



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

BT3.0+EDR, 802.11 b/g/n 1x1 HT20, GSM850/1900 & WCDMA850 Bar phone

MODEL NUMBER: GT-B5510B

FCC ID: A3LGTB5510B

REPORT NUMBER: 11I13982-2, Revision A

ISSUE DATE: OCTOBER 5, 2011

Prepared for

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

Prepared by

**COMPLIANCE CERTIFICATION SERVICES (UL CCS)
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
---	09/29/11	Initial Issue	F. Ibrahim
A	10/05/11	Corrected Maximum Output Table, and removed MPE section	A. Zaffar

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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: BT3.0+EDR, 802.11 B/G/N 1X1 HT20, GSM850/1900,
WCDMA850MHZ BAR PHONE WITH HOTSPOTS AND VOIP
SUPPORTED

FCC MODEL: GT-B5510B

SERIAL NUMBER: F1 202D (Conducted Unit), F1 202C (Radiated Unit)

DATE TESTED: AUGUST 31-SEPTEMBER 29, 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:



FRANK IBRAHIM
EMC SUPERVISOR
UL CCS

Tested By:



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 a BT3.0+EDR, 802.11 B/G/N 1X1 HT20, GSM850/1900, WCDMA850MHZ BAR PHONE WITH HOTSPOTS AND VOIP SUPPORTED.

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 Mode	18.17	65.61
2412 - 2462	802.11g Mode	22.86	193.20
2412 - 2462	802.11n HT20 SISO	21.10	128.82

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna, with a maximum gain of 2.56 dBi for 2.4GHz band.

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed in the host support equipment during testing was B5510L.010, rev 1.0.

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power; radiated emissions 30-1000 MHz and power line conducted emissions were performed with the EUT set to transmit at the channel with highest output power.

Since the EUT is a portable device, the three orientations; X, Y and Z, and EUT with headset and power adapter were investigated and it was found that the worst orientation among them was EUT in the X orientation with headset and an AC Adapter connected.

Worst-case data rates as provided by the client were:

802.11b Mode: 1 Mbps

802.11g Mode: 6 Mbps

802.11n HT20 Mode: MCS0

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	ETAOU10EBE	SC3ZA16MS/7-E	DoC
Earphone	Samsung	N/A	FT032B	NA

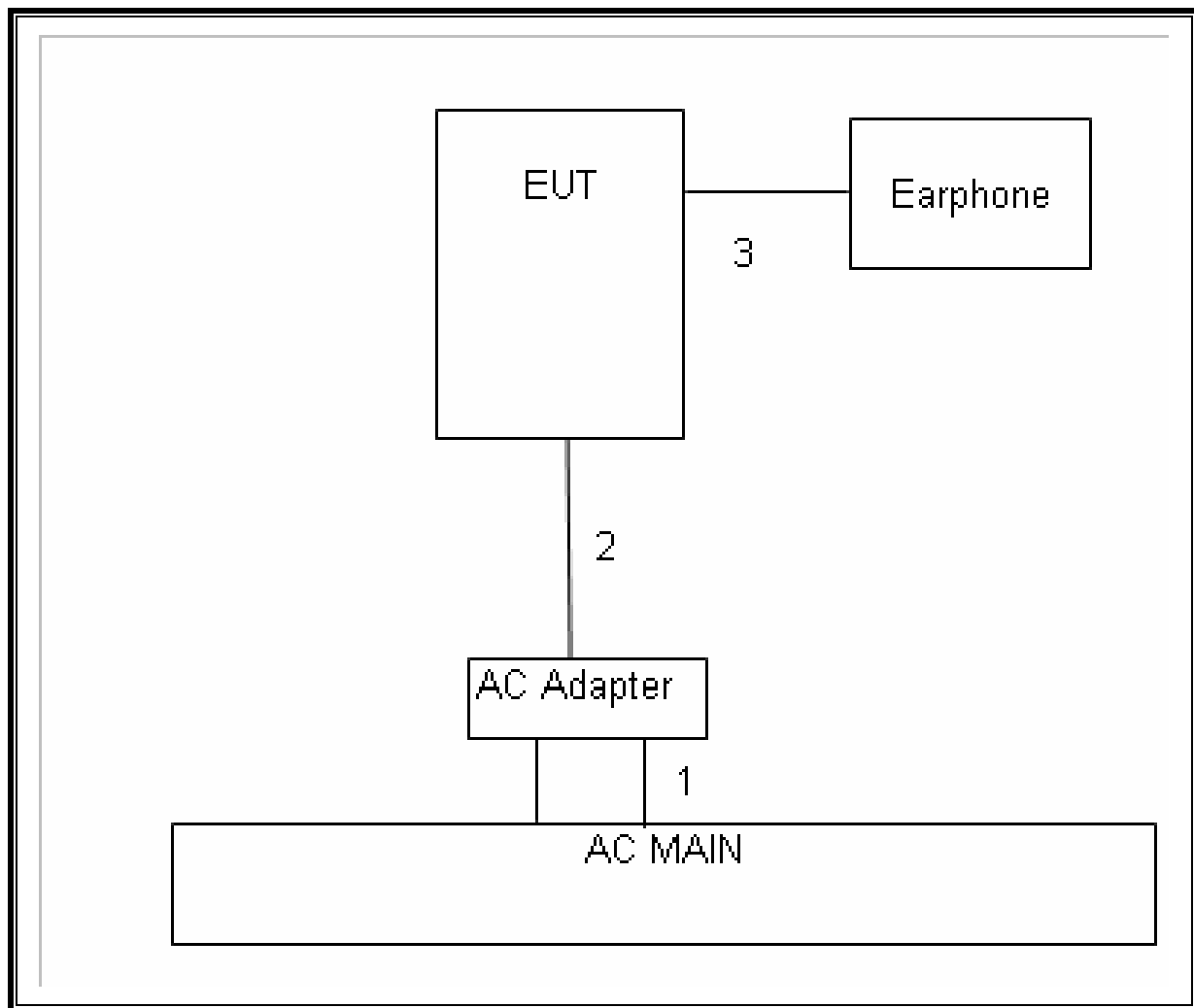
I/O CABLES

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
3	Audio	1	3.5mm	Un-shielded	1.8m	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	07/12/12
Antenna, Horn, 18 GHz	EMCO	3115	C00783	06/29/12
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00778	01/27/12
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07/12/12
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/30/12
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/10/11
EMI Test Receiver, 9 kHz-7	R & S	ESCI 7	1000741	07/06/12
Power Meter	Agilent / HP	437B	N02778	08/11/12
Antenna, Horn, 26.5 GHz	ARA	MMH-1826/B	C00589	07/28/12
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRC13192	N02683	CNR
Power Sensor, 18 GHz	Agilent / HP	8481A	N02781	08/17/12

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.

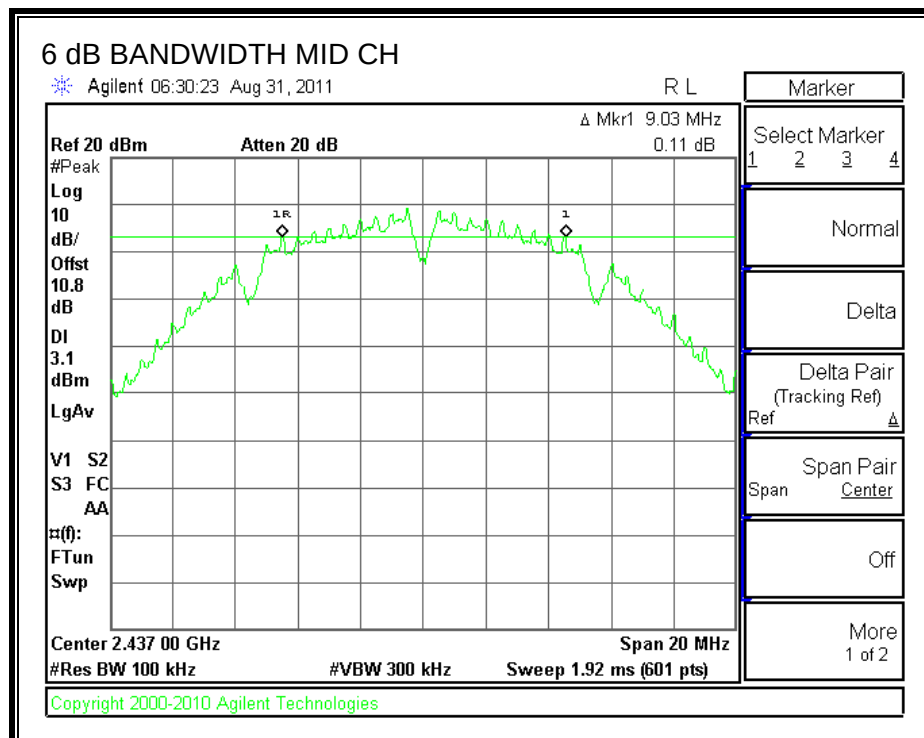
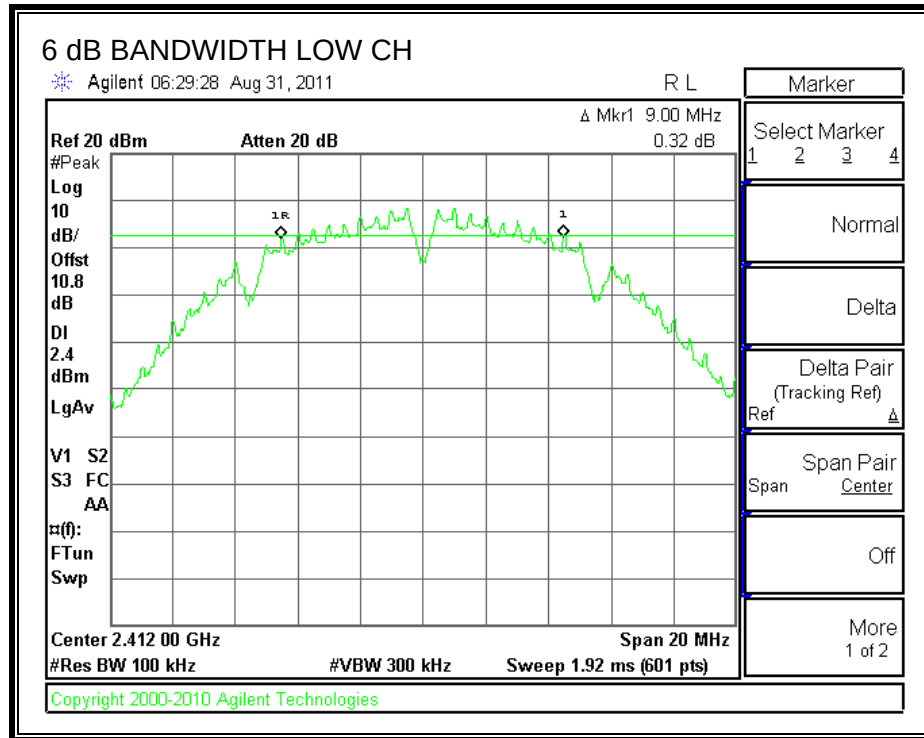
TEST PROCEDURE

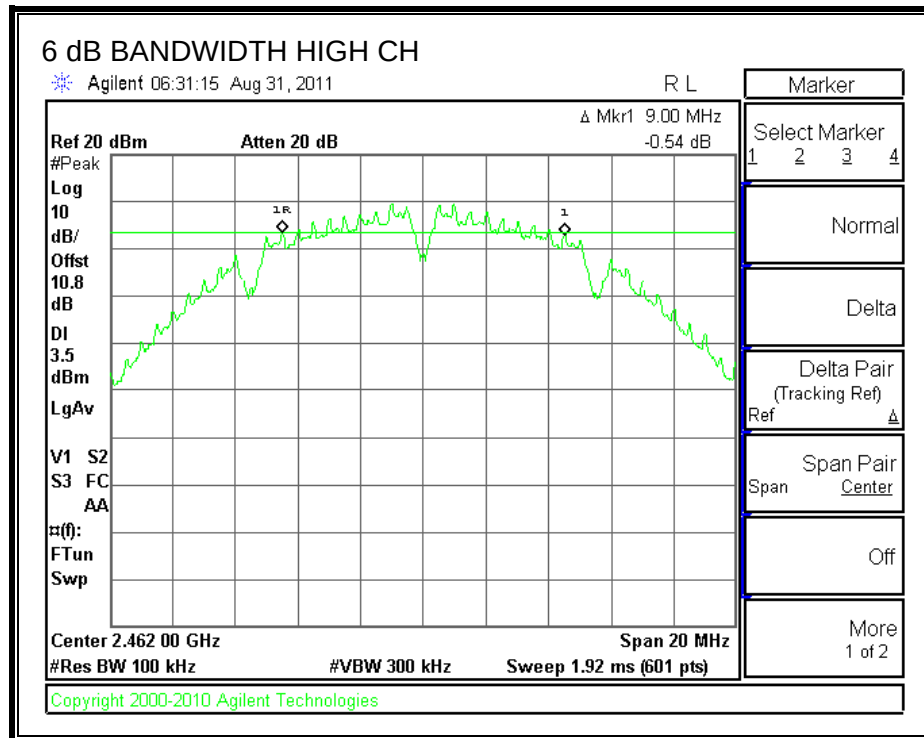
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	9.00	0.5
Middle	2437	9.03	0.5
High	2462	9.00	0.5

RESULTS

6 dB BANDWIDTH





6.1.2. 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

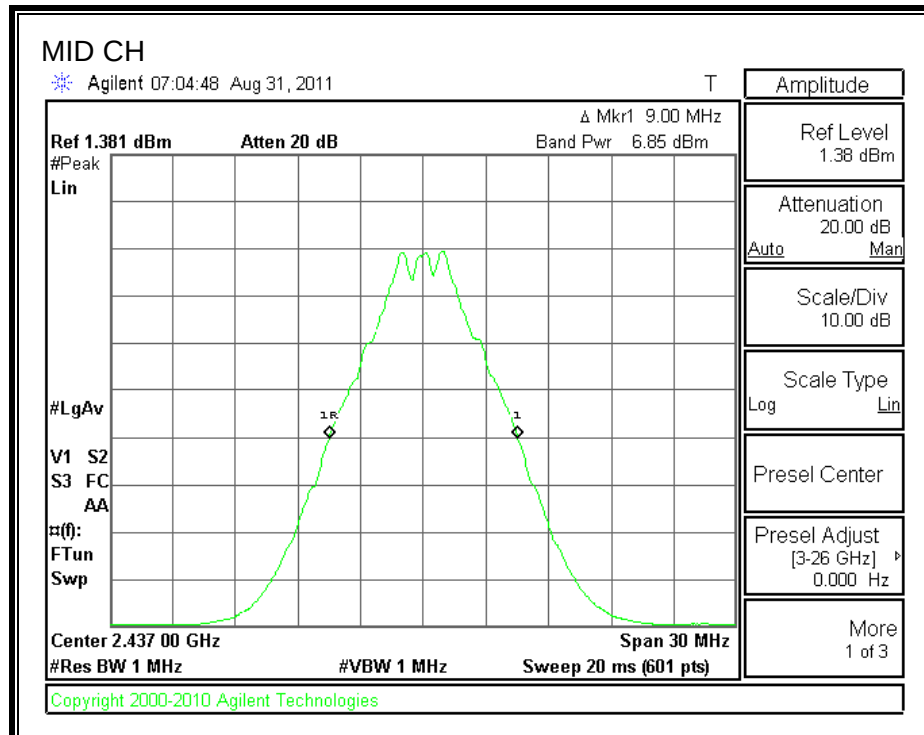
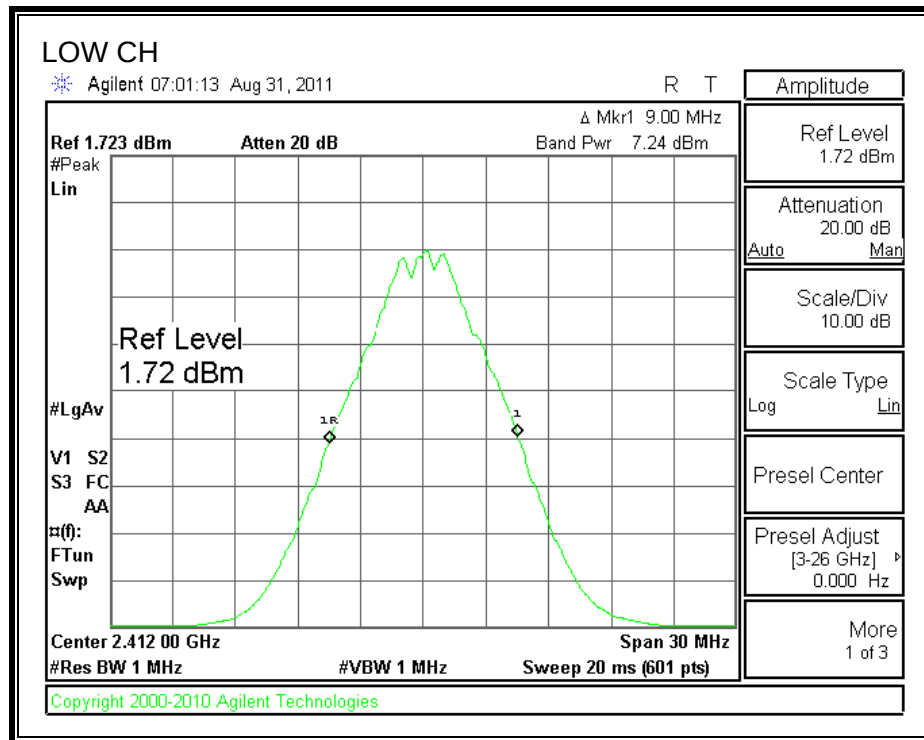
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

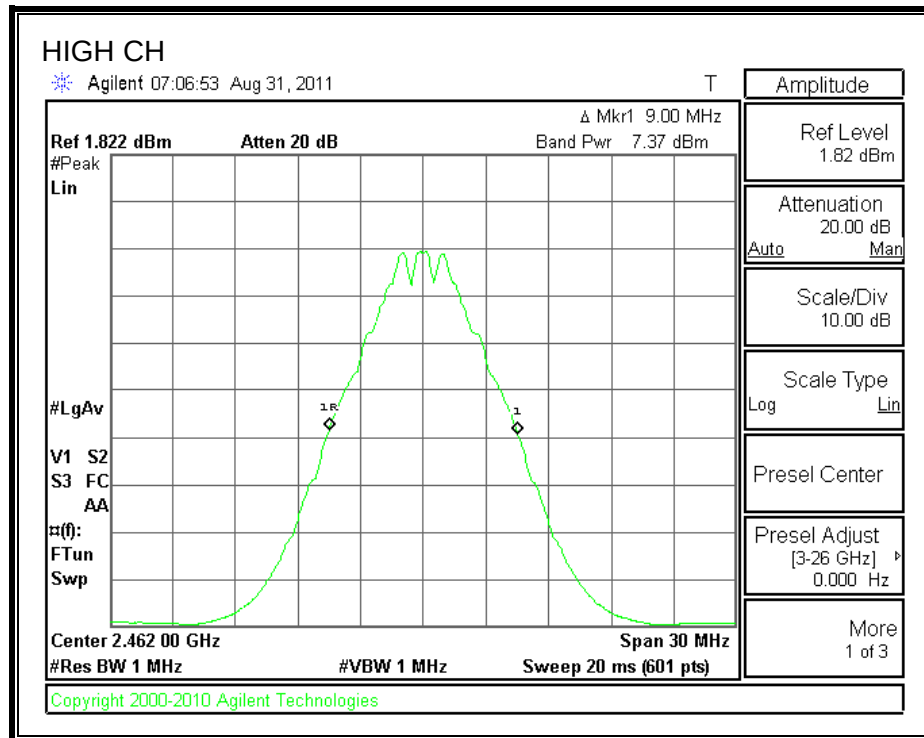
RESULTS

The cable assembly insertion loss of 10.8dB (including 10 dB pad and 0.8dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Attenuator and Cable Offset (dB)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	7.24	10.8	18.04	30	-11.96
Middle	2437	6.85	10.8	17.65	30	-12.35
High	2462	7.37	10.8	18.17	30	-11.83

OUTPUT POWER





6.1.3. 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	16.10
Middle	2437	16.40
High	2462	16.00

6.1.4. 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.

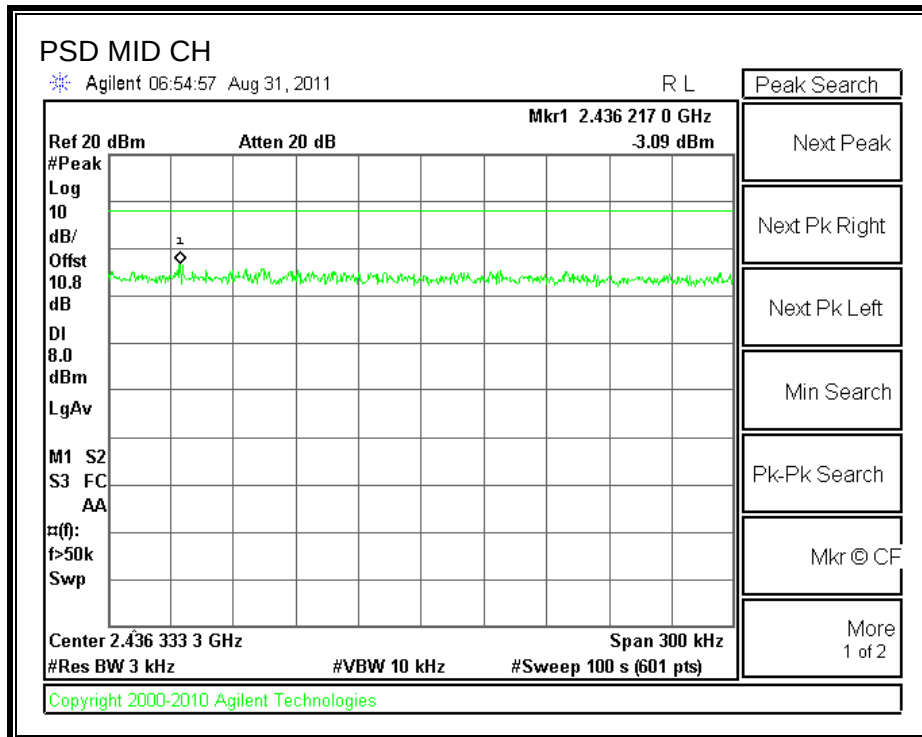
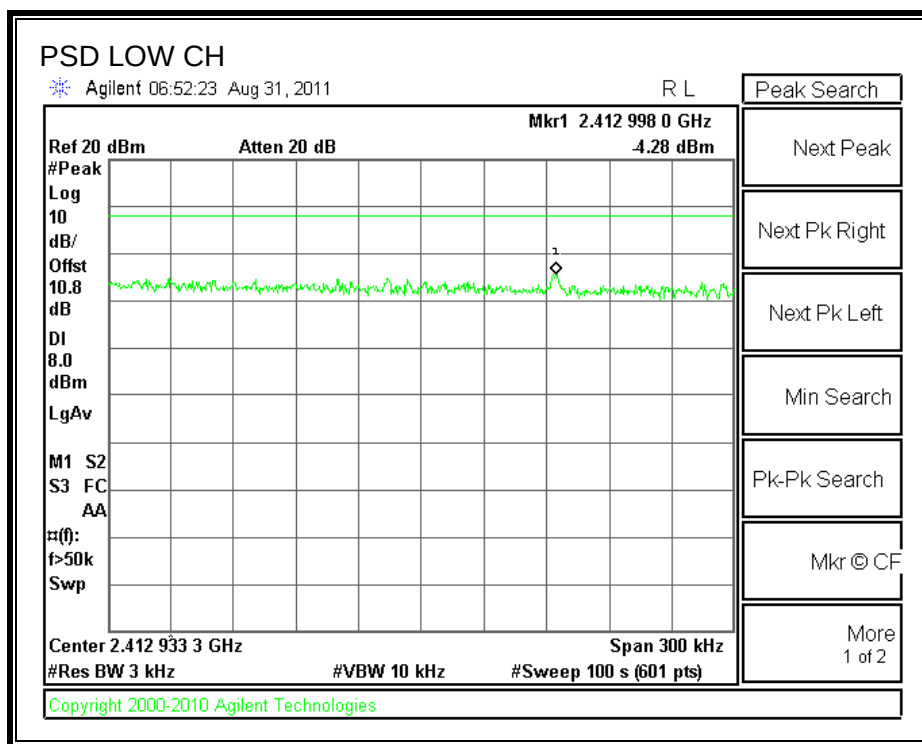
TEST PROCEDURE

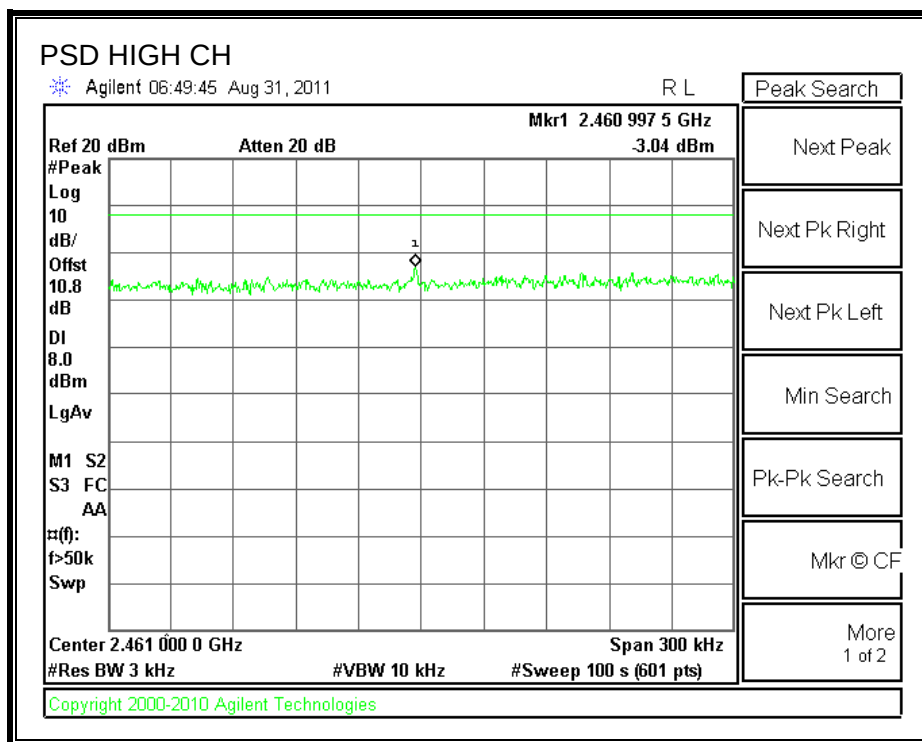
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-4.28	8	-12.28
Middle	2437	-3.09	8	-11.09
High	2462	-3.04	8	-11.04

POWER SPECTRAL DENSITY





6.1.5. 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.

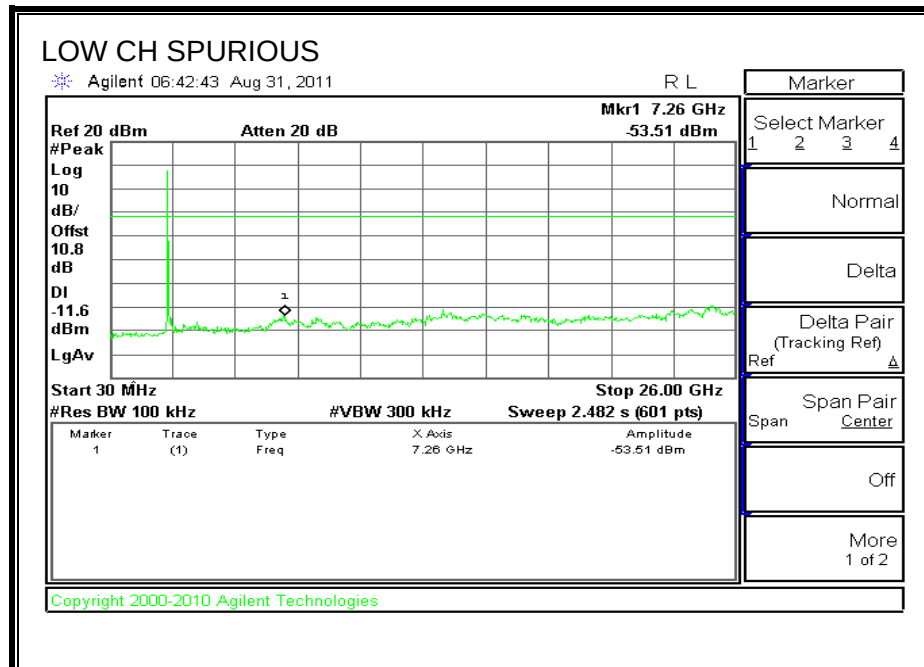
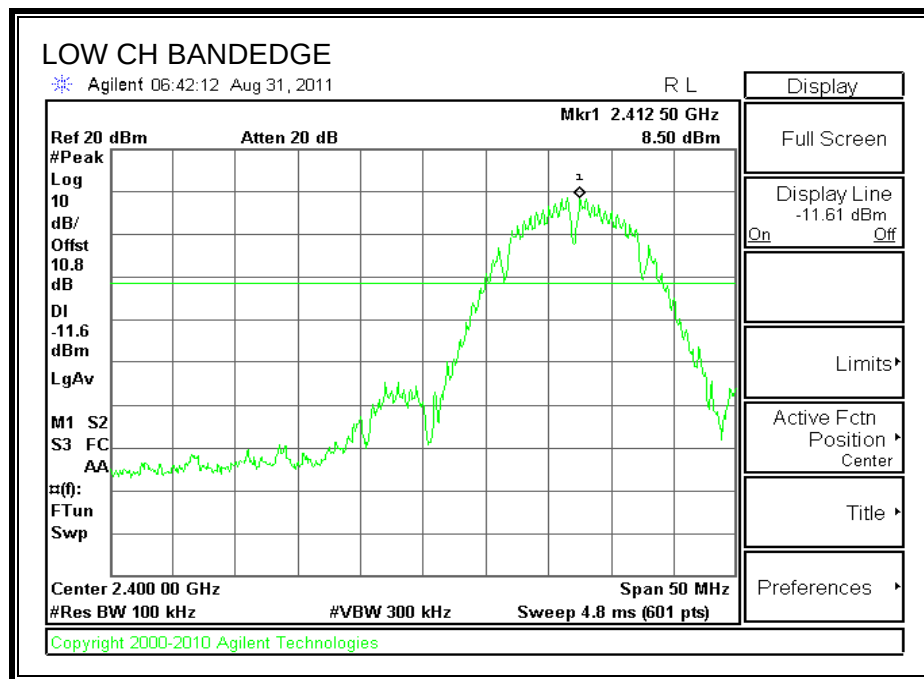
TEST PROCEDURE

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.

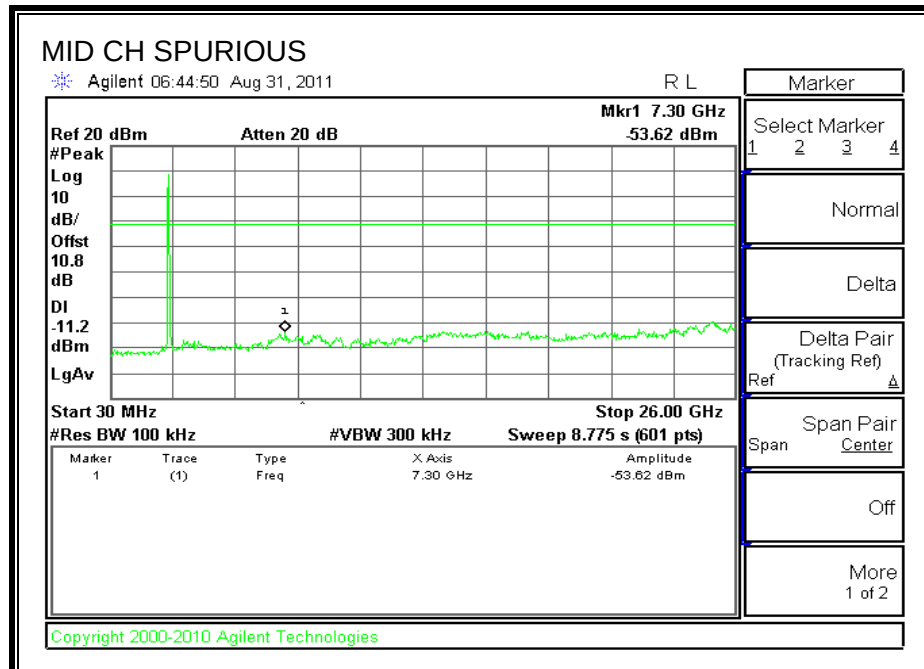
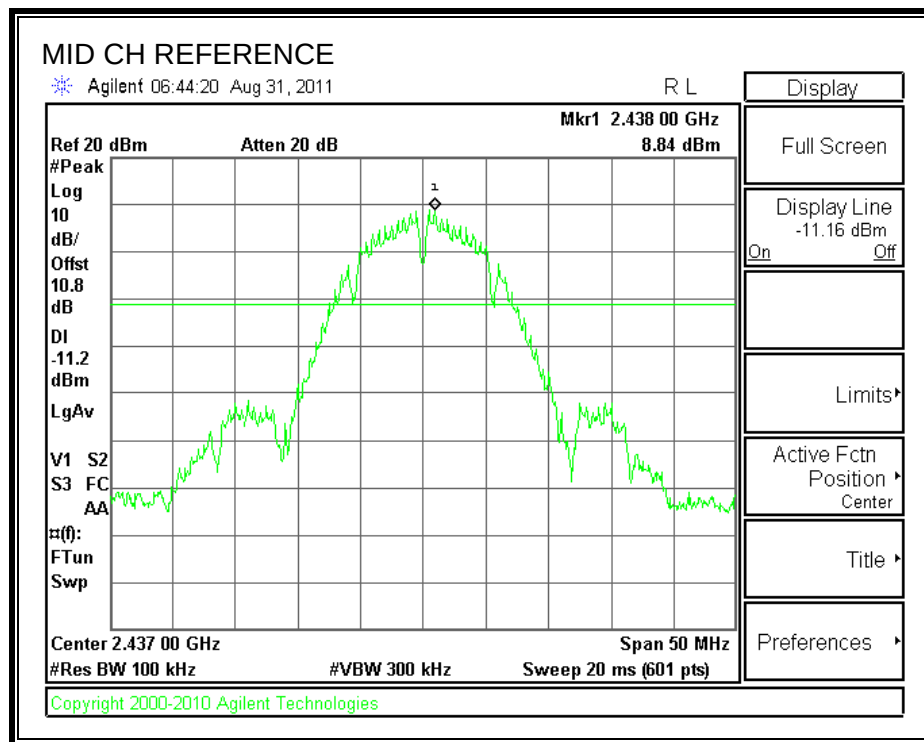
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

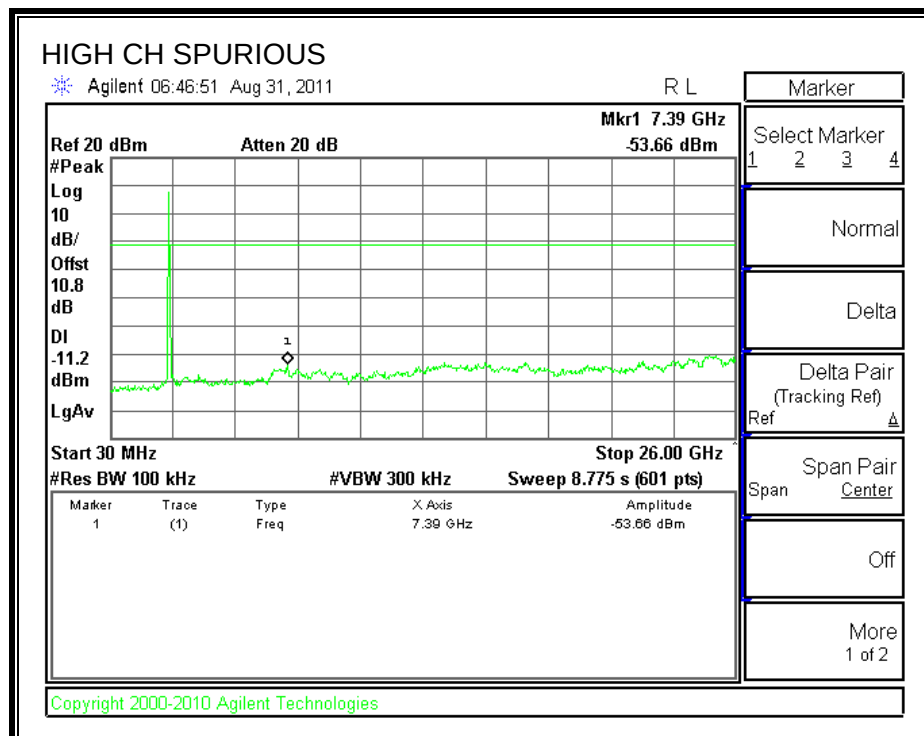
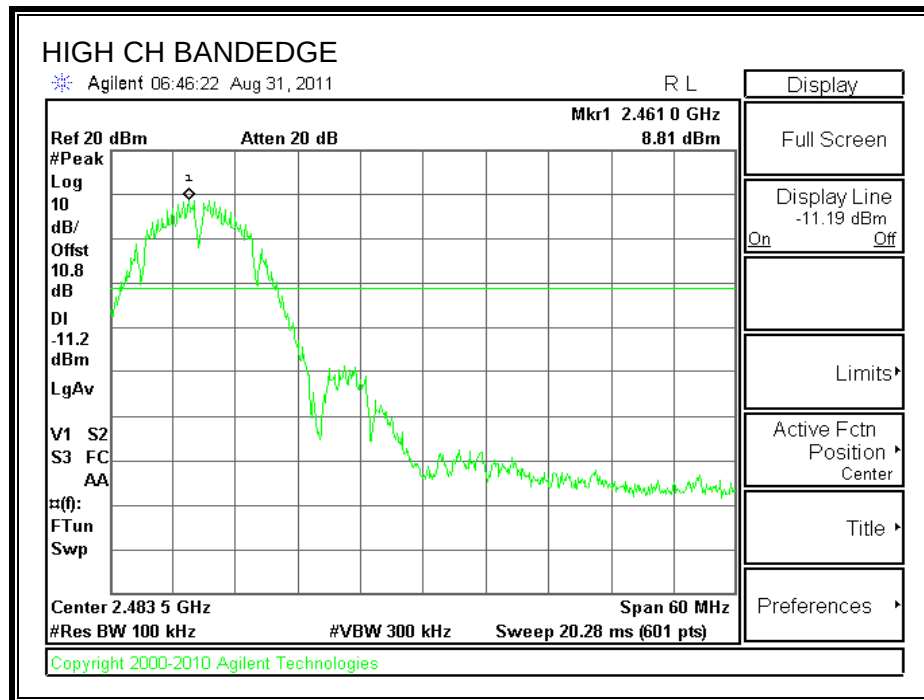
SPURIOUS EMISSIONS, LOW CHANNEL



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.

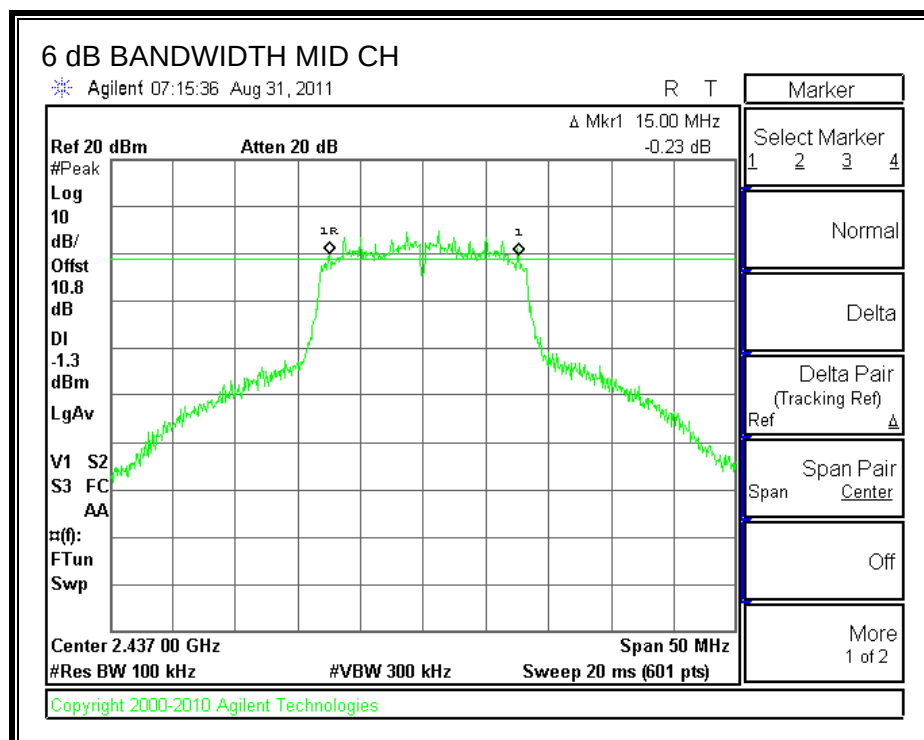
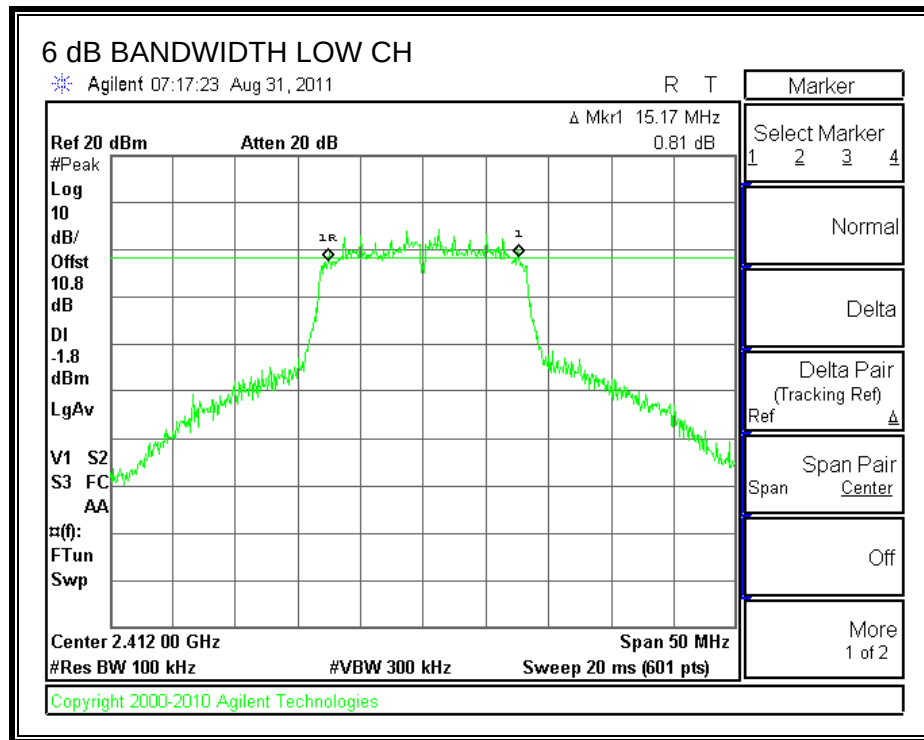
TEST PROCEDURE

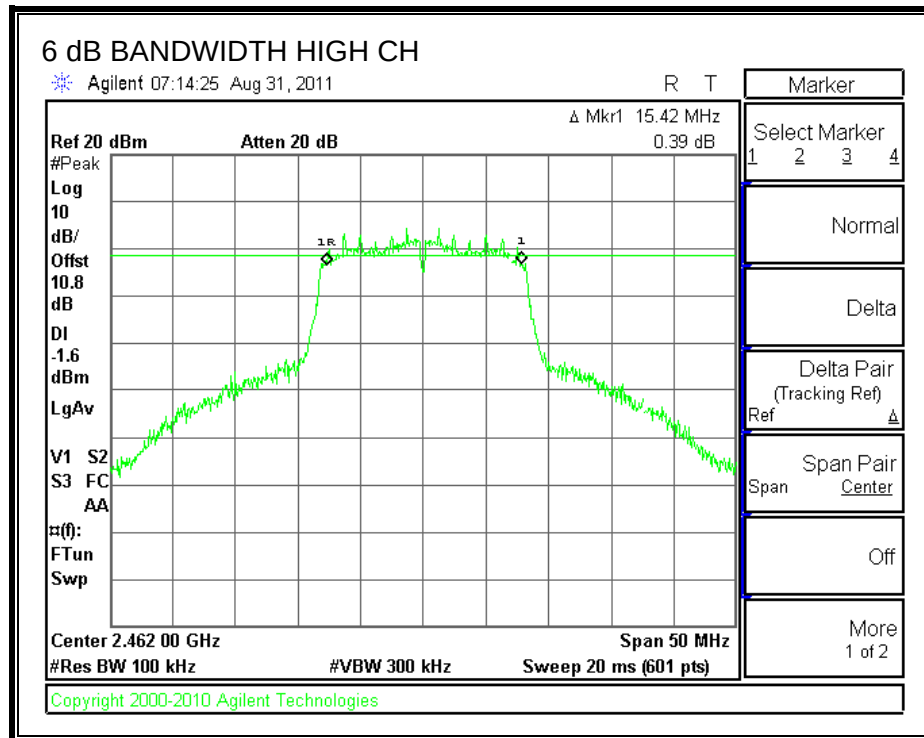
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.17	0.5
Middle	2437	15.00	0.5
High	2462	15.42	0.5

6 dB BANDWIDTH





6.2.2. 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

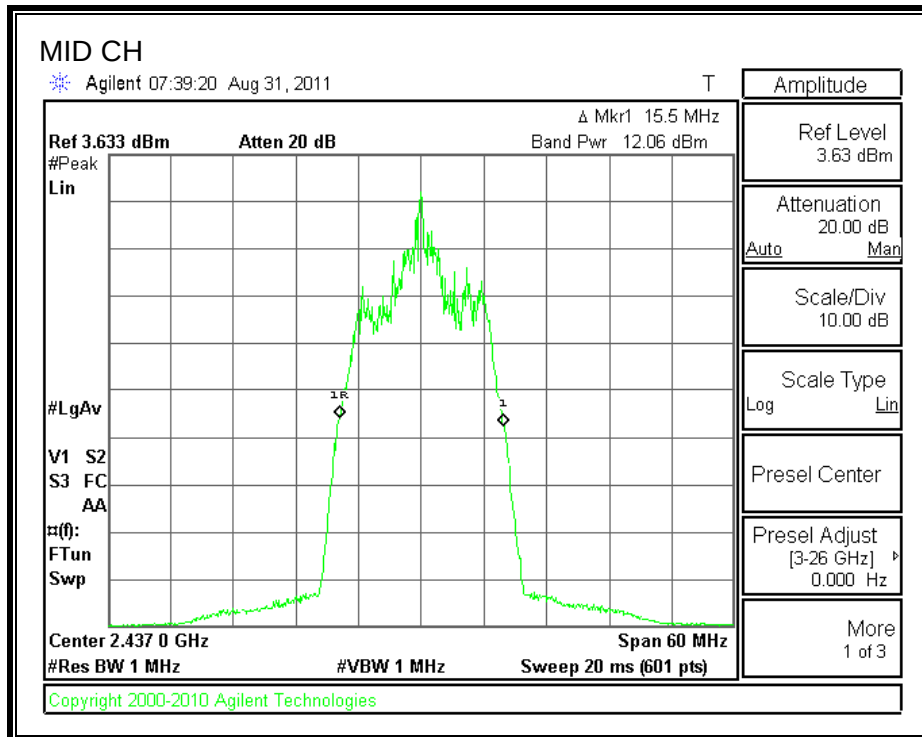
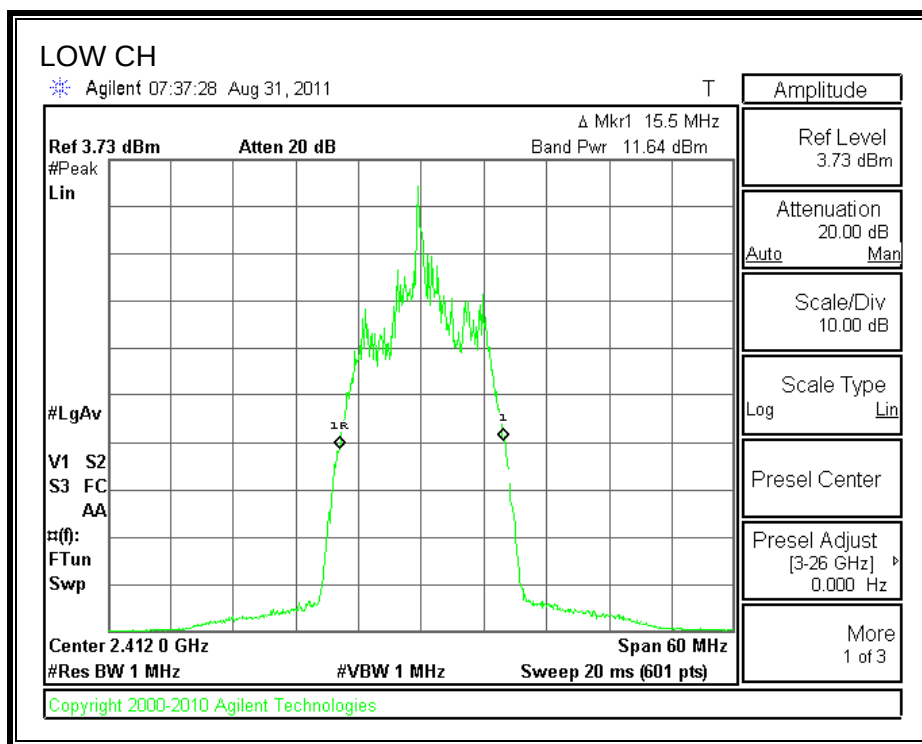
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

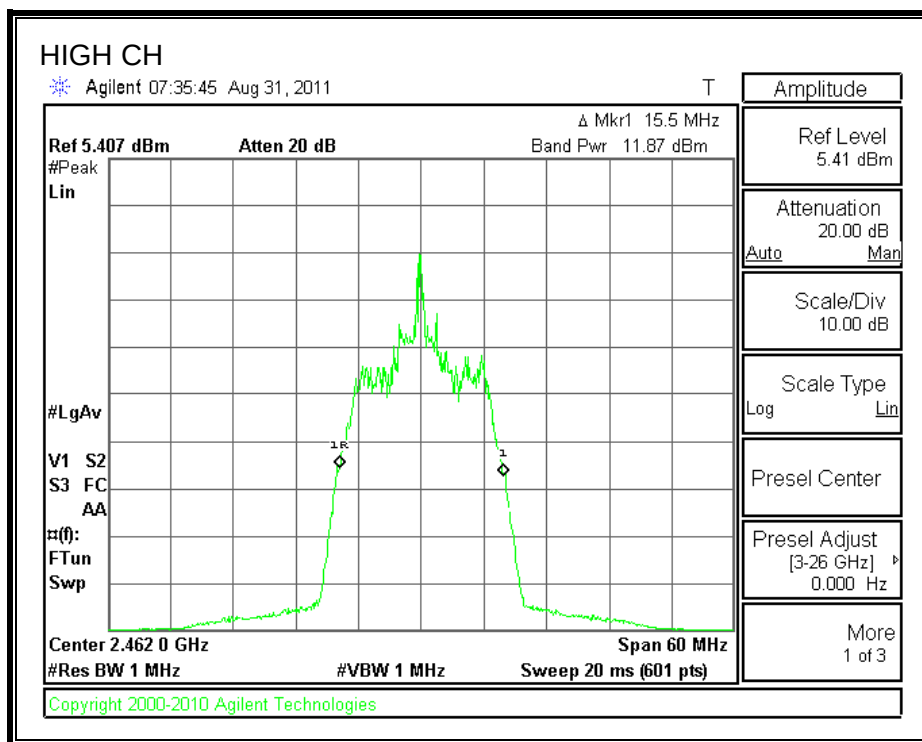
RESULTS

The cable assembly insertion loss of 10.8dB (including 10 dB pad and 0.8dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Peak power Reading (dBm)	Attenuator and Cable Offset (dB)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	11.64	10.8	22.44	30	-7.56
Middle	2437	12.06	10.8	22.86	30	-7.14
High	2462	11.87	10.8	22.67	30	-7.33

OUTPUT POWER





6.2.3. 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 10.8 dB (including 10 dB pad and 0.8dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Power (dBm)
Low	2412	14.20
Middle	2437	13.90
High	2462	14.00

6.2.4. 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.

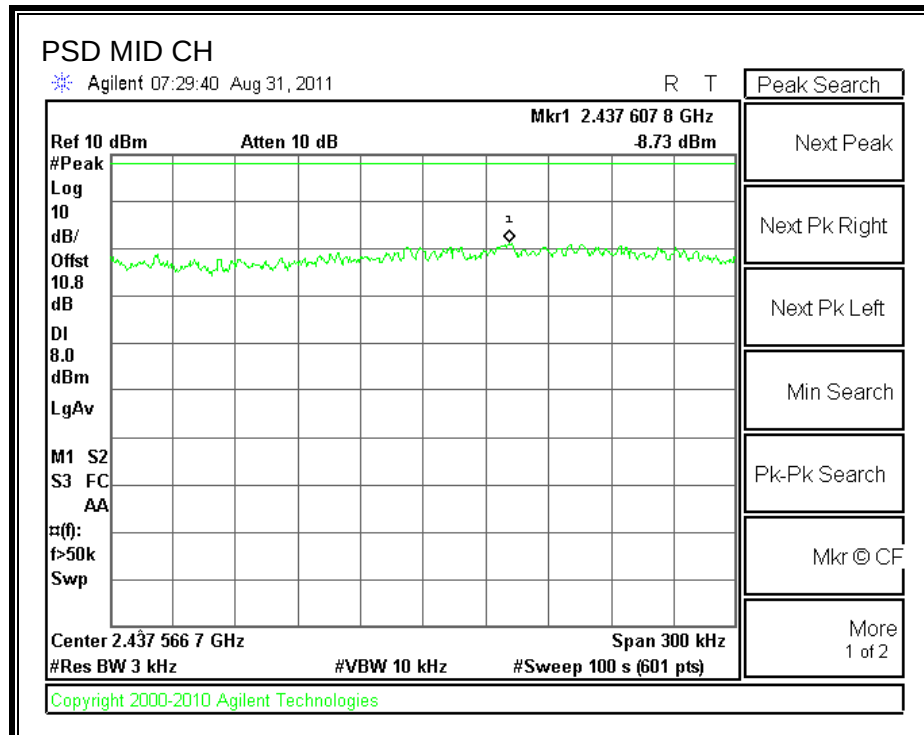
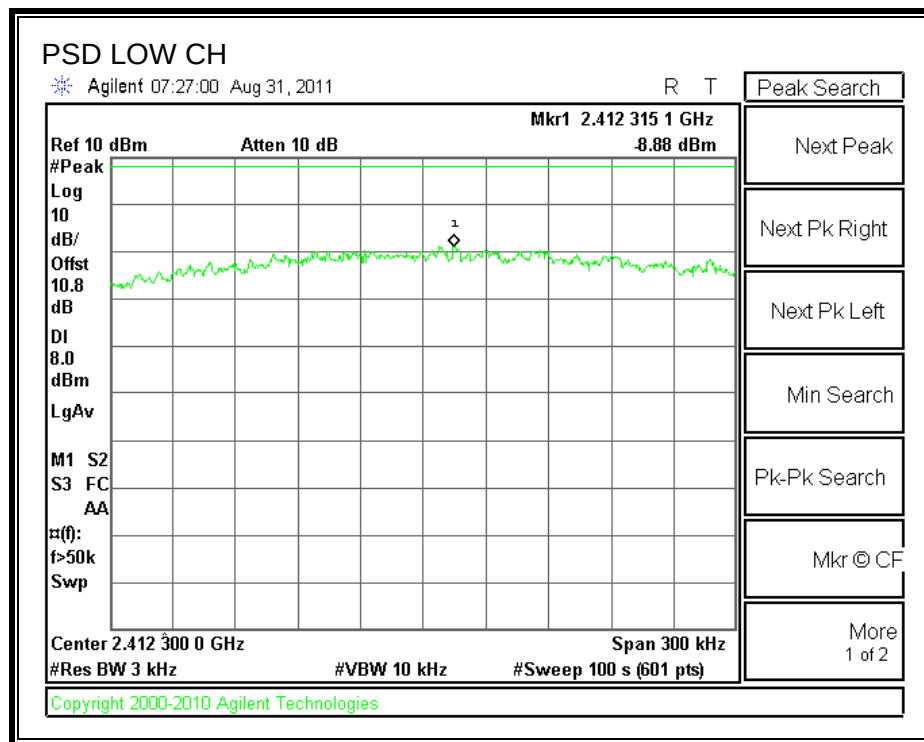
TEST PROCEDURE

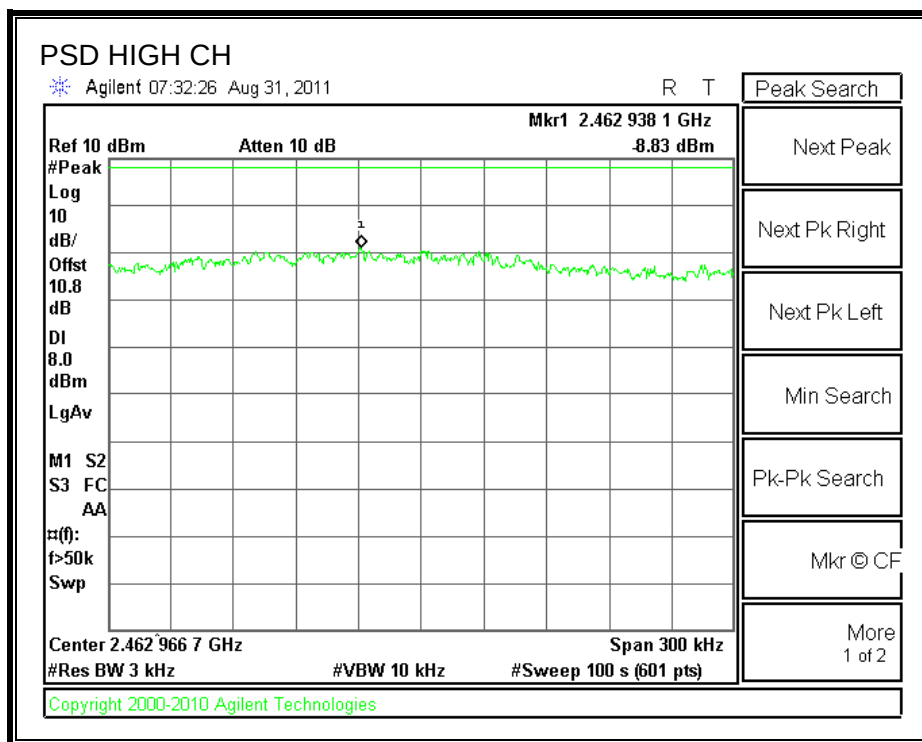
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-8.88	8	-16.88
Middle	2437	-8.73	8	-16.73
High	2462	-8.83	8	-16.83

POWER SPECTRAL DENSITY





6.2.5. 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.

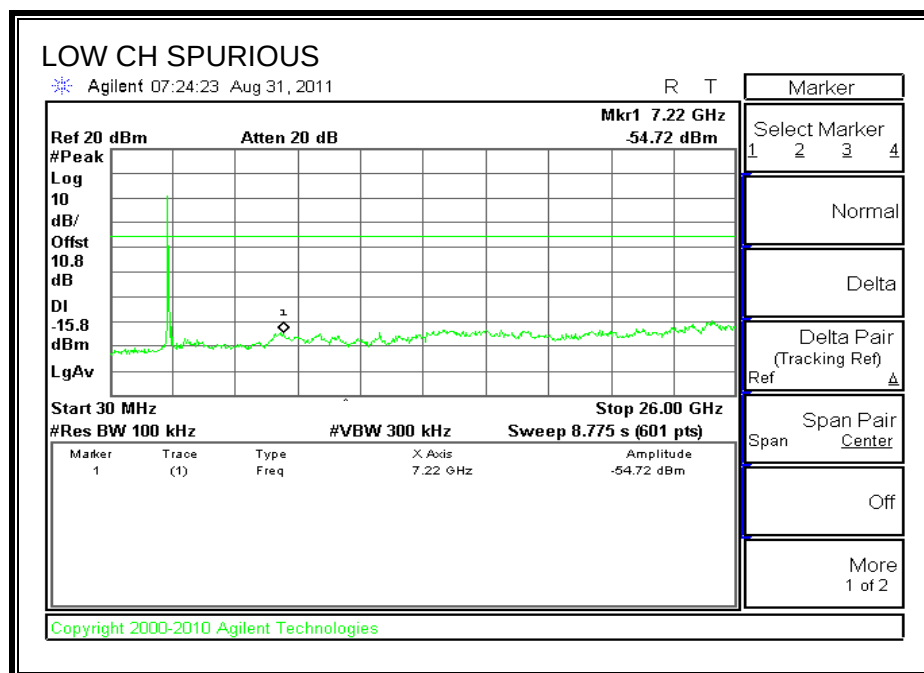
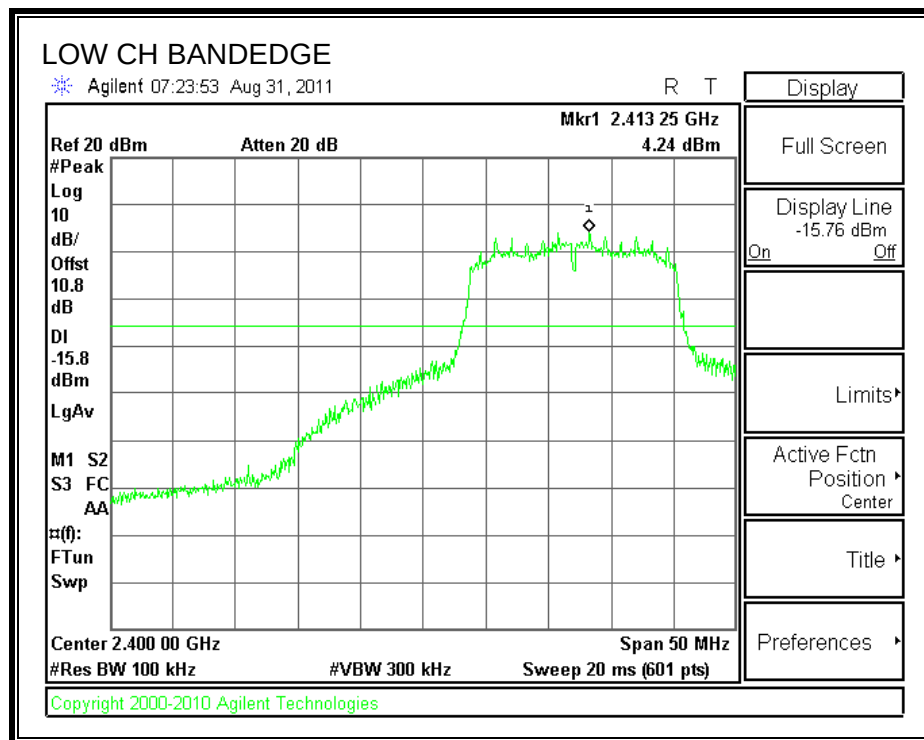
TEST PROCEDURE

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.

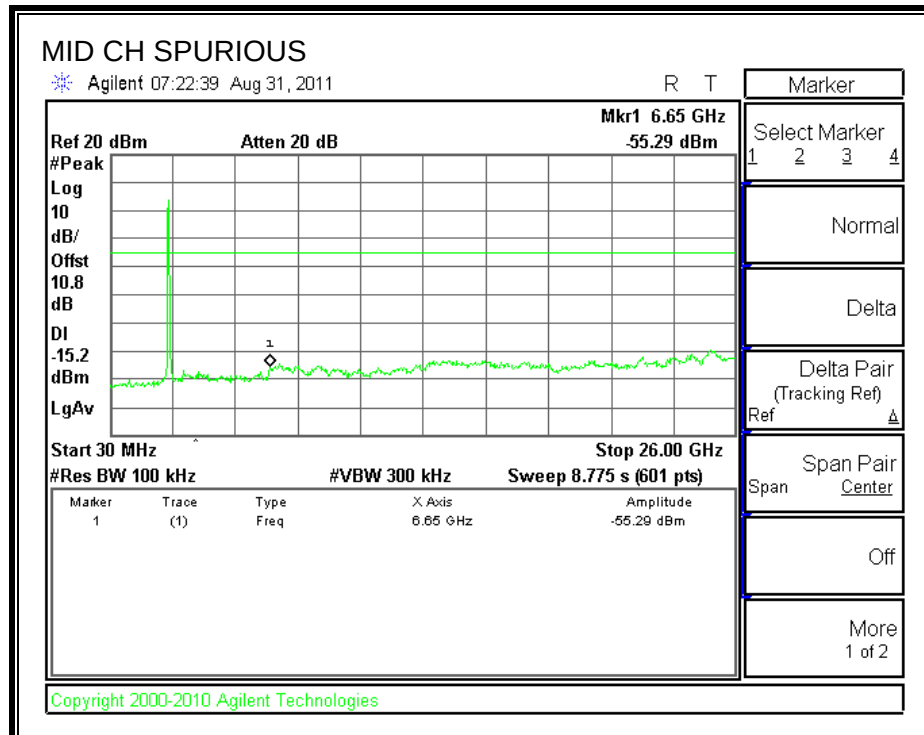
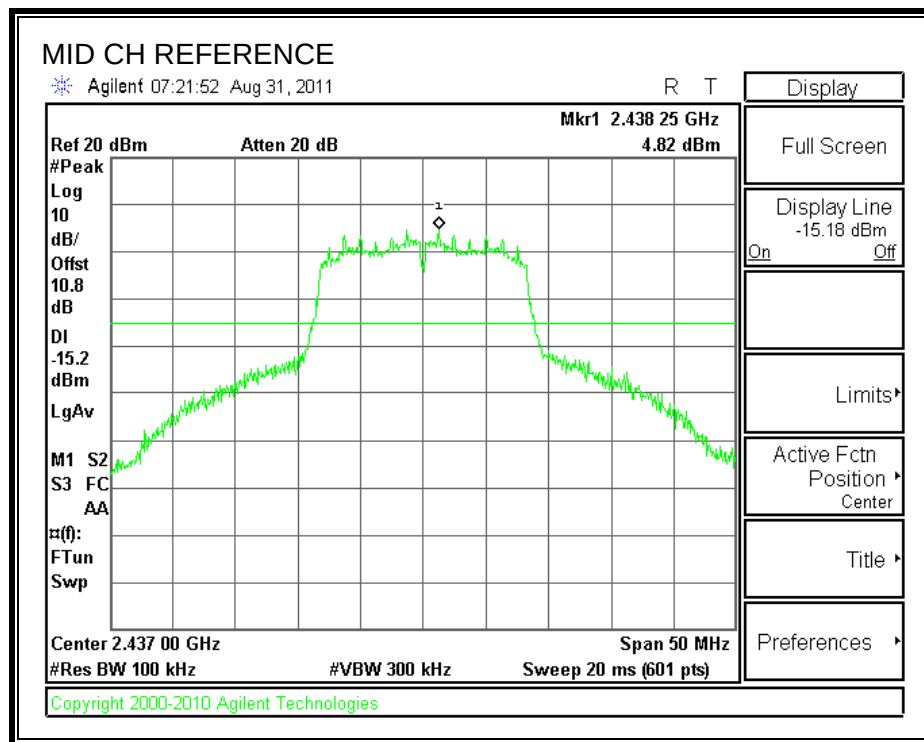
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

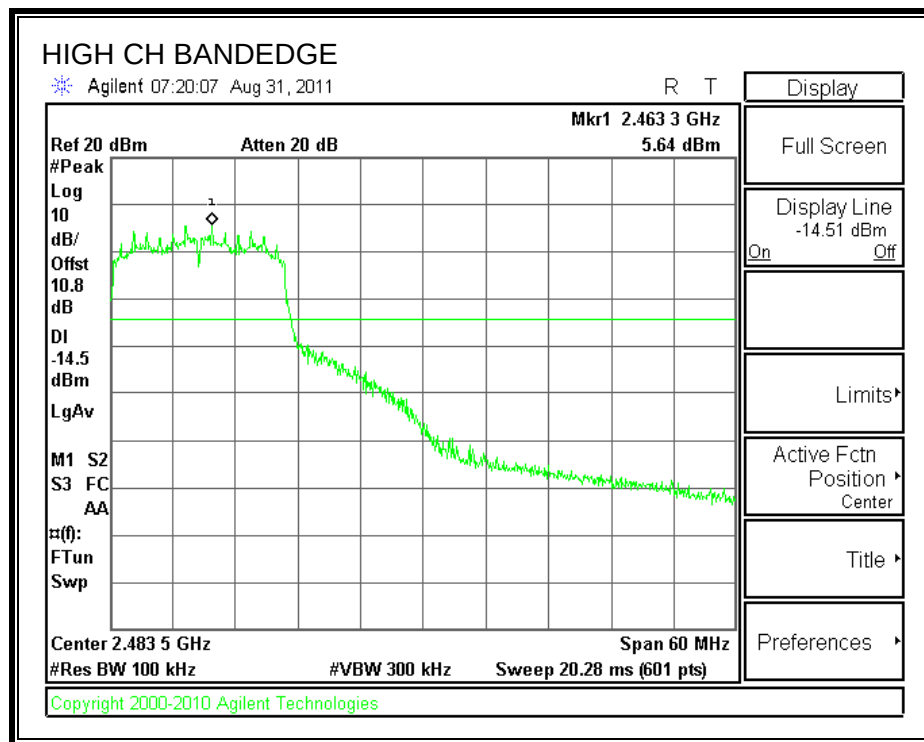
SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



6.3. 802.11n HT20 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.

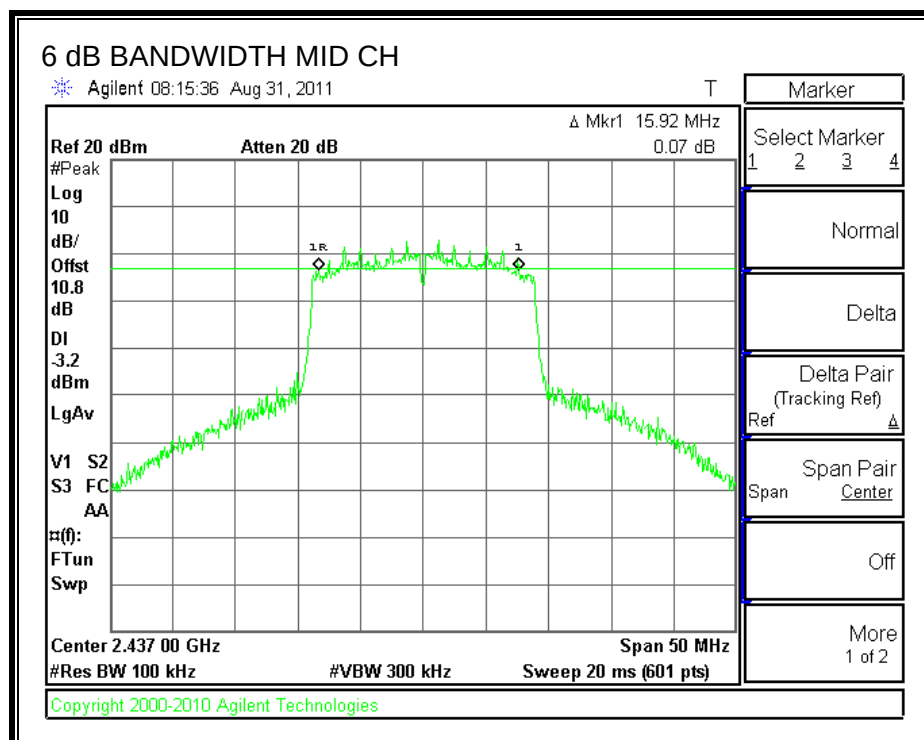
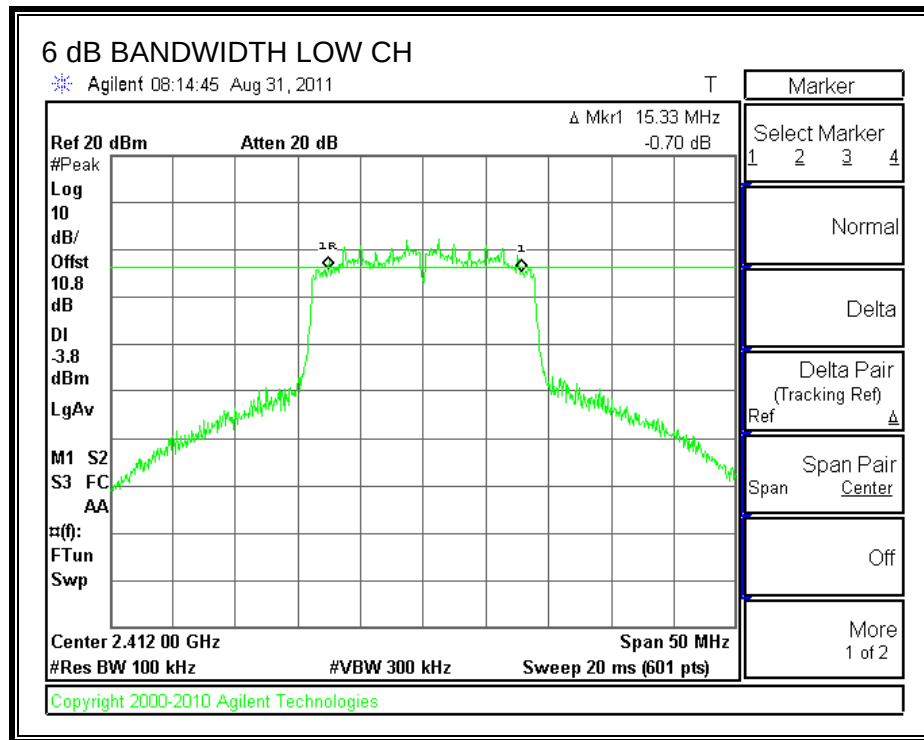
TEST PROCEDURE

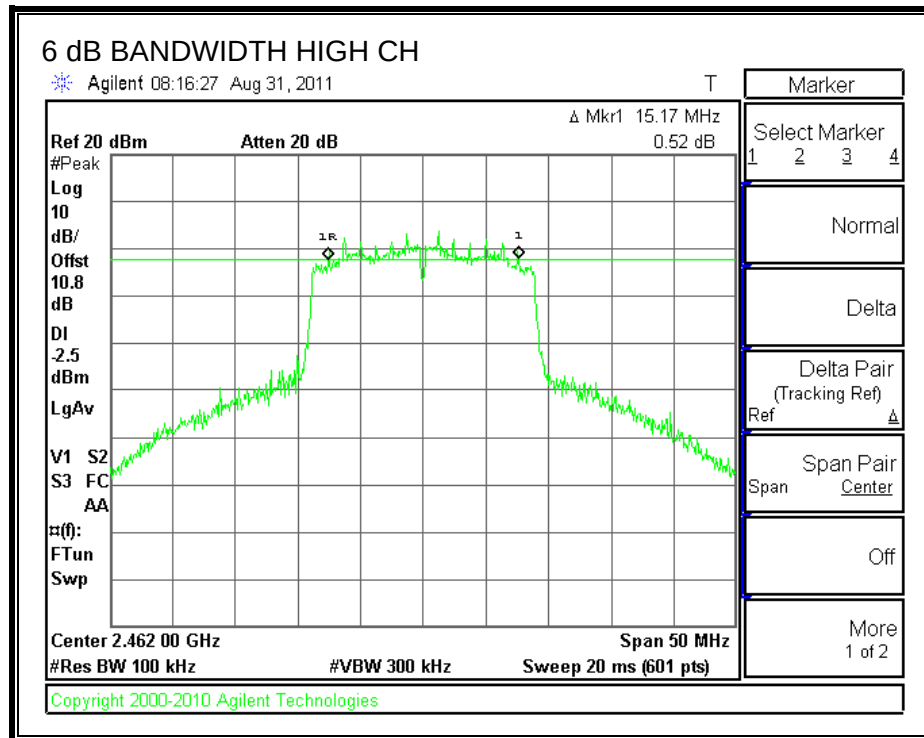
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.33	0.5
Middle	2437	15.92	0.5
High	2462	15.17	0.5

6 dB BANDWIDTH





6.3.2. 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

Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

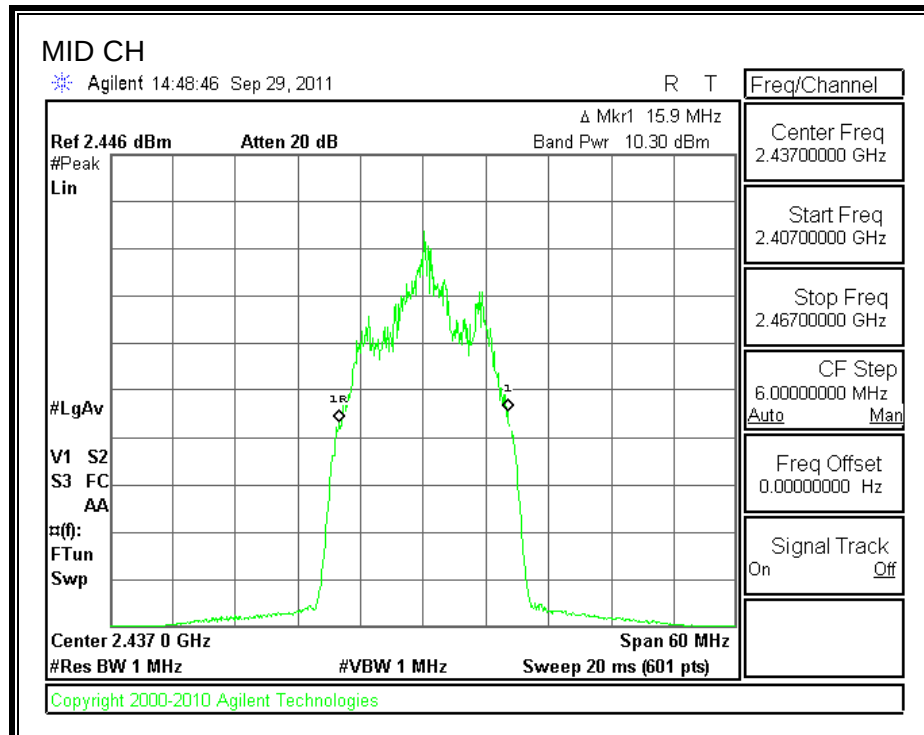
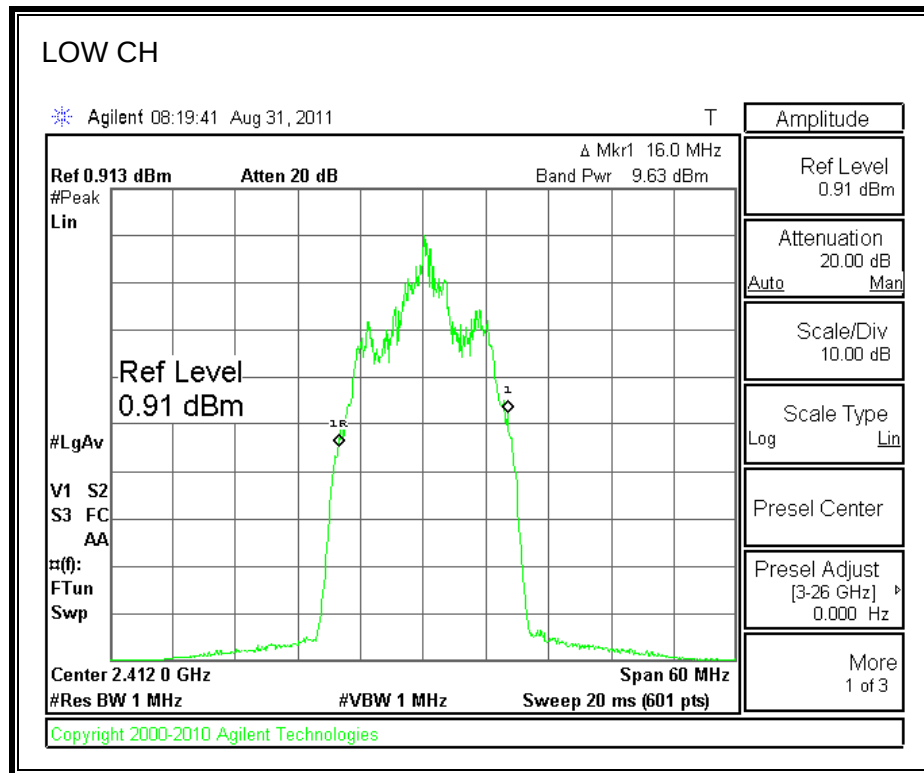
RESULTS

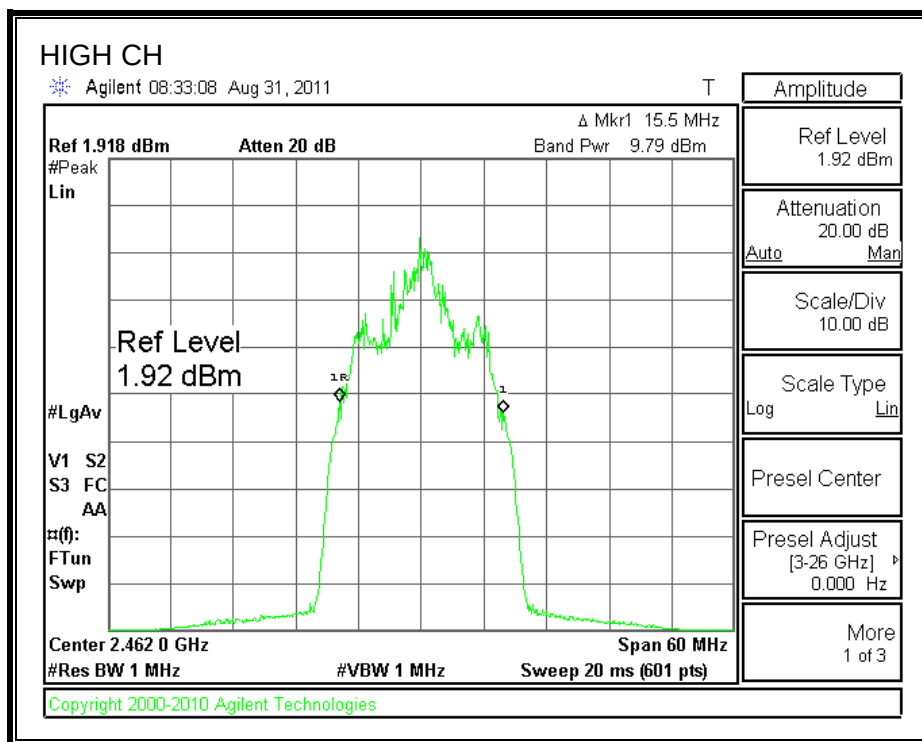
The cable assembly insertion loss of 10.8dB (including 10 dB pad and 0.8dB cable) was entered as an offset in the power meter to allow for direct reading of power.

OUTPUT POWER

Channel	Frequency (MHz)	Peak power Meter Reading (dBm)	Attenuator and Cable Offset (dB)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	9.63	10.8	20.43	30	-9.57
Middle	2437	10.3	10.8	21.10	30	-8.90
High	2462	9.79	10.8	20.59	30	-9.41

OUTPUT POWER





6.3.3. 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 10.8dB (including 10 dB pad and 0.8 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	12.00
Middle	2437	12.40
High	2462	12.10

6.3.4. 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.

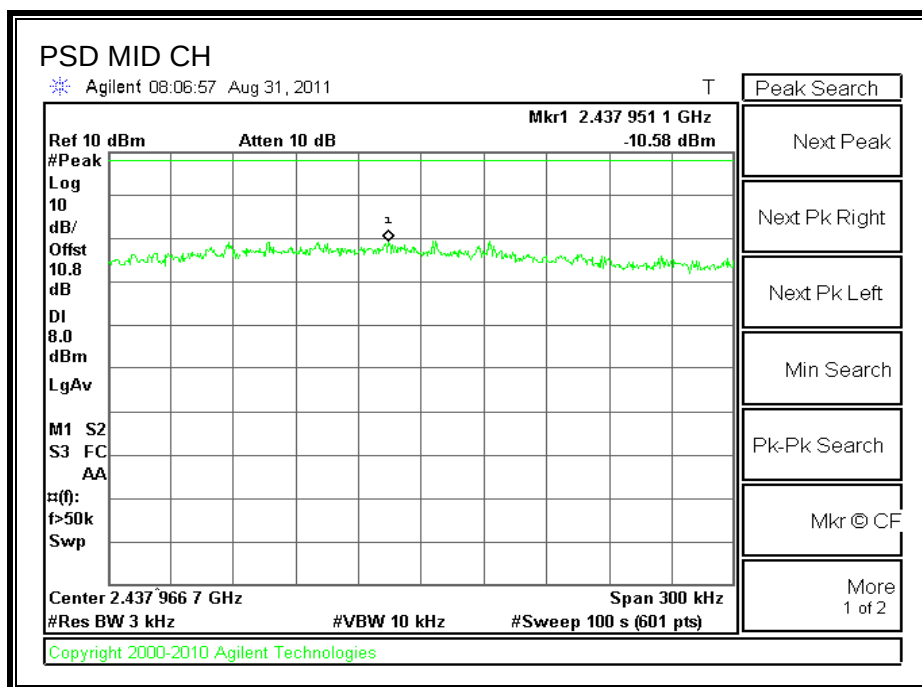
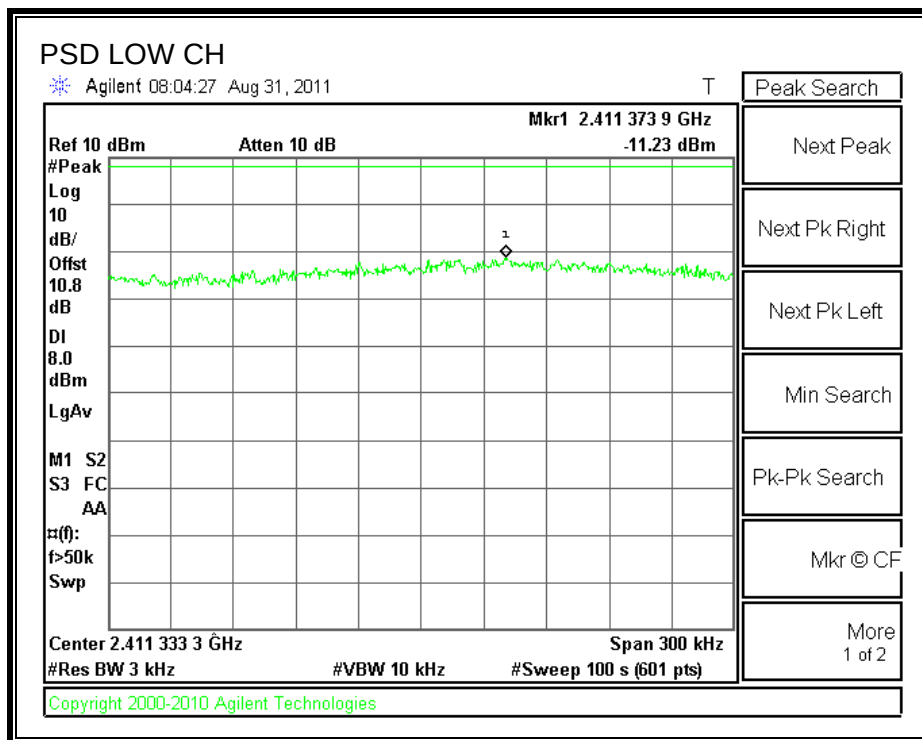
TEST PROCEDURE

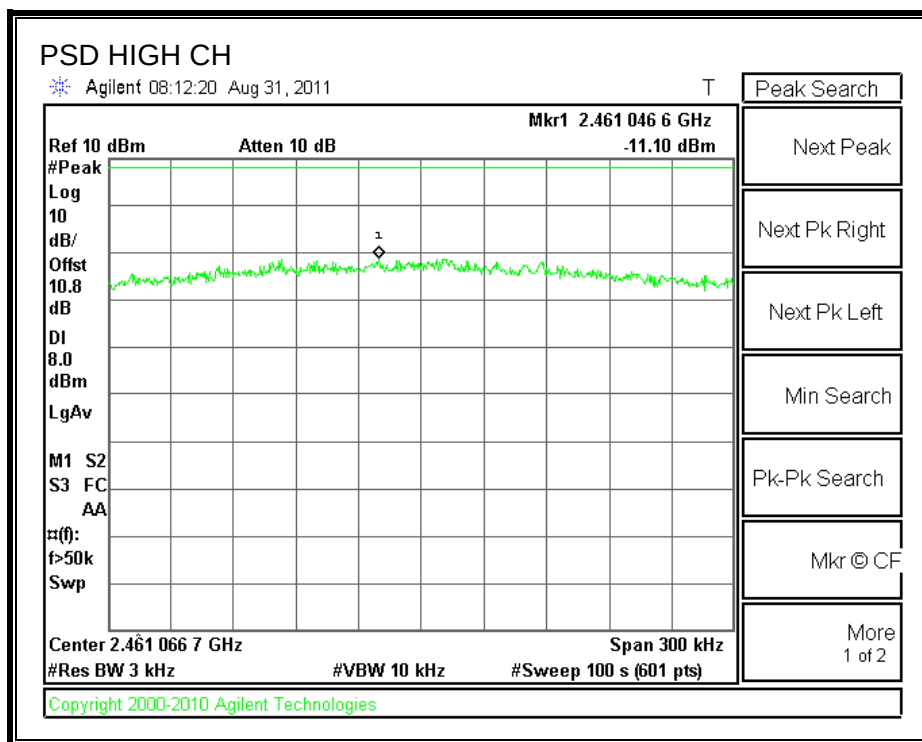
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-11.23	8	-19.23
Middle	2437	-10.58	8	-18.58
High	2462	-11.10	8	-19.10

POWER SPECTRAL DENSITY





6.3.5. 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.

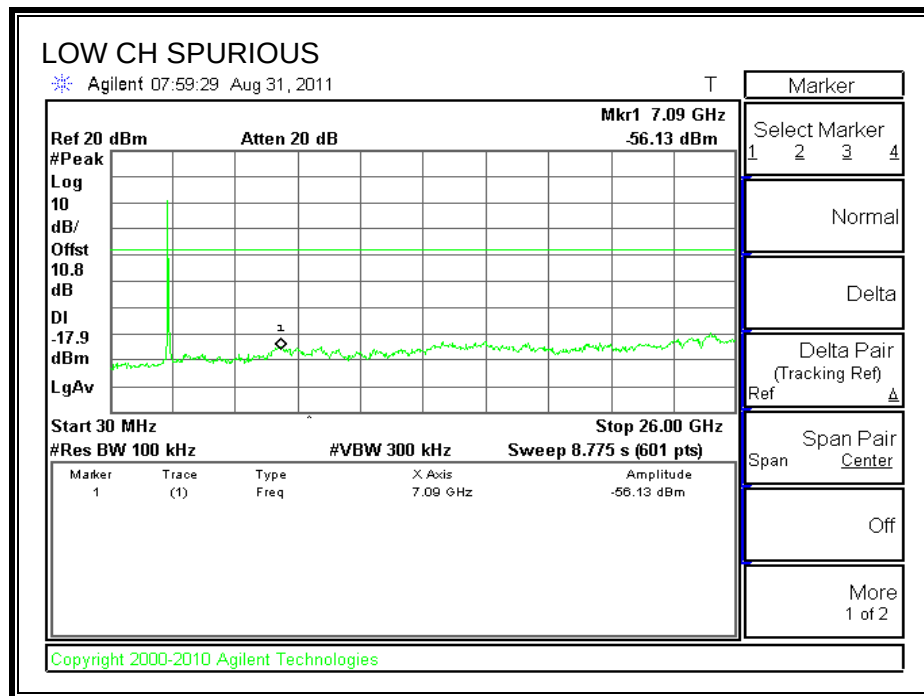
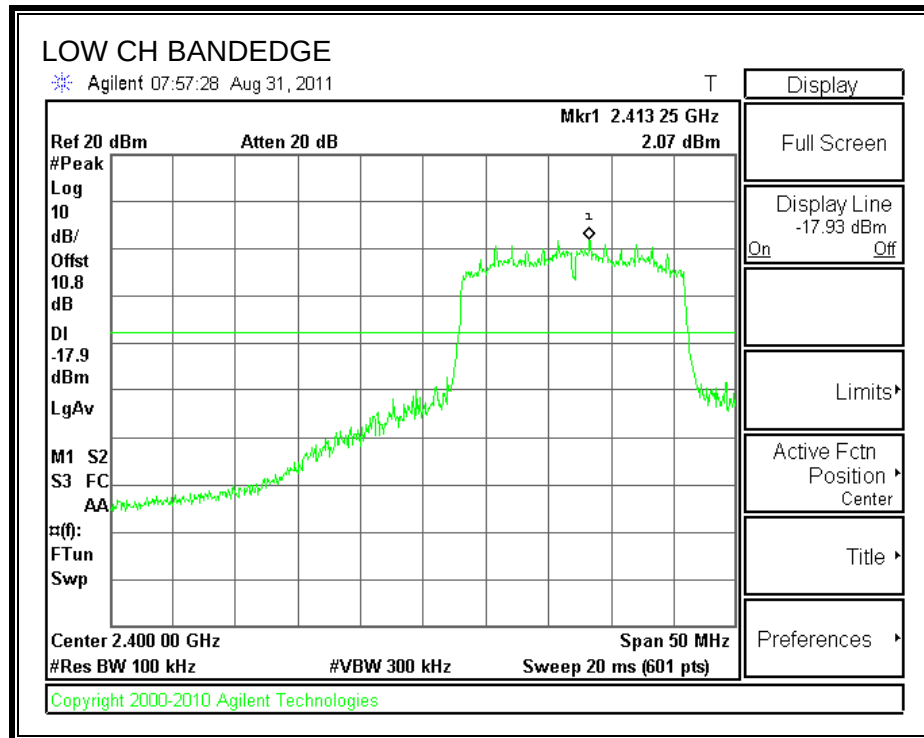
TEST PROCEDURE

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.

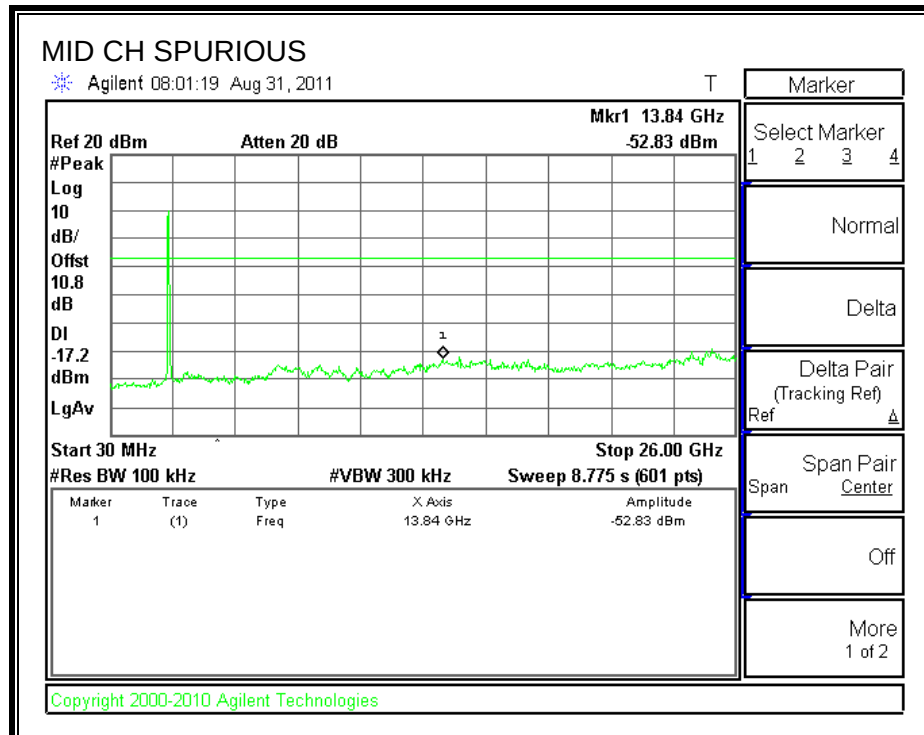
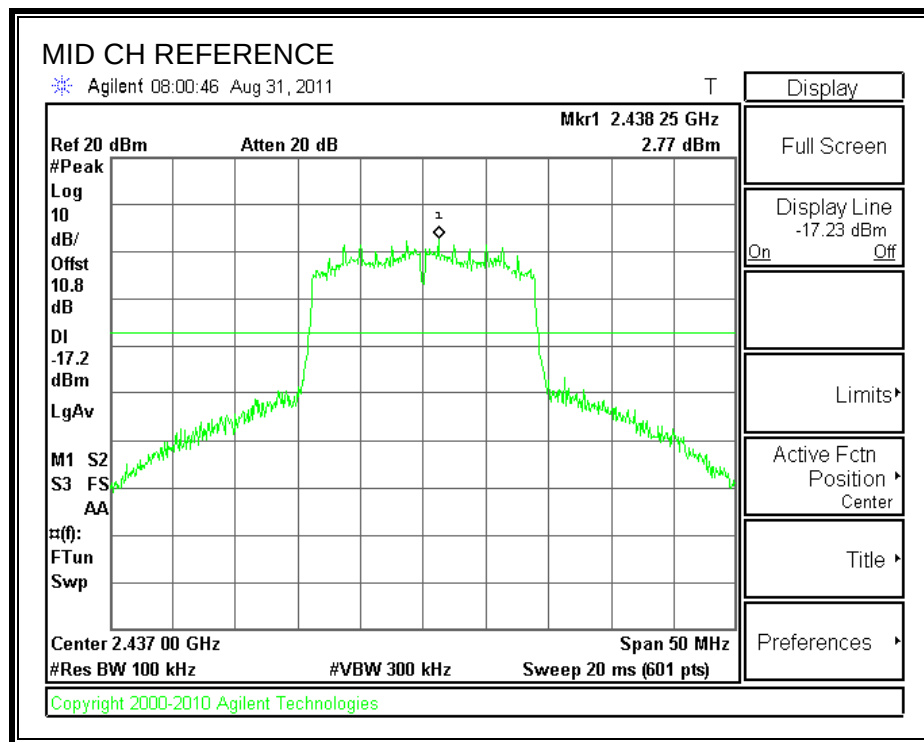
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

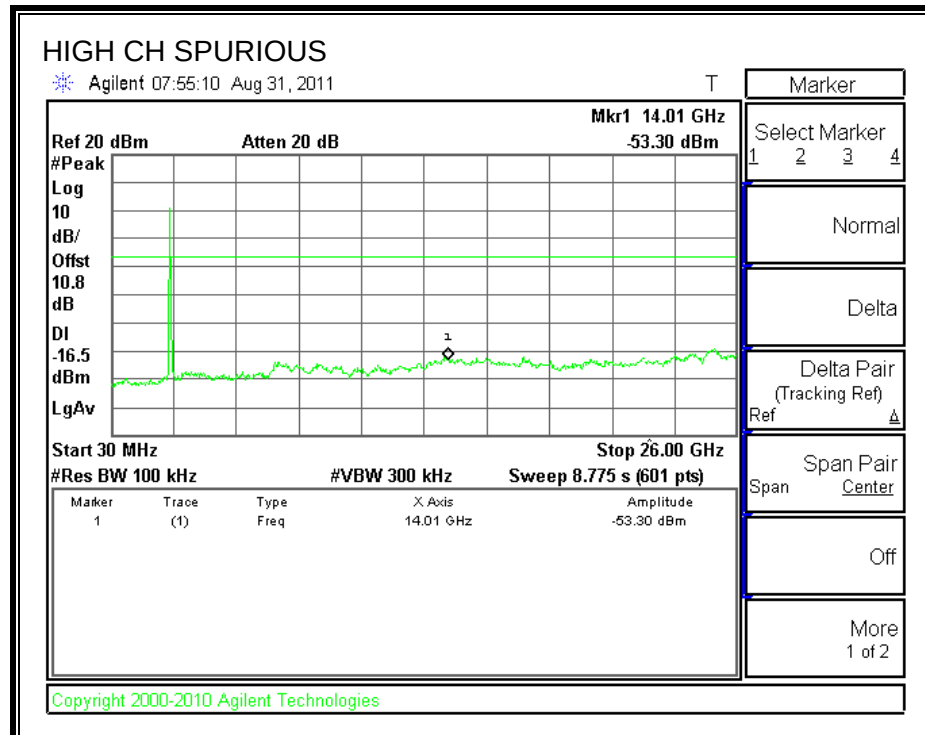
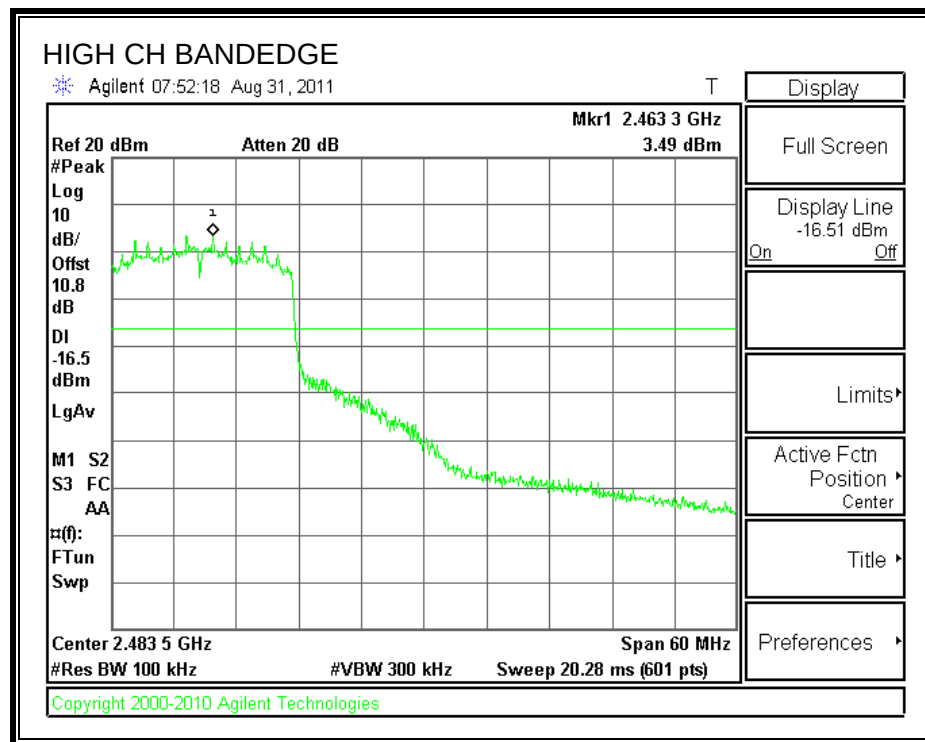
RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL





7. RADIATED TEST RESULTS

7.1. 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.

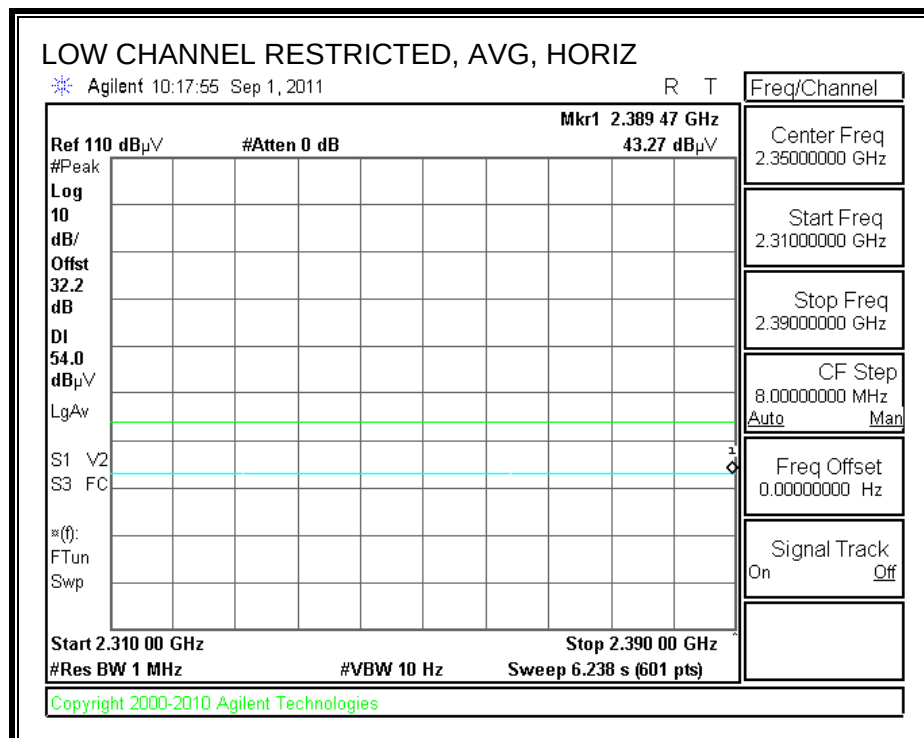
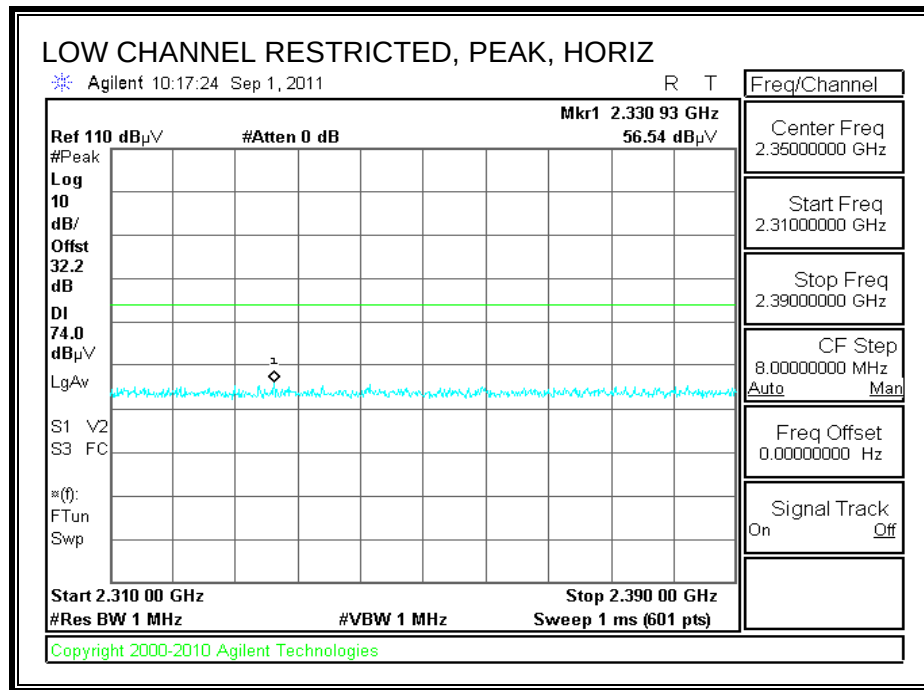
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

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.

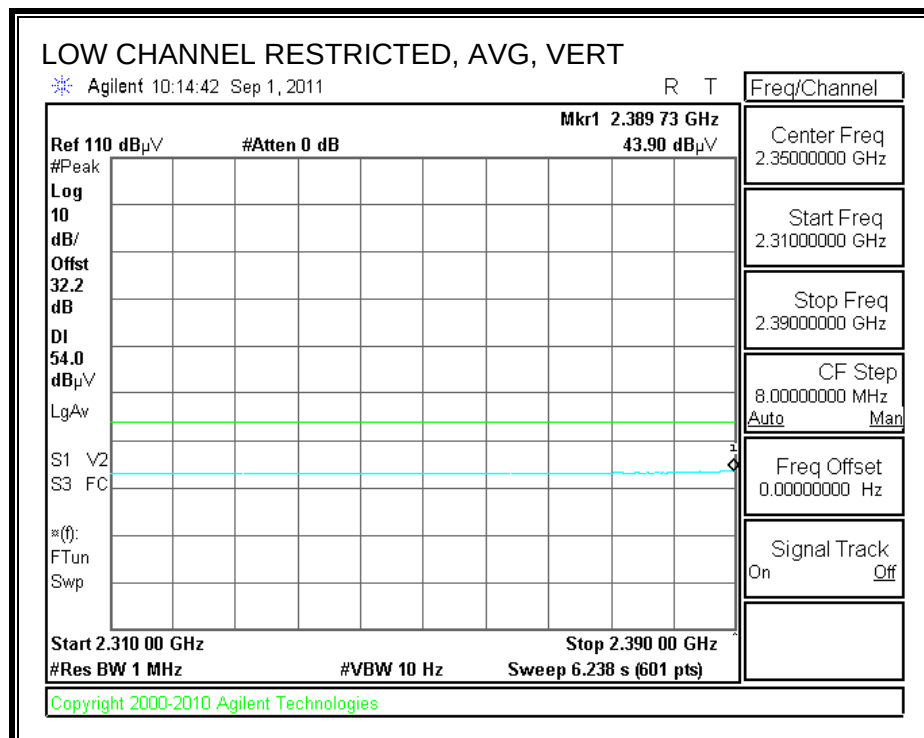
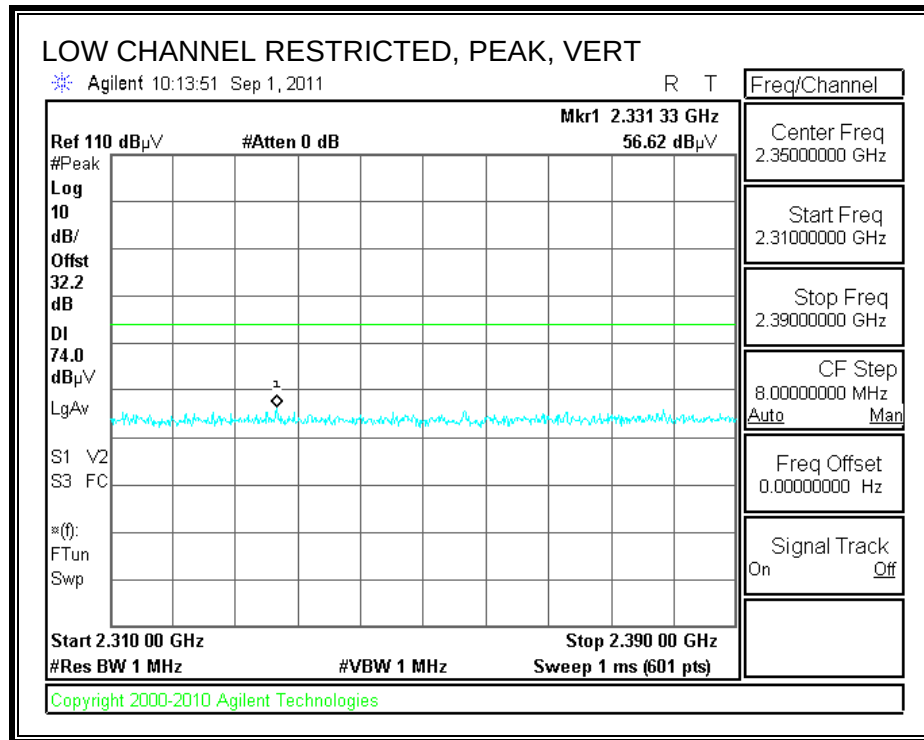
7.2. TRANSMITTER ABOVE 1 GHz FOR 2.4GHz BAND

7.2.1. FOR 802.11b MODE

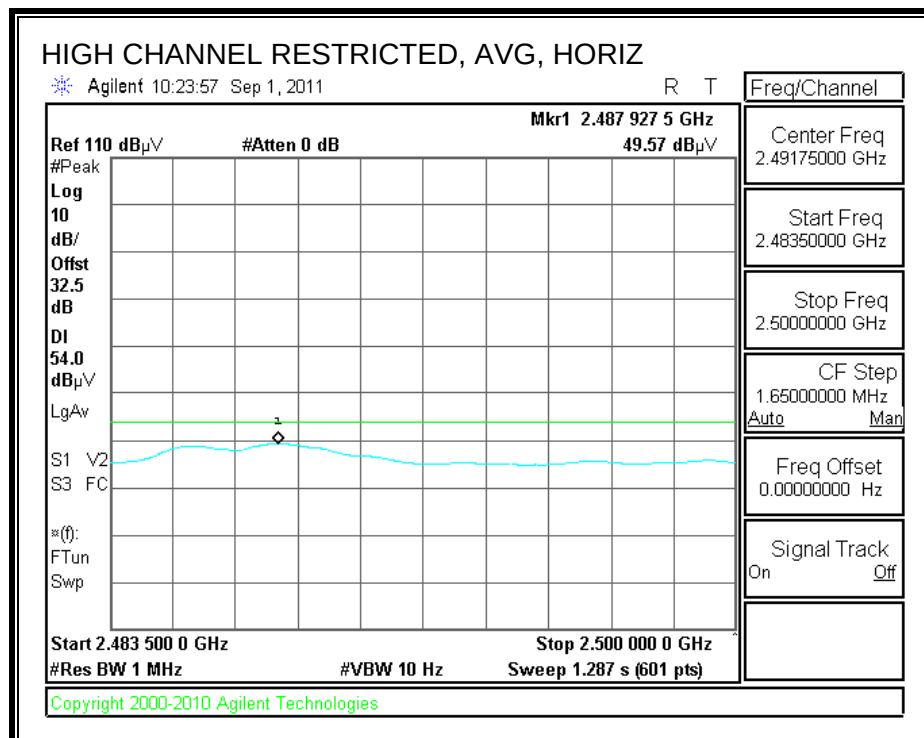
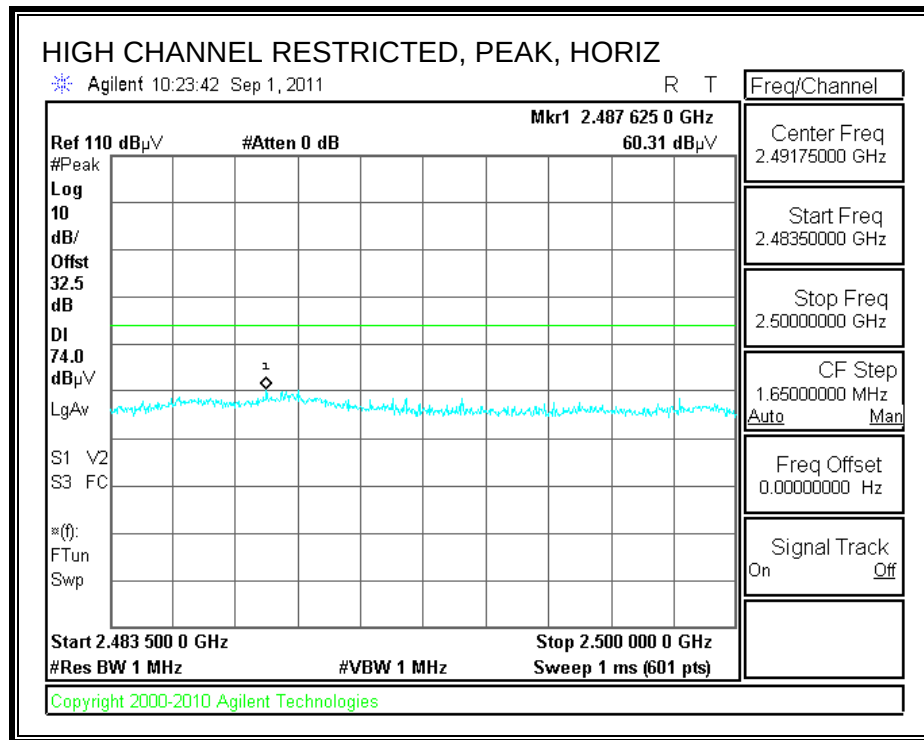
RESTRICTED BANEDGE (LOW CHANNEL, HORIZONTAL)



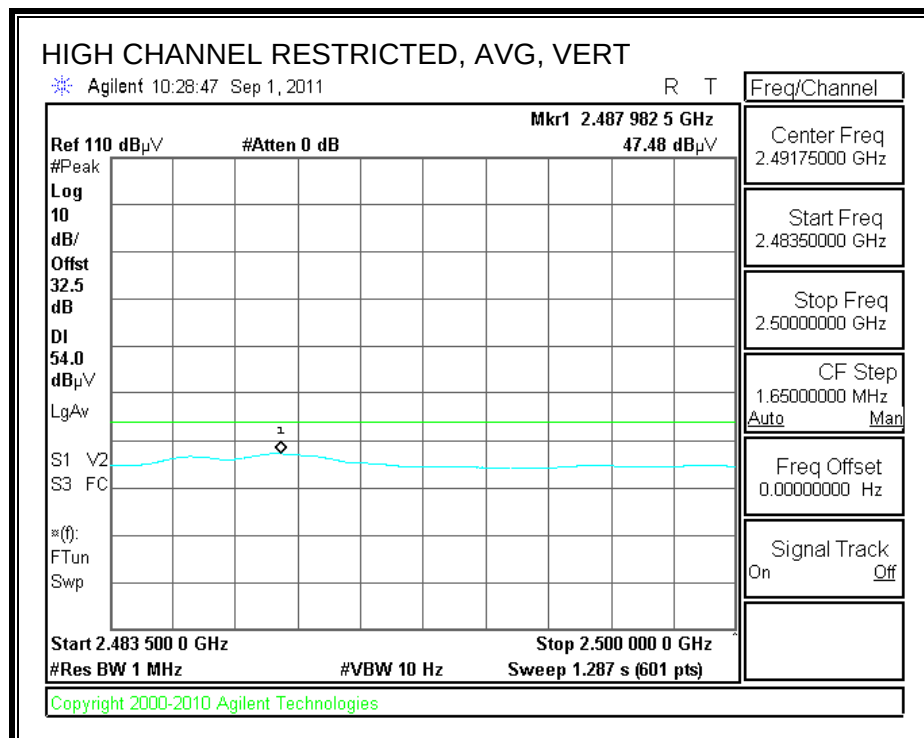
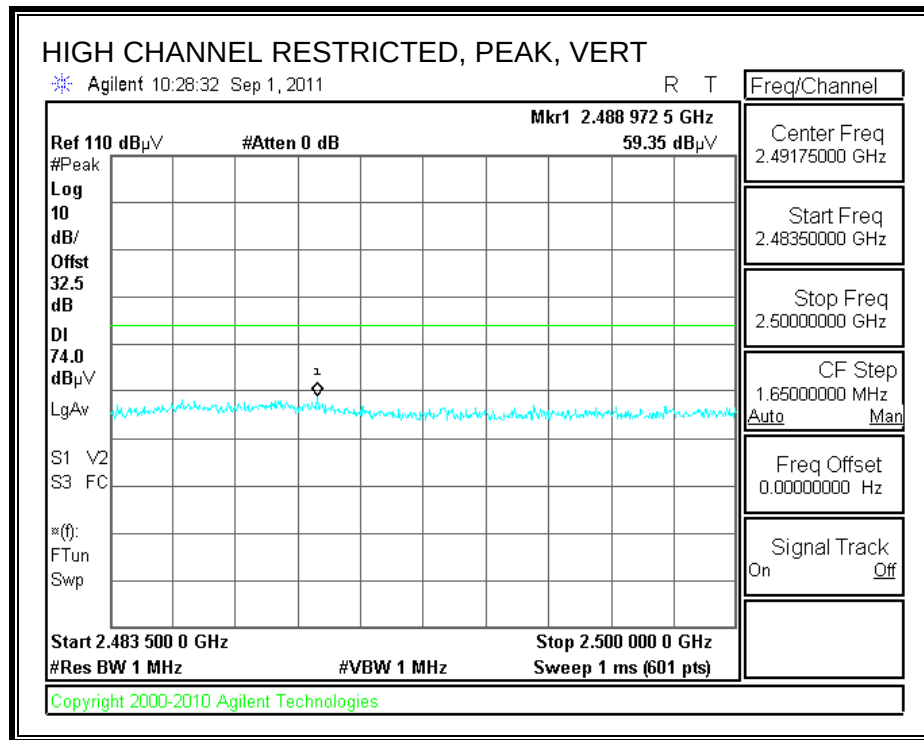
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



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: David Garcia
Date: 09/26/11
Project #: 11113982
Company: Samsung
Test Target: 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	

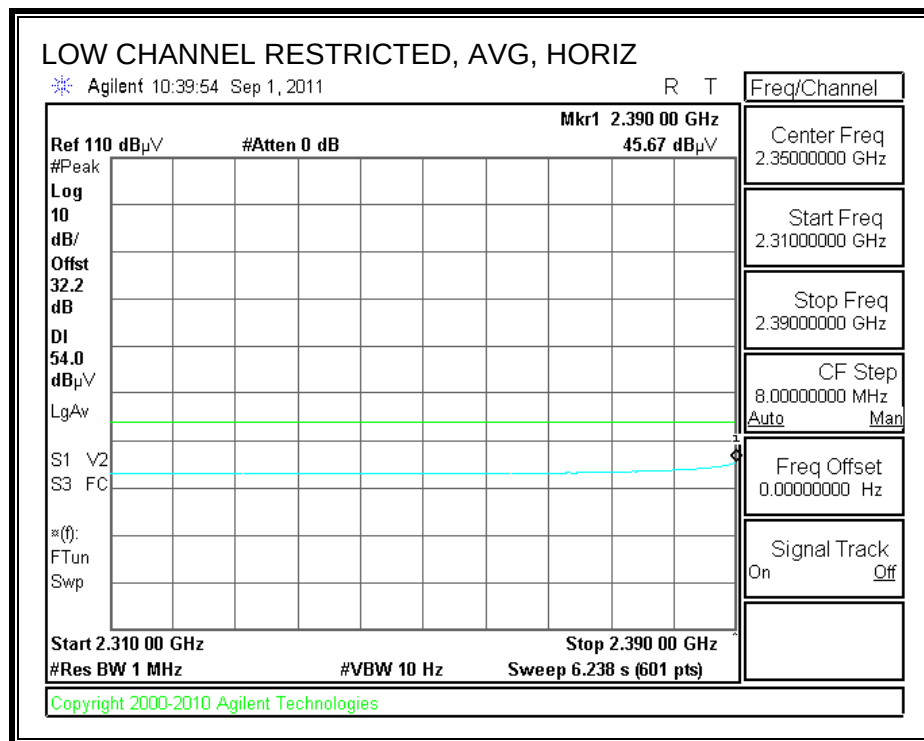
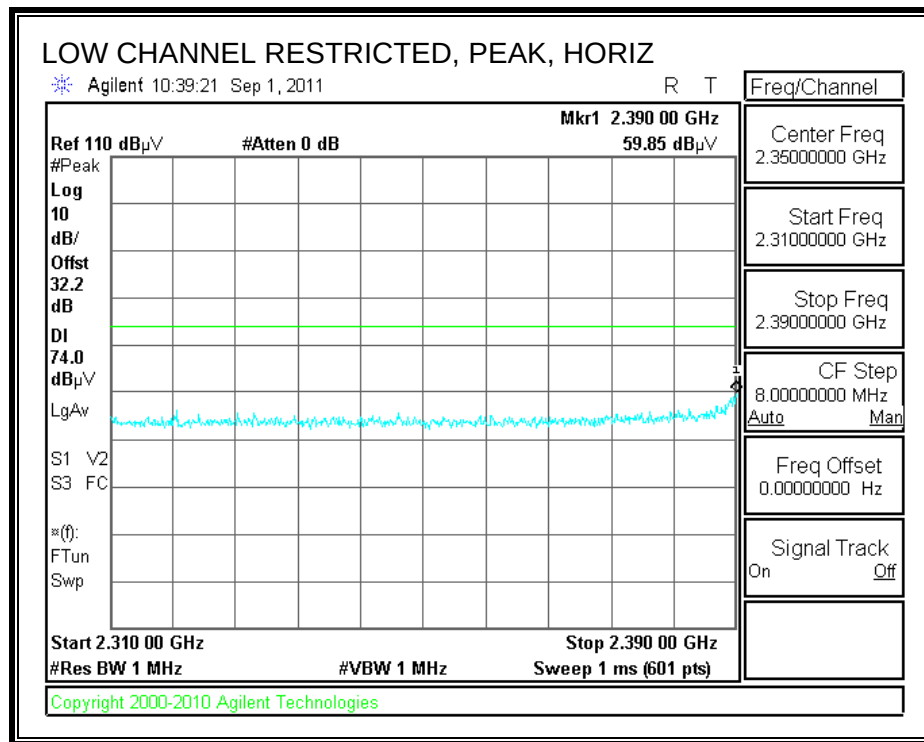
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Low Channel: 2412 MHz													
4.824	3.0	45.9	33.2	6.3	-34.8	0.0	0.5	51.1	74.0	-22.9	H	P	
4.824	3.0	42.1	33.2	6.3	-34.8	0.0	0.5	47.2	54.0	-6.8	H	A	
4.824	3.0	49.2	33.2	6.3	-34.8	0.0	0.5	54.4	74.0	-19.6	V	P	
4.824	3.0	46.7	33.2	6.3	-34.8	0.0	0.5	51.8	54.0	-2.2	V	A	
Mid Channel: 2437 MHz													
4.874	3.0	43.7	33.2	6.3	-34.8	0.0	0.5	48.9	74.0	-25.1	H	P	
4.874	3.0	39.5	33.2	6.3	-34.8	0.0	0.5	44.8	54.0	-9.2	H	A	
7.311	3.0	39.0	36.2	8.5	-34.9	0.0	0.5	49.2	74.0	-24.8	H	P	
7.311	3.0	29.7	36.2	8.5	-34.9	0.0	0.5	40.0	54.0	-14.0	H	A	
4.874	3.0	49.6	33.2	6.3	-34.8	0.0	0.5	54.8	74.0	-19.2	V	P	
4.874	3.0	46.9	33.2	6.3	-34.8	0.0	0.5	52.1	54.0	-1.9	V	A	
7.311	3.0	43.9	36.2	8.5	-34.9	0.0	0.5	54.2	74.0	-19.8	V	P	
7.311	3.0	38.3	36.2	8.5	-34.9	0.0	0.5	48.6	54.0	-5.4	V	A	
High Channel: 2462 MHz													
4.924	3.0	45.4	33.3	6.3	-34.8	0.0	0.5	50.8	74.0	-23.2	H	P	
4.924	3.0	41.9	33.3	6.3	-34.8	0.0	0.5	47.3	54.0	-6.7	H	A	
7.386	3.0	42.6	36.3	8.5	-34.9	0.0	0.5	53.0	74.0	-21.0	H	P	
7.386	3.0	37.1	36.3	8.5	-34.9	0.0	0.5	47.5	54.0	-6.5	H	A	
4.924	3.0	49.9	33.3	6.3	-34.8	0.0	0.5	55.3	74.0	-18.7	V	P	
4.924	3.0	47.5	33.3	6.3	-34.8	0.0	0.5	52.8	54.0	-1.2	V	A	
7.386	3.0	47.6	36.3	8.5	-34.9	0.0	0.5	58.0	74.0	-16.0	V	P	
7.386	3.0	43.3	36.3	8.5	-34.9	0.0	0.5	53.7	54.0	-0.3	V	A	

Rev. 4.1.2.7

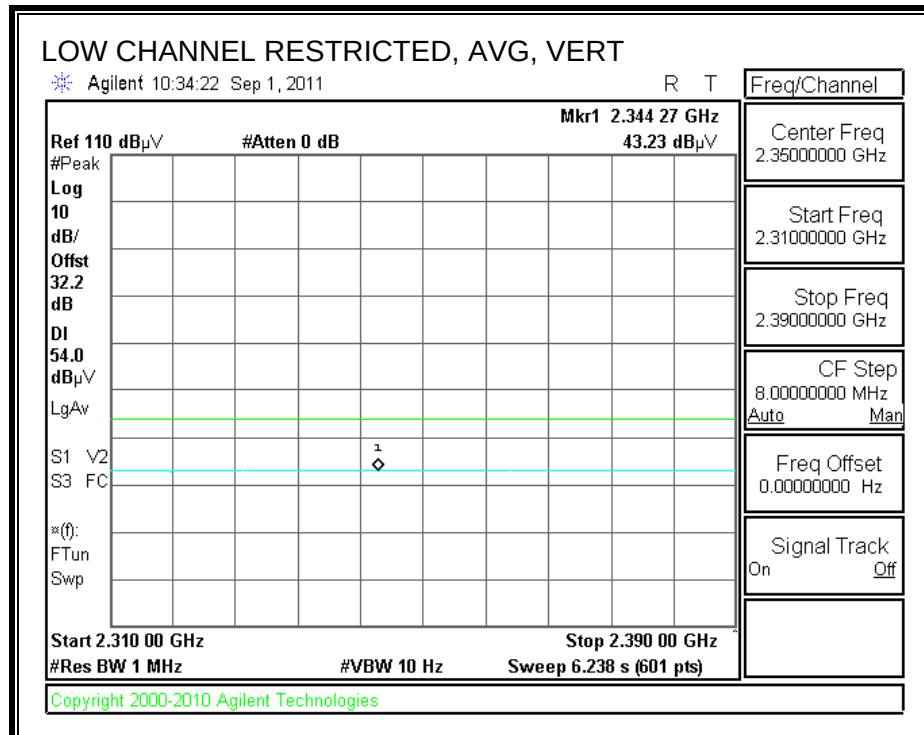
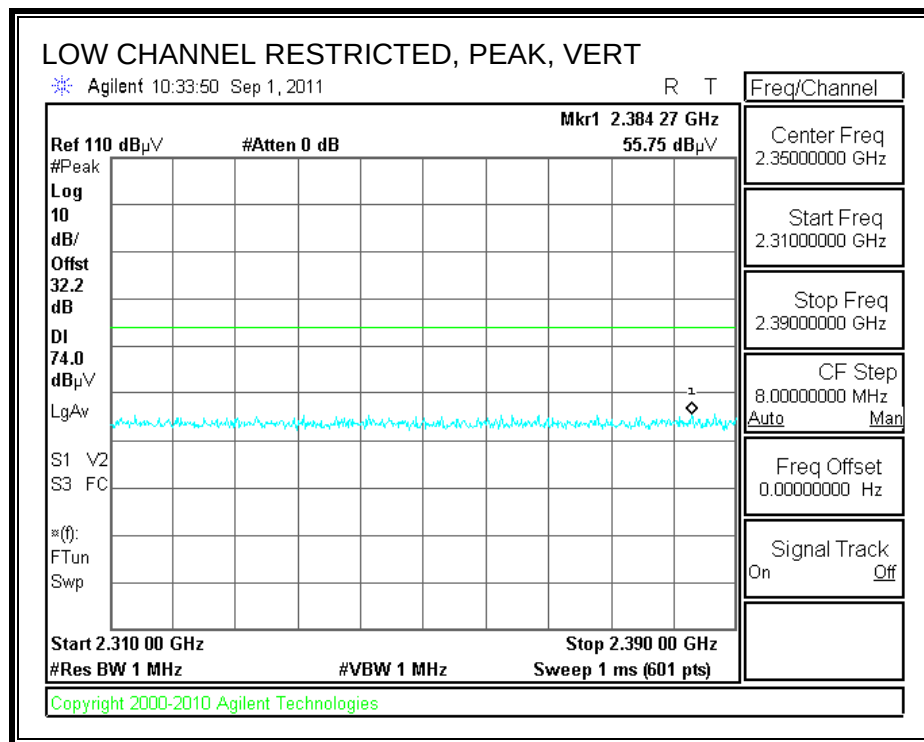
Note: No other emissions were detected above the system noise floor.

7.2.2. FOR 802.11g MODE

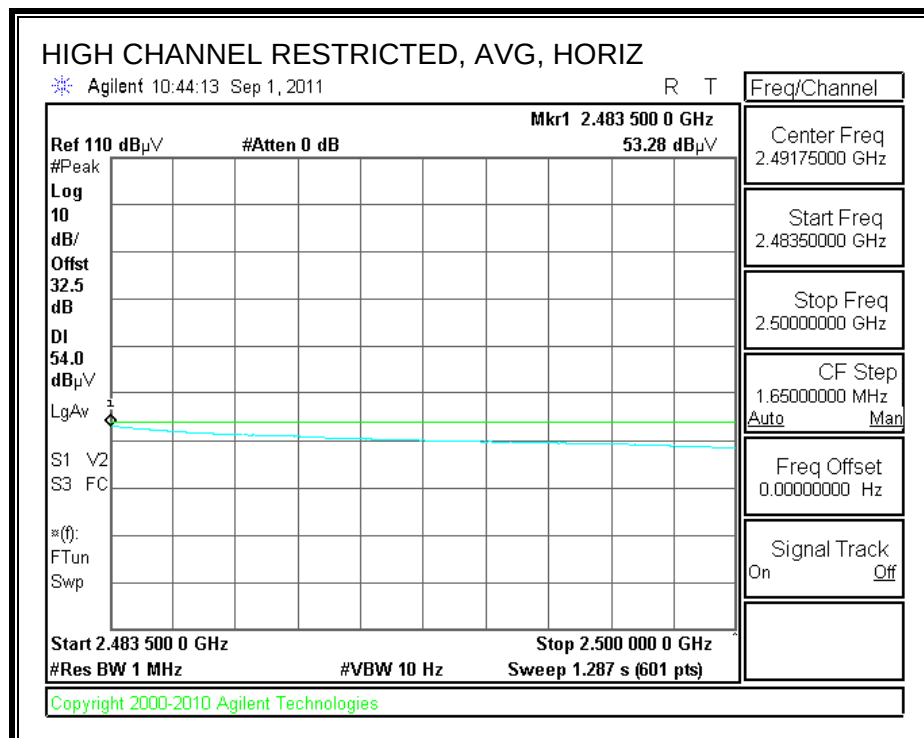
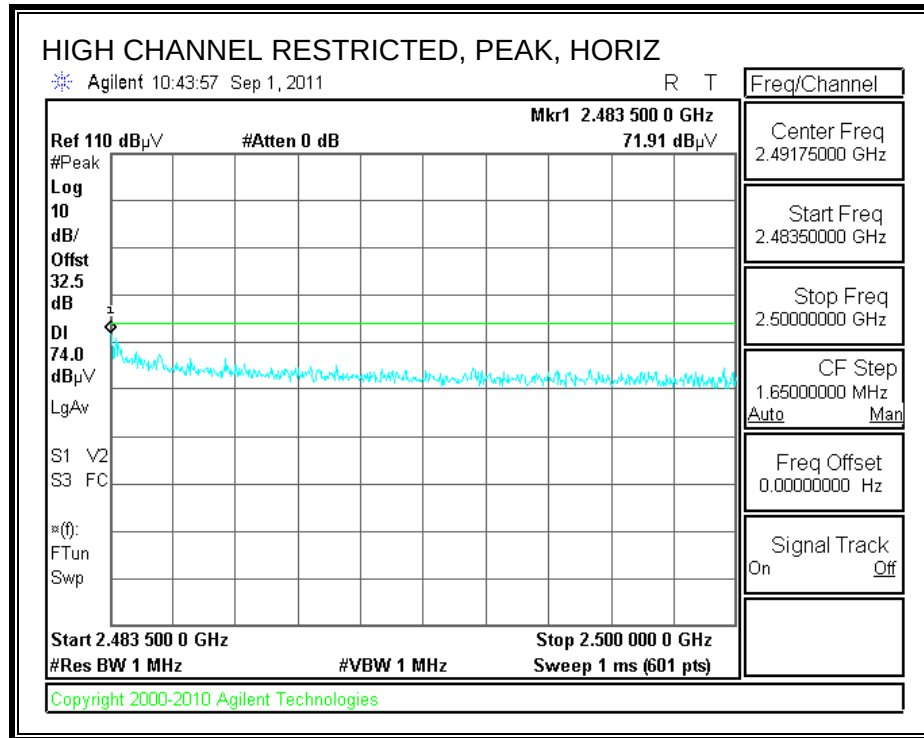
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



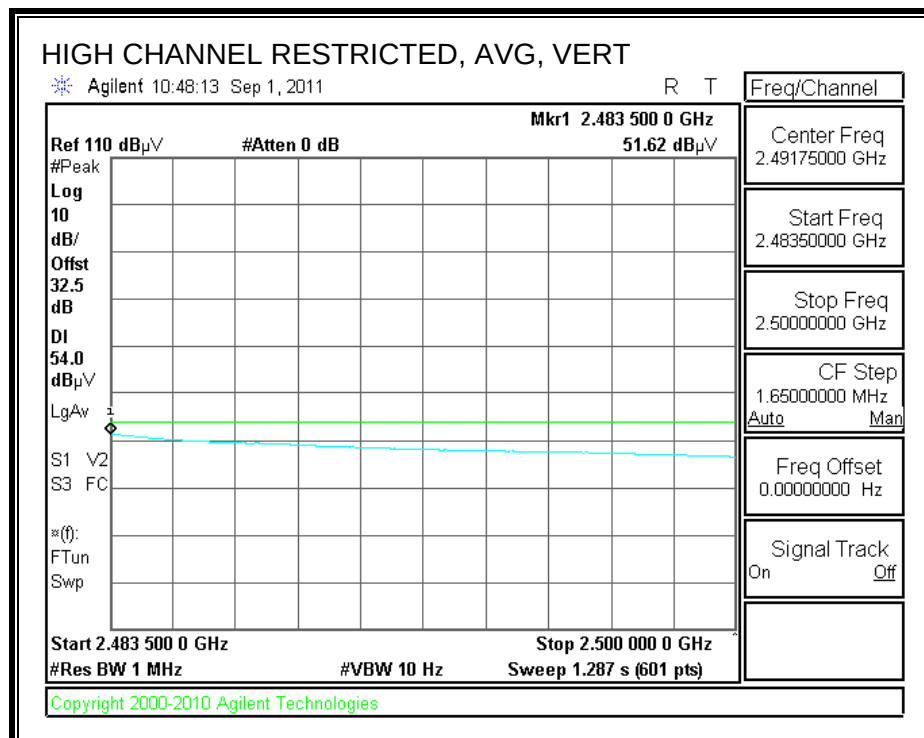
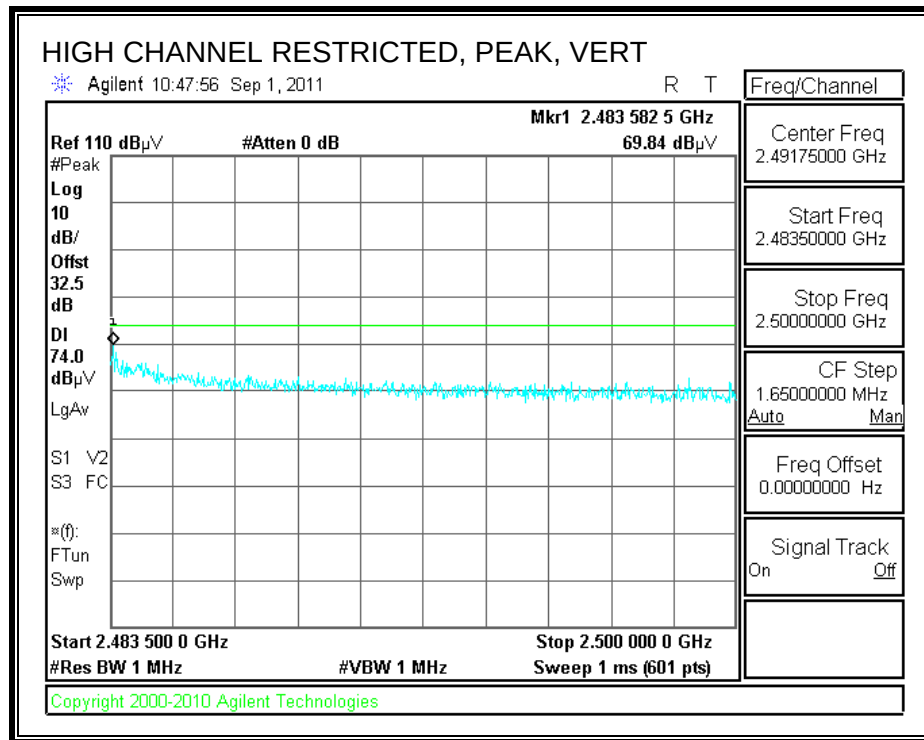
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



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: 09-02-11
Project #: 11113982
Company: Samsung
Test Target: FCC 15.247
Mode Oper: G mode, TX

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

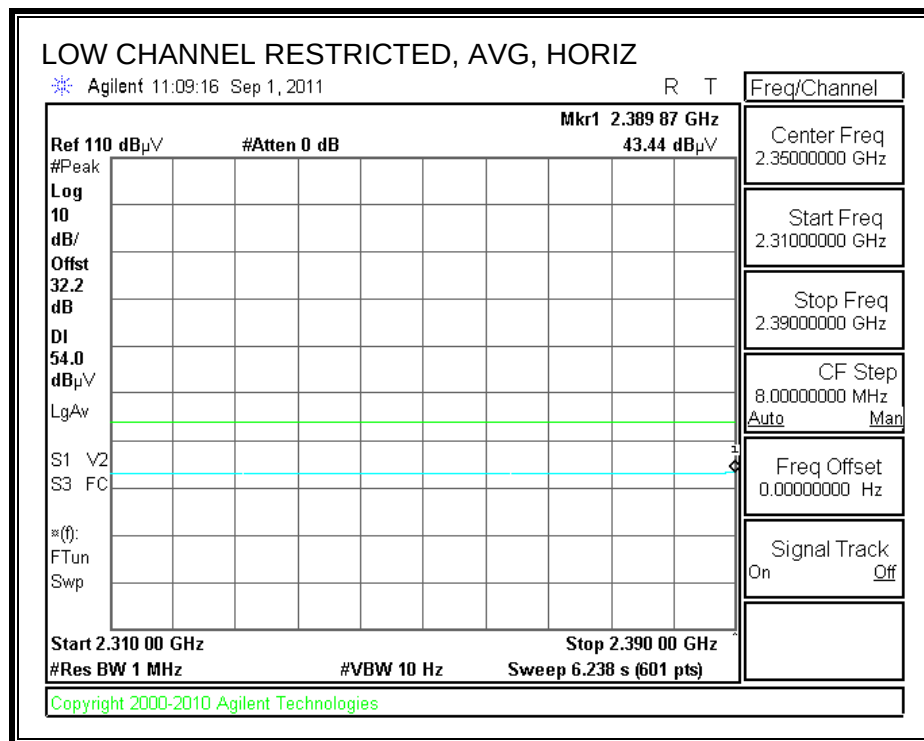
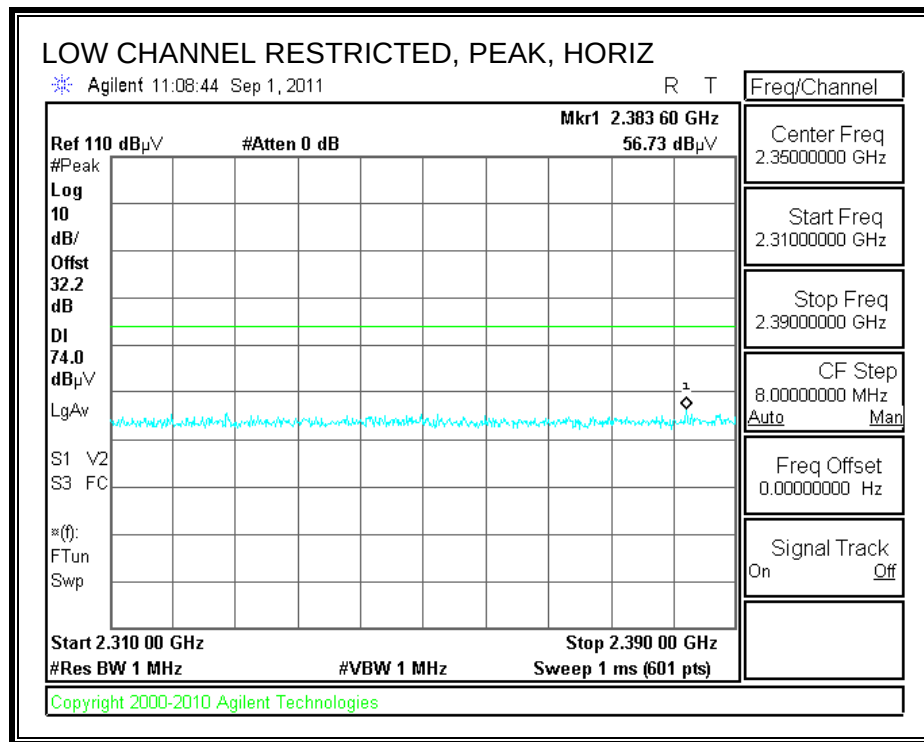
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det. P/A/Q/P	Notes
Low Ch, 2412MHz													
4.824	3.0	59.4	33.2	6.3	-34.8	0.0	0.0	64.1	74.0	-9.9	V	P	
4.824	3.0	45.4	33.2	6.3	-34.8	0.0	0.0	50.1	54.0	-3.9	V	A	
4.824	3.0	54.0	33.2	6.3	-34.8	0.0	0.0	58.6	74.0	-15.4	H	P	
4.824	3.0	39.7	33.2	6.3	-34.8	0.0	0.0	44.3	54.0	-9.7	H	A	
Mid Ch, 2437MHz													
4.874	3.0	57.8	33.2	6.3	-34.8	0.0	0.0	62.6	74.0	-11.4	V	P	
4.874	3.0	44.4	33.2	6.3	-34.8	0.0	0.0	49.2	54.0	-4.8	V	A	
7.311	3.0	53.9	36.2	8.5	-34.9	0.0	0.0	63.6	74.0	-10.4	V	P	
7.311	3.0	39.3	36.2	8.5	-34.9	0.0	0.0	49.1	54.0	-4.9	V	A	
4.874	3.0	50.5	33.2	6.3	-34.8	0.0	0.0	55.3	74.0	-18.7	H	P	
4.874	3.0	37.7	33.2	6.3	-34.8	0.0	0.0	42.5	54.0	-11.5	H	A	
7.311	3.0	46.8	36.2	8.5	-34.9	0.0	0.0	56.6	74.0	-17.4	H	P	
7.311	3.0	32.9	36.2	8.5	-34.9	0.0	0.0	42.7	54.0	-11.3	H	A	
High Ch, 2462MHz													
4.924	3.0	53.8	33.3	6.3	-34.8	0.0	0.0	58.6	74.0	-15.4	V	P	
4.924	3.0	39.7	33.3	6.3	-34.8	0.0	0.0	44.5	54.0	-9.5	V	A	
7.386	3.0	55.3	36.3	8.5	-34.9	0.0	0.0	65.2	74.0	-8.8	V	P	
7.386	3.0	41.0	36.3	8.5	-34.9	0.0	0.0	50.9	54.0	-3.1	V	A	
4.924	3.0	48.5	33.3	6.3	-34.8	0.0	0.0	53.3	74.0	-20.7	H	P	
4.924	3.0	35.6	33.3	6.3	-34.8	0.0	0.0	40.4	54.0	-13.6	H	A	
7.386	3.0	51.1	36.3	8.5	-34.9	0.0	0.0	61.0	74.0	-13.0	H	P	
7.386	3.0	36.9	36.3	8.5	-34.9	0.0	0.0	46.8	54.0	-7.2	H	A	

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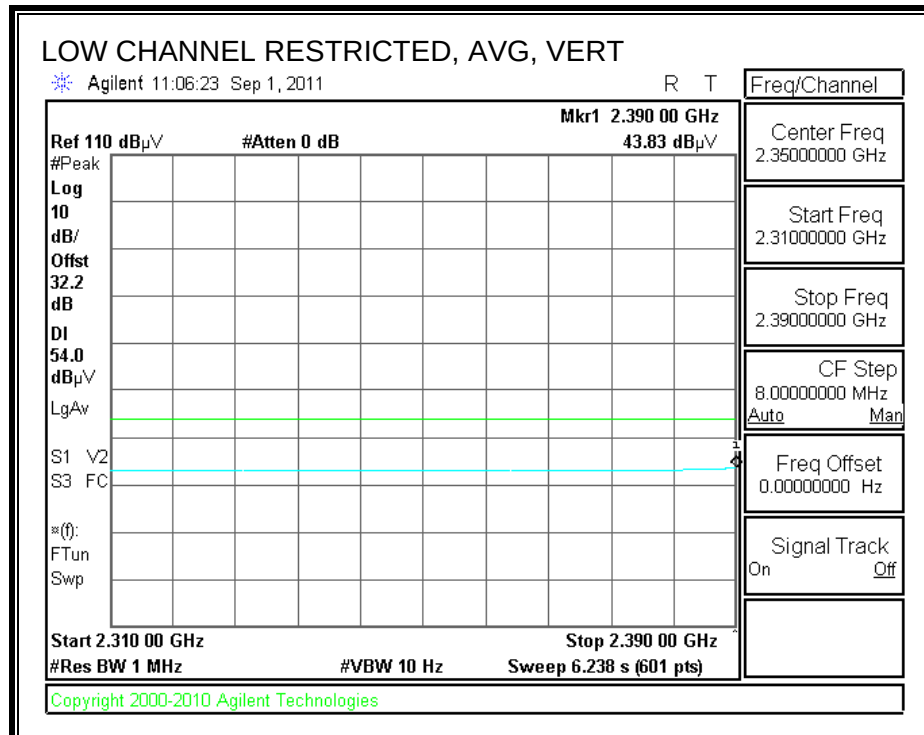
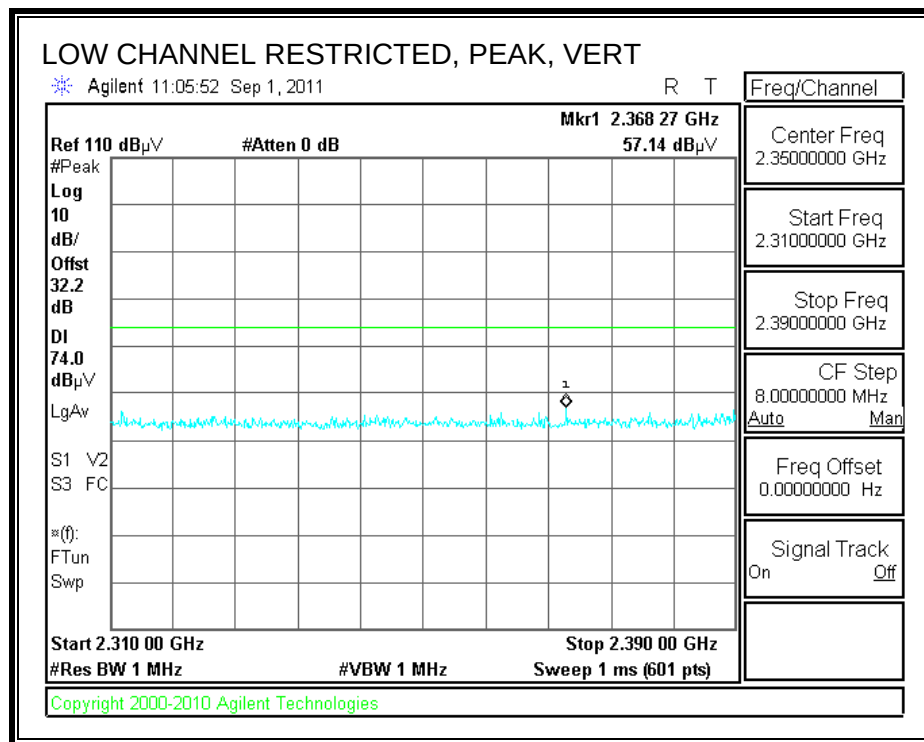
Note: No other emissions were detected above the system noise floor.

7.2.3. FOR 802.11n HT20 SISO MODE

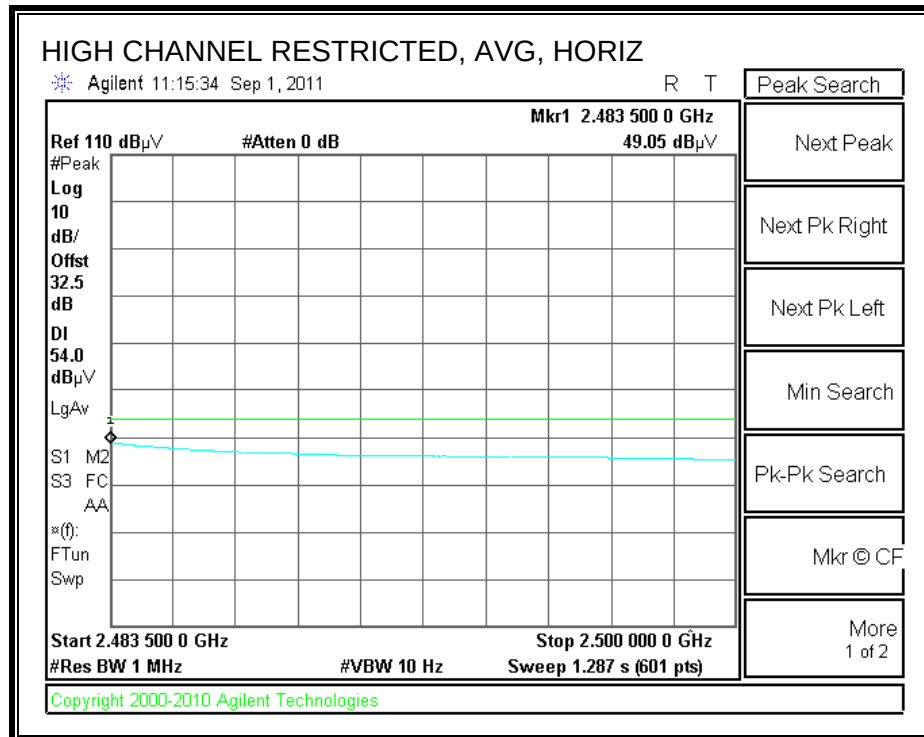
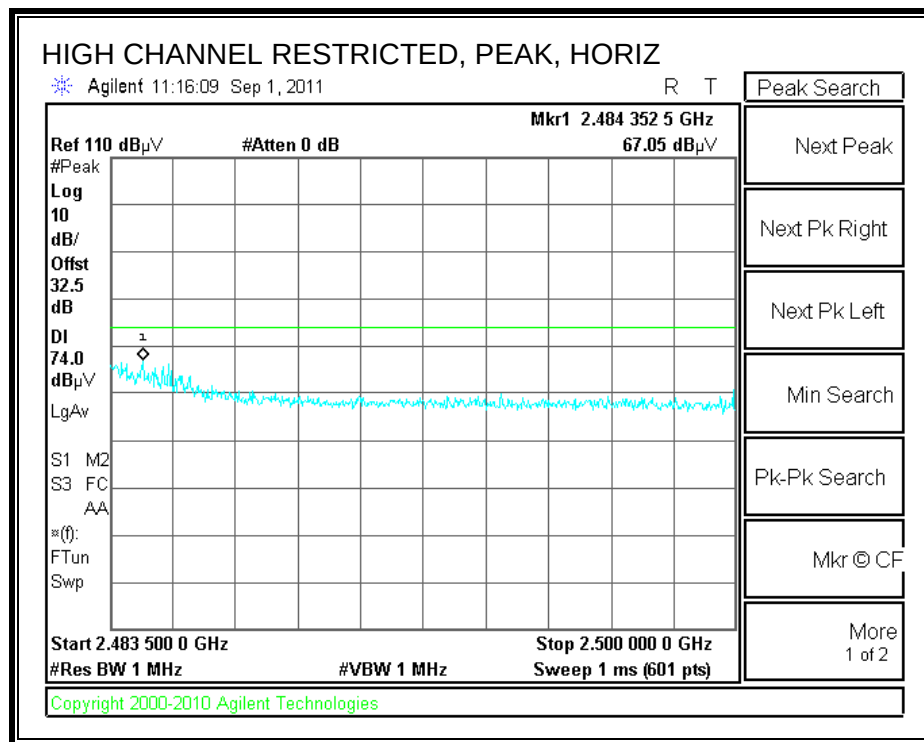
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



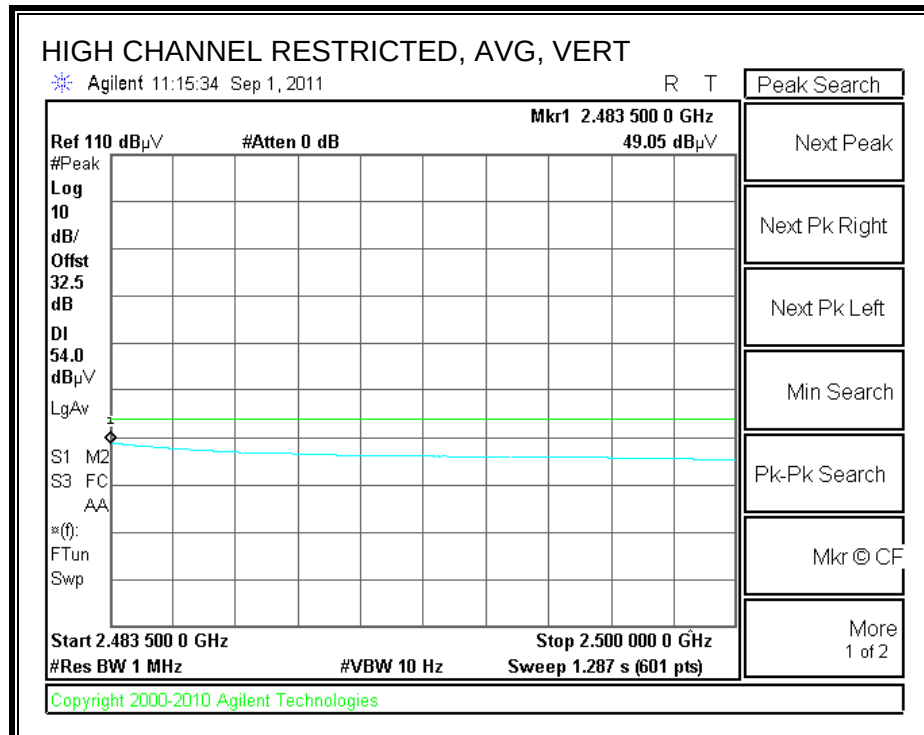
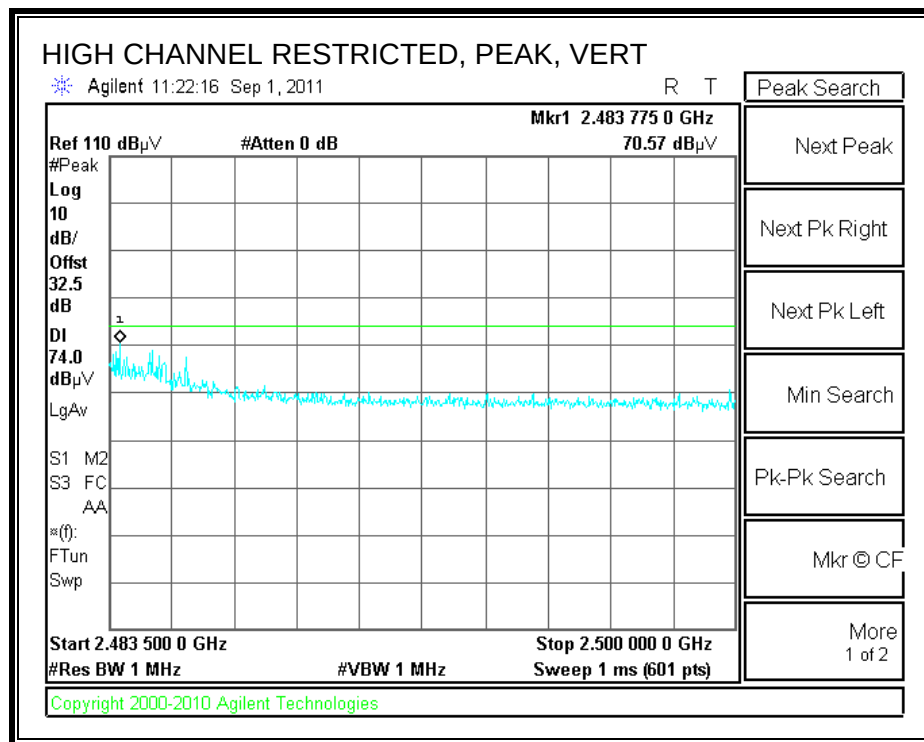
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



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: 09-02-11
Project #: 11113982
Company: Samsung
Test Target: FCC 15.247
Mode Oper: HT20, TX

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	54.6	33.2	6.3	-34.8	0.0	0.0	59.2	74.0	-14.8	H	P	
4.824	3.0	40.6	33.2	6.3	-34.8	0.0	0.0	45.2	54.0	-8.8	H	A	
4.824	3.0	52.6	33.2	6.3	-34.8	0.0	0.0	57.3	74.0	-16.7	V	P	
4.824	3.0	39.6	33.2	6.3	-34.8	0.0	0.0	44.2	54.0	-9.8	V	A	
Mid Ch, 2437MHz													
4.874	3.0	56.6	33.2	6.3	-34.8	0.0	0.0	61.3	74.0	-12.7	H	P	
4.874	3.0	42.9	33.2	6.3	-34.8	0.0	0.0	47.6	54.0	-6.4	H	A	
7.311	3.0	50.3	36.2	8.5	-34.9	0.0	0.0	60.0	74.0	-14.0	H	P	
7.311	3.0	35.1	36.2	8.5	-34.9	0.0	0.0	44.9	54.0	-9.1	H	A	
4.874	3.0	56.0	33.2	6.3	-34.8	0.0	0.0	60.7	74.0	-13.3	V	P	
4.874	3.0	41.2	33.2	6.3	-34.8	0.0	0.0	45.9	54.0	-8.1	V	A	
7.311	3.0	50.9	36.2	8.5	-34.9	0.0	0.0	60.6	74.0	-13.4	V	P	
7.311	3.0	35.7	36.2	8.5	-34.9	0.0	0.0	45.4	54.0	-8.6	V	A	
High Ch, 2462MHz													
4.924	3.0	51.5	33.3	6.3	-34.8	0.0	0.0	56.3	74.0	-17.7	H	P	
4.924	3.0	37.5	33.3	6.3	-34.8	0.0	0.0	42.4	54.0	-11.6	H	A	
7.386	3.0	51.6	36.3	8.5	-34.9	0.0	0.0	61.5	74.0	-12.5	H	P	
7.386	3.0	37.2	36.3	8.5	-34.9	0.0	0.0	47.1	54.0	-6.9	H	A	
4.924	3.0	59.3	33.3	6.3	-34.8	0.0	0.0	64.1	74.0	-9.9	V	P	
4.924	3.0	45.3	33.3	6.3	-34.8	0.0	0.0	50.2	54.0	-3.8	V	A	
7.386	3.0	52.7	36.3	8.5	-34.9	0.0	0.0	62.5	74.0	-11.5	V	P	
7.386	3.0	38.7	36.3	8.5	-34.9	0.0	0.0	48.5	54.0	-5.5	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

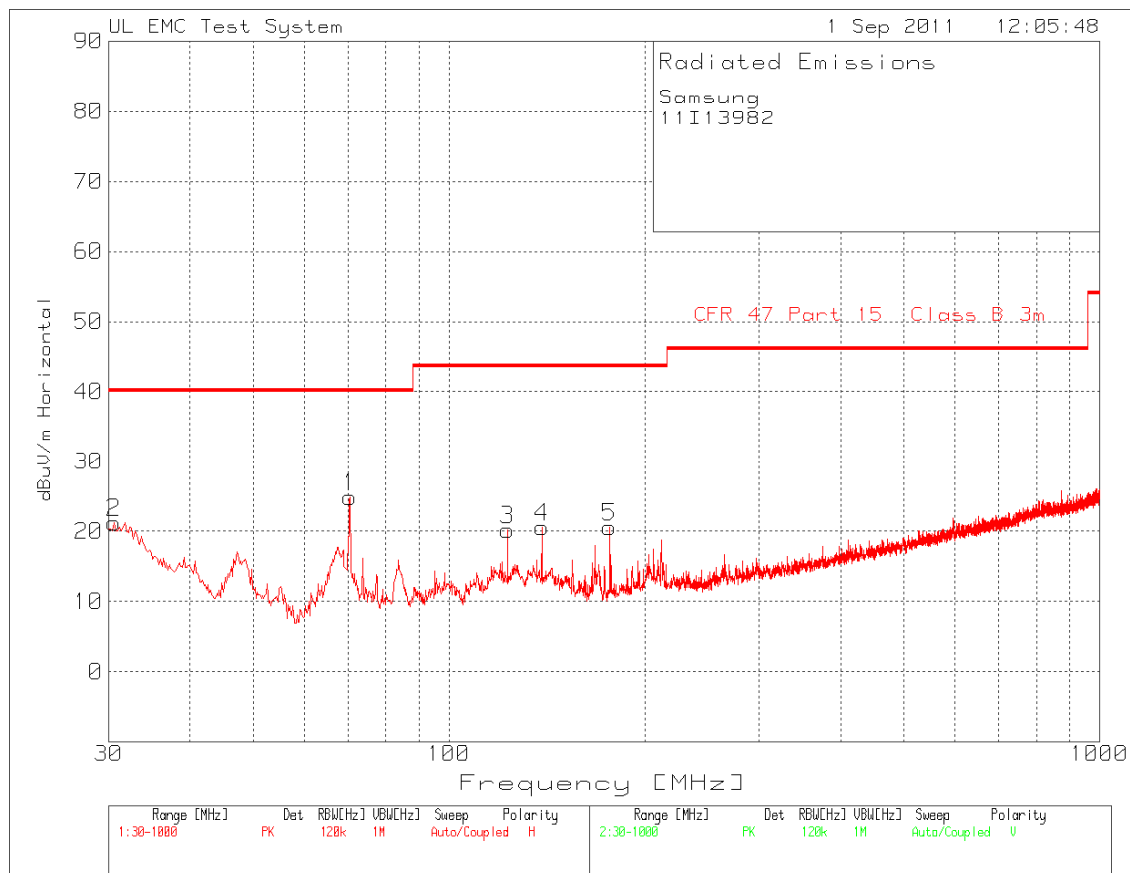
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

DATA

Samsung										
11I13982										
Range 1 30 - 1000MHz										
Frequency	Reading	Detector	Cable.TX	PreAmp.TX	Bilog Fac	dBuV/m	Part 15B	Margin	Height [c	Polarity
70.5136	44.88	PK	1.2	-29.4	8.2	24.88	40	-15.12	300	Horz
30.5815	29.76	PK	0.9	-29.5	20.1	21.26	40	-18.74	91	Horz
123.0456	34.04	PK	1.5	-29.2	13.8	20.14	43.5	-23.36	300	Horz
138.9408	34.78	PK	1.7	-29.2	13.3	20.58	43.5	-22.92	91	Horz
176.7406	37.58	PK	1.8	-29	10.2	20.58	43.5	-22.92	200	Horz
Range 2 30 - 1000MHz										
Frequency	Reading	Detector	Cable.TX	PreAmp.TX	Bilog Fac	dBuV/m	Part 15B	Margin	Height [c	Polarity
48.2214	47.77	PK	1	-29.4	9.1	28.47	40	-11.53	100	Vert
53.8429	49.24	PK	1.1	-29.4	7.9	28.84	40	-11.16	100	Vert
68.1875	44.9	PK	1.2	-29.4	8.2	24.9	40	-15.1	100	Vert
141.6547	43.73	PK	1.7	-29.2	13.1	29.33	43.5	-14.17	100	Vert

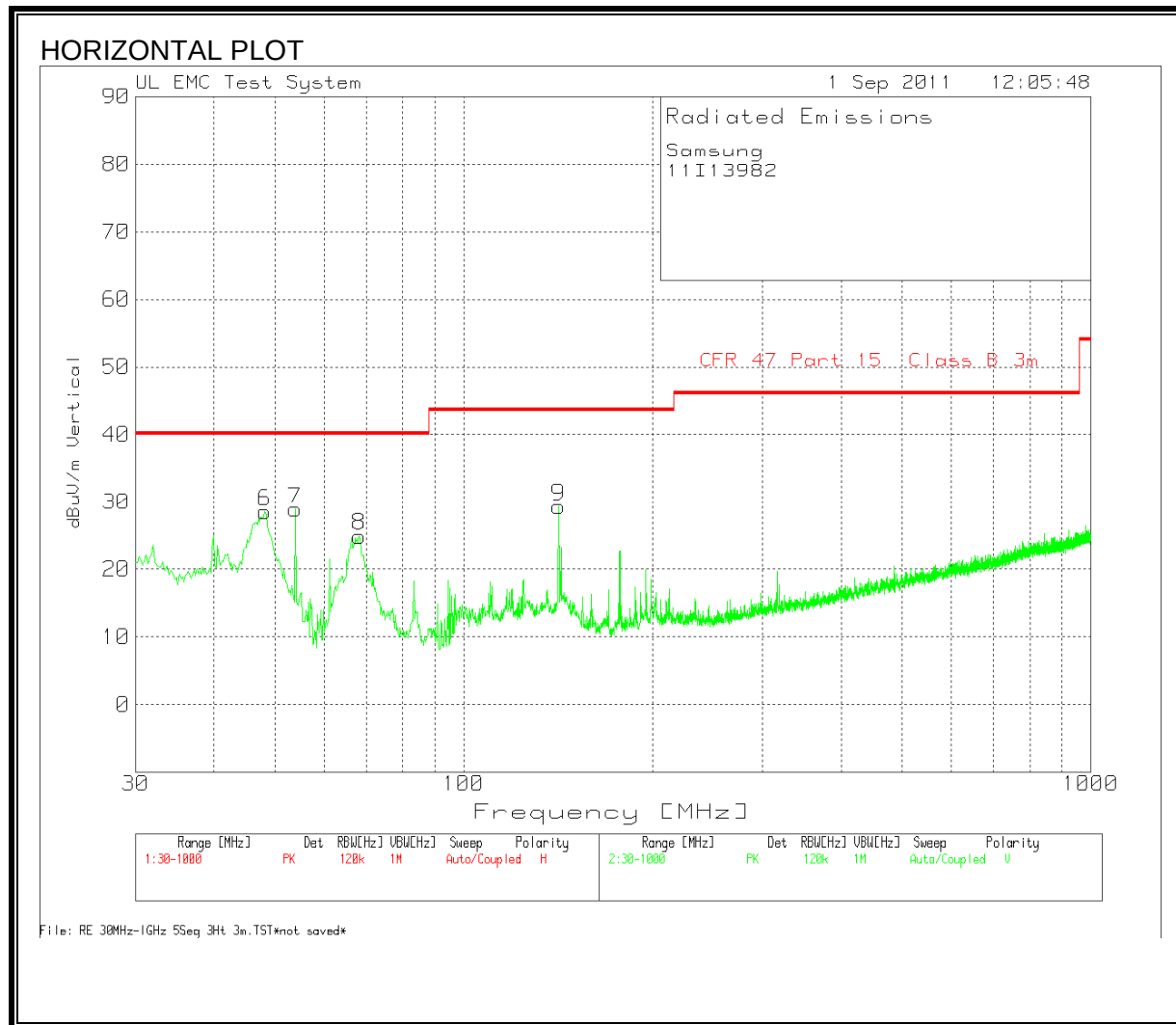
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



File: RE 30MHz-1GHz 5Seg 3Ht 3m.TST*not saved*

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

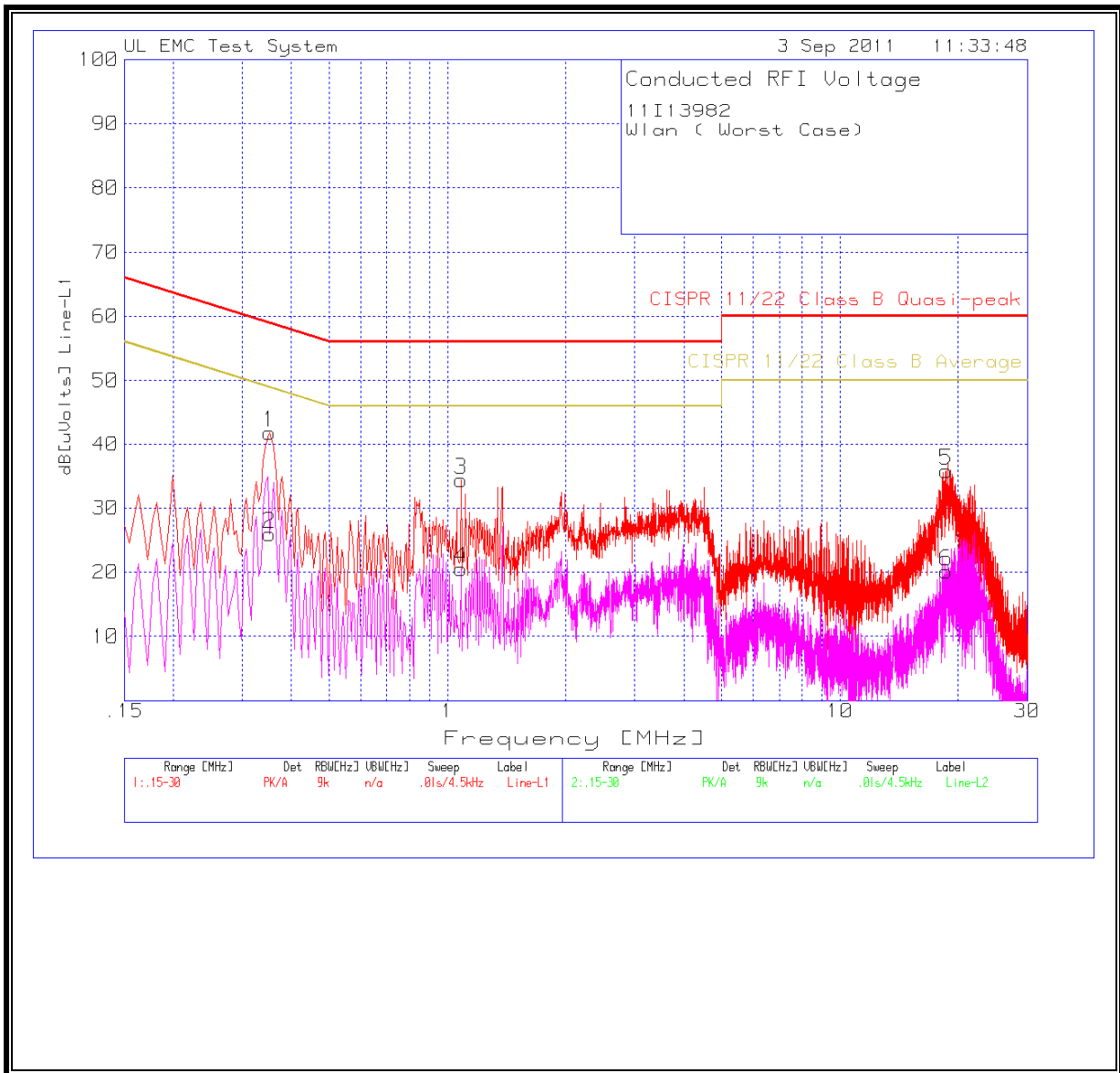
ANSI C63.4

RESULTS

6 WORST EMISSIONS

11I13982									
Wlan (Worst Case)									
Line-L1 .15 - 30MHz									
Frequency	Reading	Detector	LISN [dB]	Cable [dB]	dB[uVolts]	CISPR B Qp	Margin	CISPR B Avg	Margin
0.3525	41.9	PK	0	0	41.9	58.9	-17	48.9	-7
0.3525	25.97	Av	0	0	25.97	-	-	48.9	-22.93
1.0815	34.35	PK	0	0	34.35	56	-21.65	46	-11.65
1.0815	20.54	Av	0	0	20.54	-	-	46	-25.46
18.654	35.84	PK	0	0	35.84	60	-24.16	50	-14.16
18.654	20.15	Av	0	0	20.15	-	-	50	-29.85
Line-L2 .15 - 30MHz									
Frequency	Reading	Detector	LISN [dB]	Cable [dB]	dB[uVolts]	CISPR B Qp	Margin	CISPR B Avg	Margin
0.3435	36.31	PK	0	0	36.31	59.1	-22.79	49.1	-12.79
0.3435	31.77	Av	0	0	31.77	-	-	49.1	-17.33
1.14	30.18	PK	0	0	30.18	56	-25.82	46	-15.82
1.14	16.26	Av	0	0	16.26	-	-	46	-29.74
3.507	30.51	PK	0	0	30.51	56	-25.49	46	-15.49
3.507	16.88	Av	0	0	16.88	-	-	46	-29.12

LINE 1 RESULTS



LINE 2 RESULTS

