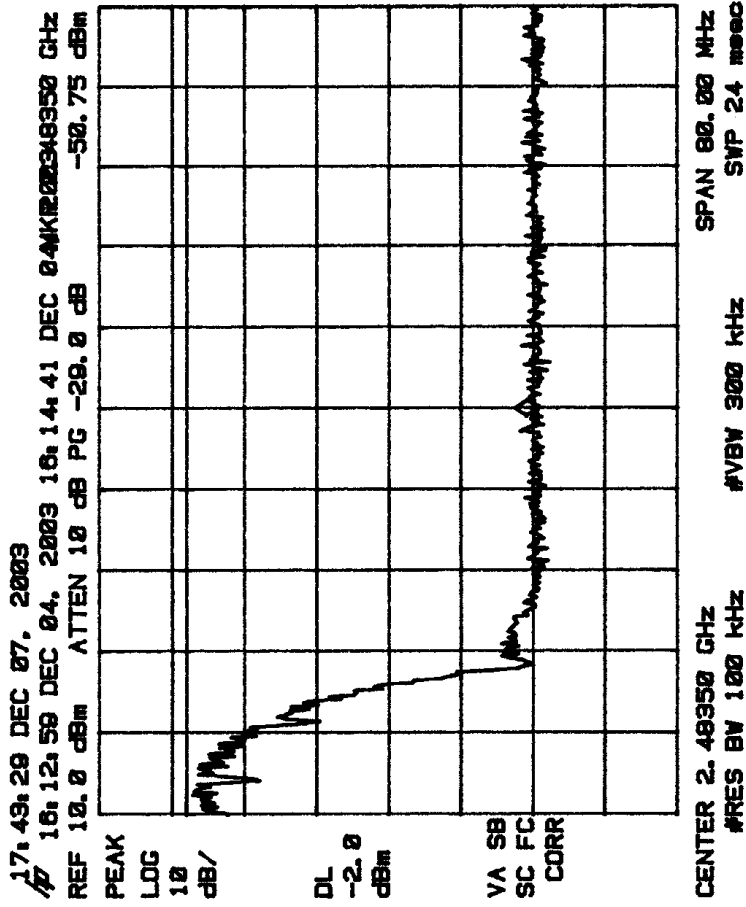
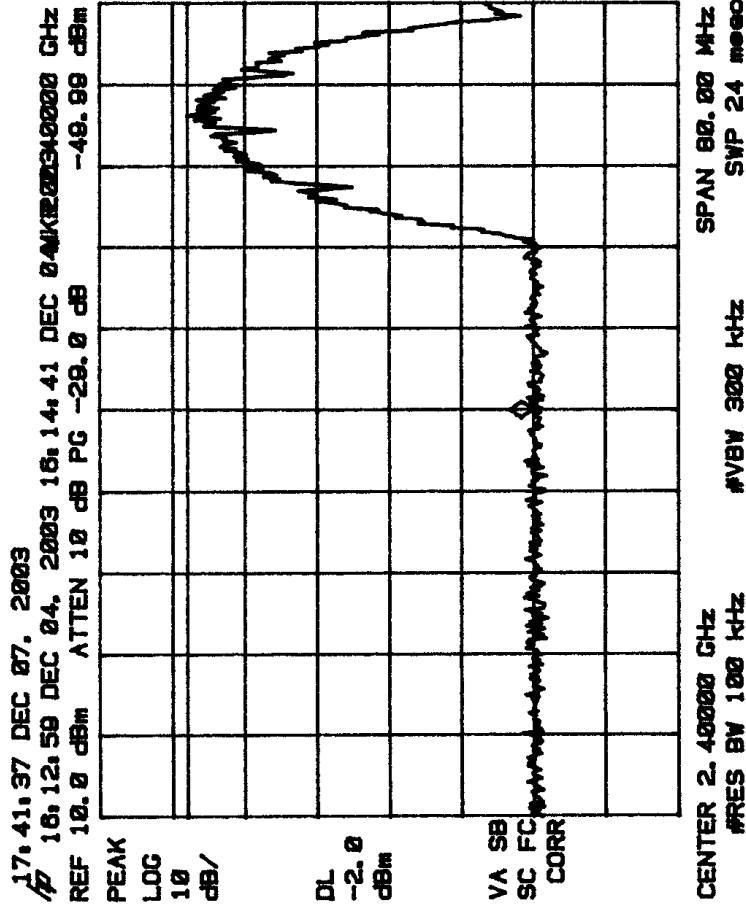


Figure 6.6 Spurious Emissions 802.11b AMP: 2401, PWR: 14 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2427,2437,2447

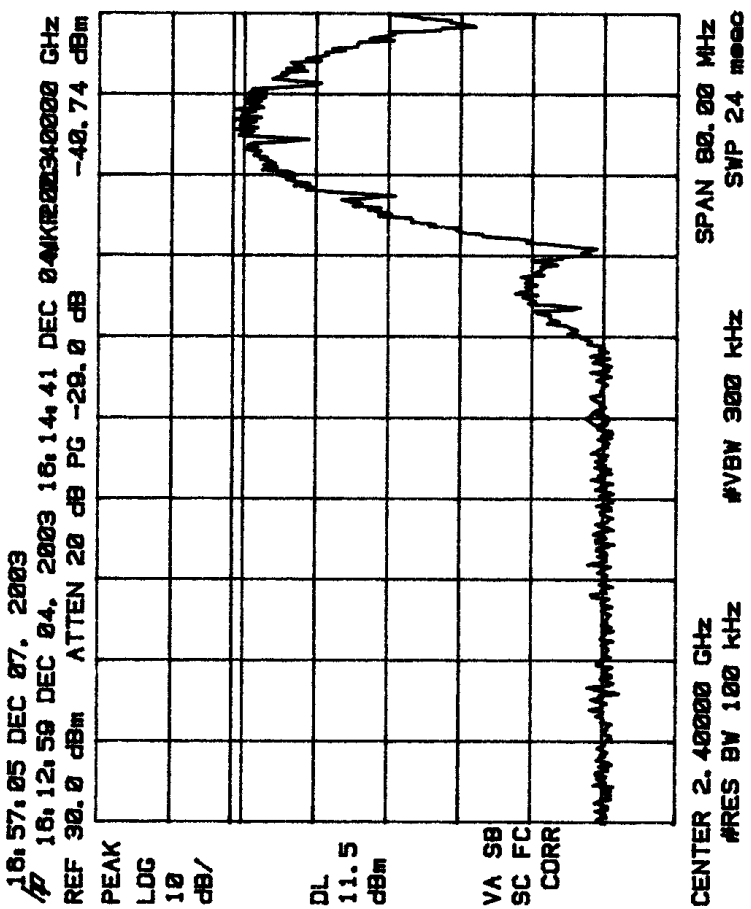
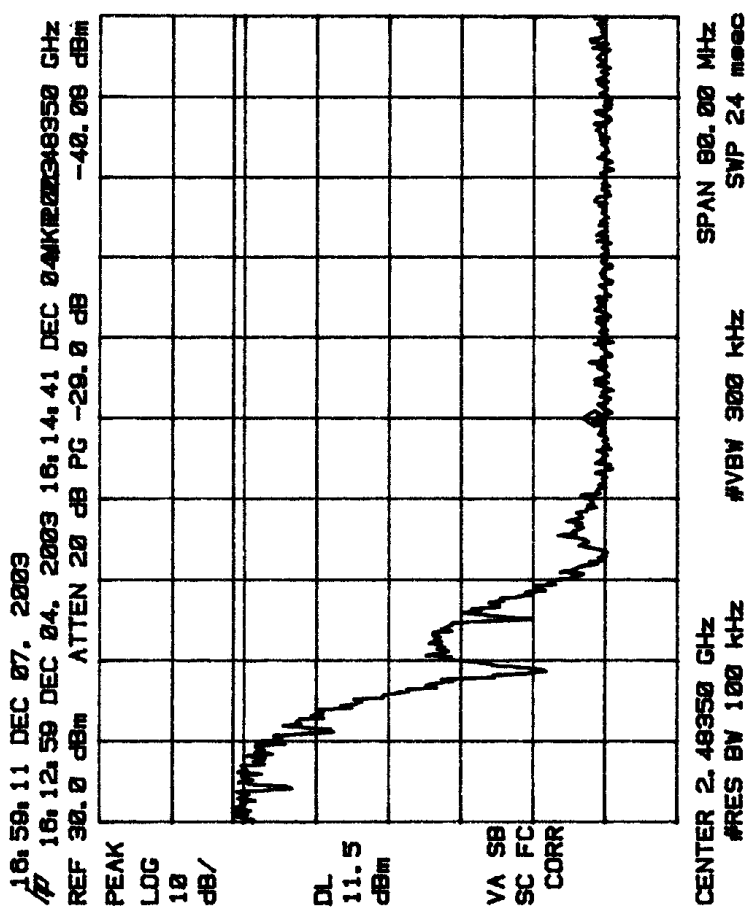


Figure 6.8 Spurious Emissions 802.11b AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2427,2437,2447

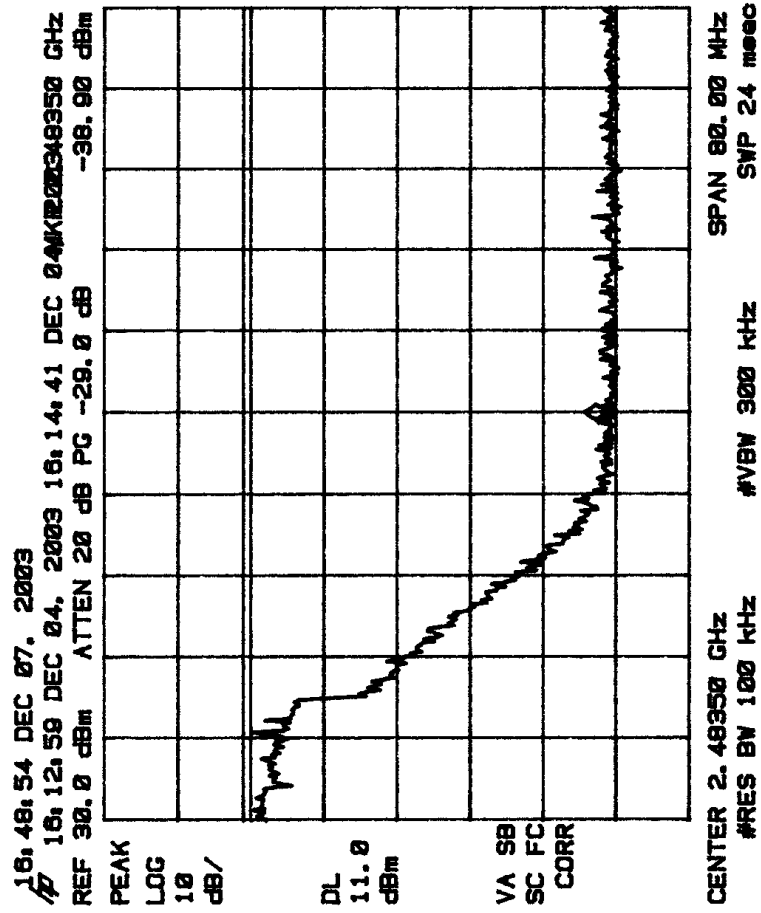
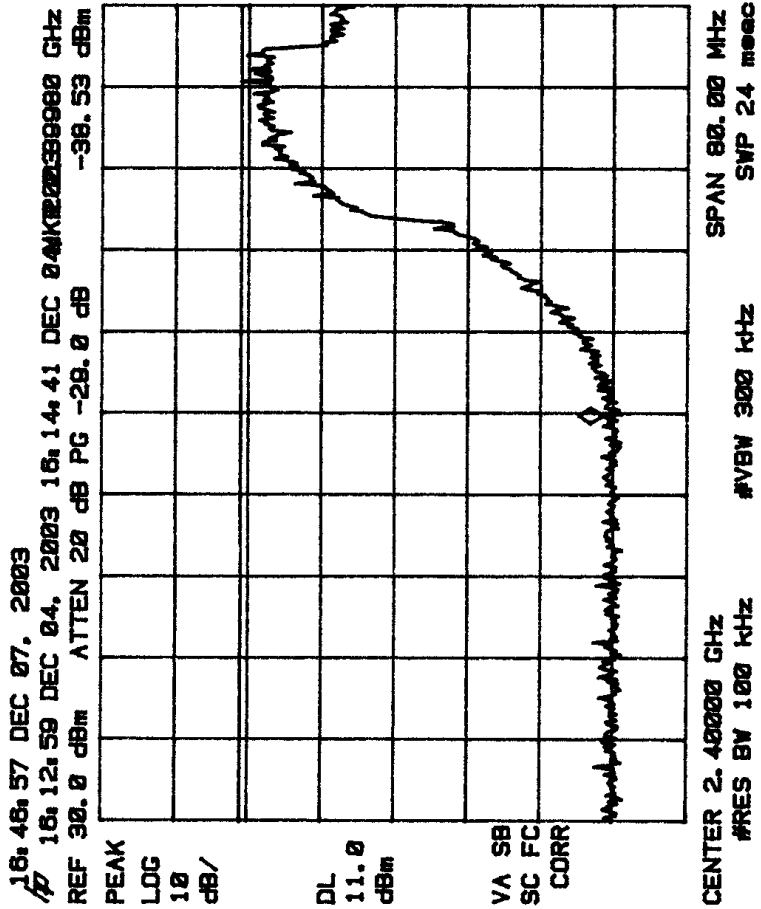


Figure 6.9 Spurious Emissions 802.11g AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2427,2437,2447

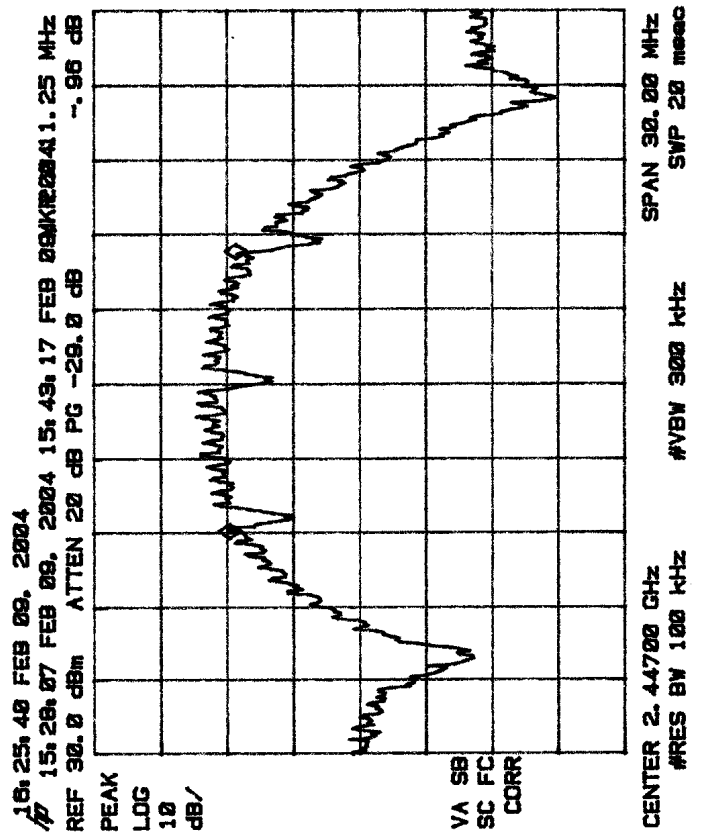
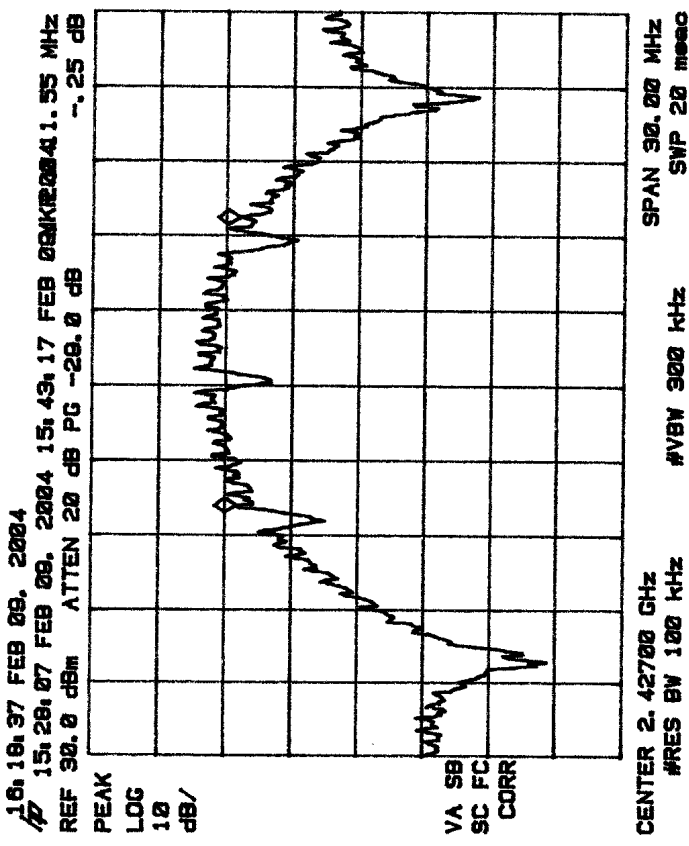
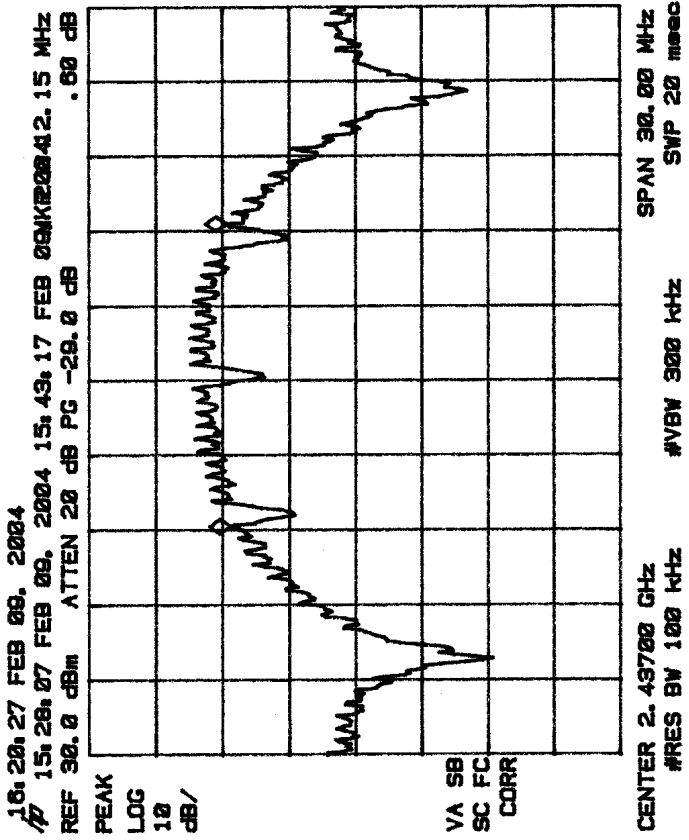


Figure 6.10 Bandwidth 802.11b AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2427,2437,2447

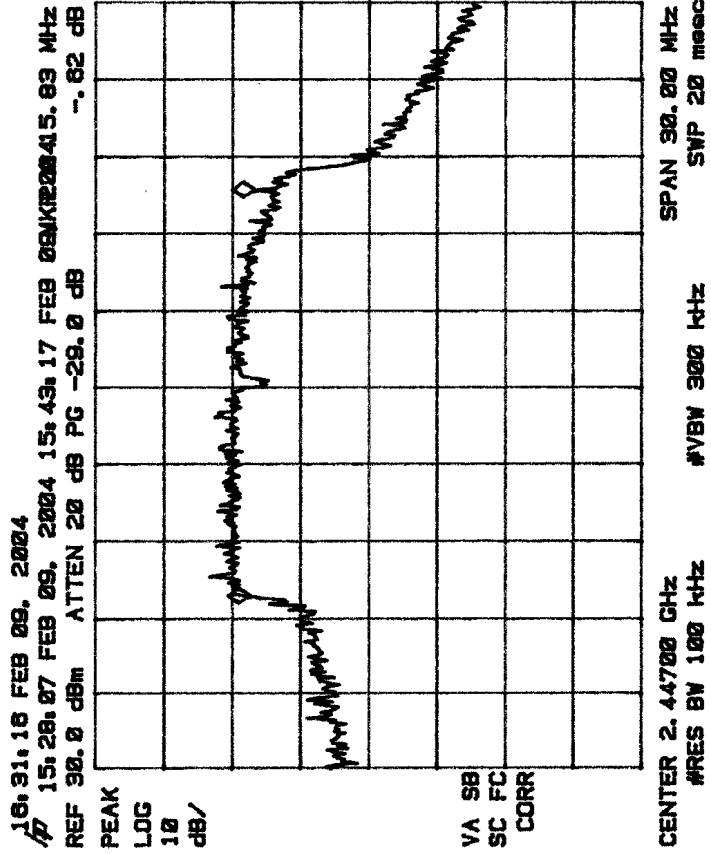
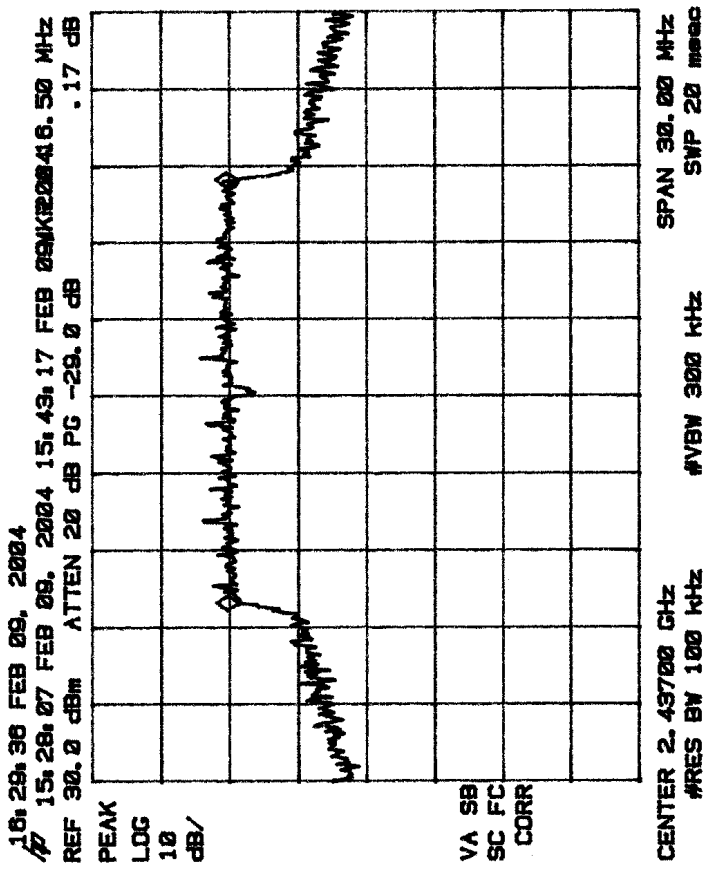
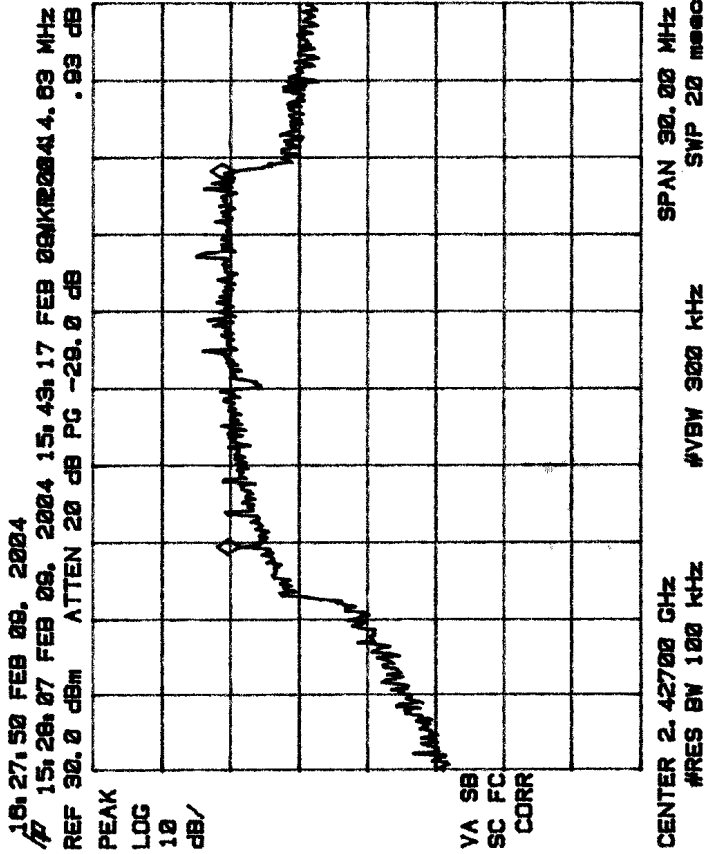


Figure 6.11 Bandwidth 802.11g AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2427,2437,2447

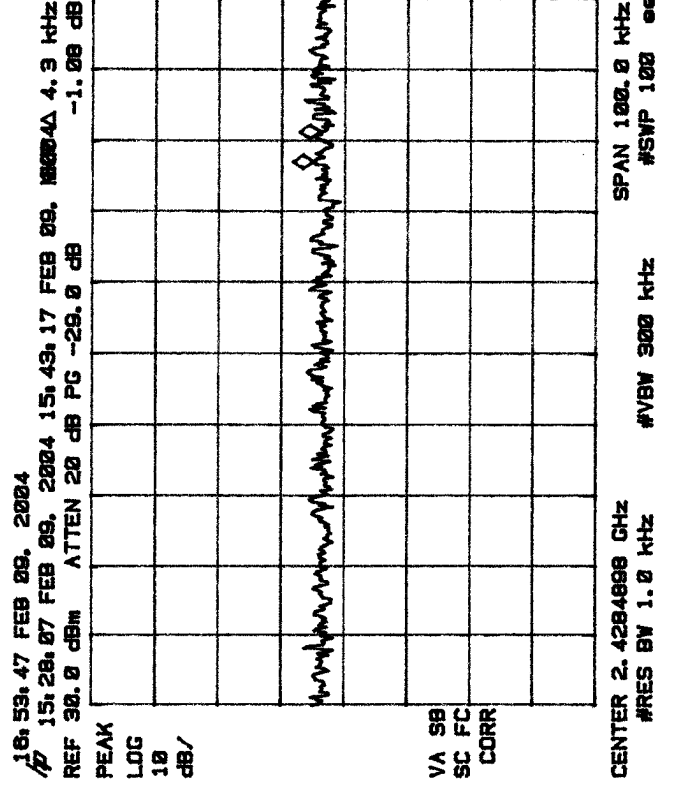
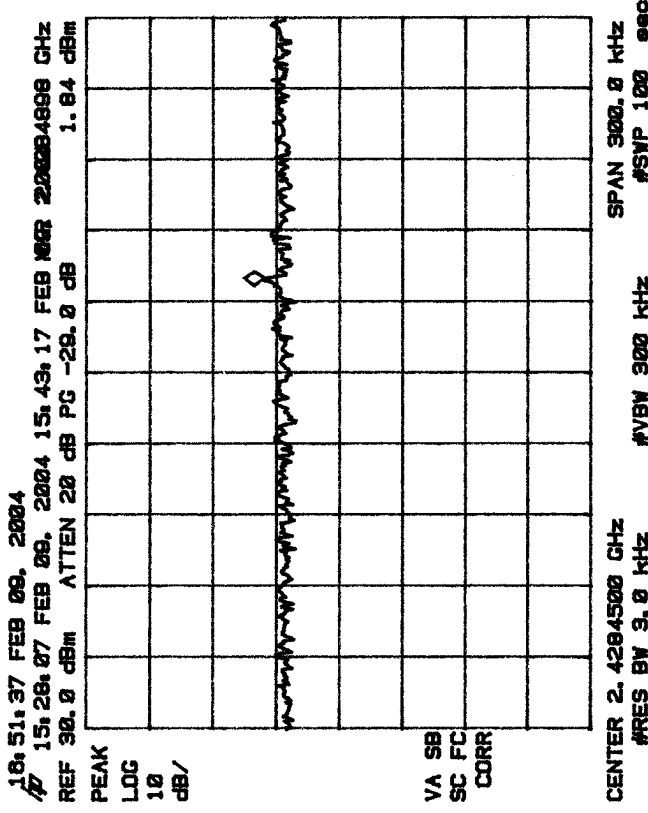
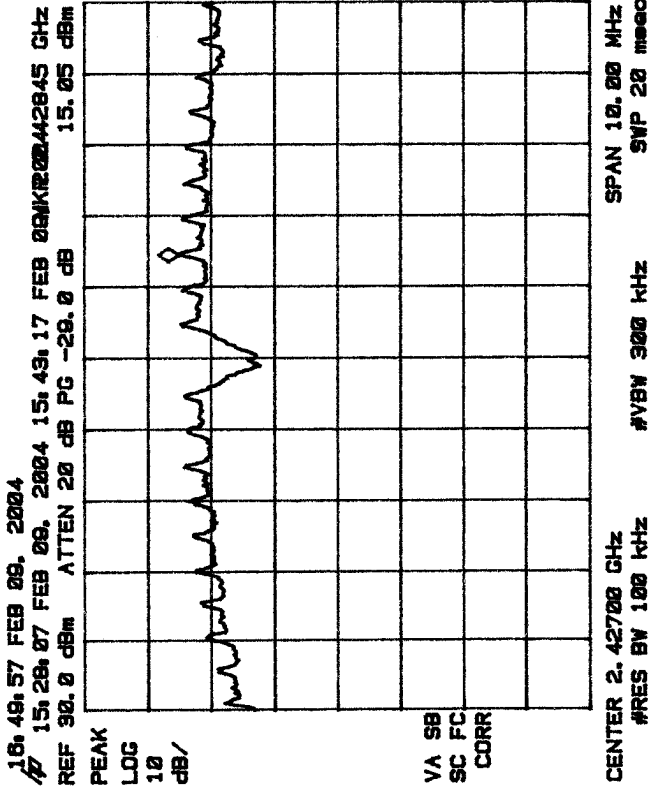


Figure 6.12 PSD 802.11b AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2427

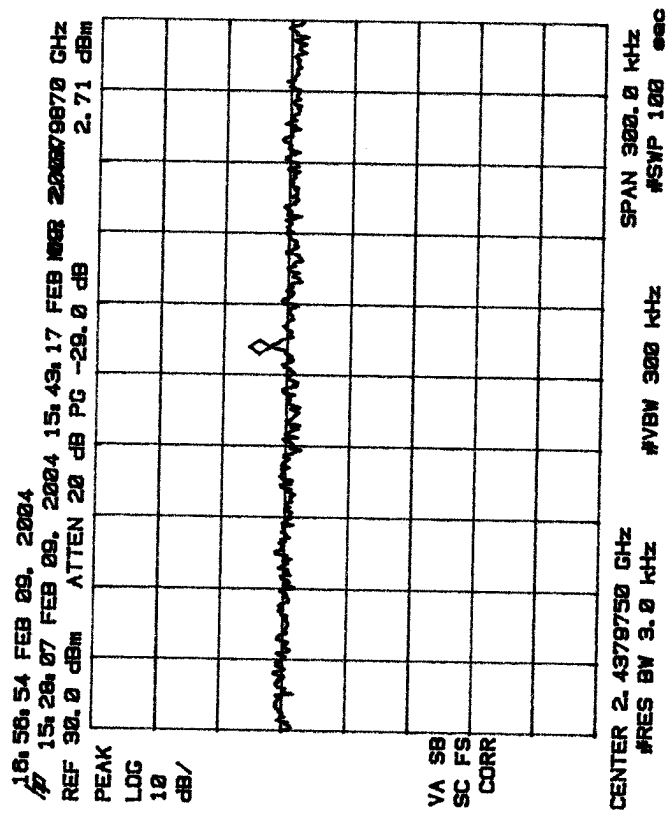
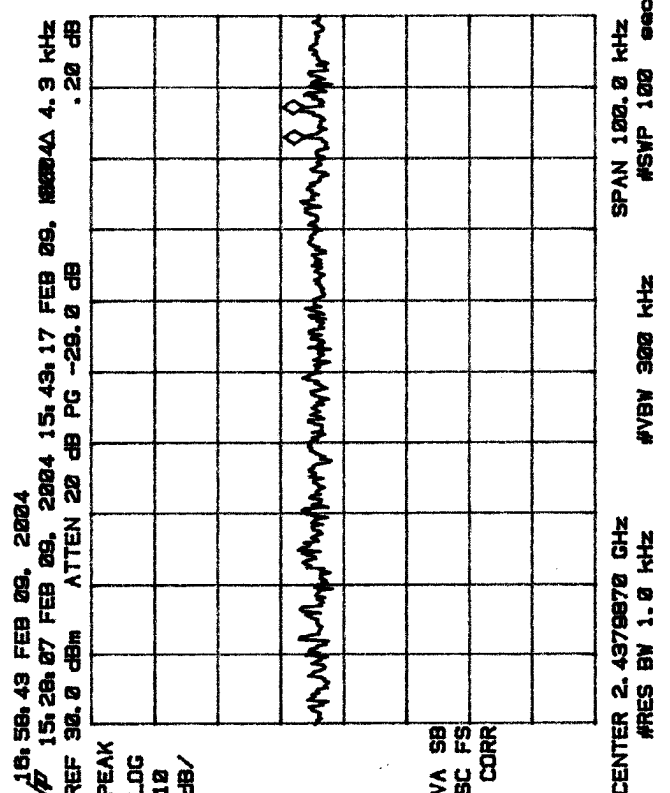
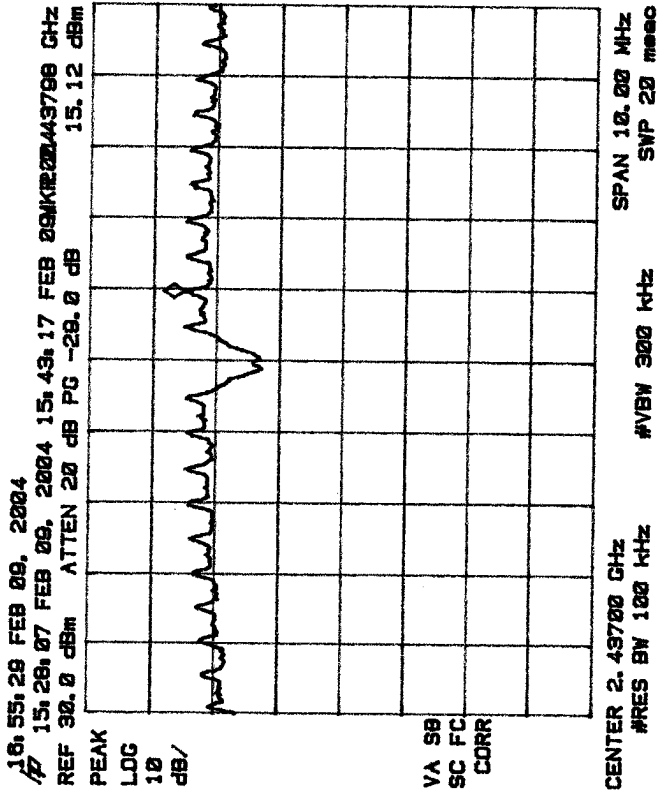


Figure 6.13 PSD 802.11b AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2437

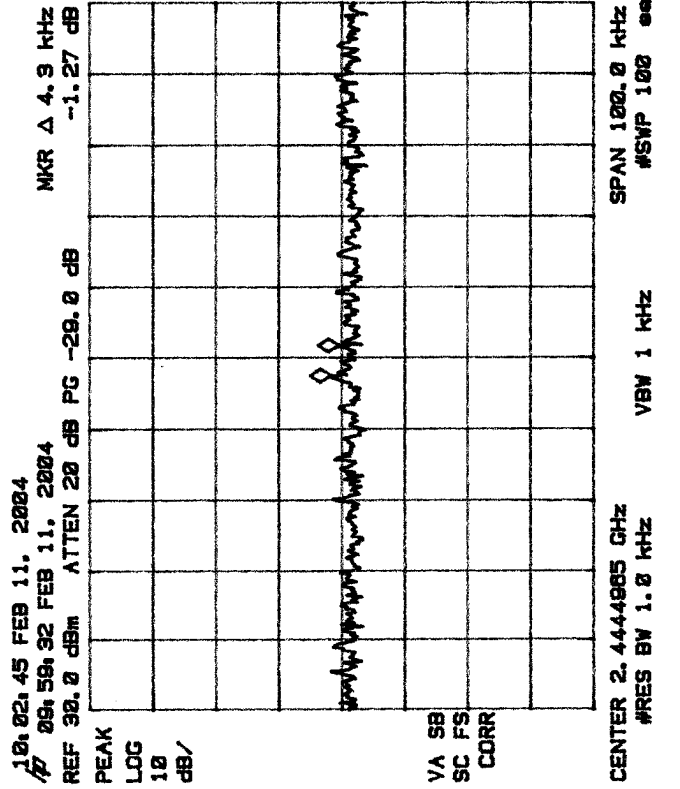
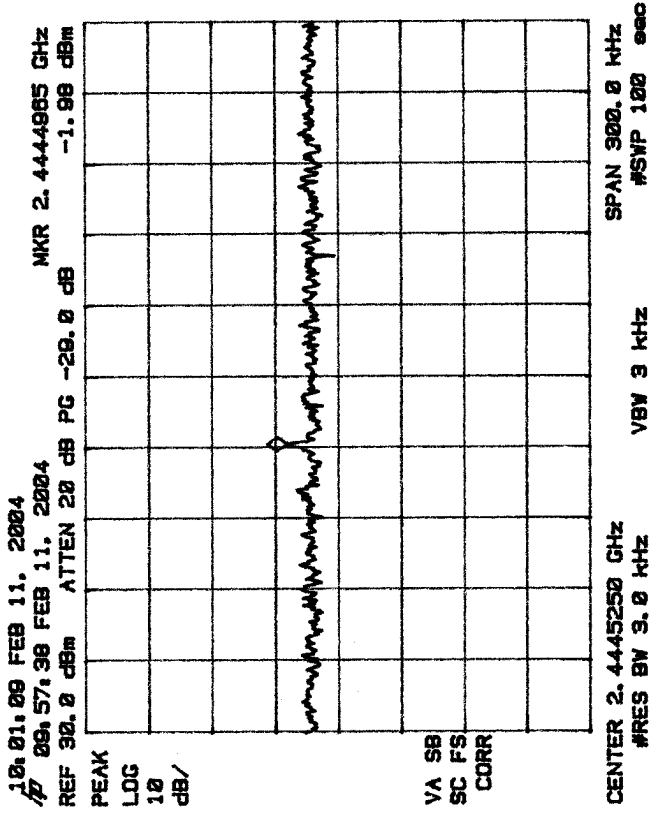
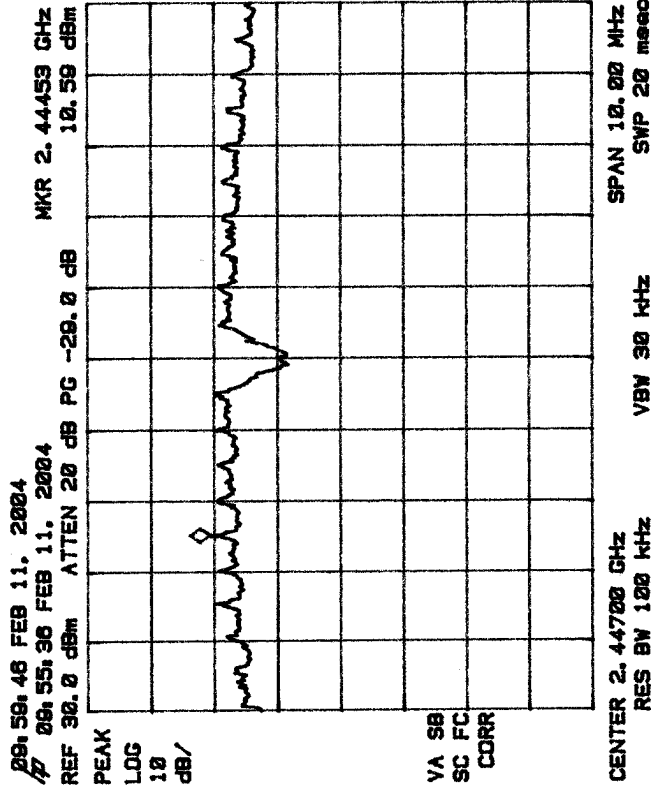


Figure 6.14 PSD 802.11b AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2447

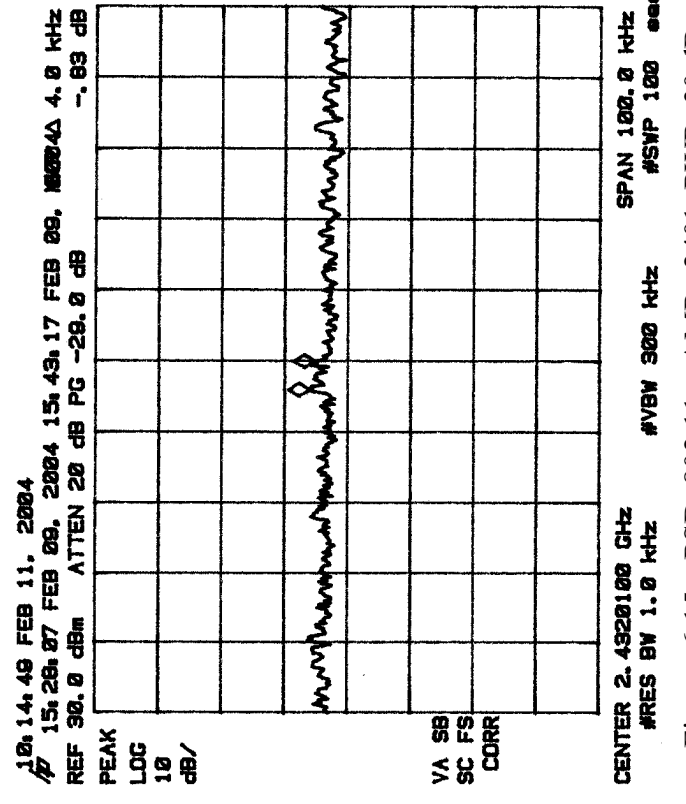
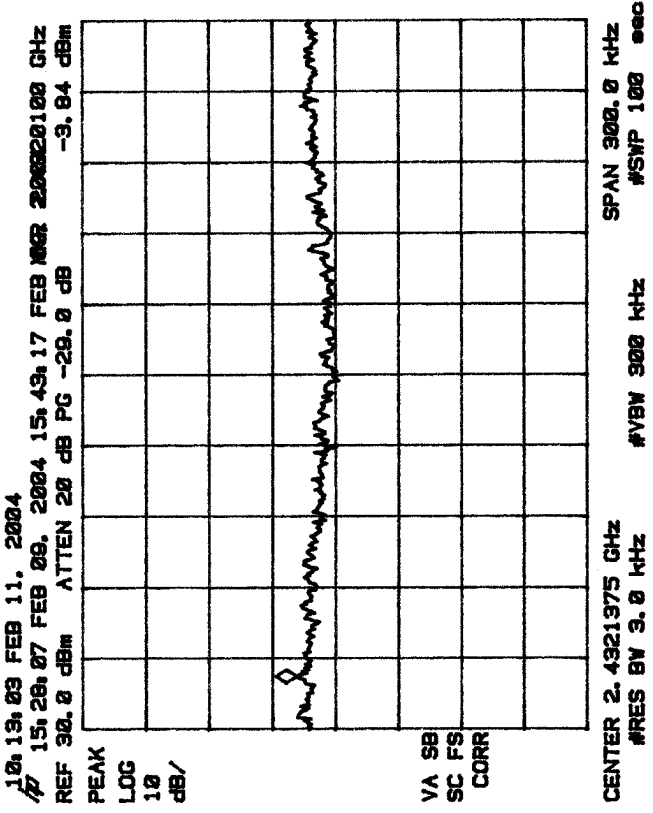
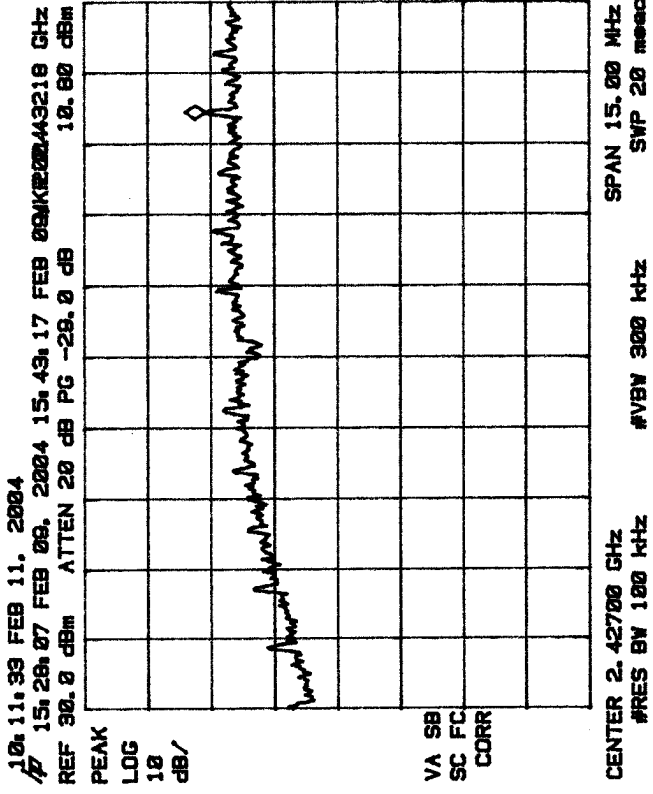


Figure 6.15 PSD 802.11g AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2427

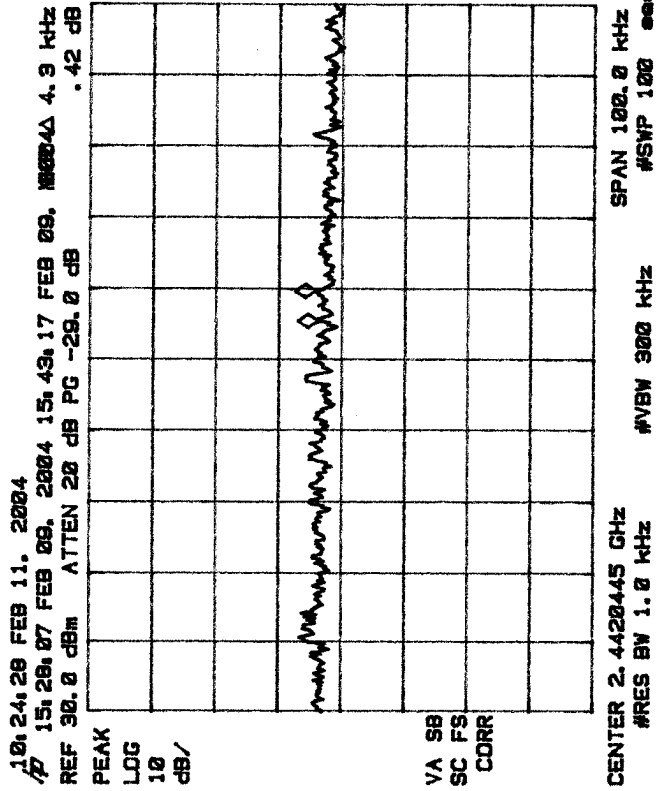
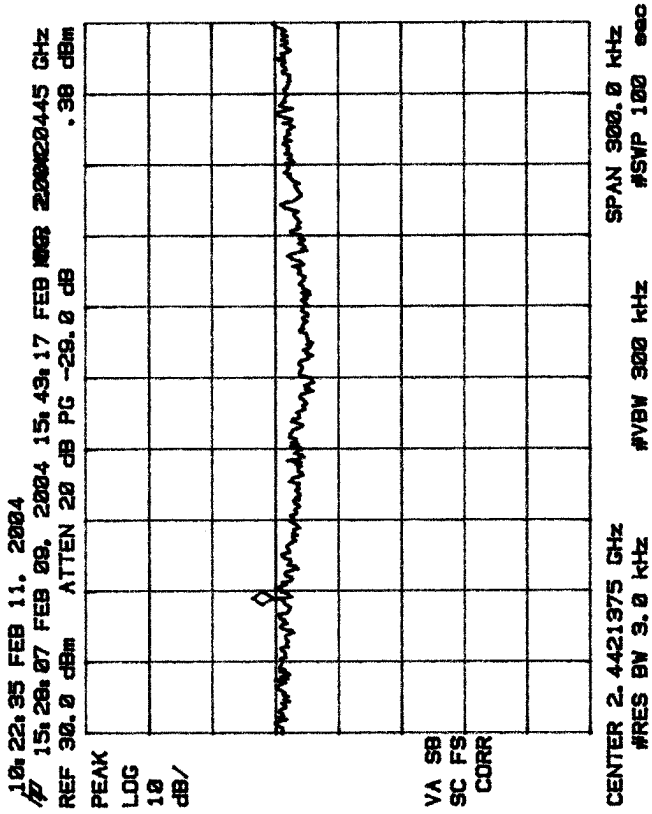
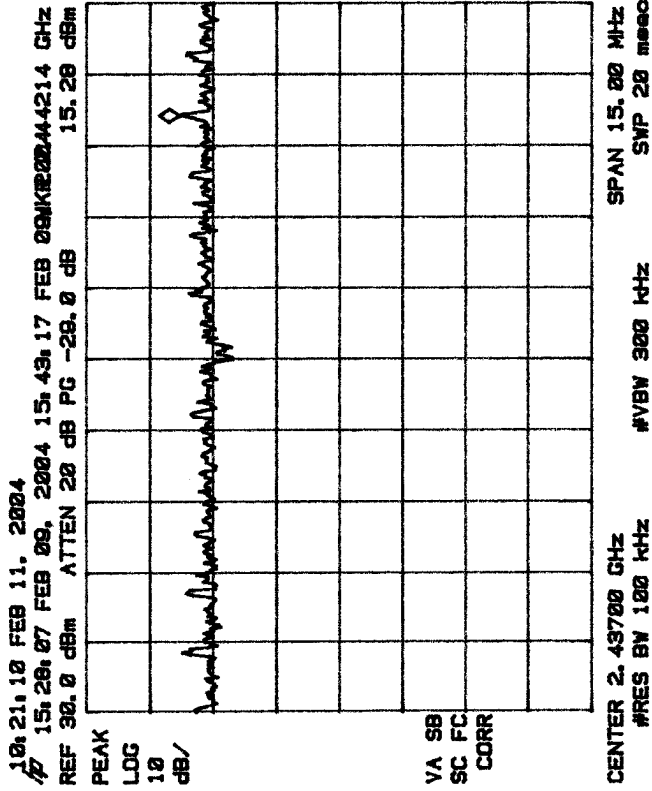


Figure 6.16 PSD 802.11g AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2437

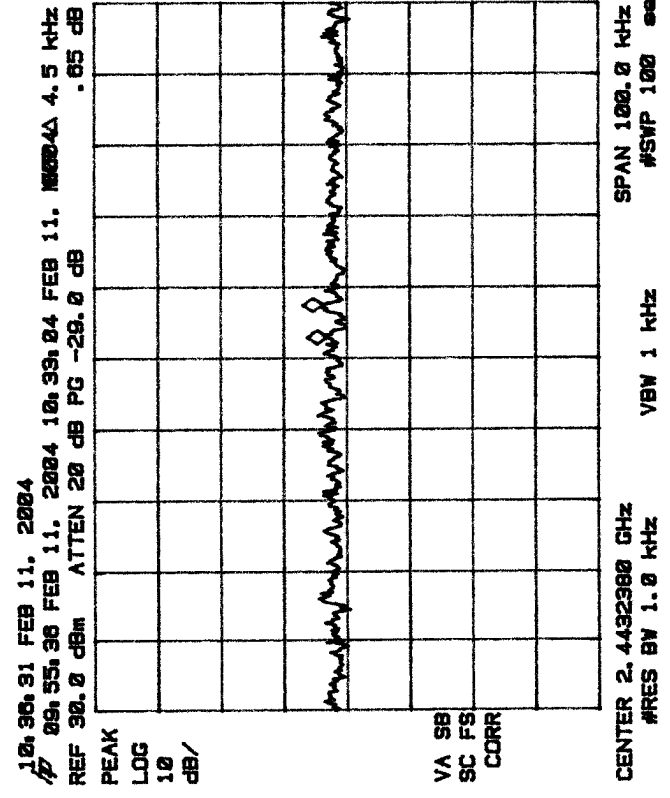
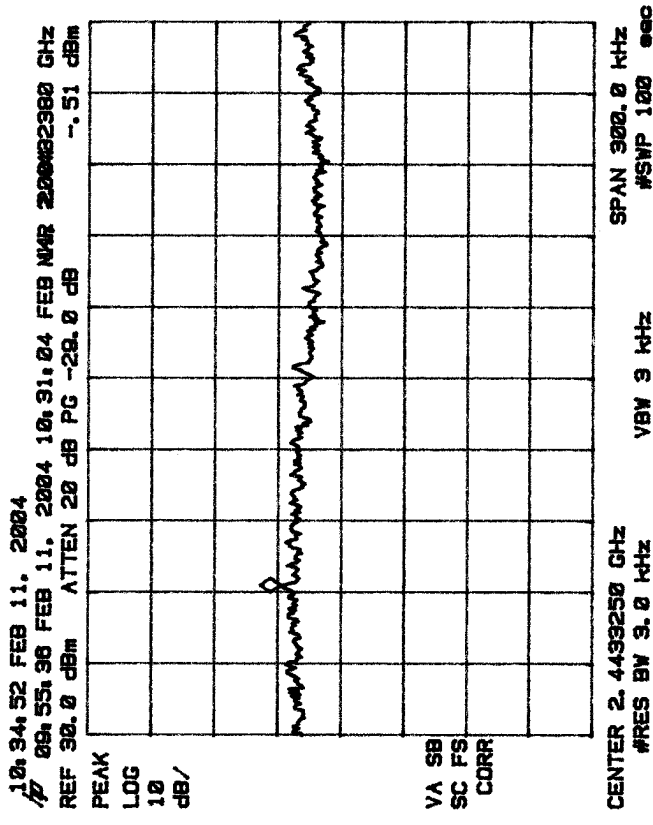
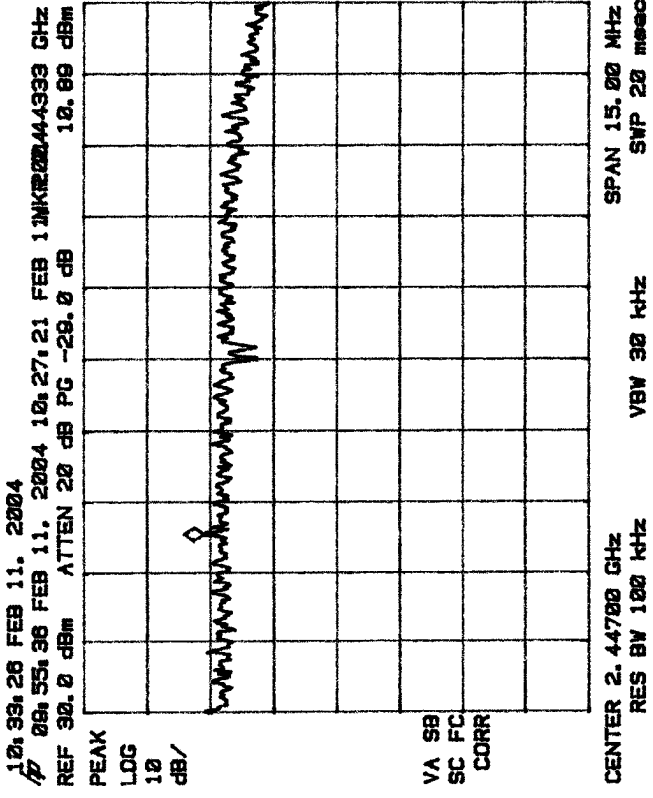
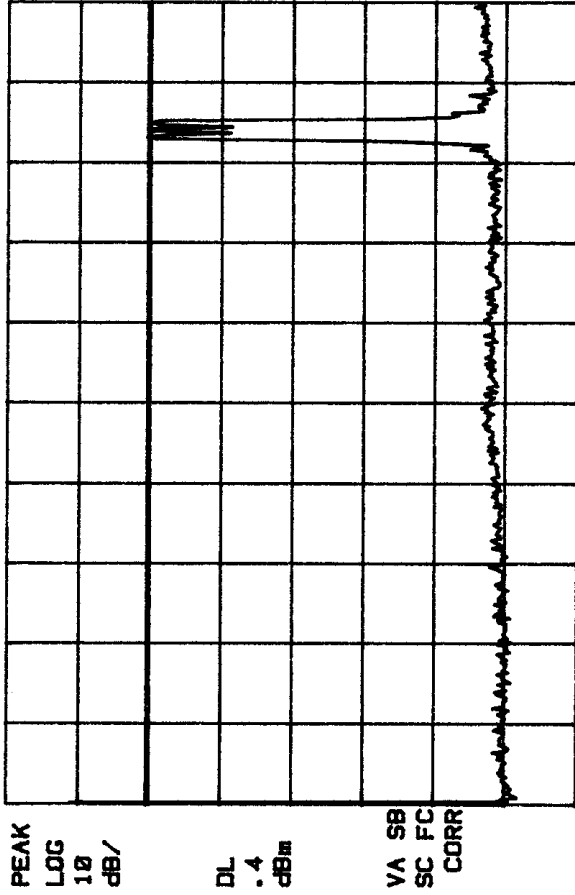


Figure 6.17 PSD 802.11g AMP: 2401, PWR: 30 dBm, FILT: Yes, INPUT ATTN: 6 dB, CHANNEL: 2447

14:10:05 DEC 07, 2003

16:12:58 DEC 04, 2003 16:14:41 DEC 04, 2003

REF 20.0 dBm ATTEN 10 dB PG -29.0 dB

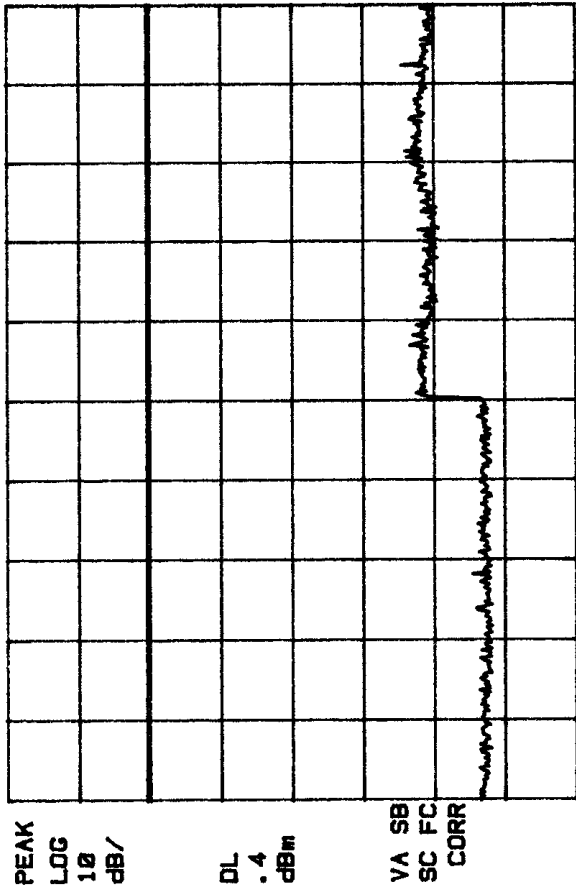


START 0 Hz #RES BW 100 kHz #VBW 300 kHz STOP 2.900 GHz SWP 870 mhz

14:12:30 DEC 07, 2003

16:12:58 DEC 04, 2003 16:14:41 DEC 04, 2003

REF 20.0 dBm ATTEN 10 dB PG -29.0 dB

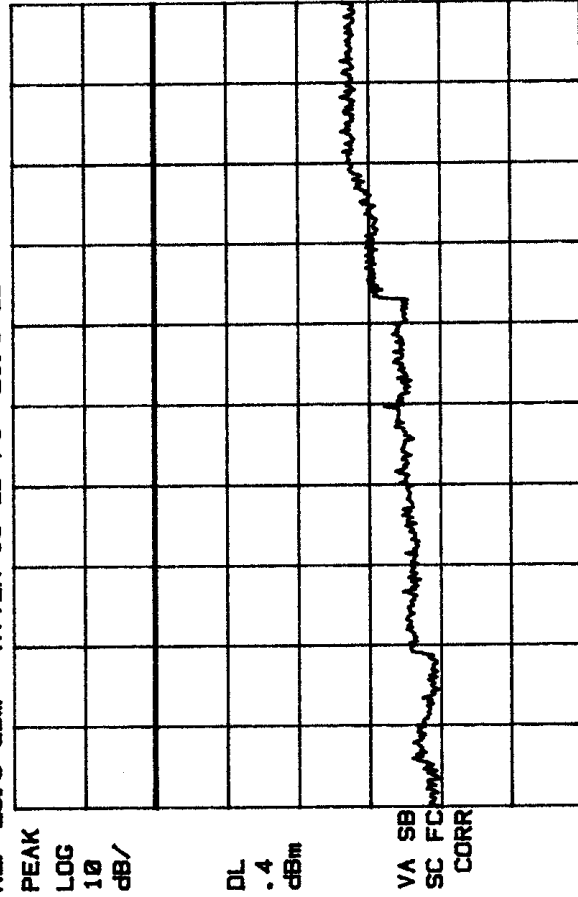


START 2.900 GHz #RES BW 100 kHz #VBW 300 kHz STOP 10.000 GHz SWP 2.1 mhz

14:14:46 DEC 07, 2003

16:12:58 DEC 04, 2003 16:14:41 DEC 04, 2003

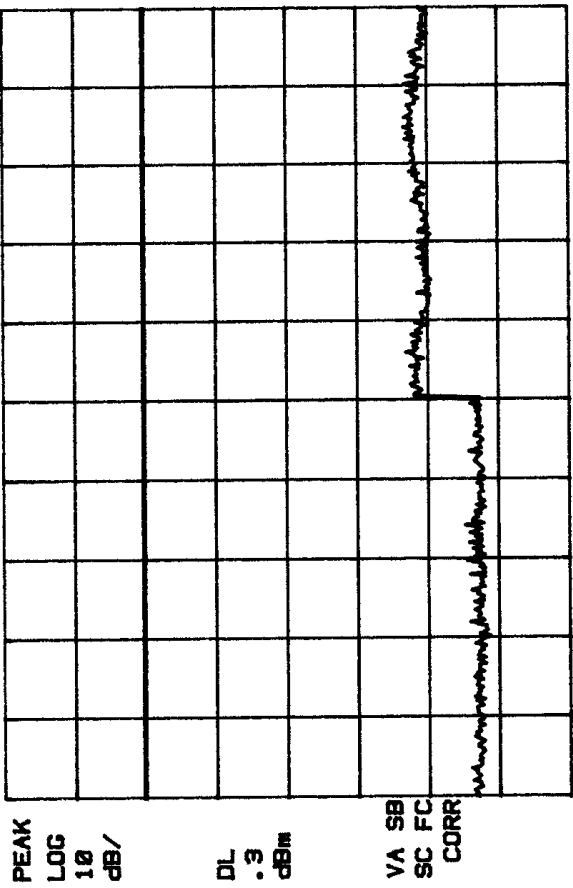
REF 20.0 dBm ATTEN 10 dB PG -29.0 dB



START 10.000 GHz #RES BW 100 kHz #VBW 300 kHz STOP 25.000 GHz SWP 4.5 mhz

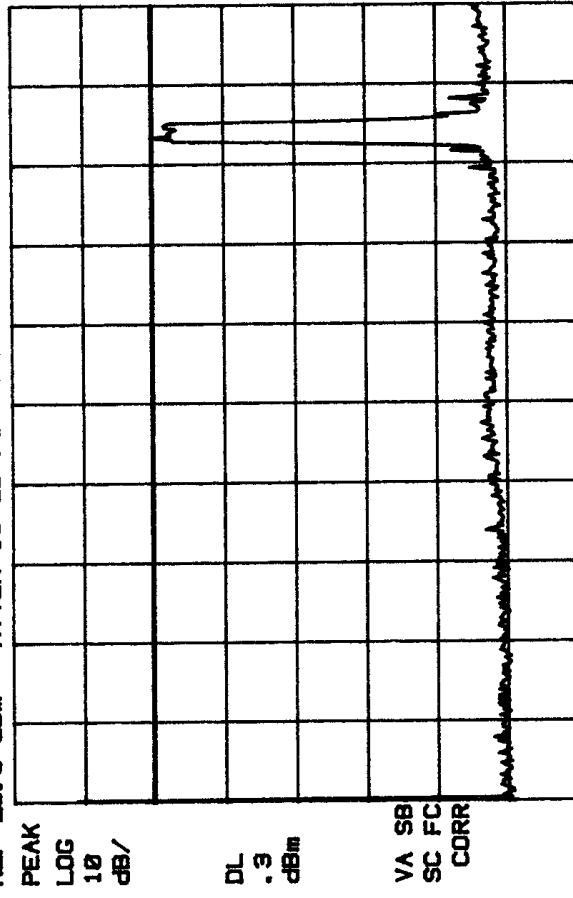
Figure 6.18 Spruiious Emissions 802.11b Card Alone

16:04:22 DEC 07, 2003
 16:12:59 DEC 04, 2003 16:14:41 DEC 04, 2003
 REF 20.0 dBm ATTEN 10 dB PG -29.0 dB



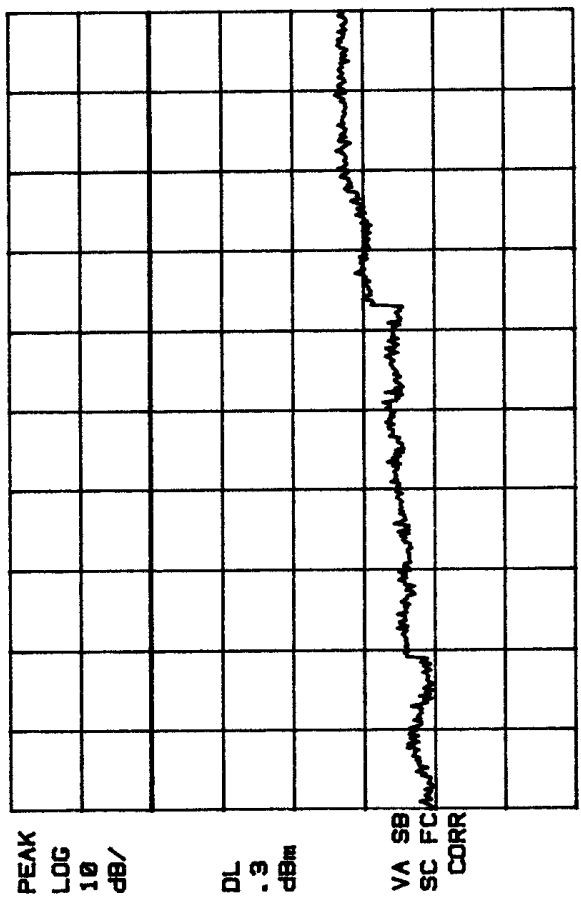
START 2.900 GHz #RES BW 100 kHz #VBW 300 kHz STOP 10.000 GHz SMP 2.1 sec

14:18:53 DEC 07, 2003
 16:12:59 DEC 04, 2003 16:14:41 DEC 04, 2003
 REF 20.0 dBm ATTEN 10 dB PG -29.0 dB



START 0 Hz #RES BW 100 kHz #VBW 300 kHz STOP 2.900 GHz SNP 870 msec

16:07:34 DEC 07, 2003
 16:12:59 DEC 04, 2003 16:14:41 DEC 04, 2003
 REF 20.0 dBm ATTEN 10 dB PG -29.0 dB



START 10.000 GHz #RES BW 100 kHz #VBW 300 kHz STOP 25.00 GHz SNP 4.5 sec

Figure 6.19 Spruiious Emissions 802.11g Card Alone

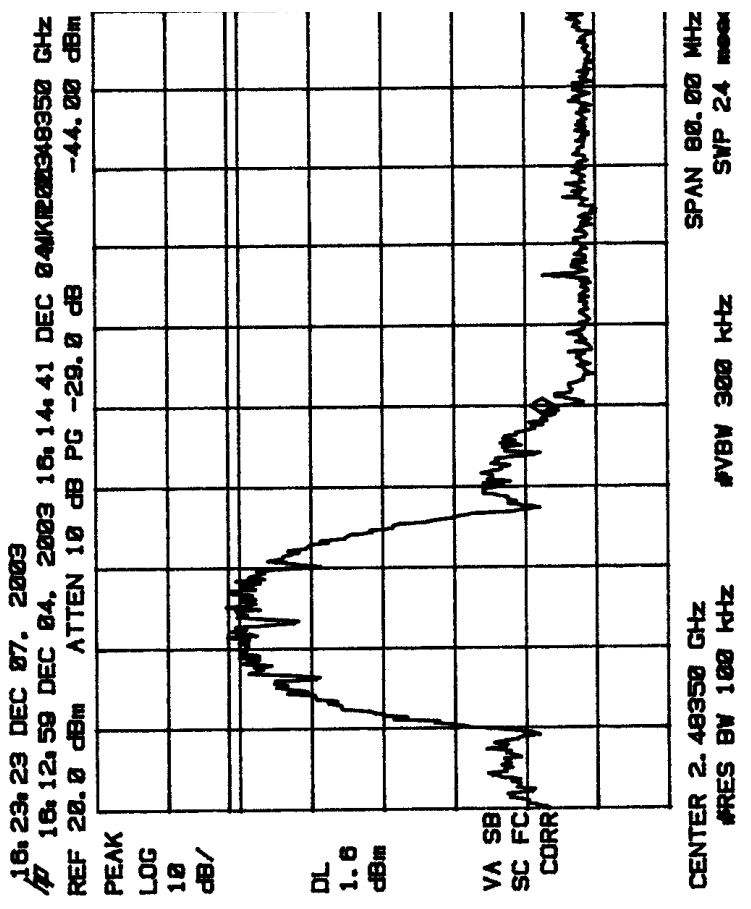
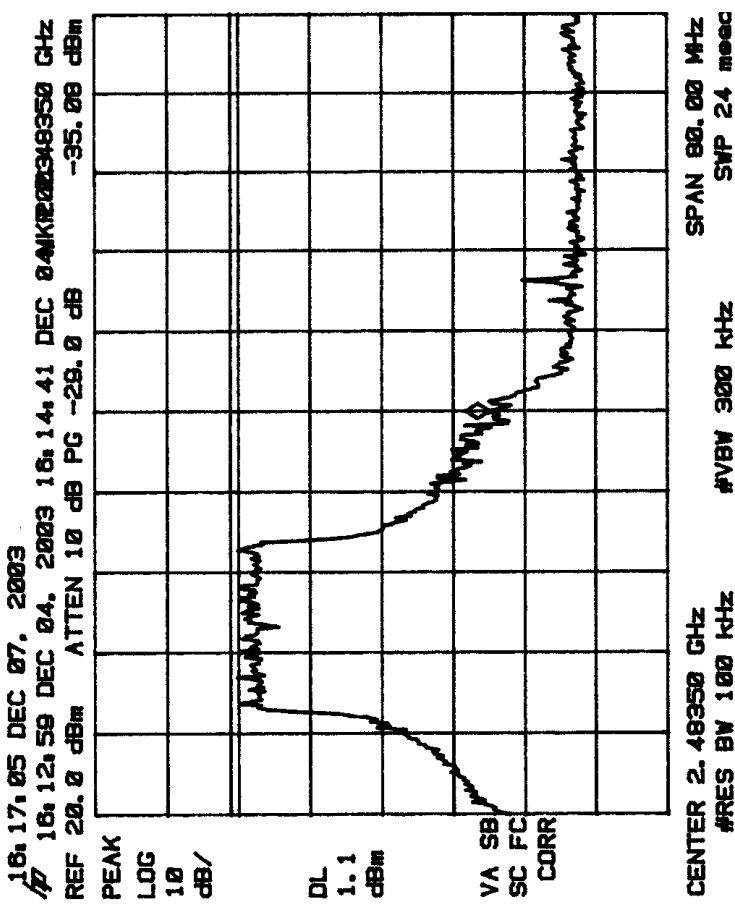
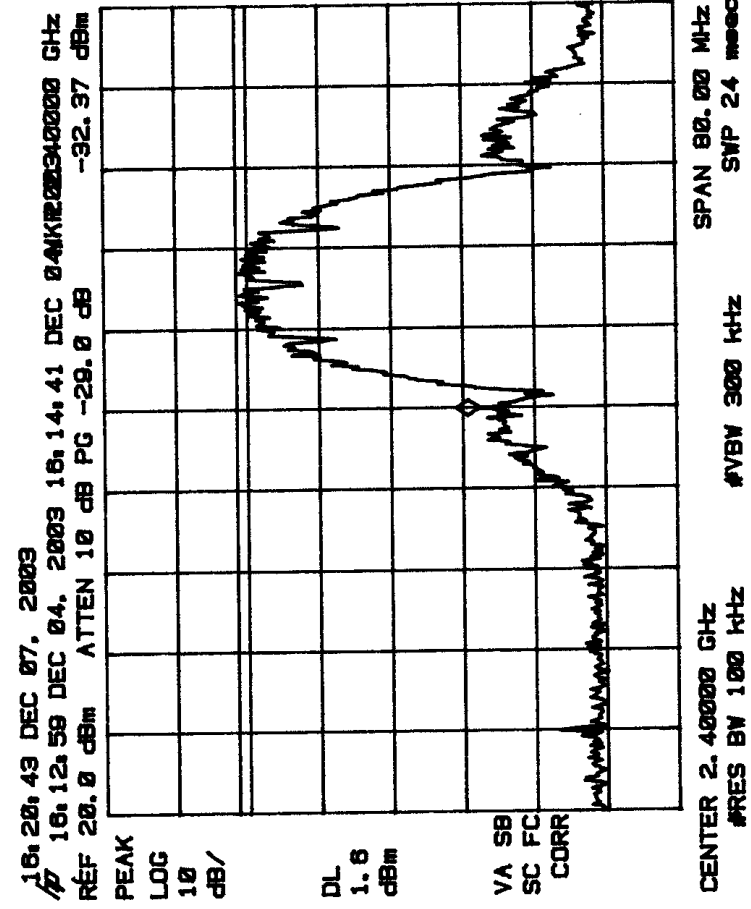
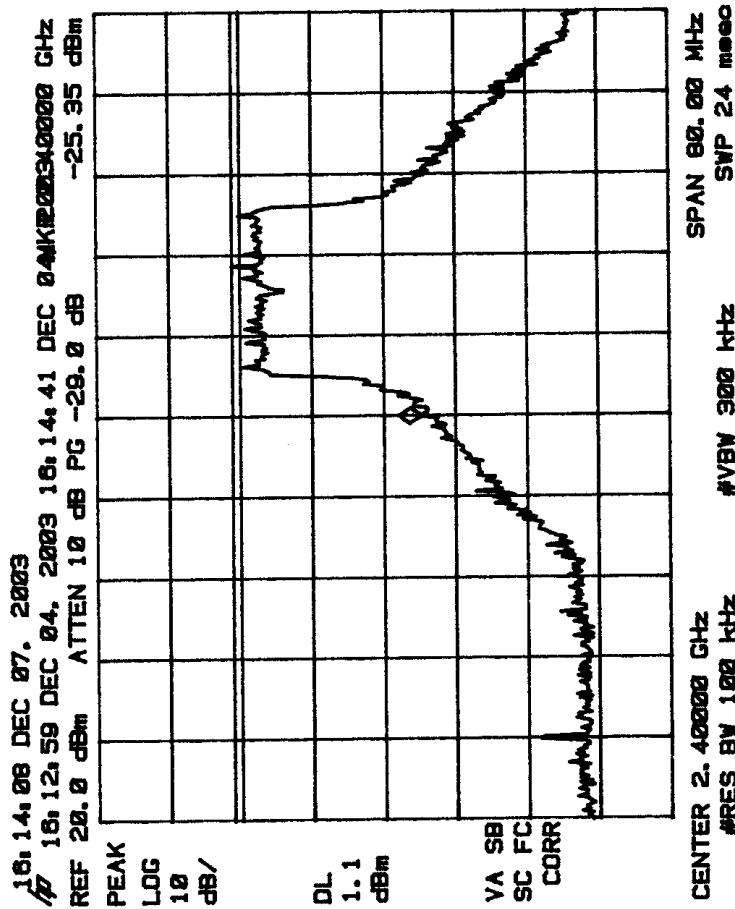


Figure 6.20 Spurious Emissions 802.11g / 802.11b Card Alone