FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 7

CERTIFICATION TEST REPORT

FOR

WIRELESS-N GIGABIT ROUTER

MODEL NUMBER: WRT310Nv2

FCC ID: Q87-WRT310NV2

IC: 3839A-WRT310NV2

REPORT NUMBER: 09U12467-1

ISSUE DATE: APRIL 09, 2009

Prepared for

CISCO-LINKSYS LLC

121 THEORY DRIVE

IRVINE, CA 92617, U.S.A.

Prepared by

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	04/09/09	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Cisco-Linksys LLC
121 Theory Drive
Irvine, CA 92617, USA

EUT DESCRIPTION: Wireless-N Gigabit Router

MODEL: WRT310Nv2

SERIAL NUMBER: CCS #2263

DATE TESTED: April 01 - 07, 2009

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	PASS
INDUSTRY CANADA RSS-210 Issue 7 Annex 8	PASS
INDUSTRY CANADA RSS-GEN Issue 2	PASS

Compliance Certification Services, Inc. (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 CCS based on interpretations and/or observations of test results. 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 CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

THU CHAN
EMC MANAGER
COMPLIANCE CERTIFICATION SERVICES

Tested By:

VIEN TRAN
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 2, and RSS-210 Issue 7.

3. FACILITIES AND ACCREDITATION

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Power Line Conducted Emission	+/- 2.3 dB
Radiated Emission	+/- 3.4 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Wireless N Gigabit Router and manufactured by Broadcom Corporation. Model number is WRT310Nv2.

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	Peak Power (dBm)	Output Power (mW)
2412 - 2462	802.11b Legacy	23.14	206.06
2412 - 2462	802.11g Legacy	24.36	272.90
2412 - 2462	802.11n 20MHz MIMO	26.65	462.38
2422 - 2452	802.11n 40MHz MIMO_MCS 0	24.68	293.76
2422 - 2452	802.11n 40MHz MIMO_MCS 12	25.73	374.11

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes 802.11b/g/n antennas, with the maximum gain of 1.50dBi for both main and aux ports.

Antennas combinations for 2x3 (CCD) modes test

Frequency Band	Antennas comnbination	Main Port Antenna Gain	Aux Port Antenna Gain	10^(Ant Main /10)	10^(Ant Aux/10)	10^(ant main/10)+ 10^(ant aux/10)	10*log[10^(ant main/10)+ 10^(ant aux/10)] (dBi)
2.4 GHz	Compact Balanced antenna	**1.50**	**1.50**	1.413	1.413	2.825	**4.51**

5.4. SOFTWARE AND FIRMWARE

The test utility softwares used during testing were Internet Explorer (GUI), Telnet setting and Command prompt.

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case data rate for each mode is determined to be as follows, based on preliminary tests of the chipset utilized in this radio.

The worst-case data rate for each mode is determined to be as follows, based on input from the manufacturer of the radio.

All final tests in the 802.11b mode were made at 1 Mb/s.
All final tests in the 802.11g mode were made at 6 Mb/s.
All final tests in the 802.11n HT20 mode were made at Modulation Coding Schemes of MCS Index 0.
All final tests in the 802.11n HT40 mode were made at Modulation Coding Schemes of MCS Index 0 and index 12.

Investigation that the Power Spectral Density and Conducted Spurious as measured through a combiner with both chains operating simultaneously is worst case.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop PC	Dell	Inspiron 4150	CN-901014-7016657K-01JT	DoC
AC Adapter	Dell	AA-20031	N/A	N/A
AC Adapter	Inertronic	EXA0604UB	827	N/A

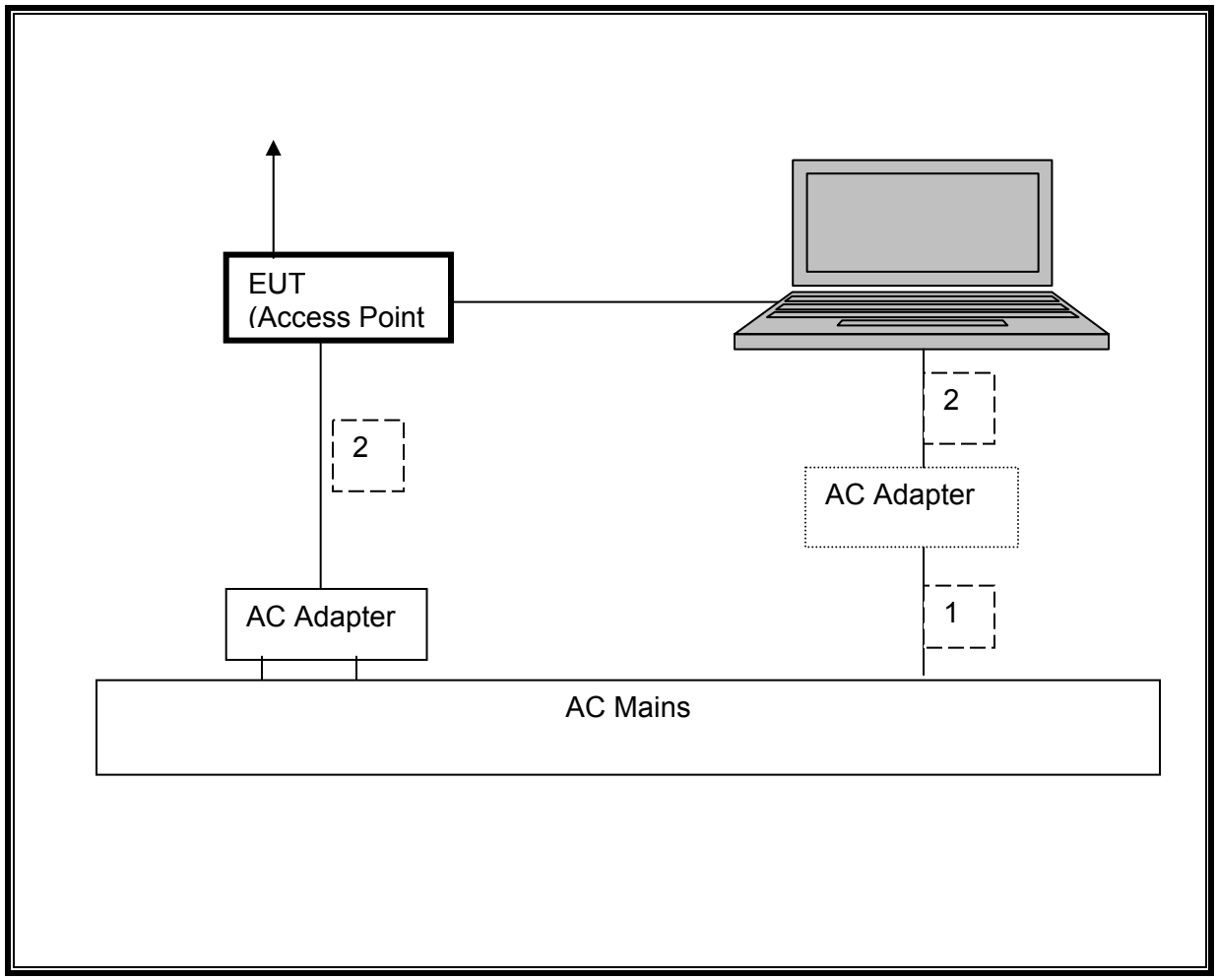
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	AC	Unshielded	1.2 m	N/A
2	DC	1	DC	Unshielded	1.2 m	Ferrite on laptop's end
2	DC	1	DC	Unshielded	1.5 m	N/A
3	Ethernet	1	RJ45	Unshielded	1.0 m	N/A

TEST SETUP

The EUT is connected to a host laptop computer via Ethernet cable during the test. Test software exercised the radio card.

SETUP DIAGRAM



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**
Antenna, Horn, 18 GHz	EMCO	3115	C00945	04/22/09
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01161	08/06/09
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00996	11/14/09
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	12/01/09
RF Filter Section, 2.9 GHz	Agilent / HP	85420E	C00958	09/19/09
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	03/31/10
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	02/11/10
Peak Power Meter	Boonton	4541	N/A	01/15/10
Peak / Average Power Sensor	Boonton	57318	N/A	02/02/10
Peak Power Meter	Agilent / HP	E4416A	C00963	12/04/09
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/07/09
4.0 GHz High Pass Filter	Micro Tronics	HPM13351	N/A	N/A
2.4 - 2.5 Reject Filter	Micro Tronics	BRM50702	N/A	N/A
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/06/09
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	10/29/09
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	N02481	10/29/09

7. ANTENNA PORT TEST RESULTS

7.1. 802.11b MODE

7.1.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2), IC RSS-210 A8.2 (a) & LP0002 §3.10.1 (6) (6.2.1)
The minimum 6 dB bandwidth shall be at least 500 kHz.

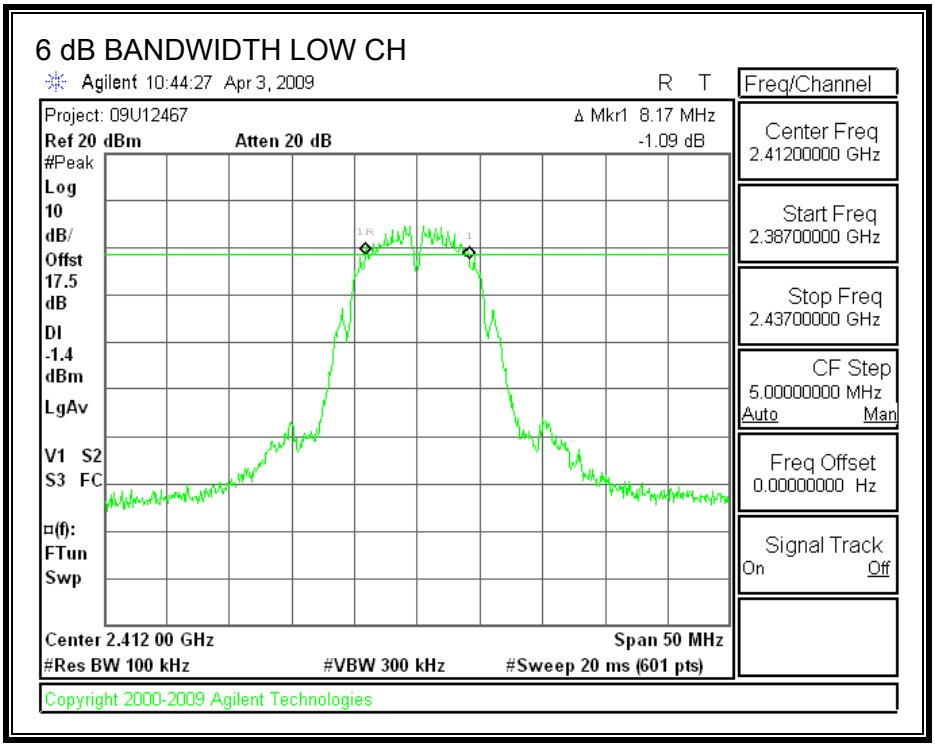
TEST PROCEDURE

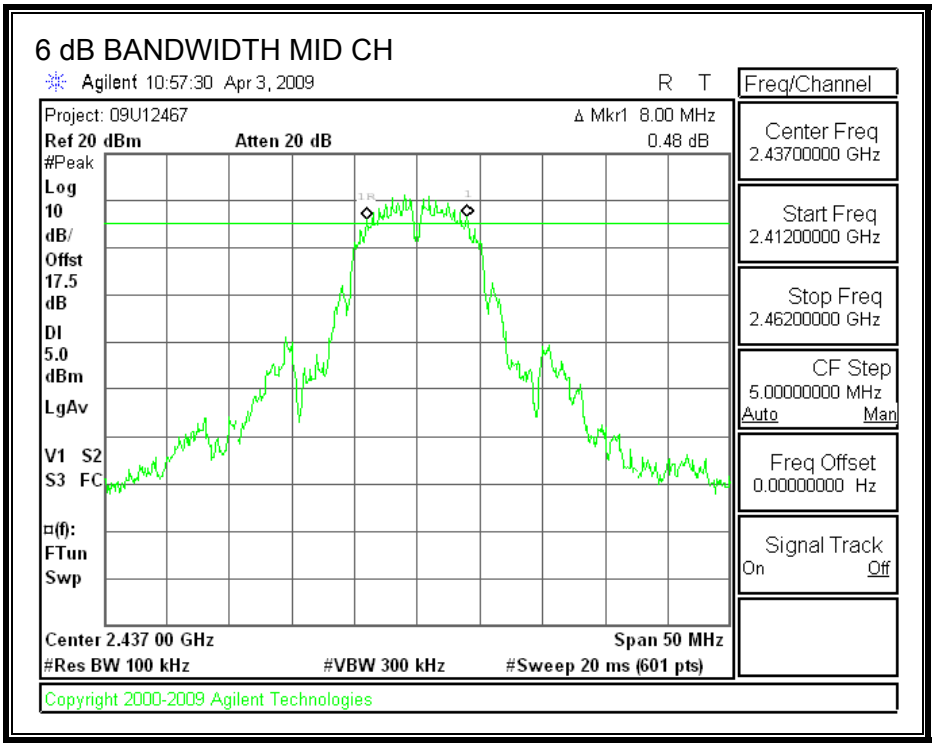
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

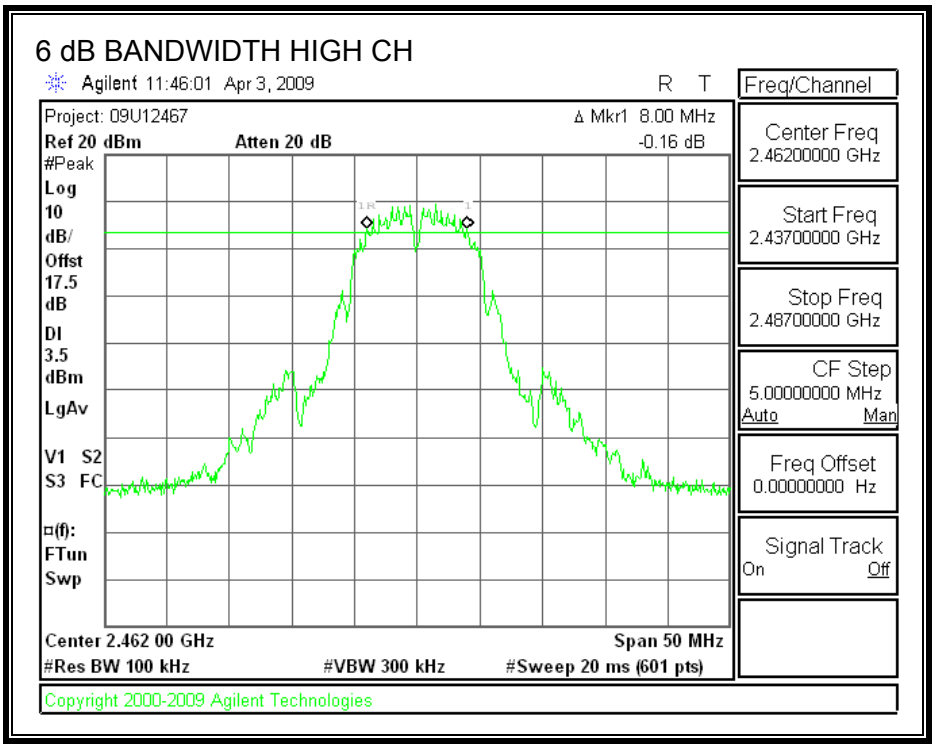
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	8.17	0.5
Middle	2437	8.00	0.5
High	2462	8.00	0.5

6 dB BANDWIDTH







7.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

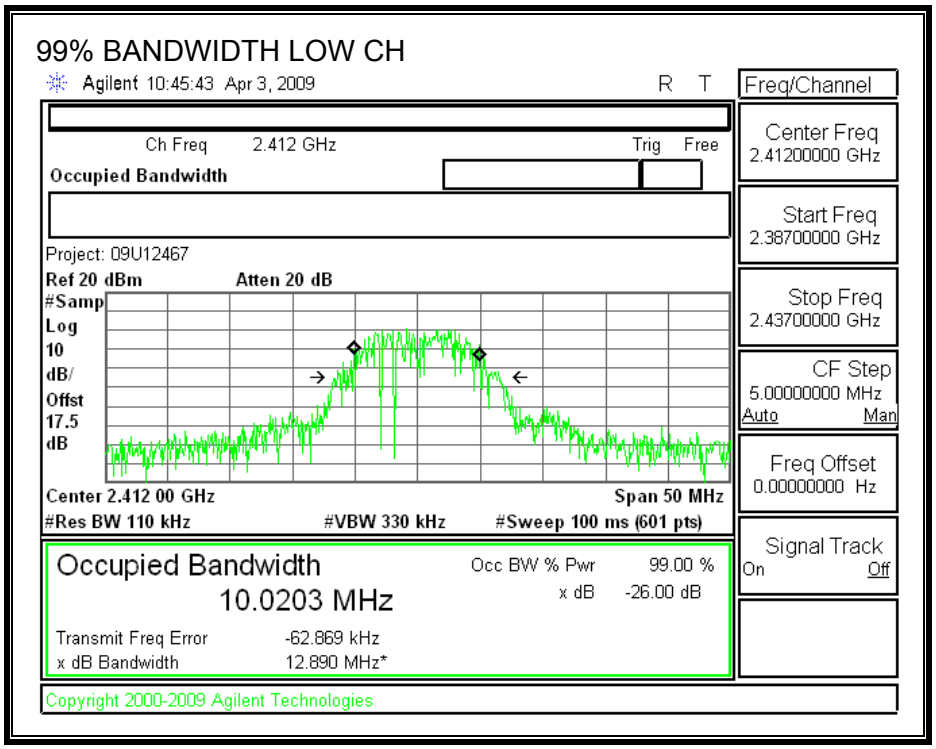
TEST PROCEDURE

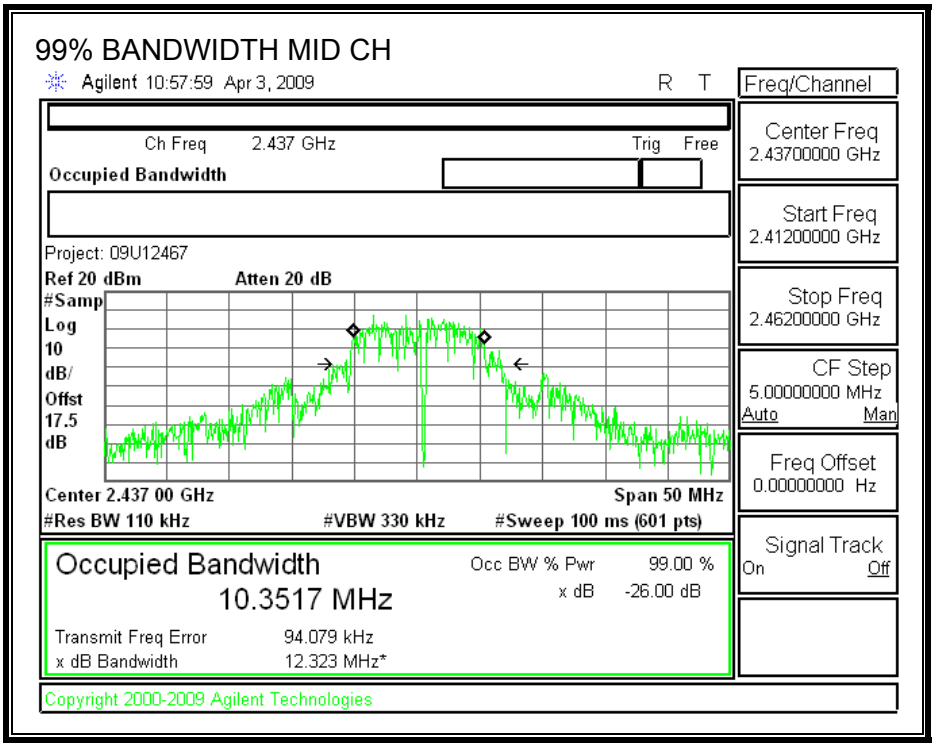
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

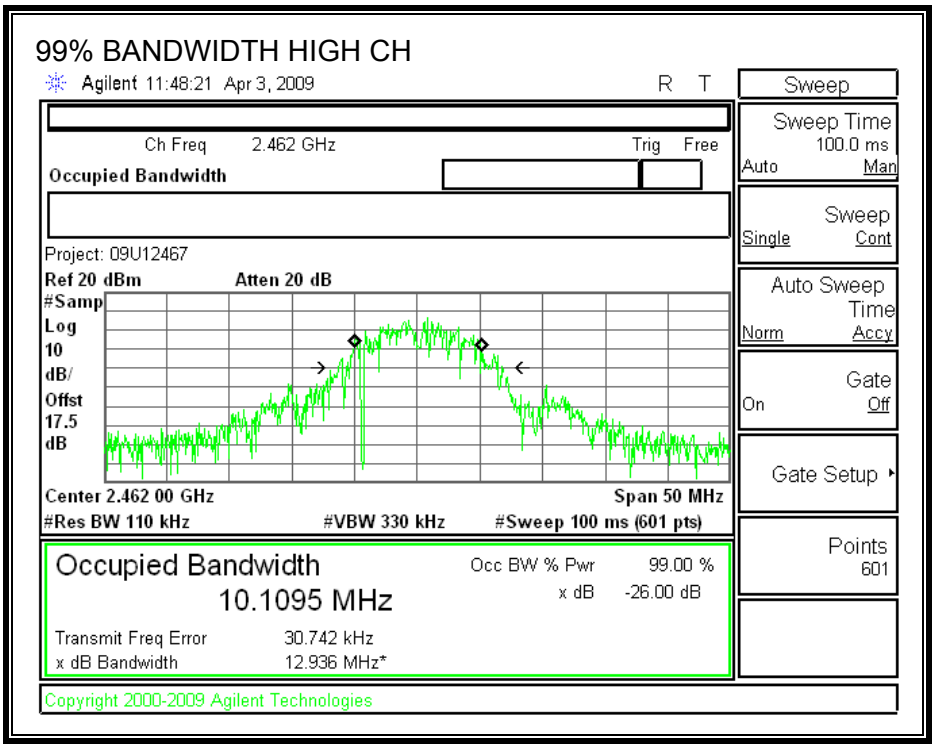
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	10.0203
Middle	2437	10.3517
High	2462	10.1095

99% BANDWIDTH







7.1.3. OUTPUT POWER

LIMITS

FCC §15.247 (b), IC RSS-210 A8.4, LP0002 § 3.10.1 (2) (2.3); (3) (3.1.1)
The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.3 dB (including 10 dB pad and 1.3 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Peak Power Meter Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	23.01	30	-6.99
Middle	2437	23.14	30	-6.86
High	2457	23.04	30	-6.96
High	2462	21.96	30	-8.04

7.1.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e), IC RSS-210 A8.2 (b), 3.10.1 (6) (6.2.2)
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

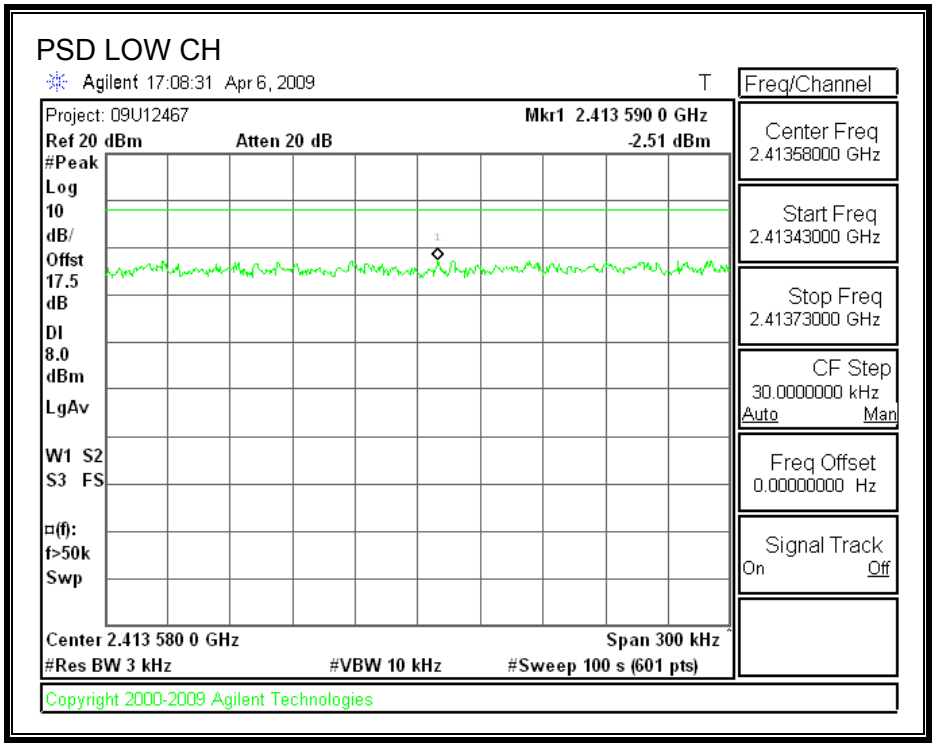
TEST PROCEDURE

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

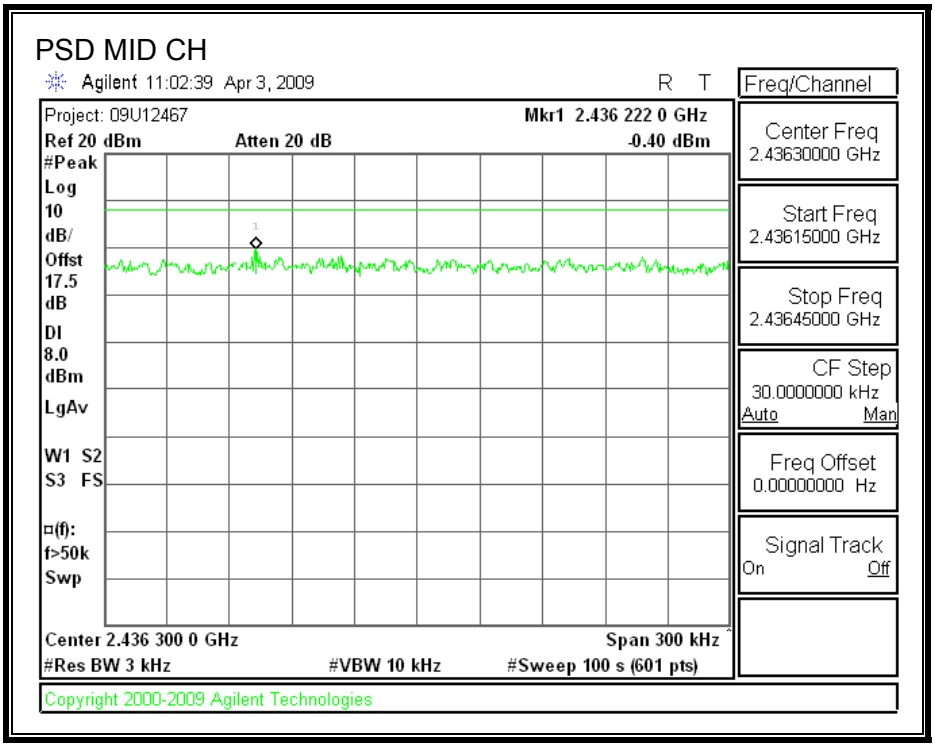
RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-2.51	8	-10.51
Middle	2437	-0.40	8	-8.40
High	2457	-1.97	8	-9.97
High	2462	-2.13	8	-10.13

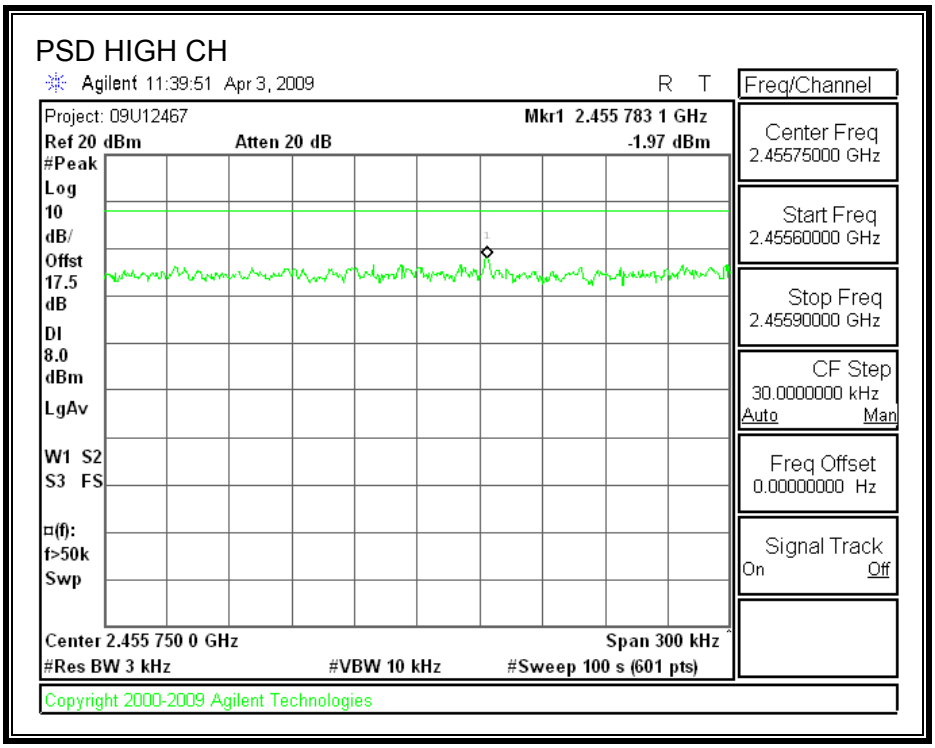
POWER SPECTRAL DENSITY



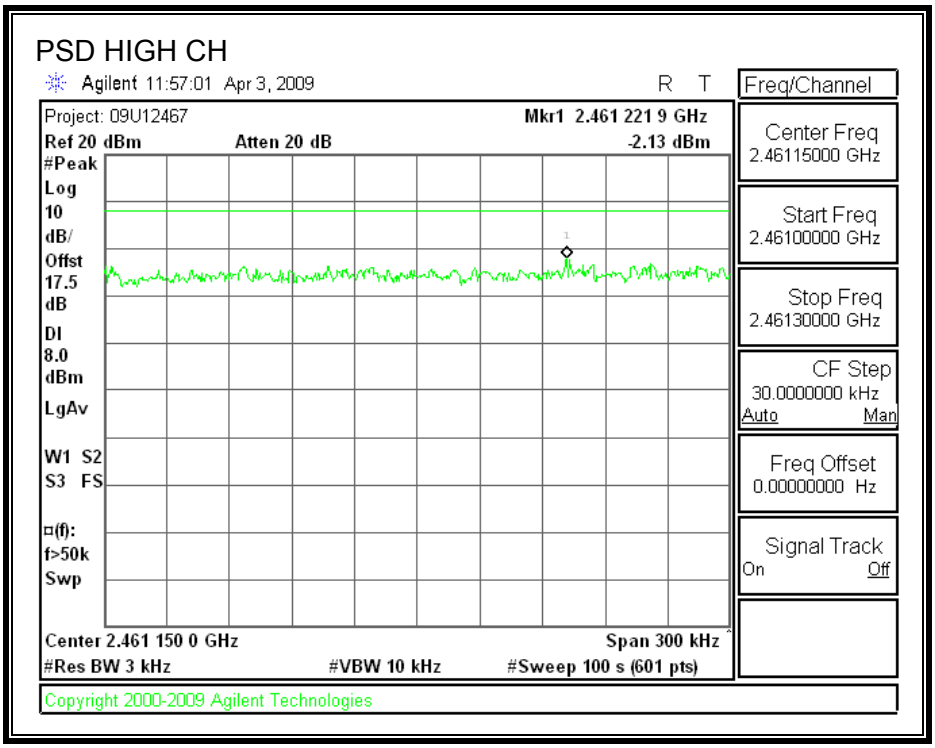
PSD MID CH



PSD HIGH CH



PSD HIGH CH



7.1.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

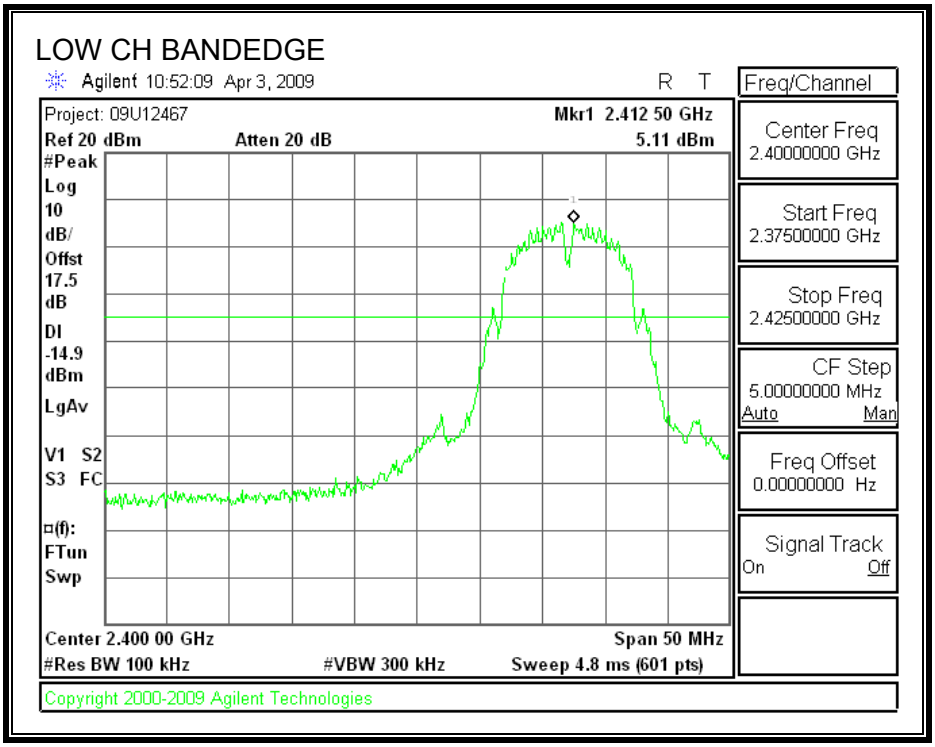
FCC §15.247 (d), IC RSS-210 A8.5, LP0002 § 3.10.1 (5)
Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

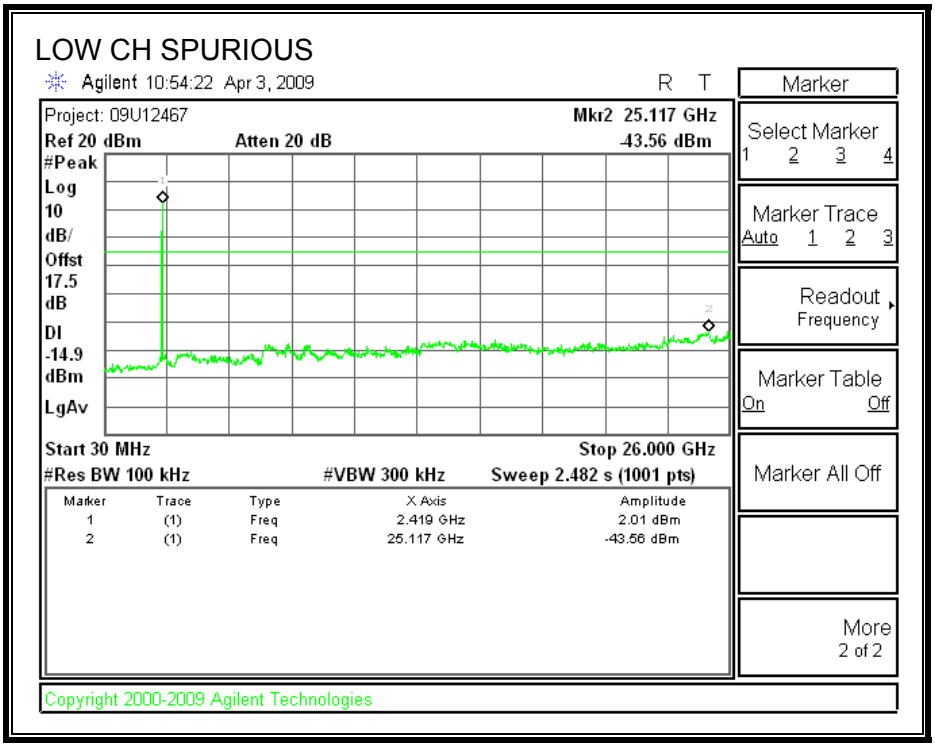
TEST PROCEDURE

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.

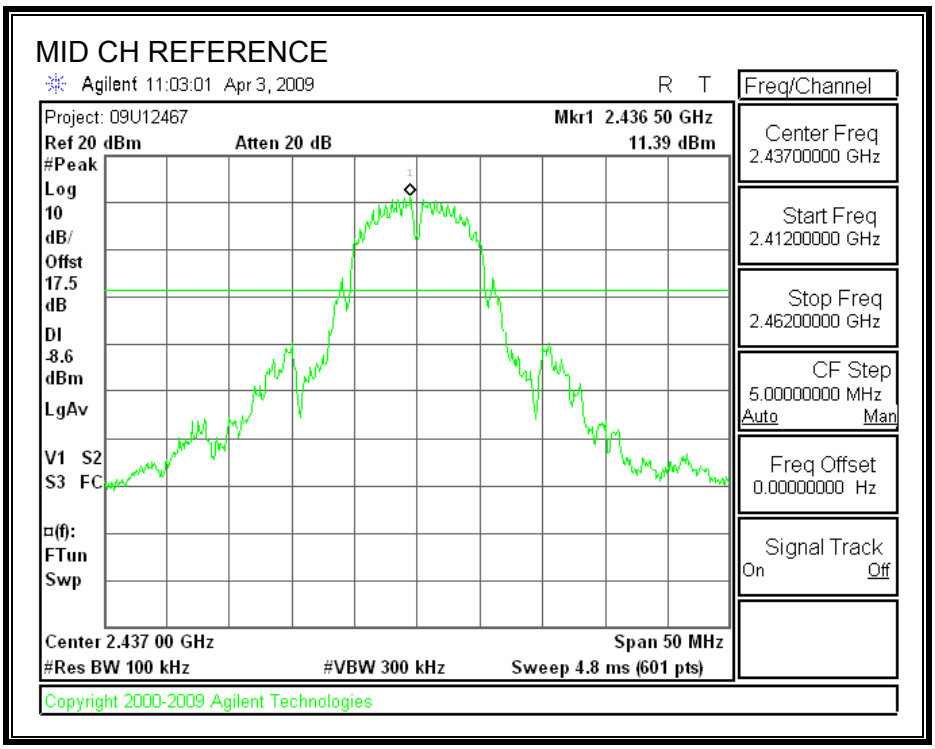
RESULTS

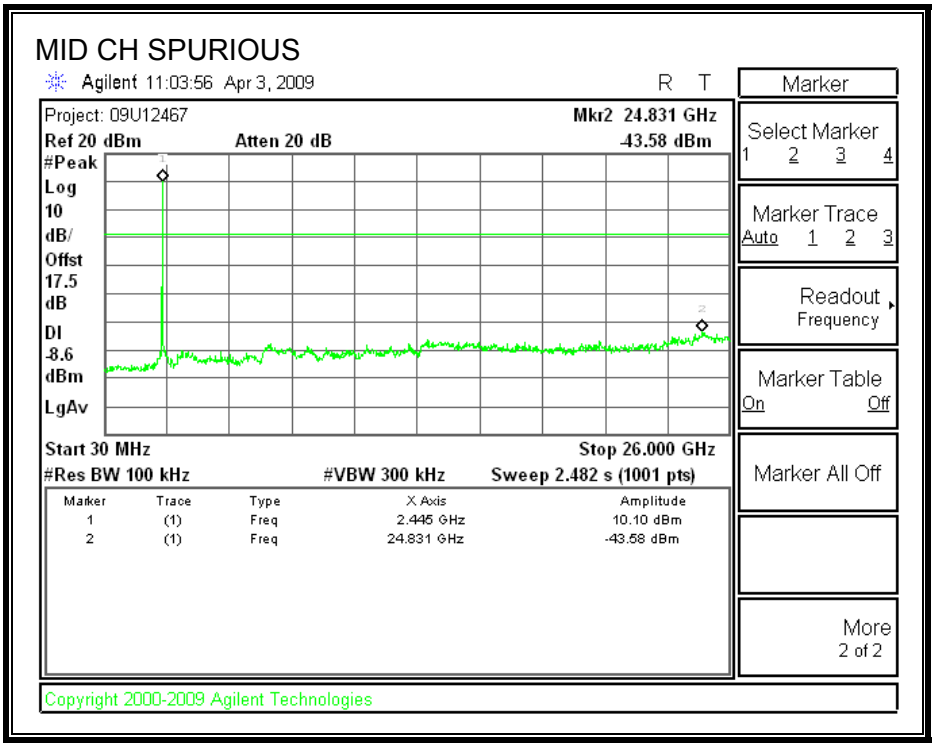
SPURIOUS EMISSIONS, LOW CHANNEL



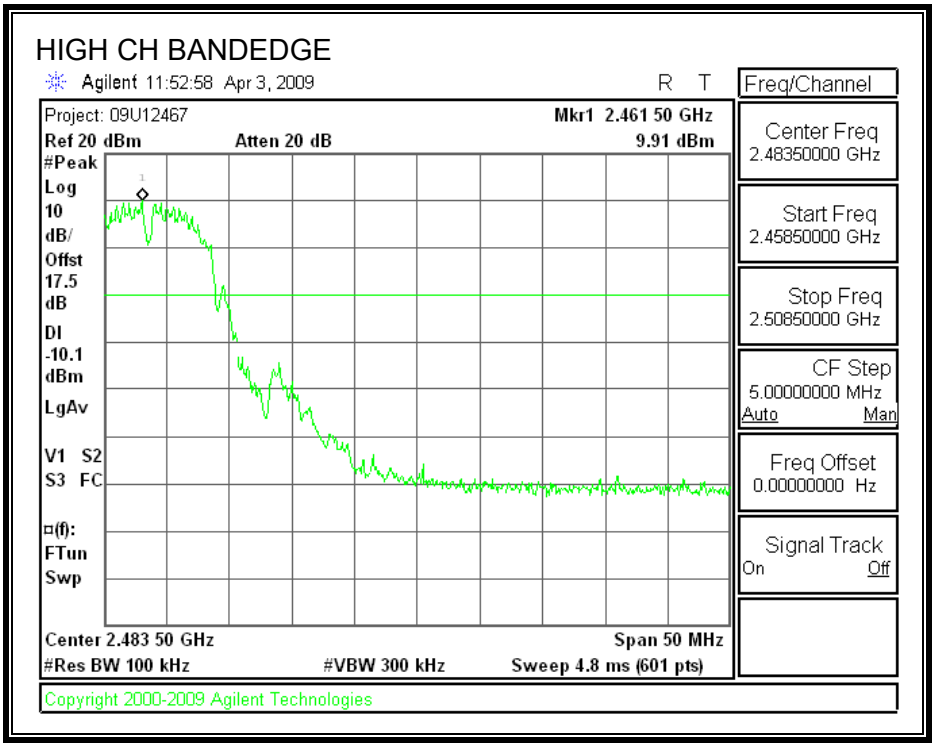


SPURIOUS EMISSIONS, MID CHANNEL

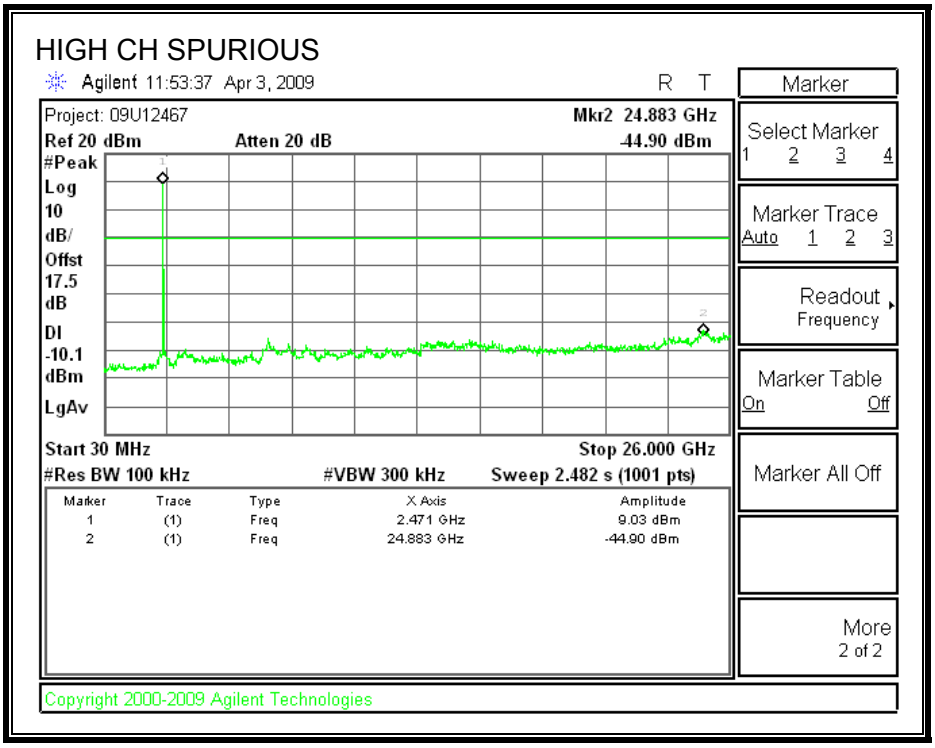




SPURIOUS EMISSIONS, HIGH CHANNEL



HIGH CH SPURIOUS



7.2. 802.11g MODE

7.2.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2), IC RSS-210 A8.2 (a) & LP0002 §3.10.1 (6) (6.2.1)
The minimum 6 dB bandwidth shall be at least 500 kHz.

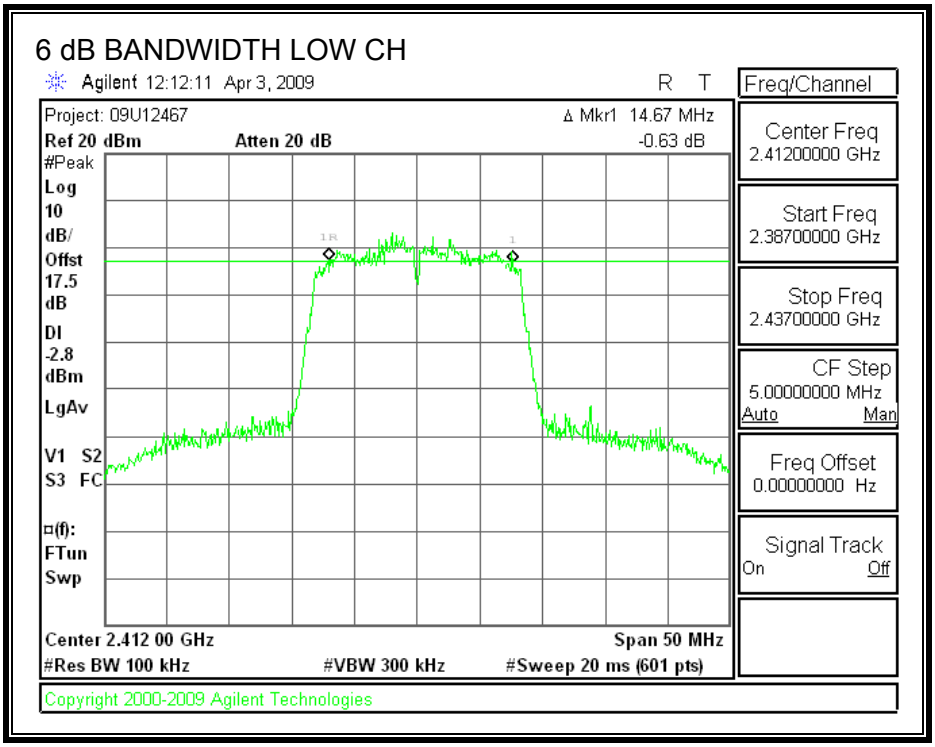
TEST PROCEDURE

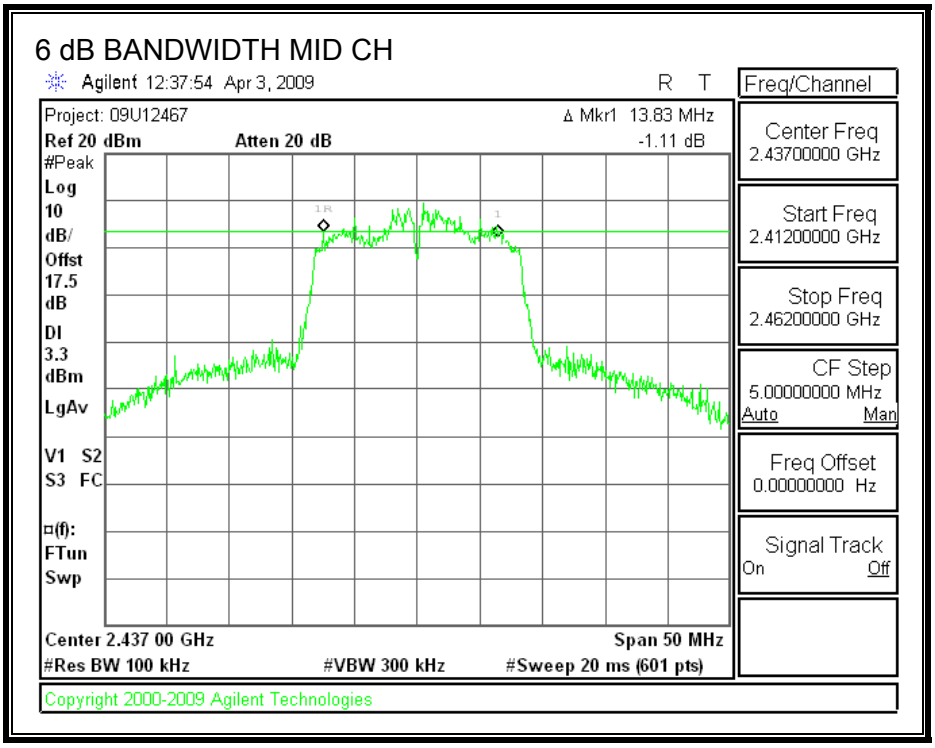
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

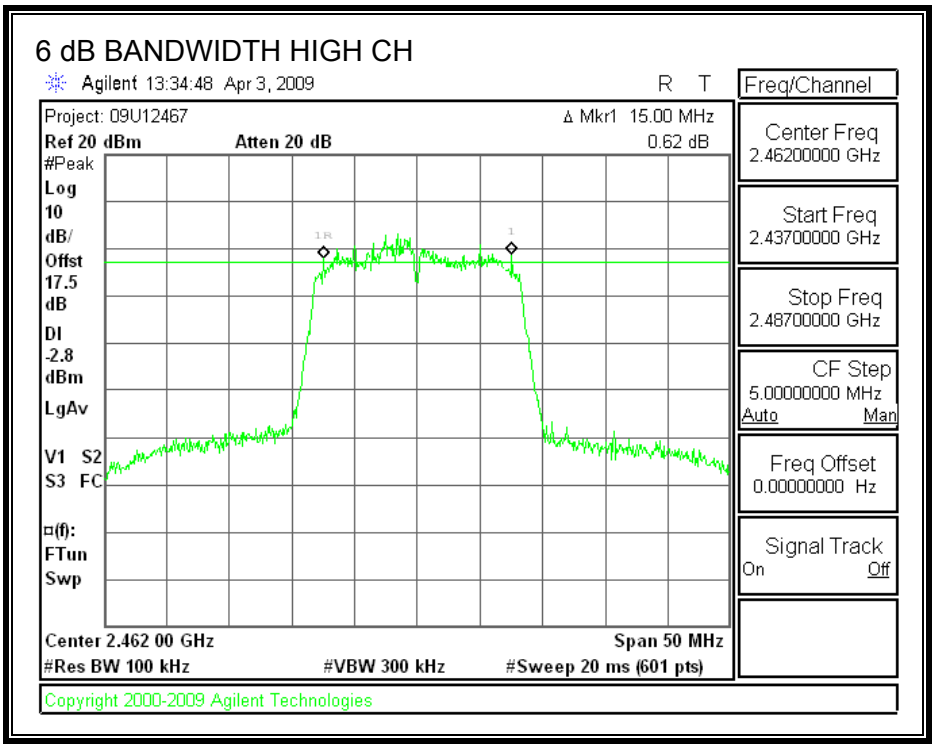
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	14.67	0.5
Middle	2437	13.83	0.5
High	2462	15.00	0.5

6dB BANDWIDTH







7.2.2. 99%BANDWIDTH

LIMITS

None; for reporting purposes only.

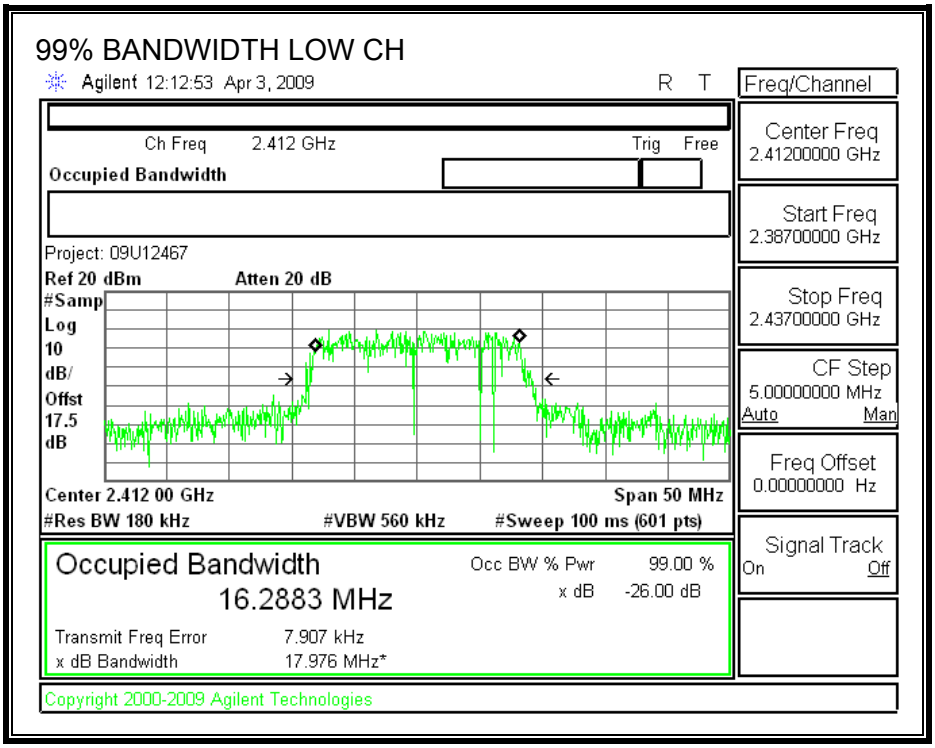
TEST PROCEDURE

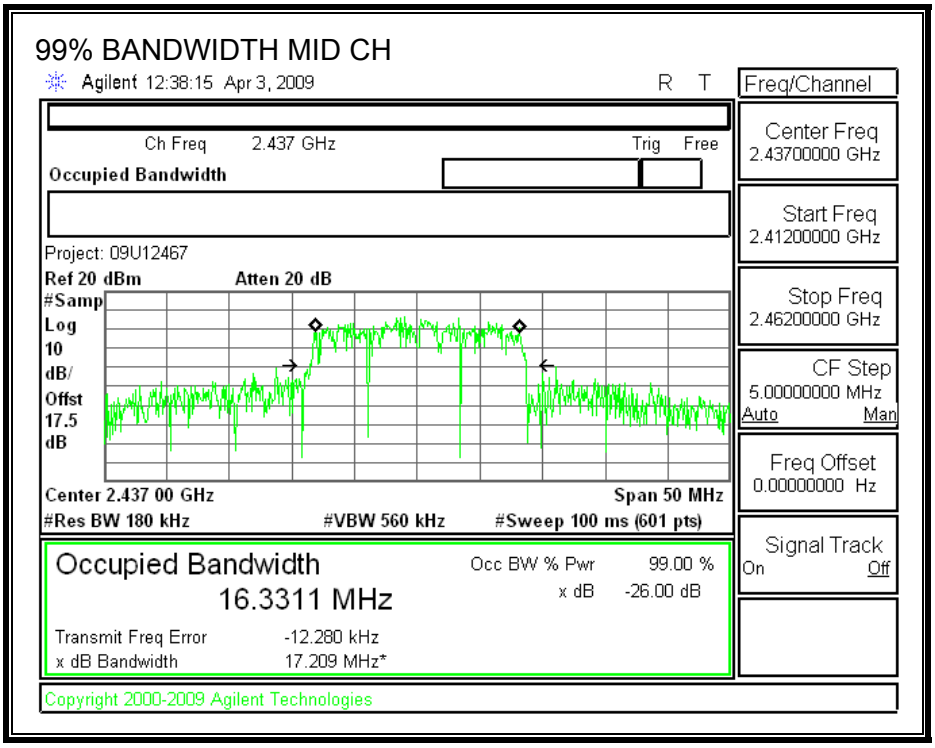
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

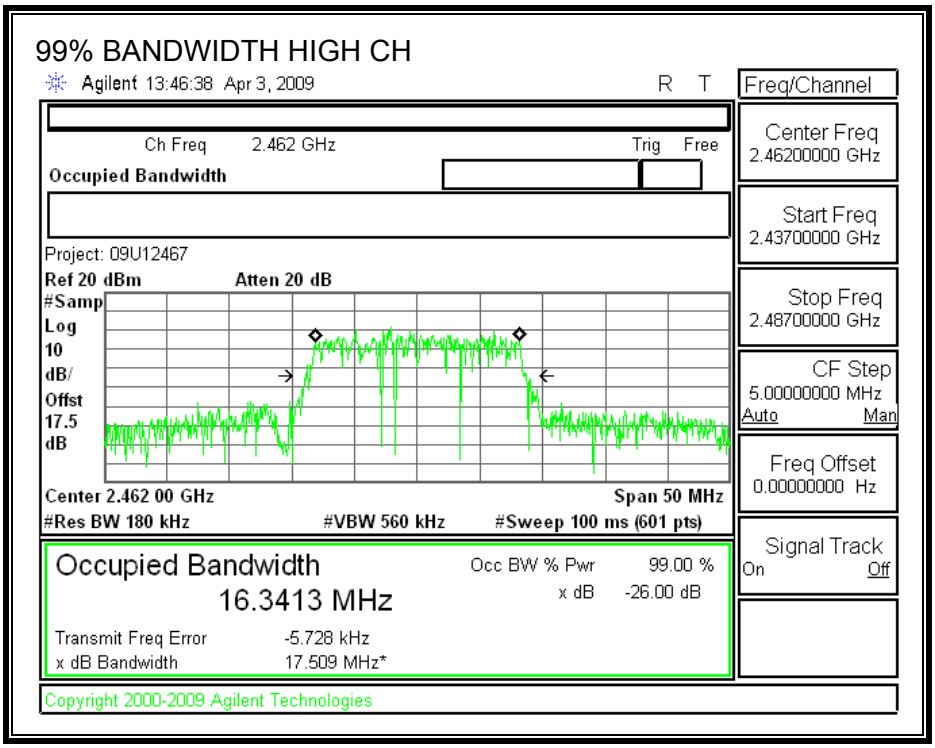
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.2883
Middle	2437	16.3311
High	2462	16.3413

RESULTS

99% BANDWIDTH







7.2.3. OUTPUT POWER

LIMITS

FCC §15.247 (b), IC RSS-210 A8.4, LP0002 § 3.10.1 (2) (2.3); (3) (3.1.1)
The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.3 dB (including 10 dB pad and 1.3 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Peak Power Meter Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	21.84	30	-8.16
Low	2417	23.85	30	-6.15
Middle	2437	24.36	30	-5.64
High	2457	23.95	30	-6.05
High	2462	21.91	30	-8.09

7.2.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e), IC RSS-210 A8.2 (b), 3.10.1 (6) (6.2.2)
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

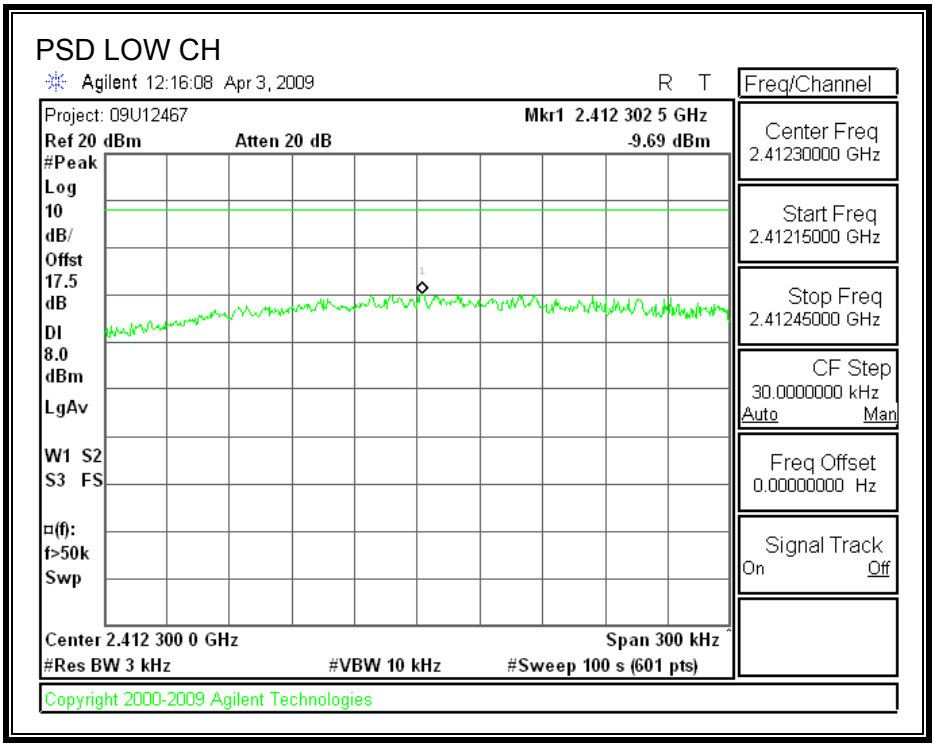
TEST PROCEDURE

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

RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-9.69	8	-17.69
Low	2417	-5.73	8	-13.73
Middle	2437	-1.26	8	-9.26
High	2457	-5.50	8	-13.50
High	2462	-10.21	8	-18.21

POWER SPECTRAL DENSITY



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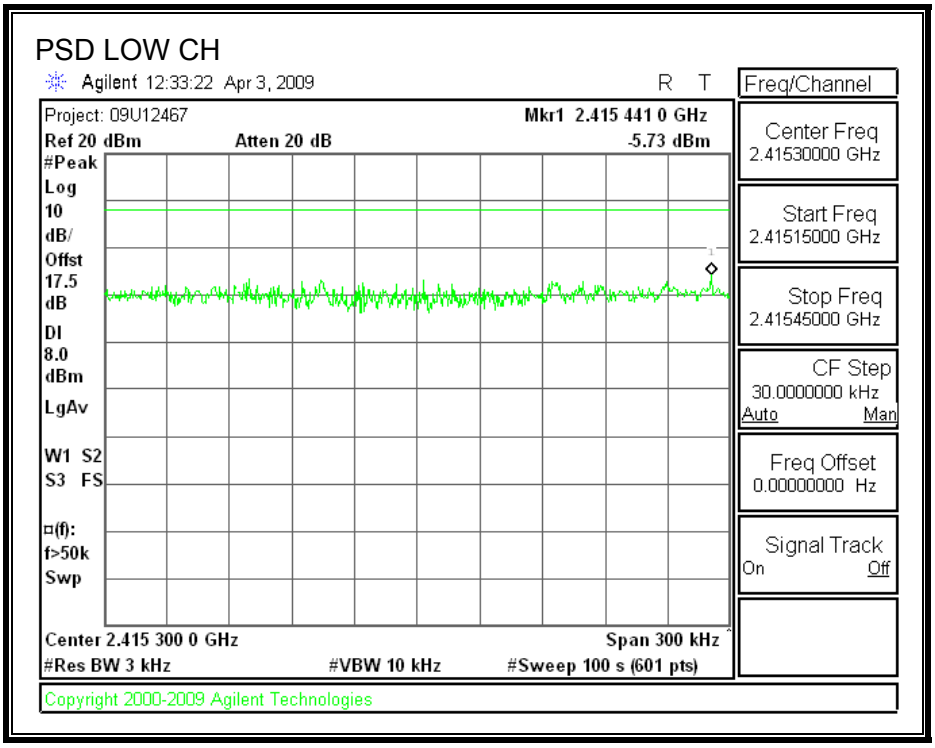
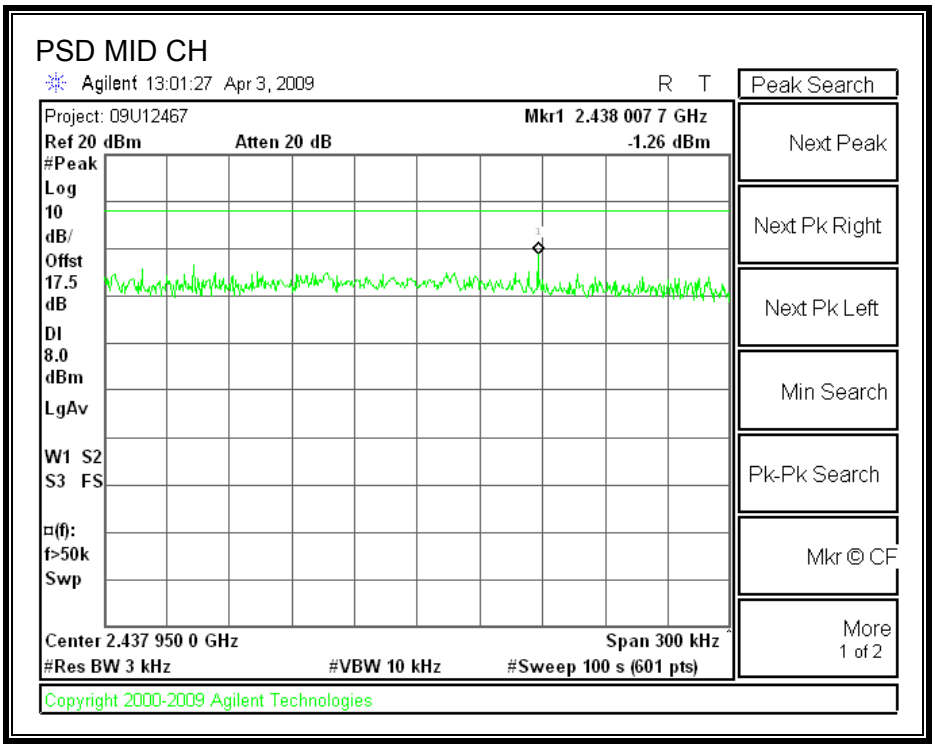
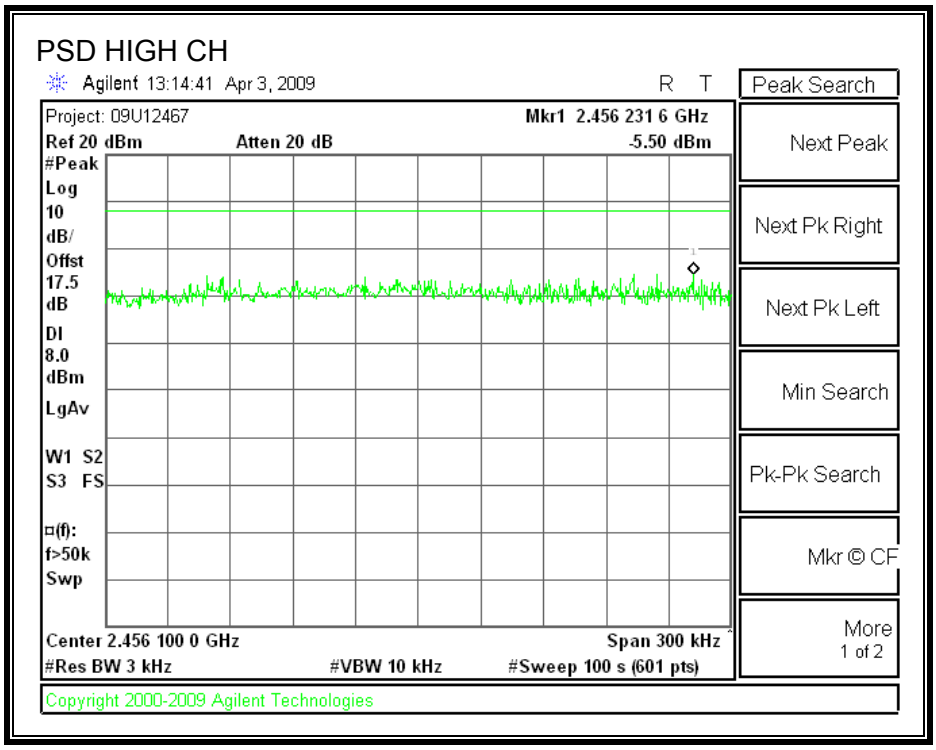
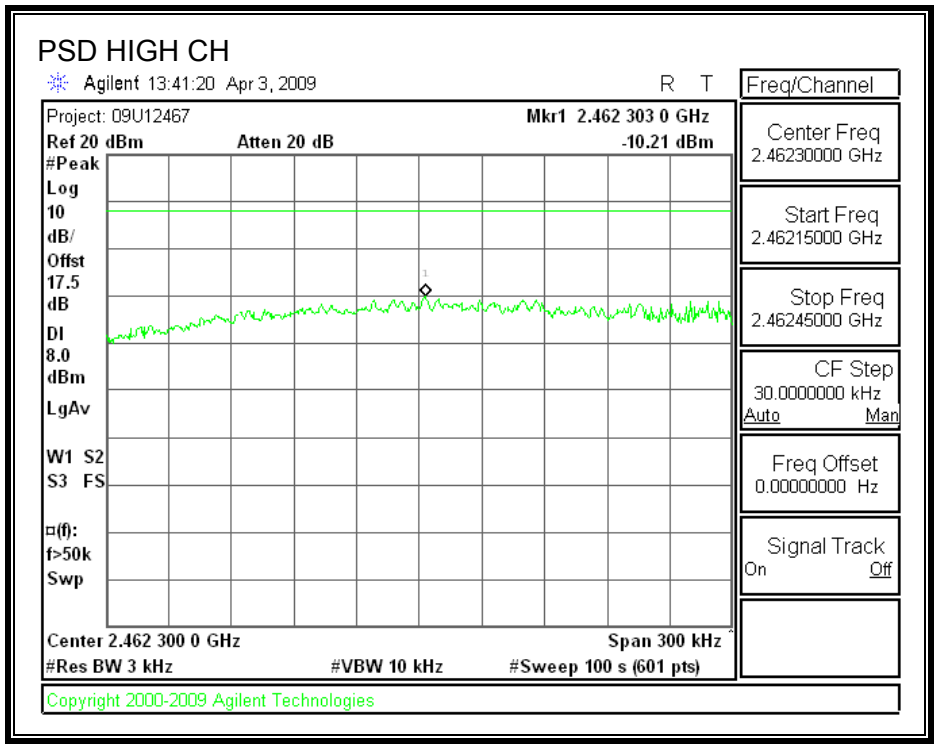


PSD MID CH







7.2.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

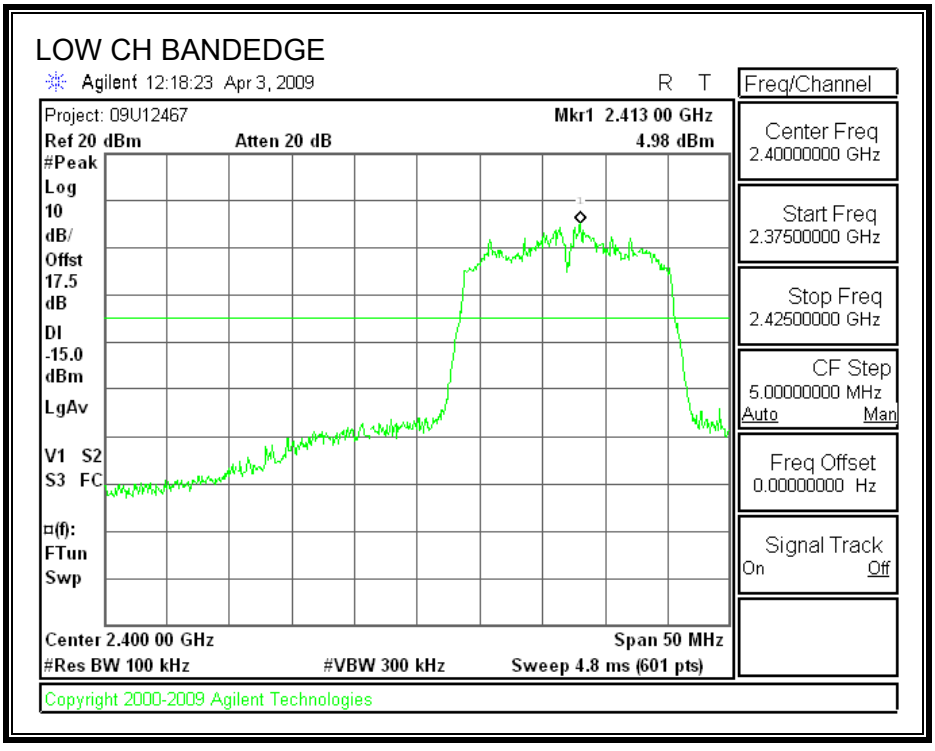
FCC §15.247 (d), IC RSS-210 A8.5, LP0002 § 3.10.1 (5)
Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

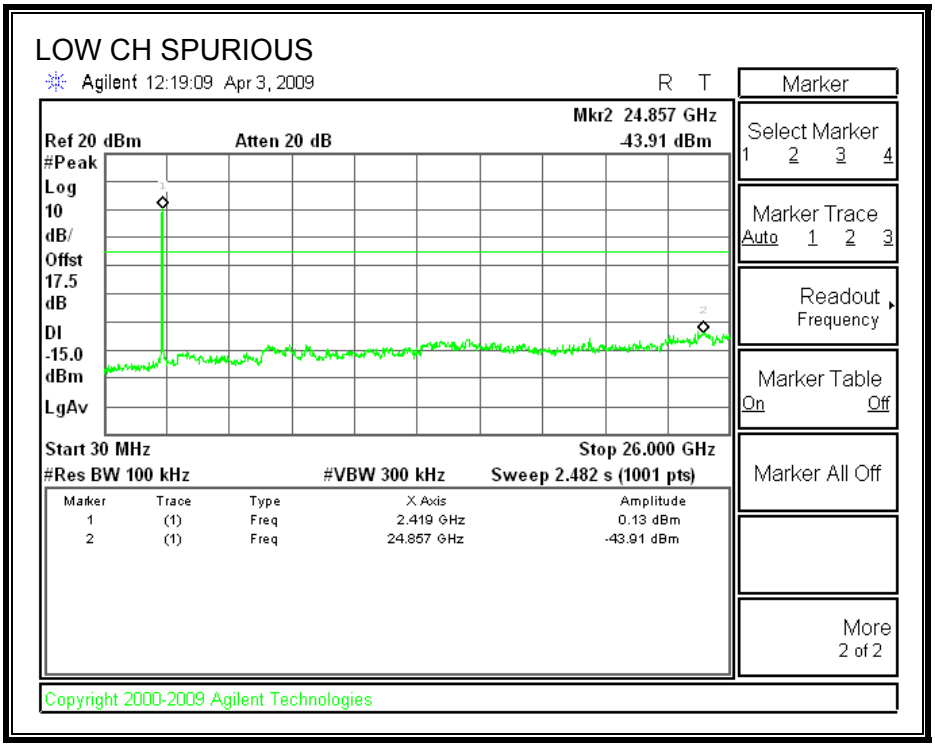
TEST PROCEDURE

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.

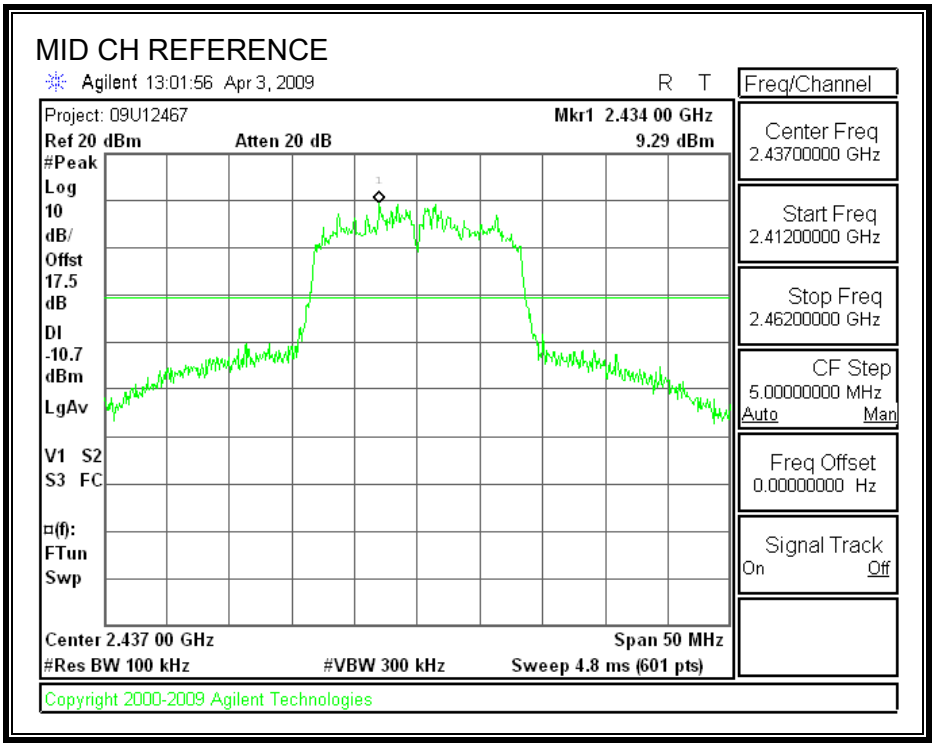
RESULTS

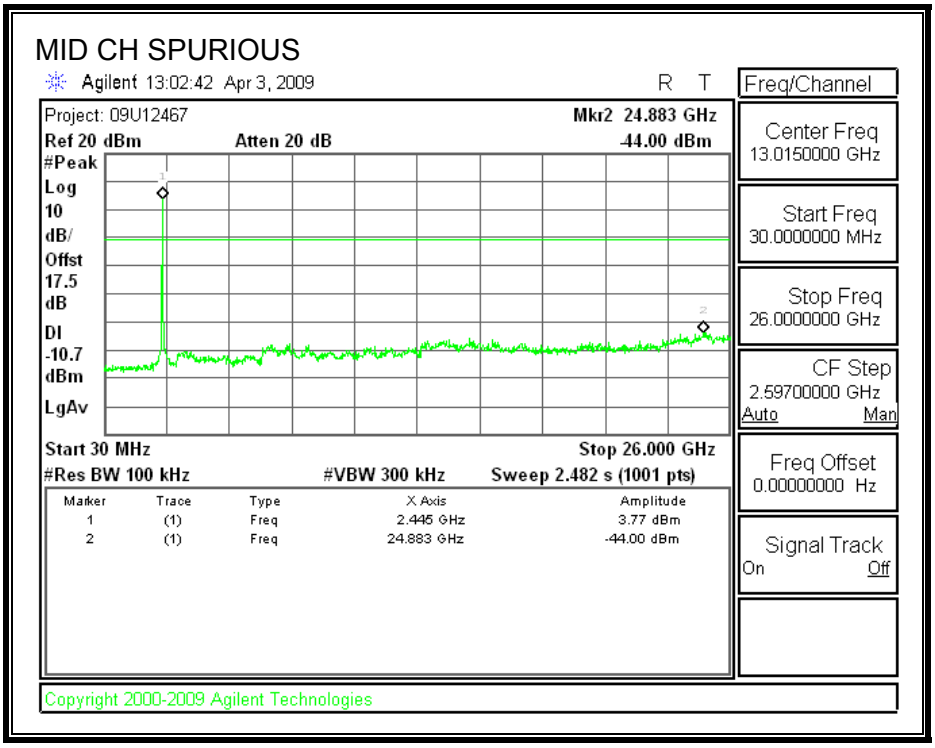
SPURIOUS EMISSIONS, LOW CHANNEL



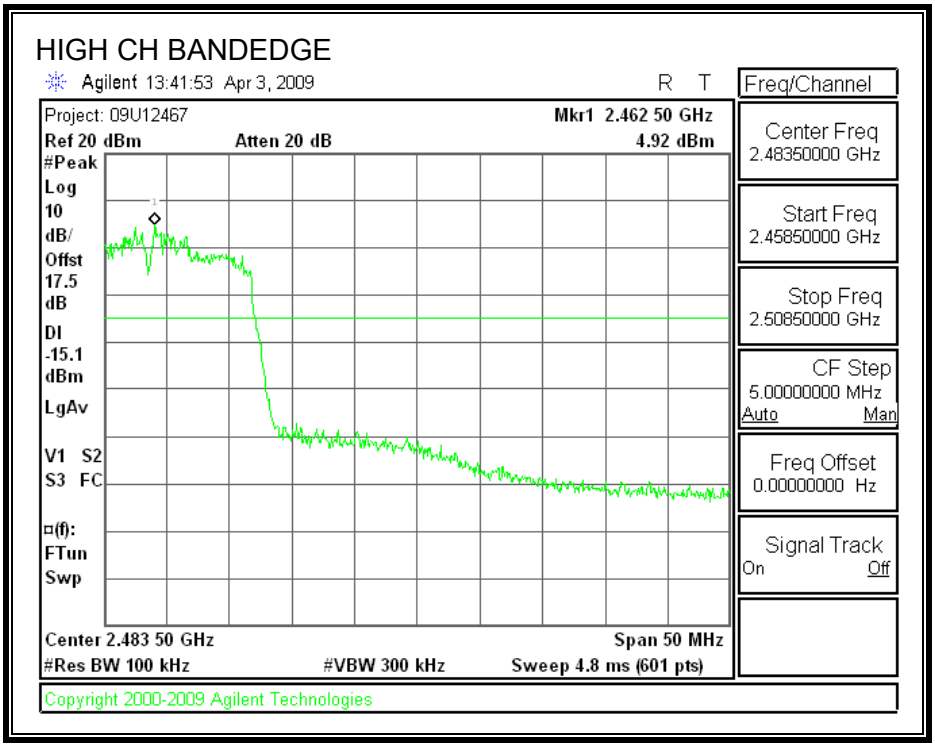


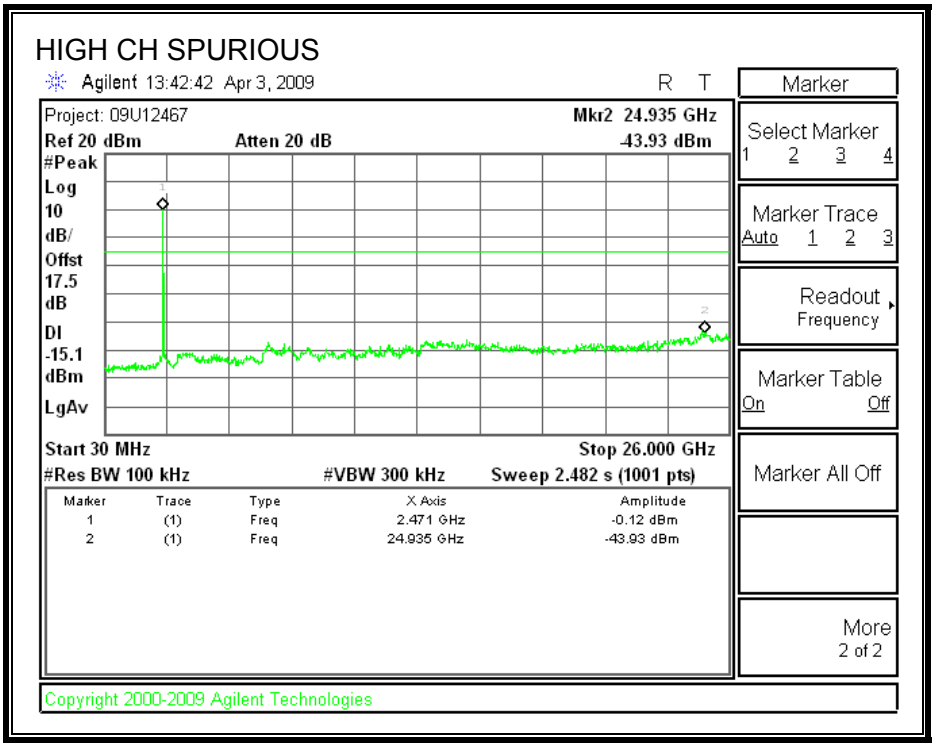
SPURIOUS EMISSIONS, MID CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





7.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

7.3.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2), IC RSS-210 A8.2 (a) & LP0002 §3.10.1 (6) (6.2.1)
The minimum 6 dB bandwidth shall be at least 500 kHz.

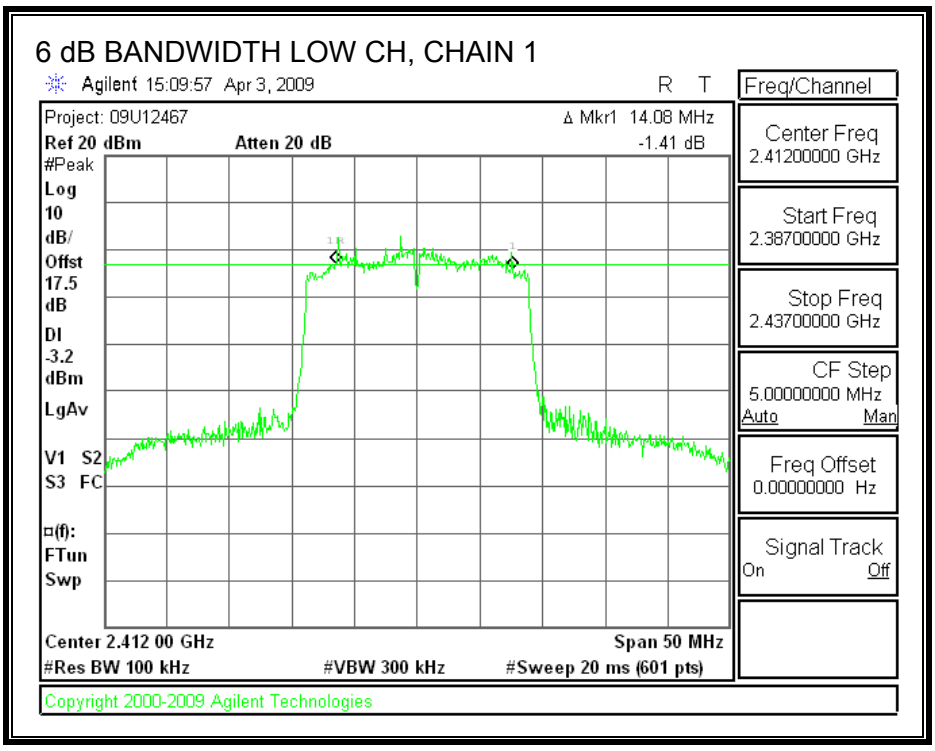
TEST PROCEDURE

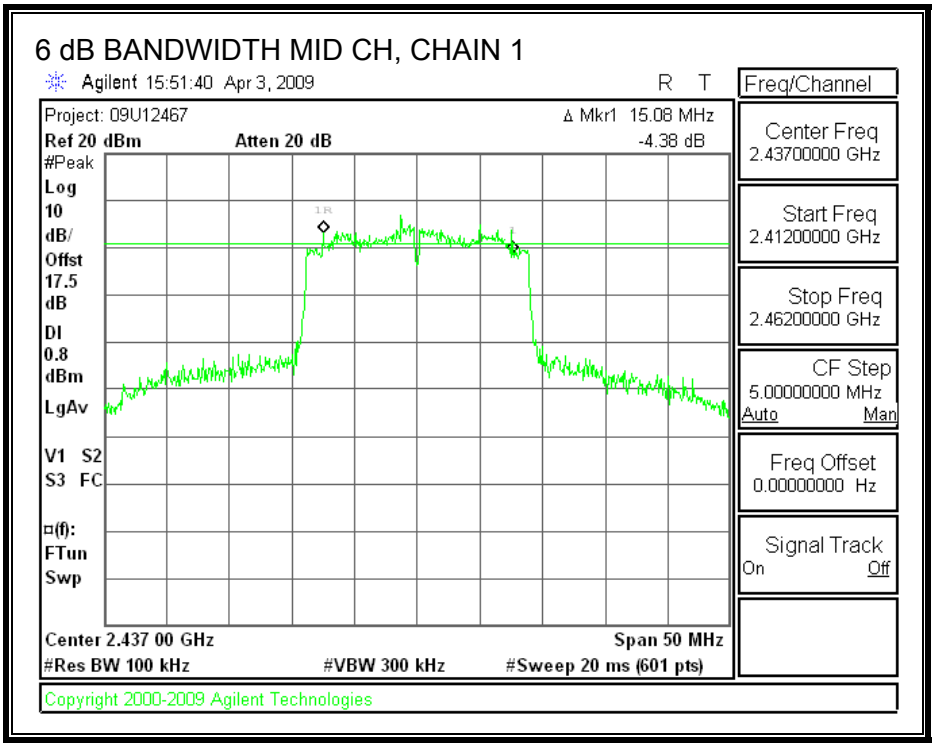
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

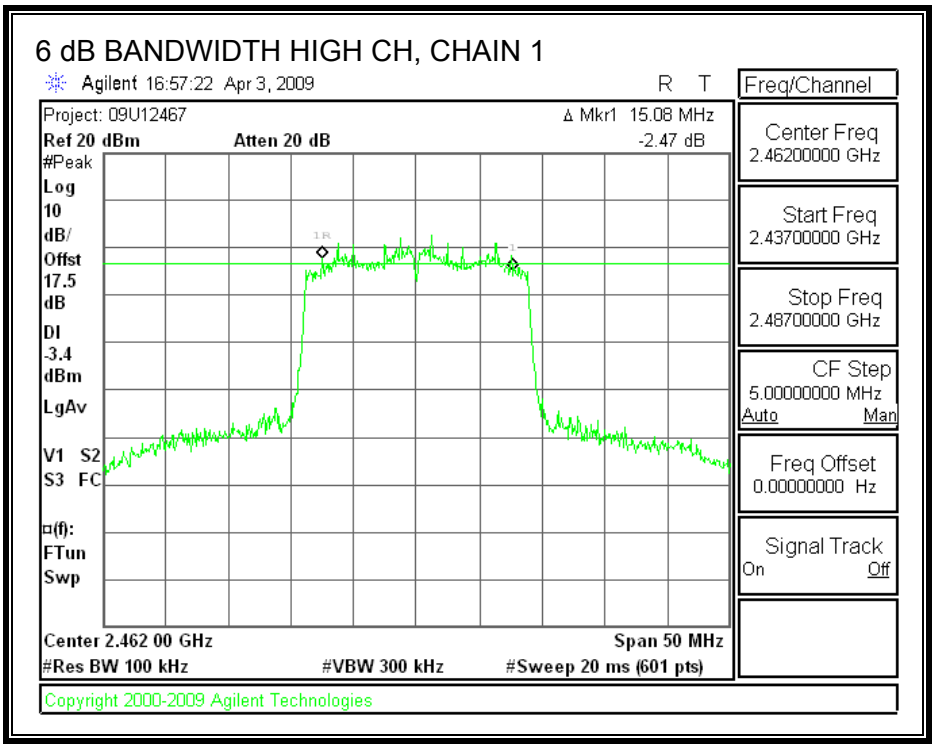
RESULTS

Channel	Frequency (MHz)	Chain 1 6 dB BW (MHz)	Chain 2 6 dB BW (MHz)	Minimum Limit (MHz)
Low	2412	14.08	13.25	0.5
Middle	2437	15.08	14.75	0.5
High	2462	15.08	14.92	0.5

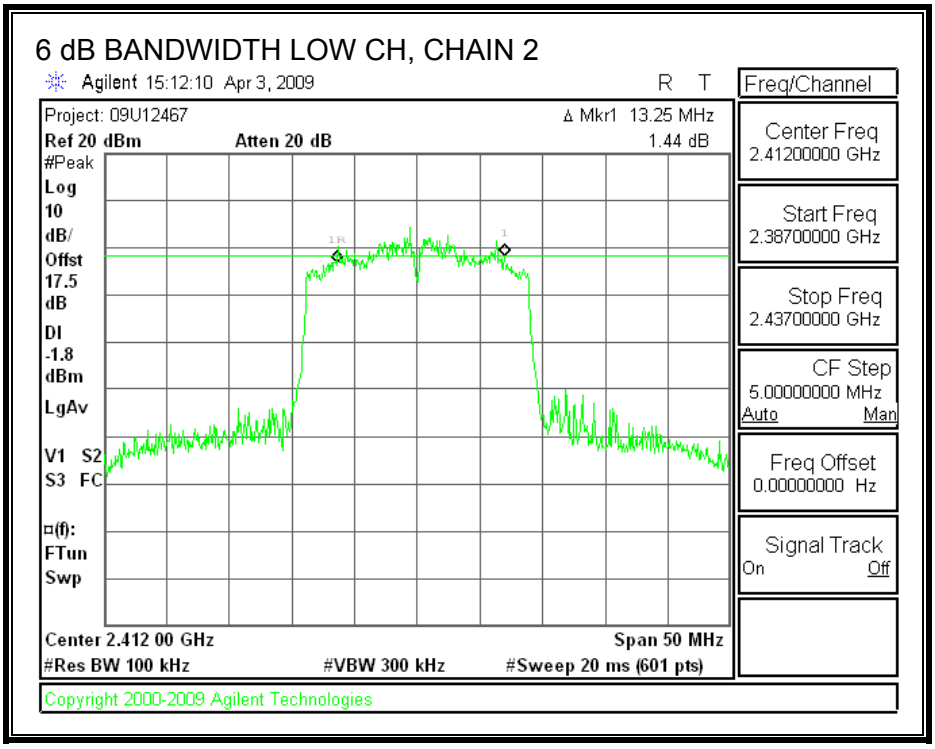
6 dB BANDWIDTH, CHAIN 1

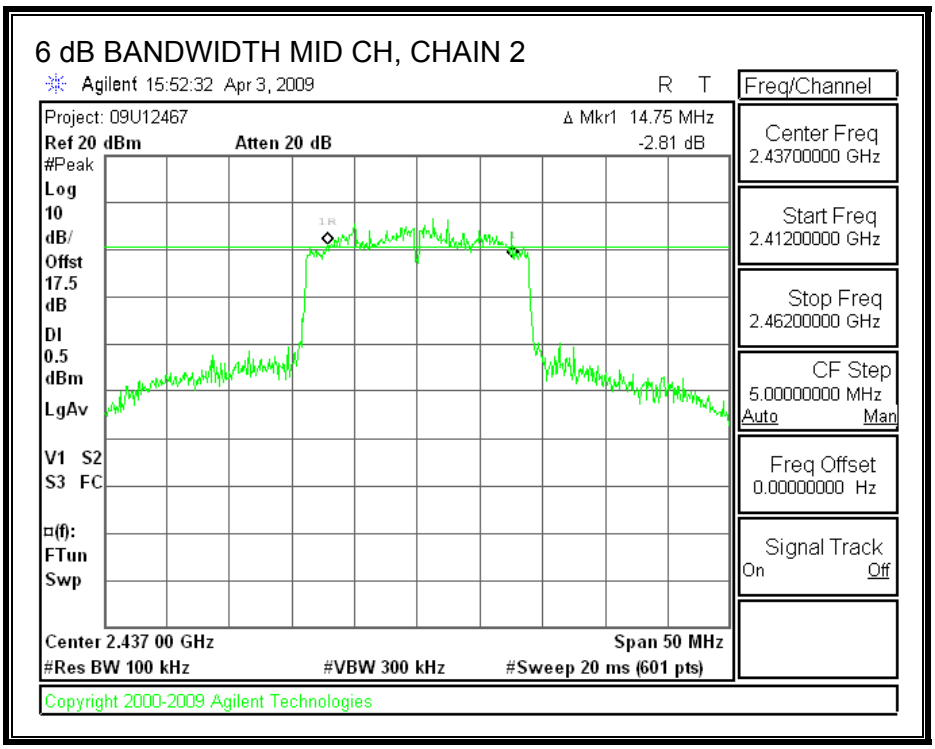


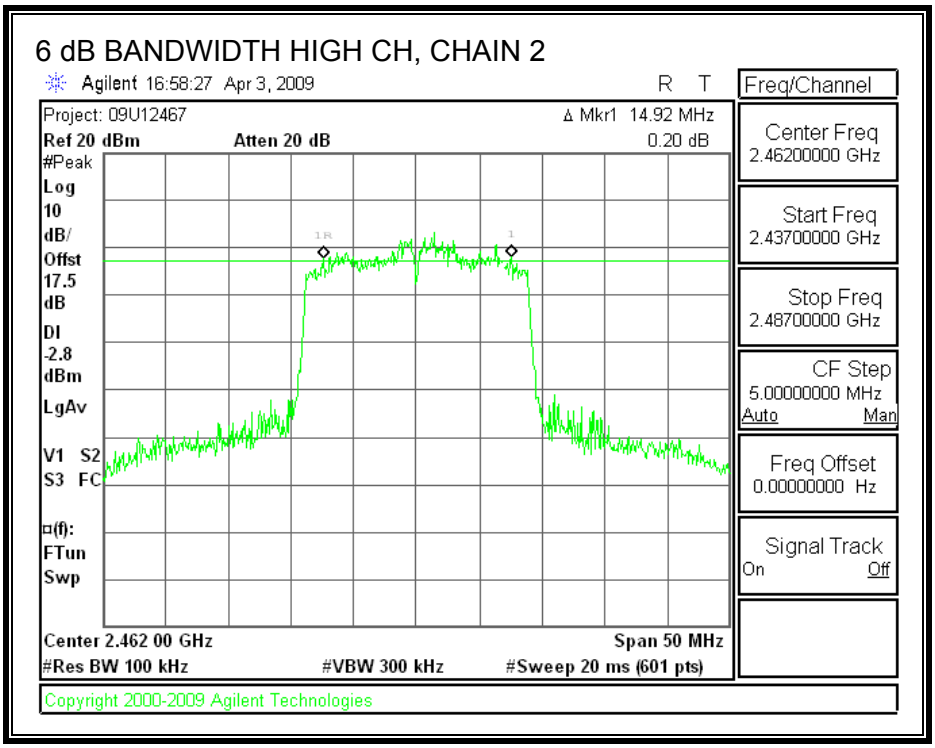




6 dB BANDWIDTH, CHAIN 2







7.3.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

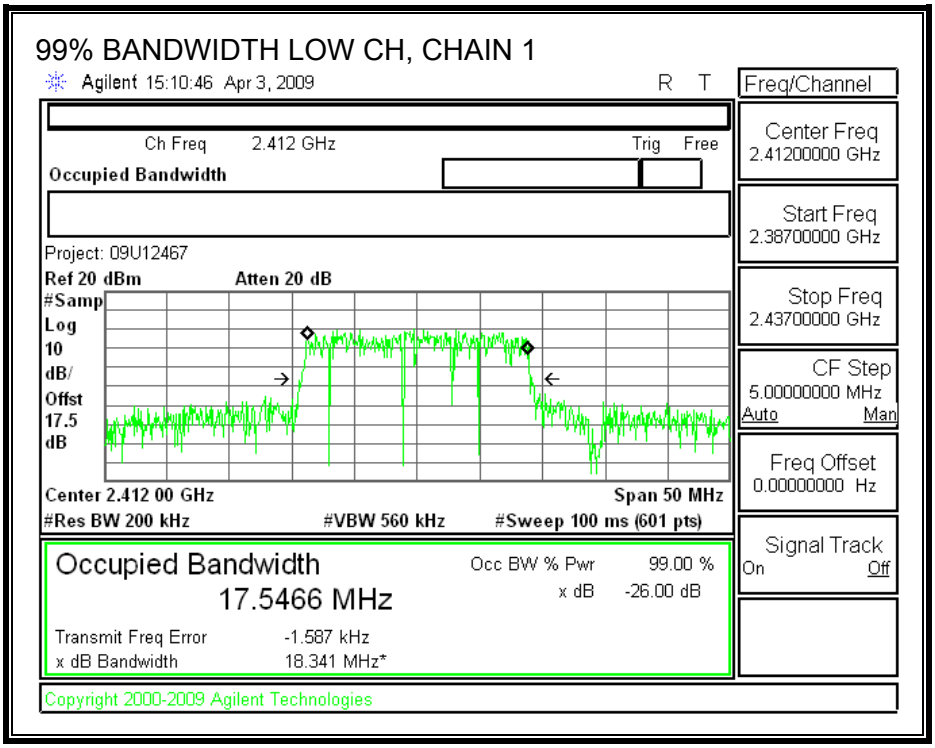
TEST PROCEDURE

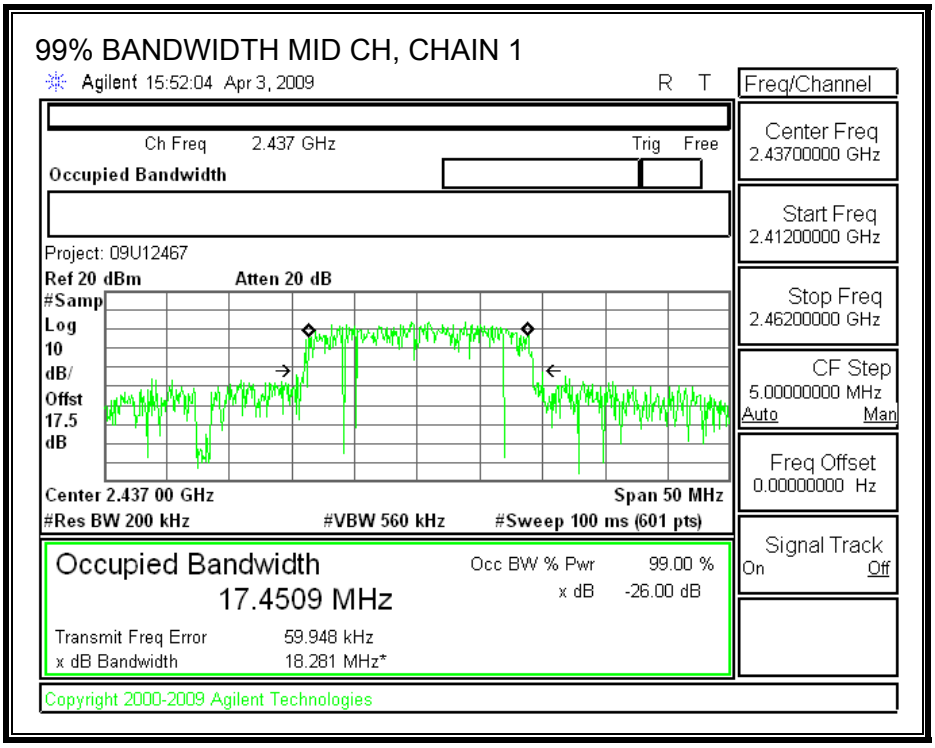
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

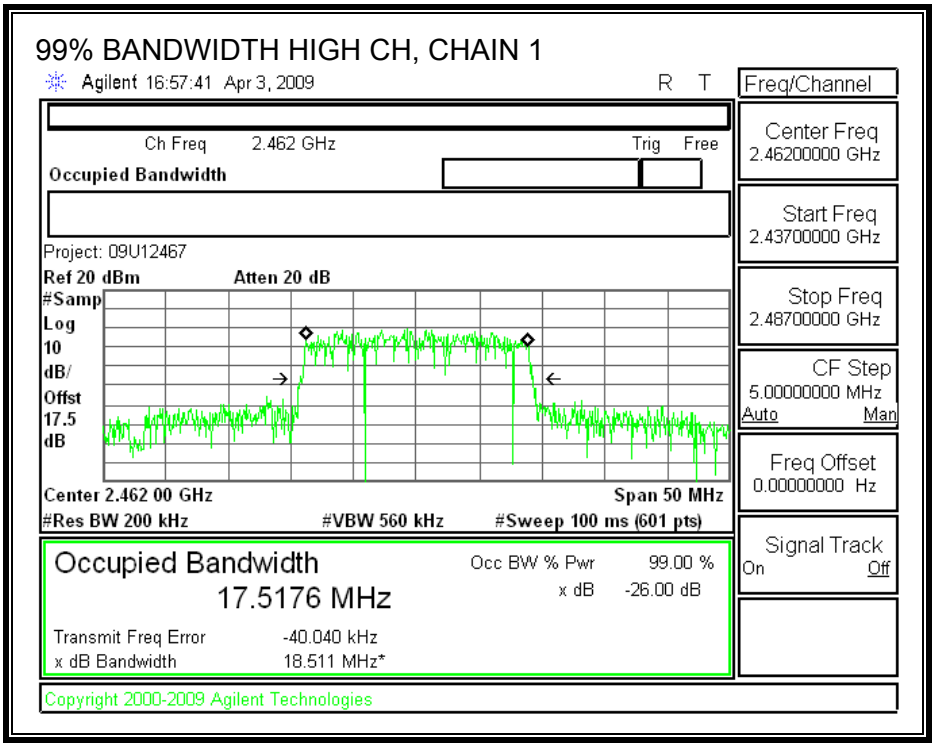
RESULTS

Channel	Frequency (MHz)	Chain 1 99% Bandwidth (MHz)	Chain 2 99% Bandwidth (MHz)
Low	2412	17.5466	17.4170
Middle	2437	17.4509	17.5331
High	2462	17.5176	17.4629

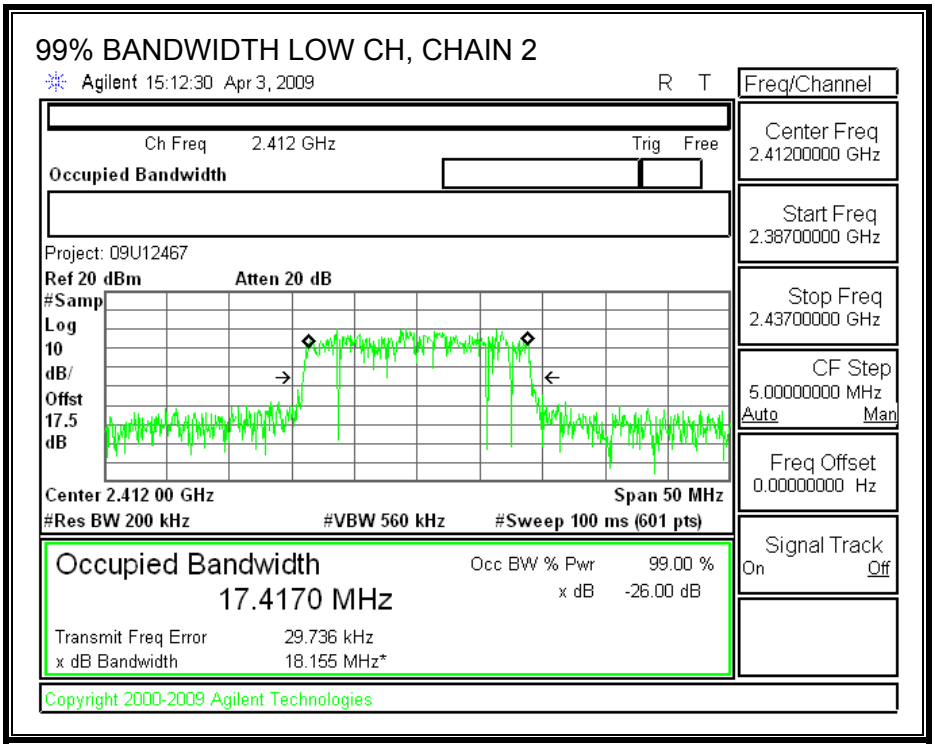
99% BANDWIDTH, CHAIN 1

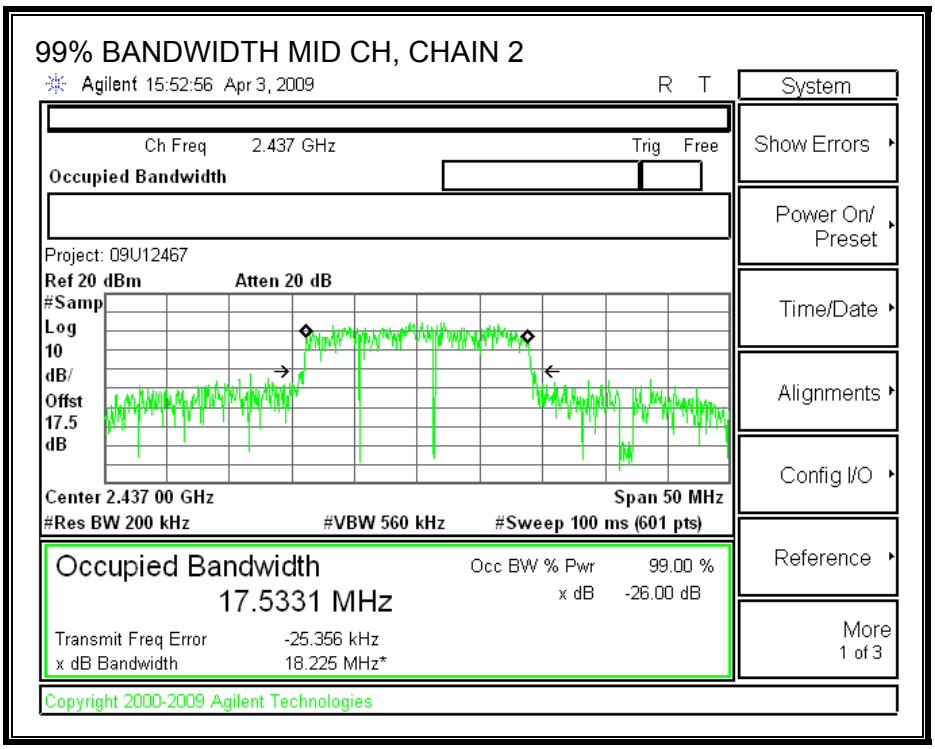


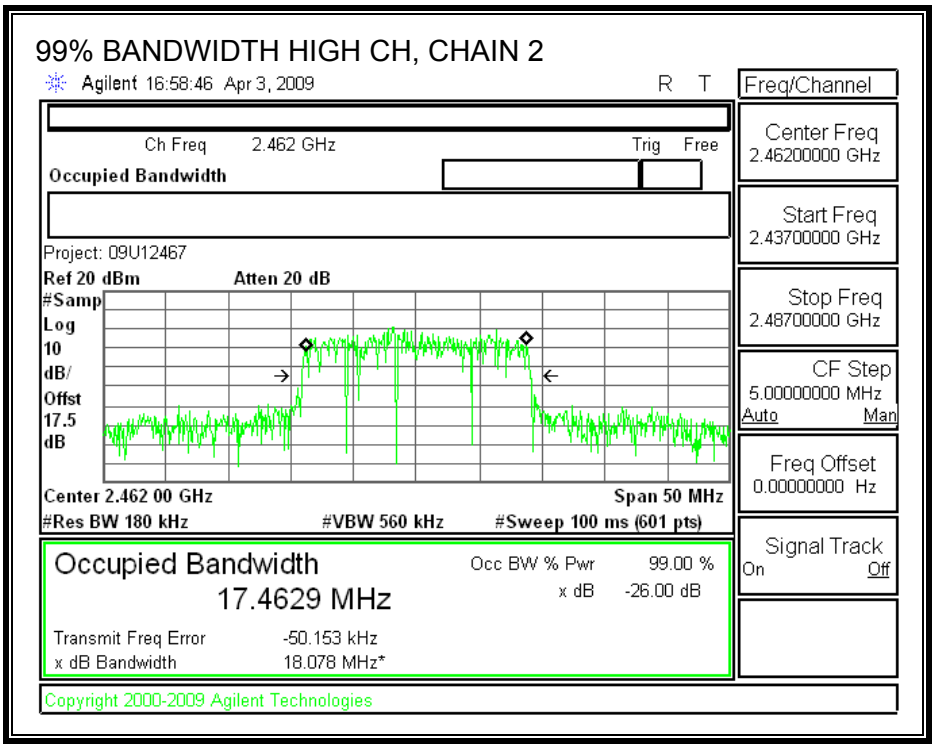




99% BANDWIDTH, CHAIN 2







7.3.3. OUTPUT POWER

LIMITS

FCC §15.247 (b), IC RSS-210 A8.4, LP0002 § 3.10.1 (2) (2.3); (3) (3.1.1)
The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.3 dB (including 10 dB pad and 1.3 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Limit (dBm)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Total Power (dBm)	Margin (dB)
Low	2412	30.00	22.88	22.79	25.85	-4.15
Low	2417	30.00	23.59	23.38	26.49	-3.51
Mid	2437	30.00	23.61	23.67	26.65	-3.35
High	2457	30.00	23.28	23.19	26.25	-3.75
High	2462	30.00	22.68	22.43	25.57	-4.43

7.3.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e), IC RSS-210 A8.2 (b), 3.10.1 (6) (6.2.2)
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

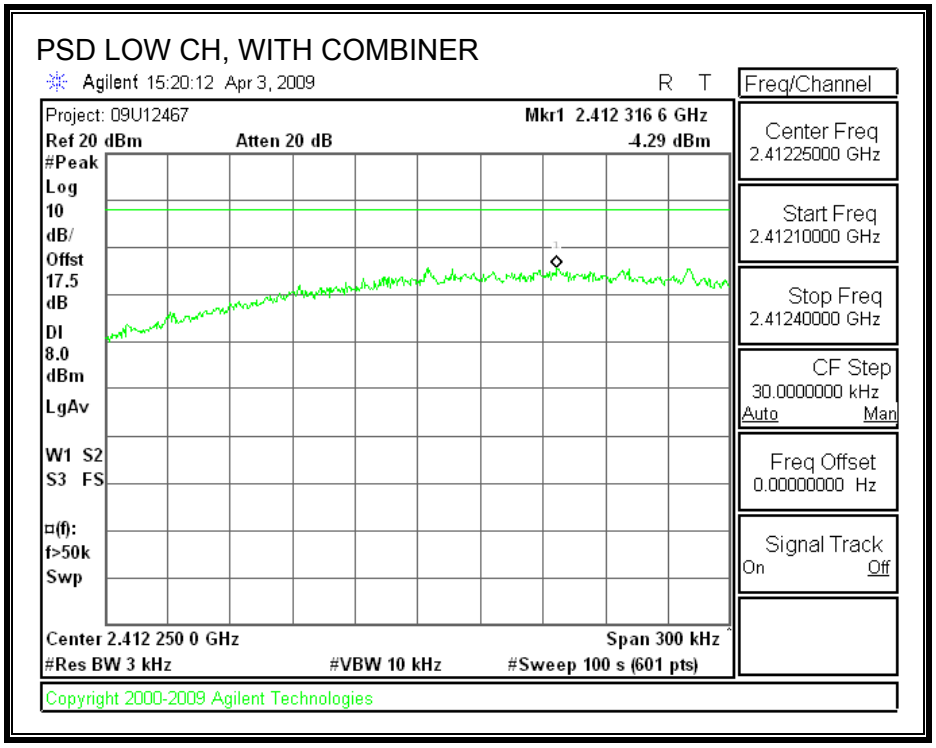
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

Channel	Frequency (MHz)	PSD with Combiner (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-4.29	8	-12.29
Low	2417	-1.68	8	-9.68
Middle	2437	-0.45	8	-8.45
High	2457	-2.76	8	-10.76
High	2462	-6.50	8	-14.50

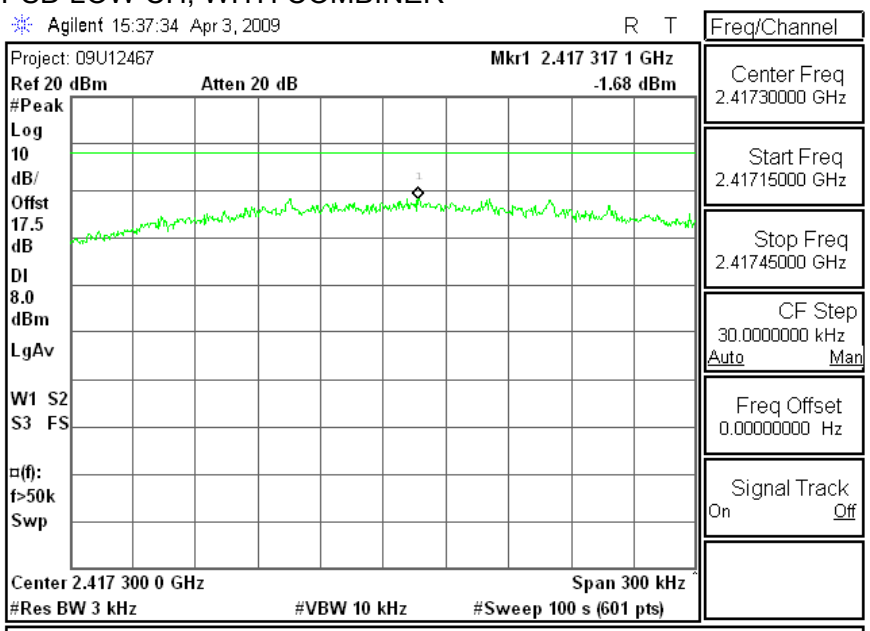
RESULTS

POWER SPECTRAL DENSITY, WITH COMBINER

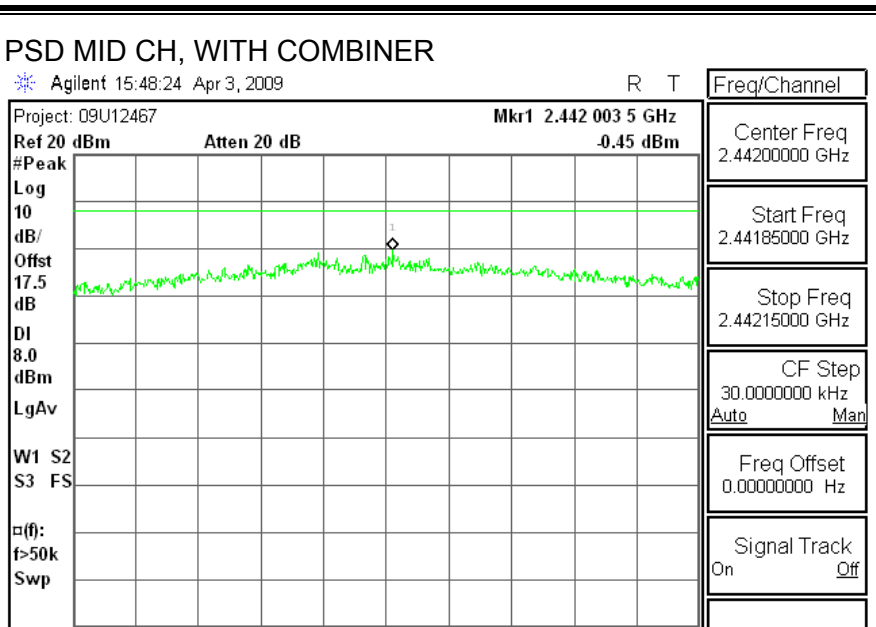
PSD LOW CH, WITH COMBINER



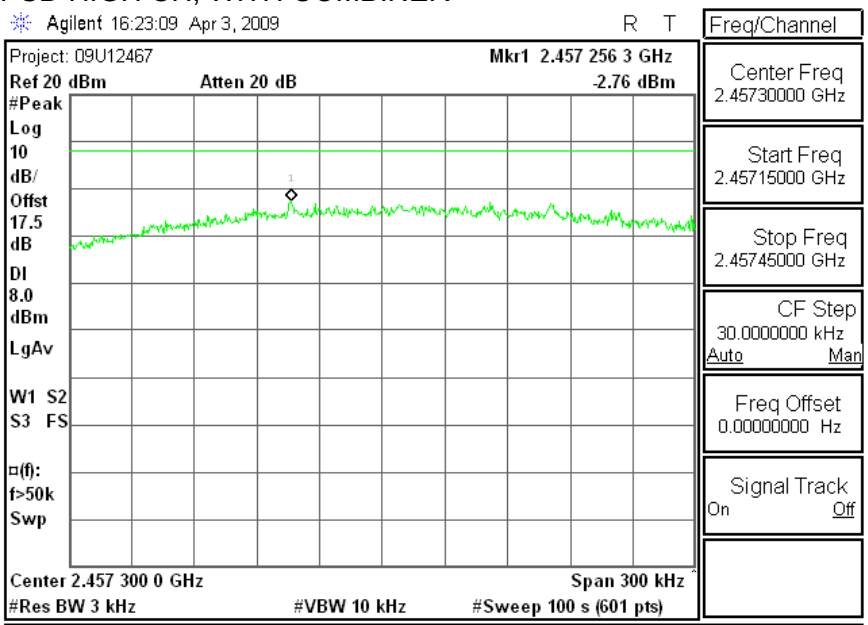
PSD LOW CH, WITH COMBINER



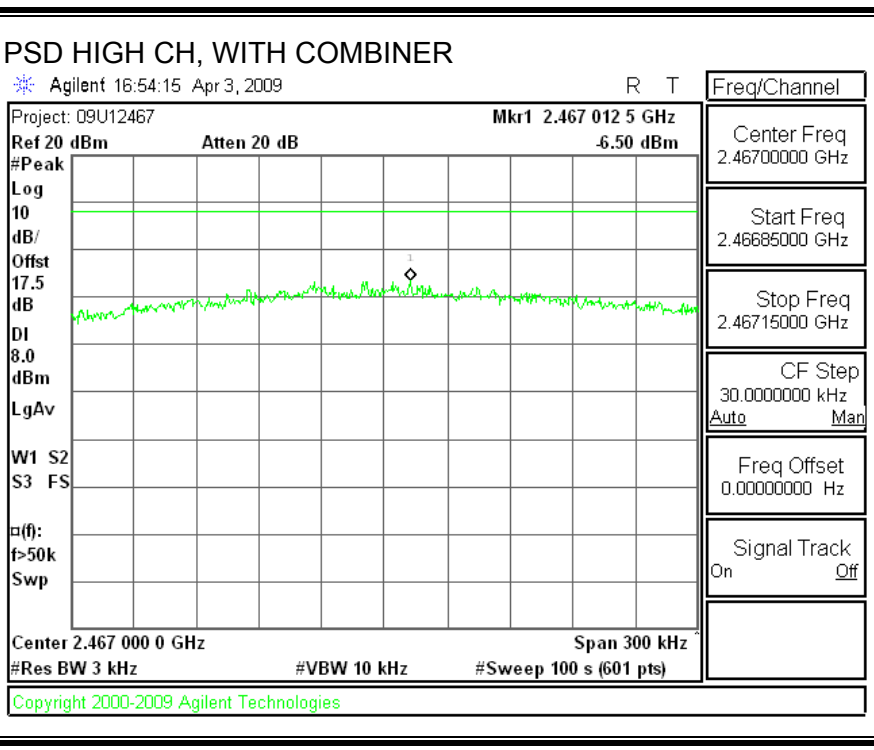
PSD MID CH, WITH COMBINER



PSD HIGH CH, WITH COMBINER



PSD HIGH CH, WITH COMBINER



7.3.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

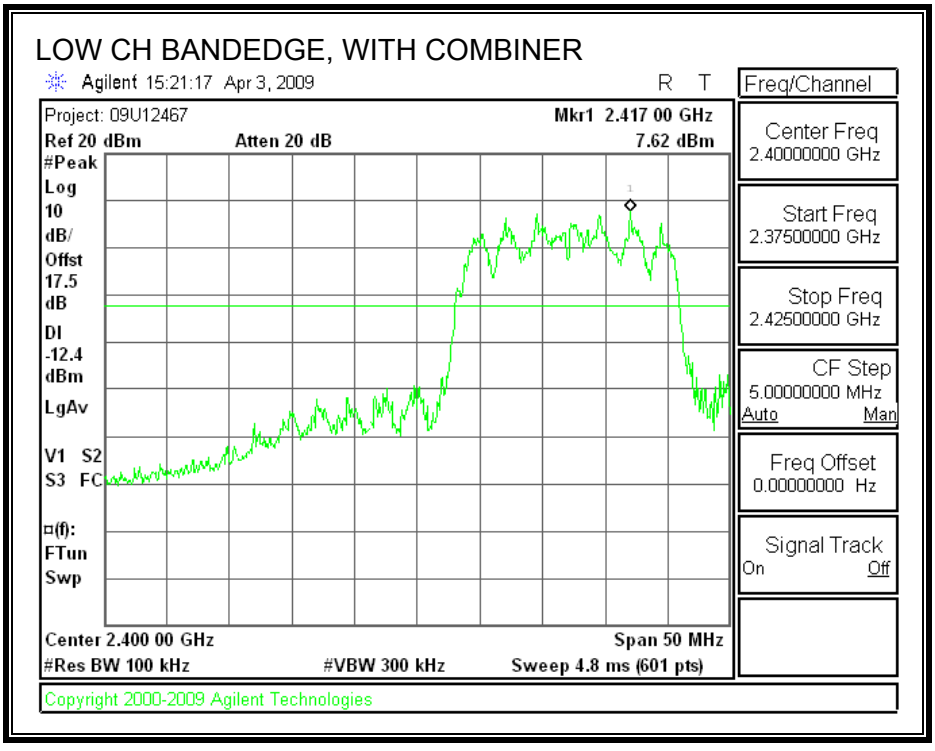
FCC §15.247 (d), IC RSS-210 A8.5, LP0002 § 3.10.1 (5)
Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

TEST PROCEDURE

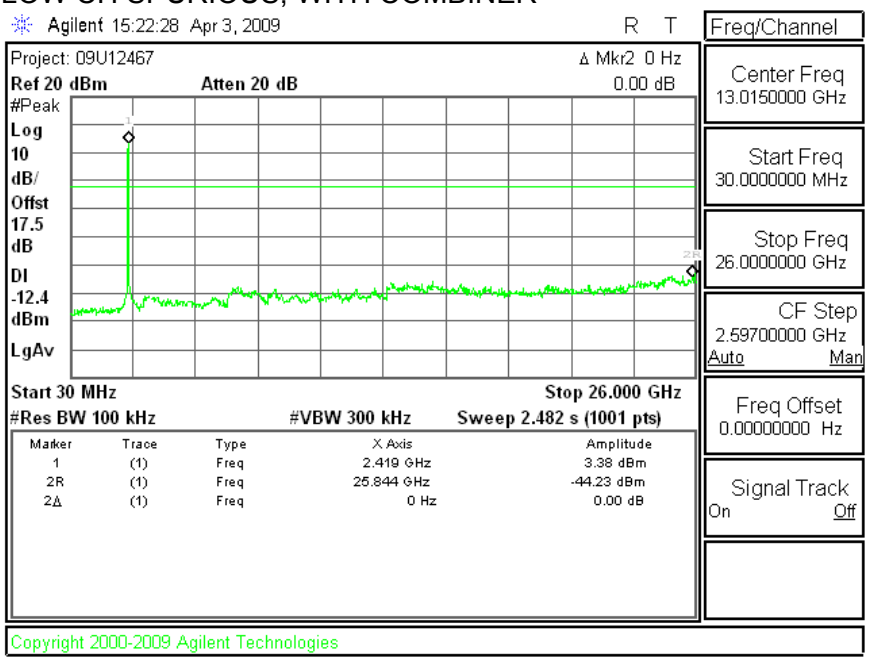
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

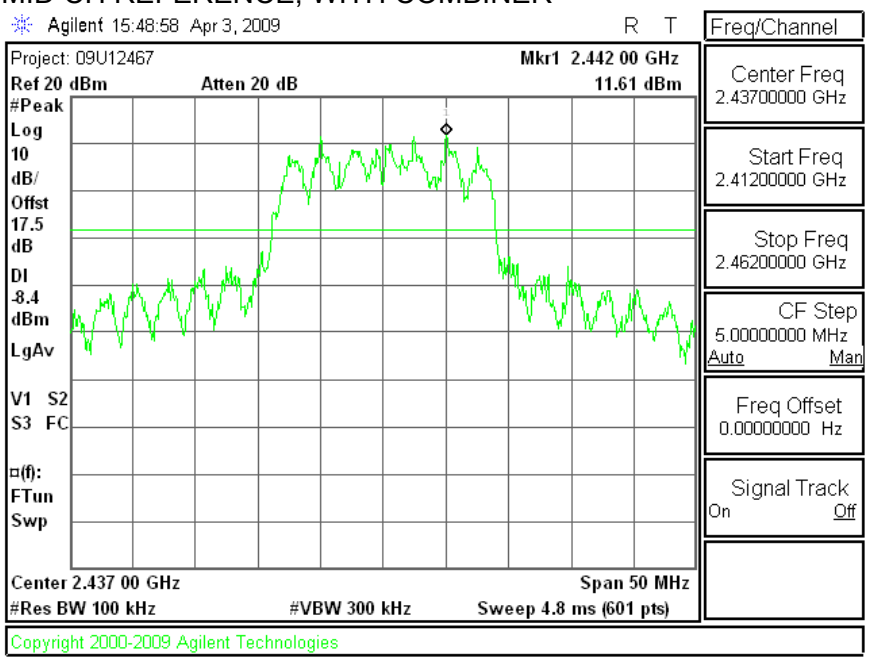
SPURIOUS EMISSIONS WITH COMBINER



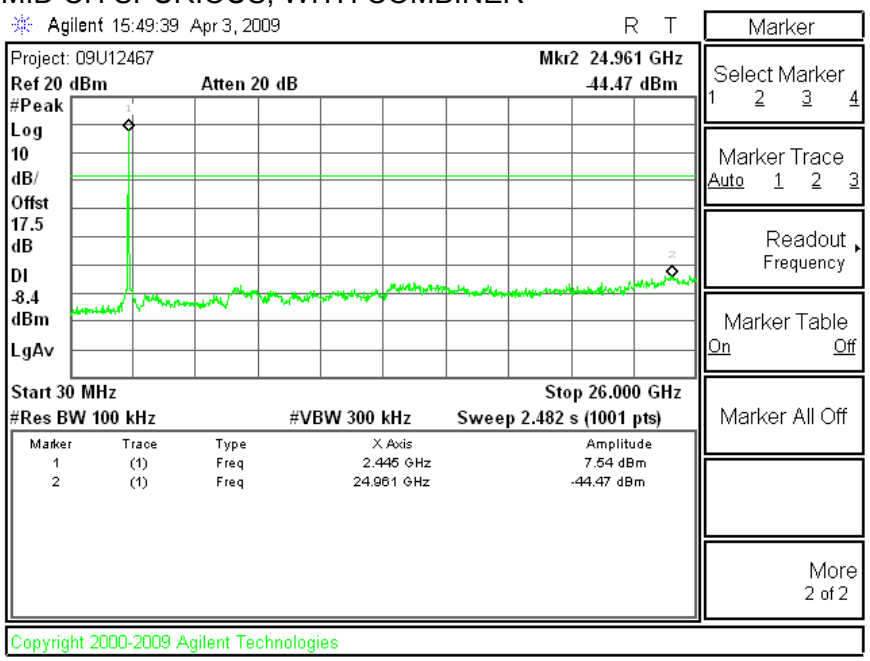
LOW CH SPURIOUS, WITH COMBINER



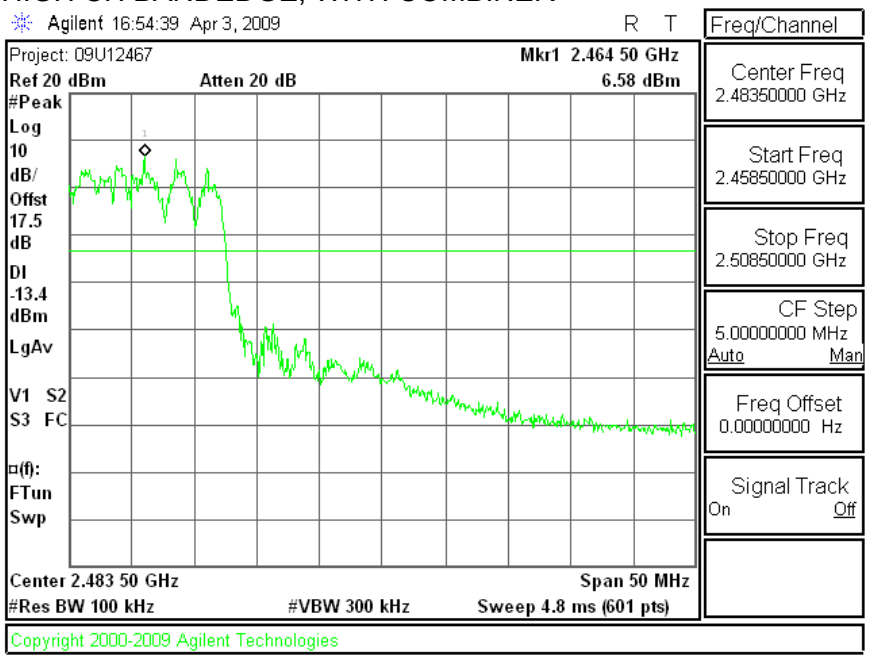
MID CH REFERENCE, WITH COMBINER



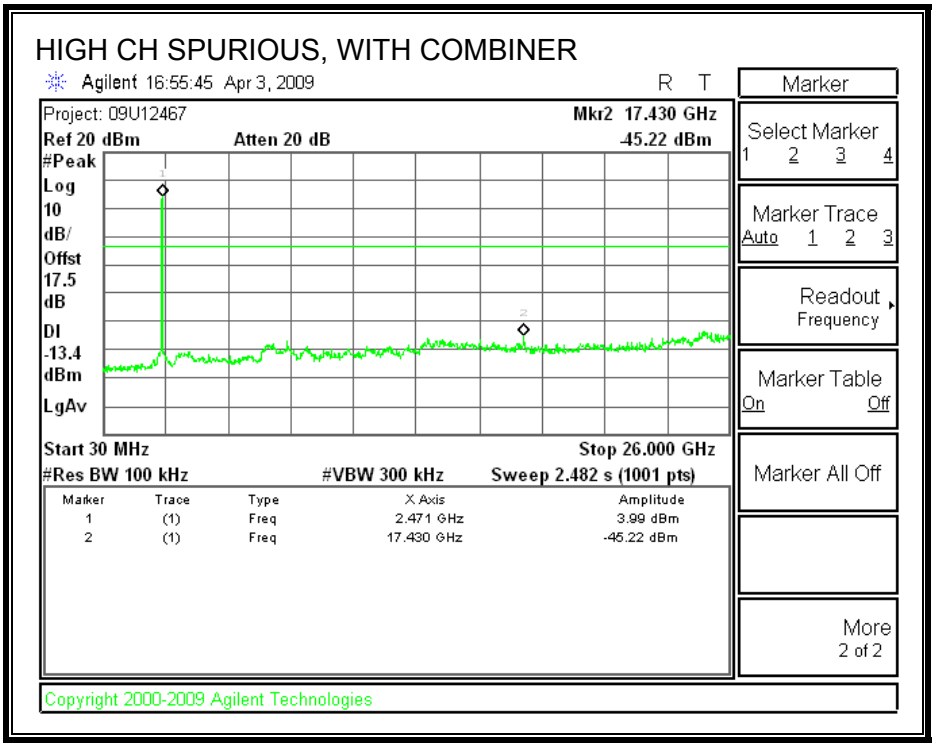
MID CH SPURIOUS, WITH COMBINER



HIGH CH BANDEDGE, WITH COMBINER



HIGH CH SPURIOUS, WITH COMBINER



7.4. 802.11n HT40 MODE IN THE 2.4 GHz BAND – MCS 0

7.4.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2), IC RSS-210 A8.2 (a) & LP0002 §3.10.1 (6) (6.2.1)
The minimum 6 dB bandwidth shall be at least 500 kHz.

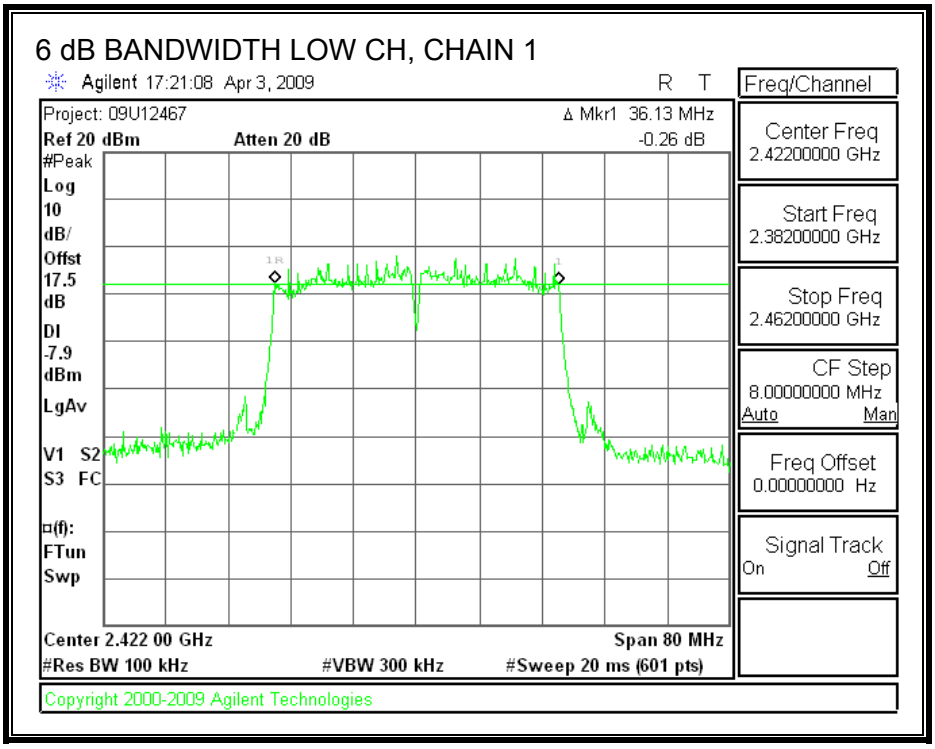
TEST PROCEDURE

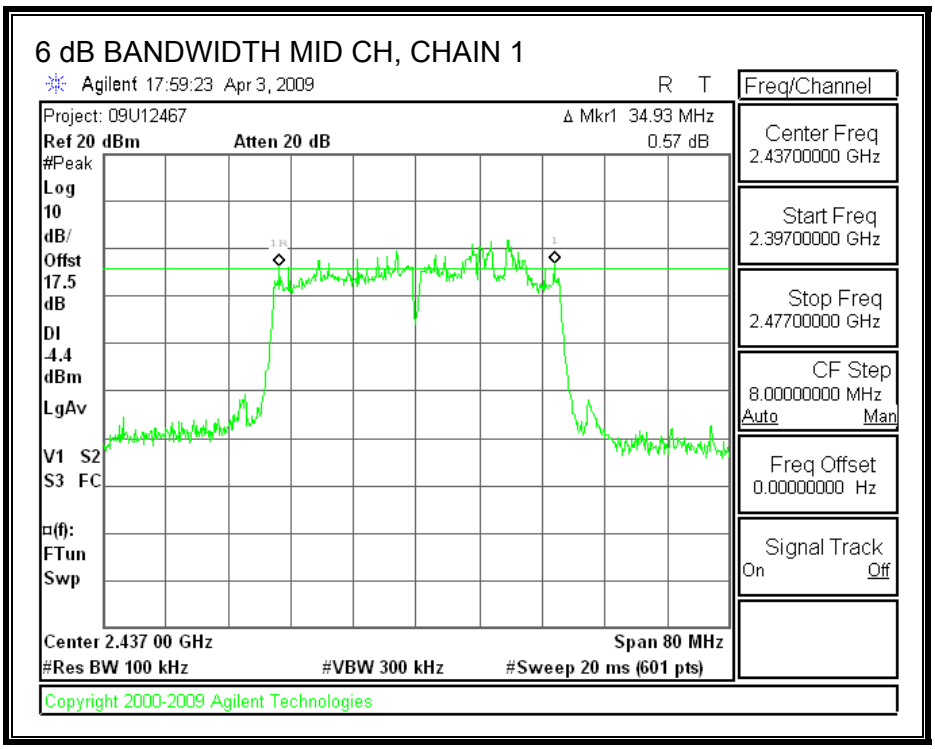
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

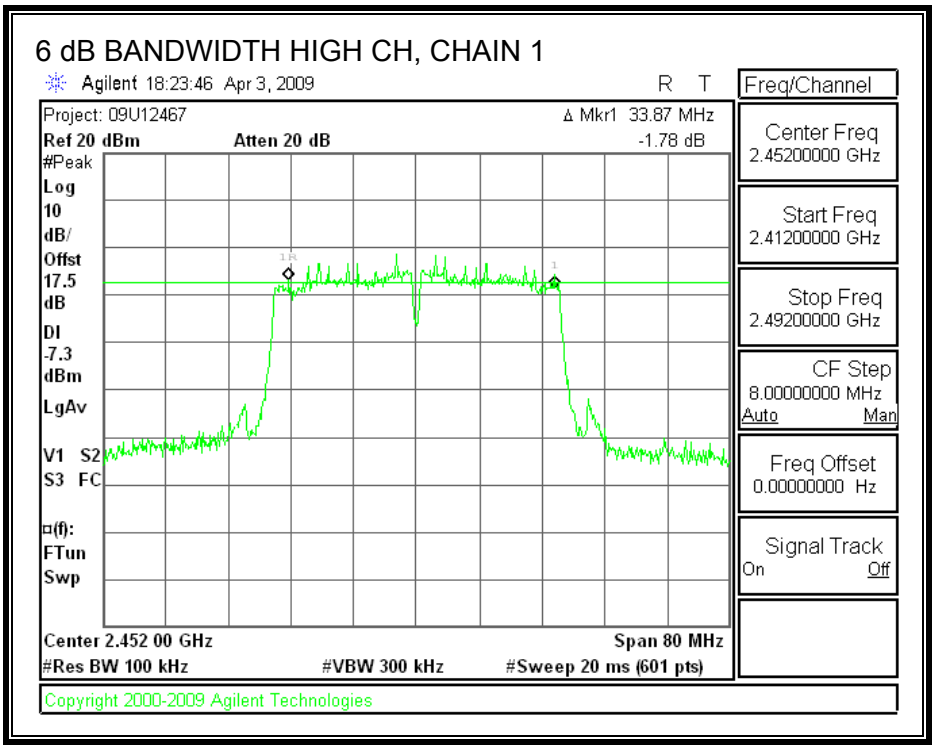
RESULTS

Channel	Frequency (MHz)	Chain 1 6 dB BW (MHz)	Chain 2 6 dB BW (MHz)	Minimum Limit (MHz)
Low	2422	36.13	35.73	0.5
Middle	2437	34.93	36.27	0.5
High	2452	33.87	36.27	0.5

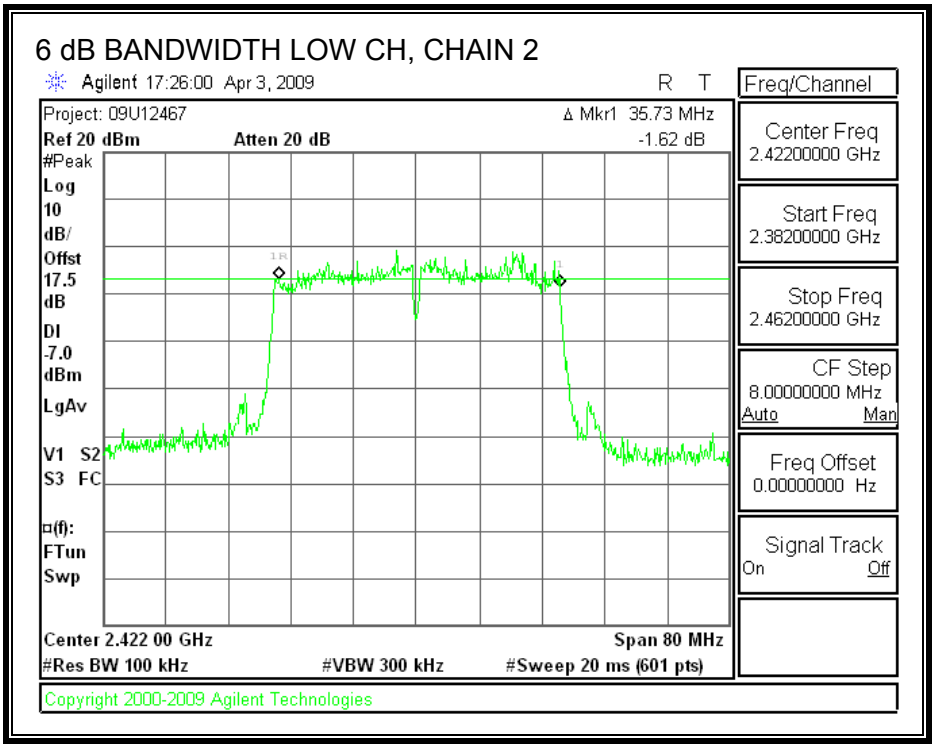
6 dB BANDWIDTH, CHAIN 1

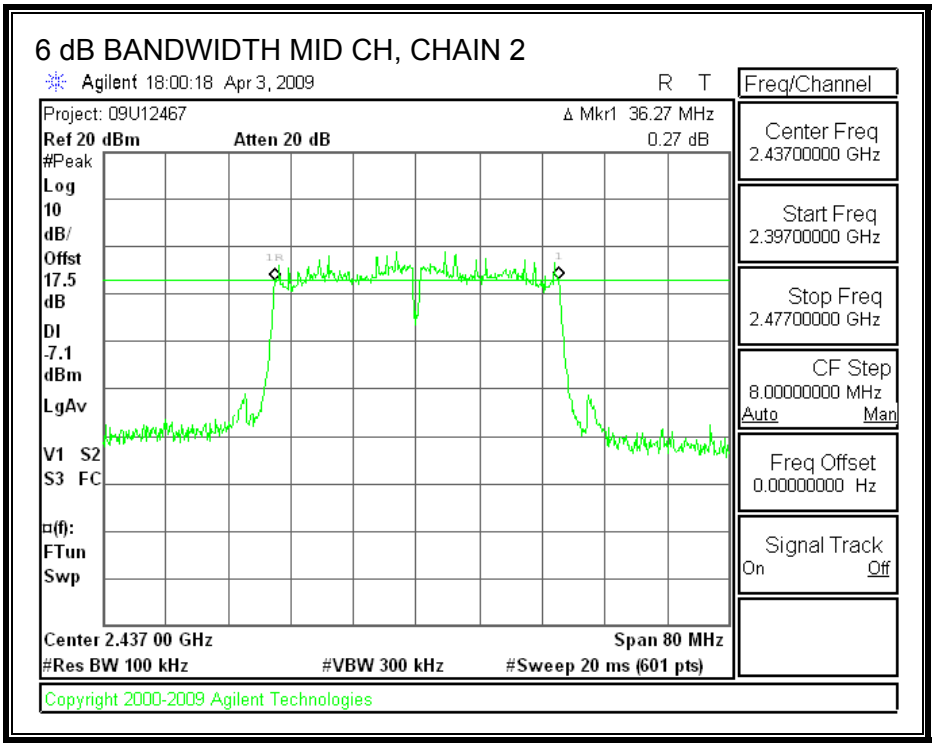


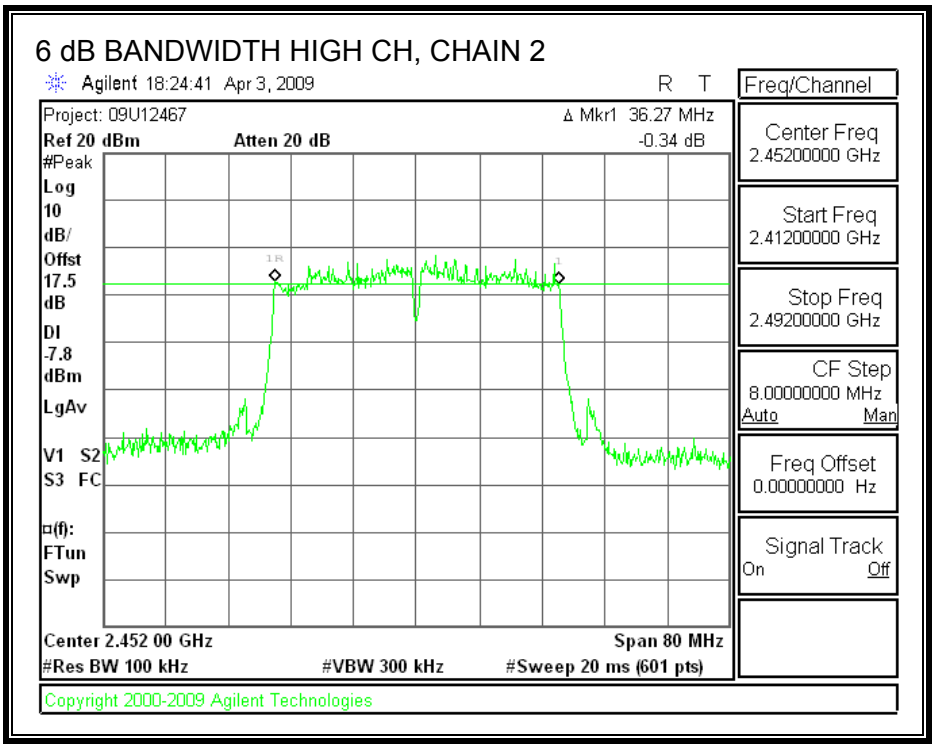




6 dB BANDWIDTH, CHAIN 2







7.4.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

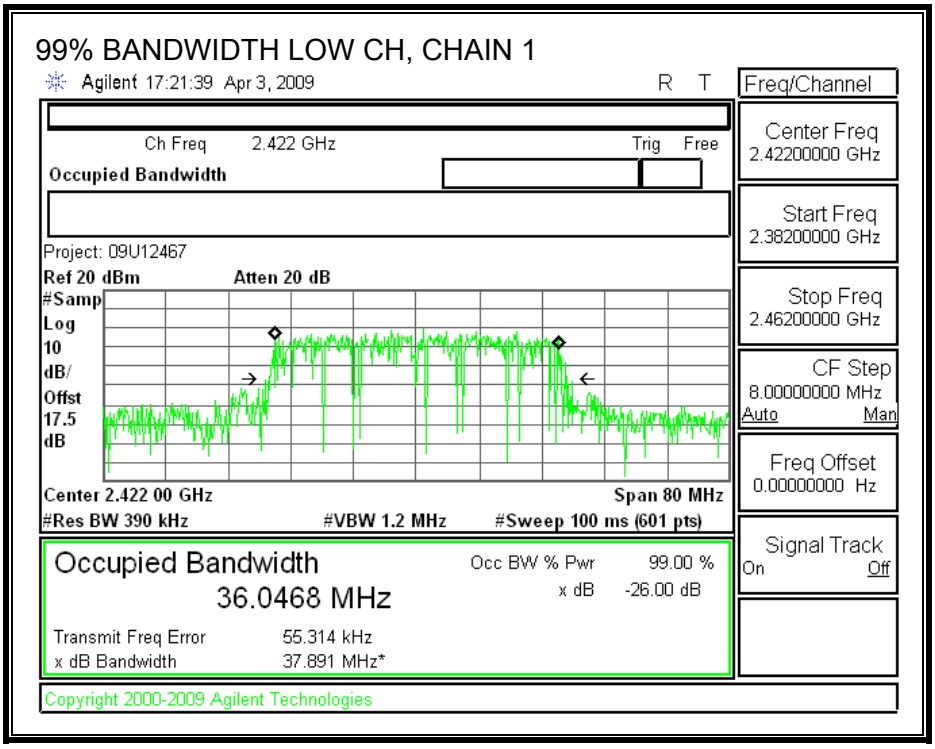
TEST PROCEDURE

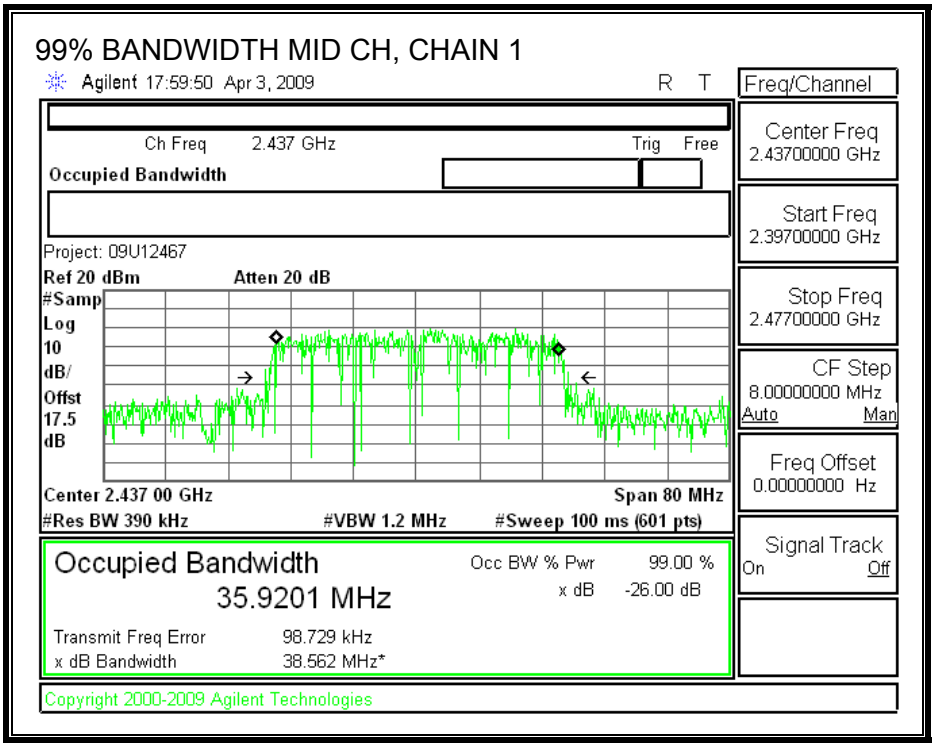
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

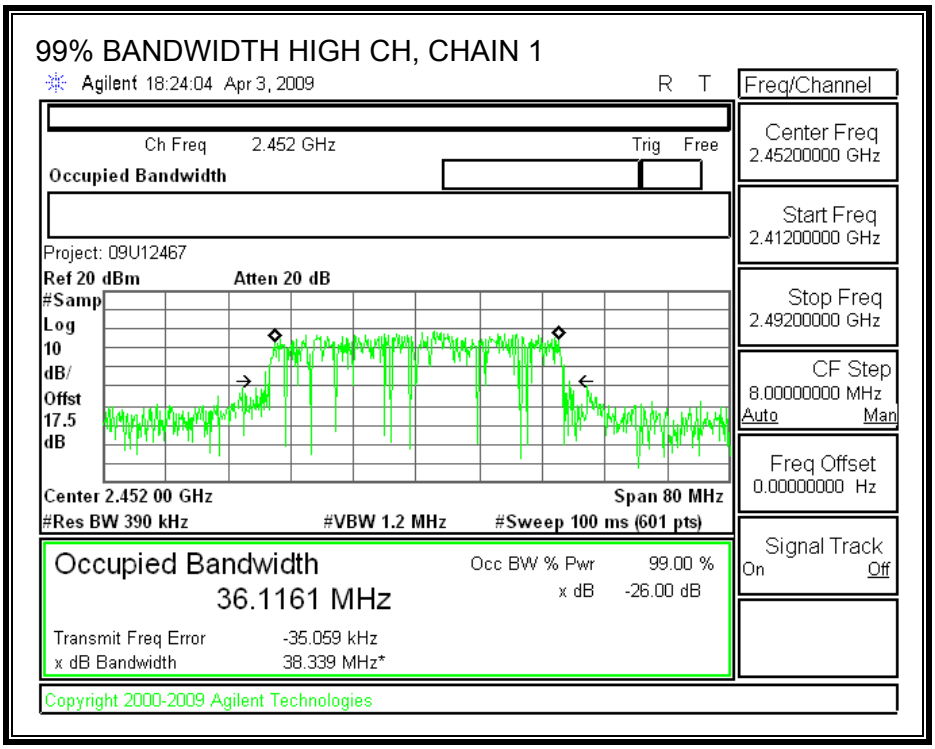
RESULTS

Channel	Frequency (MHz)	Chain 1 99% Bandwidth (MHz)	Chain 2 99% Bandwidth (MHz)
Low	2422	36.0468	36.3581
Middle	2437	35.9201	36.3041
High	2457	36.1161	36.1860

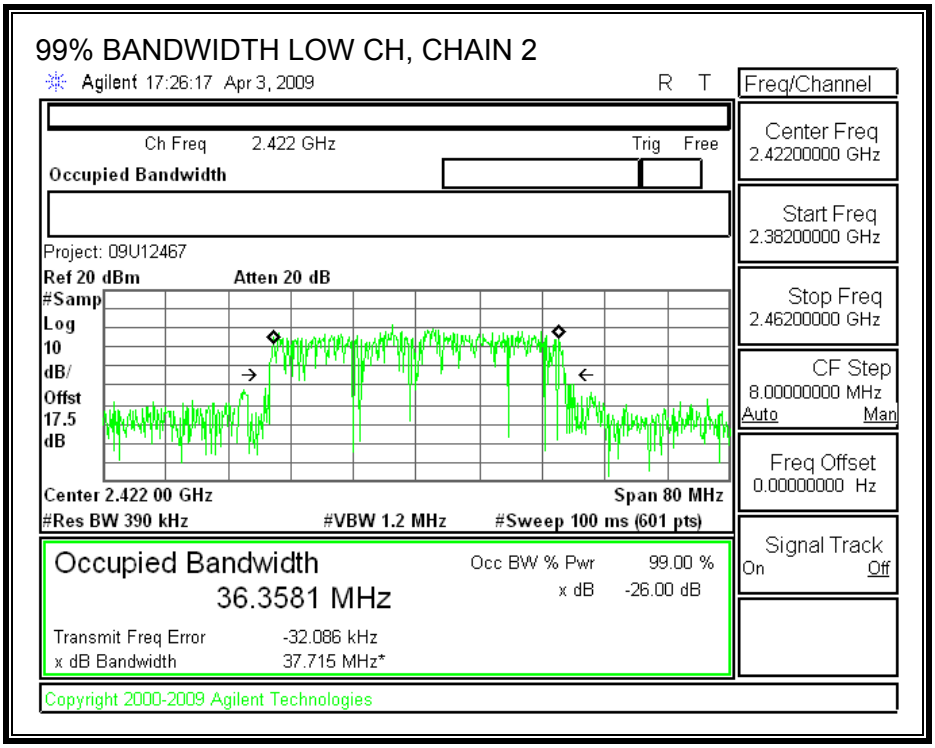
99% BANDWIDTH, CHAIN 1

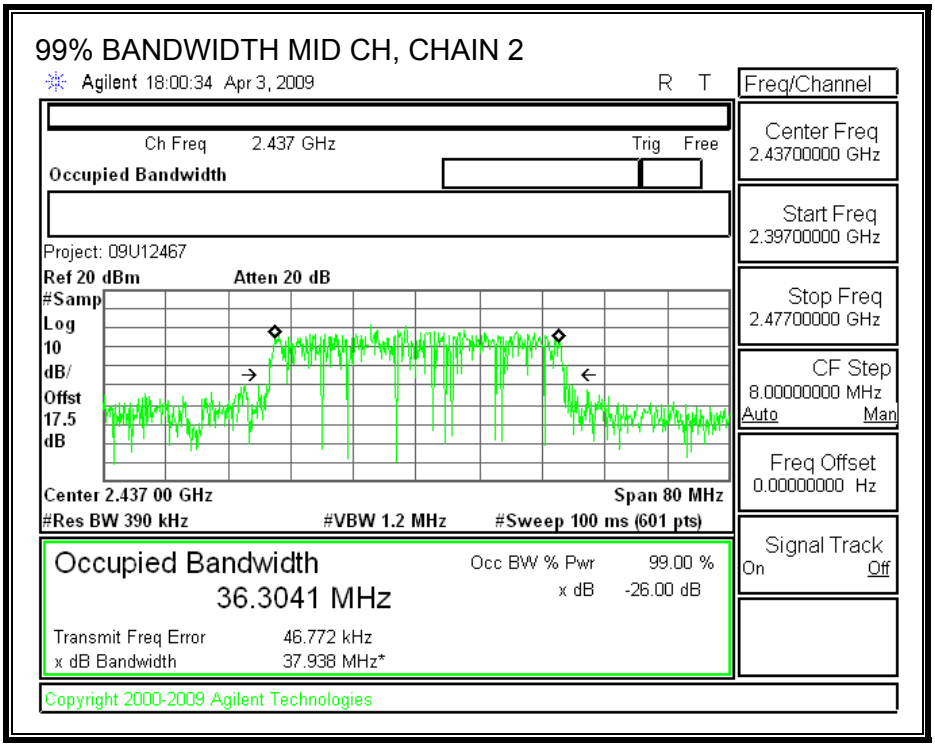


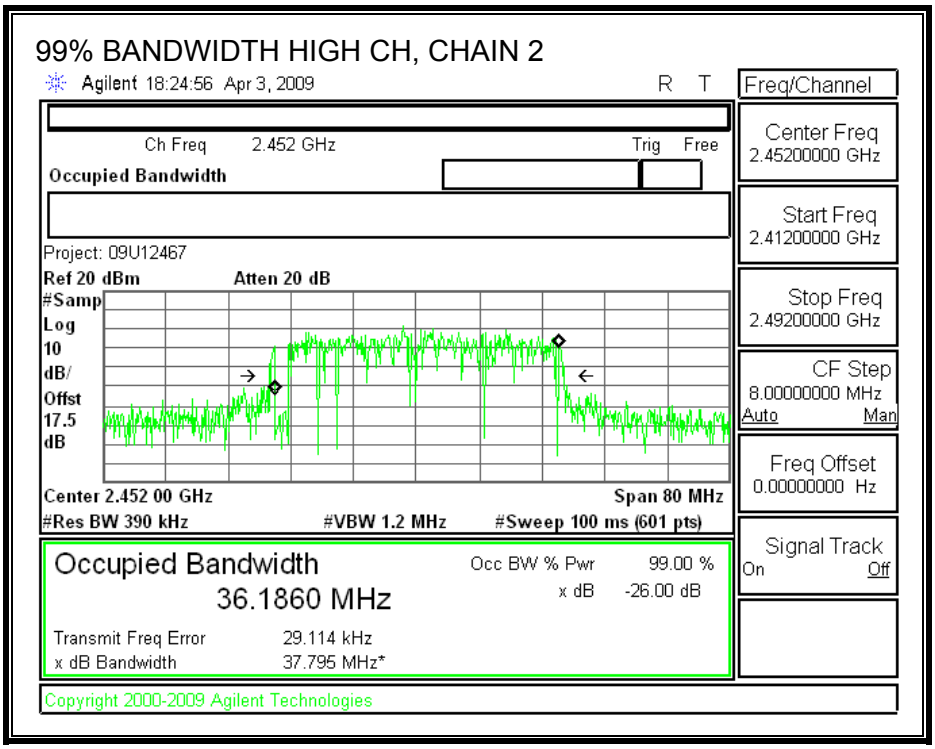




99% BANDWIDTH, CHAIN 2







7.4.3. OUTPUT POWER

LIMITS

FCC §15.247 (b), IC RSS-210 A8.4, LP0002 § 3.10.1 (2) (2.3); (3) (3.1.1)
The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

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

RESULTS

Channel	Frequency (MHz)	Limit (dBm)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Total Power (dBm)	Margin (dB)
Low	2422	30.00	20.45	20.76	23.62	-6.38
Low	2427	30.00	21.12	20.98	24.06	-5.94
Mid	2437	30.00	21.92	21.41	24.68	-5.32
High	2452	30.00	21.34	21.23	24.30	-5.70
High	2452	30.00	20.41	20.31	23.37	-6.63

7.4.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e), IC RSS-210 A8.2 (b), 3.10.1 (6) (6.2.2)

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.

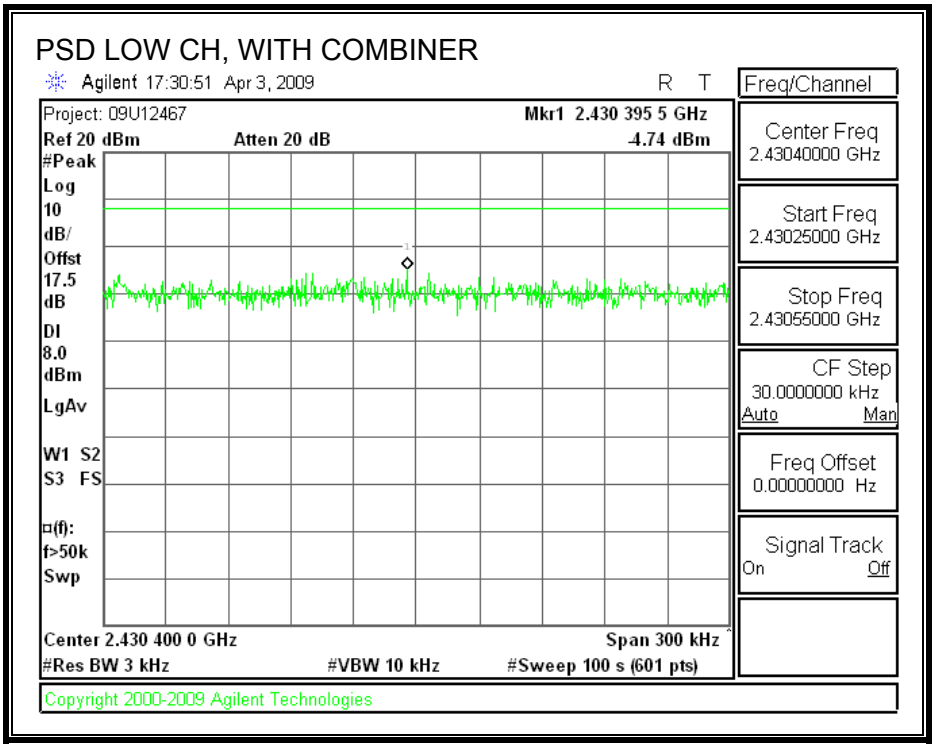
TEST PROCEDURE

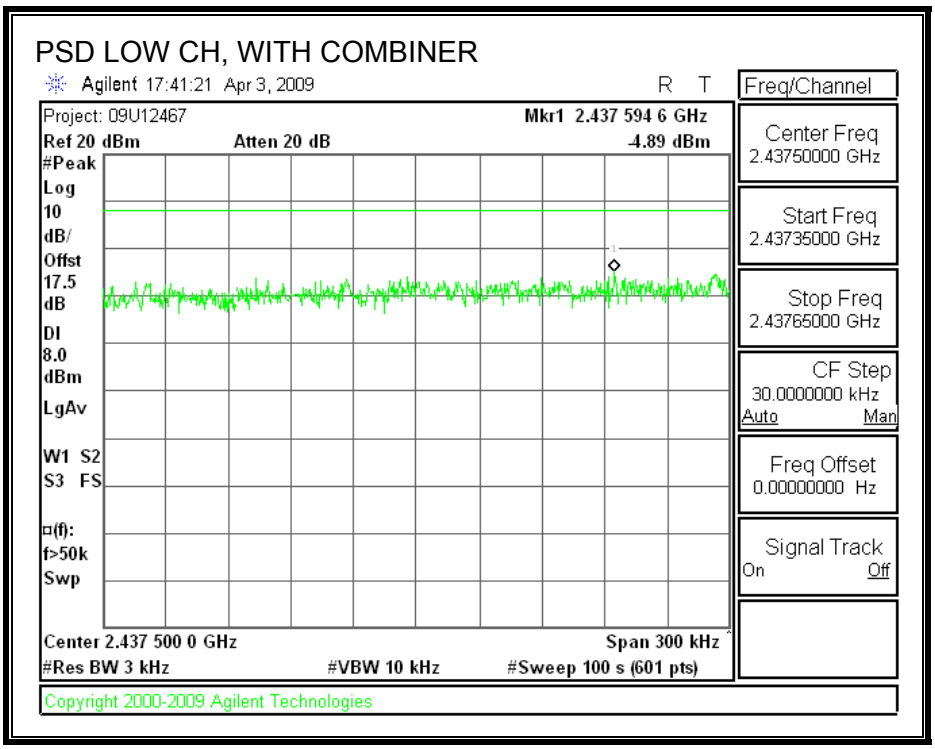
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

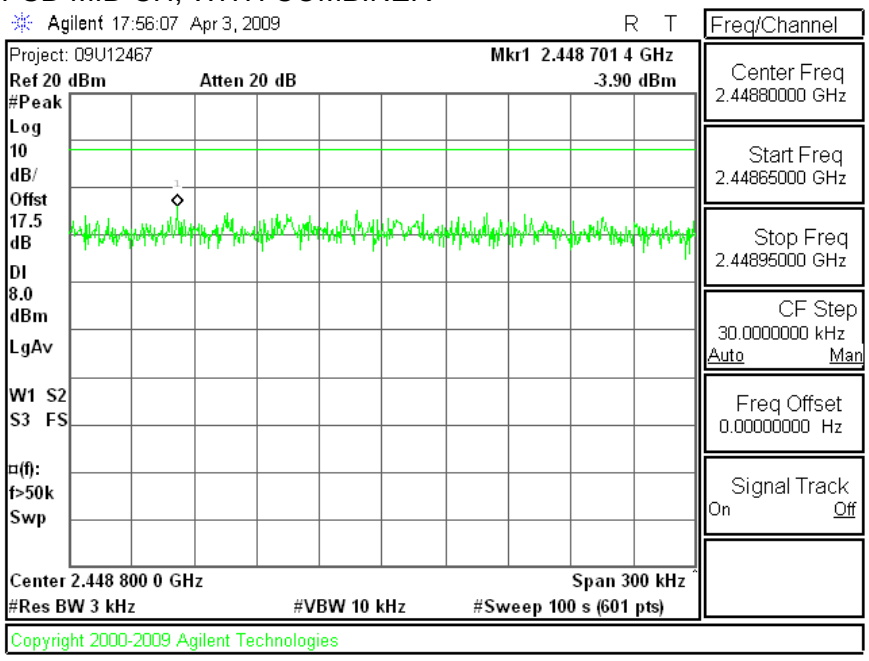
Channel	Frequency (MHz)	PSD with Combiner (dBm)	Limit (dBm)	Margin (dB)
Low	2422	-4.74	8	-12.74
Low	2427	-4.89	8	-12.89
Middle	2437	-3.90	8	-11.90
High	2447	-4.93	8	-12.93
High	2452	-4.94	8	-12.94

POWER SPECTRAL DENSITY, WITH COMBINER

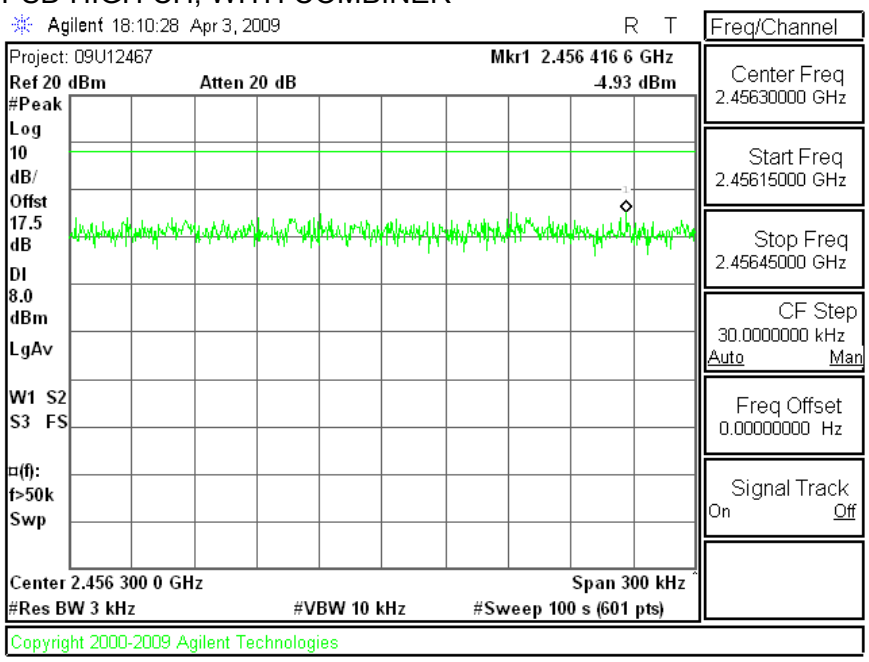




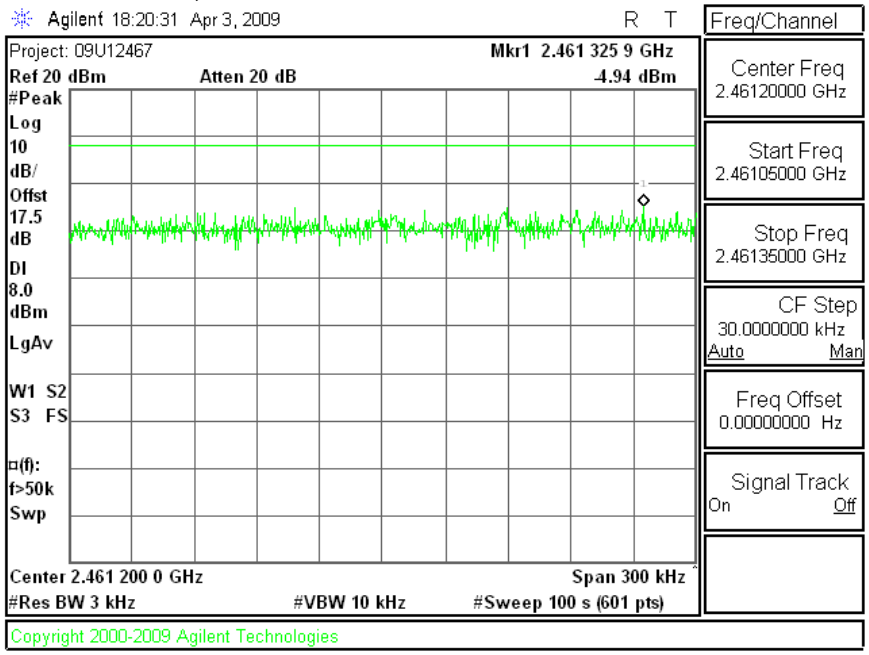
PSD MID CH, WITH COMBINER



PSD HIGH CH, WITH COMBINER



PSD HIGH CH, WITH COMBINER



7.4.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d), IC RSS-210 A8.5, LP0002 § 3.10.1 (5)

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

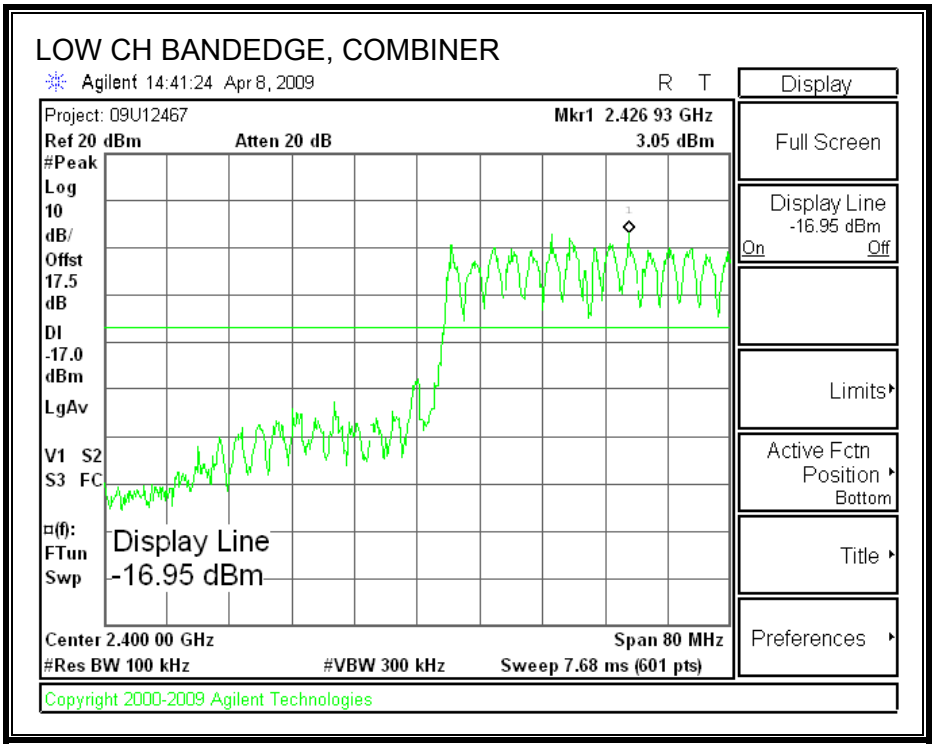
TEST PROCEDURE

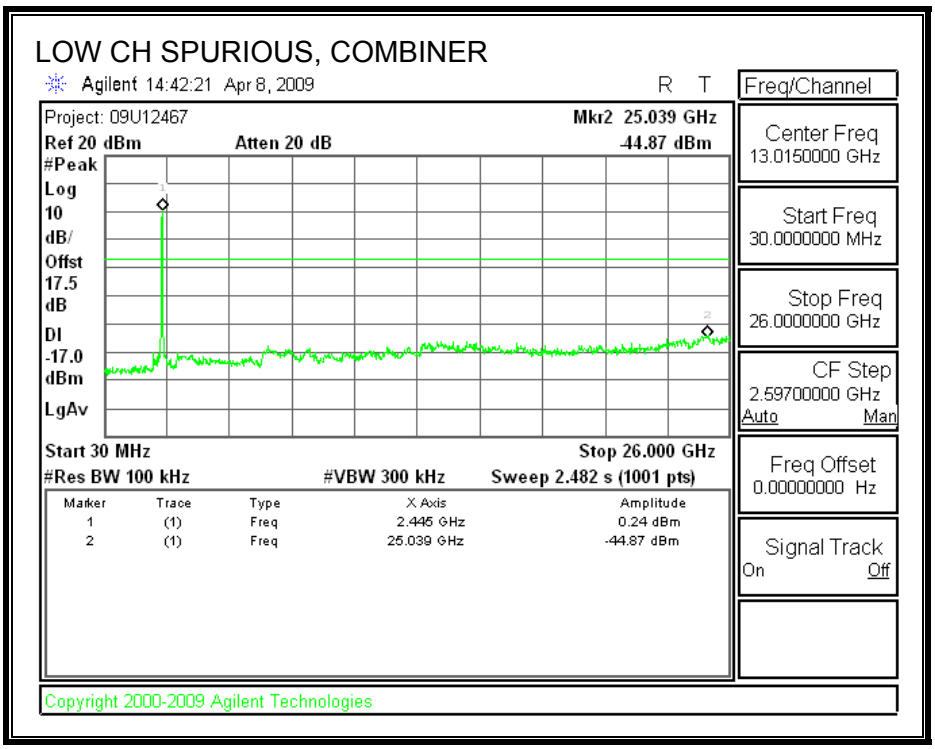
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

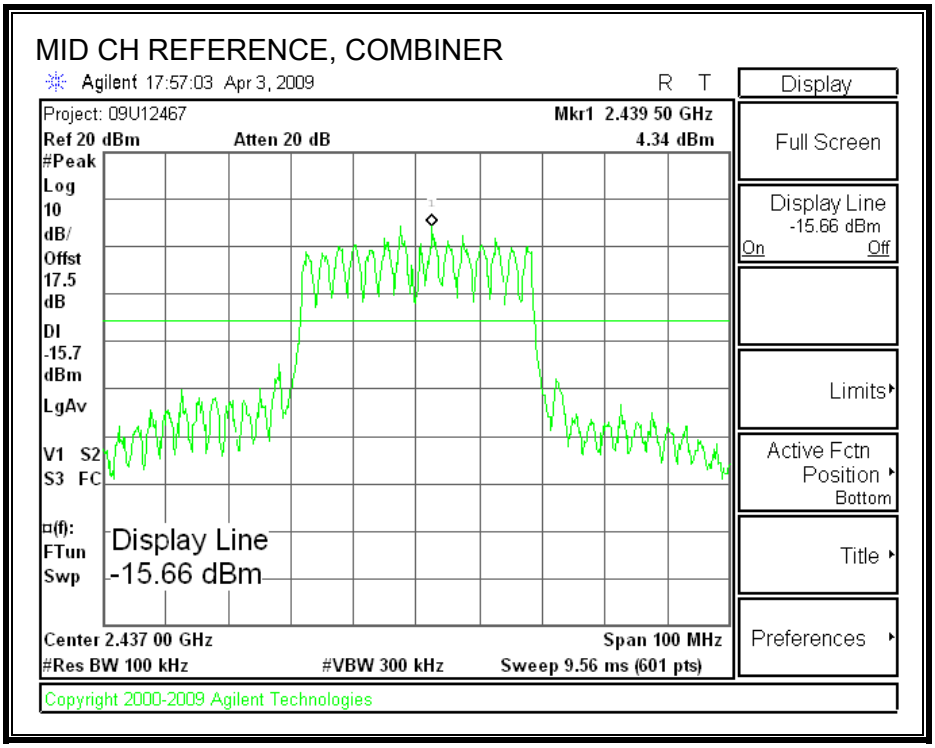
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

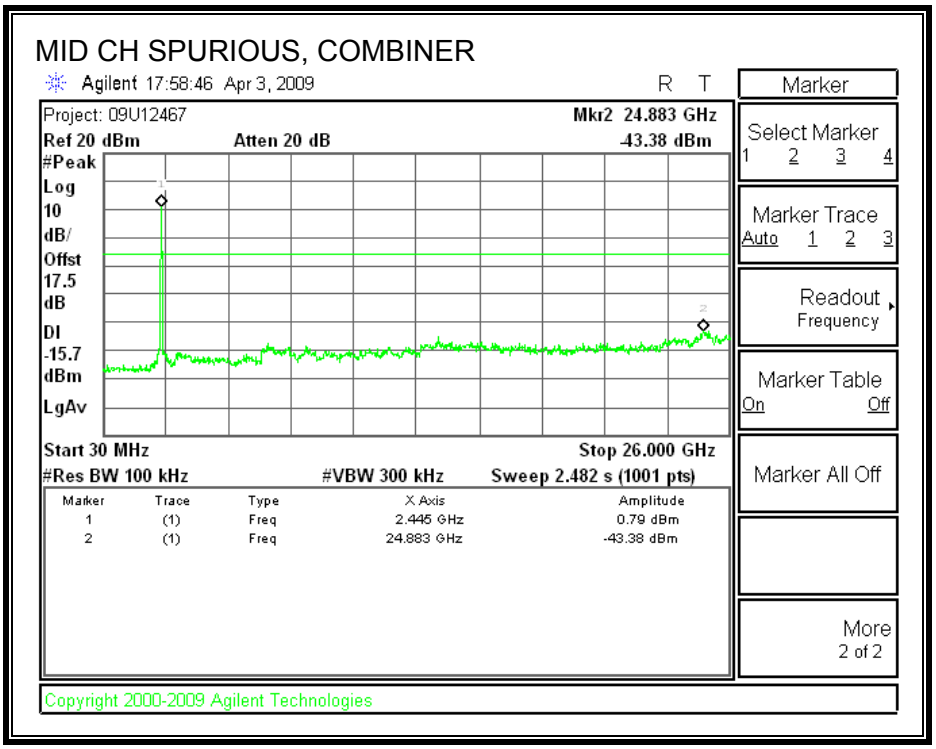
RESULTS

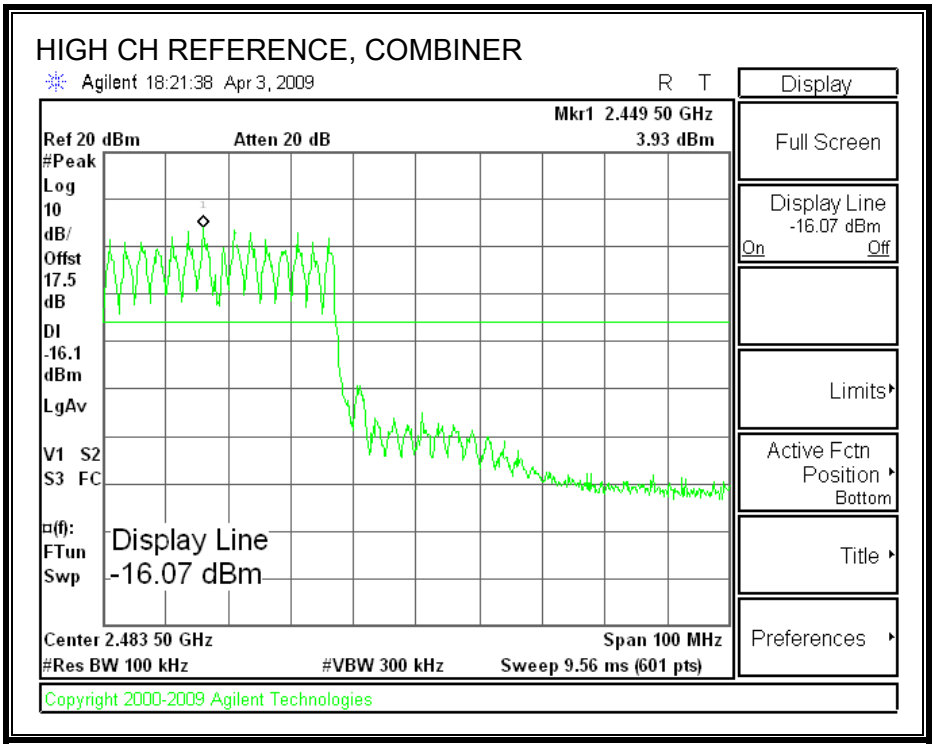
COMBINER SPURIOUS EMISSIONS

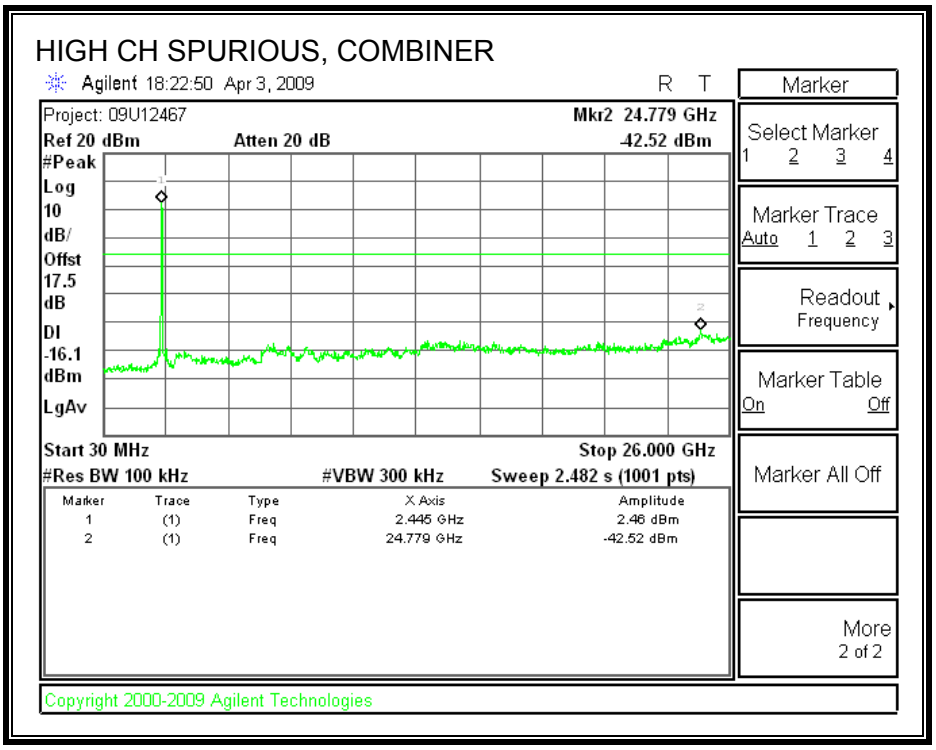












7.5. 802.11n HT40 MODE IN THE 2.4 GHz BAND – MCS 12

7.5.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2), IC RSS-210 A8.2 (a) & LP0002 §3.10.1 (6) (6.2.1)
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)	Chain 1 6 dB BW (MHz)	Chain 2 6 dB BW (MHz)	Minimum Limit (MHz)
Low	2422	36.00	35.07	0.5
Middle	2437	36.13	35.87	0.5
High	2452	36.00	36.00	0.5