FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

HANDHELD COMPUTING DEVICE

MODEL NUMBER: 1572

FCC ID: C3K1572
IC: 3048A-1572

REPORT NUMBER: 13U15414-4, Revision A

ISSUE DATE: SEPTEMBER 25, 2013

Prepared for
MICROSOFT CORPORATION
ONE MICROSOFT WAY
REDMOND, WA 98052, U.S.A.

Prepared by
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	09/06/13	Initial Issue	T. Lee
A	09/25/13	Revised section 9.1	D. Garcia

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: MICROSOFT CORPORATION
ONE MICROSOFT WAY
REDMOND, WA 98052, U.S.A.

EUT DESCRIPTION: HANDHELD COMPUTING DEVICE WITH 802.11 A/B/G/N WLAN AND BLUETOOTH RADIOS

MODEL: 1572

SERIAL NUMBER: 000604433152

DATE TESTED: AUGUST 8, 2013 – SEPTEMBER 13, 2013

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 9	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

UL Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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 Verification Services Inc. By:

TIMOTHY LEE
WiSE PROGRAM MANAGER
UL Verification Services Inc.

Tested By:

JOE VANG
EMC ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033, 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 Verification Services Inc. 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 a handheld computing device with 802.11 a/b/g/n WLAN and Bluetooth radios.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5180 - 5240	802.11a	13.94	24.77
5180 - 5240	802.11n HT20	13.84	24.21
5190 - 5230	802.11n HT40	11.11	12.91
5260 - 5320	802.11a	14.07	25.53
5260 - 5320	802.11n HT20	13.93	24.72
5270 - 5310	802.11n HT40	14.95	31.26
5500 - 5700	802.11a	14.68	29.38
5500 - 5700	802.11n HT20	14.51	28.25
5510 - 5670	802.11n HT40	11.64	14.59

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an PIFA antenna, with a maximum gain of 3.2 dBi and 3.9 dBi in the 5 GHz band.

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was Window RT 8.1 Preview Build 943

The test utility software used during testing was Laptool 189.1.0.9.0\ WIFI Tool.exe

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

Based on the baseline scan, the worst-case data rates were:

802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0

Radiated emissions for EUT with antenna was performed and passed; therefore, antenna port spurious was not performed.

5.1. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
USB Ethernet Adaptor	CISCO	USB 300M	CU90MC02233	DoC
Laptop	Lenovo	L420	7854CT0	DoC
AC Adaptor (laptop)	Lenovo	92P1156	111S92P1156ZDXN272091	N/A

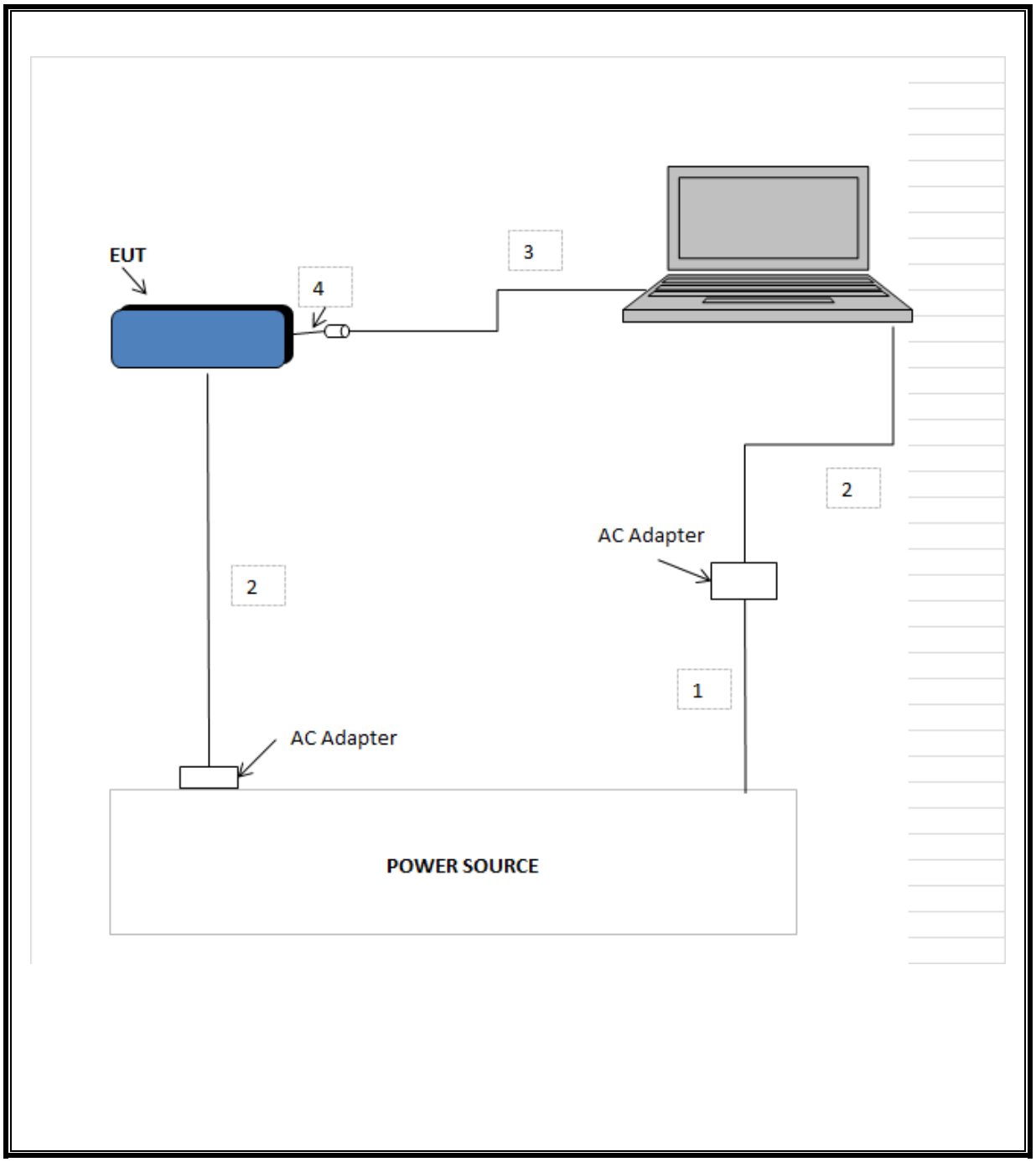
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	AC	Unshielded	1.8	AC adapter
2	USB	1	USB	Unshielded	0.1	USB to Ethernet adapter
3	DC	1	DC	Unshielded	1.8	
4	Ethernet	1	RJ 45	Unshielded	7.62	Connects to USB adapter

TEST SETUP

The EUT is a standalone wireless handheld computing device. Test software exercised the wireless module installed within the device under test.

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**
Antenna, Horn, 18 GHz	EMCO	3115	C00872	09/20/12	09/20/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00558	02/21/12	05/21/14
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRC13192	N02683	CNR	CNR
Antenna, Horn, 26.5 GHz	ARA	SWH-28	C01015	04/23/12	04/23/14
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	10/21/12	10/21/13
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	10/21/12	10/21/13
Bilog 30-1000MHz	Sunol	JB1	C01011	02/07/12	03/28/14
LISN, 30 MHz	FCC	LISN-50/250-25	N02625	01/14/13	01/14/14
Power meter	Agilent	N119A	T198	06/25/12	12/13/13
Power Sensor	Agilent	E9323A	T397	06/26/12	04/02/14
Spectrum Analyzer, 26 GHz	Agilent / HP	E4440A	C01176	10/21/12	12/13/13

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.1.1. 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)
5.2 GHz Band						
11a	1.626	1.632	0.996	99.6%	0.02	0.613
11n HT20	0.284	0.289	0.984	98.4%	0.07	3.466
11n HT40	0.299	0.305	0.983	98.3%	0.08	3.284
5.3 GHz Band						
11a	1.626	1.632	0.996	99.6%	0.02	0.613
11n HT20	0.285	0.289	0.985	98.5%	0.07	3.461
11n HT40	0.299	0.304	0.984	98.4%	0.07	3.287
5.6 GHz Band						
11a	1.626	1.632	0.996	99.6%	0.02	0.613
11n HT20	0.284	0.289	0.983	98.3%	0.08	3.465
11n HT40	0.300	0.304	0.987	98.7%	0.06	3.294

7.1.2. MEASUREMENT METHOD FOR POWER AND PPSD

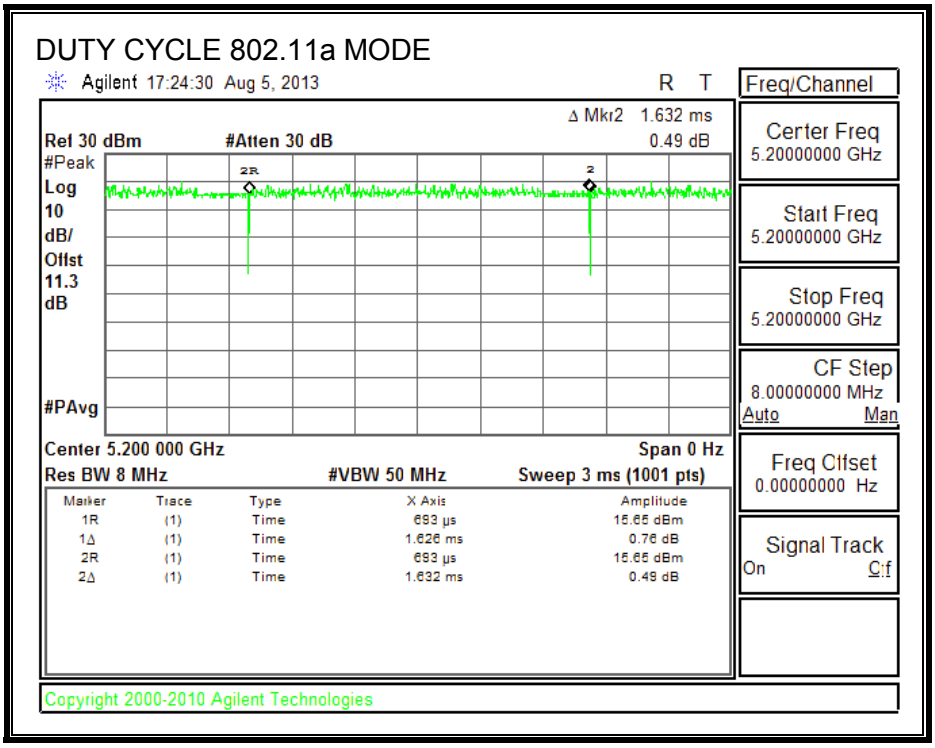
The Duty Cycle is greater than or equal to 98% therefore KDB 789033 Method SA-1 is used.

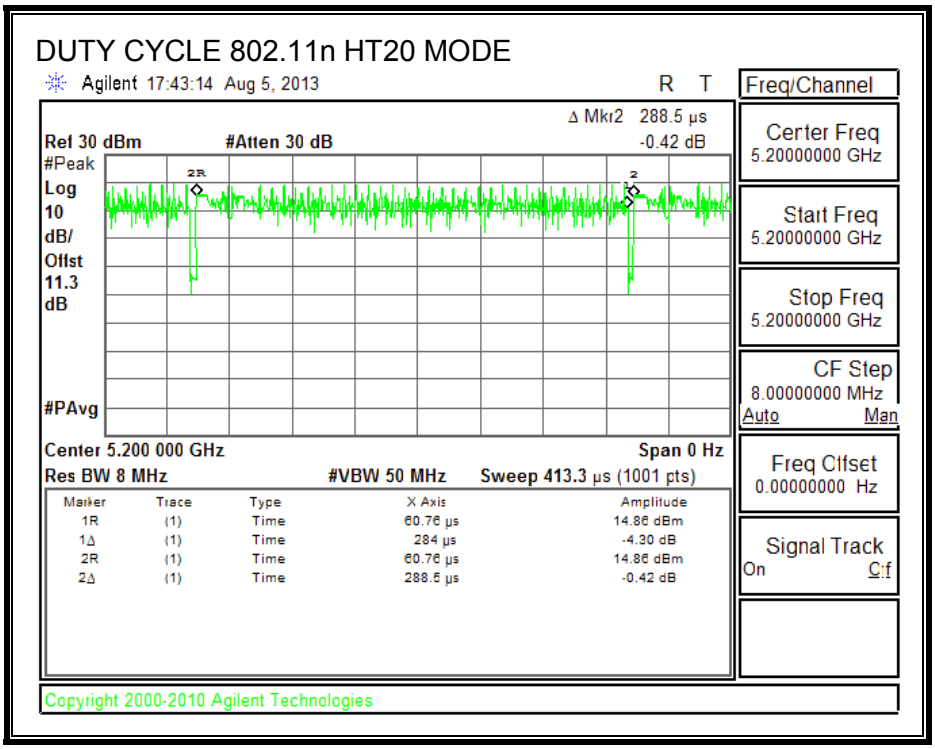
7.1.3. MEASUREMENT METHOD FOR AVERAGE SPURIOUS EMISSIONS ABOVE 1 GHz

The Duty Cycle is greater than or equal to 98%, KDB 789033 Method AD with Power RMS Averaging is used.

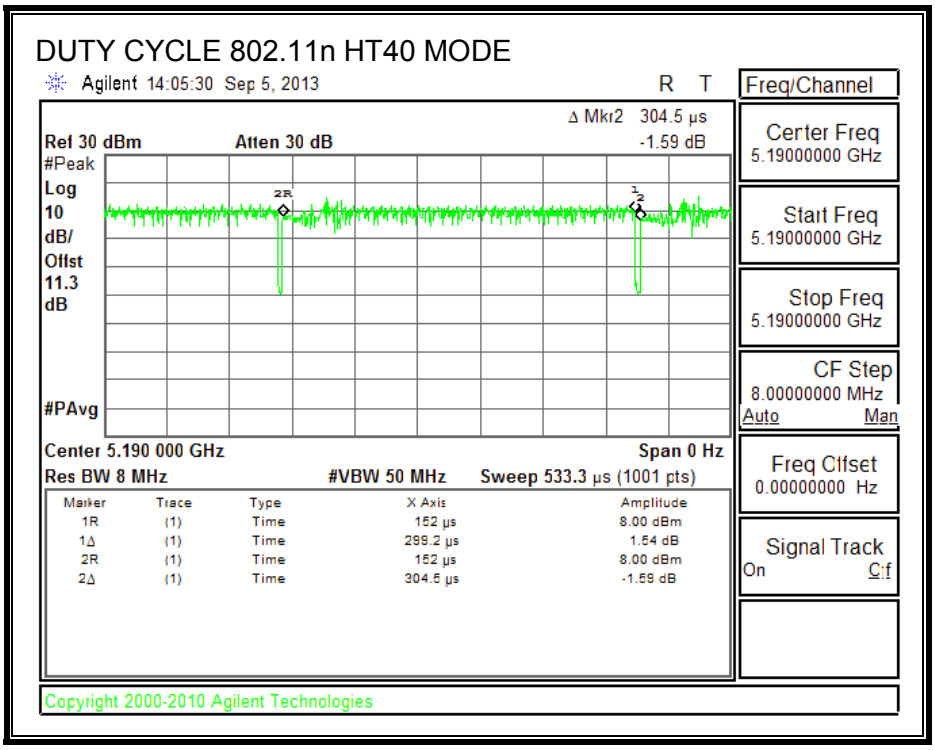
7.1.4. DUTY CYCLE PLOTS

5.2 GHz BAND

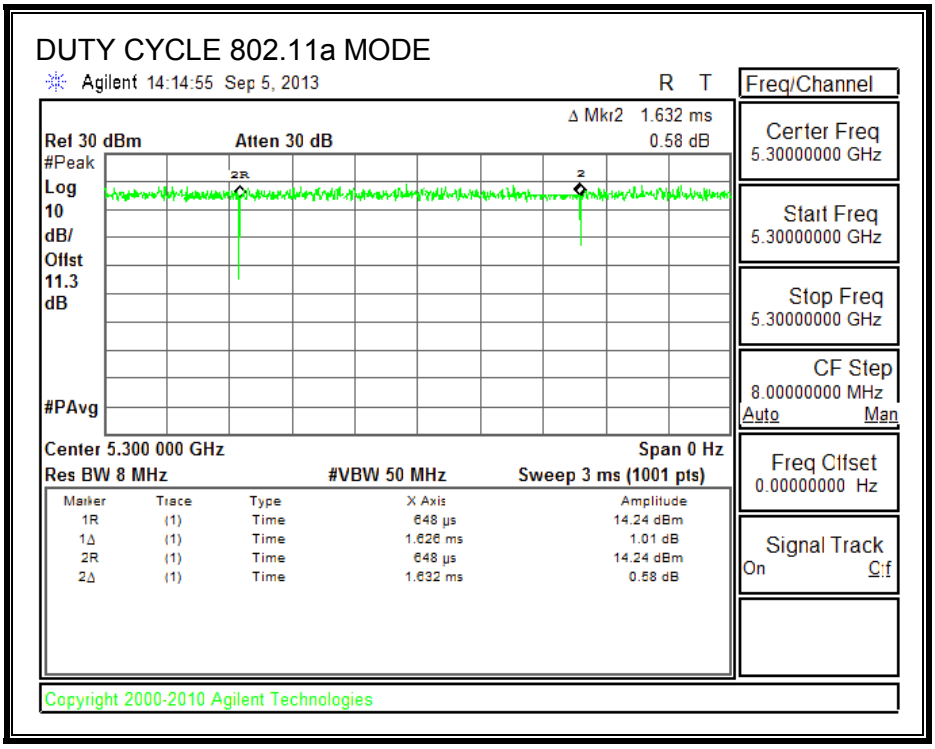


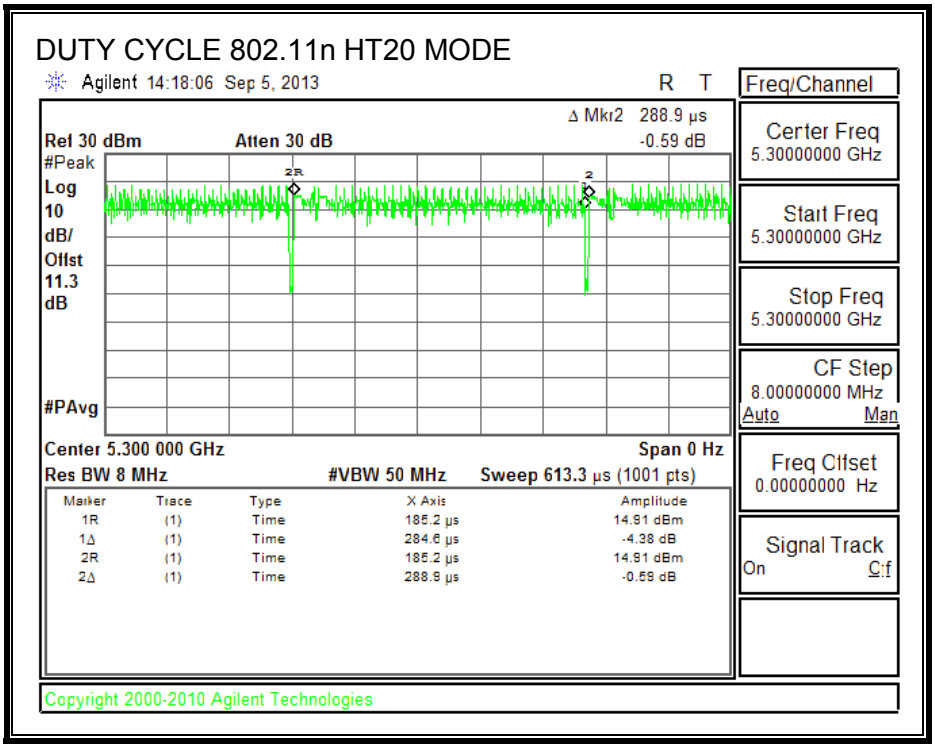


DUTY CYCLE 802.11n HT40 MODE

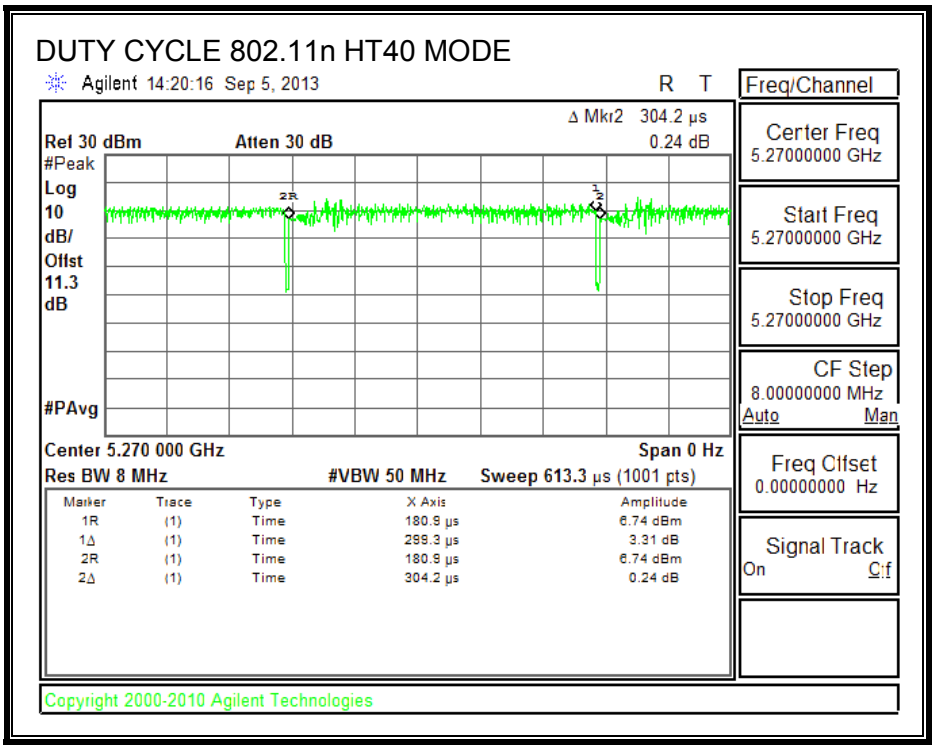


5.3 GHz BAND



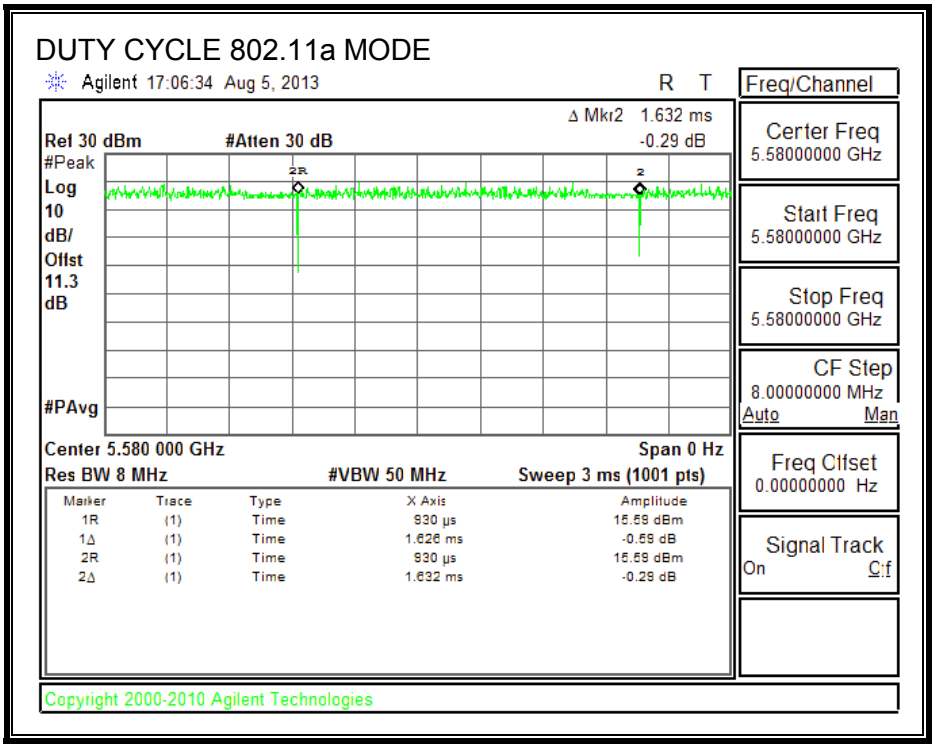


DUTY CYCLE 802.11n HT40 MODE

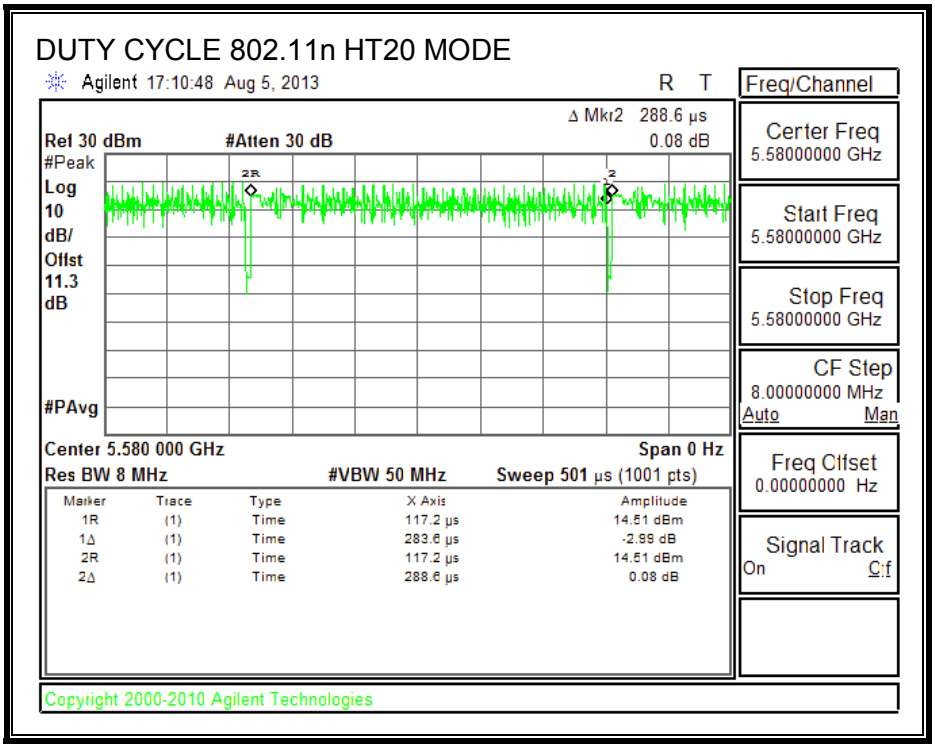


5.6 GHz BAND

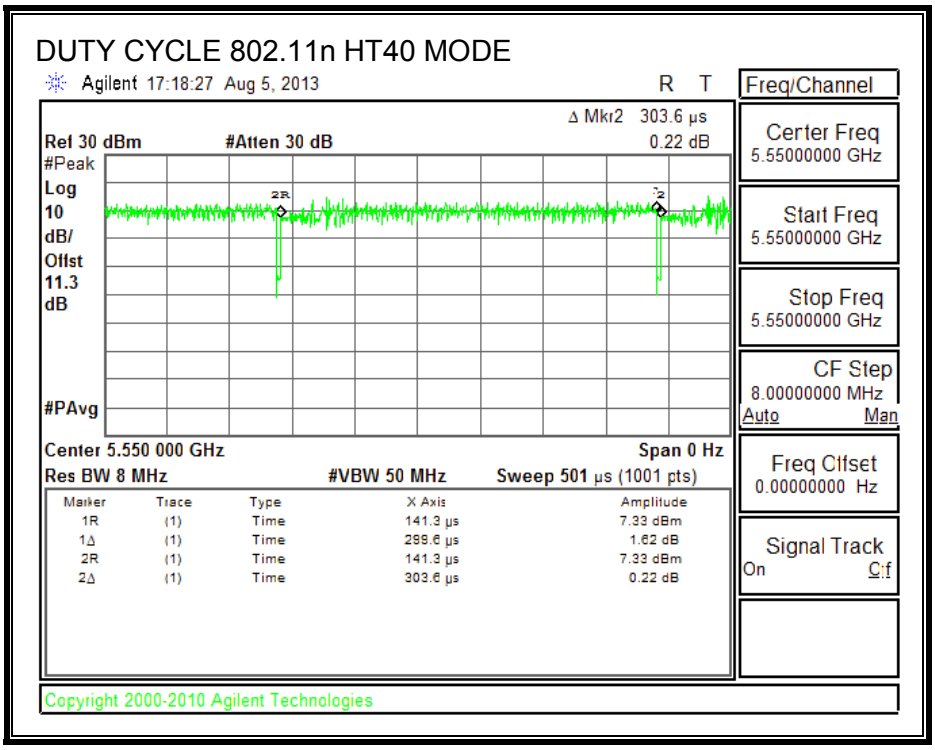
DUTY CYCLE 802.11a MODE



DUTY CYCLE 802.11n HT20 MODE



DUTY CYCLE 802.11n HT40 MODE



8. ANTENNA PORT TEST RESULTS

8.1. 802.11a MODE IN THE 5.2 GHz BAND

8.1.1. 26 dB BANDWIDTH

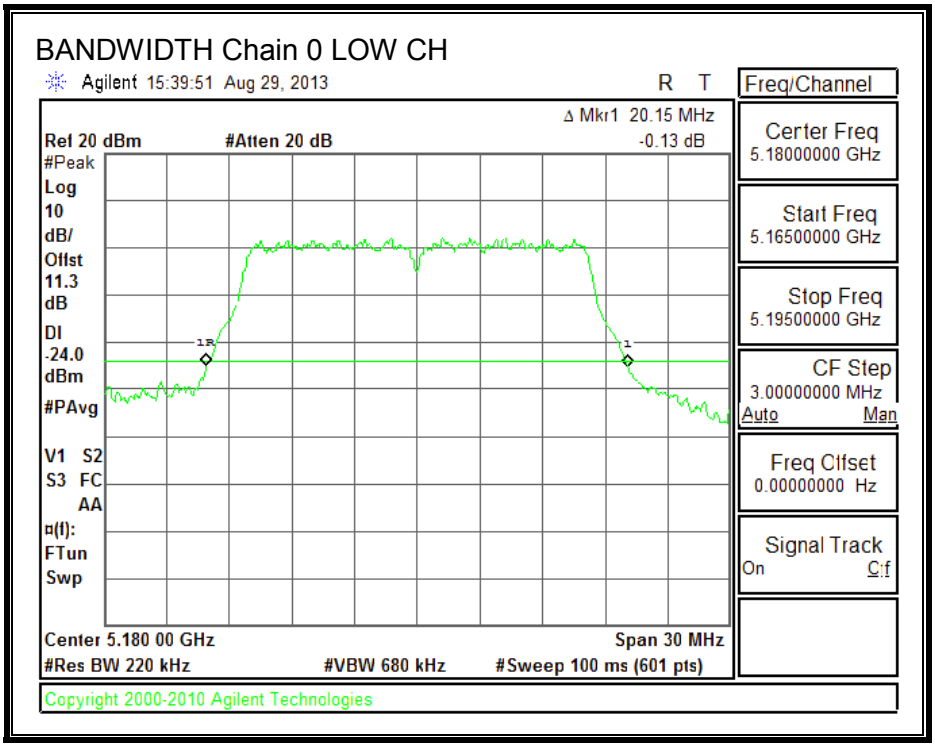
LIMITS

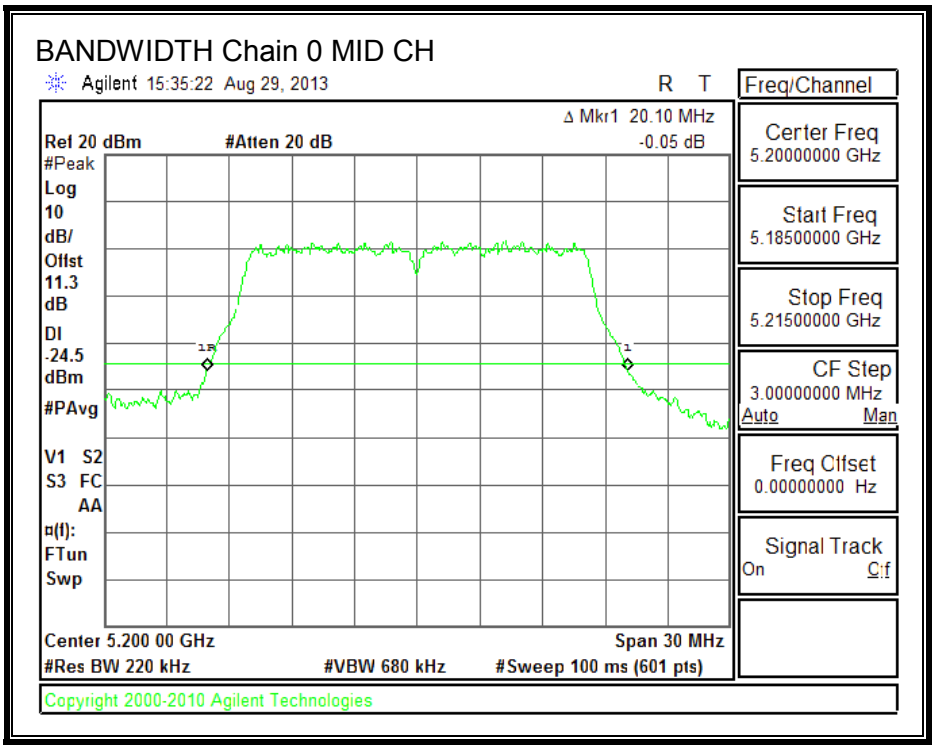
None; for reporting purposes only.

RESULTS

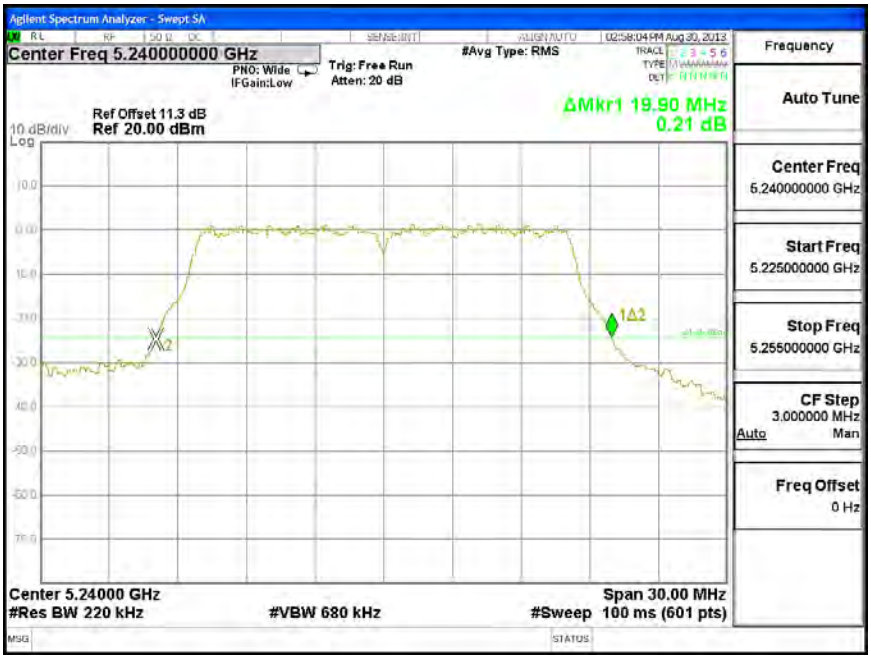
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5180	20.2	19.8
Mid	5200	20.1	19.9
High	5240	19.9	19.7

26 dB BANDWIDTH, Chain 0



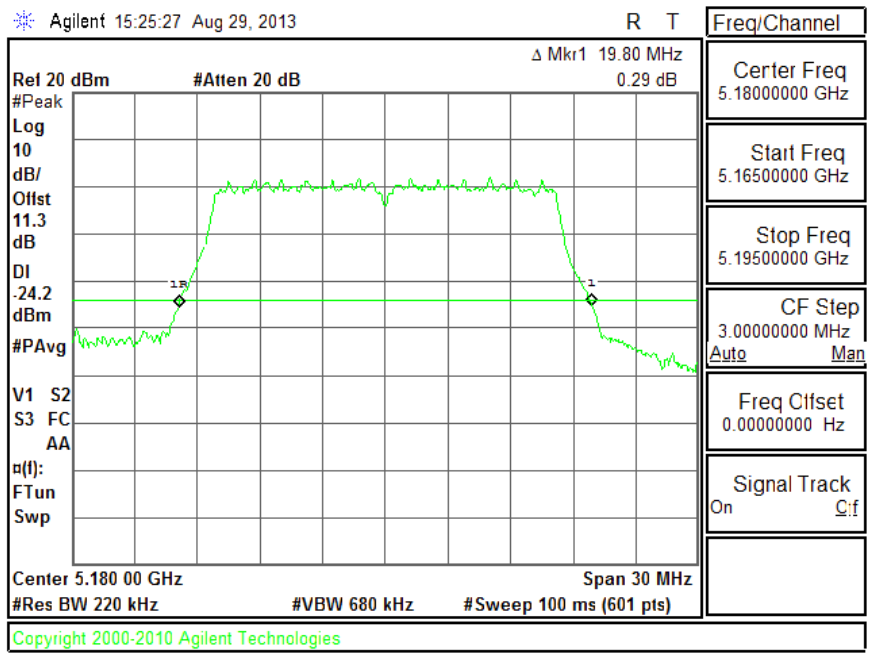


BANDWIDTH Chain 0 HIGH CH

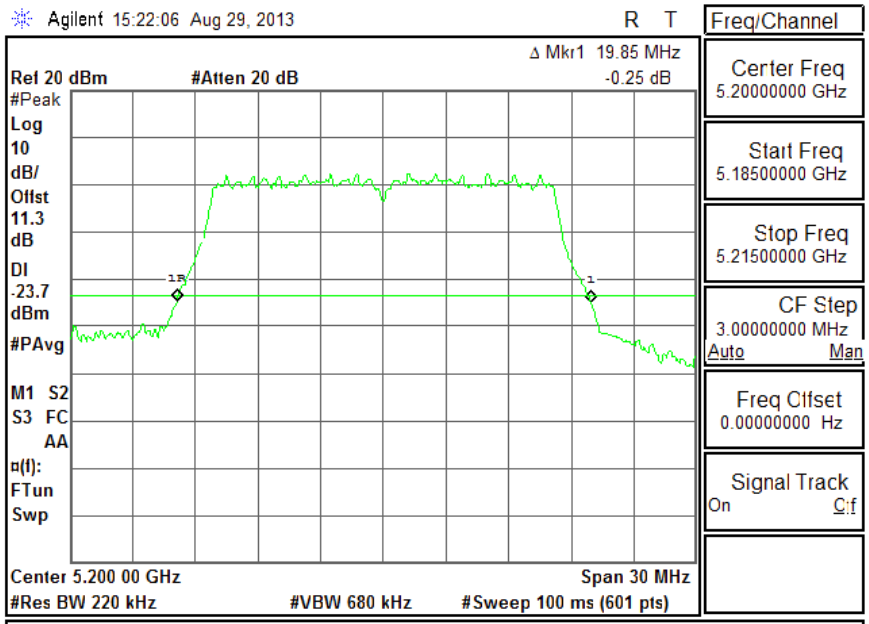


26 dB BANDWIDTH, Chain 1

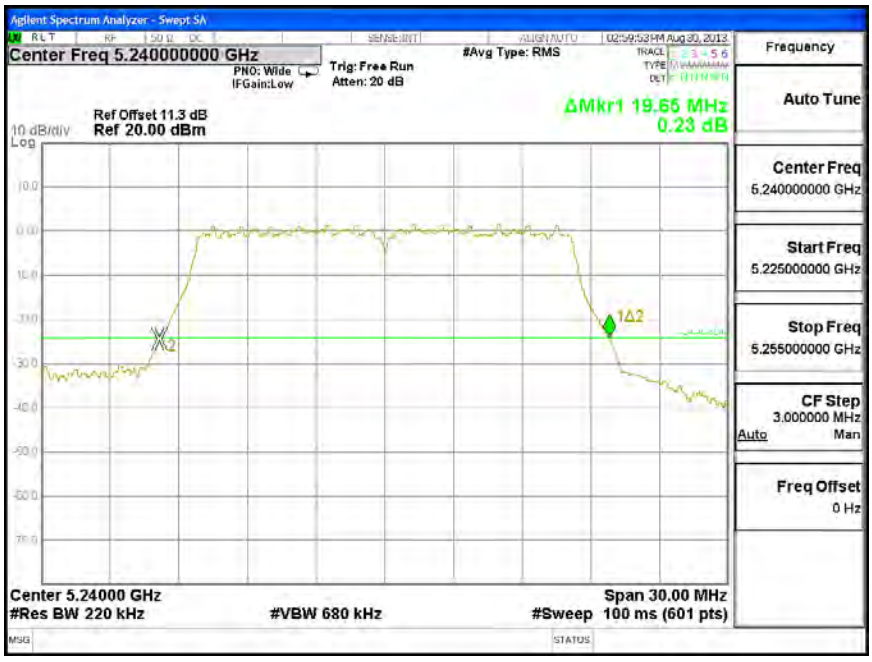
BANDWIDTH Chain 1 LOW CH



BANDWIDTH Chain 1 MID CH



BANDWIDTH Chain 1 HIGH CH



8.1.2. 99% BANDWIDTH

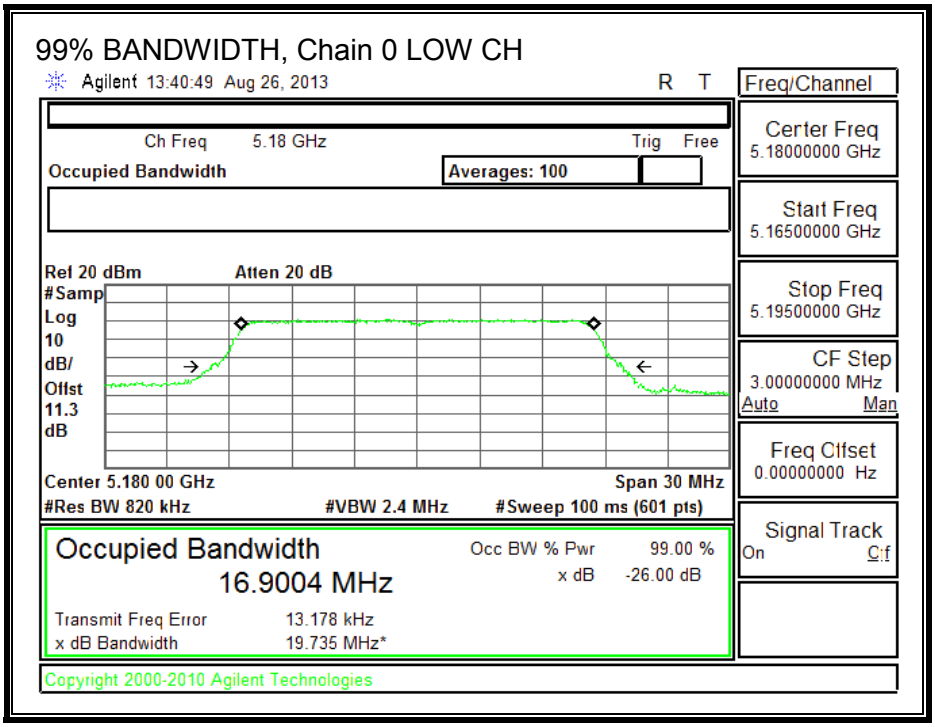
LIMITS

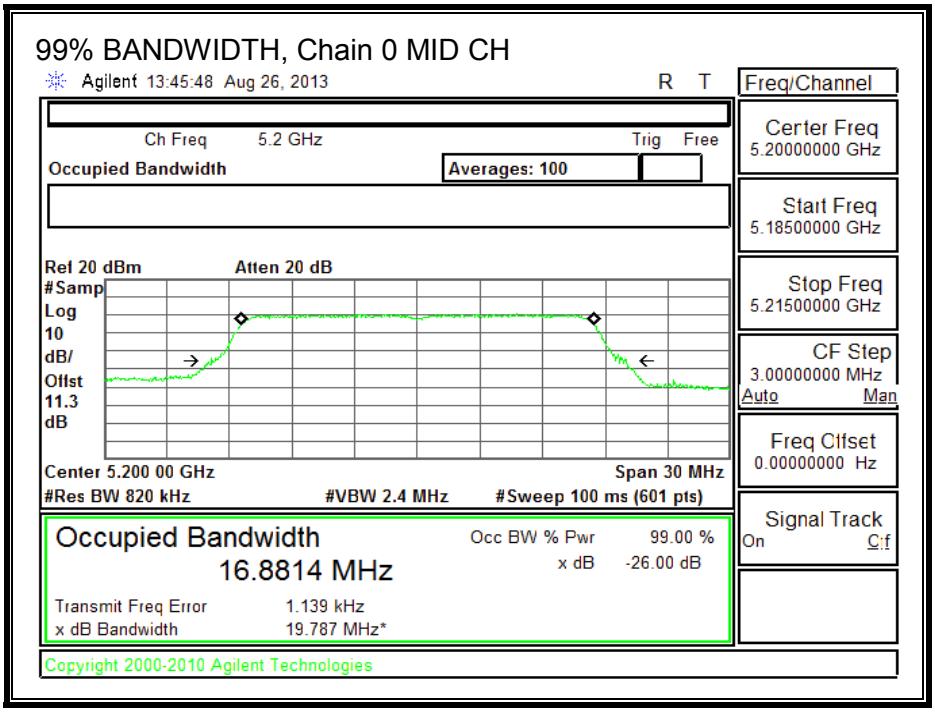
None; for reporting purposes only.

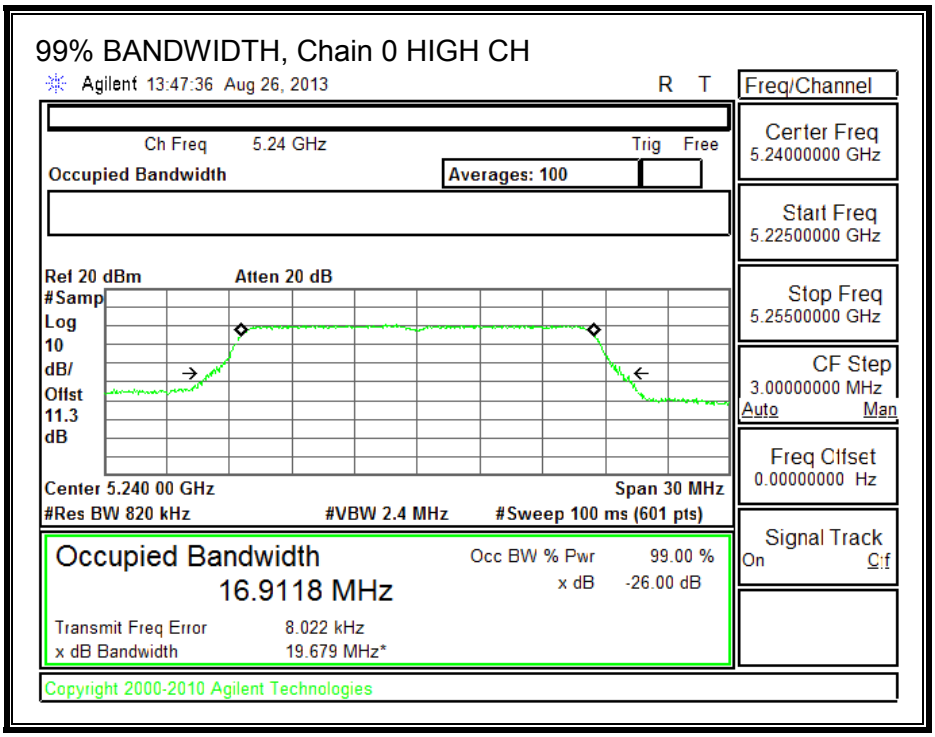
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5180	16.90	16.89
Mid	5200	16.88	16.86
High	5240	16.91	16.87

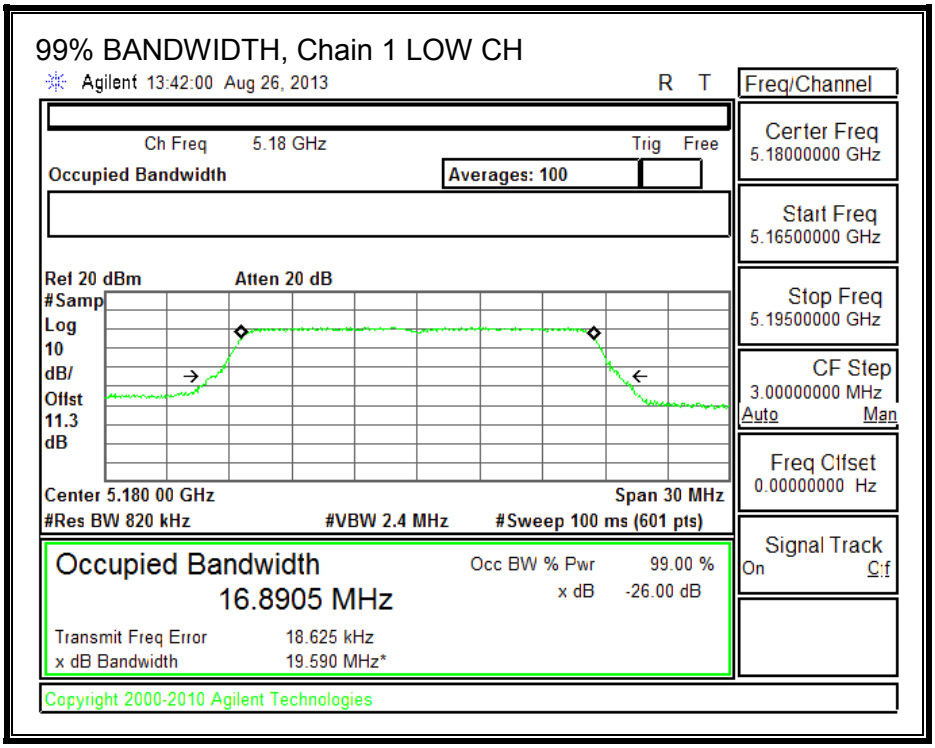
99% BANDWIDTH, Chain 0

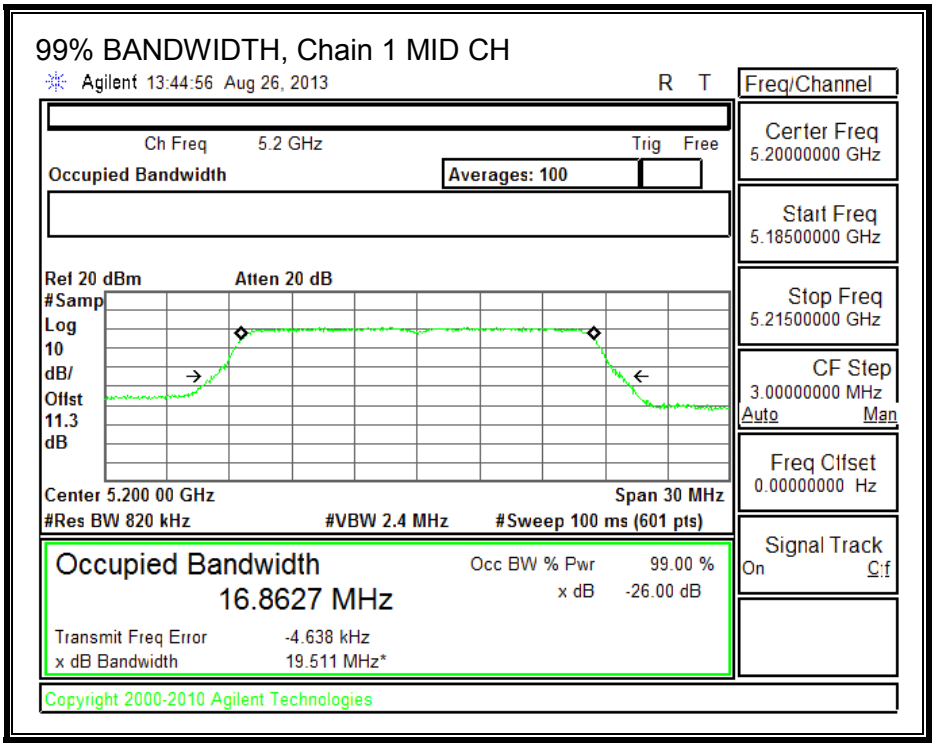


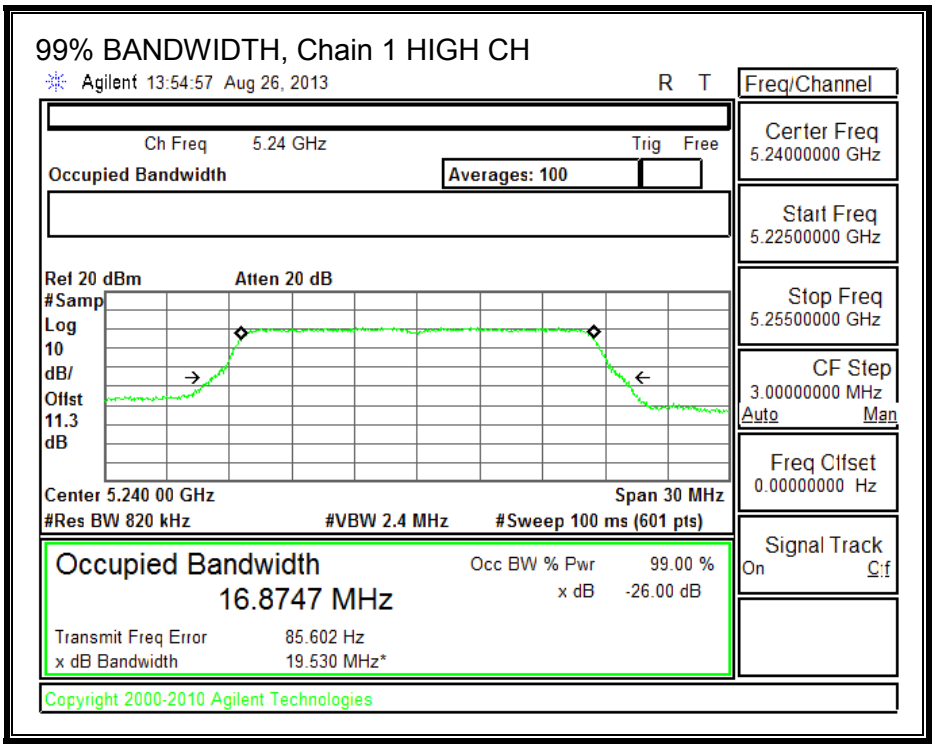




99% BANDWIDTH, Chain 1







8.1.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

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

RESULTS

Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5180	9.61	10.05	12.85
Mid	5200	9.38	10.28	12.86
High	5240	9.39	10.27	12.86

8.1.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

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)
3.90	3.20	3.56

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	19.8	16.9	3.56
Mid	5200	19.9	16.9	3.56
High	5240	19.7	16.9	3.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	16.97	22.28	18.72	16.97	4.00	10.00	4.00
Mid	5200	16.99	22.27	18.71	16.99	4.00	10.00	4.00
High	5240	16.94	22.27	18.71	16.94	4.00	10.00	4.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD

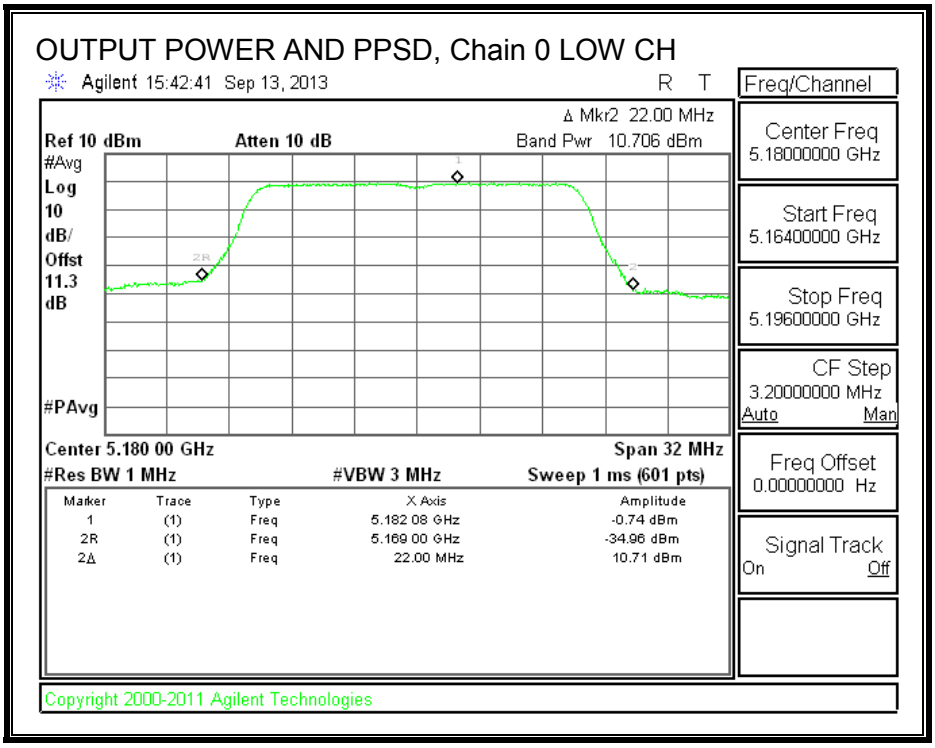
Output Power Results

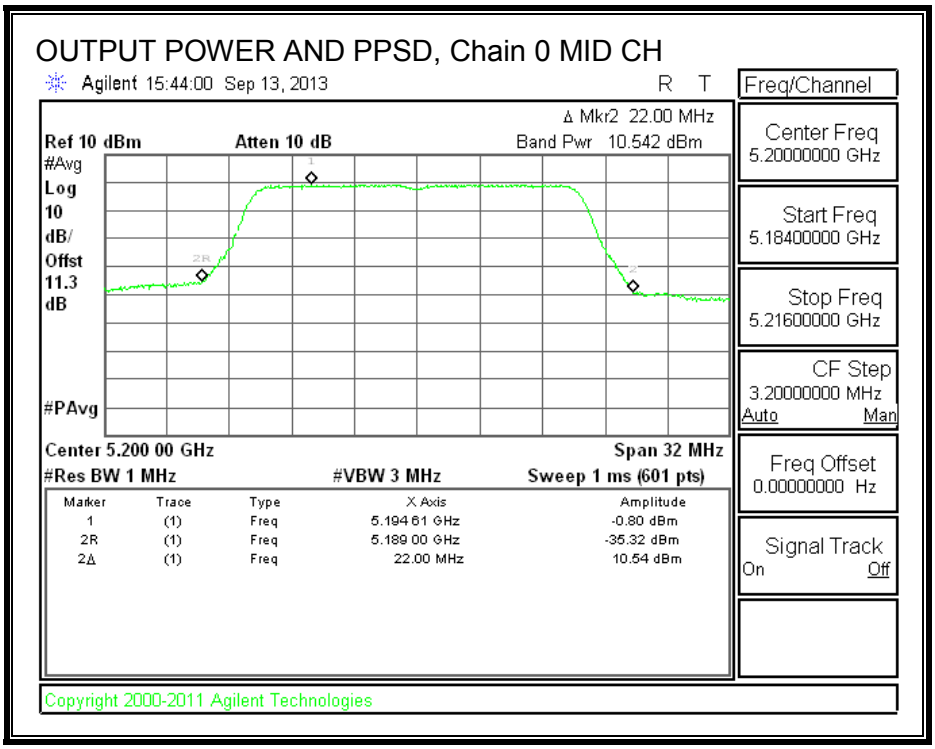
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	10.71	10.77	13.75	16.97	-3.22
Mid	5200	10.54	10.94	13.76	16.99	-3.23
High	5240	10.83	11.02	13.94	16.94	-3.01

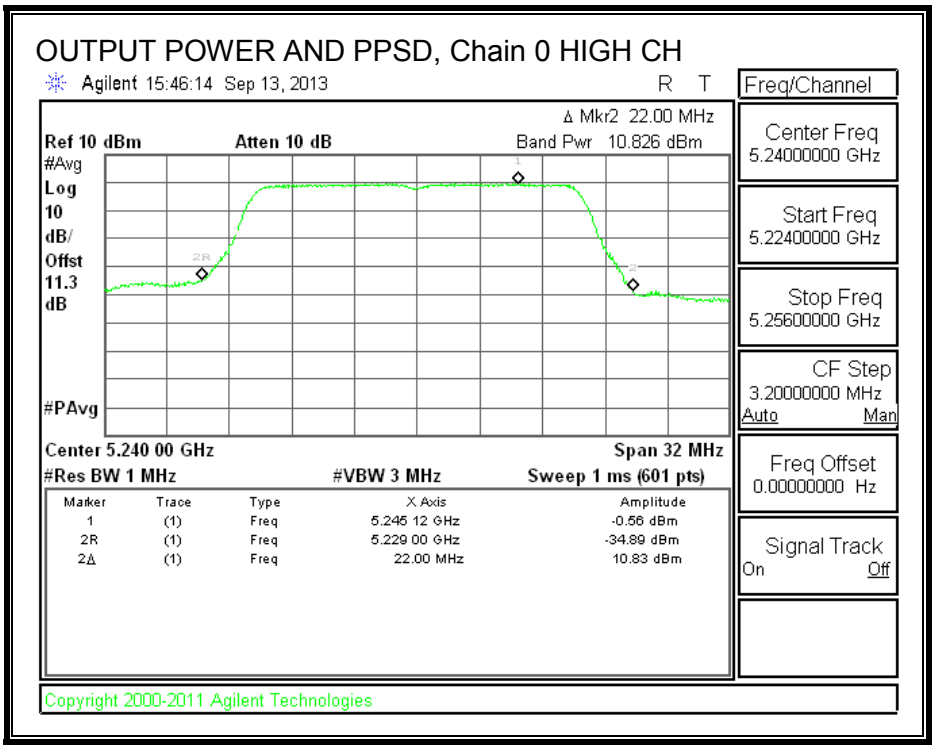
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	-0.74	-0.36	2.46	4.00	-1.54
Mid	5200	-0.80	-0.29	2.47	4.00	-1.53
High	5240	-0.56	-0.14	2.67	4.00	-1.33

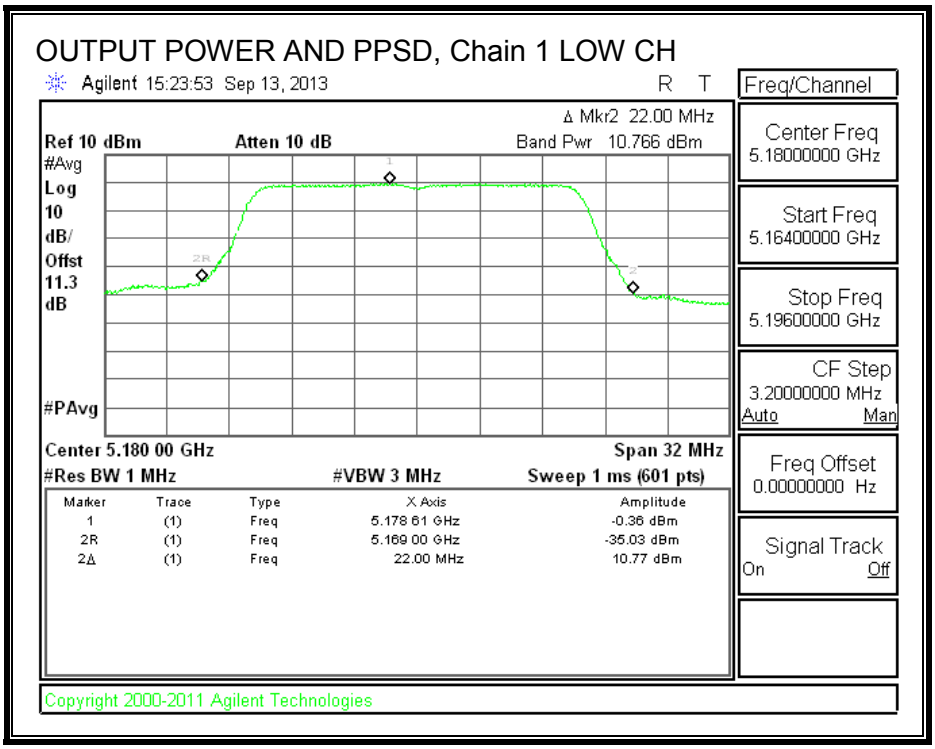
OUTPUT POWER AND PPSD, Chain 0

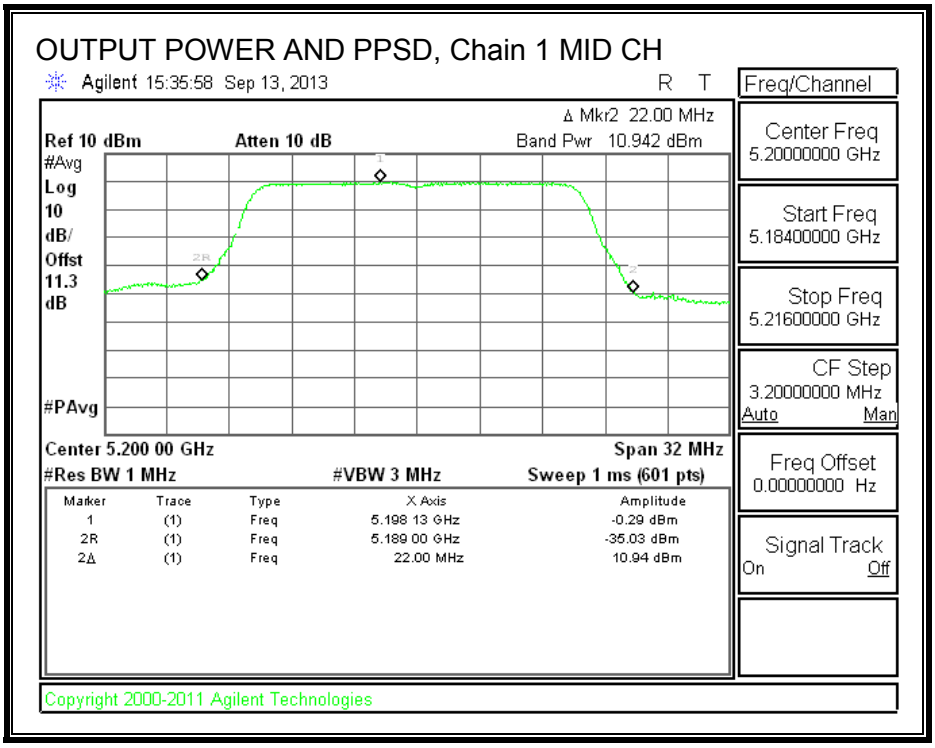


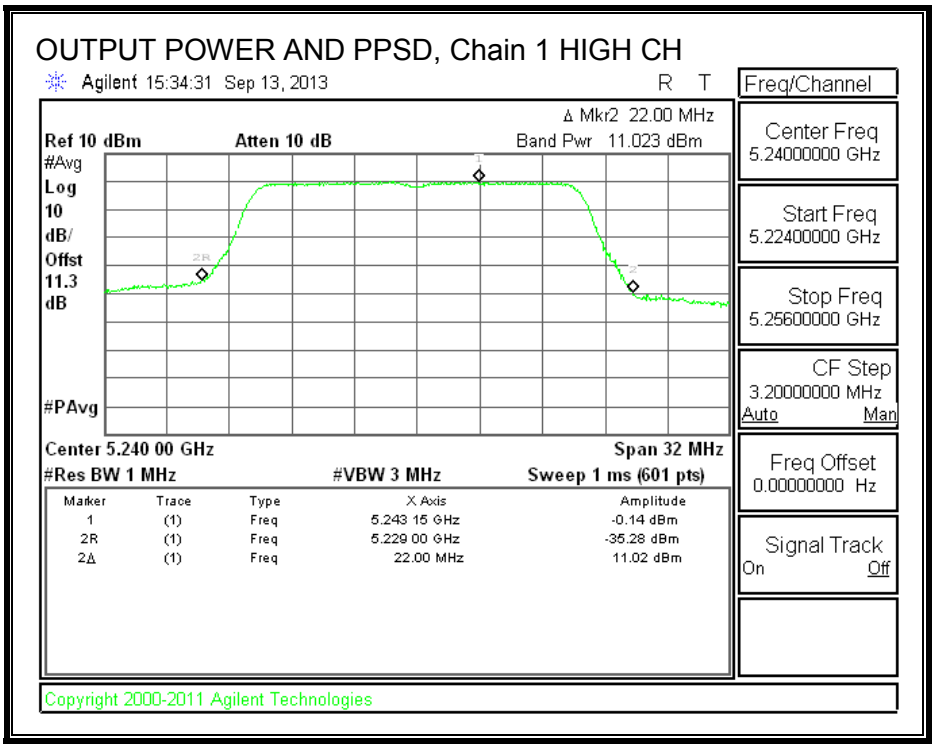




OUTPUT POWER AND PPSD, Chain 1







8.1.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

RESULTS

Refer to the results of 802.11n HT20 mode in the 5.6 GHz band.

8.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

8.2.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

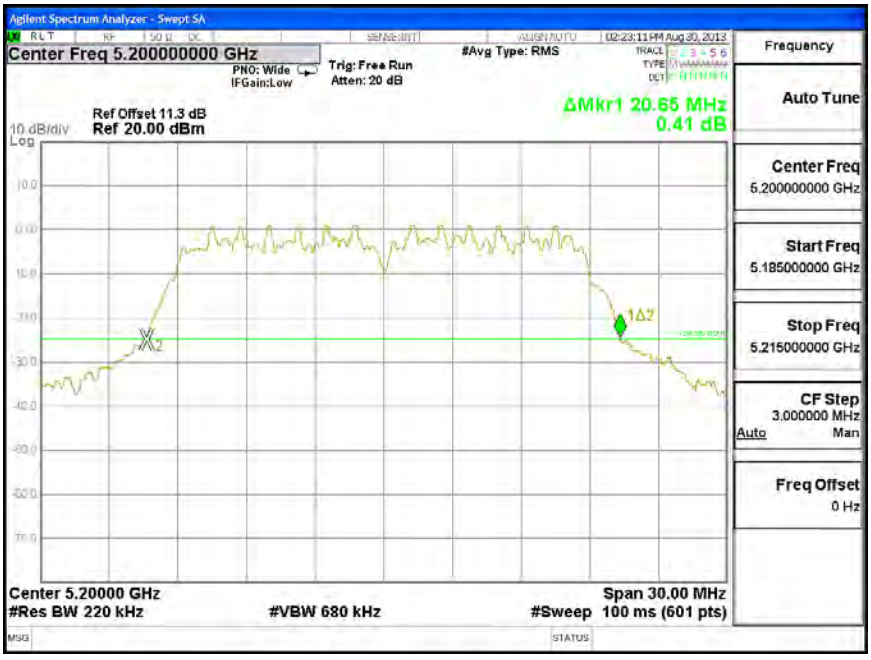
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5180	20.7	20.8
Mid	5200	20.7	20.8
High	5240	20.7	20.8

26 dB BANDWIDTH, Chain 0

BANDWIDTH Chain 0 LOW CH

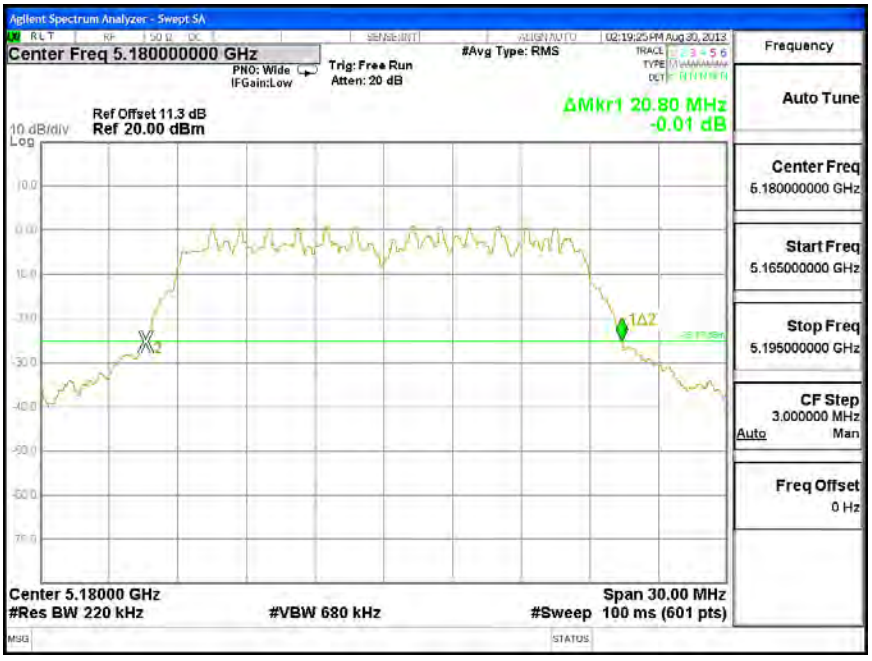
BANDWIDTH Chain 0 MID CH



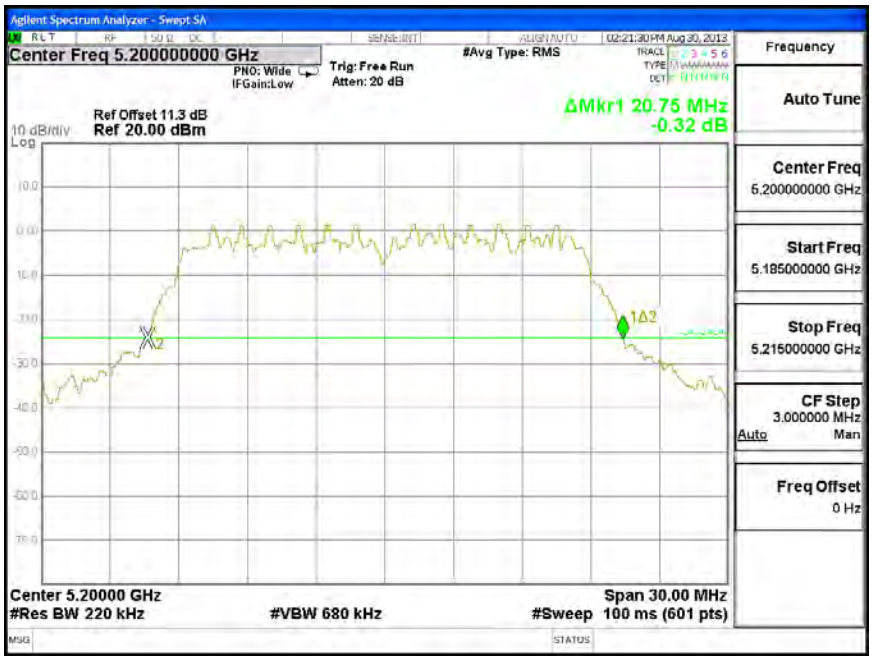
BANDWIDTH Chain 0 HIGH CH

26 dB BANDWIDTH, Chain 1

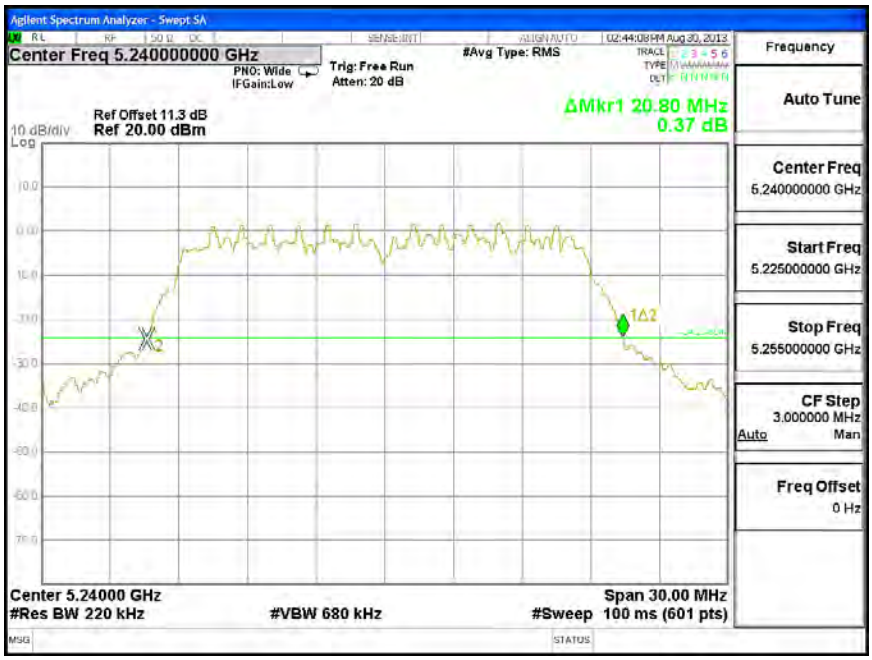
BANDWIDTH Chain 1 LOW CH



BANDWIDTH Chain 1 MID CH



BANDWIDTH Chain 1 HIGH CH



8.2.2. 99% BANDWIDTH

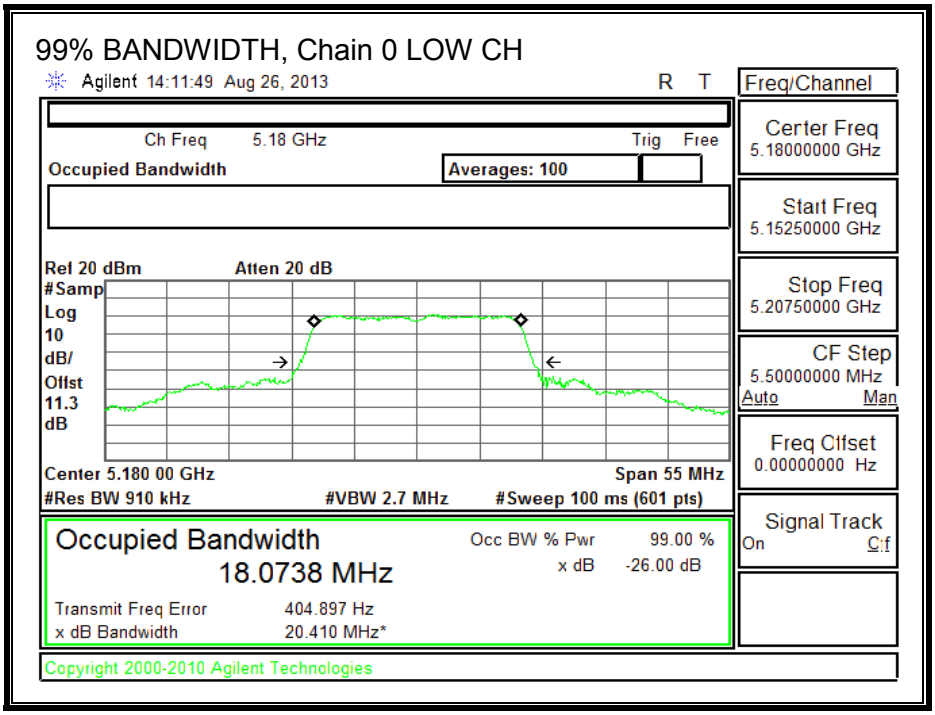
LIMITS

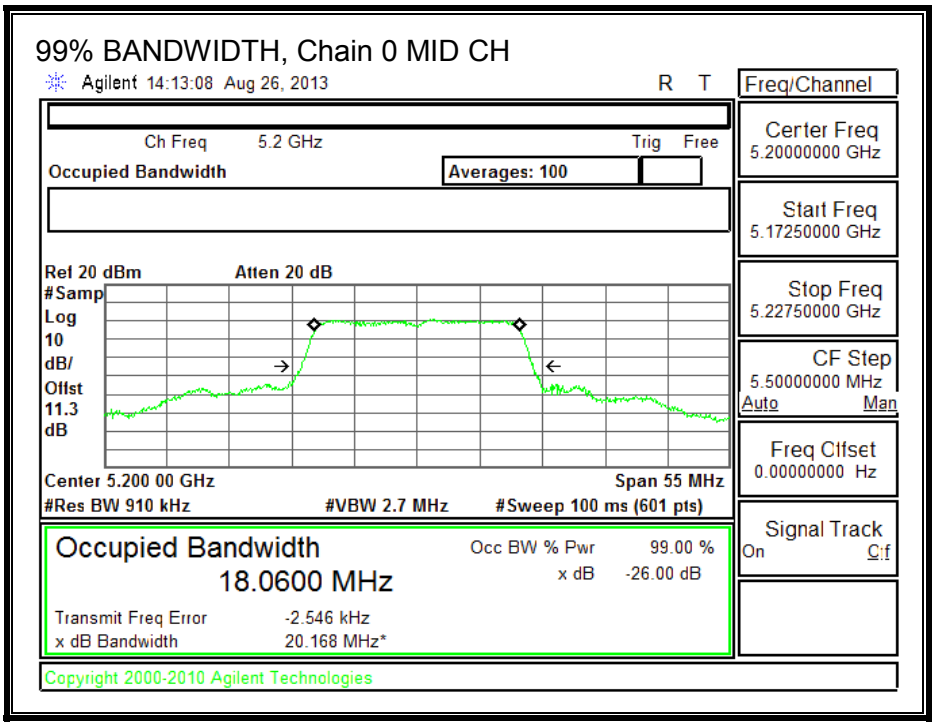
None; for reporting purposes only.

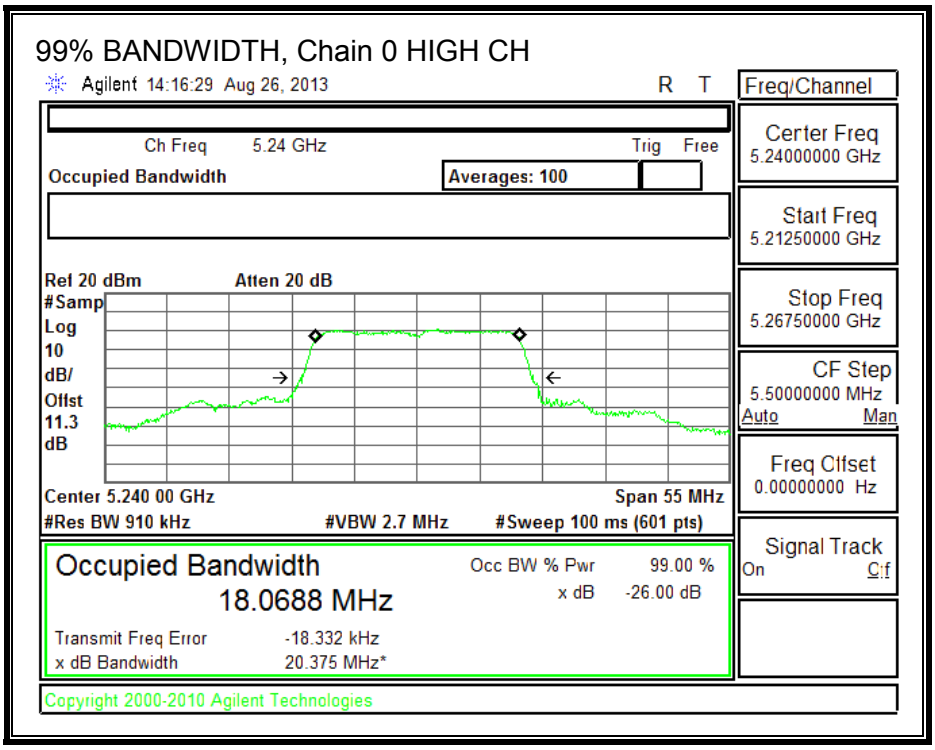
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5180	18.07	18.12
Mid	5200	18.06	18.09
High	5240	18.07	18.07

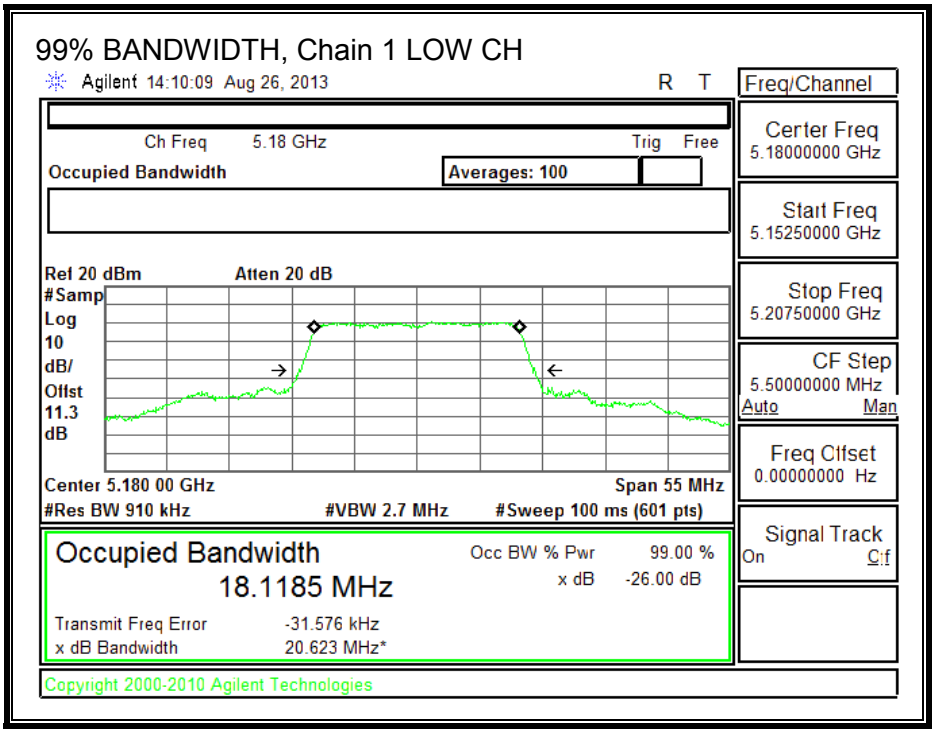
99% BANDWIDTH, Chain 0

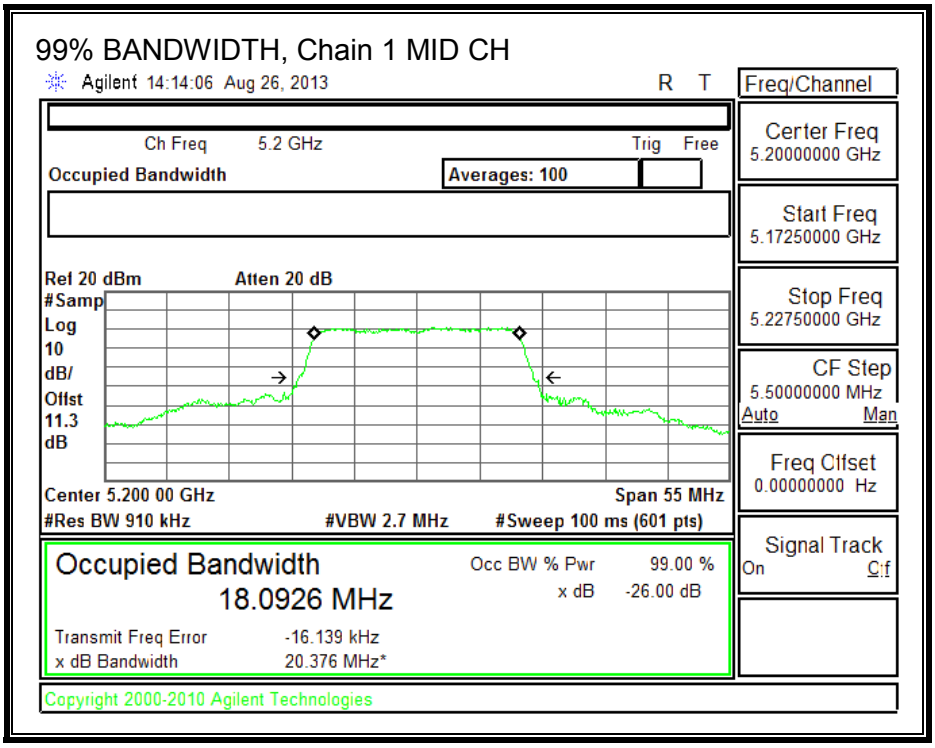


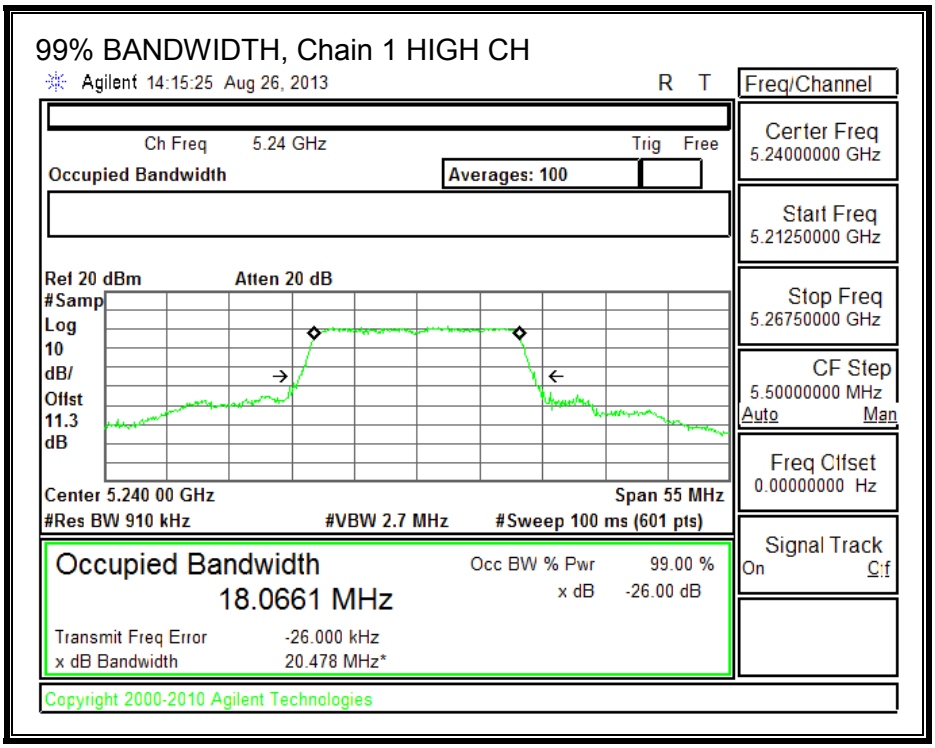




99% BANDWIDTH, Chain 1







8.2.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

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

RESULTS

Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5180	9.41	10.08	12.77
Mid	5200	9.28	10.29	12.82
High	5240	9.38	10.31	12.88

8.2.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

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)
3.90	3.20	3.56

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	20.70	18.07	3.56
Mid	5200	20.65	18.06	3.56
High	5240	20.65	18.06	3.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	17.00	22.57	19.01	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.57	19.01	17.00	4.00	10.00	4.00
High	5240	17.00	22.57	19.01	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD

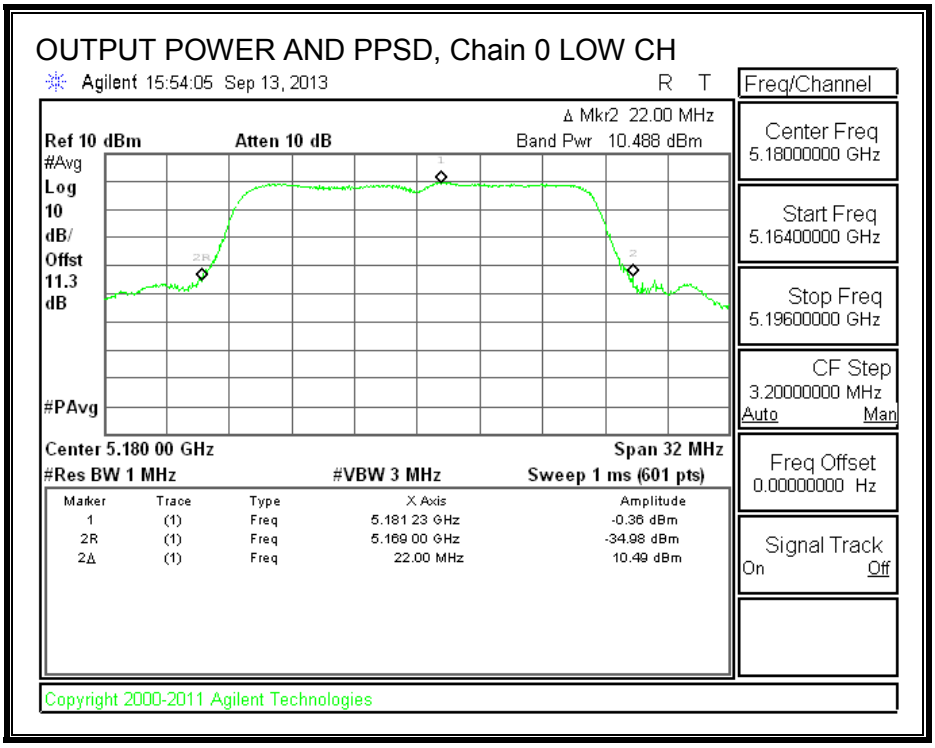
Output Power Results

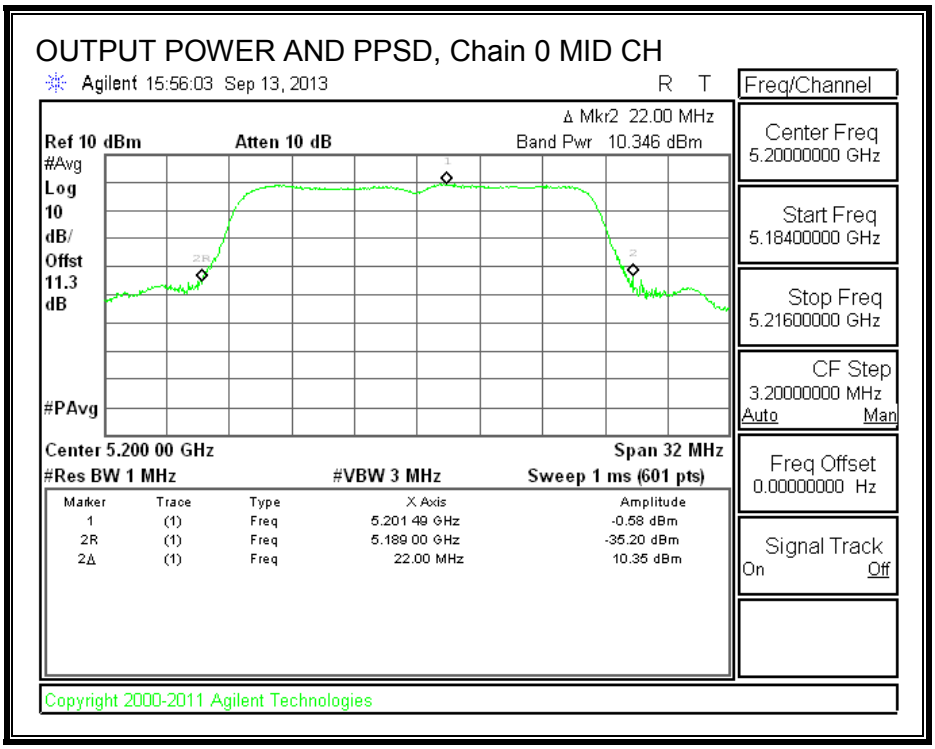
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	10.49	10.62	13.56	17.00	-3.44
Mid	5200	10.35	10.82	13.60	17.00	-3.40
High	5240	10.65	11.00	13.84	17.00	-3.16

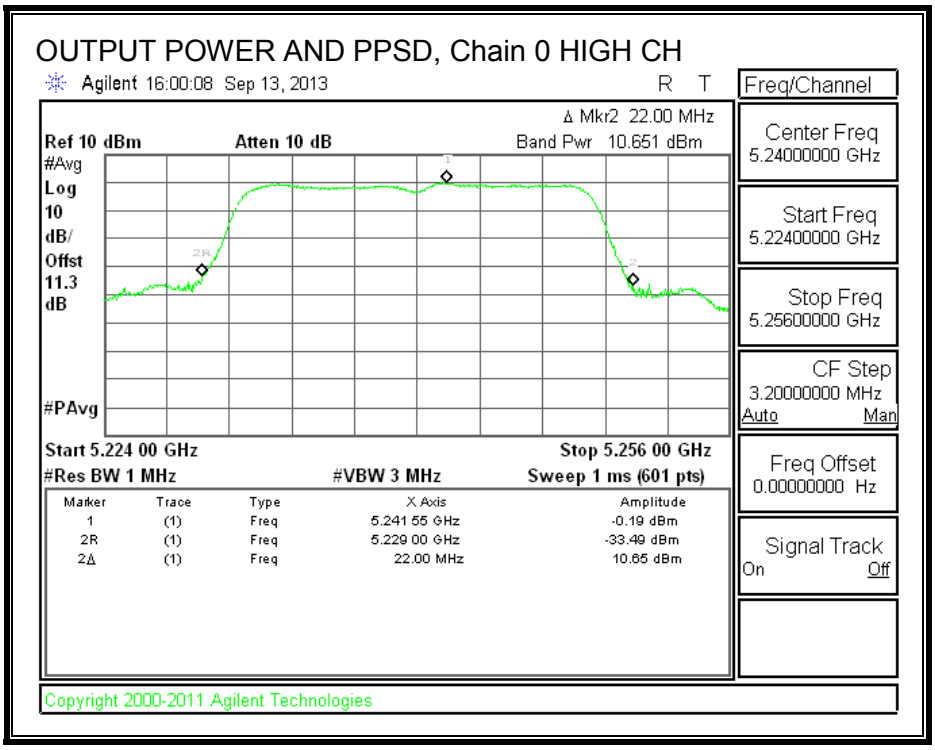
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	-0.36	-0.37	2.65	4.00	-1.35
Mid	5200	-0.58	-0.16	2.65	4.00	-1.35
High	5240	-0.19	0.27	3.06	4.00	-0.94

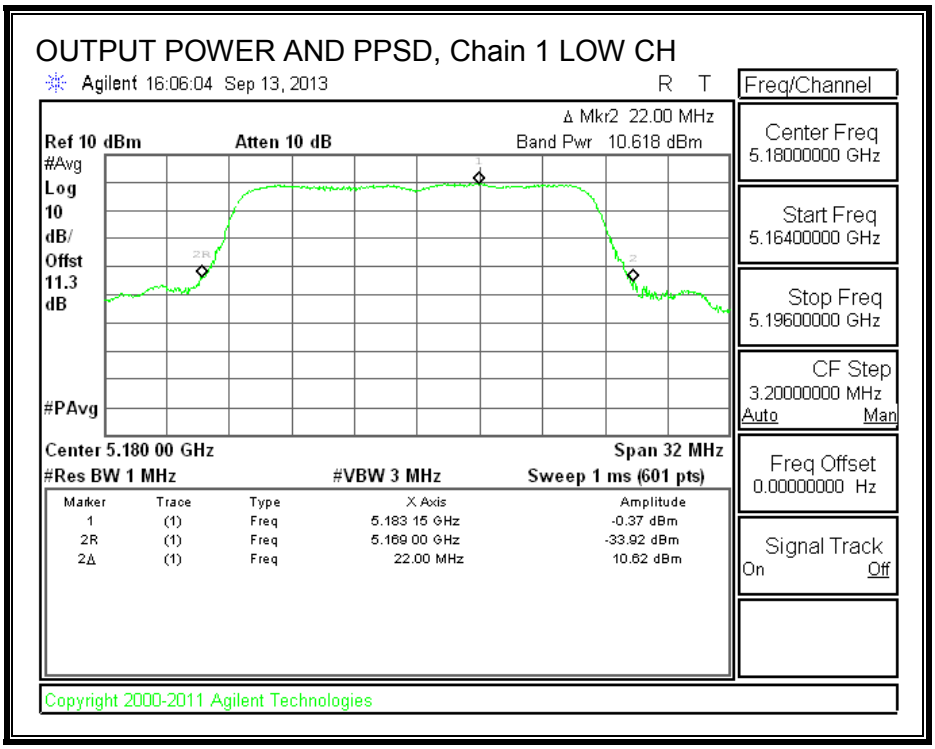
OUTPUT POWER AND PPSD, Chain 0



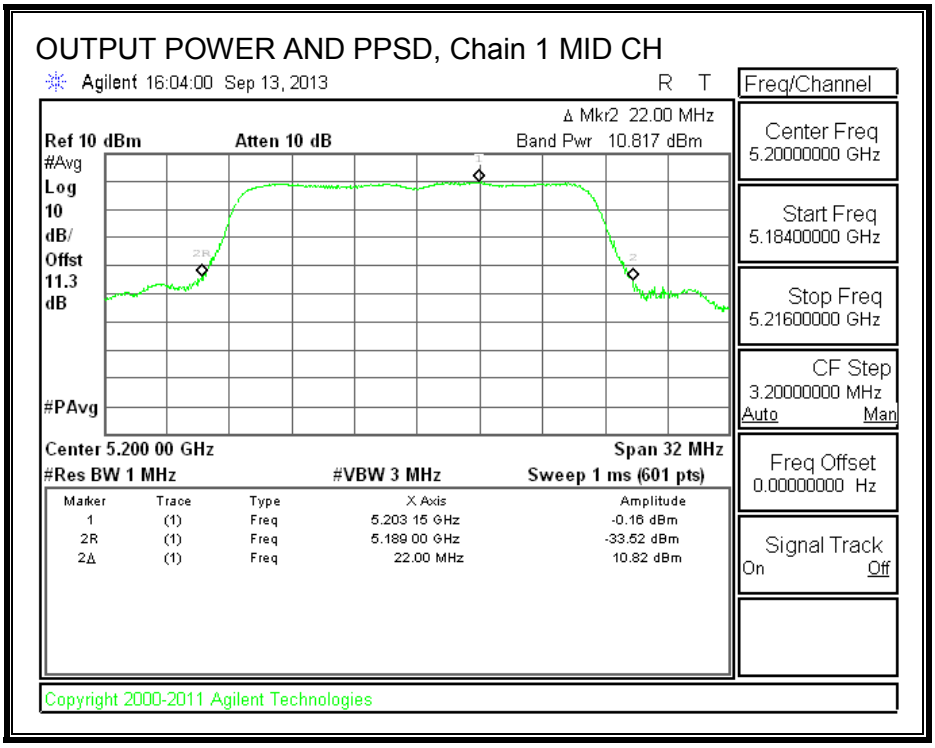




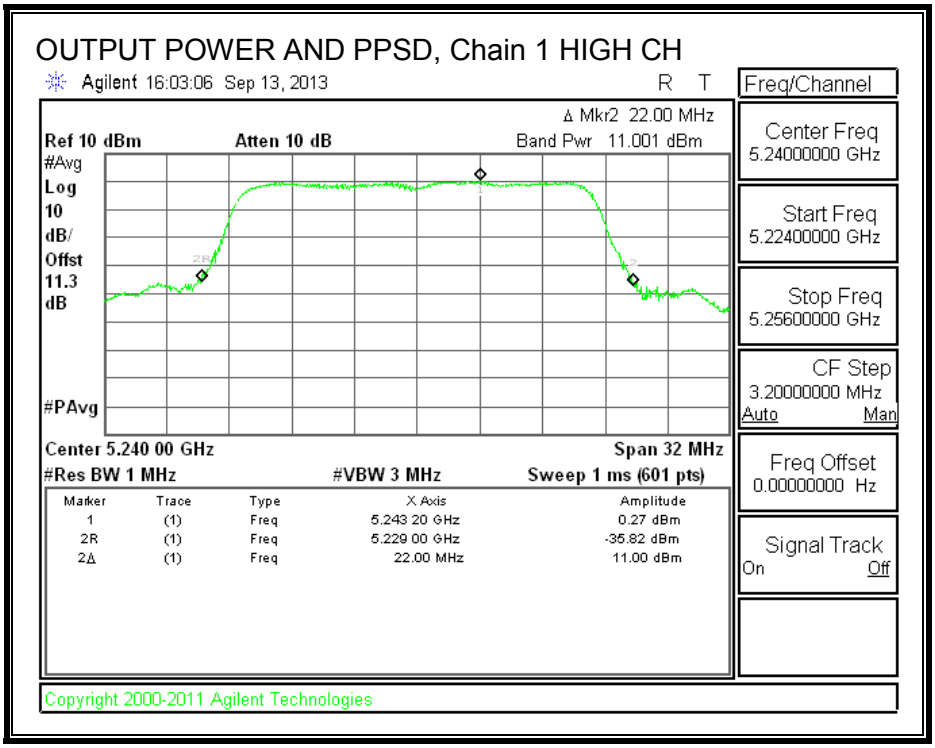
OUTPUT POWER AND PPSD, Chain 1



OUTPUT POWER AND PPSD, Chain 1 MID CH



OUTPUT POWER AND PPSD, Chain 1 HIGH CH



8.2.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

RESULTS

Refer to the results of 802.11n HT20 mode in the 5.6 GHz band.

8.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

8.3.1. 26 dB BANDWIDTH

LIMITS

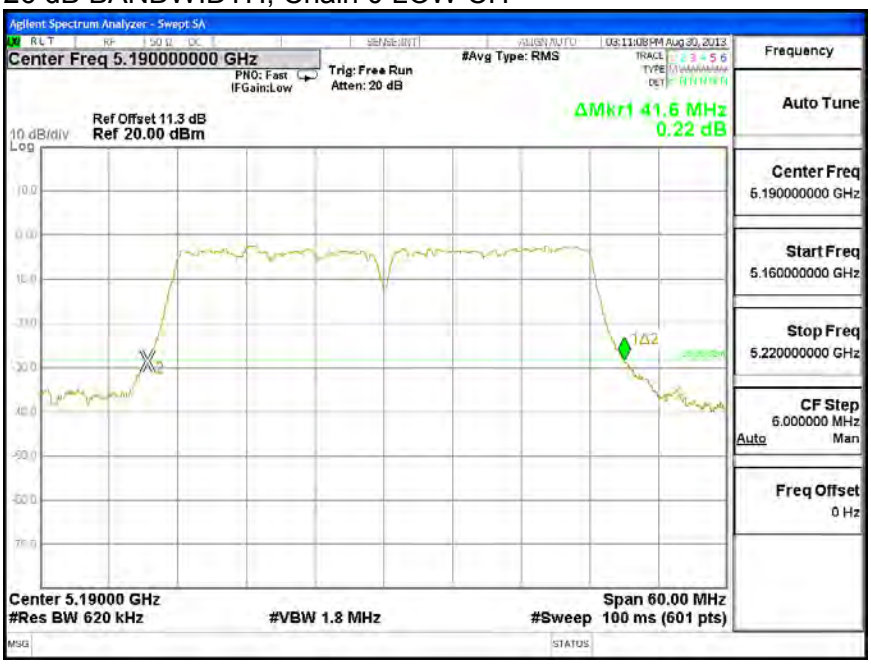
None; for reporting purposes only.

RESULTS

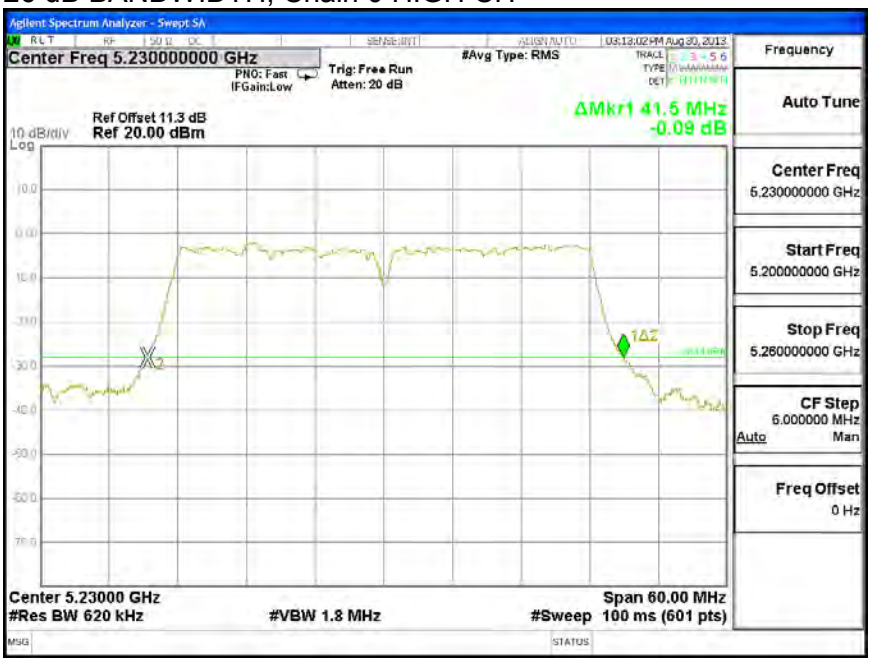
Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5190	41.6	42.8
High	5230	41.5	42.6

26 dB BANDWIDTH, Chain 0

26 dB BANDWIDTH, Chain 0 LOW CH

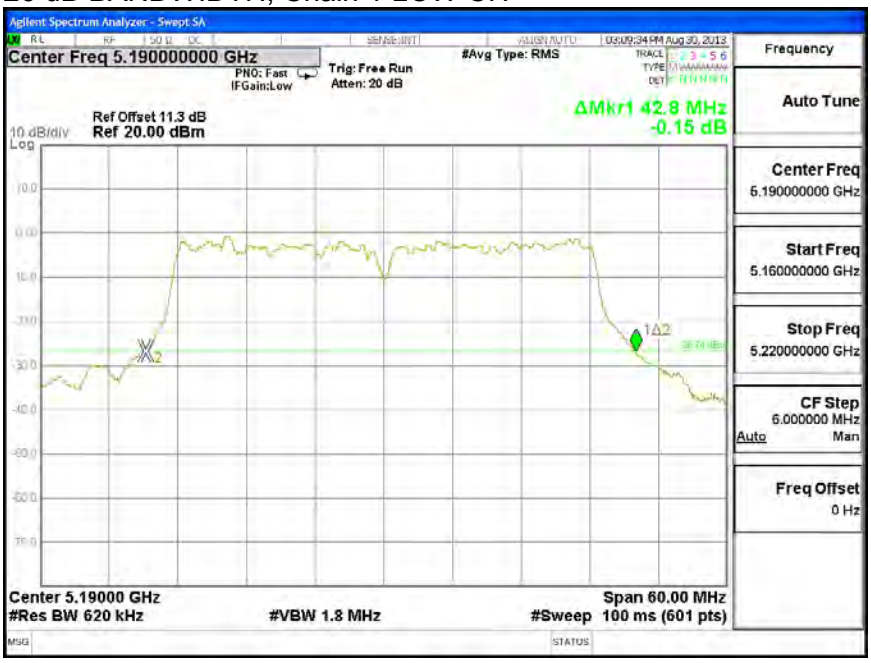


26 dB BANDWIDTH, Chain 0 HIGH CH

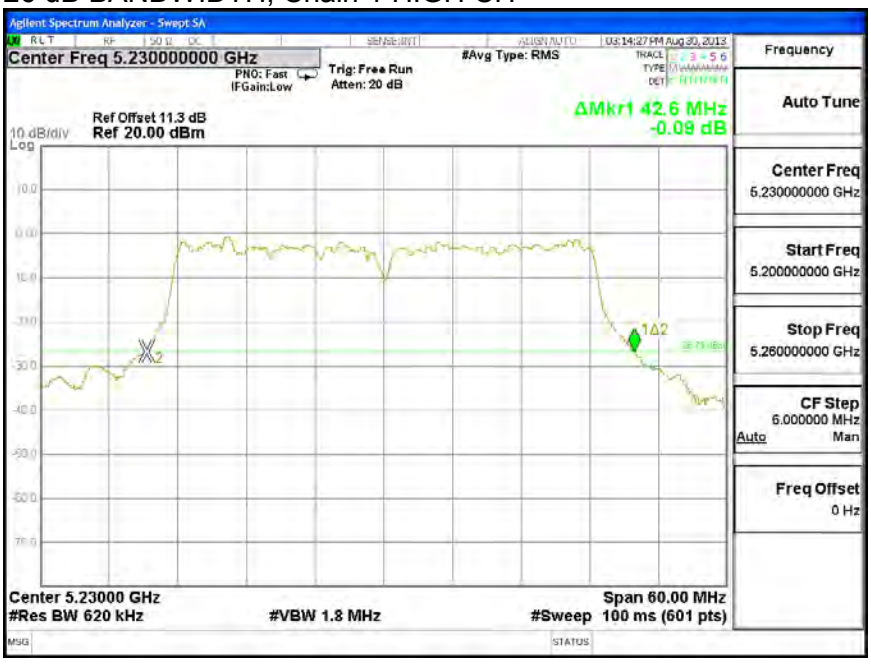


26 dB BANDWIDTH, Chain 1

26 dB BANDWIDTH, Chain 1 LOW CH



26 dB BANDWIDTH, Chain 1 HIGH CH



8.3.2. 99% BANDWIDTH

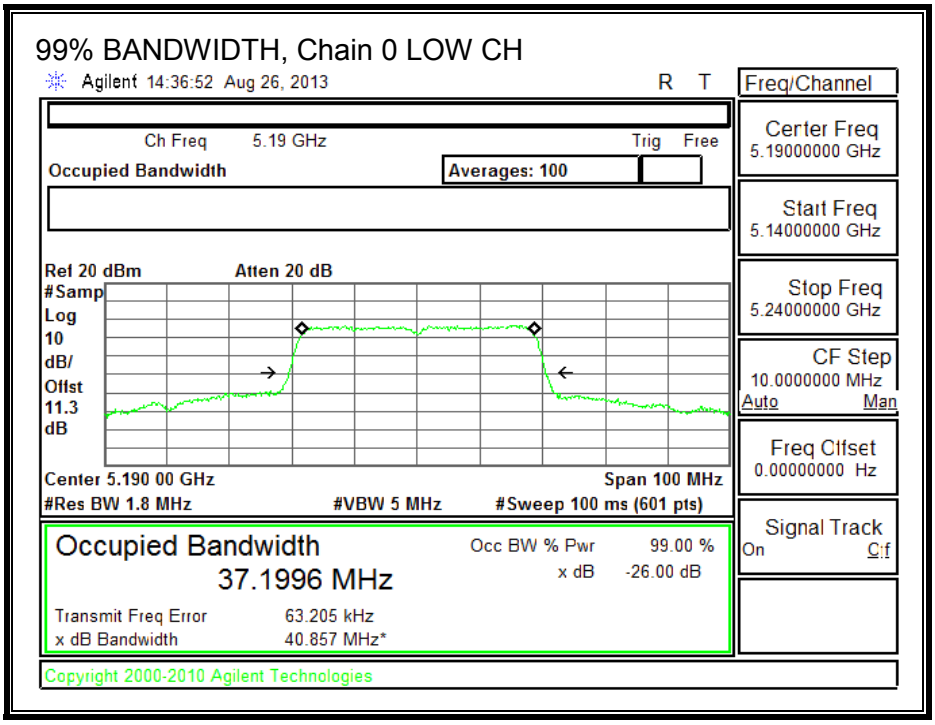
LIMITS

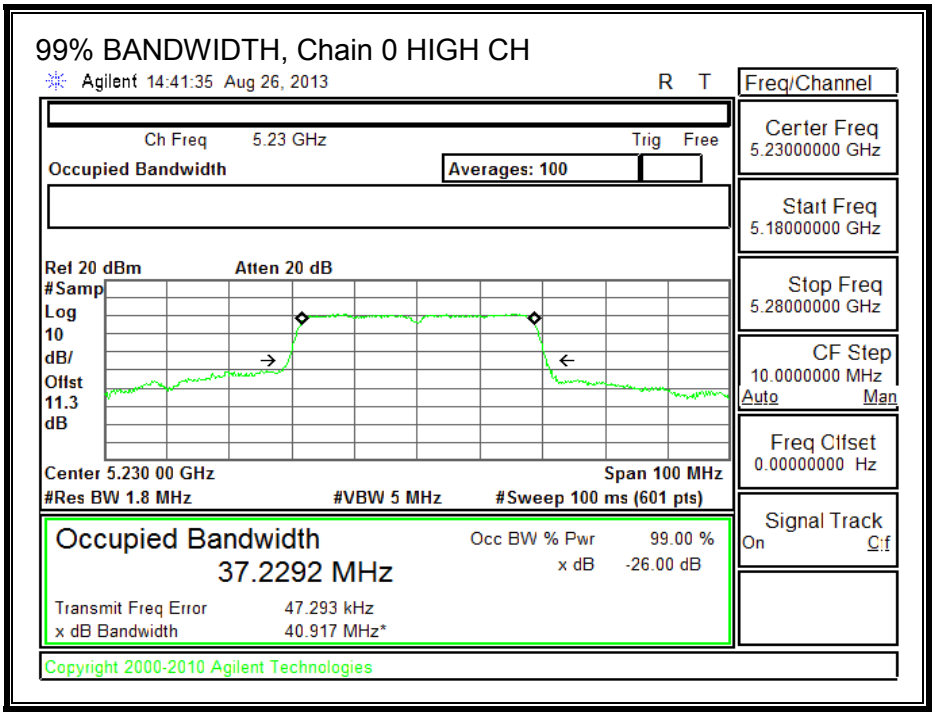
None; for reporting purposes only.

RESULTS

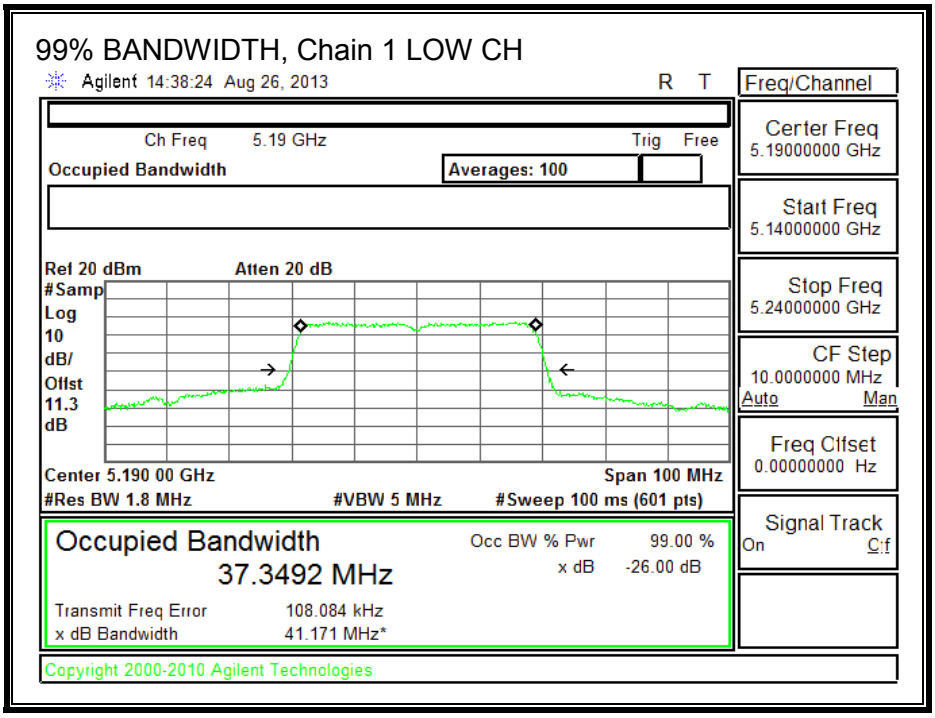
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5180	37.20	37.35
High	5240	37.23	37.35

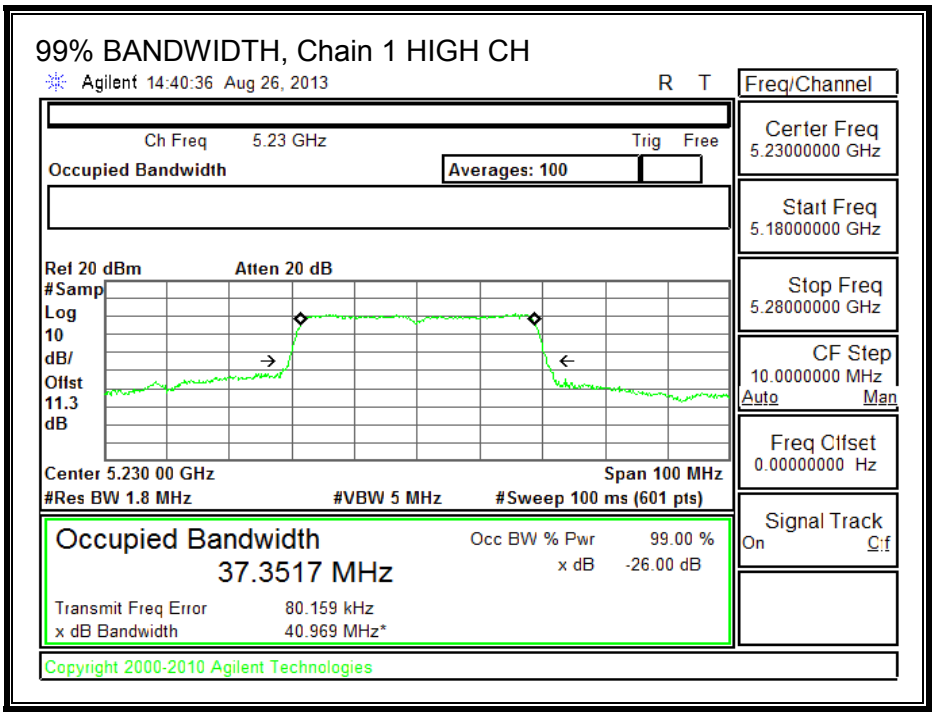
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.3.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

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

RESULTS

Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5190	7.63	8.15	10.91
High	5230	7.79	7.98	10.90

8.3.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

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)
3.90	3.20	3.56

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5190	41.60	37.19	3.56
High	5230	41.50	37.22	3.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5190	17.00	23.00	19.44	17.00	4.00	10.00	4.00
High	5230	17.00	23.00	19.44	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	7.47	7.93	10.72	17.00	-6.28
High	5230	7.91	8.28	11.11	17.00	-5.89

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-6.53	-5.68	-3.07	4.00	-7.07
High	5230	-5.79	-5.12	-2.43	4.00	-6.43

OUTPUT POWER AND PPSD, Chain 0

OUTPUT POWER AND PPSD, Chain 0 LOW CH

OUTPUT POWER AND PPSD, Chain 0 HIGH CH

OUTPUT POWER AND PPSD, Chain 1

OUTPUT POWER AND PPSD, Chain 1 LOW CH

OUTPUT POWER AND PPSD, Chain 1 HIGH CH

8.3.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Refer to the results of 802.11n HT40 mode in the 5.6 GHz band.

8.4. 802.11a MODE IN THE 5.3 GHz BAND

8.4.1. 26 dB BANDWIDTH

LIMITS

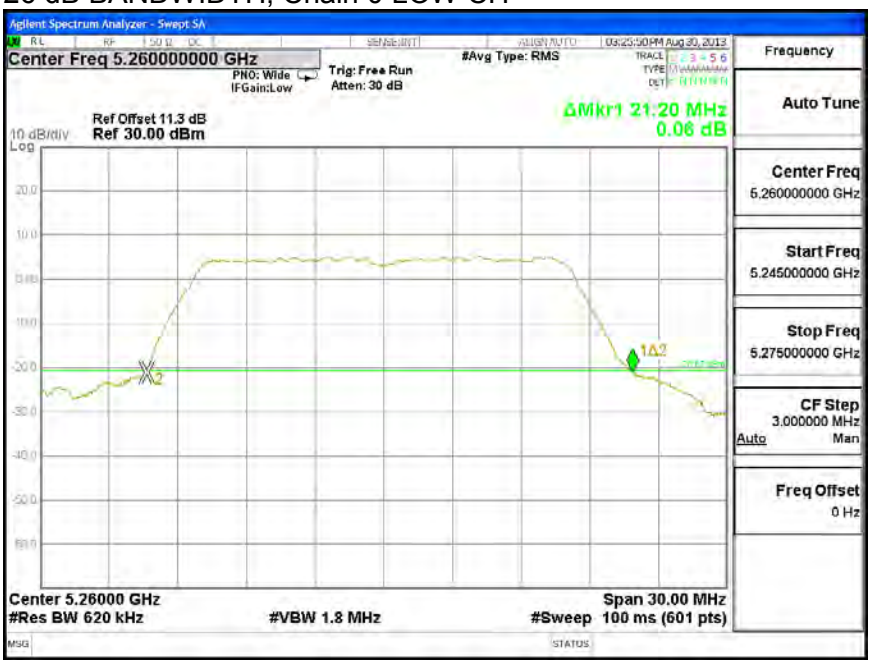
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	21.20	20.30
Mid	5300	21.10	20.30
High	5320	21.15	20.30

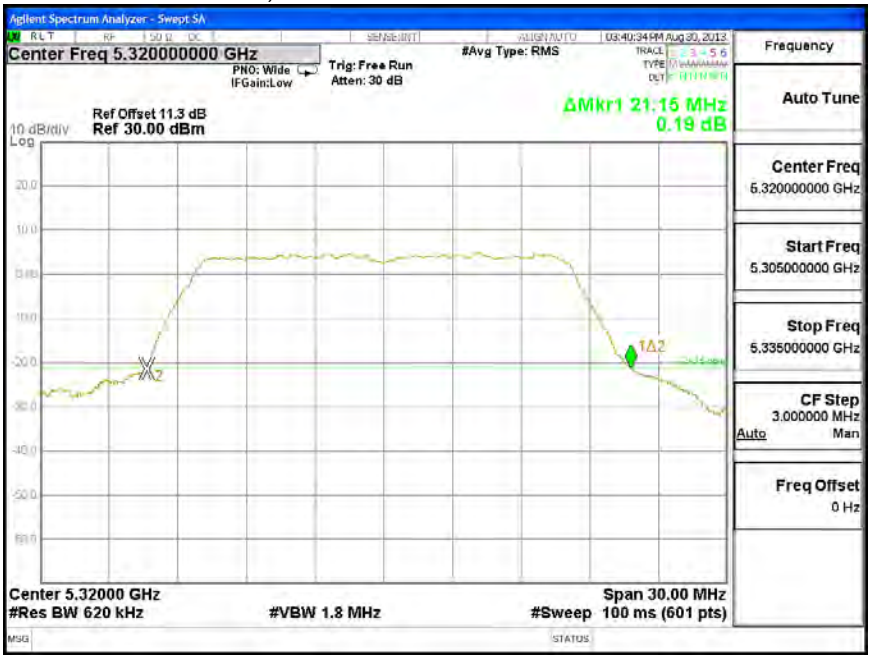
26 dB BANDWIDTH, Chain 0

26 dB BANDWIDTH, Chain 0 LOW CH



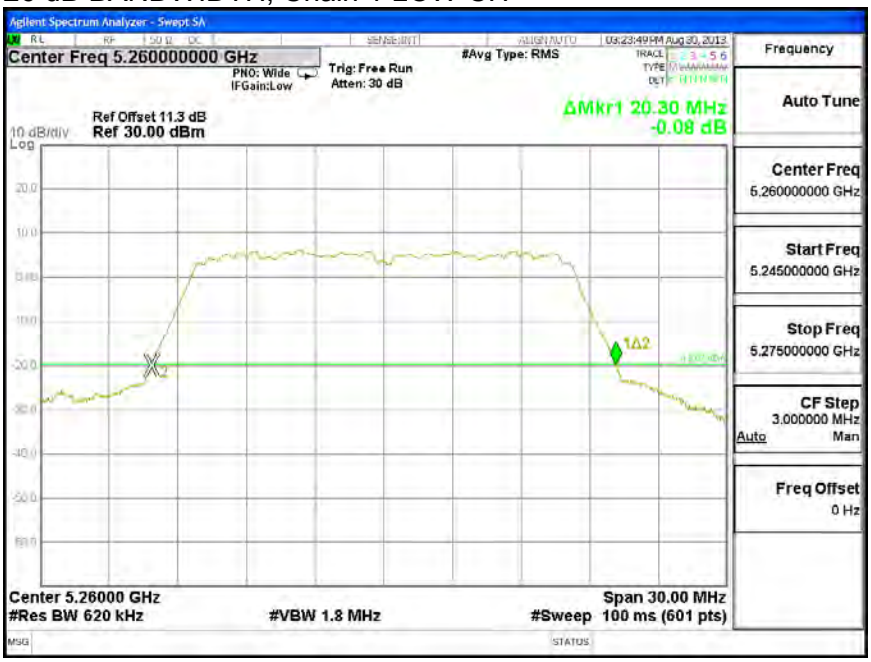
26 dB BANDWIDTH, Chain 0 MID CH

26 dB BANDWIDTH, Chain 0 HIGH CH

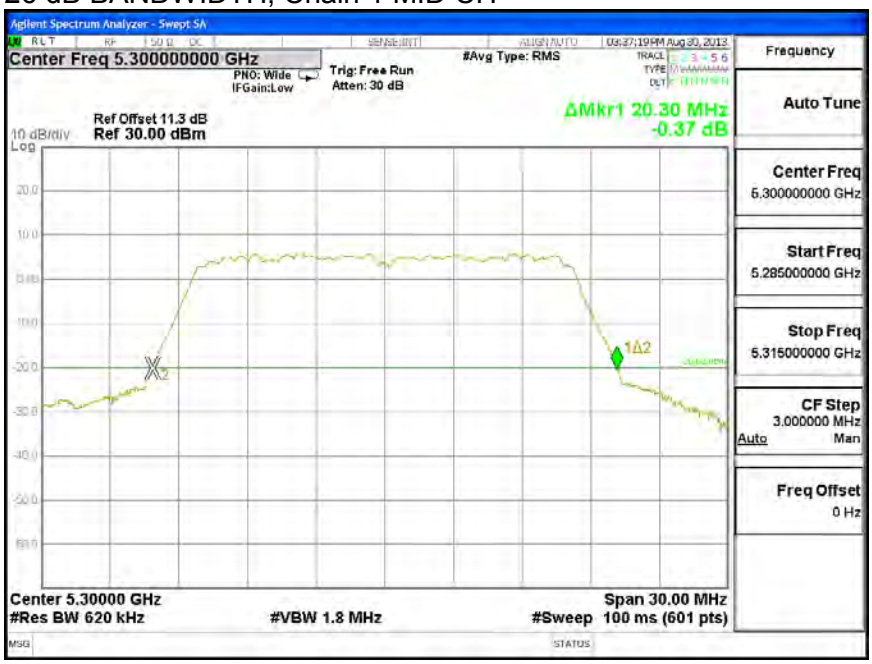


26 dB BANDWIDTH, Chain 1

26 dB BANDWIDTH, Chain 1 LOW CH



26 dB BANDWIDTH, Chain 1 MID CH



26 dB BANDWIDTH, Chain 1 HIGH CH

8.4.2. 99% BANDWIDTH

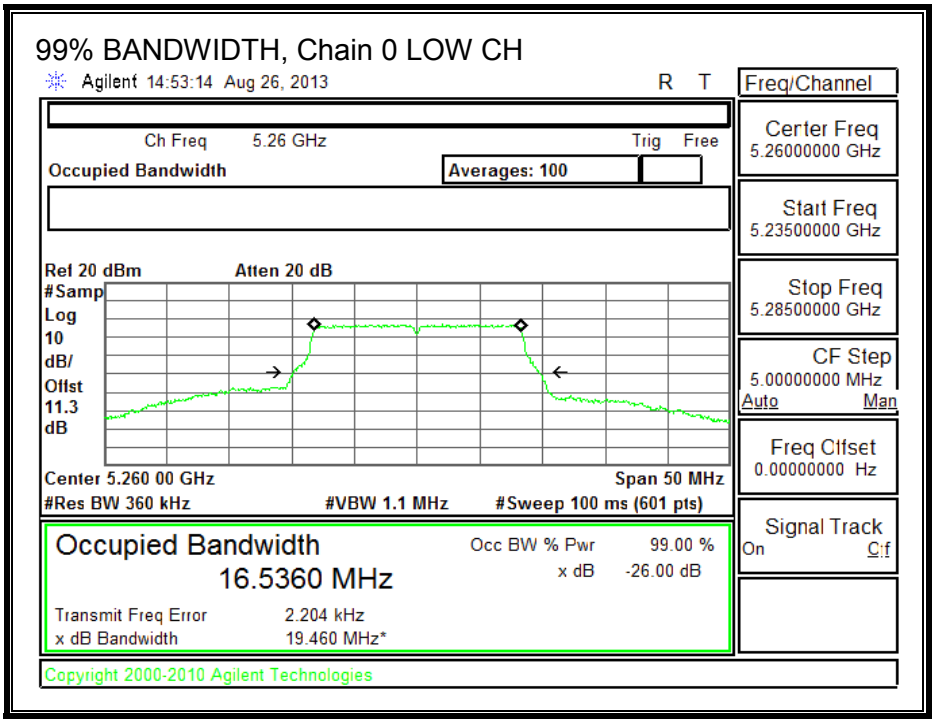
LIMITS

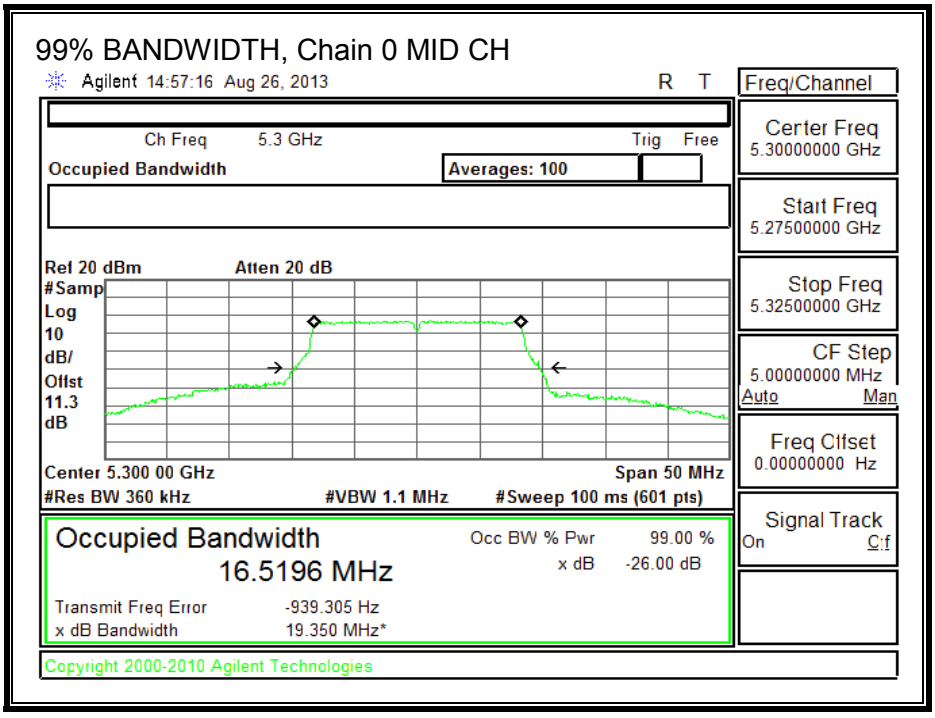
None; for reporting purposes only.

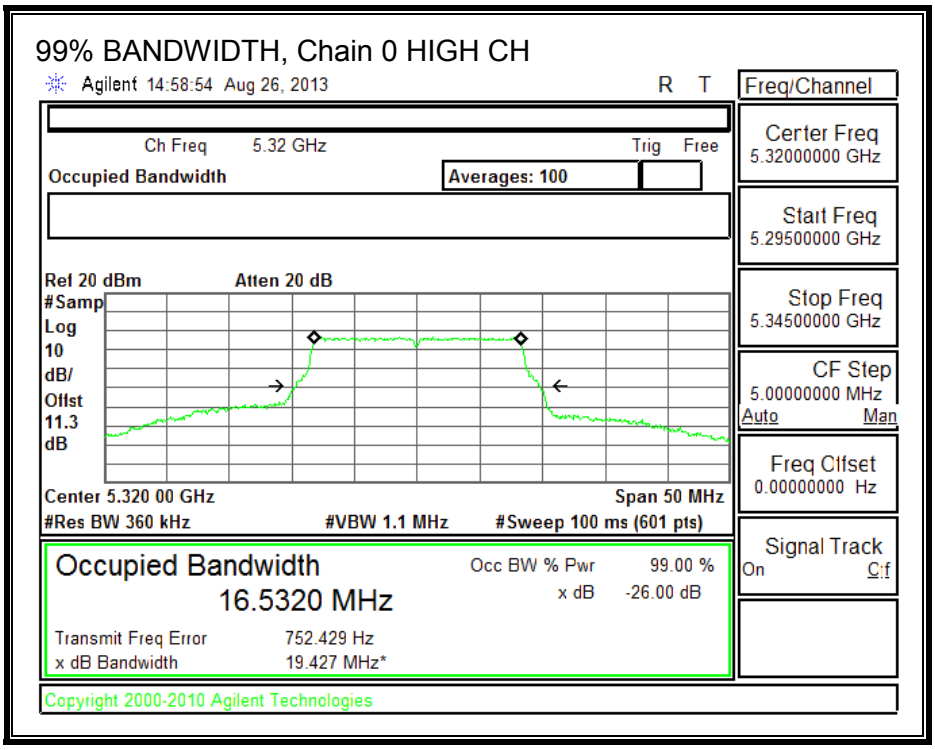
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	16.5360	16.5152
Mid	5300	16.5196	16.5270
High	5320	16.5320	16.5166

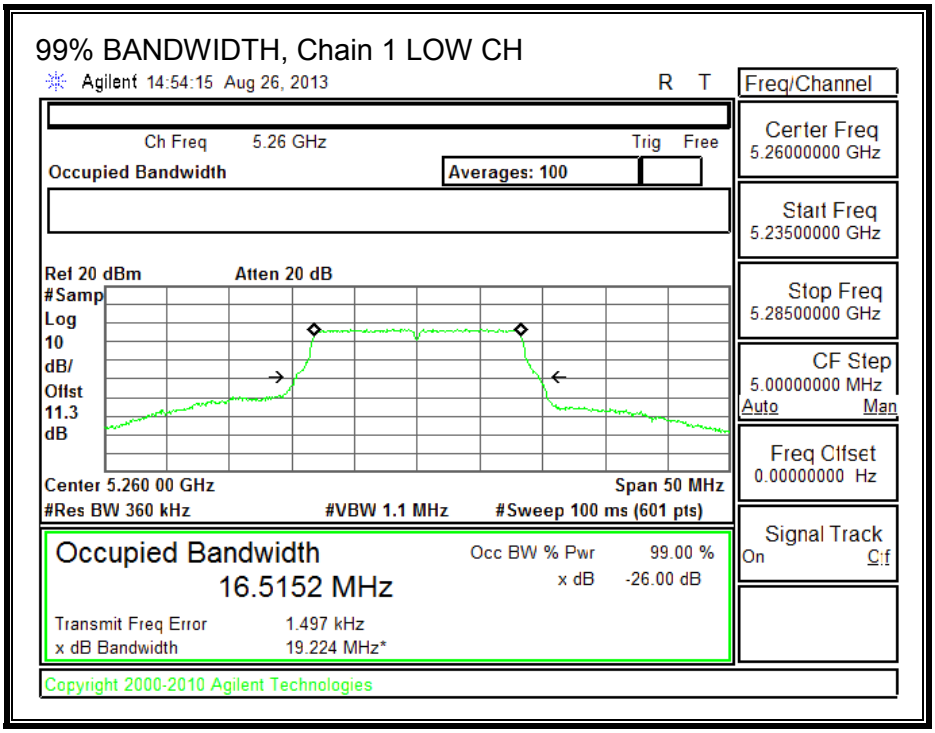
99% BANDWIDTH, Chain 0

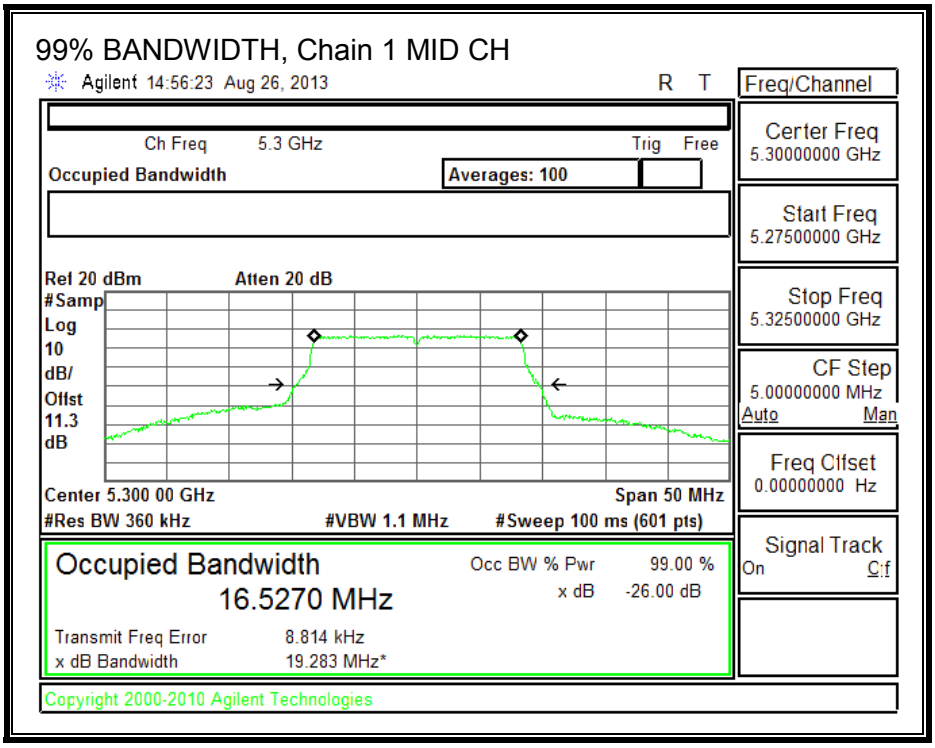


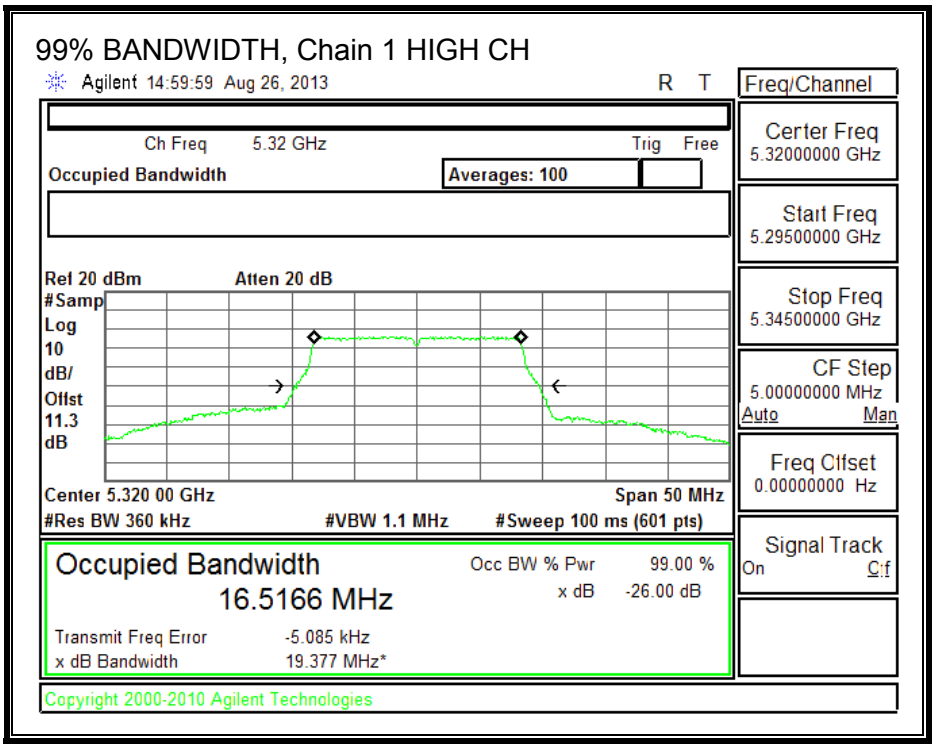




99% BANDWIDTH, Chain 1







8.4.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

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

RESULTS

Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5260	10.21	10.05	13.14
Mid	5300	10.09	9.89	13.00
High	5320	9.80	9.57	12.70

8.4.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

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)
3.90	3.20	3.56

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	20.3	16.5	3.56
Mid	5300	20.3	16.5	3.56
High	5320	20.3	16.5	3.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.18	29.18	23.18	11.00	11.00	11.00
Mid	5300	24.00	23.18	29.18	23.18	11.00	11.00	11.00
High	5320	24.00	23.18	29.18	23.18	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD

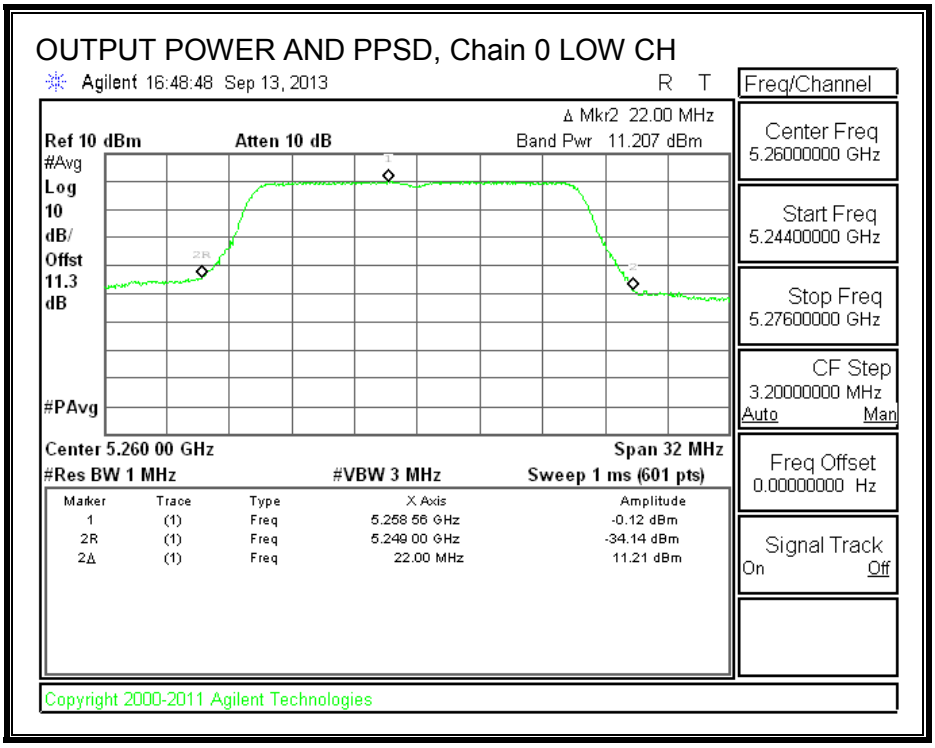
Output Power Results

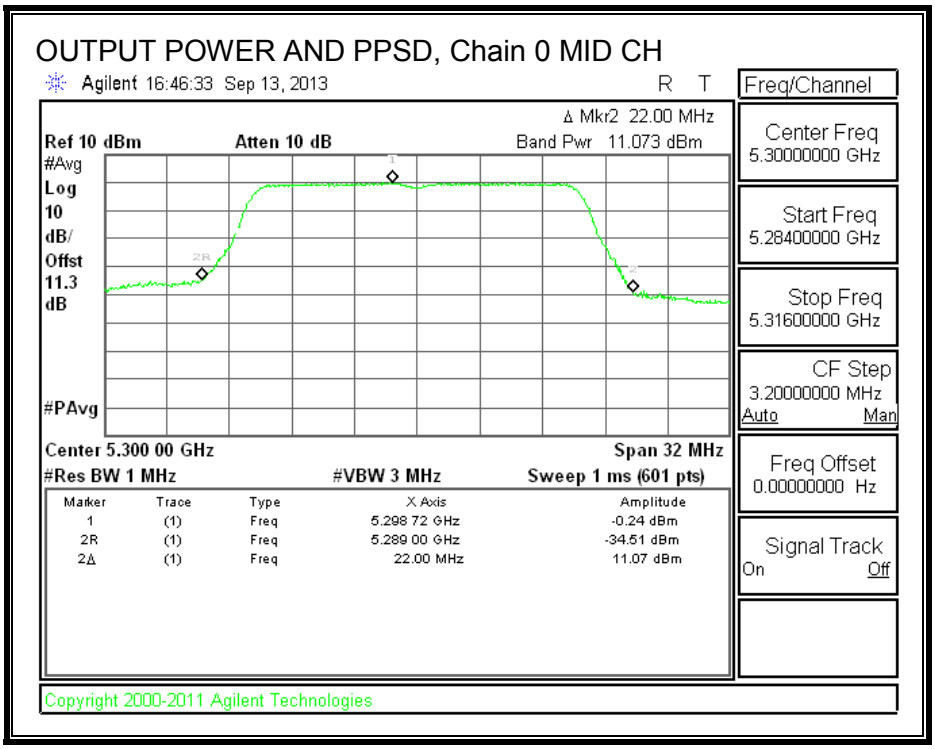
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	11.21	10.90	14.07	23.18	-9.11
Mid	5300	11.07	10.77	13.93	23.18	-9.24
High	5320	10.89	10.50	13.71	23.18	-9.47

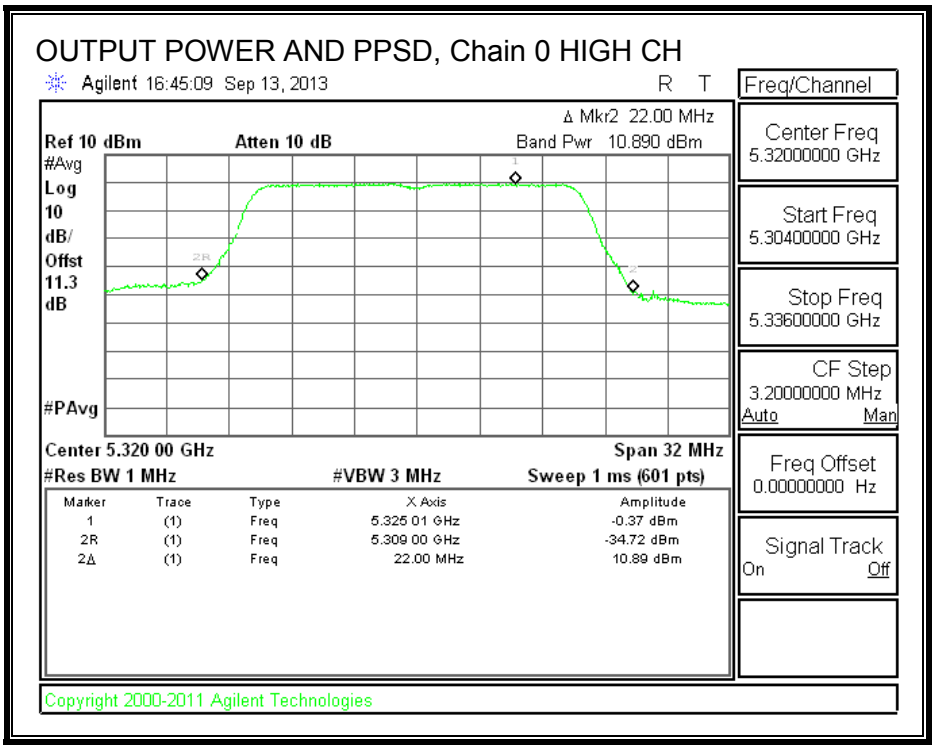
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	-0.12	-0.43	2.74	11.00	-8.26
Mid	5300	-0.24	-0.50	2.64	11.00	-8.36
High	5320	-0.37	-0.65	2.50	11.00	-8.50

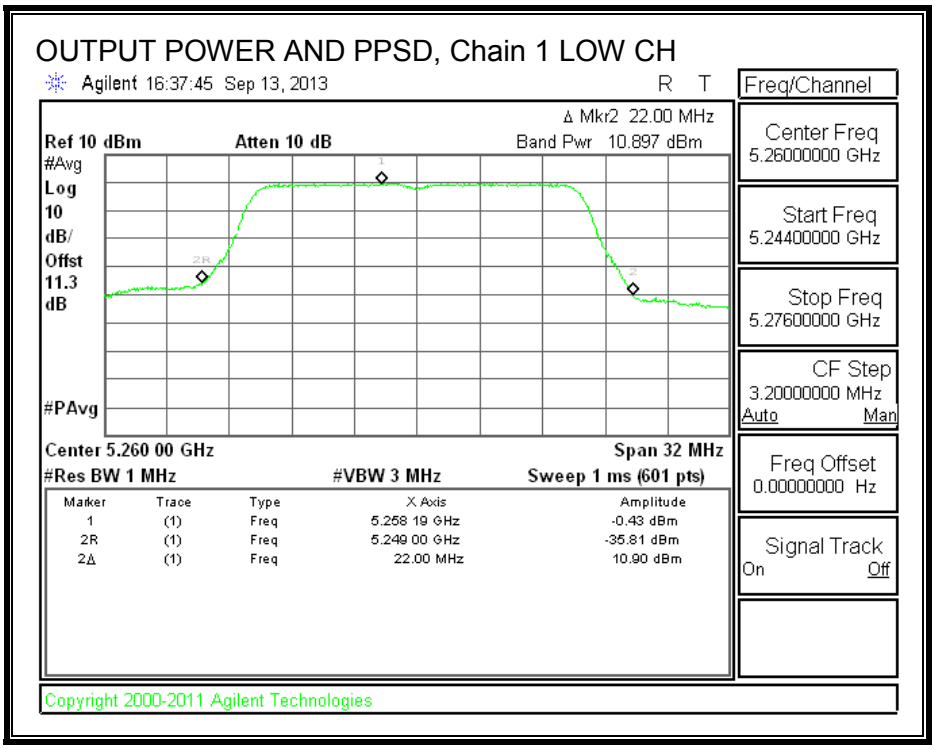
OUTPUT POWER AND PPSD, Chain 0



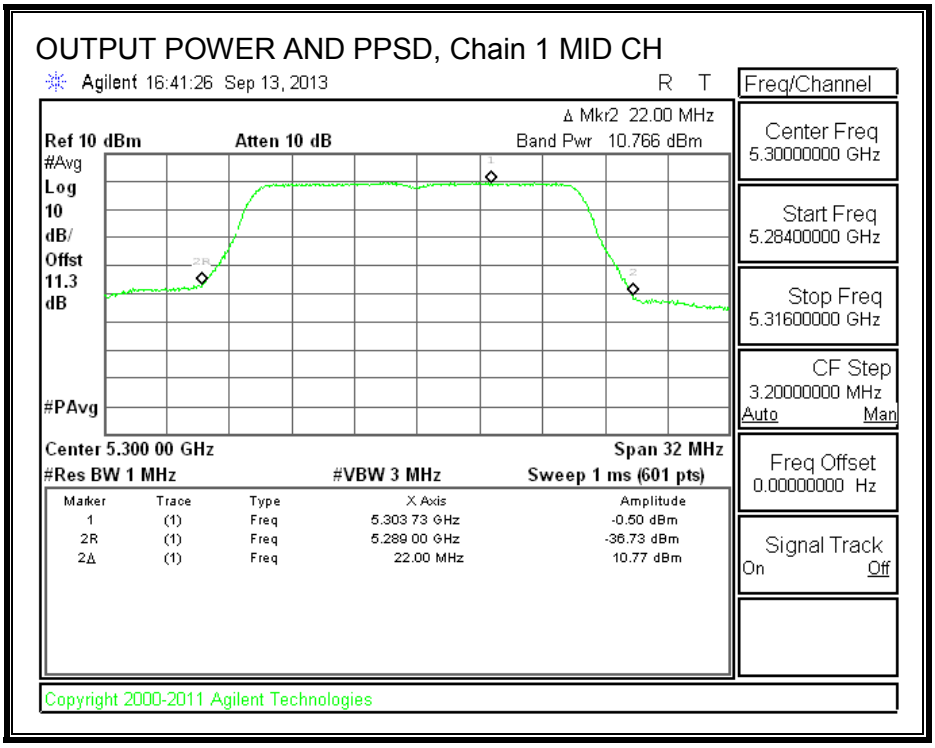




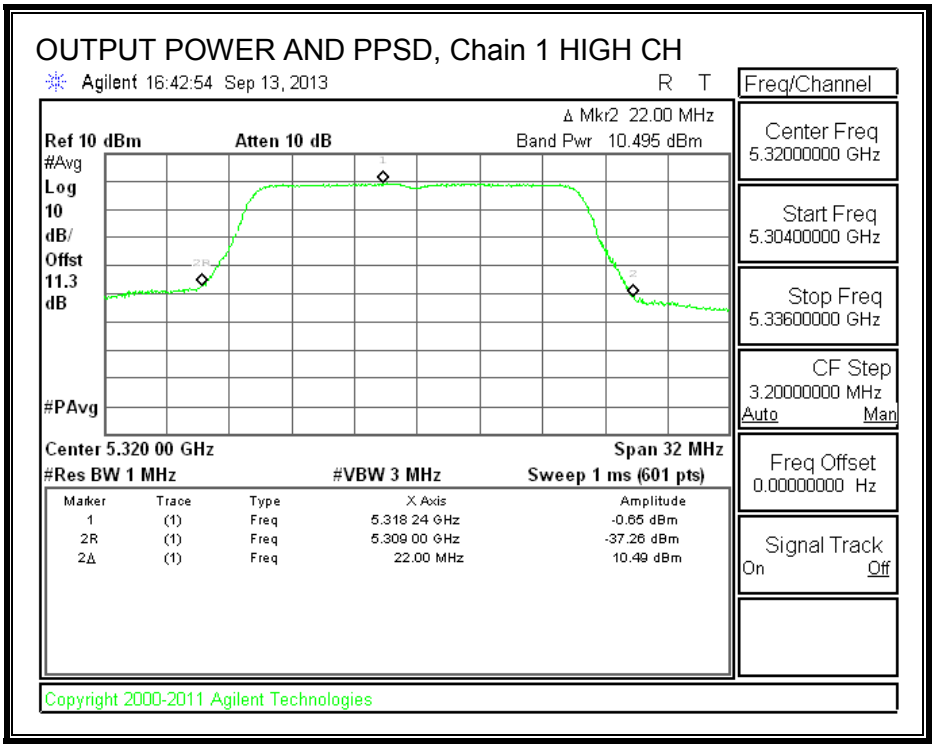
OUTPUT POWER AND PPSD, Chain 1



OUTPUT POWER AND PPSD, Chain 1 MID CH



OUTPUT POWER AND PPSD, Chain 1 HIGH CH



8.4.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Refer to the results of 802.11n HT20 mode in the 5.6 GHz band.

8.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

8.5.1. 26 dB BANDWIDTH

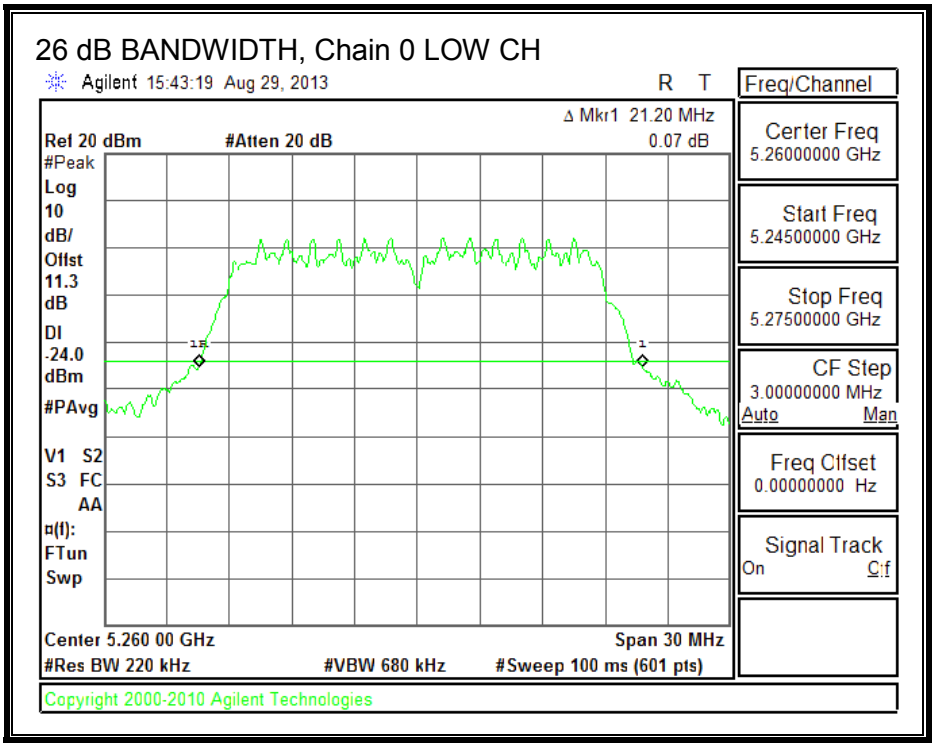
LIMITS

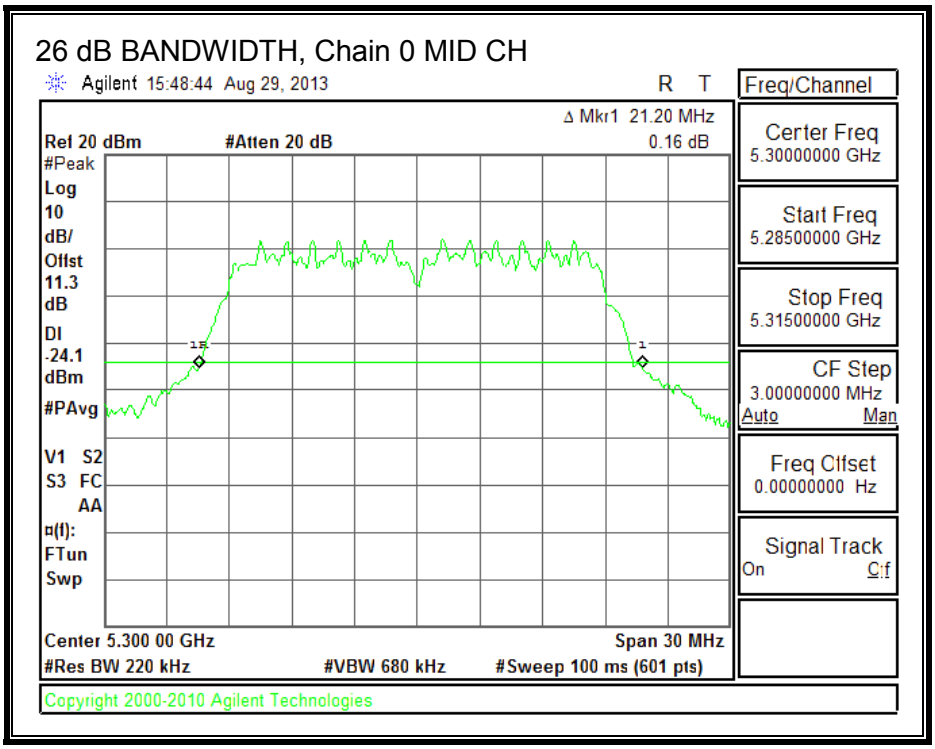
None; for reporting purposes only.

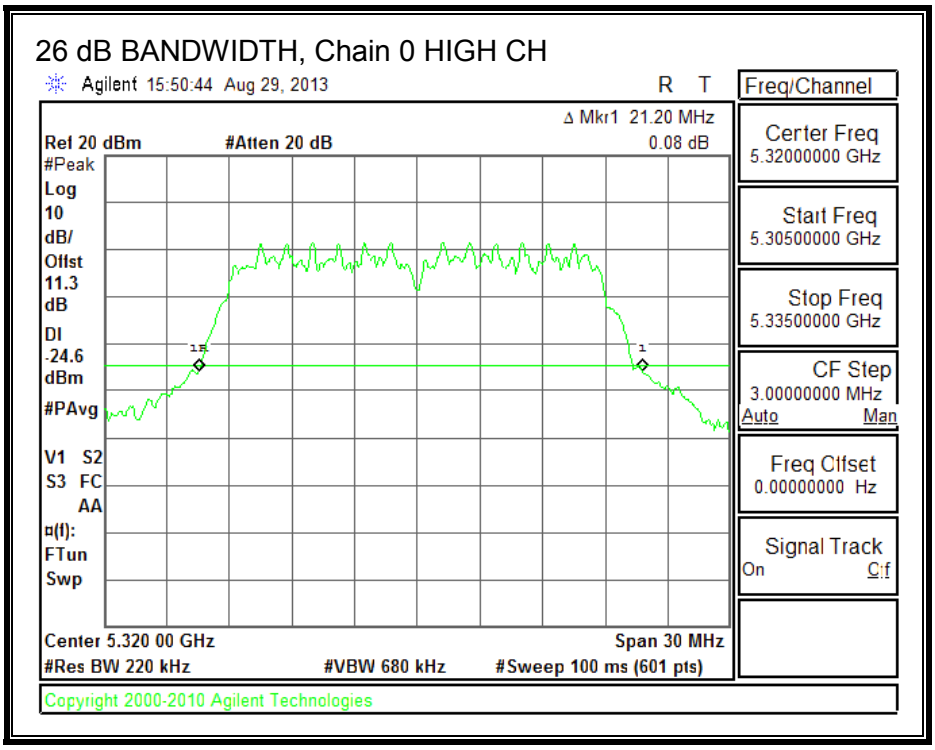
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	21.2	21.0
Mid	5300	21.2	21.0
High	5320	21.2	21.0

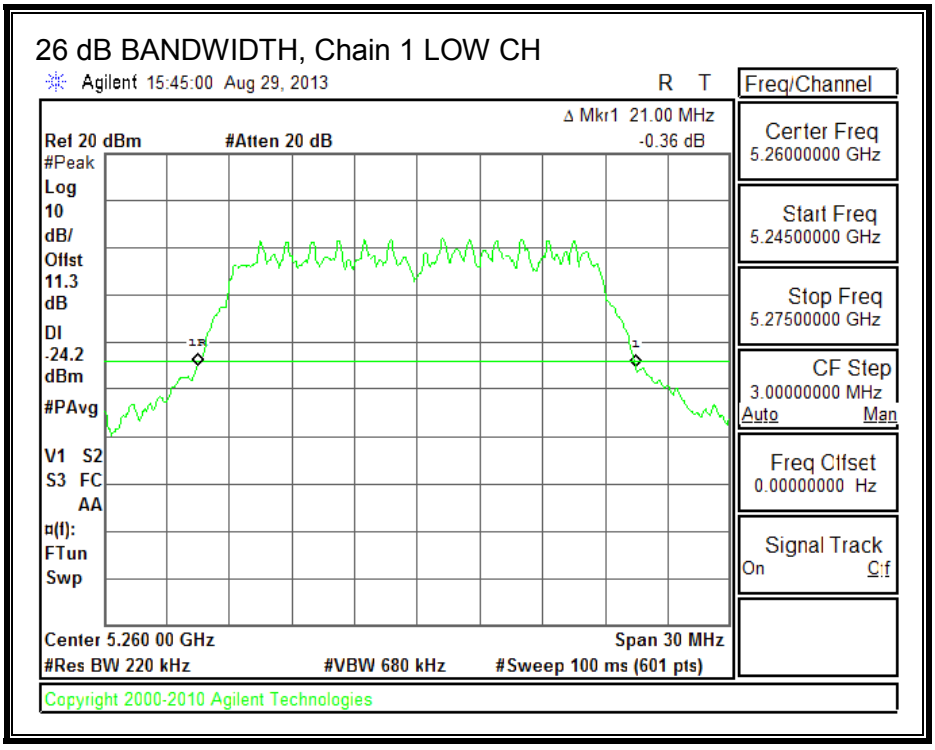
26 dB BANDWIDTH, Chain 0



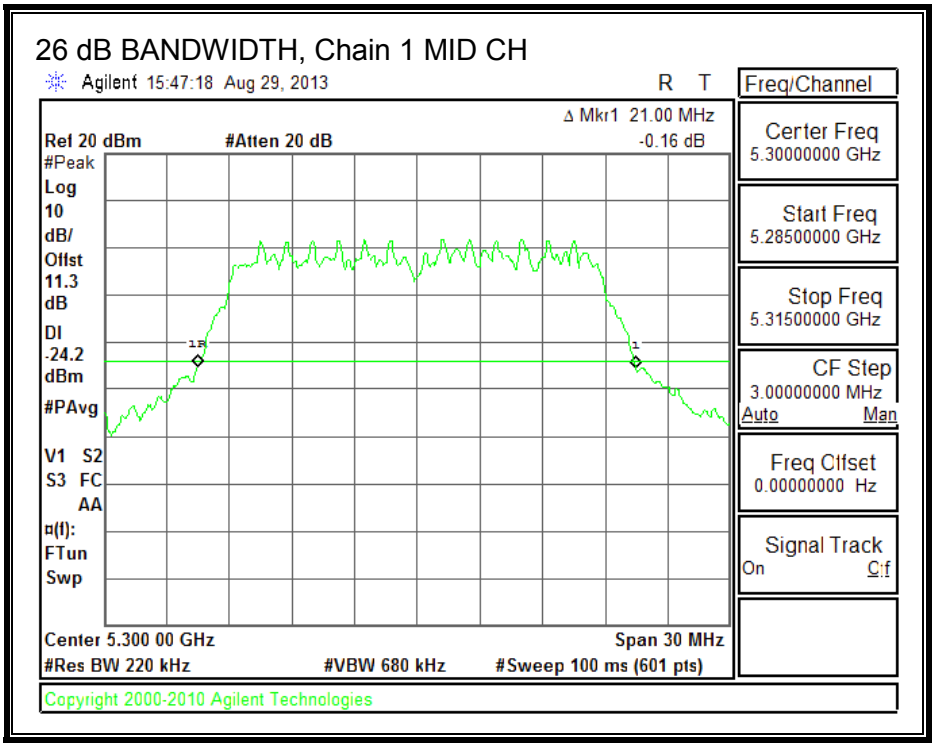




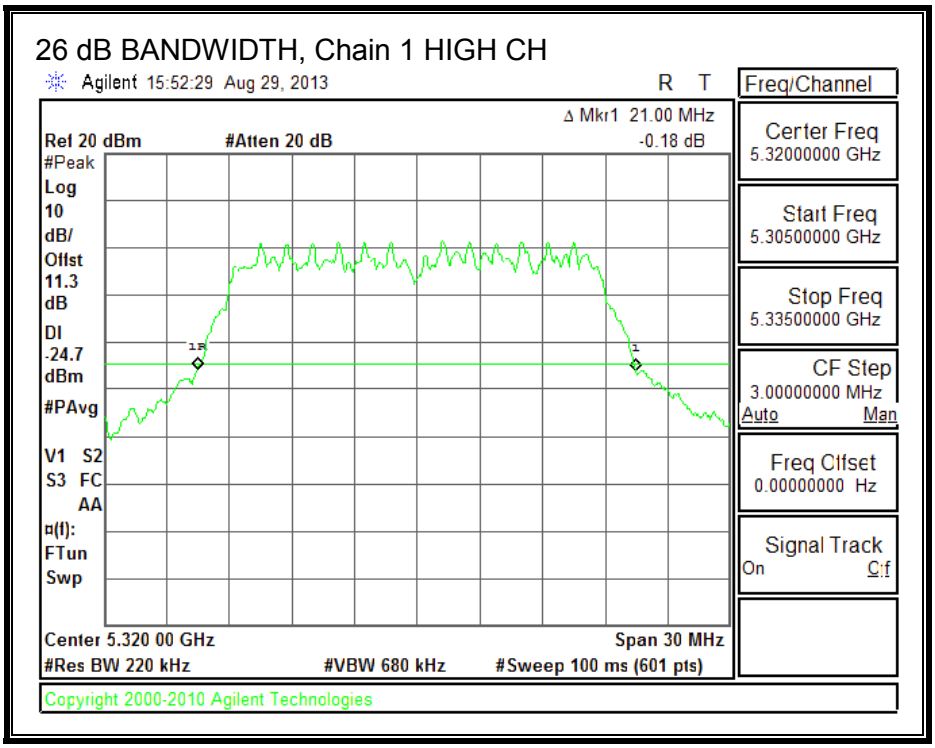
26 dB BANDWIDTH, Chain 1



26 dB BANDWIDTH, Chain 1 MID CH



26 dB BANDWIDTH, Chain 1 HIGH CH



8.5.2. 99% BANDWIDTH

LIMITS

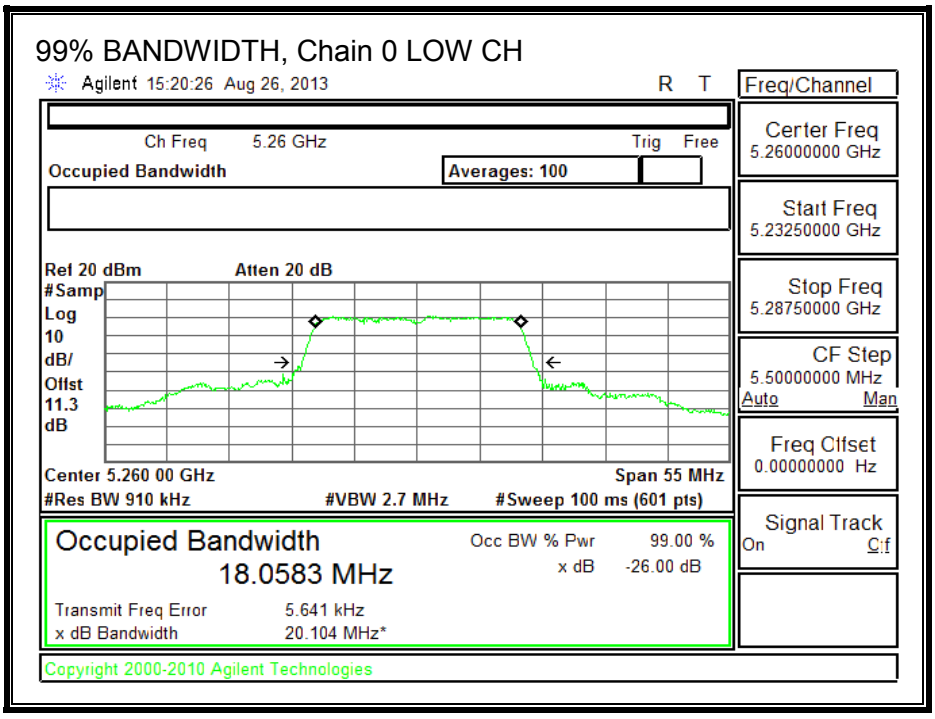
None; for reporting purposes only.

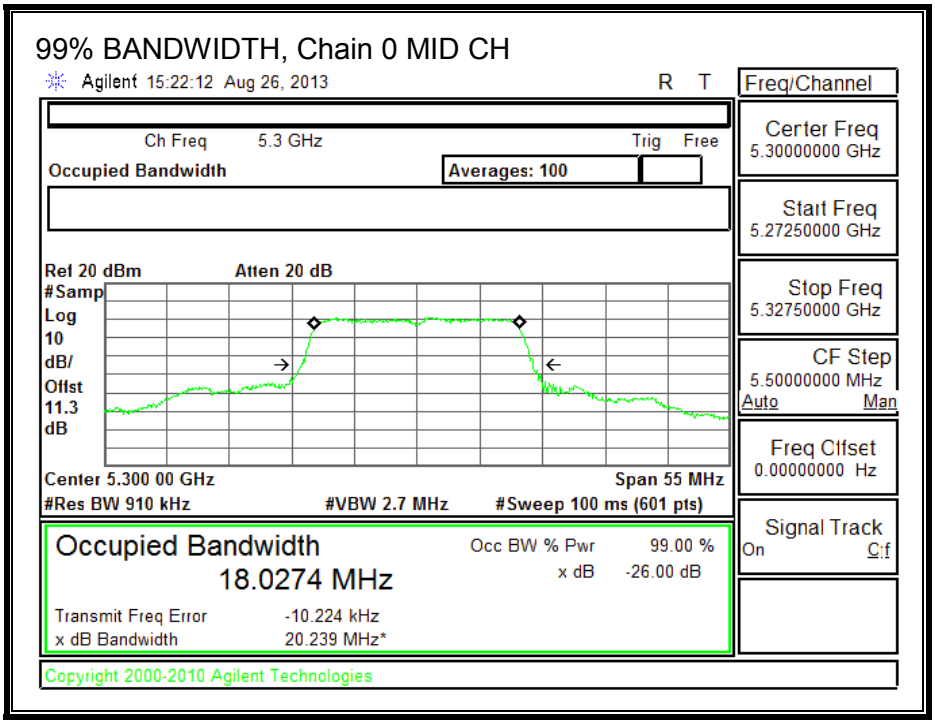
RESULTS

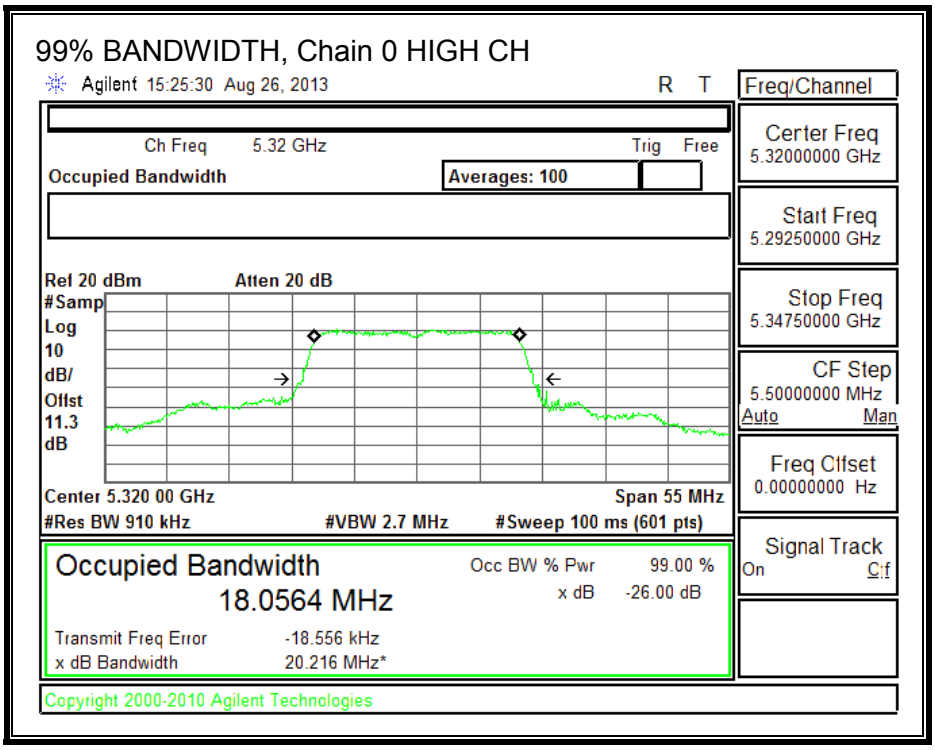
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	18.06	18.05
Mid	5300	18.03	18.09
High	5320	18.06	18.08

99% BANDWIDTH

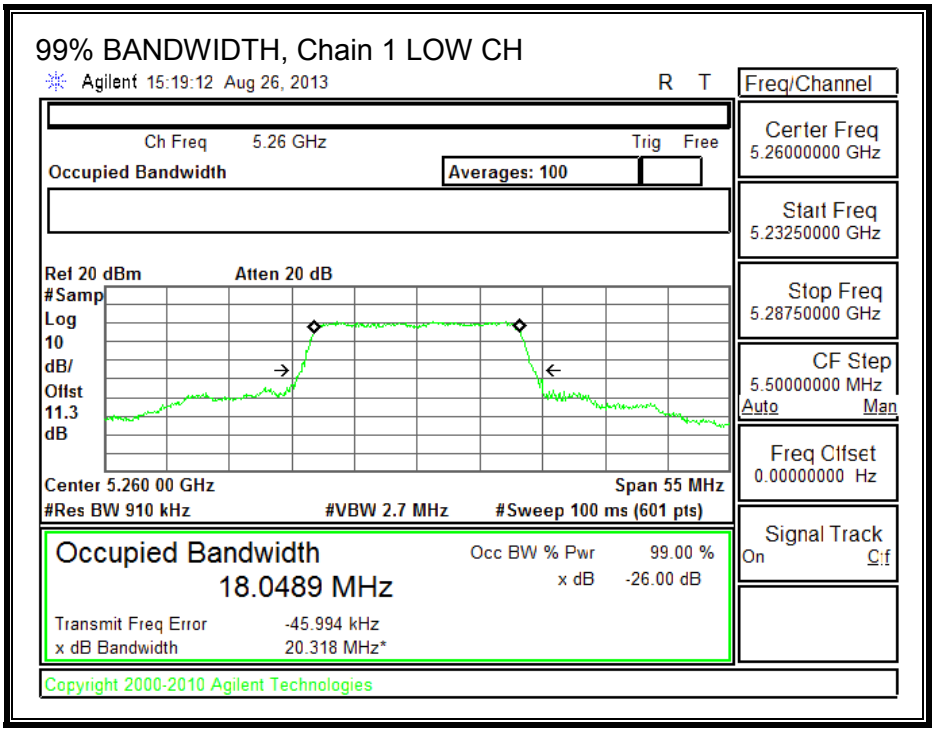
99% BANDWIDTH, Chain 0

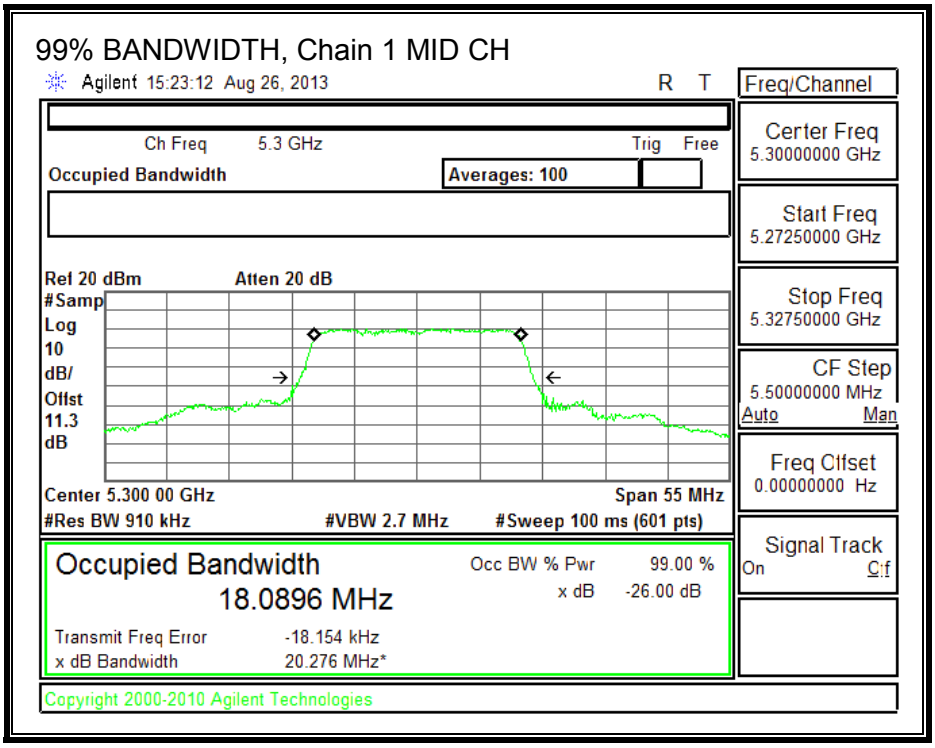


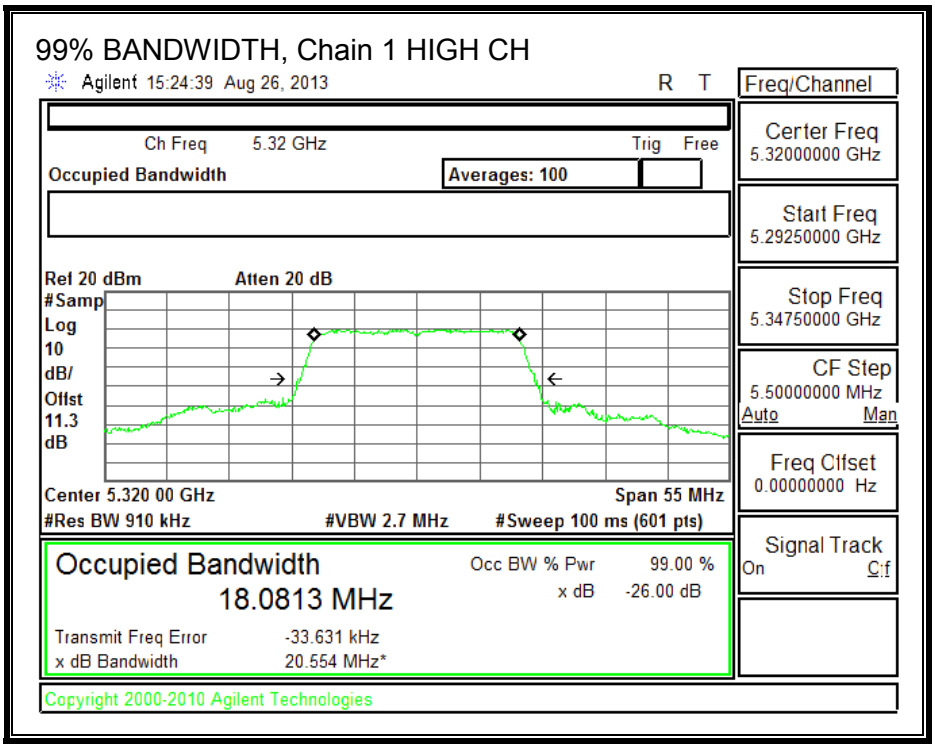




99% BANDWIDTH, Chain 1







8.5.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

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

RESULTS

Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5260	10.18	10.04	13.12
Mid	5300	10.13	9.91	13.03
High	5320	9.81	9.60	12.72

8.5.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

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)
3.90	3.20	3.56

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	21.0	16.5	3.56
Mid	5300	21.0	16.5	3.56
High	5320	21.0	15.6	3.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.18	29.18	23.18	11.00	11.00	11.00
Mid	5300	24.00	23.18	29.18	23.18	11.00	11.00	11.00
High	5320	24.00	22.93	28.93	22.93	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD

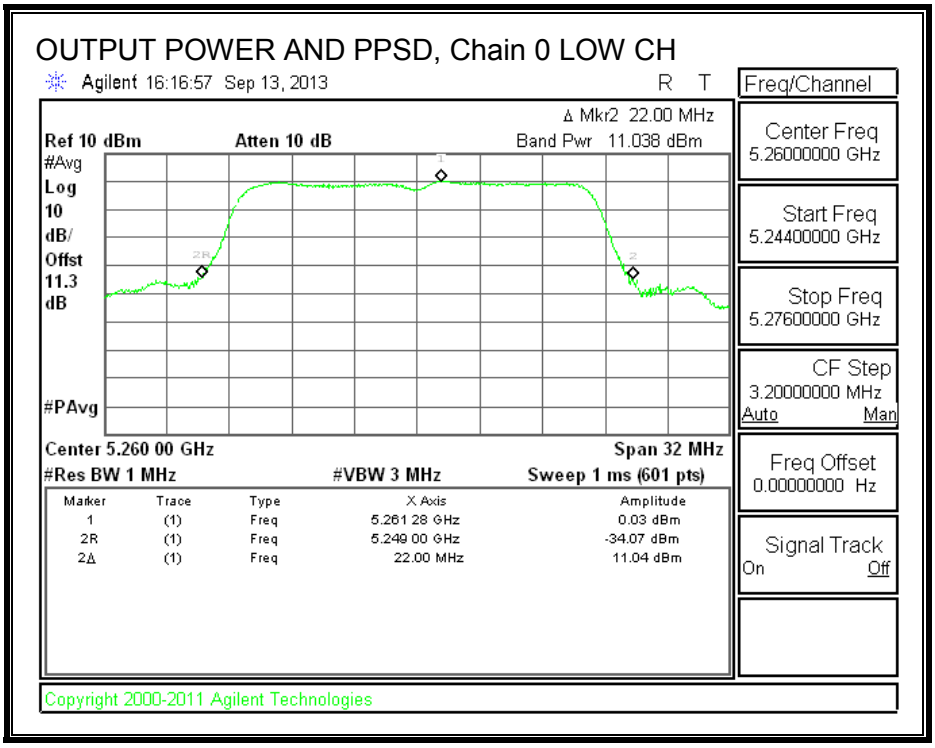
Output Power Results

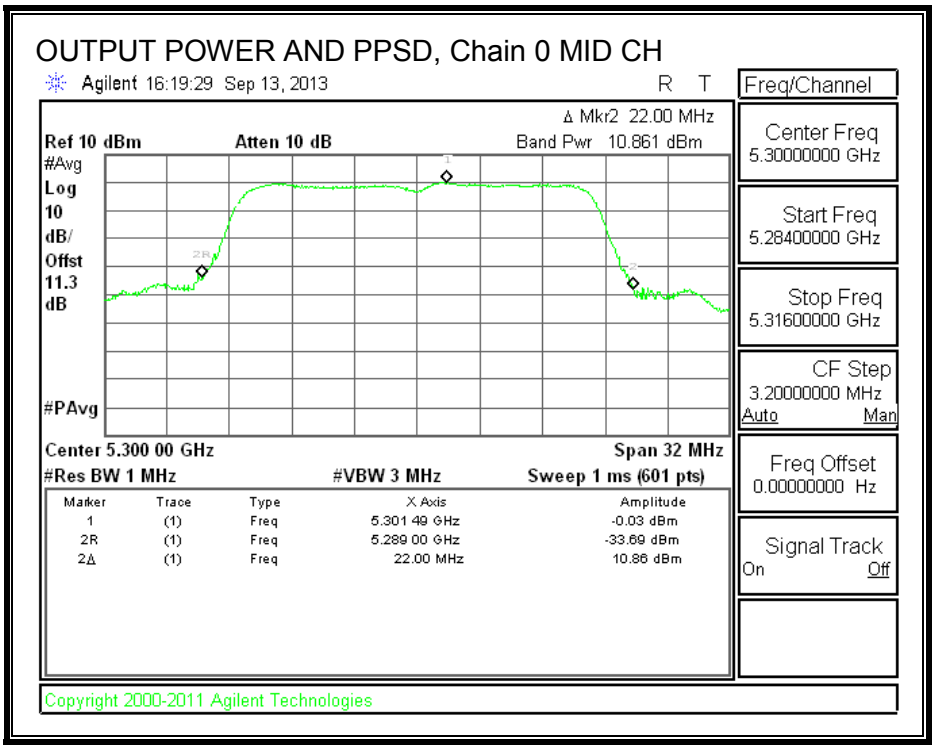
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	11.04	10.79	13.93	23.18	-9.25
Mid	5300	10.86	10.65	13.77	23.18	-9.41
High	5320	10.62	10.41	13.53	22.93	-9.41

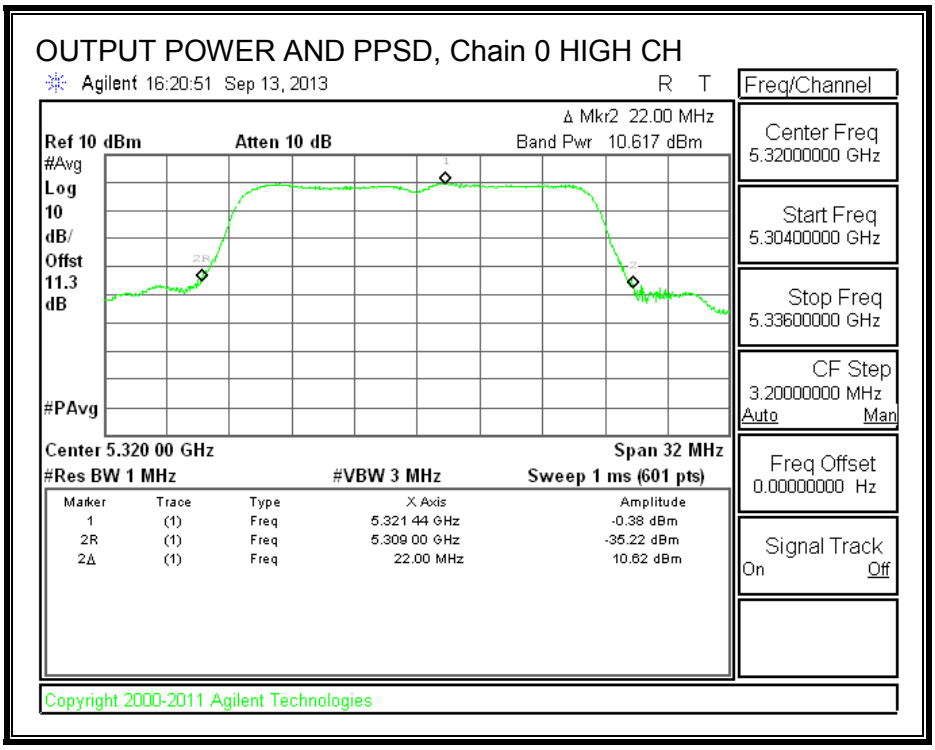
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	0.03	-0.190	2.93	11.00	-8.07
Mid	5300	-0.03	-0.42	2.79	11.00	-8.21
High	5320	-0.38	-0.57	2.54	11.00	-8.46

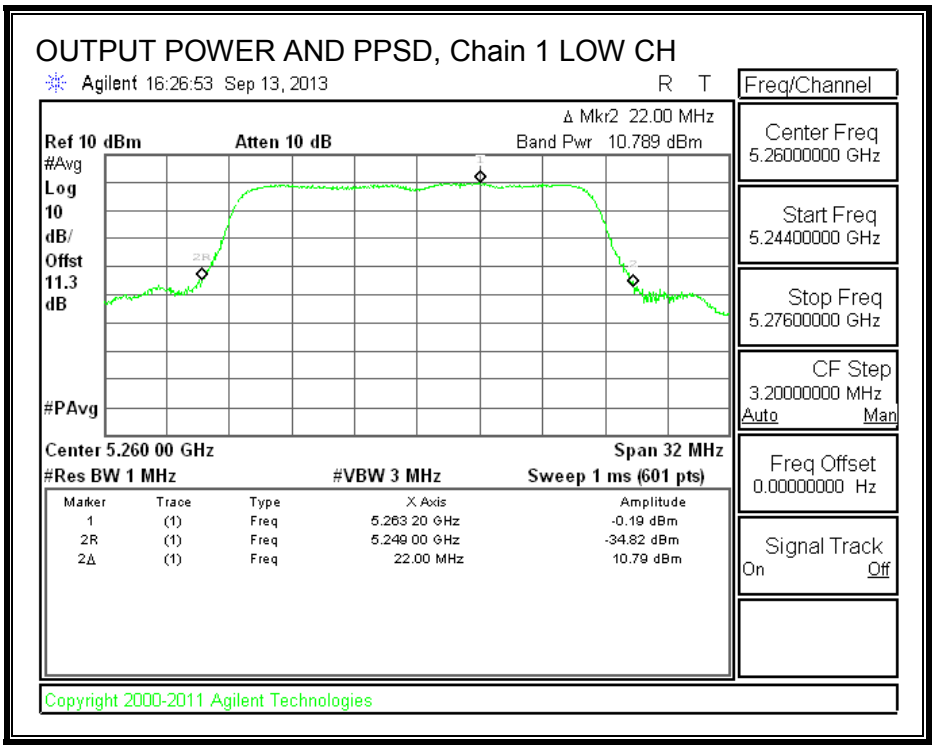
OUTPUT POWER AND PPSD, Chain 0



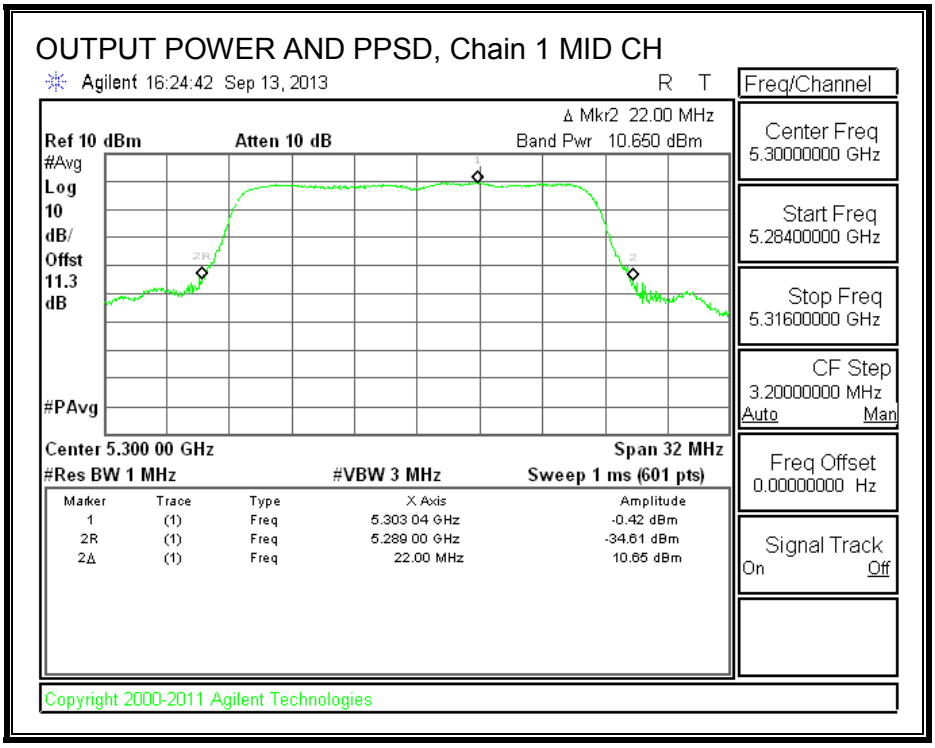




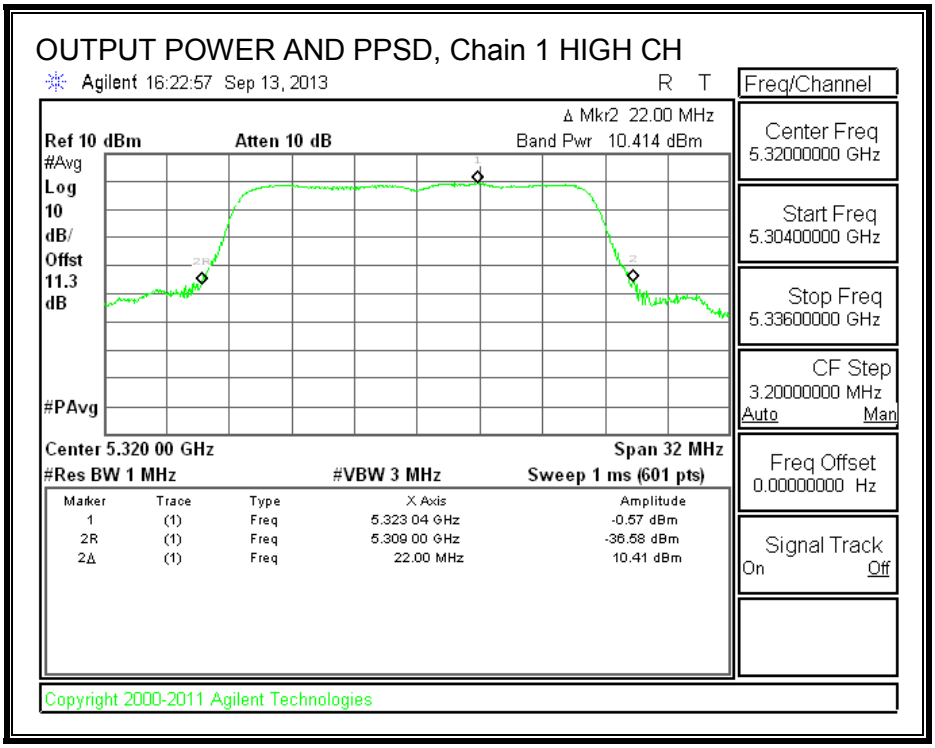
OUTPUT POWER AND PPSD, Chain 1



OUTPUT POWER AND PPSD, Chain 1 MID CH



OUTPUT POWER AND PPSD, Chain 1 HIGH CH



8.5.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Refer to the results of 802.11n HT20 mode in the 5.6 GHz band.

8.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

8.6.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5270	41.7	42.5
High	5310	41.6	42.6

26 dB BANDWIDTH

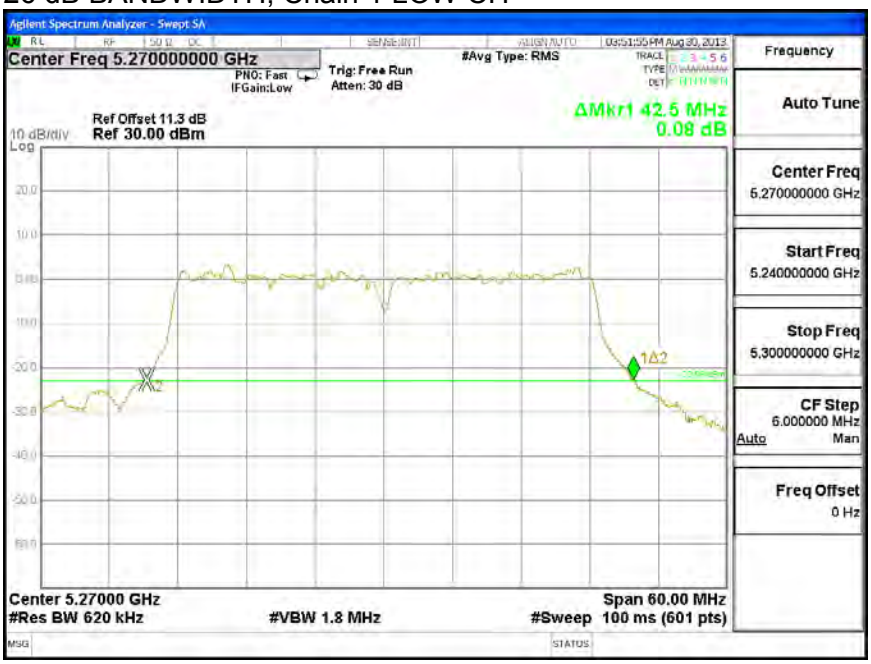
26 dB BANDWIDTH, Chain 0

26 dB BANDWIDTH, Chain 0 LOW CH

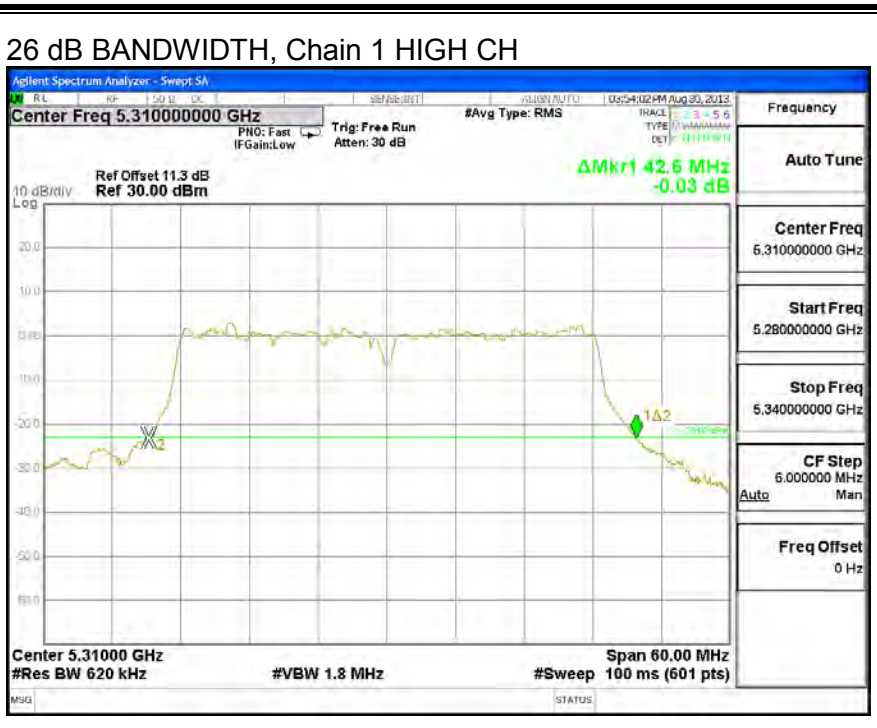
26 dB BANDWIDTH, Chain 0 HIGH CH

26 dB BANDWIDTH, Chain 1

26 dB BANDWIDTH, Chain 1 LOW CH



26 dB BANDWIDTH, Chain 1 HIGH CH



8.6.2. 99% BANDWIDTH

LIMITS

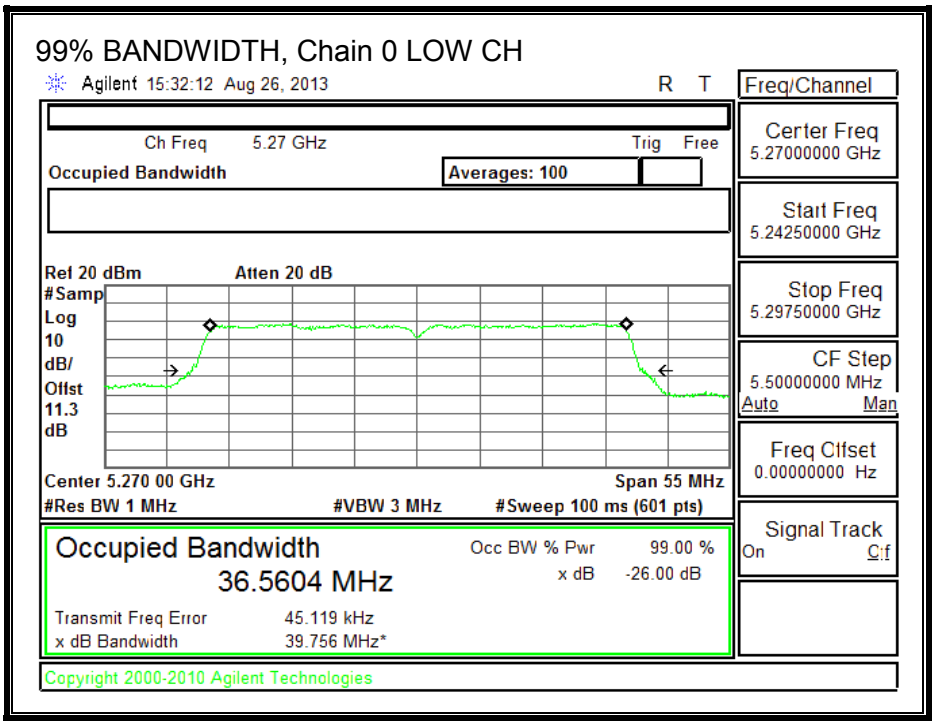
None; for reporting purposes only.

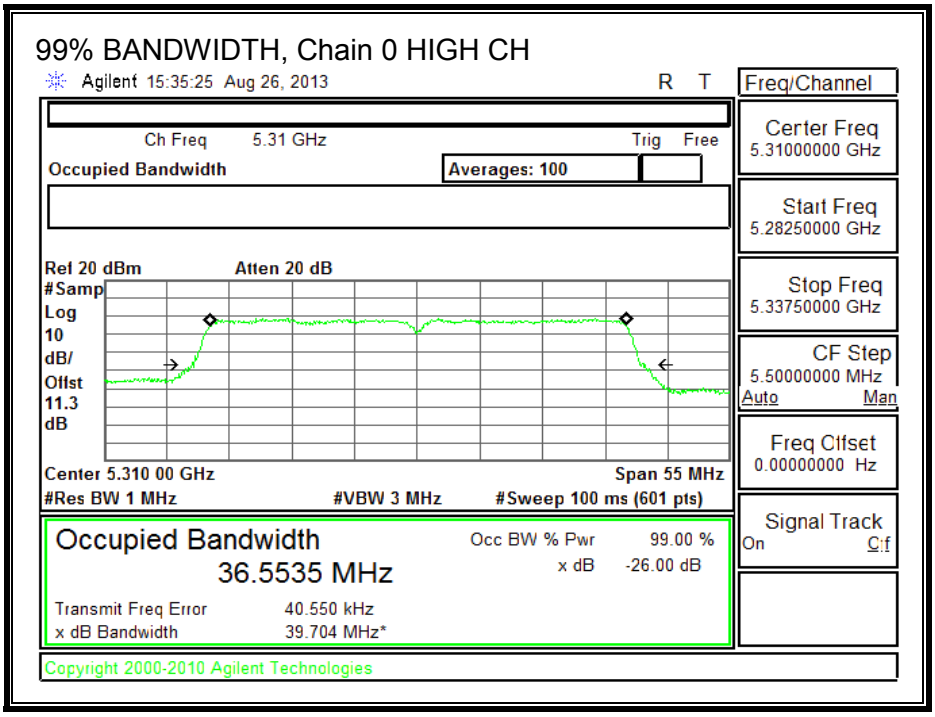
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	36.56	36.69
High	5320	36.55	36.69

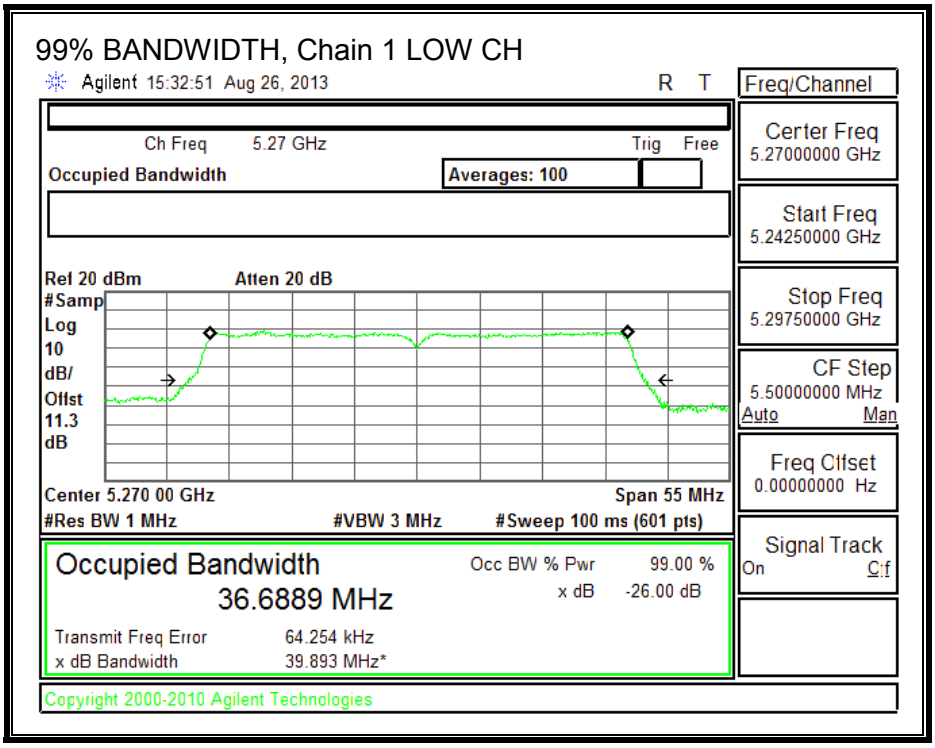
99% BANDWIDTH

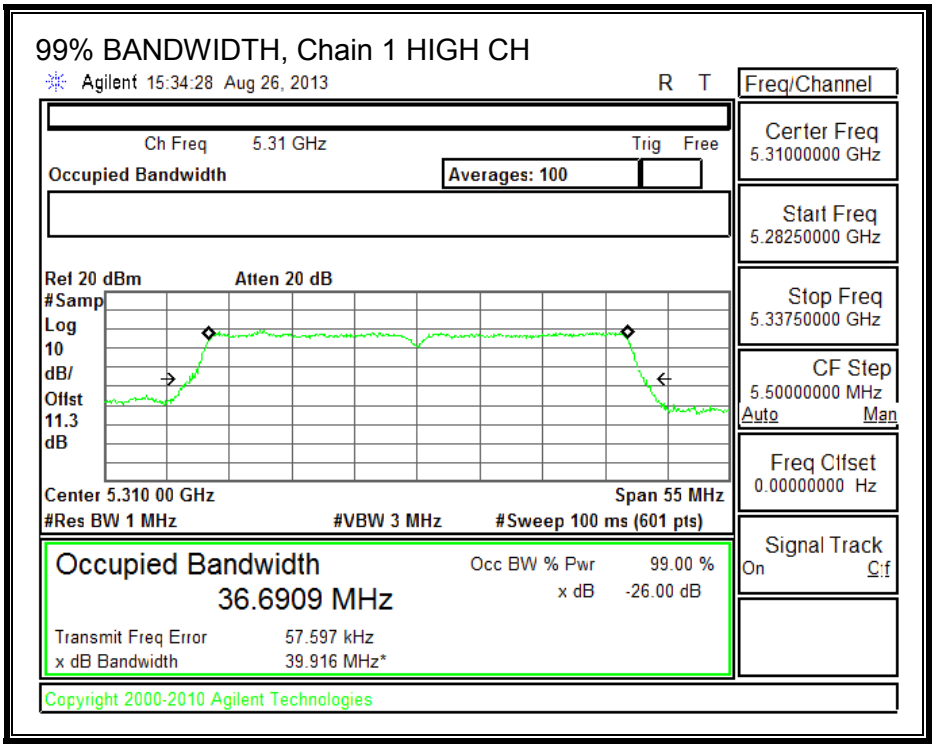
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.6.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

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

RESULTS

Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5270	11.65	11.32	14.50
High	5310	11.43	11.27	14.36

8.6.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.25–5.35 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

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)
3.90	3.20	3.56

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5270	41.7	36.6	3.56
High	5310	41.6	36.6	3.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5270	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5310	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	12.07	11.80	14.95	24.00	-9.05
High	5310	11.84	11.62	14.74	24.00	-9.26

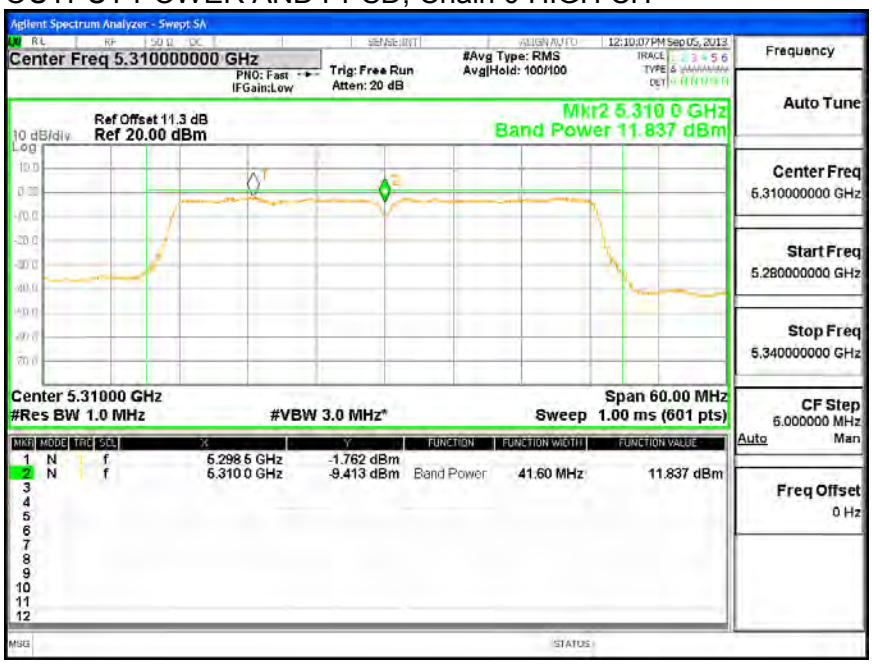
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	-1.703	-1.698	1.31	11.00	-9.69
High	5310	1.762	-1.931	3.31	11.00	-7.69

OUTPUT POWER AND PPSD, Chain 0

OUTPUT POWER AND PPSD, Chain 0 LOW CH

OUTPUT POWER AND PPSD, Chain 0 HIGH CH



OUTPUT POWER AND PPSD, Chain 1

OUTPUT POWER AND PPSD, Chain 1 LOW CH

OUTPUT POWER AND PPSD, Chain 1 HIGH CH

8.6.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Refer to the results of 802.11n HT40 mode in the 5.6 GHz band.

8.7. 802.11a MODE IN THE 5.6 GHz BAND

8.7.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

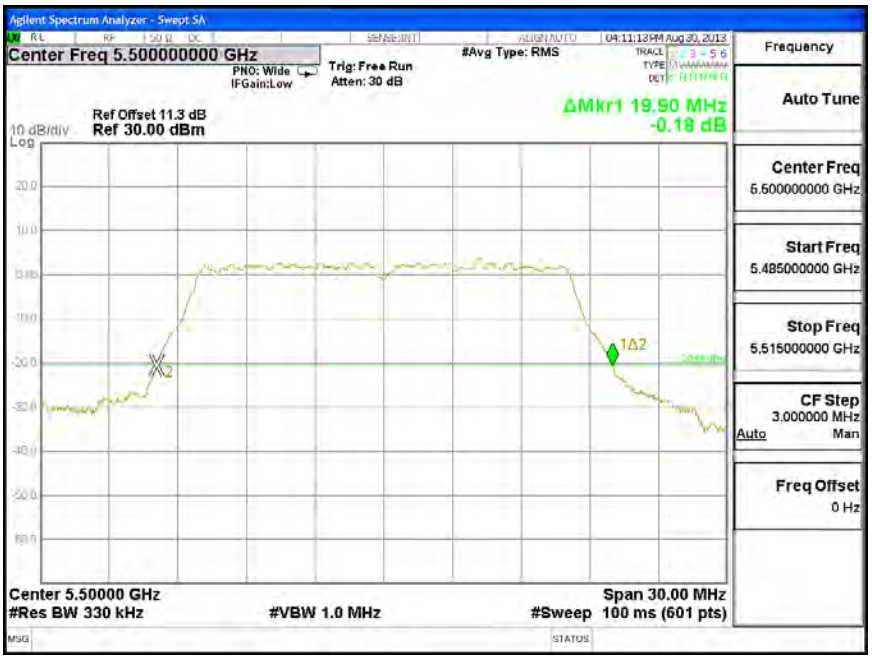
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	19.9	19.9
Mid	5580	20.2	19.9
High	5700	20.3	20.0

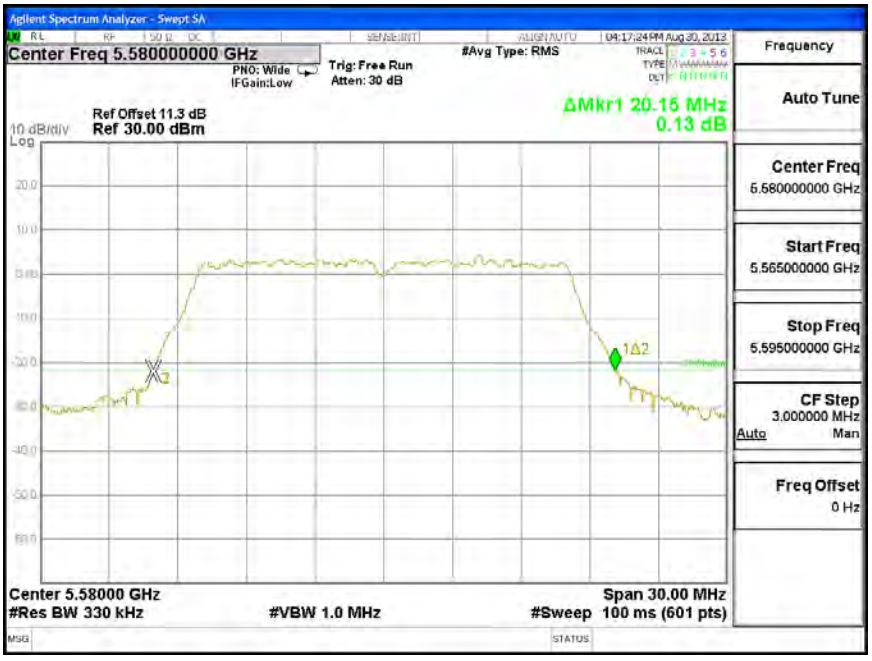
26 dB BANDWIDTH

26 dB BANDWIDTH, Chain 0

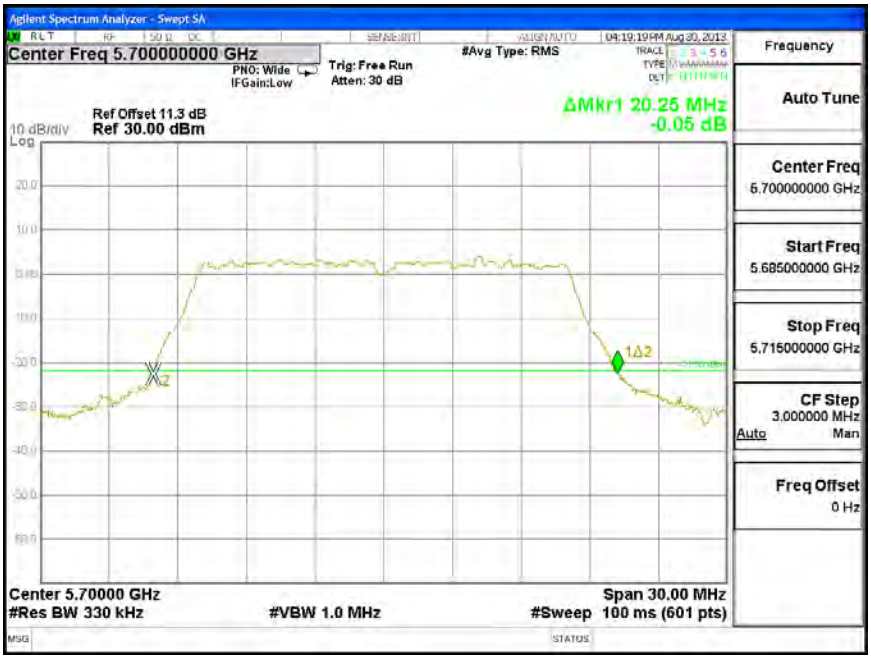
BANDWIDTH Chain 0 LOW CH



BANDWIDTH Chain 0 MID CH

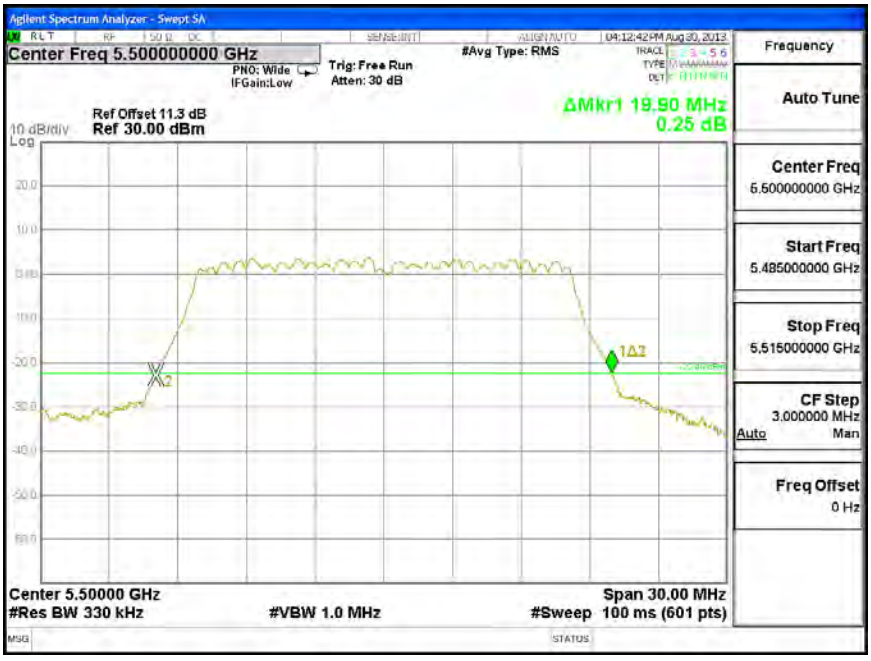


BANDWIDTH Chain 0 HIGH CH



26 dB BANDWIDTH, Chain 1

BANDWIDTH Chain 1 LOW CH



BANDWIDTH Chain 1 MID CH

BANDWIDTH Chain 1 HIGH CH

8.7.2. 99% BANDWIDTH

LIMITS

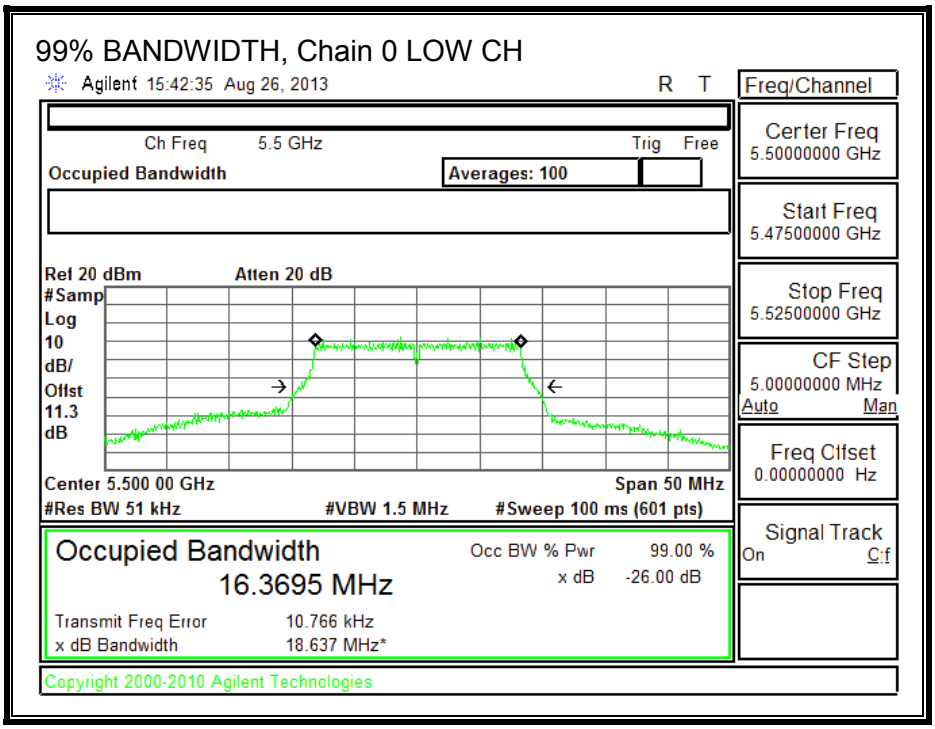
None; for reporting purposes only.

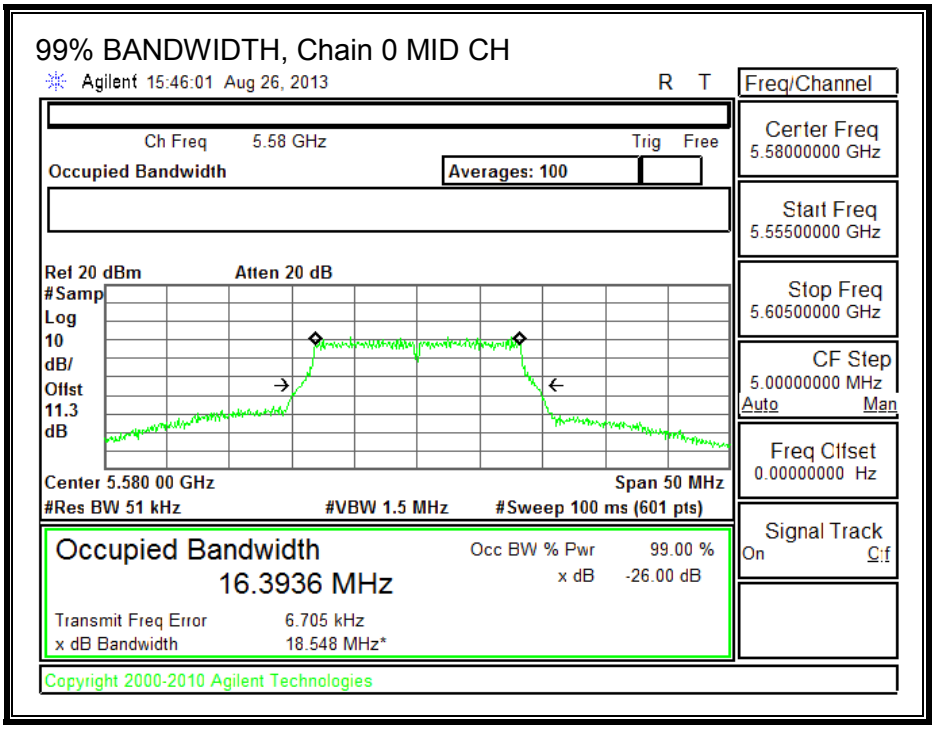
RESULTS

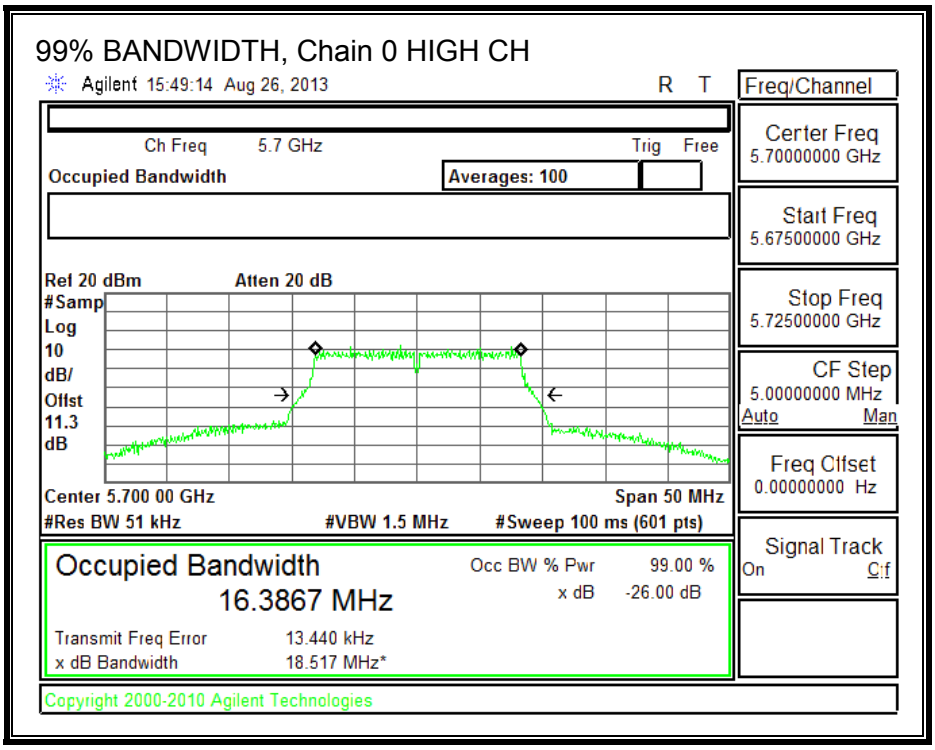
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5500	16.37	16.38
Mid	5580	16.39	16.37
High	5700	16.39	16.38

99% BANDWIDTH

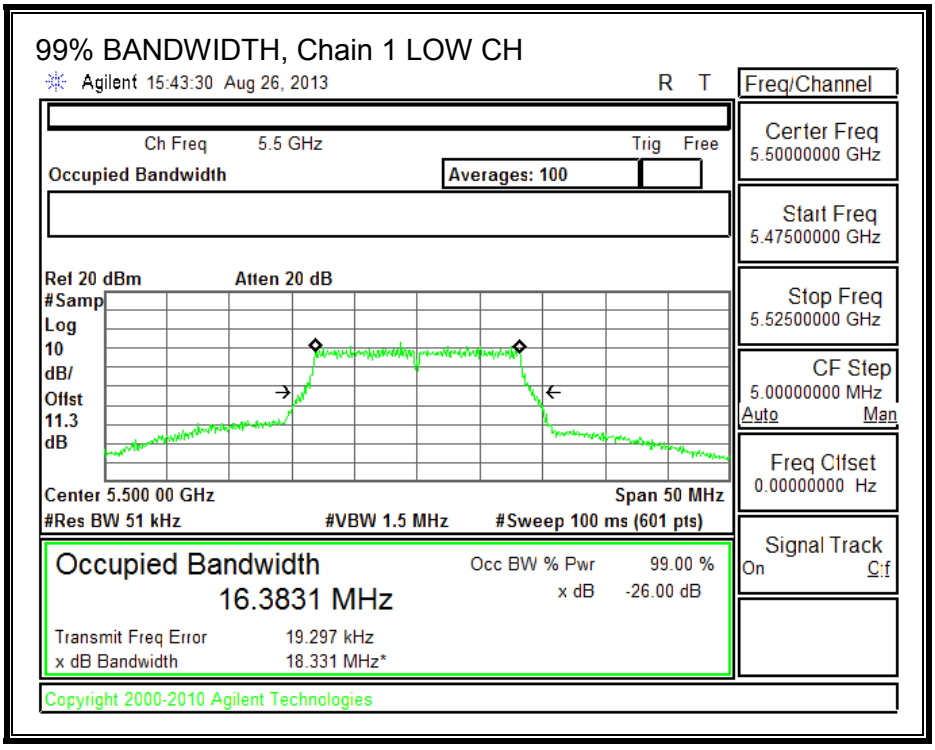
99% BANDWIDTH, Chain 0

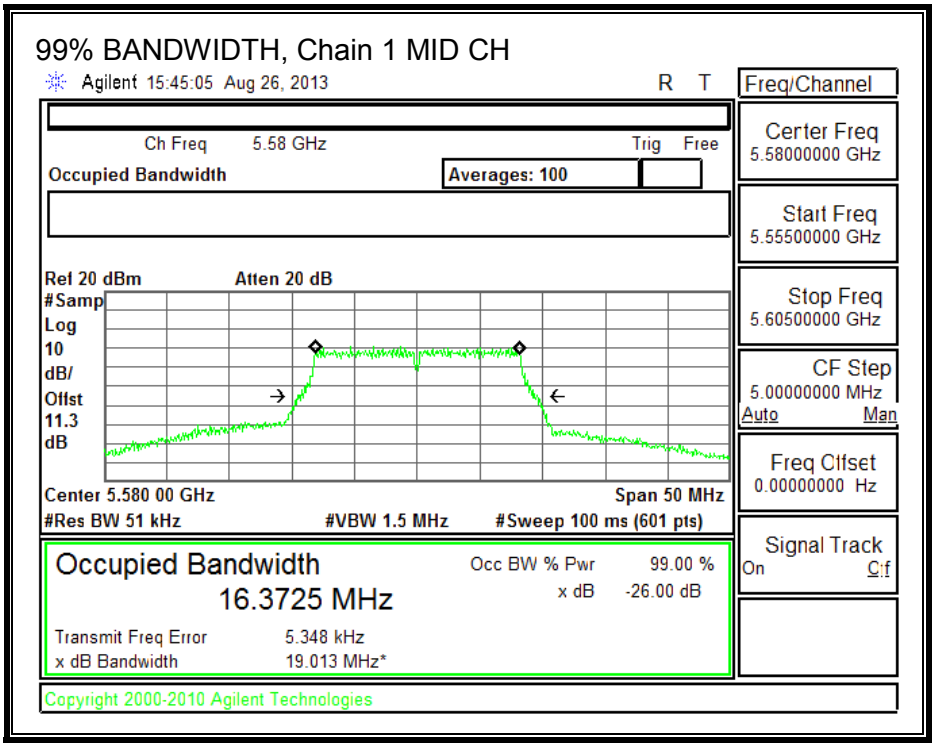


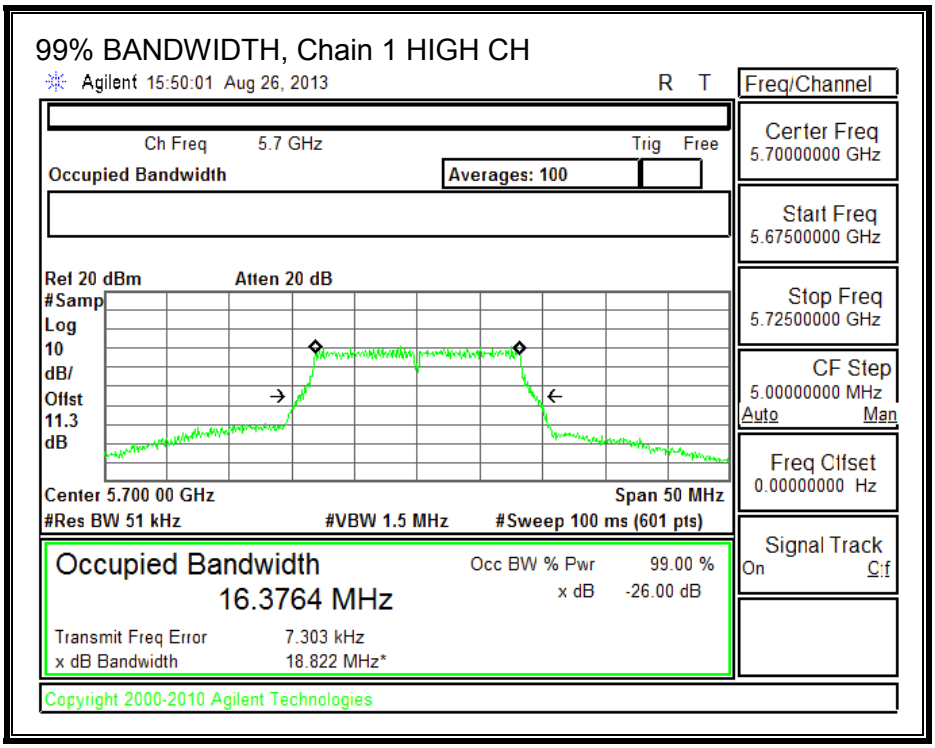




99% BANDWIDTH, Chain 1







8.7.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

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

RESULTS

Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5500	10.02	11.03	13.56
Mid	5580	9.51	10.30	12.93
High	5700	9.20	10.70	13.02

8.7.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

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)
3.90	3.20	3.56

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	19.9	16.36	3.56
Mid	5580	19.9	16.37	3.56
High	5700	20.0	16.37	3.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	23.99	23.14	29.14	23.14	11.00	11.00	11.00
Mid	5580	23.99	23.14	29.14	23.14	11.00	11.00	11.00
High	5700	24.00	23.14	29.14	23.14	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD

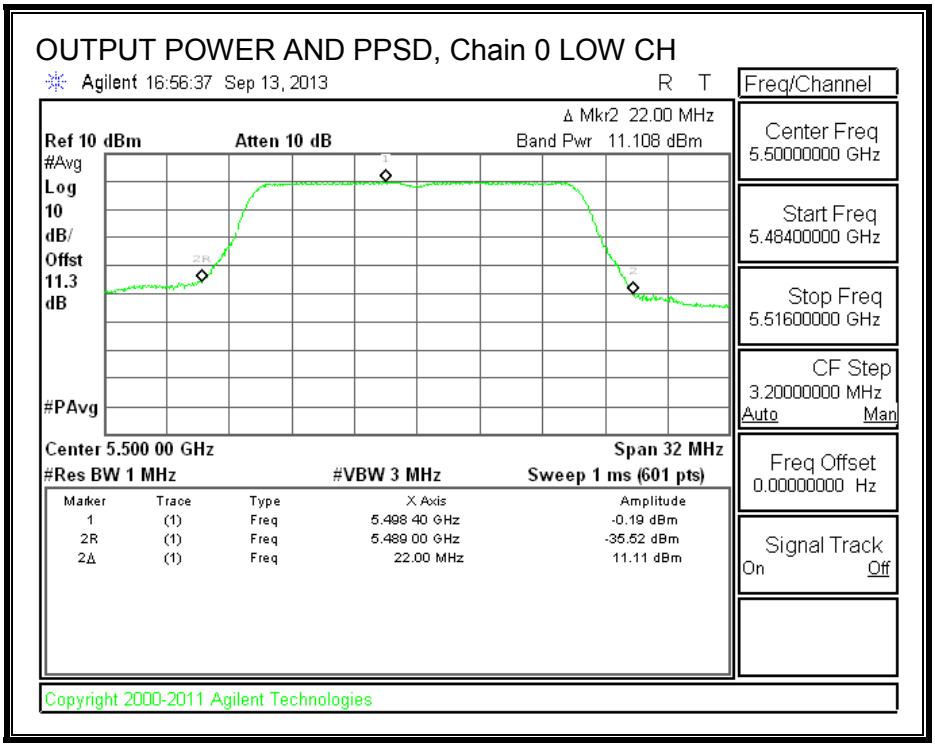
Output Power Results

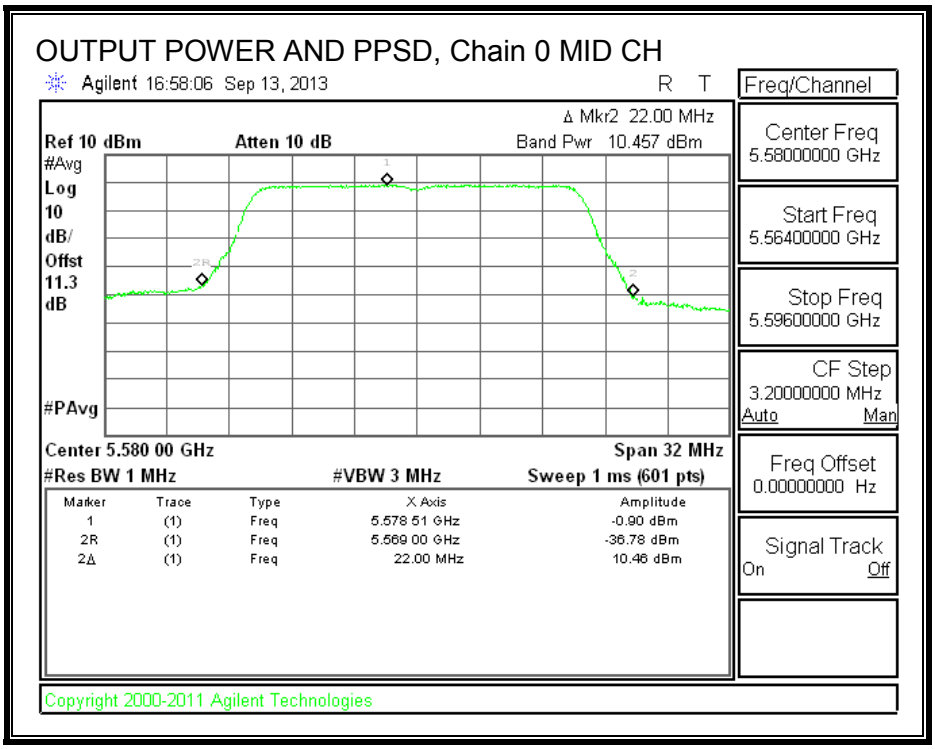
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	11.11	12.16	14.68	23.14	-8.46
Mid	5580	10.46	11.34	13.93	23.14	-9.21
High	5700	9.77	11.52	13.74	23.14	-9.40

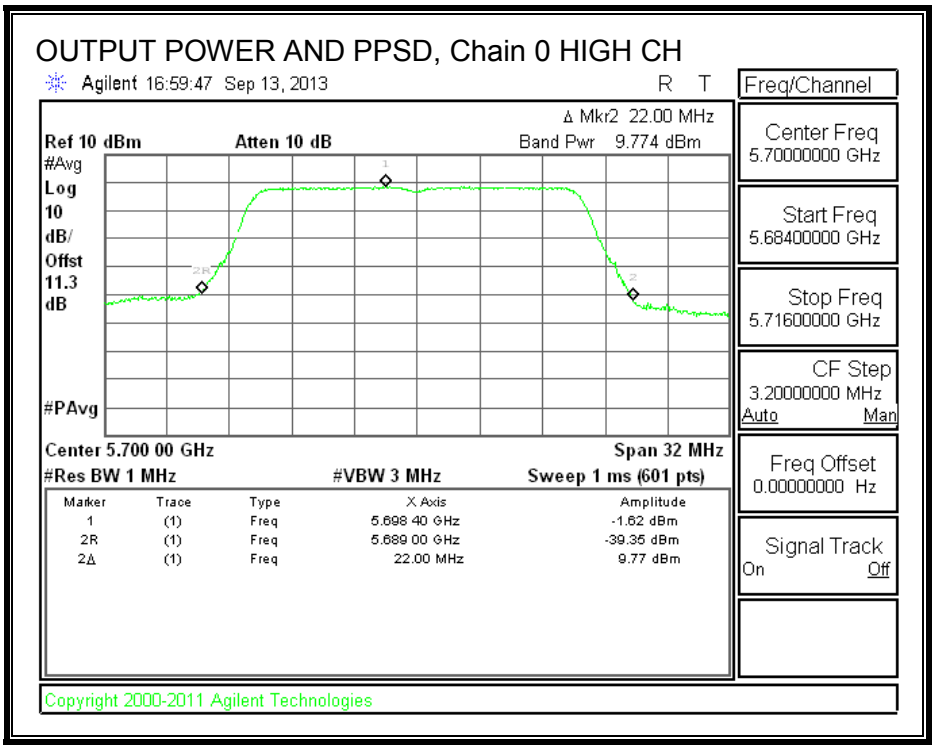
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	-0.19	0.89	3.39	11.00	-7.61
Mid	5580	-0.90	0.10	2.64	11.00	-8.36
High	5700	-1.62	0.19	2.39	11.00	-8.61

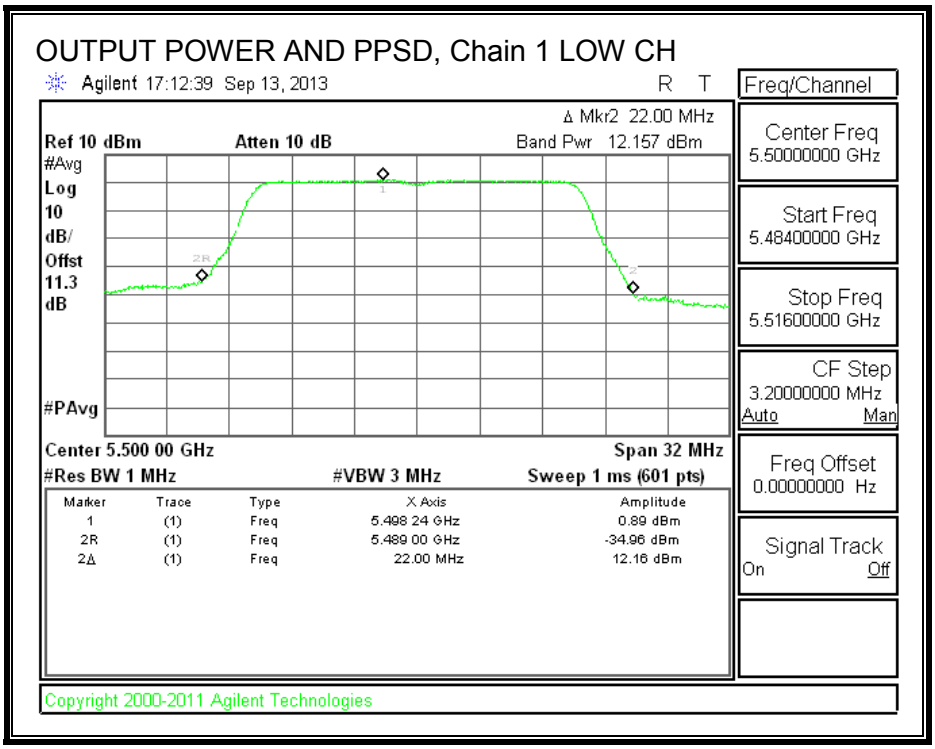
OUTPUT POWER AND PPSD, Chain 0



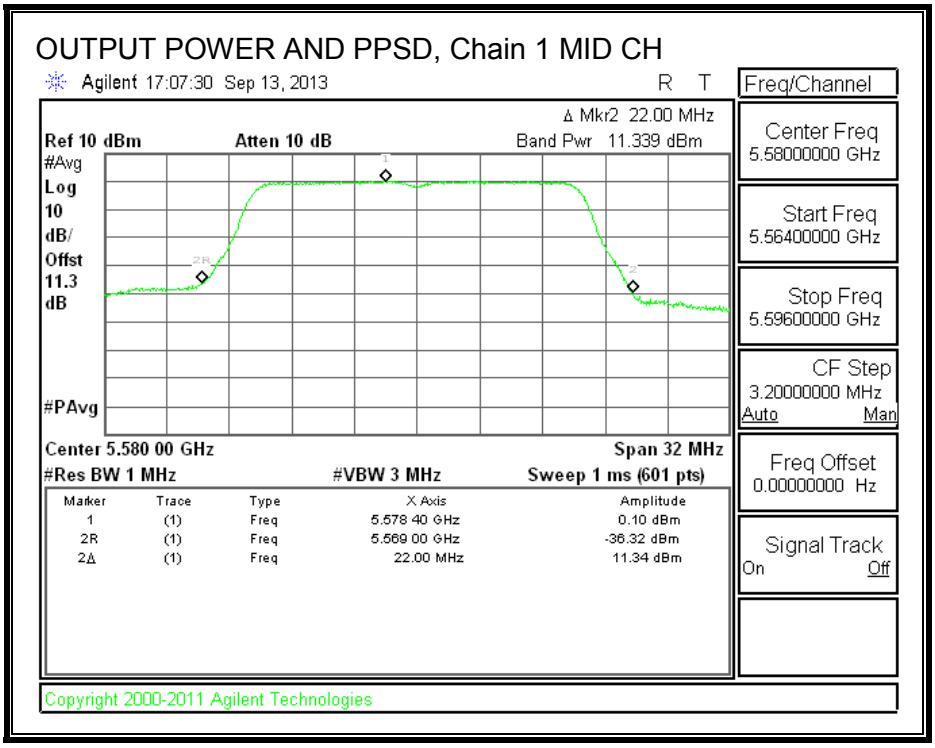




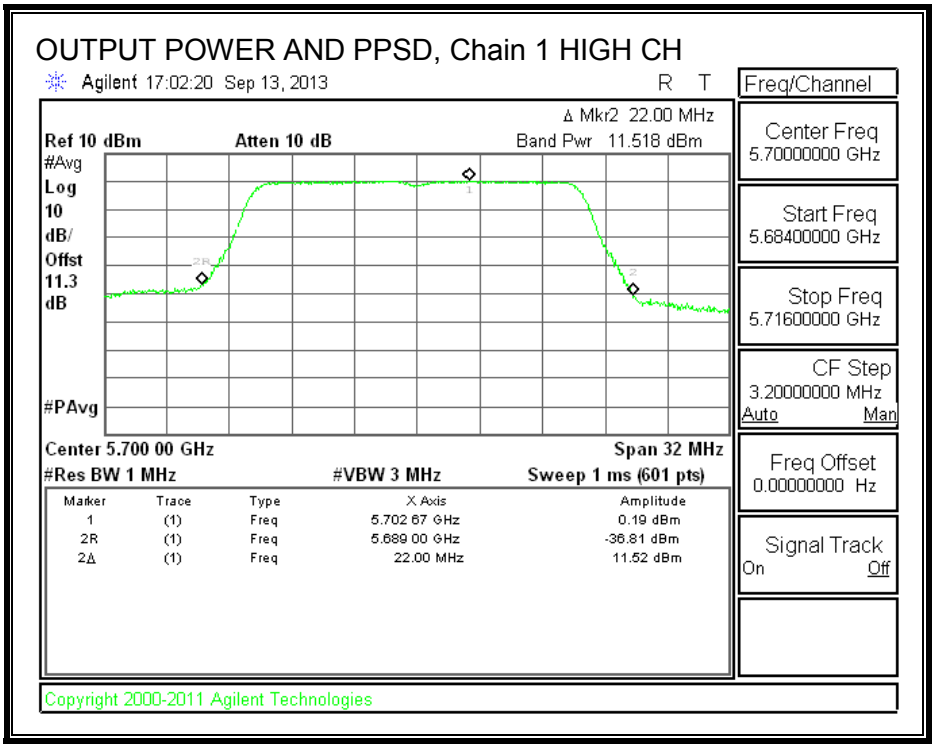
OUTPUT POWER AND PPSD, Chain 1



OUTPUT POWER AND PPSD, Chain 1 MID CH



OUTPUT POWER AND PPSD, Chain 1 HIGH CH



8.7.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Refer to the results of 802.11n HT20 mode in the 5.6 GHz band.

8.8. 802.11n HT20 MODE IN THE 5.6 GHz BAND

8.8.1. 26 dB BANDWIDTH

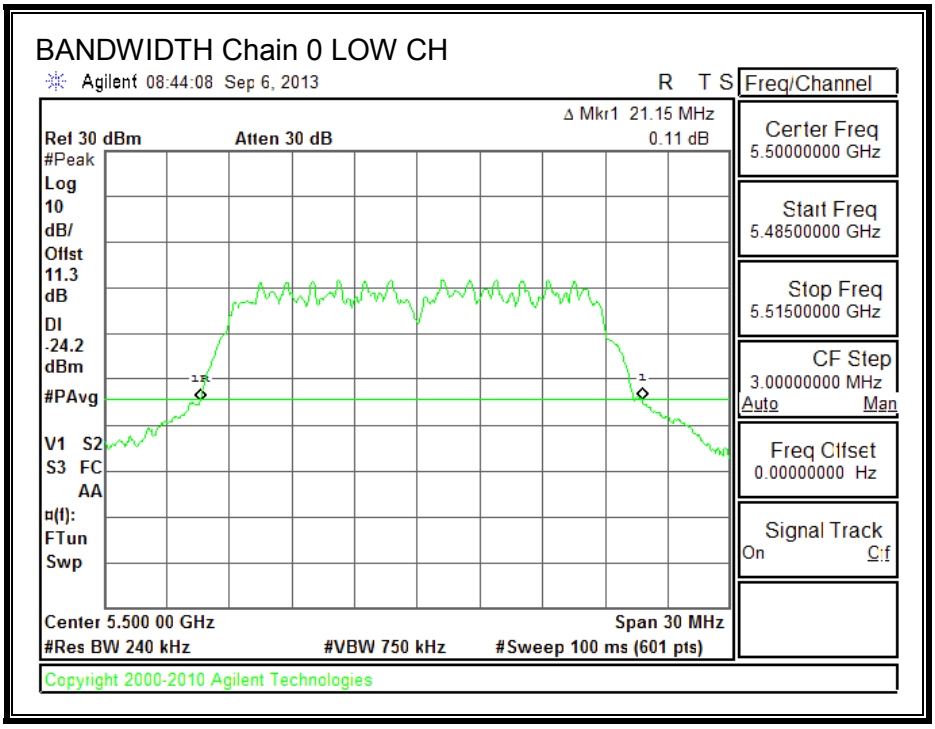
LIMITS

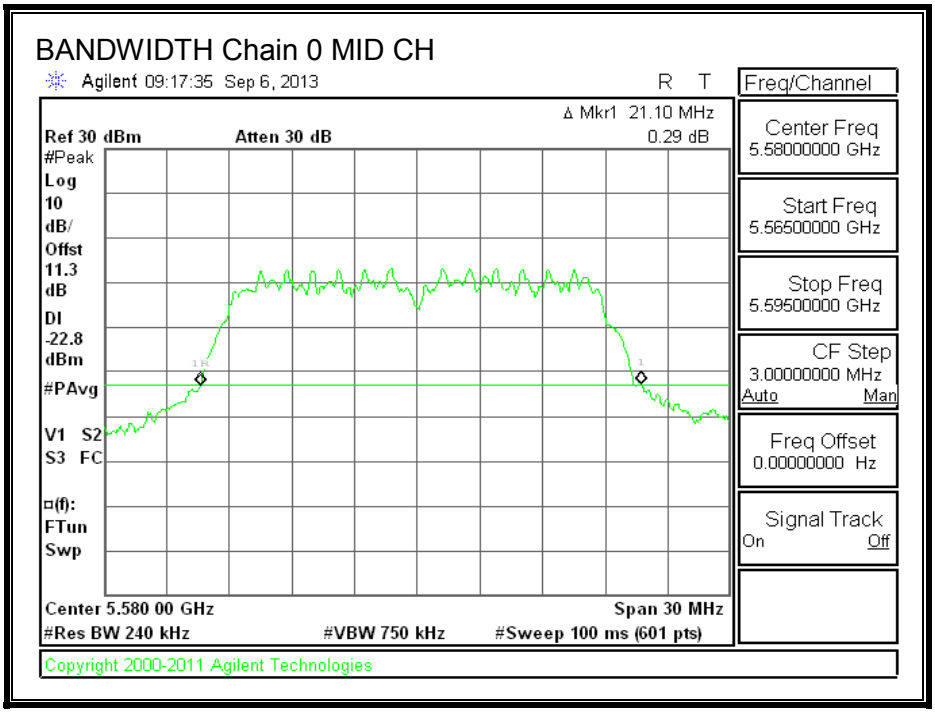
None; for reporting purposes only.

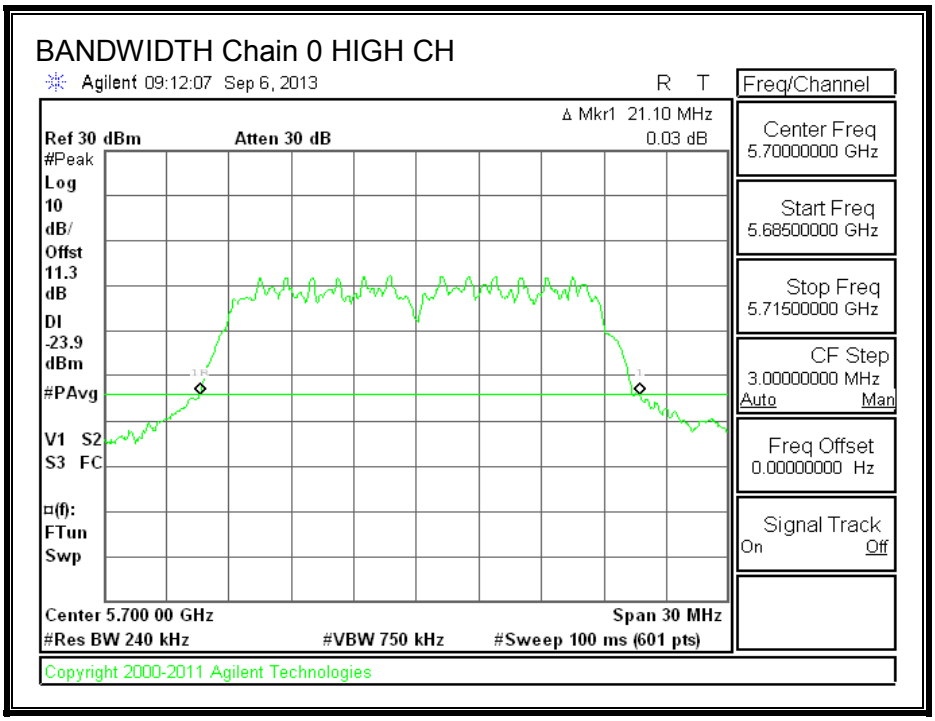
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	21.15	20.90
Mid	5580	21.10	20.90
High	5700	21.10	20.85

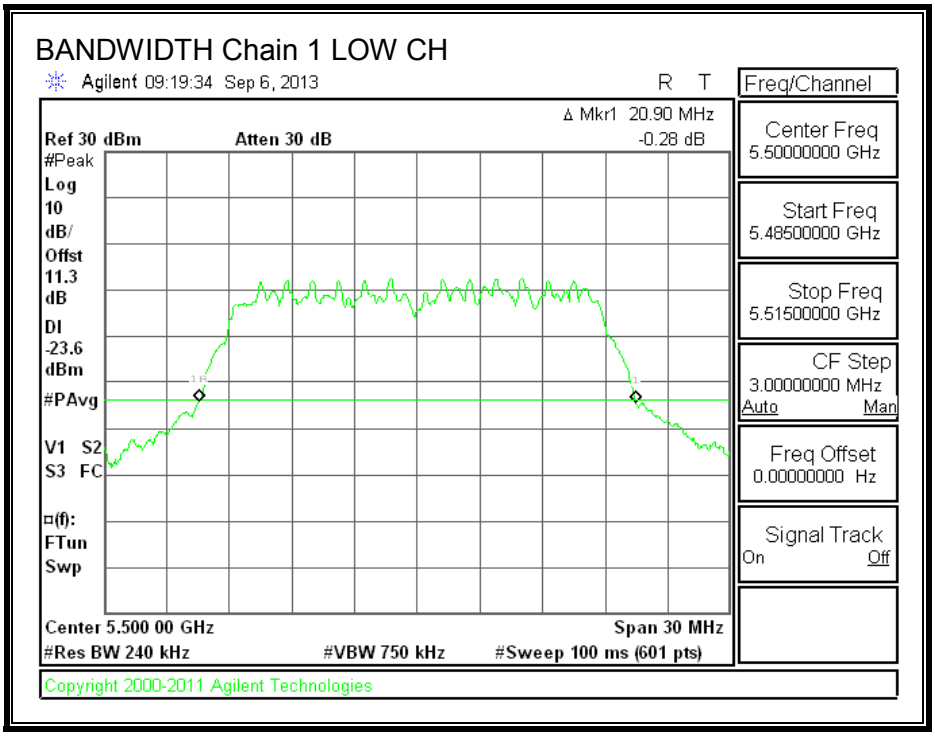
26 dB BANDWIDTH, Chain 0

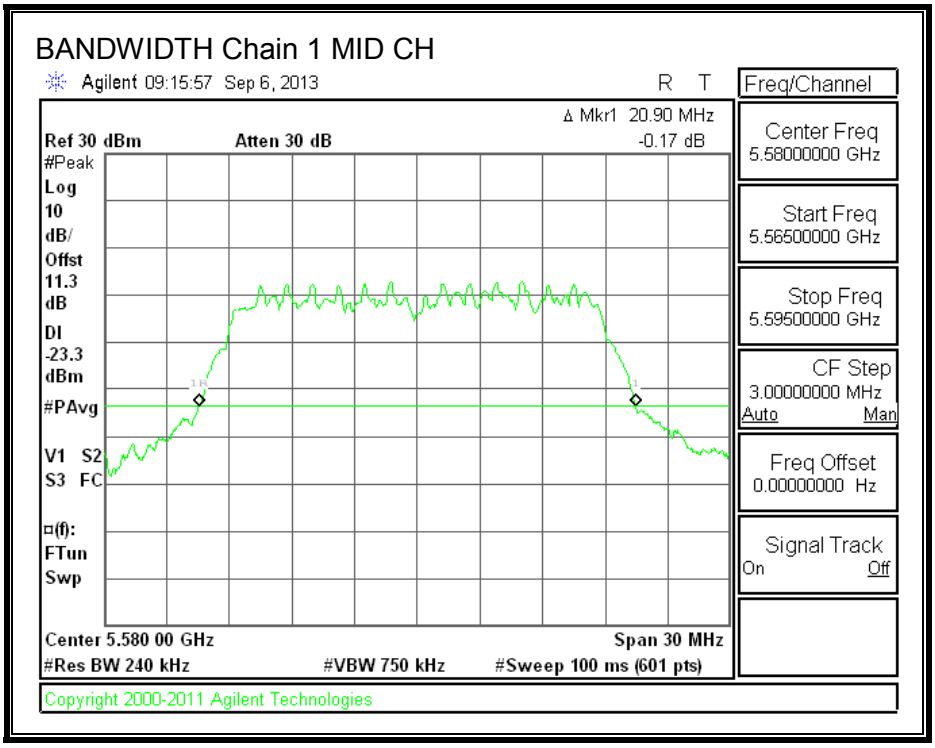


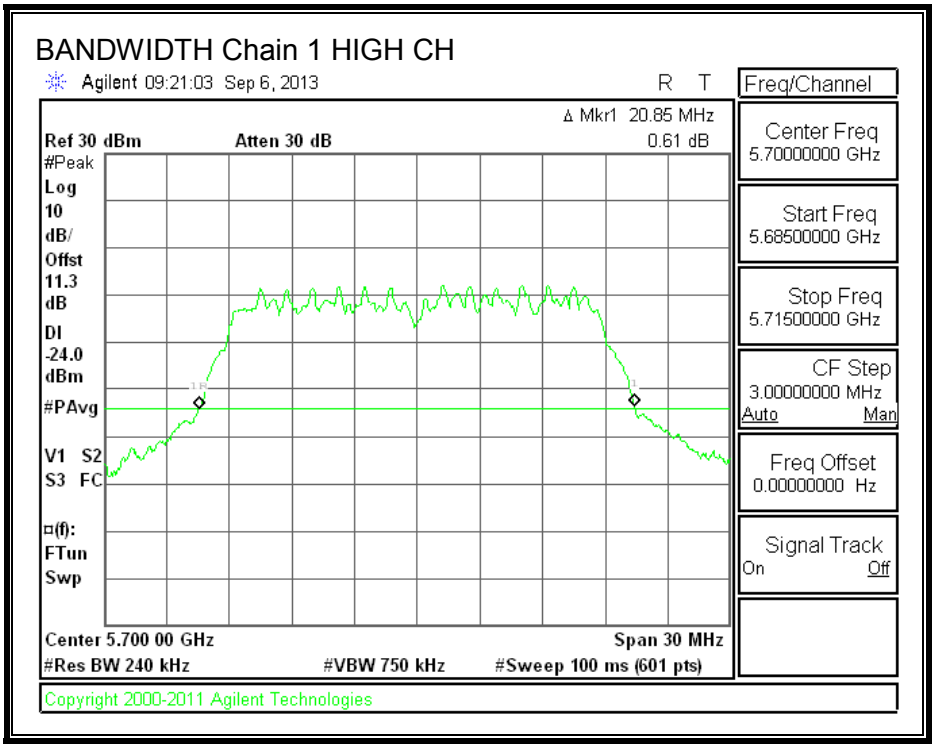




26 dB BANDWIDTH, Chain 1







8.8.2. 99% BANDWIDTH

LIMITS

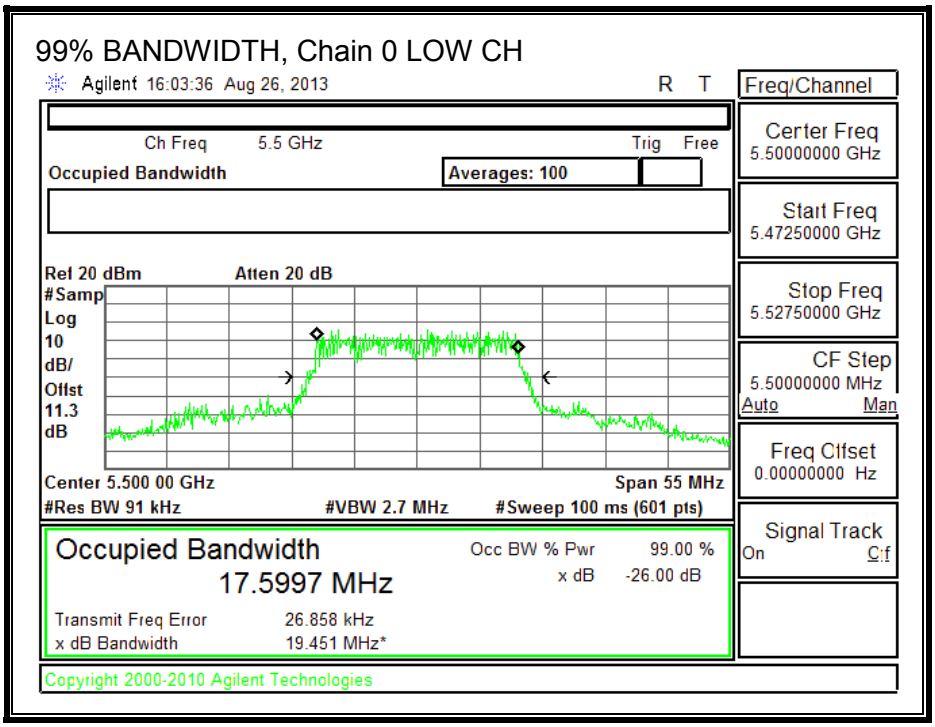
None; for reporting purposes only.

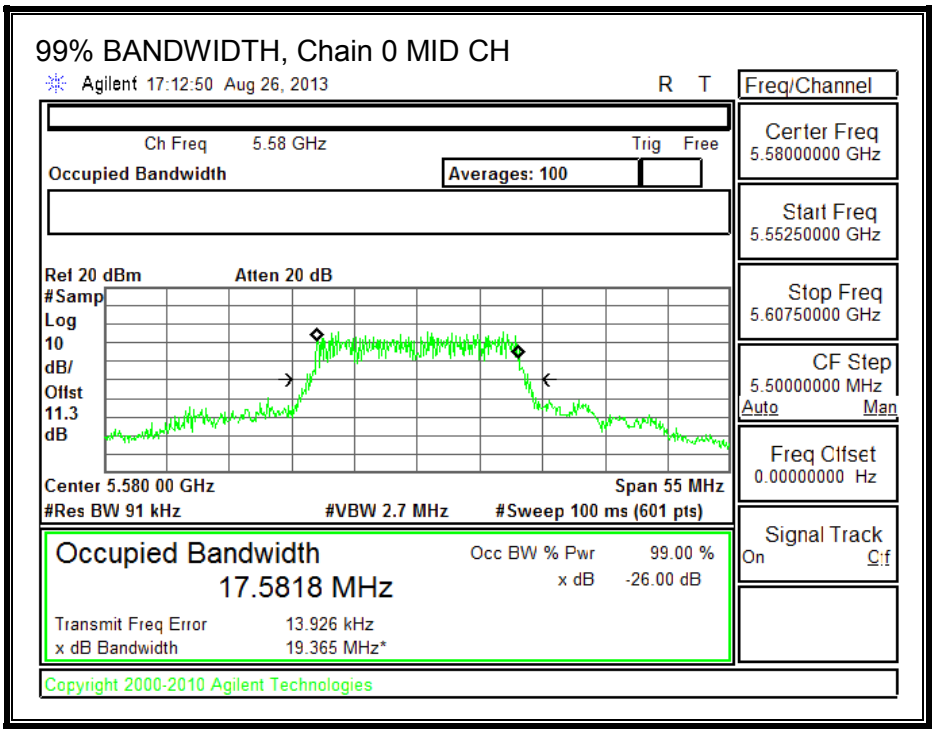
RESULTS

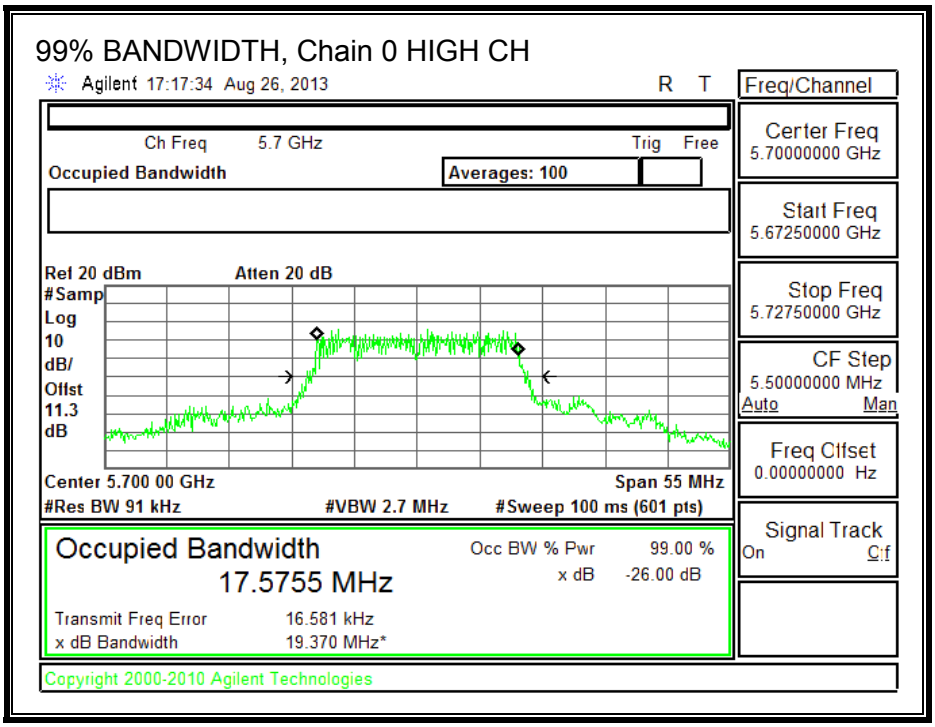
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5500	17.600	17.609
Mid	5580	17.582	17.608
High	5700	17.576	17.612

99% BANDWIDTH

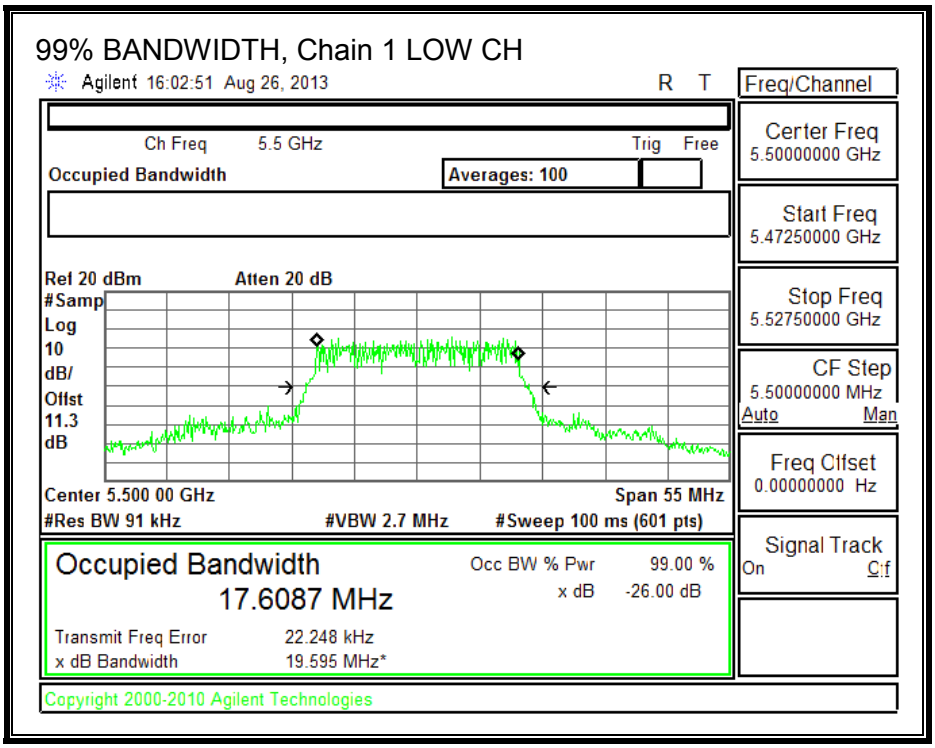
99% BANDWIDTH, Chain 0

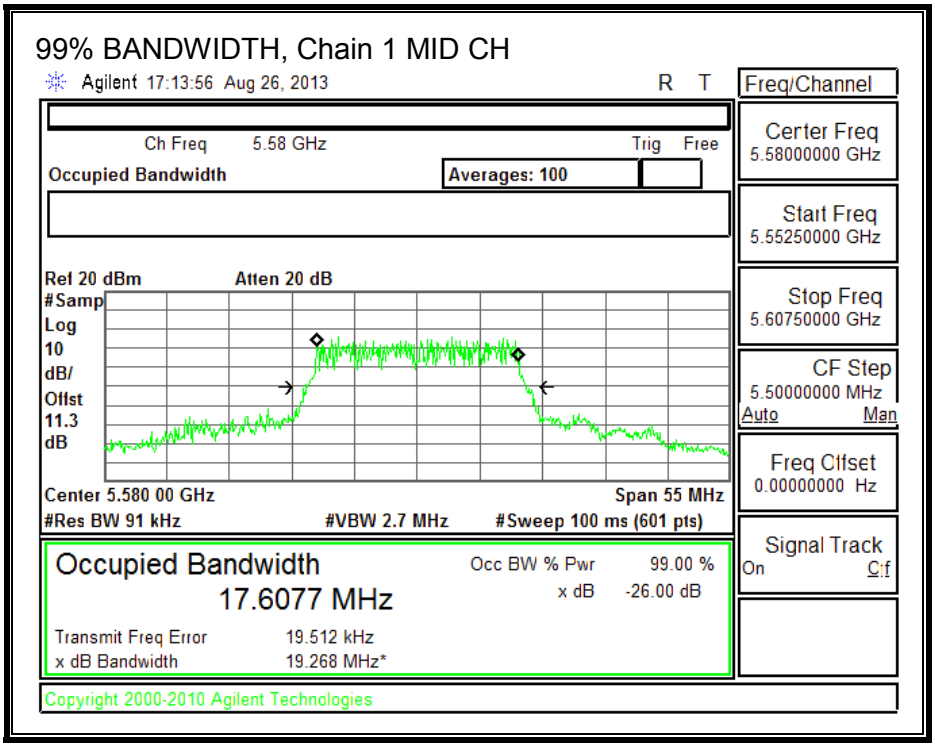


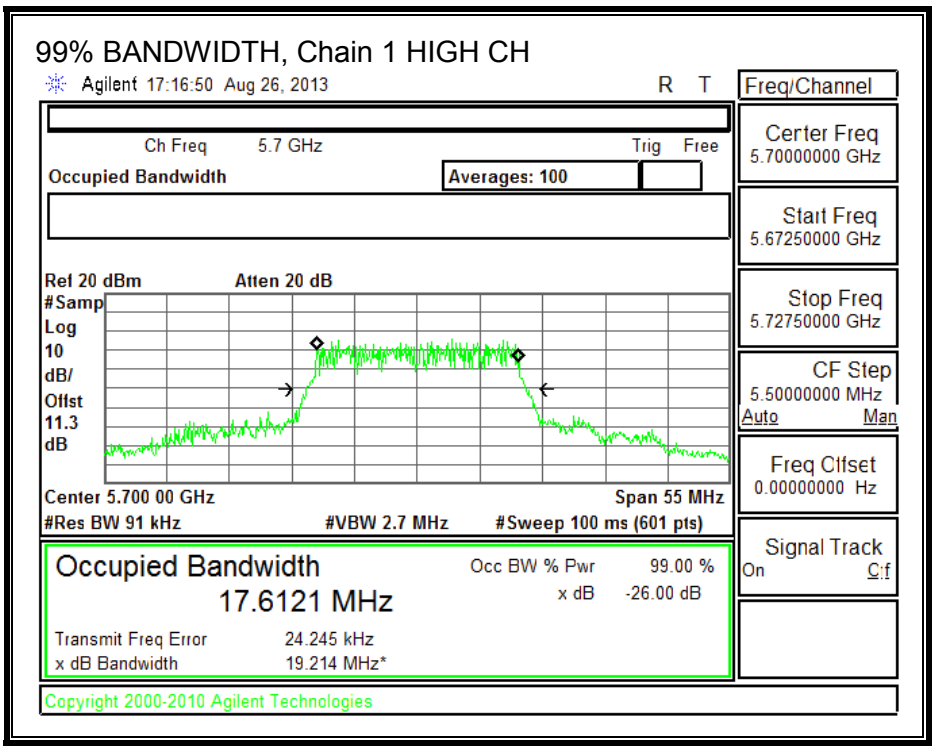




99% BANDWIDTH, Chain 1







8.8.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

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

RESULTS

Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5500	10.01	10.98	13.53
Mid	5580	9.48	10.35	12.95
High	5700	9.16	10.78	13.06

8.8.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

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)
3.90	3.20	3.56

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	20.90	17.59	3.56
Mid	5580	20.90	17.58	3.56
High	5700	20.85	17.57	3.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.45	29.45	23.45	11.00	11.00	11.00
Mid	5580	24.00	23.45	29.45	23.45	11.00	11.00	11.00
High	5700	24.00	23.45	29.45	23.45	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD

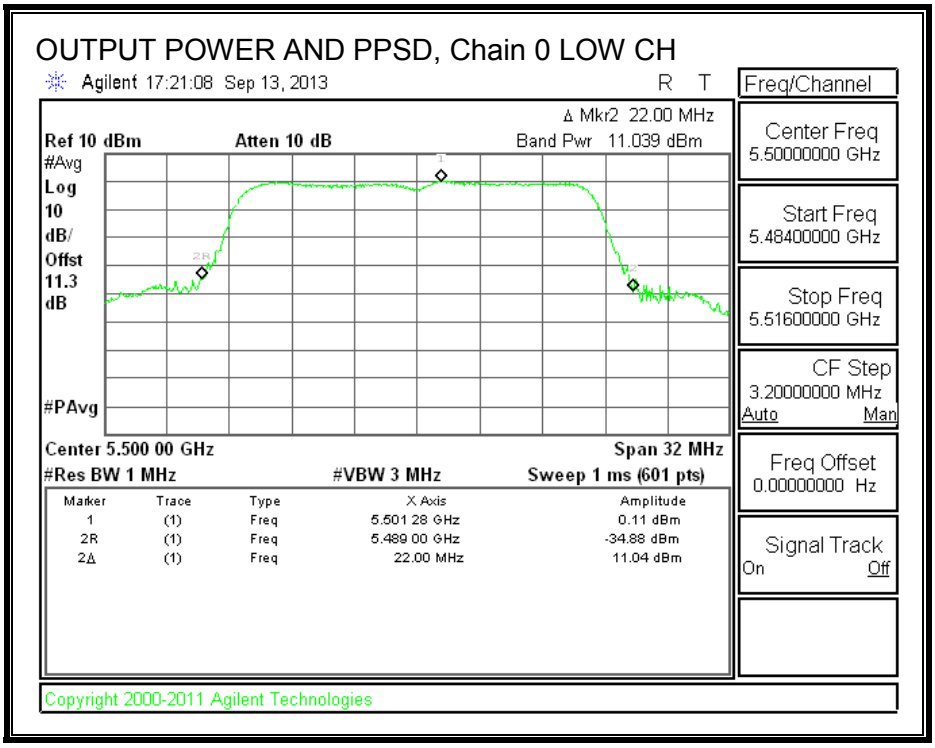
Output Power Results

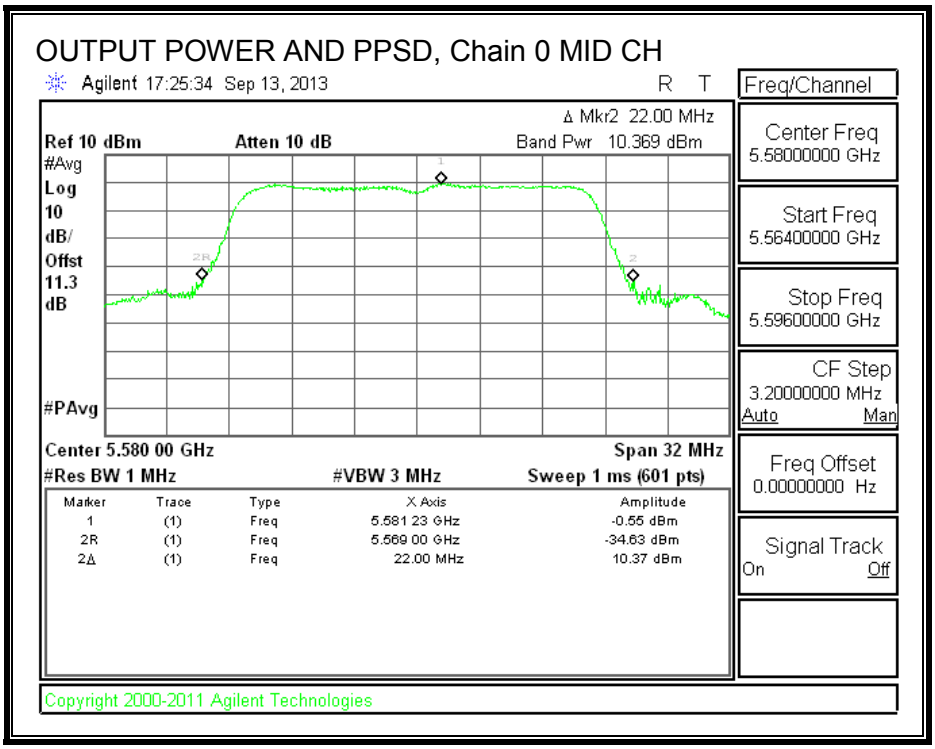
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	11.04	11.91	14.51	23.45	-8.95
Mid	5580	10.37	10.99	13.70	23.45	-9.75
High	5700	9.62	11.45	13.64	23.45	-9.81

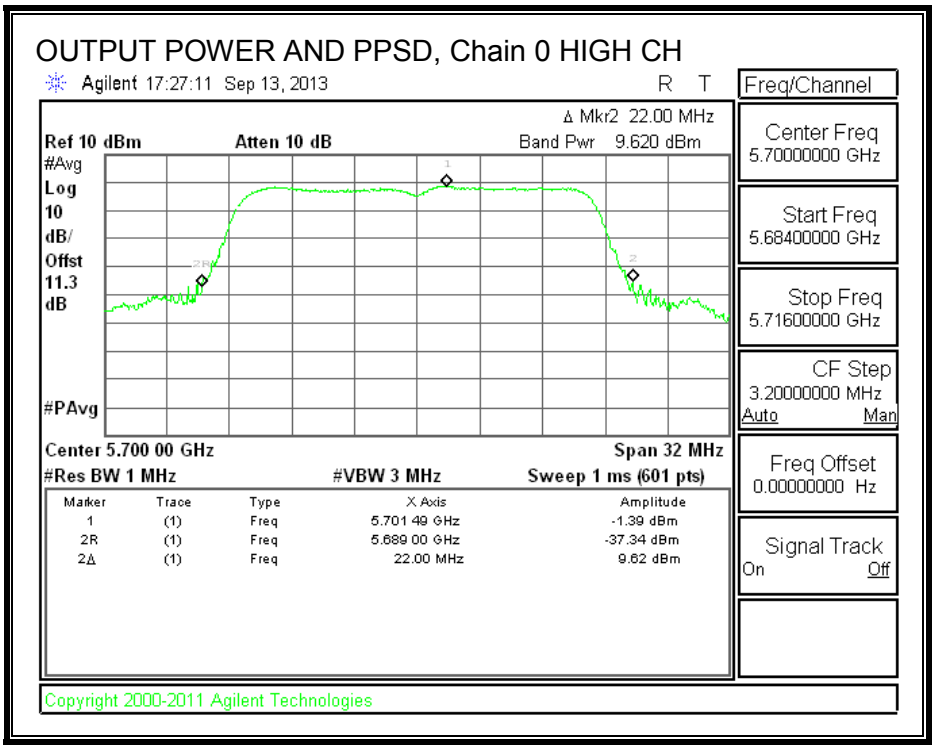
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	0.11	0.75	3.45	11.00	-7.55
Mid	5580	-0.55	-0.42	2.53	11.00	-8.47
High	5700	-1.39	0.51	2.67	11.00	-8.33

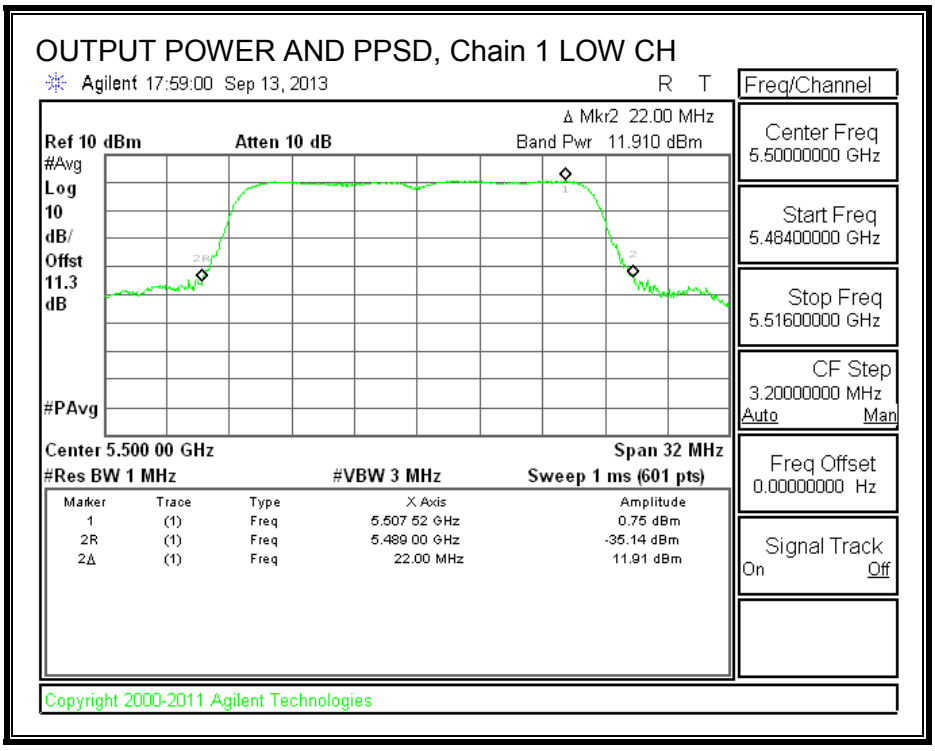
OUTPUT POWER AND PPSD, Chain 0



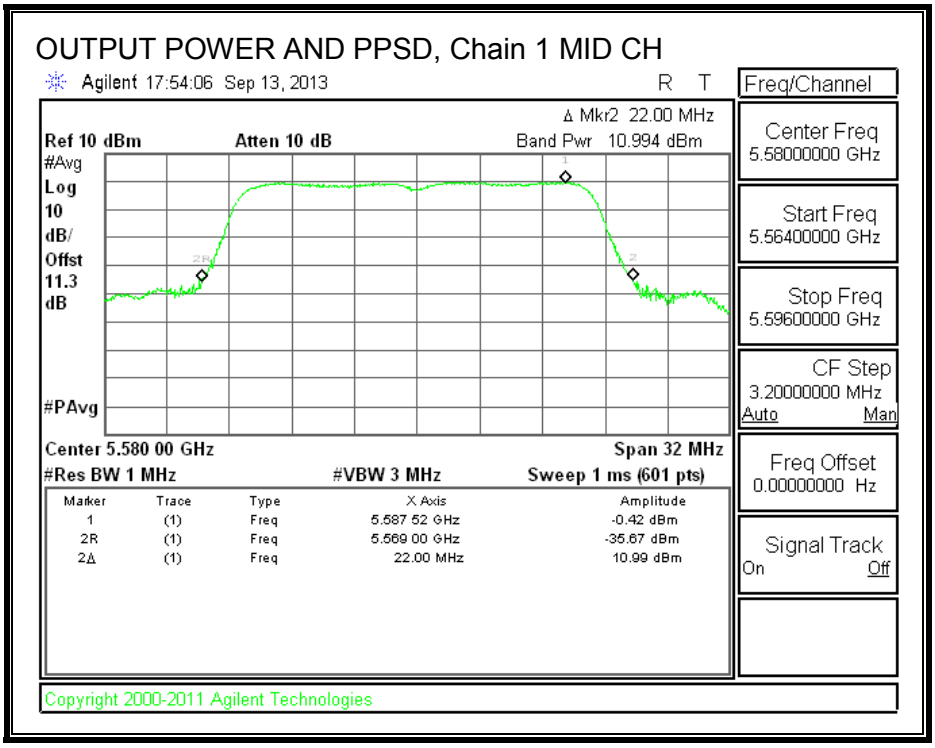




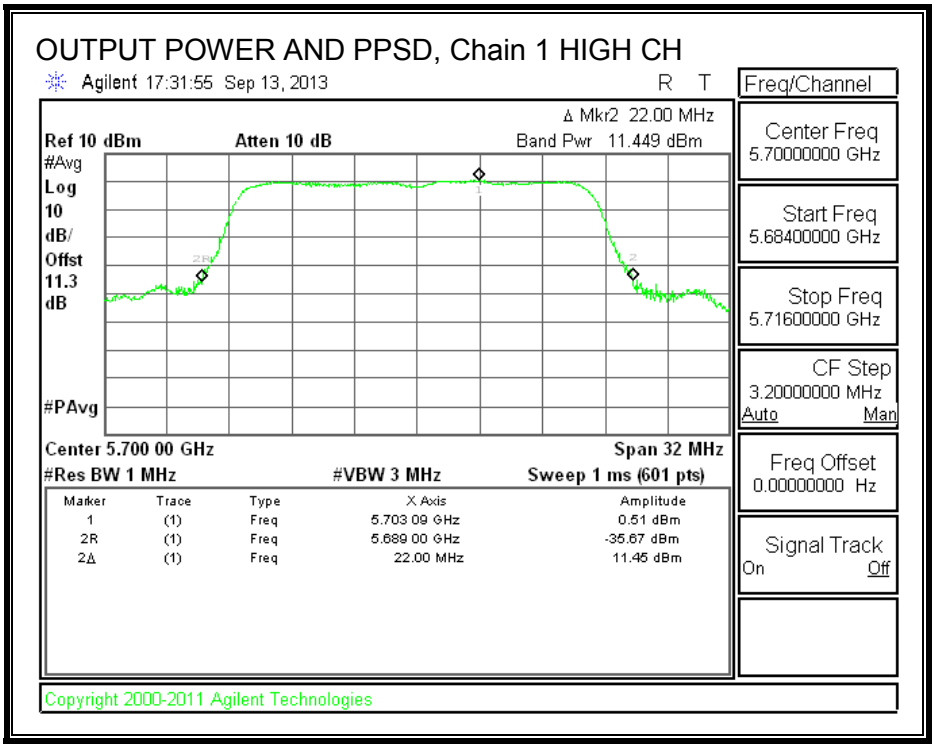
OUTPUT POWER AND PPSD, Chain 1



OUTPUT POWER AND PPSD, Chain 1 MID CH



OUTPUT POWER AND PPSD, Chain 1 HIGH CH



8.8.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

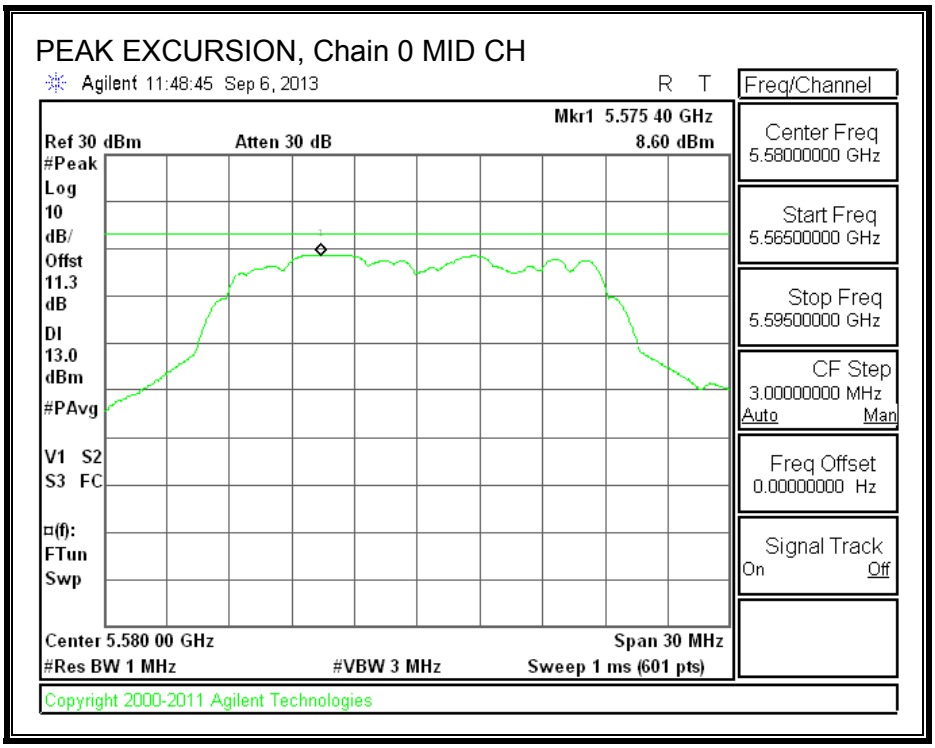
Chain 0

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5580	8.60	1.90	0.00	6.70	13	-6.30

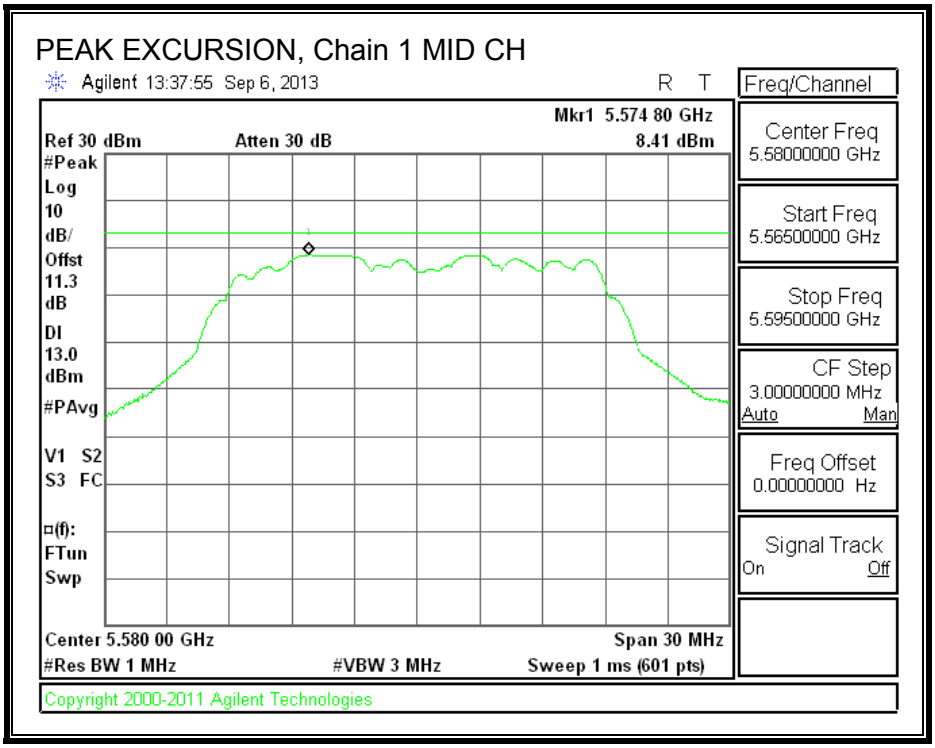
Chain 1

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5580	8.41	1.07	0.00	7.34	13	-5.66

PEAK EXCURSION, Chain 0



PEAK EXCURSION, Chain 1



8.9. 802.11n HT40 MODE IN THE 5.6 GHz BAND

8.9.1. 26 dB BANDWIDTH

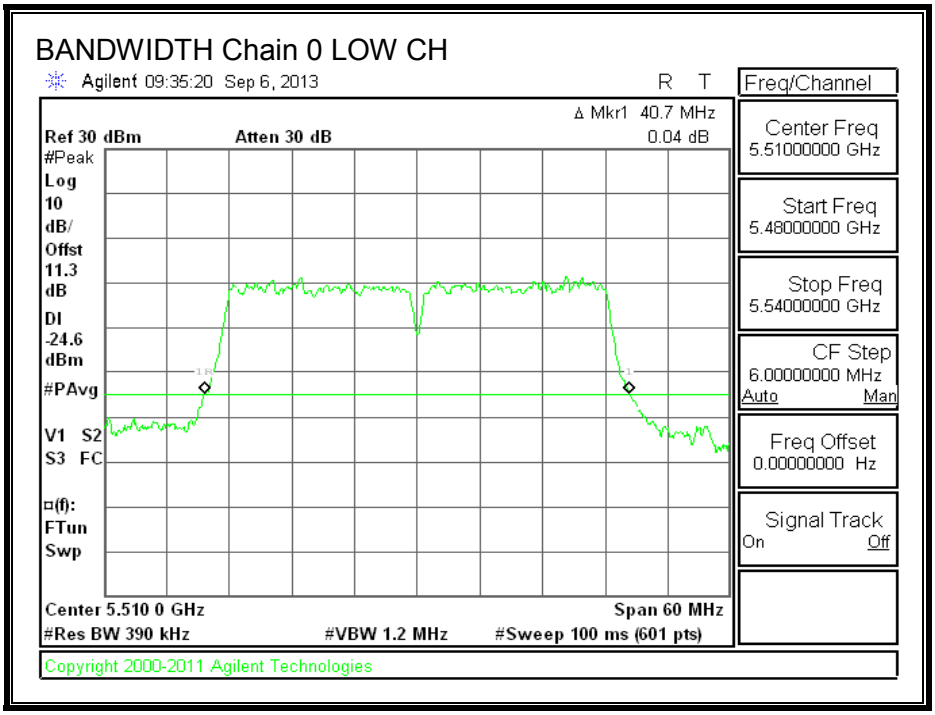
LIMITS

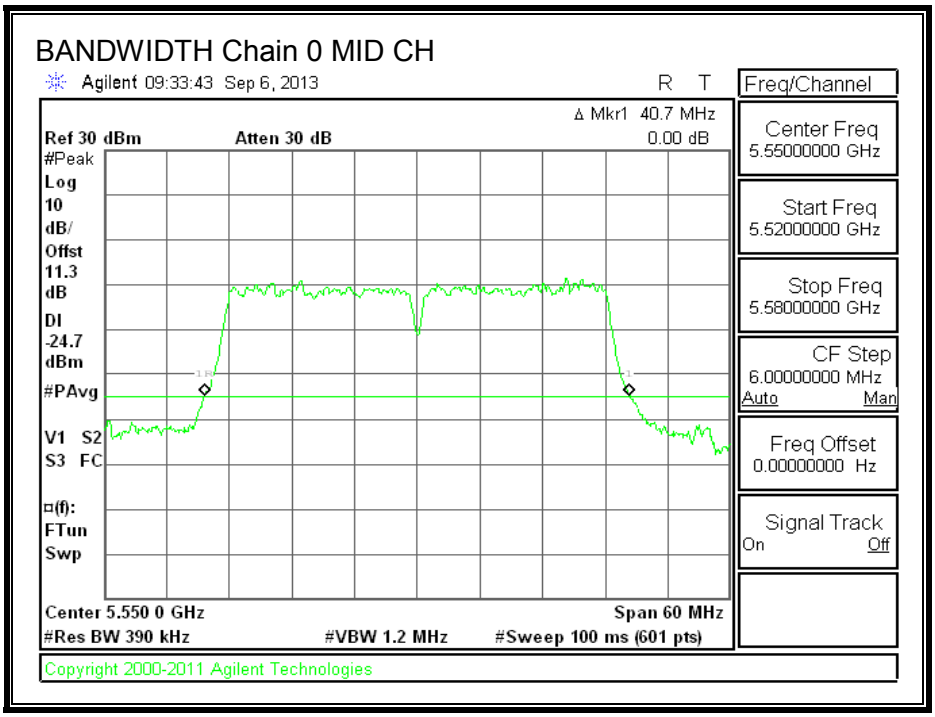
None; for reporting purposes only.

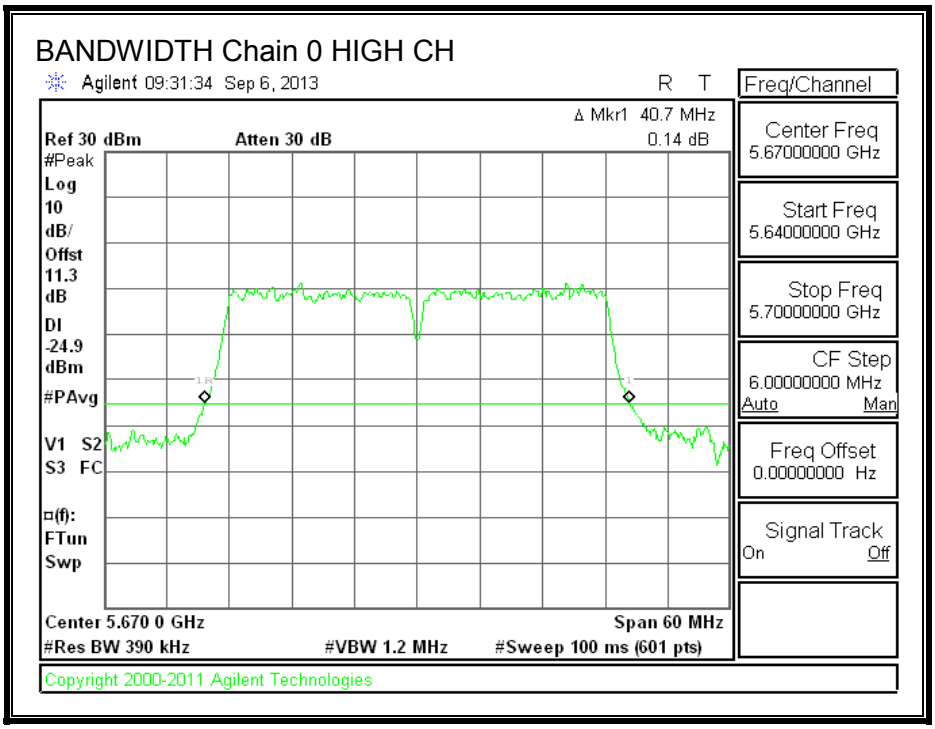
RESULTS

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5510	40.7	41.6
Mid	5550	40.7	41.6
High	5670	40.7	41.4

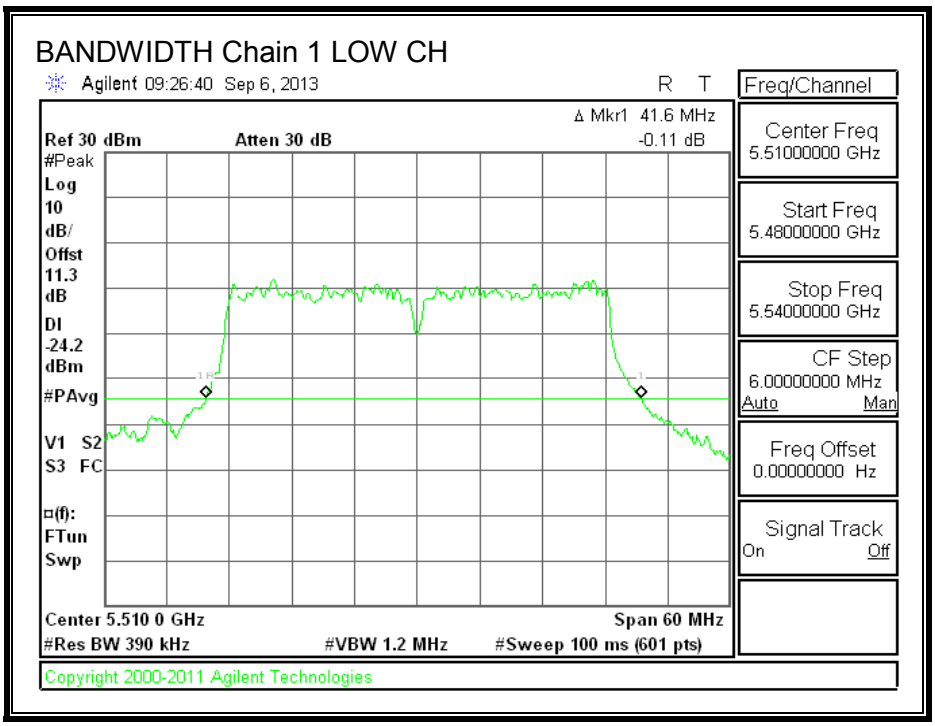
26 dB BANDWIDTH, Chain 0



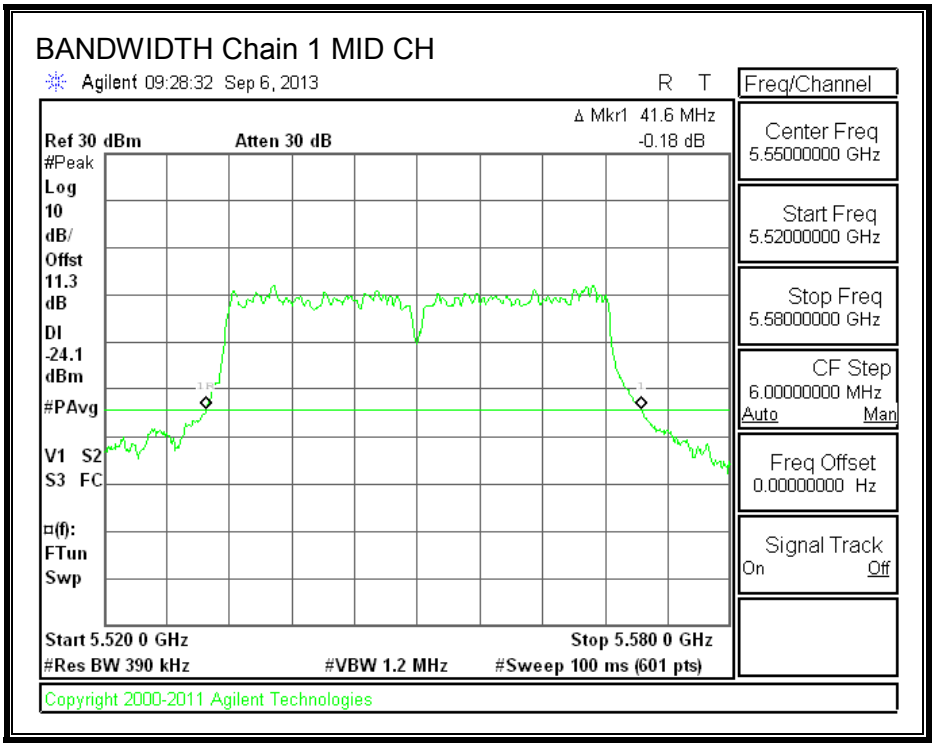




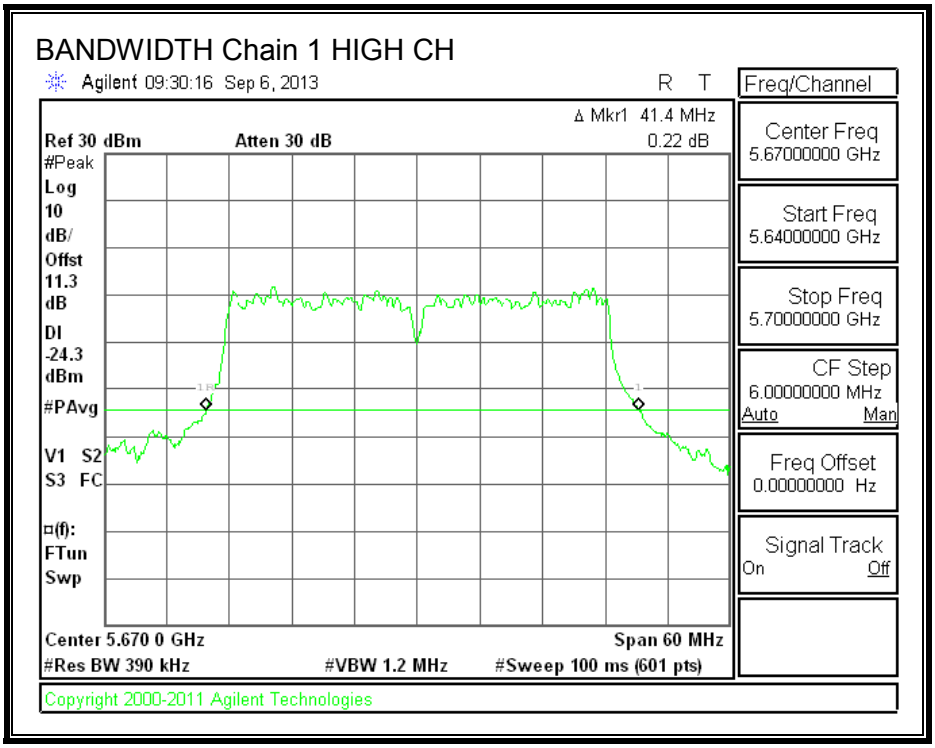
26 dB BANDWIDTH, Chain 1



BANDWIDTH Chain 1 MID CH



BANDWIDTH Chain 1 HIGH CH



8.9.2. 99% BANDWIDTH

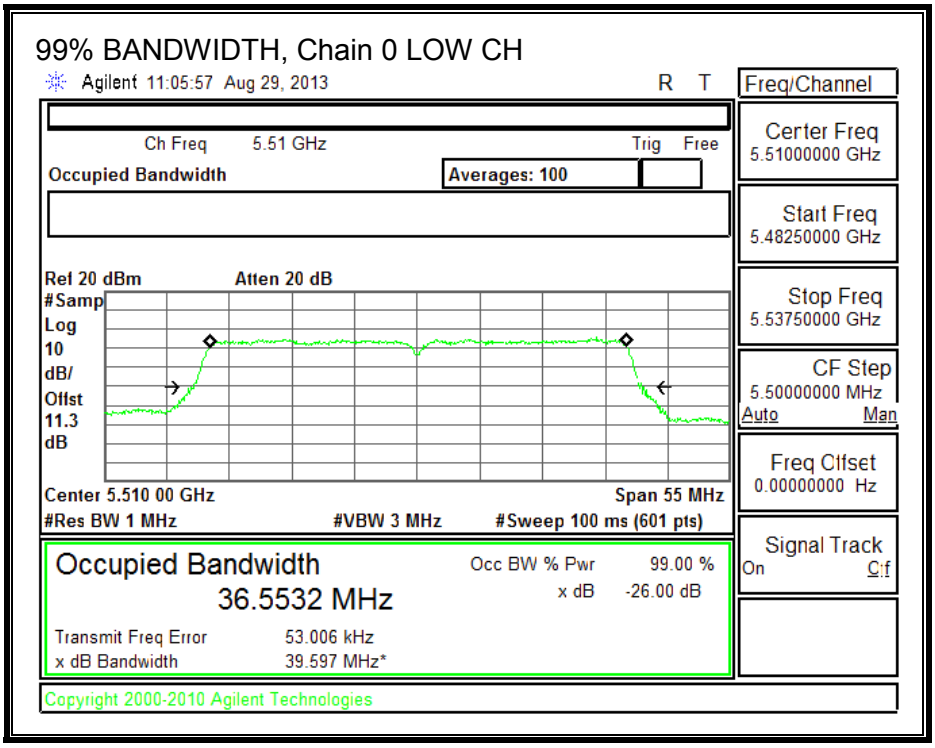
LIMITS

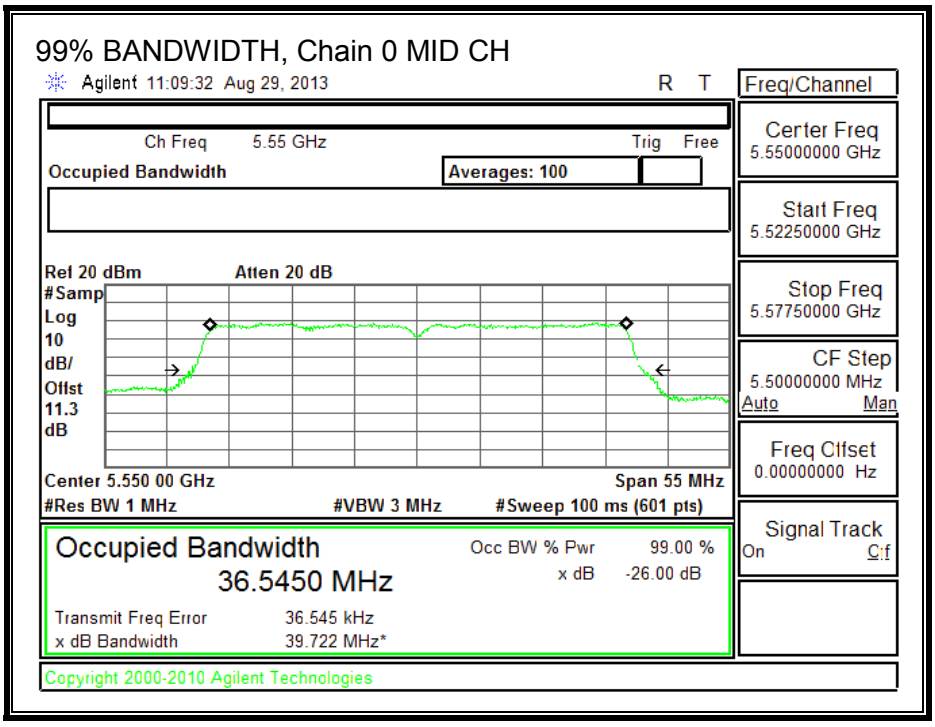
None; for reporting purposes only.

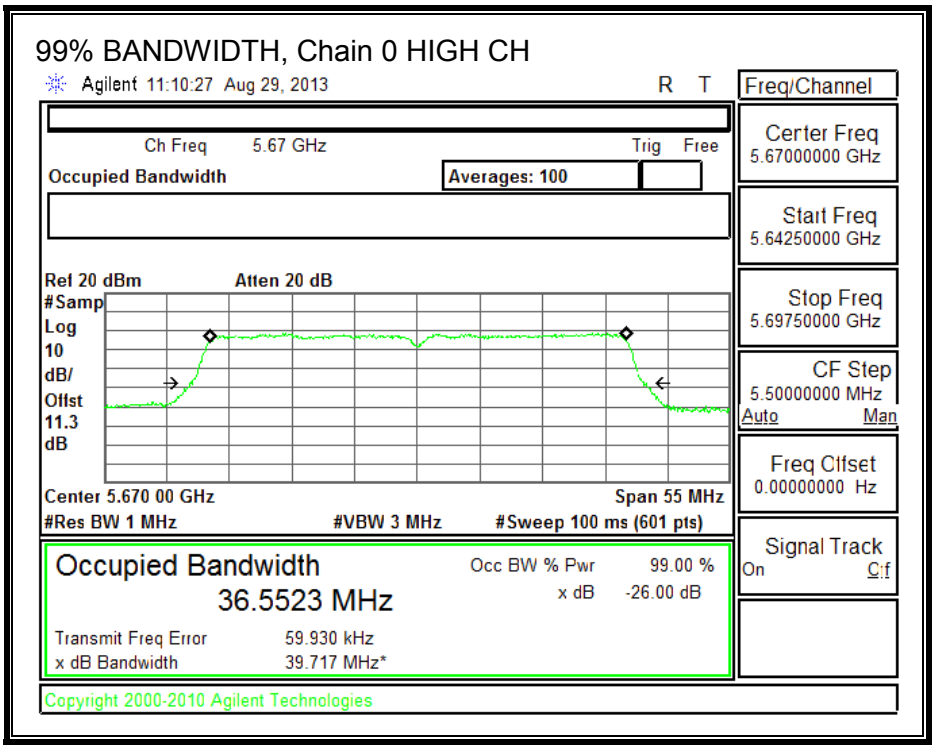
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5500	36.553	36.666
Mid	5580	36.545	36.658
High	5700	36.552	36.663

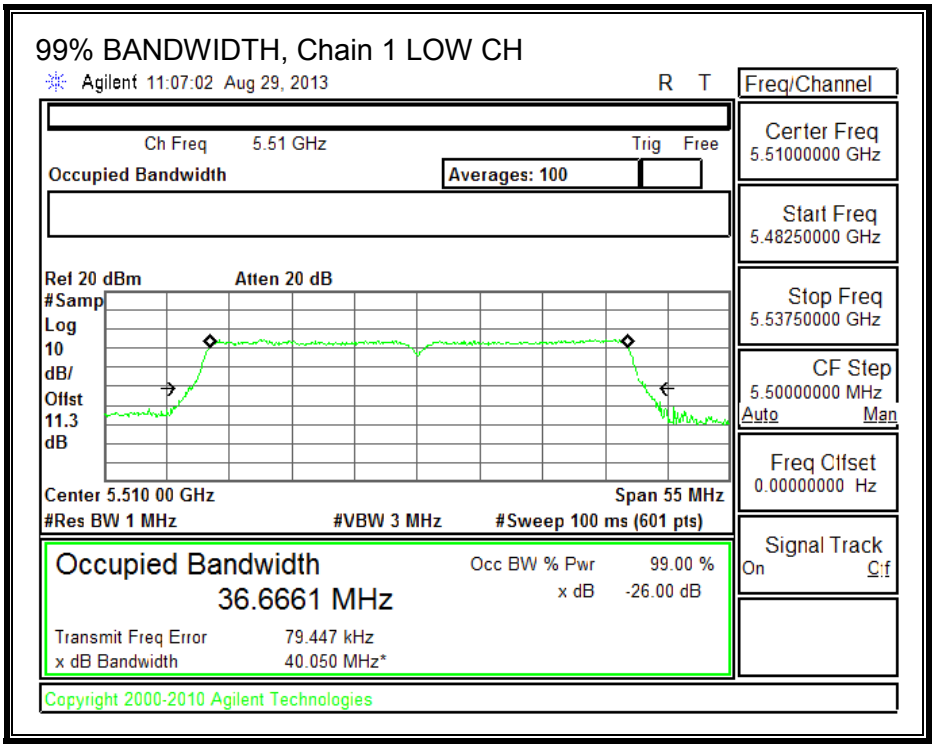
99% BANDWIDTH, Chain 0

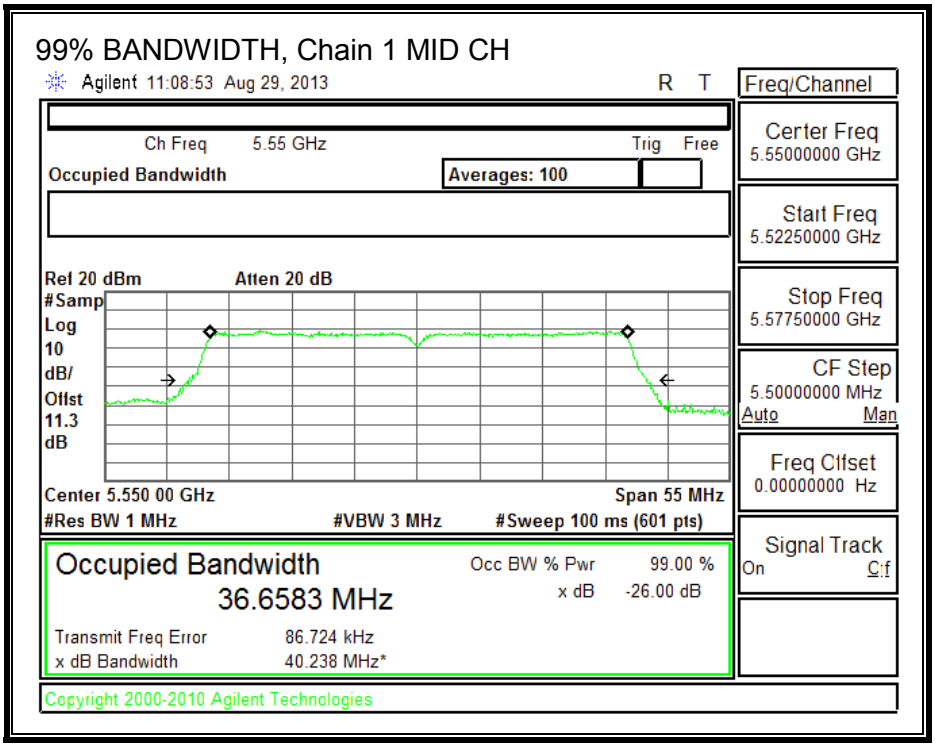


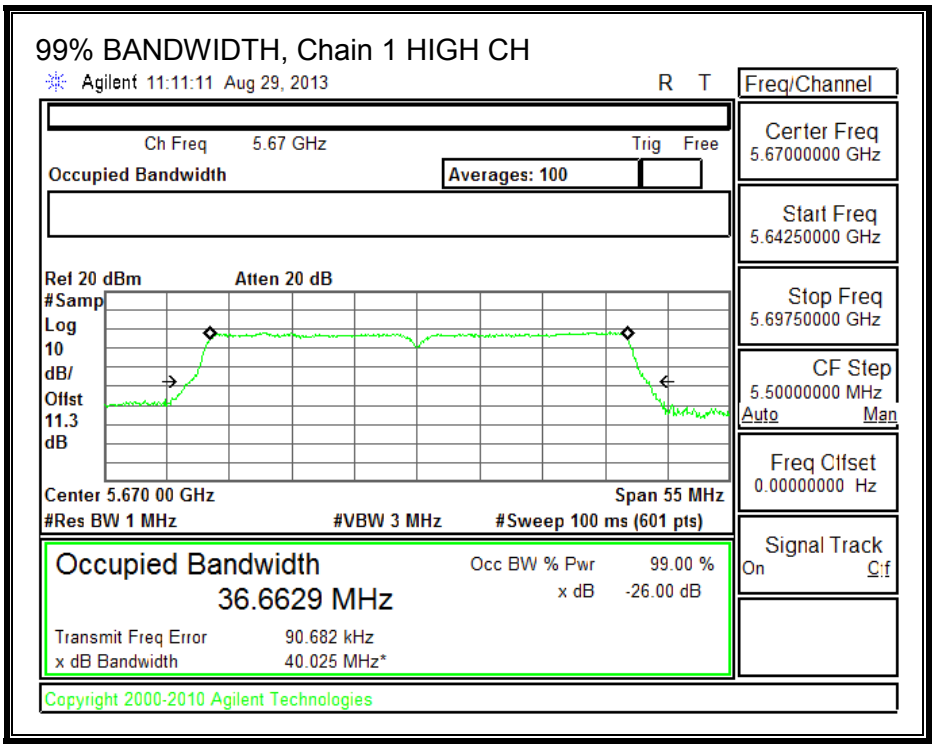




99% BANDWIDTH, Chain 1







8.9.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

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

RESULTS

Average Power Results

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5510	8.00	7.70	10.86
Mid	5550	11.77	11.82	14.81
High	5670	11.99	11.95	14.98

8.9.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

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)
3.90	3.20	3.56

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	40.7	36.6	3.56
Mid	5550	40.7	36.5	3.56
High	5670	40.7	36.6	3.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5510	24.00	24.00	30.00	24.00	11.00	11.00	11.00
Mid	5550	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD

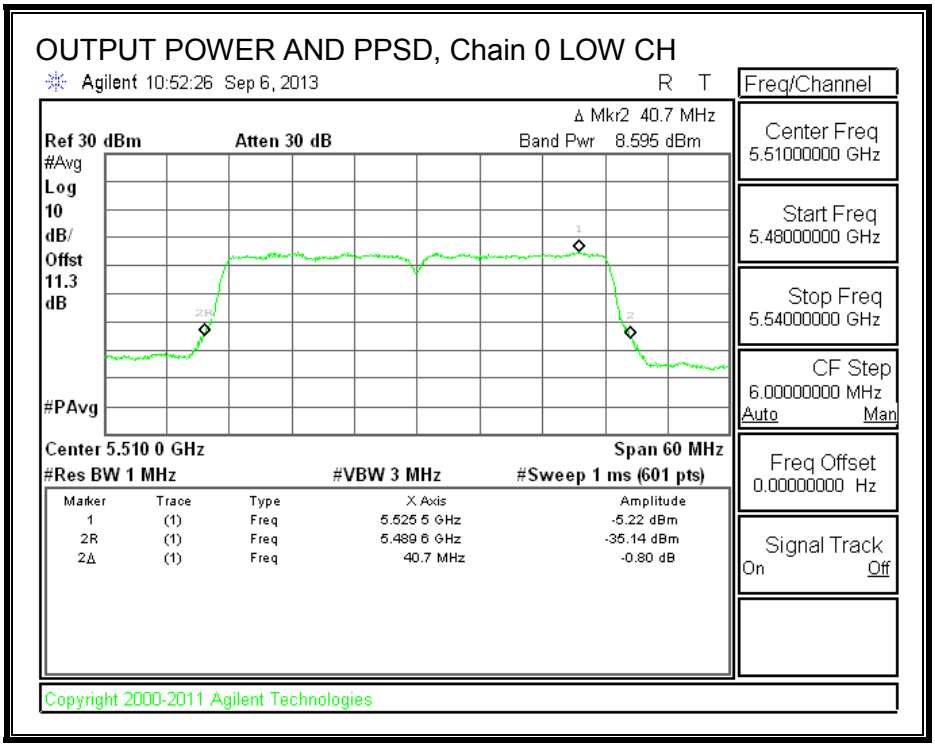
Output Power Results

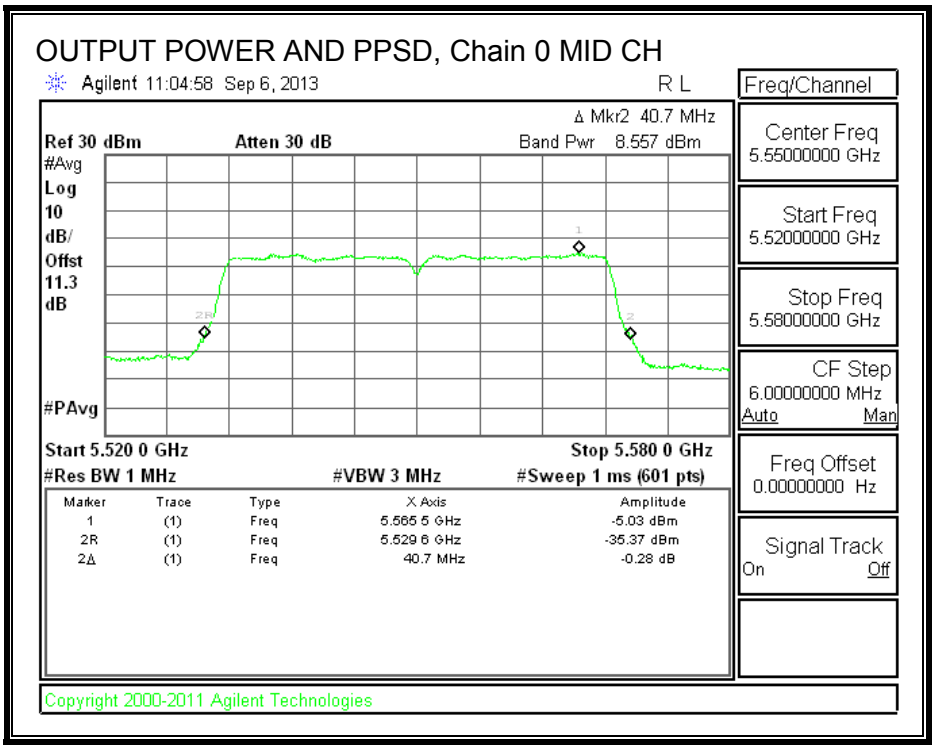
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	8.60	8.23	11.43	24.00	-12.57
Mid	5550	8.56	8.34	11.46	24.00	-12.54
High	5670	8.77	8.48	11.64	24.00	-12.36

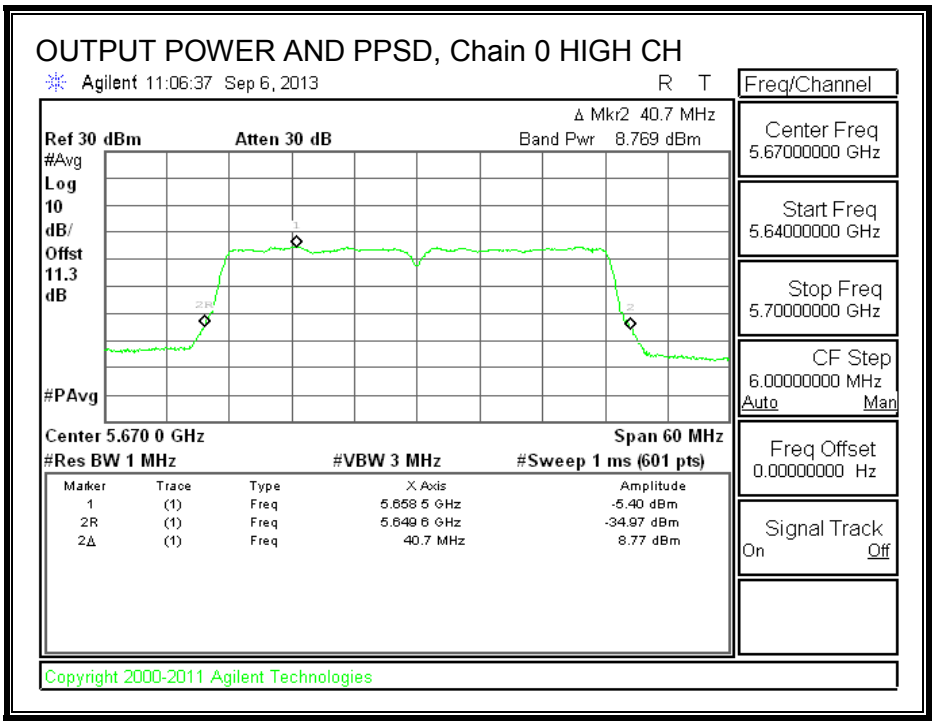
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	-5.22	-5.62	-2.41	11.00	-13.41
Mid	5550	-5.03	-5.33	-2.17	11.00	-13.17
High	5670	-5.40	-4.99	-2.18	11.00	-13.18

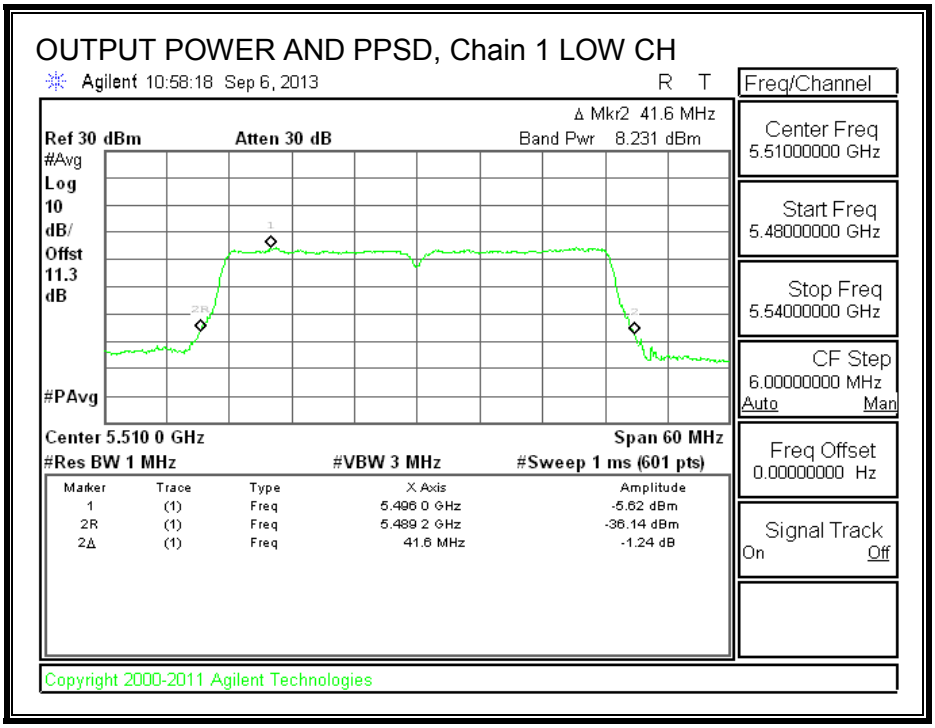
OUTPUT POWER AND PPSD, Chain 0



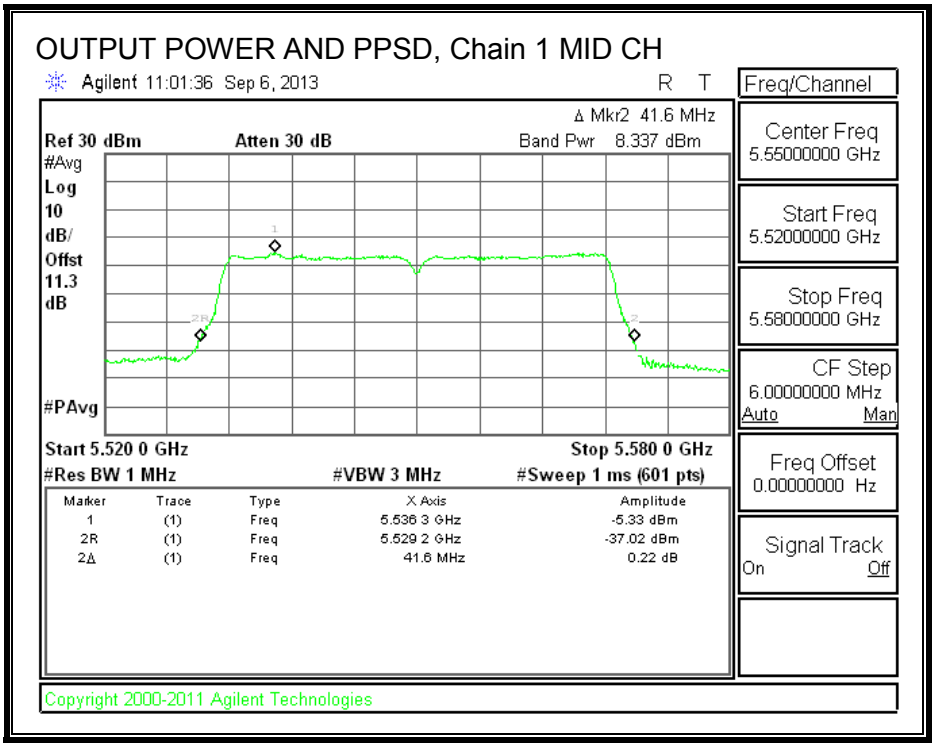




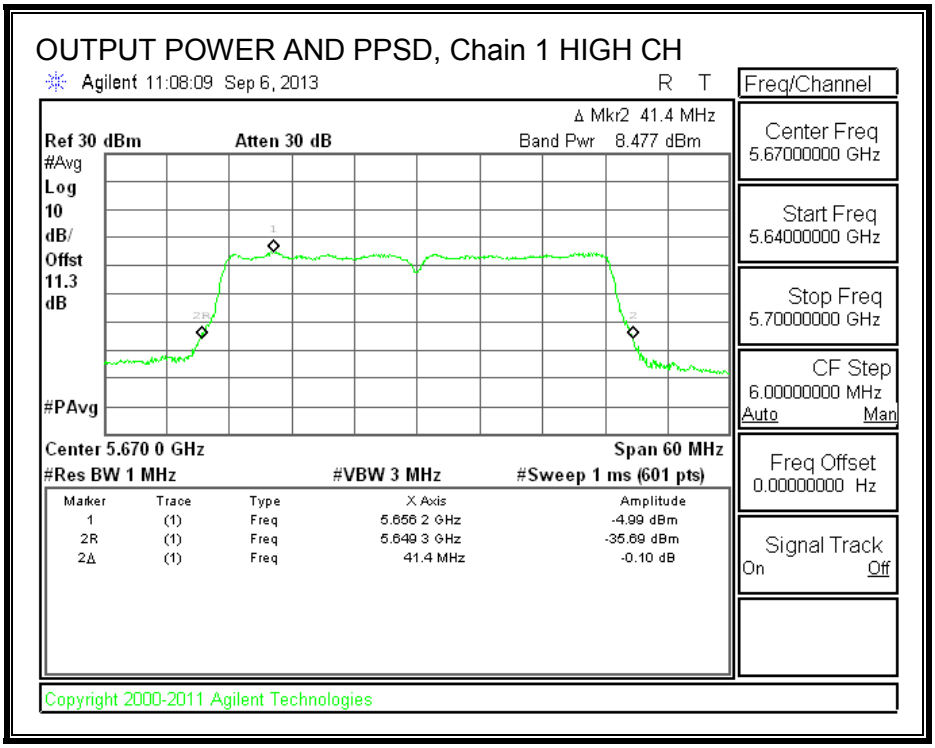
OUTPUT POWER AND PPSD, Chain 1



OUTPUT POWER AND PPSD, Chain 1 MID CH



OUTPUT POWER AND PPSD, Chain 1 HIGH CH



8.9.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

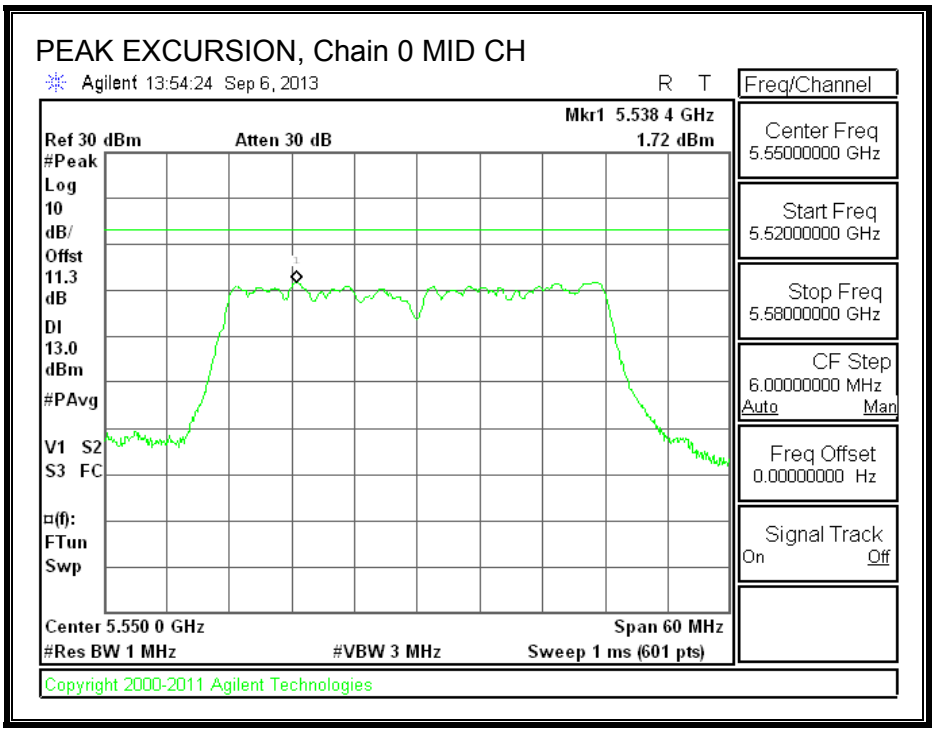
Chain 0

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5550	1.72	-5.03	0.00	6.75	13	-6.25

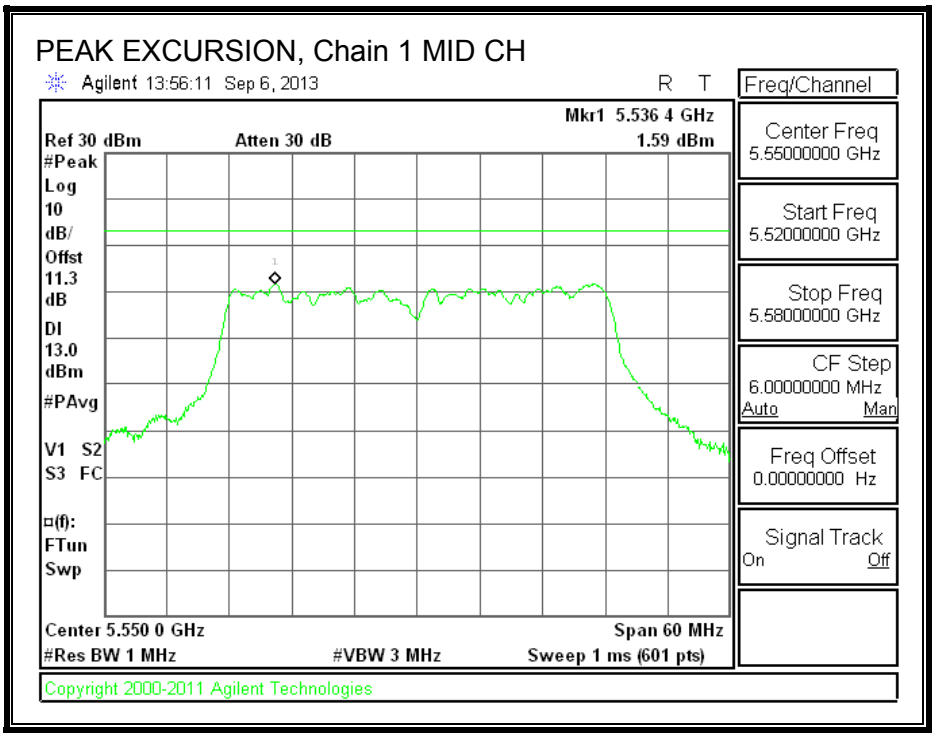
Chain 1

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5550	1.59	-5.33	0.00	6.92	13	-6.08

PEAK EXCURSION, Chain 0



PEAK EXCURSION, Chain 1



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, video bandwidth is set to 3 MHz, then Peak detection mode is set for peak measurements and Avg detection mode is used for average measurements.

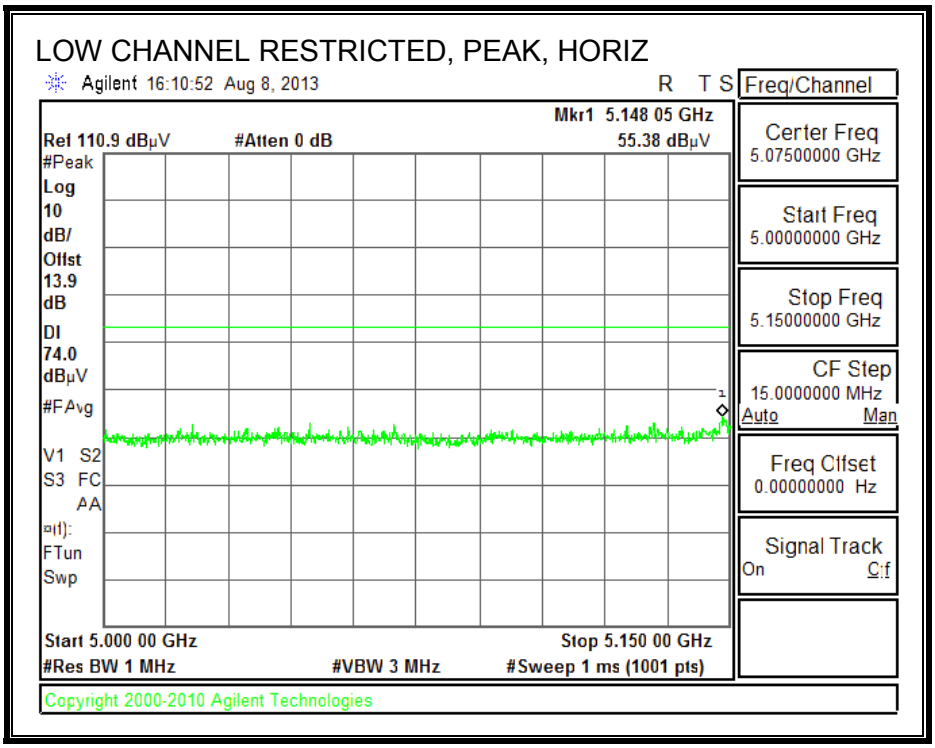
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

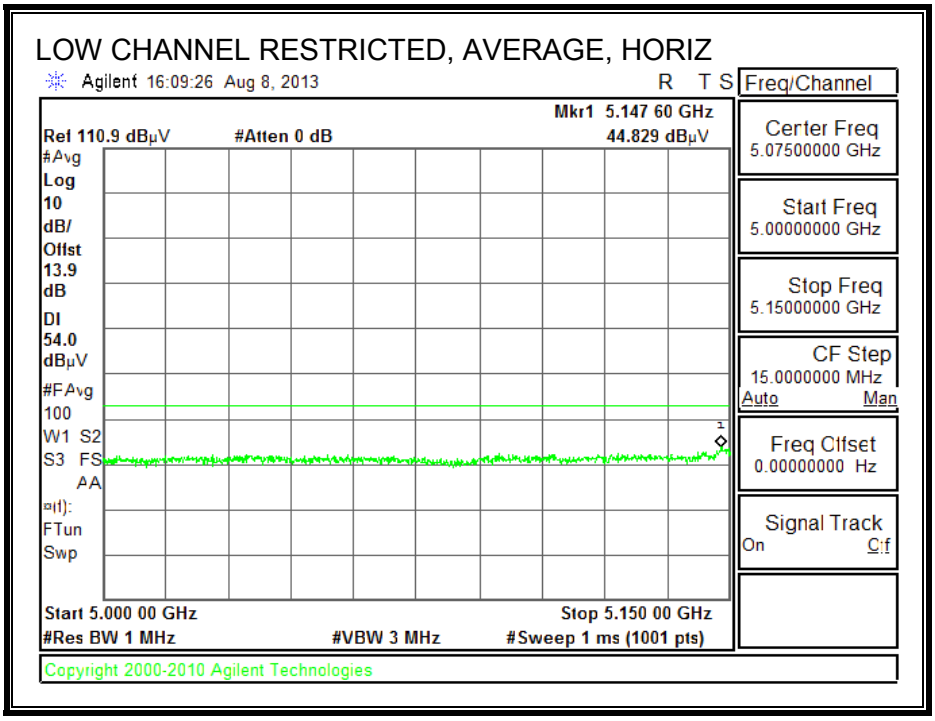
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

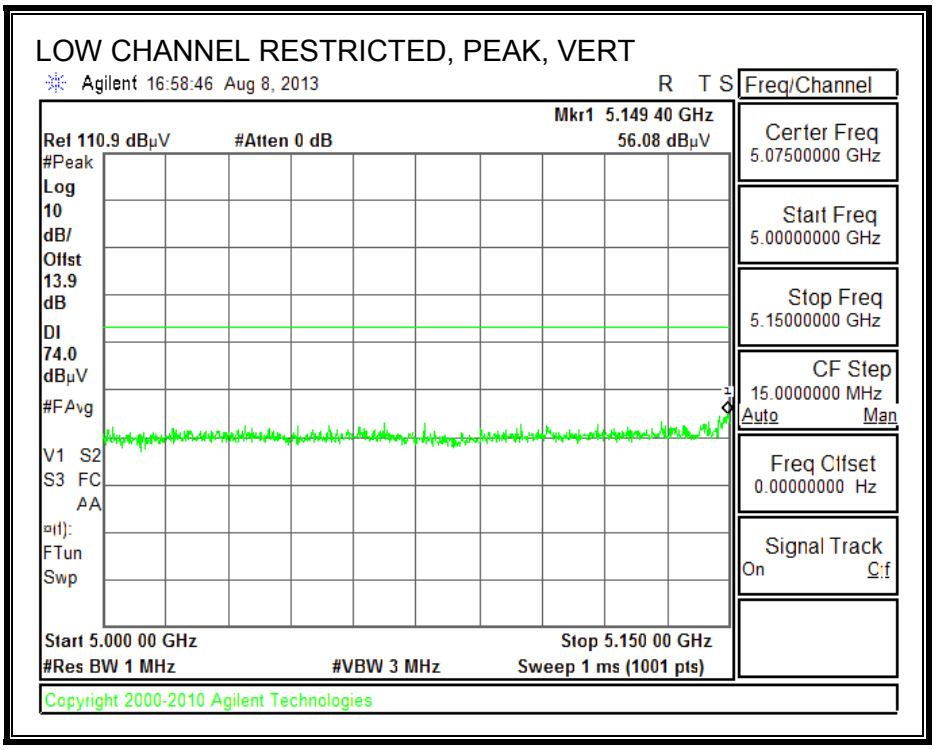
9.2. TRANSMITTER ABOVE 1 GHz

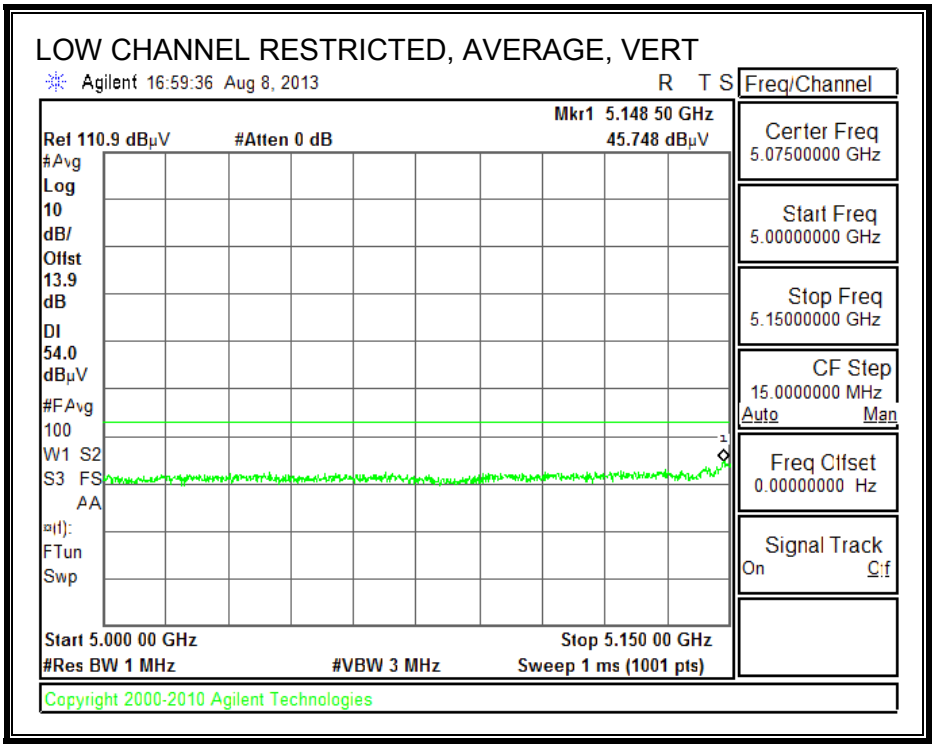
9.3. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)





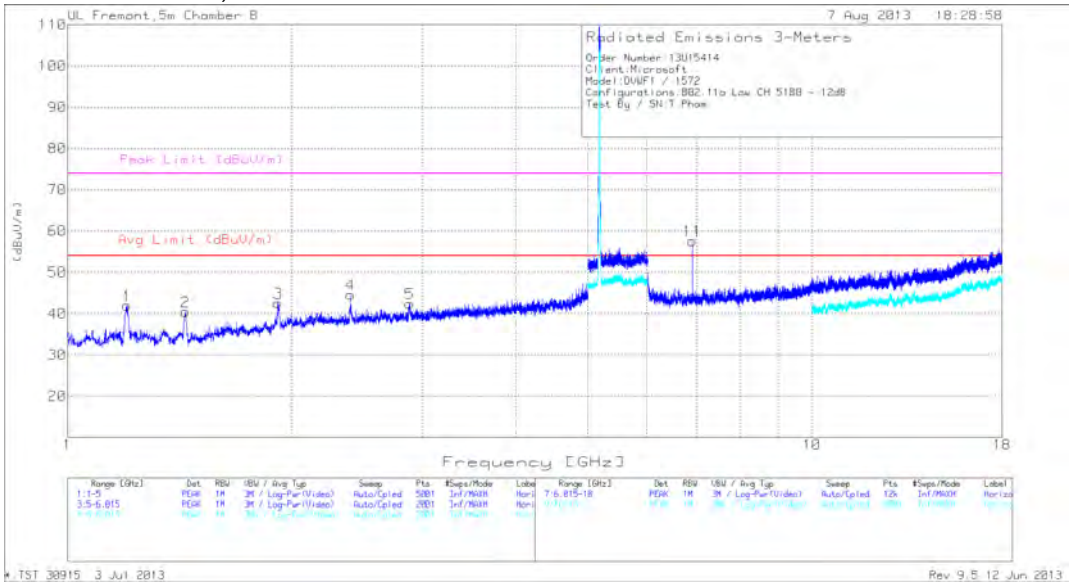




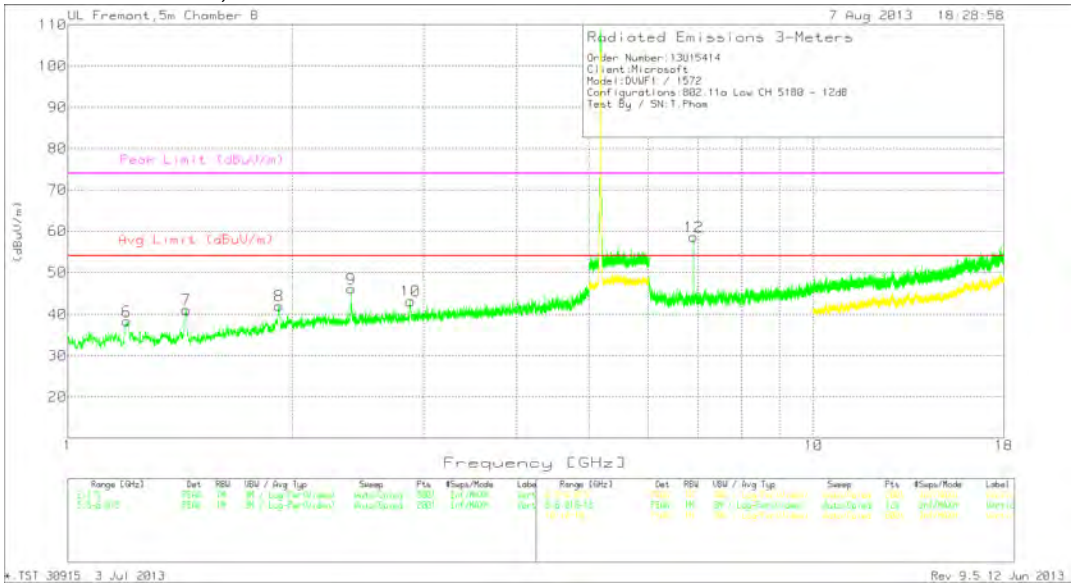
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL

LOW CHANNEL, HORIZ



LOW CHANNEL, VERT



HARMONICS AND SPURIOUS EMISSIONS

LOW Channel DATA

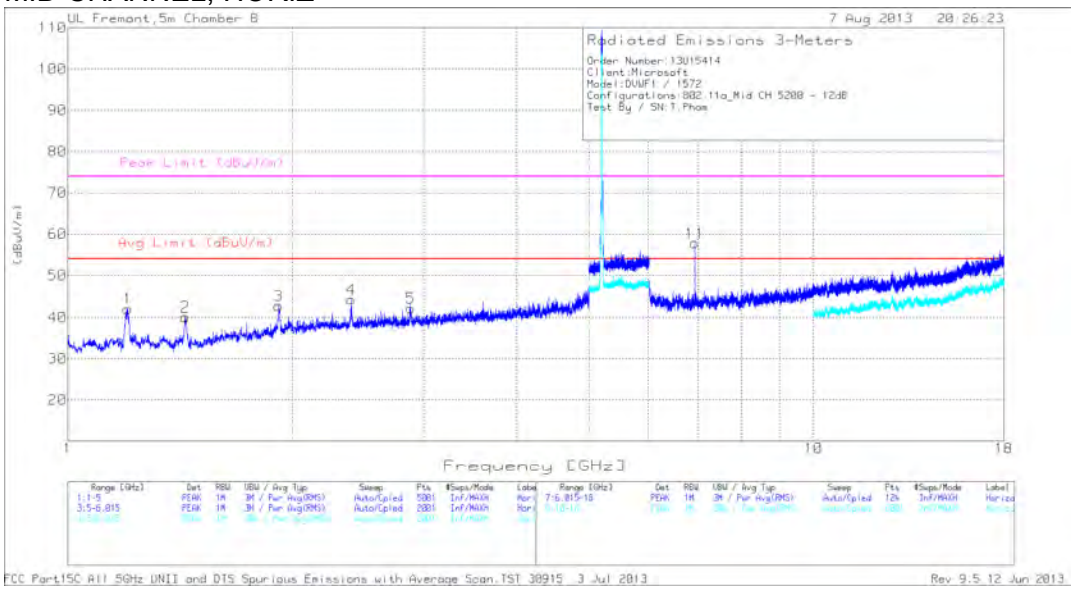
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.202	49.07	PK	28.4	-35.5	41.97	53.97	-12	74	-32.03	0-360	100	H
1.439	46.87	PK	28.3	-34.7	40.47	53.97	-13.5	74	-33.53	0-360	200	H
1.918	44.48	PK	31.2	-33.1	42.58	53.97	-11.39	74	-31.42	0-360	200	H
2.399	45.54	PK	32.3	-33.2	44.64	53.97	-9.33	74	-29.36	0-360	200	H
2.882	42.26	PK	33	-32.8	42.46	53.97	-11.51	74	-31.54	0-360	200	H
1.2	45.46	PK	28.4	-35.5	38.36	53.97	-15.61	74	-35.64	0-360	100	V
1.442	47.59	PK	28.3	-34.8	41.09	53.97	-12.88	74	-32.91	0-360	100	V
1.921	43.8	PK	31.3	-33.1	42	53.97	-11.97	74	-32	0-360	100	V
2.4	46.95	PK	32.3	-33.2	46.05	53.97	-7.92	74	-27.95	0-360	100	V
2.881	42.95	PK	33	-32.8	43.15	53.97	-10.82	74	-30.85	0-360	100	V
6.907*	50.05	PK	35.9	-28.3	57.65	-	-	68.2	-10.55	0-360	100	H
6.907*	51.08	PK	35.9	-28.3	58.68	-	-	68.2	-9.52	0-360	100	V

*- Non Restrictive Band

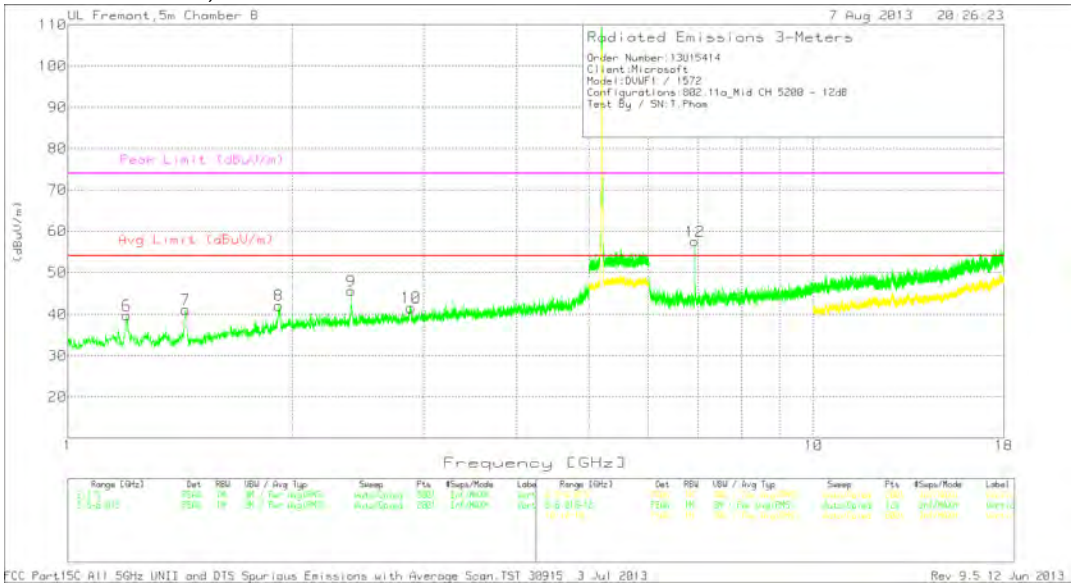
PK - Peak detector

MID CHANNEL

MID CHANNEL, HORIZ



MID CHANNEL, VERT



MID Channel DATA

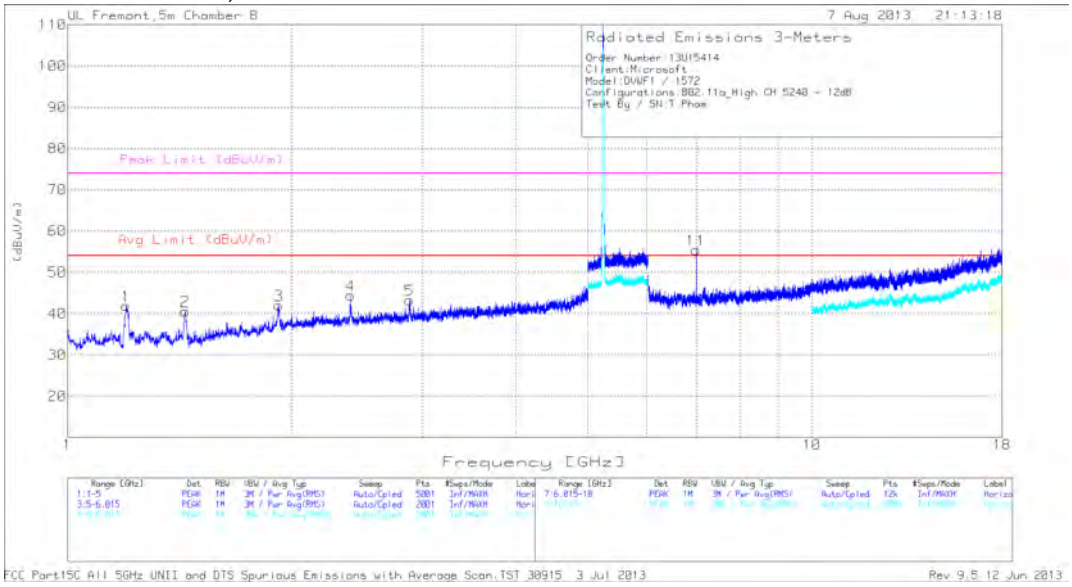
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.203	49.18	PK	28.4	-35.5	42.08	53.97	-11.89	74	-31.92	0-360	100	H
1.438	46.41	PK	28.3	-34.6	40.11	53.97	-13.86	74	-33.89	0-360	200	H
1.918	44.64	PK	31.2	-33.1	42.74	53.97	-11.23	74	-31.26	0-360	200	H
2.4	45.09	PK	32.3	-33.2	44.19	53.97	-9.78	74	-29.81	0-360	200	H
2.883	41.98	PK	33	-32.8	42.18	53.97	-11.79	74	-31.82	0-360	200	H
1.2	46.83	PK	28.4	-35.5	39.73	53.97	-14.24	74	-34.27	0-360	100	V
1.44	47.54	PK	28.3	-34.7	41.14	53.97	-12.83	74	-32.86	0-360	100	V
1.918	44	PK	31.2	-33.1	42.1	53.97	-11.87	74	-31.9	0-360	100	V
2.4	46.47	PK	32.3	-33.2	45.57	53.97	-8.4	74	-28.43	0-360	100	V
2.886	41.38	PK	33	-32.8	41.58	53.97	-12.39	74	-32.42	0-360	100	V
6.934*	50.08	PK	35.9	-28.1	57.88	-	-	68.2	-10.32	0-360	100	H
6.934*	49.8	PK	35.9	-28.1	57.6	-	-	68.2	-10.6	0-360	100	V

*- Non Restrictive Band

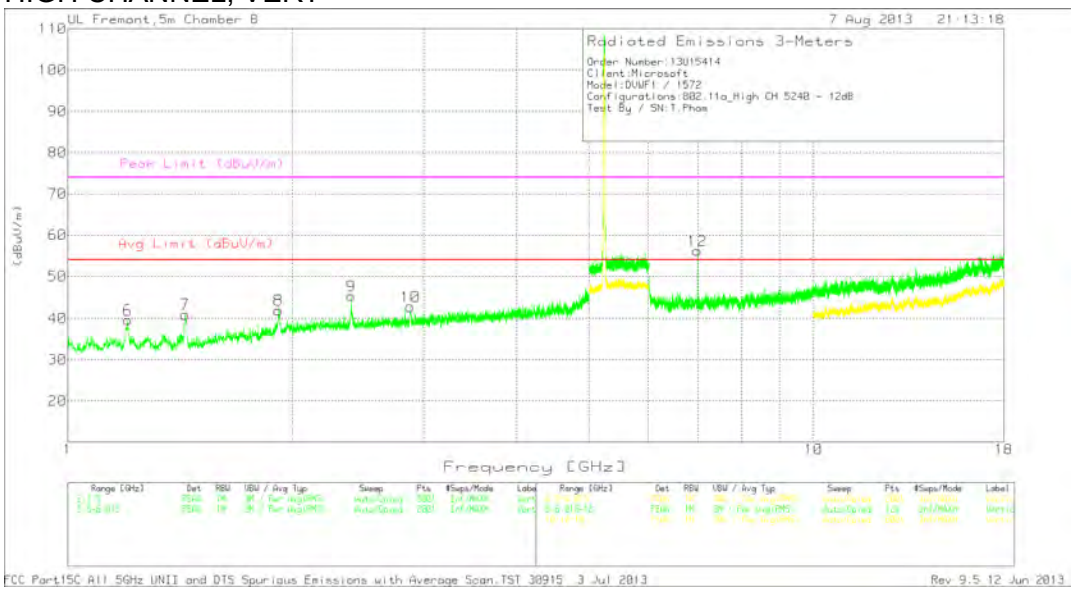
PK - Peak detector

HIGH CHANNEL

HIGH CHANNEL, HORZ



HIGH CHANNEL, VERT



HIGH CHANNEL DATA

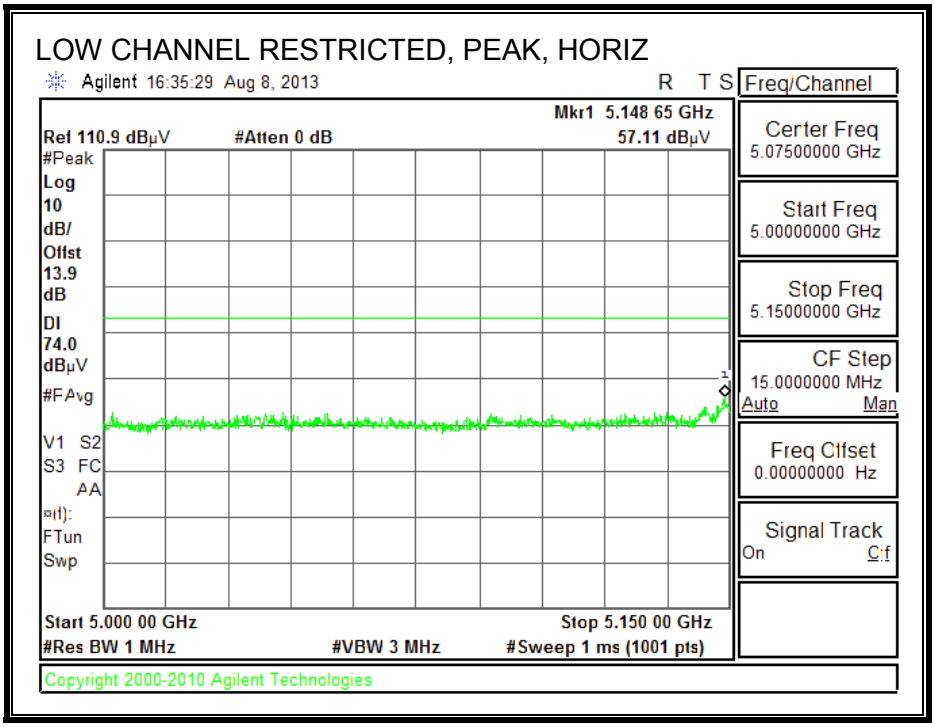
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.198	49.1	PK	28.3	-35.5	41.9	53.97	-12.07	74	-32.1	0-360	100	H
1.438	46.86	PK	28.3	-34.6	40.56	53.97	-13.41	74	-33.44	0-360	200	H
1.921	43.83	PK	31.3	-33.1	42.03	53.97	-11.94	74	-31.97	0-360	100	H
2.4	45.28	PK	32.3	-33.2	44.38	53.97	-9.59	74	-29.62	0-360	200	H
2.878	43.1	PK	33	-32.8	43.3	53.97	-10.67	74	-30.7	0-360	200	H
1.204	46.68	PK	28.4	-35.5	39.58	53.97	-14.39	74	-34.42	0-360	100	V
1.438	47.19	PK	28.3	-34.6	40.89	53.97	-13.08	74	-33.11	0-360	100	V
1.917	43.81	PK	31.2	-33.1	41.91	53.97	-12.06	74	-32.09	0-360	200	V
2.4	46.21	PK	32.3	-33.2	45.31	53.97	-8.66	74	-28.69	0-360	100	V
2.879	42.56	PK	33	-32.8	42.76	53.97	-11.21	74	-31.24	0-360	100	V
6.987*	47.05	PK	35.9	-27.5	55.45	-	-	68.2	-12.75	0-360	100	H
6.987*	47.84	PK	35.9	-27.5	56.24	-	-	68.2	-1196	0-360	100	V

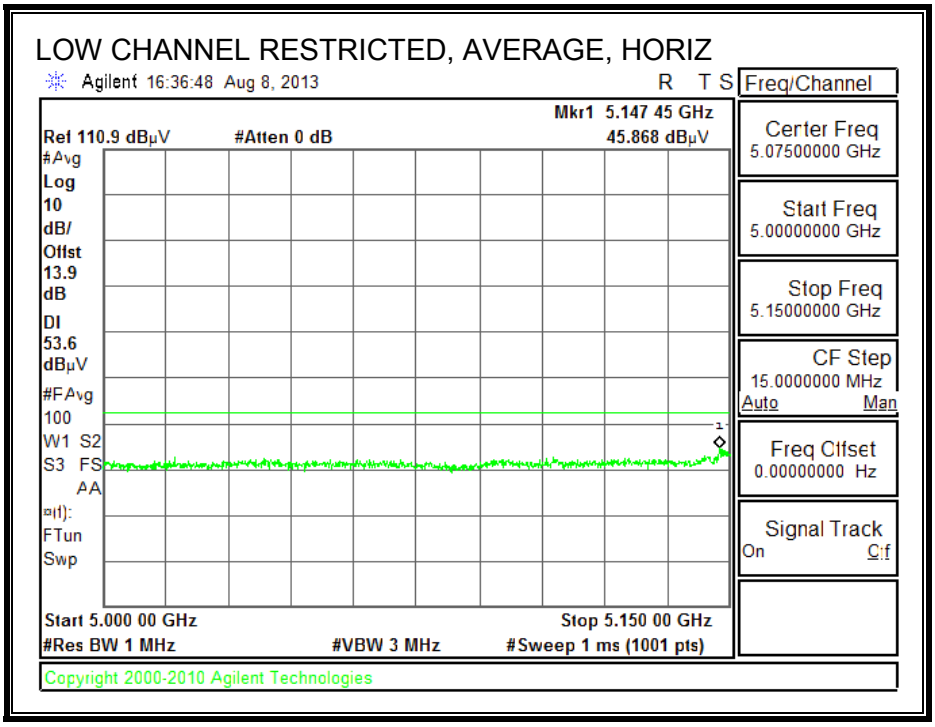
*- Non Restrictive Band

PK - Peak detector

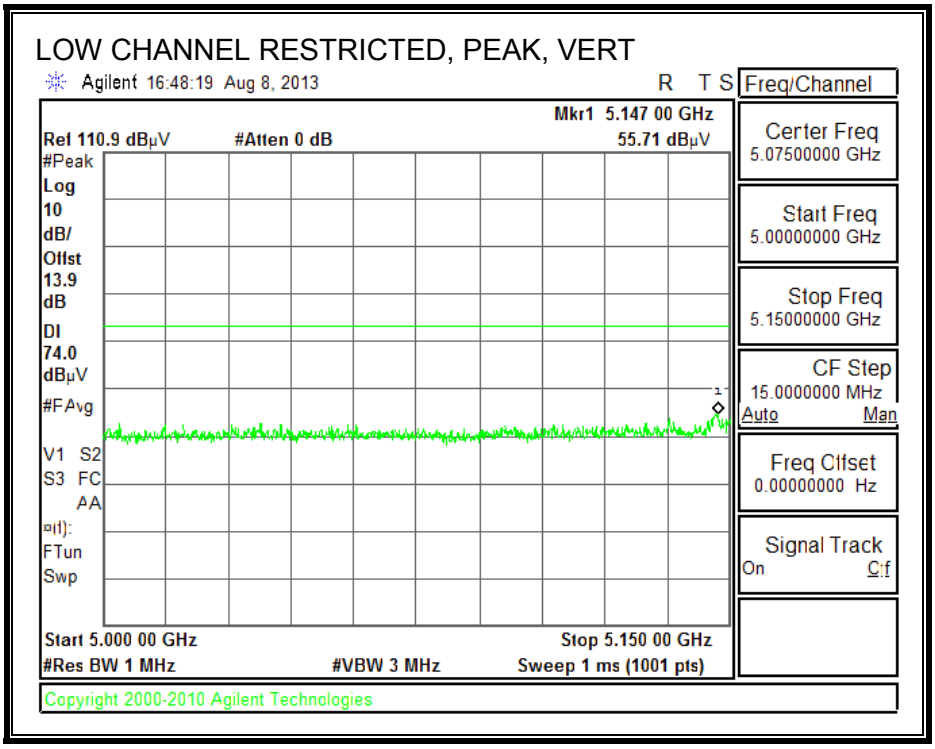
9.4. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

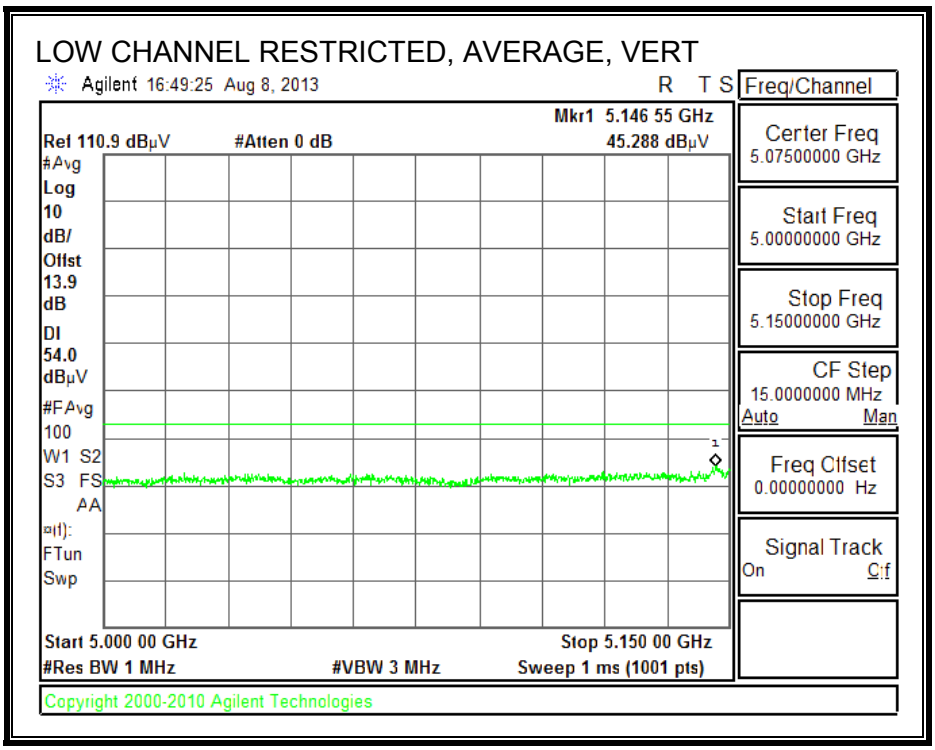




LOW CHANNEL RESTRICTED, PEAK, VERT



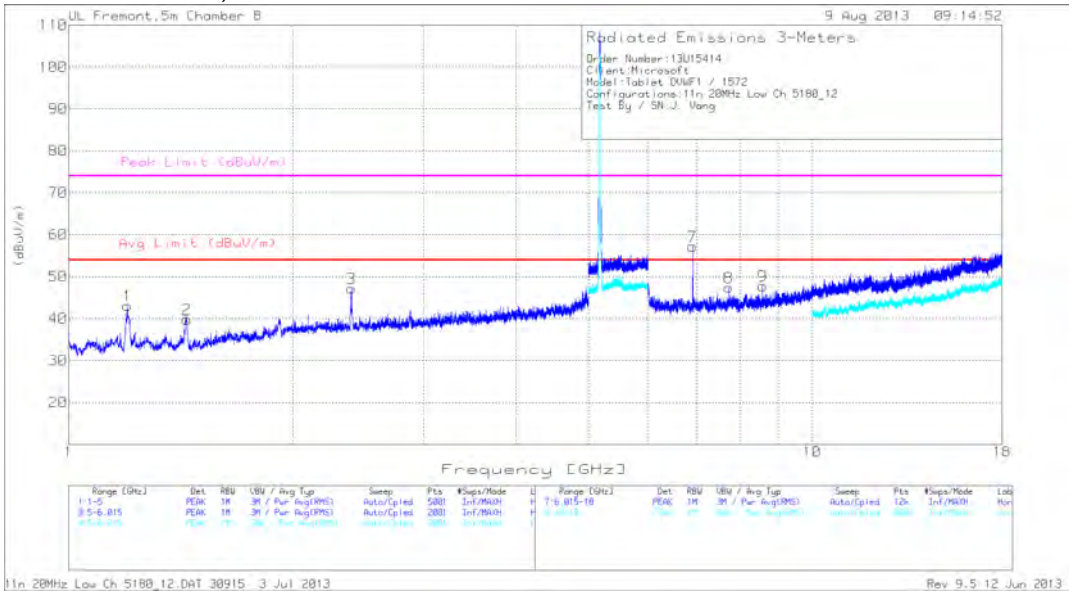
LOW CHANNEL RESTRICTED, AVERAGE, VERT



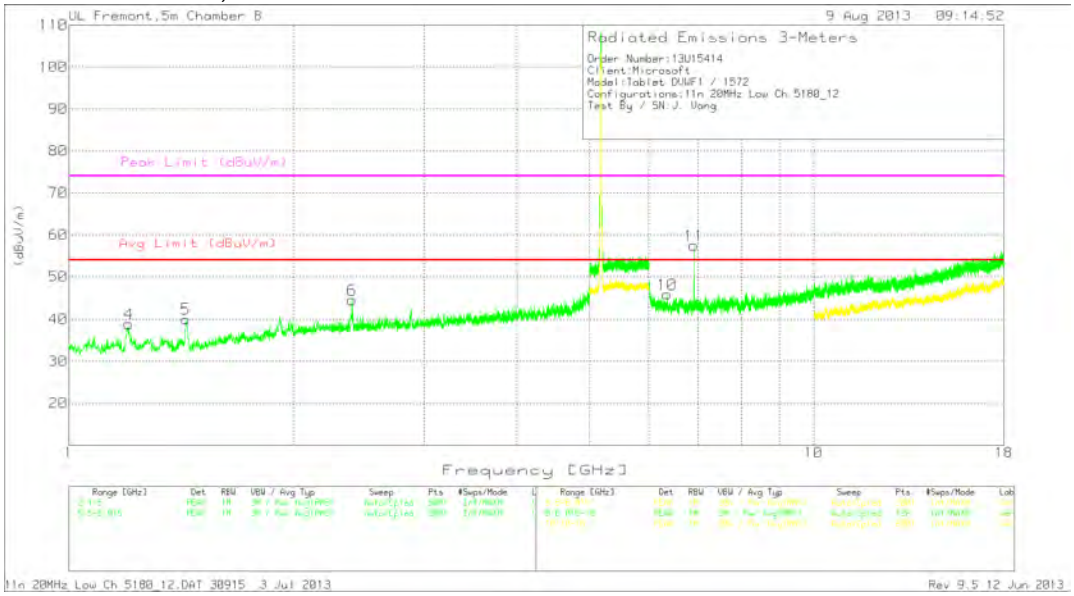
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL

LOW CHANNEL, HORIZ



LOW CHANNEL, VERT



HARMONICS AND SPURIOUS EMISSIONS

LOW Channel DATA

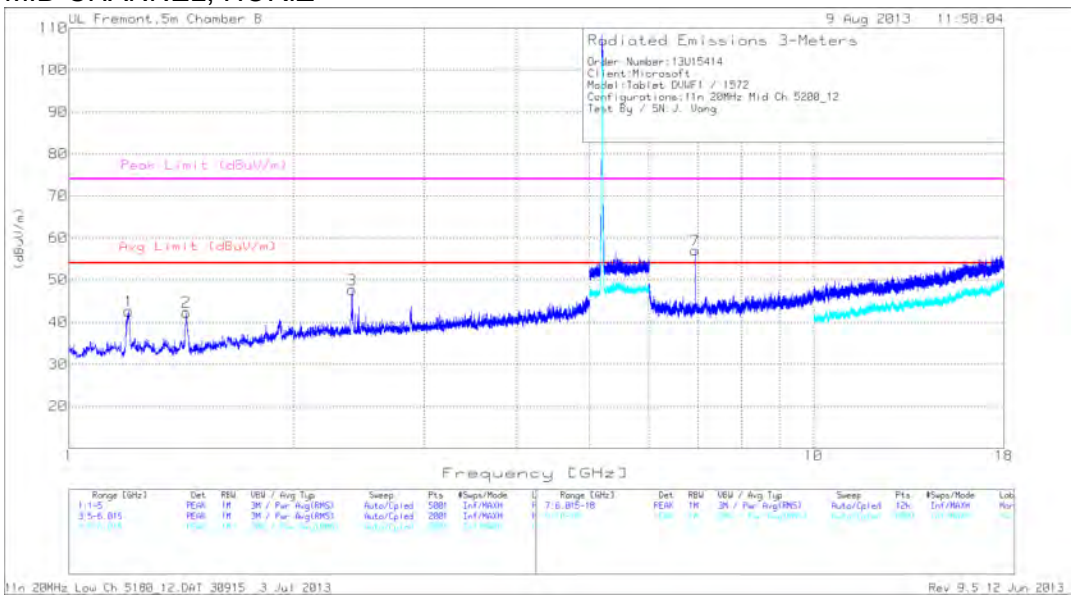
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.2	50.17	PK	28.4	-35.5	43.07	53.97	-10.9	74	-30.93	0-360	100	H
1.442	46.32	PK	28.3	-34.8	39.82	53.97	-14.15	74	-34.18	0-360	200	H
2.4	48.09	PK	32.3	-33.2	47.19	53.97	-6.78	74	-26.81	0-360	100	H
1.204	46.02	PK	28.4	-35.5	38.92	53.97	-15.05	74	-35.08	0-360	100	V
1.436	46.33	PK	28.3	-34.6	40.03	53.97	-13.94	74	-33.97	0-360	200	V
2.4	45.4	PK	32.3	-33.2	44.5	53.97	-9.47	74	-29.5	0-360	200	V
6.907*	49.64	PK	35.9	-28.3	57.24	-	-	68.2	-10.96	0-360	100	H
7.728	38.13	PK	36.2	-26.9	47.43	53.97	-6.54	74	-26.57	0-360	200	H
8.576	37.78	PK	36.3	-26.3	47.78	53.97	-6.19	74	-26.22	0-360	100	H
6.357	37.94	PK	36	-28.1	45.84	53.97	-8.13	74	-28.16	0-360	200	V
6.907*	49.89	PK	35.9	-28.3	57.49	-	-	68.2	-10.71	0-360	100	V

*-Non-Restrictive Band

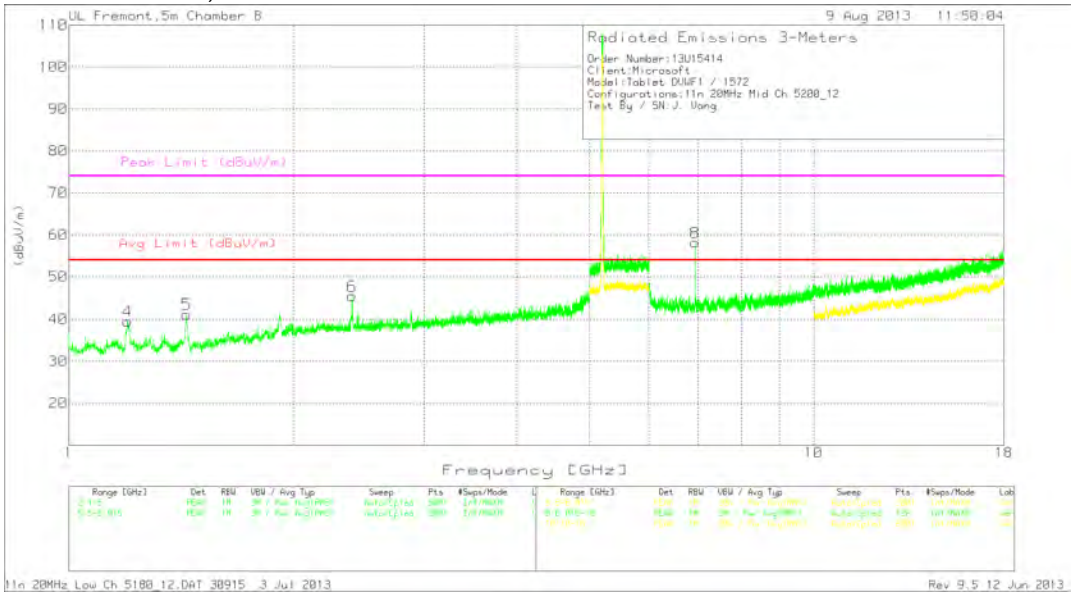
PK - Peak detector

MID CHANNEL

MID CHANNEL, HORIZ



MID CHANNEL, VERT



MID Channel DATA

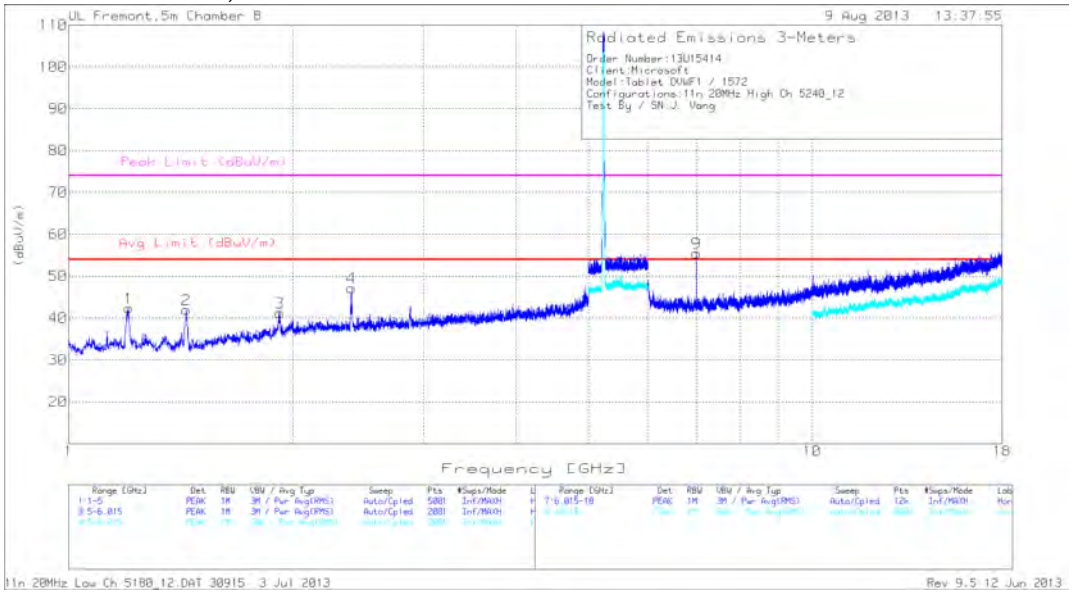
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.204	49.73	PK	28.4	-35.5	42.63	53.97	-11.34	74	-31.37	0-360	100	H
1.438	48.62	PK	28.3	-34.6	42.32	53.97	-11.65	74	-31.68	0-360	100	H
2.4	48.52	PK	32.3	-33.2	47.62	53.97	-6.35	74	-26.38	0-360	100	H
1.2	46.6	PK	28.4	-35.5	39.5	53.97	-14.47	74	-34.5	0-360	100	V
1.439	47.57	PK	28.3	-34.7	41.17	53.97	-12.8	74	-32.83	0-360	100	V
2.4	46.32	PK	32.3	-33.2	45.42	53.97	-8.55	74	-28.58	0-360	100	V
6.933*	49.31	PK	35.9	-28.2	57.01	-	-	68.2	-11.19	0-360	100	H
6.933*	50.5	PK	35.9	-28.2	58.2	-	-	68.2	-10.6	0-360	100	V

*- Non Restrictive Band

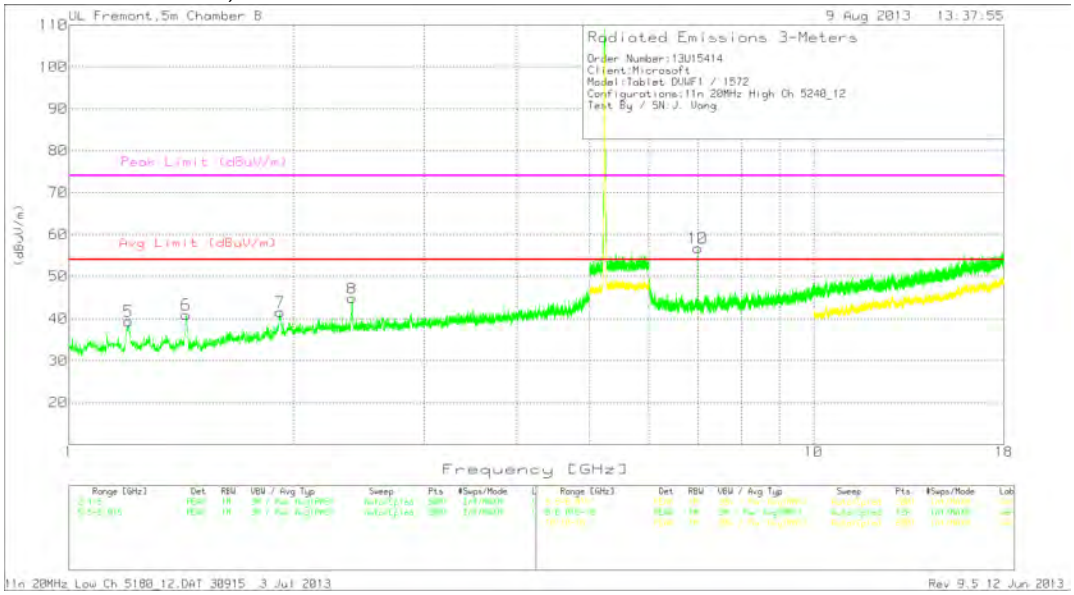
PK - Peak detector

HIGH CHANNEL

HIGH CHANNEL, HORZ



HIGH CHANNEL, VERT



HIGH CHANNEL DATA

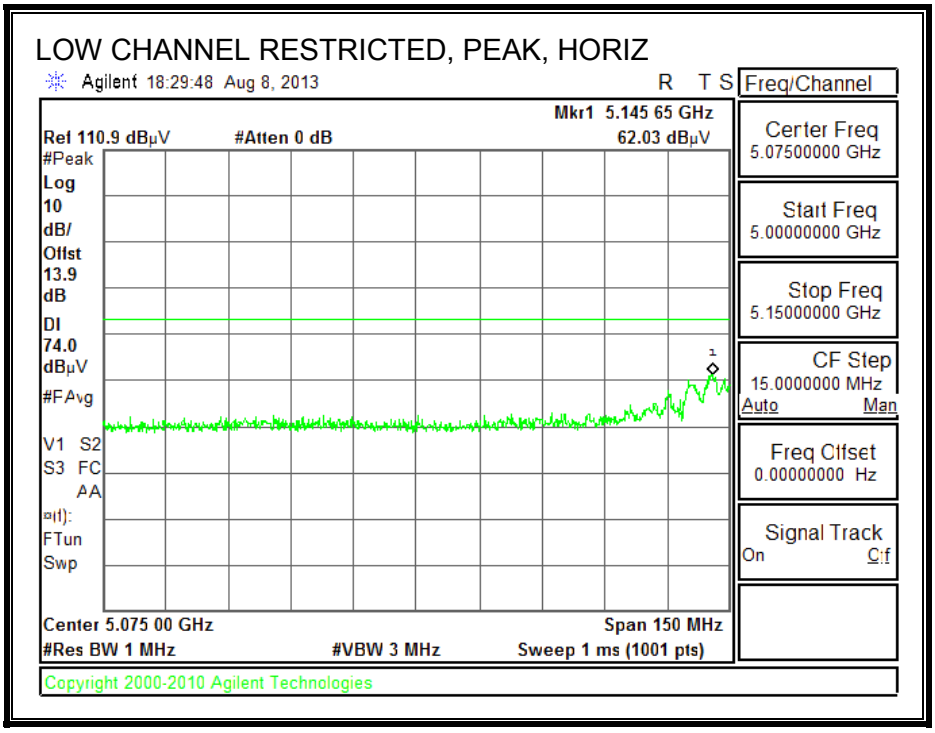
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.205	49.49	PK	28.4	-35.5	42.39	53.97	-11.58	74	-31.61	0-360	100	H
1.44	48.4	PK	28.3	-34.7	42	53.97	-11.97	74	-32	0-360	100	H
1.924	43.16	PK	31.3	-33.2	41.26	53.97	-12.71	74	-32.74	0-360	100	H
2.4	48.12	PK	32.3	-33.2	47.22	53.97	-6.75	74	-26.78	0-360	100	H
1.202	46.5	PK	28.4	-35.5	39.4	53.97	-14.57	74	-34.6	0-360	100	V
1.438	47.26	PK	28.3	-34.6	40.96	53.97	-13.01	74	-33.04	0-360	100	V
1.923	43.4	PK	31.3	-33.1	41.6	53.97	-12.37	74	-32.4	0-360	200	V
2.4	45.69	PK	32.3	-33.2	44.79	53.97	-9.18	74	-29.21	0-360	100	V
6.987*	47.11	PK	35.9	-27.5	55.51	-	-	68.2	-12.69	0-360	100	H
6.987*	48.38	PK	35.9	-27.5	56.78	-	-	68.2	-11.42	0-360	100	V

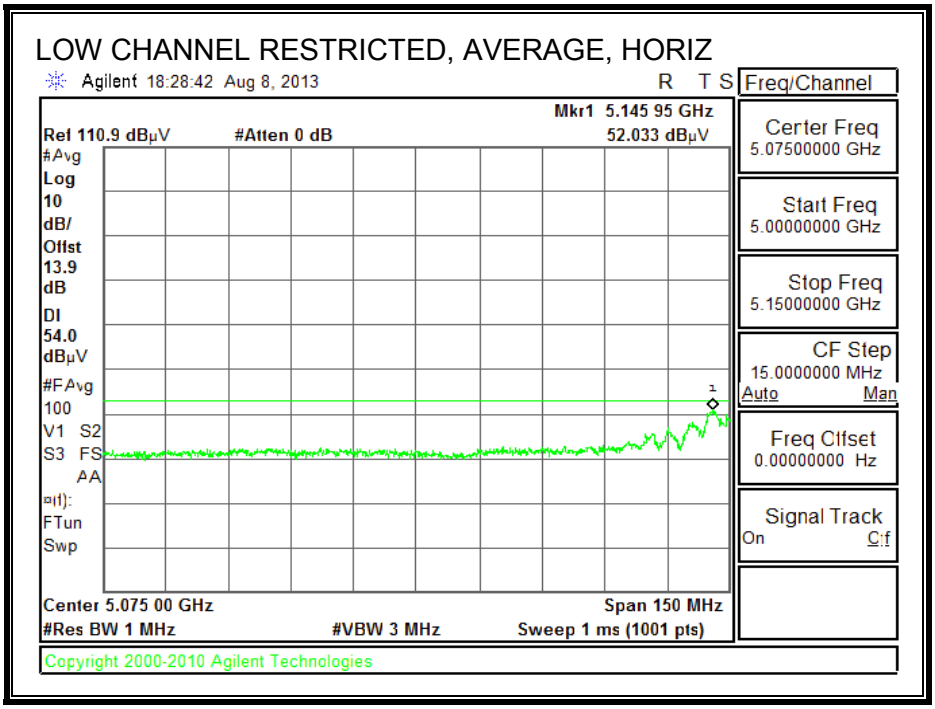
*- Non Restrictive Band

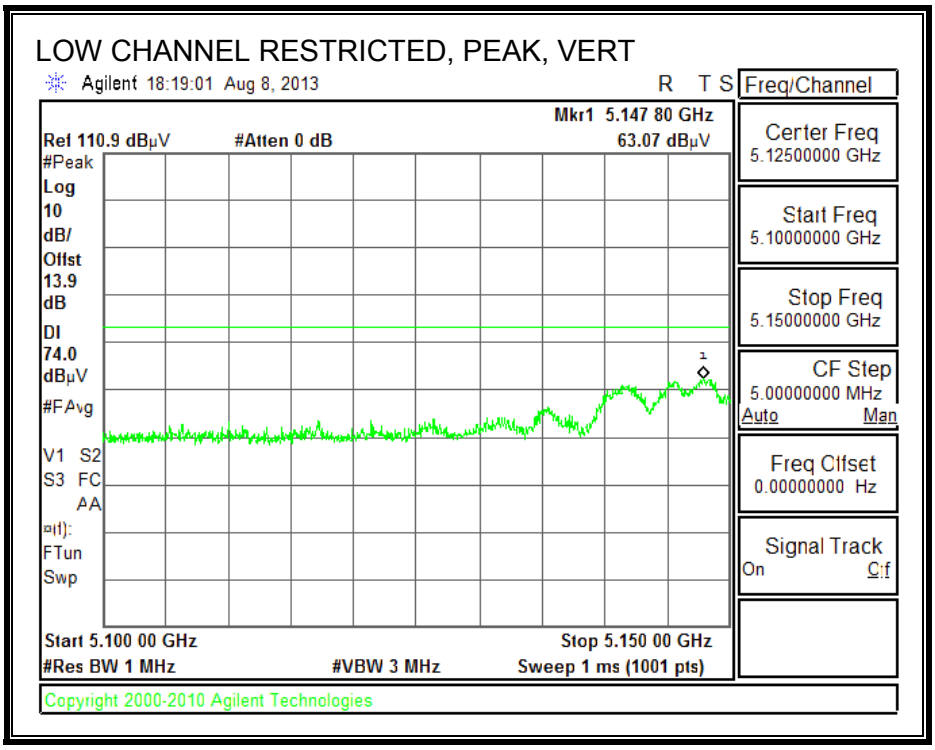
PK - Peak detector

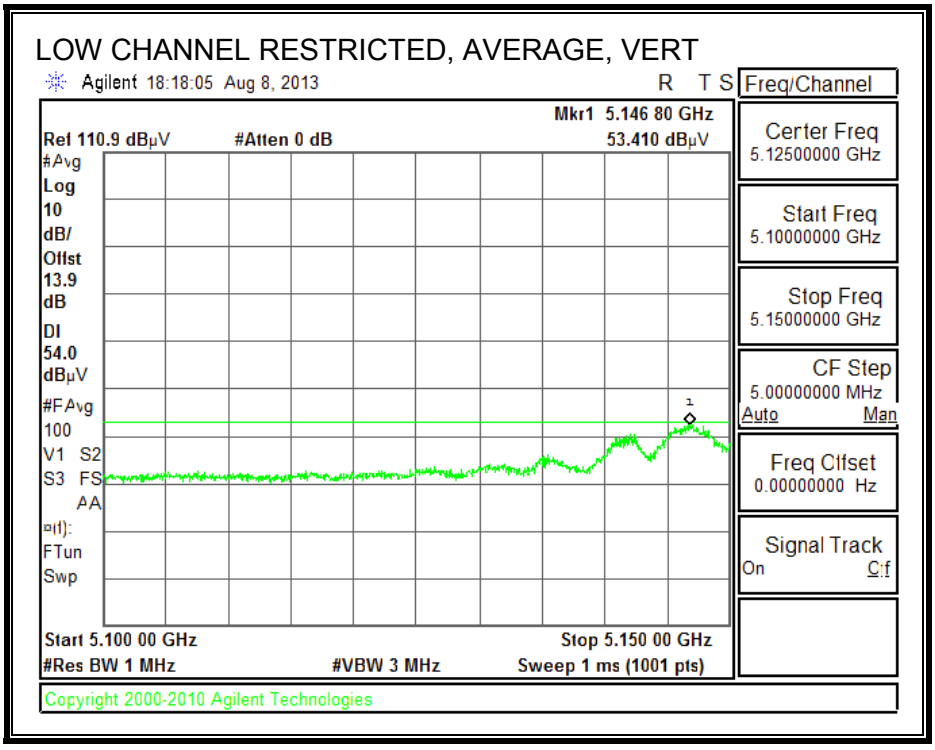
9.5. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)





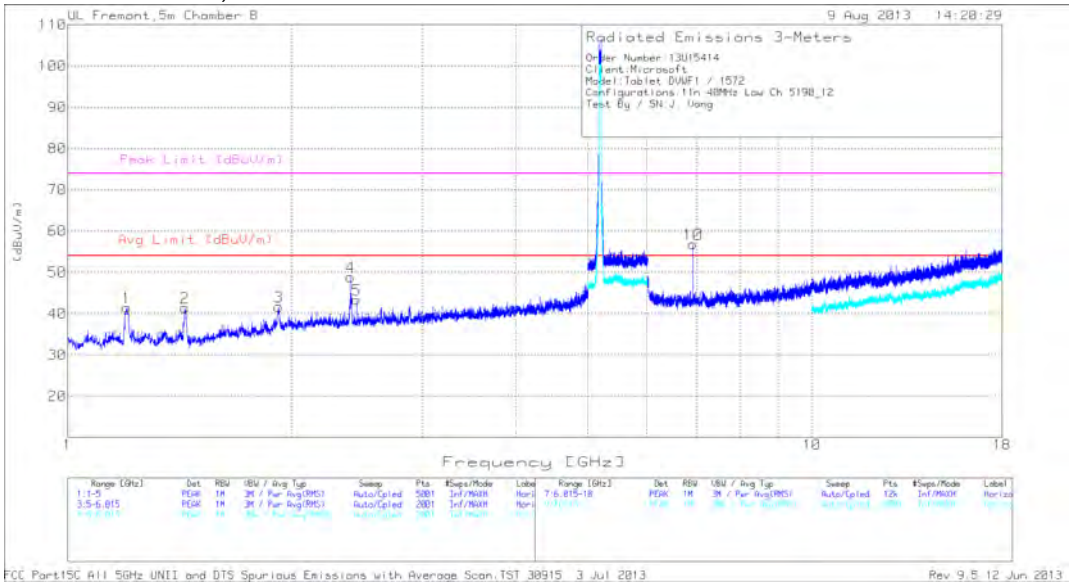




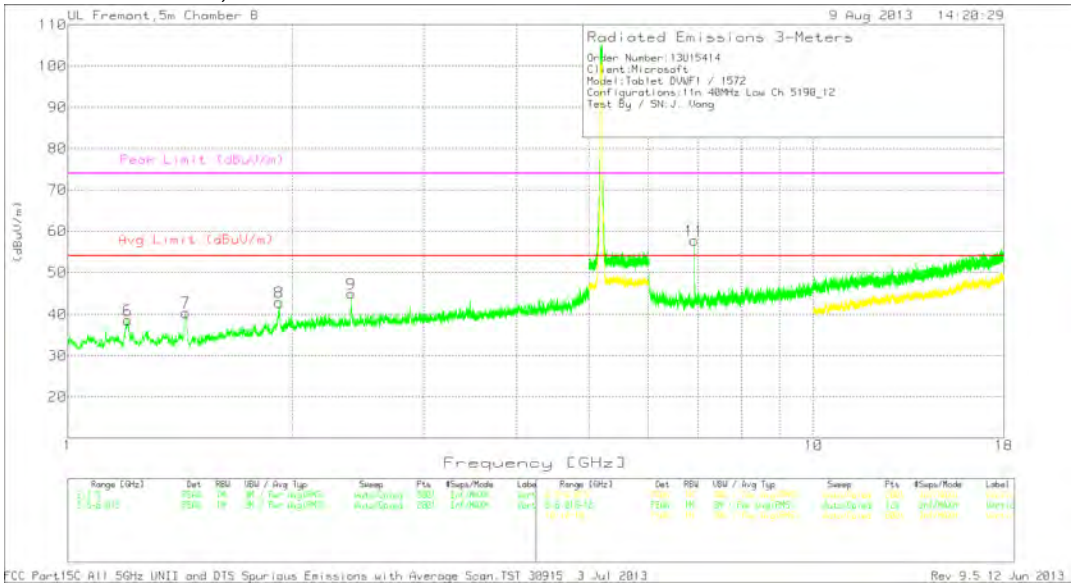
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL

LOW CHANNEL, HORIZ



LOW CHANNEL, VERT



HARMONICS AND SPURIOUS EMISSIONS

LOW Channel DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.201	48.58	PK	28.4	-35.5	41.48	53.97	-12.49	74	-32.52	0-360	100	H
1.438	47.75	PK	28.3	-34.6	41.45	53.97	-12.52	74	-32.55	0-360	100	H
1.921	43.48	PK	31.3	-33.1	41.68	53.97	-12.29	74	-32.32	0-360	100	H
2.4	49.78	PK	32.3	-33.2	48.88	53.97	-5.09	74	-25.12	0-360	100	H
2.445	44.09	PK	32.4	-33.1	43.39	53.97	-10.58	74	-30.61	0-360	200	H
1.204	45.72	PK	28.4	-35.5	38.62	53.97	-15.35	74	-35.38	0-360	100	V
1.44	46.76	PK	28.3	-34.7	40.36	53.97	-13.61	74	-33.64	0-360	200	V
1.921	44.6	PK	31.3	-33.1	42.8	53.97	-11.17	74	-31.2	0-360	200	V
2.4	45.77	PK	32.3	-33.2	44.87	53.97	-9.1	74	-29.13	0-360	100	V
6.92*	49.47	PK	35.9	-28.5	56.87	-	-	68.2	-11.33	0-360	100	H
6.92*	50.37	PK	35.9	-28.5	57.77	-	-	68.2	-10.43	0-360	100	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.4	45.16	Av	32.3	-33.2	44.26	53.97	-9.71	-	-	186	105	H

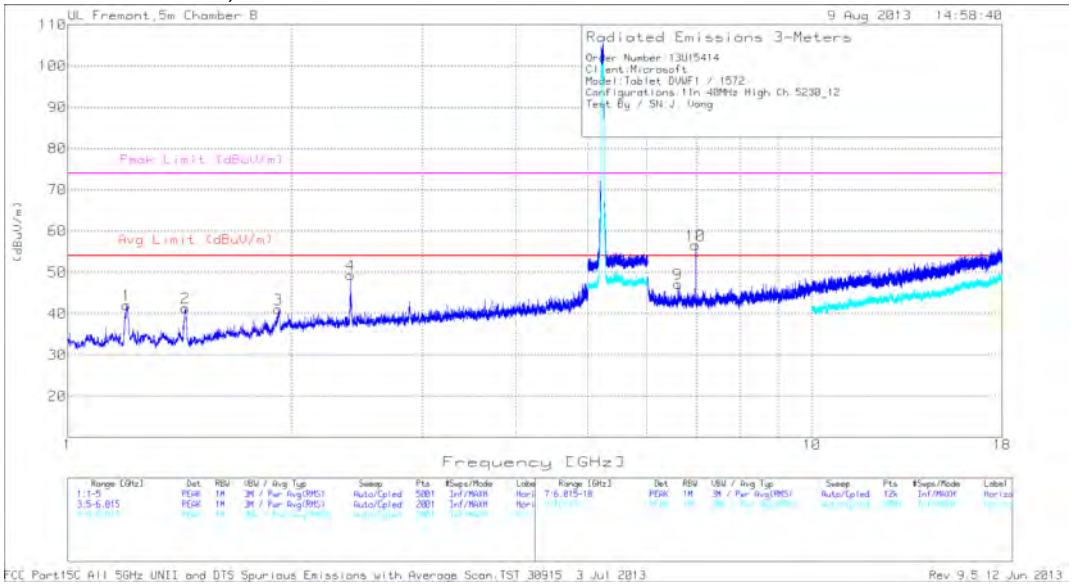
*- Non Restrictive Band

PK - Peak detector

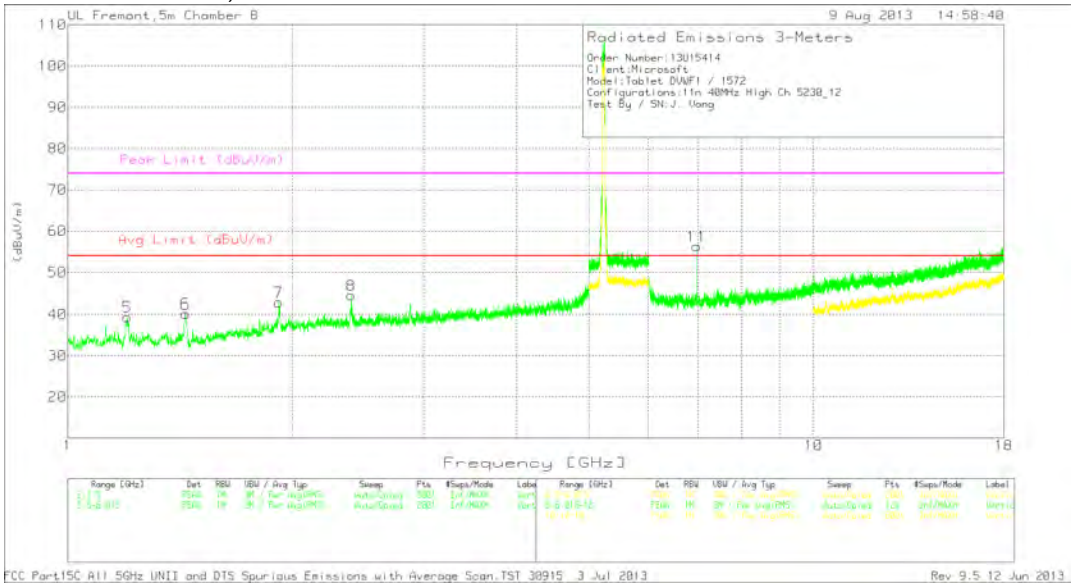
Av - average detection

HIGH CHANNEL

HIGH CHANNEL, HORZ



HIGH CHANNEL, VERT



HIGH CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.2	49.17	PK	28.4	-35.5	42.07	53.97	-11.9	74	-31.93	0-360	100	H
1.439	47.8	PK	28.3	-34.7	41.4	53.97	-12.57	74	-32.6	0-360	100	H
1.918	42.96	PK	31.2	-33.1	41.06	53.97	-12.91	74	-32.94	0-360	200	H
2.4	50.22	PK	32.3	-33.2	49.32	53.97	-4.65	74	-24.68	0-360	100	H
1.202	46.48	PK	28.4	-35.5	39.38	53.97	-14.59	74	-34.62	0-360	100	V
1.438	46.46	PK	28.3	-34.6	40.16	53.97	-13.81	74	-33.84	0-360	100	V
1.919	44.65	PK	31.3	-33.1	42.85	53.97	-11.12	74	-31.15	0-360	200	V
2.4	45.4	PK	32.3	-33.2	44.5	53.97	-9.47	74	-29.5	0-360	200	V
6.605	39.11	PK	35.9	-27.8	47.21	53.97	-6.76	74	-26.79	0-360	200	H
6.974*	48.3	PK	35.9	-27.6	56.6	-	-	68.2	-11.6	0-360	100	H
6.974*	48.08	PK	35.9	-27.6	56.38	-	-	68.2	-11.82	0-360	100	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.4	43.83	Av	32.3	-33.2	42.93	53.97	-11.04	-	-	183	109	H

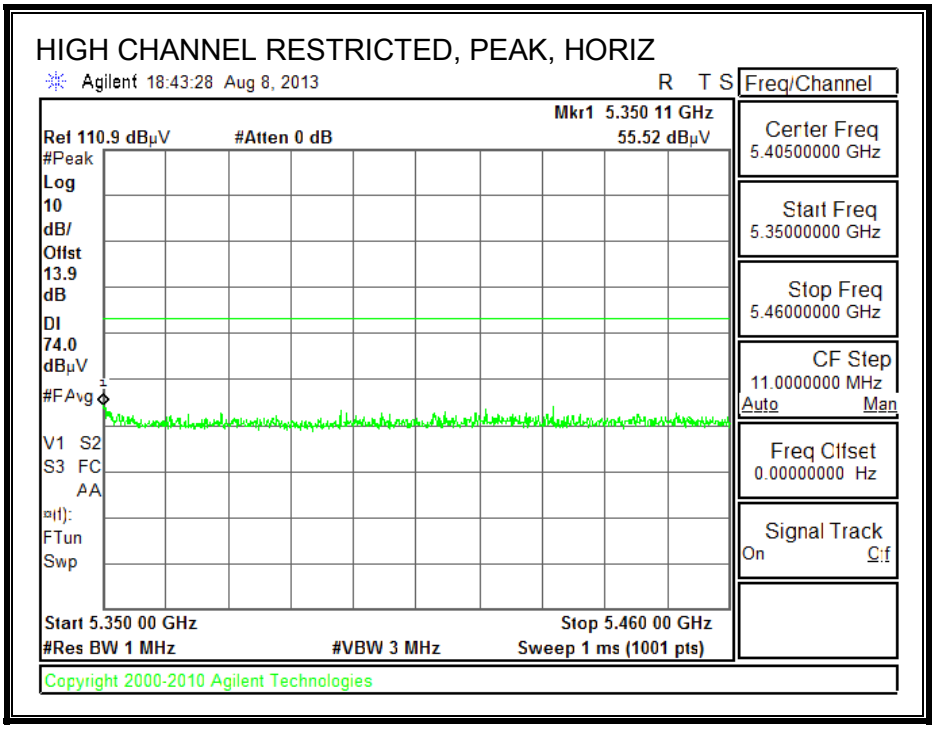
*- Non Restrictive Band

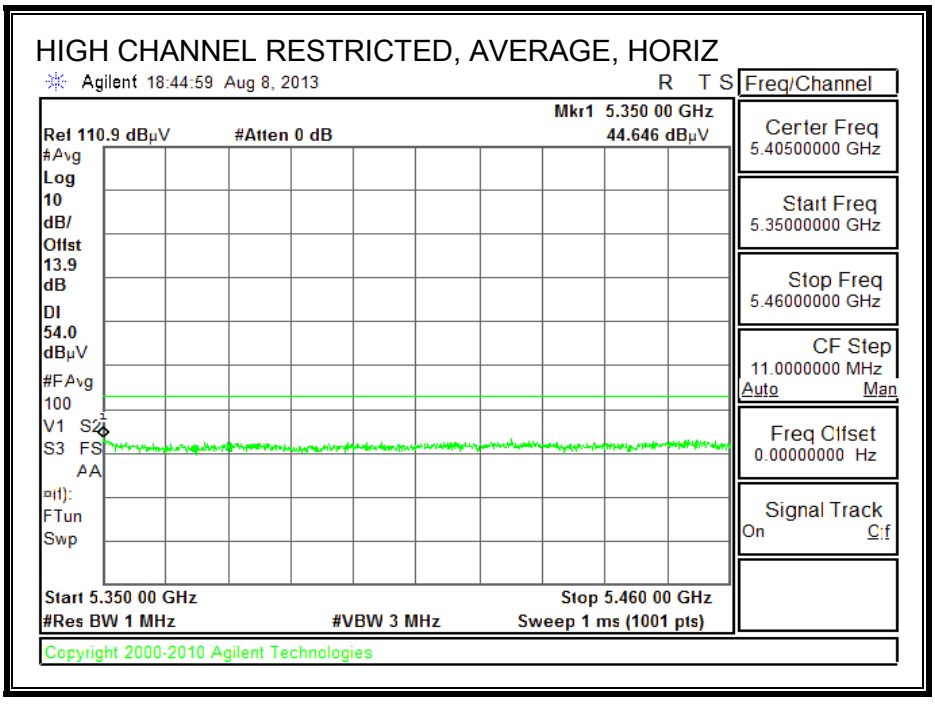
PK - Peak detector

Av - average detection

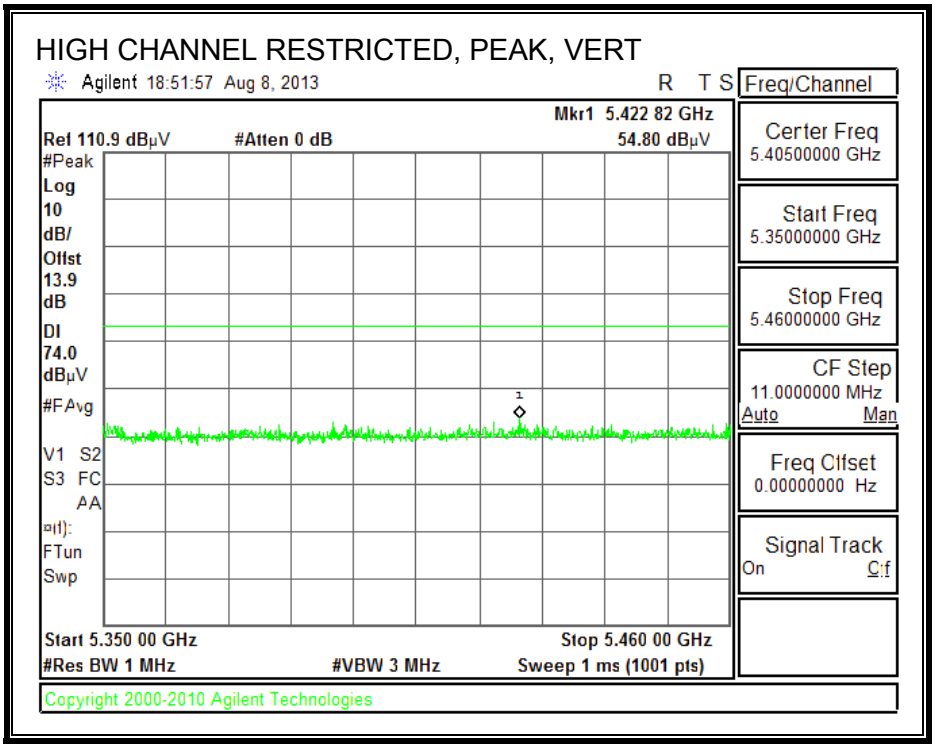
9.6. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)

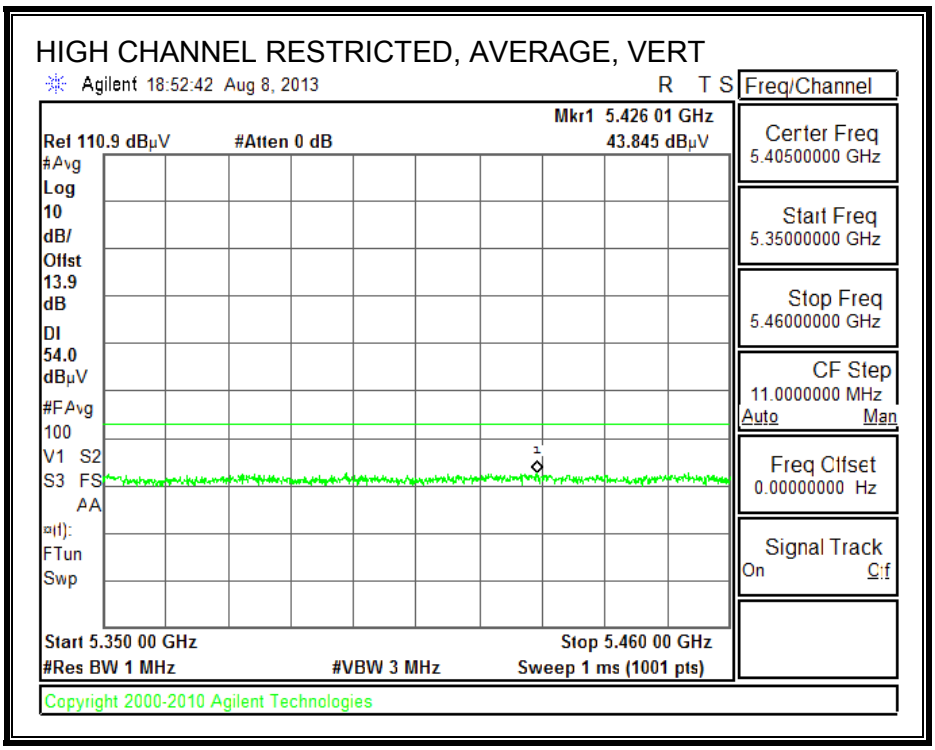




HIGH CHANNEL RESTRICTED, PEAK, VERT



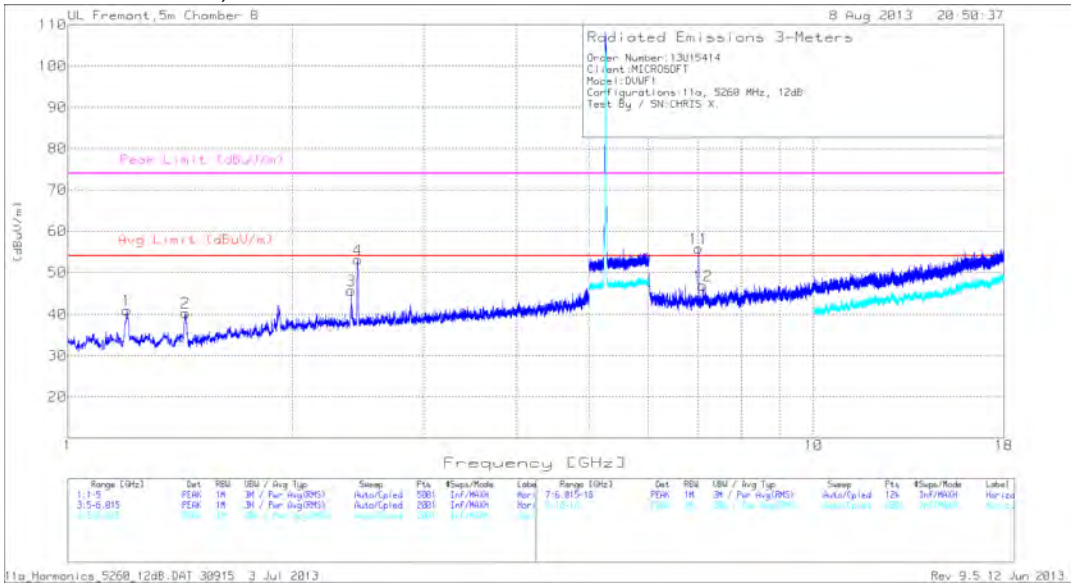
HIGH CHANNEL RESTRICTED, AVERAGE, VERT



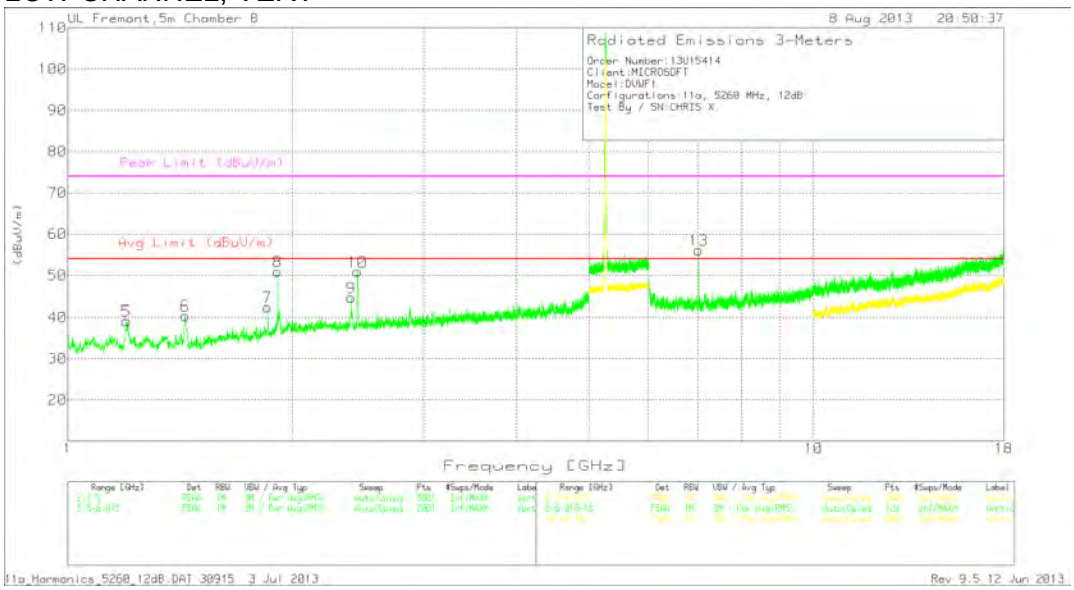
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL

LOW CHANNEL, HORIZ



LOW CHANNEL, VERT



LOW Channel DATA

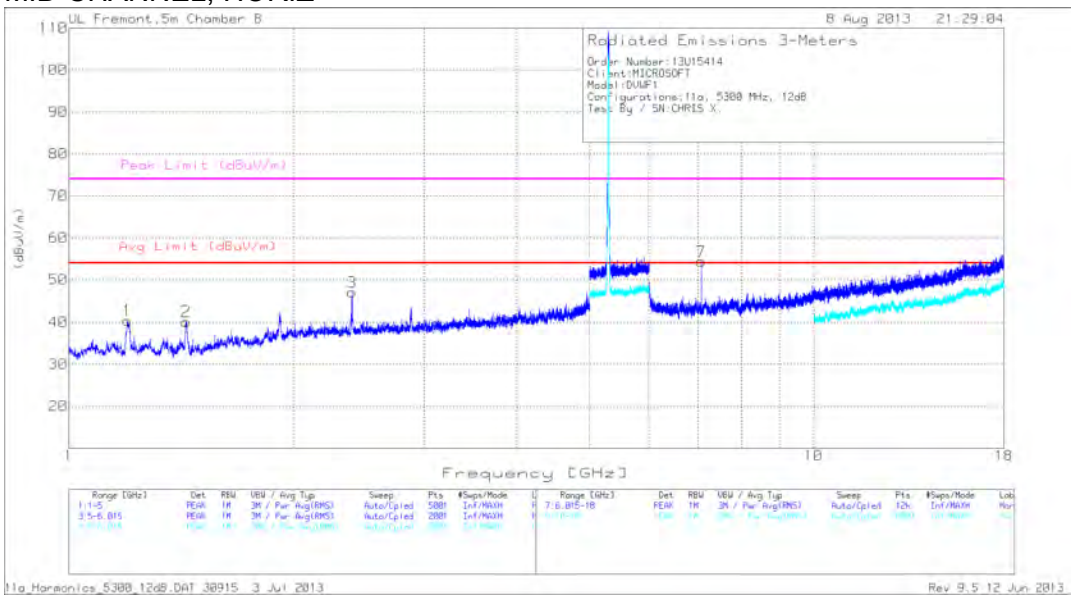
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.201	48.07	PK	28.4	-35.5	40.97	53.97	-13	74	-33.03	0-360	100	H
1.438	46.63	PK	28.3	-34.6	40.33	53.97	-13.64	74	-33.67	0-360	100	H
2.4	46.52	PK	32.3	-33.2	45.62	53.97	-8.35	74	-28.38	0-360	100	H
2.449*	53.77	PK	32.4	-33.1	53.07	-	-	68.2	-15.13	0-360	100	H
1.198	46.24	PK	28.4	-35.5	39.14	53.97	-14.83	74	-34.86	0-360	100	V
1.438	46.65	PK	28.3	-34.6	40.35	53.97	-13.62	74	-33.65	0-360	200	V
1.854	45.55	PK	30.8	-33.9	42.45	53.97	-11.52	74	-31.55	0-360	100	V
1.912*	52.98	PK	31.2	-33.2	50.98	-	-	68.2	-17.22	0-360	100	V
2.4	45.55	PK	32.3	-33.2	44.65	53.97	-9.32	74	-29.35	0-360	100	V
2.446*	51.63	PK	32.4	-33.1	50.93	-	-	68.2	-17.27	0-360	200	V
7.014*	47.31	PK	35.9	-27.4	55.81	-	-	68.2	-12.39	0-360	100	H
7.105	39.31	PK	35.9	-28.4	46.81	53.97	-7.16	74	-27.19	0-360	100	H
7.014*	47.65	PK	35.9	-27.4	56.15	-	-	68.2	-12.05	0-360	100	V

*- Non Restrictive Band

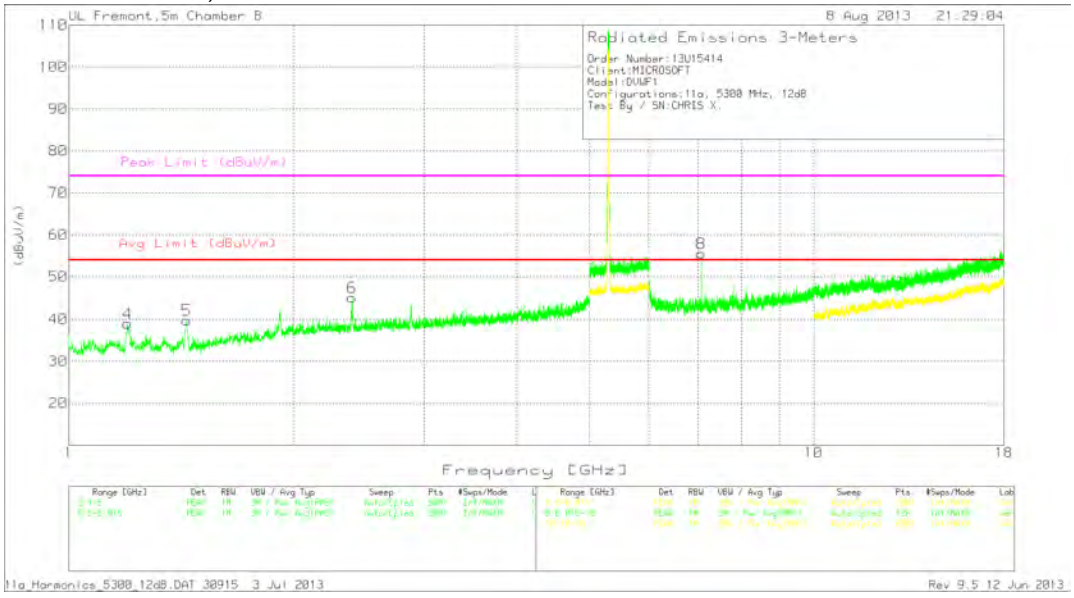
PK - Peak detector

MID CHANNEL

MID CHANNEL, HORIZ



MID CHANNEL, VERT



MID Channel DATA

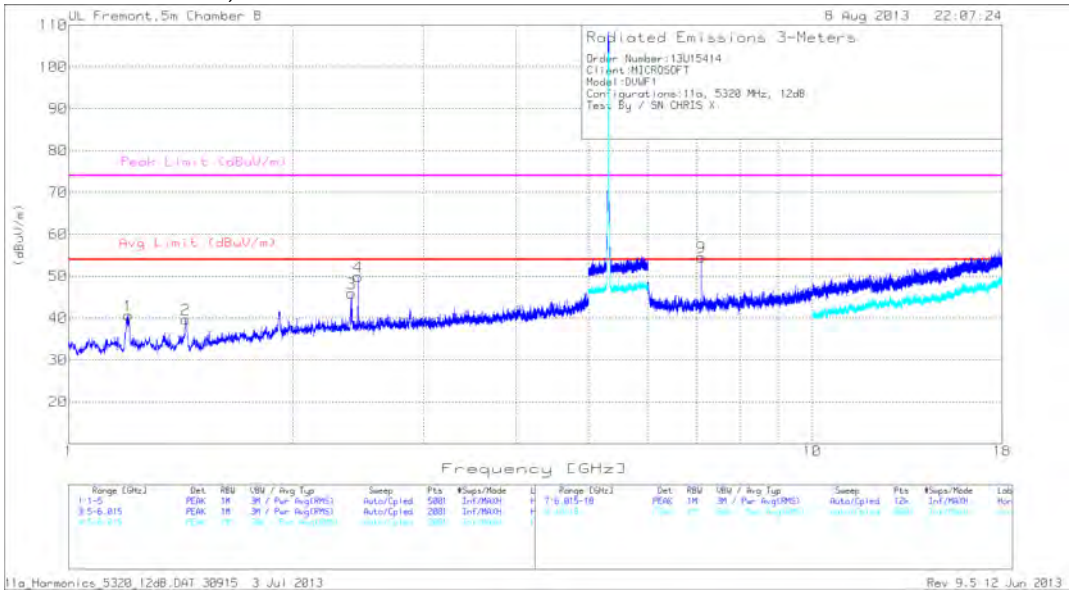
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.198	47.54	PK	28.4	-35.5	40.44	53.97	-13.53	74	-33.56	0-360	100	H
1.437	46.48	PK	28.3	-34.6	40.18	53.97	-13.79	74	-33.82	0-360	100	H
2.4	47.96	PK	32.3	-33.2	47.06	53.97	-6.91	74	-26.94	0-360	100	H
1.2	46.1	PK	28.4	-35.5	39	53.97	-14.97	74	-35	0-360	100	V
1.44	46.18	PK	28.3	-34.7	39.78	53.97	-14.19	74	-34.22	0-360	100	V
2.4	45.98	PK	32.3	-33.2	45.08	53.97	-8.89	74	-28.92	0-360	100	V
7.067*	46.91	PK	35.9	-28.4	54.41	-	-	68.2	-13.79	0-360	200	H
7.067*	48.08	PK	35.9	-28.4	55.58	-	-	68.2	-12.62	0-360	100	V

*- Non Restrictive Band

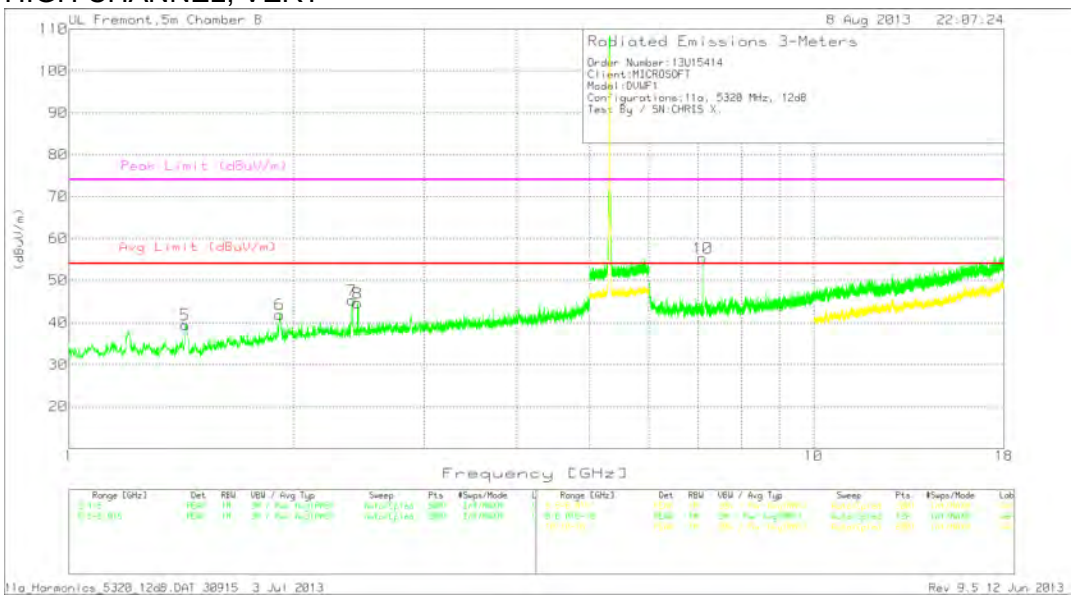
PK - Peak detector

HIGH CHANNEL

HIGH CHANNEL, HORZ



HIGH CHANNEL, VERT



HIGH CHANNEL DATA

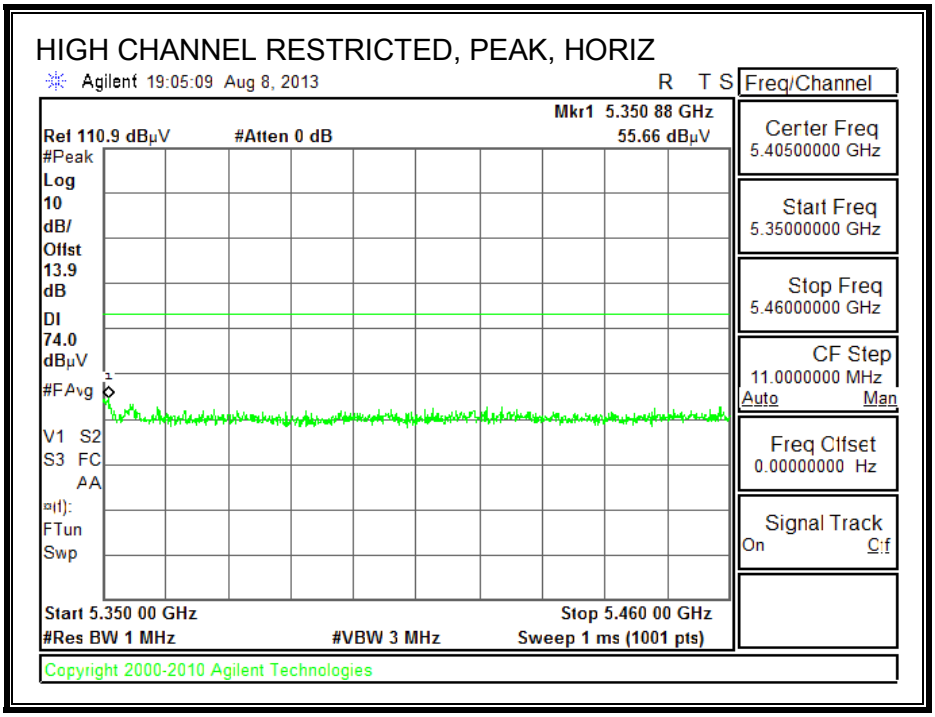
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.203	47.76	PK	28.4	-35.5	40.66	53.97	-13.31	74	-33.34	0-360	100	H
1.438	46.02	PK	28.3	-34.6	39.72	53.97	-14.25	74	-34.28	0-360	100	H
2.4*	46.8	PK	32.3	-33.2	45.9	-	-	68.2	-22.3	0-360	100	H
2.451*	50.59	PK	32.4	-33.1	49.89	-	-	68.2	-18.31	0-360	100	H
1.434	45.79	PK	28.3	-34.6	39.49	53.97	-14.48	74	-3451	0-360	100	V
1.918	43.85	PK	31.2	-33.1	41.95	53.97	-12.02	74	-32.05	0-360	200	V
2.4	46.19	PK	32.3	-33.2	45.29	53.97	-8.68	74	-28.71	0-360	100	V
2.442	45.17	PK	32.4	-33	44.57	53.97	-9.4	74	-29.43	0-360	100	V
7.094*	47.05	PK	35.9	-28.4	54.55	-	-	68.2	-13.65	0-360	100	H
7.094*	47.84	PK	35.9	-28.4	55.34	-	-	68.2	-12.86	0-360	100	V

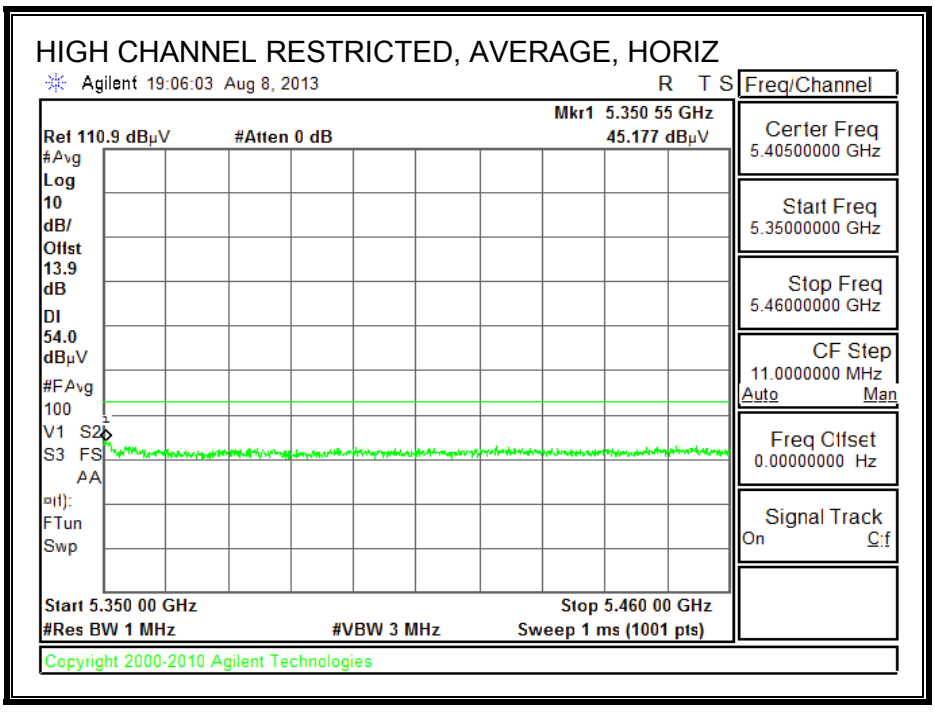
*- Non Restrictive Band

PK - Peak detector

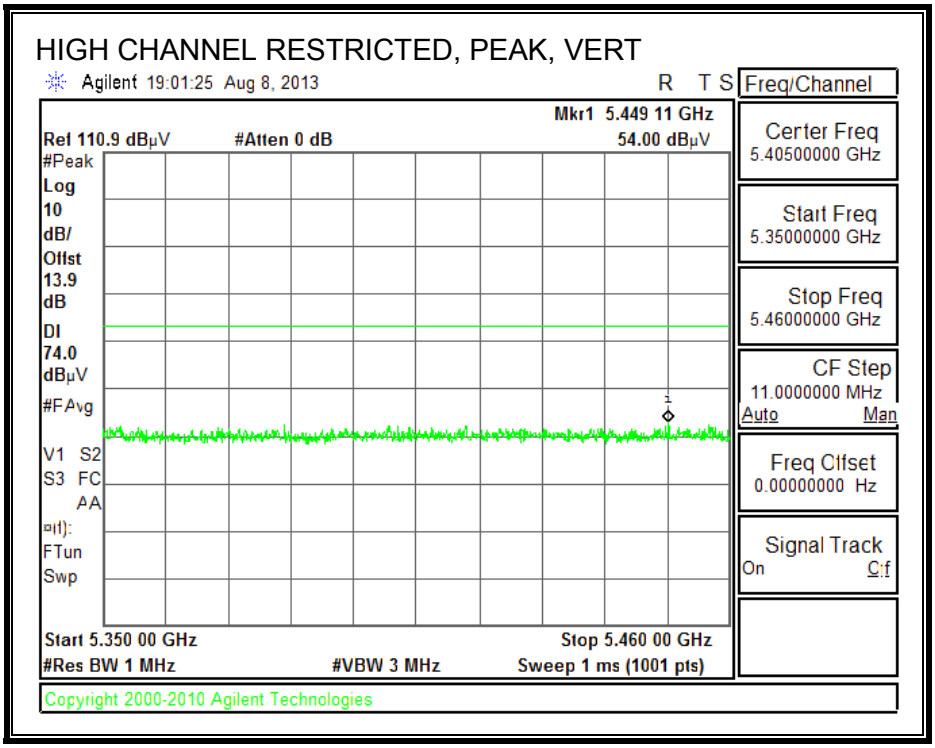
9.7. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)

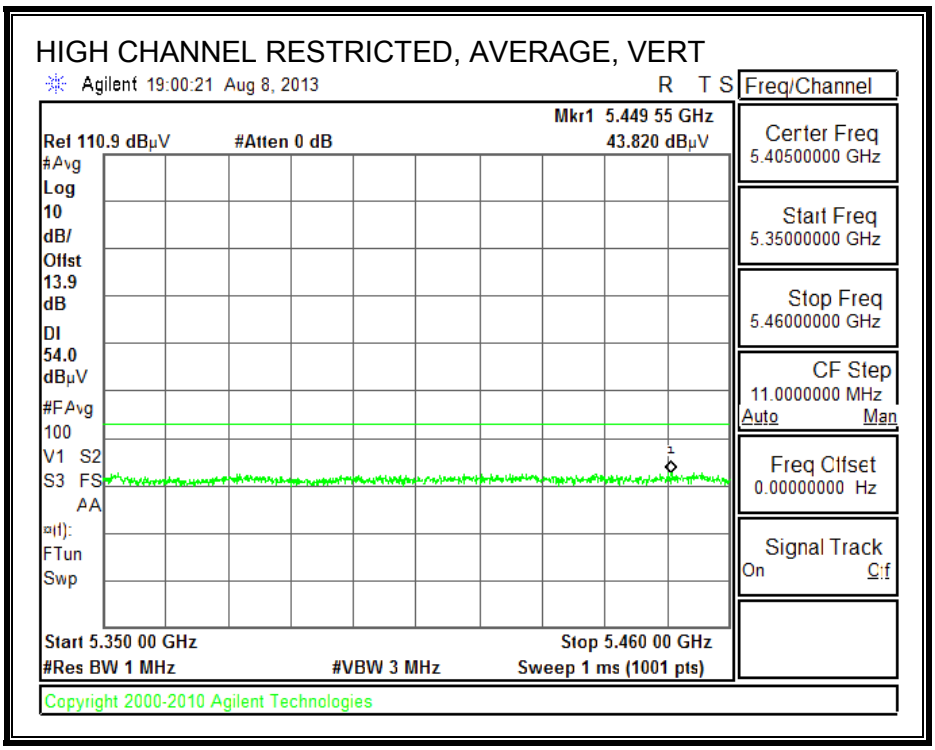




HIGH CHANNEL RESTRICTED, PEAK, VERT



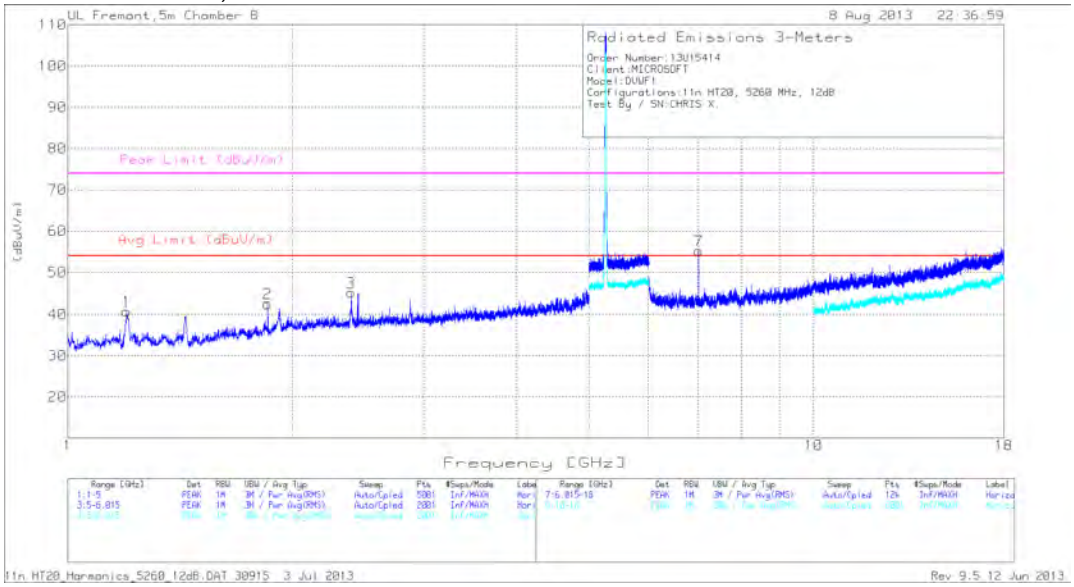
HIGH CHANNEL RESTRICTED, AVERAGE, VERT



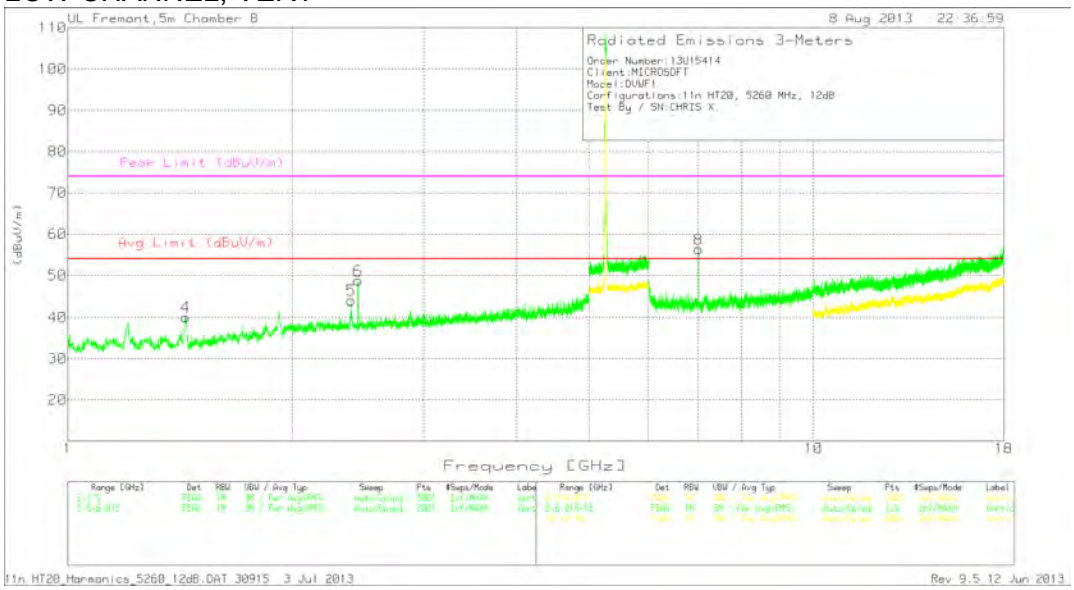
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL

LOW CHANNEL, HORIZ



LOW CHANNEL, VERT



LOW Channel DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.199	47.78	PK	28.4	-35.5	40.68	53.97	-13.29	74	-33.32	0-360	100	H
1.854	45.6	PK	30.8	-33.9	42.5	53.97	-11.47	74	-31.5	0-360	200	H
2.4	46.03	PK	32.3	-33.2	45.13	53.97	-8.84	74	-28.87	0-360	100	H
1.44	46.41	PK	28.3	-34.7	40.01	53.97	-13.96	74	-33.99	0-360	200	V
2.4	44.92	PK	32.3	-33.2	44.02	53.97	-9.95	74	-29.98	0-360	100	V
2.451	49.5	PK	32.4	-33.1	48.8	53.97	-5.17	74	-25.2	0-360	200	V
7.014*	46.79	PK	35.9	-27.4	55.29	-	-	68.2	-12.91	0-360	100	H
7.014*	47.89	PK	35.9	-27.4	56.39	-	-	68.2	-11.81	0-360	100	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.451	16.87	Av	32.4	-33.1	16.17	53.97	-37.8	-	-	88	304	V

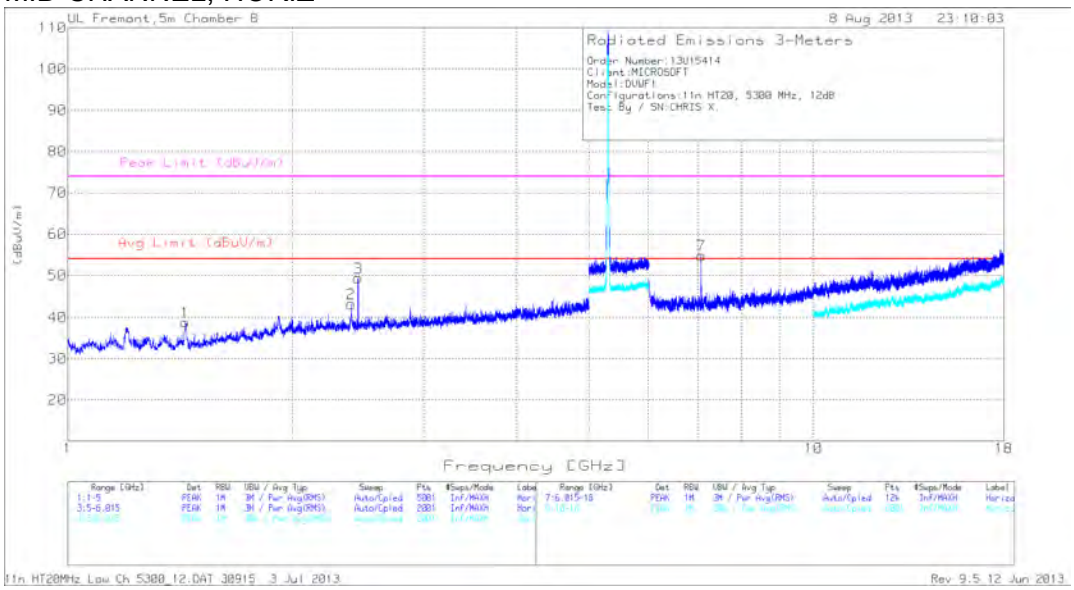
*-Non Restrictive Band

PK - Peak detector

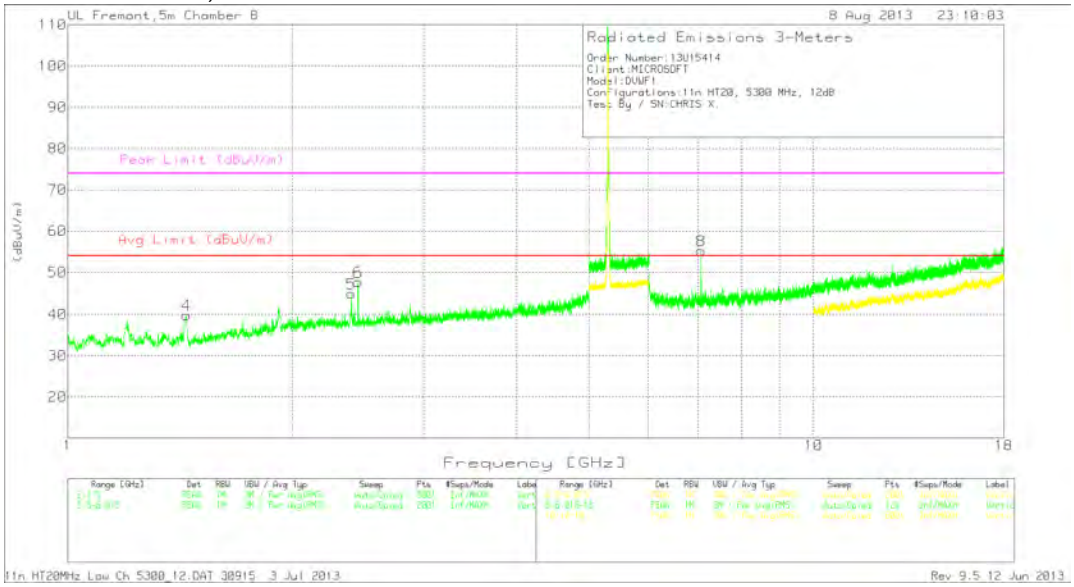
Av - average detection

MID CHANNEL

MID CHANNEL, HORIZ



MID CHANNEL, VERT



MID Channel DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.438	45.07	PK	28.3	-34.6	38.77	53.97	-15.2	74	-35.23	0-360	286	H
2.4	44.07	PK	32.3	-33.2	43.17	53.97	-10.8	74	-30.83	0-360	386	H
2.451	50.08	PK	32.4	-33.1	49.38	53.97	-4.59	74	-24.62	0-360	286	H
1.442	46.25	PK	28.3	-34.8	39.75	53.97	-14.22	74	-34.25	0-360	100	V
2.4	45.75	PK	32.3	-33.2	44.85	53.97	-9.12	74	-29.15	0-360	100	V
2.451	48.4	PK	32.4	-33.1	47.7	53.97	-6.27	74	-26.3	0-360	200	V
7.067*	47.29	PK	35.9	-28.4	54.79	-	-	68.2	-13.41	0-360	100	H
7.067*	47.79	PK	35.9	-28.4	55.29	-	-	68.2	-12.91	0-360	100	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.451	16.87	Av	32.4	-33.1	16.17	53.97	-37.8	-	-	88	304	H

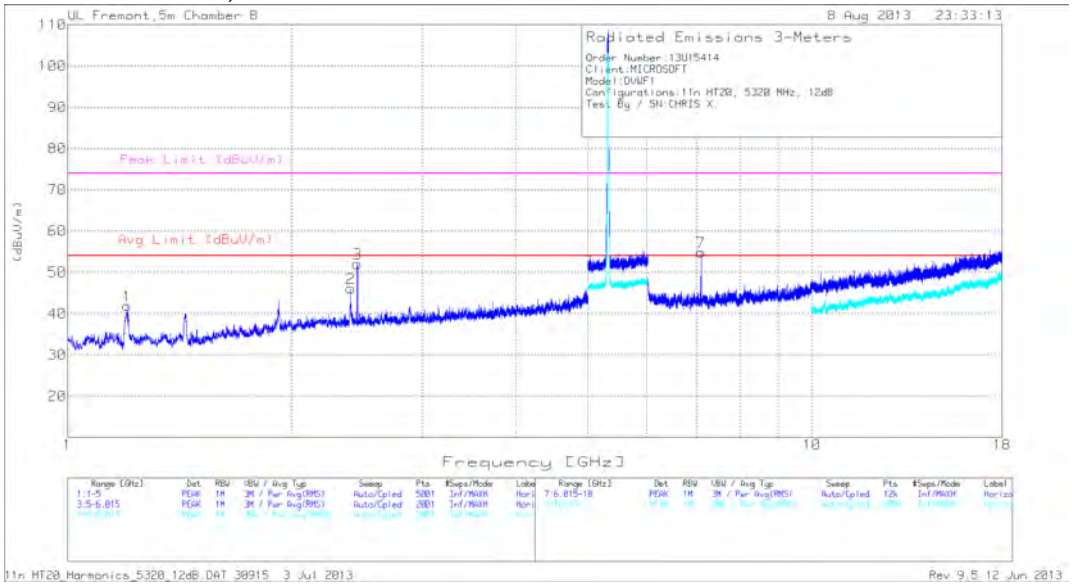
*-Non Restrictive Band

PK - Peak detector

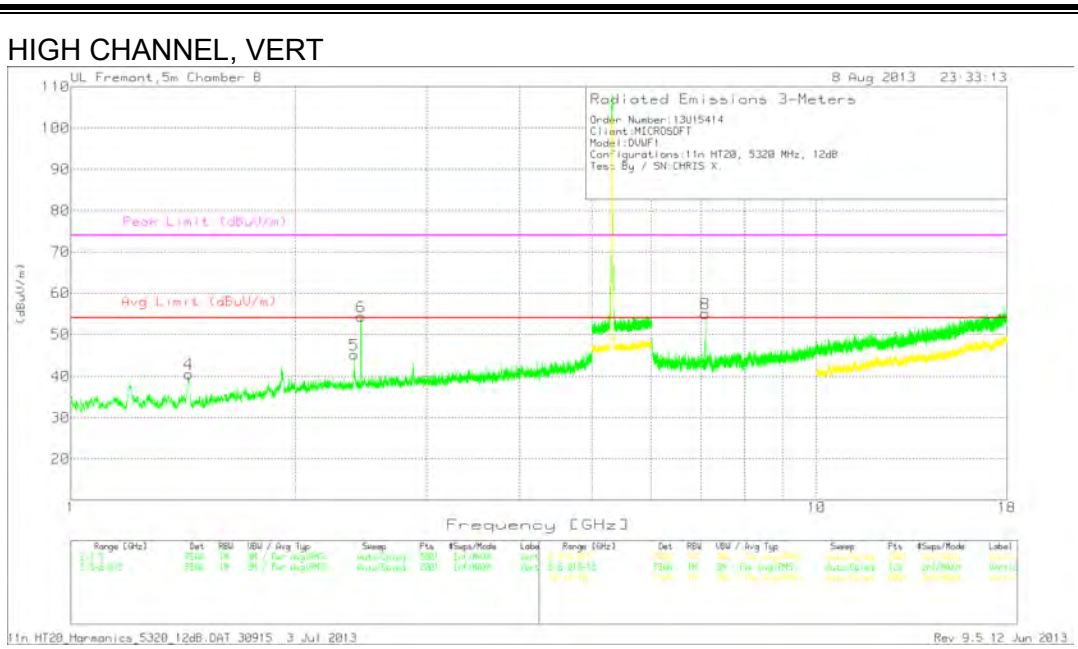
Av - average detection

HIGH CHANNEL

HIGH CHANNEL, HORZ



HIGH CHANNEL, VERT



HIGH CHANNEL DATA

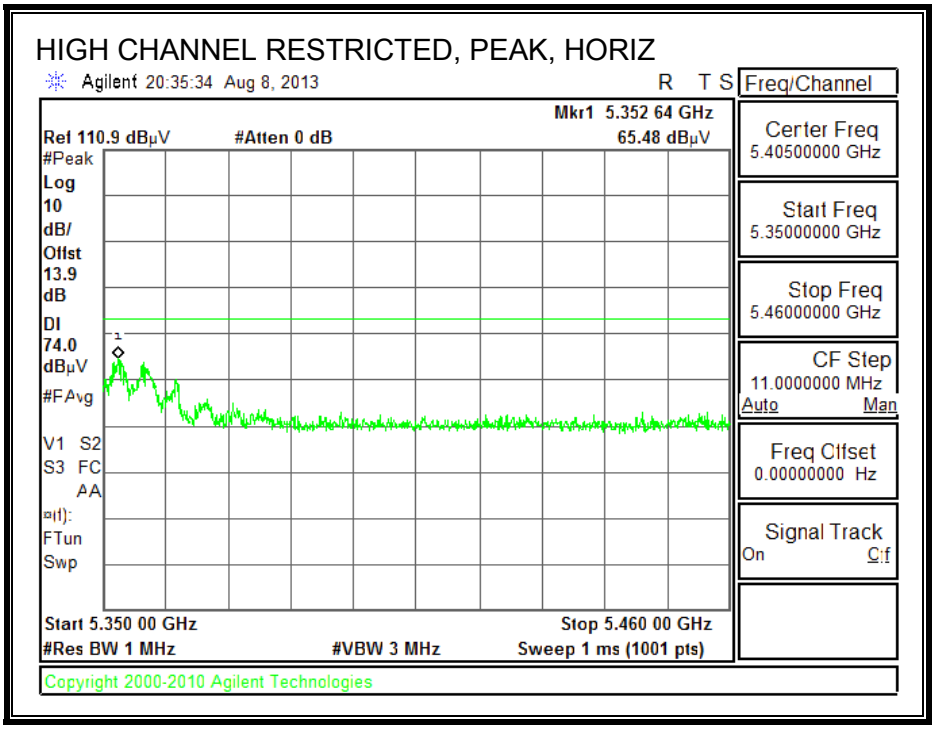
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.202	48.98	PK	28.4	-35.5	41.88	53.97	-12.09	74	-32.12	0-360	100	H
2.401	47.04	PK	32.3	-33.2	46.14	53.97	-7.83	74	-27.86	0-360	100	H
2.451	52.8	PK	32.4	-33.1	52.1	-	-	68.2	-16.1	0-360	200	H
1.44	46.96	PK	28.3	-34.7	40.56	53.97	-13.41	74	-33.44	0-360	100	V
2.4	46.01	PK	32.3	-33.2	45.11	53.97	-8.86	74	-28.89	0-360	100	V
2.451*	55.06	PK	32.4	-33.1	54.36	-	-	68.2	-13.84	0-360	100	V
7.094*	47.33	PK	35.9	-28.4	54.83	-	-	68.2	-13.37	0-360	100	H
7.094*	47.58	PK	35.9	-28.4	55.08	-	-	68.2	-13.12	0-360	100	V

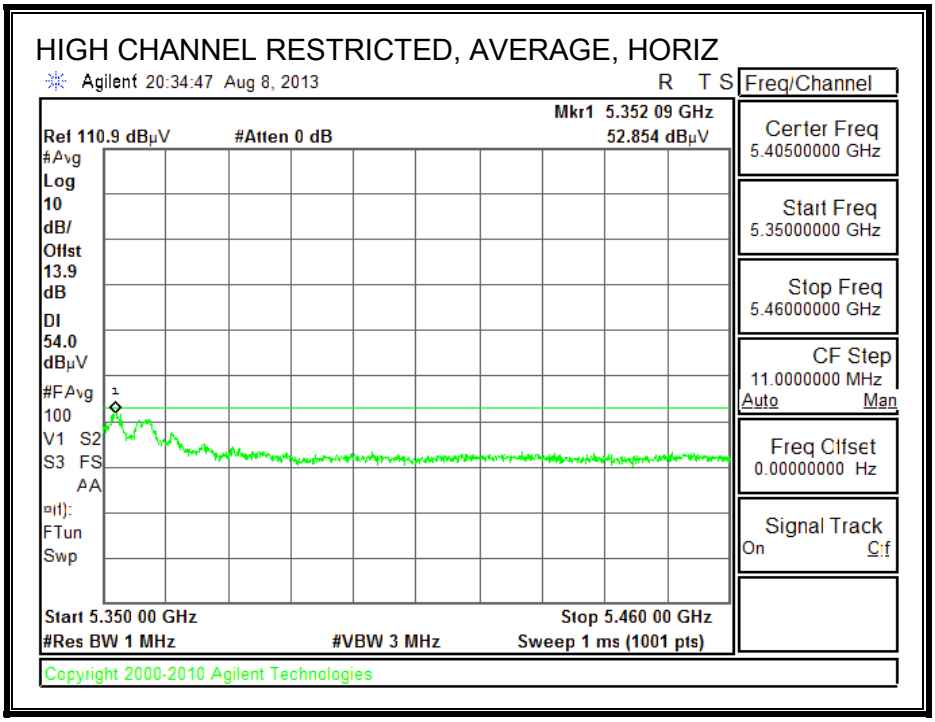
*- Non Restrictive Band

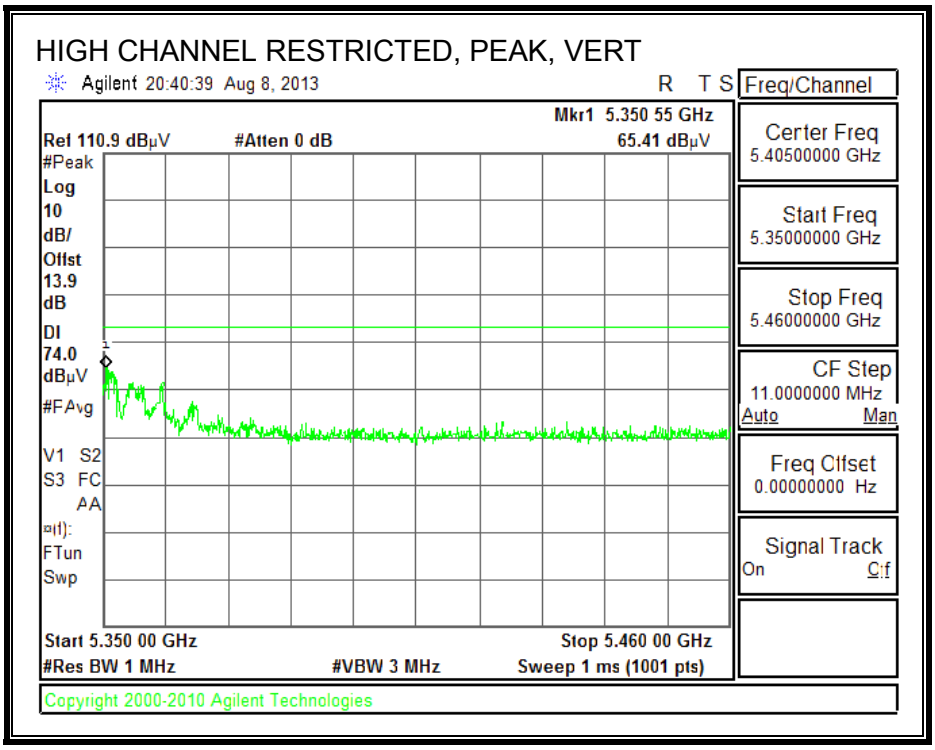
PK - Peak detector

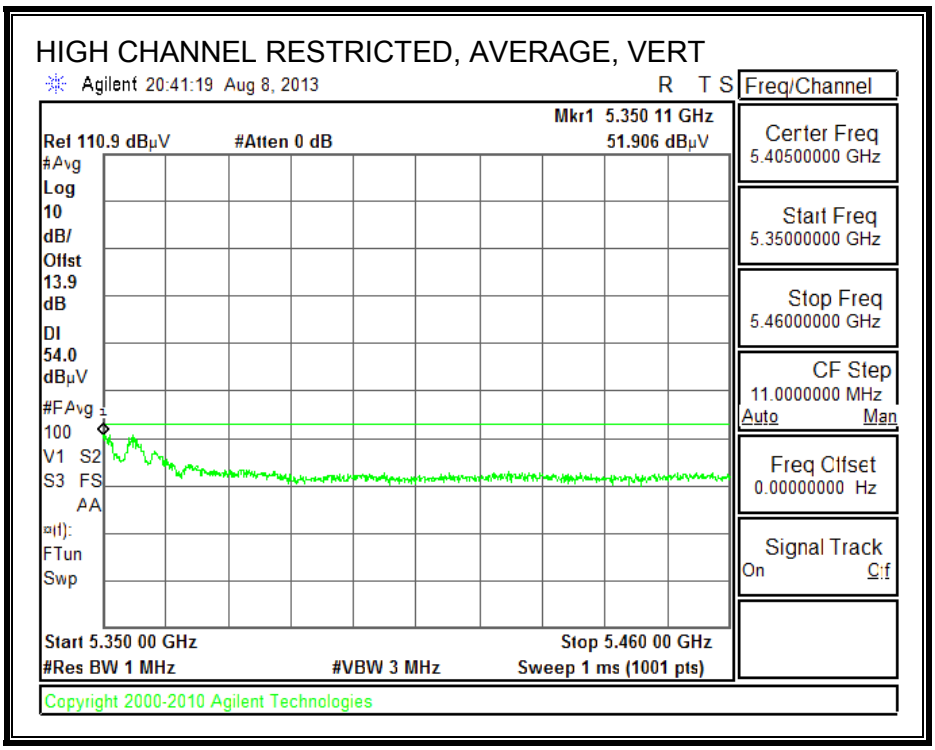
9.8. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)





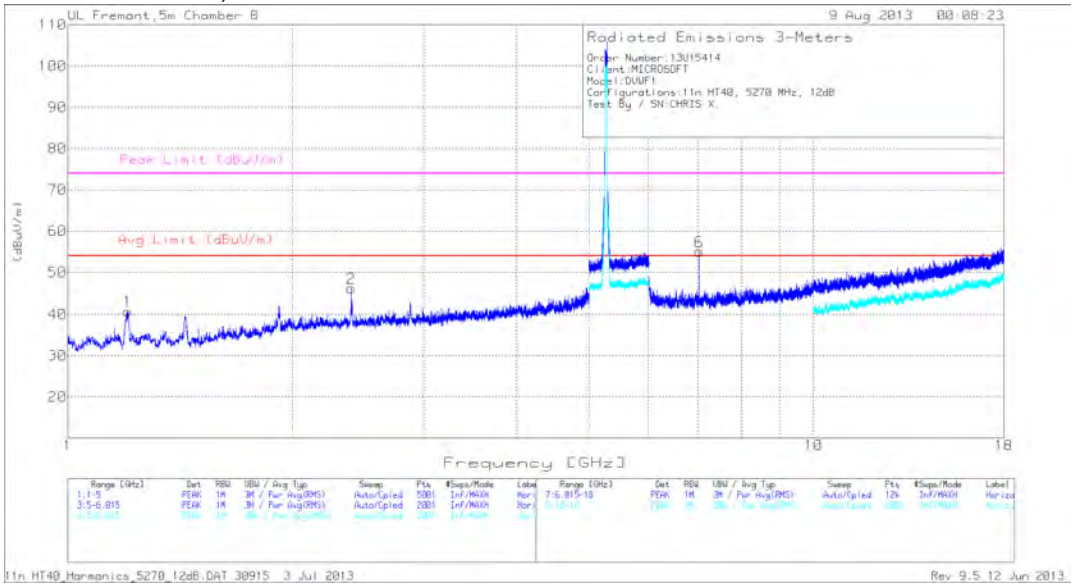




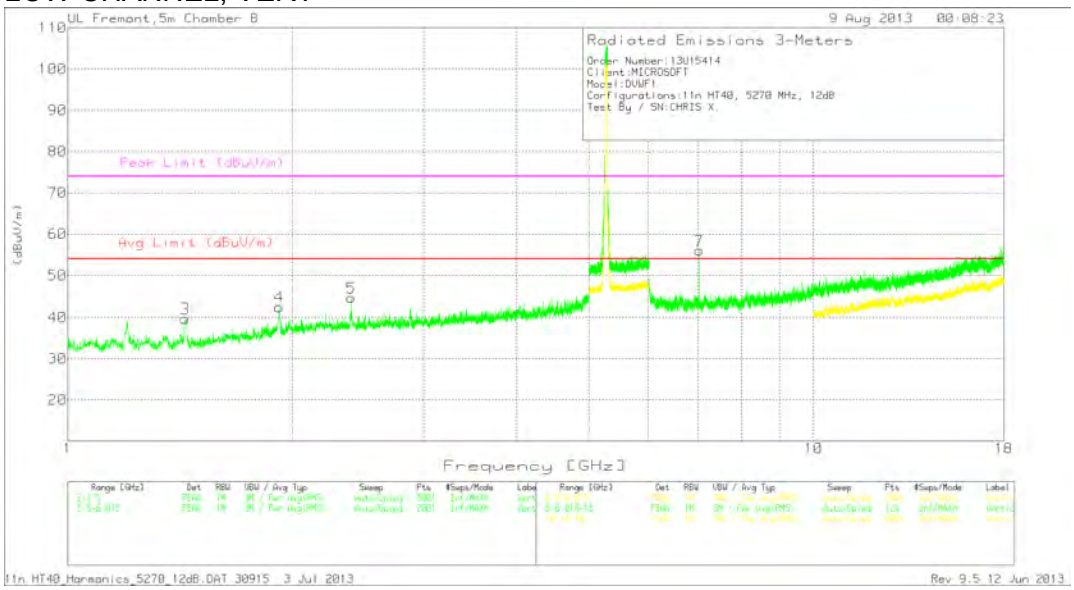
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL

LOW CHANNEL, HORIZ



LOW CHANNEL, VERT



LOW Channel DATA

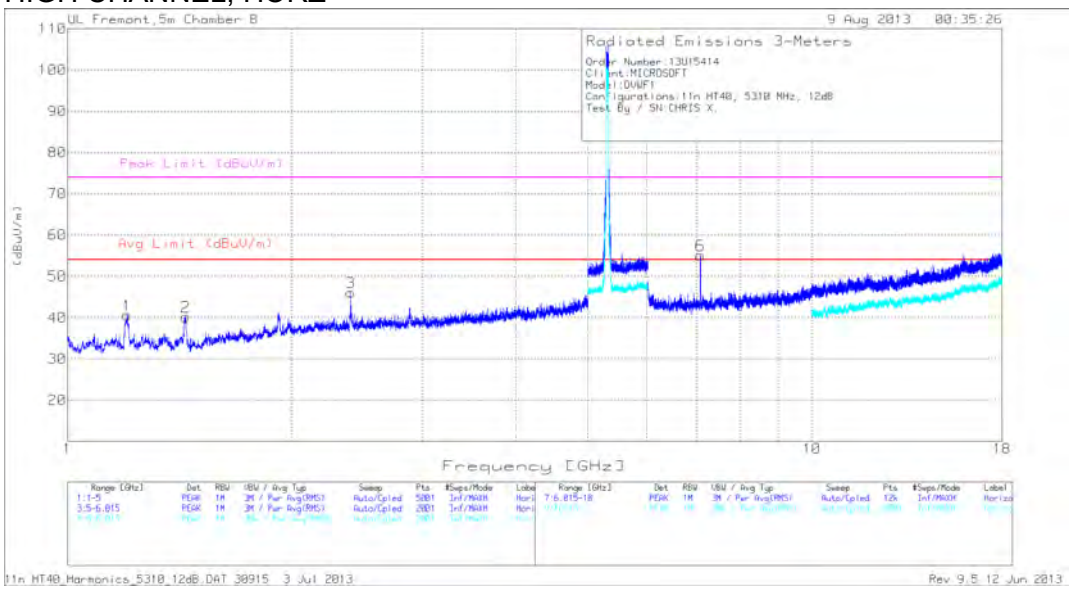
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.204	47.78	PK	28.4	-35.5	40.68	53.97	-13.29	74	-33.32	0-360	100	H
2.4	47.05	PK	32.3	-33.2	46.15	53.97	-7.82	74	-27.85	0-360	100	H
1.436	45.99	PK	28.3	-34.6	39.69	53.97	-14.28	74	-34.31	0-360	100	V
1.921	44.27	PK	31.3	-33.1	42.47	53.97	-11.5	74	-31.53	0-360	200	V
2.4	45.51	PK	32.3	-33.2	44.61	53.97	-9.36	74	-29.39	0-360	100	V
7.027*	46.38	PK	35.9	-27.2	55.08	-	-	68.2	-13.12	0-360	100	H
7.027*	47.36	PK	35.9	-27.2	56.06	-	-	68.2	-12.14	0-360	100	V

*- Non Restrictive Band

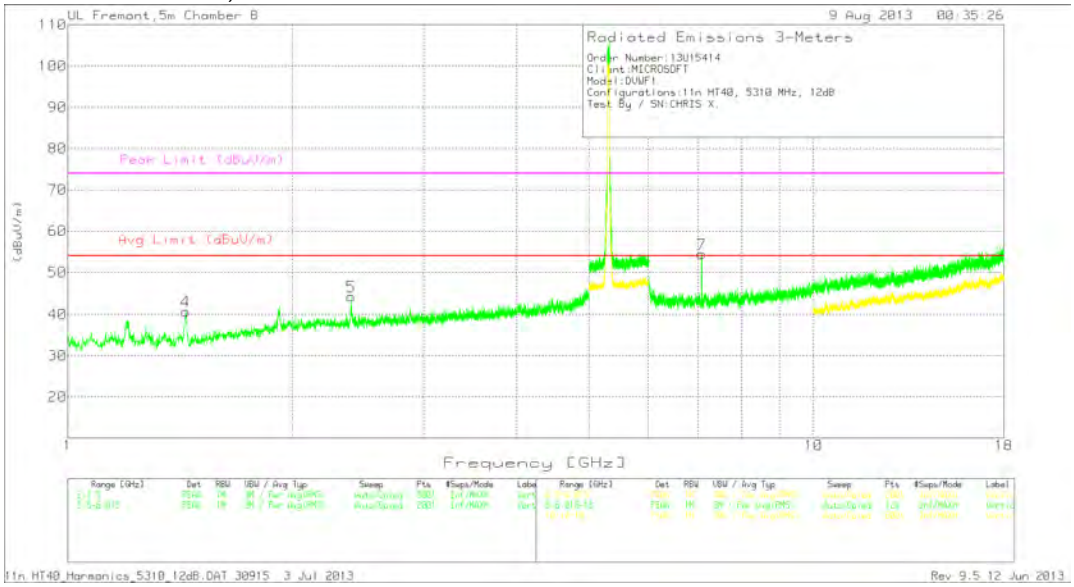
PK - Peak detector

HIGH CHANNEL

HIGH CHANNEL, HORZ



HIGH CHANNEL, VERT



HIGH CHANNEL DATA

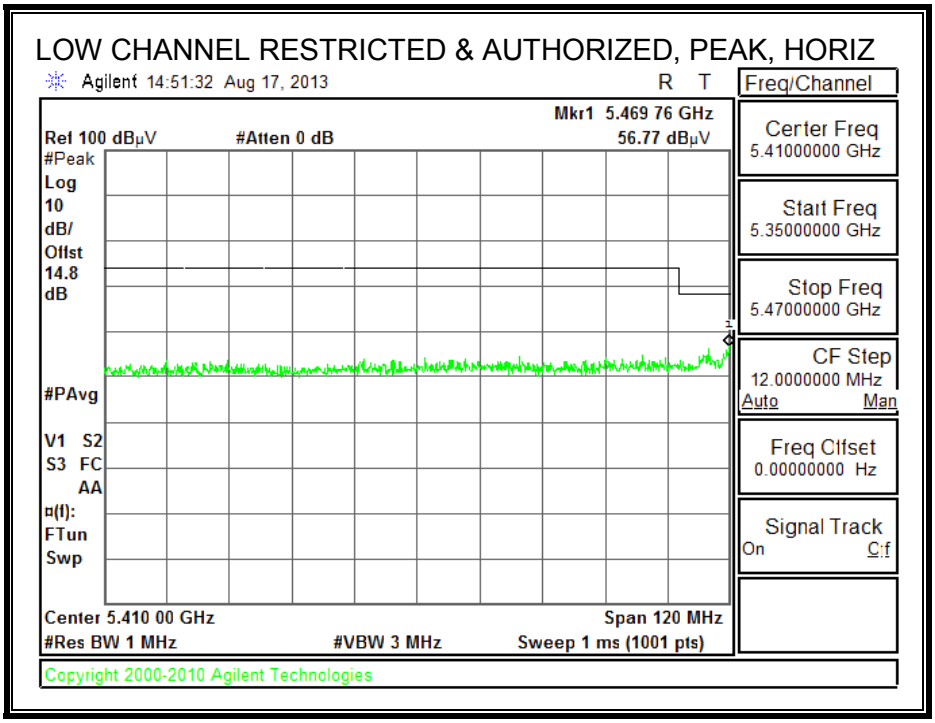
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.202	47.71	PK	28.4	-35.5	40.61	53.97	-13.36	74	-33.39	0-360	100	H
1.441	46.64	PK	28.3	-34.7	40.24	53.97	-13.73	74	-33.76	0-360	100	H
2.401	47.03	PK	32.3	-33.2	46.13	53.97	-7.84	74	-27.87	0-360	100	H
1.44	47.05	PK	28.3	-34.7	40.65	53.97	-13.32	74	-33.35	0-360	100	V
2.4	45.09	PK	32.3	-33.2	44.19	53.97	-9.78	74	-29.81	0-360	100	V
7.08*	48.01	PK	35.9	-28.8	55.11	-	-	68.2	-13.09	0-360	100	H
7.081*	47.34	PK	35.9	-28.8	54.44	-	-	68.2	-13.76	0-360	100	V

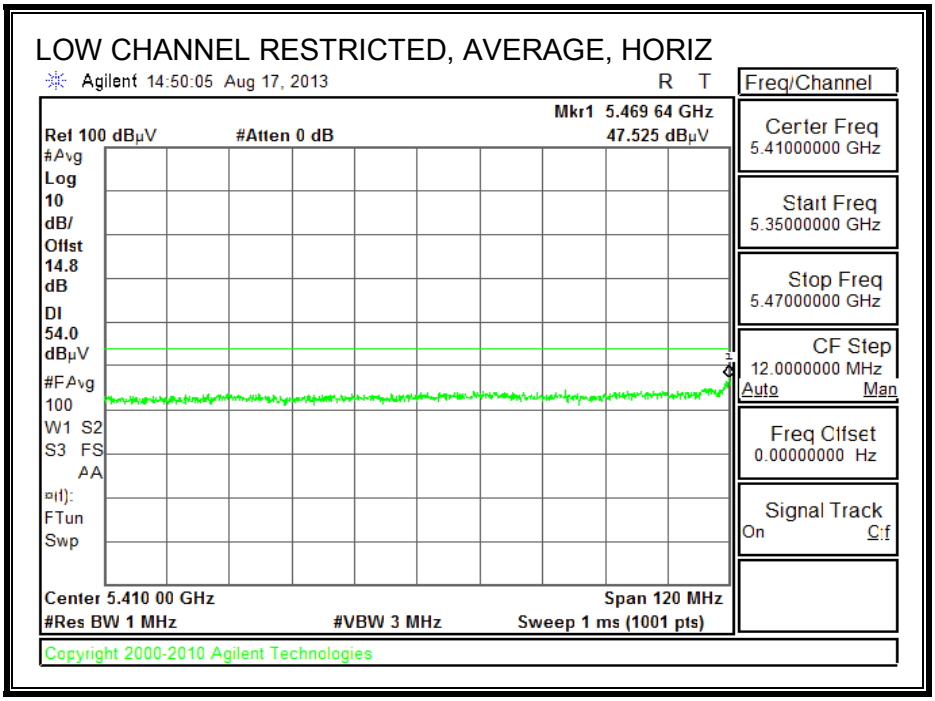
*- Non Restrictive Band

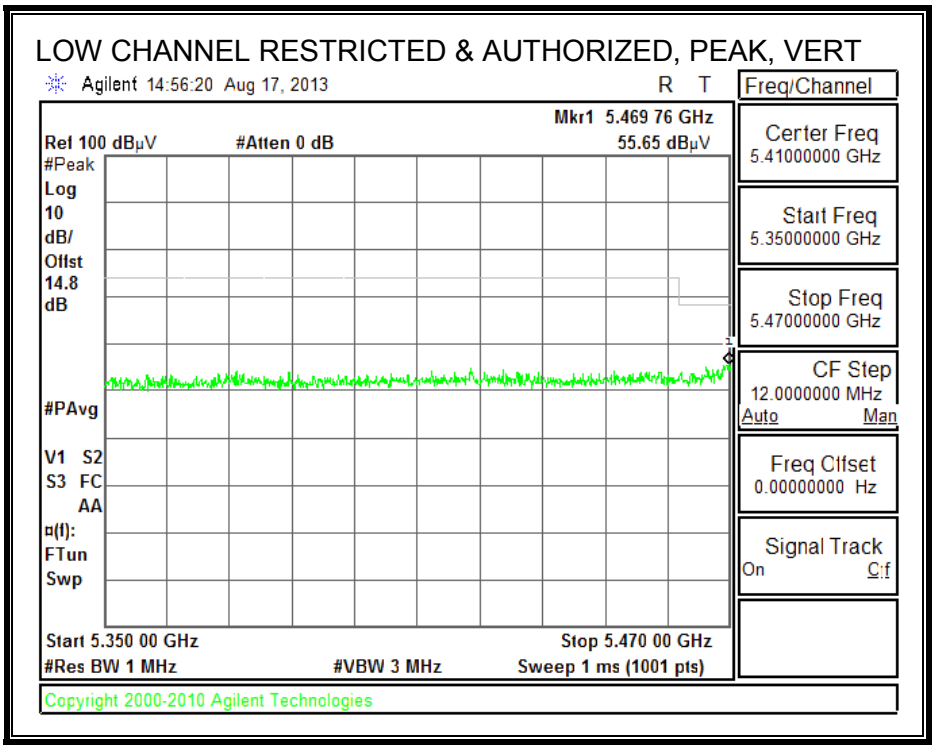
PK - Peak detector

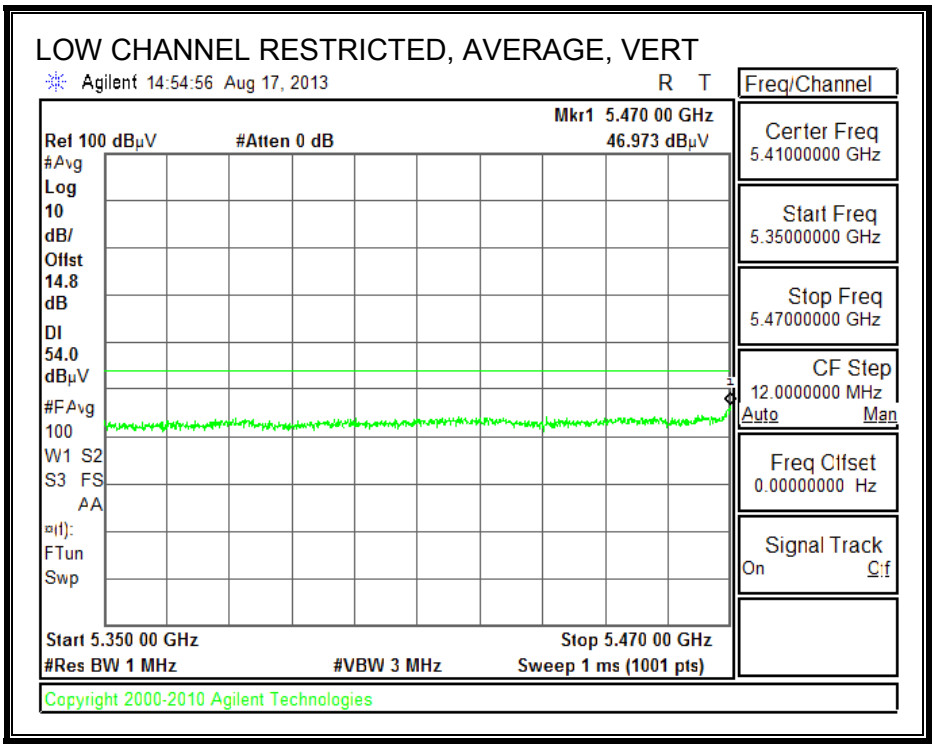
9.9. TX ABOVE 1 GHz 802.11a MODE IN THE 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

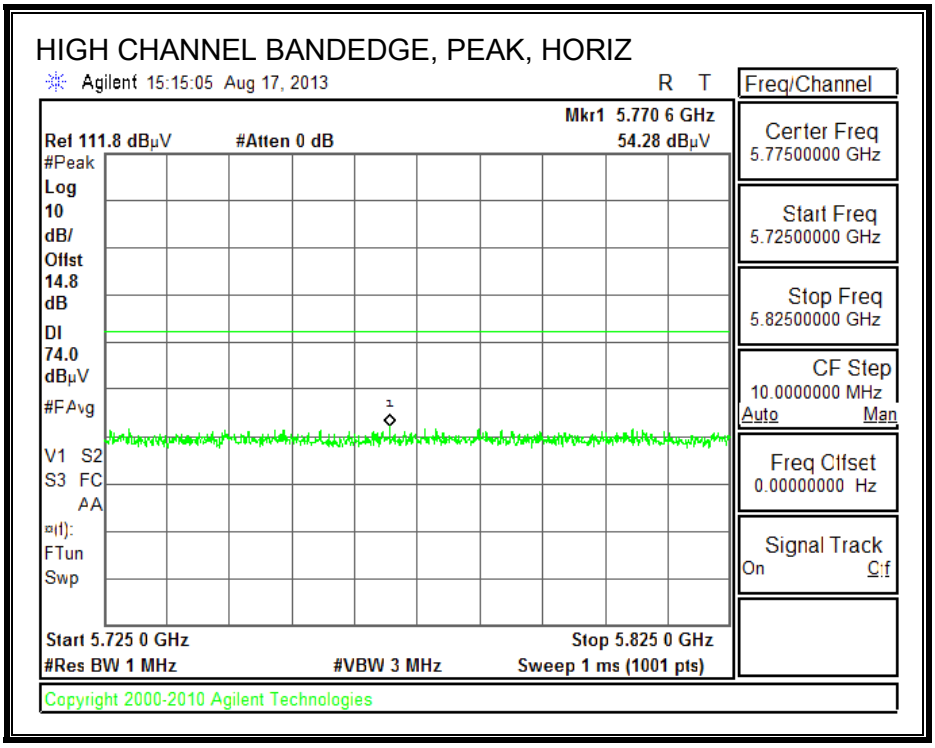


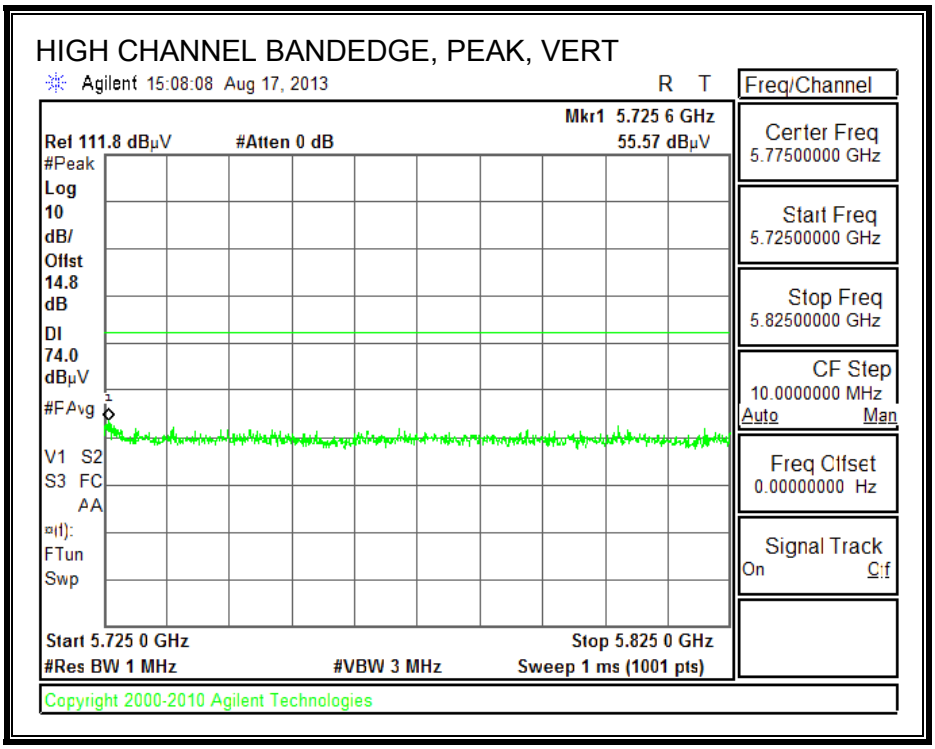






AUTHORIZED BANDEDGE (HIGH CHANNEL)

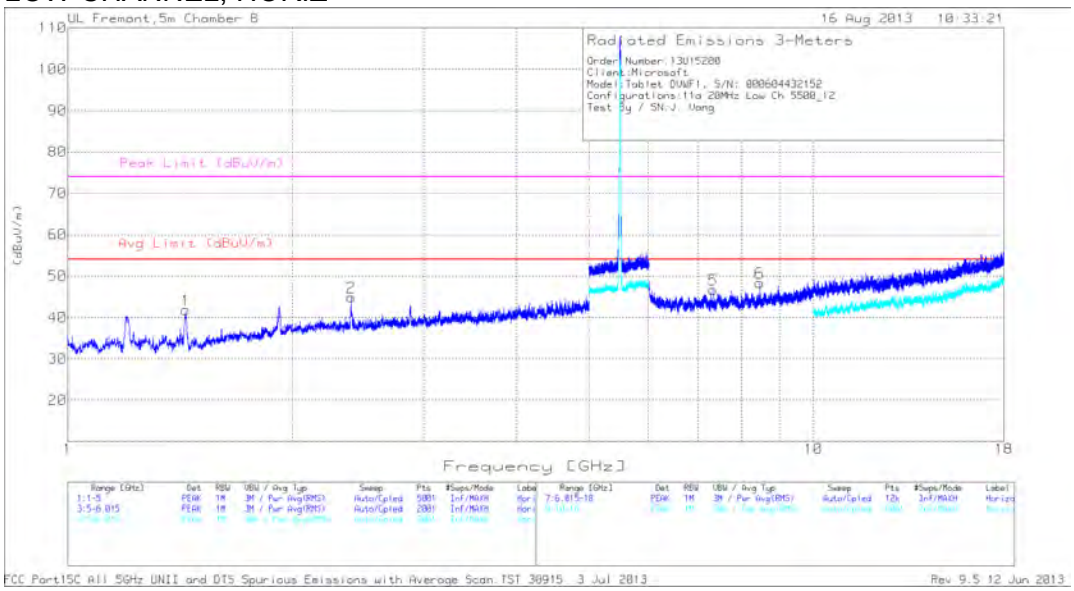




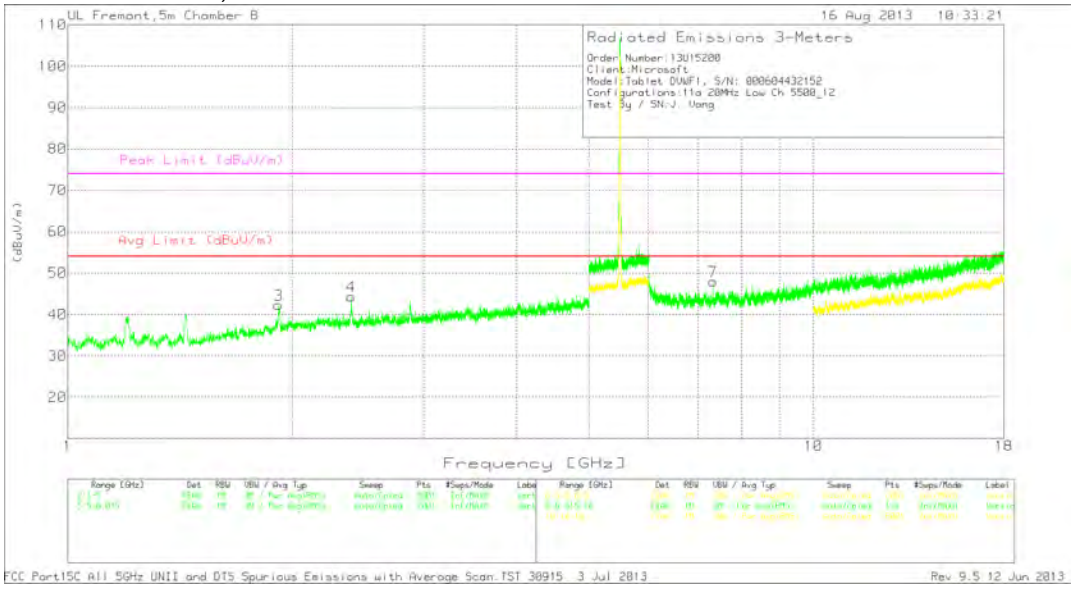
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL

LOW CHANNEL, HORIZ



LOW CHANNEL, VERT



LOW Channel DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.439	48.22	PK	28.3	-34.7	41.82	53.97	-12.15	74	-32.18	0-360	200	H
2.4	45.76	PK	32.3	-33.2	44.86	53.97	-9.11	74	-29.14	0-360	100	H
1.918	44.17	PK	31.2	-33.1	42.27	53.97	-11.7	74	-31.73	0-360	100	V
2.4	45.26	PK	32.3	-33.2	44.36	53.97	-9.61	74	-29.64	0-360	100	V
7.333	38.42	PK	35.9	-27.6	46.72	53.97	-7.25	74	-27.28	0-360	100	H
8.469	38.05	PK	36.2	-25.9	48.35	53.97	-5.62	74	-25.65	0-360	100	H
7.333	39.67	PK	35.9	-27.6	47.97	53.97	-6	74	-26.03	0-360	100	V

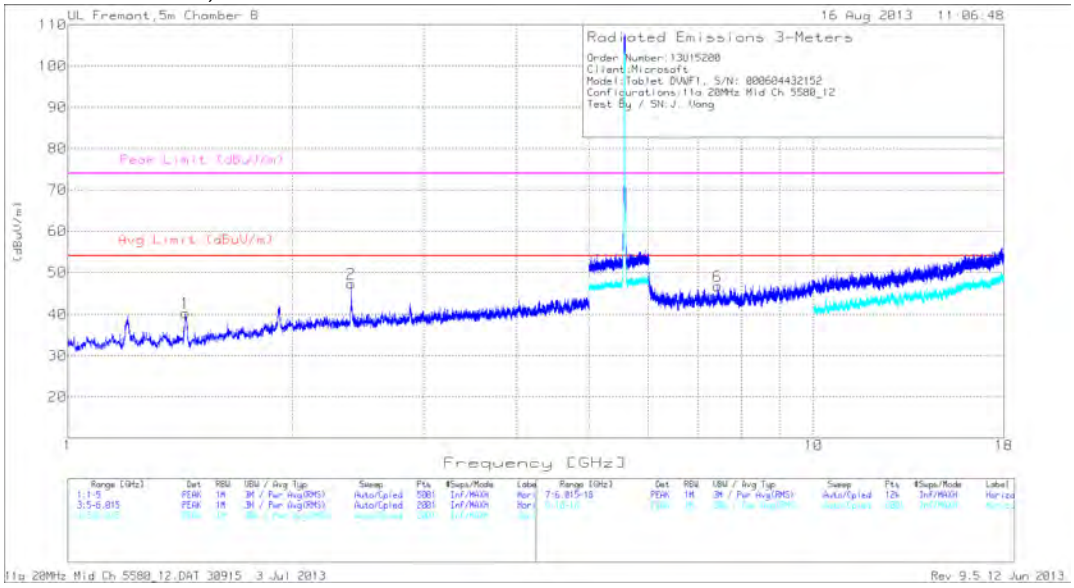
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8.471	21.47	Av	36.2	-25.9	31.77	53.97	-22.2	-	-	102	326	H

PK - Peak detector

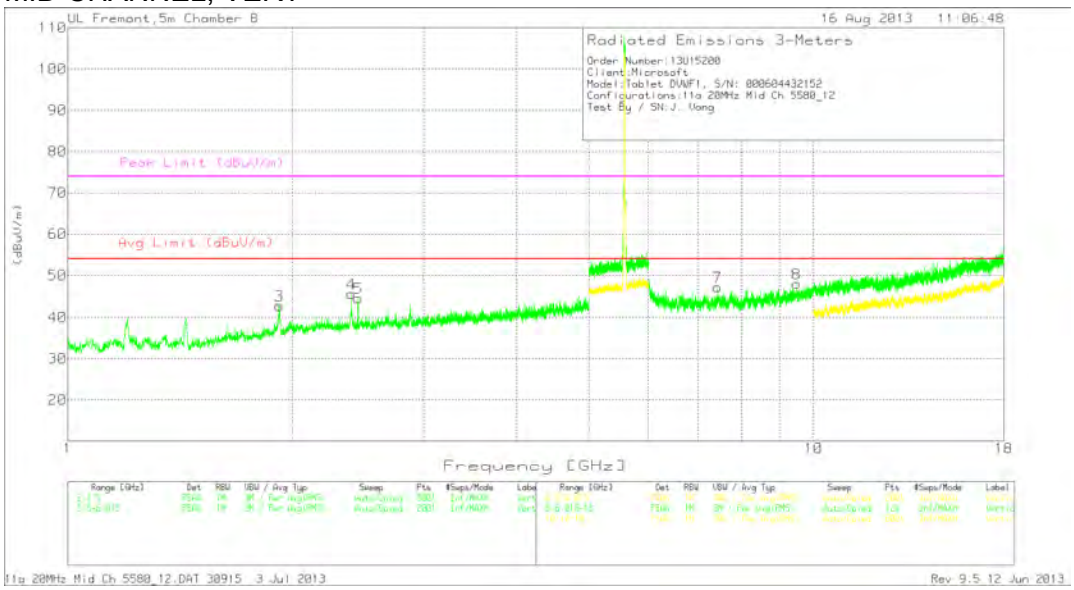
Av - average detection

MID CHANNEL

MID CHANNEL, HORIZ



MID CHANNEL, VERT



MID Channel DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.438	46.57	PK	28.3	-34.6	40.27	53.97	-13.7	74	-33.73	0-360	226	H
2.4	48.2	PK	32.3	-33.2	47.3	53.97	-6.67	74	-26.7	0-360	326	H
1.922	44.52	PK	31.3	-33.1	42.72	53.97	-11.25	74	-31.28	0-360	100	V
2.4	46.42	PK	32.3	-33.2	45.52	53.97	-8.45	74	-28.48	0-360	100	V
2.451	45.19	PK	32.4	-33.1	44.49	53.97	-9.48	74	-29.51	0-360	200	V
7.44	37.39	PK	36	-26.7	46.69	53.97	-7.28	74	-27.31	0-360	200	H
7.44	37.83	PK	36	-26.7	47.13	53.97	-6.84	74	-26.87	0-360	100	V
9.491	35.61	PK	37.2	-24.8	48.01	53.97	-5.96	74	-25.99	0-360	200	V

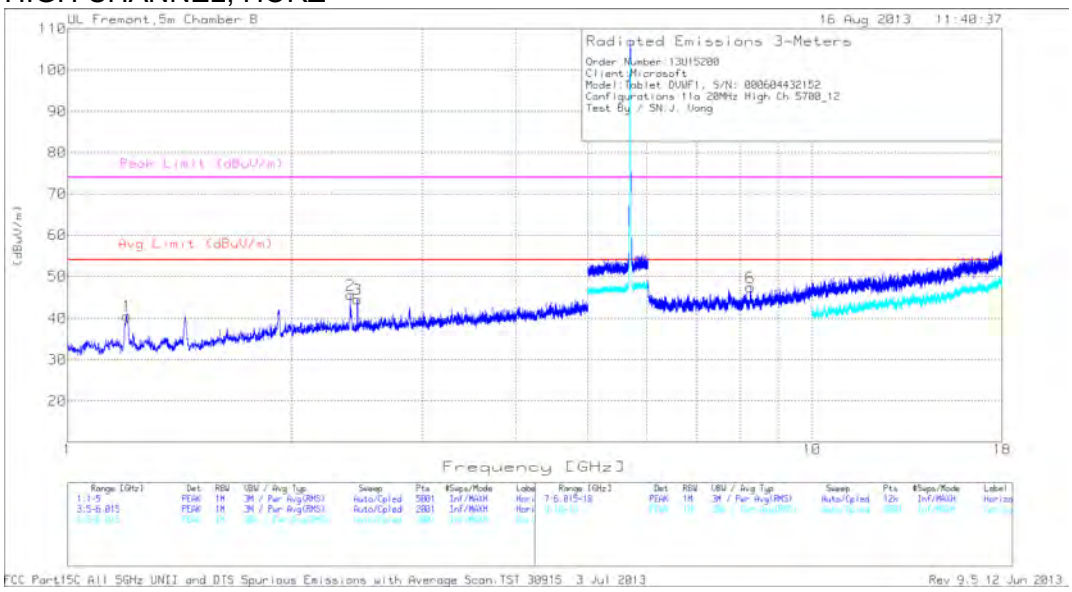
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
9.495	21.09	Av	37.2	-24.8	33.49	53.97	-20.48	-	-	69	197	V

PK - Peak detector

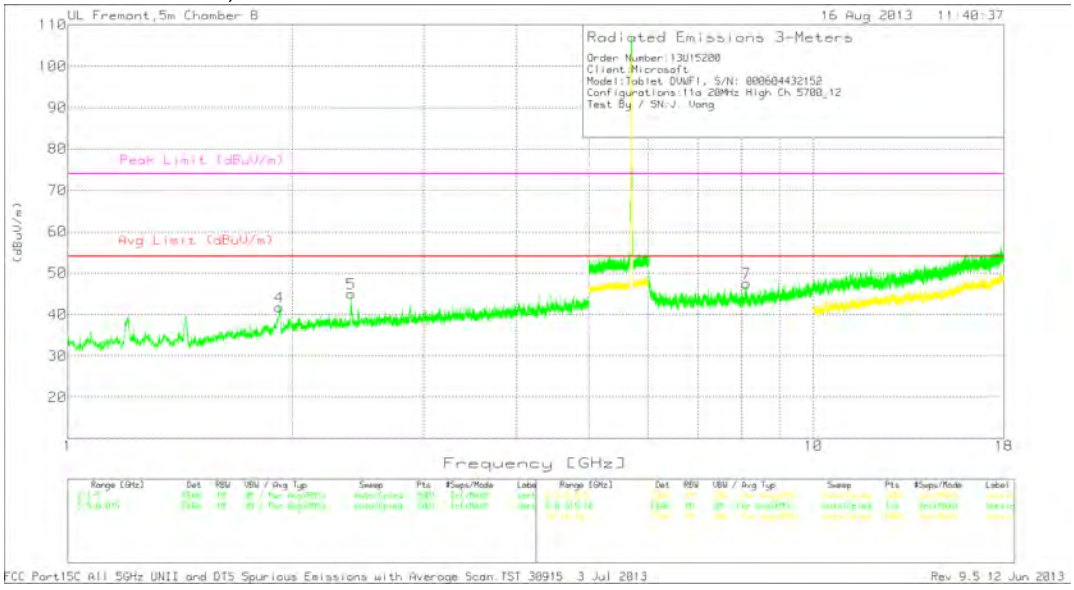
Av - average detection

HIGH CHANNEL

HIGH CHANNEL, HORZ



HIGH CHANNEL, VERT



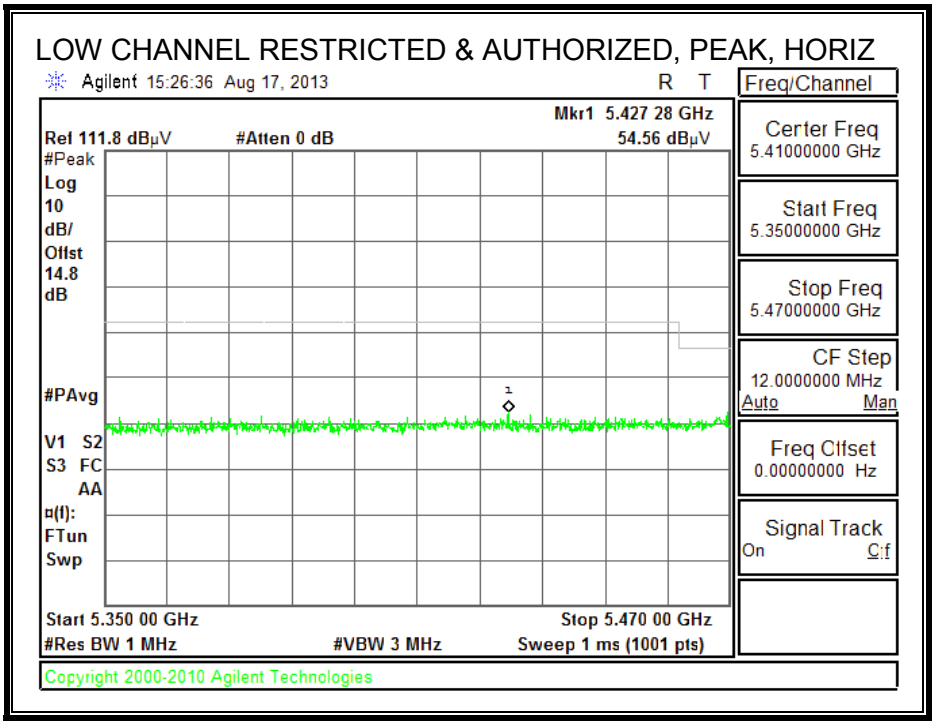
HIGH CHANNEL DATA

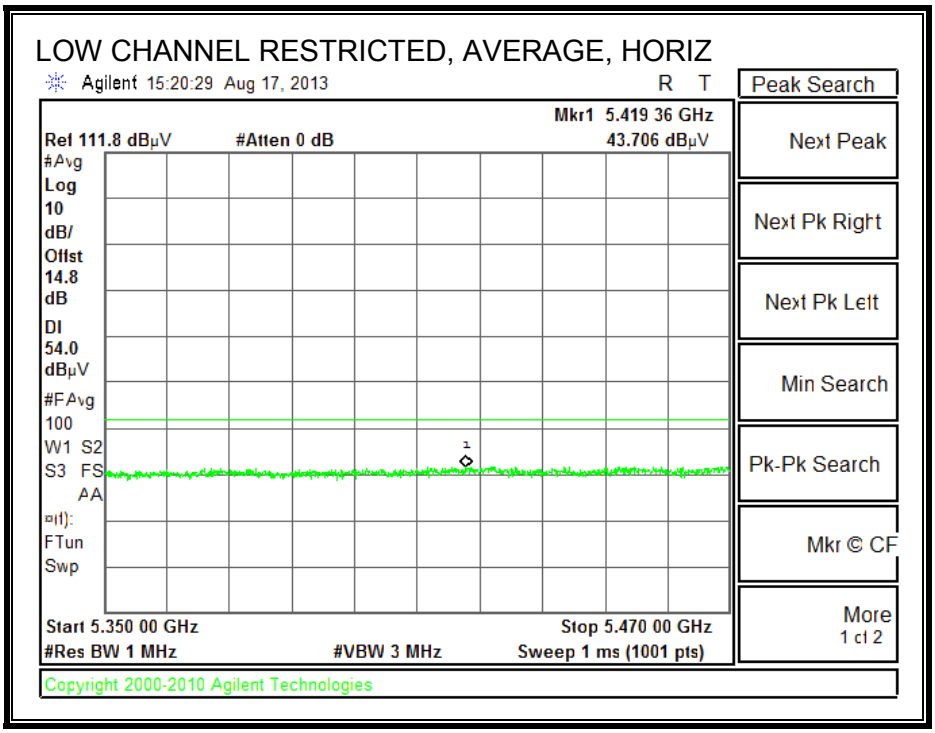
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.202	47.68	PK	28.4	-35.5	40.58	53.97	-13.39	74	-33.42	0-360	100	H
2.4	46.43	PK	32.3	-33.2	45.53	53.97	-8.44	74	-28.47	0-360	100	H
2.45	45.21	PK	32.4	-33.1	44.51	53.97	-9.46	74	-29.49	0-360	200	H
1.922	43.59	PK	31.3	-33.1	41.79	53.97	-12.18	74	-32.21	0-360	100	V
2.4	45.93	PK	32.3	-33.2	45.03	53.97	-8.94	74	-28.97	0-360	100	V
8.267	37.79	PK	36.1	-26.5	47.39	53.97	-6.58	74	-26.61	0-360	100	H
8.133	37.83	PK	36.1	-26.4	47.53	53.97	-6.44	74	-26.47	0-360	200	V

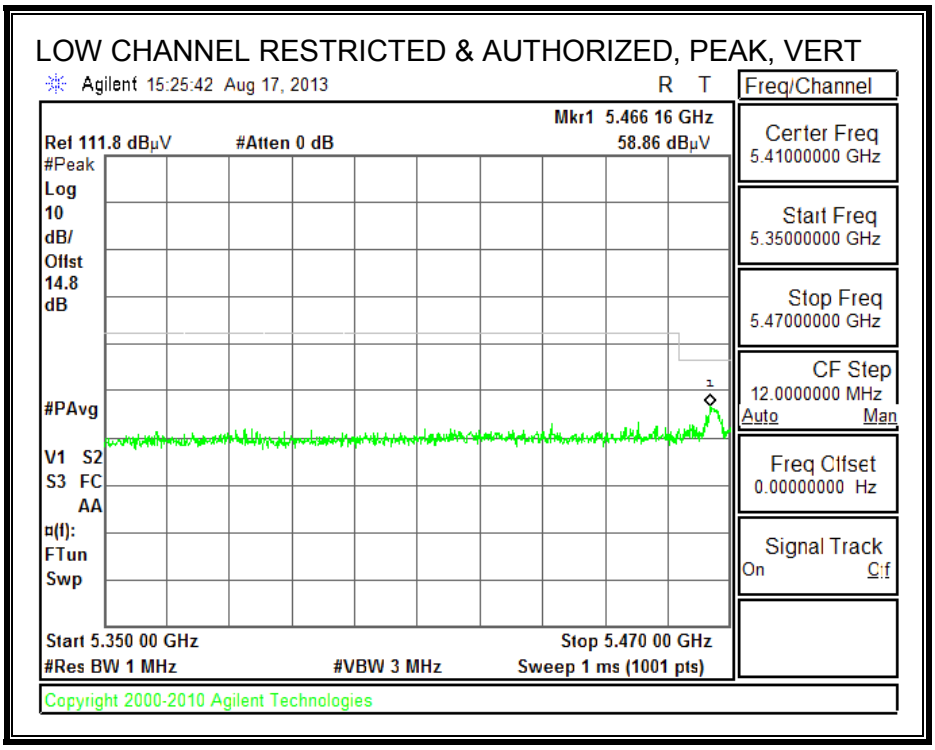
PK - Peak detector

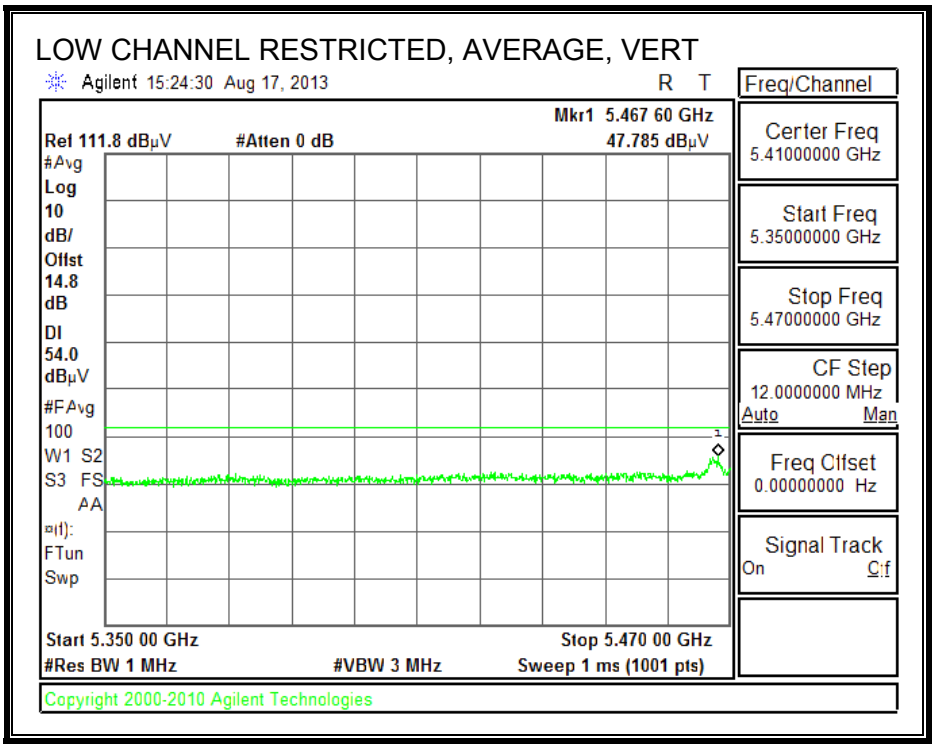
9.10. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

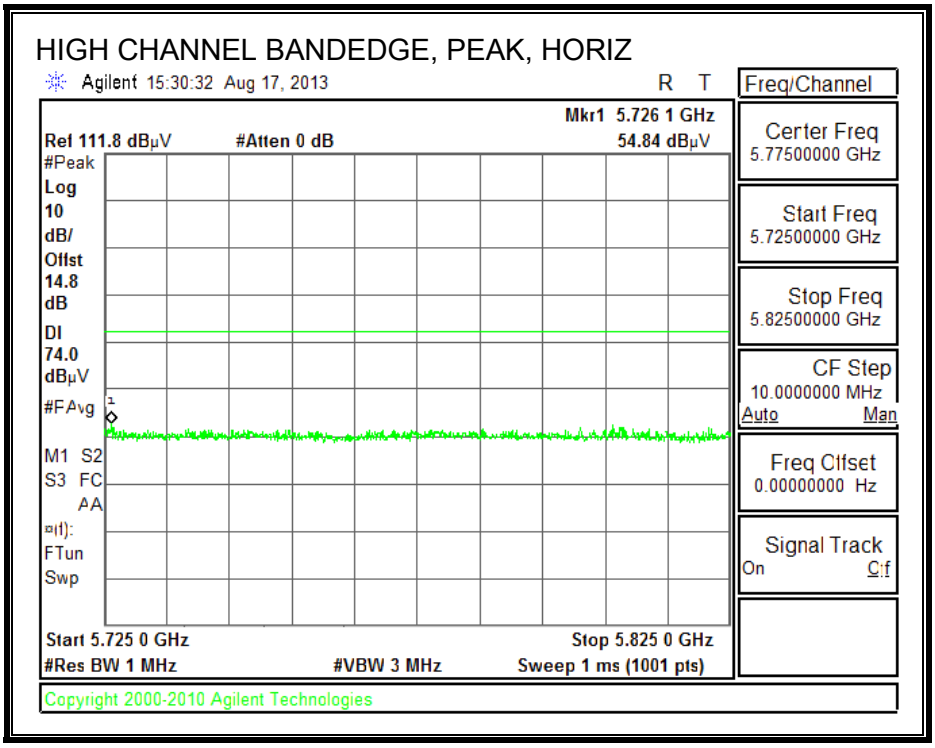


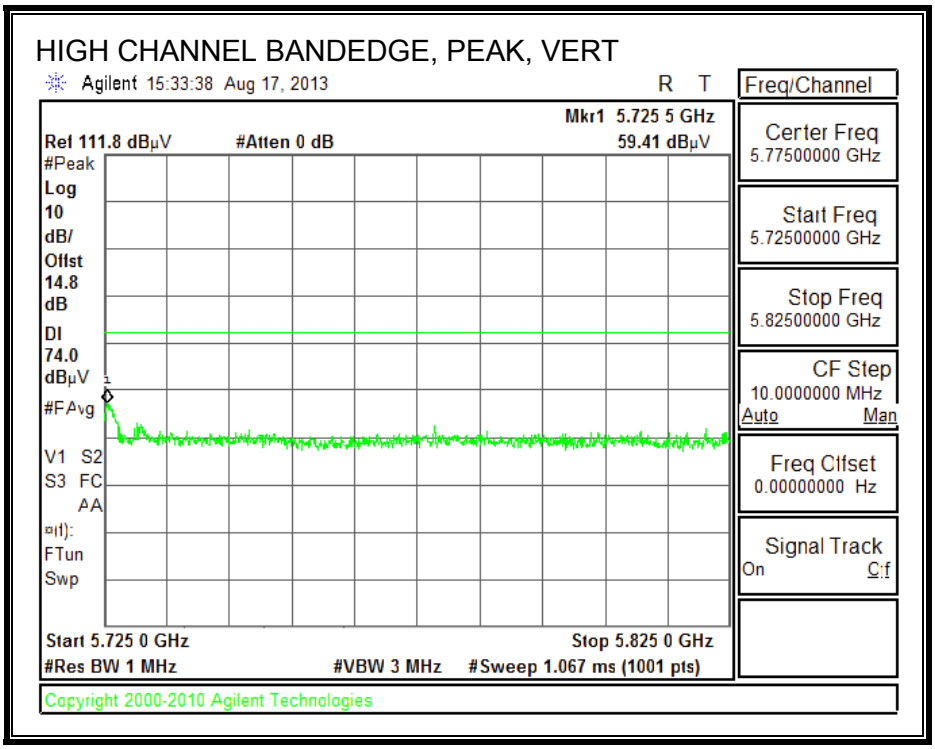






AUTHORIZED BANDEDGE (HIGH CHANNEL)

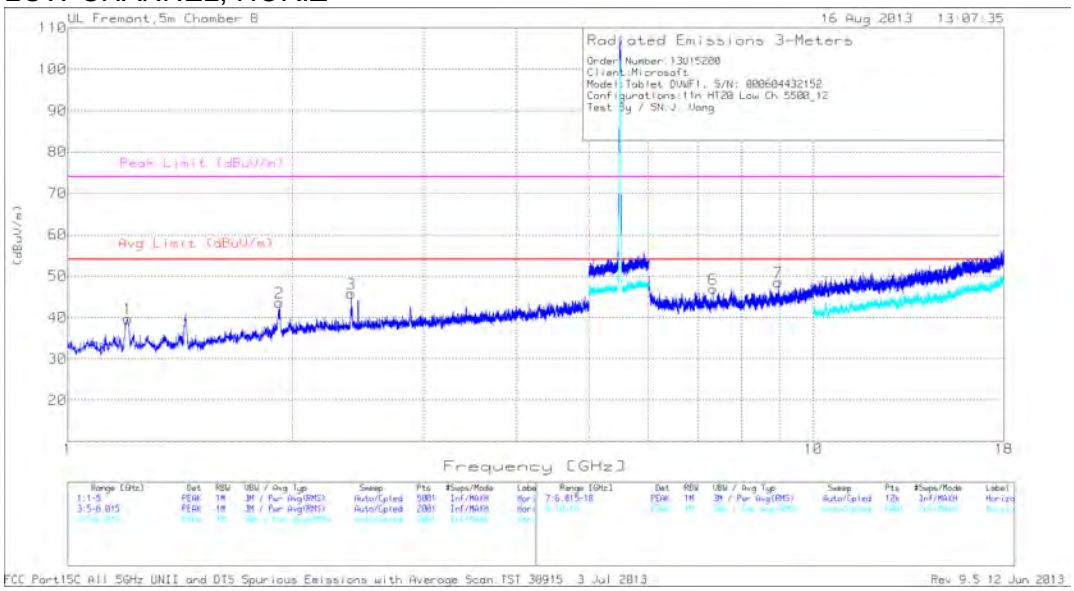




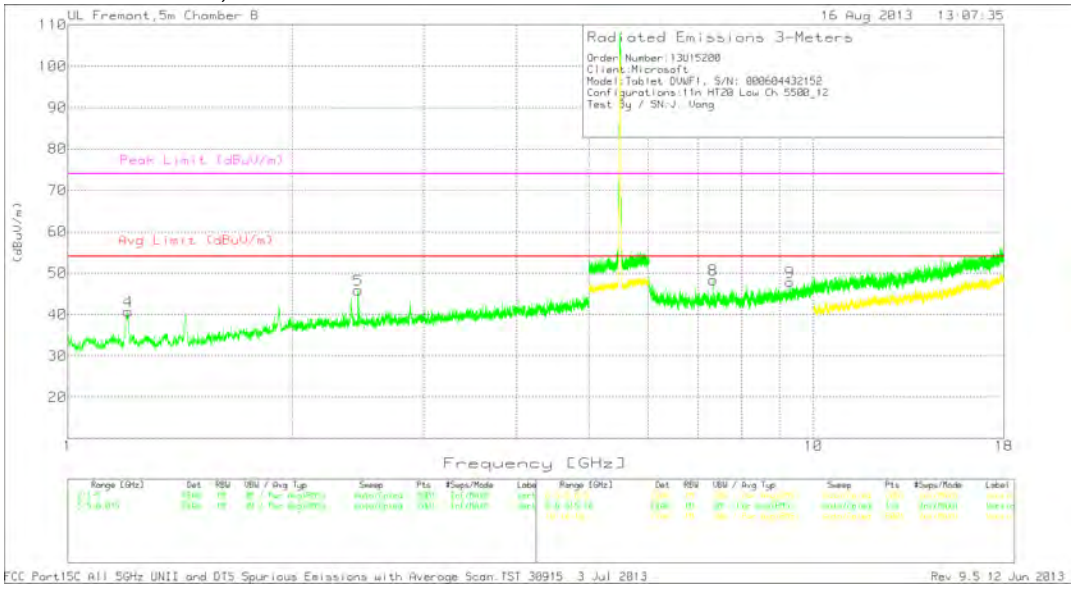
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL

LOW CHANNEL, HORIZ



LOW CHANNEL, VERT



LOW Channel DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.204	46.8	PK	28.4	-35.5	39.7	53.97	-14.27	74	-34.3	0-360	100	H
1.922	45.41	PK	31.3	-33.1	43.61	53.97	-10.36	74	-30.39	0-360	100	H
2.4	46.67	PK	32.3	-33.2	45.77	53.97	-8.2	74	-28.23	0-360	100	H
1.205	47.82	PK	28.4	-35.5	40.72	53.97	-13.25	74	-33.28	0-360	100	V
2.451	46.57	PK	32.4	-33.1	45.87	53.97	-8.1	74	-28.13	0-360	100	V
7.333	38.56	PK	35.9	-27.6	46.86	53.97	-7.11	74	-27.14	0-360	200	H
8.962*	37.28	PK	36.7	-25.5	48.48	-	-	68.2	-19.72	0-360	200	H
7.333	40.02	PK	35.9	-27.6	48.32	53.97	-5.65	74	-25.68	0-360	100	V
9.304	36.33	PK	37	-25.5	47.83	53.97	-6.14	74	-26.17	0-360	100	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.333	34.24	Av	35.9	-27.6	42.54	53.97	-11.43	-	-	302	124	V

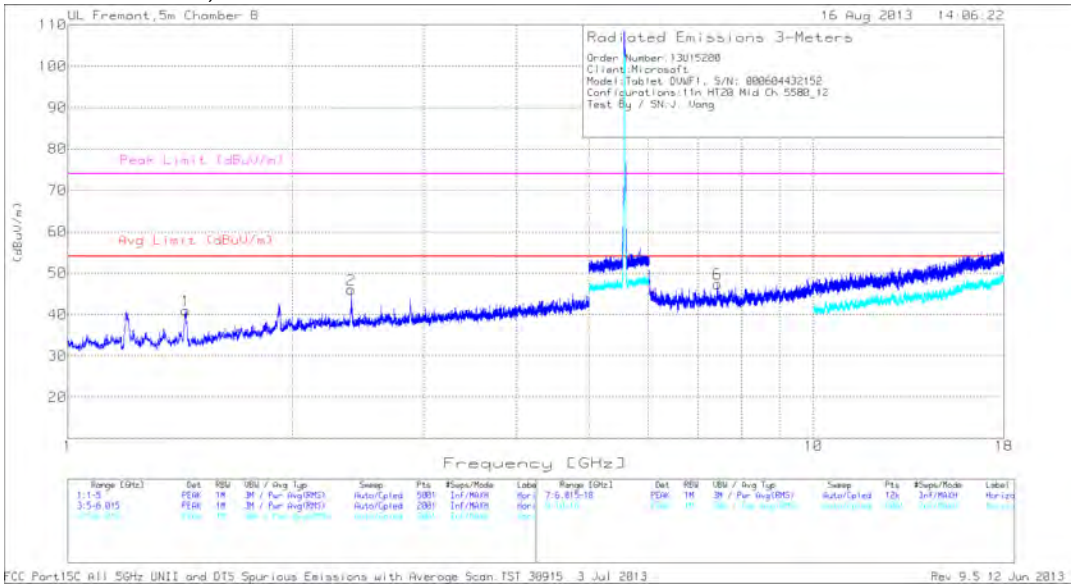
*- Non Restrictive Band

PK - Peak detector

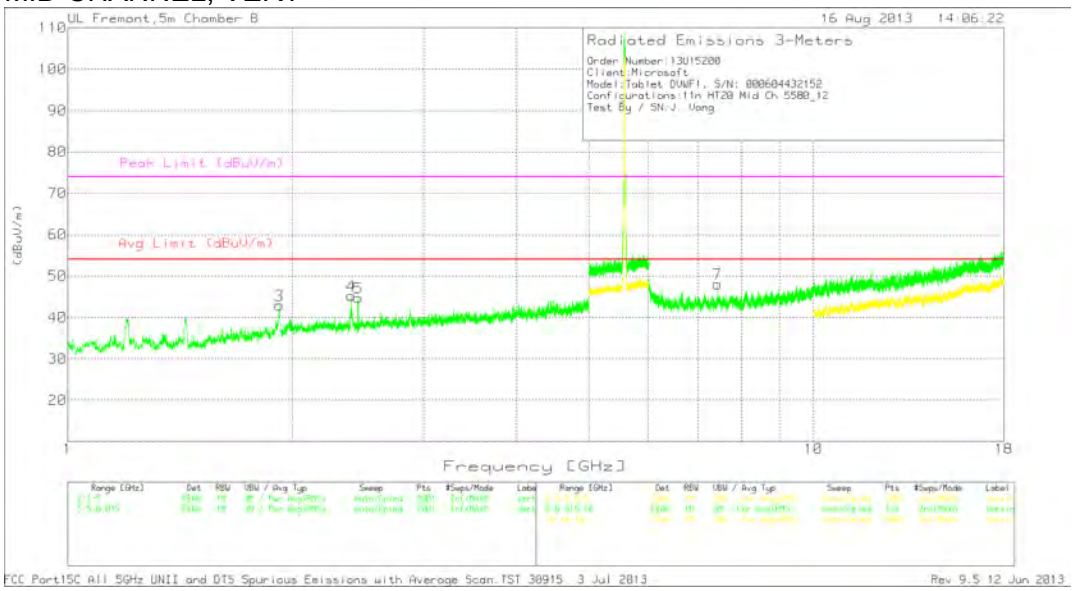
Av - average detection

MID CHANNEL

MID CHANNEL, HORIZ



MID CHANNEL, VERT



MID Channel DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.44	47.32	PK	28.3	-34.7	40.92	53.97	-13.05	74	-33.08	0-360	100	H
2.4	46.9	PK	32.3	-33.2	46	53.97	-7.97	74	-28	0-360	100	H
1.922	44.73	PK	31.3	-33.1	42.93	53.97	-11.04	74	-31.07	0-360	100	V
2.4	46.15	PK	32.3	-33.2	45.25	53.97	-8.72	74	-28.75	0-360	100	V
2.451	45.46	PK	32.4	-33.1	44.76	53.97	-9.21	74	-29.24	0-360	200	V
7.44	38.09	PK	36	-26.7	47.39	53.97	-6.58	74	-26.61	0-360	100	H
7.44	38.74	PK	36	-26.7	48.04	53.97	-5.93	74	-25.96	0-360	100	V

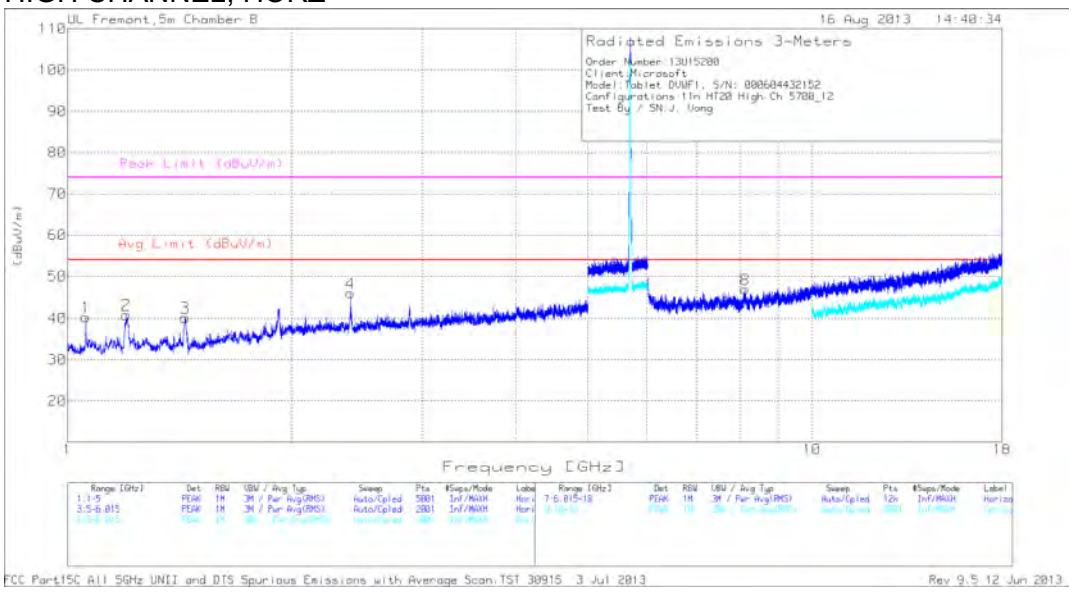
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.44	32.63	Av	36	-26.7	41.93	53.97	-12.04	-	-	357	141	V

PK - Peak detector

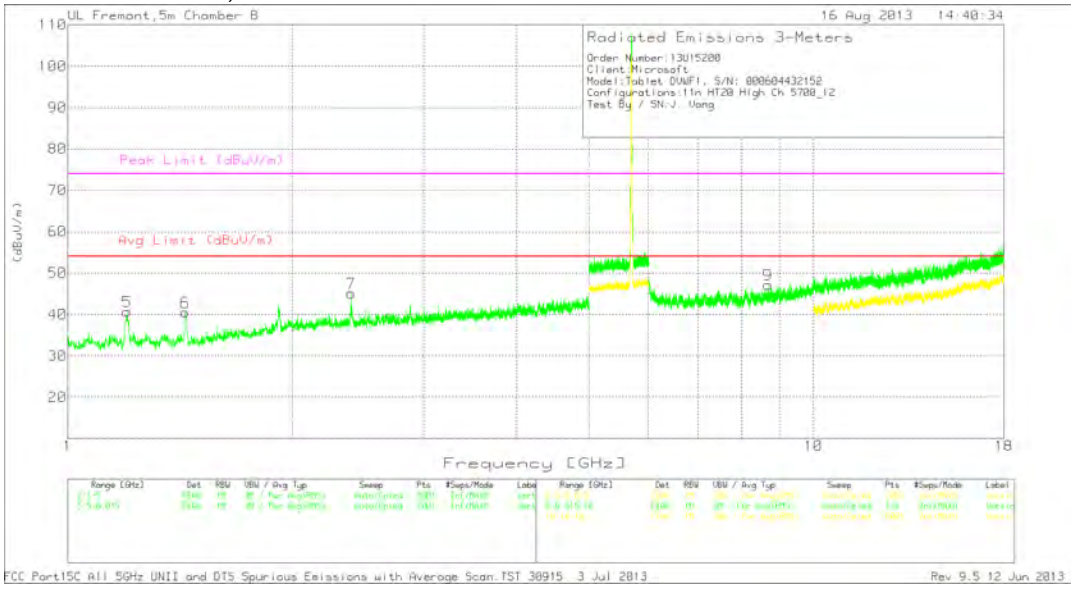
Av - average detection

HIGH CHANNEL

HIGH CHANNEL, HORZ



HIGH CHANNEL, VERT



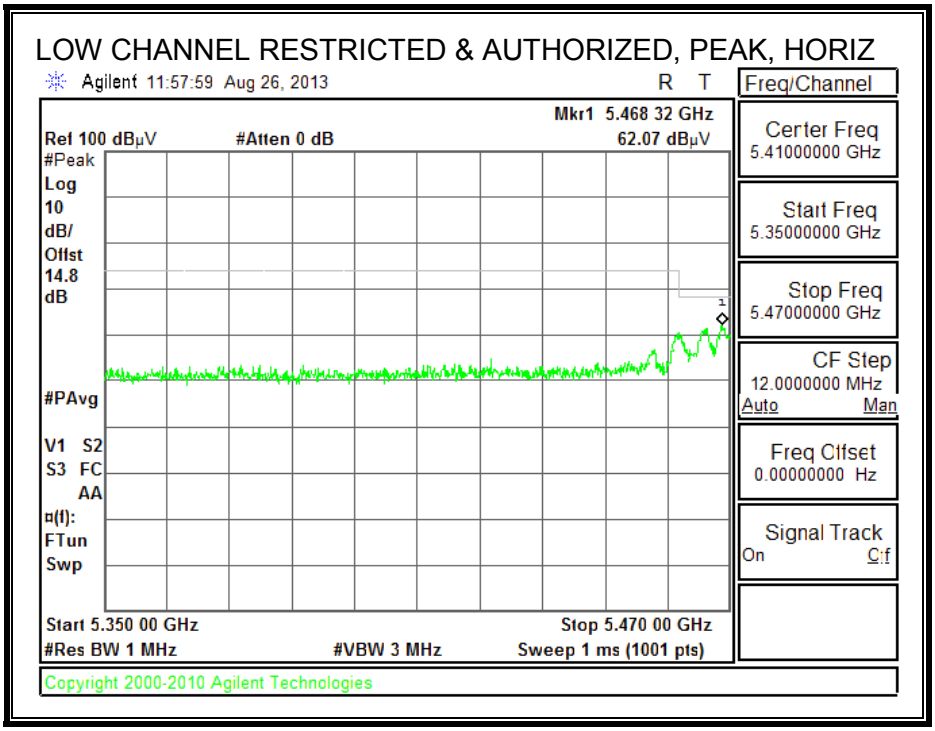
HIGH CHANNEL DATA

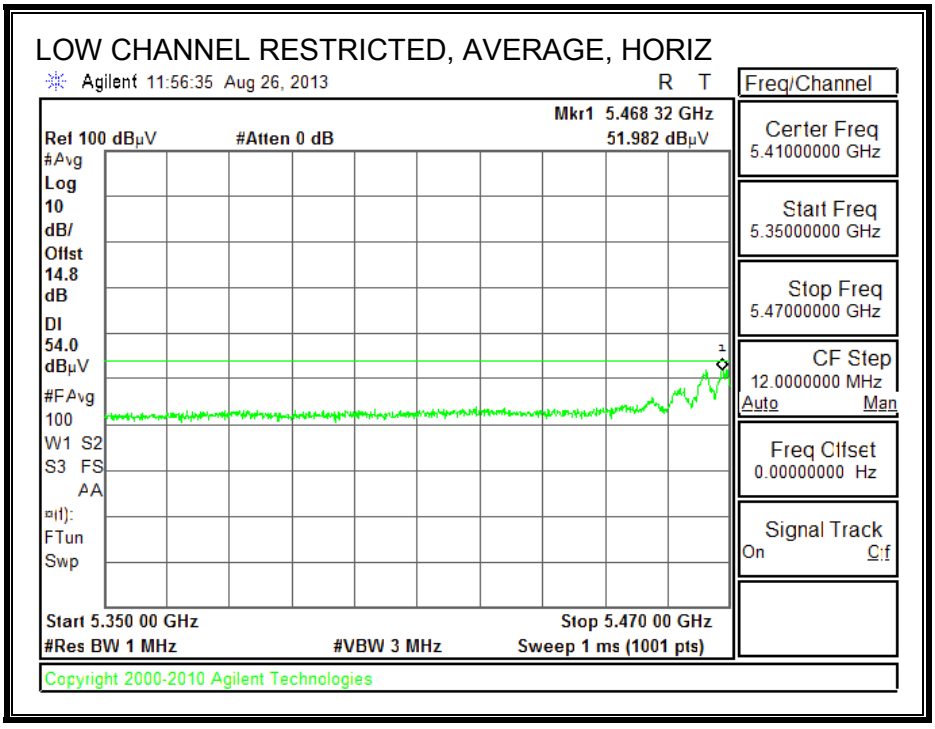
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.058	47.67	PK	27.7	-35.1	40.27	53.97	-13.7	74	-33.73	0-360	200	H
1.198	47.88	PK	28.4	-35.5	40.78	53.97	-13.19	74	-33.22	0-360	100	H
1.438	46.45	PK	28.3	-34.6	40.15	53.97	-13.82	74	-33.85	0-360	200	H
2.4	46.83	PK	32.3	-33.2	45.93	53.97	-8.04	74	-28.07	0-360	100	H
1.201	47.82	PK	28.4	-35.5	40.72	53.97	-13.25	74	-33.28	0-360	100	V
1.437	46.85	PK	28.3	-34.6	40.55	53.97	-13.42	74	-33.45	0-360	200	V
2.4	46	PK	32.3	-33.2	45.1	53.97	-8.87	74	-28.9	0-360	100	V
8.135	37.16	PK	36.1	-26.4	46.86	53.97	-7.11	74	-27.14	0-360	100	H
8.688	37.09	PK	36.4	-26.3	47.19	53.97	-6.78	74	-26.81	0-360	200	V

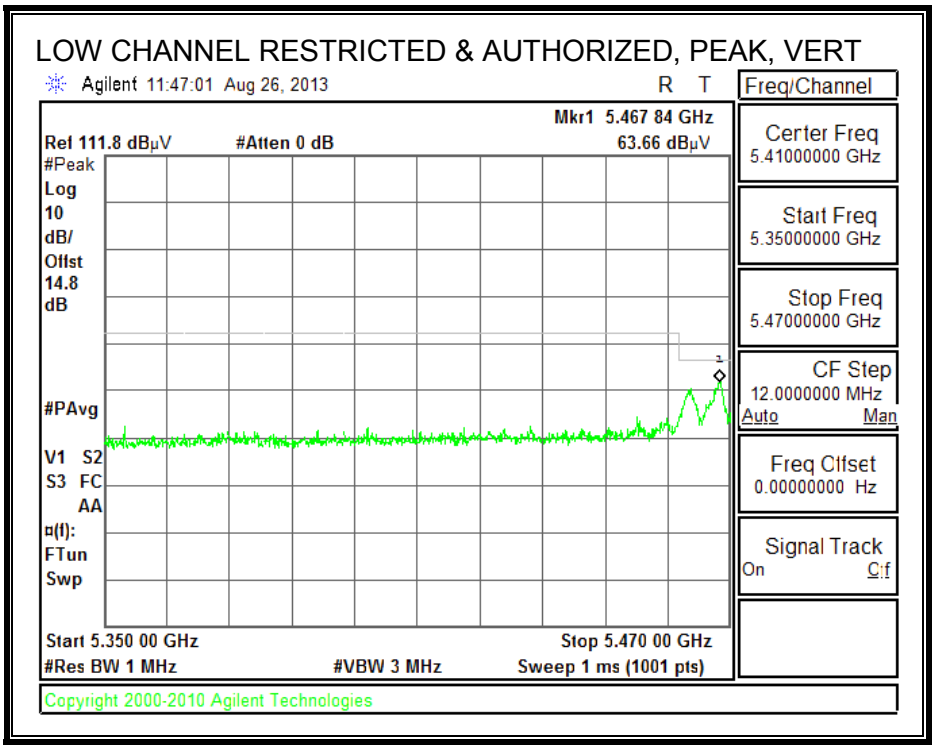
PK - Peak detector

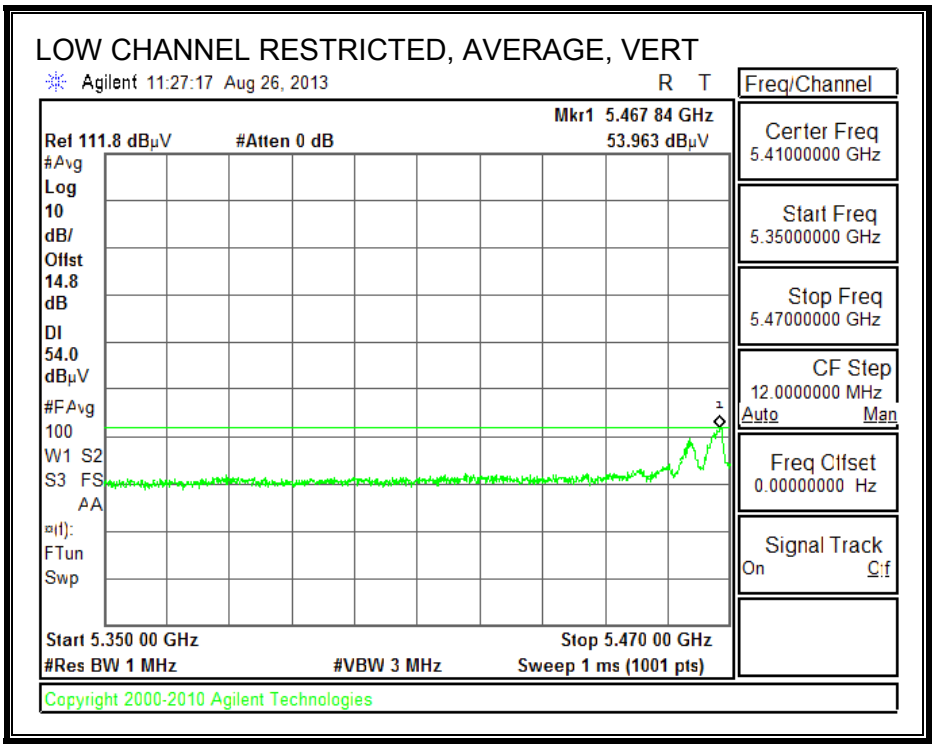
9.11. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

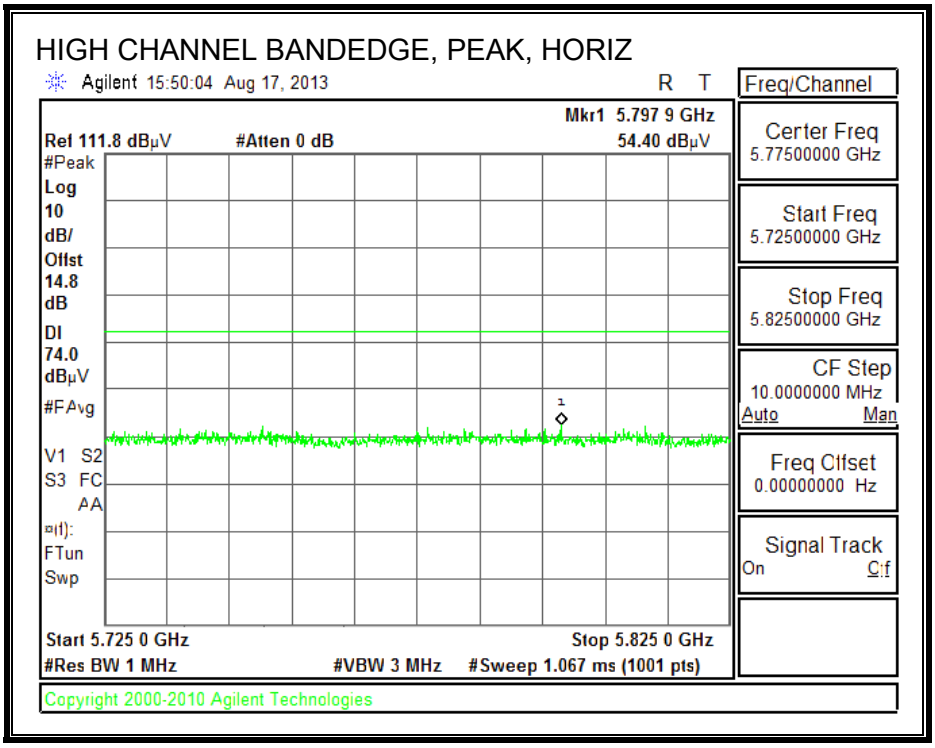


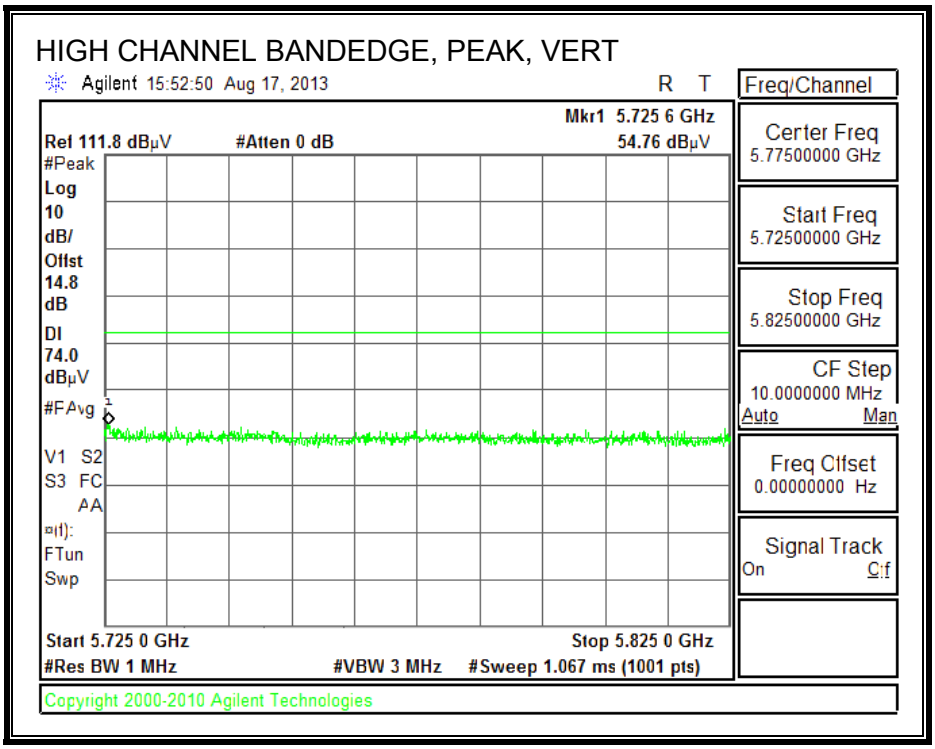






AUTHORIZED BANDEDGE (HIGH CHANNEL)

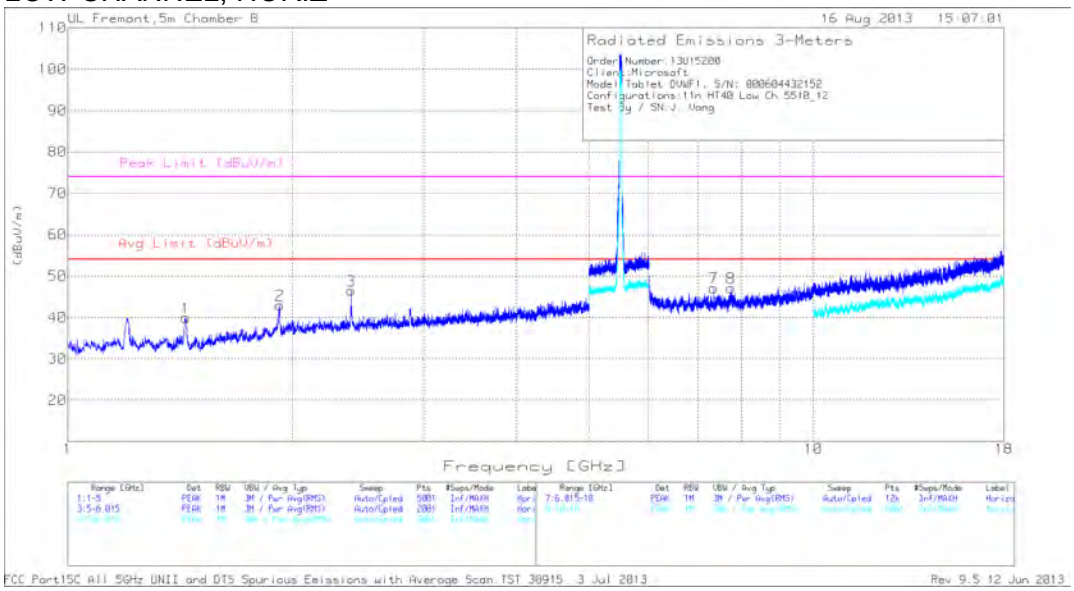




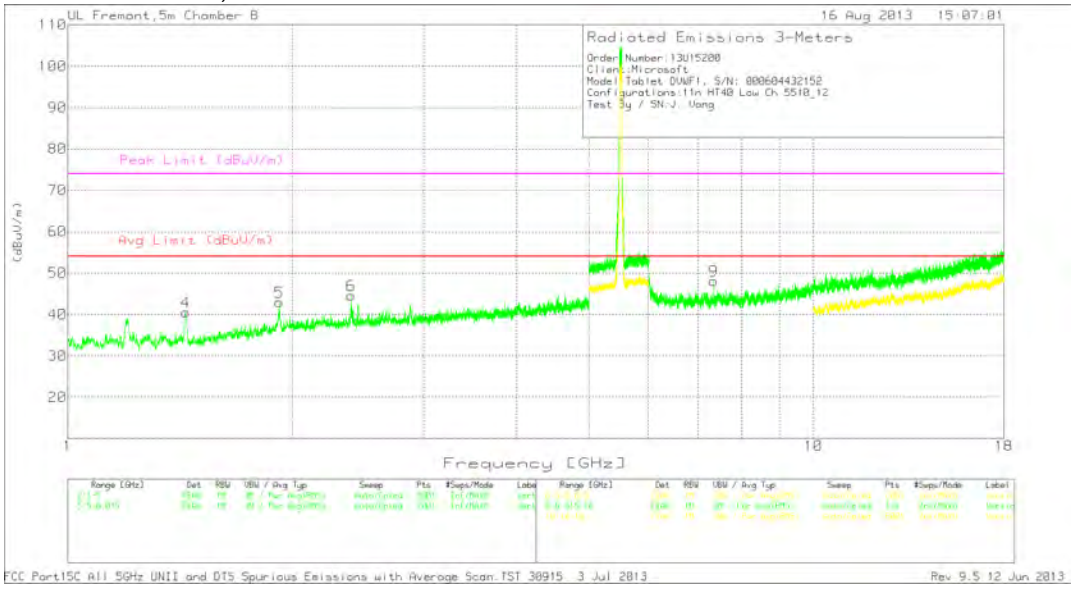
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL

LOW CHANNEL, HORIZ



LOW CHANNEL, VERT



LOW Channel DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.44	46.34	PK	28.3	-34.7	39.94	53.97	-14.03	74	-34.06	0-360	100	H
1.926	44.75	PK	31.3	-33.1	42.95	53.97	-11.02	74	-31.05	0-360	200	H
2.4	47.38	PK	32.3	-33.2	46.48	53.97	-7.49	74	-27.52	0-360	100	H
1.439	46.98	PK	28.3	-34.7	40.58	53.97	-13.39	74	-33.42	0-360	200	V
1.922	44.75	PK	31.3	-33.1	42.95	53.97	-11.02	74	-31.05	0-360	100	V
2.4	45.53	PK	32.3	-33.2	44.63	53.97	-9.34	74	-29.37	0-360	100	V
7.346	39.1	PK	35.9	-27.9	47.1	53.97	-6.87	74	-26.9	0-360	100	H
7.753	37.51	PK	36.2	-26.6	47.11	53.97	-6.86	74	-26.89	0-360	100	H
7.346	40.11	PK	35.9	-27.9	48.11	53.97	-5.86	74	-25.89	0-360	100	V

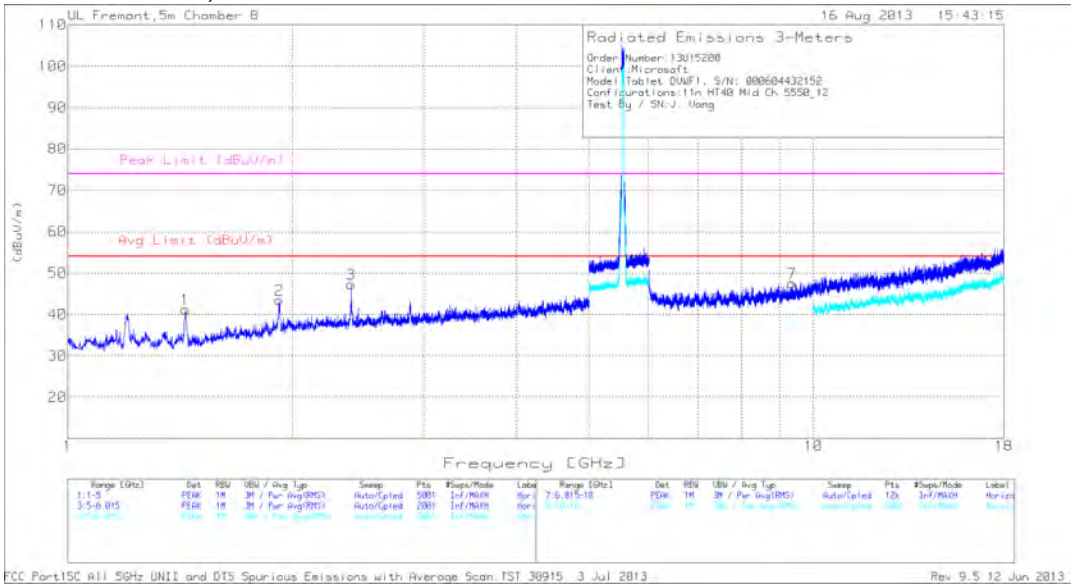
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.347	34.06	Av	35.9	-27.9	42.06	53.97	-11.91	-	-	347	178	V

PK - Peak detector

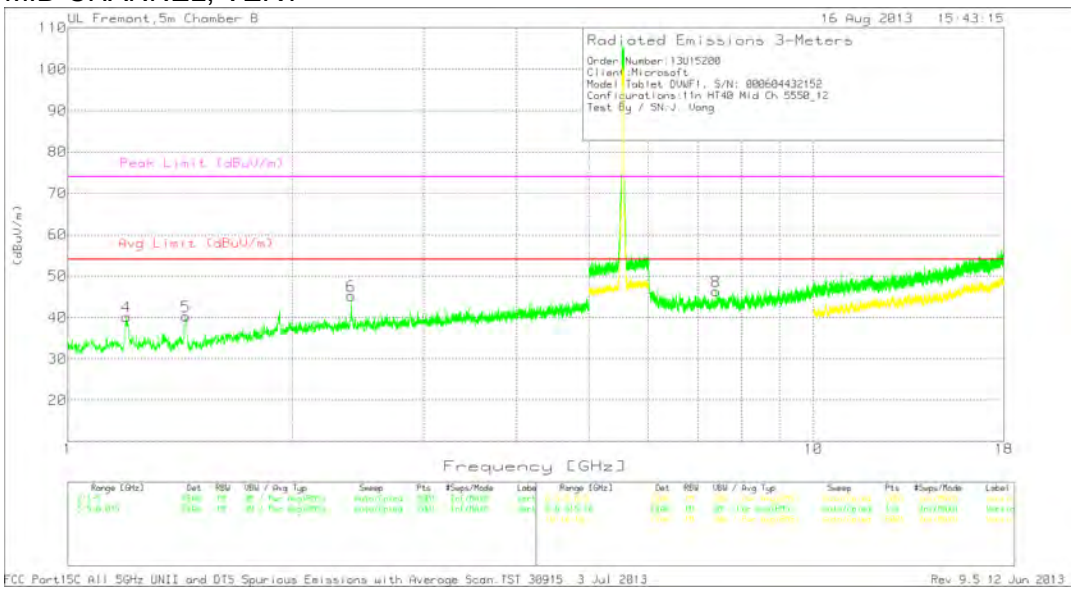
Av - average detection

MID CHANNEL

MID CHANNEL, HORIZ



MID CHANNEL, VERT



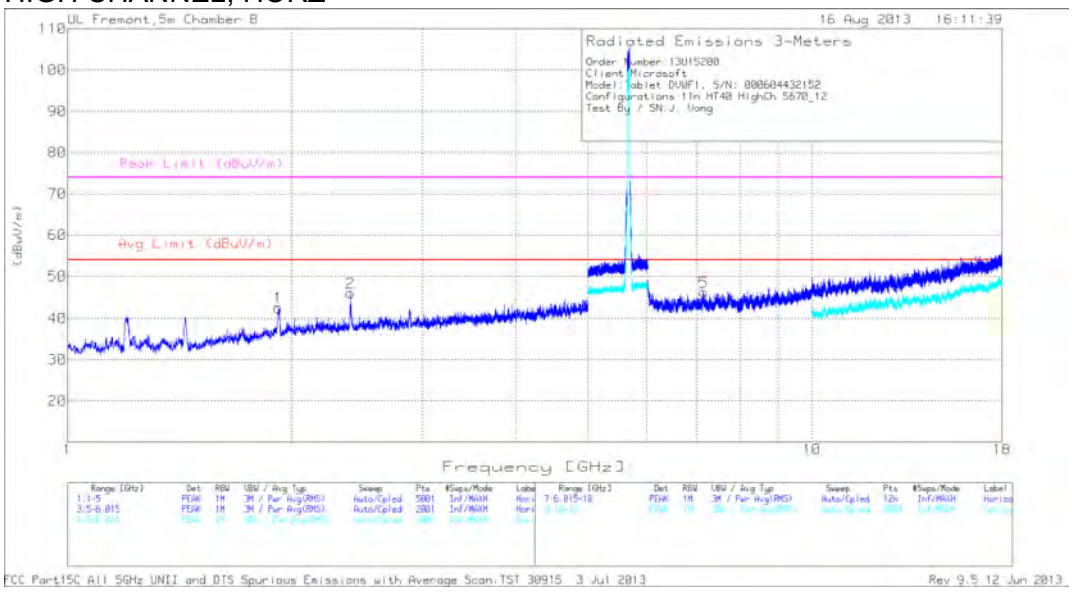
MID Channel DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.438	47.5	PK	28.3	-34.6	41.2	53.97	-12.77	74	-32.8	0-360	200	H
1.922	45.29	PK	31.3	-33.1	43.49	53.97	-10.48	74	-30.51	0-360	200	H
2.4	48.23	PK	32.3	-33.2	47.33	53.97	-6.64	74	-26.67	0-360	100	H
1.198	47.28	PK	28.4	-35.5	40.18	53.97	-13.79	74	-33.82	0-360	100	V
1.439	46.68	PK	28.3	-34.7	40.28	53.97	-13.69	74	-33.72	0-360	100	V
2.4	46.12	PK	32.3	-33.2	45.22	53.97	-8.75	74	-28.78	0-360	100	V
9.365	35.74	PK	37	-25.2	47.54	53.97	-6.43	74	-26.46	0-360	100	H
7.399	38.52	PK	35.9	-28.1	46.32	53.97	-7.65	74	-27.68	0-360	100	V

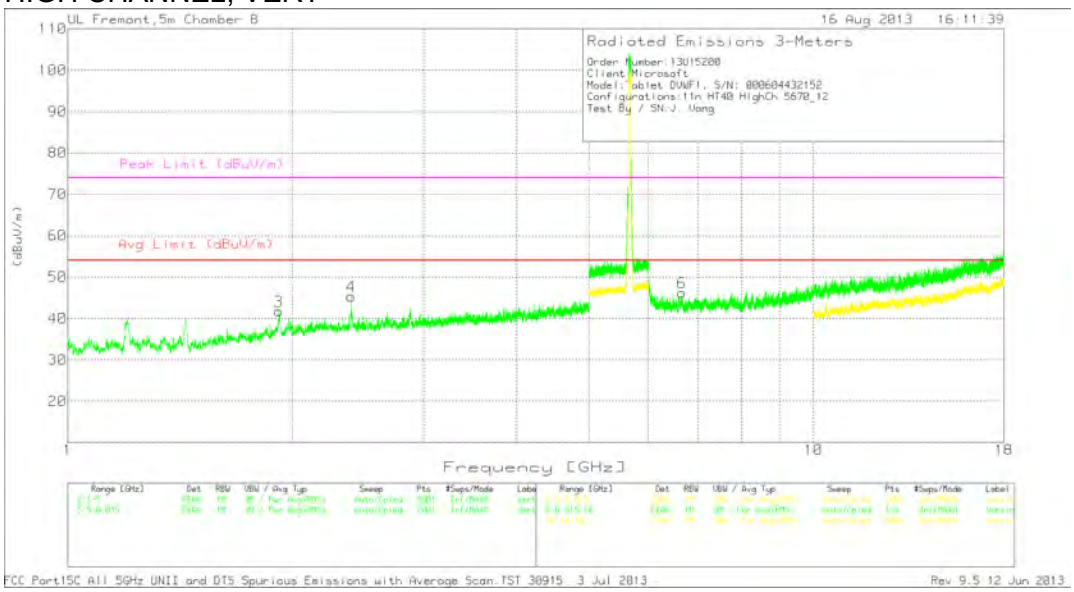
PK - Peak detector

HIGH CHANNEL

HIGH CHANNEL, HORZ



HIGH CHANNEL, VERT



HIGH CHANNEL DATA

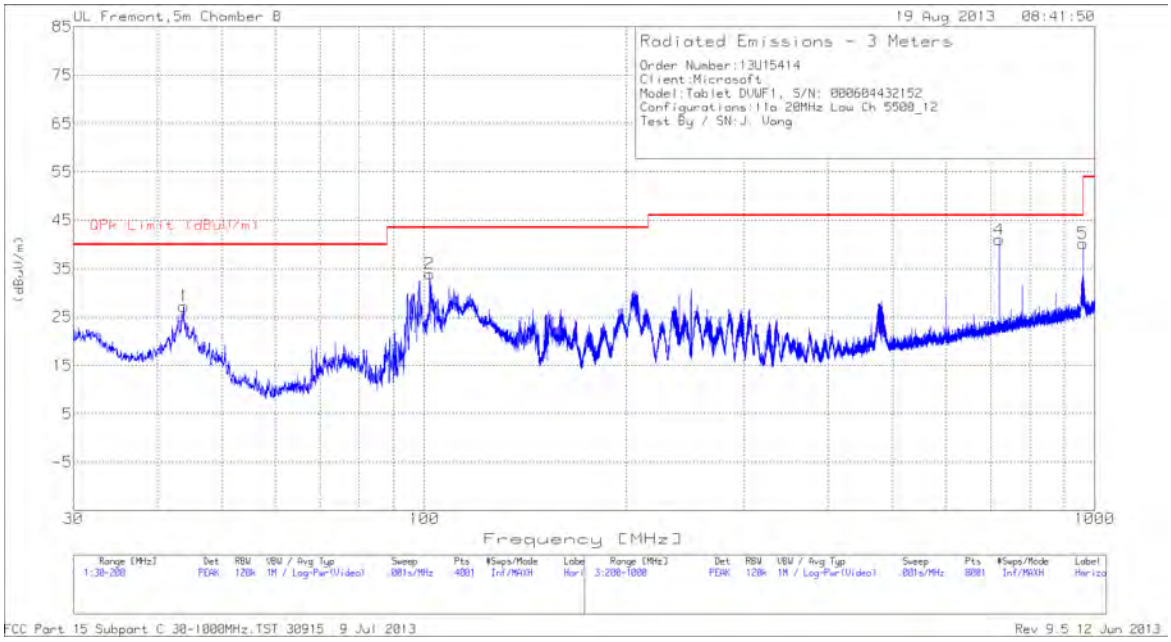
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.918	44.41	PK	31.2	-33.1	42.51	53.97	-11.46	74	-31.49	0-360	100	H
2.4	46.9	PK	32.3	-33.2	46	53.97	-7.97	74	-28	0-360	100	H
1.919	43.55	PK	31.3	-33.1	41.75	53.97	-12.22	74	-32.25	0-360	100	V
2.4	46.24	PK	32.3	-33.2	45.34	53.97	-8.63	74	-28.66	0-360	100	V
7.152	37.52	PK	35.8	-27.1	46.22	53.97	-7.75	74	-27.78	0-360	200	H
6.66	39.66	PK	35.8	-29.2	46.26	53.97	-7.71	74	-27.74	0-360	100	V

PK - Peak detector

9.12. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



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

VERTICAL PLOT

HORIZONTAL & VERTICAL DATA

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
43.8125	45.19	PK	10.7	-28.7	27.19	40	-12.81	0-360	400	H
101.91	51.33	PK	10.6	-28	33.93	43.52	-9.59	0-360	300	H
43.8125	56.75	PK	10.7	-28.7	38.75	40	-1.25	0-360	100	V
720	45.32	PK	20.3	-24.6	41.02	46.02	-5	0-360	100	H
960	40.22	PK	22.7	-22.7	40.22	46.02	-5.8	0-360	300	H
720	44.99	PK	20.3	-24.6	40.69	46.02	-5.33	0-360	100	V
960	41.03	PK	22.7	-22.7	41.03	46.02	-4.99	0-360	100	V

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
43.7911	51.44	QP	10.7	-28.7	33.44	40	-6.56	234	172	V
720.0238	46.26	QP	20.3	-24.6	41.96	46.02	-4.06	114	124	H
960.0356	42.08	QP	22.7	-22.7	42.08	53.97	-11.89	90	154	H
720.0218	44.76	QP	20.3	-24.6	40.46	46.02	-5.56	220	102	V
960.0289	41.39	QP	22.7	-22.7	41.39	53.97	-12.58	102	113	V

PK - Peak detector

QP - Quasi-Peak detector

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

WORST EMISSIONS

Line-L1 .15 - 30MHz

Trace Markers										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin to Limit (dB)	CISPR 11/22 Class B Average	Margin to Limit (dB)
1	.186	56.59	PK	.1	0	56.69	64.2	-7.51	-	-
2	.186	31.73	Av	.1	0	31.83	-	-	54.2	-22.37
3	.2445	49.14	PK	.1	0	49.24	61.9	-12.66	-	-
4	.2445	19.35	Av	.1	0	19.45	-	-	51.9	-32.45
5	4.623	42.57	PK	.1	.1	42.77	56	-13.23	-	-
6	4.623	24.37	Av	.1	.1	24.57	-	-	46	-21.43
7	13.929	50.8	PK	.2	.2	51.2	60	-8.8	-	-
8	13.929	32.44	Av	.2	.2	32.84	-	-	50	-17.16

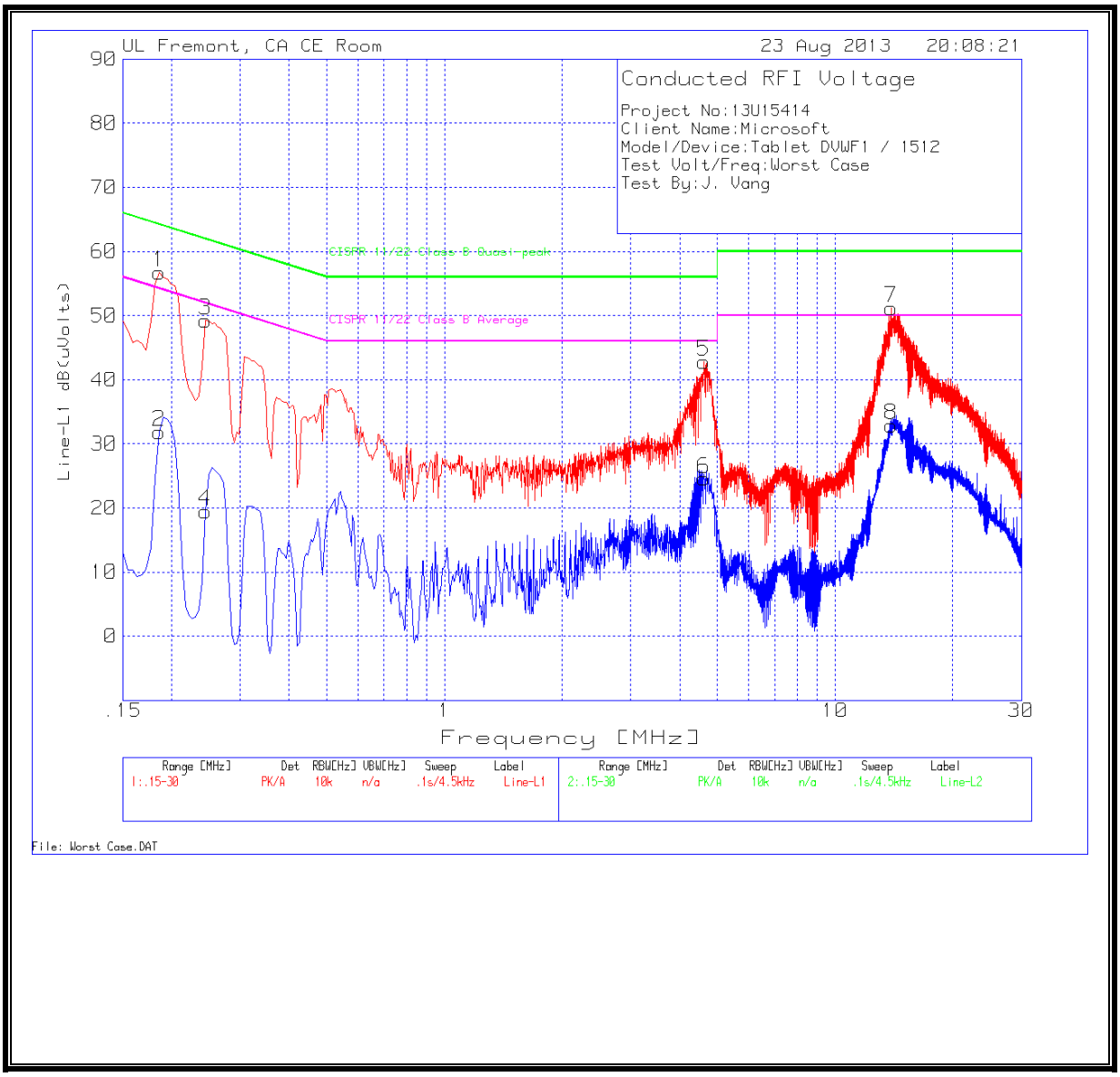
Line-L2 .15 - 30MHz

Trace Markers										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin to Limit (dB)	CISPR 11/22 Class B Average	Margin to Limit (dB)
9	.186	57.17	PK	.1	0	57.27	64.2	-6.93	-	-
10	.186	33.42	Av	.1	0	33.52	-	-	54.2	-20.68
11	.249	50.1	PK	.1	0	50.2	61.8	-11.6	-	-
12	.249	26.02	Av	.1	0	26.12	-	-	51.8	-25.68
13	14.2755	49.55	PK	.2	.2	49.95	60	-10.05	-	-
14	14.2755	30.37	Av	.2	.2	30.77	-	-	50	-19.23

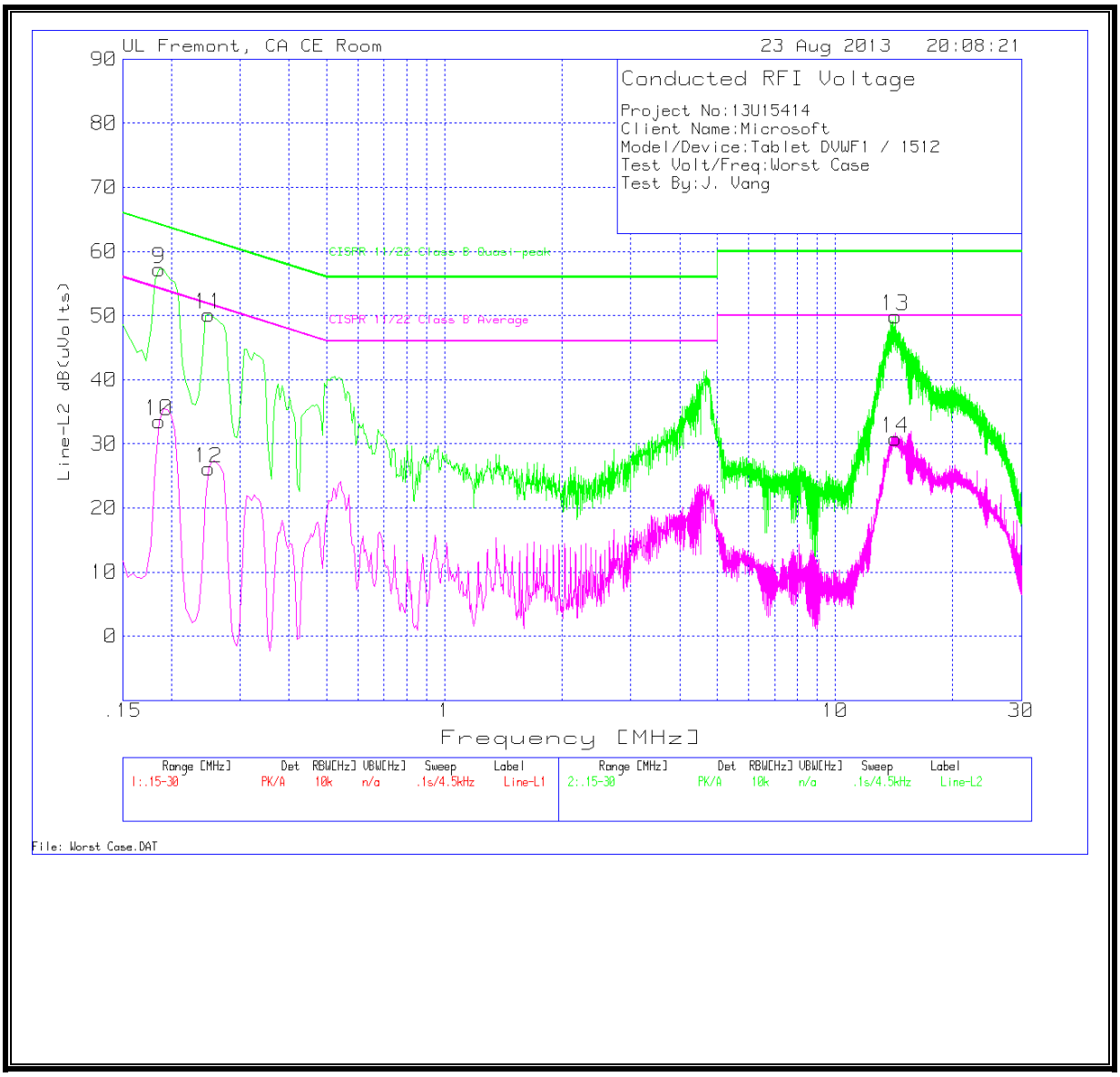
PK - Peak detector

Av - average detection

LINE 1 RESULTS



LINE 2 RESULTS



11. DYNAMIC FREQUENCY SELECTION

11.1. OVERVIEW

11.1.1. LIMITS

INDUSTRY CANADA

IC RSS-210 is closely harmonized with FCC Part 15 DFS rules. The deviations are as follows:

RSS-210 Issue 7 A9.4 (b) (ii) **Channel Availability Check Time:** …

Additional requirements for the band 5600-5650 MHz: Until further notice, devices subject to this Section shall not be capable of transmitting in the band 5600-5650 MHz, so that Environment Canada weather radars operating in this band are protected.

RSS-210 Issue 7 A9.4 (b) (iv) **Channel closing time:** the maximum channel closing time is 260 ms.

FCC

§15.407 (h) and FCC 06-96 APPENDIX “COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVCIES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION”.

Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
Uniform Spreading	Yes	Not required	Not required

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client **(without DFS)**	Client **(with DFS)**
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see note)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

Table 4: DFS Response requirement values

Parameter	Value
Non-occupancy period	30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 second period
The instant that the *Channel Move Time* and the *Channel Closing Transmission Time* begins is as follows: For the Short pulse radar Test Signals this instant is the end of the *Burst*. For the Frequency Hopping radar Test Signal, this instant is the end of the last radar burst generated. For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission. The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate channel changes (an aggregate of approximately 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.	

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (Microseconds)	PRI (Microseconds)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
1	1	1428	18	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Table 6 – Long Pulse Radar Test Signal

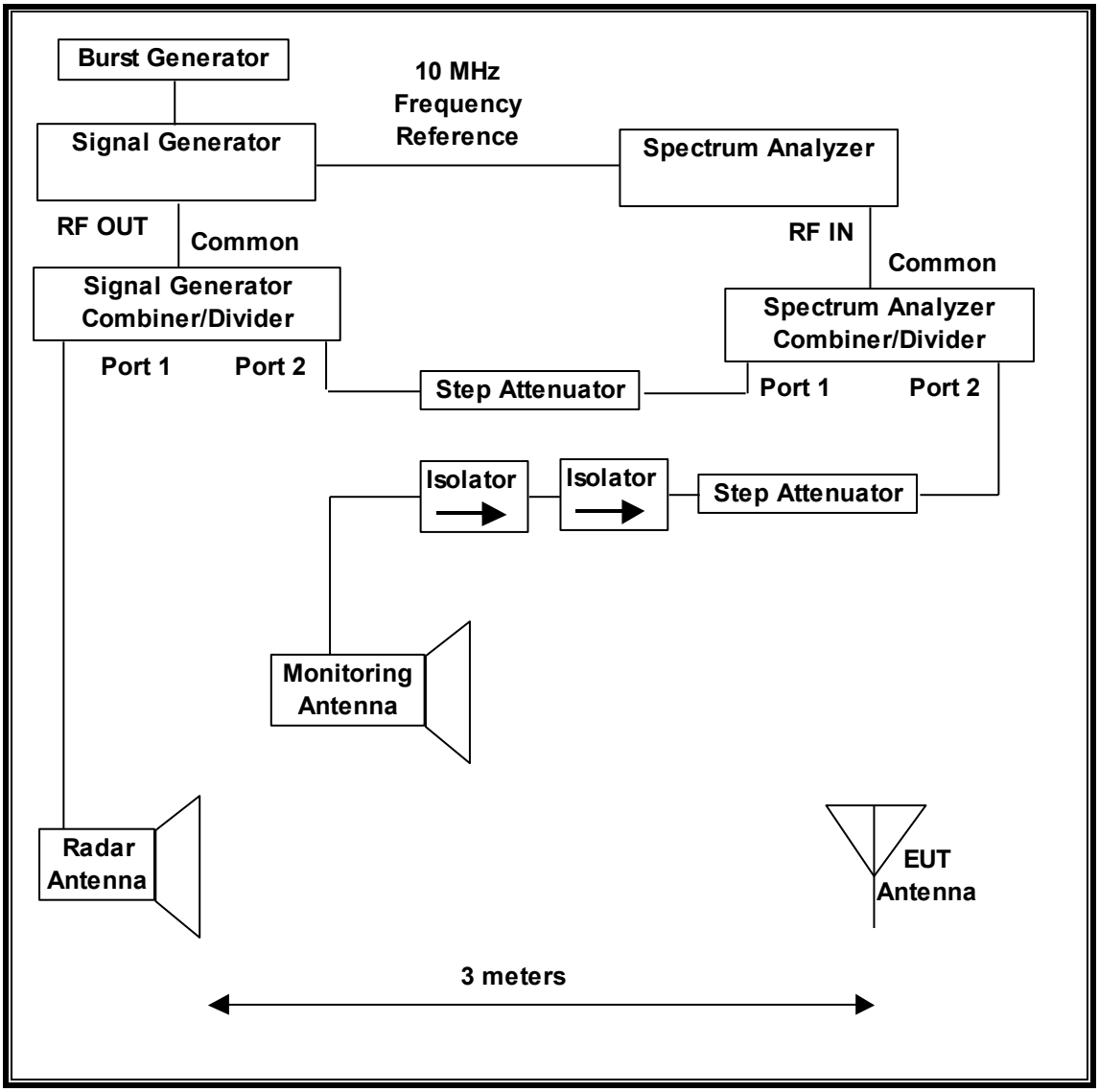
Radar Waveform	Bursts	Pulses per Burst	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	8-20	1-3	50-100	5-20	1000-2000	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform	Pulse Width (µsec)	PRI (µsec)	Burst Length (ms)	Pulses per Hop	Hopping Rate (kHz)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	300	9	.333	70%	30

11.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

The short pulse and long pulse signal generating system utilizes the NTIA software. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Freqeuncy Hopping Radar Waveform Generating Subsystem of FCC 06-96 APPENDIX. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

SYSTEM CALIBRATION

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to a horn antenna via a coaxial cable, with the reference level offset set to (horn antenna gain – coaxial cable loss). The signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of –64 dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is –64 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Slave and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. The video test file is streamed to generate WLAN traffic. The monitoring antenna is adjusted so that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

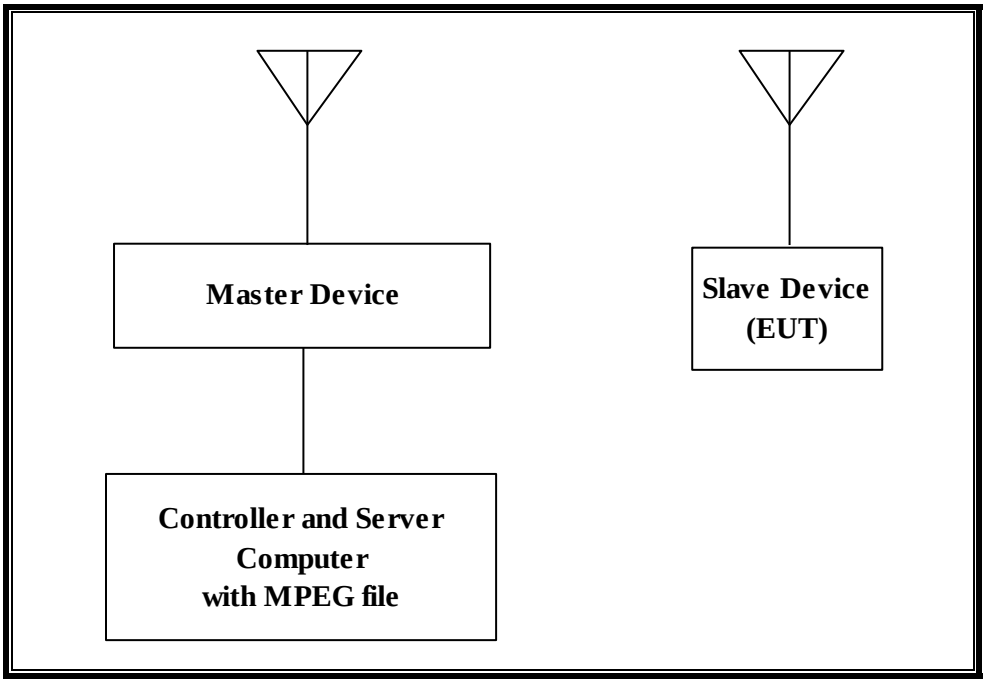
TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the DFS tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset Number**	**Cal Due**
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	09/18/13
Vector Signal Generator, 20GHz	Agilent / HP	E8267C	C01066	11/20/13

11.1.3. SETUP OF EUT

RADIATED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

The following support equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Wireless Access Point (Master Device)	Cisco	AIR-AP1252AG-A-K9	FTX130390D9	LDK102061
AC Adapter (AP)	Delta Electronics	EADP-45BB B	DTH1049902N	DoC
Notebook PC (Controller/Server)	Apple	MacBook Pro A1150	AOU257941	DoC
AC Adapter (Controller/Server PC)	Delta Electronics	A1330	MV952157KAGKA	DoC

11.1.4. DESCRIPTION OF EUT

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

The EUT is a Slave Device without Radar Detection.

The highest power level within these bands is 18.51 dBm EIRP in the 5250-5350 MHz band and 19.5 dBm EIRP in the 5470-5725 MHz band.

The only antenna assembly utilized with the EUT has a gain of 3.2 dBi and 3.9 dBi in the 5250-5350 MHz band and 3.2 dBi and 3.9 dBi in the 5470-5725 MHz band.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is –64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is –64 + 1 = -63 dBm.

The calibrated radiated DFS Detection Threshold level is set to –64 dBm. The tested level is lower than the required level hence it provides margin to the limit.

The EUT uses two transmitter/receiver chains, each connected to an antenna to perform radiated tests.

WLAN traffic is generated by generating simulated packets from the Master to the Slave.

TPC is not required since the maximum EIRP is less than 500 mW (27 dBm).

The EUT utilizes the 802.11a/n architecture. Two nominal channel bandwidths are implemented: 20 MHz and 40 MHz.

The software installed in the access point is 12.4(25d)JA1.

UNIFORM CHANNEL SPREADING

This requirement is not applicable to Slave radio devices.

OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS

The Master Device is a Cisco Access Point, FCC ID: LDK102061. The minimum antenna gain for the Master Device is 3.5 dBi.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is –64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is –64 + 1 = -63 dBm.

The calibrated radiated DFS Detection Threshold level is set to –64 dBm. The tested level is lower than the required level hence it provides margin to the limit.

The software installed in the access point is 12.4(25d)JA1.

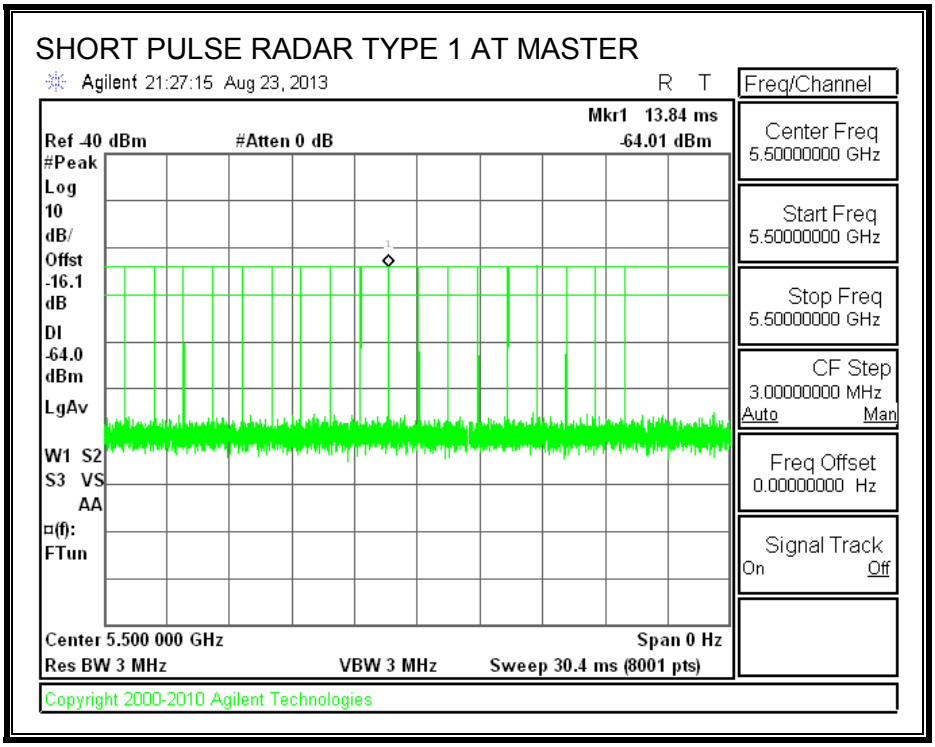
11.2. RESULTS FOR 20 MHz BANDWIDTH

11.2.1. TEST CHANNEL

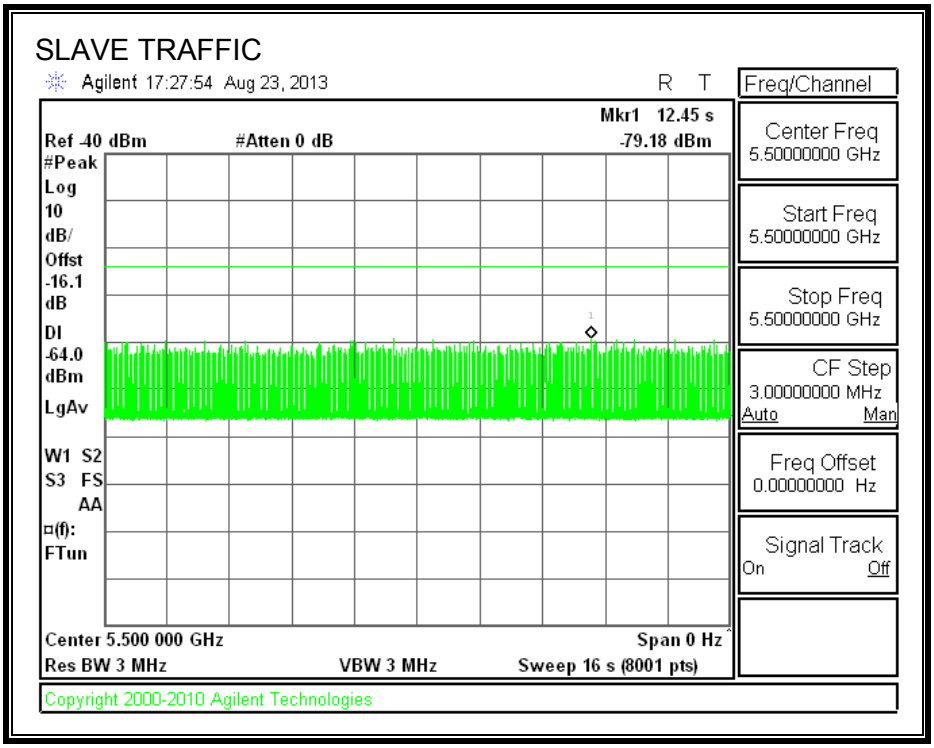
All tests were performed at a channel center frequency of 5500 MHz.

11.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



11.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the FCC aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

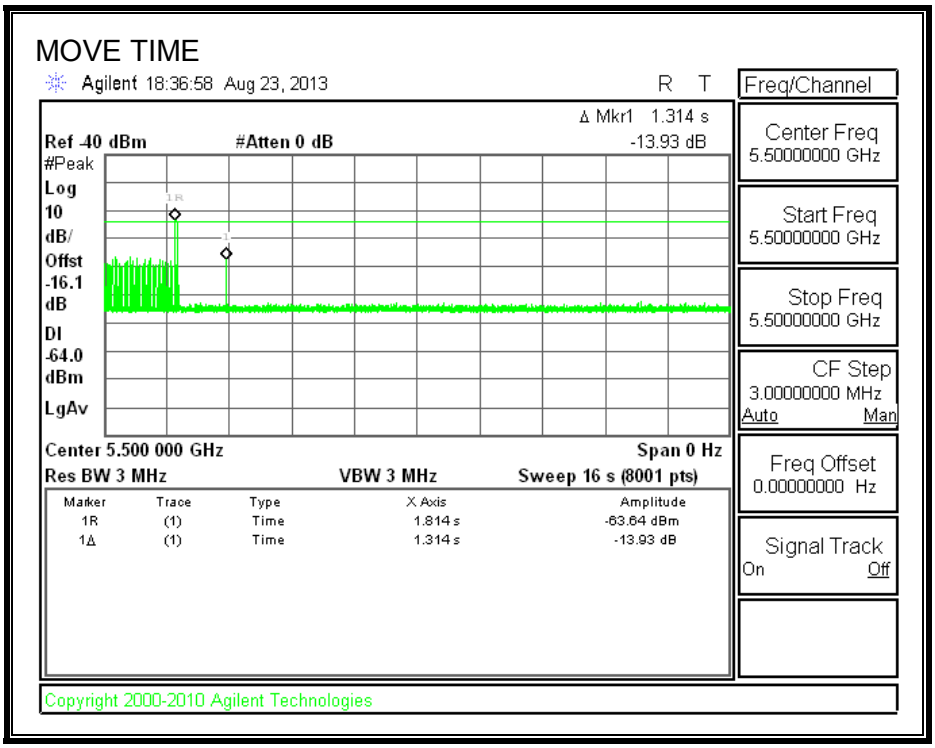
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

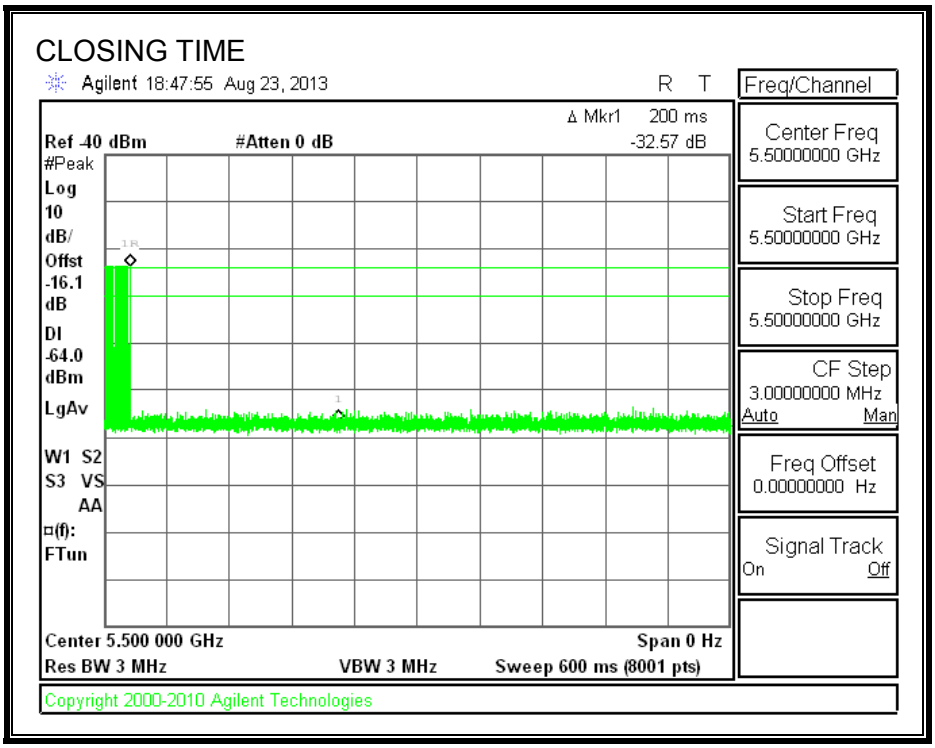
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	1.314	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	8.0	60
IC	24.0	260

MOVE TIME



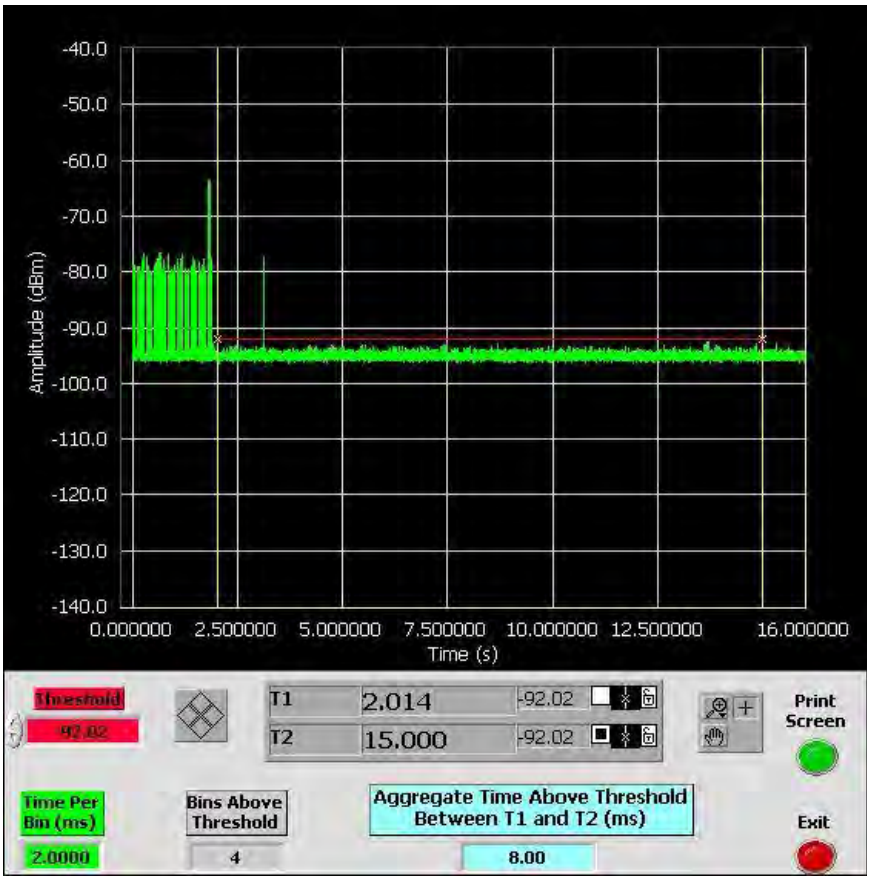
CHANNEL CLOSING TIME



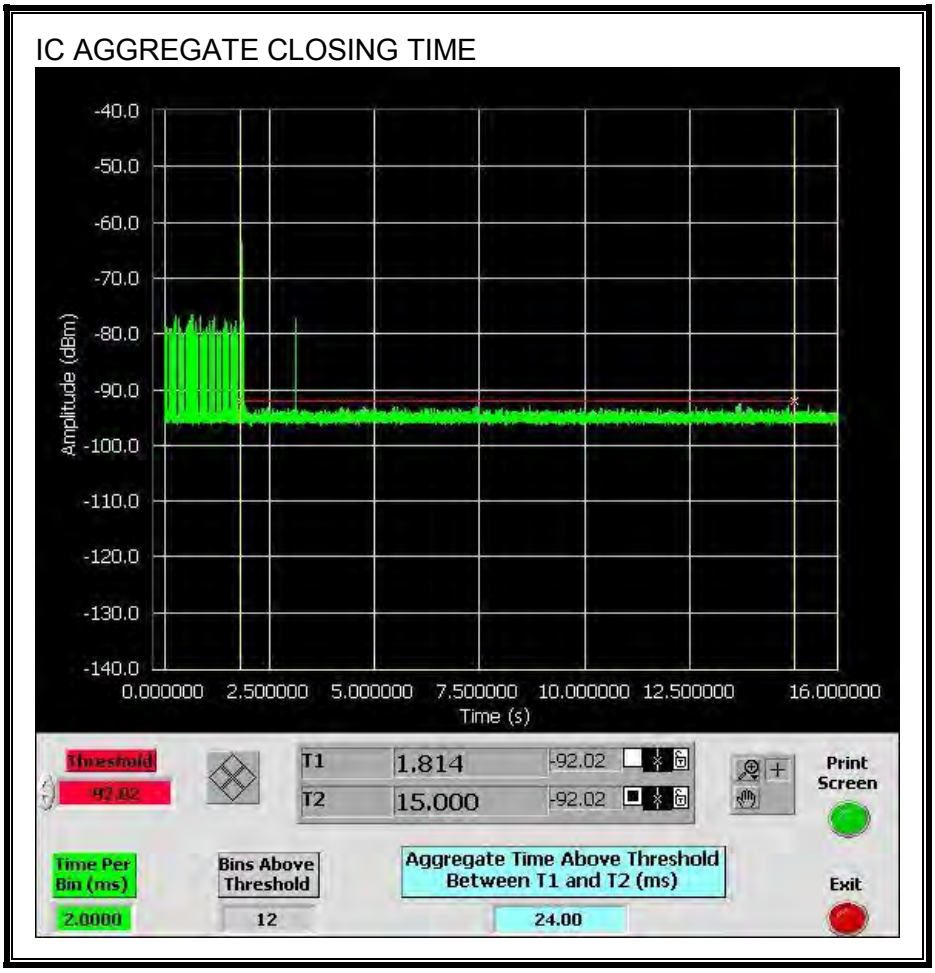
AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the FCC aggregate monitoring period.

FCC AGGREGATE CLOSING TIME



Only intermittent transmissions are observed during the IC aggregate monitoring period.



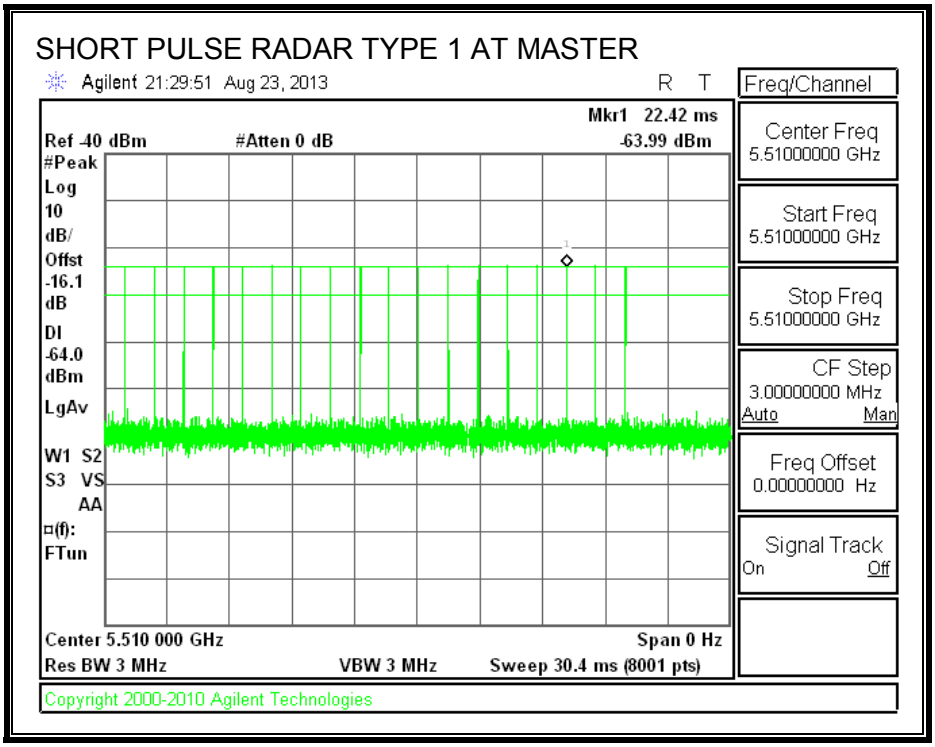
11.3. RESULTS FOR 40 MHz BANDWIDTH

11.3.1. TEST CHANNEL

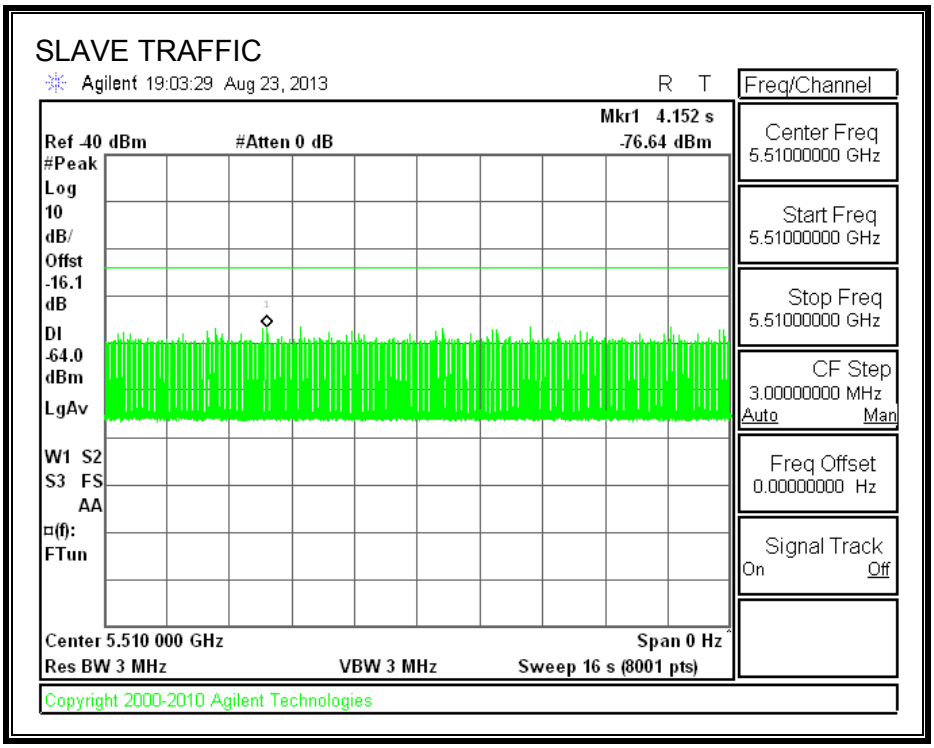
All tests were performed at a channel center frequency of 5510 MHz.

11.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



11.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

11.3.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the FCC aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

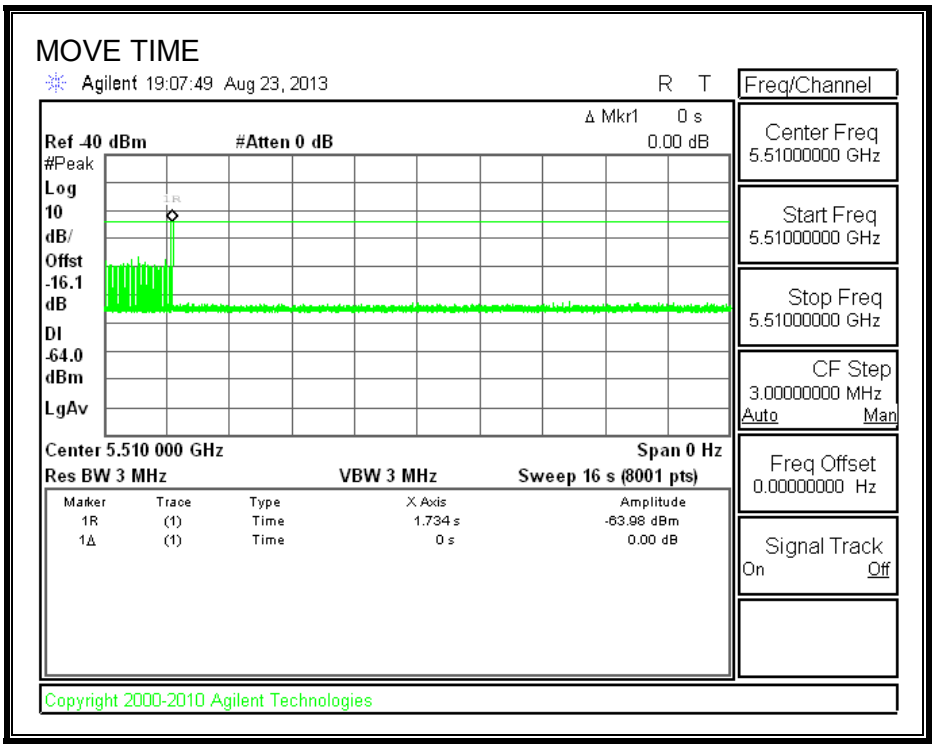
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

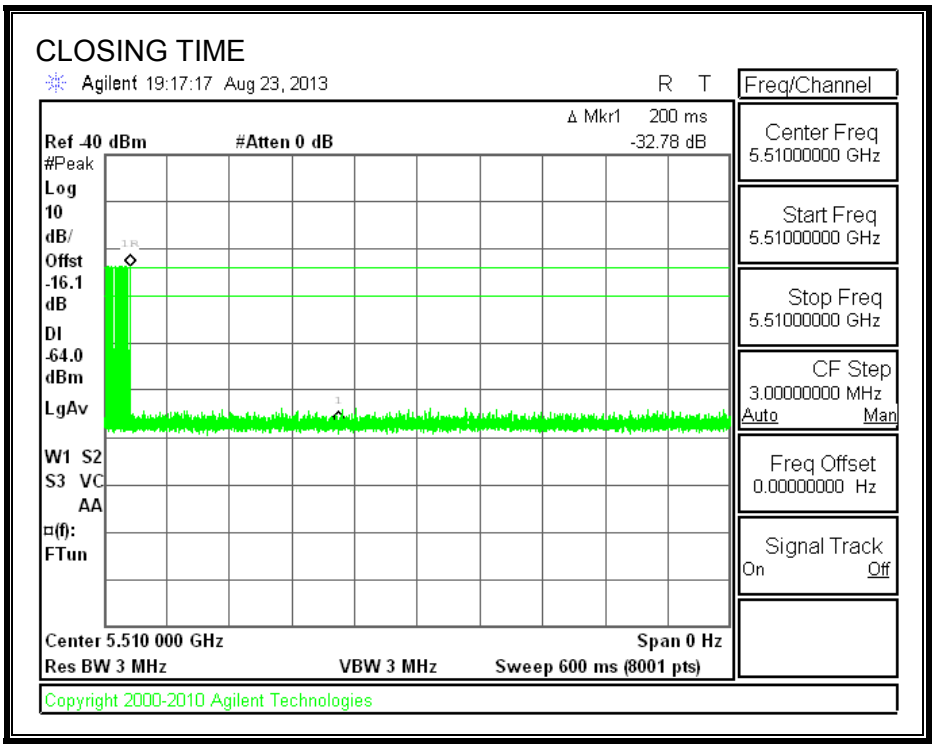
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	0.000	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	0.0	60
IC	0.0	260

MOVE TIME



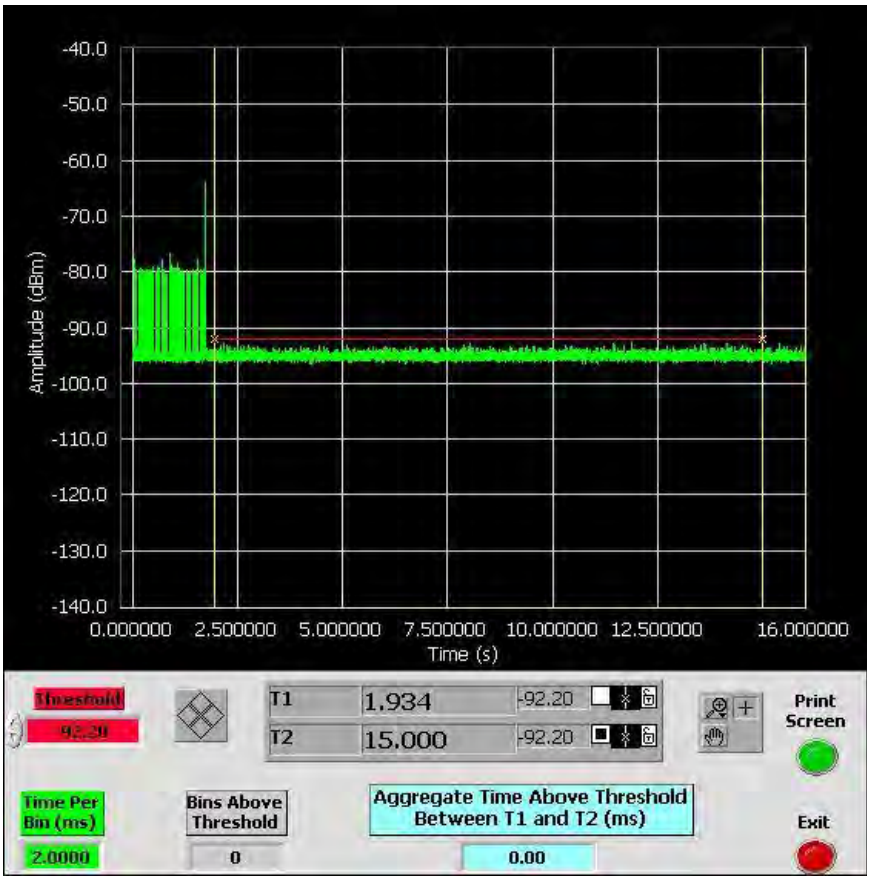
CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

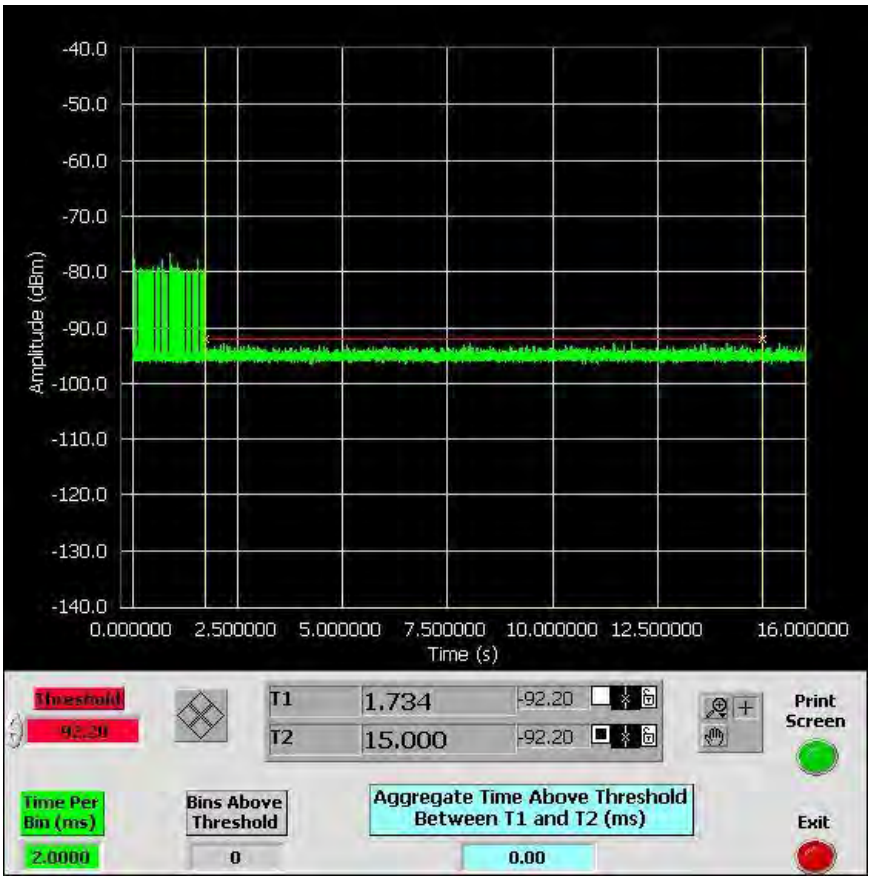
Non transmissions are observed during the FCC aggregate monitoring period.

FCC AGGREGATE CLOSING TIME



Non transmissions are observed during the IC aggregate monitoring period.

IC AGGREGATE CLOSING TIME



11.3.5. NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.