FCC CFR47 PART 15 SUBPART E
INDUSTRY CANADA RSS-210 ISSUE 7
CLASS II PERMISSIVE CHANGE

CERTIFICATION TEST REPORT

FOR

Intel Centrino Ultimate-N6300
(Tested Inside Of Lenovo ThinkPad X200/X201 Tablet Series)

FCC MODEL NUMBER: 633ANHMW
IC MODEL NUMBER: 633ANHU

FCC ID: PD9633ANHU
IC: 1000M-9633ANHU

REPORT NUMBER: 09U12795-2

ISSUE DATE: NOVEMBER 19, 2009

Prepared for
INTEL CORPORATION
2111 N.E. 25th AVE
HILLSBORO, OR 97124-5961, U.S.A

Prepared by
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	11/19/09	Initial Issue	T. Chan

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: INTEL CORPORATION
2111 NE 25TH AVENUE
HILLSBORO, OREGON 97124, USA

EUT DESCRIPTION: INTEL CENTRINO ULTIMATE-N6300 (Tested Inside Of Lenovo ThinkPad X200/X201 Tablet Series)

FCC MODEL: 633ANHMW

IC MODEL: 633ANHU

SERIAL NUMBER: Z1ZHJ897E1MX

DATE TESTED: OCTOBER 04 - 10, 2009

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	Pass
INDUSTRY CANADA RSS-210 Issue 7 Annex 9	Pass
INDUSTRY CANADA RSS-GEN Issue 2	Pass

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. 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 CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS will constitute fraud and shall nullify the document. 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 CCS By:

THU CHAN
EMC MANAGER
COMPLIANCE CERTIFICATION SERVICES

Tested By:

VIEN TRAN
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, RSS-GEN Issue 2, and RSS-210 Issue 7.

3. FACILITIES AND ACCREDITATION

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. 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 3X3 WLAN 802.11a/b/g/n transceiver Intel Centrino Ultimate-N6300.
The radio module is manufactured by Intel.

5.2. MAXIMUM OUTPUT POWER

The test measurement passed within ± 0.5dBm of the original output power.

In order to pass the bandedge measurements, some frequency bands and channels have to be reduced the output powers as table shown below, and the manufacturer states that this change will be incorporated in the EEPROM, no change on other channel or other UNII bands.

Frequency Band	Mode	Frequency (MHz)	Antenna Chain	Reduced Ouput Power (dBm)
5.3GHz	HT40	5310	C	14.32
5.6GHz	HT20	5700	C	15.40
5.6GHz	HT40	5510	C	14.82

5.3. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change filed under this application is adding portable tablet Lenovo ThinkPad X200/X201Tablet Series.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

	Main (A)		Aux (B)		MIMO (C)	
Freq. (MHz)	WNC	ACON	WNC	ACON	WNC	ACON
5150-5350	0.92	1.45	-1.41	-0.88	0.25	0.27
5470-5725	0.03	1.47	0.96	-1.30	-0.21	0.97

5.5. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was Intel Centrino Ultimate N 6300 AGN, rev. 13.0.0.91.

The test utility software used during testing was CRTU, rev. 5.15.36.0.

5.6. WORST-CASE CONFIGURATION AND MODE

The tests were performed on full test worst case channel with ACON antenna installed since it has higher antenna gain, and some spot check with Wistron antenna since it has same type but lower gain antenna @ 5GHz bands.

The worst-case channel is determined as the channel with the highest output power.

The worst-position was the EUT with highest emissions. To determine the worst-case, the EUT was investigated for X, Y, Z, and mobile positions, after the investigations, the worst-position were turned out to be portable Z position for 5 GHz band.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Lenovo	X200 Tablet	R9-09B22 09/07	DoC
AC Adapter	Lenovo	DCWP CM-2	11S92P1156Z1ZDXN973BAB	DoC

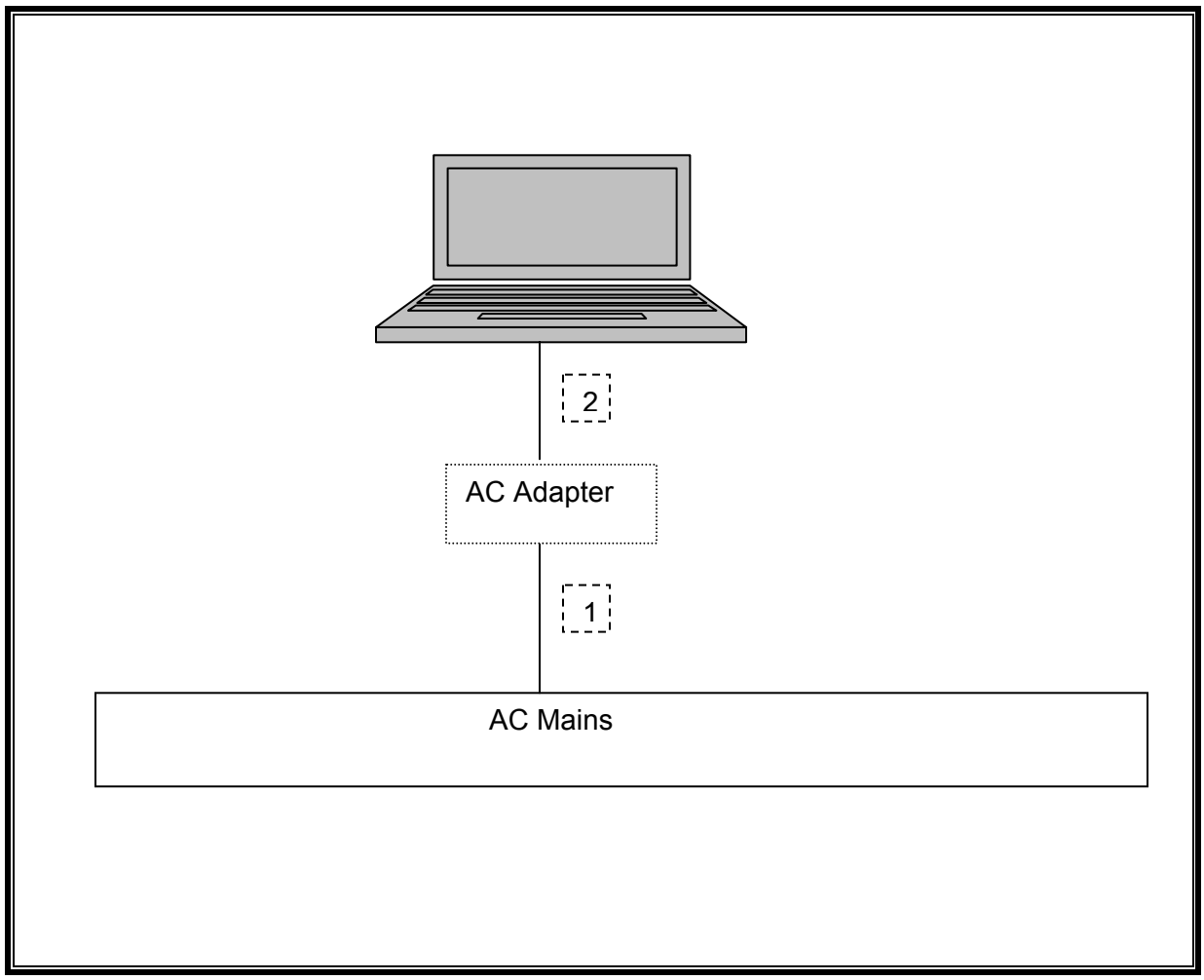
I/O CABLES

Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Un-shielded	1.2m	NA
2	DC	1	DC	Un-shielded	1.2m	Ferrite at laptop's end

TEST SETUP

The EUT is installed in a host laptop computer during the tests. Test software exercised the radio card.

SETUP DIAGRAM



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	01/05/10
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	01/14/10
Antenna, Horn, 18 GHz	EMCO	3115	C00945	04/22/10
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	11/28/09
Antenna, Horn, 40 GHz	ARA	MWH-2640B	C00981	05/21/10
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	10/11/10
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	03/31/10
Preamplifier, 1-26GHz	Agilent / HP	8449B	C01052	08/05/10
Peak Power Meter	Boonton	4541	C01186	01/19/10
Peak Power Sensor	Boonton	4541	C01189	01/15/10
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	10/29/10
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/06/10

7. ANTENNA PORT TEST RESULTS

7.1. 802.11n HT40 MODE IN THE 5.3 GHz BAND

7.1.1. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.25-5.35 GHz band, 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. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit 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.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

RESULTS

CHAIN C

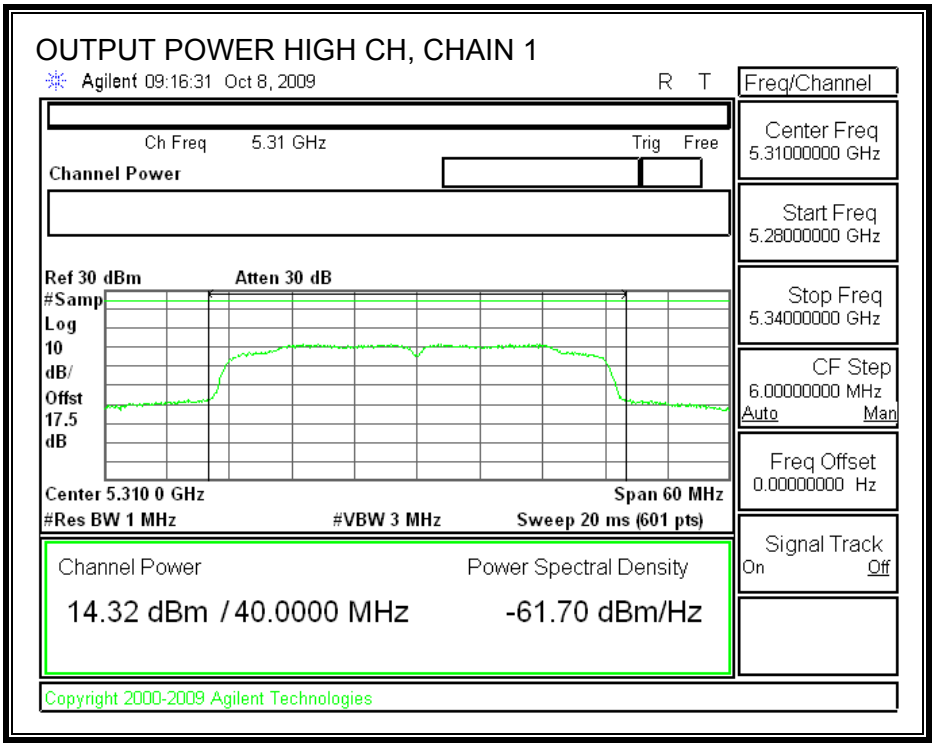
Limit

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	11 + 10 Log B Limit (dBm)	Antenna Gain (dBi)	Limit (dBm)
High	5310	24	35.6955	26.53	1.45	24.00

Results

Channel	Frequency (MHz)	Power (dBm)	Limit (dBm)	Margin (dB)
High	5310	14.32	24.00	-9.68

CHAIN C - OUTPUT POWER



7.2. 802.11n HT20 MODE IN THE 5.6 GHz BAND

7.2.1. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.25-5.35 GHz band, 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. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit 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.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

RESULTS

CHAIN C

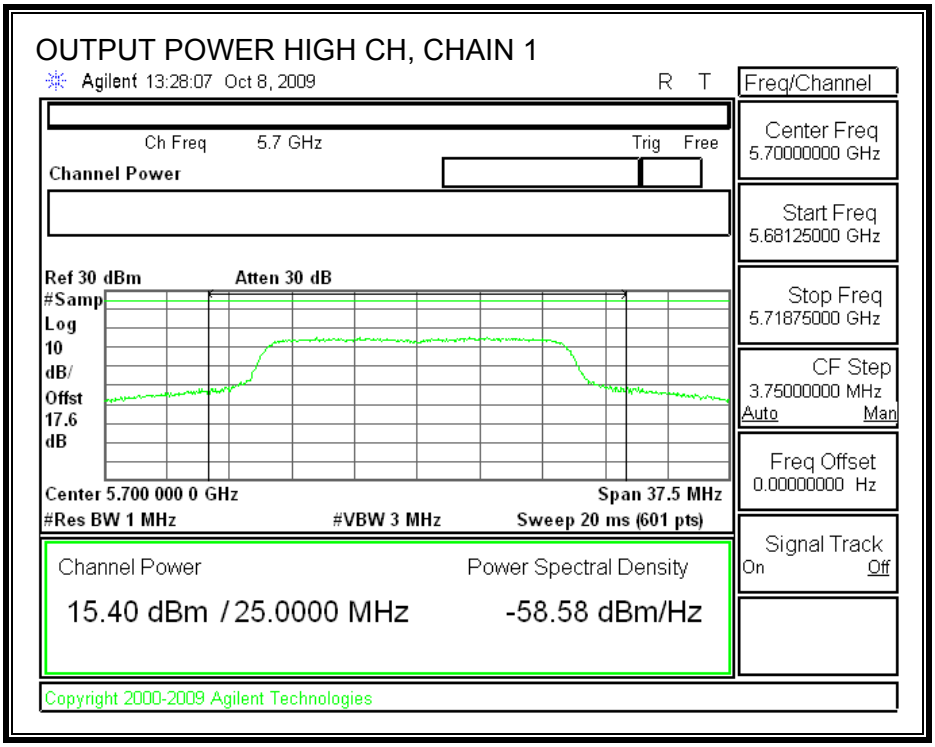
Limit

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	11 + 10 Log B Limit (dBm)	Antenna Gain (dBi)	Limit (dBm)
High	5700	24	24.54	24.90	0.92	24.00

Results

Channel	Frequency (MHz)	Power (dBm)	Limit (dBm)	Margin (dB)
High	5700	15.40	24.00	-8.60

CHAIN C - OUTPUT POWER



7.3. 802.11n HT40 MODE IN THE 5.6 GHz BAND

7.3.1. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.25-5.35 GHz band, 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. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit 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.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

RESULTS

CHAIN C

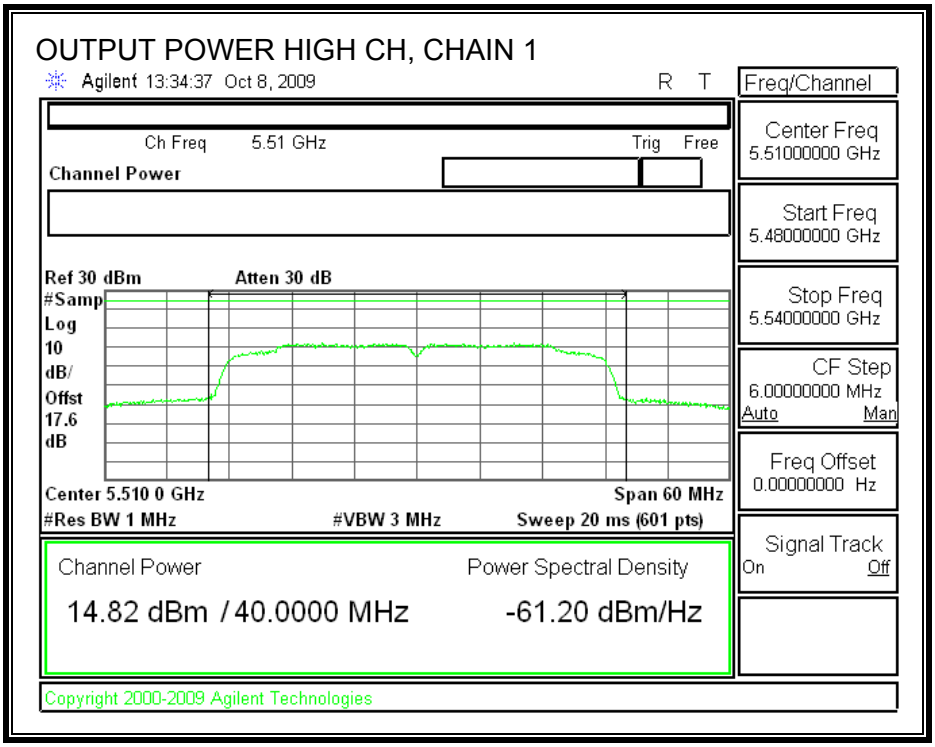
Limit

Channel	Frequency (MHz)	Fixed Limit (dBm)	B (MHz)	11 + 10 Log B Limit (dBm)	Antenna Gain (dBi)	Limit (dBm)
High	5510	24	37.203	26.71	0.92	24.00

Results

Channel	Frequency (MHz)	Power (dBm)	Limit (dBm)	Margin (dB)
High	5510	14.82	24.00	-9.18

CHAIN C - OUTPUT POWER



8. RADIATED TEST RESULTS

8.1. 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. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz 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.

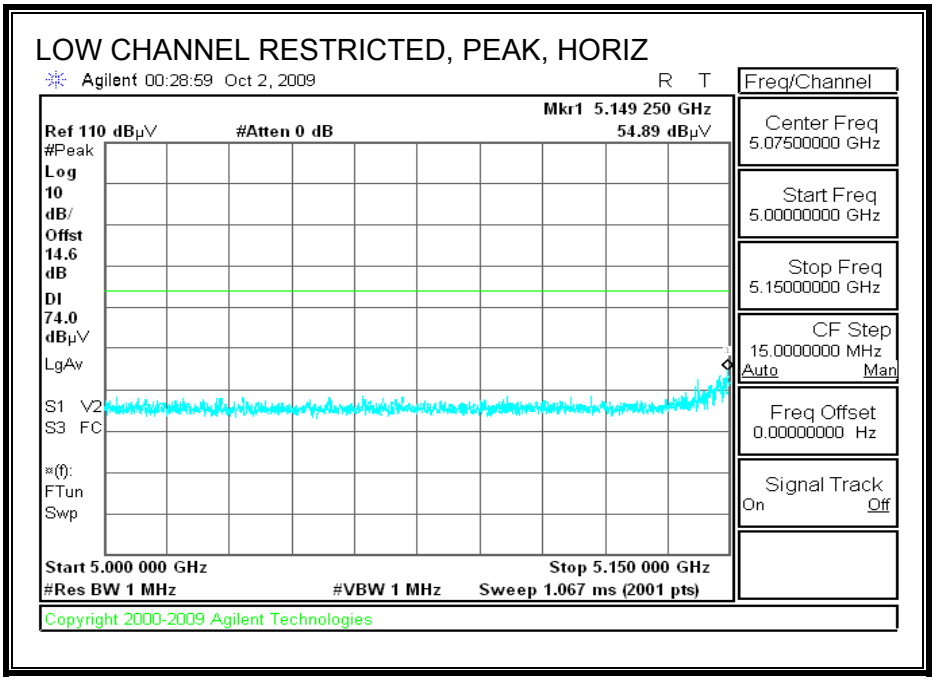
8.2. TRANSMITTER ABOVE 1 GHz

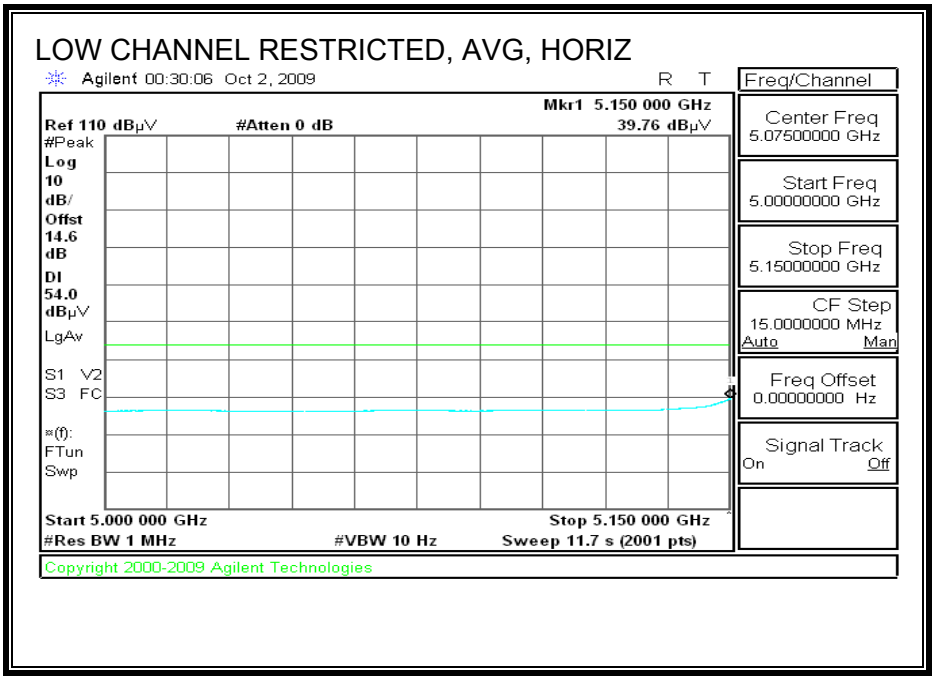
ACON ANTENNA

8.2.1. 802.11a MODE IN THE LOWER 5.2 GHz BAND

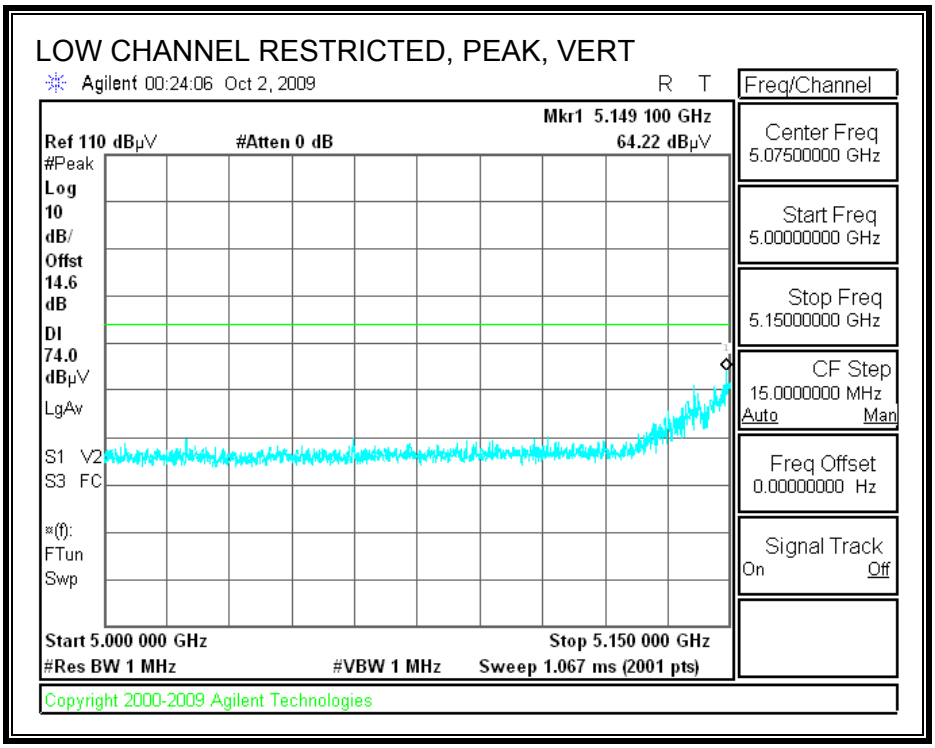
CHAIN A

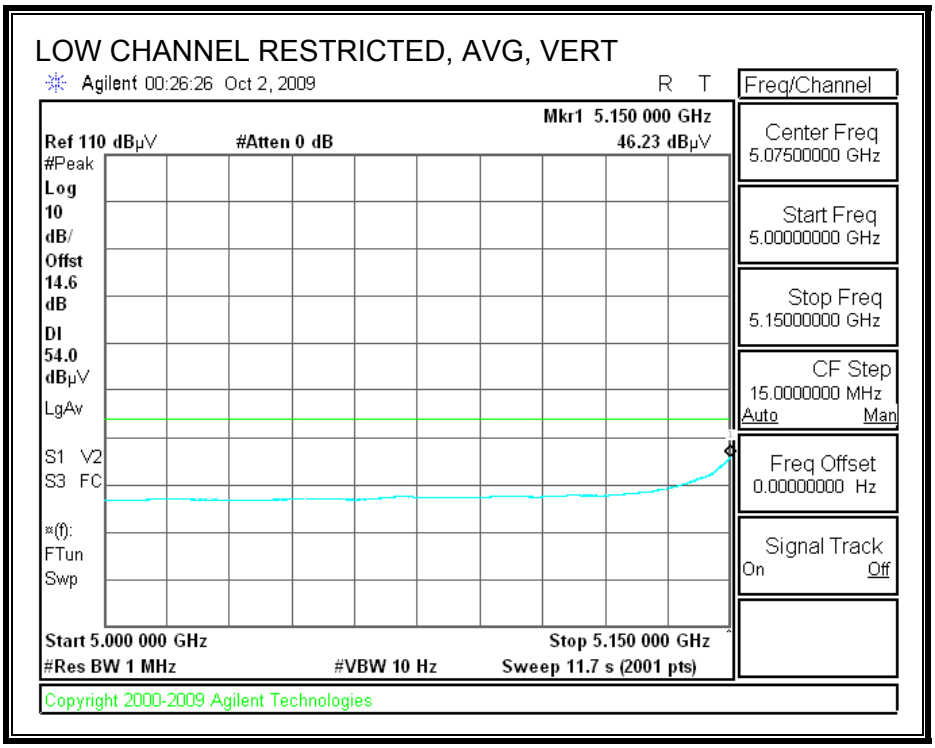
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS – LOW CHANNEL, CHAIN A

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Test Engr: Vien Tran
Date: 09/17/09
Project #: 09U12795
Company: Intel
EUT Description: Module 802.11abgn 3x3
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Tx in 5.2GHz Band_11a Mode_Low Channel_Chain A

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

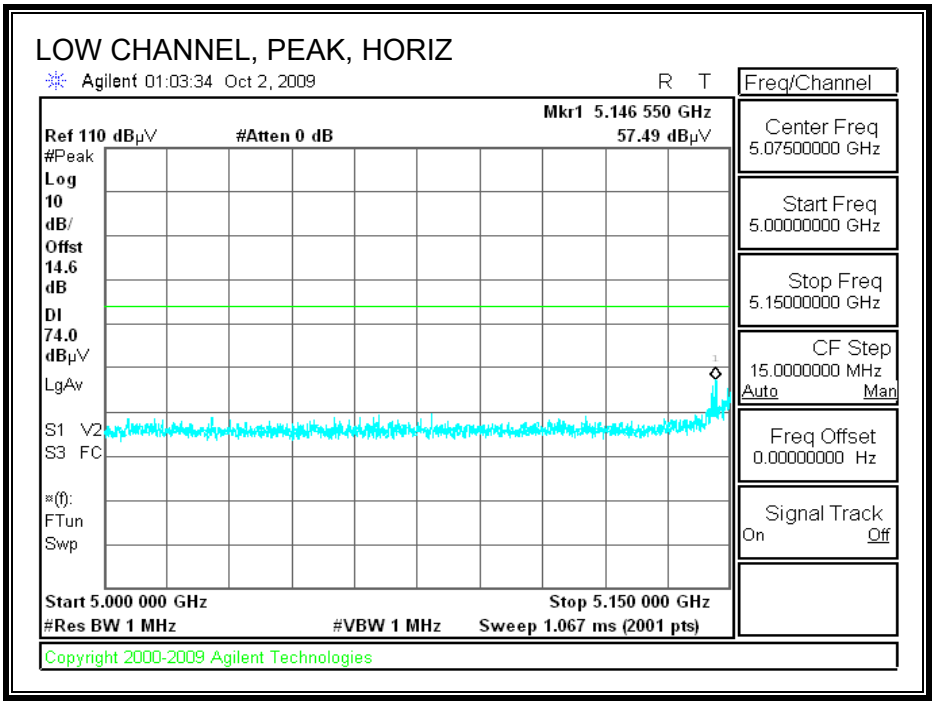
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
11a_5180MHz_Chain A															
15.540	3.0	31.5	38.5	11.3	-32.2	0.0	0.7	49.9	74.0	-24.1	V	P	100.0	67.0	
15.540	3.0	19.5	38.5	11.3	-32.2	0.0	0.7	37.9	54.0	-16.1	V	A	100.0	67.0	
15.540	3.0	32.6	38.5	11.3	-32.2	0.0	0.7	50.9	74.0	-23.1	H	P	100.0	347.0	
15.540	3.0	20.2	38.5	11.3	-32.2	0.0	0.7	38.6	54.0	-15.4	H	A	100.0	347.0	

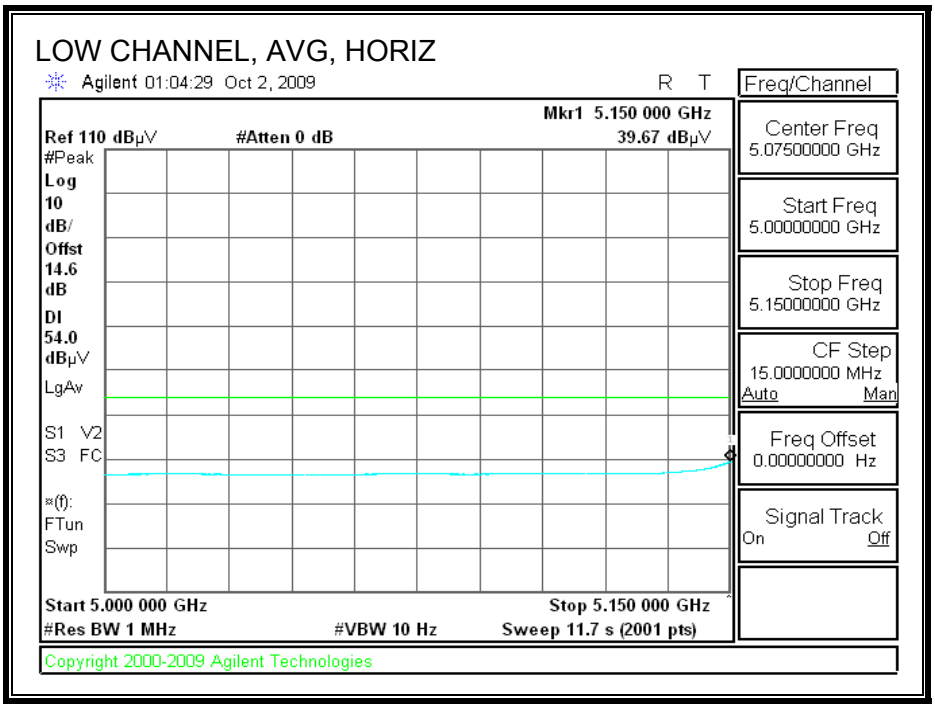
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

8.2.2. 802.11n HT20 MODE IN THE LOWER 5.2 GHz BAND

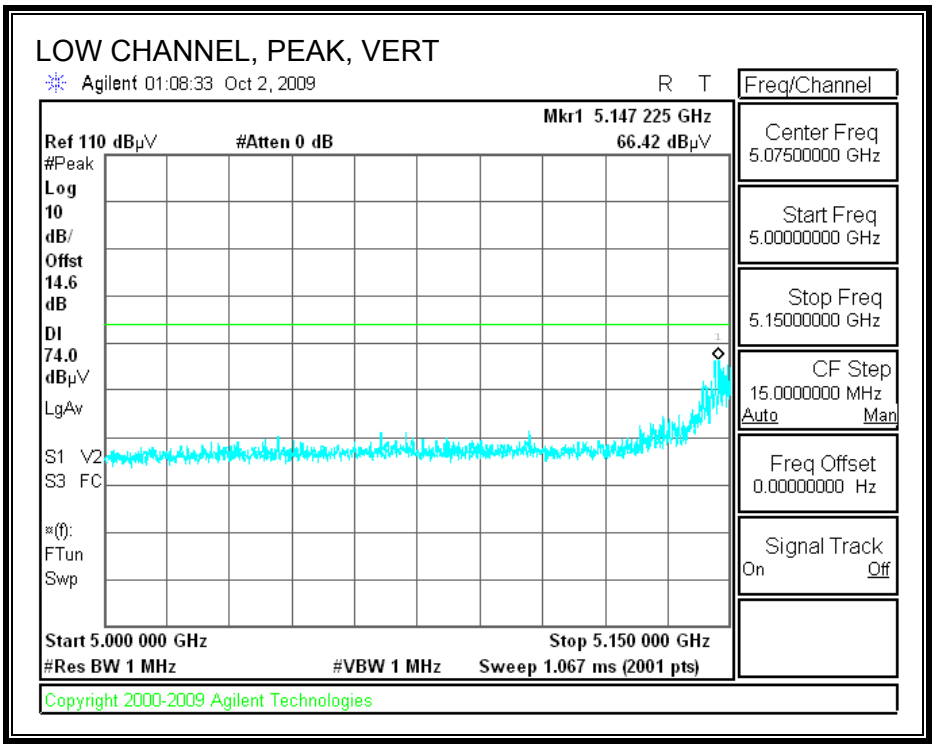
CHAIN A

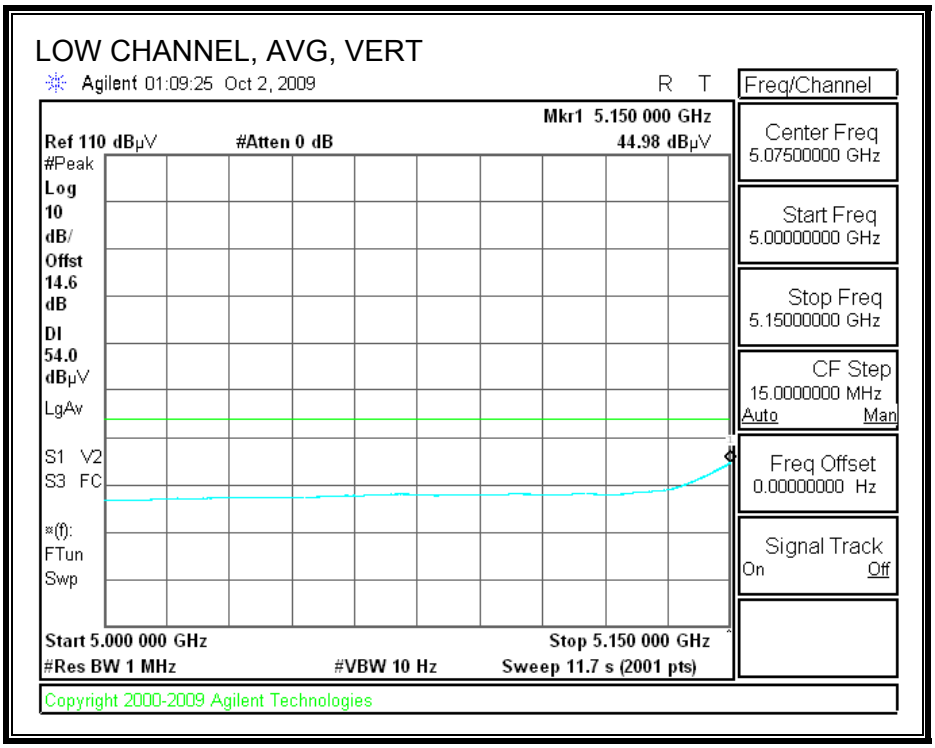
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





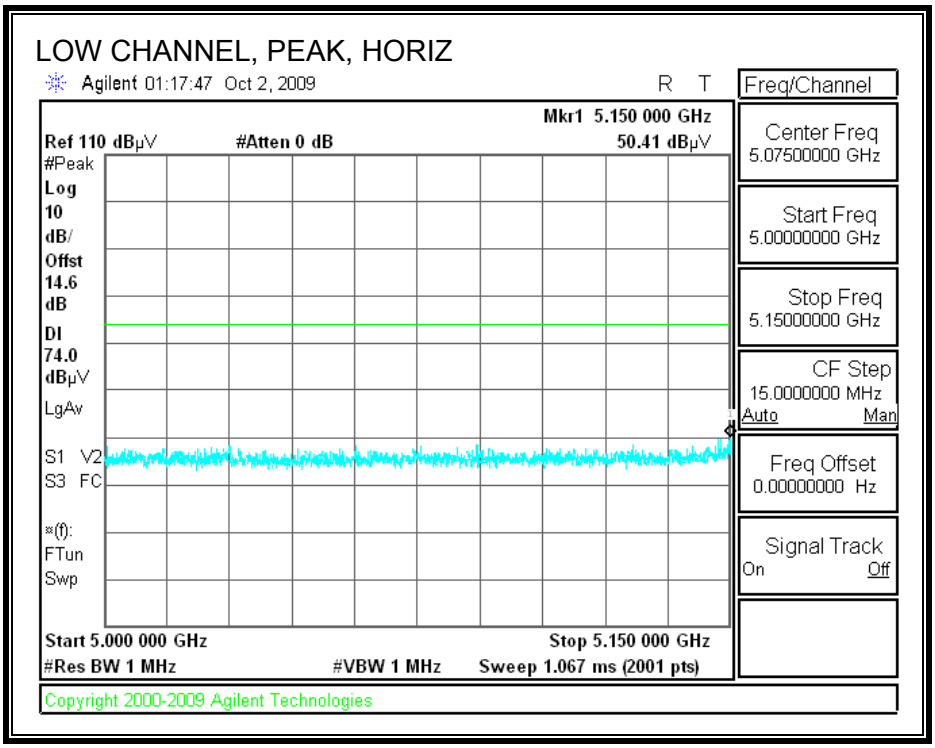
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

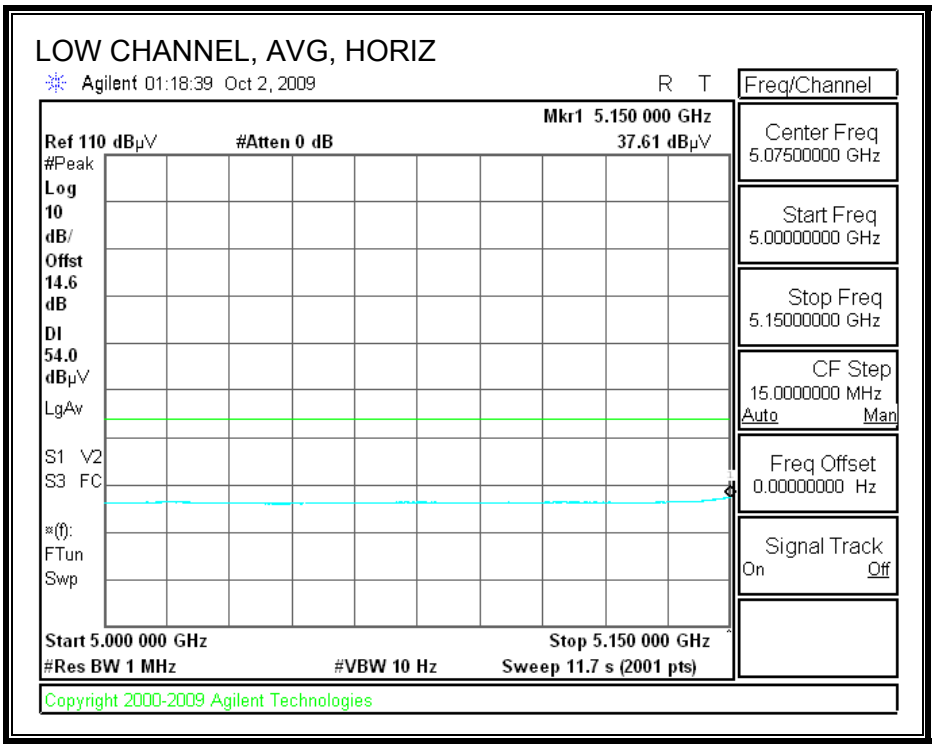




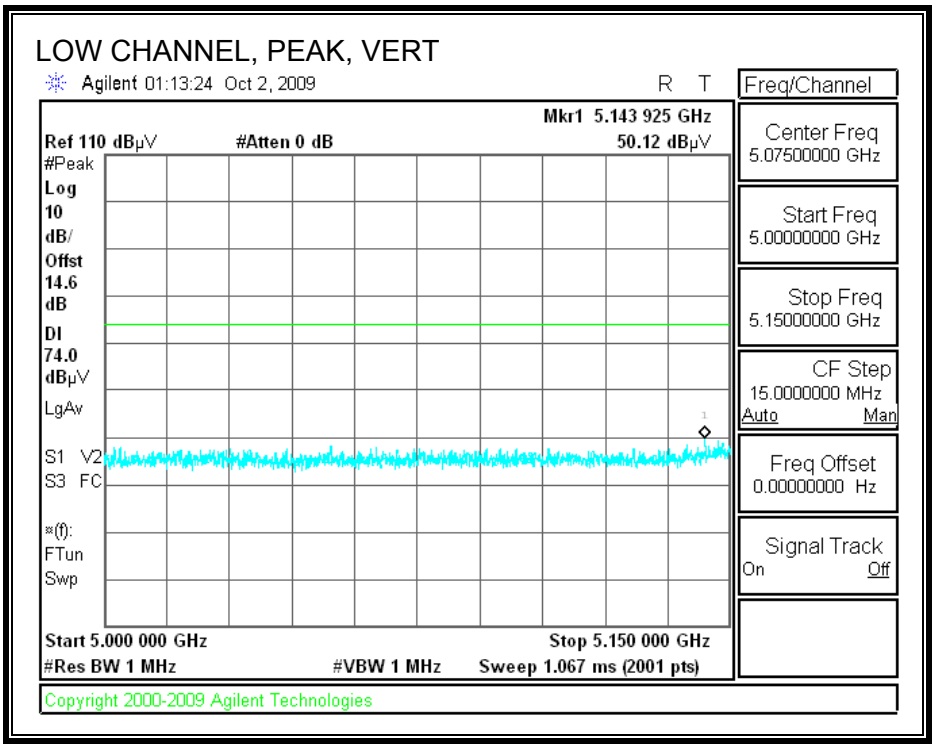
CHAIN B

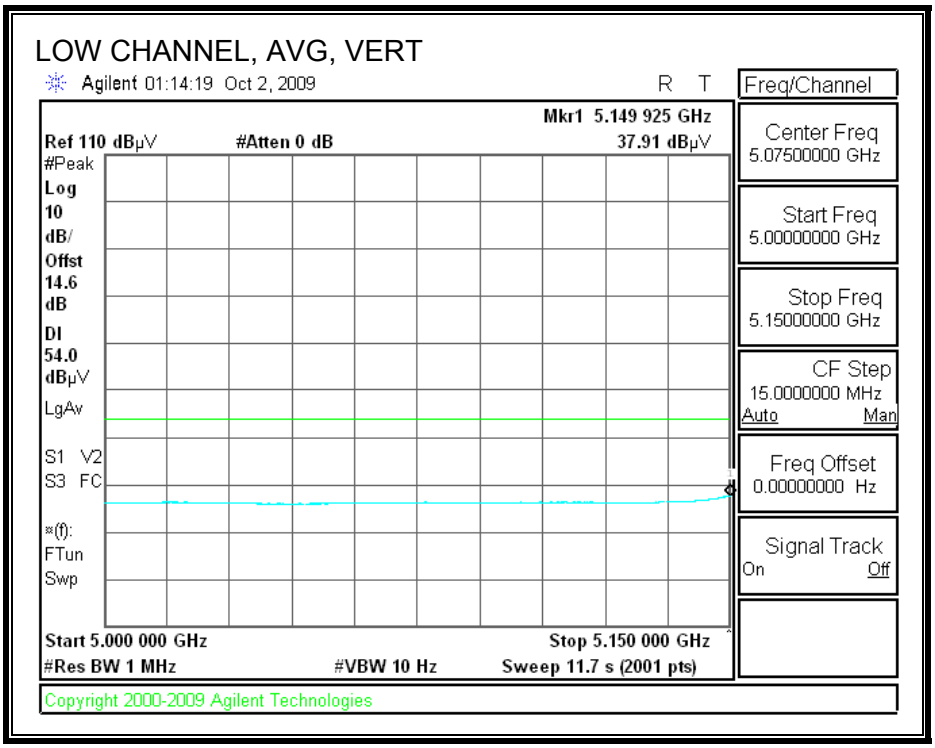
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

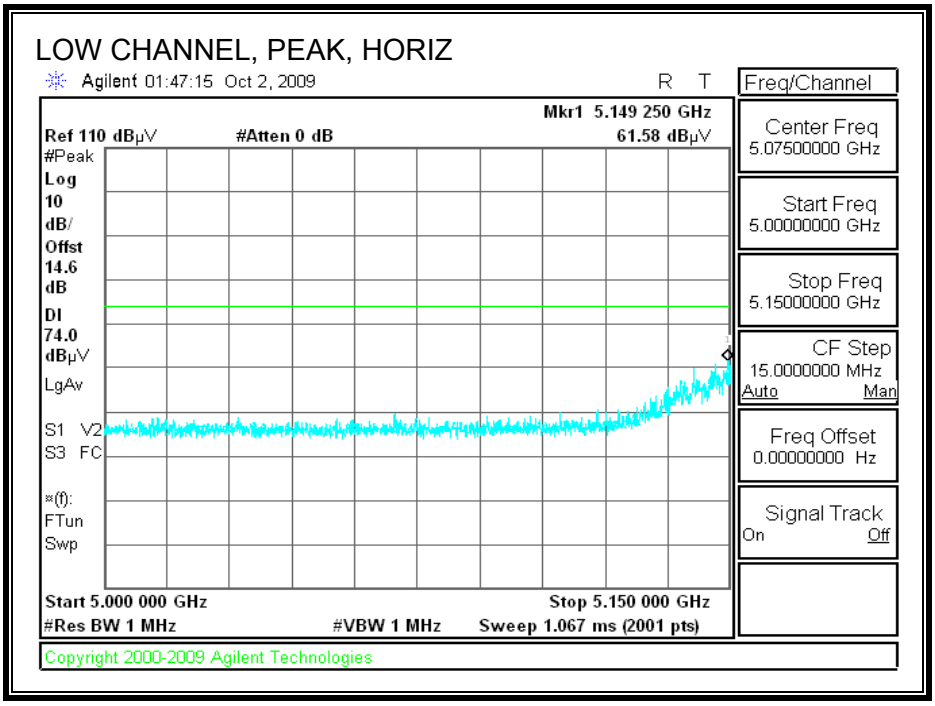


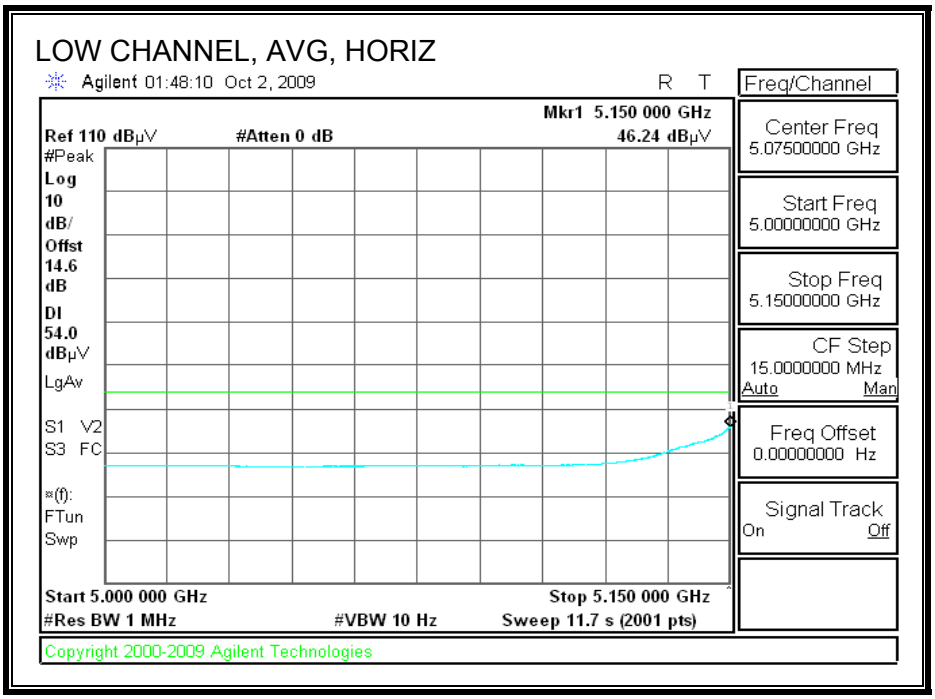


8.2.3. 802.11n HT40 MODE IN THE LOWER 5.2 GHz BAND

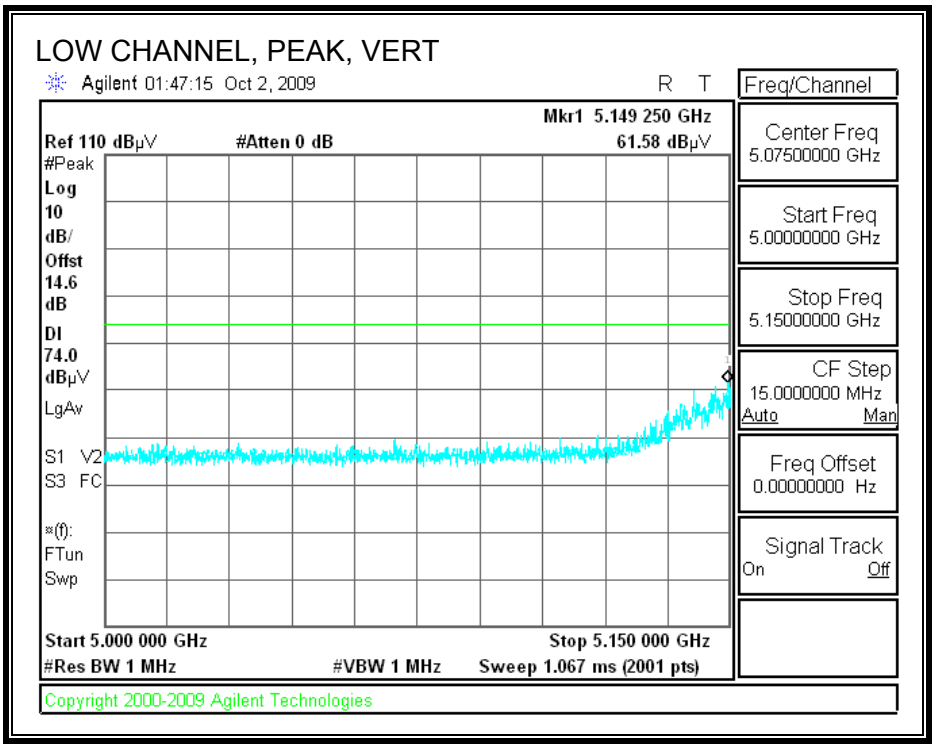
CHAIN A

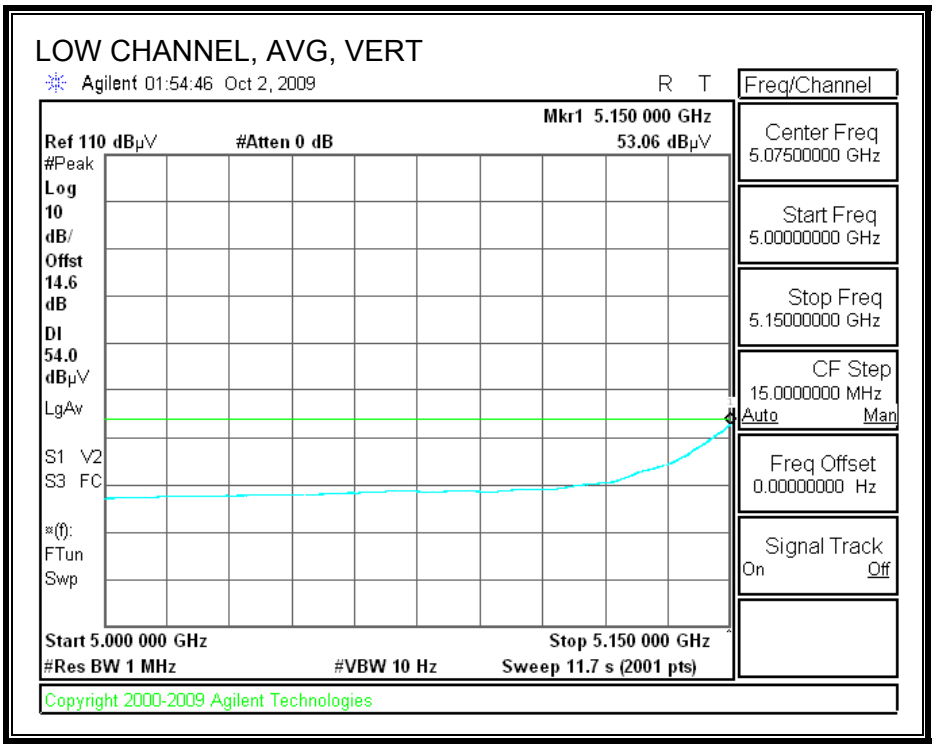
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS – LOW CHANNEL, CHAIN A

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Test Engr: Vien Tran
Date: 09/17/09
Project #: 09U12795
Company: Intel
EUT Description: Module 802.11abgn 3x3
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Tx in 5.3GHz Band_HT40 Mode_Low Channel_Chain A

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

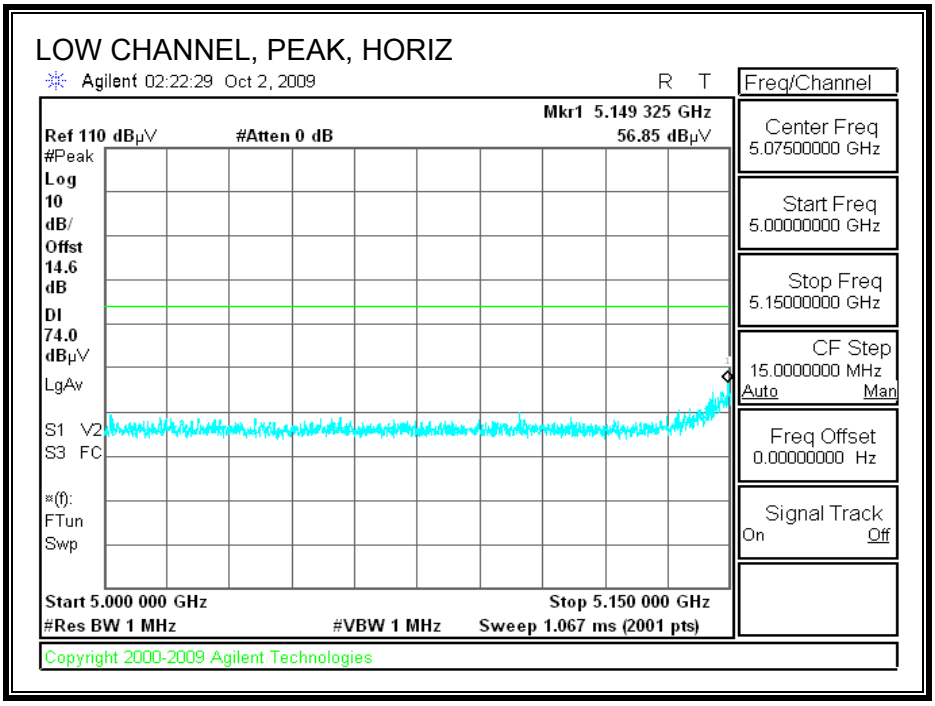
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
HT40_5190MHz_Chain A															
15.570	3.0	32.0	38.4	11.4	-32.2	0.0	0.7	50.3	74.0	-23.7	V	P	99.0	338.0	
15.570	3.0	19.5	38.4	11.4	-32.2	0.0	0.7	37.8	54.0	-16.2	V	A	99.0	338.0	
15.570	3.0	32.1	38.4	11.4	-32.2	0.0	0.7	50.4	74.0	-23.6	H	P	109.0	123.0	
15.570	3.0	19.3	38.4	11.4	-32.2	0.0	0.7	37.6	54.0	-16.4	H	A	109.0	123.0	

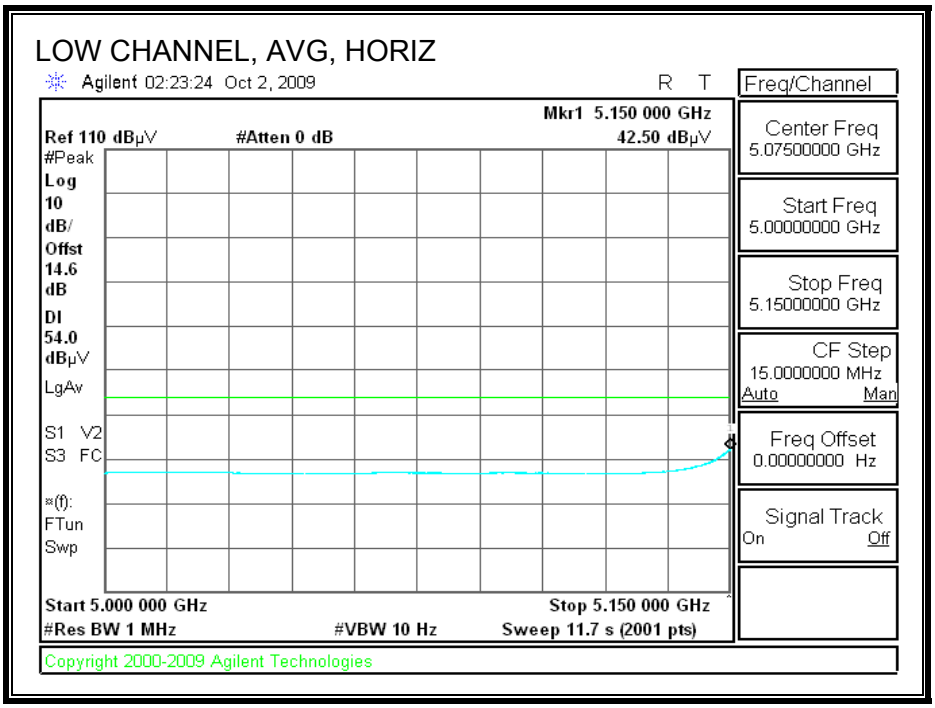
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

8.2.4. 802.11n HT20 MODE 3x3 IN THE UPPER 5.2 GHz BAND

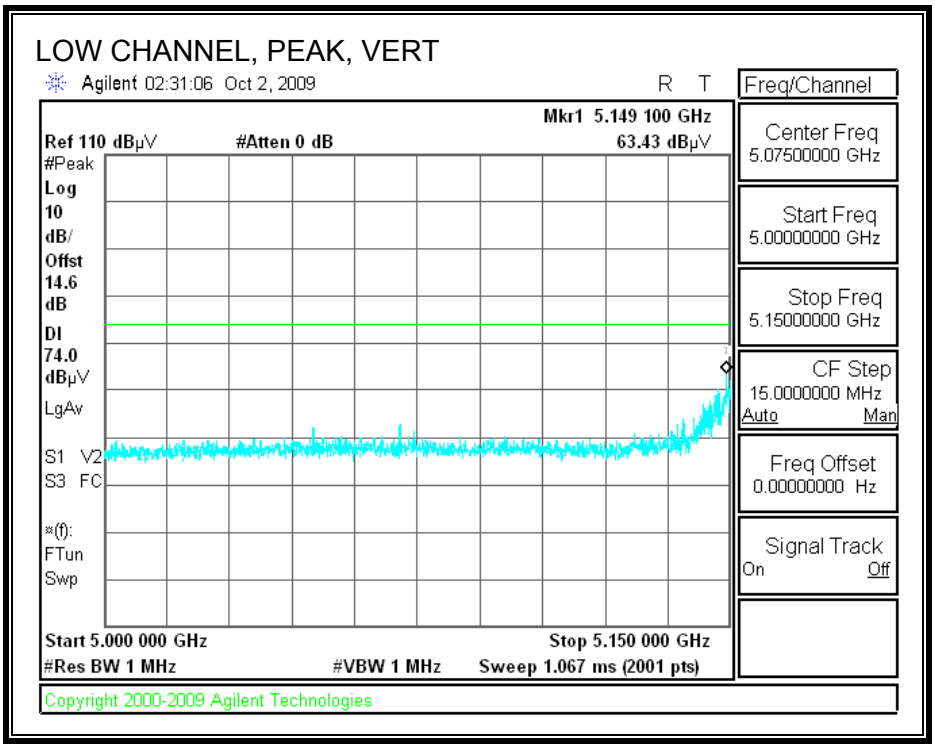
CHAINS ABC

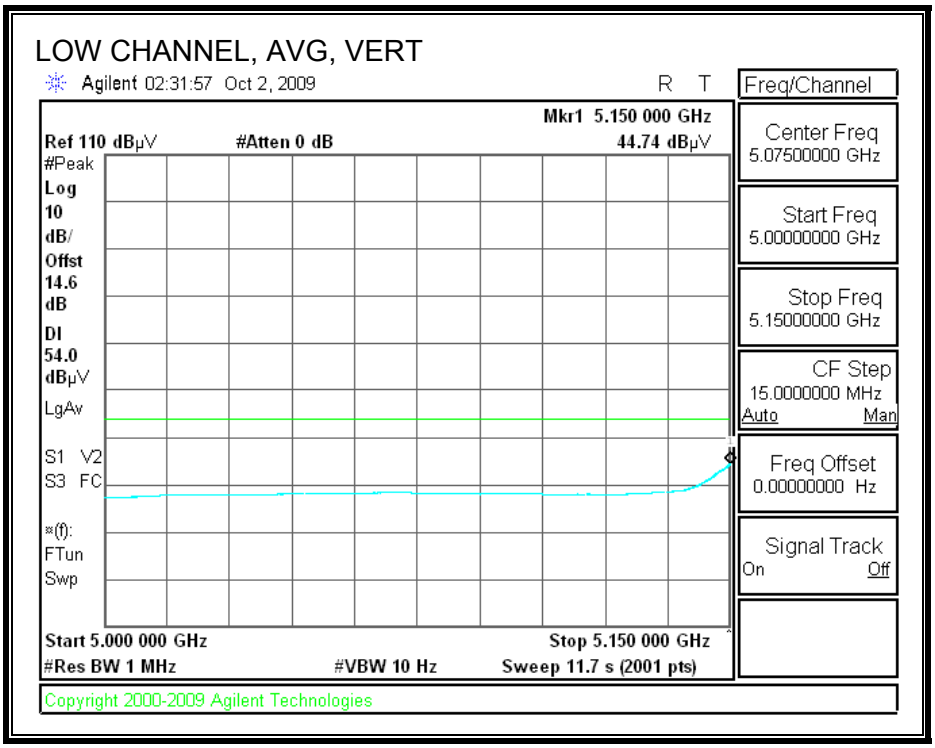
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

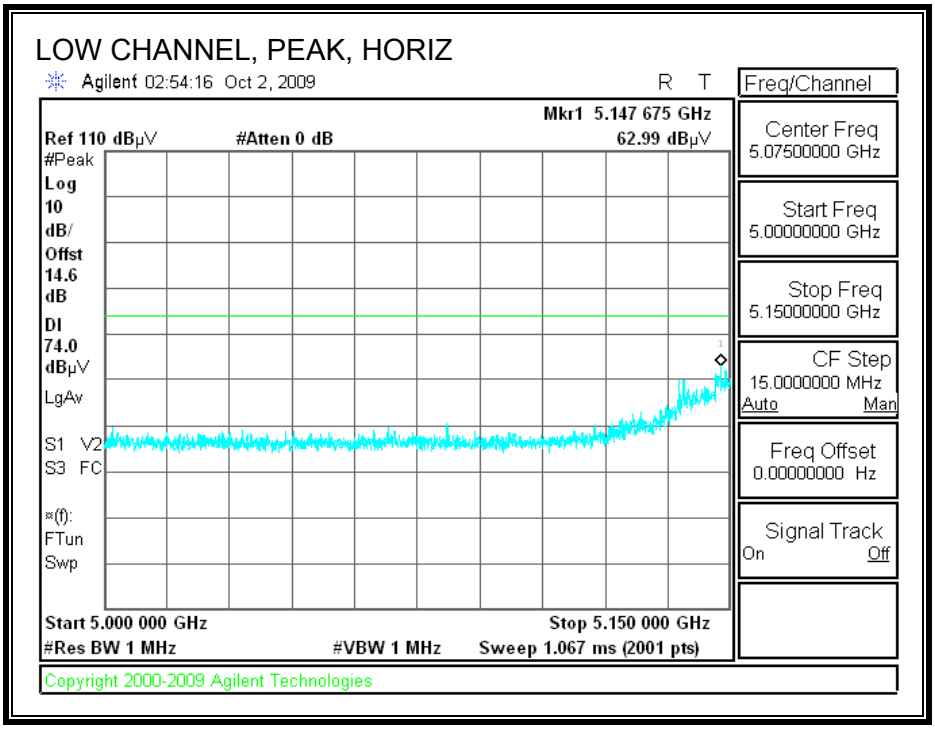


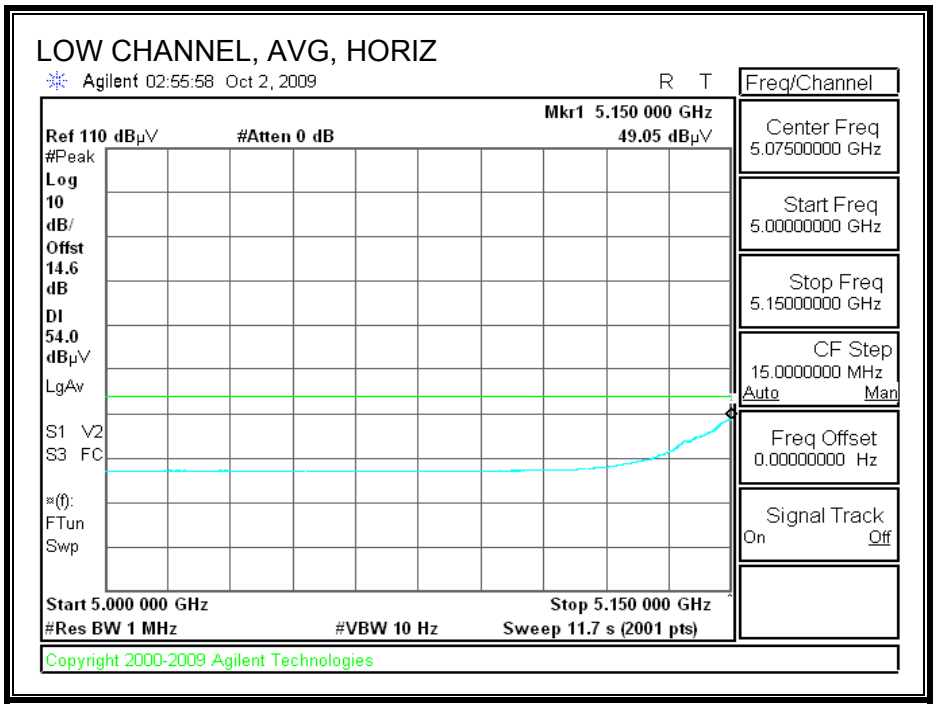


8.2.5. 802.11n HT40 MODE 3x3 IN THE UPPER 5.2 GHz BAND

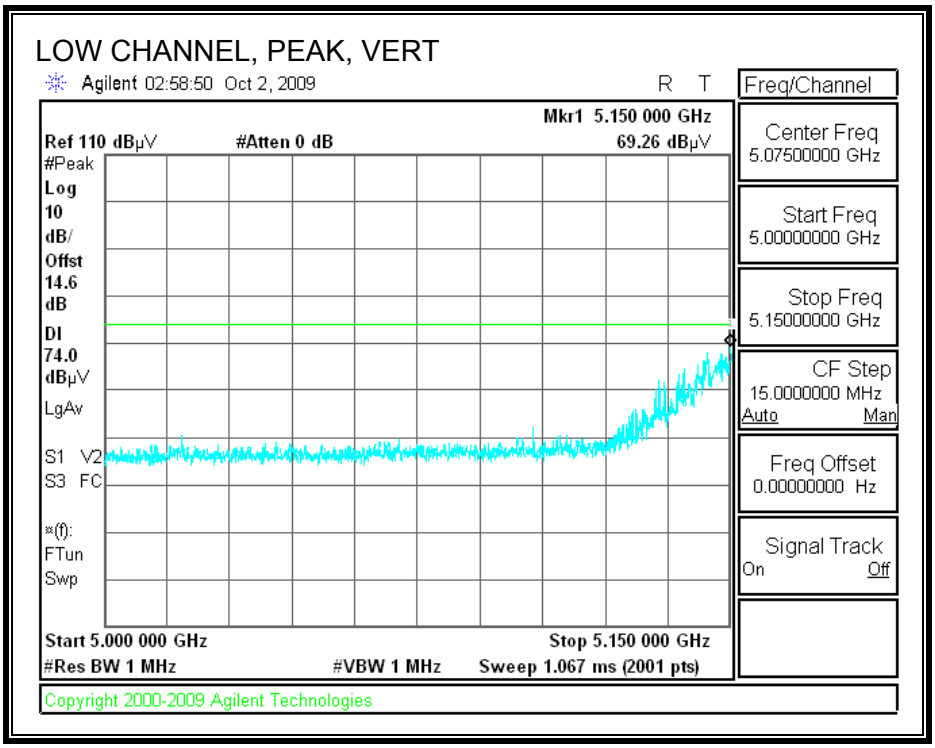
CHAINS ABC

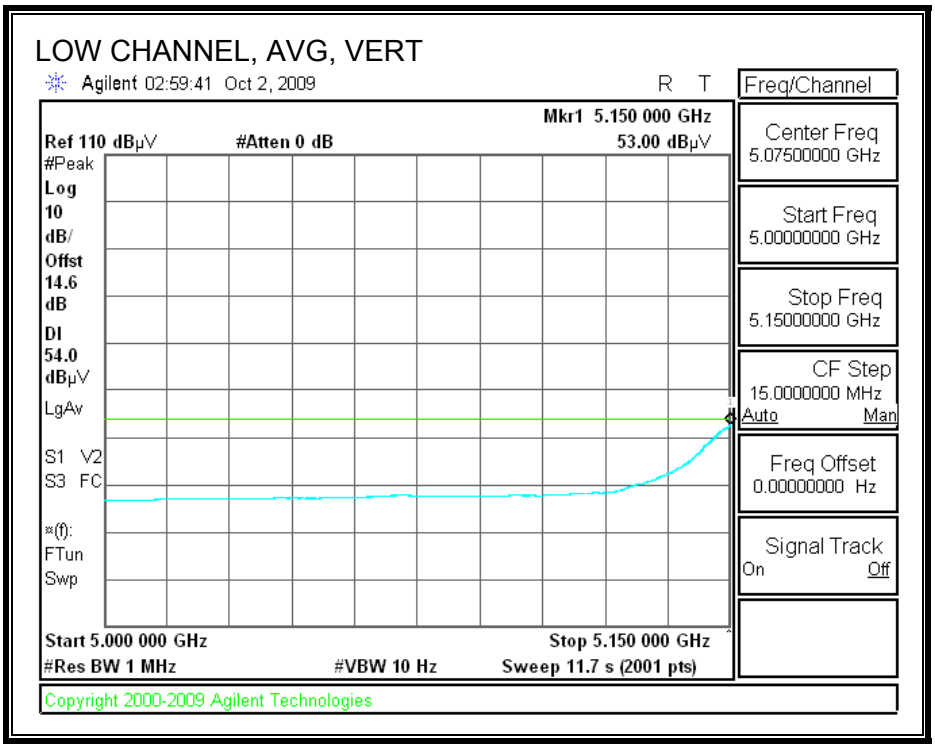
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

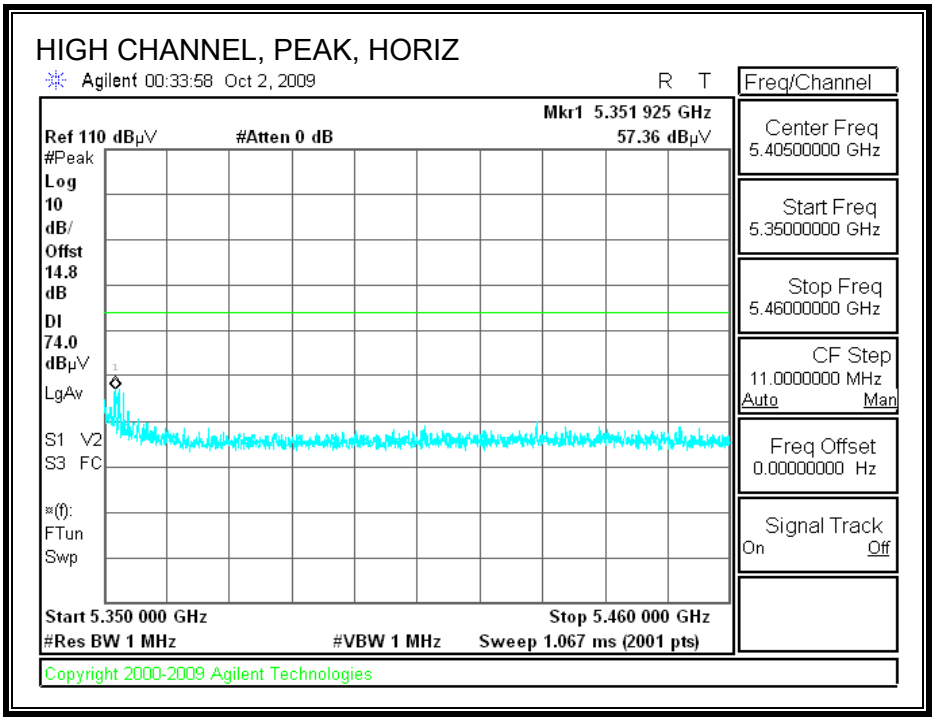


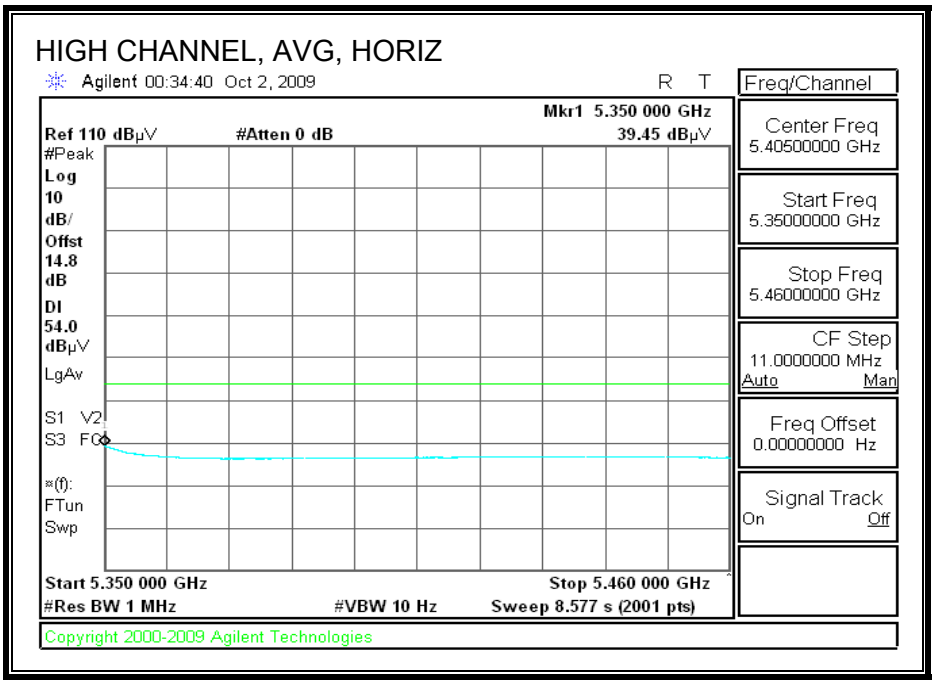


8.2.6. 802.11a MODE IN THE LOWER 5.3 GHz BAND

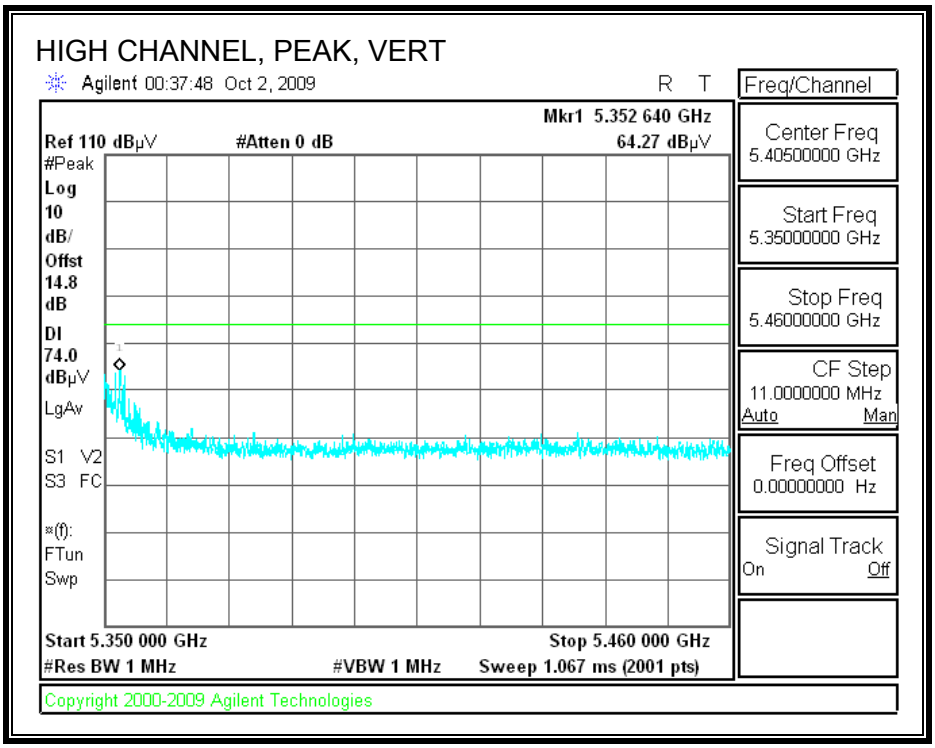
CHAIN A

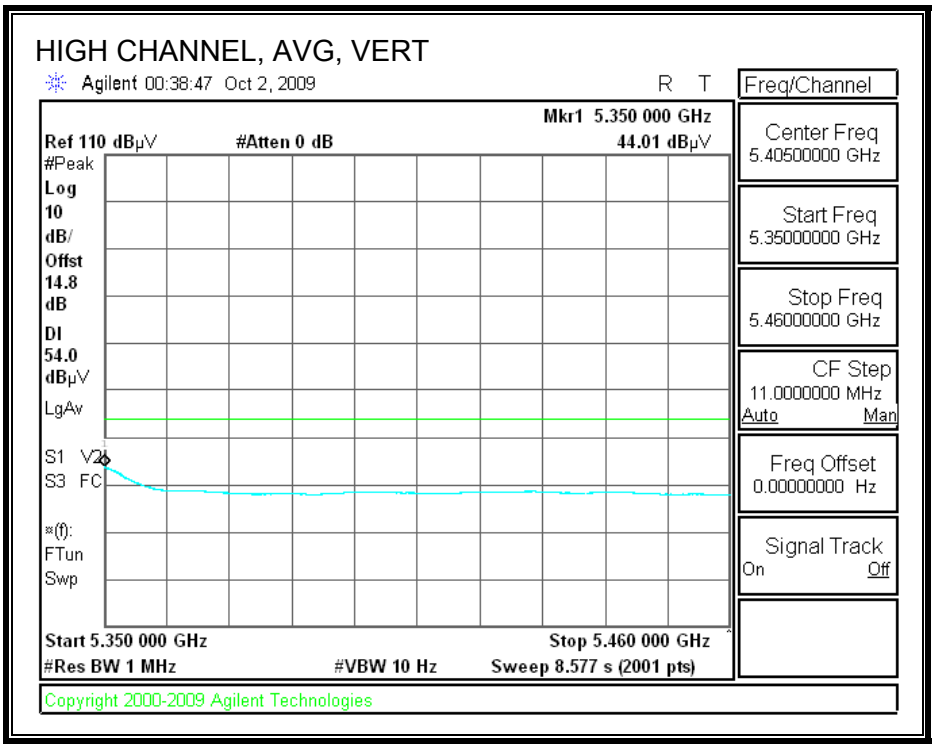
AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





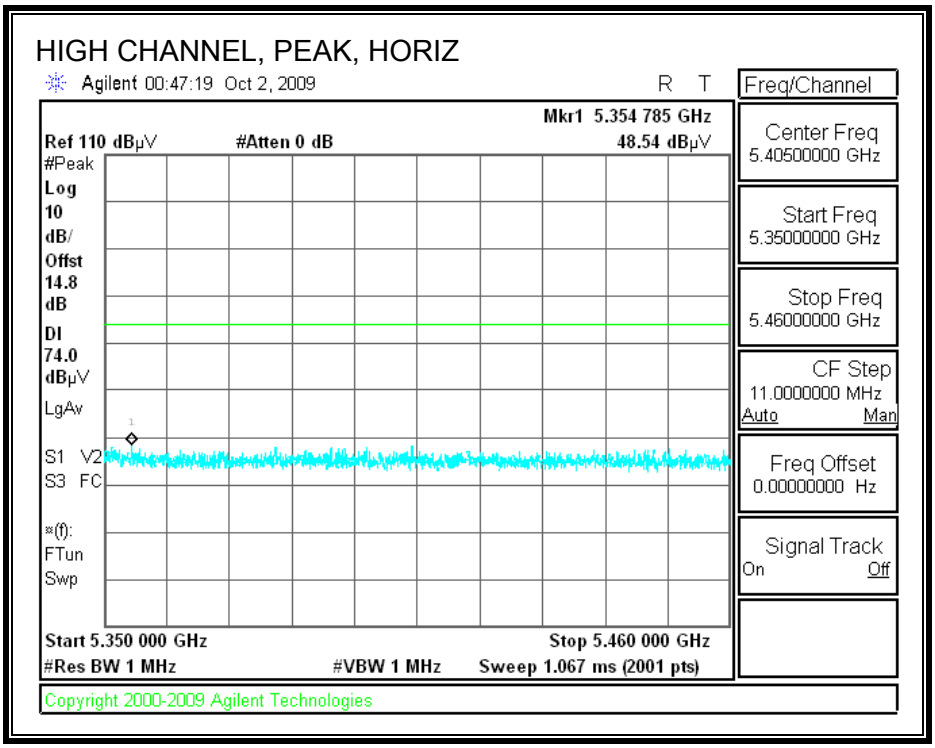
AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)

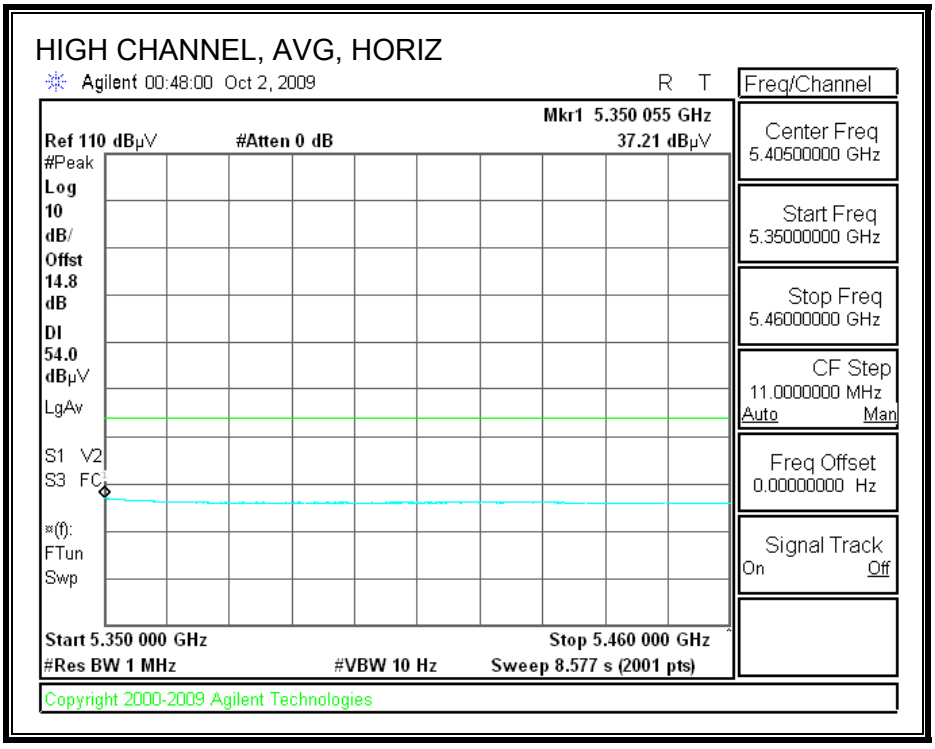




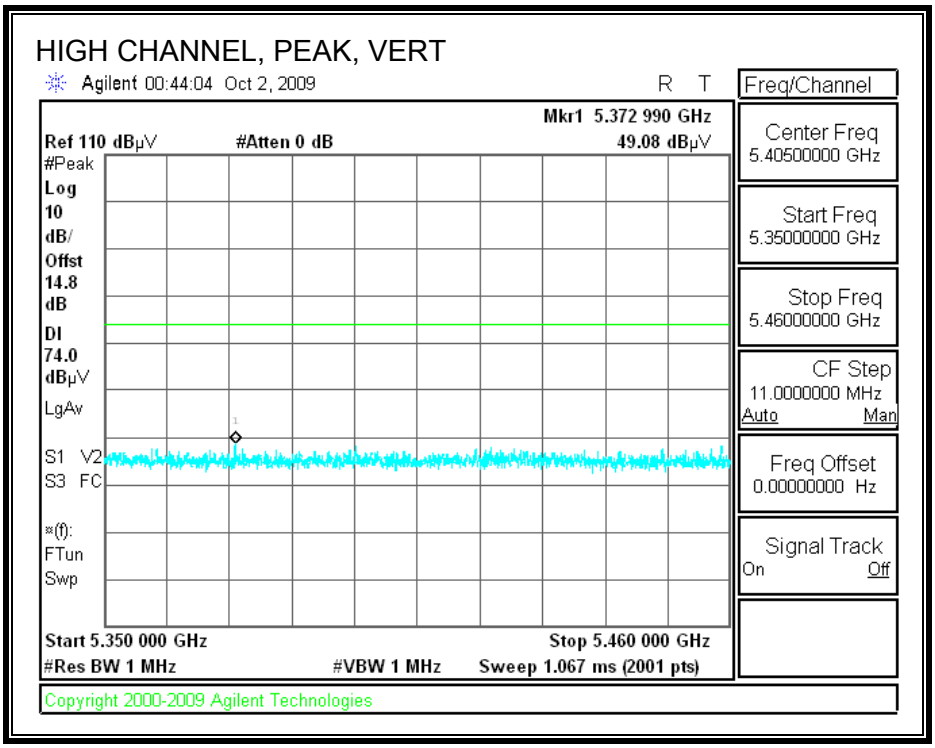
CHAIN B

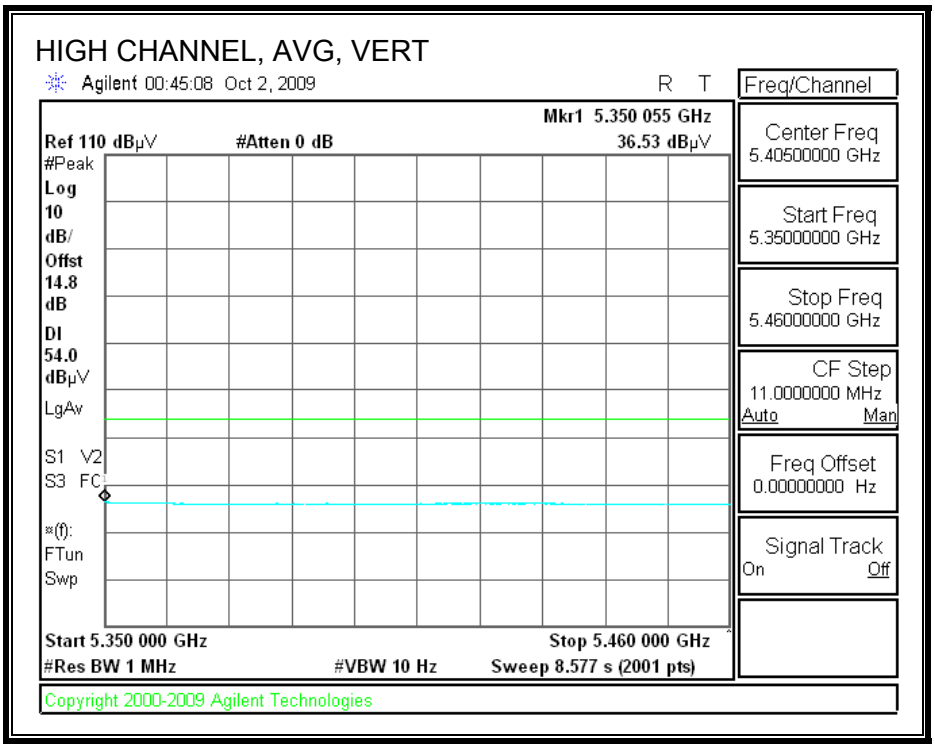
AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)

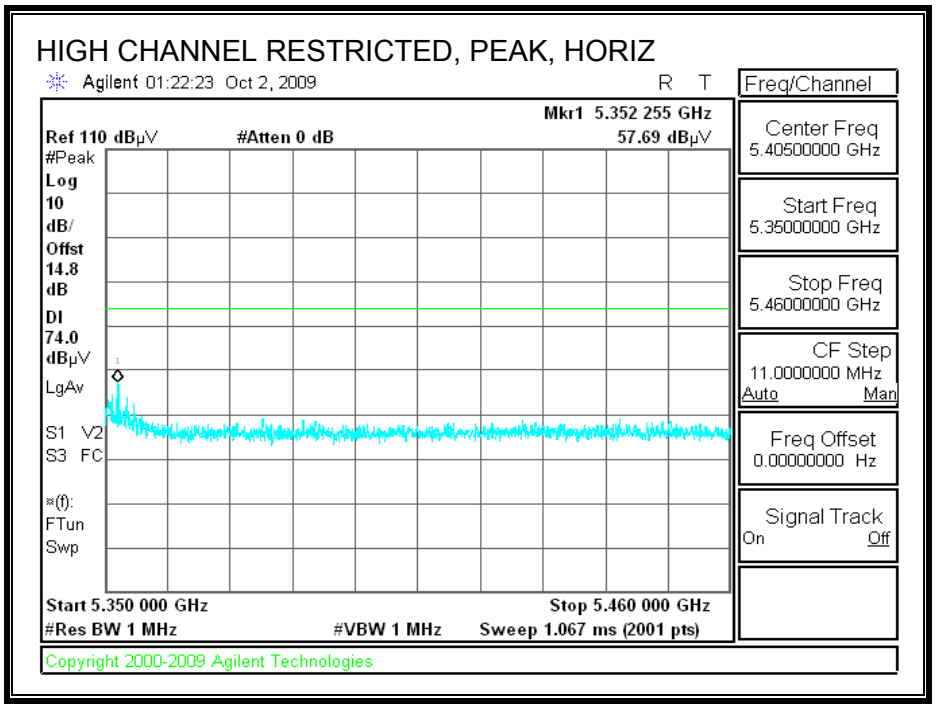


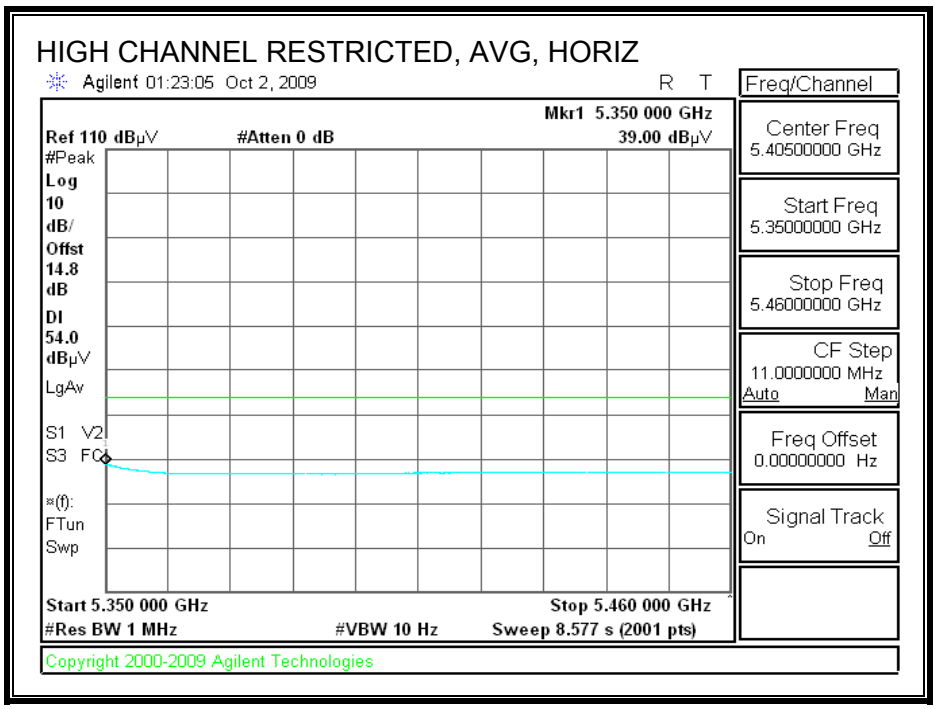


8.2.7. 802.11n HT20 MODE IN THE UPPER 5.3 GHz BAND

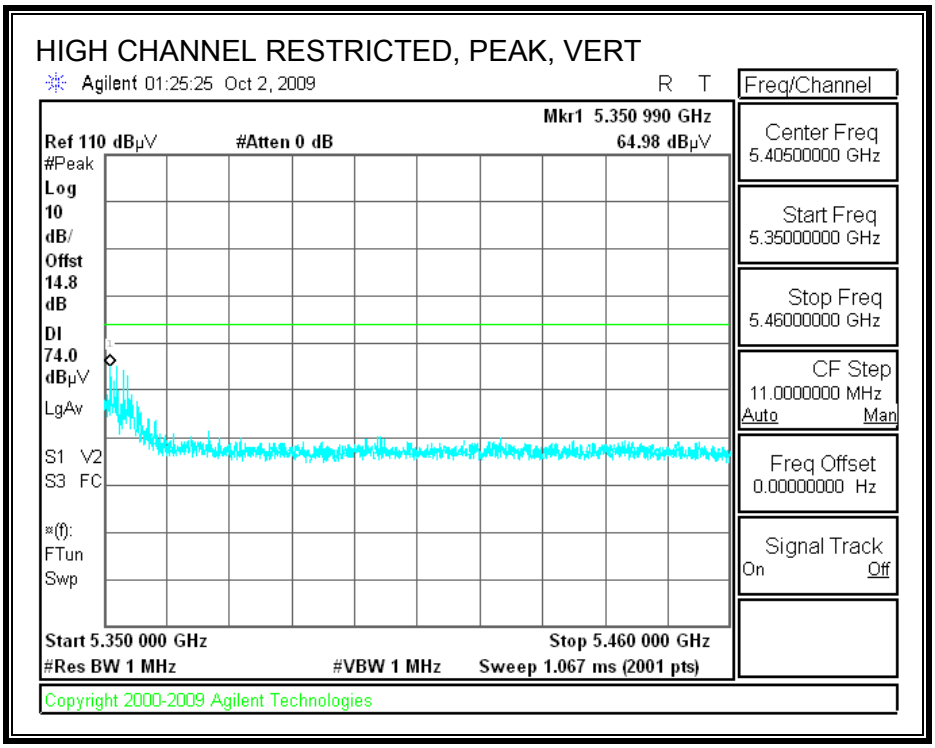
CHAIN A

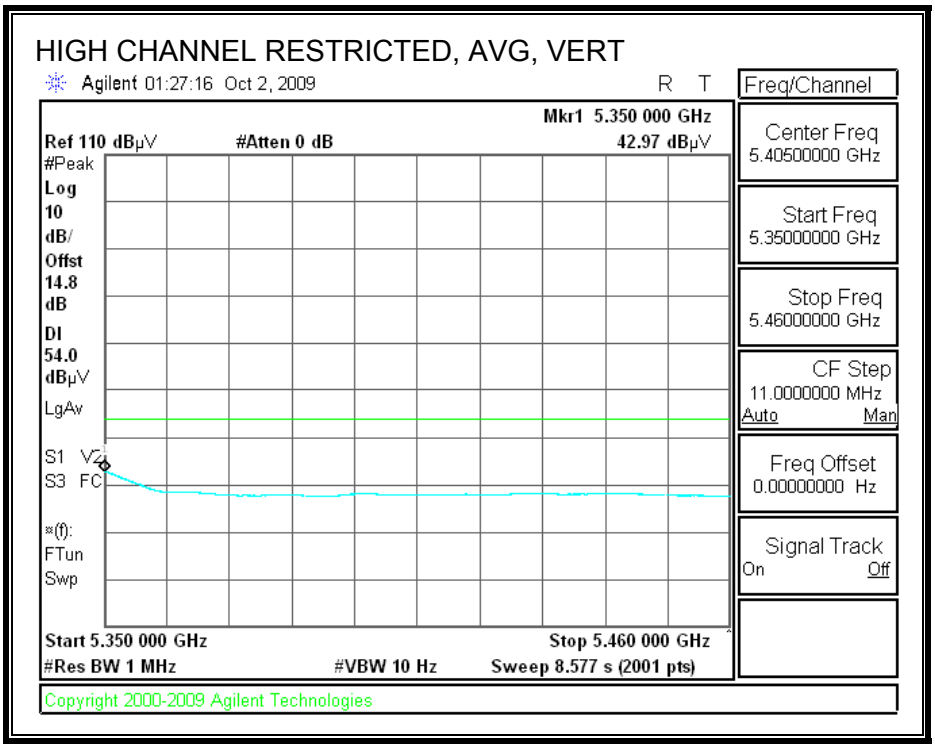
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS – HIGH CHANNEL, CHAIN A

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Test Engr: Vien Tran
Date: 09/17/09
Project #: 09U12795
Company: Intel
EUT Description: Module 802.11abgn 3x3
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Tx in 5.3GHz Band_HT20 Mode_High Channel_Chain A

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

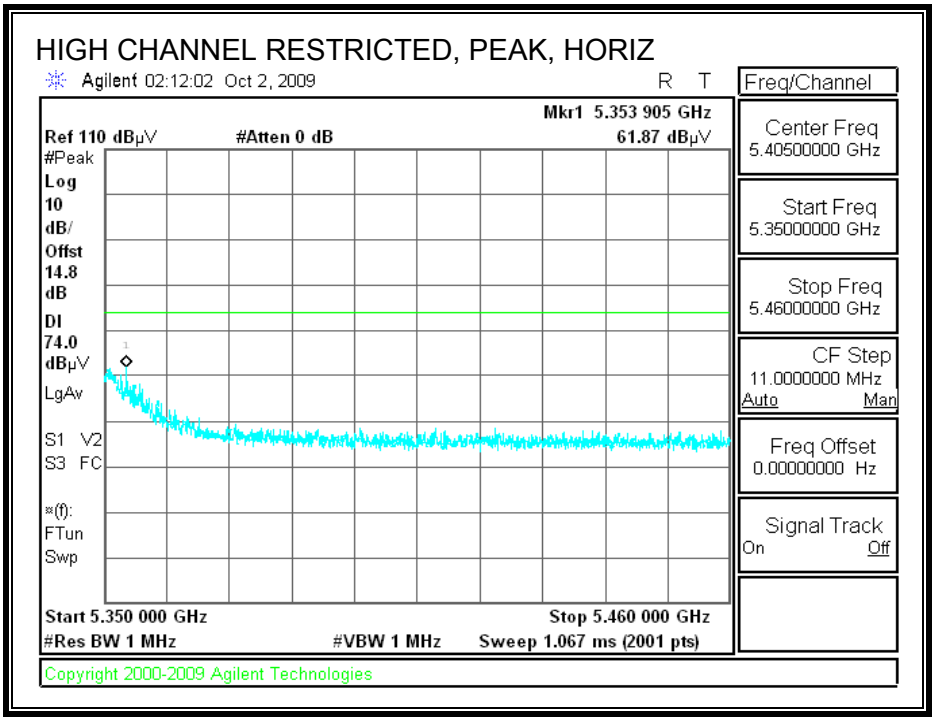
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
HT20_5320MHz_Chain A															
10.640	3.0	40.0	37.6	9.1	-32.6	0.0	0.8	54.8	74.0	-19.2	V	P	100.0	37.0	
10.640	3.0	25.6	37.6	9.1	-32.6	0.0	0.8	40.4	54.0	-13.6	V	A	100.0	37.0	
15.960	3.0	31.7	37.3	11.5	-32.1	0.0	0.7	49.1	74.0	-24.9	V	P	121.0	71.0	
15.960	3.0	19.3	37.3	11.5	-32.1	0.0	0.7	36.7	54.0	-17.3	V	A	121.0	71.0	
10.640	3.0	37.3	37.6	9.1	-32.6	0.0	0.8	52.1	74.0	-21.9	H	P	100.0	70.0	
10.640	3.0	23.8	37.6	9.1	-32.6	0.0	0.8	38.6	54.0	-15.4	H	A	100.0	70.0	
15.960	3.0	31.8	37.3	11.5	-32.1	0.0	0.7	49.2	74.0	-24.8	H	P	101.0	0.0	
15.960	3.0	19.6	37.3	11.5	-32.1	0.0	0.7	37.0	54.0	-17.0	H	A	101.0	0.0	

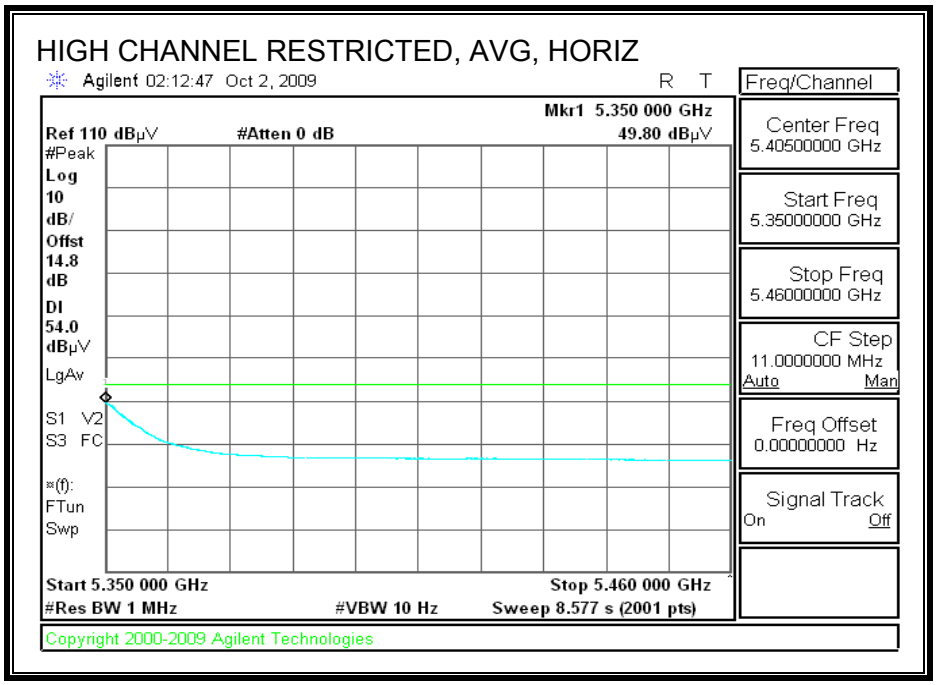
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

8.2.8. 802.11n HT40 MODE IN THE UPPER 5.3 GHz BAND

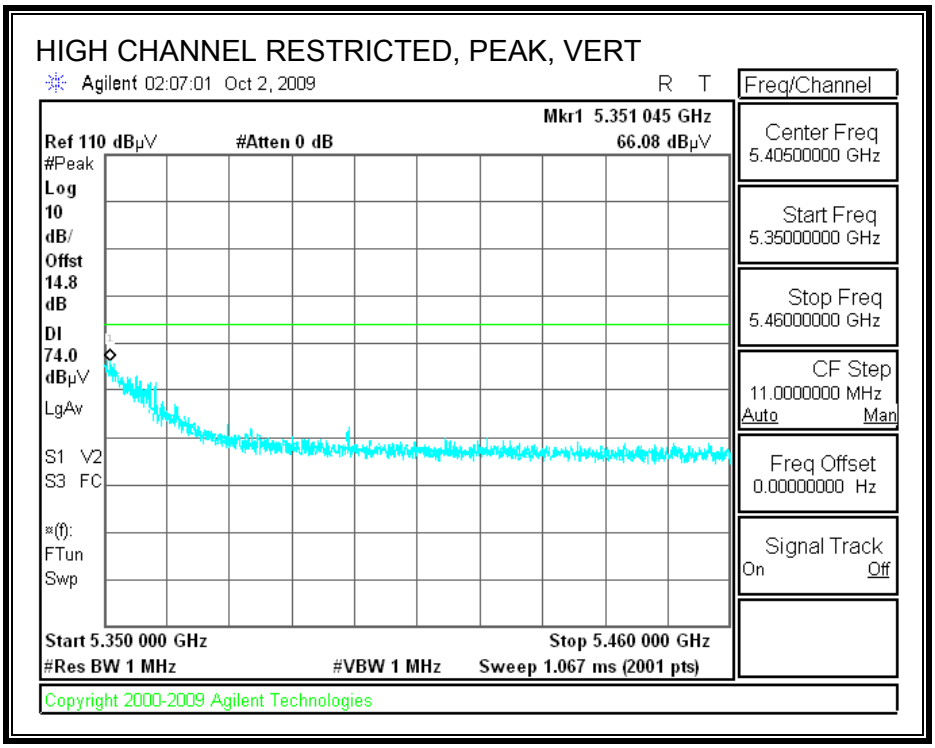
CHAIN C

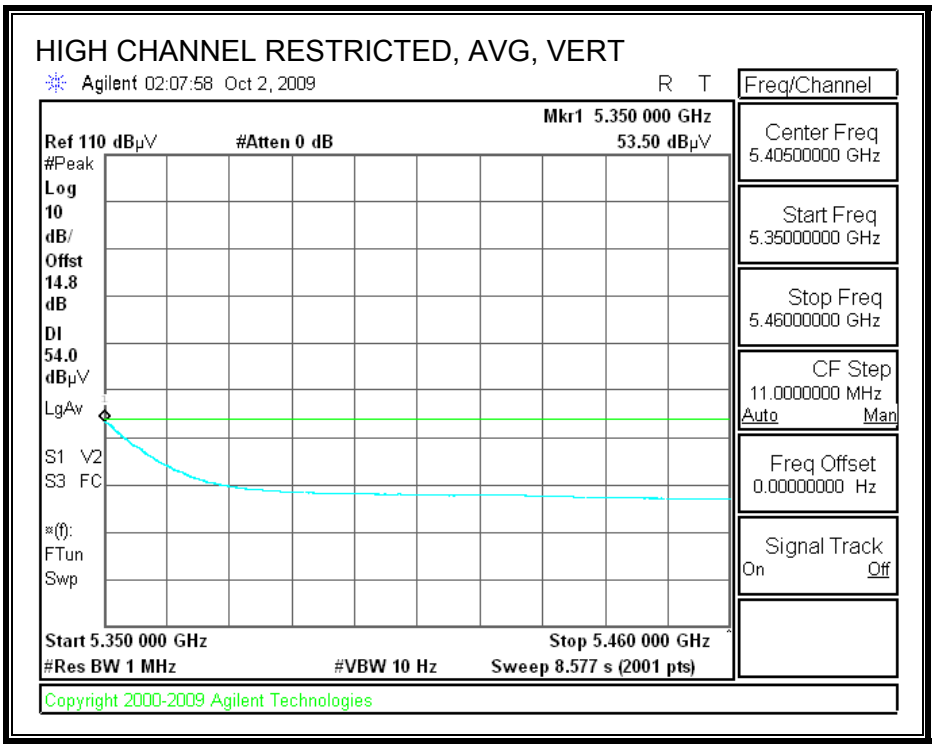
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

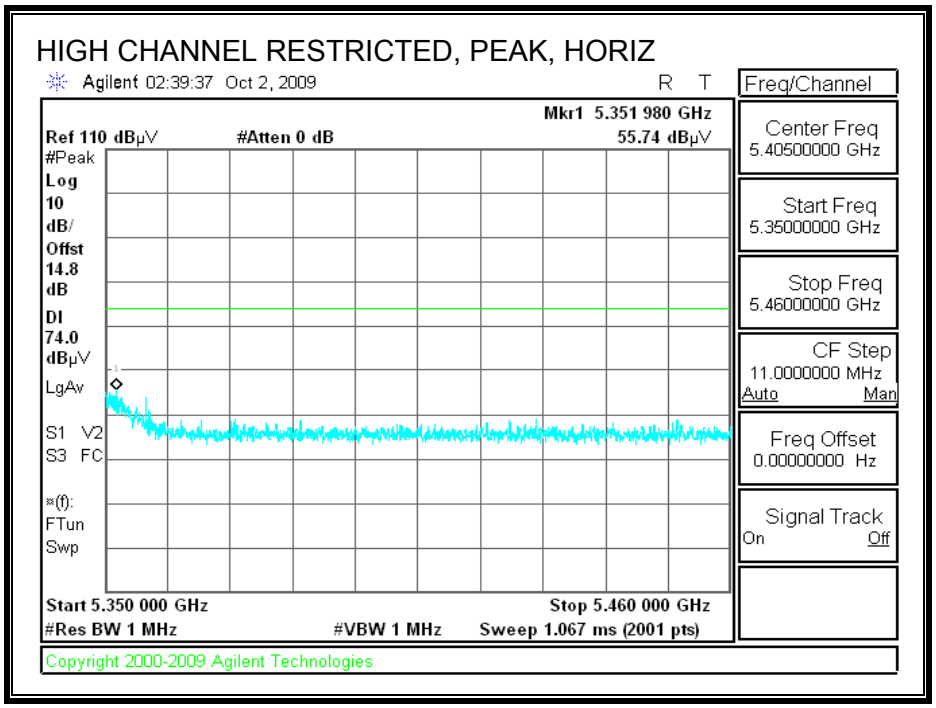


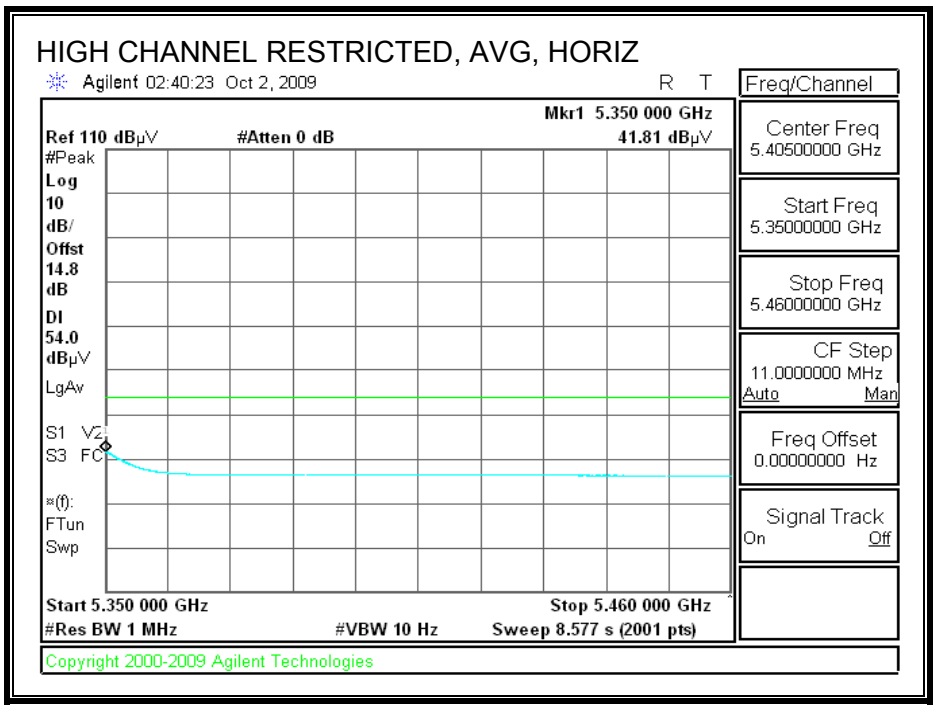


8.2.9. 802.11n HT20 MODE 3x3 IN THE UPPER 5.3 GHz BAND

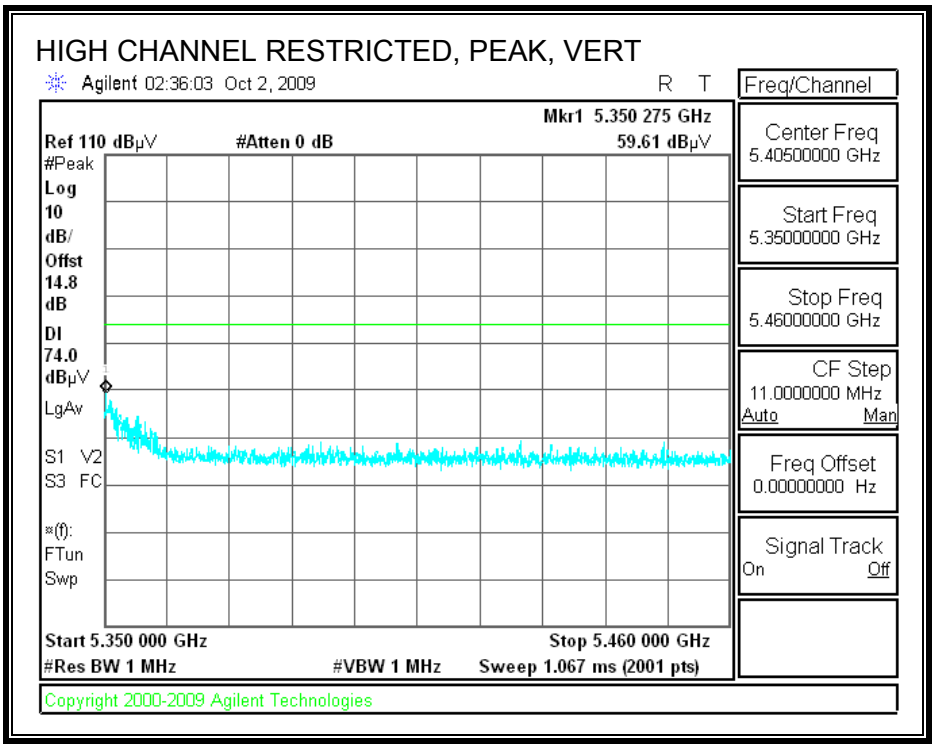
CHAINS ABC

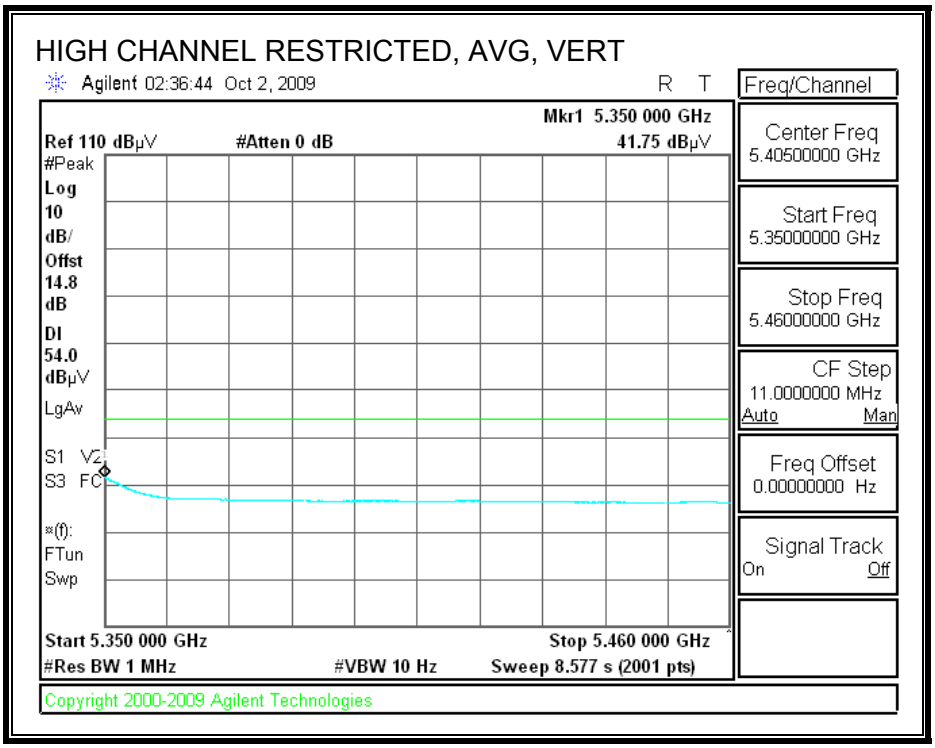
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS - HIGH CHANNEL, CHAIN ABC

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Test Engr: Vien Tran
Date: 09/17/09
Project #: 09U12795
Company: Intel
EUT Description: Module 802.11abgn 3x3
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Tx in 5.3GHz Band_HT20 Mode_3x3_High Channel_Chains ABC

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

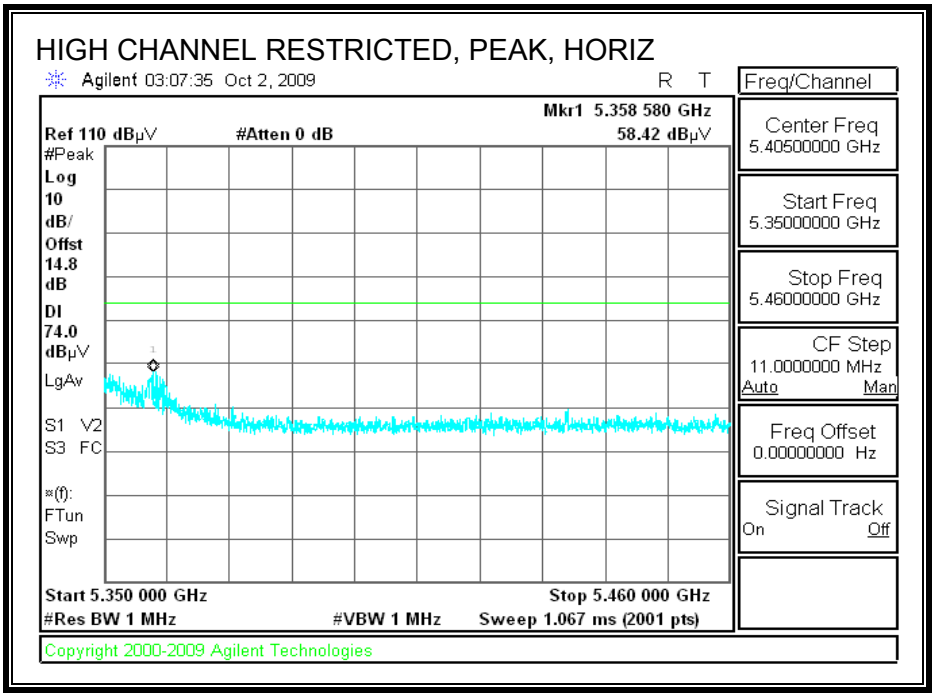
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
HT20_3x3_Chains ABC_5320MHz															
10.640	3.0	40.6	37.6	9.1	-32.6	0.0	0.8	55.4	74.0	-18.6	V	P	119.0	36.0	
10.640	3.0	26.6	37.6	9.1	-32.6	0.0	0.8	41.4	54.0	-12.6	V	A	119.0	36.0	
15.960	3.0	31.9	37.3	11.5	-32.1	0.0	0.7	49.4	74.0	-24.6	V	P	100.0	19.0	
15.960	3.0	20.2	37.3	11.5	-32.1	0.0	0.7	37.6	54.0	-16.4	V	A	100.0	19.0	
10.640	3.0	37.2	37.6	9.1	-32.6	0.0	0.8	52.0	74.0	-22.0	H	P	99.0	69.0	
10.640	3.0	23.9	37.6	9.1	-32.6	0.0	0.8	38.7	54.0	-15.3	H	A	99.0	69.0	
15.960	3.0	32.6	37.3	11.5	-32.1	0.0	0.7	50.0	74.0	-24.0	H	P	101.0	73.0	
15.960	3.0	20.3	37.3	11.5	-32.1	0.0	0.7	37.7	54.0	-16.3	H	A	101.0	73.0	

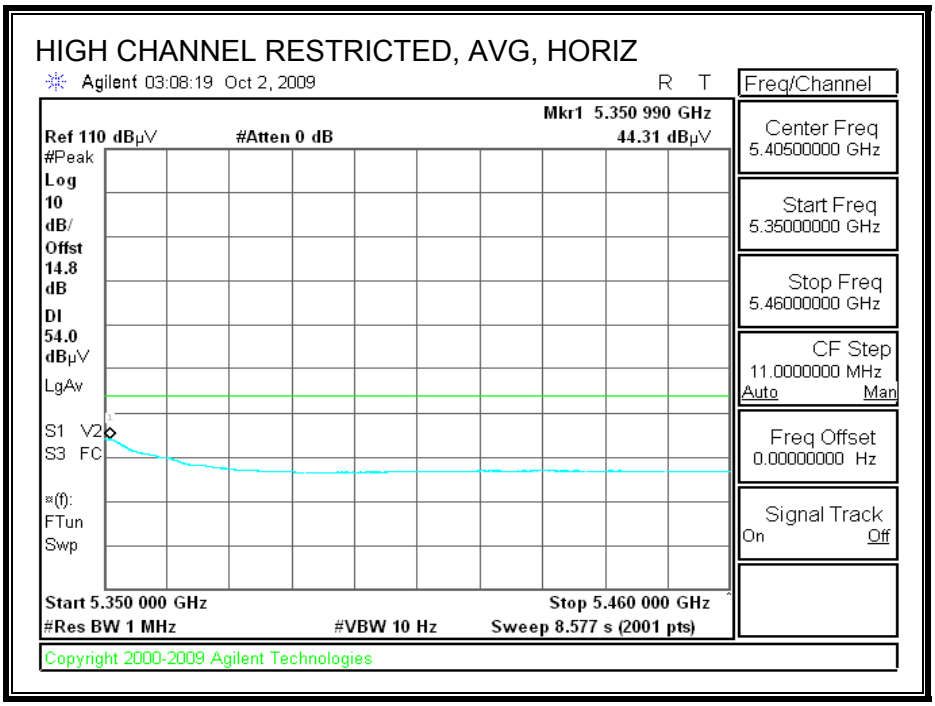
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

8.2.10. 802.11n HT40 MODE 3x3 IN THE UPPER 5.3 GHz BAND

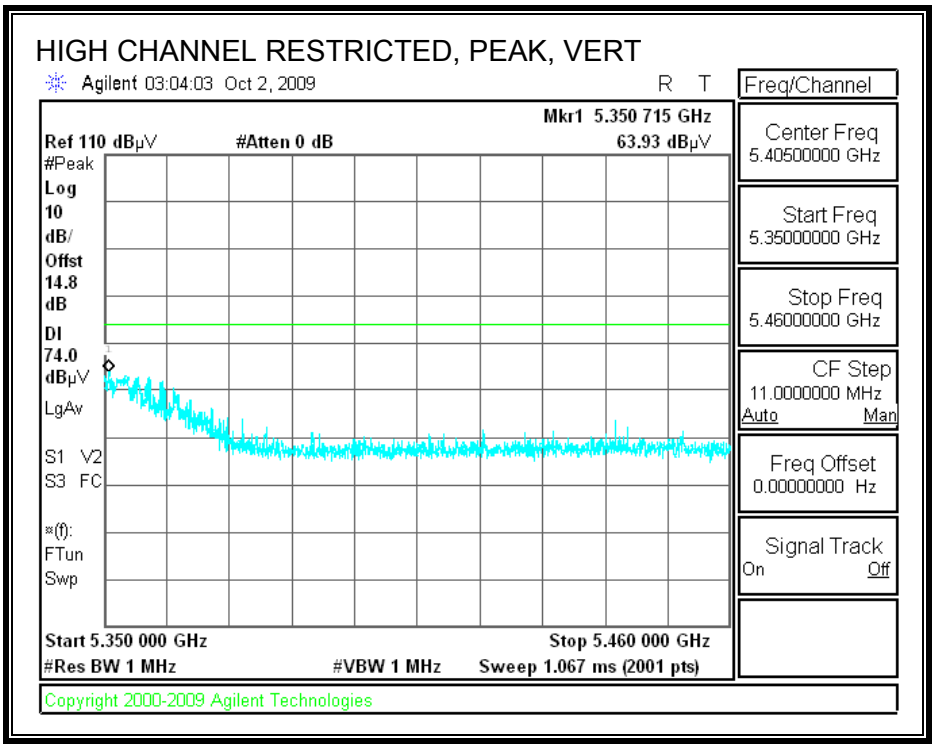
CHAINS ABC

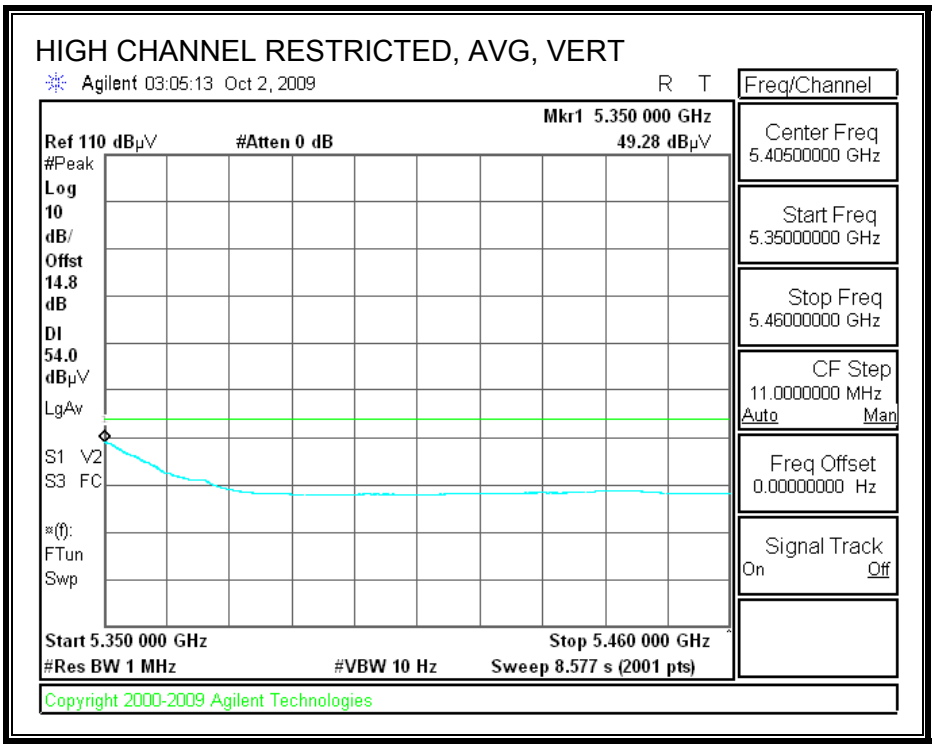
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS - HIGH CHANNEL, CHAINS ABC

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Test Engr: Vien Tran
Date: 09/17/09
Project #: 09U12795
Company: Intel
EUT Description: Module 802.11abgn 3x3
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Tx in 5.3GHz Band_HT40 Mode_3x3_High Channel_Chains ABC

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

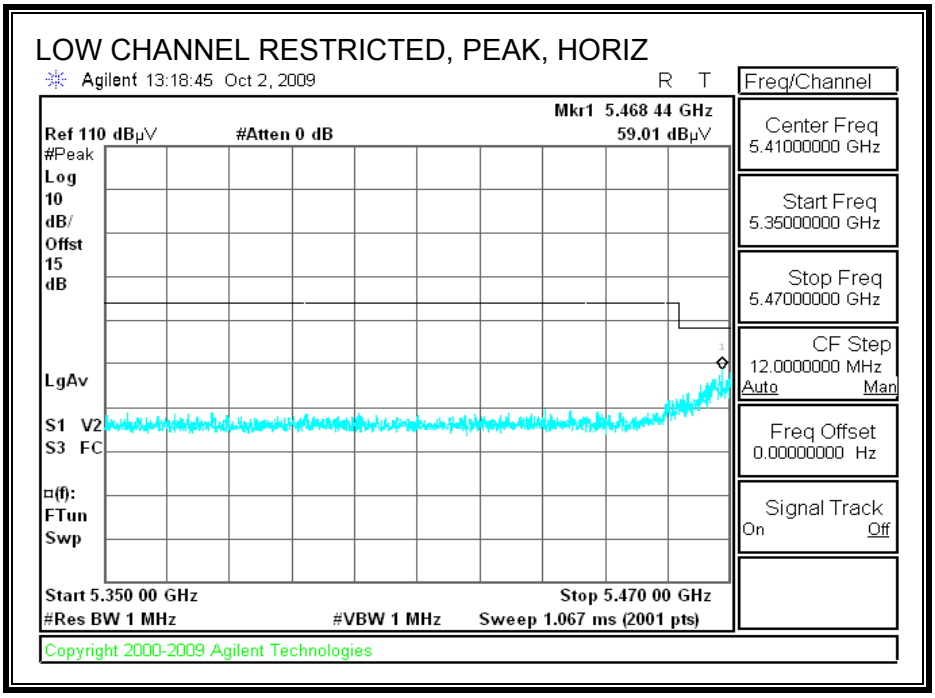
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
HT40_3x3_Chains ABC_5310MHz															
10.620	3.0	38.3	37.6	9.1	-32.6	0.0	0.8	53.1	74.0	-20.9	V	P	119.0	37.0	
10.620	3.0	23.7	37.6	9.1	-32.6	0.0	0.8	38.5	54.0	-15.5	V	A	119.0	37.0	
15.930	3.0	32.6	37.4	11.5	-32.1	0.0	0.7	50.1	74.0	-23.9	V	P	99.0	27.0	
15.930	3.0	20.1	37.4	11.5	-32.1	0.0	0.7	37.6	54.0	-16.4	V	A	99.0	27.0	
10.620	3.0	39.7	37.6	9.1	-32.6	0.0	0.8	51.6	74.0	-22.4	H	P	119.0	37.0	
10.620	3.0	25.1	37.6	9.1	-32.6	0.0	0.8	37.0	54.0	-17.0	H	A	119.0	37.0	
15.930	3.0	34.1	37.4	11.5	-32.1	0.0	0.7	48.7	74.0	-25.3	H	P	99.0	27.0	
15.930	3.0	21.6	37.4	11.5	-32.1	0.0	0.7	36.2	54.0	-17.8	H	A	99.0	27.0	

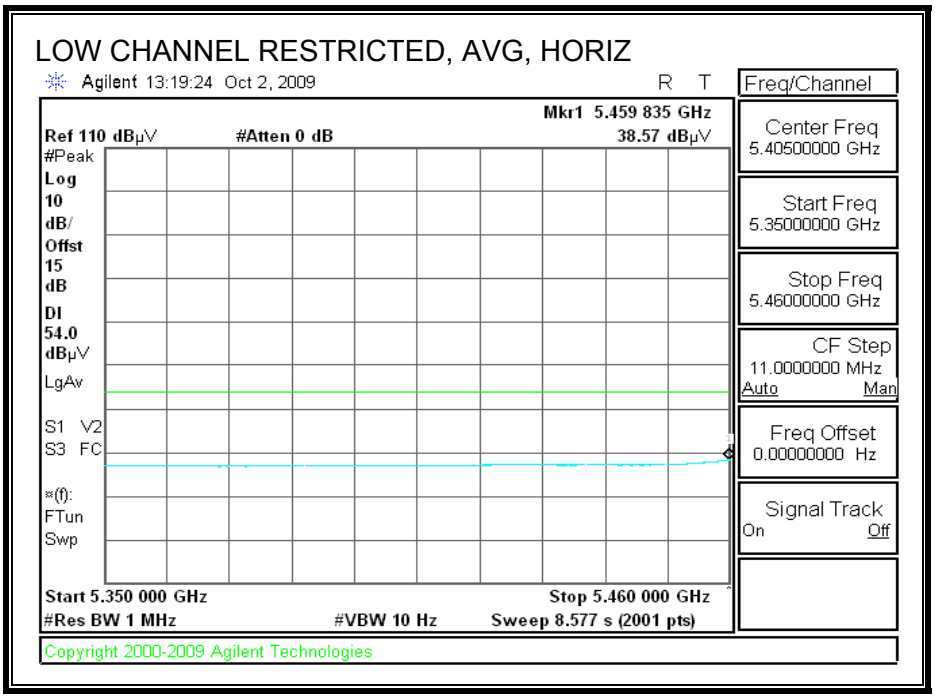
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

8.2.11. 802.11a MODE IN THE 5.6 GHz BAND

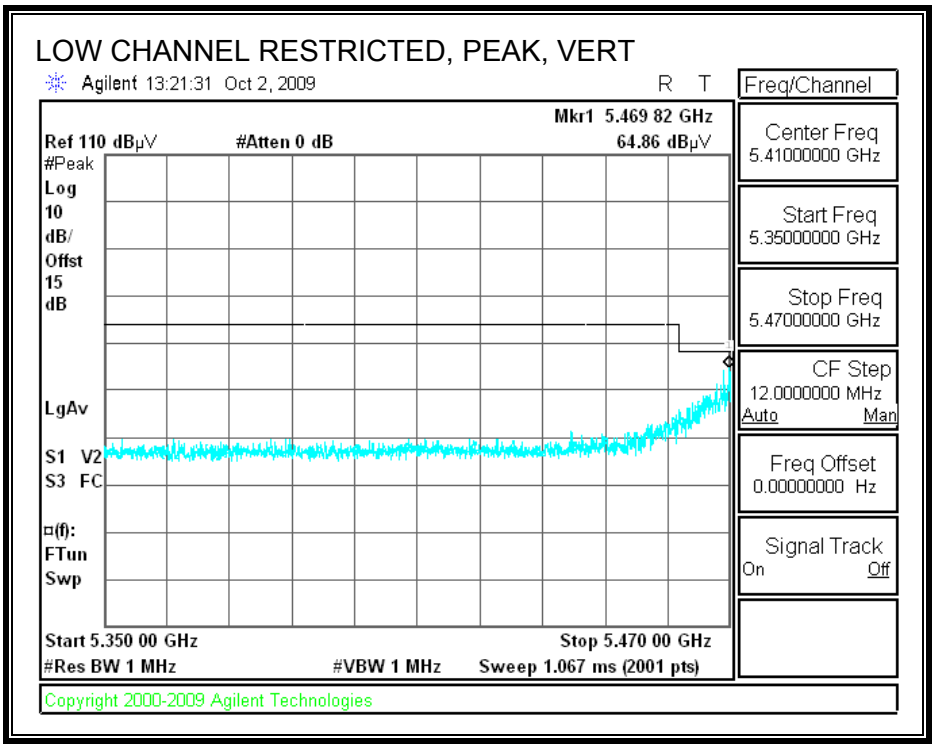
CHAIN A

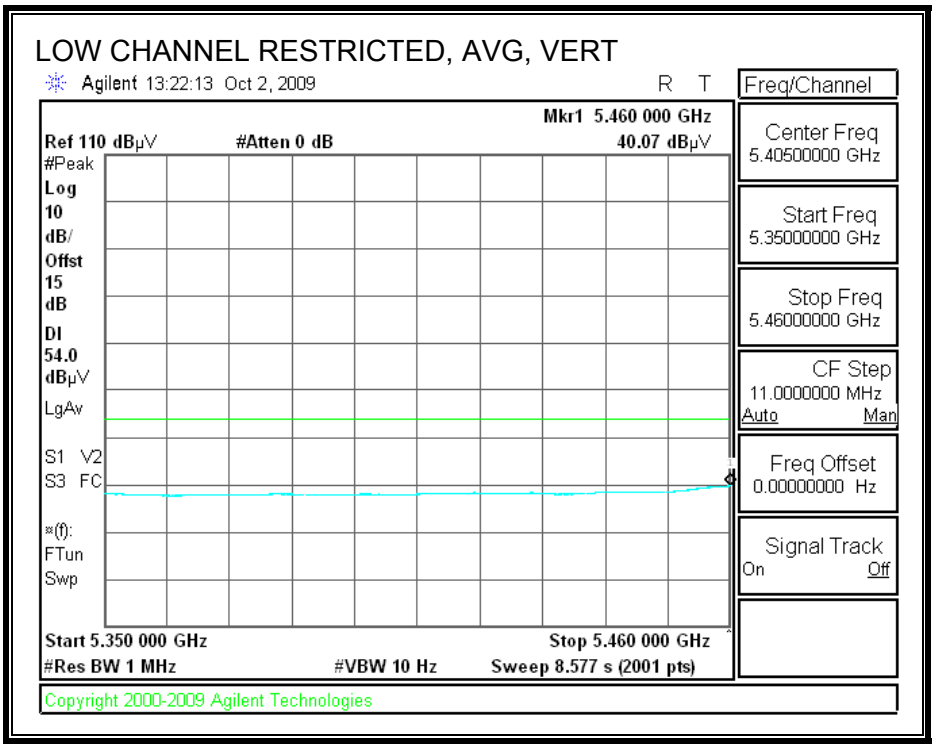
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





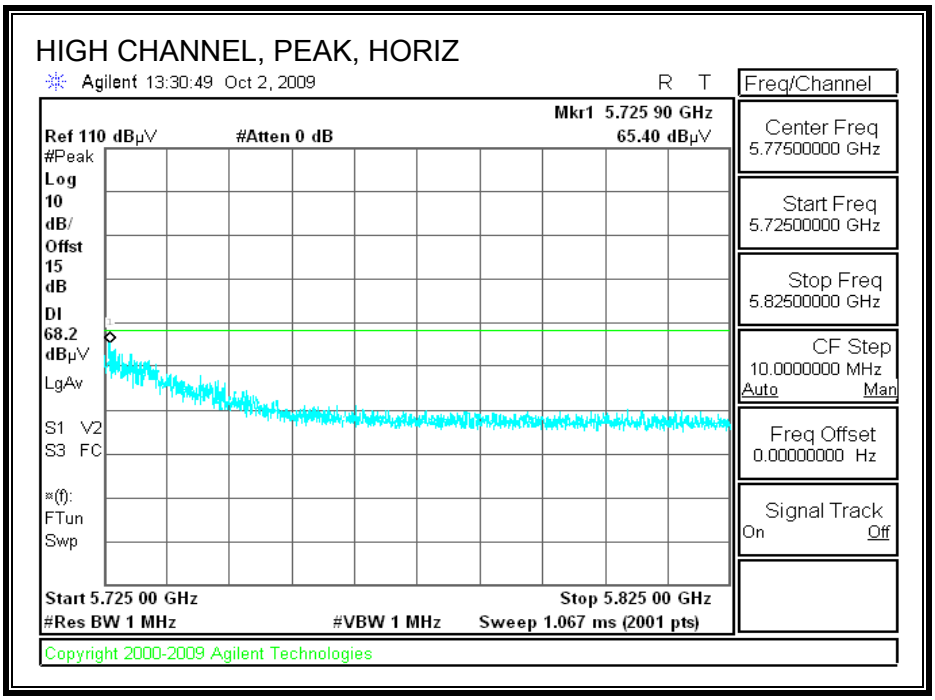
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



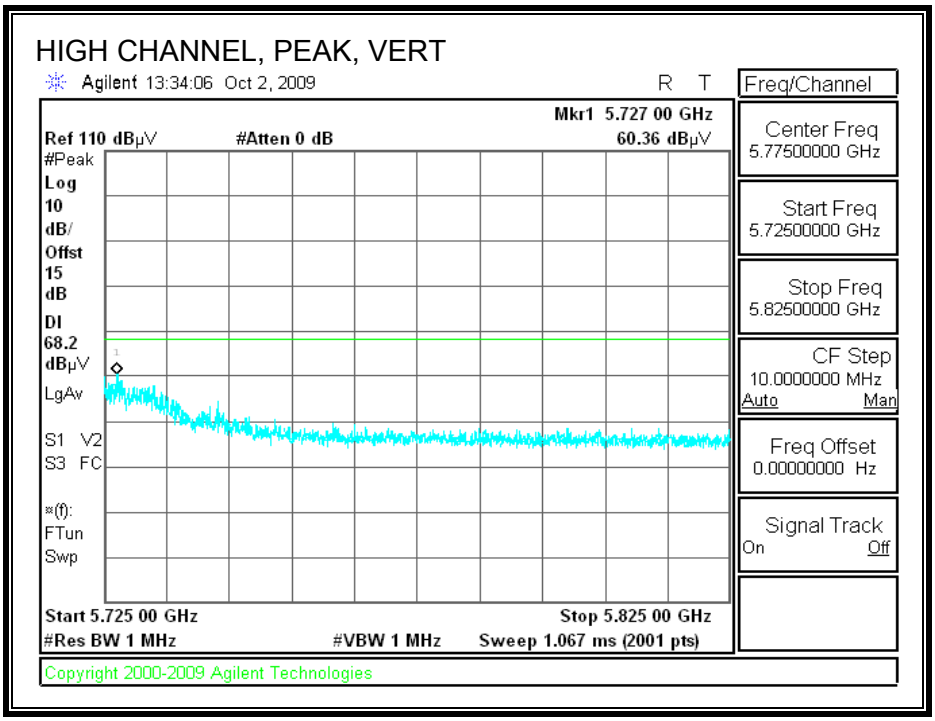


CHAIN A

AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

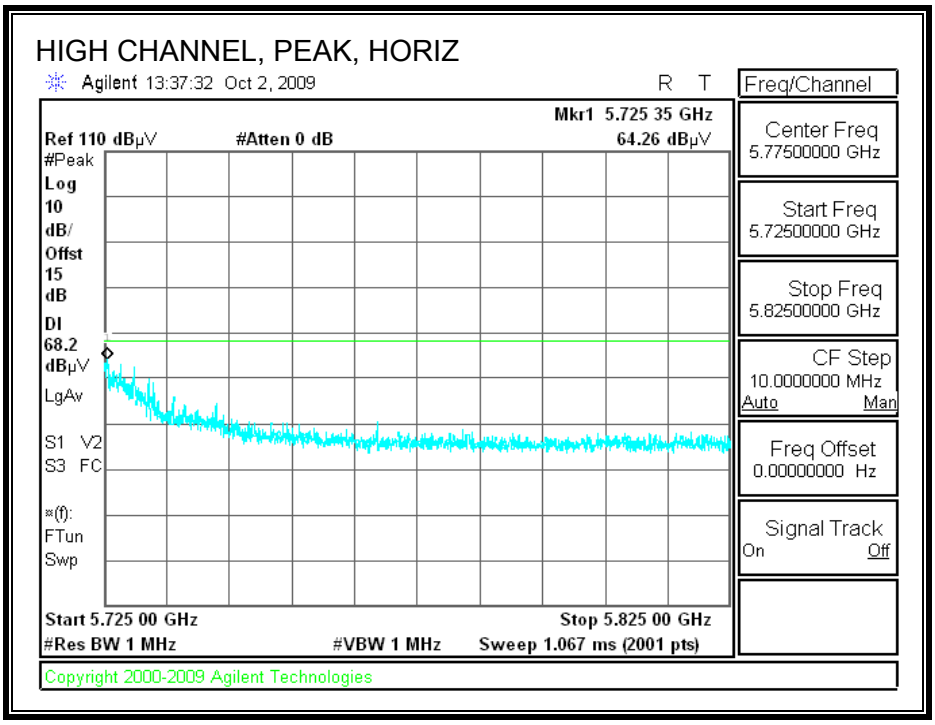


AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)

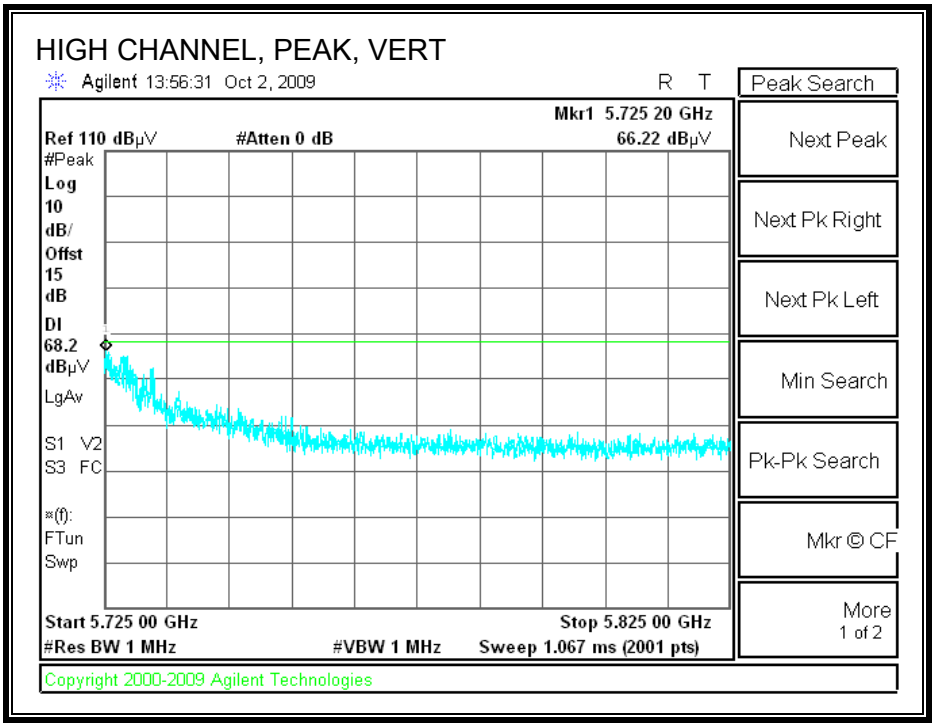


CHAIN C

AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS – HIGH CHANNEL, CHAIN C

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Test Engr: Vien Tran
Date: 09/17/09
Project #: 09U12795
Company: Intel
EUT Description: Module 802.11abgn 3x3
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Tx in 5.5GHz Band_11a Mode_High Channel_Chain C

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

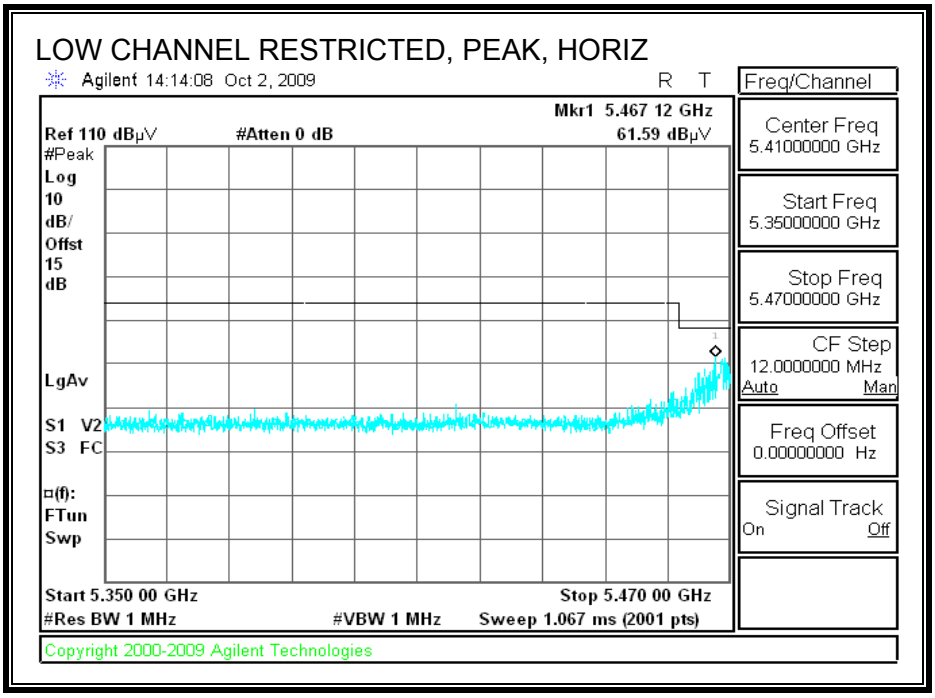
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
11a_5700MHz_Chain C															
11.400	3.0	35.0	38.0	9.4	-32.5	0.0	0.7	50.6	74.0	-23.4	V	P	125.0	14.0	
11.400	3.0	24.0	38.0	9.4	-32.5	0.0	0.7	39.6	54.0	-14.4	V	A	125.0	14.0	
11.400	3.0	33.0	38.0	9.4	-32.5	0.0	0.7	48.5	74.0	-25.5	H	P	106.0	357.0	
11.400	3.0	21.4	38.0	9.4	-32.5	0.0	0.7	37.0	54.0	-17.0	H	A	106.0	357.0	

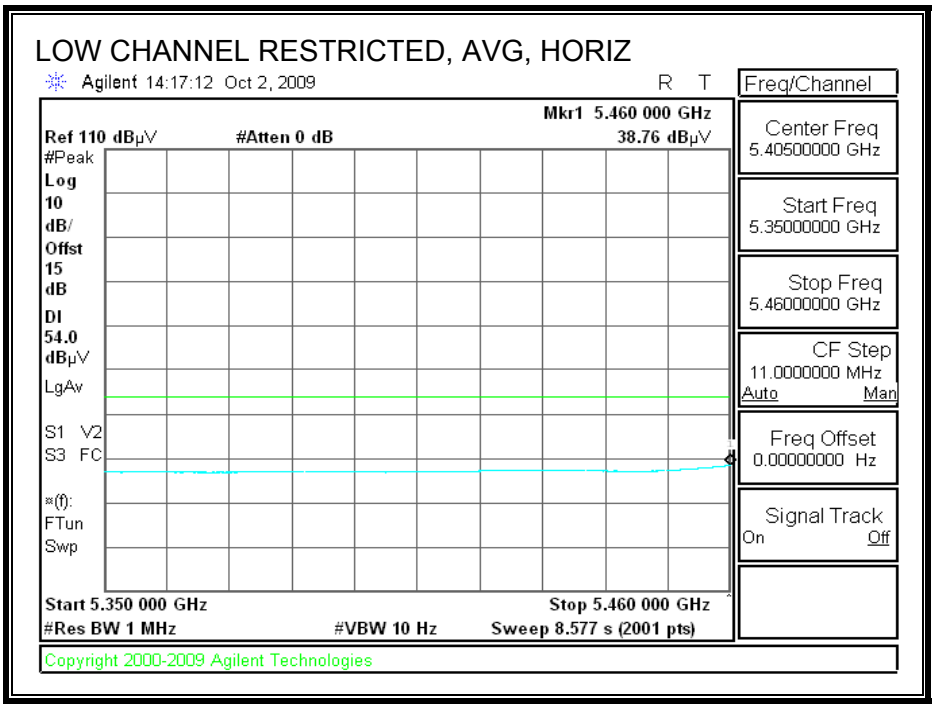
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

8.2.12. 802.11n HT20 MODE IN THE 5.6 GHz BAND

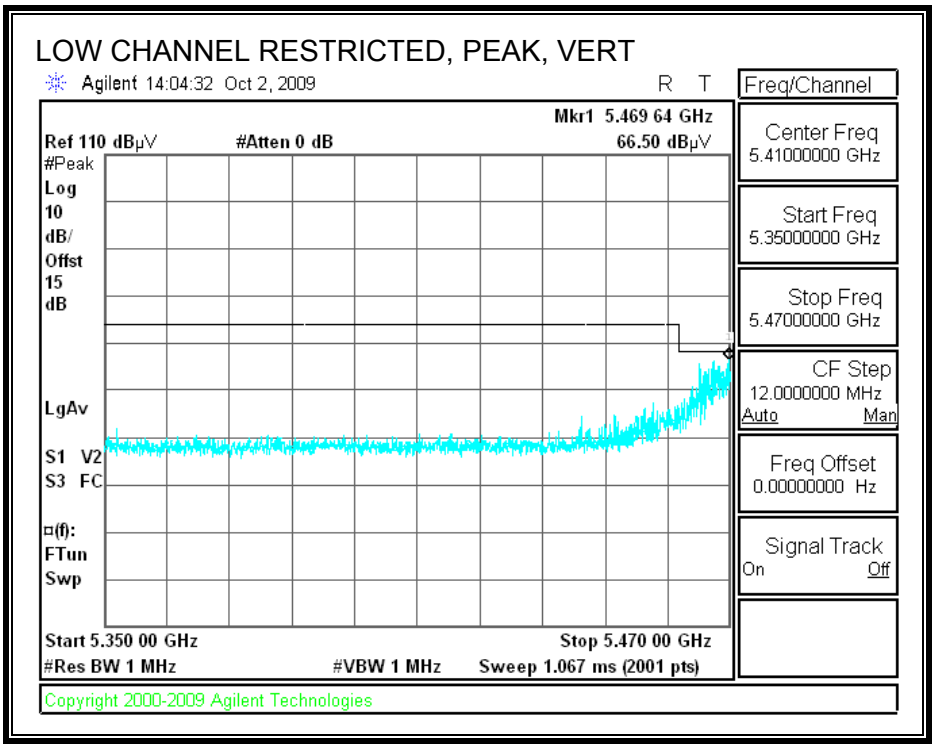
CHAIN A

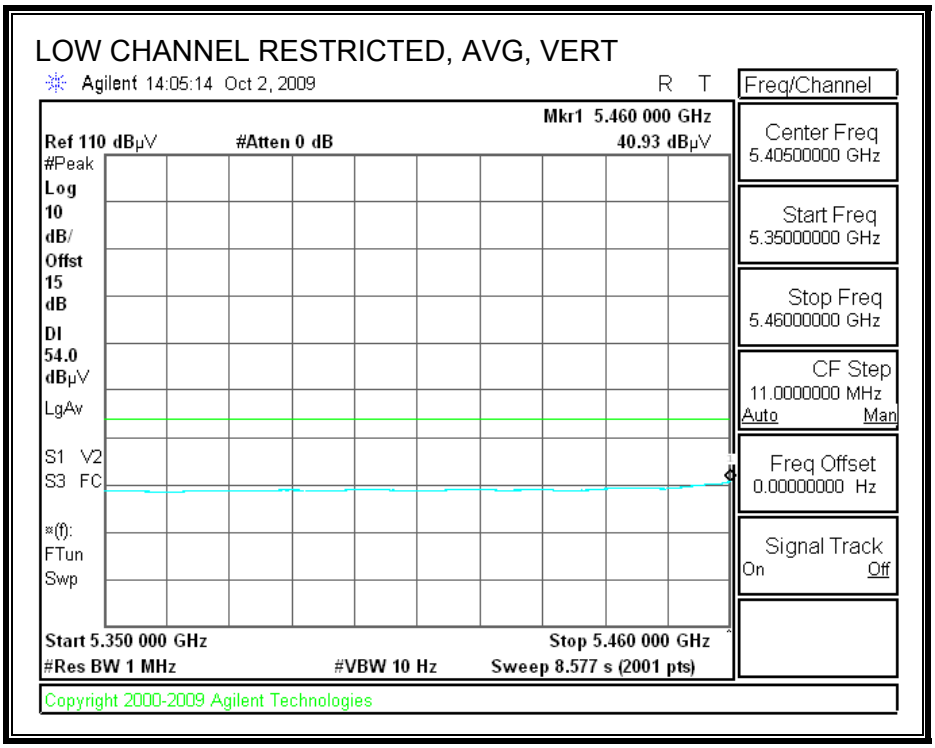
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





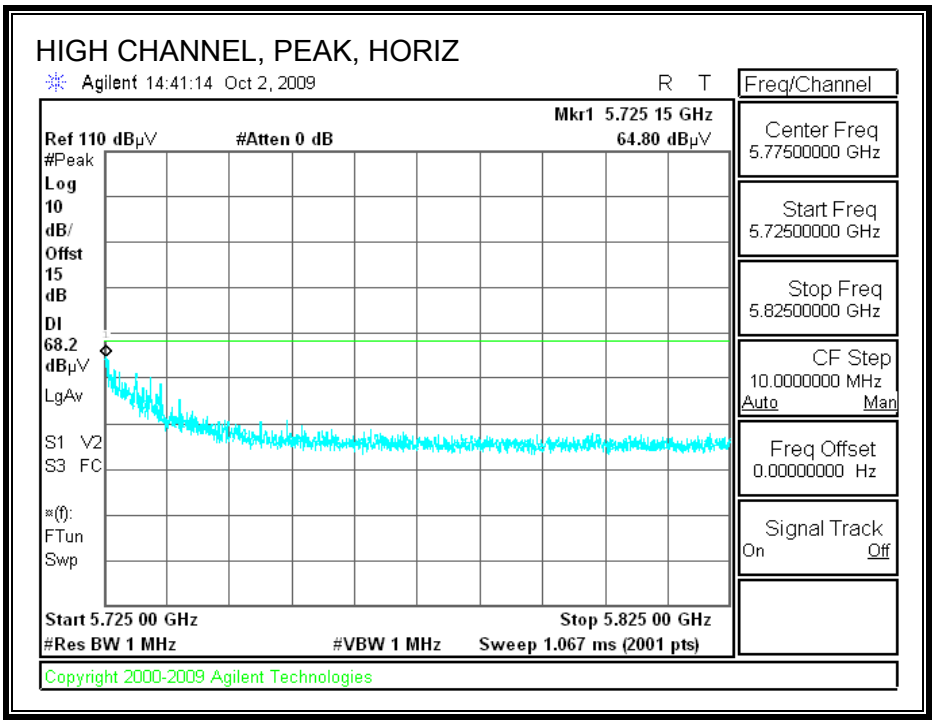
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



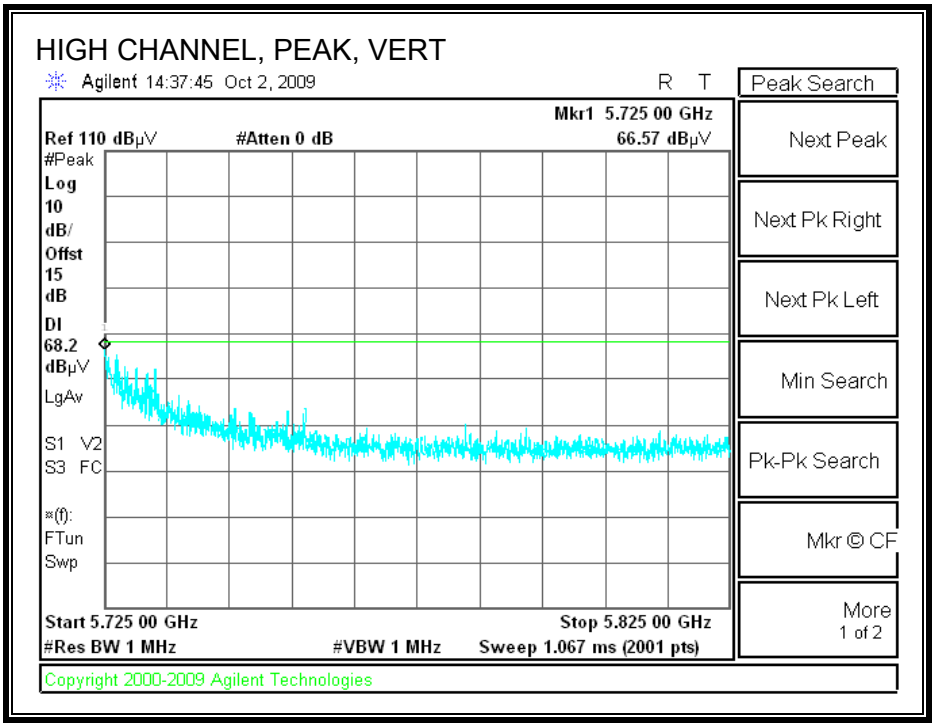


CHAIN C

AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS - HIGH CHAINNEL, CHAIN C

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Test Engr: Vien Tran
Date: 09/17/09
Project #: 09U12795
Company: Intel
EUT Description: Module 802.11abgn 3x3
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Tx in 5.5GHz Band_HT20 Mode_High Channel_Chain C

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

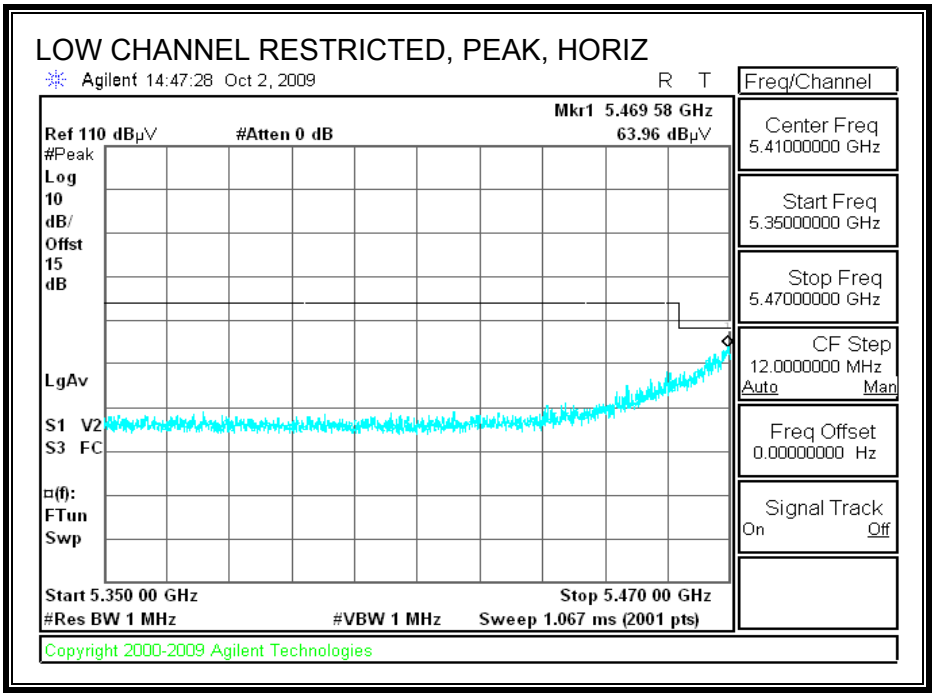
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
HT20_5700MHz_Chain C															
11.400	3.0	33.9	38.0	9.4	-32.5	0.0	0.7	49.4	74.0	-24.6	V	P	137.0	35.0	
11.400	3.0	22.0	38.0	9.4	-32.5	0.0	0.7	37.5	54.0	-16.5	V	A	137.0	35.0	
11.400	3.0	32.2	38.0	9.4	-32.5	0.0	0.7	47.8	74.0	-26.2	H	P	99.0	25.0	
11.400	3.0	20.0	38.0	9.4	-32.5	0.0	0.7	35.6	54.0	-18.4	H	A	99.0	25.0	

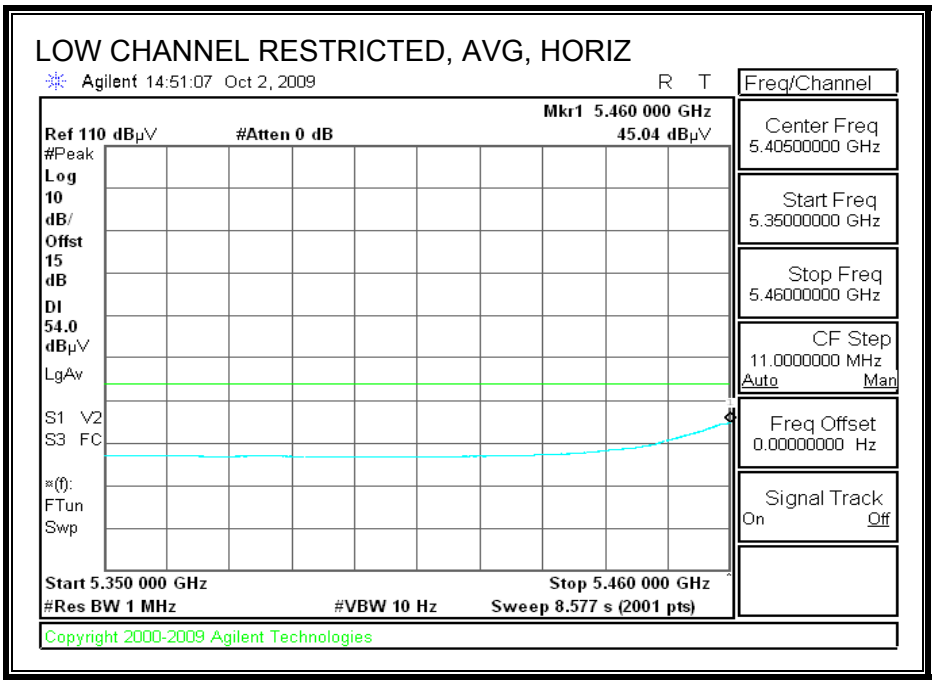
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

8.2.13. 802.11n HT40 MODE IN THE 5.6 GHz BAND

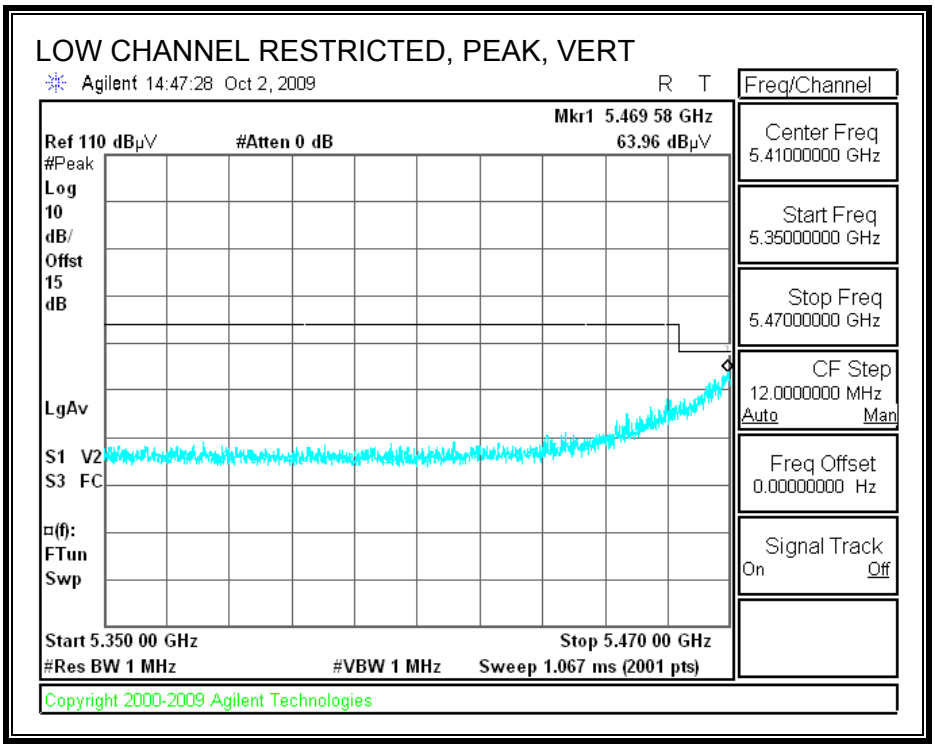
CHAIN C

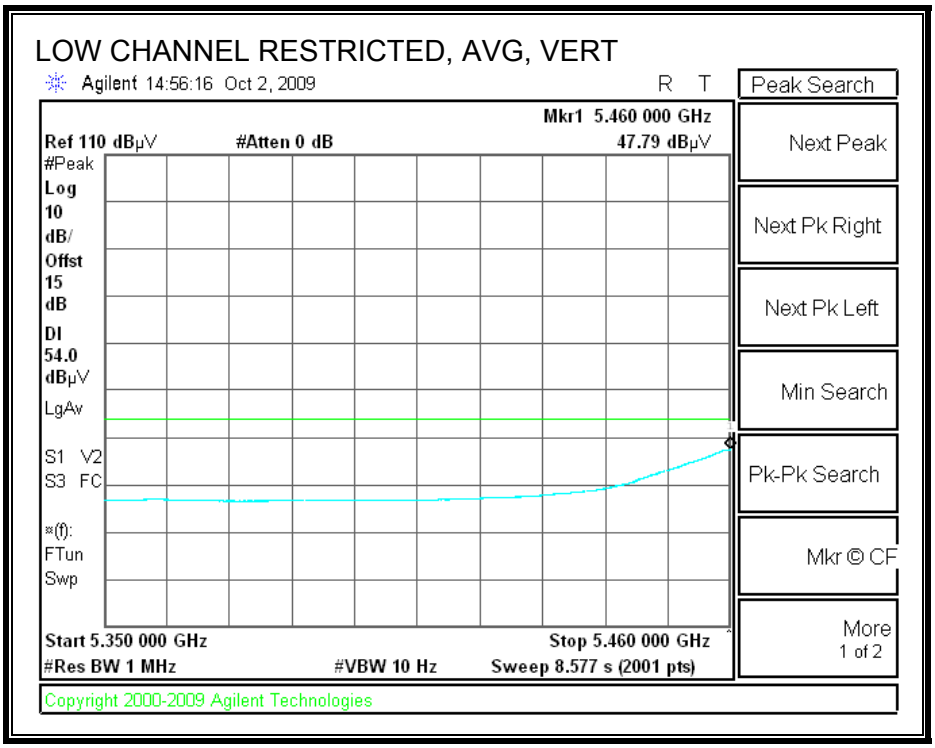
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





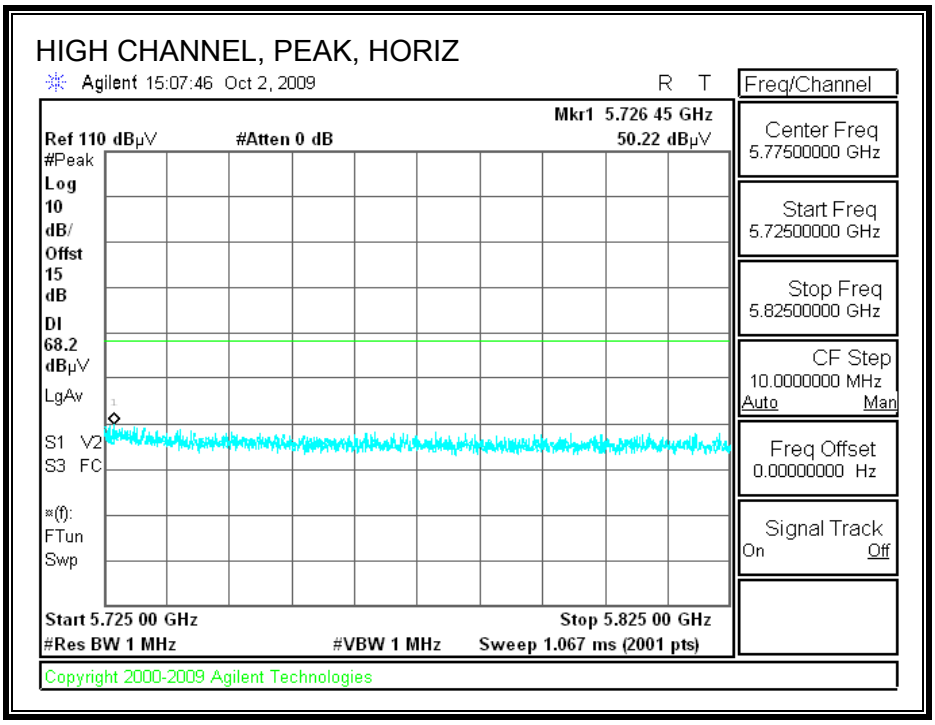
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



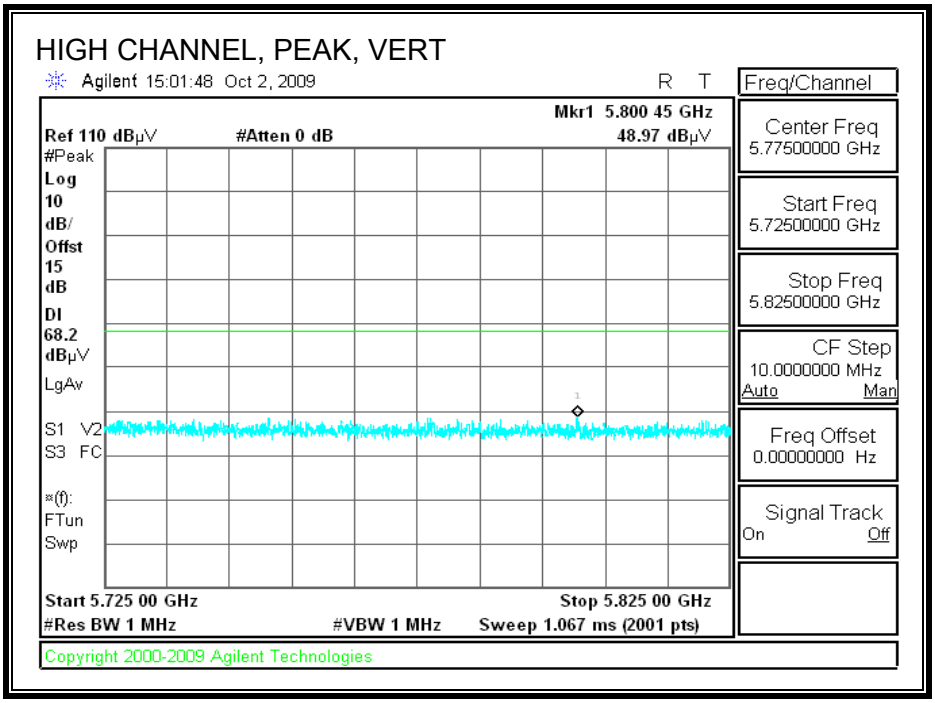


CHAIN B

AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS – HIGH CHANNEL, CHAIN B

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Test Engr: Vien Tran
Date: 09/17/09
Project #: 09U12795
Company: Intel
EUT Description: Module 802.11abgn 3x3
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Tx in 5.5GHz Band_HT40 Mode_High Channel_Chain B

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

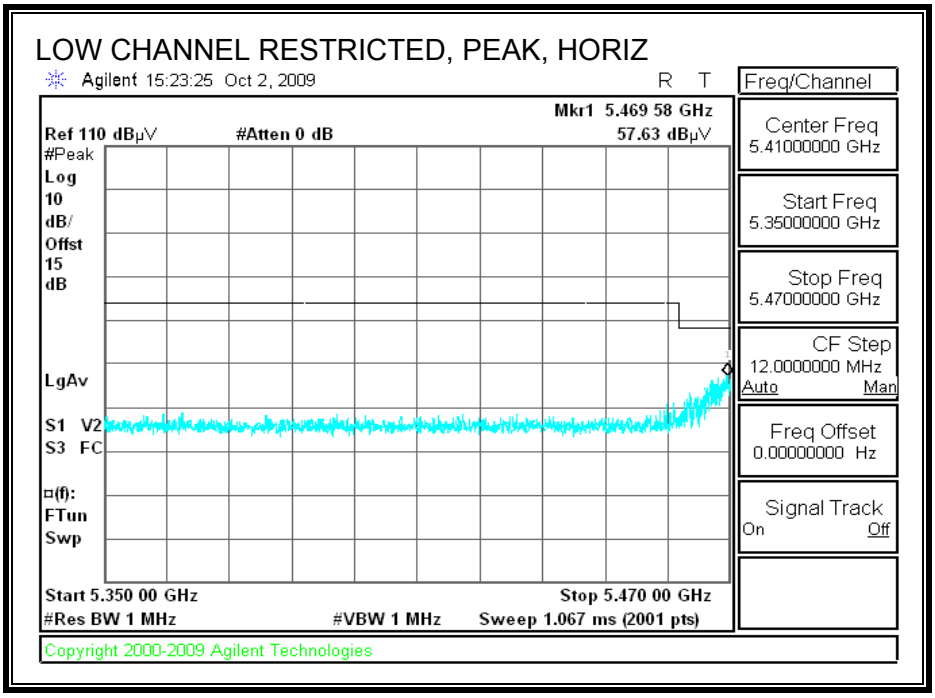
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
HT40_5670MHz_Chain B															
11.340	3.0	31.9	37.9	9.4	-32.6	0.0	0.7	47.4	74.0	-26.6	V	P	98.0	277.0	
11.340	3.0	19.7	37.9	9.4	-32.6	0.0	0.7	35.2	54.0	-18.8	V	A	98.0	277.0	
11.340	3.0	32.1	37.9	9.4	-32.6	0.0	0.7	47.5	74.0	-26.5	H	P	100.0	357.0	
11.340	3.0	20.1	37.9	9.4	-32.6	0.0	0.7	35.5	54.0	-18.5	H	A	100.0	357.0	

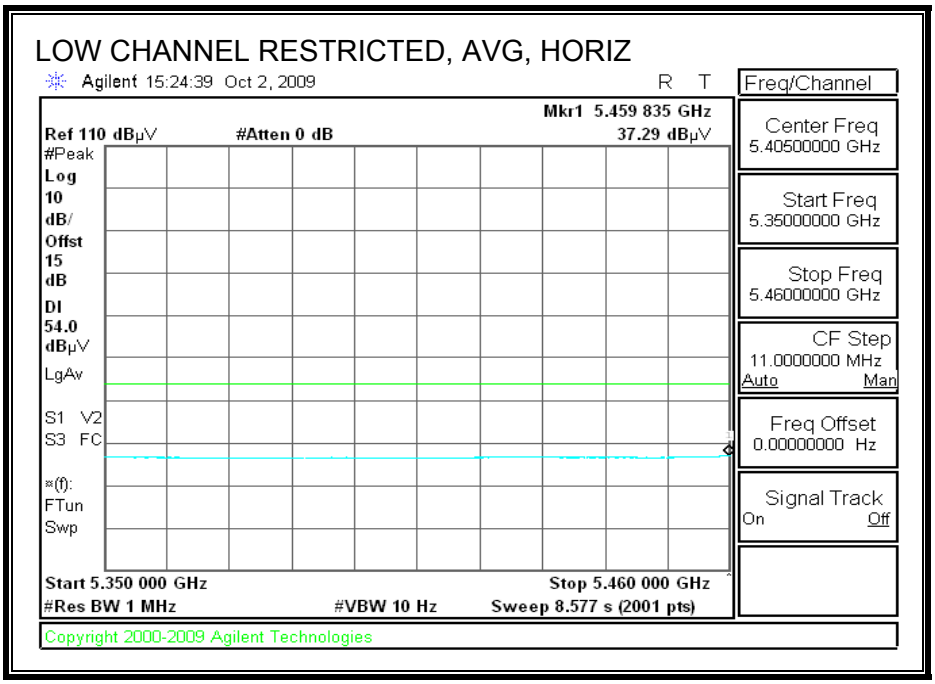
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

8.2.14. 802.11n HT20 MODE 3x3 IN THE 5.6 GHz BAND

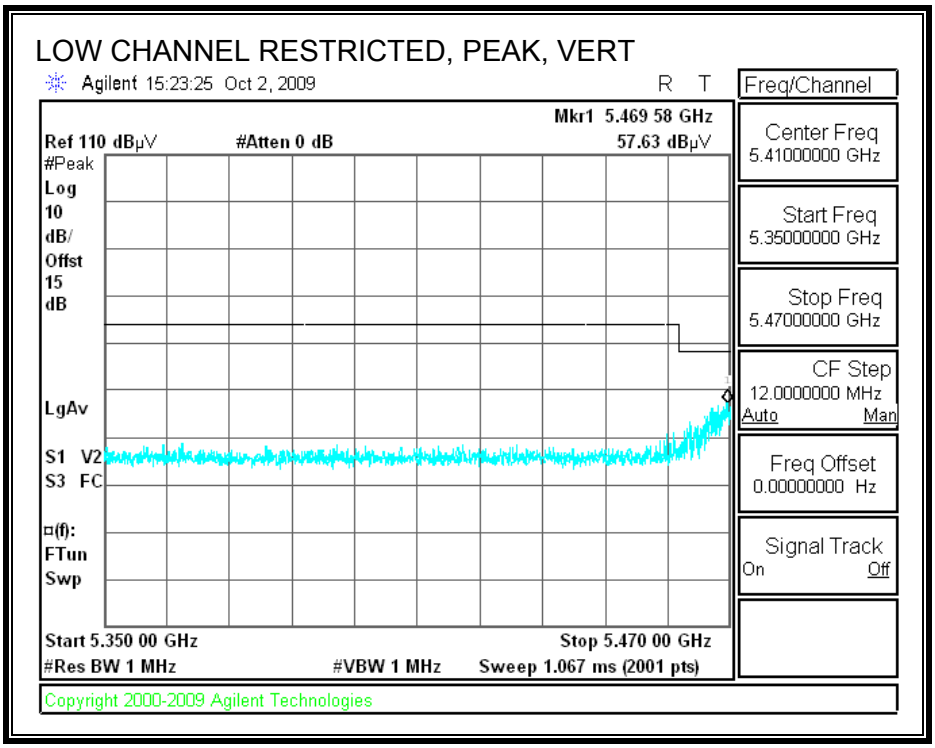
CHAINS ABC

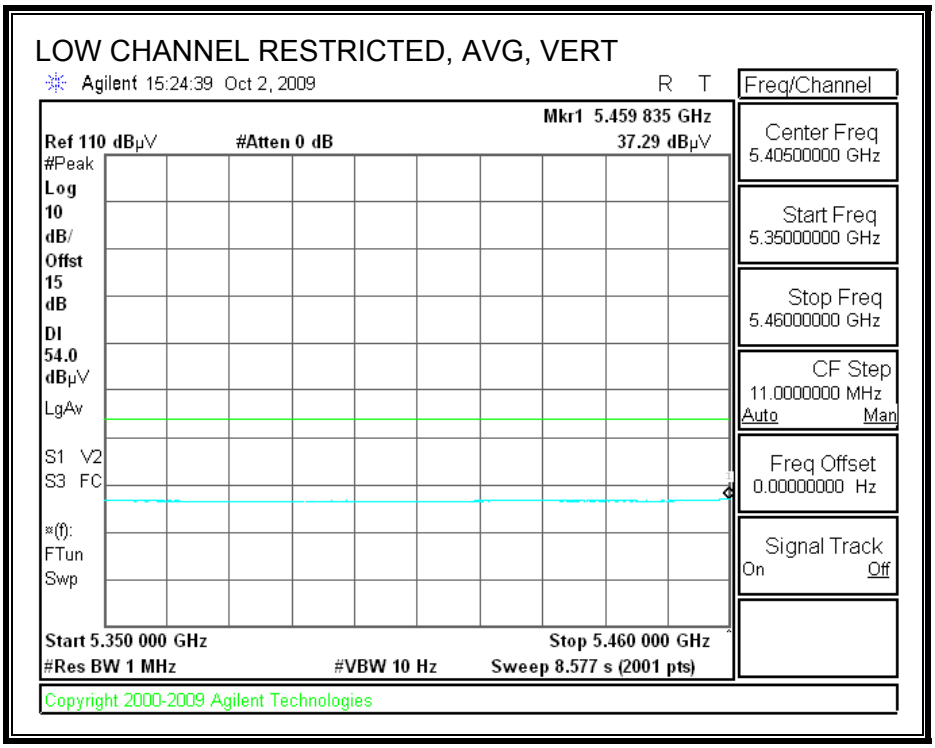
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





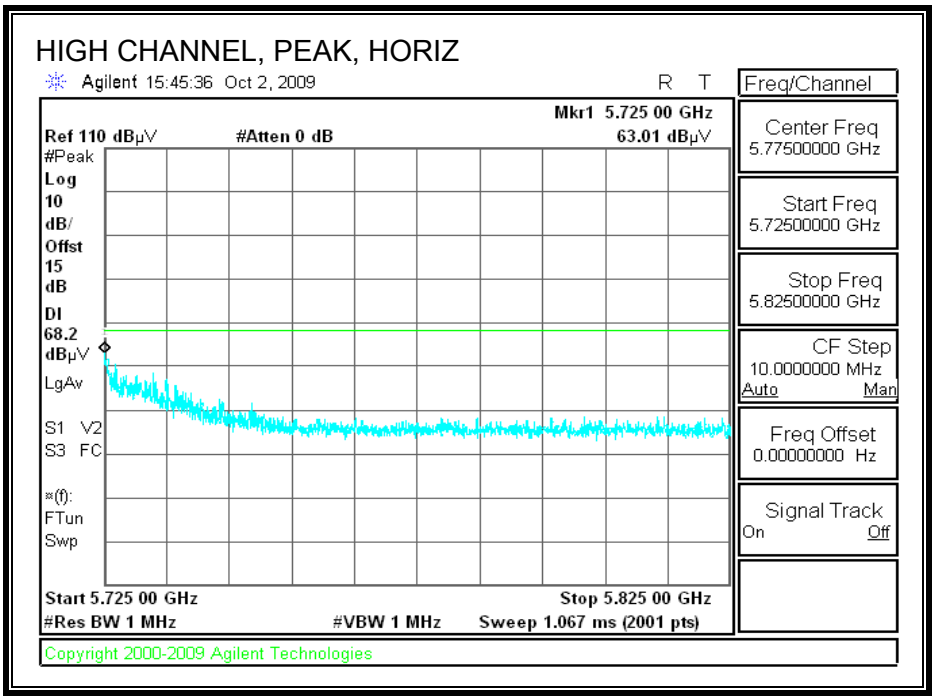
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



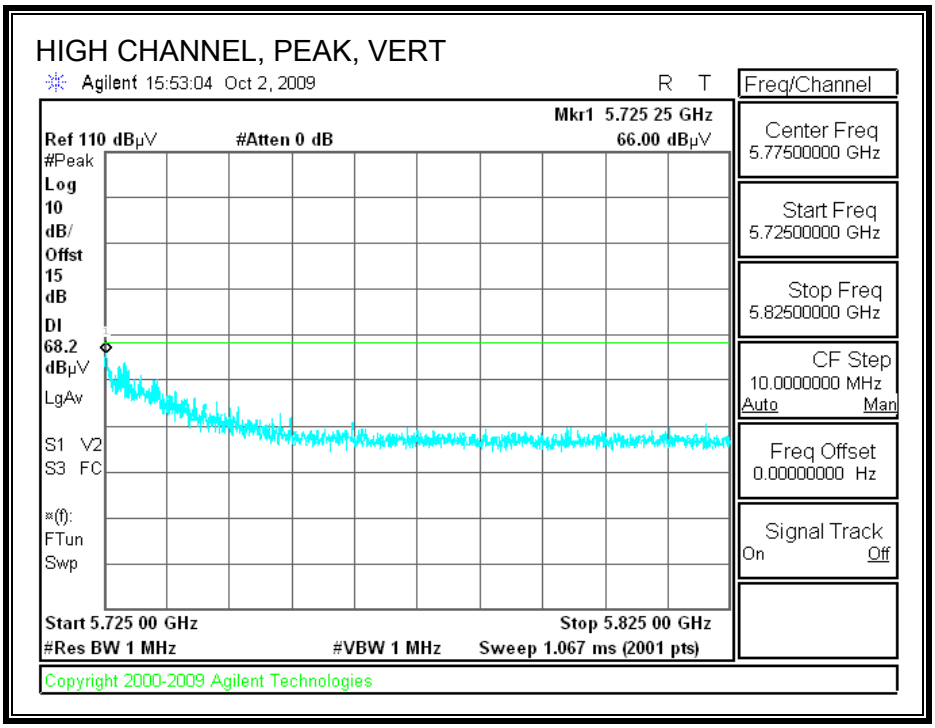


CHAINS ABC

AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS - LOW CHANNEL, CHAINS ABC

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Test Engr: Vien Tran
Date: 09/17/09
Project #: 09U12795
Company: Intel
EUT Description: Module 802.11abgn 3x3
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Tx in 5.5GHz Band_HT20 Mode_3x3_Low Channel_Chains ABC

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

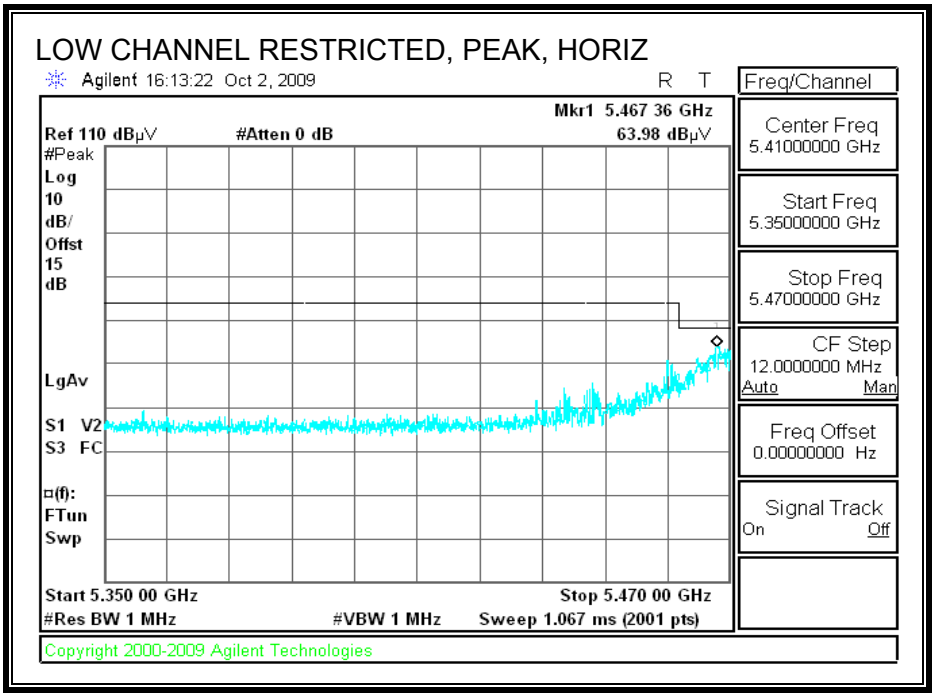
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
HT20_3x3_Chains ABC_5500MHz															
11.000	3.0	34.5	37.6	9.2	-32.6	0.0	0.7	49.5	74.0	-24.5	V	P	103.0	58.0	
11.000	3.0	21.9	37.6	9.2	-32.6	0.0	0.7	36.9	54.0	-17.1	V	A	103.0	58.0	
11.000	3.0	33.0	37.6	9.2	-32.6	0.0	0.7	48.0	74.0	-26.0	H	P	125.0	310.0	
11.000	3.0	21.0	37.6	9.2	-32.6	0.0	0.7	36.0	54.0	-18.0	H	A	125.0	310.0	

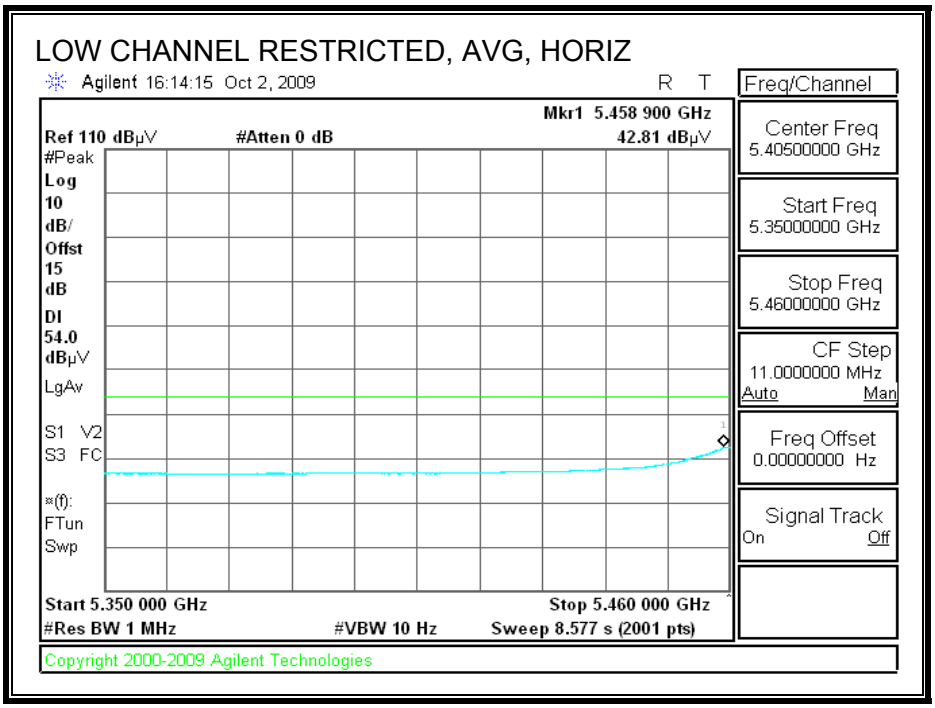
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

8.2.15. 802.11n HT40 MODE 3x3 IN THE 5.6 GHz BAND

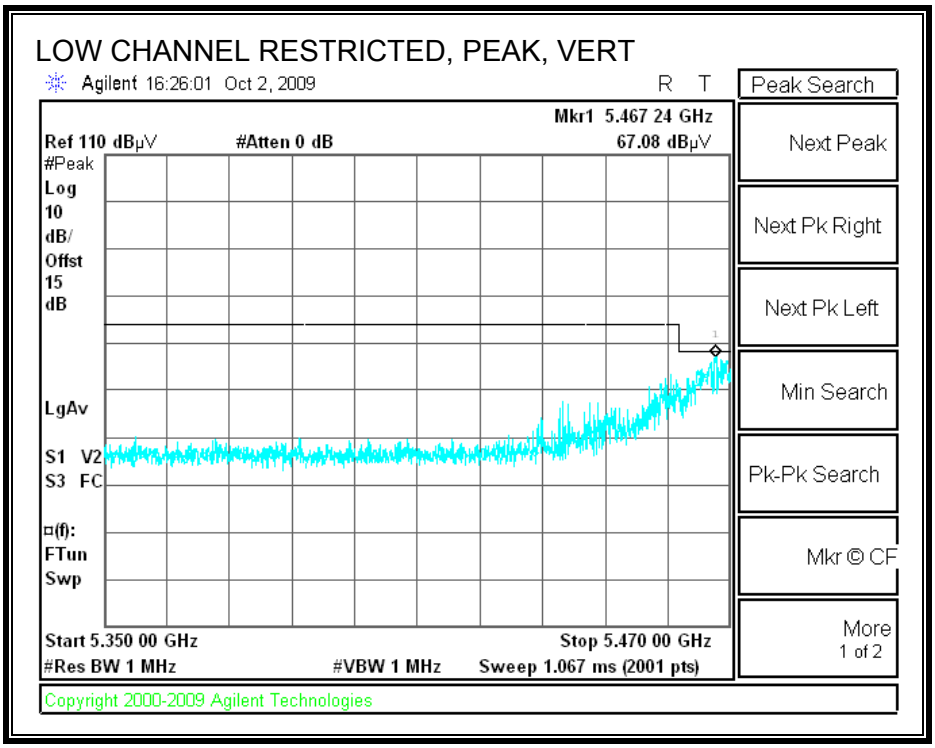
CHAINS ABC

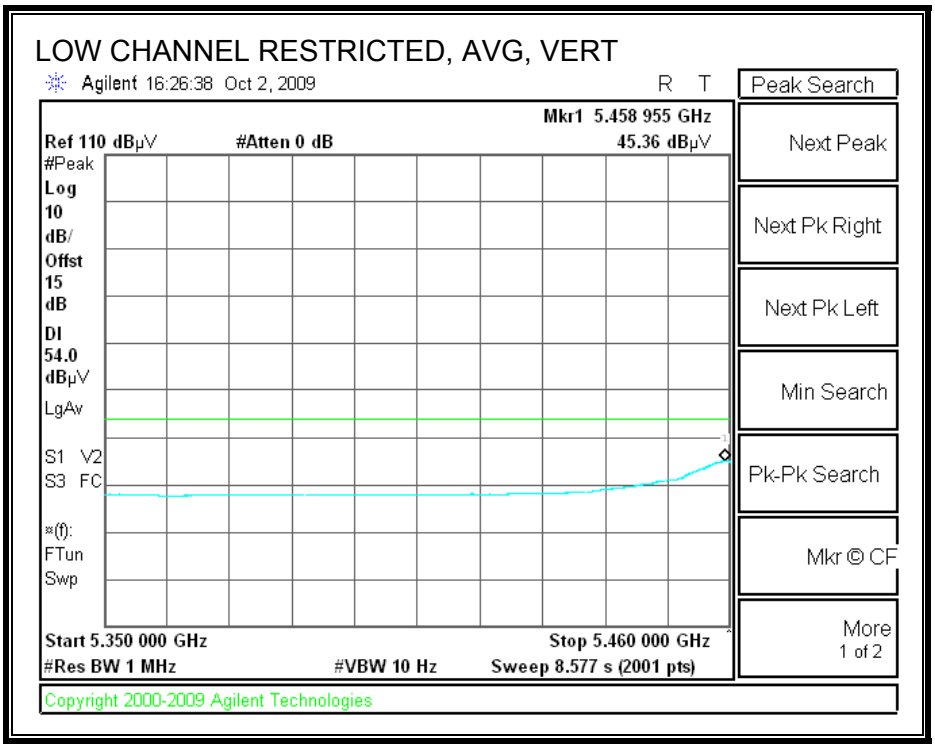
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





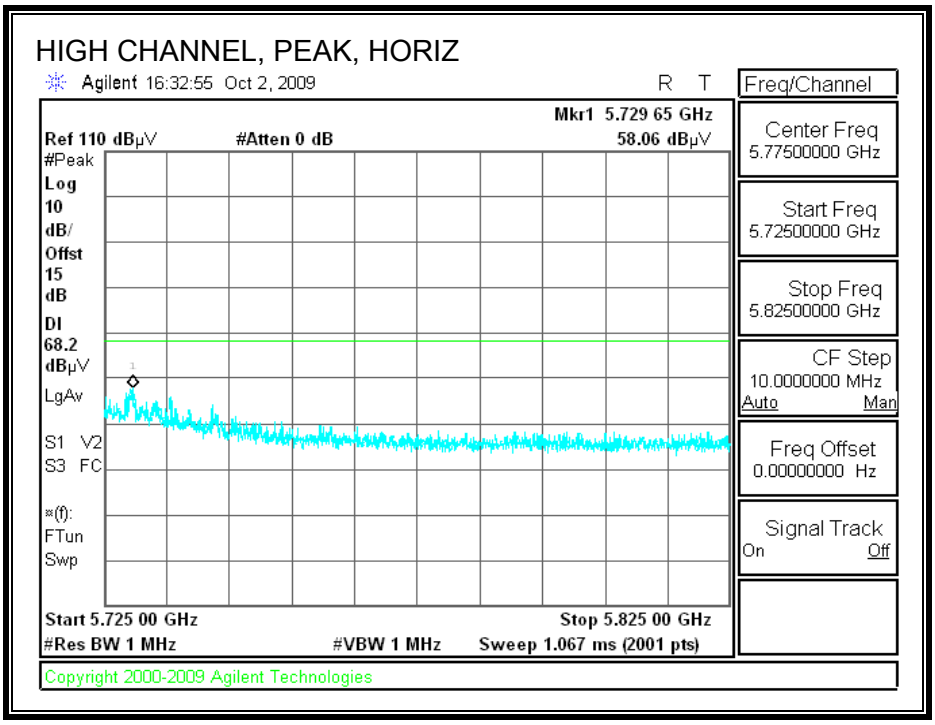
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



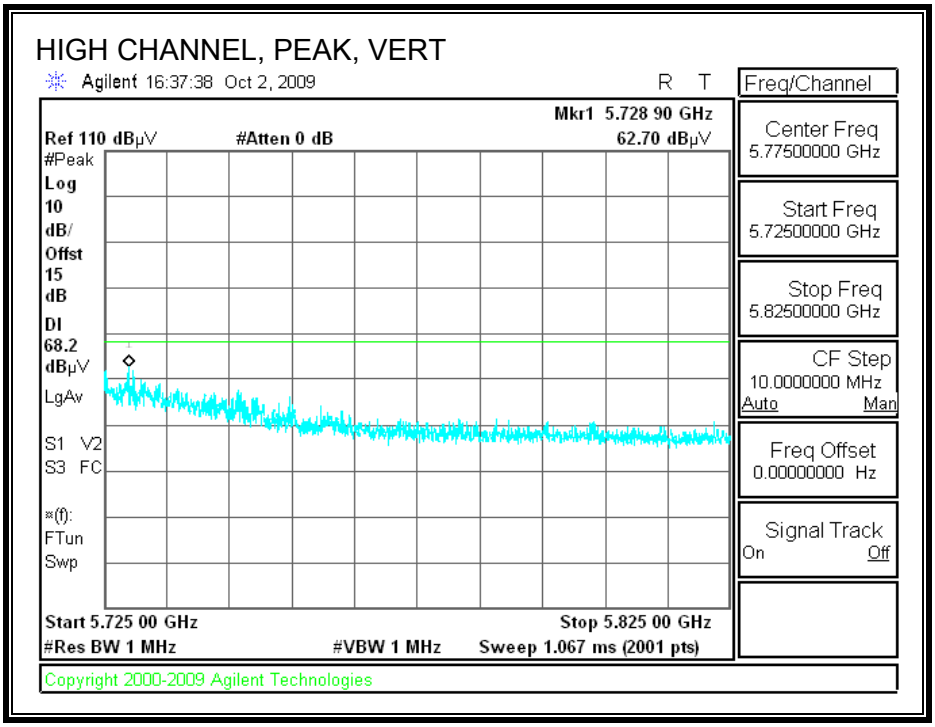


CHAINS ABC

AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS – HIGH CHANNEL, CHAINS ABC

High Frequency Measurement
Compliance Certification Services, Fremont 3m Chamber

Test Engr: Vien Tran
Date: 09/17/09
Project #: 09U12795
Company: Intel
EUT Description: Module 802.11abgn 3x3
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Tx in 5.5GHz Band_HT40 Mode_3x3_Low Channel_Chains ABC

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

f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
HT40_3x3_Chains ABC_5510MHz															
11.020	3.0	32.7	37.6	9.2	-32.6	0.0	0.7	47.7	74.0	-26.3	V	P	99.0	26.0	
11.020	3.0	20.6	37.6	9.2	-32.6	0.0	0.7	35.6	54.0	-18.4	V	A	99.0	26.0	
11.020	3.0	32.4	37.6	9.2	-32.6	0.0	0.7	47.4	74.0	-26.6	H	P	99.0	59.0	
11.020	3.0	20.6	37.6	9.2	-32.6	0.0	0.7	35.6	54.0	-18.4	H	A	99.0	59.0	

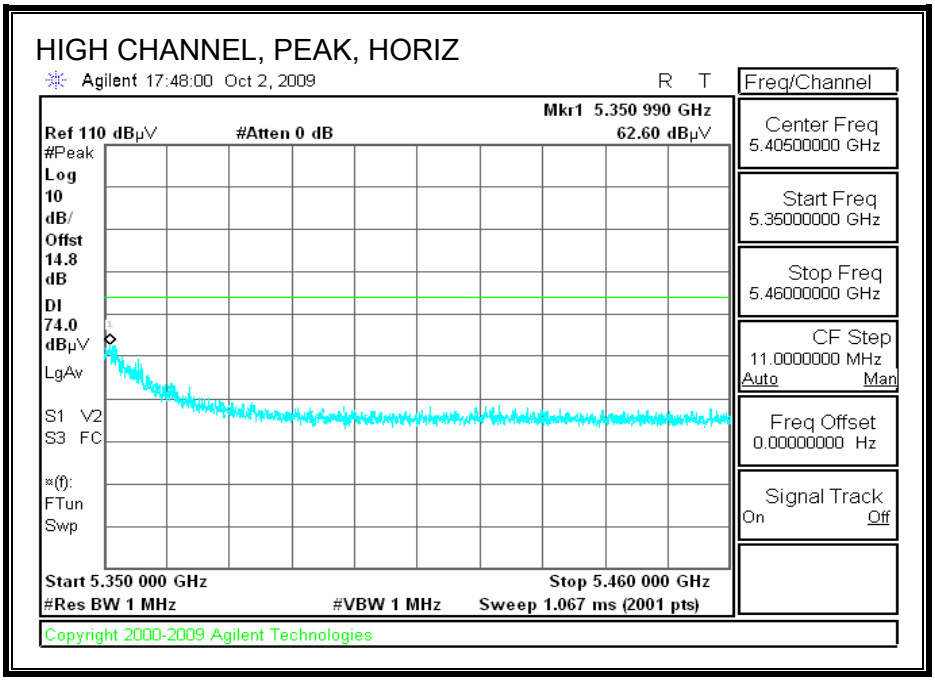
Rev. 4.1.2.7
Note: No other emissions were detected above the system noise floor.

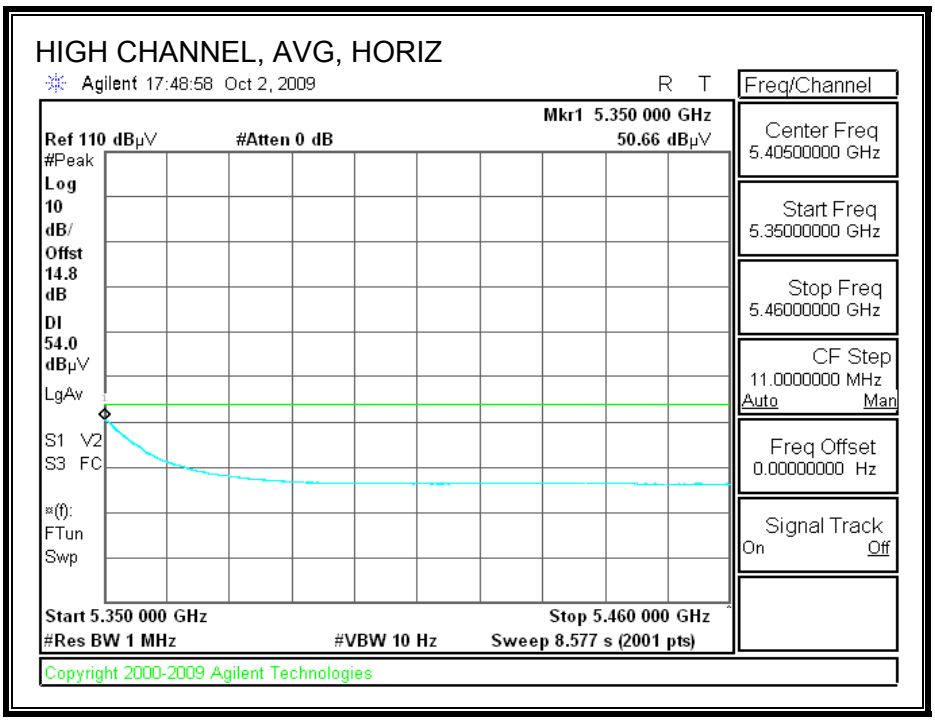
WNC ANTENNA – Spot Check

8.2.16. 802.11n HT40 MODE IN THE UPPER 5.3 GHz BAND

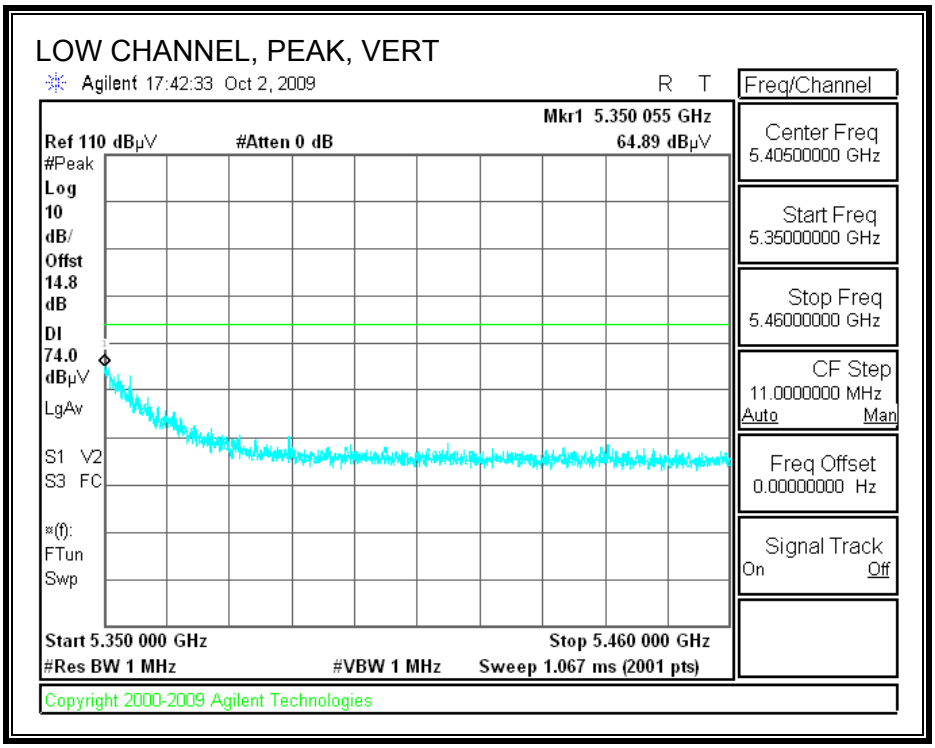
CHAIN C

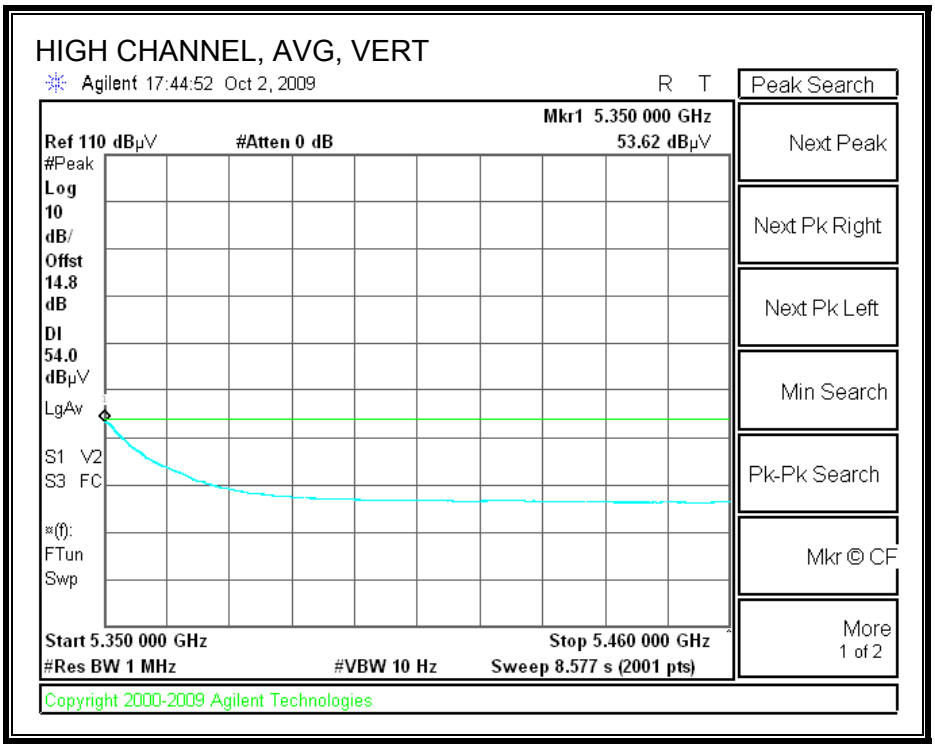
AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)

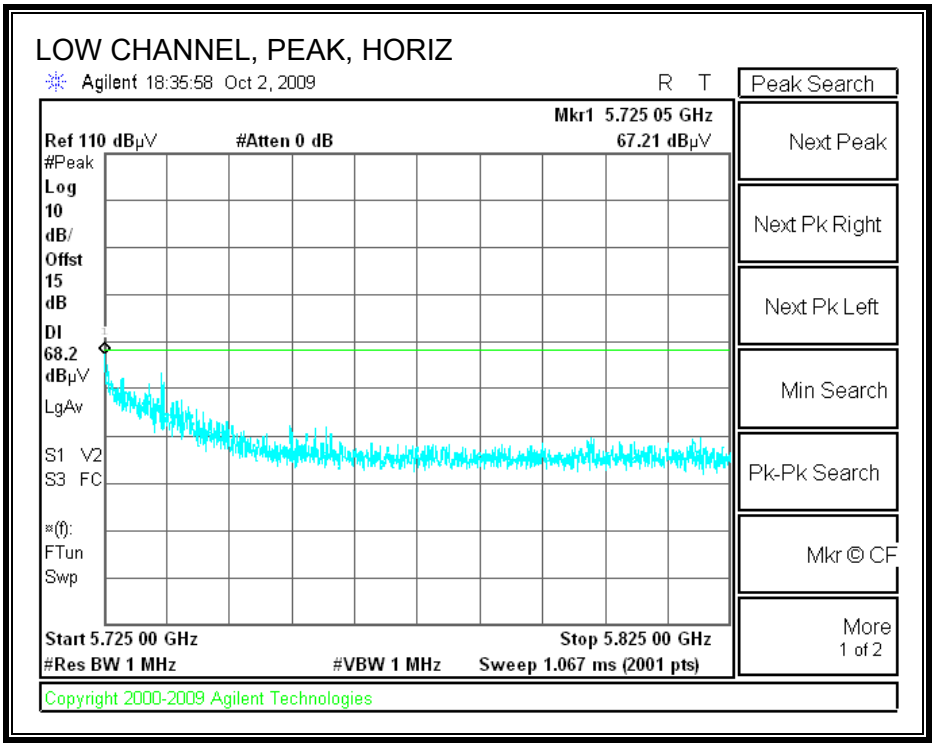




8.2.17. 802.11n HT20 MODE IN THE UPPER 5.6 GHz BAND

CHAIN C

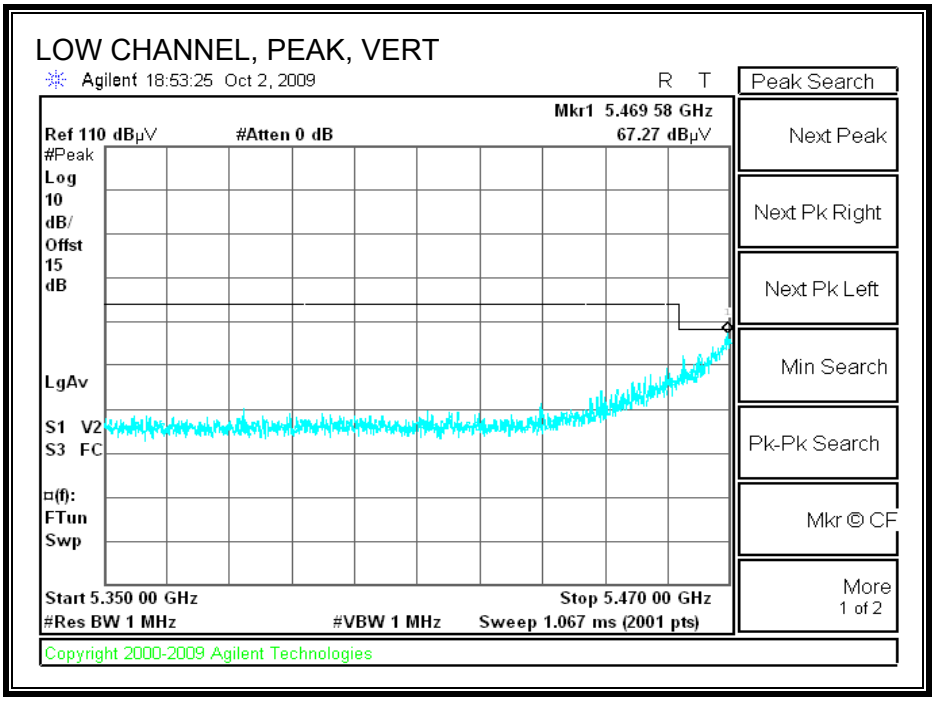
AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

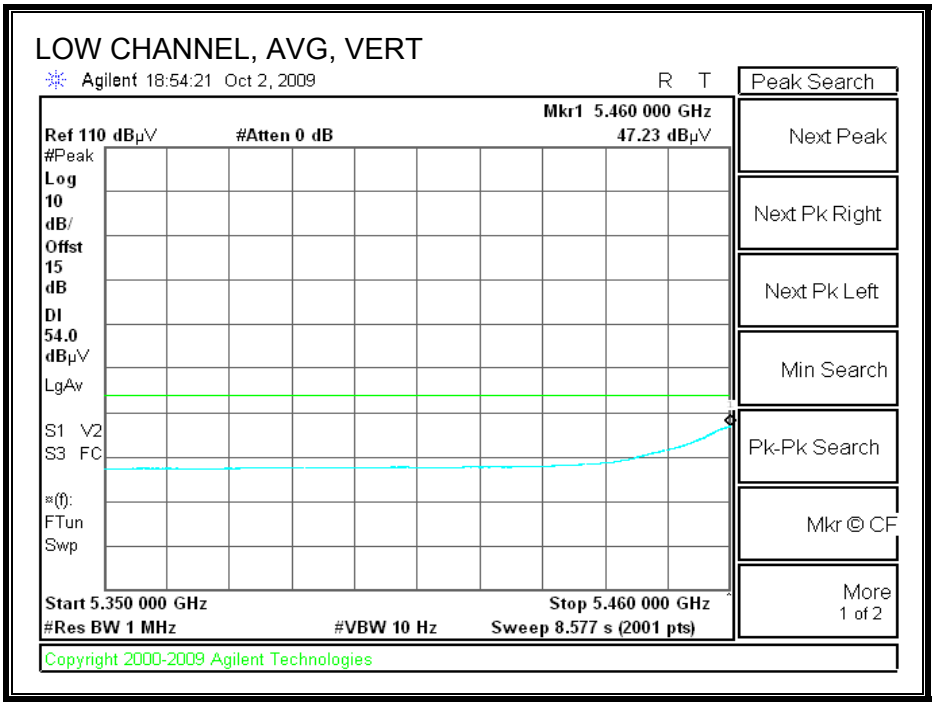


8.2.18. 802.11n HT40 MODE IN THE UPPER 5.6 GHz BAND

CHAIN C

AUTHORIZED BANDEDGE (LOW CHANNEL, VERTICAL)





8.3. RECEIVER ABOVE 1 GHz

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Vien Tran
Date: 09/18/09
Project #: 09U12795
Company: Intel
EUT Descriptio Module 802.11abgn 3x3
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Rx in 5GHz Band_Worst-Case

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.209

Hi Frequency Cables

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

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

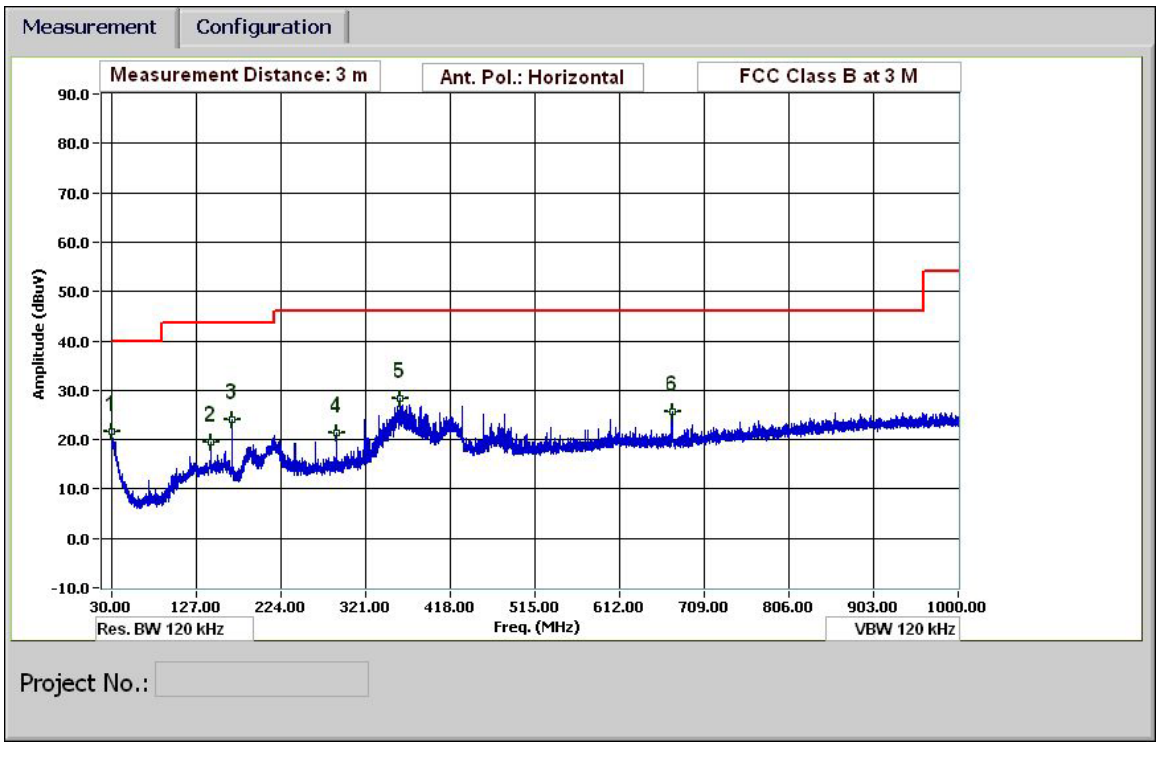
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
5 GHz Band_ACON Antenna															
1.440	3.0	48.9	31.6	25.9	2.9	-37.7	0.0	0.0	40.1	22.8	74	54	-33.9	-31.2	V
1.760	3.0	52.8	33.1	27.0	3.2	-37.2	0.0	0.0	45.8	26.1	74	54	-28.2	-27.9	V
2.133	3.0	46.1	30.1	27.9	3.6	-36.7	0.0	0.0	40.9	24.9	74	54	-33.1	-29.1	V
2.400	3.0	46.9	29.2	28.0	3.8	-36.3	0.0	0.0	42.5	24.8	74	54	-31.5	-29.2	V
2.493	3.0	46.2	30.2	28.3	3.9	-36.3	0.0	0.0	42.2	26.2	74	54	-31.8	-27.8	V
1.440	3.0	55.5	34.6	25.9	2.9	-37.7	0.0	0.0	46.7	25.8	74	54	-27.3	-28.2	H
2.133	3.0	47.6	31.8	27.9	3.6	-36.7	0.0	0.0	42.4	26.6	74	54	-31.6	-27.4	H
2.400	3.0	48.9	30.3	28.0	3.8	-36.3	0.0	0.0	44.5	25.9	74	54	-29.5	-28.1	H
2.493	3.0	47.3	30.5	28.3	3.9	-36.3	0.0	0.0	43.3	26.5	74	54	-30.7	-27.5	H

No other emission were detected above system noise floor

8.4. WORST-CASE BELOW 1 GHz

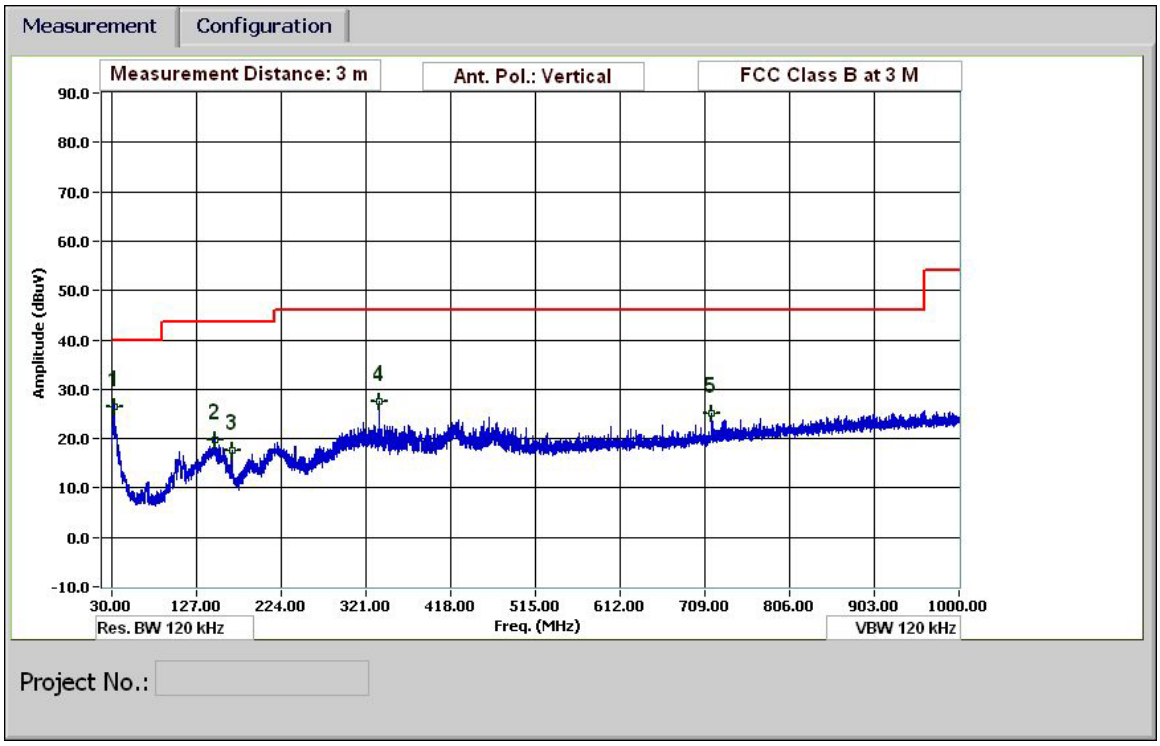
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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

VERTICAL PLOT



HORIZONTAL & VERTICAL DATA

30-1000MHz Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Vien Tran
Date: 09/17/09
Project #: 09U12795
Company: Intel
EUT Description: Module 802.11abgn 3x3_with ACON Antenna
EUT M/N: 633ANHMW
Test Target: FCC B
Mode Oper: Tx in 5 GHz Band_Worst-Case

f	Measurement Frequency	Amp	Preamp Gain	Margin
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	
Read	Analyzer Reading	Filter	Filter Insert Loss	
AF	Antenna Factor	Corr.	Calculated Field Strength	
CL	Cable Loss	Limit	Field Strength Limit	

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filter dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Notes
Horizontal											
30.120	3.0	29.7	19.9	0.5	28.4	0.0	0.0	21.7	40.0	-18.3	
144.005	3.0	33.4	12.9	1.0	27.9	0.0	0.0	19.5	43.5	-24.0	
168.006	3.0	38.9	11.6	1.1	27.6	0.0	0.0	23.9	43.5	-19.6	
288.011	3.0	34.1	13.1	1.4	27.4	0.0	0.0	21.3	46.0	-24.7	
360.374	3.0	40.1	14.4	1.6	27.8	0.0	0.0	28.3	46.0	-17.7	
Vertical											
32.400	3.0	35.6	18.8	0.5	28.4	0.0	0.0	26.5	40.0	-13.5	
147.485	3.0	33.9	12.8	1.0	27.8	0.0	0.0	19.9	43.5	-23.6	
168.006	3.0	32.6	11.6	1.1	27.6	0.0	0.0	17.7	43.5	-25.8	
336.013	3.0	39.5	14.0	1.6	27.6	0.0	0.0	27.5	46.0	-18.5	
716.668	3.0	31.9	19.3	2.4	28.5	0.0	0.0	25.1	46.0	-20.9	
672.026	3.0	33.0	18.8	2.3	28.5	0.0	0.0	25.6	46.0	-20.4	

Rev. 1.27.09
Note: No other emissions were detected above the system noise floor.

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

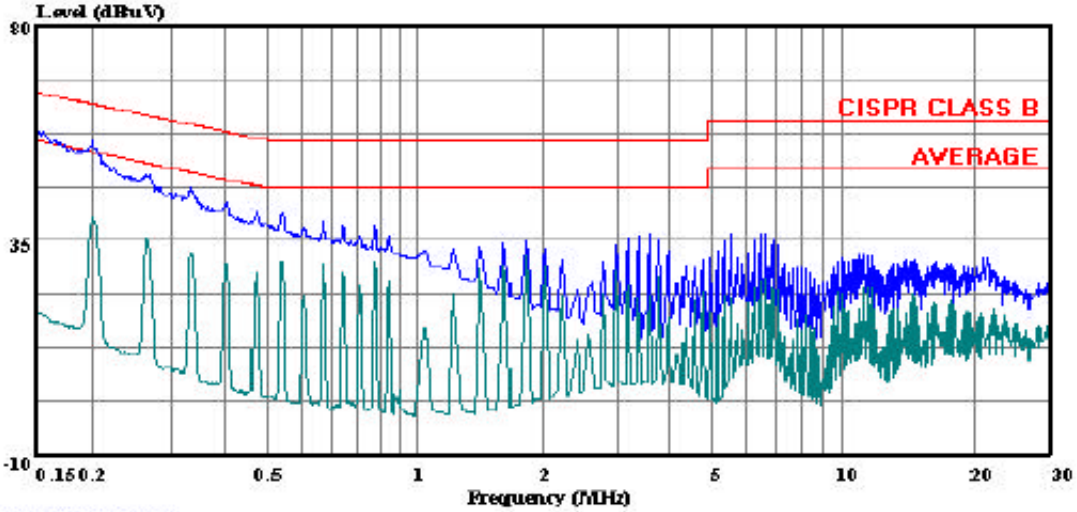
6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	FCC_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.20	54.23	--	39.10	0.00	63.45	53.45	-9.22	-14.35	L1
0.54	40.67	--	30.33	0.00	56.00	46.00	-15.33	-15.67	L1
5.90	36.49	--	33.18	0.00	60.00	50.00	-23.51	-16.82	L1
0.20	53.12	--	35.19	0.00	63.45	53.45	-10.33	-18.26	L2
0.54	38.90	--	26.91	0.00	56.00	46.00	-17.10	-19.09	L2
5.90	44.26	--	34.48	0.00	60.00	50.00	-15.74	-15.52	L2
6 Worst Data									

LINE 1 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 7 File#: LC 09U12975.EMI Date: 09-09-2009 Time: 16:48:43



(Line Conduction)

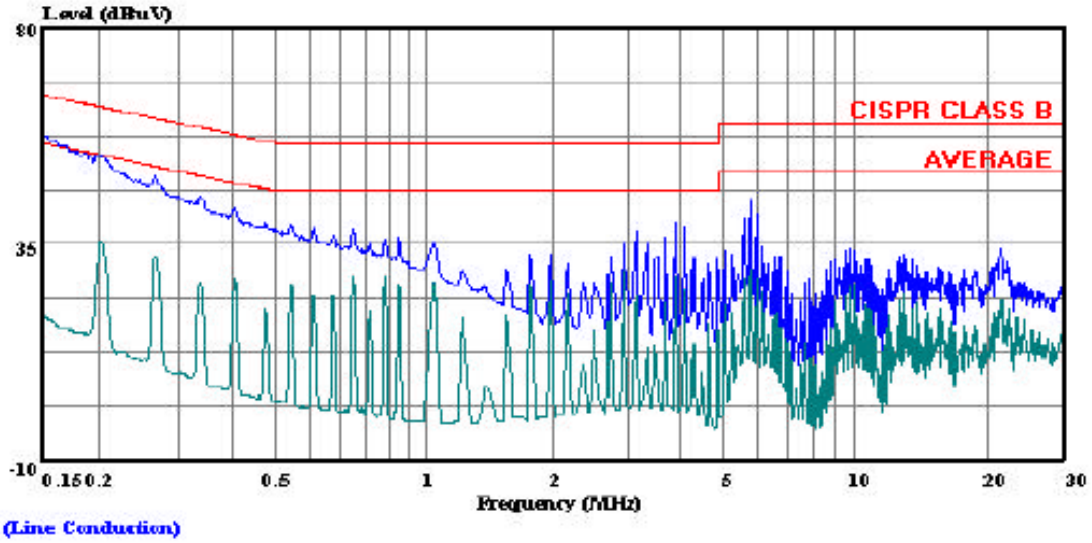
Trace: 5 Ref Trace:

Condition: CISPR CLASS B
Test Operator: : Vien Tran
Project #: : 09U12795
Company: : Intel
EUT Description:: Module 802.11abgn 3x3
Mode: : TX Worst Case
Target: : FCC Class B
Voltage: : 115VAC/60Hz
: L1: Peak (Blue) , Average (Green)

LINE 2 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 14 File#: LC 09U12975.EMI Date: 09-09-2009 Time: 17:04:42



Trace: 12 Ref Trace:

Condition: CISPR CLASS B
Test Operator: : Vien Tran
Project #: : 09U12795
Company: : Intel
EUT Description:: Module 802.11abgn 3x3
Mode: : TX Worst Case
Target: : FCC Class B
Voltage: : 115VAC/60Hz
: L2: Peak (Blue) , Average (Green)