



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

Tablet with 802.11abgn, BT3.0

MODEL NUMBER: GT-P6210

FCC ID: A3LGTP6210

REPORT NUMBER: 11I14021-2

ISSUE DATE: OCTOBER 04, 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
--	10/04/11	Initial Issue	F. Ibrahim

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	5
2. TEST METHODOLOGY	6
3. FACILITIES AND ACCREDITATION	6
4. CALIBRATION AND UNCERTAINTY	6
4.1. MEASURING INSTRUMENT CALIBRATION	6
4.2. SAMPLE CALCULATION	6
4.3. MEASUREMENT UNCERTAINTY	6
5. EQUIPMENT UNDER TEST	7
5.1. DESCRIPTION OF EUT	7
5.2. MAXIMUM OUTPUT POWER	7
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	8
5.4. SOFTWARE AND FIRMWARE	8
5.5. WORST-CASE CONFIGURATION AND MODE	8
5.6. DESCRIPTION OF TEST SETUP	9
6. TEST AND MEASUREMENT EQUIPMENT	11
7. ANTENNA PORT TEST RESULTS	12
7.1. 802.11b MODE IN THE 2.4 GHz BAND	12
7.1.1. 6 dB BANDWIDTH	12
7.1.2. OUTPUT POWER	16
7.1.3. AVERAGE POWER	20
7.1.4. POWER SPECTRAL DENSITY	21
7.1.5. CONDUCTED SPURIOUS EMISSIONS	25
7.2. 802.11g MODE IN THE 2.4 GHz BAND	32
7.2.1. 6 dB BANDWIDTH	32
7.2.2. OUTPUT POWER	36
7.2.3. AVERAGE POWER	40
7.2.4. POWER SPECTRAL DENSITY	41
7.2.5. CONDUCTED SPURIOUS EMISSIONS	45
7.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND	52
7.3.1. 6 dB BANDWIDTH	52
7.3.2. OUTPUT POWER	56
7.3.3. AVERAGE POWER	60
7.3.4. POWER SPECTRAL DENSITY	61
7.3.5. CONDUCTED SPURIOUS EMISSIONS	65
7.4. 802.11a MODE IN THE 5.8 GHz BAND	72
7.4.1. 6 dB BANDWIDTH	72
7.4.2. OUTPUT POWER	76
7.4.3. AVERAGE POWER	80

7.4.4.	POWER SPECTRAL DENSITY	81
7.4.5.	CONDUCTED SPURIOUS EMISSIONS.....	85
7.5.	<i>802.11n HT20 MODE IN THE 5.8 GHz BAND</i>	<i>92</i>
7.5.1.	6 dB BANDWIDTH	92
7.5.2.	OUTPUT POWER	96
7.5.3.	AVERAGE POWER	100
7.5.4.	POWER SPECTRAL DENSITY	101
7.5.5.	CONDUCTED SPURIOUS EMISSIONS.....	105
7.6.	<i>802.11n HT40 MODE IN THE 5.8 GHz BAND</i>	<i>112</i>
7.6.1.	6 dB BANDWIDTH	112
7.6.2.	OUTPUT POWER	115
7.6.3.	AVERAGE POWER	118
7.6.4.	POWER SPECTRAL DENSITY	119
7.6.5.	CONDUCTED SPURIOUS EMISSIONS.....	122
8.	RADIATED TEST RESULTS	127
8.1.	<i>LIMITS AND PROCEDURE</i>	<i>127</i>
8.2.	<i>TRANSMITTER ABOVE 1 GHz</i>	<i>128</i>
8.2.1.	TX ABOVE 1 GHz FOR 802.11b MODE IN THE 2.4 GHz BAND	128
8.2.2.	TX ABOVE 1 GHz FOR 802.11g MODE IN THE 2.4 GHz BAND	137
8.2.3.	TX ABOVE 1 GHz FOR 802.11n HT20 MODE IN THE 2.4 GHz BAND	146
8.2.4.	TX ABOVE 1 GHz FOR 802.11a MODE IN THE 5.8 GHz BAND	155
8.2.5.	TX ABOVE 1 GHz FOR 802.11n HT20 MODE IN THE 5.8 GHz BAND	156
8.2.6.	TX ABOVE 1 GHz FOR 802.11n HT40 MODE IN THE 5.8 GHz BAND	157
8.3.	<i>WORST-CASE BELOW 1 GHz</i>	<i>158</i>
9.	AC POWER LINE CONDUCTED EMISSIONS	161
10.	SETUP PHOTOS	165

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: Tablet with 802.11abgn, BT3.0

MODEL: GT-P6210

SERIAL NUMBER: 001 AND 02058

DATE TESTED: AUGUST 30, 2011 - 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:

Tested By:



FRANK IBRAHIM
EMC SUPERVISOR
UL CCS



DAVID GARCIA
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, 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:

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

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 tablet PC with an 802.11a/b/g/n transceiver and Bluetooth transceiver.

The radio module is manufactured by Qualcomm.

5.2. MAXIMUM OUTPUT POWER

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

2400 to 2483.5 MHz Authorized Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	15.26	33.57
2412 - 2462	802.11g	19.42	87.50
2412 - 2462	802.11n HT20	19.33	85.70

5725 to 5850 MHz Authorized Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5745-5825	802.11a	20.20	104.71
5745-5825	802.11n HT20	19.91	97.95
5755-5795	802.11n HT40	20.33	107.89

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an 802.11 a/b/g/n and a Bluetooth antenna, with a maximum gain as stated in the table below:

Frequency	Eff. (%)	Ave. Gain (dBi)	Peak Gain (dBi)	Directivity (dBi)
2412 MHz	42	-3.80	0.12	3.92
2424 MHz	41	-3.90	0.12	4.02
2436 MHz	41	-3.86	0.28	4.14
2448 MHz	40	-3.97	0.31	4.28
2460 MHz	36	-4.39	-0.01	4.38
2472 MHz	40	-3.95	0.48	4.43
5180 MHz	52	-2.82	3.20	6.02
5305 MHz	60	-2.25	3.61	5.86
5430 MHz	60	-2.22	3.41	5.63
5555 MHz	54	-2.70	2.79	5.49
5680 MHz	28	-5.48	-0.12	5.36
5805 MHz	24	-6.24	-0.91	5.33

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Wifi : Firmware Rev 3.1.1.40.

The EUT driver software installed in the equipment during testing was WlanTest: HW REV1.2
SW : P6200.002.

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 X orientation with AC Adapter.

Worst-case data rates used for the testing as provided by the client were as follows:

802.11b Mode: 1Mbps
802.11g Mode: 6Mbps
802.11n HT20 Mode: MCS0
802.11a Mode: 6Mbps
802.11n HT40 Mode: MCS0

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	GB4943-2001	N/A	N/A

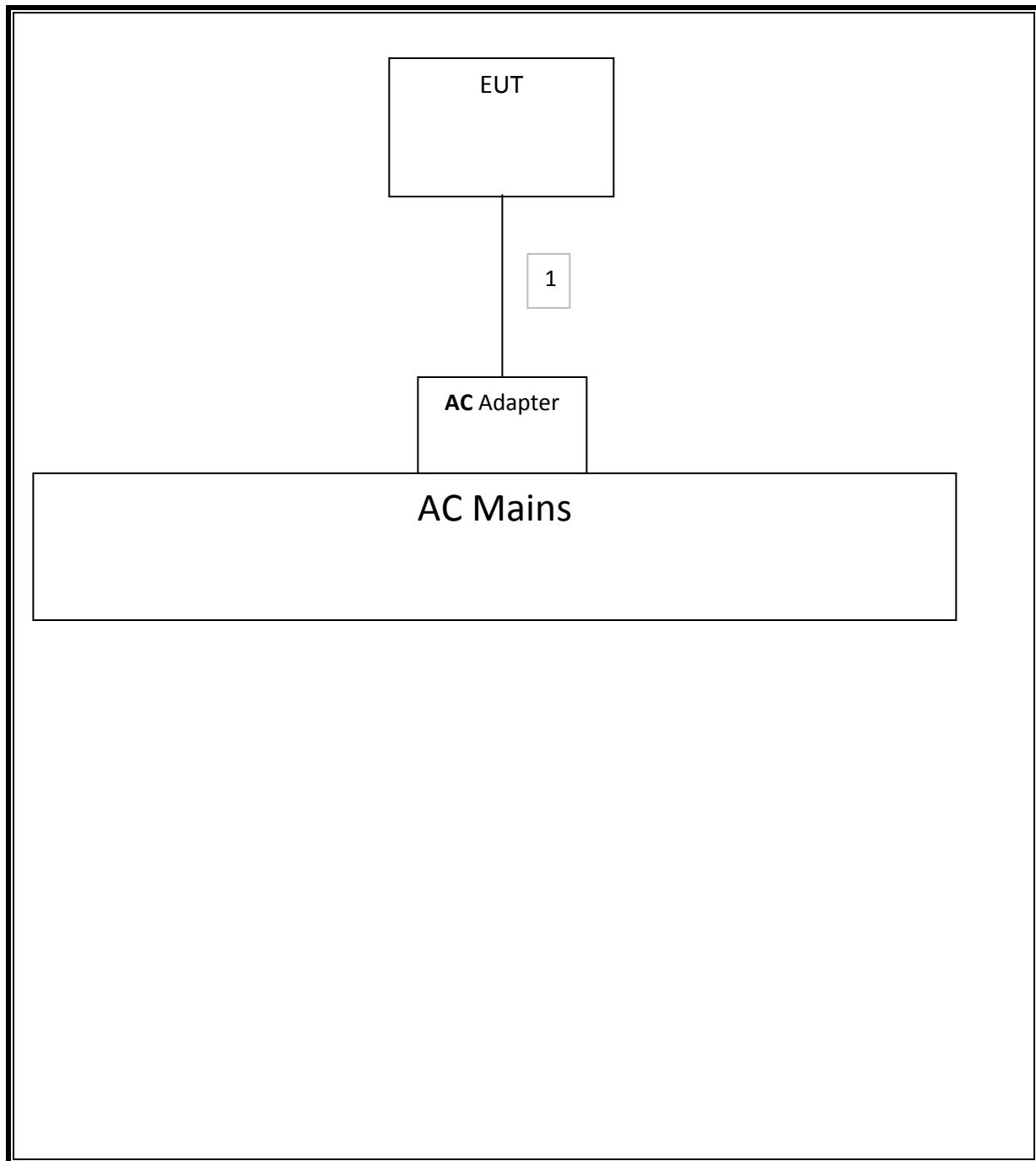
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	Mini USB	1	USB	shielded	1m	

TEST SETUP

The EUT is a standalone 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 Date	Cal Due
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01176	08/04/11	08/04/12
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	12/17/10	12/17/11
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	07/06/11	07/06/12
Antenna, Bilog, 2 GHz	Sundt Sciences	JB1	C01011	07/16/11	07/16/12
Antenna, Horn, 18 GHz	EMCO	3115	C00872	06/29/11	06/29/12
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00558	01/27/11	01/27/12
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	07/18/11	07/18/12
Power Meter	Agilent / HP	437B		07/28/11	07/28/12
Power Sensor, 18 GHz	Agilent / HP	8481A	N02782	07/29/11	07/29/13
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/10/10	11/10/11
Antenna, Horn, 26.5 GHz	ARA	MMH-1826/B	C00589	07/28/11	07/28/12
Antenna, Horn, 40 GHz	ARA	MMH-2640/B	C00981	06/14/11	06/14/12
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	08/02/11	08/02/12

7. ANTENNA PORT TEST RESULTS

7.1. 802.11b MODE IN THE 2.4 GHz BAND

7.1.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

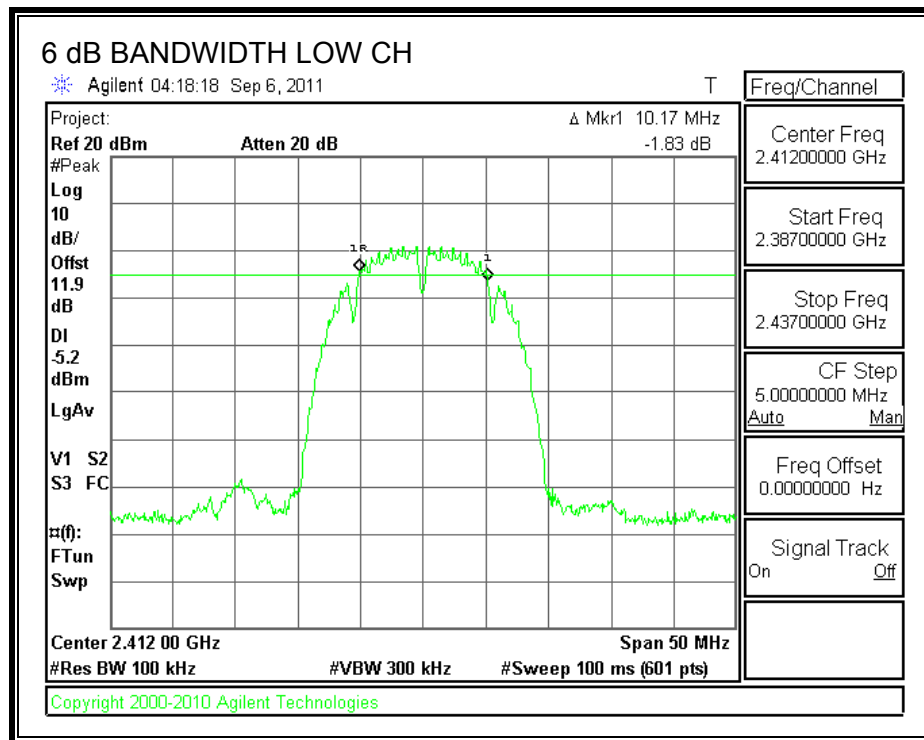
TEST PROCEDURE

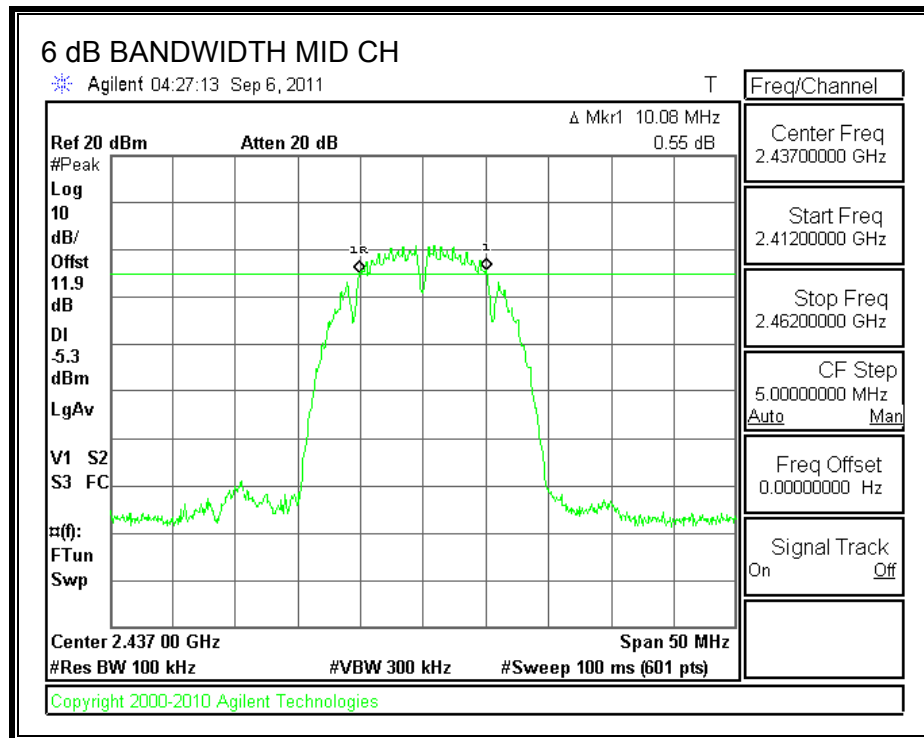
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

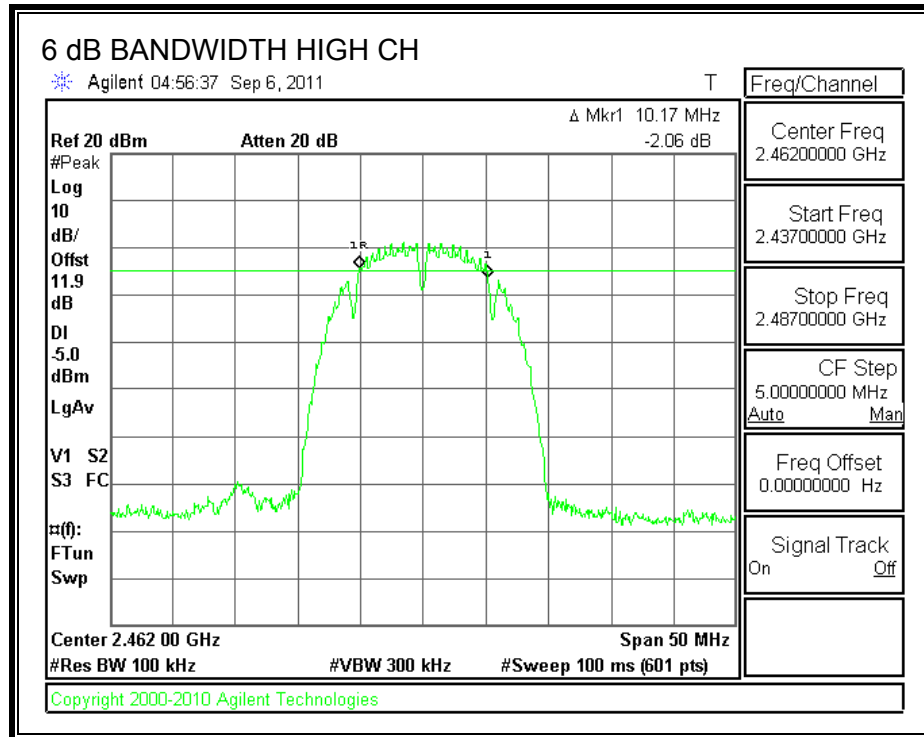
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	10.17	0.5
Middle	2437	10.08	0.5
High	2462	10.17	0.5

6 dB BANDWIDTH







7.1.2. 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.

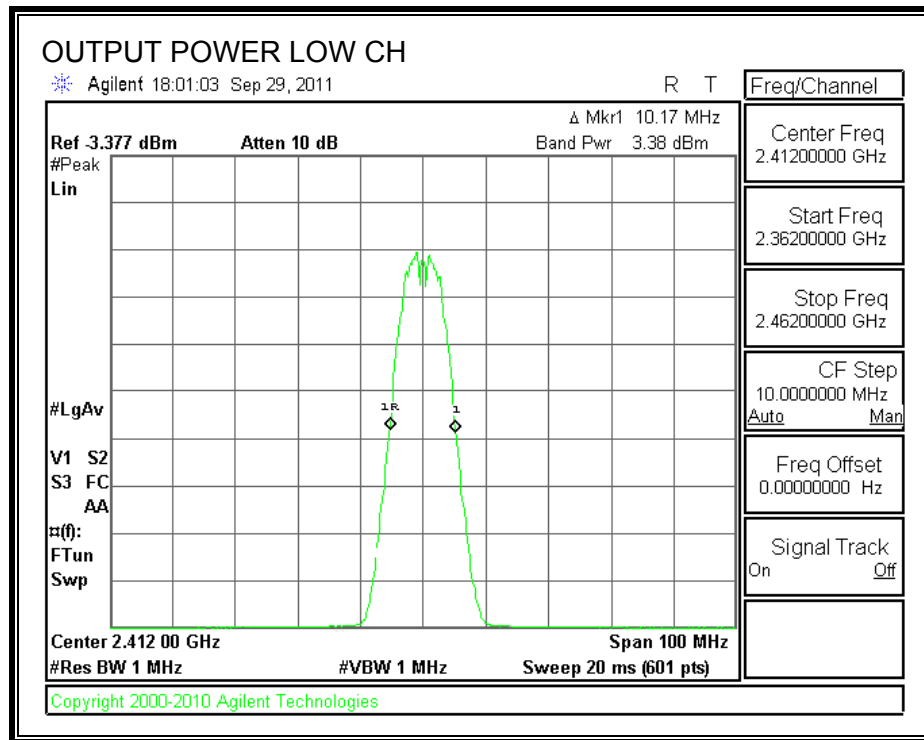
TEST PROCEDURE

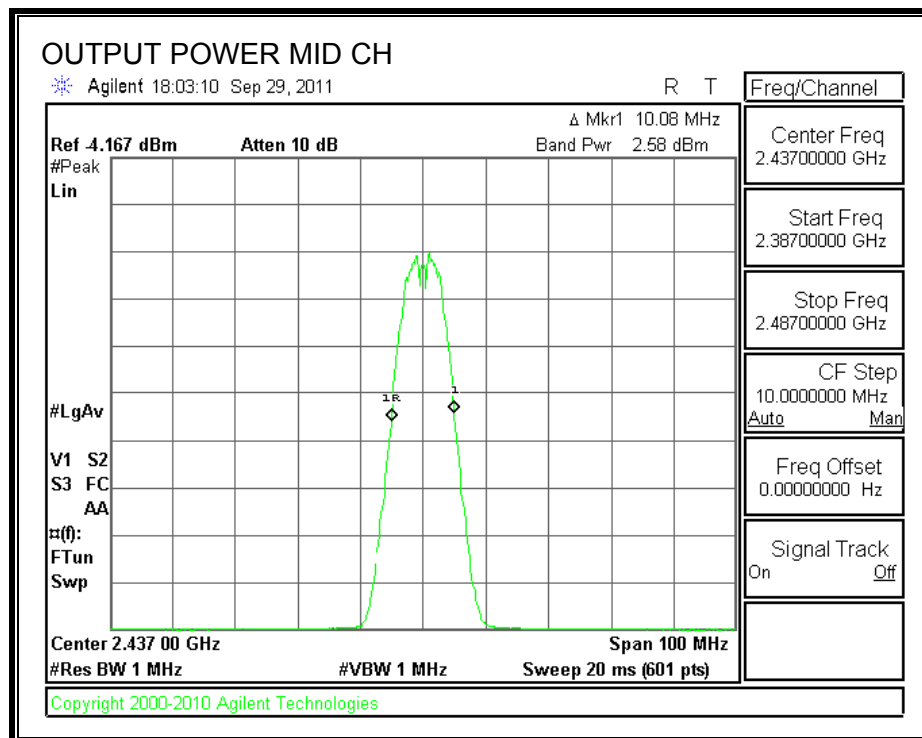
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

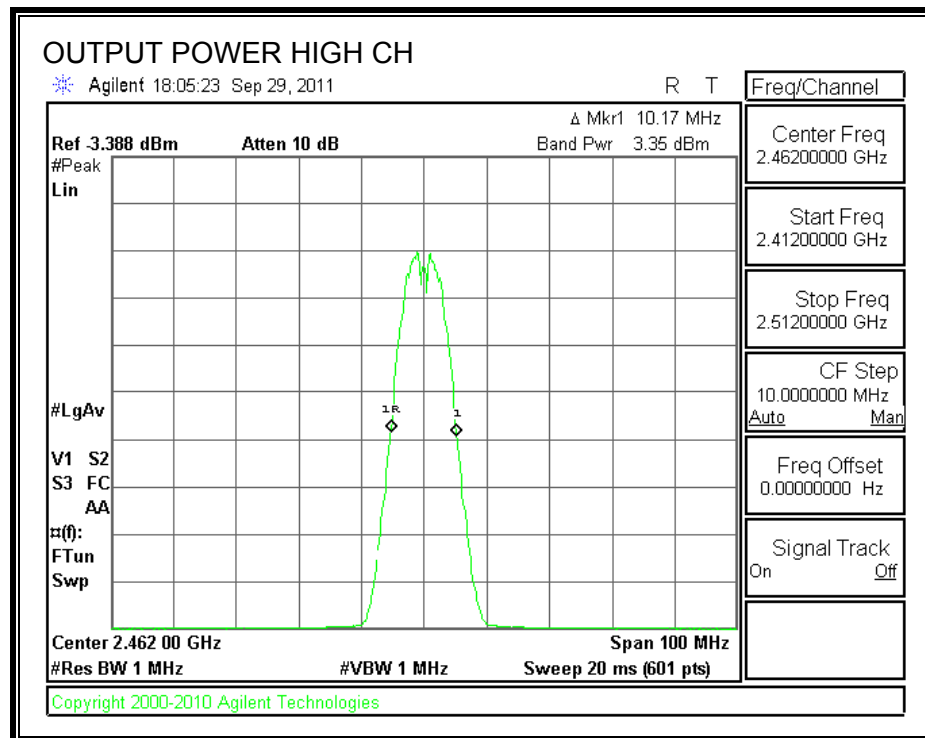
RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Attenuator and Cable Offset (dB)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	3.38	11.88	15.26	30	-14.74
Middle	2437	2.58	11.88	14.46	30	-15.54
High	2462	3.35	11.88	15.23	30	-14.77

OUTPUT POWER







7.1.3. 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 11.88 dB (including 10 dB pad and 1.88 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Frequency (MHz)	Power (dBm)
2412	13.45
2437	12.94
2462	13.19

7.1.4. 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.

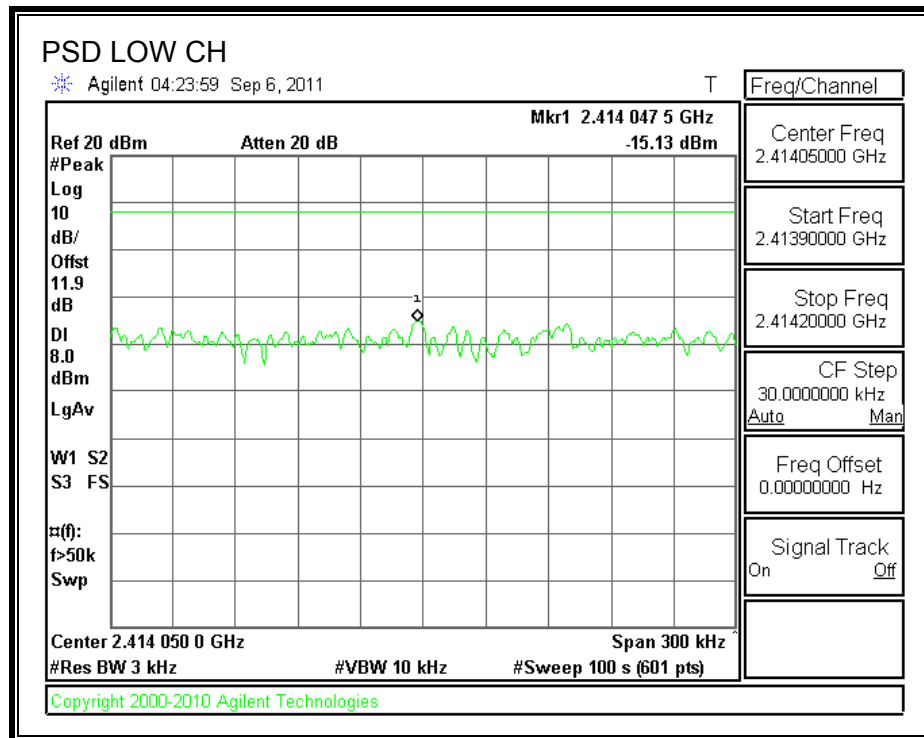
TEST PROCEDURE

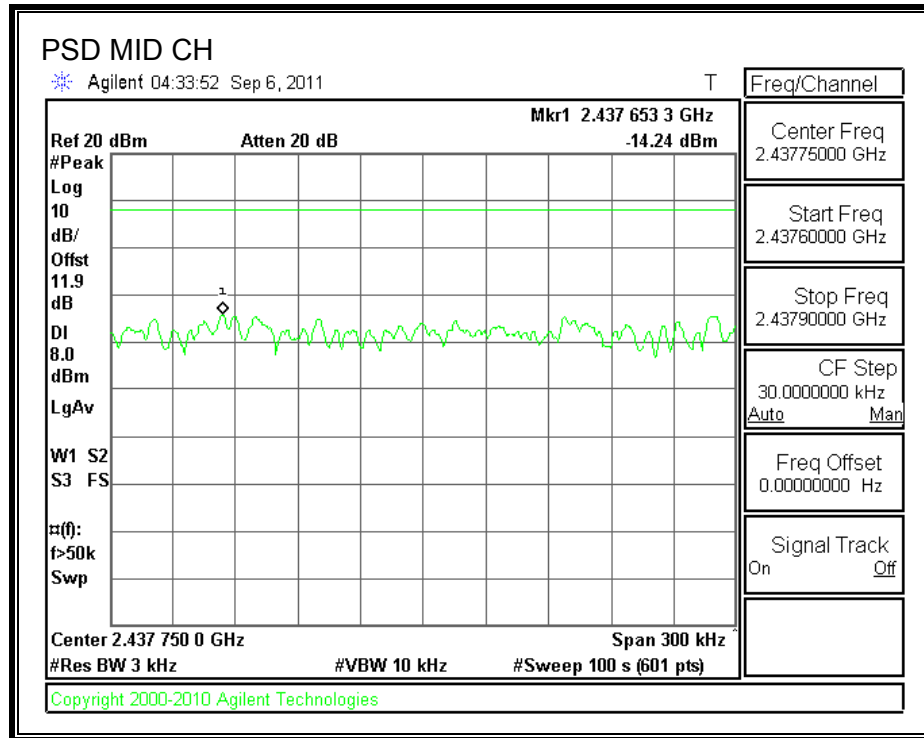
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

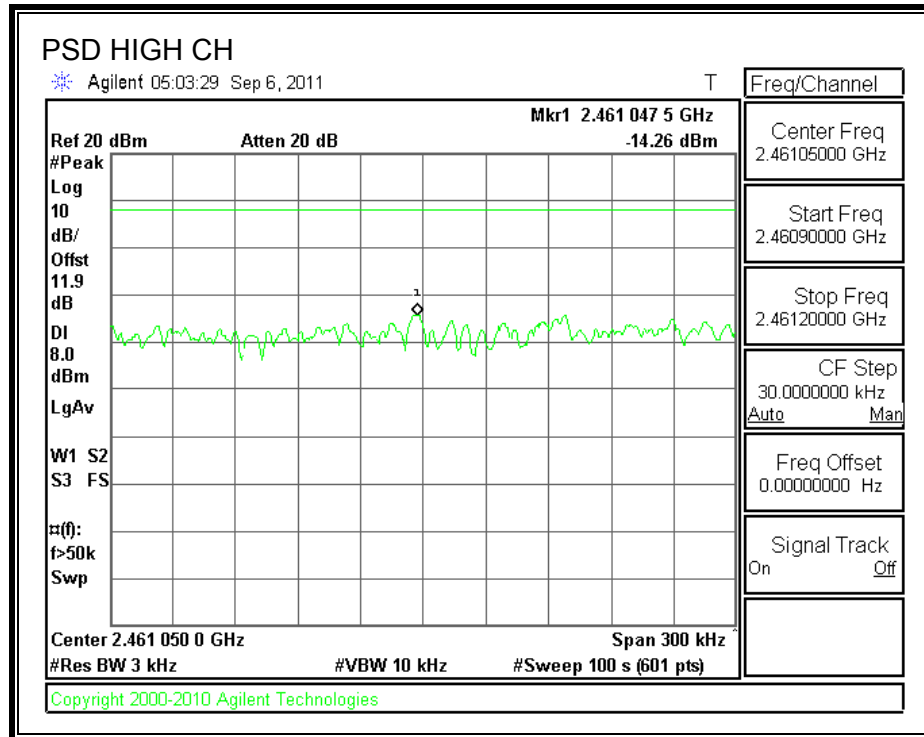
RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-15.13	8	-23.13
Middle	2437	-14.24	8	-22.24
High	2462	-14.26	8	-22.26

POWER SPECTRAL DENSITY







7.1.5. 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.

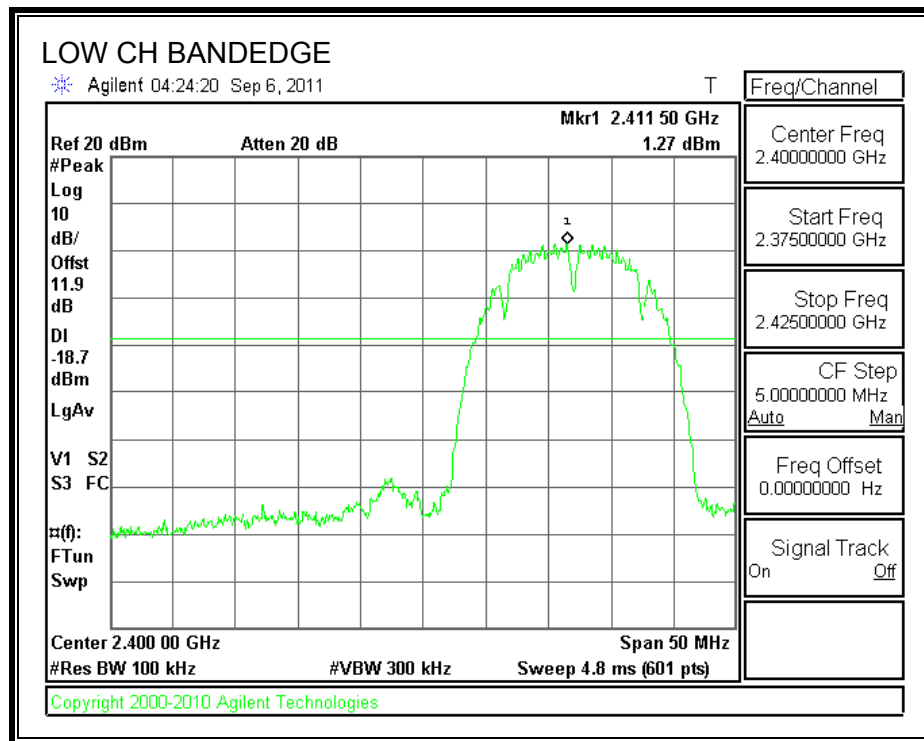
TEST PROCEDURE

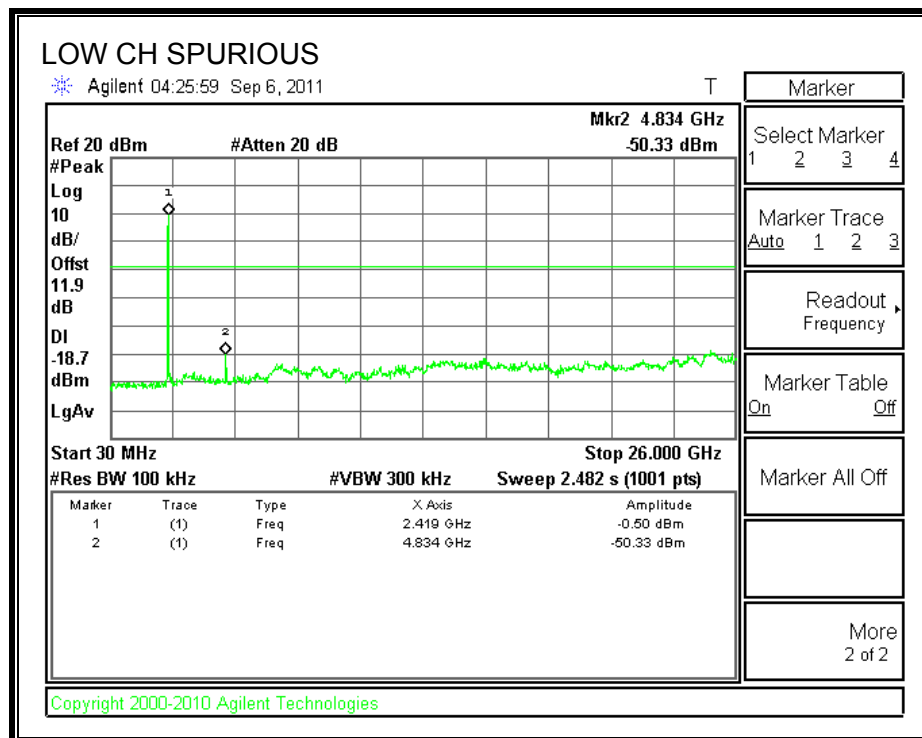
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

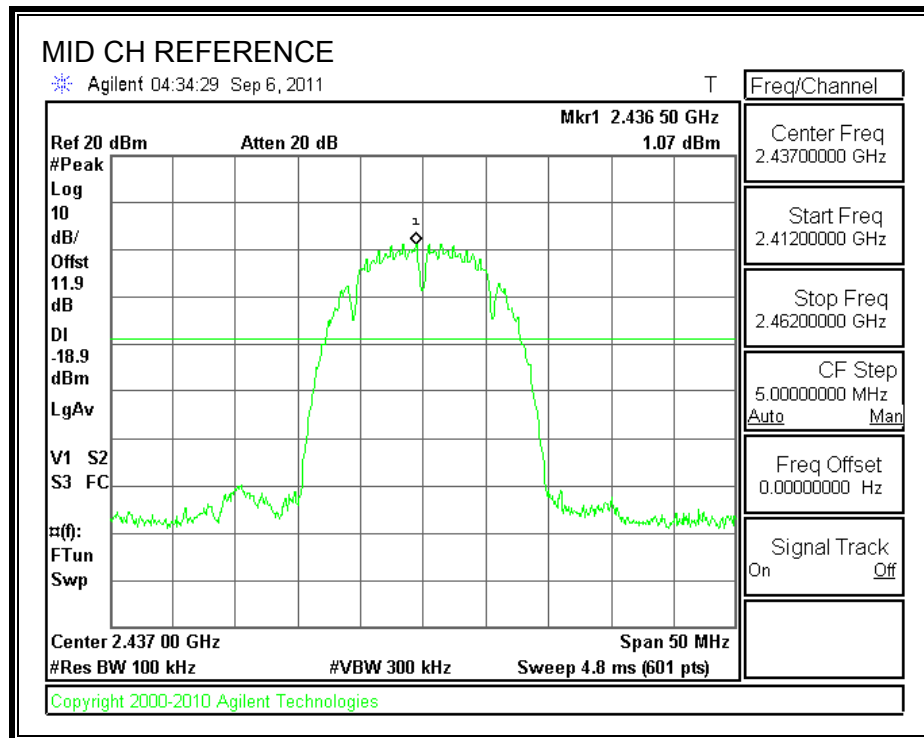
RESULTS

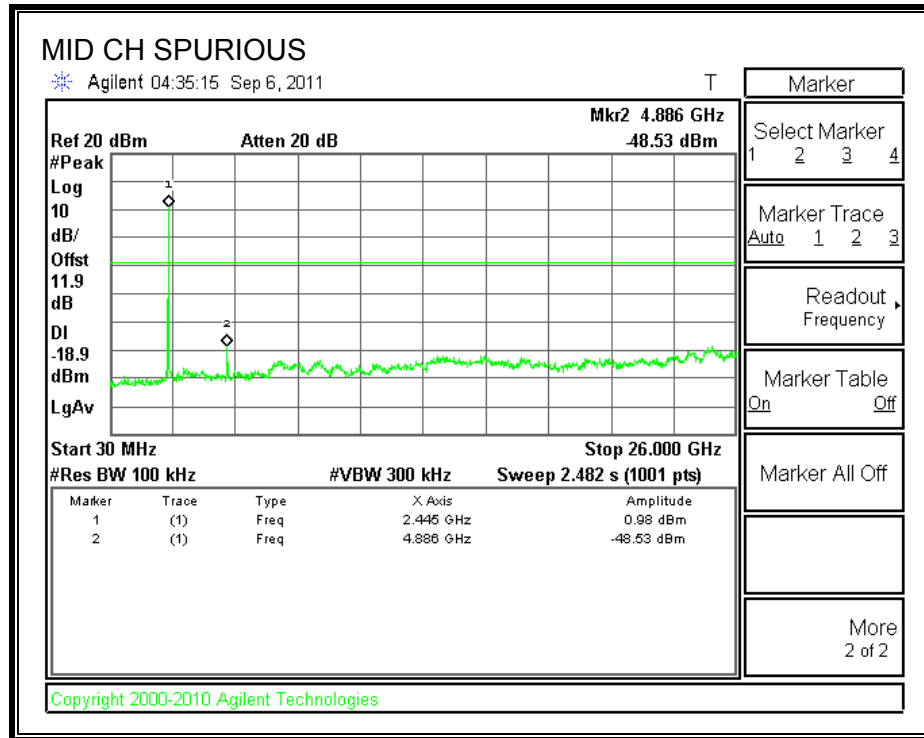
SPURIOUS EMISSIONS, LOW CHANNEL



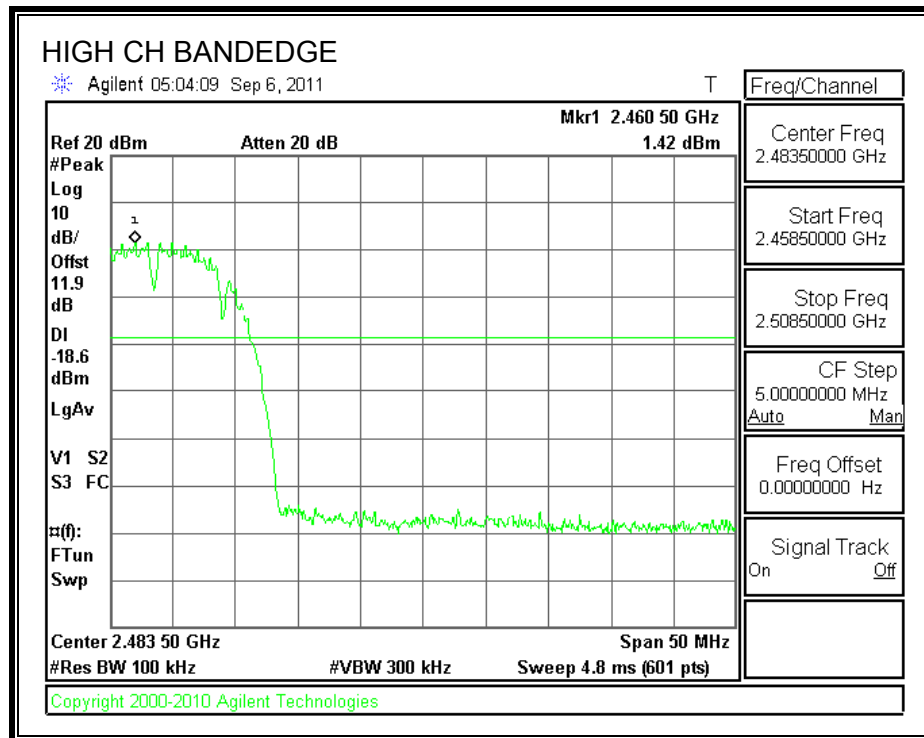


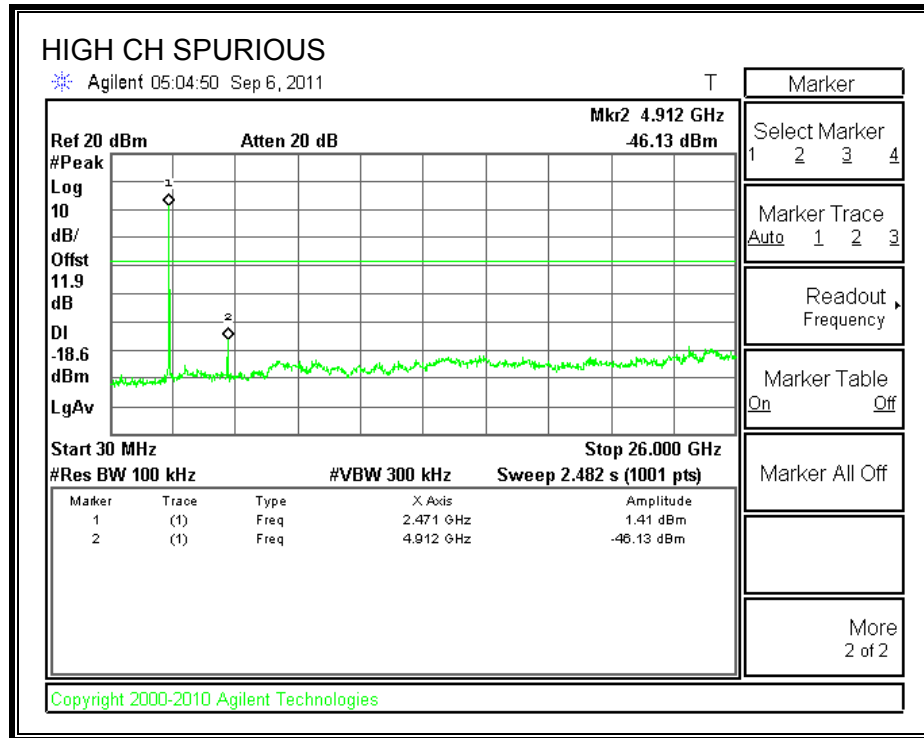
SPURIOUS EMISSIONS, MID CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





7.2. 802.11g MODE IN THE 2.4 GHz BAND

7.2.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

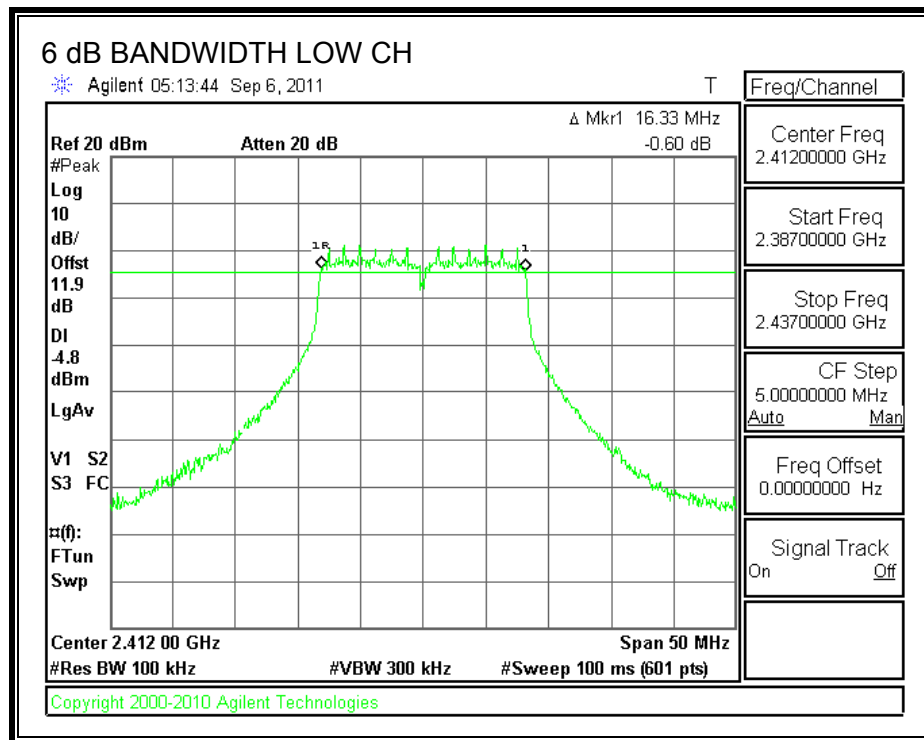
TEST PROCEDURE

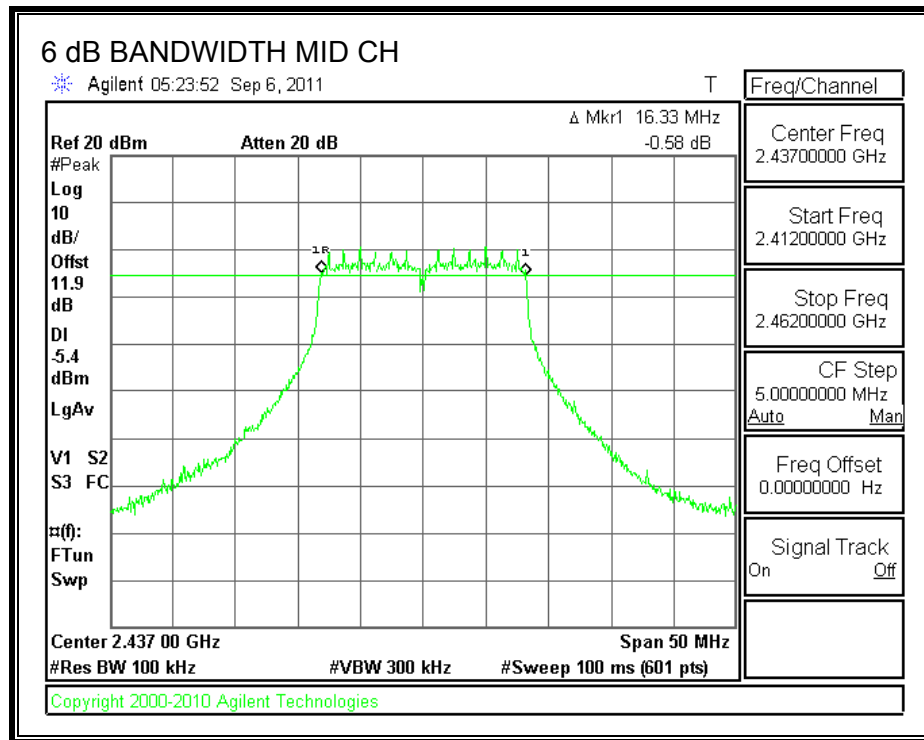
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

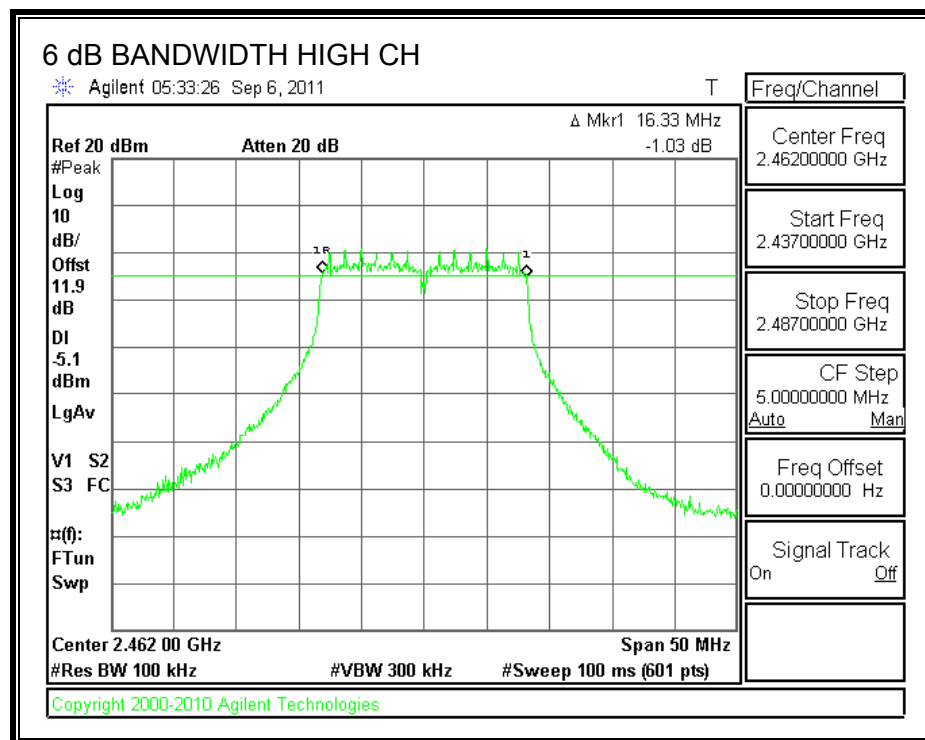
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.33	0.5
Middle	2437	16.33	0.5
High	2462	16.33	0.5

6 dB BANDWIDTH







7.2.2. 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.

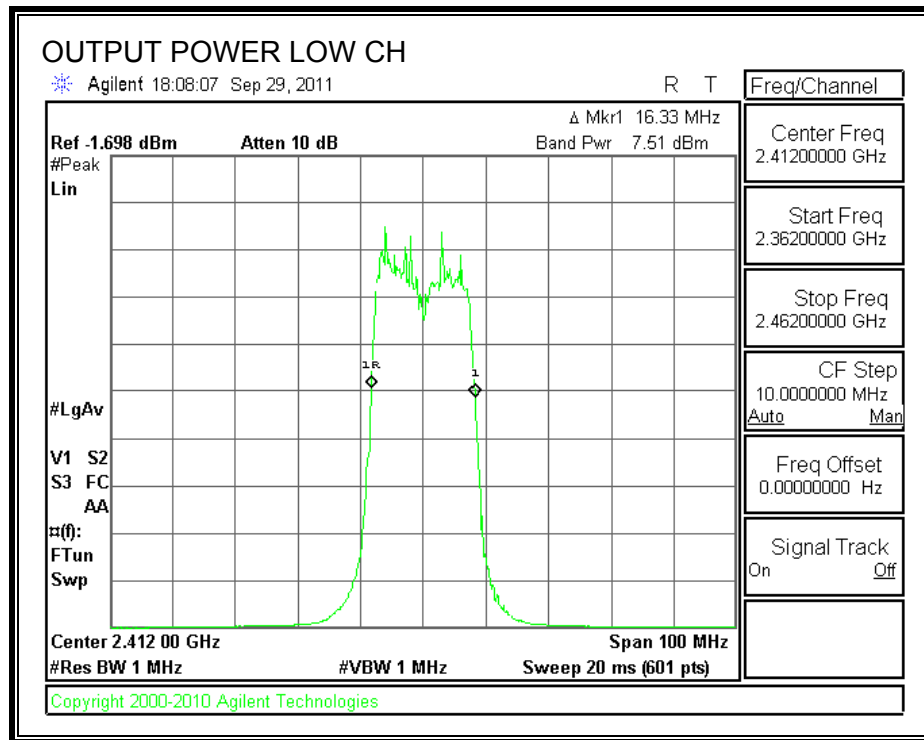
TEST PROCEDURE

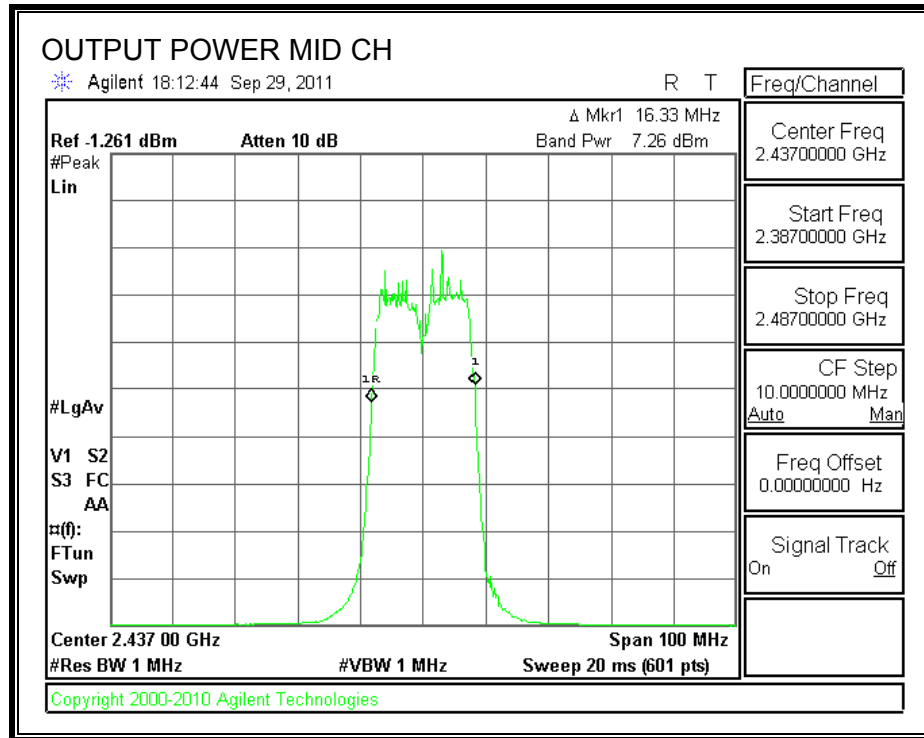
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

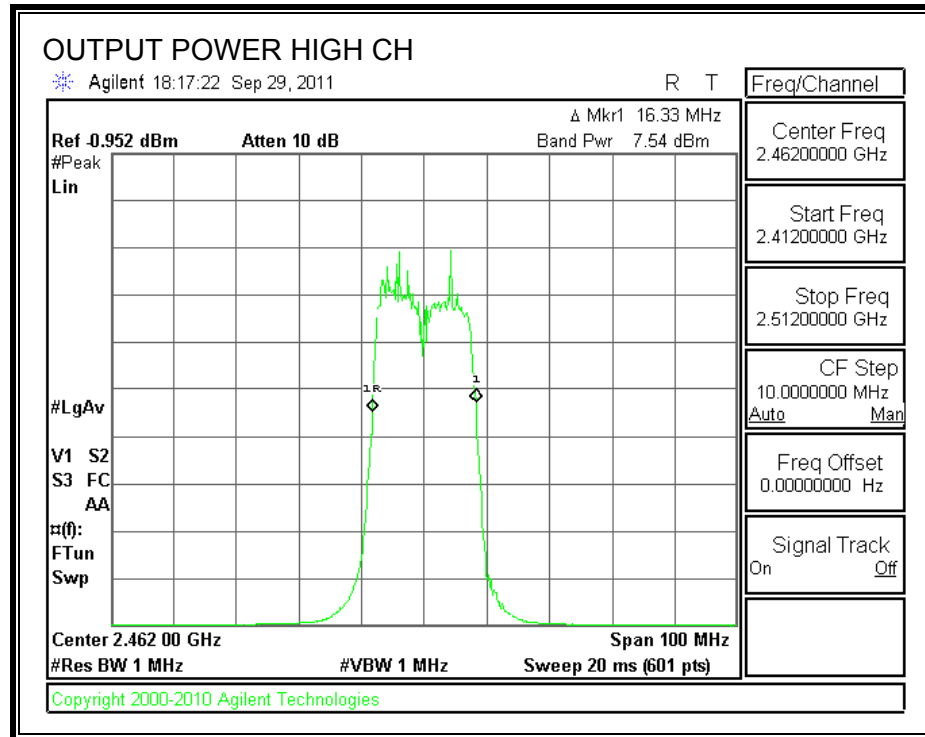
RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Attenuator and Cable Offset (dB)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	7.51	11.88	19.39	30	-10.61
Middle	2437	7.26	11.88	19.14	30	-10.86
High	2462	7.54	11.88	19.42	30	-10.58

OUTPUT POWER







7.2.3. 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 11.88 dB (including 10 dB pad and 1.88 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Frequency (MHz)	Power (dBm)
2412	12.43
2437	12.06
2462	12.44

7.2.4. 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.

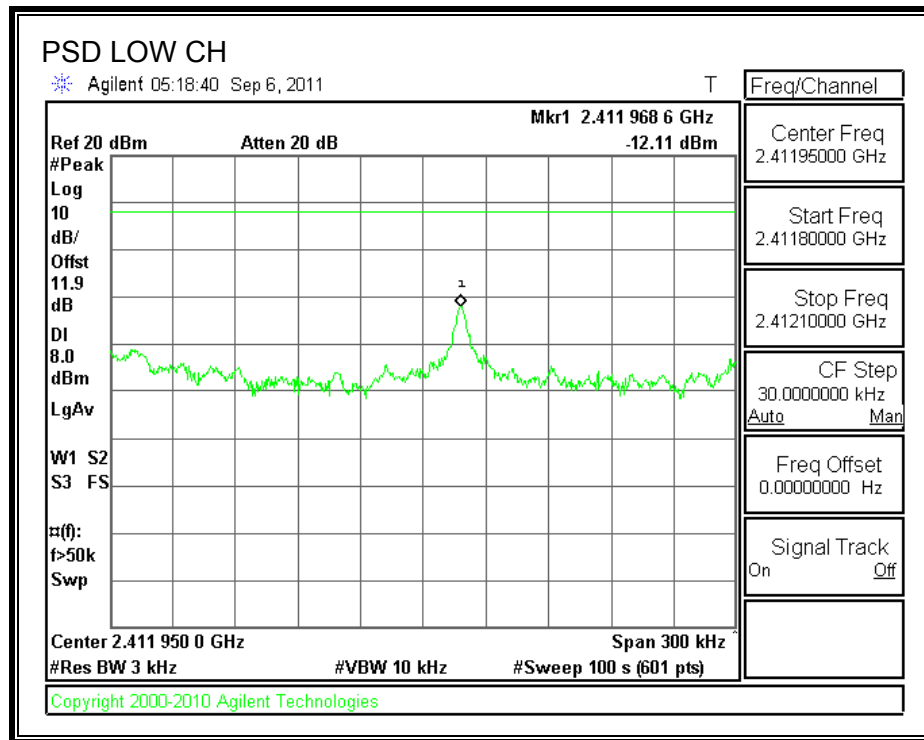
TEST PROCEDURE

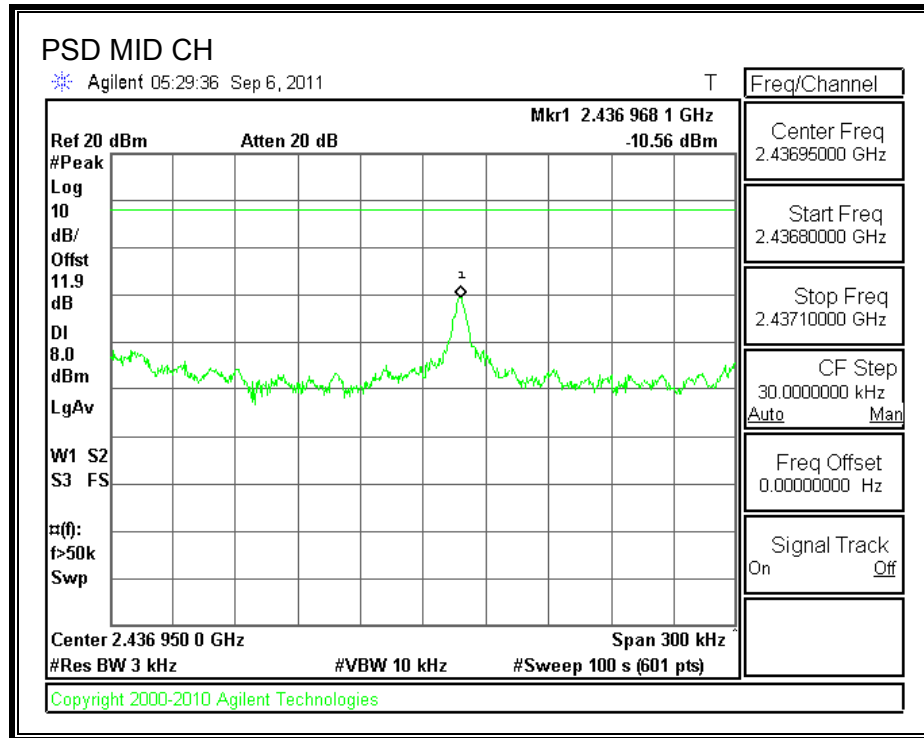
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

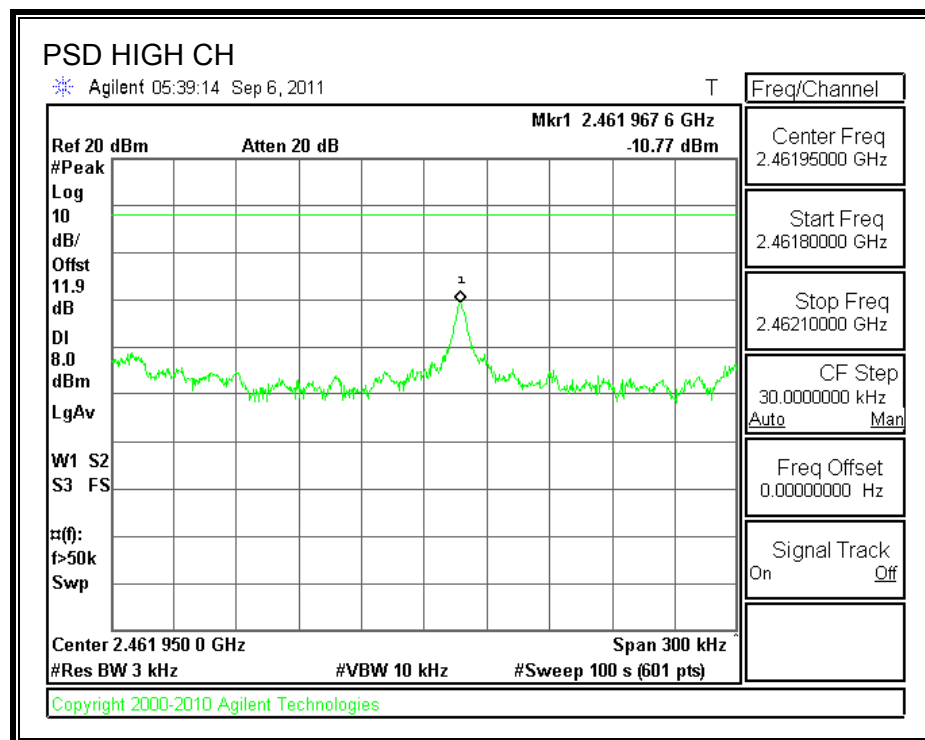
RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-12.11	8	-20.11
Middle	2437	-10.56	8	-18.56
High	2462	-10.77	8	-18.77

POWER SPECTRAL DENSITY







7.2.5. 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.

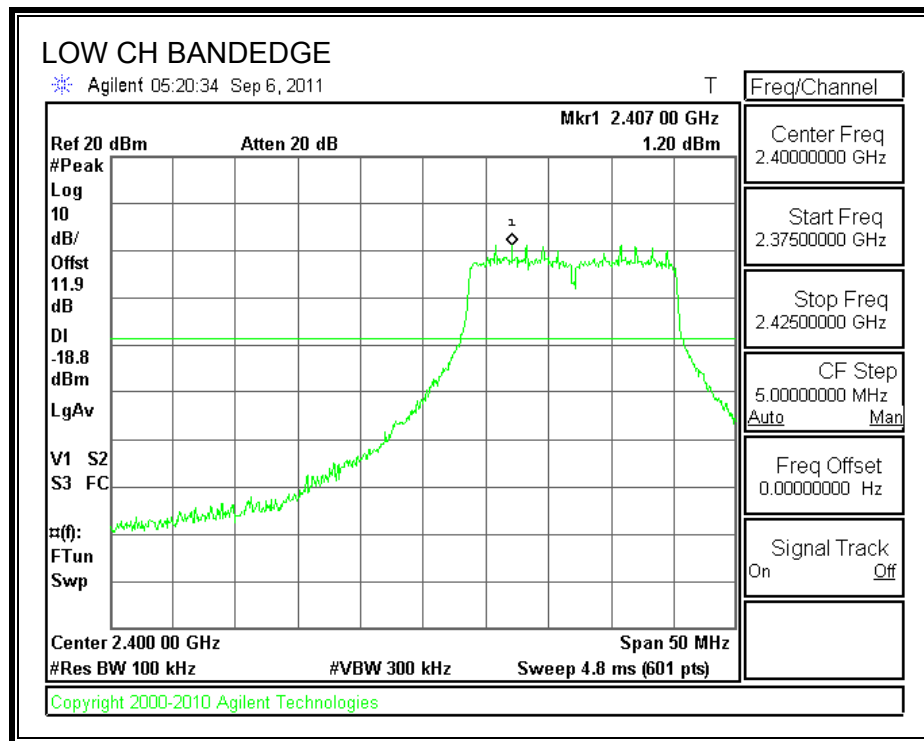
TEST PROCEDURE

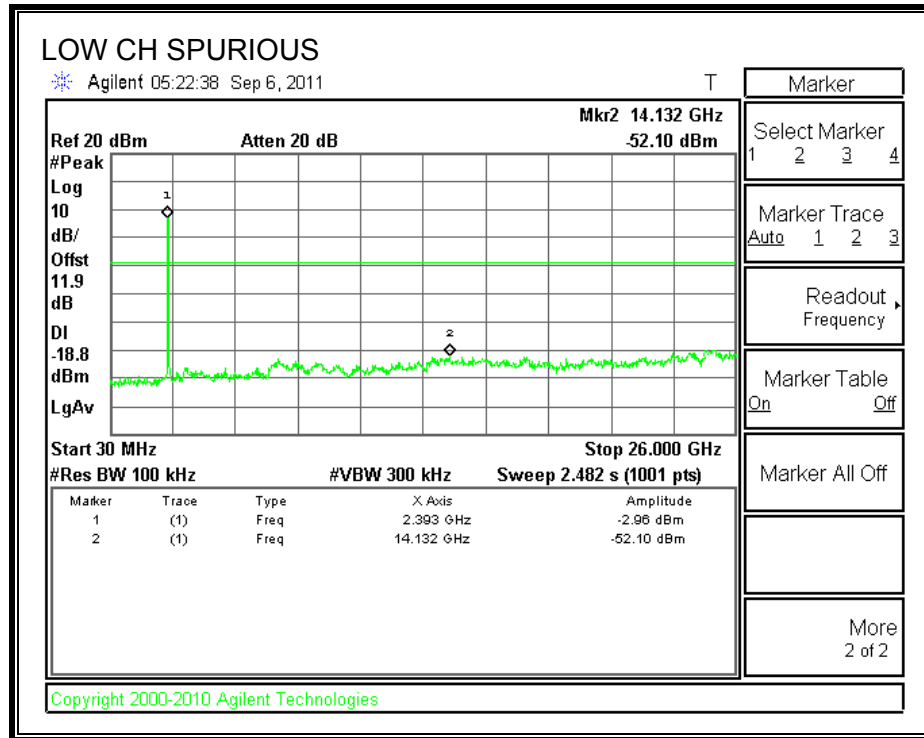
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

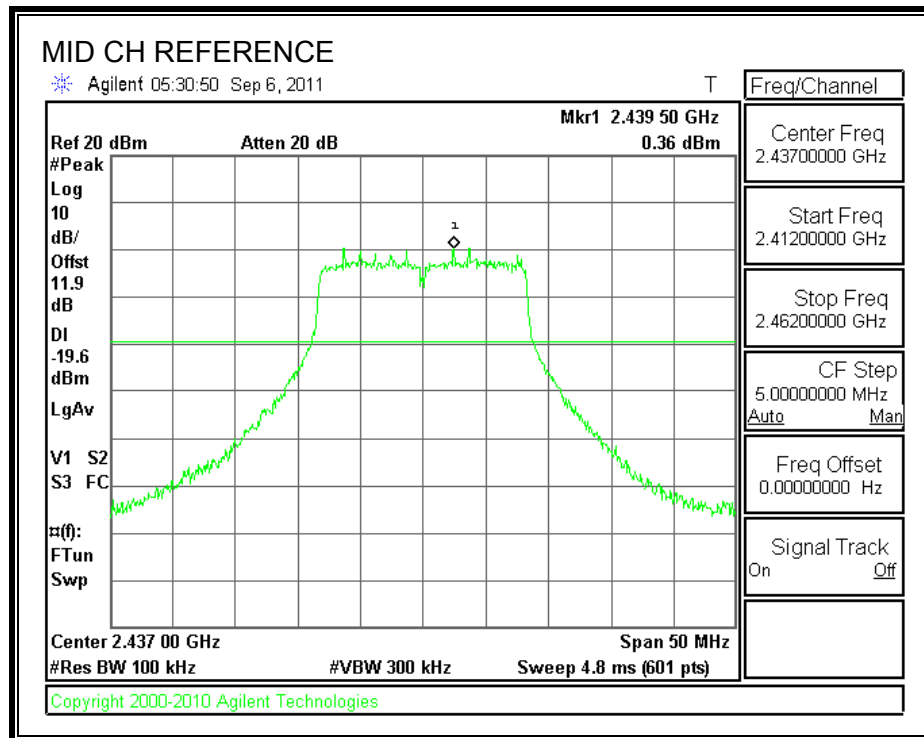
RESULTS

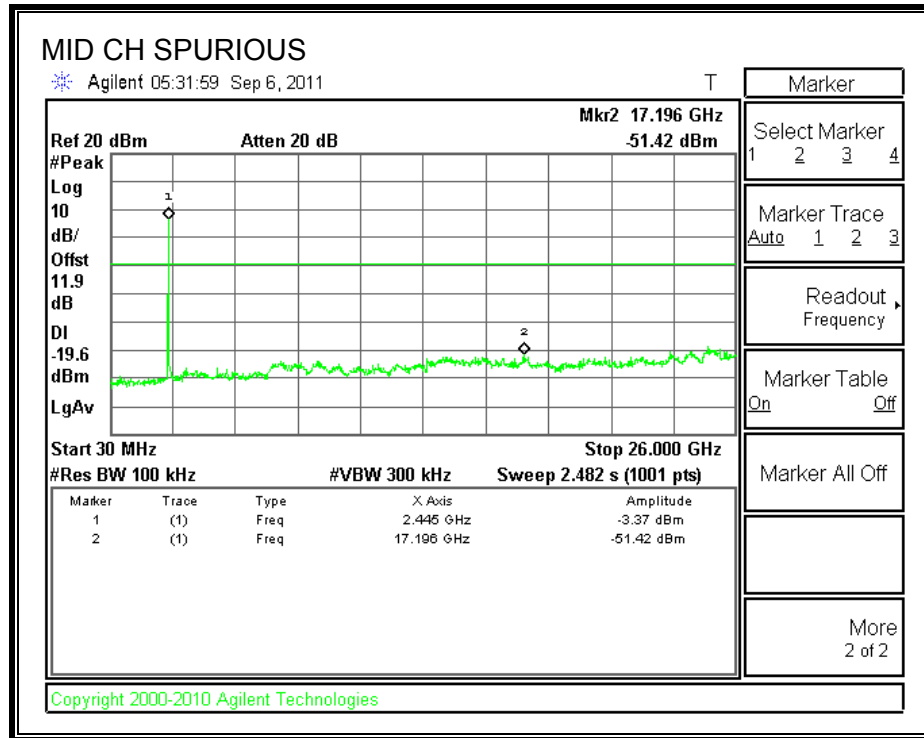
SPURIOUS EMISSIONS, LOW CHANNEL



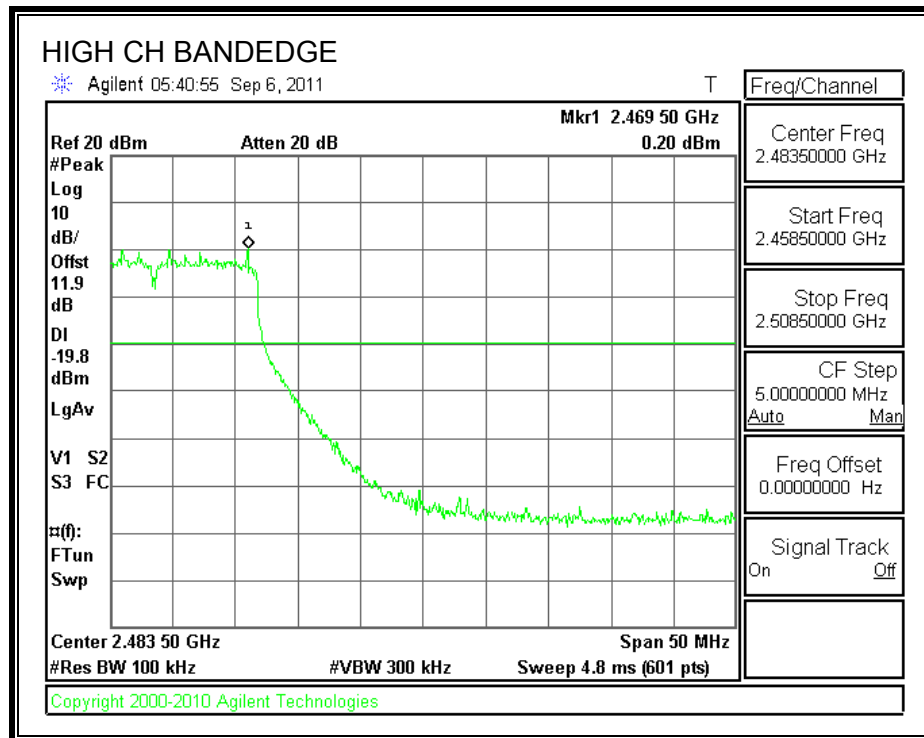


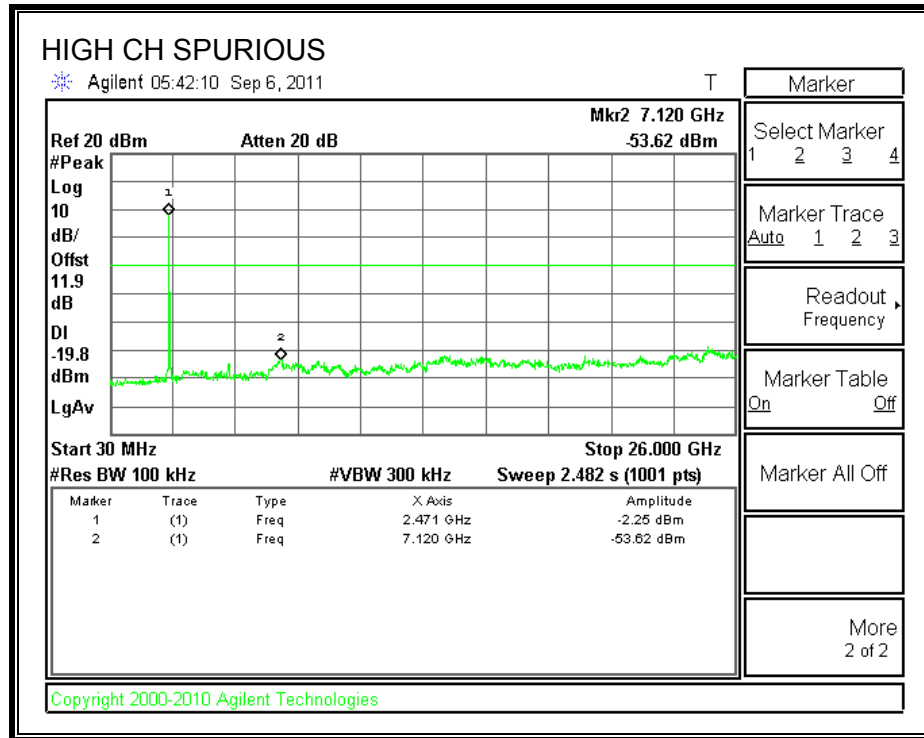
SPURIOUS EMISSIONS, MID CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





Copyright 2000-2010 Agilent Technologies

7.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

7.3.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

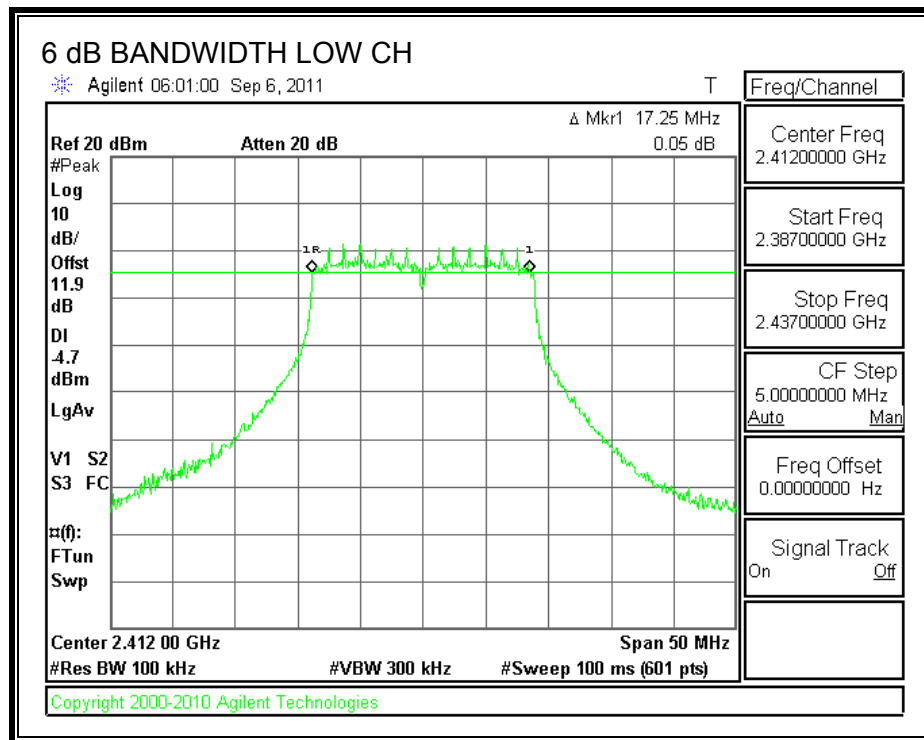
TEST PROCEDURE

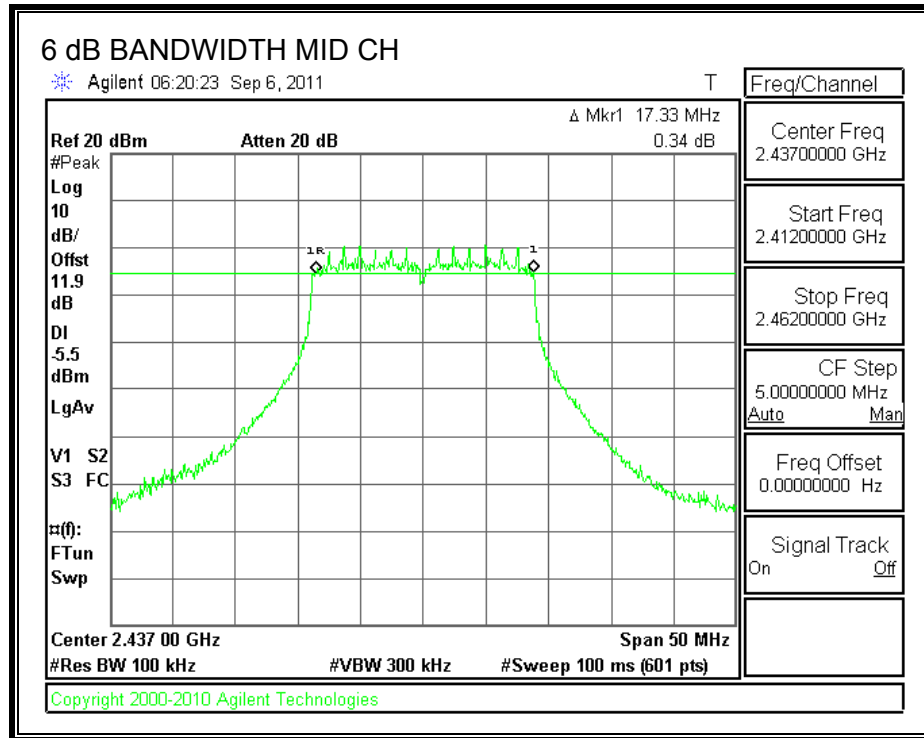
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

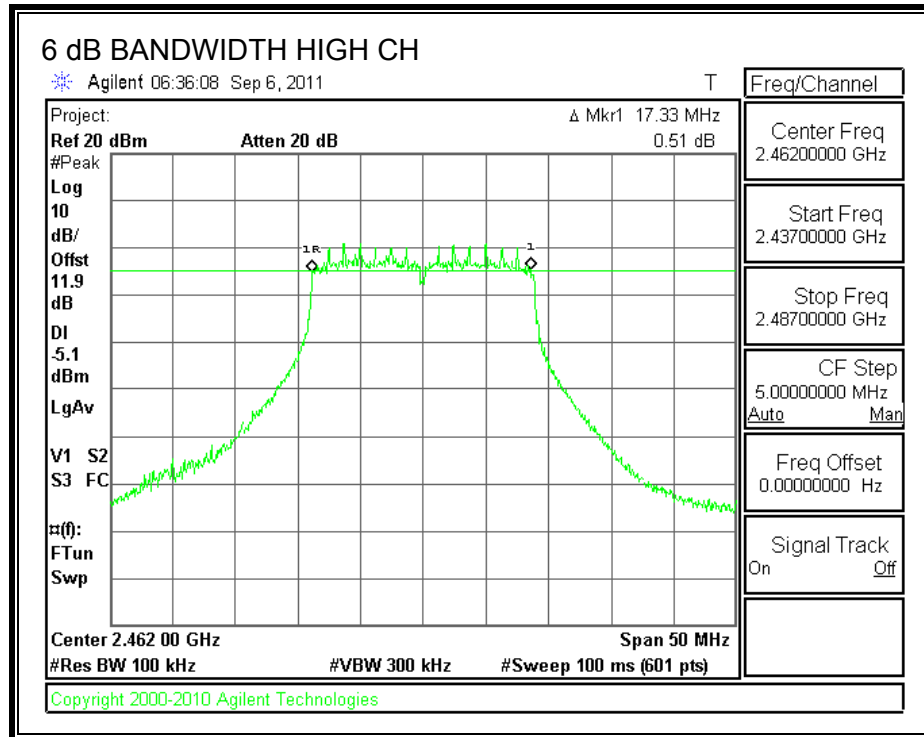
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	17.25	0.5
Middle	2437	17.33	0.5
High	2462	17.33	0.5

6 dB BANDWIDTH







7.3.2. 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.

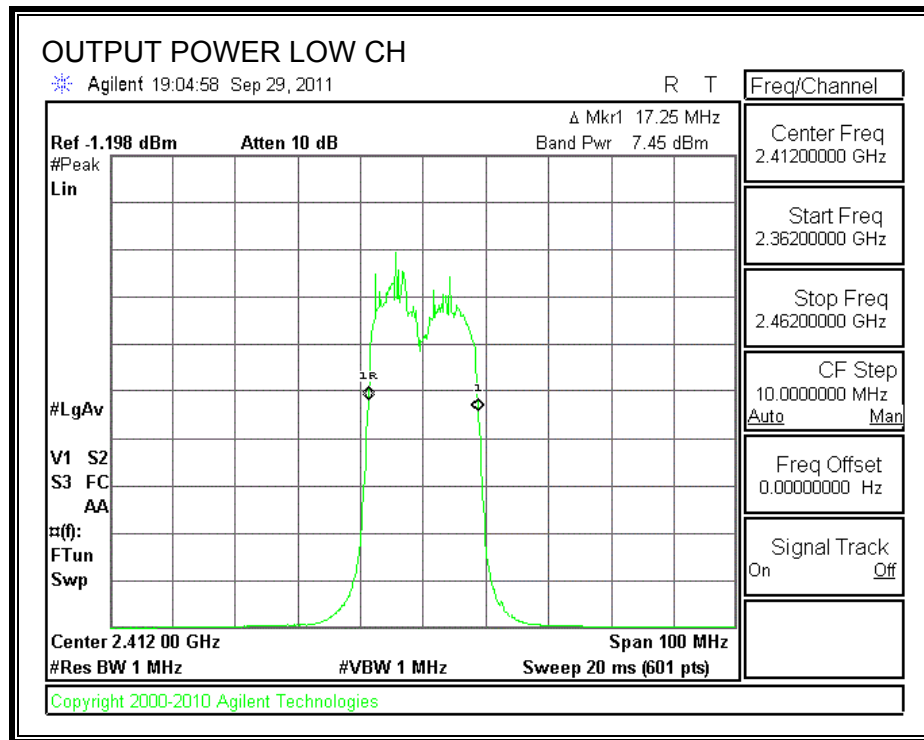
TEST PROCEDURE

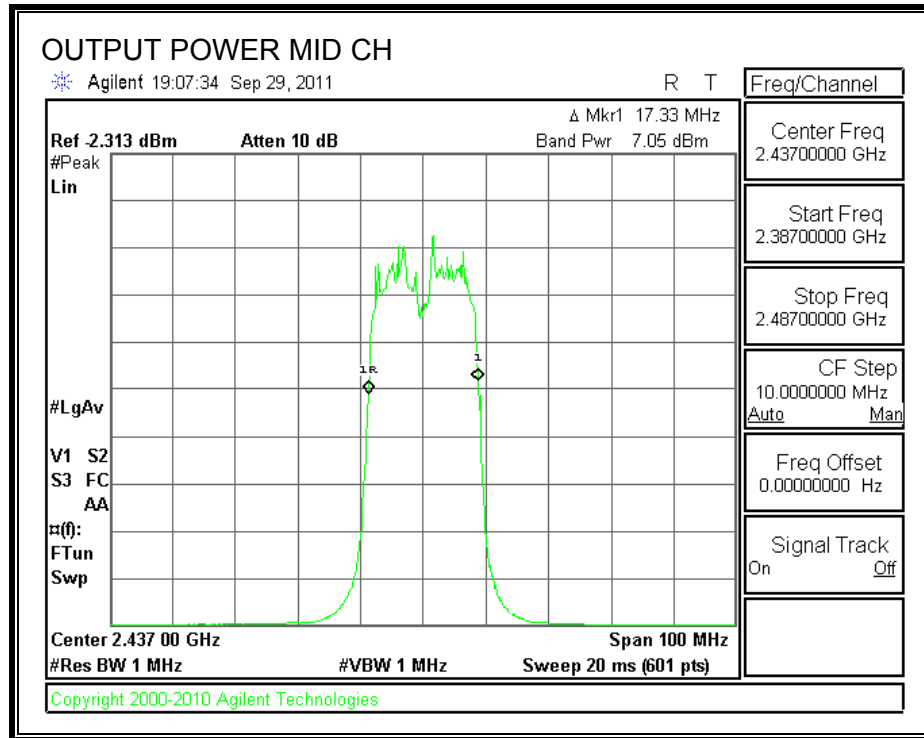
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

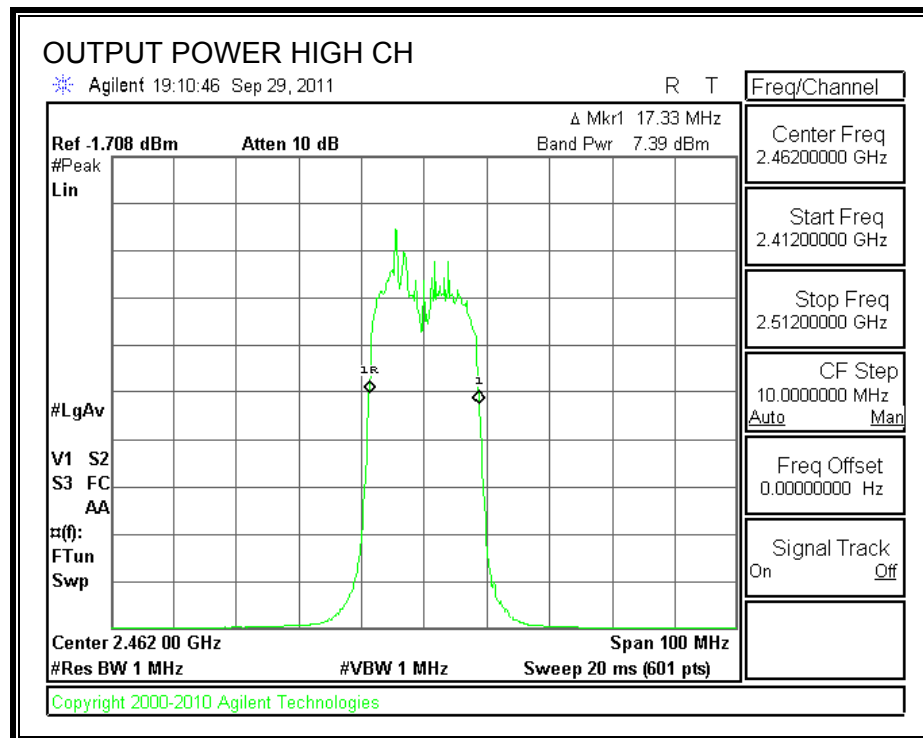
RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Attenuator and Cable Offset (dB)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	7.45	11.88	19.33	30	-10.67
Middle	2437	7.05	11.88	18.93	30	-11.07
High	2462	7.39	11.88	19.27	30	-10.73

OUTPUT POWER







7.3.3. 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 11.88 dB (including 10 dB pad and 1.88 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Frequency (MHz)	Power (dBm)
2412	12.29
2437	12.37
2462	12.79

7.3.4. 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.

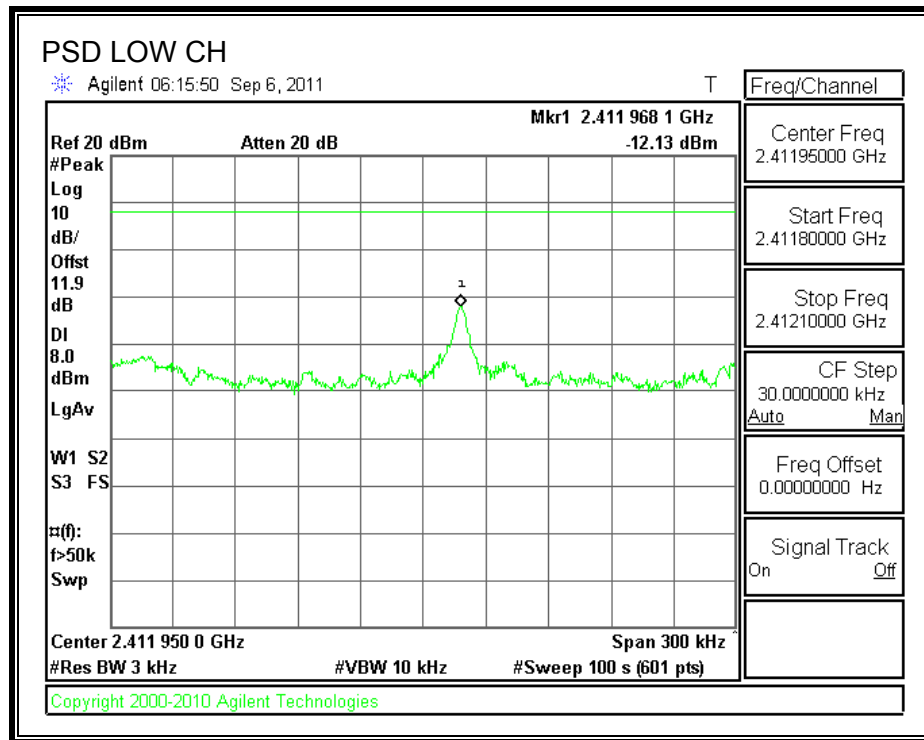
TEST PROCEDURE

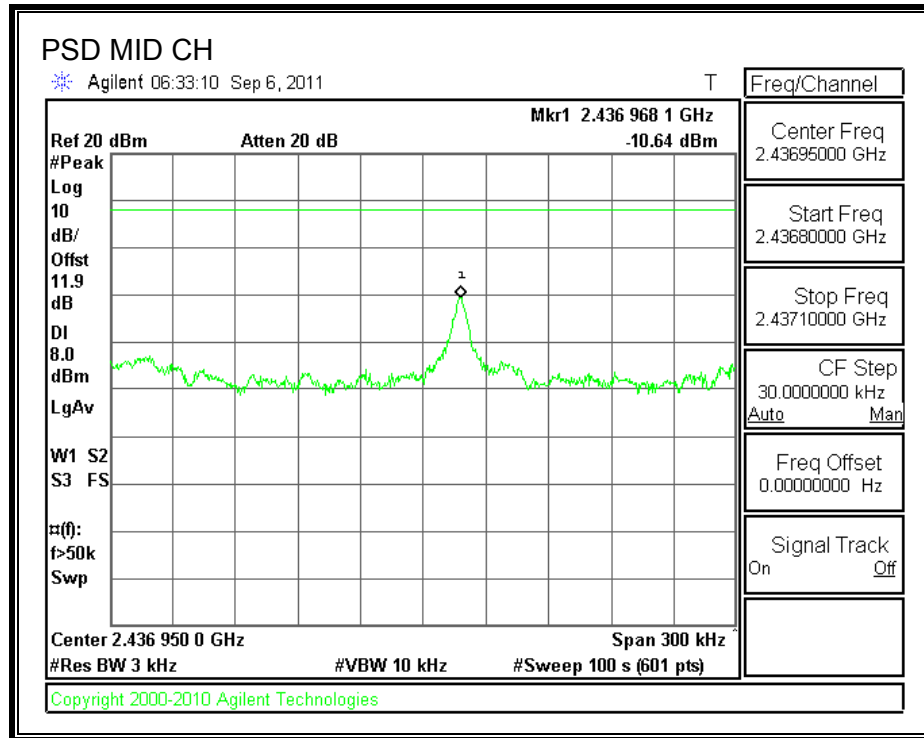
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

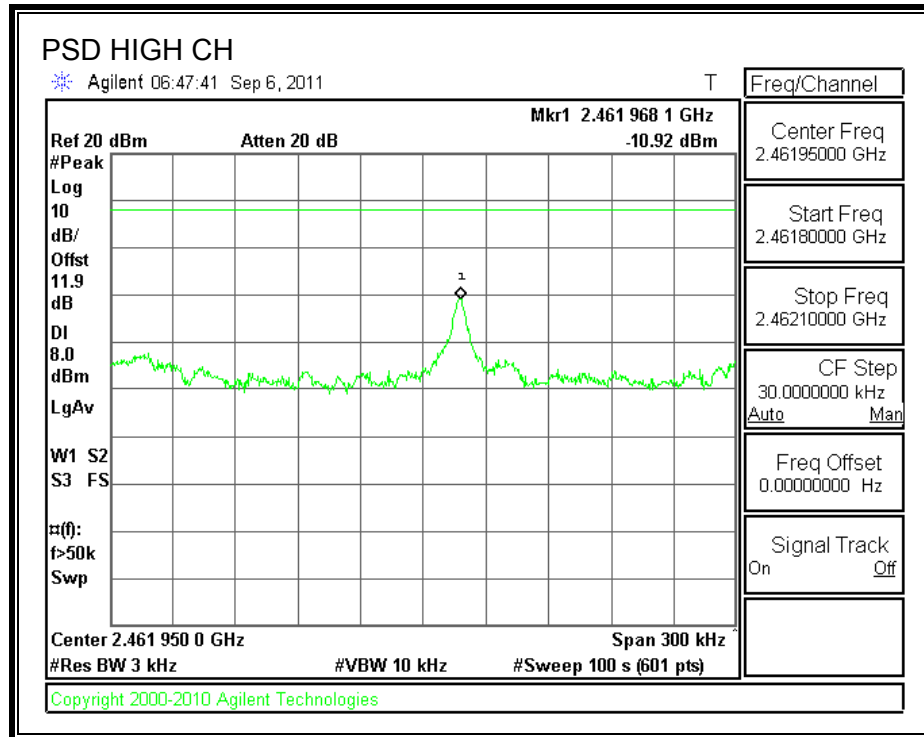
RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-12.13	8	-20.13
Middle	2437	-10.64	8	-18.64
High	2462	-10.92	8	-18.92

POWER SPECTRAL DENSITY







7.3.5. 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.

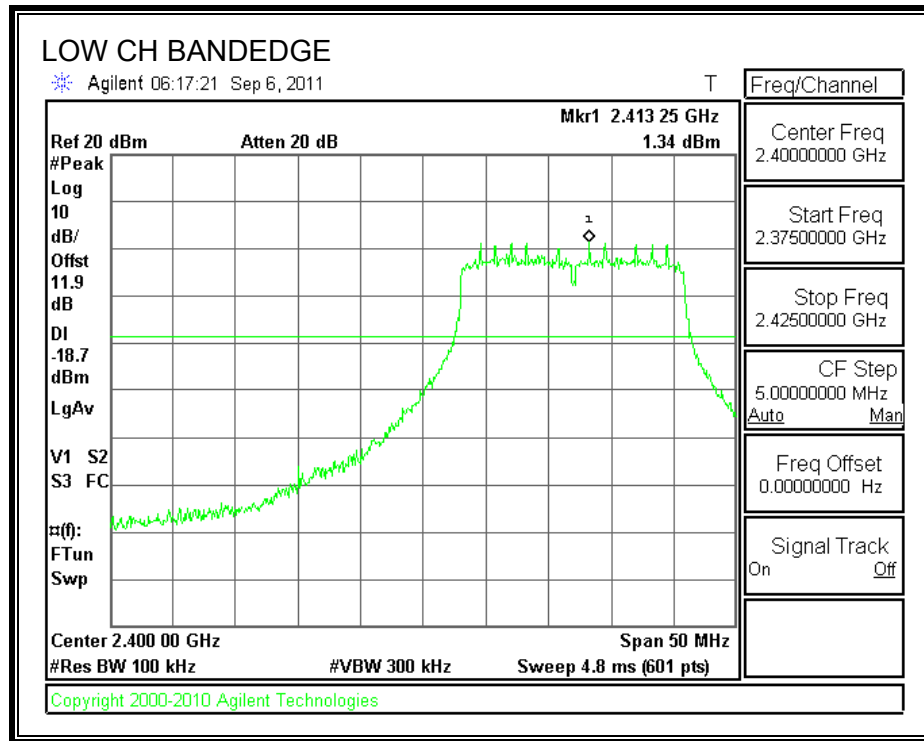
TEST PROCEDURE

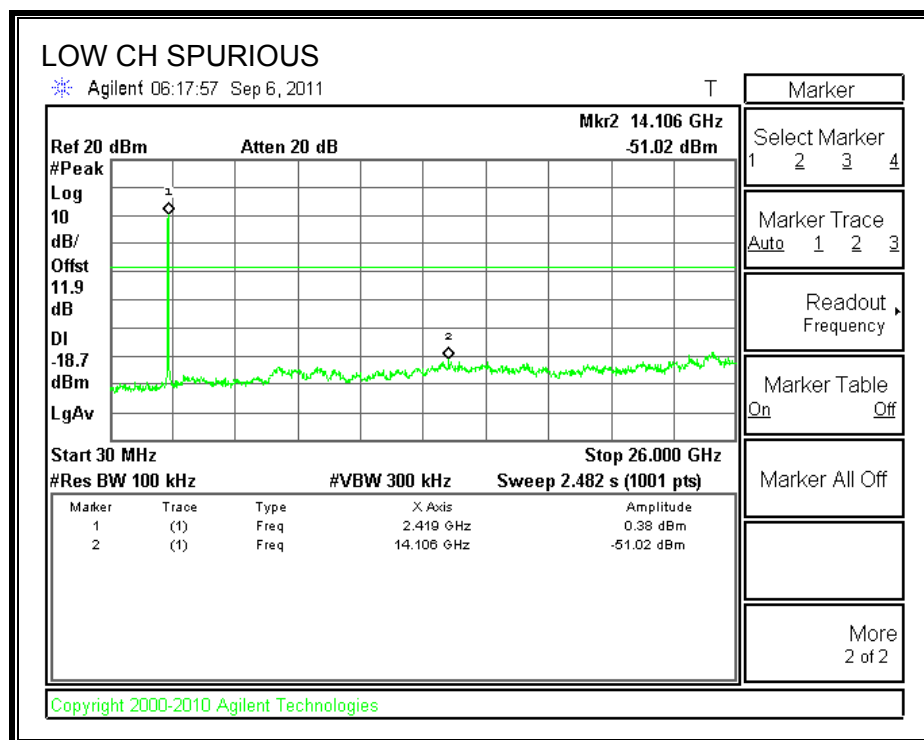
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

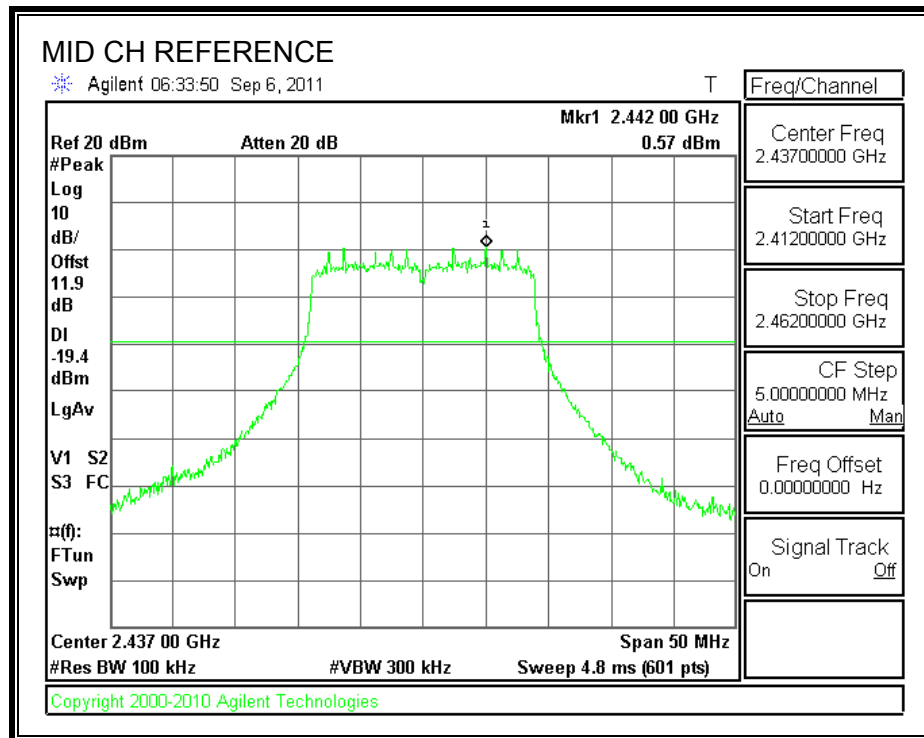
RESULTS

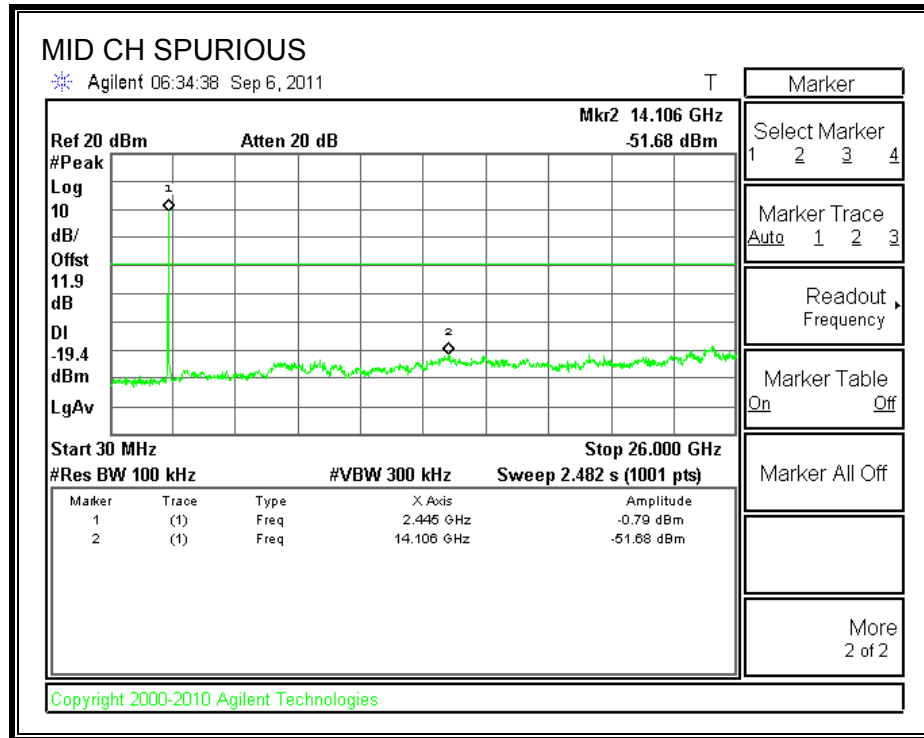
SPURIOUS EMISSIONS, LOW CHANNEL



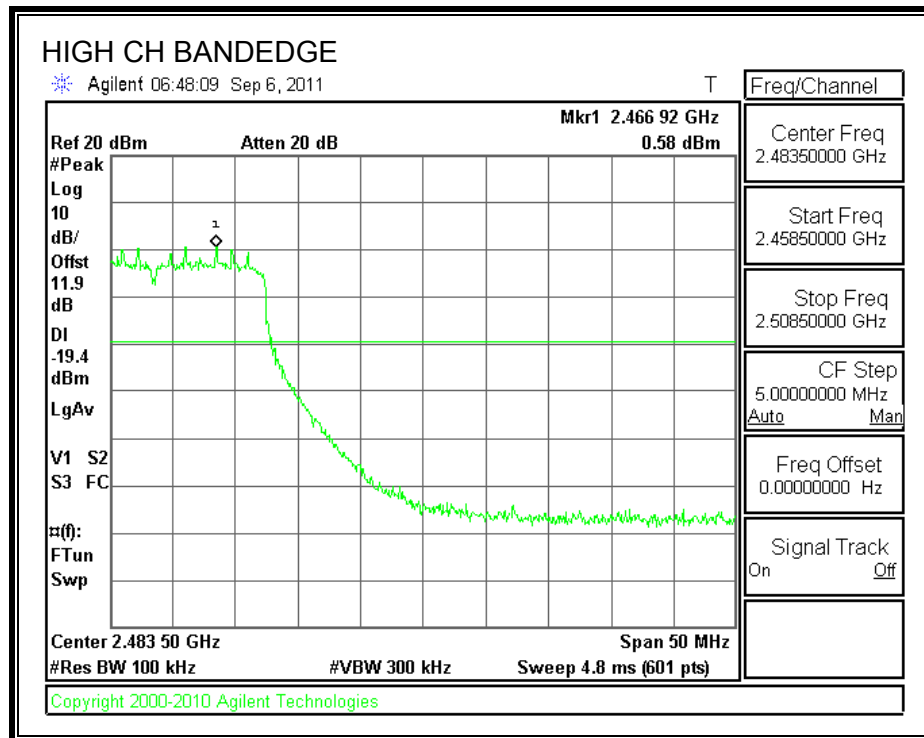


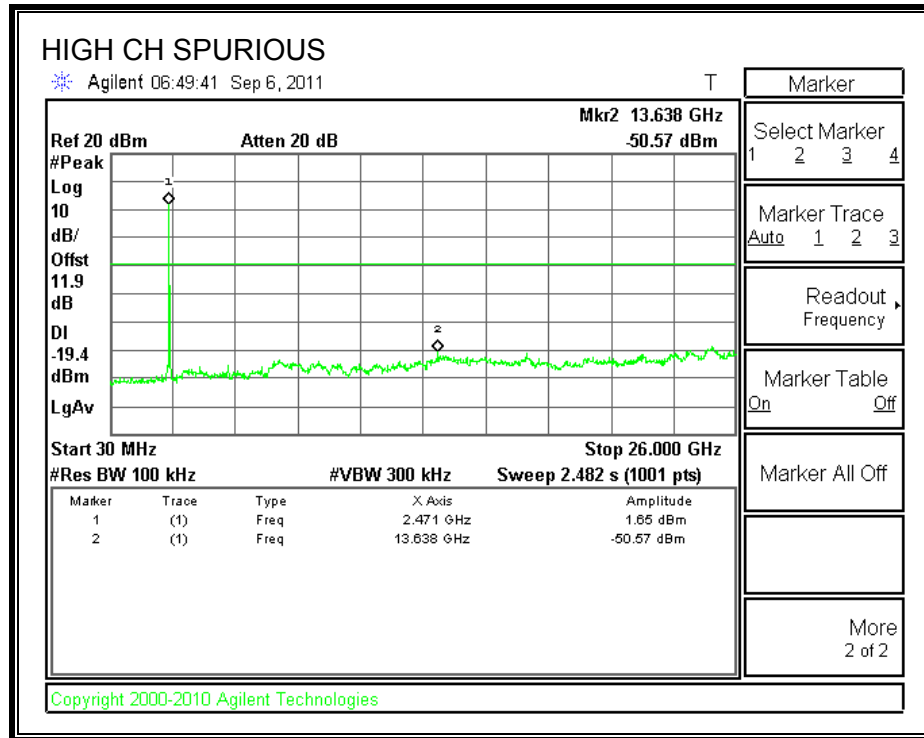
SPURIOUS EMISSIONS, MID CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





7.4. 802.11a MODE IN THE 5.8 GHz BAND

7.4.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

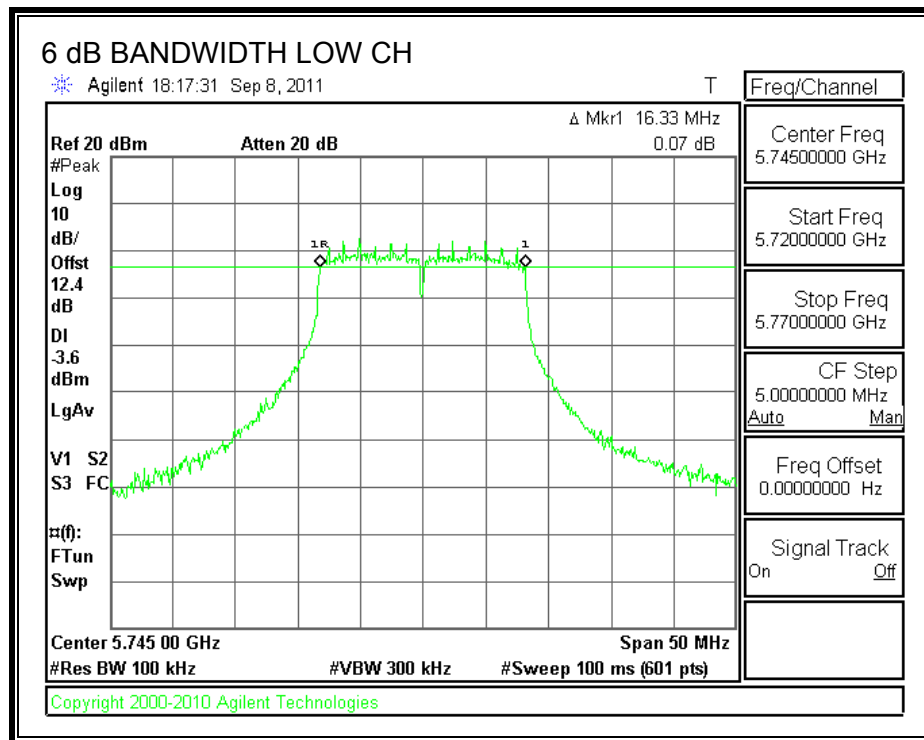
TEST PROCEDURE

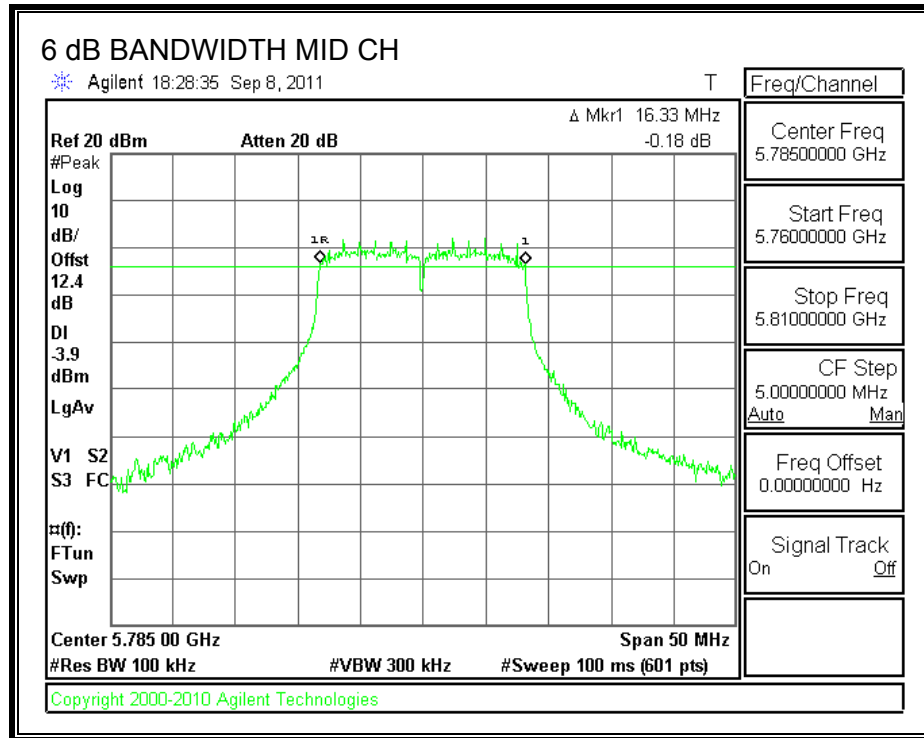
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

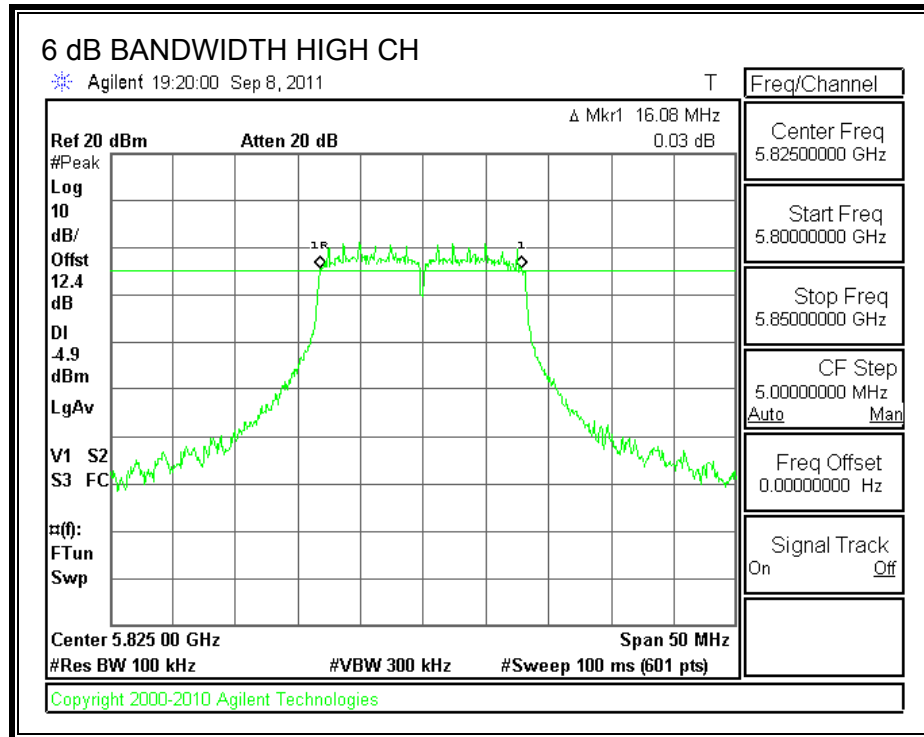
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.33	0.5
Middle	5785	16.33	0.5
High	5825	16.08	0.5

6 dB BANDWIDTH







7.4.2. 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.

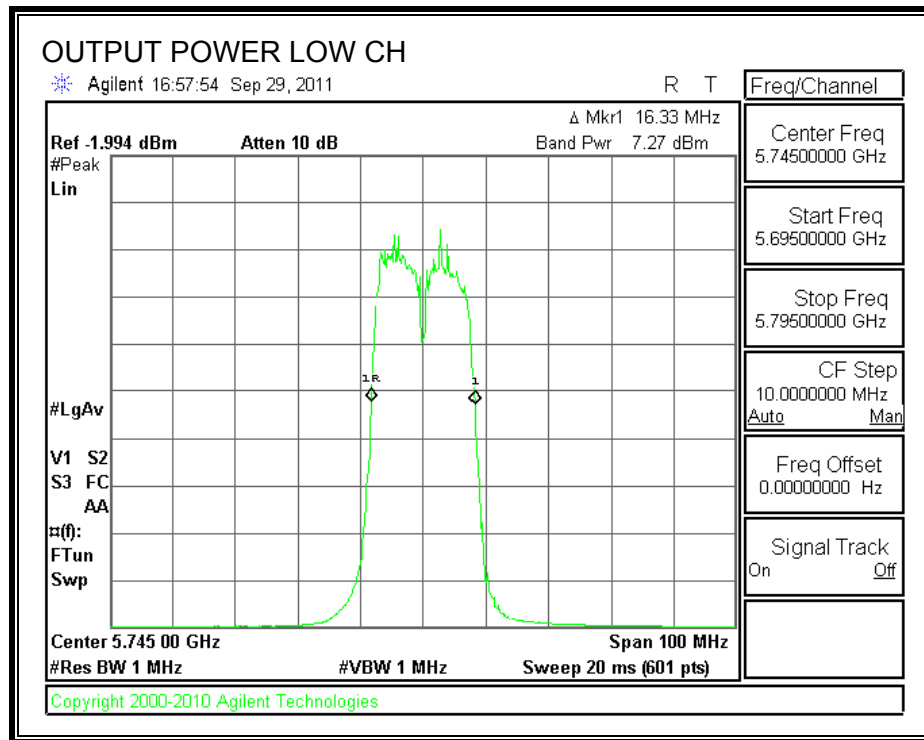
TEST PROCEDURE

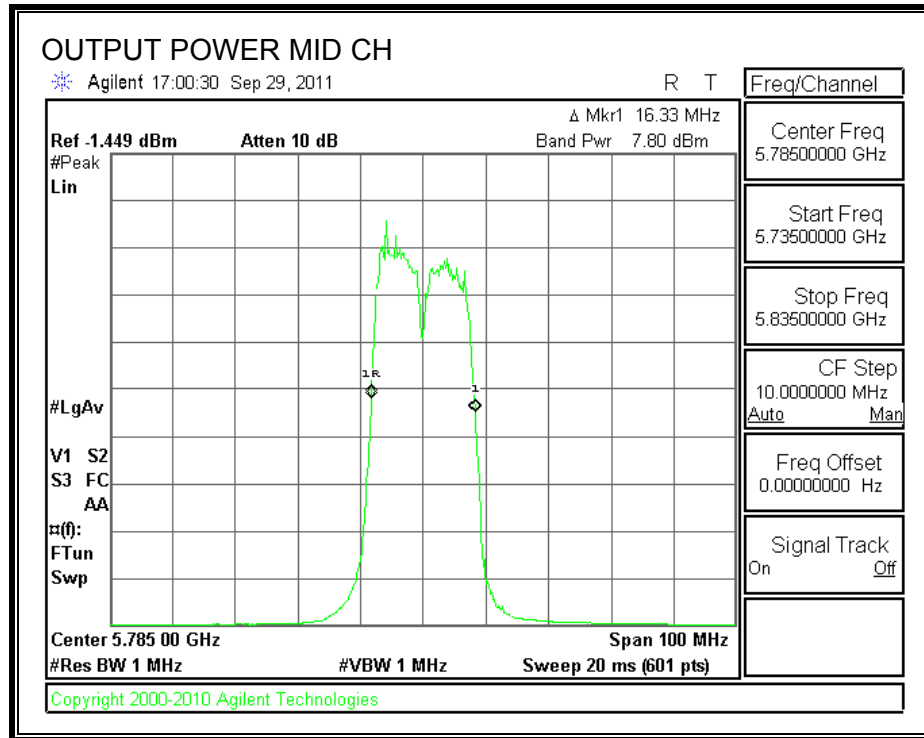
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

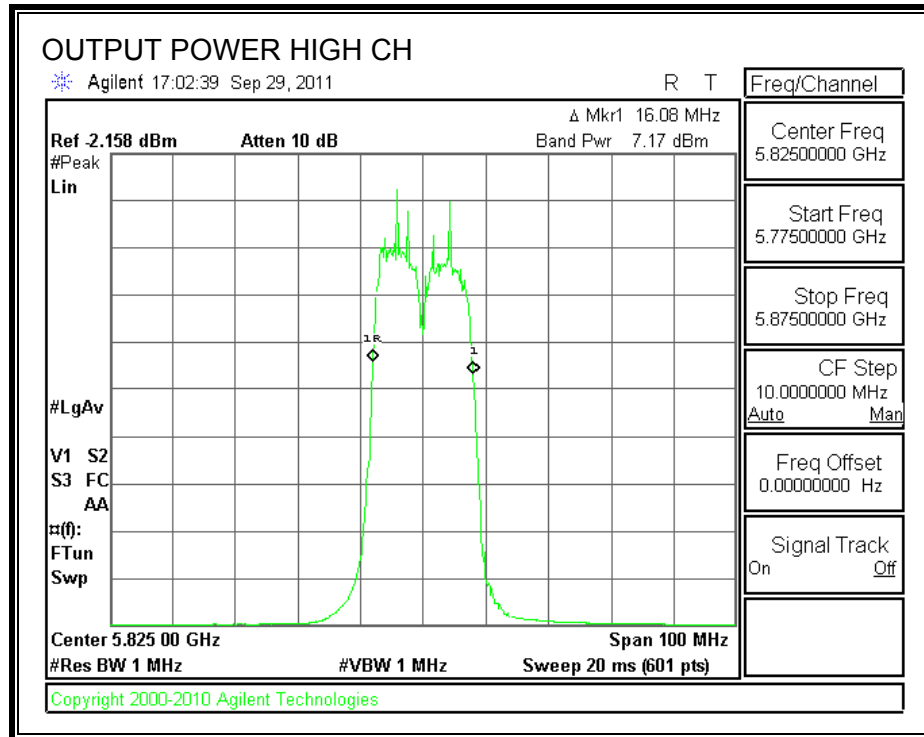
RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Attenuator and Cable Offset (dB)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	5745	7.27	12.4	19.67	30	-10.33
Middle	5785	7.8	12.4	20.20	30	-9.80
High	5825	7.17	12.4	19.57	30	-10.43

OUTPUT POWER







7.4.3. 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 12.4 dB (including 10 dB pad and 1.4 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Frequency (MHz)	Power (dBm)
5745	12.30
5785	12.59
5825	11.77

7.4.4. 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.

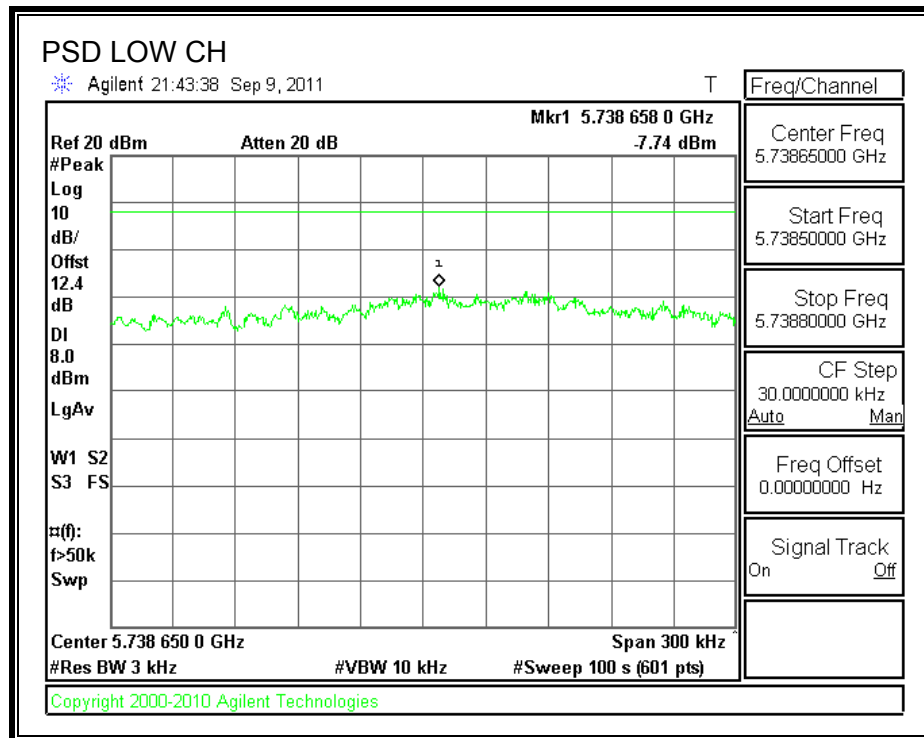
TEST PROCEDURE

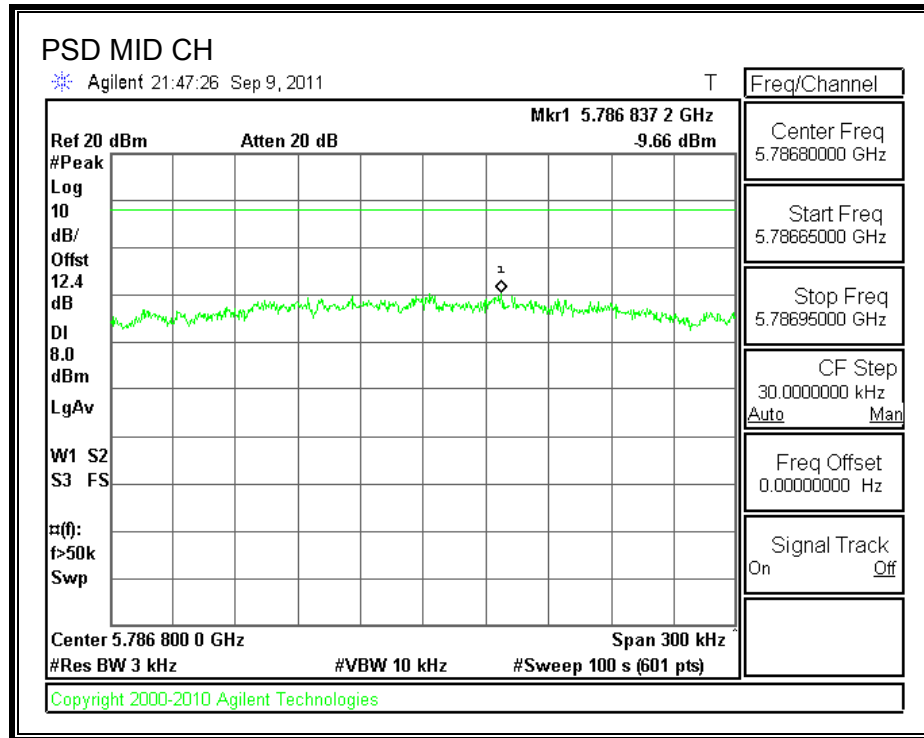
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

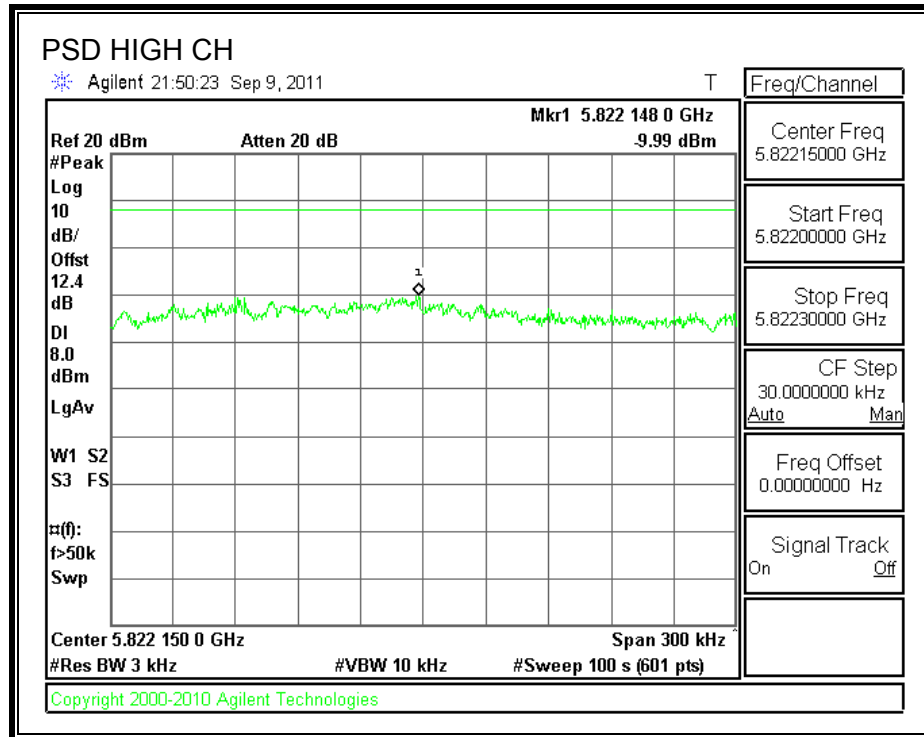
RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-7.74	8	-15.74
Middle	5785	-9.66	8	-17.66
High	5825	-9.99	8	-17.99

POWER SPECTRAL DENSITY







7.4.5. 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.

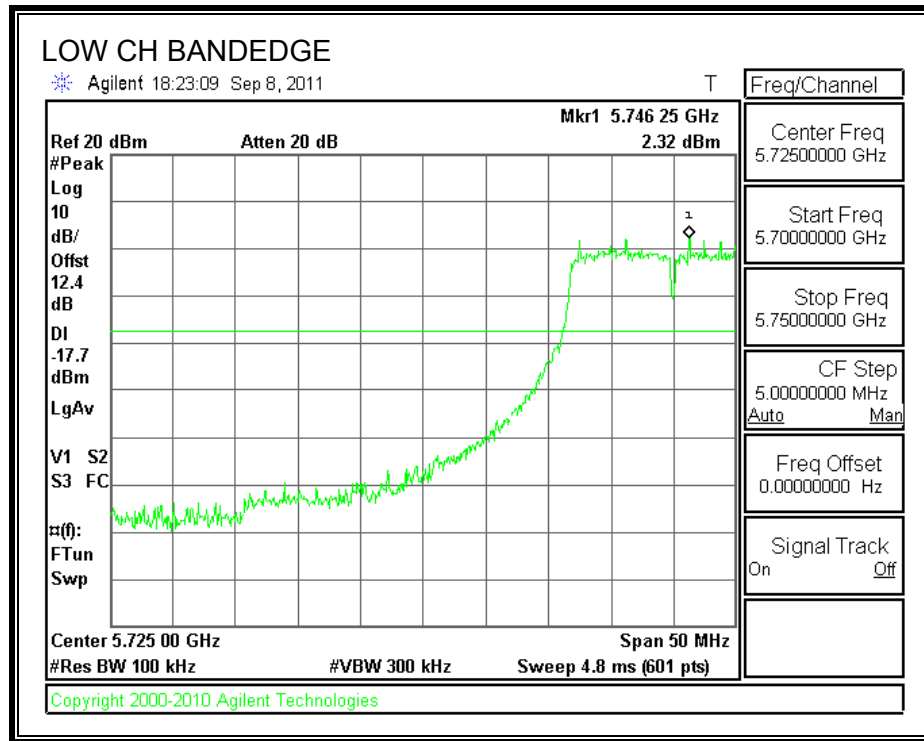
TEST PROCEDURE

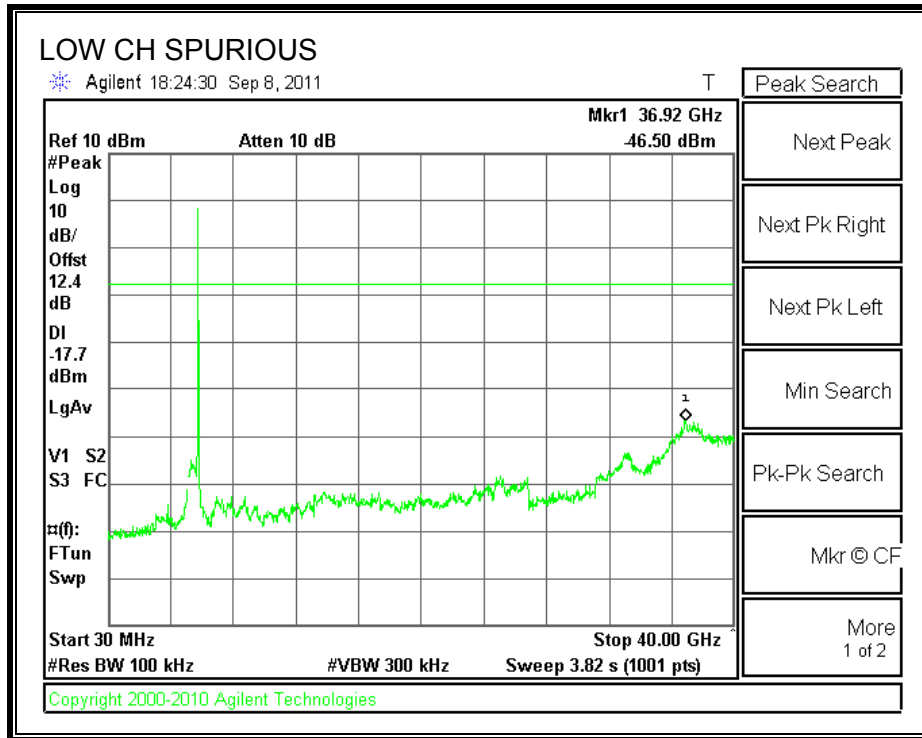
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

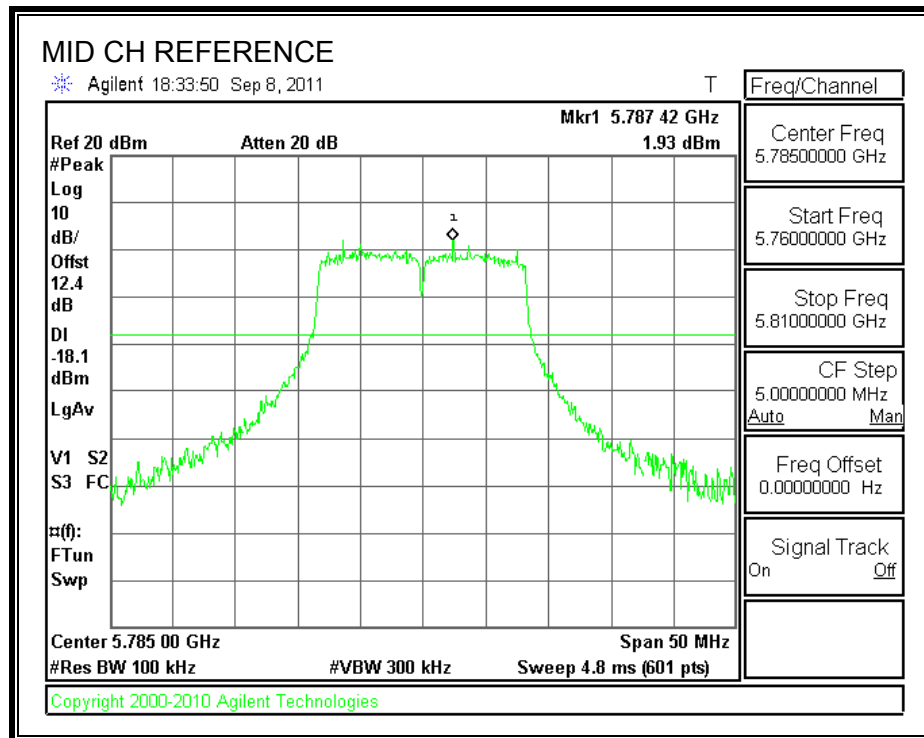
RESULTS

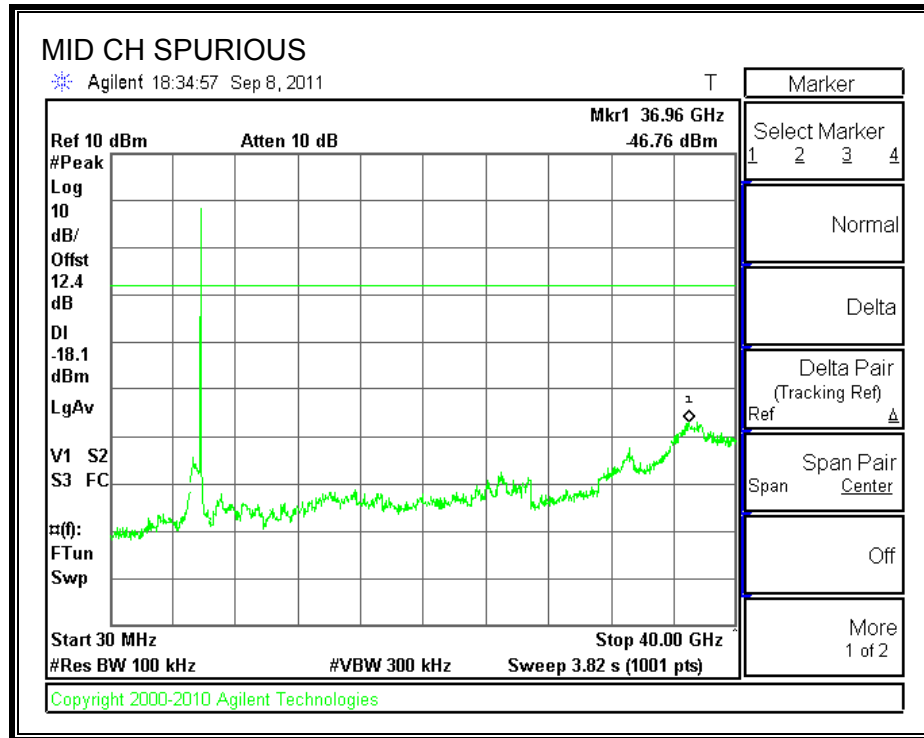
SPURIOUS EMISSIONS, LOW CHANNEL



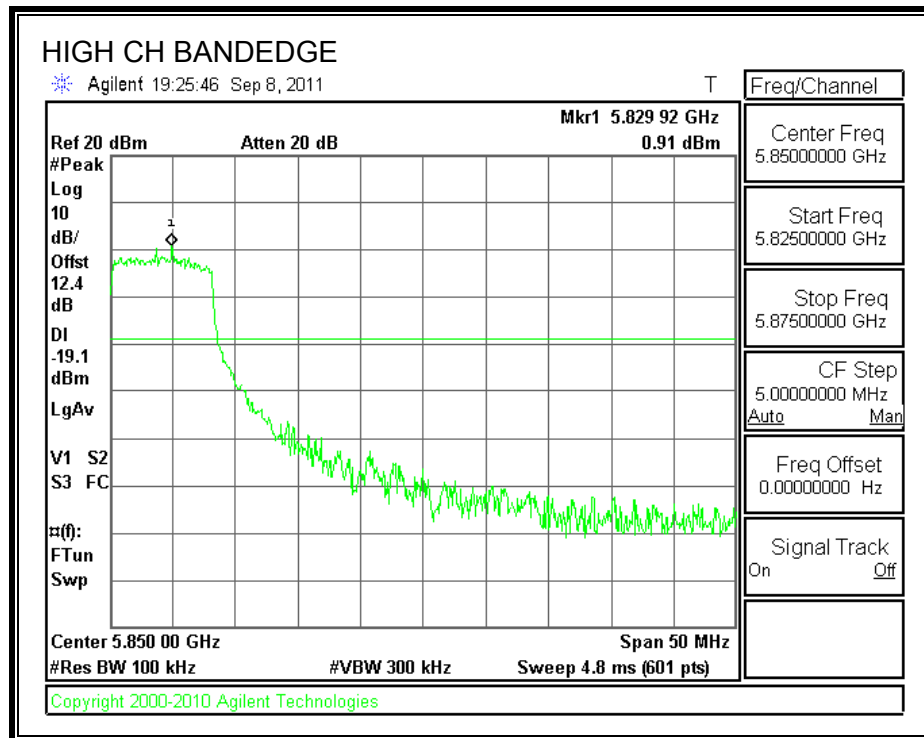


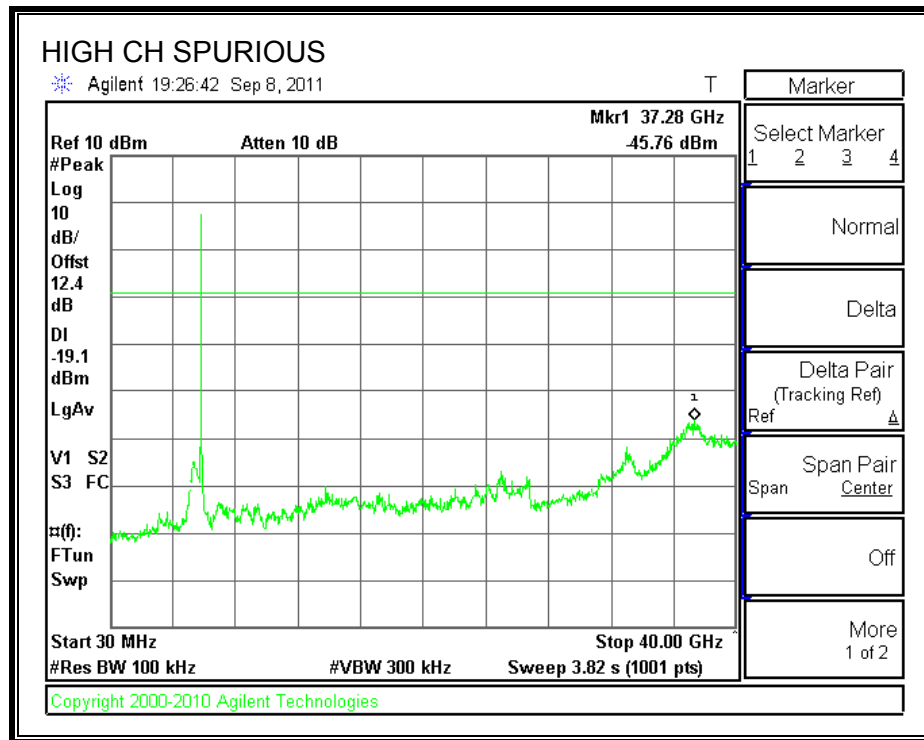
SPURIOUS EMISSIONS, MID CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





7.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

7.5.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

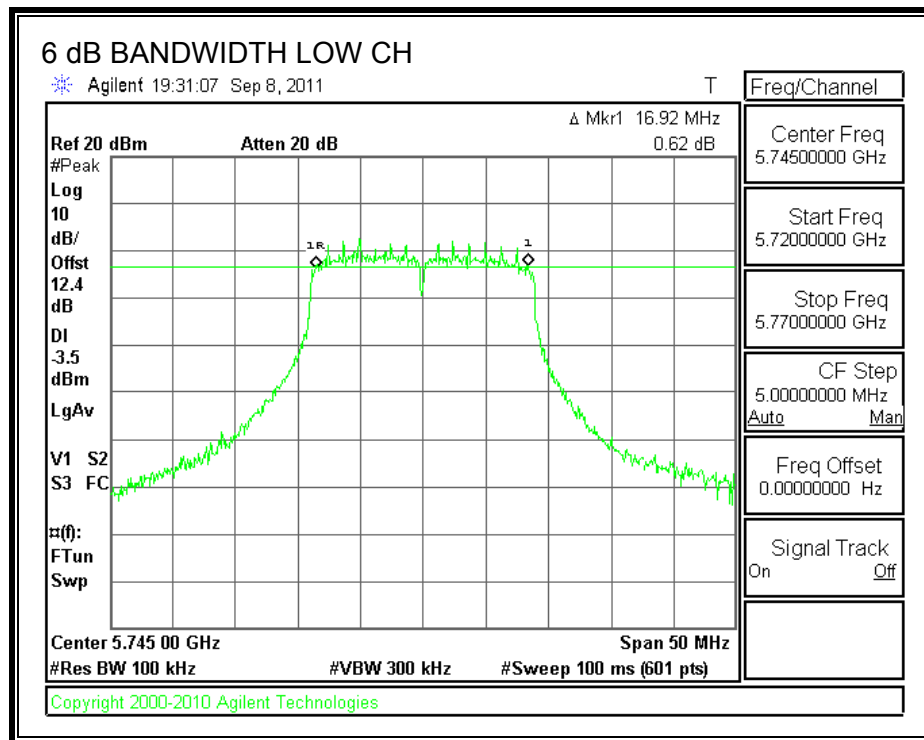
TEST PROCEDURE

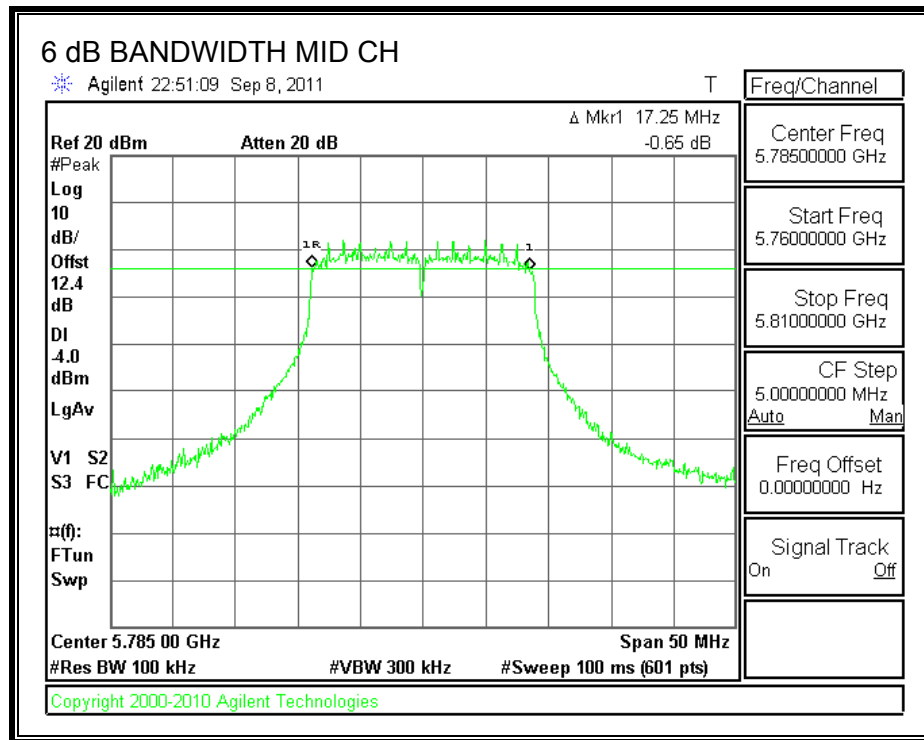
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

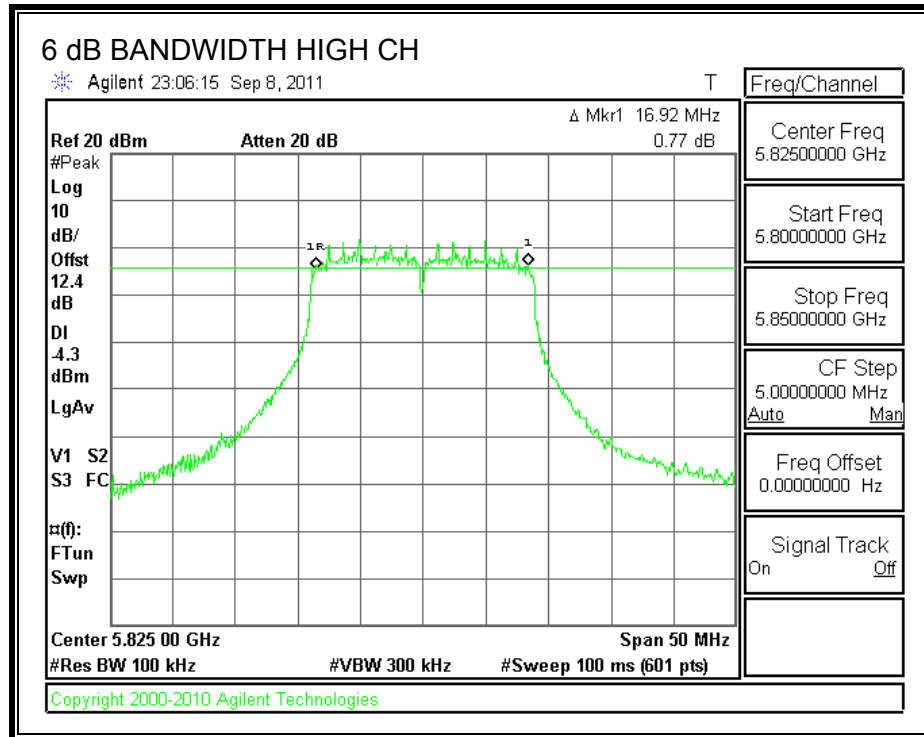
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.92	0.5
Middle	5785	17.25	0.5
High	5825	16.92	0.5

6 dB BANDWIDTH







7.5.2. 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.

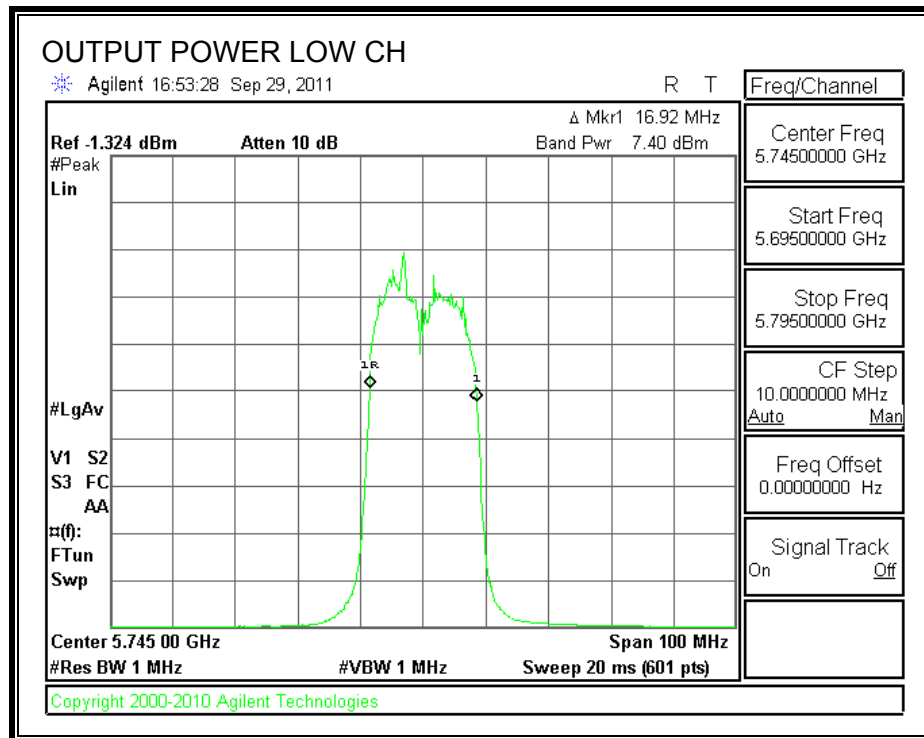
TEST PROCEDURE

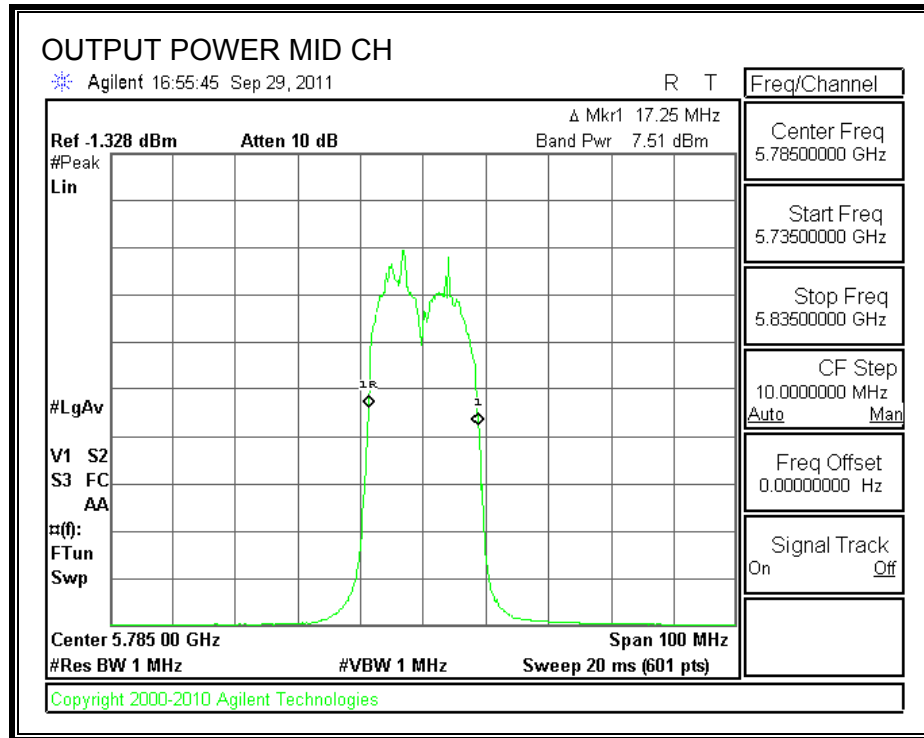
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

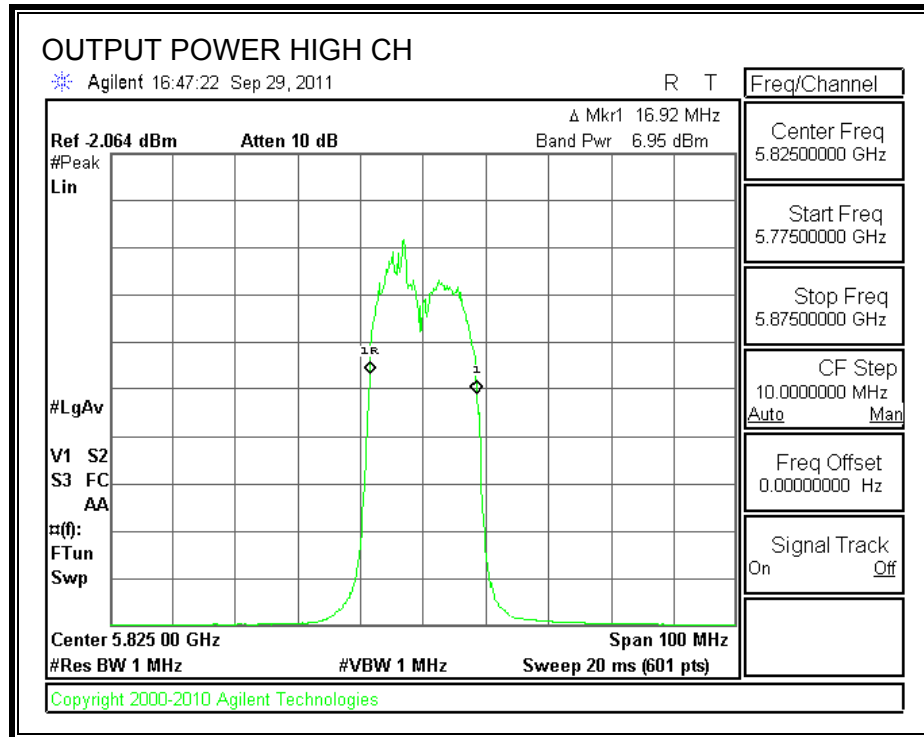
RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Attenuator and Cable Offset (dB)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	5745	7.4	12.4	19.80	30	-10.20
Middle	5785	7.51	12.4	19.91	30	-10.09
High	5825	6.95	12.4	19.35	30	-10.65

OUTPUT POWER







7.5.3. 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 12.4 dB (including 10 dB pad and 2.4 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Frequency (MHz)	Power (dBm)
5745	11.87
5785	12.57
5825	11.68

7.5.4. 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.

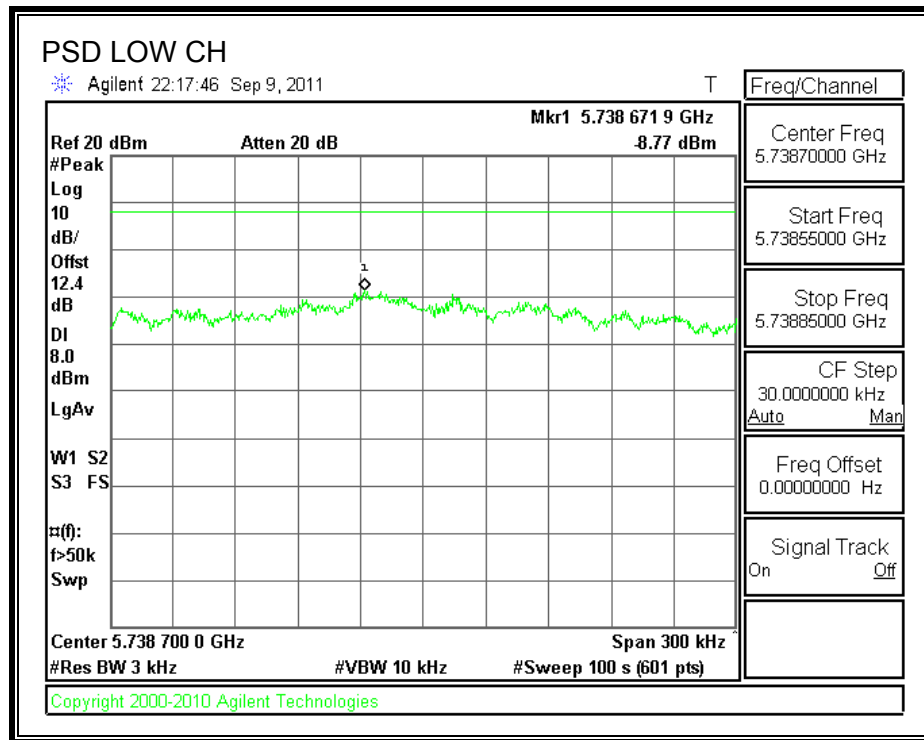
TEST PROCEDURE

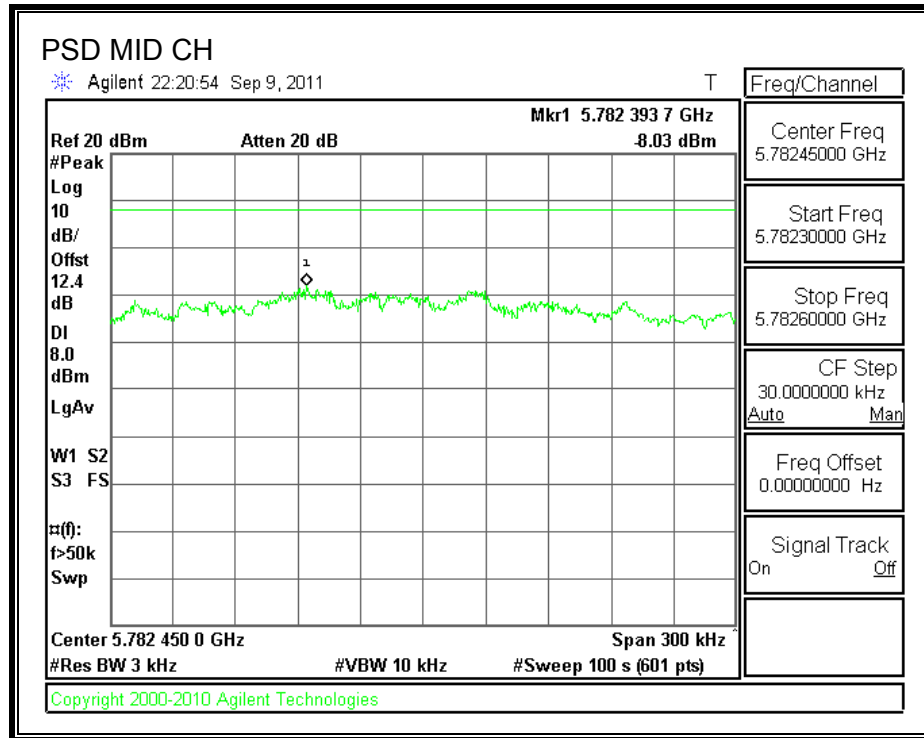
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

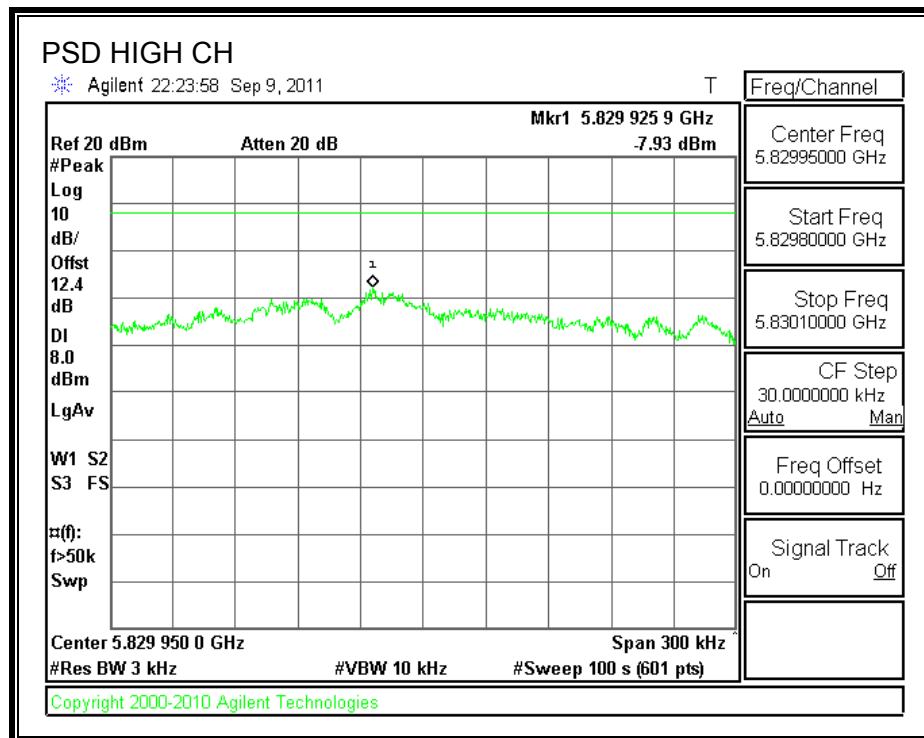
RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-8.77	8	-16.77
Middle	5785	-8.03	8	-16.03
High	5825	-7.93	8	-15.93

POWER SPECTRAL DENSITY







7.5.5. 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.

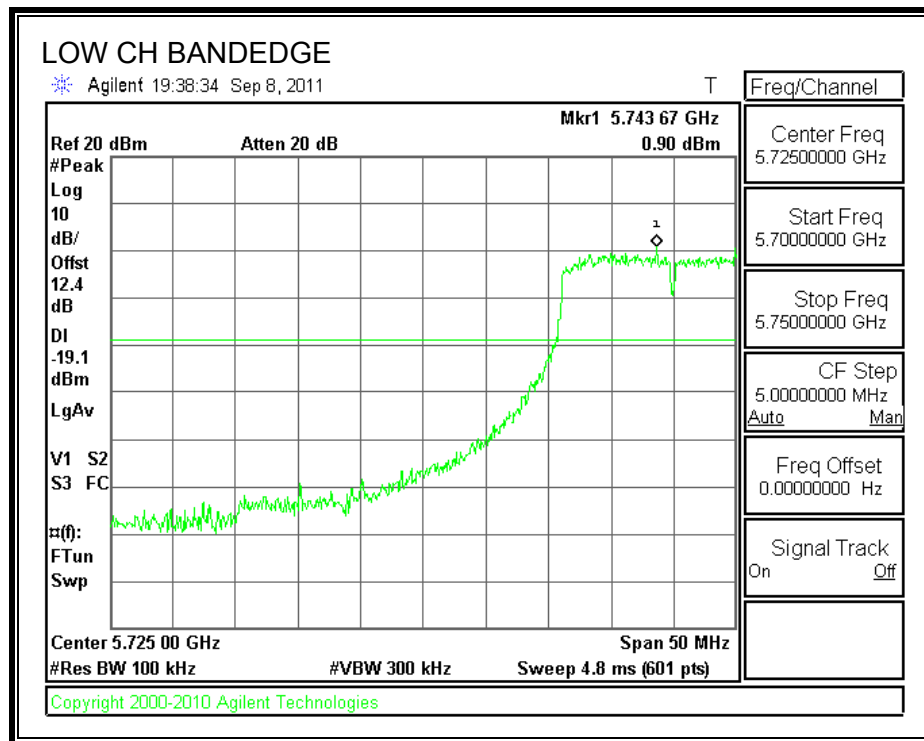
TEST PROCEDURE

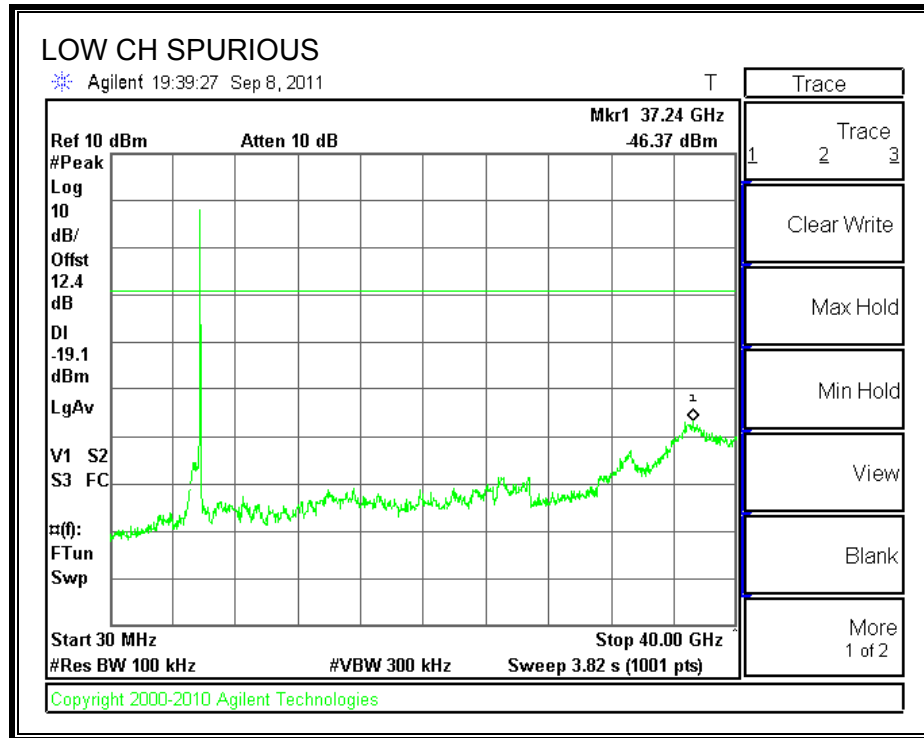
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

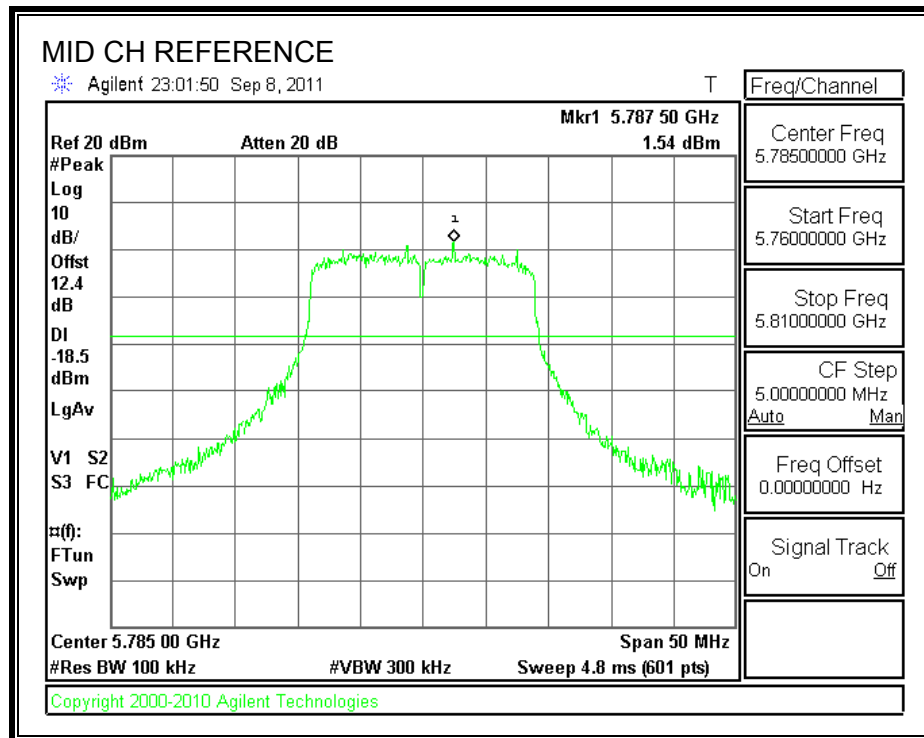
RESULTS

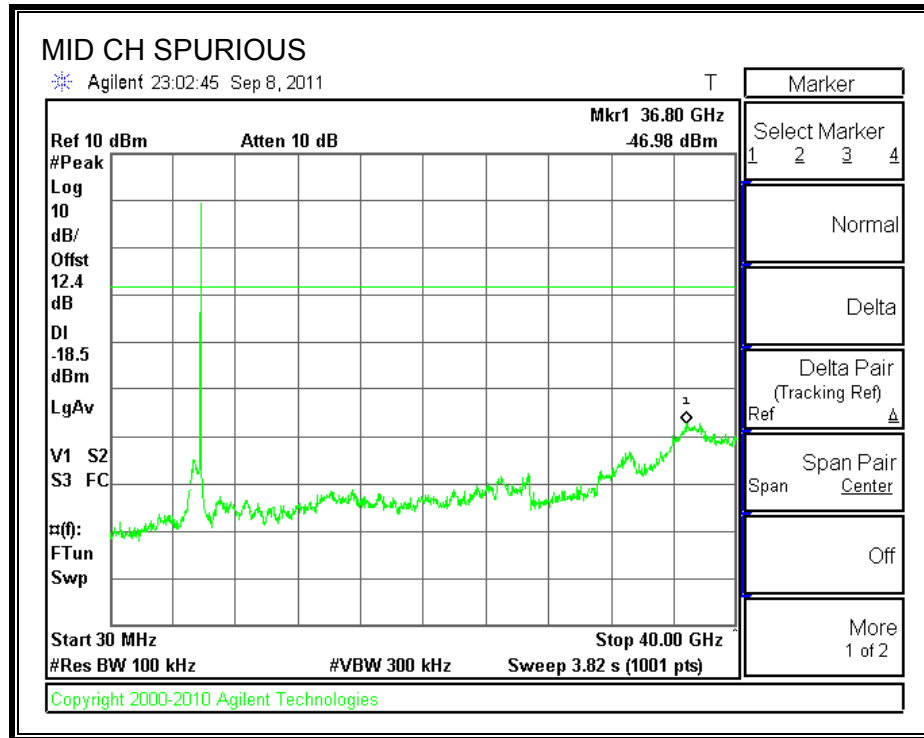
SPURIOUS EMISSIONS, LOW CHANNEL



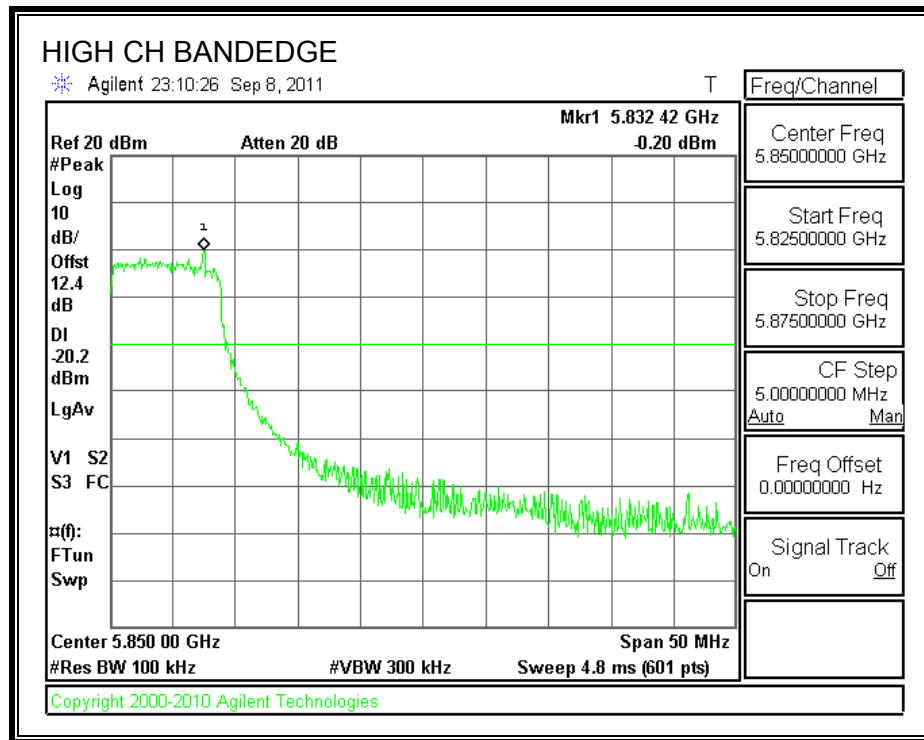


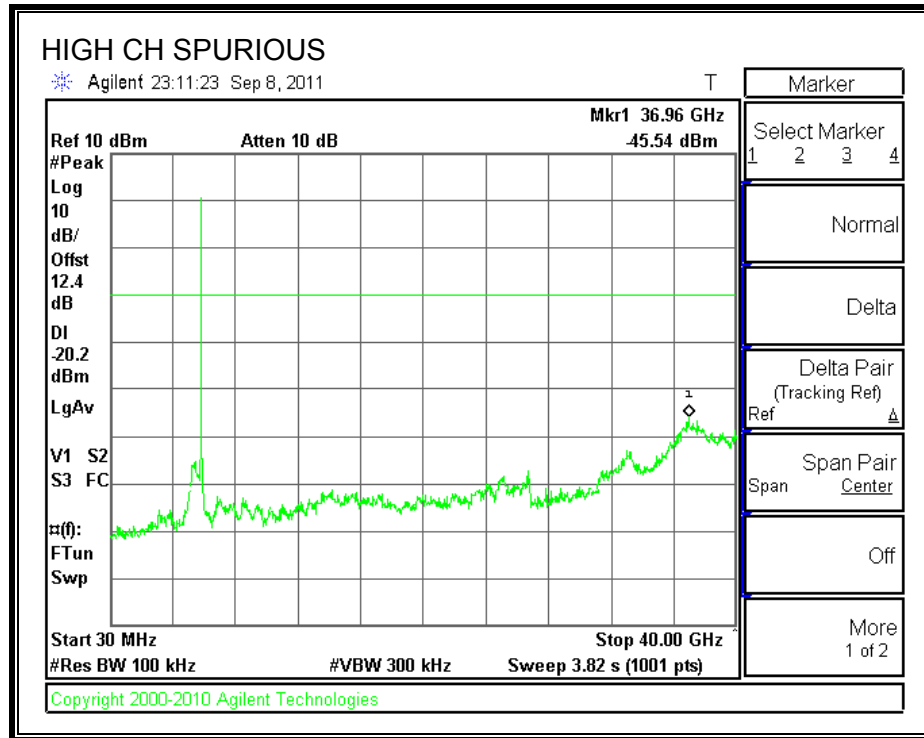
SPURIOUS EMISSIONS, MID CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





7.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

7.6.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

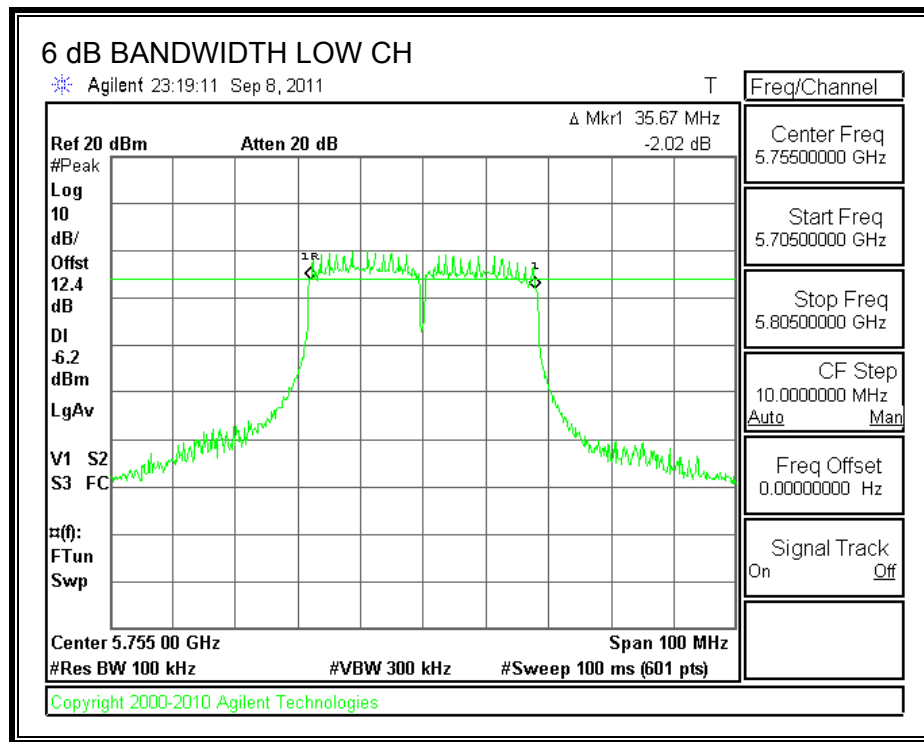
TEST PROCEDURE

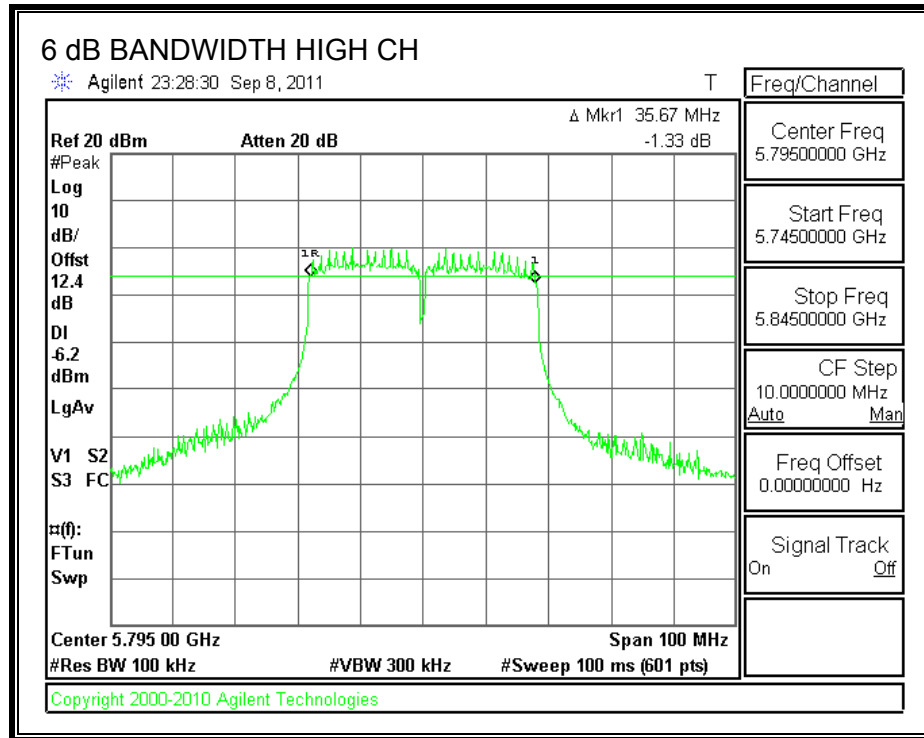
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	35.67	0.5
High	5795	35.67	0.5

6 dB BANDWIDTH





7.6.2. 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.

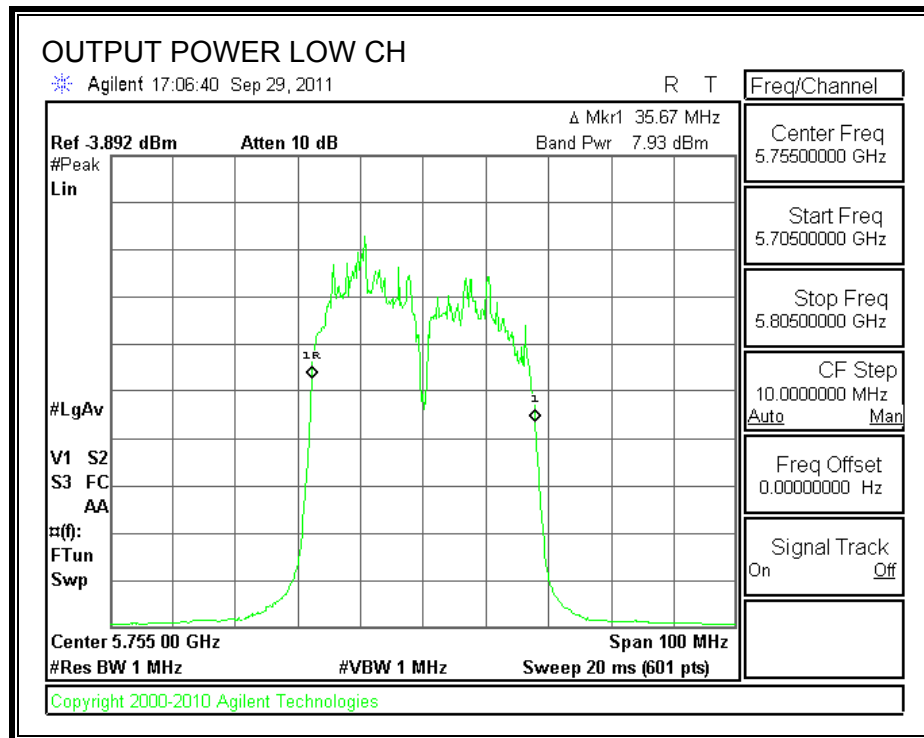
TEST PROCEDURE

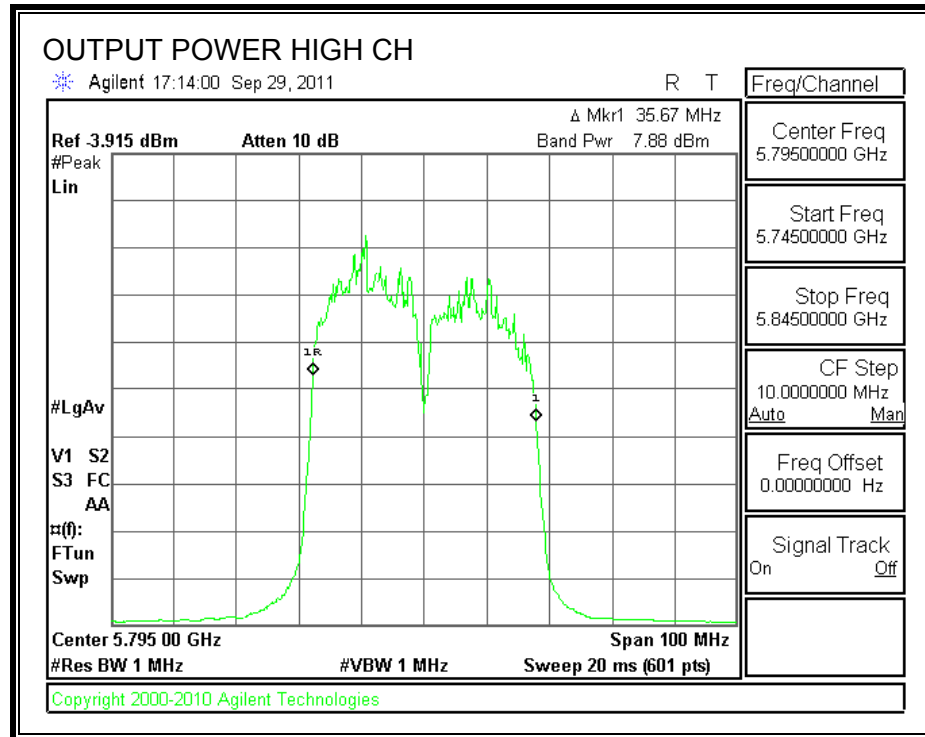
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Attenuator and Cable Offset (dB)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	5755	7.93	12.4	20.33	30	-9.67
High	5795	7.88	12.4	20.28	30	-9.72

OUTPUT POWER





7.6.3. 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 12.4 dB (including 10 dB pad and 2.4 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Frequency (MHz)	Power (dBm)
5755	12.56
5795	12.74

7.6.4. 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.

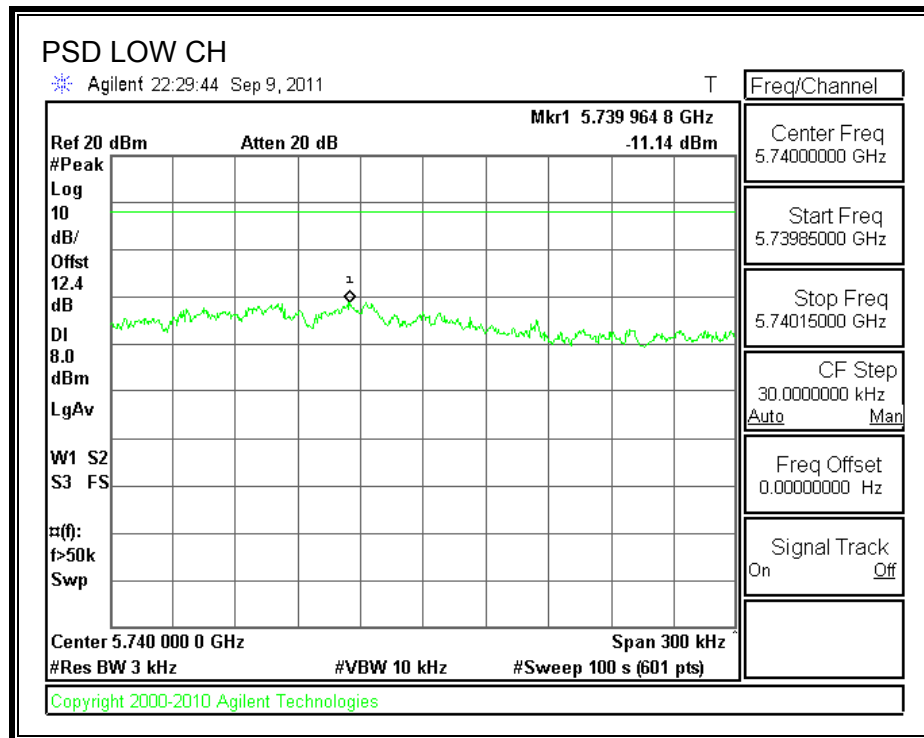
TEST PROCEDURE

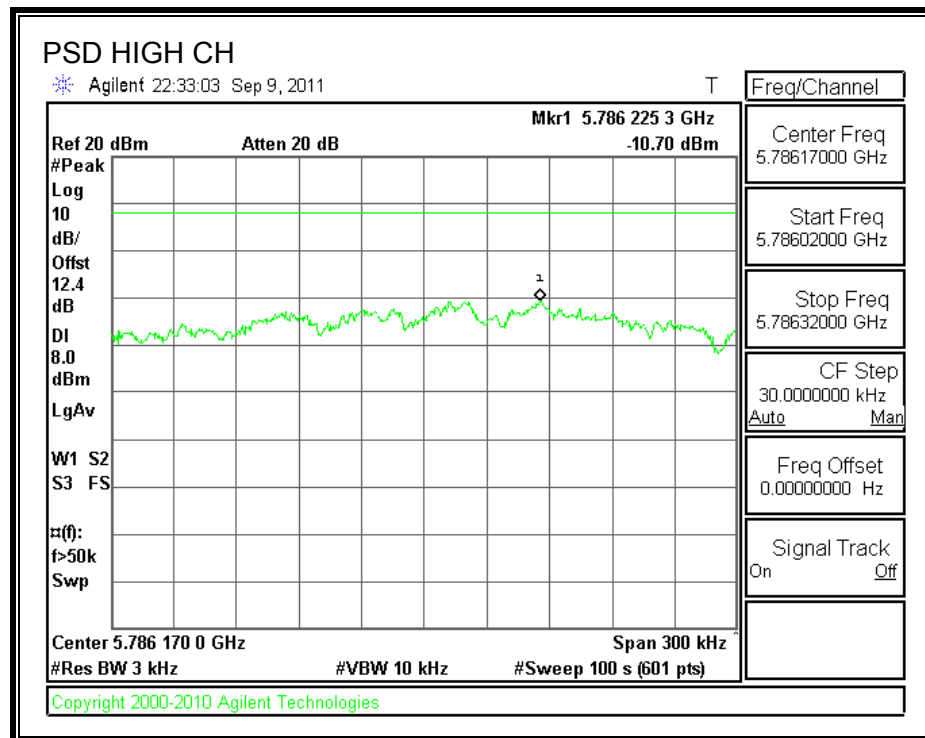
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-11.14	8	-19.14
High	5795	-10.70	8	-18.70

POWER SPECTRAL DENSITY





7.6.5. 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.

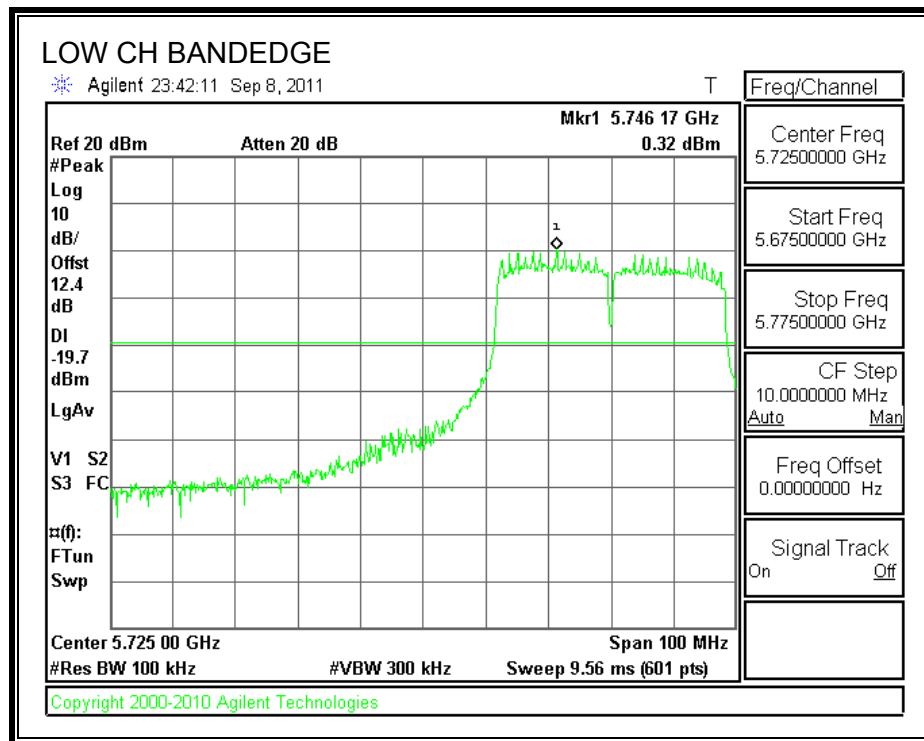
TEST PROCEDURE

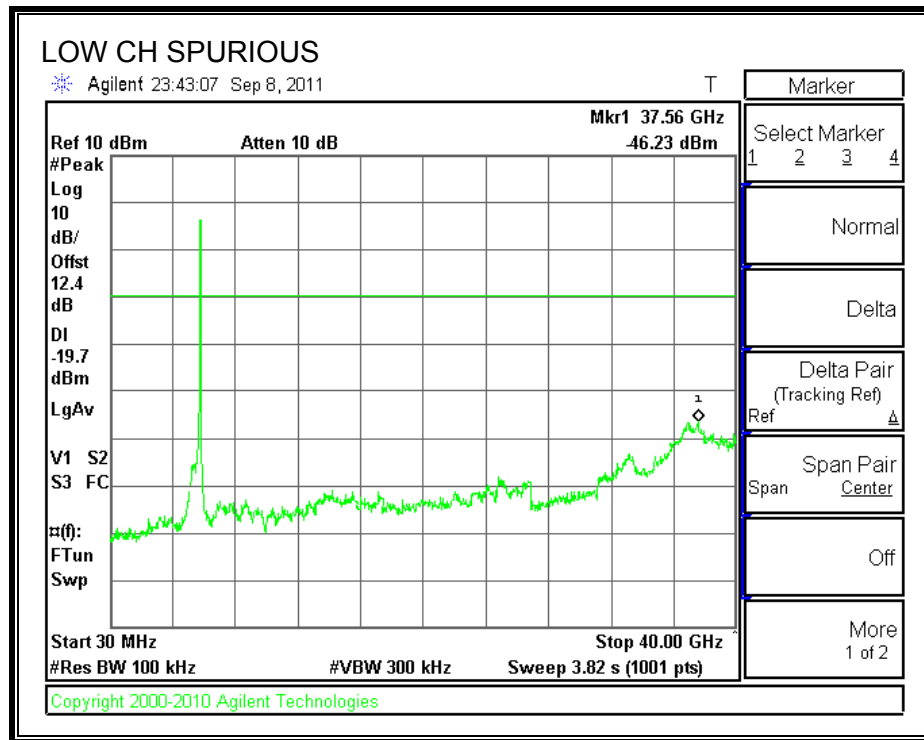
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

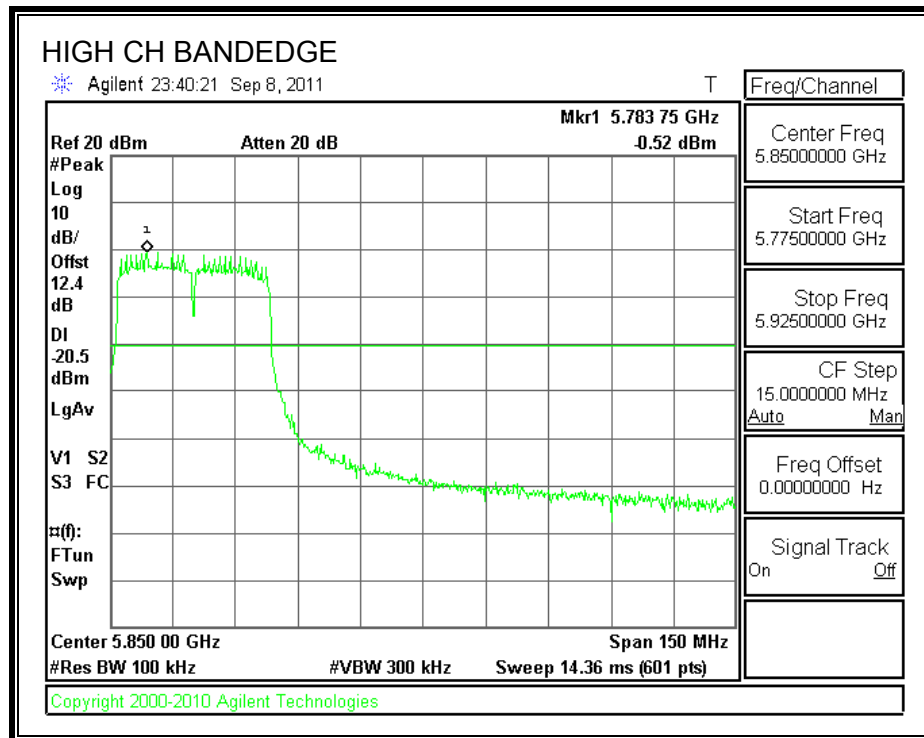
RESULTS

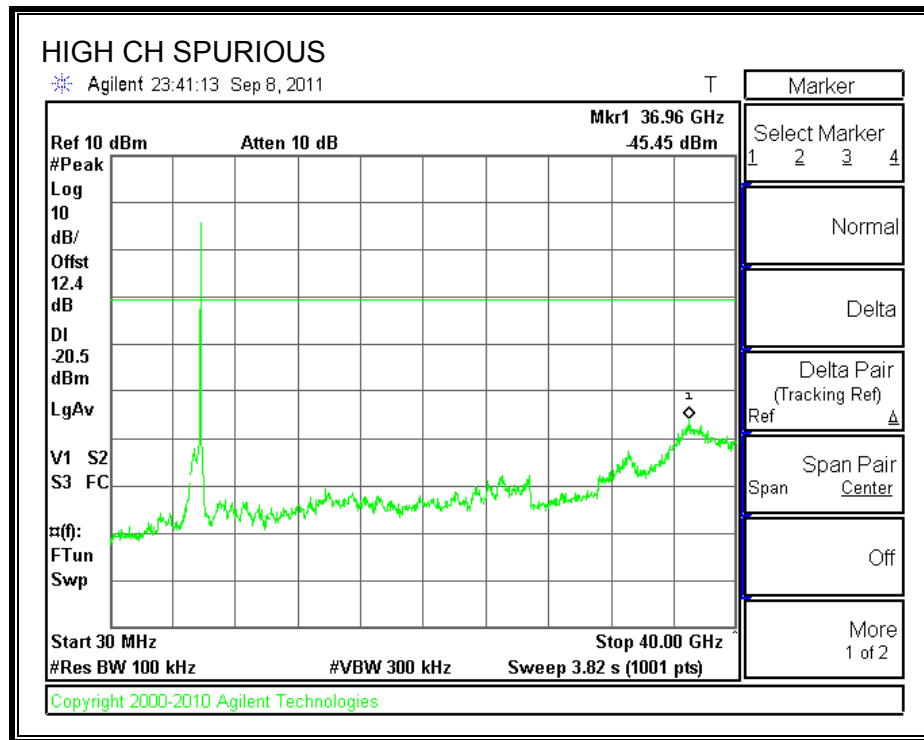
SPURIOUS EMISSIONS, LOW CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





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.

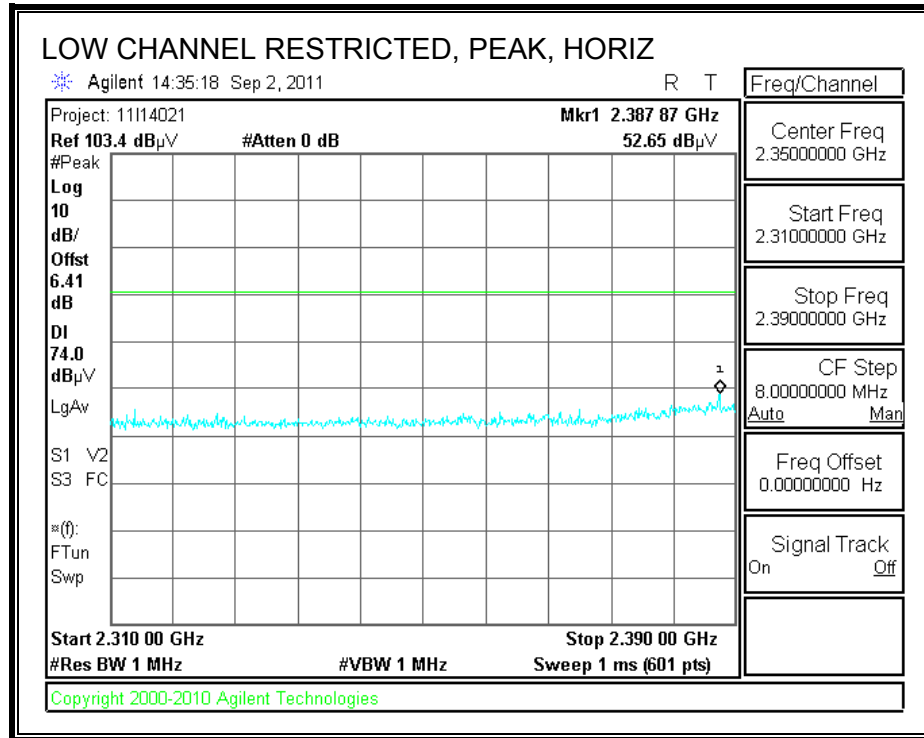
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

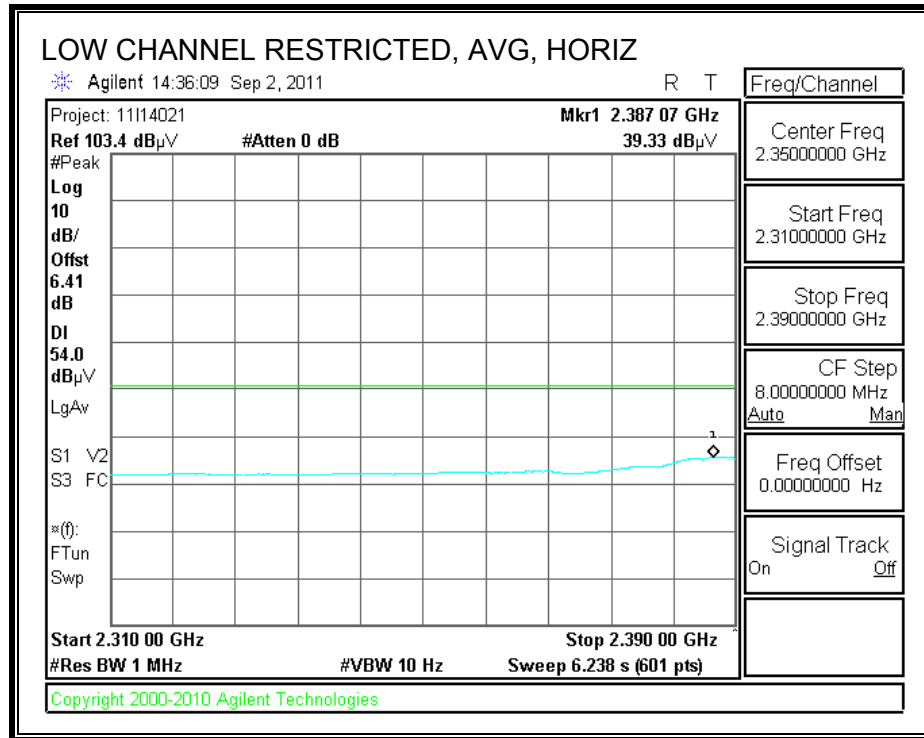
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

8.2. TRANSMITTER ABOVE 1 GHz

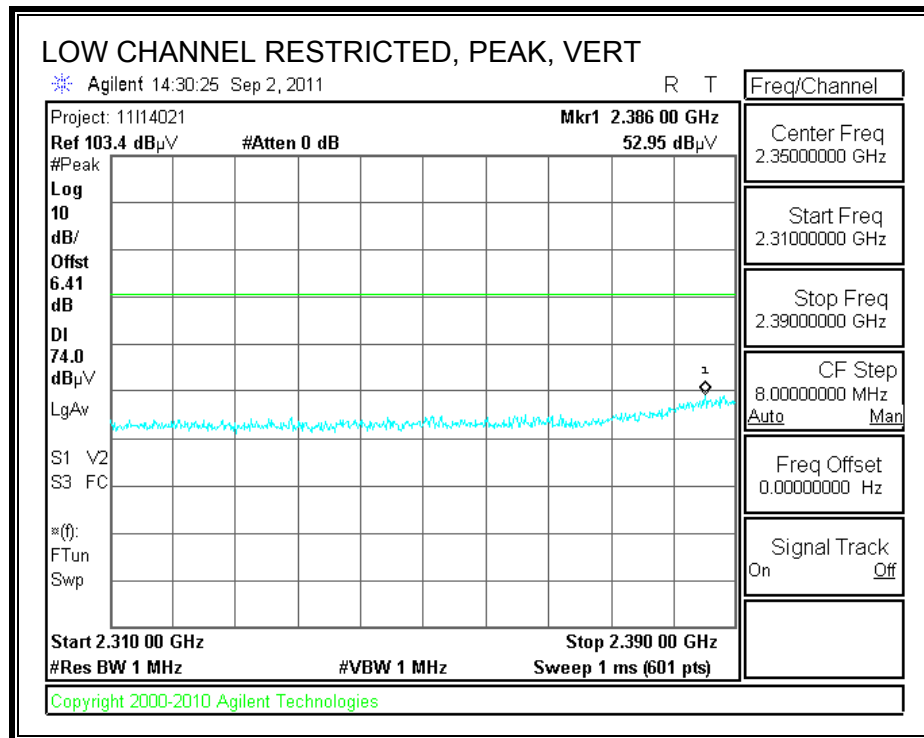
8.2.1. TX ABOVE 1 GHz FOR 802.11b MODE IN THE 2.4 GHz BAND

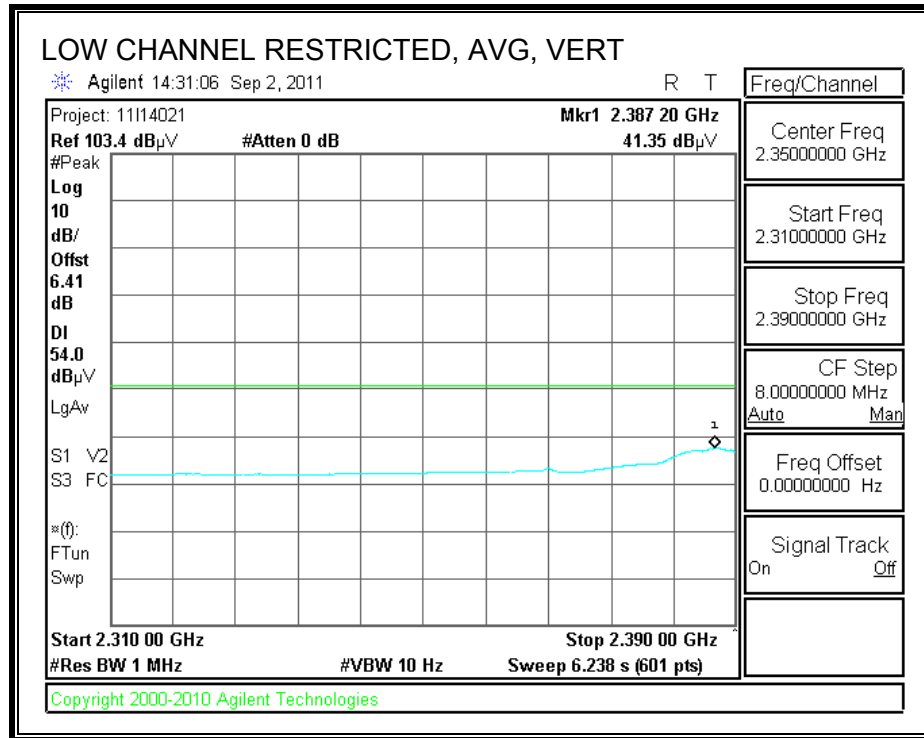
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



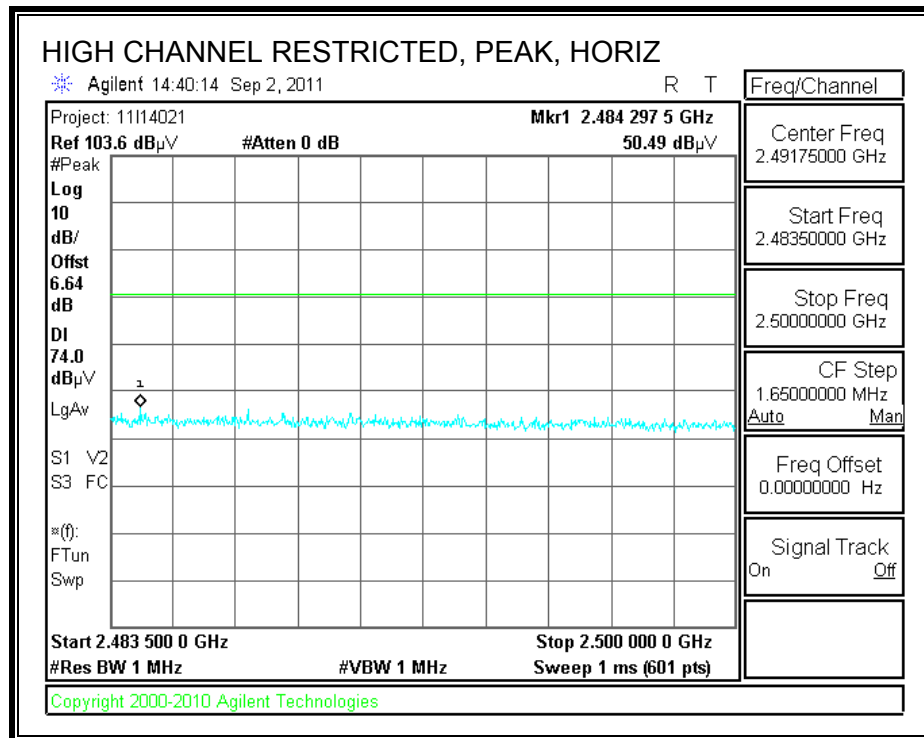


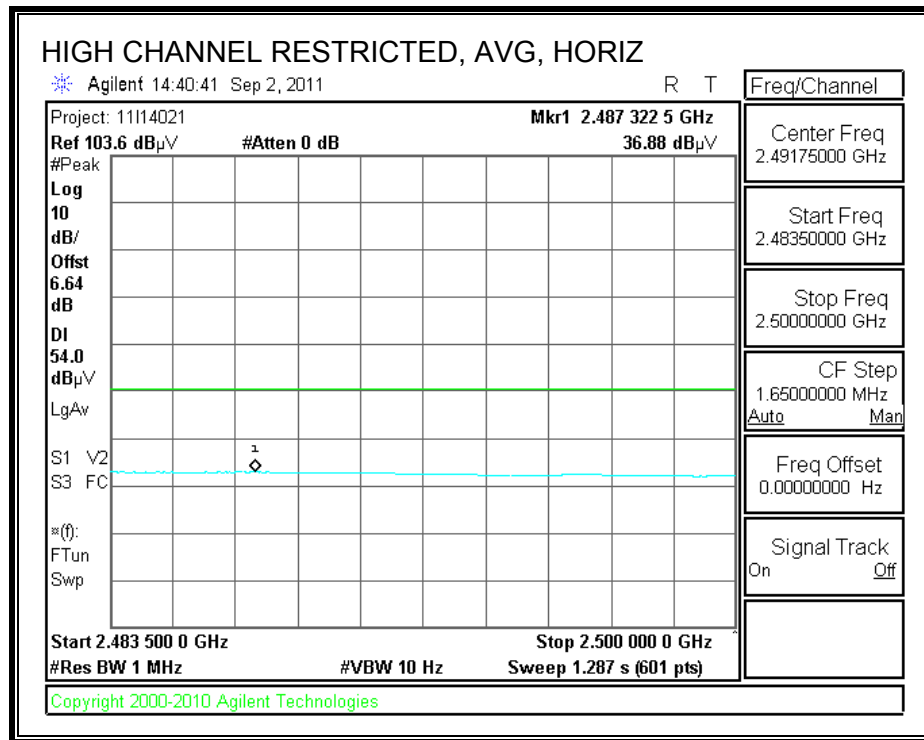
RESTRICTED BANEDGE (LOW CHANNEL, VERTICAL)



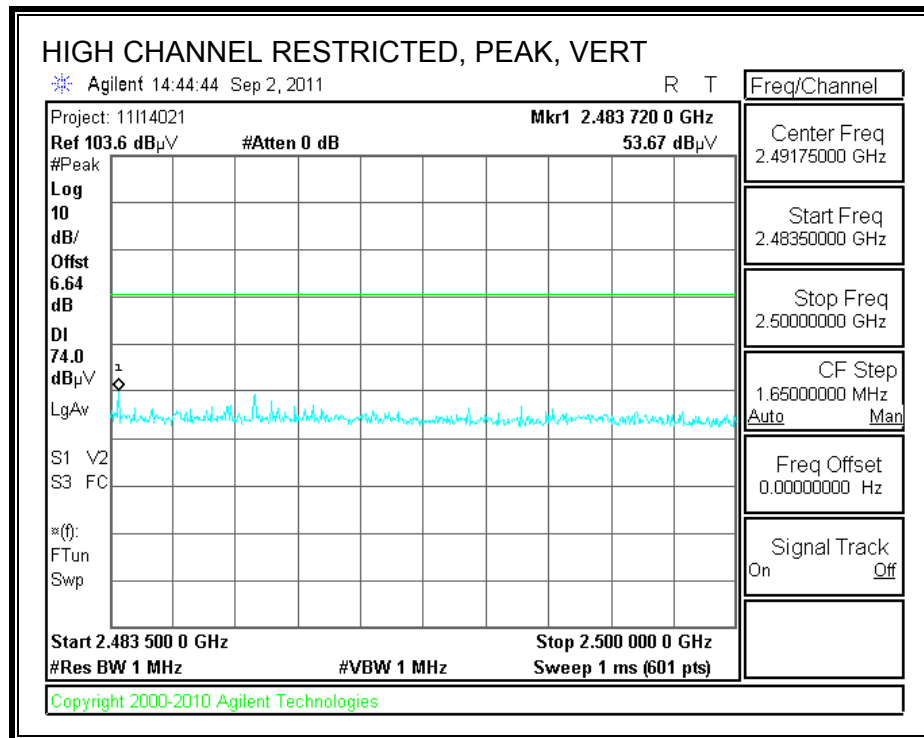


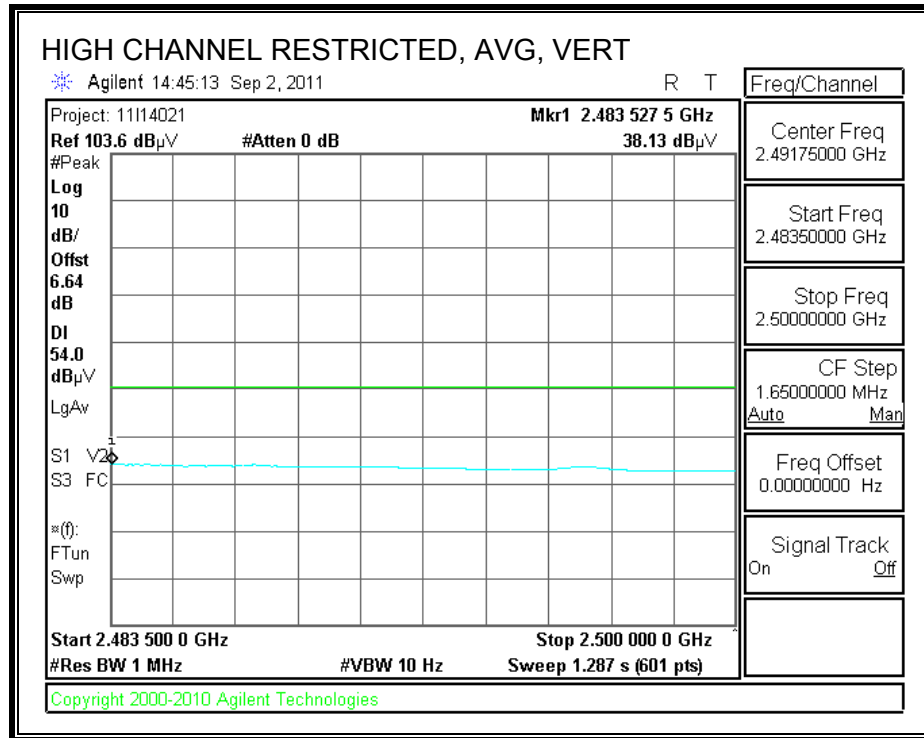
RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber

Test Engr: David Garcia
Date: 08/31/11
Project #: 11114021
Company: Samsung
Test Target: FCC 15.247
Mode Oper: Tx, 11b

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

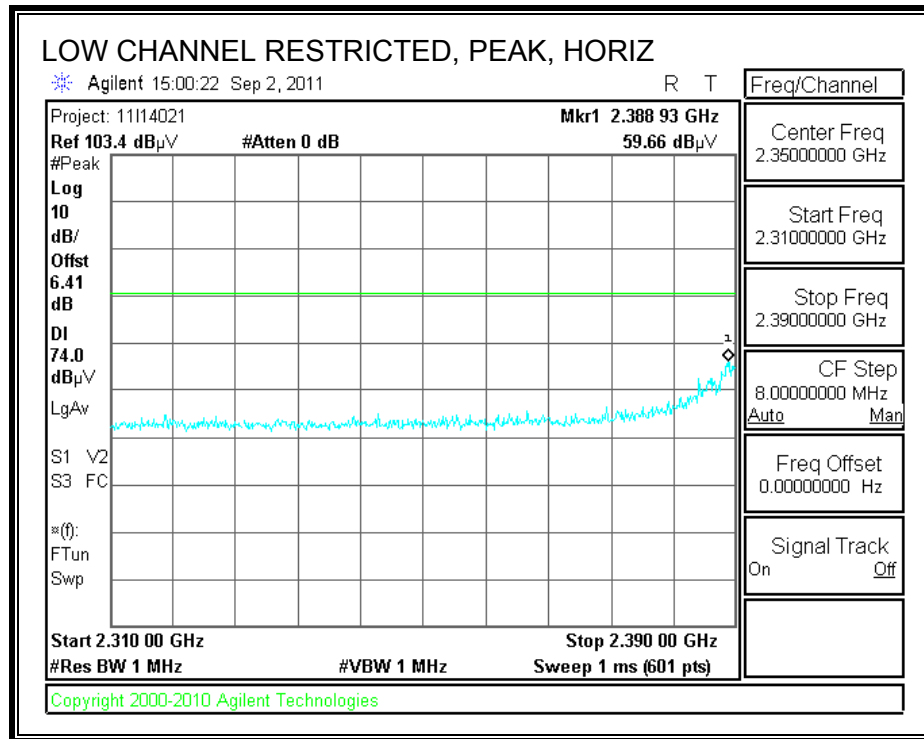
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Low Channel: 2412 MHz													
4.824	3.0	36.1	33.9	6.8	-34.1	0.0	0.0	42.7	74.0	-31.3	H	P	
4.824	3.0	24.1	33.9	6.8	-34.1	0.0	0.0	30.7	54.0	-23.3	H	A	
7.236	3.0	34.7	36.5	9.1	-33.2	0.0	0.0	47.2	74.0	-26.8	H	P	
7.236	3.0	22.3	36.5	9.1	-33.2	0.0	0.0	34.8	54.0	-19.2	H	A	
4.824	3.0	37.3	33.9	6.8	-34.1	0.0	0.0	43.9	74.0	-30.1	V	P	
4.824	3.0	28.8	33.9	6.8	-34.1	0.0	0.0	35.4	54.0	-18.6	V	A	
7.236	3.0	34.7	36.5	9.1	-33.2	0.0	0.0	47.1	74.0	-26.9	V	P	
7.236	3.0	22.4	36.5	9.1	-33.2	0.0	0.0	34.8	54.0	-19.2	V	A	
Mid Channel: 2437 MHz													
4.874	3.0	38.6	33.9	6.8	-34.0	0.0	0.0	45.3	74.0	-28.7	H	P	
4.874	3.0	31.7	33.9	6.8	-34.0	0.0	0.0	38.4	54.0	-15.6	H	A	
7.311	3.0	35.2	36.6	9.1	-33.1	0.0	0.0	47.7	74.0	-26.3	H	P	
7.311	3.0	22.8	36.6	9.1	-33.1	0.0	0.0	35.4	54.0	-18.6	H	A	
4.874	3.0	37.6	33.9	6.8	-34.0	0.0	0.0	44.3	74.0	-29.7	V	P	
4.874	3.0	29.8	33.9	6.8	-34.0	0.0	0.0	36.5	54.0	-17.5	V	A	
7.311	3.0	36.7	36.6	9.1	-33.1	0.0	0.0	49.2	74.0	-24.8	V	P	
7.311	3.0	22.9	36.6	9.1	-33.1	0.0	0.0	35.4	54.0	-18.6	V	A	
High Channel: 2462 MHz													
4.924	3.0	40.9	34.0	6.8	-34.0	0.0	0.0	47.7	74.0	-26.3	H	P	
4.924	3.0	36.5	34.0	6.8	-34.0	0.0	0.0	43.3	54.0	-10.7	H	A	
7.386	3.0	35.6	36.6	9.1	-33.1	0.0	0.0	48.2	74.0	-25.8	H	P	
7.386	3.0	23.2	36.6	9.1	-33.1	0.0	0.0	35.9	54.0	-18.1	H	A	
4.924	3.0	40.3	34.0	6.8	-34.0	0.0	0.0	47.1	74.0	-26.9	V	P	
4.924	3.0	35.3	34.0	6.8	-34.0	0.0	0.0	42.1	54.0	-11.9	V	A	
7.386	3.0	37.7	36.6	9.1	-33.1	0.0	0.0	50.3	74.0	-23.7	V	P	
7.386	3.0	24.4	36.6	9.1	-33.1	0.0	0.0	37.1	54.0	-16.9	V	A	

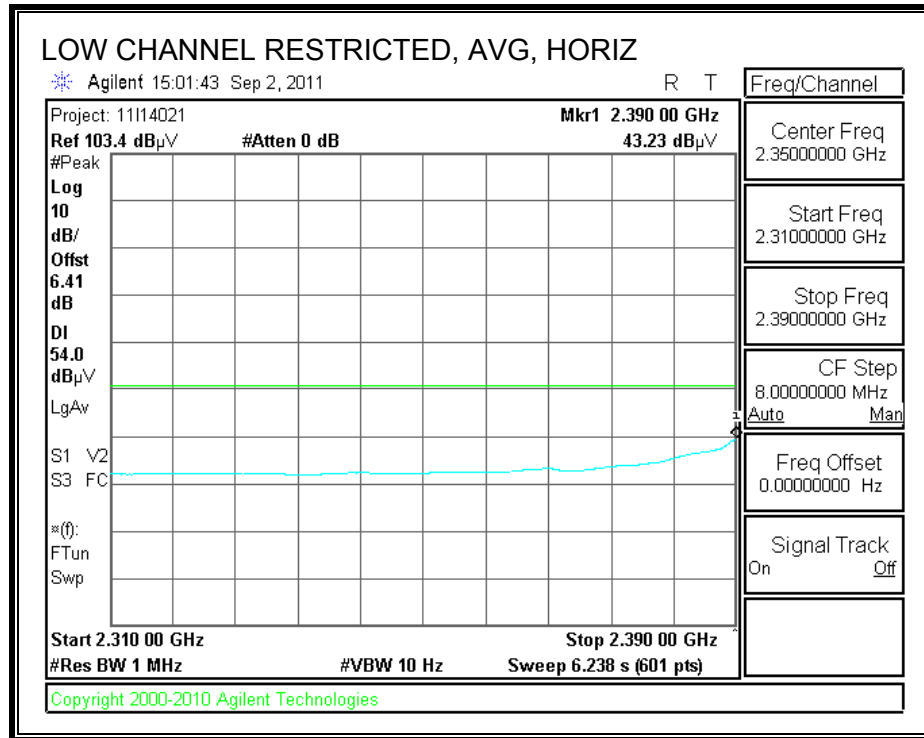
Rev. 4.1.2.7

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

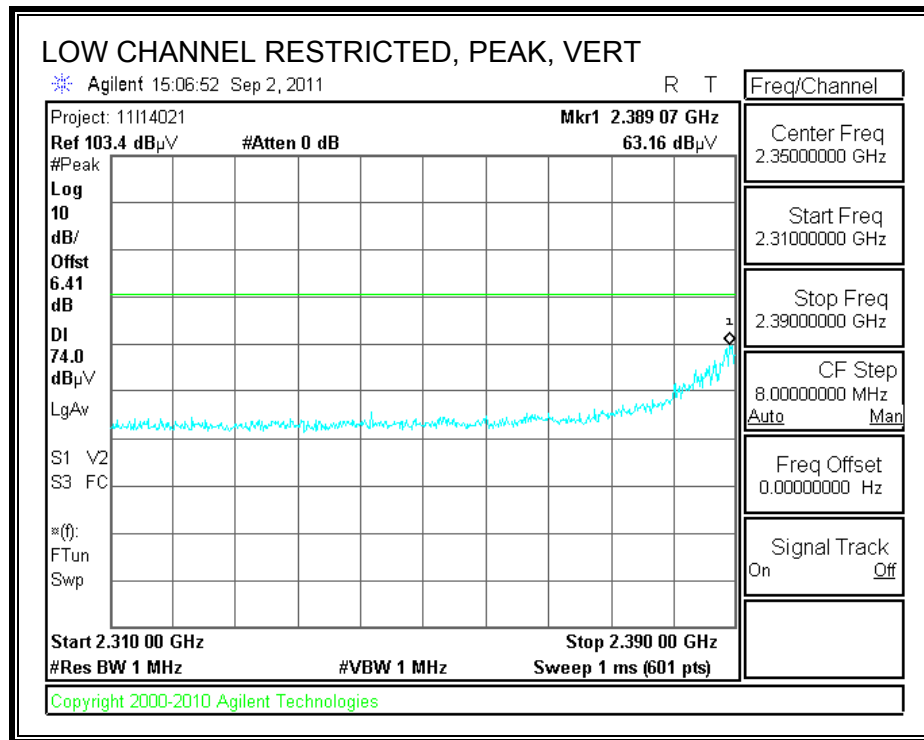
8.2.2. TX ABOVE 1 GHz FOR 802.11g MODE IN THE 2.4 GHz BAND

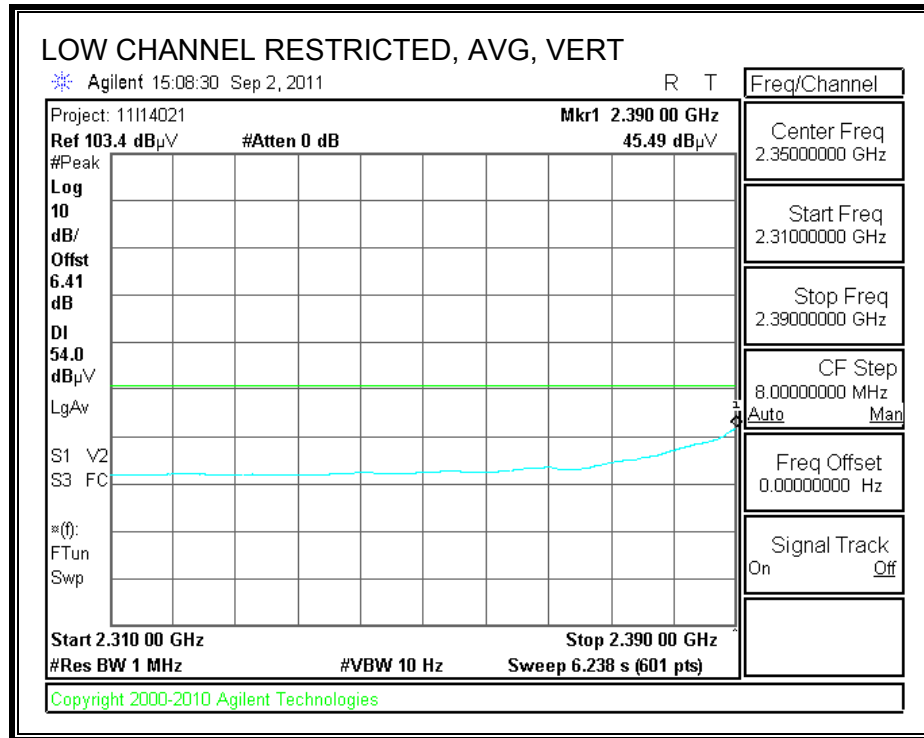
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



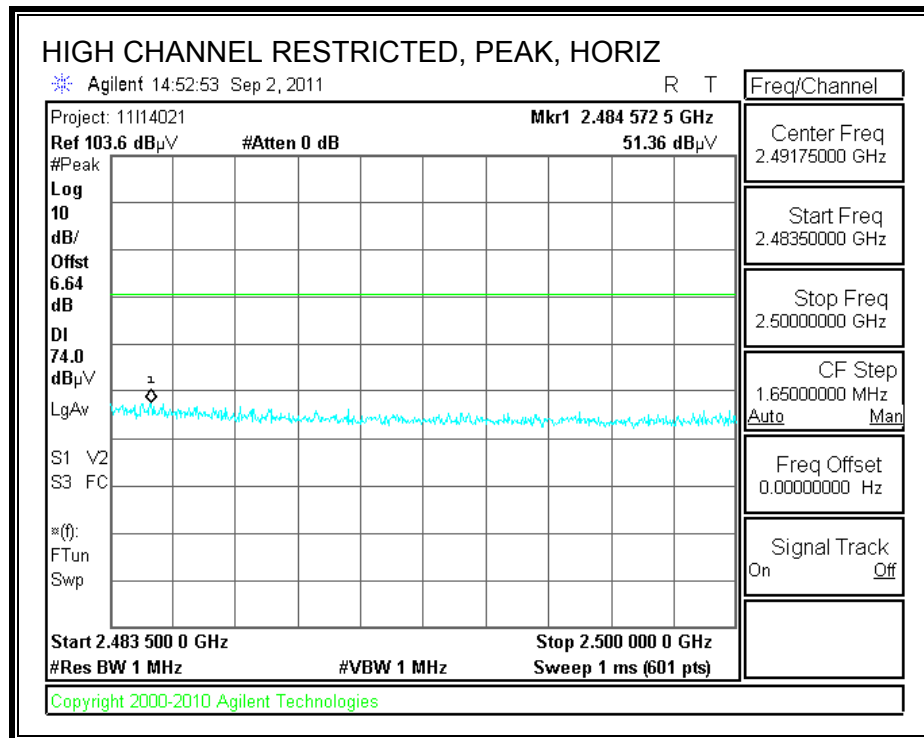


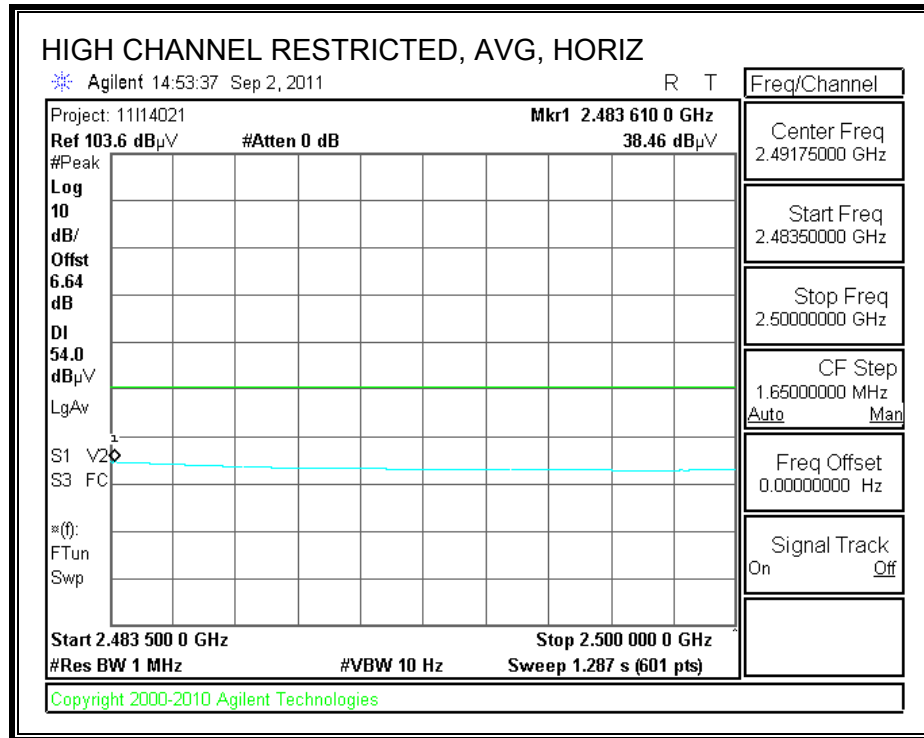
RESTRICTED BANEDGE (LOW CHANNEL, VERTICAL)



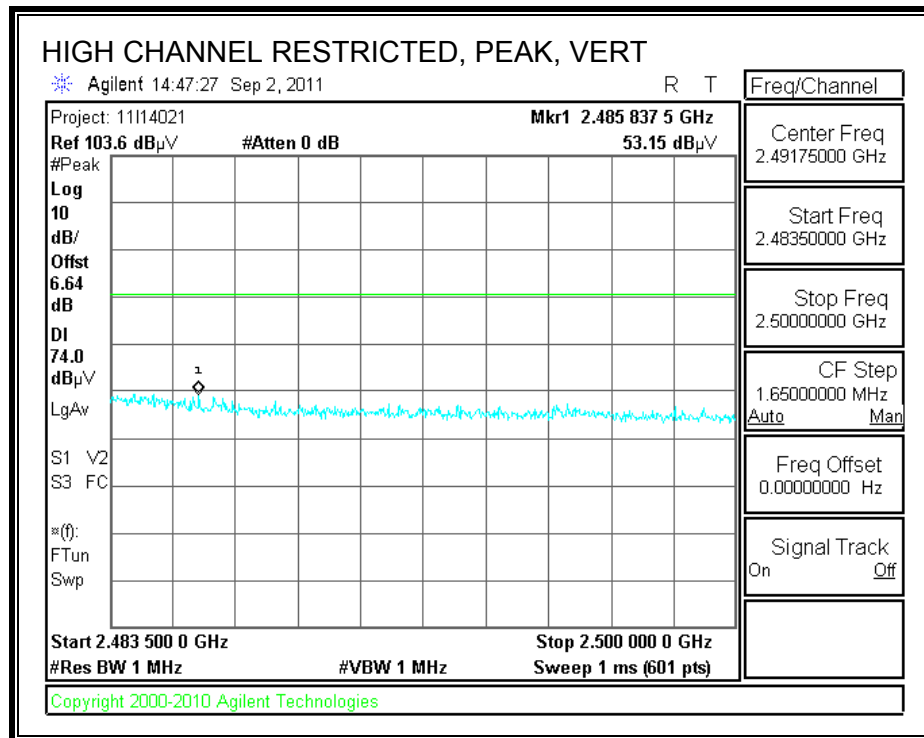


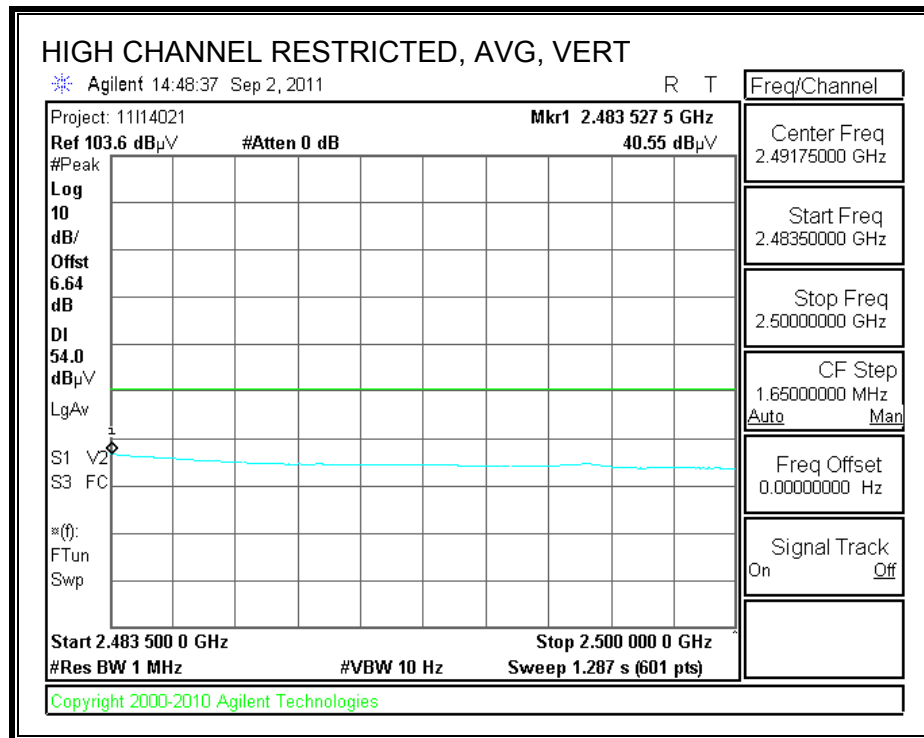
RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber

Test Engr: David Garcia
Date: 08/31/11
Project #: 11114021
Company: Samsung
Test Target: FCC 15.247
Mode Oper: Tx, 11g

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

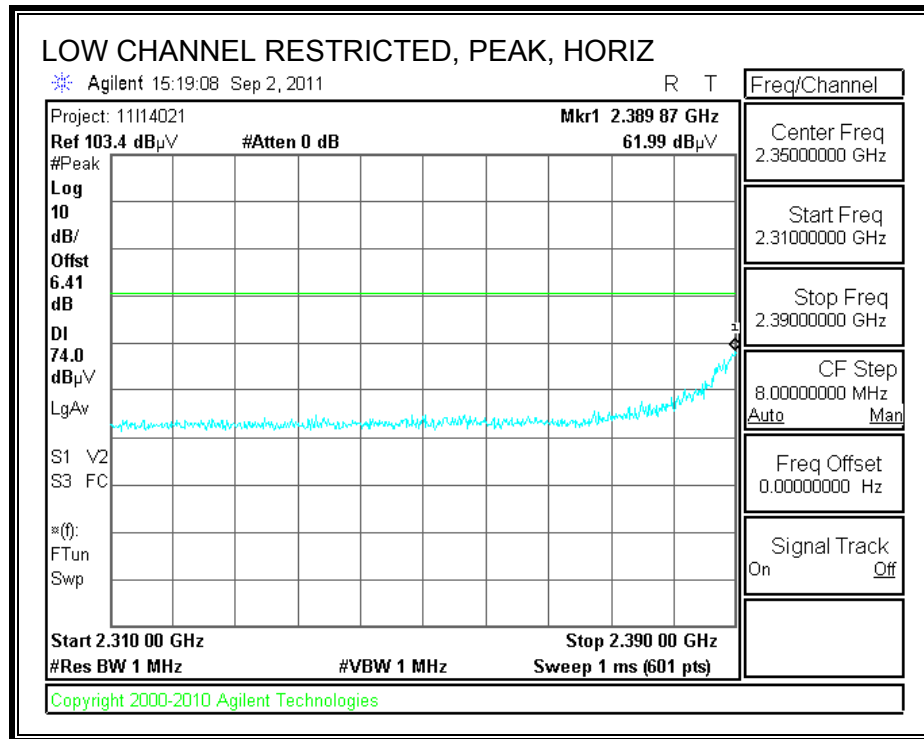
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Low Channel: 2412 MHz													
4.824	3.0	36.8	33.9	6.8	-34.1	0.0	0.0	43.4	74.0	-30.6	H	P	
4.824	3.0	24.0	33.9	6.8	-34.1	0.0	0.0	30.6	54.0	-23.4	H	A	
7.236	3.0	34.5	36.5	9.1	-33.2	0.0	0.0	46.9	74.0	-27.1	H	P	
7.236	3.0	22.3	36.5	9.1	-33.2	0.0	0.0	34.7	54.0	-19.3	H	A	
4.824	3.0	37.2	33.9	6.8	-34.1	0.0	0.0	43.8	74.0	-30.2	V	P	
4.824	3.0	24.6	33.9	6.8	-34.1	0.0	0.0	31.2	54.0	-22.8	V	A	
7.236	3.0	34.7	36.5	9.1	-33.2	0.0	0.0	47.2	74.0	-26.8	V	P	
7.236	3.0	22.4	36.5	9.1	-33.2	0.0	0.0	34.8	54.0	-19.2	V	A	
Mid Channel: 2437 MHz													
4.874	3.0	37.9	33.9	6.8	-34.0	0.0	0.0	44.6	74.0	-29.4	H	P	
4.874	3.0	24.9	33.9	6.8	-34.0	0.0	0.0	31.6	54.0	-22.4	H	A	
7.311	3.0	35.0	36.6	9.1	-33.1	0.0	0.0	47.6	74.0	-26.4	H	P	
7.311	3.0	22.9	36.6	9.1	-33.1	0.0	0.0	35.4	54.0	-18.6	H	A	
4.874	3.0	37.4	33.9	6.8	-34.0	0.0	0.0	44.1	74.0	-29.9	V	P	
4.874	3.0	24.5	33.9	6.8	-34.0	0.0	0.0	31.2	54.0	-22.8	V	A	
7.311	3.0	35.1	36.6	9.1	-33.1	0.0	0.0	47.6	74.0	-26.4	V	P	
7.311	3.0	22.9	36.6	9.1	-33.1	0.0	0.0	35.4	54.0	-18.6	V	A	
High Channel: 2462 MHz													
4.924	3.0	37.3	34.0	6.8	-34.0	0.0	0.0	44.1	74.0	-29.9	H	P	
4.924	3.0	24.8	34.0	6.8	-34.0	0.0	0.0	31.6	54.0	-22.4	H	A	
7.386	3.0	35.4	36.6	9.1	-33.1	0.0	0.0	48.1	74.0	-25.9	H	P	
7.386	3.0	23.2	36.6	9.1	-33.1	0.0	0.0	35.8	54.0	-18.2	H	A	
4.924	3.0	39.4	34.0	6.8	-34.0	0.0	0.0	46.2	74.0	-27.8	V	P	
4.924	3.0	26.1	34.0	6.8	-34.0	0.0	0.0	32.9	54.0	-21.1	V	A	
7.386	3.0	36.0	36.6	9.1	-33.1	0.0	0.0	48.7	74.0	-25.3	V	P	
7.386	3.0	23.7	36.6	9.1	-33.1	0.0	0.0	36.4	54.0	-17.6	V	A	

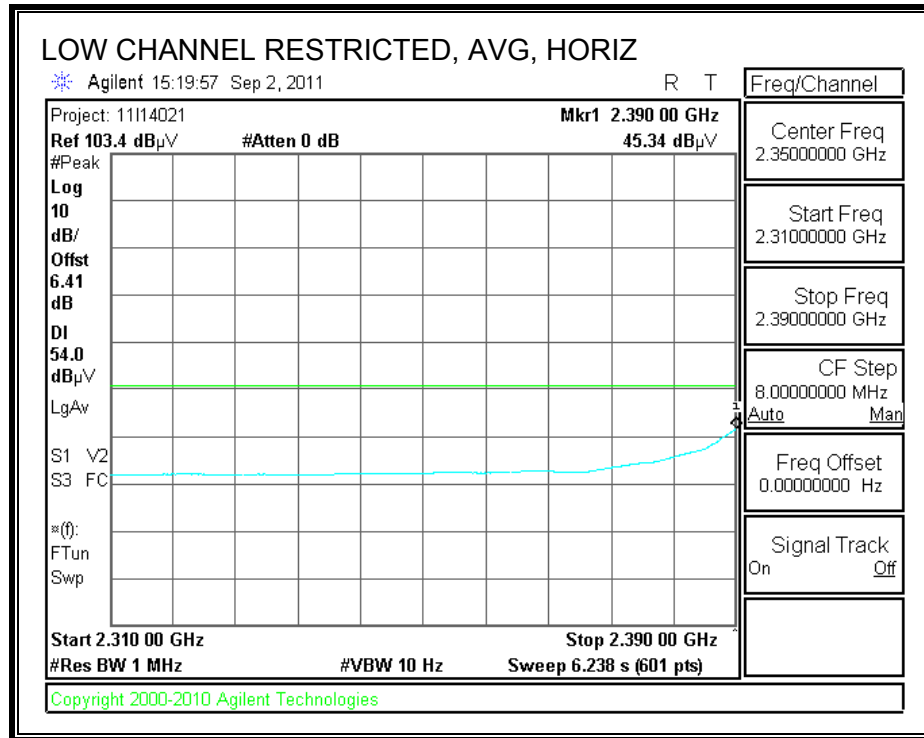
Rev. 4.1.2.7

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

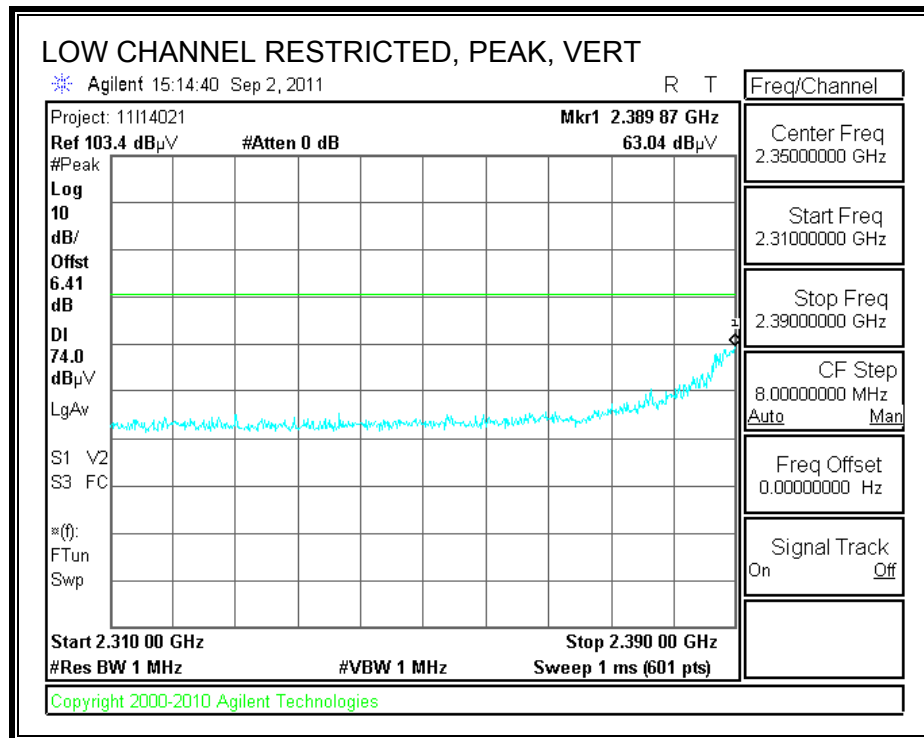
8.2.3. TX ABOVE 1 GHz FOR 802.11n HT20 MODE IN THE 2.4 GHz BAND

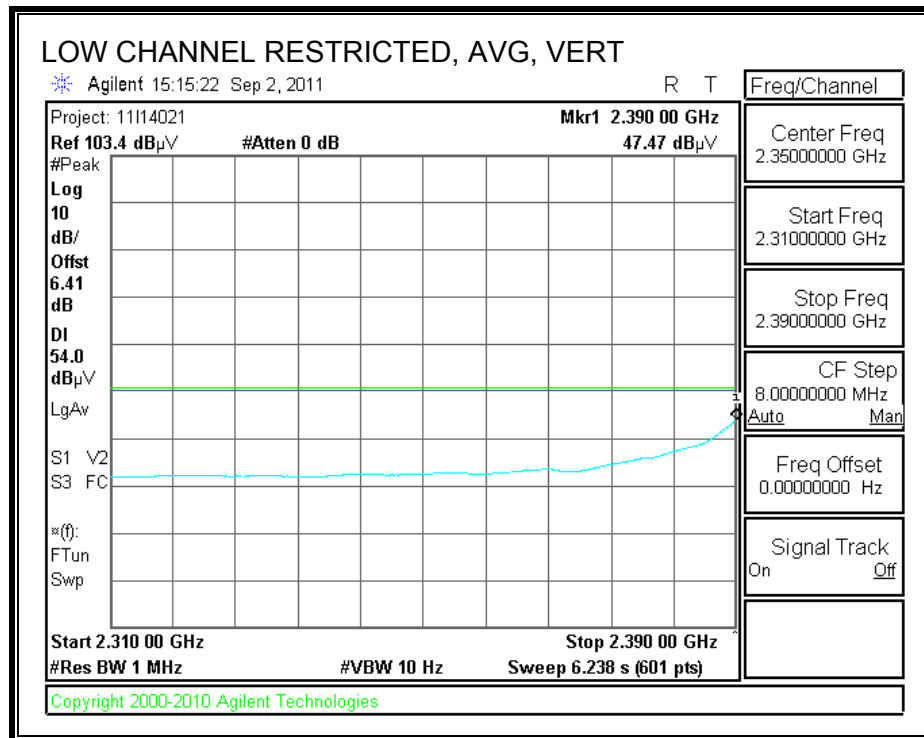
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



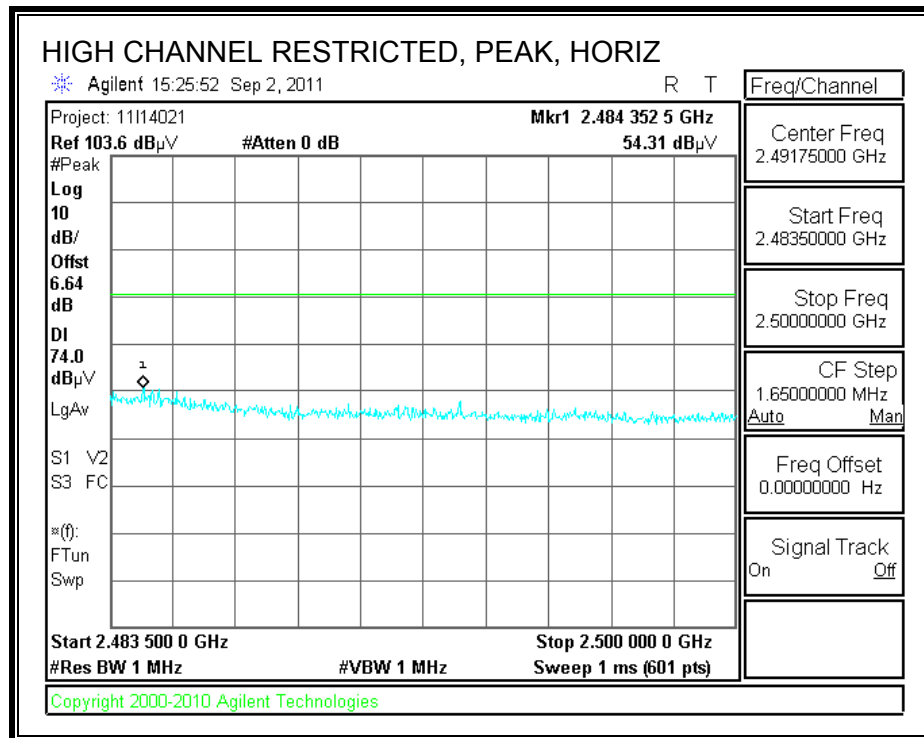


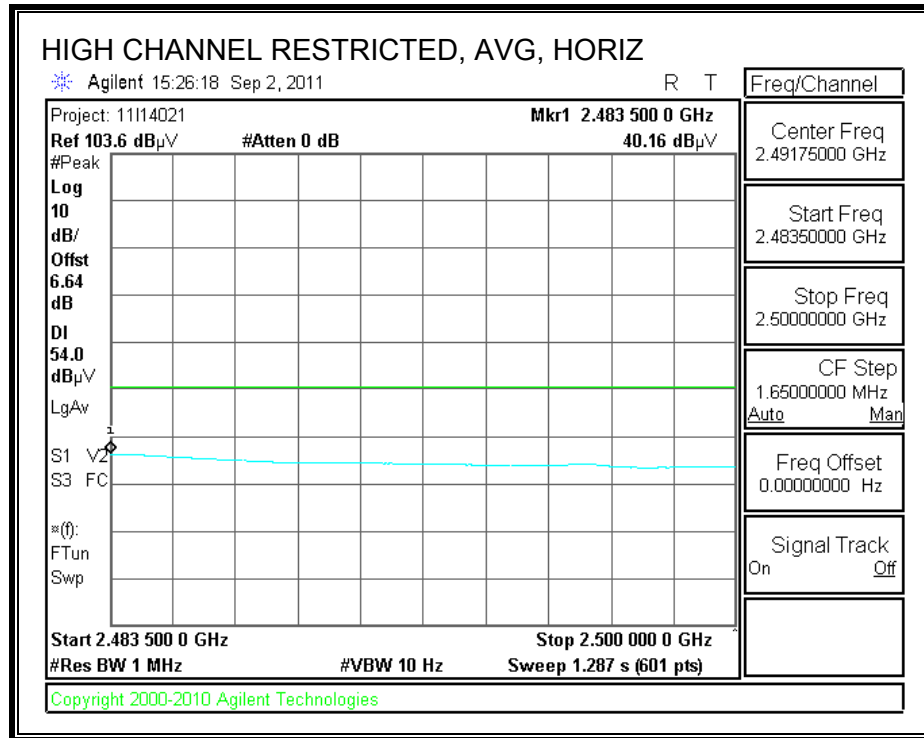
RESTRICTED BANEDGE (LOW CHANNEL, VERTICAL)



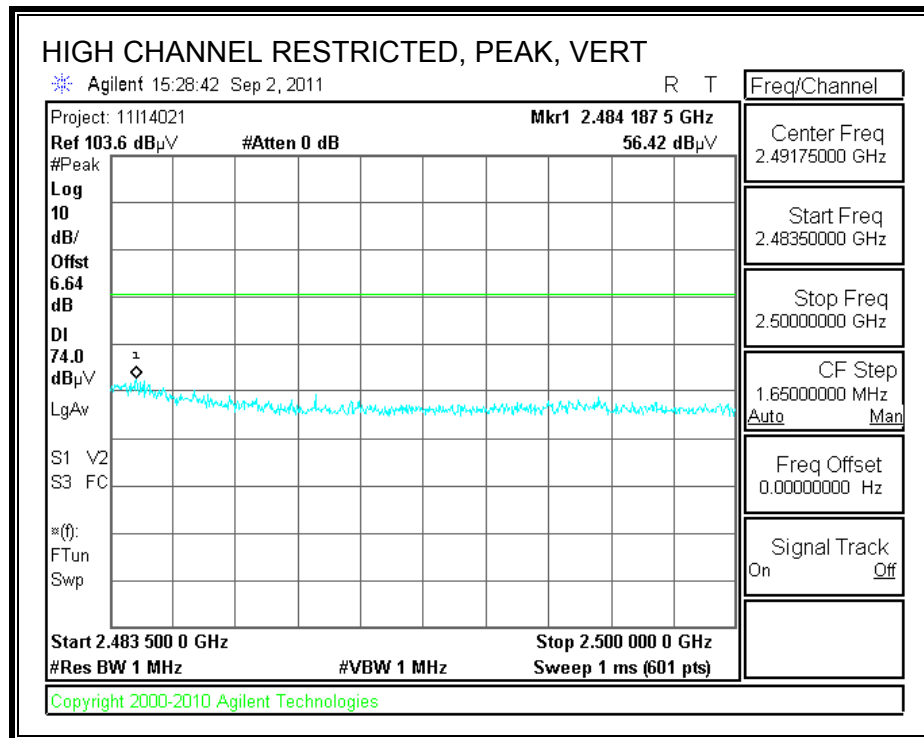


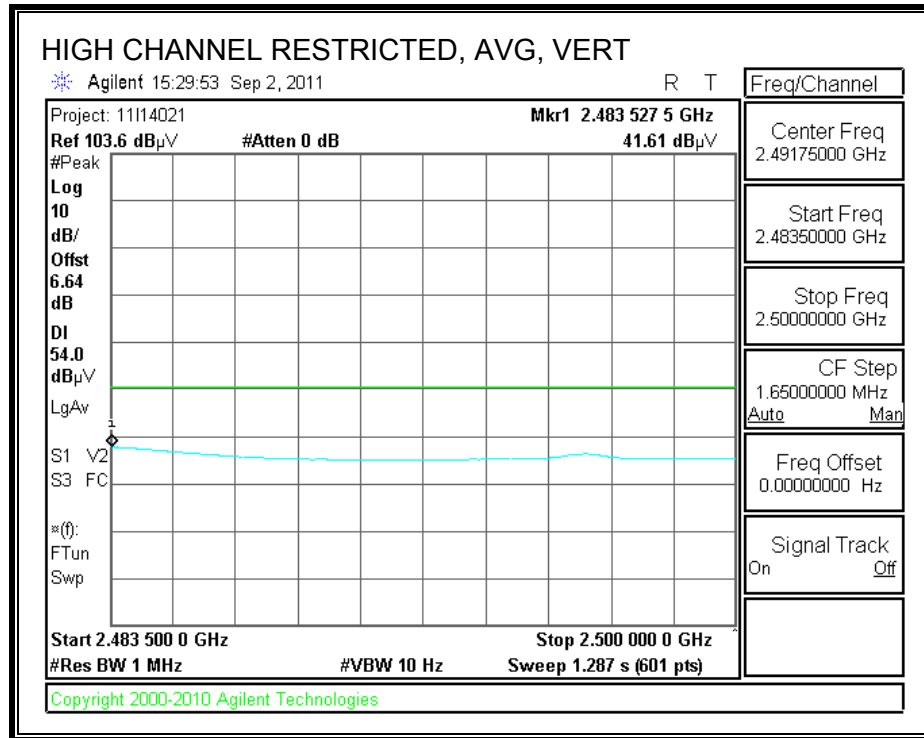
RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber

Test Engr: David Garcia
Date: 08/31/11
Project #: 11114021
Company: Samsung
Test Target: FCC 15.247
Mode Oper: Tx, 11n HT20 MCS0

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	Fltr 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	36.2	33.9	6.8	-34.1	0.0	0.0	42.8	74.0	-31.2	H	P	
4.824	3.0	23.9	33.9	6.8	-34.1	0.0	0.0	30.5	54.0	-23.5	H	A	
7.236	3.0	34.8	36.5	9.1	-33.2	0.0	0.0	47.2	74.0	-26.8	H	P	
7.236	3.0	22.2	36.5	9.1	-33.2	0.0	0.0	34.6	54.0	-19.4	H	A	
4.824	3.0	36.4	33.9	6.8	-34.1	0.0	0.0	43.0	74.0	-31.0	V	P	
4.824	3.0	24.4	33.9	6.8	-34.1	0.0	0.0	31.1	54.0	-22.9	V	A	
7.236	3.0	34.5	36.5	9.1	-33.2	0.0	0.0	46.9	74.0	-27.1	V	P	
7.236	3.0	22.4	36.5	9.1	-33.2	0.0	0.0	34.8	54.0	-19.2	V	A	
Mid Channel: 2437 MHz													
4.874	3.0	37.1	33.9	6.8	-34.0	0.0	0.0	43.8	74.0	-30.2	H	P	
4.874	3.0	24.7	33.9	6.8	-34.0	0.0	0.0	31.4	54.0	-22.6	H	A	
7.311	3.0	35.7	36.6	9.1	-33.1	0.0	0.0	48.3	74.0	-25.7	H	P	
7.311	3.0	22.8	36.6	9.1	-33.1	0.0	0.0	35.4	54.0	-18.6	H	A	
4.874	3.0	37.0	33.9	6.8	-34.0	0.0	0.0	43.7	74.0	-30.3	V	P	
4.874	3.0	24.4	33.9	6.8	-34.0	0.0	0.0	31.1	54.0	-22.9	V	A	
7.311	3.0	35.8	36.6	9.1	-33.1	0.0	0.0	48.3	74.0	-25.7	V	P	
7.311	3.0	22.8	36.6	9.1	-33.1	0.0	0.0	35.4	54.0	-18.6	V	A	
High Channel: 2462 MHz													
4.924	3.0	36.6	34.0	6.8	-34.0	0.0	0.0	43.4	74.0	-30.6	H	P	
4.924	3.0	24.6	34.0	6.8	-34.0	0.0	0.0	31.4	54.0	-22.6	H	A	
7.386	3.0	35.9	36.6	9.1	-33.1	0.0	0.0	48.6	74.0	-25.4	H	P	
7.386	3.0	23.1	36.6	9.1	-33.1	0.0	0.0	35.8	54.0	-18.2	H	A	
4.924	3.0	38.8	34.0	6.8	-34.0	0.0	0.0	45.6	74.0	-28.4	V	P	
4.924	3.0	25.8	34.0	6.8	-34.0	0.0	0.0	32.6	54.0	-21.4	V	A	
7.386	3.0	36.6	36.6	9.1	-33.1	0.0	0.0	49.3	74.0	-24.7	V	P	
7.386	3.0	23.7	36.6	9.1	-33.1	0.0	0.0	36.3	54.0	-17.7	V	A	

Rev. 4.1.2.7

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

8.2.4. TX ABOVE 1 GHz FOR 802.11a MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		William Zhuang											
Date:		09/07/11											
Project #:		11114021											
Company:		Samsung											
Test Target:													
Mode Oper:		Tx On , 5.8 GHz, a Mode, Worst Position Y											
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	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Low Ch.													
11.490	3.0	35.3	38.7	10.7	-35.5	0.0	0.7	49.9	74.0	-24.1	V	P	
11.490	3.0	22.7	38.7	10.7	-35.5	0.0	0.7	37.3	54.0	-16.7	V	A	
11.490	3.0	34.9	38.7	10.7	-35.5	0.0	0.7	49.5	74.0	-24.5	H	P	
11.490	3.0	22.7	38.7	10.7	-35.5	0.0	0.7	37.3	54.0	-16.7	H	A	
Mid Ch.													
11.570	3.0	34.6	38.8	10.8	-35.5	0.0	0.7	49.3	74.0	-24.7	V	P	
11.570	3.0	22.6	38.8	10.8	-35.5	0.0	0.7	37.4	54.0	-16.6	V	A	
11.570	3.0	35.0	38.8	10.8	-35.5	0.0	0.7	49.7	74.0	-24.3	H	P	
11.570	3.0	22.6	38.8	10.8	-35.5	0.0	0.7	37.4	54.0	-16.6	H	A	
High Ch.													
11.650	3.0	35.1	38.8	10.9	-35.5	0.0	0.7	50.0	74.0	-24.0	V	P	
11.650	3.0	22.8	38.8	10.9	-35.5	0.0	0.7	37.6	54.0	-16.4	V	A	
11.650	3.0	35.3	38.8	10.9	-35.5	0.0	0.7	50.2	74.0	-23.8	H	P	
11.650	3.0	22.8	38.8	10.9	-35.5	0.0	0.7	37.7	54.0	-16.3	H	A	
Rev. 4.1.2.7													
Note: No other emissions were detected above the system noise floor.													

8.2.5. TX ABOVE 1 GHz FOR 802.11n HT20 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		William Zhuang											
Date:		09/07/11											
Project #:		11I14021											
Company:		Samsung											
Test Target:													
Mode Oper:		Tx On , 5.8 GHz, HT20 Mode, Worst Position Y											
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	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Low Ch.													
11.490	3.0	35.8	38.7	10.7	-35.5	0.0	0.7	50.5	74.0	-23.5	V	P	
11.490	3.0	22.8	38.7	10.7	-35.5	0.0	0.7	37.4	54.0	-16.6	V	A	
11.490	3.0	35.5	38.7	10.7	-35.5	0.0	0.7	50.2	74.0	-23.8	H	P	
11.490	3.0	22.7	38.7	10.7	-35.5	0.0	0.7	37.3	54.0	-16.7	H	A	
Mid Ch.													
11.570	3.0	35.1	38.8	10.8	-35.5	0.0	0.7	49.8	74.0	-24.2	V	P	
11.570	3.0	23.0	38.8	10.8	-35.5	0.0	0.7	37.8	54.0	-16.2	V	A	
11.570	3.0	34.6	38.8	10.8	-35.5	0.0	0.7	49.4	74.0	-24.6	H	P	
11.570	3.0	22.4	38.8	10.8	-35.5	0.0	0.7	37.1	54.0	-16.9	H	A	
High Ch.													
11.650	3.0	35.5	38.8	10.9	-35.5	0.0	0.7	50.3	74.0	-23.7	V	P	
11.650	3.0	22.8	38.8	10.9	-35.5	0.0	0.7	37.7	54.0	-16.3	V	A	
11.650	3.0	35.3	38.8	10.9	-35.5	0.0	0.7	50.1	74.0	-23.9	H	P	
11.650	3.0	23.0	38.8	10.9	-35.5	0.0	0.7	37.8	54.0	-16.2	H	A	

Rev. 4.1.2.7

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

8.2.6. TX ABOVE 1 GHz FOR 802.11n HT40 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement

Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 09/08/11
Project #: 11I14021
Company: Samsung
Test Target:
Mode Oper: Tx On , 5.8 GHz, HT40 Mode, Worst Position Y

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	

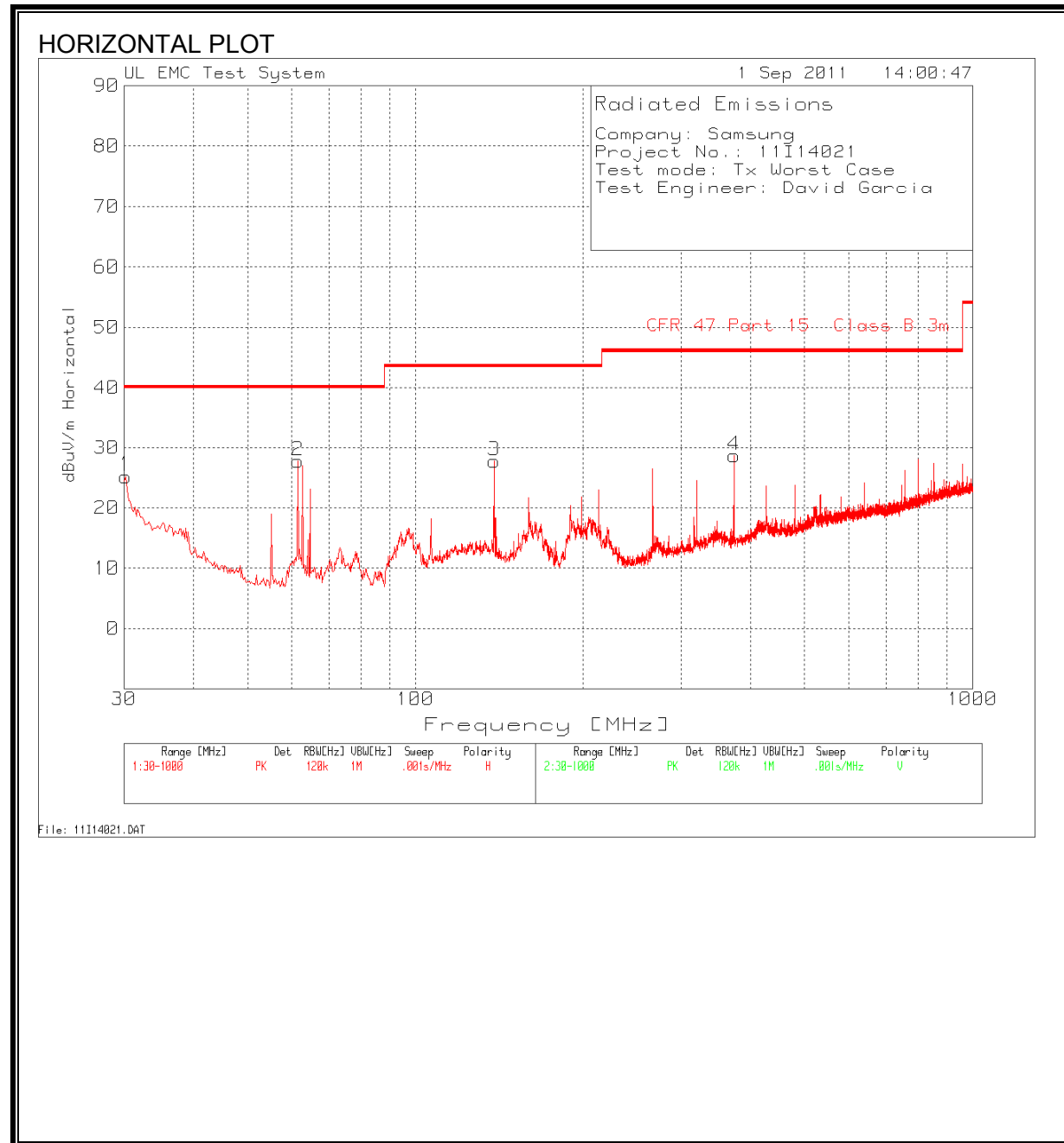
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Low Ch. 5755 MHz													
11.510	3.0	35.0	38.8	10.7	-35.5	0.0	0.7	49.7	74.0	-24.3	V	P	
11.510	3.0	22.8	38.8	10.7	-35.5	0.0	0.7	37.5	54.0	-16.5	V	A	
11.510	3.0	34.5	38.8	10.7	-35.5	0.0	0.7	49.1	74.0	-24.9	H	P	
11.510	3.0	22.8	38.8	10.7	-35.5	0.0	0.7	37.5	54.0	-16.5	H	A	
High Ch. 5795 MHz													
11.590	3.0	35.2	38.8	10.8	-35.5	0.0	0.7	50.0	74.0	-24.0	V	P	
11.590	3.0	22.6	38.8	10.8	-35.5	0.0	0.7	37.4	54.0	-16.6	V	A	
11.590	3.0	35.1	38.8	10.8	-35.5	0.0	0.7	49.9	74.0	-24.1	H	P	
11.590	3.0	22.6	38.8	10.8	-35.5	0.0	0.7	37.4	54.0	-16.6	H	A	

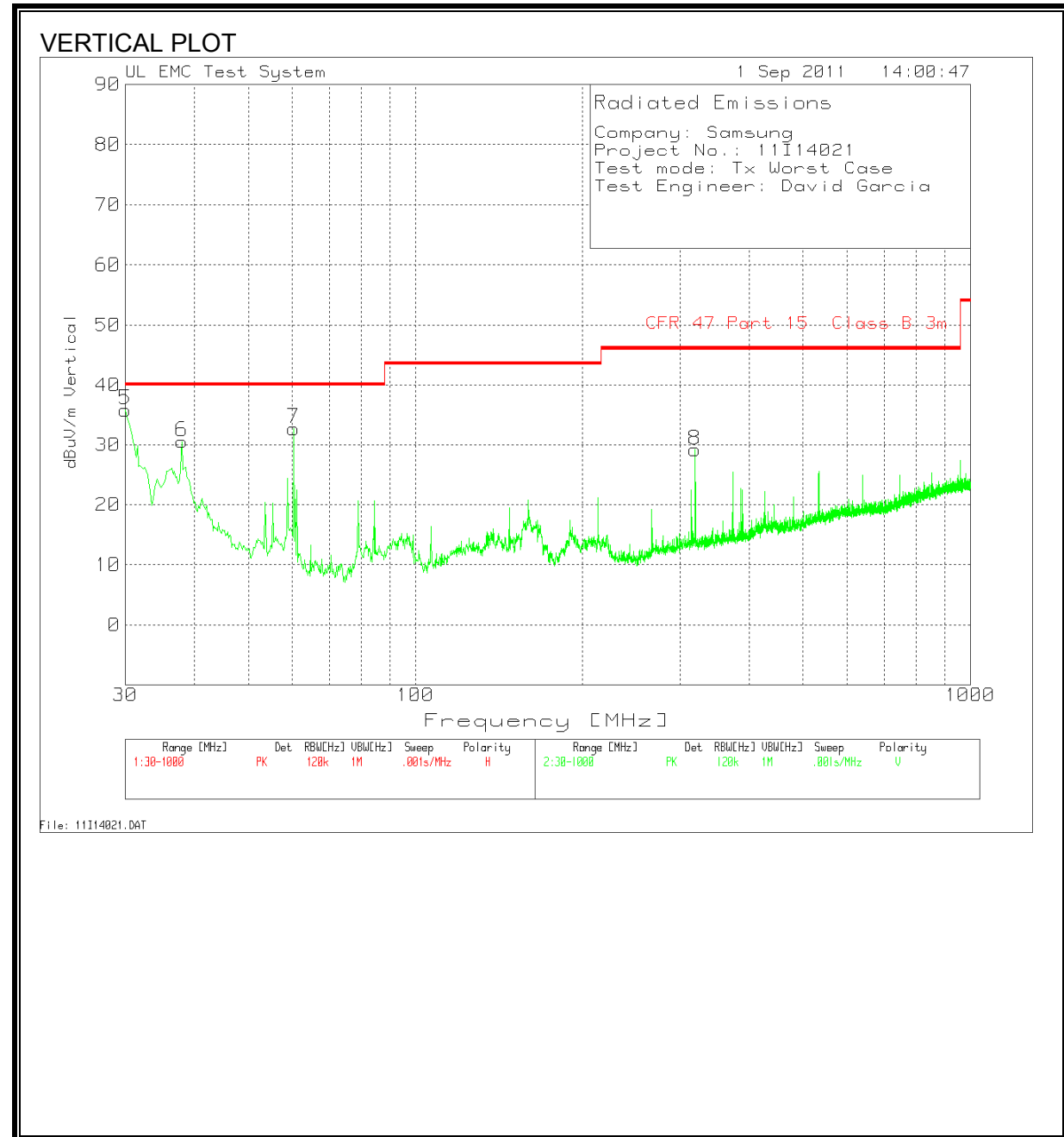
Rev. 4.1.2.7

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

8.3. WORST-CASE BELOW 1 GHz

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





HORIZONTAL AND VERTICAL DATA

Company: Samsung										
Project No.: 11I14021										
Test mode: Tx Worst Case										
Test Engineer: David Garcia										
Test	Meter		3m below	3m T15	3m Bilog		CFR 47 Part		Height	
Frequency	Reading	Detector	1GHz	PreAmp	T185 below		15 Class B		[cm]	Polarity
			Cable.TXT	below	1GHz.TXT	dBuV/m	3m	Margin		
			[dB]	[dB]	[dB]					
30.1938	33.02	PK	0.6	-28.3	19.9	25.22	40	-14.78	99	Horz
61.5967	47.05	PK	0.9	-28.2	8	27.75	40	-12.25	99	Horz
138.3593	41.28	PK	1.2	-27.9	13.2	27.78	43.5	-15.72	176	Horz
373.2994	39.8	PK	2	-27.7	14.6	28.7	46	-17.3	99	Horz
30	43.58	PK	0.6	-28.3	20	35.88	40	-4.12	101	Vert
37.9476	42.96	PK	0.7	-28.2	15.1	30.56	40	-9.44	101	Vert
60.4337	52.15	PK	0.9	-28.2	7.9	32.75	40	-7.25	176	Vert
319.2166	41.02	PK	1.8	-27.4	13.8	29.22	46	-16.78	176	Vert

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.

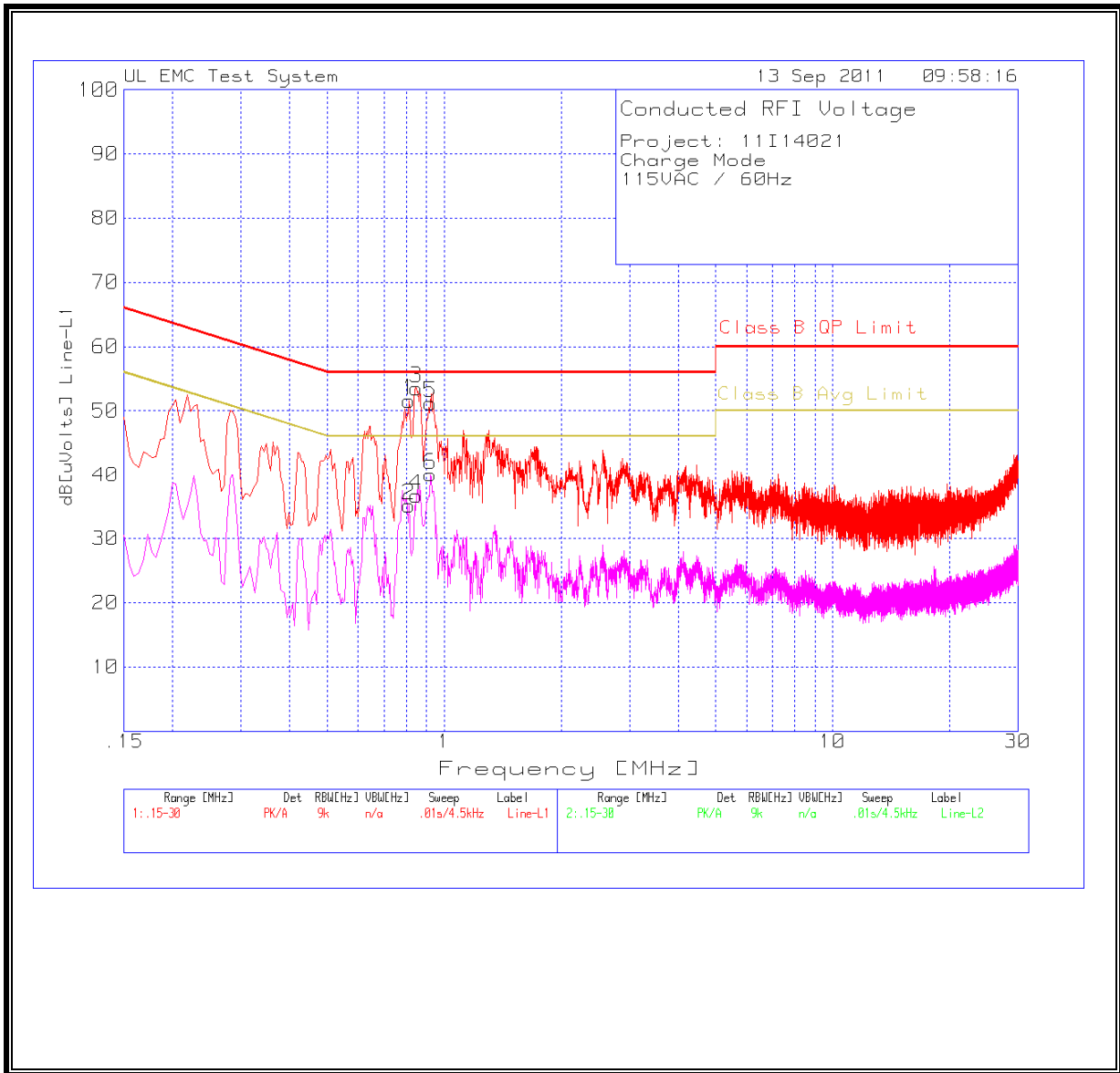
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

Project: 11I14021									
Charge Mode									
115VAC / 60Hz									
Line-L1 .15 - 30MHz									
Test Freq. (MHz)	Meter Reading	Detector	LISN [dB]	Conducted Emission Cable [dB]	Correct Reading (dBuVolts)	Class B Quasi-peak Limit	Quasi- Peak Margin	Class B Average Limit	Average Margin
0.8115	51.54	PK	0	0	51.54	56	-4.46	--	--
0.8115	35.11	Av	0	0	35.11	--	--	46	-10.89
0.8475	53.52	PK	0	0	53.52	56	-2.48	--	--
0.8475	36.63	Av	0	0	36.63	--	--	46	-9.37
0.9195	51.23	PK	0	0	51.23	56	-4.77	--	--
0.9195	40.01	Av	0	0	40.01	--	--	--	--
Line-L2 .15 - 30MHz									
Test Freq. (MHz)	Meter Reading	Detector	LISN [dB]	Conducted Emission Cable [dB]	Correct Reading (dBuVolts)	Class B Quasi-peak Limit	Quasi- Peak Margin	Class B Average	Average Margin
0.816	48.88	PK	0	0	48.88	56	-7.12	--	--
0.816	30.08	Av	0	0	30.08	--	--	46	-15.92
0.843	50.32	PK	0	0	50.32	56	-5.68	--	--
0.843	32.36	Av	0	0	32.36	--	--	46	-13.64
0.924	49.07	PK	0	0	49.07	56	-6.93	--	--
0.924	33.95	Av	0	0	33.95	--	--	46	-12.05

LINE 1 RESULTS



LINE 2 RESULTS

