FCC CFR47 PART 15 SUBPART C
CERTIFICATION TEST REPORT

FOR

NOTEBOOK PC

MODEL NUMBER: NP-Q1UP

FCC ID: A3LNP-Q1UP

REPORT NUMBER: 07I11483-1

ISSUE DATE: DECEMBER 4, 2007

Prepared for

SAMSUNG ELECTRONICS CO, LTD
416 MAETAN 3-DONG, YEONGTONG-GU,
SUWON-CITY, GYEONGGI-DO443-742, KOREA

Prepared by

COMPLIANCE CERTIFICATION SERVICES
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	12/04/07	Initial Issue	T. Chan

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO, LTD
416 MAETAN 3-DONG, YEONGTONG-GU,
SUWON-CITY, GYEONGGI-DO443-742 KOREA

EUT DESCRIPTION: NOTEBOOK PC

MODEL: NP-Q1UP

SERIAL NUMBER: FOR EMISSION: AJ7793BPA00024W (FOXCONN ANTENNA) &
AJ7793BPA00058F (WNC ANTENNA)
FOR ANTENNA PORT: AJ7793BPA00043N

DATE TESTED: NOVEMBER 26 - 30, 2007

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	No Non-Compliance Noted

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:

VIEN TRAN
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a notebook PC with 802.11b/g transceiver and BT module installed.

The WLAN transceiver radio module is manufactured by Atheros.

The BT radio module is manufactured by Broadcom. It is already certified under FCC ID: QDS-BRCM1018.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	23.77	238.23
2412 - 2462	802.11g	27.08	510.50

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The WLAN radio utilizes either one of the following antennas:

Main antenna

1/ HON HAI PRECISION IND. CO., LTD (Foxconn)/ WDAN-M1MA1001-DF, peak gain with cable loss: 1.03dBi (2400-2500MHz).

2/ Wistron Neweb Corporation/ 81.EER15.001, peak gain with cable loss: -1.08dBi (2400-2500MHz).

Aux antenna

1/ HON HAI PRECISION IND. CO., LTD (Foxconn) / WDAN-M1MA1002-DF, peak gain with cable loss: -1.82dBi (2400-2500MHz).

2/ Wistron Neweb Corporation/ 81.EER15.002, peak gain with cable loss: -6.74dBi (2400-2500MHz).

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed in the host support equipment during testing was art id=7131

The test utility software used during testing was Atheros ART 5.3.Build #30.

5.5. WORST-CASE CONFIGURATION AND MODE

EUT was tested in three orthogonal orientations to find out the worst orientation, the worst orientations were found out to be:

_With Foxconn antenna: Y orientation for both 11b and g modes.

_With WNC antenna: Y orientation for both 11b and g modes.

For the frequency range of 30 MHz to 25 GHz, radiated emissions, Low, Mid and High channels for both 11b and 11g modes were tested. Low channel was at 2412 MHz, Mid channel was at 2437 MHz, and high channel was at 2462 MHz.

For 11b mode, 1 Mbps data rate was selected. For 11g mode, 6 Mbps data rate was selected.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC/DC Adapter	Li Shin	0335C1960	AD6019	DoC

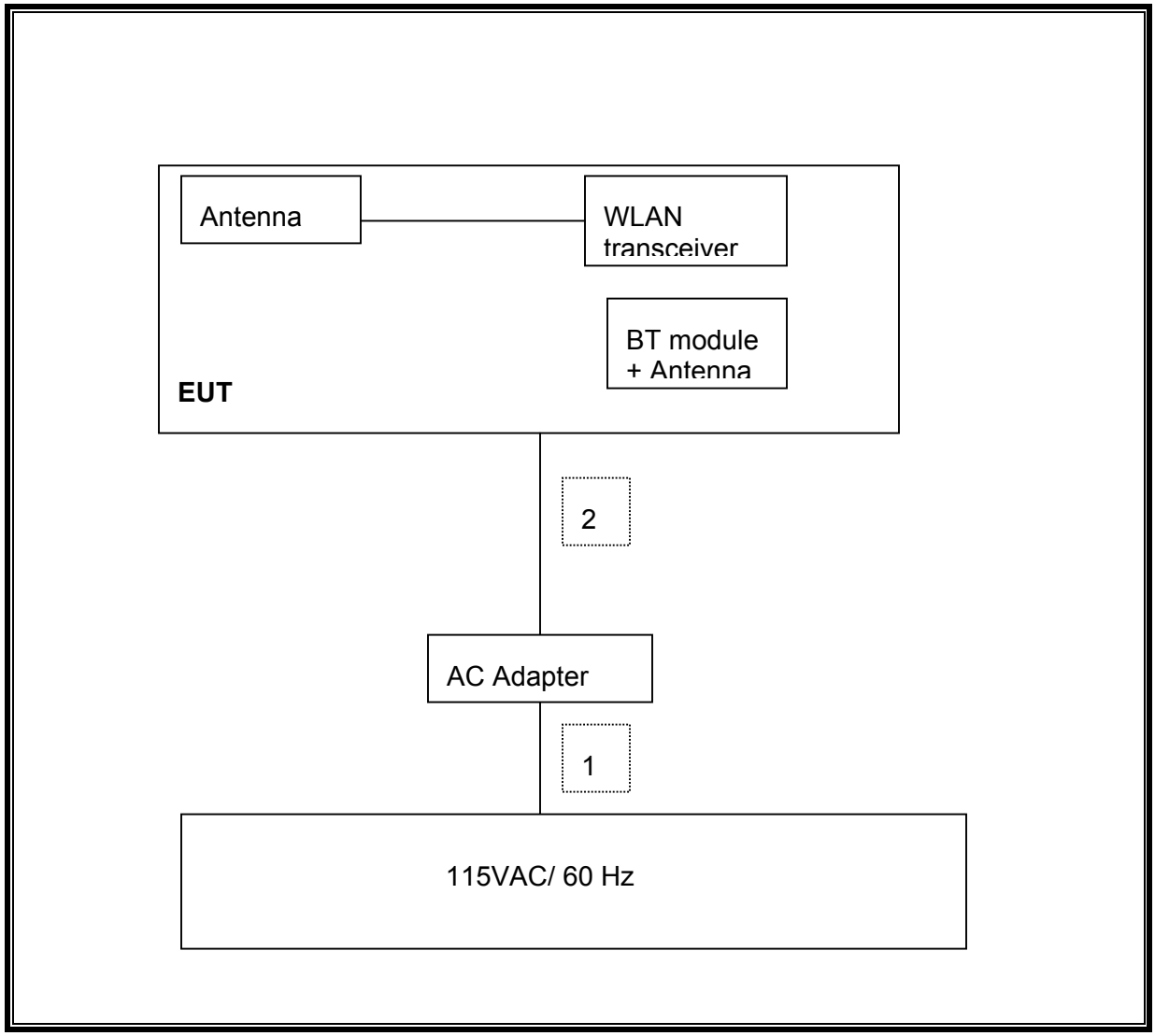
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identica Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	1	AC	Unshielded	1m	N/A
2	DC	1	DC	Unshielded	1.8m	Ferrite on Notebook End

TEST SETUP

The EUT is a stand alone unit. Test software exercised the radio card in transmitting mode.

SETUP DIAGRAM FOR TESTS FOR RADIATED EMISSION



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST					
Description	**Manufacturer**	**Model**	**Asset**	**Cal Date**	**Cal Due**
SA Display Section	Agilent / HP	85662A	N02480	5/4/2006	4/7/2008
Quasi-Peak Adaptor	Agilent / HP	85650A	C00779	4/13/2006	1/21/2008
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	10/3/2006	9/27/2008
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	5/2/2006	8/7/2008
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	10/13/2008	10/13/2008
Antenna, Horn, 18 GHz	EMCO	3115	C00872	4/15/2007	4/15/2008
Power Meter	Agilent / HP	438B	N02785	3/1/2007	6/2/2008
Power Sensor, 18 GHz	Agilent / HP	8481A	N02781	1/24/2007	4/30/2008
2.4-2.5 GHz Reject Filter	Micro-Tronics	BRM50702	1	N/A	N/A
Preamplifier, 1300 MHz	Agilent / HP	8447D		01/23/07	01/23/08

7. ANTENNA PORT TEST RESULTS

7.1. 802.11b MODE IN THE 2.4 GHz BAND

7.1.1. 6 dB BANDWIDTH

LIMIT

§15.247 (a) (2) For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

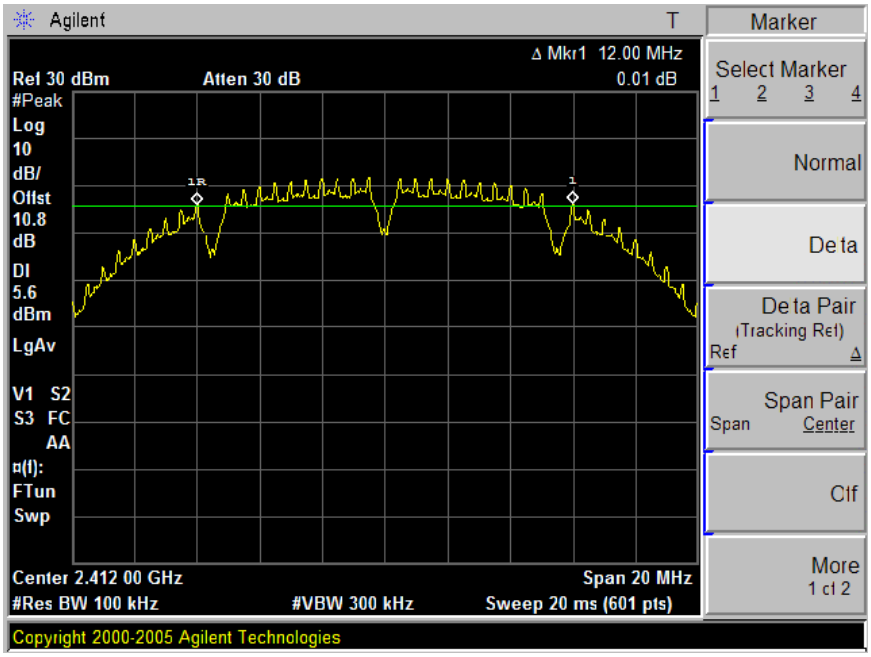
No non-compliance noted:

802.11b Mode

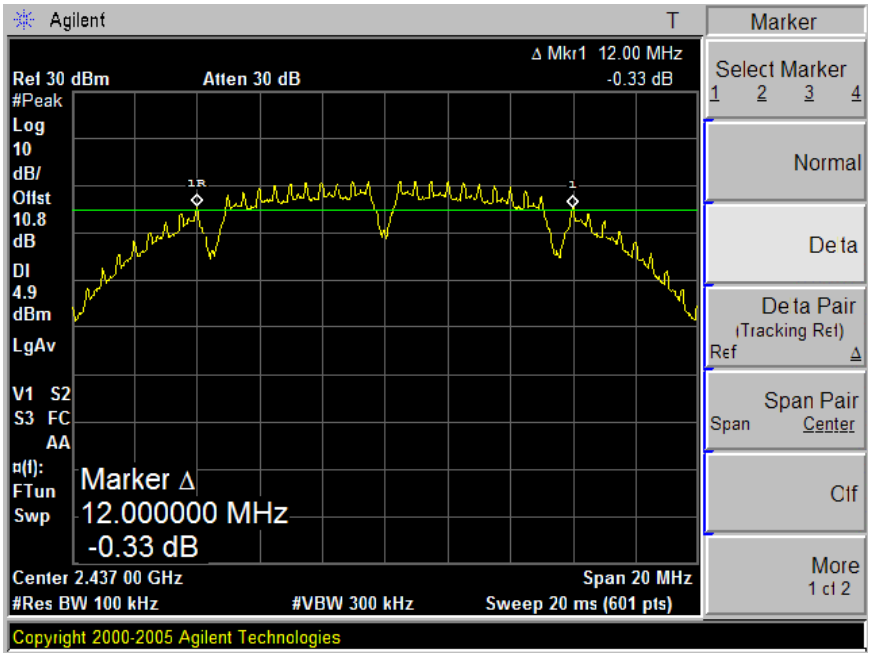
Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
Low	2412	12000	500	11500
Middle	2437	12000	500	11500
High	2462	12000	500	11500

6 dB BANDWIDTH (802.11b MODE)

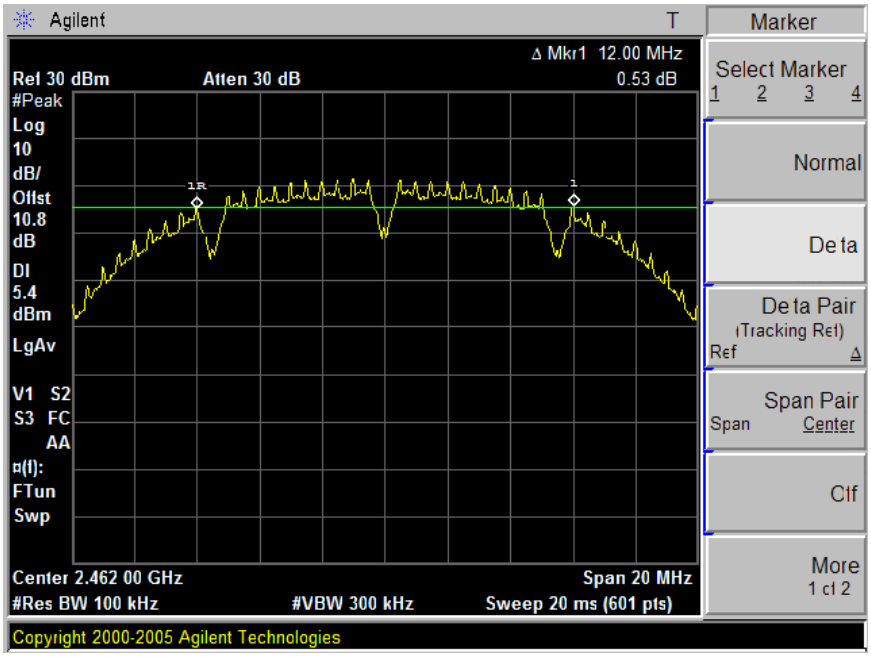
6 dB BANDWIDTH LOW CH (802.11b mode)



6 dB BANDWIDTH MID CH (802.11b mode)



6 dB BANDWIDTH HIGH CH (802.11b mode)



7.1.2. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

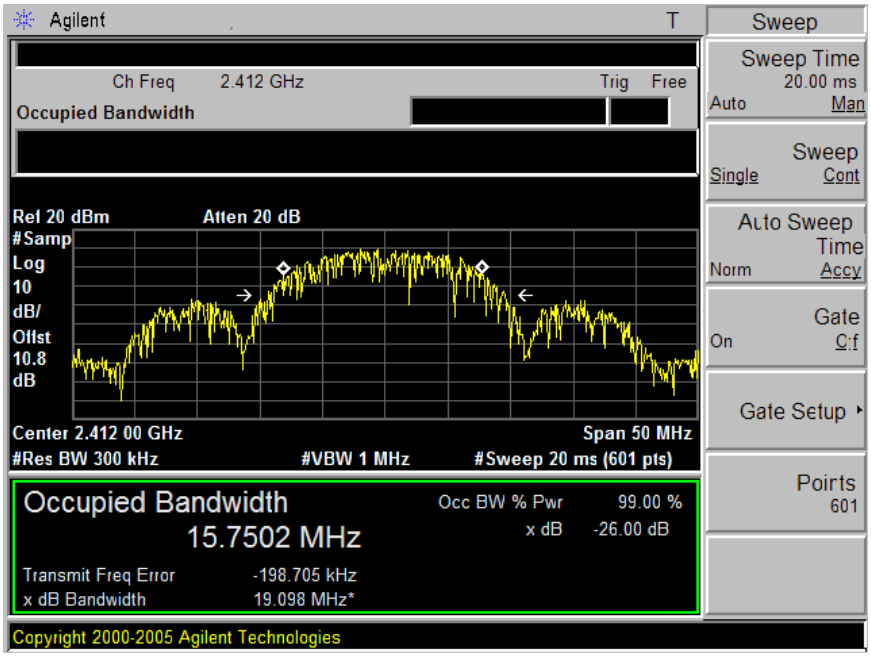
No non-compliance noted:

802.11b Mode

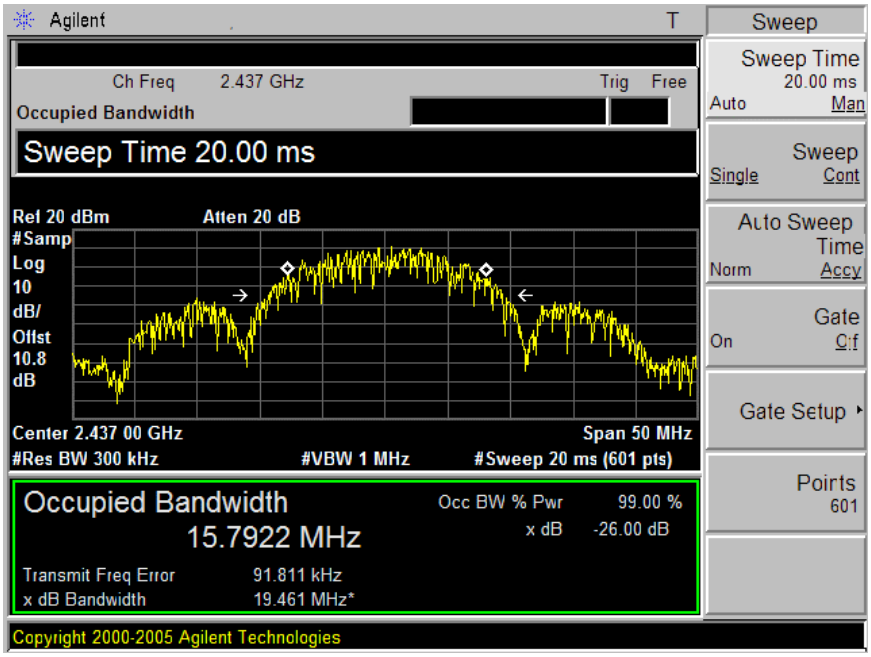
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	15.7502
Middle	2437	15.7922
High	2462	15.7615

99% BANDWIDTH (802.11b MODE)

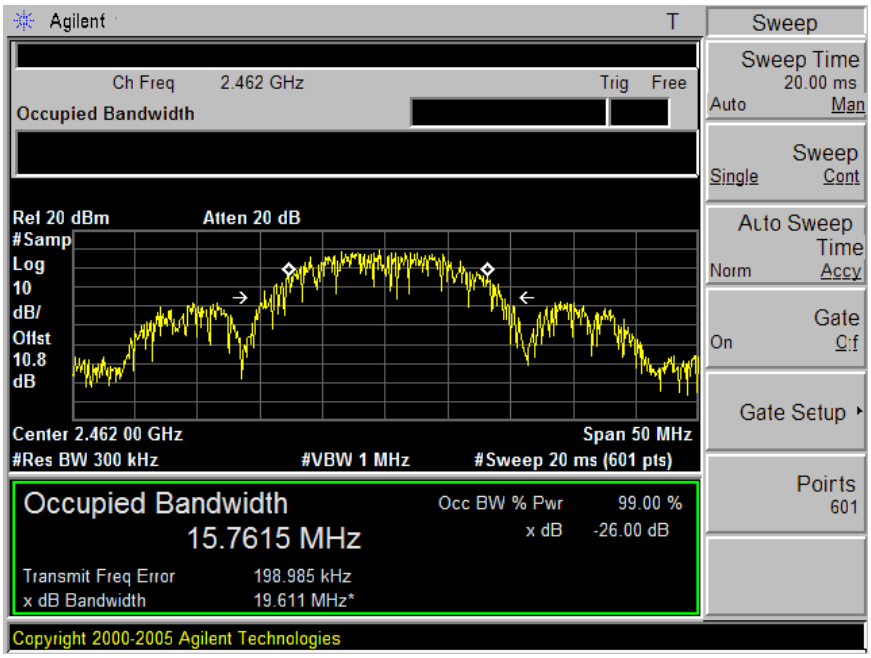
99% BANDWIDTH LOW CH (802.11b mode)



99% BANDWIDTH MID CH (802.11b mode)



99% BANDWIDTH HIGH CH (802.11b mode)



7.1.3. PEAK OUTPUT POWER

PEAK POWER LIMIT

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

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

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz , and 5725-5850 MHz bands: 1 watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

§15.247 (b) (4) (i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.

RESULTS

The maximum antenna gain is 1.03 dBi for other than fixed, point-to-point operations, therefore the limit is 30 dBm.

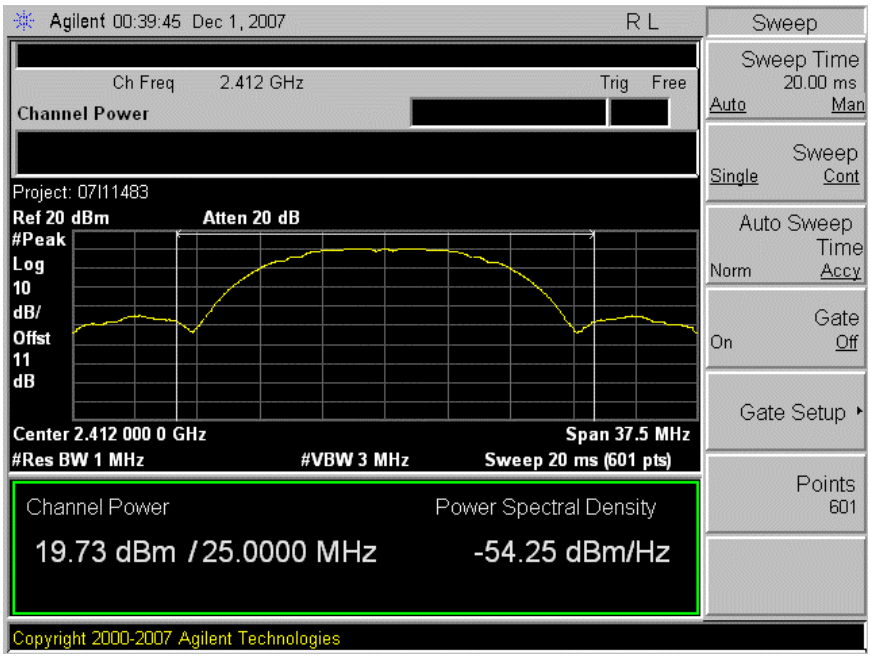
No non-compliance noted:

802.11b Mode

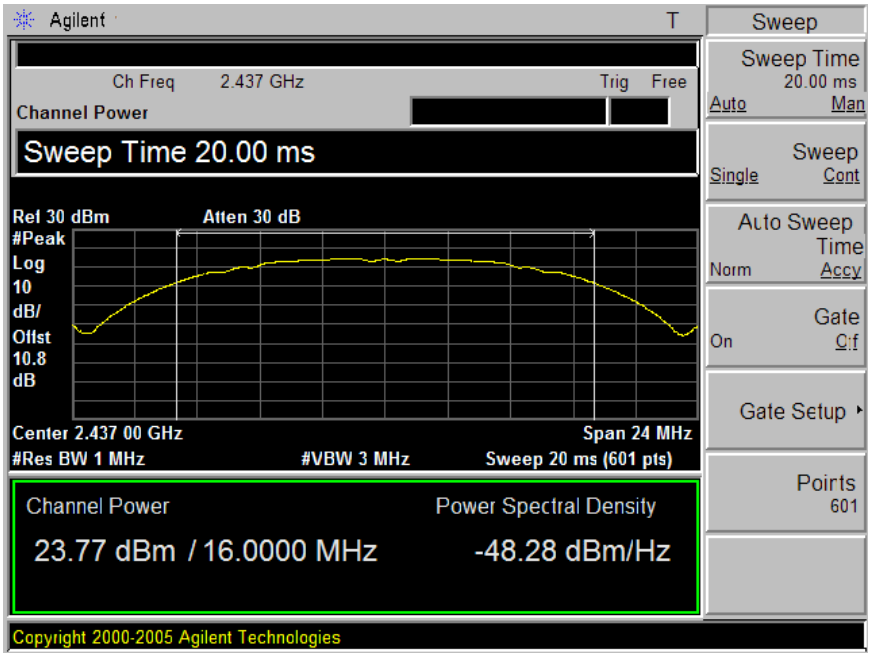
Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	19.73	30	-10.27
Middle	2437	23.77	30	-6.23
High	2462	21.10	30	-8.90

OUTPUT POWER (802.11b MODE)

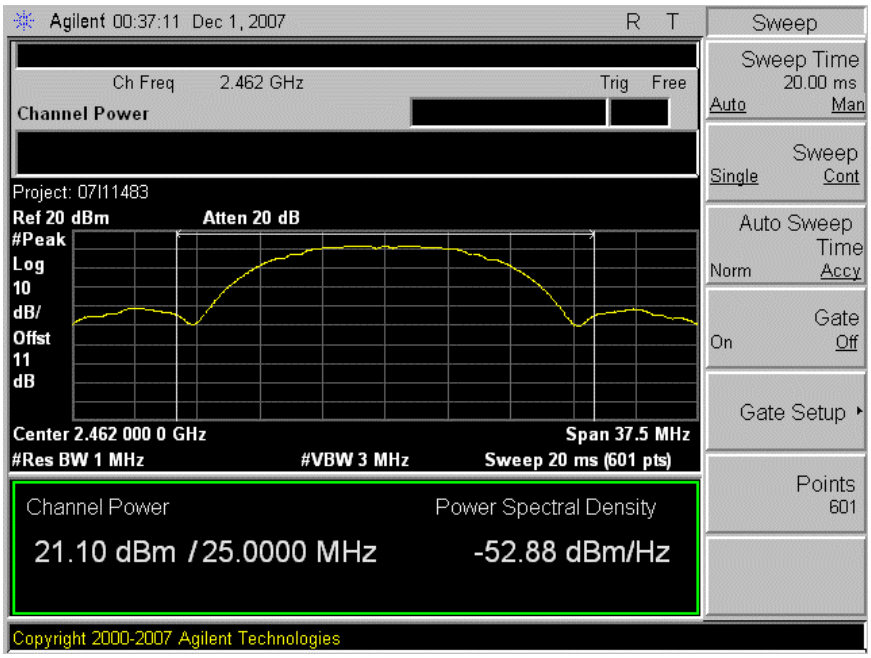
PEAK POWER LOW CH (802.11b mode)



PEAK POWER MID CH (802.11b mode)



PEAK POWER HIGH CH (802.11b mode)



7.1.4. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 10.75 dB (including 10 dB pad and 0.75 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.11b Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	17.00
Middle	2437	20.60
High	2462	18.00

7.1.5. PEAK POWER SPECTRAL DENSITY

LIMIT

§15.247 (d) For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = 3 kHz and VBW > 3 kHz, sweep time = span / 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

RESULTS

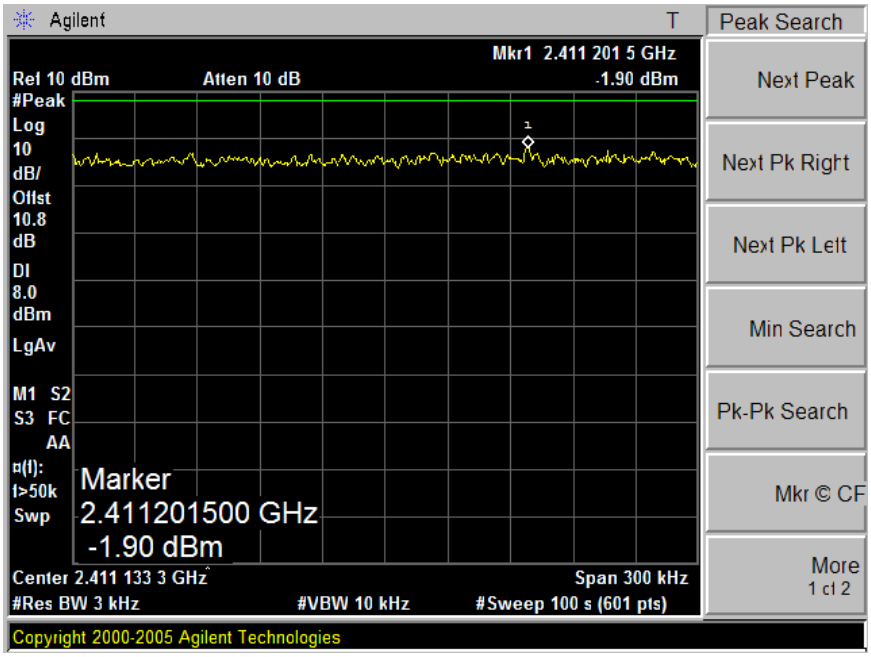
No non-compliance noted:

802.11b Mode

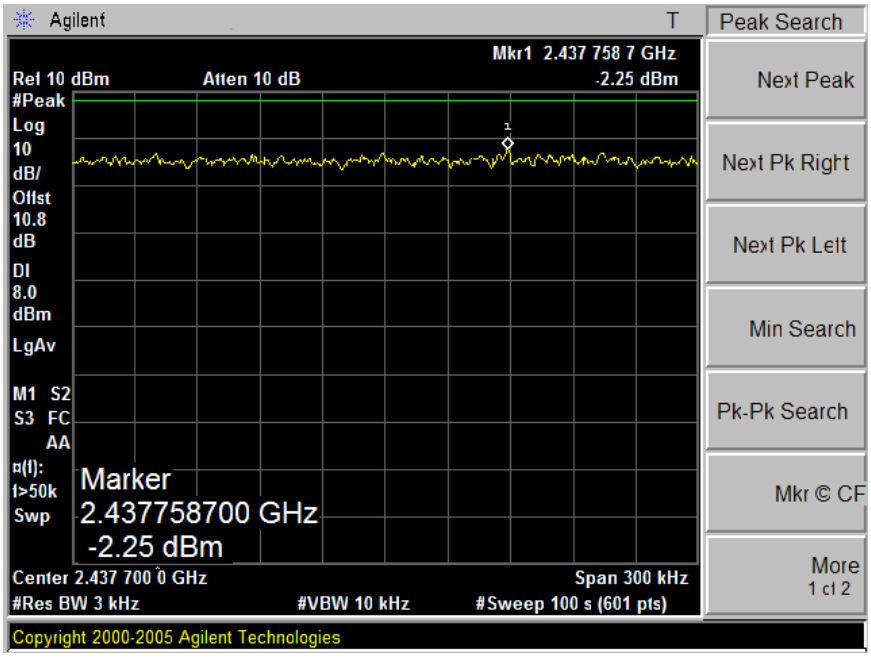
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-1.90	8	-9.90
Middle	2437	-2.25	8	-10.25
High	2462	-2.20	8	-10.20

PEAK POWER SPECTRAL DENSITY (802.11b MODE)

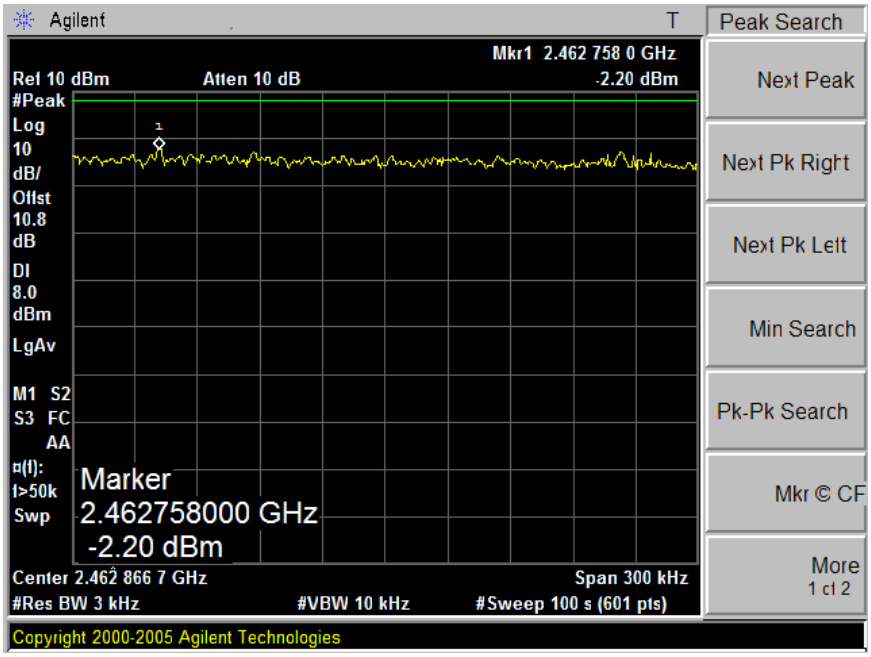
PPSD LOW CH (802.11b mode)



PPSD MID CH (802.11b mode)



PPSD HIGH CH (802.11b mode)



7.1.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (c) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Conducted power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

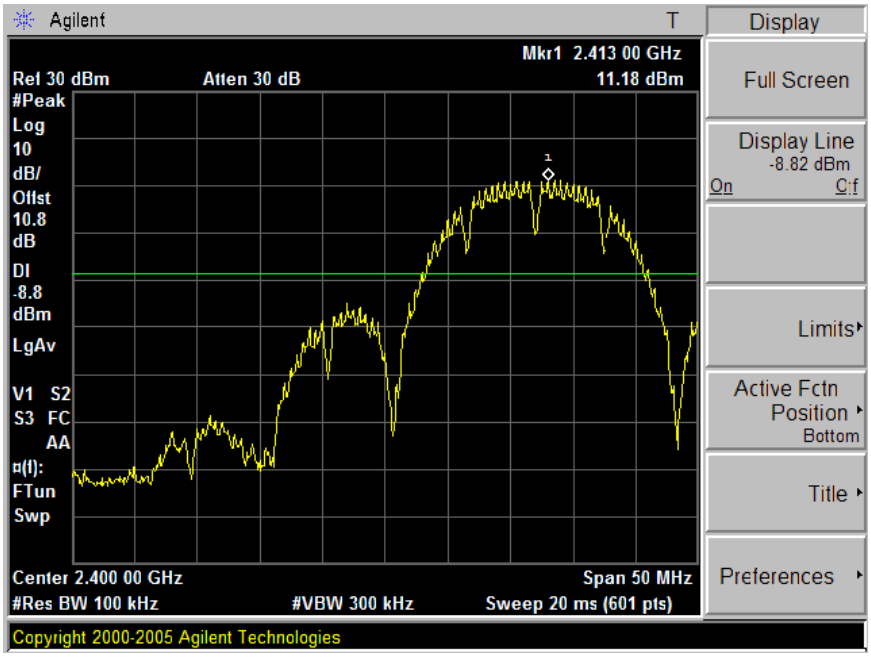
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

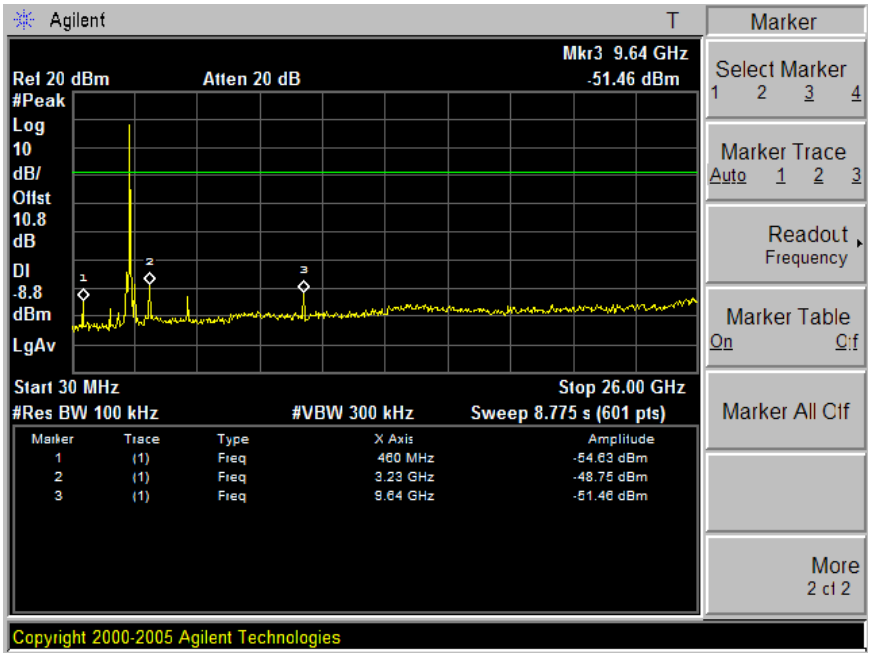
No non-compliance noted:

SPURIOUS EMISSIONS, LOW CHANNEL (802.11b MODE)

LOW CH BANDEDGE (802.11b mode)

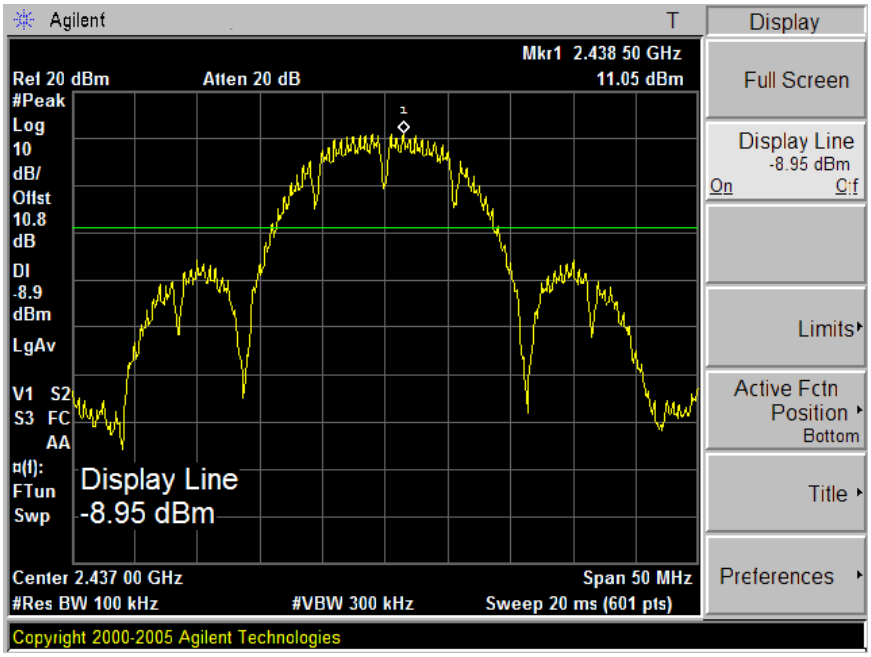


LOW CH SPURIOUS (802.11b mode)

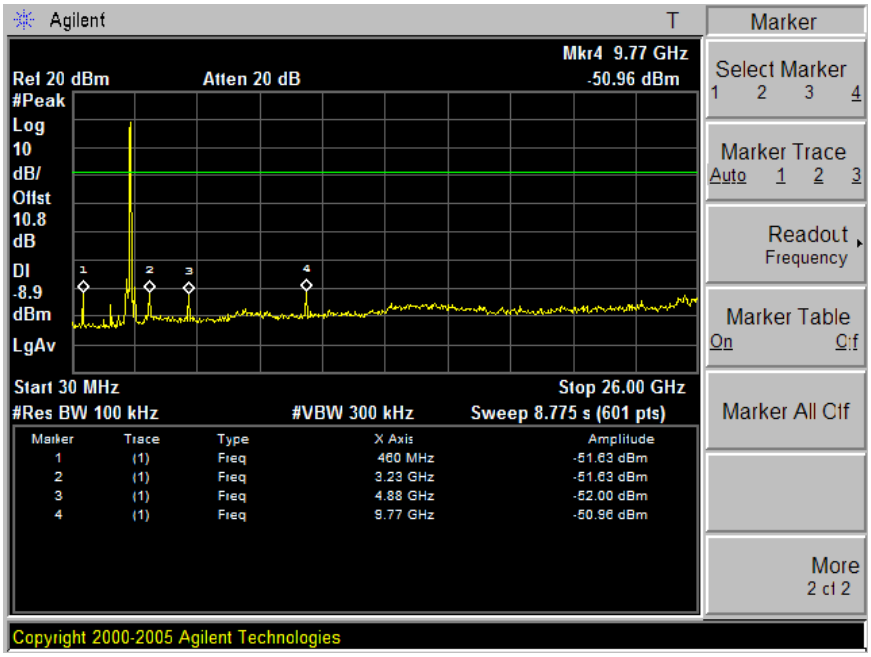


SPURIOUS EMISSIONS, MID CHANNEL (802.11b MODE)

MID CH REFERENCE (802.11b mode)

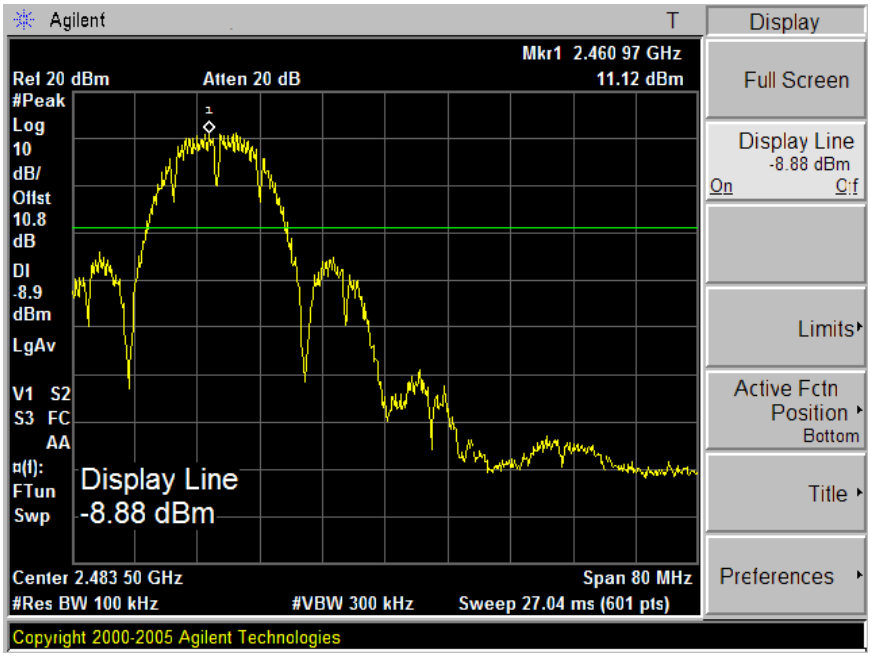


MID CH SPURIOUS (802.11b mode)

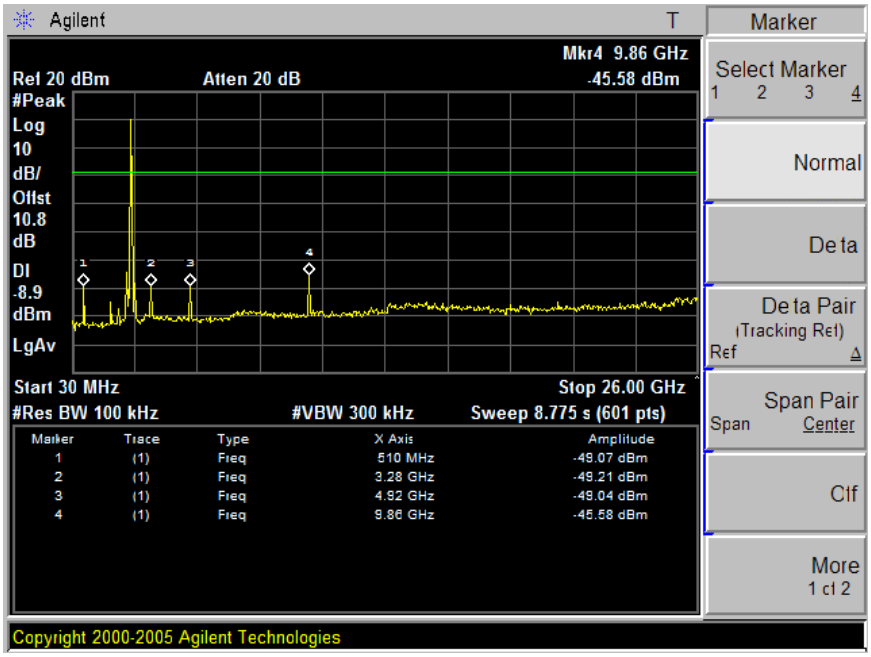


SPURIOUS EMISSIONS, HIGH CHANNEL (802.11b MODE)

HIGH CH BANDEDGE (802.11b mode)



HIGH CH SPURIOUS (802.11b mode)



7.2. 802.11g MODE IN THE 2.4 GHz BAND

7.2.1. 6 dB BANDWIDTH

LIMIT

§15.247 (a) (2) For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

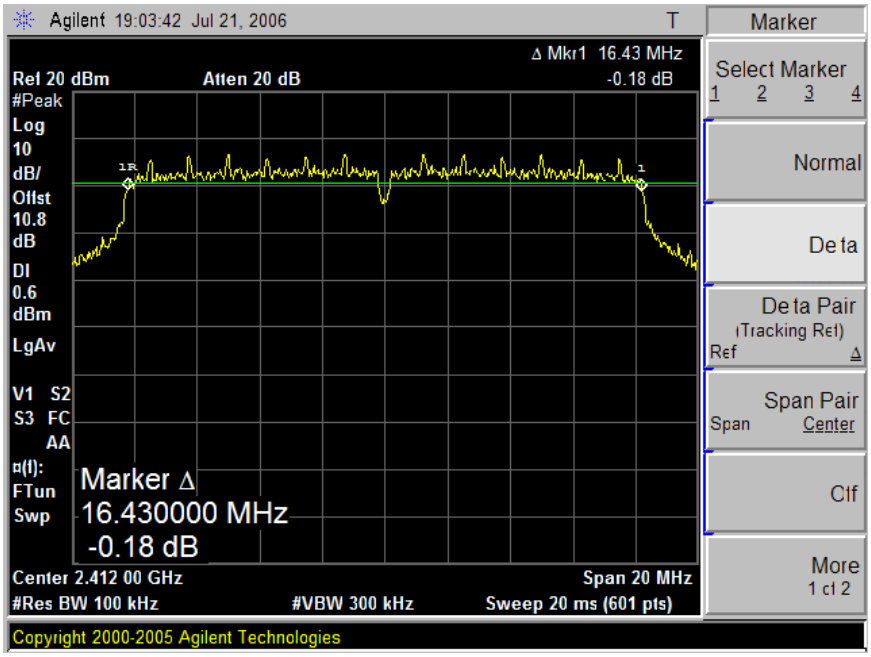
No non-compliance noted:

802.11g Mode

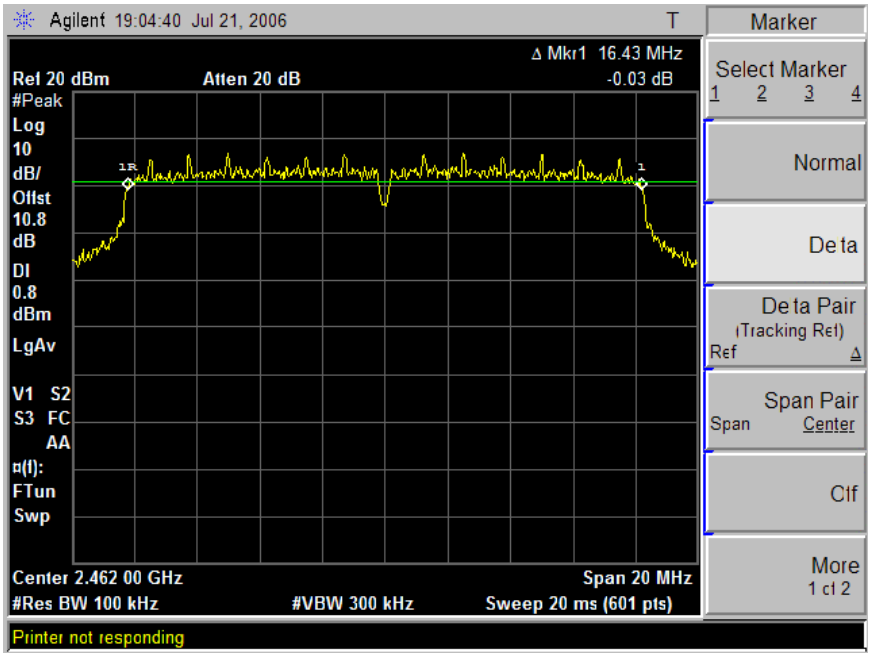
Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
Low	2412	16430	500	15930
Middle	2437	16430	500	15930
High	2462	16300	500	15800

6 dB BANDWIDTH (802.11g MODE)

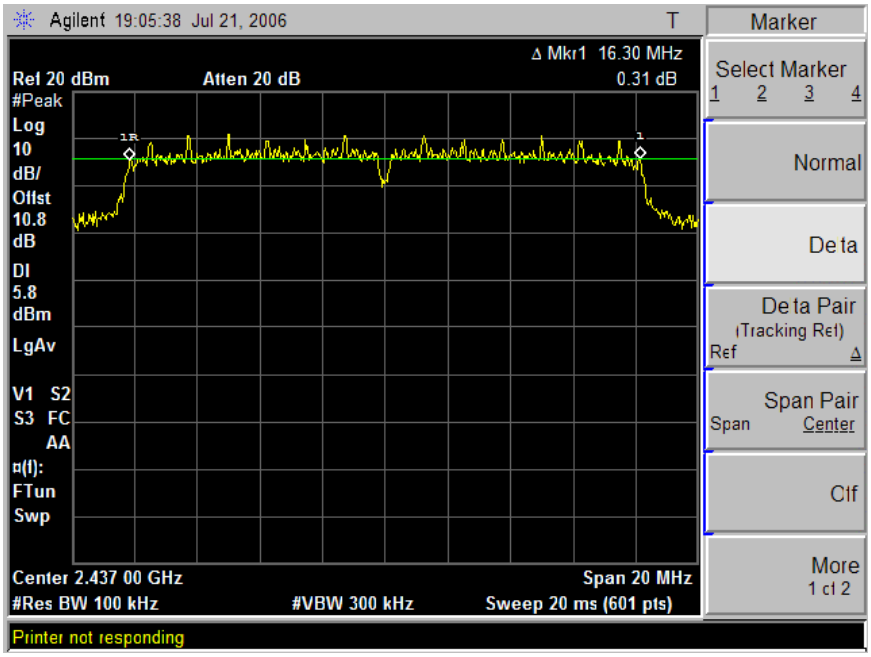
6 dB BANDWIDTH LOW CH (802.11g mode)



6 dB BANDWIDTH MID CH (802.11g mode)



6 dB BANDWIDTH HIGH CH (802.11g mode)



7.2.2. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

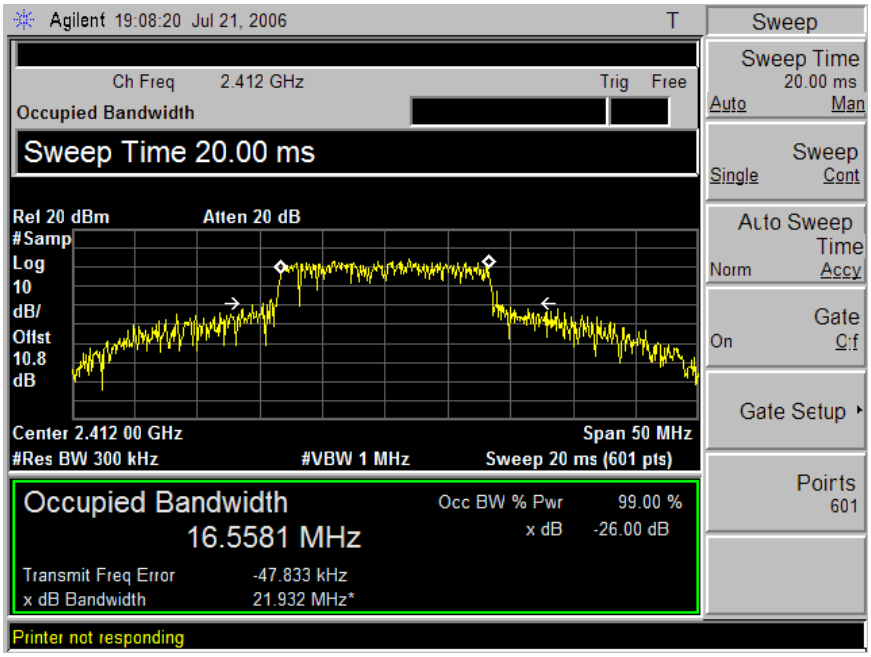
No non-compliance noted:

802.11g Mode

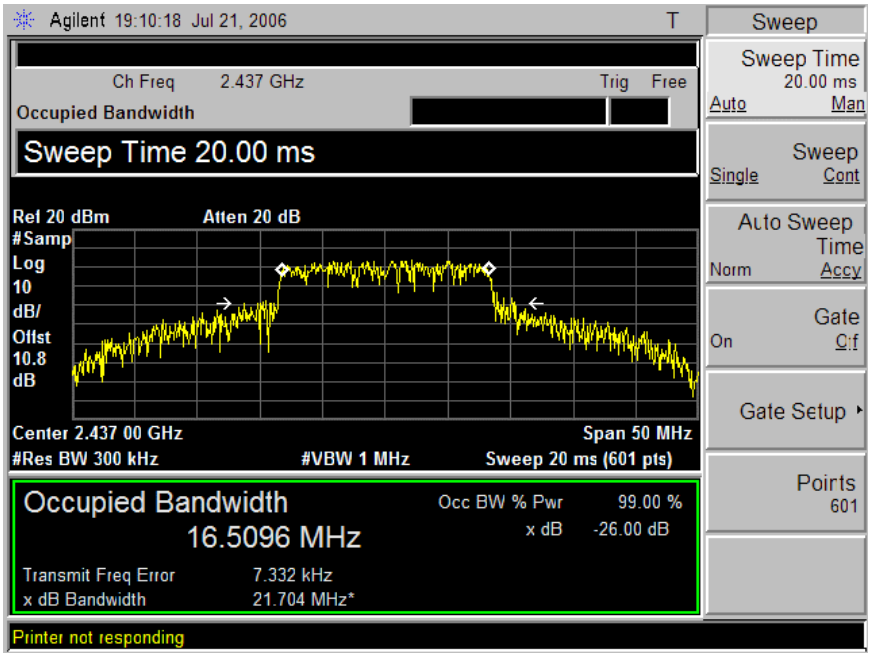
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.5581
Middle	2437	16.5096
High	2462	16.5177

99% BANDWIDTH (802.11g MODE)

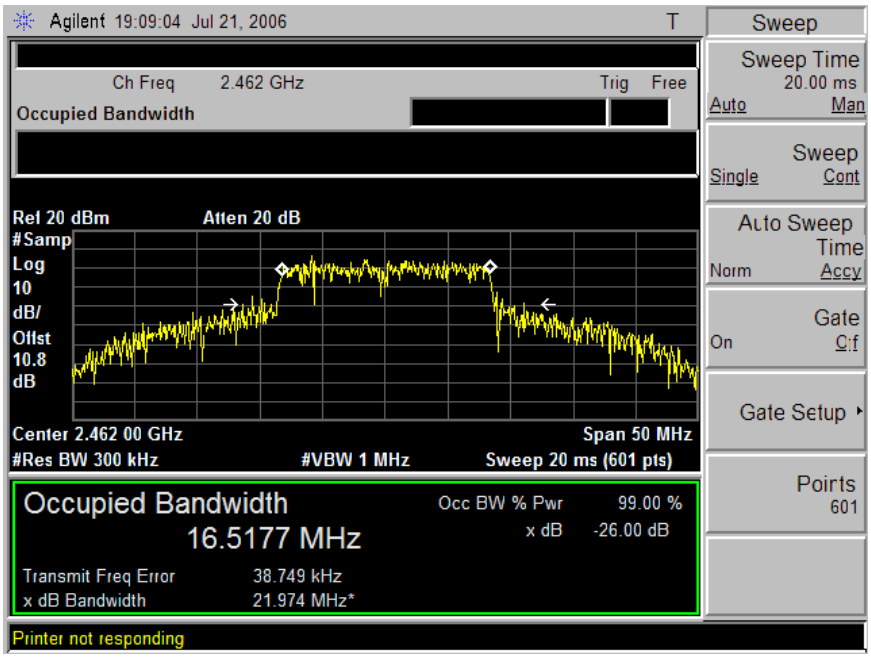
99% BANDWIDTH LOW CH (802.11g mode)



99% BANDWIDTH MID CH (802.11g mode)



99% BANDWIDTH HIGH CH (802.11g mode)



7.2.3. PEAK OUTPUT POWER

PEAK POWER LIMIT

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

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

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz , and 5725-5850 MHz bands: 1 watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

§15.247 (b) (4) (i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.

RESULTS

The maximum antenna gain is 1.03 dBi for other than fixed, point-to-point operations, therefore the limit is 30 dBm.

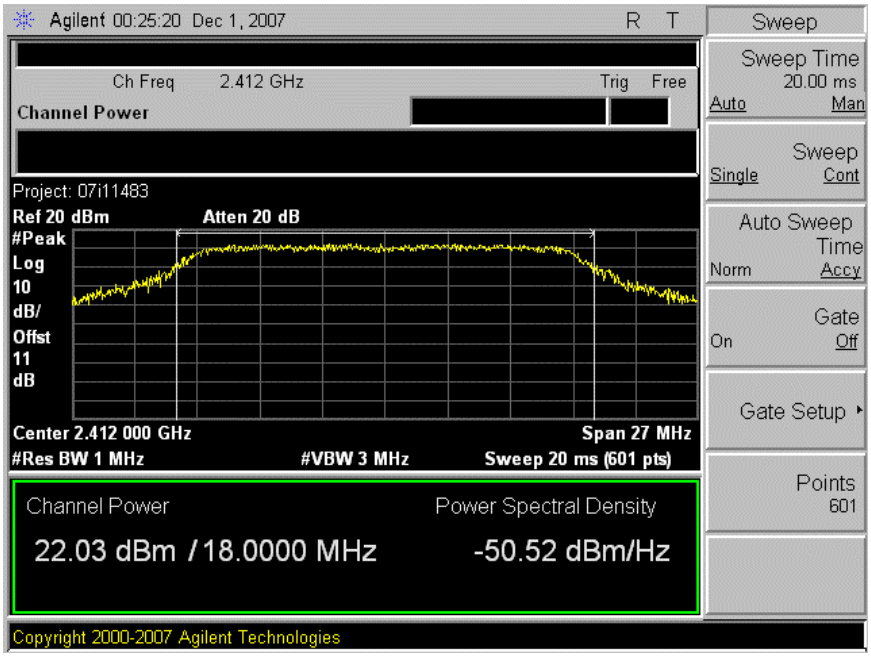
No non-compliance noted:

802.11g Mode

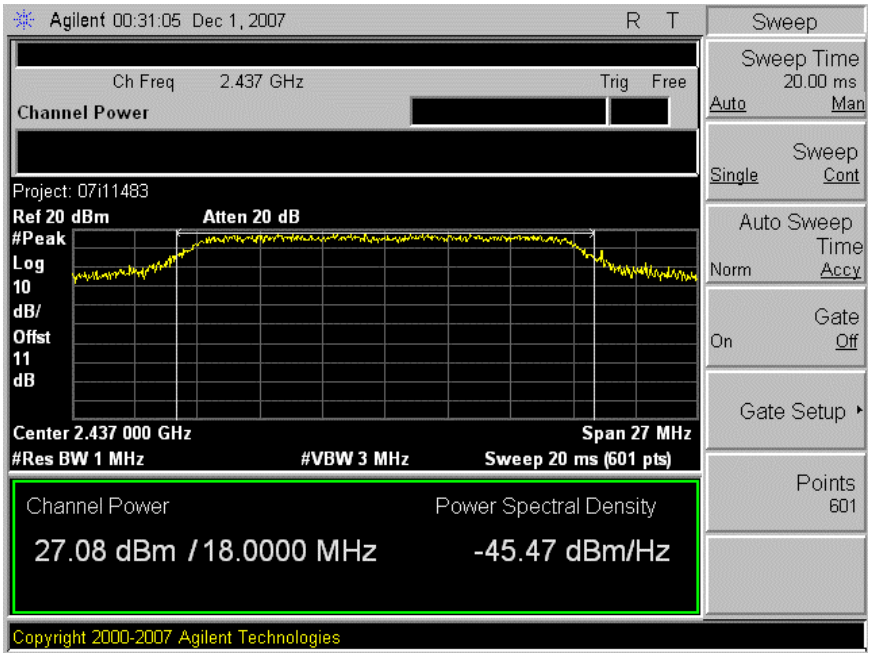
Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	22.03	30	-7.97
Middle	2437	27.08	30	-2.92
High	2462	21.95	30	-8.05

OUTPUT POWER (802.11g MODE)

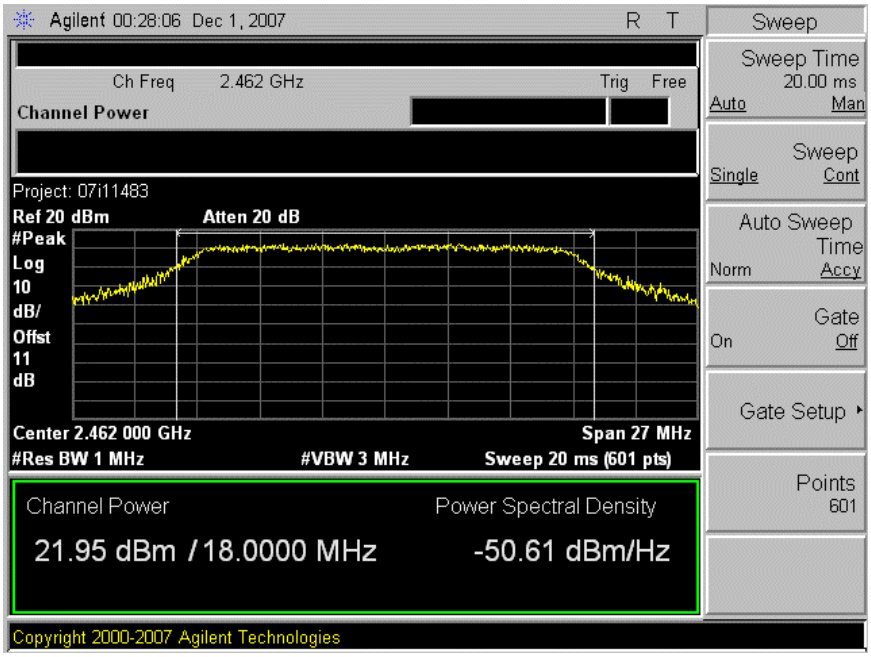
PEAK POWER LOW CH (802.11g mode)



PEAK POWER MID CH (802.11g mode)



PEAK POWER HIGH CH (802.11g mode)



7.2.4. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 10.75 dB (including 10 dB pad and 0.75 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.11g Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	15.50
Middle	2437	20.70
High	2462	15.50

7.2.5. PEAK POWER SPECTRAL DENSITY

LIMIT

§15.247 (d) For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = 3 kHz and VBW > 3 kHz, sweep time = span / 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

RESULTS

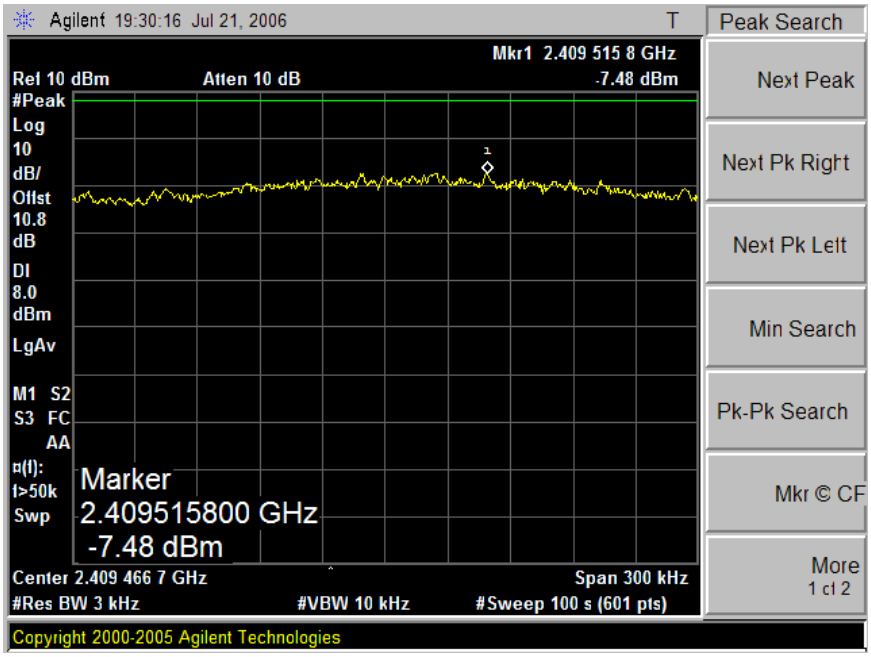
No non-compliance noted:

802.11g Mode

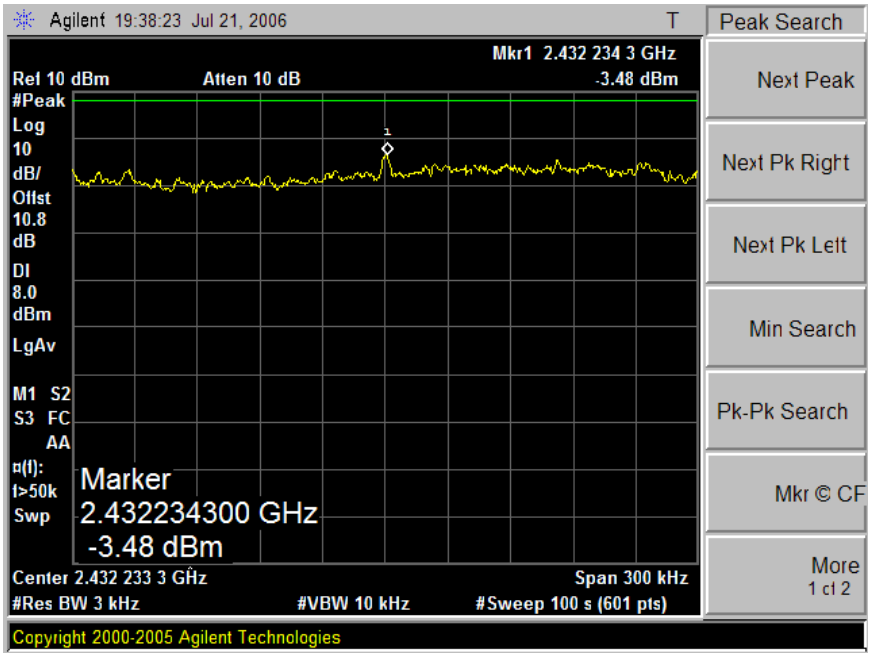
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-7.48	8	-15.48
Middle	2437	-3.48	8	-11.48
High	2462	-6.51	8	-14.51

PEAK POWER SPECTRAL DENSITY (802.11g MODE)

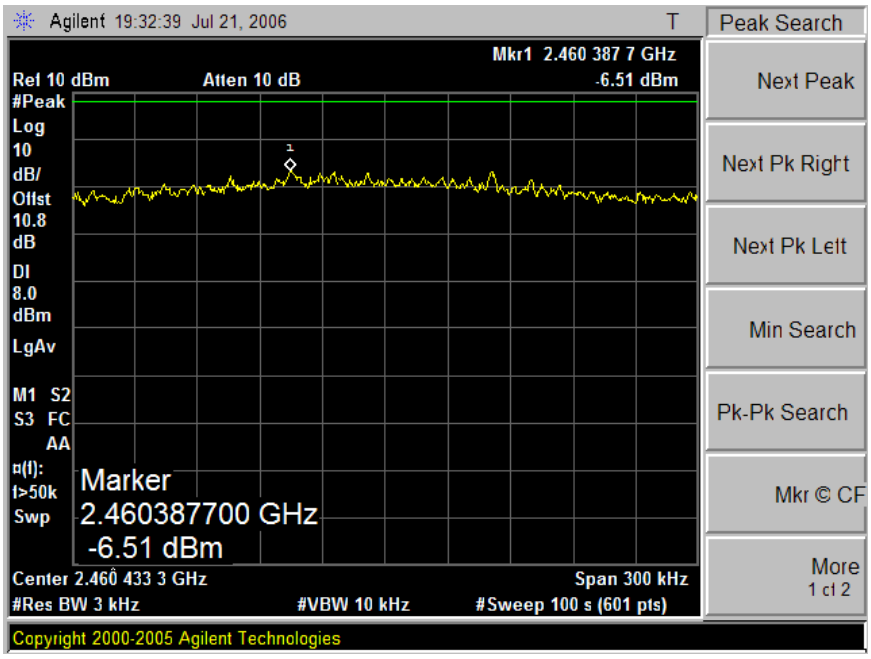
PPSD LOW CH (802.11g mode)



PPSD MID CH (802.11g mode)



PPSD HIGH CH (802.11g mode)



7.2.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (c) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Conducted power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

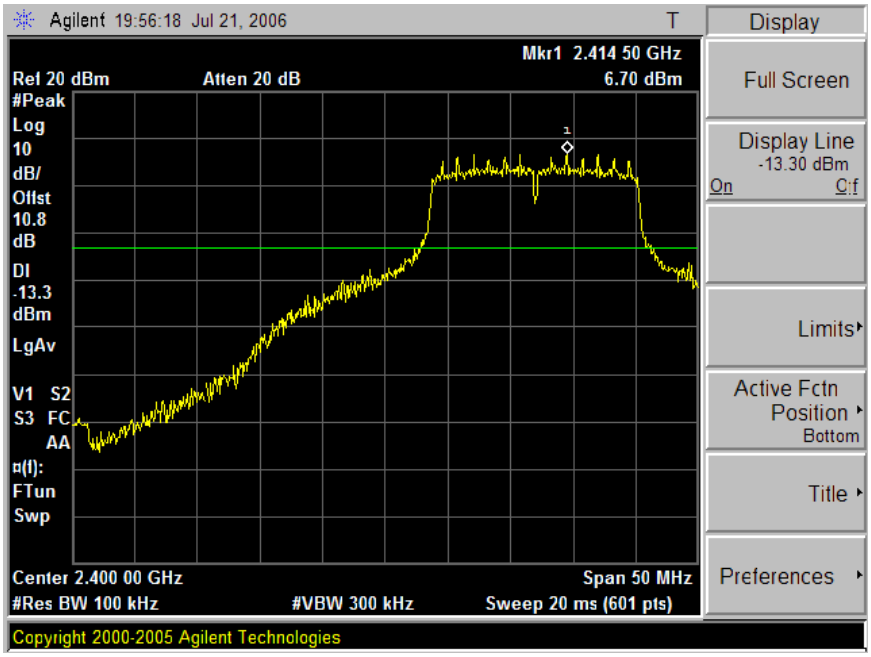
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

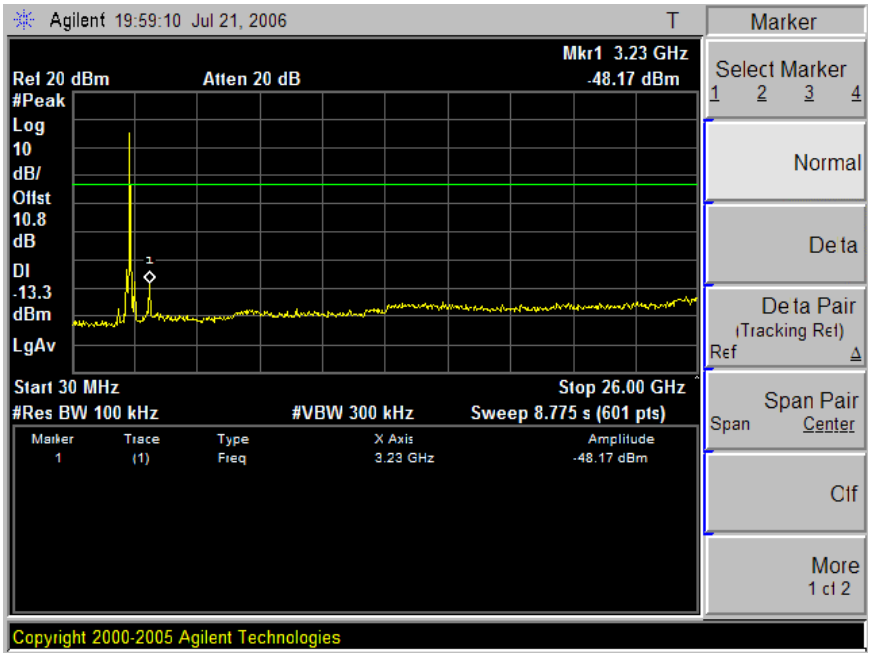
No non-compliance noted:

SPURIOUS EMISSIONS, LOW CHANNEL (802.11g MODE)

LOW CH BANDEDGE (802.11g mode)

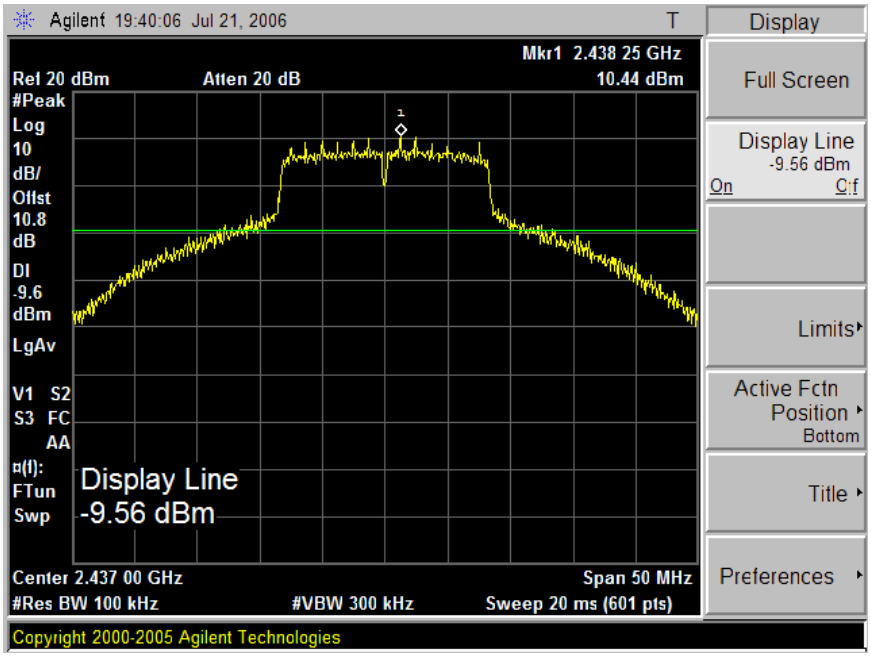


LOW CH SPURIOUS (802.11g mode)

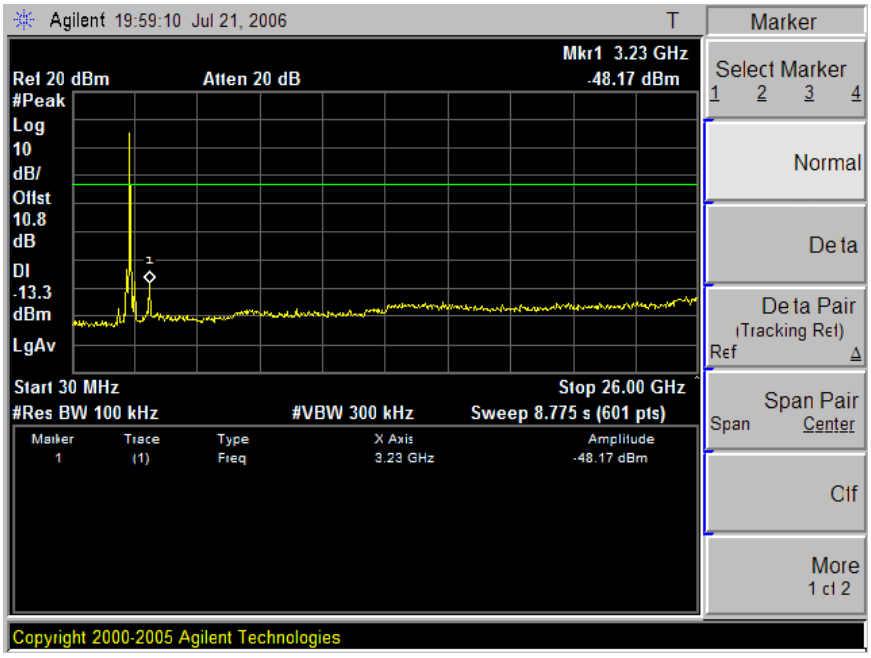


SPURIOUS EMISSIONS, MID CHANNEL (802.11g MODE)

MID CH REFERENCE (802.11g mode)

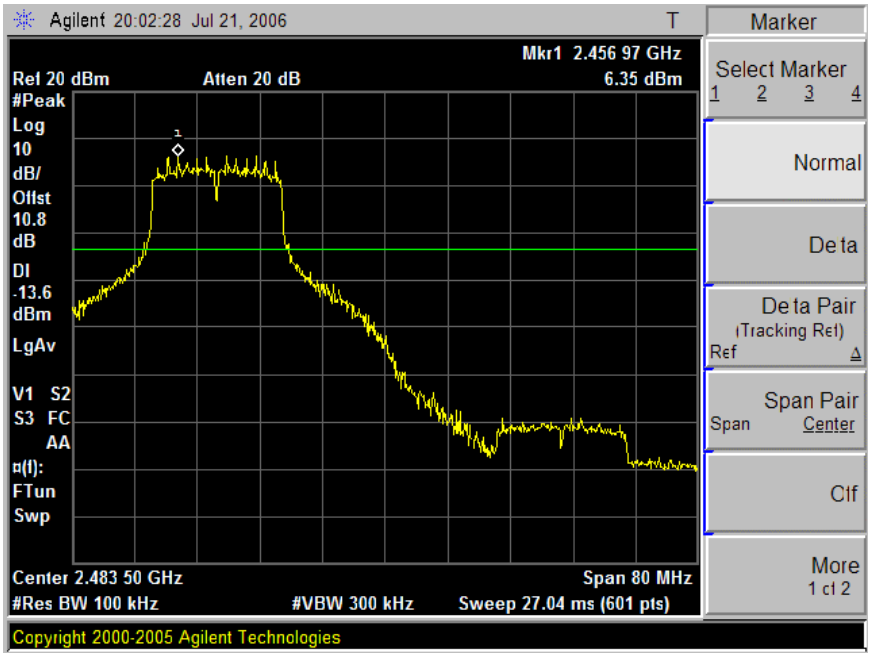


MID CH SPURIOUS (802.11g mode)

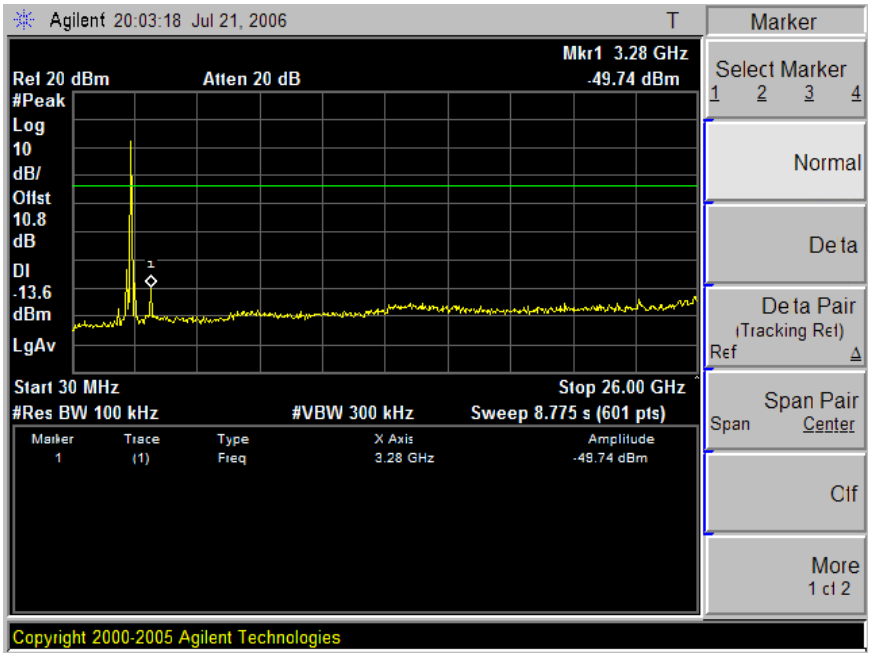


SPURIOUS EMISSIONS, HIGH CHANNEL (802.11g MODE)

HIGH CH BANDEDGE (802.11g mode)



HIGH CH SPURIOUS (802.11g mode)



8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

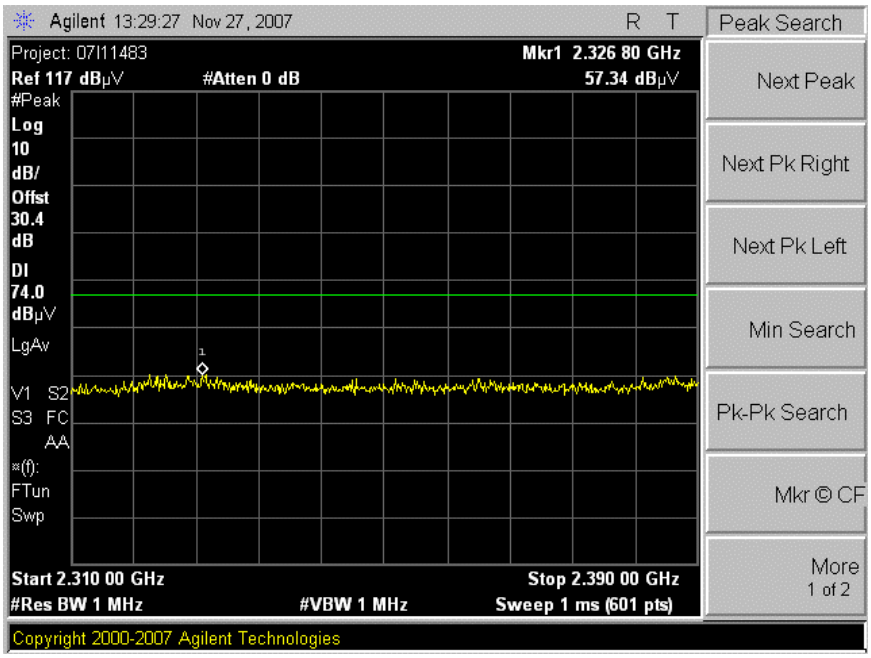
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

FOXCONN ANTENNA

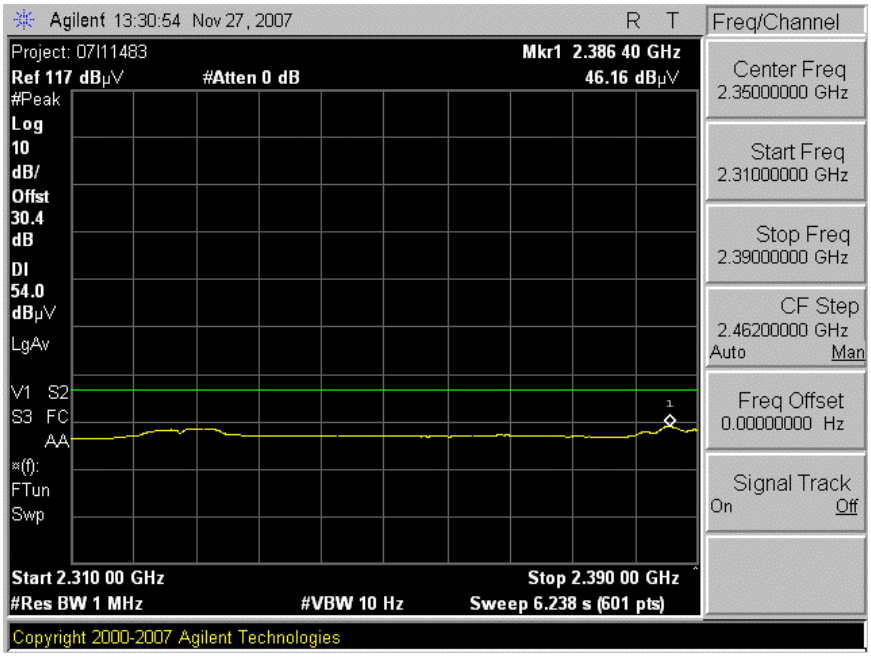
8.1.1. TRANSMITTER ABOVE 1 GHz FOR 802.11b MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ

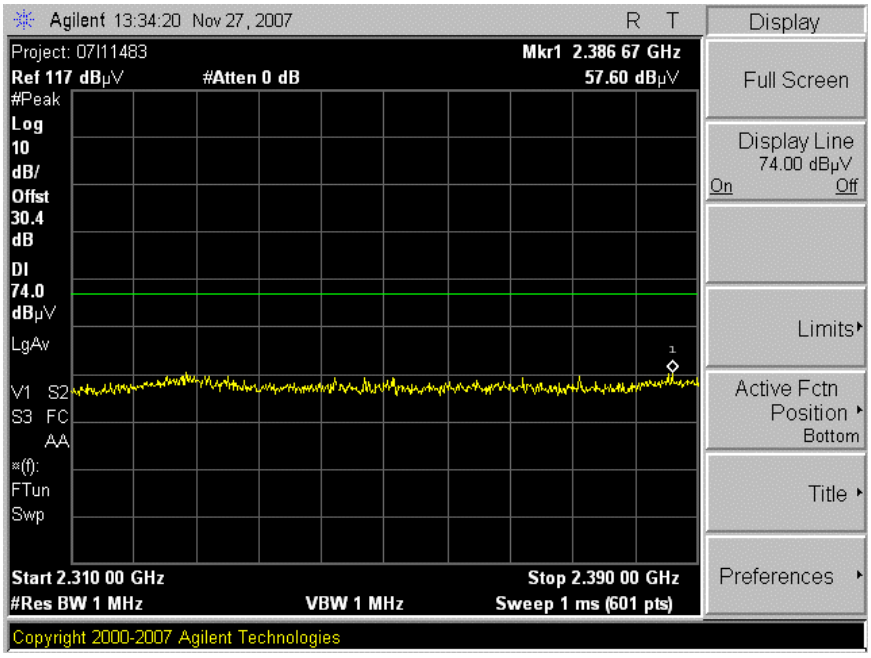


LOW CHANNEL RESTRICTED, AVG, HORIZ

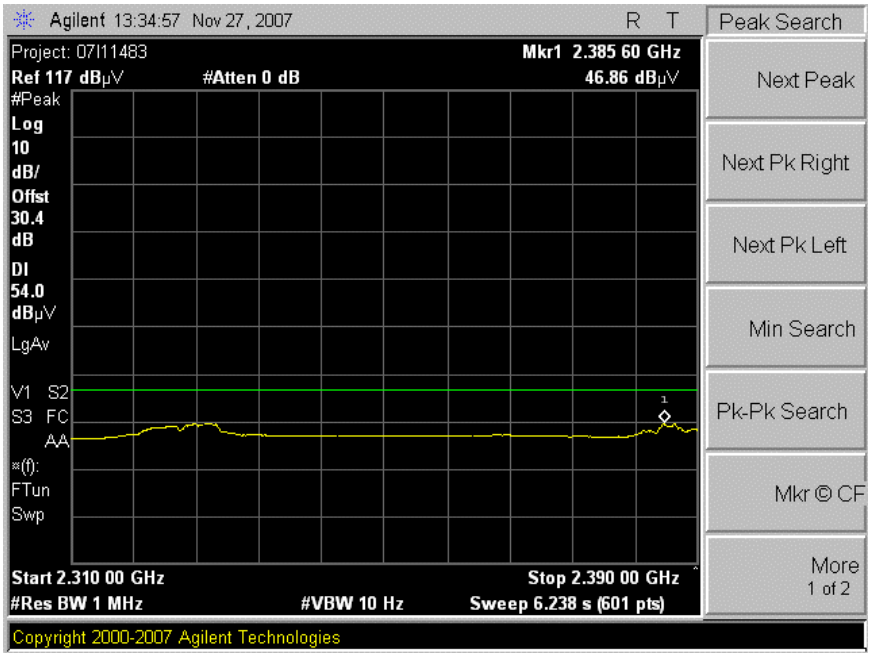


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

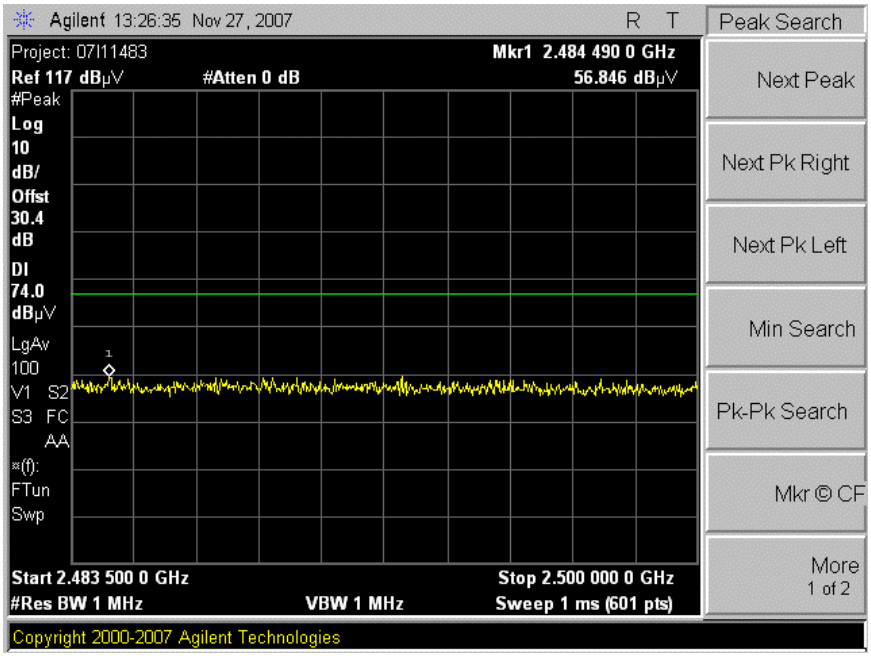


LOW CHANNEL RESTRICTED, AVG, VERT

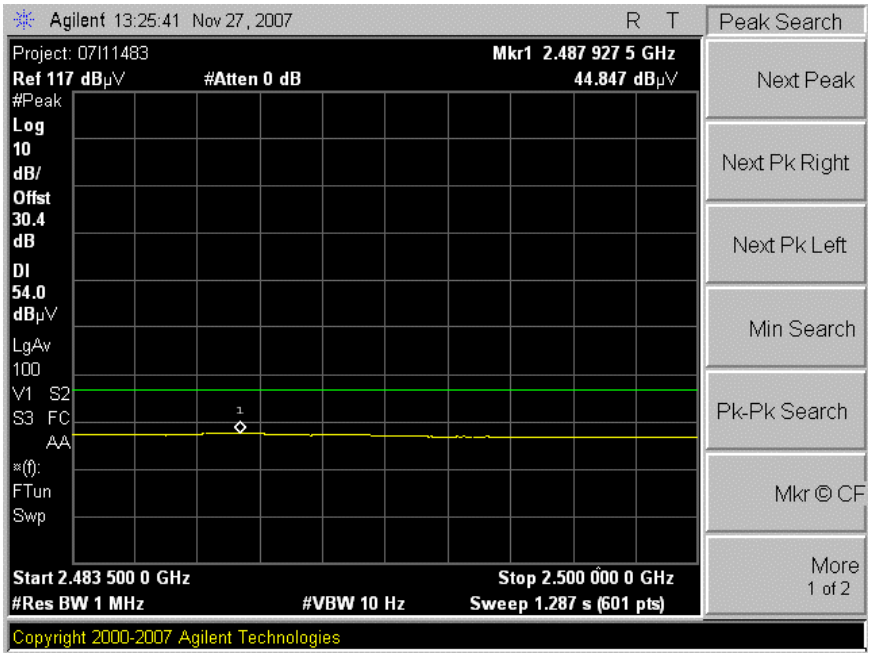


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

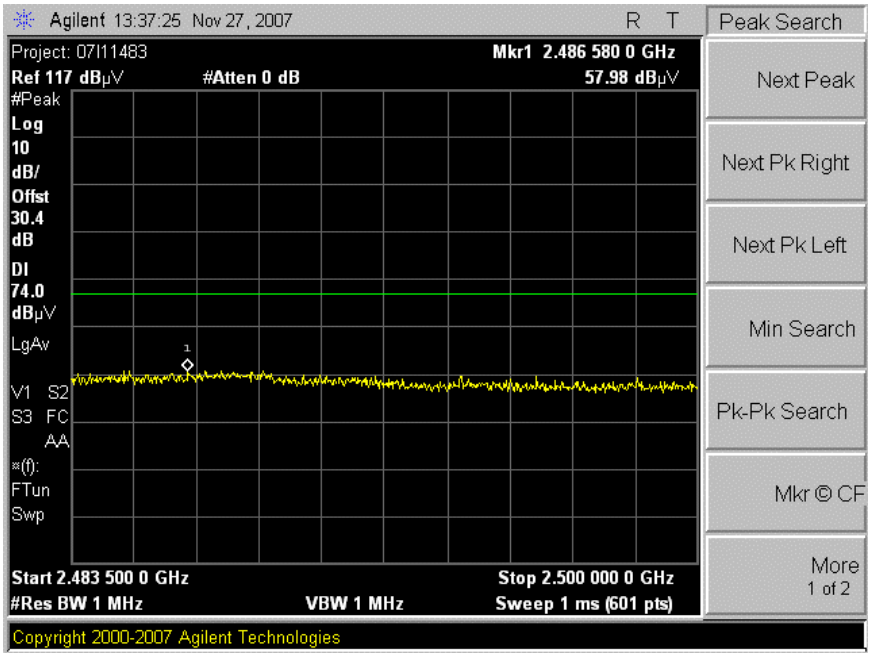


HIGH CHANNEL RESTRICTED, AVG, HORIZ

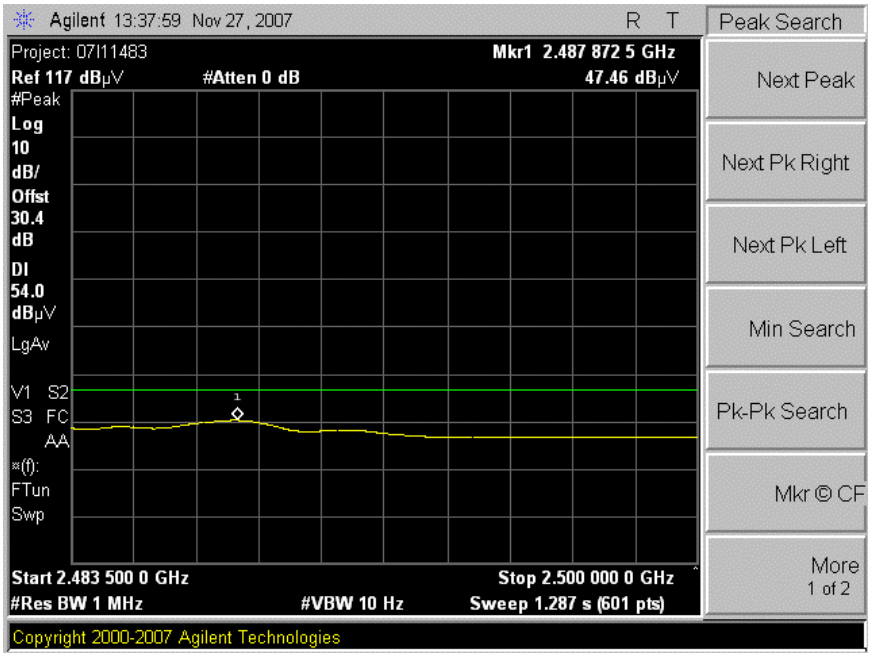


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement

Company: Samsung
Project #: 07I11483
Date: 11/27/2007
Test Engineer: Vien Tran
Configuration: EUT Alone with Foxconn Antenna
Mode: Tx 11b Mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Gordon 177080004	Chin 200354001	HPF_4.0GHz	

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

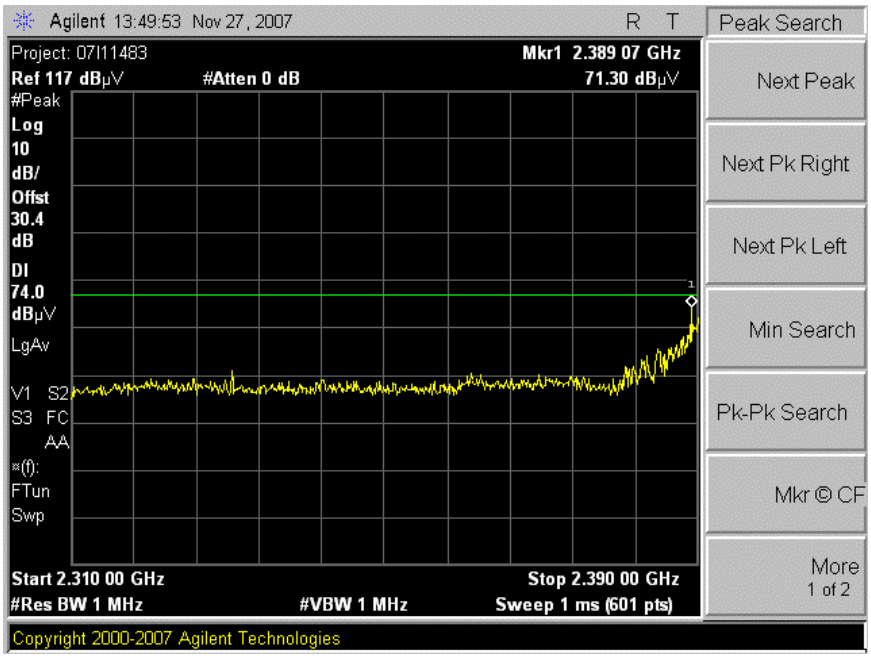
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL, 2412 MHz															
4.824	3.0	48.8	42.3	33.2	3.5	-34.8	0.0	0.6	51.2	44.7	74	54	-22.8	-9.3	V
7.326	3.0	44.2	32.6	35.2	4.1	-34.1	0.0	0.6	50.1	38.5	74	54	-23.9	-15.5	V
4.824	3.0	45.7	41.1	33.2	3.5	-34.8	0.0	0.6	48.1	43.5	74	54	-25.9	-10.5	H
7.326	3.0	41.1	31.0	35.2	4.1	-34.1	0.0	0.6	47.0	36.9	74	54	-27.0	-17.1	H
MID CHANNEL, 2437 MHz															
4.874	3.0	48.8	42.8	33.2	3.5	-34.8	0.0	0.6	51.3	45.3	74	54	-22.7	-8.7	V
7.311	3.0	44.7	32.7	35.2	4.1	-34.1	0.0	0.6	50.5	38.5	74	54	-23.5	-15.5	V
4.874	3.0	46.1	41.5	33.2	3.5	-34.8	0.0	0.6	48.6	44.0	74	54	-25.4	-10.0	H
7.311	3.0	42.3	31.5	35.2	4.1	-34.1	0.0	0.6	48.1	37.3	74	54	-25.9	-16.7	H
HI CHANNEL, 2462 MHz															
4.924	3.0	51.1	47.4	33.2	3.5	-34.8	0.0	0.6	53.7	50.0	74	54	-20.3	-4.0	V
7.386	3.0	45.9	33.0	35.3	4.1	-34.1	0.0	0.6	51.9	39.0	74	54	-22.1	-15.0	V
4.924	3.0	47.4	42.2	33.2	3.5	-34.8	0.0	0.6	50.0	44.8	74	54	-24.0	-9.2	H
7.386	3.0	43.3	32.7	35.3	4.1	-34.1	0.0	0.6	49.3	38.7	74	54	-24.7	-15.3	H
	No emissions were detected above system noise floor														

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

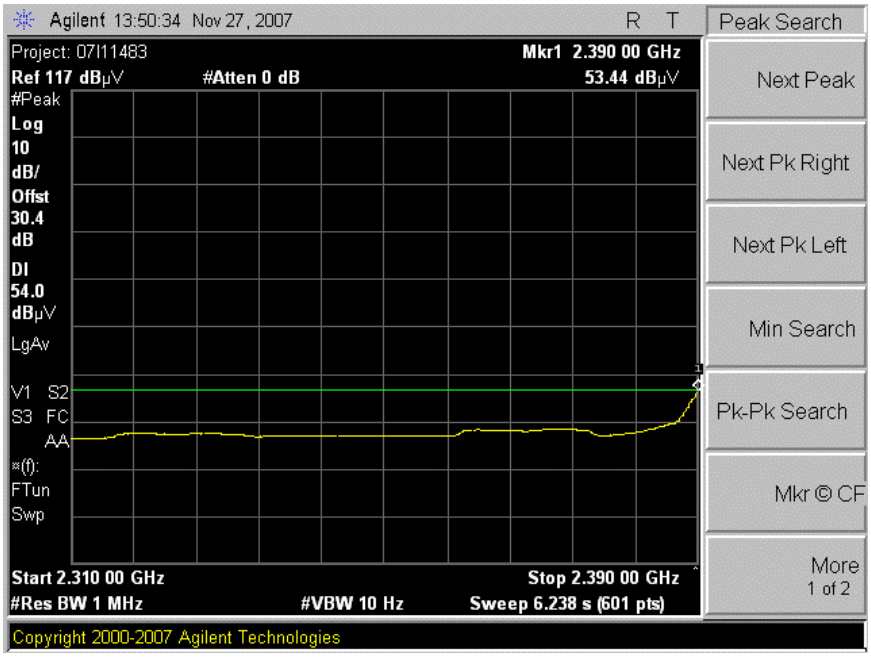
8.1.2. TRANSMITTER ABOVE 1 GHz FOR 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ

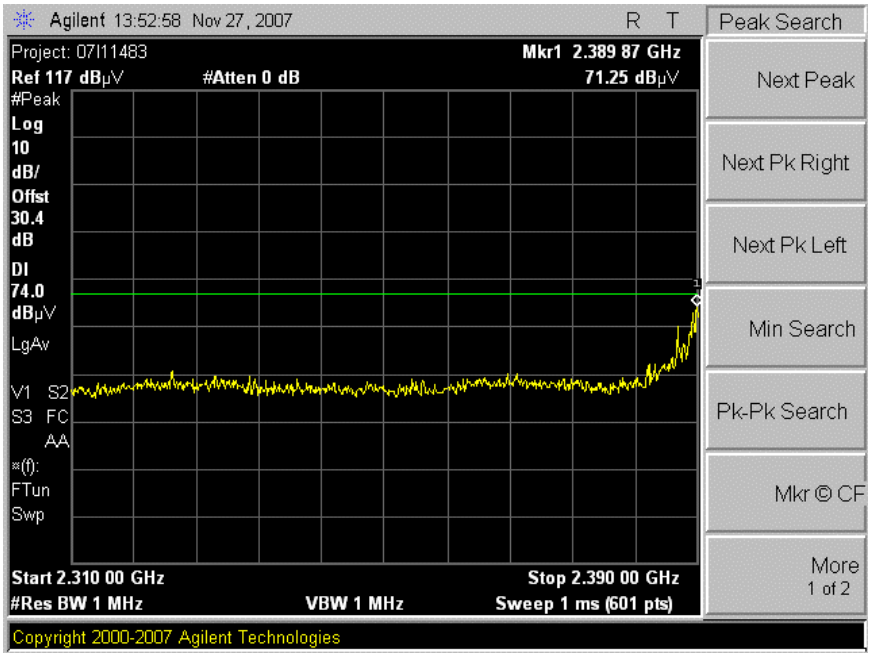


LOW CHANNEL RESTRICTED, AVG, HORIZ

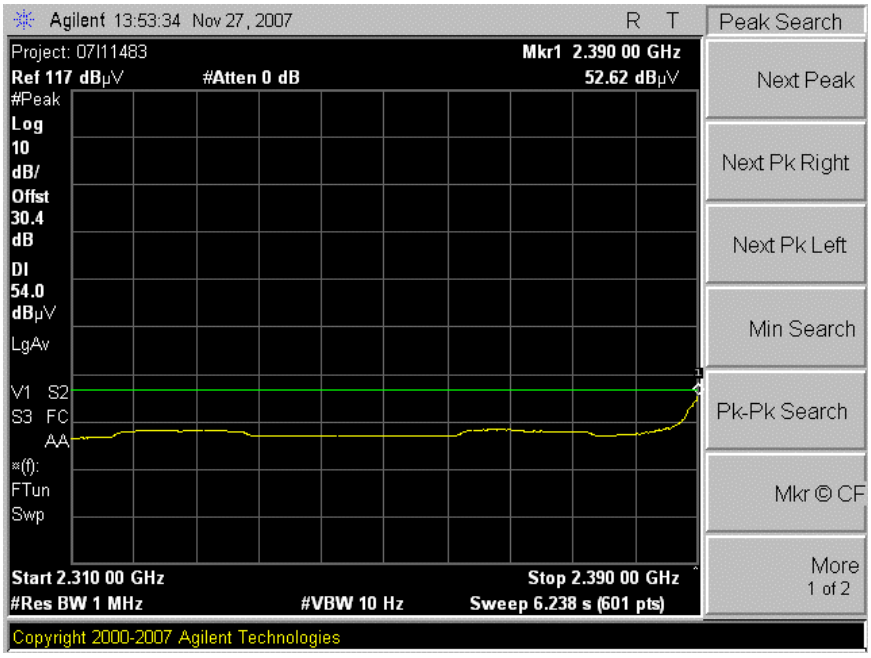


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

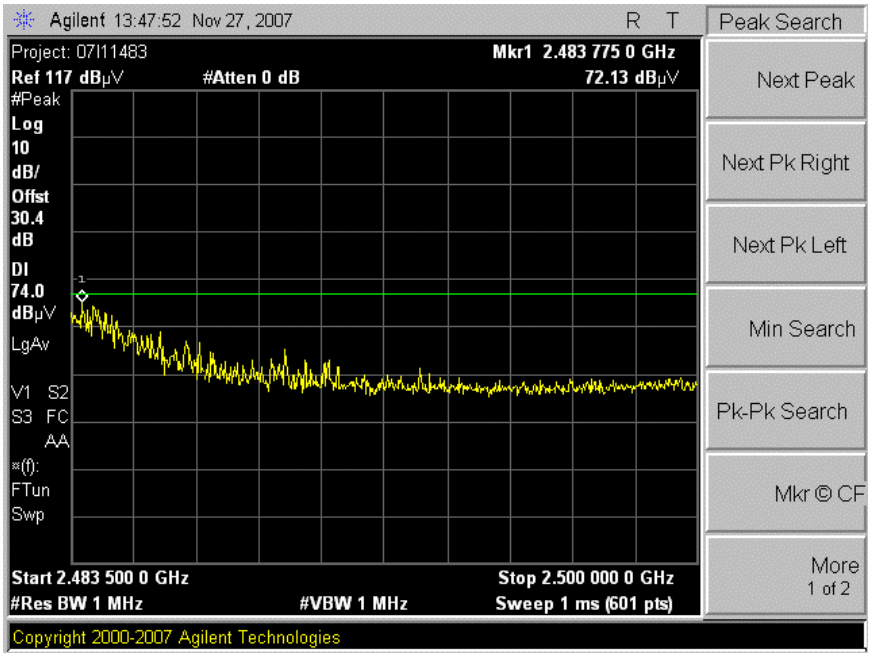


LOW CHANNEL RESTRICTED, AVG, VERT

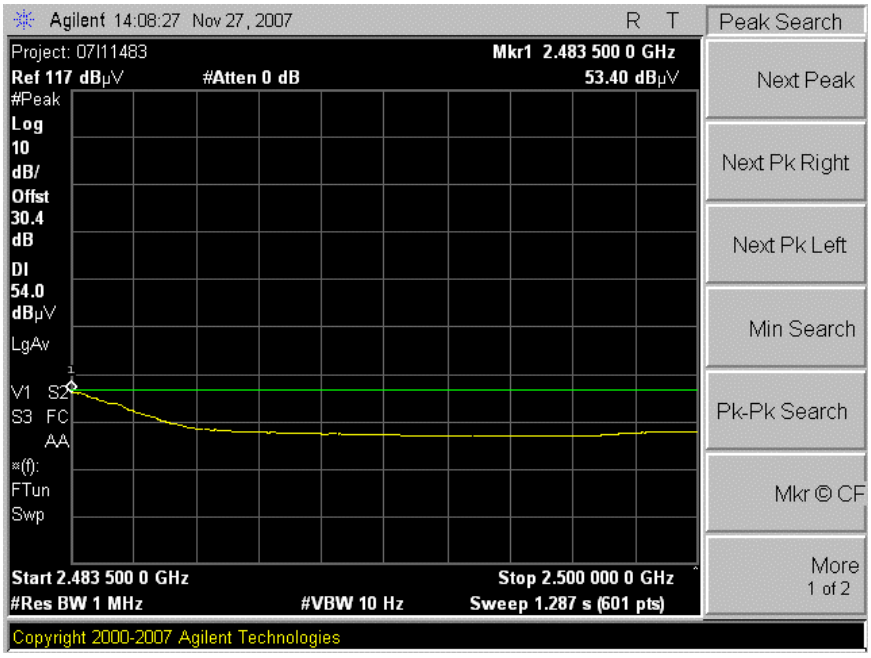


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

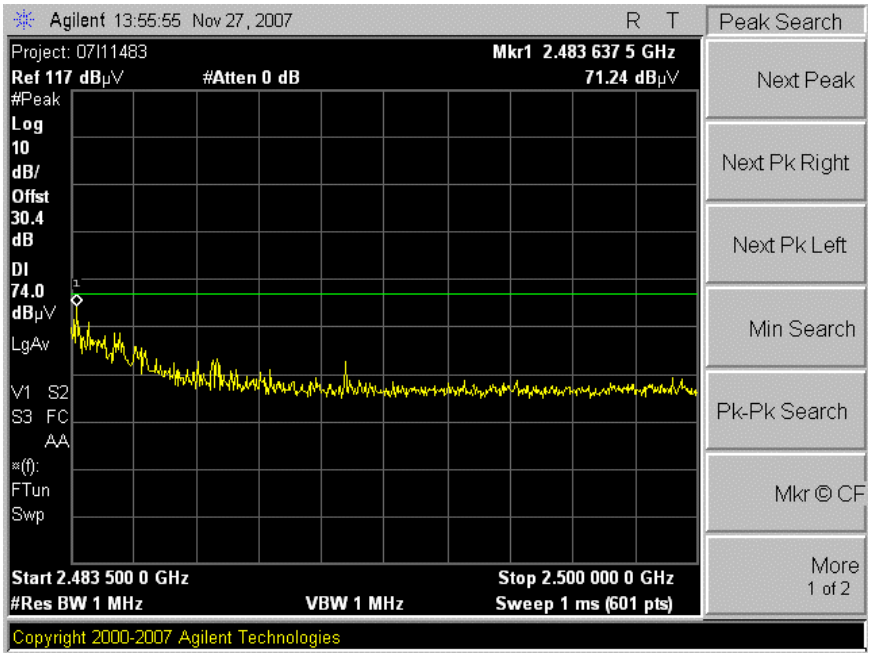


HIGH CHANNEL RESTRICTED, AVG, HORIZ

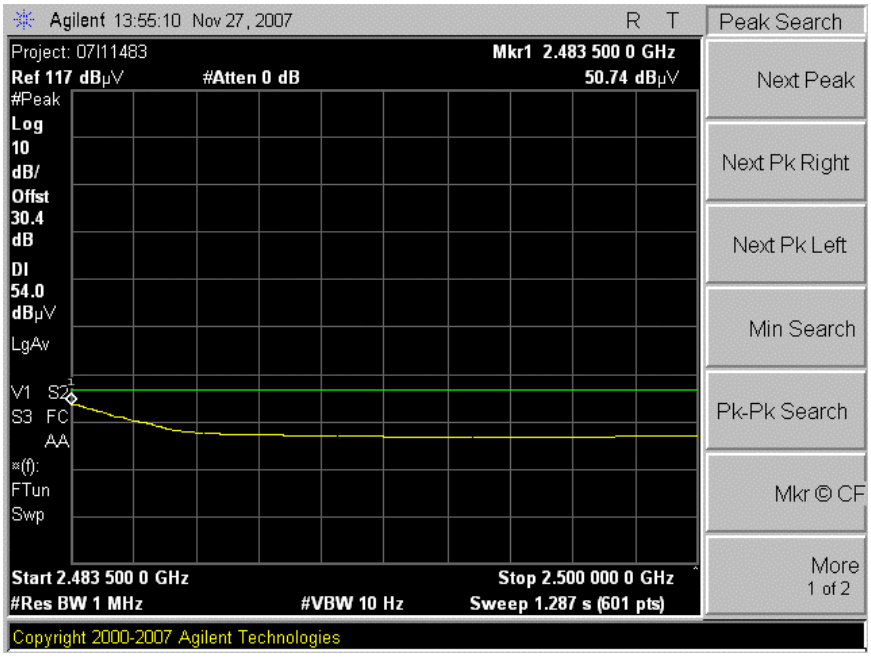


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement

Company: Samsung
Project #: 07I11483
Date: 11/27/2007
Test Engineer: Vien Tran
Configuration: EUT Alone with Faxconn Antenna
Mode: Tx 11g Mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Gordon 177080004	Chin 200354001	HPF_4.0GHz	

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL, 2412 MHz															
4.824	3.0	44.1	31.5	33.2	3.5	-34.8	0.0	0.6	46.5	33.9	74	54	-27.5	-20.1	V
4.824	3.0	43.3	30.1	33.2	3.5	-34.8	0.0	0.6	45.7	32.5	74	54	-28.3	-21.5	H
MID CHANNEL, 2437 MHz															
4.874	3.0	47.4	34.8	33.2	3.5	-34.8	0.0	0.6	49.9	37.3	74	54	-24.1	-16.7	V
4.874	3.0	46.1	33.9	33.2	3.5	-34.8	0.0	0.6	48.6	36.4	74	54	-25.4	-17.6	H
HI CHANNEL, 2462 MHz															
4.924	3.0	46.4	34.2	33.2	3.5	-34.8	0.0	0.6	49.0	36.8	74	54	-25.0	-17.2	V
4.924	3.0	45.2	33.3	33.2	3.5	-34.8	0.0	0.6	47.8	35.9	74	54	-26.2	-18.1	H
	No emissions were detected above system noise floor														

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

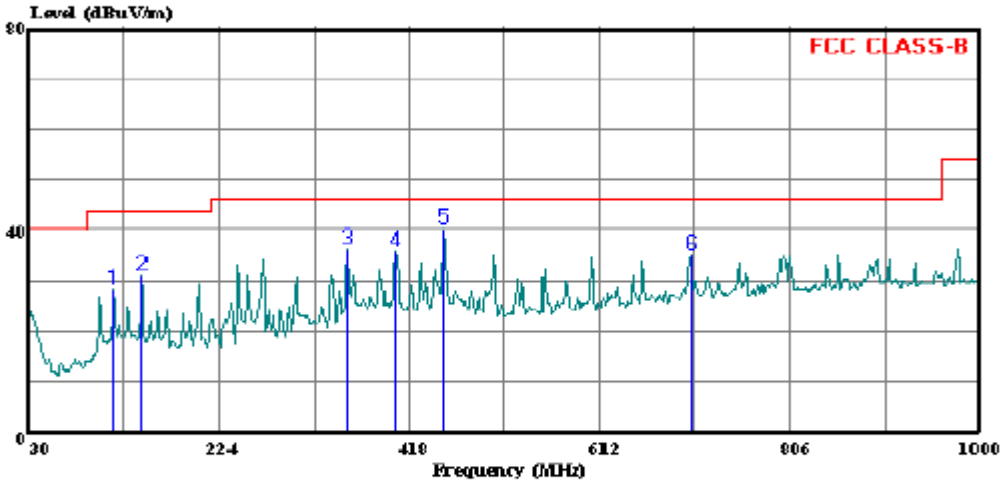
8.1.3. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 12 File#: 07I11483 EMI.EMI Date: 11-27-2007 Time: 23:06:19



Trace: 11 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator:: Mengistu Mekuria
Project #: : 07I11483
Company: : Samsung
Model : FOXCONN Antenna
Configuration:: EUT Alone
Mode : : Transmit Worst Case
Target: : FCC Class B

HORIZONTAL DATA

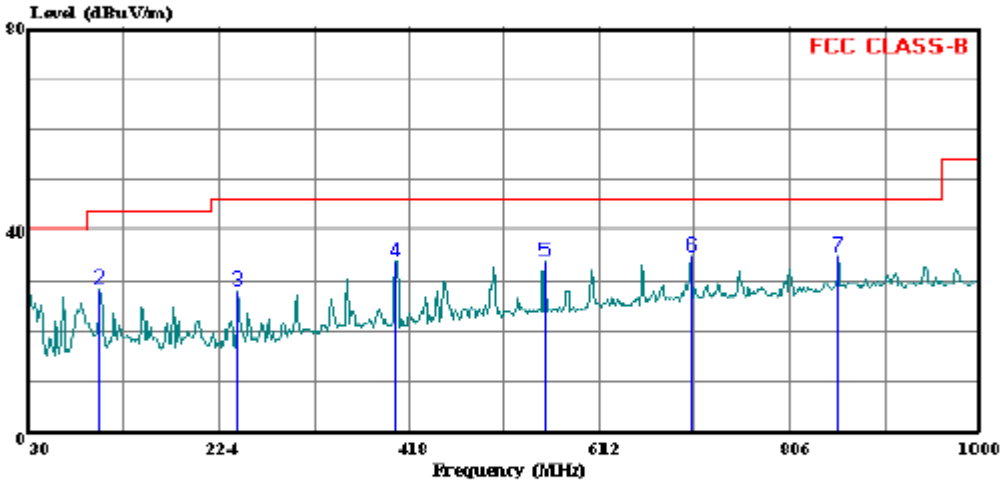
	Freq	Read Level	Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV/m	dB	dBuV/m	dB	
1	116.330	42.39	28.39	-14.00	43.50	-15.11	Peak
2	145.430	44.87	31.33	-13.54	43.50	-12.17	Peak
3	353.980	47.33	36.40	-10.93	46.00	-9.60	Peak
4	402.480	45.93	36.07	-9.86	46.00	-9.93	Peak
5	453.890	48.70	40.26	-8.44	46.00	-5.74	Peak
6	706.090	38.79	35.40	-3.39	46.00	-10.60	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 10 File#: 07I11483 EMI.EMI Date: 11-27-2007 Time: 23:03:23



Trace: 9 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator:: Mengistu Mekuria
Project #: : 07I11483
Company: : Samsung
Model : FOXCONN Antenna
Configuration:: EUT Alone
Mode : : Transmit Worst Case
Target: : FCC Class B

VERTICAL DATA

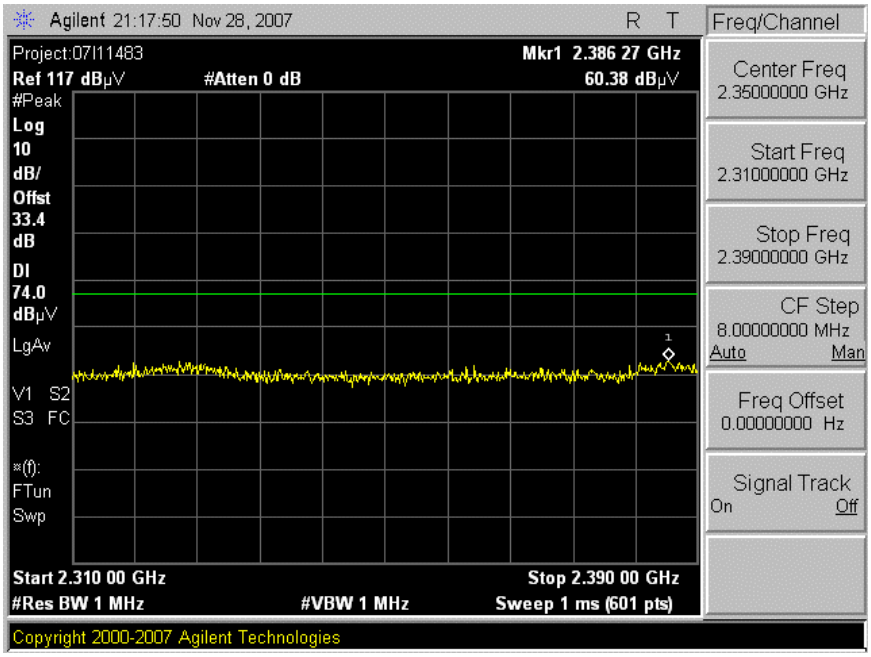
	Freq	Read Level	Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV/m	dB	dBuV/m	dB	
1	30.000	34.27	28.51	-5.76	40.00	-11.49	Peak
2	101.780	45.26	28.44	-16.82	43.50	-15.06	Peak
3	242.430	42.57	28.14	-14.43	46.00	-17.86	Peak
4	402.480	43.92	34.06	-9.86	46.00	-11.94	Peak
5	555.740	40.05	33.80	-6.25	46.00	-12.20	Peak
6	706.090	38.44	35.05	-3.39	46.00	-10.95	Peak
7	856.440	36.63	35.09	-1.54	46.00	-10.91	Peak

WNC ANTENNA

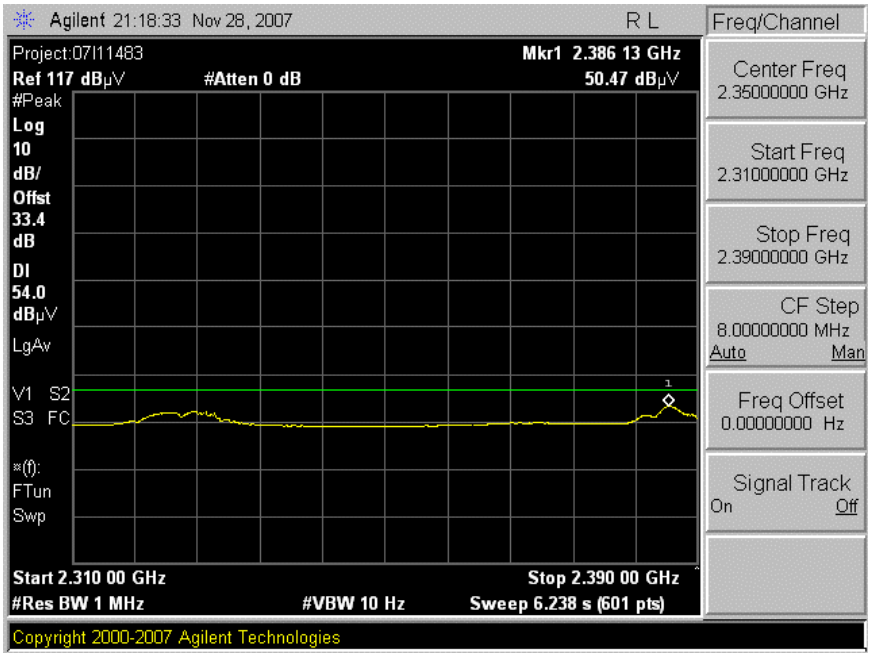
8.1.4. TRANSMITTER ABOVE 1 GHz FOR 802.11b MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ

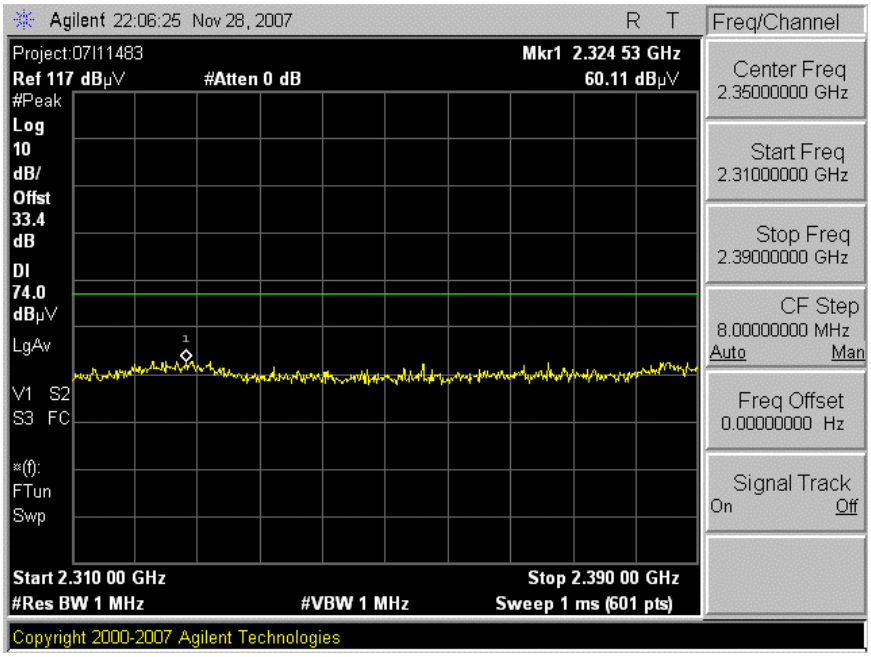


LOW CHANNEL RESTRICTED, AVG, HORIZ

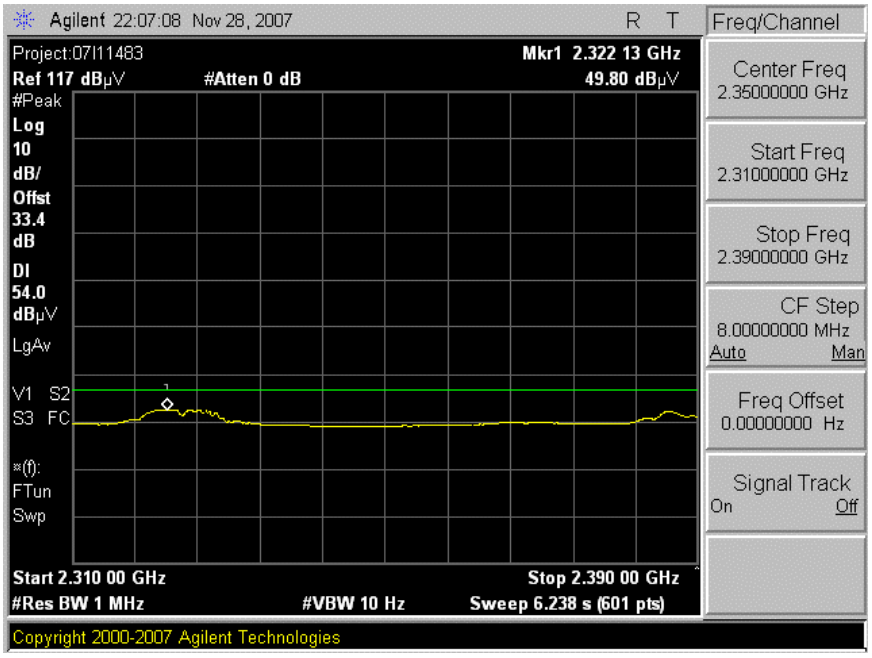


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

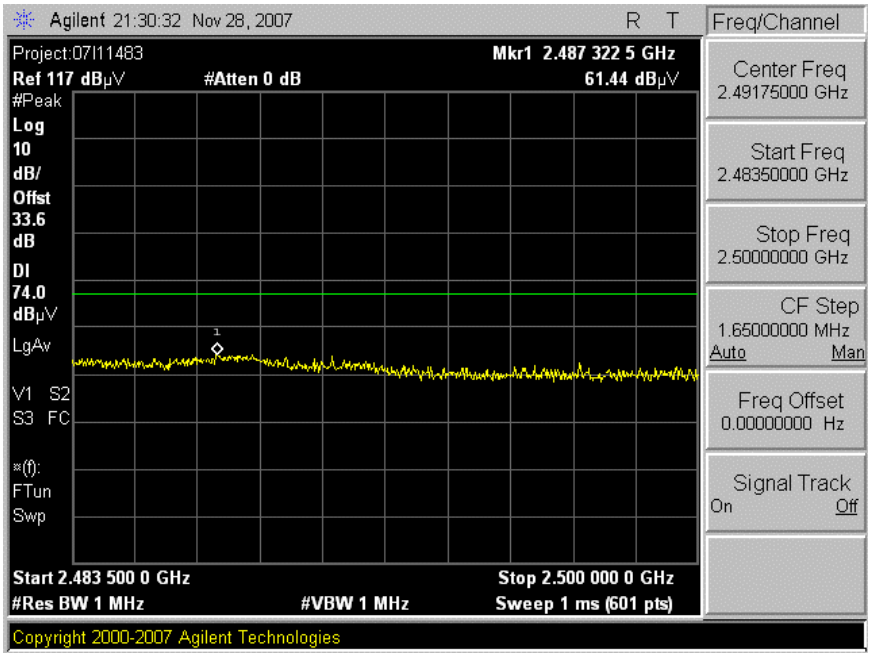


LOW CHANNEL RESTRICTED, AVG, VERT

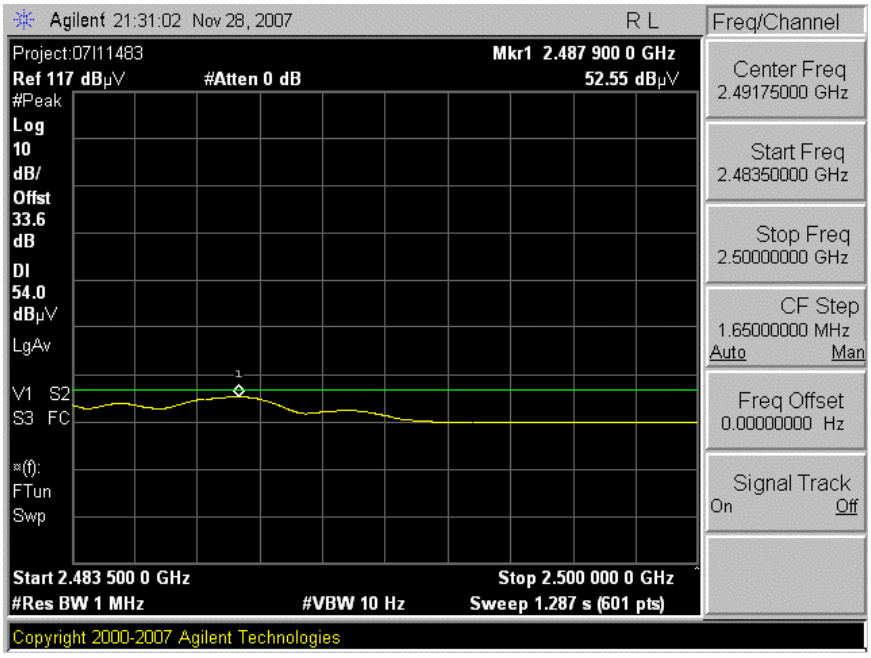


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

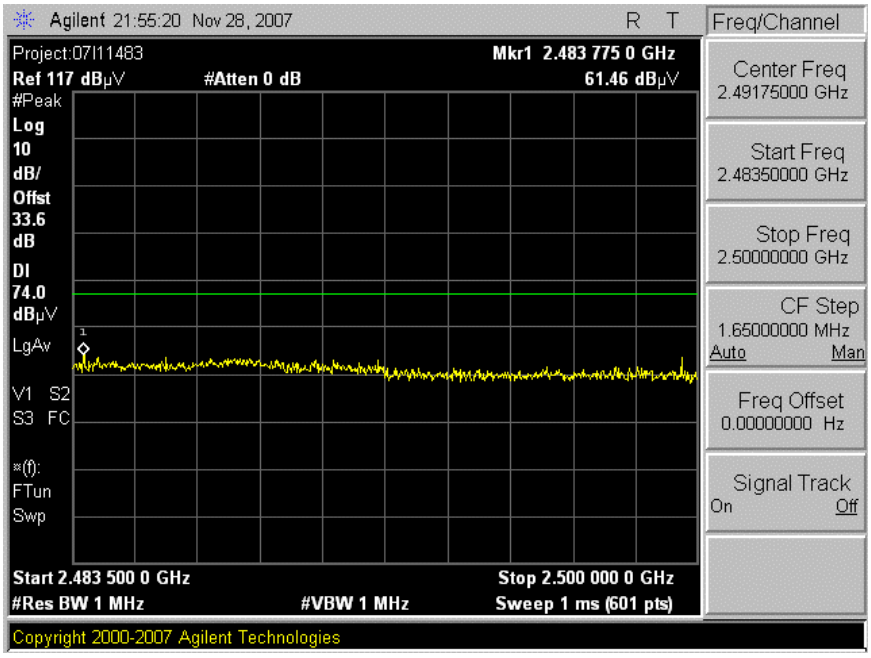


HIGH CHANNEL RESTRICTED, AVG, HORIZ

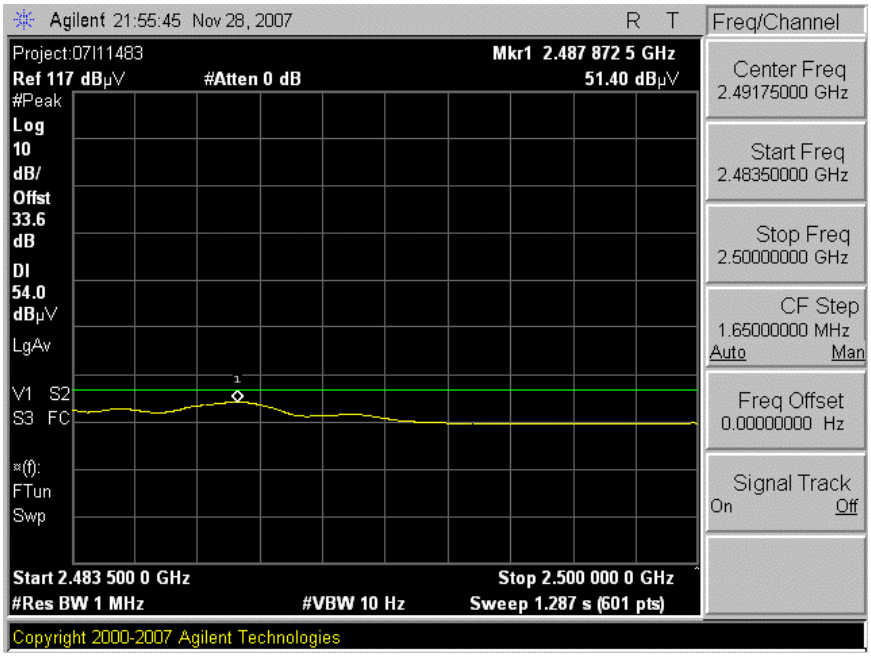


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company:	SAMSUNG
Project #:	07I11483
Date:	11/28/2007
Test Engineer:	MENGISTU MEKURIA
Configuration:	EUT alone with WNC antenna
Mode:	TX 11b MODE

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
		B-5m Chamber		R_001

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

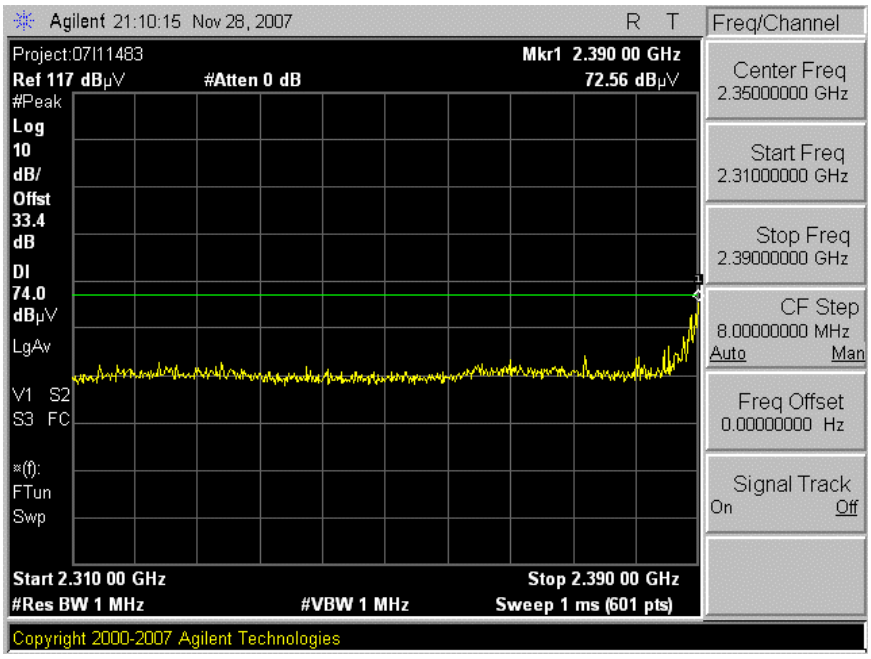
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL, 2412 MHz															
4.824	3.0	44.3	38.5	33.0	7.1	-34.8	0.0	0.0	49.5	43.8	74	54	-24.5	-10.2	V
7.236	3.0	41.8	30.1	35.4	8.6	-34.7	0.0	0.0	51.2	39.4	74	54	-22.8	-14.6	V
1.330	3.0	58.9	41.8	26.3	3.7	-35.9	0.0	0.0	52.9	35.8	74	54	-21.1	-18.2	V
4.824	3.0	45.7	39.1	33.0	7.1	-34.8	0.0	0.0	51.0	44.4	74	54	-23.0	-9.6	H
7.236	3.0	41.9	29.8	35.4	8.6	-34.7	0.0	0.0	51.3	39.1	74	54	-22.7	-14.9	H
1.330	3.0	61.2	40.9	26.3	3.7	-35.9	0.0	0.0	55.2	34.9	74	54	-18.8	-19.1	H
MID CHANNEL, 2437 MHz															
4.874	3.0	48.2	44.9	33.1	7.2	-34.9	0.0	0.0	53.6	50.3	74	54	-20.4	-3.7	V
7.311	3.0	44.3	33.3	35.5	8.6	-34.7	0.0	0.0	53.8	42.8	74	54	-20.2	-11.2	V
4.874	3.0	49.5	46.2	33.1	7.2	-34.9	0.0	0.0	54.9	51.5	74	54	-19.1	-2.5	H
7.311	3.0	43.4	31.7	35.5	8.6	-34.7	0.0	0.0	52.9	41.2	74	54	-21.1	-12.8	H
HI CHANNEL, 2462 MHz															
4.924	3.0	47.1	42.7	33.1	7.2	-34.9	0.0	0.0	52.6	48.1	74	54	-21.4	-5.9	V
7.386	3.0	42.8	30.6	35.6	8.7	-34.6	0.0	0.0	52.4	40.2	74	54	-21.6	-13.8	V
4.924	3.0	47.5	43.3	33.1	7.2	-34.9	0.0	0.0	52.9	48.8	74	54	-21.1	-5.2	H
7.386	3.0	41.6	29.5	35.6	8.7	-34.6	0.0	0.0	51.2	39.1	74	54	-22.8	-14.9	H

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

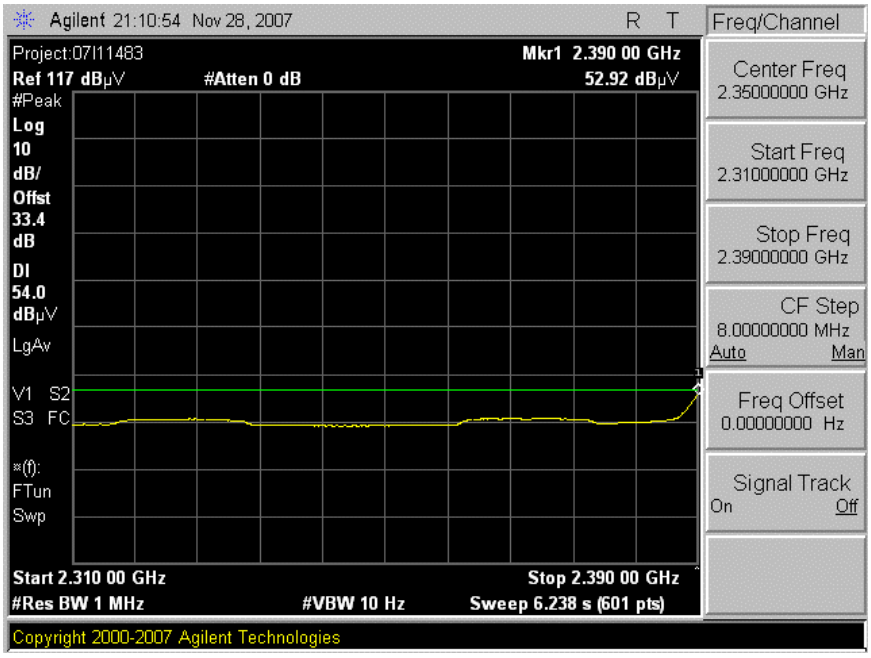
8.1.5. TRANSMITTER ABOVE 1 GHz FOR 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ

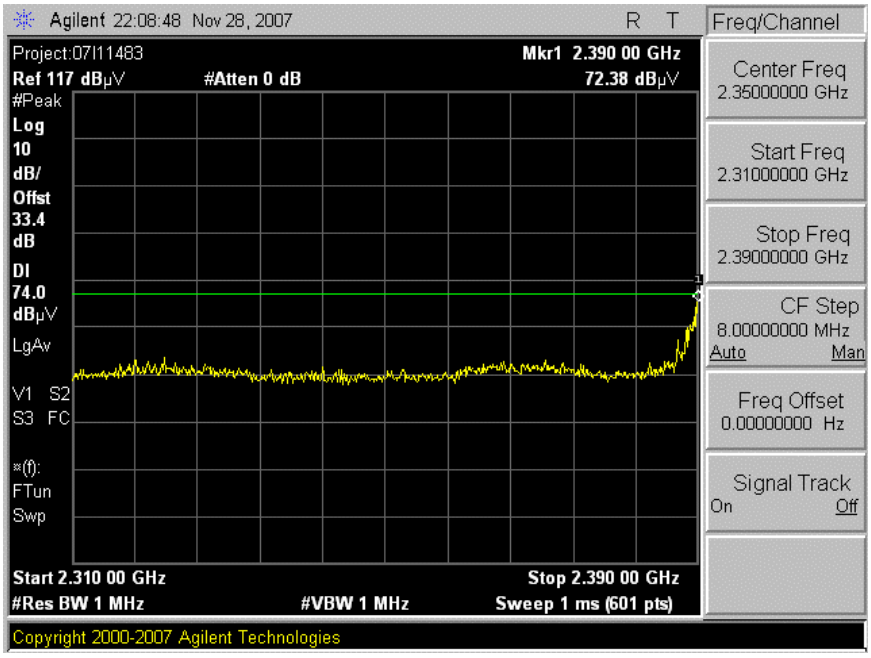


LOW CHANNEL RESTRICTED, AVG, HORIZ

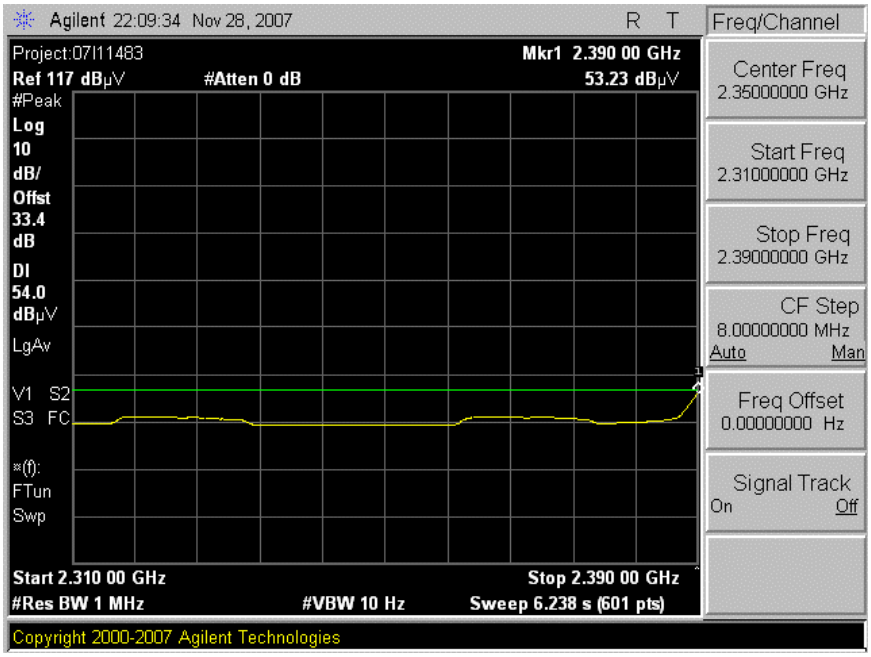


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

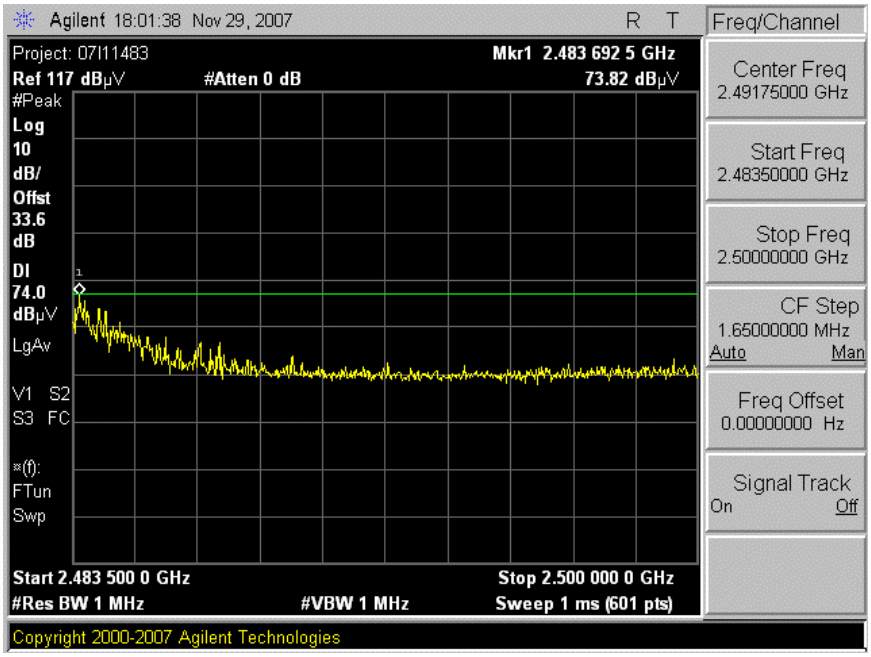


LOW CHANNEL RESTRICTED, AVG, VERT

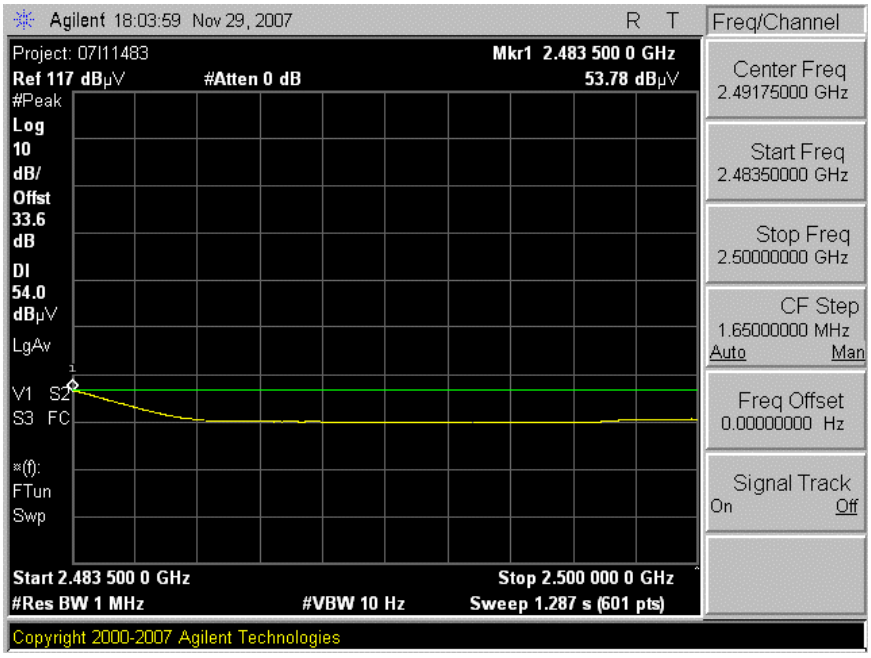


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

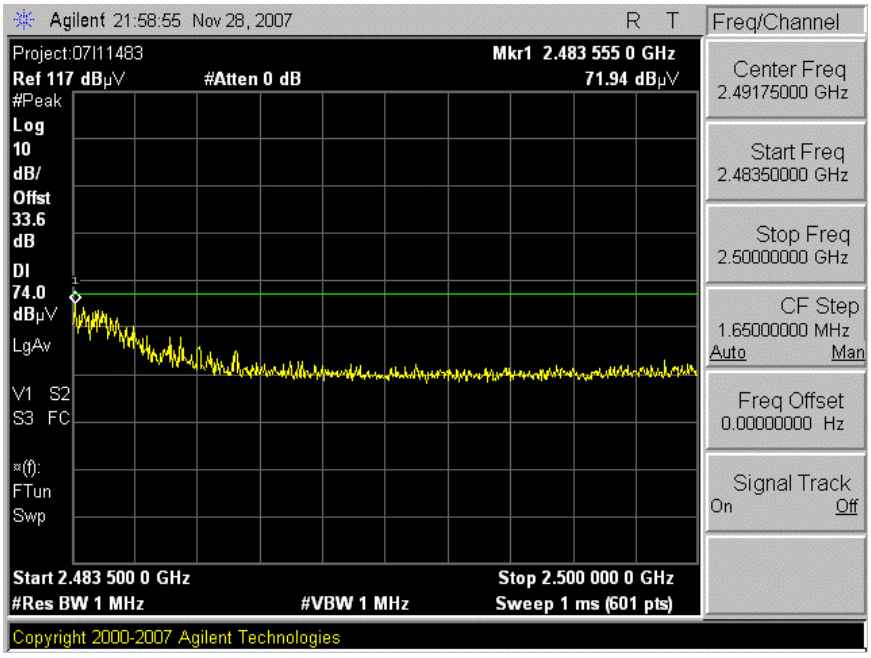


HIGH CHANNEL RESTRICTED, AVG, HORIZ

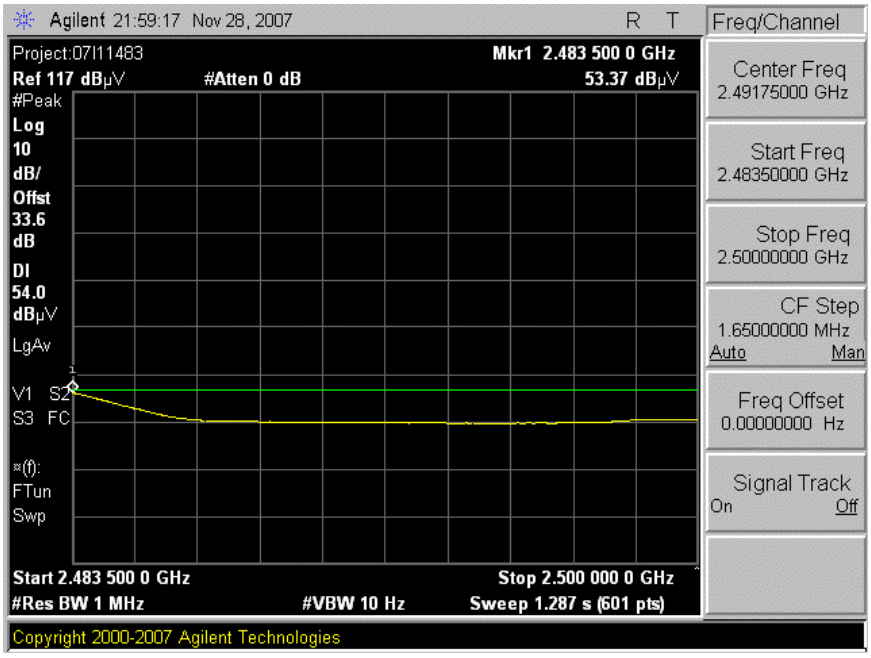


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company:	SAMSUNG
Project #:	07I11483
Date:	11/28/2007
Test Engineer:	MENGISTU MEKURIA
Configuration:	EUT ALONE with WNC antenna
Mode:	TX 11g MODE

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
		B-5m Chamber		R_001

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL, 2412 MHz															
1.330	3.0	59.8	42.5	26.3	3.7	-35.9	0.0	0.0	53.8	36.5	74	54	-20.2	-17.5	V
4.824	3.0	41.3	29.1	33.0	7.1	-34.8	0.0	0.0	46.6	34.4	74	54	-27.4	-19.6	V
1.330	3.0	61.6	41.5	26.3	3.7	-35.9	0.0	0.0	55.6	35.5	74	54	-18.4	-18.5	H
4.824	3.0	41.7	29.6	33.0	7.1	-34.8	0.0	0.0	47.0	34.9	74	54	-27.0	-19.1	H
MID CHANNEL, 2437 MHz															
4.874	3.0	44.8	32.1	33.1	7.2	-34.9	0.0	0.0	50.2	37.4	74	54	-23.8	-16.6	V
7.311	3.0	44.2	31.1	35.5	8.6	-34.7	0.0	0.0	53.7	40.6	74	54	-20.3	-13.4	V
4.874	3.0	45.7	32.5	33.1	7.2	-34.9	0.0	0.0	51.1	37.9	74	54	-22.9	-16.1	H
7.311	3.0	42.9	30.1	35.5	8.6	-34.7	0.0	0.0	52.4	39.5	74	54	-21.6	-14.5	H
HI CHANNEL, 2462 MHz															
4.924	3.0	41.9	30.3	33.1	7.2	-34.9	0.0	0.0	47.3	35.7	74	54	-26.7	-18.3	V
4.924	3.0	41.3	29.4	33.1	7.2	-34.9	0.0	0.0	46.8	34.9	74	54	-27.2	-19.1	H

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

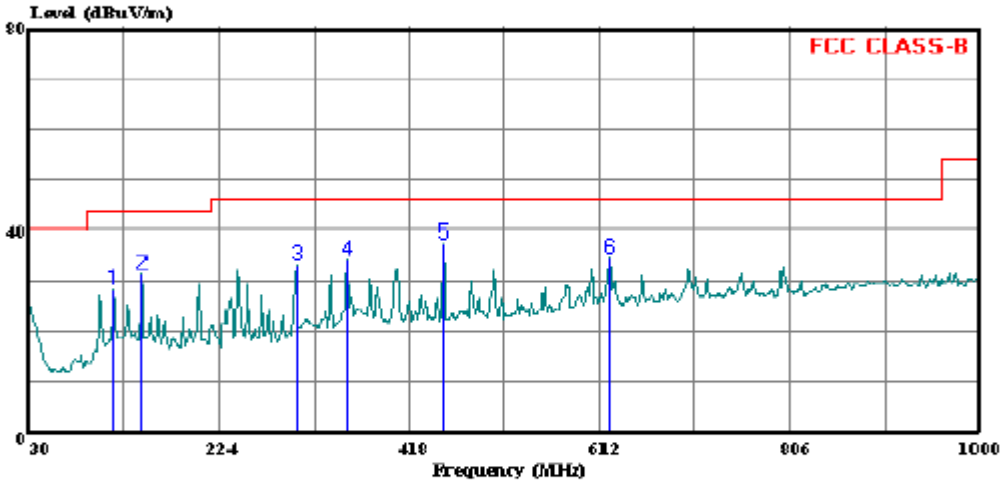
8.1.6. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 14 File#: 07I11483 EMI.EMI Date: 11-27-2007 Time: 23:08:30



Trace: 13 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator:: Mengistu Mekuria
Project #: : 07I11483
Company: : Samsung
Model : WNC Antenna
Configuration:: EUT Alone
Mode : : Transmit Worst Case
Target: : FCC Class B

HORIZONTAL DATA

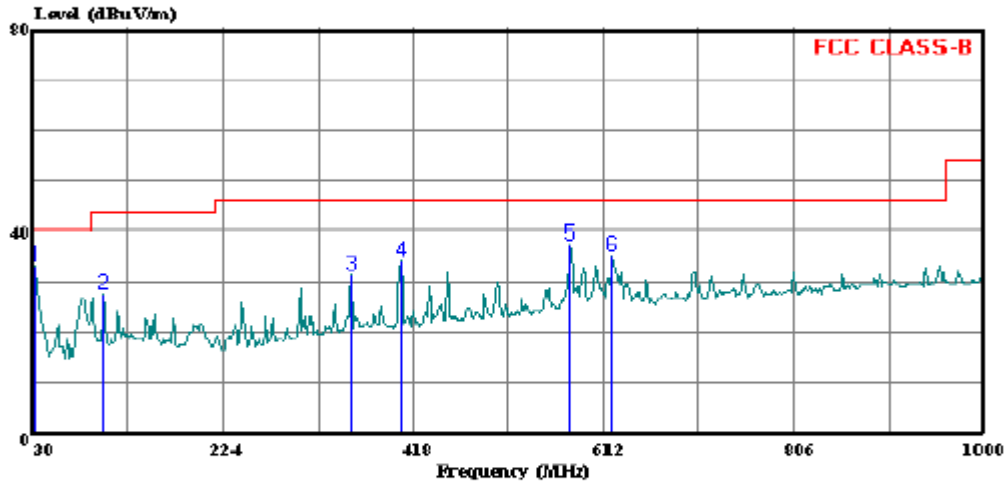
	Freq	Read Level	Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV/m	dB	dBuV/m	dB	
1	116.330	42.23	28.23	-14.00	43.50	-15.27	Peak
2	145.430	44.91	31.37	-13.54	43.50	-12.13	Peak
3	303.540	45.46	33.27	-12.19	46.00	-12.73	Peak
4	353.980	45.20	34.27	-10.93	46.00	-11.73	Peak
5	453.890	45.78	37.34	-8.44	46.00	-8.66	Peak
6	623.640	39.44	34.48	-4.96	46.00	-11.52	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 16 File#: 07I11483 EMI.EMI Date: 11-27-2007 Time: 23:14:01



Trace: 15 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator:: Mengistu Mekuria
Project #: : 07I11483
Company: : Samsung
Model : WNC Antenna
Configuration:: EUT Alone
Mode : : Transmit Worst Case
Target: : FCC Class B

VERTICAL DATA

	Freq	Read Level	Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV/m	dB	dBuV/m	dB	
1	31.940	39.95	33.35	-6.60	40.00	-6.65	Peak
2	101.780	44.44	27.62	-16.82	43.50	-15.88	Peak
3	353.980	42.58	31.65	-10.93	46.00	-14.35	Peak
4	405.390	44.12	34.37	-9.75	46.00	-11.63	Peak
5	577.080	43.17	37.37	-5.80	46.00	-8.63	Peak
6	620.730	40.32	35.29	-5.03	46.00	-10.71	Peak

8.1.7. CO-LOCATED TRANSMITTER RADIATED EMISSIONS (WORST CASE)

LIMITS

Not applicable, reporting only.

RESULTS

No non-compliance noted:

EUT was activated at mid channel in WLAN 11b mode (2437 MHz), and at mid channel in BT mode (2441 MHz). A pre-scan was performed to investigate whether there is any inter-modulation signal, all the signals that were detected were harmonics of individual transmitters, none of the inter-modulation signals were found in the frequency range of 1 to 25 GHz.

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

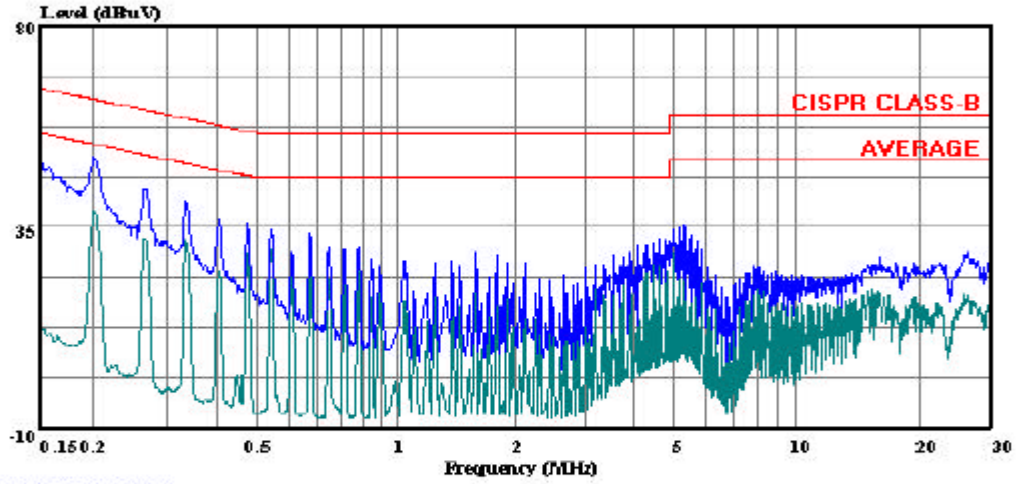
6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.20	50.92	--	--	0.00	63.57	53.57	-12.65	-2.65	L1
0.68	33.66	--	--	0.00	56.00	46.00	-22.34	-12.34	L1
5.48	35.14	--	--	0.00	60.00	50.00	-24.86	-14.86	L1
0.20	49.28	--	--	0.00	63.57	53.57	-14.29	-4.29	L2
0.47	39.62	--	--	0.00	56.50	46.50	-16.88	-6.88	L2
5.48	32.68	--	--	0.00	60.00	50.00	-27.32	-17.32	L2
6 Worst Data									

LINE 1 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 7 File#: 07I11483 LC.EMI Date: 11-27-2007 Time: 20:36:49

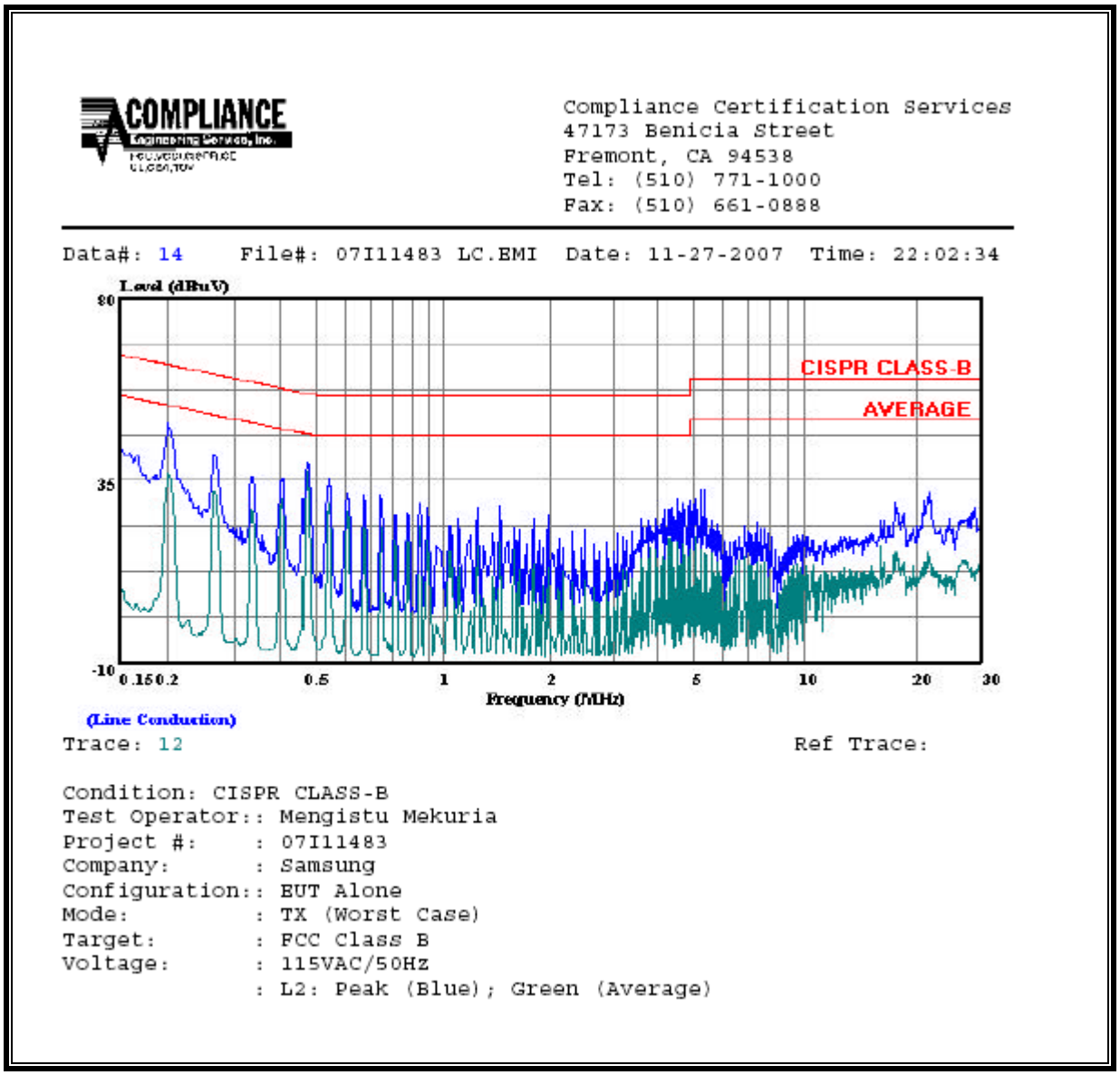


(Line Conduction)

Trace: 5 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Mengistu Mekuria
Project #: : 07I11483
Company: : Samsung
Configuration:: EUT Alone
Mode: : TX (Worst Case)
Target: : FCC Class B
Voltage: : 115VAC/50Hz
: L1 Peak (Blue); Green (Average)

LINE 2 RESULTS



10. MAXIMUM PERMISSIBLE EXPOSURE

FCC RULES

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500	.....	.....	f/300	6
1500–100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500	.....	.....	f/1500	30
1500–100,000	.....	.....	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

CALCULATIONS

Given

$E = \sqrt{(30 * P * G)} / d$

and

$S = E ^ 2 / 3770$

where

E = Field Strength in Volts/meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power Density in milliwatts/square centimeter

Combining equations, rearranging the terms to express the distance as a function of the remaining variables, changing to units of Power to mW and Distance to cm, and substituting the logarithmic form of power and gain yields:

$d = 0.282 * 10 ^ ((P + G) / 20) / \sqrt{S}$

where

d = MPE distance in cm

P = Power in dBm

G = Antenna Gain in dBi

S = Power Density Limit in mW/cm^2

Rearranging terms to calculate the power density at a specific distance yields

$S = 0.0795 * 10 ^ ((P + G) / 10) / (d^2)$

The power density in units of mW/cm^2 is converted to units of W/m^2 by multiplying by a factor of 10.

LIMITS

From FCC §1.1310 Table 1 (B), the maximum value of S = 1.0 mW/cm^2

RESULTS

NOTE: For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.

(MPE distance is greater than 20 cm)

Mode	Band	FCC Limit (mW/cm^2)	Output (dBm)	Antenna (dBi)	MPE Distance (cm)
WLAN	2.4 GHz	1.0	27.08	1.03	7.17