

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

## **CERTIFICATION TEST REPORT**

FOR

Intel® Centrino® Advanced-N 6200 (Tested Inside Of Lenovo ThinkPad X200/X201 Tablet Series)

> FCC MODEL NUMBER: 622ANHMW IC MODEL NUMBER: 622ANHU

> > FCC ID: PD9622ANHU IC: 1000M-9622ANHU

REPORT NUMBER: 09U12796-2

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

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NVLAP LAB CODE 200065-0

**Revision History** 

Rev.	lssue Date	Revisions	Revised By
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REPORT NO: 09U12796-2 FC

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# **1. ATTESTATION OF TEST RESULTS**

IC MODEL NUMBER: SERIAL NUMBER:	622ANHU Z1ZHJ769P0UX & Z1ZHJ769P00V			
DATE TESTED:	OCTOBER 13 – NOVEMBER 23, 2009			
APPLICABLE STANDARDS				
ST	ANDARD	TEST RESULTS		
CER 47 P	art 15 Subpart C	Pass		

CFR 47 Part 15 Subpart CPassINDUSTRY CANADA RSS-210 Issue 7 Annex 9PassINDUSTRY CANADA RSS-GEN Issue 2Pass

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.

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Tested By:

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# 2. TEST METHODOLOGY

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

# 3. FACILITIES AND ACCREDITATION

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

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

# 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%.

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# 5. EQUIPMENT UNDER TEST

# 5.1. DESCRIPTION OF EUT

The EUT is a 2x2 WLAN 802.11 a/b/g/n Intel® Centrino® Advanced-N 6200 card.

The radio module is manufactured by Intel Corporation.

# 5.2. MAXIMUM OUTPUT POWER

The test measurement passed within  $\pm$  0.5dBm of the original output power.

In order to pass the band edge 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 Output Power (dBm)
5.2GHz	HT40	5190	A	11.67
5.20112	11140	5190	В	14.89
5.3GHz	HT40	5190	A + B	12.44 + 11.26
5.3GHz	HT40	5310	A	13.30

# 5.3. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

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

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# 5.4. DESCRIPTION OF AVAILABLE ANTENNAS

#### ACON Antenna

1A Antenna Part Number	1B Manufacture	1C Antenna Type	1D Cable Assembly Part Number and Information	1E *Peak Gain with Cable loss (dBi)	
			25.90675.001	2400-2500MHz	-0.39 dBi (peak)
Main antenna	Advanced Connectek	PIFA	50 ohm Coaxial.	5150-5350MHz	1.45 dBi (peak)
25.90675.001	Inc.	PIFA	length: 550mm diameter: 1.13mm	5470-5725MHz	1.47 dBi (peak)
			Connector: U.FL	5725-5850MHz	0.92 dBi (peak)
	Advanced Connectek	PIFA	25.90676.001	2400-2500MHz	0.64 dBi (peak)
Auxiliary antenna			50 ohm Coaxial.	5150-5350MHz	-0.88 dBi (peak)
25.90676.001	Inc.	FIEA	length: 705mm diameter: 1.13mm	5470-5725MHz	-1.3 dBi (peak)
			Connector: U.FL	5725-5850MHz	0.22 dBi (peak)

#### Wistron (WNC) Antenna

1A Antenna Part Number	1B Manufacture	1C Antenna Type	1D Cable Assembly Part Number and Information	1E *Peak Gain with Cable loss (dBi)	
Main antenna	VNC P/N: EG915.014 WNC Corporation PIFA length: 555mm	Low Loss 50 ohm Coavial	2400-2500MHz	-1.53 dBi (peak)	
(WNC P/N:		DIEA	length: 555mm diameter: 1.13mm	5150-5350MHz	0.92 dBi (peak)
(customer		FIFA		5470-5725MHz	0.03 dBi (peak)
P/N:25.90669.001)			Connector. If EX	5725-5850MHz	-0.76 dBi (peak)
AUX Antenna		PIFA	Low Loss 50 ohm Coaxial.	2400-2500MHz	1.32 dBi (peak)
(WNC P/N: 81.EG915.013)	WNC Corporation		length: 718mm	5150-5350MHz	-1.41 dBi (peak)
(Customer P/N:	wine corporation	FIFA	diameter: 1.13mm Connector: IPEX	5470-5725MHz	0.69 dBi (peak)
25.90670.001)			Connector. If EX	5725-5850MHz	0.14 dBi (peak)

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# 5.5. SOFTWARE AND FIRMWARE

The test utility software used during testing was CRTU version 5.10.25.0.

# 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-case also investigated for X, Y, Z, and mobile orientation of the support laptop. Mobile position was turned out as worst-case orientation.

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# 5.7. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST							
Description Manufacturer Model Serial Number FCC ID							
LAPTOP	LENOVO	X200 TABLET	R9-09BIX 09/07	DoC			
LAPTOP	LENOVO	X200 TABLET	R9-09B20 09/07	DoC			
AC/DC Adaptor	LENOVO	42T5282	11S92P1156Z1ZDXN9739S8	DoC			

### I/O CABLES

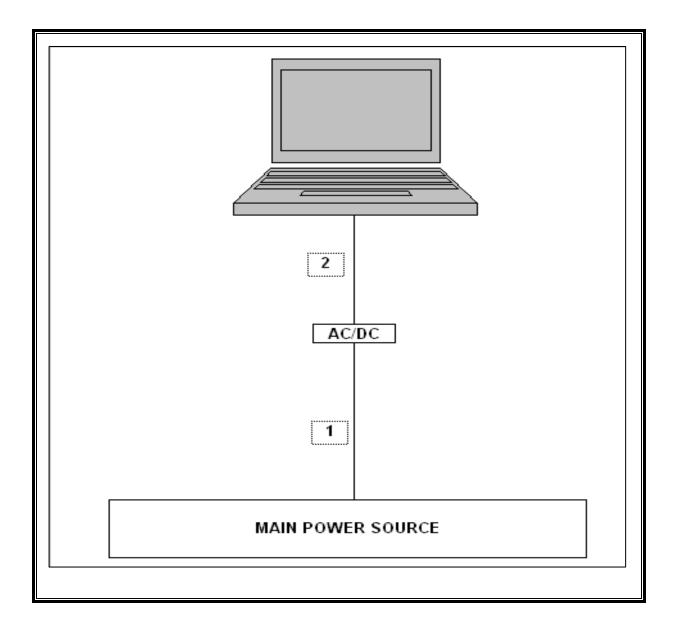
	I/O CABLE LIST							
Cable No.	Port	# of Identica Ports	Connector Type	Cable Type	Cable Length	Remarks		
1	AC	1	AC	Un-Shielded	1.0 m	N/A		
2	DC	1	DC	Un-Shielded	2.0 m	Ferrite at one End		

### TEST SETUP

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

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### SETUP DIAGRAM FOR TESTS



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# 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, 26.5 GHz	Agilent / HP	E4440A	C01179	08/24/10			
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	04/20/10			
EMI Test Receiver, 30 MHz	R&S	ESHS 20	N02396	05/06/11			
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/06/10			
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	12/16/09			
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	02/04/10			
Antenna, Horn, 18 GHz	EMCO	3115	C00945	01/29/10			
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	01/14/10			
Peak Power Meter	Boonton	4541	N/A	01/15/10			
Peak / Average Power Sensor	Boonton	57318	N/A	02/02/10			
Highpass Filter, 4.0 GHz	Micro-Tronics	HPM13351	N02708	N/A			
Highpass Filter, 7.6 GHz	Micro-Tronics	HPM13195	N02682	N/A			

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# 7. ANTENNA PORT TEST RESULTS

## 7.1. 802.11n HT40 MODE IN THE 5.2 GHz & 5.3GHz BANDS

## 7.1.1. OUTPUT POWER

### <u>LIMITS</u>

FCC §15.407 (a) (1 & 2)

IC RSS-210 A9.2 (1 & 2)

For the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz.

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.

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#### **RESULTS**

## HT40\_5190MHz\_CHAIN A & B

Limit

Channel	Frequency		Fixed	В	4 + 10 Log B	Antenna	Limit
			Limit		Limit	Gain	
	(MHz)	Chain	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5190	Α	17	37.05	19.69	4.15	17.00
Low	5190	В	17	37.33	19.72	4.15	17.00

Results

Channel	Frequency		Power	Limit	Margin
	(MHz)	Chain	(dBm)	(dBm)	(dB)
Low	5190	Α	11.67	17.00	-5.33
Low	5190	В	14.89	17.00	-2.11

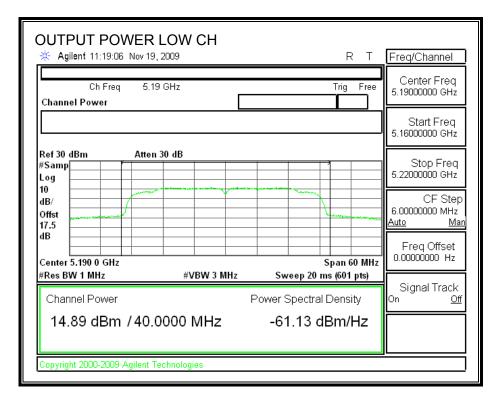
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#### OUTPUT POWER (HT40)

#### CHAIN A

OUTPUT POWER L			RТ	System
Ch Freq 5.19	GHz		Trig Free	Show Errors 🔸
Channel Power				Power On/ Preset
Ref 30 dBm Atten 3 #Samp Log 10	0 dB	<u> </u>		Time/Date ▸
dB/ Offst 17.5				Alignments •
dB	#VDW 2 MIL-		pan 60 MHz	Config I/O 🔸
#Res BW 1 MHz Channel Power	#VBW 3 MHz	Sweep 20 ms Power Spectral E		Reference 🔸
11.67 dBm /40.00	000 MHz	-64.35 dE	3m/Hz	More 1 of 3
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#### **CHAIN B**



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#### **RESULTS**

#### HT40\_5190MHz\_CHAIN A+B

Limit

Channel	Frequency	Fixed	В	4 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5190	17	37.113	19.70	4.15	17.00

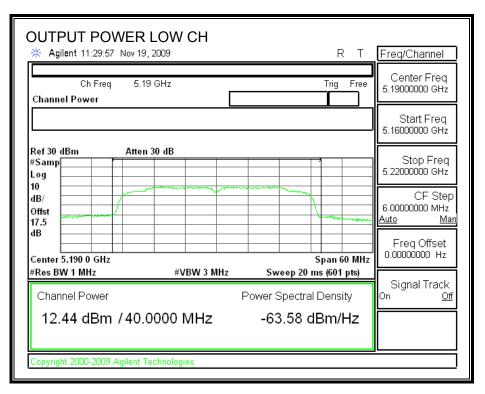
#### Individual Chain Results

Channel	Frequency	Chain A	Chain B	Total	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	12.44	11.26	14.90	17.00	-2.10

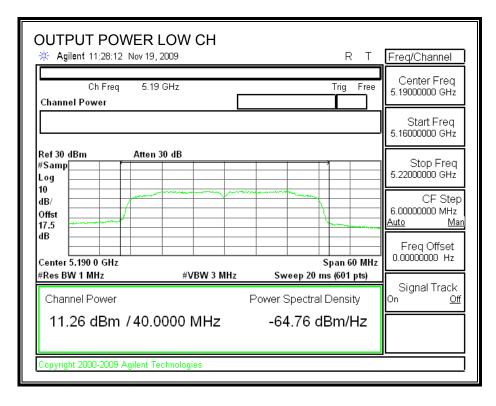
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### OUTPUT POWER (HT40)

#### **CHAIN A**



#### **CHAIN B**



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### **RESULTS**

### HT40\_5310MHz\_CHAIN A

Limit

Channel	Frequency		Fixed	В	11 + 10 Log B	Antenna	Limit
			Limit		Limit	Gain	
	(MHz)	Chain	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
High	5310	Α	24	37.195	26.70	1.45	24.00

#### Results

Channel	Frequency		Power	Limit	Margin
	(MHz)	Chain	(dBm)	(dBm)	(dB)
High	5310	А	13.30	24.00	-10.70

### **OUTPUT POWER (HT40)**

CHAIN A

OUTPUT POWER L		R T	Freq/Channel		
Ch Freq 5.31 ( Channel Power	GHz	Trig Free	Center Freq 5.31000000 GHz		
			Start Freq 5.28000000 GHz		
Ref 30 dBm Atten 3 #Samp Dog 10	0 dB		Stop Freq 5.34000000 GHz		
dB/ 0ffst 17.5			CF Step 6.0000000 MHz <u>Auto Man</u>		
dB Center 5.310 0 GHz		Span 60 MHz	Freq Offset 0.00000000 Hz		
# <b>Res BW 1 MHz</b> Channel Power	#VBW 3 MHz	Sweep 20 ms (601 pts) Power Spectral Density	Signal Track On <u>Off</u>		
13.30 dBm / 40.0000 MHz -62.72 dBm/Hz					
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# 8. RADIATED TEST RESULTS

## 8.1. LIMITS AND PROCEDURE

### <u>LIMITS</u>

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.

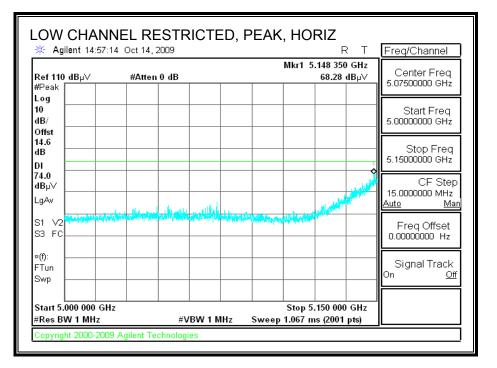
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

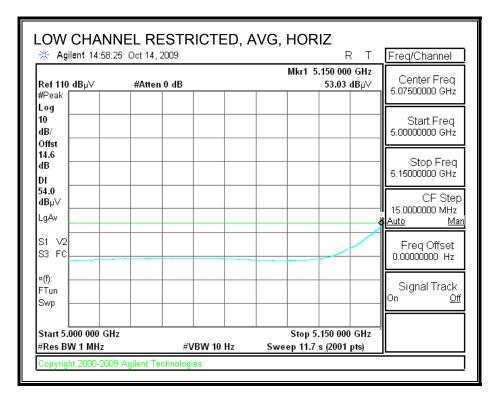
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

# ACON ANTENNA

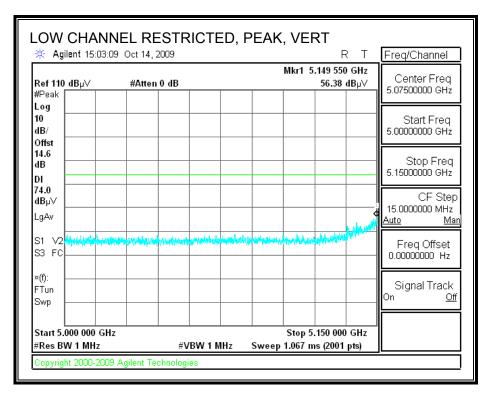
## 8.2.TRANSMITTER ABOVE 1 GHz

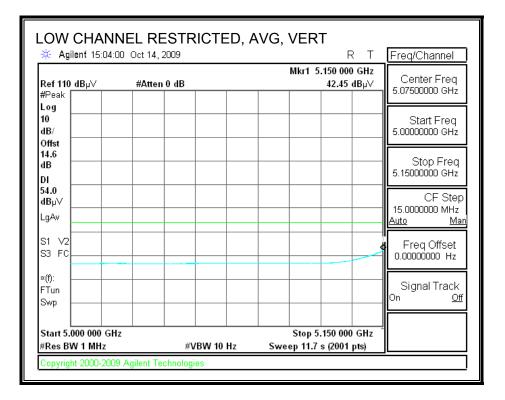
## 8.2.1. 802.11a MODE IN THE LOWER 5.2 GHz BAND\_CHAIN A RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





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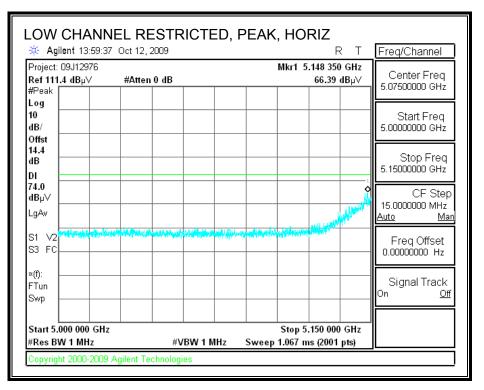


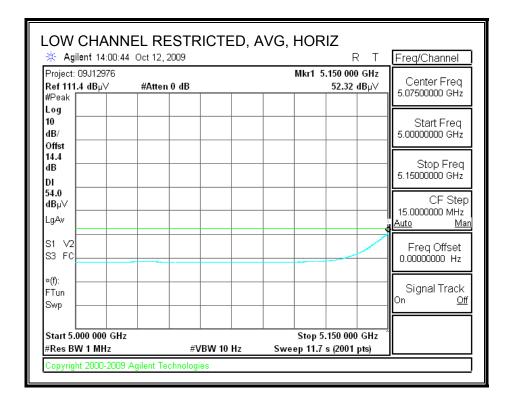


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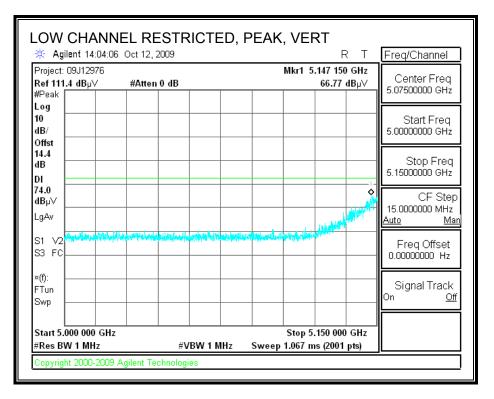
## 8.2.2. 802.11a MODE IN THE LOWER 5.2 GHz BAND\_CHAIN B

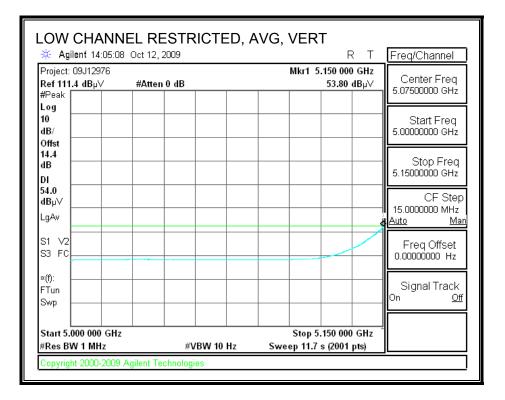
### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**





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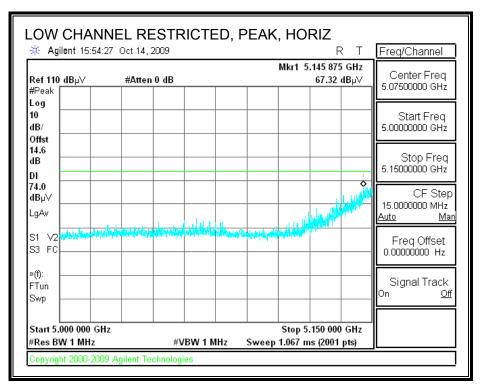


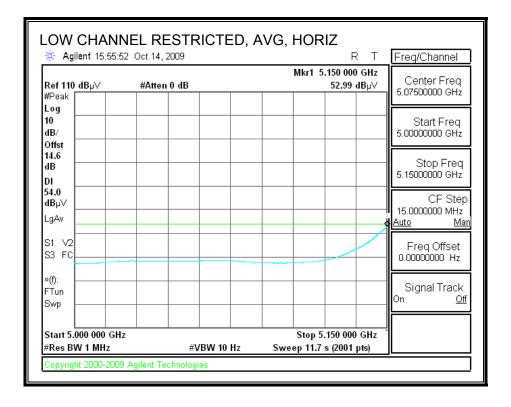


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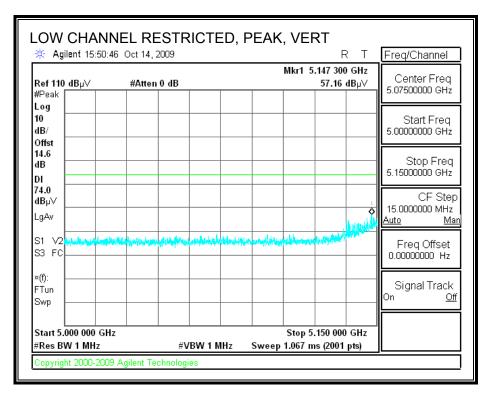
### 8.2.3. 802.11n HT20 MODE IN THE LOWER 5.2 GHz BAND\_CHAIN A

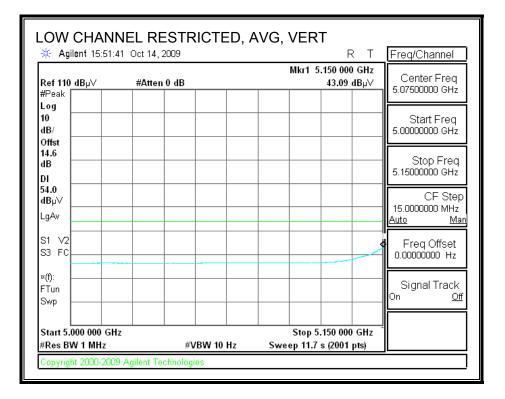
### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





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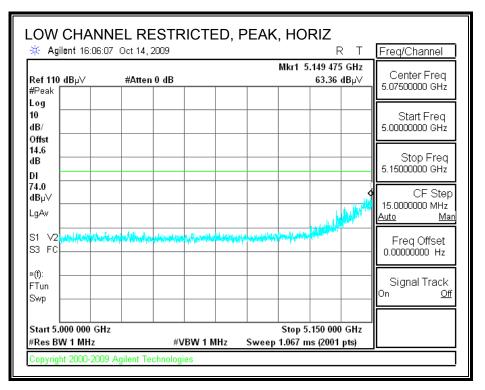


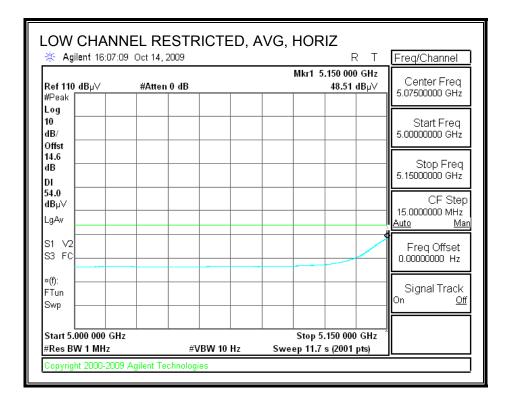


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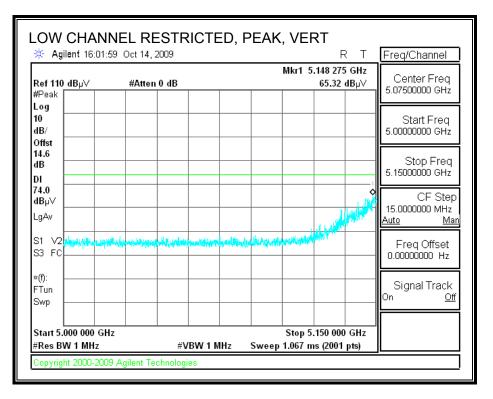
## 8.2.4. 802.11n HT20 MODE IN THE LOWER 5.2 GHz BAND\_CHAIN B

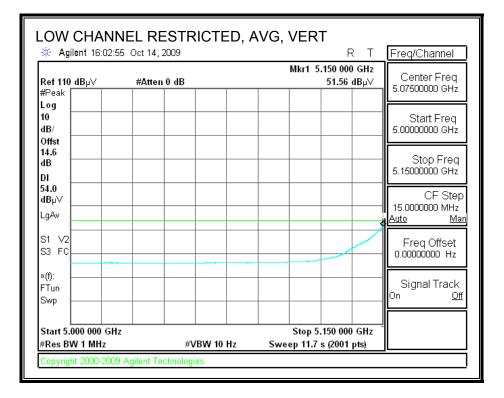
### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**





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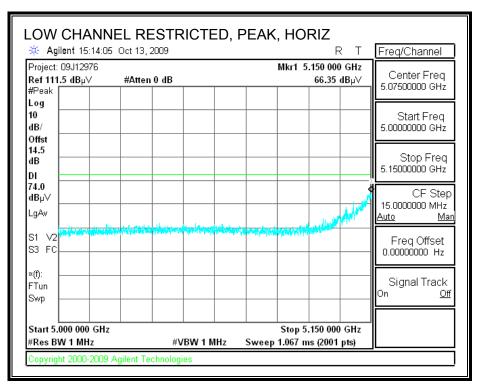


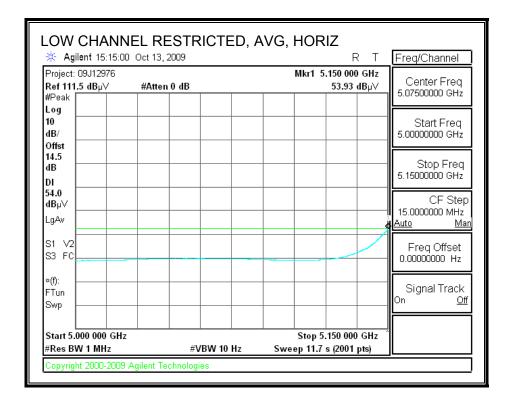


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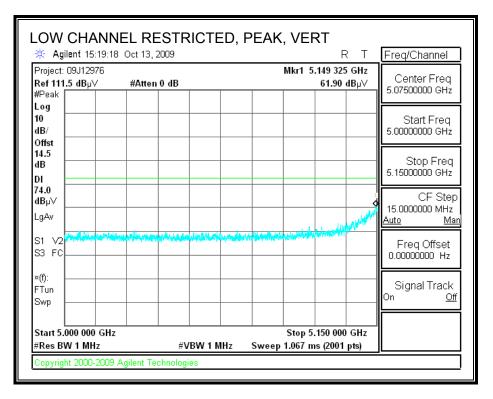
### 8.2.5. 802.11n HT40 MODE IN THE LOWER 5.2 GHz BAND\_CHAIN A

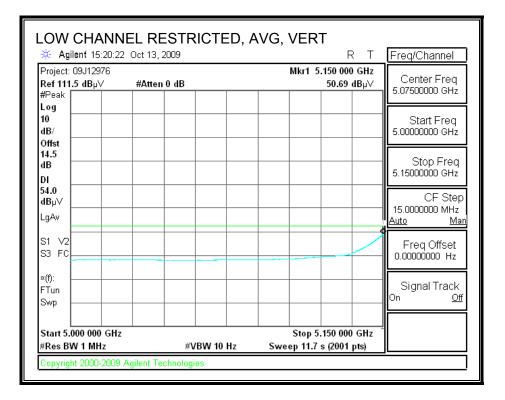
### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**





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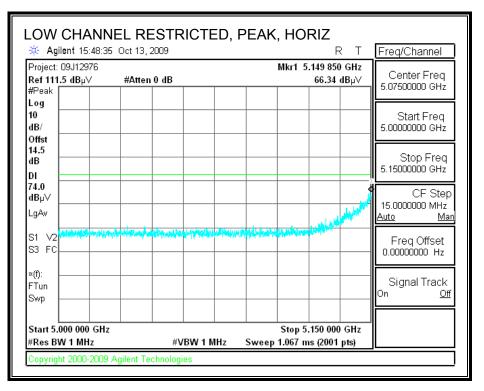


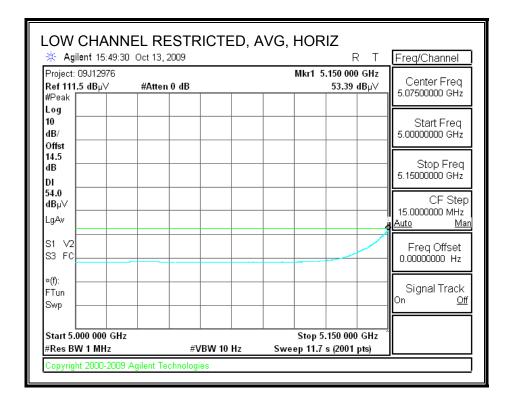


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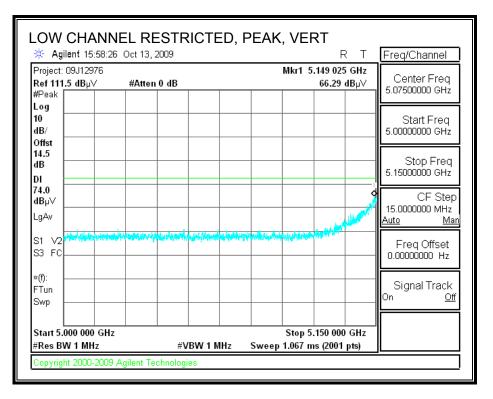
### 8.2.6. 802.11n HT40 MODE IN THE LOWER 5.2 GHz BAND\_CHAIN B

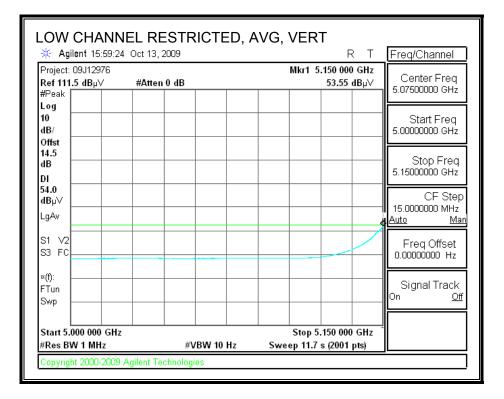
### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**





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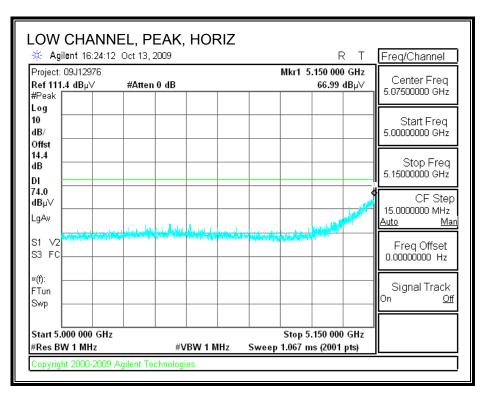


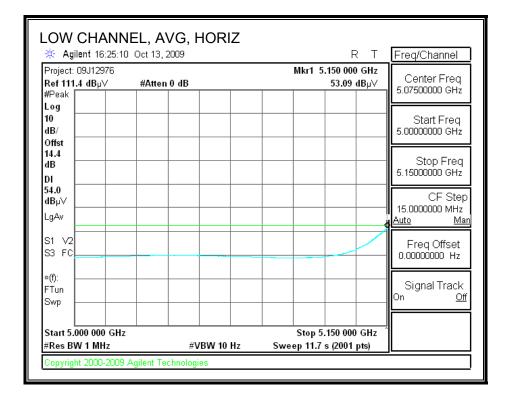


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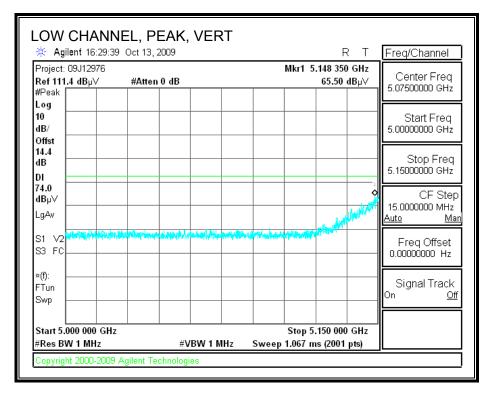
## 8.2.7. 802.11n HT20 MODE IN THE LOWER 5.2 GHz BAND\_CHAIN A+B

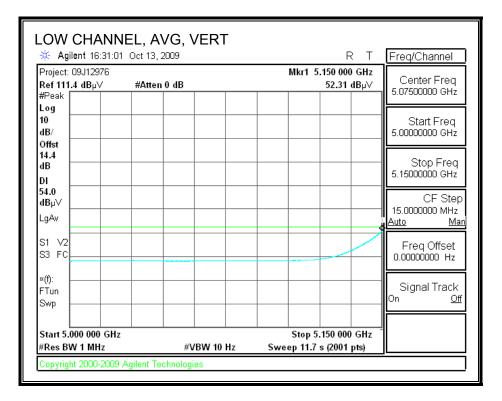
#### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**





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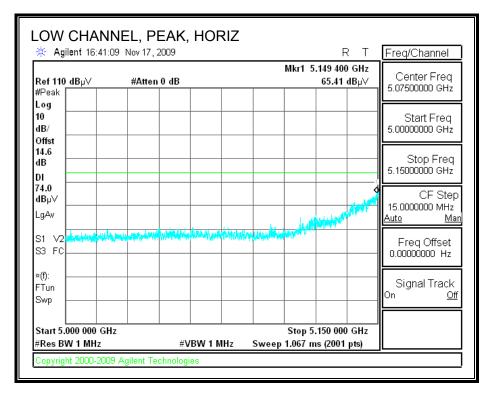


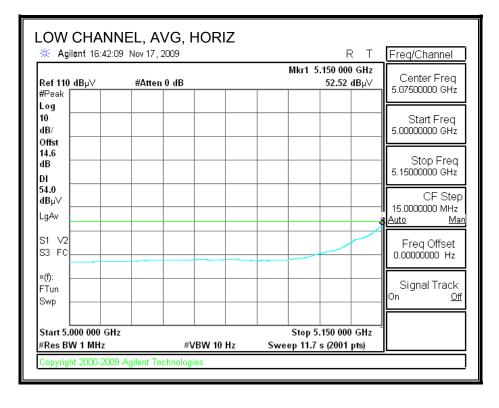


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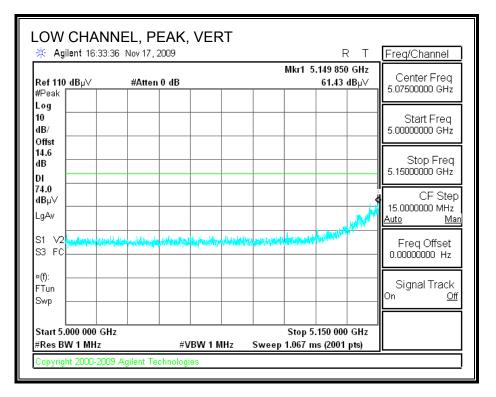
### 8.2.8. 802.11n HT40 MODE IN THE LOWER 5.2 GHz BAND\_CHAIN A+B

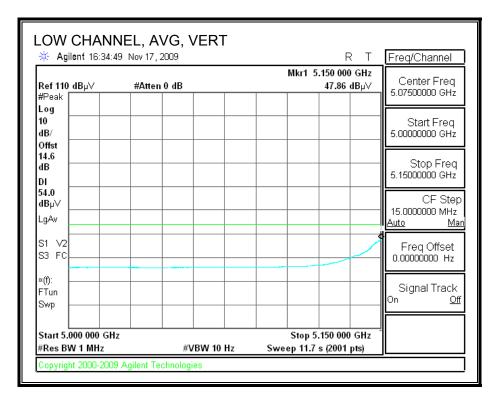
#### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**





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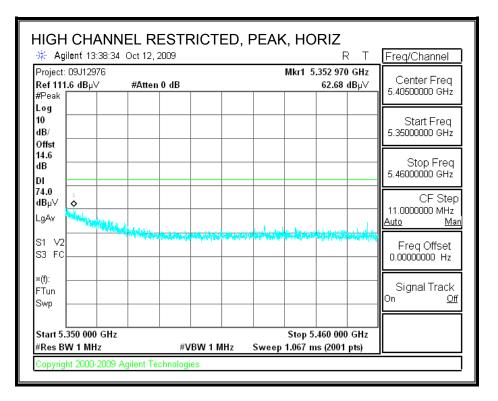


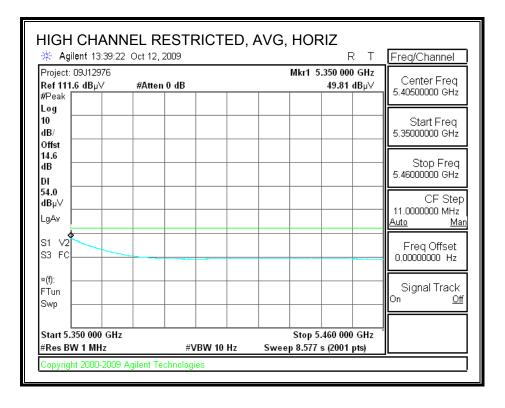


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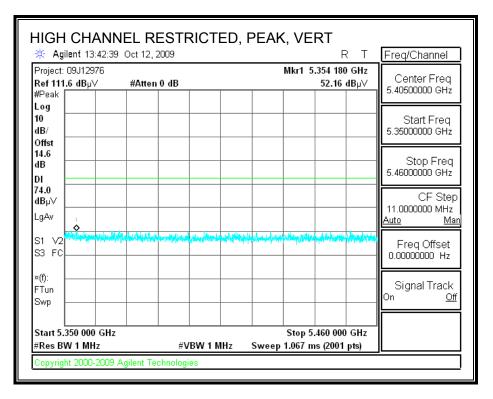
## 8.2.9. 802.11a MODE IN THE UPPER 5.3 GHz BAND\_CHAIN A

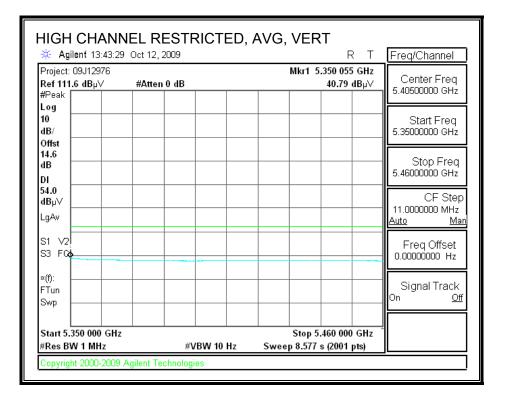
#### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





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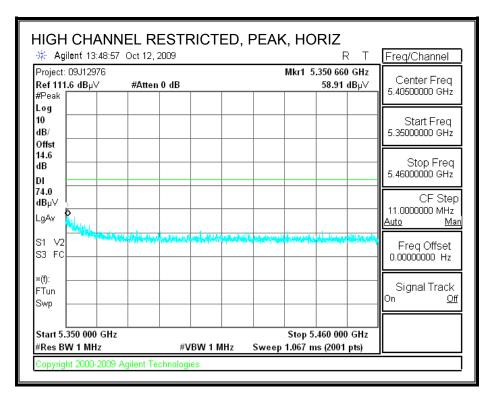
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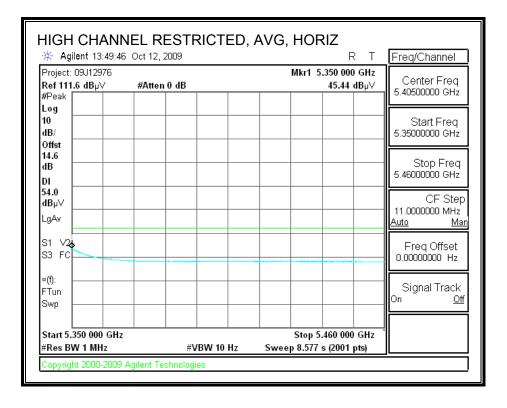
Test Engi Date: Project # Company EUT Desc EUT M/N: Test Targ Mode Op	: ription: et:	622ANH FCC Cla	6 Centrino MW Ass B			۲ 6200 (Te Mid Char			f Lenovo '	ThinkPao	1 X200/X20	)l Tablet :	Series)		
	f Dist Read AF CL	Measuren Distance Analyzer Antenna Cable Los	to Anter Reading Factor	nna	-	-	Correc Field S d Peak	trength @ : Field Stre	3 m	Peak Fie Margin v	Field Stren; ld Strength 15. Average 15. Peak Lir	Limit Limit			
f	Dist	Read	AF	CL		D Corr		Согт.			Ant. Pol.		Ant.High	Table Angle	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
lla_5260							~ ~ ~				v				
15.780 15.780	3.0 3.0	39.0 25.5	38.5 38.5	11.3 11.3	-32.2 -32.2	0.0 0.0	0.0	56.6 43.1	74.0 54.0	-17.4 -10.9	v v	P A	99.0 99.0	73.0 73.0	
15.780	3.0	37.2	38.5	11.3	-32.2	0.0	0.0	45.1 54.8	54.0 74.0	-10.9	ч Н	P	99.0 100.0	155.0	
15.780	3.0	24.6			-32.2	0.0	0.0	42.2	54.0	-11.8	H	Ă	100.0	155.0	
	.7 other e	missions	: were de	etected	above 1	the system	n nois	se floor.		1			1		

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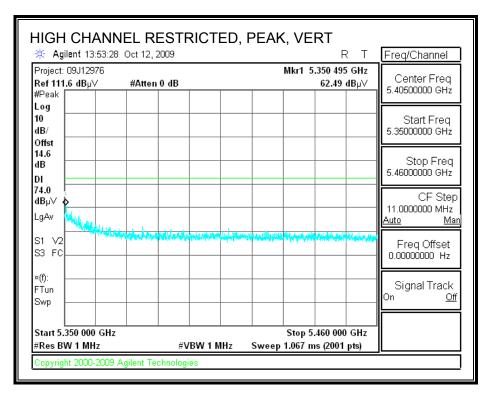
# 8.2.10. 802.11a MODE IN THE UPPER 5.3 GHz BAND\_CHAIN B

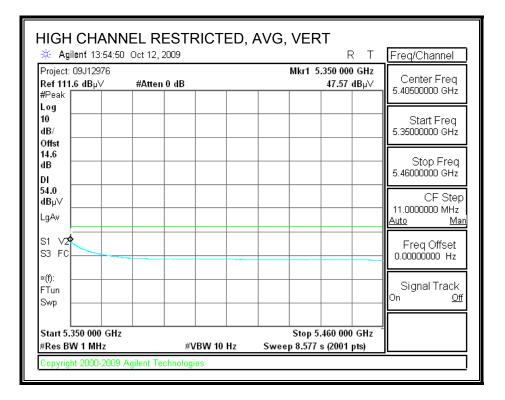
#### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





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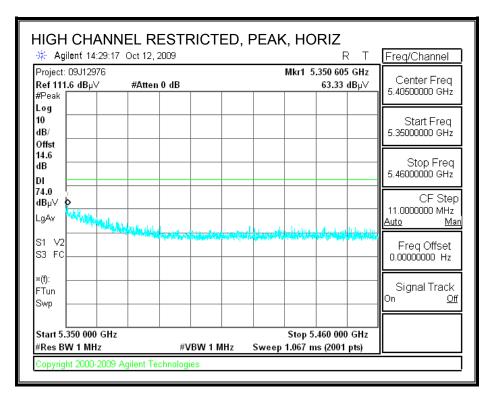
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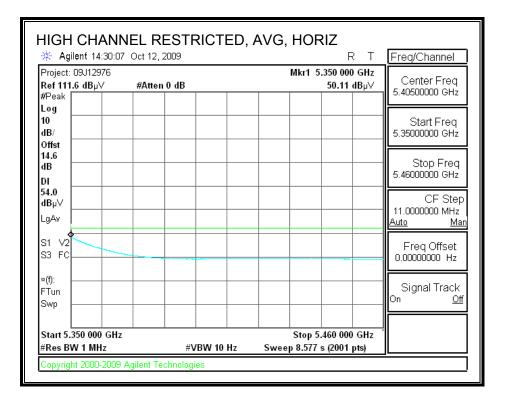
) 3 meters gth @ 3 m ld Strength	Peak Field Margin vs	Field Streng Id Strength 5. Average 5. Peak Lin	Limit Limit			
orr. Limit						
	Margin /	Ant. Pol.	Det.	Ant.High	Table Angle	Notes
uV/m dBuV/m	dB	V/H	P/A/QP	cm	Degree	
			Р			
2.7 54.0	-11.3	V	A	102.0	77.0	
·····						
1.2 54.0	-12.8	H	A	111.0	33.0	
		2.7         54.0         -11.3           2.8         74.0         -21.2           1.2         54.0         -12.8	2.7 54.0 -11.3 V 2.8 74.0 -21.2 H 1.2 54.0 -12.8 H	2.7         54.0         -11.3         V         A           2.8         74.0         -21.2         H         P           1.2         54.0         -12.8         H         A	2.7         54.0         -11.3         V         A         102.0           2.8         74.0         -21.2         H         P         111.0           1.2         54.0         -12.8         H         A         111.0	2.7         54.0         -11.3         V         A         102.0         77.0           2.8         74.0         -21.2         H         P         111.0         33.0           1.2         54.0         -12.8         H         A         111.0         33.0

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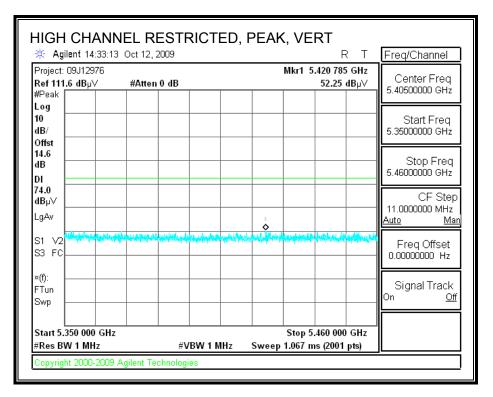
# 8.2.11. 802.11n HT20 MODE IN THE UPPER 5.3 GHz BAND\_CHAIN A

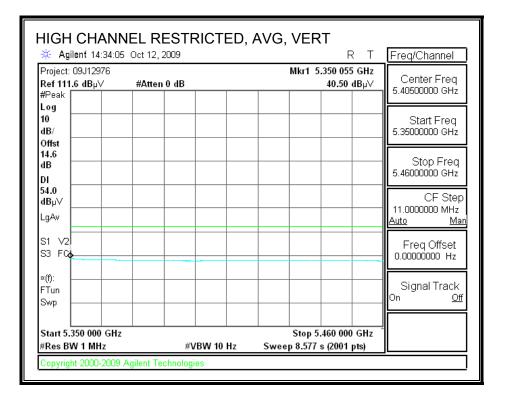
#### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





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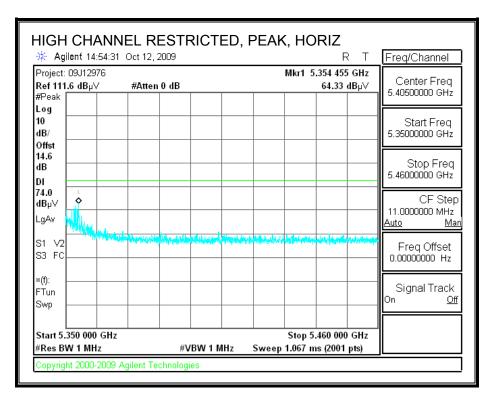
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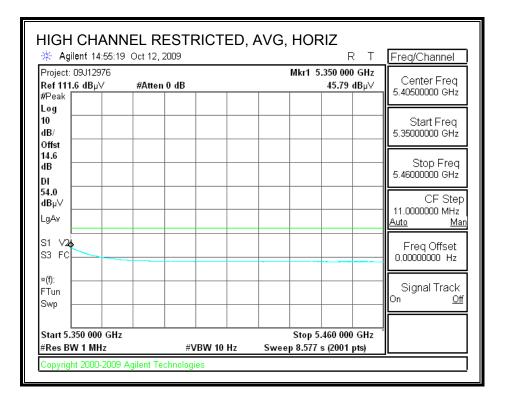
EUT M/N: Test Targe Mode Ope	t:	622ANH FCC Cla	entrino MW ss B					Inside Of _Chain A		ThinkPa	d X200/X20	)l Tablet :	õeries)		
	f Dist Read AF CL	Measuren Distance t Analyzer Antenna l Cable Los	o Anter Reading Factor	una		Average	Correc Field S d Peak	rt to 3 met trength @ : : Field Stren	3 m	Peak Fie Margin v	Field Stren; Id Strength 75. Average 75. Peak Lir	Limit Limit			
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Ant.High	Table Angle	Notes
	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
GHz															
HT20_526	OMHz														
HT20_526 15.780	OMHz 3.0	37.2	38.5	11.3	-32.2	0.0	0.0	54.9	74.0	-19.1	V	Р	133.0	56.0	
HT20_526 15.780 15.780	0MHz 3.0 3.0	37.2 23.6	38.5 38.5	11.3 11.3	-32.2 -32.2	0.0 0.0	0.0 0.0	54.9 41.3	74.0 54.0	-19.1 -12.7	v v	P A	133.0 122.0	56.0 56.0	
HT20_526 15.780 15.780 HT20_526	OMHz 3.0 3.0 OMHz	37.2 23.6 Chain A_	38.5 38.5 Hor	11.3	-32.2	0.0	0.0	41.3	54.0	-12.7	v	A	122.0	56.0	
HT20_526 15.780 15.780	0MHz 3.0 3.0	37.2 23.6	38.5 38.5 Hor 38.5		-32.2 -32.2										

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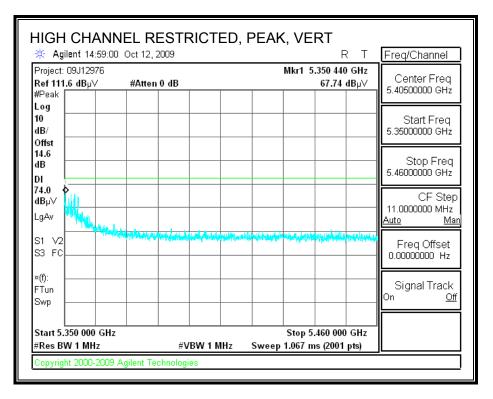
# 8.2.12. 802.11n HT20 MODE IN THE UPPER 5.3 GHz BAND\_CHAIN B

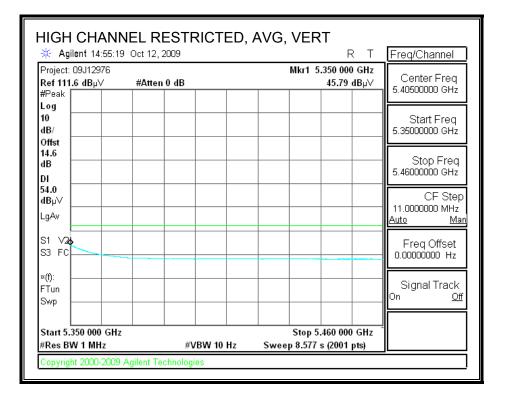
#### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





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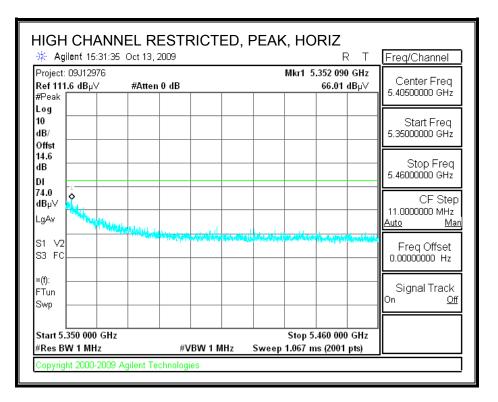
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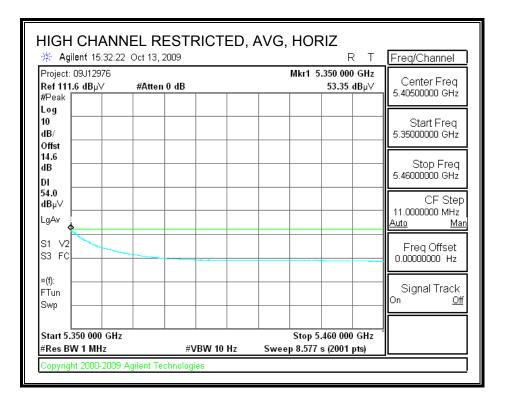
t:	622ANH FCC Cla	MW 188 B							ThinkPa	d X200/X2(	)l Tablet :	Series)		
	Distance Analyzer Antenna	to Anter Reading Factor	nna		Distance Average Calculate	Correc Field S d Peak	trength @ : Field Stre	3 m	Peak Fie Margin v	ld Strength rs. Average	Limit Limit			
Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant Pol	Det.	AntHigh	Table Angle	Notes
(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm –	Degree	
MHz_	Chain B_	Vert												
3.0	38.9	37.8	11.5	-32.2	0.0	0.0	56.0	74.0	- <b>18.0</b>	V	Р	101.0	48.0	
3.0	26.2	37.8	11.5	-32.2	0.0	0.0	43.3	54.0	-10.7	v	A	101.0	48.0	
MH <sub>2</sub>	Chain B_													
3.0 3.0	40.6 27.0	37.8 37.8	11.5	-32.2 -32.2	0.0 0.0	0.0 0.0	57.7 44.1	74.0 54.0	-16.3 -9.9	H H	P A	107.0 107.0	28.0 28.0	
	r: Dist Read AF CL Dist (m) MHz 3.0 3.0	Tx 5.2 &       f     Measuren       Dist     Distance       Read     Analyzer       CL     Cable Los       Dist     Read       (m)     dBuV       MHz     Chain B       3.0     38.9       3.0     26.2	Tx 5.2 & 5.3 GHz       f     Measurement Free       Dist     Distance to Anter       Read     Analyzer Reading       AF     Antenna Factor       CL     Cable Loss       Dist     Read       AF     Antenna Vert       (m)     BuV       dBuV     dB/m       MHz     Chain B       3.0     36.9       37.8	Tx 5.2 & 5.3 GHz Band       f     Measurement Frequency       Dist     Distance to Antenna       Read     Analyzer Reading       AF     Antenna Factor       CL     Cable Loss       Dist     Read     AF       (m)     dBuV     dB/m       MHz     Chain B     Vert       3.0     38.9     37.8     11.5	Tx 5.2 & 5.3 GHz Bands_HT20       f     Measurement Frequency Amp       Dist     Distance to Antenna     D Corr       Read     Analyzer Reading     Avg       Analyzer Reading     Avg       Ar Antenna Factor     Peak       CL     Cable Loss     HPF       Dist     Read     AF     CL     Amp       (m)     dBuV     dB/m     dB     dB       MHz     Chain B     Vert     -3.0     38.9     37.8     11.5     -32.2       3.0     26.2     37.8     11.5     -32.2	Tx 5.2 & 5.3 GHz Bands_HT20_Mid Ch       f     Measurement Frequency Amp     Preamp ()       Dist     Distance to Antenna     D Corr     Distance       Read     Analyzer Reading     Average 1     Average 1       AF     Antenna Factor     Peak     Calculate       CL     Cable Loss     HPF     High Pas       Dist     Read     AF     CL     Amp     D Corr       (m)     dBuV     dB/m     dB     dB       MHz     Chain B     Vert     3.0     38.9     37.8     11.5     -32.2     0.0	Tx 5.2 & 5.3 GHz Bands_HT20_Mid Channel       f     Measurement Frequency Amp     Preamp Gain       Dist     Distance to Antenna     D Corr     Distance Correct       Read     Analyzer Reading     Avg     Average Field S       AF     Antenna Factor     Peak     Calculated Peak       CL     Cable Loss     HPF     High Pass Filter       Dist     Read     AF     CL     Amp     D Corr     Fltr       (m)     dBuV     dB/m     dB     dB     dB     dB       MHz     Chain B     Vert     -32.2     0.0     0.0       3.0     36.2     37.8     11.5     -32.2     0.0     0.0	Tx 5.2 & 5.3 GHz Bands_HT20_Mid Channel_Chain F       f     Measurement Frequency Amp     Preamp Gain       Dist     Distance to Antenna     D Corr     Distance Correct to 3 me       Read     Analyzer Reading     Avg     Average Field Strength @       AF     Antenna Factor     Peak     Calculated Peak Field Stre       CL     Cable Loss     HPF     High Pass Filter       Dist       Read     AF     CL     Amp     D Corr     Fltr     Corr.       (m)     BBuV     dB/m     dB     dB     dB     dBUV/m       MHz     Chain B     Vert     -32.2     0.0     0.0     56.0       3.0     38.9     37.8     11.5     -32.2     0.0     0.0     43.3	Tx 5.2 & 5.3 GHz Bands_HT20_Mid Channel_Chain B       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       Dist     Read     AF       Olist     Read     AF     CL     Amp       Dist     Read     AF     CL     Amp     AB       MHz     Chain B     Vert     0.0     56.0     74.0       3.0     26.2     37.8     11.5     -32.2     0.0     0.0     43.3     54.0	Tx 5.2 & 5.3 GHz Bands_HT20_Mid Channel_Chain B       f     Measurement Frequency Amp     Preamp Gain     Average       Dist     Distance to Antenna     D Corr     Distance Correct to 3 meters     Peak Fie       Read     Analyzer Reading     Average Field Strength @ 3 m     Margin v       AF     Antenna Factor     Peak     Calculated Peak Field Strength @ 3 m     Margin v       CL     Cable Loss     HPF     High Pass Filter     Margin dB       Dist     Read     AF     CL     Amp     D Corr     Fltr     Corr.     Limit     Margin dB       Dist     Read     AF     CL     Amp     D Corr     Fltr     Corr.     Limit     Margin v       MHz     Chain B     Vert     -     -     -     -     -       3.0     38.9     37.8     11.5     -32.2     0.0     0.0     43.3     54.0     -10.7	Image: Tx 5.2 & 5.3 GHz Bands_HT20_Mid Channel_Chain B       f     Measurement Frequency Amp     Preamp Gain     Average Field Strent       Dist     Distance to Antenna     D Corr     Distance Correct to 3 meters     Peak Field Strent       Read     Analyzer Reading     Average     Average Field Strenth     @ 3 m     Margin vs. Average       AF     Antenna Factor     Peak     Calculated Peak Field Strength     @ 3 m     Margin vs. Average       CL     Cable Loss     HPF     High Pass Filter     Margin vs. Peak Lin       Dist     Read     AF     CL     Amp     D Corr     Fltr     Corr.     Limit     Margin Ant. Pol.       (m)     dBuV     dB/m     dB     dB     dB     dB     V/H       MHz     Chain B     Vert           3.0     38.9     37.8     11.5     -32.2     0.0     0.0     56.0     74.0     -18.0     V	Tx 5.2 & 5.3 GHz Bands_HT20_Mid Channel_Chain B       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     Average     Field Strength     Margin vs. Average Limit       AF     Antenna Factor     Peak     Calculated Peak     Field Strength     Margin vs. Peak Limit       CL     Cable Loss     HPF     High Pass Filter     Det.     Det.       Dist     Read     AF     CL     Amp     D Corr     Fltr     Corr.     Limit     Margin     Ant. PoL     Det.       MHz     Chain B     Vert     B     B     B     B     B     V/H     P/A/QP       3.0     38.9     37.8     11.5     -32.2     0.0     0.0     43.3     54.0     -10.7     V     A	Tx 5.2 & 5.3 GHz Bands_HT20_Mid Channel_Chain B         Average Field Strength Limit         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       Average       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       Margin Ant. Pol       Det.       Ant.High cm         Dist       Read       AF       OL       Det.       Ant.High cm       OL       Cerr.       Limit       Margin Ant. Pol       Det.       Ant.High cm         Dist       Read       AF       CL       Amp       D Corr       Fltr       Corr.       Limit       Margin Ant. Pol       Det.       Ant.High cm         Dist       Read       AF       CL       Amp       D Corr       Fltr       Corr.       Limit       Margin Ant. Pol       Det.       Ant.High cm         MHz       Chain B       B       B       B       B       0.0       56.0	Tx 5.2 & 5.3 GHz Bands_HT20_Mid 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         Dist       Read       AF       CL       Amp       D Corr       Fltr       Corr.       Limit       Margin vs. Peak Limit         Dist       Read       AF       CL       Amp       D Corr       Fltr       Corr.       Limit       Margin V/m       Ont. Pol       Ont. High Table Angle cm         Dist       Read       AF       CL       Amp       D Corr       Fltr       Corr.       Limit       Margin V/m       Ont. Pol       Ant.High Table Angle cm       Degree         Dist       Read       AF       CL       Amp       D Corr       Fltr       Corr.       Limit       Margin V/m       Det       Ant.High Table Angle cm       Degree         MHz       Chain B       dB       dB       dB       dB       dB       dB       All 5       Sile

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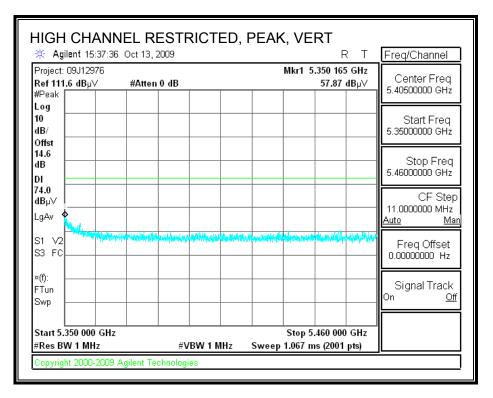
# 8.2.13. 802.11n HT40 MODE IN THE UPPER 5.3 GHz BAND\_CHAIN A

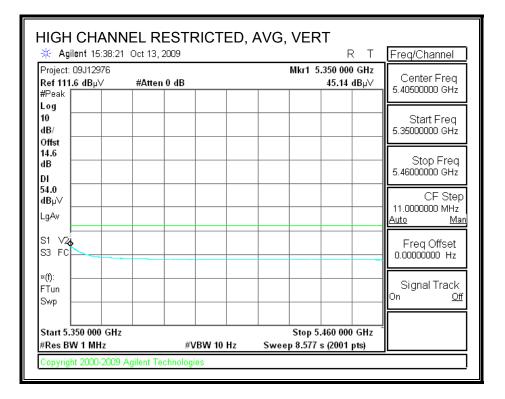
#### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





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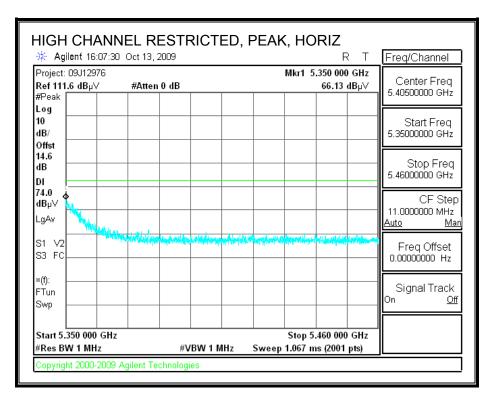
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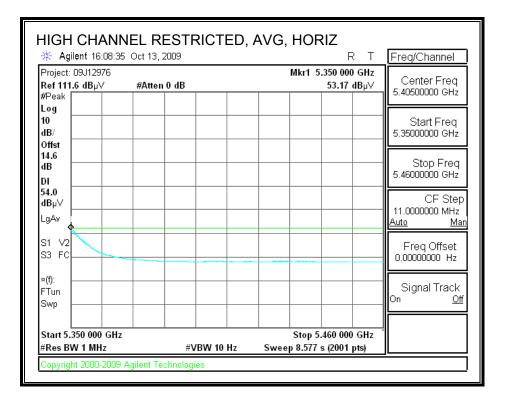
Test Engr	r:	Vien Tra	n															
Date:		10/13/09																
Project #		09U1279	6															
Company	-	Intel																
	-			® Adı	anced-N	4 6200 (Te	ested I	nside Of Leno	o ThinkPa	d X200/X2	01 Tablet	Series)						
EUT M/N:		622ANH																
Test Targ		FCC CL																
Mode Op	er:	1x 5.2 &	5.3GHz	Band	s_HT40	_High Cl	hanne	l_Chain A										
	f	Measurer	nent Fred	nency	Amn	Preamp (	Tain		A verage	e Field Stren	eth Limit							
					-	-			*********		×							
	Dist	Distance	to Anter	ına	D Corr	Distance	Correc	t to 3 meters	Peak Fi	eld Strength	Limit							
	D1st Read	Distance Analyzer						t to 3 meters renzth @ 3 m		eld Strength vs. Average								
		Distance Analyzer Antenna	Reading		Avg	Average I	Field St	t to 3 meters rrength @ 3 m Field Strength	Margin	eld Strength vs. Average vs. Peak Li	Limit							
	Read	Analyzer	Reading Factor		Avg	Average I	Field St d Peak	rength @ 3 m Field Strength	Margin	vs. Average	Limit							
f	Read AF	Analyzer Antenna	Reading Factor		Avg Peak HPF	Average l Calculate	Field St d Peak s Filter	rength @ 3 m Field Strength	Margin Margin	vs. Average	Limit	AntHigh	Table Angle	Notes				
f GHz	Read AF CL	Analyzer Antenna Cable Lo:	Reading Factor		Avg Peak HPF	Average l Calculate High Pas:	Field St d Peak s Filter <b>Fltr</b>	rrength @ 3 m Field Strength	Margin Margin t Margin	vs. Average vs. Peak Li	Limit mit	Ant.High cm	Table Angle Degree	Notes				
GHz	Read AF CL Dist (m)	Analyzer Antenna Cable Lo: <b>Read</b>	Reading Factor is <b>AF</b> <b>dB/m</b>	CL	Avg Peak HPF Amp	Average I Calculate High Pas: <b>D Corr</b>	Field St d Peak s Filter <b>Fltr</b>	rrength @ 3 m Field Strength Corr. Lim	Margin Margin t Margin	vs. Average vs. Peak Li Ant. Pol	Limit mit Det.	-	-	Notes				
GHz HT40_53	Read AF CL Dist (m)	Analyzer Antenna Cable Lo: Read dBuV	Reading Factor is <b>AF</b> <b>dB/m</b>	CL	Avg Peak HPF Amp	Average I Calculate High Pas: <b>D Corr</b>	Field St d Peak s Filter <b>Fltr</b>	rrength @ 3 m Field Strength Corr. Lim	Margin Margin t Margin m dB	vs. Average vs. Peak Li Ant. Pol. V/H V	Limit mit Det.	-	-	Notes				
GHz	Read AF CL Dist (m)	Analyzer Antenna Cable Lo: Read dBuV Chain A	Reading Factor is AF dB/m Vert	CL dB	Avg Peak HPF Amp dB	Average 1 Calculate High Pas: <b>D Corr</b> <b>dB</b>	Field St d Peak s Filter <b>Fltr</b> <b>dB</b>	rength @ 3 m Field Strength Corr. Lim dBuV/m dBuV	Margin Margin t Margin m dB	vs. Average vs. Peak Li Ant. Pol. V/H	Limit mit Det. P/A/QP	cm	Degree	Notes				
GHz HT40_53 10.620 10.620 15.930	Read AF CL Dist (m) 10MHz 3.0 3.0 3.0 3.0	Analyzer Antenna Cable Lo: Read dBuV Chain A 33.8 21.1 35.9	Reading Factor 55 AF dB/m Vert 37.6 37.6 37.4	CL dB 9.1 9.1 11.5	Avg Peak HPF dB -32.6 -32.6 -32.1	Average I Calculate High Pas: D Corr dB	Field St d Peak s Filter <b>Fltr</b> <b>dB</b> 0.0	rength @ 3 m Field Strength <b>Corr. Lim</b> <b>dBuV/m dBuV</b> 47.8 74.1 35.2 54.1 52.7 74.1	Margin Margin m dB -26.2 -18.8 -21.3	vs. Average vs. Peak Li Ant. Pol. V/H V V V	Limit mit Det. P/A/QP P	cm 100.0	Degree 126.0 126.0 51.0	Notes				
GHz HT40_53 10.620 10.620 15.930 15.930	Read AF CL Dist (m) 10MHz 3.0 3.0 3.0 3.0 3.0	Analyzer Antenna Cable Lo: Read dBuV Chain A 33.8 21.1 35.9 23.4	Reading Factor 35 AF dB/m 37.6 37.6 37.6 37.4 37.4	CL dB 9.1 9.1	Avg Peak HPF dB -32.6 -32.6	Average I Calculate High Pas: D Corr dB 0.0 0.0	Field St d Peak s Filter <b>Fltr</b> <b>dB</b> 0.0 0.0	rength @ 3 m Field Strength dBuV/m dBuV 47.8 74.1 35.2 54.1	Margin Margin m dB -26.2 -18.8 -21.3	vs. Average vs. Peak Li Ant. Pol. V/H V V	Limit mit Det. P/A/QP P A	cm 100.0 100.0	Degree 126.0 126.0	Notes				
GHz HT40_53 10.620 10.620 15.930 15.930 HT40_53	Read AF CL Dist (m) 10MHz 3.0 3.0 3.0 3.0 3.0	Analyzer Antenna Cable Lo: Read dBuV Chain A 33.8 21.1 35.9 23.4 Chain A	Reading Factor (5) AF dB/m Vert 37.6 37.6 37.6 37.4 37.4 Hor	CL dB 9.1 9.1 11.5 11.5	Avg Peak HPF -32.6 -32.6 -32.1 -32.1	Average Calculate High Pass D Corr dB 0.0 0.0 0.0 0.0	Field St d Peak s Filter dB 0.0 0.0 0.0	rength (@ 3 m Field Strength dBuV/m dBuV 47.8 74.1 35.2 54.1 52.7 74.1 40.2 54.1	Margin Margin t Margin dB -26.2 -18.8 -21.3 -13.8	vs. Average vs. Peak Li V/H V V V V V	Limit mit P/A/QP P A P A	cm 100.0 100.0 100.0 100.0	Degree 126.0 126.0 51.0 51.0	Notes				
CHz HT40_53 10.620 10.620 15.930 15.930 HT40_53 10.620	Read AF CL <b>Dist</b> (m) <b>10MHz</b> 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Analyzer Antenna Cable Lo: Read dBuV Chain A 33.8 21.1 35.9 23.4 Chain A 32.9	Reading Factor (5) AF dB/m Vert 37.6 37.6 37.6 37.4 40r 37.6	CL dB 9.1 11.5 11.5 9.1	Avg Peak HPF -32.6 -32.6 -32.1 -32.1 -32.1	Average 1 Calculate High Pass D Corr dB 0.0 0.0 0.0 0.0 0.0 0.0	Field St d Peak s Filter dB 0.0 0.0 0.0 0.0 0.0 0.0	rength (@ 3 m Field Strength dBuV/m dBuV 47.8 74.1 35.2 54.1 52.7 74.1 40.2 54.1 46.9 74.1	Margin Margin t Margin -26.2 -18.8 -21.3 -13.8 -27.1	vs. Average vs. Peak Li V/H V/H V V V V V H	Limit mit P/A/QP P A P A A P P	cm 100.0 100.0 100.0 100.0 100.0	Degree 126.0 126.0 51.0 51.0 163.0	Notes				
CHz HT40_53 10.620 10.620 15.930 15.930 HT40_53 10.620 10.620	Read AF CL <b>Dist</b> (m) <b>10MHz</b> 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Analyzer Antenna Cable Lo: Read dBuV Chain A 33.8 21.1 35.9 25.9 20.9	Reading Factor <sup>55</sup> AF <u>dB/m</u> 37.6 37.6 37.4 37.4 Hor 37.6 37.6	CL dB 9.1 9.1 11.5 11.5 9.1 9.1	Avg Peak HPF dB -32.6 -32.6 -32.1 -32.1 -32.1 -32.6 -32.6	Average I Calculate High Pass D Corr dB 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Field St d Peak s Filter dB 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	rength @ 3 m Field Strength dBuV/m dBuV 47.8 74.1 35.2 54.1 40.2 54.1 46.9 74.1 35.0 54.1	Margin Margin t Margin -26.2 -18.8 -21.3 -13.8 -21.3 -13.8 -27.1 -19.0	vs. Average vs. Peak Li Ant Pol V/H V V V V V V H H	Limit mit P/A/QP P A P A P A	cm 100.0 100.0 100.0 100.0 100.0 100.0	Degree 126.0 51.0 51.0 163.0 163.0	Notes				
CHz HT40_533 10.620 10.620 15.930 15.930 HT40_533 10.620	Read AF CL <b>Dist</b> (m) <b>10MHz</b> 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Analyzer Antenna Cable Lo: Read dBuV Chain A 33.8 21.1 35.9 23.4 Chain A 32.9	Reading Factor (5) AF dB/m Vert 37.6 37.6 37.6 37.4 40r 37.6	CL dB 9.1 11.5 11.5 9.1 9.1 11.5	Avg Peak HPF -32.6 -32.6 -32.1 -32.1 -32.1	Average 1 Calculate High Pass D Corr dB 0.0 0.0 0.0 0.0 0.0 0.0	Field St d Peak s Filter dB 0.0 0.0 0.0 0.0 0.0 0.0	rength (@ 3 m Field Strength dBuV/m dBuV 47.8 74.1 35.2 54.1 52.7 74.1 40.2 54.1 46.9 74.1	Margin Margin m dB -26.2 -18.8 -21.3 -13.8 -21.3 -13.8 -21.3 -13.8 -21.3 -13.8 -21.3 -13.8 -21.3 -13.8	vs. Average vs. Peak Li V/H V/H V V V V V H	Limit mit P/A/QP P A P A A P P	cm 100.0 100.0 100.0 100.0 100.0	Degree 126.0 126.0 51.0 51.0 163.0	Notes				

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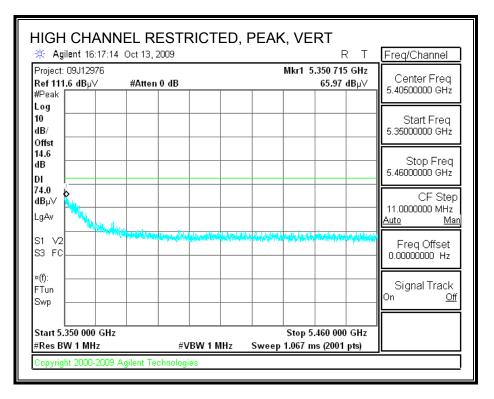
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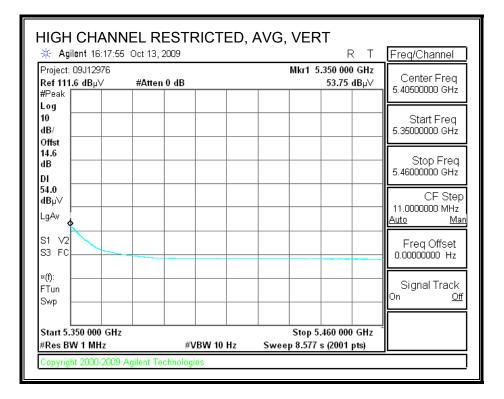
#### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





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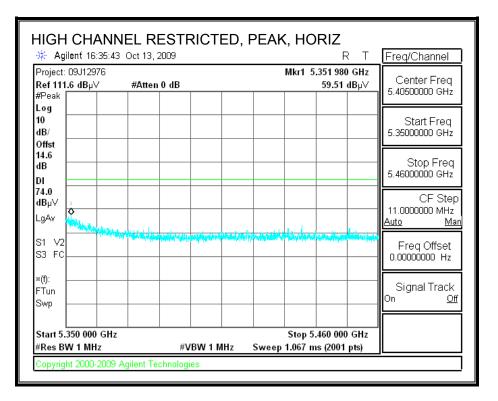
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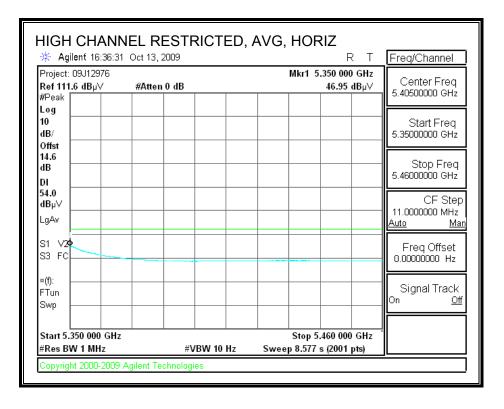
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Date:		10/13/09																
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Company	-	Intel																
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Mode Op	er:	Tx 5.2 &	5.3GH	Band	s_HT40	_High Cl	hanne	l_Chain B										
	f	Measurer	nent Fre	mency	Amp	Preamp (	Gain		Average	e Field Stren	eth Limit							
	Dist	Distance	to Antei	ına	D Corr	Distance	Correc	t to 3 meters	Peak Fi	eld Strength	Limit							
	Dıst Read	Distance Analyzer			D Corr Avg			t to 3 meters trength @ 3 m		eld Strength vs. Average								
			Reading		Avg	Average 1	Field St		Margin	÷	Limit							
	Read	Analyzer	Reading Factor		Avg	Average 1	Field S d Peak	trength @ 3 m Field Strength	Margin	vs. Average	Limit							
f	Read AF CL	Analyzer Antenna Cable Lo:	Reading Factor		Avg Peak HPF	Average l Calculate High Pas:	Field St d Peak s Filter	trength @ 3 m Field Strength	Margin Margin	vs. Average vs. Peak Li	Limit mit	Ant High	Table Angle	Notes				
f GHz	Read AF CL Dist	Analyzer Antenna Cable Lo: <b>Read</b>	Reading Factor ss AF	CL	Avg Peak HPF Amp	Average I Calculate High Pas: <b>D Corr</b>	Field St d Peak s Filter <b>Fltr</b>	trength @ 3 m Field Strength Corr. Lin	Margin Margin it Margin	vs. Average vs. Peak Li Ant. Pol	Limit mit Det.	-	Table Angle Degree	Notes				
GHz	Read AF CL Dist (m)	Analyzer Antenna Cable Lo: Read dBuV	Reading Factor 55 AF dB/m	CL	Avg Peak HPF	Average l Calculate High Pas:	Field St d Peak s Filter <b>Fltr</b>	trength @ 3 m Field Strength	Margin Margin it Margin	vs. Average vs. Peak Li	Limit mit	Ant.High cm	Table Angle Degree	Notes				
GHz HT40_53	Read AF CL Dist (m)	Analyzer Antenna Cable Lo: <b>Read</b>	Reading Factor 55 AF dB/m	CL	Avg Peak HPF Amp	Average I Calculate High Pas: <b>D Corr</b>	Field St d Peak s Filter <b>Fltr</b>	trength @ 3 m Field Strength Corr. Lin	Margin Margin it Margin <u>/m dB</u>	vs. Average vs. Peak Li Ant. Pol	Limit mit Det.	-	-	Notes				
GHz	Read AF CL Dist (m) 10MHz	Analyzer Antenna Cable Lo: Read dBuV Chain A	Reading Factor 55 AF dB/m Vert	CL dB	Avg Peak HPF Amp dB	Average 1 Calculate High Pas: <b>D Corr</b> <b>dB</b>	Field St d Peak s Filter <b>Fltr</b> <b>dB</b>	trength @ 3 m Field Strength Corr. Lin dBuV/m dBuV	Margin Margin it Margin <u>/m dB</u>	vs. Average vs. Peak Lir Ant. Pol. V/H	Limit mit Det. P/A/QP	cm	Degree	Notes				
GHz HT40_53 10.620	Read AF CL Dist (m) 10MHz 3.0	Analyzer Antenna Cable Lo: Read dBuV Chain A 35.1	Reading Factor SS AF dB/m Vert 37.6 37.6	CL dB 9.1	Avg Peak HPF dB -32.6	Average I Calculate High Pas: D Corr dB	Field St d Peak s Filter <b>Fltr</b> <b>dB</b> 0.0	rrength @ 3 m Field Strength Corr. Lin dBuV/m dBuV 49.1 74.	Margin Margin it Margin /m dB ) -24.9 ) -17.5	vs. Average vs. Peak Li Ant. Pol. V/H V	Limit mit Det. P/A/QP P	cm 101.0	Degree 128.0	Notes				
GHz HT40_53 10.620 10.620 15.930	Read AF CL Dist (m) 10MHz 3.0 3.0	Analyzer Antenna Cable Lo: Read dBuV Chain A 35.1 22.5	Reading Factor ** AF dB/m Vert 37.6 37.6 37.4	CL dB 9.1 9.1	Avg Peak HPF dB -32.6 -32.6	Average I Calculate High Pas: D Corr dB 0.0 0.0	Field St d Peak s Filter <b>Fltr</b> <b>dB</b> 0.0 0.0	rength @ 3 m Field Strength Corr. Lin dBuV/m dBuV 49.1 74. 36.5 54.	Margin Margin it Margin dB 0 -24.9 0 -17.5 0 -20.0	vs. Average vs. Peak Lip Ant. Pol. V/H V V	Limit mit Det. P/A/QP P A	cm 101.0 101.0	Degree 128.0 128.0	Notes				
GHz HT40_53 10.620 10.620 15.930 15.930	Read AF CL Dist (m) 10MHz 3.0 3.0 3.0 3.0 3.0	Analyzer Antenna Cable Lo: <b>Read</b> <b>dBuV</b> Chain A 35.1 22.5 37.3	Reading Factor 55 AF dB/m Vert 37.6 37.6 37.4 37.4	CL dB 9.1 9.1	Avg Peak HPF dB -32.6 -32.6 -32.1	Average I Calculate High Pass D Corr dB 0.0 0.0 0.0	Field St d Peak s Filter dB 0.0 0.0 0.0	rrength @ 3 m Field Strength Corr. Lim dBuV/m dBuV 49.1 74. 36.5 54. 54.0 74.	Margin Margin it Margin dB 0 -24.9 0 -17.5 0 -20.0	vs. Average vs. Peak Lip Ant. Pol. V/H V V V	Limit mit Det. P/A/QP P A P	cm 101.0 101.0 101.0	Degree 128.0 128.0 49.0	Notes				
GHz HT40_53 10.620 10.620 15.930 15.930	Read AF CL Dist (m) 10MHz 3.0 3.0 3.0 10MHz 3.0	Analyzer Antenna Cable Lo: Read dBuV Chain A 35.1 22.5 37.3 24.8 Chain A 34.4	Reading Factor 55 AF dB/m Vert 37.6 37.6 37.4 37.4	CL dB 9.1 11.5 11.5 9.1	Avg Peak HPF -32.6 -32.6 -32.1 -32.1 -32.1	Average I Calculate High Pass D Corr dB 0.0 0.0 0.0	Field St d Peak s Filter dB 0.0 0.0 0.0	rrength @ 3 m Field Strength Corr. Lim dBuV/m dBuV 49.1 74. 36.5 54. 54.0 74.	Margin Margin it Margin dB 0 -24.9 0 -17.5 0 -20.0 0 -12.5 0 -25.6	vs. Average vs. Peak Liv Ant. Pol. V/H V V V V V V H	Limit mit Det. P/A/QP P A P	cm 101.0 101.0 101.0	Degree 128.0 128.0 49.0 49.0 163.0	Notes				
CHz HT40_53 10.620 10.620 15.930 15.930 HT40_53 10.620 10.620	Read AF CL Dist (m) 10MHz 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Analyzer Antenna Cable Lo: Read dBuV Chain A 35.1 22.5 37.3 24.8 Chain A 34.4 22.4	Reading Factor 55 AF dB/m Vert 37.6 37.6 37.6 37.4 37.4 Hor	CL dB 9.1 11.5 11.5 9.1 9.1	Avg Peak HPF dB -32.6 -32.1 -32.1 -32.1 -32.6 -32.6	Average Calculate High Pass D Corr dB 0.0 0.0 0.0 0.0	Field St d Peak s Filter <b>Fltr</b> <b>dB</b> 0.0 0.0 0.0 0.0	rength @ 3 m Field Strength dBuV/ny dBuV 49.1 74. 36.5 54. 54.0 74. 41.5 54. 48.4 74. 36.4 54.	Margin Margin dB 0 -24.9 0 -17.5 0 -20.0 0 -12.5 0 -25.6 0 -17.6	vs. Average vs. Peak Lin V/H V V V V V V H H H	Limit mit Det. P/A/QP P A P A P A	cm 101.0 101.0 101.0 101.0 101.0 101.0	Degree 128.0 128.0 49.0 49.0 163.0 163.0	Notes				
CHz HT40_53 10.620 10.620 15.930 15.930 HT40_53 10.620	Read AF CL Dist (m) 10MHz 3.0 3.0 3.0 10MHz 3.0	Analyzer Antenna Cable Lo: Read dBuV Chain A 35.1 22.5 37.3 24.8 Chain A 34.4	Reading Factor 55 AF dB/m Vert 37.6 37.6 37.6 37.4 40r 37.6	CL dB 9.1 11.5 11.5 9.1	Avg Peak HPF -32.6 -32.6 -32.1 -32.1 -32.1	Average 1 Calculate High Pass D Corr dB 0.0 0.0 0.0 0.0 0.0 0.0	Field S d Peak s Filter <b>Fltr</b> <b>dB</b> 0.0 0.0 0.0 0.0 0.0 0.0	rength @ 3 m Field Strength dBuV/m dBuV 49.1 74. 36.5 54. 54.0 74. 41.5 54. 48.4 74.	Margin Margin dB 0 -24.9 0 -17.5 0 -20.0 0 -12.5 0 -25.6 0 -17.6	vs. Average vs. Peak Liv Ant. Pol. V/H V V V V V V H	Limit mit P/A/QP P A P A P A P P	cm 101.0 101.0 101.0 101.0 101.0	Degree 128.0 128.0 49.0 49.0 163.0	Notes				

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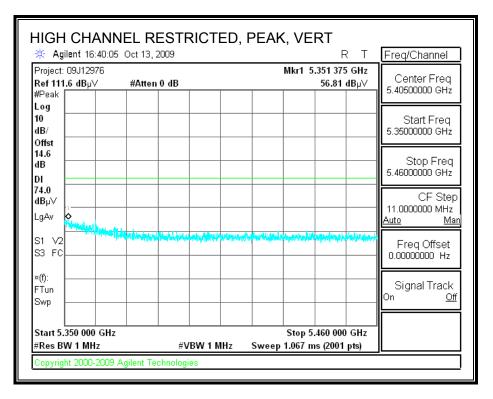
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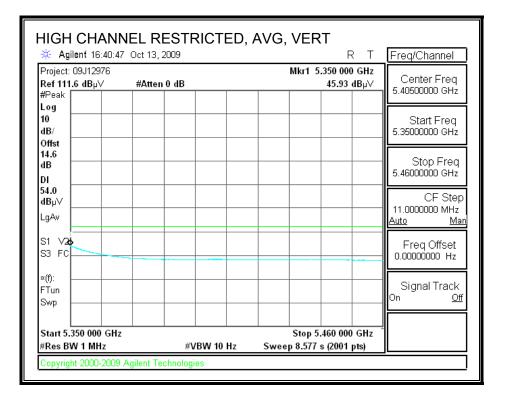
#### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





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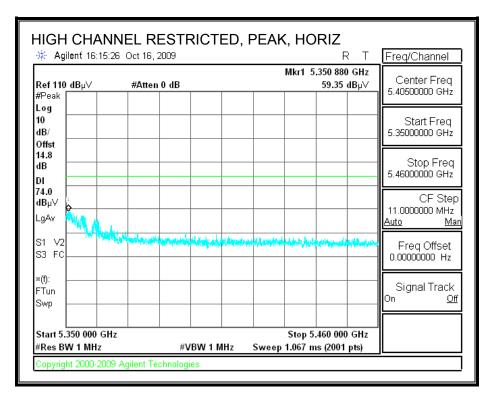
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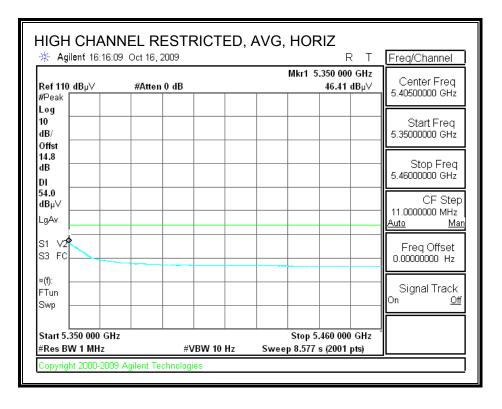
	622ANH FCC Cla Tx 5.2 &	MW ss B							ThinkPa	d X200/X20	)l Tablet	Series)		
	Distance Analyzer Antenna	to Anter Reading Factor	una	D Corr Avg Peak	Distance Average Calculate	Correc Field S d Peak	trength @ : Field Stre	3 m	Peak Fie Margin v	ld Strength 75. Average	Limit Limit			
Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	AntHigh	Table Angle	Notes
(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
MHz_	Chain B_	Vert												
3.0	33.9	37.8	11.5	-32.2	0.0	0.0	51.0	74.0	- <b>23.0</b>	V	Р	101.0	46.0	
3.0	21.8	37.8	11.5	-32.2	0.0	0.0	38.9	54.0	-15.1	V	A	101.0	46.0	
MHz_	Chain B_	Hor												
	Chain B 34.0 22.1	Hor 37.8 37.8	11.5	-32.2 -32.2	0.0 0.0	0.0 0.0	51.1 39.2	74.0 54.0	-22.9 -14.8	H H	P A	99.0 99.0	5.0 5.0	
	f Dist Read AF CL Dist (m) <u>MHz</u> 3.0	f Measuren Dist Distance Read Analyzer AF Anterna CL Cable Los Dist Read (m) dBuV MHz Chain B 3.0 33.9	f Measurement Free Dist Distance to Anter Read Analyzer Reading AF Antenna Factor CL Cable Loss Dist Read AF (m) dBuV dB/m MHz Chain B Vert 3.0 33.9 37.8	f Measurement Frequency Dist Distance to Antenna Read Analyzer Reading AF Antenna Factor CL Cable Loss Dist Read AF CL (m) dBuV dB/m dB MHz Chain B Vert 3.0 33.9 37.8 11.5	f Measurement Frequency Amp Dist Distance to Antenna D Corr Read Analyzer Reading Avg AF Antenna Factor Peak CL Cable Loss HPF Dist Read AF CL Amp (m) dBuV dB/m dB dB MHz Chain B Vert 4 3.0 33.9 37.8 11.5 -32.2	f Measurement Frequency Amp Preamp ( Dist Distance to Antenna D Corr Distance Read Analyzer Reading Avg Average 1 AF Antenna Factor Peak Calculate CL Cable Loss HPF High Pas: Dist Read AF CL Amp D Corr (m) dBuV dB/m dB dB dB MHz Chain B Vert 4 3.0 33.9 37.8 11.5 -32.2 0.0	f Measurement Frequency Amp Preamp Gain Dist Distance to Antenna D Corr Distance Correc Read Analyzer Reading Avg Average Field S AF Antenna Factor Peak Calculated Peak CL Cable Loss HPF High Pass Filter Dist Read AF CL Amp D Corr Fltr (m) dBuV dB/m dB dB dB dB MHz Chain B Vert 5 3.0 33.9 37.8 11.5 -32.2 0.0 0.0	f Measurement Frequency Amp Preamp Gain Dist Distance to Antenna D Corr Distance Correct to 3 me Read Analyzer Reading Avg Average Field Strength @ AF Antenna Factor Peak Calculated Peak Field Stre CL Cable Loss HPF High Pass Filter Dist Read AF CL Amp dB dB dB dB dBuV/m MHr Chain B Vert 3.0 33.9 37.8 11.5 -32.2 0.0 0.0 51.0	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       Dist     Read     AF     CL     Amp       Dist     Read     AF     CL     Amp       Mitz     Chain B     B     B     B       MHz     Chain B     Vert     11.5     -32.2     0.0     0.0     51.0     74.0	f     Measurement Frequency Amp     Preamp Gain     Average       Dist     Distance to Antenna     D Corr     Distance Correct to 3 meters     Peak Fie       Read     Analyzer Reading     Avg     Average Field Strength @ 3 m     Margin v       AF     Antenna Factor     Peak     Calculated Peak Field Strength     Margin v       CL     Cabe Loss     HPF     High Pass Filter     Margin v       Dist     Read     AF     CL     Amp     D Corr     Fltr     Corr.     Limit     Margin v       Dist     Read     AF     CL     Amp     D Corr     Fltr     Corr.     Limit     Margin v       MHz     Chain B     HB     dB     dB     dB     U     Margin v       3.0     33.9     37.8     11.5     -32.2     0.0     0.0     51.0     74.0     -23.0	f     Measurement Frequency Amp     Preamp Gain     Average Field Strent       Dist     Distance to Antenna     D Corr     Distance Correct to 3 meters     Peak Field Strent       Read     Analyzer Reading     Avg     Average Field Strenth     O and     Margin vs. Average       Read     Analyzer Reading     Avg     Average Field Strenth     Margin vs. Average       AF     Antenna Factor     Peak     Calculated Peak Field Strenth     Margin vs. Peak Lin       CL     Cable Loss     HPF     High Pass Filter     Margin Ant. Pol.       (m)     dB/m     dB     dB     dB     dBuV/m     Multy/m       MHz     Chain B     V/H     MHz     Chain S     V/H	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     Average Field Strength @ 3 m     Margin vs. Average Limit       AF     Antenna Factor     Peak     Calculated Peak Field Strength     Margin vs. Peak Limit       CL     Cabe Loss     HPF     High Pass Filter     Margin Margin Ant. PoL     Det.       (m)     dB/m     dB     dB     dB     V/H     P/A/QP       MHz     Chain B. Vert     Imagin 33.9     37.8     11.5     -32.2     0.0     0.0     51.0     74.0     -23.0     V	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     Margin vs. Peak Limit       Dist     Read     AF     CL     Amp     D Corr       MHz     Chain B     VH     Clause     Carculated Peak       MHz     Chain B     VH     D // QP     cm       MHz     S13.9     37.8     11.5     -32.2     0.0     0.0     51.0     74.0     -23.0     V     P     101.0	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       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       Margin vs. Peak Limit         Dist       Read       AF       CL       Amp       D Corr       Filtr       Corr.       Limit       Margin vs. Peak Limit         Dist       Read       AF       CL       Amp       D Corr       Filtr       Corr.       Limit       Margin Ant. Pol.       Det.       Ant.High Table Angle         (m)       dB/m       dB       dB       dB       dBuV/m       dBuV/m       D       P/A/QP       cm       Degree         MHz       Chain B       VH       VH       P/A/QP       cm       Degree       Marcutate         3.0       33.9       37.8       11.5       -32.2       0.0       0.0       51.0       74.0       -23.0       V       P       101.0       46.0

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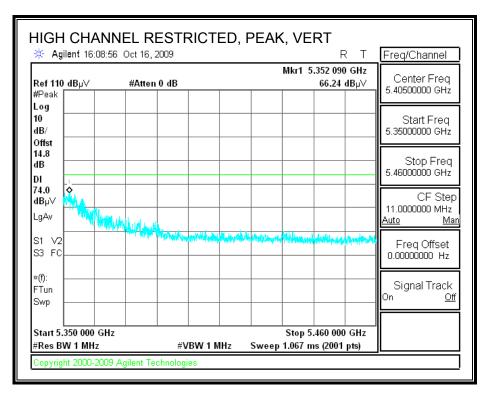
# 8.2.16. 802.11n HT40 MODE IN THE UPPER 5.3 GHz BAND\_CHAIN A+B

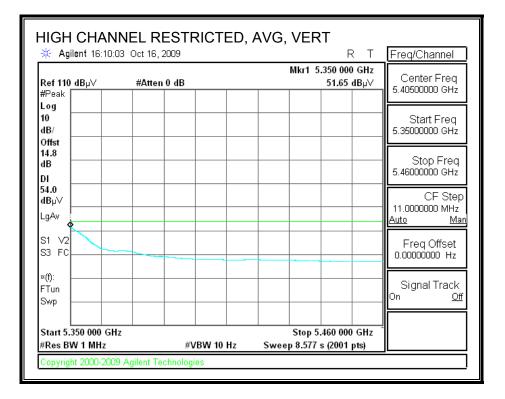
#### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**





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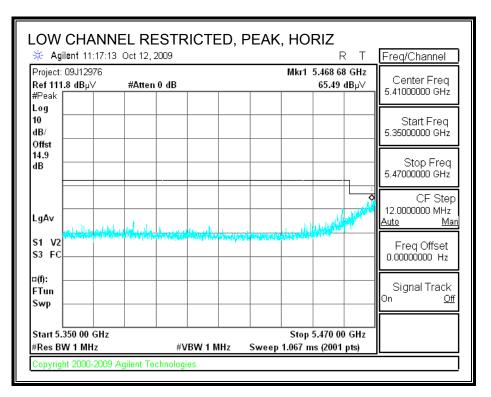
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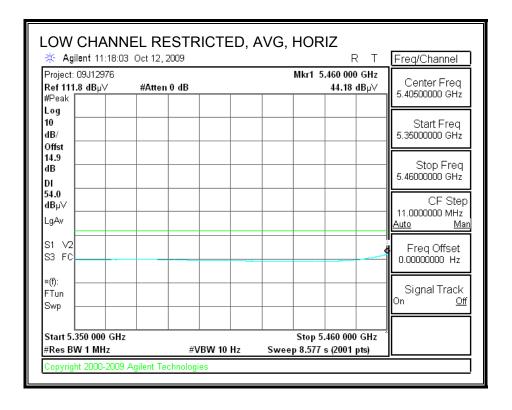
Compliar	nce Cer	tification	Service	s, Frei	nont 31	n Chamb	er								
fest Engr	r:	Vien Tra	n												
Date:		10/13/09													
Project #: Company		09U1279 Intel	0												
	·		entrino	ል እሱ	anced-I	N 6200 (TA	hetee	Inside Of	flenovo	ThinkPa	a x200/X20	11 Tablet	Series)		
UT M/N:	-	622ANH		/0 11di	anceu		concu	dene v	LENOTO			/1 1a/1e1	series ;		
lest Targo	et:	FCC Cla	ss B												
Mode Op	er:	Tx 5.2 &	5.3GH	z Band	s_HT40	_Low Ch	annel	L_Chain /	AB						
						_	<b>.</b> .				-				
	f Dist	Measuren Distance i				Preamp ( Distance					Field Stren Id Strength				
	Read	Analyzer			Avg			trength @			111 strengtn 75. Average				
	AF	Antenna l			Peak	÷		r Field Stre		÷	75. Average 75. Peak Lii				
	CL	Cable Los	\$		HPF	High Pas	s Filte:		6						
	CL	Cable Los	5		HPF	High Pas	s Filte:								
f	CL Dist	Read	AF	CL	Amp	D Corr	Fltr	r Corr.	Limit	Margin	Ant. Pol.	Det.	AntHigh	Table Angle	Notes
f GHz			AF	CL				r Corr.	Ĵ.	Margin			Ant.High cm	Table Angle Degree	Notes
GHz IT40_519	Dist (m) 90MHz	Read dBuV Chain AB	AF dB/m Vert	CL dB	Amp dB	D Corr dB	Fltr dB	r Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	<u> </u>	Degree	Notes
GHz 1T40_519 5.570	Dist (m) 90MHz 3.0	Read dBuV Chain AE 33.2	AF dB/m Vert 38.4	CL dB 11.4	Amp dB -32.2	D Corr dB 0.0	F1+r dB 0.0	r Corr. dBuV/m 50.8	Limit dBuV/m 74.0	Margin dB -23.3	Ant. Pol. V/H V	Det. P/A/QP P	ст 100.0	Degree 55.0	Notes
GHz 1T40_519 5.570 5.570	Dist (m) 90MHz 3.0 3.0	Read dBuV Chain AE 33.2 21.3	AF dB/m Vert 38.4 38.4	CL dB	Amp dB -32.2	D Corr dB	Fltr dB	r Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	<u> </u>	Degree	Notes
GHz HT40_519 15.570 15.570 HT40_519	Dist (m) 90MHz 3.0 3.0 90MHz	Read dBuV Chain AE 33.2 21.3 Chain AE	AF dB/m Vert 38.4 38.4 Hor	CL dB 11.4 11.4	Amp dB -32.2 -32.2	D Corr dB 0.0 0.0	F1+r dB 0.0 0.0	r Corr. dBuV/m 50.8 38.9	Limit dBuV/m 74.0 54.0	Margin dB -23.3 -15.1	Ant Pol V/H V V	Det. P/A/QP P A	cm 100.0 100.0	Degree 55.0 55.0	Notes
GHz HT40_519 15.570 15.570	Dist (m) 90MHz 3.0 3.0	Read dBuV Chain AE 33.2 21.3	AF dB/m Vert 38.4 38.4 Hor 38.4	CL dB 11.4 11.4 11.4	Amp dB -32.2 -32.2	D Corr dB 0.0	F1+r dB 0.0	r Corr. dBuV/m 50.8	Limit dBuV/m 74.0	Margin dB -23.3	Ant. Pol. V/H V	Det. P/A/QP P A	ст 100.0	Degree 55.0	Notes

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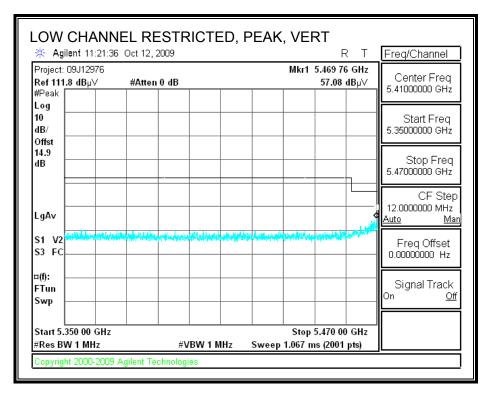
# 8.2.17. 802.11a MODE IN THE 5.6 GHz BAND\_CHAIN A

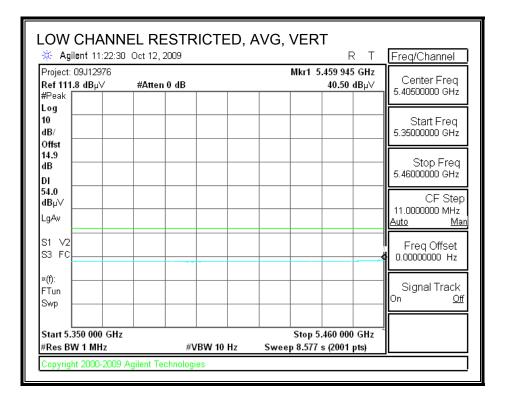
# **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**





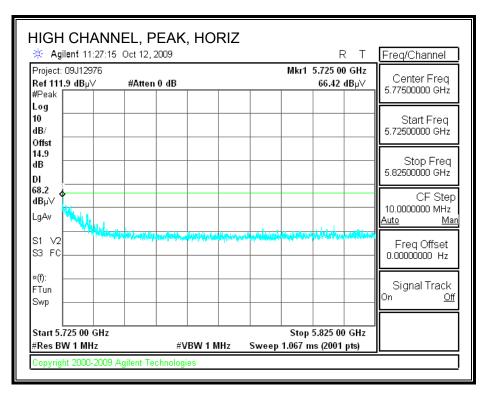
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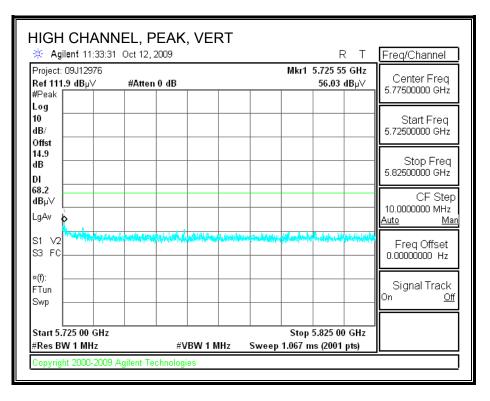


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### AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



#### AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



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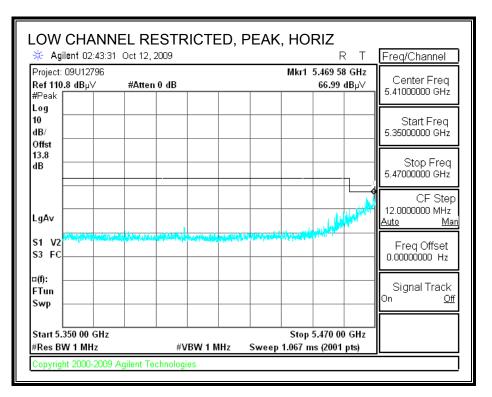
# HARMONICS AND SPURIOUS EMISSIONS

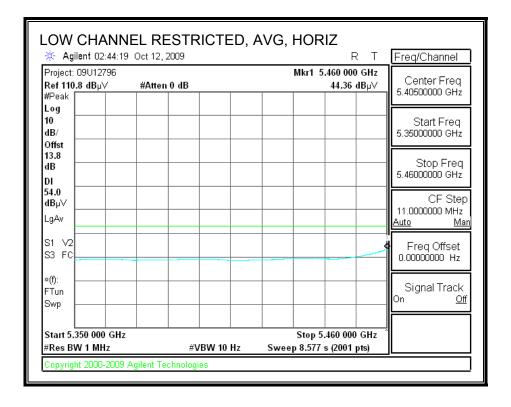
Test Engr															
- · ·		Vien Tra	n												
Date:		10/13/09 09U1279													
Project # Company		Intel	0												
			ontrine	ል እት	-bearen	N 6200 (T.	hoteo	Incide Of	flenovo	ThinkPa	d X200/X20	11 Tahlat	Series		
EUT M/N:		622ANH			ranceu-		concu	HEIGHT V	LENOVO			/1 1a/1e1	Jerresj		
Test Targ		FCC Cla													
Mode Op		Tx 5.6 GH	Iz Band	L_11a	_Mid Cl	annel_C	hain	A_Worst-	-Case						
	f	Measuren			-	Preamp (				-	Field Stren	-			
	Dist	Distance				Distance					eld Strength				
	Read	Analyzer			Avg	÷		trength @	r i i i i i i i i i i i i i i i i i i i	÷	vs. Average				
	AF CL	Antenna Cable Los			Peak HPF			k Field Stre	ength	Margin	vs. Peak Lii	nut			
	CL	Cable Los	5		прг	High Pas	я гите	r							
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Ant.High	Table Angle	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
11a_5600	MHz_C	hain A_V	ert												
11.200	3.0	31.8	38.0	9.4	-32.5	0.0	0.0	46.6	74.0	-27.4	V	Р	114.0	19.0	
11.200	3.0	19.9		9.4	-32.5	0.0	0.0	34.7	54.0	-19.3	V	A	114.0	19.0	
								40.1	- 10		**		1410		
	3.0	33.2 20.2	38.0 38.0	9.4 9.4	-32.5	0.0 0.0	0.0 0.0	48.1 35.0	74.0 54.0	-25.9 -19.0	H H	P A	141.0 141.0	-3.0 -3.0	
11a_5600 11.200 11.200	3.0		. JO.U	7.4	-34.7	0.0	0.0	J7.0	24.U	-17.0		<u></u>	141.0	-J.U	

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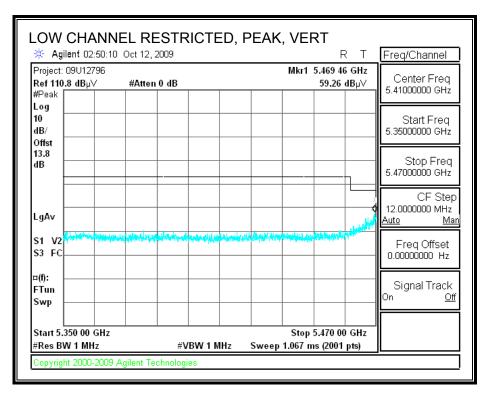
# 8.2.18. 802.11a MODE IN THE 5.6 GHz BAND\_CHAIN B

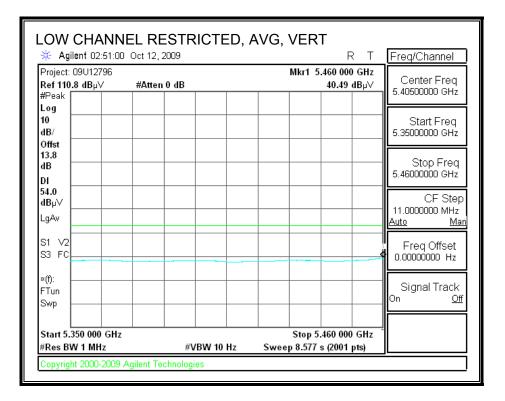
#### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





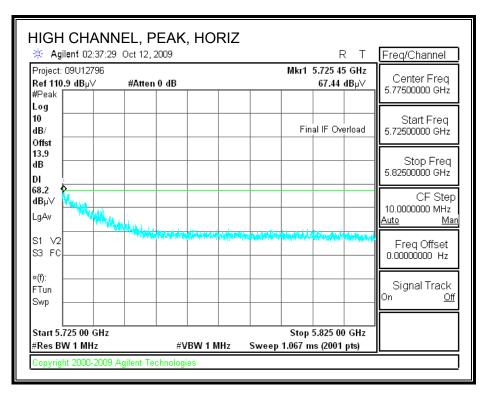
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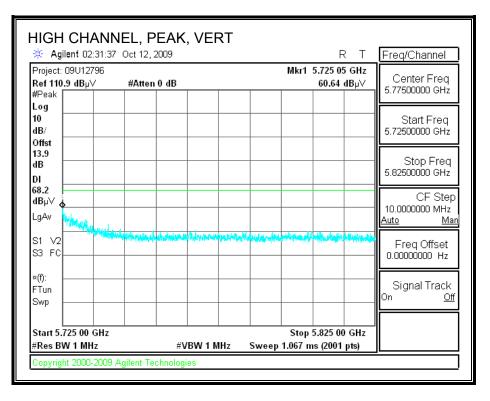


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# AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



#### AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



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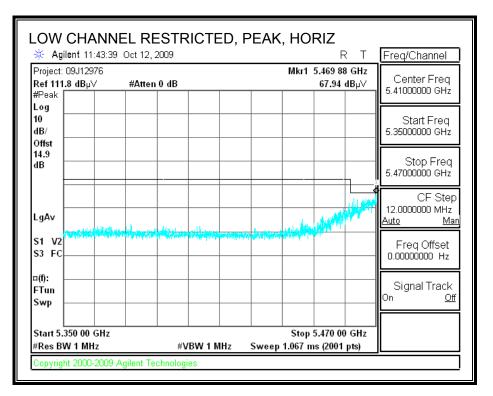
# HARMONICS AND SPURIOUS EMISSIONS

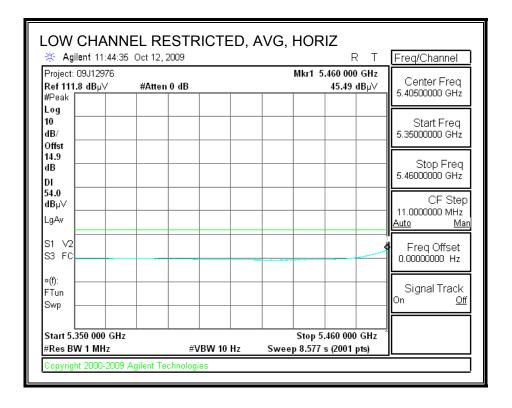
Test Engr		Vien Tra	_												
Date:		10/13/09	un												
Project #		09U1279	6												
Company		Intel	•												
			entrino	® Ad	anced-l	N 6200 (Te	ested	Inside Of	f Lenovo 1	ThinkPa	d X200/X20	01 Tablet	Series)		
EUT M/N:	-	622ANH				-									
Test Targ	et:	FCC Cla	ss B												
Mode Op	er:	Tx 5.6 GH	Iz Band	L_11a_	Mid Cl	annel_C	hain	B_Worst-	Case						
	_		_												
	f	Measuren			-	Preamp (				-	Field Stren	-			
	Dist Read	Distance				Distance					ld Strength				
	read AF	Analyzer Antenna	· ·		Avg Peak	-		trength @ k Field Stre		-	rs. Average rs. Peak Lii				
	Ar CL	Cable Los			HPF	High Pas:			ingin	wargin	75. Feak Lu	пшt			
	0L		,,			men i a.	л ше	•							
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det	Ant.High	Table Angle	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
11a_5600	MHz_C	hain B_V	ert												
11.200	3.0	33.0	38.0	9.4	-32.5	0.0	0.0	47.9	74.0	- <b>26.1</b>	V	Р	116.0	22.0	
11.200	3.0	21.1	38.0	9.4	-32.5	0.0	0.0	36.0	54.0	-18.0	v	A	116.0	22.0	
lla 5600	MHz_C 3.0	hain B_H 34.7	lor 38.0	9.4	-32.5	0.0	0.0	49.4	74.0		н	n	136.0		
		34./ 21.6	38.0	9.4 9.4	-32.5	0.0	0.0 0.0	49.4	74.0 54.0	-24.6 -17.7	H H	P A	136.0	5.0 5.0	
11.200 11.200	3.0				-35.7	0.0	0.0		240				130.0	2.0	

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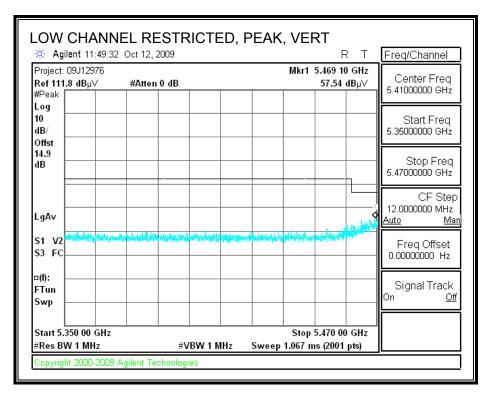
# 8.2.19. 802.11n HT20 MODE IN THE 5.6 GHz BAND\_CHAIN A

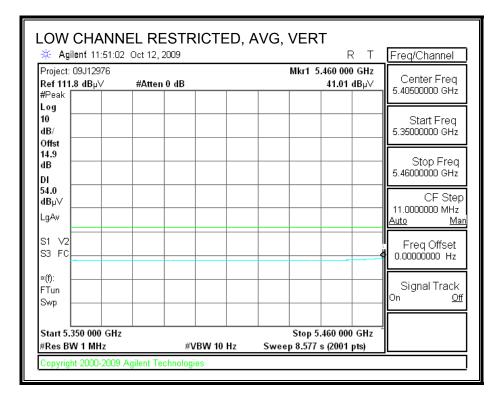
#### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**





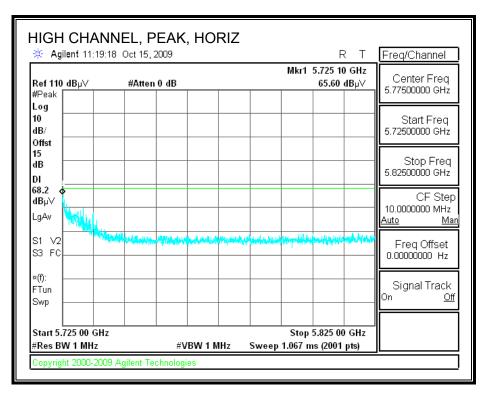
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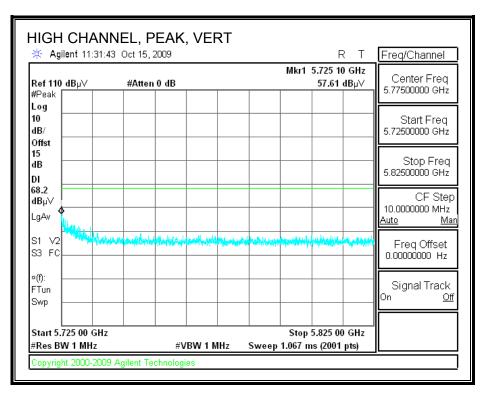


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### AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



#### AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



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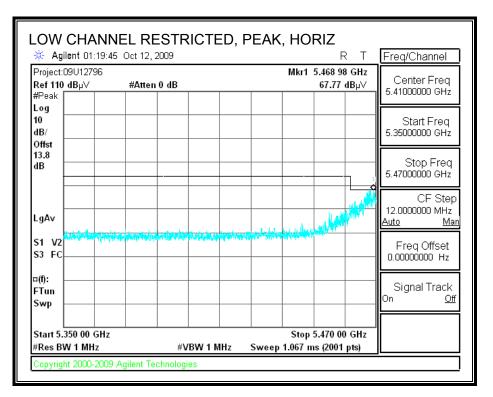
# HARMONICS AND SPURIOUS EMISSIONS

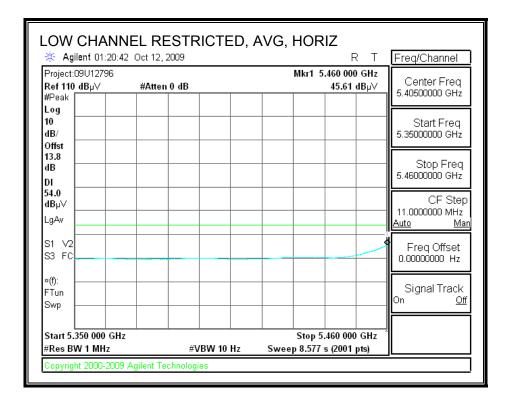
Test Engr Date:	•	Vien Tra 10/13/09													
Project #:		09U1279	6												
Company		Intel					_								
EUT Desc: EUT M/N:		Intel® C 622ANH		® Ad	vanced-l	N 6200 (Te	ested	Inside O	f Lenovo i	ThinkPa	d X200/X20	)l Tablet	Series)		
EUI MUN: Test Targ		FCC Cla													
Mode Op				I HT2	0 Mid (	Channel	Chai	n A							
					_										
	f	Measuren			-	Preamp (				-	Field Stren	-			
	Dist	Distance				Distance					ld Strength				
	Read	Analyzer			Avg			trength @		-	75. Average				
	AF CL	Antenna Cable Los			Peak HPF	Calculate High Pas		c Field Stre	ength	Margin v	rs. Peak Lii	nut			
	CL.	Caple Los	**		nFr	nign Fas	sгще	r							
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det	AntHigh	Table Angle	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
		Chain A													
11.200	3.0	31.7	38.0	9.4	-32.5	0.0	0.0	46.6	74.0	-27.4	V	Р	102.0	131.0	
11.200	3.0	19.8	38.0	9.4	-32.5	0.0	0.0	34.6	54.0	-19.4	V	A	102.0	131.0	
H120_560 11.200	JUMIHz 3.0	Chain A 32.6	Hor 38.0	9.4	-32.5	0.0	0.0	47.4	74.0	-26.6	н	Р	100.0	267.0	
11.200	3.0	32.0 19.7	38.0	9.4 9.4		0.0	0.0	47.4	74.0 54.0	-20.0 -19.5	п Н	P A	100.0	267.0	
11.200		12.1	: 30.0	2.4		. 0.0	0.0	: 34.2	: 24.0	-13.0		· ^	100.0	: ¥07.0 ÷	

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# 8.2.20. 802.11n HT20 MODE IN THE 5.6 GHz BAND\_CHAIN B

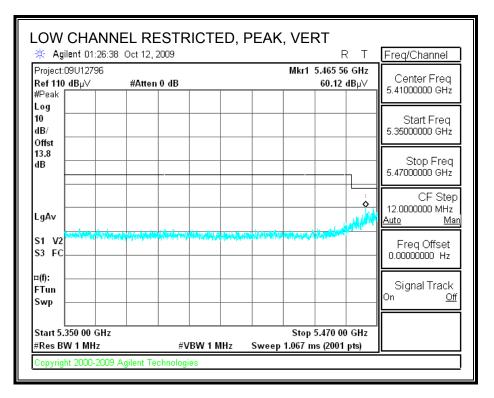
#### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**

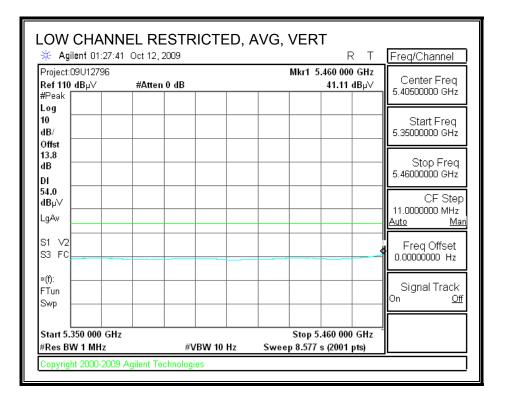




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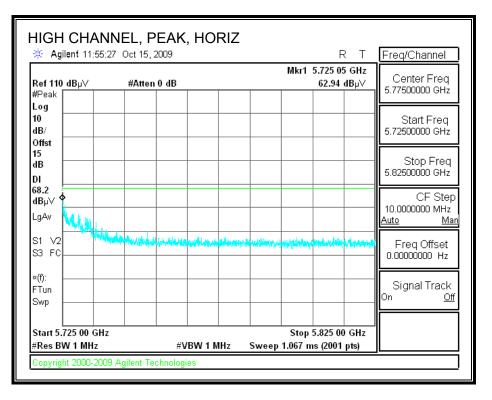
### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



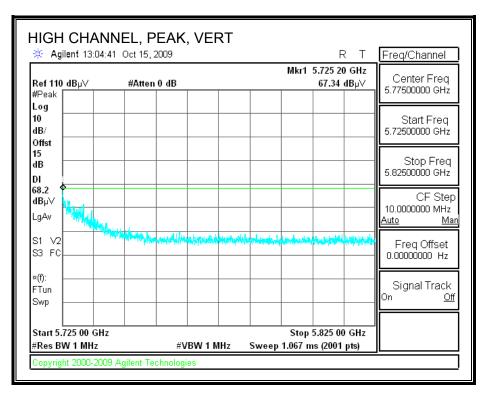


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### AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



### AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



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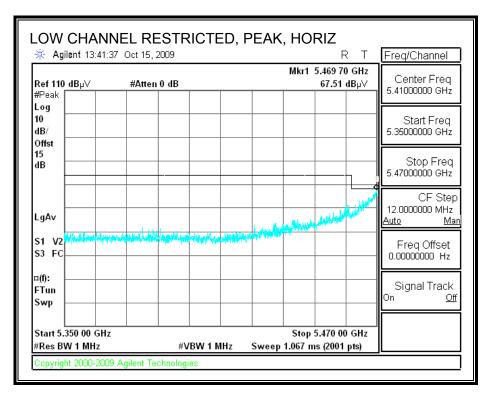
### HARMONICS AND SPURIOUS EMISSIONS

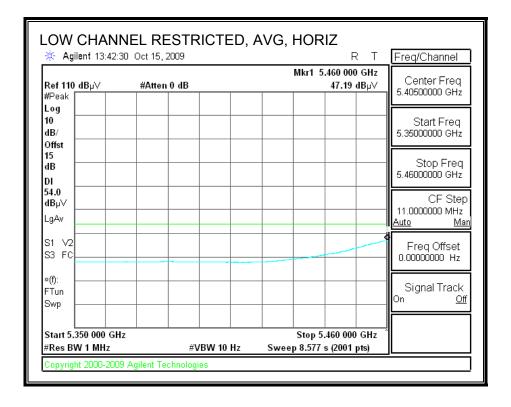
		TT: T														
Test Engr Date:	•	Vien Tra 10/13/09														
Date: Project #		09U1279														
Company		Intel	•													
			entrino	® Að	-bancev	N 6200 (TA	hetee	Inside Of	flenovo	ThinkPa	d X200/X20	11 Tablet	Series)			
EUT M/N:	-	622ANH			-unceu-			Louide V.				or a source				
Test Targ		FCC Ck														
Mode Op				I HT2	0 Mid	Channel	Chai	n B								
					_	_										
	f	Measurer	nent Fre	piency	7 Amp	Preamp (	Gain			Average	Field Stren	gth Limit				
	Dist	Distance	to Anter	ına	D Corr	Distance	Corre	ct to 3 me	ters	Peak Fie	ld Strength	Limit				
	Read	Analyzer			Avg	÷		Strength @	r i i i i i i i i i i i i i i i i i i i	Margin vs. Average Limit						
	AF	Antenna			Peak			k Field Stre	ength	Margin	rs. Peak Lii	mit				
	CL	Cable Lo:	55		HPF	High Pas	s Filte	r								
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	AntHigh	Table Angle	Notes	
GHz	(m)	dBuV			dB	dB	dB		dBuV/m		V/H	P/A/QP	cm	Degree		
HT20 560	DOMIN	Chain B	Vert	<u> </u>	1											
11.200	3.0	33.7	38.0	9.4	-32.5	0.0	0.0	48.6	74.0	-25.4	V	Р	112.0	135.0		
11.200	3.0	21.8	38.0	9.4	-32.5	0.0	0.0	36.7	54.0	-17.3	V	A	112.0	135.0		
11.400		Chain B	÷											ļļ		
HT20_560	3.0	34.4	38.0	9.4	-32.5	0.0	0.0	49.3	74.0	-24.7	H	Р	109.0	287.0		
	3.0	21.5	38.0	9.4	-32.5	0.0	0.0	36.4	54.0	-17.6	H	A	109.0	287.0		

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### 8.2.21. 802.11n HT40 MODE IN THE 5.6 GHz BAND\_CHAIN A

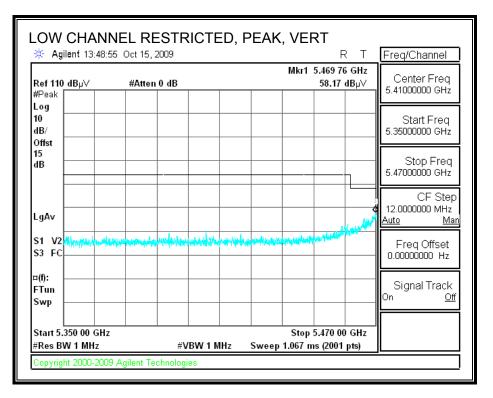
#### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**

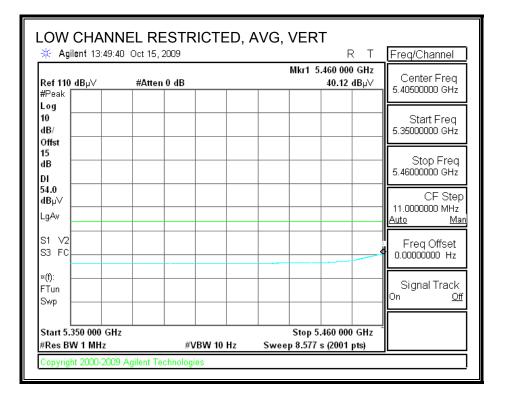




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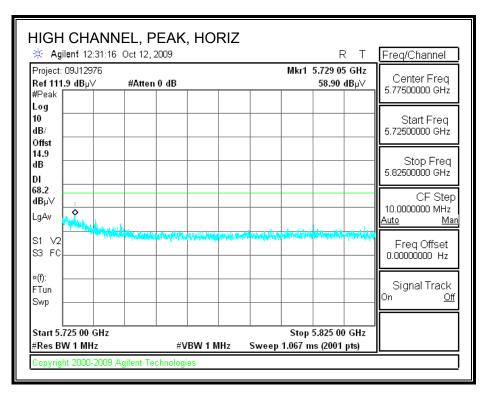
### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



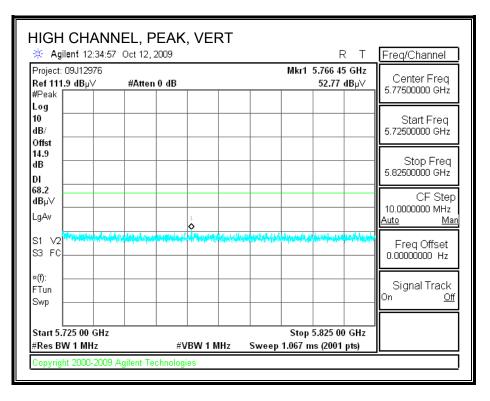


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### AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



### AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



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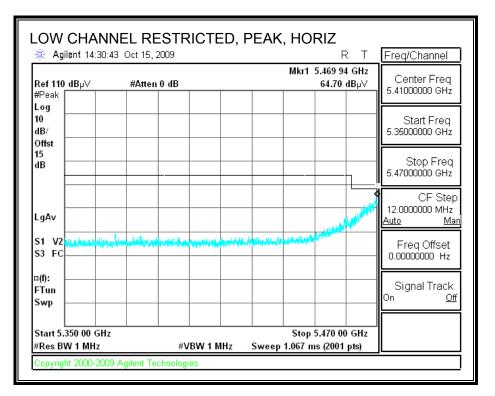
### HARMONICS AND SPURIOUS EMISSIONS

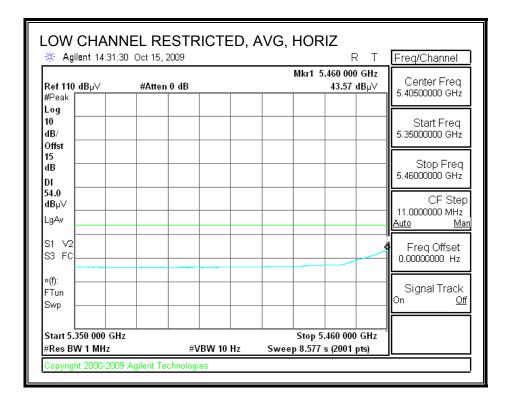
Test Engr	:	Vien Tra													
Date:		10/13/09 09U1279													
Project #		Intel	0												
Company MIT David						N 2000 /T	J	T: J. O.	ст	n.:_1.n.	d X200/X20	11 T-11-4	e		
EUT Desc EUT M/N:	-	622ANH		oo Aa	vancea-	N 0200 (1)	estea	Inside O	I Lenovo	ININKPA	0 A200/A20		series)		
Test Targ		FCC Ck													
Mode Op				нт4	n Mia	Channel	Choi	n A							
mode op		1.1.0.00			•	-manuel_	- Cinal								
	f	Measuren	nent Fred	puency	Amp	Preamp	Gain			Average	Field Stren	gth Limit			
	Dist	Distance	to Anter	una '	D Corr	Distance	Corre	ct to 3 me	ters	Peak Fie	ld Strength	Limit			
	Read	Analyzer	Reading		Avg	Average	Field S	trength @	)3 m	Margin v	rs. Average	Limit			
	AF	Antenna	Factor		Peak	Calculate	d Peal	c Field Stre	ength	Margin v	rs. Peak Lii	mit			
	CL	Cable Los	55		HPF	High Pas	s Filte	r							
f	Dist	Read	AF	CL	Amp	D Corr	- Filter	Corr.	Limit	Manain	Ant. Pol.	Det.	Ant High	Table Angle	Notes
GHz	(m)	dBuV			dB dB	dB	dB		dBuV/m		V/H	P/A/OP	cm	Degree	110168
	1 4	Chain A										1		Degree	
	3.0	36.1	37.6	9.2	-32.6	0.0	0.0	50.4	74.0	-23.6	v	Р	100.0	119.0	
	3.0	24.9	37.6	9.2	-32.6	0.0	0.0	39.2	54.0	-14.8	v	Ā	100.0	119.0	
11.020 11.020	3.0		·						••••••					••	
11.020		Chain A	HOT					50.4	74.0	-23.6	H	Р	99.0	69.0	
11.020 11.020		<u>Chain A</u> 36.1	Hor 37.6	9.2	-32.6	0.0	0.0	50.4							

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### 8.2.22. 802.11n HT40 MODE IN THE 5.6 GHz BAND\_CHAIN B

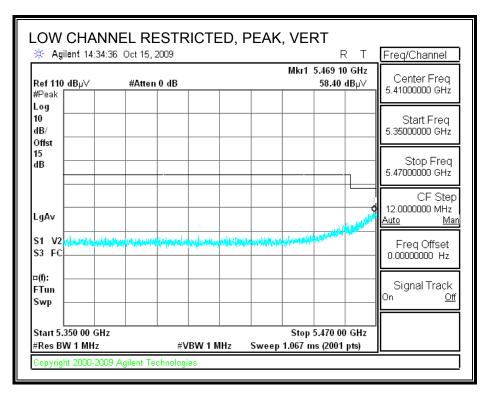
#### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**

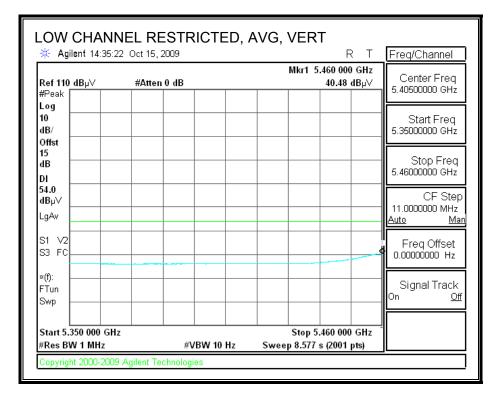




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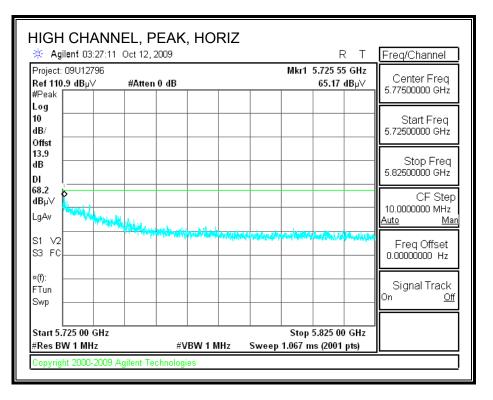
### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



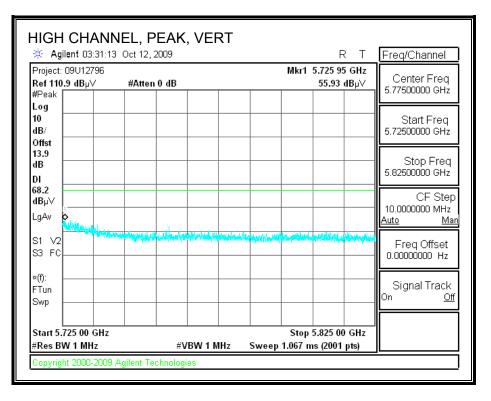


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### AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



### AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



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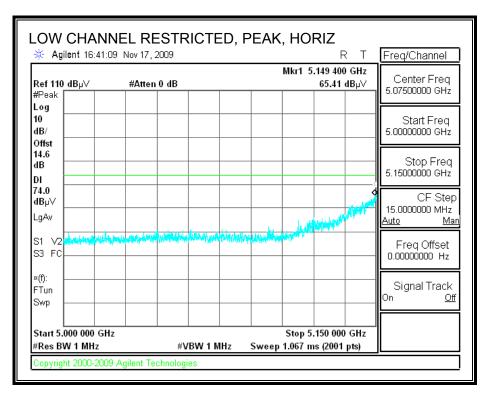
### HARMONICS AND SPURIOUS EMISSIONS

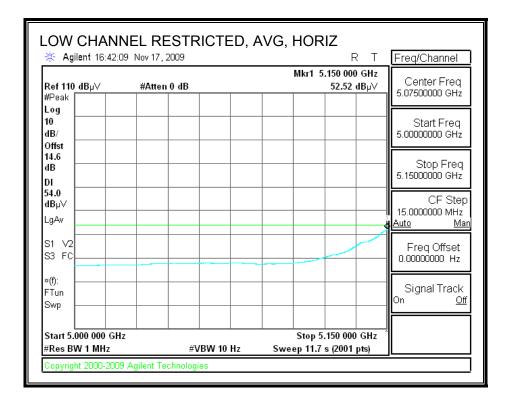
		tification		-,													
Test Engr	r:	Vien Tra	n														
Date:		10/13/09															
Project #		09U1279	6														
Company 	·	Intel															
EUT Desc EUT M/N:	-			® Ad	anced-l	N 6200 (Te	ested	Inside O	f Lenovo 1	lhinkPa	d X200/X20	)1 Tablet :	Series)				
	-	622ANH FCC Cla															
Test Targ Mode Op				1 HT4	0 W224	Channel	Chat	B									
mode Op	er:	1X 9.0 GI	т рауо	114		_naunet_	Chan										
	f	Measuren	nent Fred	puency	Amp	Preamp (	Gain			Average	Field Stren	gth Limit					
	Dist	Distance	to Anter	na	D Corr	Distance	Corre	ct to 3 me	ters	Peak Fie	eld Strength	Limit					
	Read	Analyzer	Reading		Avg	g 🛛 Average Field Strength @ 3 m					Margin vs. Average Limit						
	AF	Antenna	Factor		Peak			: Field Stre	ength	Margin vs. Peak Limit							
	CL	Cable Los	s		HPF	High Pas	s Filte:	r									
	Dist	Read	AF	CL	Amp	D Corr	Fltr	Согт.	Limit	Margin	Ant. Pol.	Det.	Ant High	Table Angle	Notes		
f					dB	dB	dB		dBuV/m		V/H	P/A/QP	cm	Degree	110125		
f GHz		dBuV	dB/m	dB	: an												
GHz	(m)	dBuV Chain B		dB	<u>an</u>	1											
GHz HT40_55	(m)			dB 9.2	-32.6	0.0	0.0	46.4	74.0	- <b>27.6</b>	v	Р	100.0	274.0			
GHz	(m) 10MHz	Chain B	Vert			0.0 0.0	0.0 0.0	46.4 34.3	74.0 54.0	-27.6 -19.7	v v	P A	100.0 100.0	274.0 274.0			
GHz HT40_55 11.020 11.020 HT40_55	(m) 10MHz 3.0 3.0	Chain B 32.1 20.0 Chain B	Vert 37.6 37.6	9.2 9.2	-32.6 -32.6					- <b>19.7</b>			100.0	274.0			
GHz HT40_55 11.020 11.020	(m) 10MHz 3.0 3.0	Chain B 32.1 20.0	Vert 37.6 37.6	9.2	-32.6									þ			

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### 8.2.23. 802.11n HT20 MODE IN THE 5.6 GHz BAND\_CHAIN A+B

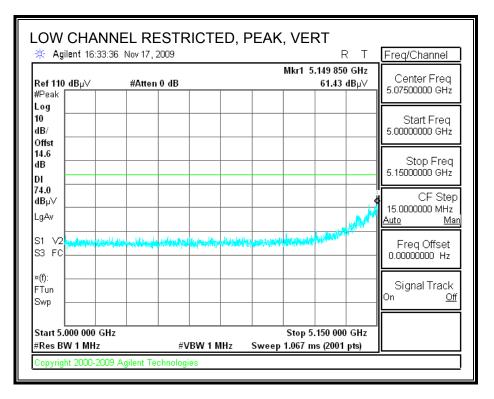
#### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**

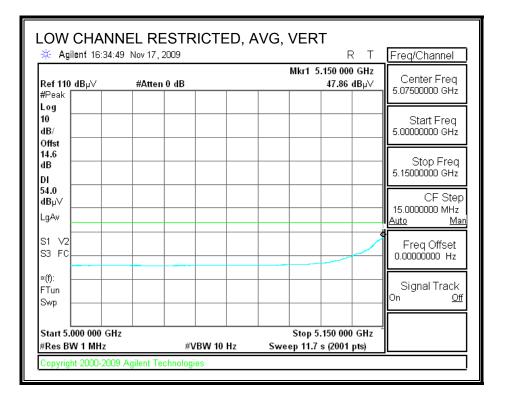




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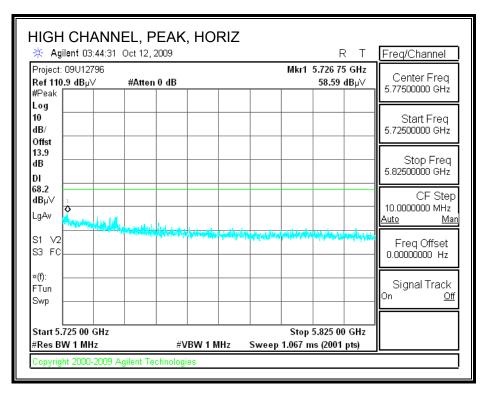
### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



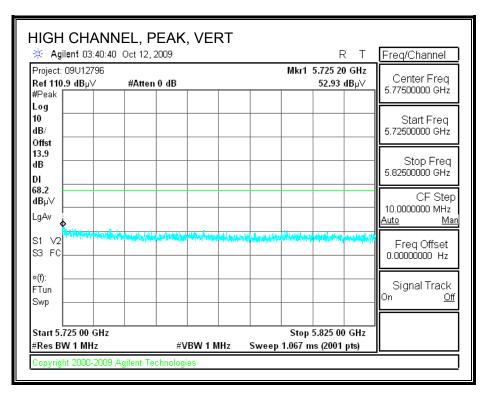


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### AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



### AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



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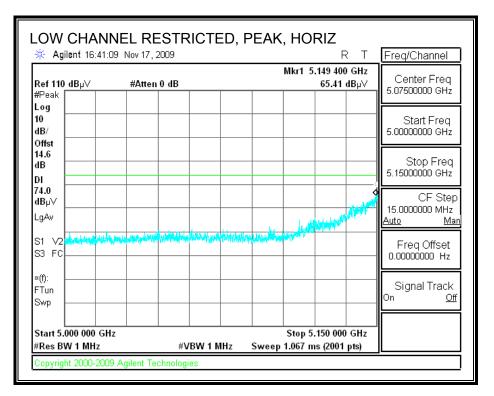
### HARMONICS AND SPURIOUS EMISSIONS

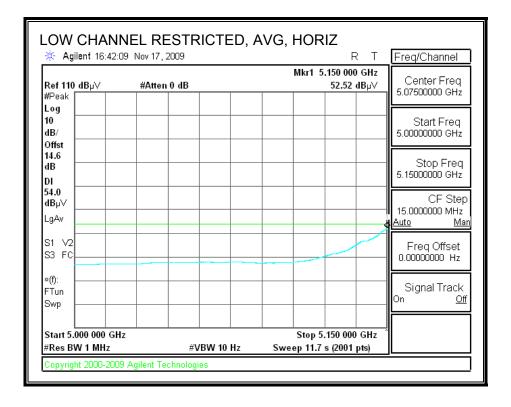
•		Measuren tification		s, Fre	mont 31	n Chamb	er										
Test Engi Date:		Vien Tra 10/13/09															
Date: Project #		09U1279															
Company		Intel	0														
			ontrine	መ ልሕ	-boxee	N 6200 (T.	hoteo	Incida Af	Tenno	ThinkPa	a x200/X20	11 Tablat	Series)				
EUT M/N:	-	622ANH		,0 11 <b>0</b>	anceu		concu	Home VI	LEILOVO	11000 4	u neovine	or raoier	Jerres J				
Test Targ		FCC Cla															
Mode Op				1 HT2	0 Low (	Channel	Chai	n AB									
•				-	_	_											
	f	Measuren	nent Fre	quency	Amp	Preamp (	Gain			Average	Field Stren;	gth Limit					
	Dist	Distance	to Anter	nna	$D \ Corr$	Distance	Corre	ct to 3 met	ters	Peak Fie	ld Strength	Limit					
	Read	Analyzer	Reading		Avg	Average	Average Field Strength @ 3 m				Margin vs. Average Limit						
	AF	Antenna	Factor		Peak	Calculated Peak Field Strength				Margin vs. Peak Limit							
	CL	Cable Los	55		HPF	High Pas	s Filte:	r									
f	Dist	Read	AF	CL	Amp D Corr Fltr Corr. Limit				Limit		Ant. Pol.	Det		Table Angle	Notes		
GHz	(m)	neaa dBuV			Amp dB	dB					Ant Pol V/H	Det. P/A/OP	Ant fligh cm	Degree	INOTES		
	1 4000	: uDuv Chain Al			<u> </u>		<u></u>	anaryu	uDuv/m	<u> </u>	V/11	T/m/QF		Degree			
11.200	3.0	34.8	37.8	9.3	-32.6	0.0	0.0	49.3	74.0	-24.7	v	Р	100.0	8.0			
11.200	3.0	22.2	37.8	9.3	-32.6	0.0	0.0	36.7	54.0	-17.3	v	Ă	100.0	8.0			
		Chain Al							* •••		•						
11.200	3.0	32.7	37.8	9.3	-32.6	0.0	0.0	47.2	74.0	-26.8	H	Р	100.0	325.0			
11.200	3.0	20.6	37.8	9.3	-32.6	0.0	0.0	35.1	54.0	- <b>18.9</b>	H	A	100.0	325.0			
11.400	3.0	22.0	38.4	11.4	-32.2	0.0	0.0	39.5	54.0	-14.5	H	A	103.0	21.0			
						010							10010				
15.570 Rev. 4.1.2																	

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### 8.2.24. 802.11n HT40 MODE IN THE 5.6 GHz BAND\_CHAIN A+B

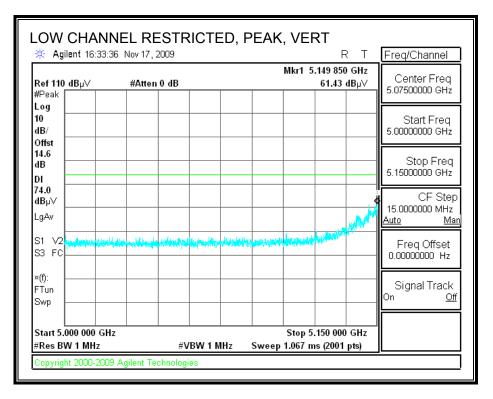
#### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**

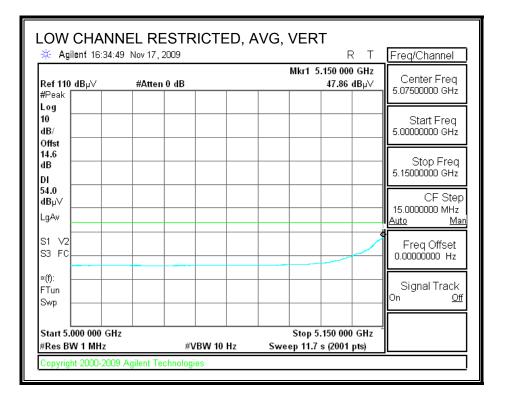




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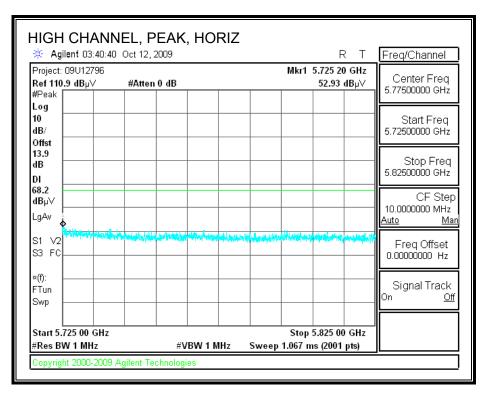
### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**



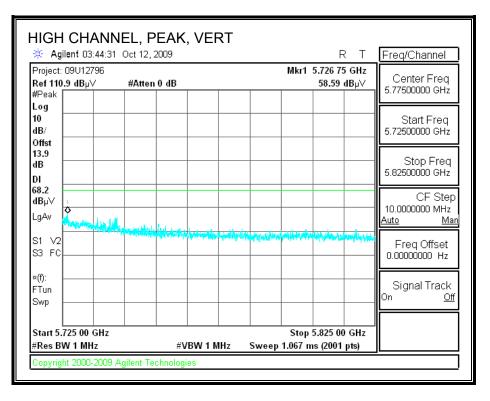


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### AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



### AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



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### HARMONICS AND SPURIOUS EMISSIONS

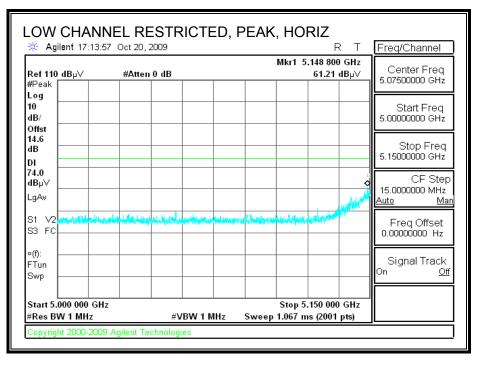
Test Engr																	
		Vien Tra	n														
Date:		10/13/09															
Project #:		09U1279	6														
Company EUT Desci		Intel Intel® C	·	@ 11		1 6900 /T.		:. o	ст	n.:_1.n.	d X200/X2(	01 T-L1-+	e				
EUT Desci EUT M/N:	-	622ANH		© Aŭ	anced-1	1 0200 (16	estea .	inside O	I Lenovo	ININKPa	a 2200/220		series)				
Fest Targ		FCC Cla															
Mode Op				HT4	0 Mid (	hannel	Chair	AB									
<b>-</b> -																	
	f	Measuren	nent Freq	piency	Amp	Preamp (	Gain			Average	Field Stren	gth Limit					
	Dist	Distance	to Anter	ina	D Corr	Distance	Correc	t to 3 me	ters	Peak Fie	ld Strength	Limit					
	Read	Analyzer	Reading		Avg	Average I	Field S	trength @	) 3 m	m Margin vs. Average Limit							
	AF	Antenna			Peak	Calculate			ength	Margin v	rs. Peak Li	mit					
	CL	Cable Los	5		HPF	High Pas:	; Filter										
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Согт.	Limit	Margin	Ant. Pol.	Det	Ant.High	Table Angle	Notes		
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree			
HT40_551	0MHz_	Chain AF	3_Vert														
11.020	3.0	32.2	37.6	9.2	-32.6	0.0	0.0	46.4	74.0	- <b>27.6</b>	V	Р	106.0	76.0			
11.020	3.0	20.2	37.6	9.2	-32.6	0.0	0.0	34.5	54.0	-19.5	v	A	106.0	76.0			
		Chain AF		~ ~		~ ~ ~	~ ~ ~		- / -								
	3.0	32.7 20.2	37.6 37.6	9.2	-32.6 -32.6	0.0	0.0	47.0 34.5	74.0 54.0	-27.0 -19.5	H H	P	100.0	142.0			
1140_551 11.020 11.020	3.0		· .a/.m	9.2	-34.0	0.0	0.0	34.7	: 74.U	-17.0	; <b>п</b>	A	100.0	142.0			

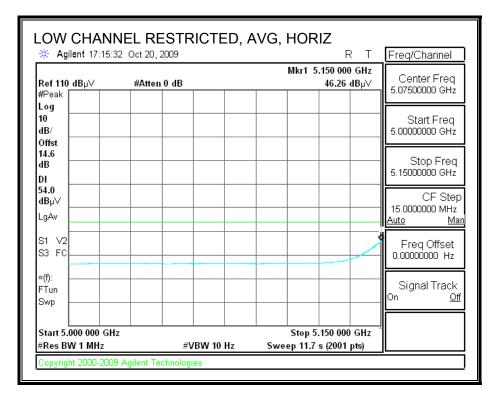
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## WISTRON (WNC) ANTENNA – Spot Check

## 8.3.TRANSMITTER ABOVE 1 GHz

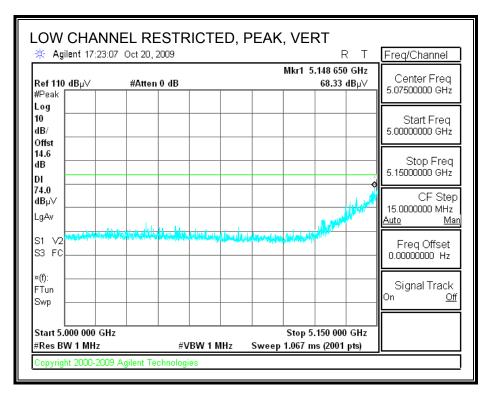
# 8.3.1. 802.11n HT40 MODE IN THE LOWER 5.2 GHz BAND\_CHAIN A RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

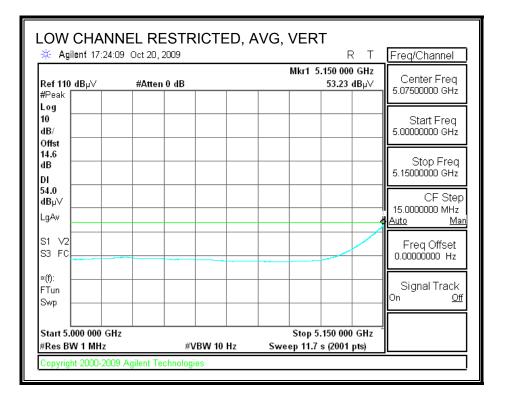




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### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

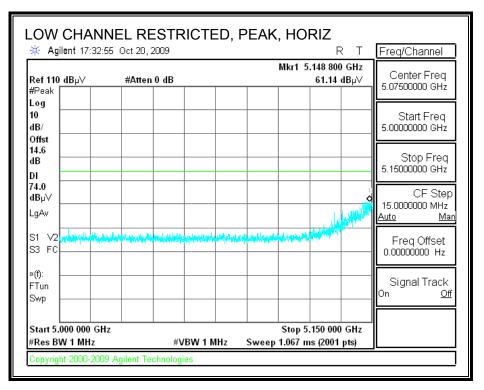


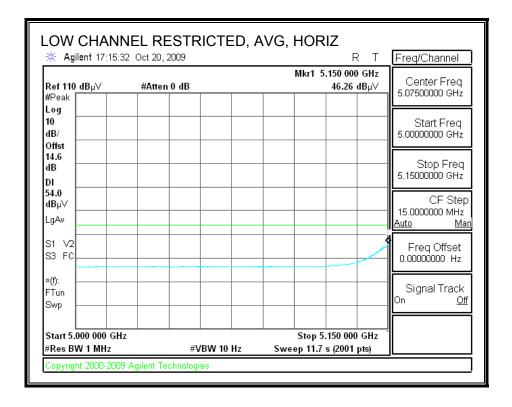


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### 8.3.2. 802.11n HT20 MODE IN THE LOWER 5.2 GHz BAND\_CHAIN A

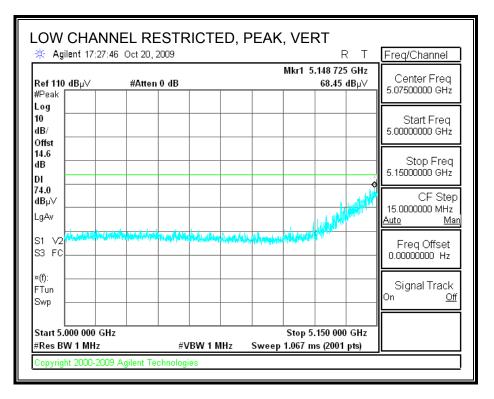
### **RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)**

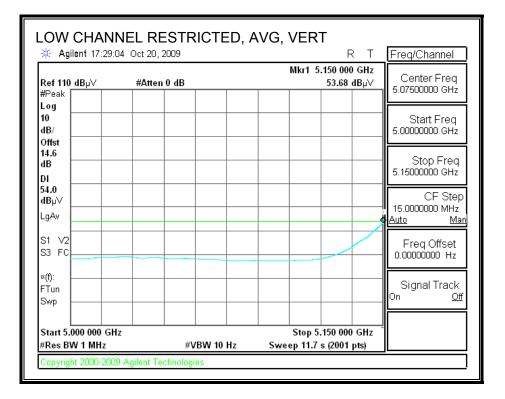




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### **RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

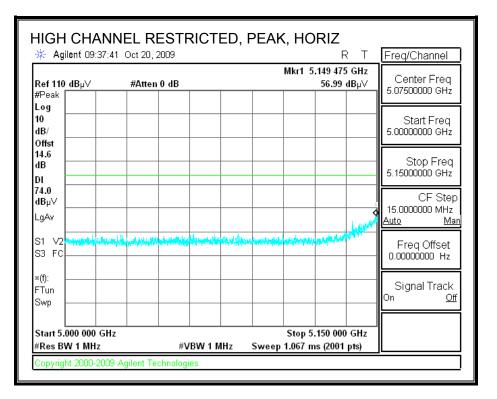


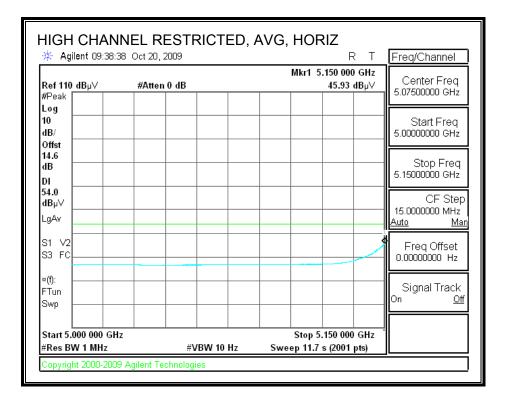


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### 8.3.3. 802.11n HT40 MODE IN THE UPPER 5.2 GHz BAND\_CHAIN A

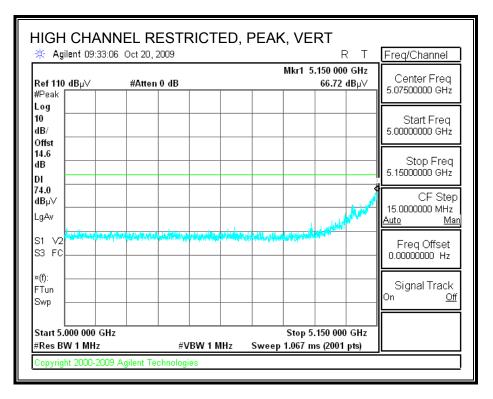
### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**

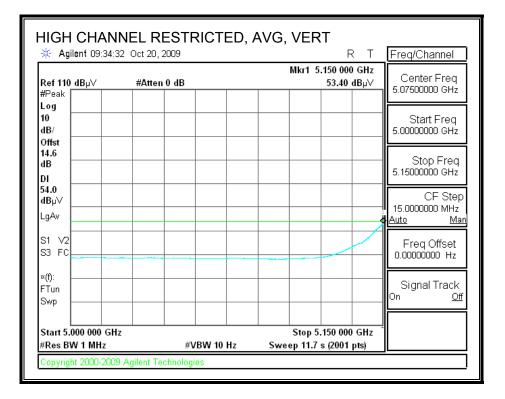




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### **RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**

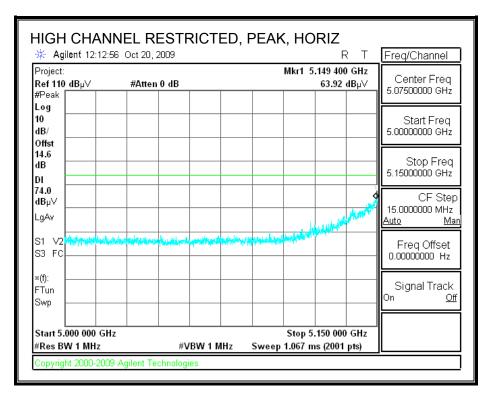


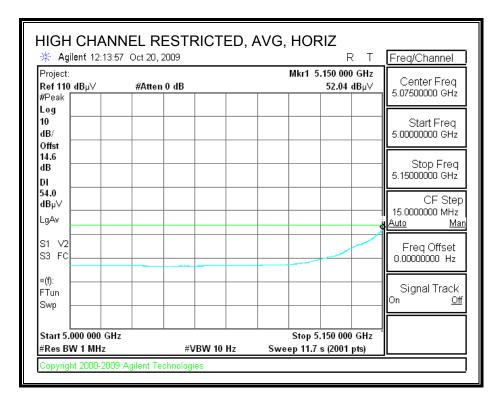


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### 8.3.4. 802.11n HT40 MODE IN THE UPPER 5.2 GHz BAND\_CHAIN B

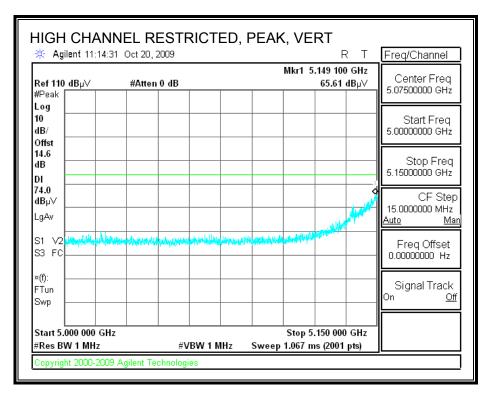
### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**

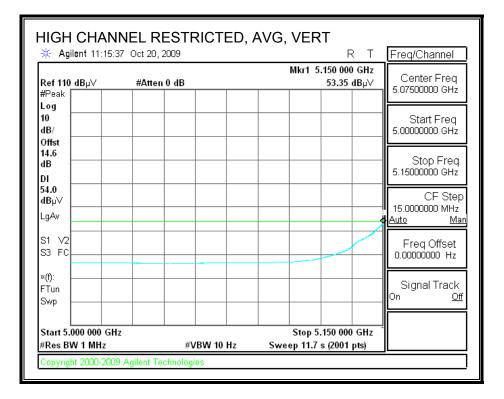




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### **RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**

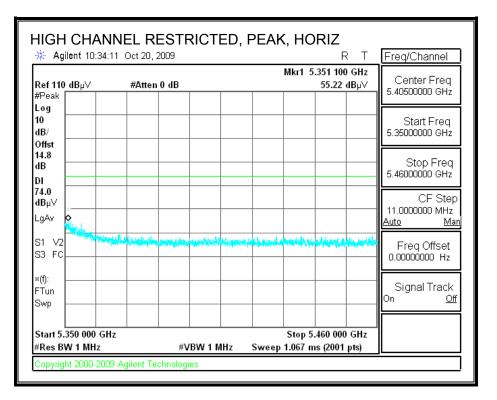


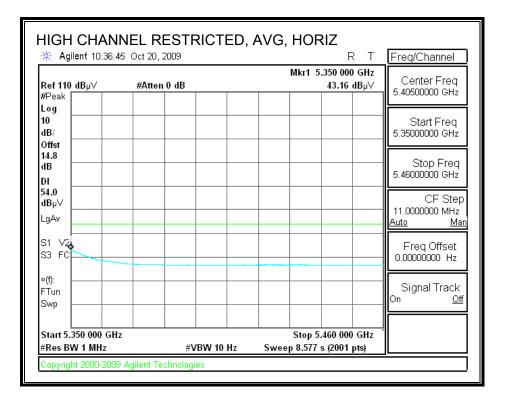


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### 8.3.5. 802.11n HT40 MODE IN THE UPPER 5.3 GHz BAND\_CHAIN A

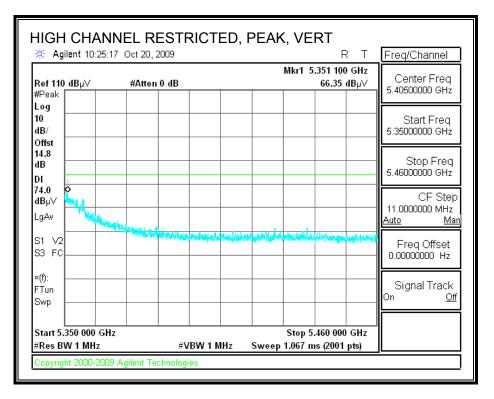
### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**

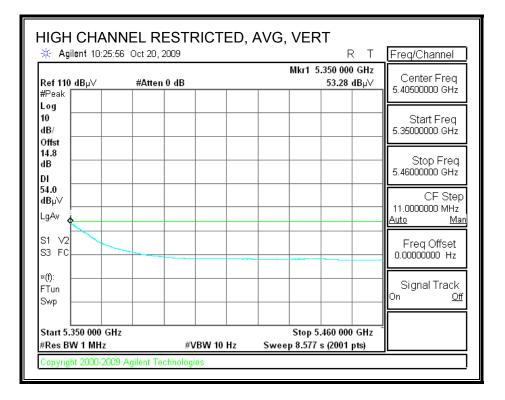




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### **RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**

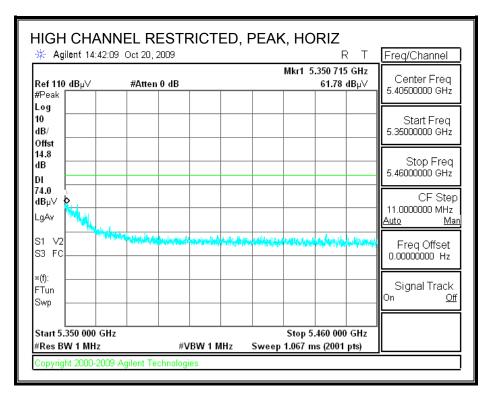


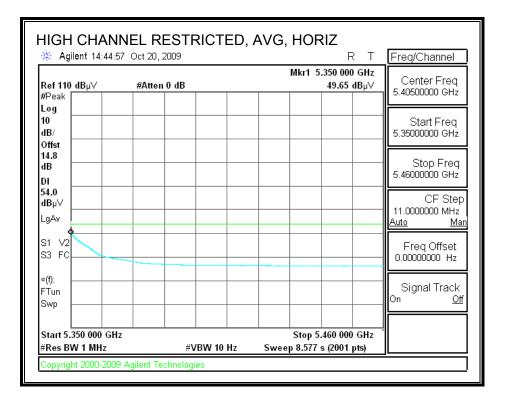


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### 8.3.6. 802.11n HT40 MODE IN THE UPPER 5.3 GHz BAND\_CHAIN B

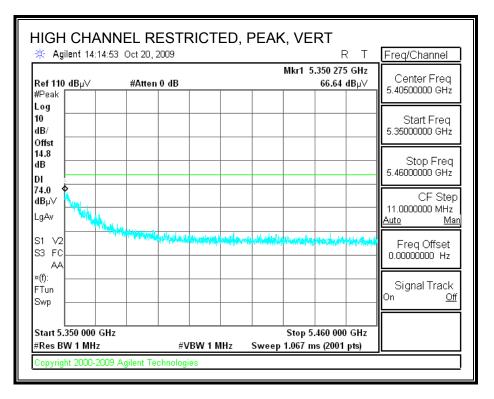
### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**

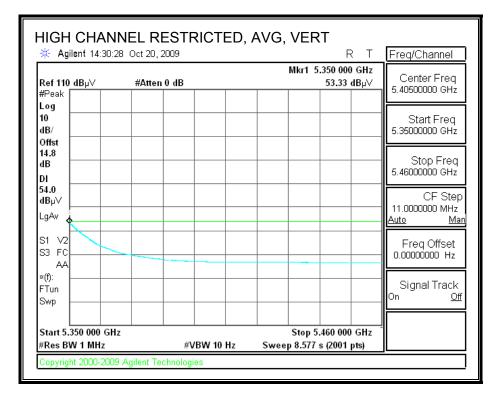




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### **RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**

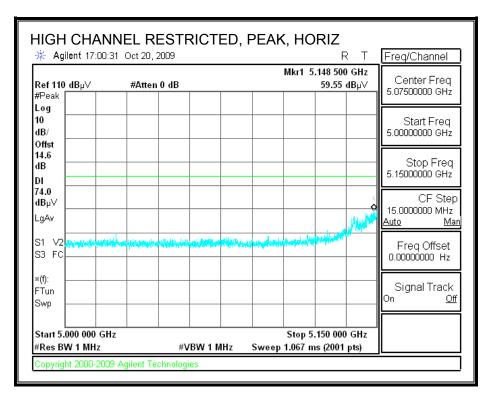


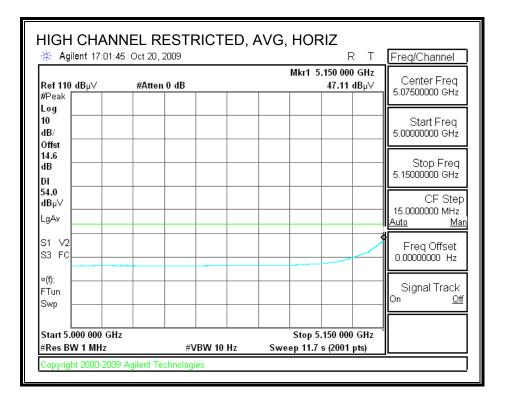


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### 8.3.7. 802.11n HT40 MODE IN THE UPPER 5.2 GHz BAND\_CHAIN A+B

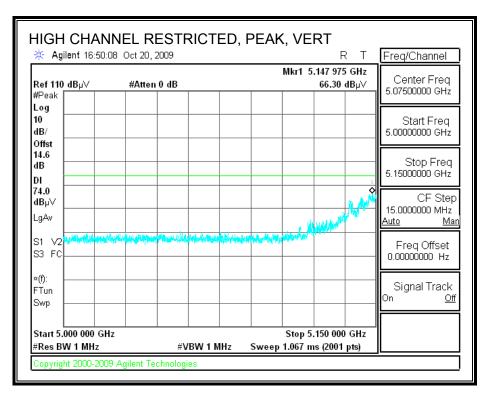
### **RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**

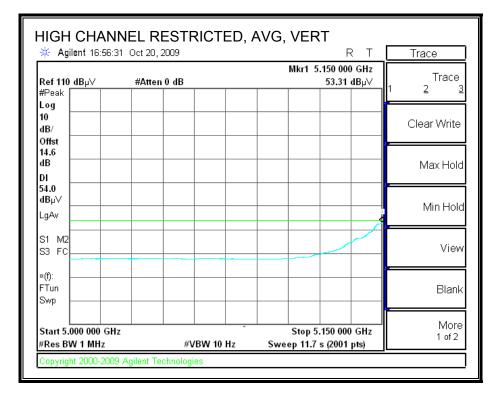




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### **RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**





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## 8.4. RECEIVER ABOVE 1 GHz

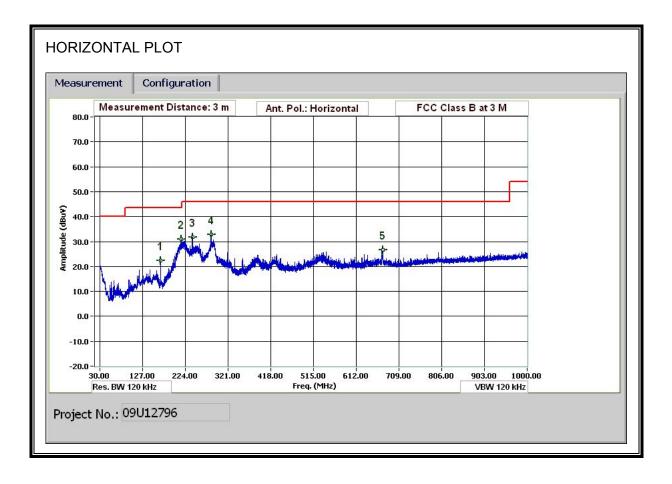
Compli	-		<sup>7</sup> Measurem Services, Fr		5m Ch	amber									
Fest Ei	ngr:	Vien Tran													
Date:		10/13/09													
Project		09U12796													
Compa	•	Intel													
	-	o Intel® Ce	ntrino® Adv	anced-l	N 6200	) (Teste	d Inside	Of Ler	iovo Thinl	cPad X200	/X201 Tab	let Series	)		
EUT M	1/N:	622ANHN	IW												
Test Ta	-	FCC B													
Mode (	Oper:	Rx in 5GH	lz Band_Wo	rst-Cas	e										
Fest E	quipmer	ıt:													
		-18GHz	Pre-ar	nplifer	1,260	SH7	Pre-am	nlifer	26-40GH		ц	orn > 18	GH7		Limit
			_	· .		2112	i i e-all	Piner	20-4001	<u> </u>			0112		
T60;	S/N: 223	8@3m		P 8449B		-				-				-	RX RSS 210
- Hi Fre	equency Ca	hles					,								-
						_				1		_			
														D	
3'	cable 2	22807700	12' c	able 2	28076	00	20' ca	ble 22	807500		HPF	Re	eject Filte		k Measurements
						00					HPF	Re	eject Filte	RB	W=VBW=1MHz
	cable 2 cable 22			able 2		000 T	20' ca 20' cab				HPF	R€		RB	W=VBW=1MHz nge Measurement
						•00					HPF			RB	W=VBW=1MHz
	cable 22	807700		ıble 228		00 •				Avg				RB	W=VBW=1MHz nge Measurement
3' (	cable 22	807700	12' ca	ıble 228	07600	•	20' cab	le 2280	)7500		Pk Lim	• Avg Lim		RB Avera RBW=	W=VBW=1MHz age Measurement =1MHz ; VBW=10H
f GHz	cable 22 Dist	807700 Read Pk	12' ca Read Avg.	ible 228 AF	07600 CL	• Amp	20' cab	le 2280 Fltr	)7500 🔻		Pk Lim	• Avg Lim	Pk Mar dB -26.5	RB Avera RBW= Avg Mar dB -26.2	W=VBW=1MHz age Measurement 1MHz ; VBW=10H Notes
f GHz 1.760 2.400	cable 223 Dist (m) 3.0 3.0	807700 Read Pk dBuV 54.5 48.6	Read Avg. dBuV 34.8 30.9	AF dB/m 27.0 28.0	07600 CL dB 3.2 3.8	▼ Amp dB -37.2 -36.3	20' cab D Corr dB 0.0 0.0	le 2280 Fltr dB 0.0 0.0	7500 Peak dBuV/m 47.5 44.1	dBuV/m 27.8 26.4	Pk Lim dBuV/m 74 74	Avg Lim dBuV/m 54 54	Pk Mar dB -26.5 -29.9	▼ Avera RBW= Avg Mar dB -26.2 -27.6	W=VBW=1MHz age Measurement -1MHz ; VBW=10H Notes (V/H) V V
f GHz 1.760 2.400 2.493	cable 22 Dist (m) 3.0 3.0 3.0	807700 Read Pk dBuV 54.5 48.6 47.9	Read Avg. dBuV 34.8 30.9 31.9	AF dB/m 27.0 28.0 28.3	07600 CL dB 32 38 39	▼ Amp dB -37.2 -36.3 -36.3	20' cab D Corr dB 0.0 0.0 0.0	le 2280 Fltr dB 0.0 0.0	7500 Peak dBuV/m 47.5 44.1 43.8	dBuV/m 27.8 26.4 27.8	Pk Lim dBuV/m 74 74 74 74	• Avg Lim dBuV/m 54 54 54 54	Pk Mar dB -26.5 -29.9 -30.2	▼ RB <u>Avera</u> RBW= Avg Mar <u>dB</u> -26.2 -27.6 -26.2	W=VBW=1MHz age Measurement =1MHz; VBW=10H Notes (V/H) V V V V
f GHz 1.760 2.400 2.493 1.440	cable 223 Dist (m) 3.0 3.0 3.0 3.0 3.0 3.0	807700 Read Pk dBuV 54.5 48.6 47.9 57.2	Read Avg. dBuV 34.8 30.9 31.9 36.3	AF dB/m 27.0 28.0 28.3 25.9	07600 CL dB 3.2 3.8 3.9 2.9	<ul> <li>Amp dB</li> <li>-37.2</li> <li>-36.3</li> <li>-36.3</li> <li>-37.7</li> </ul>	20' cab D Corr dB 0.0 0.0 0.0 0.0	le 2280	7500 Peak dBuV/m 47.5 44.1 43.8 48.3	dBuV/m 27.8 26.4 27.8 27.4	Pk Lim dBuV/m 74 74 74 74 74	• Avg Lim dBuV/m 54 54 54 54 54	Pk Mar dB -26.5 -29.9 -30.2 -25.7	RB Avera RBW=	W=VBW=1MHz <u>see Measurement</u> 1MHz; VEW=10H <u>Notes</u> (V/H) <u>V</u> <u>V</u> <u>V</u> <u>H</u>
f GHz 1.760 2.400 2.493 1.440 2.133	cable 223 Dist (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0	807700 Read Pk dBuV 54.5 48.6 47.9 57.2 49.3	Read Avg. dBuV 34.8 30.9 31.9 36.3 33.5	AF dB/m 27.0 28.0 28.3 25.9 27.9	07600 CL dB 3.2 3.8 3.9 2.9 3.6	▼ Amp dB -37.2 -36.3 -36.3 -37.7 -36.7	20' cab	le 2280	Peak dBuV/m 47.5 44.1 43.8 48.3 44.1	dBuV/m 27.8 26.4 27.8 27.4 28.3	Pk Lim dBuV/m 74 74 74 74 74 74 74	Avg Lim dBuV/m 54 54 54 54 54 54	Pk Mar dB -265 -299 -30.2 -25.7 -29.9	RB Avera RBW= Avg Mar dB -26.2 -27.6 -26.2 -26.6 -25.7	W=VBW=1MHz age Measurement 1MHz; VBW=10H Notes (V/H) V V V H H
f GHz 1.760 2.400 2.493 1.440 2.133	Cable 221 Dist (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Read Pk dBuV 545 486 479 572 493 493	Read Avg. dBuV 34.8 30.9 31.9 36.3 33.5 32.2	AF dB/m 27.0 28.0 28.3 25.9 27.9 28.3	CL dB 3.2 3.8 3.9 2.9 3.6 3.9	▼ Amp dB -37.2 -36.3 -36.3 -37.7 -36.7 -36.3	20' cab D Corr dB 0.0 0.0 0.0 0.0	le 2280	7500 Peak dBuV/m 47.5 44.1 43.8 48.3	dBuV/m 27.8 26.4 27.8 27.4	Pk Lim dBuV/m 74 74 74 74 74	• Avg Lim dBuV/m 54 54 54 54 54	Pk Mar dB -26.5 -29.9 -30.2 -25.7	RB Avera RBW=	W=VBW=1MHz <u>see Measurement</u> 1MHz; VEW=10H <u>Notes</u> (V/H) <u>V</u> <u>V</u> <u>V</u> <u>H</u>
3' o	Cable 221 Dist (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Read Pk dBuV 545 486 479 572 493 493	Read Avg. dBuV 34.8 30.9 31.9 36.3 33.5	AF dB/m 27.0 28.0 28.3 25.9 27.9 28.3	CL dB 3.2 3.8 3.9 2.9 3.6 3.9	▼ Amp dB -37.2 -36.3 -36.3 -37.7 -36.7 -36.3	20' cab	le 2280	Peak dBuV/m 47.5 44.1 43.8 48.3 44.1	dBuV/m 27.8 26.4 27.8 27.4 28.3	Pk Lim dBuV/m 74 74 74 74 74 74 74	Avg Lim dBuV/m 54 54 54 54 54 54	Pk Mar dB -265 -299 -30.2 -25.7 -29.9	RB Avera RBW= Avg Mar dB -26.2 -27.6 -26.2 -26.6 -25.7	W=VBW=1MHz age Measurement 1MHz; VBW=10H Notes (V/H) V V V H H
f GHz 1.760 2.400 2.493 1.440 2.133	Cable 225 Dist (m) 3.0 3.0 3.0 3.0 3.0 3.0 No othe	807700 Read Pk dBuV 54.5 48.6 47.9 57.2 49.3 49.0 r emission we	Read Avg. dBuV 348 309 319 363 335 322 ere detected abo	AF dB/m 27.0 28.0 28.3 25.9 27.9 28.3 28.3 ave system	07600 CL dB 3.2 3.8 3.9 2.9 3.6 3.9 3.6 3.9 m noise	▼ Amp dB -37.2 -36.3 -36.3 -37.7 -36.7 -36.3 floor	20' cab D Corr dB 0.0 0.0 0.0 0.0 0.0 0.0	Ie 2280	Peak dBuV/m 47.5 44.1 43.8 48.3 44.1	dBuV/m 27.8 26.4 27.8 27.4 28.3	Pk Lim dBuV/m 74 74 74 74 74 74 74	• Avg Lim dBuV/m 54 54 54 54 54 54	Pk Mar dB -265 -299 -302 -257 -299 -299 -291	RB Avera RBW= Avg Mar dB -262 -27.6 -26.2 -26.2 -25.9	W=VBW=1MHz 100 Measurement 11MHz; VBW=10H 10MHz; VBW=10H 10MHz; VFW=10H 10MHz; VFW=10H 10MHz; VFW=10H 10MHz; VFW=10Hz 10MHz; VFW=10Hz
f GHz 1.760 2.400 2.493 1.440 2.133	Cable 221 Dist (m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	807700 Read Pk dBuV 54.5 48.6 47.9 57.2 49.3 49.0 r emission we Measurem	Read Avg. dBuV 348 309 319 363 335 32.2 ere detected abo	AF dB/m 27.0 28.0 28.3 25.9 27.9 28.3 28.3 ave system	07600 CL dB 3.2 3.8 3.9 2.9 3.6 3.9 3.9 m noise	<ul> <li>Amp dB</li> <li>-37.2</li> <li>-36.3</li> <li>-36.7</li> <li>-36.3</li> <li>floor</li> <li>Amp</li> </ul>	20' cab D Corr dB 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Preamp	le 2280	Peak dBuV/m 475 44.1 43.8 48.3 48.1 44.9	dBuV/m 278 264 278 274 283 281	Pk Lim dBuV/m 74 74 74 74 74 74 74	• Avg Lim dBuV/m 54 54 54 54 54 54	Pk Mar dB -26.5 -29.9 -30.2 -25.7 -29.9 -29.1 Average H	RB <u>Avera</u> RBW= Avg Mar <u>dB</u> -262 -266 -266 -26.6 -25.7 -25.9 Field Strengt	W=VBW=1MHz <u>see Measurement</u> 1MHz ; VBW=10H Notes (V/H) V V V H H H th Limit
f GHz 1.760 2.400 2.493 1.440 2.133	cable 223 (m) 3.0 3.0 3.0 3.0 3.0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Read Pk dBuV 545 48.6 47.9 57.2 49.3 49.0 r emission we Measurem Distance to	Read Avg. dBuV 34.8 30.9 31.9 36.3 33.5 32.2 ere detected about the frequency Antenna	AF dB/m 27.0 28.0 28.3 25.9 27.9 28.3 28.3 ave system	07600 CL dB 32 38 39 29 3.6 39 m noise	▼ Amp dB -37.2 -36.3 -36.3 -37.7 -36.3 floor Amp D Corr	20' cab D Corr dB 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	le 2280 Fltr dB 0.0 0.0 0.0 0.0 0.0 Correc	Peak dBuV/m 47.5 44.1 43.8 48.3 44.1 44.9	dBuV/m 278 264 278 274 283 281	Pk Lim dBuV/m 74 74 74 74 74 74 74	Avg Lim dBuV/m 54 54 54 54 54 54 54 54 54 54 54	Pk Mar dB -265 -299 -302 -257 -299 -291 -291 Average F Peak Field	RB Avera RBW= Avg Mar dB -26.2 -27.6 -26.6 -26.6 -26.6 -26.6 -26.7 -25.9	W=VBW=1MHz <u>see Measurement</u> 1MHz ; VBW=10H Notes (V/H) V V V H H H H
f GHz 1.760 2.400 2.493 1.440 2.133	Dist         (m)           3.0         3.0           3.0         3.0           3.0         3.0           Joint         3.0	Read Pk dBuV 54.5 48.6 47.9 57.2 49.3 49.0 r emission we Measurem Distance to Analyzer R	Read Avg. dBuV 34.8 30.9 31.9 36.3 33.5 32.2 ere detected about the frequency Antenna eading	AF dB/m 27.0 28.0 28.3 25.9 27.9 28.3 28.3 ave system	07600 CL dB 32 38 39 29 36 39 39 m noise	Amp dB -37.2 -36.3 -36.3 -37.7 -36.3 floor Amp D Corr Avg	20' cab D Corr dB 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	le 2280 Fltr dB 0.0 0.0 0.0 0.0 0.0 Gain Correc Field S	Peak dBuV/m 47.5 44.1 43.3 44.1 44.9 ct to 3 mets Strength @	dBuV/m 27.8 26.4 27.8 27.4 28.3 28.1 28.1	Pk Lim dBuV/m 74 74 74 74 74 74 74	Avg Lim dBuV/m 54 54 54 54 54 54 54 54 54 54 54 54 54	Pk Mar dB -265 -299 -302 -257 -299 -291 Average I Peak Field Margin vs	RB <u>Avera</u> RBW= Avg Mar <u>dB</u> -26.2 -27.6 -26.2 -26.6 -25.7 -25.9 Field Strengt d Strengt L . Average L	W=VBW=1MHz <u>see Measurement</u> 1MHz ; VBW=10H (V/H) V V V H H H H h Limit imit
f GHz 1.760 2.400 2.493 1.440 2.133	cable 223 (m) 3.0 3.0 3.0 3.0 3.0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Read Pk dBuV 545 48.6 47.9 57.2 49.3 49.0 r emission we Measurem Distance to	Read Avg. dBuV 34.8 30.9 31.9 36.3 33.5 32.2 ere detected about the formation of the format	AF dB/m 27.0 28.0 28.3 25.9 27.9 28.3 28.3 ave system	CL dB 32 38 39 29 36 39 39 39 39 39	▼ Amp dB -37.2 -36.3 -36.3 -37.7 -36.3 floor Amp D Corr	20' cab D Corr dB 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	le 2280 Fltr dB 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Peak           dBuV/m           47.5           44.1           43.3           44.1           44.9           ct to 3 mete           Strength @           c Field Stre	dBuV/m 27.8 26.4 27.8 27.4 28.3 28.1 28.1	Pk Lim dBuV/m 74 74 74 74 74 74 74	Avg Lim dBuV/m 54 54 54 54 54 54 54 54 54 54 54	Pk Mar dB -265 -299 -302 -257 -299 -291 Average I Peak Field Margin vs	RB Avera RBW= Avg Mar dB -26.2 -27.6 -26.6 -26.6 -26.6 -26.6 -26.7 -25.9	W=VBW=1MHz <u>see Measurement</u> 1MHz ; VBW=10H (V/H) V V V H H H H h Limit imit

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## 8.5. WORST CASE BELOW 1 GHz

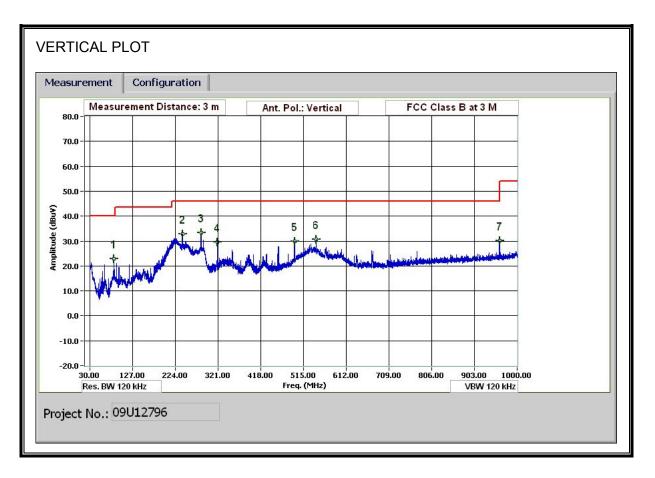
### **ACON ANTENNA**

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



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



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### HORIZONTAL AND VERTICAL DATA

Date:		MENGIST 11/18/09	TU MEKU	IRIA									
Project #:		09U12796	i										
Company:		INTEL											
EUT Descr	iption:	2x2 WLA	N CARD	N 620	0 INSTA	LED INSI	DE LEN	OVO LAP	гор				
EUT M/N:		ACON A											
Test Targe		FCC CLA											
Mode Ope		TX IN 5 G		_									
	f	Measurem	-		Amp	Preamp (				Margin	Margin vs.	Limit	
	Dist	Distance t		a				to 3 meters					
	Read	Analyzer l			Filter	Filter Ins							
	AF	Antenna F			Corr.	Calculate							
	CL	Cable Loss	;		Limit	Field Stre	ngth Lir	nit					
f	Dist	Read	AF	CL	Amp	D Corr		Согт.	Limit		Ant. Pol.		Notes
MHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
84.362	3.0	44.2	7.5	0.8	29.6	0.0	0.0	23.0	40.0	-17.0	V	Р	
240.009	3.0	48.5	11.8	1.4	28.8	0.0	0.0	32.9	46.0	-13.1	V	Р	
283.090	3.0	47.7	12.8	1.5	28.8	0.0	0.0	33.3	46.0	-12.7	V	Р	
320.052	3.0	43.3	13.6	1.7	28.9	0.0	0.0	29.7	46.0	-16.3	V	Р	
495.499	3.0	40.7	16.7	2.1	29.7	0.0	0.0	29.9	46.0	-16.1	V	P	
544.101	3.0	40.6	17.4	2.2	29.7	0.0	0.0	30.6	46.0	-15.4	V	P	
214.808	3.0	46.5	11.9	1.3	28.9	0.0	0.0	30.9	43.5	-12.6	H	P	
	3.0	47.4	11.8	1.4	28.8	0.0	0.0	31.8	46.0	-14.2	H	P	
240.009	3.0	47.4	12.8	1.5	28.8	0.0	0.0	32.9	46.0	-13.1	H	P	
240.009 282.730 672.386	3.0	34.6	19.0	2.5	29.6	0.0	0.0	26.5	46.0	-19.5	H	Р	

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# 9. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted I	.imit (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

### ANSI C63.4

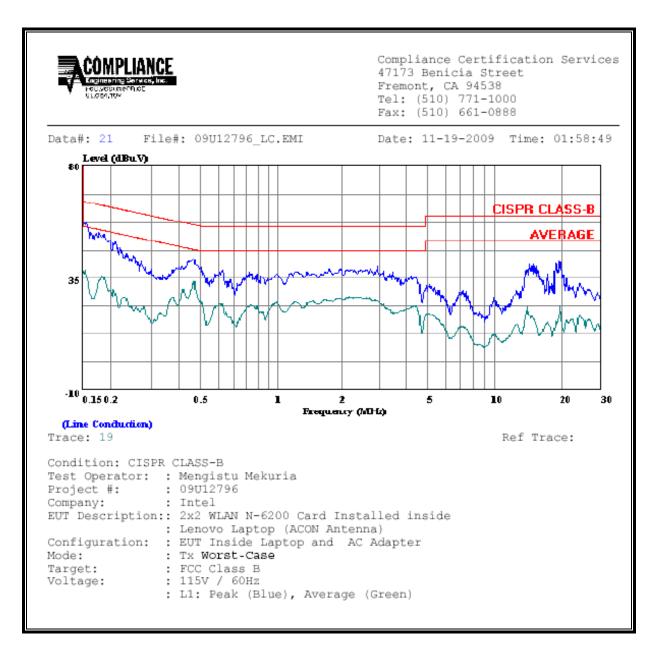
### **RESULTS**

### **<u>6 WORST EMISSIONS</u>**

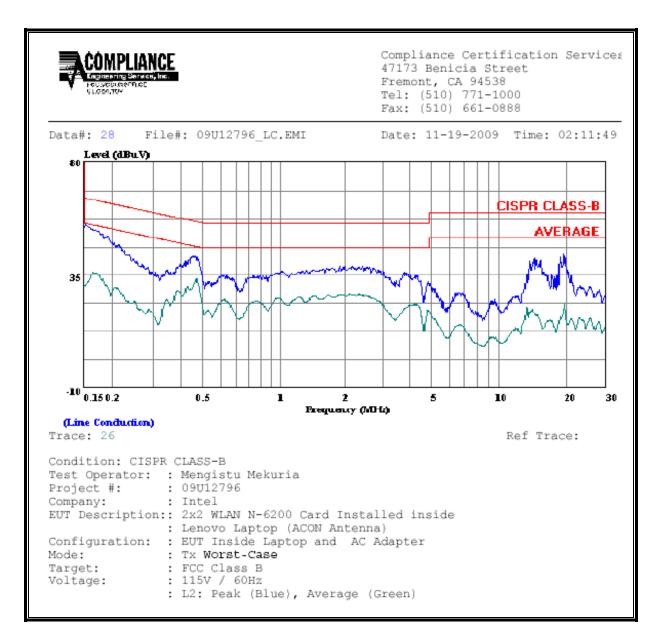
		CONDUC	TED EMISS	IONS DA	ATA (115	VAC 60H	z)		
Freq.		Reading		Closs	Limit	EN_B	Marg	Remark	
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV(dB)	L1/L2
0.15	57.47		38.26	0.00	66.00	56.00	-8.53	-17.74	L1
0.46	42.58		33.59	0.00	56.62	46.62	-14.04	-13.03	L1
19.53	41.94		24.05	0.00	60.00	50.00	-18.06	-25.95	L1
0.15	55.28		36.20	0.00	65.89	55.89	-10.61	-19.69	L2
0.47	42.80		33.77	0.00	56.58	46.58	-13.78	-12.81	L2
19.53	43.71		23.51	0.00	60.00	50.00	-16.29	-26.49	L2
6 Worst I	Data								

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### LINE 1 RESULTS



### LINE 2 RESULTS



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