Document Number: 142-3006-002 Rev.A

Compliance Engineering

47 CFR Part 15
SubPart C, Sections 15.207, 15.209, and 15.247
SubPart B, Section 15.109 Class B and RSS 210
Test Report

for
HP

For
Product: Raptor 2.0
MODEL**: Raptor 2.0**

Intel
13280 Evening Creek Drive
San Diego, CA 92128

DATE: September 11, 2003

	COVER PAGE	Cert	TOTAL
PAGES	1	91	92

ADDENDUM TO FC03-051

FOR THE

HP TABLET PC, SERIES PP3006

FCC PART 15 SUBPART C SECTIONS 15.207, 15.209 AND 15.247, SUBPART B SECTION 15.109 CLASS B AND RSS 210

COMPLIANCE

DATE OF ISSUE: OCTOBER 8, 2003

PREPARED FOR:

Hewlett-Packard Company
20555 SH 249
Houston, TX 77070

PREPARED BY:

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P.O. No.: CAB185083000
W.O. No.: 80964

Date of test: August 13 - September 4, 2003

Report No.: FC03-051A

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	August 13 - September 4, 2003
DATE OF RECEIPT:	August 13, 2003
PURPOSE OF TEST:	To demonstrate the compliance of the HP Tablet PC, Series PP3006, with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209 and15.247, Subpart B Section 15.109 Class B and RSS 210 devices. **Addendum A** is to revise the modulation plots and power spectral density plots and to remove contradictory transmitter characteristics setup paragraphs.
TEST METHOD:	ANSI C63.4 (1992) and RSS 212
MANUFACTURER:	Hewlett-Packard Company 20555 SH 249 Houston, TX 77070
REPRESENTATIVE:	David Wissel
TEST LOCATION:	CKC Laboratories, Inc. 110 Olinda Place Brea, CA 92621

SUMMARY OF RESULTS

As received, the Hewlett-Packard Company HP Tablet PC, Series PP3006 was found to be fully compliant with the following standards and specifications:

United States

- FCC Part 15 Subpart B Section 15.109 Class B
- FCC Part 15 Subpart C Sections 15.207, 15.209 and 15.247
- ANSI C63.4 (1992) method

FCC Site No. 100638

Canada

RSS-210 using:

- FCC Part 15 Subpart B Section 15.109 Class B
- FCC Part 15 Subpart C Sections 15.207, 15.209 and 15.247
- ANSI C63.4 (1992) method

Industry of Canada File No. IC 3172-D

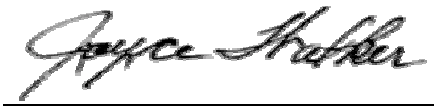
CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:

Septimiu Apahidean, EMC Test Engineer

Eddie Wong, EMC Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit.

FCC 2.1055(d) Frequency Stability Voltage Variations

The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

Procedure:

The EUT and the laptop are placed on the test bench. After the laptop boots up, the EUT is set to transmit. A spectrum analyzer is connected to the antenna port. With a narrow bandwidth, center frequency was noted.

With the AC power of the laptop connected to a variable AC power source, the laptop's battery is removed. The AC power is then varied from 85 to 115 percent of 110 Vac 60 Hz.

Result:

No deviation in frequency was observed, hence the requirement is fulfilled.

FCC 15.31(m) Number Of Channels

This device was tested on three channels.

FCC 15.33(a) Frequency Ranges Tested

15.109 Radiated Emissions: 9 kHz – 1000 MHz
15.207 Conducted: 150 kHz – 30 MHz
15.209/15.247 Radiated: 9 kHz – 25 GHz

FCC SECTION 15.35: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	25 GHz	1 MHz

FCC 15.203 Antenna Requirements

The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

FCC 15.205 Restricted Bands
The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules. Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

Eut Operating Frequency
The EUT was operating at 2412 MHz, 2437 MHz and 2462 MHz.

The EUT is a direct sequencing device operating in the 2400 – 2483.5 MHz band.

EQUIPMENT UNDER TEST

The HP Tablet PC, Series PP3006 consists of:
FCC ID: CNTPP3006 (pending)

Embedded 2.4 GHz Wireless LAN Mini PCI Adaptor
Manuf: Intel
Model: Raptor
Serial: NA

Laptop
Manuf: Compaq Computer Corporation
Model: 3111BZ931RA
Serial: SY35LBQ12013

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

USB Zip Drive
Manuf: Iomega
Model: Zip100
Serial: PSA009AO7M
FCC ID: Doc

Monitor
Manuf: Gateway
Model: 500-069EV
Serial: 15013A000011
FCC ID: Doc

MEASUREMENT UNCERTAINTY

TEST	HIGHEST UNCERTAINTY
Radiated Emissions	+/- 2.94 dB
Conducted Emissions	+/- 1.56 dB

Note: Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Statements of compliance are based on the nominal values only.

REPORT OF MEASUREMENTS

The following tables report the six highest worst case levels recorded during the tests performed on the EUT. All readings taken are peak readings unless otherwise noted. The data sheets from which these tables were compiled are contained in Appendix C.

Table 1: FCC 15.109 Six Highest Radiated Emission Levels

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Ant dB	Amp dB	Cable dB	dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
185.722	49.2	9.1	-27.0	3.1		34.4	43.5	-9.1	V-1
351.560	42.0	15.0	-26.8	4.4		34.6	46.0	-11.4	H-1
351.572	42.0	15.0	-26.8	4.4		34.6	46.0	-11.4	H-3
431.972	42.3	17.0	-27.1	4.8		37.0	46.0	-9.0	H-3
431.975	40.8	17.0	-27.1	4.8		35.5	46.0	-10.5	H-1
720.011	34.1	21.2	-26.2	6.7		35.8	46.0	-10.2	V-3

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart B Section 15.109 Class B
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
1 = 2412 MHz
2 = 2437 MHz
3 = 2462 MHz

COMMENTS: The EUT housed in a host laptop computer is placed on the wooden table. Connected to the laptop computer are a monitor and a USB storage drive. Receive mode. Freq = 2462 MHz and 2437 MHz, Frequency range of measurement = 30 MHz - 25 GHz. Freq = 2412 MHz, Frequency range of measurement = 9 kHz - 25 GHz. 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz – 25 MHz RBW=1 MHz, VBW=1 MHz. 110Vac, 60 Hz, 32.2°C, 48% relative humidity.

Table 2: FCC 15.111 Antenna Power Conduction Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Lisn dB	dB	Cable dB	dB	READING dBµV	LIMIT dBµV	MARGIN dB	NOTES
1885.00000	35.3	0.3				35.6	50.0	-14.4	A

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart B Section 15.111

NOTES: A = Antanna Polarization

COMMENTS: The EUT is placed on the test bench, The RF receiving port is connected to the spectrum analyzer. Receive mode. Freq = 2412 MHz, 2437MHz, 2462 MHz. Frequency range of measurement = 9 kHz - 25 GHz. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz - 25 MHz RBW=1 MHz, VBW=1 MHz. 110Vac, 60 Hz, 32.2°C, 48% relative humidity.

Table 3: FCC 15.207 Six Highest Conducted Emission Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Lisn dB	dB	dB	dB	READING dBµV	LIMIT dBµV	MARGIN dB	NOTES
0.200955	49.5	0.0				49.5	53.6	-4.1	W-3
0.214360	46.8	0.0				46.8	53.0	-6.2	W-2
0.217607	46.4	0.0				46.4	52.9	-6.5	W-1
0.267203	45.7	0.0				45.7	51.2	-5.5	W-1
0.274351	44.1	0.0				44.1	51.0	-6.9	B-2
5.661531	43.9	0.0				43.9	50.0	-6.1	B-1

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart C Section 15.207

NOTES: B = Black Lead
W = White Lead
1 = 2412 MHz
2 = 2437 MHz
3 = 2462 MHz

COMMENTS: The EUT housed in a host laptop computer is placed on the wooden table. Connected to the laptop computer are a monitor and a USB storage drive. Transmit mode. Freq = 2412 MHz,, 2437 mHz and 2462 MHz. Rate: 11 Mbps (worse case). Frequency range of measurement = 150 kHz - 30 MHz. Frequency 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz, Power supply M/N - 239427-003, S/N - F3-0302054551B. 23.96°C, 45% relative humidity.

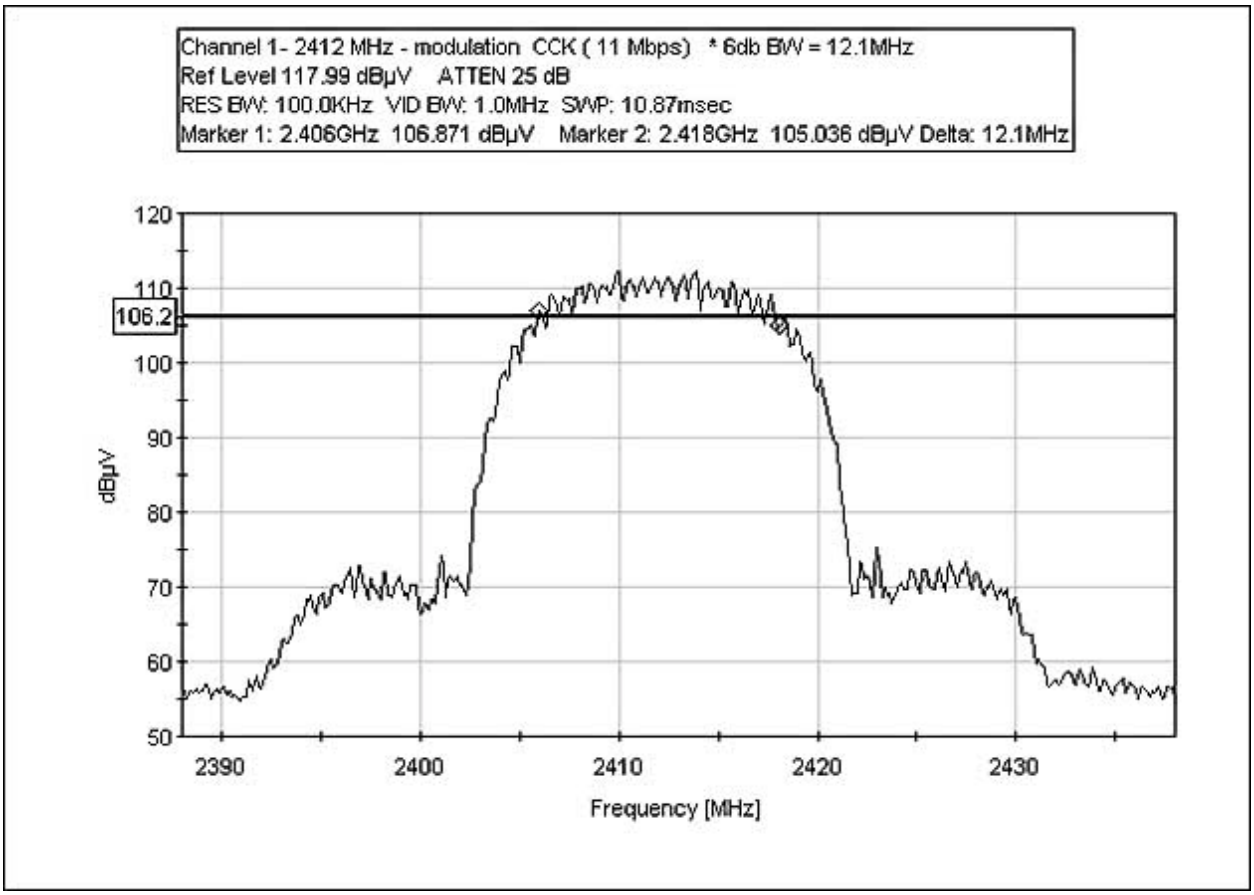
Table 4: FCC 15.209/15.247(c) Six Highest Radiated Emission Levels - OATS									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	Amp dB	Cable dB	dB	READING dBµV/m	LIMIT dBµV/m	MARGIN dB	NOTES
200.427	48.4	9.0	-26.9	3.3		33.8	43.5	-9.7	V
303.634	45.6	13.5	-26.7	4.2		36.6	46.0	-9.4	H
351.560	44.7	15.0	-26.8	4.4		37.3	46.0	-8.7	H
671.987	36.9	20.6	-26.4	6.4		37.5	46.0	-8.5	V
672.012	36.7	20.6	-26.4	6.4		37.3	46.0	-8.7	V
720.009	34.7	21.2	-26.2	6.7		36.4	46.0	-9.6	V

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart C Sections 15.209/15.247(c)
Test Distance: 3 Meters

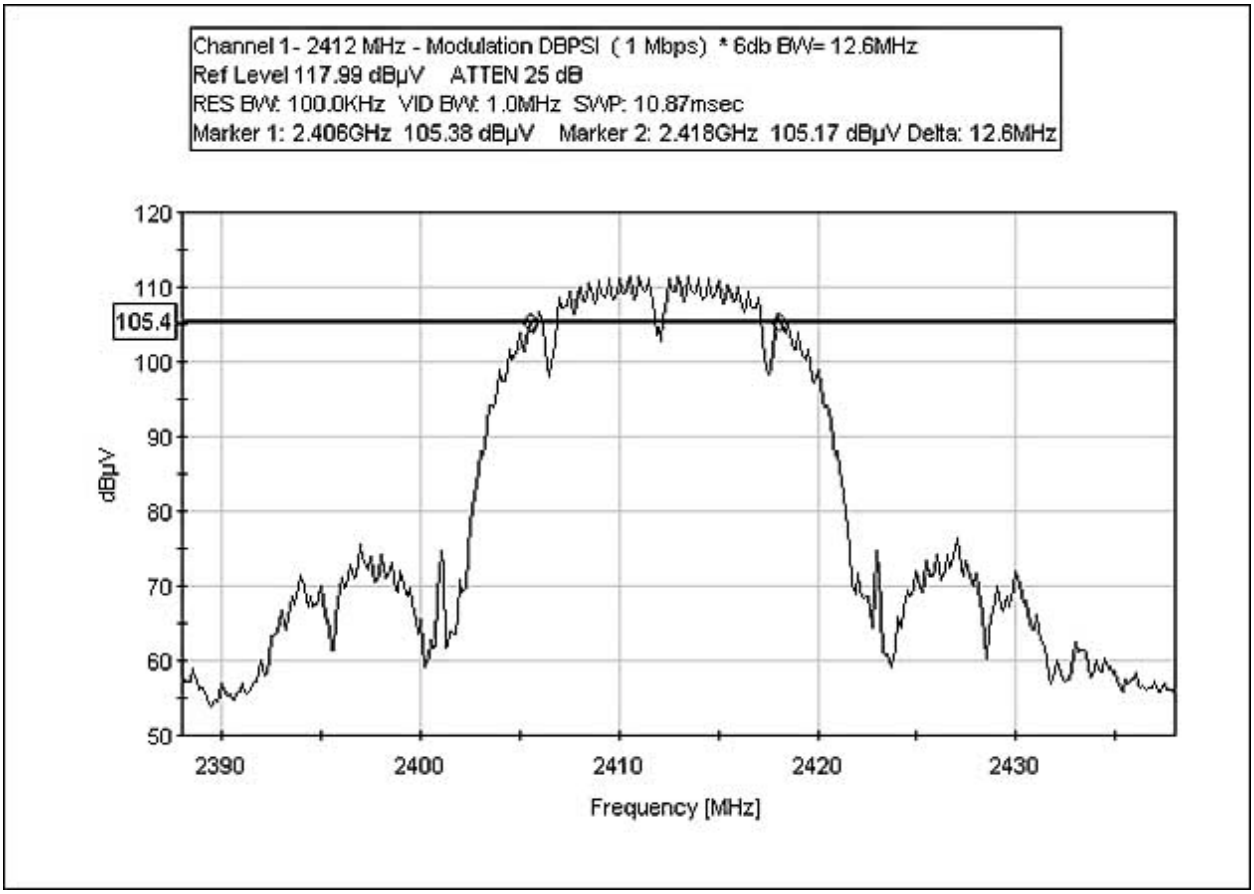
NOTES: H = Horizontal Polarization
V = Vertical Polarization

COMMENTS: The EUT housed in a host laptop computer is placed on the wooden table. Connected to the laptop computer are a monitor and a USB storage drive. Transmit mode. Freq = 2437 MHz, Rate: 11 Mbps (worse case). Frequency range of measurement = 9 kHz - 25 GHz. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz - 25 MHz RBW=1 MHz, VBW=1 MHz. 110Vac, 60 Hz, 32.2°C, 48% relative humidity.

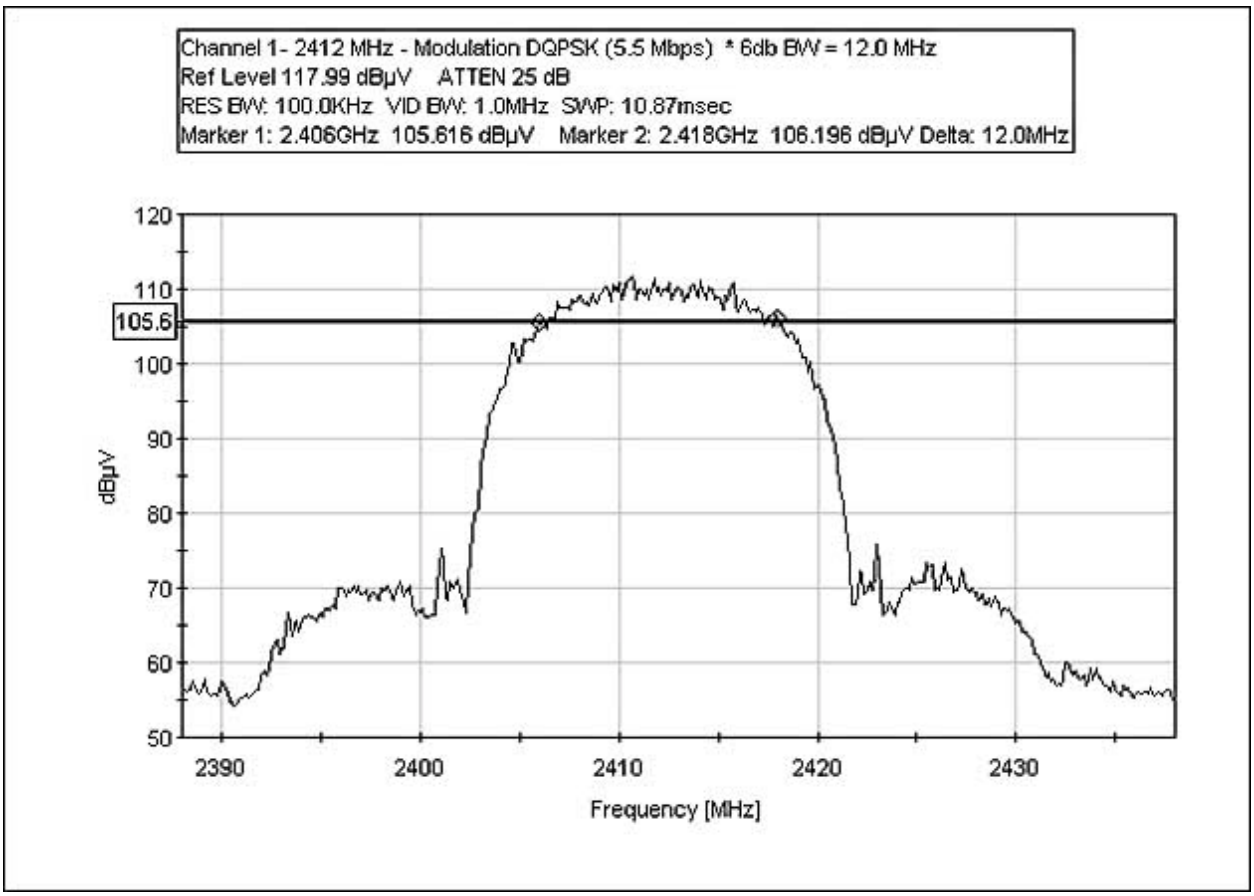
FCC 15.247(a)(2) CHANNEL 1 MODULATION CCK (11 Mbps)



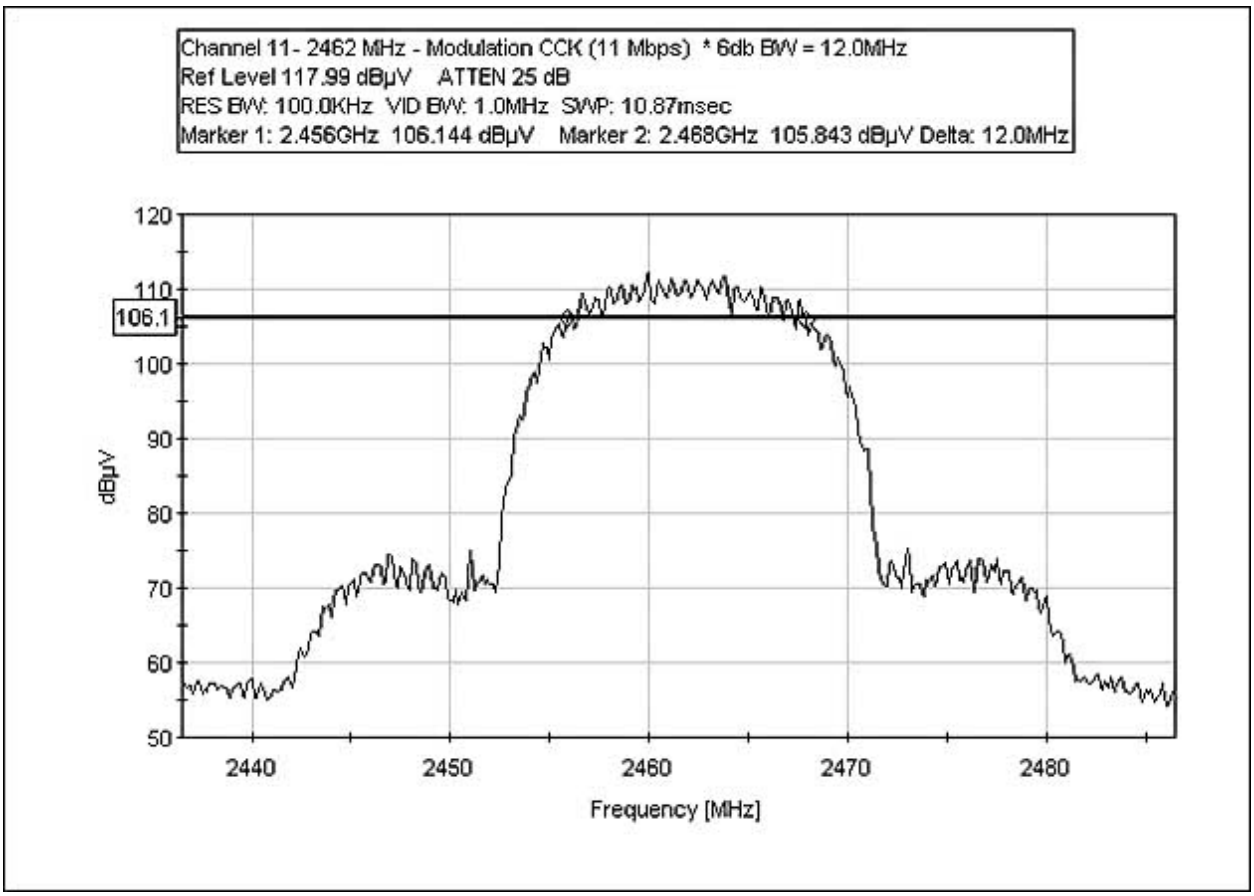
FCC 15.247(a)(2) CHANNEL 1 MODULATION DBPSI (1 Mbps)



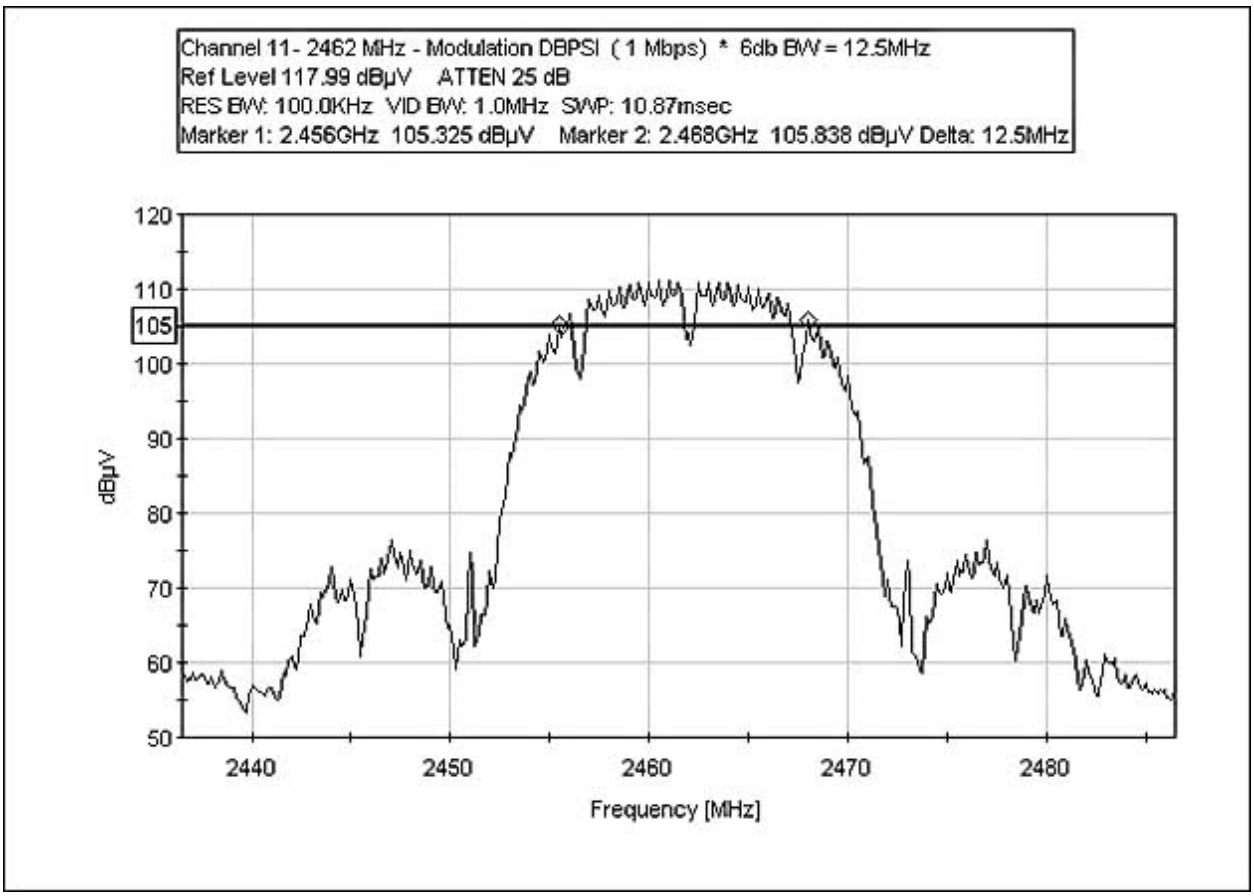
FCC 15.247(a)(2) CHANNEL 1 MODULATION DPQSK (5.5 Mbps)



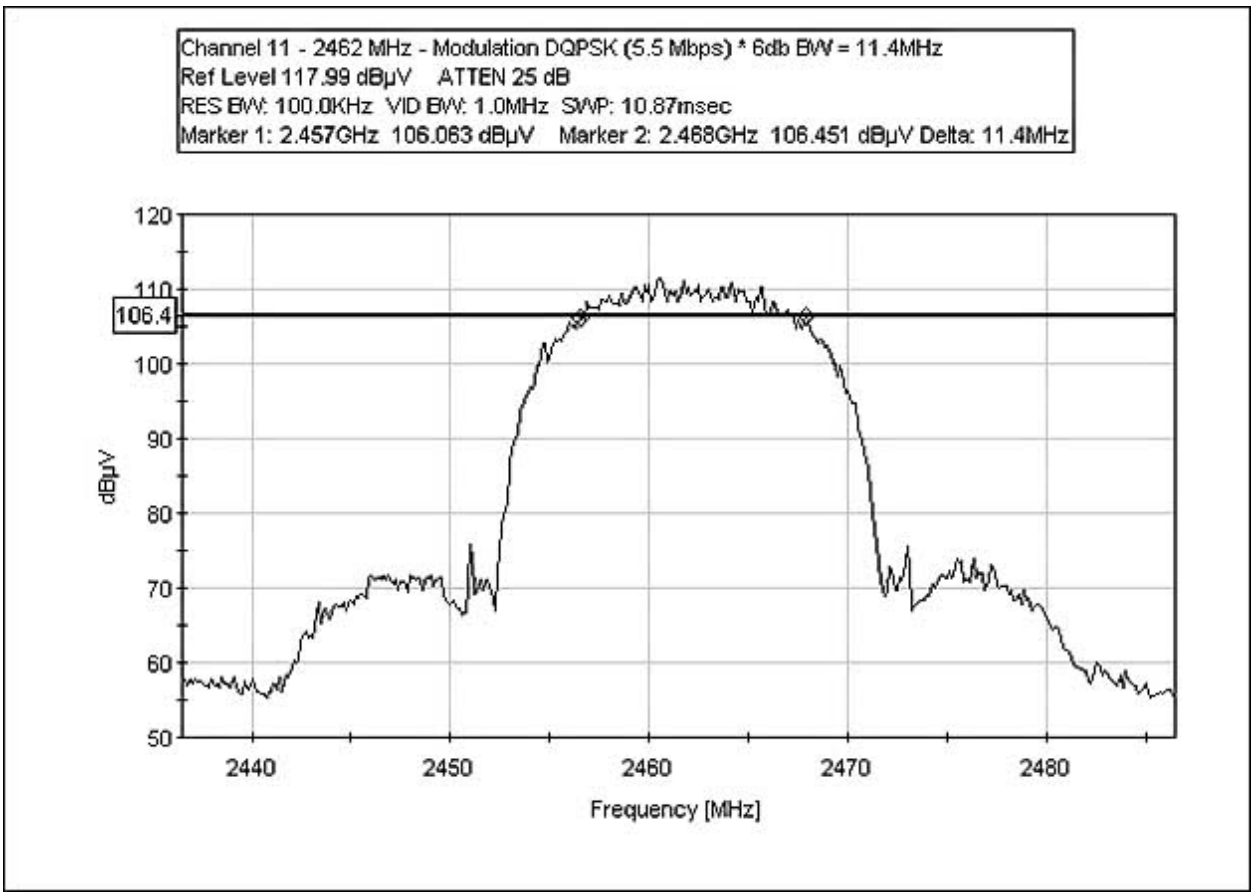
FCC 15.247(a)(2) CHANNEL 11 MODULATION CCK (11 Mbps)



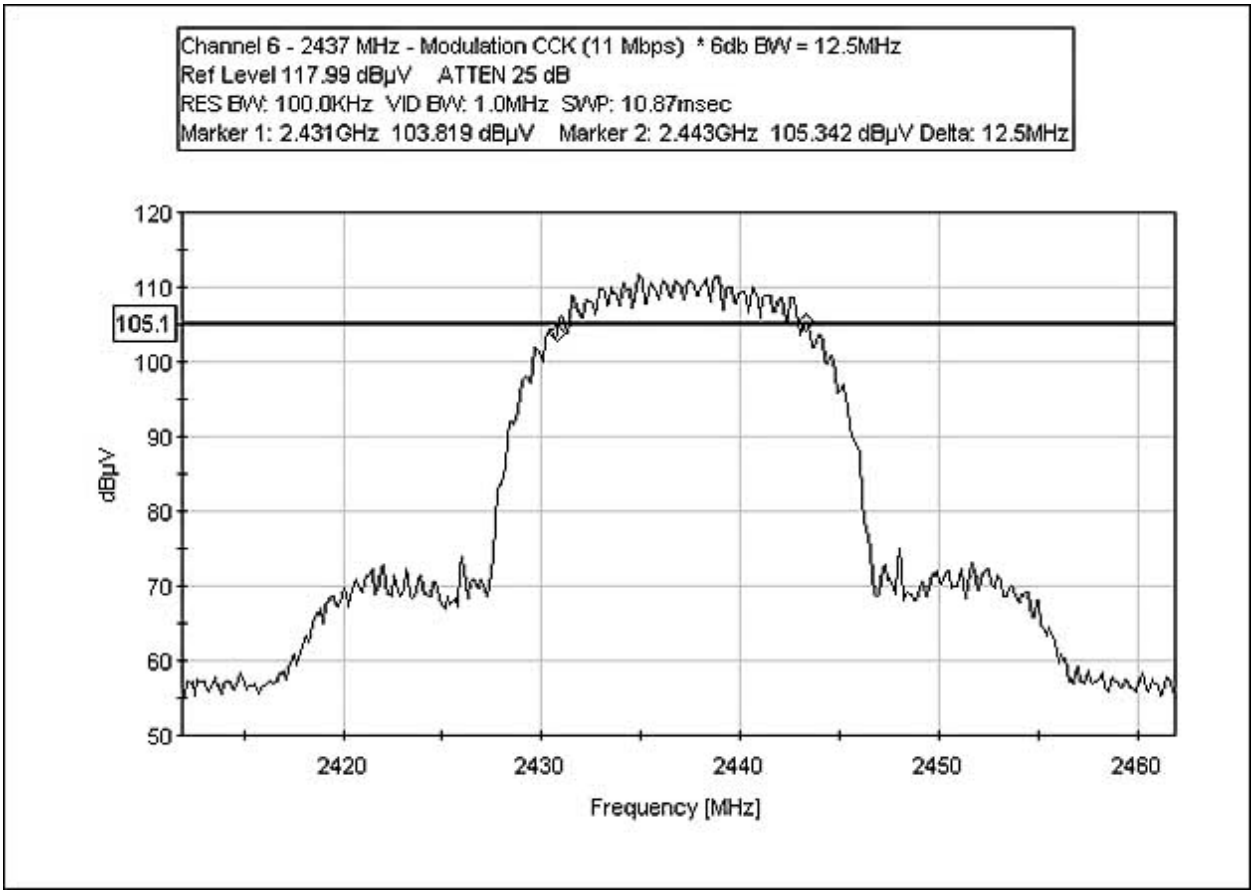
FCC 15.247(a)(2) CHANNEL 11 MODULATION DBPSI (1 Mbps)



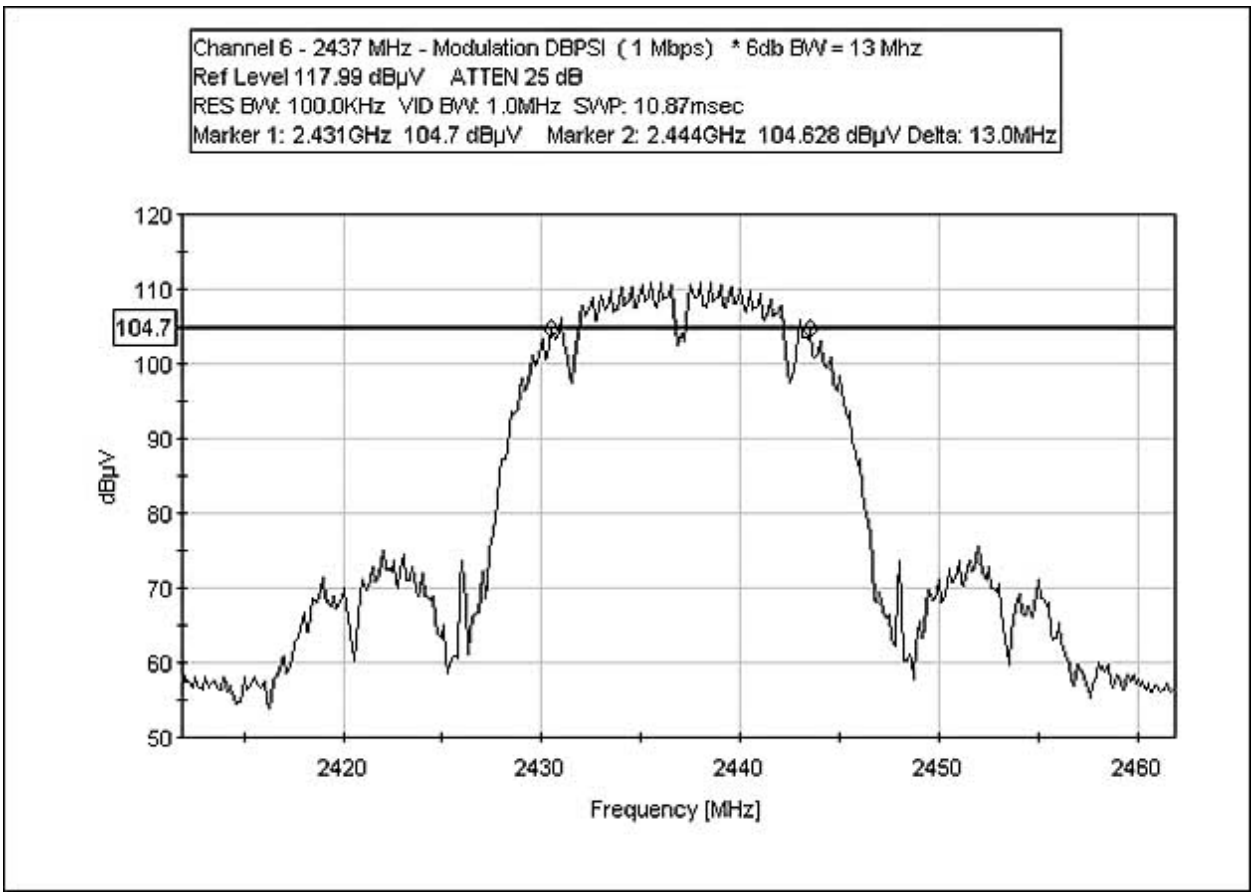
FCC 15.247(a)(2) CHANNEL 11 MODULATION DQPSK (5.5 Mbps)



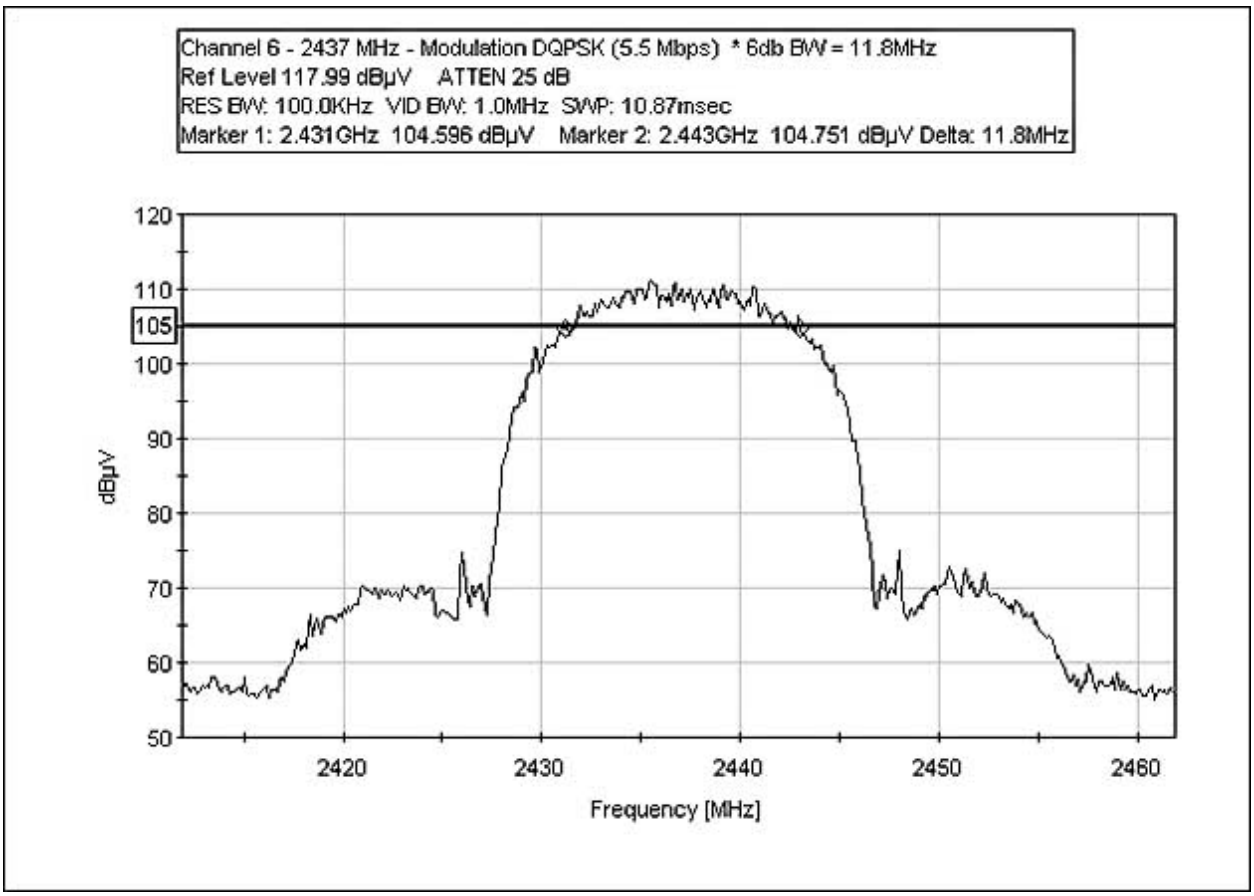
FCC 15.247(a)(2) CHANNEL 6 MODULATION CCK (11 Mbps)



FCC 15.247(a)(2) CHANNEL 6 MODULATION DBPSI (1 Mbps)



FCC 15.247(a)(2) CHANNEL 6 MODULATION DQPSK (5.5 Mbps)



FCC 15.247(b)(3) RF Power Output

15.247 Operation within the band 2400-2483.5 MHz.

(b) The maximum peak output power of the intentional radiator shall not exceed the following:

(3) *For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.*

The following measure power demonstrates the EUT satisfies the above requirement.

The EUT is placed on the test bench. The antenna port is connected to a oscilloscope via a Peak detector diode. The rectified DC level of the RF signal is recorded.

A signal generator is then connected to the oscilloscope via the peak detector diode. RF level of the signal generator is adjusted to match the measured DC level of the RF signal of the EUT.

With the Peak detector diode removed, the RF level of the signal generator is then measured with a power meter. The recorded power level is the peak power.

Freq (MHz)	Rate (Mbps)	Measured Conducted Peak Power (dBm)	**Watt**	Antenna gain (dBi)	Calculated Radiated Peak Power (dBm)	**Watt**
2412	1.0	16.6	**0.0457**	1.65	18.13	**0.0650**
2412	5.5	16.2	**0.0417**	1.65	17.73	**0.0593**
2412	11.0	16.2	**0.0417**	1.65	17.73	**0.0593**
2437	1.0	15.8	**0.0380**	1.65	17.33	**0.0541**
2437	5.5	15.8	**0.0380**	1.65	17.33	**0.0541**
2437	11.0	15.8	**0.0380**	1.65	17.33	**0.0541**
2462	1.0	16.5	**0.0447**	1.65	18.03	**0.0635**
2462	5.5	16.1	**0.0407**	1.65	17.63	**0.0579**
2462	11.0	16.1	**0.0407**	1.65	17.63	**0.0579**

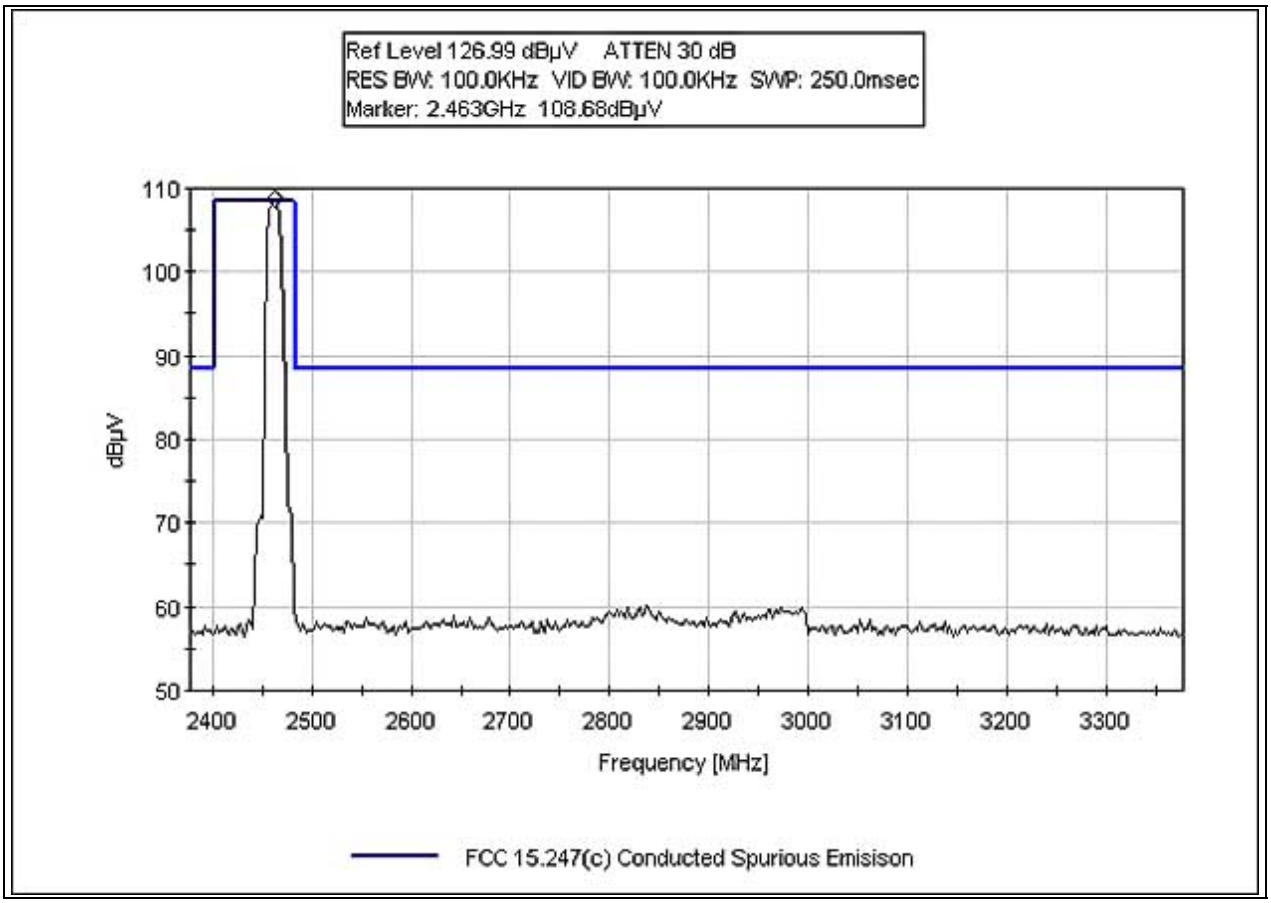
Table 6: FCC 15.247(c) Six Highest Antenna Conducted Emission Levels									
FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS dB	dB	dB	dB	CORRECTED READING dBµV	SPEC LIMIT dBµV	MARGIN dB	NOTES
									*

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart C Sections 15.247(c)

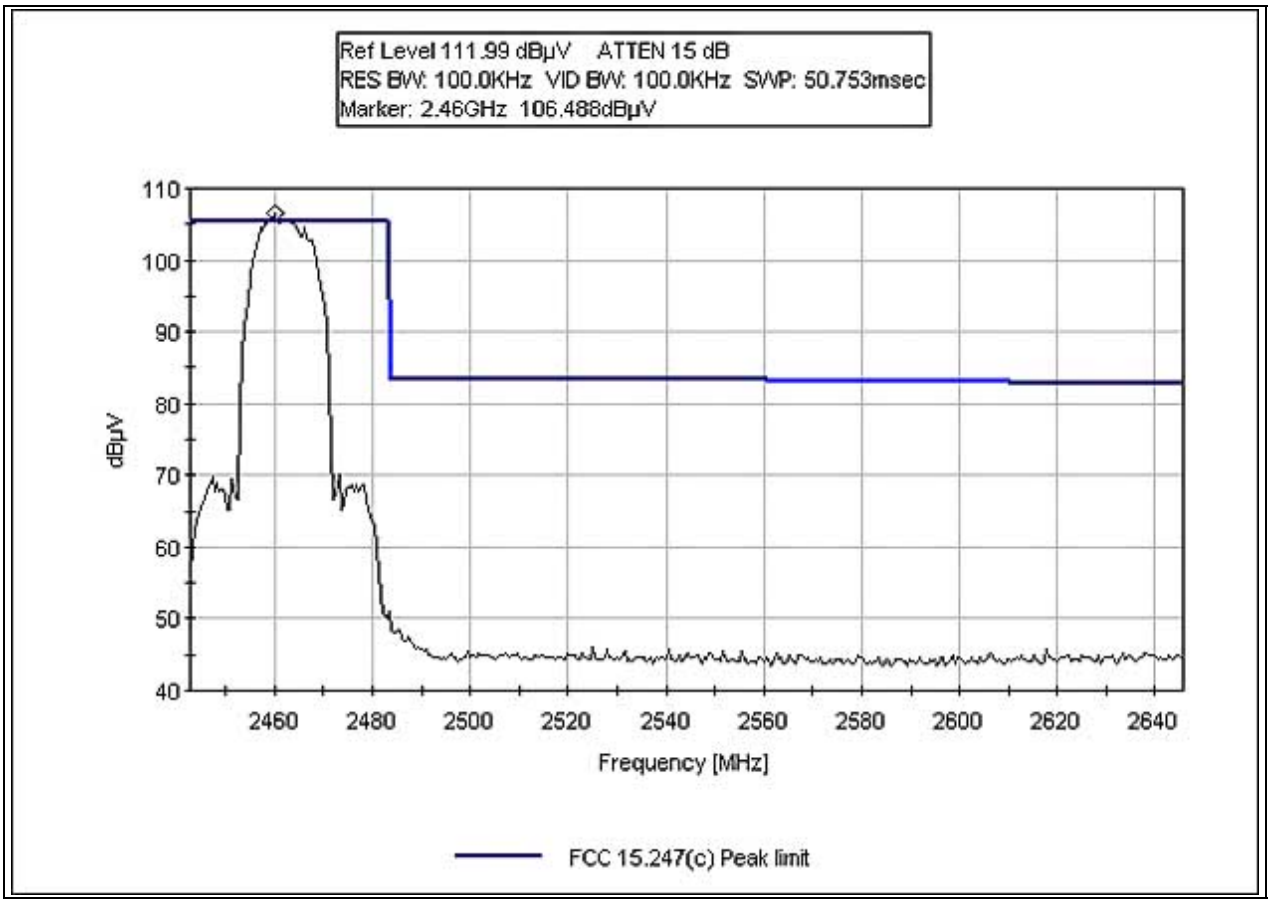
COMMENTS: The EUT is placed on the test bench, The RF output port is connected to the spectrum analyzer. Freq = 2412 MHz, 2437 MHz and 2462 MHz. Rates = 1 Mbps, 5.5 Mbps and 11 Mbps. Frequency range of measurement = 9 kHz - 25 GHz. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz -25 MHz RBW=1 MHz, VBW=1 MHz. 110Vac, 60 Hz, 32.2°C, 48% relative humidity.

NOTES: ***No spurious emissions within –20 dBc were detected. Worst case emissions were at a rate of 11 Mbps.**

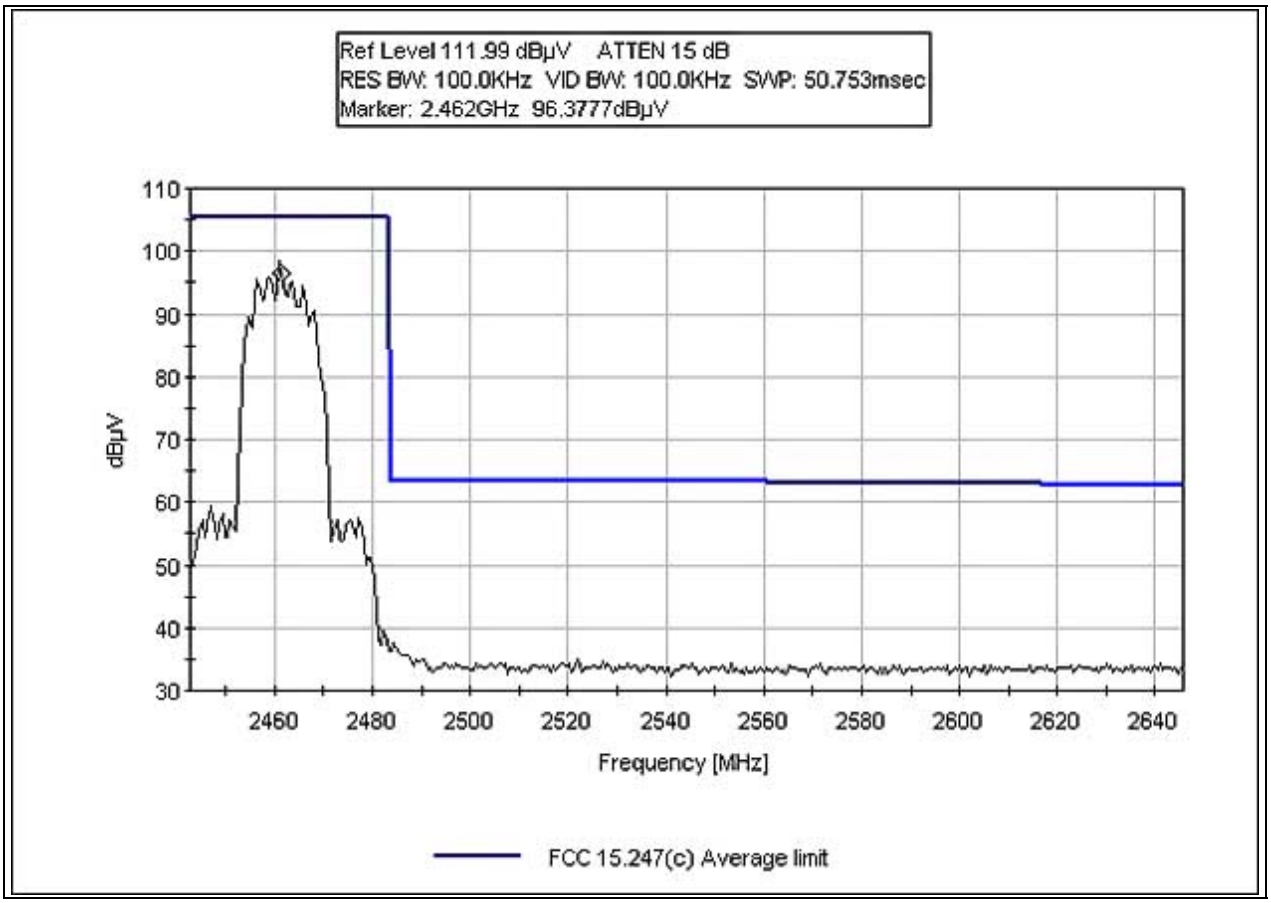
FCC 15.247(c) BAND EDGE PLOT H 100 kHz



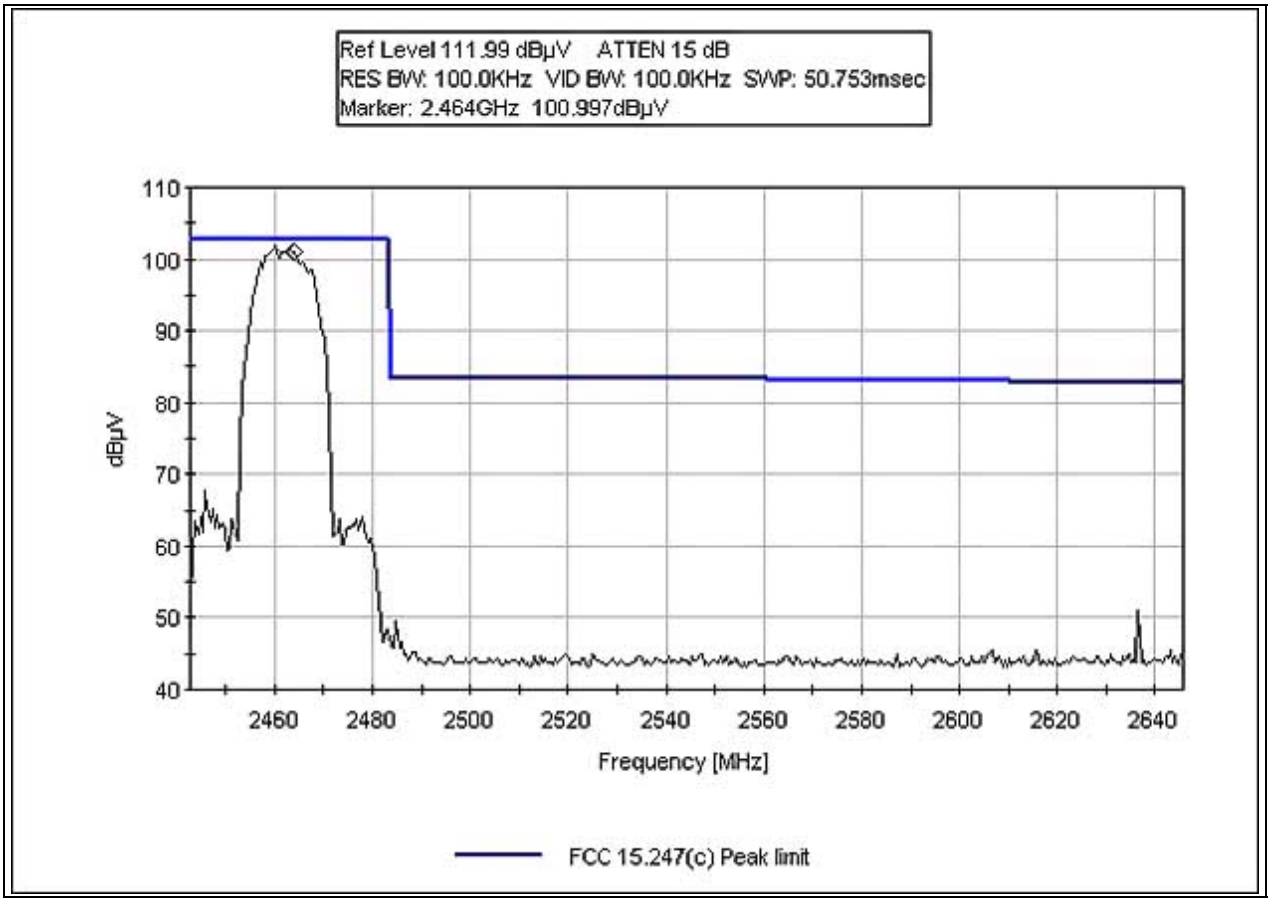
FCC 15.247(c) BAND EDGE PLOT H HORIZONTAL 100 kHz



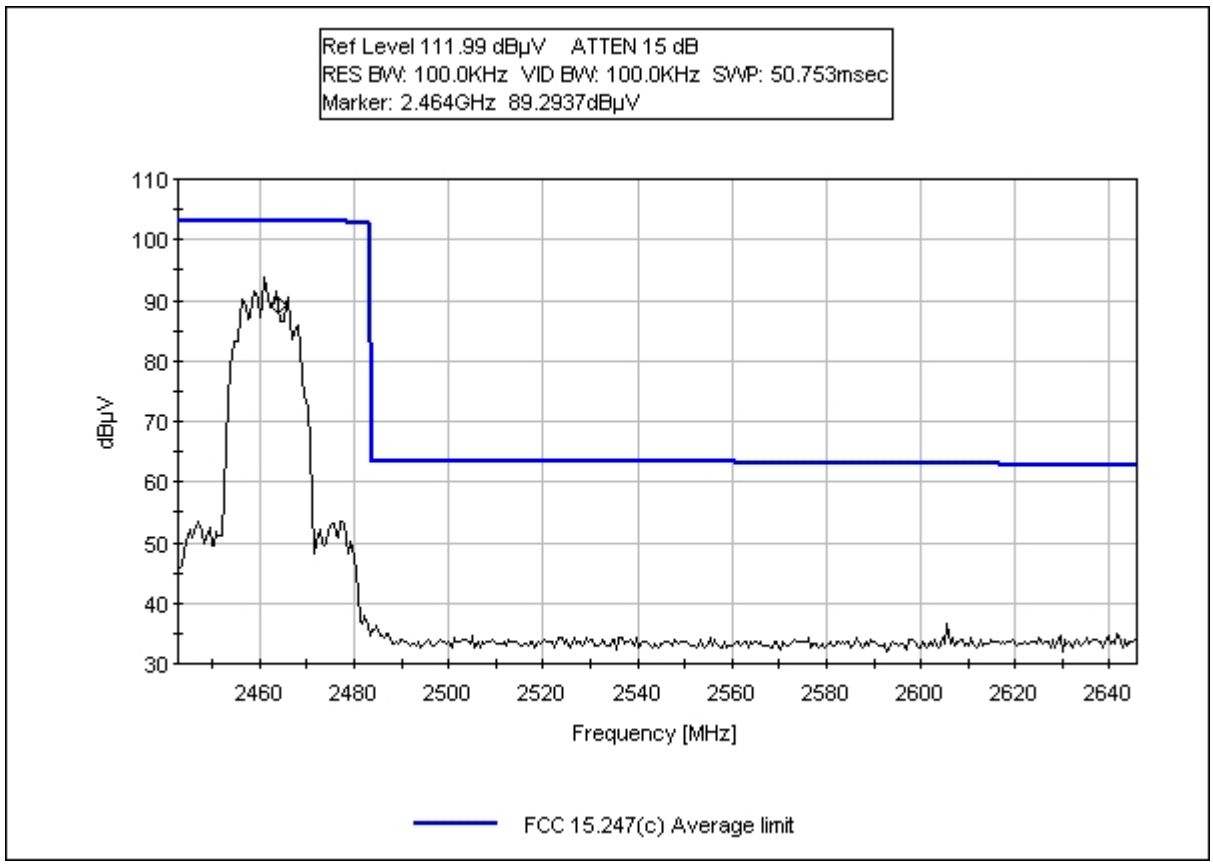
FCC 15.247(c) BAND EDGE PLOT H HORIZONTAL AVERAGE 100 kHz



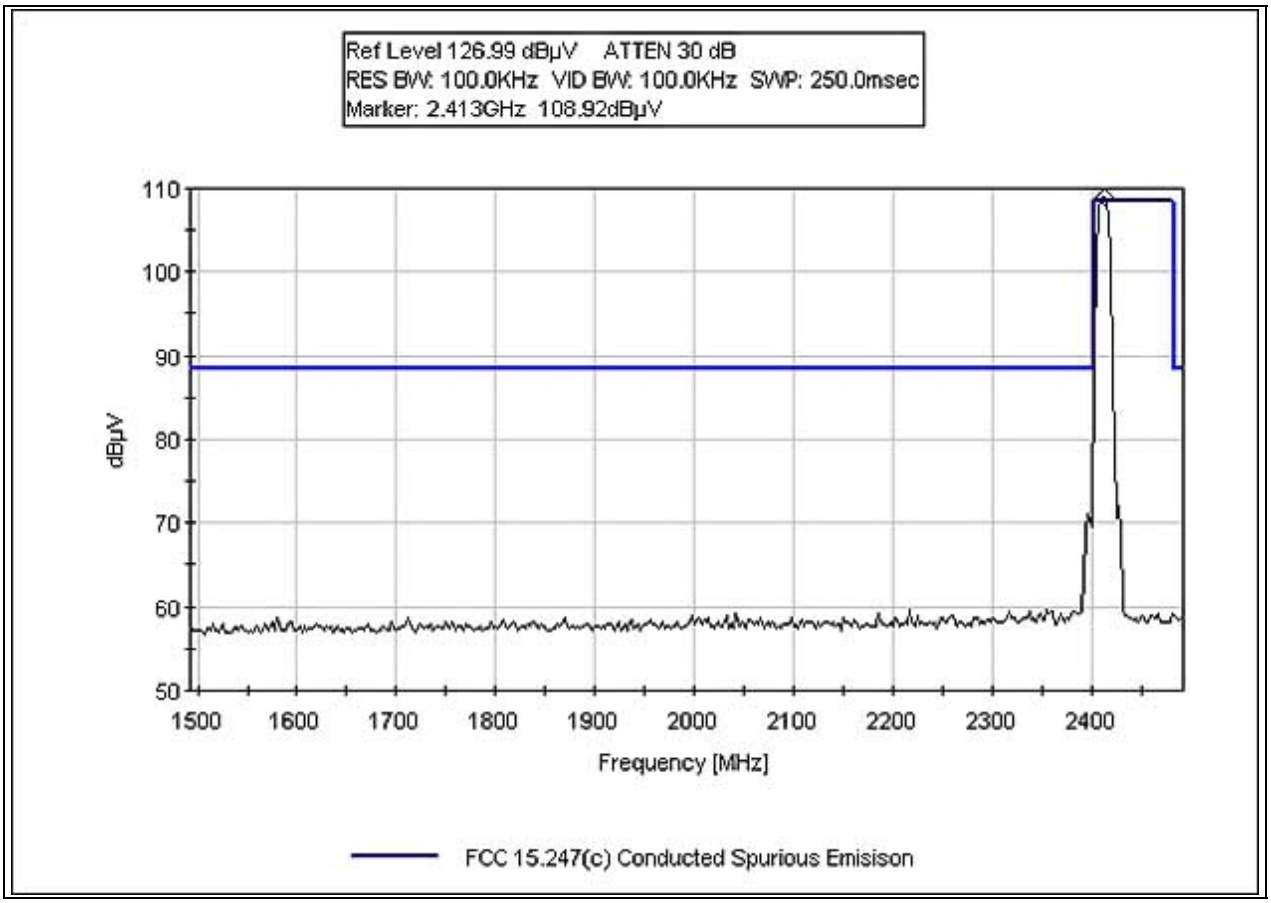
FCC 15.247(c) BAND EDGE PLOT H VERTICAL 100 kHz



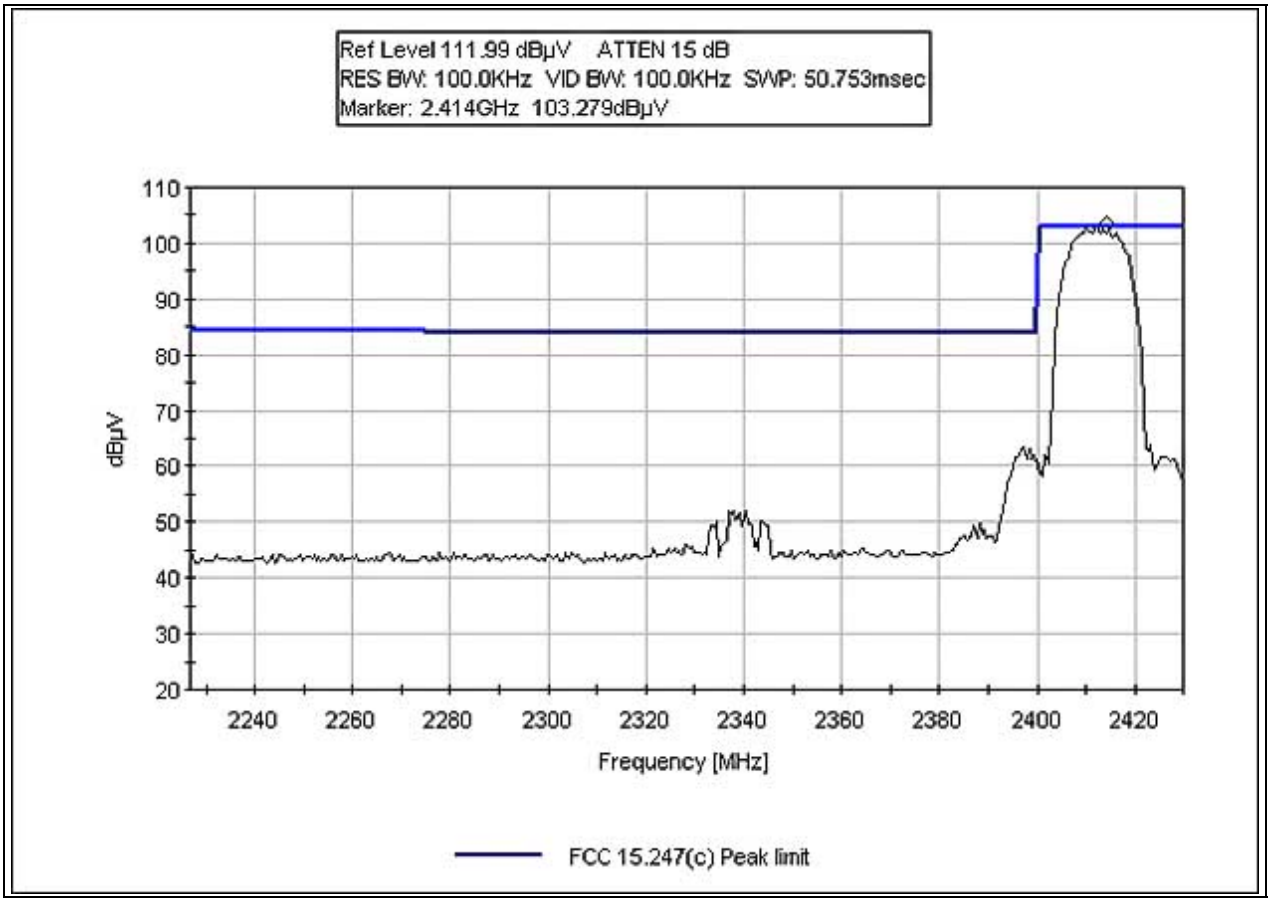
FCC 15.247(c) BAND EDGE PLOT H VERTICAL AVERAGE 100 kHz



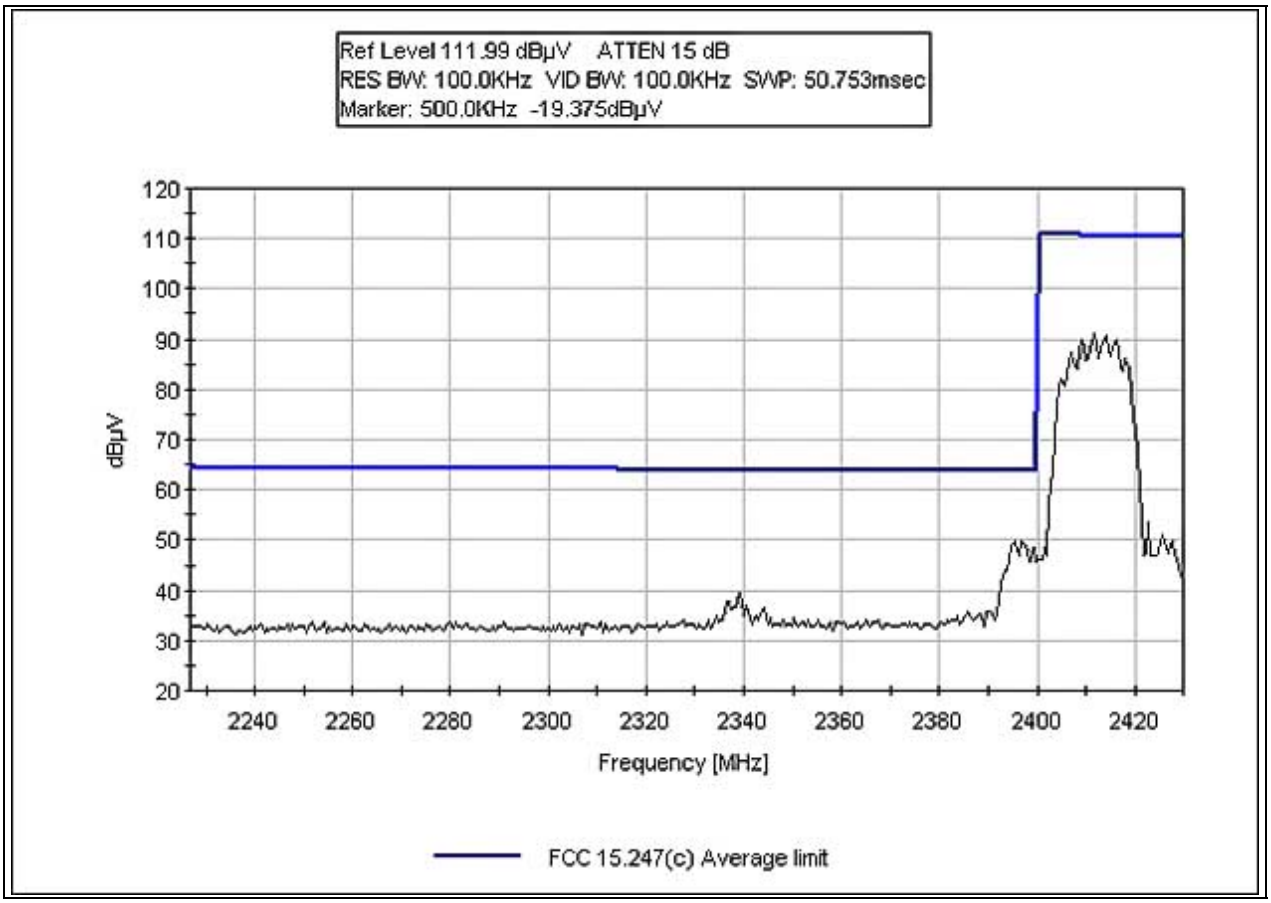
FCC 15.247(c) BAND EDGE PLOT L 100 kHz



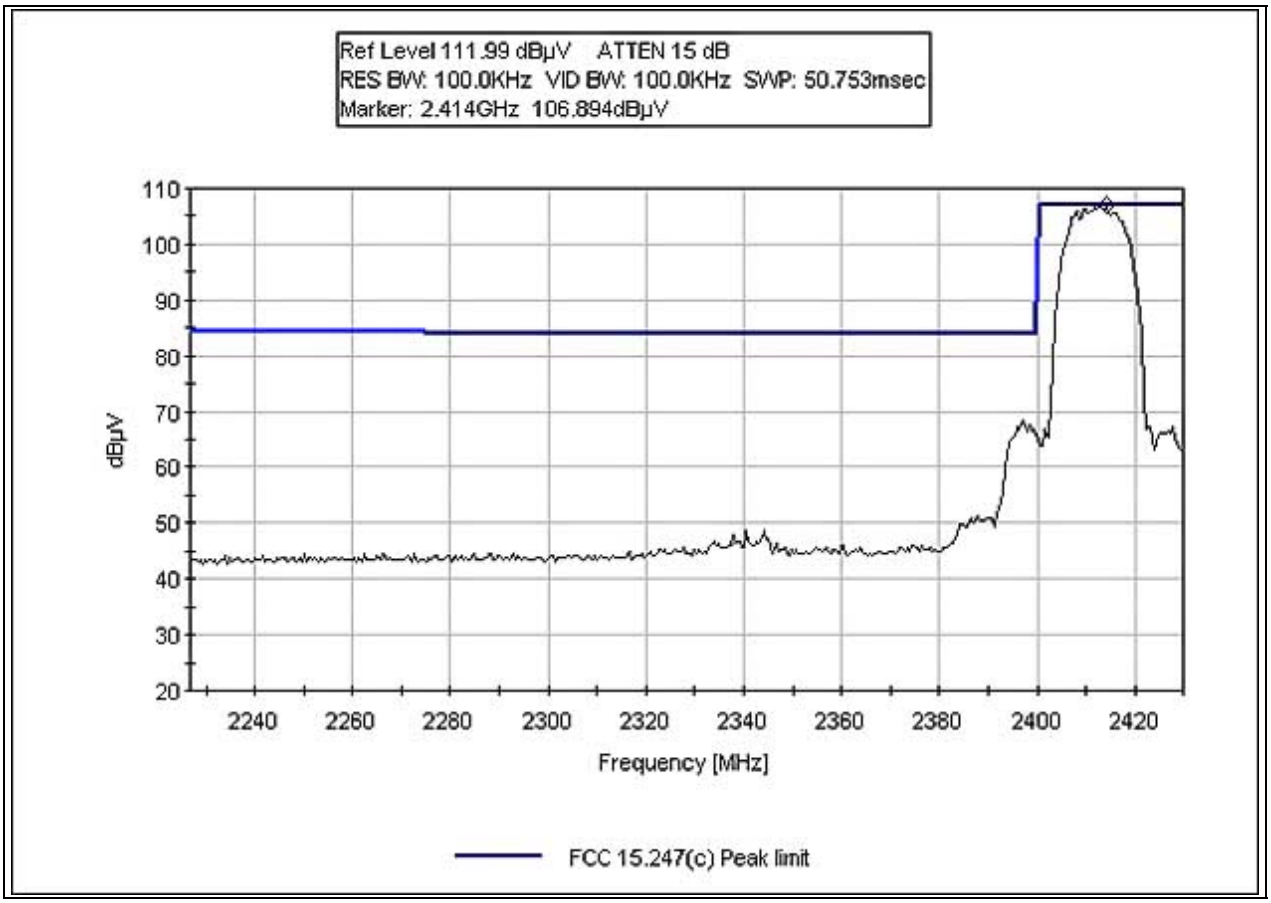
FCC 15.247(c) BAND EDGE PLOT L VERTICAL 100 kHz



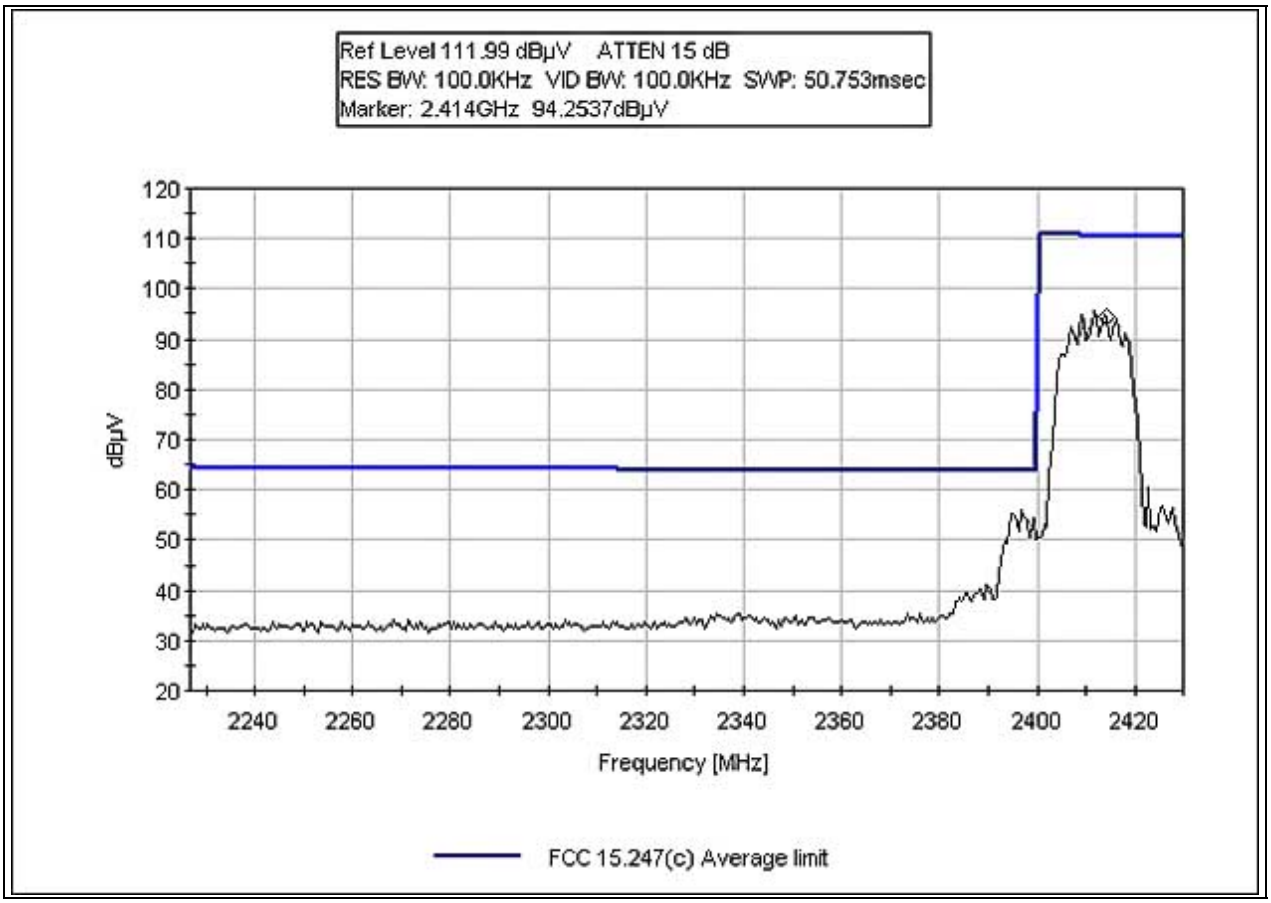
FCC 15.247(c) BAND EDGE PLOT L VERTICAL AVERAGE 100 kHz



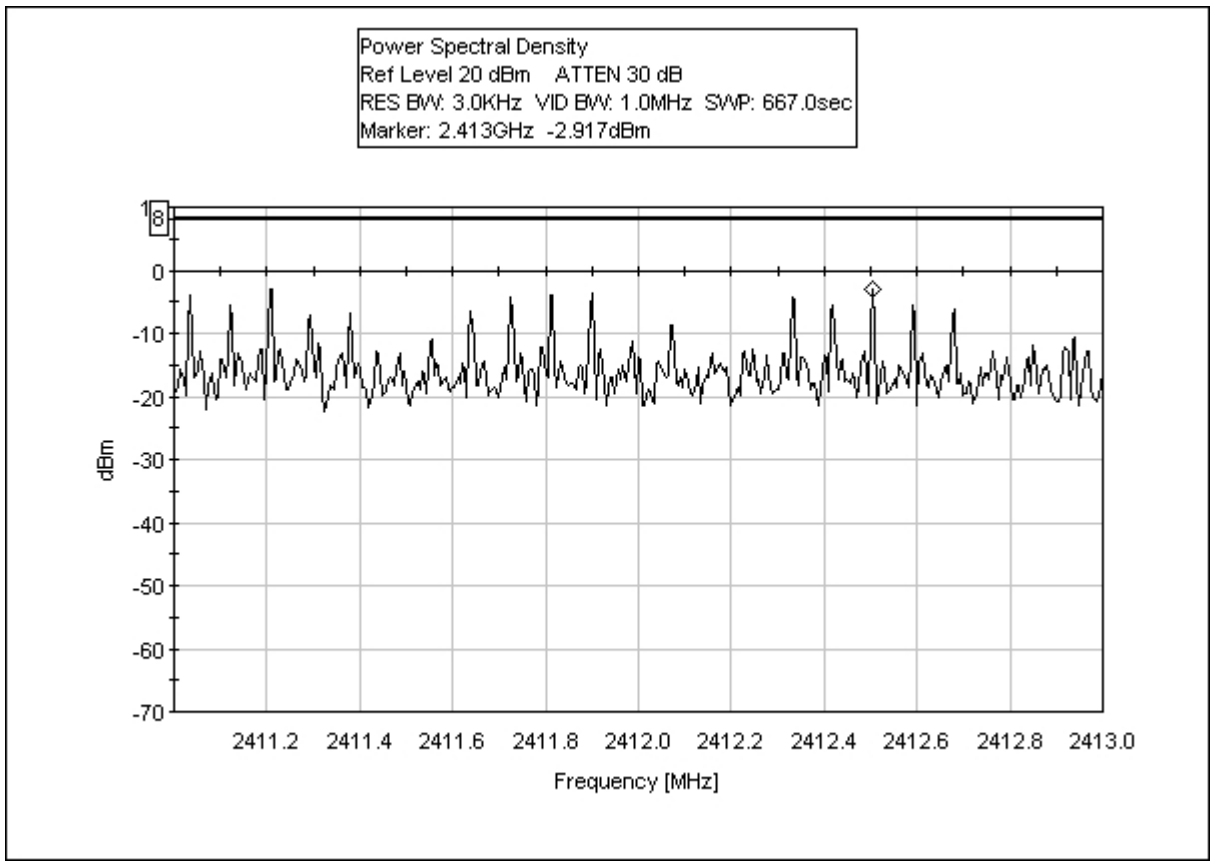
FCC 15.247(c) BAND EDGE PLOT L HORIZONTAL 100 kHz



FCC 15.247(c) BAND EDGE PLOT L HORIZONTAL AVERAGE 100 kHz



FCC 15.247(d) POWER SPECTRAL DENSITY 2412 MHz



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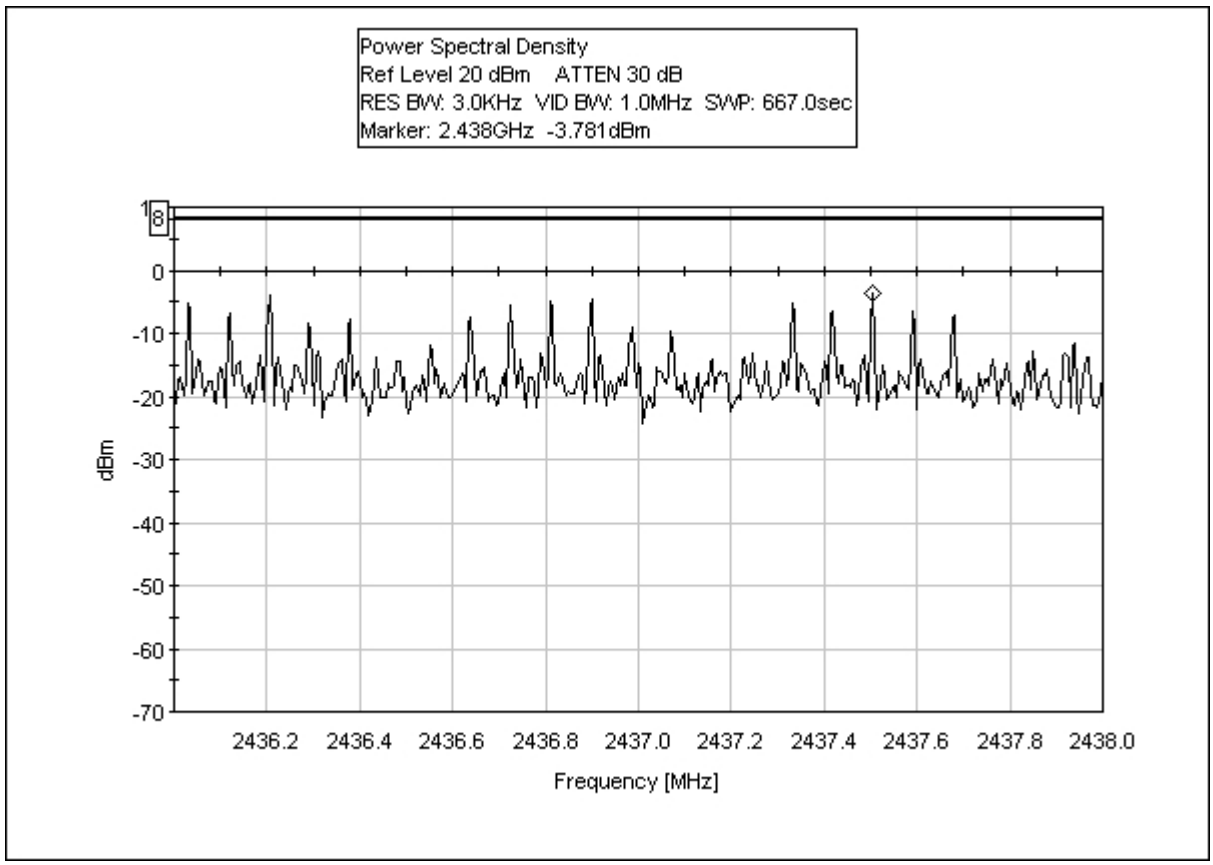
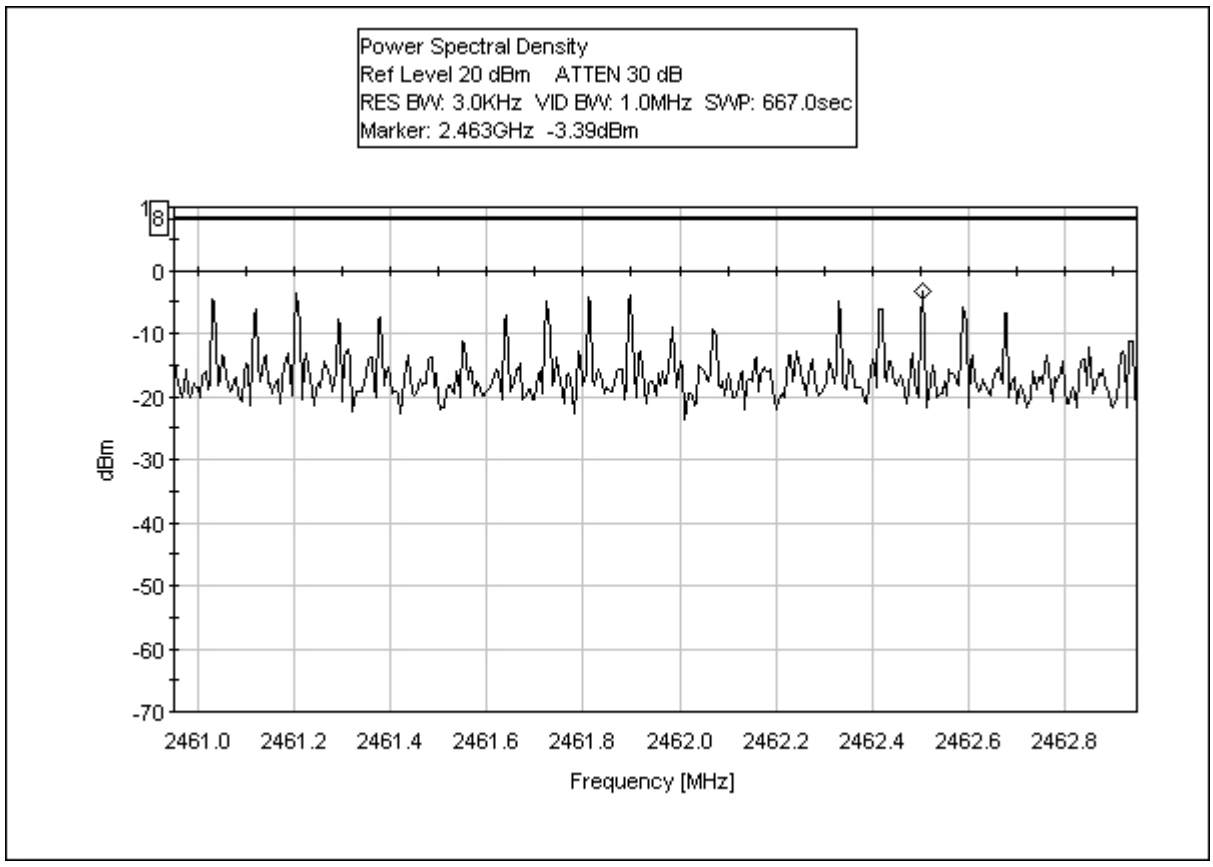
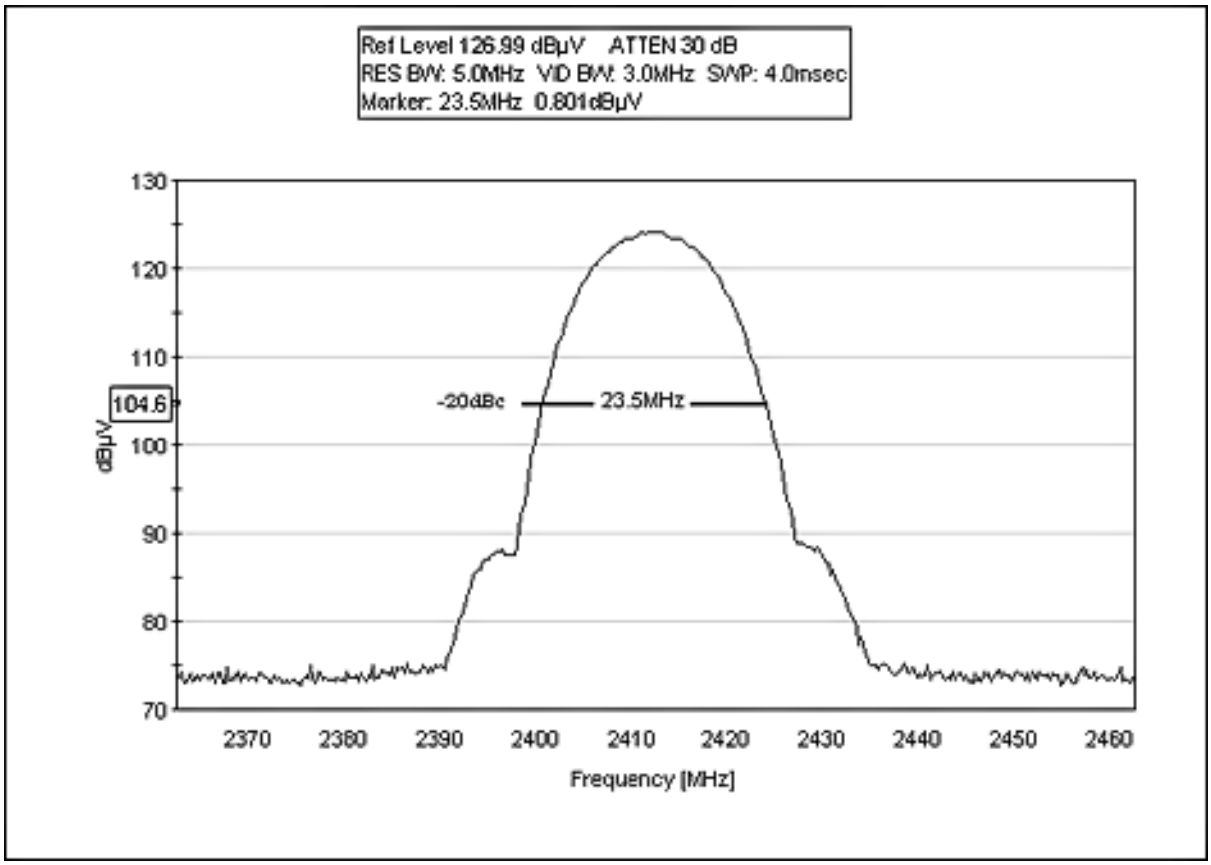


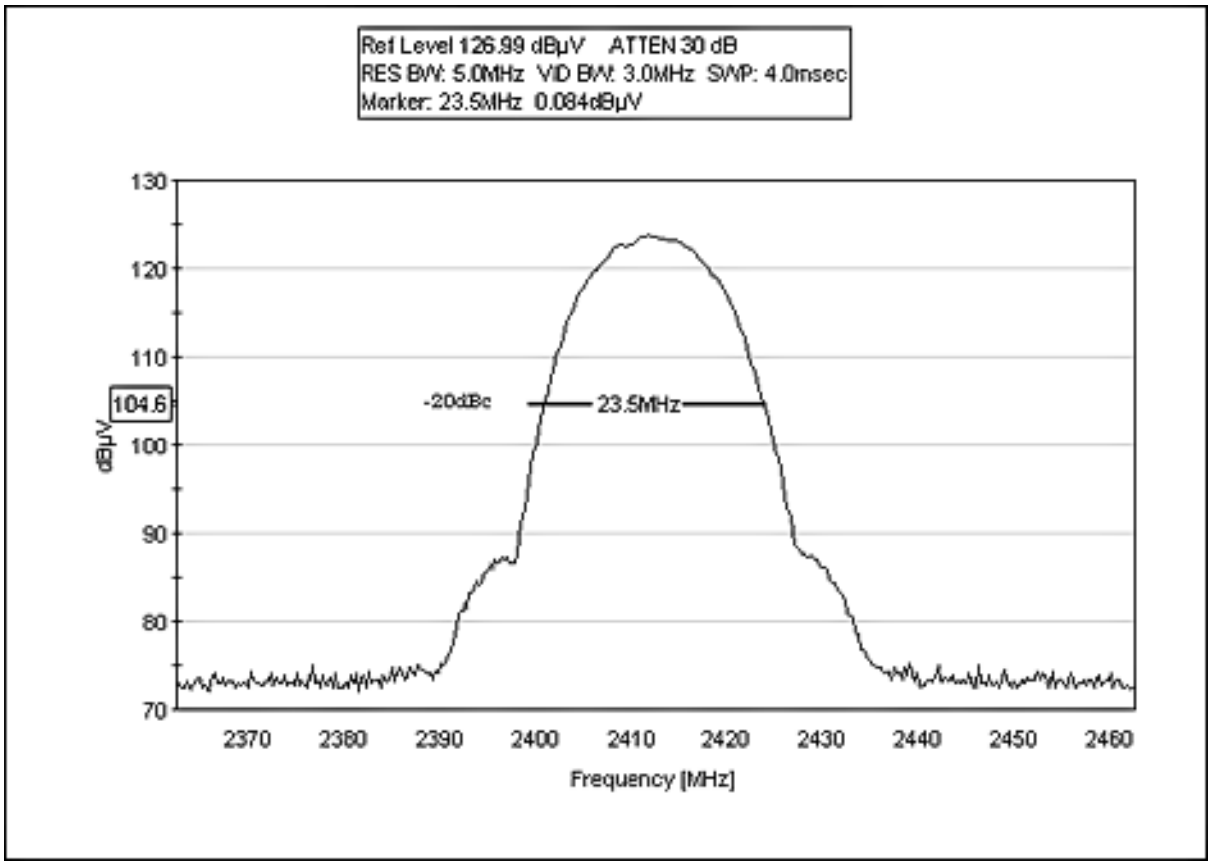
FCC 15.247(d) POWER SPECTRAL DENSITY 2462 MHz



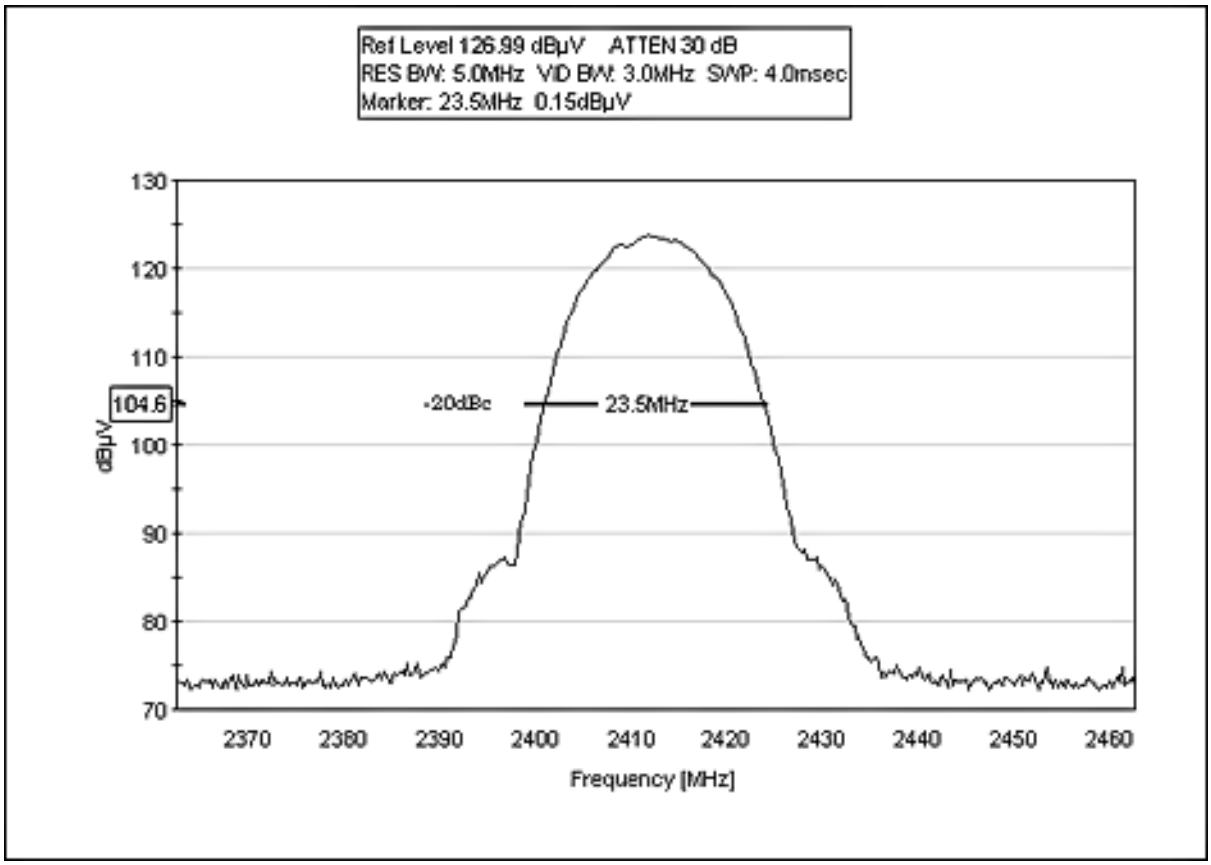
RSS 210 99% BANDWIDTH 2412 MHz 1 Mbps



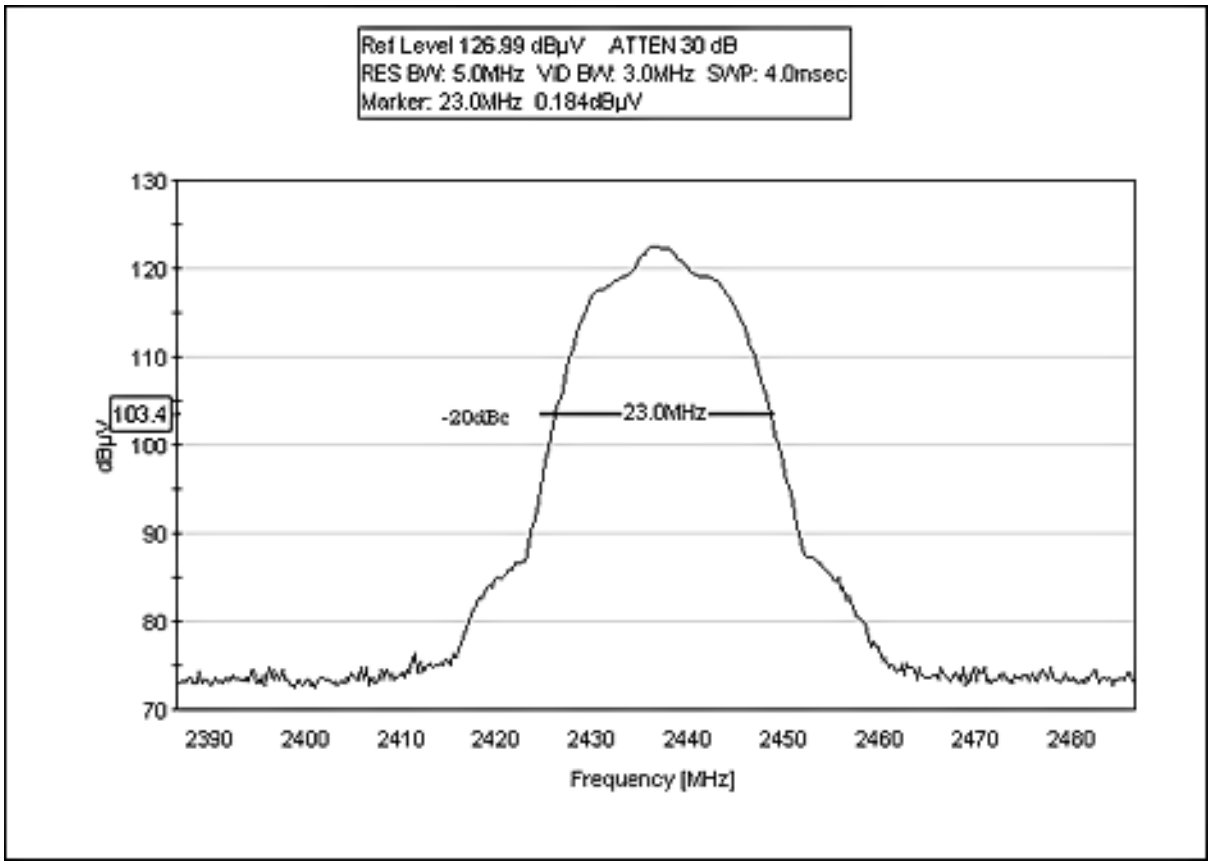
RSS 210 99% BANDWIDTH 2412 MHz 5.5 Mbps



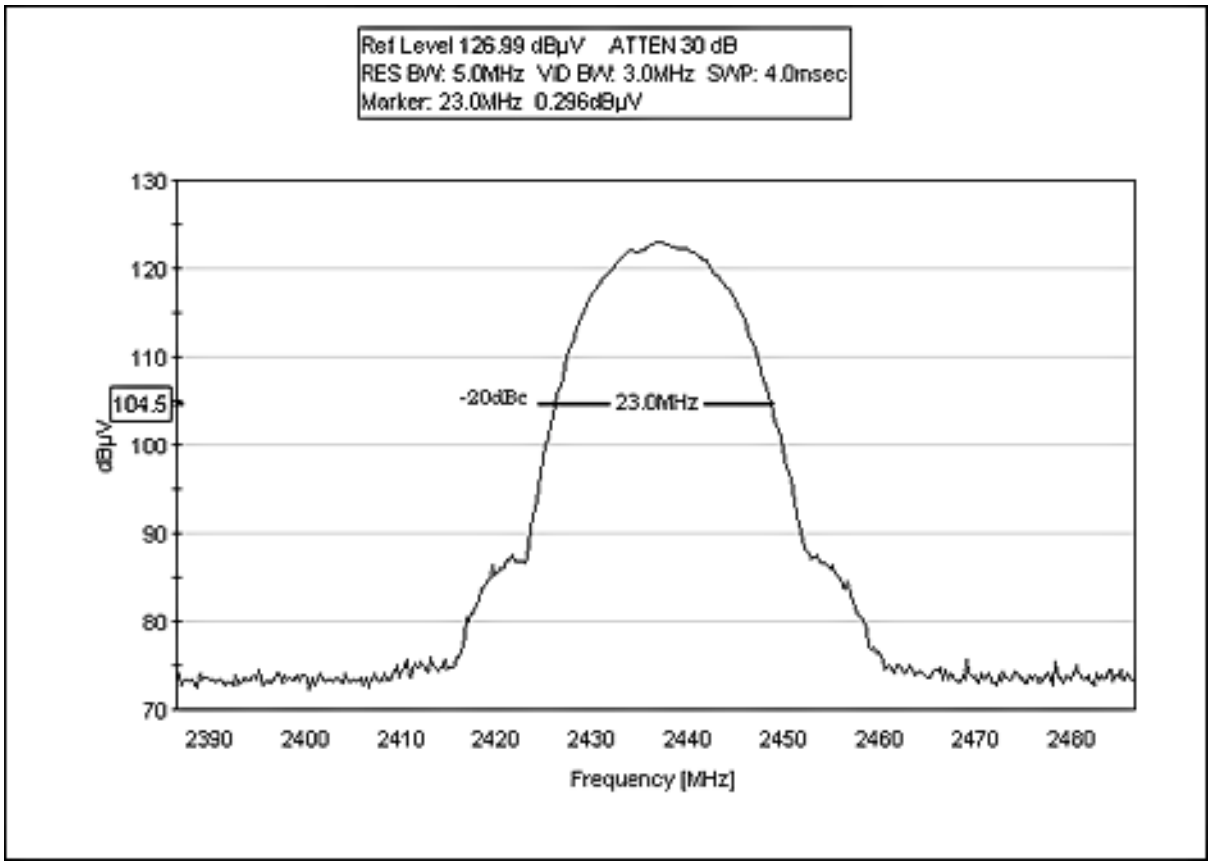
RSS 210 99% BANDWIDTH 2412 MHz 11 Mbps



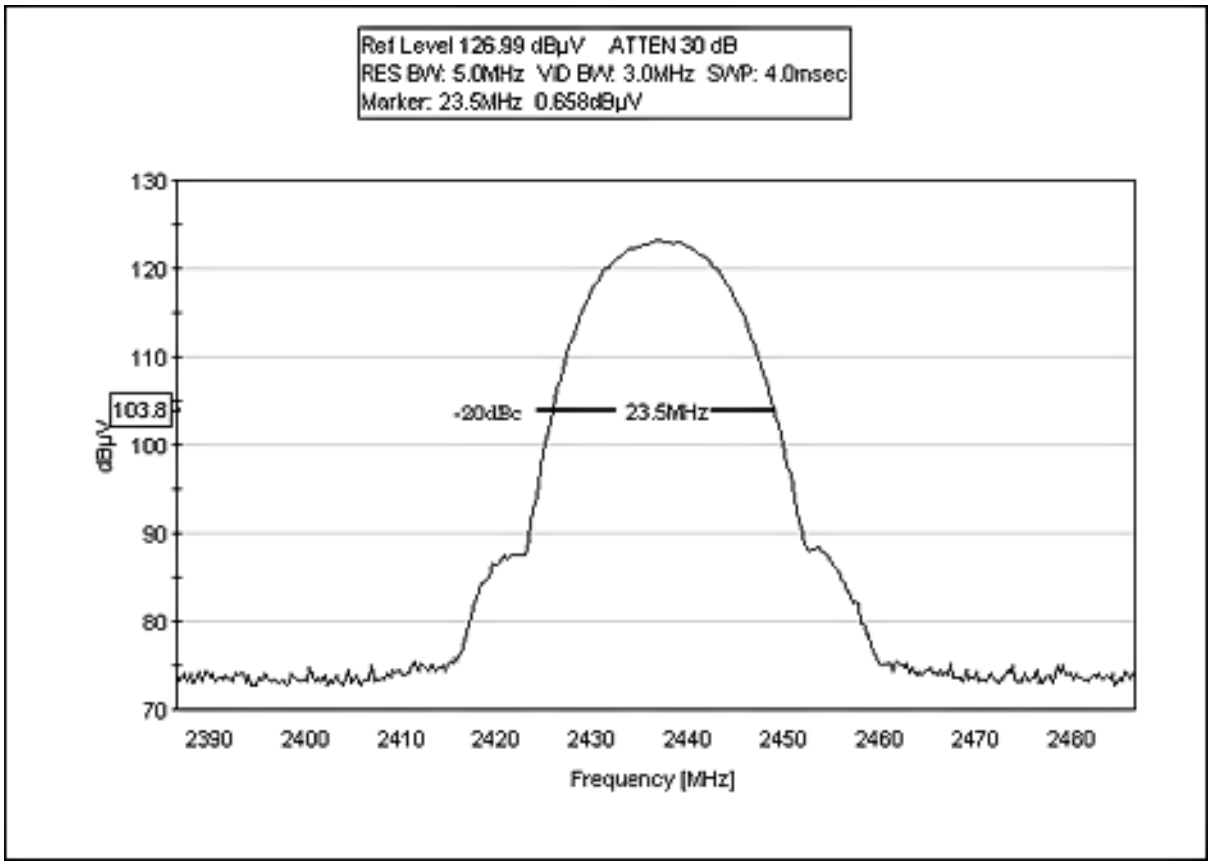
RSS 210 99% BANDWIDTH 2437 MHz 1 Mbps



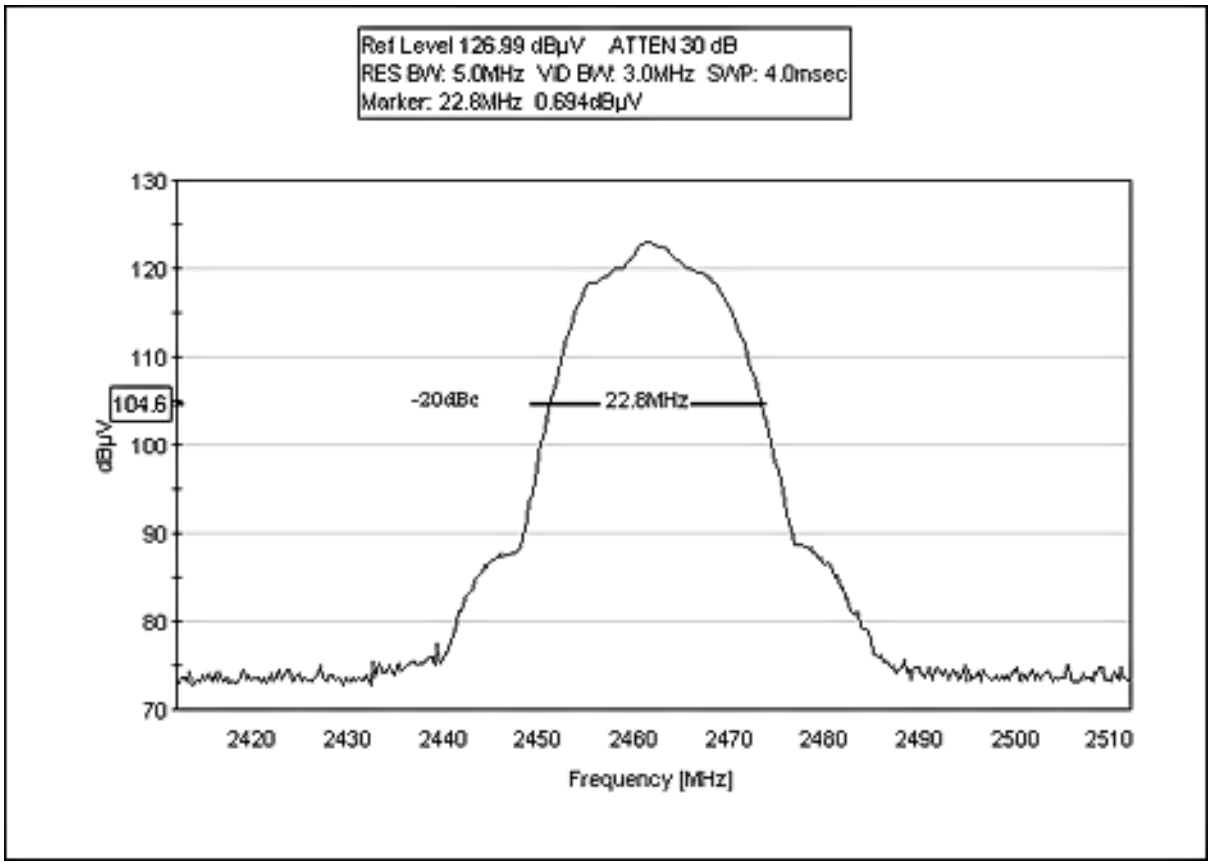
RSS 210 99% BANDWIDTH 2437 MHz 5.5 Mbps



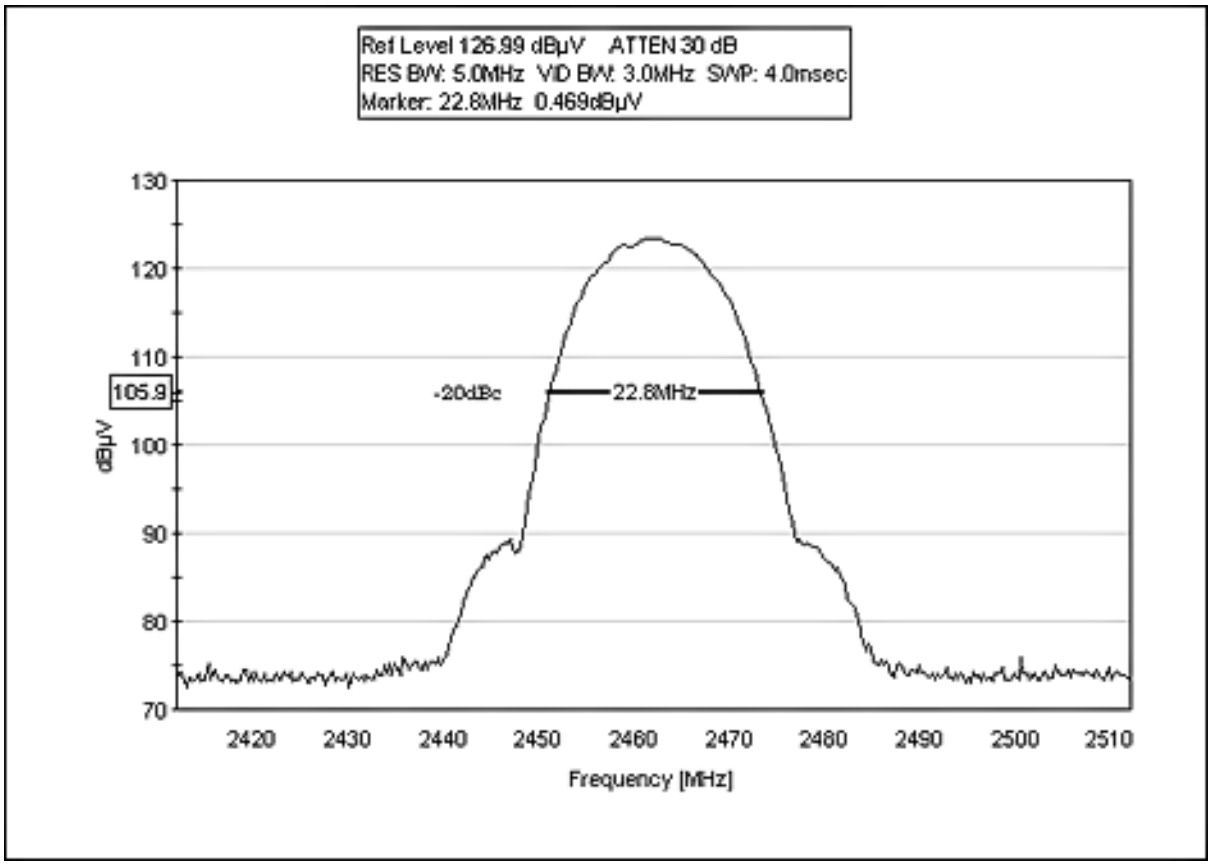
RSS 210 99% BANDWIDTH 2437 MHz 11 Mbps



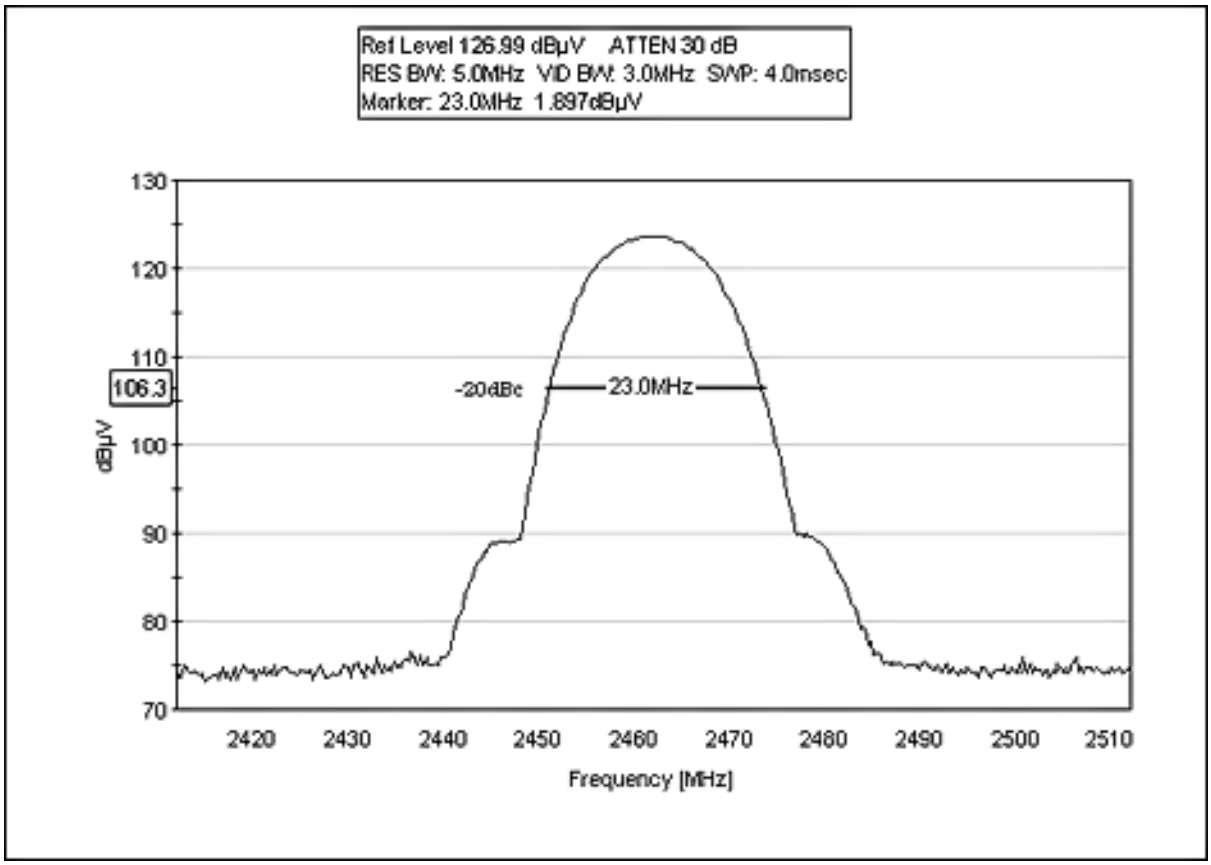
RSS 210 99% BANDWIDTH 2462 MHz 1 Mbps



RSS 210 99% BANDWIDTH 2462 Hz 5.5 Mbps



RSS 210 99% BANDWIDTH 2462 Hz 11 Mbps



TEMPERATURE AND HUMIDITY DURING TESTING
The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

EUT SETUP
The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The radiated and conducted emissions data of the EUT was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS
The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

TABLE A: SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect both the radiated and conducted emissions data for the EUT. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For frequencies from 30 to 1000 MHz, the biconilog antenna was used. The horn antenna was used for frequencies above 1000 MHz. All antennas were located at a distance of 3 meters from the edge of the EUT. Conducted emissions tests required the use of the FCC type LISNs.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dBµV, and a vertical scale of 10 dB per division.

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the Tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

EUT TESTING

Mains Conducted Emissions

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT was located has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test.

The LISNs used were 50 µH-/+50 ohms. Above 150 kHz, a 0.15 µF series capacitor was added in-line prior to connecting the analyzer to restore the proper impedance for the range. A 30 to 50 second sweep time was used for automated measurements in the frequency bands of 150 kHz to 500 kHz, and 500 kHz to 30 MHz. All readings within 20 dB of the limit were recorded, and those within 6 dB of the limit were examined with additional measurements using a slower sweep time.

Antenna Conducted Emissions

For measuring the signal strength on the RF output port of the EUT, the spectrum analyzer was connected directly to the EUT. The sweep time of the analyzer was adjusted so that the spectrum analyzer readings were always in a calibrated range. All readings within 20 dB of the limit were recorded.

Radiated Emissions

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

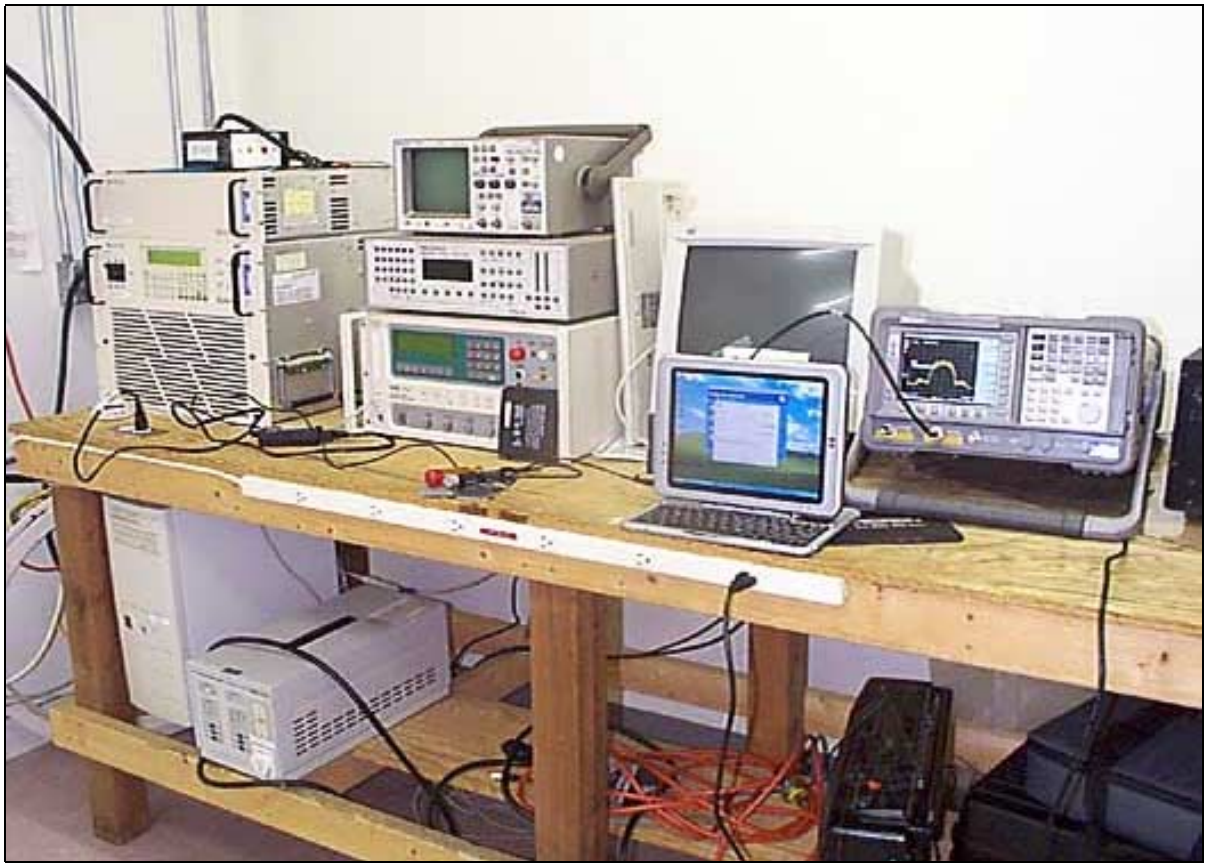
During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. For frequencies exceeding 1000 MHz, the horn antenna was used. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable as needed. The test engineer maximized the readings with respect to the table rotation and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor.

APPENDIX A

TEST SETUP PHOTOGRAPHS

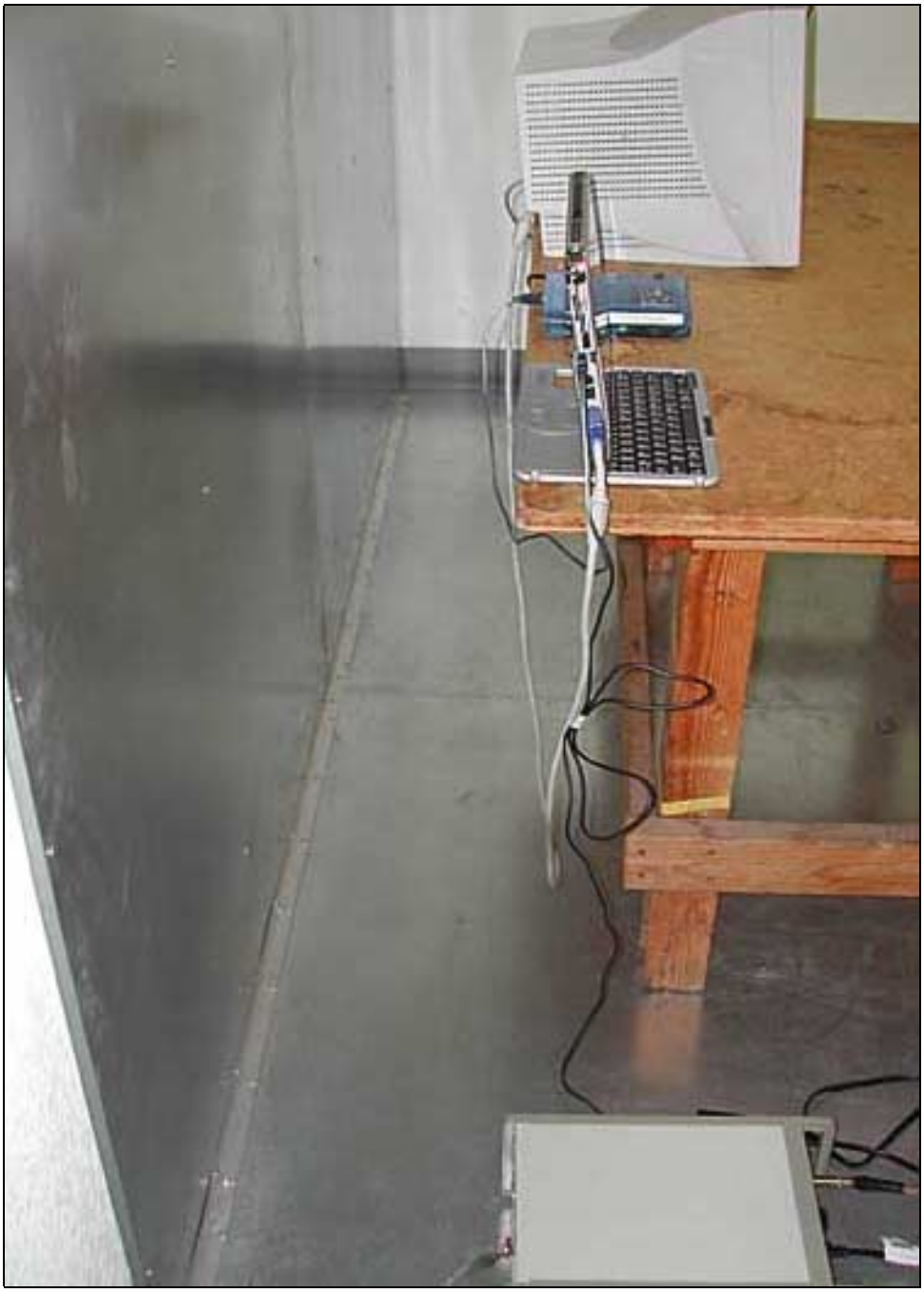
FCC 2.1055(d) FREQUENCY STABILITY



FCC 15.207

15.207 Front View

FCC 15.207



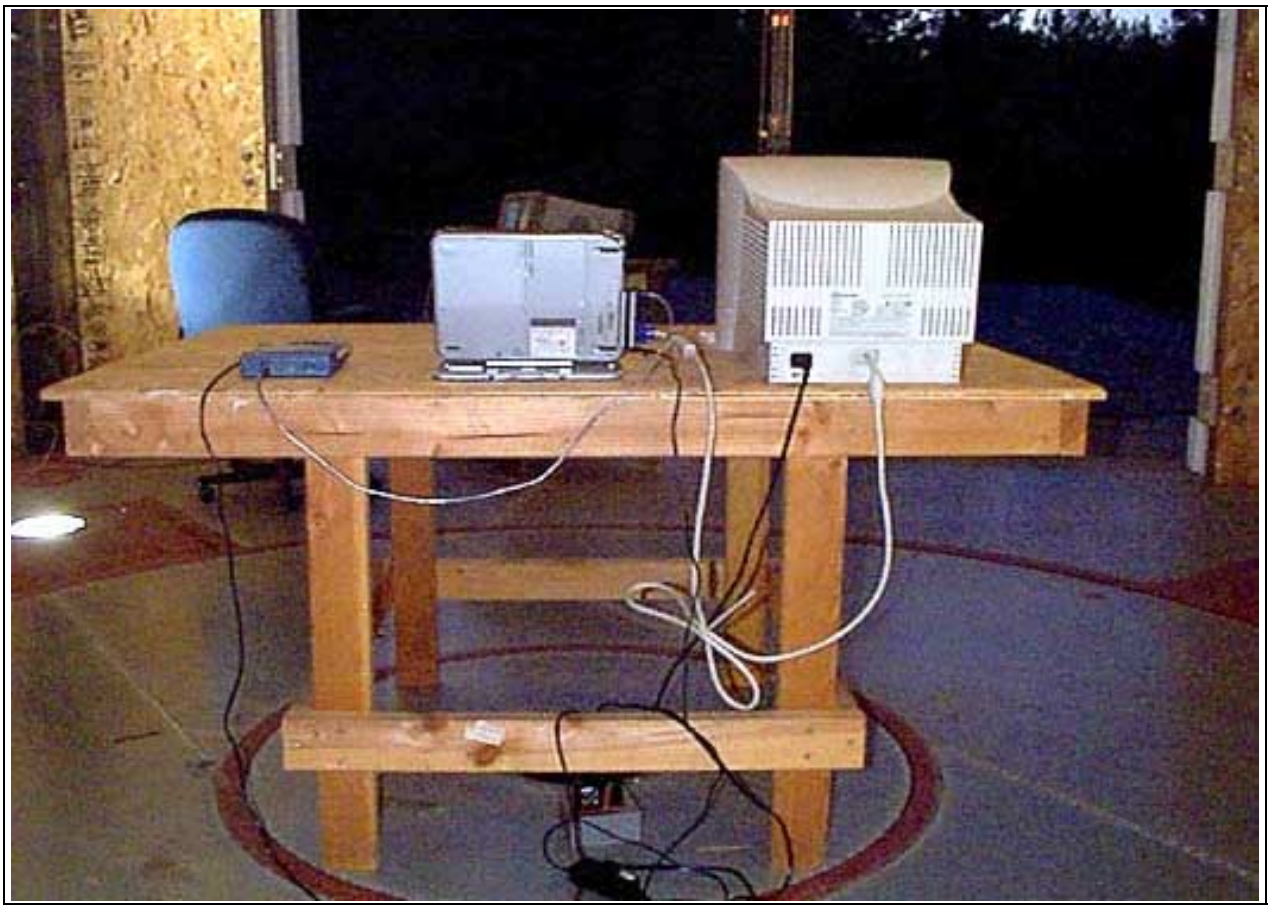
15.207 Side View

FCC 15.247(b)(3) RF POWER

RADIATED EMISSIONS

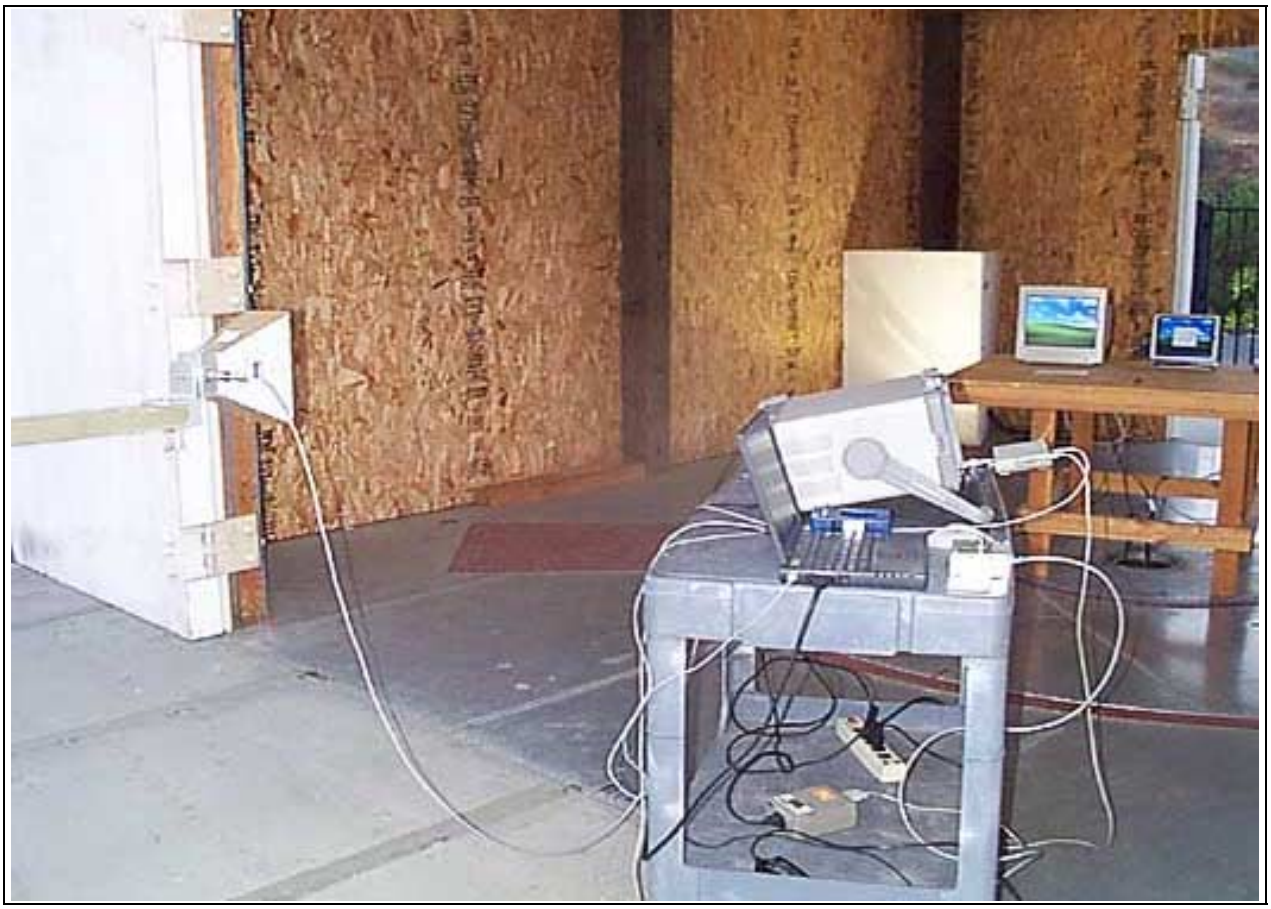
Radiated Emissions - Front View

RADIATED EMISSIONS



Radiated Emissions Back View

RADIATED EMISSIONS



Radiated Emissions - Front View Horn Antenna

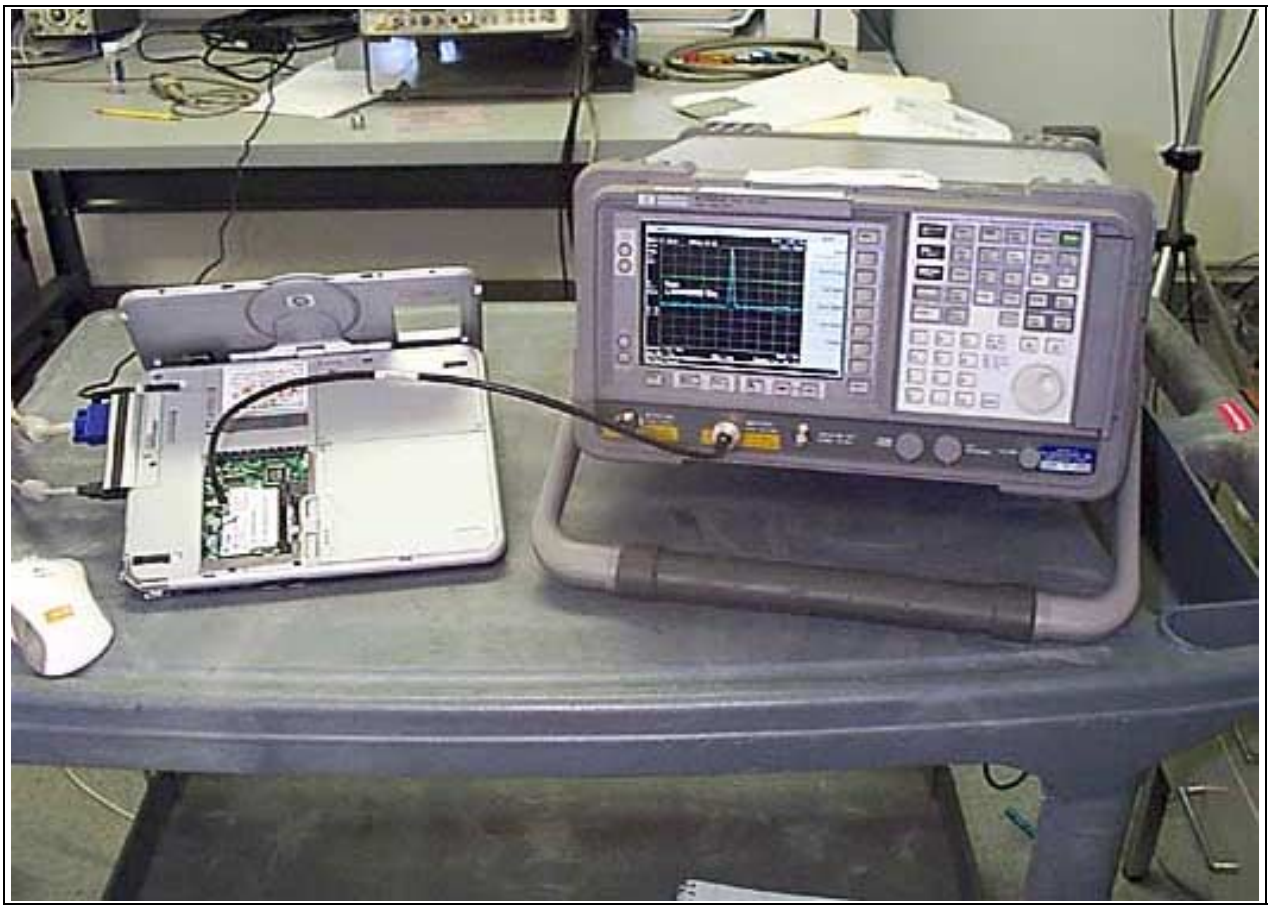
RADIATED EMISSIONS

Radiated Emissions - Front View Horn Antenna

RADIATED EMISSIONS

Radiated Emissions - Front View Loop Antenna

DIRECT CONNECT PHOTOGRAPH



15.247(c) Cond. Spurs, Bandedge, 99% BW, 15.247(d), 15.111

DIRECT CONNECT PHOTOGRAPH

6dB Bandwidth

APPENDIX B

TEST EQUIPMENT LIST

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
FCC15.247(b)(3) RF Power Output						
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033104
RF Power meter	02082	HP	435B	2445A11881	093002	093004
Power Sensor	02036	HP	8482A	1551A01004	052902	052904
Diode detector		HP	8472B	0286	032603	032605
Signal Generator	02227	Marconi	2024	112282/515	080602	080604
Oscilloscope	00320	HP	54615B	US354208264	092302	092303
15.111, 15.247 (c) Conducted Spurious Emission, Bandedge plot, FCC14.247(d) Power Spectral Density, 99% Band Width						
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033104
15.247 (c) Radiated Spurious Emission 30 MHz – 1000 MHz						
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033104
Bilog Antenna	00851	Schaffner-Chase EMC	CBL6111C	2629	062603	062604
Pre-amp	02320	HP	8447D	2443A03665	010403	010404
Antenna cable from bulkhead to antenna	N/A	Belden	9268	Cable #6	051203	051204
Antenna cable (10 meter site D)	NA	Andrew	LDF1-50	Cable#17	091102	091103
Preamp to SA Cable (3 feet)	NA	Pasternack	E100316-I	Cable #22	100702	100703
1 GHz-18 GHz						
Antenna cable (3 meter site D)	NA	Andrew	LDF1-50	Cable#19	091102	091104
¼" Heliax Coaxial Cable	NA	Andrew	FSJ-50A-4	Cable#7 (6 ft)	071503	071504
Horn Antenna	01646	EMCO	3115	9603-4683	042503	042505
Microwave Pre-amp	00787	HP	83017A	3123A00282	042303	042305
9 kHz- 30 MHz						
Magnetic Loop Antenna	00314	Emco	6502	2014	072302	072304

Antenna cable (3 meter site D)	NA	Andrew	LDF1-50	Cable#19	091102	091104

2.1055 (d) Frequency Stability

RF Power meter	02082	HP	435B	2445A11881	093002	093004
Power Sensor	02036	HP	8482A	1551A01004	052902	052904
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033104

Conducted Emissions

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer (Site C)	00312	HP	8568A	2106A02107	073102	073104
Spectrum Analyzer Display (Site C)	00312	HP	8568A	2049A01287	073102	073104
Quasi Peak Adapter (Site C)	02325	HP	85650A	2521A00932	032902	032904
Coaxial Cable		Harbour Industries	M17/60-RG142	Cable #8	072803	072804
LISN	00276, 00277, 00278	Solar	8028-50-TS-24BNC	B2	100702	100703
LISN	00848	EMCO	3816/2	1102	010403	010404
LISN	00847	EMCO	3816/2NM	1104	010403	010404

APPENDIX C
MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer:	**Intel Corporation**		
Specification:	**FCC 15.109 Class B**		
Work Order #:	**80964**	Date:	08/19/2003
Test Type:	**Maximized Emissions**	Time:	16:40:34
Equipment:	**Embedded 2.4 GHz Wireless LAN mini PCI adaptor**	Sequence#:	16
Manufacturer:	Intel	Tested By:	Eddie Wong
Model:	TBD Code name (Raptor)		
S/N:	NA		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Embedded 2.4 GHz Wireless LAN mini PCI adaptor*	Intel	TBD Code name (Raptor)	NA
Laptop	HP	3111BZ931RA	SY35LBQ12013

Support Devices:

Function	Manufacturer	Model #	S/N
USB Zip drive	Iomega	Zip100	PSA009AO7M
Monitor	Gateway	500-069EV	15013A000011

Test Conditions / Notes:

The EUT housed in a host laptop computer is placed on the wooden table. Connected to the laptop computer are a monitor and a USB storage drive. Receive mode Freq = 2437 MHz, Frequency range of measurement = 30MHz - 25 GHz. 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz - 25 MHz RBW=1 MHz, VBW=1 MHz. 110Vac, 60 Hz, 32.2°C, 48% relative humidity.

Transducer Legend:

T1=Bilog SN2629 062604	T2=Cable #6 (Ant to Bulkhead) 051204
T3=Cable Heliax #17 84ft(10 meter)	T4=Cable#22 BNC (preamp to SA)
T5=Preamp 8447D 02320 (site D) 010404	

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	720.000M	32.7	+21.2 -26.2	+3.0	+2.9	+0.8	+0.0	34.4	46.0	-11.6	Vert
2	351.610M	41.8	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	34.4	46.0	-11.6	Horiz
3	287.644M	43.5	+13.2 -26.7	+1.9	+1.9	+0.4	+0.0	34.2	46.0	-11.8	Horiz
4	431.975M	39.3	+17.0 -27.1	+2.3	+2.0	+0.5	+0.0	34.0	46.0	-12.0	Horiz
5	351.610M	41.2	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	33.8	46.0	-12.2	Horiz
6	400.900M	39.3	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	33.2	46.0	-12.8	Horiz
7	400.895M	38.9	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	32.8	46.0	-13.2	Vert

8	303.632M	41.3	+13.5 -26.7	+1.9	+1.9	+0.4	+0.0	32.3	46.0	-13.7	Horiz
9	324.980M	39.9	+14.2 -26.8	+2.0	+1.9	+0.4	+0.0	31.6	46.0	-14.4	Horiz
10	330.300M	39.4	+14.4 -26.8	+2.0	+1.9	+0.4	+0.0	31.3	46.0	-14.7	Horiz
11	367.600M	38.0	+15.4 -26.9	+2.1	+1.9	+0.4	+0.0	30.9	46.0	-15.1	Horiz
12	336.060M	38.7	+14.5 -26.8	+2.0	+1.9	+0.4	+0.0	30.7	46.0	-15.3	Horiz
13	384.030M	36.3	+15.9 -26.9	+2.1	+1.9	+0.5	+0.0	29.8	46.0	-16.2	Vert
14	315.020M	38.2	+13.9 -26.7	+1.9	+1.9	+0.4	+0.0	29.6	46.0	-16.4	Horiz
15	298.330M	38.2	+13.4 -26.7	+1.9	+1.9	+0.4	+0.0	29.1	46.0	-16.9	Horiz
16	324.990M	37.1	+14.2 -26.8	+2.0	+1.9	+0.4	+0.0	28.8	46.0	-17.2	Vert
17	351.720M	36.1	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	28.7	46.0	-17.3	Vert
18	319.670M	37.1	+14.0 -26.7	+1.9	+1.9	+0.4	+0.0	28.6	46.0	-17.4	Horiz
19	303.670M	36.7	+13.5 -26.7	+1.9	+1.9	+0.4	+0.0	27.7	46.0	-18.3	Vert
20	356.950M	34.7	+15.2 -26.8	+2.0	+2.0	+0.4	+0.0	27.5	46.0	-18.5	Horiz
21	319.700M	35.9	+14.0 -26.7	+1.9	+1.9	+0.4	+0.0	27.4	46.0	-18.6	Vert
22	239.995M	38.5	+12.0 -26.9	+1.7	+1.7	+0.4	+0.0	27.4	46.0	-18.6	Vert
23	381.850M	33.9	+15.8 -26.9	+2.1	+1.9	+0.5	+0.0	27.3	46.0	-18.7	Vert
24	362.750M	34.5	+15.3 -26.9	+2.1	+1.9	+0.4	+0.0	27.3	46.0	-18.7	Horiz
25	330.380M	35.1	+14.4 -26.8	+2.0	+1.9	+0.4	+0.0	27.0	46.0	-19.0	Vert
26	367.600M	33.4	+15.4 -26.9	+2.1	+1.9	+0.4	+0.0	26.3	46.0	-19.7	Vert
27	240.018M	36.9	+12.0 -26.9	+1.7	+1.7	+0.4	+0.0	25.8	46.0	-20.2	Horiz
28	287.670M	32.0	+13.2 -26.7	+1.9	+1.9	+0.4	+0.0	22.7	46.0	-23.3	Vert
29	415.920M	27.7	+16.6 -27.0	+2.2	+1.9	+0.5	+0.0	21.9	46.0	-24.1	Horiz

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Intel Corporation**
Specification: **FCC 15.109 Class B**
Work Order #: **80964** Date: 08/19/2003
Test Type: **Maximized Emissions** Time: 15:45:35
Equipment: **Embedded 2.4 GHz Wireless LAN mini PCI adaptor** Sequence#: 15
Manufacturer: Intel Tested By: Eddie Wong
Model: TBD Code name (Raptor)
S/N: NA

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Embedded 2.4 GHz Wireless LAN mini PCI adaptor*	Intel	TBD Code name (Raptor)	NA
Laptop	HP	3111BZ931RA	SY35LBQ12013

Support Devices:

Function	Manufacturer	Model #	S/N
USB Zip drive	Iomega	Zip100	PSA009AO7M
Monitor	Gateway	500-069EV	15013A000011

Test Conditions / Notes:

The EUT housed in a host laptop computer is placed on the wooden table. Connected to the laptop computer are a monitor and a USB storage drive. Receive mode Freq = 2412 MHz, Frequency range of measurement = 9 kHz - 25 GHz. 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz - 25 MHz RBW=1 MHz, VBW=1 MHz. 110Vac, 60 Hz, 32.2°C, 48% relative humidity.

Transducer Legend:

T1=Bilog SN2629 062604	T2=Cable #6 (Ant to Bulkhead) 051204
T3=Cable Heliax #17 84ft(10 meter)	T4=Cable#22 BNC (preamp to SA)
T5=Preamp 8447D 02320 (site D) 010404	

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	185.722M	49.2	+9.1 -27.0	+1.3	+1.5	+0.3	+0.0	34.4	43.5	-9.1	Vert
2	431.975M	40.8	+17.0 -27.1	+2.3	+2.0	+0.5	+0.0	35.5	46.0	-10.5	Horiz
3	351.560M	42.0	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	34.6	46.0	-11.4	Horiz
4	324.946M	42.6	+14.2 -26.8	+2.0	+1.9	+0.4	+0.0	34.3	46.0	-11.7	Horiz
5	200.428M	45.7	+9.0 -26.9	+1.4	+1.6	+0.3	+0.0	31.1	43.5	-12.4	Vert
6	400.887M	39.6	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	33.5	46.0	-12.5	Horiz
7	480.020M	36.9	+17.9 -27.0	+2.4	+2.5	+0.6	+0.0	33.3	46.0	-12.7	Horiz

8	287.672M	42.5	+13.2 -26.7	+1.9	+1.9	+0.4	+0.0	33.2	46.0	-12.8	Horiz
9	486.800M	36.5	+18.0 -27.0	+2.4	+2.6	+0.6	+0.0	33.1	46.0	-12.9	Vert
10	458.157M	37.5	+17.5 -27.1	+2.3	+2.2	+0.5	+0.0	32.9	46.0	-13.1	Vert
11	431.986M	38.2	+17.0 -27.1	+2.3	+2.0	+0.5	+0.0	32.9	46.0	-13.1	Vert
12	515.422M	34.9	+18.5 -27.0	+2.5	+2.7	+0.6	+0.0	32.2	46.0	-13.8	Vert
13	486.840M	34.3	+18.0 -27.0	+2.4	+2.6	+0.6	+0.0	30.9	46.0	-15.1	Horiz
14	400.889M	36.7	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	30.6	46.0	-15.4	Vert
15	367.558M	37.3	+15.4 -26.9	+2.1	+1.9	+0.4	+0.0	30.2	46.0	-15.8	Horiz
16	372.260M	36.5	+15.6 -26.9	+2.1	+1.9	+0.4	+0.0	29.6	46.0	-16.4	Horiz
17	447.477M	34.2	+17.3 -27.1	+2.3	+2.1	+0.5	+0.0	29.3	46.0	-16.7	Vert
18	303.637M	37.8	+13.5 -26.7	+1.9	+1.9	+0.4	+0.0	28.8	46.0	-17.2	Vert
19	319.670M	36.8	+14.0 -26.7	+1.9	+1.9	+0.4	+0.0	28.3	46.0	-17.7	Horiz
20	319.606M	36.5	+14.0 -26.7	+1.9	+1.9	+0.4	+0.0	28.0	46.0	-18.0	Vert
21	351.577M	34.9	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	27.5	46.0	-18.5	Vert
22	197.740M	39.3	+9.0 -26.9	+1.4	+1.6	+0.3	+0.0	24.7	43.5	-18.8	Vert
23	315.010M	35.7	+13.9 -26.7	+1.9	+1.9	+0.4	+0.0	27.1	46.0	-18.9	Horiz
24	303.650M	36.0	+13.5 -26.7	+1.9	+1.9	+0.4	+0.0	27.0	46.0	-19.0	Horiz
25	287.640M	35.8	+13.2 -26.7	+1.9	+1.9	+0.4	+0.0	26.5	46.0	-19.5	Vert
26	240.006M	37.0	+12.0 -26.9	+1.7	+1.7	+0.4	+0.0	25.9	46.0	-20.1	Vert
27	200.445M	37.1	+9.0 -26.9	+1.4	+1.6	+0.3	+0.0	22.5	43.5	-21.0	Horiz
28	383.526M	30.1	+15.9 -26.9	+2.1	+1.9	+0.5	+0.0	23.6	46.0	-22.4	Vert
29	286.371M	33.1	+13.2 -26.8	+1.8	+1.8	+0.4	+0.0	23.5	46.0	-22.5	Vert

Test Location:	CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112		
Customer:	**Intel Corporation**		
Specification:	**FCC 15.109 Class B**		
Work Order #:	**80964**	Date:	08/19/2003
Test Type:	**Maximized Emissions**	Time:	20:53:41
Equipment:	**Embedded 2.4 GHz Wireless LAN mini PCI adaptor**	Sequence#:	17
Manufacturer:	Intel	Tested By:	Eddie Wong
Model:	TBD Code name (Raptor)	S/N:	NA

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Embedded 2.4 GHz Wireless LAN mini PCI adaptor*	Intel	TBD Code name (Raptor)	NA
Laptop	HP	3111BZ931RA	SY35LBQ12013

Support Devices:

Function	Manufacturer	Model #	S/N
USB Zip drive	Iomega	Zip100	PSA009AO7M
Monitor	Gateway	500-069EV	15013A000011

Test Conditions / Notes:

The EUT housed in a host laptop computer is placed on the wooden table. Connected to the laptop computer are a monitor and a USB storage drive. Receive mod. e Freq = 2462 MHz, Frequency range of measurement = 30MHz - 25 GHz. 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz - 25 MHz RBW=1 MHz, VBW=1 MHz. 110Vac, 60 Hz, 32.2°C, 48% relative humidity.

Transducer Legend:

T1=Bilog SN2629 062604	T2=Cable #6 (Ant to Bulkhead) 051204
T3=Cable Heliax #17 84ft(10 meter)	T4=Cable#22 BNC (preamp to SA)
T5=Preamp 8447D 02320 (site D) 010404	T6=Horn AN 01646 1-18 GHz (Brea)
T7=Cable P1510 13' GoreTex SMA	T8=HF Preamp Cal. HP-83017A,S/N- 3123A00282

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	431.972M	42.3	+17.0 -27.1	+2.3	+2.0	+0.5	+0.0	37.0	46.0	-9.0	Horiz
2	720.011M	34.1	+21.2 -26.2	+3.0	+2.9	+0.8	+0.0	35.8	46.0	-10.2	Vert
3	351.572M	42.0	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	34.6	46.0	-11.4	Horiz
4	458.149M	38.3	+17.5 -27.1	+2.3	+2.2	+0.5	+0.0	33.7	46.0	-12.3	Vert
5	400.930M	39.8	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	33.7	46.0	-12.3	Vert
6	720.006M	31.6	+21.2 -26.2	+3.0	+2.9	+0.8	+0.0	33.3	46.0	-12.7	Horiz
7	431.990M	38.1	+17.0 -27.1	+2.3	+2.0	+0.5	+0.0	32.8	46.0	-13.2	Vert

8	287.660M	41.9	+13.2 -26.7	+1.9	+1.9	+0.4	+0.0	32.6	46.0	-13.4	Horiz
9	400.886M	37.8	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	31.7	46.0	-14.3	Horiz
10	486.788M	34.5	+18.0 -27.0	+2.4	+2.6	+0.6	+0.0	31.1	46.0	-14.9	Vert
11	367.565M	37.8	+15.4 -26.9	+2.1	+1.9	+0.4	+0.0	30.7	46.0	-15.3	Horiz
12	298.340M	39.7	+13.4 -26.7	+1.9	+1.9	+0.4	+0.0	30.6	46.0	-15.4	Horiz
13	330.290M	38.4	+14.4 -26.8	+2.0	+1.9	+0.4	+0.0	30.3	46.0	-15.7	Horiz
14	303.624M	39.1	+13.5 -26.7	+1.9	+1.9	+0.4	+0.0	30.1	46.0	-15.9	Vert
15	324.930M	38.3	+14.2 -26.8	+2.0	+1.9	+0.4	+0.0	30.0	46.0	-16.0	Horiz
16	330.330M	37.6	+14.4 -26.8	+2.0	+1.9	+0.4	+0.0	29.5	46.0	-16.5	Vert
17	384.030M	35.8	+15.9 -26.9	+2.1	+1.9	+0.5	+0.0	29.3	46.0	-16.7	Vert
18	406.460M	35.1	+16.4 -27.0	+2.2	+1.9	+0.5	+0.0	29.1	46.0	-16.9	Vert
19	384.030M	35.5	+15.9 -26.9	+2.1	+1.9	+0.5	+0.0	29.0	46.0	-17.0	Horiz
20	420.875M	34.1	+16.7 -27.0	+2.2	+1.9	+0.5	+0.0	28.4	46.0	-17.6	Horiz
21	351.620M	35.6	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	28.2	46.0	-17.8	Vert
22	330.270M	36.3	+14.4 -26.8	+2.0	+1.9	+0.4	+0.0	28.2	46.0	-17.8	Vert
23	353.190M	35.0	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	27.6	46.0	-18.4	Vert
24	325.000M	35.9	+14.2 -26.8	+2.0	+1.9	+0.4	+0.0	27.6	46.0	-18.4	Vert
25	315.000M	35.8	+13.9 -26.7	+1.9	+1.9	+0.4	+0.0	27.2	46.0	-18.8	Horiz
26	381.860M	33.0	+15.8 -26.9	+2.1	+1.9	+0.5	+0.0	26.4	46.0	-19.6	Vert
27	367.610M	32.6	+15.4 -26.9	+2.1	+1.9	+0.4	+0.0	25.5	46.0	-20.5	Vert
28	239.981M	35.7	+12.0 -26.9	+1.7	+1.7	+0.4	+0.0	24.6	46.0	-21.4	Horiz
29	271.670M	33.8	+13.0 -26.8	+1.8	+1.8	+0.4	+0.0	24.0	46.0	-22.0	Horiz

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer:	**Intel Corporation**		
Specification:	**FCC15.111 Antenna Power Conduction limits for Receiver**		
Work Order #:	**80964**	Date:	08/18/2003
Test Type:	**Conducted Emissions**	Time:	14:50:26
Equipment:	**Embedded 2.4 GHz Wireless LAN mini PCI adaptor**	Sequence#:	10
Manufacturer:	Intel	Tested By:	Eddie Wong
Model:	TBD Code name (Raptor)		120V 60Hz
S/N:	NA		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Embedded 2.4 GHz Wireless LAN mini PCI adaptor*	Intel	TBD Code name (Raptor)	NA
Laptop	HP	3111BZ931RA	SY35LBQ12013

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

The EUT is placed on the test bench, The RF receiving port is connected to the spectrum analyzer. Receive mode. Freq = 2412 MHz, 2437MHz, 2462 MHz Frequency range of measurement = 9 kHz - 25 GHz. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz - 25 MHz RBW=1 MHz, VBW=1 MHz. 110Vac, 60 Hz, 32.2°C, 48% relative humidity.

Transducer Legend:

T1=SMA connector

Measurement Data: Reading listed by margin. Test Lead: Antenna Terminal

#	Freq MHz	Rdng dBµV	T1 dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	1885.000M	35.3	+0.3				+0.0	35.6	50.0	-14.4	Anten

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Intel Corporation**
Specification: **FCC 15.207 Class B COND [AVE]**
Work Order #: **80964** Date: 09/04/2003
Test Type: **Conducted Emissions** Time: 15:15:17
Equipment: **Embedded 2.4 GHz Wireless LAN mini PCI adaptor** Sequence#: 42
Manufacturer: Intel Tested By: Septimiu Apahidean
Model: TBD Code name (Raptor) 120V 60Hz
S/N: NA

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Embedded 2.4 GHz Wireless LAN mini PCI adaptor*	Intel	TBD Code name (Raptor)	NA
Laptop	HP	3111BZ931RA	SY35LBQ12013

Support Devices:

Function	Manufacturer	Model #	S/N
USB Zip drive	Iomega	Zip100	PSA009AO7M

Test Conditions / Notes:

The EUT housed in a host laptop computer is placed on the wooden table. Connected to the laptop computer are a monitor and a USB storage drive. Transmit mode. Freq = 2412 MHz, Rate: 11 Mbps (worse case). Frequency range of measurement = 150 kHz - 30 MHz. Frequency 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz, Power supply M/N - 239427-003, S/N - F3-0302054551B 23.96°C, 45% relative humidity.

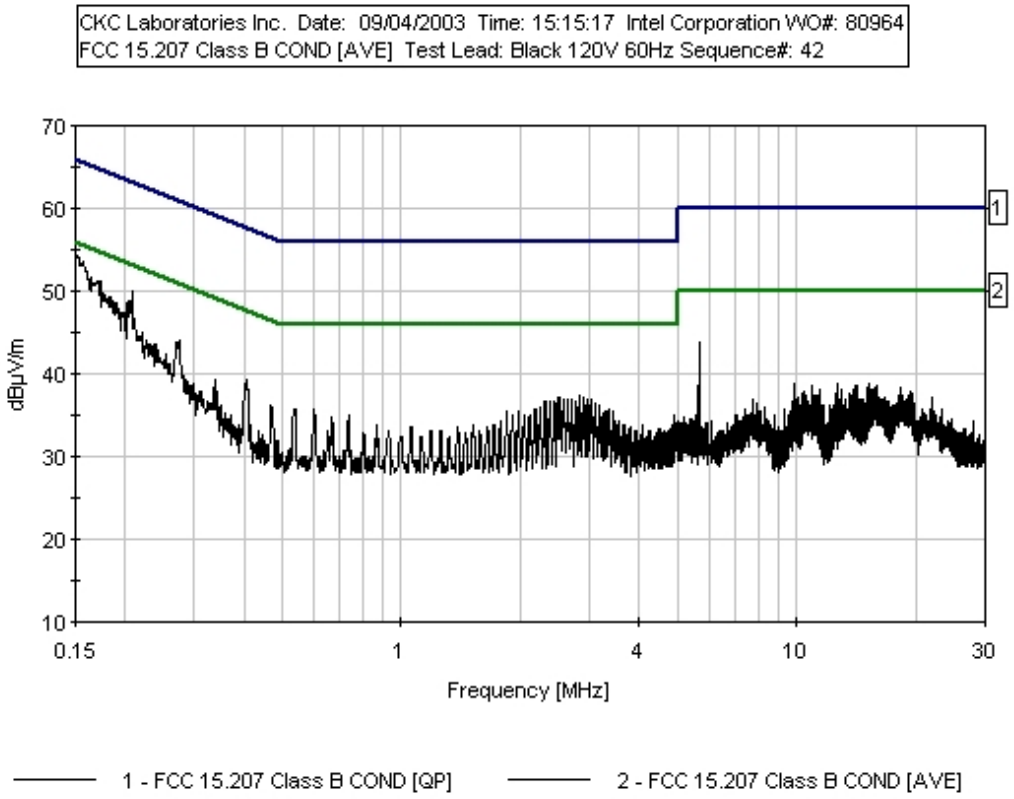
Transducer Legend:

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	5.662M	43.9					+0.0	43.9	50.0	-6.1	Black
2	274.351k	44.1					+0.0	44.1	51.0	-6.9	Black
3	408.156k	39.2					+0.0	39.2	47.7	-8.5	Black
4	2.838M	37.4					+0.0	37.4	46.0	-8.6	Black
5	2.502M	37.2					+0.0	37.2	46.0	-8.8	Black
6	2.897M	37.2					+0.0	37.2	46.0	-8.8	Black
7	2.574M	36.9					+0.0	36.9	46.0	-9.1	Black
8	2.638M	36.8					+0.0	36.8	46.0	-9.2	Black
9	2.702M	36.8					+0.0	36.8	46.0	-9.2	Black

10	2.969M	36.8	+0.0	36.8	46.0	-9.2	Black
11	3.033M	36.8	+0.0	36.8	46.0	-9.2	Black
12	2.310M	36.7	+0.0	36.7	46.0	-9.3	Black
13	2.374M	36.7	+0.0	36.7	46.0	-9.3	Black
14	2.442M	36.7	+0.0	36.7	46.0	-9.3	Black
15	2.765M	36.6	+0.0	36.6	46.0	-9.4	Black
16	3.101M	36.5	+0.0	36.5	46.0	-9.5	Black
17	3.169M	36.2	+0.0	36.2	46.0	-9.8	Black
18	2.242M	36.0	+0.0	36.0	46.0	-10.0	Black
19	539.052k	35.8	+0.0	35.8	46.0	-10.2	Black
20	468.514k	36.1	+0.0	36.1	46.5	-10.4	Black
21	601.591k	35.6	+0.0	35.6	46.0	-10.4	Black
22	2.183M	35.6	+0.0	35.6	46.0	-10.4	Black
23	3.356M	35.6	+0.0	35.6	46.0	-10.4	Black
24	1.847M	35.4	+0.0	35.4	46.0	-10.6	Black
25	1.987M	35.4	+0.0	35.4	46.0	-10.6	Black
26	3.429M	35.4	+0.0	35.4	46.0	-10.6	Black
27	3.229M	35.3	+0.0	35.3	46.0	-10.7	Black
28	1.915M	35.1	+0.0	35.1	46.0	-10.9	Black
29	4.875M	35.1	+0.0	35.1	46.0	-10.9	Black
30	2.110M	35.0	+0.0	35.0	46.0	-11.0	Black
31	736.123k	34.9	+0.0	34.9	46.0	-11.1	Black
32	2.042M	34.9	+0.0	34.9	46.0	-11.1	Black
33	15.166M	38.9	+0.0	38.9	50.0	-11.1	Black
34	9.860M	38.8	+0.0	38.8	50.0	-11.2	Black

35	12.689M	38.8	+0.0	38.8	50.0	-11.2	Black
36	667.766k	34.7	+0.0	34.7	46.0	-11.3	Black
37	10.905M	38.6	+0.0	38.6	50.0	-11.4	Black
38	14.148M	38.5	+0.0	38.5	50.0	-11.5	Black
39	15.310M	38.5	+0.0	38.5	50.0	-11.5	Black
40	16.049M	38.5	+0.0	38.5	50.0	-11.5	Black
41	3.488M	34.4	+0.0	34.4	46.0	-11.6	Black
42	18.346M	38.4	+0.0	38.4	50.0	-11.6	Black
43	15.833M	38.3	+0.0	38.3	50.0	-11.7	Black
44	1.779M	34.2	+0.0	34.2	46.0	-11.8	Black
45	3.561M	34.2	+0.0	34.2	46.0	-11.8	Black
46	13.004M	38.2	+0.0	38.2	50.0	-11.8	Black
47	11.436M	38.1	+0.0	38.1	50.0	-11.9	Black
48 Ave	210.000k	38.9	+0.0	38.9	53.2	-14.3	Black
^	208.176k	50.1	+0.0	50.1	53.3	-3.2	Black
50 Ave	151.000k	40.8	+0.0	40.8	55.6	-14.8	Black
^	150.000k	55.2	+0.0	55.2	56.0	-0.8	Black
52 Ave	175.000k	37.9	+0.0	37.9	54.5	-16.6	Black
^	174.725k	51.3	+0.0	51.3	54.7	-3.4	Black


CKC Laboratories Inc. Date: 09/04/2003 Time: 15:15:17 Intel Corporation WO#: 80964
FCC 15.207 Class B COND [AVE] Test Lead: Black 120V 60Hz Sequence#: 42
70
60
50
40
30
20
10
dBµV/m
0.15
1
4
10
30
Frequency [MHz]
1
2
1 - FCC 15.207 Class B COND [QP]
2 - FCC 15.207 Class B COND [AVE]

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer:	**Intel Corporation**		
Specification:	**FCC 15.207 Class B COND [AVE]**		
Work Order #:	**80964**	Date:	09/04/2003
Test Type:	**Conducted Emissions**	Time:	15:06:22
Equipment:	**Embedded 2.4 GHz Wireless LAN mini PCI adaptor**	Sequence#:	41
Manufacturer:	Intel	Tested By:	Septimiu Apahidean
Model:	TBD Code name (Raptor)		120V 60Hz
S/N:	NA		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Embedded 2.4 GHz Wireless LAN mini PCI adaptor*	Intel	TBD Code name (Raptor)	NA
Laptop	HP	3111BZ931RA	SY35LBQ12013

Support Devices:

Function	Manufacturer	Model #	S/N
USB Zip drive	Iomega	Zip100	PSA009AO7M

Test Conditions / Notes:

The EUT housed in a host laptop computer is placed on the wooden table. Connected to the laptop computer are a monitor and a USB storage drive. Transmit mode. Freq = 2412 MHz, Rate: 11 Mbps (worse case). Frequency range of measurement = 150 kHz - 30 MHz. Frequency 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz, Power supply M/N - 239427-003, S/N - F3-0302054551B 23.96°C, 45% relative humidity.

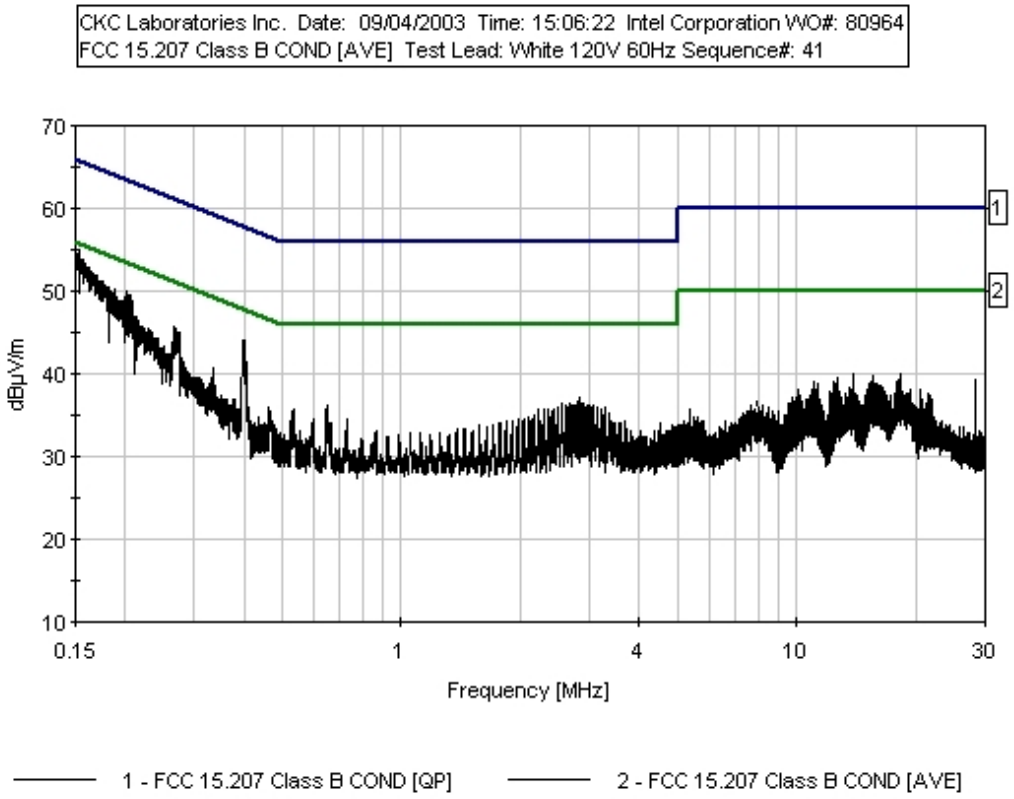
Transducer Legend:

Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	200.955k	49.5					+0.0	49.5	53.6	-4.1	White
2	267.203k	45.7					+0.0	45.7	51.2	-5.5	White
3	214.360k	46.8					+0.0	46.8	53.0	-6.2	White
4	217.607k	46.4					+0.0	46.4	52.9	-6.5	White
5	234.465k	45.0					+0.0	45.0	52.3	-7.3	White
6	249.993k	43.4					+0.0	43.4	51.8	-8.4	White
7	334.750k	40.6					+0.0	40.6	49.3	-8.7	White
8	259.956k	42.5					+0.0	42.5	51.4	-8.9	White
9	2.814M	37.1					+0.0	37.1	46.0	-8.9	White

10	2.681M	36.5	+0.0	36.5	46.0	-9.5	White
11	2.874M	36.5	+0.0	36.5	46.0	-9.5	White
12	2.552M	36.4	+0.0	36.4	46.0	-9.6	White
13	2.944M	36.3	+0.0	36.3	46.0	-9.7	White
14	2.750M	36.2	+0.0	36.2	46.0	-9.8	White
15	3.008M	36.2	+0.0	36.2	46.0	-9.8	White
16	3.068M	36.2	+0.0	36.2	46.0	-9.8	White
17	647.385k	36.1	+0.0	36.1	46.0	-9.9	White
18	2.620M	36.1	+0.0	36.1	46.0	-9.9	White
19	3.136M	36.0	+0.0	36.0	46.0	-10.0	White
20	2.489M	35.9	+0.0	35.9	46.0	-10.1	White
21	3.267M	35.9	+0.0	35.9	46.0	-10.1	White
22	13.852M	39.9	+0.0	39.9	50.0	-10.1	White
23	18.252M	39.9	+0.0	39.9	50.0	-10.1	White
24	536.508k	35.8	+0.0	35.8	46.0	-10.2	White
25	2.229M	35.8	+0.0	35.8	46.0	-10.2	White
26	2.295M	35.8	+0.0	35.8	46.0	-10.2	White
27	2.357M	35.8	+0.0	35.8	46.0	-10.2	White
28	2.421M	35.7	+0.0	35.7	46.0	-10.3	White
29	3.197M	35.7	+0.0	35.7	46.0	-10.3	White
30	15.629M	39.7	+0.0	39.7	50.0	-10.3	White
31	12.695M	39.5	+0.0	39.5	50.0	-10.5	White
32	463.199k	36.0	+0.0	36.0	46.6	-10.6	White
33	28.350M	39.4	+0.0	39.4	50.0	-10.6	White
34	3.347M	35.3	+0.0	35.3	46.0	-10.7	White

35	15.518M	39.2	+0.0	39.2	50.0	-10.8	White
36	18.039M	39.2	+0.0	39.2	50.0	-10.8	White
37	18.149M	39.2	+0.0	39.2	50.0	-10.8	White
38	15.422M	39.1	+0.0	39.1	50.0	-10.9	White
39	17.929M	39.1	+0.0	39.1	50.0	-10.9	White
40 Ave	402.000k	34.9	+0.0	34.9	47.8	-12.9	White
^	399.355k	44.0	+0.0	44.0	47.9	-3.9	White
42 Ave	206.000k	39.9	+0.0	39.9	53.4	-13.5	White
^	202.870k	49.9	+0.0	49.9	53.5	-3.6	White
^	206.450k	49.6	+0.0	49.6	53.3	-3.7	White
^	205.118k	49.6	+0.0	49.6	53.4	-3.8	White
^	203.536k	49.3	+0.0	49.3	53.5	-4.2	White
^	207.782k	48.9	+0.0	48.9	53.3	-4.4	White
^	205.784k	48.9	+0.0	48.9	53.4	-4.5	White
^	208.532k	48.6	+0.0	48.6	53.3	-4.7	White
50 Ave	150.000k	41.9	+0.0	41.9	56.0	-14.1	White
^	150.500k	54.8	+0.0	54.8	56.0	-1.2	White
^	154.163k	53.9	+0.0	53.9	55.8	-1.9	White
53 Ave	189.000k	36.7	+0.0	36.7	54.1	-17.4	White
^	188.050k	50.2	+0.0	50.2	54.1	-3.9	White


CKC Laboratories Inc. Date: 09/04/2003 Time: 15:06:22 Intel Corporation WO#: 80964
FCC 15.207 Class B COND [AVE] Test Lead: White 120V 60Hz Sequence#: 41
70
60
50
40
30
20
10
dBµV/m
0.15
1
4
10
30
Frequency [MHz]
1
2
1 - FCC 15.207 Class B COND [QP]
2 - FCC 15.207 Class B COND [AVE]

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Intel Corporation**
Specification: **FCC 15.247(c)**
Work Order #: **80964** Date: 08/19/2003
Test Type: **Maximized Emissions** Time: 20:23:07
Equipment: **Embedded 2.4 GHz Wireless LAN mini PCI adaptor** Sequence#: 13
Manufacturer: Intel Tested By: Eddie Wong
Model: TBD Code name (Raptor)
S/N: NA

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Embedded 2.4 GHz Wireless LAN mini PCI adaptor*	Intel	TBD Code name (Raptor)	NA
Laptop	HP	3111BZ931RA	SY35LBQ12013

Support Devices:

Function	Manufacturer	Model #	S/N
USB Zip drive	Iomega	Zip100	PSA009AO7M
Monitor	Gateway	500-069EV	15013A000011

Test Conditions / Notes:

The EUT housed in a host laptop computer is placed on the wooden table. Connected to the laptop computer are a monitor and a USB storage drive. Transmit mode Freq = 2437 MHz, Rate: 11 Mbps (worse case). Frequency range of measurement = 9 kHz - 25 GHz. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz - 25 MHz RBW=1 MHz, VBW=1 MHz. 110Vac, 60 Hz, 32.2°C, 48% relative humidity.

Transducer Legend:

T1=Bilog SN2629 062604	T2=Cable #6 (Ant to Bulkhead) 051204
T3=Cable Heliax #17 84ft(10 meter)	T4=Cable#22 BNC (preamp to SA)
T5=Preamp 8447D 02320 (site D) 010404	T6=----------
T7=Horn AN 01646 1-18 GHz (Brea)	T8=Cable P1510 13' GoreTex SMA
T9=HF Preamp Cal. HP-83017A,S/N- 3123A00282	T10=HPF 2.4GHz High Pass 022004

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2436.800M	119.1	+0.0 +0.0 -39.4	+0.0 +0.0 +0.0	+0.0 +28.0	+0.0 +1.8	+0.0	109.5	54.0 fundamental	+55.5	Horiz
2	2438.000M	113.8	+0.0 +0.0 -39.4	+0.0 +0.0 +0.0	+0.0 +28.0	+0.0 +1.8	+0.0	104.2	54.0 Fundamental	+50.2	Vert
3	672.012M	36.7	+20.6 -26.4	+2.9	+2.8	+0.7	+0.0	37.3	46.0	-8.7	Vert

4	303.634M	45.6	+13.5 -26.7	+1.9	+1.9	+0.4	+0.0	36.6	46.0	-9.4	Horiz
5	719.995M	34.3	+21.2 -26.2	+3.0	+2.9	+0.8	+0.0	36.0	46.0	-10.0	Vert
6	431.971M	40.7	+17.0 -27.1	+2.3	+2.0	+0.5	+0.0	35.4	46.0	-10.6	Horiz
7	200.439M	47.0	+9.0 -26.9	+1.4	+1.6	+0.3	+0.0	32.4	43.5	-11.1	Vert
8	671.992M	34.1	+20.6 -26.4	+2.9	+2.8	+0.7	+0.0	34.7	46.0	-11.3	Horiz
9	351.588M	42.1	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	34.7	46.0	-11.3	Horiz
10	324.947M	42.8	+14.2 -26.8	+2.0	+1.9	+0.4	+0.0	34.5	46.0	-11.5	Horiz
11	479.988M	37.2	+17.9 -27.0	+2.4	+2.5	+0.6	+0.0	33.6	46.0	-12.4	Horiz
12	400.878M	39.5	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	33.4	46.0	-12.6	Vert
13	287.659M	42.6	+13.2 -26.7	+1.9	+1.9	+0.4	+0.0	33.3	46.0	-12.7	Horiz
14	720.005M	31.5	+21.2 -26.2	+3.0	+2.9	+0.8	+0.0	33.2	46.0	-12.8	Horiz
15	527.997M	35.7	+18.7 -27.1	+2.5	+2.6	+0.6	+0.0	33.0	46.0	-13.0	Vert
16	458.162M	37.6	+17.5 -27.1	+2.3	+2.2	+0.5	+0.0	33.0	46.0	-13.0	Vert
17	400.881M	38.7	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	32.6	46.0	-13.4	Horiz
18	486.799M	35.8	+18.0 -27.0	+2.4	+2.6	+0.6	+0.0	32.4	46.0	-13.6	Horiz
19	447.479M	37.3	+17.3 -27.1	+2.3	+2.1	+0.5	+0.0	32.4	46.0	-13.6	Horiz
20	383.991M	38.9	+15.9 -26.9	+2.1	+1.9	+0.5	+0.0	32.4	46.0	-13.6	Vert

21	186.123M	44.7	+9.1 -27.0	+1.3	+1.5	+0.3	+0.0	29.9	43.5	-13.6	Vert
22	515.437M	35.0	+18.5 -27.0	+2.5	+2.7	+0.6	+0.0	32.3	46.0	-13.7	Vert
23	458.147M	36.8	+17.5 -27.1	+2.3	+2.2	+0.5	+0.0	32.2	46.0	-13.8	Horiz
24	515.433M	34.4	+18.5 -27.0	+2.5	+2.7	+0.6	+0.0	31.7	46.0	-14.3	Horiz
25	330.258M	39.8	+14.4 -26.8	+2.0	+1.9	+0.4	+0.0	31.7	46.0	-14.3	Horiz
26	527.963M	33.9	+18.7 -27.1	+2.5	+2.6	+0.6	+0.0	31.2	46.0	-14.8	Horiz
27	406.408M	37.1	+16.4 -27.0	+2.2	+1.9	+0.5	+0.0	31.1	46.0	-14.9	Horiz
28	367.562M	37.9	+15.4 -26.9	+2.1	+1.9	+0.4	+0.0	30.8	46.0	-15.2	Horiz
29	127.841M	40.5	+11.7 -27.0	+1.2	+1.2	+0.2	+0.0	27.8	43.5	-15.7	Vert
30	372.252M	37.1	+15.6 -26.9	+2.1	+1.9	+0.4	+0.0	30.2	46.0	-15.8	Horiz
31	431.999M	35.2	+17.0 -27.1	+2.3	+2.0	+0.5	+0.0	29.9	46.0	-16.1	Vert
32	383.983M	35.7	+15.9 -26.9	+2.1	+1.9	+0.5	+0.0	29.2	46.0	-16.8	Horiz
33	440.015M	33.7	+17.1 -27.1	+2.3	+2.0	+0.5	+0.0	28.5	46.0	-17.5	Horiz
34	360.024M	35.5	+15.2 -26.8	+2.0	+2.0	+0.4	+0.0	28.3	46.0	-17.7	Horiz
35	450.093M	33.2	+17.3 -27.1	+2.3	+2.1	+0.5	+0.0	28.3	46.0	-17.7	Vert
36	336.007M	36.2	+14.5 -26.8	+2.0	+1.9	+0.4	+0.0	28.2	46.0	-17.8	Horiz
37	356.938M	35.1	+15.2 -26.8	+2.0	+2.0	+0.4	+0.0	27.9	46.0	-18.1	Horiz

38	343.633M	35.2	+14.8 -26.8	+2.0	+2.0	+0.4	+0.0	27.6	46.0	-18.4	Horiz
39	330.299M	35.7	+14.4 -26.8	+2.0	+1.9	+0.4	+0.0	27.6	46.0	-18.4	Vert
40	292.995M	36.3	+13.3 -26.7	+1.9	+1.9	+0.4	+0.0	27.1	46.0	-18.9	Horiz
41	407.979M	32.9	+16.5 -27.0	+2.2	+1.9	+0.5	+0.0	27.0	46.0	-19.0	Horiz
42	314.972M	35.5	+13.9 -26.7	+1.9	+1.9	+0.4	+0.0	26.9	46.0	-19.1	Vert
43	314.974M	35.4	+13.9 -26.7	+1.9	+1.9	+0.4	+0.0	26.8	46.0	-19.2	Horiz
44	40.522M	32.6	+13.8 -27.1	+0.7	+0.7	+0.1	+0.0	20.8	40.0	-19.2	Horiz
45	298.820M	35.2	+13.4 -26.7	+1.9	+1.9	+0.4	+0.0	26.1	46.0	-19.9	Horiz
46	324.964M	34.4	+14.2 -26.8	+2.0	+1.9	+0.4	+0.0	26.1	46.0	-19.9	Vert
47	239.988M	37.2	+12.0 -26.9	+1.7	+1.7	+0.4	+0.0	26.1	46.0	-19.9	Vert
48	286.349M	35.5	+13.2 -26.8	+1.8	+1.8	+0.4	+0.0	25.9	46.0	-20.1	Vert
49	271.678M	35.4	+13.0 -26.8	+1.8	+1.8	+0.4	+0.0	25.6	46.0	-20.4	Horiz
50	334.088M	33.4	+14.5 -26.8	+2.0	+1.9	+0.4	+0.0	25.4	46.0	-20.6	Vert
51	240.016M	36.0	+12.0 -26.9	+1.7	+1.7	+0.4	+0.0	24.9	46.0	-21.1	Horiz
52	271.696M	34.6	+13.0 -26.8	+1.8	+1.8	+0.4	+0.0	24.8	46.0	-21.2	Vert
53	308.972M	33.4	+13.7 -26.7	+1.9	+1.9	+0.4	+0.0	24.6	46.0	-21.4	Horiz
54	173.293M	35.3	+9.5 -27.1	+1.3	+1.4	+0.3	+0.0	20.7	43.5	-22.8	Horiz

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer:	**Intel Corporation**		
Specification:	**FCC 15.247(c)**		
Work Order #:	**80964**	Date:	08/20/2003
Test Type:	**Maximized Emissions**	Time:	22:23:05
Equipment:	**Embedded 2.4 GHz Wireless LAN mini PCI adaptor**	Sequence#:	12
Manufacturer:	Intel	Tested By:	Eddie Wong
Model:	TBD Code name (Raptor)		
S/N:	NA		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Embedded 2.4 GHz Wireless LAN mini PCI adaptor*	Intel	TBD Code name (Raptor)	NA
Laptop	HP	3111BZ931RA	SY35LBQ12013

Support Devices:

Function	Manufacturer	Model #	S/N
USB Zip drive	Iomega	Zip100	PSA009AO7M
Monitor	Gateway	500-069EV	15013A000011

Test Conditions / Notes:

The EUT housed in a host laptop computer is placed on the wooden table. Connected to the laptop computer are a monitor and a USB storage drive. Transmit mode. Freq = 2412 MHz, Rate: 11 Mbps (worse case). Frequency range of measurement = 9 kHz - 25 GHz. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz - 25 MHz RBW=1 MHz, VBW=1 MHz. 110Vac, 60 Hz, 32.2°C, 48% relative humidity.

Transducer Legend:

T1=Bilog SN2629 062604	T2=Cable #6 (Ant to Bulkhead) 051204
T3=Cable Heliax #17 84ft(10 meter)	T4=Cable#22 BNC (preamp to SA)
T5=Preamp 8447D 02320 (site D) 010404	T6=----------
T7=Horn AN 01646 1-18 GHz (Brea)	T8=Cable P1510 13' GoreTex SMA
T9=HF Preamp Cal. HP-83017A,S/N- 3123A00282	T10=HPF 2.4GHz High Pass 022004

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	.000k	0.0					+0.0	0.0	0.0	+0.0	
2	.000k	0.0					+0.0	0.0	0.0	+0.0	
3	.000k	0.0					+0.0	0.0	0.0	+0.0	
4	.000k	0.0					+0.0	0.0	0.0	+0.0	
5	671.987M	36.9	+20.6 -26.4	+2.9	+2.8	+0.7	+0.0	37.5	46.0	-8.5	Vert

6	351.560M	44.7	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	37.3	46.0	-8.7	Horiz
7	720.009M	34.7	+21.2 -26.2	+3.0	+2.9	+0.8	+0.0	36.4	46.0	-9.6	Vert
8	330.272M	44.1	+14.4 -26.8	+2.0	+1.9	+0.4	+0.0	36.0	46.0	-10.0	Horiz
9	367.566M	42.8	+15.4 -26.9	+2.1	+1.9	+0.4	+0.0	35.7	46.0	-10.3	Horiz
10	431.970M	40.6	+17.0 -27.1	+2.3	+2.0	+0.5	+0.0	35.3	46.0	-10.7	Horiz
11	400.889M	41.2	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	35.1	46.0	-10.9	Vert
12	458.154M	38.4	+17.5 -27.1	+2.3	+2.2	+0.5	+0.0	33.8	46.0	-12.2	Vert
13	400.897M	39.8	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	33.7	46.0	-12.3	Horiz
14	383.997M	39.9	+15.9 -26.9	+2.1	+1.9	+0.5	+0.0	33.4	46.0	-12.6	Horiz
15	515.450M	35.9	+18.5 -27.0	+2.5	+2.7	+0.6	+0.0	33.2	46.0	-12.8	Vert
16	324.947M	41.5	+14.2 -26.8	+2.0	+1.9	+0.4	+0.0	33.2	46.0	-12.8	Horiz
17	383.535M	39.6	+15.9 -26.9	+2.1	+1.9	+0.5	+0.0	33.1	46.0	-12.9	Horiz
18	528.018M	35.5	+18.7 -27.1	+2.5	+2.6	+0.6	+0.0	32.8	46.0	-13.2	Vert
19	479.979M	36.0	+17.9 -27.0	+2.4	+2.5	+0.6	+0.0	32.4	46.0	-13.6	Horiz
20	486.826M	35.7	+18.0 -27.0	+2.4	+2.6	+0.6	+0.0	32.3	46.0	-13.7	Vert
21	303.631M	40.9	+13.5 -26.7	+1.9	+1.9	+0.4	+0.0	31.9	46.0	-14.1	Horiz
22	672.005M	31.1	+20.6 -26.4	+2.9	+2.8	+0.7	+0.0	31.7	46.0	-14.3	Horiz

23	356.904M	38.5	+15.2 -26.8	+2.0	+2.0	+0.4	+0.0	31.3	46.0	-14.7	Horiz
24	376.291M	37.9	+15.7 -26.9	+2.1	+1.9	+0.5	+0.0	31.2	46.0	-14.8	Horiz
25	191.980M	43.5	+9.0 -27.0	+1.4	+1.5	+0.3	+0.0	28.7	43.5	-14.8	Vert
26	431.993M	36.0	+17.0 -27.1	+2.3	+2.0	+0.5	+0.0	30.7	46.0	-15.3	Vert
27	383.986M	37.0	+15.9 -26.9	+2.1	+1.9	+0.5	+0.0	30.5	46.0	-15.5	Vert
28	420.850M	35.2	+16.7 -27.0	+2.2	+1.9	+0.5	+0.0	29.5	46.0	-16.5	Horiz
29	314.992M	38.1	+13.9 -26.7	+1.9	+1.9	+0.4	+0.0	29.5	46.0	-16.5	Horiz
30	271.674M	39.0	+13.0 -26.8	+1.8	+1.8	+0.4	+0.0	29.2	46.0	-16.8	Horiz
31	191.998M	41.5	+9.0 -27.0	+1.4	+1.5	+0.3	+0.0	26.7	43.5	-16.8	Horiz
32	171.807M	40.9	+9.7 -27.1	+1.3	+1.4	+0.3	+0.0	26.5	43.5	-17.0	Horiz
33	239.997M	39.8	+12.0 -26.9	+1.7	+1.7	+0.4	+0.0	28.7	46.0	-17.3	Vert
34	429.531M	33.6	+16.9 -27.1	+2.3	+1.9	+0.5	+0.0	28.1	46.0	-17.9	Vert
35	351.605M	35.3	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	27.9	46.0	-18.1	Vert
36	324.973M	35.6	+14.2 -26.8	+2.0	+1.9	+0.4	+0.0	27.3	46.0	-18.7	Vert
37	429.556M	32.8	+16.9 -27.1	+2.3	+1.9	+0.5	+0.0	27.3	46.0	-18.7	Horiz
38	315.038M	35.7	+13.9 -26.7	+1.9	+1.9	+0.4	+0.0	27.1	46.0	-18.9	Vert
39	319.648M	34.9	+14.0 -26.7	+1.9	+1.9	+0.4	+0.0	26.4	46.0	-19.6	Vert

40	353.176M	33.6	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	26.2	46.0	-19.8	Vert
41	261.045M	36.4	+12.9 -26.9	+1.7	+1.7	+0.4	+0.0	26.2	46.0	-19.8	Horiz
42	367.572M	32.7	+15.4 -26.9	+2.1	+1.9	+0.4	+0.0	25.6	46.0	-20.4	Vert
43	372.012M	32.2	+15.6 -26.9	+2.1	+1.9	+0.4	+0.0	25.3	46.0	-20.7	Vert
44	383.573M	30.3	+15.9 -26.9	+2.1	+1.9	+0.5	+0.0	23.8	46.0	-22.2	Vert

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Intel Corporation**
Specification: **FCC 15.247(c) Average limit**
Work Order #: **80964** Date: 08/20/2003
Test Type: **Maximized Emissions** Time: 18:46:34
Equipment: **Embedded 2.4 GHz Wireless LAN mini PCI adaptor** Sequence#: 14
Manufacturer: Intel Tested By: Eddie Wong
Model: TBD Code name (Raptor)
S/N: NA

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Embedded 2.4 GHz Wireless LAN mini PCI adaptor*	Intel	TBD Code name (Raptor)	NA
Laptop	HP	3111BZ931RA	SY35LBQ12013

Support Devices:

Function	Manufacturer	Model #	S/N
USB Zip drive	Iomega	Zip100	PSA009AO7M
Monitor	Gateway	500-069EV	15013A000011

Test Conditions / Notes:

The EUT housed in a host laptop computer is placed on the wooden table. Connected to the laptop computer are a monitor and a USB storage drive. Transmit mode Freq = 2462 MHz, Rate: 11 Mbps (worse case). Frequency range of measurement = 9 kHz - 25 GHz. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz - 25 MHz RBW=1 MHz, VBW=1 MHz. 110Vac, 60 Hz, 32.2°C, 48% relative humidity.

Transducer Legend:

T1=Bilog SN2629 062604	T2=Cable #6 (Ant to Bulkhead) 051204
T3=Cable Heliax #17 84ft(10 meter)	T4=Cable#22 BNC (preamp to SA)
T5=Preamp 8447D 02320 (site D) 010404	T6=----------
T7=Horn AN 01646 1-18 GHz (Brea)	T8=Cable P1510 13' GoreTex SMA
T9=HF Preamp Cal. HP-83017A,S/N- 3123A00282	T10=HPF 2.4GHz High Pass 022004

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2464.300M	114.0	+0.0 +0.0 -39.4	+0.0 +0.0 +0.0	+0.0 +28.0	+0.0 +1.8	+0.0	104.4	54.0 fundamental	+50.4	Horiz
2	2462.000M	113.6	+0.0 +0.0 -39.4	+0.0 +0.0 +0.0	+0.0 +28.0	+0.0 +1.8	+0.0	104.0	54.0 Fundamental	+50.0	Vert
3	200.427M	48.4	+9.0 -26.9	+1.4	+1.6	+0.3	+0.0	33.8	43.5	-9.7	Vert

4	303.634M	44.3	+13.5 -26.7	+1.9	+1.9	+0.4	+0.0	35.3	46.0	-10.7	Horiz
5	720.004M	33.5	+21.2 -26.2	+3.0	+2.9	+0.8	+0.0	35.2	46.0	-10.8	Vert
6	432.010M	39.5	+17.0 -27.1	+2.3	+2.0	+0.5	+0.0	34.2	46.0	-11.8	Horiz
7	324.929M	42.4	+14.2 -26.8	+2.0	+1.9	+0.4	+0.0	34.1	46.0	-11.9	Horiz
8	400.897M	39.0	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	32.9	46.0	-13.1	Horiz
9	330.283M	41.0	+14.4 -26.8	+2.0	+1.9	+0.4	+0.0	32.9	46.0	-13.1	Horiz
10	351.563M	39.8	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	32.4	46.0	-13.6	Horiz
11	192.015M	44.6	+9.0 -27.0	+1.4	+1.5	+0.3	+0.0	29.8	43.5	-13.7	Vert
12	458.159M	36.9	+17.5 -27.1	+2.3	+2.2	+0.5	+0.0	32.3	46.0	-13.7	Horiz
13	400.888M	37.9	+16.3 -27.0	+2.2	+1.9	+0.5	+0.0	31.8	46.0	-14.2	Vert
14	486.792M	35.2	+18.0 -27.0	+2.4	+2.6	+0.6	+0.0	31.8	46.0	-14.2	Horiz
15	367.550M	38.4	+15.4 -26.9	+2.1	+1.9	+0.4	+0.0	31.3	46.0	-14.7	Horiz
16	420.822M	36.4	+16.7 -27.0	+2.2	+1.9	+0.5	+0.0	30.7	46.0	-15.3	Horiz
17	486.791M	33.8	+18.0 -27.0	+2.4	+2.6	+0.6	+0.0	30.4	46.0	-15.6	Vert
18	515.437M	33.1	+18.5 -27.0	+2.5	+2.7	+0.6	+0.0	30.4	46.0	-15.6	Horiz
19	298.306M	39.3	+13.4 -26.7	+1.9	+1.9	+0.4	+0.0	30.2	46.0	-15.8	Horiz
20	336.009M	37.8	+14.5 -26.8	+2.0	+1.9	+0.4	+0.0	29.8	46.0	-16.2	Horiz

21	303.635M	38.6	+13.5 -26.7	+1.9	+1.9	+0.4	+0.0	29.6	46.0	-16.4	Vert
22	240.012M	40.5	+12.0 -26.9	+1.7	+1.7	+0.4	+0.0	29.4	46.0	-16.6	Vert
23	372.259M	36.3	+15.6 -26.9	+2.1	+1.9	+0.4	+0.0	29.4	46.0	-16.6	Horiz
24	524.992M	31.6	+18.7 -27.1	+2.5	+2.6	+0.6	+0.0	28.9	46.0	-17.1	Horiz
25	458.170M	33.4	+17.5 -27.1	+2.3	+2.2	+0.5	+0.0	28.8	46.0	-17.2	Vert
26	319.613M	37.3	+14.0 -26.7	+1.9	+1.9	+0.4	+0.0	28.8	46.0	-17.2	Horiz
27	308.957M	37.6	+13.7 -26.7	+1.9	+1.9	+0.4	+0.0	28.8	46.0	-17.2	Horiz
28	353.155M	36.1	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	28.7	46.0	-17.3	Vert
29	351.581M	36.1	+15.0 -26.8	+2.0	+2.0	+0.4	+0.0	28.7	46.0	-17.3	Vert
30	292.998M	37.6	+13.3 -26.7	+1.9	+1.9	+0.4	+0.0	28.4	46.0	-17.6	Horiz
31	406.405M	34.3	+16.4 -27.0	+2.2	+1.9	+0.5	+0.0	28.3	46.0	-17.7	Vert
32	356.890M	35.5	+15.2 -26.8	+2.0	+2.0	+0.4	+0.0	28.3	46.0	-17.7	Horiz
33	429.545M	33.6	+16.9 -27.1	+2.3	+1.9	+0.5	+0.0	28.1	46.0	-17.9	Horiz
34	324.930M	36.2	+14.2 -26.8	+2.0	+1.9	+0.4	+0.0	27.9	46.0	-18.1	Vert
35	334.090M	35.9	+14.5 -26.8	+2.0	+1.9	+0.4	+0.0	27.9	46.0	-18.1	Horiz
36	191.994M	39.7	+0.0 +0.0	+0.0	+0.0	+0.0	+0.0	24.9	43.5	-18.6	Horiz
37	330.253M	35.2	+14.4 -26.8	+2.0	+1.9	+0.4	+0.0	27.1	46.0	-18.9	Vert

38	384.030M	33.2	+15.9 -26.9	+2.1	+1.9	+0.5	+0.0	26.7	46.0	-19.3	Horiz
39	286.367M	36.2	+13.2 -26.8	+1.8	+1.8	+0.4	+0.0	26.6	46.0	-19.4	Vert
40	271.686M	36.3	+13.0 -26.8	+1.8	+1.8	+0.4	+0.0	26.5	46.0	-19.5	Horiz
41	200.440M	38.6	+9.0 -26.9	+1.4	+1.6	+0.3	+0.0	24.0	43.5	-19.5	Horiz
42	367.537M	33.5	+15.4 -26.9	+2.1	+1.9	+0.4	+0.0	26.4	46.0	-19.6	Vert
43	314.957M	34.9	+13.9 -26.7	+1.9	+1.9	+0.4	+0.0	26.3	46.0	-19.7	Vert
44	239.991M	37.1	+12.0 -26.9	+1.7	+1.7	+0.4	+0.0	26.0	46.0	-20.0	Horiz
45	372.256M	32.7	+15.6 -26.9	+2.1	+1.9	+0.4	+0.0	25.8	46.0	-20.2	Vert
46	263.986M	35.2	+12.9 -26.8	+1.8	+1.8	+0.4	+0.0	25.3	46.0	-20.7	Horiz
47	144.016M	33.4	+11.6 -27.1	+1.4	+1.3	+0.3	+0.0	20.9	43.5	-22.6	Vert