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

CERTIFICATION TEST REPORT

FOR

A tablet (PAD) computer, contains 802.11a/b/g/n transceiver (radio module)

FCC MODEL NUMBER: TP00045A1
IC MODEL NUMBER: TP00045A1IT

FCC ID: PU5-TP00045A1IT
IC: 4182A-TP00045A1IT

REPORT NUMBER: 12U14545-2, Revision B

ISSUE DATE: NOVEMBER 26, 2012

Prepared for
WINSTRON CORPORATION
21F., NO. 88, SEC. 1 HSINTAI 5TH RD., HSICHIH DIST.
NEW TAIPEI CITY 22181, TAIWAN (R.O.C.)

Prepared by
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	10/04/12	Initial Issue	T. LEE
A	10/26/12	Updated IC model number	A. Zaffar
B	11/26/12	Add 5.2/5.3/5.6GHz Chain B and Chain A+B band edge and harmonic spurious.	C. Pang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: WISTRON CORPORATION
21F., No. 88, Sec.1, Hsintai 5th Rd., Hsichih Dist.
New Taipei City 22181, Taiwan (R.O.C.)

EUT DESCRIPTION: A tablet (PAD) computer, contains 802.11a/b/g/n transceiver (radio module)

FCC MODEL NUMBER: TP00045A1
IC MODEL NUMBER: TP00045A1IT

SERIAL NUMBER: R9-R1PMH 12/07

DATE TESTED: AUGUST 24, 2012 – September 27 and November 17-21, 2012

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

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

Approved & Released For UL CCS By: Tested By:

TIM LEE
EMC SUPERVISOR
UL CCS

OLIVER SU
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, 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 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 The EUT is a Tablet (PAD) computer, contains 802.11a/b/g/n transceiver (radio module).

The radio module (Model: 62205ANSFF) is manufactured by Intel.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Band	Frequency (MHz)	Mode	Channel	Measured Output Power (dBm)
5.2 G	5180	11a	36	15.1
	5200	11a	40	15.5
	5240	11a	48	15.8
	5180	11n HT20 (1x1)	36	15.5
	5200	11n HT20 (1x1)	40	15.0
	5240	11n HT20 (1x1)	48	15.0
	5180	11n HT20 (2x2)	36	13.0/13.0
	5200	11n HT20 (2x2)	40	13.0/13.0
	5240	11n HT20 (2x2)	48	13.1/13.1
	5190	11n HT40 (1x1)	38	10.5
	5230	11n HT40 (1x1)	46	10.5
	5190	11n HT40 (2x2)	38	9.1/9.1
	5230	11n HT40 (2x2)	46	9.1/9.1
5.3 G	5260	11a	52	15.5
	5300	11a	60	14.9
	5320	11a	64	14.0
	5260	11n HT20 (1x1)	52	15.5
	5300	11n HT20 (1x1)	60	15.5
	5320	11n HT20 (1x1)	64	14.0
	5260	11n HT20 (2x2)	52	13.2/13.2
	5300	11n HT20 (2x2)	60	13.1/13.2
	5320	11n HT20 (2x2)	64	13.1/13.2
	5270	11n HT40 (1x1)	54	11.1
	5310	11n HT40 (1x1)	62	11.1
	5270	11n HT40 (2x2)	54	9.5/9.6
	5310	11n HT40 (2x2)	62	9.5/9.5

5.5 G	5500	11a	100	15.1
	5680	11a	136	16.0
	5700	11a	140	14.2
	5500	11n HT20 (1x1)	100	15.1
	5600	11n HT20 (1x1)	120	16.0
	5680	11n HT20 (1x1)	136	15.5
	5700	11n HT20 (1x1)	140	14.0
	5500	11n HT20 (2x2)	100	13.0/13.2
	5600	11n HT20 (2x2)	120	13.1/13.1
	5700	11n HT20 (2x2)	140	13.5/13.5
	5510	11n HT40 (1x1)	102	13.6
	5590	11n HT40 (1x1)	118	13.5
	5670	11n HT40 (1x1)	134	13.5
	5510	11n HT40 (2x2)	102	12.6/12.6
	5590	11n HT40 (2x2)	118	13.1/13.0
	5670	11n HT40 (2x2)	134	13.0/13.1

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

WNC Antenna Assembly Summary:

1A Antenna Part Number	1B Manufacture	1C Antenna Type	Frequency band (MHz)	Peak gain with cable loss (dBi)
Main Antenna (P/N:25.90AFI.001)	Wistron Neweb Corporation	PIFA	**2.4GHz band**	**-1.88**
			5 GHz band	**-2.33**
Auxiliary antenna (P/N:25.90AFJ.001)	Wistron Neweb Corporation	PIFA	**2.4GHz band**	**0.58**
			5 GHz band	**0.20**

WhaYU Antenna Assembly Summary:

1A Antenna Part Number	1B Manufacture	1C Antenna Type	Frequency band (MHz)	Peak gain with cable loss (dBi)
Main Antenna (P/N:25.90AFI.011)	WHAYU Industrial Co,.Ltd	PIFA	**2.4GHz band**	**-1.95**
			5 GHz band	**-2.61**
Auxiliary antenna (P/N:25.90AFJ.011)	WHAYU Industrial Co,.Ltd	PIFA	**2.4GHz band**	**0.38**
			5 GHz band	**0.08**

5.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was DRTU, rev. 1.5.5-0427.

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.

Only the radiated tests were conducted. Conducted test data were leveraged from the original report Sporton International, Report number FR&CR1D1211AA.

The entire radiated suite of testing was conducted on Chain A and MIMO. Preliminary testing on Harmonic and Spurious indicates Chain A testing is representative for Chain B. Bandedge testing was also conducted on Chain B on worst case channels and modes.

Worst-case measured data rates were:

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

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC-DC Adapter	LENOVO	ADP-65FD A	69PW26W002V	DoC

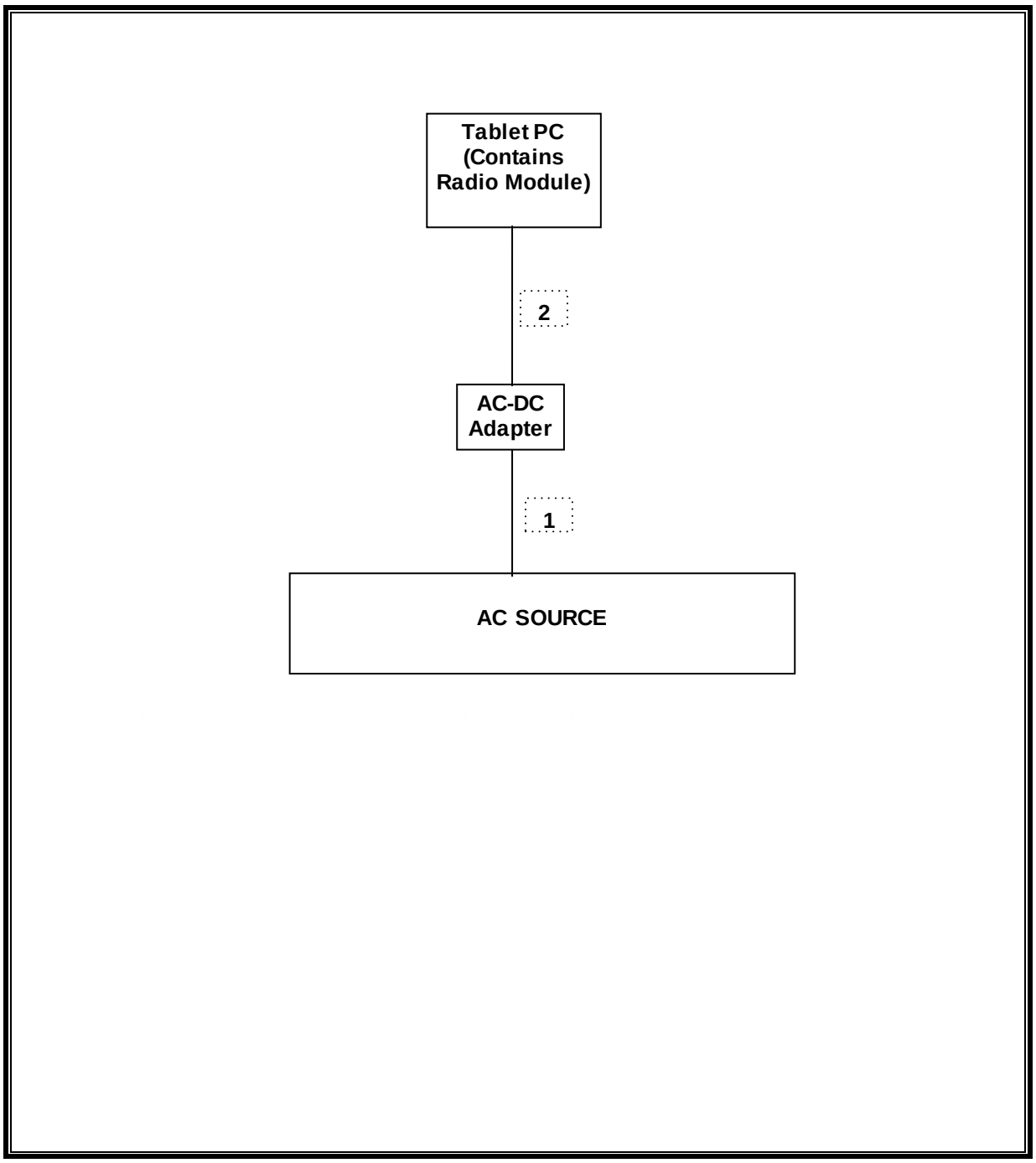
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	US	Un-shielded	1.8	
2	DC	1	DC	Un-shielded	1.8	A ferrite core is at output end

TEST SETUP

Test software exercised the radio card during the tests.

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, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C01171	01/26/12	01/26/13
Antenna, Horn, 18 GHz	EMCO	3115	C00872	09/20/11	09/20/12
Antenna, Horn, 26.5 GHz	ARA	SWH-28	C01015	04/23/12	04/23/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00558	11/11/11	11/11/12
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	11/11/11	11/11/12
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C01016	08/14/12	08/14/13
Antenna, Horn, 18 GHz	EMCO	3115	C00945	10/06/11	10/06/12
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	11/11/11	11/11/12
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	11/11/11	11/11/12
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C01011	03/23/12	03/23/13
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/12	10/25/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	12/30/11	12/01/12
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	10/22/12	10/22/13
Antenna, Horn, 40 GHz	ARA	MWH-2640/B	C00981	06/14/11	06/14/13
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	08/02/11	08/02/13
Power Meter	Agilent / HP	437B	s/n 3125U	07/25/12	07/25/13
Average Power Sensor	Agilent / HP	8481A	s/n 1926A	07/26/12	07/26/13
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	02/16/12	02/16/13
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/18/12	08/18/13
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01069	08/18/12	08/18/13

Note: Horns C00872 and C00C00945 were used before its cal due date. Amplifiers CC00558, C00749, C00885, and C01052 were used before its cal due date.

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11a 20 MHz	2.072	2.096	0.989	98.9%	0.05	0.483
802.11n HT20	1.928	1.960	0.984	98.4%	0.07	0.519
802.11n HT40	0.944	0.974	0.969	96.9%	0.14	1.059

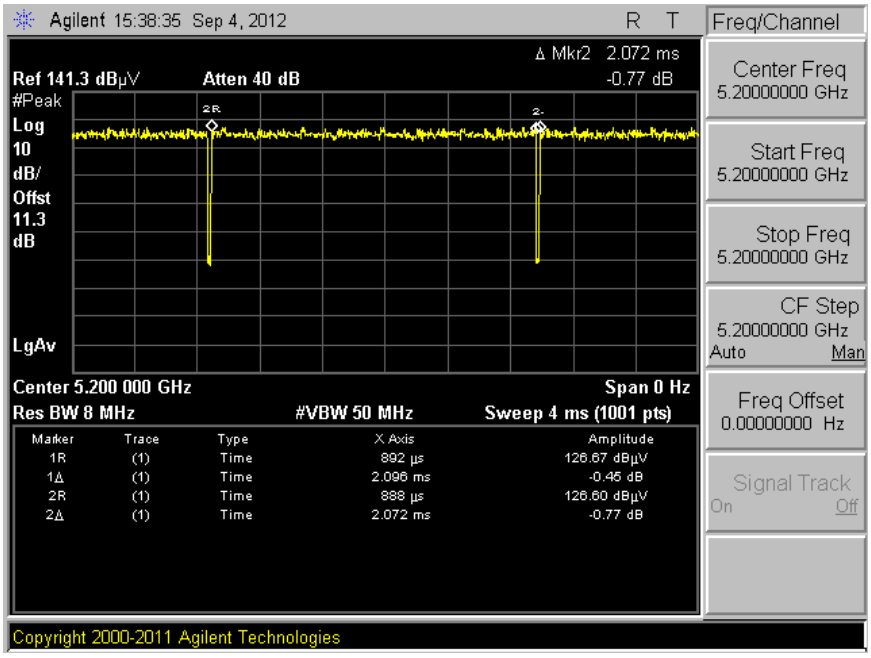
7.2. MEASUREMENT METHOD FOR AVERAGE SPURIOUS EMISSIONS ABOVE 1 GHz

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

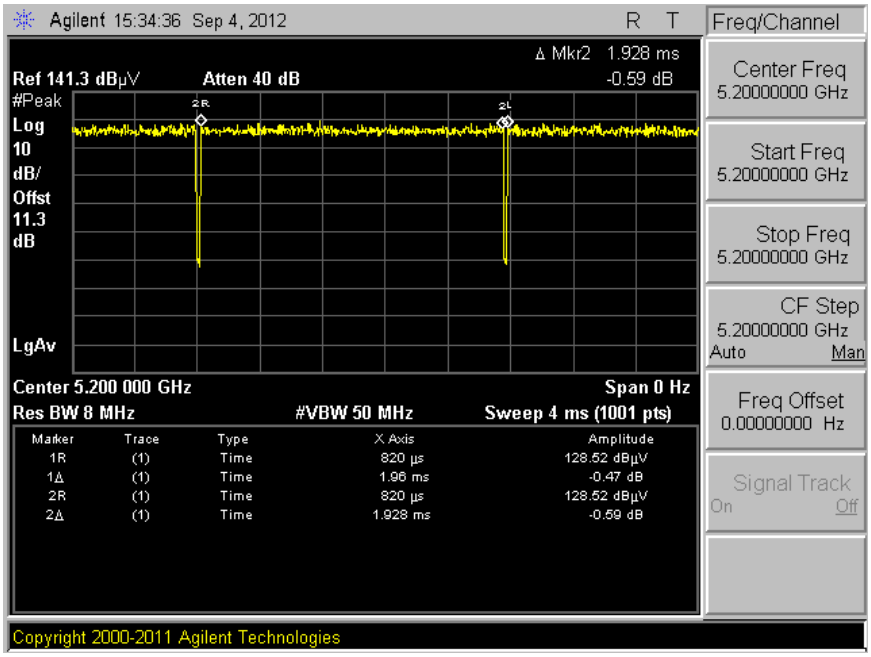
The Duty Cycle is less than 98% and consistent, KDB 789033 Method VB with Power RMS Averaging is used.

7.2.1. DUTY CYCLE PLOTS

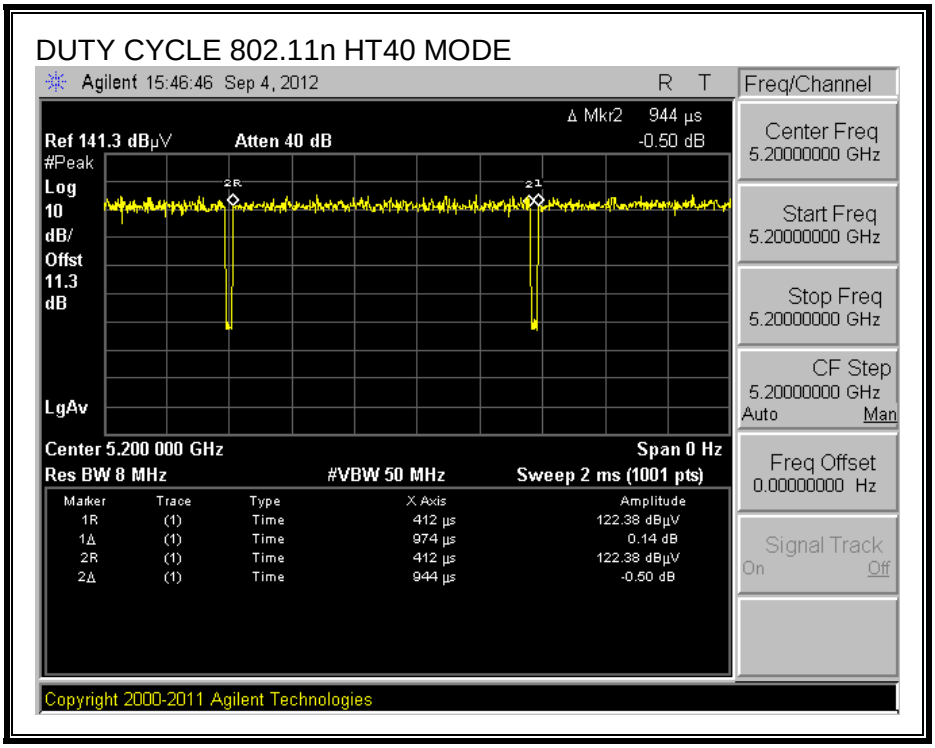
DUTY CYCLE 802.11a MODE



DUTY CYCLE 802.11n HT20 MODE



DUTY CYCLE 802.11n HT40 MODE



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.

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

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

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

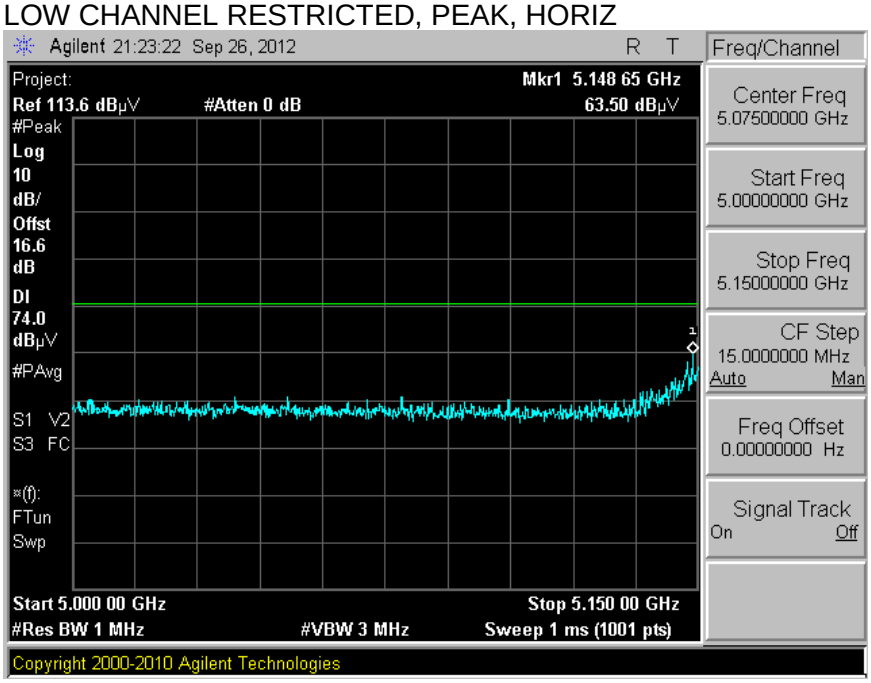
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

8.2. TRANSMITTER ABOVE 1 GHz

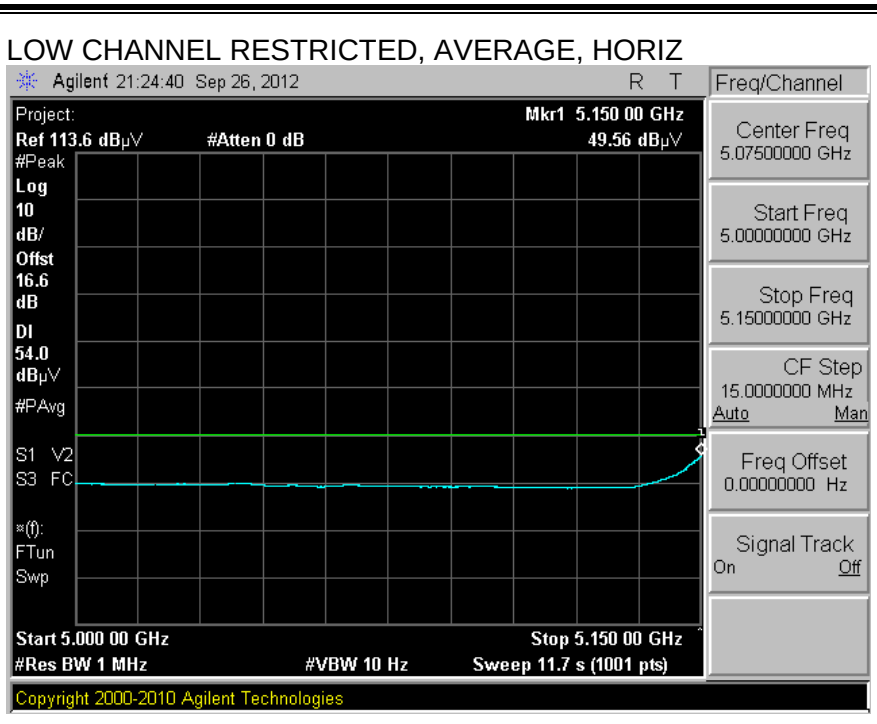
8.2.1. TX ABOVE 1 GHz 802.11a IN THE 5.2 GHz BAND, CHAIN A

RESTRICTED BANDEDGE (LOW CHANNEL)

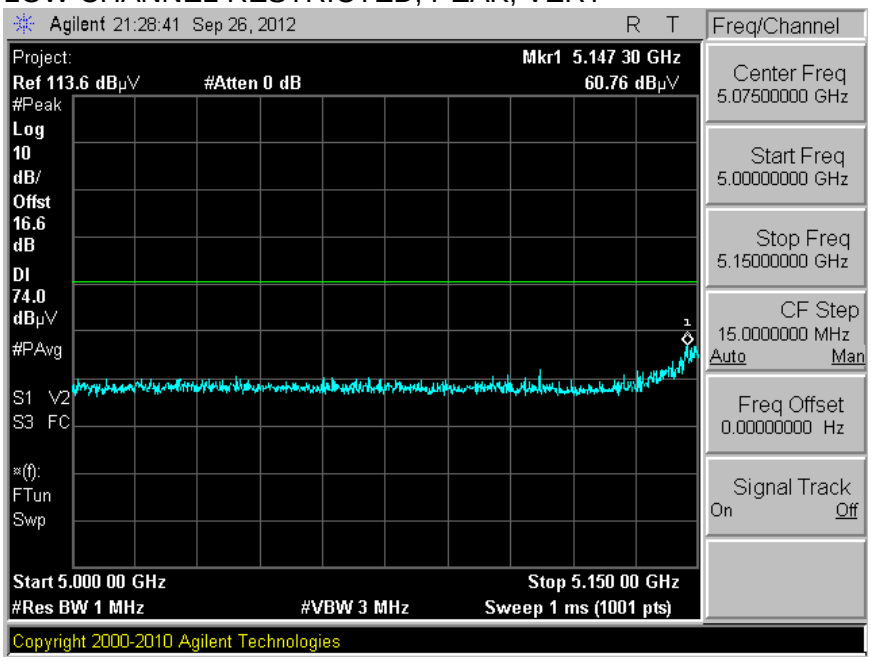
LOW CHANNEL RESTRICTED, PEAK, HORIZ



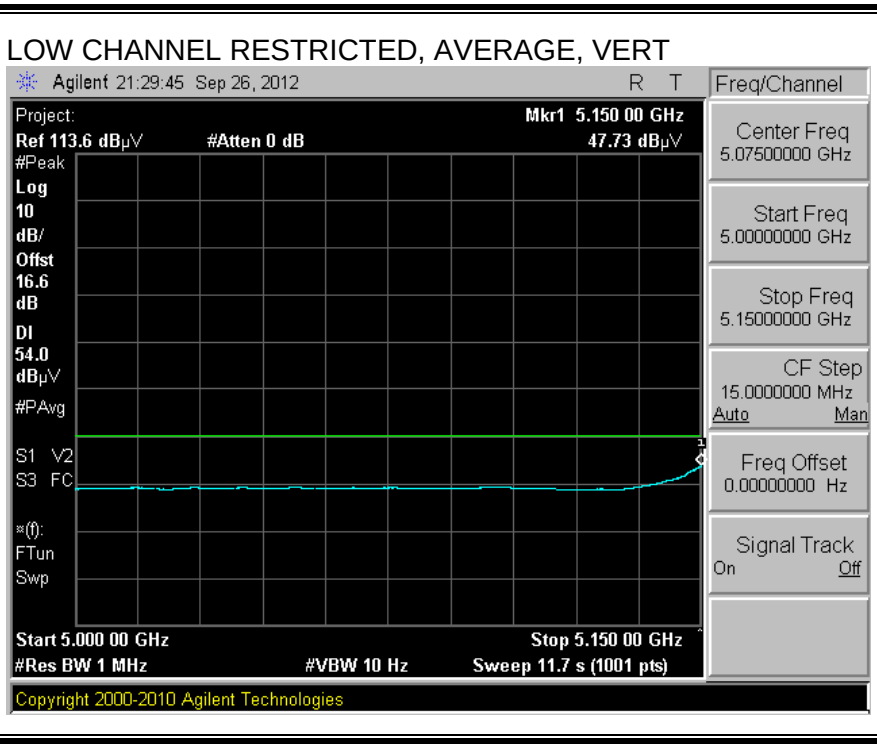
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



LOW CHANNEL RESTRICTED, PEAK, VERT



LOW CHANNEL RESTRICTED, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

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

Company:	WISTRON CORPORATION
Project #:	12U14545
Date:	9/7/2012
Test Engineer:	Thanh Nguyen
Configuration:	EUT at worst position
Mode:	Transmit

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931		T125; ARA 18-26GHz; S/N:1007	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		R_002

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

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch 5180MHz															
10.36	3.0	39.25	26.34	38.2	9.5	-35.8	0.0	0.0	51.1	38.2	74	54	-22.9	-15.8	Noise floor/V
10.36	3.0	39.45	26.22	38.2	9.5	-35.8	0.0	0.0	51.3	38.1	74	54	-22.7	-15.9	Noise floor/H
Mid Channel 5200MHz															
10.40	3.0	38.54	26.75	38.2	9.5	-35.8	0.0	0.0	50.5	38.7	74	54	-23.5	-15.3	Noise floor/V
10.40	3.0	39.42	26.52	38.2	9.5	-35.8	0.0	0.0	51.4	38.5	74	54	-22.6	-15.5	Noise floor/H
High Ch 5240MHz															
10.48	3.0	39.45	26.34	38.2	9.6	-35.8	0.0	0.0	51.5	38.4	74	54	-22.5	-15.6	Noise floor/V
10.48	3.0	40.30	26.24	38.2	9.6	-35.8	0.0	0.0	52.4	38.3	74	54	-21.6	-15.7	Noise floor/H
No other emissions were detected above the systems noise floor															

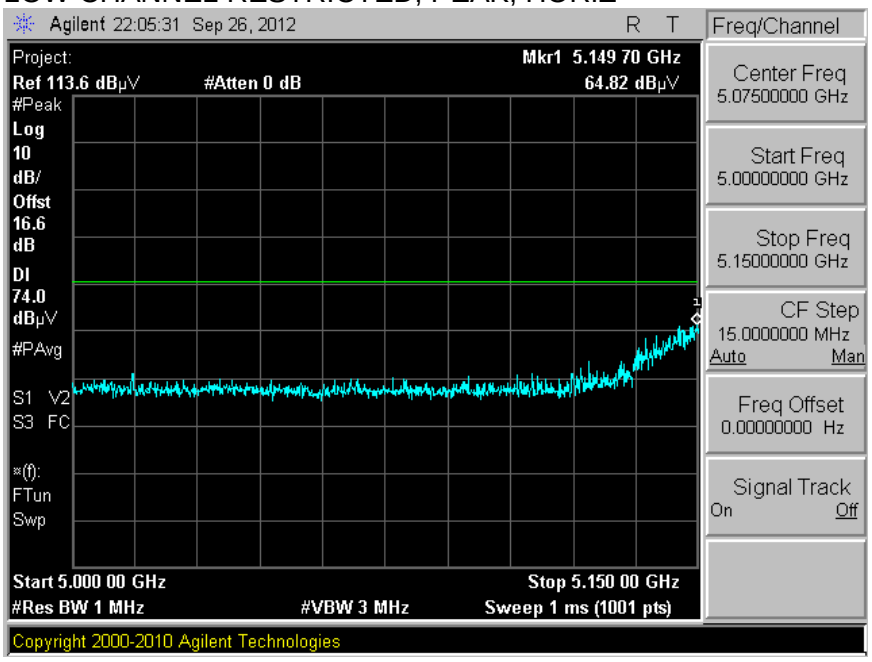
Rev. 10.24.11

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

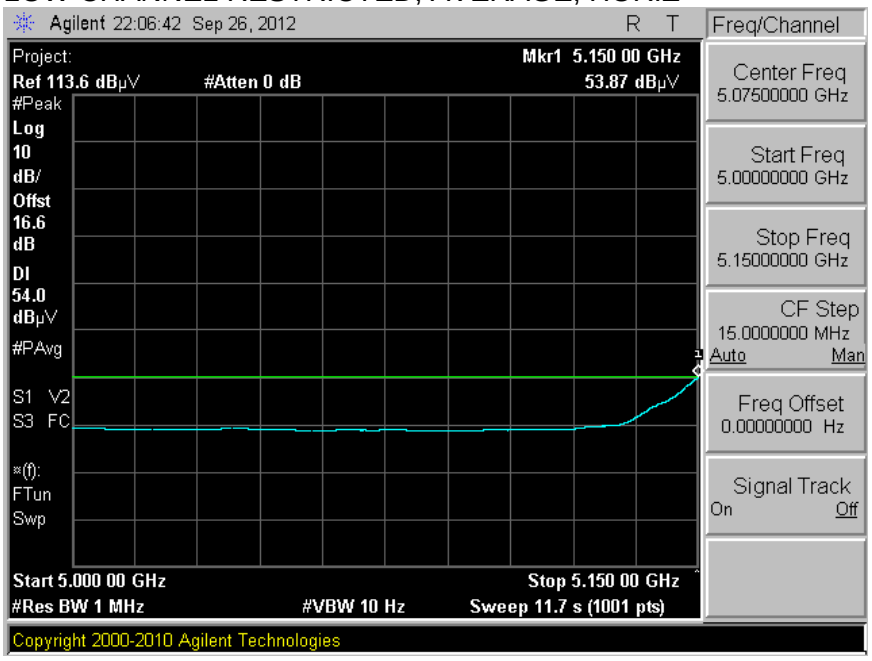
8.2.2. TX ABOVE 1 GHz 802.11n HT20 IN THE 5.2 GHz BAND, CHAIN A

RESTRICTED BANDEDGE (LOW CHANNEL)

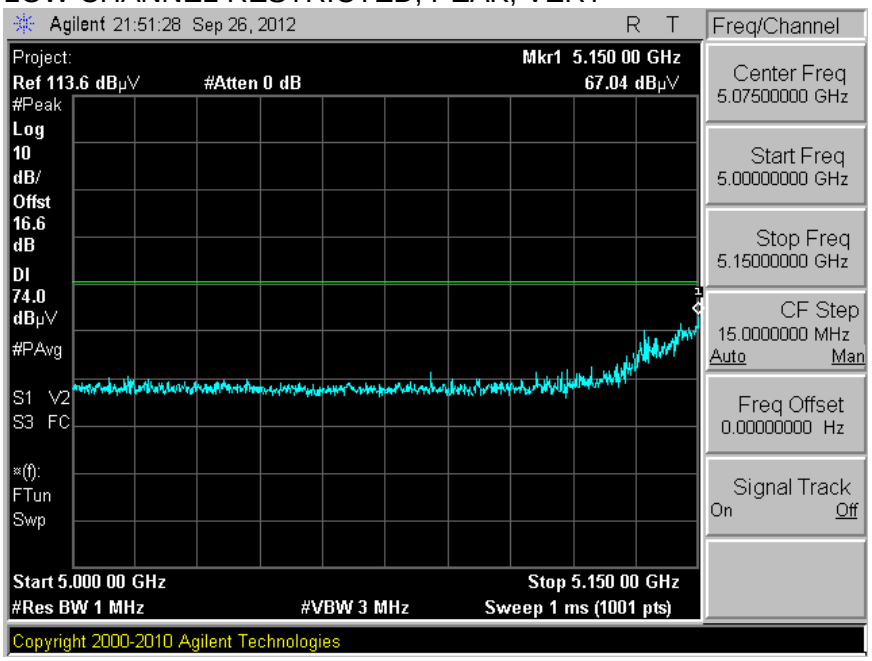
LOW CHANNEL RESTRICTED, PEAK, HORIZ



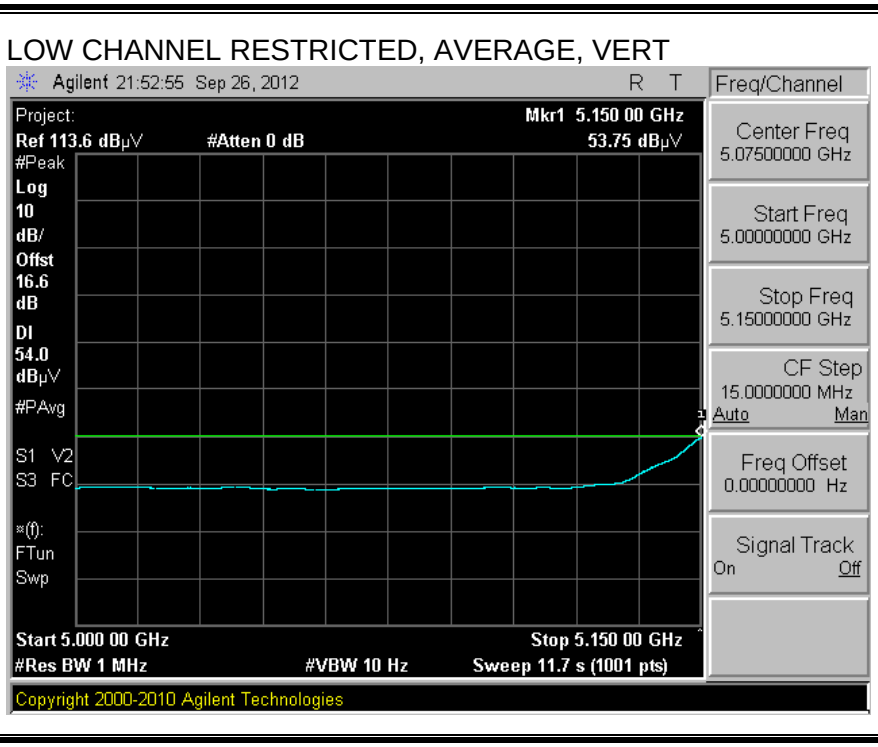
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



LOW CHANNEL RESTRICTED, PEAK, VERT



LOW CHANNEL RESTRICTED, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

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Compliance Certification Services, Fremont 5m Chamber-A

Company:	WISTRON CORPORATION
Project #:	12U14545
Date:	9/7/2012
Test Engineer:	Thanh Nguyen
Configuration:	EUT at worst position
Mode:	Transmit HT20 Mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931		T125; ARA 18-26GHz; S/N:1007	FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter
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Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch 5180MHz															
10.36	3.0	39.42	26.12	38.2	9.5	-35.8	0.0	0.0	51.3	38.0	74	54	-22.7	-16.0	Noise floor/V
10.36	3.0	39.26	26.15	38.2	9.5	-35.8	0.0	0.0	51.1	38.0	74	54	-22.9	-16.0	Noise floor/H
Mid Channel 5200MHz															
10.40	3.0	39.15	25.89	38.2	9.5	-35.8	0.0	0.0	51.1	37.8	74	54	-22.9	-16.2	Noise floor/V
10.40	3.0	39.24	26.13	38.2	9.5	-35.8	0.0	0.0	51.2	38.1	74	54	-22.8	-15.9	Noise floor/H
High Ch 5240MHz															
10.48	3.0	40.25	26.45	38.2	9.6	-35.8	0.0	0.0	52.3	38.5	74	54	-21.7	-15.5	Noise floor/V
10.48	3.0	39.36	26.42	38.2	9.6	-35.8	0.0	0.0	51.4	38.5	74	54	-22.6	-15.5	Noise floor/H
No other emissions were detected above the systems noise floor															

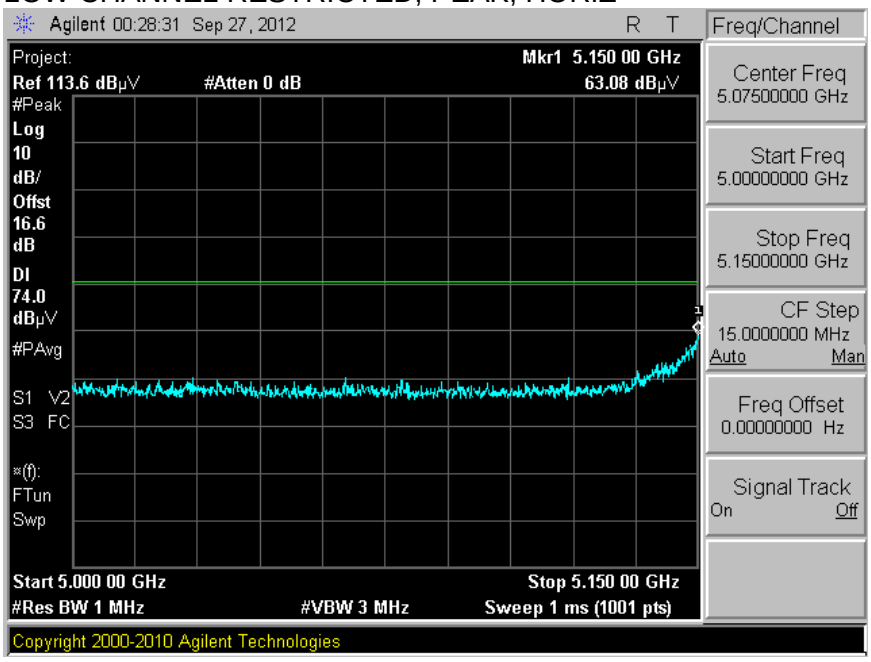
Rev. 10.24.11

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

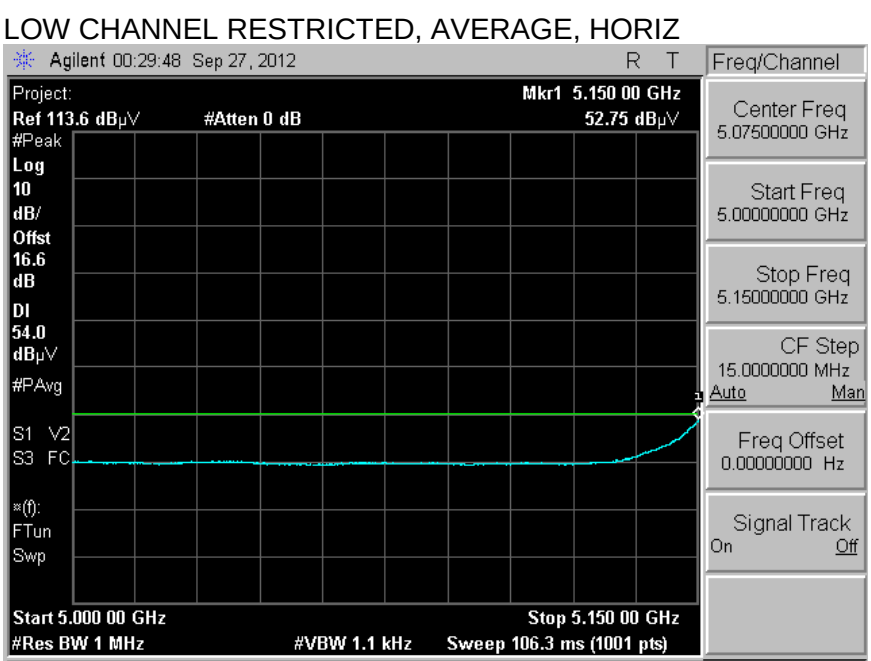
8.2.3. TX ABOVE 1 GHz 802.11n HT40 IN THE 5.2 GHz BAND, CHAIN A

RESTRICTED BANDEDGE (LOW CHANNEL)

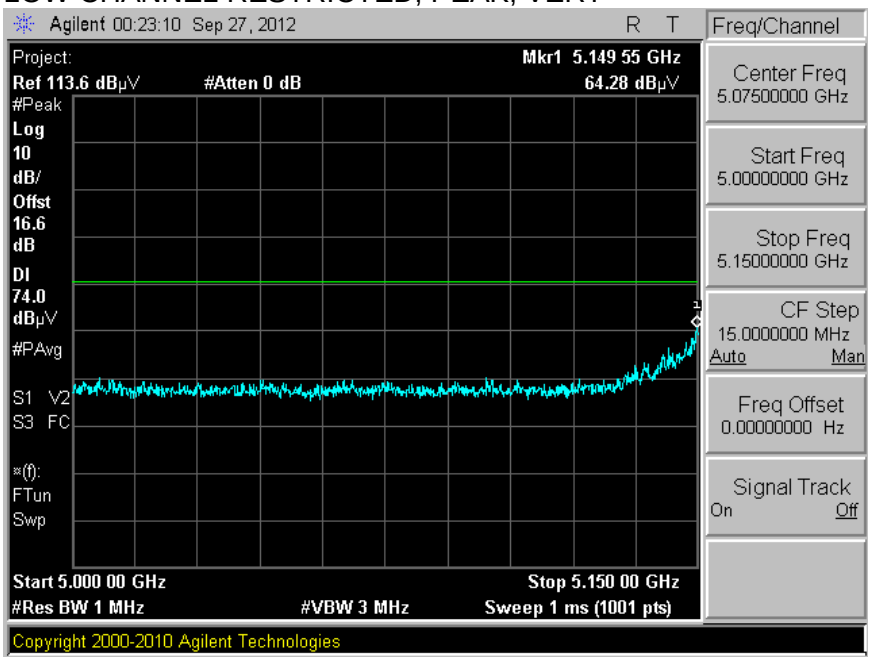
LOW CHANNEL RESTRICTED, PEAK, HORIZ



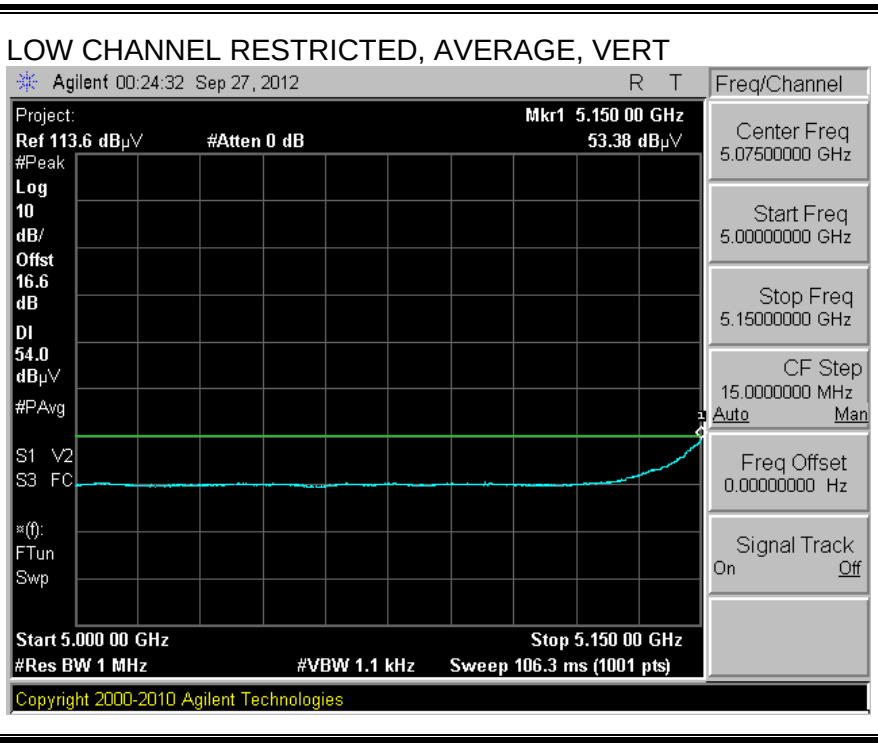
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



LOW CHANNEL RESTRICTED, PEAK, VERT



LOW CHANNEL RESTRICTED, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

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

Company:	WISTRON CORPORATION
Project #:	12U14545
Date:	9/7/2012
Test Engineer:	Thanh Nguyen
Configuration:	EUT at worst position
Mode:	Transmit HT40 Mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931		T125; ARA 18-26GHz; S/N:1007	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		R_002

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

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch 5190MHz															
10.38	3.0	39.69	26.85	38.2	9.5	-35.8	0.0	0.0	51.6	38.8	74	54	-22.4	-15.2	Noise floor/V
10.38	3.0	40.02	26.22	38.2	9.5	-35.8	0.0	0.0	51.9	38.1	74	54	-22.1	-15.9	Noise floor/H
High Ch 5230MHz															
10.46	3.0	40.25	26.45	38.2	9.6	-35.8	0.0	0.0	52.3	38.5	74	54	-21.7	-15.5	Noise floor/V
10.46	3.0	39.36	26.42	38.2	9.6	-35.8	0.0	0.0	51.4	38.5	74	54	-22.6	-15.5	Noise floor/H
No other emissions were detected above the systems noise floor															

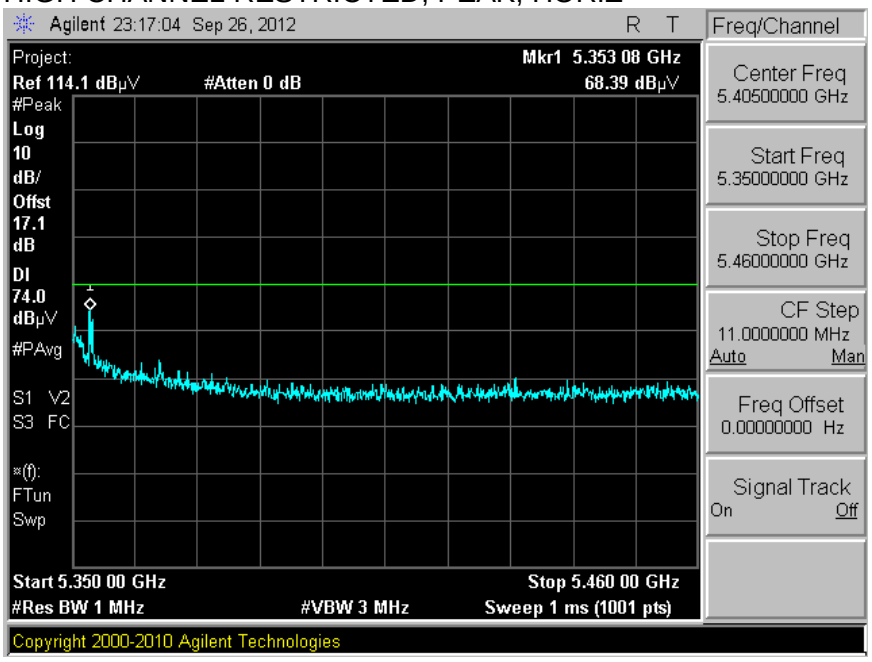
Rev. 10.24.11

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

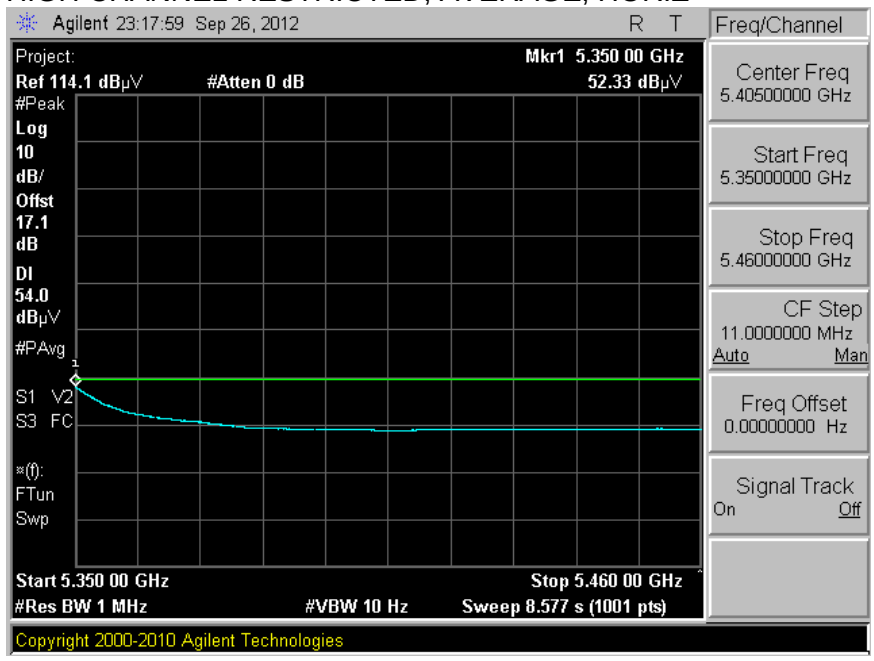
8.2.4. TX ABOVE 1 GHz 802.11a IN THE 5.3 GHz BAND, CHAIN A

RESTRICTED BANDEDGE (HIGH CHANNEL)

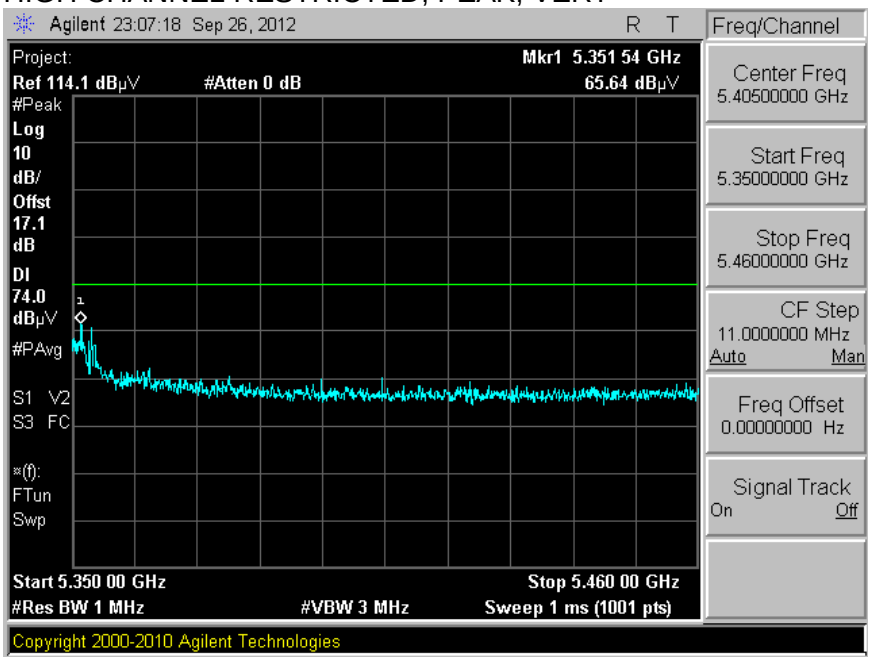
HIGH CHANNEL RESTRICTED, PEAK, HORIZ



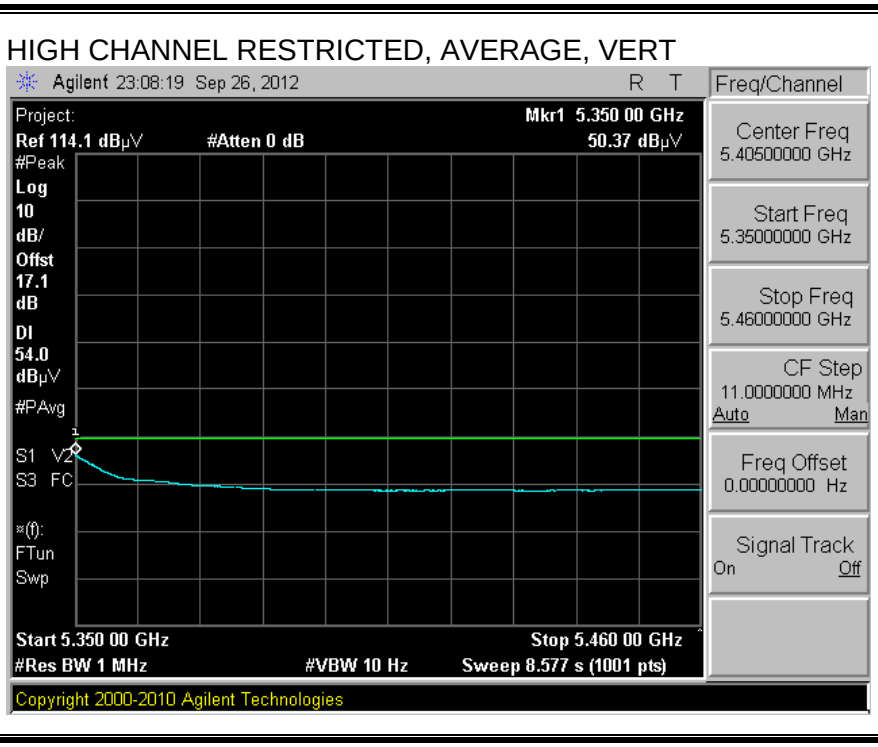
HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

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

Company:	WISTRON CORPORATION
Project #:	12U14545
Date:	9/7/2012
Test Engineer:	Thanh Nguyen
Configuration:	EUT at worst position
Mode:	Transmit a Mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931		T125; ARA 18-26GHz; S/N:1007	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		R_002

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

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch 5260MHz															
10.52	3.0	38.84	25.96	38.3	9.6	-35.8	0.0	0.0	51.0	38.1	74	54	-23.0	-15.9	Noise floor/V
10.52	3.0	38.57	26.10	38.3	9.6	-35.8	0.0	0.0	50.7	38.2	74	54	-23.3	-15.8	Noise floor/H
Mid Channel 5300MHz															
10.60	3.0	38.62	26.25	38.3	9.7	-35.7	0.0	0.0	50.9	38.5	74	54	-23.1	-15.5	Noise floor/V
10.60	3.0	39.12	26.22	38.3	9.7	-35.7	0.0	0.0	51.4	38.5	74	54	-22.6	-15.5	Noise floor/H
High Ch 5320MHz															
10.64	3.0	38.65	26.32	38.3	9.8	-35.7	0.0	0.0	51.0	38.6	74	54	-23.0	-15.4	Noise floor/V
10.64	3.0	39.23	26.32	38.3	9.8	-35.7	0.0	0.0	51.5	38.6	74	54	-22.5	-15.4	Noise floor/H
No other emissions were detected above the systems noise floor															

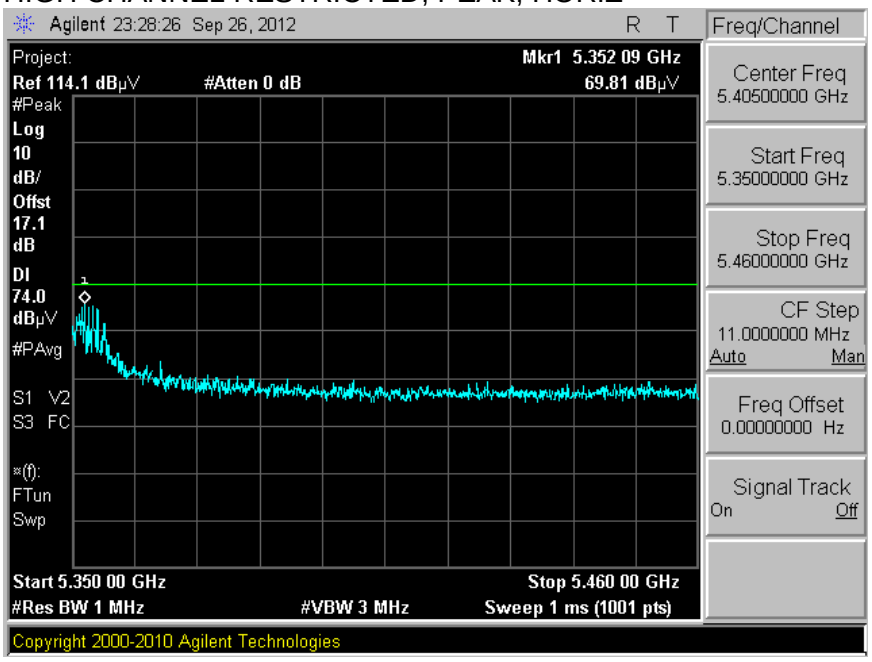
Rev. 10.24.11

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

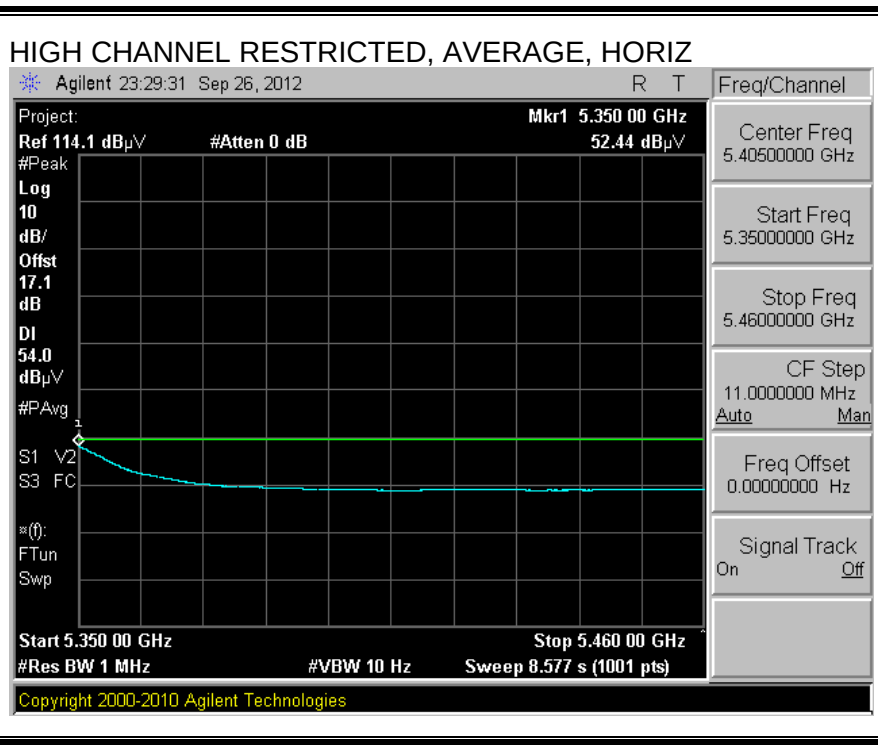
8.2.5. TX ABOVE 1 GHz 802.11n, HT20 IN THE 5.3 GHz BAND, CHAIN A

RESTRICTED BANDEDGE (HIGH CHANNEL)

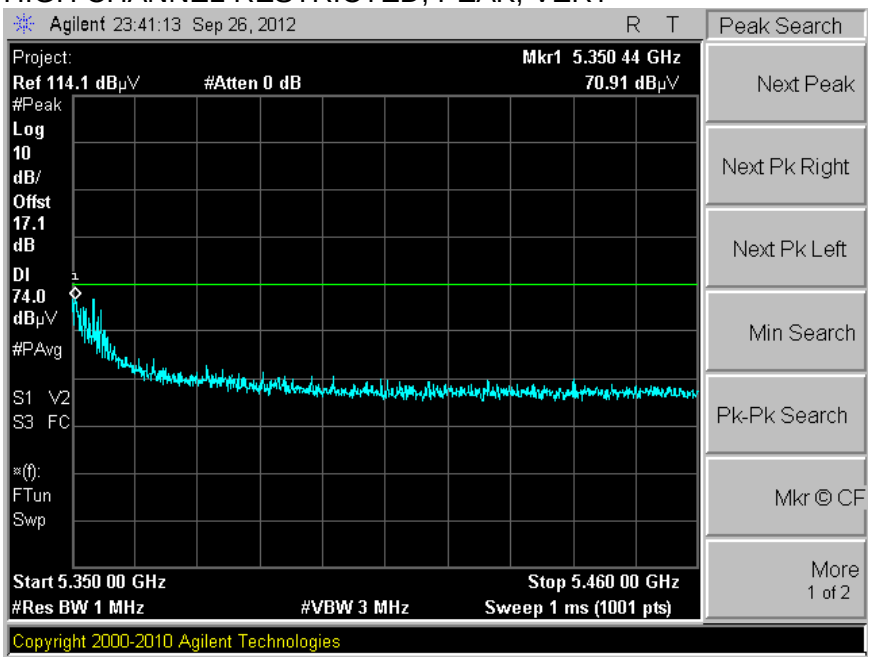
HIGH CHANNEL RESTRICTED, PEAK, HORIZ



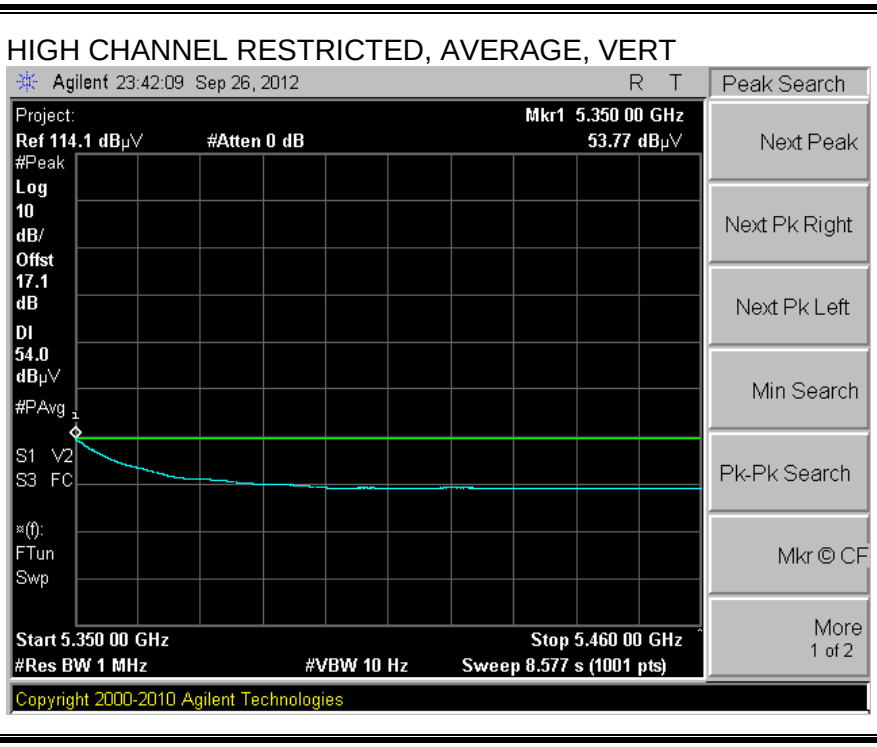
HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

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

Company:	WISTRON CORPORATION
Project #:	12U14545
Date:	9/7/2012
Test Engineer:	Thanh Nguyen
Configuration:	EUT at worst position
Mode:	Transmit HT20 Mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931		T125; ARA 18-26GHz; S/N:1007	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		R_002

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

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch 5260MHz															
10.52	3.0	39.16	25.97	38.3	9.6	-35.8	0.0	0.0	51.3	38.1	74	54	-22.7	-15.9	Noise floor/V
10.52	3.0	38.63	26.06	38.3	9.6	-35.8	0.0	0.0	50.8	38.2	74	54	-23.2	-15.8	Noise floor/H
Mid Channel 5300MHz															
10.60	3.0	38.87	26.45	38.3	9.7	-35.7	0.0	0.0	51.1	38.7	74	54	-22.9	-15.3	Noise floor/V
10.60	3.0	39.22	26.35	38.3	9.7	-35.7	0.0	0.0	51.5	38.6	74	54	-22.5	-15.4	Noise floor/H
High Ch 5320MHz															
10.64	3.0	38.82	26.22	38.3	9.8	-35.7	0.0	0.0	51.1	38.5	74	54	-22.9	-15.5	Noise floor/V
10.64	3.0	39.13	26.40	38.3	9.8	-35.7	0.0	0.0	51.4	38.7	74	54	-22.6	-15.3	Noise floor/H
No other emissions were detected above the systems noise floor															

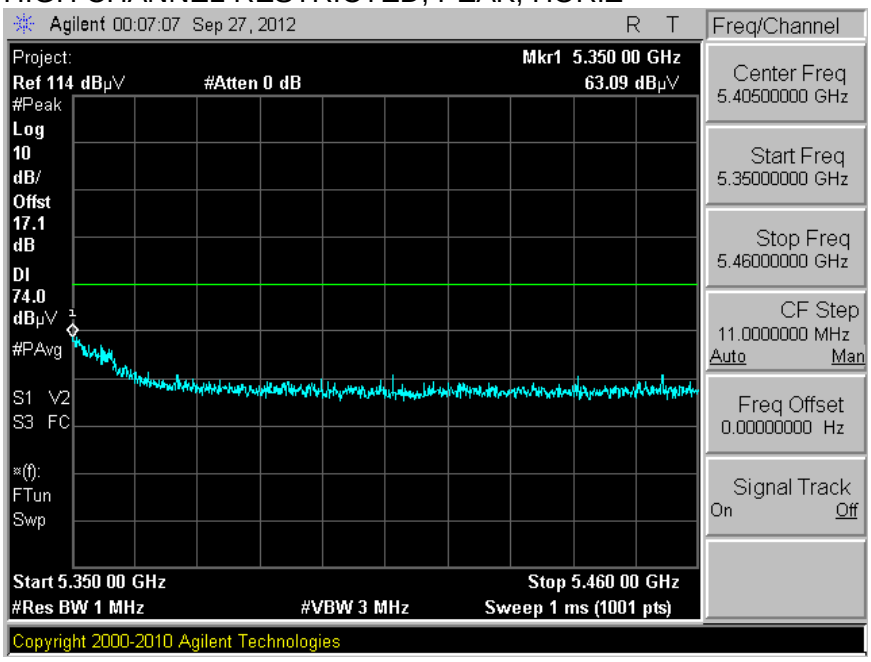
Rev. 10.24.11

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

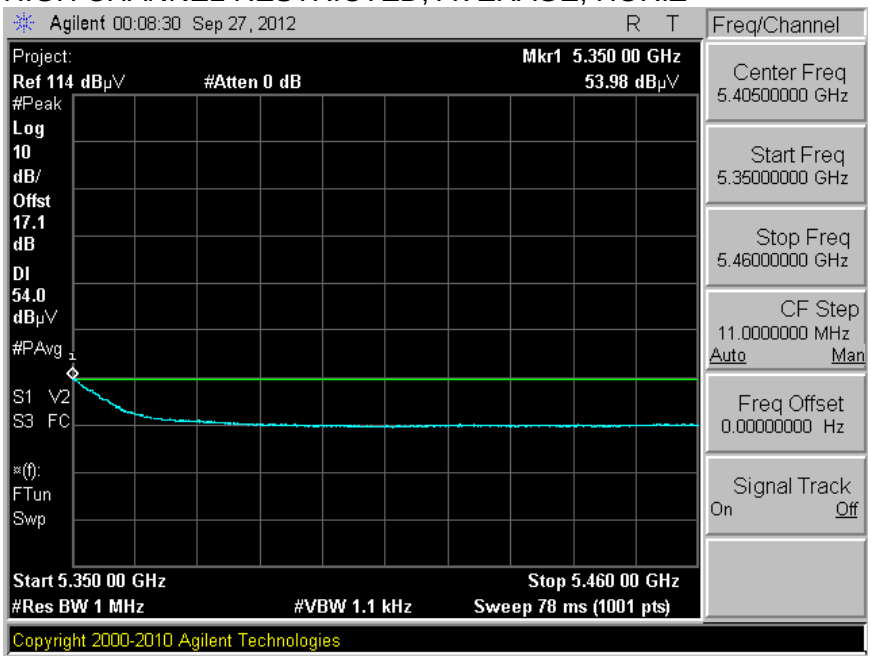
8.2.6. TX ABOVE 1 GHz 802.11n HT40 IN THE 5.3 GHz BAND, CHAIN A

RESTRICTED BANDEDGE (HIGH CHANNEL)

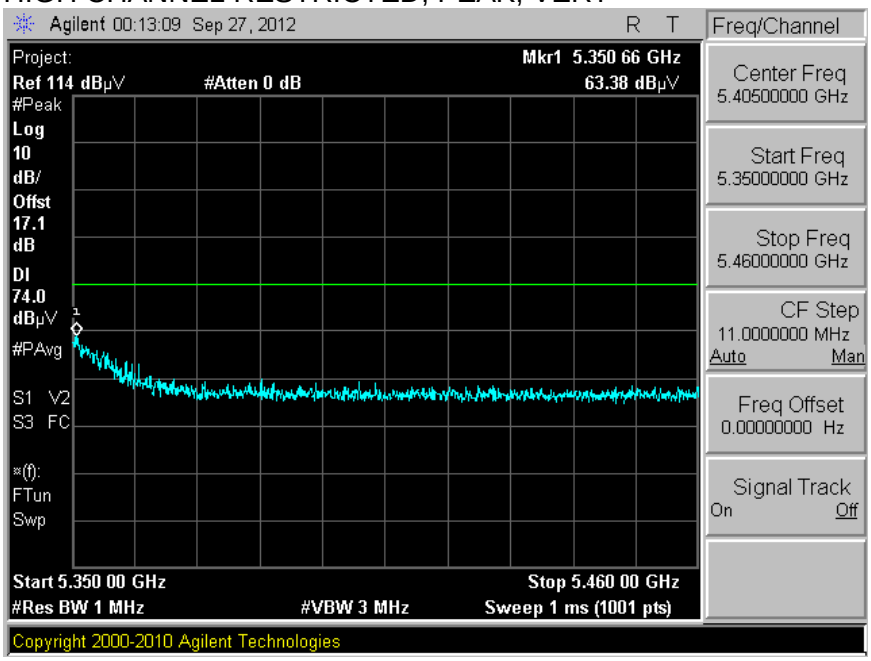
HIGH CHANNEL RESTRICTED, PEAK, HORIZ



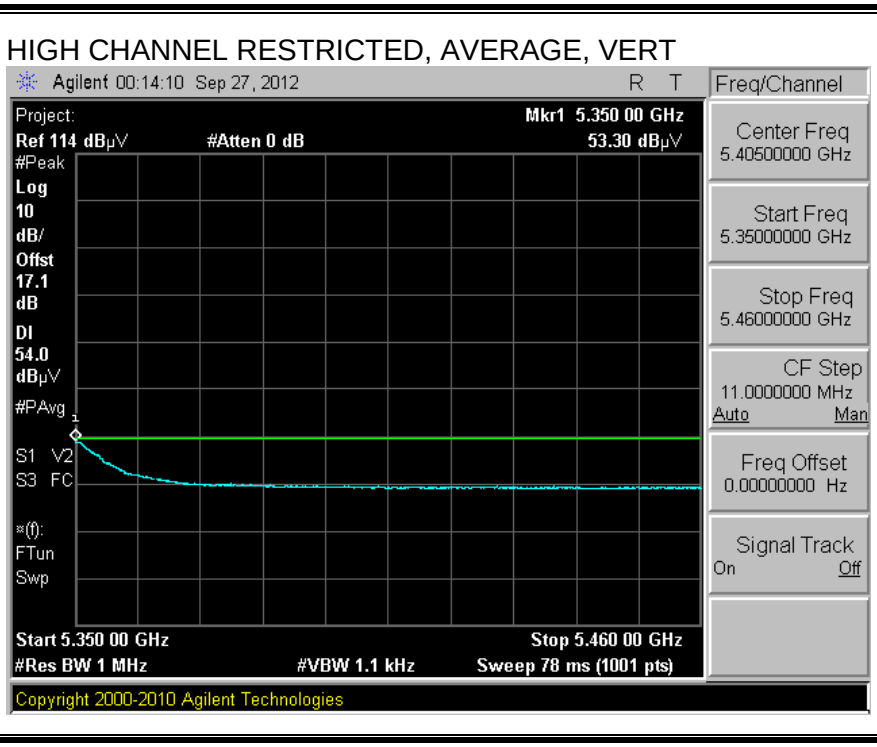
HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

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

Company: WISTRON CORPORATION
Project #: 12U14545
Date: 9/7/2012
Test Engineer: Thanh Nguyen
Configuration: EUT at worst position
Mode: Transmit HT40 Mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931		T125; ARA 18-26GHz; S/N:1007	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		R_002

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

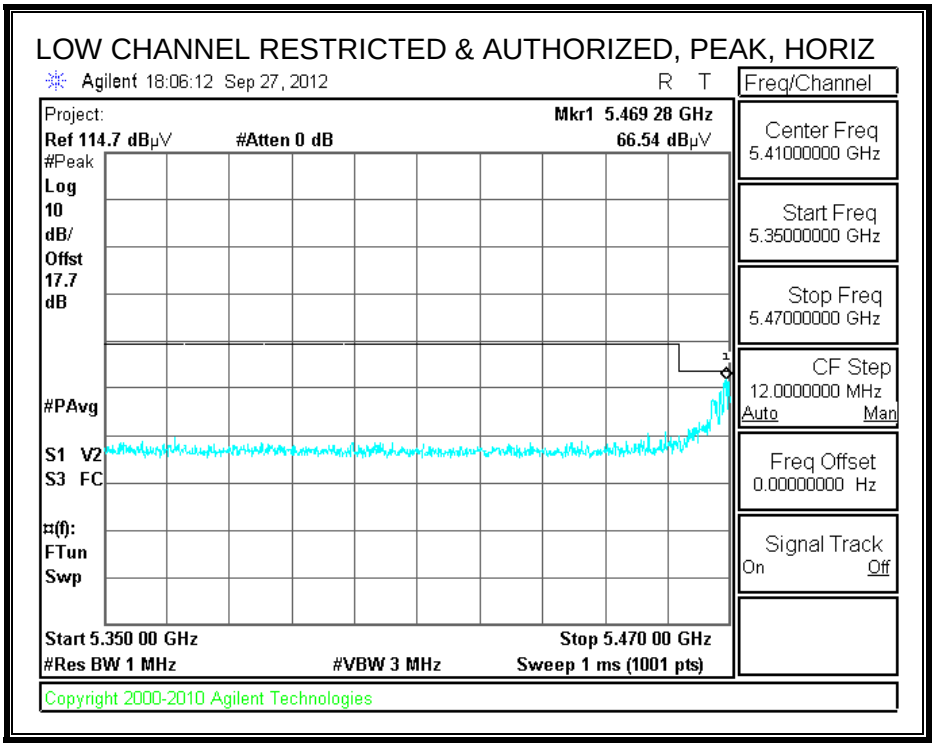
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch 5270MHz															
10.54	3.0	38.46	25.87	38.3	9.7	-35.7	0.0	0.0	50.6	38.0	74	54	-23.4	-16.0	Noise floor/V
10.54	3.0	39.96	25.86	38.3	9.7	-35.7	0.0	0.0	52.1	38.0	74	54	-21.9	-16.0	Noise floor/H
High Ch 5310MHz															
10.62	3.0	38.77	25.60	38.3	9.7	-35.7	0.0	0.0	51.1	37.9	74	54	-22.9	-16.1	Noise floor/V
10.62	3.0	38.56	25.82	38.3	9.7	-35.7	0.0	0.0	50.8	38.1	74	54	-23.2	-15.9	Noise floor/H
No other emissions were detected above the systems noise floor															

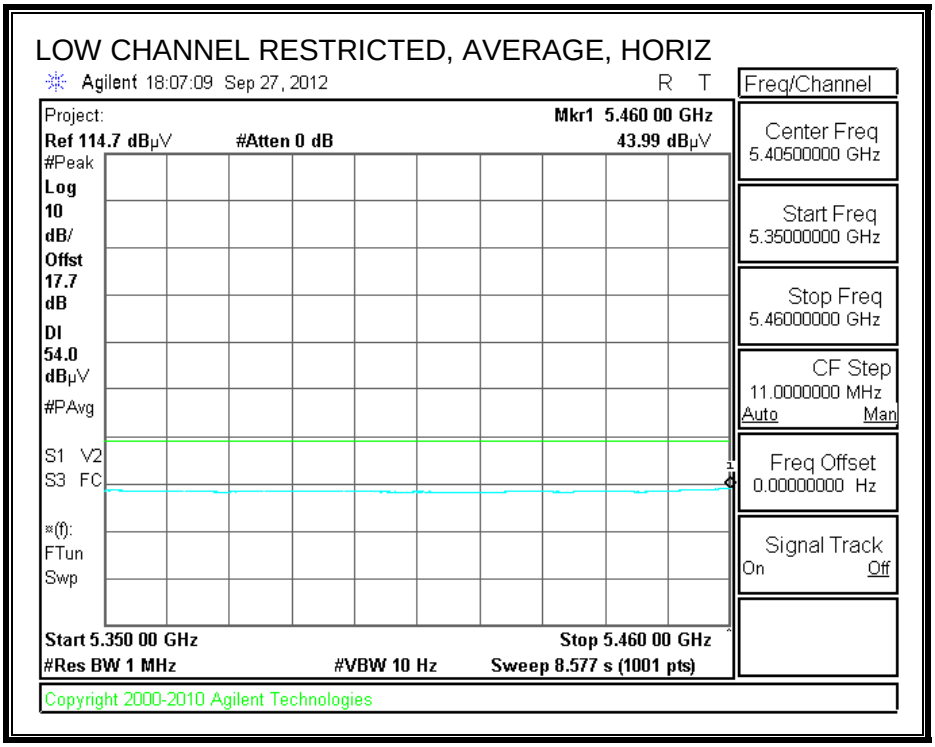
Rev. 10.24.11

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

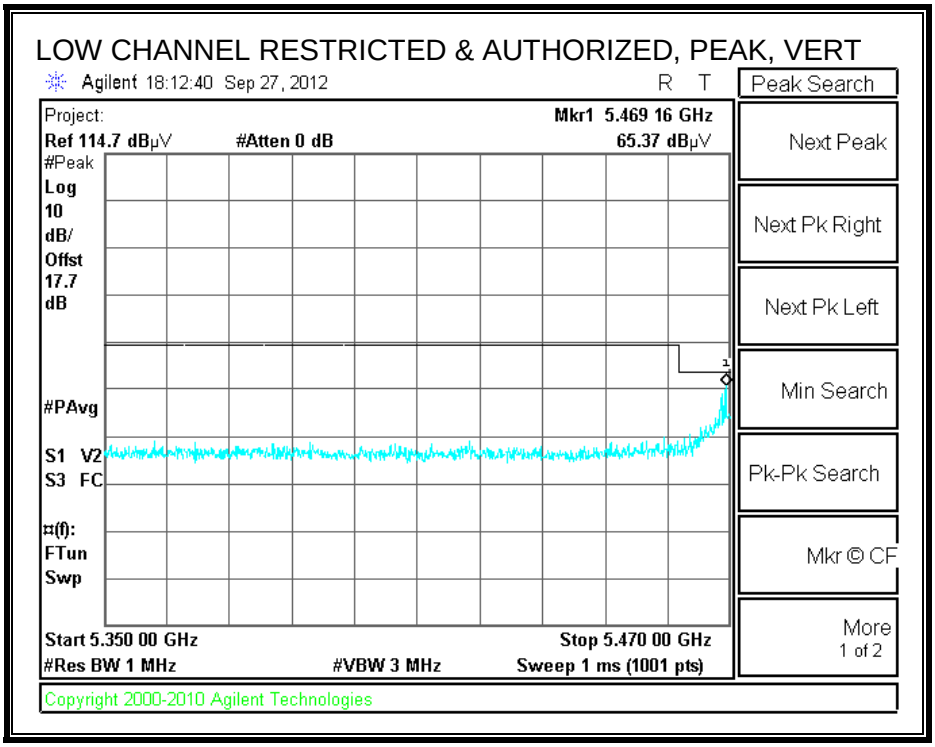
8.2.7. TX ABOVE 1 GHz 802.11a IN THE 5.5 GHz BAND, CHAIN A

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

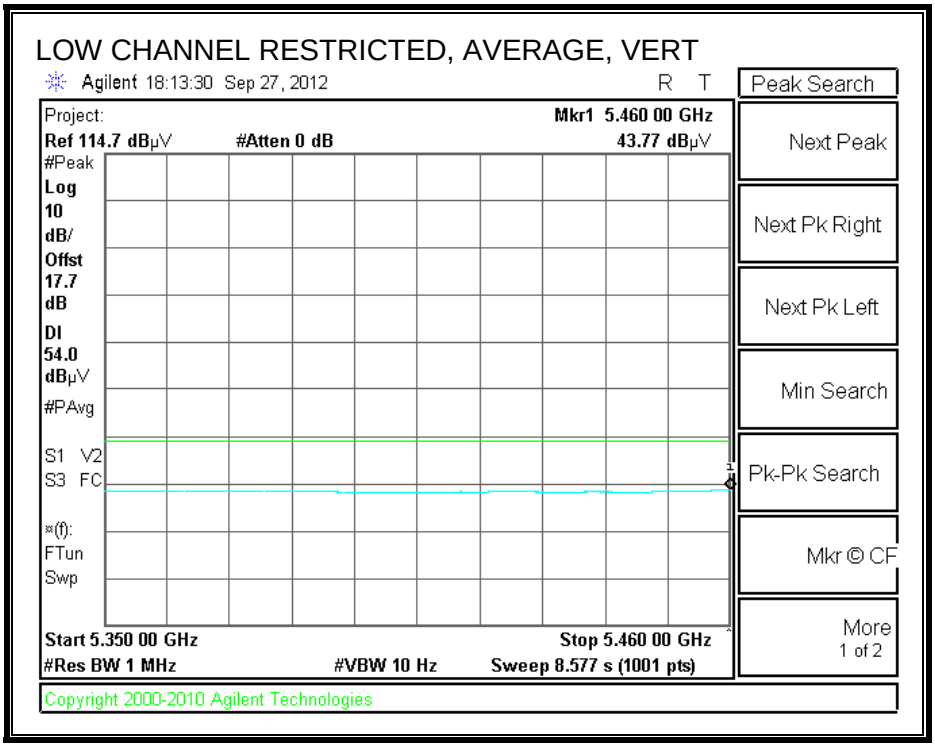




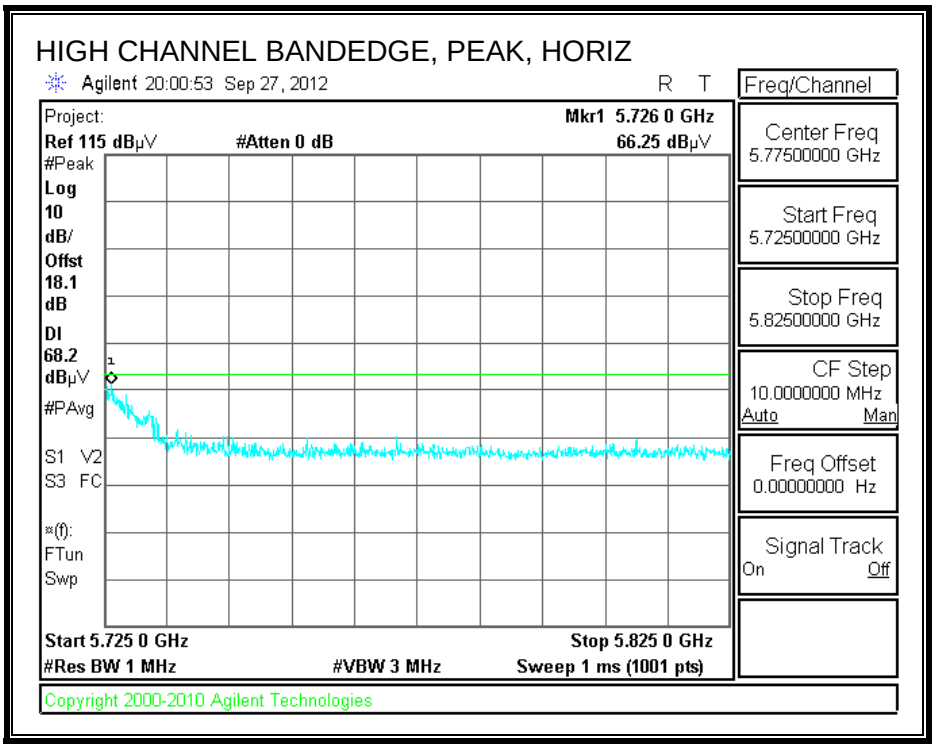
LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, VERT

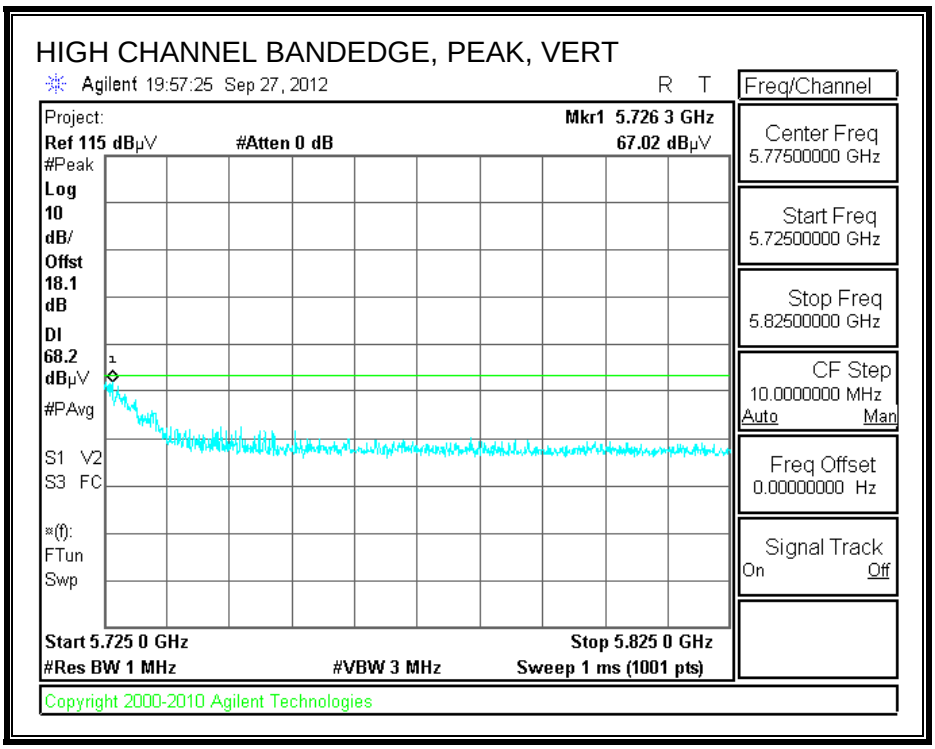


LOW CHANNEL RESTRICTED, AVERAGE, VERT



AUTHORIZED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Oliver Su
Date: 09/10/12
Project #: 12U14545
Company: Wistron
Test Target: FCC 15.407
Mode Oper: 5.5GHz, Tx Continuously, EUT stand-alone

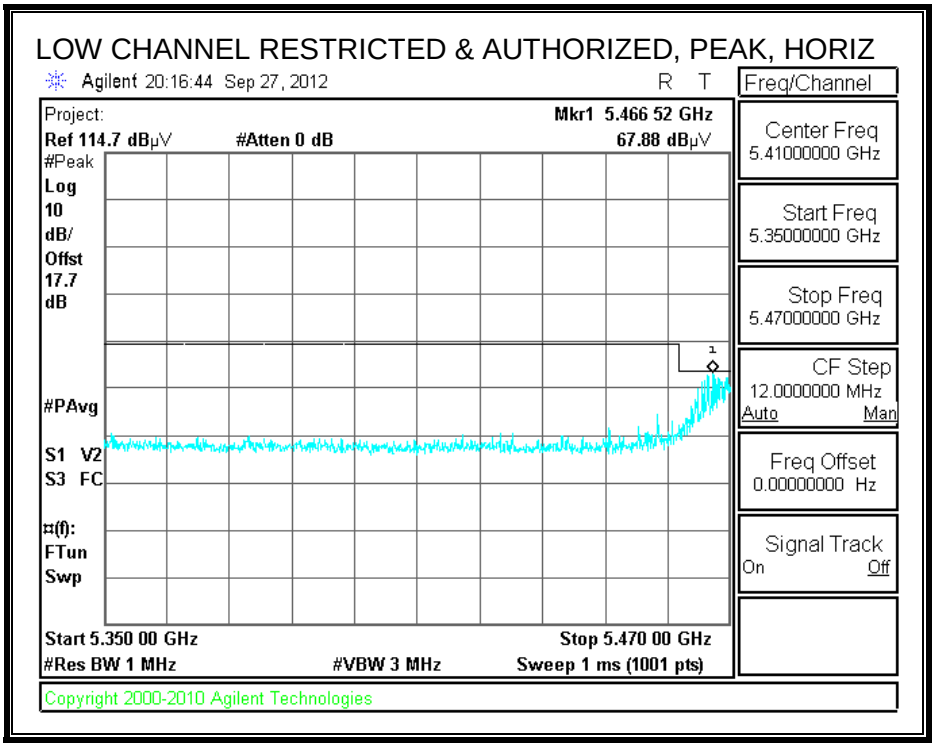
f	Measurement Frequency	Amp	Preamp Gain		Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters		Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m		Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength		Margin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

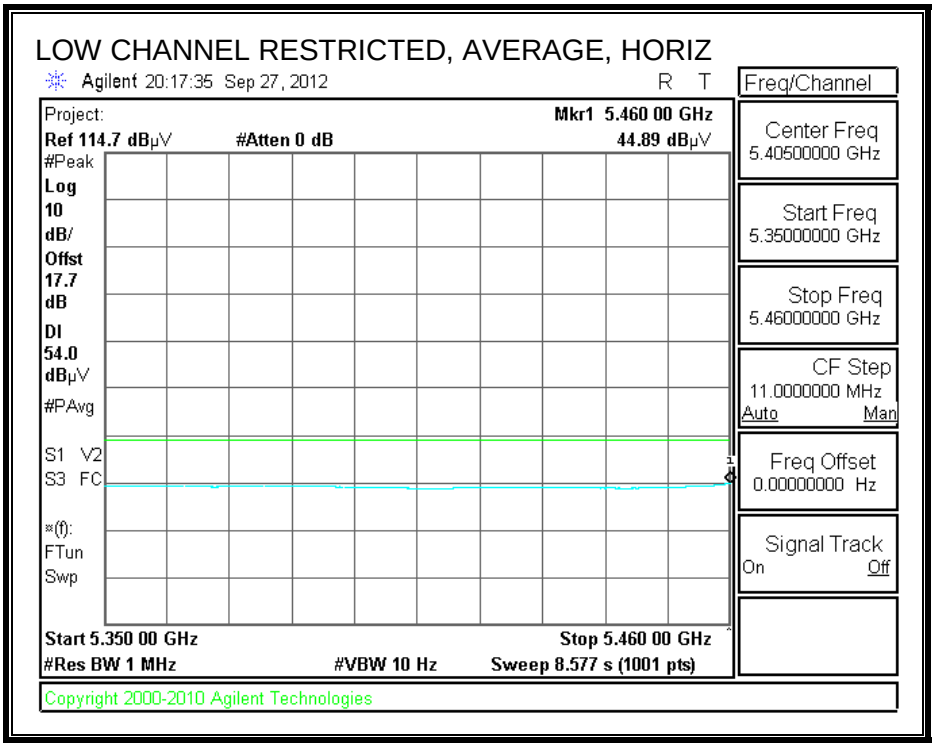
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
11a_Low Ch (5500MHz)															
11.000	3.0	33.3	38.4	10.1	-35.6	0.0	0.0	46.0	74.0	-28.0	V	P	161.7	304.6	
11.000	3.0	23.5	38.4	10.1	-35.6	0.0	0.0	36.3	54.0	-17.7	V	A	161.7	304.6	
11.000	3.0	35.5	38.4	10.1	-35.6	0.0	0.0	48.2	74.0	-25.8	H	P	151.3	159.2	
11.000	3.0	23.7	38.4	10.1	-35.6	0.0	0.0	36.5	54.0	-17.5	H	A	151.3	159.2	
11a Mid Ch (5580MHz)															
11.160	3.0	33.8	38.5	10.2	-35.6	0.0	0.0	46.9	74.0	-27.1	H	P	199.7	319.2	
11.160	3.0	22.9	38.5	10.2	-35.6	0.0	0.0	36.0	54.0	-18.0	H	A	199.7	319.2	
11.160	3.0	34.4	38.5	10.2	-35.6	0.0	0.0	47.5	74.0	-26.5	V	P	197.2	117.5	
11.160	3.0	22.8	38.5	10.2	-35.6	0.0	0.0	35.9	54.0	-18.1	V	A	197.2	117.5	
11a High ch (5700MHz)															
11.400	3.0	33.6	38.7	10.4	-35.6	0.0	0.0	47.2	74.0	-26.8	V	P	200.0	213.1	
11.400	3.0	22.7	38.7	10.4	-35.6	0.0	0.0	36.3	54.0	-17.7	V	A	200.0	213.1	
11.400	3.0	34.4	38.7	10.4	-35.6	0.0	0.0	48.1	74.0	-26.0	H	P	199.9	358.1	
11.400	3.0	22.7	38.7	10.4	-35.6	0.0	0.0	36.3	54.0	-17.7	H	A	199.9	358.1	

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

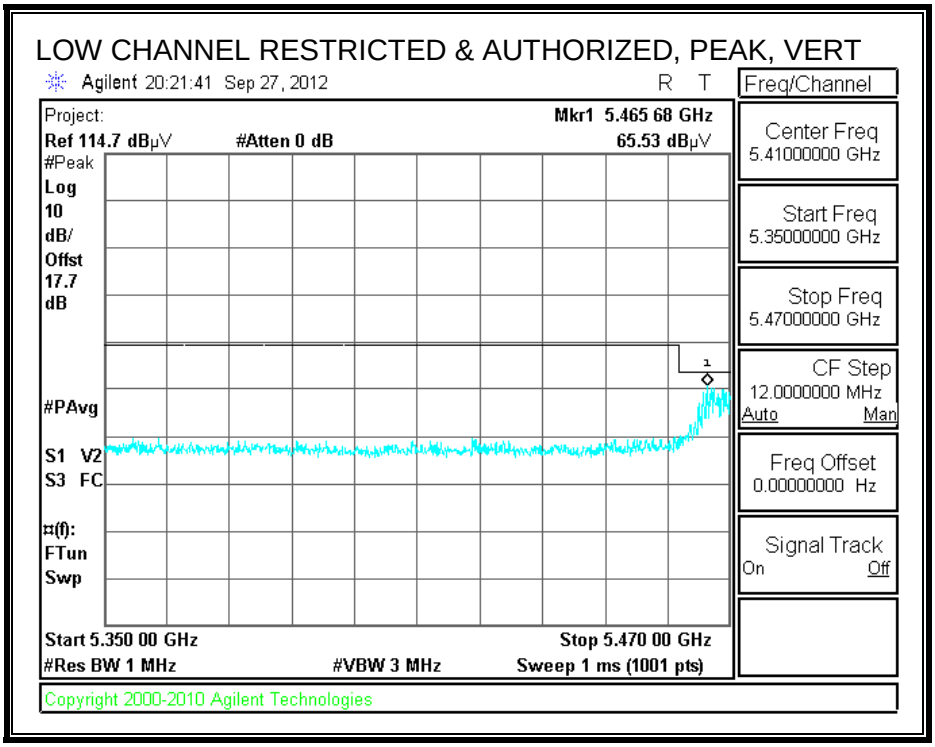
8.2.8. TX ABOVE 1 GHz 802.11n HT20 IN THE 5.5 GHz BAND, CHAIN A

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

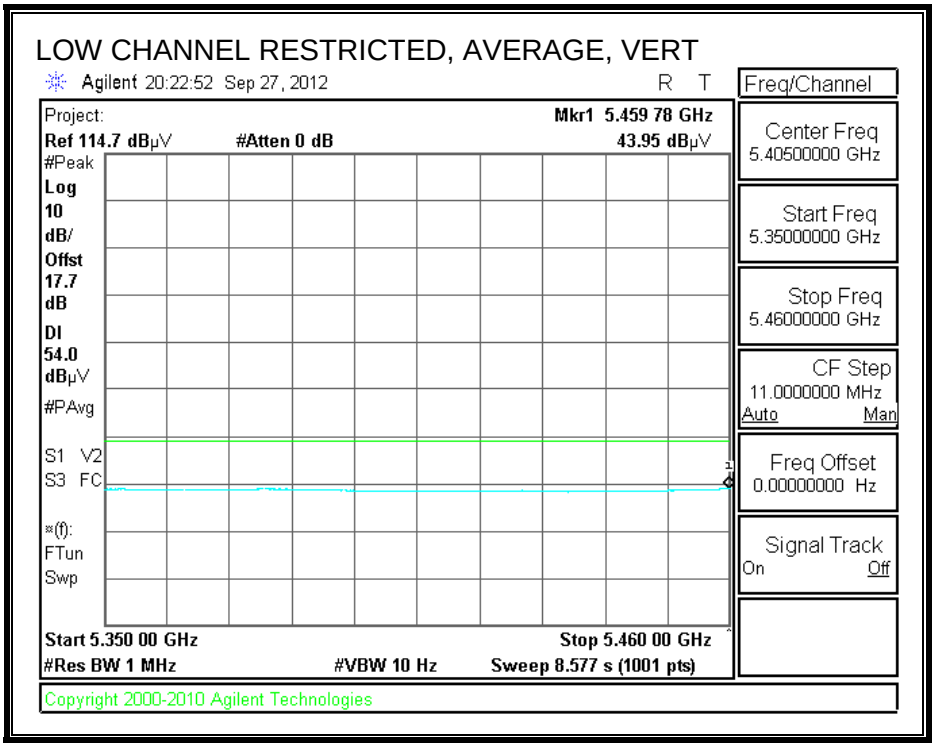




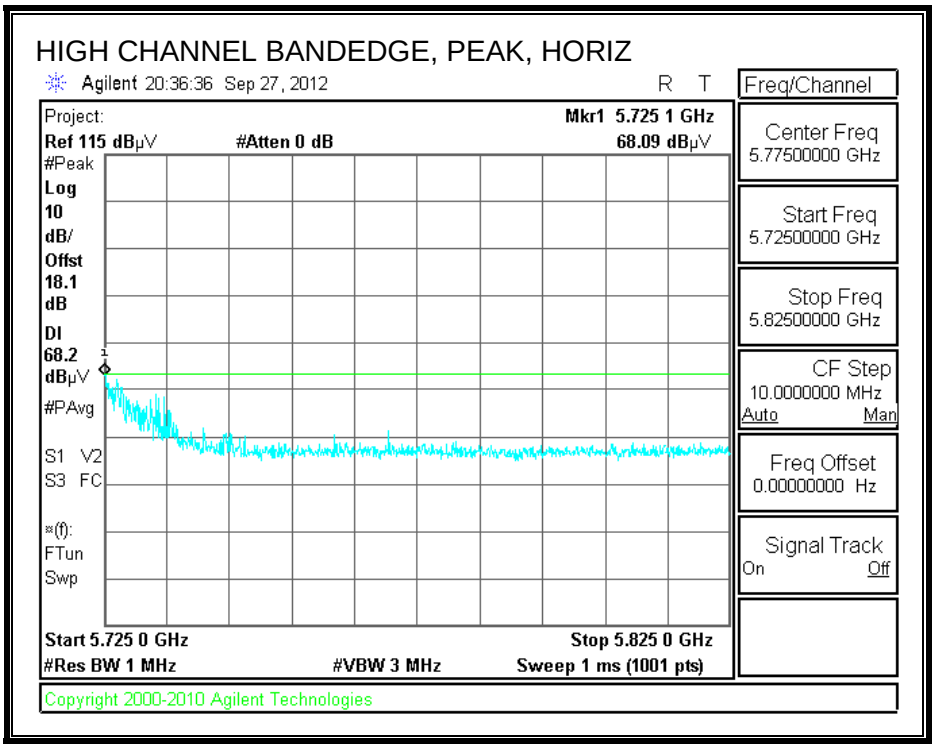
LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, VERT

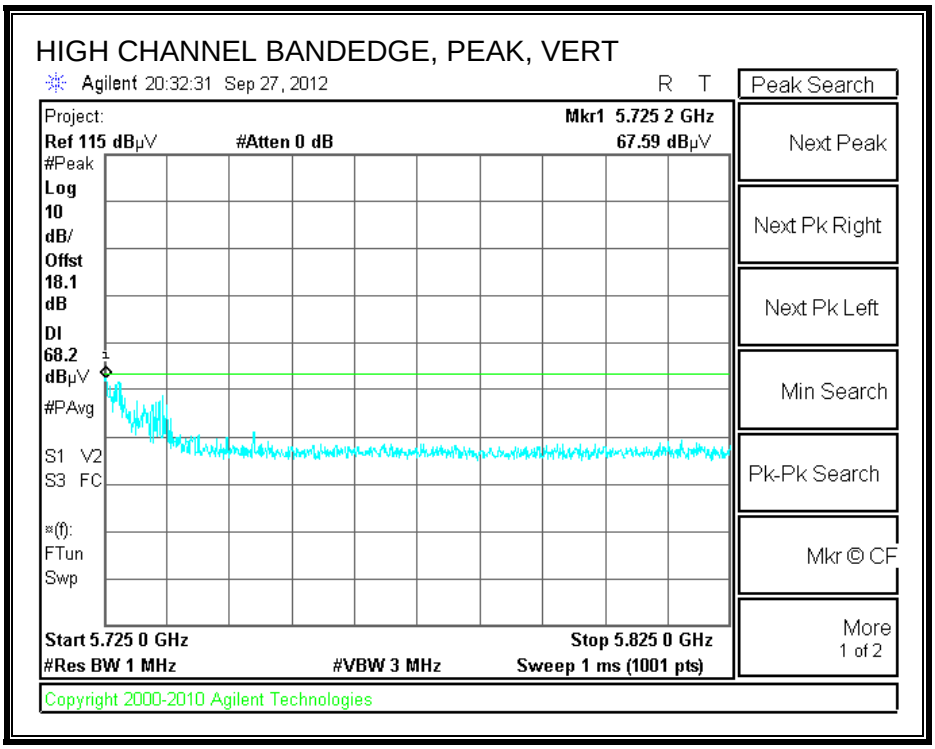


LOW CHANNEL RESTRICTED, AVERAGE, VERT



AUTHORIZED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Oliver Su
Date: 09/10/12
Project #: 12U14545
Company: Wistron
Test Target: FCC 15.407
Mode Oper: 5.5GHz, Tx Continuously, EUT stand-alone

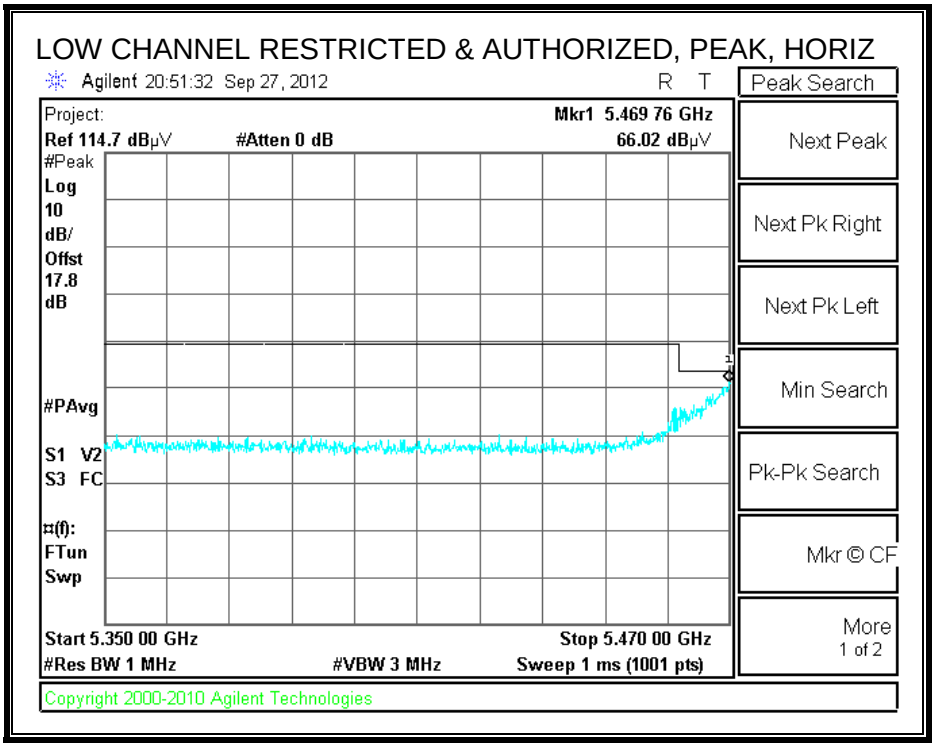
f	Measurement Frequency	Amp	Preamp Gain		Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters		Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m		Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength		Margin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

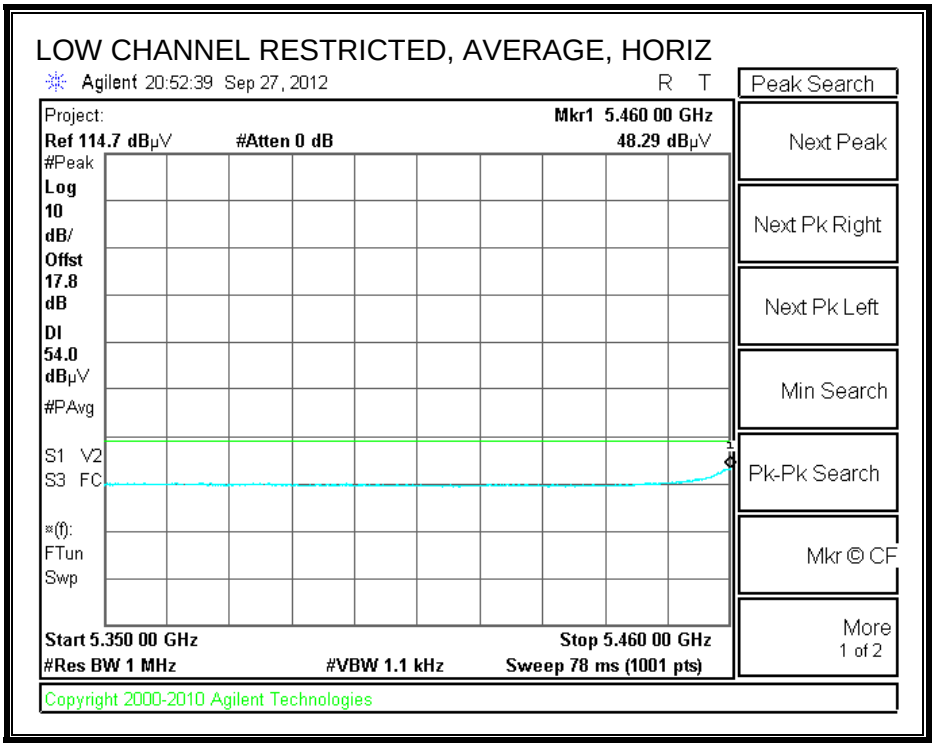
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
11n HT20 Low Ch (5500MHz)															
11.000	3.0	34.8	38.7	10.4	-35.6	0.0	0.0	47.6	74.0	-26.4	H	P	164.2	92.4	
11.000	3.0	22.4	38.4	10.1	-35.6	0.0	0.0	35.2	54.0	-18.8	H	A	164.2	92.4	
11.000	3.0	34.3	38.4	10.1	-35.6	0.0	0.0	47.1	74.0	-26.9	V	P	175.2	0.2	
11.000	3.0	22.1	38.4	10.1	-35.6	0.0	0.0	34.9	54.0	-19.1	V	A	175.2	0.2	
11n HT20 Mid Ch (5580MHz)															
11.160	3.0	34.6	38.5	10.2	-35.6	0.0	0.0	47.7	74.0	-26.3	H	P	180.5	276.8	
11.160	3.0	22.8	38.5	10.2	-35.6	0.0	0.0	35.9	54.0	-18.1	H	A	180.5	276.8	
11.160	3.0	35.9	38.5	10.2	-35.6	0.0	0.0	49.0	74.0	-25.0	V	P	199.7	79.1	
11.160	3.0	22.7	38.5	10.2	-35.6	0.0	0.0	35.8	54.0	-18.2	V	A	199.7	79.1	
11n HT20 High Ch (5700MHz)															
11.400	3.0	34.2	38.7	10.4	-35.6	0.0	0.0	47.9	74.0	-26.1	V	P	140.9	360.0	
11.400	3.0	22.8	38.7	10.4	-35.6	0.0	0.0	36.4	54.0	-17.6	V	A	140.9	360.0	
11.400	3.0	34.3	38.7	10.4	-35.6	0.0	0.0	47.9	74.0	-26.1	H	P	162.7	343.8	
11.400	3.0	22.6	38.7	10.4	-35.6	0.0	0.0	36.3	54.0	-17.7	H	A	162.7	343.8	

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

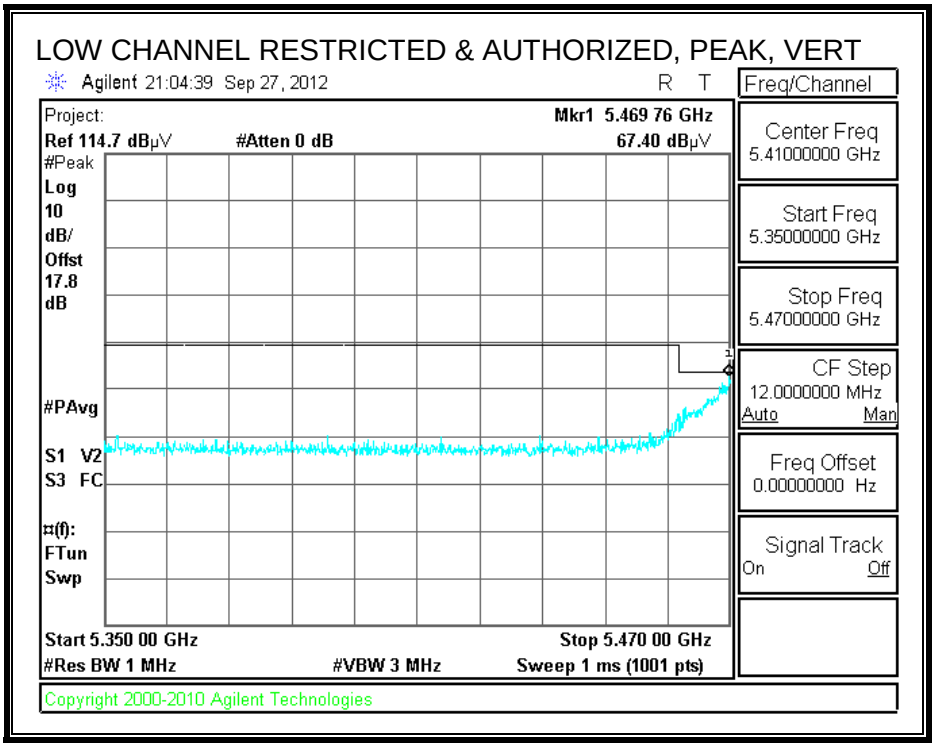
8.2.9. TX ABOVE 1 GHz 802.11n HT40 IN THE 5.5 GHz BAND, CHAIN A

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

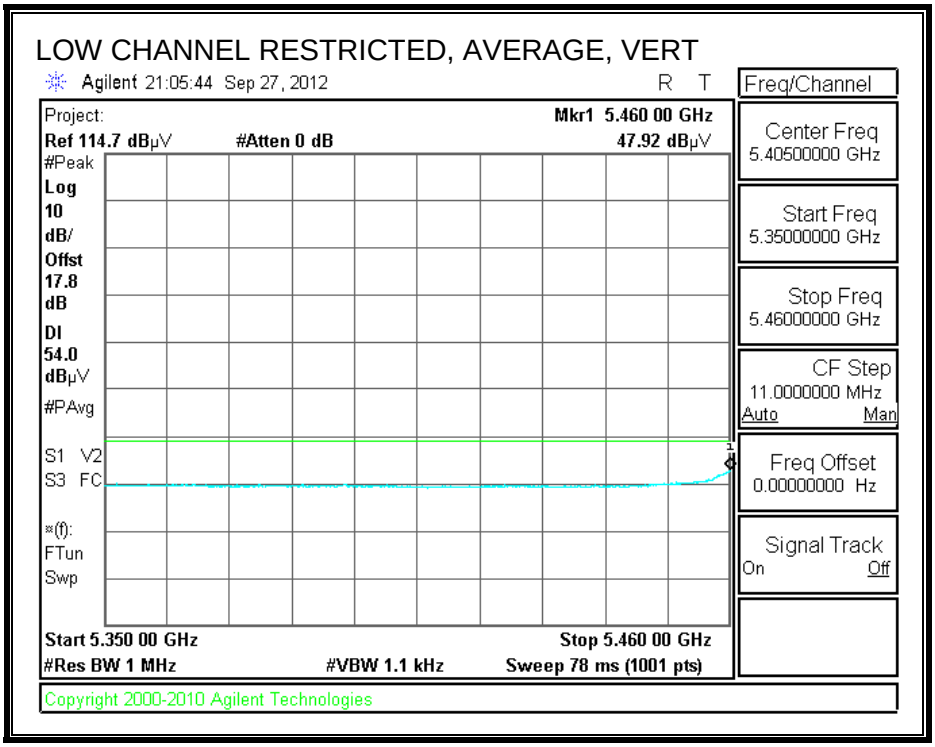




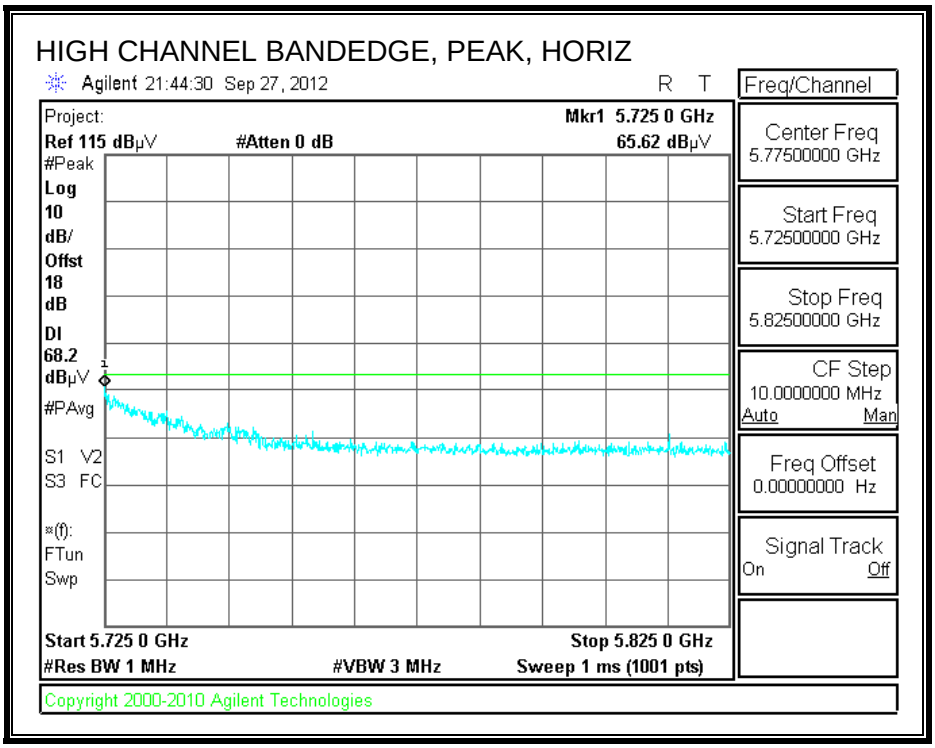
LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, VERT

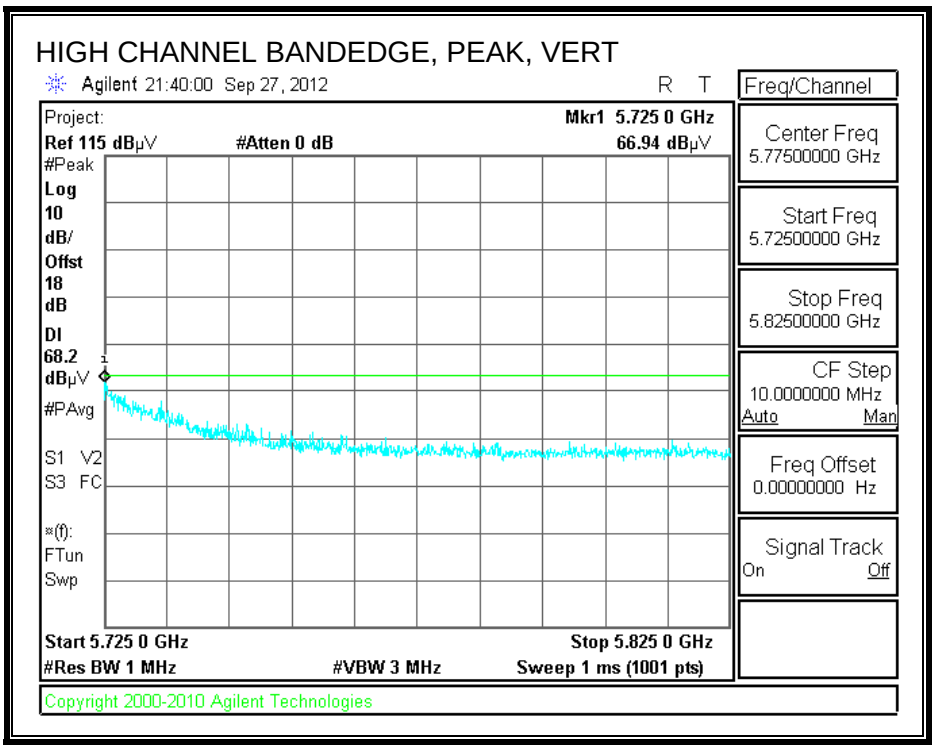


LOW CHANNEL RESTRICTED, AVERAGE, VERT



AUTHORIZED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Oliver Su
Date: 09/10/12
Project #: 12U14545
Company: Wistron
Test Target: FCC 15.407
Mode Oper: 5.5GHz, Tx Continuously, EUT stand-alone

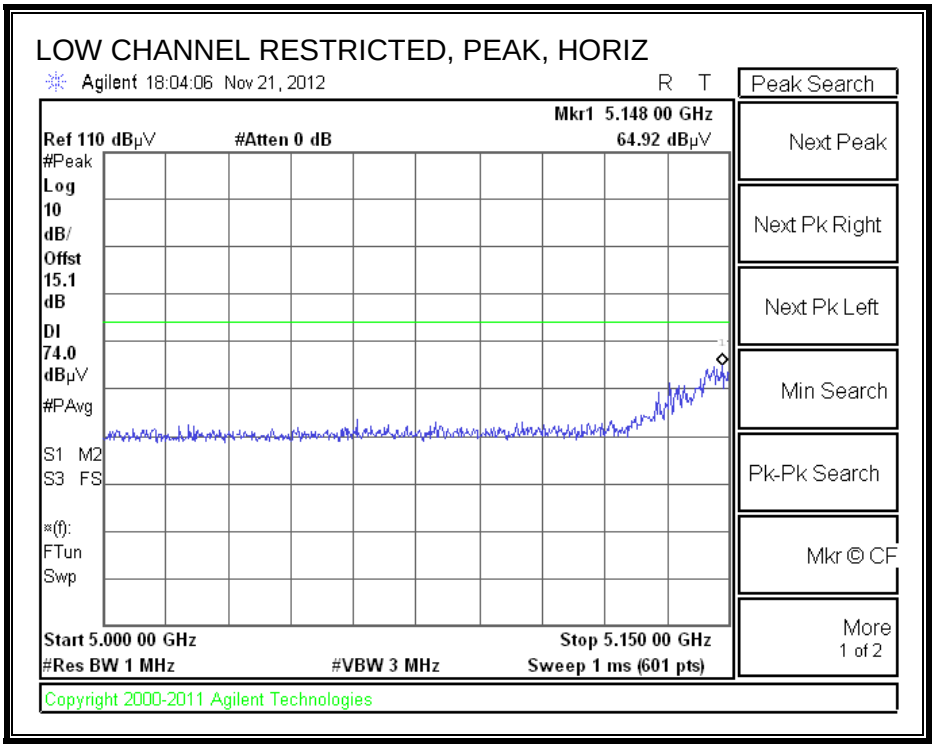
f	Measurement Frequency	Amp	Preamp Gain		Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters		Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m		Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength		Margin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

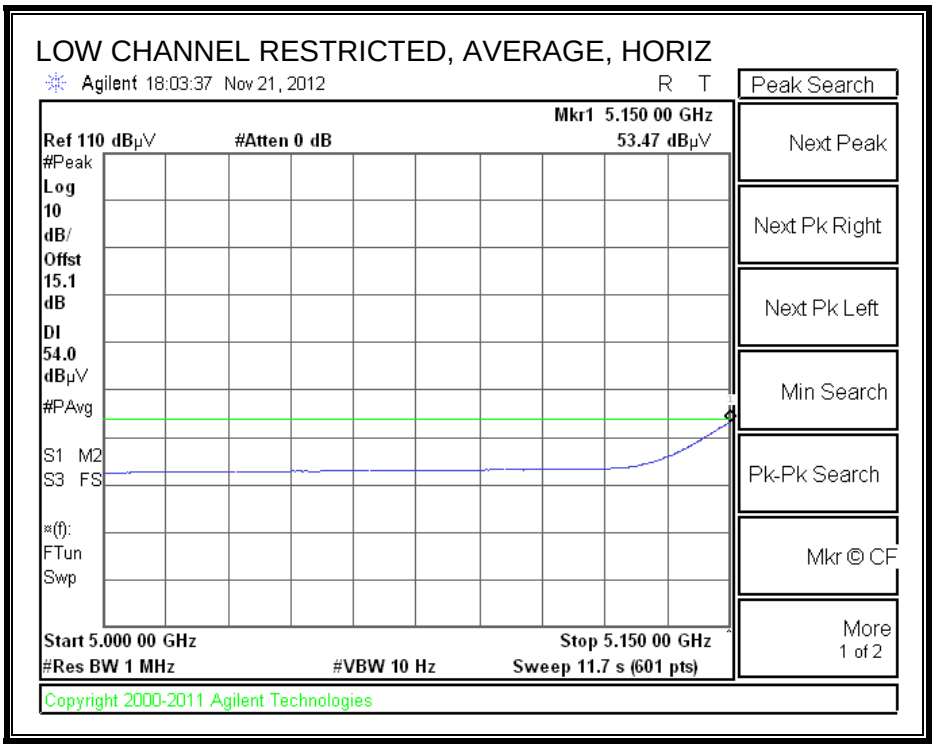
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
11n HT40 Low Ch (5510MHz)															
11.020	3.0	32.9	38.4	10.1	-35.6	0.0	0.0	45.7	74.0	-28.3	H	P	200.0	281.1	
11.020	3.0	21.7	38.4	10.1	-35.6	0.0	0.0	34.5	54.0	-19.5	H	A	200.0	281.1	
11.020	3.0	33.2	38.4	10.1	-35.6	0.0	0.0	46.0	74.0	-28.0	V	P	114.4	73.4	
11.020	3.0	21.9	38.4	10.1	-35.6	0.0	0.0	34.7	54.0	-19.3	V	A	114.4	73.4	
11n HT40 Mid Ch (5590MHz)															
11.180	3.0	34.0	38.5	10.1	-35.6	0.0	0.0	47.0	74.0	-27.0	H	P	170.9	282.8	
11.180	3.0	22.3	38.5	10.1	-35.6	0.0	0.0	35.3	54.0	-18.7	H	A	170.9	282.8	
11.180	3.0	33.2	38.5	10.1	-35.6	0.0	0.0	46.2	74.0	-27.8	V	P	100.9	75.3	
11.180	3.0	22.3	38.5	10.1	-35.6	0.0	0.0	35.3	54.0	-18.7	V	A	100.9	75.3	
11n HT40 High Ch (5670MHz)															
11.340	3.0	33.6	38.7	10.4	-35.6	0.0	0.0	47.1	74.0	-26.9	V	P	164.2	92.4	
11.340	3.0	22.8	38.7	10.4	-35.6	0.0	0.0	36.3	54.0	-17.7	V	A	164.2	92.4	
11.340	3.0	34.1	38.7	10.4	-35.6	0.0	0.0	47.6	74.0	-26.4	H	P	100.5	9.3	
11.340	3.0	22.7	38.7	10.4	-35.6	0.0	0.0	36.2	54.0	-17.8	H	A	100.5	9.3	

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

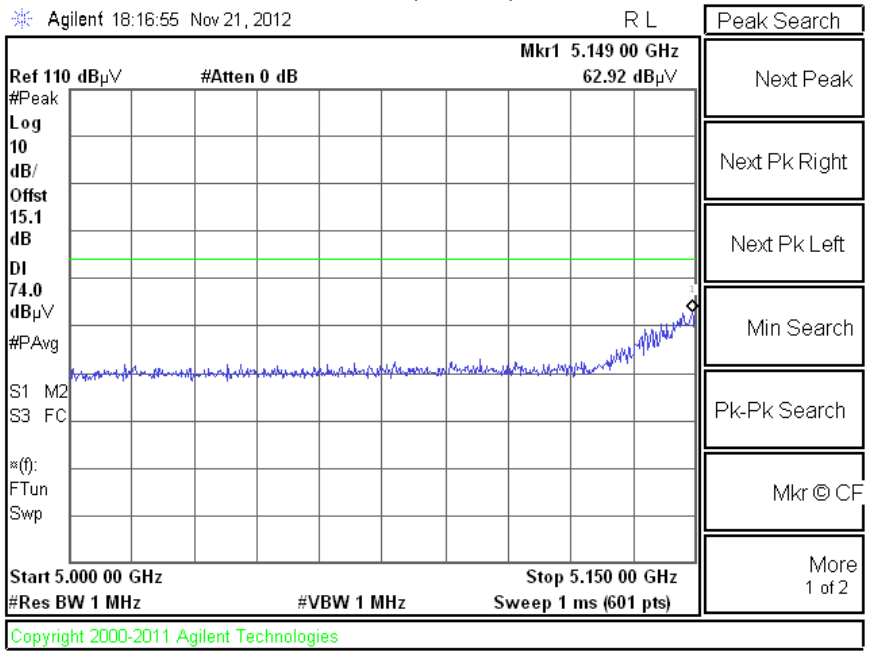
8.2.10. TX ABOVE 1 GHz 802.11n HT20 IN THE 5.2 GHz BAND, CHAIN B

RESTRICTED BANDEDGE (LOW CHANNEL)

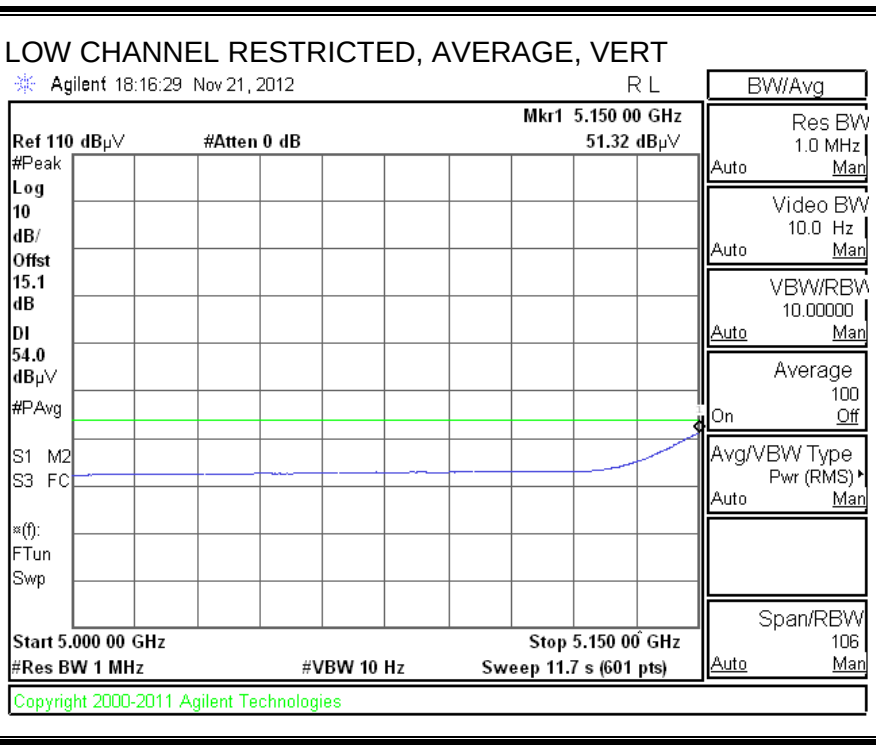




LOW CHANNEL RESTRICTED, PEAK, VERT

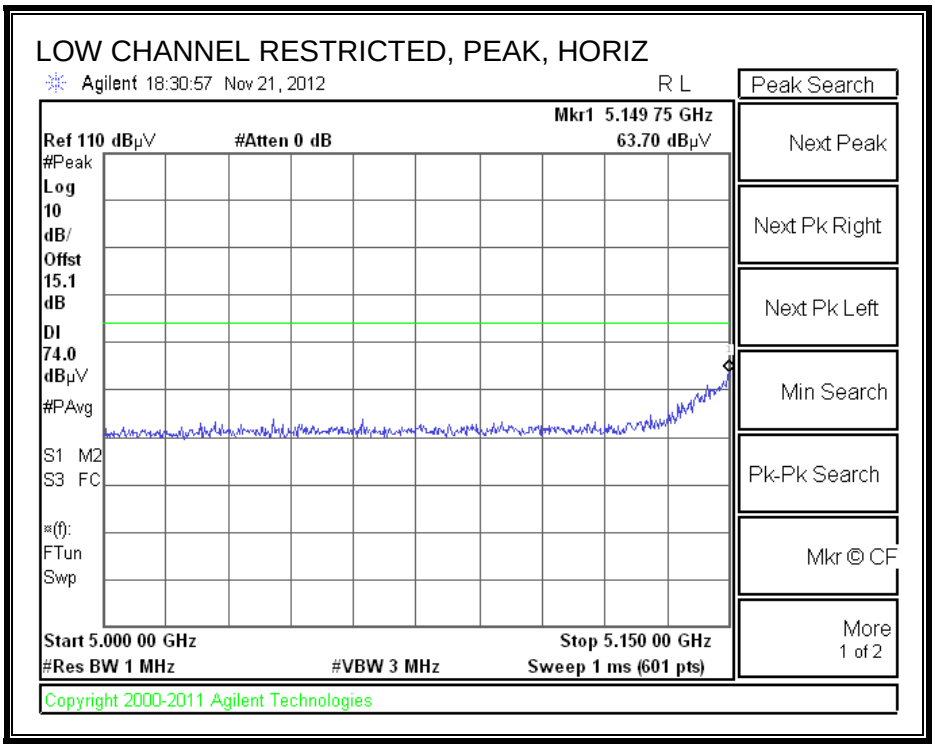


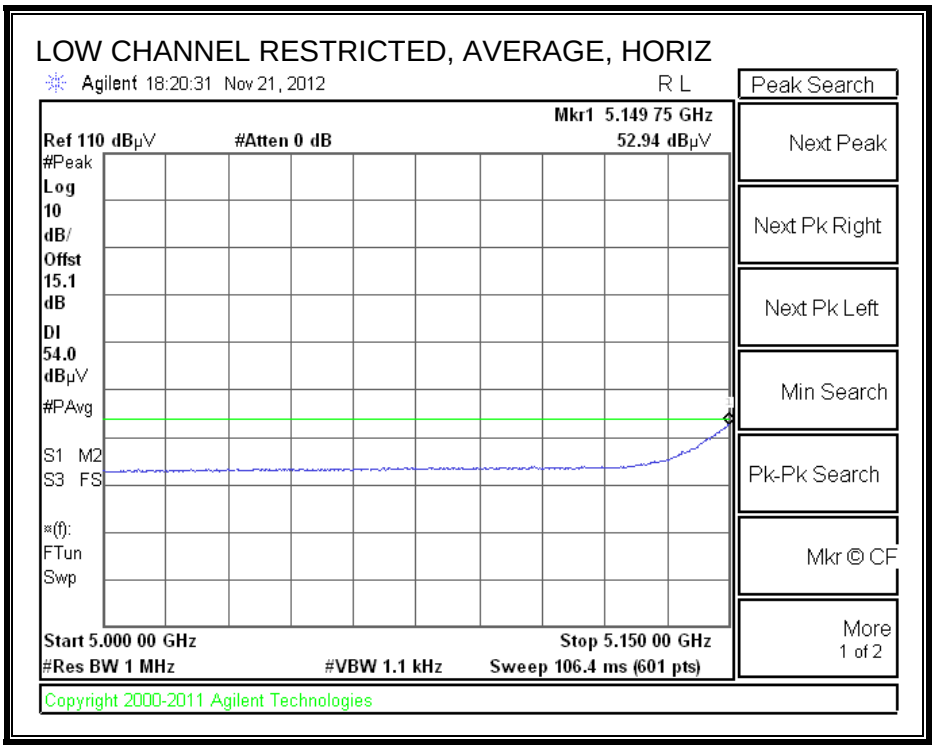
LOW CHANNEL RESTRICTED, AVERAGE, VERT



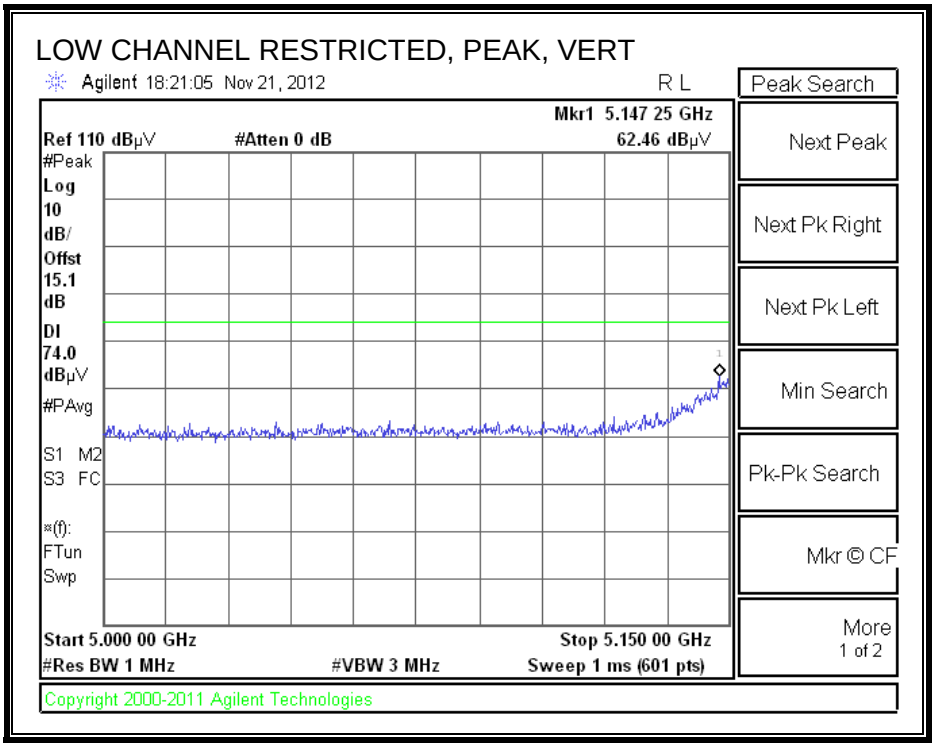
8.3. TX ABOVE 1 GHz 802.11n HT40 IN THE 5.2 GHz BAND, CHAIN B

RESTRICTED BANDEDGE (LOW CHANNEL)

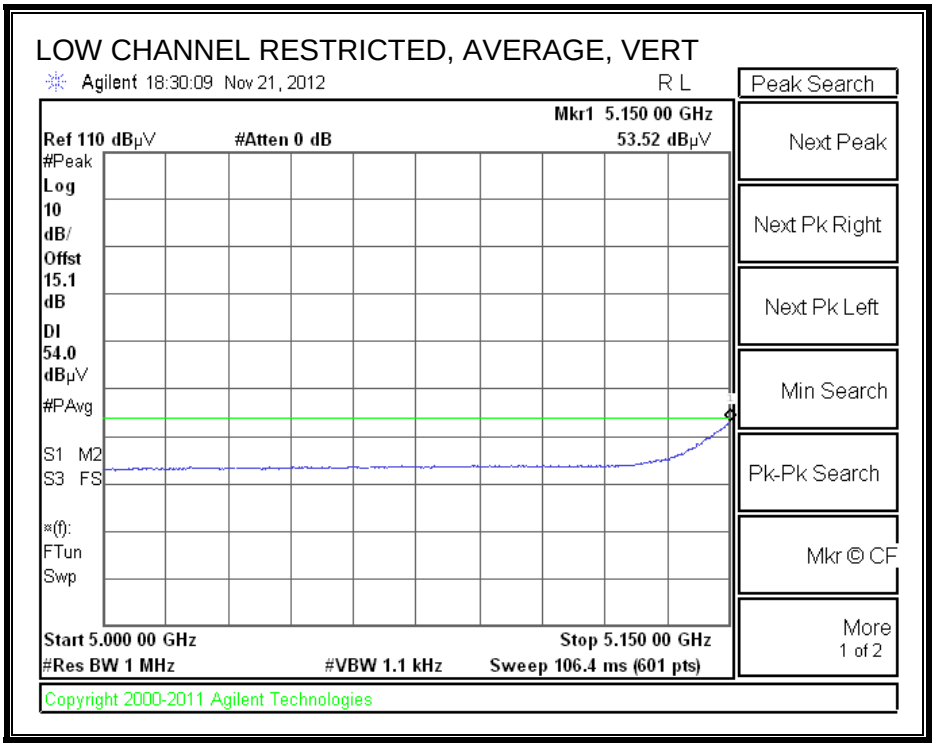




LOW CHANNEL RESTRICTED, PEAK, VERT

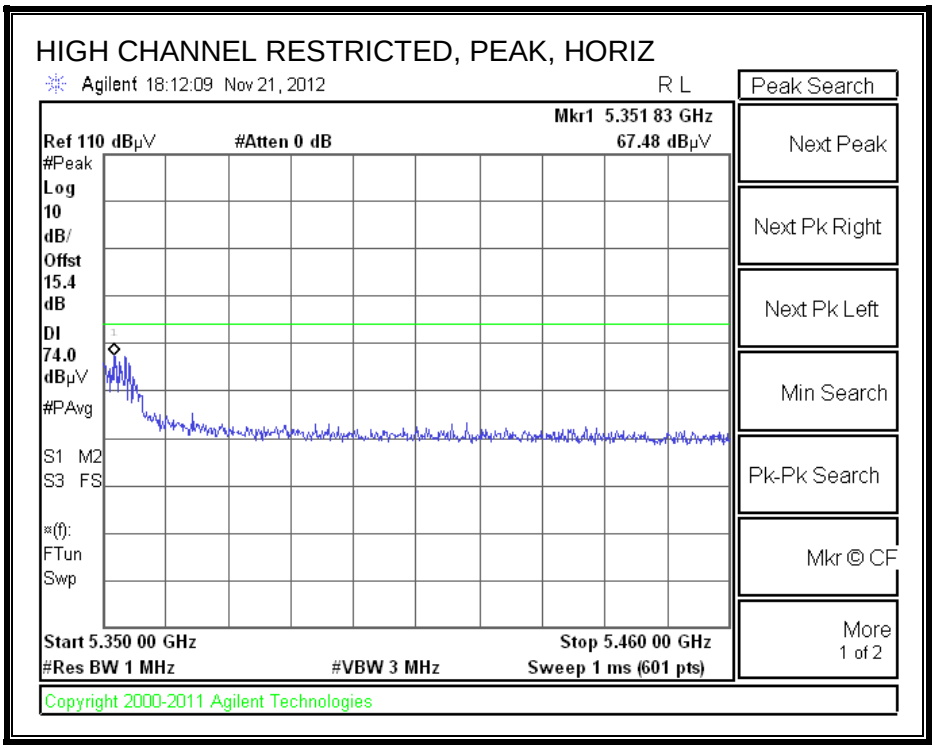


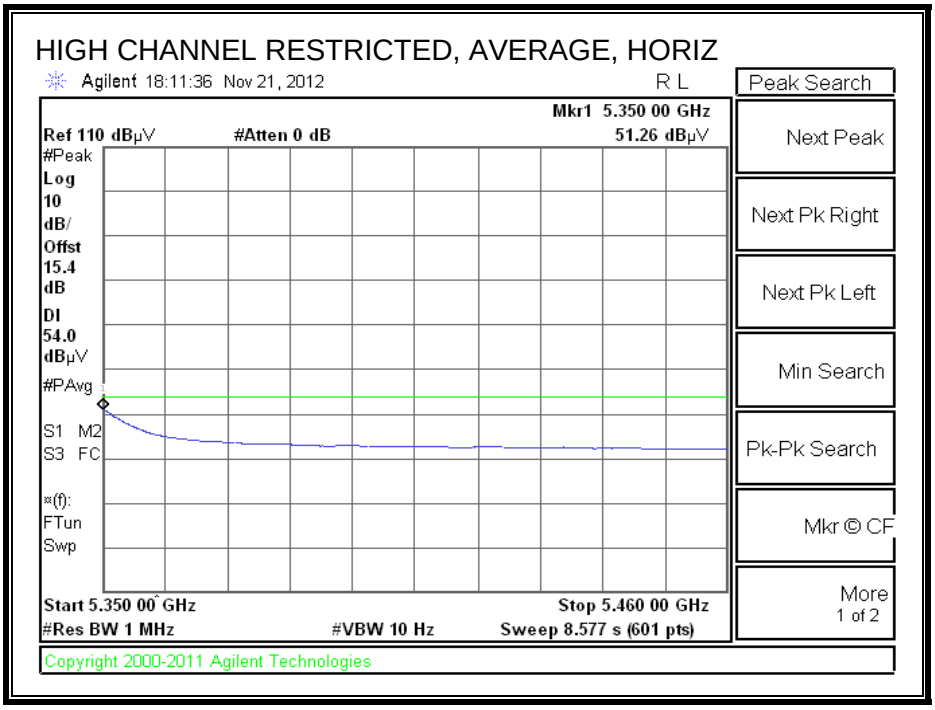
LOW CHANNEL RESTRICTED, AVERAGE, VERT



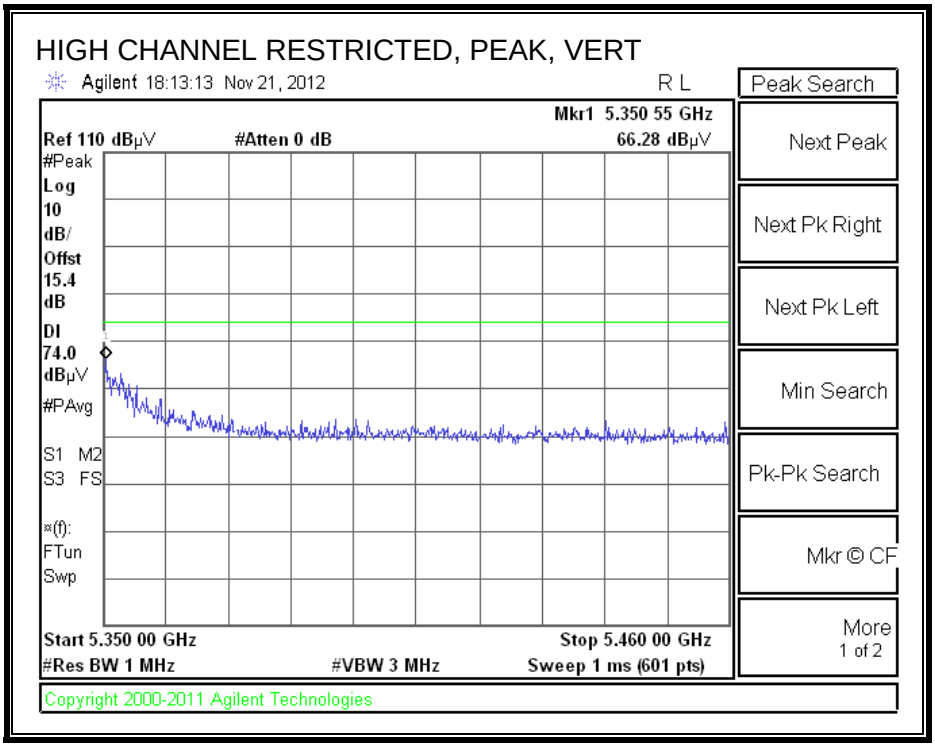
8.3.1. TX ABOVE 1 GHz 802.11n, HT20 IN THE 5.3 GHz BAND, CHAIN B

RESTRICTED BANDEDGE (HIGH CHANNEL)

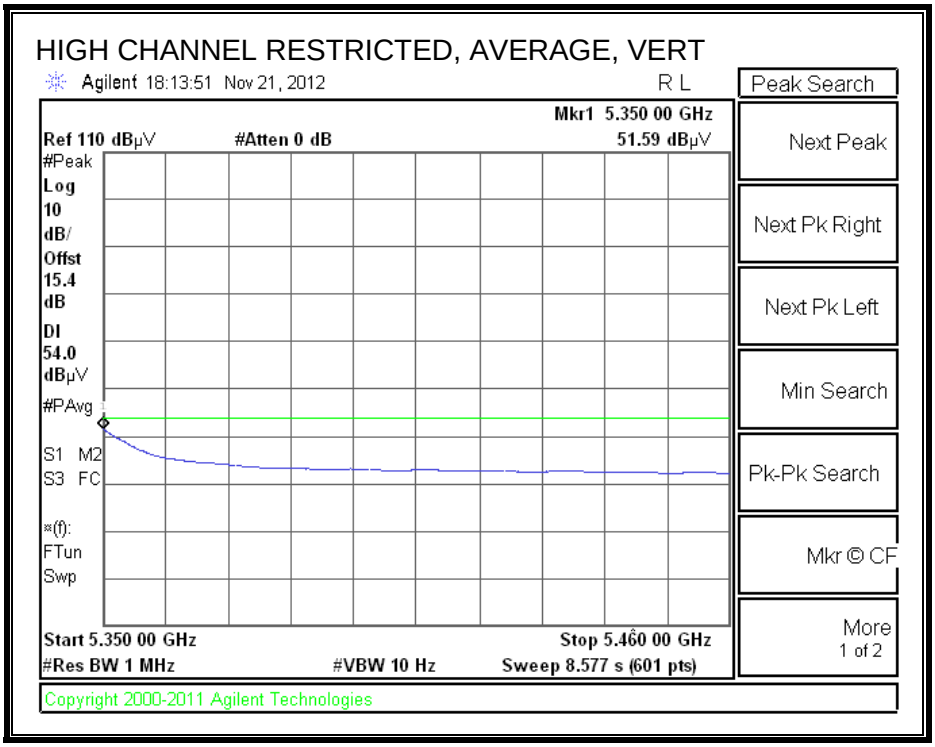




HIGH CHANNEL RESTRICTED, PEAK, VERT

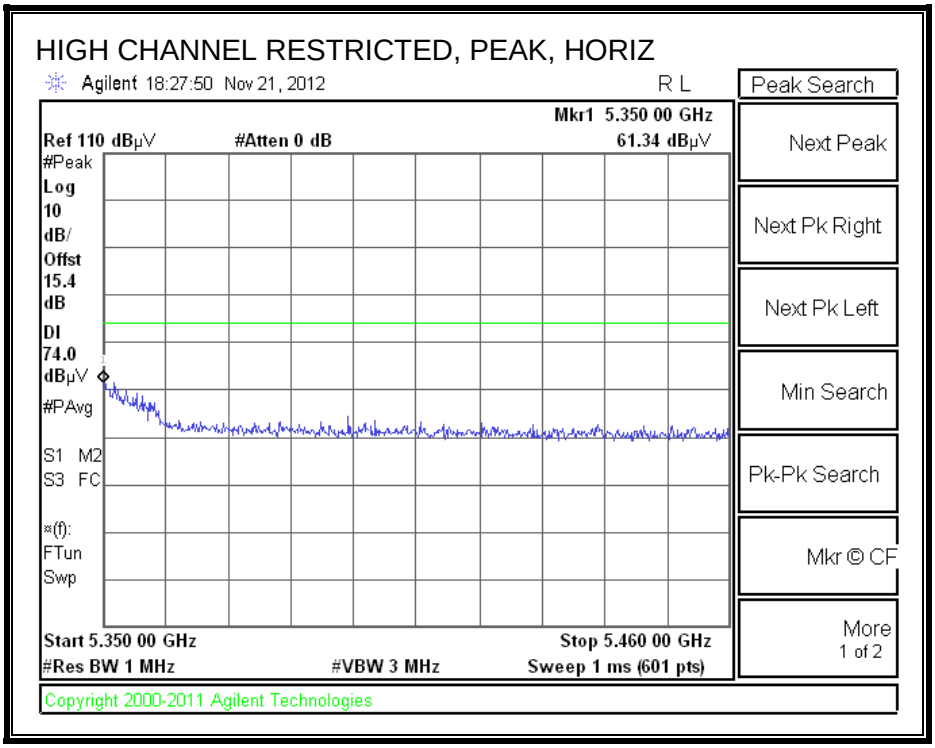


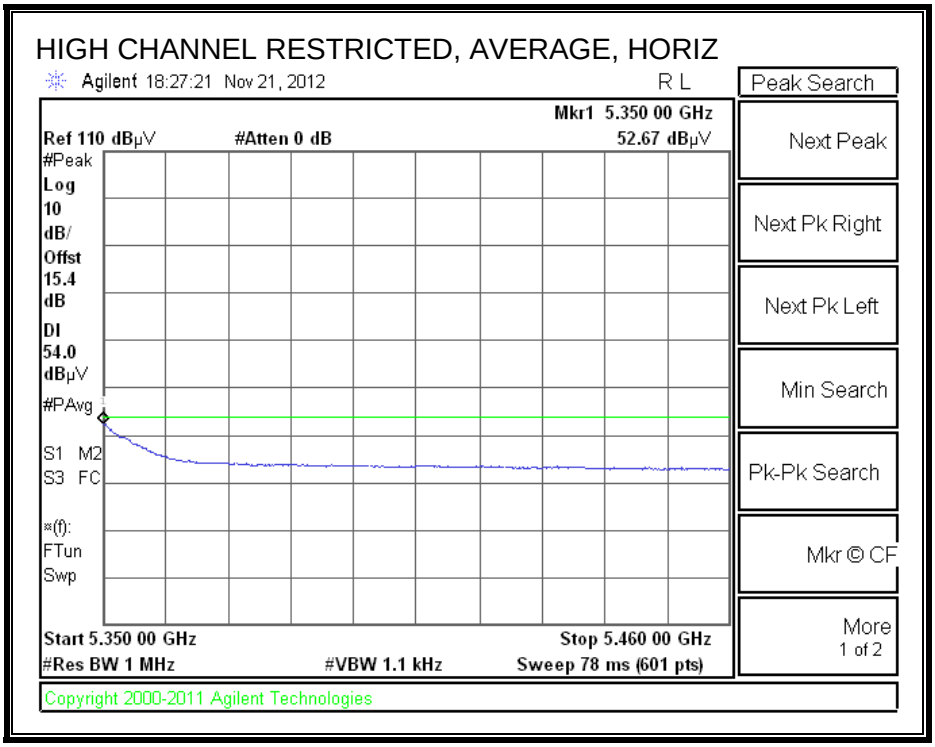
HIGH CHANNEL RESTRICTED, AVERAGE, VERT



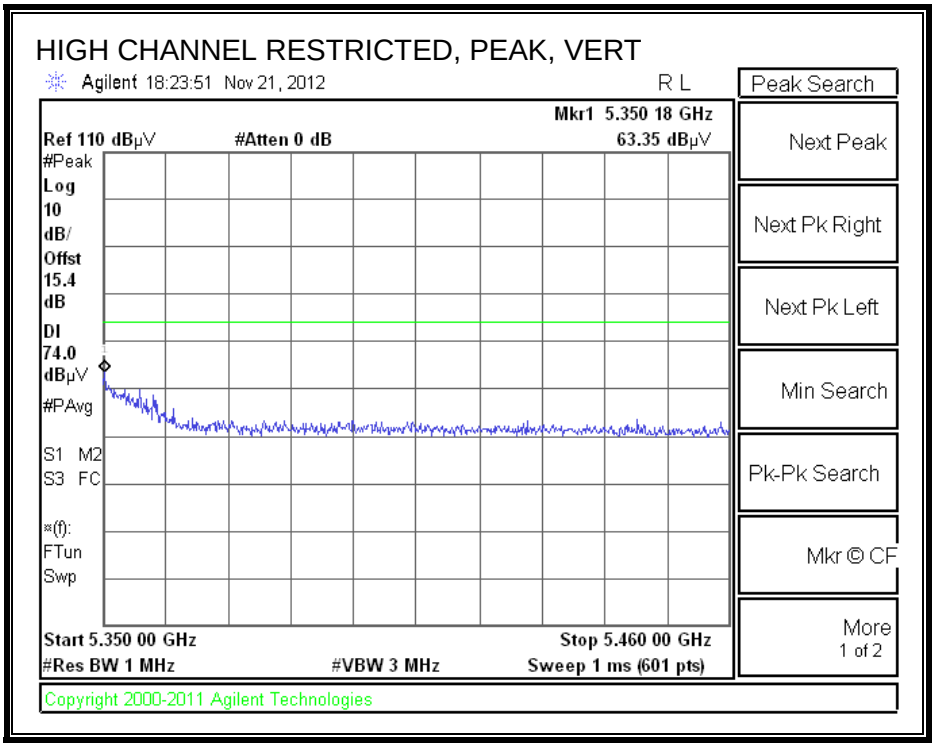
8.3.2. TX ABOVE 1 GHz 802.11n HT40 IN THE 5.3 GHz BAND, CHAIN B

RESTRICTED BANDEDGE (HIGH CHANNEL)

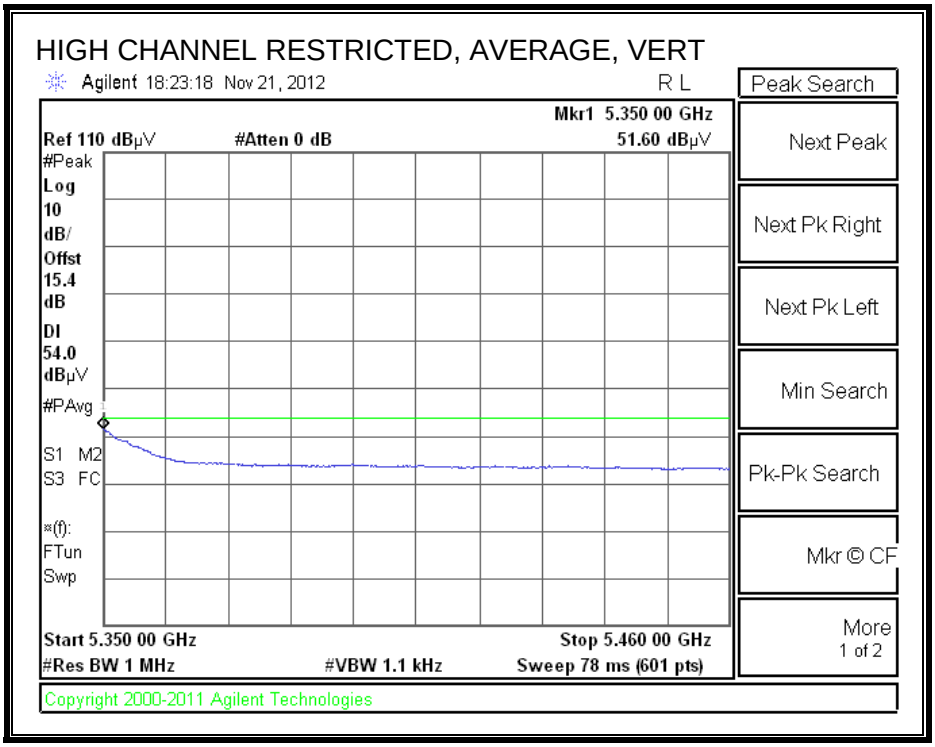




HIGH CHANNEL RESTRICTED, PEAK, VERT

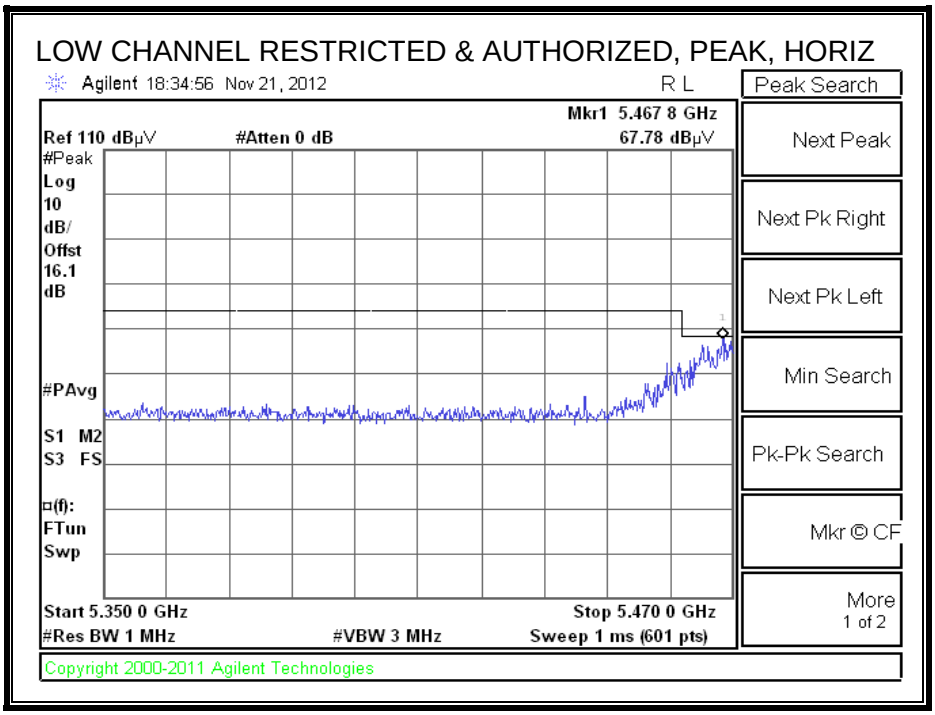


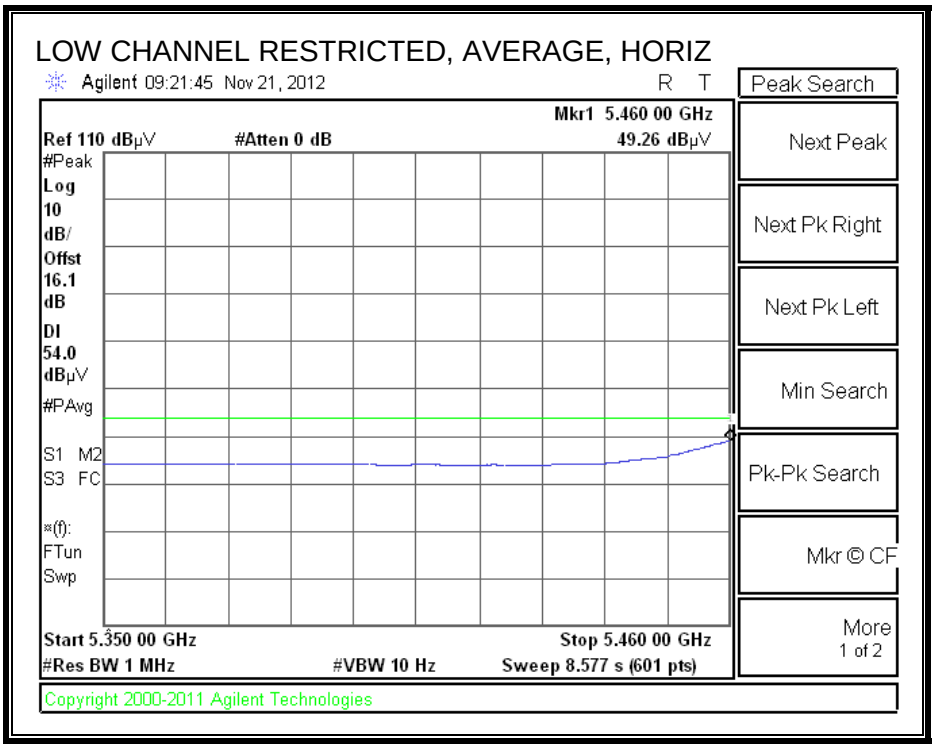
HIGH CHANNEL RESTRICTED, AVERAGE, VERT



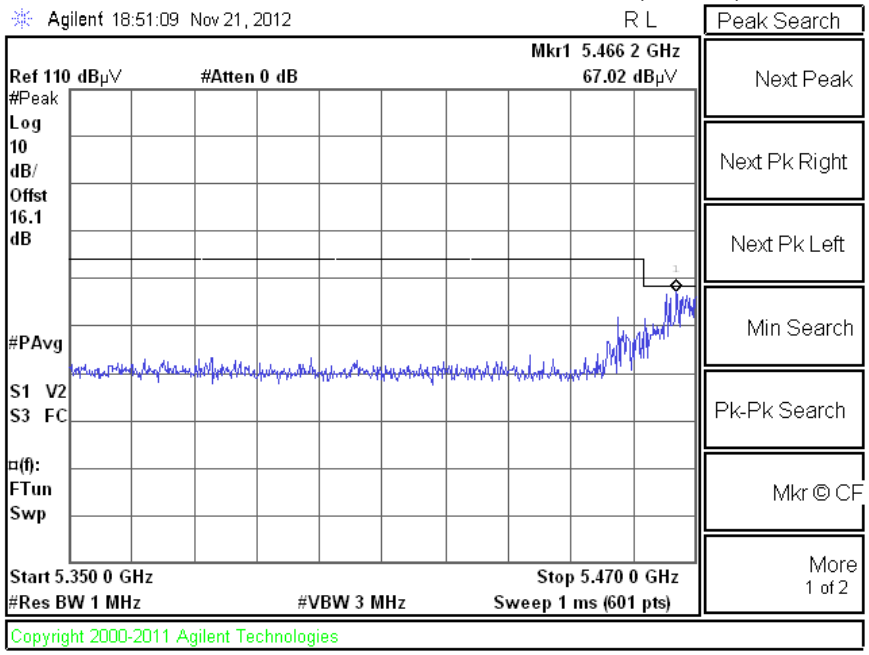
8.3.3. TX ABOVE 1 GHz 802.11n, HT20 IN THE 5.5 GHz BAND, CHAIN B

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

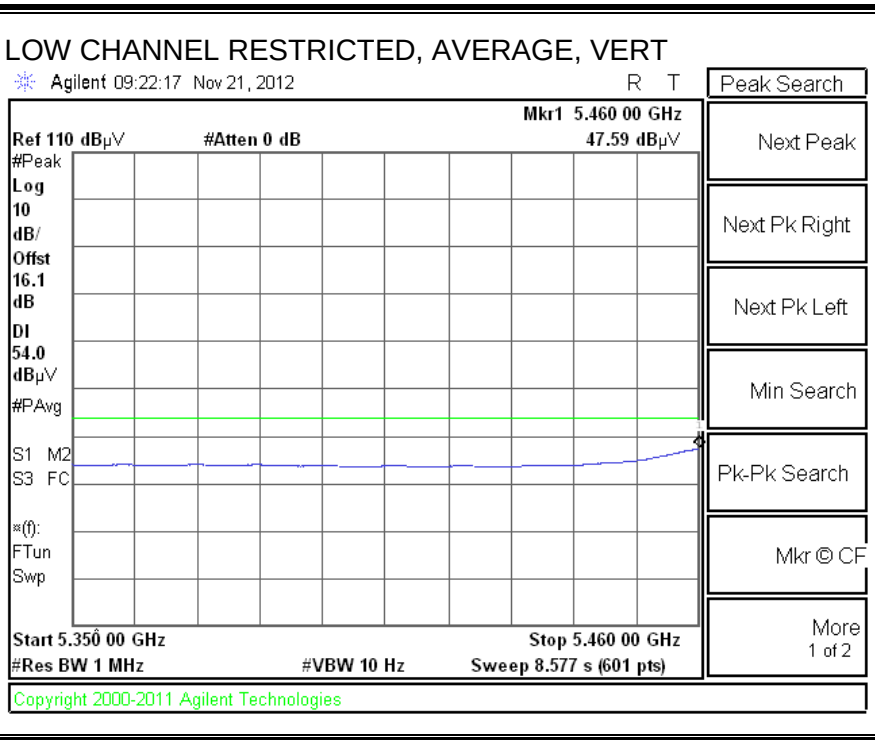




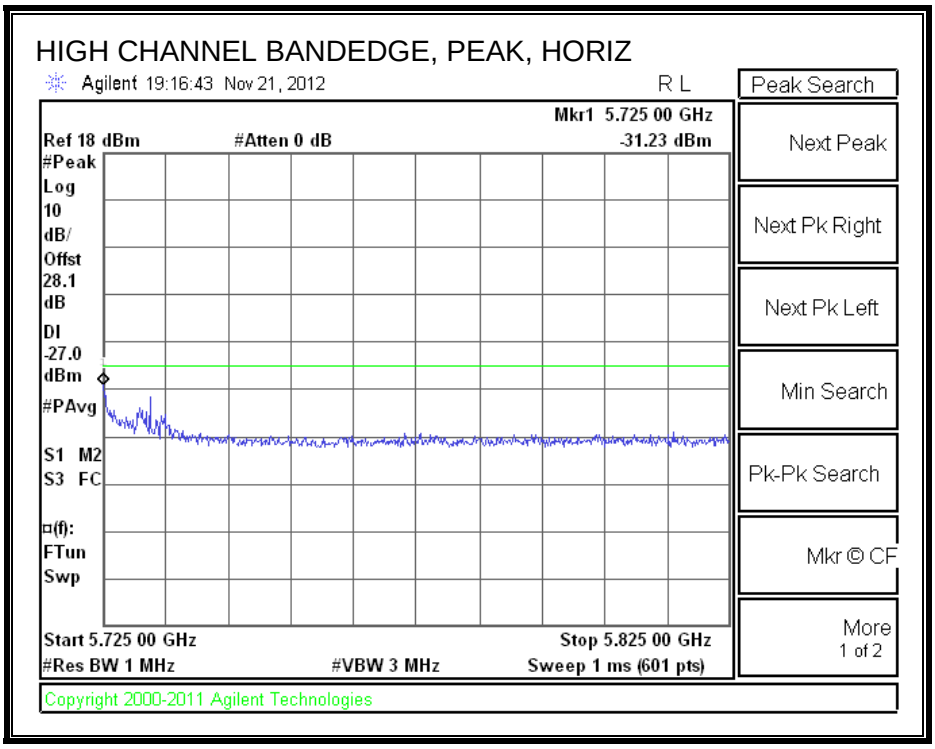
LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, VERT

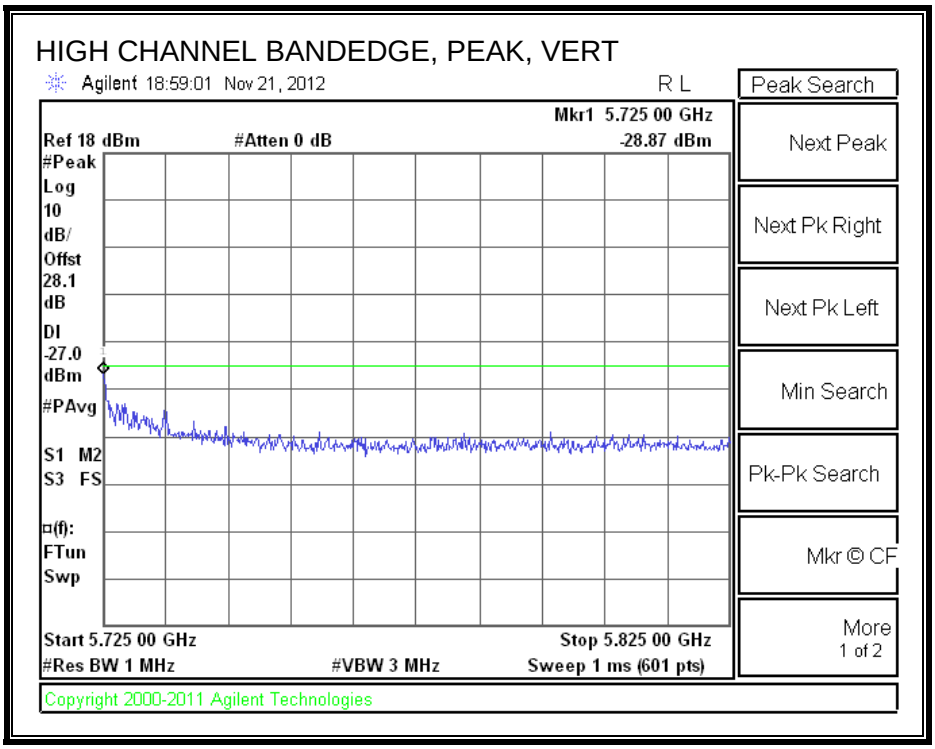


LOW CHANNEL RESTRICTED, AVERAGE, VERT



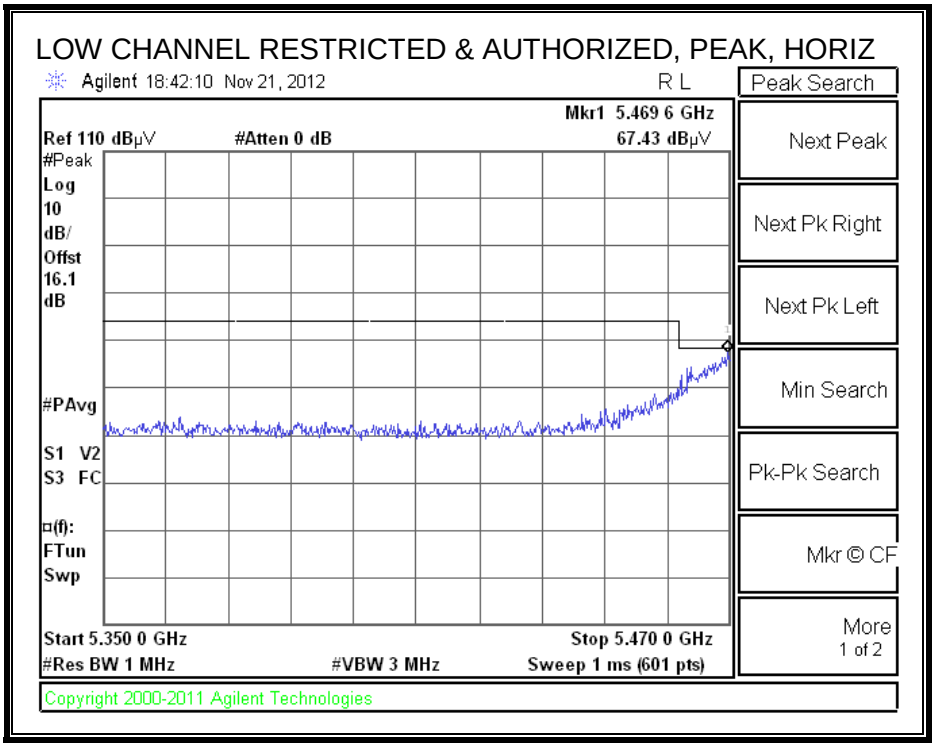
AUTHORIZED BANDEDGE (HIGH CHANNEL)

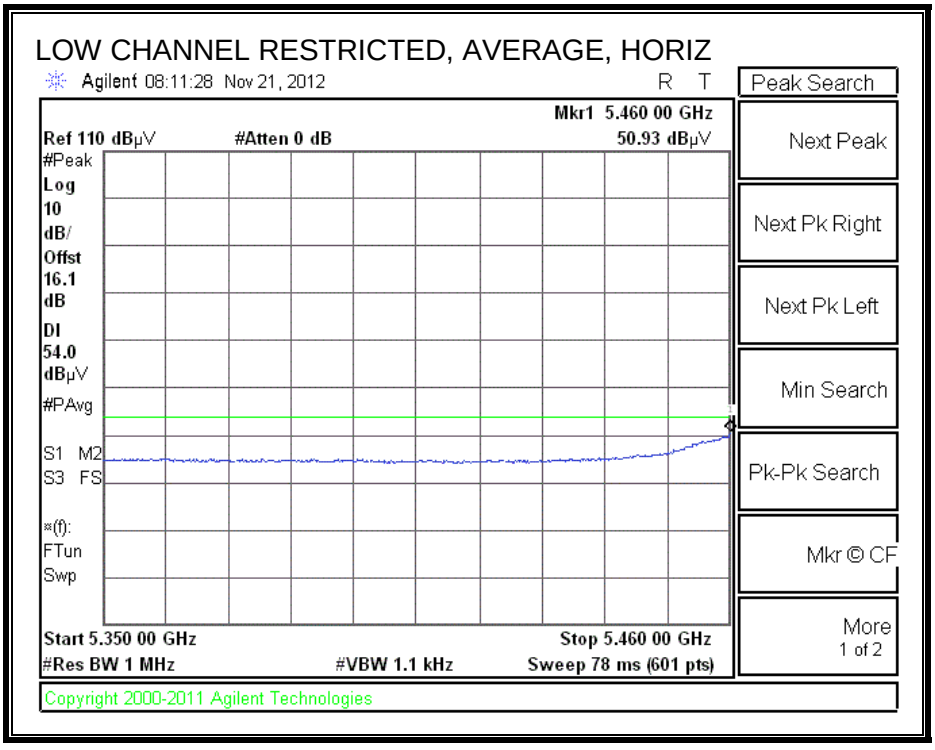




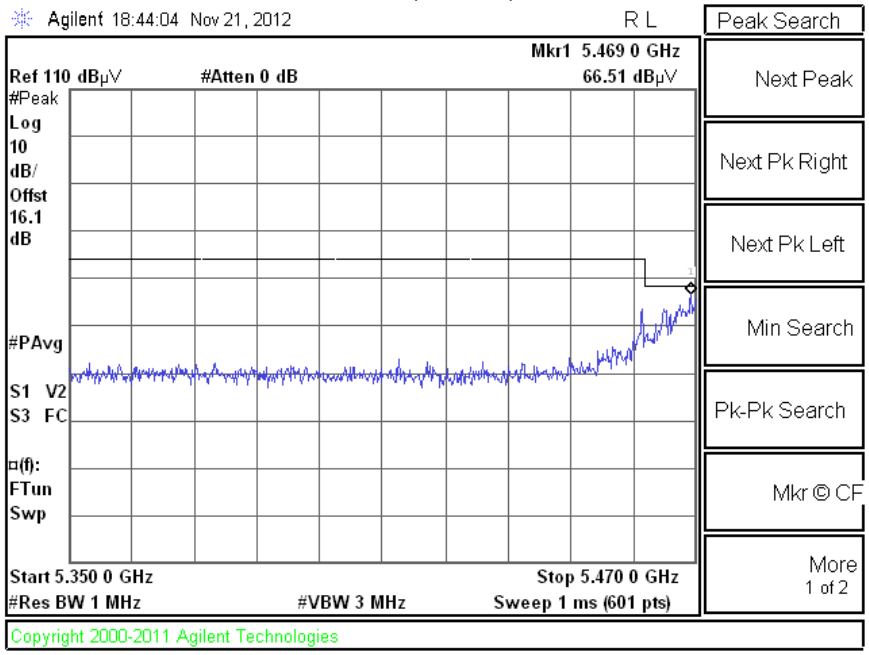
8.3.4. TX ABOVE 1 GHz 802.11n HT40 IN THE 5.5 GHz BAND, CHAIN B

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

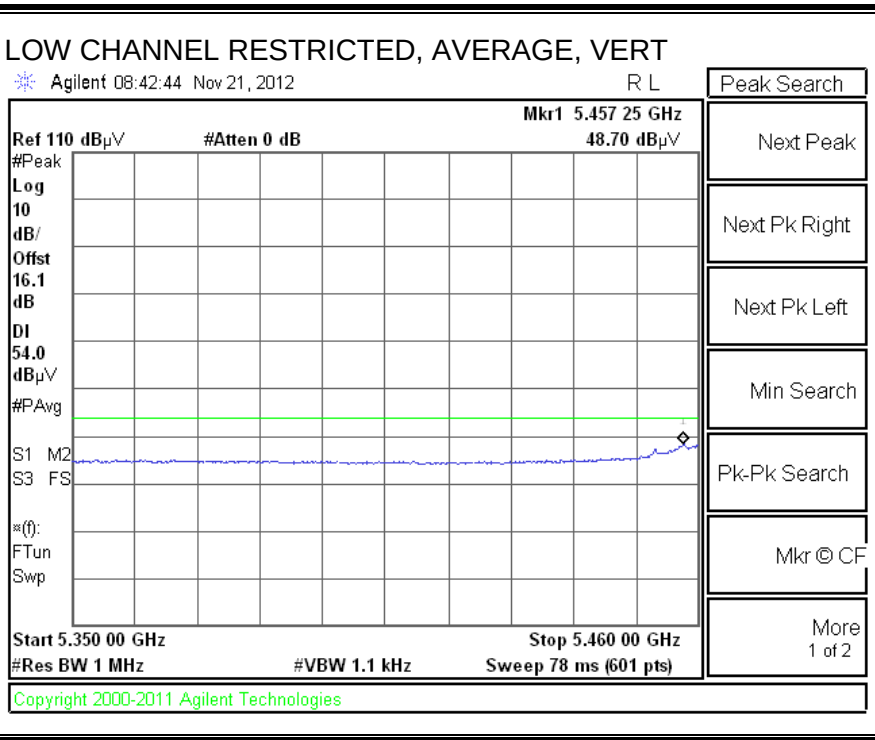




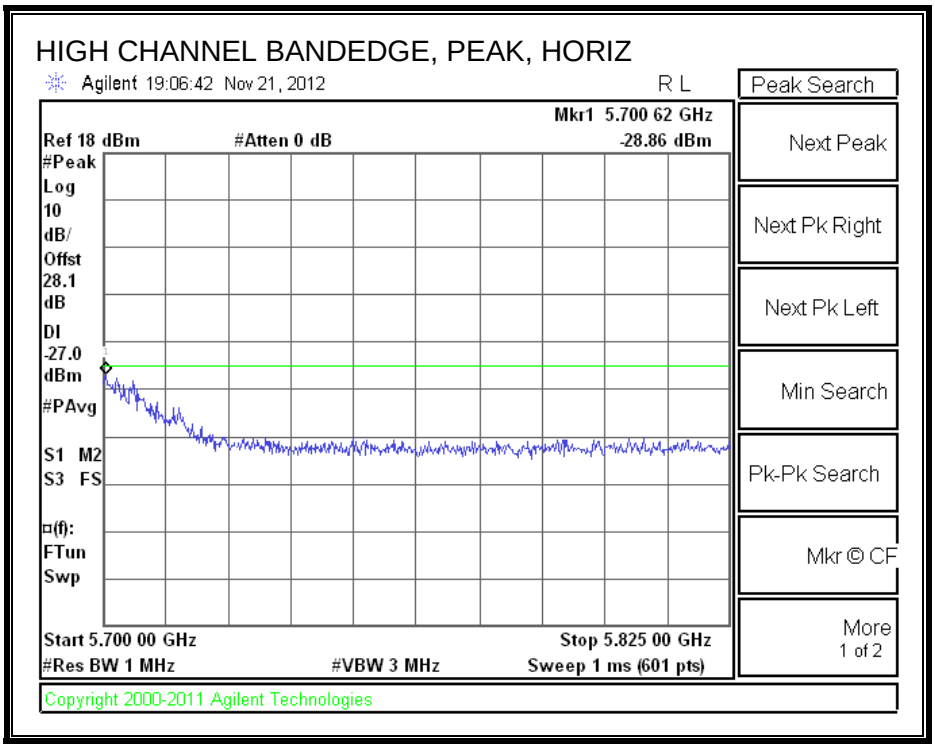
LOW CHANNEL RESTRICTED, PEAK, VERT

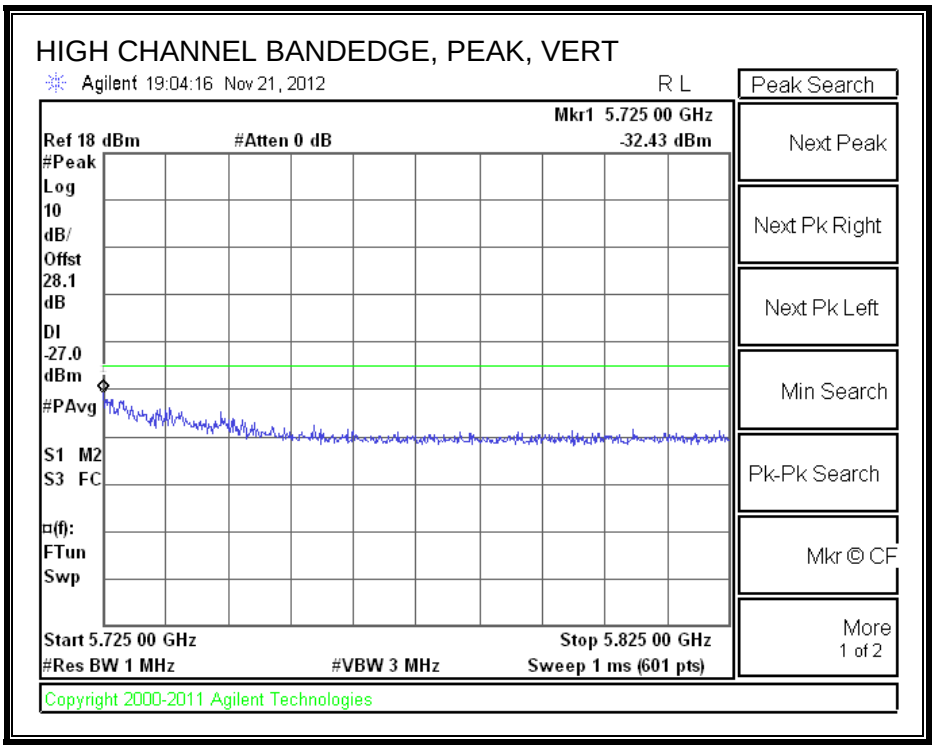


LOW CHANNEL RESTRICTED, AVERAGE, VERT



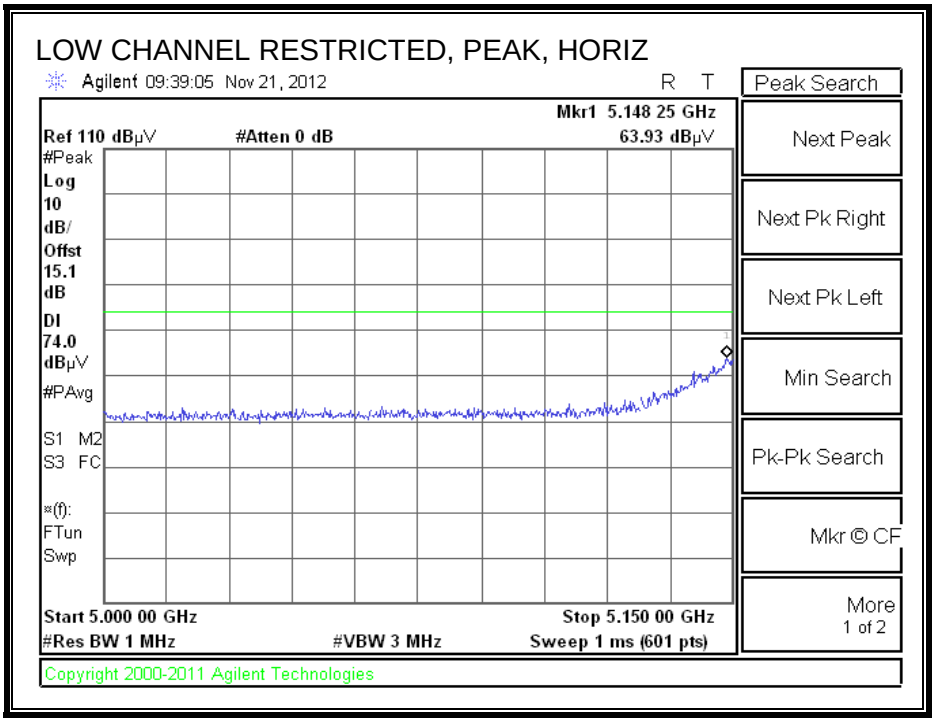
AUTHORIZED BANDEDGE (HIGH CHANNEL)

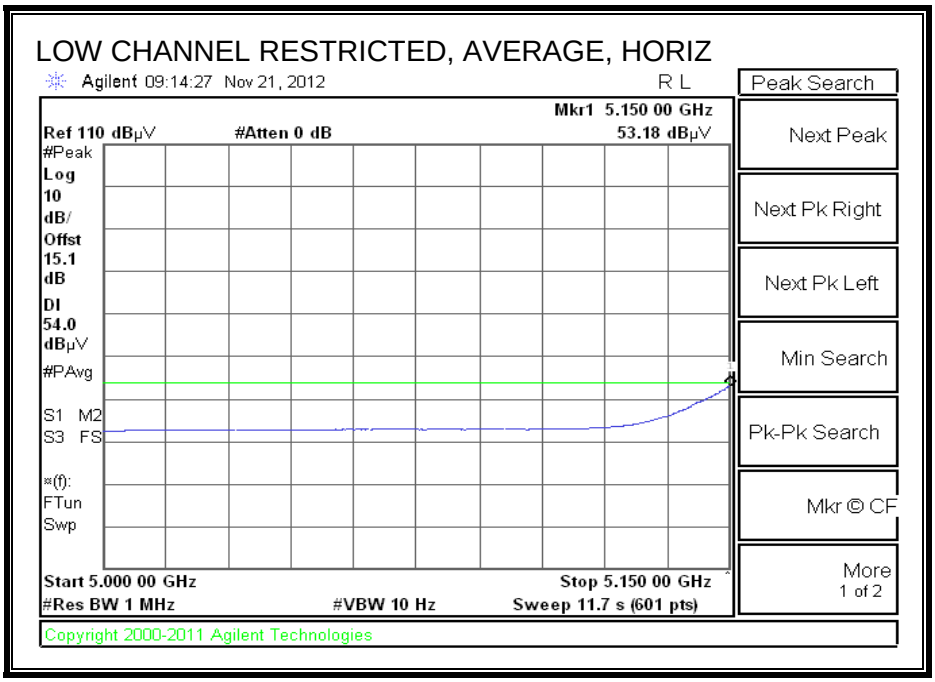




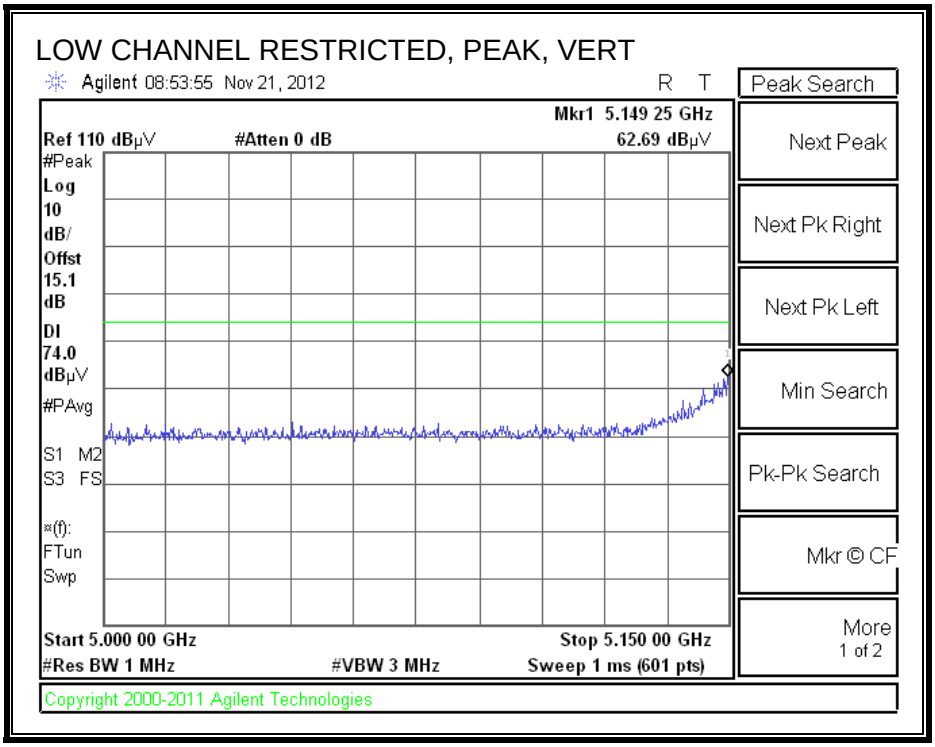
8.3.5. TX ABOVE 1 GHz 802.11n HT20 IN THE 5.2 GHz BAND, CHAIN A+B (MIMO)

RESTRICTED BANDEDGE (LOW CHANNEL)

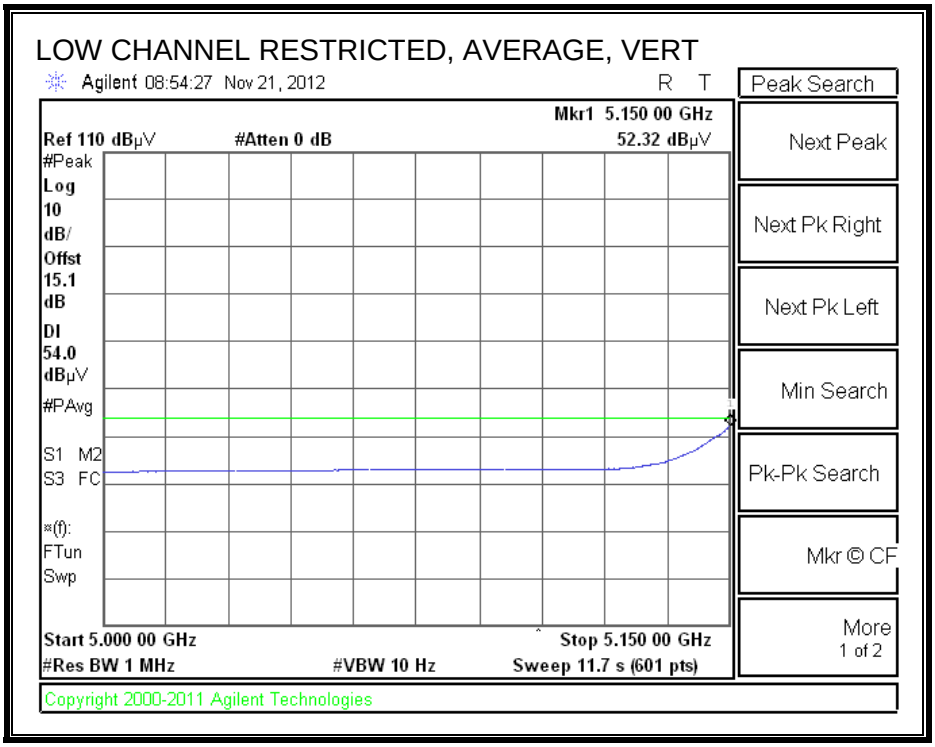




LOW CHANNEL RESTRICTED, PEAK, VERT



LOW CHANNEL RESTRICTED, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang
Date: 11/21/12
Project #: 12U14545
Company: Wistron
Test Target: FCC 15.407
Mode Oper: 5.2GHz, 2TX, HT20 mode

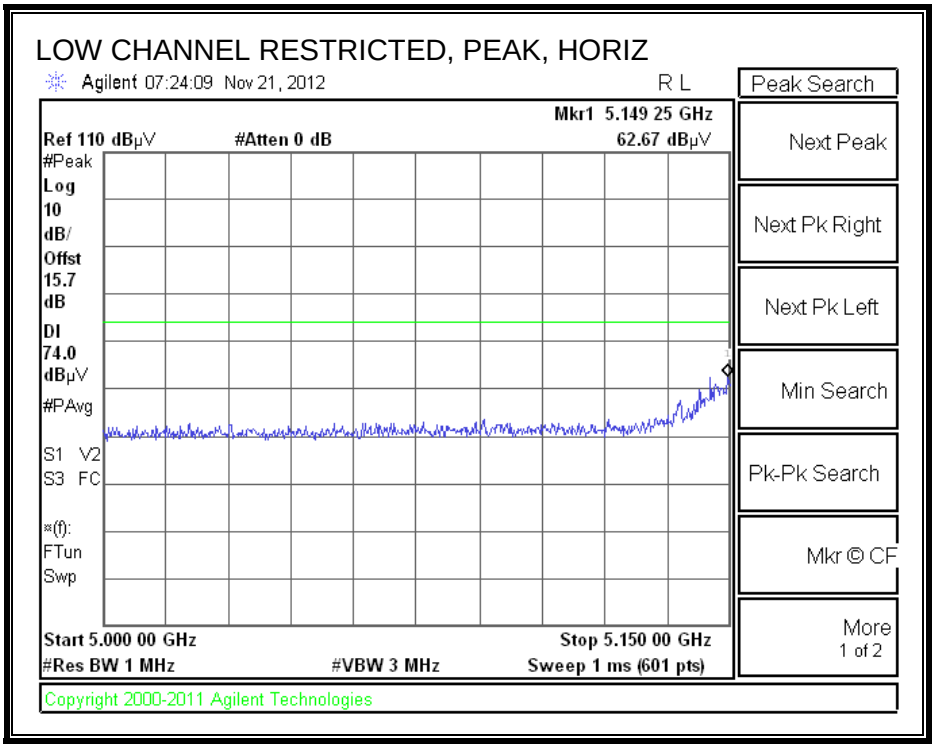
f	Measurement Frequency	Amp	Preamp Gain
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m
AF	Antenna Factor	Peak	Calculated Peak Field Strength
CL	Cable Loss	HPF	High Pass Filter

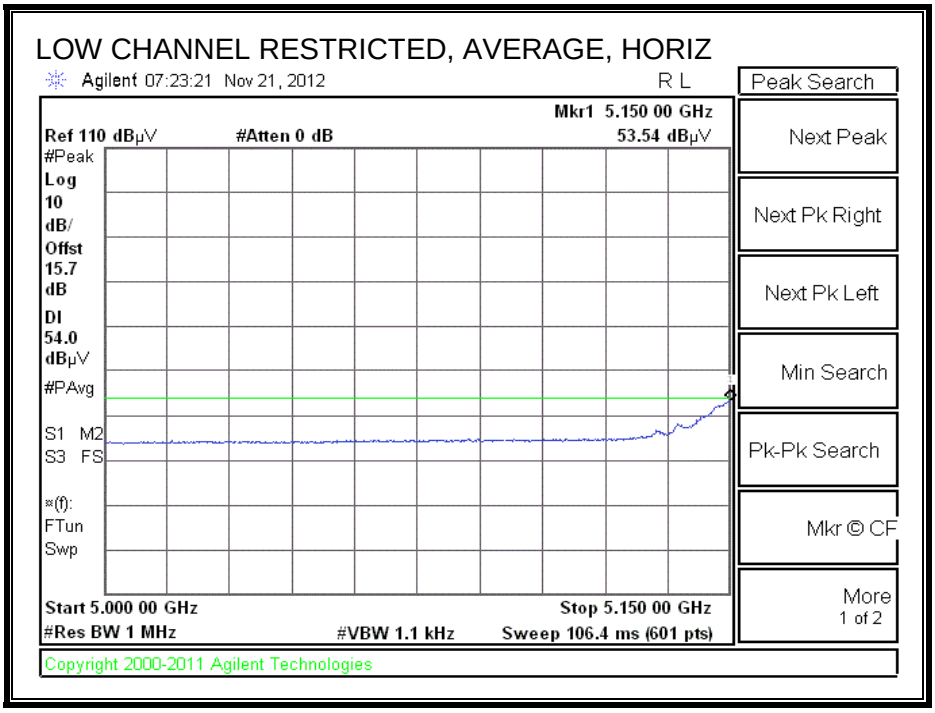
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Mid Ch, 5200MHz													
15.600	3.0	45.8	38.9	12.5	-32.3	0.0	0.0	64.9	74.0	-9.1	H	P	
15.600	3.0	32.3	38.9	12.5	-32.3	0.0	0.0	51.4	54.0	-2.6	H	A	
15.600	3.0	46.6	38.9	12.5	-32.3	0.0	0.0	65.7	74.0	-8.3	V	P	
15.600	3.0	33.1	38.9	12.5	-32.3	0.0	0.0	52.2	54.0	-1.8	V	A	

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

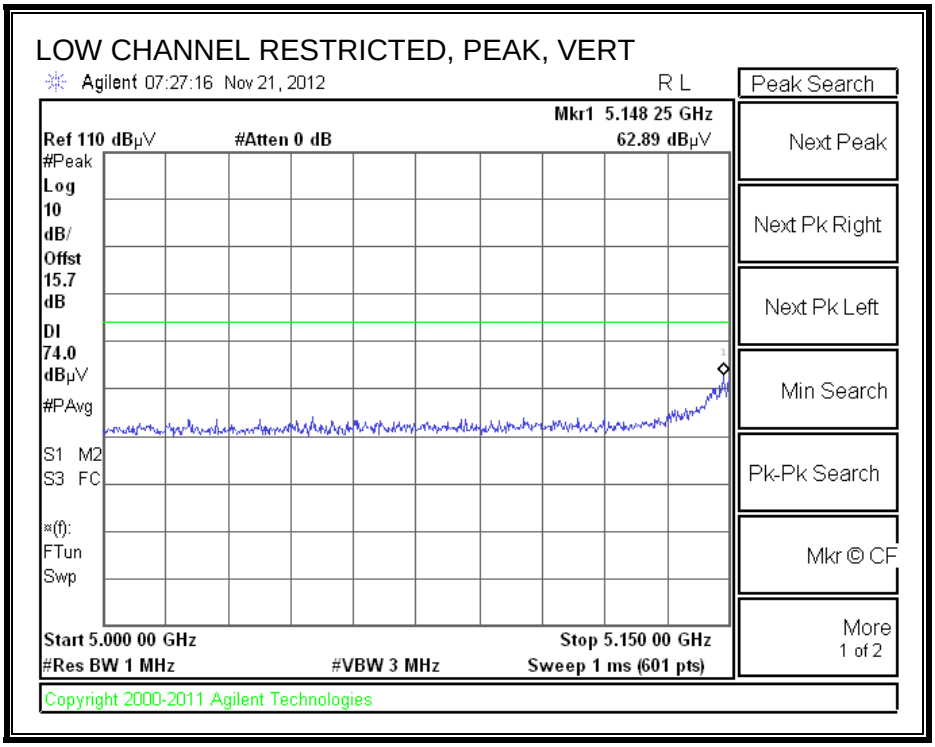
8.3.6. TX ABOVE 1 GHz 802.11n HT40 IN THE 5.2 GHz BAND, CHAIN A+B (MIMO)

RESTRICTED BANDEDGE (LOW CHANNEL)

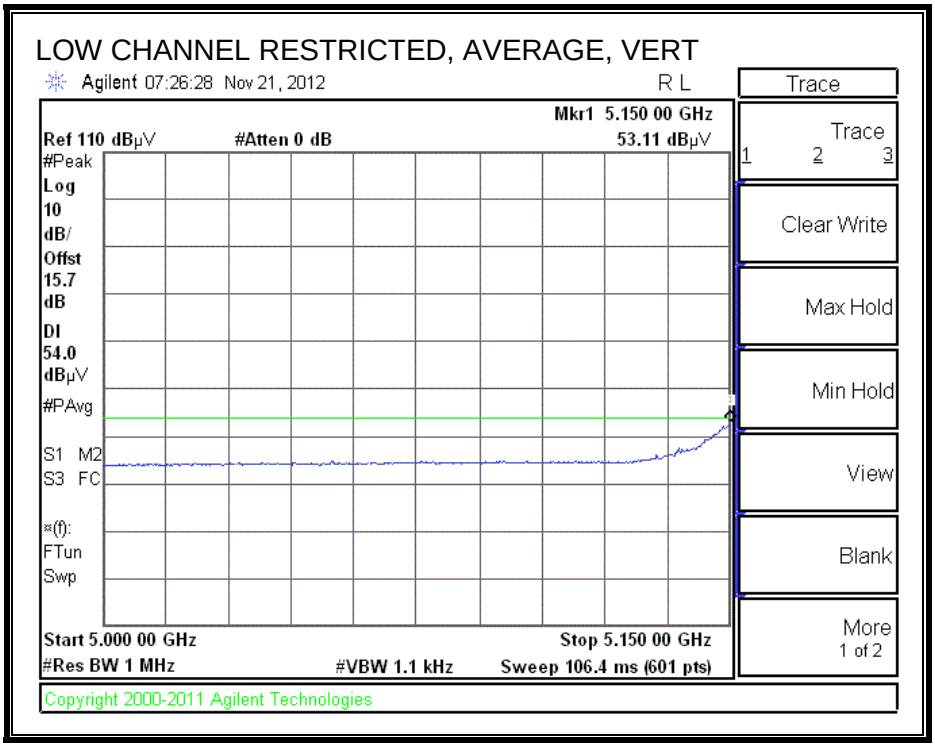




LOW CHANNEL RESTRICTED, PEAK, VERT



LOW CHANNEL RESTRICTED, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang
Date: 11/21/12
Project #: 12U14545
Company: Wistron
Test Target: FCC 15.407
Mode Oper: 5.2GHz, 2TX HT40

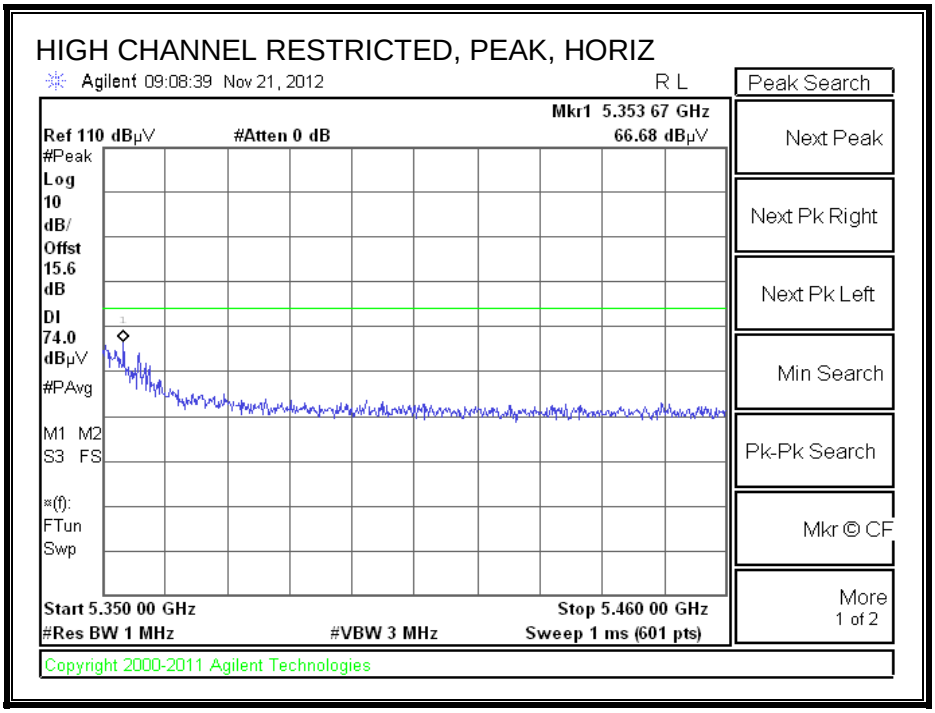
f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin vs.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

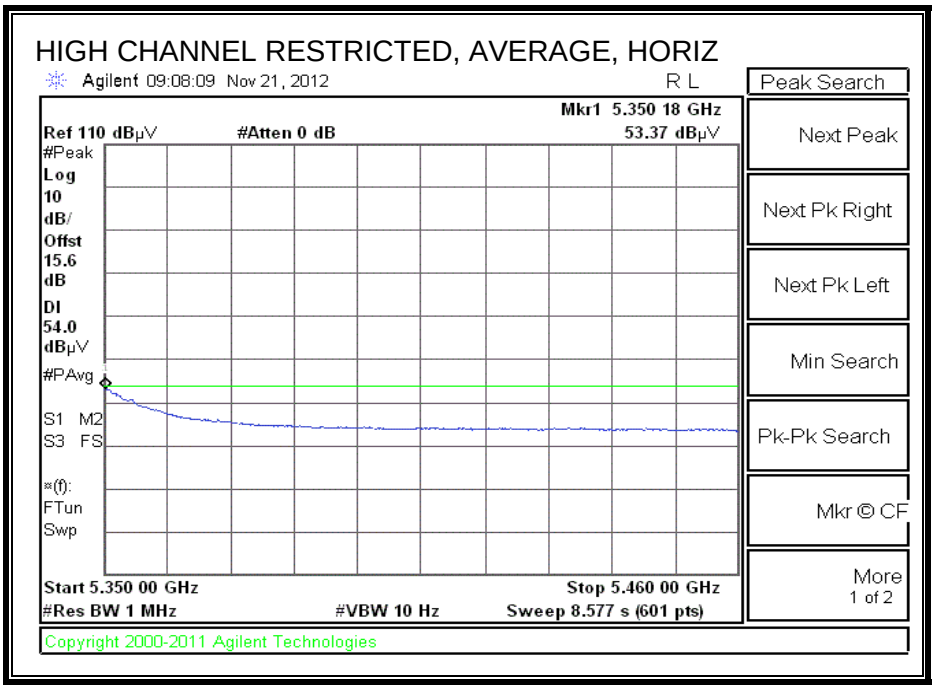
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Mid Ch, 5230MHz													
15.690	3.0	38.2	38.6	12.6	-32.3	0.0	0.0	57.1	74.0	-16.9	V	P	
15.690	3.0	25.6	38.6	12.6	-32.3	0.0	0.0	44.5	54.0	-9.5	V	A	
15.690	3.0	37.1	38.6	12.6	-32.3	0.0	0.0	56.0	74.0	-18.0	H	P	
15.690	3.0	25.3	38.6	12.6	-32.3	0.0	0.0	44.2	54.0	-9.8	H	A	

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

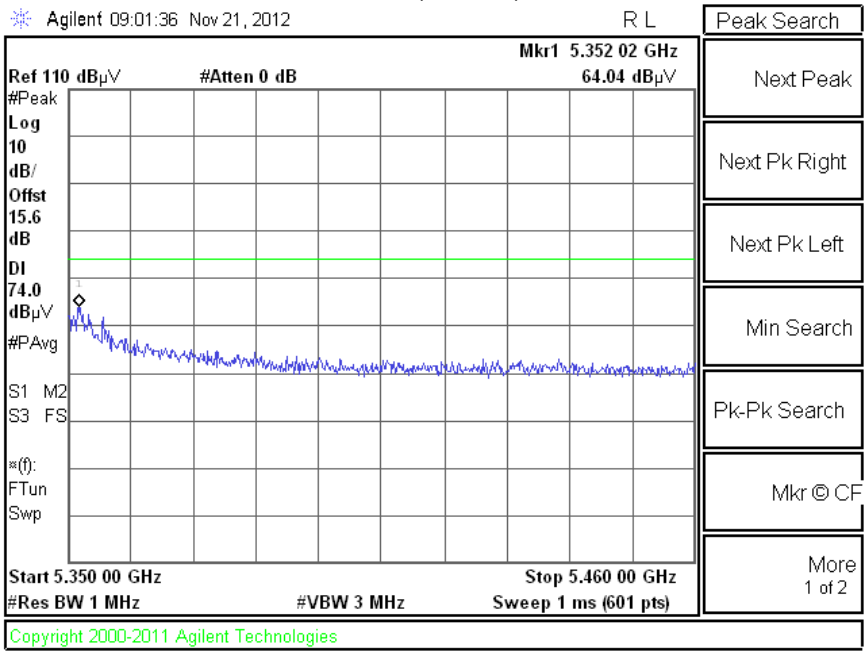
8.3.7. TX ABOVE 1 GHz 802.11n, HT20 IN THE 5.3 GHz BAND, CHAIN A+B (MIMO)

RESTRICTED BANDEDGE (HIGH CHANNEL)

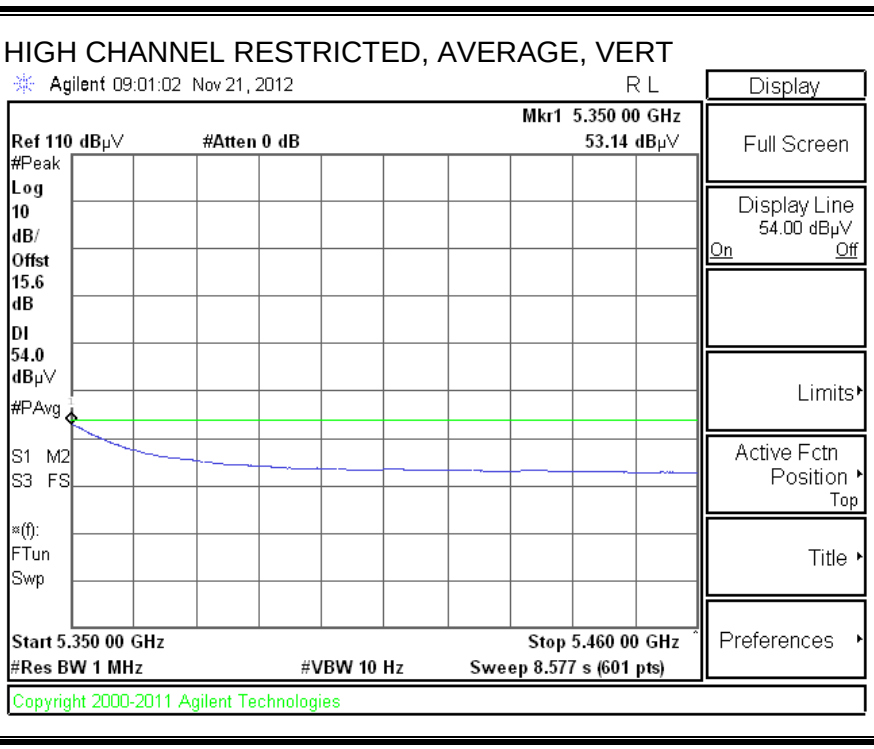




HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang
Date: 11/21/12
Project #: 12U14545
Company: Wistron
Test Target: FCC 15.407
Mode Oper: 5.3GHz, 2TX, HT20 mode

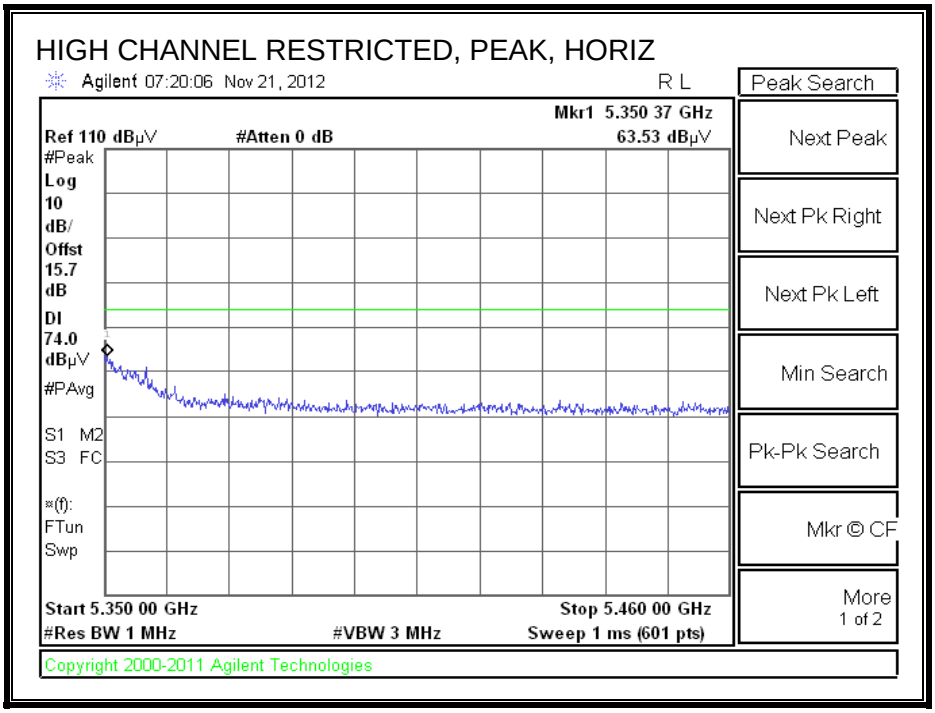
f	Measurement Frequency	Amp	Preamp Gain
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m
AF	Antenna Factor	Peak	Calculated Peak Field Strength
CL	Cable Loss	HPF	High Pass Filter

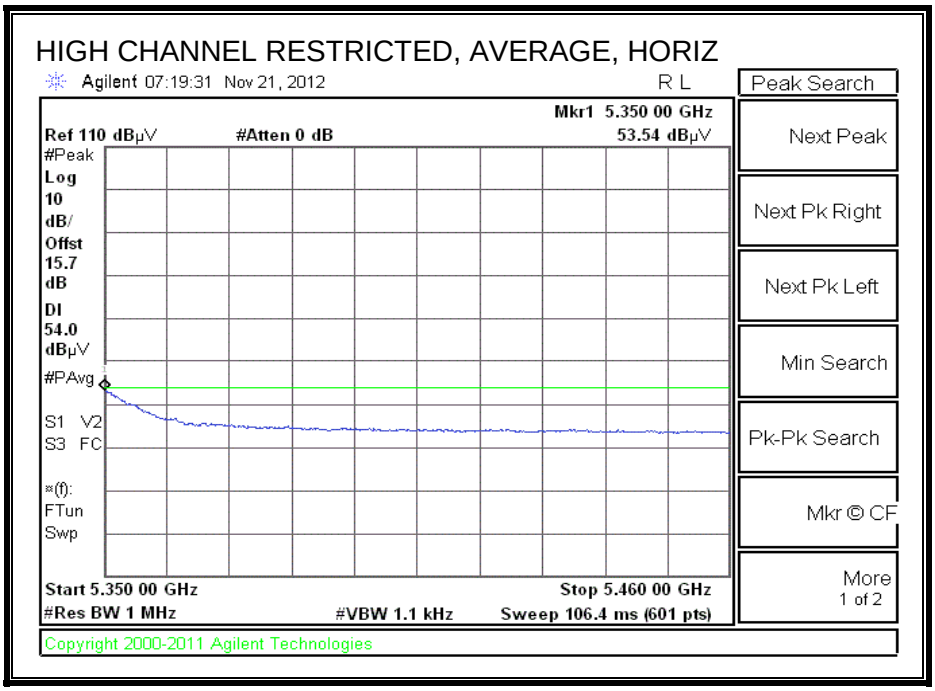
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Mid Ch, 5300MHz													
10.600	3.0	34.3	38.1	9.7	-33.9	0.0	0.0	48.2	74.0	-25.8	V	P	
10.600	3.0	24.6	38.1	9.7	-33.9	0.0	0.0	38.5	54.0	-15.5	V	A	
15.900	3.0	43.0	37.9	12.7	-32.2	0.0	0.0	61.4	74.0	-12.6	V	P	
15.900	3.0	30.8	37.9	12.7	-32.2	0.0	0.0	49.2	54.0	-4.8	V	A	
10.600	3.0	35.5	38.1	9.7	-33.9	0.0	0.0	49.4	74.0	-24.6	H	P	
10.600	3.0	24.3	38.1	9.7	-33.9	0.0	0.0	38.2	54.0	-15.8	H	A	
15.900	3.0	28.8	37.9	12.7	-32.2	0.0	0.0	47.2	74.0	-26.8	H	P	
15.900	3.0	28.4	37.9	12.7	-32.2	0.0	0.0	46.8	54.0	-7.2	H	A	

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

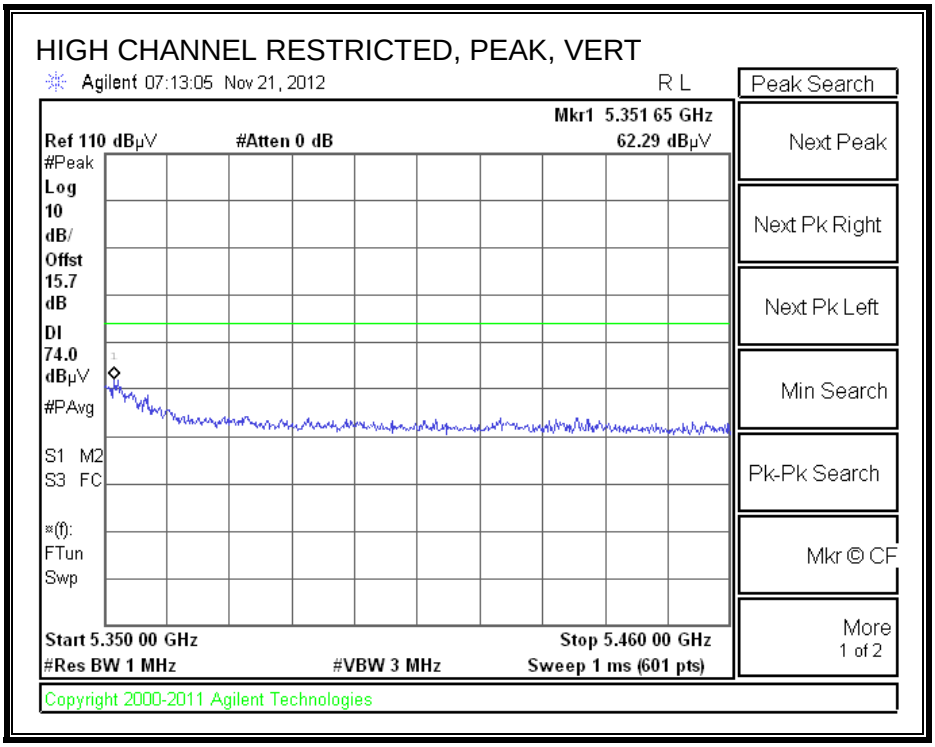
8.3.8. TX ABOVE 1 GHz 802.11n HT40 IN THE 5.3 GHz BAND, CHAIN A+B (MIMO)

RESTRICTED BANDEDGE (HIGH CHANNEL)

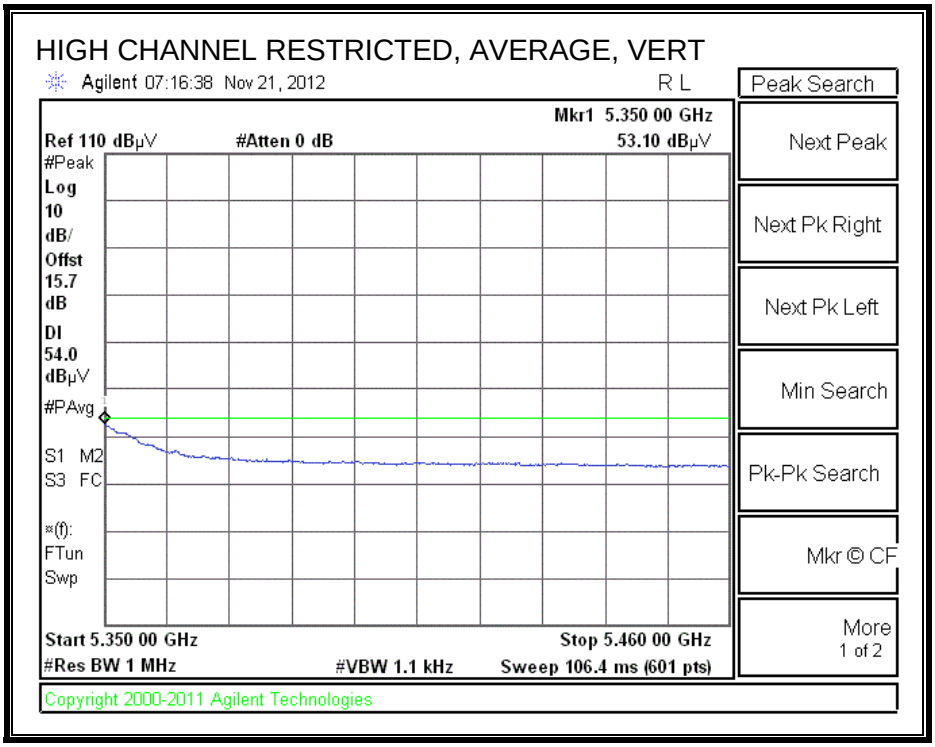




HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang
Date: 11/21/12
Project #: 12U14545
Company: Wistron
Test Target: FCC 15.407
Mode Oper: 5.3GHz, 2TX, HT40

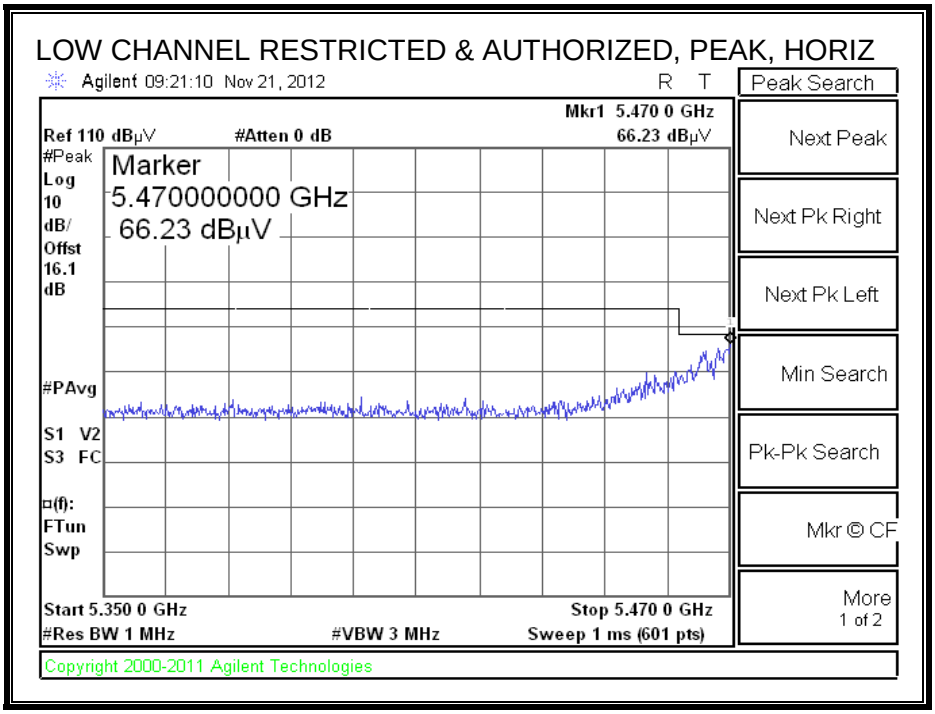
f	Measurement Frequency	Amp	Preamp Gain	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Margin vs.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

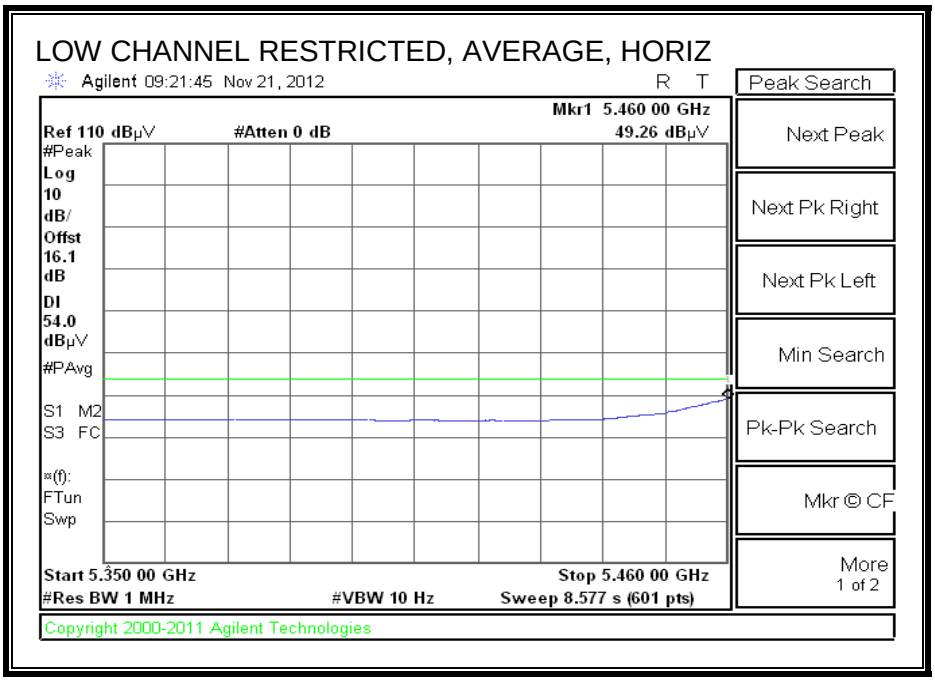
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Mid Ch, 5270MHz													
15.810	3.0	36.2	38.2	12.6	-32.2	0.0	0.0	54.8	74.0	-19.2	H	P	
15.810	3.0	24.0	38.2	12.6	-32.2	0.0	0.0	42.6	54.0	-11.4	H	A	
15.810	3.0	37.8	38.2	12.6	-32.2	0.0	0.0	56.4	74.0	-17.6	V	P	
15.810	3.0	24.9	38.2	12.6	-32.2	0.0	0.0	43.5	54.0	-10.5	V	A	

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

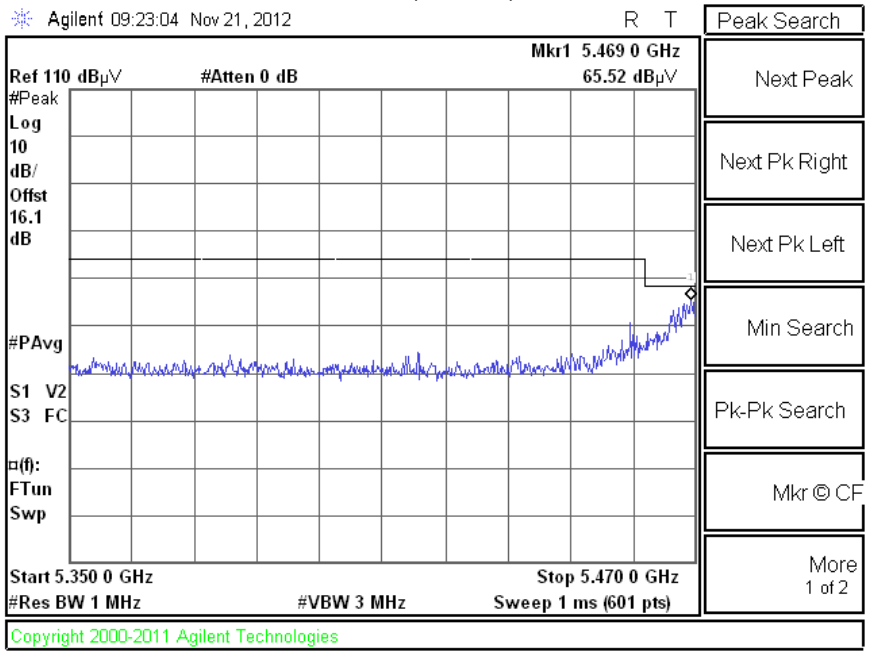
8.3.9. TX ABOVE 1 GHz 802.11n, HT20 IN THE 5.5 GHz BAND, CHAIN A+B (MIMO)

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

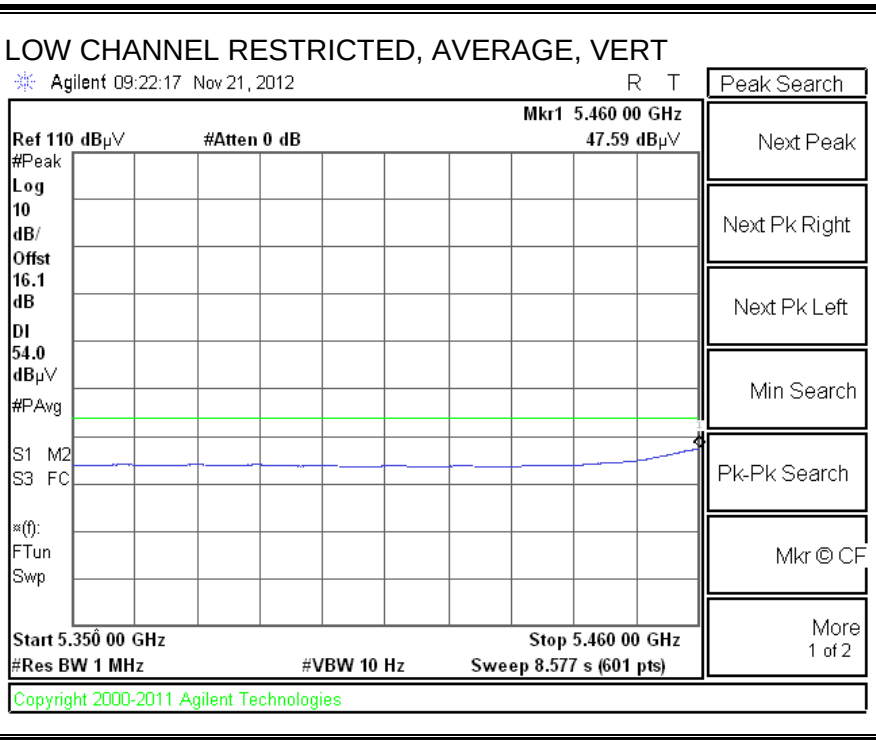




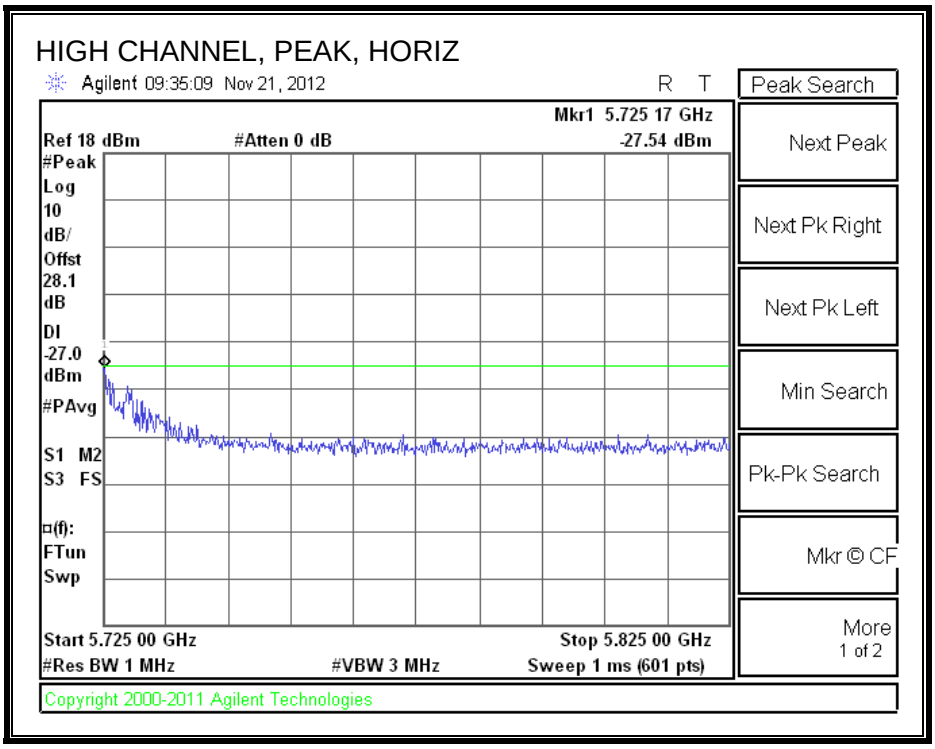
LOW CHANNEL RESTRICTED, PEAK, VERT

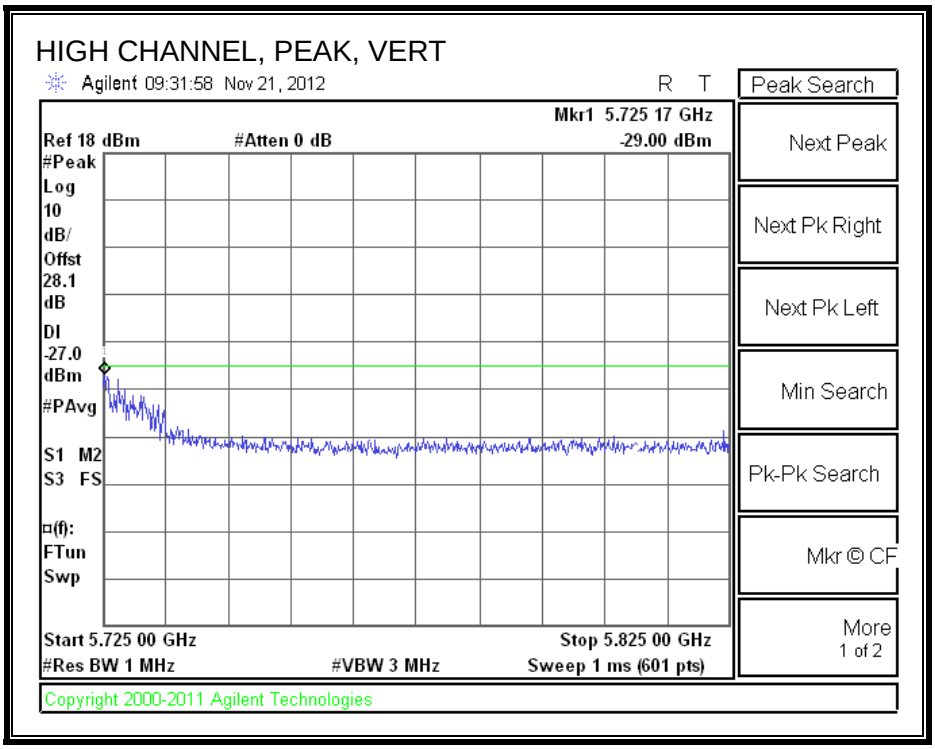


LOW CHANNEL RESTRICTED, AVERAGE, VERT



AUTHORIZED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang
Date: 11/26/12
Project #: 12U14545
Company: Wistron
Test Target: FCC 15.407
Mode Oper: 5.6GHz, 2TX, HT20 mode

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

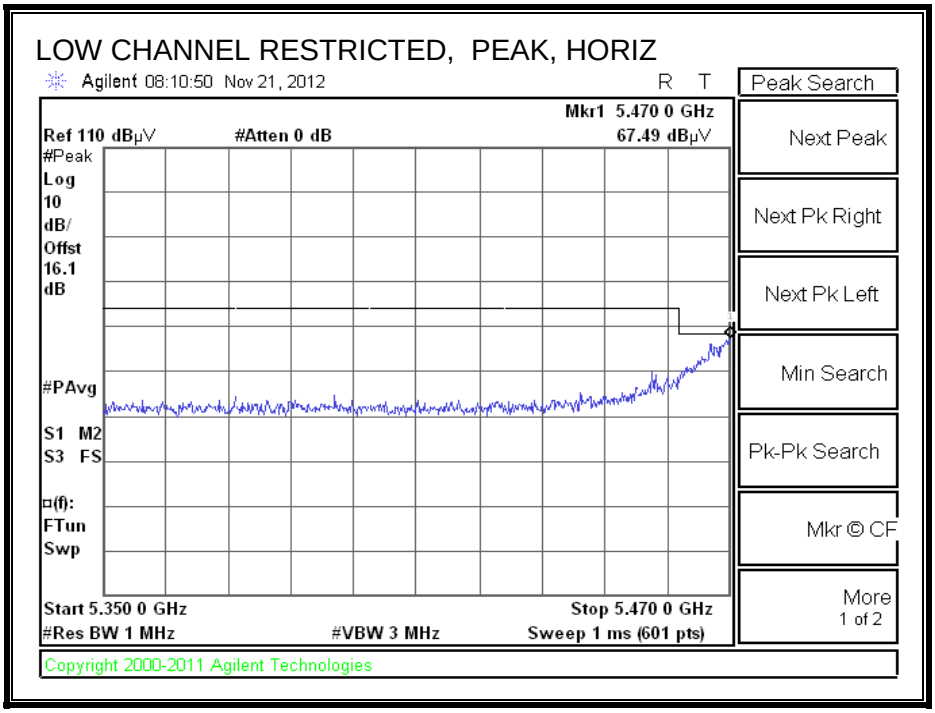
Average Field Strength Limit
Peak Field Strength Limit
Margin vs. Average Limit
Margin vs. Peak Limit

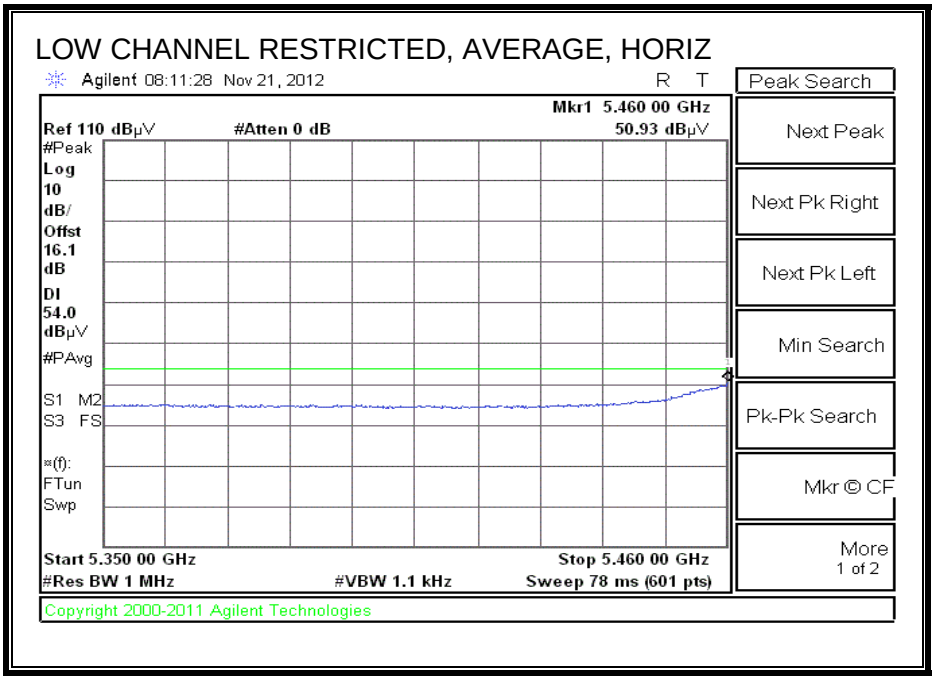
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Mid Ch, 5580MHz													
11.160	3.0	34.7	38.5	10.2	-33.3	0.0	0.0	50.1	74.0	-23.9	H	P	
11.160	3.0	23.6	38.5	10.2	-33.3	0.0	0.0	39.0	54.0	-15.0	H	A	
11.160	3.0	33.9	38.5	10.2	-33.3	0.0	0.0	49.3	74.0	-24.7	V	P	
11.160	3.0	23.2	38.5	10.2	-33.3	0.0	0.0	38.6	54.0	-15.4	V	A	

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

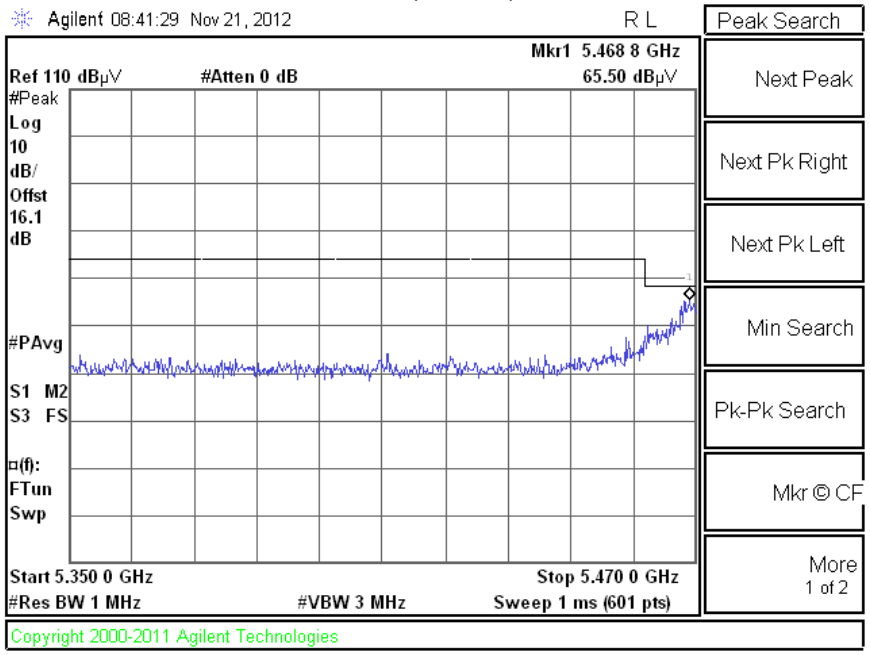
8.3.10. TX ABOVE 1 GHz 802.11n HT40 IN THE 5.5 GHz BAND, CHAIN A+B (MIMO)

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

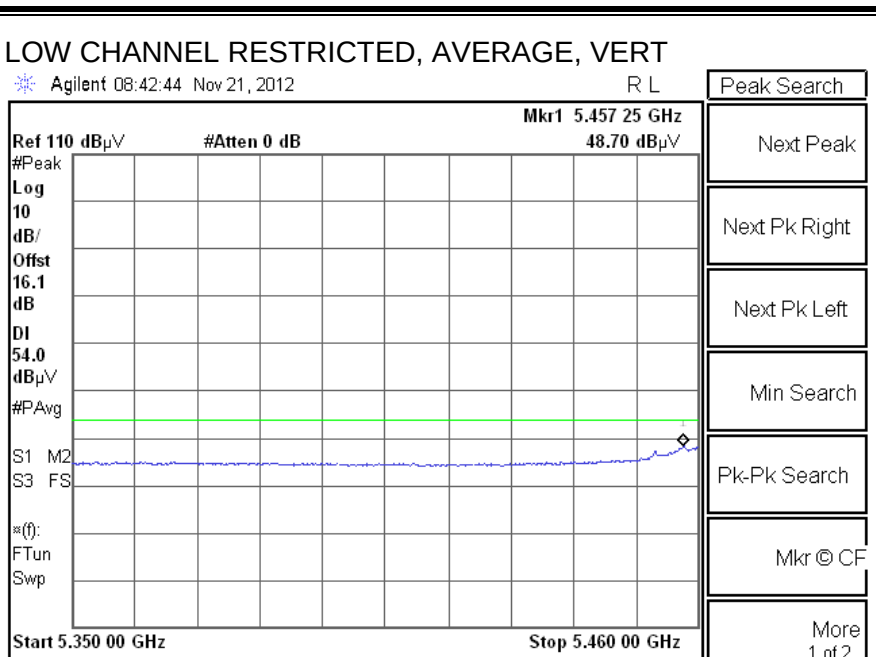




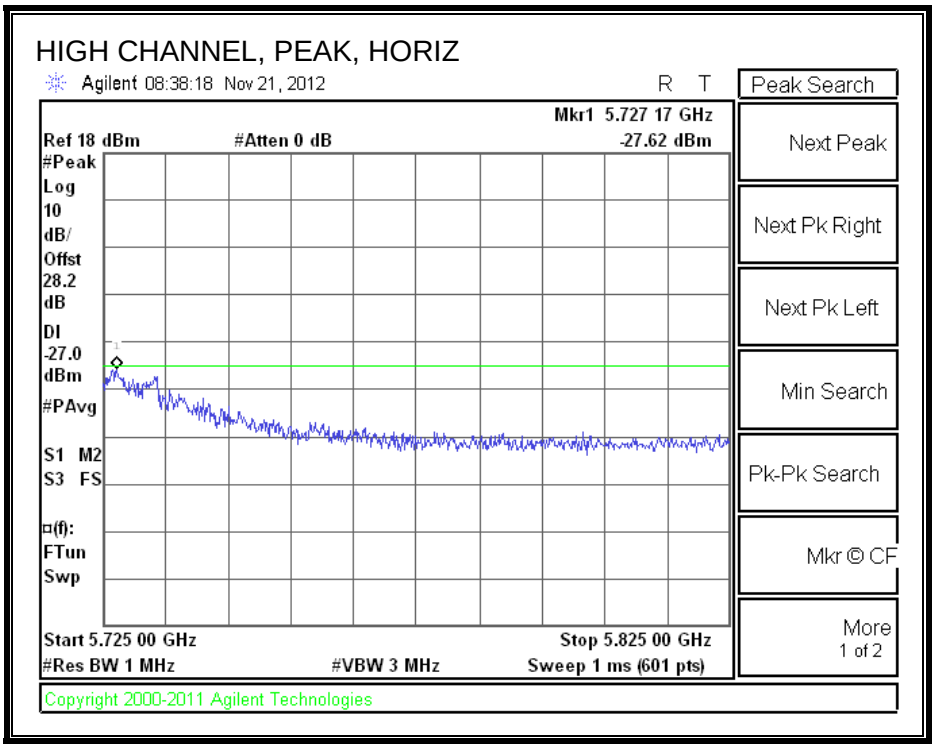
LOW CHANNEL RESTRICTED, PEAK, VERT

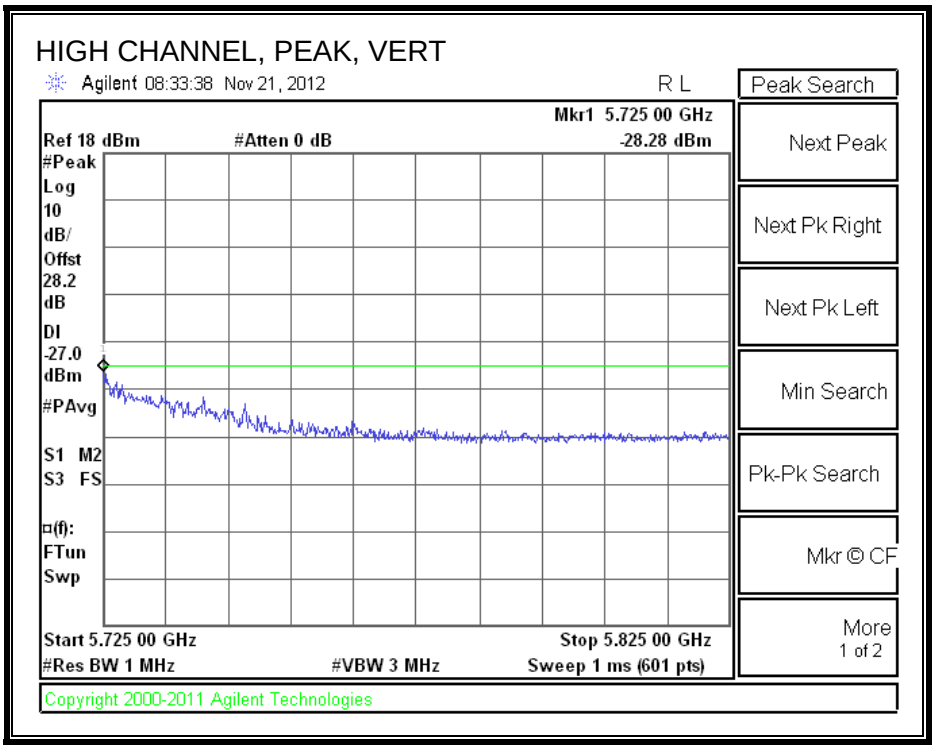


LOW CHANNEL RESTRICTED, AVERAGE, VERT



AUTHORIZED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang
Date: 11/26/12
Project #: 12U14545
Company: Wistron
Test Target: FCC 15.407
Mode Oper: 5.6GHz, 2TX, HT40

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

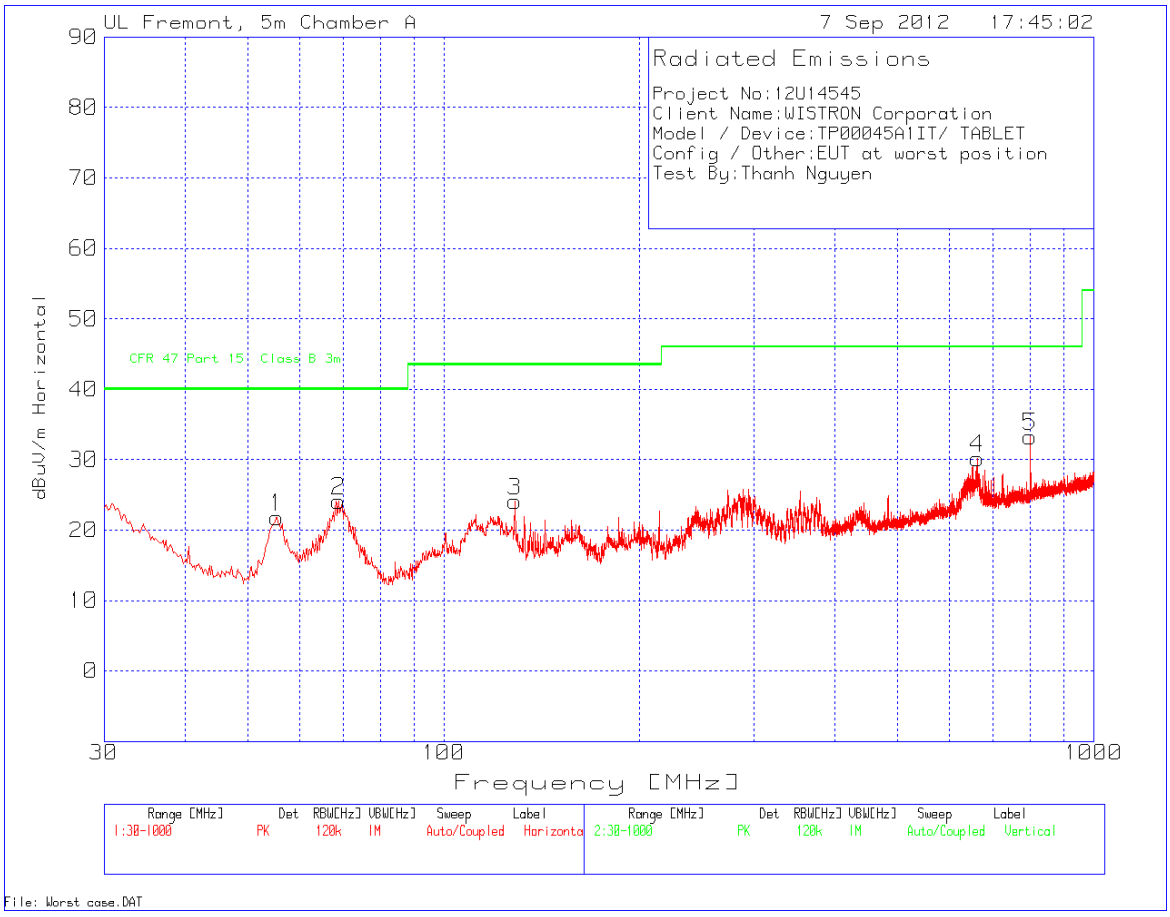
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Mid Ch, 5590MHz													
11.180	3.0	35.2	38.5	10.2	-33.2	0.0	0.0	50.7	74.0	-23.3	V	P	
11.180	3.0	23.1	38.5	10.2	-33.2	0.0	0.0	38.6	54.0	-15.4	V	A	
11.180	3.0	35.5	38.5	10.2	-33.2	0.0	0.0	51.0	74.0	-23.0	H	P	
11.180	3.0	23.0	38.5	10.2	-33.2	0.0	0.0	38.5	54.0	-15.5	H	A	

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

9. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT

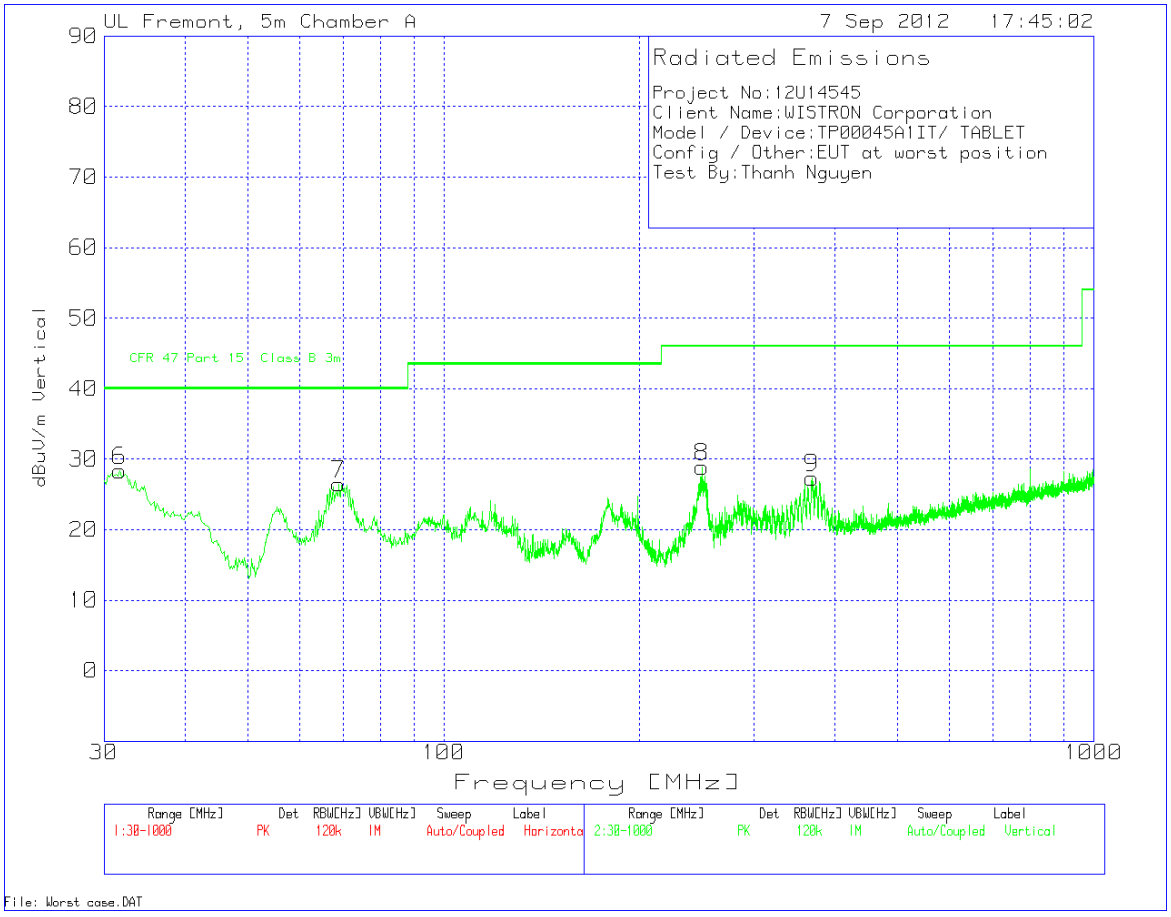


HORIZONTAL DATA

Project No:12U14545									
Client Name:WISTRON Corporation									
Model / Device:TP00045A1IT/ TABLET									
Config / Other:EUT at worst position									
Test By:Thanh Nguyen									
Horizontal 30 - 1000MHz									
Test Freq. MHz	**Meter Reading dB(µV/m)**	**Detector**	**Pre-Amp Gain [dB] + Cable Loss dB**	**Antenna Factor (dB)**	**Corrected Reading dB(µV/m)**	**CFR 47 Part 15 Class B Limit**	**Margin dB**	**Height cm**	**Polarity V/H**
55.3937	42.02	PK	-27.3	7.1	21.82	40	-18.18	400	Horz
68.9628	43.37	PK	-27.2	8	24.17	40	-15.83	400	Horz
128.8609	37.06	PK	-26.7	13.7	24.06	43.5	-19.44	200	Horz
662.1283	34.07	PK	-23.5	19.6	30.17	46	-15.83	100	Horz
799.952	35.59	PK	-23.3	21	33.29	46	-12.71	200	Horz

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

VERTICAL PLOT



VERTICAL DATA

Project No:12U14545									
Client Name:WISTRON Corporation									
Model / Device:TP00045A1IT/ TABLET									
Config / Other:EUT at worst position									
Test By:Thanh Nguyen									
Vertical 30 - 1000MHz									
Test Freq. MHz	**Meter Reading dB(µV/m)**	**Detector**	**Pre-Amp Gain [dB] + Cable Loss dB**	**Antenna Factor (dB)**	**Corrected Reading dB(µV/m)**	**CFR 47 Part 15 Class B Limit**	**Margin dB**	**Height cm**	**Polarity V/H**
31.7446	35.88	PK	-27.5	20	28.38	40	-11.62	100	Vert
68.9628	45.7	PK	-27.2	8	26.5	40	-13.5	100	Vert
249.6263	43.24	PK	-25.9	11.5	28.84	46	-17.16	200	Vert
369.4225	37.52	PK	-25.4	15.2	27.32	46	-18.68	100	Vert

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

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

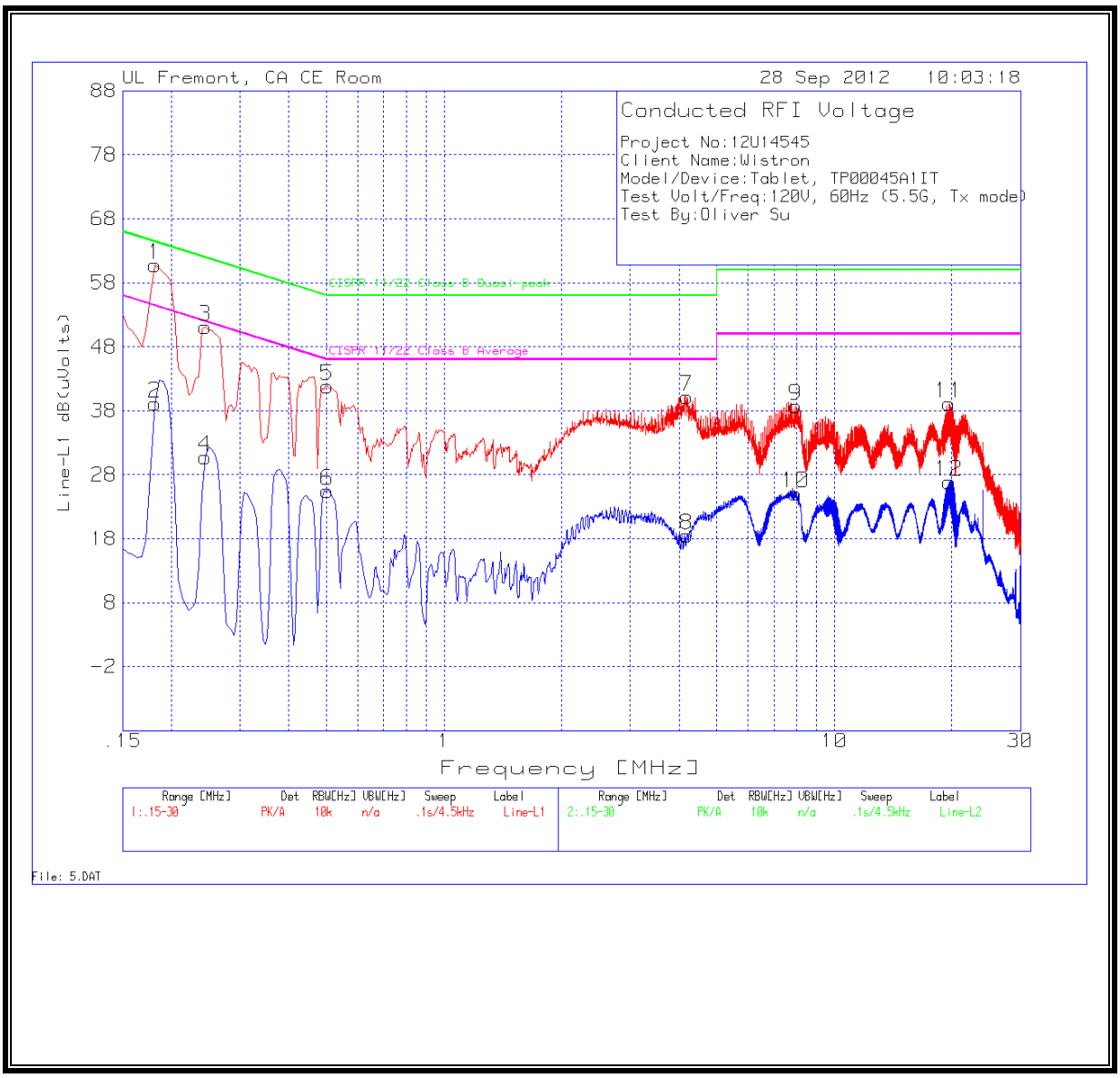
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

Project No:12U14545									
Client Name:Wistron									
Model/Device:Tablet, TP00045A1IT									
Test Volt/Freq:120V, 60Hz (5.5G, Tx mode)									
Test By:Oliver Su									
Line-L1 .15 - 30MHz									
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin	CISPR 11/22 Class B Average	Margin
0.1815	60.7	PK	0.1	0	60.8	64.4	-3.6	-	-
0.1815	39.02	Av	0.1	0	39.12	-	-	54.4	-15.28
0.2445	51.06	PK	0.1	0	51.16	61.9	-10.74	-	-
0.2445	30.71	Av	0.1	0	30.81	-	-	51.9	-21.09
0.501	41.73	PK	0.1	0	41.83	56	-14.17	-	-
0.501	25.38	Av	0.1	0	25.48	-	-	46	-20.52
4.191	39.97	PK	0.1	0.1	40.17	56	-15.83	-	-
4.191	18.35	Av	0.1	0.1	18.55	-	-	46	-27.45
7.9485	38.6	PK	0.1	0.1	38.8	60	-21.2	-	-
7.9485	24.87	Av	0.1	0.1	25.07	-	-	50	-24.93
19.716	38.69	PK	0.3	0.2	39.19	60	-20.81	-	-
19.716	26.36	Av	0.3	0.2	26.86	-	-	50	-23.14
Line-L2 .15 - 30MHz									
0.1815	56.69	PK	0.1	0	56.79	64.4	-7.61	-	-
0.1815	35.61	Av	0.1	0	35.71	-	-	54.4	-18.69
0.2445	48.21	PK	0.1	0	48.31	61.9	-13.59	-	-
0.2445	28.54	Av	0.1	0	28.64	-	-	51.9	-23.26
0.492	42.56	PK	0.1	0	42.66	56.1	-13.44	-	-
0.492	26.63	Av	0.1	0	26.73	-	-	46.1	-19.37
4.344	40.46	PK	0.1	0.1	40.66	56	-15.34	-	-
4.344	22.58	Av	0.1	0.1	22.78	-	-	46	-23.22
7.9575	40.08	PK	0.1	0.1	40.28	60	-19.72	-	-
7.9575	25.7	Av	0.1	0.1	25.9	-	-	50	-24.1
19.797	36.73	PK	0.3	0.2	37.23	60	-22.77	-	-
19.797	24.85	Av	0.3	0.2	25.35	-	-	50	-24.65
PK - Peak detector									
Av - Average detector									

LINE 1 RESULTS



LINE 2 RESULTS