FCC CFR47 PART 15 SUBPART E
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

802.11a/g/n/ac WLAN + BLUETOOTH PCI-E CUSTOM COMBINATION CARD

MODEL NUMBER: BCM94360CS2

FCC ID: QDS-BRCM1072
IC: 4324A-BRCM1072

REPORT NUMBER: 13U14796-1, Revision A

ISSUE DATE: MARCH 21, 2013

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	03/18/13	Initial Issue	F. Ibrahim
A	03/21/13	Revised sections 2, 5.2, 8.1, 8.2.3, 8.9, 8.11, 8.16, 8.20, 9.2.1, 9.2.9, 9.2.12, 9.2.16, 9.2.20	F. Ibrahim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	BROADCOM CORPORATION 190 MATHILDA PLACE SUNNYVALE, CA 94086, U.S.A.
EUT DESCRIPTION:	802.11a/g/n/ac WLAN + Bluetooth PCI-E Custom Combination Card
MODEL:	BCM94360CS2
SERIAL NUMBER:	C8Y2521000NFC31EM & C8Y2521000FC31EK
DATE TESTED:	January 10 to March 21, 2013

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

UL CCS tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:

FRANK IBRAHIM
WiSE PROJECT LEAD
UL CCS

Tested By:

VIEN TRAN
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10:2009, RSS-GEN Issue 3, and RSS-210 Issue 8.

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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11a/g/n/ac WLAN + Bluetooth PCI-E Custom Combination Card.

The radio module is manufactured by Broadcom.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

2400 - 2483.5 MHz Authorized Frequency Band					
Frequency Range (MHz)	Mode	Power, Chain 0 (dBm)	Power, Chain 1 (dBm)	Total power (dBm)	Total power (mW)
2412 - 2462	802.11b CDD 2TX	20.60	20.20	23.41	219.53
2412 - 2462	802.11g Legacy 1TX	20.32	N/A	20.32	107.65
2412 - 2462	802.11n HT20 CDD 2TX	20.25	20.08	23.18	207.78
5725 - 5850 MHz Authorized Frequency Band					
Frequency Range (MHz)	Mode	Power, Chain 0 (dBm)	Power, Chain 1 (dBm)	Total power (dBm)	Total power (mW)
5745 - 5825	802.11n HT20 CDD 2TX	20.10	20.11	23.12	204.89
5755 - 5795	802.11n HT40 CDD 2TX	20.10	20.10	23.11	204.66
5775 MHz	802.11n AC80 CDD 2TX	17.21	17.10	20.17	103.89
5775 MHz	802.11n AC80 1TX	18.35	N/A	18.35	68.39

List of test reduction and modes covering other modes:

2400 - 2483.5 MHz Authorized Frequency Band (Antenna Port Testing)		
Frequency Range (MHz)	**Mode**	**Covered by**
2412 - 2462	802.11b Legacy 1TX	802.11b CDD 2TX
2412 - 2462	802.11g CDD 2TX	802.11n HT20 CDD 2TX
2412 - 2462	802.11g BF 2TX	802.11n HT20 BF 2TX
2412 - 2462	802.11n HT20 1TX	802.11g Legacy 1TX
2412 - 2462	802.11n HT20 BF 2TX	802.11n HT20 CDD 2TX

5725 - 5850 MHz Authorized Frequency Band (Antenna Port Testing)		
Frequency Range (MHz)	**Mode**	**Covered by**
5745 - 5825	802.11a Legacy 1TX	802.11n HT20 CDD 2TX
5745 - 5825	802.11a CDD 2TX	802.11n HT20 CDD 2TX
5745 - 5825	802.11n HT20 1TX	802.11n HT20 CDD 2TX
5745 - 5825	802.11a BF 2TX	802.11n HT20 BF 2TX
5745 - 5825	802.11n HT20 BF 2TX	802.11n HT20 CDD 2TX
5745 - 5825	802.11n AC20 BF 2TX	802.11n HT20 CDD 2TX
5755 - 5795	802.11n HT40 1TX	802.11n HT40 CDD 2TX
5755 - 5795	802.11n HT40 BF 2TX	802.11n HT40 CDD 2TX
5755 - 5795	802.11n AC40 BF 2TX	802.11n HT40 CDD 2TX
5775	802.11n AC80 1TX	802.11n AC80 CDD 2TX
5775	802.11n AC80 BF 2TX	802.11n AC80 CDD 2TX

2400 - 2483.5 MHz Authorized Frequency Band (Radiated Testing)		
Frequency Range (MHz)	**Mode**	**Covered by**
2412 - 2462	802.11b Legacy 1TX	802.11b CDD 2TX
2412 - 2462	802.11g Legacy 1TX (Harmonics)	802.11n HT20 CDD 2TX (Harmonics)
2412 - 2462	802.11g CDD 2TX	802.11n HT20 CDD 2TX
2412 - 2462	802.11g BF 2TX	802.11n HT20 BF 2TX
2412 - 2462	802.11n HT20 1TX	802.11g Legacy 1TX

5725 - 5850 MHz Authorized Frequency Band (Radiated Testing)		
Frequency Range (MHz)	**Mode**	**Covered by**
5745 - 5825	802.11g Legacy 1TX	802.11n HT20 CDD 2TX
5745 - 5825	802.11a CDD 2TX	802.11n HT20 CDD 2TX
5745 - 5825	802.11a BF 2TX	802.11n AC20 BF 2TX
5745 - 5825	802.11n HT20 1TX	802.11n HT20 CDD 2TX
5745 - 5825	802.11n HT20 BF 2TX	802.11n AC20 BF 2TX
5755 - 5795	802.11n HT40 1TX	802.11n HT40 CDD 2TX
5755 - 5795	802.11n HT40 BF 2TX	802.11n AC40 BF 2TX
5775	802.11n AC80 1TX	802.11n AC80 2TX

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

No.	Antenna Manufacturer	Antenna Type	Model	Peak gain @ 2412, 2422, 2432MHz,	Peak gain (5150-5250MHz) @5200MHz	Peak gain (5250-5350MHz) @5320MHz	Peak gain (5470-5725MHz) @5600, 5700MHz	Peak gain (5725-5850MHz) @5785, 5805MHz	
1	Amphenol/ Pulse	802.11abgn WLAN/BT Antenna	631-1546 WiFi 1	1.67	5.83	6.12	5.27	4.39	Host 1
1	Amphenol/ Pulse	802.11abgn WLAN Antenna	631-1546 WiFi 2	5.98	5.75	5.57	5.89	5.29	
2	Amphenol/ Pulse	802.11abgn WLAN/BT Antenna	631-1547 WiFi 1	4.97	4.07	4.93	5.77	4.9	Host 2
2	Amphenol/ Pulse	802.11abgn WLAN Antenna	631-1547 WiFi 2	4.67	4.74	5.21	6.51	5.29	
2	Amphenol/ Pulse	802.11abgn WLAN/BT Antenna	631-1547 BT	4.97					

Notes:

- This table includes two sets of antennas, first set is identified by number (1) in the first column, and the second set is identified by number (2) in the first column.
- Red numbers in this table are the highest antenna gain used for SISO antenna port testing as worst-case scenario.
- Blue highlighted cells in this table are the antenna gains that yield the highest composite gain for 2TX modes, these numbers are used for 2TX antenna port testing as worst-case scenario.
- For radiated testing, the antennas with highest gains from first and second sets were selected as worst-case scenario.

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was Broadcom, rev. 6.30.118.62.
The test utility software used during testing was BCM Internal, rev. 6.30.RC118.62.

5.5. WORST-CASE CONFIGURATION AND MODE

The EUT was tested as an external module installed in a test jig board connected to a host Laptop PC.

Worst-Case data rates, as provided by the client, were as follows:

For 2.4 GHz Band:
802.11b: 1 Mb/s.
802.11g: 6 Mb/s.
802.11n 20MHz: MCS0.

For 5.8 GHz Band:
802.11a: 6 Mb/s.
802.11n 20MHz: MCS0.
802.11n 40MHz: MCS0.
802.11n 80MHz: MCS0.

Worst-case mode and channel used for 30-1000 MHz radiated and power line conducted emissions was the mode and channel with the highest output power.

For Radiated Band Edge measurements preliminary testing showed that the worst case was vertical polarization, so final measurements were performed with vertical polarization only.

For all modes with single chain, chain 0 (connector J0, Main port) was selected per the software provided by the client. Based on the client a preliminary investigation was performed on the two chains and chain 0 was found to be worst-case.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	HP	EliteBook 2730p	2CE848852D	DoC
Laptop	Lenovo	G560	CBU4473193	DoC
Laptop	Apple	Macbook Pro	C02H124BDV10	DoC
AC Adapter	HP	PPP09L	592C40CLLUTBUY	DoC
AC Adapter	Lenovo	ADP-65KH B	11S36001646ZZ1001FKY6	DoC
AC Adapter	Apple	A1343	C04207625HVDJ92BD	DoC
Adapter Board	Catalyst	MINI2EXP	N/A	N/A
Adapter Board	Catalyst	MINI2EXP	N/A	N/A
Adapter Board	Broadcom	BCM94331CSMFG	1458937	N/A
Adapter Board	Broadcom	BCM94331CSMFG	1504043	N/A

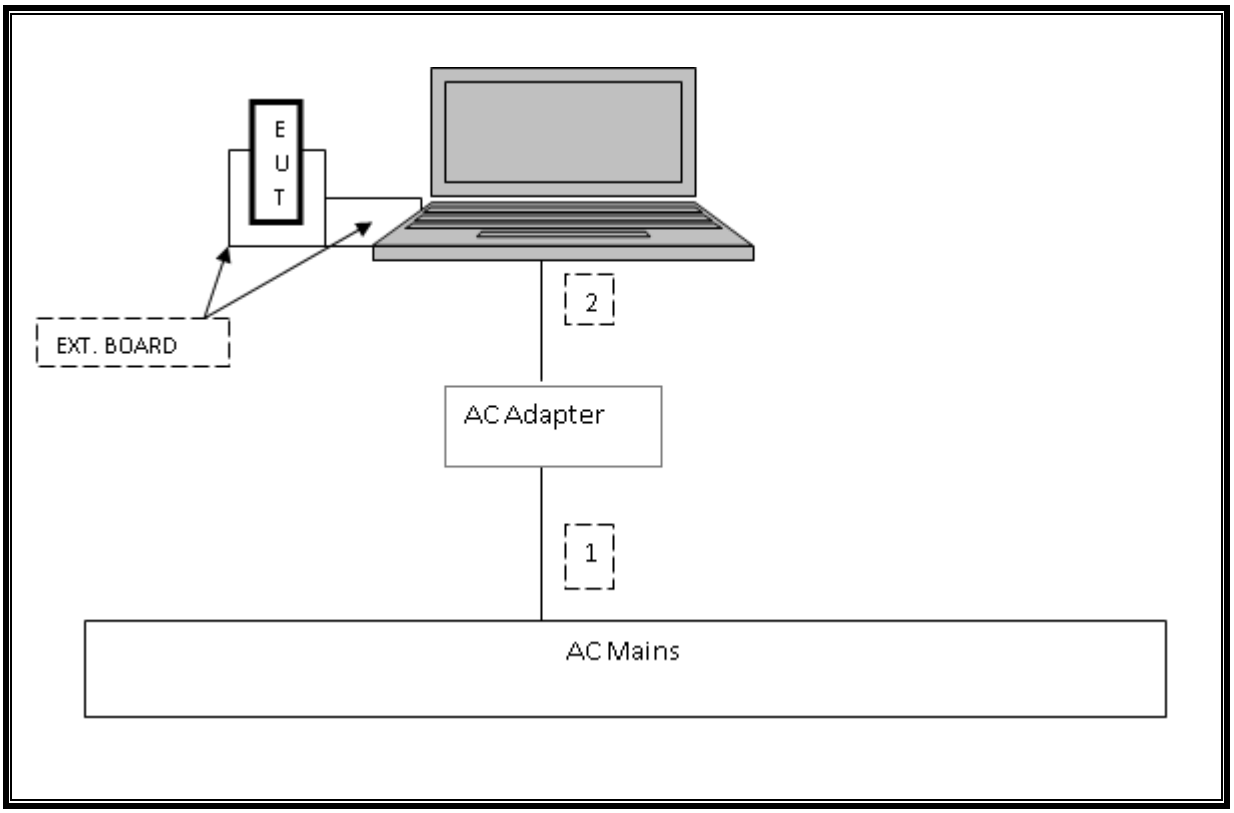
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	2	US 115V	Un-Shielded	1.0m	NA
2	DC	2	DC	Un-Shielded	1.8m	Ferrite at laptop's end

TEST SETUP

The EUT is attached to a jig board which is installed in the PCMCI slot of a host laptop computer during the tests. Test software exercised the radio card.

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, 44 GHz	Agilent / HP	E4446A	C01069	12/13/11	12/13/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	05/11/11	05/11/13
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	07/13/12	07/06/13
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/08/12	08/08/13
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/11	12/13/13
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/11	12/13/13
Antenna, Horn, 18 GHz	EMCO	3115	C00945	11/12/12	11/12/13
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00946	11/12/12	11/12/13
Antenna, Horn, 40 GHz	ARA	MWH-2640/B	C00981	06/14/12	06/14/13
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C01011	02/13/12	02/13/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	01/16/13	01/16/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/12	10/22/13
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	08/02/11	08/02/13
LISN, 30 MHz	FCC	50/250-25-2	N02396	08/08/12	08/08/13
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRC13192	N02683	CNR	CNR
Reject Filter, 5.15-5.35 GHz	Micro-Tronics	BRC13190	N02680	CNR	CNR
Reject Filter, 5.47-5.725 GHz	Micro-Tronics	BRC13191	N02678	CNR	CNR
Reject Filter, 5.725-5.825 GHz	Micro-Tronics	BRC13192	N02676	CNR	CNR

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
802.11b CDD	12.460	12.580	0.990	99.05%	0.00	0.010
802.11g Legacy	2.075	2.090	0.993	99.28%	0.00	0.010
802.11n HT20 CDD	11.530	11.750	0.981	98.13%	0.00	0.010
5GHz Band						
802.11a	2.072	2.087	0.993	99.28%	0.00	0.010
802.11n HT20 CDD	1.930	1.951	0.989	98.92%	0.00	0.010
802.11n HT20 STBC	1.933	1.951	0.991	99.08%	0.00	0.010
802.11n HT40 SISO	0.915	0.966	0.947	94.72%	0.24	1.035
802.11n HT40 CDD	0.9139	0.9691	0.943	94.30%	0.25	1.032
802.11n HT40 STBC	0.936	0.969	0.966	96.59%	0.15	1.032
802.11n AC80 SISO	0.4637	0.4802	0.966	96.56%	0.15	2.082
802.11n AC80 CDD	0.4635	0.4816	0.962	96.24%	0.17	2.076

7.2. MEASUREMENT METHODS

6 dB BW: KDB 558074 D01 v02, Section 7.0.

Output Power: KDB 558074 D01 v02, Sections 8.2.3 and 8.2.4.

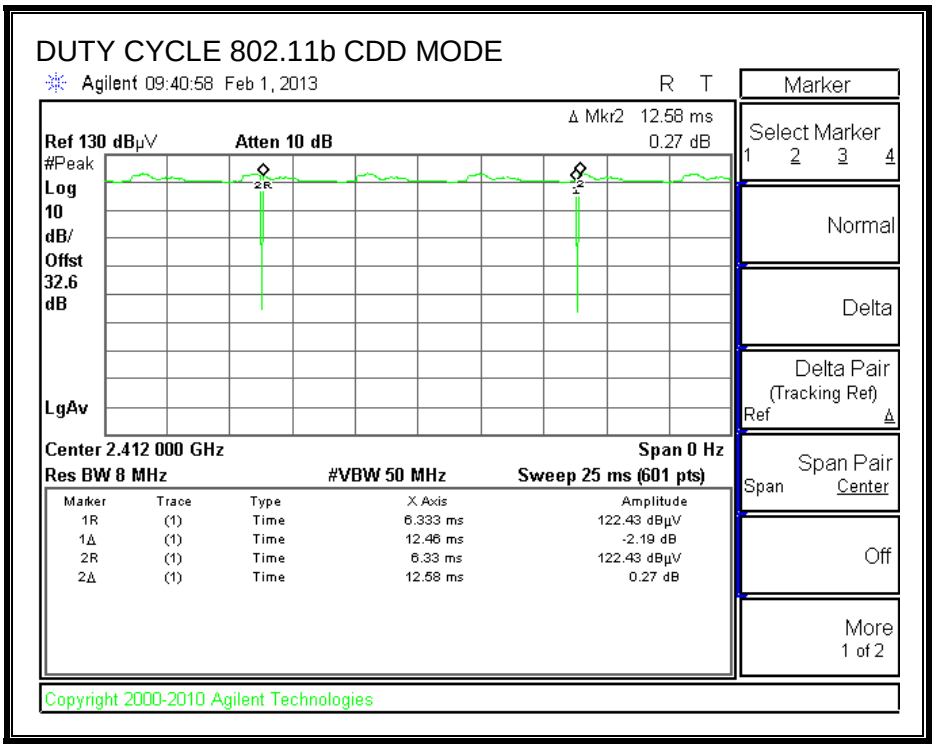
Power Spectral Density: KDB 558074 D01 v02, Sections 9.2 and 9.4.

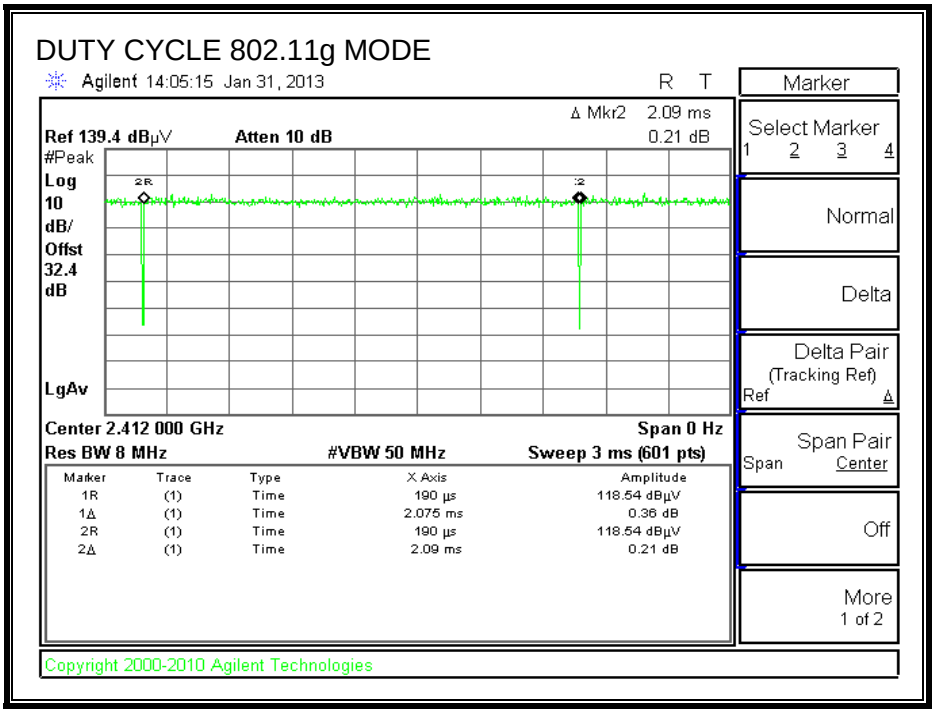
Out-of-band emissions in non-restricted bands: KDB 558074 D01 v02, Sections 10.1.

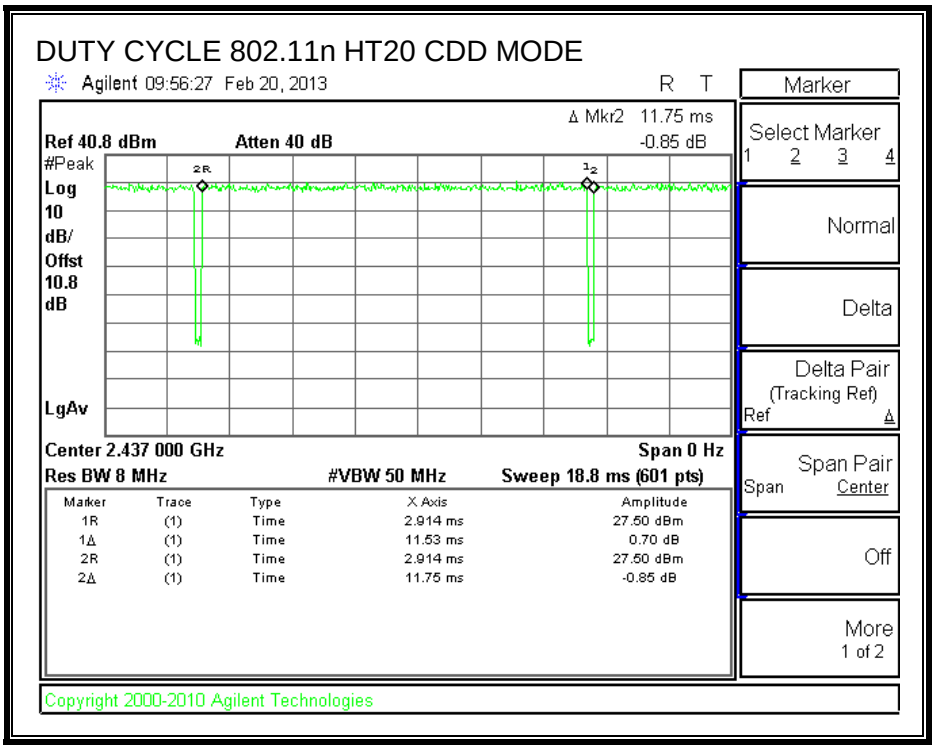
Out-of-band emissions in restricted bands: KDB 558074 D01 v02, Sections 10.2.1.

7.3. DUTY CYCLE PLOTS

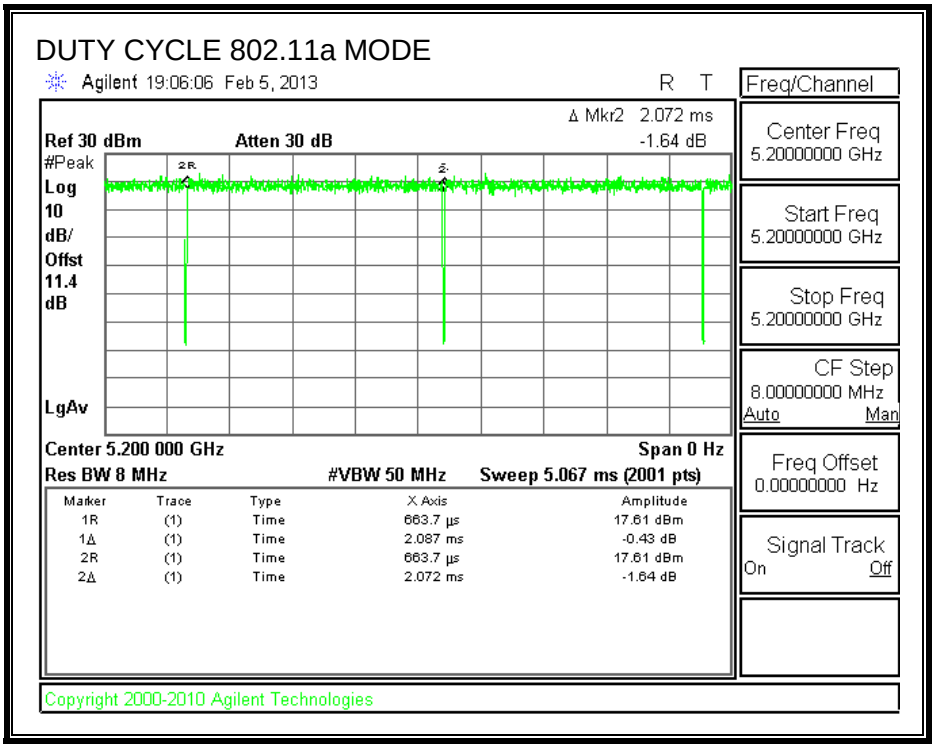
2.4 GHz



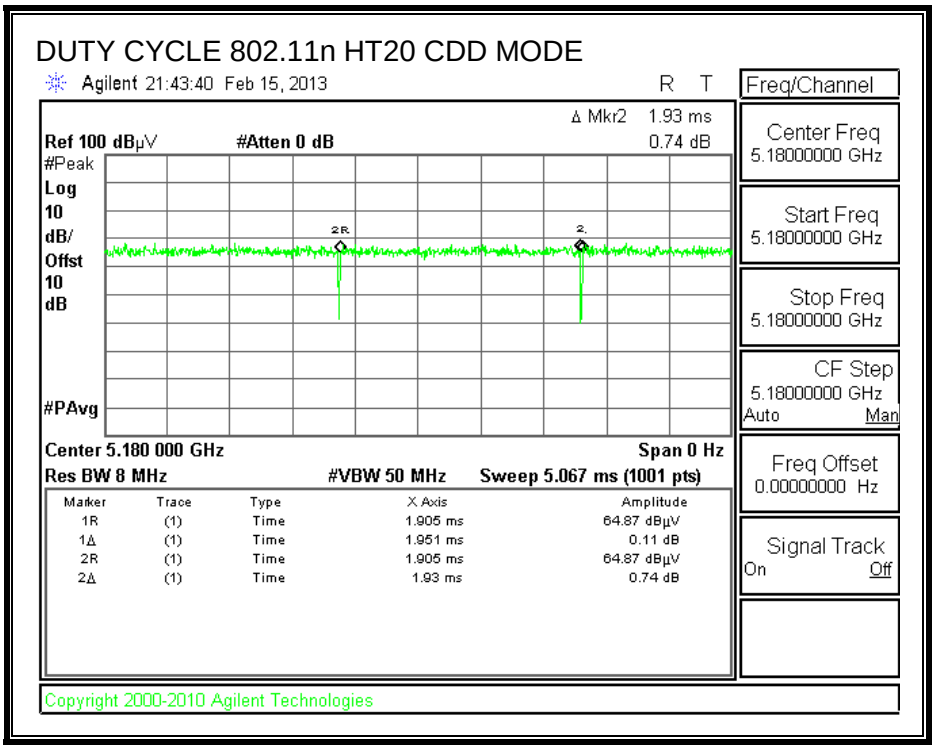




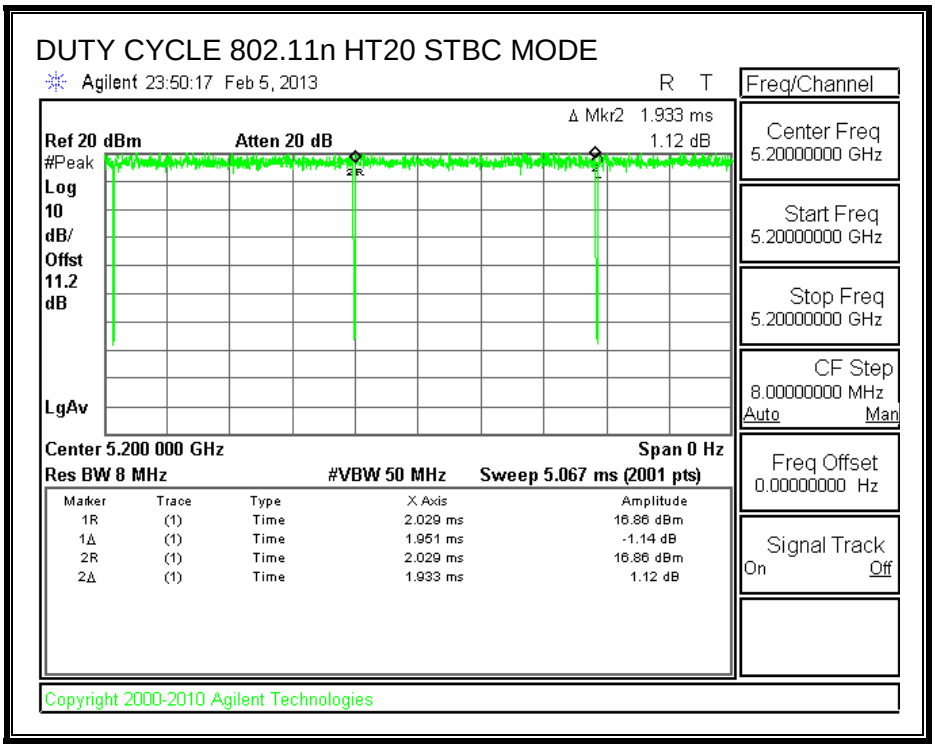
5 GHz



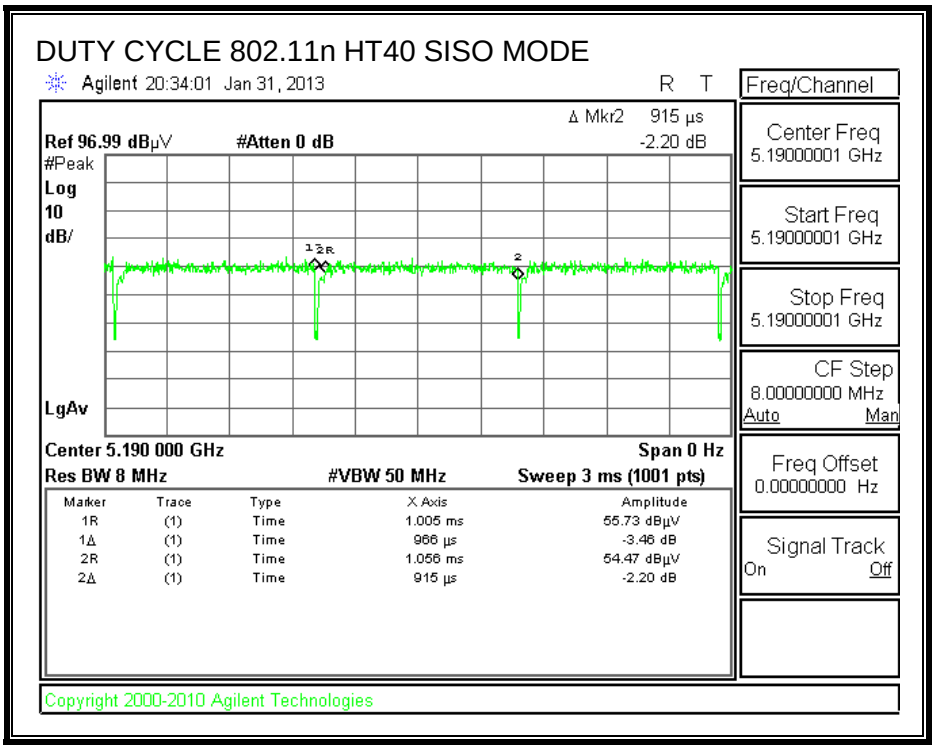
DUTY CYCLE 802.11n HT20 CDD MODE



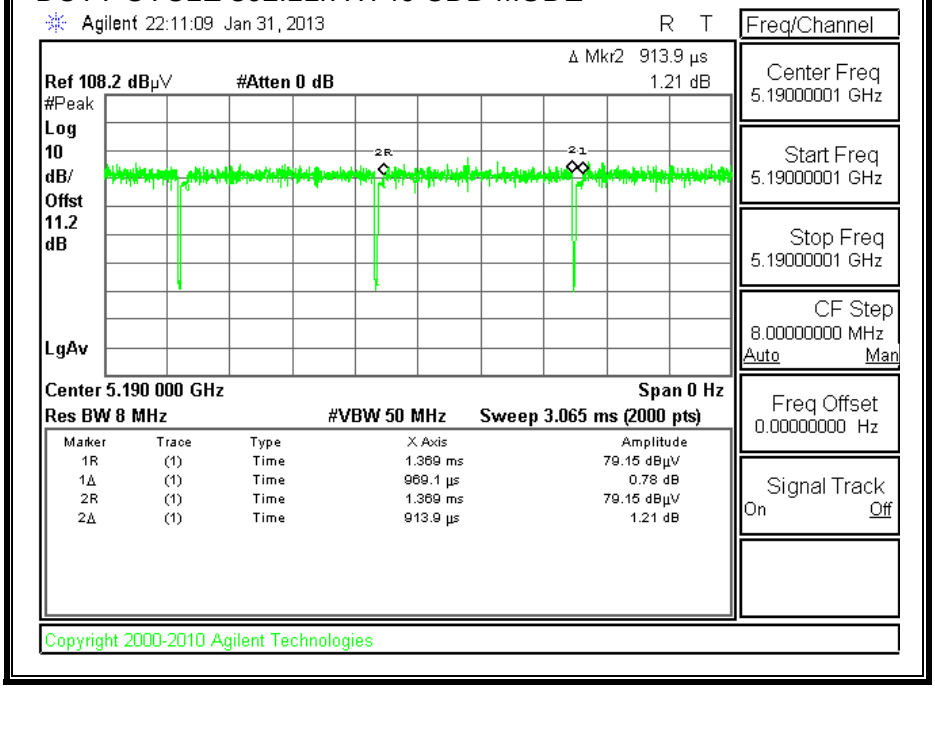
DUTY CYCLE 802.11n HT20 STBC MODE



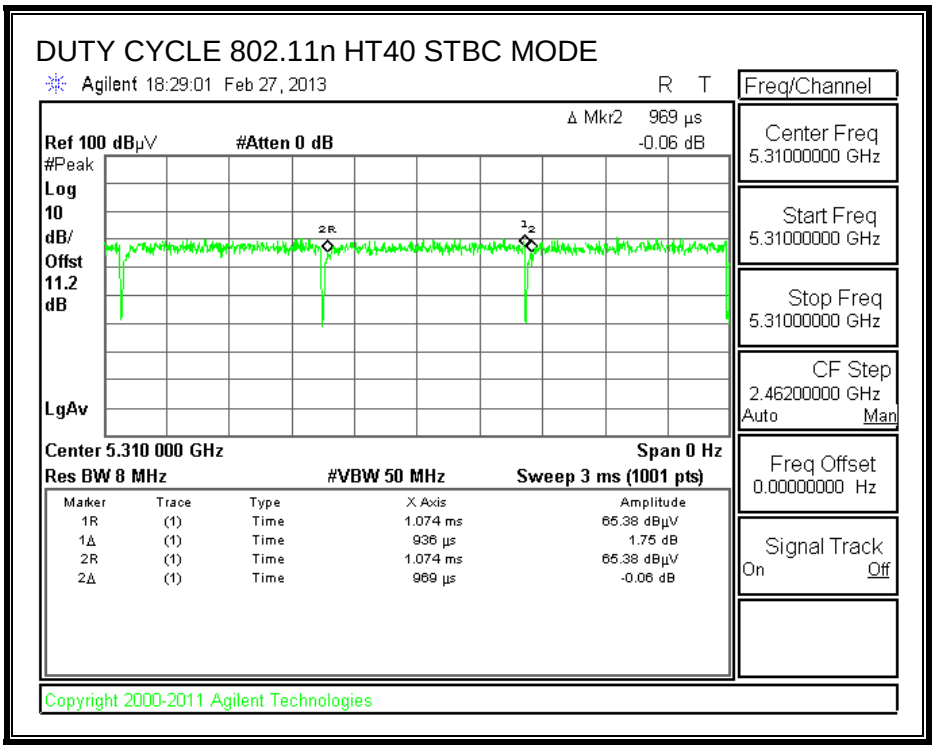
DUTY CYCLE 802.11n HT40 SISO MODE



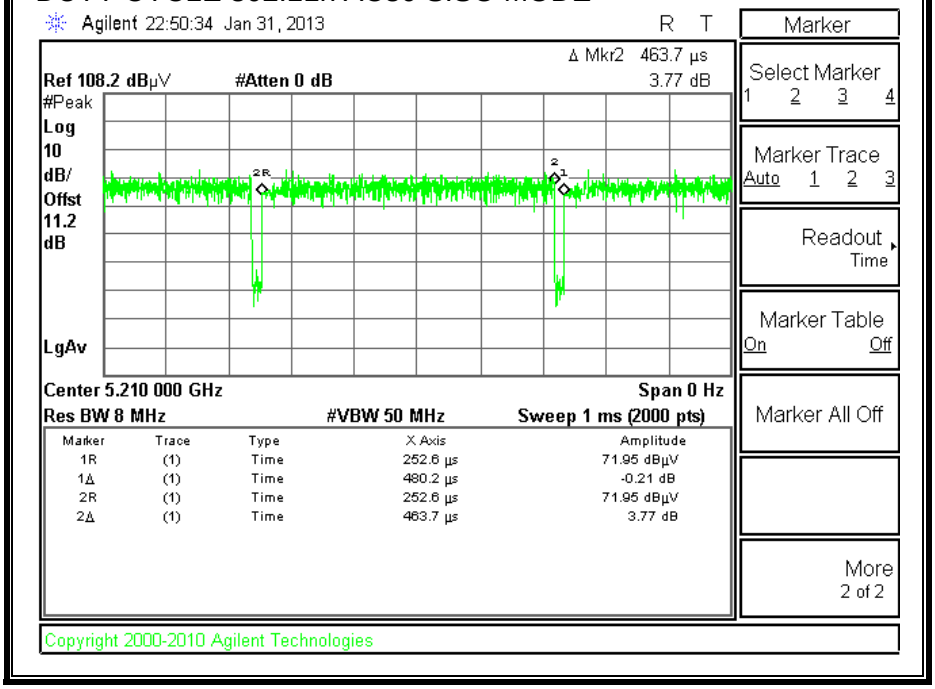
DUTY CYCLE 802.11n HT40 CDD MODE



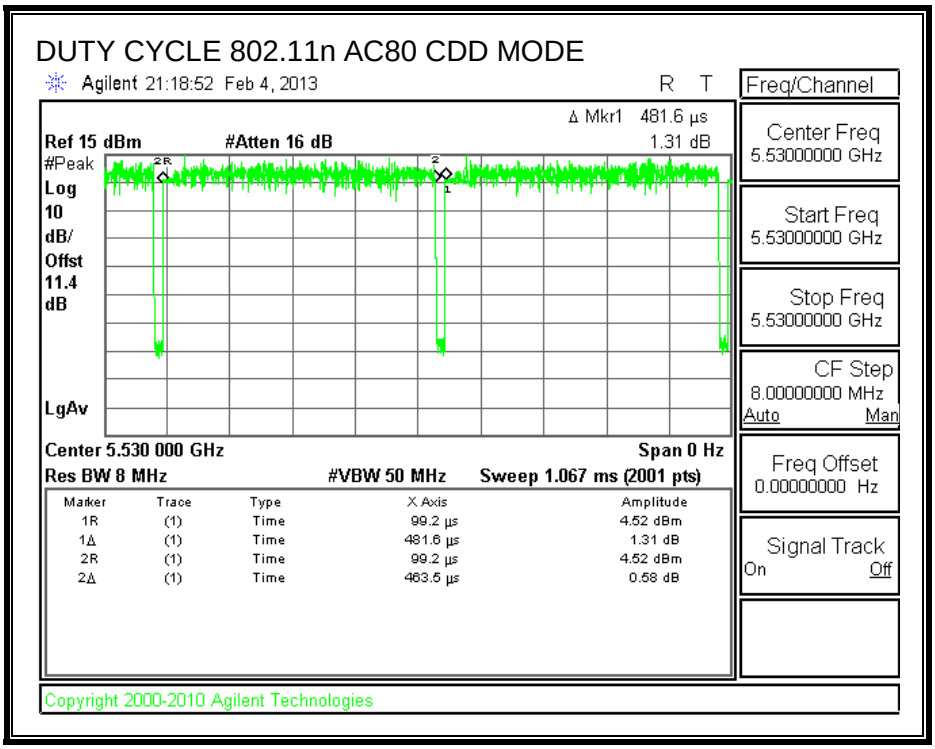
DUTY CYCLE 802.11n HT40 STBC MODE



DUTY CYCLE 802.11n AC80 SISO MODE



DUTY CYCLE 802.11n AC80 CDD MODE



8. ANTENNA PORT TEST RESULTS

8.1. 802.11b Legacy 1TX MODE IN THE 2.4 GHz BAND

Covered by testing 11b CDD 2TX, power per chain used in the 802.11b 2TX mode is equal to the power per chain that will be used for 802.11b 1TX.

8.2. 802.11b CDD 2TX MODE IN THE 2.4 GHz BAND

8.2.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

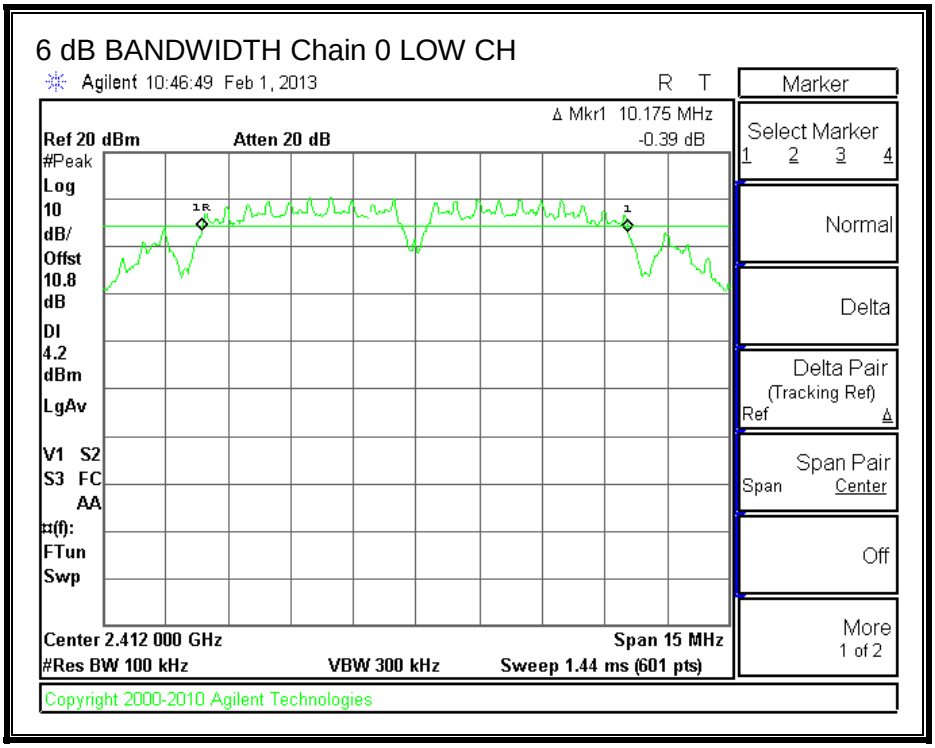
IC RSS-210 A8.2 (a)

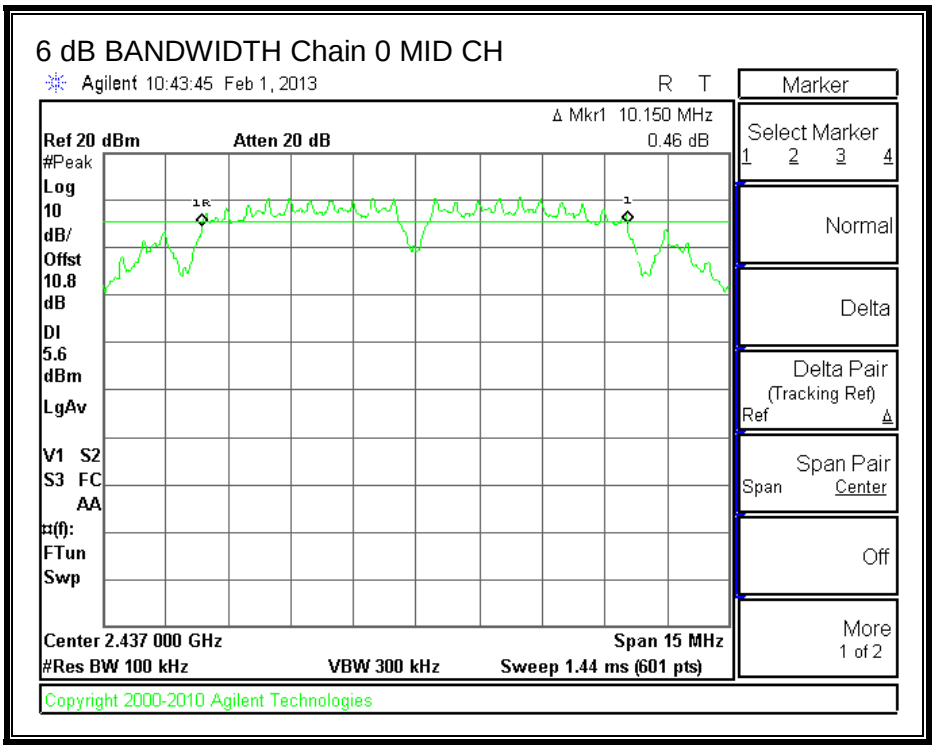
The minimum 6 dB bandwidth shall be at least 500 kHz.

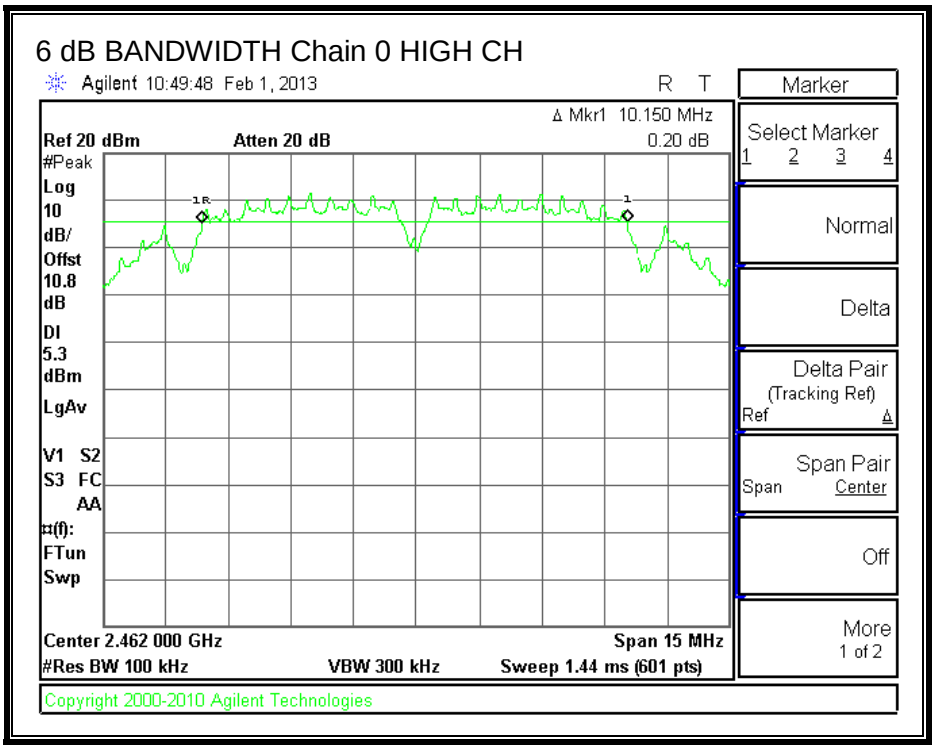
RESULTS

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	2412	10.175	10.175	0.5
Mid	2437	10.150	10.075	0.5
High	2462	10.150	10.175	0.5

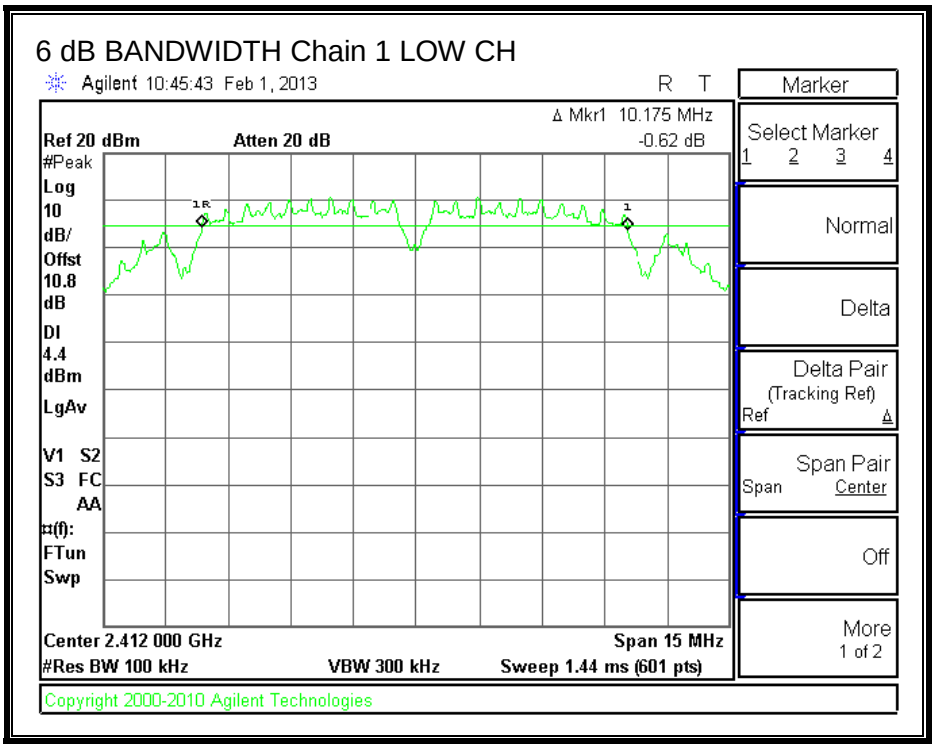
6 dB BANDWIDTH, Chain 0



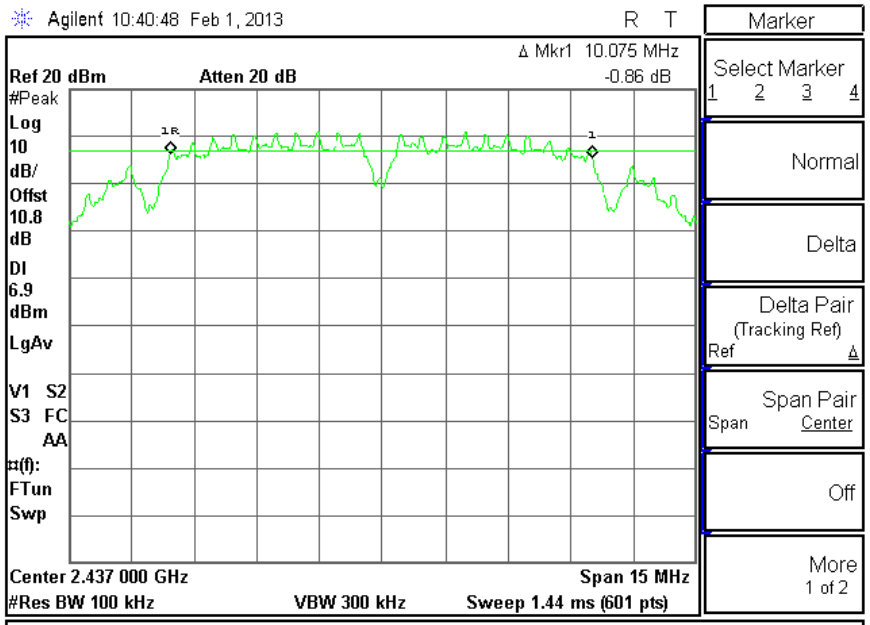




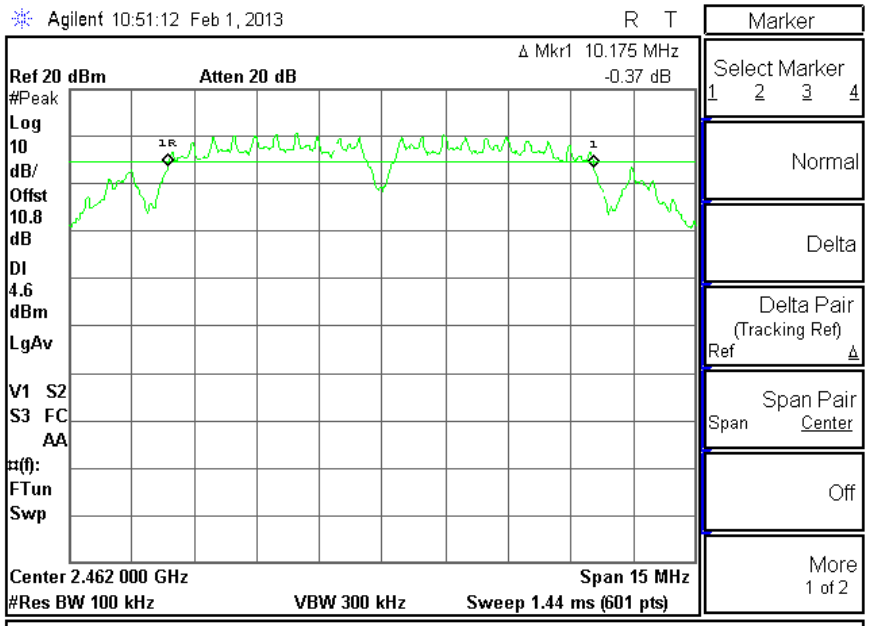
6 dB BANDWIDTH, Chain 1



6 dB BANDWIDTH Chain 1 MID CH



6 dB BANDWIDTH Chain 1 HIGH CH



8.2.2. 99% BANDWIDTH

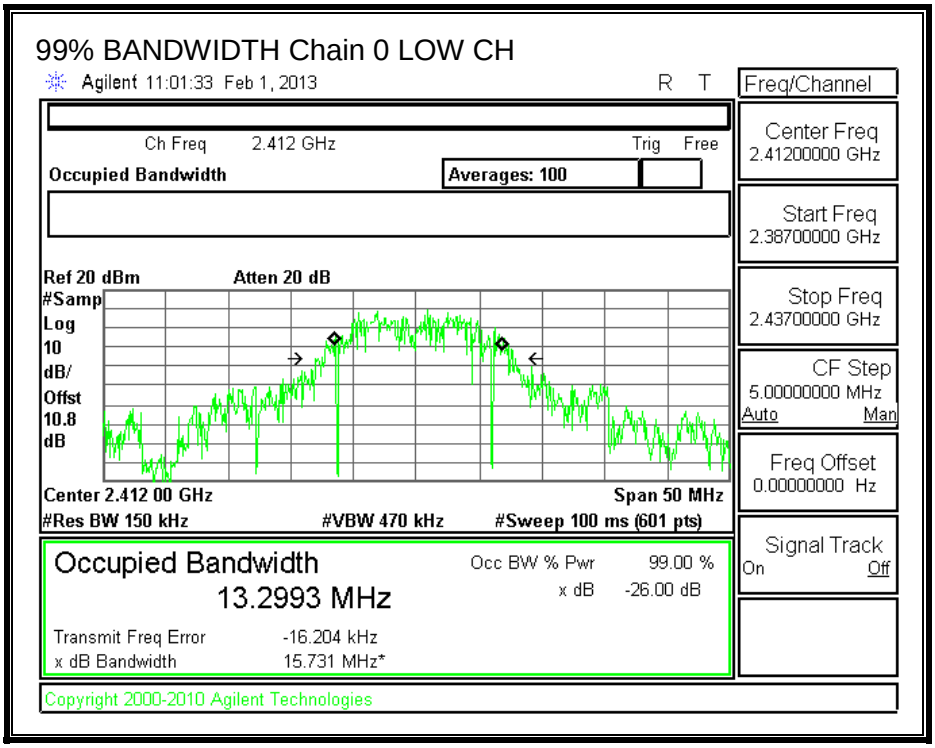
LIMITS

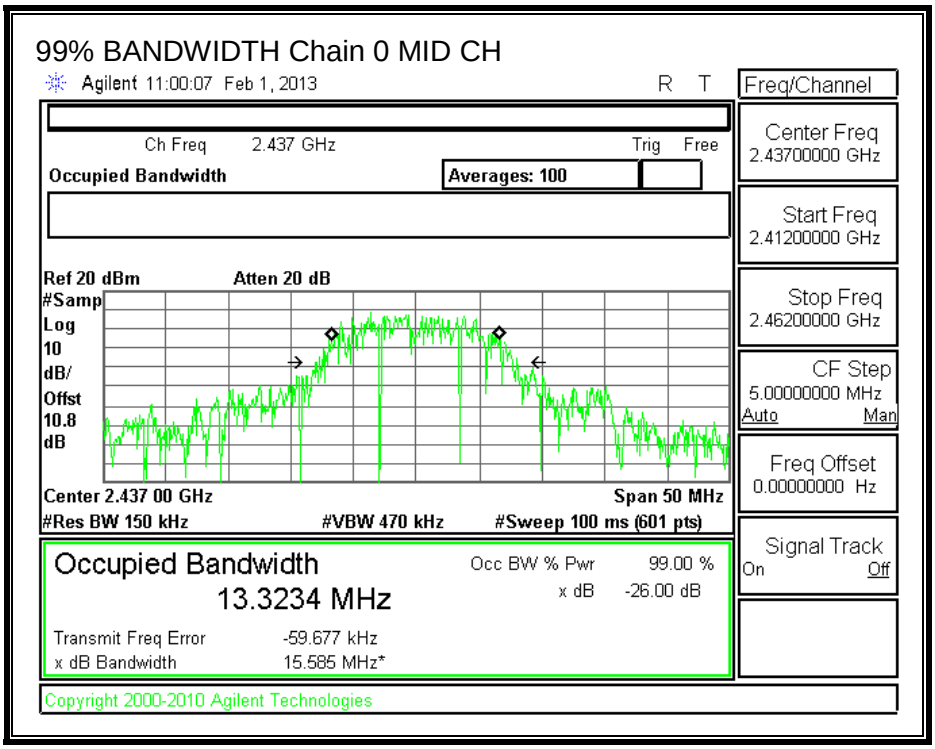
None; for reporting purposes only.

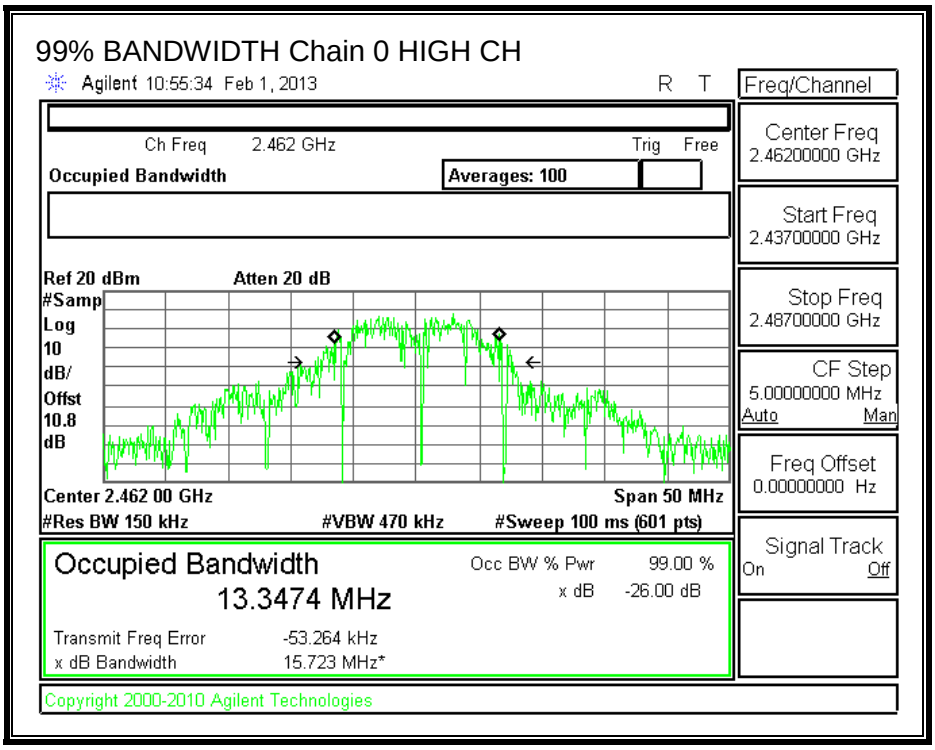
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	2412	13.2993	13.3097
Mid	2437	13.3234	13.3121
High	2462	13.3474	13.3275

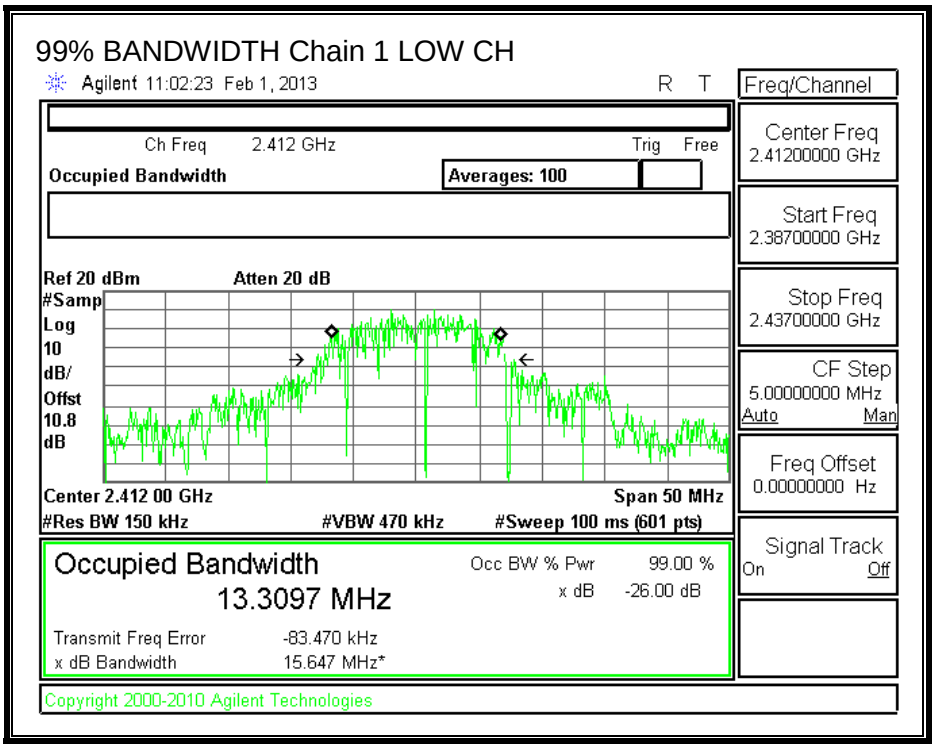
99% BANDWIDTH, Chain 0



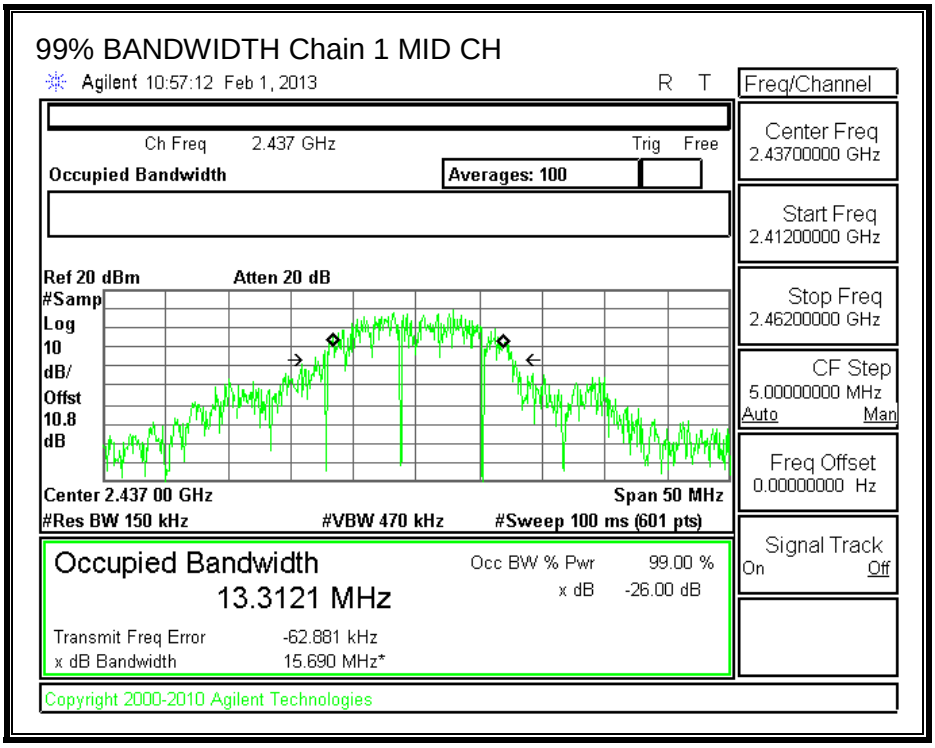




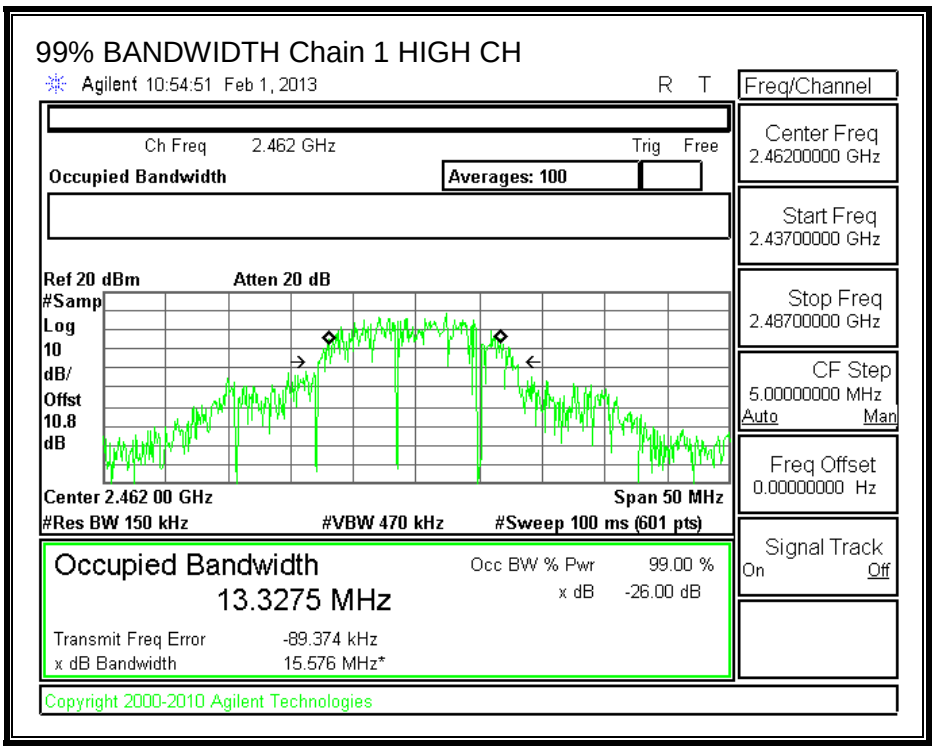
99% BANDWIDTH, Chain 1



99% BANDWIDTH Chain 1 MID CH



99% BANDWIDTH Chain 1 HIGH CH



8.2.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

For output power consideration, the TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.97	4.87	4.92

RESULTS

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	4.92	30.00	30	36	30.00
Mid	2437	4.92	30.00	30	36	30.00
High	2462	4.92	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low	2412	19.88	19.75	22.83	30.00	-7.17
Mid	2437	20.60	20.20	23.41	30.00	-6.59
High	2462	20.70	20.00	23.37	30.00	-6.63

8.2.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

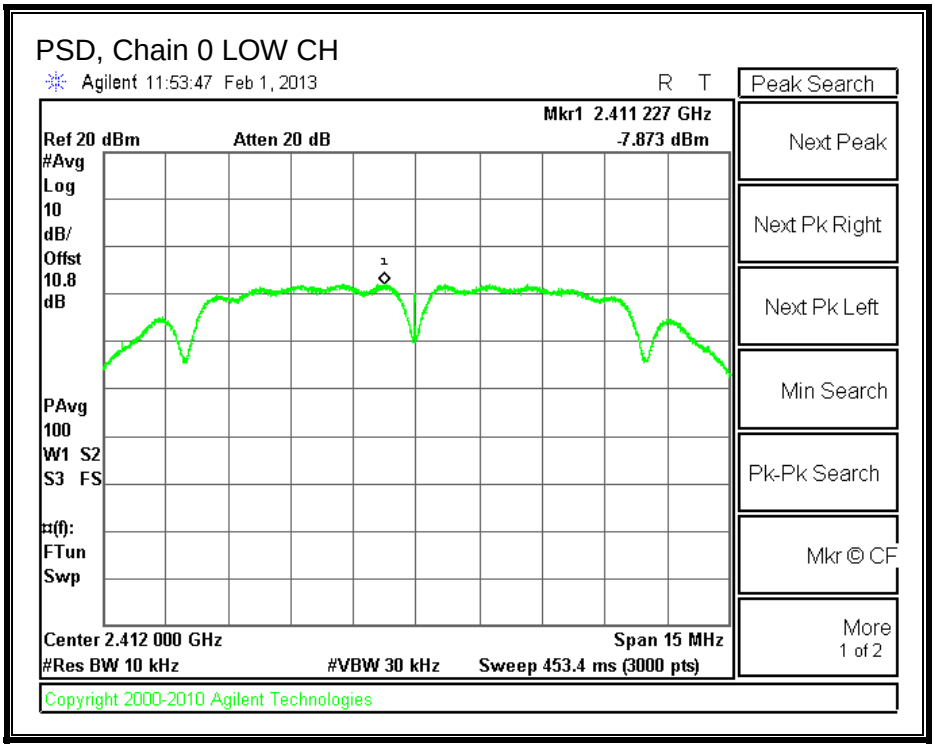
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

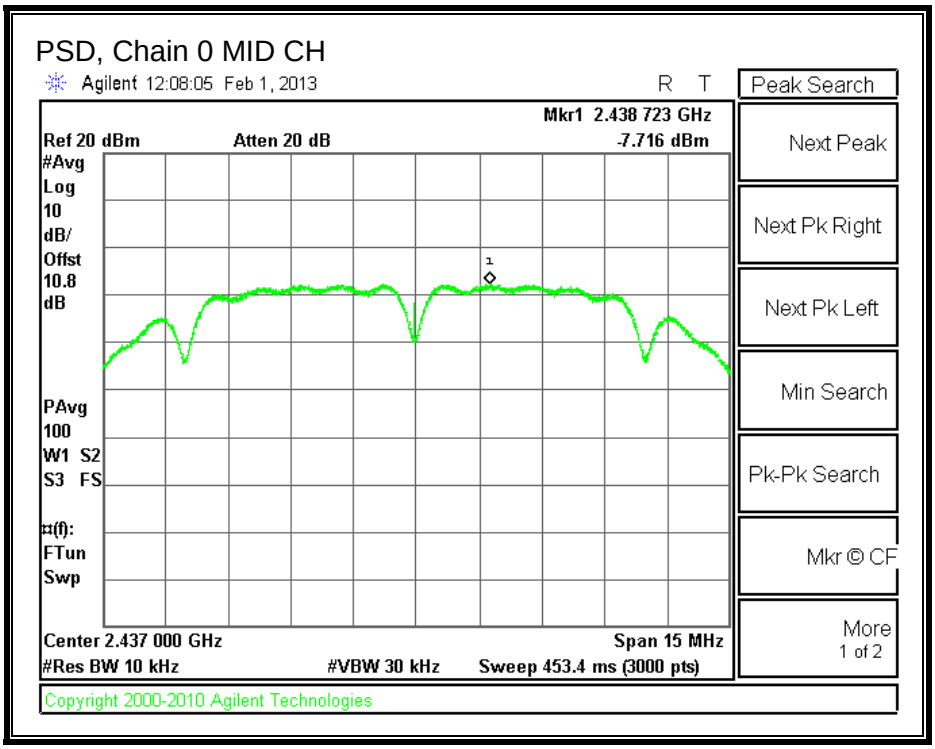
RESULTS

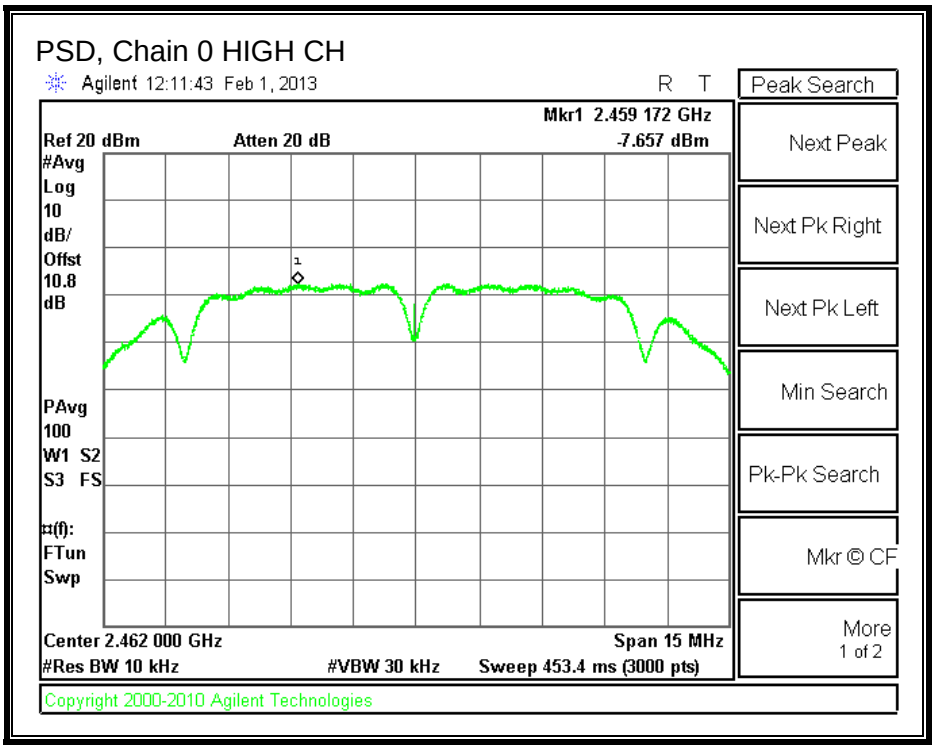
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-7.873	-8.092	-4.971	8.0	-12.971
Mid	2437	-7.116	-7.114	-4.105	8.0	-12.105
High	2462	-7.657	-8.200	-4.910	8.0	-12.910

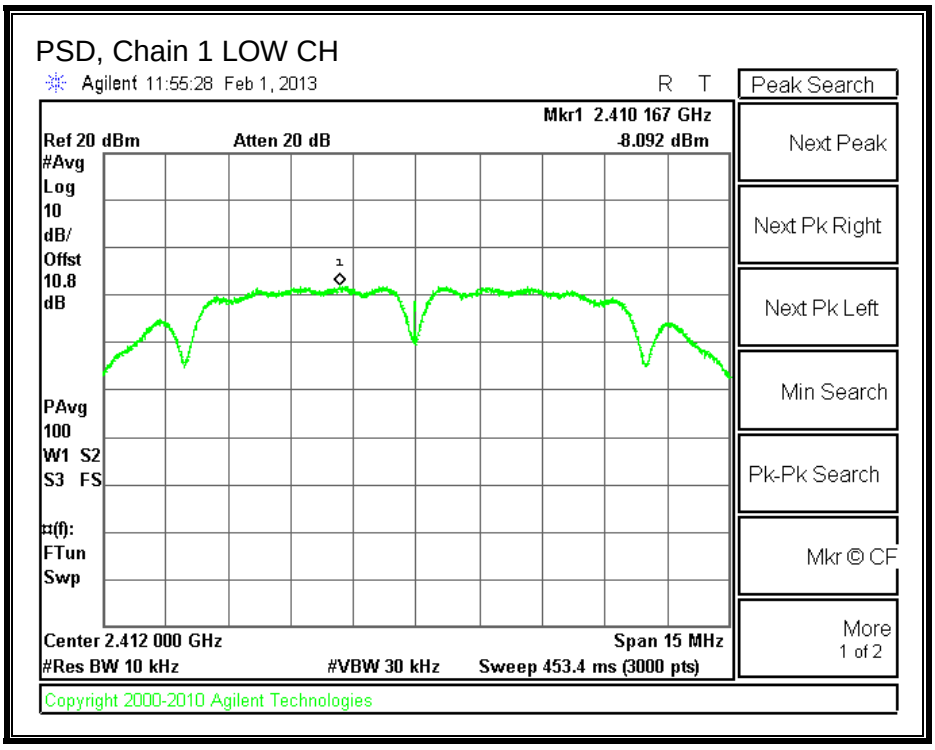
PSD, Chain 0



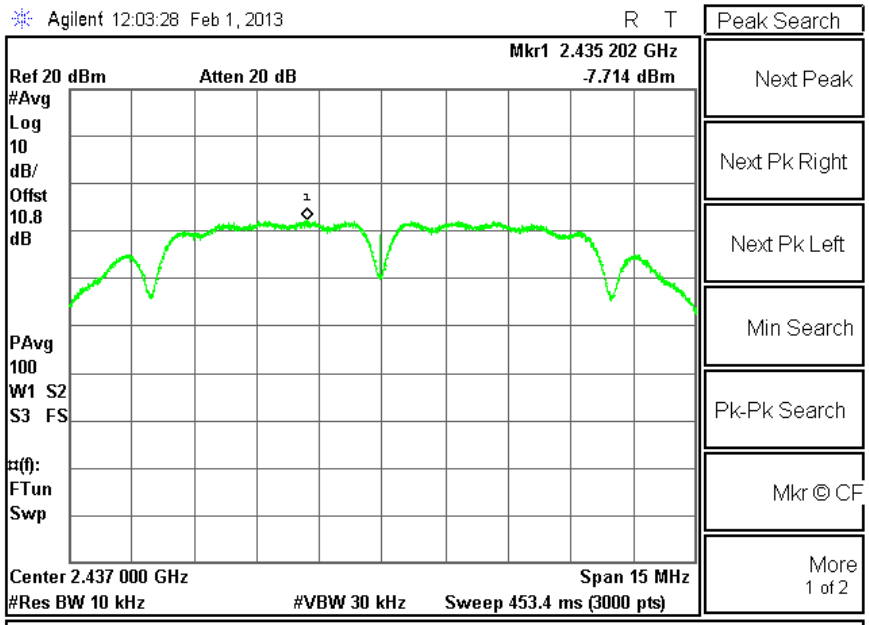




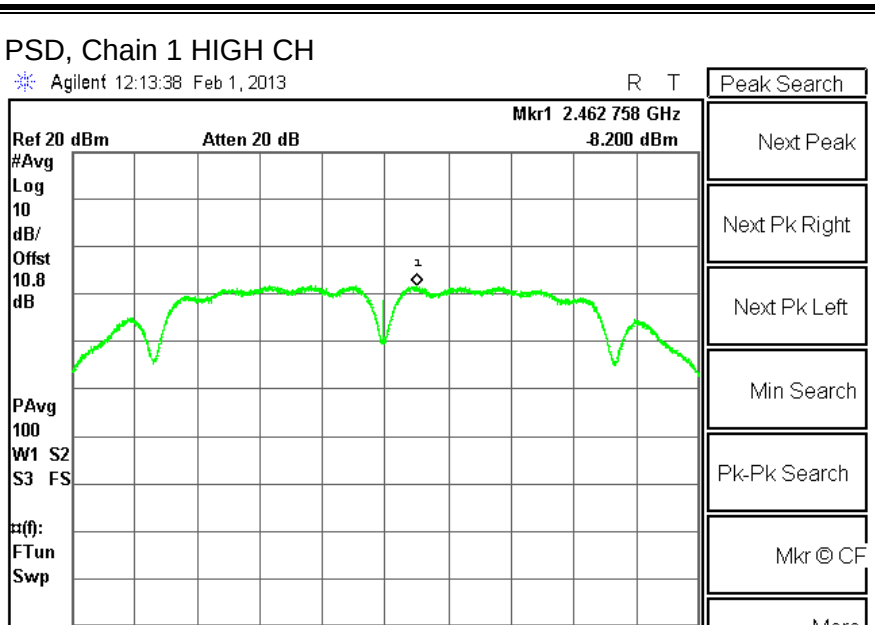
PSD, Chain 1



PSD, Chain 1 MID CH



PSD, Chain 1 HIGH CH



8.2.5. OUT-OF-BAND EMISSIONS

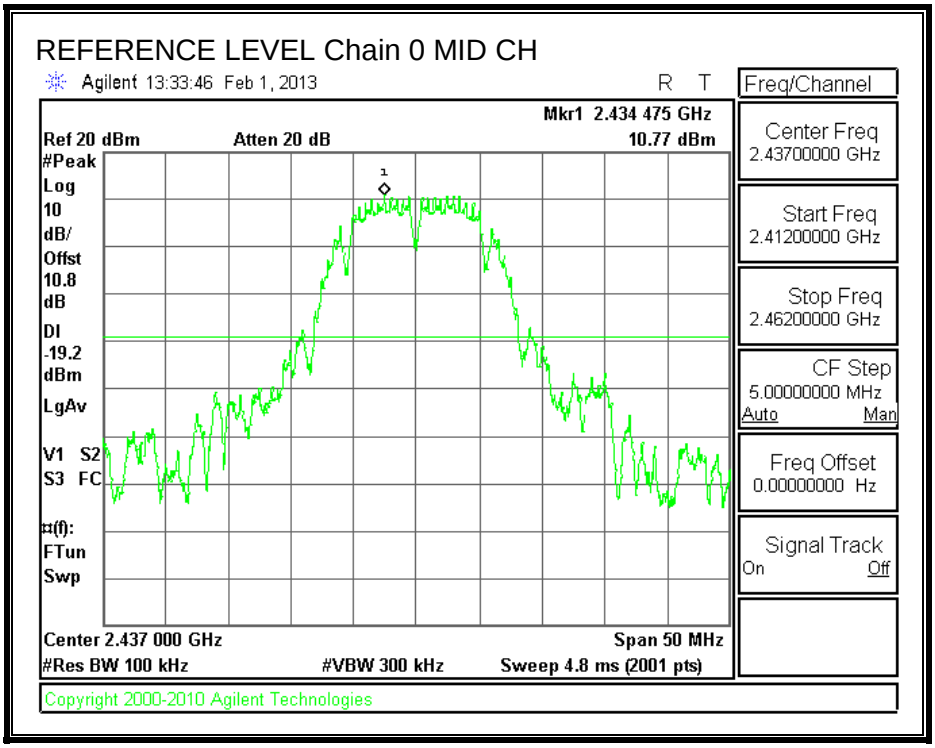
LIMITS

FCC §15.247 (d)

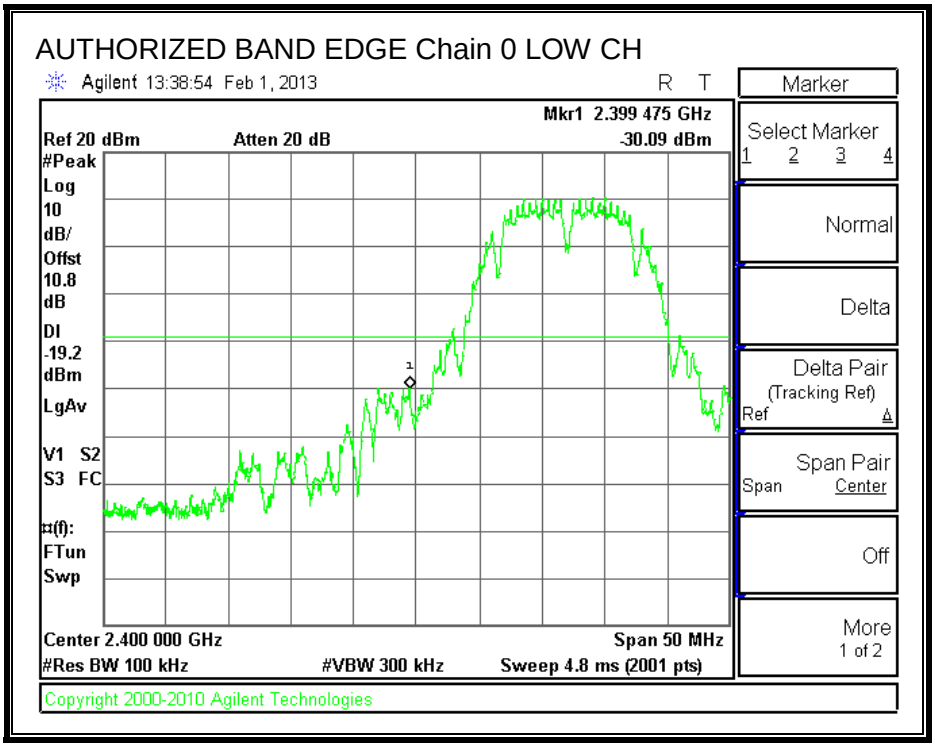
IC RSS-210 A8.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

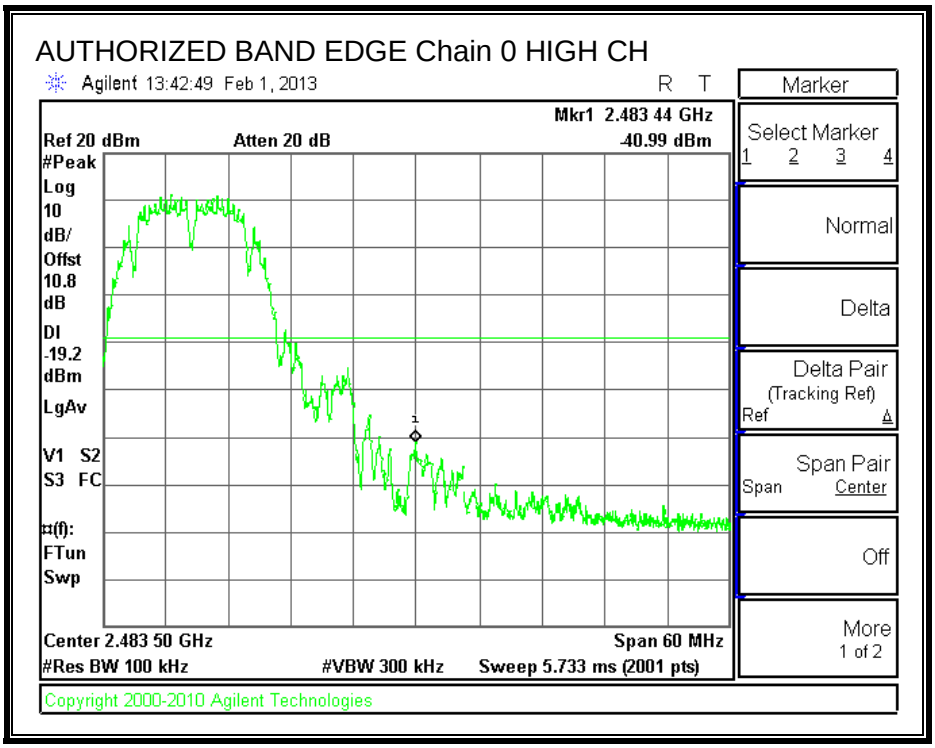
IN-BAND REFERENCE LEVEL, Chain 0



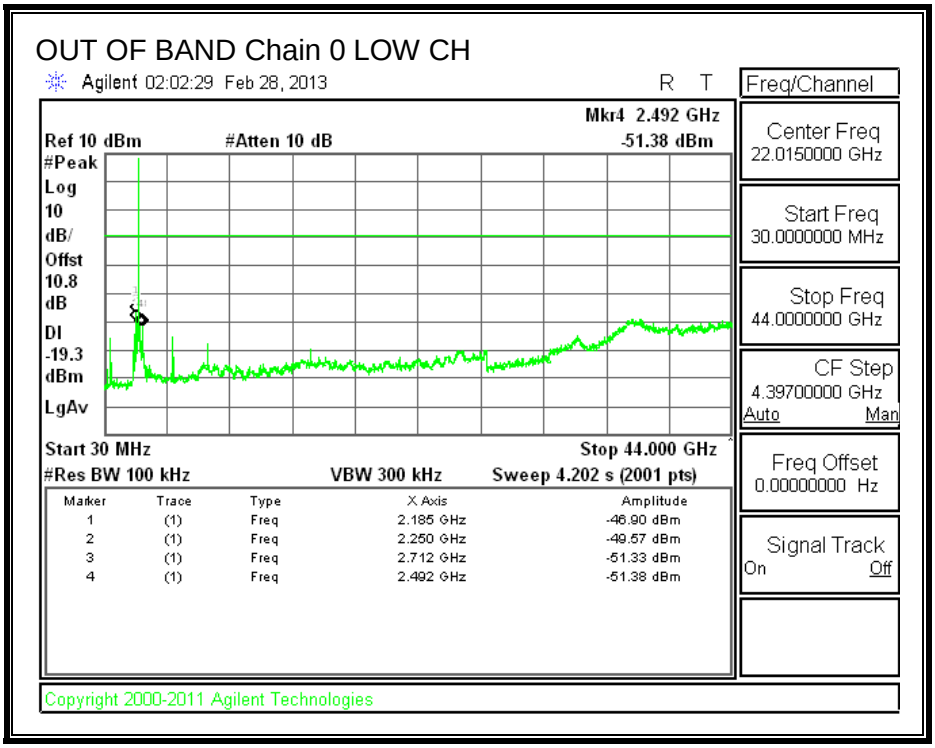
LOW CHANNEL BANDEDGE, Chain 0



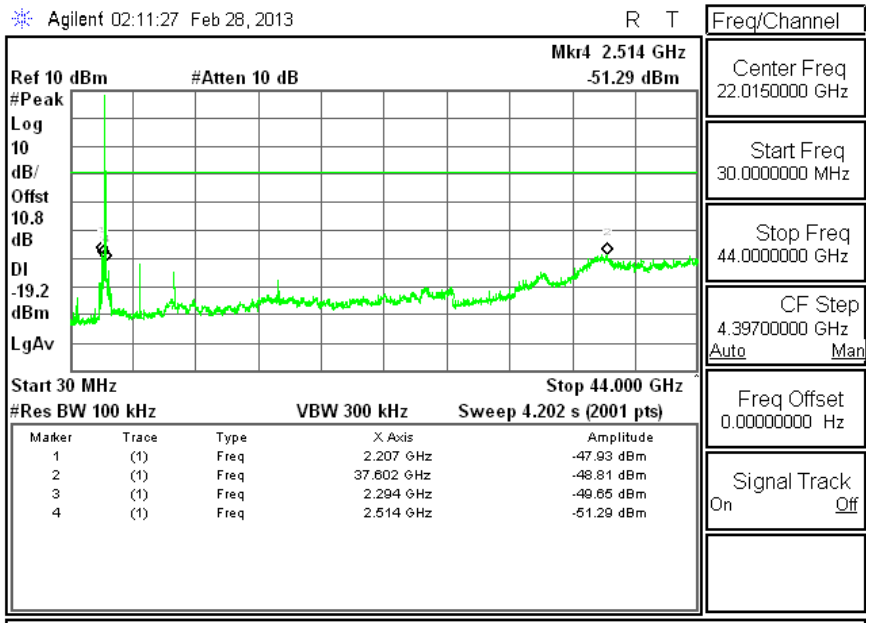
HIGH CHANNEL BANDEDGE, Chain 0



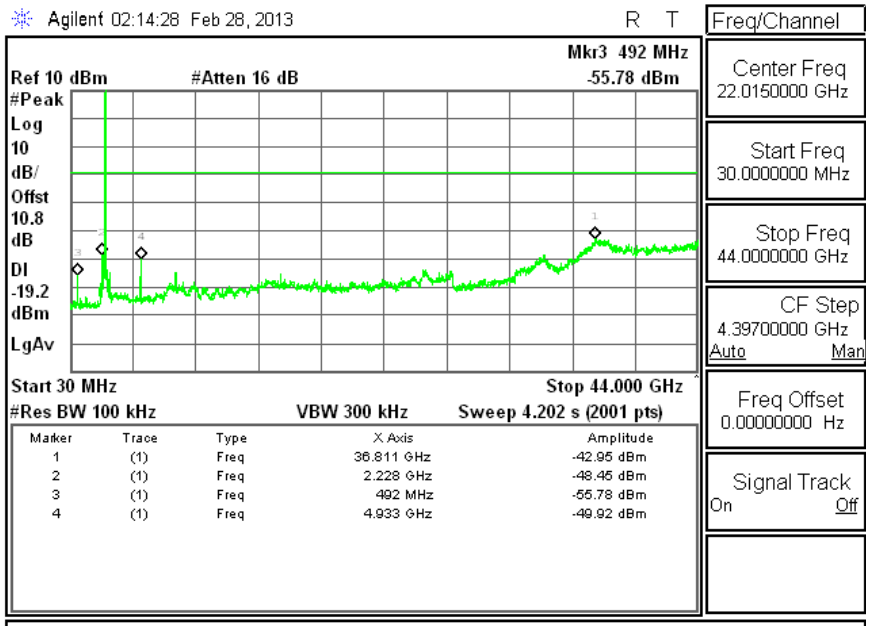
OUT-OF-BAND EMISSIONS, Chain 0



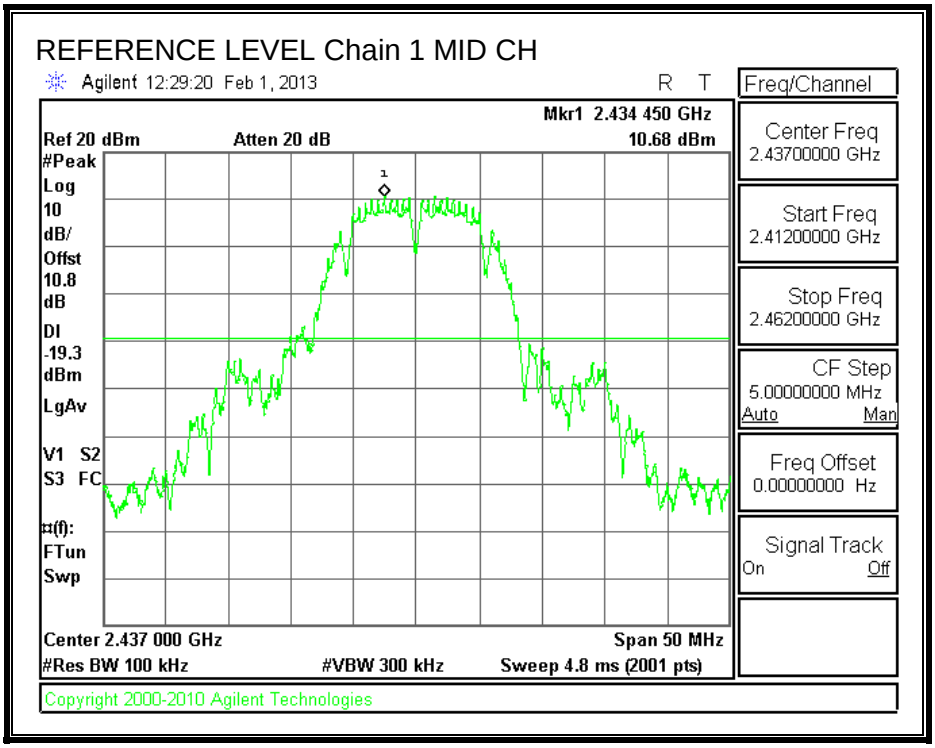
OUT OF BAND Chain 0 MID CH



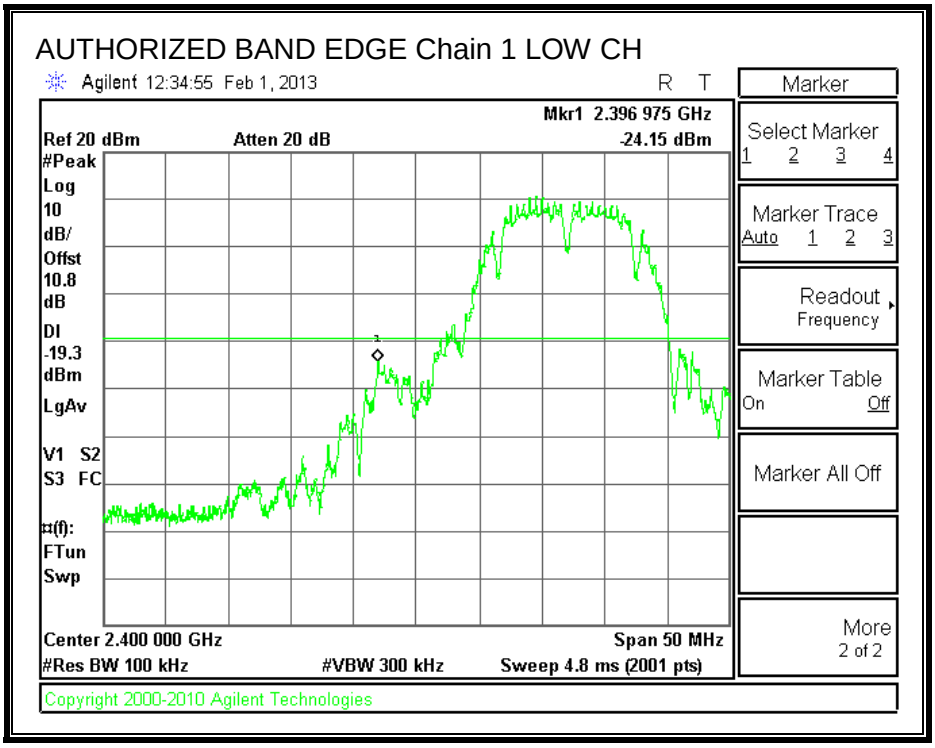
OUT OF BAND Chain 0 HIGH CH



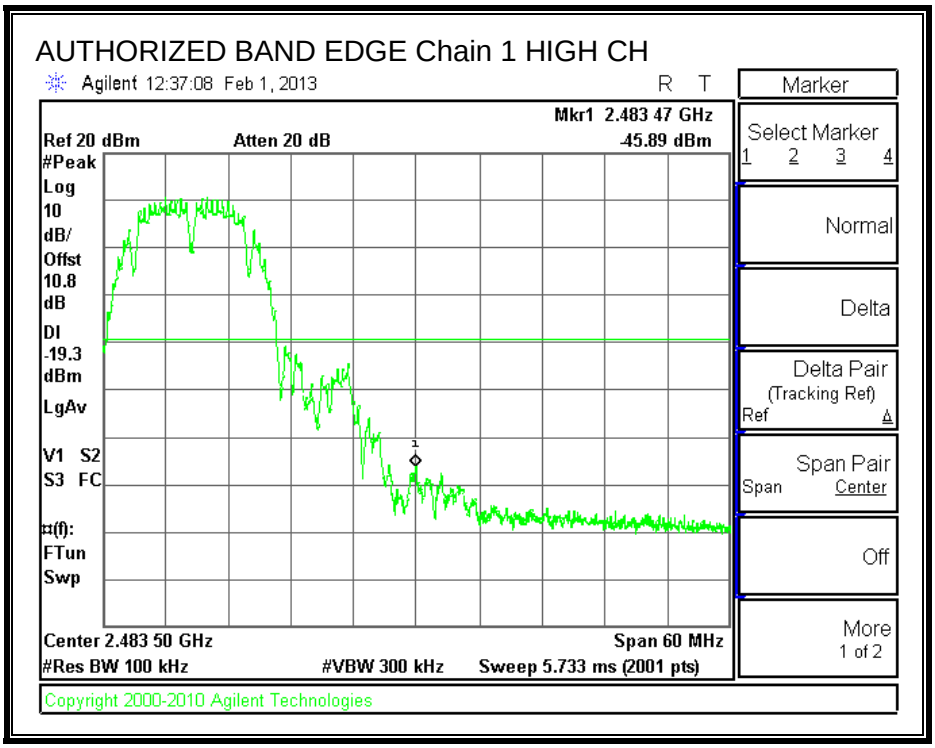
IN-BAND REFERENCE LEVEL, Chain 1

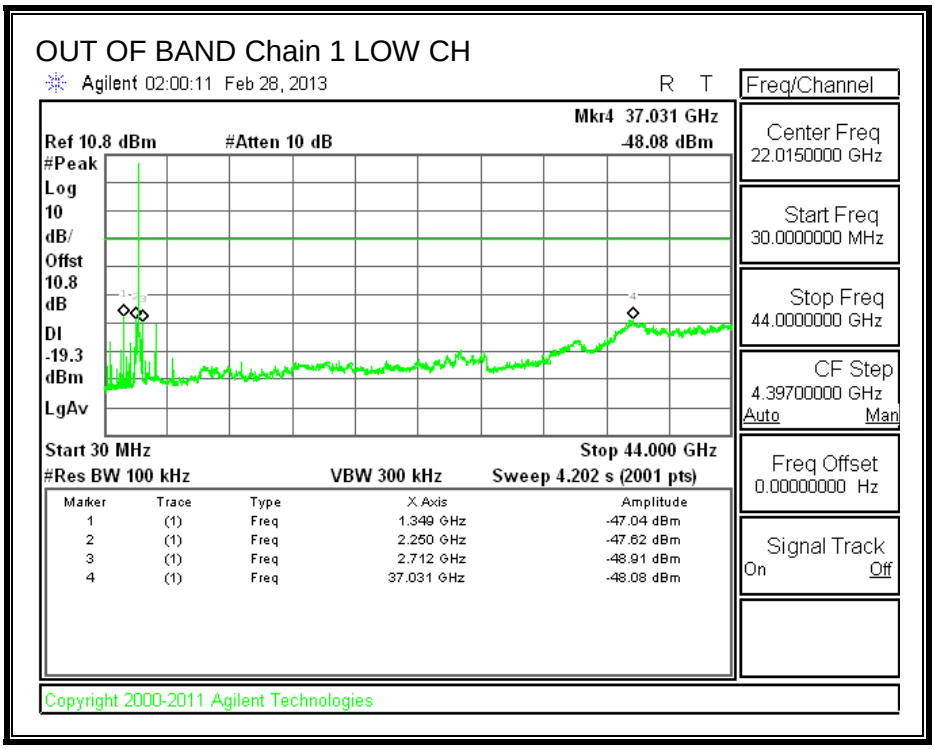


LOW CHANNEL BANDEDGE, Chain 1

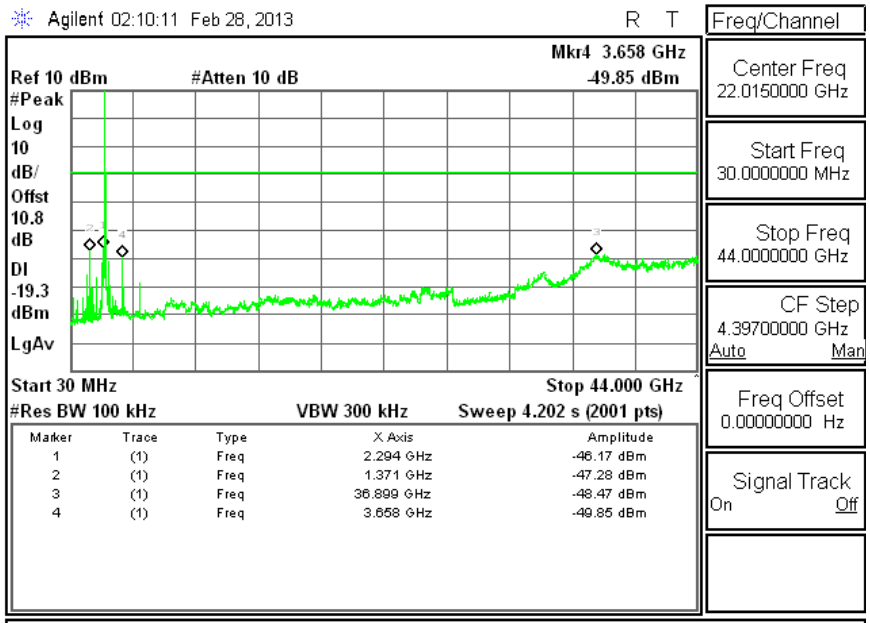


HIGH CHANNEL BANDEDGE, Chain 1

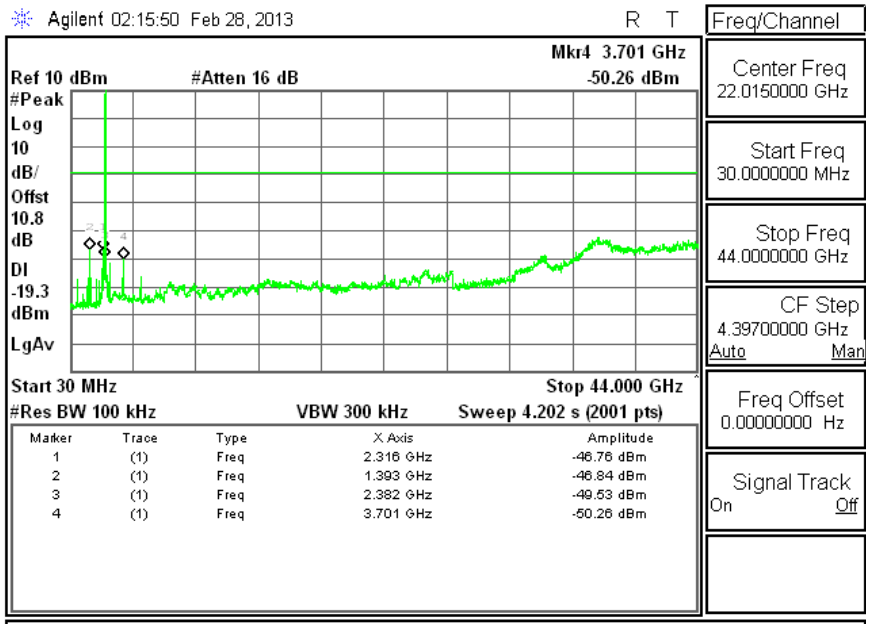




OUT OF BAND Chain 1 MID CH



OUT OF BAND Chain 1 HIGH CH



8.3. 802.11g Legacy 1TX MODE IN THE 2.4 GHz BAND

8.3.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

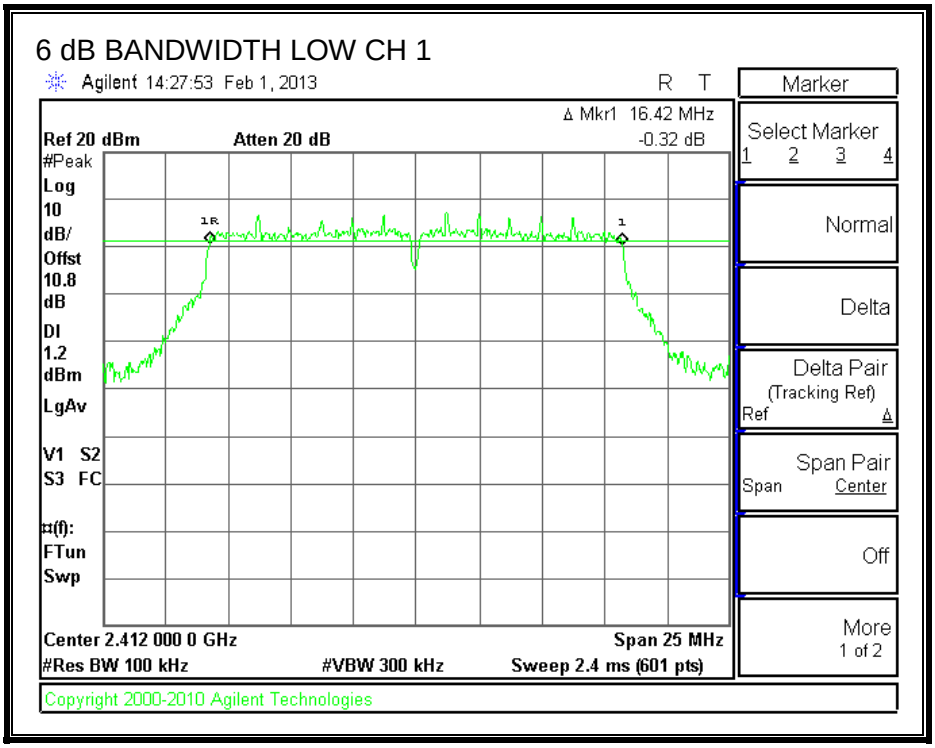
IC RSS-210 A8.2 (a)

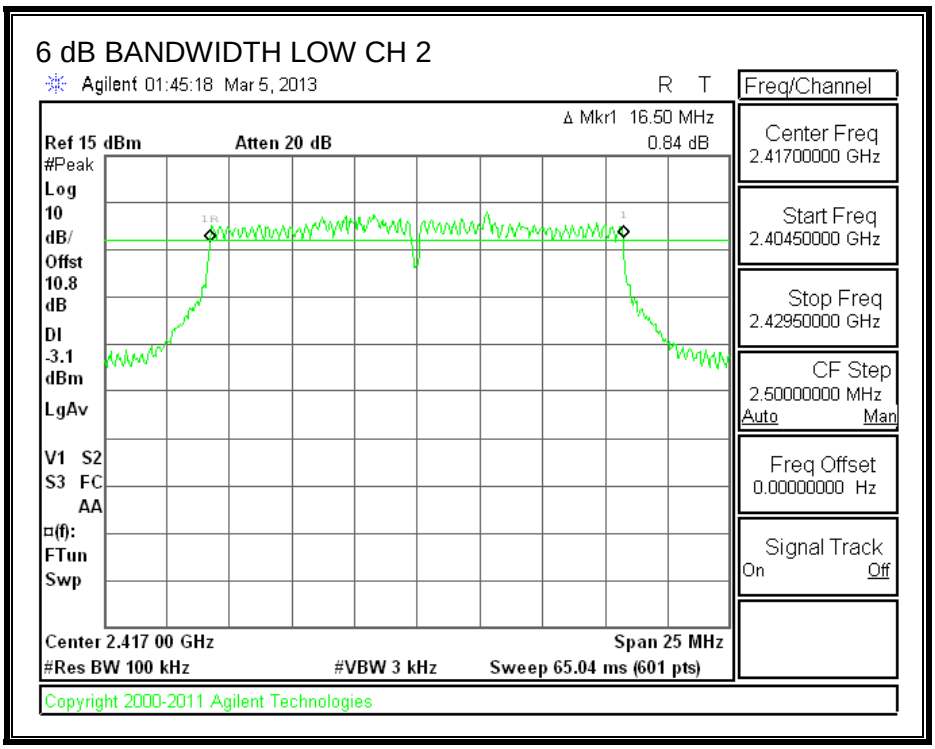
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

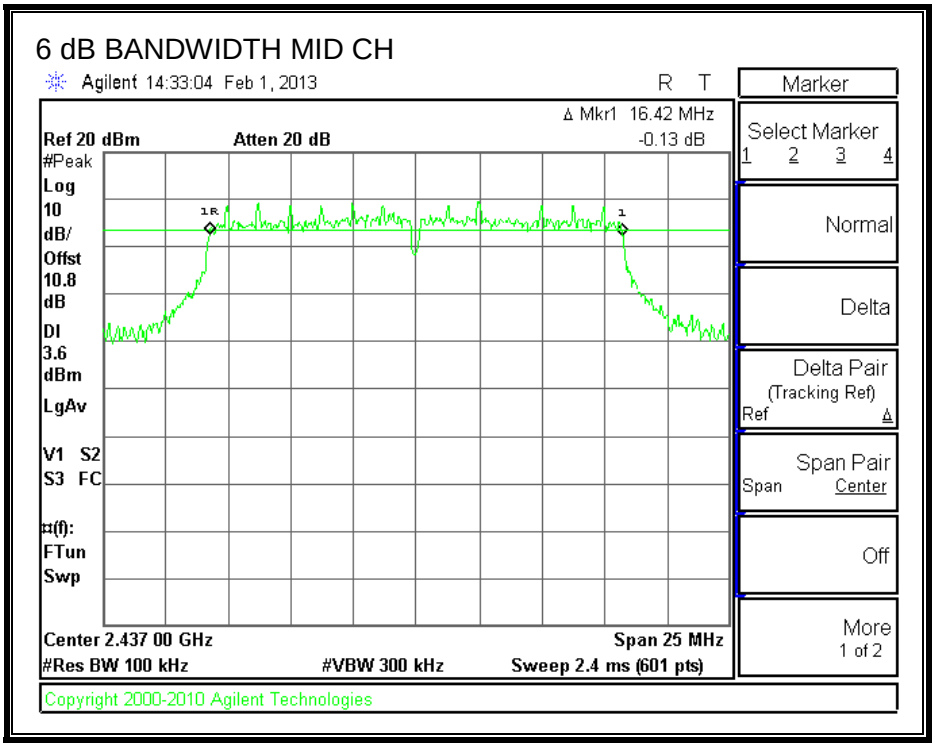
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	16.42	0.5
Low 2	2417	16.50	0.5
Mid	2437	16.42	0.5
High 2	2457	16.65	0.5
High 1	2462	16.42	0.5

6 dB BANDWIDTH

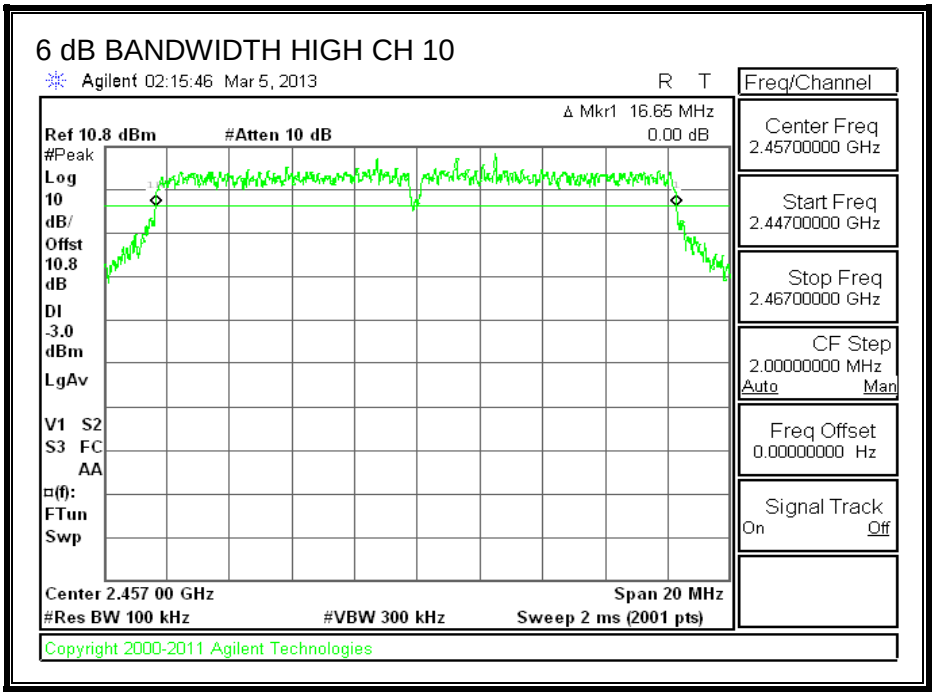


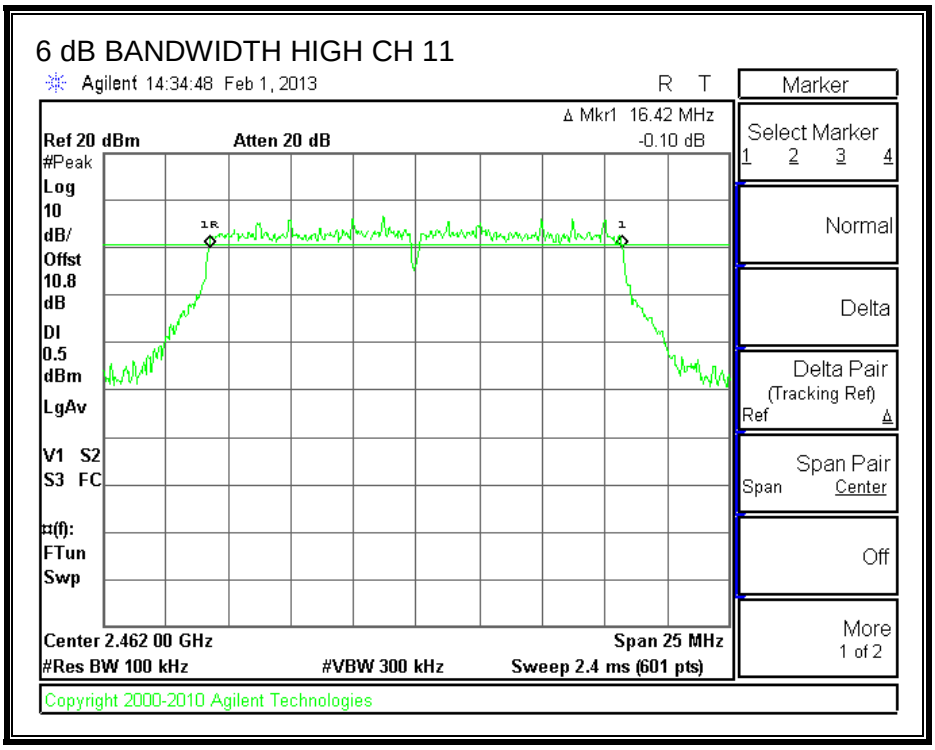


6 dB BANDWIDTH MID CH



6 dB BANDWIDTH HIGH CH 10





8.3.2. 99% BANDWIDTH

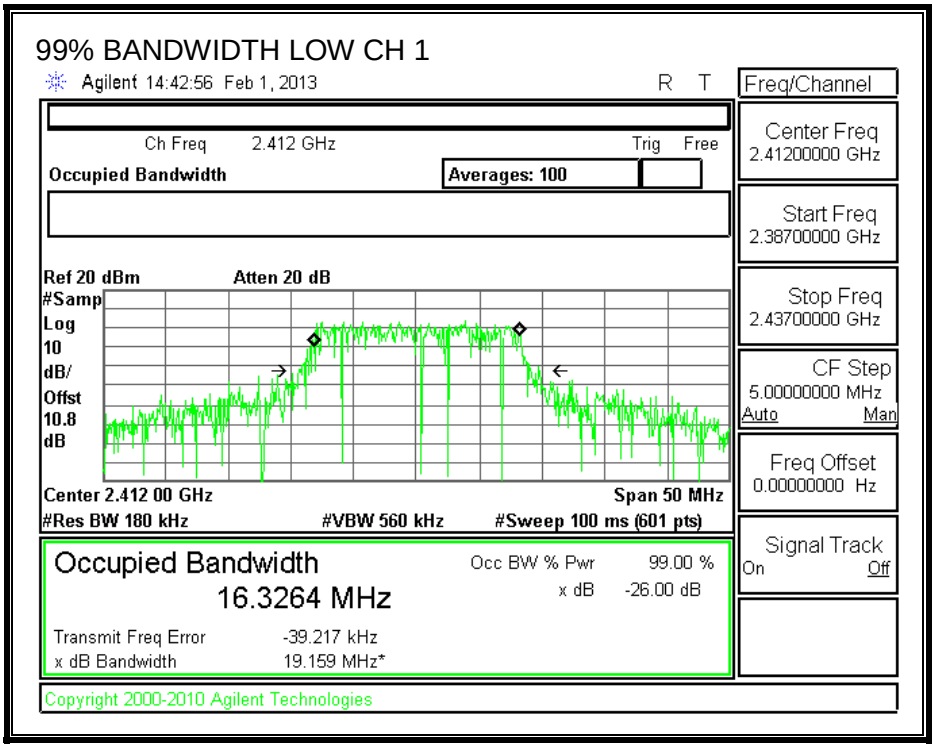
LIMITS

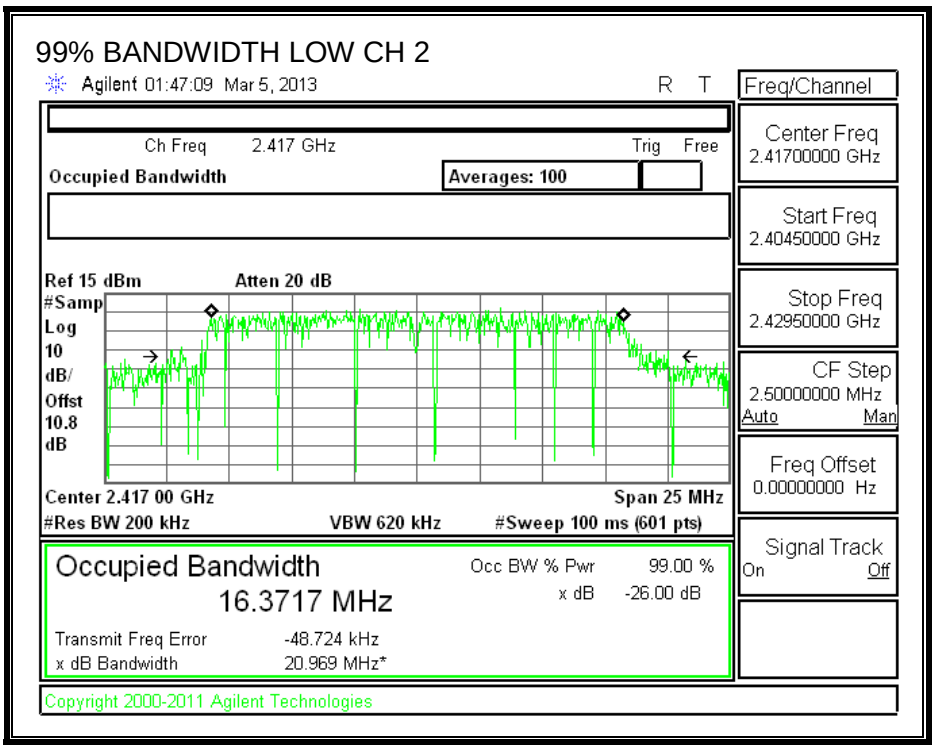
None; for reporting purposes only.

RESULTS

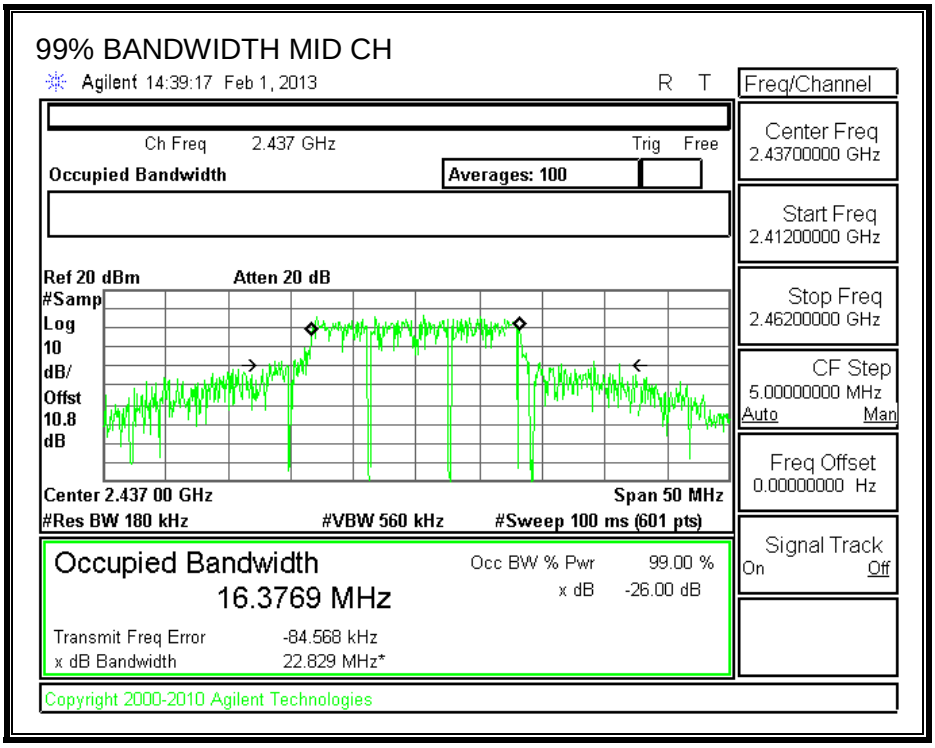
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	16.3264
Low 2	2417	16.3717
Mid	2437	17.3769
High 2	2457	16.4839
High 1	2462	16.4286

99% BANDWIDTH

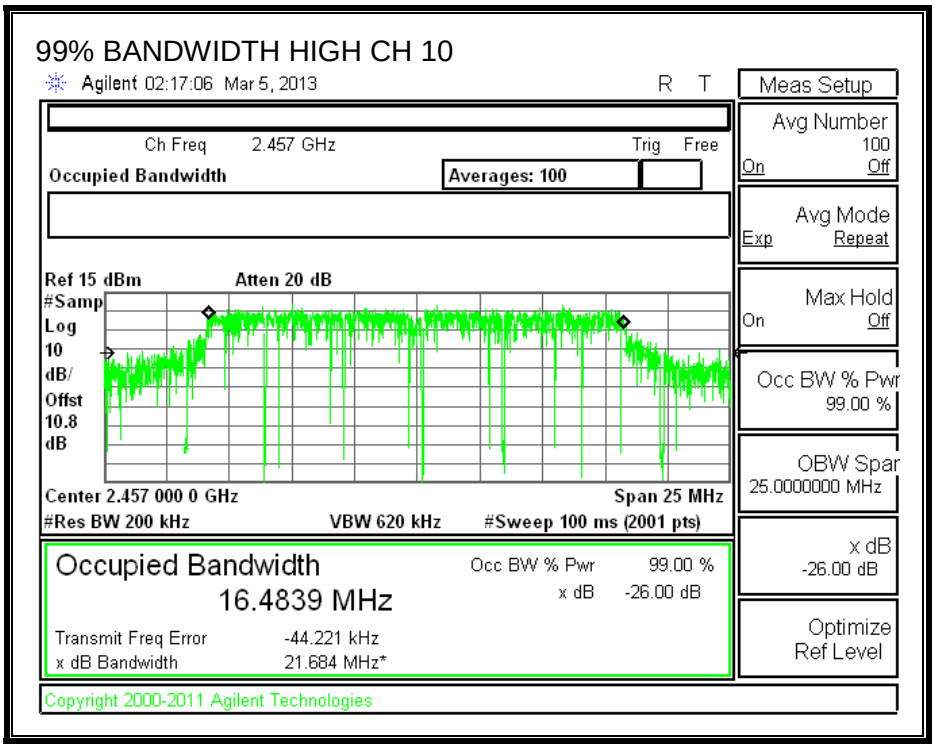


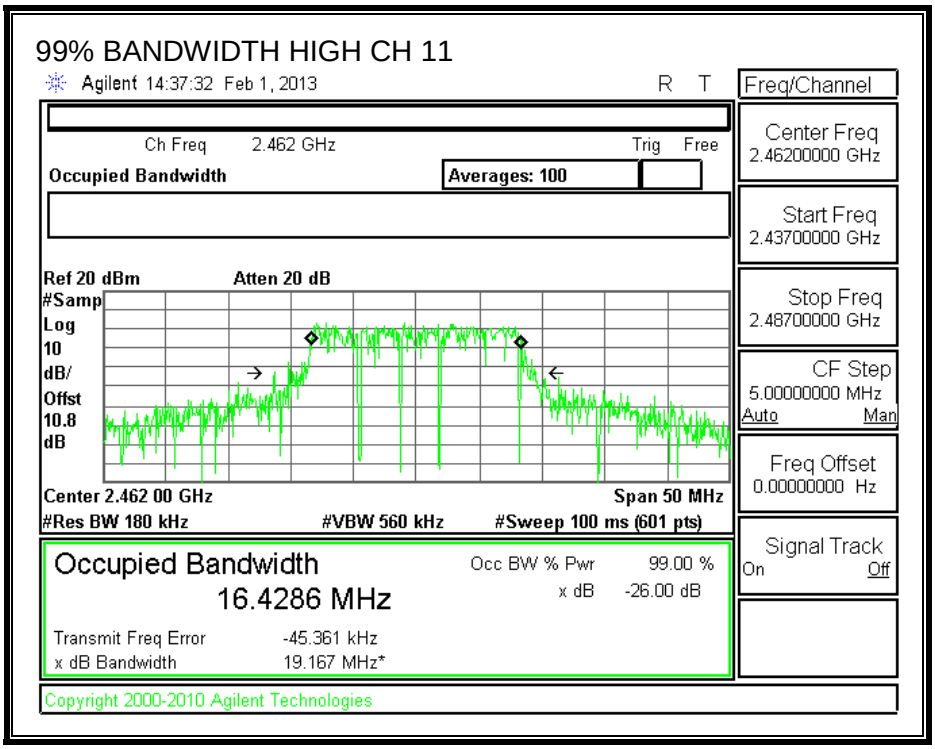


99% BANDWIDTH MID CH



99% BANDWIDTH HIGH CH 10





8.3.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
1	2412	5.98	30.00	30	36	30.00
2	2417	5.98	30.00	30	36	30.00
6	2437	5.98	30.00	30	36	30.00
10	2457	5.98	30.00	30	36	30.00
11	2462	5.98	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
1	2412	17.55	17.55	30.00	-12.45
2	2417	20.18	20.18	30.00	-9.82
6	2437	20.20	20.20	30.00	-9.80
10	2457	20.32	20.32	30.00	-9.68
11	2462	17.55	17.55	30.00	-12.45

8.3.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

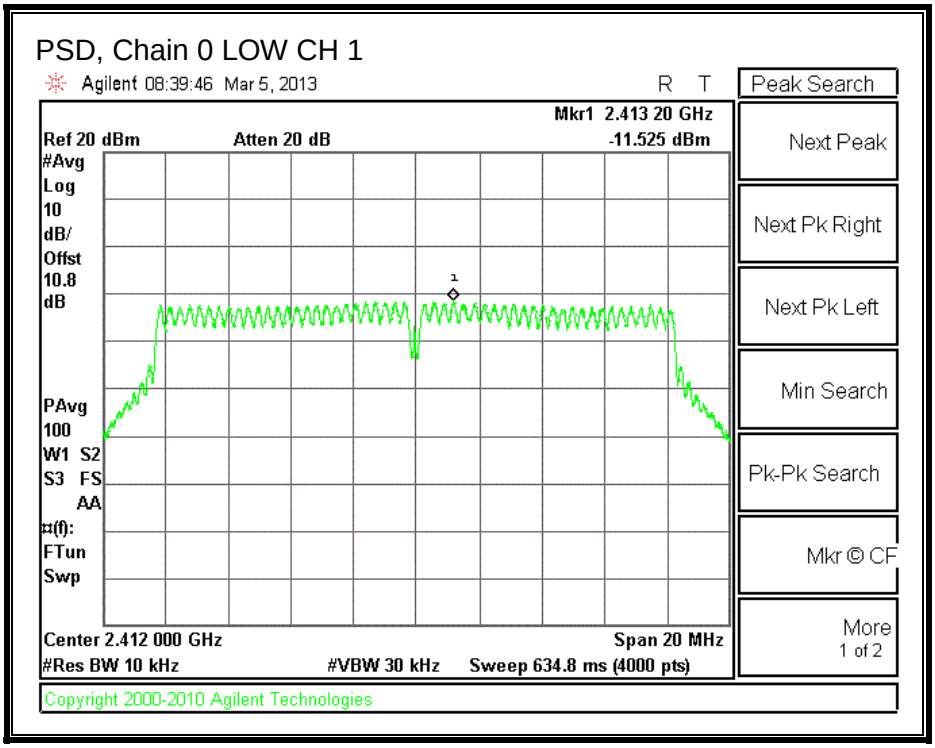
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

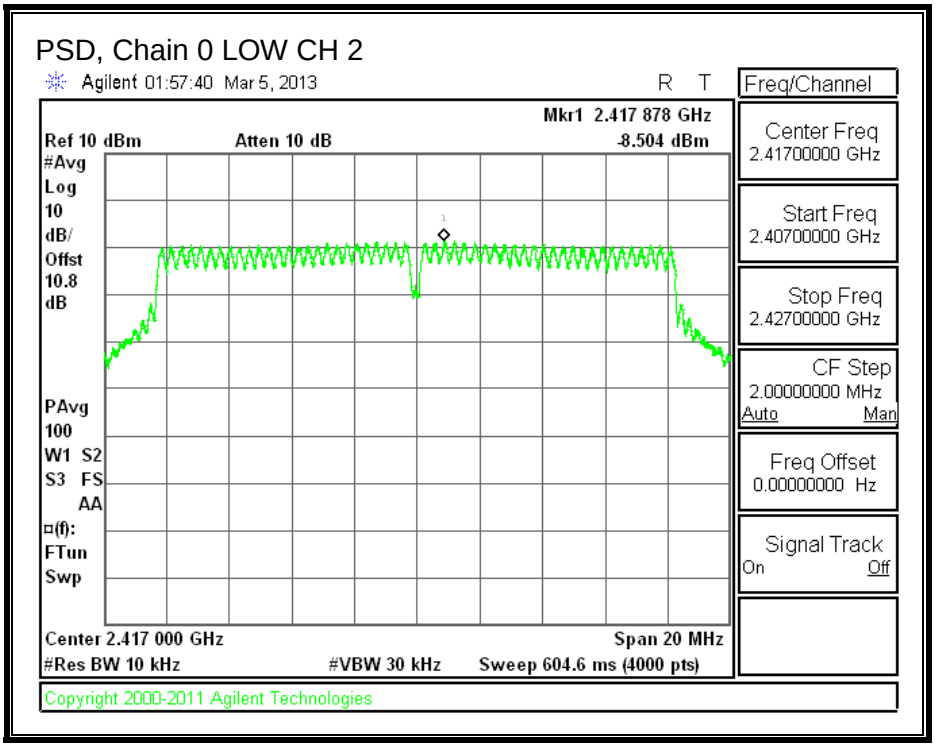
RESULTS

PSD Results

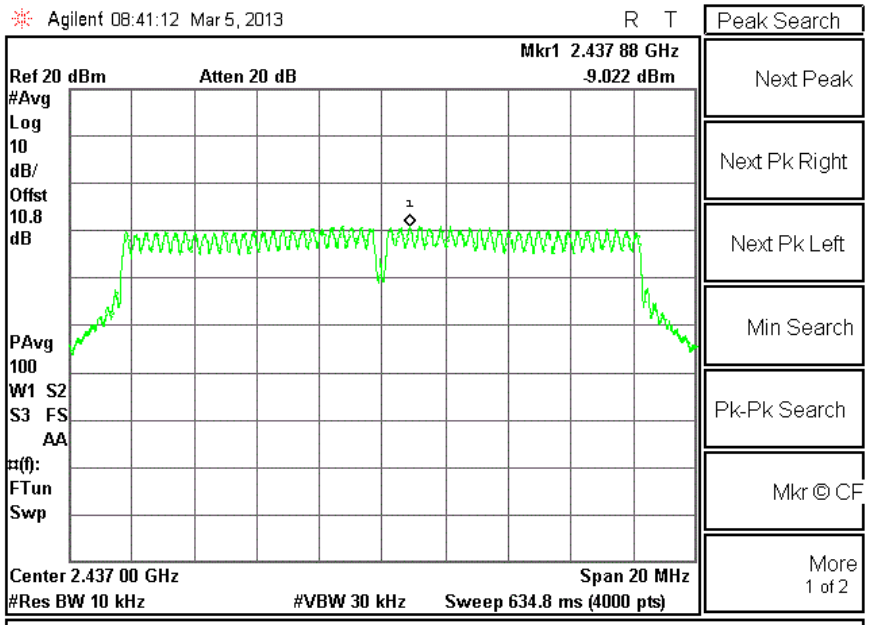
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
1	2412	-11.525	8.0	-19.5
2	2417	-8.504	8.0	-16.5
6	2437	-9.022	8.0	-17.0
10	2457	-9.260	8.0	-17.3
11	2462	-11.801	8.0	-19.8

PSD, Chain 0

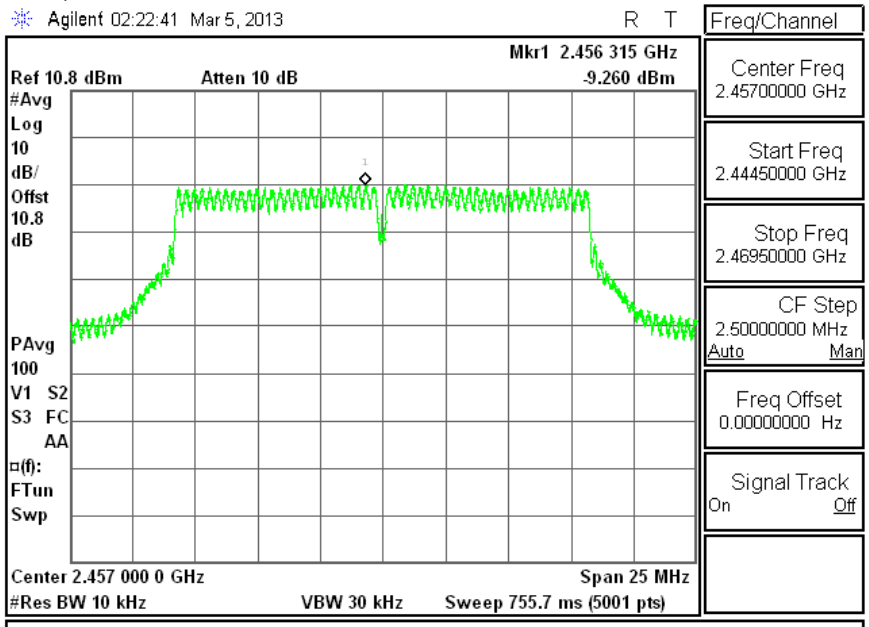


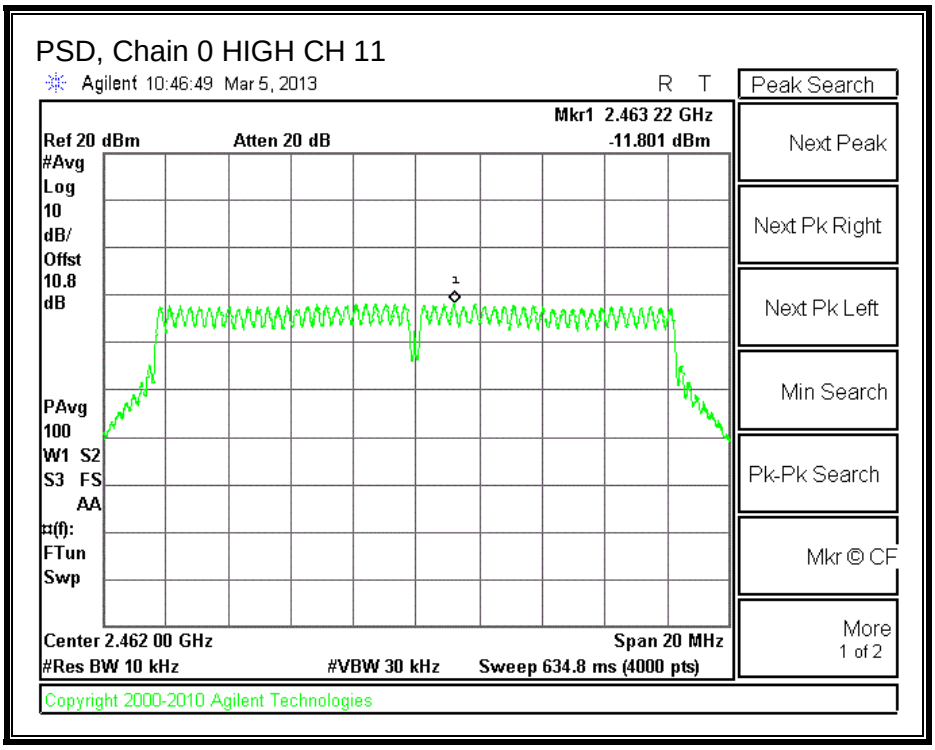


PSD, Chain 0 MID CH



PSD, Chain 0 HIGH CH 10





8.3.5. OUT-OF-BAND EMISSIONS

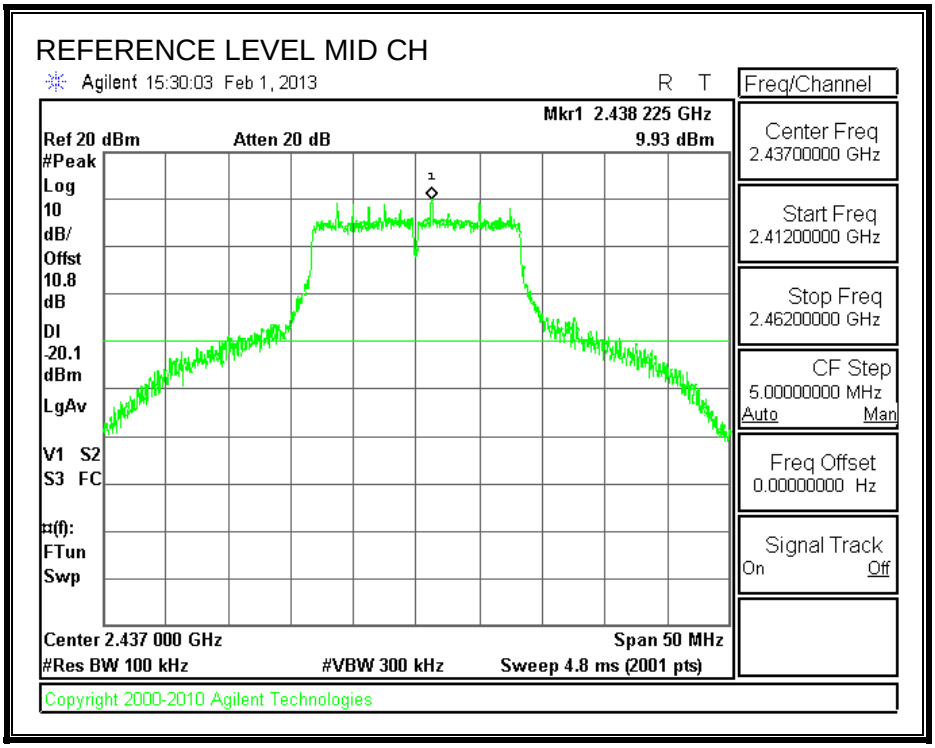
LIMITS

FCC §15.247 (d)

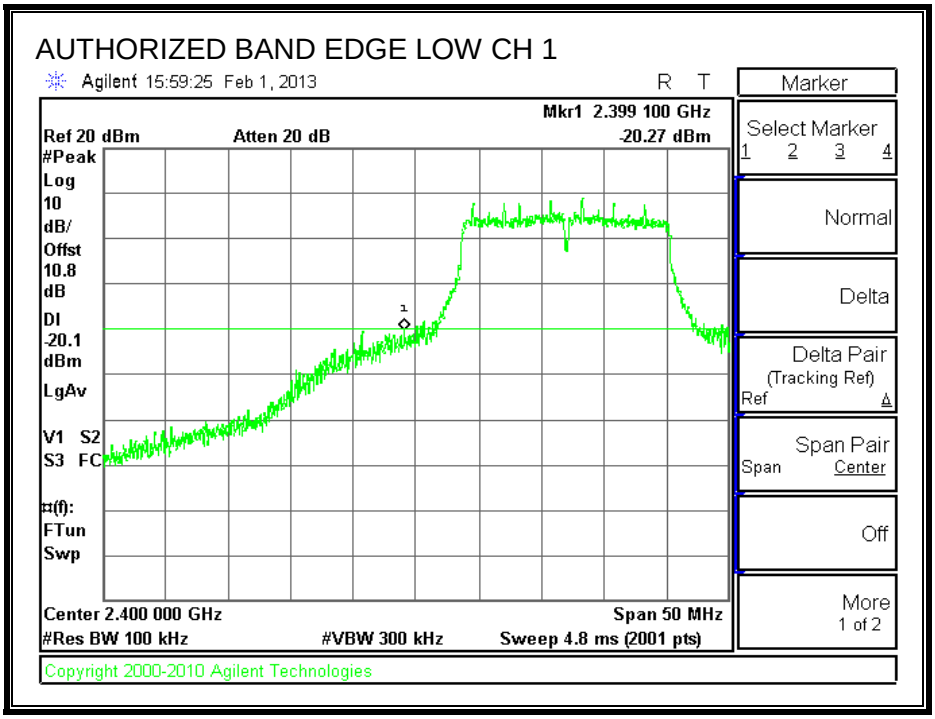
IC RSS-210 A8.5

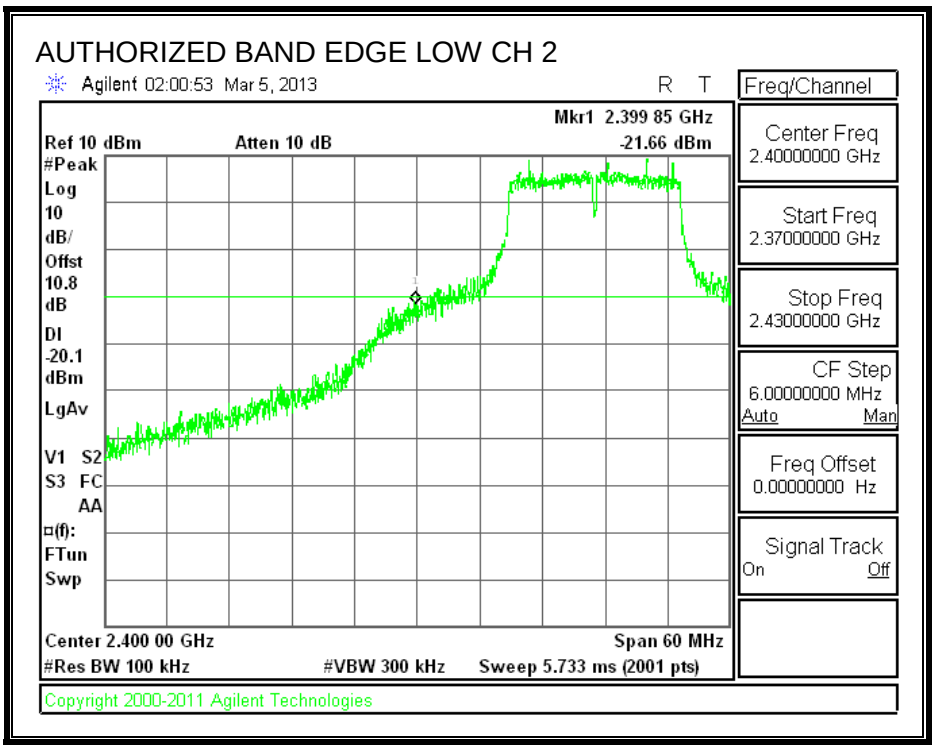
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

IN-BAND REFERENCE LEVEL

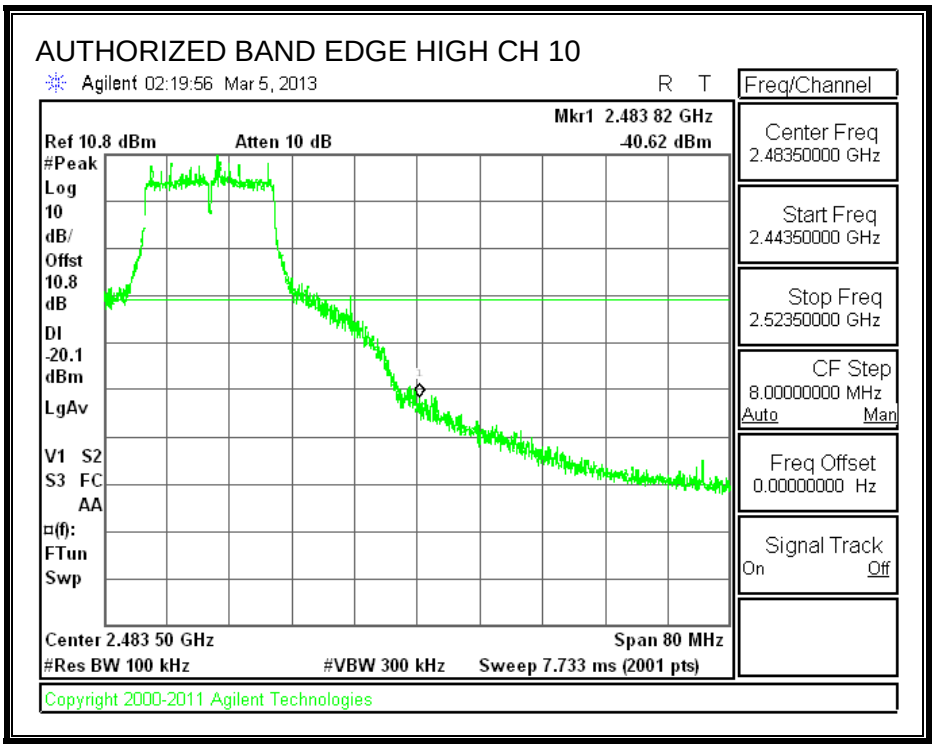


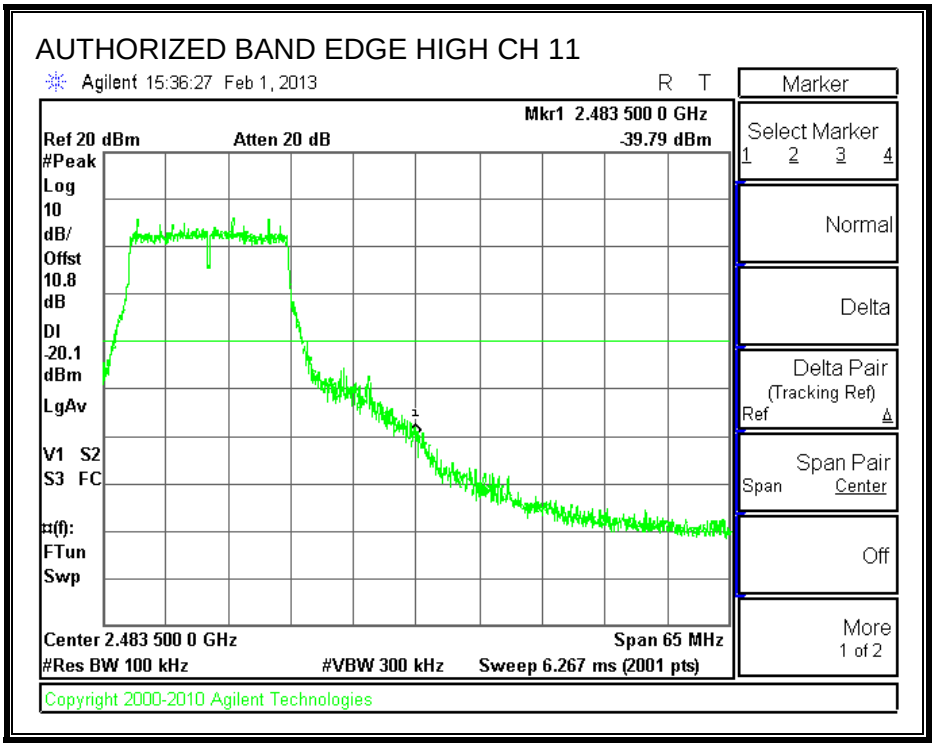
LOW CHANNEL BANDEDGE



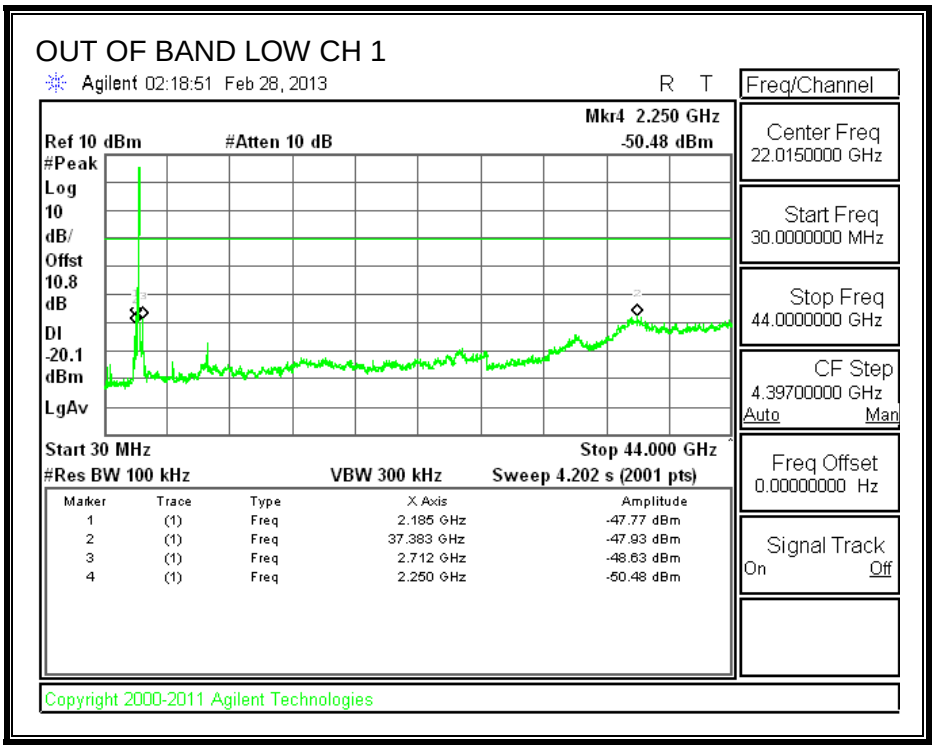


HIGH CHANNEL BANDEDGE

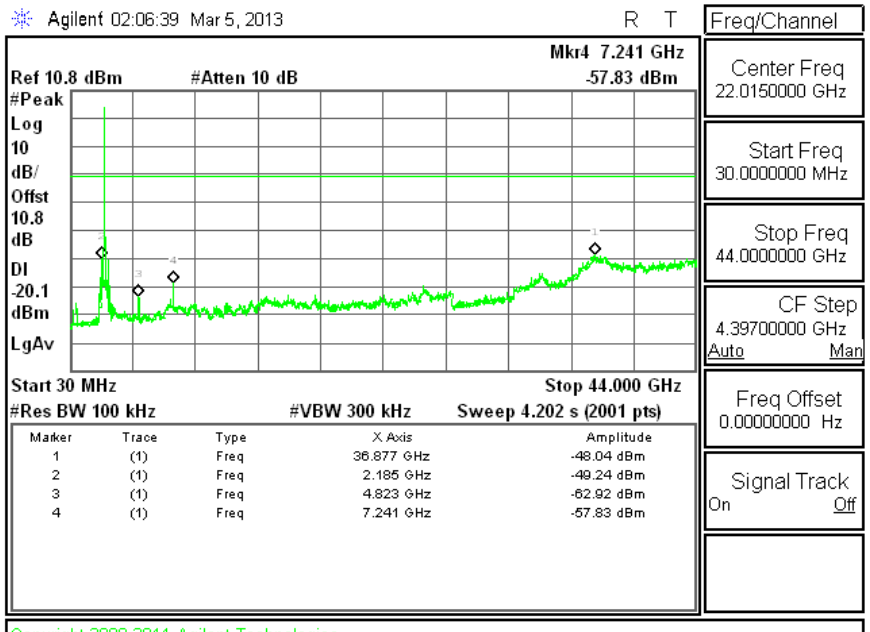




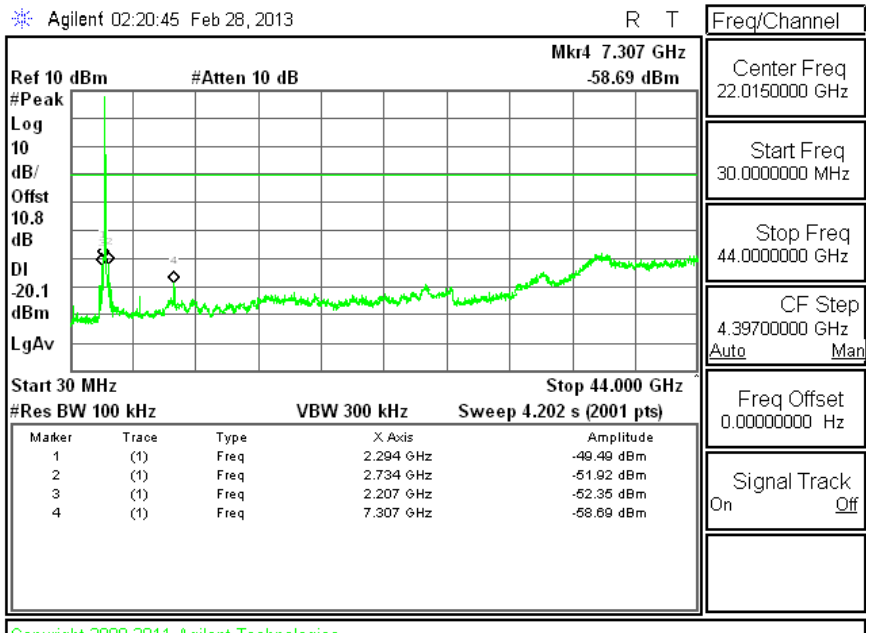
OUT-OF-BAND EMISSIONS



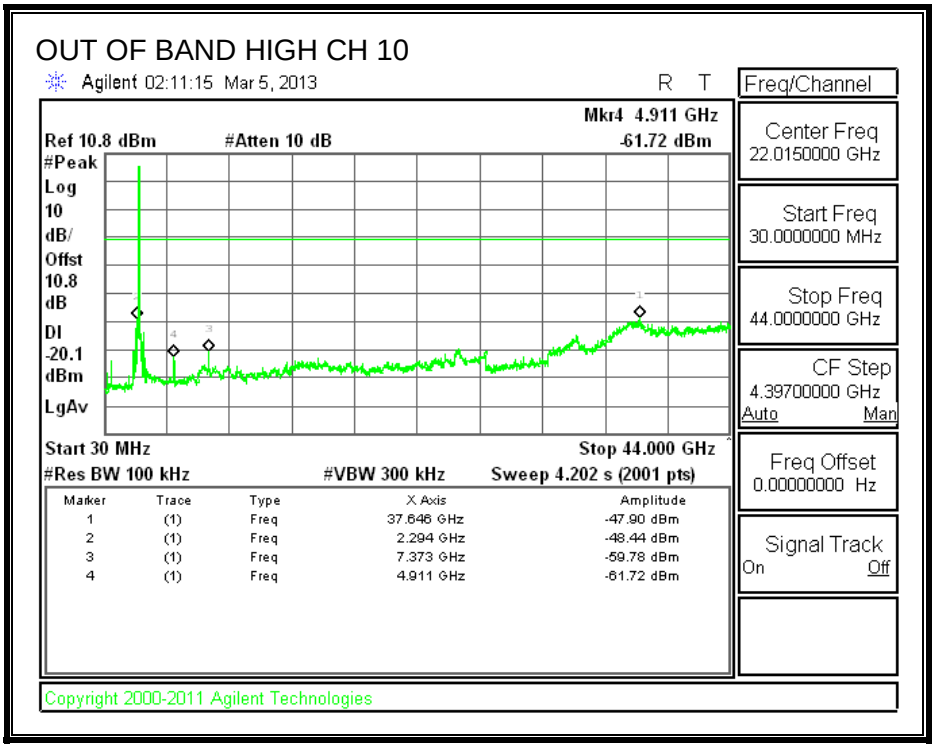
OUT OF BAND LOW CH 2



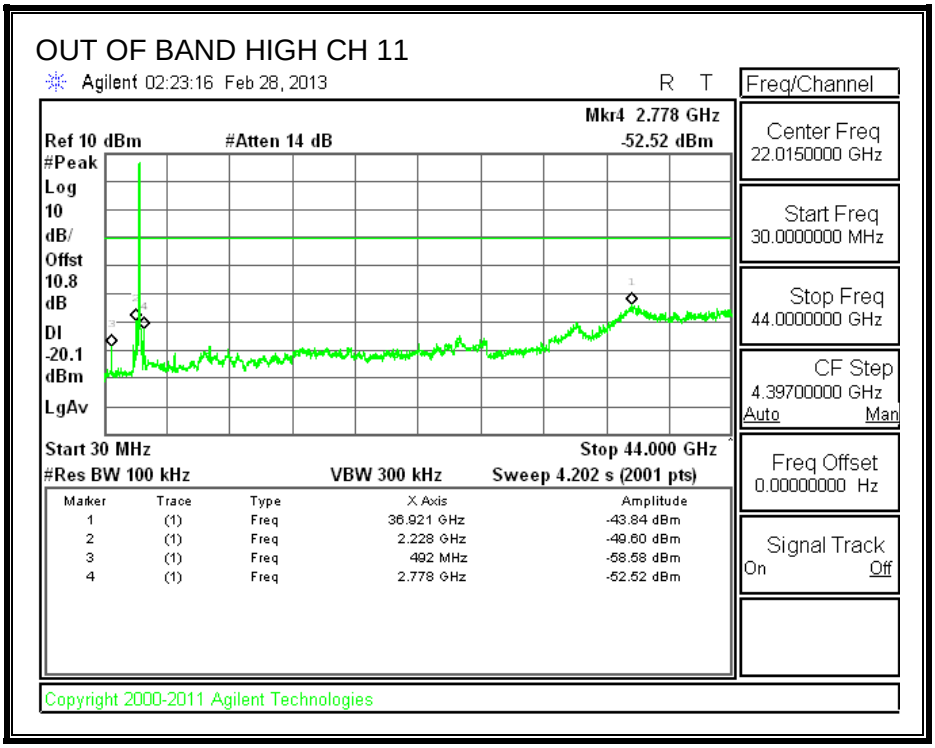
OUT OF BAND MID CH



OUT OF BAND HIGH CH 10



OUT OF BAND HIGH CH 11



8.4. 802.11g CDD 2TX MODE IN THE 2.4 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.5. 802.11g TxBF 2TX MODE IN THE 2.4 GHz BAND

Covered by testing 11n HT20 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.6. 802.11n HT20 1TX MODE IN THE 2.4 GHz BAND

Covered by testing 11g Legacy 1TX, power is equal or higher than the power level the device will operate at.

8.7. 802.11n HT20 CDD 2TX MODE IN THE 2.4 GHz BAND

8.7.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

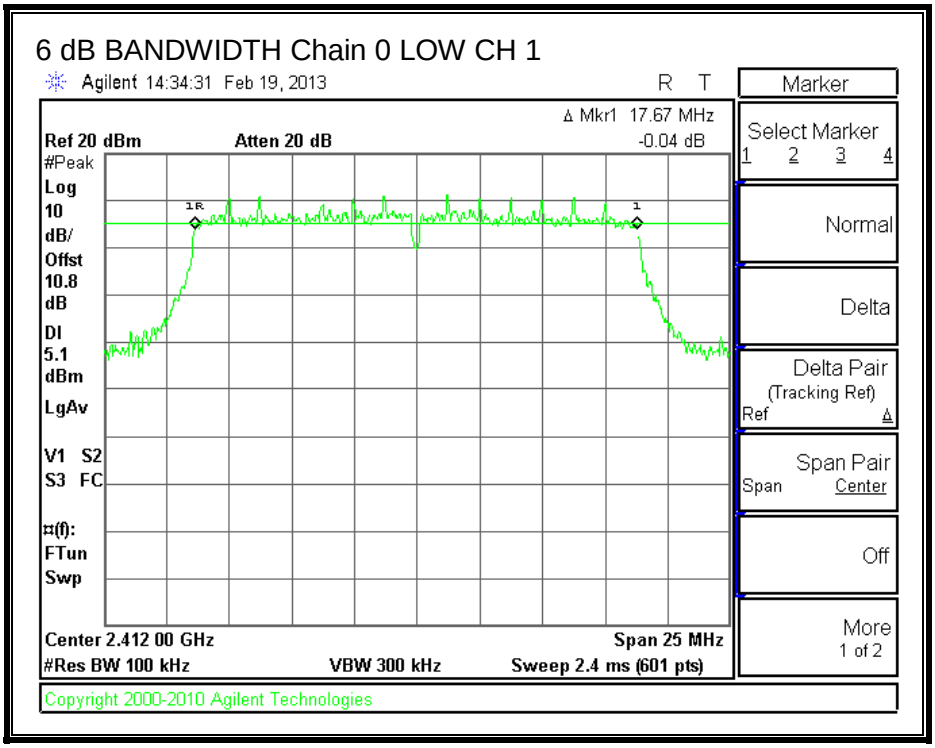
IC RSS-210 A8.2 (a)

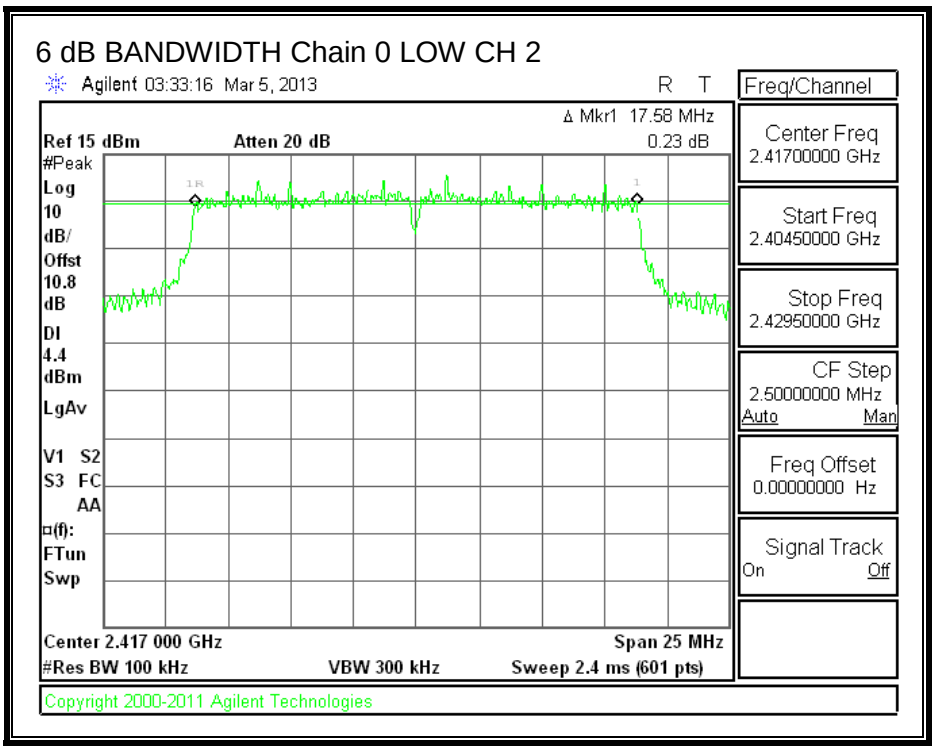
The minimum 6 dB bandwidth shall be at least 500 kHz.

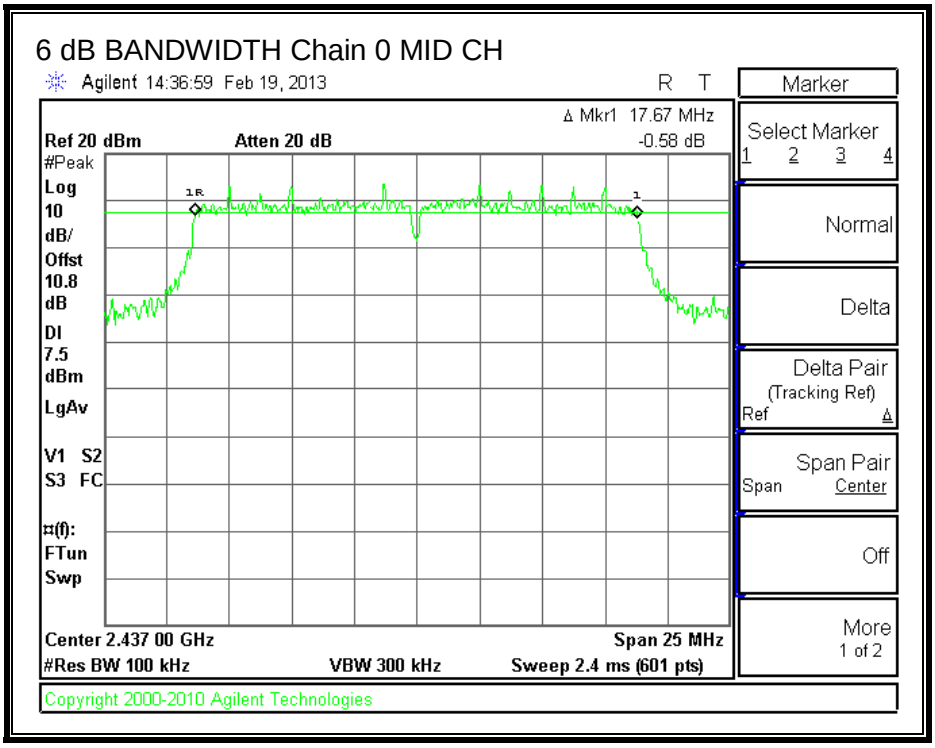
RESULTS

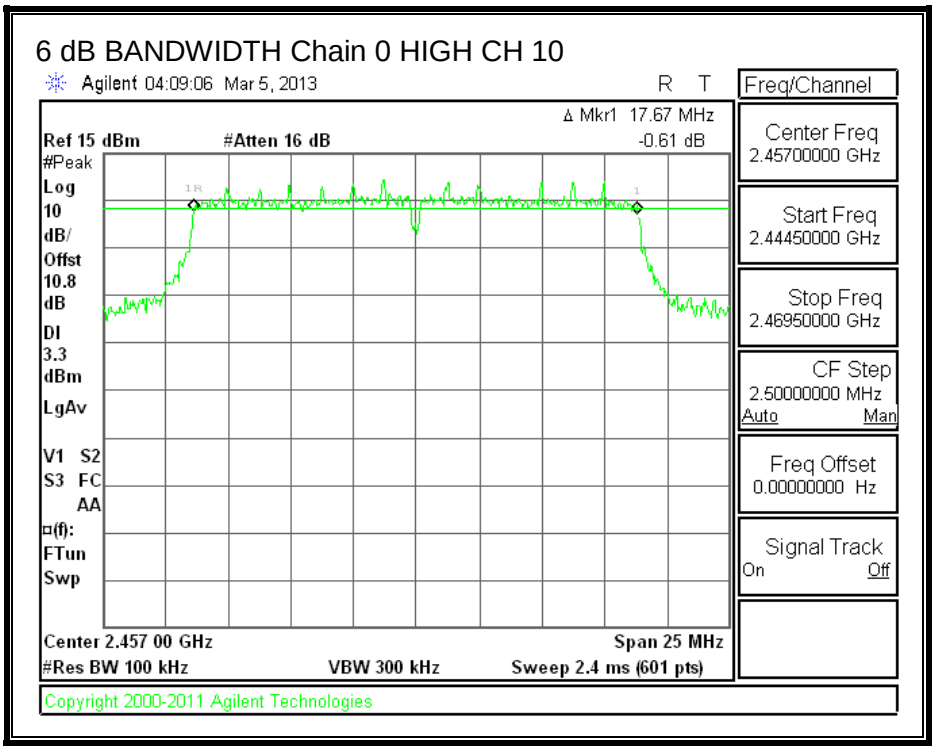
Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low 1	2412	17.67	17.67	0.5
Low 2	2417	17.58	17.67	0.5
Mid	2437	17.67	17.67	0.5
High 10	2457	17.67	17.67	0.5
High 11	2462	17.62	17.67	0.5

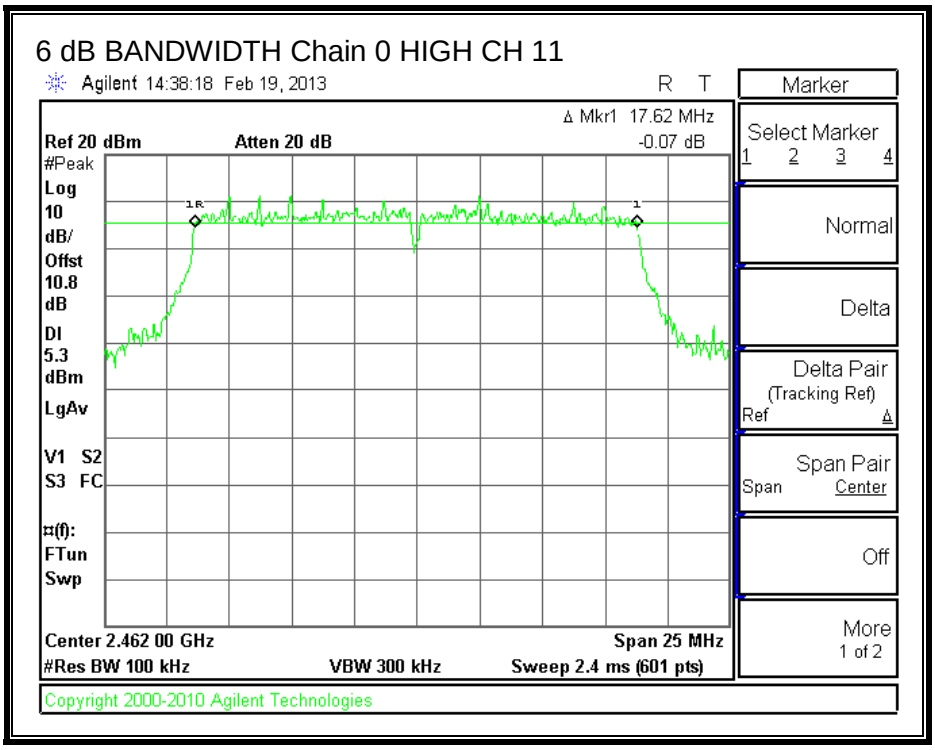
6 dB BANDWIDTH, Chain 0



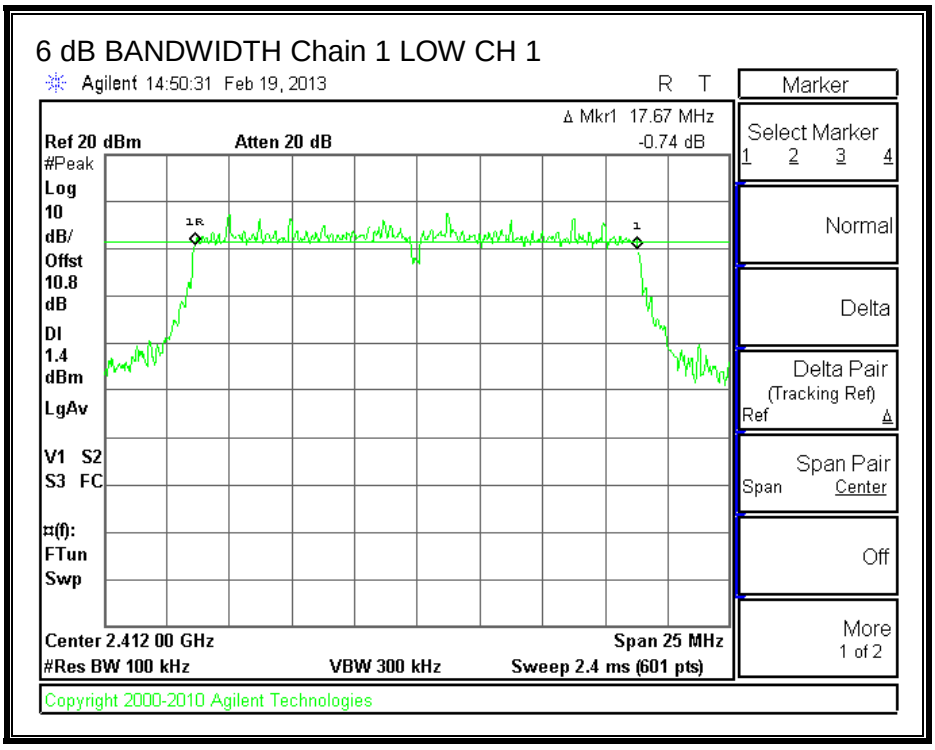


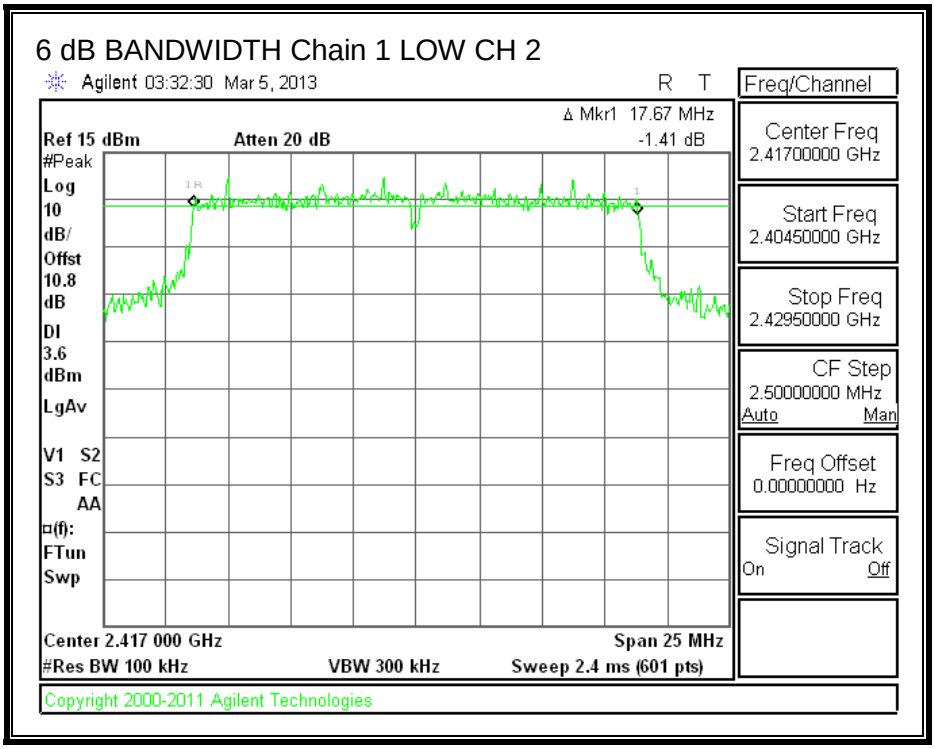


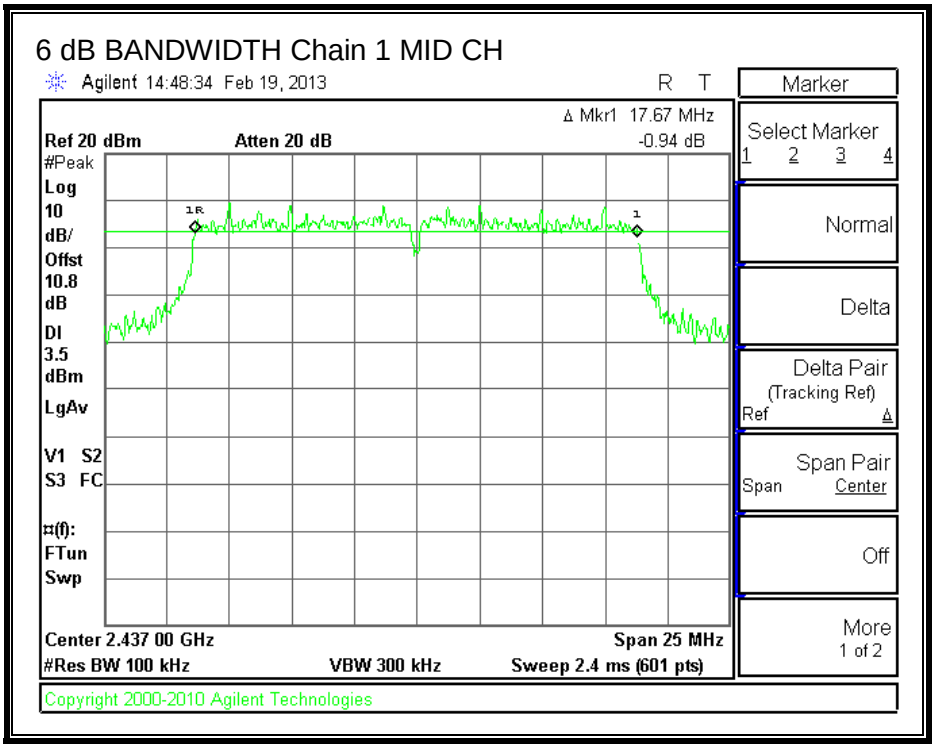


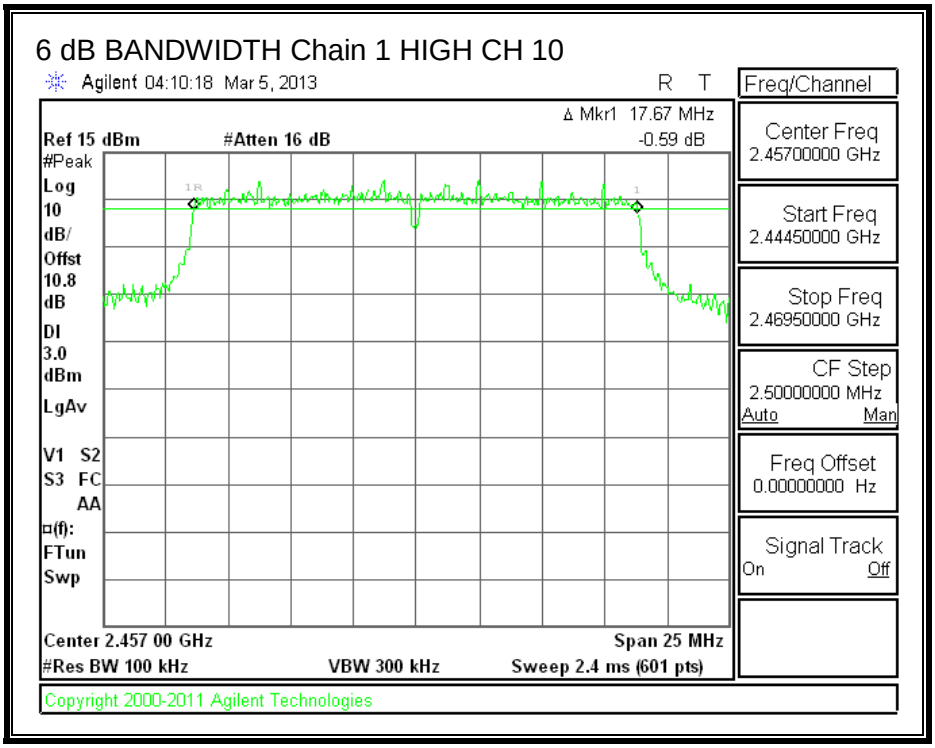


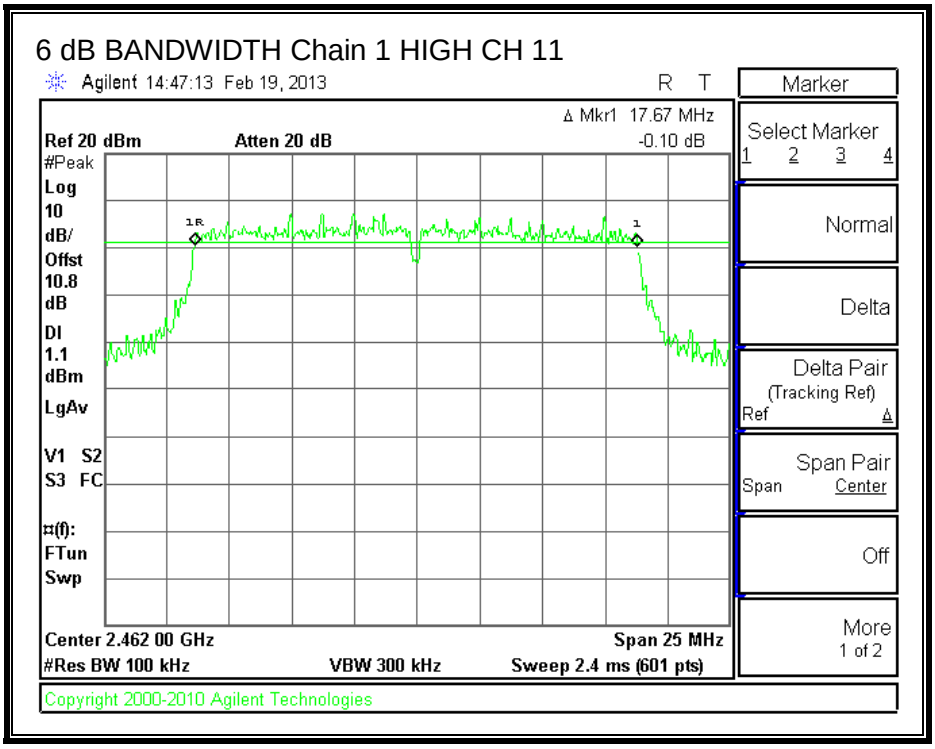
6 dB BANDWIDTH, Chain 1











8.7.2. 99% BANDWIDTH

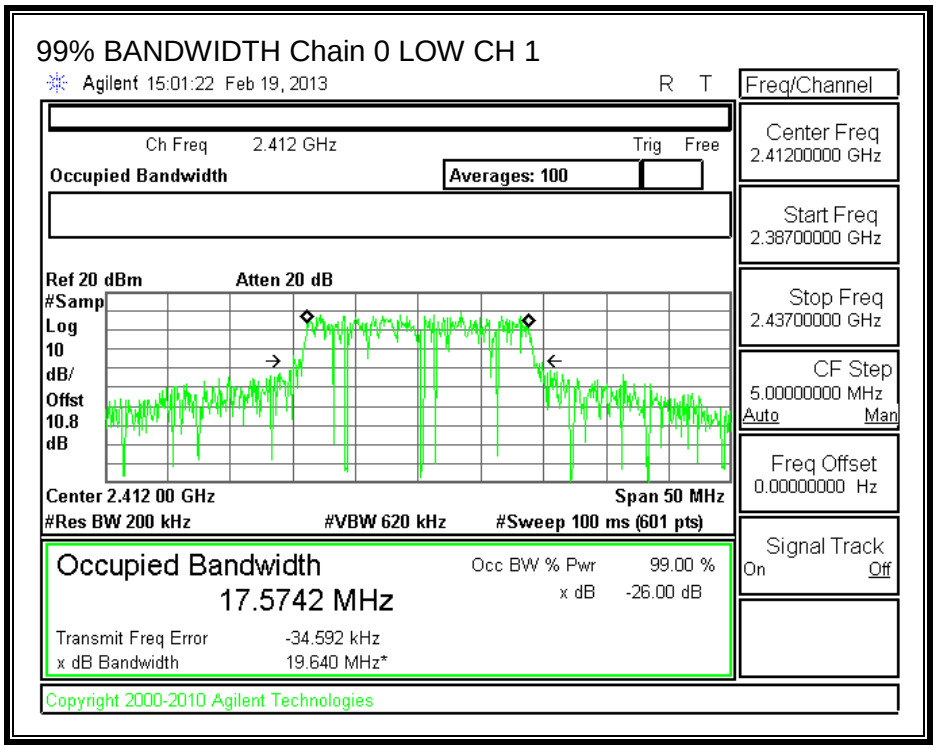
LIMITS

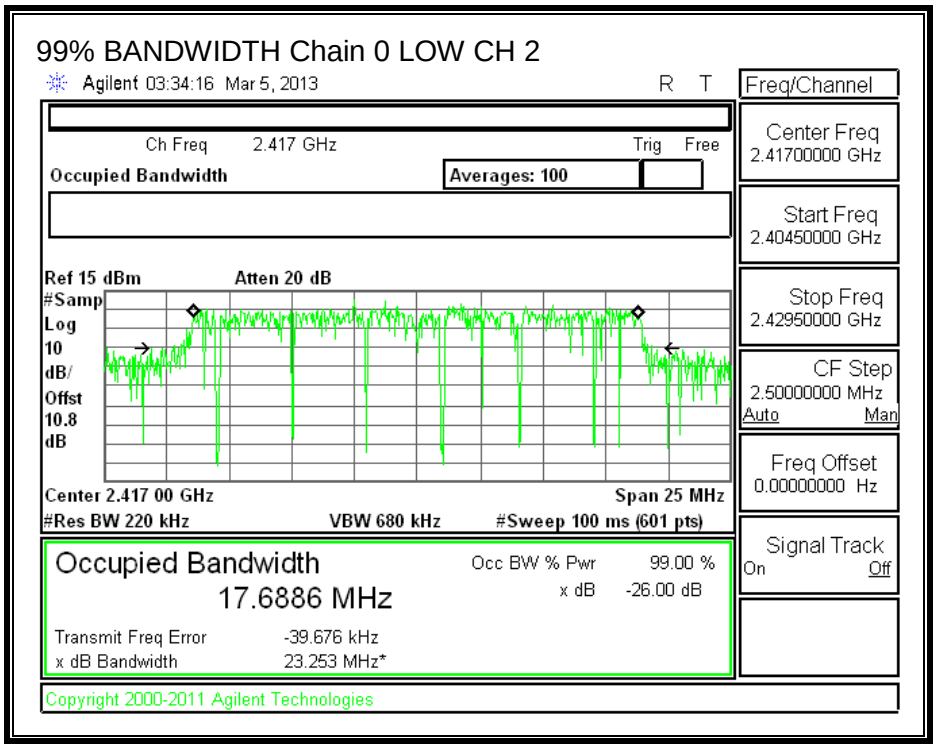
None; for reporting purposes only.

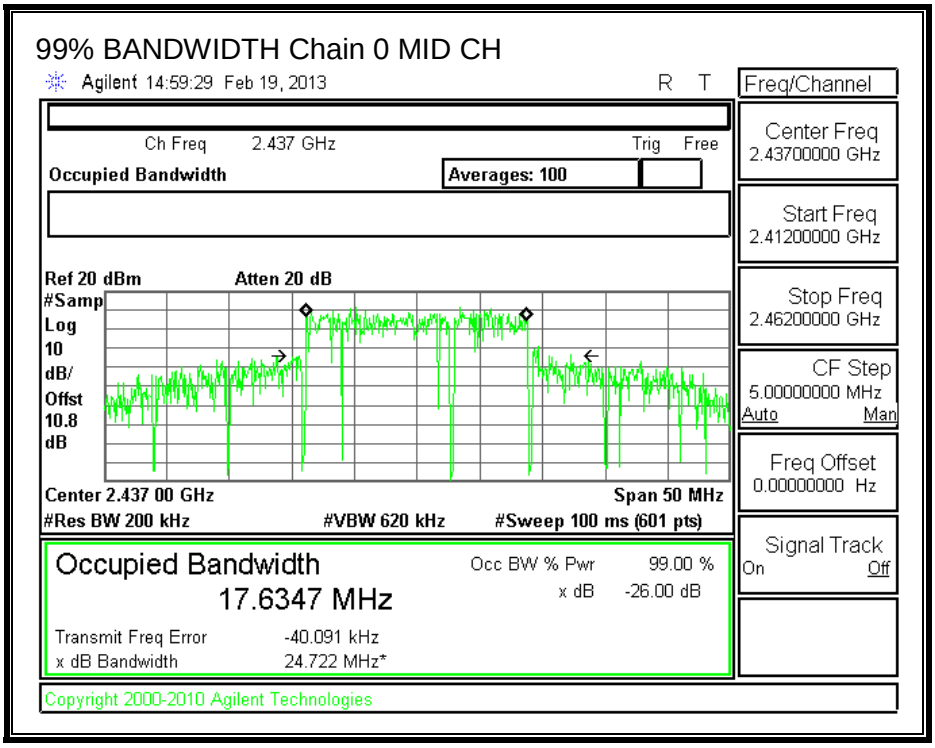
RESULTS

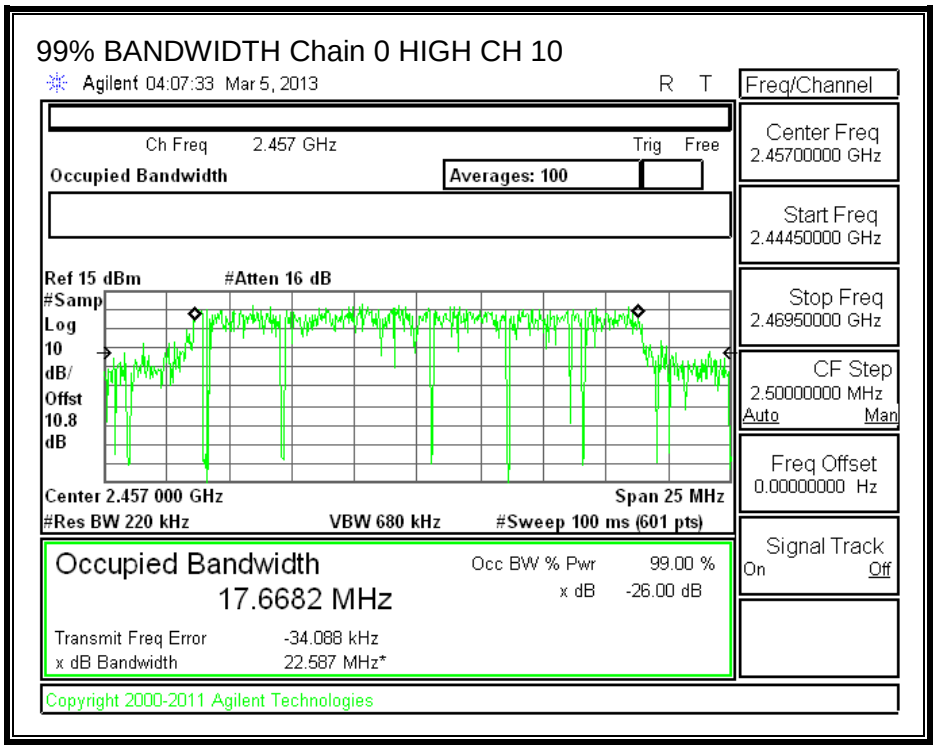
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low 1	2412	17.5742	17.3810
Low 2	2417	17.6886	17.6279
Mid	2437	17.6347	17.6691
High 10	2457	17.6682	17.6530
High 11	2462	17.5510	17.6254

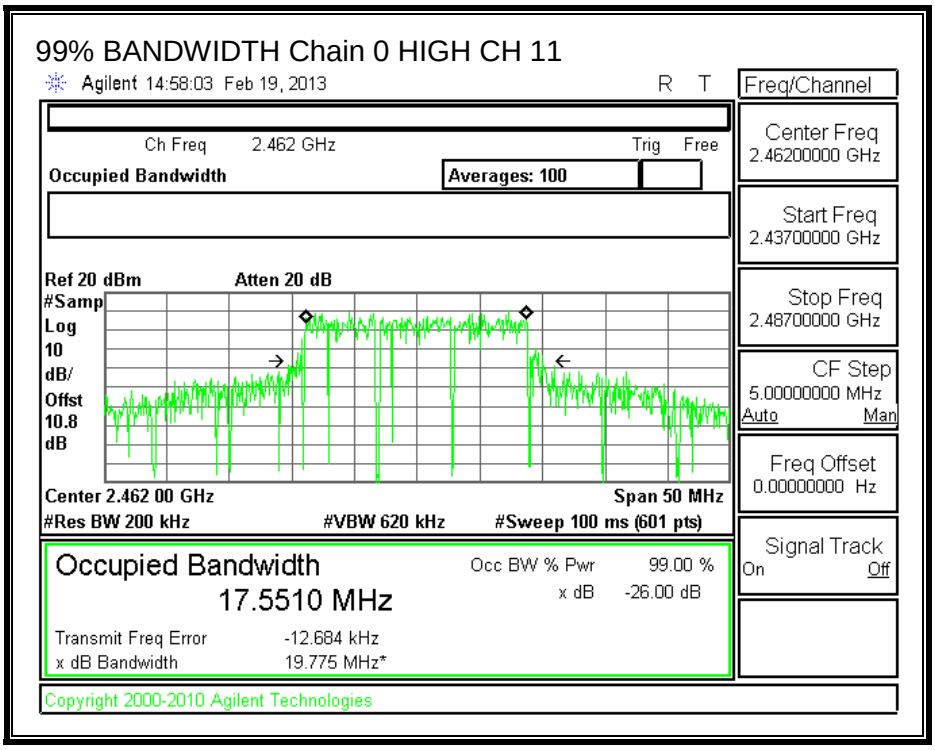
99% BANDWIDTH, Chain 0



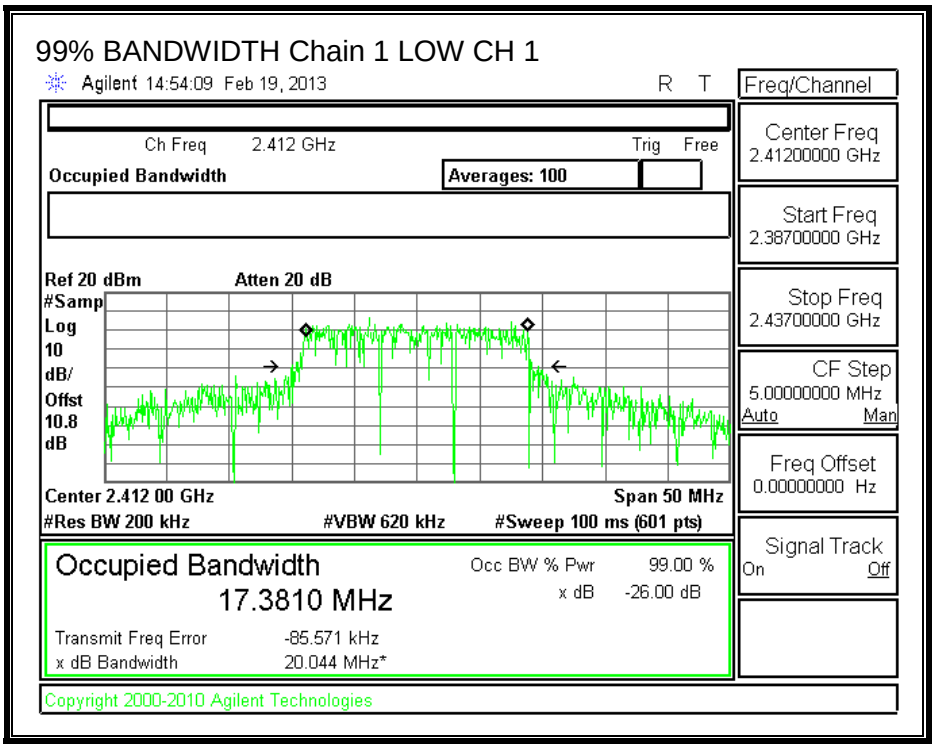


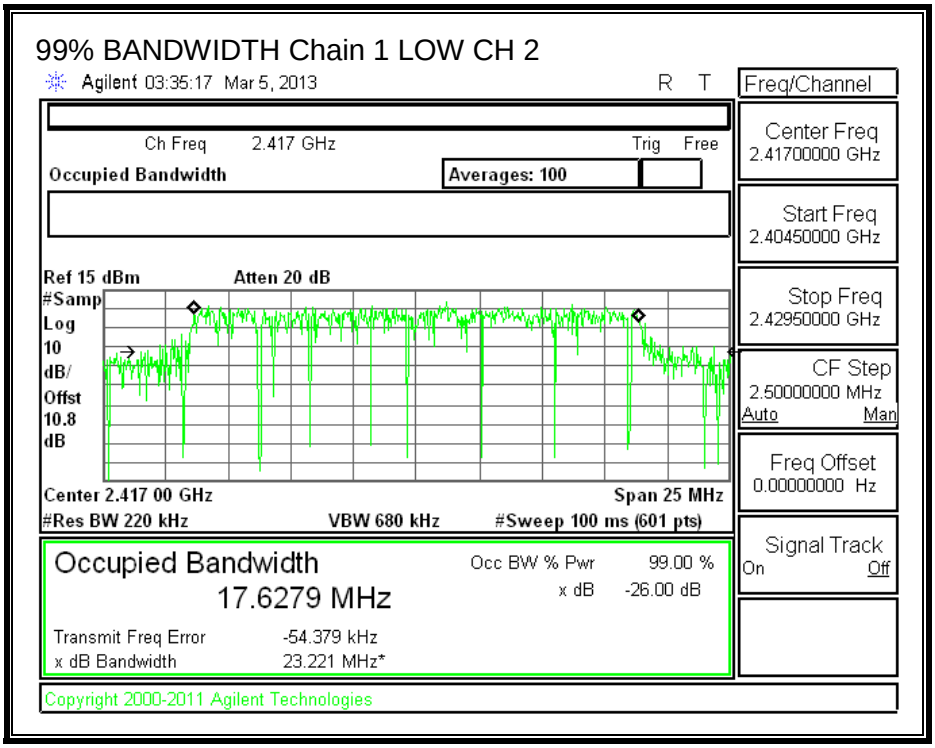


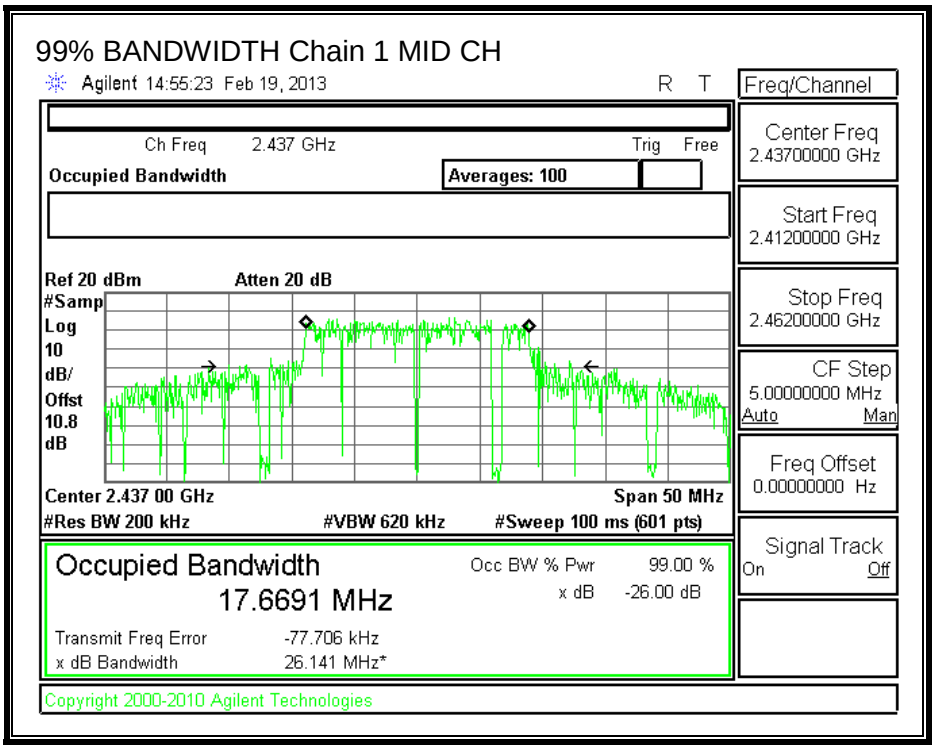


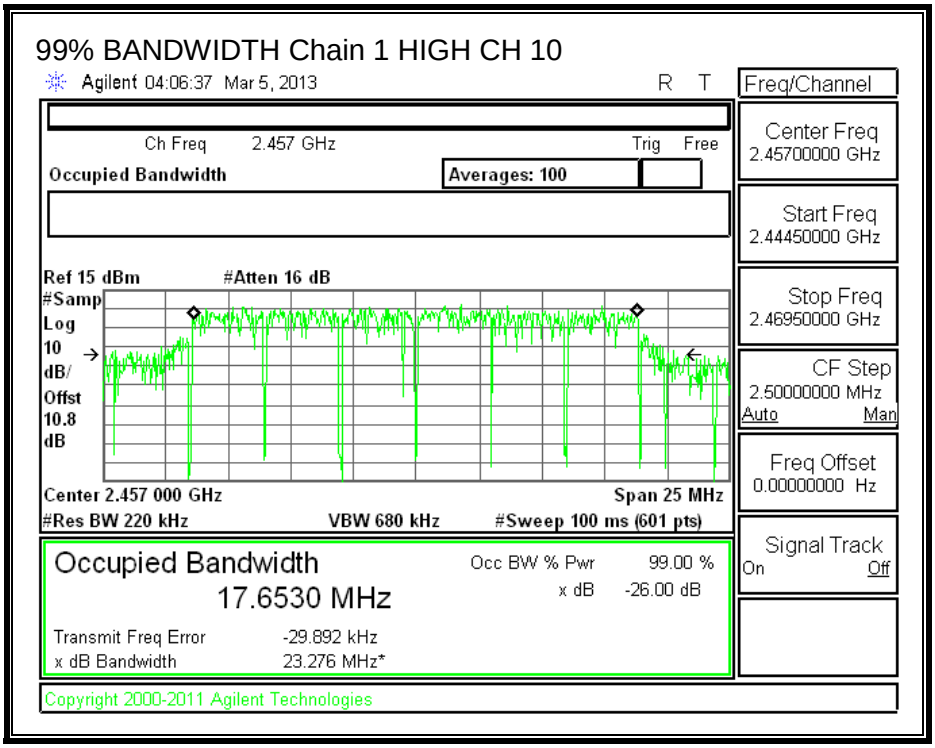


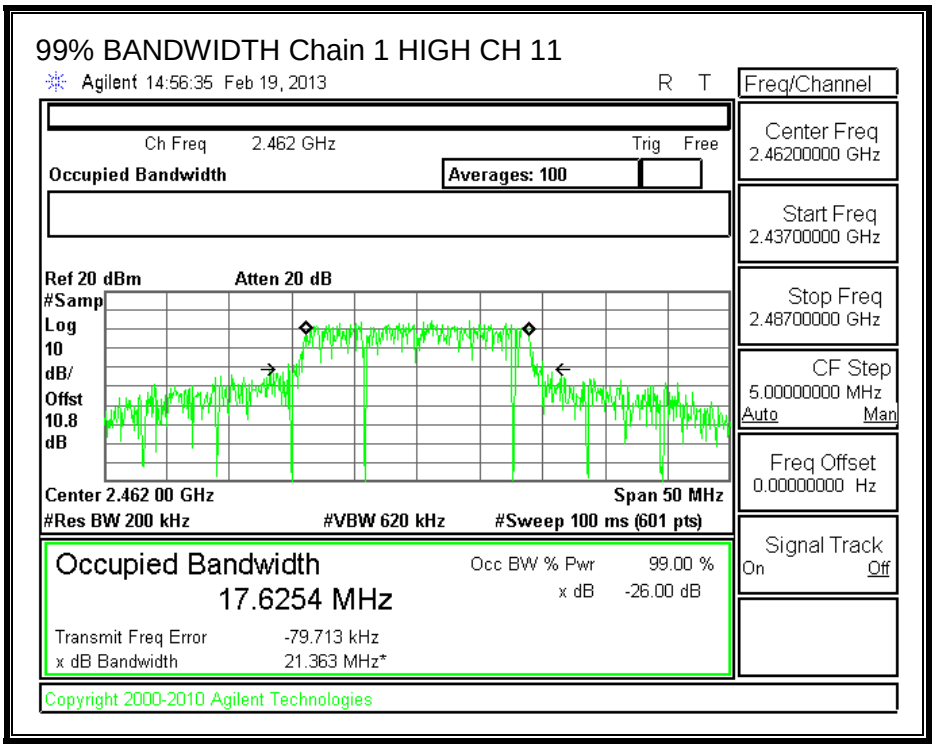
99% BANDWIDTH, Chain 1











8.7.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.97	4.87	4.92

RESULTS

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
1	2412	4.92	30.00	30	36	30.00
2	2417	4.92	30.00	30	36	30.00
6	2437	4.92	30.00	30	36	30.00
10	2457	4.92	30.00	30	36	30.00
11	2462	4.92	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
1	2412	15.40	15.60	18.51	30.00	-11.49
2	2417	20.02	20.17	23.11	30.00	-6.89
6	2437	20.10	20.05	23.09	30.00	-6.91
10	2457	20.25	20.08	23.18	30.00	-6.82
11	2462	16.15	15.81	18.99	30.00	-11.01

8.7.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

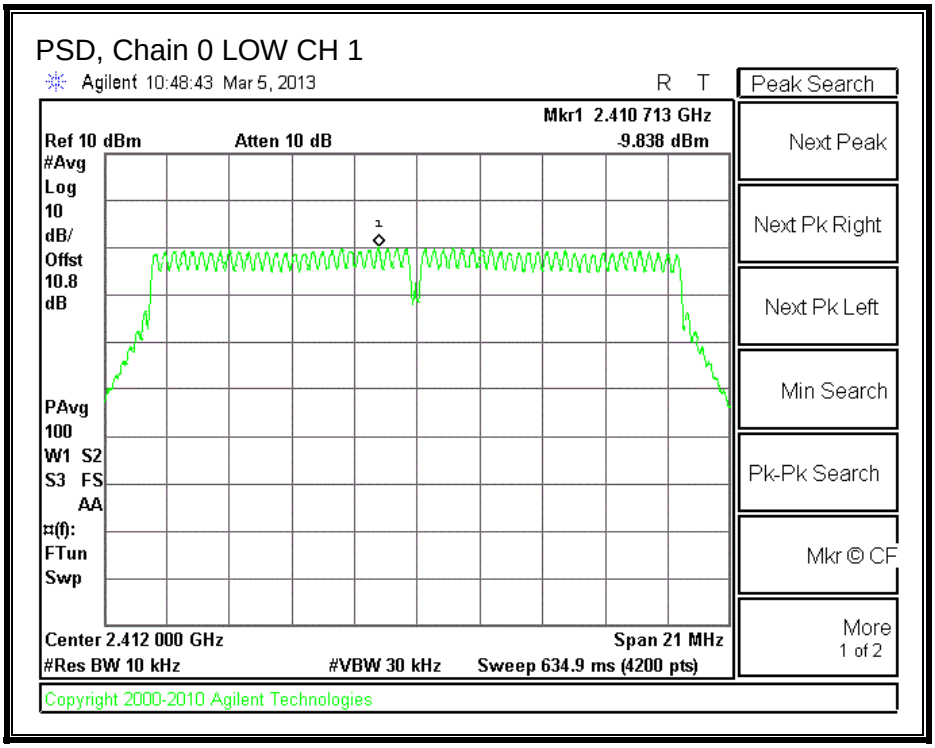
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

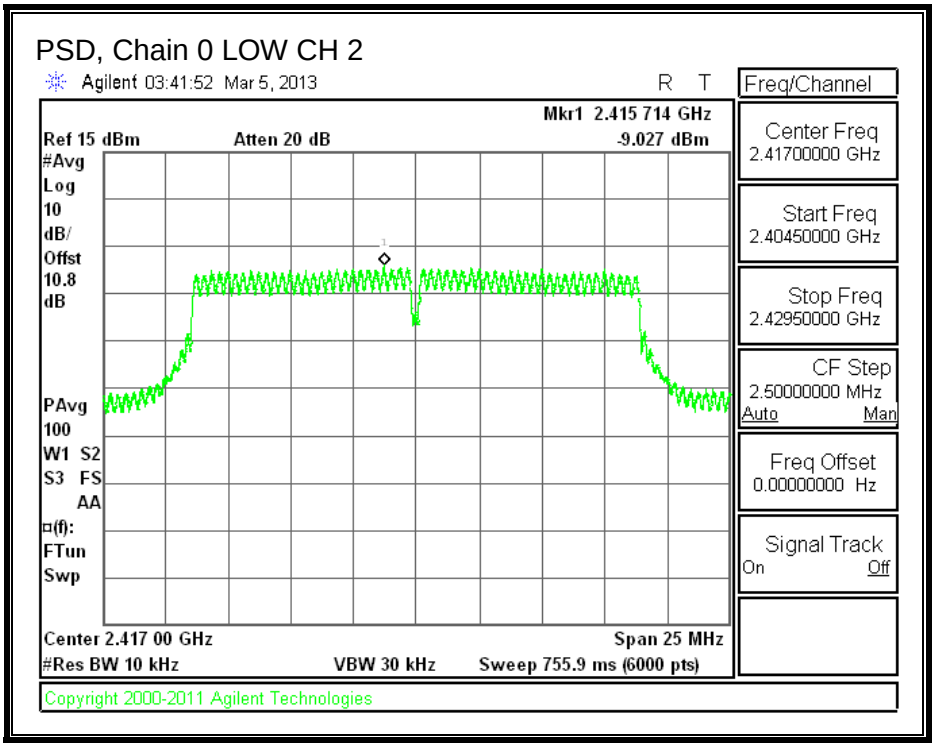
RESULTS

PSD Results

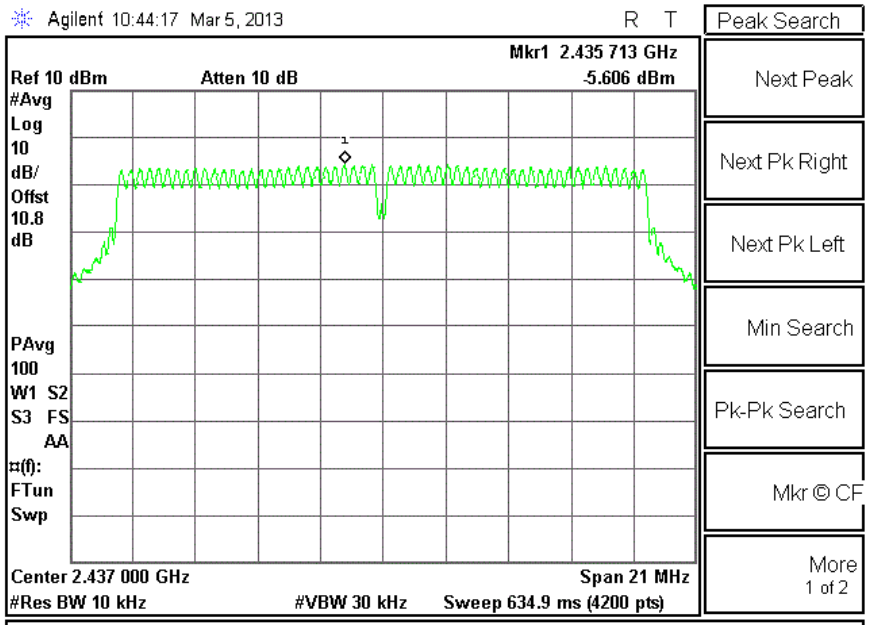
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
1	2412	-9.838	-9.737	-6.78	8.0	-14.8
2	2417	-9.027	-9.062	-6.03	8.0	-14.0
6	2437	-5.606	-5.129	-2.35	8.0	-10.4
10	2457	-9.371	-9.484	-6.42	8.0	-14.4
11	2462	-9.146	-9.790	-6.45	8.0	-14.4

PSD, Chain 0

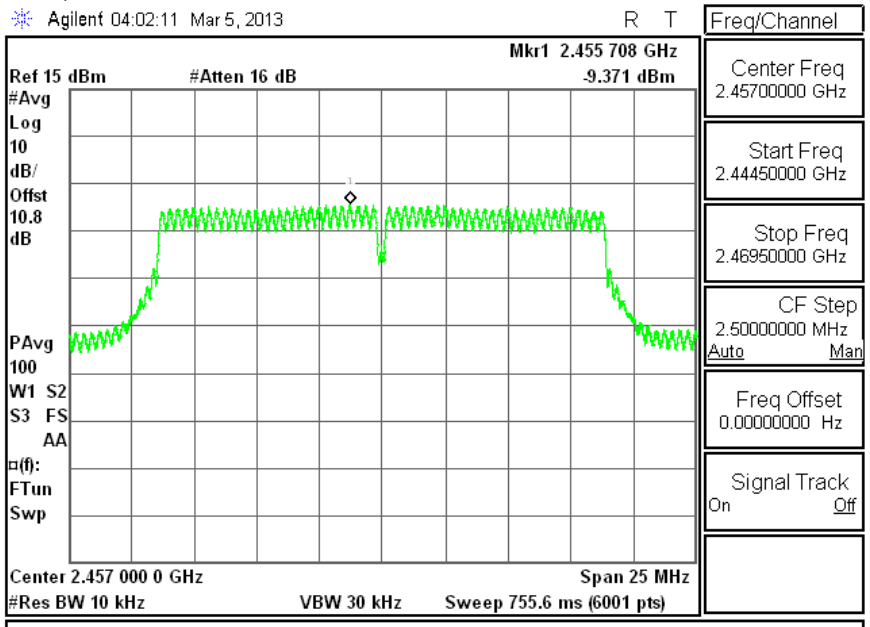


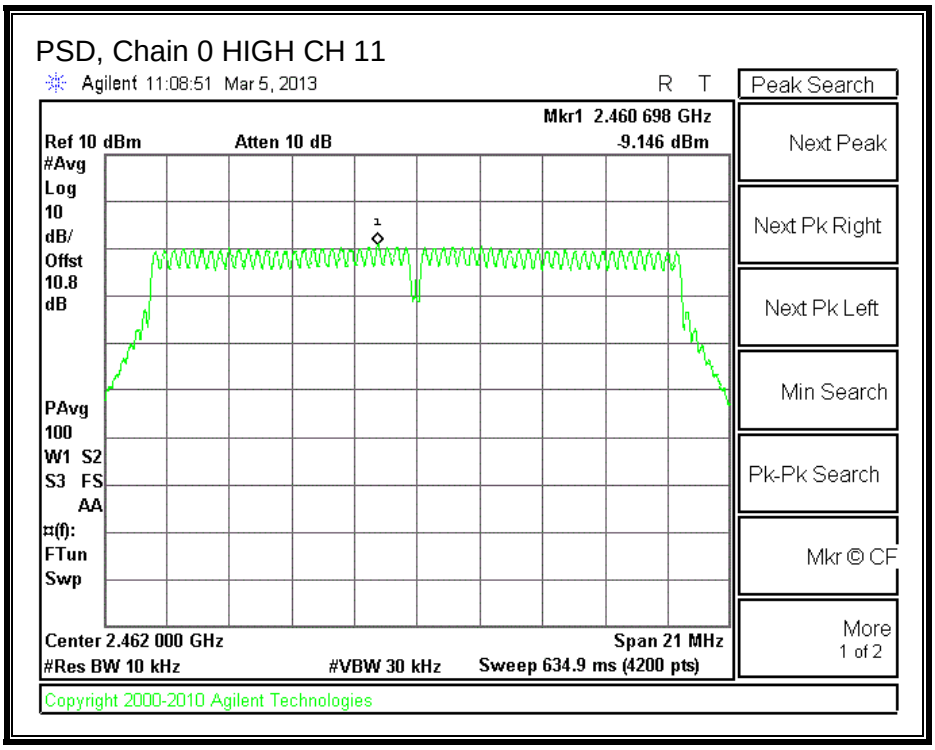


PSD, Chain 0 MID CH

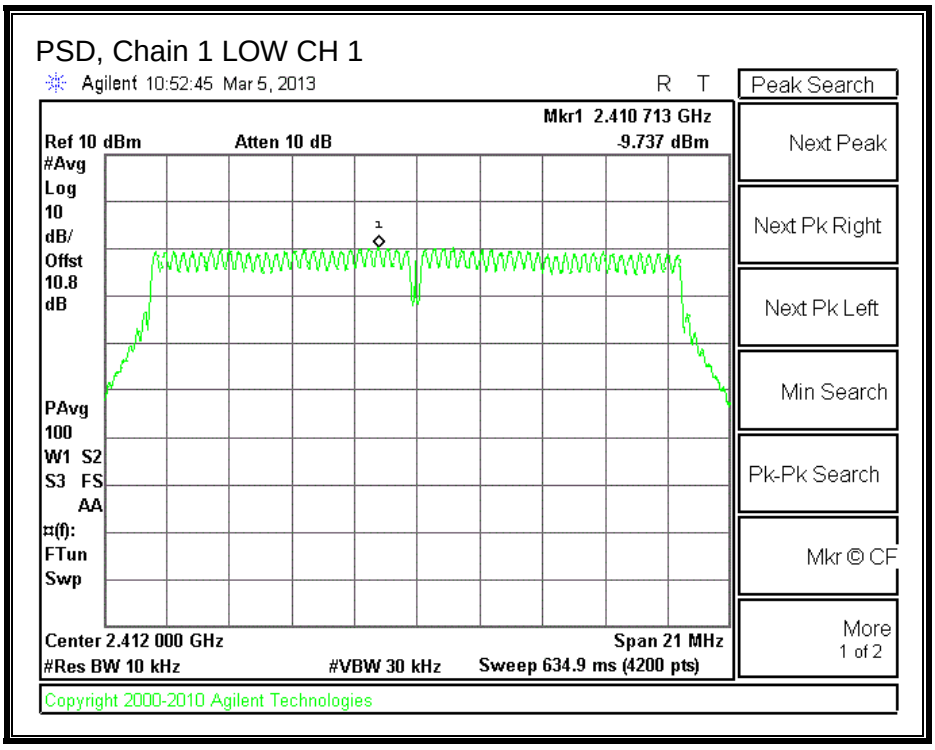


PSD, Chain 0 HIGH CH 10

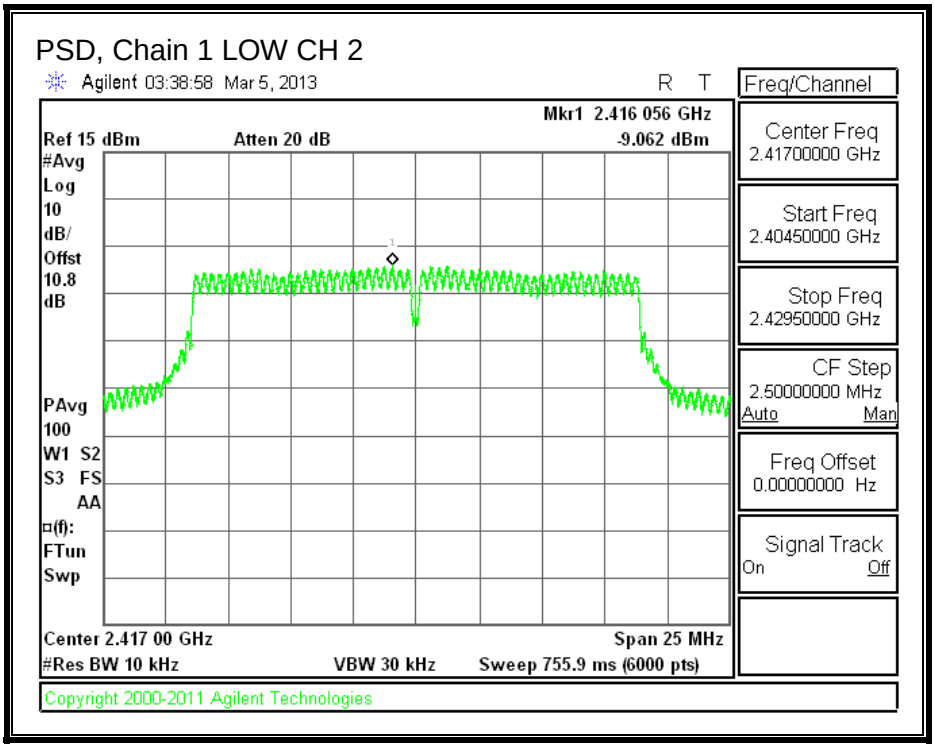




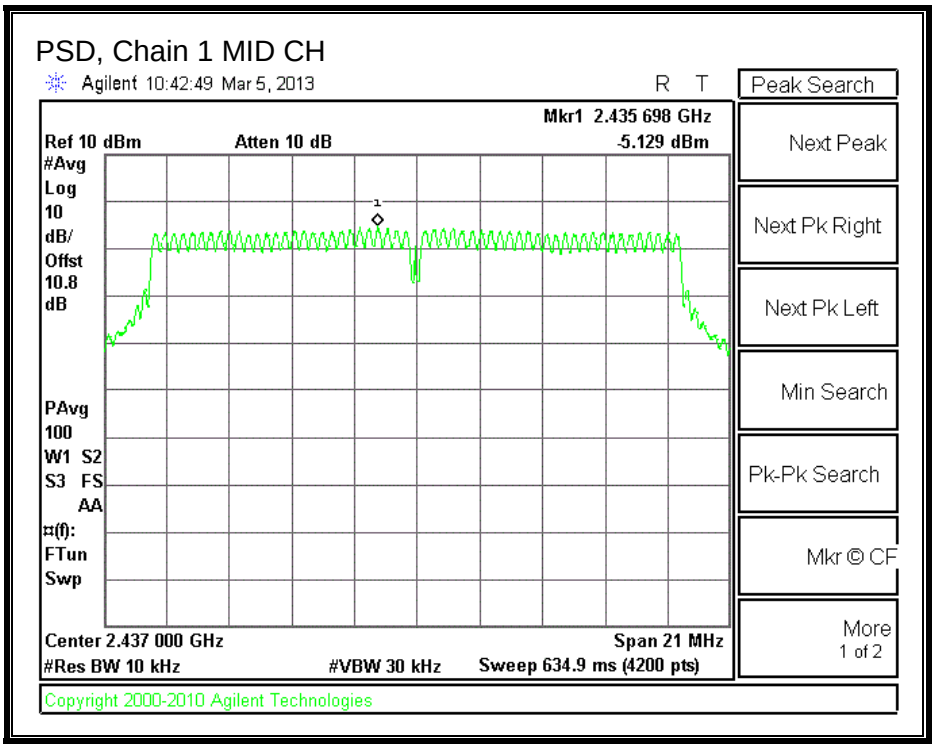
PSD, Chain 1

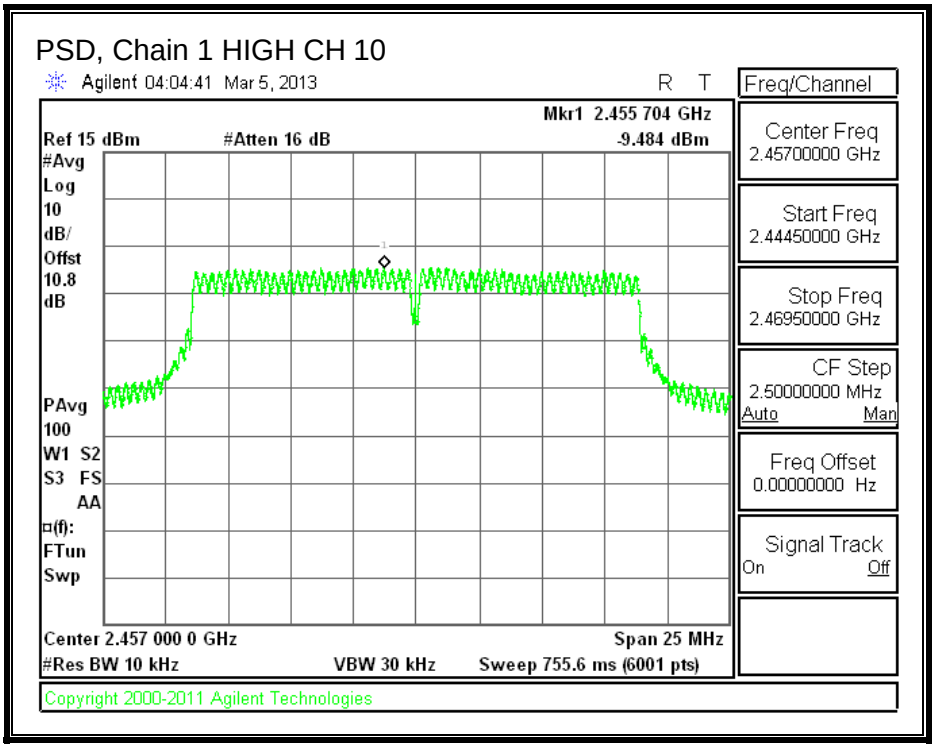


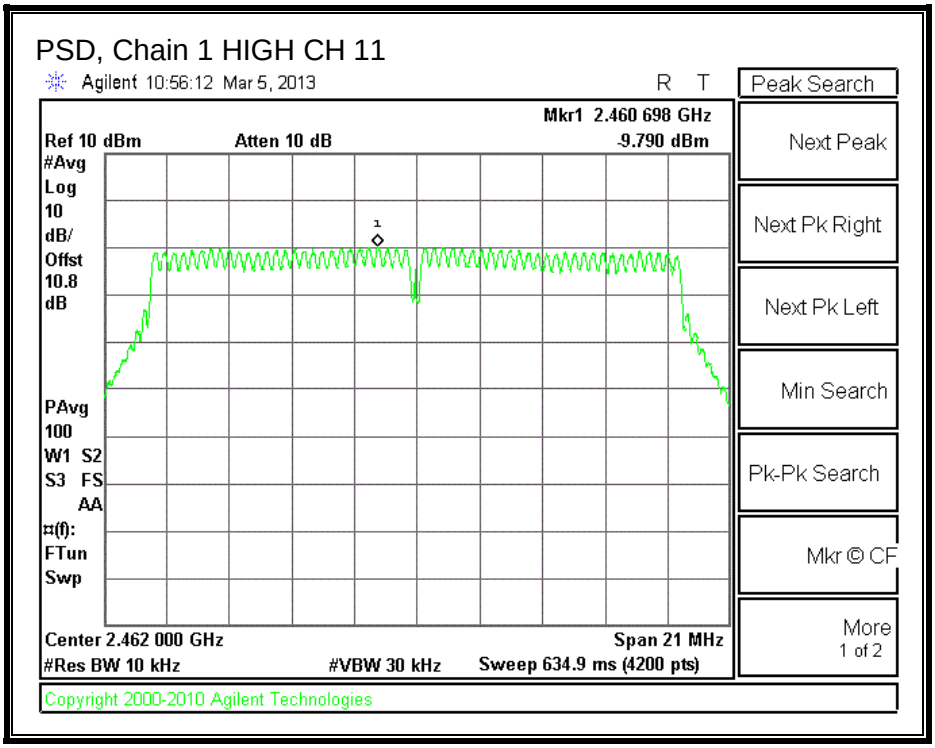
PSD, Chain 1 LOW CH 2



PSD, Chain 1 MID CH







8.7.5. OUT-OF-BAND EMISSIONS

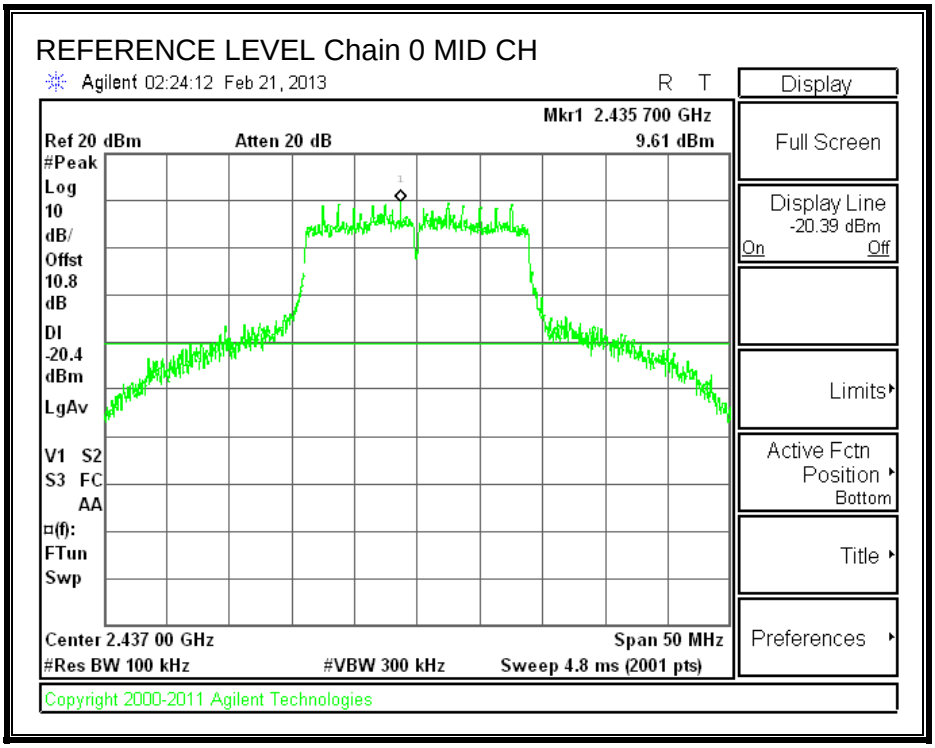
LIMITS

FCC §15.247 (d)

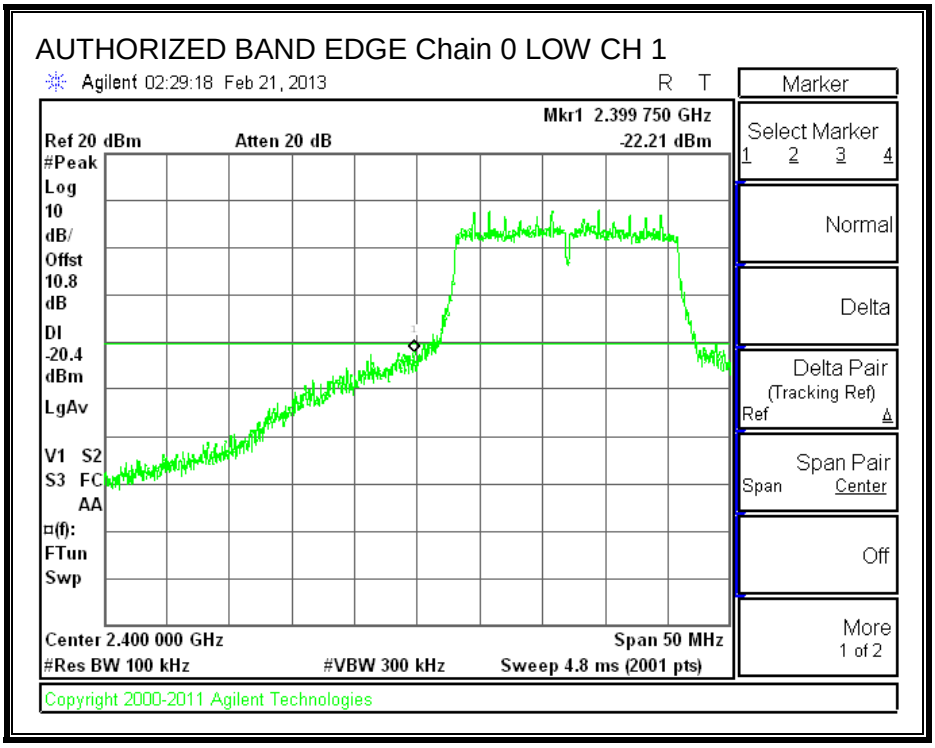
IC RSS-210 A8.5

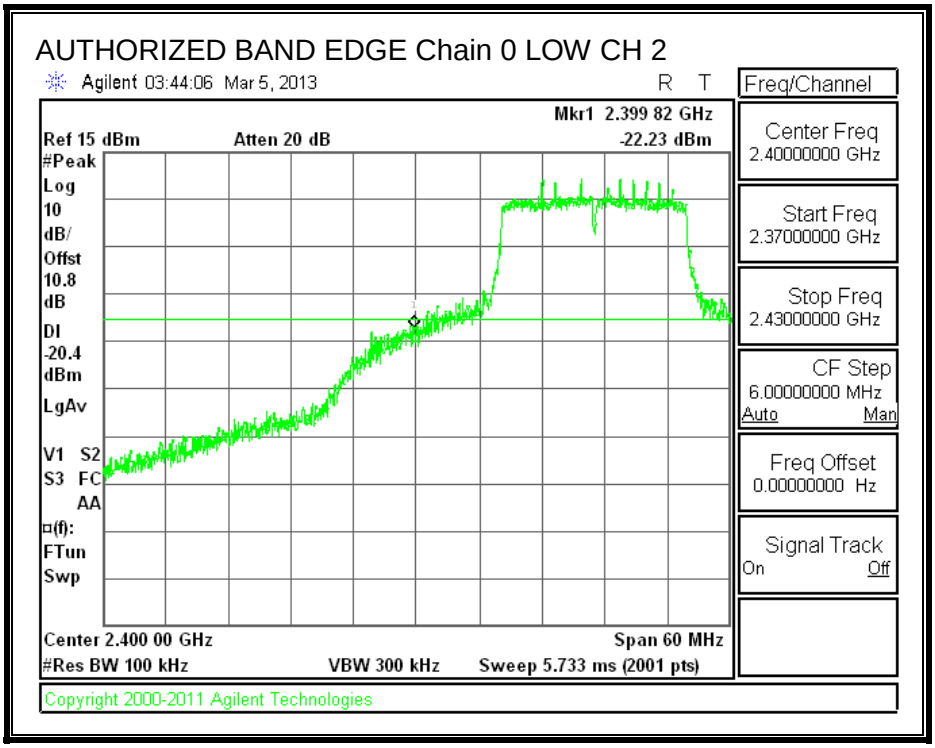
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

IN-BAND REFERENCE LEVEL, Chain 0

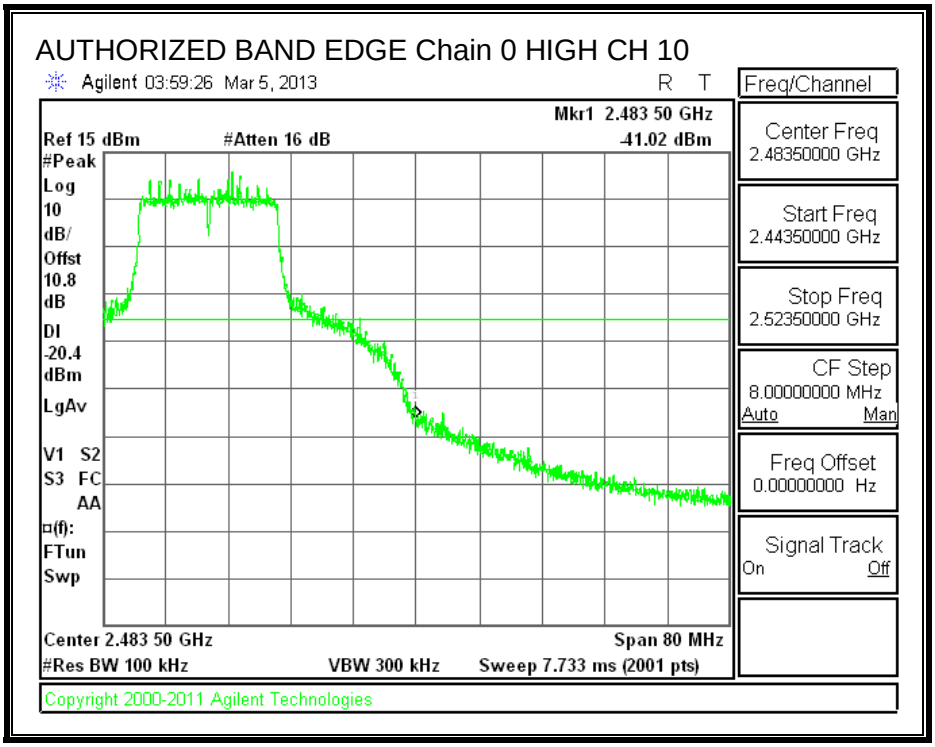


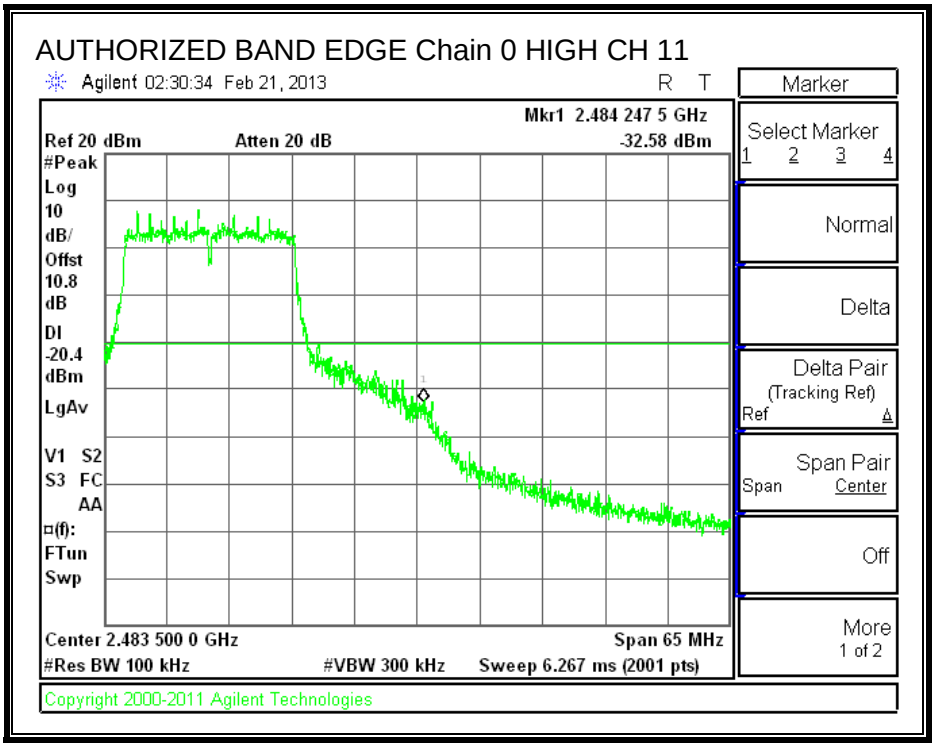
LOW CHANNEL BANDEDGE, Chain 0



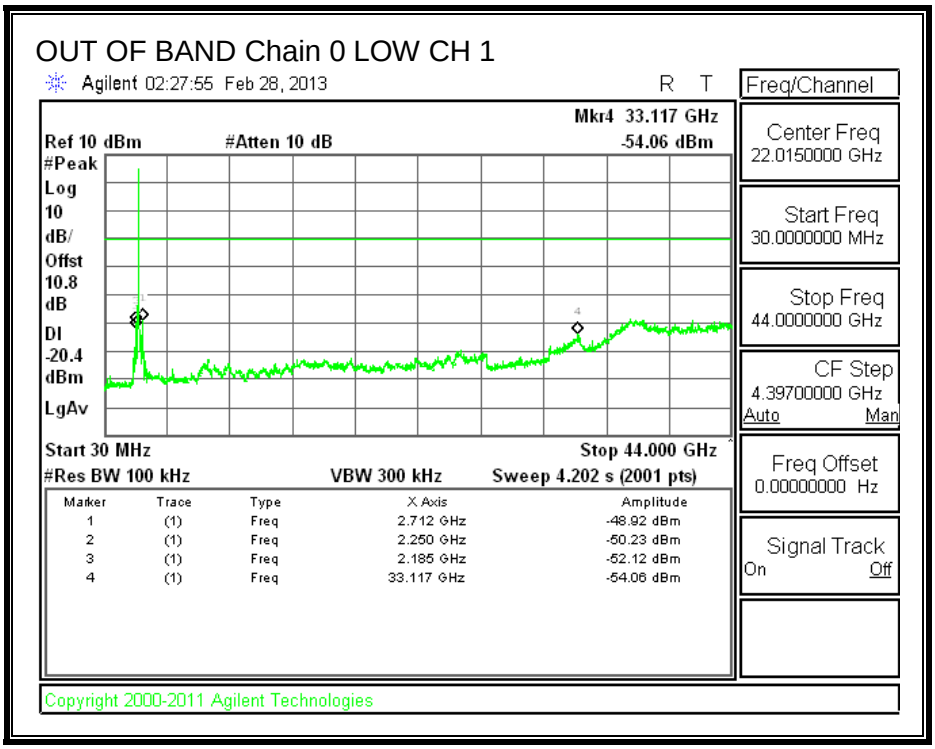


HIGH CHANNEL BANDEDGE, Chain 0

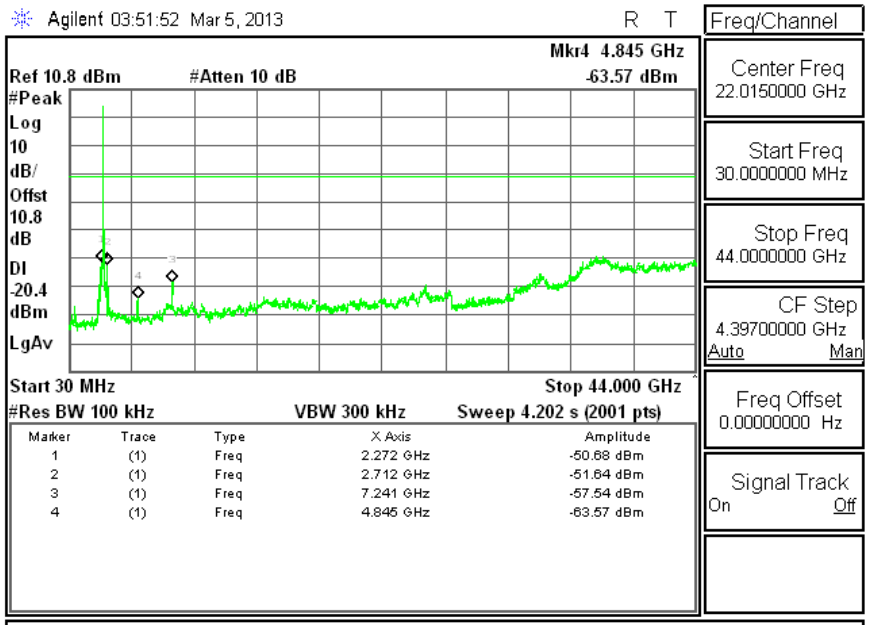




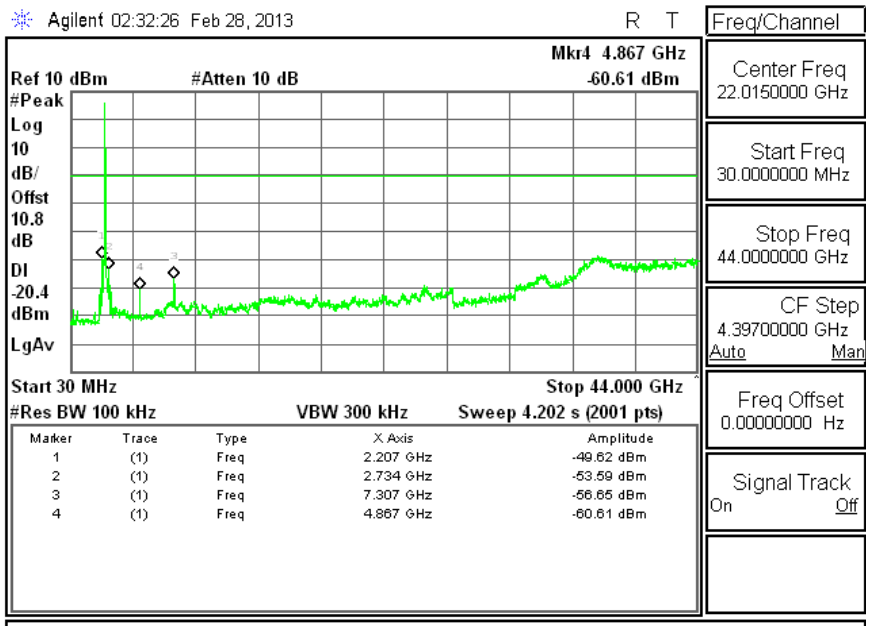
OUT-OF-BAND EMISSIONS, Chain 0



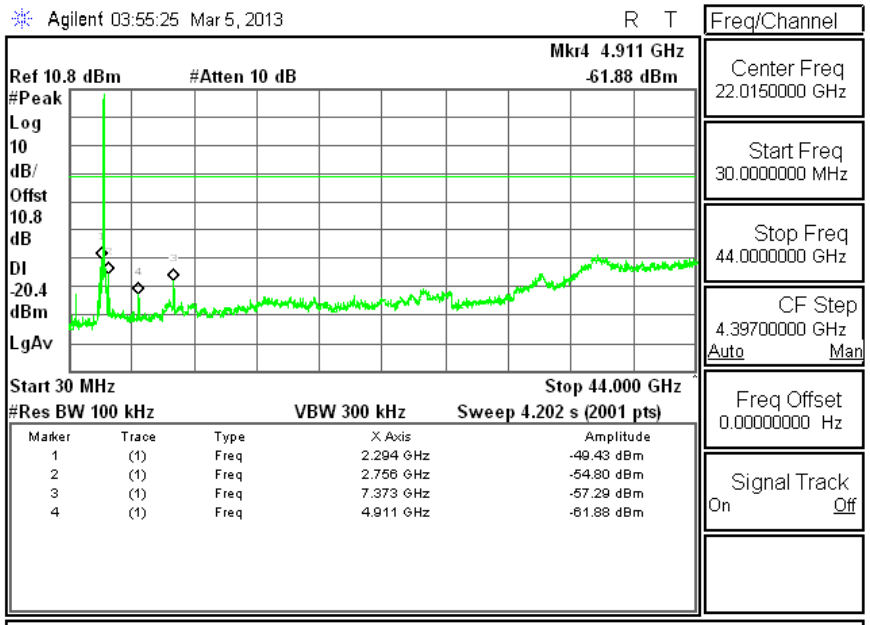
OUT OF BAND Chain 0 LOW CH 2



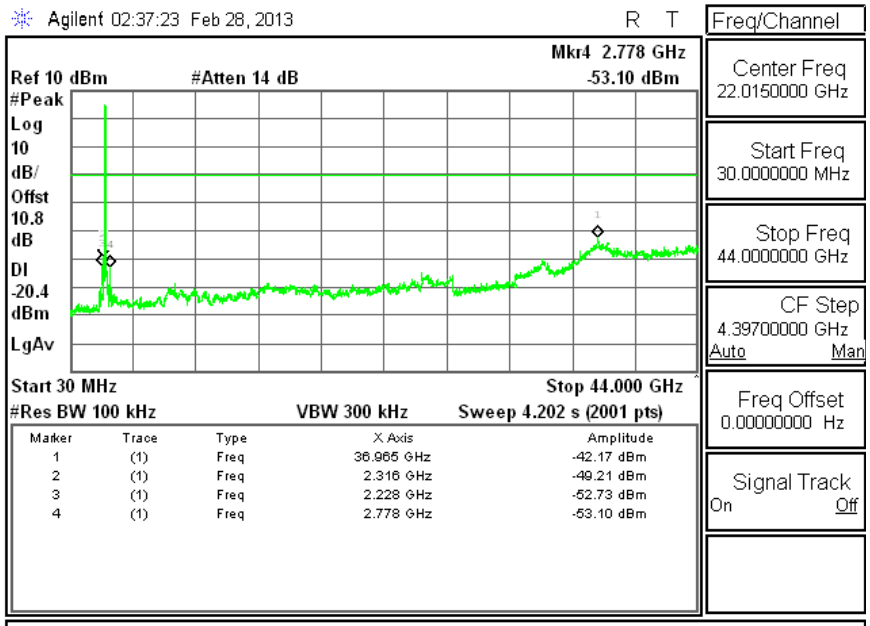
OUT OF BAND Chain 0 MID CH



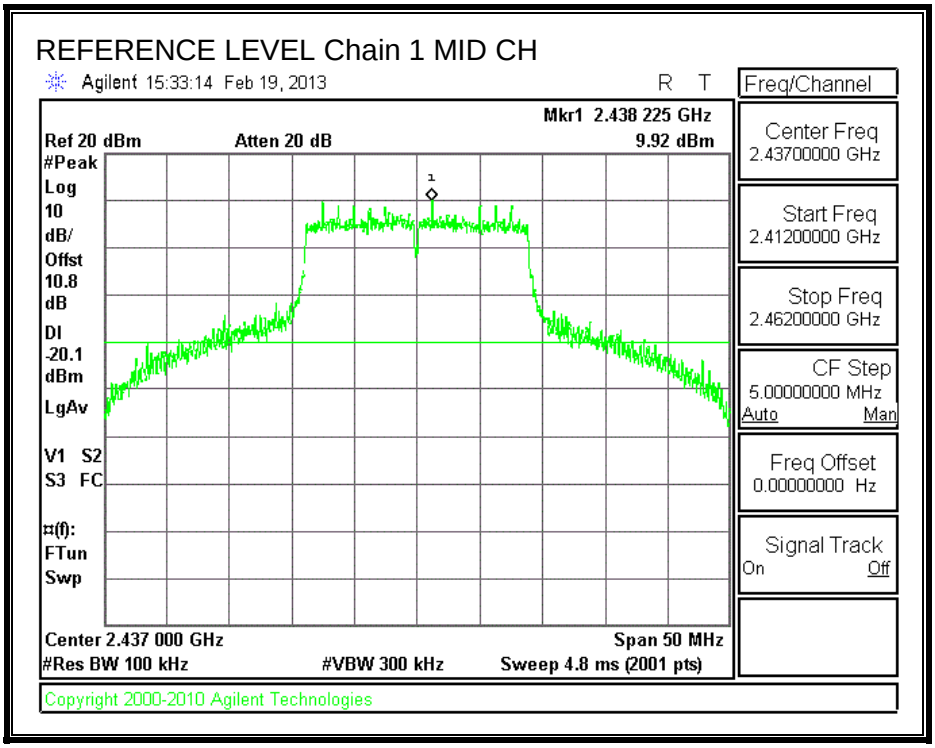
OUT OF BAND Chain 0 HIGH CH 10



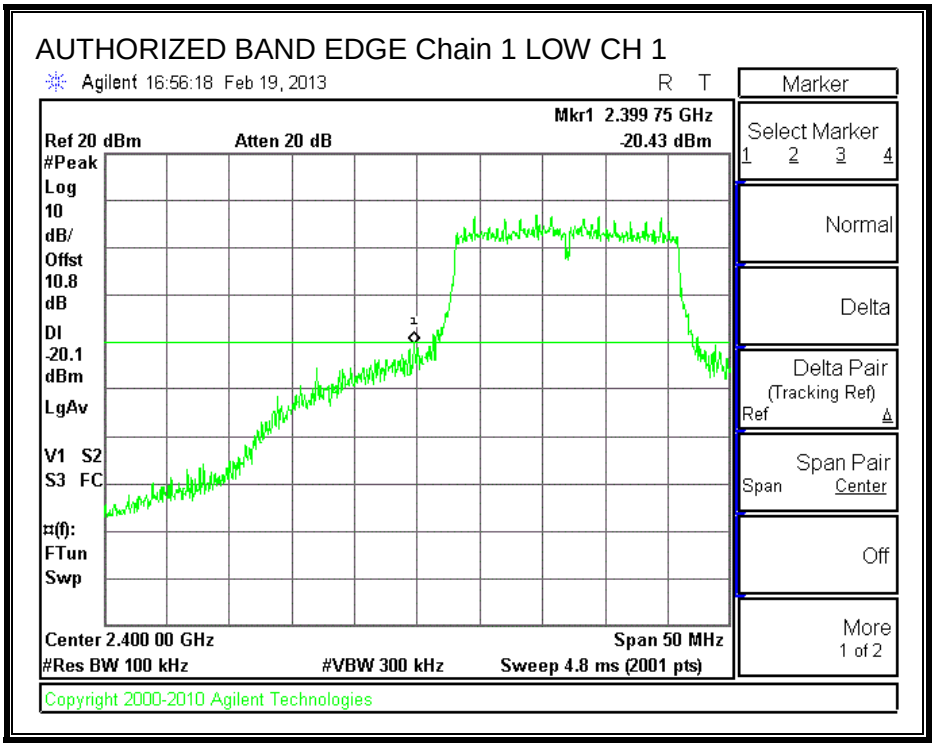
OUT OF BAND Chain 0 HIGH CH 11

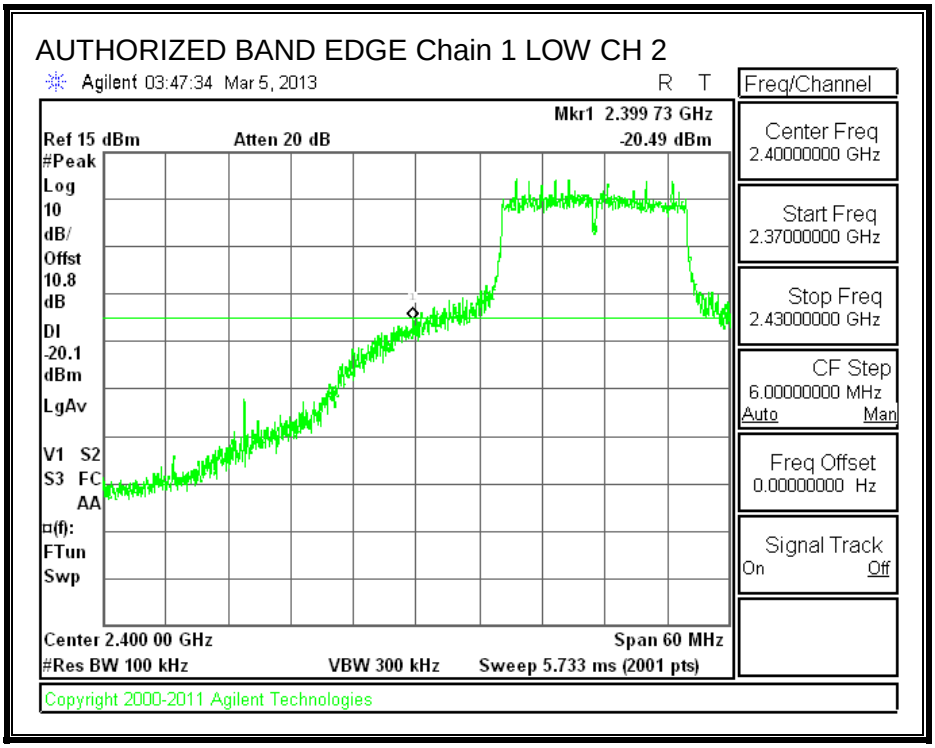


IN-BAND REFERENCE LEVEL, Chain 1

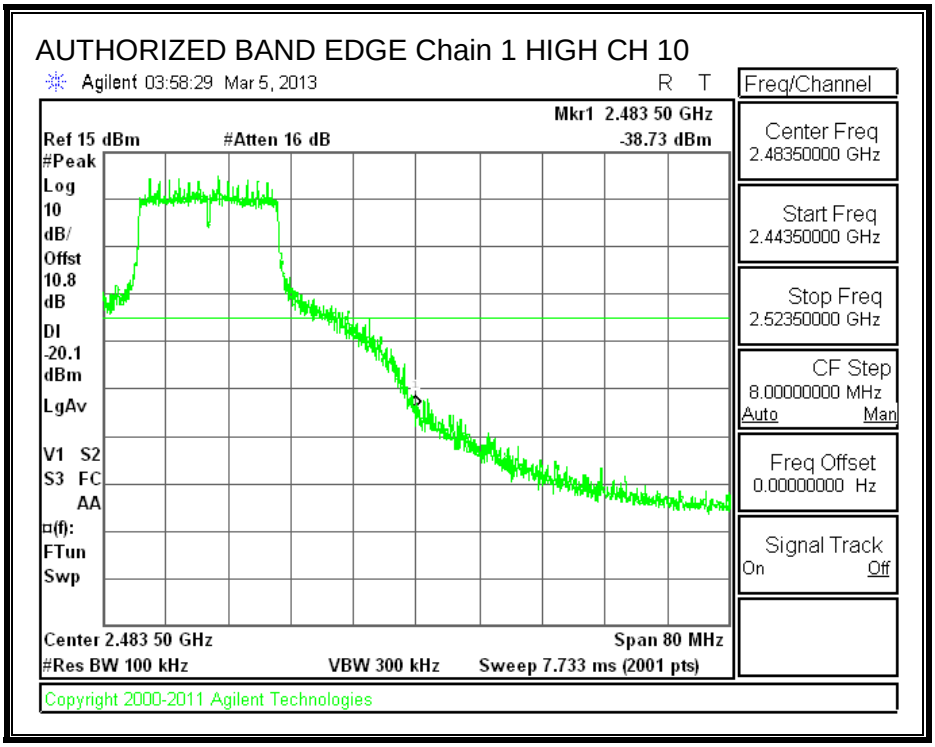


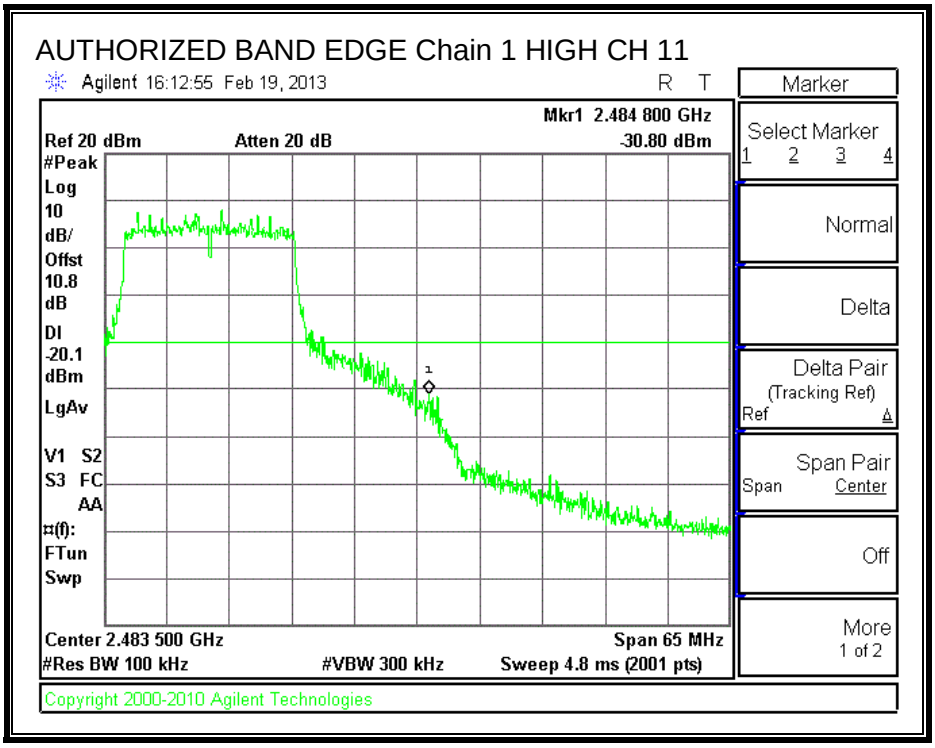
LOW CHANNEL BANDEDGE, Chain 1



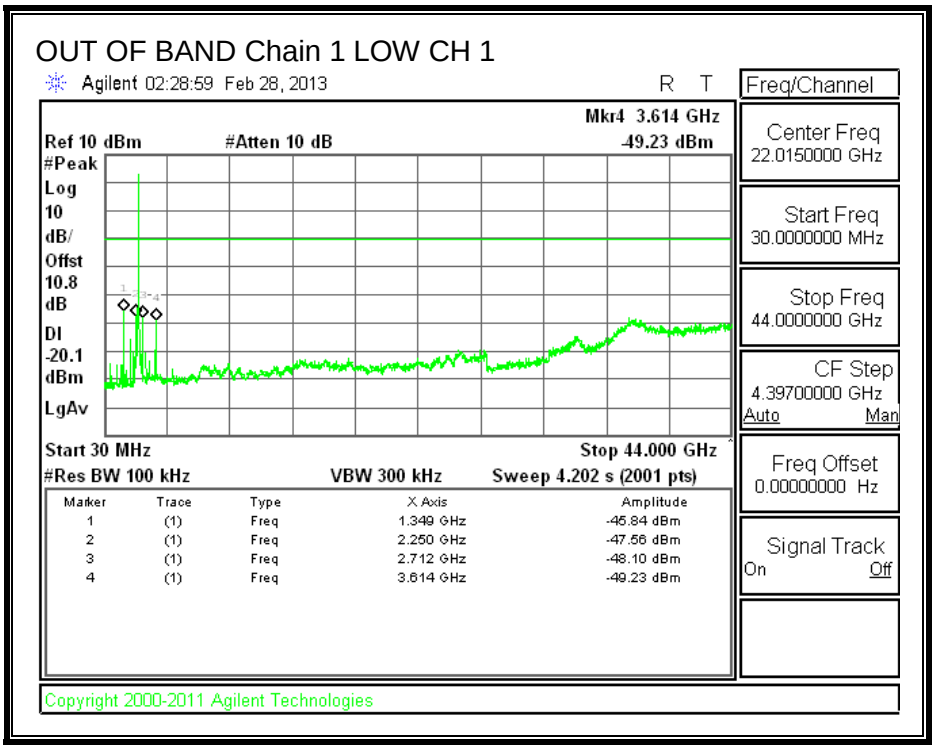


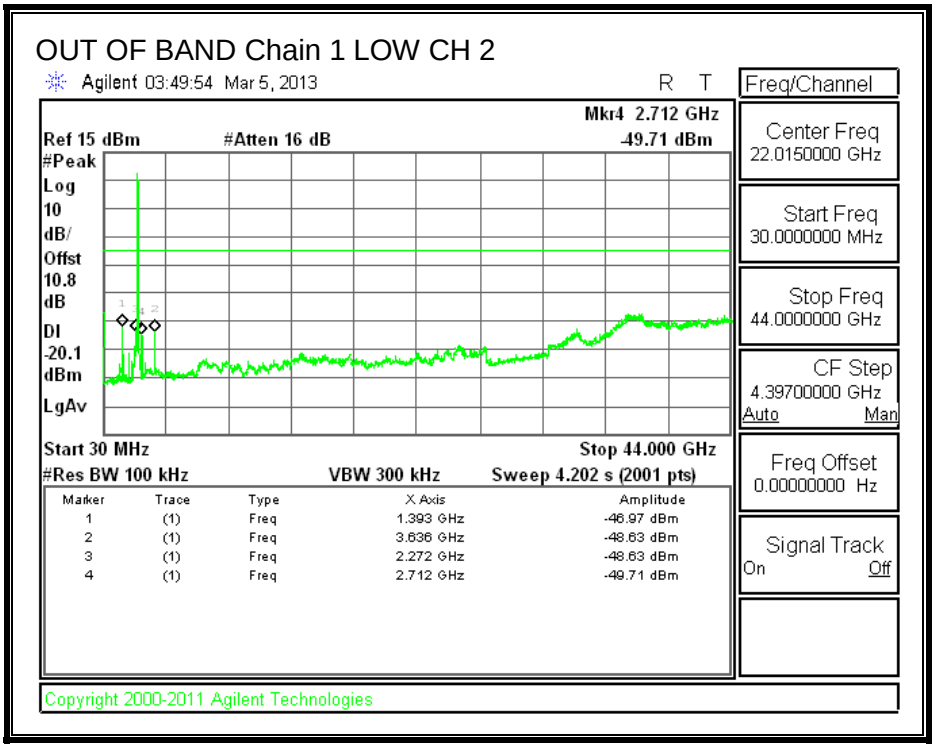
HIGH CHANNEL BANDEDGE, Chain 1

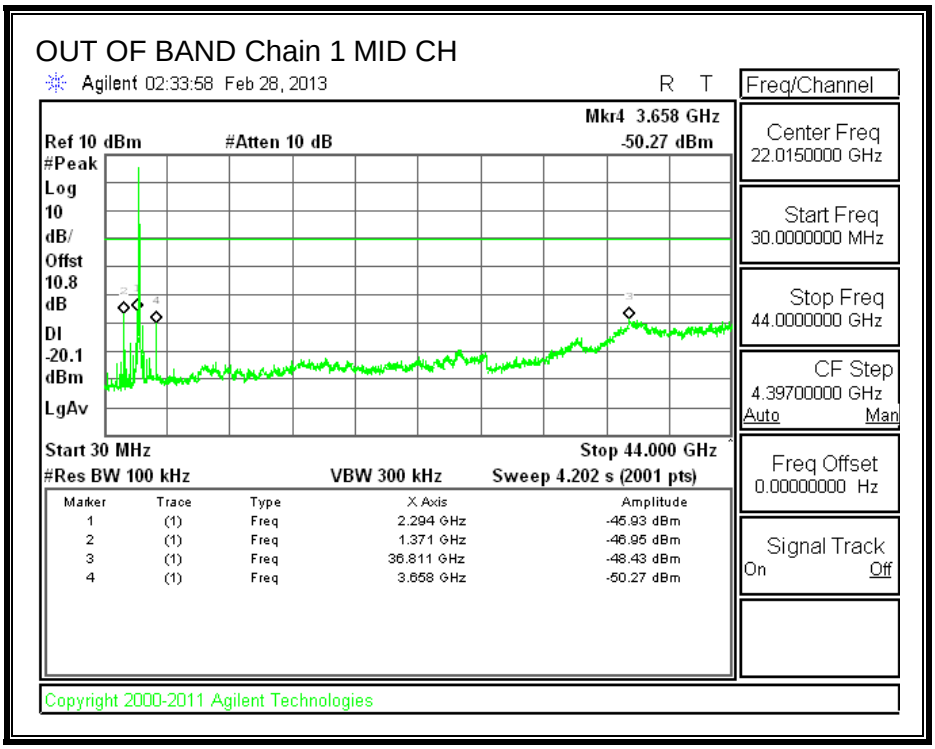




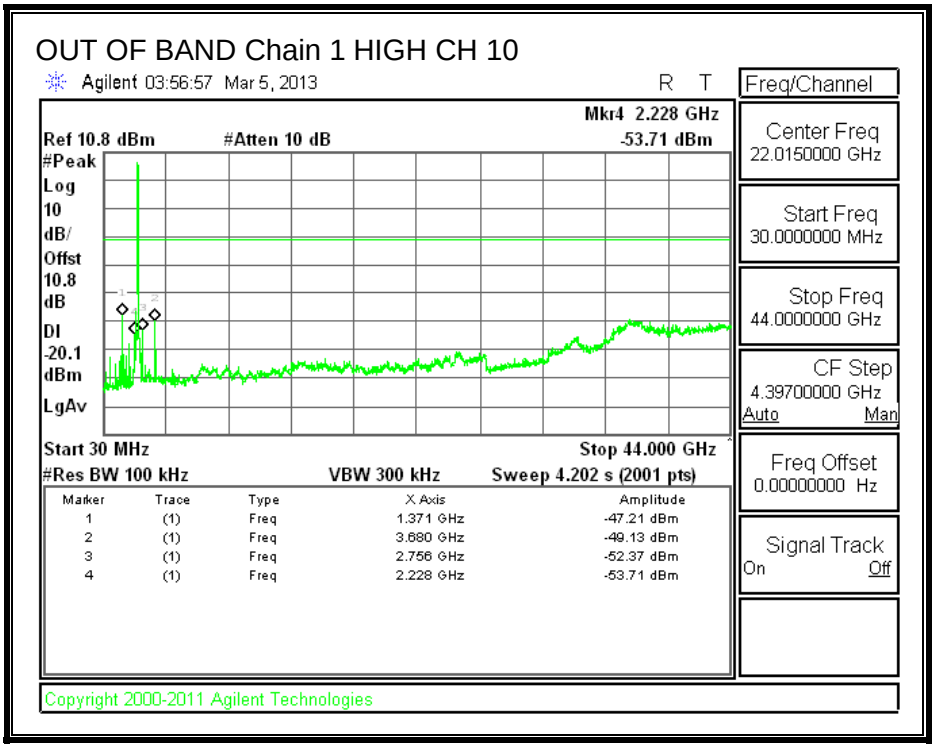
OUT-OF-BAND EMISSIONS, Chain 1



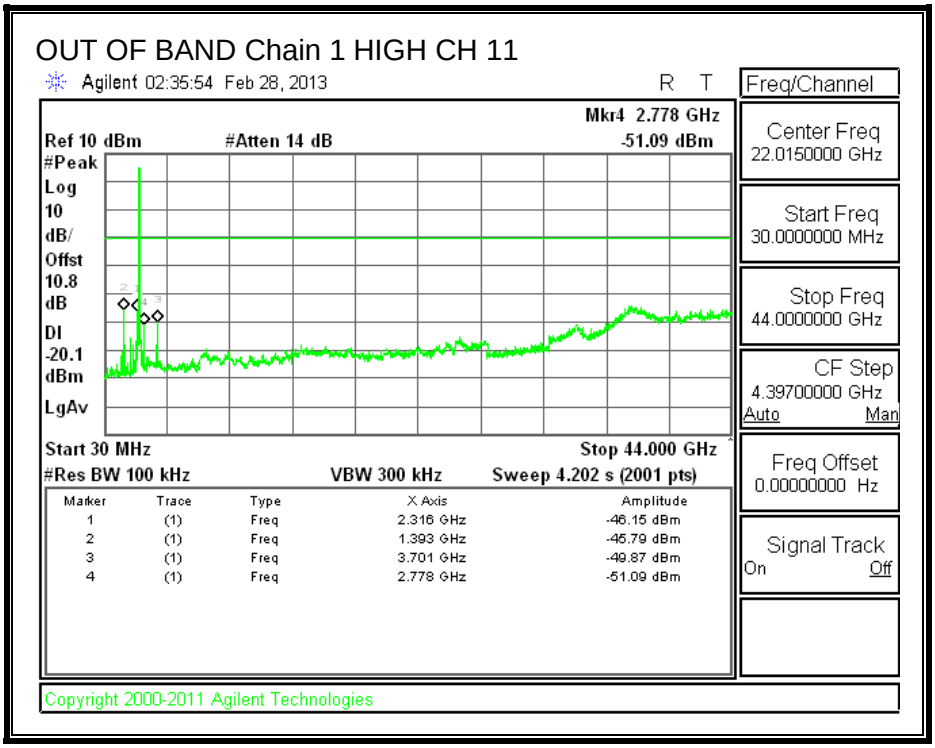




OUT OF BAND Chain 1 HIGH CH 10



OUT OF BAND Chain 1 HIGH CH 11



8.8. 802.11n HT20 TxBF 2TX MODE IN THE 2.4 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.9. 802.11a Legacy 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, power per chain used in the 802.11n HT20 CDD 2TX mode is equal to the power per chain that will be used for 802.11a 1TX.

8.10. 802.11a CDD 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.11. 802.11n HT20 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, power per chain used in the 802.11n HT20 CDD 2TX mode is equal to the power per chain that will be used for 802.11n HT20 1TX.

8.12. 802.11a TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.13. 802.11n HT20 CDD 2TX MODE IN THE 5.8 GHz BAND

8.13.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

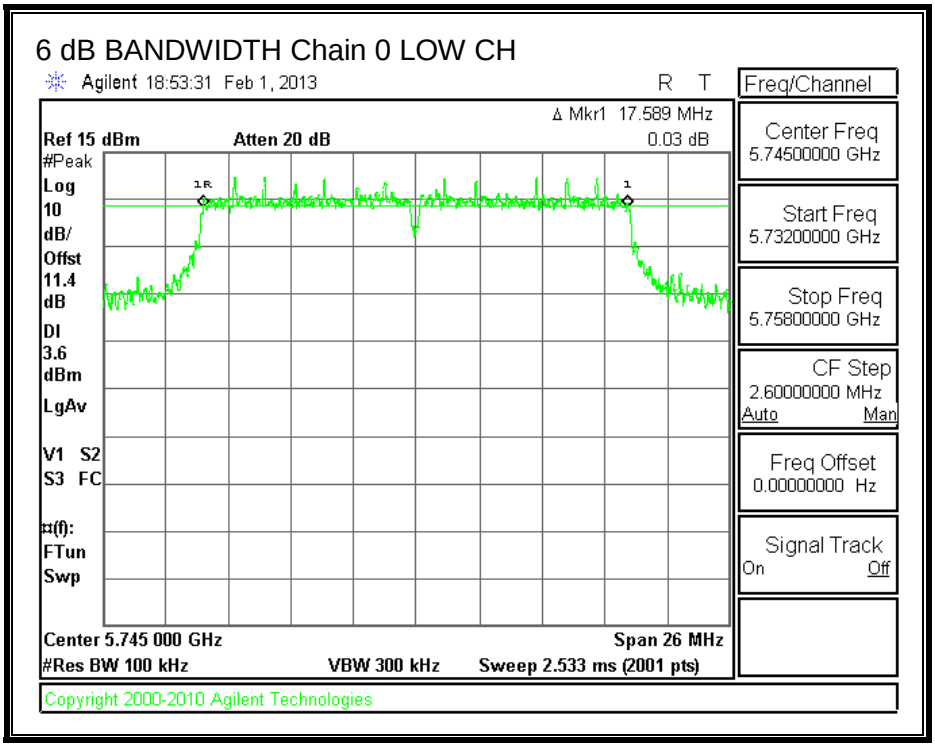
IC RSS-210 A8.2 (a)

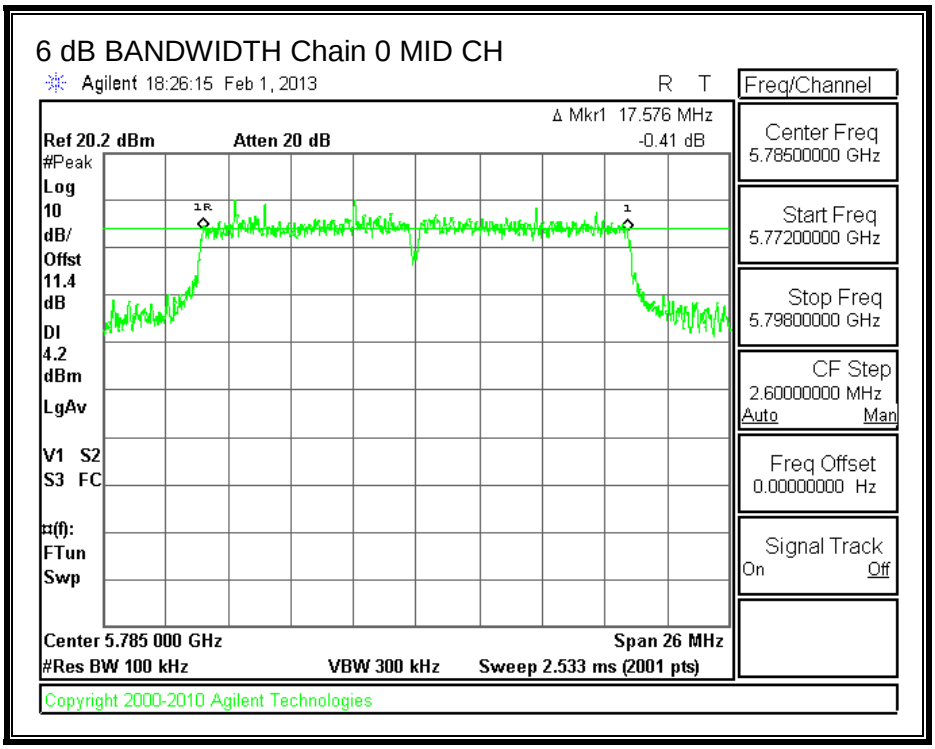
The minimum 6 dB bandwidth shall be at least 500 kHz.

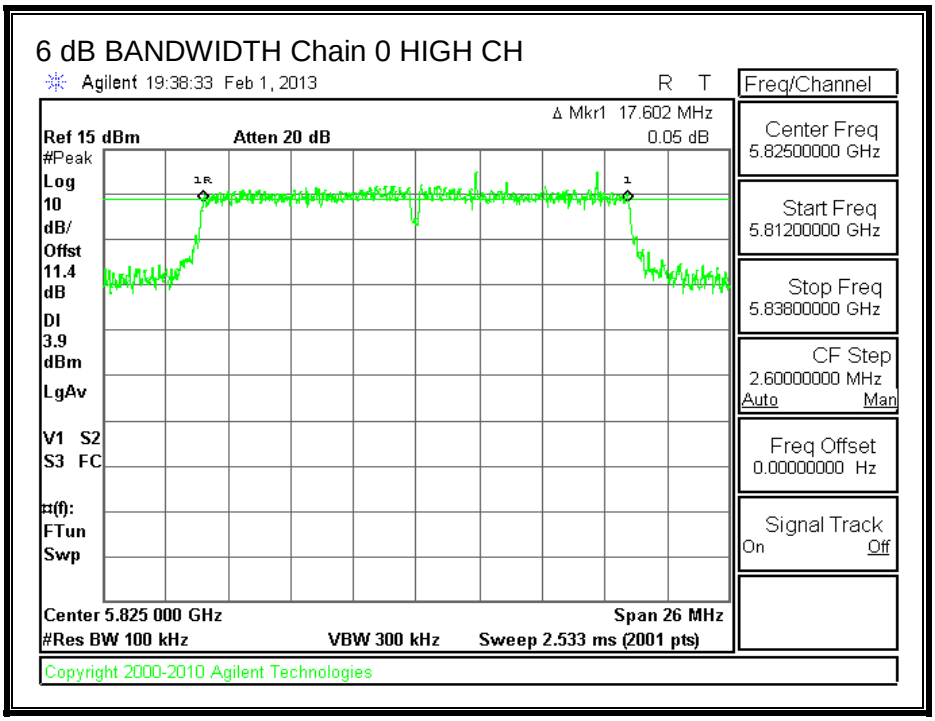
RESULTS

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5745	17.589	17.589	0.5
Mid	5785	17.576	17.537	0.5
High	5825	17.602	17.537	0.5

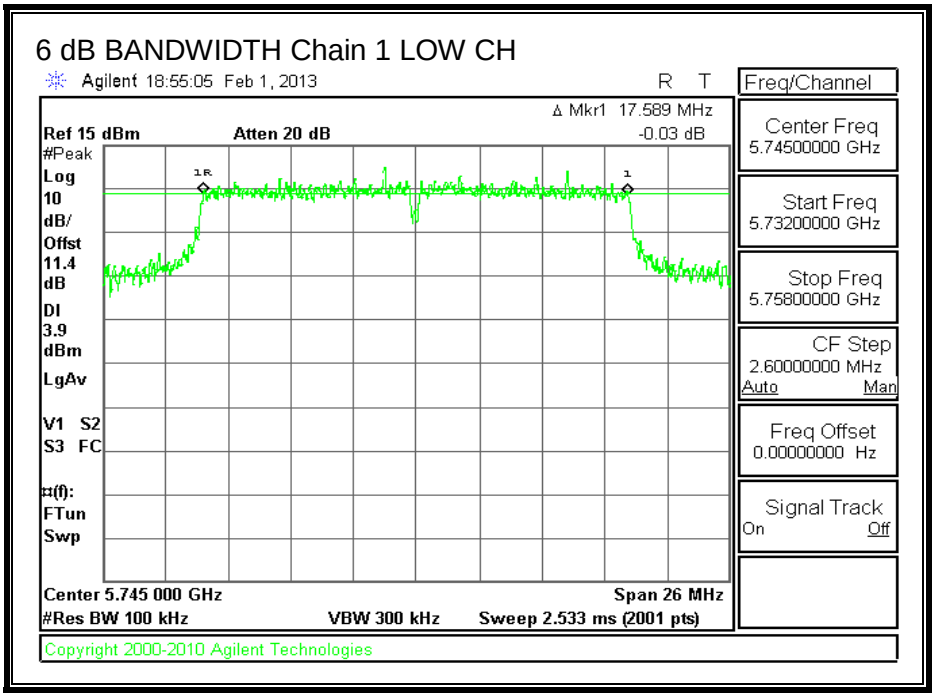
6 dB BANDWIDTH, Chain 0



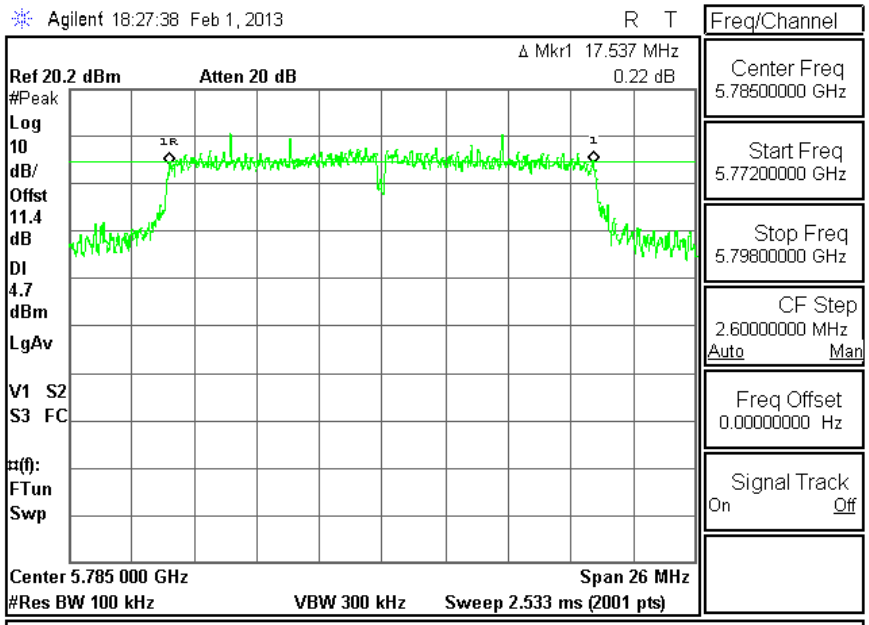




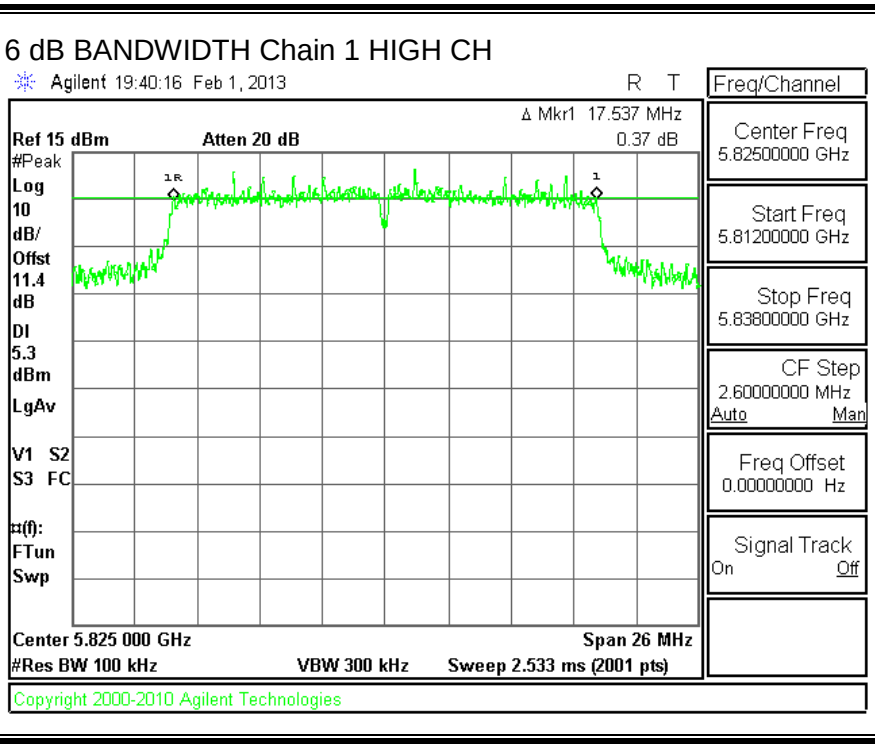
6 dB BANDWIDTH, Chain 1



6 dB BANDWIDTH Chain 1 MID CH



6 dB BANDWIDTH Chain 1 HIGH CH



8.13.2. 99% BANDWIDTH

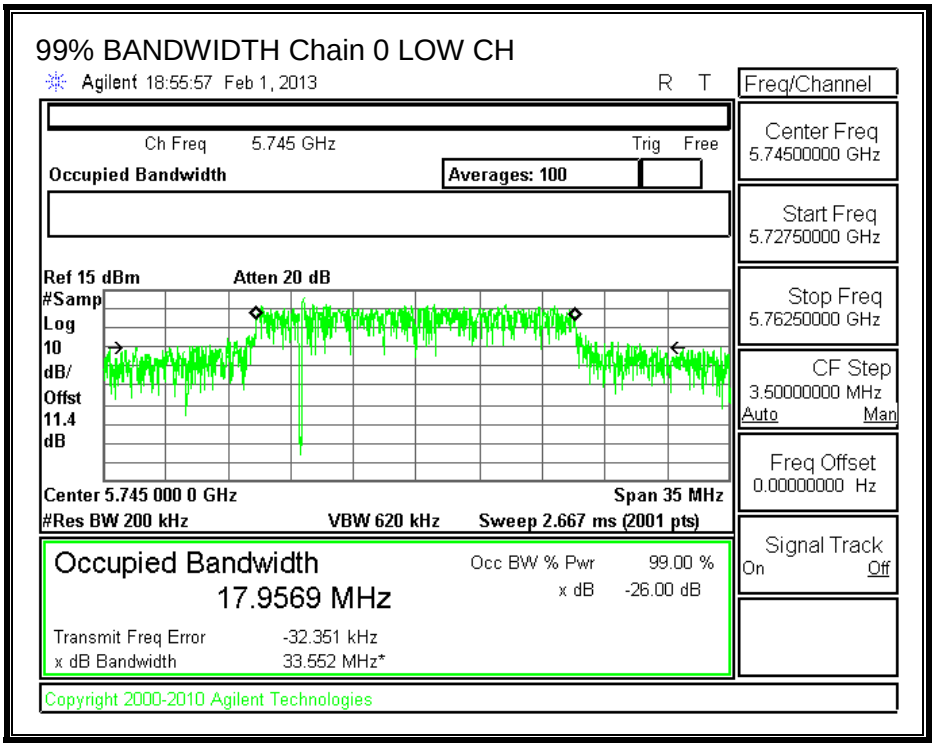
LIMITS

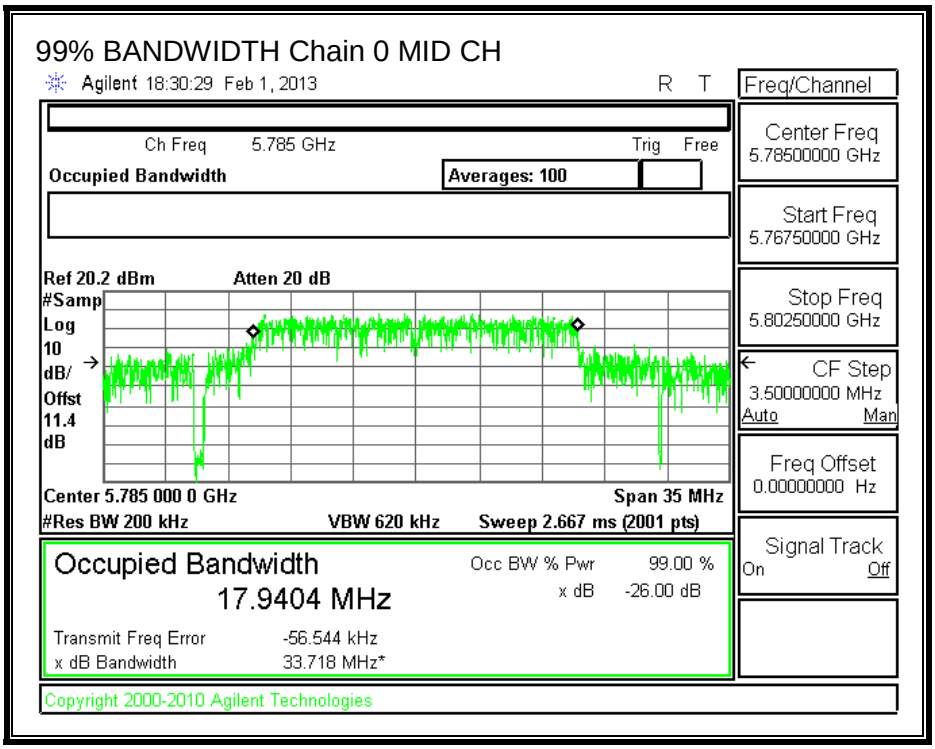
None; for reporting purposes only.

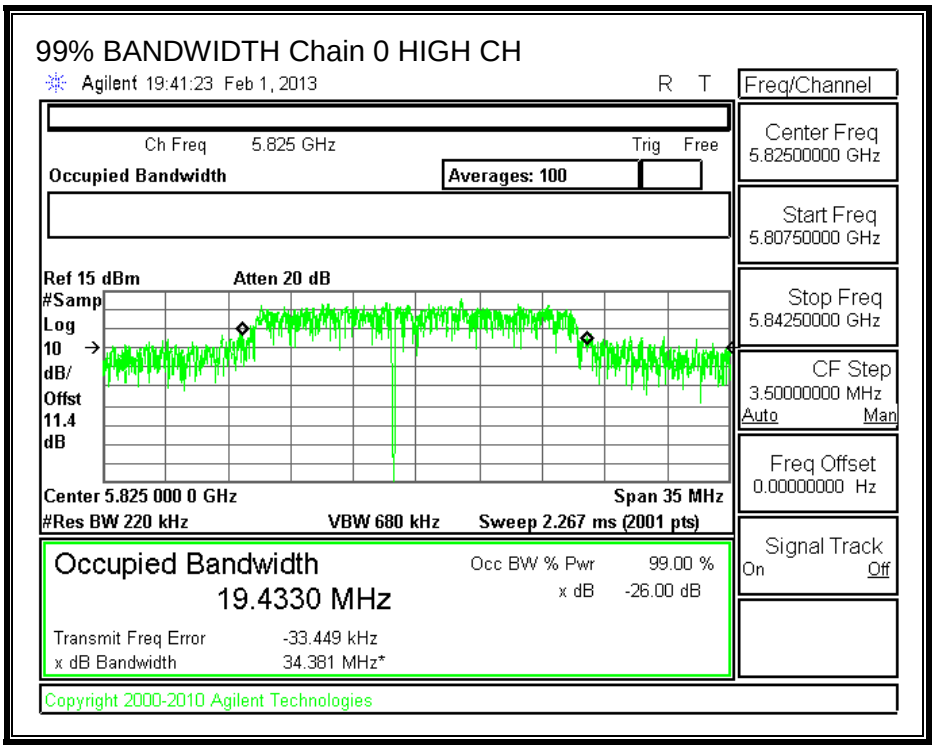
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5745	17.9569	17.8198
Mid	5785	17.9404	19.4538
High	5825	19.4330	19.5689

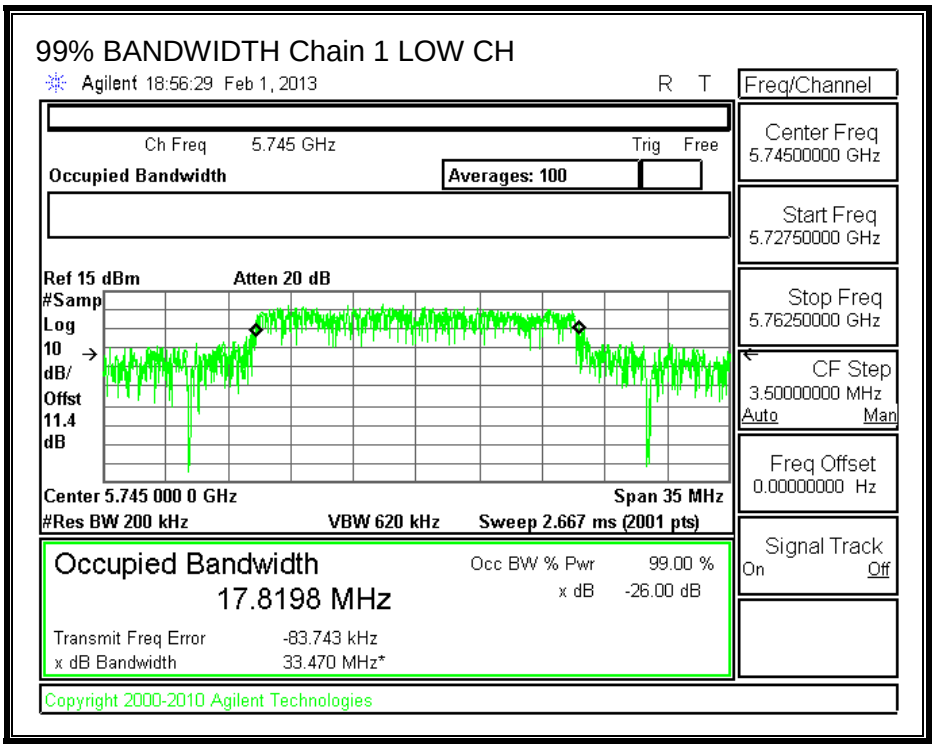
99% BANDWIDTH, Chain 0

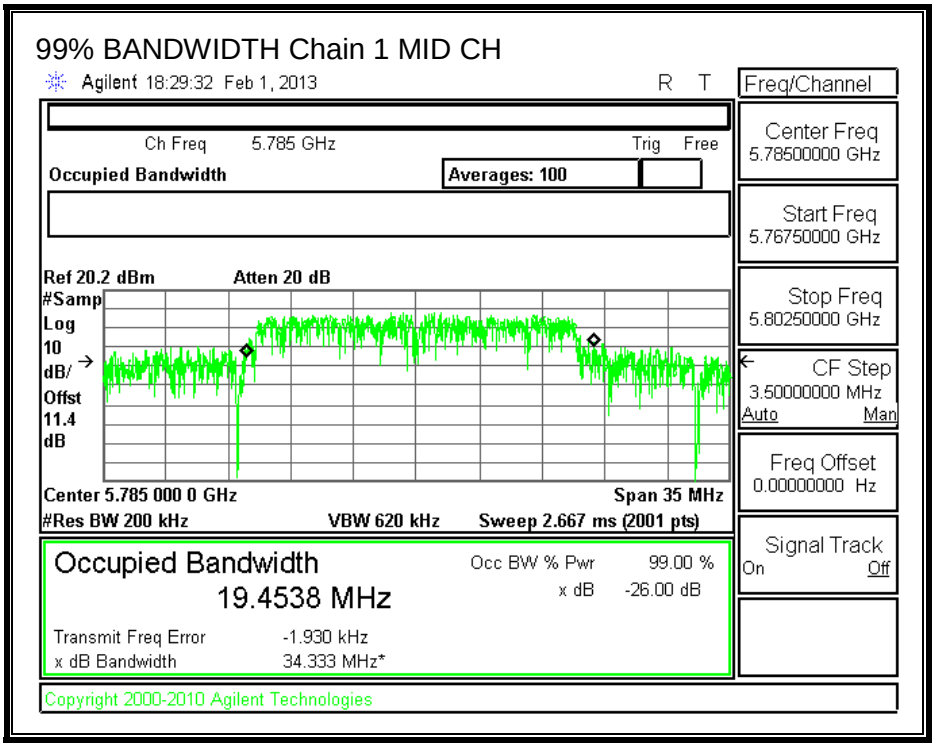


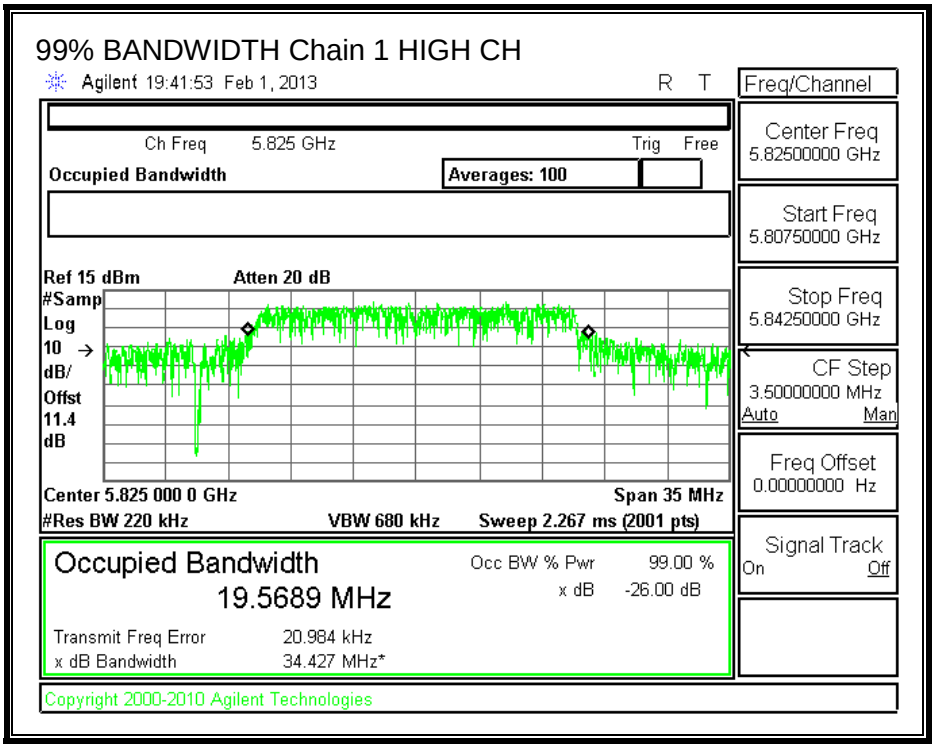




99% BANDWIDTH, Chain 1







8.13.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.90	6.28	5.64

RESULTS

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	5745	5.64	30.00	30	36	30.00
Mid	5785	5.64	30.00	30	36	30.00
High	5825	5.64	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low	5745	20.01	20.00	23.02	30.00	-6.98
Mid	5785	20.10	20.11	23.12	30.00	-6.88
High	5825	20.10	20.05	23.09	30.00	-6.91

8.13.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247
IC RSS-210 A8.2

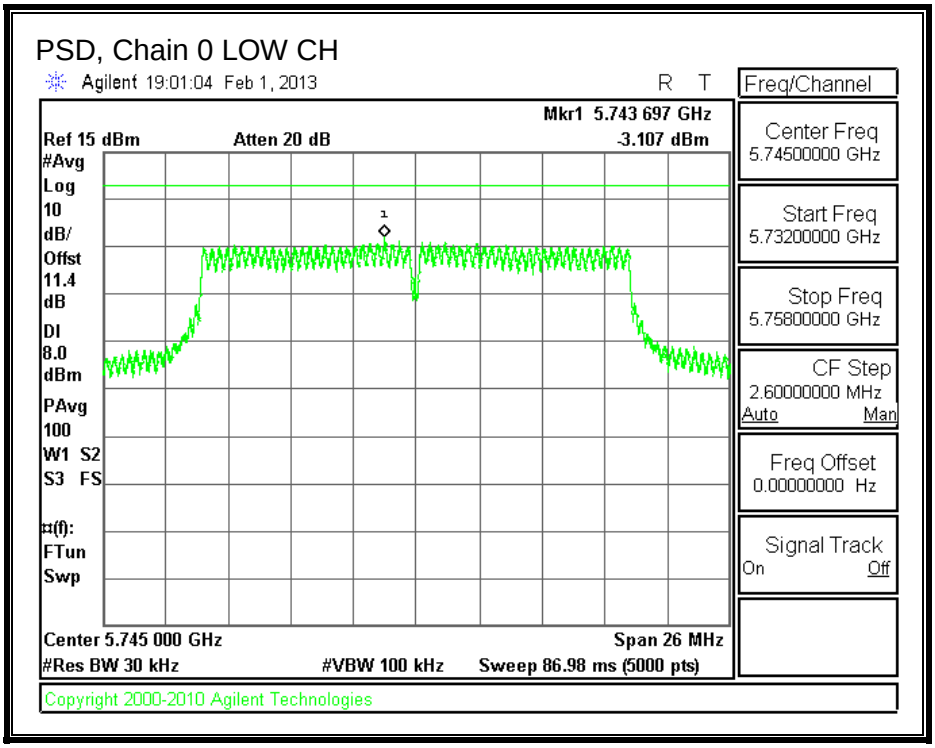
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

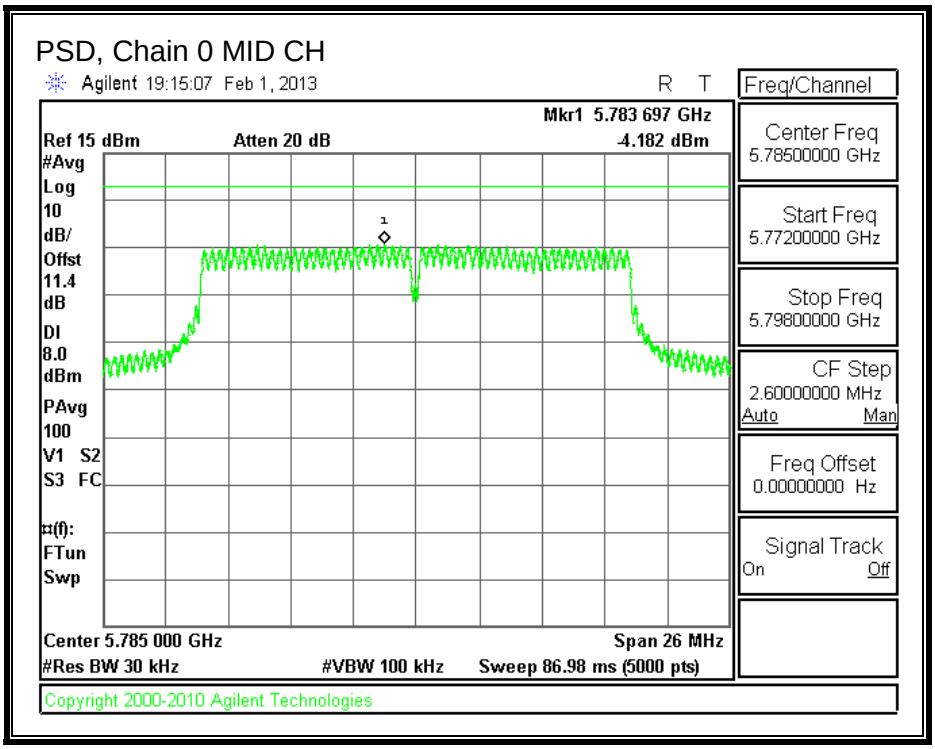
RESULTS

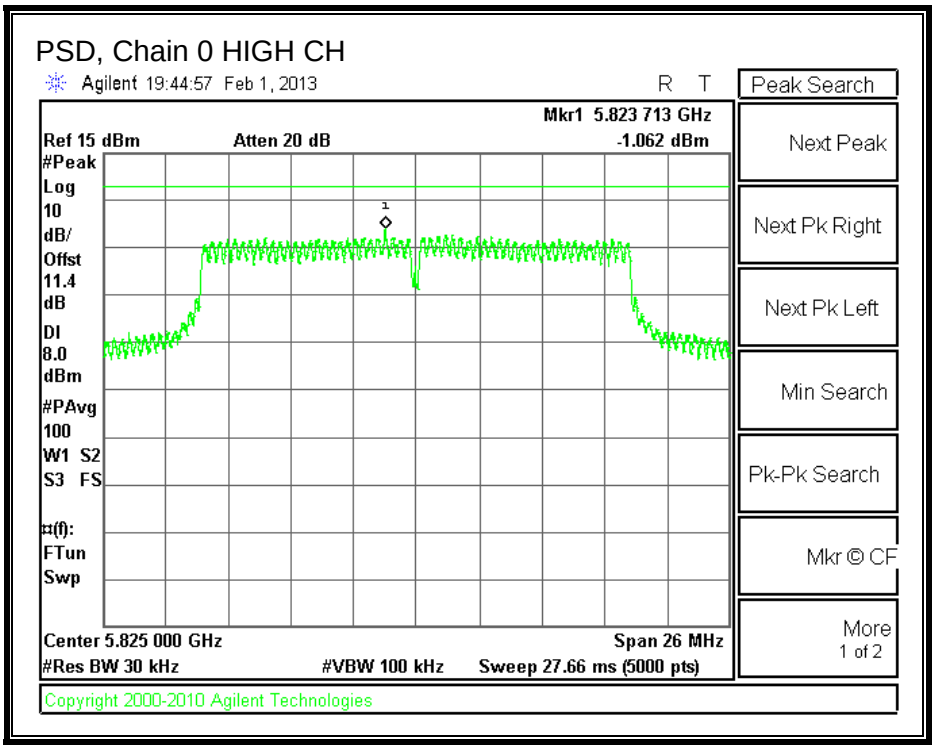
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-3.107	-4.149	-0.59	8.0	-8.6
Mid	5785	-4.182	-4.037	-1.10	8.0	-9.1
High	5825	-1.062	-1.959	1.52	8.0	-6.5

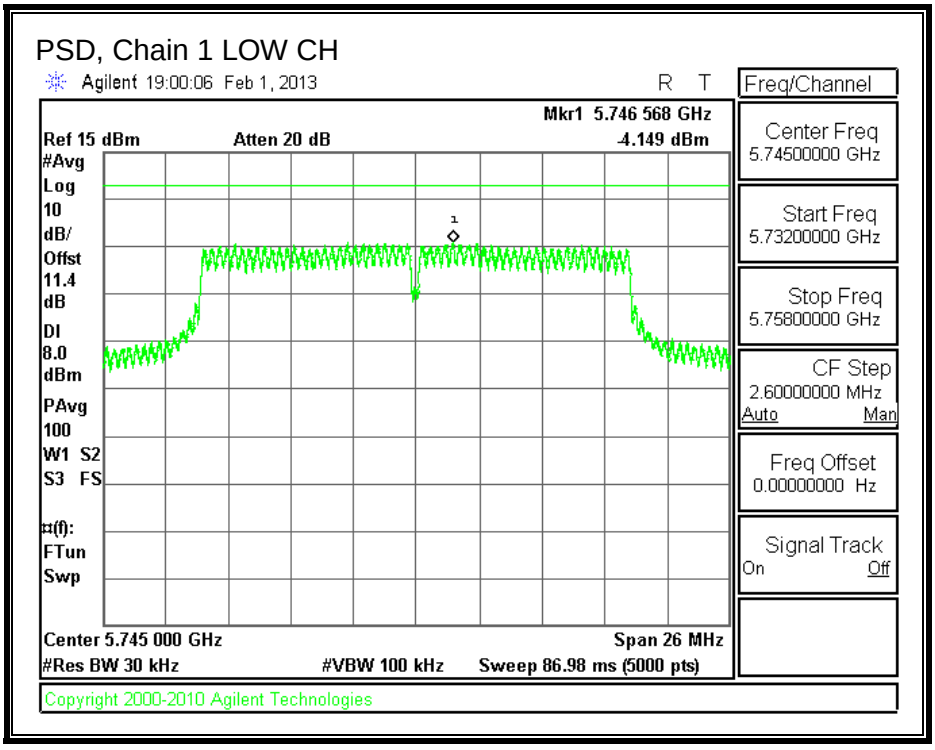
PSD, Chain 0



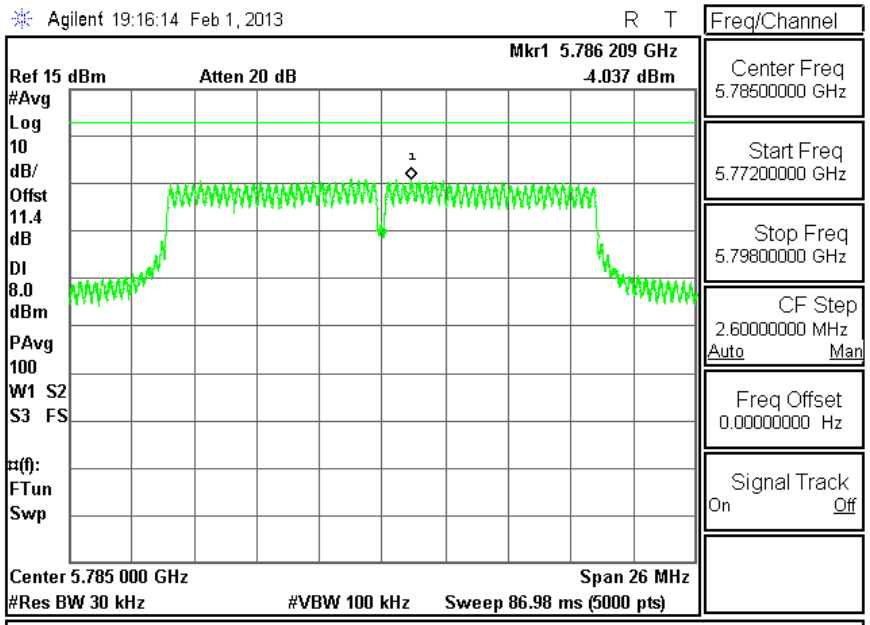




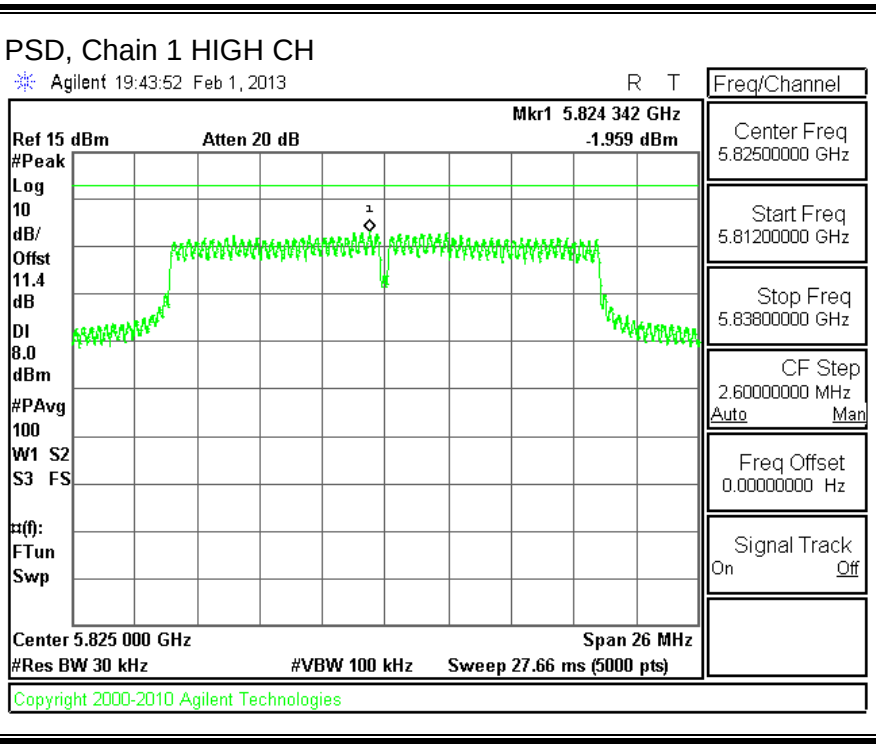
PSD, Chain 1



PSD, Chain 1 MID CH



PSD, Chain 1 HIGH CH



8.13.5. OUT-OF-BAND EMISSIONS

LIMITS

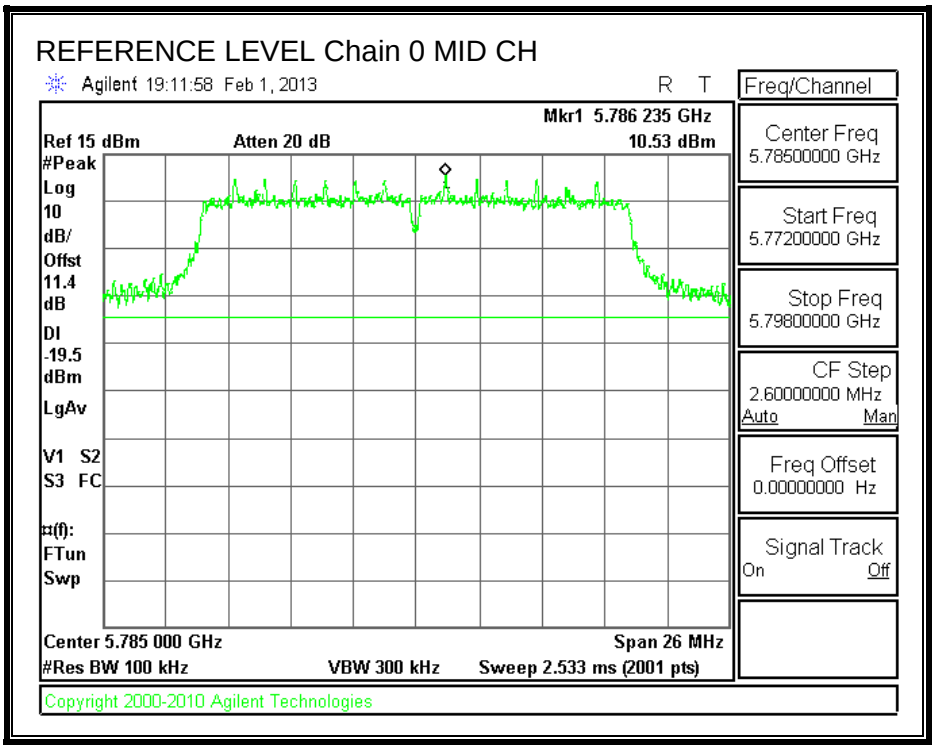
FCC §15.247 (d)

IC RSS-210 A8.5

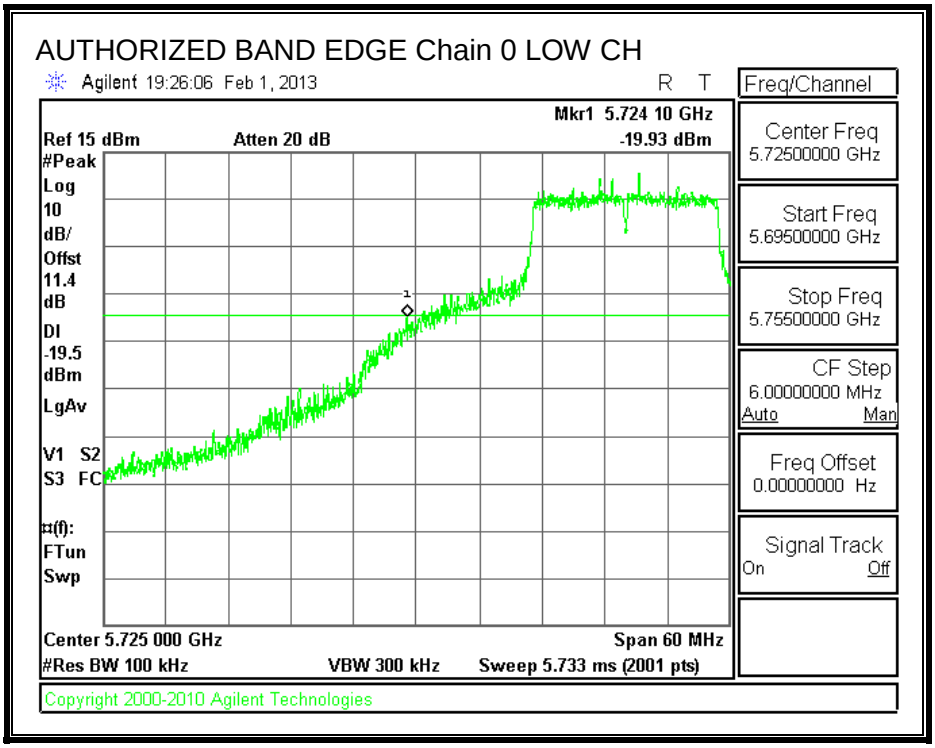
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

RESULTS

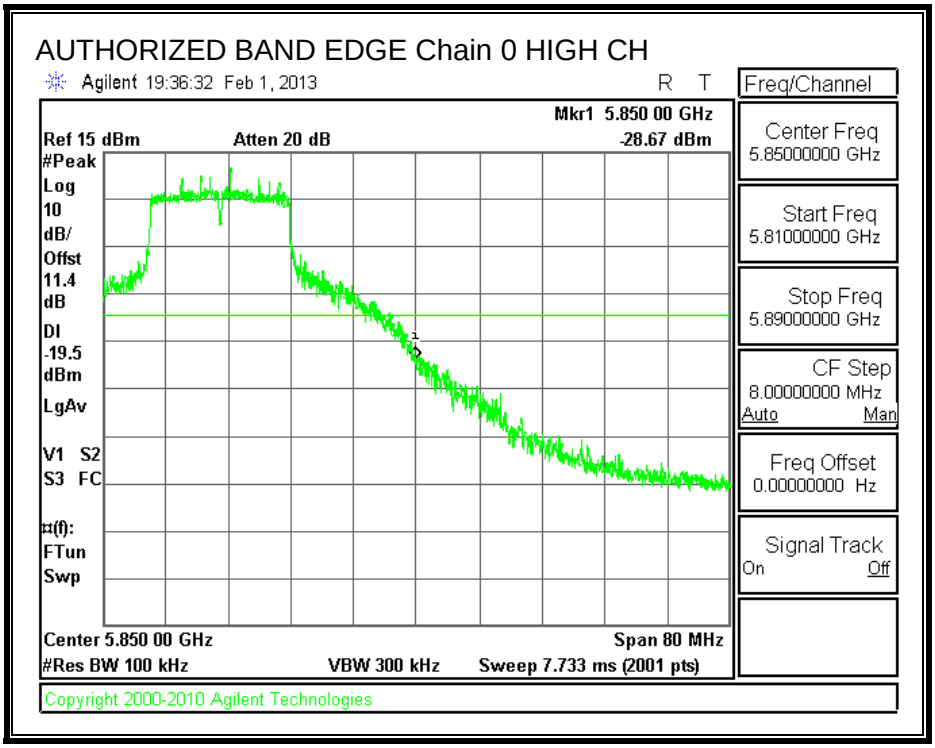
IN-BAND REFERENCE LEVEL, Chain 0



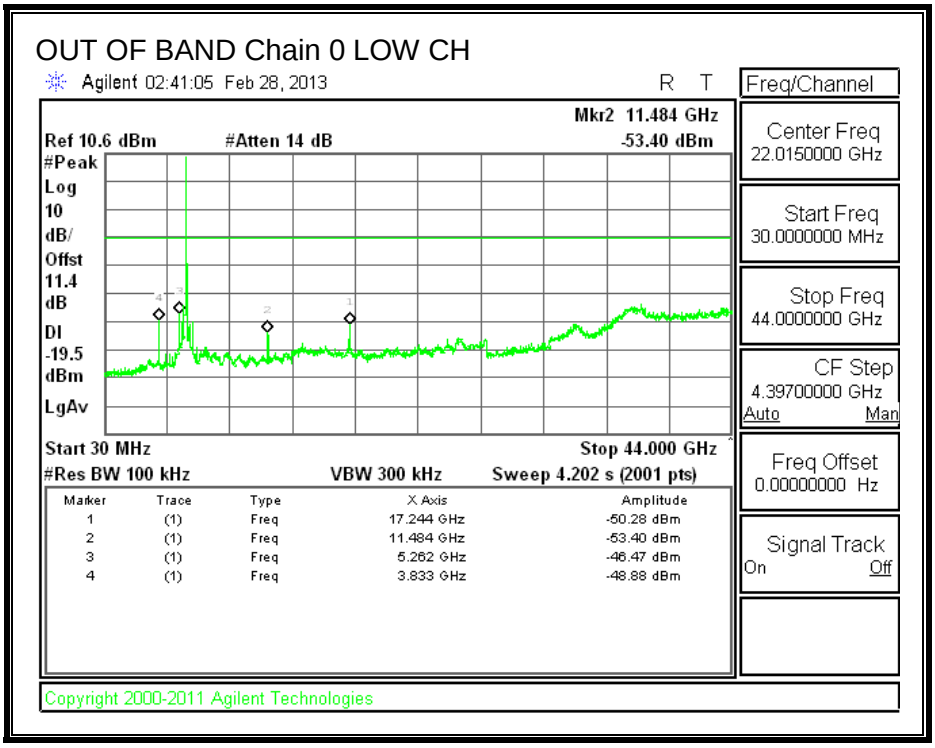
LOW CHANNEL BANDEDGE, Chain 0

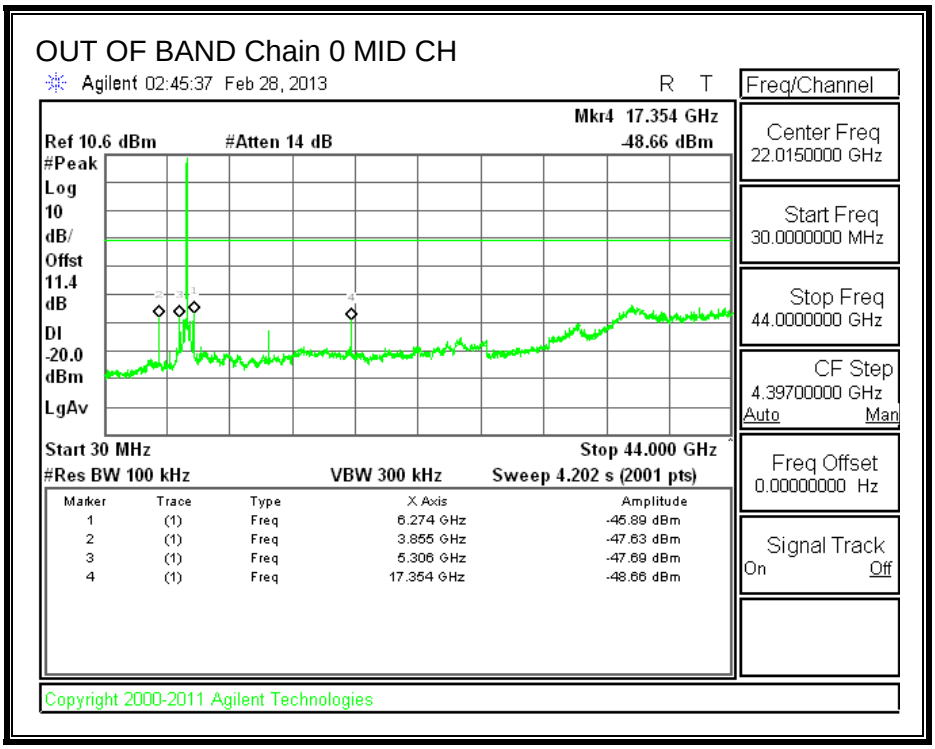


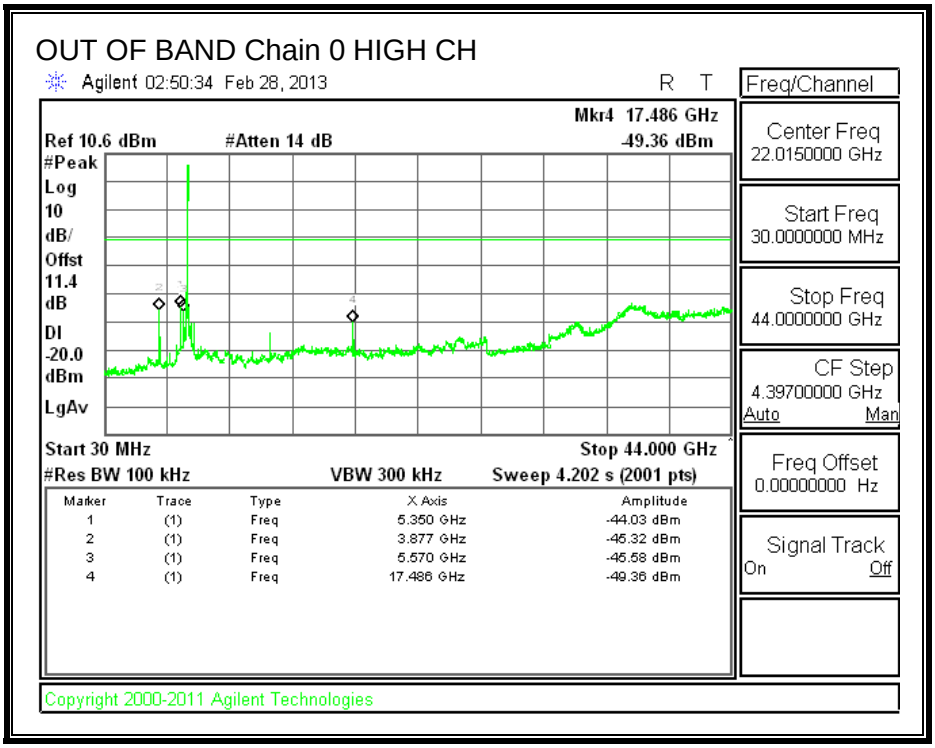
HIGH CHANNEL BANDEDGE, Chain 0



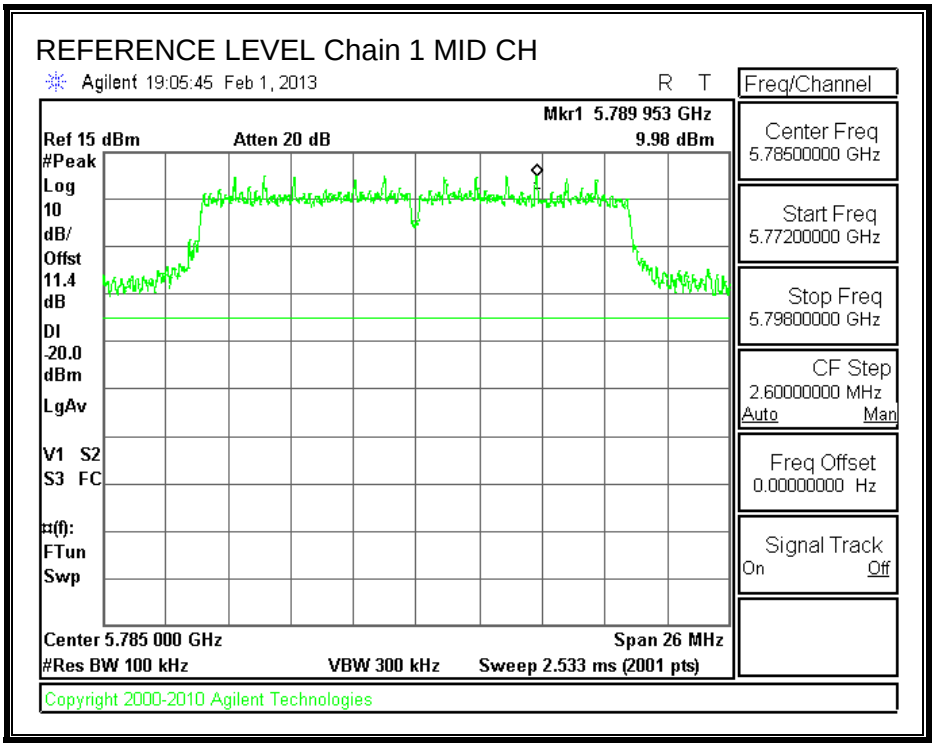
OUT-OF-BAND EMISSIONS, Chain 0



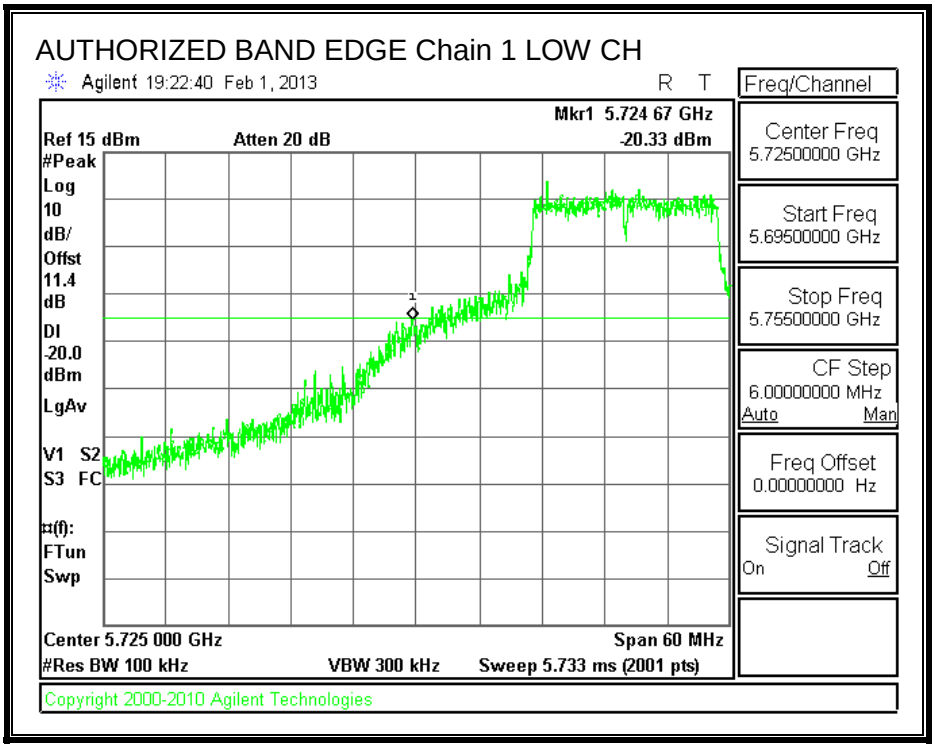




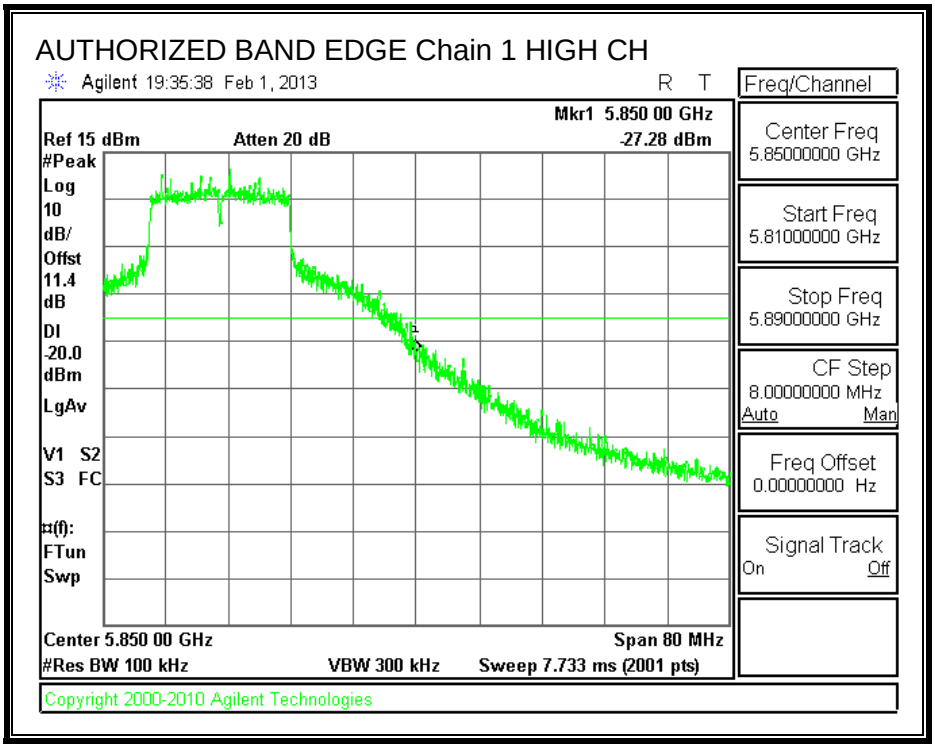
IN-BAND REFERENCE LEVEL, Chain 1



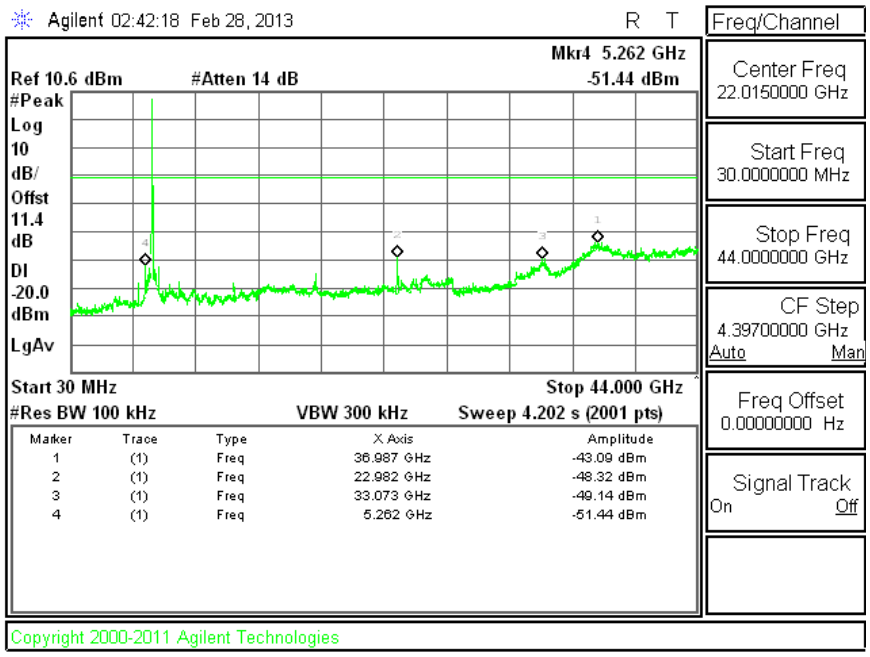
LOW CHANNEL BANDEDGE, Chain 1



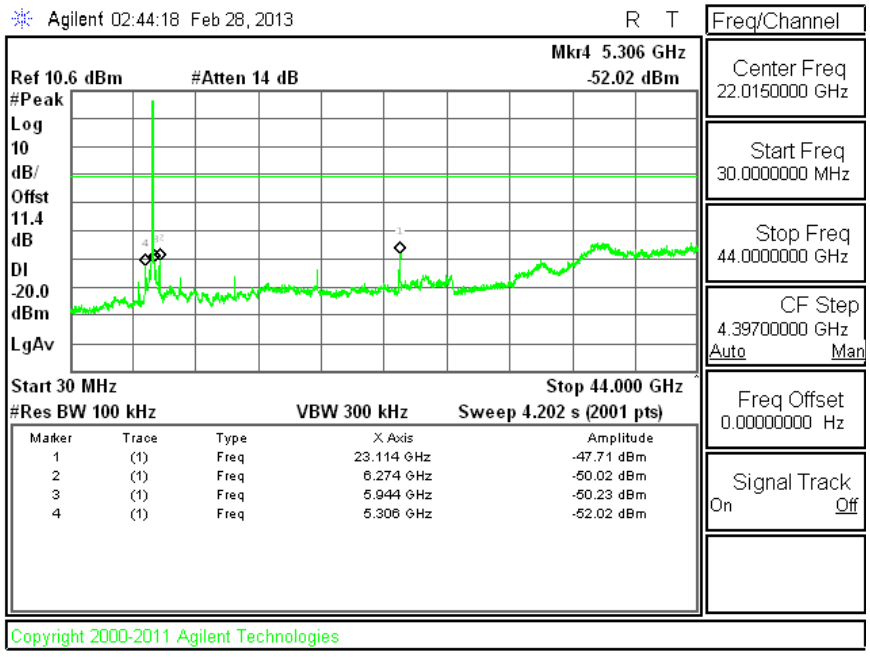
HIGH CHANNEL BANDEDGE, Chain 1

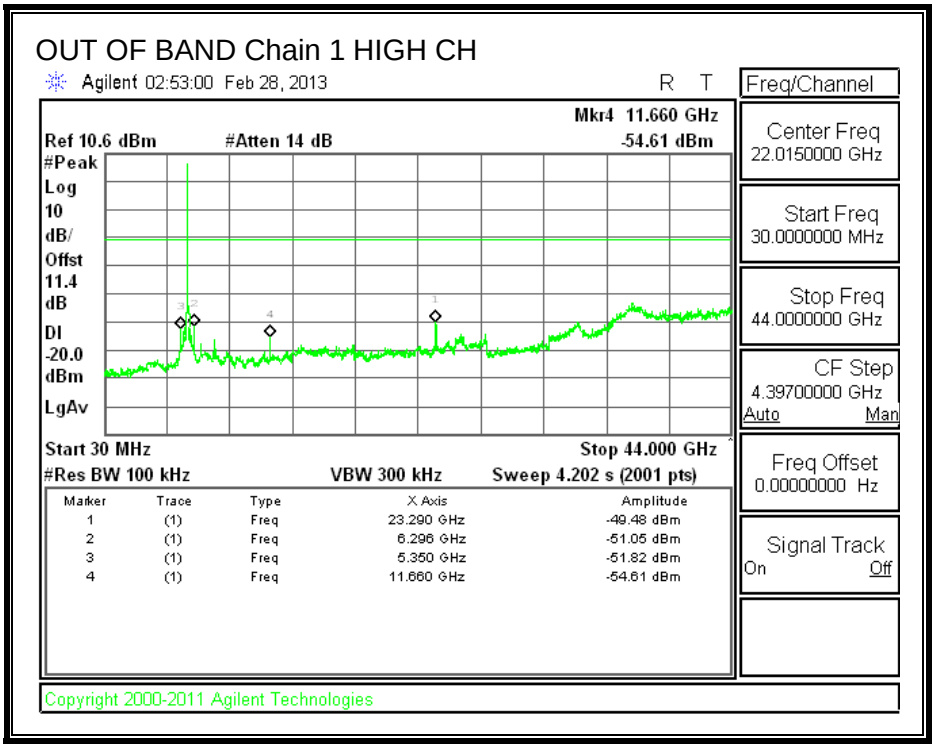


OUT OF BAND Chain 1 LOW CH



OUT OF BAND Chain 1 MID CH





8.14. 802.11n HT20 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.15. 802.11n AC20 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.16. 802.11n HT40 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT40 CDD 2TX, power per chain used in the 802.11n HT40 CDD 2TX mode is equal to the power per chain that will be used for 802.11n HT40 1TX.

8.17. 802.11n HT40 CDD 2TX MODE IN THE 5.8 GHz BAND

8.17.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

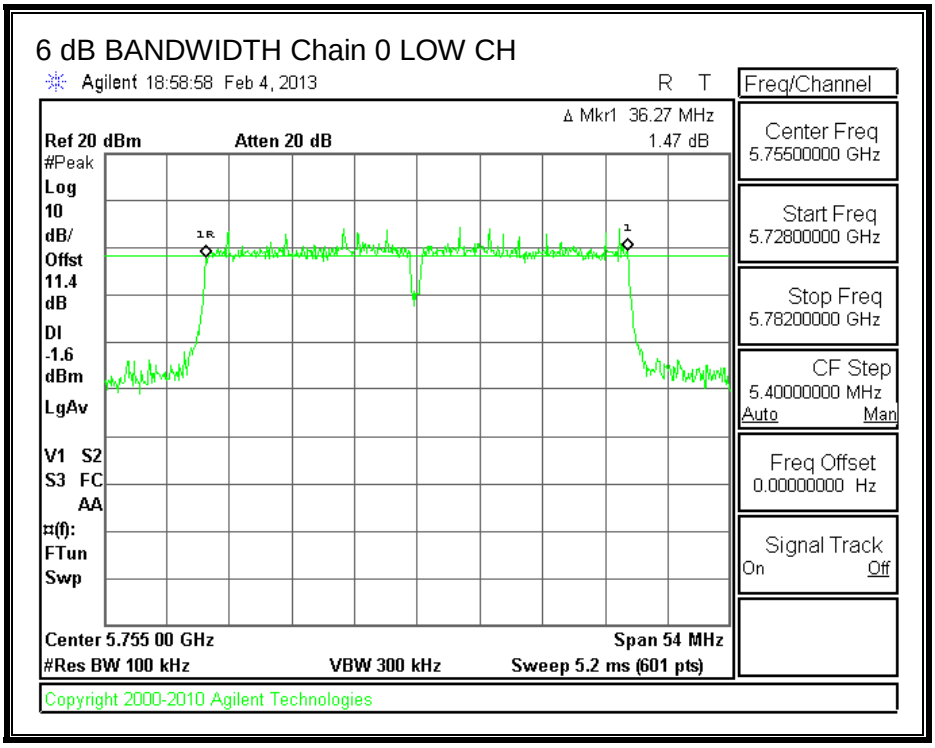
IC RSS-210 A8.2 (a)

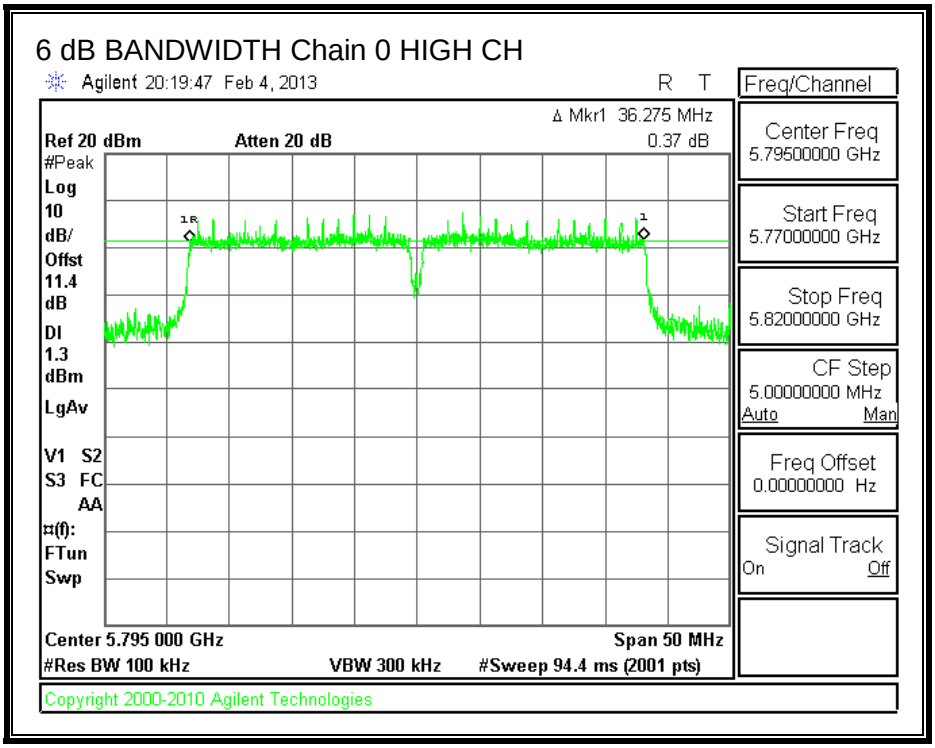
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

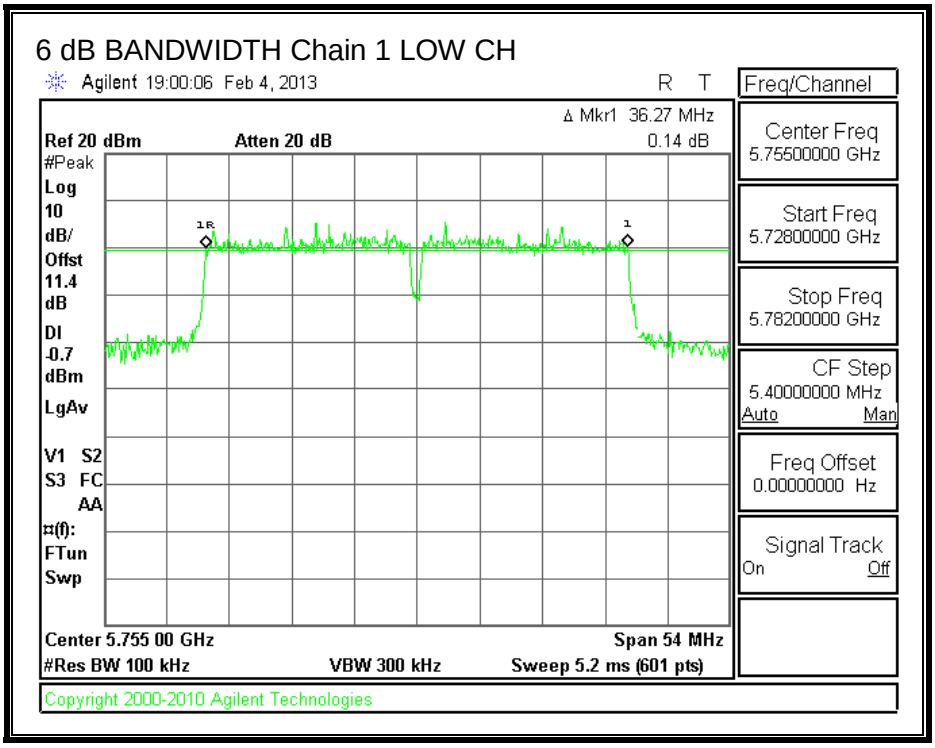
Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5755	36.270	36.270	0.5
High	5795	36.275	36.075	0.5

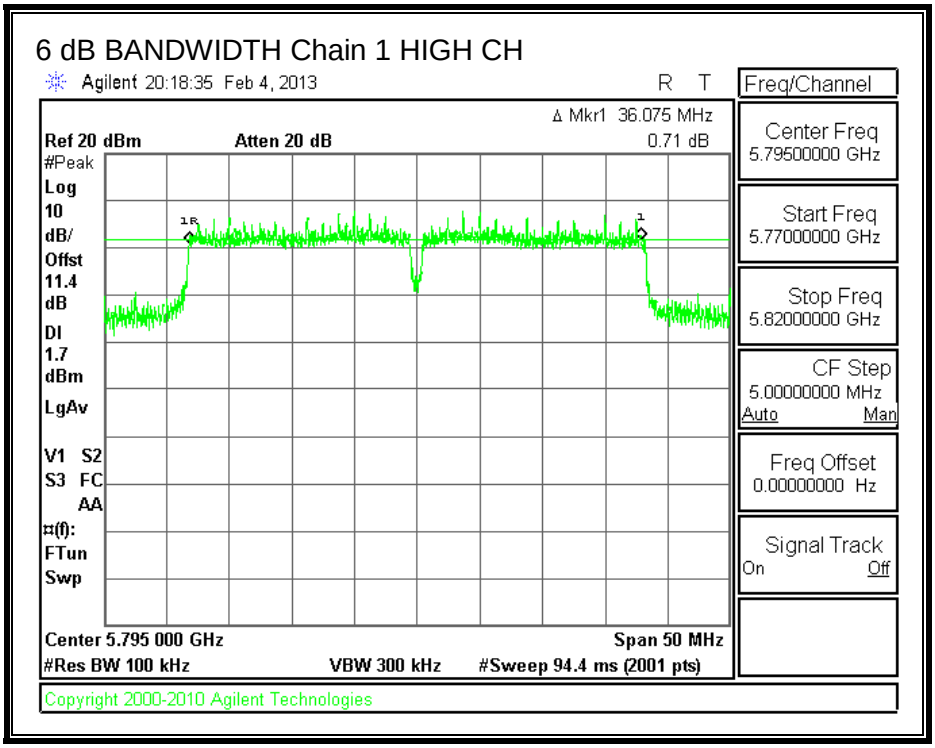
6 dB BANDWIDTH, Chain 0





6 dB BANDWIDTH, Chain 1





8.17.2. 99% BANDWIDTH

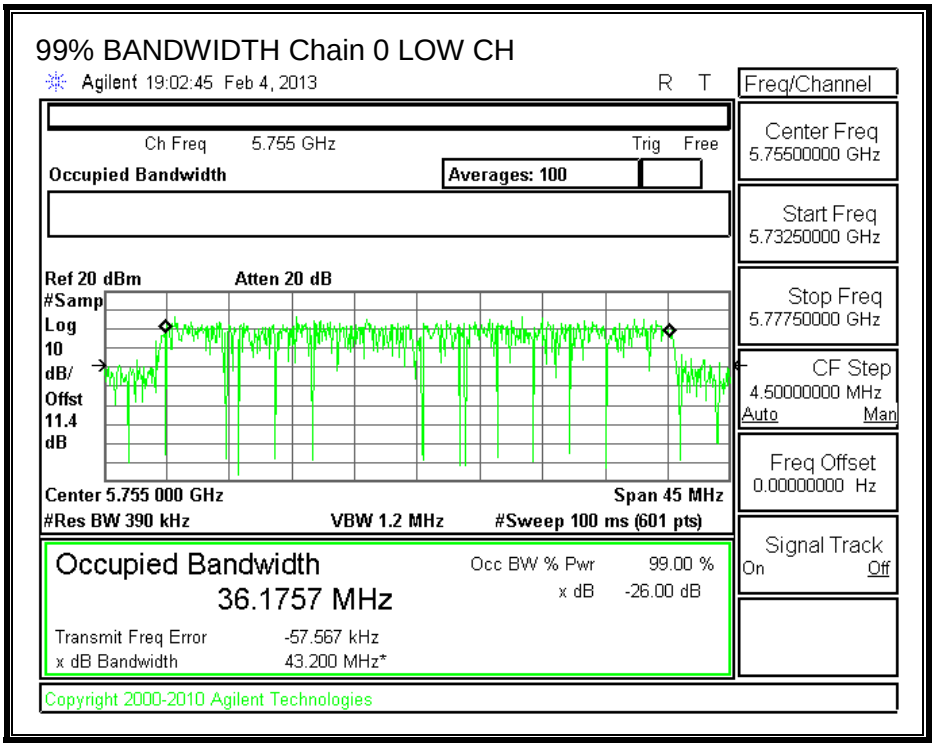
LIMITS

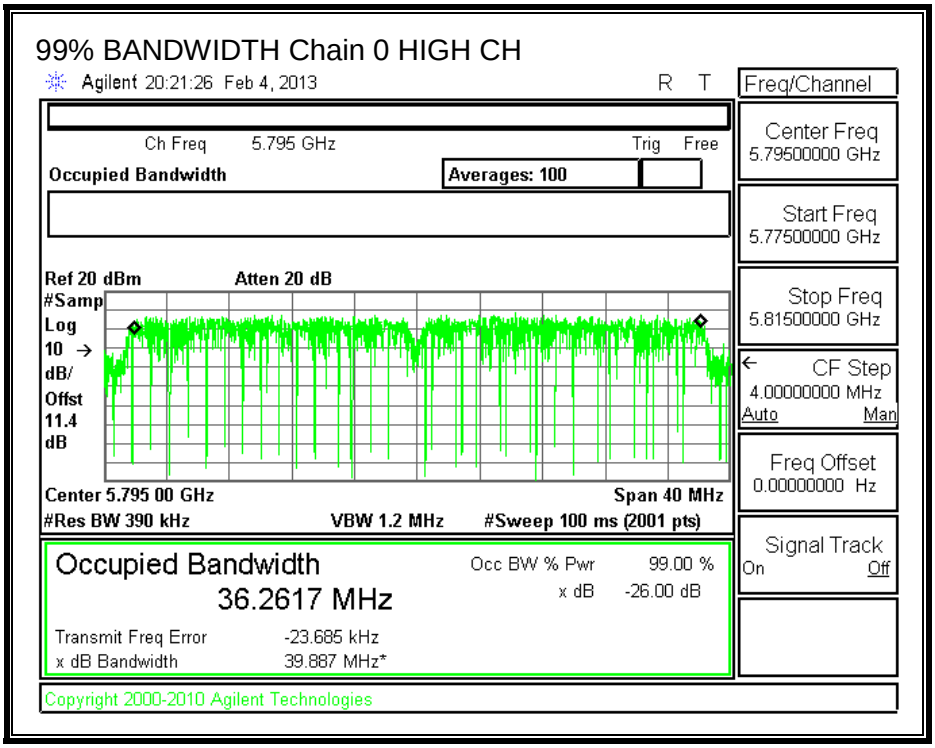
None; for reporting purposes only.

RESULTS

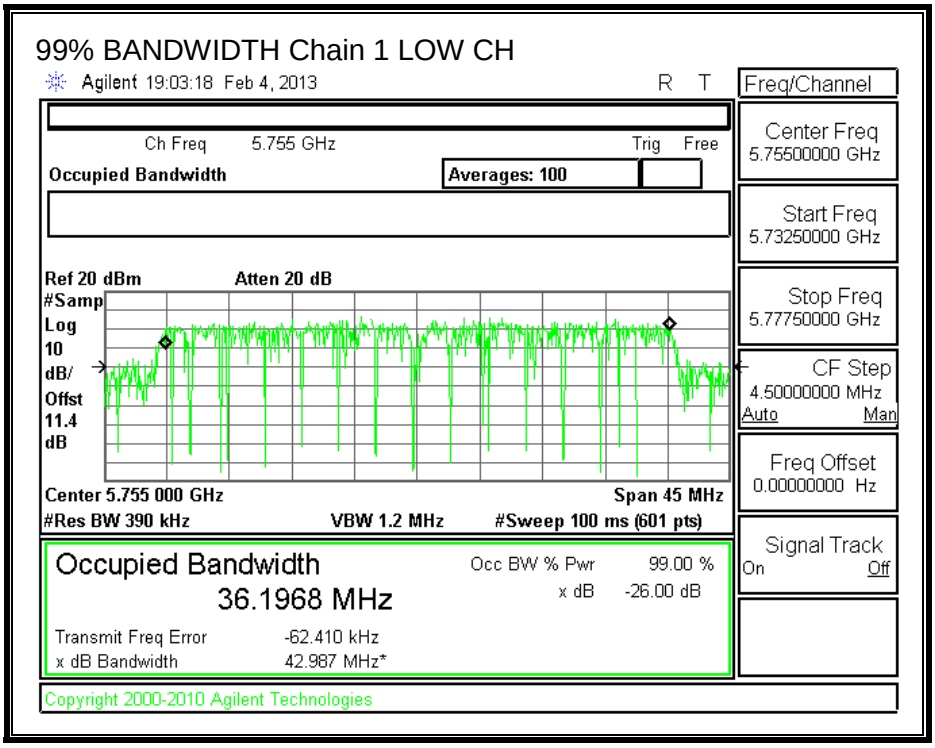
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5755	36.1757	36.1968
High	5795	36.2617	36.2620

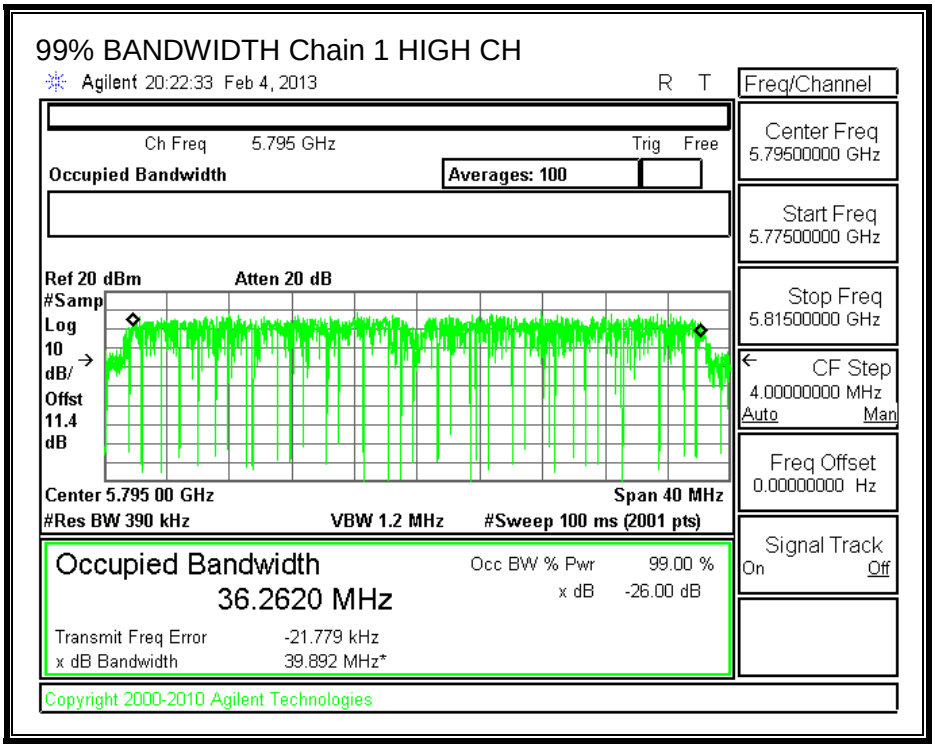
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.17.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.90	6.28	5.64

RESULTS

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	5755	5.64	30.00	30	36	30.00
High	5795	5.64	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low	5755	16.77	16.72	19.76	30.00	-10.24
High	5795	20.10	20.10	23.11	30.00	-6.89

8.17.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

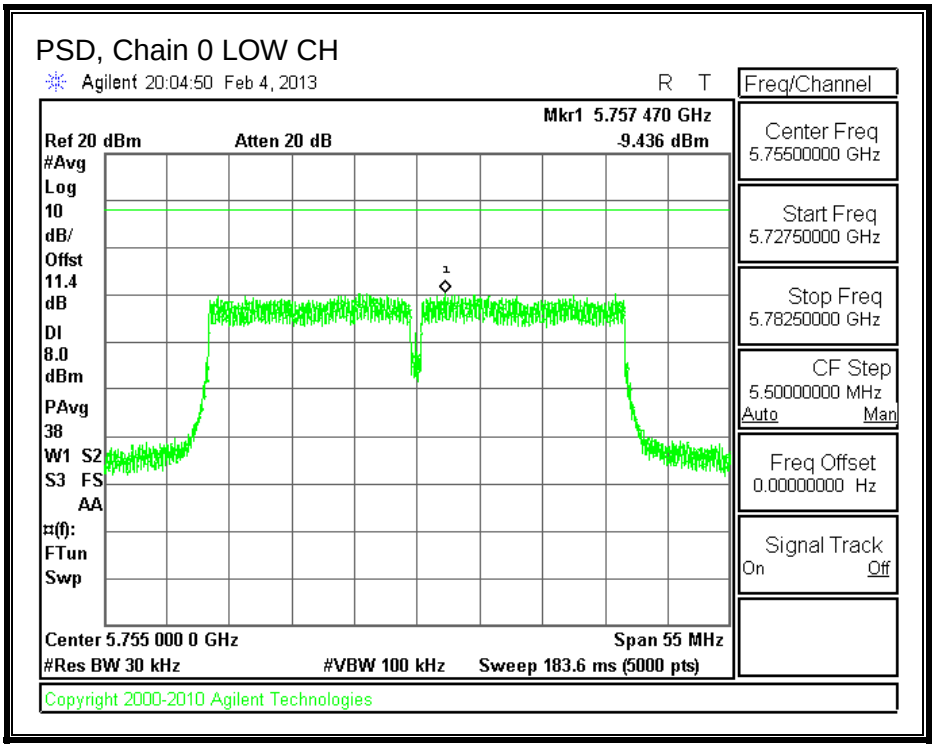
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

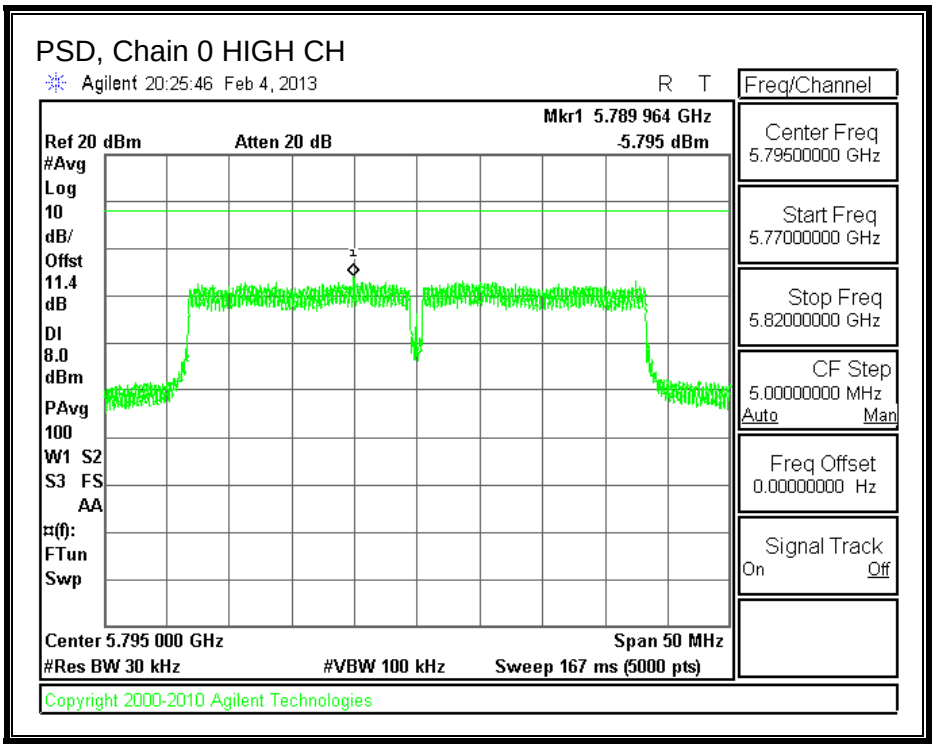
RESULTS

PSD Results

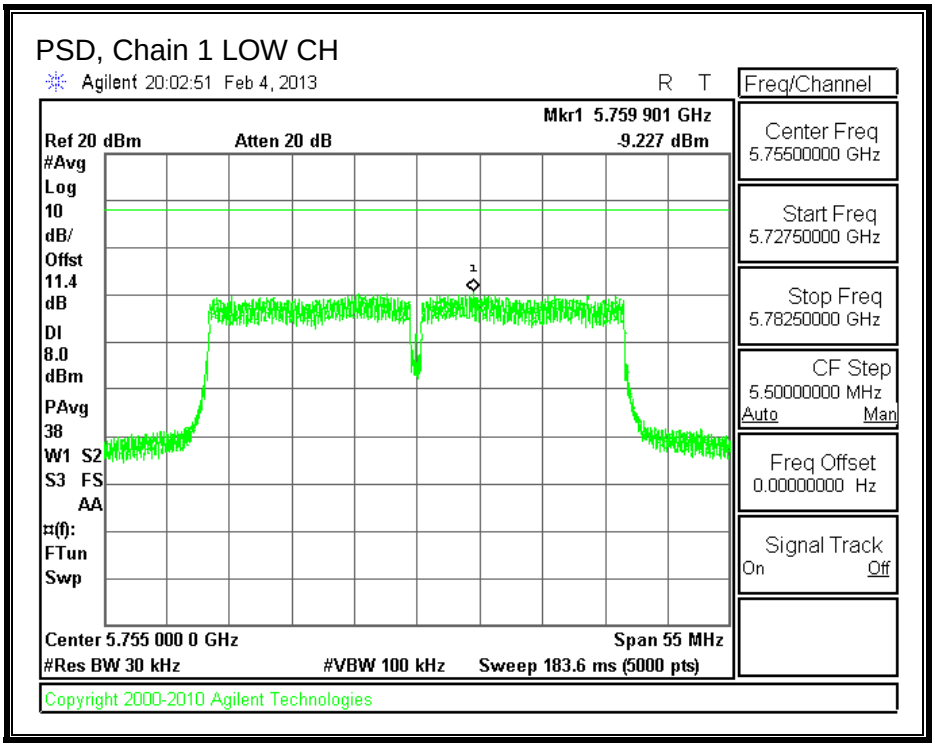
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-9.436	-9.227	-6.32	8.0	-14.3
High	5795	-5.795	-6.280	-3.02	8.0	-11.0

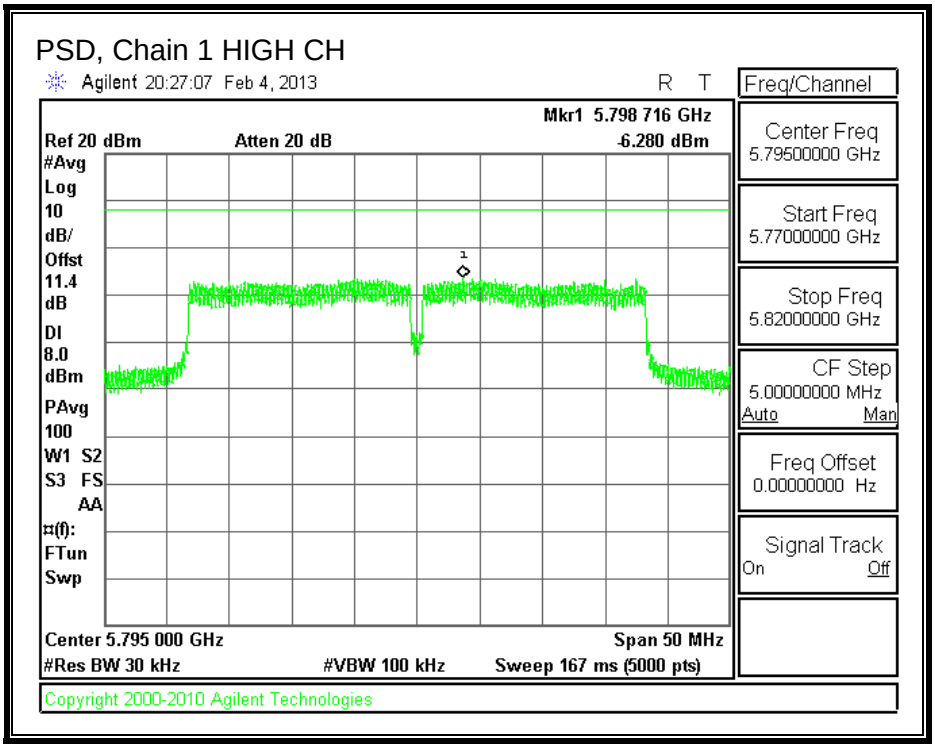
PSD, Chain 0





PSD, Chain 1





8.17.5. OUT-OF-BAND EMISSIONS

LIMITS

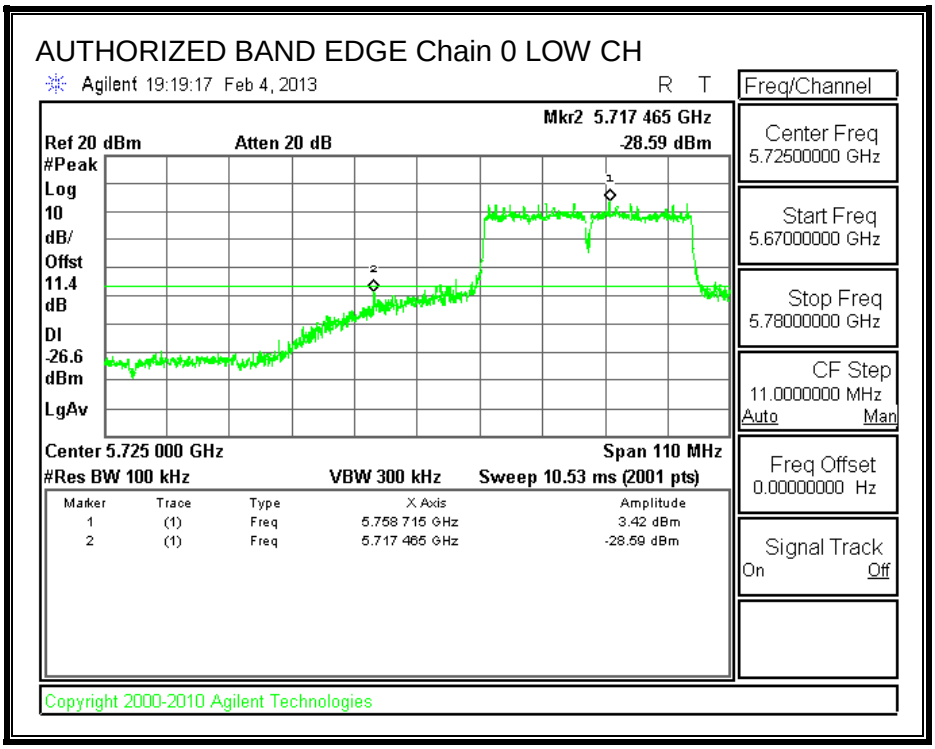
FCC §15.247 (d)

IC RSS-210 A8.5

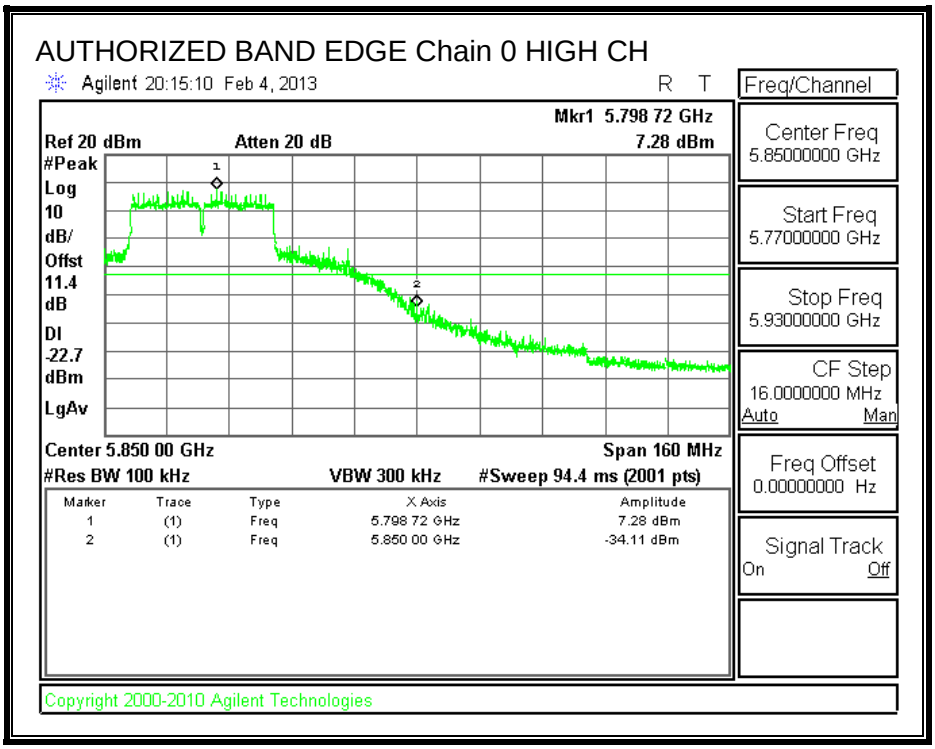
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

RESULTS

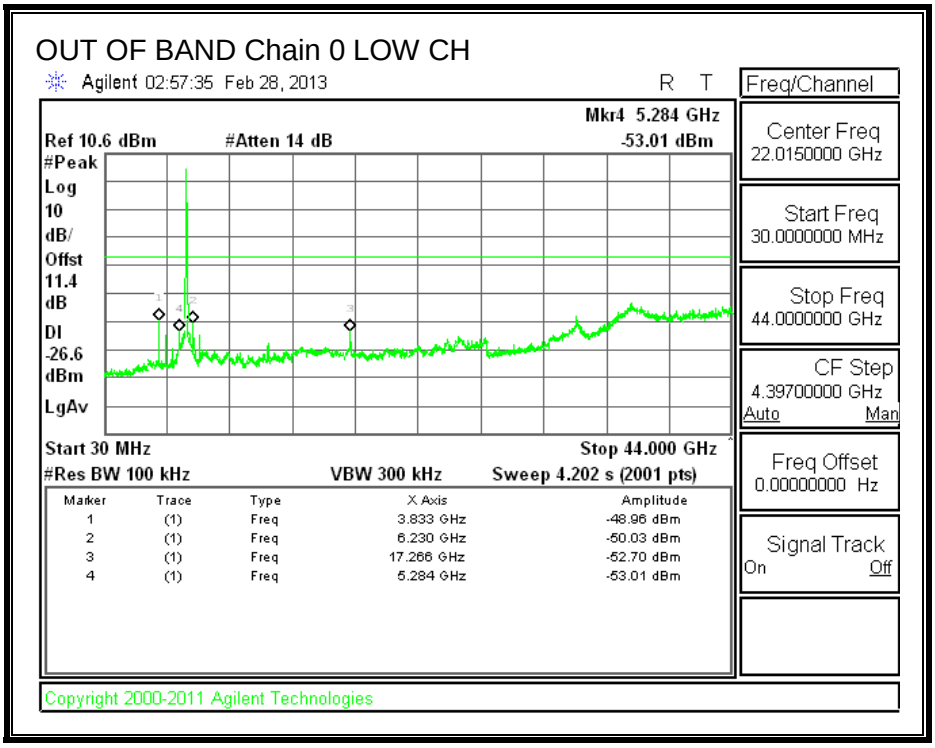
LOW CHANNEL BANDEDGE, Chain 0

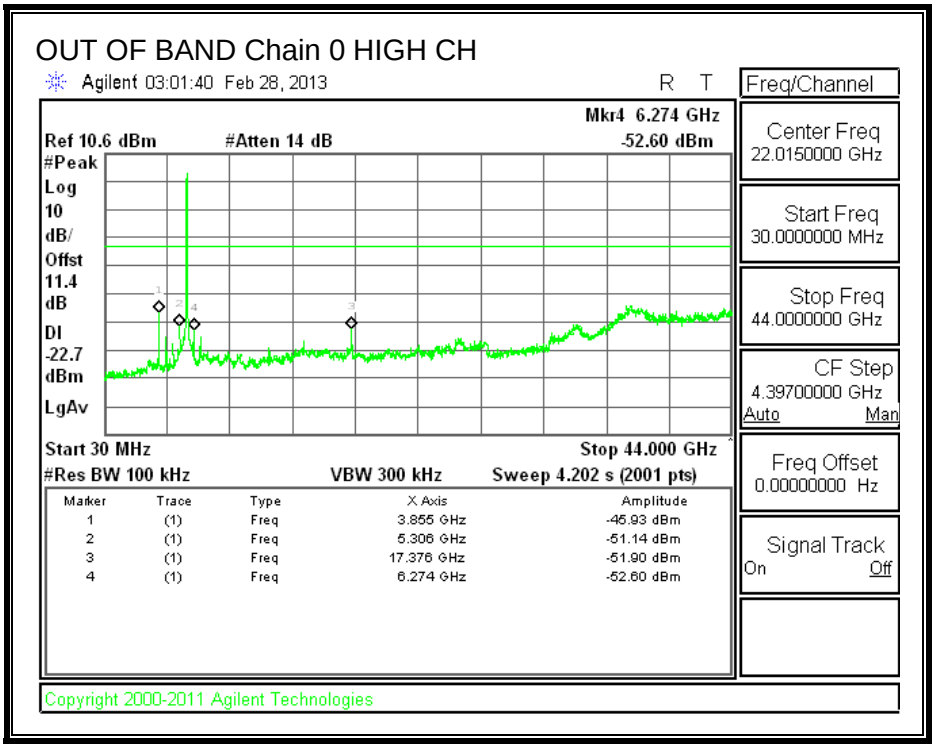


HIGH CHANNEL BANDEDGE, Chain 0

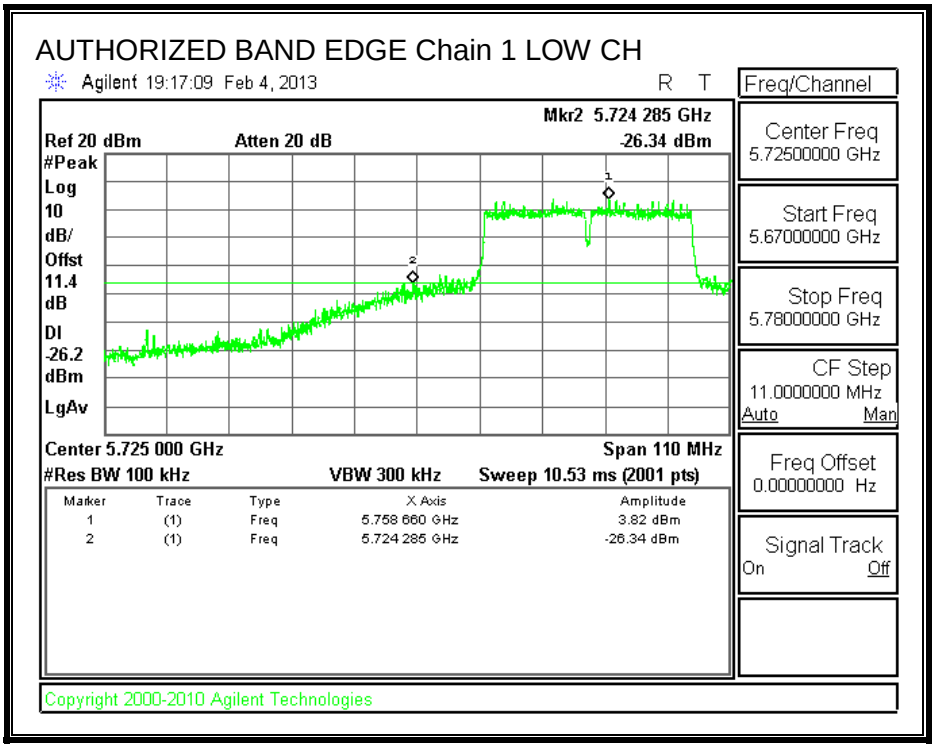


OUT-OF-BAND EMISSIONS, Chain 0

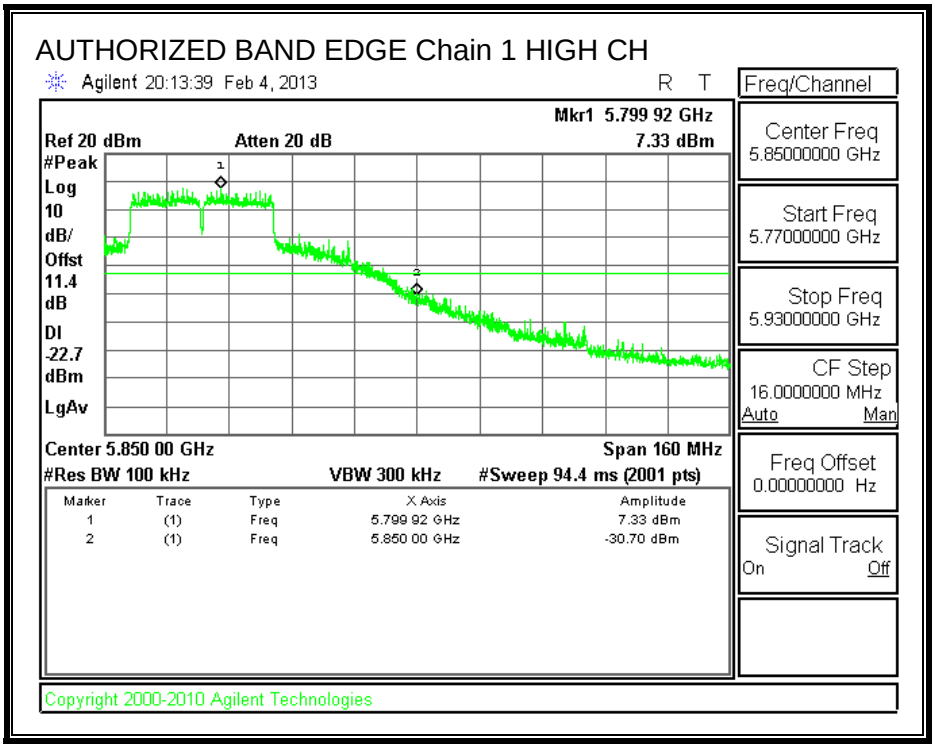




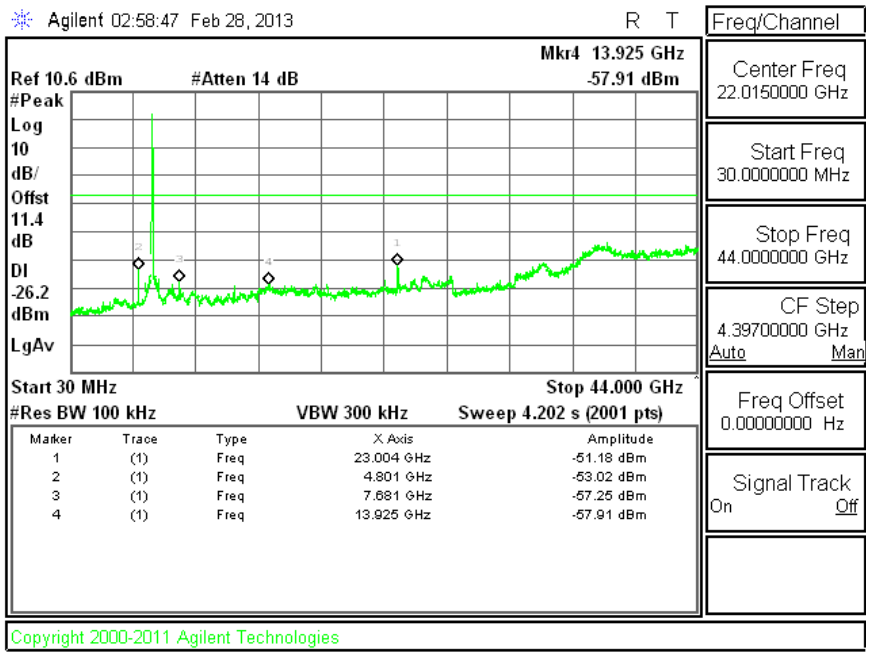
LOW CHANNEL BANDEDGE, Chain 1



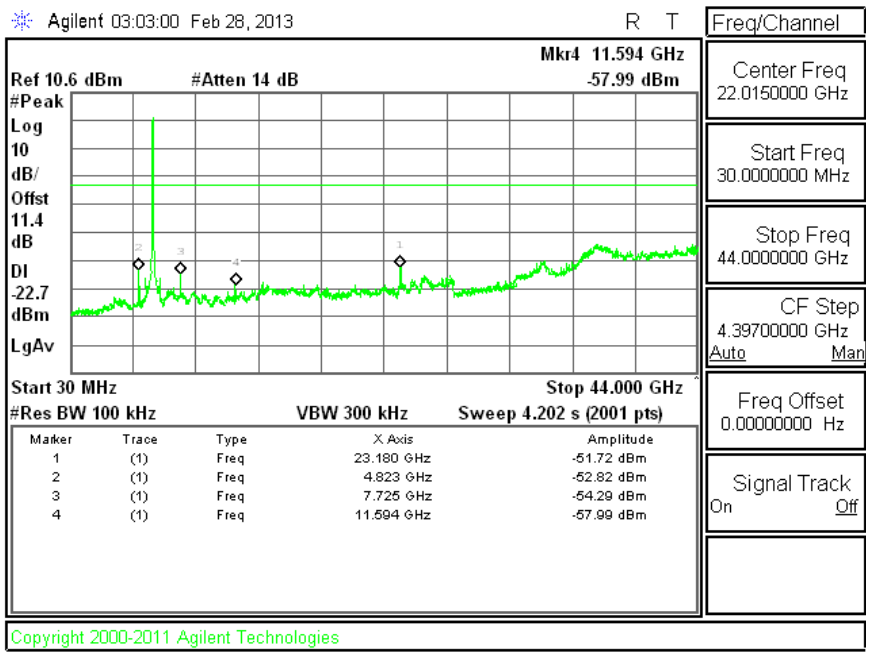
HIGH CHANNEL BANDEDGE, Chain 1



OUT OF BAND Chain 1 LOW CH



OUT OF BAND Chain 1 HIGH CH



8.18. 802.11n HT40 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT40 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.19. 802.11n AC40 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT40 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

8.20. 802.11n AC80 1TX MODE IN THE 5.8 GHz BAND

8.20.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

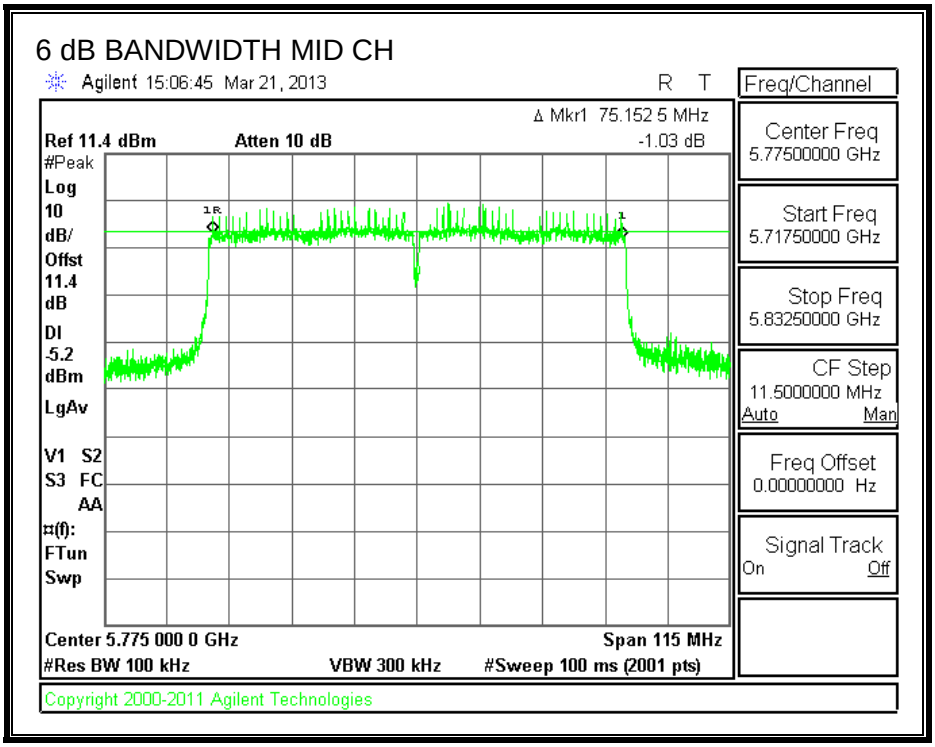
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with the RBW set between 1% and 5% of the EBW, the VBW >= 3 x RBW, peak detector and max hold.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	75.153	0.5

6 dB BANDWIDTH



8.20.2. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Mid	5775	6.28	29.72	30	36	29.72

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Mid	5775	18.35	18.35	29.72	-11.37

8.20.3. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

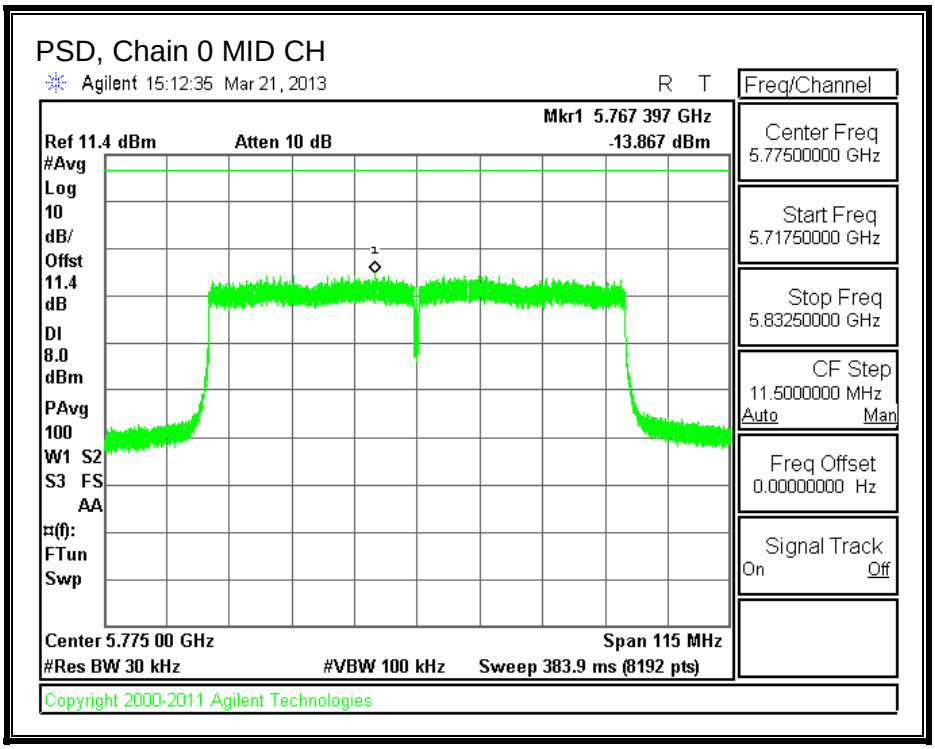
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Mid	5775	-13.867	8.0	-21.9

PSD, Chain 0



8.20.4. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

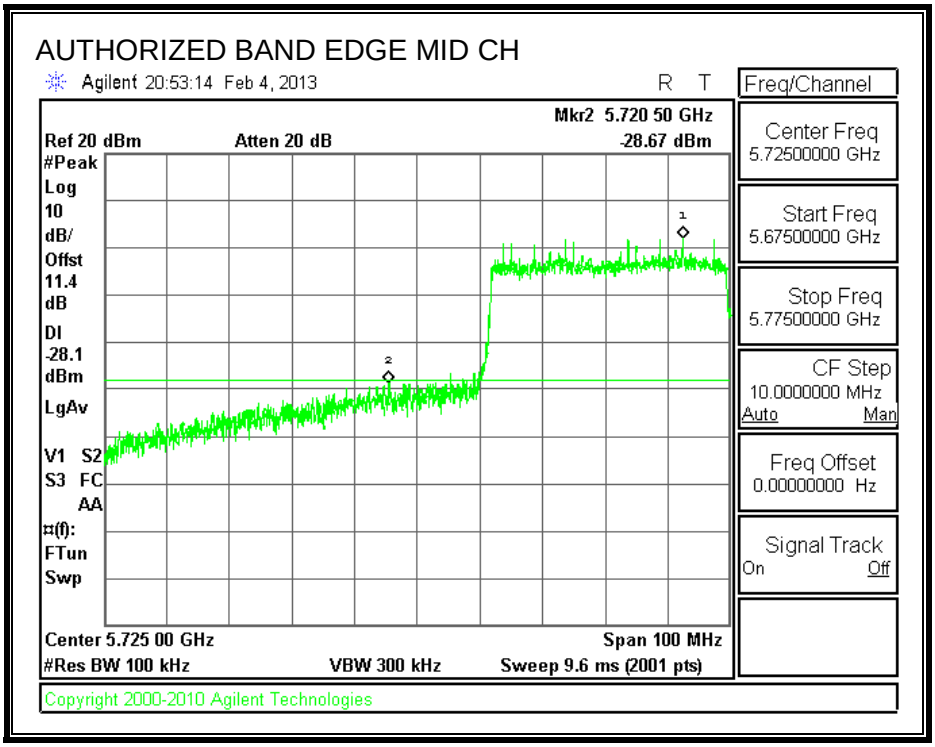
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

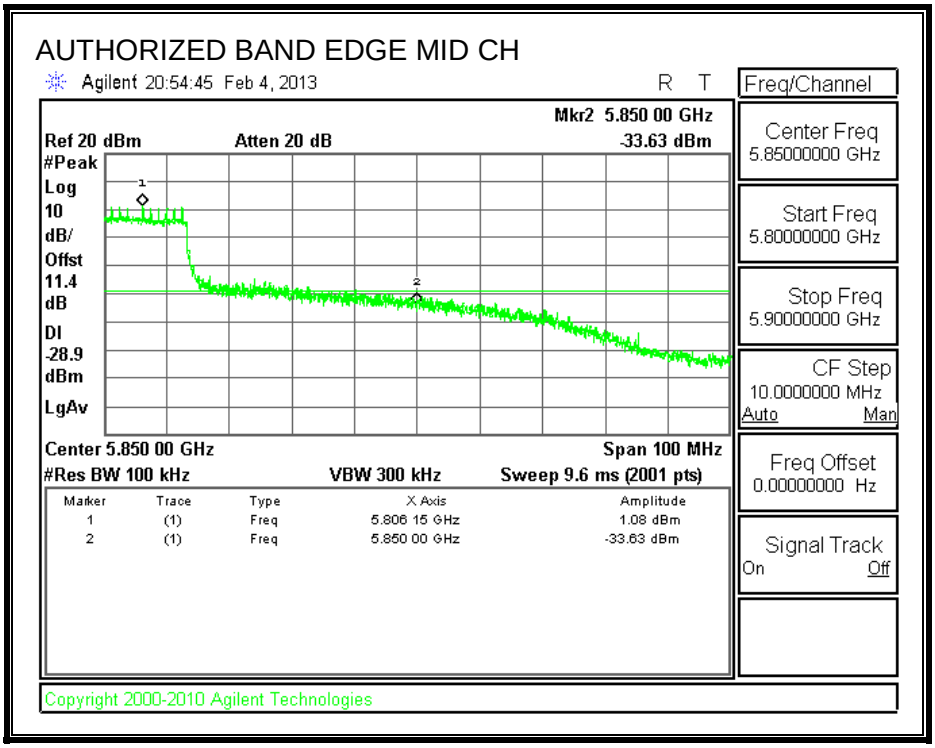
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

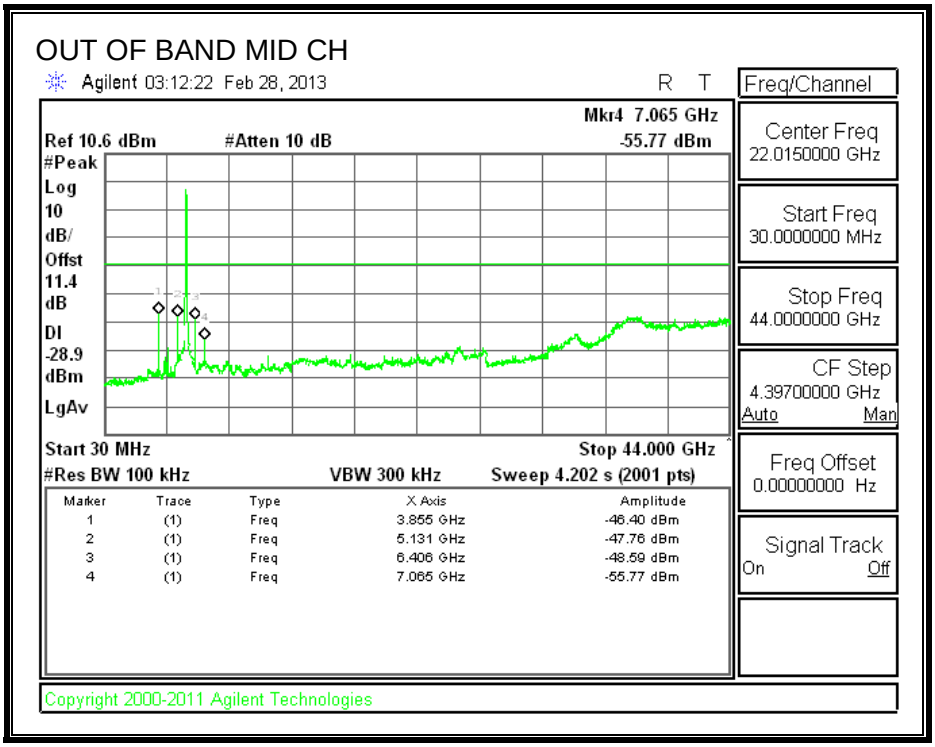
MID CHANNEL BANDEDGE



MID CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS



8.21. 802.11n AC80 CDD 2TX MODE IN THE 5.8 GHz BAND

8.21.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

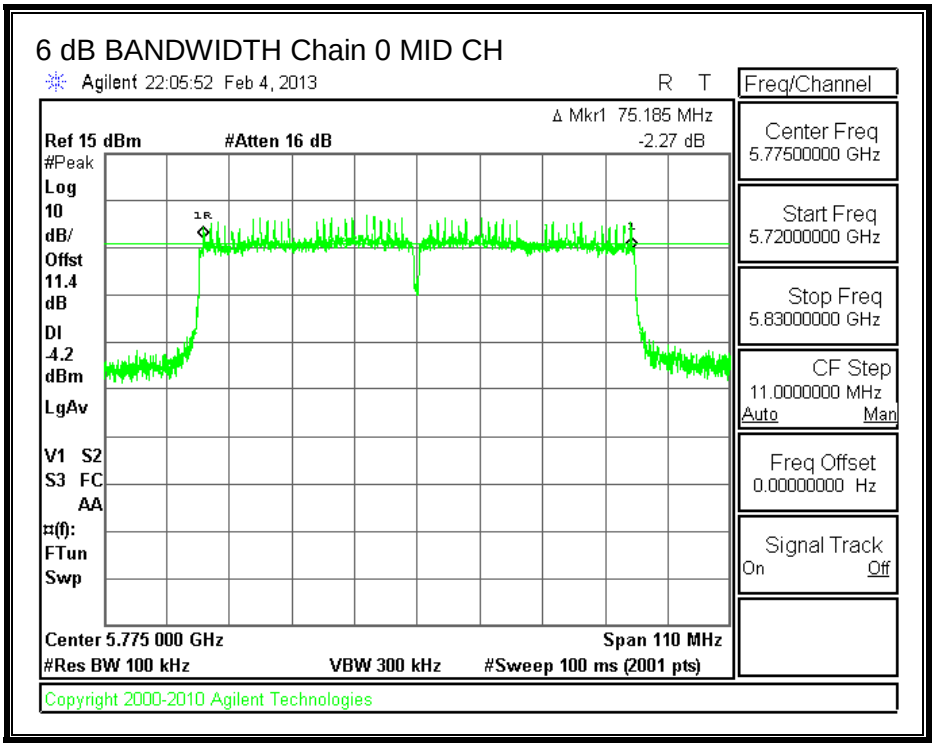
IC RSS-210 A8.2 (a)

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

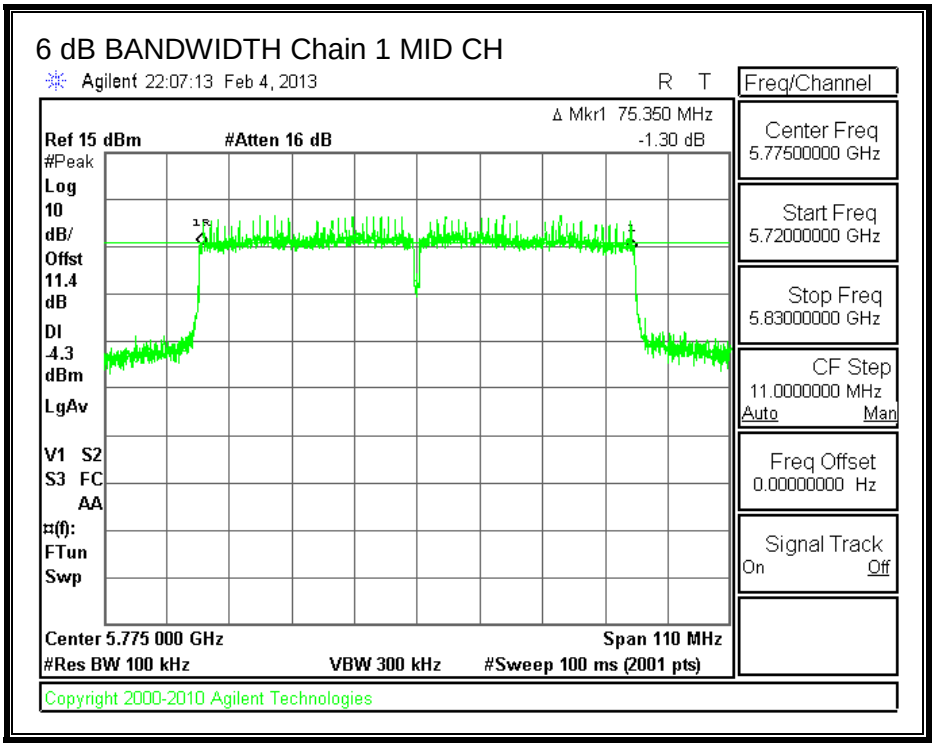
RESULTS

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Mid	5775	75.185	75.350	0.5

6 dB BANDWIDTH, Chain 0



6 dB BANDWIDTH, Chain 1



8.21.2. 99% BANDWIDTH

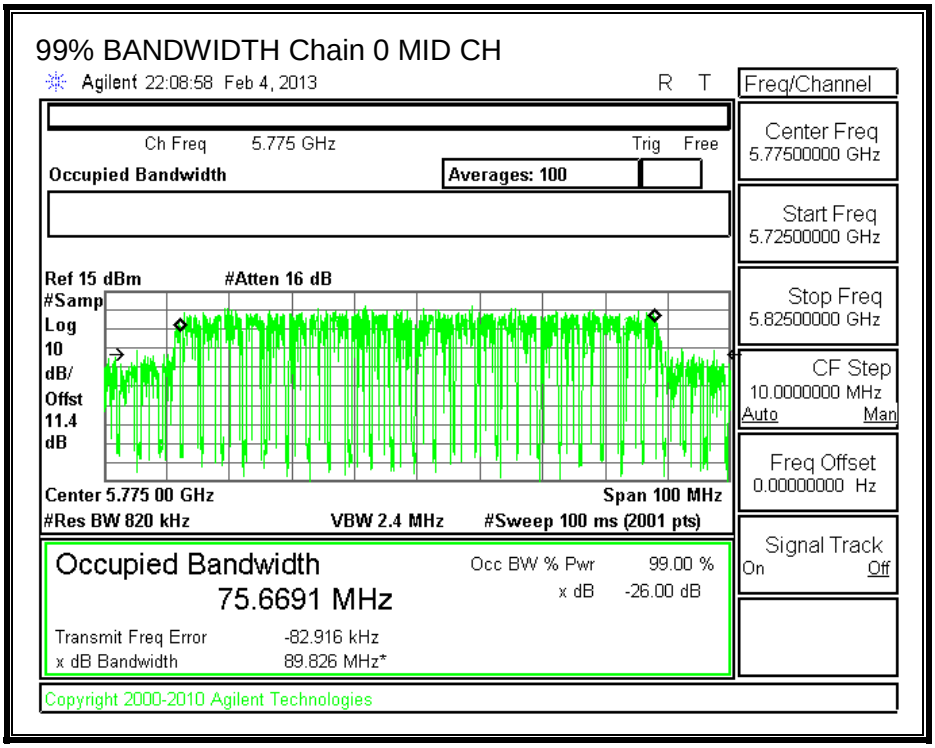
LIMITS

None; for reporting purposes only.

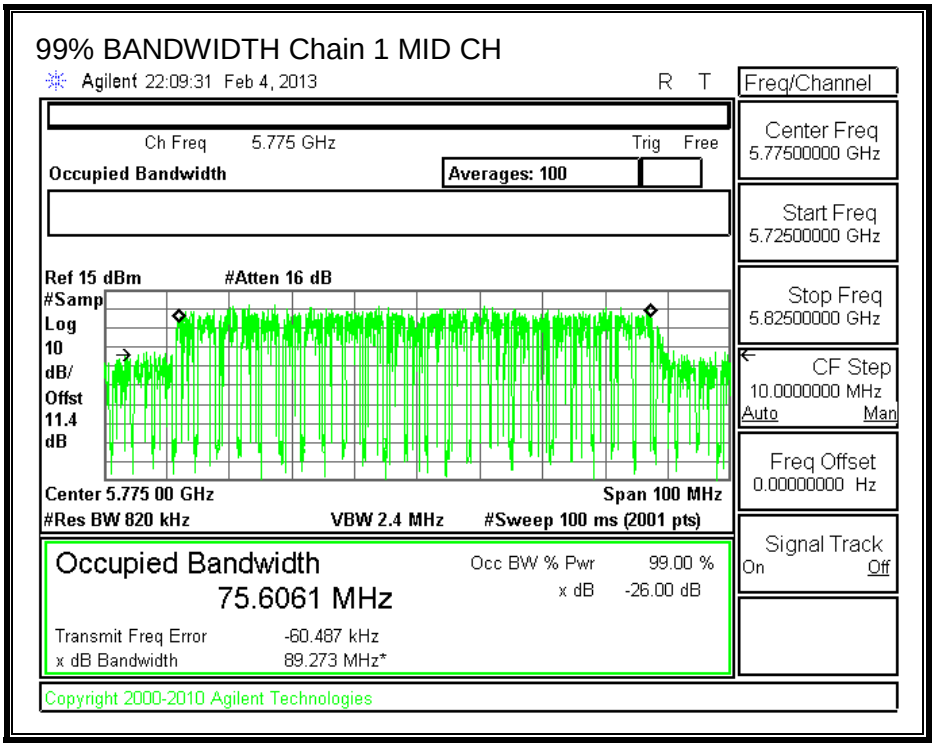
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Mid	5775	75.6691	75.6061

99% BANDWIDTH, Chain 0



99% BANDWIDTH, Chain 1



8.21.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
4.90	6.28	5.64

RESULTS

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Mid	5775	5.64	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Mid	5775	17.21	17.10	20.17	30.00	-9.83

8.21.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

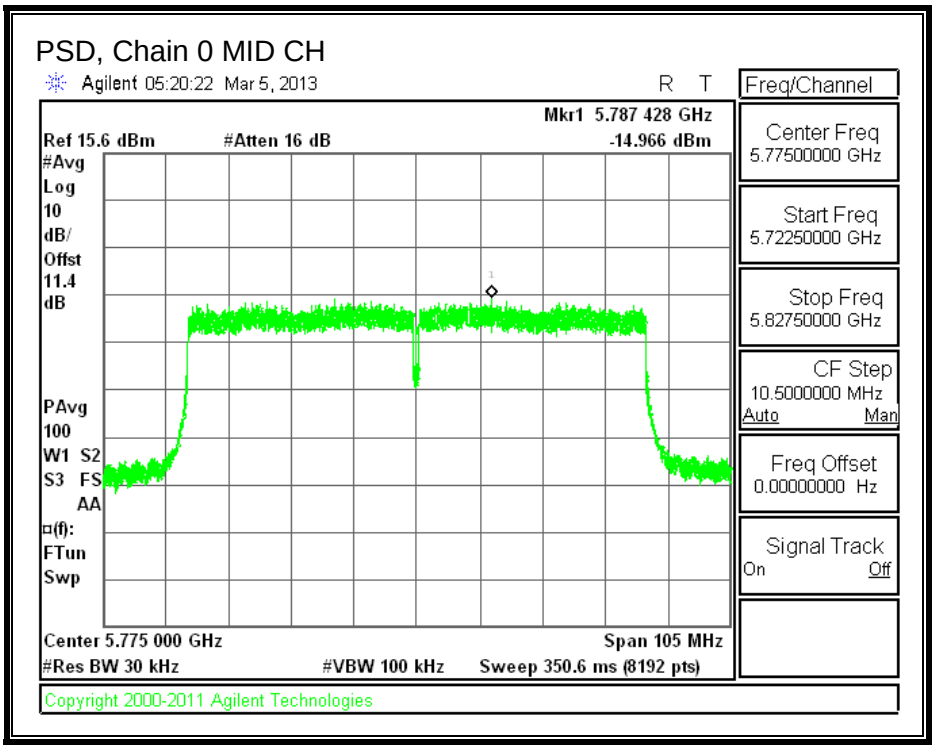
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

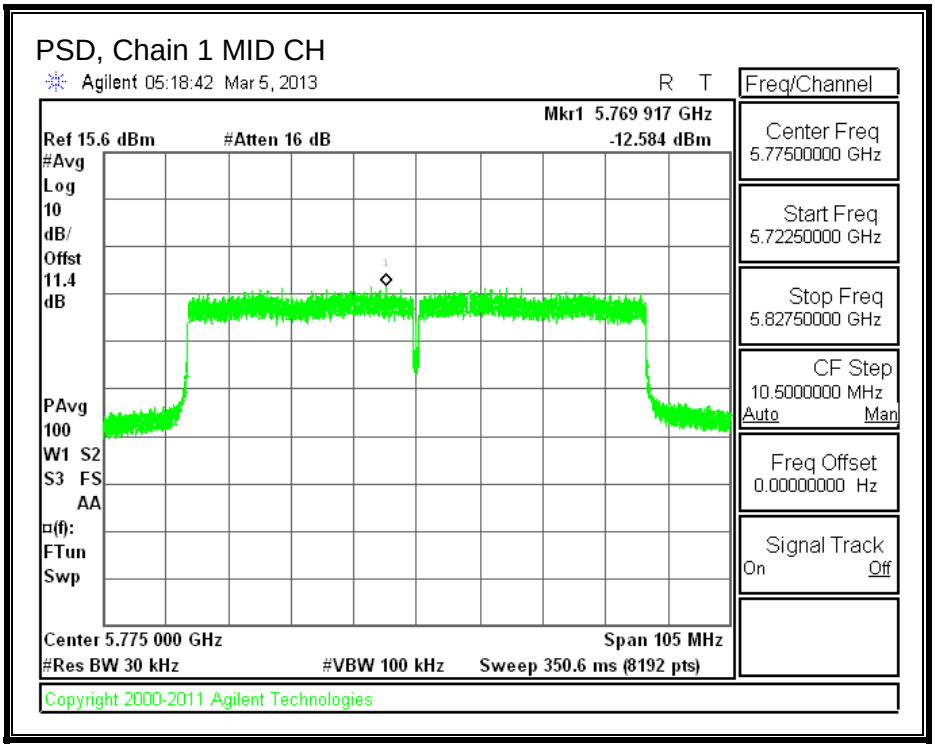
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Mid	5775	-14.966	-12.584	-10.60	8.0	-18.6

PSD, Chain 0



PSD, Chain 1



8.21.5. OUT-OF-BAND EMISSIONS

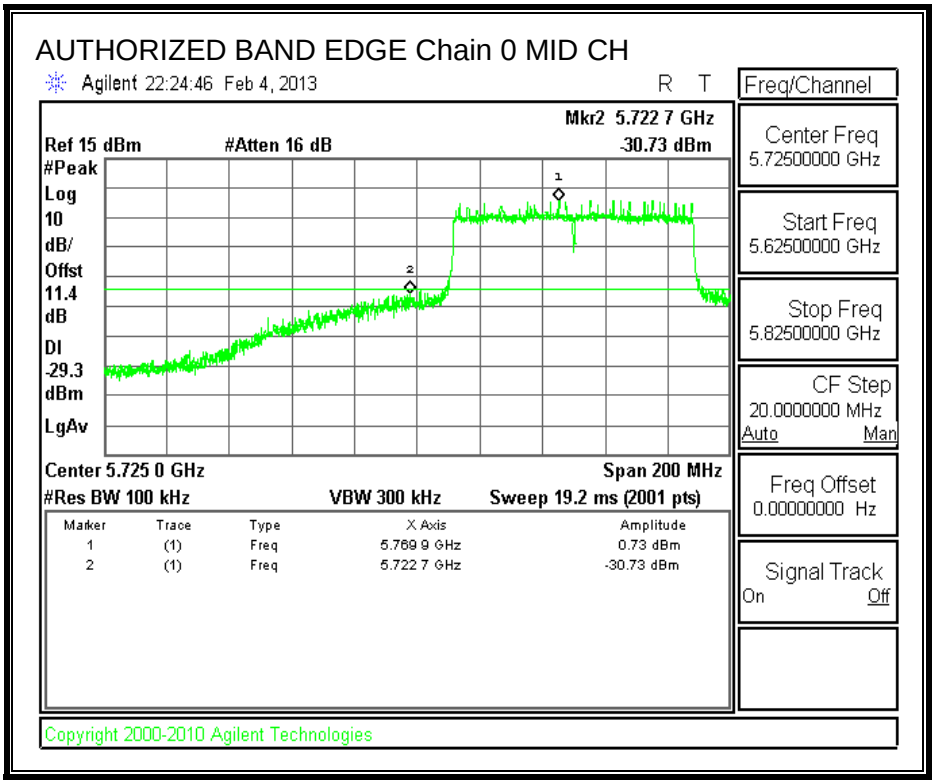
LIMITS

FCC §15.247 (d)

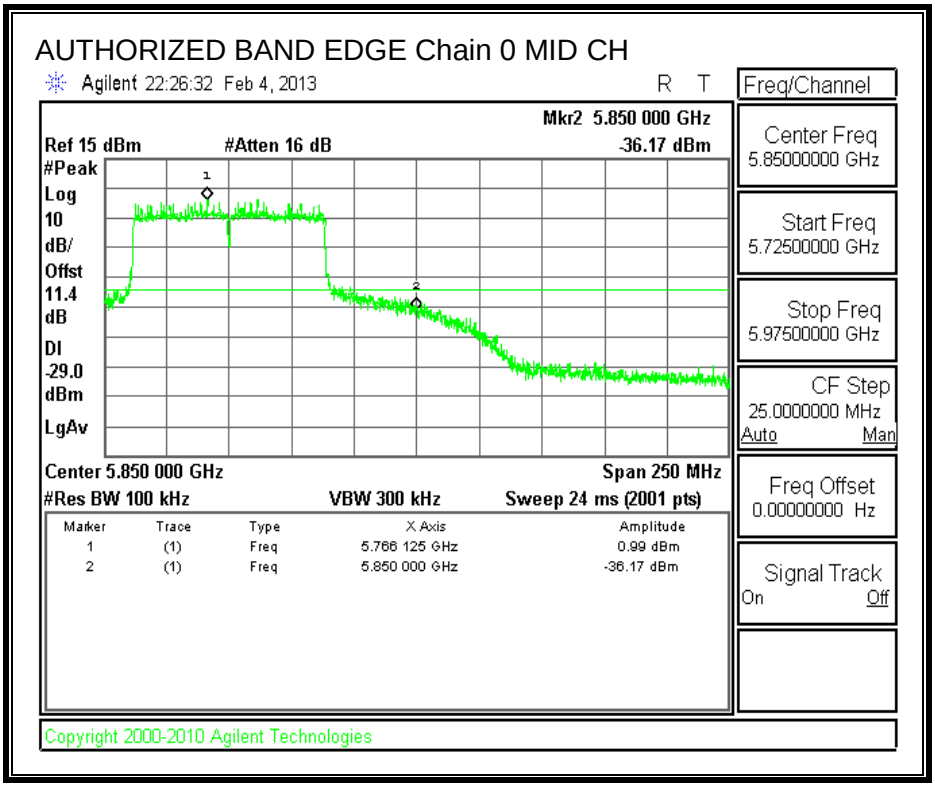
IC RSS-210 A8.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

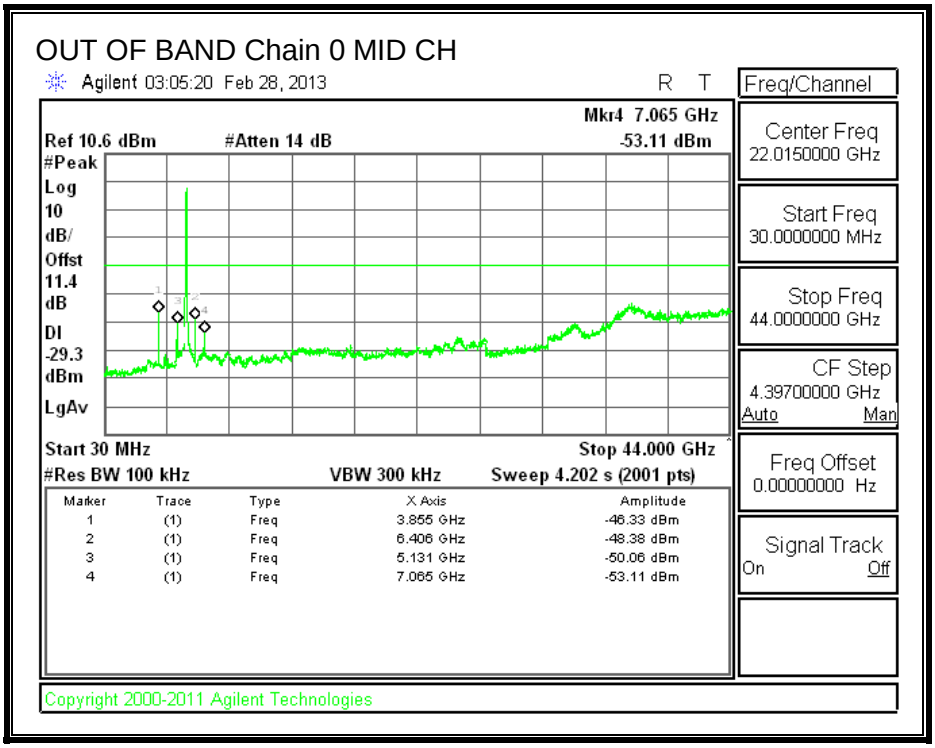
LOW END BANDEDGE, Chain 0,



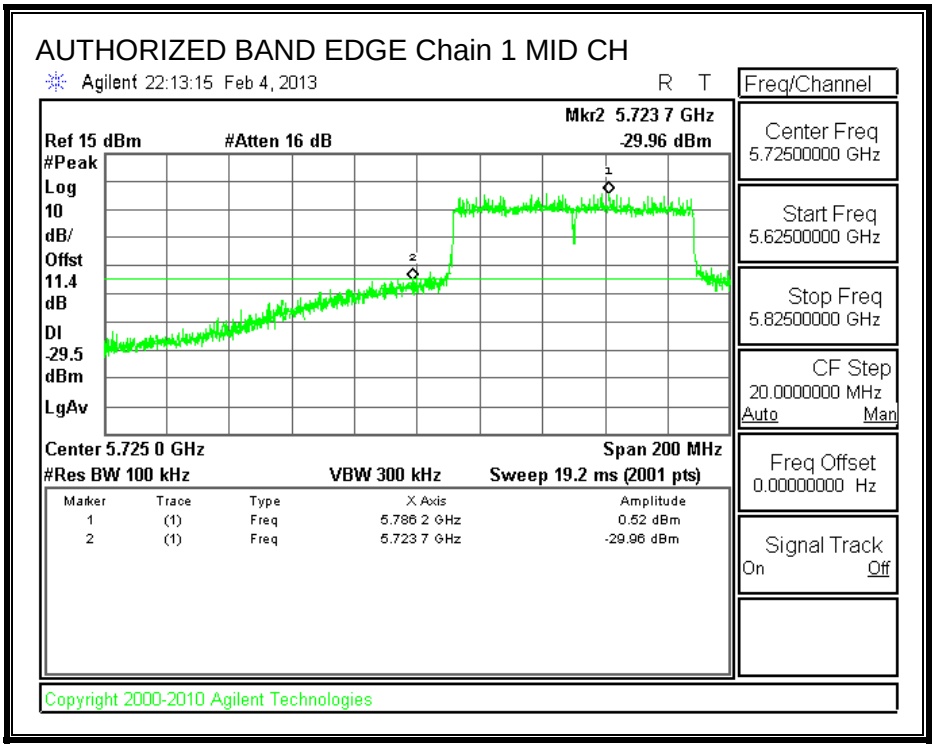
HIGH END BANDEDGE, Chain 0



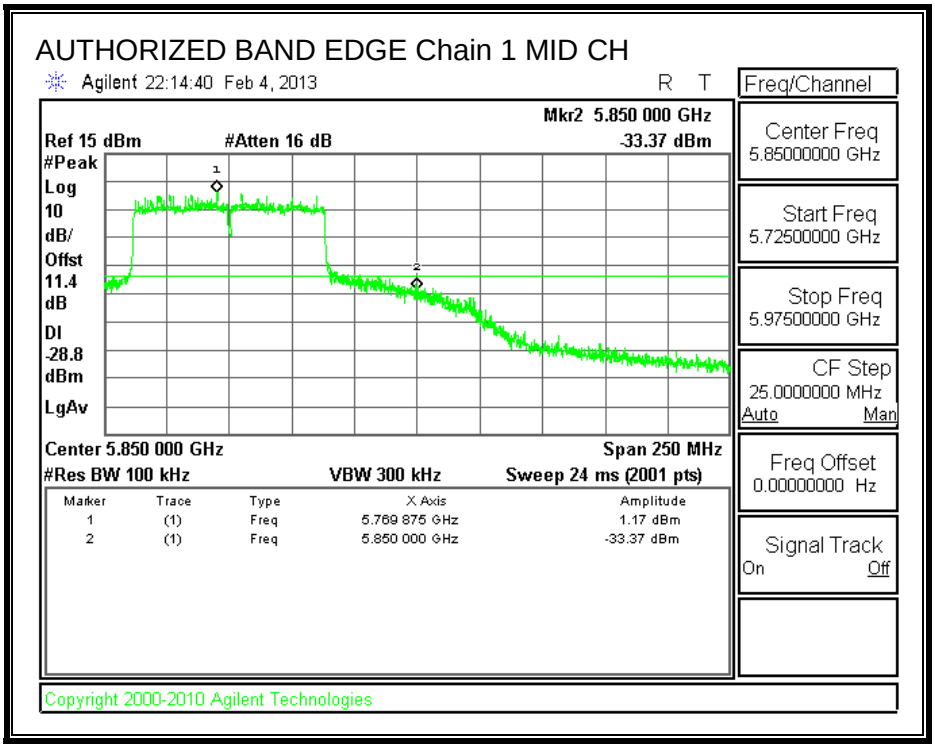
OUT-OF-BAND EMISSIONS, Chain 0

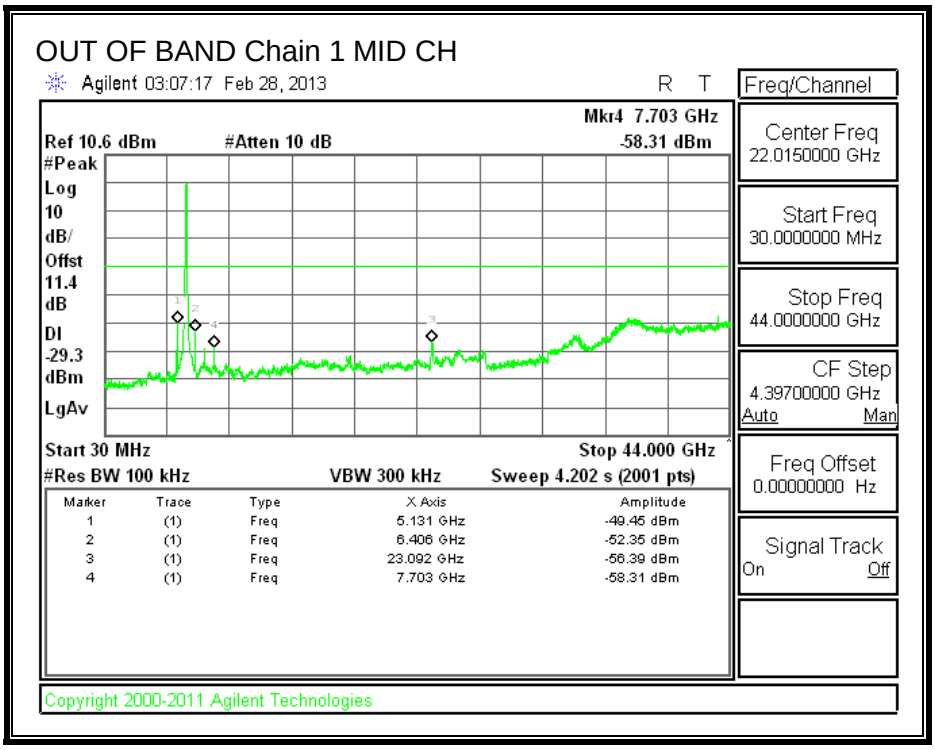


LOW END BANDEDGE, Chain 1



HIGH CHANNEL BANDEDGE, Chain 1





8.22. 802.11n AC80 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n AC80 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

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.

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; the video bandwidth is set to 1 MHz for peak measurements and as applicable for average measurements.

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.

9.2. TRANSMITTER ABOVE 1 GHz

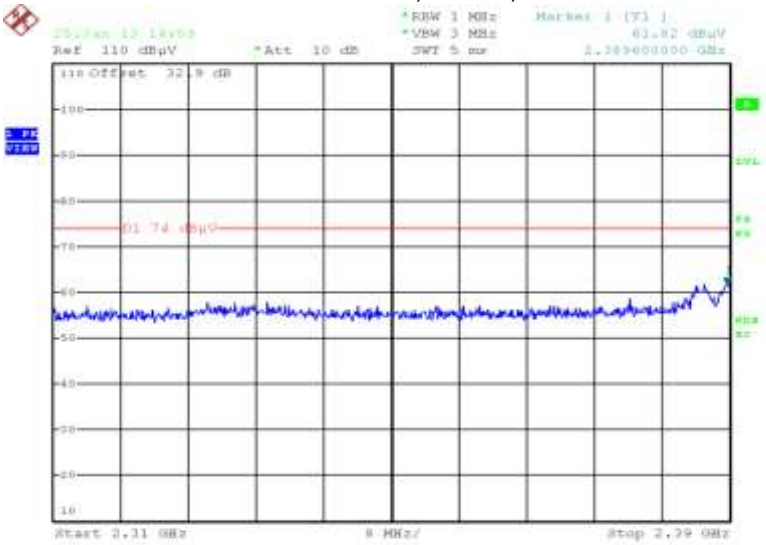
9.2.1. 802.11b Legacy 1TX MODE IN THE 2.4 GHz BAND

Covered by testing 11b CDD 2TX, power per chain used in the 802.11b 2TX mode is equal to the power per chain that will be used for 802.11b 1TX.

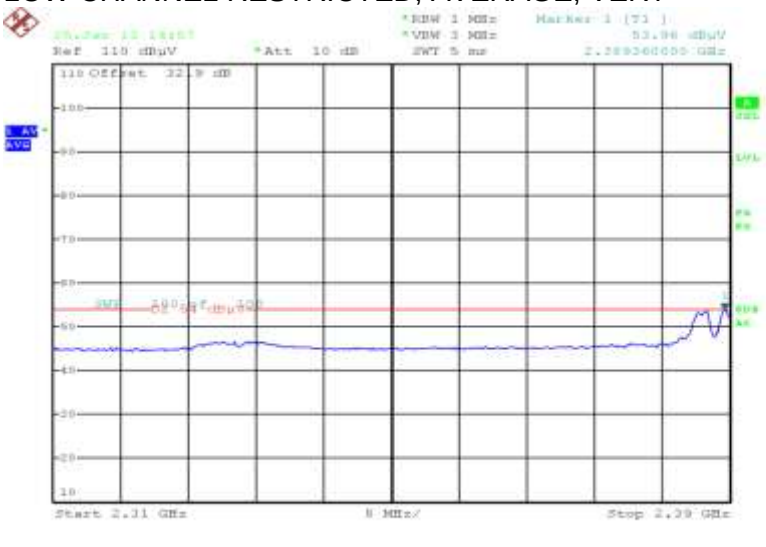
9.2.2. 802.11b CDD 2TX MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, PEAK, VERT



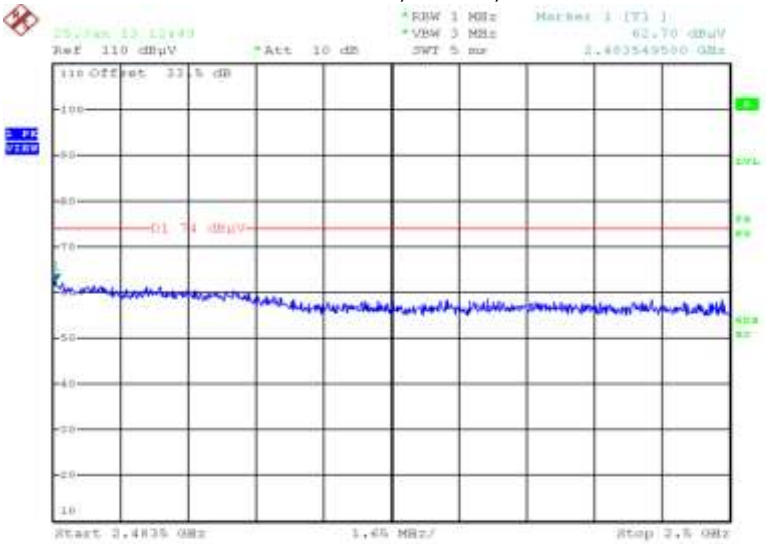
LOW CHANNEL RESTRICTED, AVERAGE, VERT



AUTHORIZED BANDEDGE (HIGH CHANNEL)

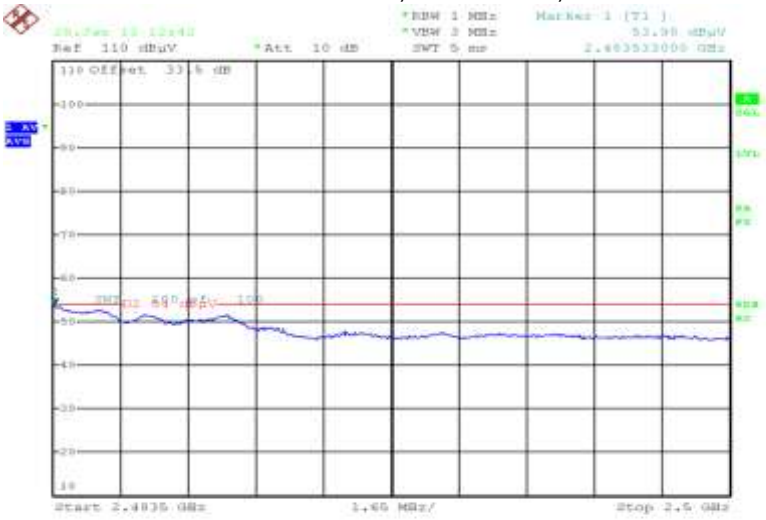
Channel 11

HIGH CHANNEL BANDEDGE, PEAK, VERT



Date: 25.JAN.2013 12:49:29

HIGH CHANNEL BANDEDGE, AVERAGE, VERT



Date: 25.JAN.2013 12:42:20

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company:	Broadcom Corporation
Project #:	13U14796
Date:	1/30/2013
Test Engineer:	K. Nguyen
Configuration:	BCM94360CS2 with Laptop and AC adapter
Mode:	11b Mode 2TX; 2.4 GHz Band

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF_4.0GHz	

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=3MHz
Det. Avg (PWR); 100 Sweeps

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 1 (2412 MHz)															
4.824	3.0	43.5	36.7	33.5	6.7	-35.7	0.0	0.6	48.6	41.8	74	54	-25.4	-12.2	V
4.824	3.0	40.6	34.2	33.5	6.7	-35.7	0.0	0.6	45.8	39.4	74	54	-28.2	-14.6	H
12.060	3.0	34.9	25.0	39.6	11.5	-35.7	0.0	0.9	51.3	41.3	74	54	-22.7	-12.7	V
12.060	3.0	34.3	24.8	39.6	11.5	-35.7	0.0	0.9	50.6	41.1	74	54	-23.4	-12.9	H
Channel 6 (2437 MHz)															
4.874	3.0	45.3	39.6	33.5	6.8	-35.7	0.0	0.6	50.6	44.9	74	54	-23.4	-9.1	V
4.874	3.0	42.9	38.5	33.5	6.8	-35.7	0.0	0.6	48.2	43.8	74	54	-25.8	-10.2	H
7.311	3.0	45.1	39.3	35.9	8.7	-35.8	0.0	0.6	54.6	48.8	74	54	-19.4	-5.2	V
7.311	3.0	40.8	36.9	35.9	8.7	-35.8	0.0	0.6	50.3	46.4	74	54	-23.7	-7.6	H
12.185	3.0	34.5	25.9	39.6	11.5	-35.6	0.0	0.9	50.9	42.3	74	54	-23.1	-11.7	V
12.185	3.0	35.2	25.1	39.6	11.5	-35.6	0.0	0.9	51.6	41.5	74	54	-22.4	-12.5	H
Channel 11 (2462 MHz)															
4.924	3.0	46.1	41.7	33.6	6.8	-35.6	0.0	0.6	51.5	47.1	74	54	-22.5	-6.9	V
4.924	3.0	45.0	37.8	33.6	6.8	-35.6	0.0	0.6	50.3	43.2	74	54	-23.7	-10.8	H
7.386	3.0	42.3	37.1	36.0	8.7	-35.8	0.0	0.6	51.9	46.7	74	54	-22.1	-7.3	V
7.386	3.0	39.6	33.5	36.0	8.7	-35.8	0.0	0.6	49.2	43.1	74	54	-24.8	-10.9	H
12.310	3.0	35.8	24.9	39.6	11.6	-35.6	0.0	0.9	52.3	41.4	74	54	-21.7	-12.6	V
12.310	3.0	34.9	24.2	39.6	11.6	-35.6	0.0	0.9	51.4	40.7	74	54	-22.6	-13.3	H

Rev. 01.30.13

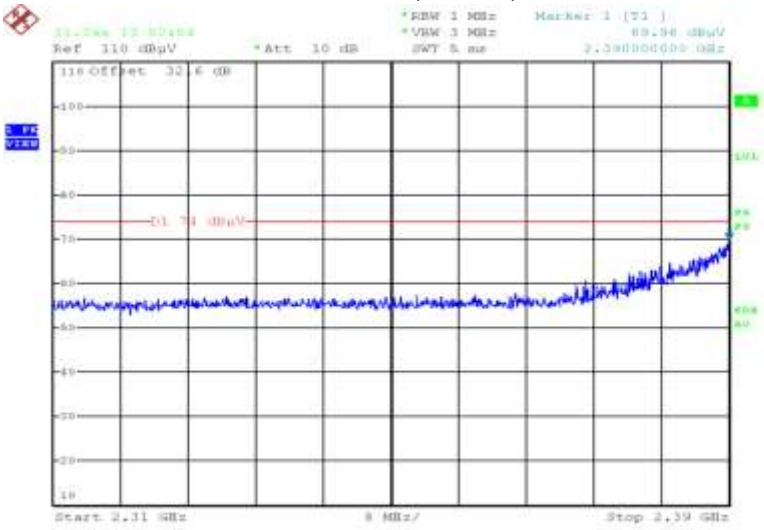
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

9.2.3. 802.11g 1TX MODE IN THE 2.4 GHz BAND

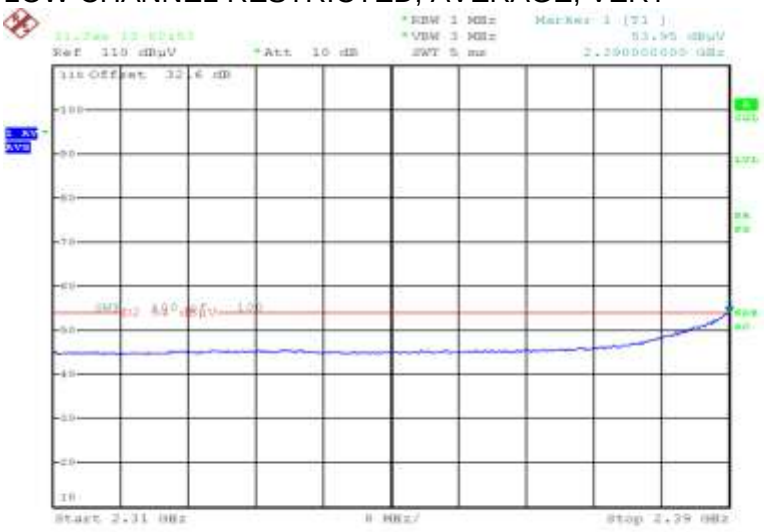
RESTRICTED BANDEDGE (LOW CHANNEL)

Channel 1

LOW CHANNEL RESTRICTED, PEAK, VERT

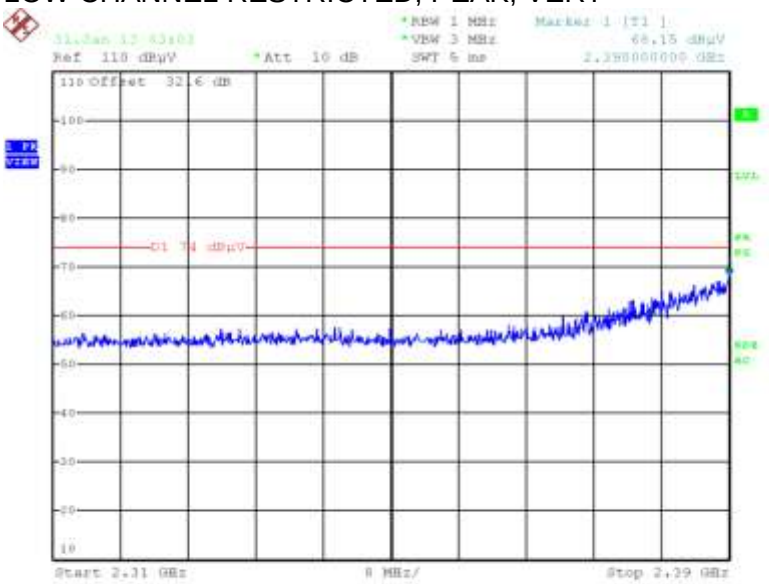


LOW CHANNEL RESTRICTED, AVERAGE, VERT

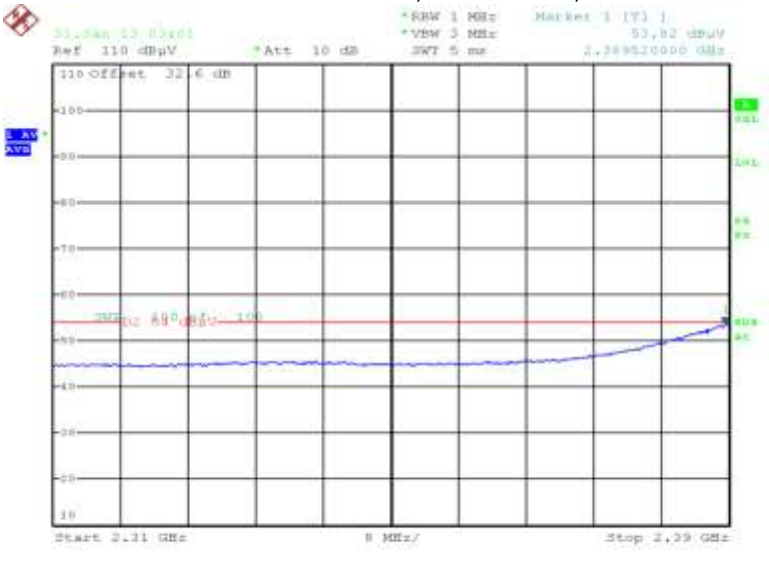


Channel 2

LOW CHANNEL RESTRICTED, PEAK, VERT



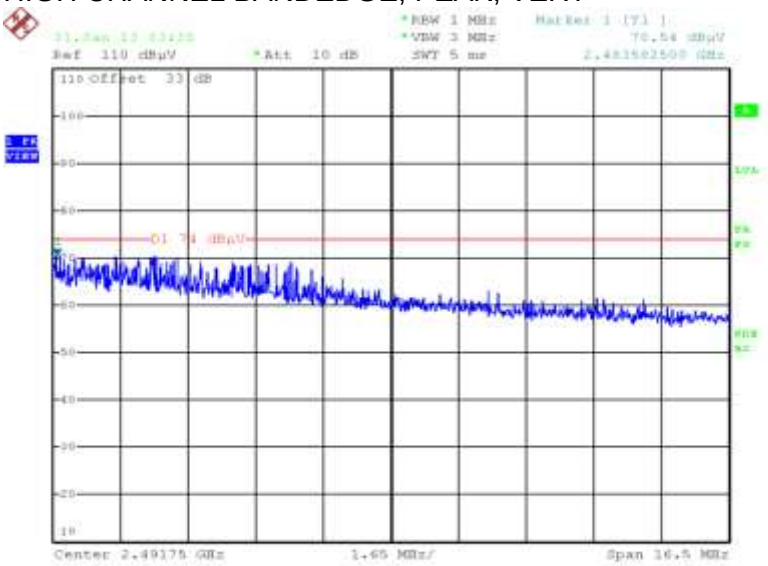
LOW CHANNEL RESTRICTED, AVERAGE, VERT



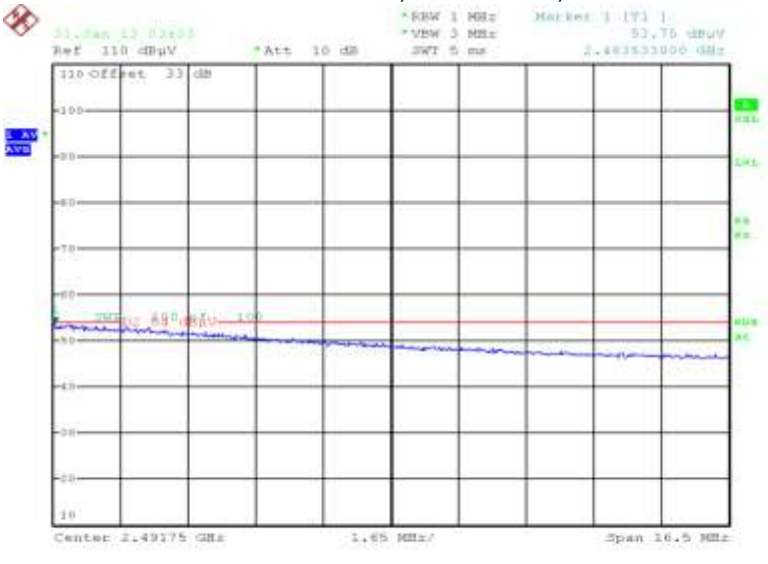
AUTHORIZED BANDEDGE (HIGH CHANNEL)

Channel 10

HIGH CHANNEL BANDEDGE, PEAK, VERT

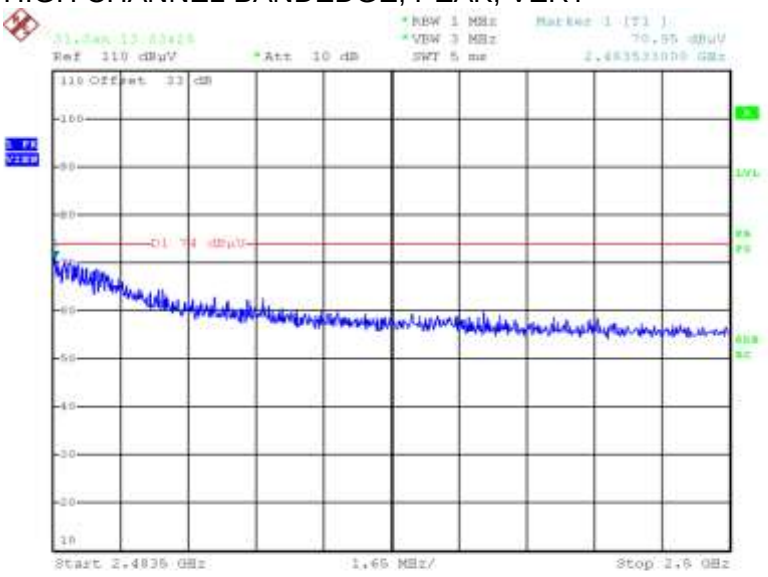


HIGH CHANNEL BANDEDGE, AVERAGE, VERT

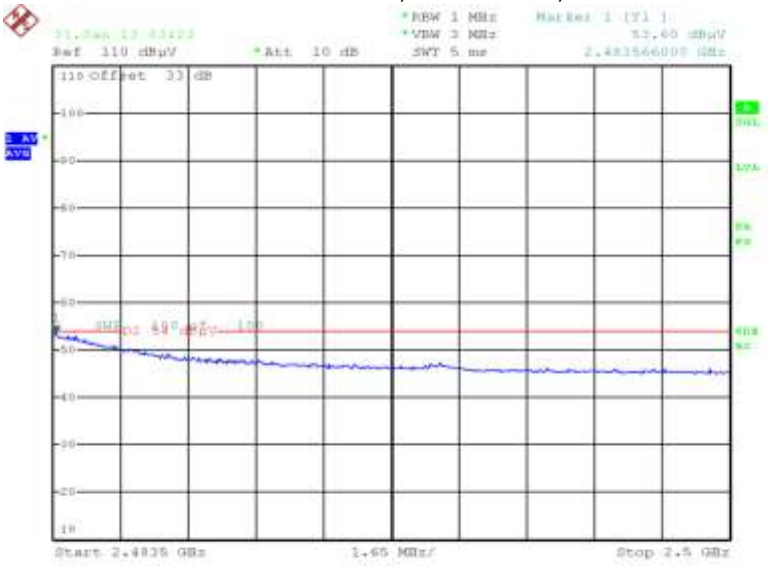


Channel 11

HIGH CHANNEL BANDEDGE, PEAK, VERT



HIGH CHANNEL BANDEDGE, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.4. 802.11g CDD 2TX MODE IN THE 2.4 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.5. 802.11g TxBF 2TX MODE IN THE 2.4 GHz BAND

Covered by testing 11n HT20 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.6. 802.11n HT20 1TX MODE IN THE 2.4 GHz BAND

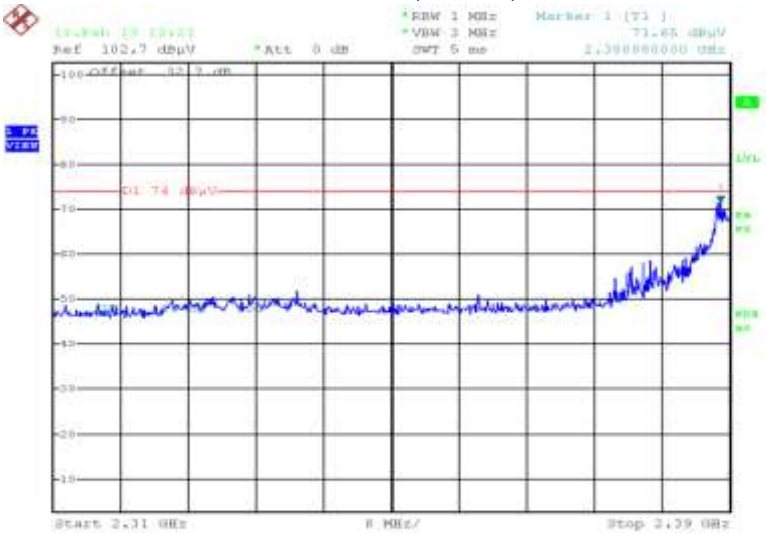
Covered by testing 11g Legacy 1TX, power is equal or higher than the power level the device will operate at.

9.2.7. 802.11n HT20 CDD 2TX MODE IN THE 2.4 GHz BAND

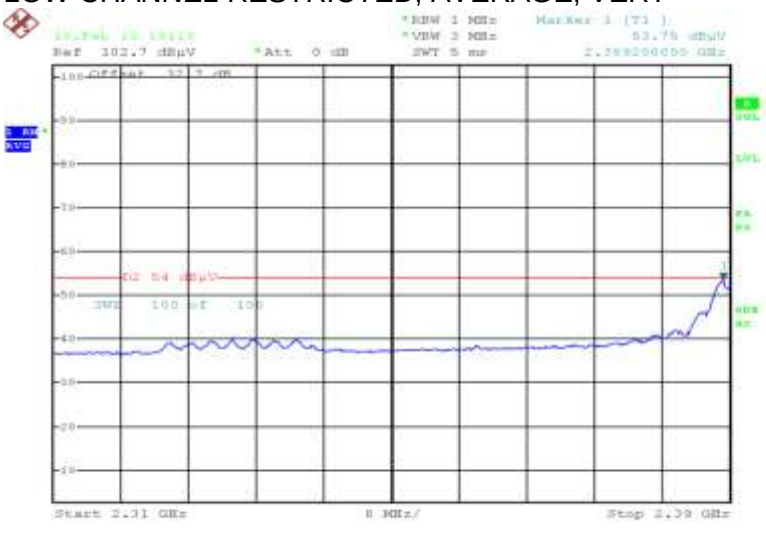
RESTRICTED BANDEDGE (LOW CHANNEL)

Channel 1

LOW CHANNEL RESTRICTED, PEAK, VERT

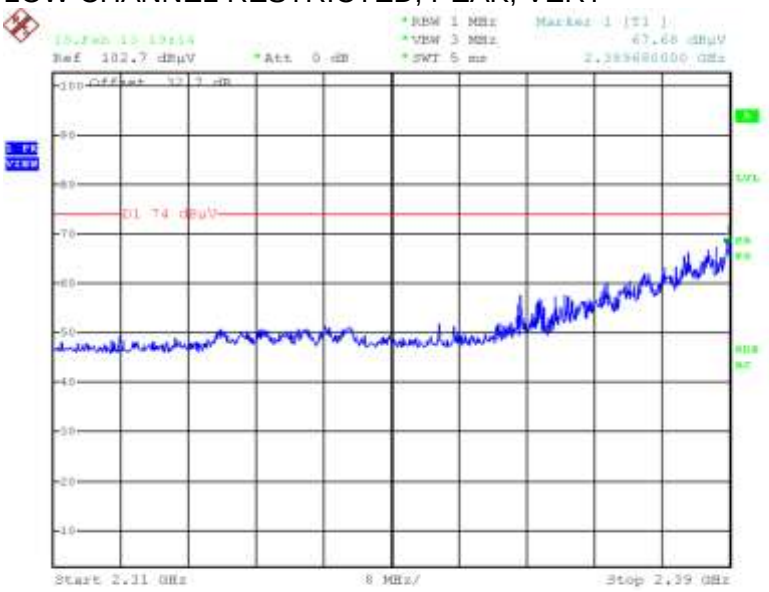


LOW CHANNEL RESTRICTED, AVERAGE, VERT



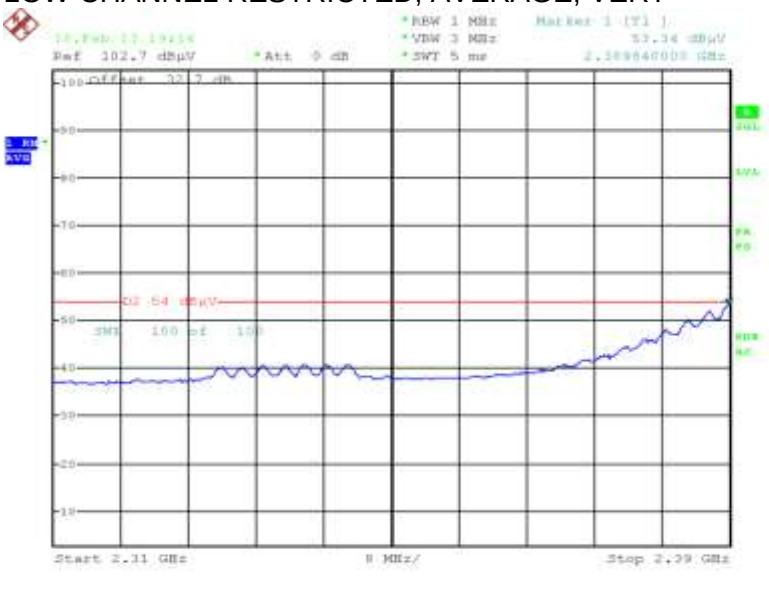
Channel 2

LOW CHANNEL RESTRICTED, PEAK, VERT



Date: 18.FEB.2013 19:14:57

LOW CHANNEL RESTRICTED, AVERAGE, VERT

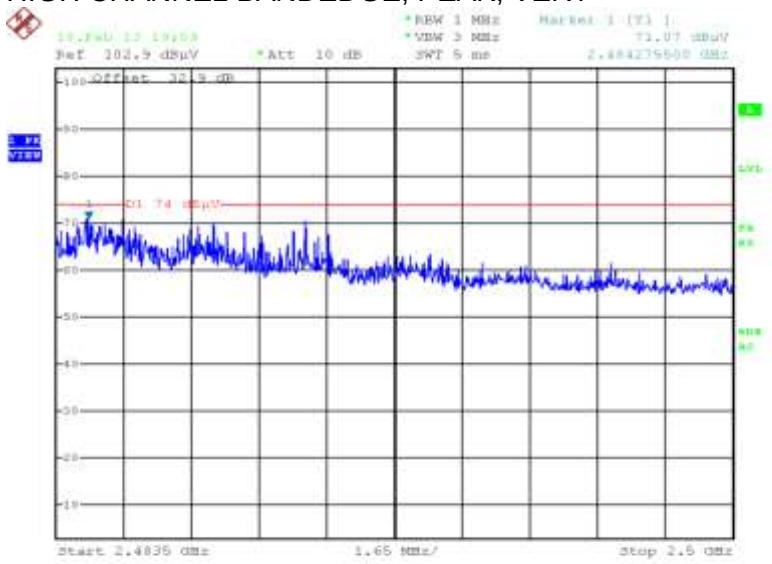


Date: 18.FEB.2013 19:16:10

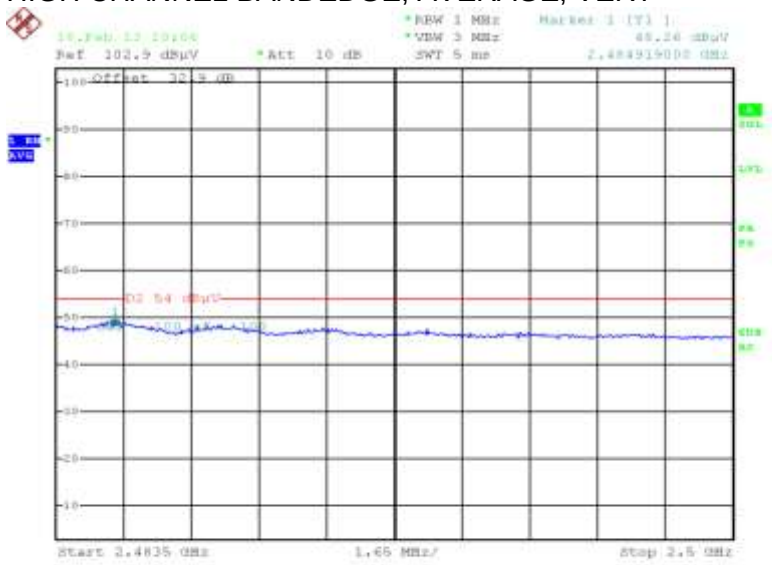
AUTHORIZED BANDEDGE (HIGH CHANNEL)

Channel 10

HIGH CHANNEL BANDEDGE, PEAK, VERT

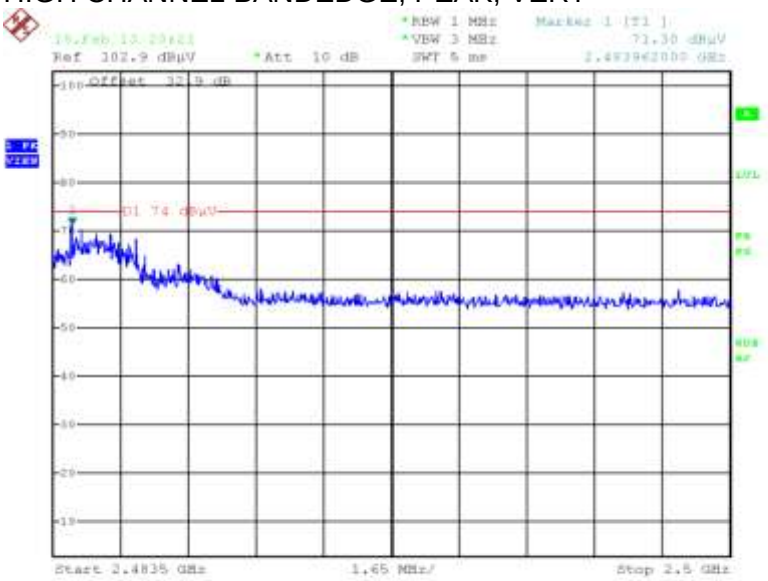


HIGH CHANNEL BANDEDGE, AVERAGE, VERT

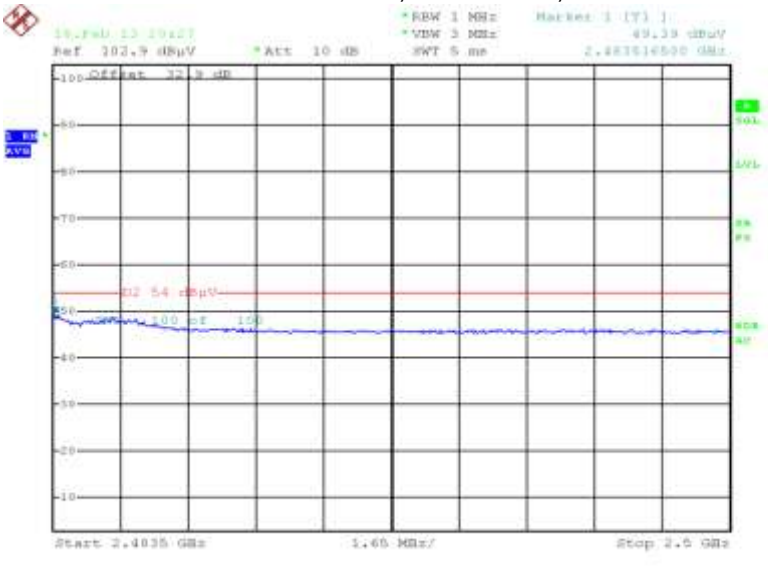


Channel 11

HIGH CHANNEL BANDEDGE, PEAK, VERT



HIGH CHANNEL BANDEDGE, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL AND VERTICAL DATA

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom Corporation
Project #: 13U14796
Date: 2/27/2013
Test Engineer: K. Nguyen
Configuration: BCM94360CS2 EUT with laptop, AC adapter, and EUT antenna setup
Mode: Tx 2.4GHz 11n HT20 CDD 2TX

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 1 (2412 MHz)															
4.824	3.0	41.1	29.4	33.5	6.7	-35.7	0.0	0.0	45.7	34.0	74	54	-28.3	-20.0	V
4.824	3.0	39.0	28.7	33.5	6.7	-35.7	0.0	0.0	43.6	33.2	74	54	-30.4	-20.8	H
12.060	3.0	37.1	25.5	39.6	11.5	-35.7	0.0	0.0	52.5	40.9	74	54	-21.5	-13.1	V
12.060	3.0	35.6	25.2	39.6	11.5	-35.7	0.0	0.0	51.0	40.6	74	54	-23.0	-13.4	H
Channel 6 (2437 MHz)															
4.874	3.0	39.4	28.3	33.5	6.8	-35.7	0.0	0.0	44.0	32.9	74	54	-30.0	-21.1	V
4.874	3.0	42.6	29.4	33.5	6.8	-35.7	0.0	0.0	47.3	34.0	74	54	-26.7	-20.0	H
7.311	3.0	44.6	32.8	35.9	8.7	-35.8	0.0	0.0	53.4	41.6	74	54	-20.6	-12.4	V
7.311	3.0	46.9	35.6	35.9	8.7	-35.8	0.0	0.0	55.8	44.4	74	54	-18.2	-9.6	H
12.185	3.0	35.6	25.3	39.6	11.5	-35.6	0.0	0.0	51.0	40.8	74	54	-23.0	-13.2	V
12.185	3.0	35.5	25.2	39.6	11.5	-35.6	0.0	0.0	50.9	40.6	74	54	-23.1	-13.4	H
Channel 11 (2462 MHz)															
4.924	3.0	42.2	30.6	33.6	6.8	-35.6	0.0	0.0	46.9	35.4	74	54	-27.1	-18.6	V
4.924	3.0	40.9	29.6	33.6	6.8	-35.6	0.0	0.0	45.6	34.4	74	54	-28.4	-19.6	H
7.386	3.0	44.4	32.4	36.0	8.7	-35.8	0.0	0.0	53.4	41.4	74	54	-20.6	-12.6	V
7.386	3.0	47.8	36.8	36.0	8.7	-35.8	0.0	0.0	56.8	45.8	74	54	-17.2	-8.2	H
12.310	3.0	36.9	25.8	39.6	11.6	-35.6	0.0	0.0	52.5	41.4	74	54	-21.5	-12.6	V
12.310	3.0	35.0	24.8	39.6	11.6	-35.6	0.0	0.0	50.5	40.4	74	54	-23.5	-13.6	H

Rev. 01.30.13

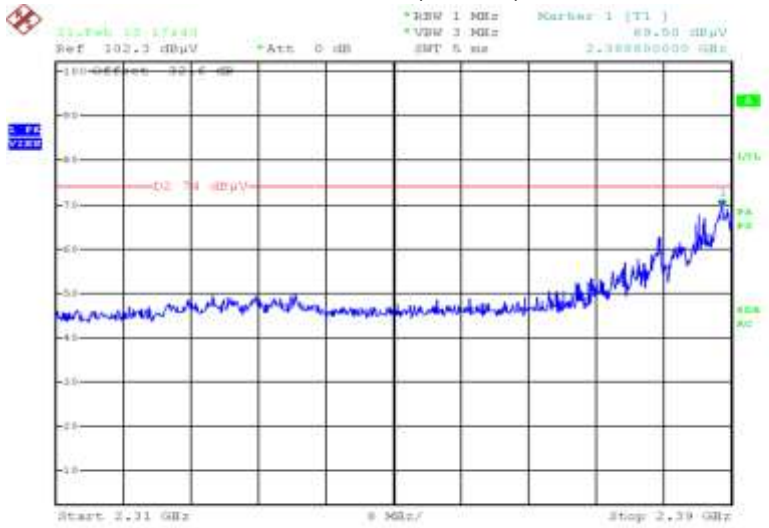
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

9.2.8. 802.11n HT20 TxBF 2TX MODE IN THE 2.4 GHz BAND

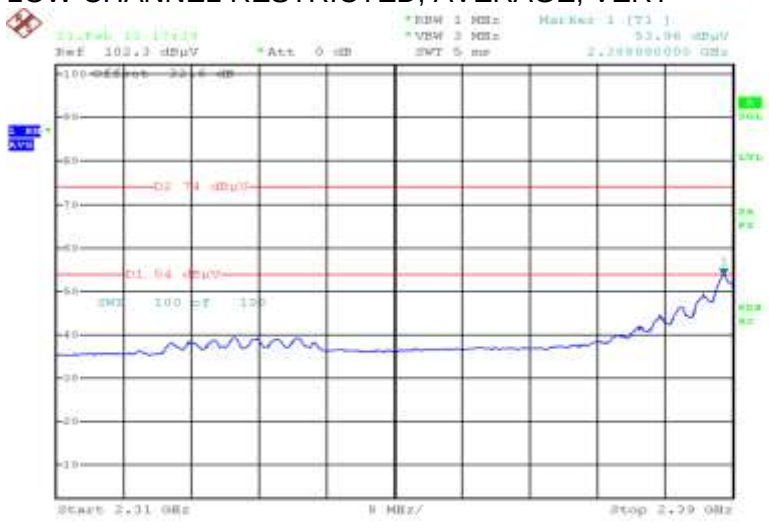
RESTRICTED BANDEDGE (LOW CHANNEL)

Channel 1

LOW CHANNEL RESTRICTED, PEAK, VERT

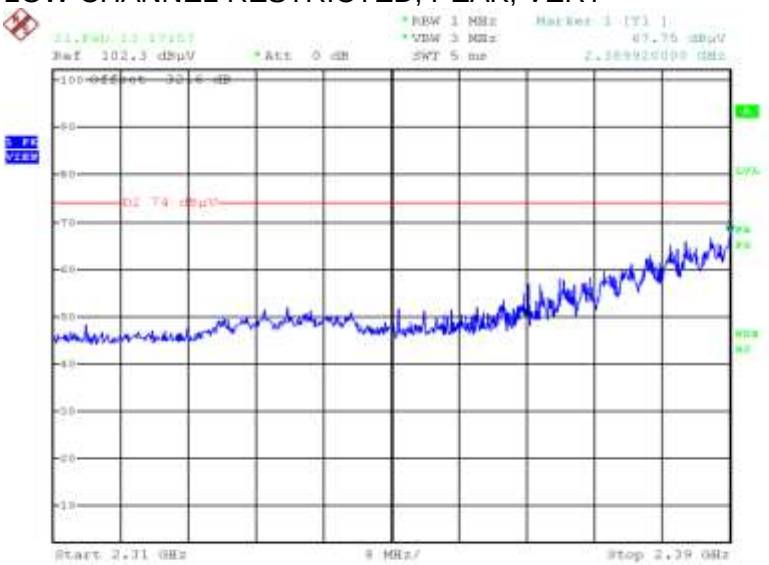


LOW CHANNEL RESTRICTED, AVERAGE, VERT

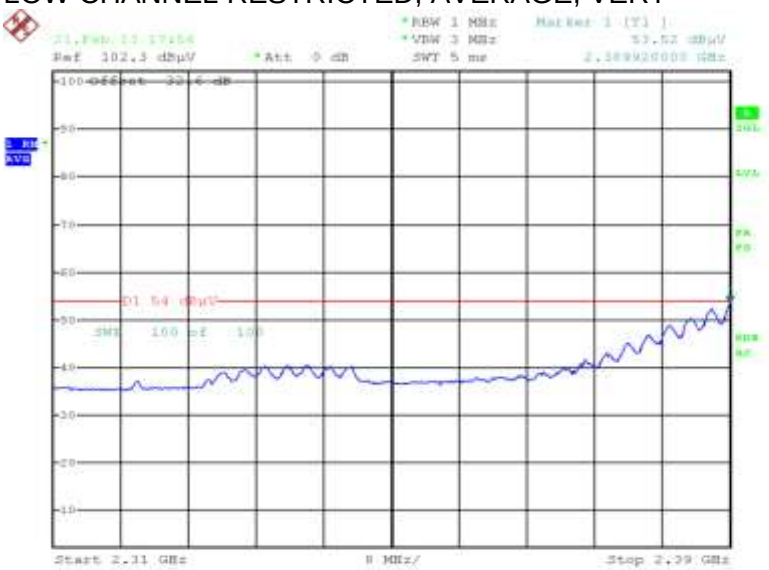


Channel 2

LOW CHANNEL RESTRICTED, PEAK, VERT



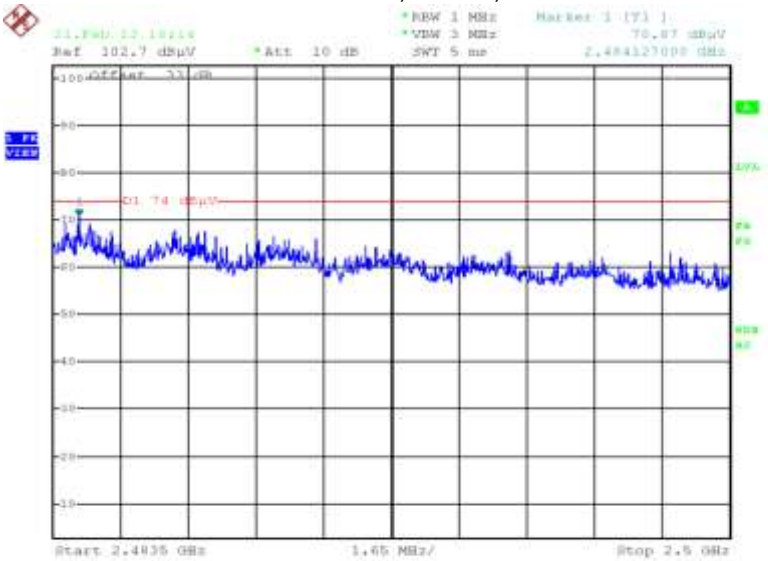
LOW CHANNEL RESTRICTED, AVERAGE, VERT



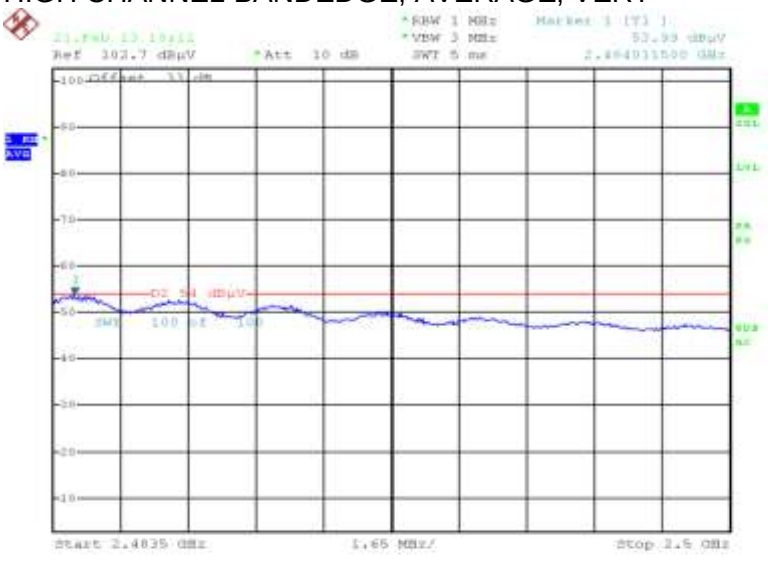
AUTHORIZED BANDEDGE (HIGH CHANNEL)

Channel 10

HIGH CHANNEL BANDEDGE, PEAK, VERT

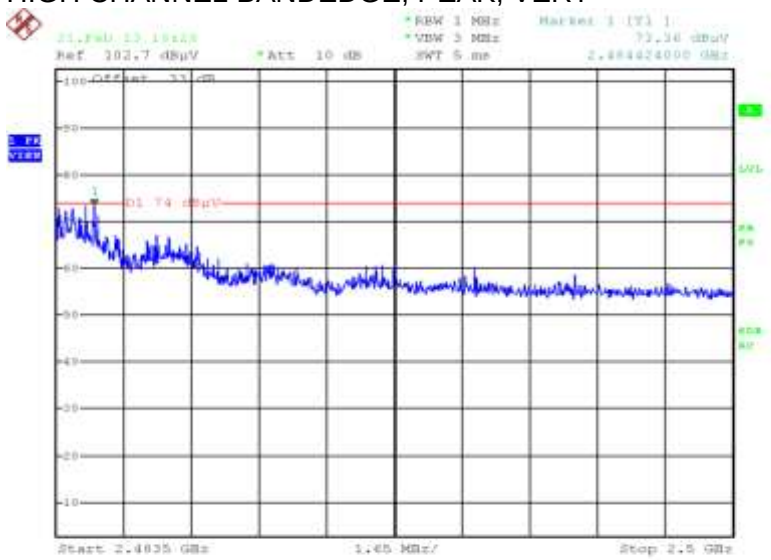


HIGH CHANNEL BANDEDGE, AVERAGE, VERT

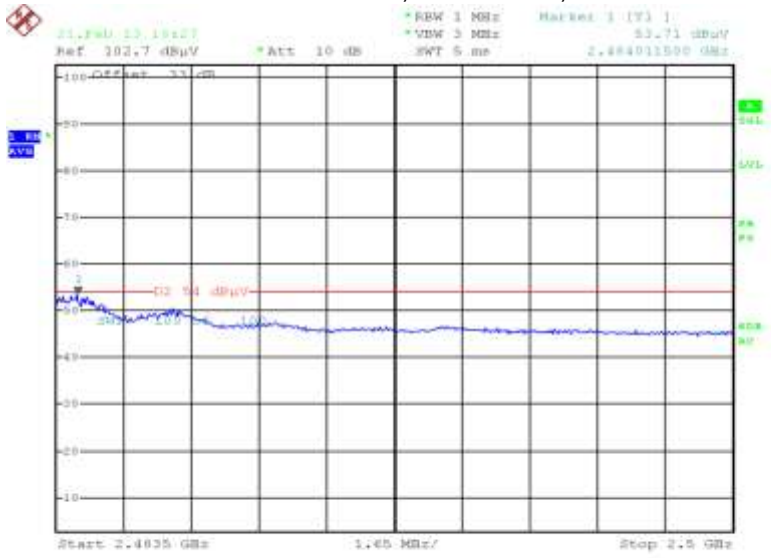


Channel 11

HIGH CHANNEL BANDEDGE, PEAK, VERT



HIGH CHANNEL BANDEDGE, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL AND VERTICAL DATA

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company:	**Broadcom Corporation**
Project #:	**13U14796**
Date:	**2/23/2013**
Test Engineer:	**K. Nguyen**
Configuration:	**BCM94360CS2 EUT wit laptop, AC adapter, and antenna setup**
Mode:	**11ac 20MHz 2TX, 2.4GHz, Beamforming**

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001

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

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 1 (2412 MHz)															
4.824	3.0	42.9	31.4	33.5	6.7	-35.7	0.0	0.0	47.4	35.9	74	54	-26.6	-18.1	V
4.824	3.0	39.6	29.5	33.5	6.7	-35.7	0.0	0.0	44.1	34.0	74	54	-29.9	-20.0	H
12.060	3.0	40.5	28.1	39.6	11.5	-35.7	0.0	0.0	55.9	43.5	74	54	-18.1	-10.5	V
12.060	3.0	37.0	26.5	39.6	11.5	-35.7	0.0	0.0	52.4	41.8	74	54	-21.6	-12.2	H
Channel 6 (2437 MHz)															
4.874	3.0	43.4	32.3	33.5	6.8	-35.7	0.0	0.0	48.0	36.9	74	54	-26.0	-17.1	V
4.874	3.0	38.6	28.1	33.5	6.8	-35.7	0.0	0.0	43.2	32.7	74	54	-30.8	-21.3	H
7.311	3.0	46.1	34.4	35.9	8.7	-35.8	0.0	0.0	54.9	43.2	74	54	-19.1	-10.8	V
7.311	3.0	42.1	30.8	35.9	8.7	-35.8	0.0	0.0	51.0	39.7	74	54	-23.0	-14.3	H
12.185	3.0	40.3	27.3	39.6	11.5	-35.6	0.0	0.0	55.8	42.8	74	54	-18.2	-11.2	V
12.185	3.0	37.8	26.4	39.6	11.5	-35.6	0.0	0.0	53.3	41.9	74	54	-20.7	-12.1	H
Channel 11 (2462 MHz)															
4.924	3.0	44.8	33.3	33.6	6.8	-35.6	0.0	0.0	49.5	38.0	74	54	-24.5	-16.0	V
4.924	3.0	42.8	30.8	33.6	6.8	-35.6	0.0	0.0	47.5	35.5	74	54	-26.5	-18.5	H
7.386	3.0	48.1	35.7	36.0	8.7	-35.8	0.0	0.0	57.0	44.6	74	54	-17.0	-9.4	V
7.386	3.0	43.2	31.6	36.0	8.7	-35.8	0.0	0.0	52.1	40.6	74	54	-21.9	-13.4	H
12.310	3.0	40.3	27.1	39.6	11.6	-35.6	0.0	0.0	55.9	42.7	74	54	-18.1	-11.3	V
12.310	3.0	37.9	26.2	39.6	11.6	-35.6	0.0	0.0	53.4	41.8	74	54	-20.6	-12.2	H

Rev. 01.30.13

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

9.2.9. 802.11a Legacy 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, power per chain used in the 802.11n HT20 CDD 2TX mode is equal to the power per chain that will be used for 802.11a Legacy 1TX.

9.2.10. 802.11a CDD 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.11. 802.11a TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n AC20 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.12. 802.11n HT20 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n HT20 CDD 2TX, power per chain used in the 802.11n HT20 CDD 2TX mode is equal to the power per chain that will be used for 802.11n HT20 1TX.

9.2.13. 802.11n HT20 CDD 2TX MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company:	**Broadcom**
Project #:	**13U14796**
Date:	**2/22/2013**
Test Engineer:	**Kris N/Danny Vu**
Configuration:	**EUT, Adapter, laptop, Antenna**
Mode:	**HT20 2TX CDD, 5.8GHz**

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF_7.6GHz	

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

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 149: 5745MHz															
11.490	3.0	41.5	32.2	39.1	11.2	-35.9	0.0	0.7	56.6	47.3	74	54	-17.4	-6.7	V
11.490	3.0	37.8	28.3	39.1	11.2	-35.9	0.0	0.7	53.0	43.5	74	54	-21.0	-10.5	H
Channel 157: 5785MHz															
11.570	3.0	43.2	32.0	39.2	11.2	-35.8	0.0	0.7	58.5	47.3	74	54	-15.5	-6.7	V
11.570	3.0	35.7	25.2	39.2	11.2	-35.8	0.0	0.7	50.9	40.5	74	54	-23.1	-13.5	H
Channel 165 : 5825MHz															
11.650	3.0	42.4	31.6	39.3	11.3	-35.8	0.0	0.7	57.9	47.0	74	54	-16.1	-7.0	V
11.650	3.0	37.5	27.2	39.3	11.3	-35.8	0.0	0.7	52.9	42.6	74	54	-21.1	-11.4	H

Rev. 01.30.13

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

9.2.14. 802.11n HT20 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n AC20 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.15. 802.11n AC20 TxBF 2TX MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom
Project #: 13U14796
Date: 2/25/2013
Test Engineer: Vien Tran
Configuration: EUT / Laptop / Antenna
Mode: Tx 5.8GHz Band_1ac HT20 2TX_TxBF

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF_7.6GHz	

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL (149), 5745MHz															
11.490	3.0	44.3	35.4	39.1	11.2	-35.9	0.0	0.7	59.5	50.5	74	54	-14.5	-3.5	V
11.490	3.0	37.9	28.6	39.1	11.2	-35.9	0.0	0.7	53.1	43.8	74	54	-20.9	-10.2	H
MID CHANNEL (157), 5785MHz															
11.570	3.0	45.8	36.1	39.2	11.2	-35.8	0.0	0.7	61.1	51.4	74	54	-12.9	-2.6	V
11.570	3.0	38.6	29.8	39.2	11.2	-35.8	0.0	0.7	53.9	45.1	74	54	-20.1	-8.9	H
HIGH CHANNEL (165), 5825MHz															
11.650	3.0	45.6	35.6	39.3	11.3	-35.8	0.0	0.7	61.0	51.0	74	54	-13.0	-3.0	V
11.650	3.0	38.8	29.6	39.3	11.3	-35.8	0.0	0.7	54.2	45.0	74	54	-19.8	-9.0	H

Rev. 01.30.13

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

9.2.16. 802.11n HT40 1TX MODE IN THE 5.8 GHz BAND

Covered by testing to 11n HT40 CDD 2TX, power per chain used in the 802.11n HT40 CDD 2TX mode is equal to the power per chain that will be used for 802.11n HT40 1TX.

9.2.17. 802.11n HT40 CDD 2TX MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company:	**Broadcom**
Project #:	**13U14796**
Date:	**2/22/2013**
Test Engineer:	**Kris N/Danny Vu**
Configuration:	**EUT, Adapter, laptop, Antenna**
Mode:	**11n HT40 2TX CDD, 5.8GHz**

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF_7.6GHz	

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

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Channel 151: 5755MHz															
11.510	3.0	40.2	29.6	39.2	11.2	-35.8	0.0	0.7	55.3	44.8	74	54	-18.7	-9.2	V
11.510	3.0	36.4	26.2	39.2	11.2	-35.8	0.0	0.7	51.6	41.4	74	54	-22.4	-12.6	H
Channel 159: 5795MHz															
11.590	3.0	42.2	30.6	39.2	11.2	-35.8	0.0	0.7	57.6	45.9	74	54	-16.4	-8.1	V
11.590	3.0	36.4	25.8	39.2	11.2	-35.8	0.0	0.7	51.7	41.1	74	54	-22.3	-12.9	H

Rev. 01.30.13

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

9.2.18. 802.11n HT40 TxBF 2TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n AC40 TxBF 2TX, total power across the two chains is equal or higher than the power level the device will operate at.

9.2.19. 802.11n AC40 TxBF 2TX MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom
Project #: 13U14796
Date: 2/25/2013
Test Engineer: Vien Tran
Configuration: EUT / Laptop / Antenna
Mode: Tx 5.8GHz Band_11ac HT40 2TX_TxBF

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26-40GHz	T89; ARA 18.26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF_7.6GHz	

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CHANNEL (151), 5755MHz															
11.510	3.0	39.1	28.9	39.2	11.2	-35.8	0.0	0.7	54.2	44.1	74	54	-19.8	-9.9	V
11.510	3.0	36.0	26.9	39.2	11.2	-35.8	0.0	0.7	51.2	42.1	74	54	-22.8	-11.9	H
HIGH CHANNEL (159), 5795MHz															
11.590	3.0	41.2	30.1	39.2	11.2	-35.8	0.0	0.7	56.5	45.4	74	54	-17.5	-8.6	V
11.590	3.0	37.2	28.3	39.2	11.2	-35.8	0.0	0.7	52.5	43.6	74	54	-21.5	-10.4	H

Rev: 01.30.13

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

9.2.20. 802.11n AC80 1TX MODE IN THE 5.8 GHz BAND

Covered by testing 11n AC80 CDD 2TX, power per chain used in the 802.11n AC80 CDD 2TX mode is equal to the power per chain that will be used for 802.11n AC80 1TX.

9.2.21. 802.11n AC80 CDD 2TX MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom
Project #: 13U14796
Date: 2/22/2013
Test Engineer: Kris N/Danny Vu
Configuration: EUT, Adapter, laptop, Antenna
Mode: Tx 5.8GHz Band_11ac HT80 2TX CDD_CH155

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF_7.6GHz	

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

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel: 5775MHz															
11.550	3.0	37.2	27.2	39.2	11.2	-35.8	0.0	0.7	52.5	42.5	74	54	-21.5	-11.5	V
11.550	3.0	35.6	25.0	39.2	11.2	-35.8	0.0	0.7	50.9	40.3	74	54	-23.1	-13.7	H

Rev. 01.30.13

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

9.2.22. 802.11n AC80 2TX TxBF MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber-A

Company: Broadcom
Project #: 13U14796
Date: 2/25/2013
Test Engineer: Vien Tran
Configuration: EUT / Laptop / Antenna
Mode: Tx 5.8GHz Band_11ac HT80 2TX_TxBF

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931	T88 Miteq 26-40GHz	T89; ARA 18-26GHz; S/N:1049	FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF_7.6GHz	

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
MID CHANNEL (155), 5775MHz															
11.510	3.0	38.5	27.6	39.2	11.2	-35.8	0.0	0.7	53.6	42.8	74	54	-20.4	-11.2	V
11.510	3.0	35.4	25.3	39.2	11.2	-35.8	0.0	0.7	50.6	40.5	74	54	-23.4	-13.5	H

Rev. 01.30.13

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

9.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL & VERTICAL DATA

Project : 13U14796
Company Name: Broadcom
Model / Config: BCM94360CS2
Mode: Tx Worst Case
Test By: Vien Tran

Horizontal 30 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T185 Antenna Factor (dB)	T64 preamp/ cable loss loop (dB)	dB (uVolts/ meter)	FCC Part 15B Class B 3m	Margin	Height [cm]	Polarity
1	85.25	52.75	PK	7.5	-27.1	33.15	40.0	-6.85	300	Horz
3	128.87	50.11	PK	14.1	-26.8	37.41	43.5	-6.09	200	Horz
5	276.68	46.21	PK	13.3	-26	33.51	46.0	-12.49	100	Horz
8	415.29	47.33	PK	16.1	-25.3	38.13	46.0	-7.87	100	Horz
9	443.88	45.80	PK	16.7	-25.1	37.40	46.0	-8.60	200	Horz
15	960.02	31.16	PK	22.7	-22.5	31.36	54.0	-22.64	100	Horz

Vertical 30 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T185 Antenna Factor (dB)	T64 preamp/ cable loss loop (dB)	dB (uVolts/ meter)	FCC Part 15B Class B 3m	Margin	Height [cm]	Polarity
16	84.76	52.16	PK	7.5	-27.1	32.56	40.0	-7.44	200	Vert
18	128.87	47.12	PK	14.1	-26.8	34.42	43.5	-9.08	100	Vert
20	275.71	43.83	PK	13.3	-26.1	31.03	46.0	-14.97	200	Vert
23	415.29	39.80	PK	16.1	-25.3	30.60	46.0	-15.40	100	Vert
24	443.88	39.83	PK	16.7	-25.1	31.43	46.0	-14.57	100	Vert
30	966.80	30.62	PK	22.8	-22.8	30.62	54.0	-23.38	100	Vert

PK - Peak detector
QP - Quasi-Peak detector
LnAv - Linear Average detector
LgAv - Log Average detector
Av - Average detector
CAV - CISPR Average detector
RMS - RMS detection
CRMS - CISPR RMS detection
PK1 - KDB 789033 v01r02 G)5) Method: Peak
AD1 - KDB 789033 v01r02 G)6) Method: AD Primary Power Average
VB1 - KDB 789033 v01r02 G)6) Method: VB Alternative Reduced Video
PK2 - KDB558074 v02 10.2.3.2/8.1.1 Method: Maximum Peak
MAv1 - KDB558074 v02 10.2.3.2/8.2.1 Option 1 Maximum RMS Average
MAv2 - KDB558074 v02 10.2.3.3/8.2.2 Option 2 Slow Sweep RMS Average

10. 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

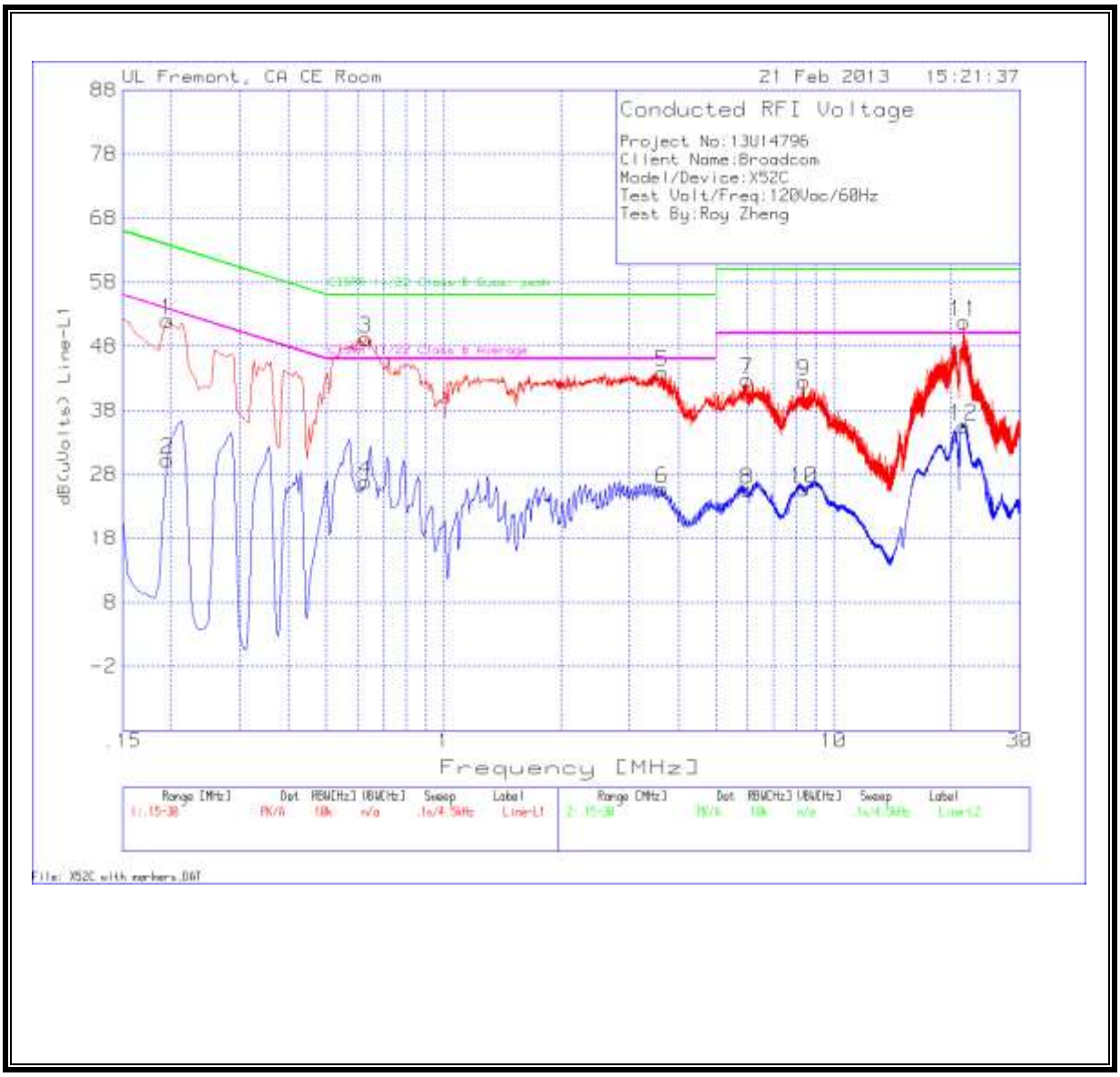
6 WORST EMISSIONS

Project No:	13U14796
Client Name:	Broadcom
Model/Device:	BCM94360CS2
Test Volt/Freq:	120Vac/60Hz
Test By:	Roy Zheng

Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin	CISPR 11/22 Class B Average	Margin
Line-L1 .15 - 30MHz									
0.195	51.88	PK	0.1	0	51.98	63.8	-11.82	-	-
0.195	30.16	Av	0.1	0	30.26	-	-	53.8	-23.54
0.6315	49.11	PK	0.1	0	49.21	56	-6.79	-	-
0.6315	26.73	Av	0.1	0	26.83	-	-	46	-19.17
3.6375	43.58	PK	0.2	0.1	43.88	56	-12.12	-	-
3.6375	25.42	Av	0.2	0.1	25.72	-	-	46	-20.28
6.0045	42.6	PK	0.1	0.1	42.8	60	-17.2	-	-
6.0045	25.42	Av	0.1	0.1	25.62	-	-	50	-24.38
8.394	42.24	PK	0.1	0.1	42.44	60	-17.56	-	-
8.394	25.52	Av	0.1	0.1	25.72	-	-	50	-24.28
21.5655	51.23	PK	0.3	0.2	51.73	60	-8.27	-	-
21.5655	35.07	Av	0.3	0.2	35.57	-	-	50	-14.43
Line-L2 .15 - 30MHz									
0.195	49.4	PK	0.1	0	49.5	63.8	-14.3	-	-
0.195	27.74	Av	0.1	0	27.84	-	-	53.8	-25.96
0.5055	48.99	PK	0.1	0	49.09	56	-6.91	-	-
0.5055	31.69	Av	0.1	0	31.79	-	-	46	-14.21
0.9375	45.71	PK	0.1	0	45.81	56	-10.19	-	-
0.9375	30.11	Av	0.1	0	30.21	-	-	46	-15.79
3.534	43.72	PK	0.1	0.1	43.92	56	-12.08	-	-
3.534	24.45	Av	0.1	0.1	24.65	-	-	46	-21.35
8.907	42.59	PK	0.1	0.1	42.79	60	-17.21	-	-
8.907	26.6	Av	0.1	0.1	26.8	-	-	50	-23.2
21.759	47.25	PK	0.3	0.2	47.75	60	-12.25	-	-
21.759	27.99	Av	0.3	0.2	28.49	-	-	50	-21.51

PK - Peak detector
QP - Quasi-Peak detector
Av - Average detector

LINE 1 RESULTS



LINE 2 RESULTS