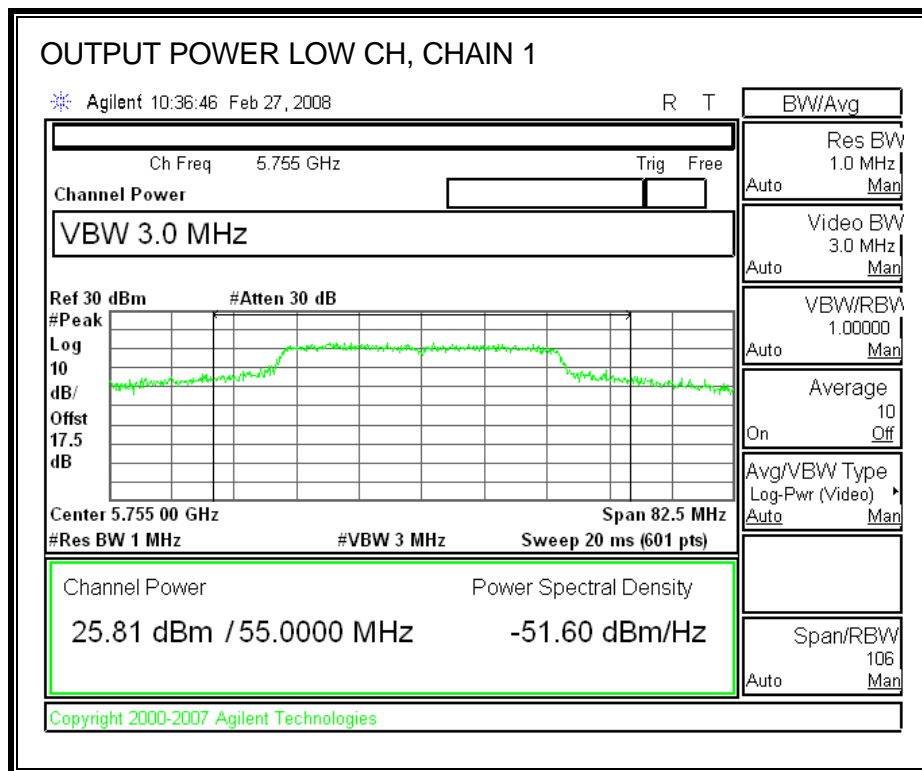
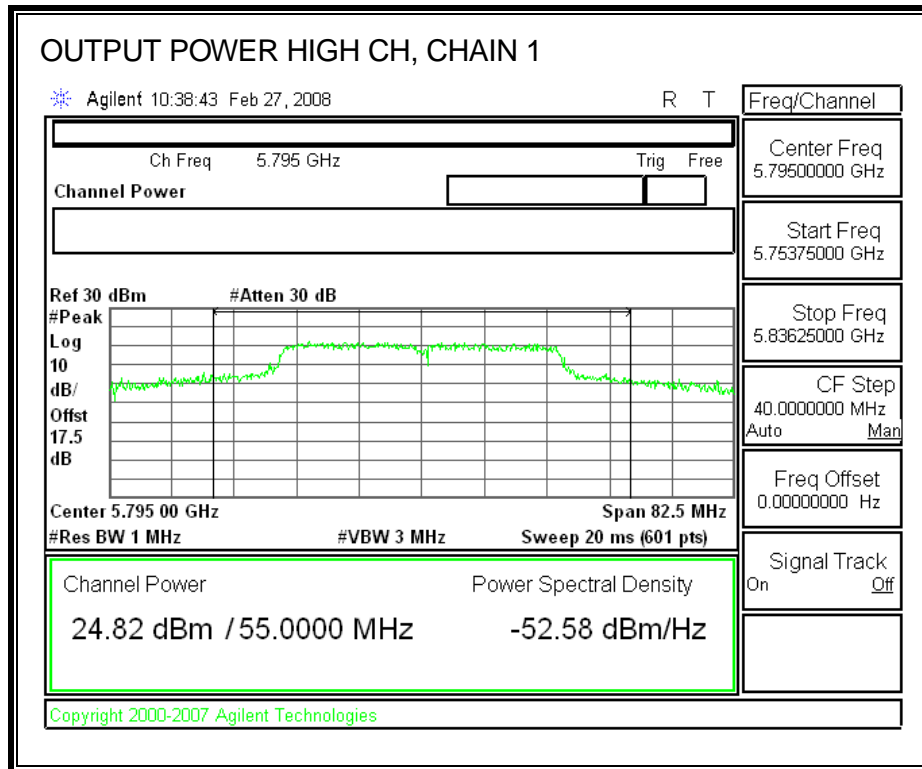


CHAIN 1 OUTPUT POWER





7.7.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 17.5 dB (including 16 dB pad and 1.5 dB cable) entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5755	17.80	19.34	21.65
High	5795	16.97	18.31	20.70

7.7.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

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

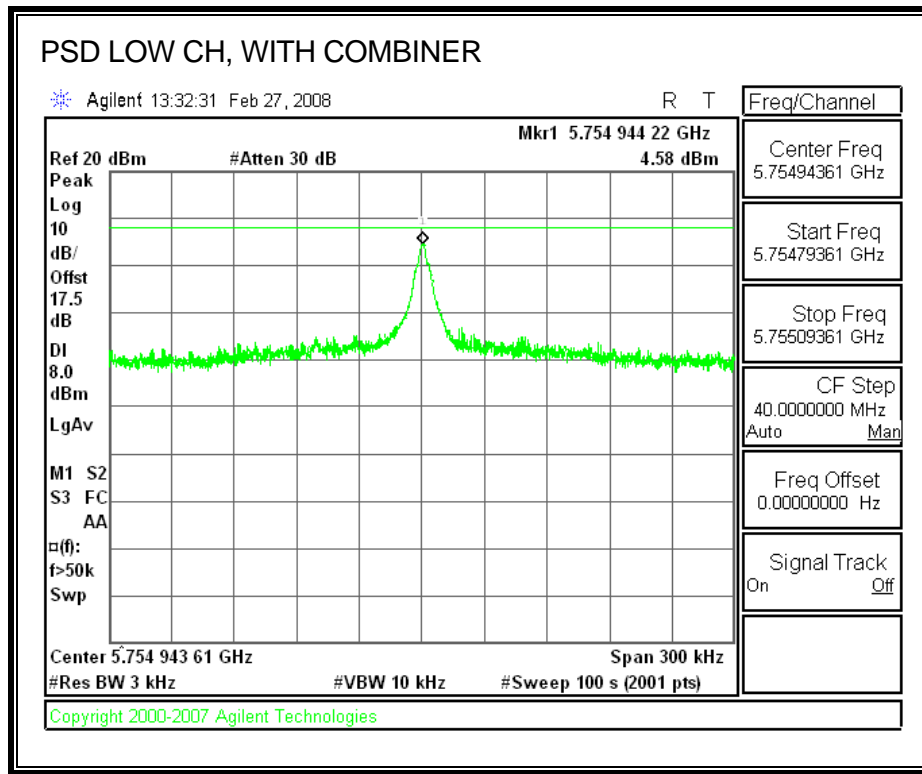
TEST PROCEDURE

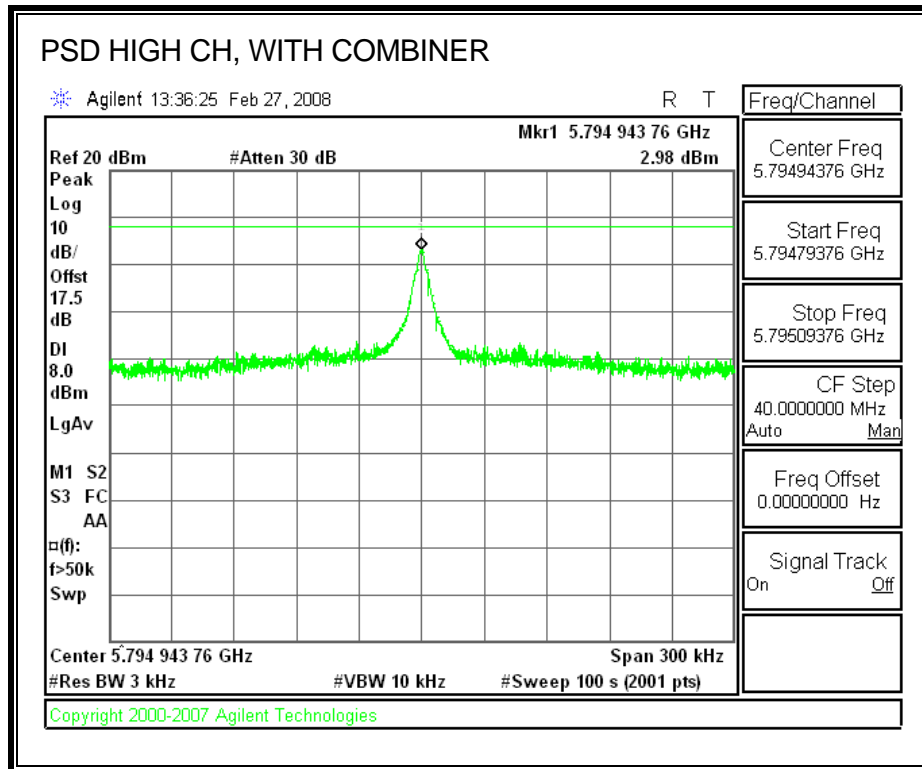
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS:

Channel	Frequency (MHz)	PSD with Combiner (dBm)	Limit (dBm)	Margin (dB)
Low	5755	4.58	8	-3.42
High	5795	2.98	8	-5.02

POWER SPECTRAL DENSITY, WITH COMBINER





7.7.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

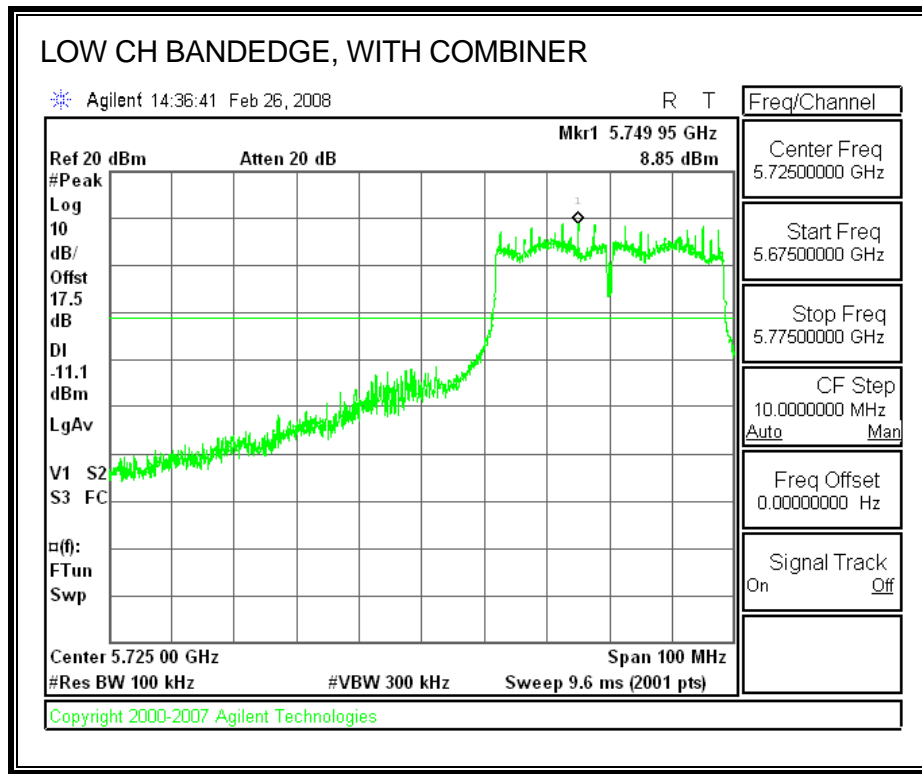
TEST PROCEDURE

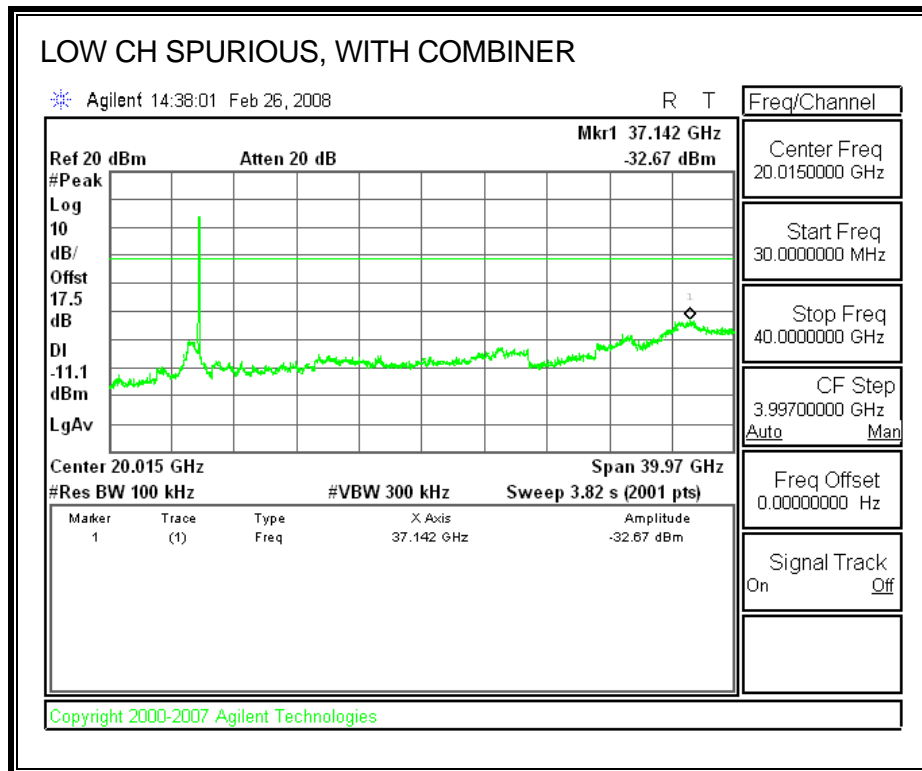
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

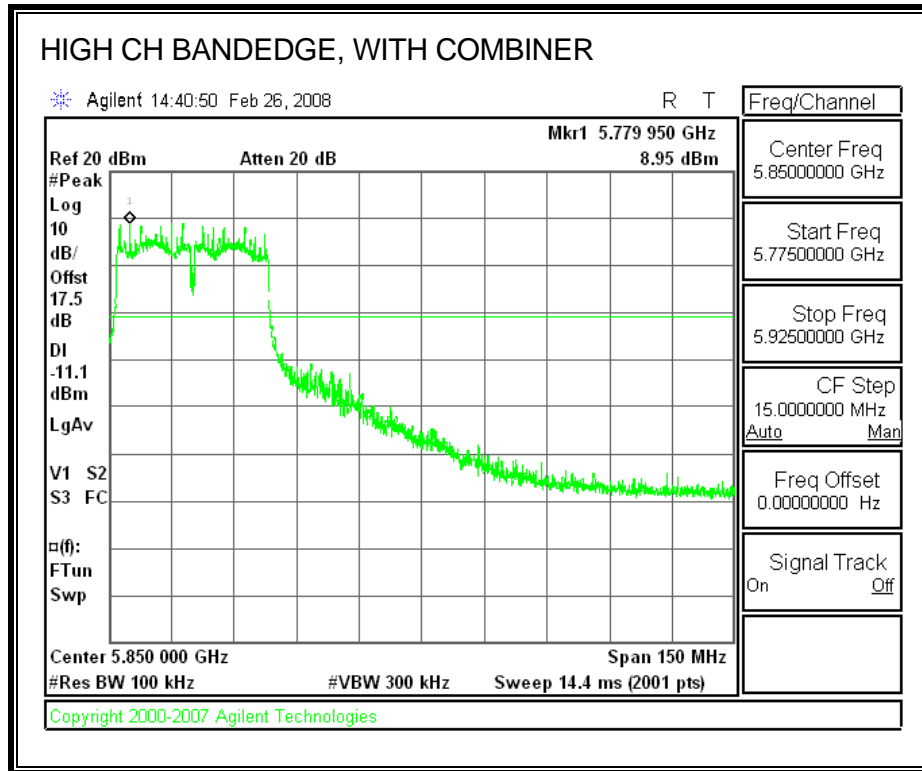
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest and highest channels.

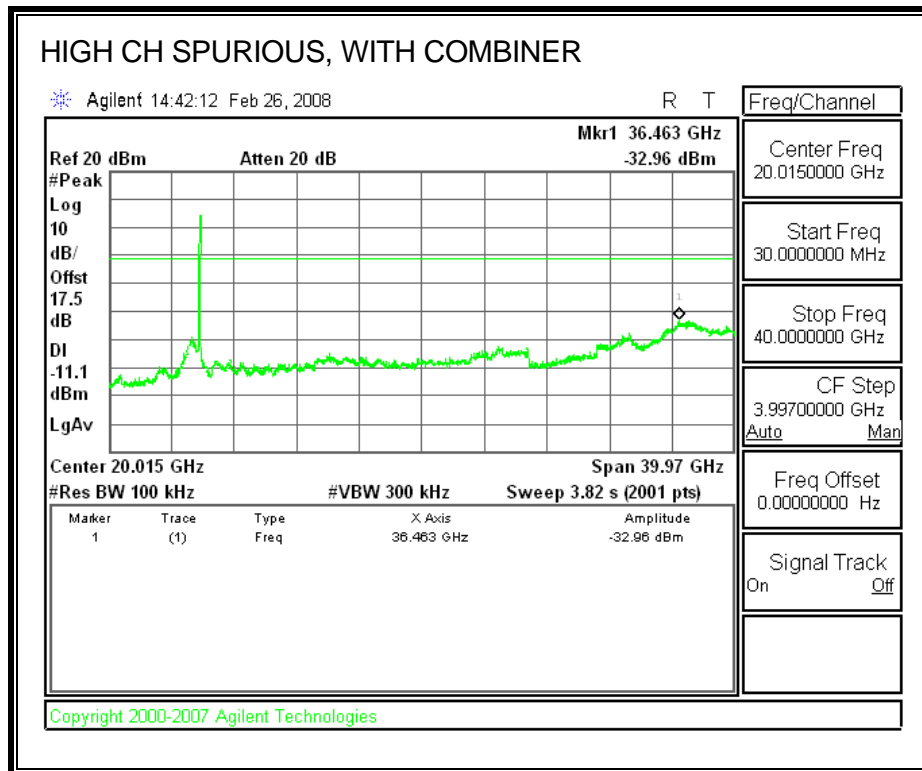
RESULTS

SPURIOUS EMISSIONS WITH COMBINER









8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

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

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

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

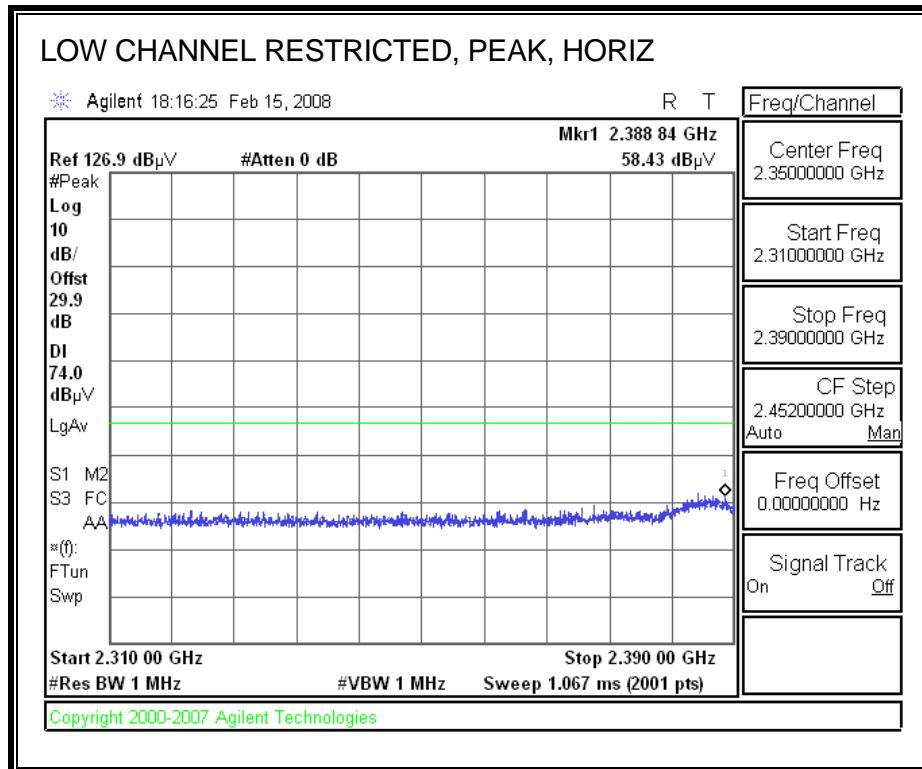
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

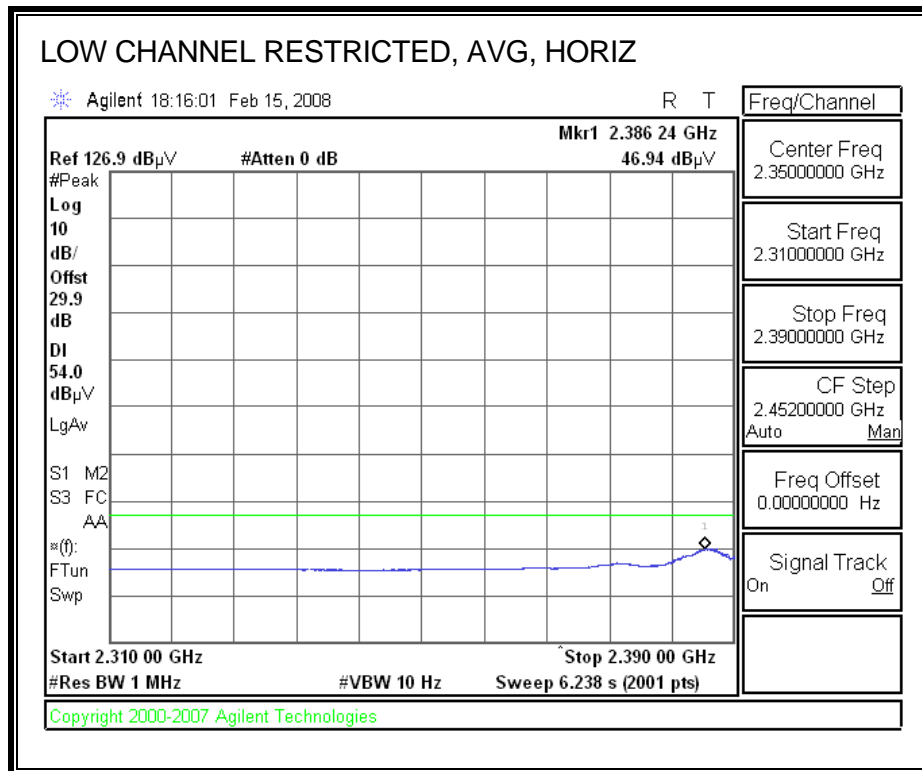
8.2. TRANSMITTER ABOVE 1 GHz

8.2.1. TRANSMITTER ABOVE 1 GHz FOR 802.11b MODE IN THE 2.4 GHz BAND

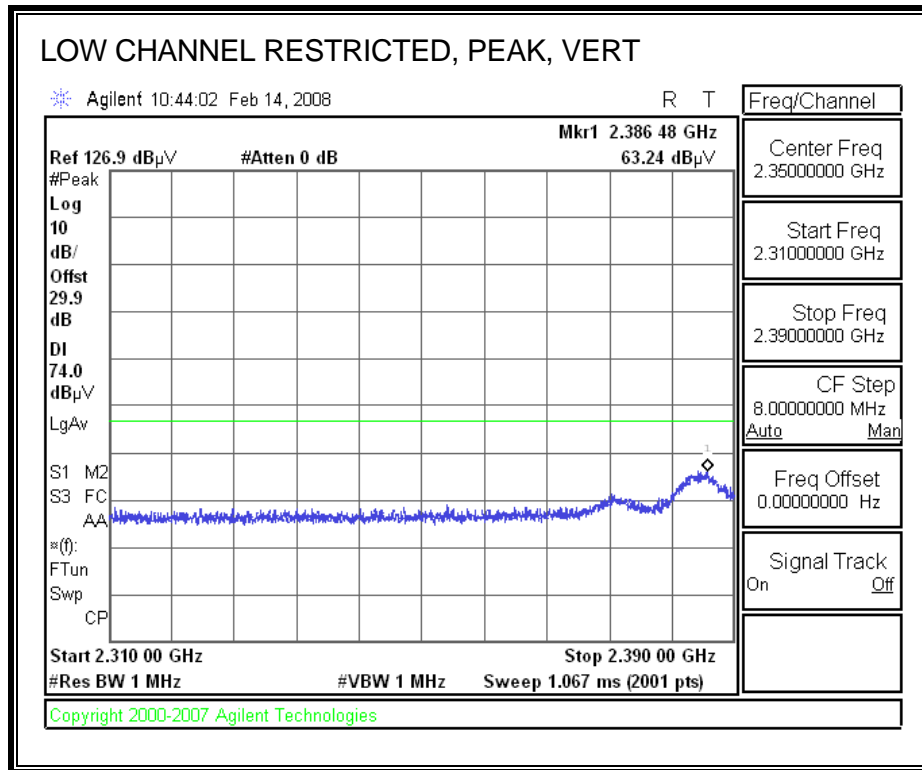
FEM #1

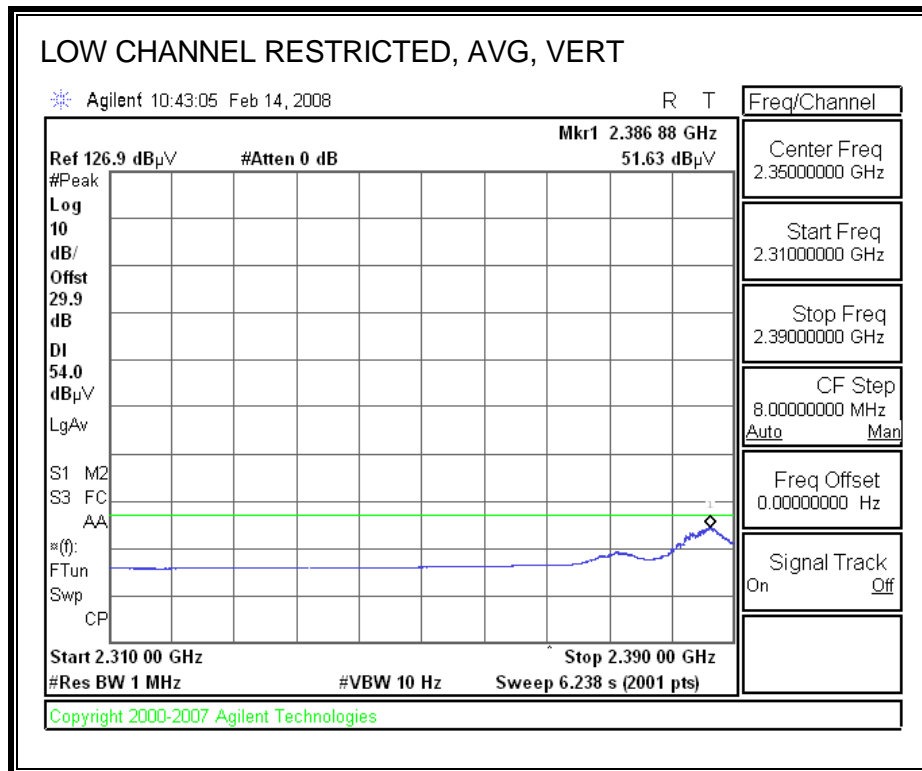
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



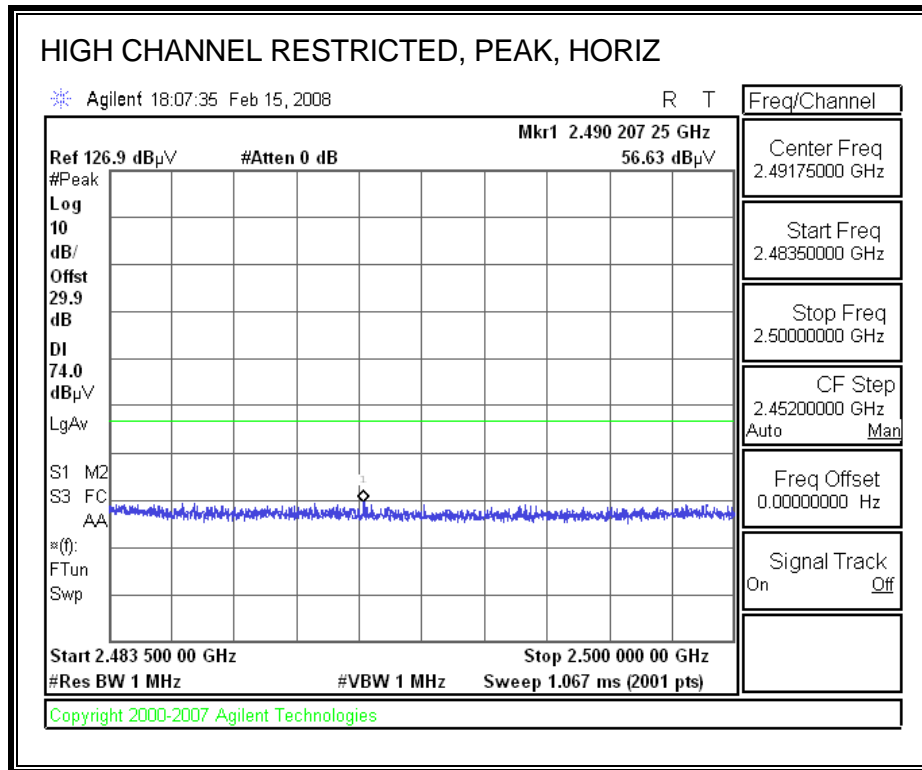


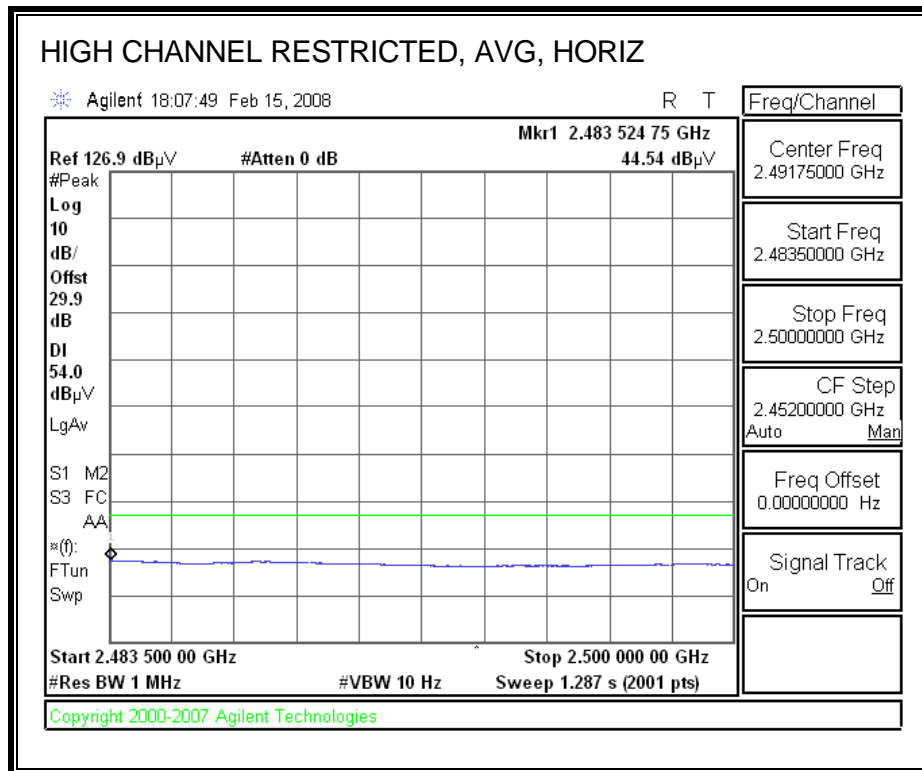
RESTRICTED BANEDGE (LOW CHANNEL, VERTICAL)



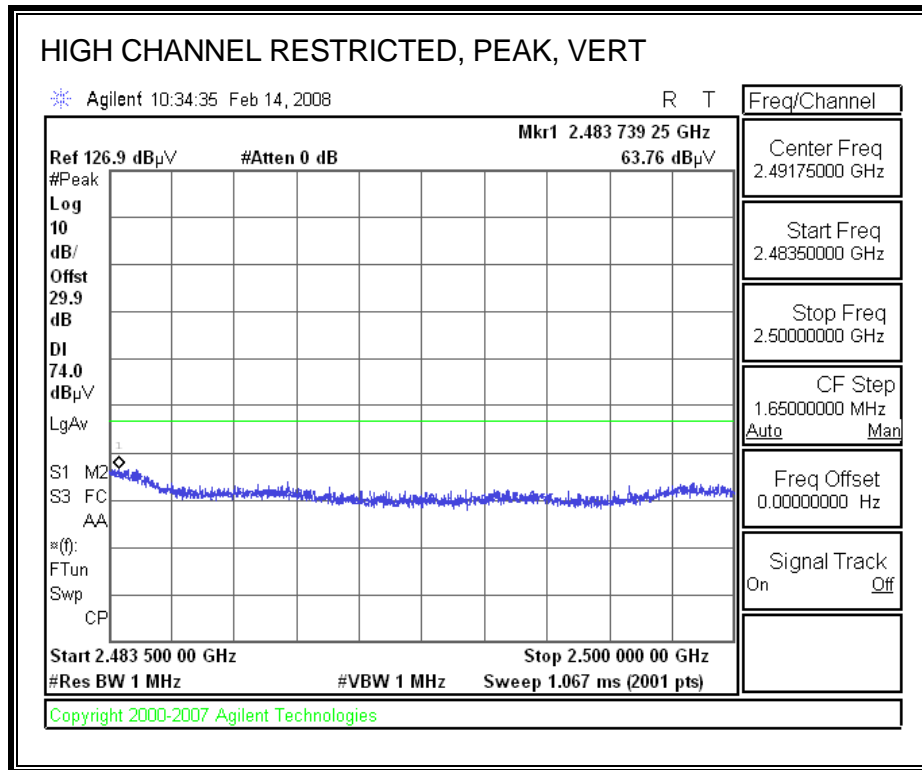


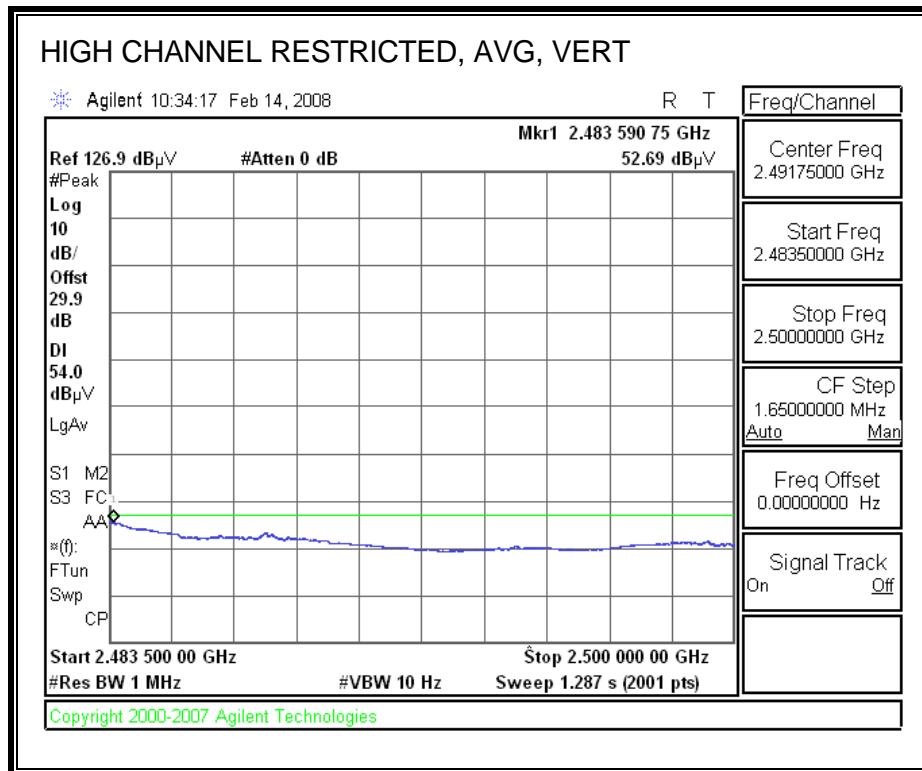
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





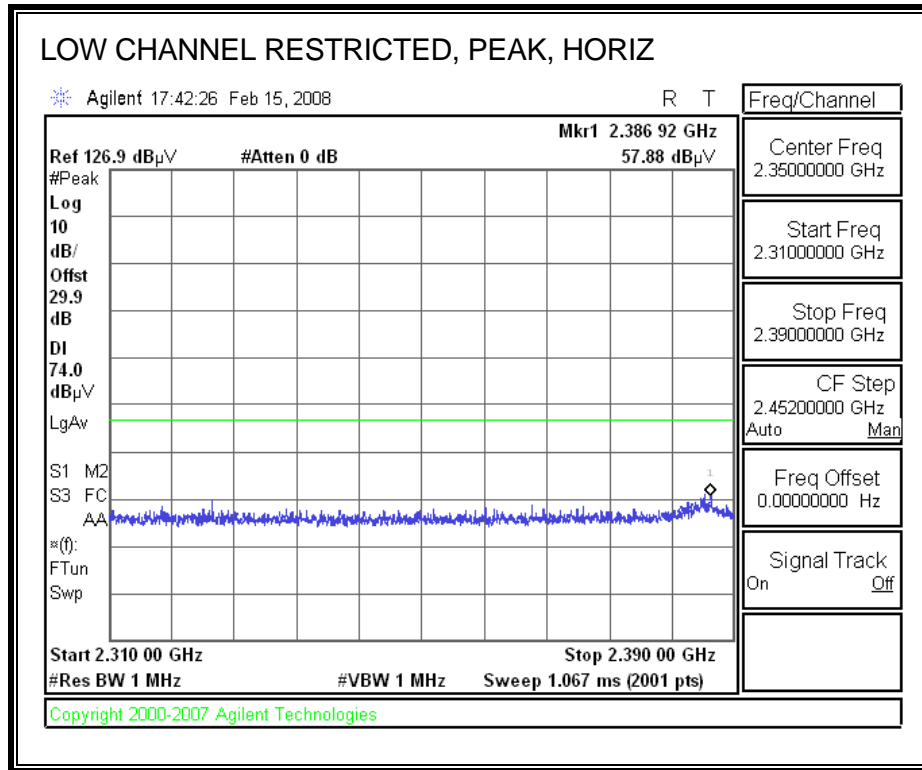
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

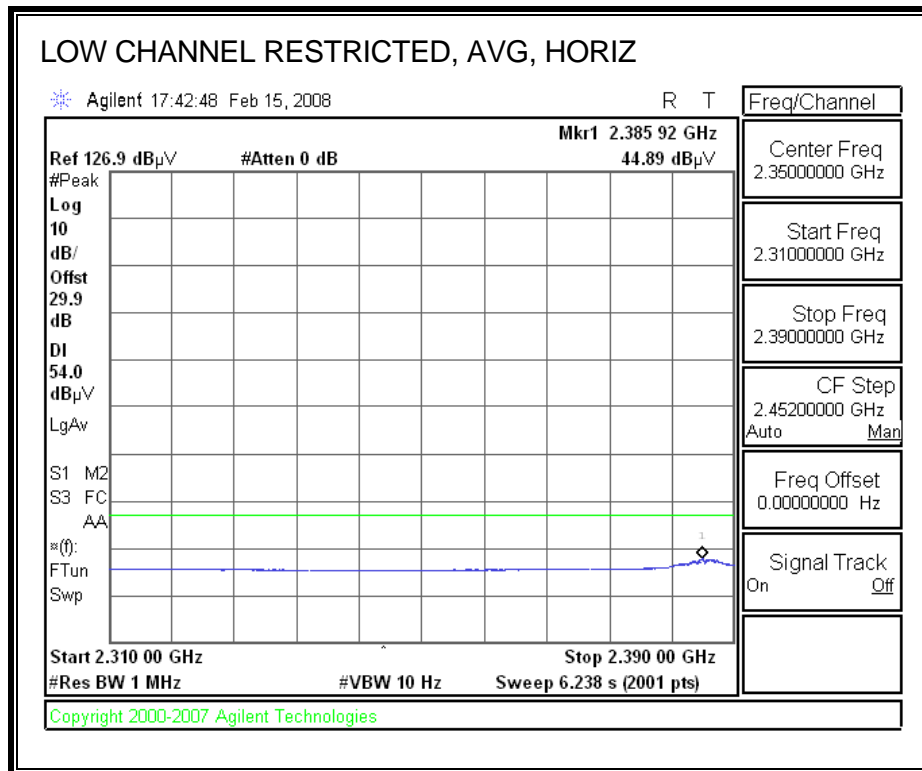




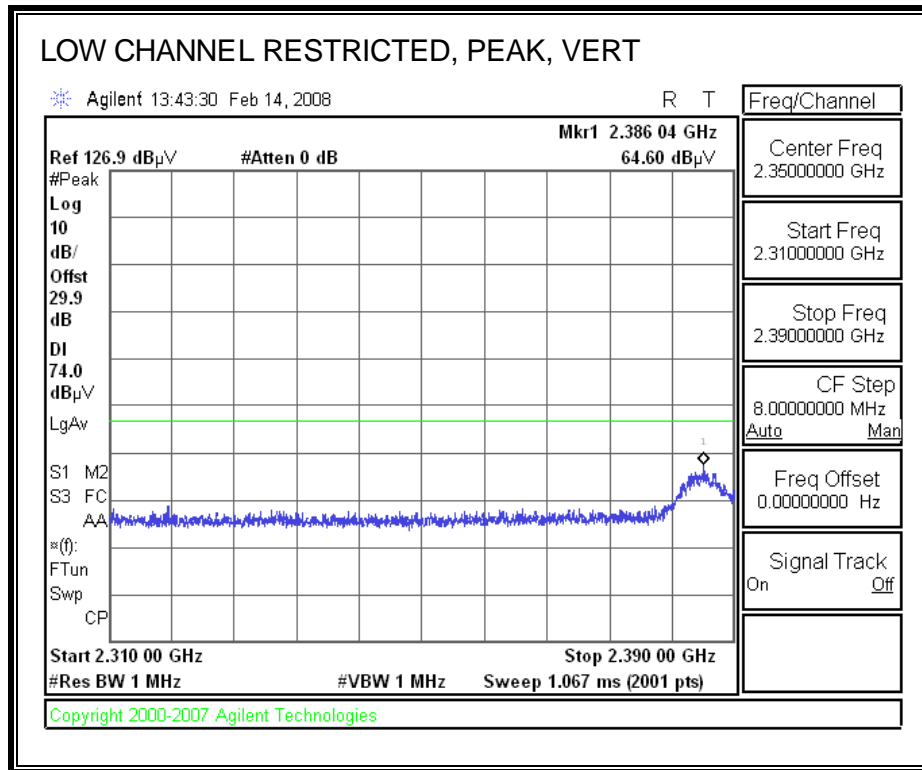
FEM #2

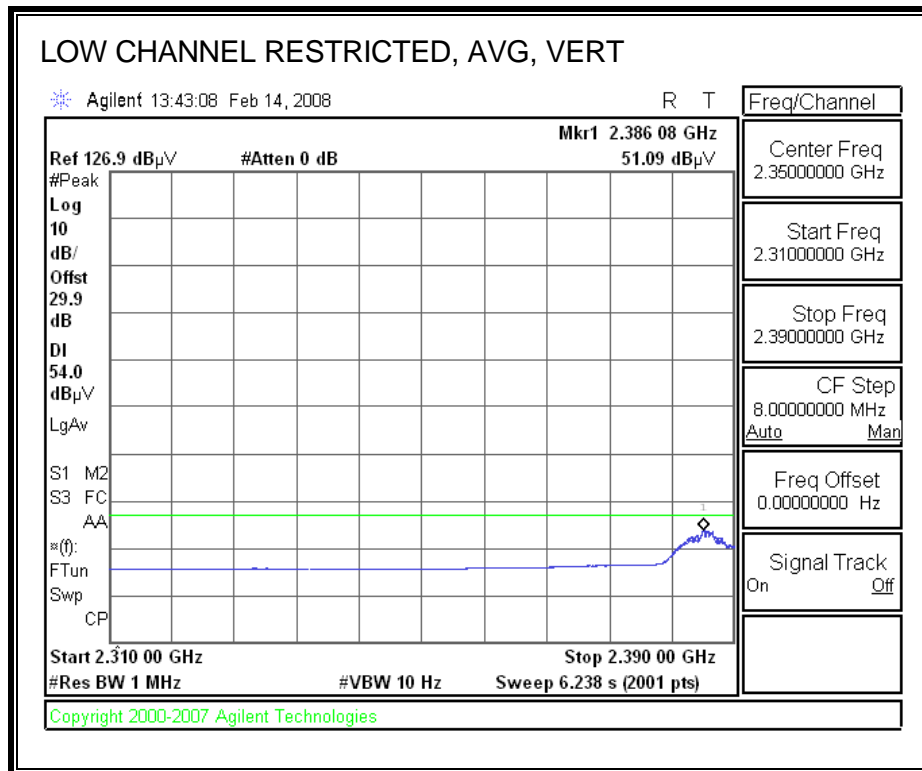
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



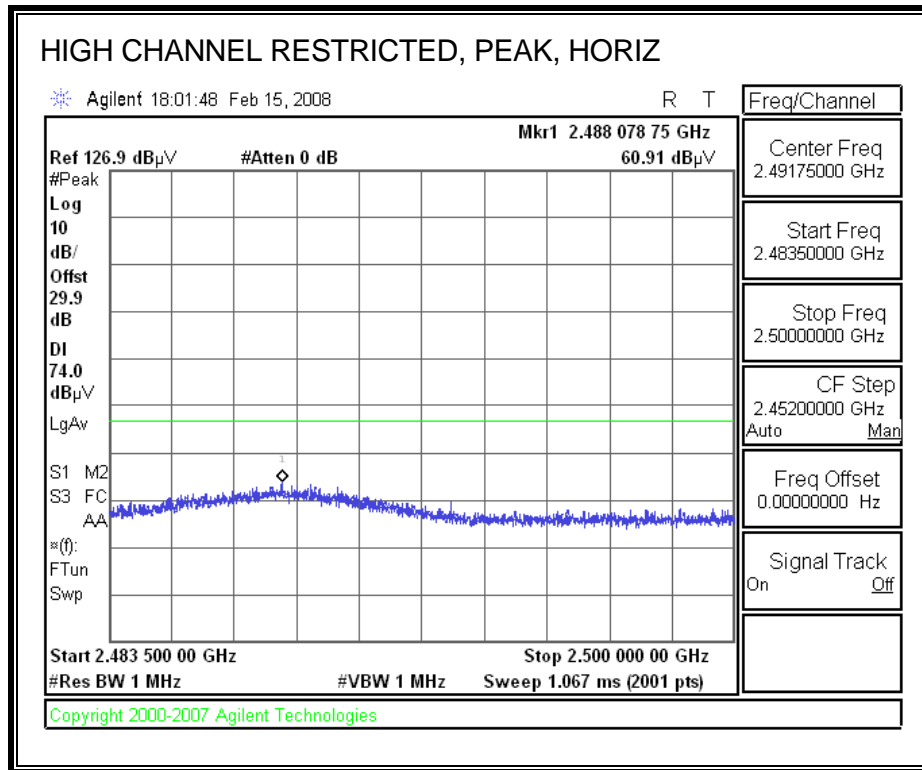


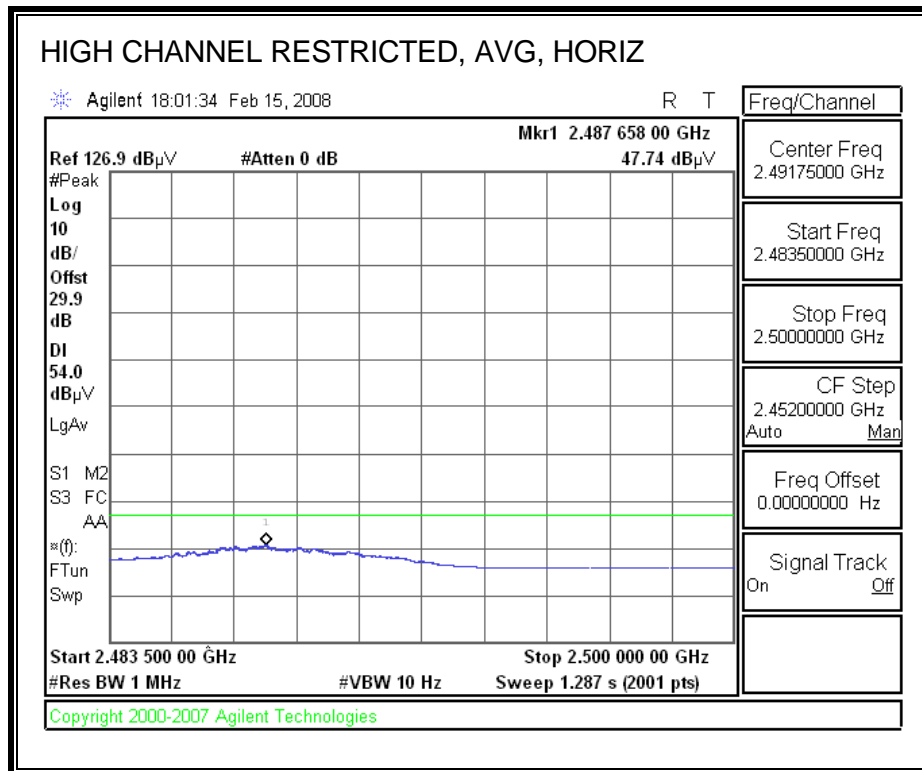
RESTRICTED BANDEGE (LOW CHANNEL, VERTICAL)



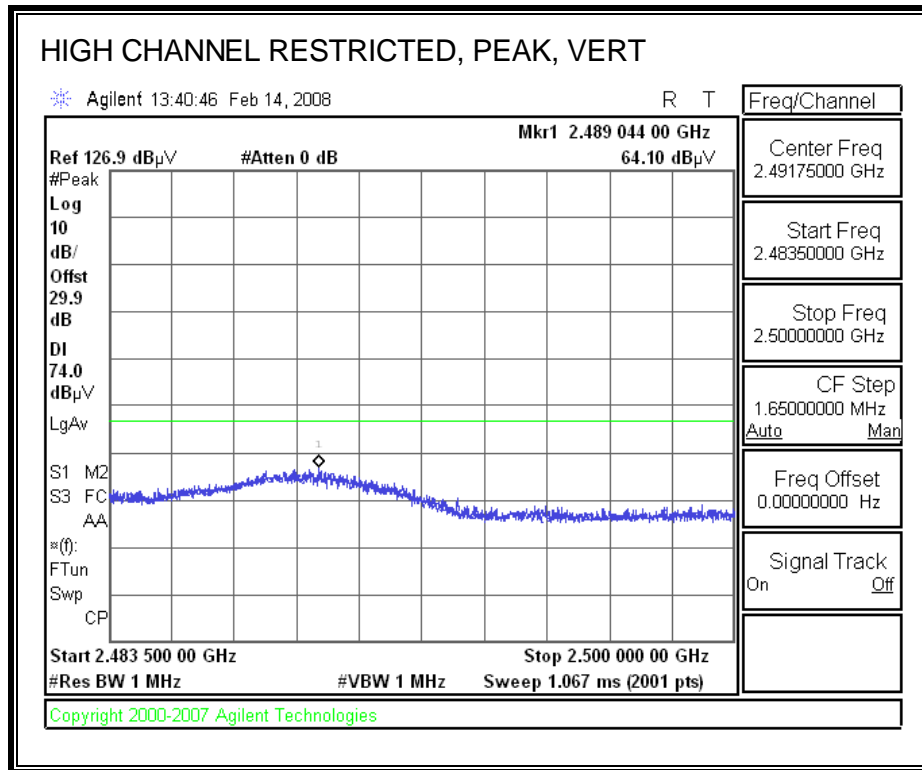


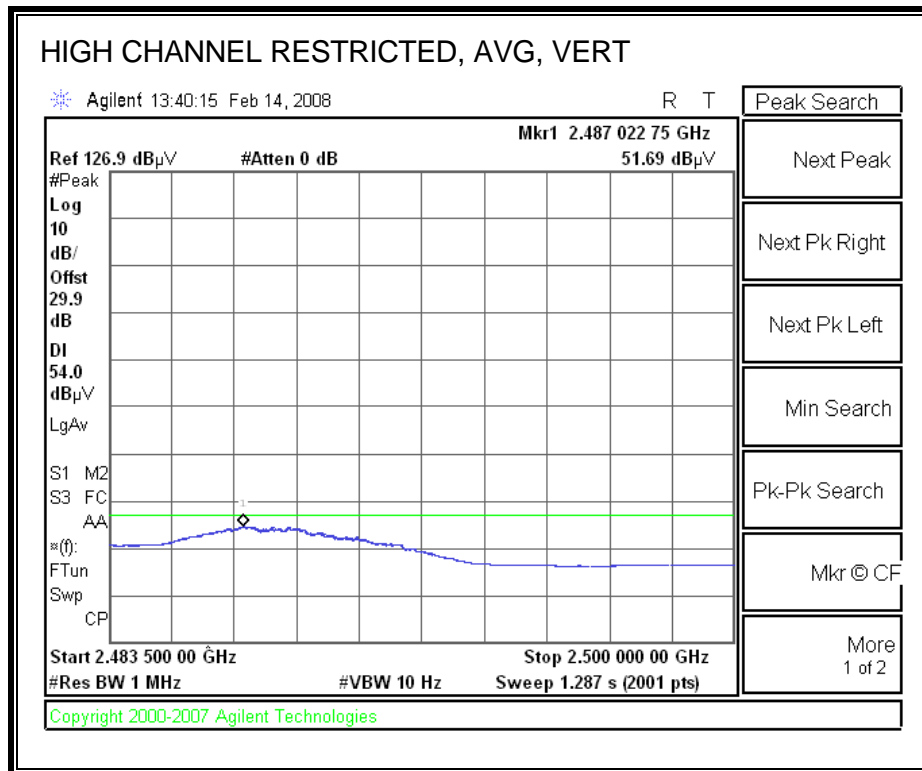
RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





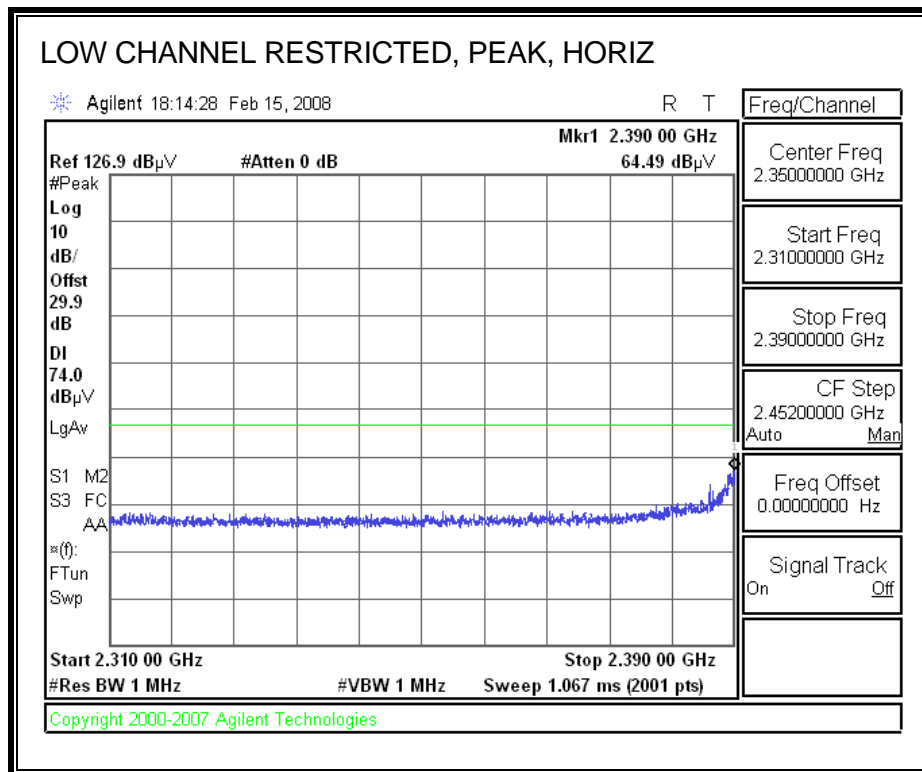
HARMONICS AND SPURIOUS EMISSIONS

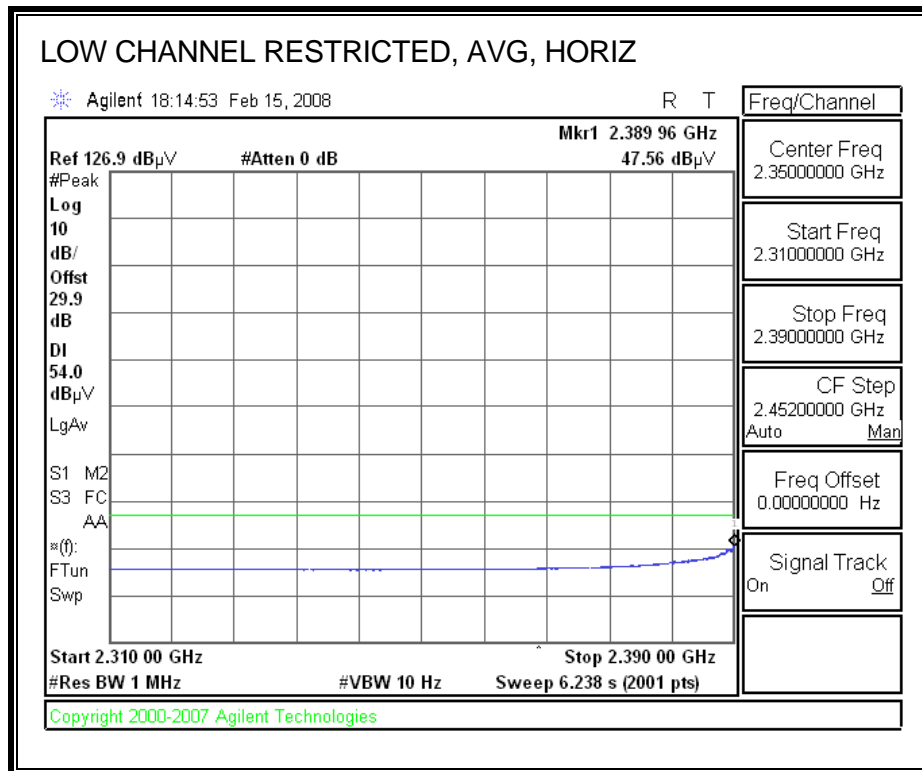
High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company: Atheros Project #: 08U11571 Date: 2/14/2008 Test Engineer: Devin Chang Configuration: B mode Tx Mode: XB92-040-S0580 (b mode)															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T34 HP 8449B						FCC 15.205							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz					
				A-5m Chamber				R_001							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low band (2412MHz)															
4.824	3.0	44.1	30.2	33.3	6.9	-34.8	0.0	0.0	49.4	35.5	74	54	-24.6	-18.5	V
7.326	3.0	41.6	28.8	35.0	8.4	-34.1	0.0	0.0	50.9	38.1	74	54	-23.1	-15.9	V
4.824	3.0	42.9	28.6	33.3	6.9	-34.8	0.0	0.0	48.2	33.9	74	54	-25.8	-20.1	H
7.326	3.0	38.9	26.0	35.0	8.4	-34.1	0.0	0.0	48.2	35.3	74	54	-25.8	-18.7	H
Mid band (2437MHz)															
4.874	3.0	47.1	32.4	33.4	6.9	-34.8	0.0	0.0	52.6	37.9	74	54	-21.4	-16.1	V
7.311	3.0	46.7	35.5	35.0	8.4	-34.1	0.0	0.0	56.0	44.8	74	54	-18.0	-9.2	V
4.874	3.0	43.7	29.9	33.4	6.9	-34.8	0.0	0.0	49.2	35.3	74	54	-24.8	-18.7	H
7.311	3.0	44.5	33.5	35.0	8.4	-34.1	0.0	0.0	53.8	42.8	74	54	-20.2	-11.2	H
High band (2462MHz)															
4.924	3.0	45.4	31.4	33.4	7.0	-34.8	0.0	0.0	50.9	36.9	74	54	-23.1	-17.1	V
7.386	3.0	46.1	36.1	35.0	8.4	-34.1	0.0	0.0	55.5	45.4	74	54	-18.5	-8.6	V
4.924	3.0	42.1	27.1	33.4	7.0	-34.8	0.0	0.0	47.6	32.6	74	54	-26.4	-21.4	H
7.386	3.0	44.1	33.1	35.0	8.4	-34.1	0.0	0.0	53.5	42.4	74	54	-20.5	-11.6	H
Rev. 4.12.7															
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss			HPF	High Pass Filter										

8.2.2. TRANSMITTER ABOVE 1 GHz FOR 802.11g MODE IN THE 2.4 GHz BAND

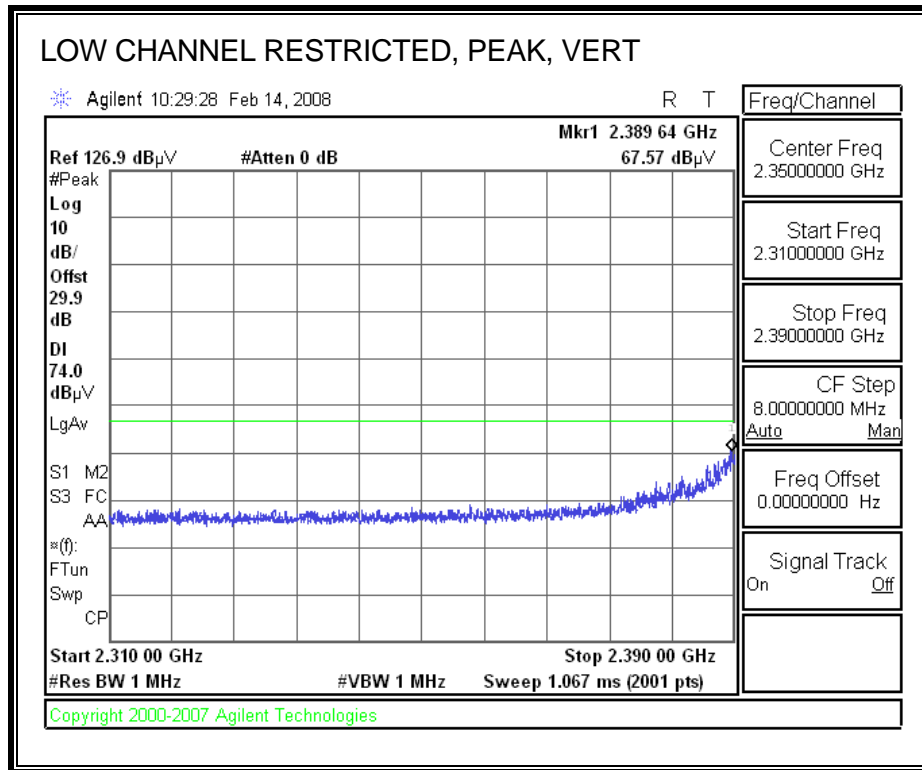
FEM #1

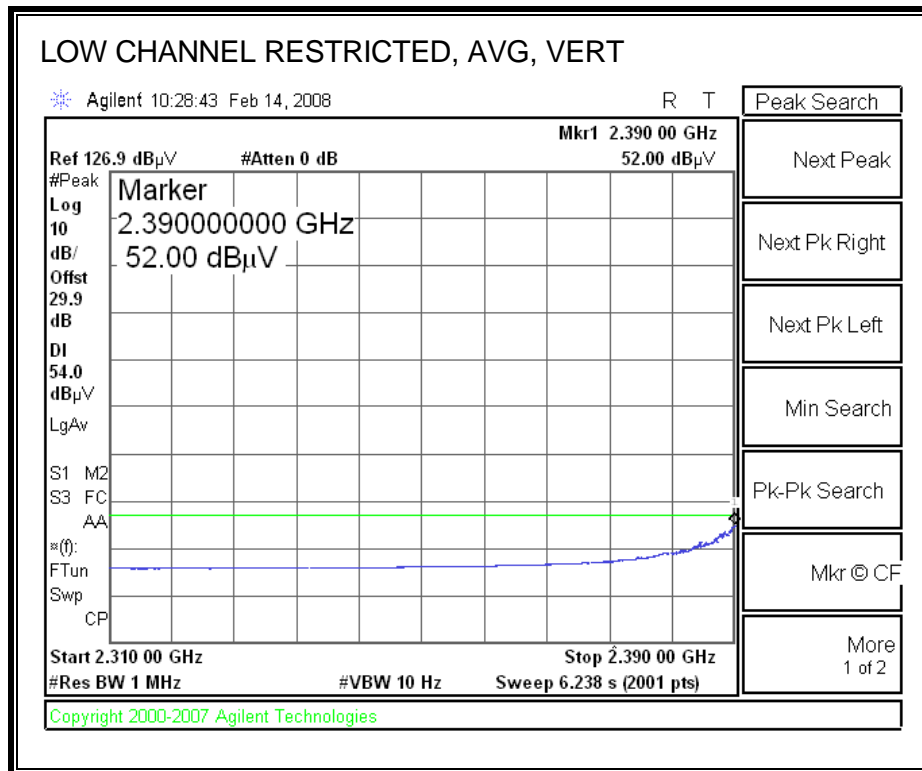
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



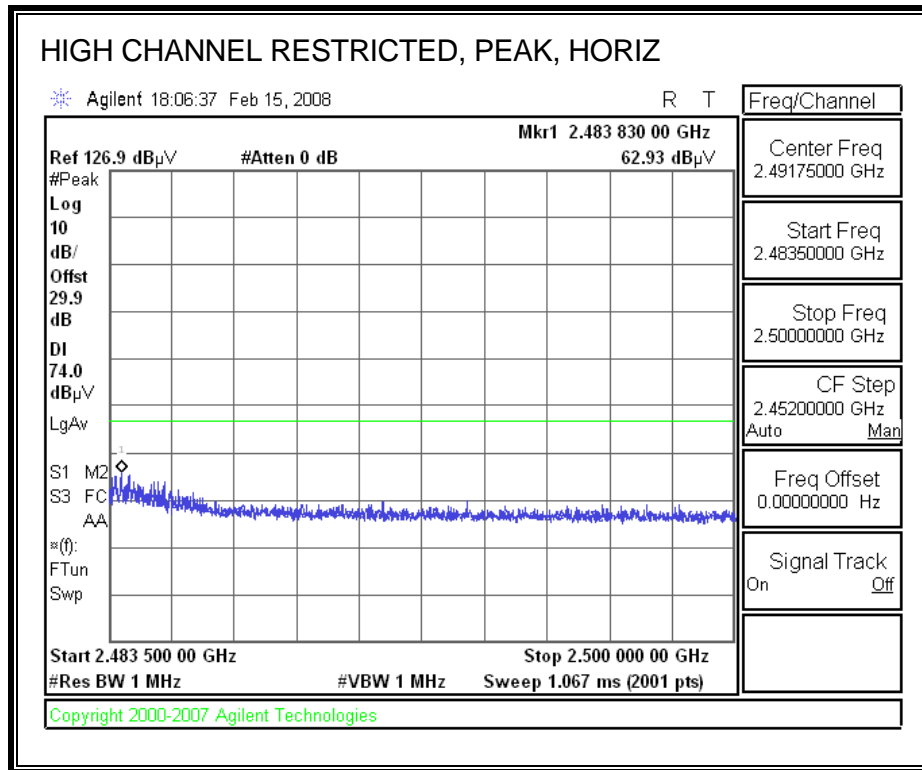


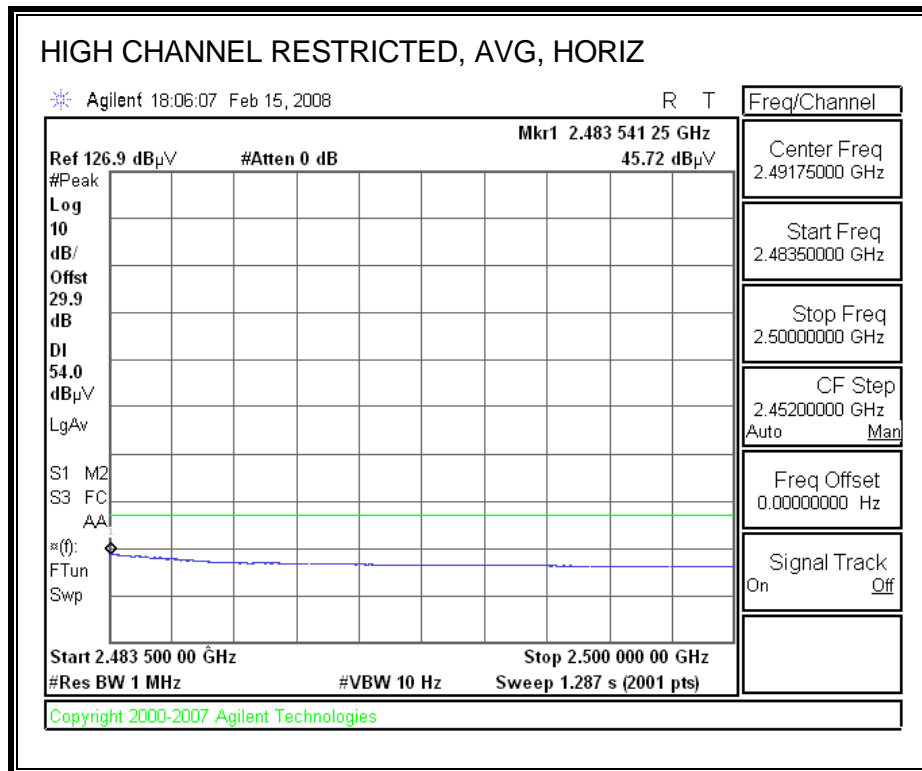
RESTRICTED BANEDGE (LOW CHANNEL, VERTICAL)



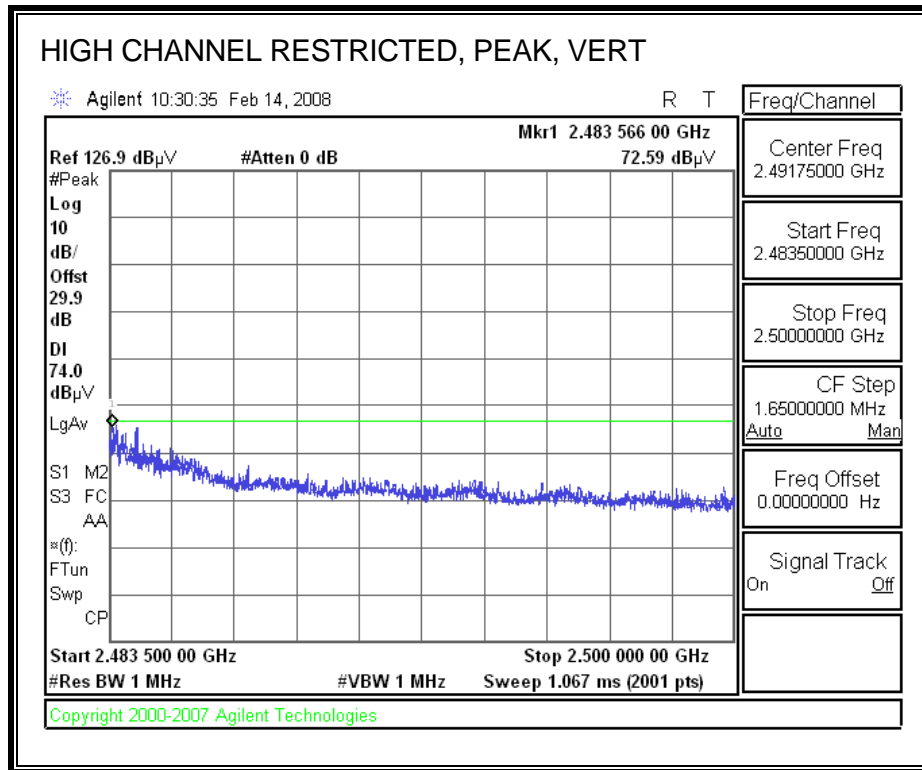


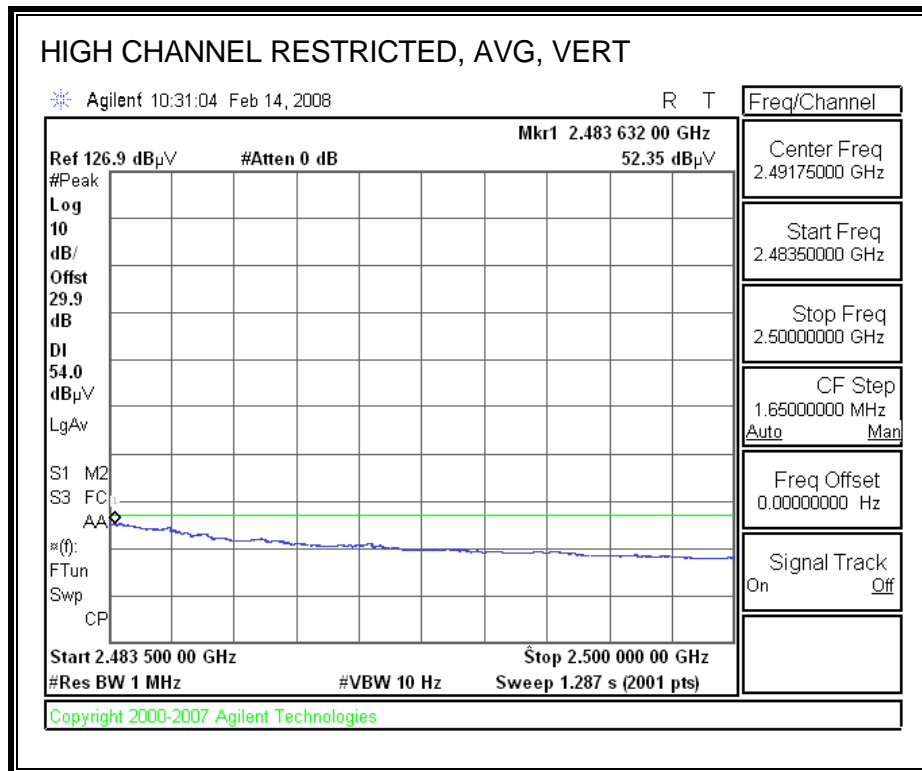
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





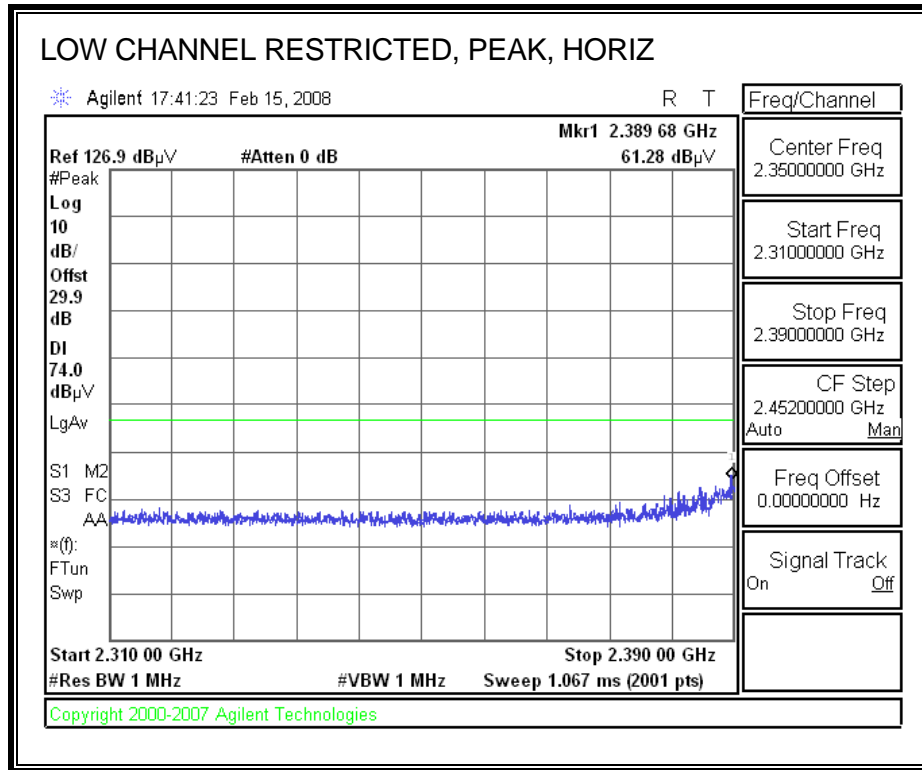
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

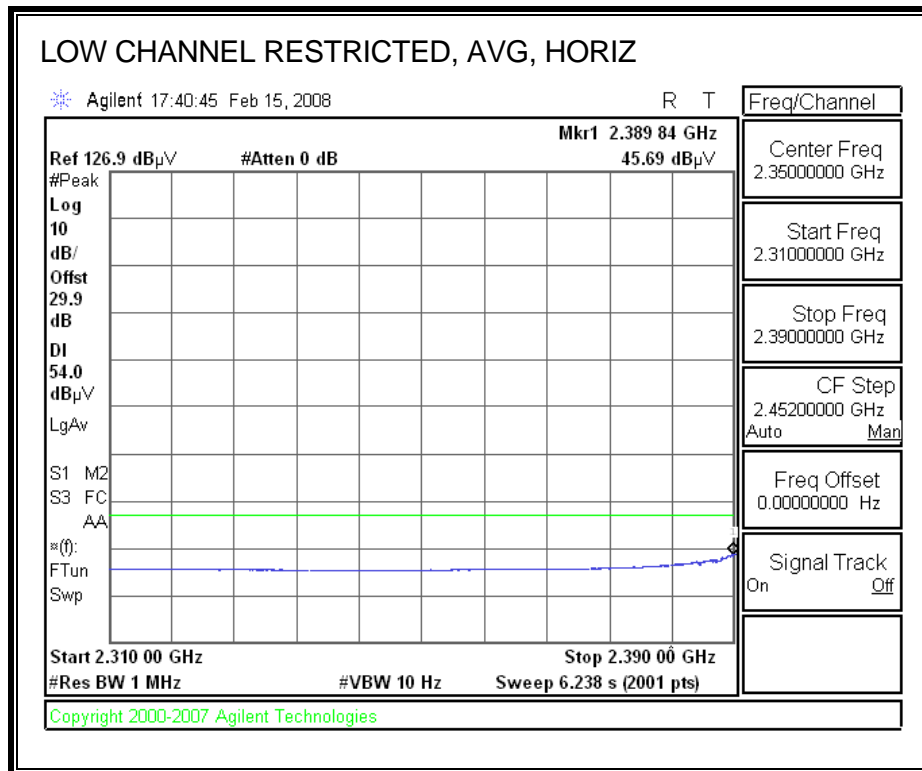




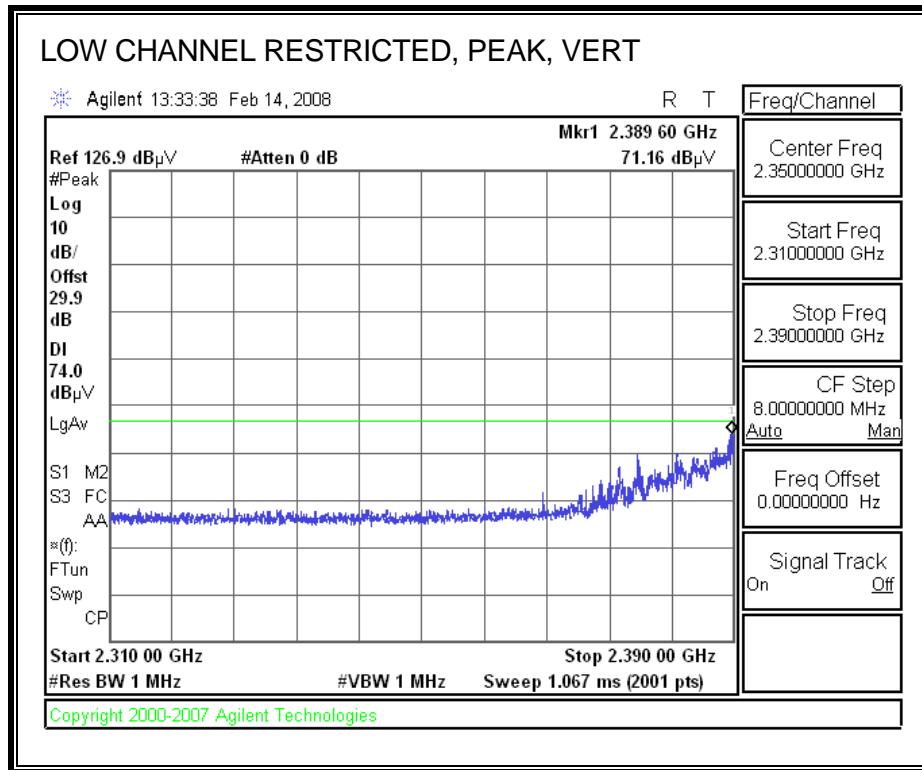
FEM #2

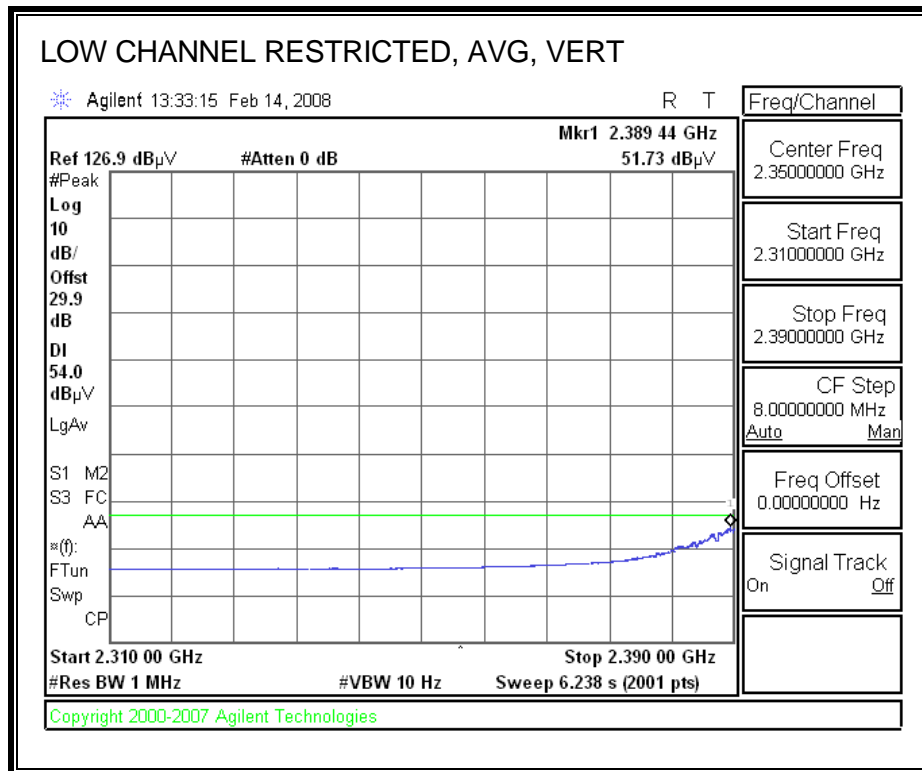
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



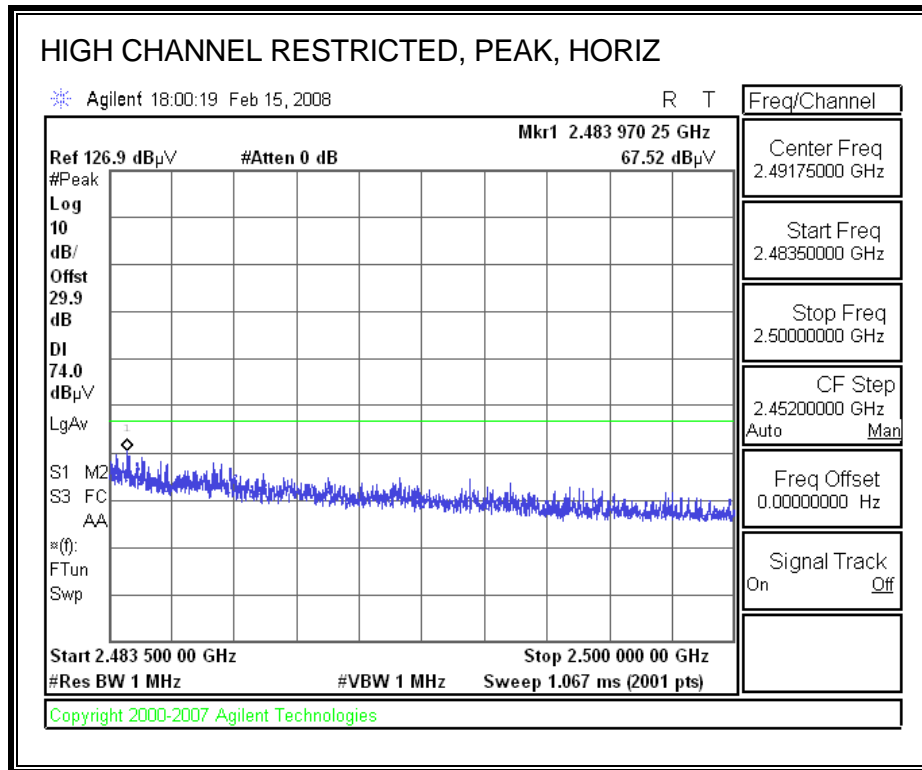


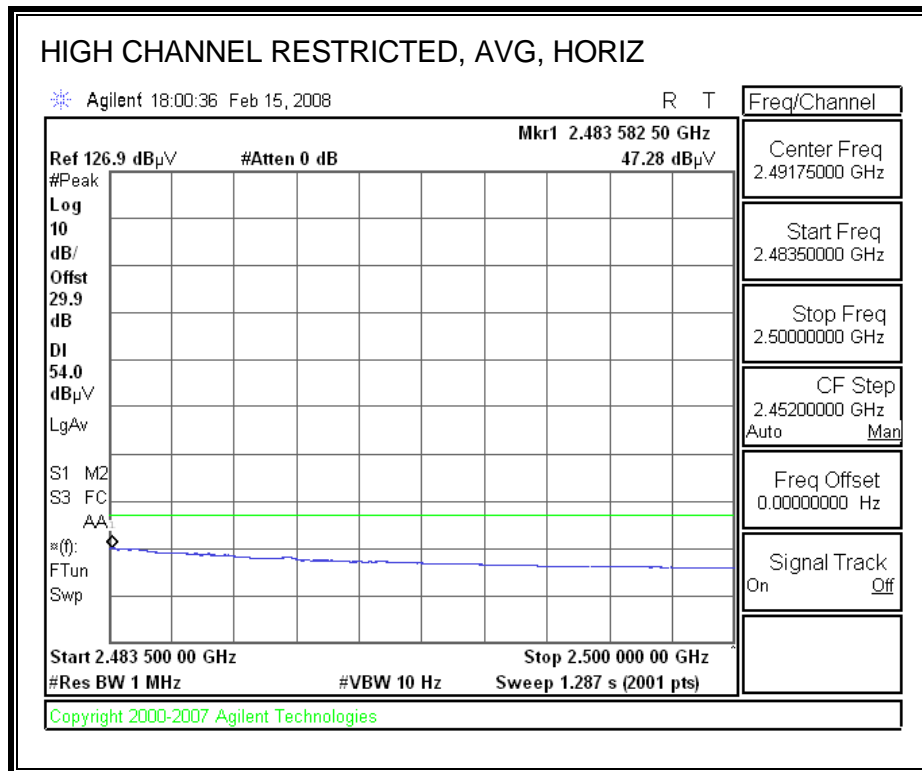
RESTRICTED BANDEGE (LOW CHANNEL, VERTICAL)



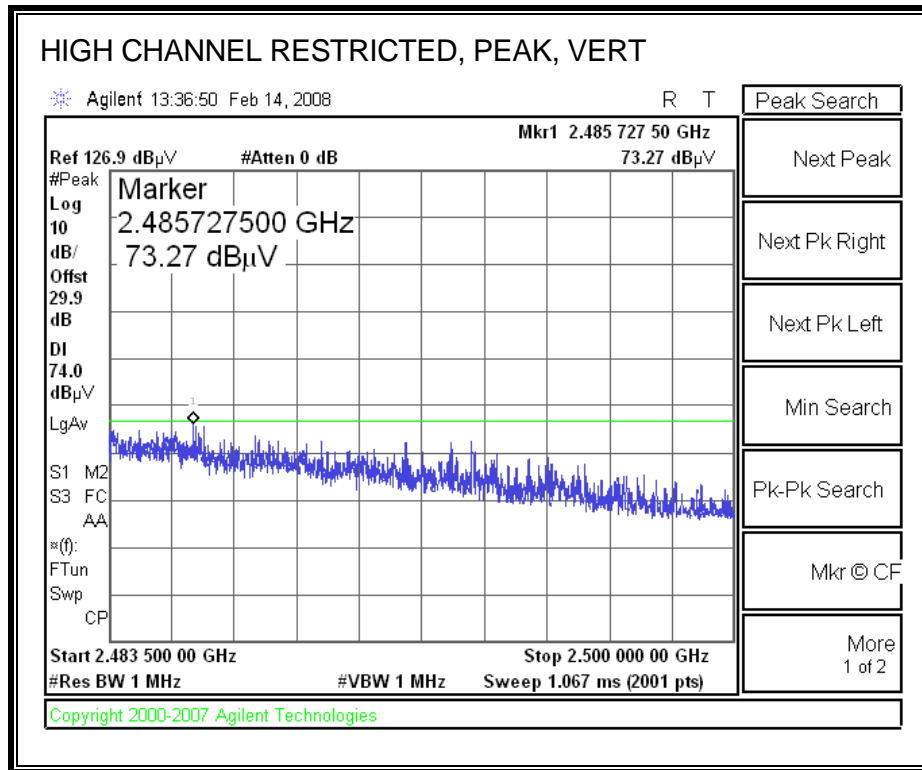


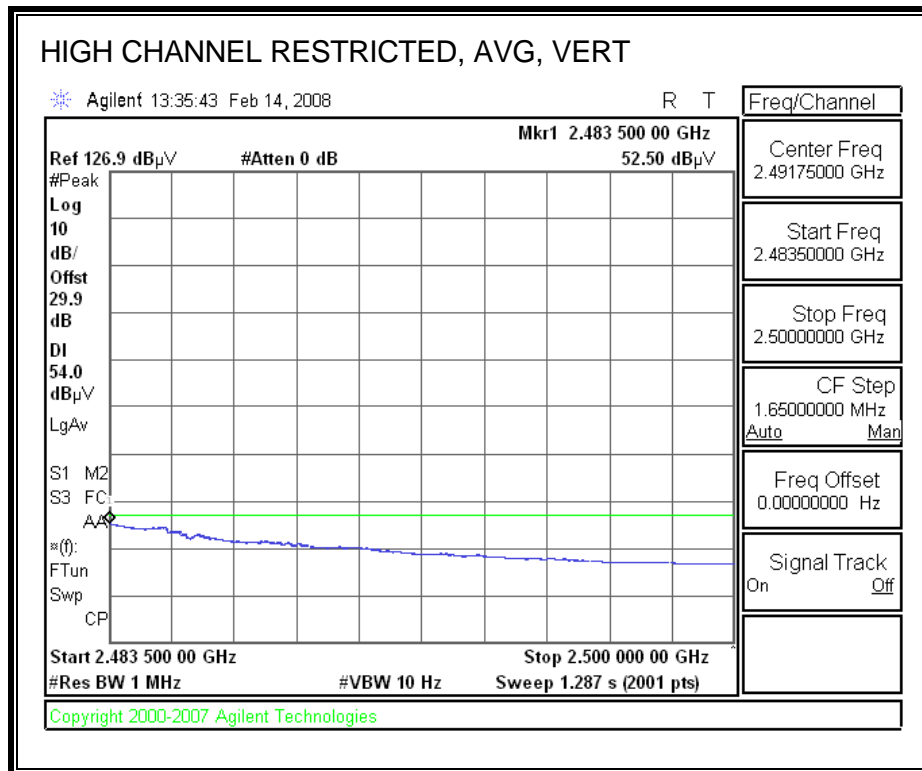
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company: Atheros Project #: 08U11571 Date: 2/14/2008 Test Engineer: Devin Chang Configuration: B mode Tx Mode: XB92-040-S0660 (g mode)															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T34 HP 8449B						FCC 15.209							
<div style="display: flex; justify-content: space-between;"> <div> HI Frequency Cables <div style="display: flex; justify-content: space-around;"> <div>2 foot cable</div> <div>3 foot cable</div> <div>12 foot cable</div> </div> <div style="display: flex; justify-content: space-around;"> <div>A-5m Chamber</div> </div> </div> <div> <div>HPF</div> <div>Reject Filter</div> </div> <div> Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz; VBW=10Hz </div> </div>															
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low band (2412MHz)															
4824	3.0	42.9	30.1	33.3	6.9	-34.8	0.0	0.0	48.2	35.4	74	54	-25.8	-18.6	V
7236	3.0	41.9	27.5	34.9	8.4	-34.1	0.0	0.0	51.1	36.7	74	54	-22.9	-17.3	V
4824	3.0	40.6	27.1	33.3	6.9	-34.8	0.0	0.0	45.9	32.5	74	54	-28.1	-21.5	H
7236	3.0	37.4	23.7	34.9	8.4	-34.1	0.0	0.0	46.6	32.9	74	54	-27.4	-21.1	Noise
Mid band (2437MHz)															
4874	3.0	48.6	35.1	33.4	6.9	-34.8	0.0	0.0	54.0	40.5	74	54	-20.0	-13.5	V
7311	3.0	44.4	29.5	35.0	8.4	-34.1	0.0	0.0	53.7	38.8	74	54	-20.3	-15.2	V
4874	3.0	43.5	30.4	33.4	6.9	-34.8	0.0	0.0	49.0	35.8	74	54	-25.0	-18.2	H
7311	3.0	43.2	29.3	35.0	8.4	-34.1	0.0	0.0	52.5	38.6	74	54	-21.5	-15.4	H
High band (2462MHz)															
4924	3.0	49.0	35.3	33.4	7.0	-34.8	0.0	0.0	54.5	40.8	74	54	-19.5	-13.2	V
7386	3.0	43.6	28.8	35.0	8.4	-34.1	0.0	0.0	53.0	38.1	74	54	-21.0	-15.9	V
4924	3.0	43.5	29.9	33.4	7.0	-34.8	0.0	0.0	49.0	35.5	74	54	-25.0	-18.5	H
7386	3.0	37.9	25.0	35.0	8.4	-34.1	0.0	0.0	47.2	34.3	74	54	-26.8	-19.7	Noise
Rev. 4.12.7															
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim	Average Field Strength Limit								
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim	Peak Field Strength Limit								
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar	Margin vs. Average Limit								
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar	Margin vs. Peak Limit								
CL	Cable Loss		HPF	High Pass Filter											

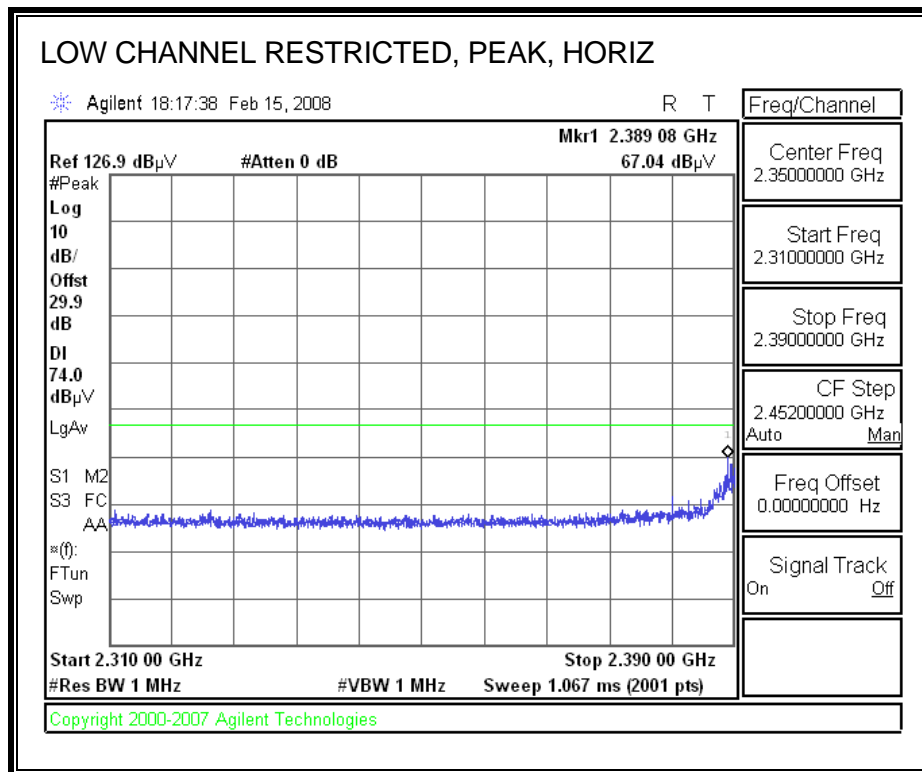
HARMONICS AND SPURIOUS EMISSIONS

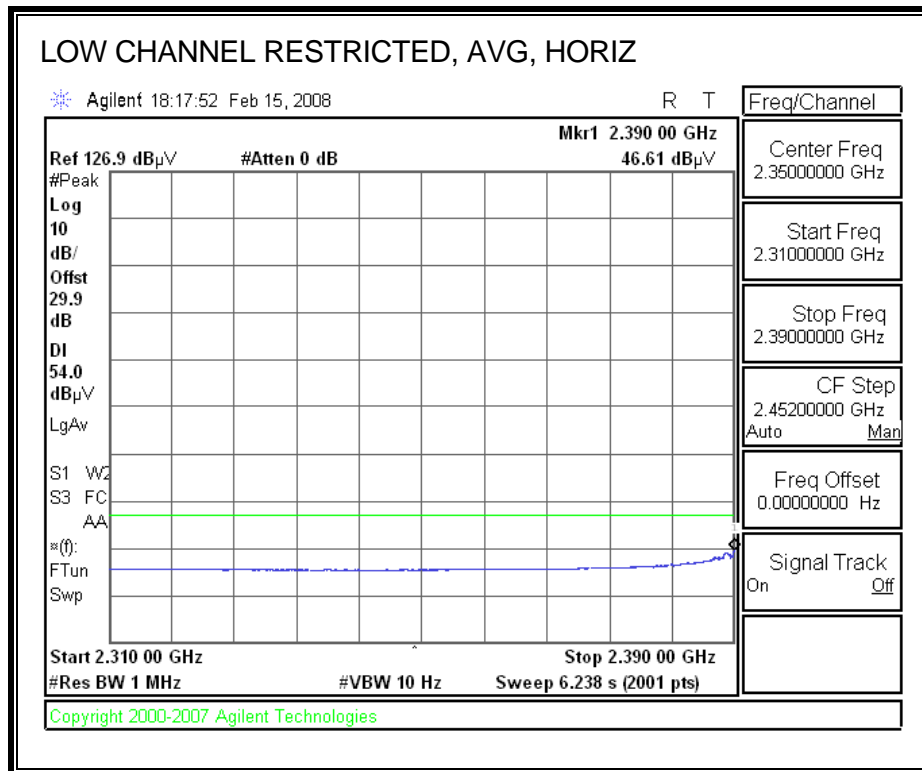
High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company: Atheros Project #: 08U11571 Date: 2/14/2008 Test Engineer: Devin Chang Configuration: G mode Tx Mode: XB92-040-S0580															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T34 HP 8449B						FCC 15.205							
HI Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz; VBW=10Hz					
				A-5m Chamber				R_001							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low band (2412MHz)															
4.824	3.0	42.4	29.4	33.3	6.9	-34.8	0.0	0.0	47.8	34.8	74	54	-26.2	-19.2	V
7.326	3.0	39.1	26.4	35.0	8.4	-34.1	0.0	0.0	48.4	35.7	74	54	-25.6	-18.3	V
4.824	3.0	44.1	29.7	33.3	6.9	-34.8	0.0	0.0	49.4	35.1	74	54	-24.6	-18.9	H
7.326	3.0	38.5	25.6	35.0	8.4	-34.1	0.0	0.0	47.8	34.9	74	54	-26.2	-19.1	H
Mid band (2437MHz)															
4.874	3.0	46.9	34.8	33.4	6.9	-34.8	0.0	0.0	52.4	40.2	74	54	-21.6	-13.8	V
7.311	3.0	50.2	35.1	35.0	8.4	-34.1	0.0	0.0	59.5	44.4	74	54	-14.5	-9.6	V
4.874	3.0	44.7	32.5	33.4	6.9	-34.8	0.0	0.0	50.1	38.0	74	54	-23.9	-16.0	H
7.311	3.0	43.9	29.2	35.0	8.4	-34.1	0.0	0.0	53.1	38.5	74	54	-20.9	-15.5	H
High band (2462MHz)															
4.924	3.0	38.6	25.4	33.4	7.0	-34.8	0.0	0.0	44.1	31.0	74	54	-29.9	-23.0	V
7.386	3.0	42.2	28.7	35.0	8.4	-34.1	0.0	0.0	51.6	38.1	74	54	-22.4	-15.9	V
4.924	3.0	38.5	25.2	33.4	7.0	-34.8	0.0	0.0	44.0	30.8	74	54	-30.0	-23.2	H
7.386	3.0	37.7	25.2	35.0	8.4	-34.1	0.0	0.0	47.1	34.6	74	54	-26.9	-19.4	H
Rev. 4.12.7															
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss			HPF	High Pass Filter										

8.2.3. TRANSMITTER ABOVE 1 GHz FOR 802.11n HT20 MODE IN THE 2.4 GHz BAND

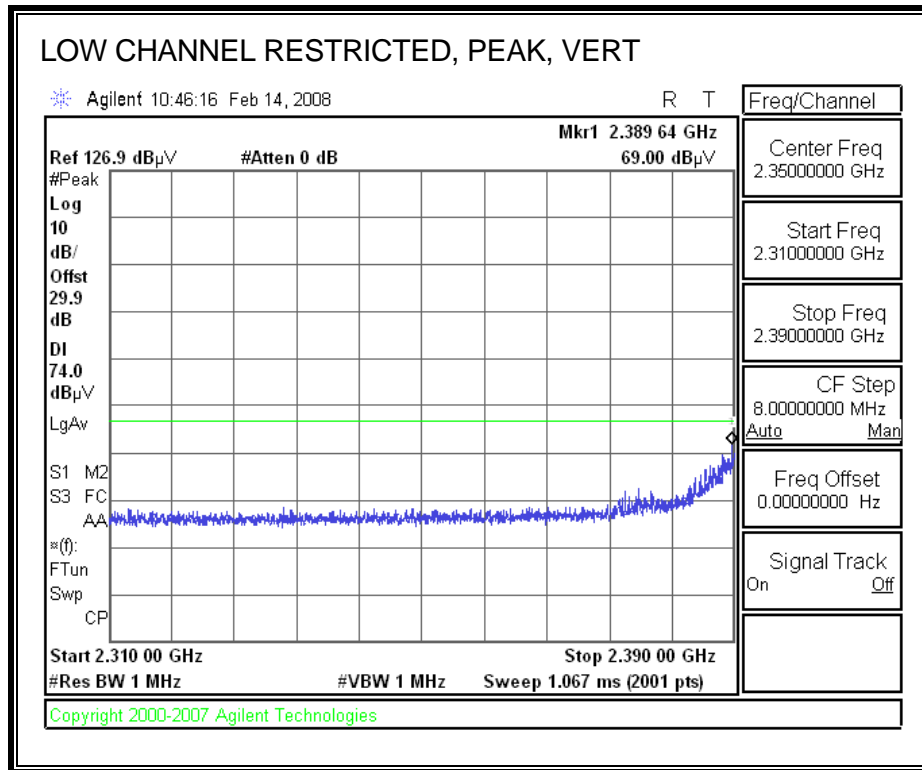
FEM #1

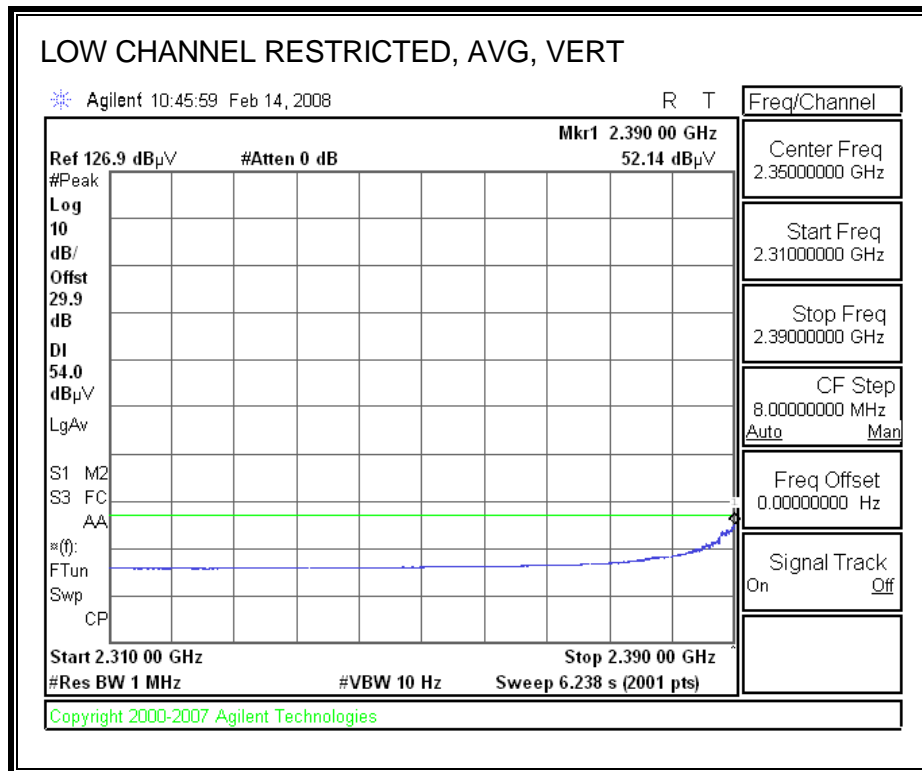
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



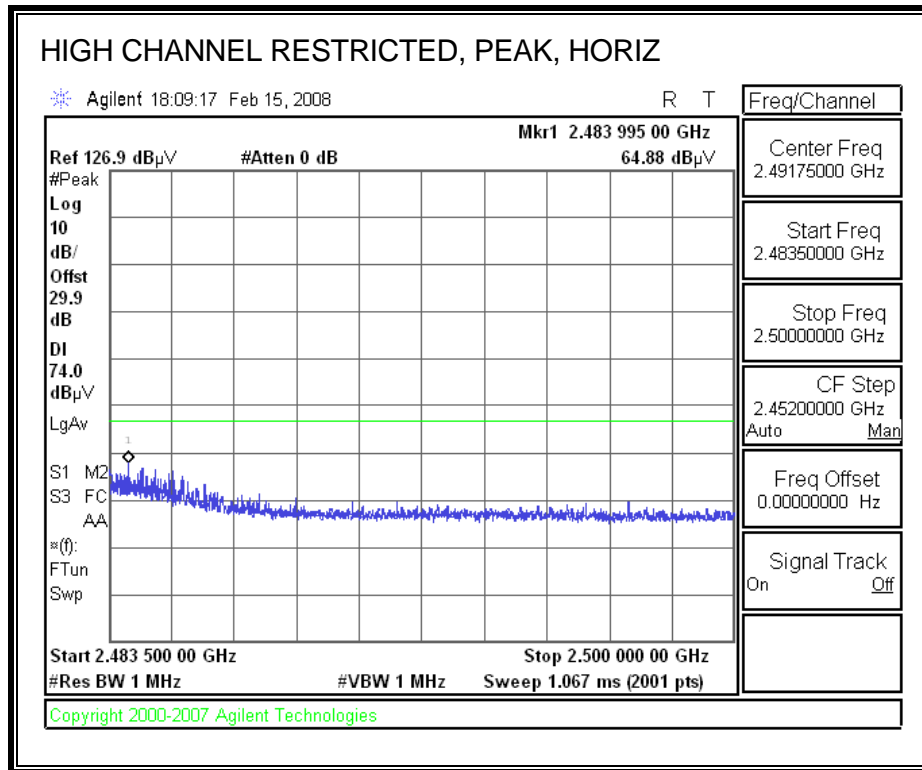


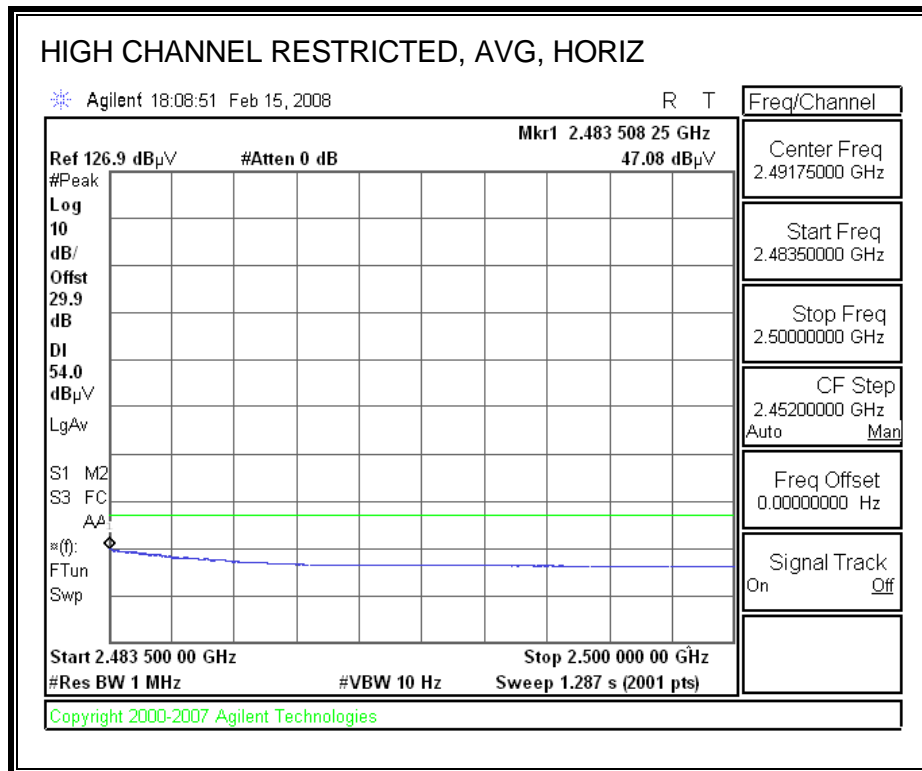
RESTRICTED BANEDGE (LOW CHANNEL, VERTICAL)

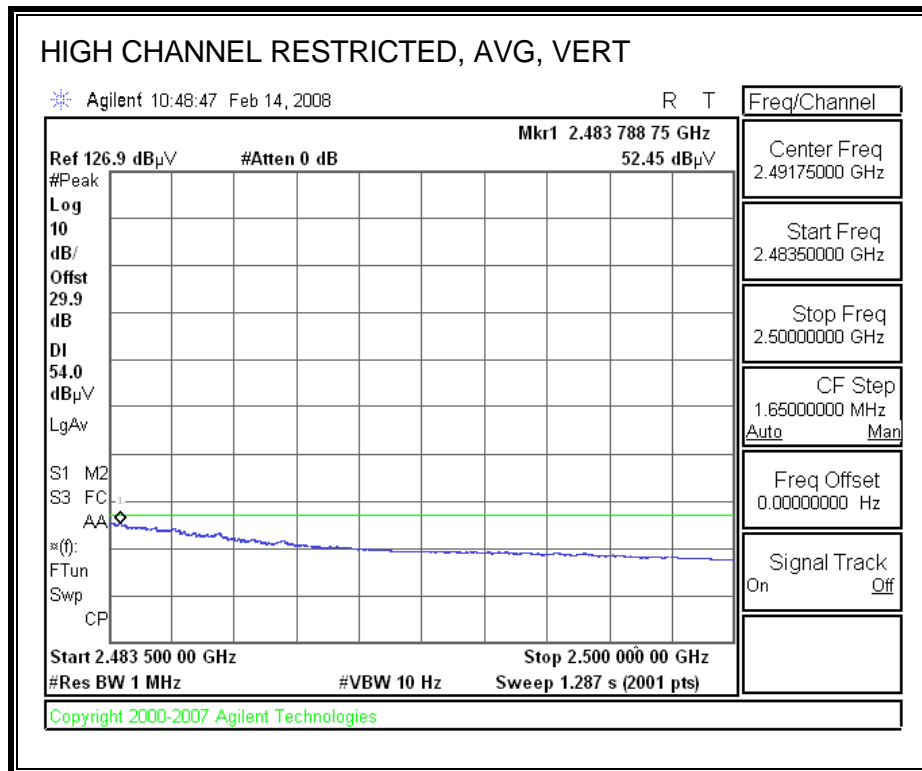




RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)

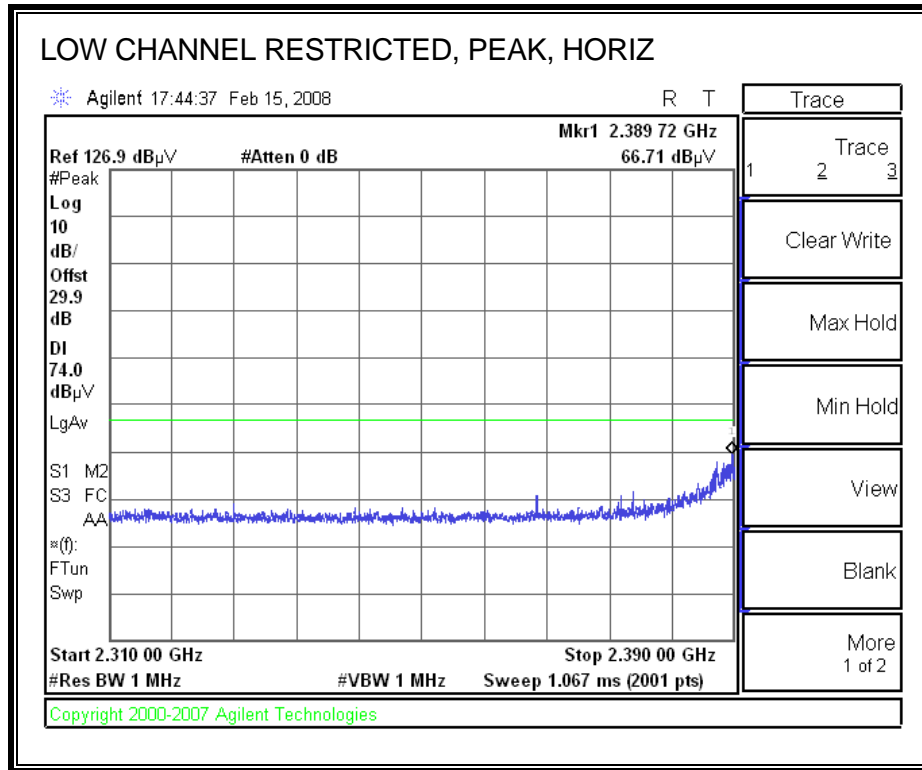


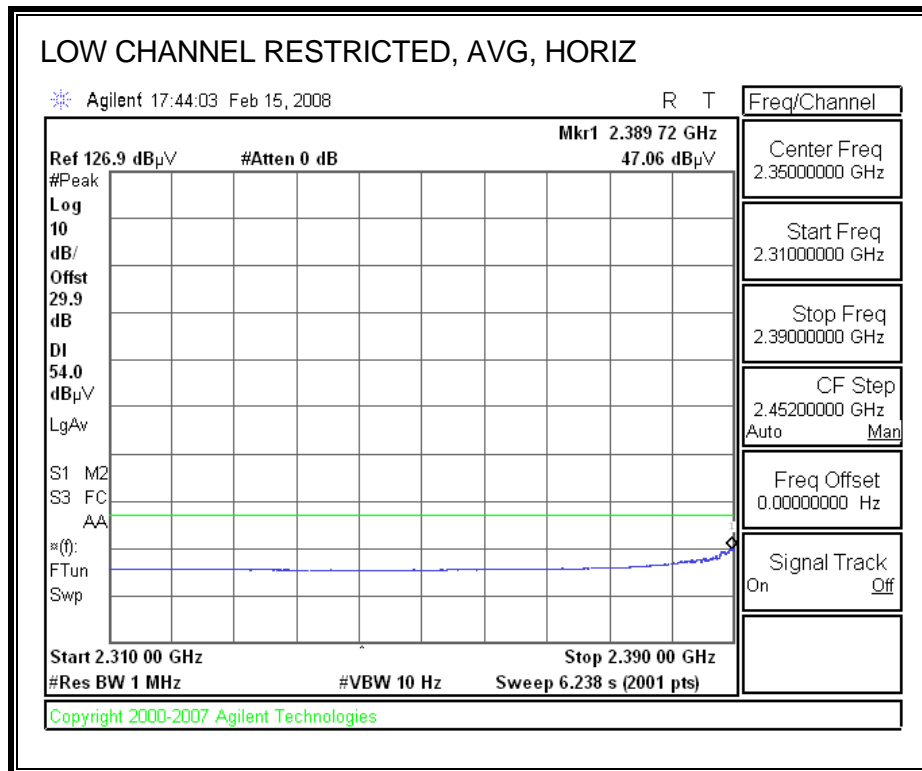




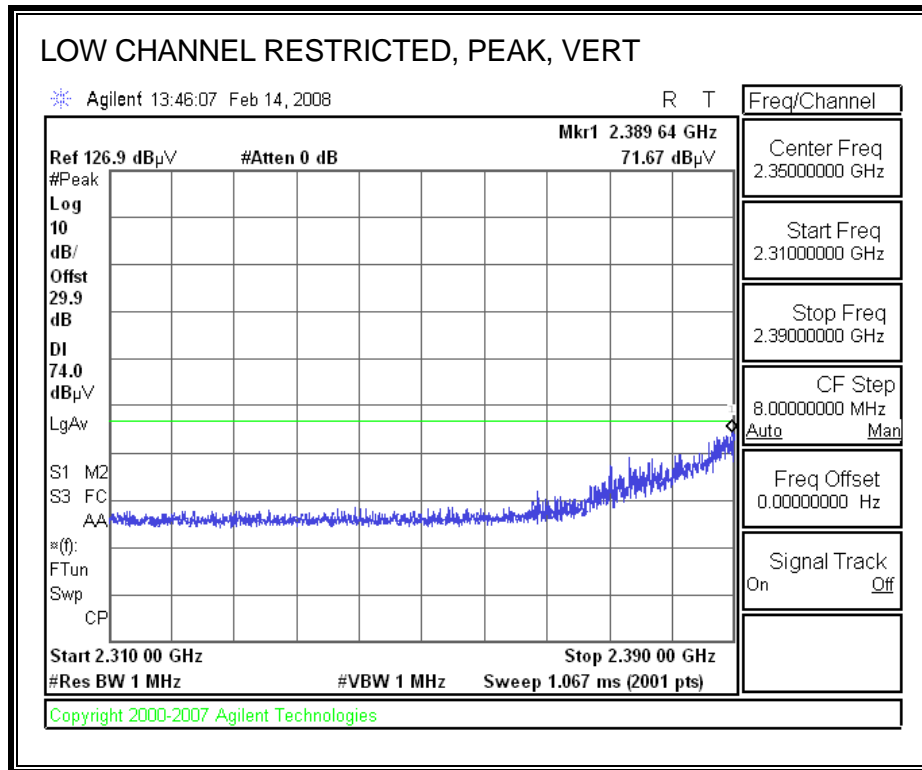
FEM #2

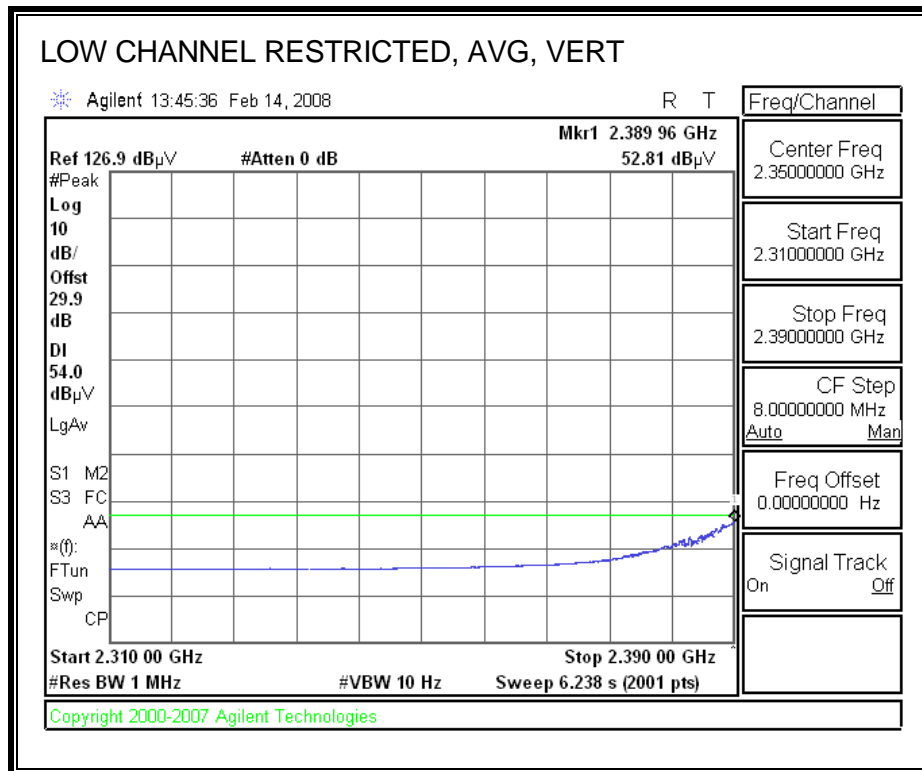
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



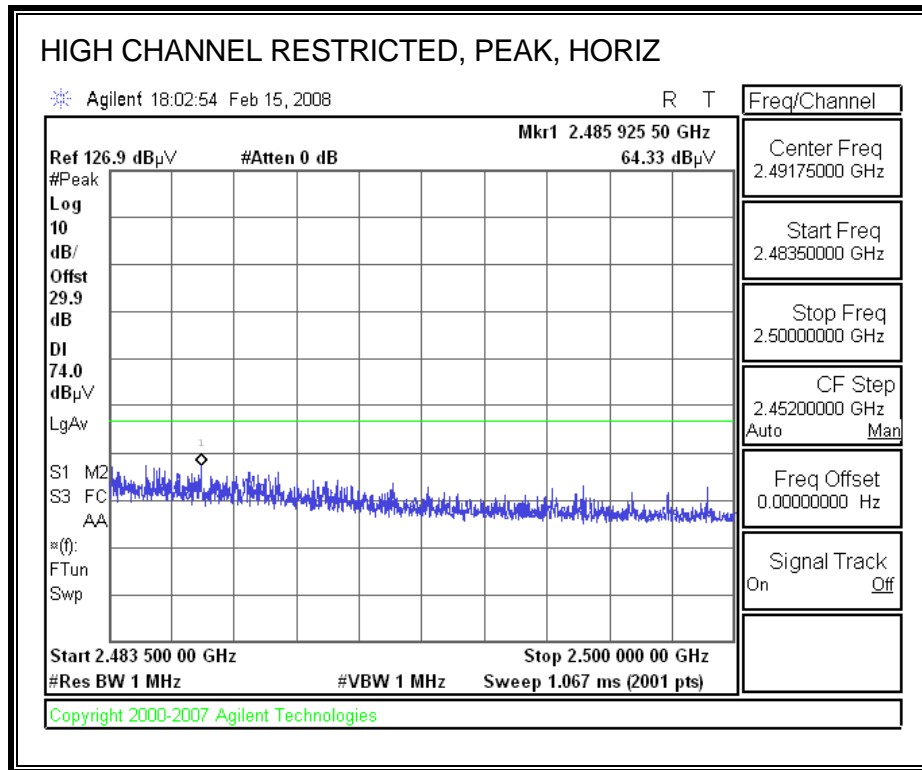


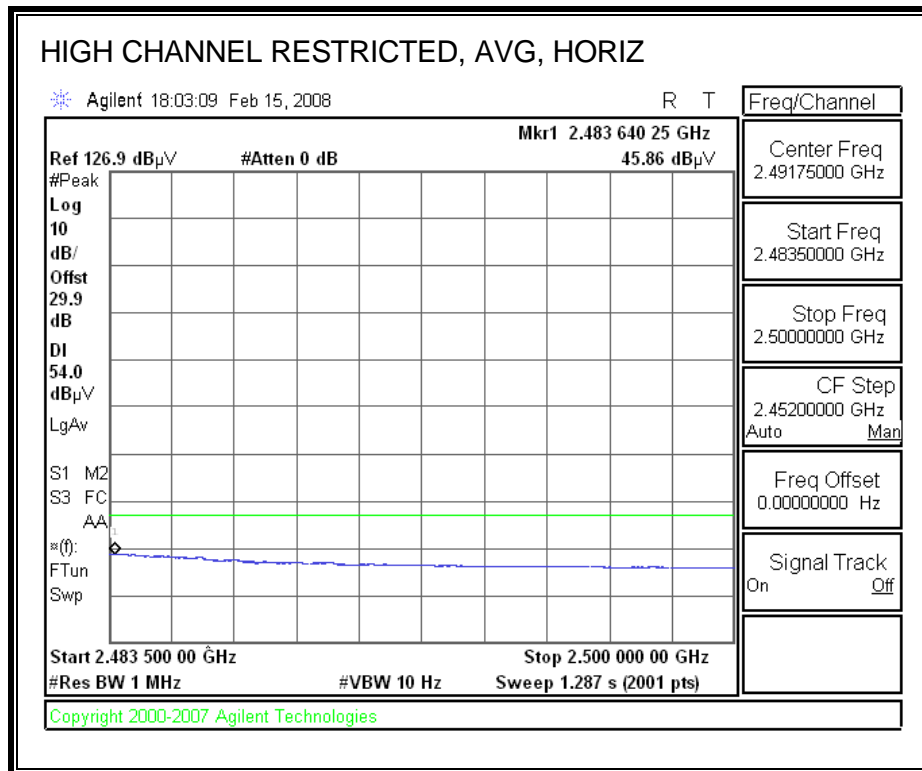
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



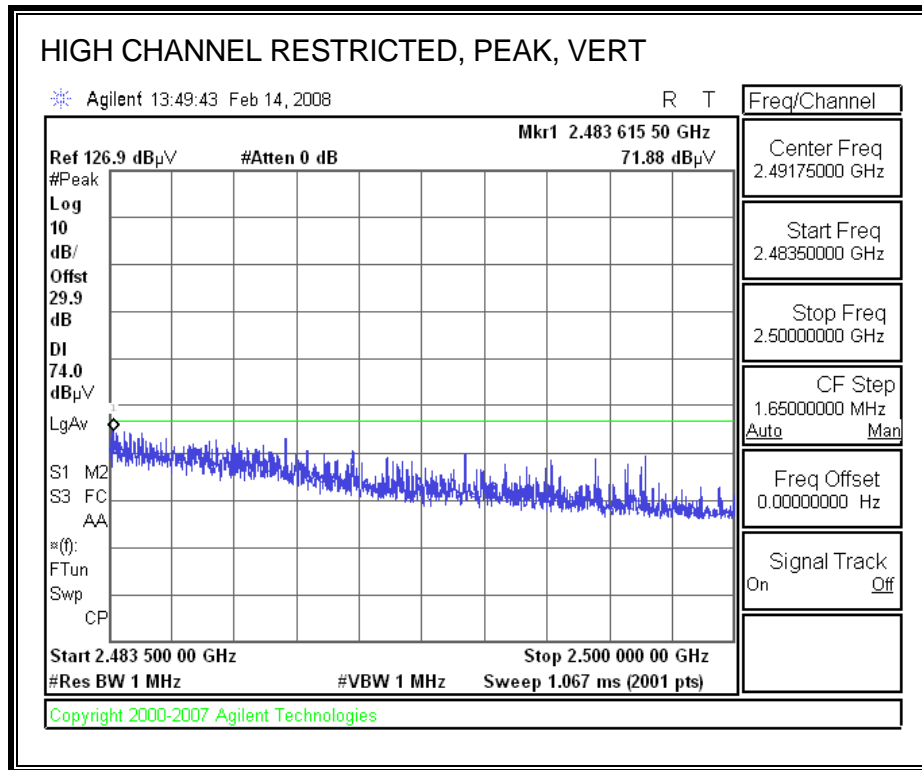


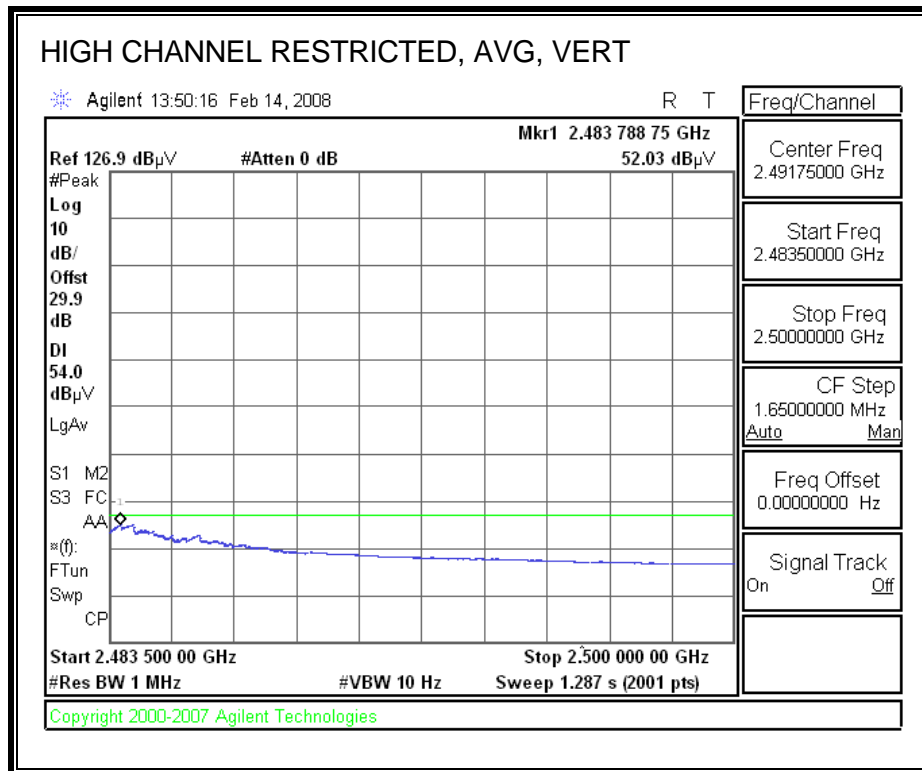
RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company: Atheros Project #: 08U11572 Date: 2/25/2008 Test Engineer: Chin Pang Configuration: HT20 mode Tx Mode: XB92-040-S0660															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T34 HP 8449B						FCC 15.209							
HI Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz; VBW=10Hz					
				A-5m Chamber				R_001							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fctr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch (2412MHz)															
3.216	3.0	46.5	39.8	30.5	5.5	-35.7	0.0	0.0	46.8	40.1	74	54	-27.2	-13.9	V
4.824	3.0	45.1	32.8	33.3	6.9	-34.8	0.0	0.0	50.5	38.2	74	54	-23.5	-15.8	V
7.326	3.0	44.6	31.0	35.0	8.4	-34.1	0.0	0.0	53.9	40.3	74	54	-20.1	-13.7	V
3.216	3.0	46.7	41.4	30.5	5.5	-35.7	0.0	0.0	47.0	41.7	74	54	-27.0	-12.3	H
4.824	3.0	42.9	30.2	33.3	6.9	-34.8	0.0	0.0	48.2	35.6	74	54	-25.8	-18.4	H
7.326	3.0	42.0	28.7	35.0	8.4	-34.1	0.0	0.0	51.3	38.0	74	54	-22.7	-16.0	H
Mid Ch (2437MHz)															
3.249	3.0	38.2	35.4	30.6	5.5	-35.7	0.0	0.0	38.7	35.9	74	54	-35.3	-18.1	V
4.874	3.0	46.3	34.0	33.4	6.9	-34.8	0.0	0.0	51.8	39.5	74	54	-22.2	-14.5	V
7.311	3.0	48.2	34.9	35.0	8.4	-34.1	0.0	0.0	57.5	44.2	74	54	-16.5	-9.8	V
3.249	3.0	46.8	41.2	30.6	5.5	-35.7	0.0	0.0	47.3	41.7	74	54	-26.7	-12.3	H
4.874	3.0	45.5	33.3	33.4	6.9	-34.8	0.0	0.0	51.0	38.8	74	54	-23.0	-15.2	H
7.311	3.0	44.9	32.2	35.0	8.4	-34.1	0.0	0.0	54.2	41.4	74	54	-19.8	-12.6	H
High Ch (2462MHz)															
3.283	3.0	47.8	43.8	30.7	5.6	-35.6	0.0	0.0	48.4	44.4	74	54	-25.6	-9.6	V
4.924	3.0	50.2	37.0	33.4	7.0	-34.8	0.0	0.0	55.8	42.6	74	54	-18.2	-11.4	V
7.386	3.0	49.2	33.9	35.0	8.4	-34.1	0.0	0.0	58.6	43.3	74	54	-15.4	-10.7	V
3.283	3.0	45.5	40.5	30.7	5.6	-35.6	0.0	0.0	46.1	41.1	74	54	-27.9	-12.9	H
4.924	3.0	47.6	33.4	33.4	7.0	-34.8	0.0	0.0	53.2	39.0	74	54	-20.8	-15.0	H
7.386	3.0	48.4	35.0	35.0	8.4	-34.1	0.0	0.0	57.8	44.4	74	54	-16.2	-9.6	H
Rev. 4.127															
Note: No other emissions were detected above the system noise floor.															
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss			HPF	High Pass Filter										

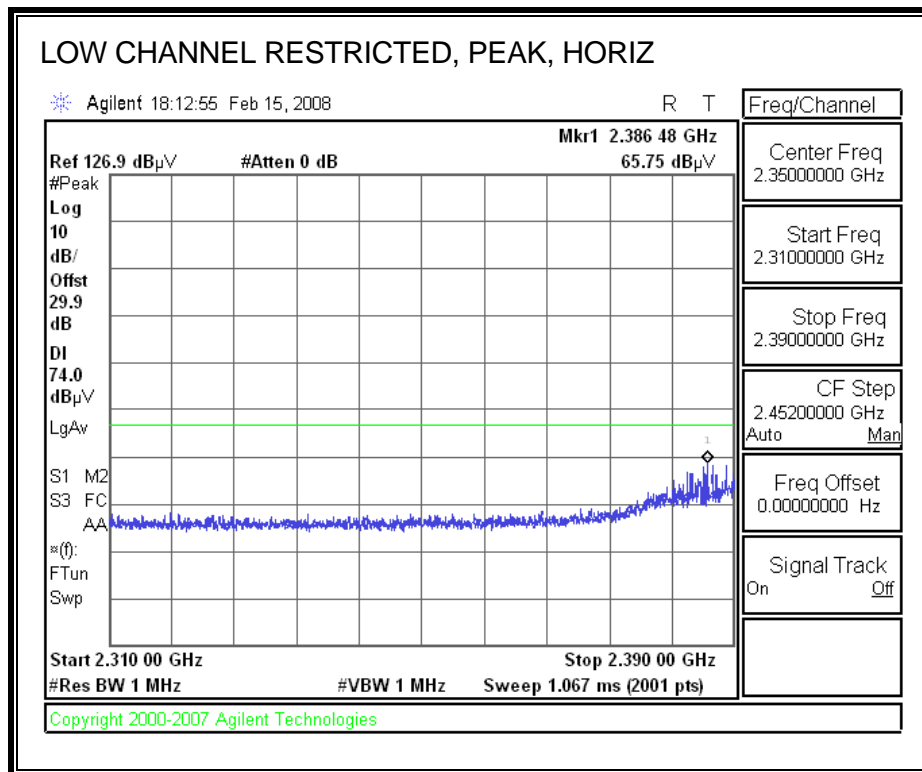
HARMONICS AND SPURIOUS EMISSIONS

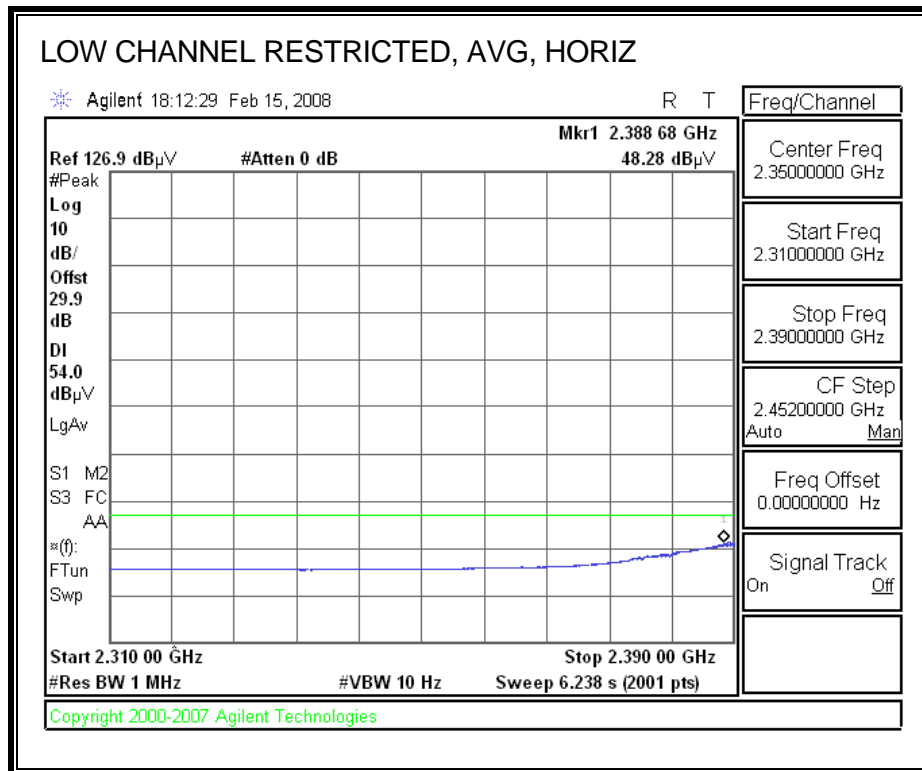
High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company: Atheros Project #: 08U11571 Date: 2/14/2008 Test Engineer: Devin Chang Configuration: HT 20 Tx Mode: XB92-040-S0580															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T34 HP 8449B						FCC 15.205							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz, VBW=10Hz					
				A-5m Chamber				R_001							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low band (2412MHz)															
4.824	3.0	43.5	29.8	33.3	6.9	-34.8	0.0	0.0	48.9	35.1	74	54	-25.1	-18.9	V
7.326	3.0	41.4	26.3	35.0	8.4	-34.1	0.0	0.0	50.7	35.7	74	54	-23.3	-18.3	V
4.824	3.0	42.2	29.8	33.3	6.9	-34.8	0.0	0.0	47.6	35.2	74	54	-26.4	-18.8	H
7.326	3.0	38.4	25.5	35.0	8.4	-34.1	0.0	0.0	47.7	34.8	74	54	-26.3	-19.2	H
Mid band (2437MHz)															
4.874	3.0	48.3	35.0	33.4	6.9	-34.8	0.0	0.0	53.8	40.5	74	54	-20.2	-13.5	V
7.311	3.0	47.0	31.4	35.0	8.4	-34.1	0.0	0.0	56.3	40.7	74	54	-17.7	-13.3	V
4.874	3.0	44.8	31.6	33.4	6.9	-34.8	0.0	0.0	50.3	37.0	74	54	-23.7	-17.0	H
7.311	3.0	42.8	29.5	35.0	8.4	-34.1	0.0	0.0	52.1	38.8	74	54	-21.9	-15.2	H
High band (2462MHz)															
4.924	3.0	44.1	30.1	33.4	7.0	-34.8	0.0	0.0	49.7	35.7	74	54	-24.3	-18.3	V
7.386	3.0	42.1	26.5	35.0	8.4	-34.1	0.0	0.0	51.5	35.9	74	54	-22.5	-18.1	V
4.924	3.0	42.7	30.2	33.4	7.0	-34.8	0.0	0.0	48.3	35.8	74	54	-25.7	-18.2	H
7.386	3.0	38.8	26.0	35.0	8.4	-34.1	0.0	0.0	48.2	35.4	74	54	-25.8	-18.6	H
Rev. 4.12.7															
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit		
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit		
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit		
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit		
CL	Cable Loss					HPF	High Pass Filter								

8.2.4. TRANSMITTER ABOVE 1 GHz FOR 802.11n HT40 MODE IN THE 2.4 GHz BAND

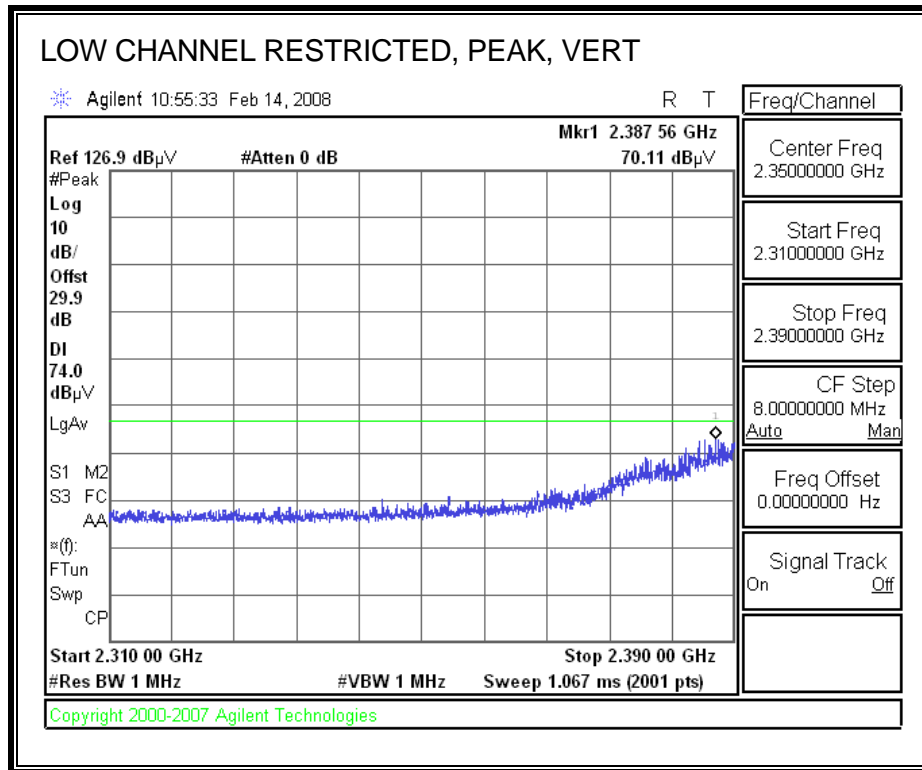
FEM #1

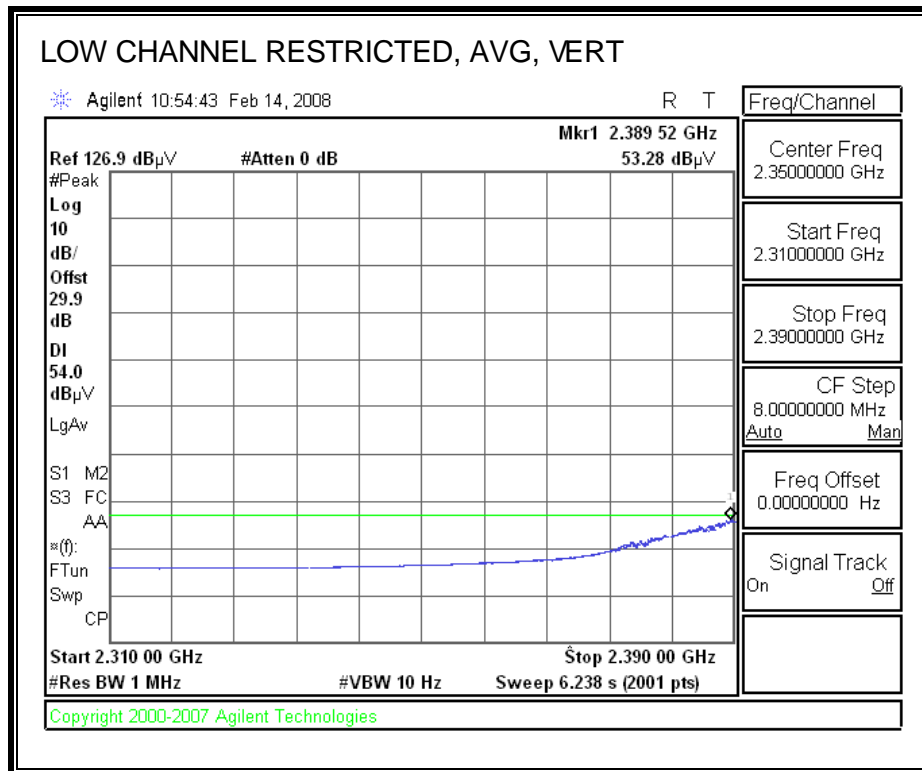
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



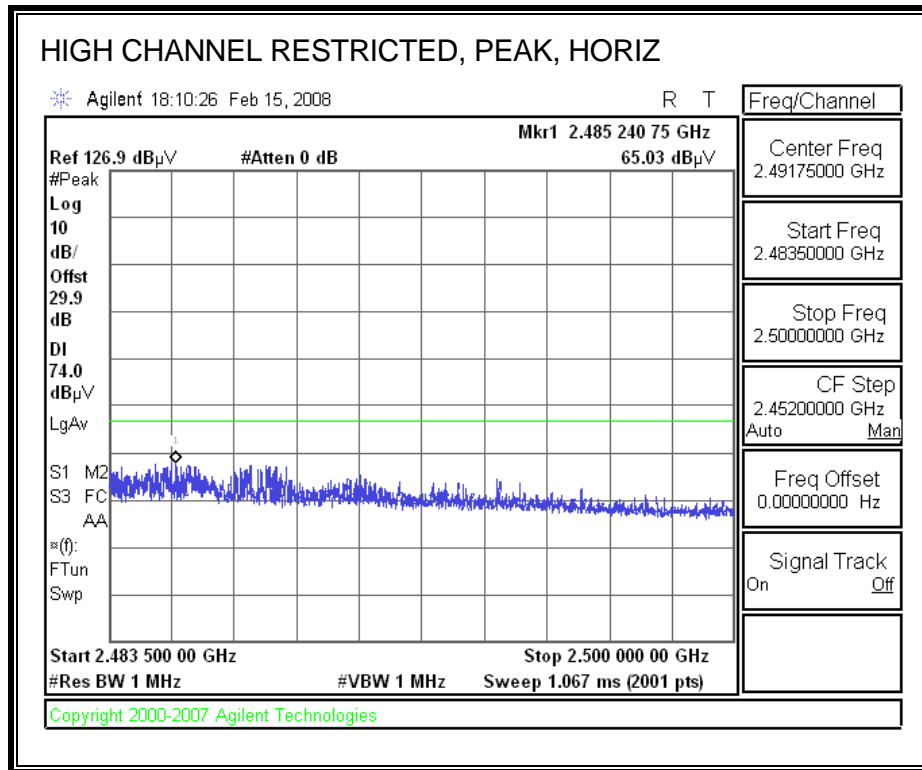


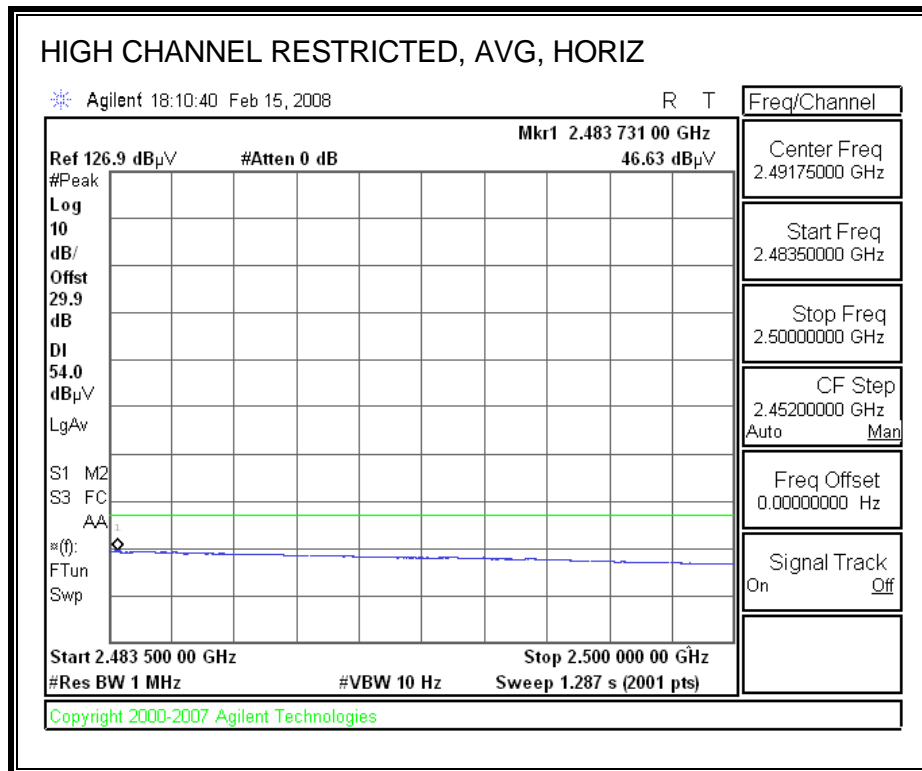
RESTRICTED BANEDGE (LOW CHANNEL, VERTICAL)



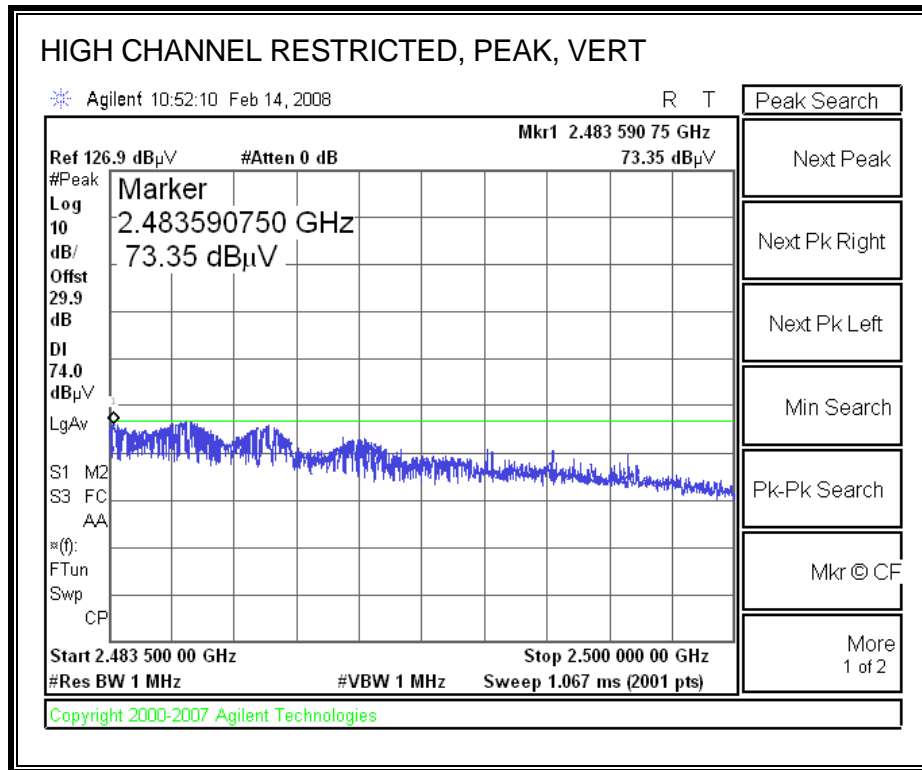


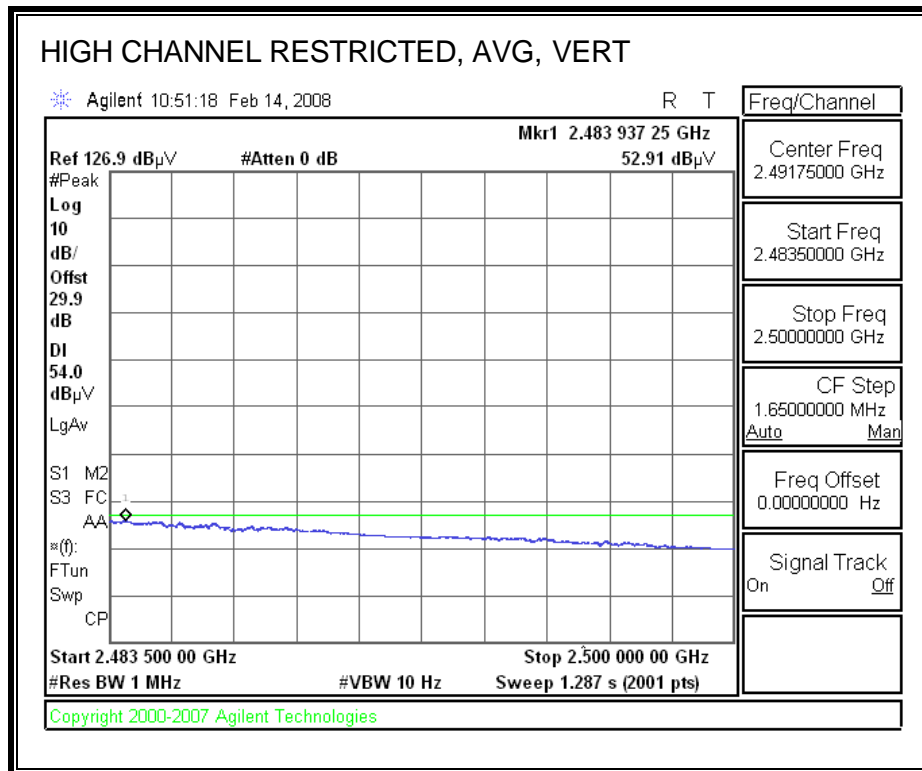
RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)





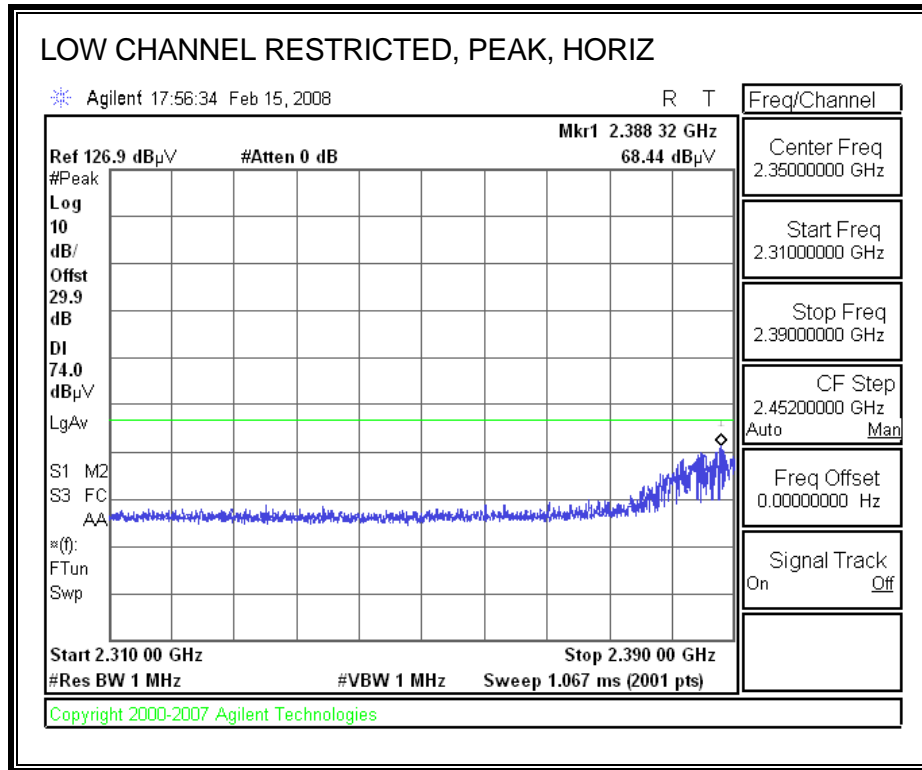
RESTRICTED BANDEGE (HIGH CHANNEL, VERTICAL)

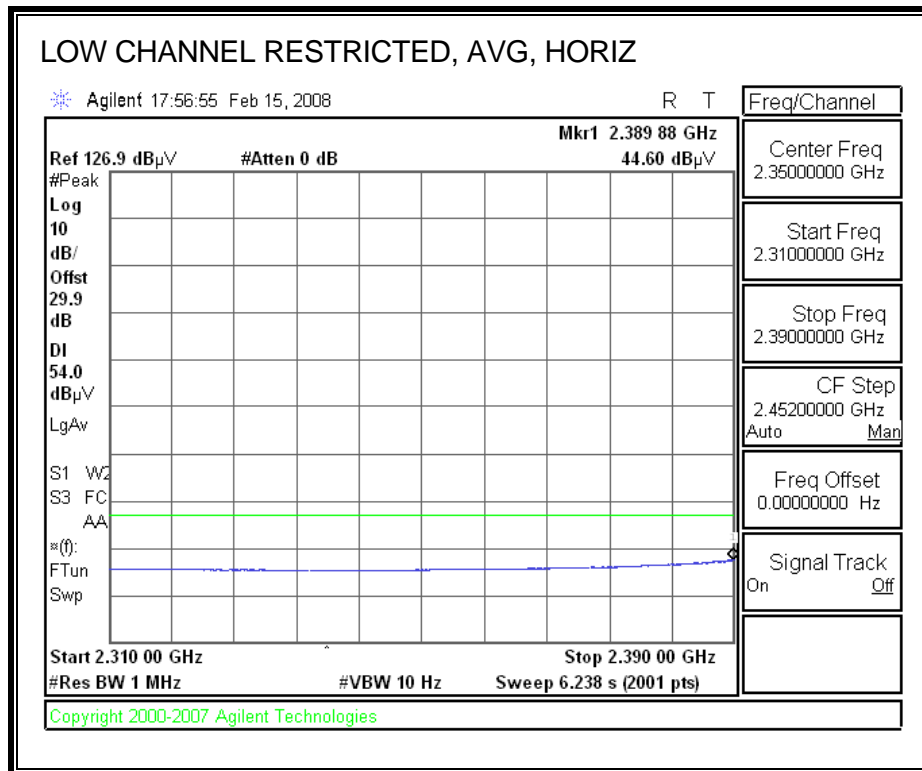




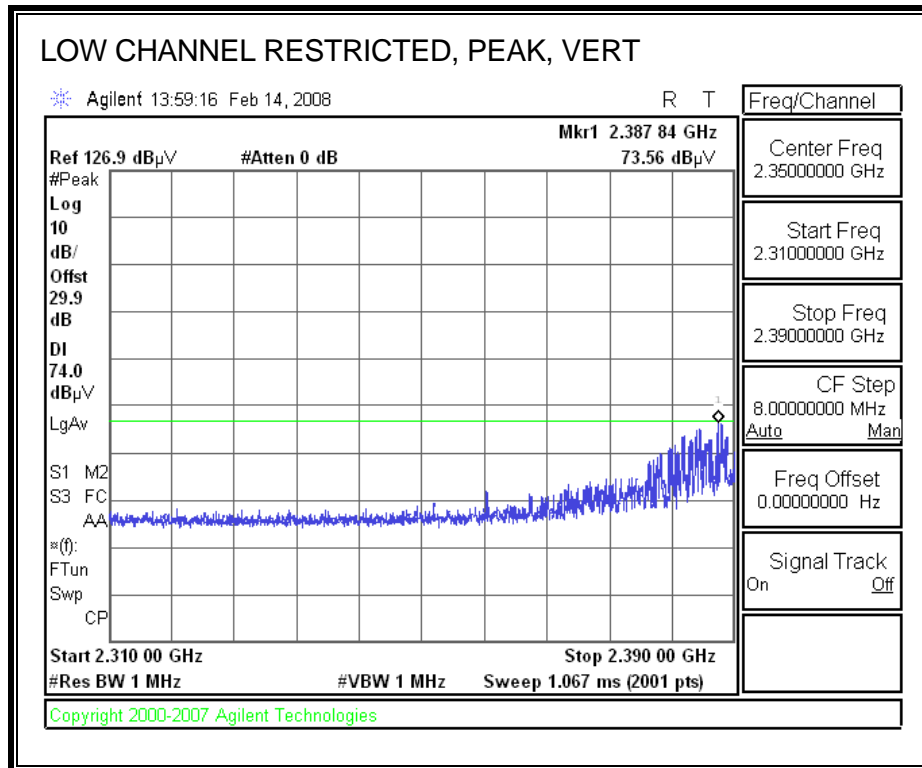
FEM #2

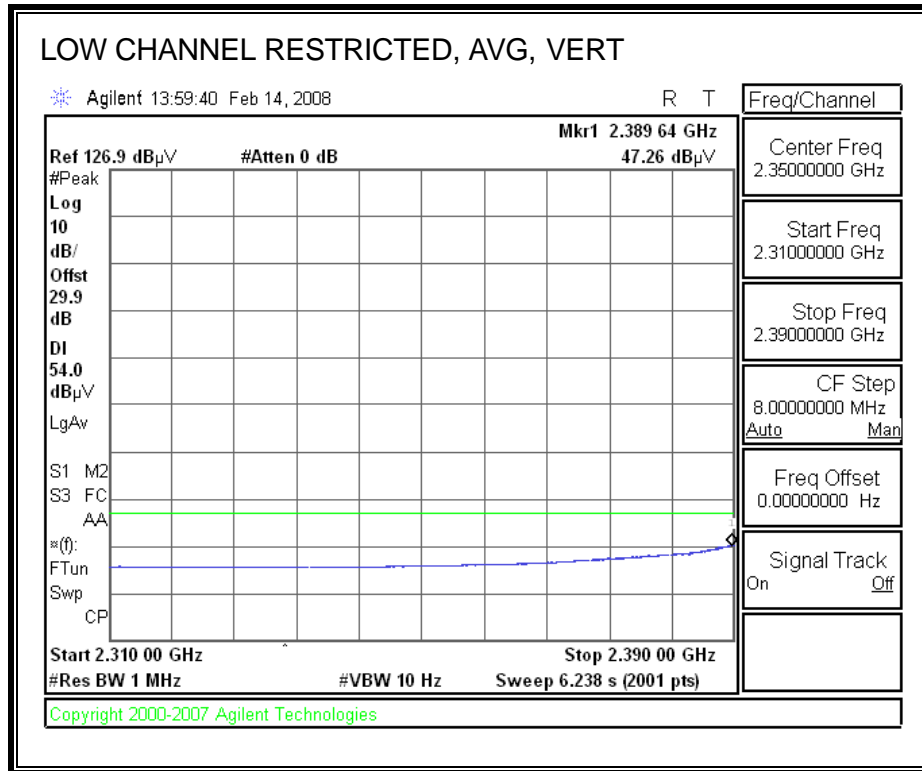
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



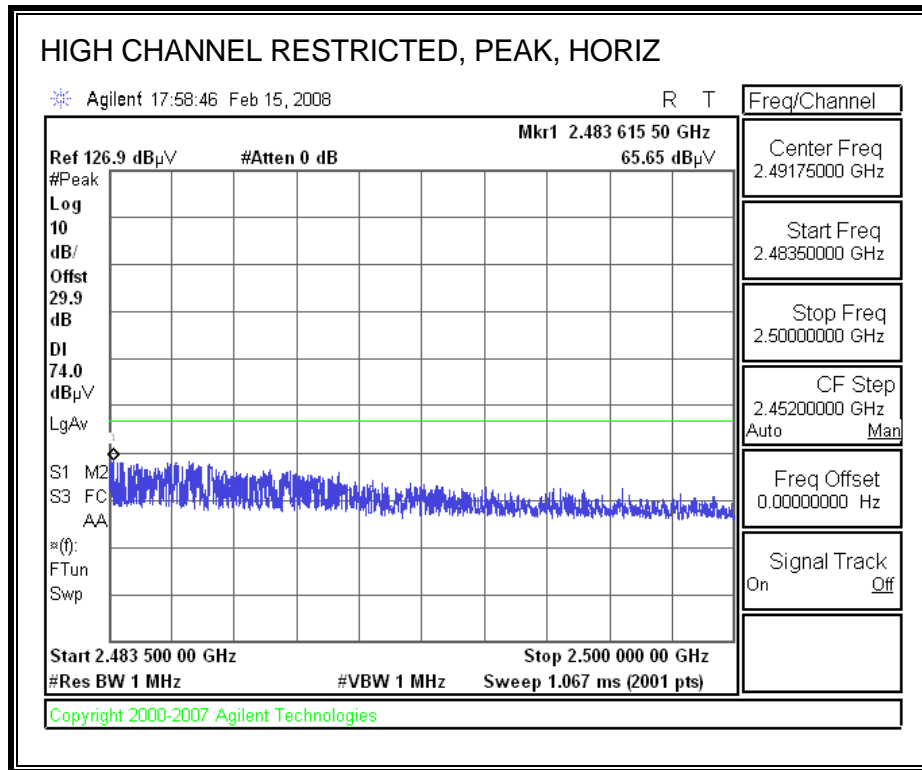


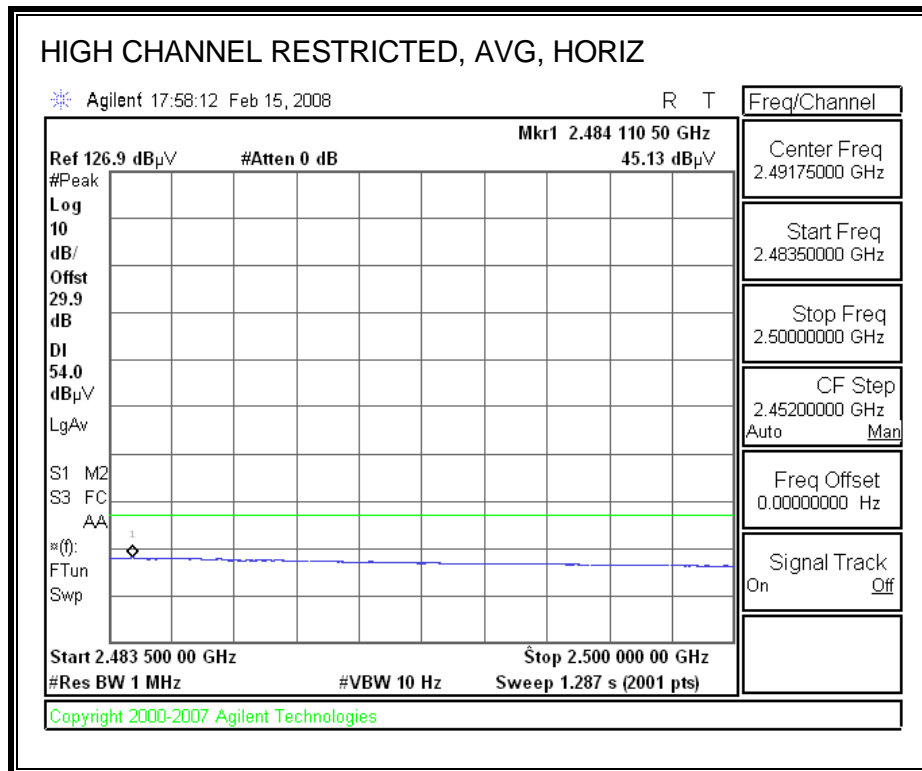
RESTRICTED BANDEGE (LOW CHANNEL, VERTICAL)



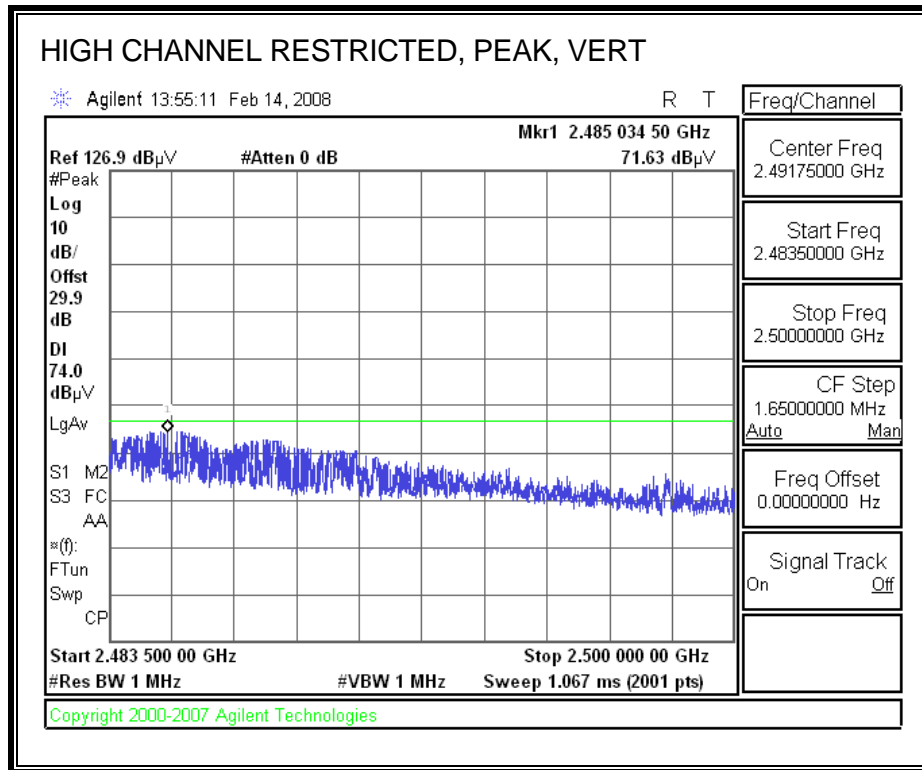


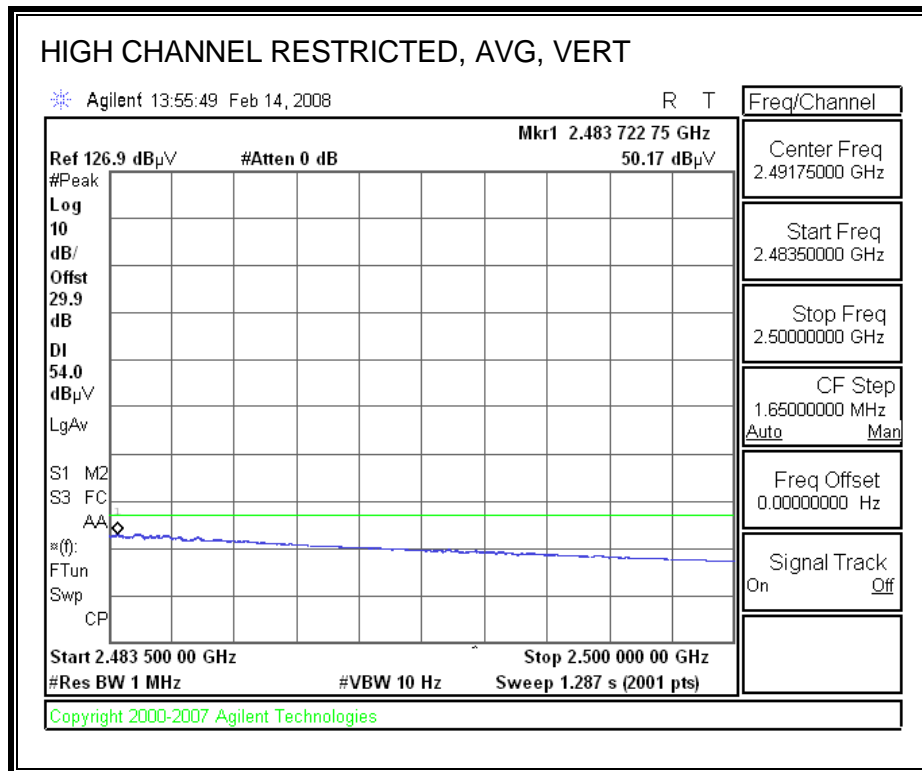
RESTRICTED BANEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company: Atheros Project #: 08U11571 Date: 2/25/2008 Test Engineer: Chin Pang Configuration: HT40 mode Tx Mode: XB92-040-S0660															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T34 HP 8449B						FCC 15.209							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz; VBW=10Hz					
				A-5m Chamber				R_001							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch (2422MHz)															
3.229	3.0	52.0	49.1	30.6	5.5	-35.7	0.0	0.0	52.4	49.5	74	54	-21.6	-4.5	V
4.844	3.0	44.1	31.4	33.3	6.9	-34.8	0.0	0.0	49.5	36.8	74	54	-24.5	-17.2	V
7.266	3.0	43.5	30.5	35.0	8.4	-34.1	0.0	0.0	52.7	39.7	74	54	-21.3	-14.3	V
3.229	3.0	49.8	47.0	30.6	5.5	-35.7	0.0	0.0	50.2	47.4	74	54	-23.8	-6.6	H
4.844	3.0	44.0	30.6	33.3	6.9	-34.8	0.0	0.0	49.4	36.0	74	54	-24.6	-18.0	H
7.266	3.0	43.0	30.3	35.0	8.4	-34.1	0.0	0.0	52.2	39.5	74	54	-21.8	-14.5	H
Mid Ch (2437MHz)															
3.249	3.0	51.0	48.0	30.6	5.5	-35.7	0.0	0.0	51.5	48.5	74	54	-22.5	-5.5	V
4.874	3.0	44.1	33.0	33.4	6.9	-34.8	0.0	0.0	49.6	38.5	74	54	-24.4	-15.5	V
7.311	3.0	44.0	31.0	35.0	8.4	-34.1	0.0	0.0	53.3	40.3	74	54	-20.7	-13.7	V
3.249	3.0	50.1	47.6	30.6	5.5	-35.7	0.0	0.0	50.6	48.1	74	54	-23.4	-5.9	H
4.874	3.0	42.0	30.1	33.4	6.9	-34.8	0.0	0.0	47.5	35.6	74	54	-26.5	-18.4	H
7.311	3.0	43.6	30.7	35.0	8.4	-34.1	0.0	0.0	52.9	40.0	74	54	-21.1	-14.0	H
High Ch (2452MHz)															
3.269	3.0	50.0	47.4	30.7	5.6	-35.6	0.0	0.0	50.6	48.0	74	54	-23.4	-6.0	V
4.904	3.0	48.0	33.5	33.4	7.0	-34.8	0.0	0.0	53.5	39.0	74	54	-20.5	-15.0	V
7.356	3.0	46.5	32.9	35.0	8.4	-34.1	0.0	0.0	55.9	42.3	74	54	-18.1	-11.7	V
3.269	3.0	49.8	47.0	30.7	5.6	-35.6	0.0	0.0	50.4	47.6	74	54	-23.6	-6.4	H
4.904	3.0	46.8	33.0	33.4	7.0	-34.8	0.0	0.0	52.3	38.5	74	54	-21.7	-15.5	H
7.356	3.0	46.2	32.0	35.0	8.4	-34.1	0.0	0.0	55.6	41.4	74	54	-18.4	-12.6	H
Rev. 4.12.7															
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss			HPF	High Pass Filter										

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company: Atheros Project #: 08U11571 Date: 2/14/2008 Test Engineer: Devin Chang Configuration: HT 40 Tx Mode: XB92-040-S0580															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T34 HP 8449B						FCC 15.205							
<div style="display: flex; justify-content: space-between;"> <div> <div>Hi Frequency Cables</div> <div> <div>2 foot cable</div> <div>3 foot cable</div> <div>12 foot cable</div> </div> </div> <div> <div>HPF</div> <div>Reject Filter</div> </div> <div> <div>Peak Measurements RBW=VBW=1MHz</div> <div>Average Measurements RBW=1MHz; VBW=10Hz</div> </div> </div>															
<div style="display: flex; justify-content: space-between;"> <div>A-5m Chamber</div> <div></div> <div>R_001</div> </div>															
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low band (2422MHz)															
4.844	3.0	41.2	30.2	33.3	6.9	-34.8	0.0	0.0	46.6	35.6	74	54	-27.4	-18.4	V
7.266	3.0	40.9	27.9	35.0	8.4	-34.1	0.0	0.0	50.1	37.1	74	54	-23.9	-16.9	V
4.844	3.0	39.9	26.5	33.3	6.9	-34.8	0.0	0.0	45.3	31.9	74	54	-28.7	-22.1	H
7.266	3.0	40.2	26.7	35.0	8.4	-34.1	0.0	0.0	49.4	35.9	74	54	-24.6	-18.1	H
Mid band (2437MHz)															
4.874	3.0	43.4	31.4	33.4	6.9	-34.8	0.0	0.0	48.9	36.9	74	54	-25.1	-17.1	V
7.311	3.0	44.7	29.3	35.0	8.4	-34.1	0.0	0.0	54.0	38.6	74	54	-20.0	-15.4	V
4.874	3.0	41.5	27.7	33.4	6.9	-34.8	0.0	0.0	47.0	33.1	74	54	-27.0	-20.9	H
7.311	3.0	42.0	27.8	35.0	8.4	-34.1	0.0	0.0	51.3	37.1	74	54	-22.7	-16.9	H
High band (2452MHz)															
4.904	3.0	41.6	30.8	33.4	7.0	-34.8	0.0	0.0	47.1	36.3	74	54	-26.9	-17.7	V
7.356	3.0	41.6	28.7	35.0	8.4	-34.1	0.0	0.0	51.0	38.1	74	54	-23.0	-15.9	V
4.904	3.0	40.5	26.8	33.4	7.0	-34.8	0.0	0.0	46.0	32.3	74	54	-28.0	-21.7	H
7.356	3.0	40.9	27.0	35.0	8.4	-34.1	0.0	0.0	50.2	36.4	74	54	-23.8	-17.6	H
Rev. 4.12.7															
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss			HPF	High Pass Filter										

8.2.5. TRANSMITTER ABOVE 1 GHz FOR 802.11a MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company: Atheros															
Project #: 08U11572															
Date: 2/19/2008															
Test Engineer: Thanh Nguyen															
Configuration: EUT w/Extender card, Support Laptop															
Mode: Tx a mode, Upper band.															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T34 HP 8449B		T88 Miteq 26-40GHz		T39-T88 ARA 18-40GHz & Mixer > 40GHz		FCC 15.205							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz					
				A-5m Chamber				R_001							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
5745MHz															
11.490	1.0	48.1	32.6	37.5	11.6	-32.5	-9.5	0.0	55.1	39.6	74	54	-18.9	-14.4	V
11.490	1.0	45.7	32.1	37.5	11.6	-32.5	-9.5	0.0	52.7	39.1	74	54	-21.3	-14.9	H
5785MHz															
11.570	1.0	44.0	31.2	37.5	11.7	-32.5	-9.5	0.0	51.2	38.3	74	54	-22.8	-15.7	V
11.570	1.0	44.0	30.9	37.5	11.7	-32.5	-9.5	0.0	51.2	38.0	74	54	-22.8	-16.0	H
5825MHz															
11.650	1.0	52.2	36.3	37.5	11.8	-32.5	-9.5	0.0	59.4	43.5	74	54	-14.6	-10.5	V
11.650	1.0	46.5	33.7	37.5	11.8	-32.5	-9.5	0.0	53.8	41.0	74	54	-20.2	-13.0	H
Rev. 4.12.7															
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss			HPF	High Pass Filter										

8.2.6. TRANSMITTER ABOVE 1 GHz FOR 802.11n HT20 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber																
Company: Atheros Project #: 08U11572 Date: 2/22/2008 Test Engineer: Devin Chang Configuration: EUT, Extender, Support Laptop. Mode: Tx HT20 mode(SiGe FEM)																
Test Equipment:																
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit								
T73; S/N: 6717 @3m		T34 HP 8449B		T88 Miteq 26-40GHz		T39-T88 ARA 18-40GHz & Mixer > 40GHz		FCC 15.209								
Hi Frequency Cables																
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz						
				A-5m Chamber				R_001								
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
5745MHz																
11.490	1.0	49.5	33.4	37.5	11.6	-32.5	-9.5	0.0	56.5	40.4	74	54	-17.5	-13.6	V	
11.490	1.0	48.3	32.7	37.5	11.6	-32.5	-9.5	0.0	55.3	39.7	74	54	-18.7	-14.3	H	
5785MHz																
11.570	1.0	46.7	30.8	37.5	11.7	-32.5	-9.5	0.0	53.8	37.9	74	54	-20.2	-16.1	V	
11.570	1.0	44.0	30.1	37.5	11.7	-32.5	-9.5	0.0	51.2	37.3	74	54	-22.8	-16.7	H	
5825MHz																
11.650	1.0	48.4	33.8	37.5	11.8	-32.5	-9.5	0.0	55.7	41.1	74	54	-18.3	-12.9	V	
11.650	1.0	46.7	33.4	37.5	11.8	-32.5	-9.5	0.0	53.9	40.6	74	54	-20.1	-13.4	H	
Rev. 4.12.7																
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim	Average Field Strength Limit									
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim	Peak Field Strength Limit									
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar	Margin vs. Average Limit									
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar	Margin vs. Peak Limit									
CL	Cable Loss		HPF	High Pass Filter												

8.2.7. TRANSMITTER ABOVE 1 GHz FOR 802.11n HT40 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																													
Compliance Certification Services, Fremont 5m Chamber																													
Company: Atheros Project #: 08U11572 Date: 2/22/2008 Test Engineer: Devin Chang Configuration: EUT, Extender, Support Laptop. Mode: Tx HT40 mode(SiGe FEM)																													
Test Equipment:																													
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit																					
T73; S/N: 6717 @3m		T34 HP 8449B		T88 Miteq 26-40GHz		T39-T88 ARA 18-40GHz & Mixer > 40GHz		FCC 15.209																					
Hi Frequency Cables <table style="width: 100%;"> <tr> <td>2 foot cable</td> <td>3 foot cable</td> <td>12 foot cable</td> <td>HPF</td> <td>Reject Filter</td> <td colspan="2"> Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz </td> </tr> <tr> <td></td> <td></td> <td>A-5m Chamber</td> <td></td> <td>R_001</td> <td colspan="2"></td> </tr> </table>																2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz				A-5m Chamber		R_001		
2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz																								
		A-5m Chamber		R_001																									
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)														
Low channel (5755MHz)																													
11.510	1.0	43.9	29.6	37.5	11.6	-32.5	-9.5	0.0	50.9	36.6	74	54	-23.1	-17.4	V														
11.510	1.0	41.9	28.0	37.5	11.6	-32.5	-9.5	0.0	48.9	35.0	74	54	-25.1	-19.0	H														
High Channel (5795MHz)																													
11.590	1.0	42.4	29.5	37.5	11.7	-32.5	-9.5	0.0	49.5	36.7	74	54	-24.5	-17.3	V														
11.590	1.0	42.6	29.1	37.5	11.7	-32.5	-9.5	0.0	49.7	36.2	74	54	-24.3	-17.8	H														
Rev. 4.12.7																													
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim	Average Field Strength Limit																						
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim	Peak Field Strength Limit																						
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar	Margin vs. Average Limit																						
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar	Margin vs. Peak Limit																						
CL	Cable Loss		HPF	High Pass Filter																									

8.3. RECEIVER ABOVE 1 GHz

8.3.1. RECEIVER ABOVE 1 GHz FOR 20 MHz BANDWIDTH IN THE 2.4 GHz BAND

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber																
Company: Atheros Project #: 08U11572 Date: 2/14/2008 Test Engineer: Devin Chang Configuration: HT 20 Tx Mode: XB92-040-S0580																
Test Equipment:																
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit								
T73; S/N: 6717 @3m		T34 HP 8449B						FCC 15.209								
Hi Frequency Cables																
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz						
				A-5m Chamber												
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
Low band																
1.500	3.0	51.0	40.8	25.6	3.7	-37.6	0.0	0.0	42.7	32.5	74	54	-31.3	-21.5	V	
1.596	3.0	60.7	44.4	26.0	3.8	-37.4	0.0	0.0	53.0	36.7	74	54	-21.0	-17.3	V	
1.500	3.0	47.8	39.4	25.6	3.7	-37.6	0.0	0.0	39.5	31.1	74	54	-34.5	-22.9	H	
1.596	3.0	56.0	40.2	26.0	3.8	-37.4	0.0	0.0	48.3	32.5	74	54	-25.7	-21.5	H	
Mid band																
1.500	3.0	49.5	41.6	25.6	3.7	-37.6	0.0	0.0	41.2	33.3	74	54	-32.8	-20.7	V	
1.596	3.0	60.9	44.3	26.0	3.8	-37.4	0.0	0.0	53.2	36.6	74	54	-20.8	-17.4	V	
1.500	3.0	49.6	39.4	25.6	3.7	-37.6	0.0	0.0	41.3	31.1	74	54	-32.7	-22.9	H	
1.596	3.0	55.9	40.5	26.0	3.8	-37.4	0.0	0.0	48.2	32.8	74	54	-25.8	-21.2	H	
High band																
1.500	3.0	49.6	41.3	25.6	3.7	-37.6	0.0	0.0	41.3	33.0	74	54	-32.7	-21.0	V	
1.596	3.0	60.7	44.3	26.0	3.8	-37.4	0.0	0.0	53.0	36.6	74	54	-21.0	-17.4	V	
1.500	3.0	49.2	39.1	25.6	3.7	-37.6	0.0	0.0	40.9	30.8	74	54	-33.1	-23.2	H	
1.596	3.0	55.7	40.2	26.0	3.8	-37.4	0.0	0.0	48.0	32.5	74	54	-26.0	-21.5	H	
Rev. 4.12.7																
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit							
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit							
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit							
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit							
CL	Cable Loss			HPF	High Pass Filter											

8.3.2. RECEIVER ABOVE 1 GHz FOR 40 MHz BANDWIDTH IN THE 2.4 GHz BAND

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber Company: Atheros Project #: 08U11572 Date: 2/14/2008 Test Engineer: Devin Chang Configuration: Rx 40MHz BW Mode: XB92-040-S0580																														
Test Equipment:																														
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit																						
T73; S/N: 6717 @3m		T34 HP 8449B						FCC 15.109																						
Hi Frequency Cables <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; background-color: #e0f0ff; width: 25%;">2 foot cable</td> <td style="text-align: center; background-color: #e0f0ff; width: 25%;">3 foot cable</td> <td style="text-align: center; background-color: #e0f0ff; width: 25%;">12 foot cable</td> <td style="text-align: center; background-color: #e0f0ff; width: 25%;">HPF</td> <td style="text-align: center; background-color: #e0f0ff; width: 25%;">Reject Filter</td> <td style="padding-left: 10px;"> Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz </td> </tr> <tr> <td></td> <td></td> <td>A-5m Chamber</td> <td></td> <td></td> <td></td> </tr> </table>																2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz			A-5m Chamber						
2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz																									
		A-5m Chamber																												
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)															
Low band																														
1.500	3.0	50.3	41.4	25.6	3.7	-37.6	0.0	0.0	42.0	33.1	74	54	-32.0	-20.9	V															
1.596	3.0	60.9	44.6	26.0	3.8	-37.4	0.0	0.0	53.2	36.9	74	54	-20.8	-17.1	V															
1.500	3.0	48.4	39.3	25.6	3.7	-37.6	0.0	0.0	40.1	31.0	74	54	-33.9	-23.0	H															
1.596	3.0	55.2	39.7	26.0	3.8	-37.4	0.0	0.0	47.5	32.0	74	54	-26.5	-22.0	H															
Mid band																														
1.500	3.0	51.3	41.7	25.6	3.7	-37.6	0.0	0.0	43.0	33.4	74	54	-31.0	-20.6	V															
1.596	3.0	61.1	44.6	26.0	3.8	-37.4	0.0	0.0	53.4	36.9	74	54	-20.6	-17.1	V															
1.500	3.0	49.0	39.6	25.6	3.7	-37.6	0.0	0.0	40.7	31.3	74	54	-33.3	-22.7	H															
1.596	3.0	55.8	40.7	26.0	3.8	-37.4	0.0	0.0	48.1	32.9	74	54	-25.9	-21.1	H															
High band																														
1.500	3.0	48.1	40.8	25.6	3.7	-37.6	0.0	0.0	39.8	32.5	74	54	-34.2	-21.5	V															
1.596	3.0	60.6	44.3	26.0	3.8	-37.4	0.0	0.0	52.9	36.6	74	54	-21.1	-17.4	V															
1.500	3.0	48.9	38.9	25.6	3.7	-37.6	0.0	0.0	40.6	30.6	74	54	-33.4	-23.4	H															
1.596	3.0	55.1	40.0	26.0	3.8	-37.4	0.0	0.0	47.4	32.3	74	54	-26.6	-21.7	H															
Rev. 4.12.7																														
<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">f Measurement Frequency</td> <td style="width: 33%;">Amp Preamp Gain</td> <td style="width: 33%;">Avg Lim Average Field Strength Limit</td> </tr> <tr> <td>Dist Distance to Antenna</td> <td>D Corr Distance Correct to 3 meters</td> <td>Pk Lim Peak Field Strength Limit</td> </tr> <tr> <td>Read Analyzer Reading</td> <td>Avg Average Field Strength @ 3 m</td> <td>Avg Mar Margin vs. Average Limit</td> </tr> <tr> <td>AF Antenna Factor</td> <td>Peak Calculated Peak Field Strength</td> <td>Pk Mar Margin vs. Peak Limit</td> </tr> <tr> <td>CL Cable Loss</td> <td>HPF High Pass Filter</td> <td></td> </tr> </table>																f Measurement Frequency	Amp Preamp Gain	Avg Lim Average Field Strength Limit	Dist Distance to Antenna	D Corr Distance Correct to 3 meters	Pk Lim Peak Field Strength Limit	Read Analyzer Reading	Avg Average Field Strength @ 3 m	Avg Mar Margin vs. Average Limit	AF Antenna Factor	Peak Calculated Peak Field Strength	Pk Mar Margin vs. Peak Limit	CL Cable Loss	HPF High Pass Filter	
f Measurement Frequency	Amp Preamp Gain	Avg Lim Average Field Strength Limit																												
Dist Distance to Antenna	D Corr Distance Correct to 3 meters	Pk Lim Peak Field Strength Limit																												
Read Analyzer Reading	Avg Average Field Strength @ 3 m	Avg Mar Margin vs. Average Limit																												
AF Antenna Factor	Peak Calculated Peak Field Strength	Pk Mar Margin vs. Peak Limit																												
CL Cable Loss	HPF High Pass Filter																													

8.3.3. RECEIVER ABOVE 1 GHz FOR 5.8 GHz BAND

High Frequency Measurement															
Compliance Certification Services, Fremont 5m Chamber															
Company: Atheros Project #: 08U11572 Date: 2/19/2008 Test Engineer: Thanh Nguyen Configuration: EUT, Extender, Support Laptop. Mode: Rx mode.															
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T34 HP 8449B						RX RSS 210							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz					
				A-5m Chamber				R_001							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
1.063	1.0	58.5	32.1	24.0	3.1	-38.2	-9.5	0.0	37.9	11.5	74	54	-36.1	-42.5	V
1.331	1.0	59.0	42.8	25.0	3.4	-37.8	-9.5	0.0	40.1	23.9	74	54	-33.9	-30.1	V
1.596	1.0	64.5	52.6	26.0	3.8	-37.4	-9.5	0.0	47.2	35.3	74	54	-26.8	-18.7	V
2.397	1.0	50.8	36.5	28.3	4.8	-36.3	-9.5	0.0	38.1	23.7	74	54	-35.9	-30.3	V
1.595	1.0	62.2	46.7	26.0	3.8	-37.4	-9.5	0.0	45.0	29.4	74	54	-29.0	-24.6	H
Rev. 4.12.7															
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss			HPF	High Pass Filter										

8.4. WORST-CASE BELOW 1 GHz

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

HORIZONTAL DATA

Condition: FCC CLASS-B HORIZONTAL
Test Operator: Chin Pang
Project # : 08U11571
Company : Atheros
Config : EUT/laptop/antenna
Mode : 2.4GHz Band, Tx (Worst Case)
Target : FCC Class B

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	258.920	54.67	-17.48	37.19	46.00	-8.81	Peak
2	365.620	52.50	-14.20	38.30	46.00	-7.70	Peak
3	450.010	49.17	-12.38	36.79	46.00	-9.21	Peak
4	566.410	44.00	-10.44	33.56	46.00	-12.44	Peak
5	765.260	43.50	-7.58	35.93	46.00	-10.08	Peak
6	899.120	44.58	-5.22	39.35	46.00	-6.65	Peak

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

VERTICAL DATA

Condition: FCC CLASS-B VERTICAL
Test Operator: Chin Pang
Project # : 08U11571
Company : Atheros
Config : EUT/laptop/antenna
Mode : 2.4GHz Band, Tx (Worst Case)
Target : FCC Class B

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	88.200	59.83	-22.98	36.85	43.50	-6.65	Peak
2	129.910	53.33	-16.57	36.77	43.50	-6.73	Peak
3	388.900	51.00	-13.67	37.33	46.00	-8.67	Peak
4	532.460	43.00	-10.85	32.15	46.00	-13.85	Peak
5	797.270	40.50	-7.09	33.41	46.00	-12.59	Peak
6	899.120	41.58	-5.22	36.35	46.00	-9.65	Peak

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

ANSI C63.4

RESULTS

6 WORST EMISSIONS

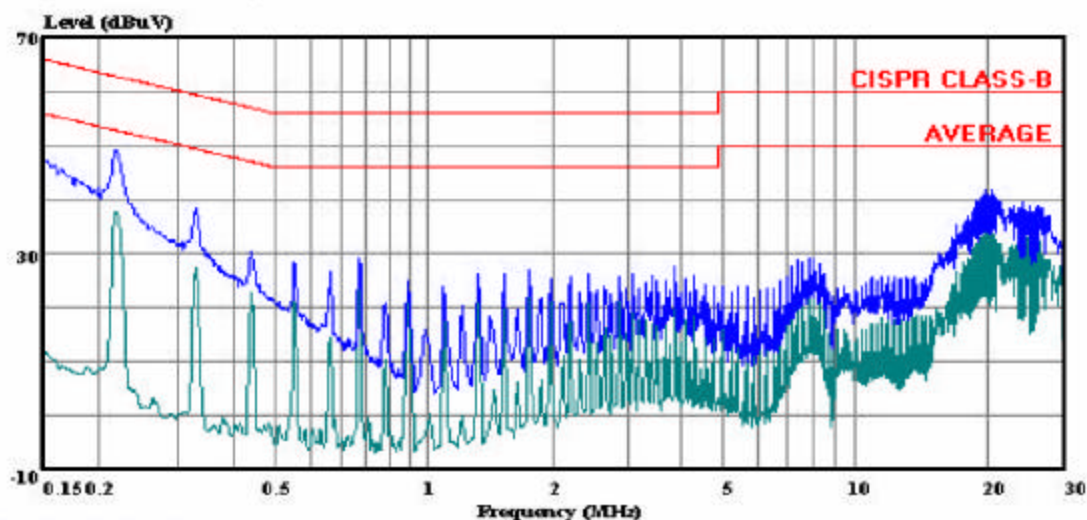
CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Class (dB)	Limit QP	EN B AV	Margin		Remark L1 / L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.22	49.32	--	37.91	0.00	62.82	52.82	-13.50	-14.91	L1
0.33	38.54	--	27.55	0.00	59.45	49.45	-20.91	-21.90	L1
19.84	41.82	--	34.44	0.00	60.00	50.00	-18.18	-15.56	L1
0.22	51.44	--	40.65	0.00	62.82	52.82	-11.38	-12.17	L2
0.33	39.33	--	30.97	0.00	59.45	49.45	-20.12	-18.48	L2
23.02	37.51	--	29.63	0.00	60.00	50.00	-22.49	-20.37	L2
6 Worst Data									

LINE 1 RESULTS



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

Data#: 49 File#: 07U11572 LC.EMI Date: 02-25-2008 Time: 18:43:49



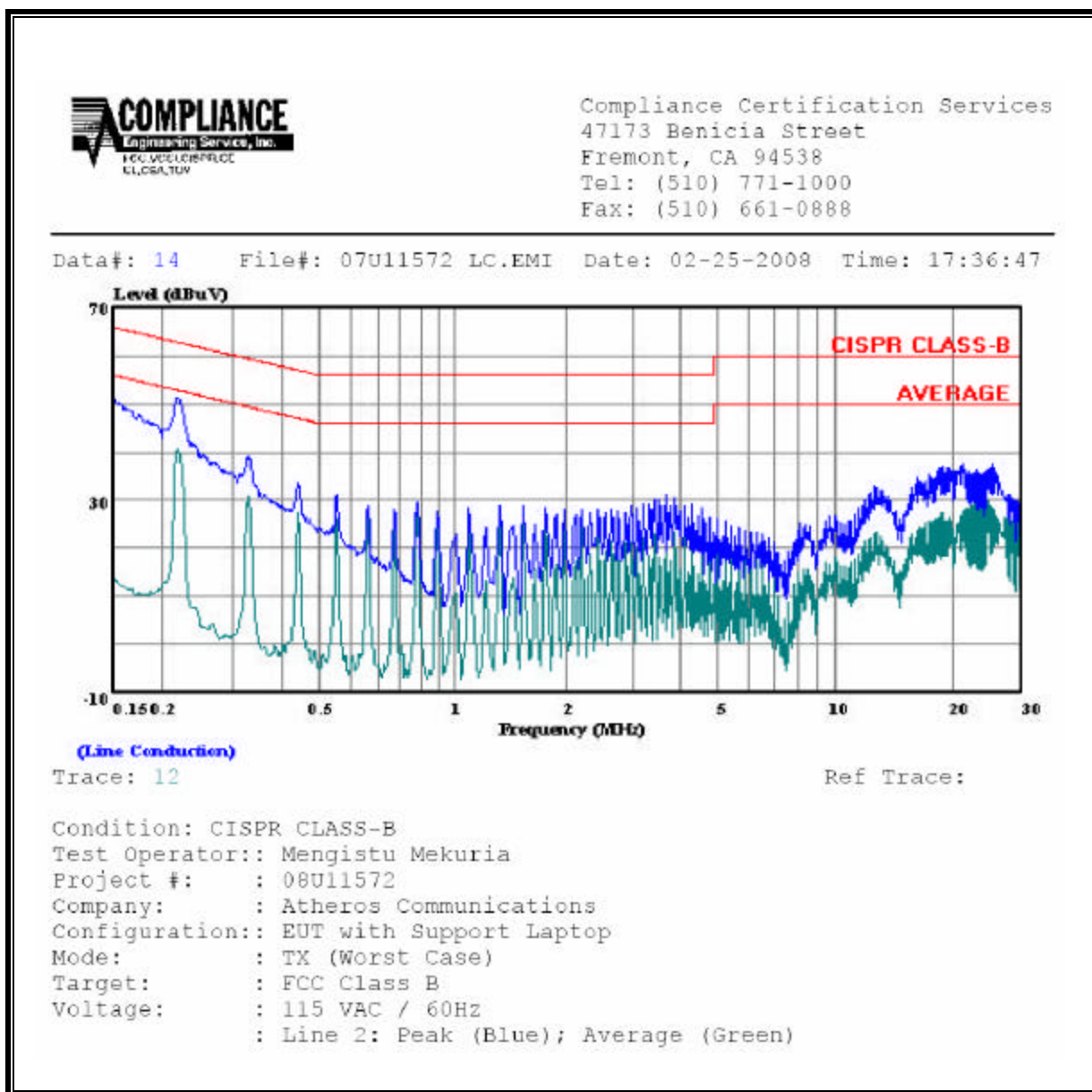
(Line Conduction)

Trace: 47

Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Mengistu Mekuria
Project #: 08U11572
Company: Atheros Communications
Configuration: EUT with Support Laptop
Mode: TX (Worst Case)
Target: FCC Class B
Voltage: 115 VAC / 60Hz
: Line 1: Peak (Blue); Average (Green)

LINE 2 RESULTS



10. MAXIMUM PERMISSIBLE EXPOSURE

FCC RULES

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

IC RULES

IC Safety Code 6, Section 2.2.1 (a) A person other than an RF and microwave exposed worker shall not be exposed to electromagnetic radiation in a frequency band listed in Column 1 of Table 5, if the field strength exceeds the value given in Column 2 or 3 of Table 5, when averaged spatially and over time, or if the power density exceeds the value given in Column 4 of Table 5, when averaged spatially and over time.

Table 5
Exposure Limits for Persons Not Classed As RF and Microwave Exposed Workers (Including the General Public)

1 Frequency (MHz)	2 Electric Field Strength; rms (V/m)	3 Magnetic Field Strength; rms (A/m)	4 Power Density (W/m ²)	5 Averaging Time (min)
0.003–1	280	2.19		6
1–10	280/ <i>f</i>	2.19/ <i>f</i>		6
10–30	28	2.19/ <i>f</i>		6
30–300	28	0.073	2*	6
300–1 500	1.585 <i>f</i> ^{0.5}	0.0042 <i>f</i> ^{0.5}	<i>f</i> /150	6
1 500–15 000	61.4	0.163	10	6
15 000–150 000	61.4	0.163	10	616 000 / <i>f</i> ^{1.2}
150 000–300 000	0.158 <i>f</i> ^{0.5}	4.21 x 10 ⁻⁴ <i>f</i> ^{0.5}	6.67 x 10 ⁻⁵ <i>f</i>	616 000 / <i>f</i> ^{1.2}

* Power density limit is applicable at frequencies greater than 100 MHz.

Notes: 1. Frequency, *f*, is in MHz.
2. A power density of 10 W/m² is equivalent to 1 mW/cm².
3. A magnetic field strength of 1 A/m corresponds to 1.257 microtesla (μT) or 12.57 milligauss (mG).

CALCULATIONS

Given

$$E = \sqrt{(30 * P * G) / d}$$

and

$$S = E^2 / 3770$$

where

E = Field Strength in Volts/meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power Density in milliwatts/square centimeter

Combining equations, rearranging the terms to express the distance as a function of the remaining variables, changing to units of Power to mW and Distance to cm, and substituting the logarithmic form of power and gain yields:

$$d = 0.282 * 10^{((P + G) / 20)} / \sqrt{S}$$

where

d = MPE distance in cm

P = Power in dBm

G = Antenna Gain in dBi

S = Power Density Limit in mW/cm²

Rearranging terms to calculate the power density at a specific distance yields

$$S = 0.0795 * 10^{((P + G) / 10)} / (d^2)$$

The power density in units of mW/cm² is converted to units of W/m² by multiplying by a factor of 10.

LIMITS

From FCC §1.1310 Table 1 (B), the maximum value of $S = 1.0 \text{ mW/cm}^2$

From IC Safety Code 6, Section 2.2 Table 5 Column 4, $S = 10 \text{ W/m}^2$

RESULTS

Mode	Band	MPE Distance (cm)	Output Power (dBm)	Antenna Gain (dBi)	FCC Power Density (mW/cm ²)	IC Power Density (W/m ²)
WLAN	2.4 GHz	20.0	27.98	6.33	0.54	5.36
WLAN	5 GHz	20.0	28.69	6.76	0.70	6.97