



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

The EUT is an 850/1900 GSM/GPRS, EDGE Rx only Phone with Bluetooth and WLAN Transceiver

MODEL NUMBER: GT-C6712

FCC ID: A3LGTC6712

REPORT NUMBER: 11I13692-2

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Prepared for
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Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD
416, MAETAN 3-DONG, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA

EUT DESCRIPTION: THE EUT IS AN 850/1900 GSM/GPRS, EDGE RX ONLY PHONE
WITH BLUETOOTH AND WLAN TRANSCEIVER

FCC MODEL: GT-C6712

SERIAL NUMBER: F1 032 D (Conducted Unit), F1 032 A (Radiated Unit)

DATE TESTED: FEBUARY 21-23, 2011

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

Compliance Certification Services (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. 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 UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:

Tested By:



THU CHAN
ENGINEERING MANAGER
UL CCS



CHIN PANG
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

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

UL 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. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 850/1900 GSM/GPRS, EDGE Rx only Phone with Bluetooth and WLAN transceiver.

The radio module is manufactured by Samsung.

5.2. MAXIMUM OUTPUT POWER

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	19.37	86.50
2412 - 2462	802.11g	23.10	204.17
2412 - 2462	802.11n HT20 SISO	22.90	194.98

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna, with a maximum gain of -4.2dBi for 2.4GHz band.

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed in the host support equipment during testing was C6712.02, rev 0.1 , Mac address:12:34:56:fe:2b:8e.

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power.

For the fundamental investigation, since the EUT is a portable device that has three orientations; therefore X, Y and Z orientations have been investigated, also with AC/DC adapter, and earphone, and the worst case was found to be at Y orientation with earphone

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

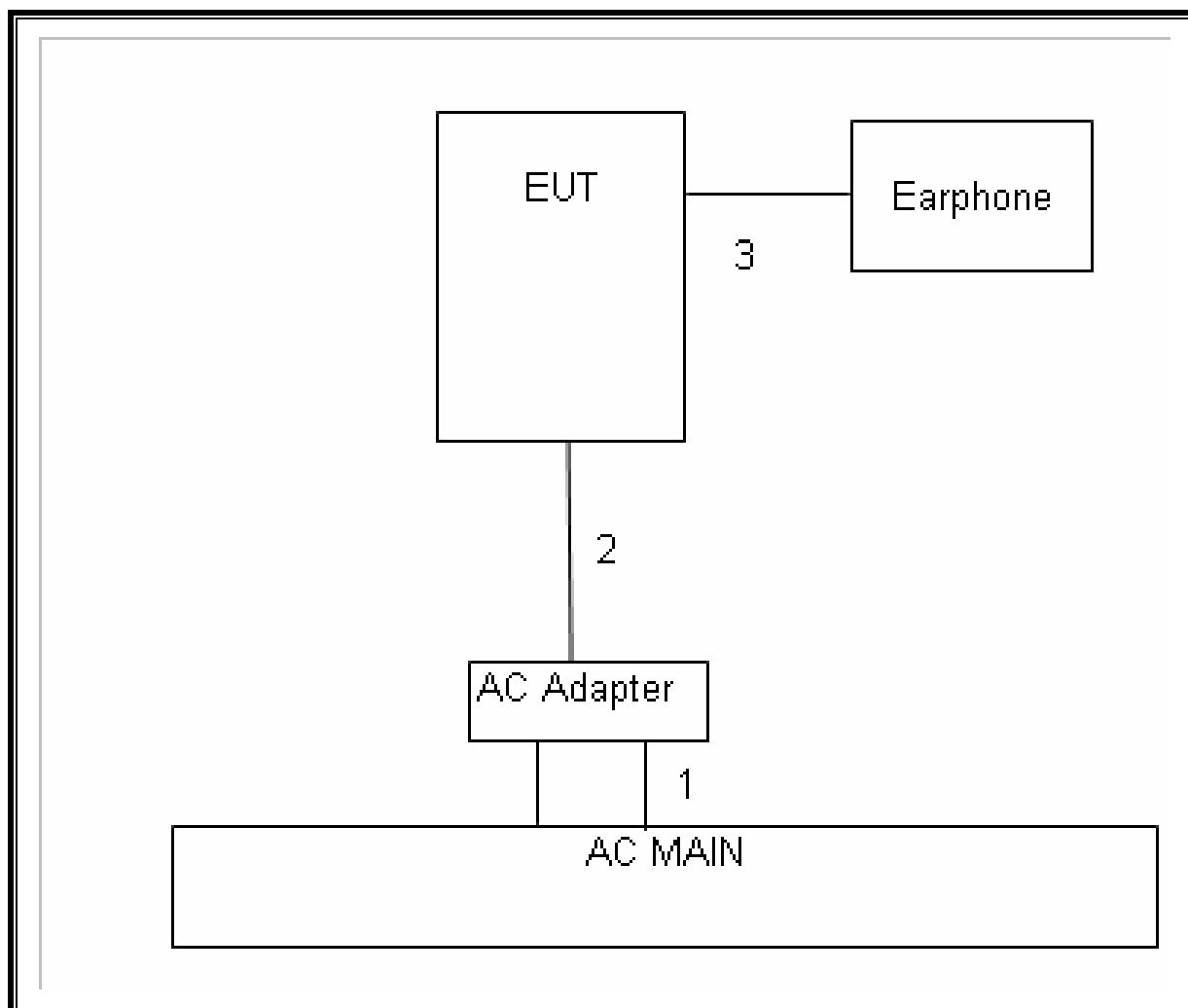
PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	ETA3U30EBE	DK1ZB04TS/5-E	DoC
Earphone	Samsung	NA	FT032B	NA

I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Un-shielded	2m	NA
2	DC	1	DC	Un-shielded	1m	NA

TEST SETUP

The EUT is a stand alone device.

SETUP DIAGRAM FOR TESTS

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 Due
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07/14/11
Antenna, Horn, 18 GHz	EMCO	3115	C00783	06/29/11
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00778	01/27/12
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07/12/11
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/30/11
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/10/11
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	05/06/11
Peak Power Meter	Boonton	4541	C01186	03/01/11
Directional Coupler, 18 GHz	Krytar	1817	N02656	CNR
Peak Power Sensor	Boonton	57006	C01203	02/24/11

6.1. 802.11b MODE IN THE 2.4 GHz BAND**6.1.1. 6 dB BANDWIDTH****LIMITS**

FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

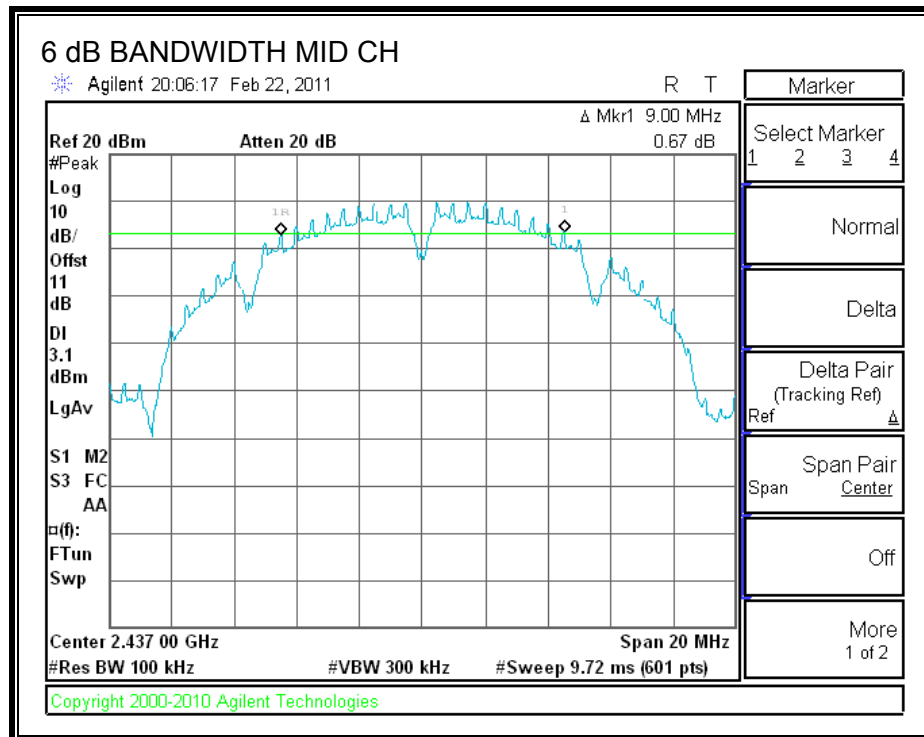
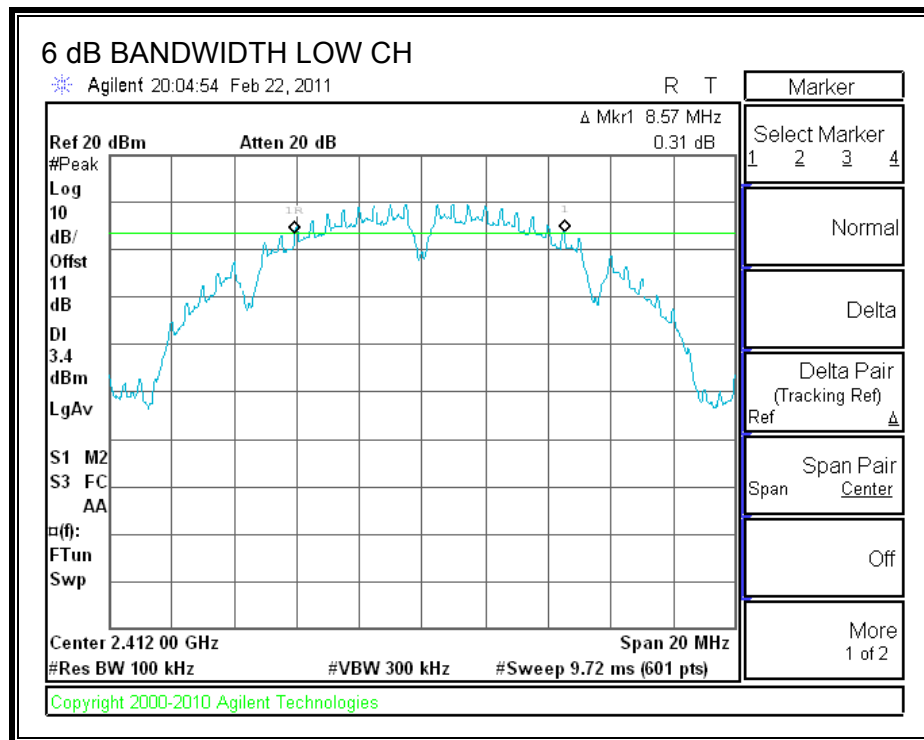
TEST PROCEDURE

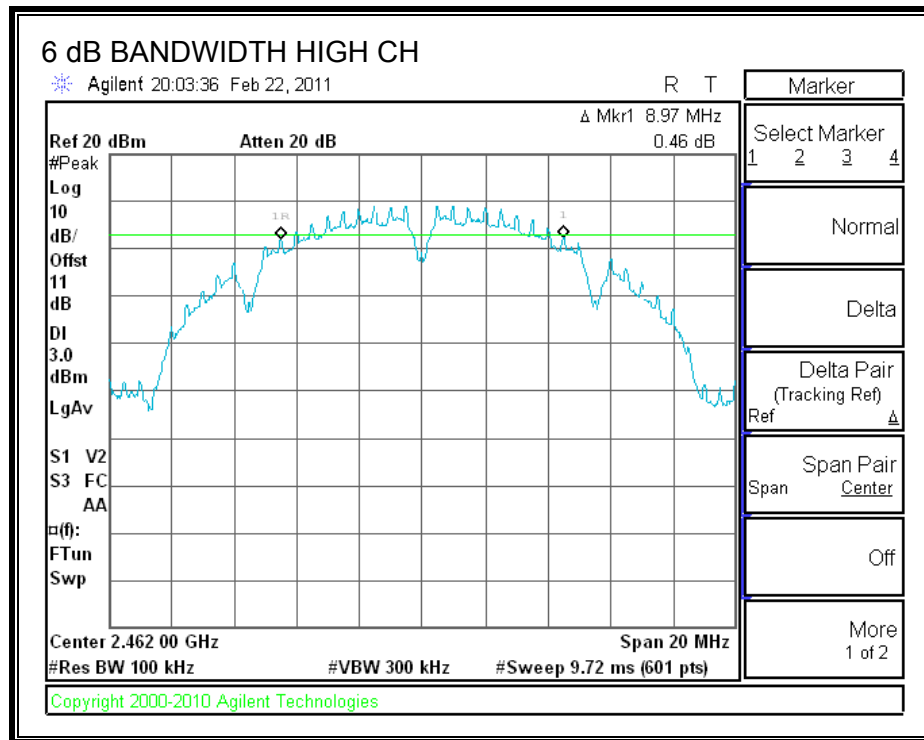
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	8.57	0.5
Middle	2437	9.00	0.5
High	2462	8.97	0.5

6 dB BANDWIDTH





6.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

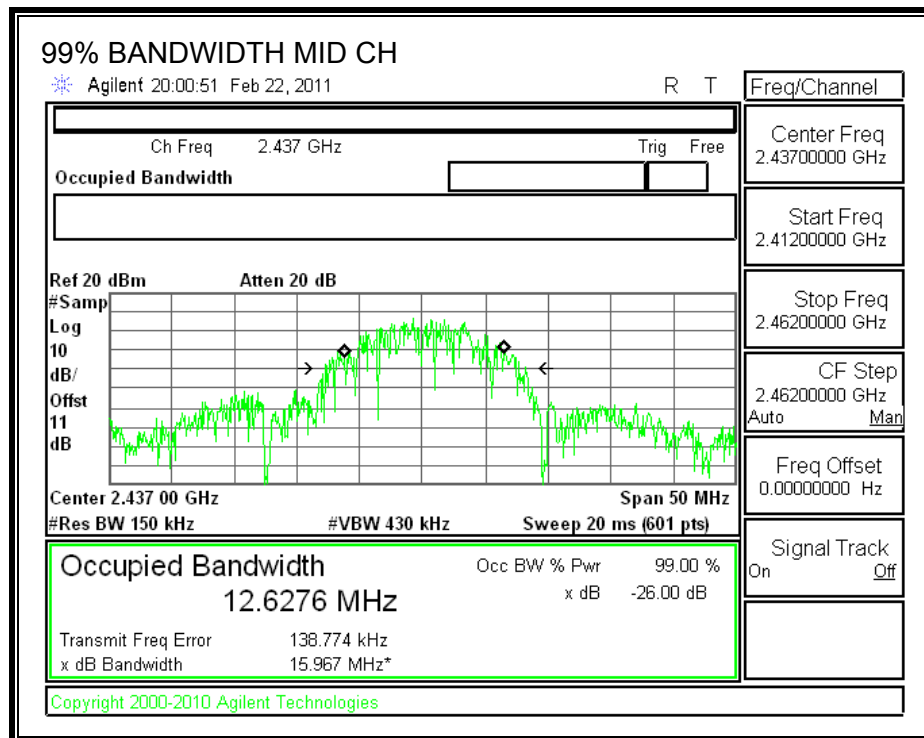
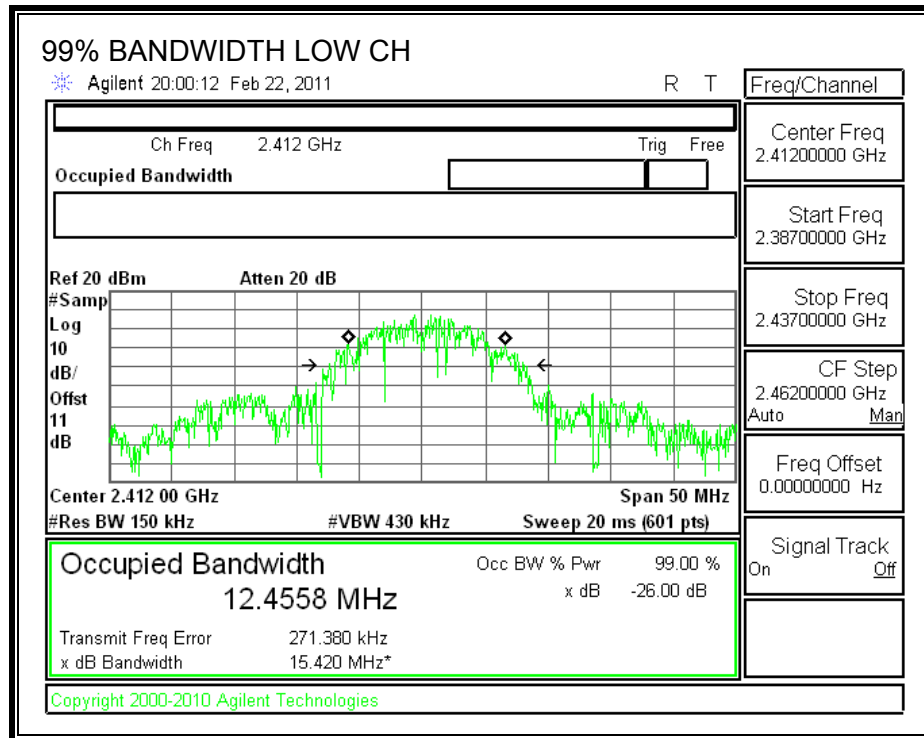
TEST PROCEDURE

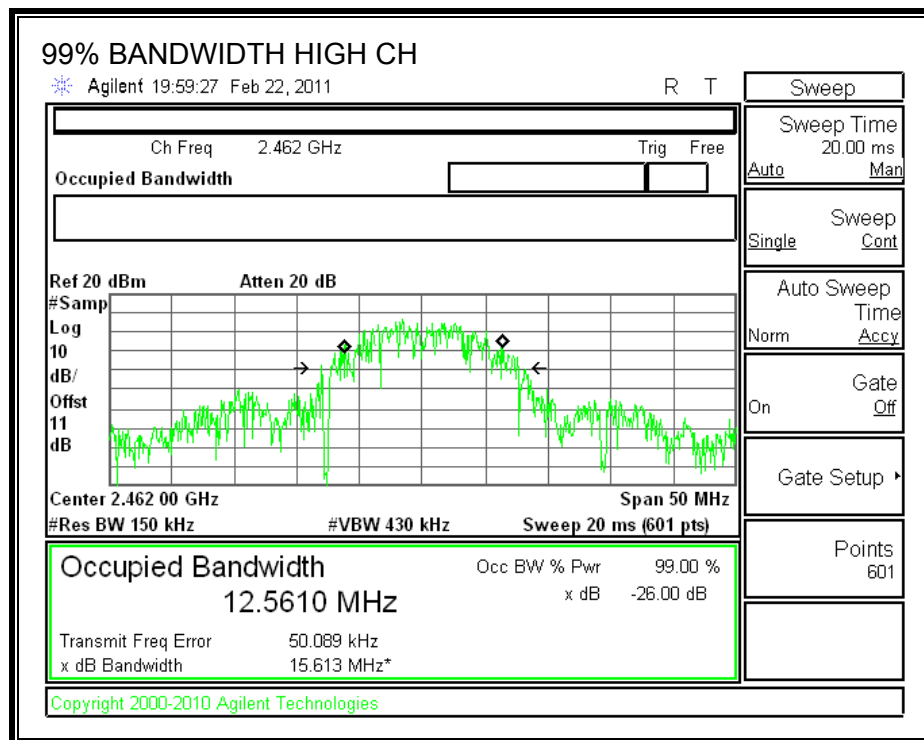
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	12.4558
Middle	2437	12.6276
High	2462	12.5610

99% BANDWIDTH





6.1.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.1dB (including 10 dB pad and 1.1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Power (dBm)
Low	2412	19.30
Middle	2437	19.37
High	2462	19.10

6.1.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Power (dBm)
Low	2412	16.60
Middle	2437	16.50
High	2462	16.50

6.1.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

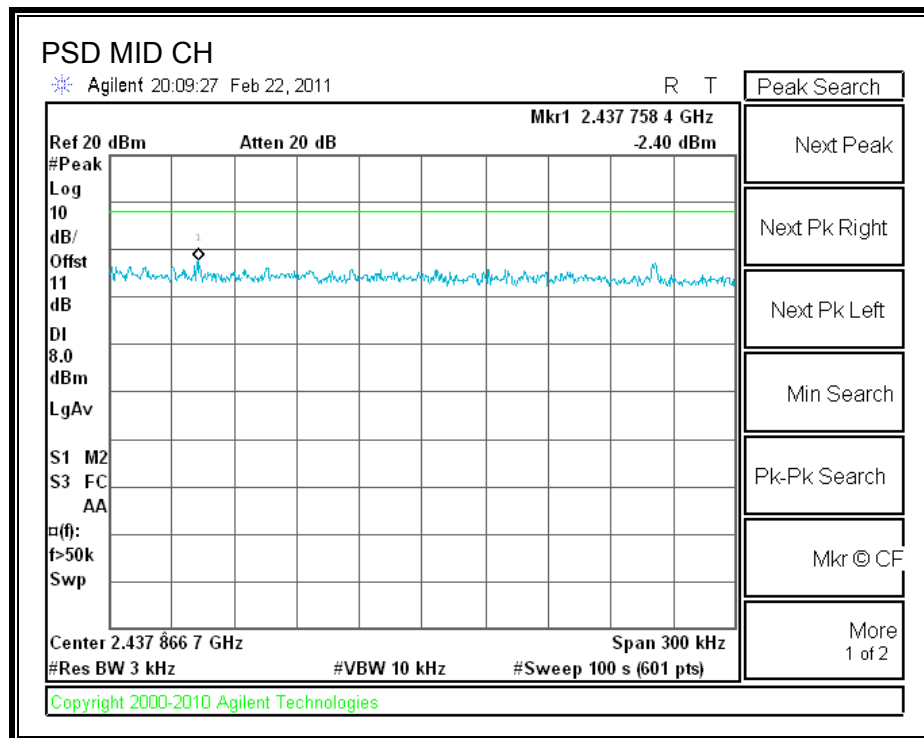
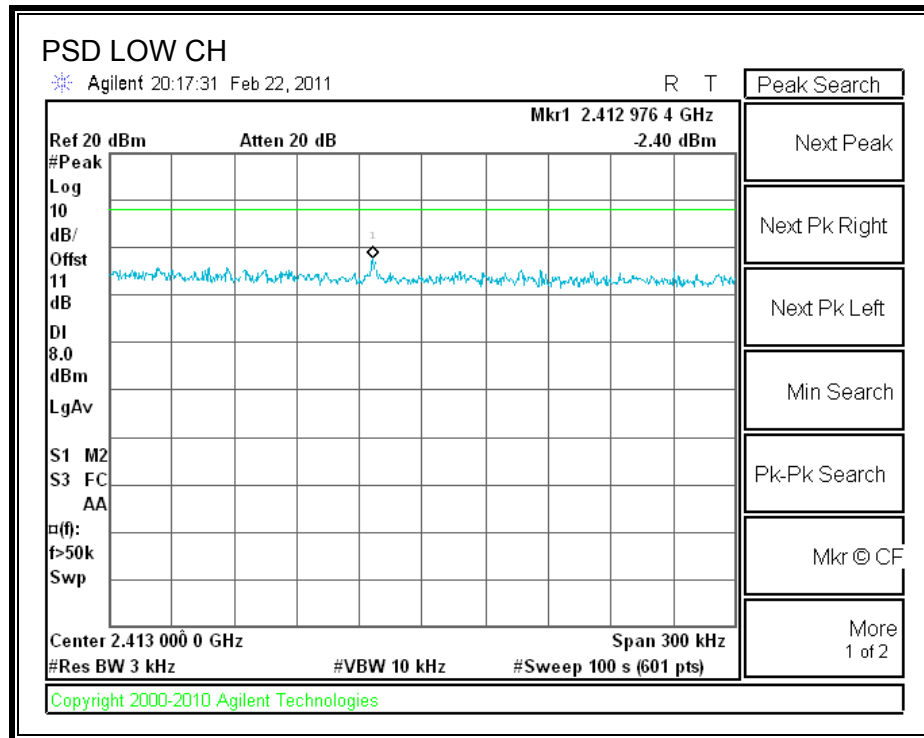
TEST PROCEDURE

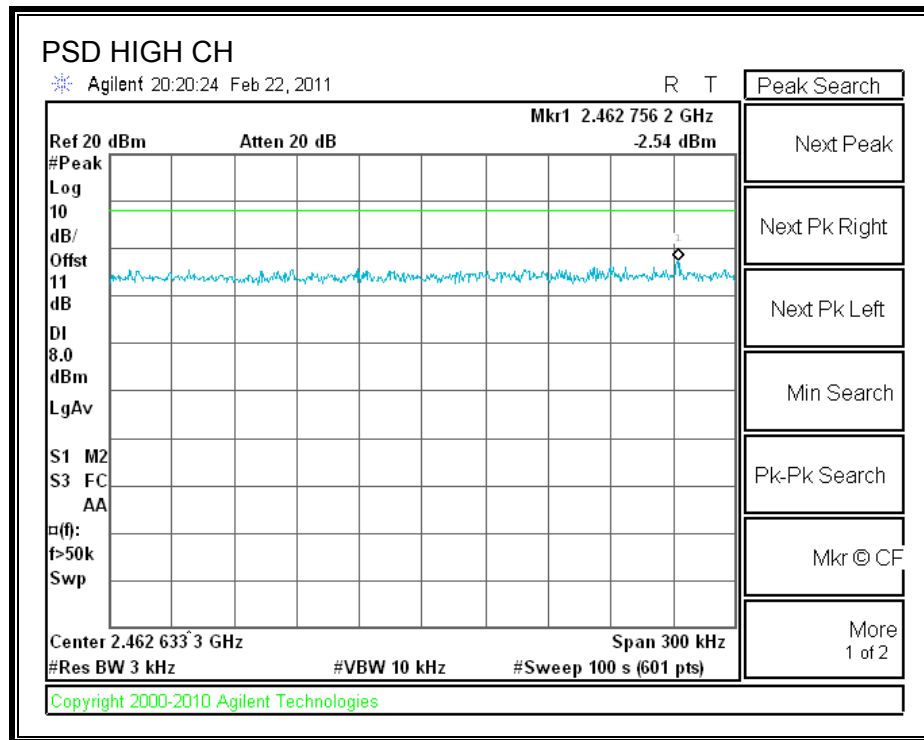
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-2.40	8	-10.40
Middle	2437	-2.40	8	-10.40
High	2462	-2.54	8	-10.54

POWER SPECTRAL DENSITY





6.1.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

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

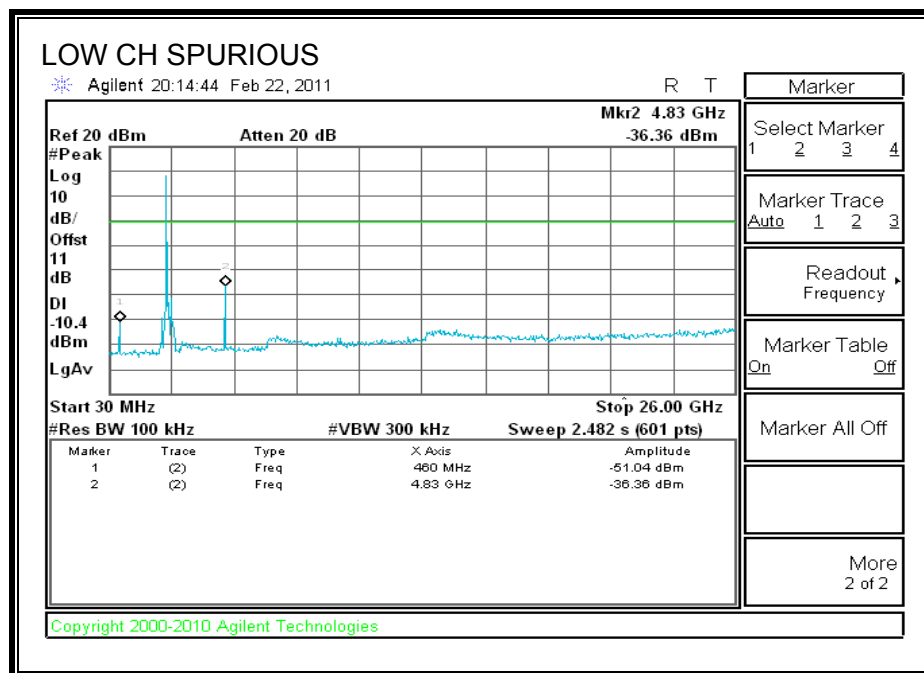
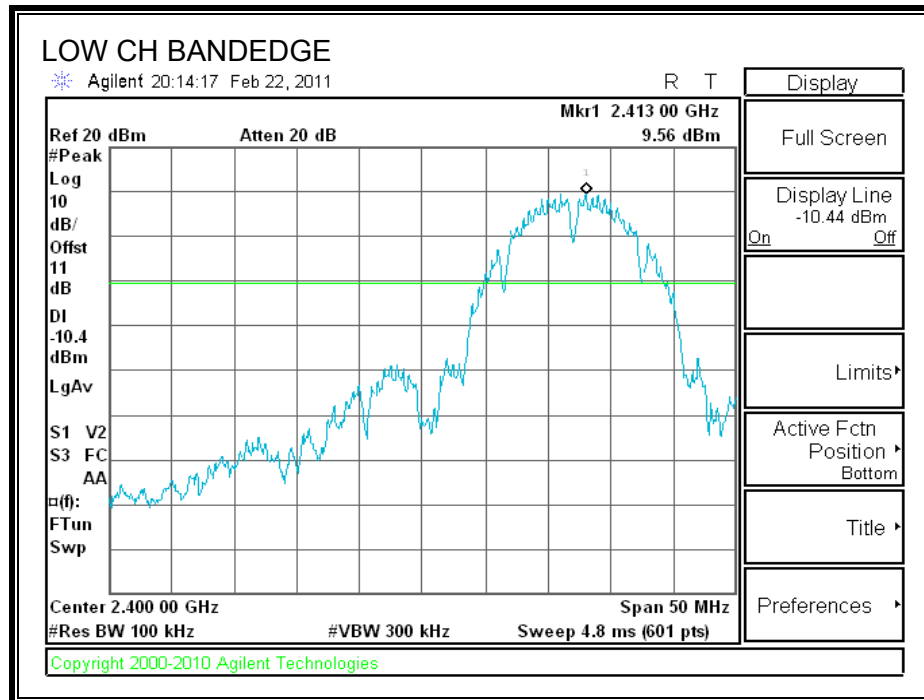
TEST PROCEDURE

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.

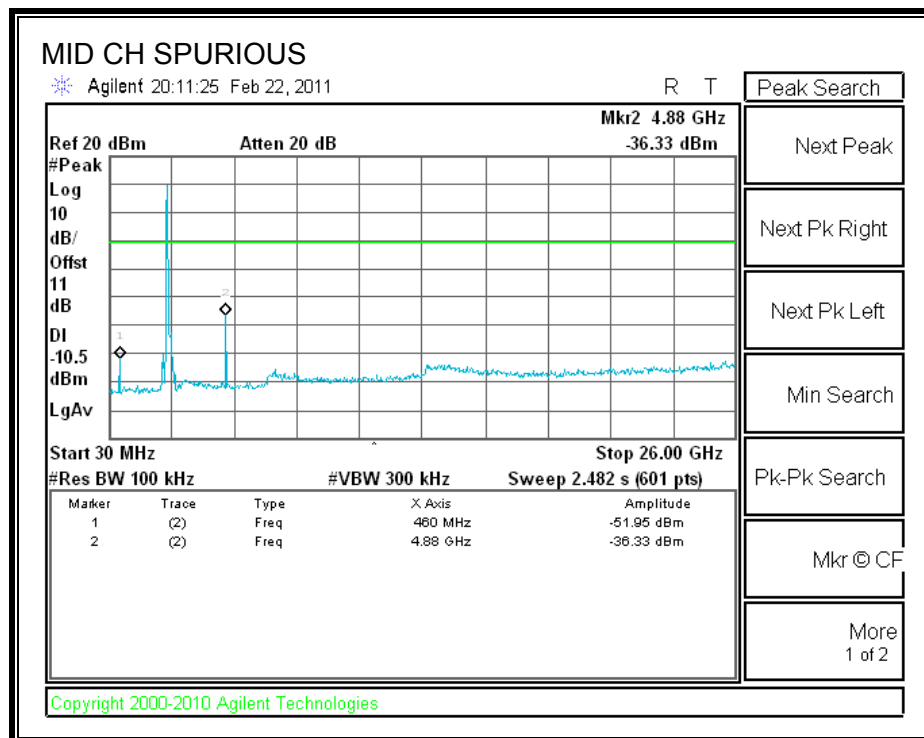
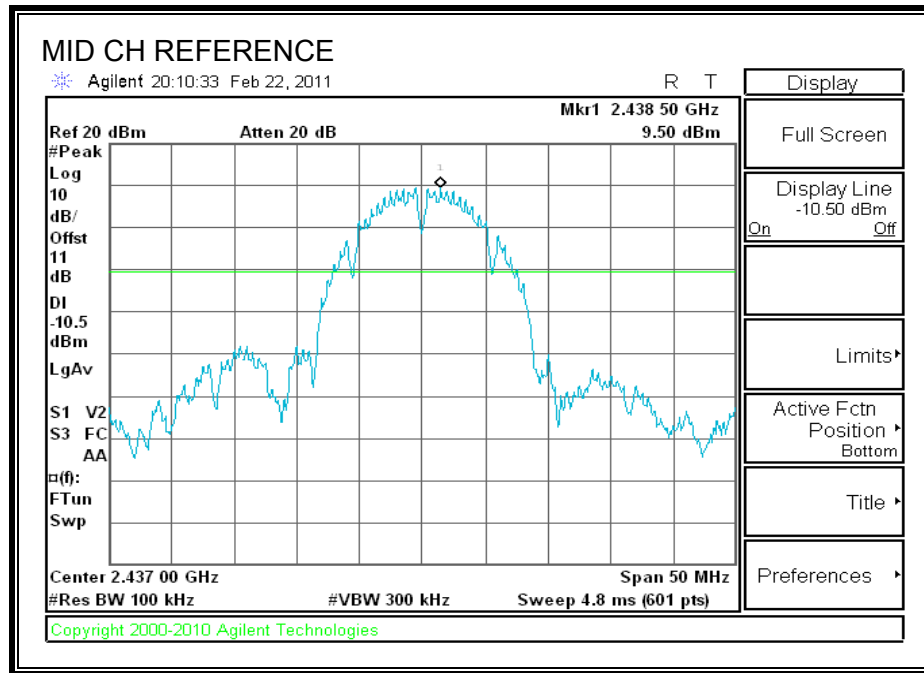
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

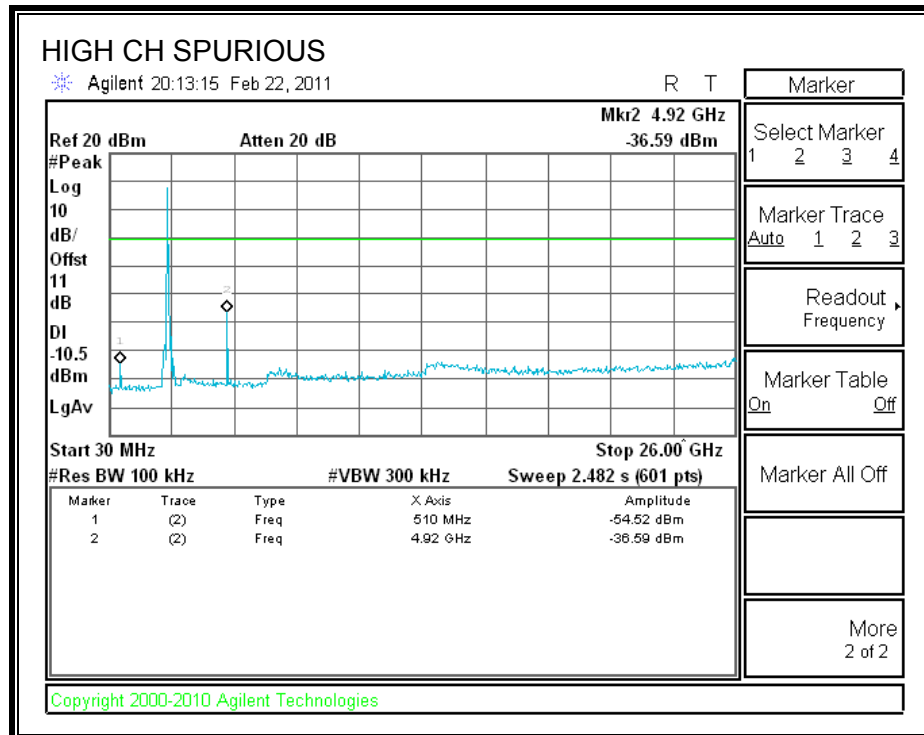
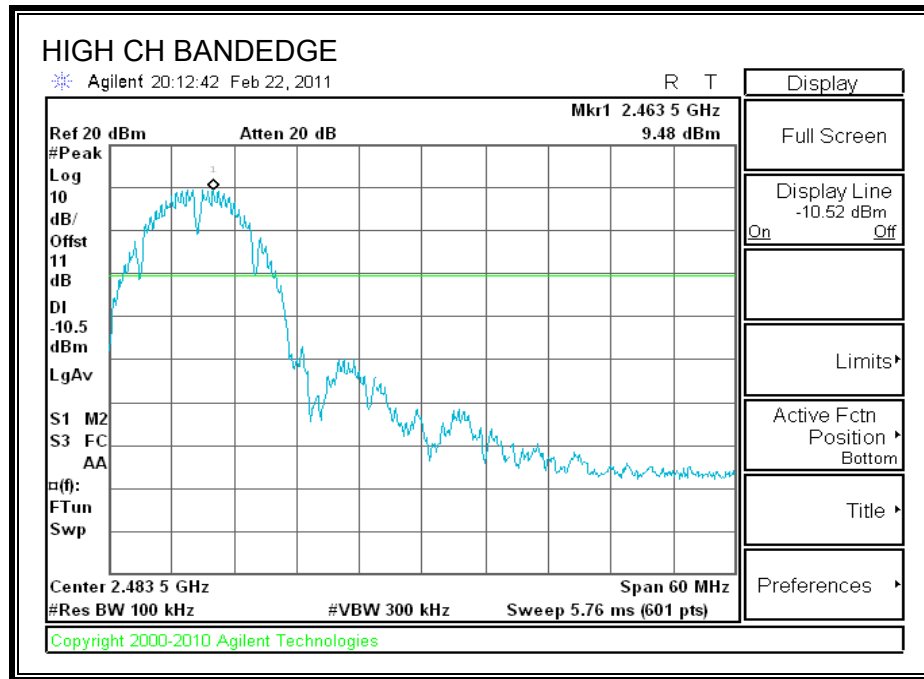
SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



6.2. 802.11g MODE IN THE 2.4 GHz BAND**6.2.1. 6 dB BANDWIDTH****LIMITS**

FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

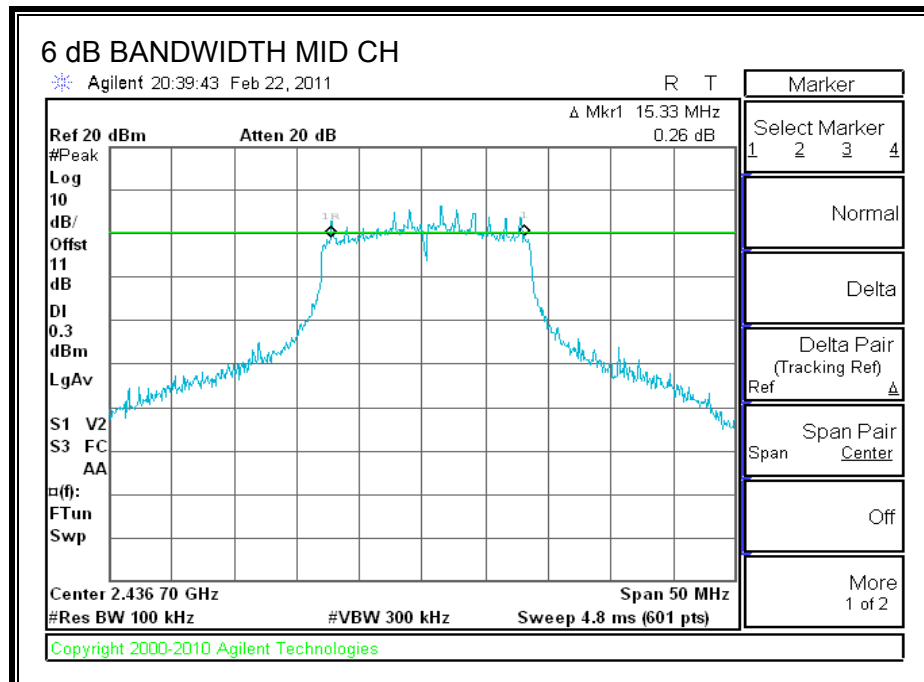
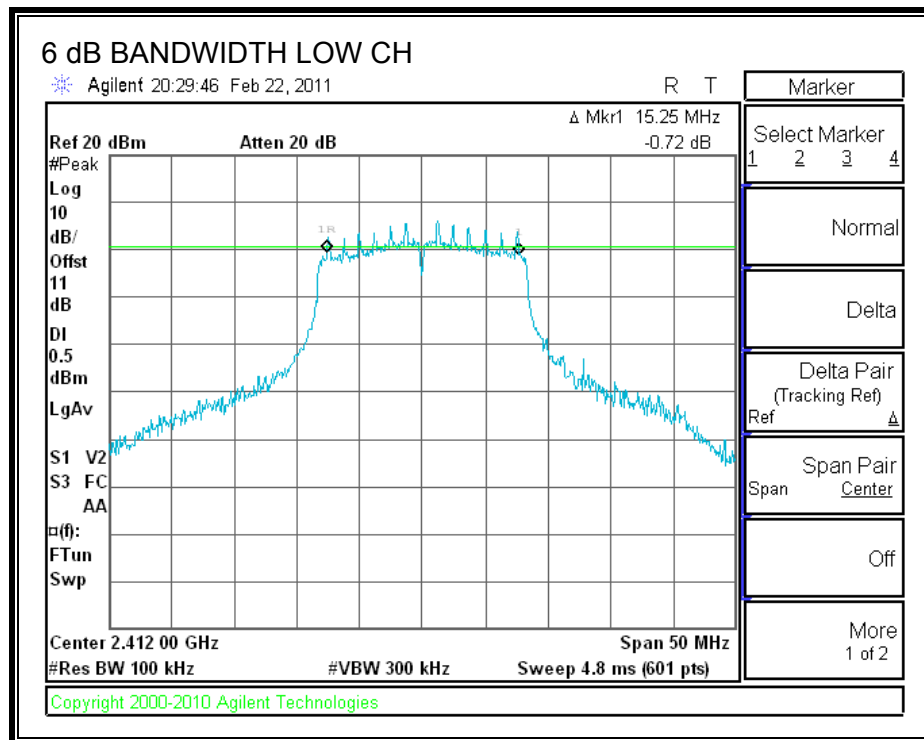
TEST PROCEDURE

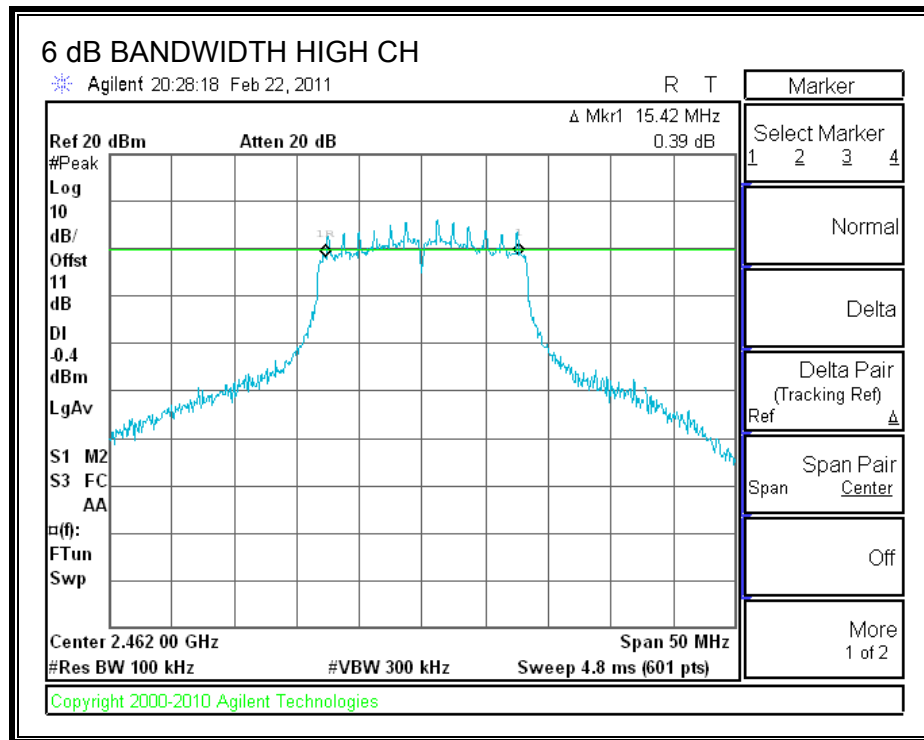
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.25	0.5
Middle	2437	15.33	0.5
High	2462	15.42	0.5

6 dB BANDWIDTH





6.2.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

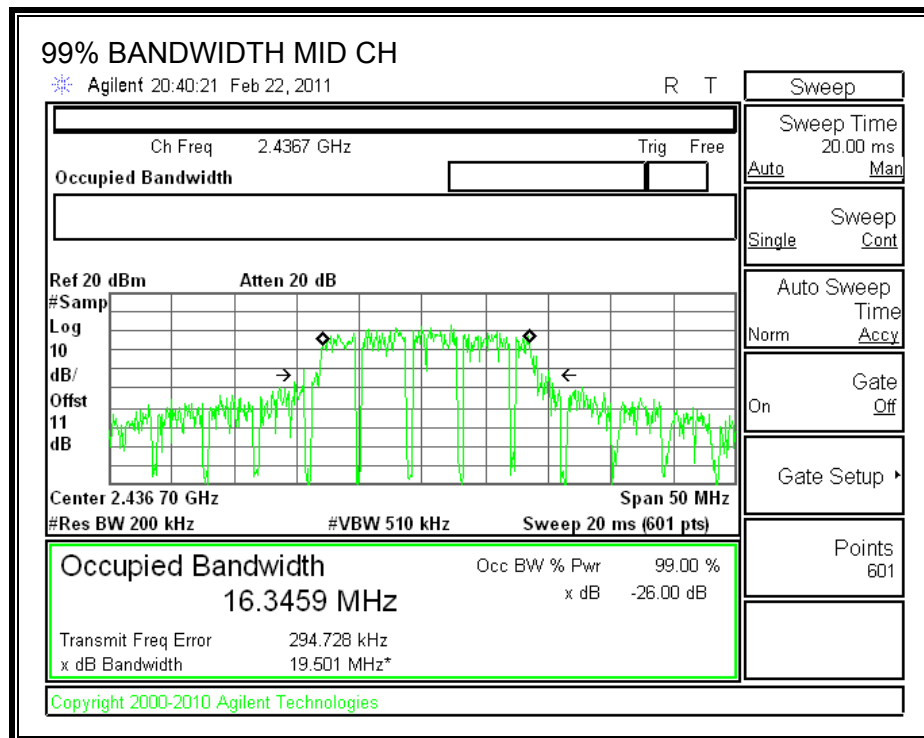
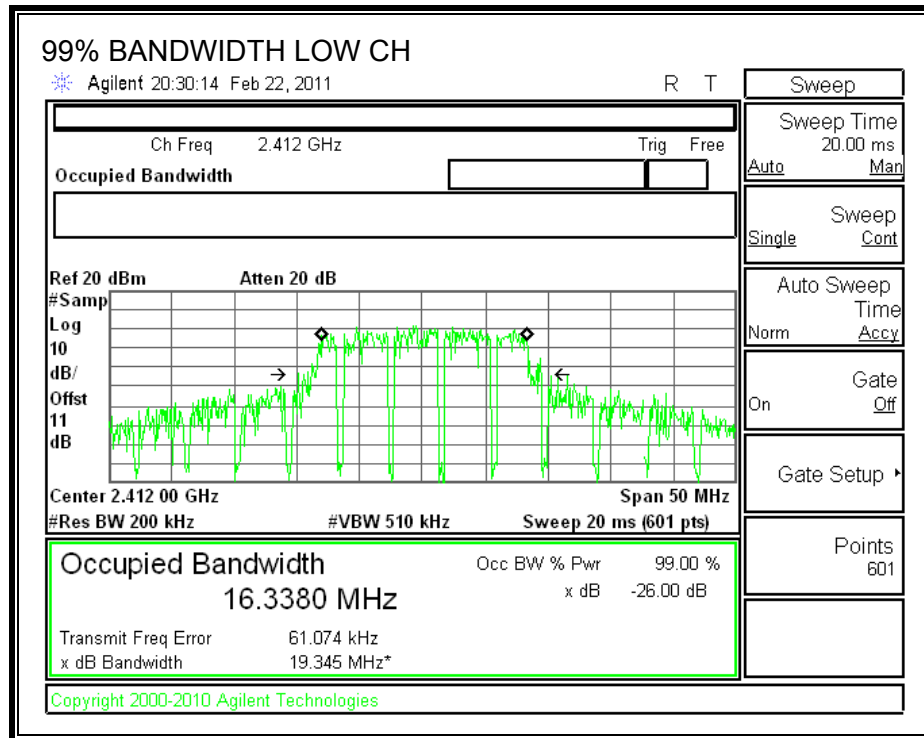
TEST PROCEDURE

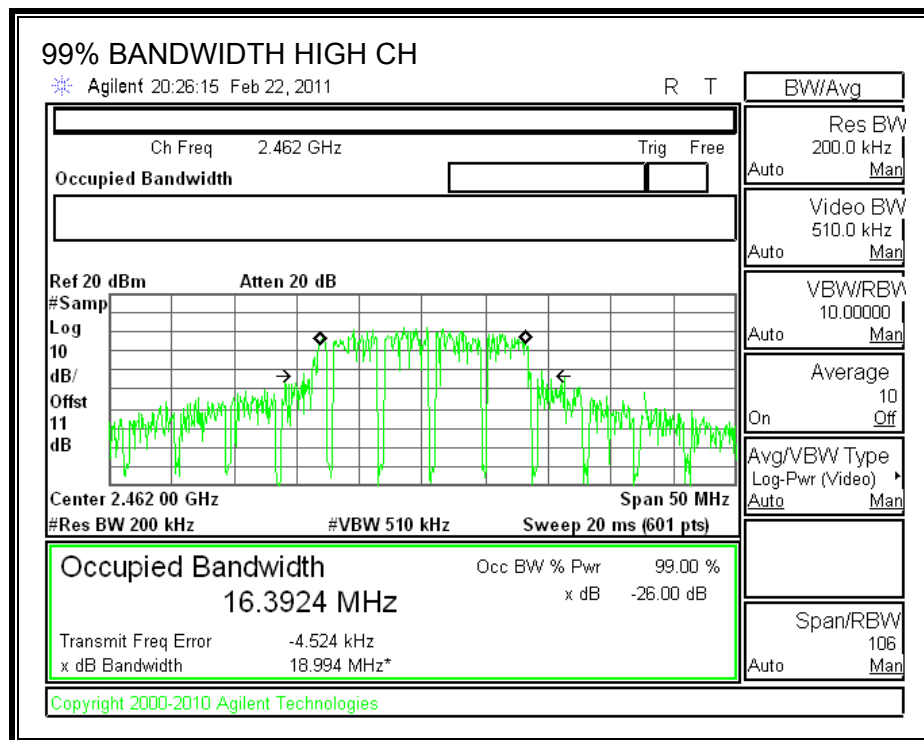
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.3380
Middle	2437	16.3459
High	2462	16.3924

99% BANDWIDTH





6.2.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.1dB (including 10 dB pad and 1.1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Power (dBm)
Low	2412	23.00
Middle	2437	23.10
High	2462	22.80

6.2.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Power (dBm)
Low	2412	14.06
Middle	2437	14.00
High	2462	14.02

6.2.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

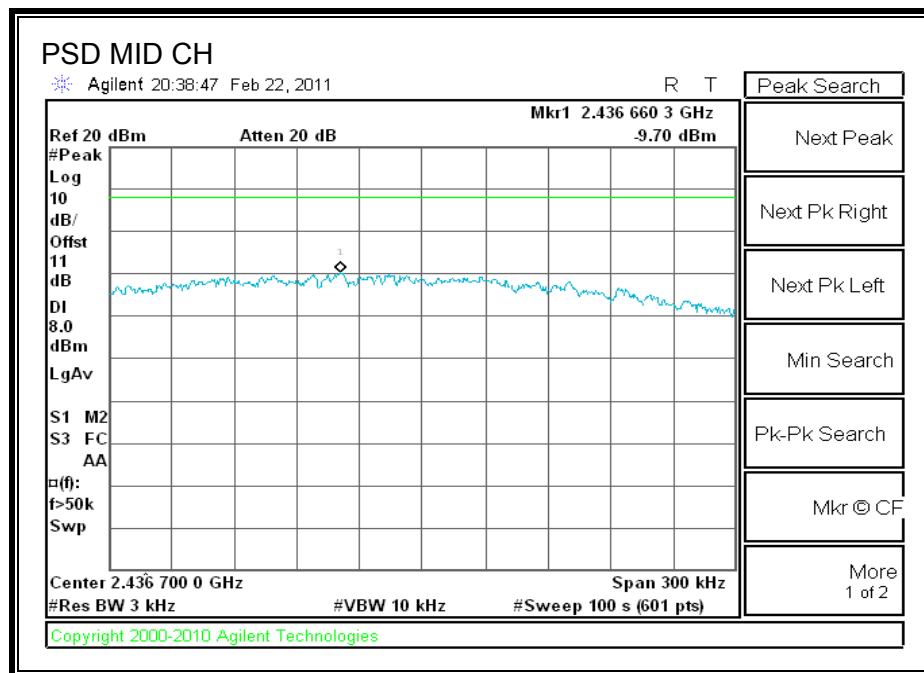
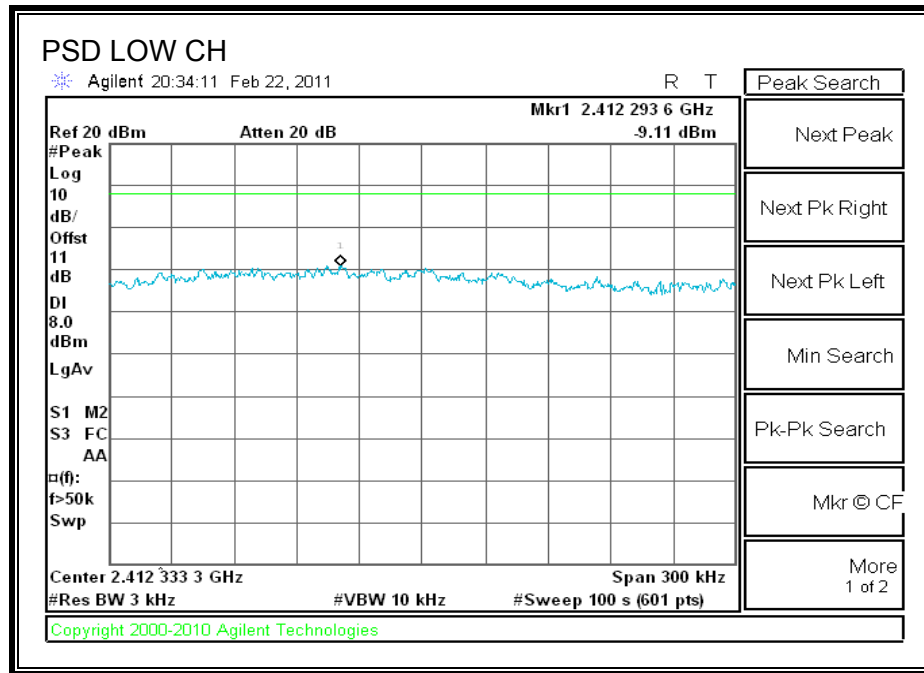
TEST PROCEDURE

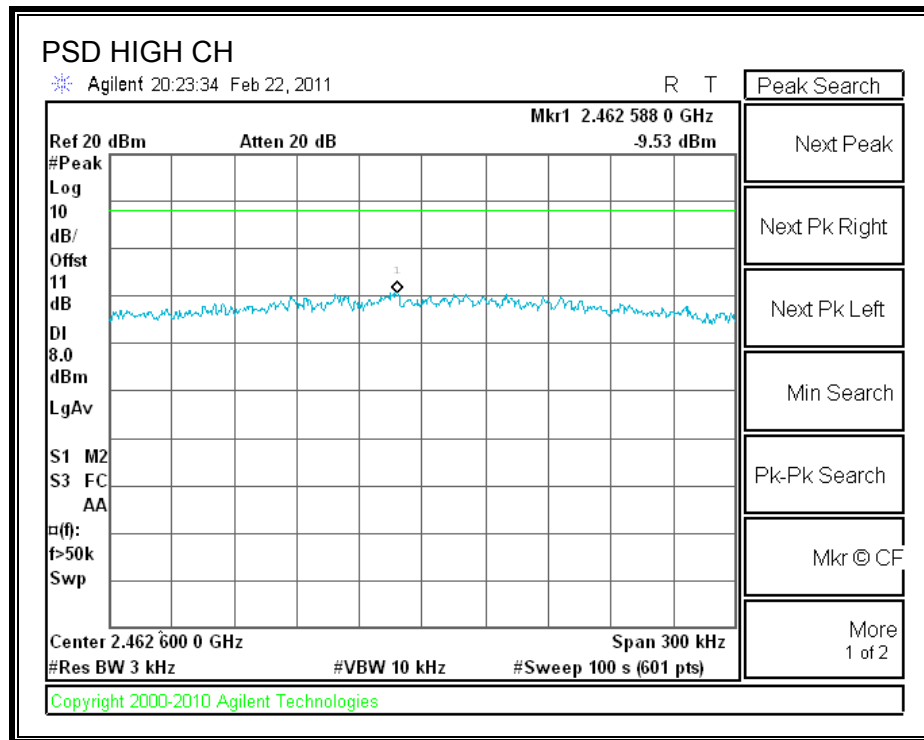
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-9.11	8	-17.11
Middle	2437	-9.70	8	-17.70
High	2462	-9.53	8	-17.53

POWER SPECTRAL DENSITY





6.2.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

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

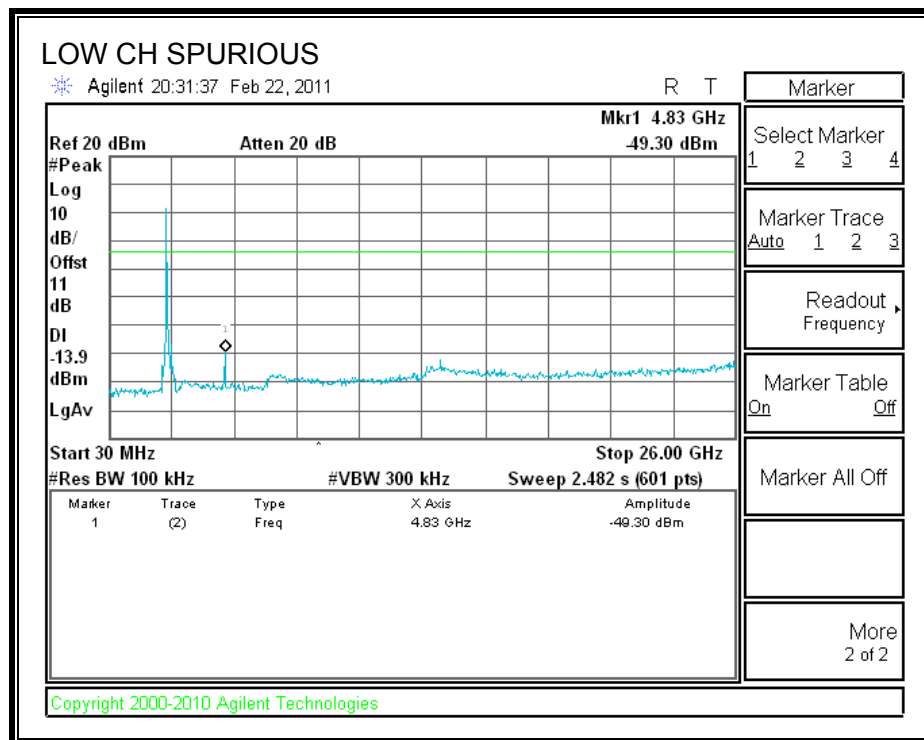
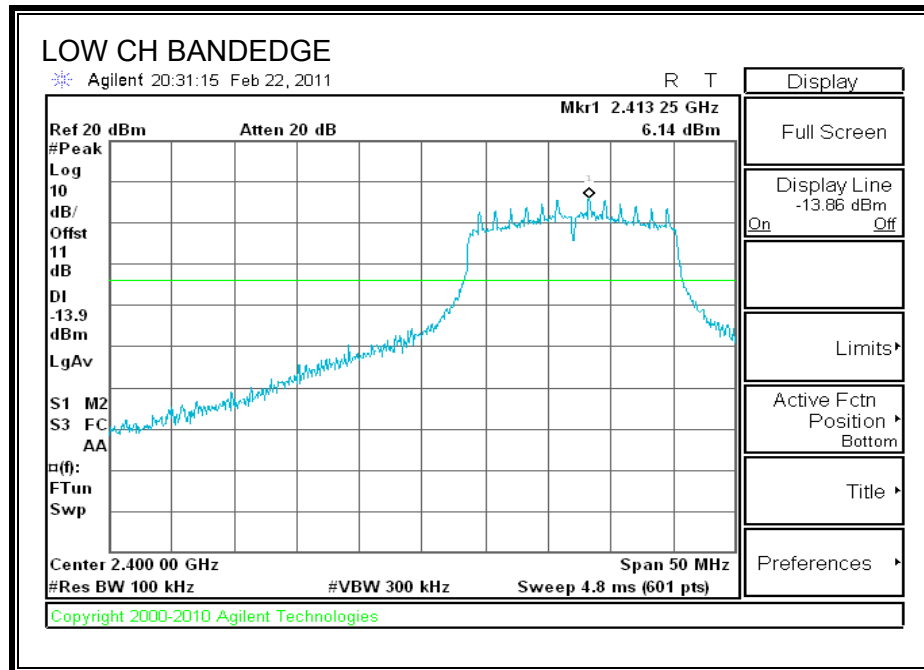
TEST PROCEDURE

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.

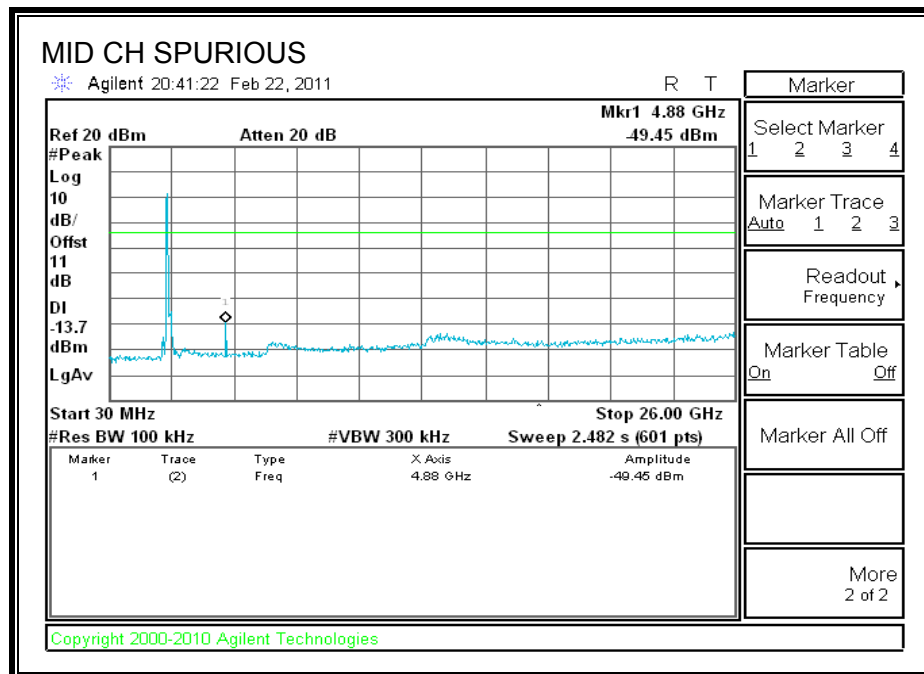
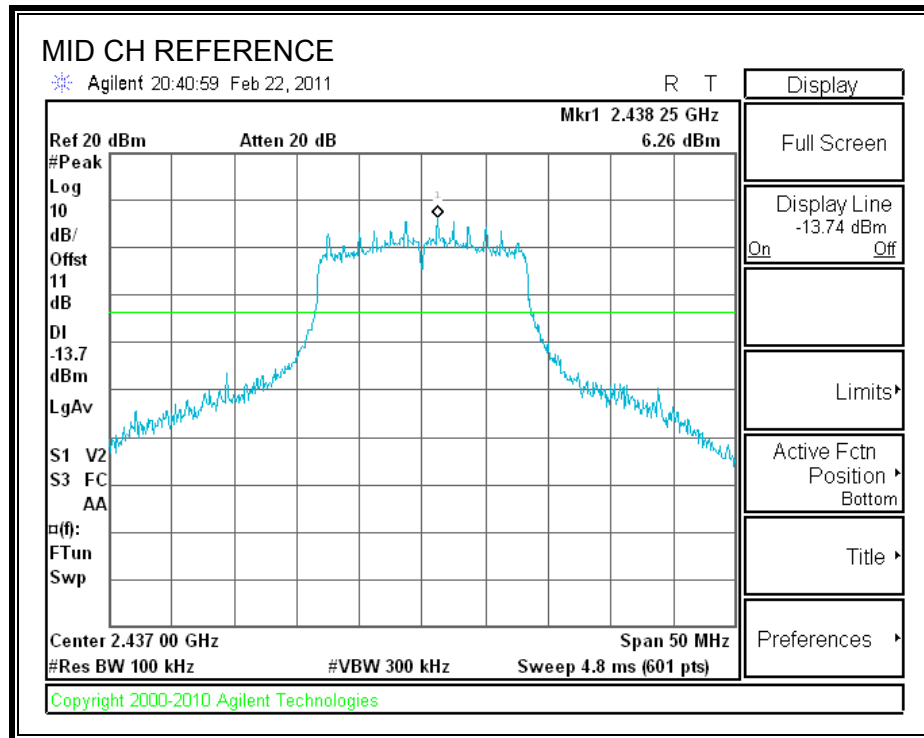
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

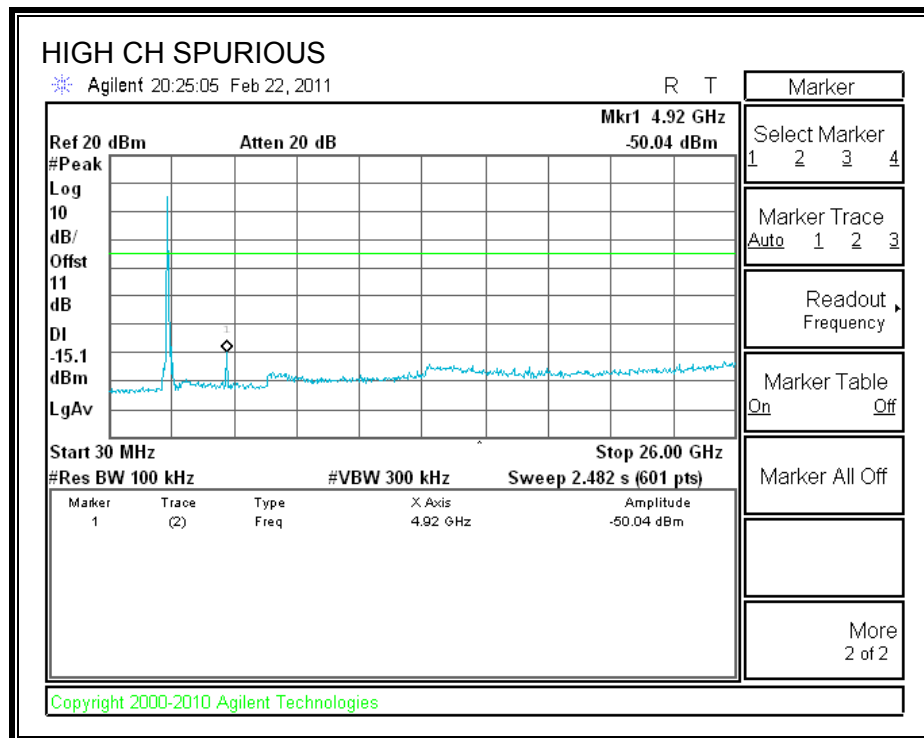
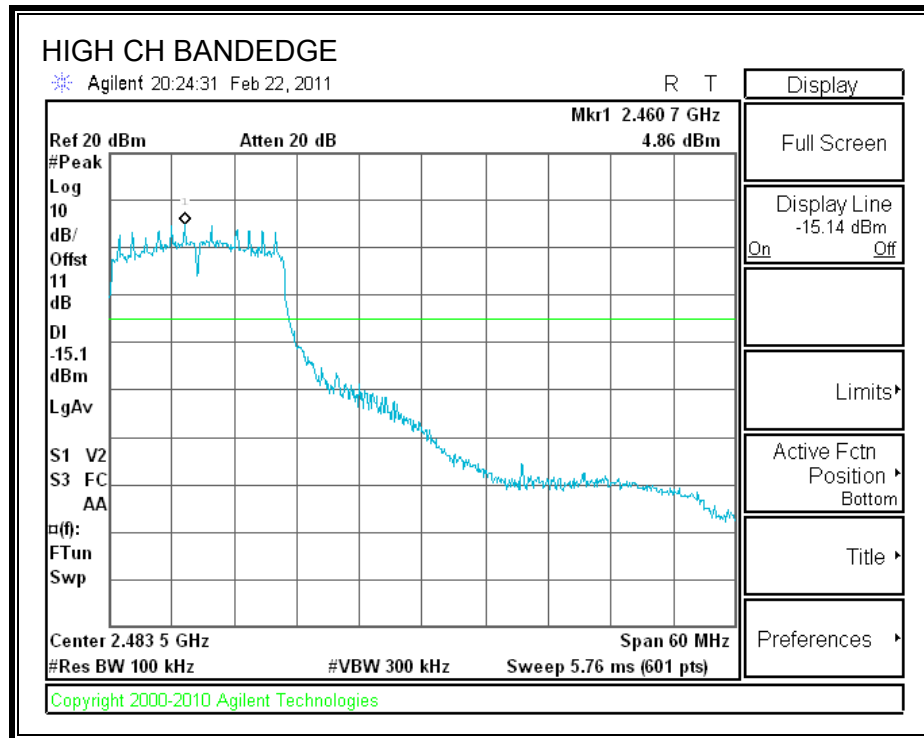
SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



6.3. 802.11n HT20 SISO MODE IN THE 2.4 GHz BAND

6.3.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

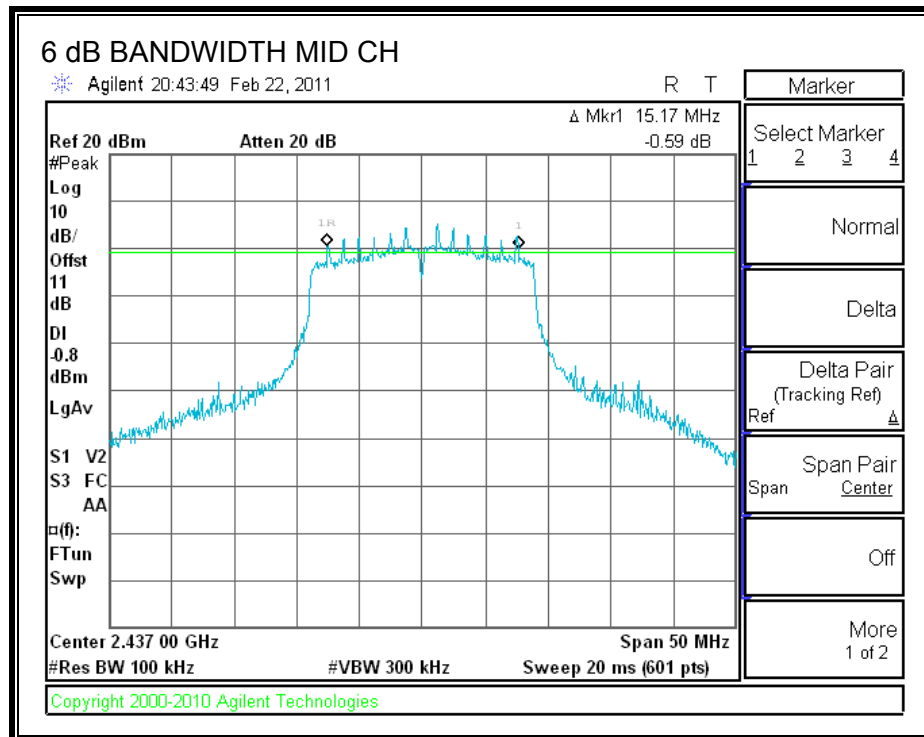
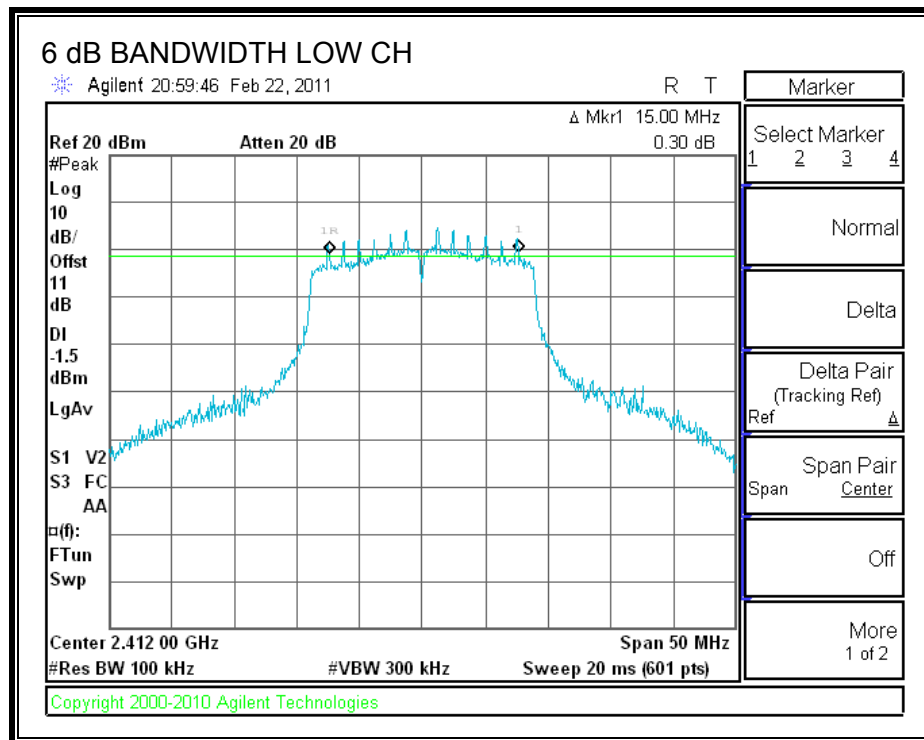
TEST PROCEDURE

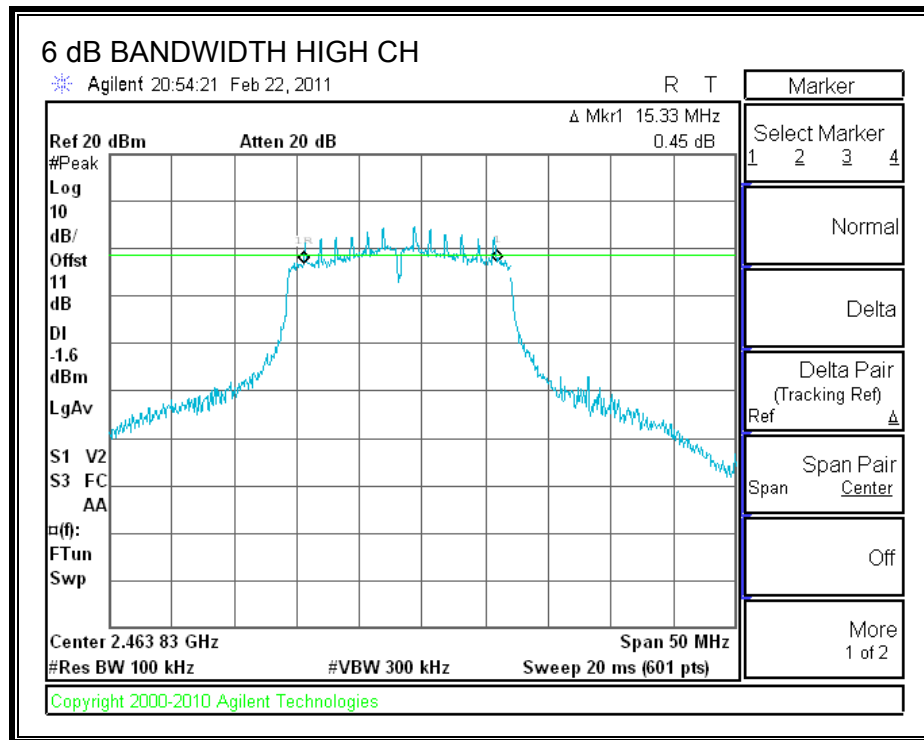
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.00	0.5
Middle	2437	15.17	0.5
High	2462	15.33	0.5

6 dB BANDWIDTH





6.3.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

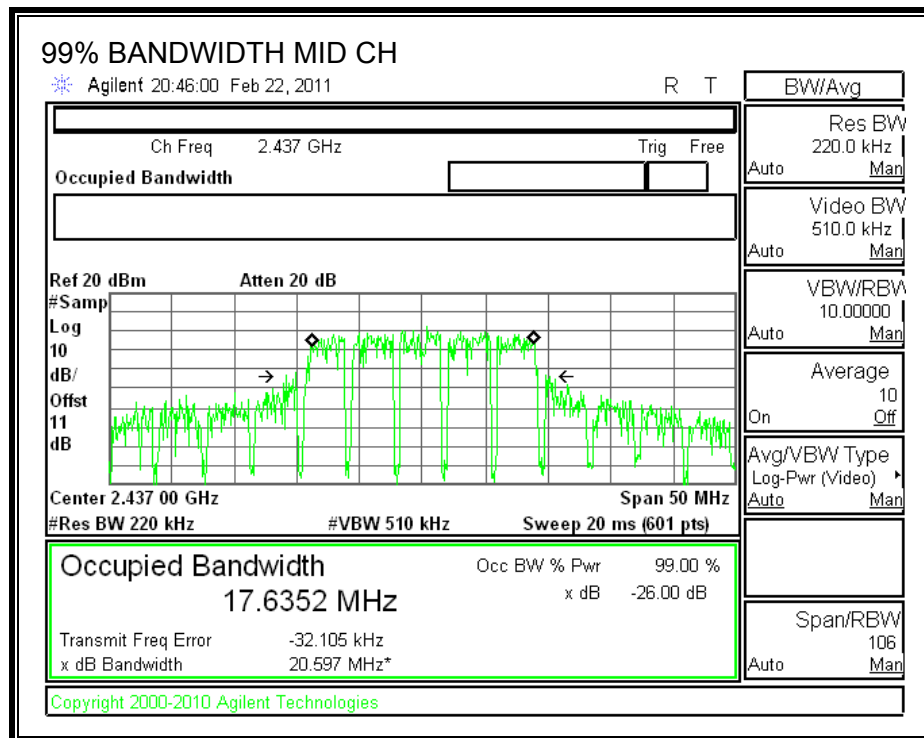
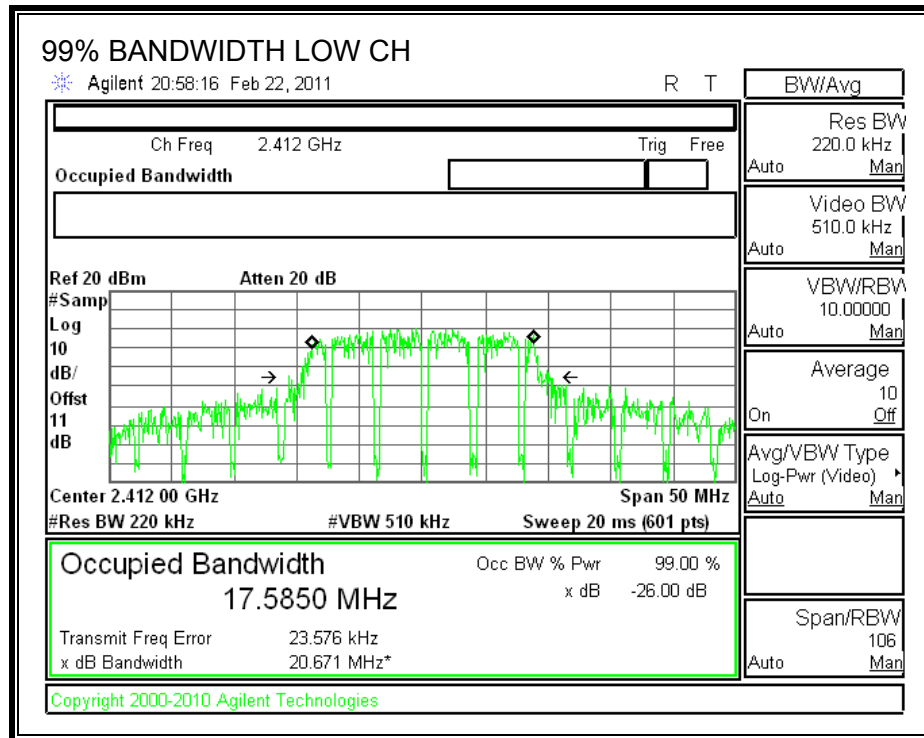
TEST PROCEDURE

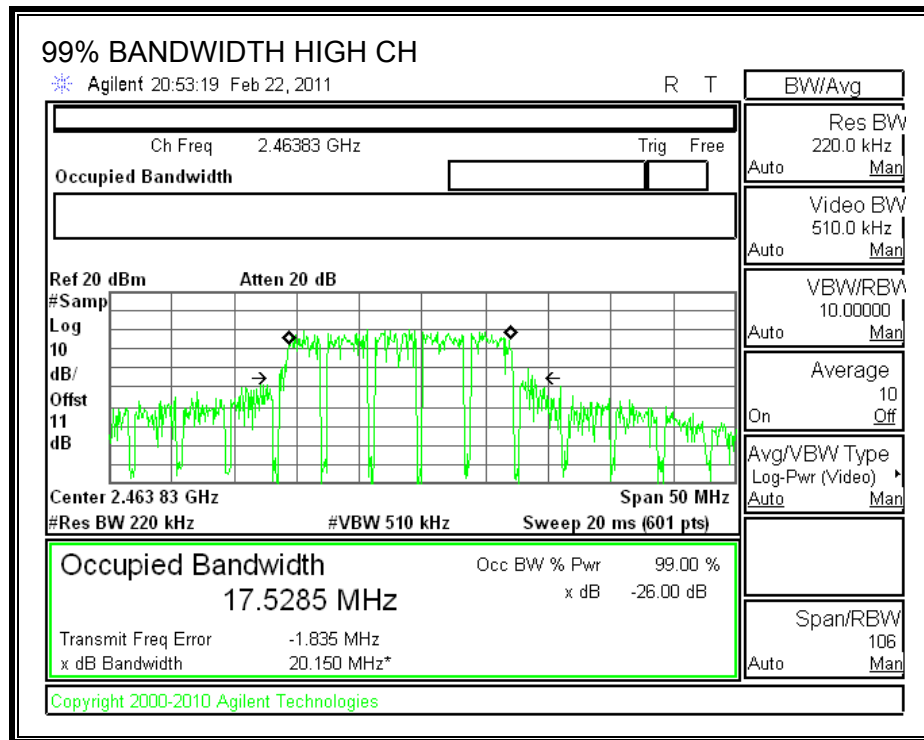
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.5850
Middle	2437	17.6352
High	2462	17.5285

99% BANDWIDTH





6.3.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.1dB (including 10 dB pad and 1.1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

OUTPUT POWER

Channel	Frequency (MHz)	Power (dBm)
Low	2412	22.60
Middle	2437	22.90
High	2462	22.60

6.3.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Power (dBm)
Low	2412	13.20
Middle	2437	13.05
High	2462	13.10

6.3.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

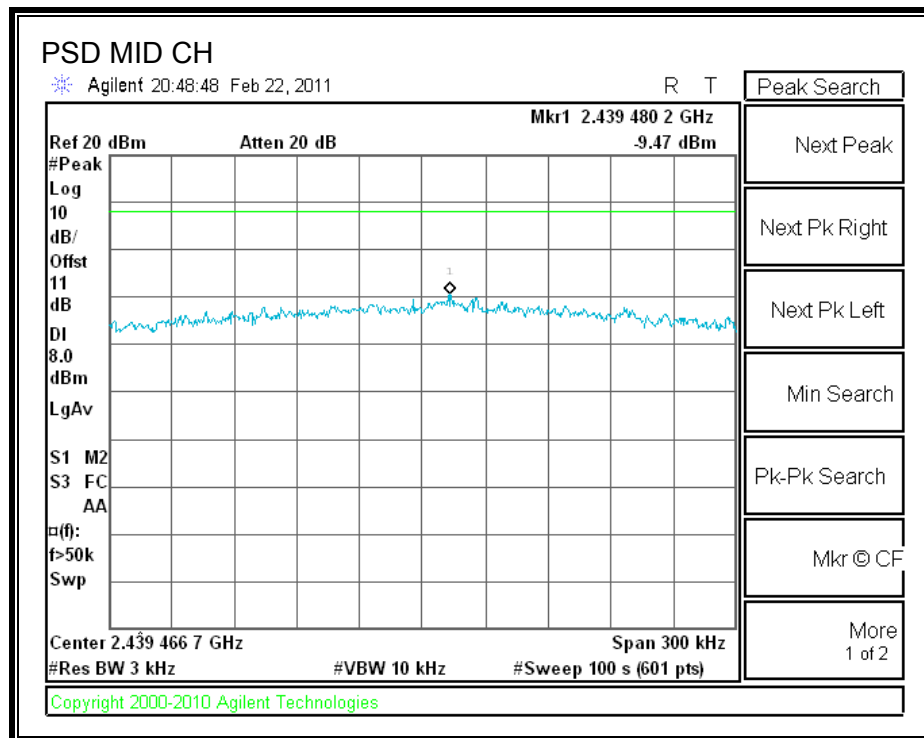
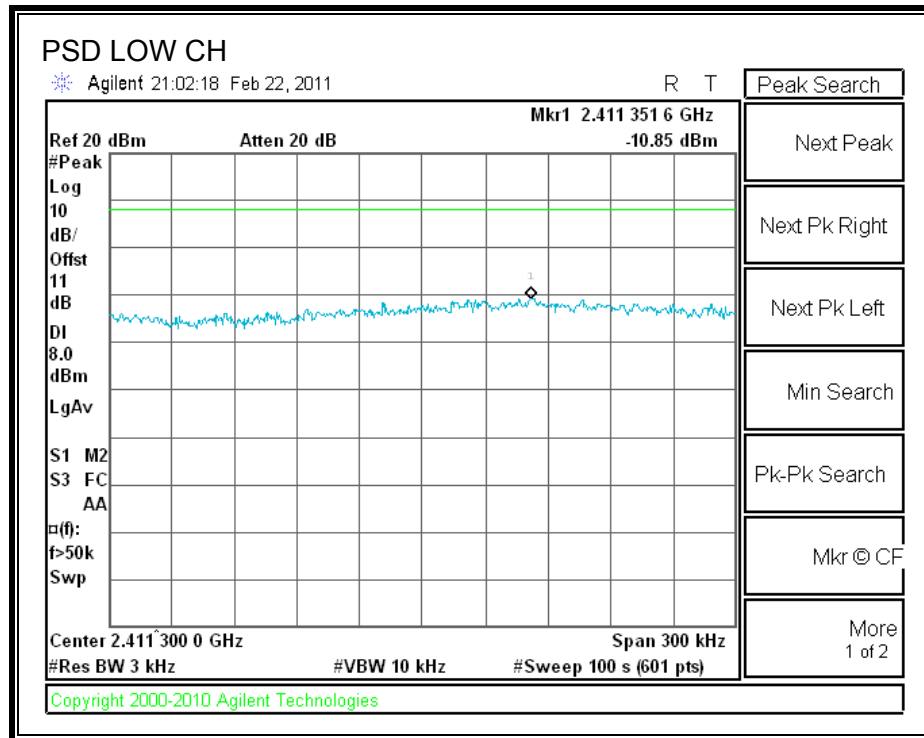
TEST PROCEDURE

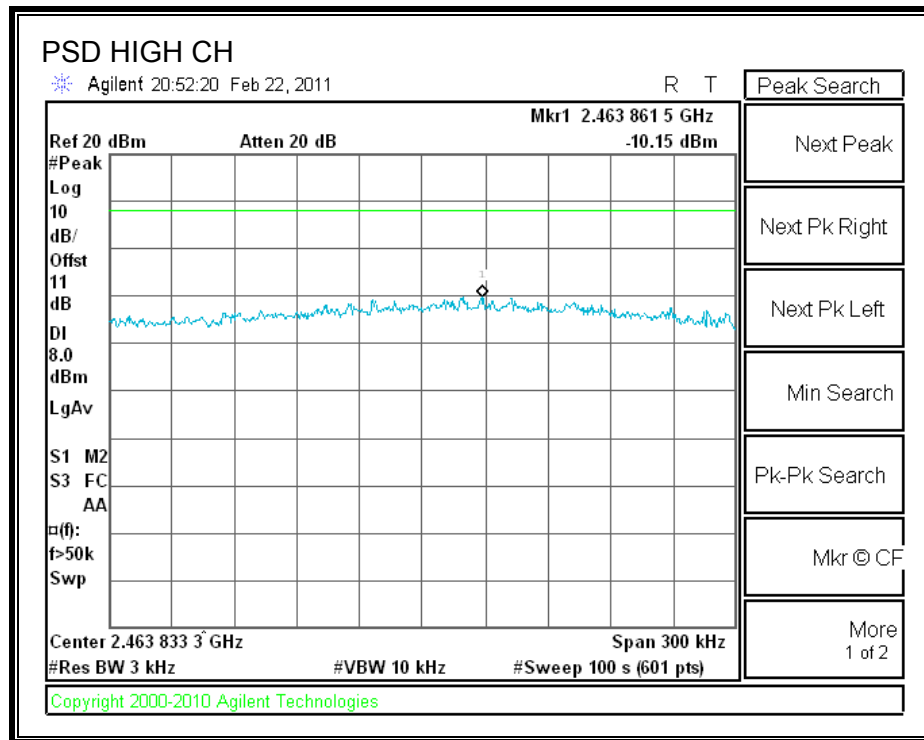
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-10.85	8	-18.85
Middle	2437	-9.47	8	-17.47
High	2462	-10.15	8	-18.15

POWER SPECTRAL DENSITY





6.3.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

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

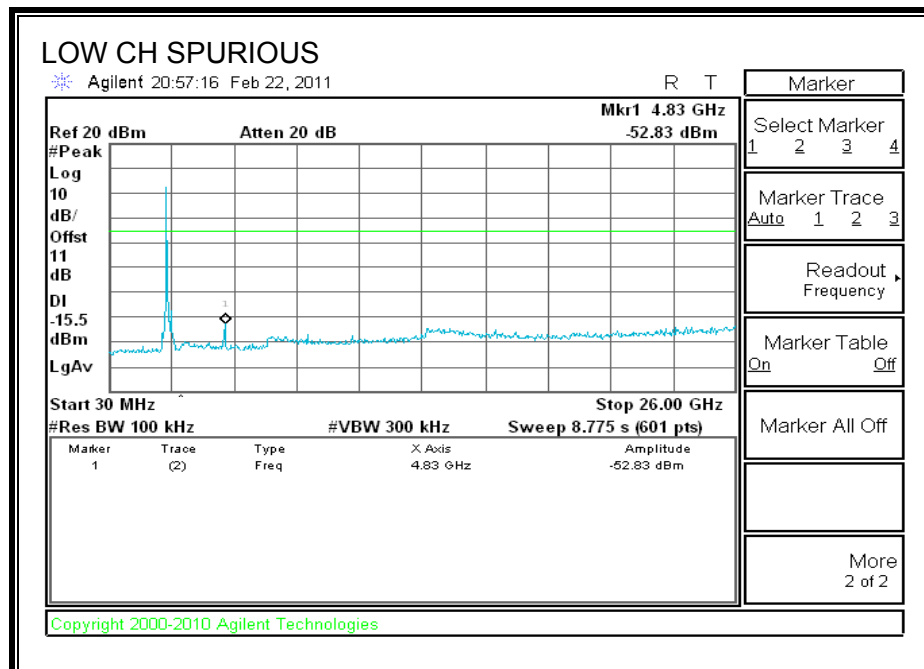
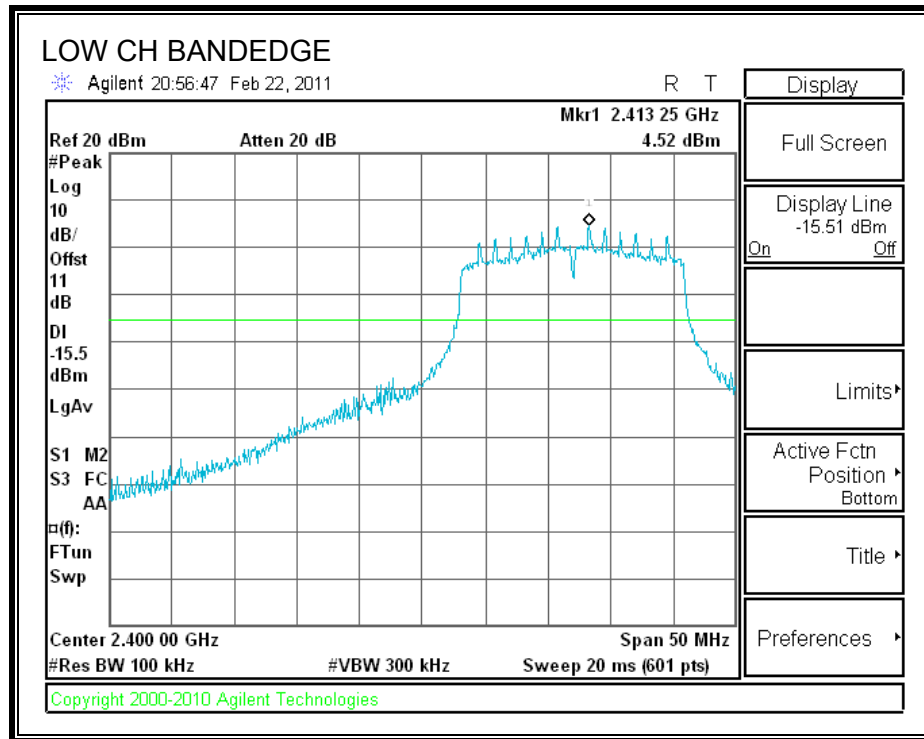
TEST PROCEDURE

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.

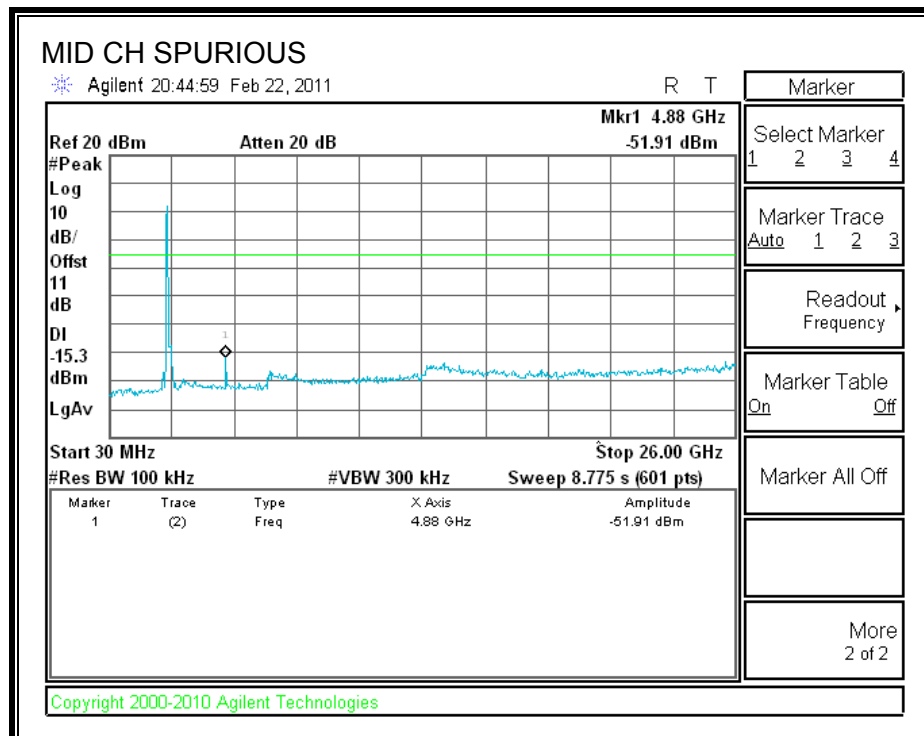
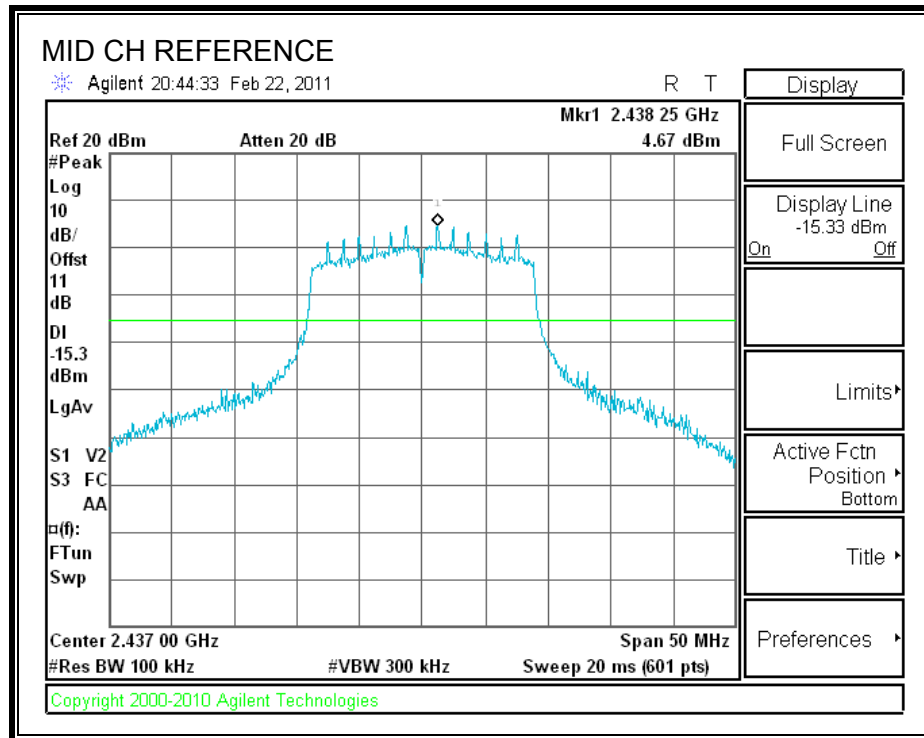
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

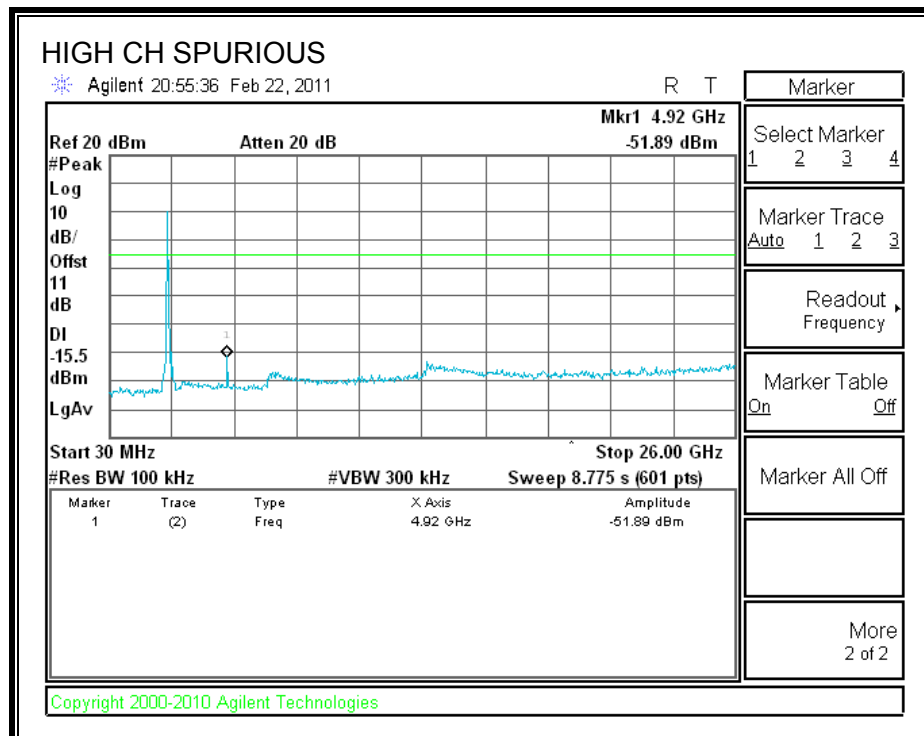
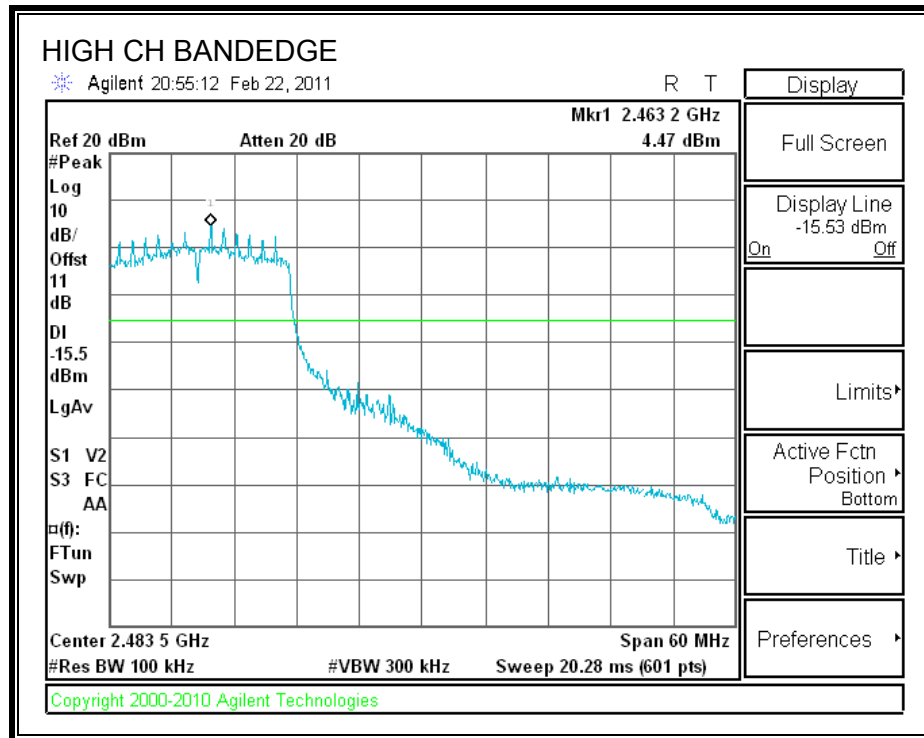
SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



7. RADIATED TEST RESULTS

7.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

Frequency Range (MHz)	Field Strength Limit ($\mu\text{V/m}$) at 3 m	Field Strength Limit (dB $\mu\text{V/m}$) 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.

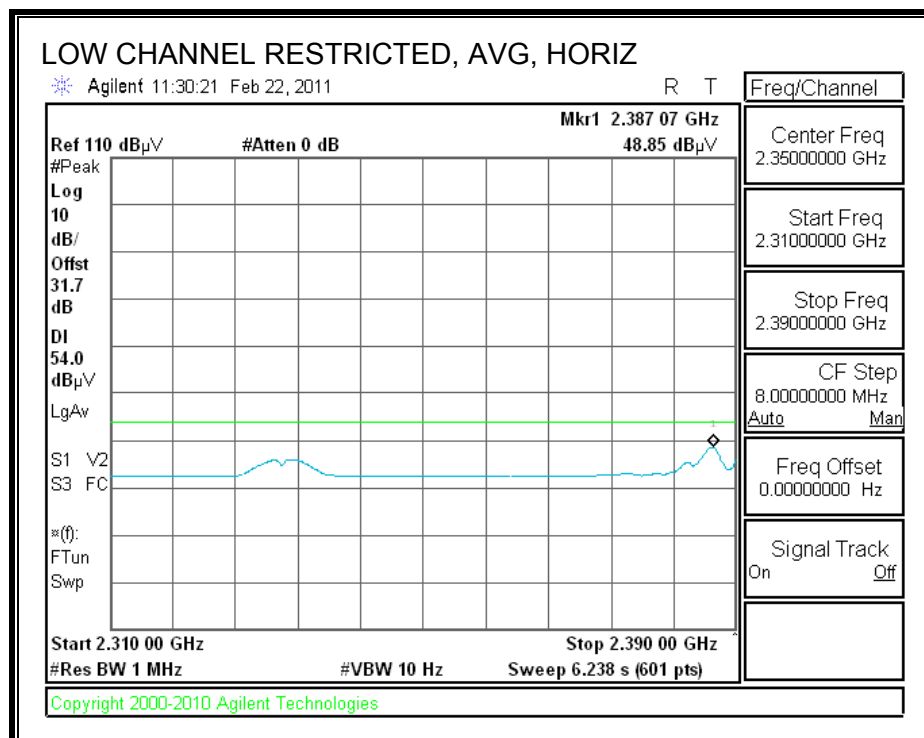
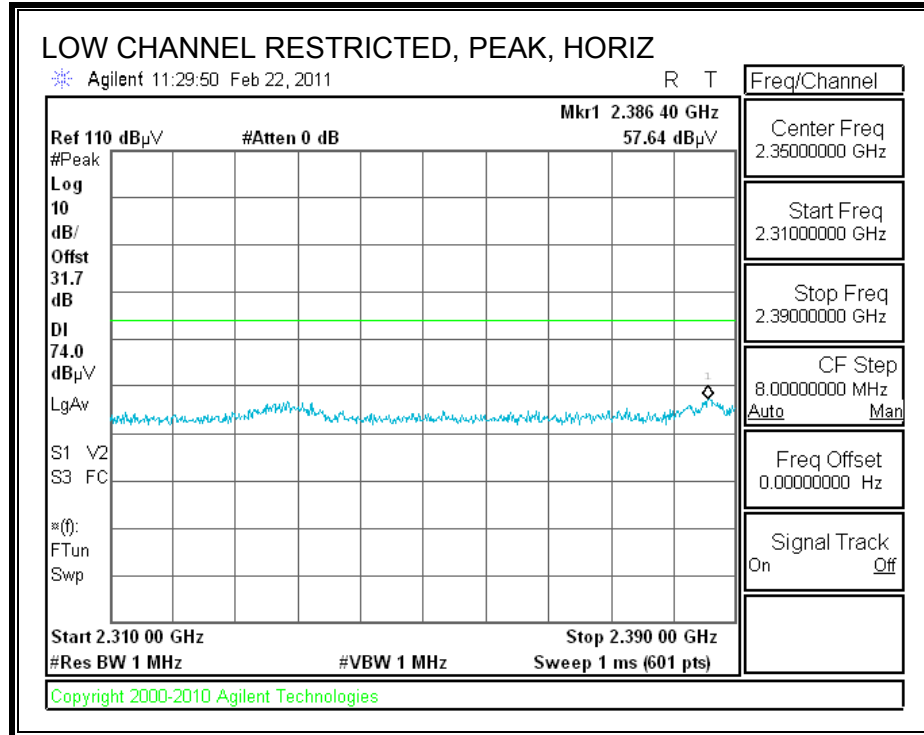
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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.

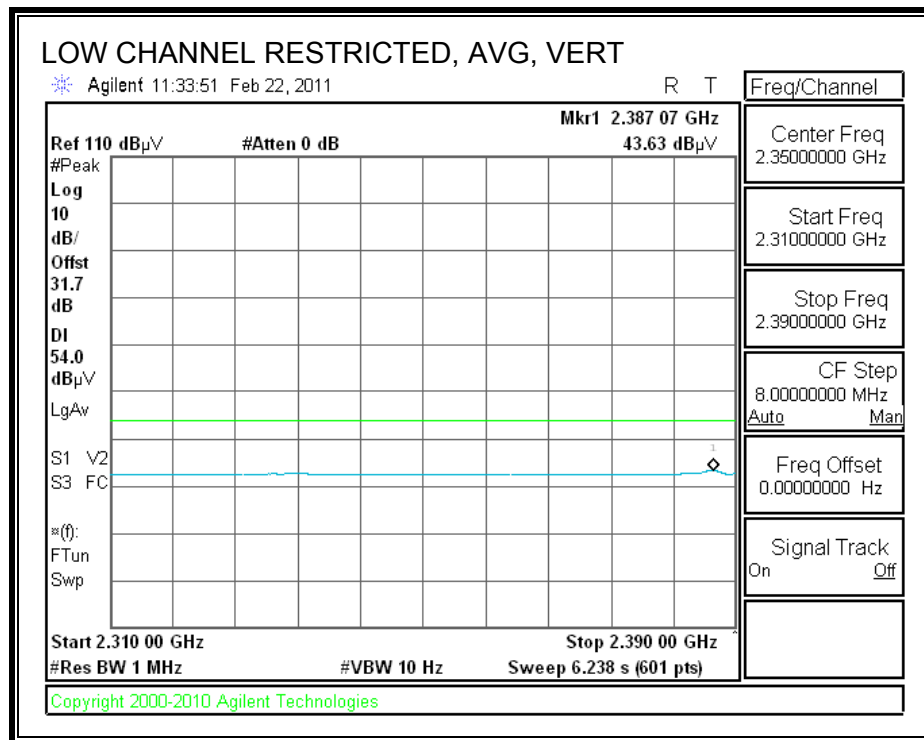
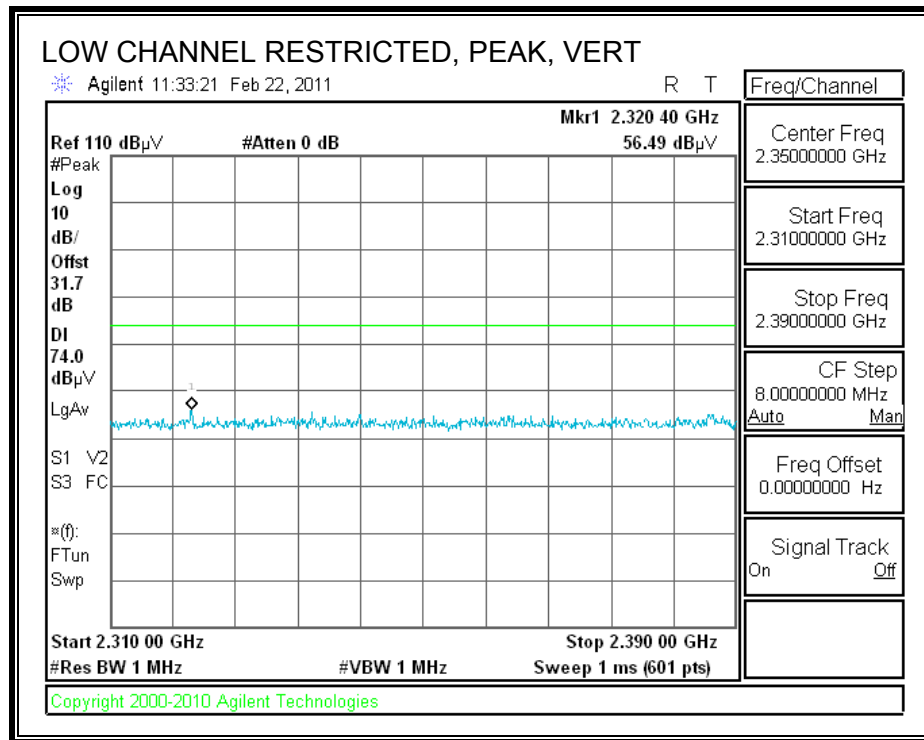
7.2. TRANSMITTER ABOVE 1 GHz FOR 2.4GHz BAND

7.2.1. FOR 802.11b MODE

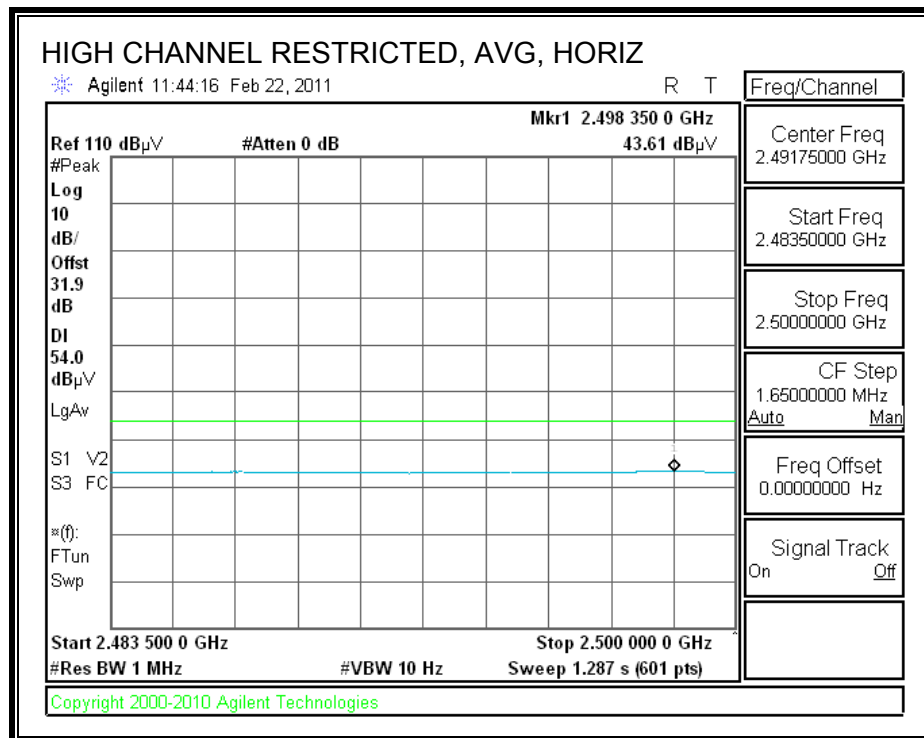
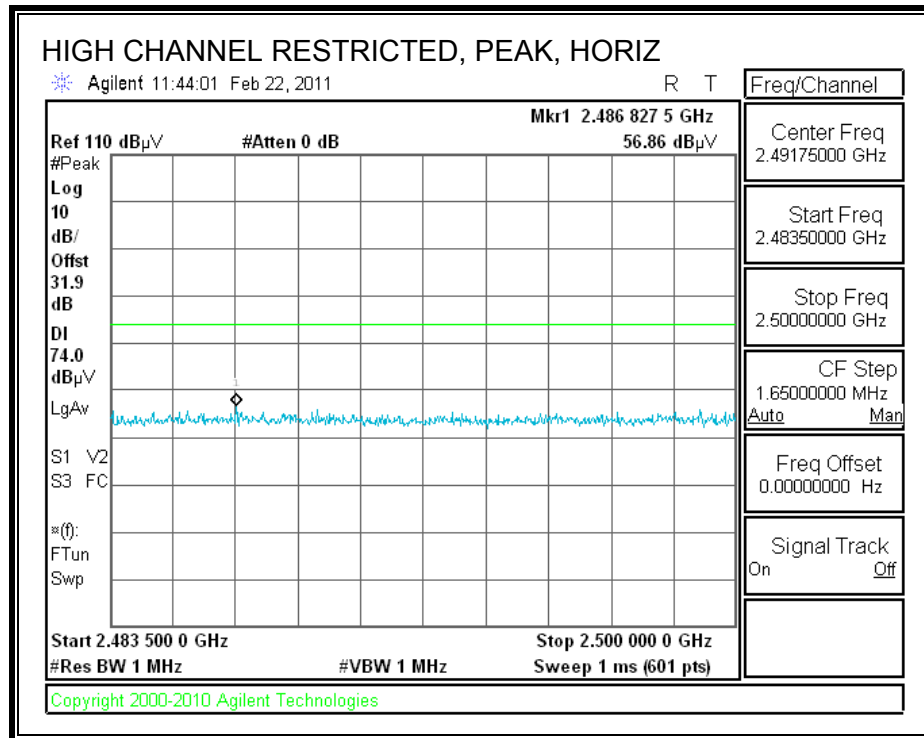
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



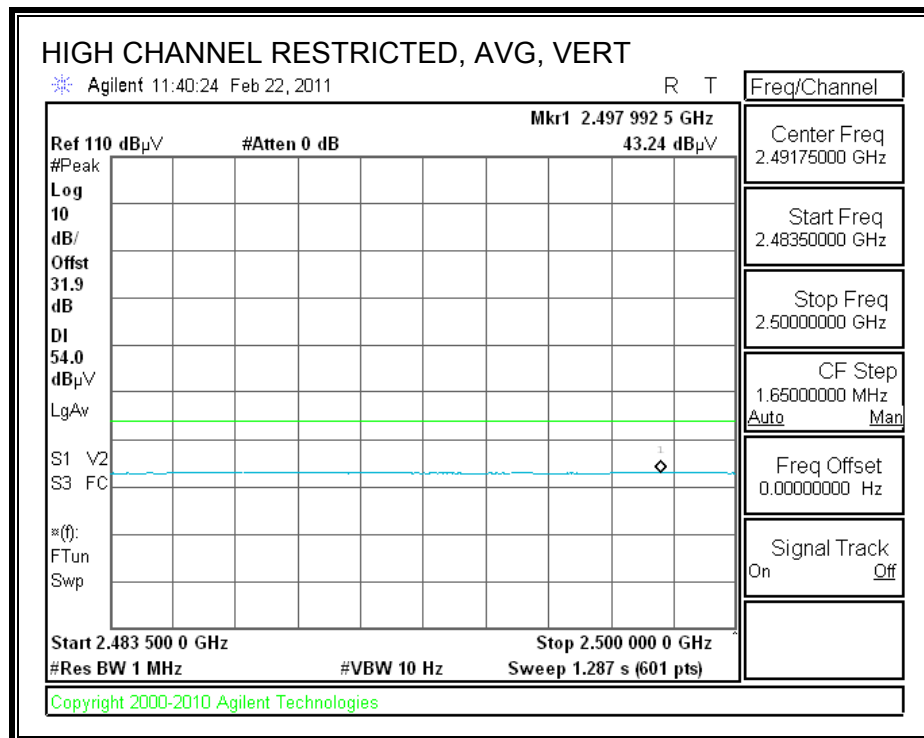
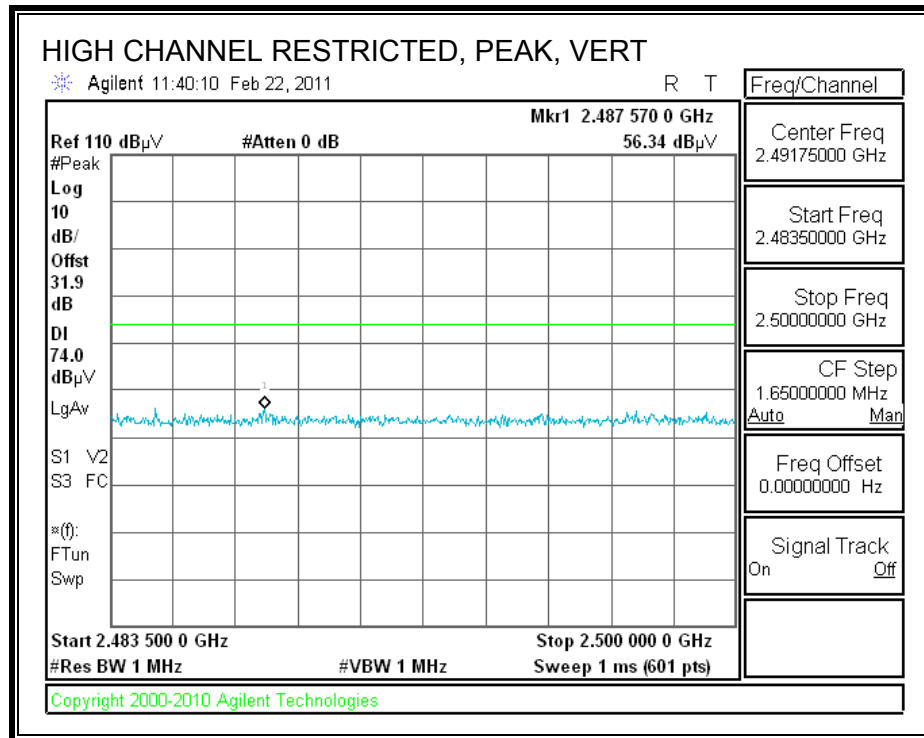
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS**High Frequency Measurement**

Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang

Date: 02-22-11

Project #: 11113692

Company: Samsung

Test Target: FCC 15.247

Mode Oper: TX, b mode

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

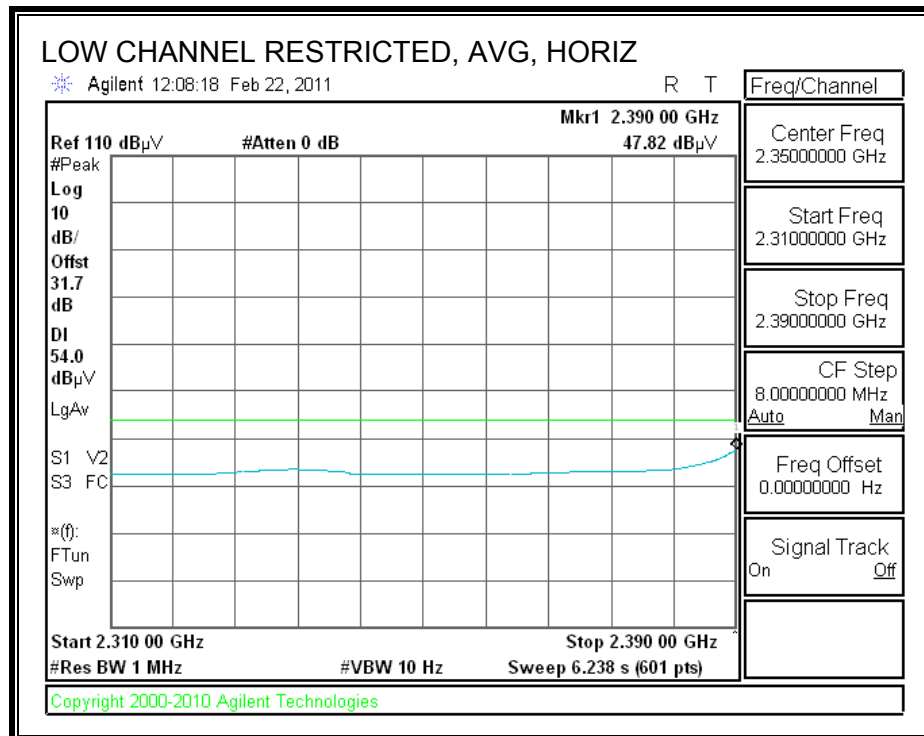
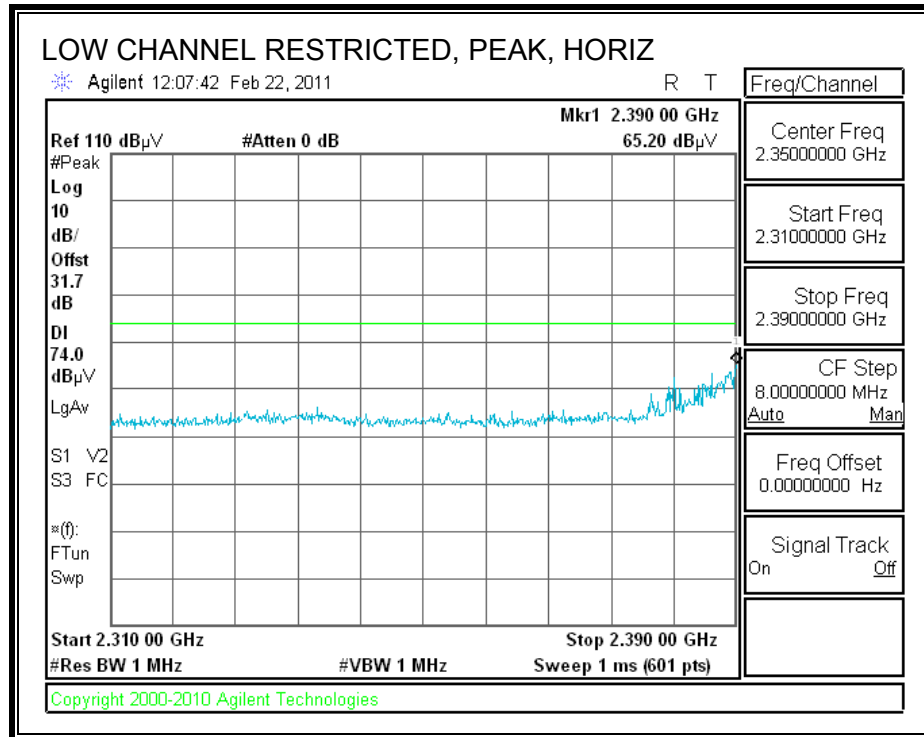
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det. P/A/QP	Notes
Low Ch. 2412MHz													
4.824	3.0	45.7	32.8	5.8	-34.8	0.0	0.0	49.4	74.0	-24.6	H	P	
4.824	3.0	42.1	32.8	5.8	-34.8	0.0	0.0	45.9	54.0	-8.1	H	A	
4.824	3.0	44.1	32.8	5.8	-34.8	0.0	0.0	47.8	74.0	-26.2	V	P	
4.824	3.0	40.3	32.8	5.8	-34.8	0.0	0.0	44.0	54.0	-10.0	V	A	
4.874	3.0	49.8	32.8	5.8	-34.9	0.0	0.0	53.6	74.0	-20.4	H	P	
4.874	3.0	47.8	32.8	5.8	-34.9	0.0	0.0	51.6	54.0	-2.4	H	A	
7.311	3.0	50.2	35.2	7.3	-34.7	0.0	0.0	58.0	74.0	-16.0	H	P	
7.311	3.0	44.0	35.2	7.3	-34.7	0.0	0.0	51.8	54.0	-2.2	H	A	
4.874	3.0	47.8	32.8	5.8	-34.9	0.0	0.0	51.6	74.0	-22.4	V	P	
4.874	3.0	43.6	32.8	5.8	-34.9	0.0	0.0	47.3	54.0	-6.7	V	A	
7.311	3.0	45.6	35.2	7.3	-34.7	0.0	0.0	53.4	74.0	-20.6	V	P	
7.311	3.0	40.7	35.2	7.3	-34.7	0.0	0.0	48.5	54.0	-5.5	V	A	
High Ch. 2462MHz													
4.924	3.0	50.4	32.8	5.9	-34.9	0.0	0.0	54.2	74.0	-19.8	H	P	
4.924	3.0	47.9	32.8	5.9	-34.9	0.0	0.0	51.8	54.0	-2.2	H	A	
7.386	3.0	43.8	35.3	7.3	-34.6	0.0	0.0	51.8	74.0	-22.2	H	P	
7.386	3.0	38.3	35.3	7.3	-34.6	0.0	0.0	46.3	54.0	-7.7	H	A	
4.924	3.0	51.1	32.8	5.9	-34.9	0.0	0.0	55.0	74.0	-19.0	V	P	
4.924	3.0	48.7	32.8	5.9	-34.9	0.0	0.0	52.6	54.0	-1.4	V	A	
7.386	3.0	43.2	35.3	7.3	-34.6	0.0	0.0	51.1	74.0	-22.9	V	P	
7.386	3.0	37.2	35.3	7.3	-34.6	0.0	0.0	45.2	54.0	-8.8	V	A	

Rev. 4.1.2.7

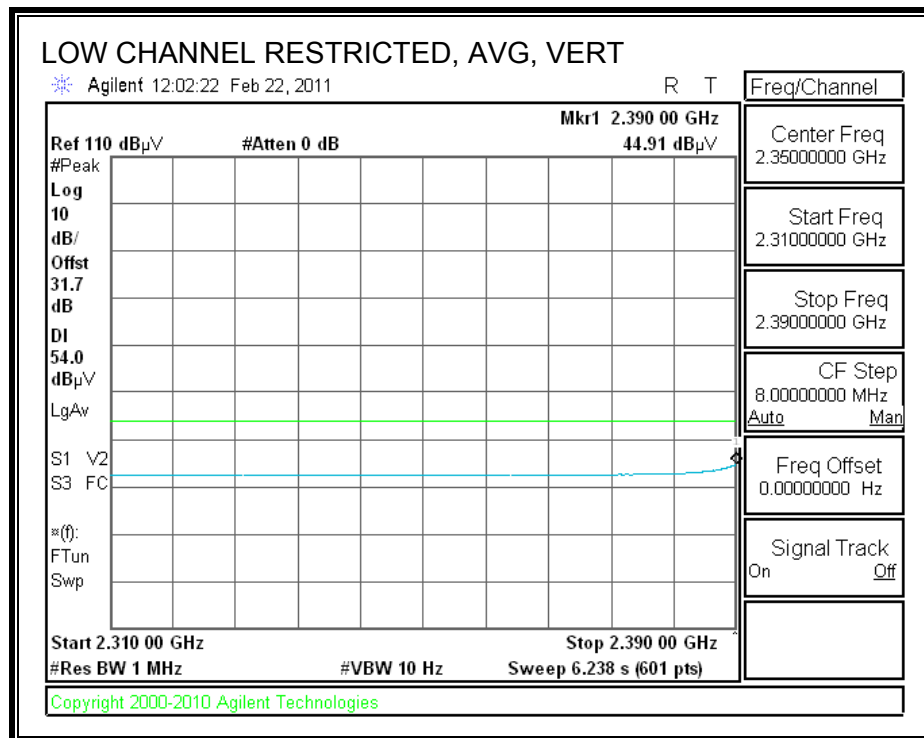
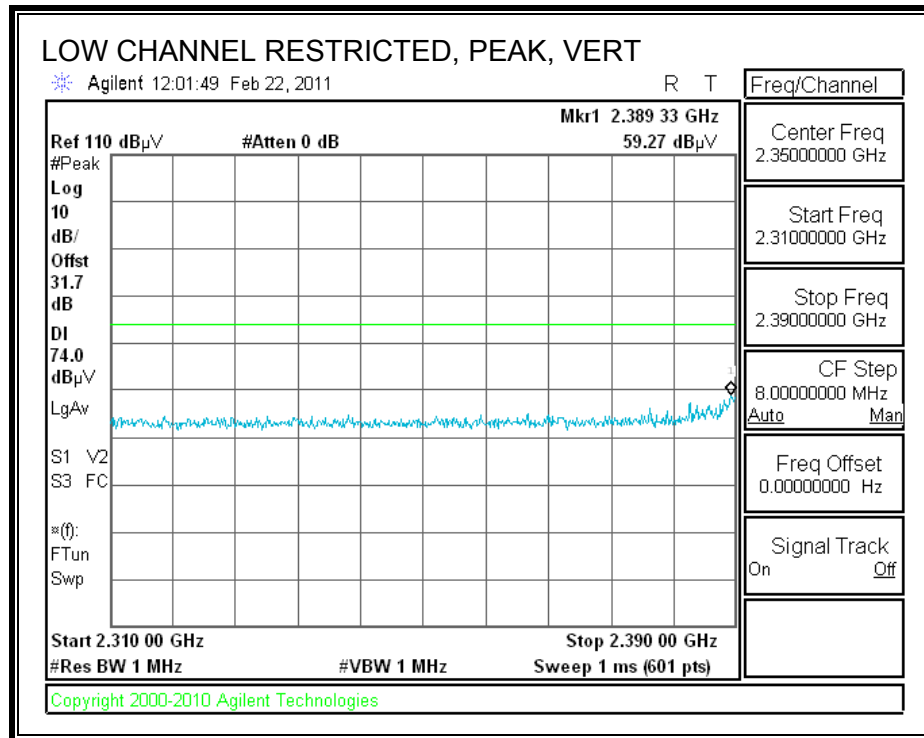
Note: No other emissions were detected above the system noise floor.

7.2.2. FOR 802.11g MODE

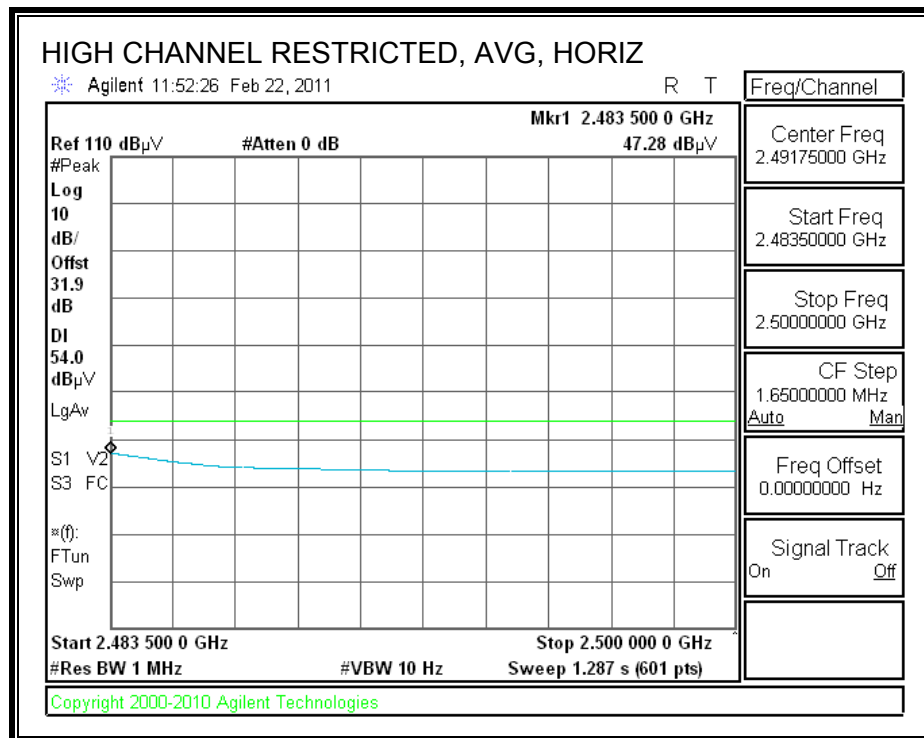
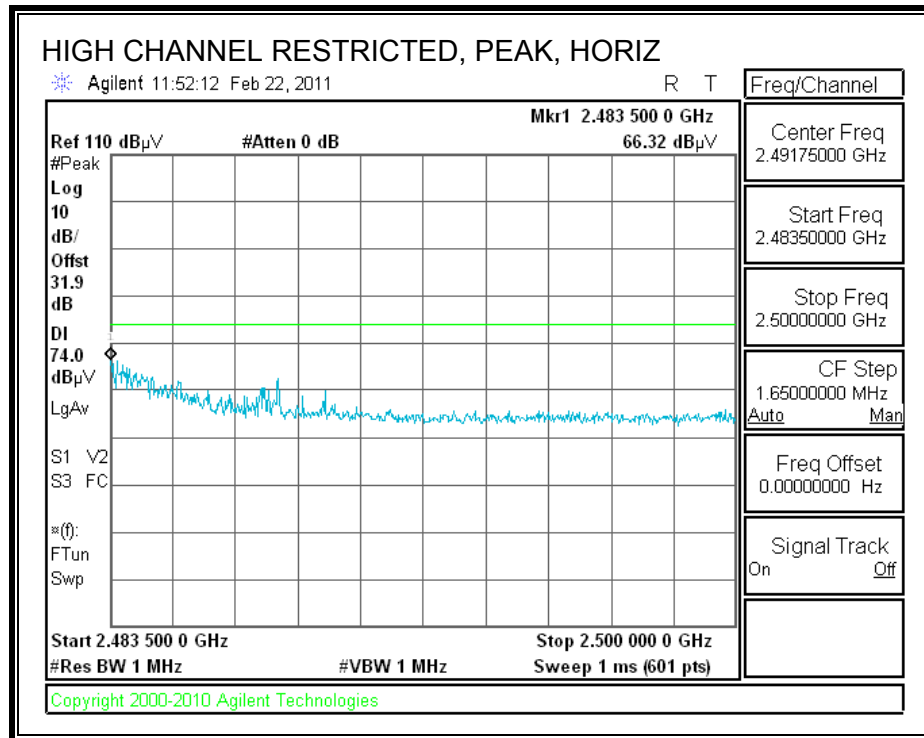
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



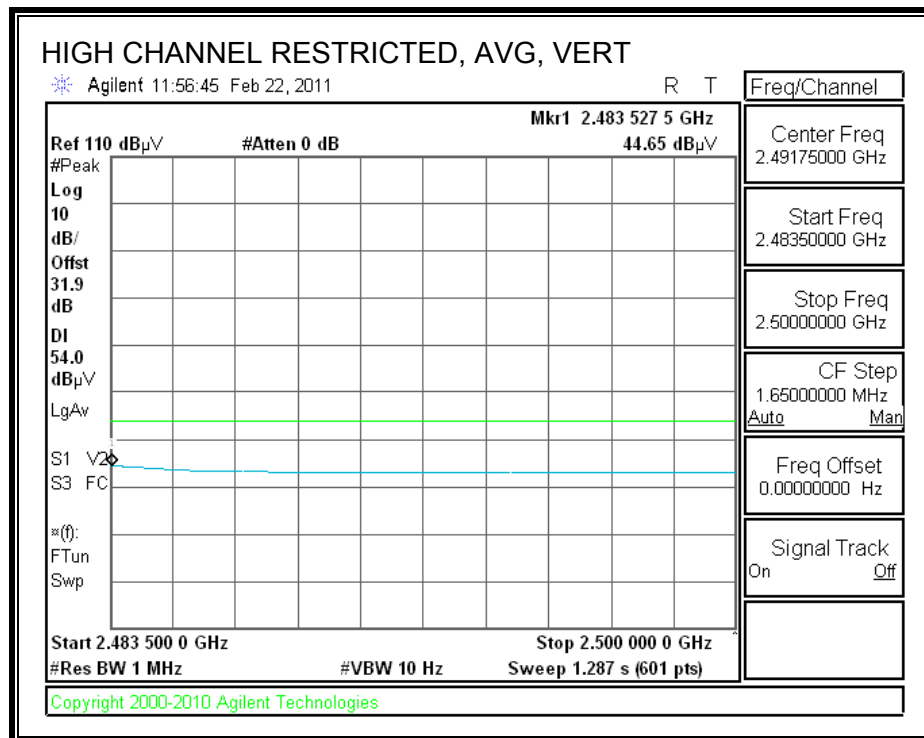
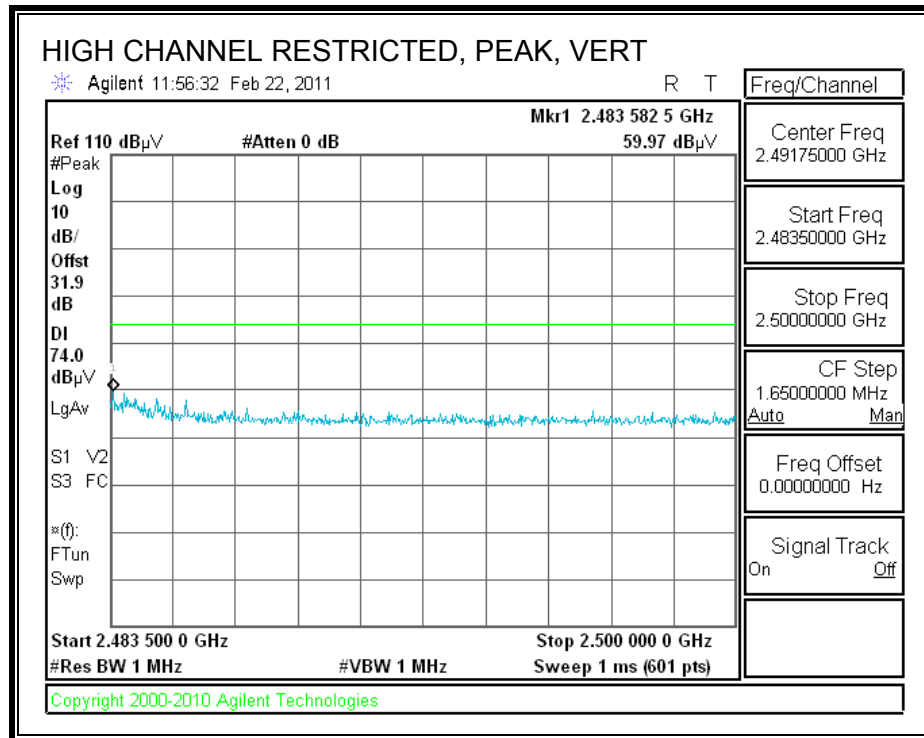
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS**High Frequency Measurement**

Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang

Date: 02-22-11

Project #: 11113692

Company: Samsung

Test Target: FCC 15.247

Mode Oper: TX, g mode

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

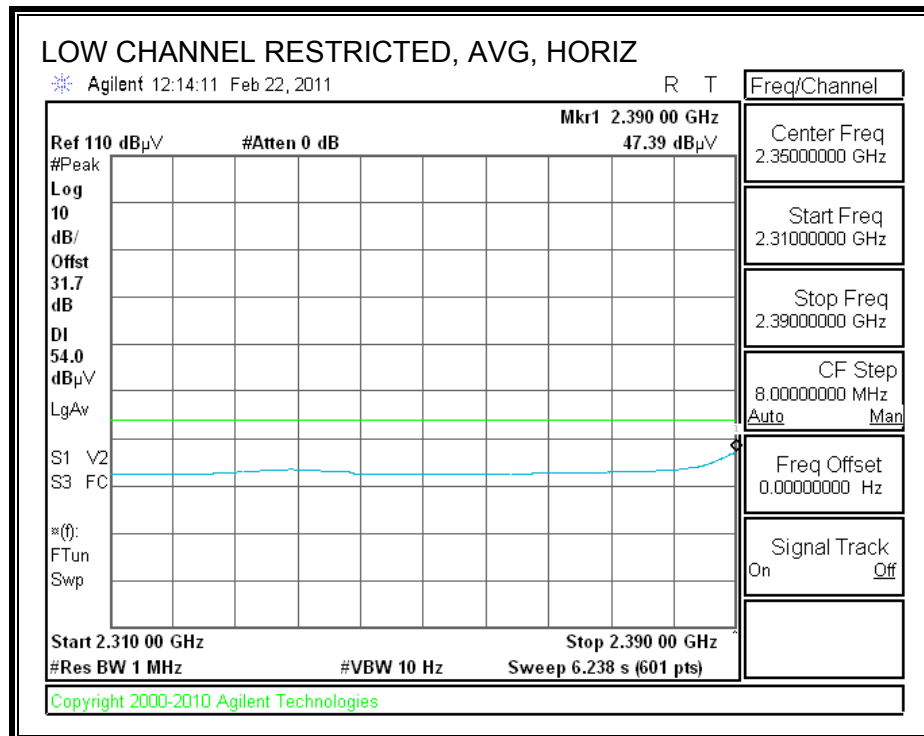
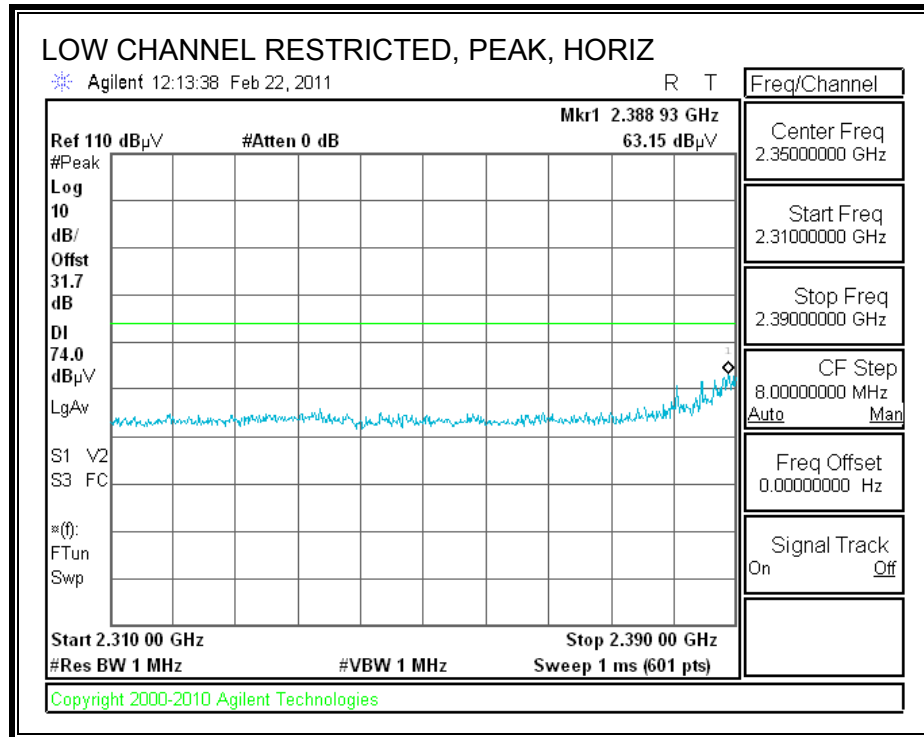
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det. P/A/QP	Notes
Low Ch, 2412MHz													
4.824	3.0	49.1	32.8	5.8	-34.8	0.0	0.0	52.8	74.0	-21.2	V	P	
4.824	3.0	34.8	32.8	5.8	-34.8	0.0	0.0	38.5	54.0	-15.5	V	A	
4.824	3.0	47.0	32.8	5.8	-34.8	0.0	0.0	50.7	74.0	-23.3	H	P	
4.824	3.0	33.5	32.8	5.8	-34.8	0.0	0.0	37.2	54.0	-16.8	H	A	
Mid Ch, 2437MHz													
4.874	3.0	45.4	32.8	5.8	-34.9	0.0	0.0	49.2	74.0	-24.8	V	P	
4.874	3.0	32.3	32.8	5.8	-34.9	0.0	0.0	36.1	54.0	-17.9	V	A	
7.311	3.0	39.3	35.2	7.3	-34.7	0.0	0.0	47.1	74.0	-26.9	V	P	
7.311	3.0	25.7	35.2	7.3	-34.7	0.0	0.0	33.5	54.0	-20.5	V	A	
4.874	3.0	46.1	32.8	5.8	-34.9	0.0	0.0	49.9	74.0	-24.1	H	P	
4.874	3.0	31.8	32.8	5.8	-34.9	0.0	0.0	35.6	54.0	-18.4	H	A	
7.311	3.0	37.1	35.2	7.3	-34.7	0.0	0.0	44.9	74.0	-29.1	H	P	
7.311	3.0	25.2	35.2	7.3	-34.7	0.0	0.0	33.0	54.0	-21.0	H	A	
High Ch, 2462MHz													
4.924	3.0	47.3	32.8	5.9	-34.9	0.0	0.0	51.2	74.0	-22.8	V	P	
4.924	3.0	33.1	32.8	5.9	-34.9	0.0	0.0	36.9	54.0	-17.1	V	A	
7.386	3.0	38.6	35.3	7.3	-34.6	0.0	0.0	46.6	74.0	-27.4	V	P	
7.386	3.0	25.8	35.3	7.3	-34.6	0.0	0.0	33.7	54.0	-20.3	V	A	
4.924	3.0	47.0	32.8	5.9	-34.9	0.0	0.0	50.9	74.0	-23.1	H	P	
4.924	3.0	32.9	32.8	5.9	-34.9	0.0	0.0	36.8	54.0	-17.2	H	A	
7.386	3.0	40.9	35.3	7.3	-34.6	0.0	0.0	48.8	74.0	-25.2	H	P	
7.386	3.0	27.3	35.3	7.3	-34.6	0.0	0.0	35.2	54.0	-18.8	H	A	

Rev. 4.1.2.7

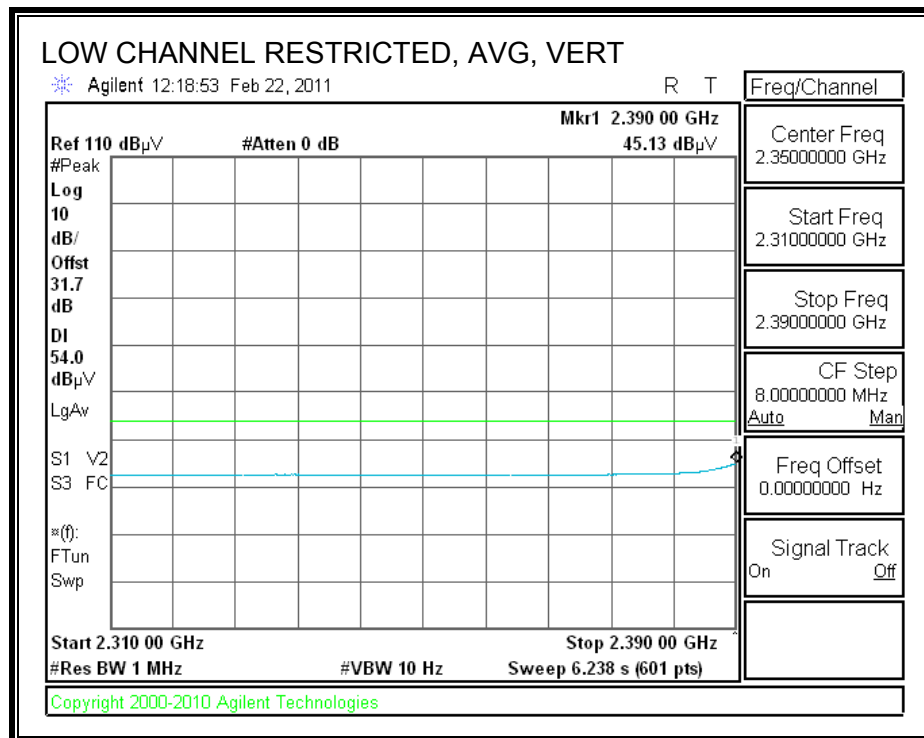
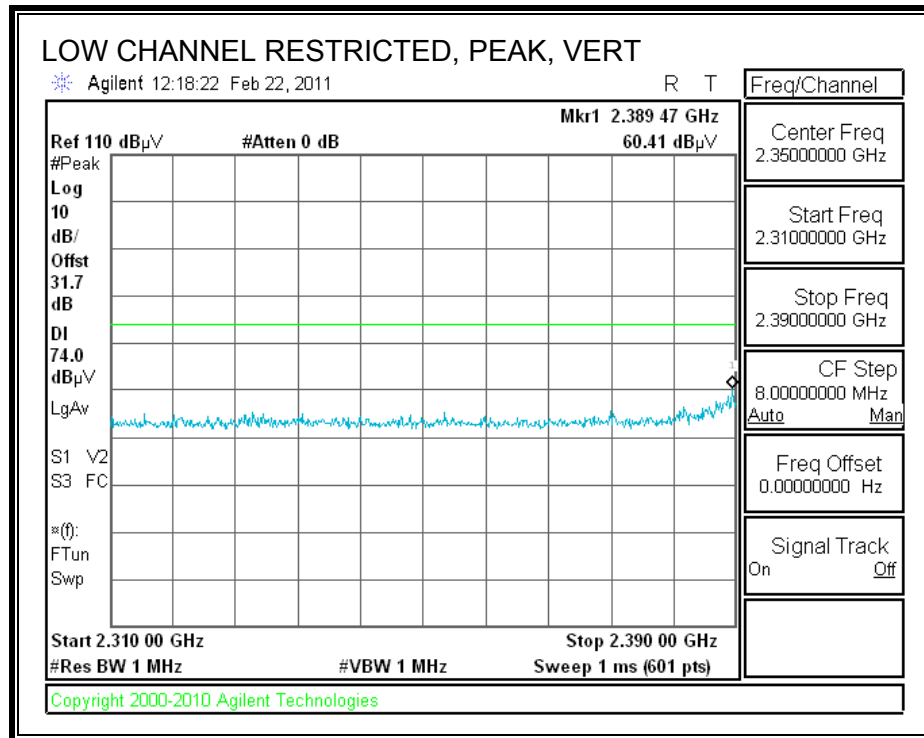
Note: No other emissions were detected above the system noise floor.

7.2.3. FOR 802.11n HT20 SISO MODE

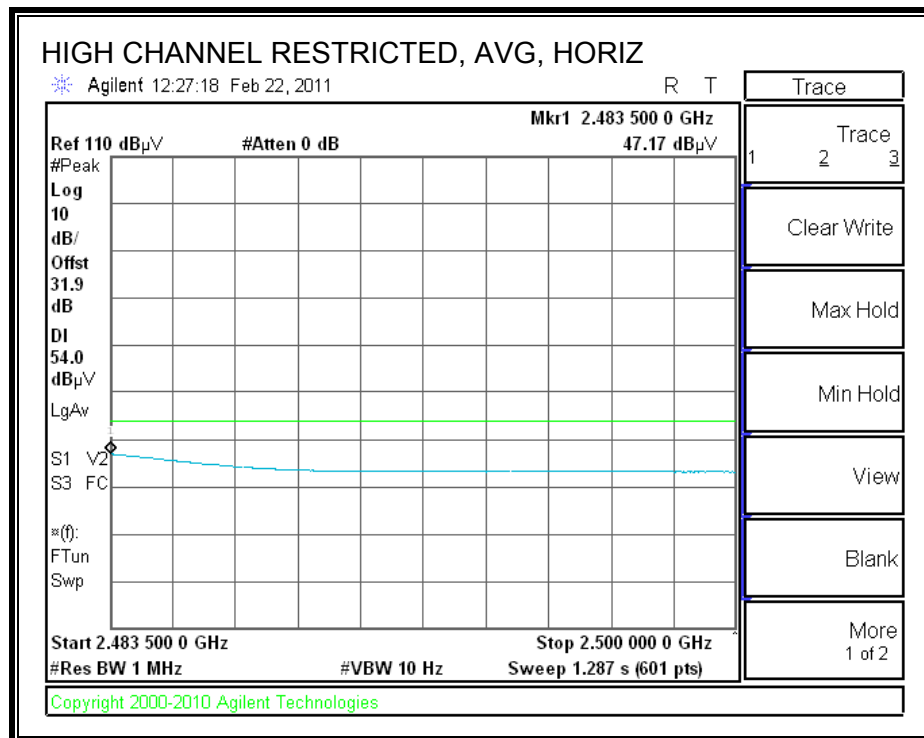
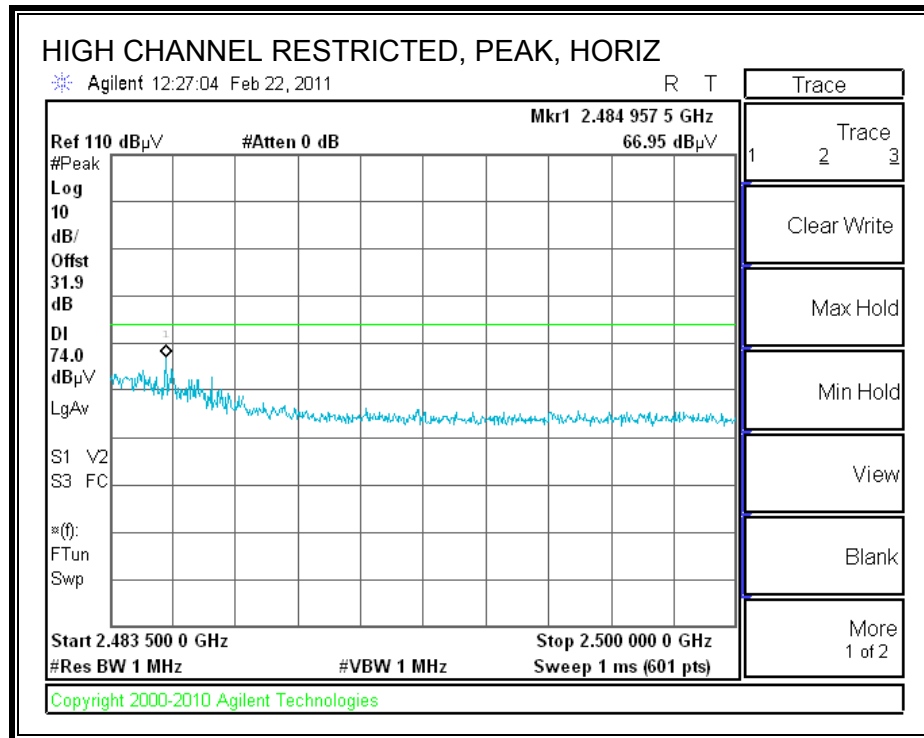
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



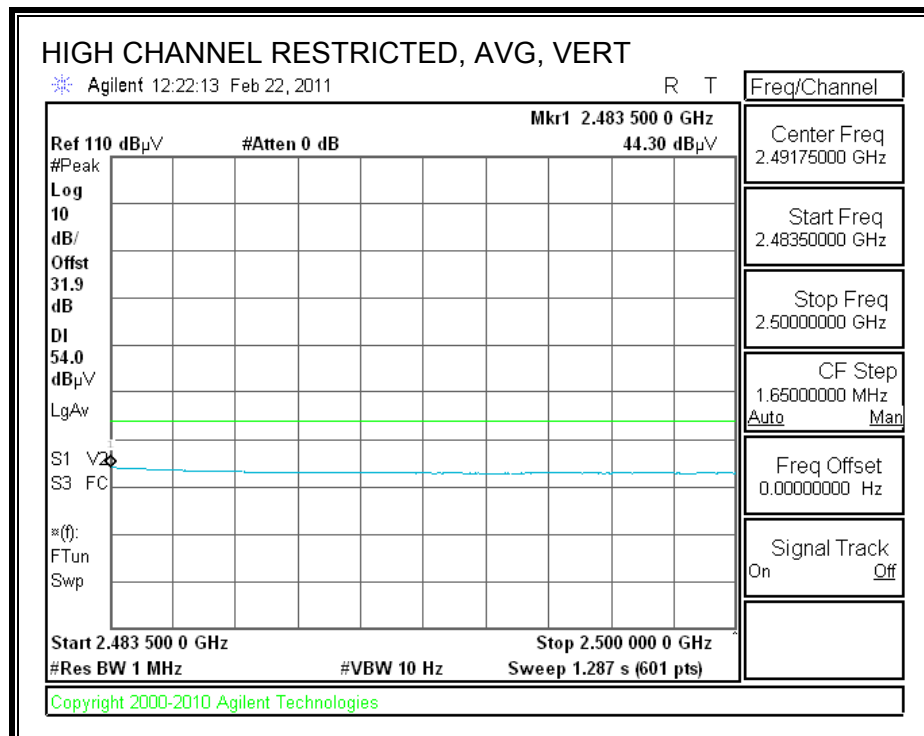
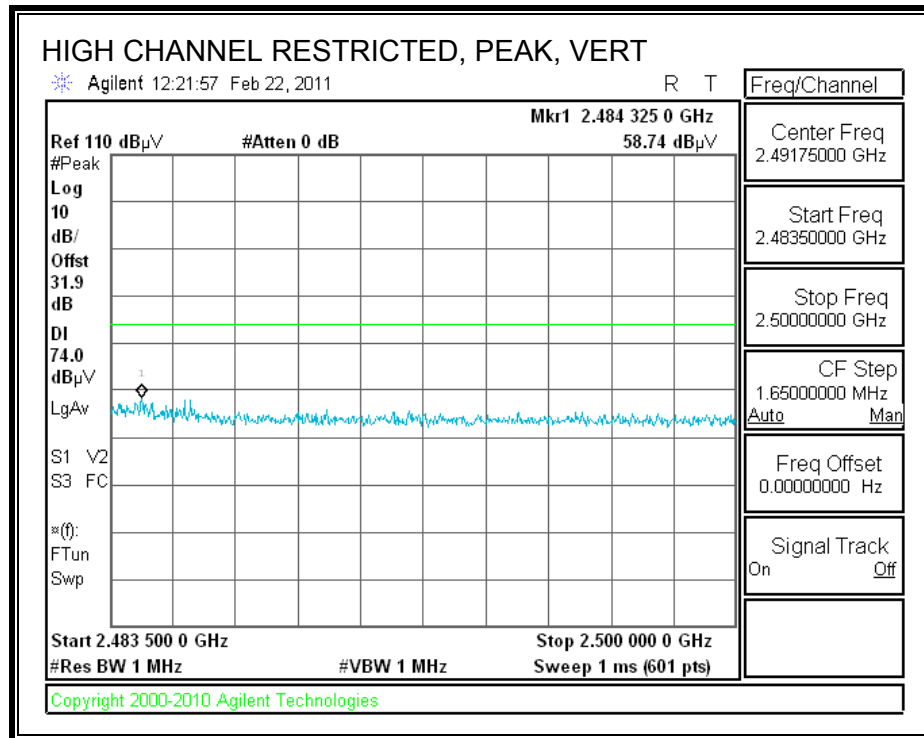
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang
Date: #####
Project #: 11113692
Company: Samsung
Test Target: FCC 15.247
Mode Oper: TX, 802.11n, HT20

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

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det. P/A/QP	Notes
Low Ch, 2412MHz													
4.824	3.0	45.3	32.8	5.8	-34.8	0.0	0.0	49.1	74.0	-24.9	H	P	
4.824	3.0	31.8	32.8	5.8	-34.8	0.0	0.0	35.6	54.0	-18.4	H	A	
4.824	3.0	48.0	32.8	5.8	-34.8	0.0	0.0	51.7	74.0	-22.3	V	P	
4.824	3.0	32.9	32.8	5.8	-34.8	0.0	0.0	36.6	54.0	-17.4	V	A	
Mid Ch, 2437MHz													
4.874	3.0	44.4	32.8	5.8	-34.9	0.0	0.0	48.2	74.0	-25.8	H	P	
4.874	3.0	30.9	32.8	5.8	-34.9	0.0	0.0	34.7	54.0	-19.3	H	A	
7.311	3.0	38.2	35.2	7.3	-34.7	0.0	0.0	46.0	74.0	-28.0	H	P	
7.311	3.0	25.6	35.2	7.3	-34.7	0.0	0.0	33.4	54.0	-20.6	H	A	
4.874	3.0	46.9	32.8	5.8	-34.9	0.0	0.0	50.7	74.0	-23.3	V	P	
4.874	3.0	32.0	32.8	5.8	-34.9	0.0	0.0	35.8	54.0	-18.2	V	A	
7.311	3.0	37.8	35.2	7.3	-34.7	0.0	0.0	45.6	74.0	-28.4	V	P	
7.311	3.0	24.7	35.2	7.3	-34.7	0.0	0.0	32.5	54.0	-21.5	V	A	
High Ch, 2462MHz													
4.924	3.0	47.5	32.8	5.9	-34.9	0.0	0.0	51.3	74.0	-22.7	H	P	
4.924	3.0	32.3	32.8	5.9	-34.9	0.0	0.0	36.1	54.0	-17.9	H	A	
7.386	3.0	37.8	35.3	7.3	-34.6	0.0	0.0	45.7	74.0	-28.3	H	P	
7.386	3.0	25.4	35.3	7.3	-34.6	0.0	0.0	33.4	54.0	-20.6	H	A	
4.924	3.0	44.9	32.8	5.9	-34.9	0.0	0.0	48.8	74.0	-25.2	V	P	
4.924	3.0	31.1	32.8	5.9	-34.9	0.0	0.0	34.9	54.0	-19.1	V	A	
7.386	3.0	37.7	35.3	7.3	-34.6	0.0	0.0	45.6	74.0	-28.4	V	P	
7.386	3.0	25.4	35.3	7.3	-34.6	0.0	0.0	33.3	54.0	-20.7	V	A	

Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

7.3. WORST-CASE BELOW 1 GHz

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

DATA

30-1000MHz Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

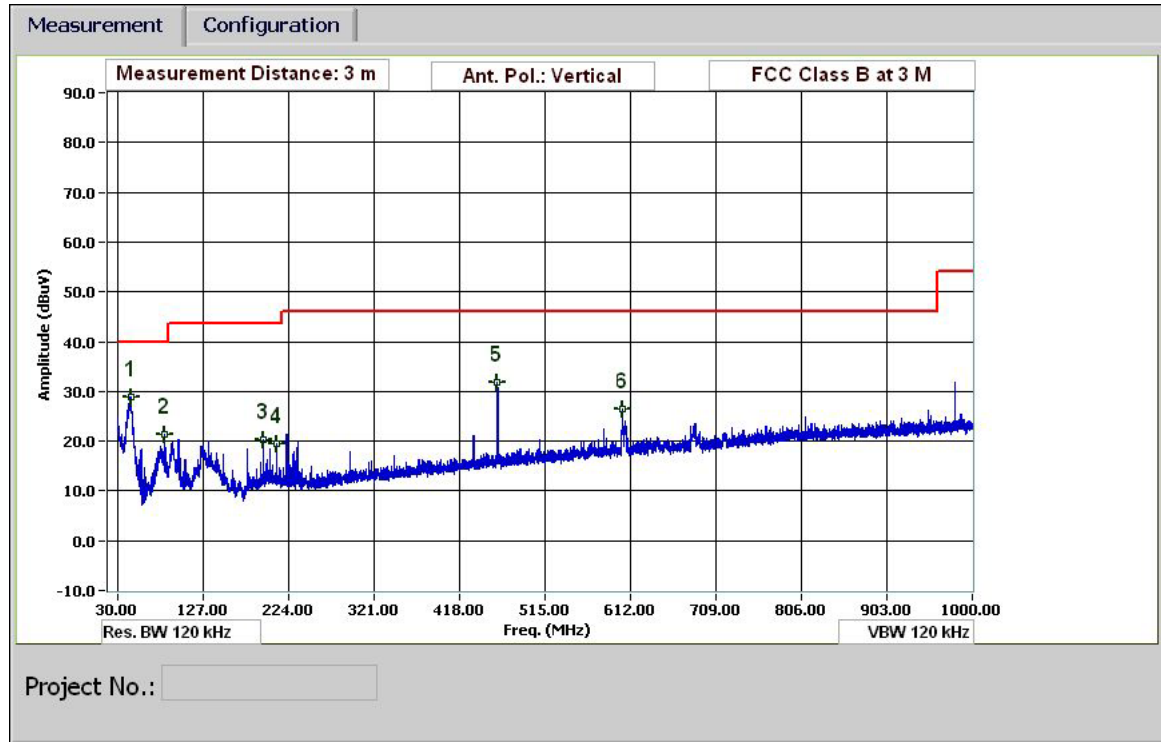
Test Engr: Chin Pang
Date: 02-22-11
Project #: 11113692
Company: Samsung
Test Target: FCC 15C
Mode Oper: TX (Worst Case)

f Measurement Frequency Amp Preamp Gain Margin Margin vs. Limit
Dist Distance to Antenna D Corr Distance Correct to 3 meters
Read Analyzer Reading Filter Filter Insert Loss
AF Antenna Factor Corr. Calculated Field Strength
CL Cable Loss Limit Field Strength Limit

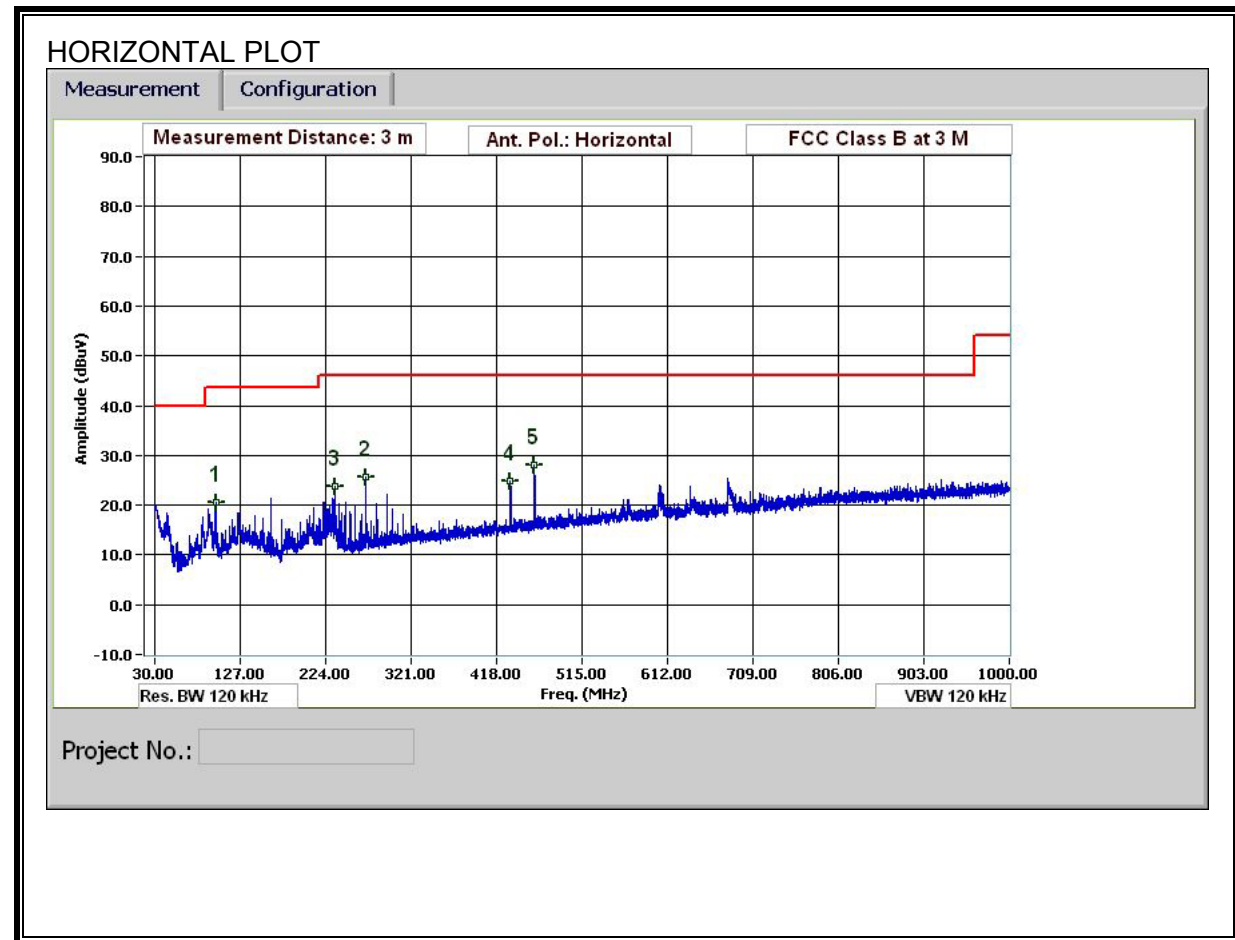
f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Pad dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
44.401	3.0	46.5	11.4	0.6	29.6	0.0	0.0	28.9	40.0	-11.1	V	P	
83.762	3.0	42.7	7.6	0.8	29.6	0.0	0.0	21.5	40.0	-18.6	V	P	
195.367	3.0	36.4	11.6	1.3	28.9	0.0	0.0	20.3	43.5	-23.2	V	P	
210.127	3.0	35.1	12.0	1.3	28.9	0.0	0.0	19.5	43.5	-24.0	V	P	
461.178	3.0	43.2	16.1	2.1	29.6	0.0	0.0	31.8	46.0	-14.2	V	P	
602.304	3.0	35.4	18.3	2.4	29.6	0.0	0.0	26.5	46.0	-19.5	V	P	
100.323	3.0	39.1	10.1	0.9	29.5	0.0	0.0	20.6	43.5	-22.9	H	P	
234.008	3.0	39.3	11.9	1.4	28.8	0.0	0.0	23.7	46.0	-22.3	H	P	
270.13	3.0	40.6	12.4	1.5	28.8	0.0	0.0	25.7	46.0	-20.3	H	P	
433.817	3.0	36.8	15.6	2.0	29.4	0.0	0.0	25.0	46.0	-21.0	H	P	
461.178	3.0	39.4	16.1	2.1	29.6	0.0	0.0	28.0	46.0	-18.0	H	P	

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

VERTICAL PLOT



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



8. 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

ANSI C63.4

RESULTS

6 WORST EMISSIONS

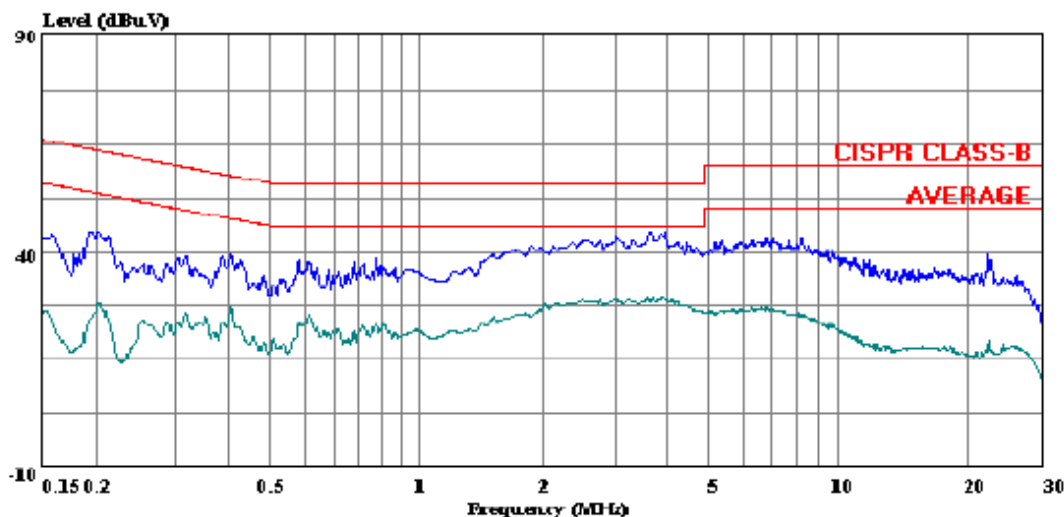
CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Closs (dB)	Limit EN_B		Margin		Remark L1 / L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)		QP	AV	QP (dB)	AV (dB)	
0.20	44.72	--	28.07	0.00	63.45	53.45	-18.73	-25.38	L1
0.41	38.85	--	27.10	0.00	57.73	47.73	-18.88	-20.63	L1
4.01	44.41	--	29.49	0.00	56.00	46.00	-11.59	-16.51	L1
0.20	42.27	--	23.76	0.00	63.45	53.45	-21.18	-29.69	L2
0.41	38.74	--	18.26	0.00	57.73	47.73	-18.99	-29.47	L2
3.80	40.85	--	23.80	0.00	56.00	46.00	-15.15	-22.20	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#: 11I13692.EMI

Date: 02-23-2011 Time: 18:49:41



Trace: 5

Ref Trace:

Condition: CISPR CLASS-B
Test Operator: Chin Pang
Project # : 11I13692
Company : Samsung
Configuration: EUT with AC Adapter and earphone
EUT Descript : Samsung mobile phone with GSM850
: /1900, 802.11bgn and BT ver 3.0
Mode : TX (Worst Case)
Target : FCC 15C
Voltage : 115VAC 60Hz
: L1: Blue (Peak), Green (Average)

LINE 2 RESULTS

