

RESULTS

No non-compliance noted:

802.11b Mode

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Chain 2 (dBm)	PPSD Total (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-3.90	-5.20	-4.20	0.37	8	-7.63
Middle	2437	-3.40	-3.61	-3.60	1.24	8	-6.76
High	2462	-4.00	-4.08	-3.85	0.80	8	-7.20

802.11g Mode

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Chain 2 (dBm)	PPSD Total (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-8.26	-9.39	-6.97	-3.32	8	-11.32
Middle	2437	-6.05	-7.22	-5.98	-1.61	8	-9.61
High	2462	-8.34	-8.19	-6.57	-2.85	8	-10.85

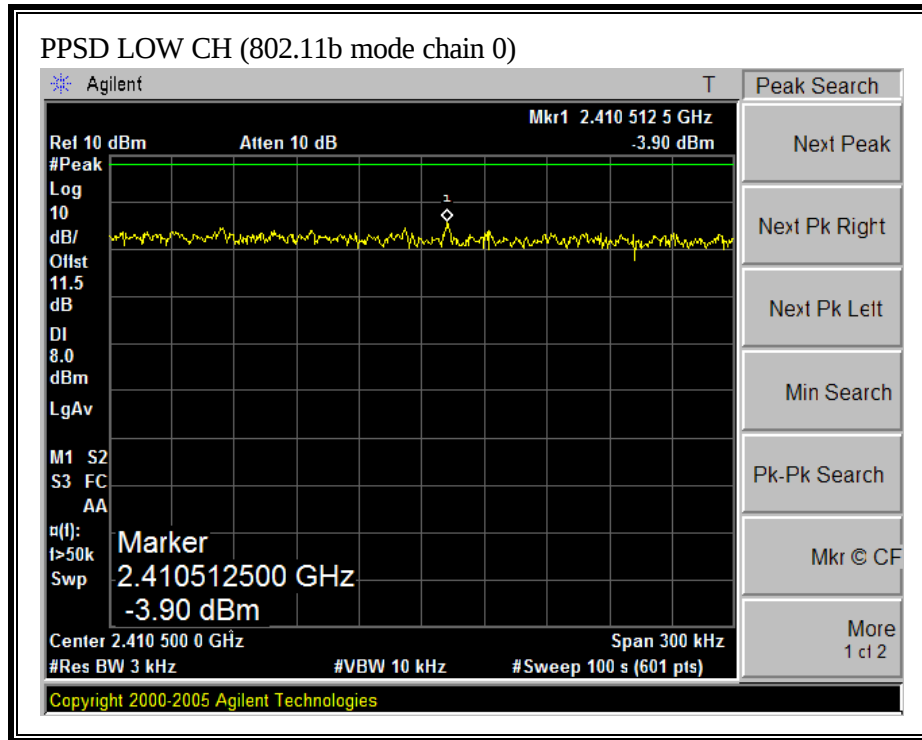
802.11 HT20 Mode

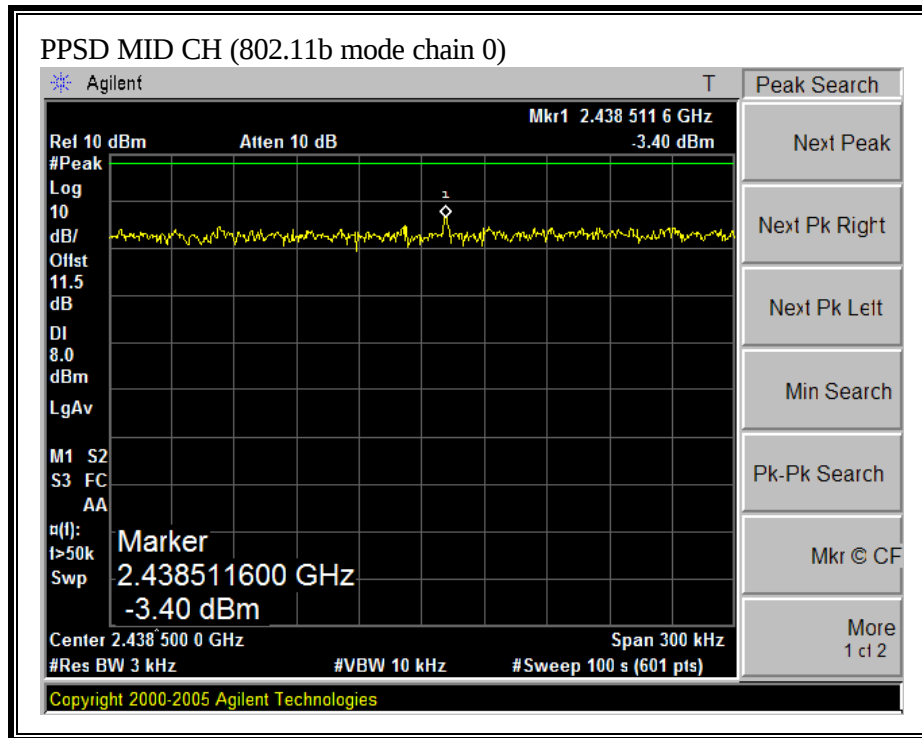
Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Chain 2 (dBm)	PPSD Total (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-10.23	-10.57	-8.87	-5.05	8	-13.05
Middle	2437	-6.65	-7.45	-6.61	-2.12	8	-10.12
High	2462	-9.81	-9.03	-7.53	-3.91	8	-11.91

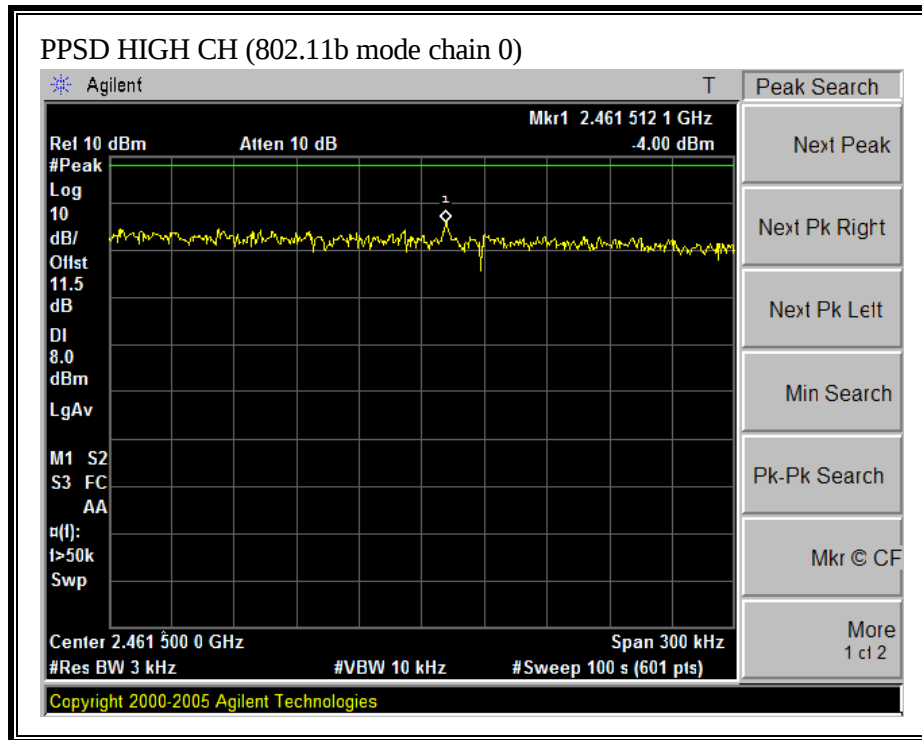
802.11 HT40 Mode

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Chain 2 (dBm)	PPSD Total (dBm)	Limit (dBm)	Margin (dB)
Low	2422	-15.62	-13.48	-12.35	-8.84	8	-16.84
2'nd Low	2427	-14.22	-12.50	-11.00	-7.61	8	-15.61
Middle	2437	-8.97	-8.41	-8.90	-3.98	8	-11.98
2'nd High	2447	-11.21	-12.51	-9.18	-5.98	8	-13.98
High	2452	-12.36	-10.62	-10.82	-6.43	8	-14.43

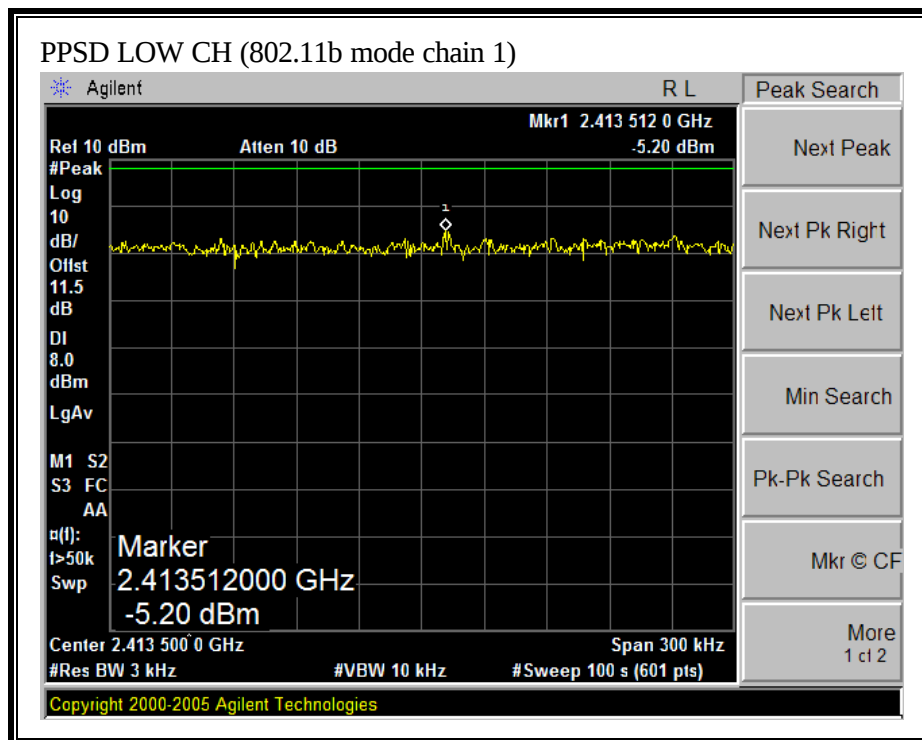
PEAK POWER SPECTRAL DENSITY (802.11b MODE CHAIN 0)

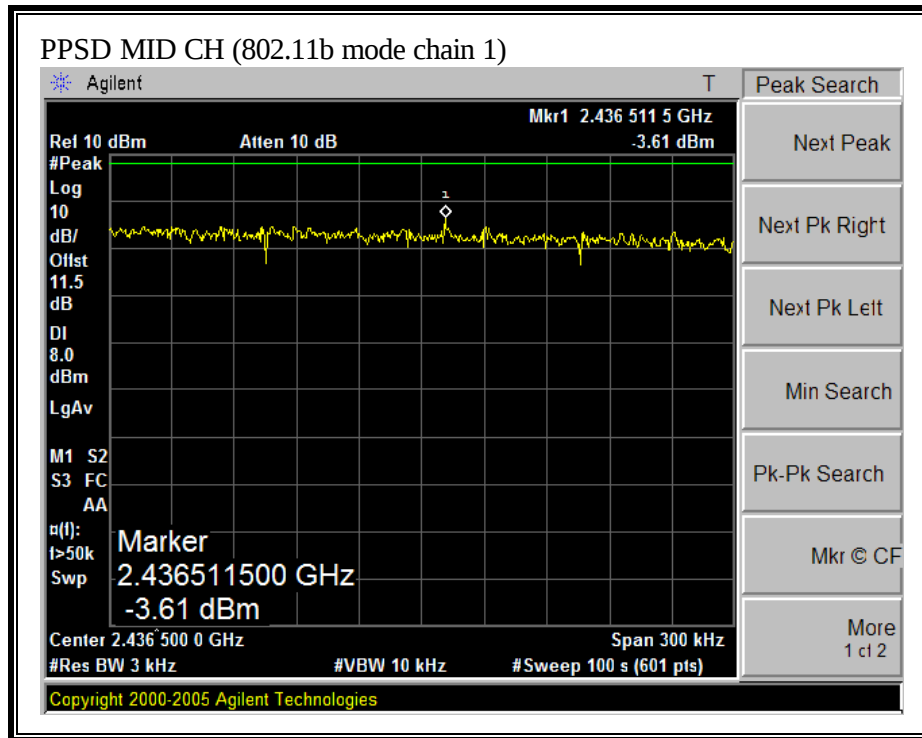


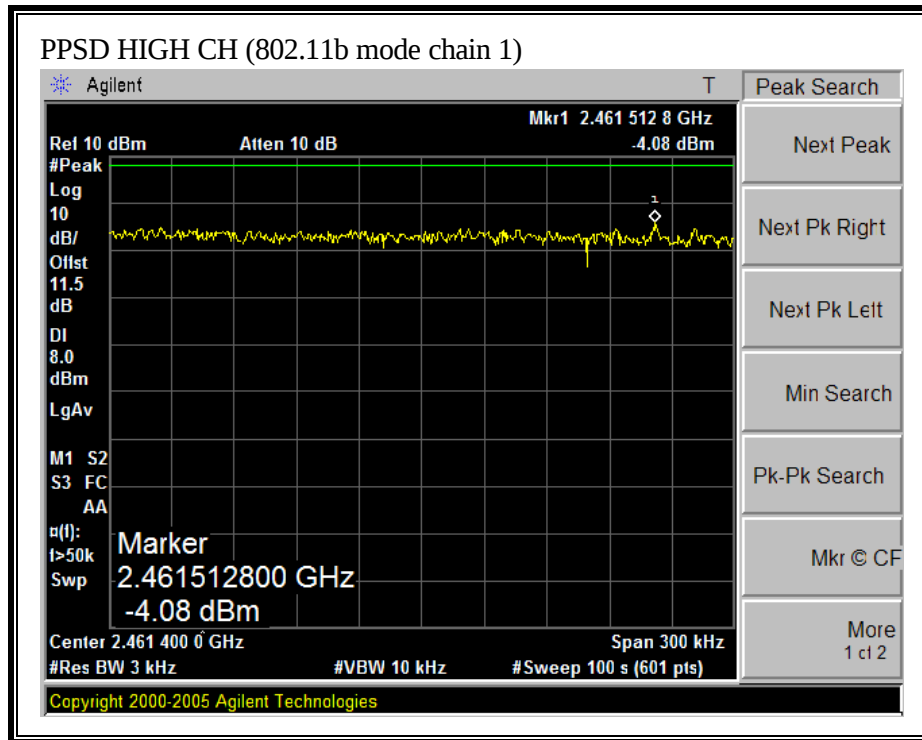




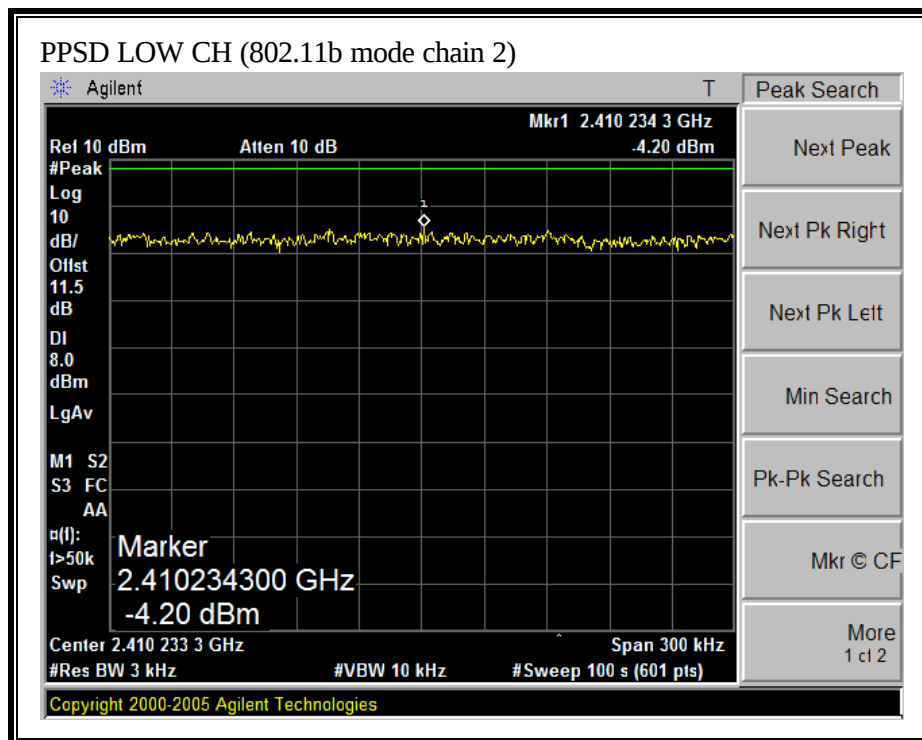
PEAK POWER SPECTRAL DENSITY (802.11b MODE CHAIN 1)

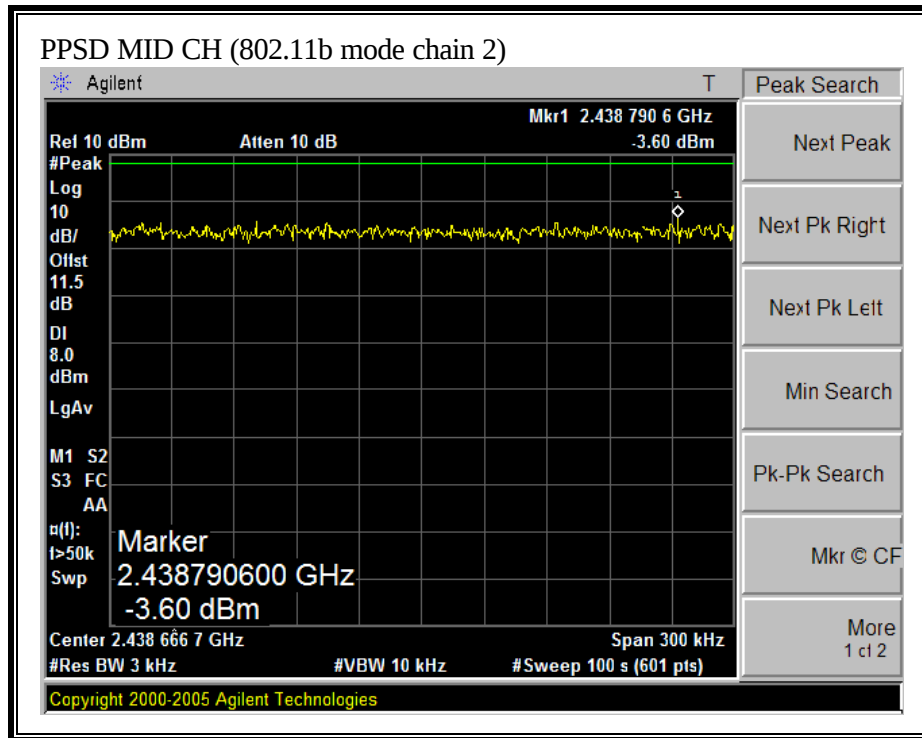


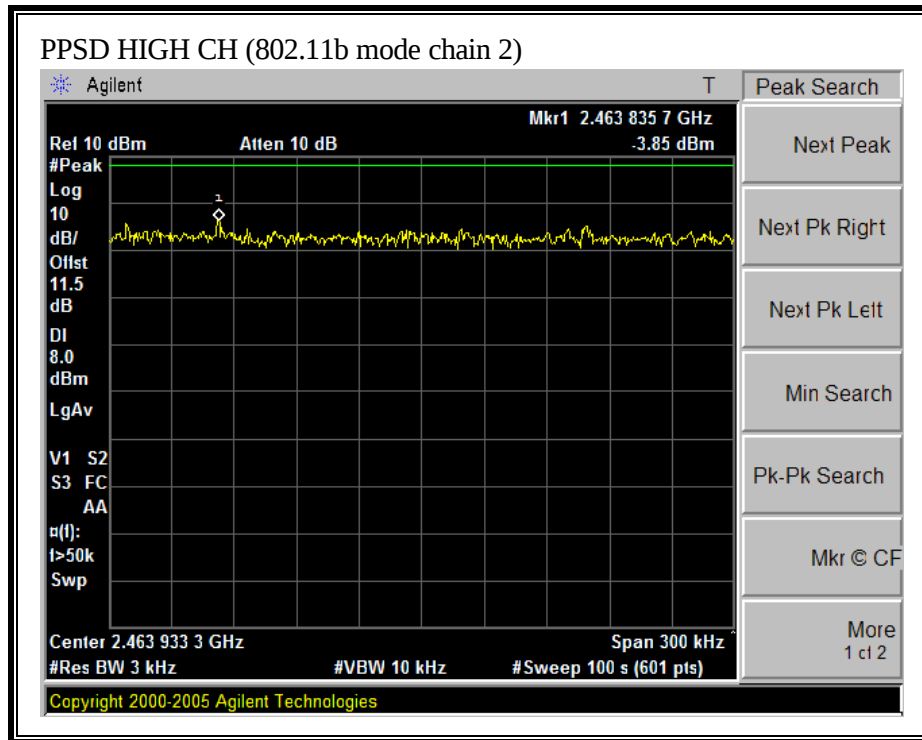




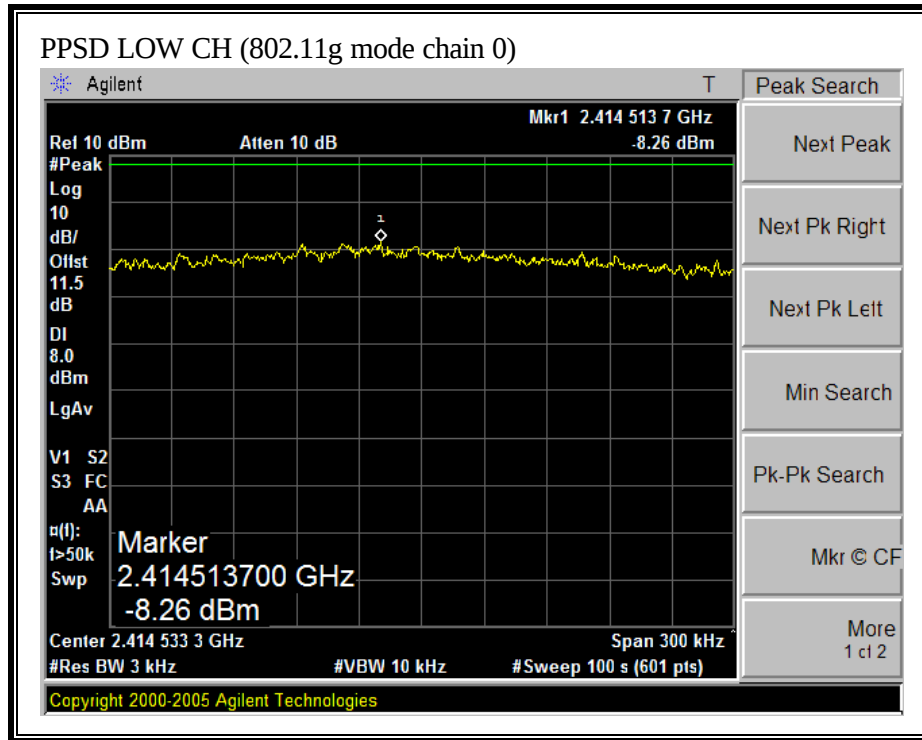
PEAK POWER SPECTRAL DENSITY (802.11b MODE CHAIN 2)

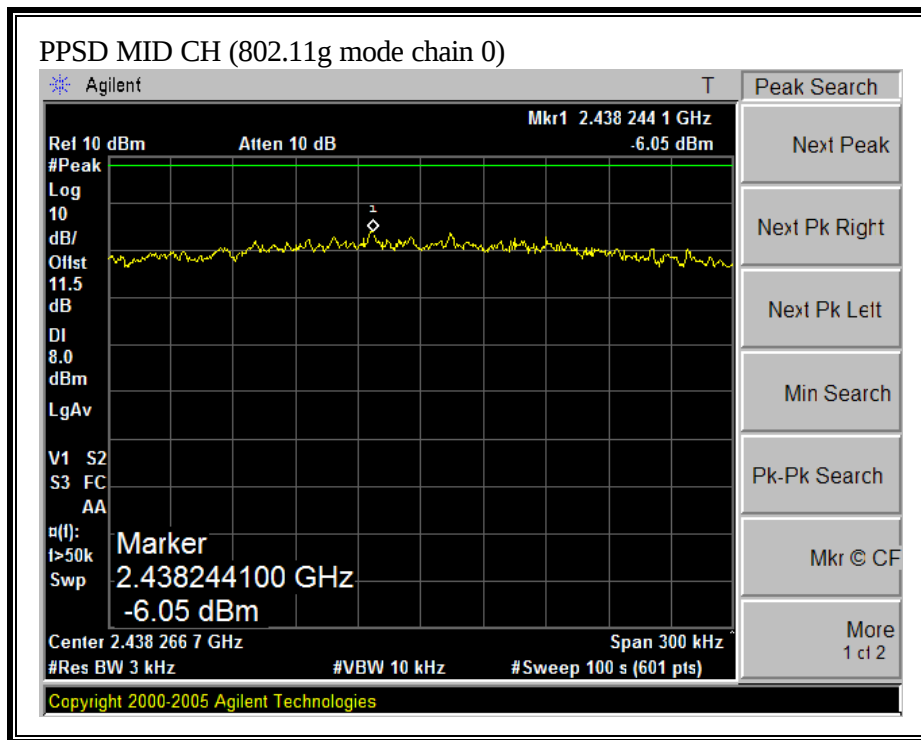


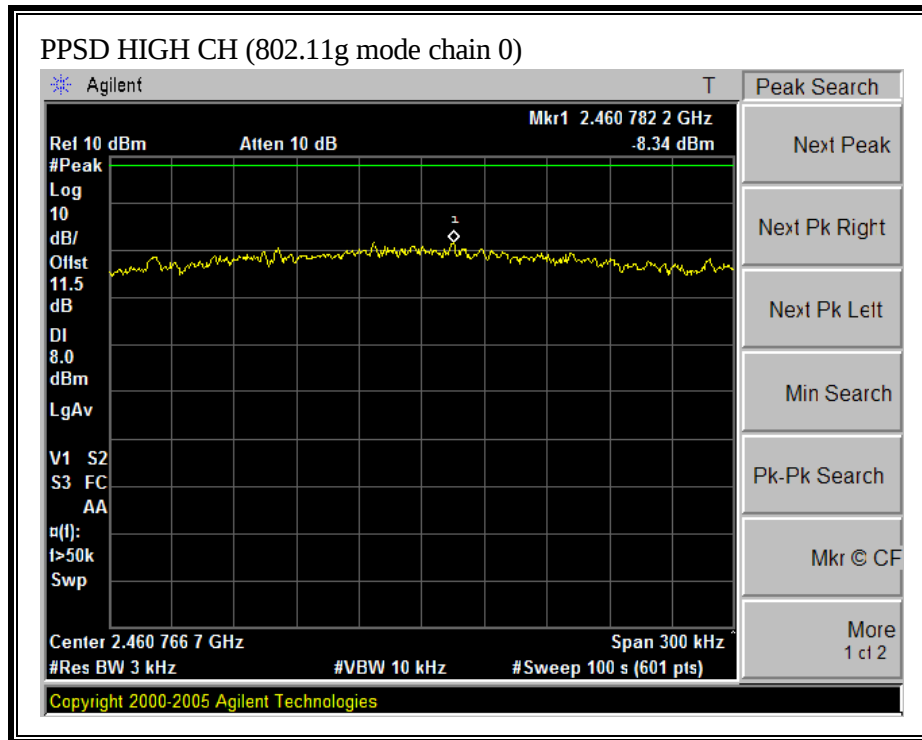




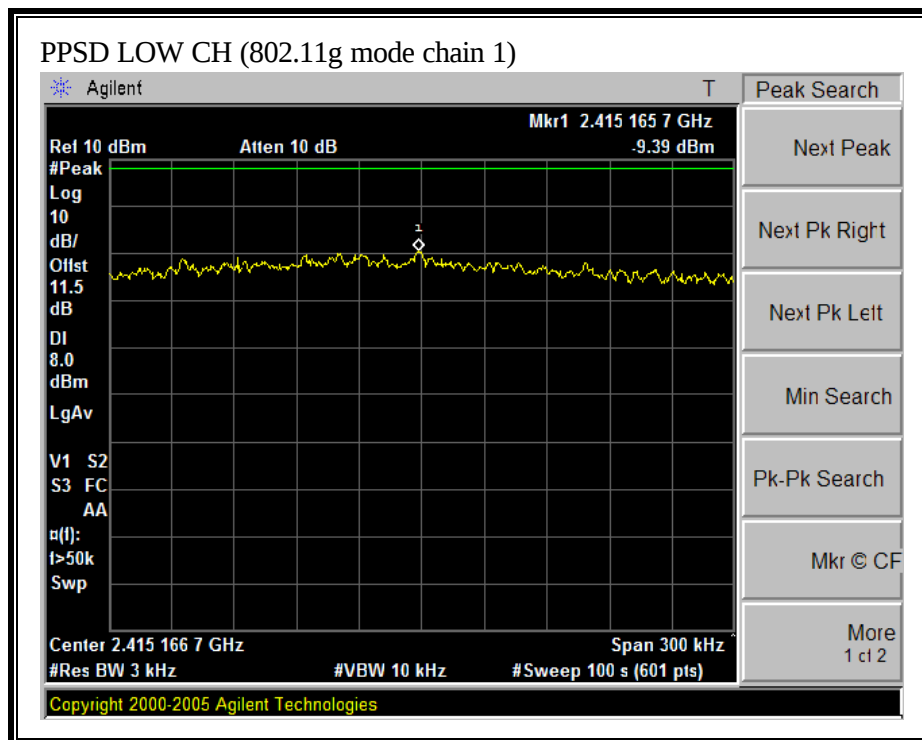
PEAK POWER SPECTRAL DENSITY (802.11g MODE CHAIN 0)

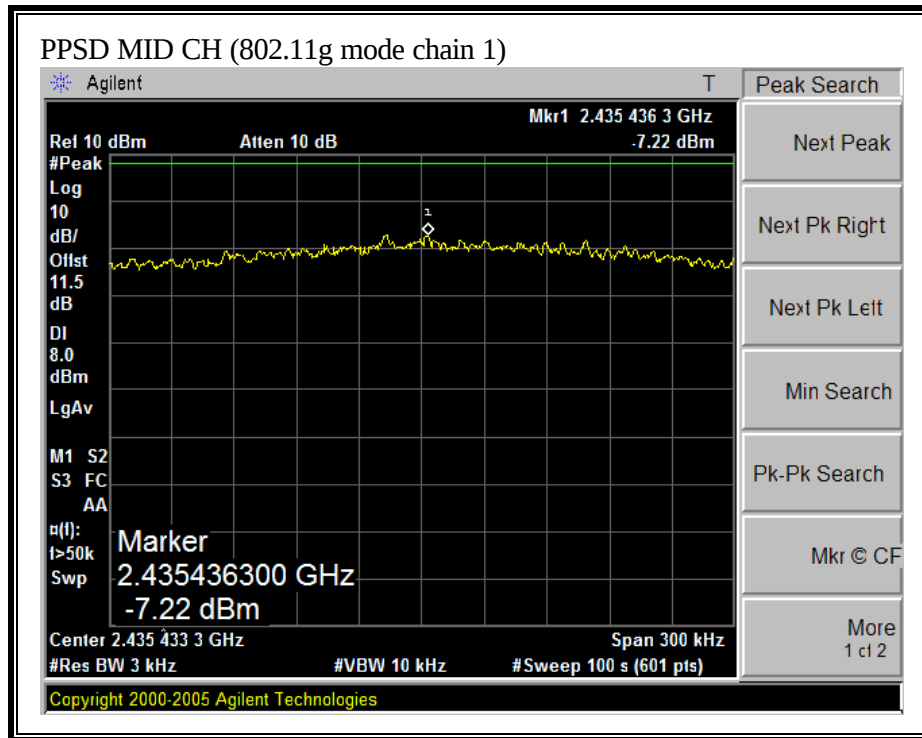


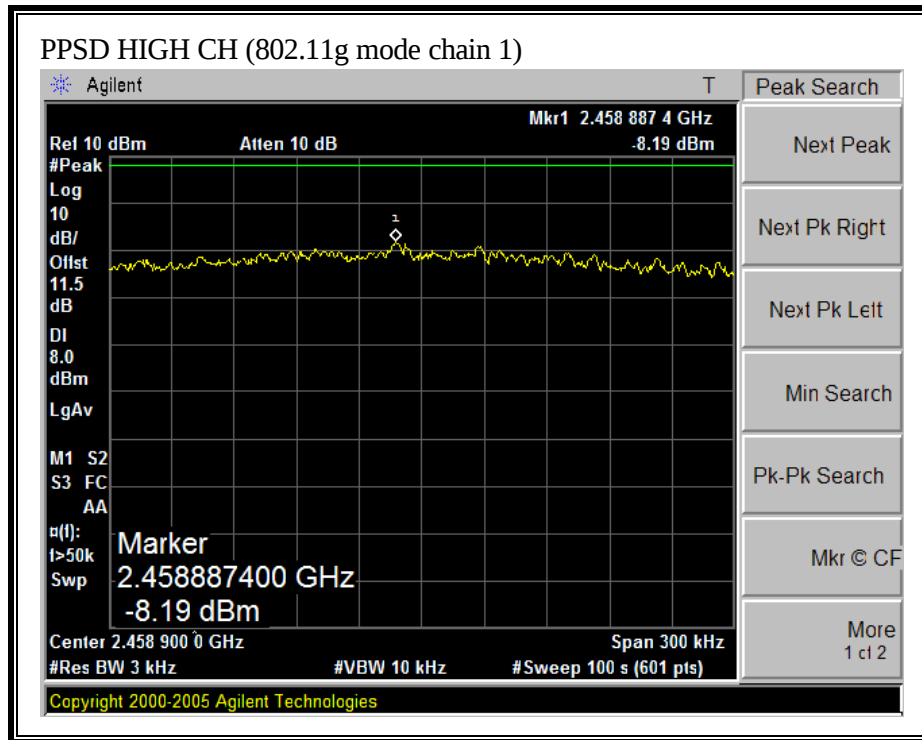




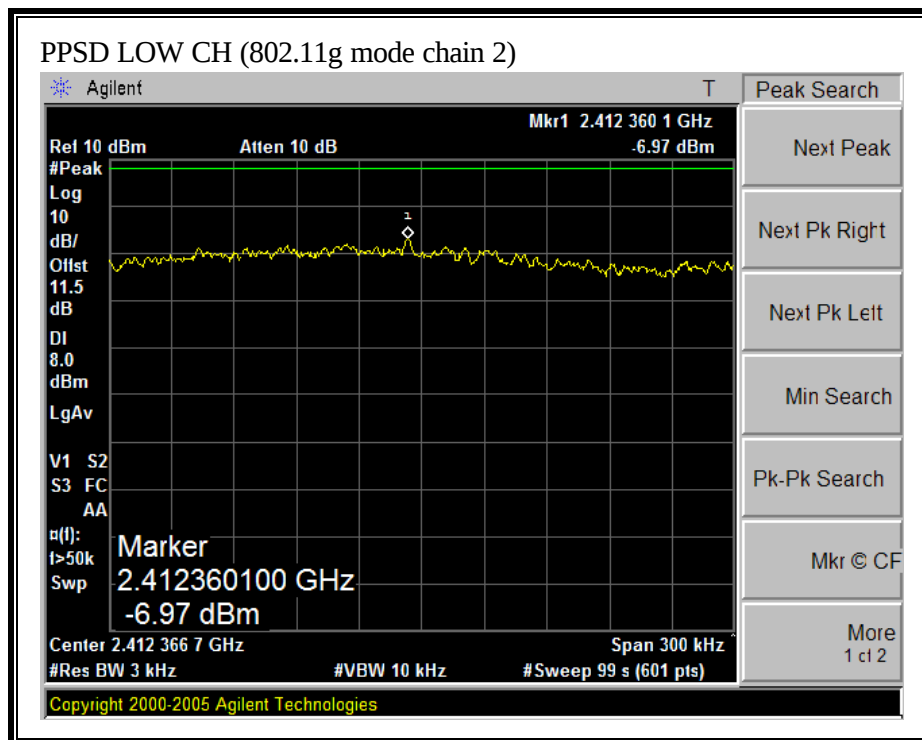
PEAK POWER SPECTRAL DENSITY (802.11g MODE CHAIN 1)

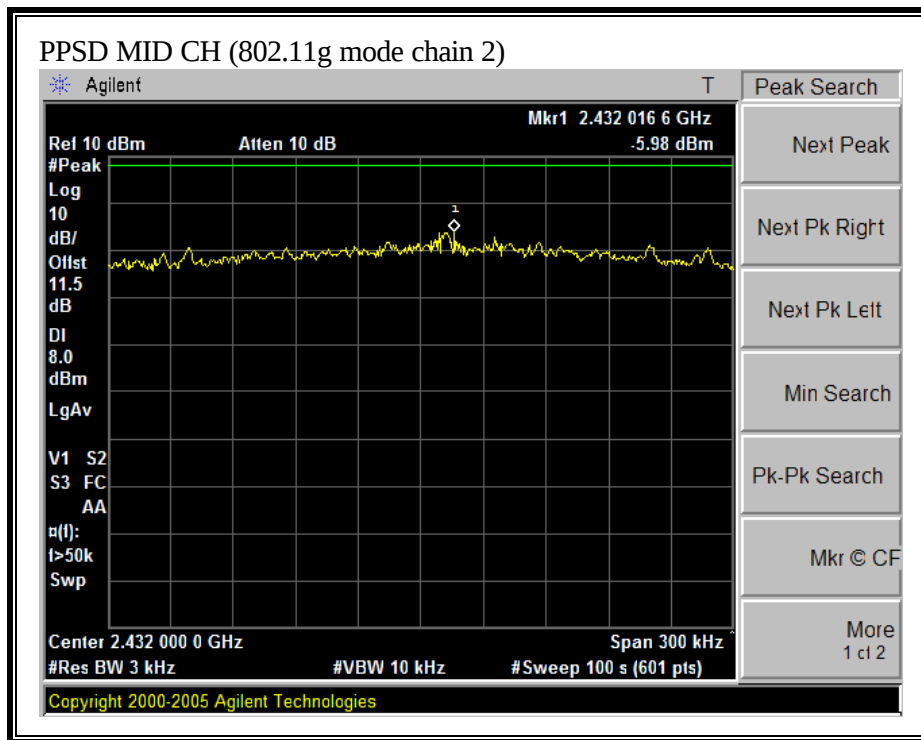


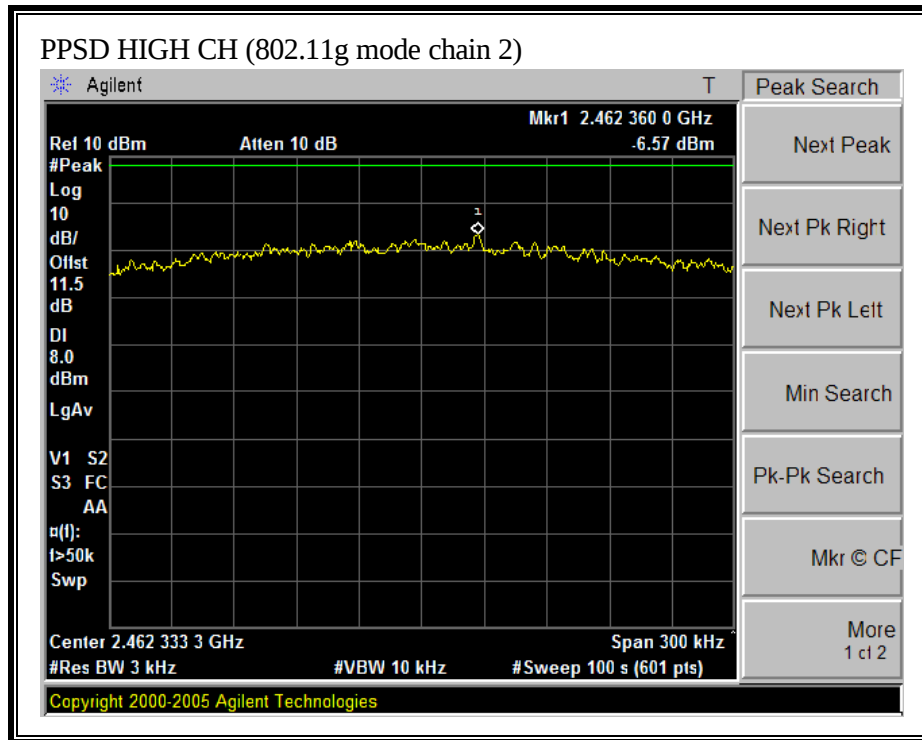




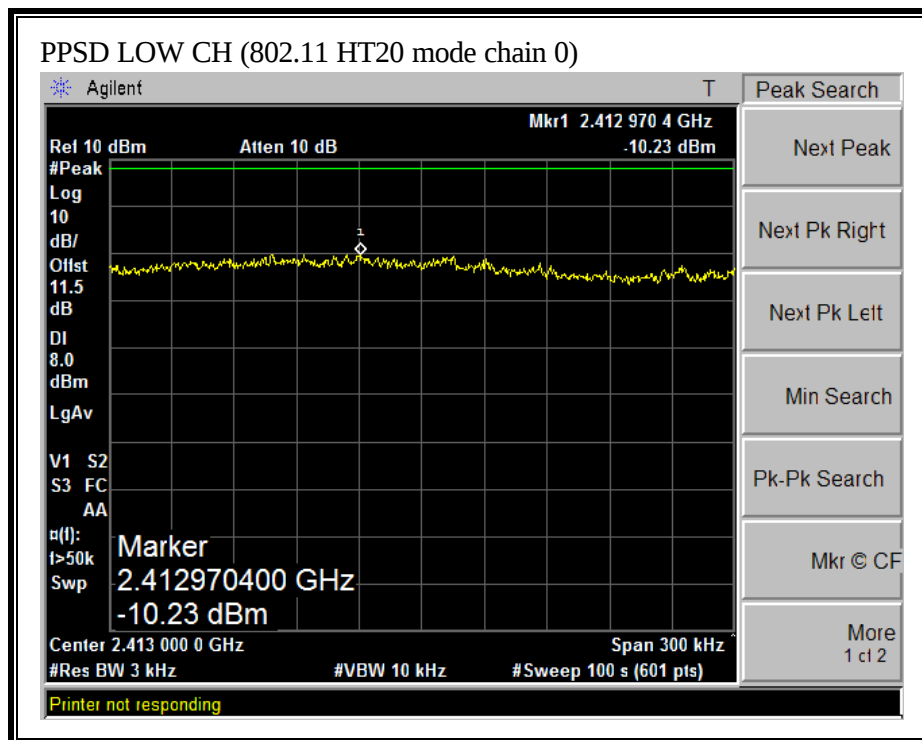
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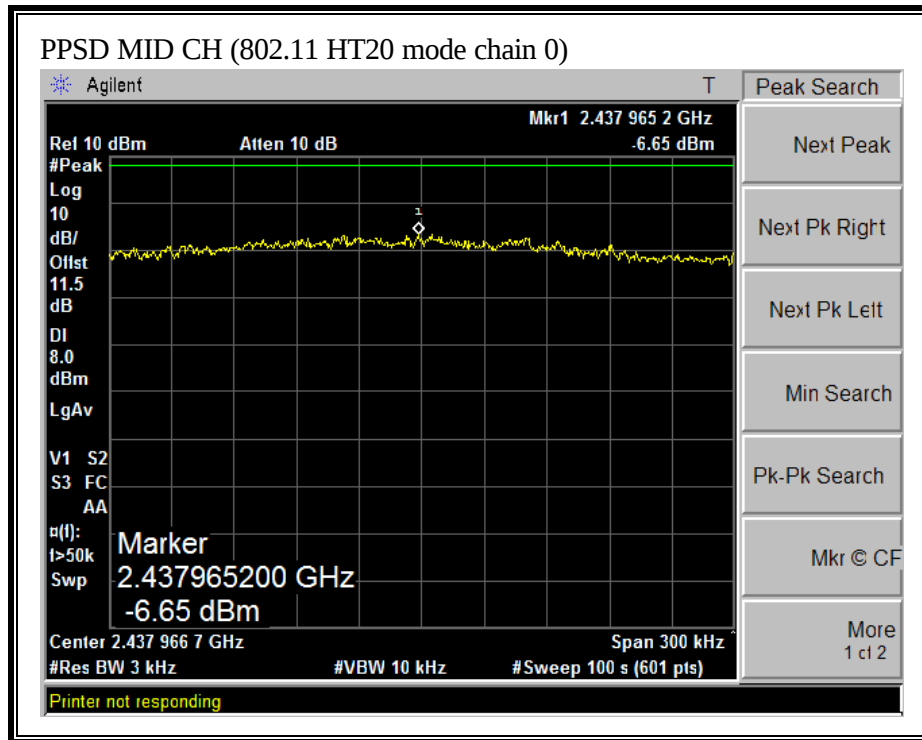


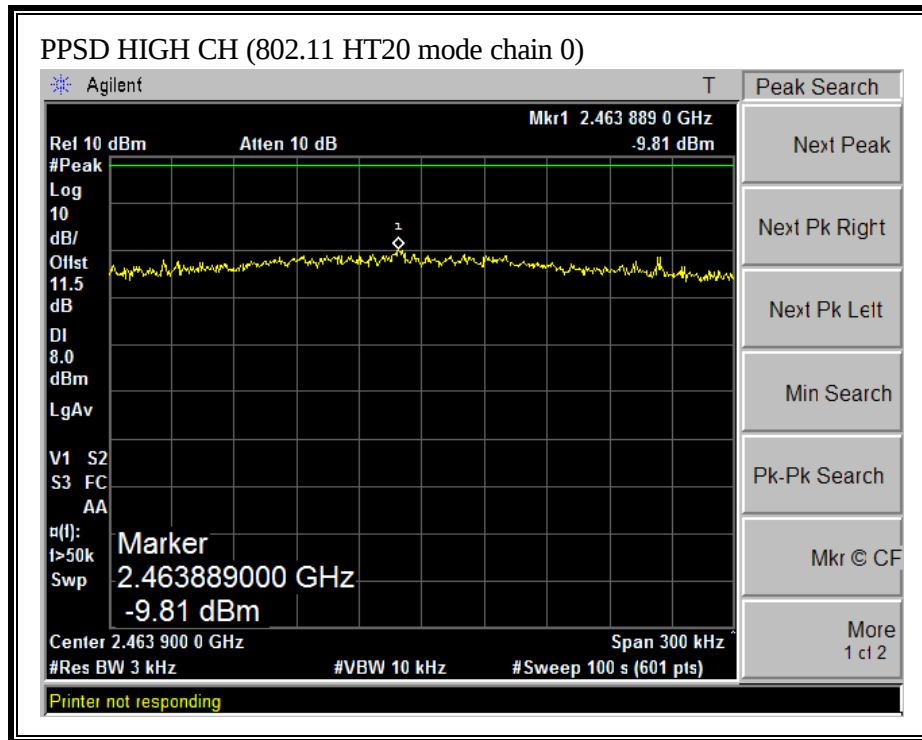




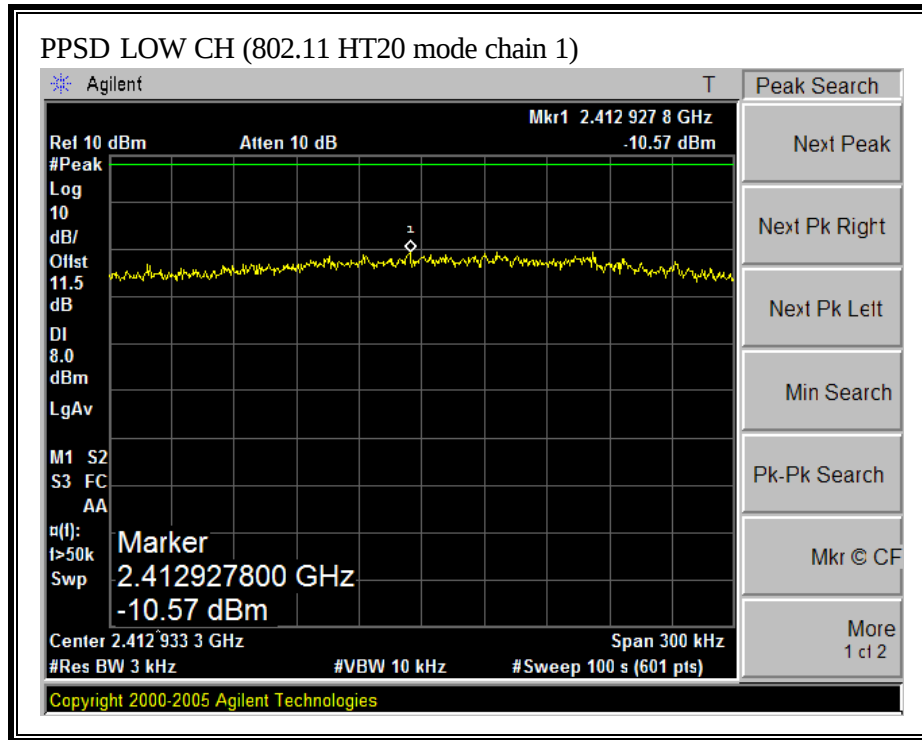
PEAK POWER SPECTRAL DENSITY (802.11 HT20 MODE CHAIN 0)

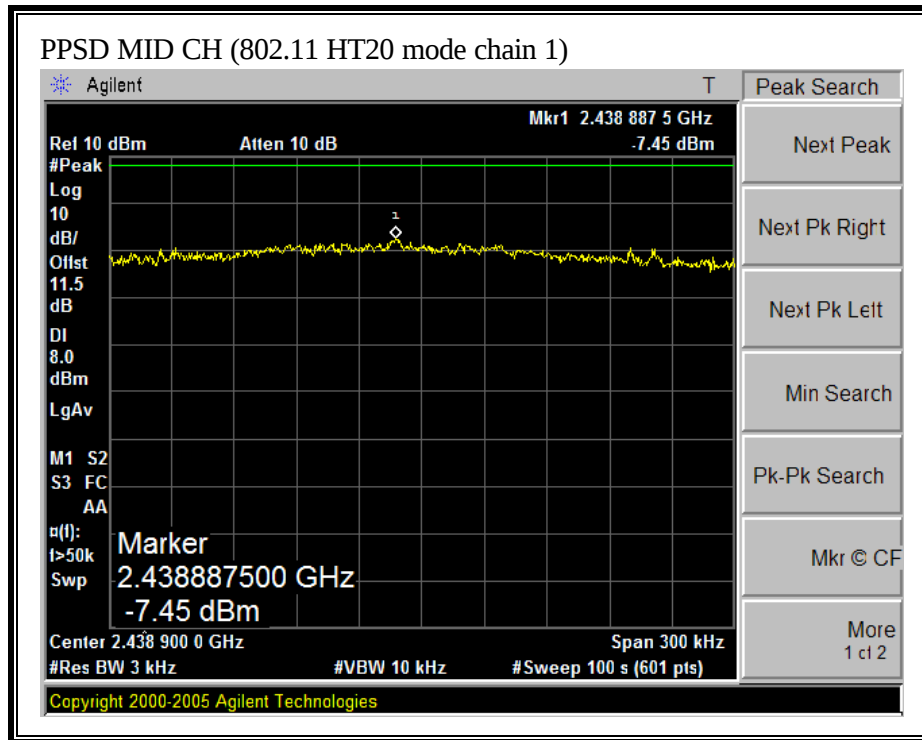


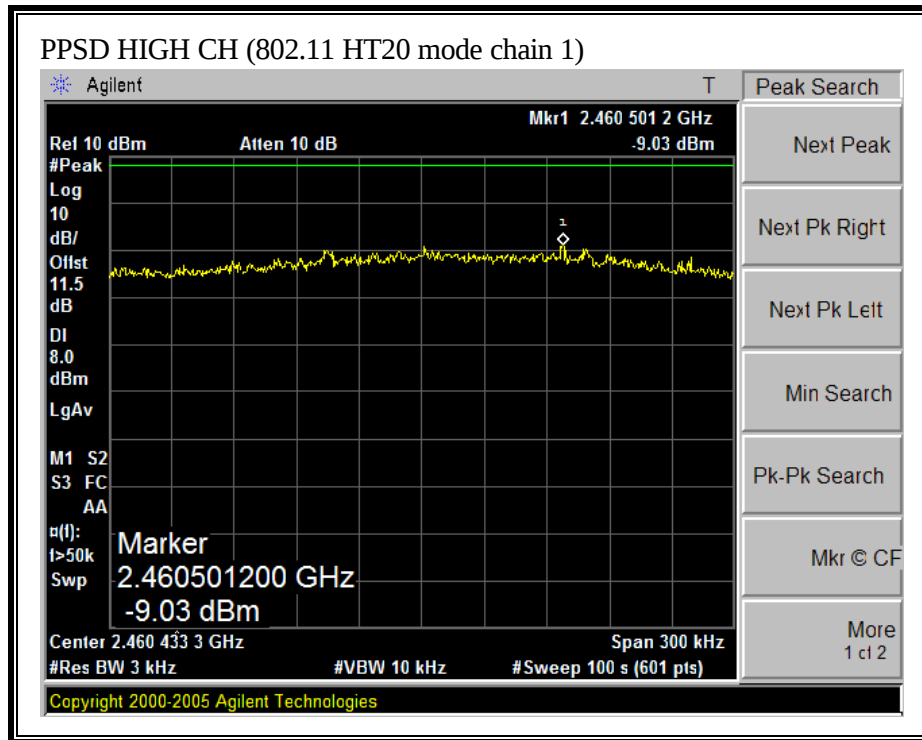




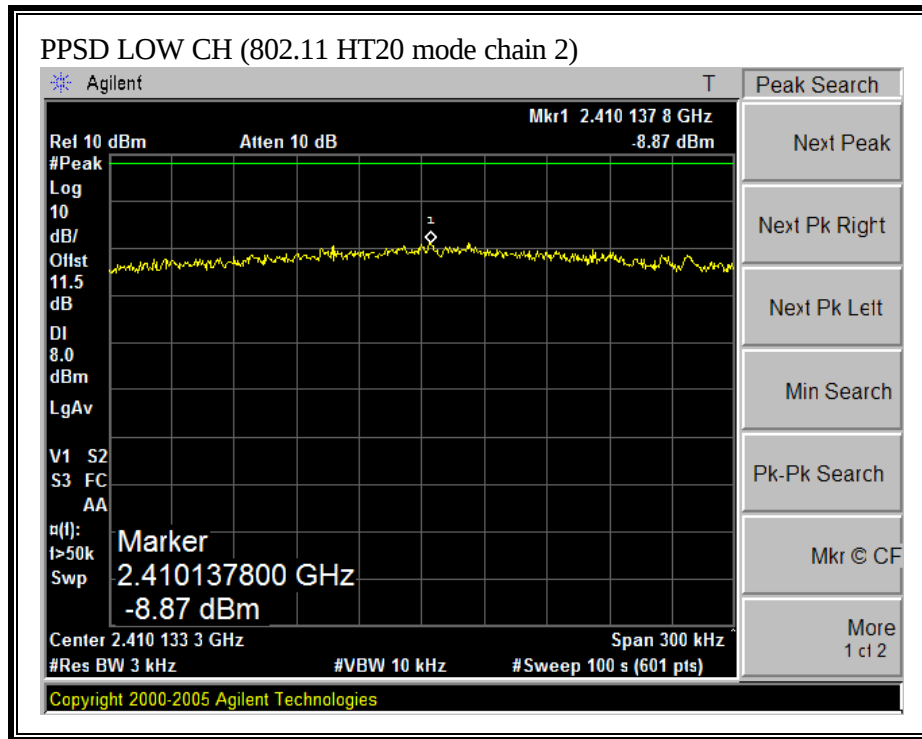
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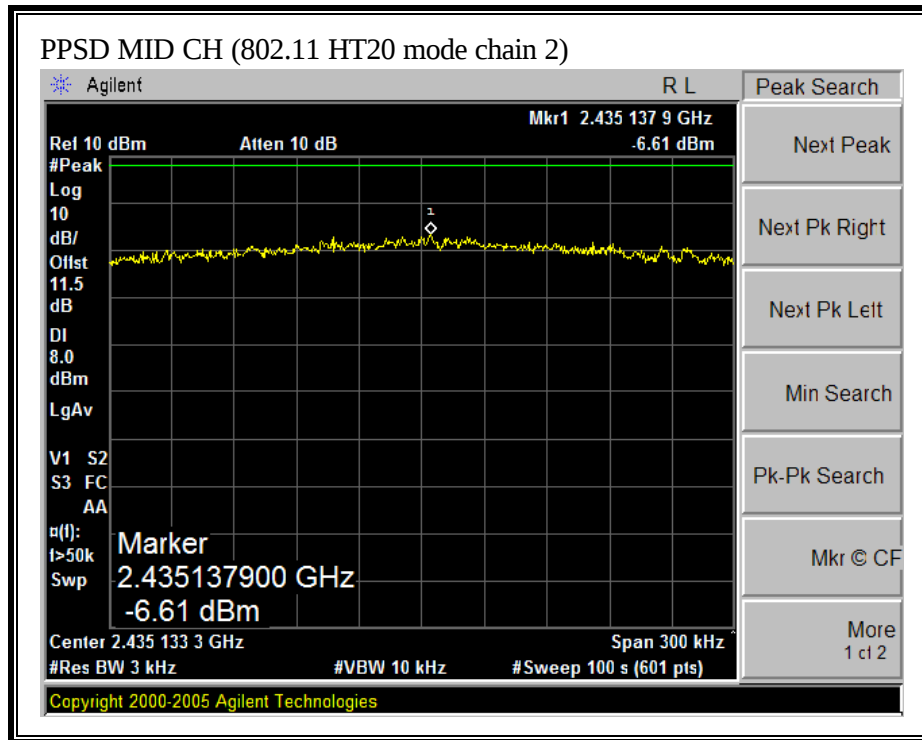


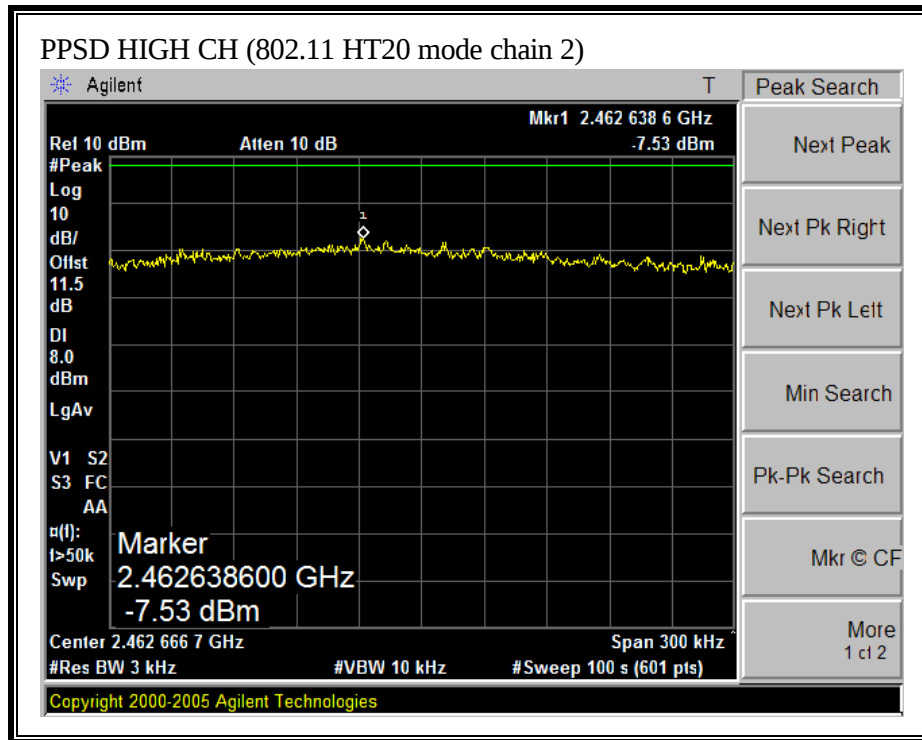




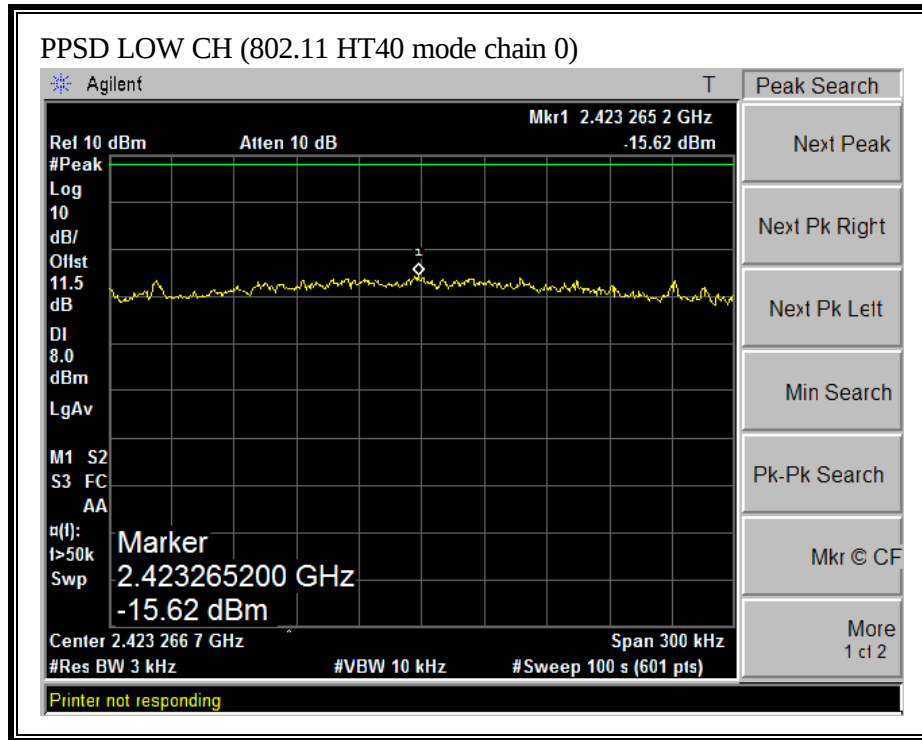
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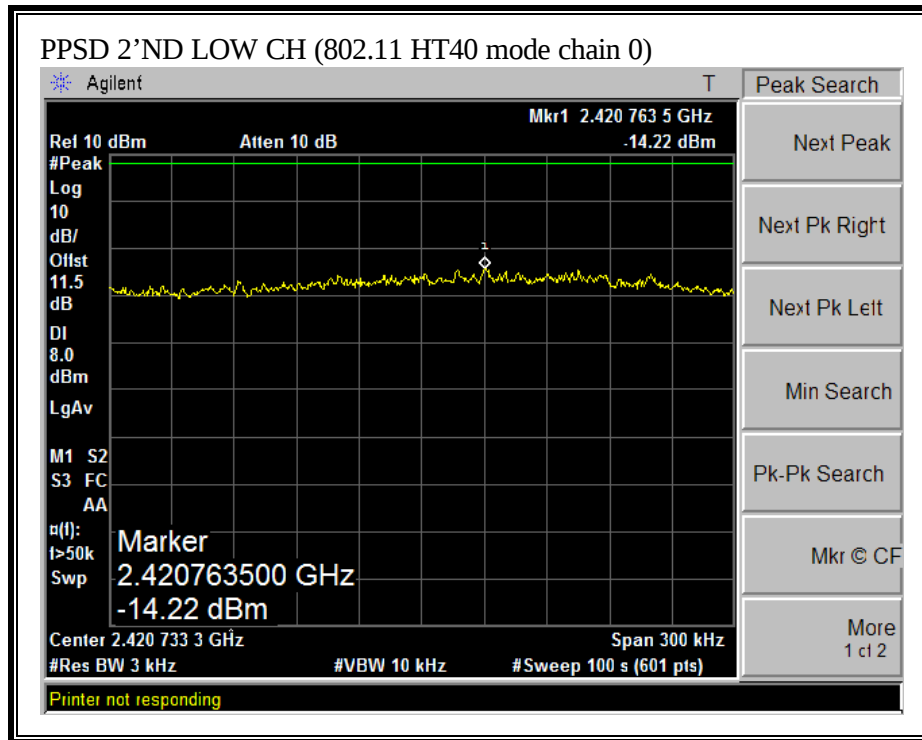


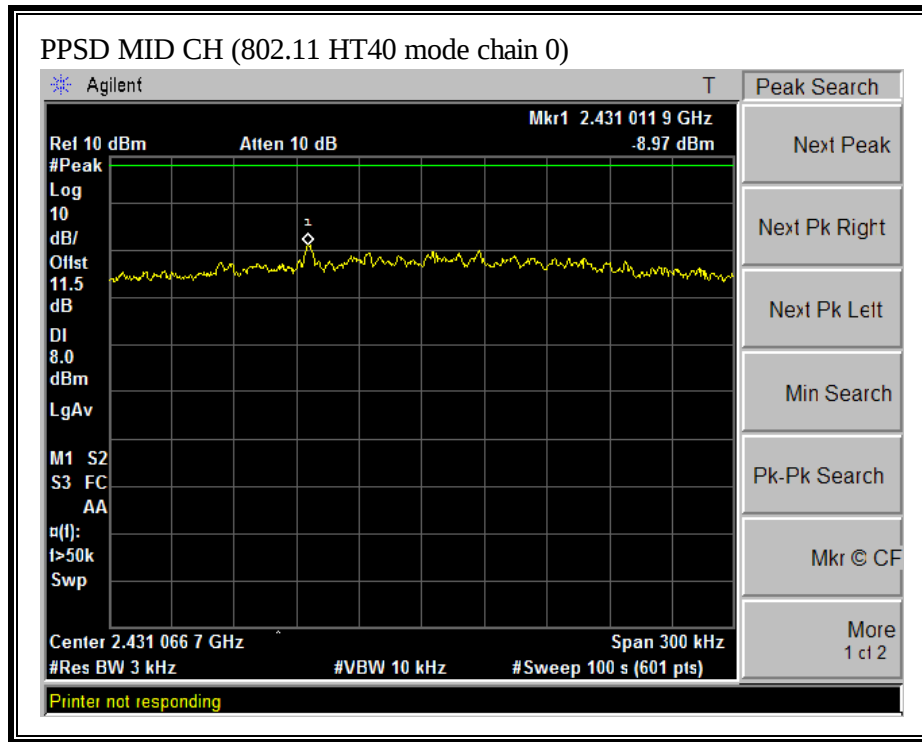


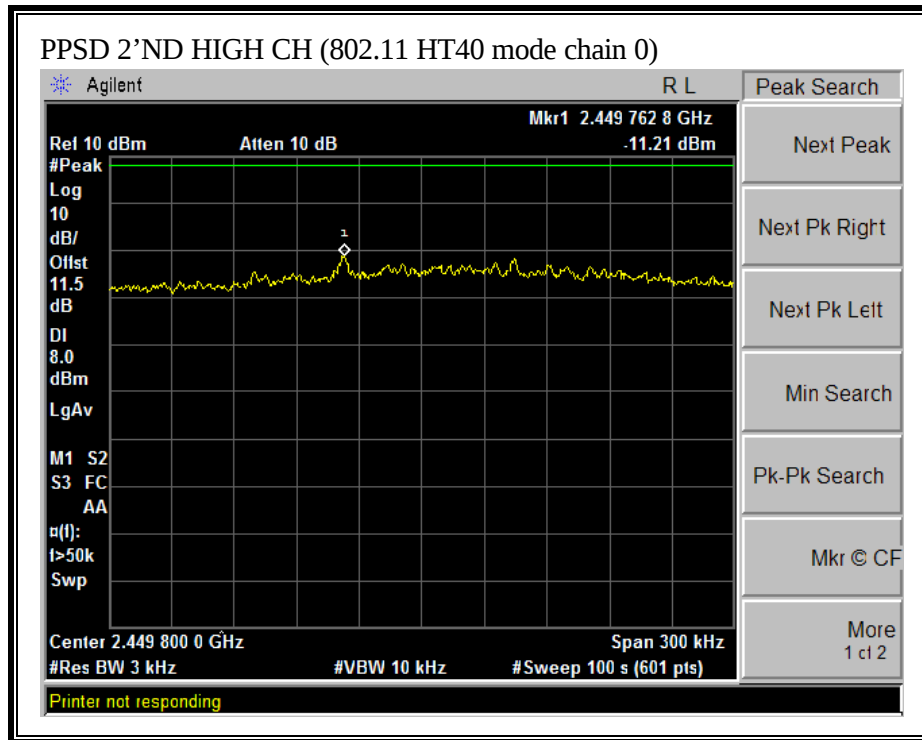


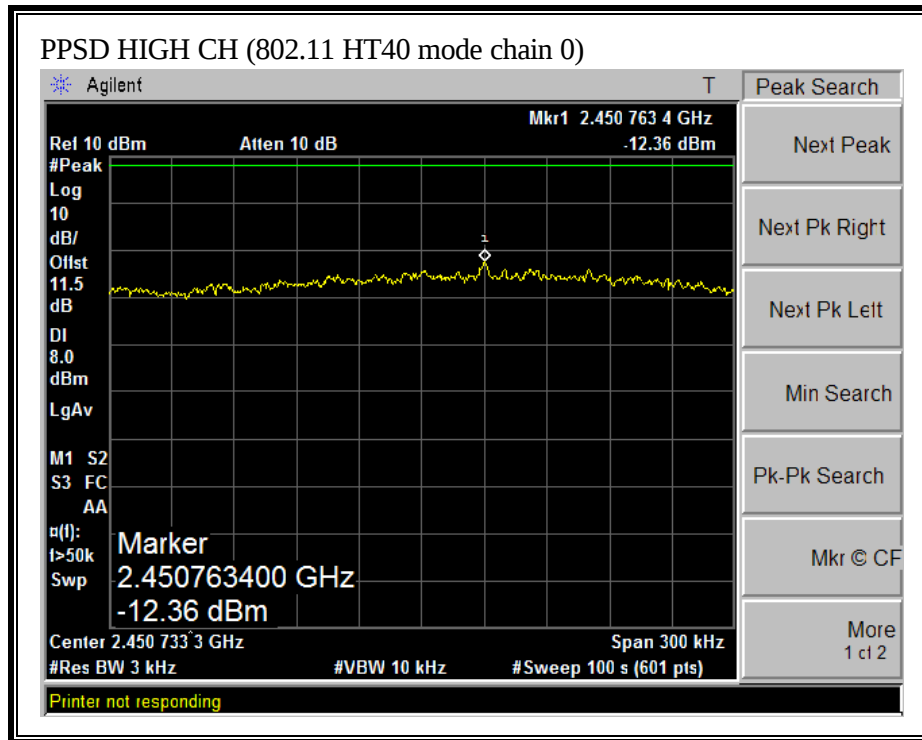
PEAK POWER SPECTRAL DENSITY (802.11 HT40 MODE CHAIN 0)



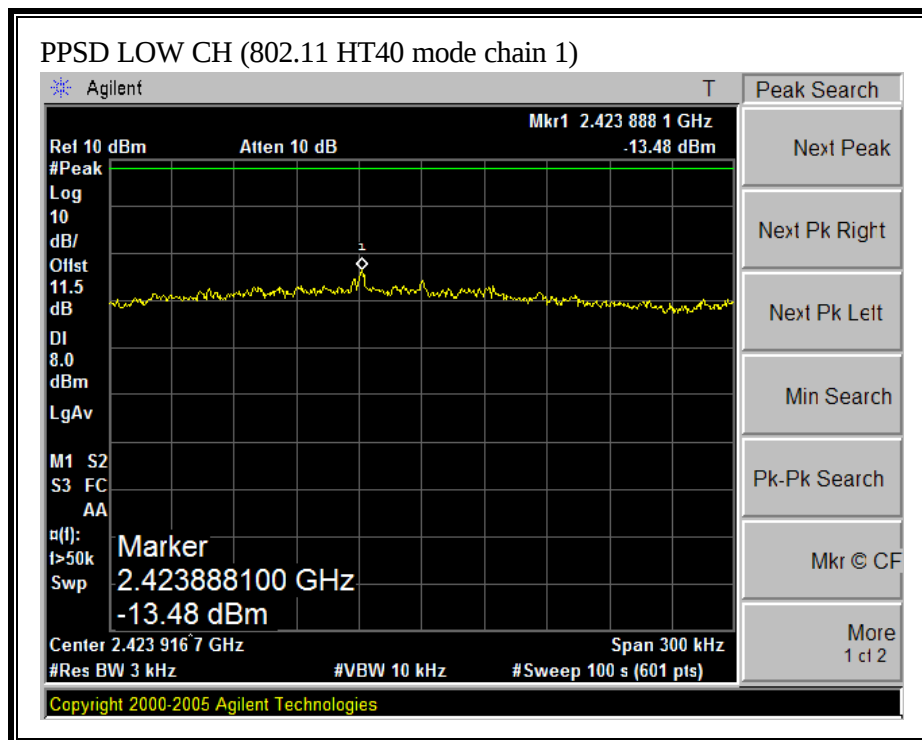


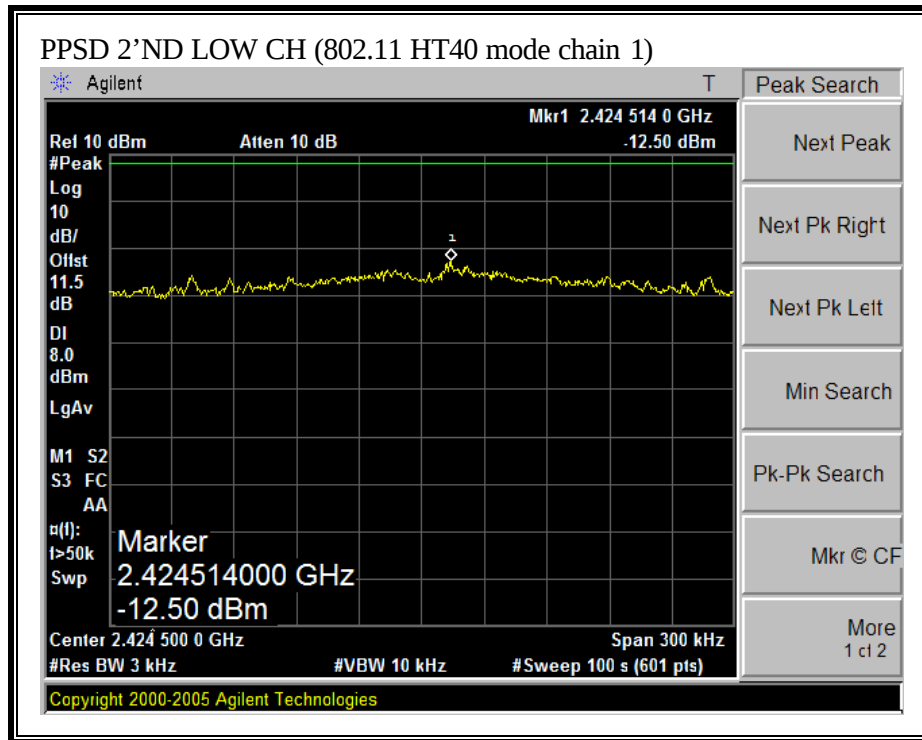


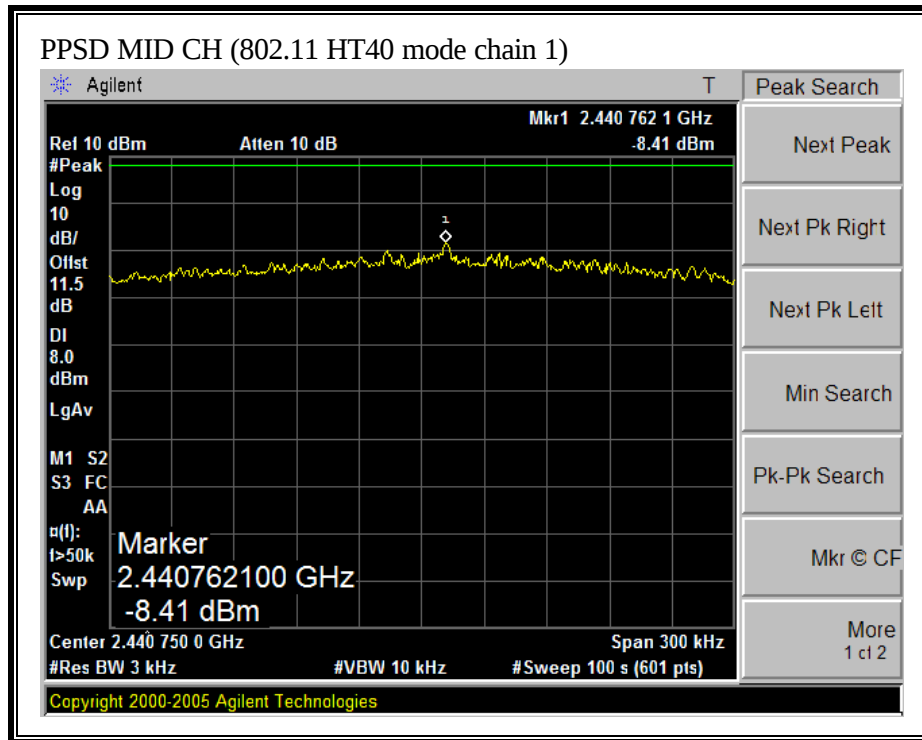


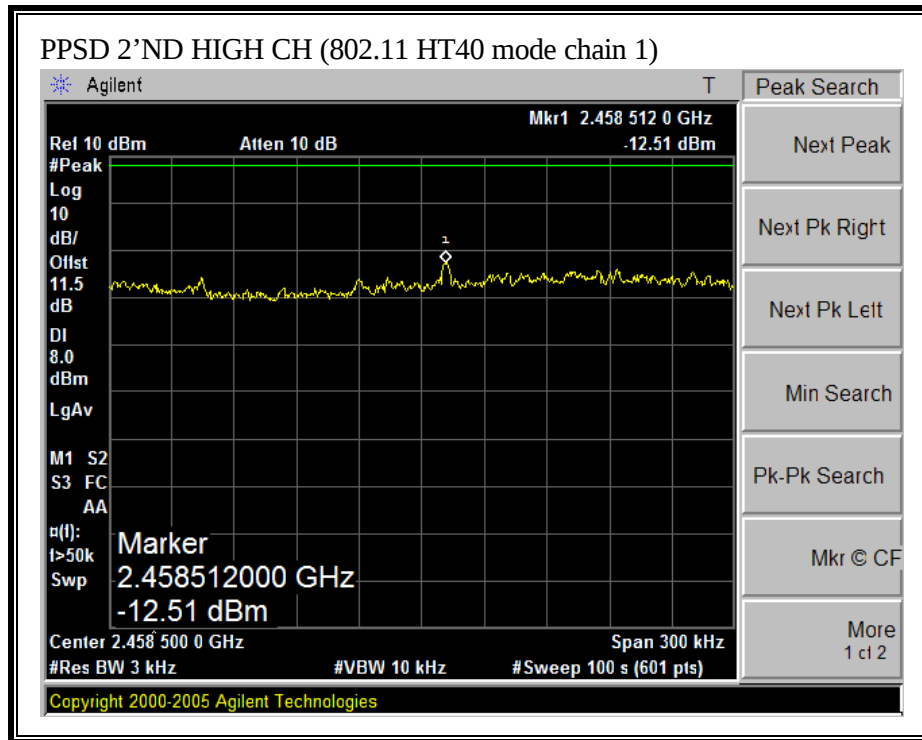


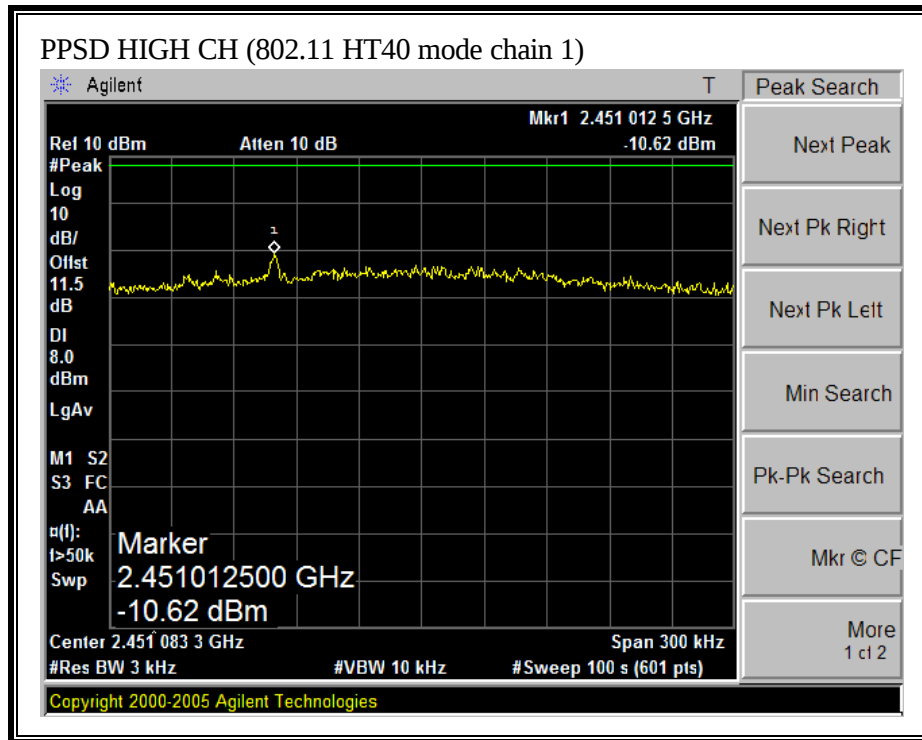
PEAK POWER SPECTRAL DENSITY (802.11 HT40 MODE CHAIN 1)



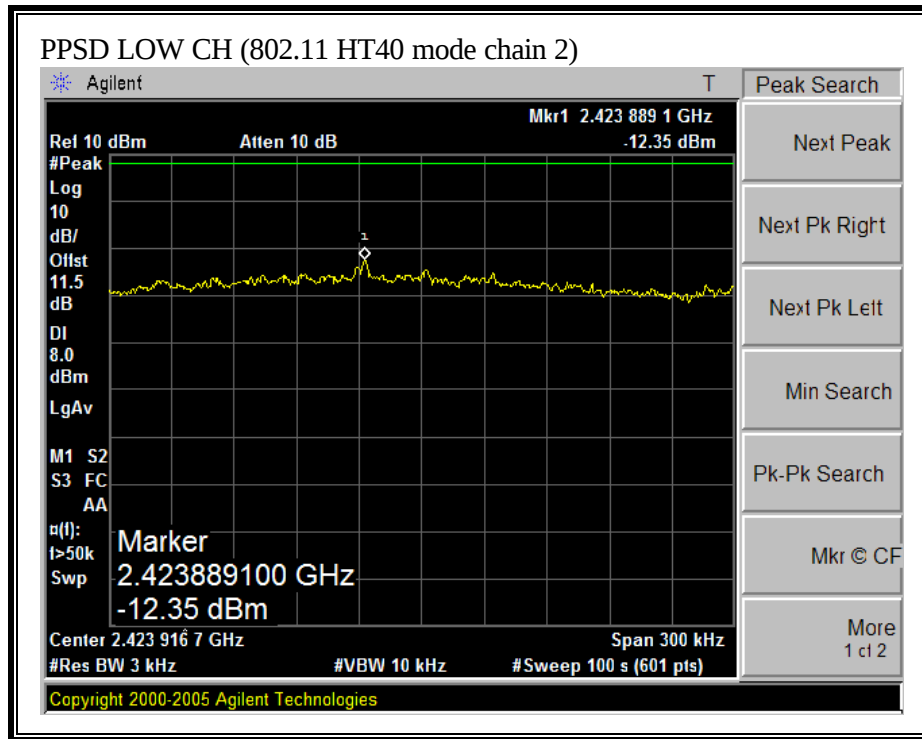


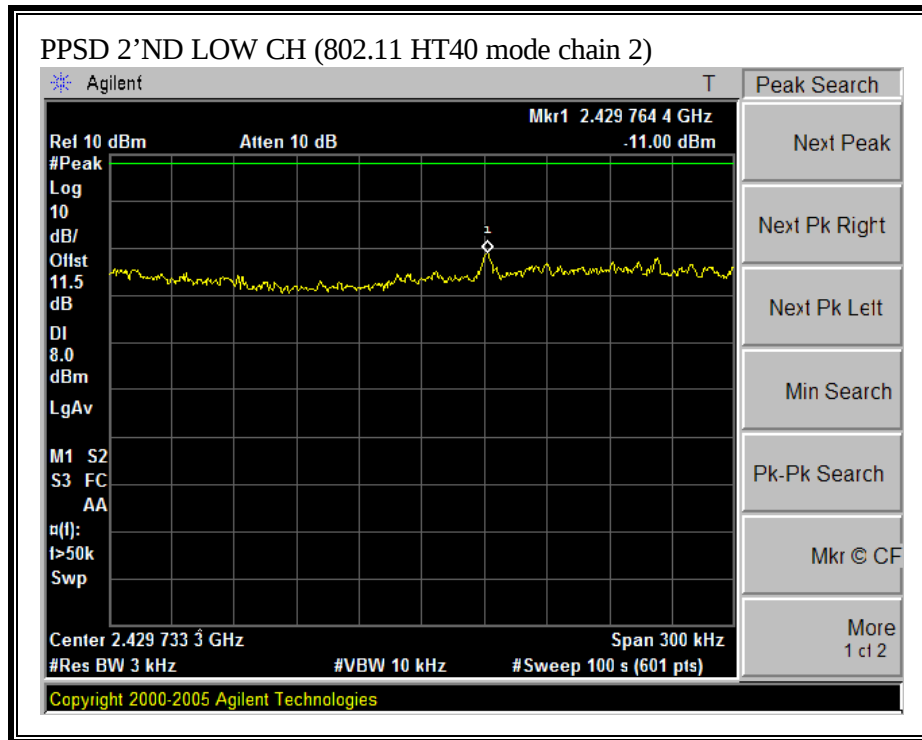


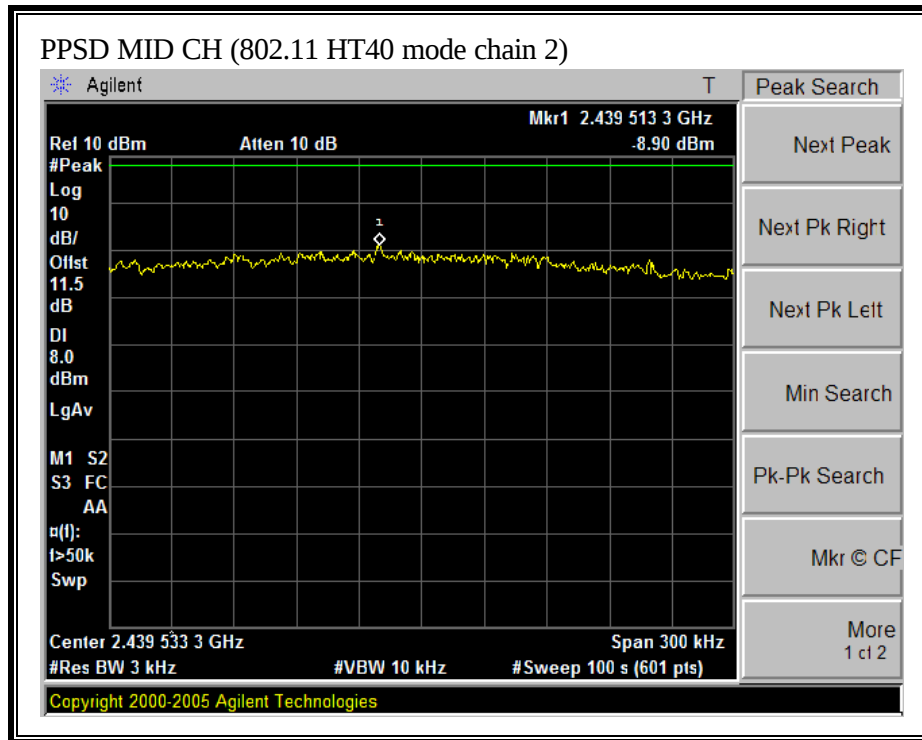


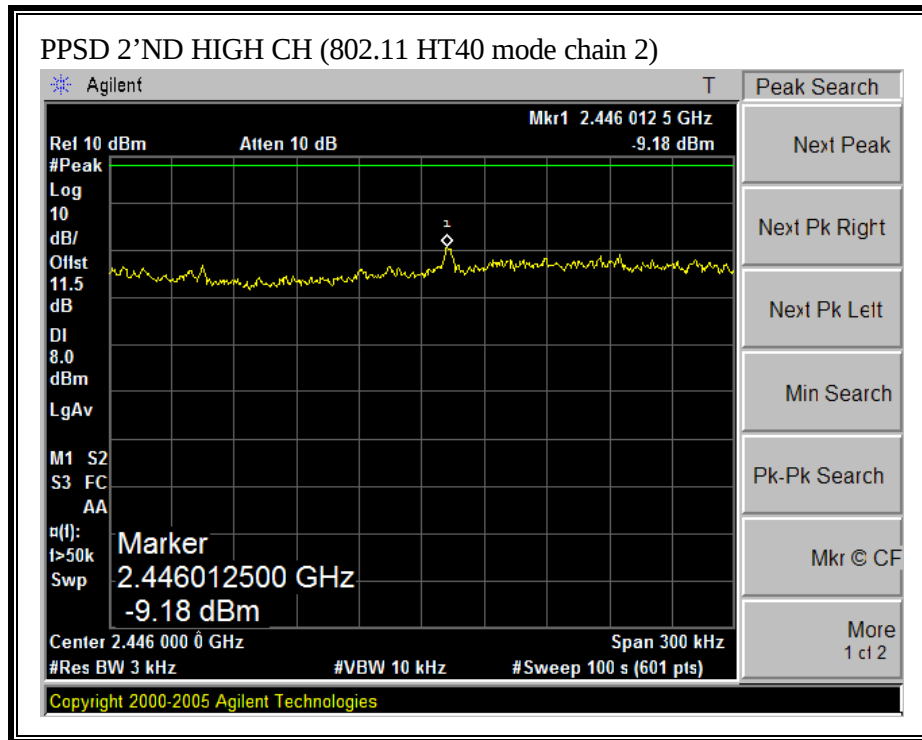


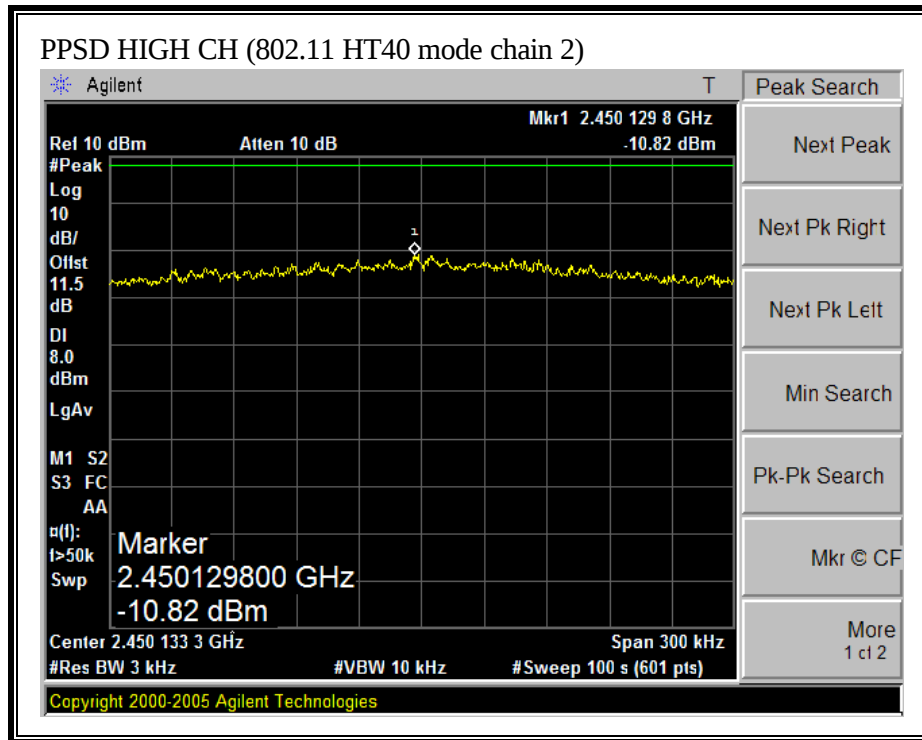
PEAK POWER SPECTRAL DENSITY (802.11 HT40 MODE CHAIN 2)











6.1.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (c) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Conducted power was measured based on the use of RMS averaging over a time interval, therefore the required attenuation is 30 dB.

TEST PROCEDURE

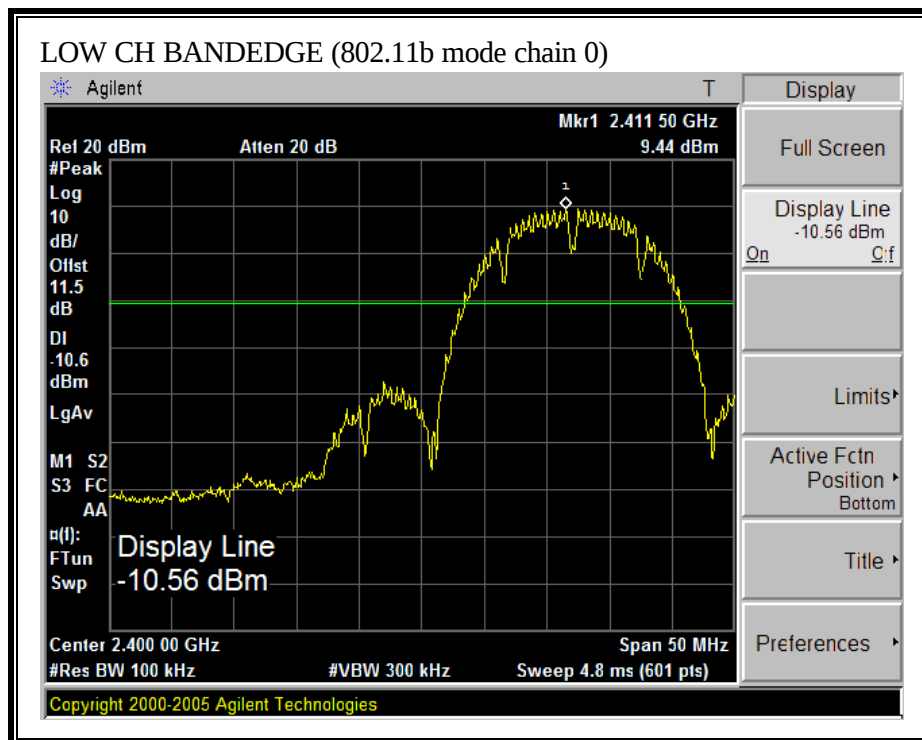
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

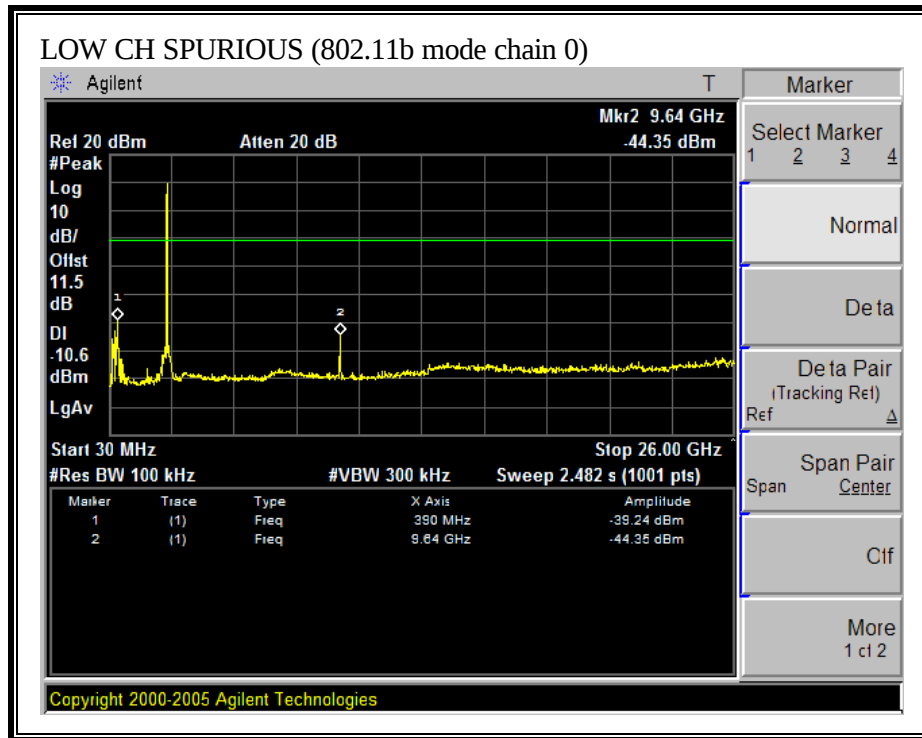
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

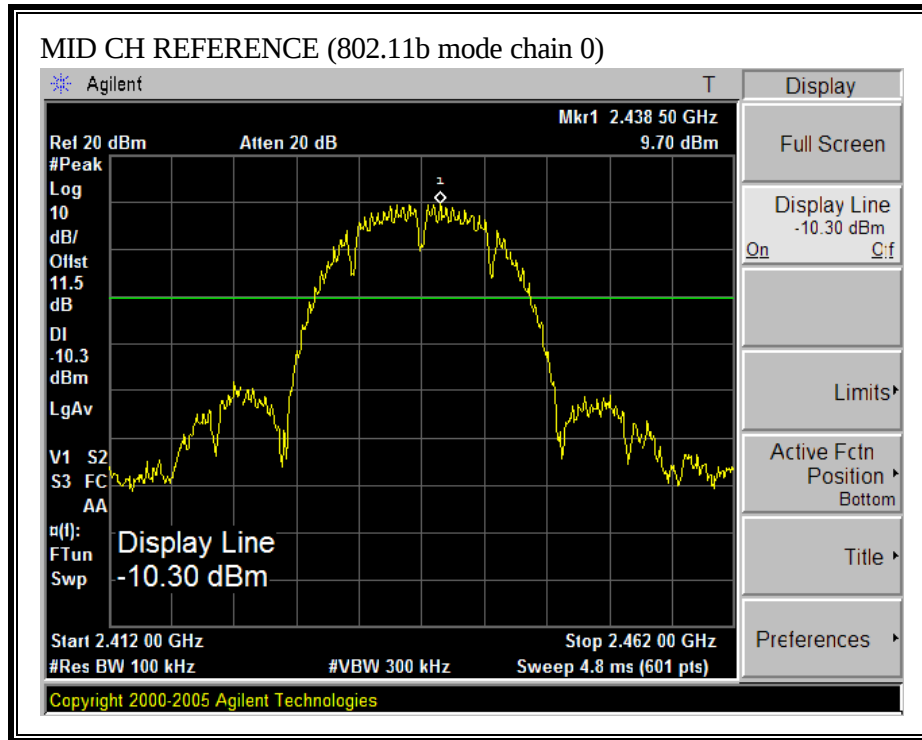
No non-compliance noted:

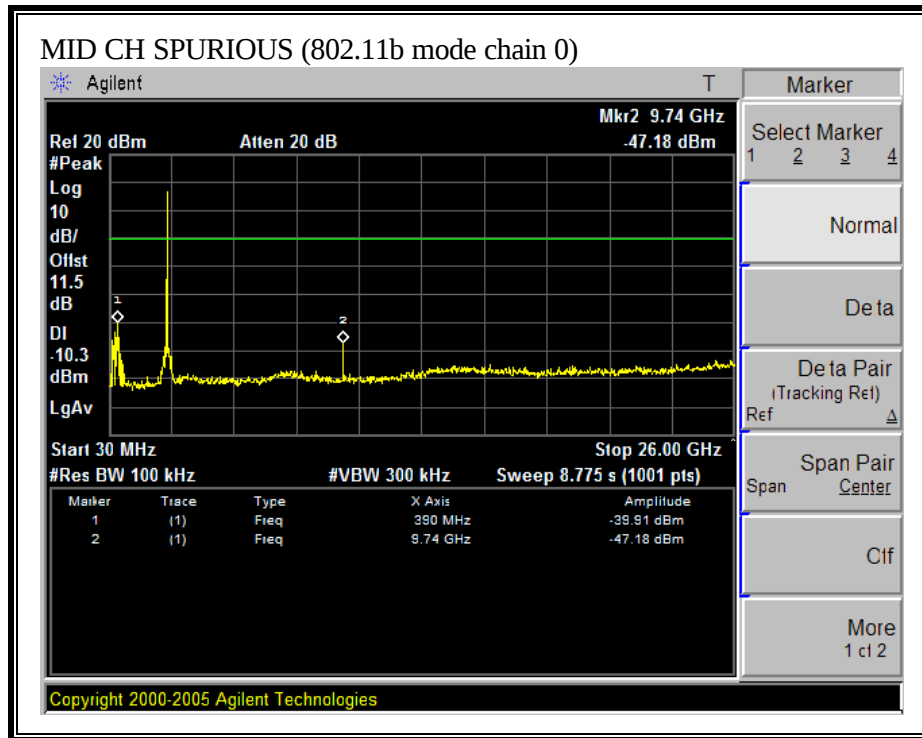
SPURIOUS EMISSIONS, LOW CHANNEL (802.11b MODE CHAIN 0)



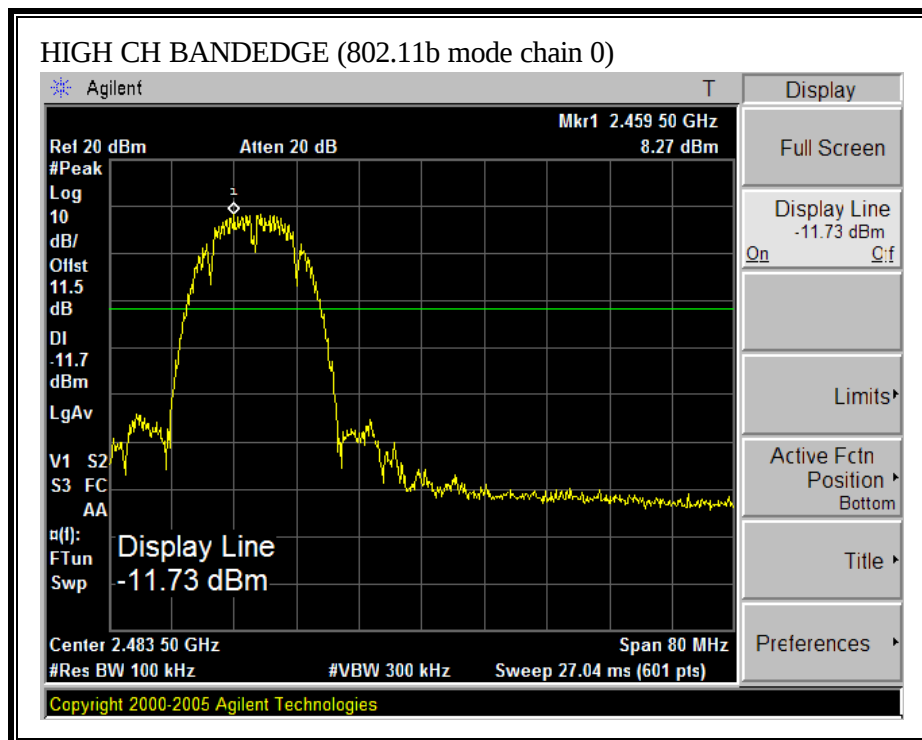


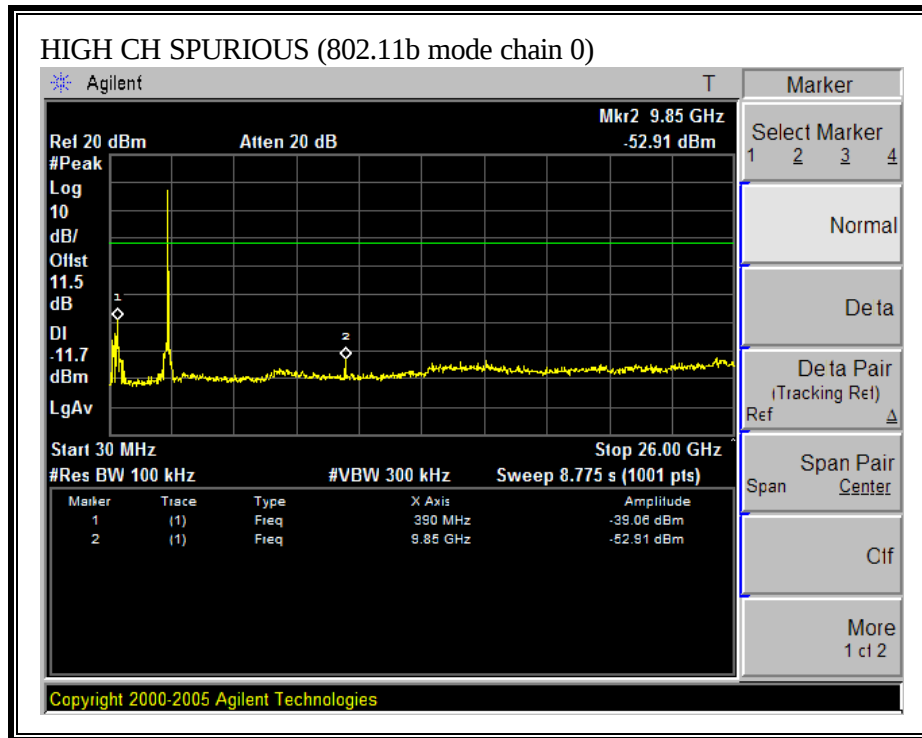
SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11B MODE CHAIN 0)



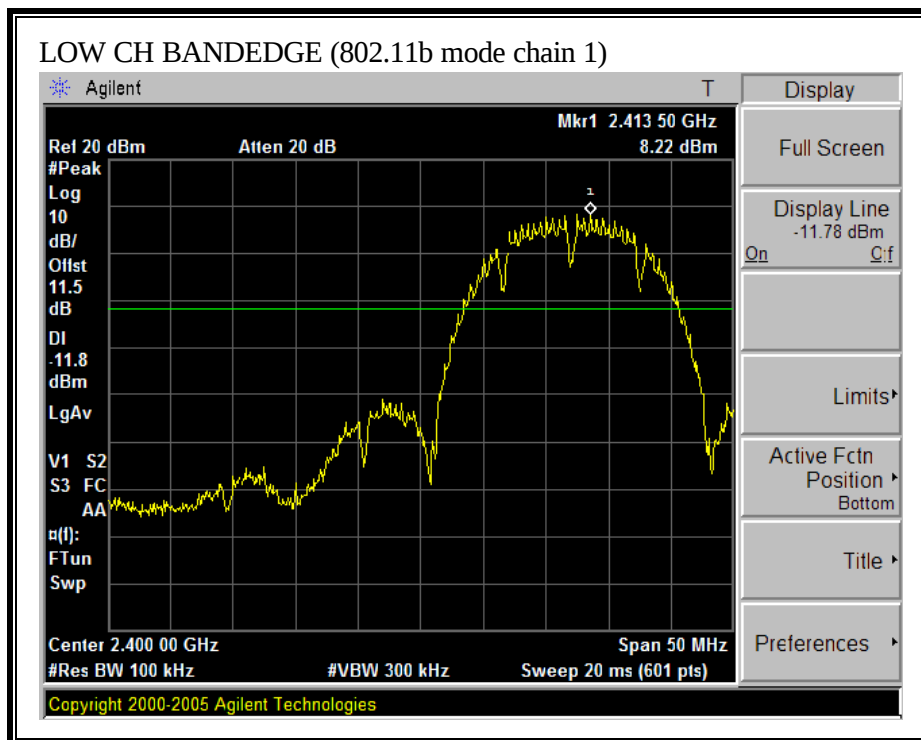


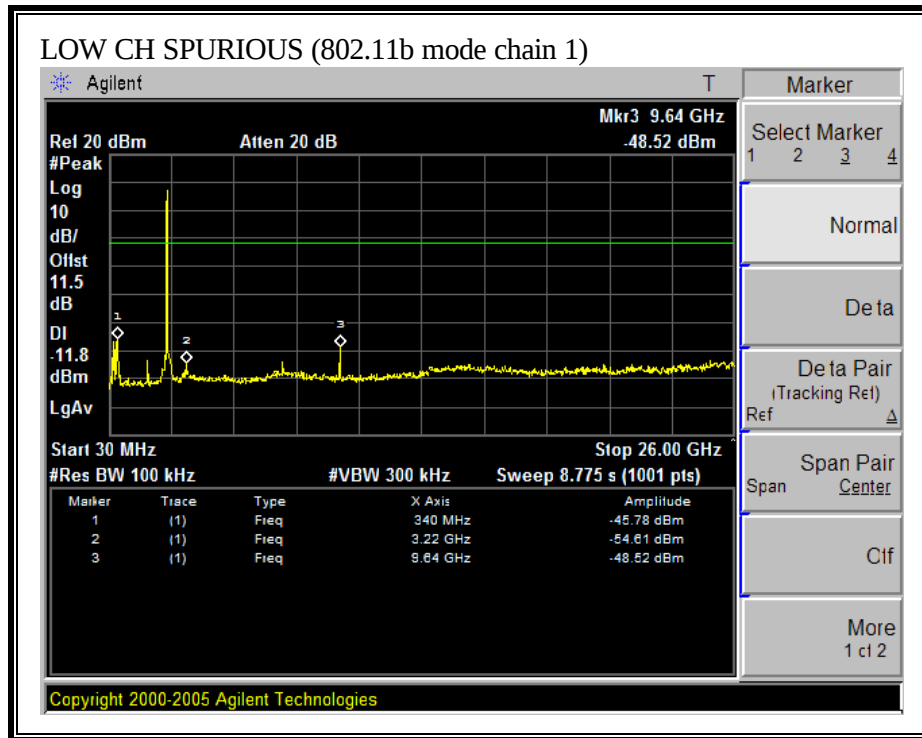
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11b MODE CHAIN 0)



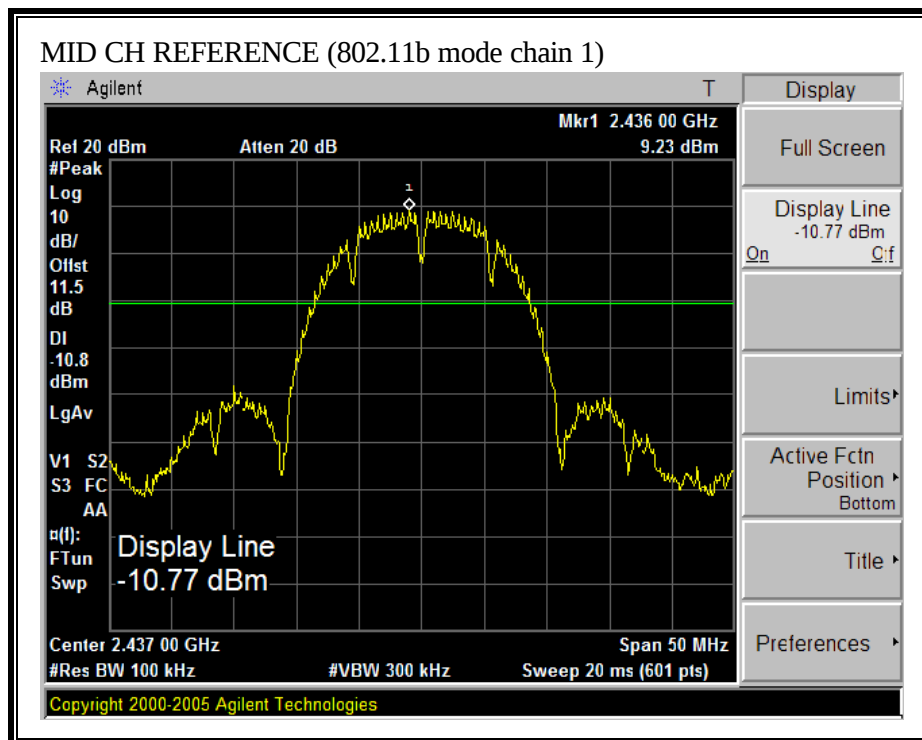


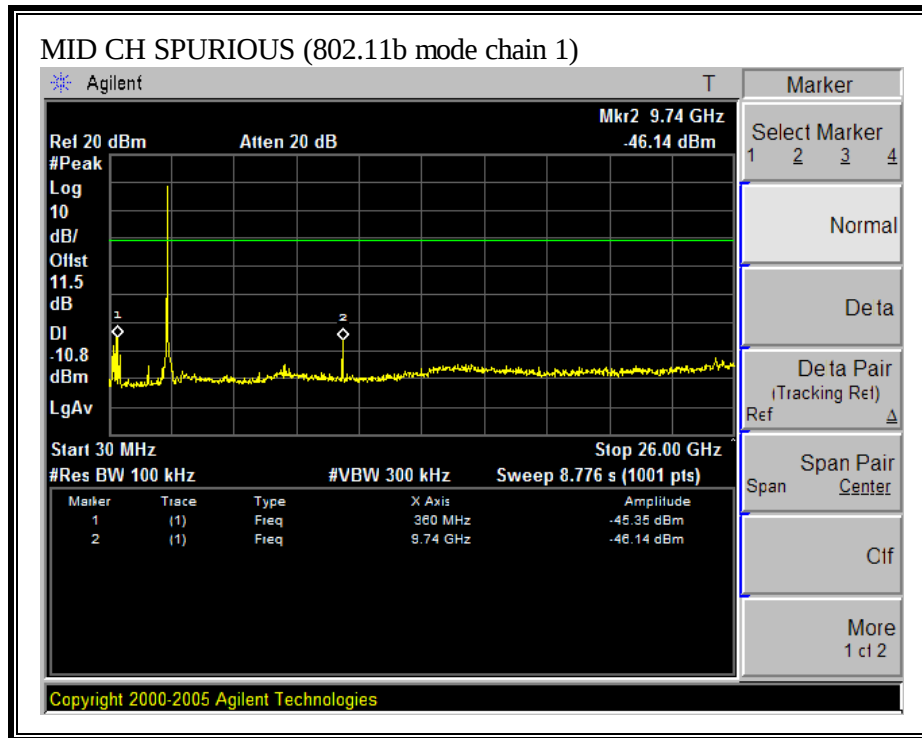
SPURIOUS EMISSIONS, LOW CHANNEL (802.11b MODE CHAIN 1)



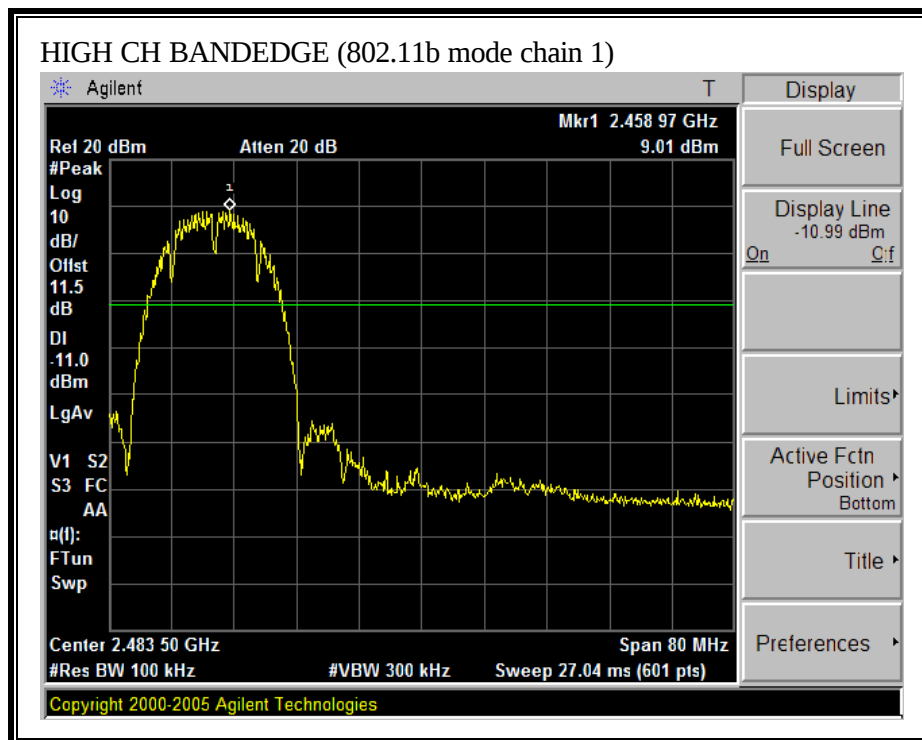


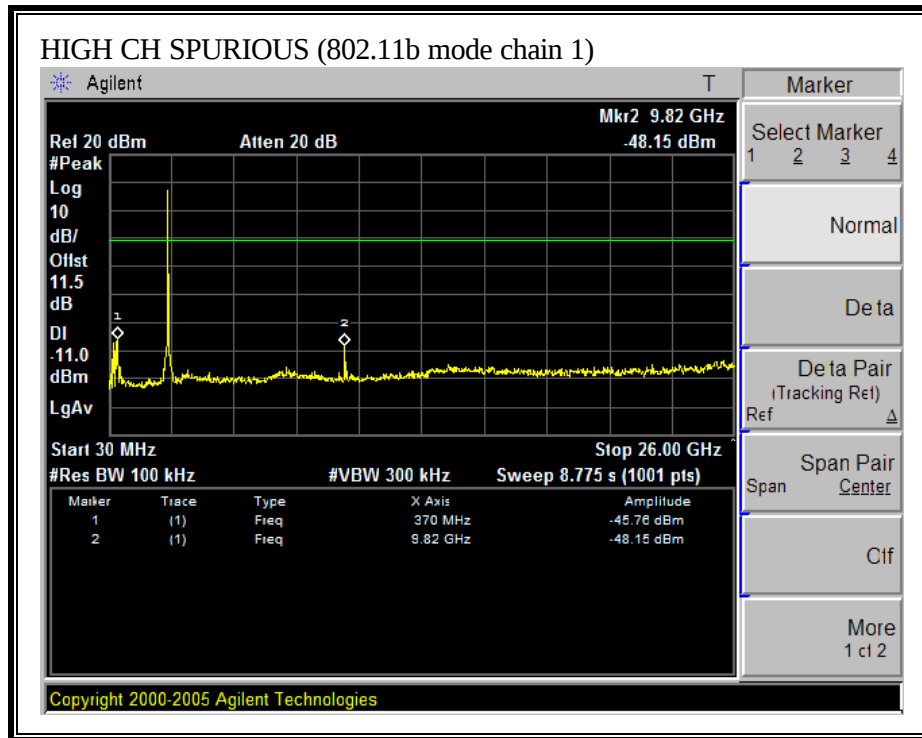
SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11B MODE CHAIN 1)



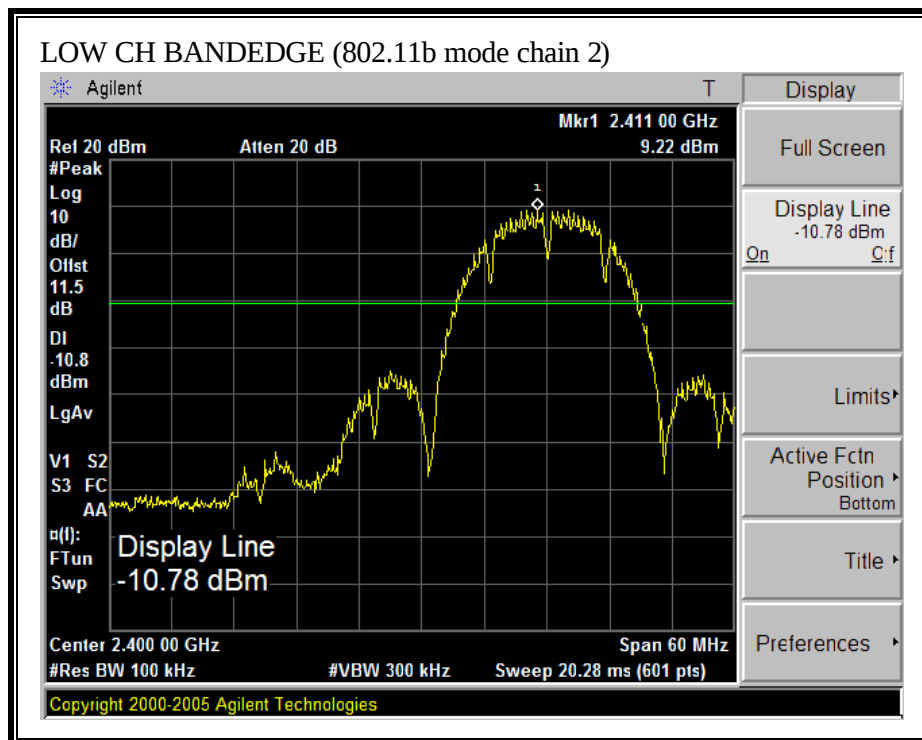


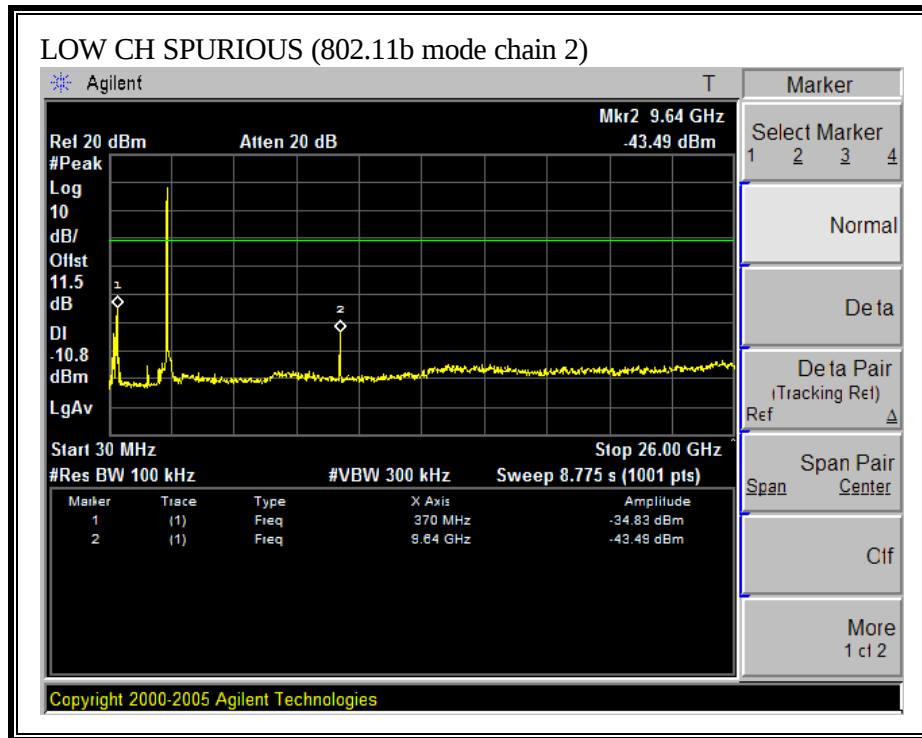
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11b MODE CHAIN 1)



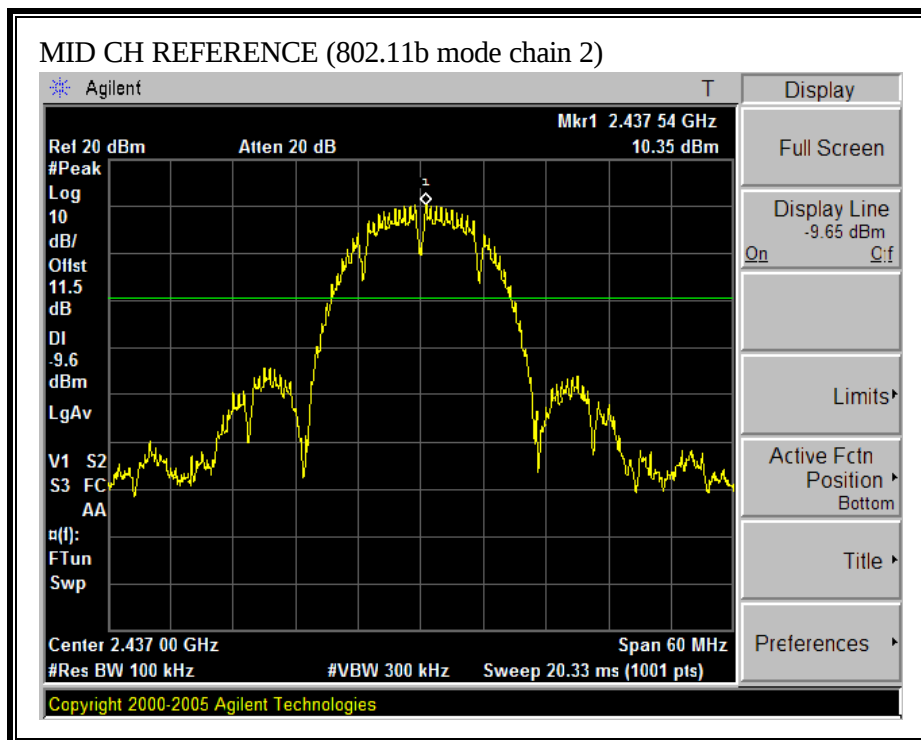


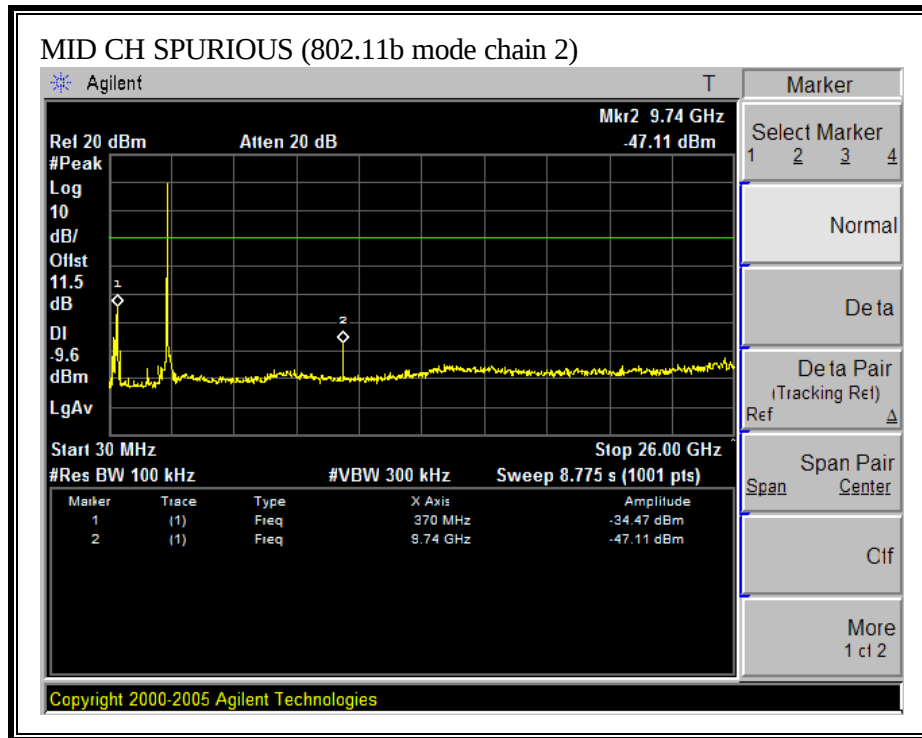
SPURIOUS EMISSIONS, LOW CHANNEL (802.11b MODE CHAIN 2)



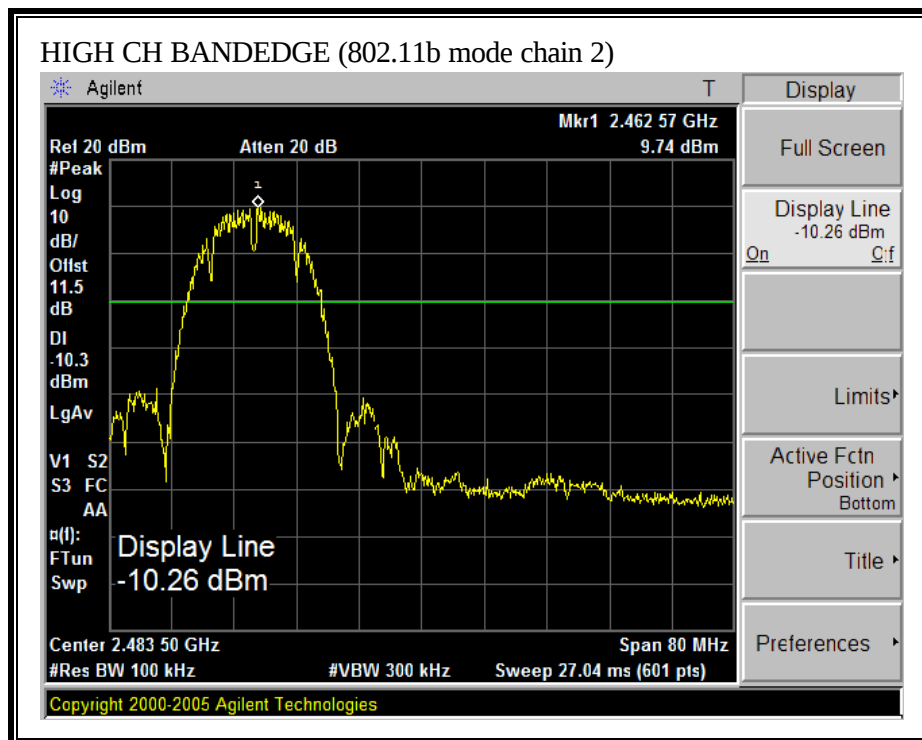


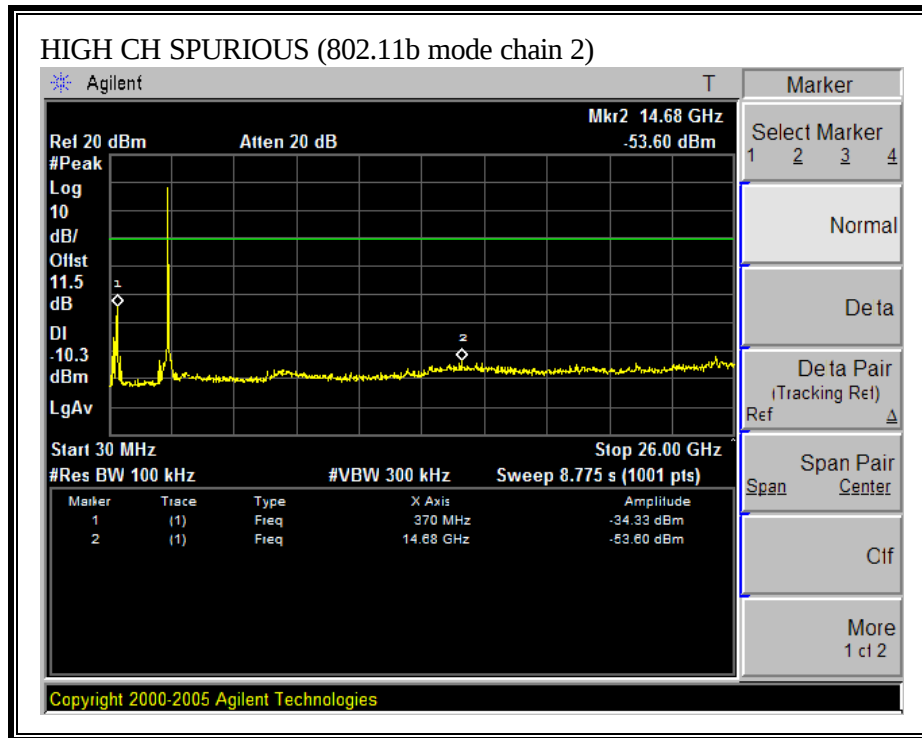
SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11B MODE CHAIN 2)



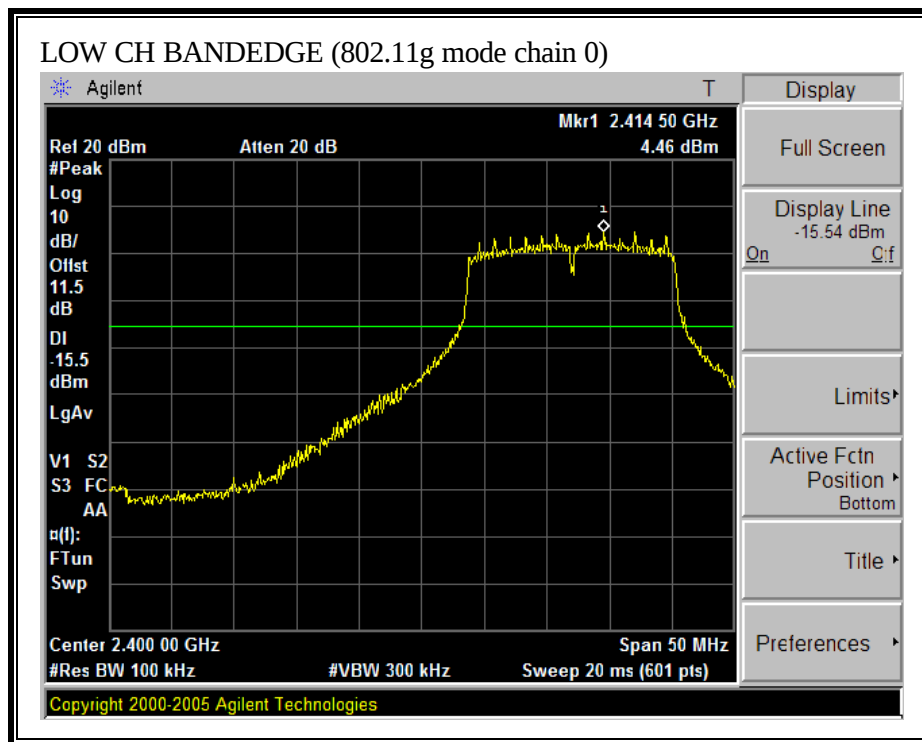


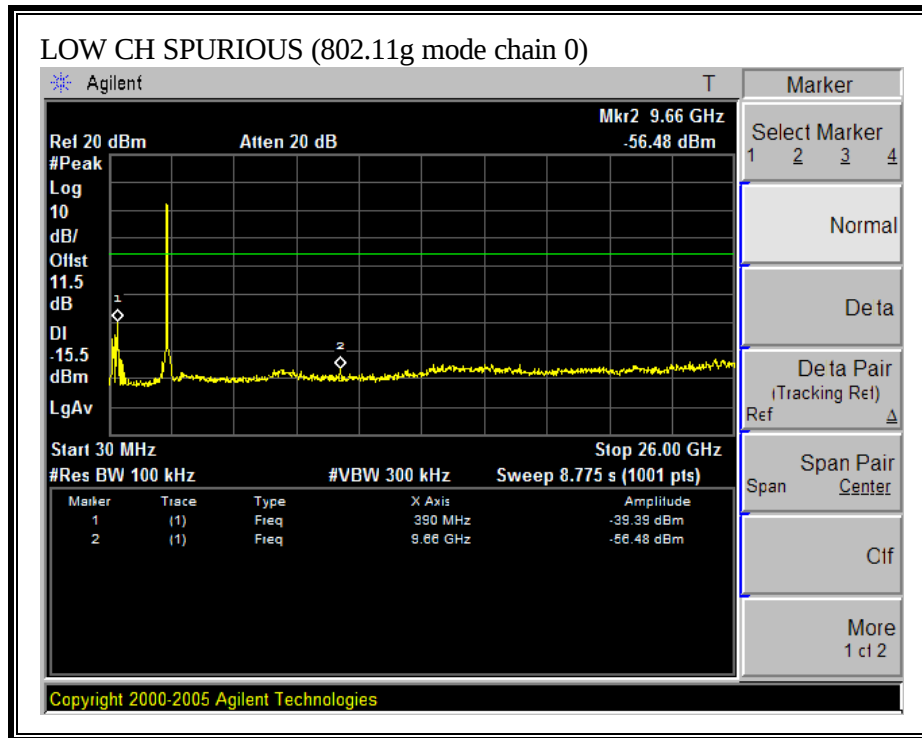
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11b MODE CHAIN 2)



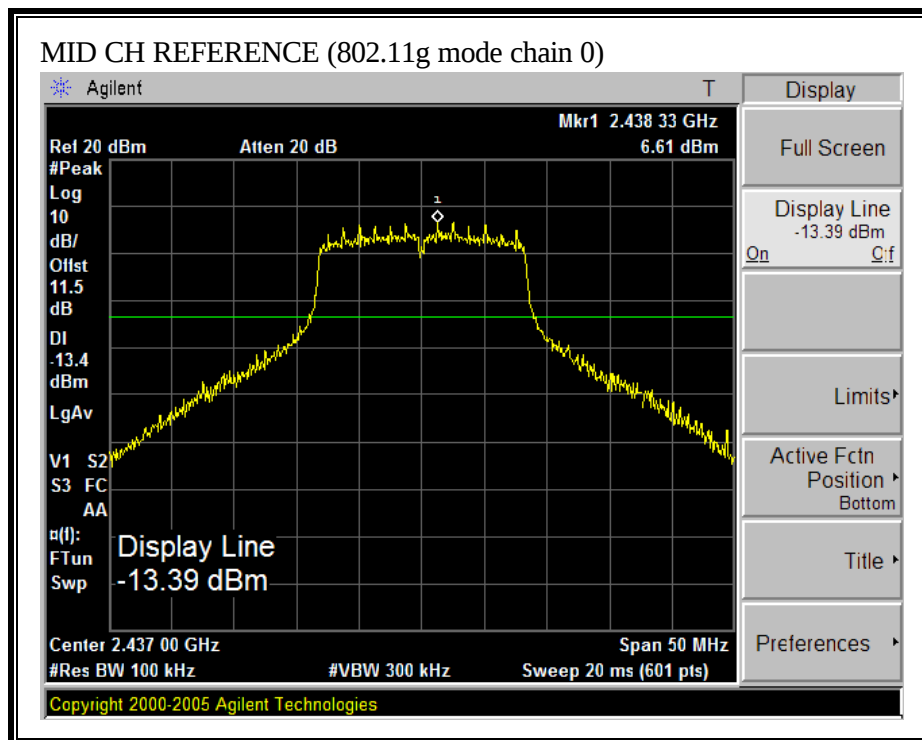


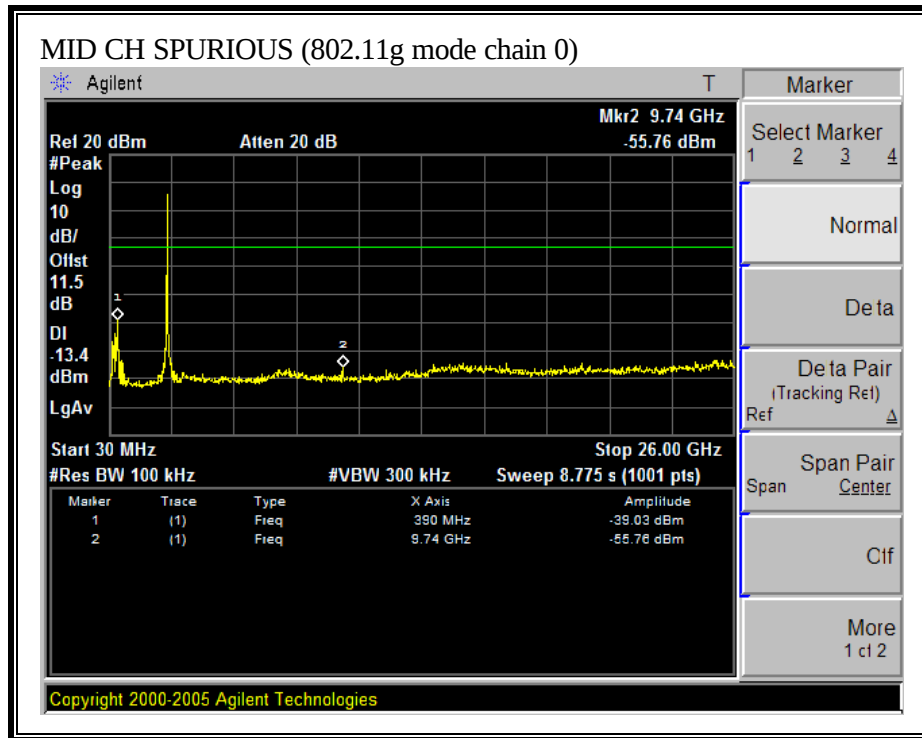
SPURIOUS EMISSIONS, LOW CHANNEL (802.11g MODE CHAIN 0)



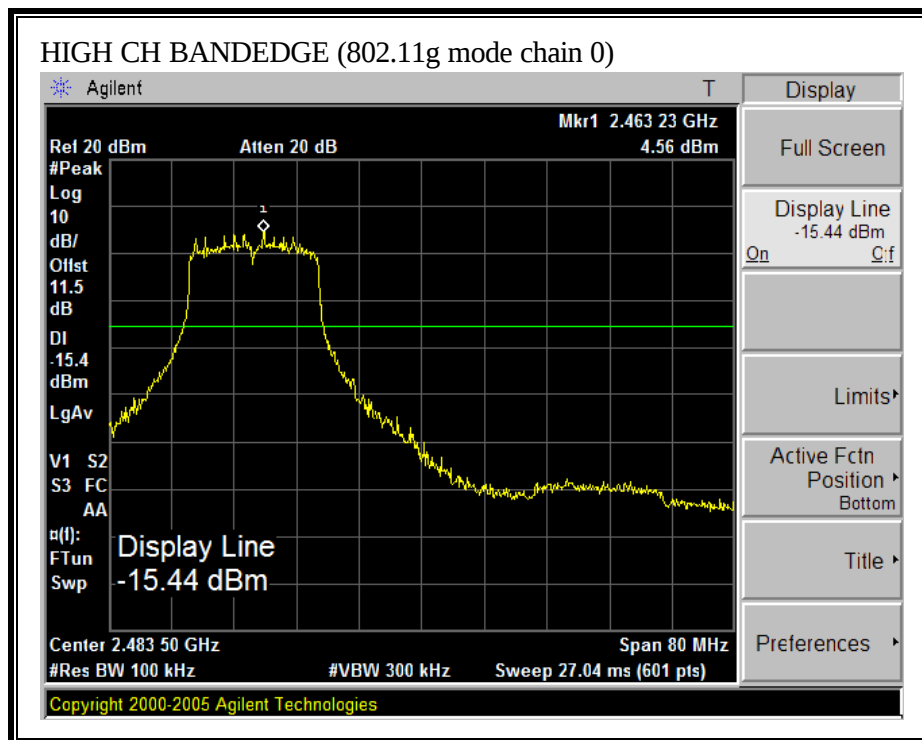


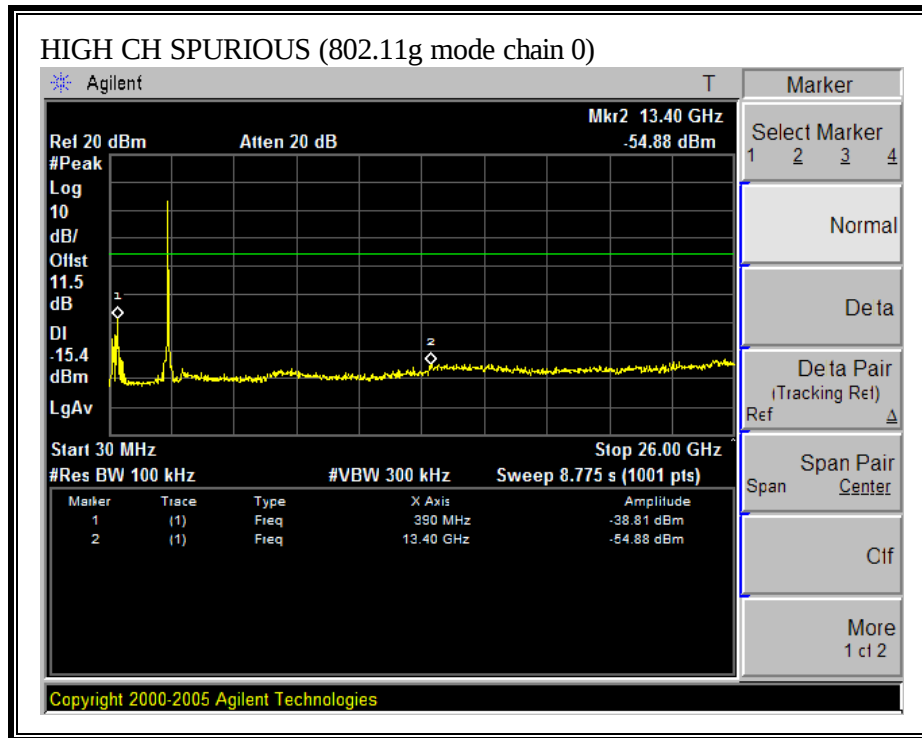
SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11g MODE CHAIN 0)



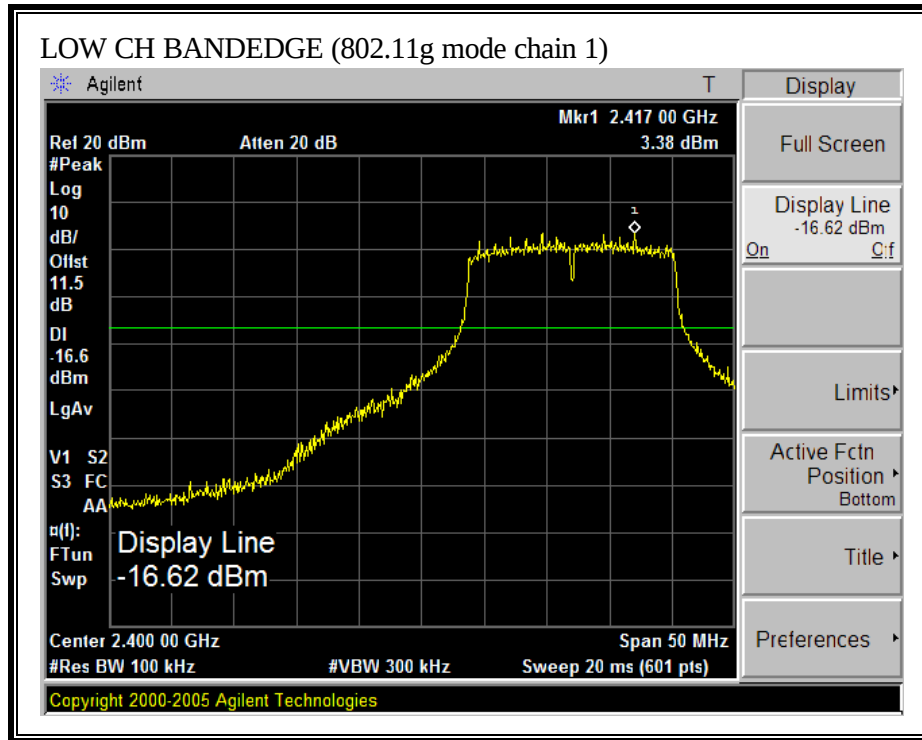


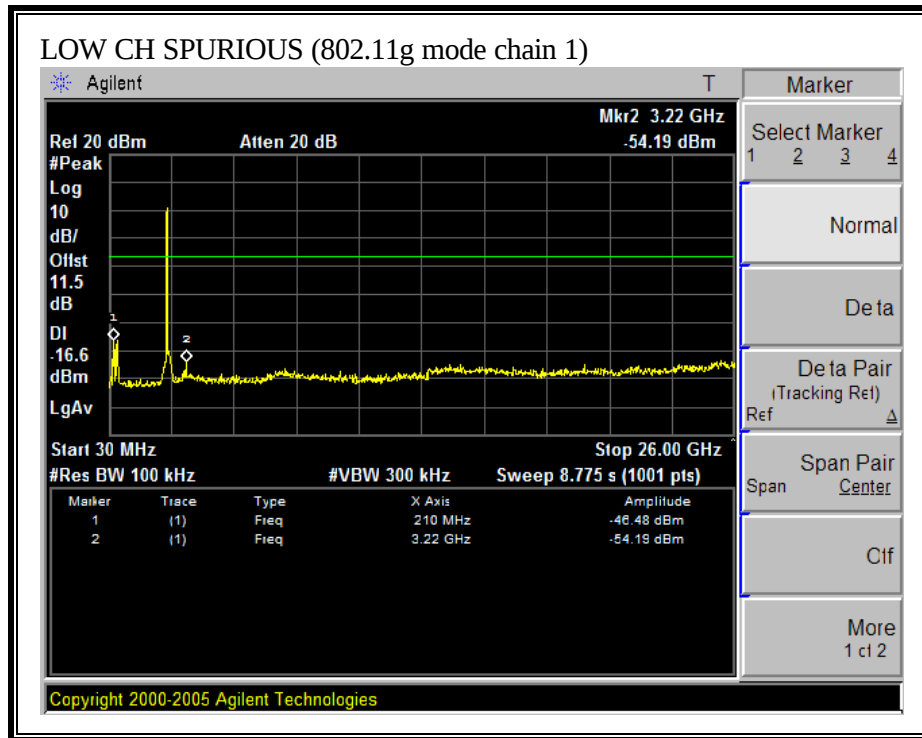
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11g MODE CHAIN 0)



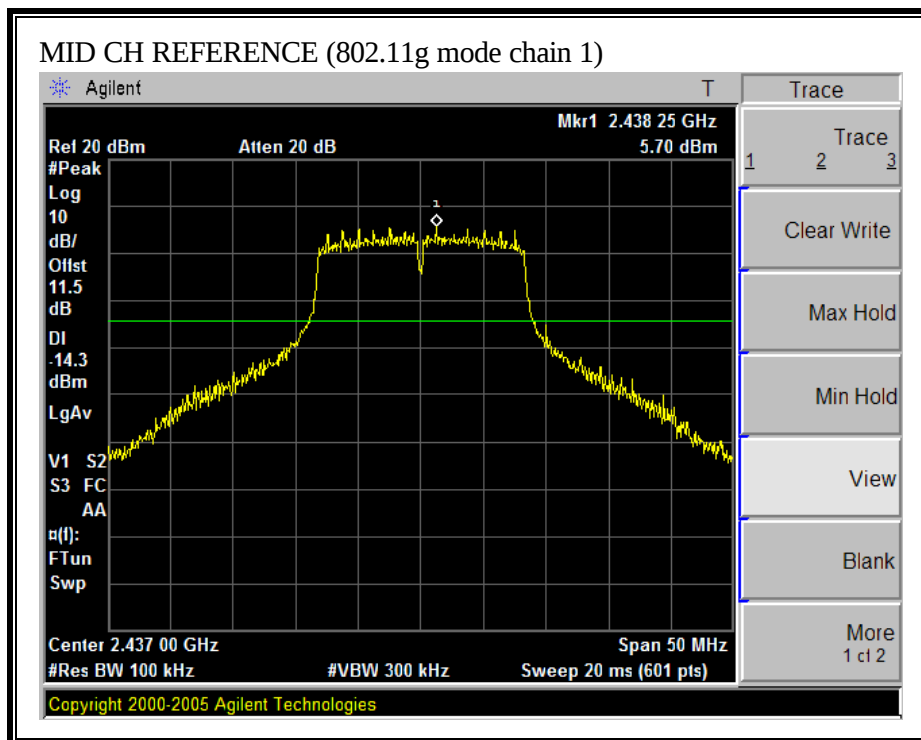


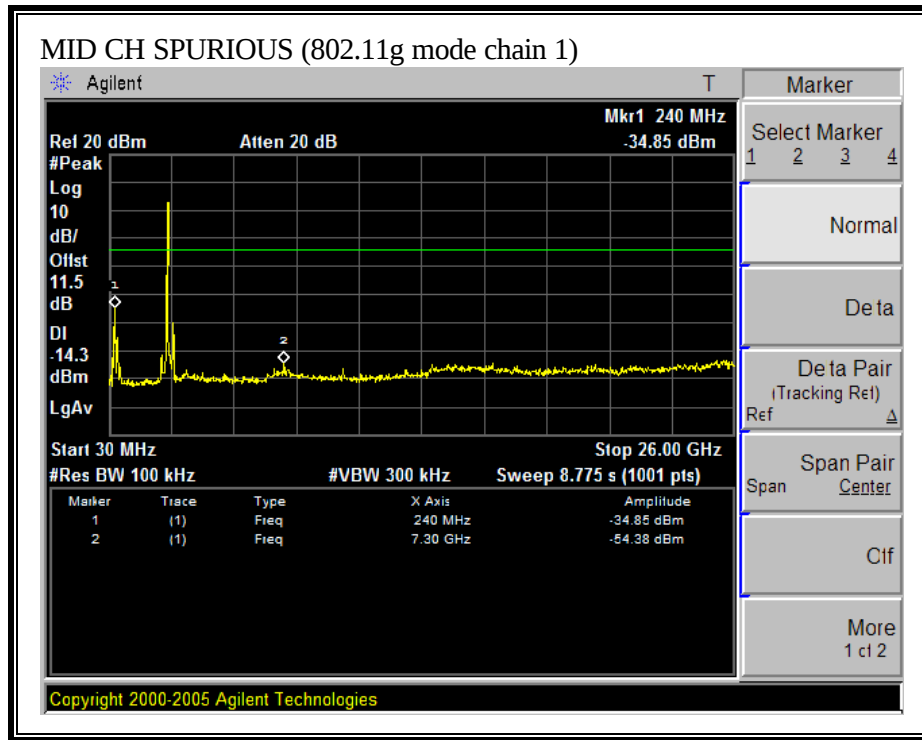
SPURIOUS EMISSIONS, LOW CHANNEL (802.11g MODE CHAIN 1)



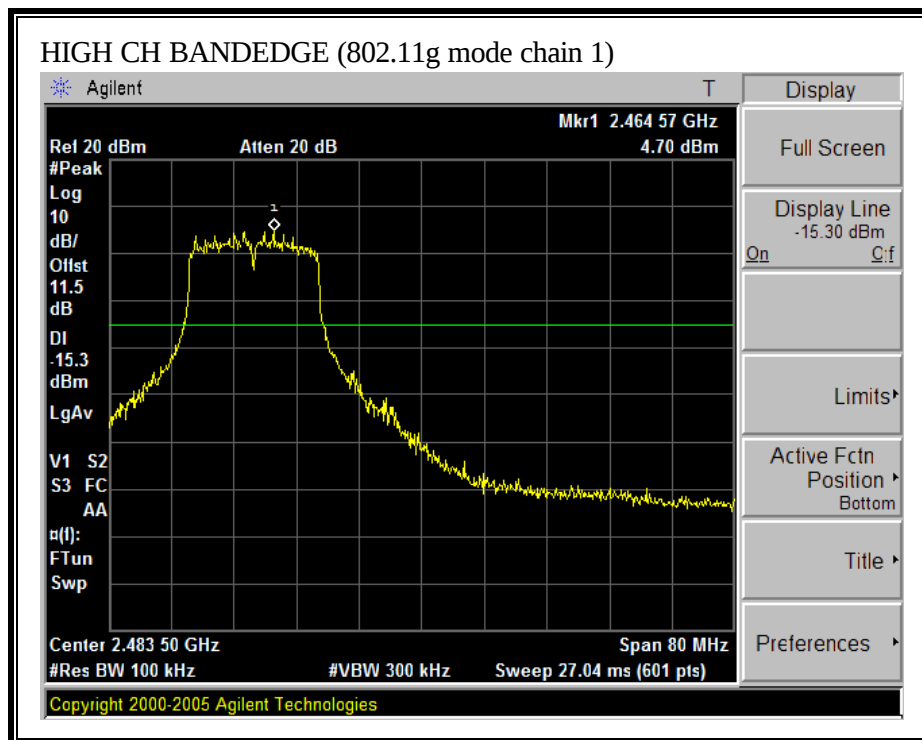


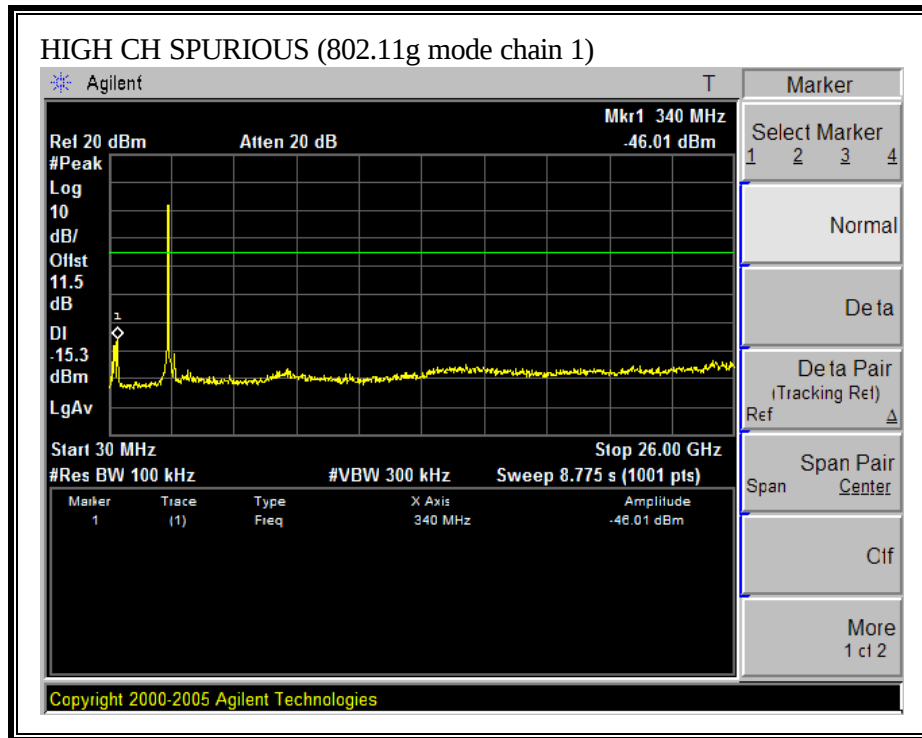
SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11g MODE CHAIN 1)



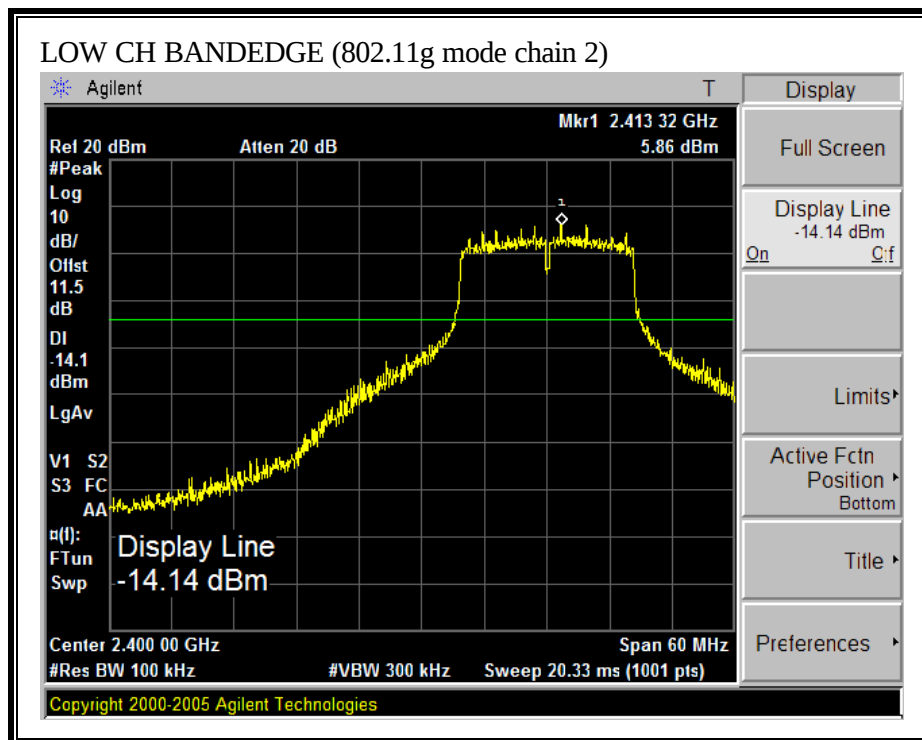


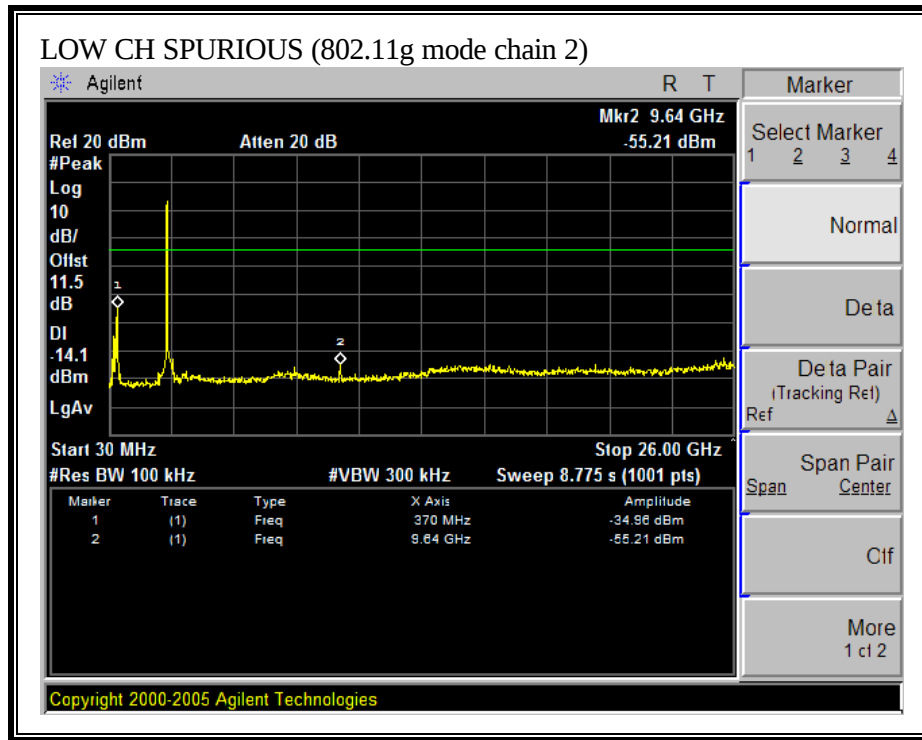
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11g MODE CHAIN 1)



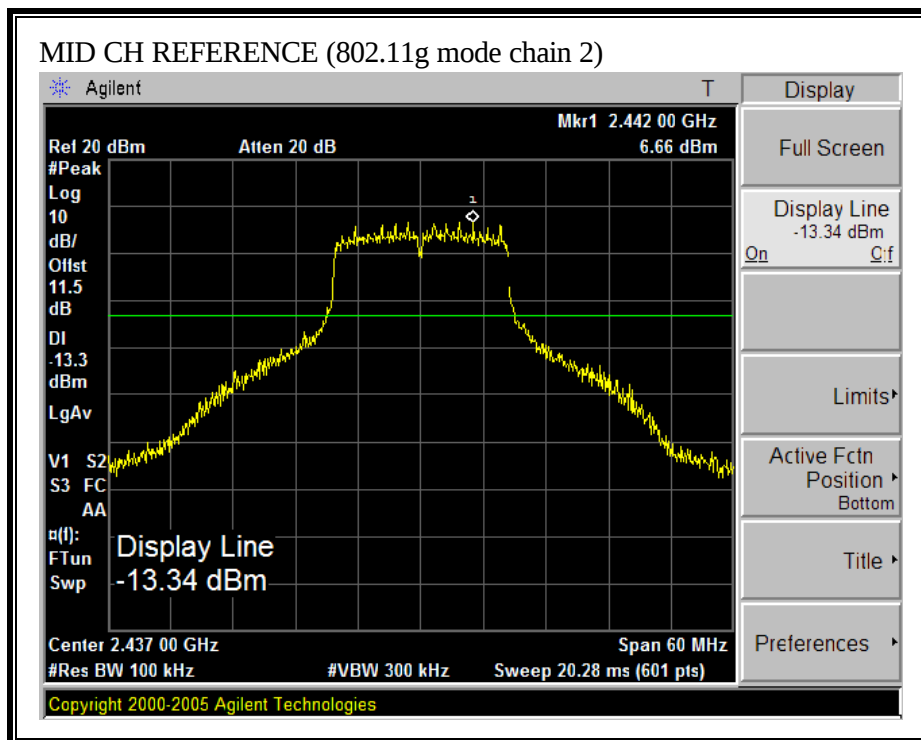


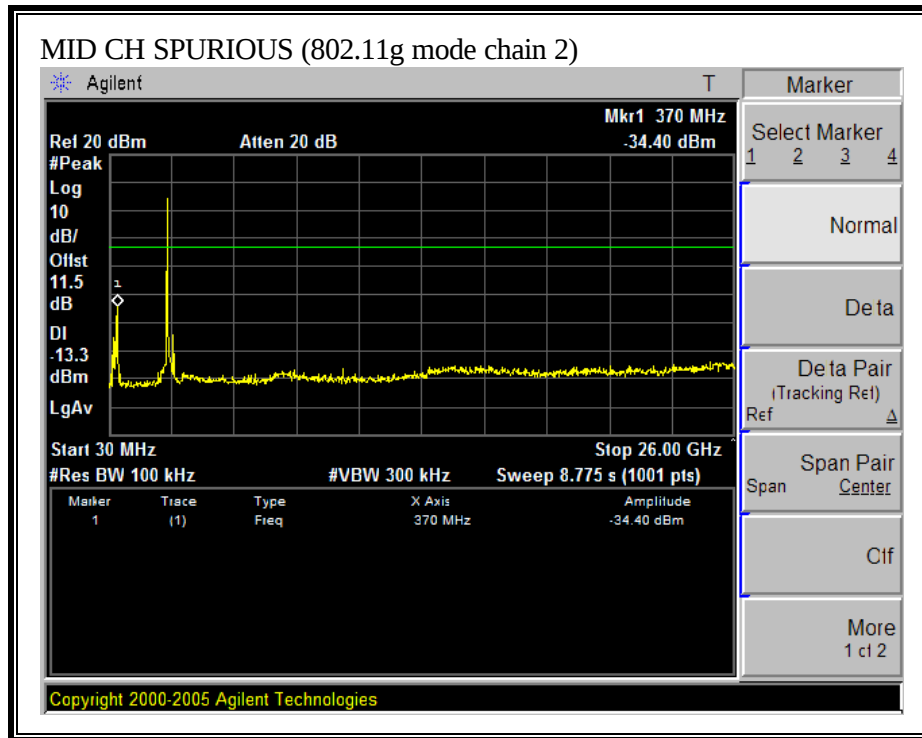
SPURIOUS EMISSIONS, LOW CHANNEL (802.11g MODE CHAIN 2)



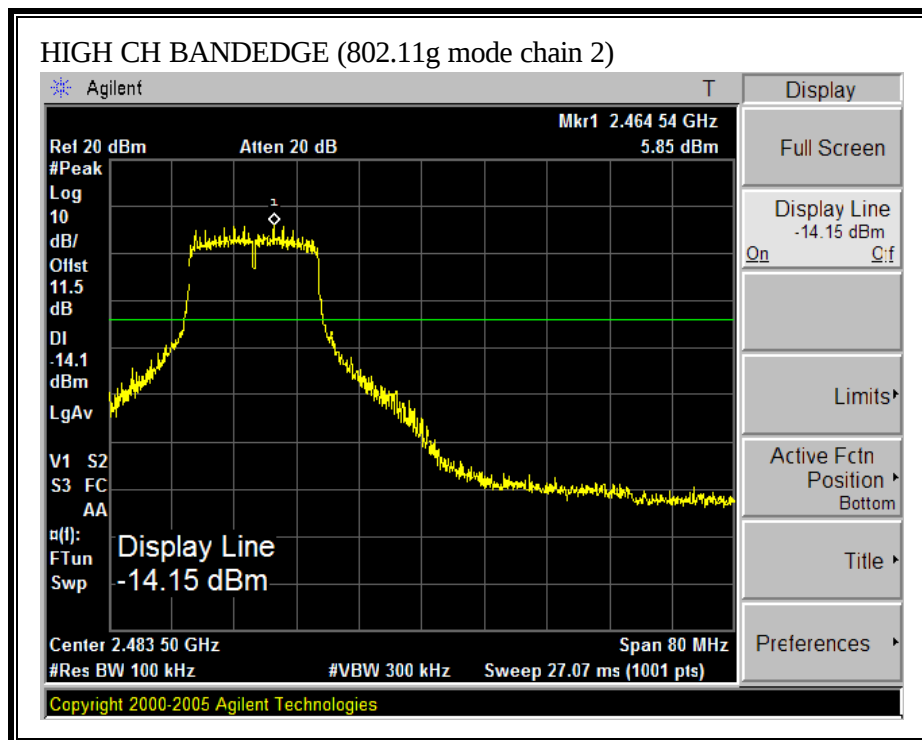


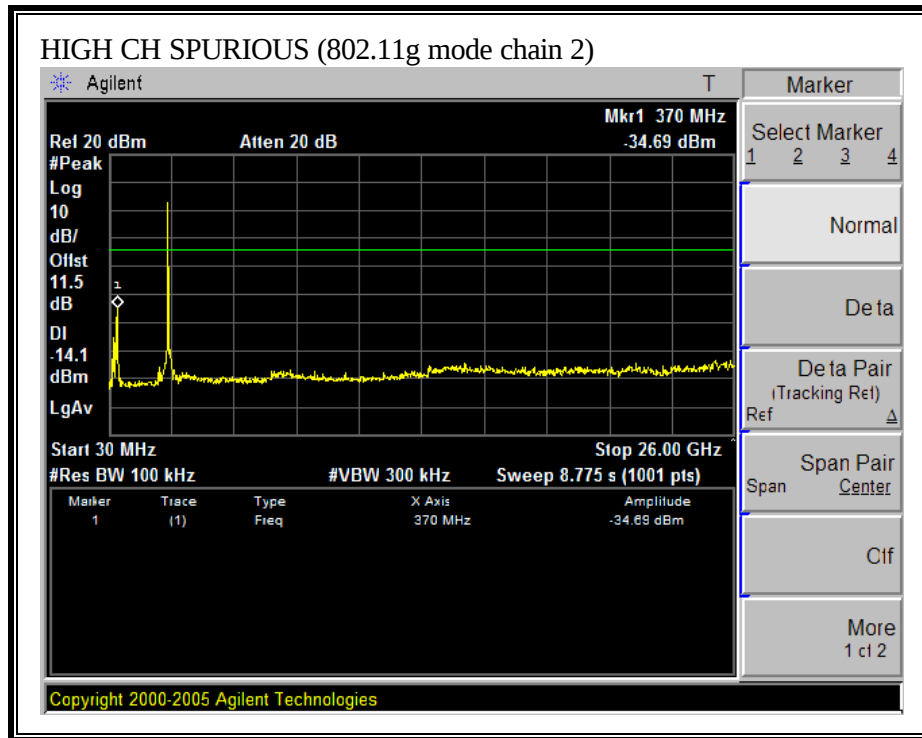
SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11g MODE CHAIN 2)



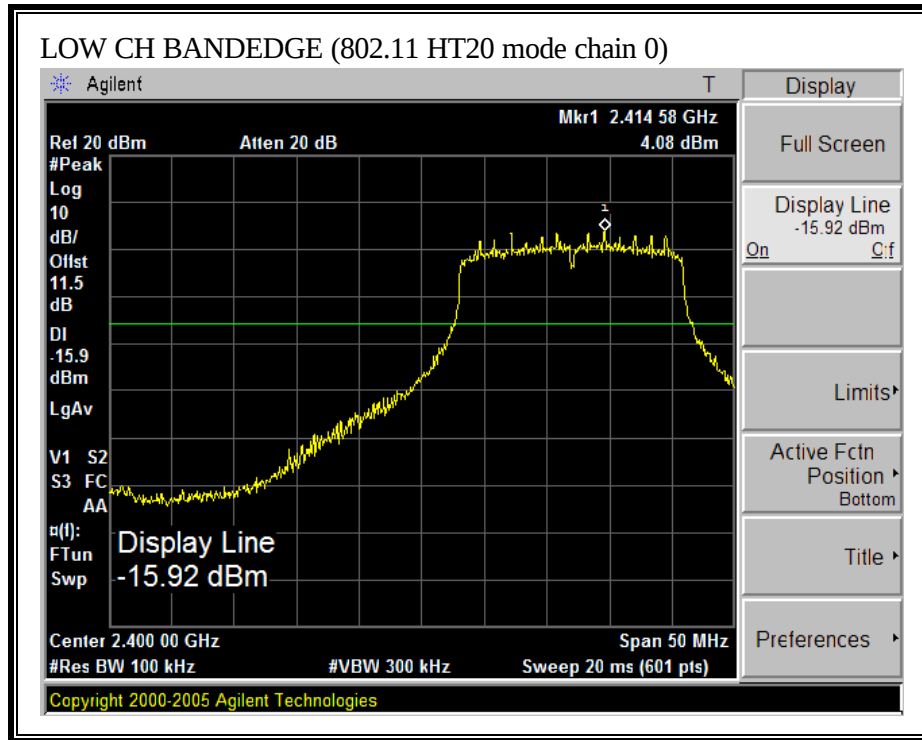


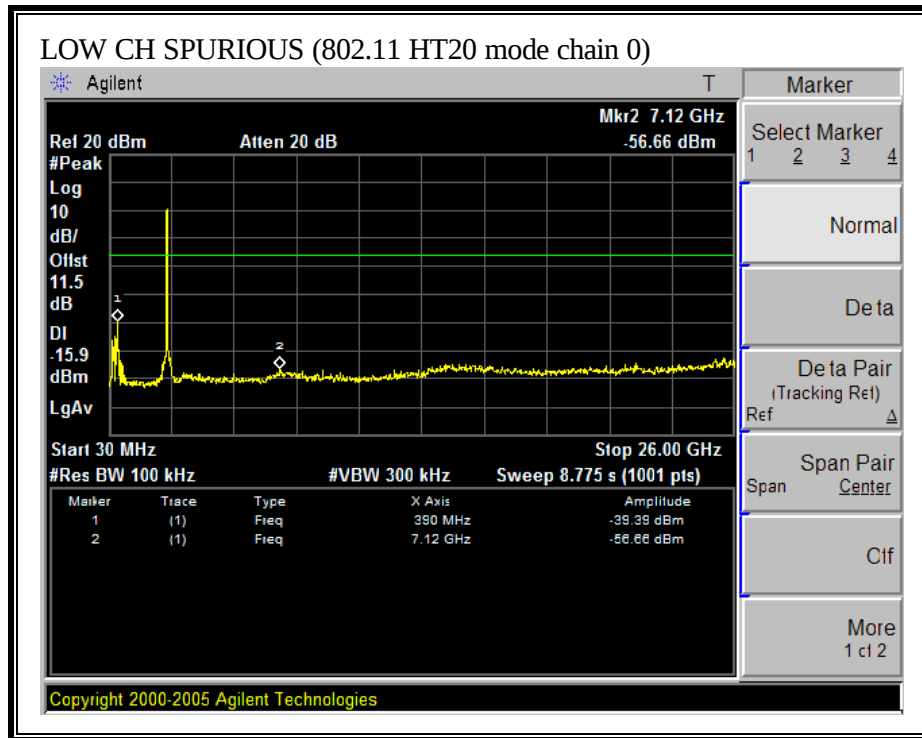
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11g MODE CHAIN 2)



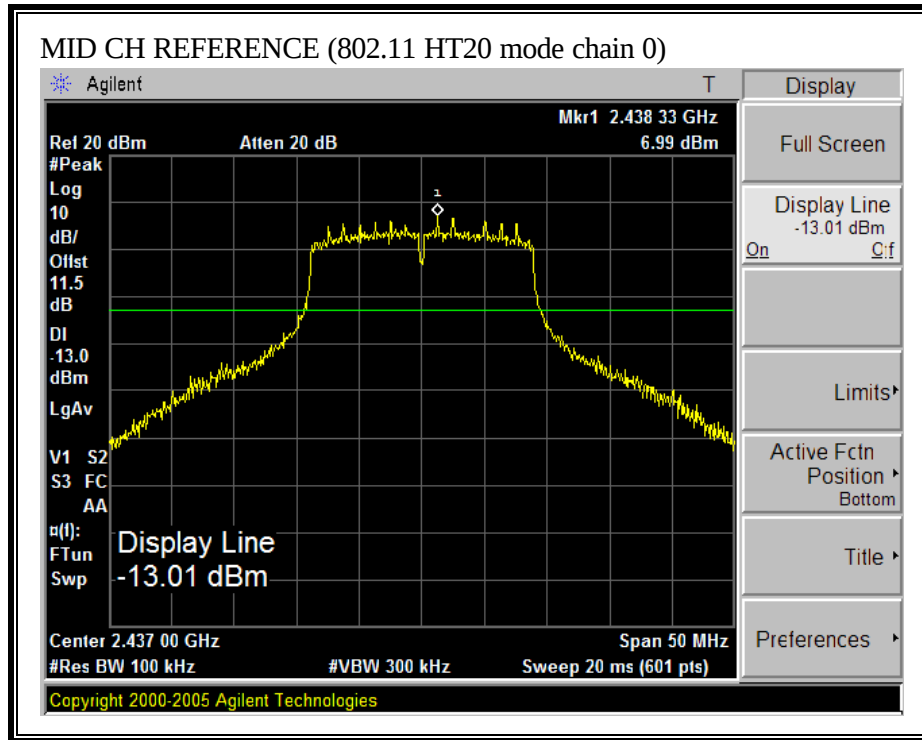


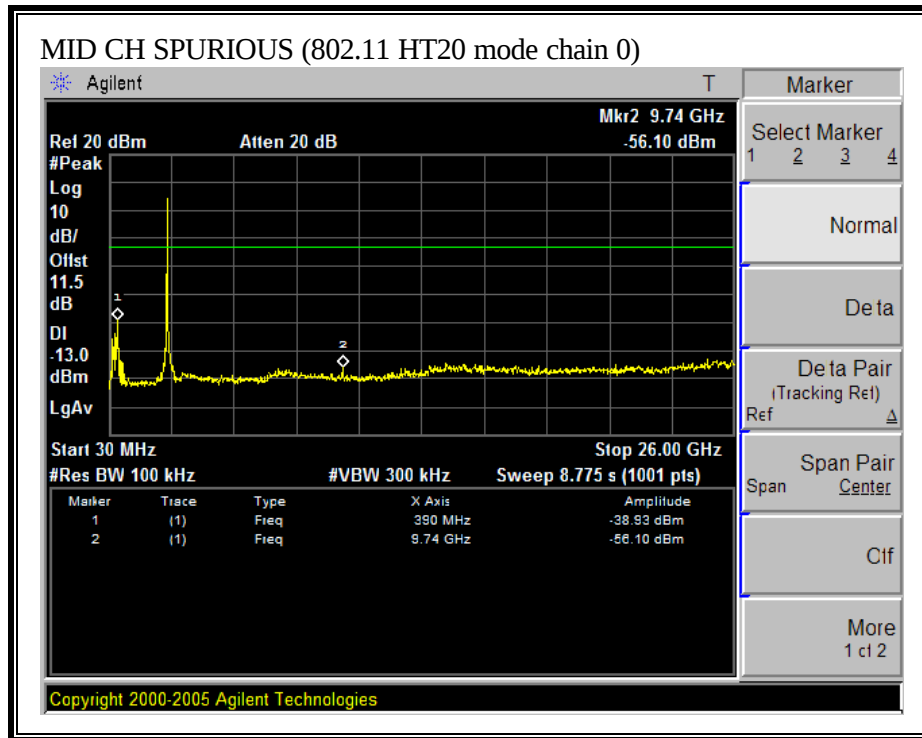
SPURIOUS EMISSIONS, LOW CHANNEL (802.11 HT20 MODE CHAIN 0)



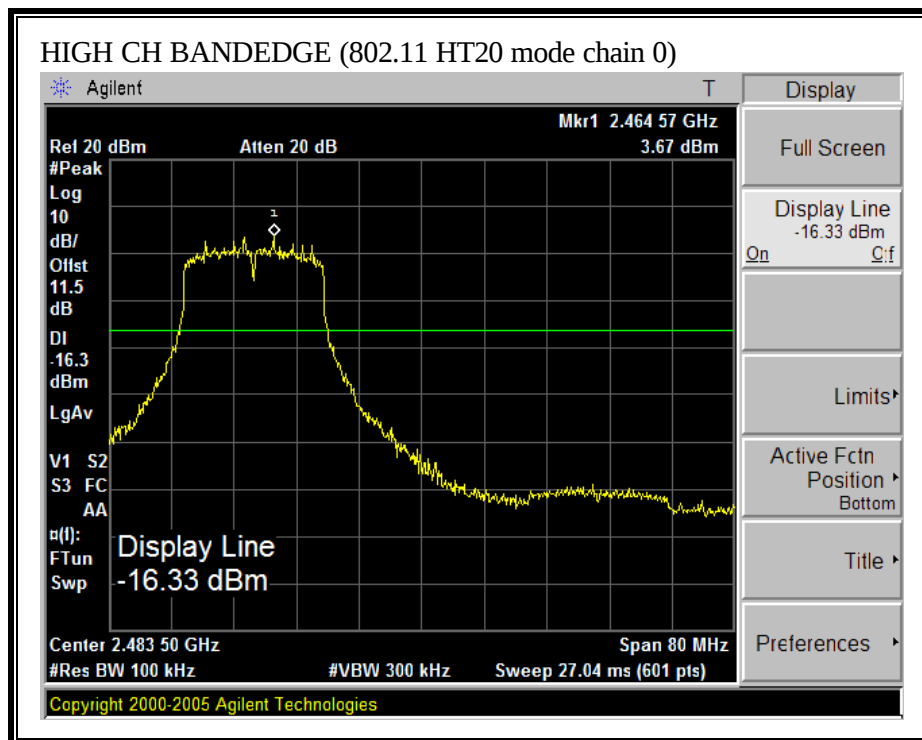


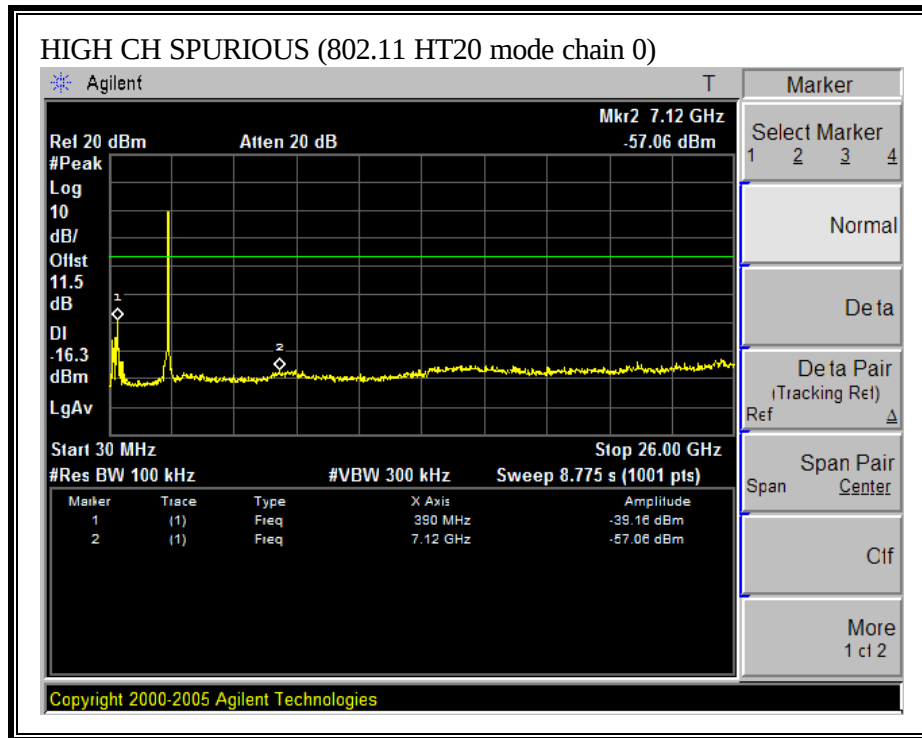
SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11 HT20 MODE CHAIN 0)



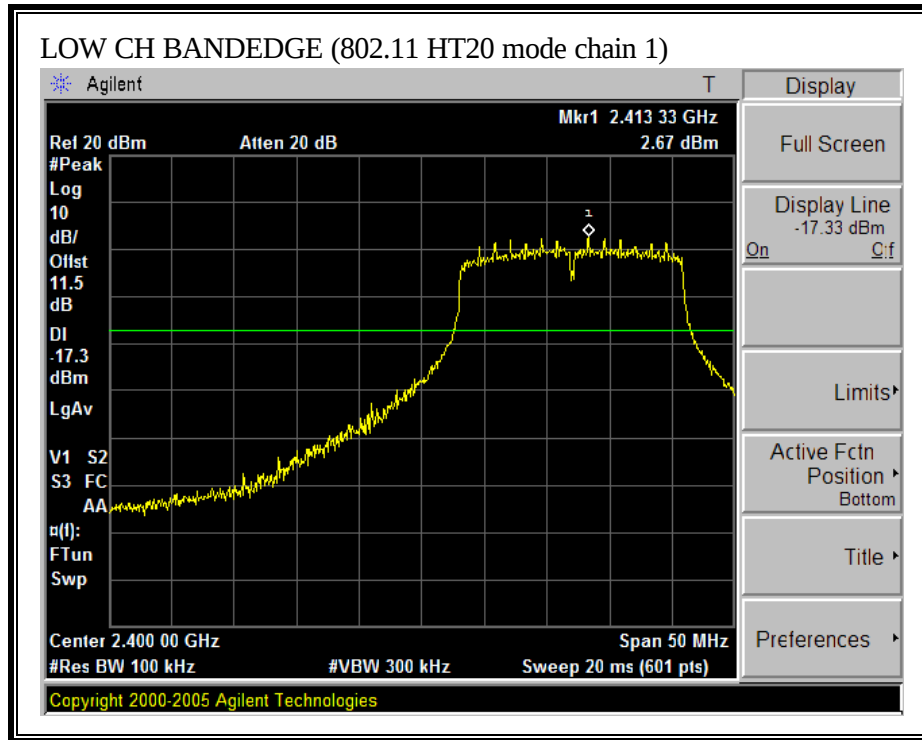


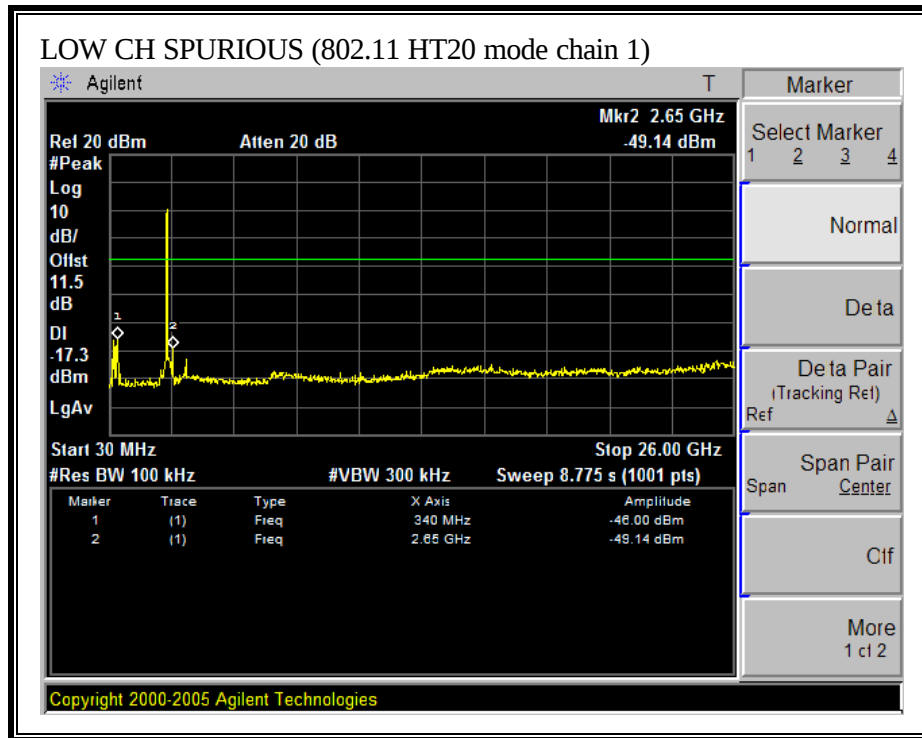
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 HT20 MODE CHAIN 0)



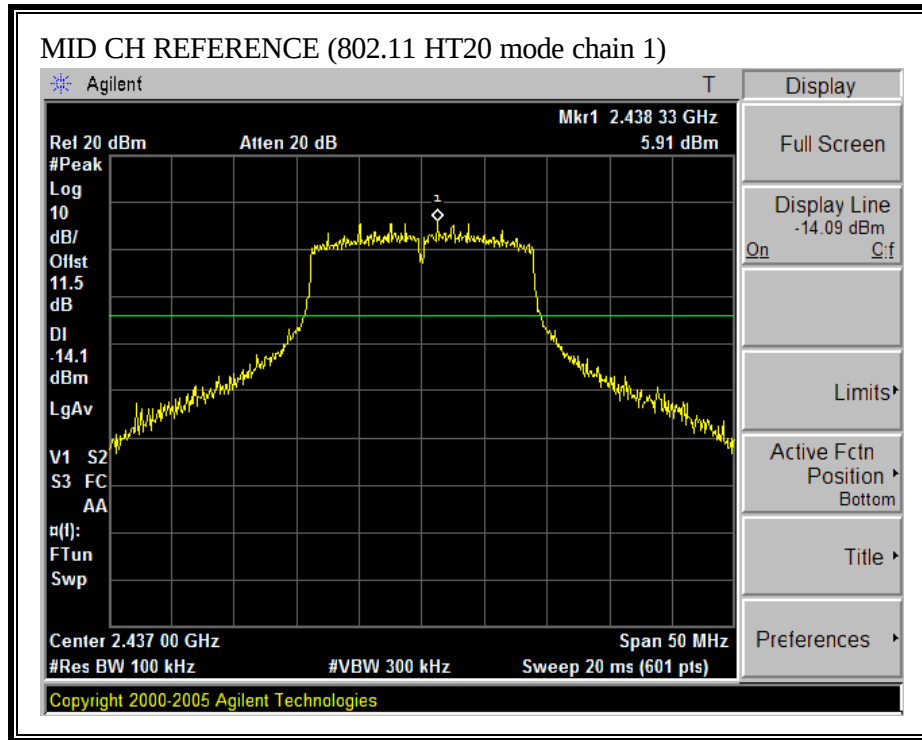


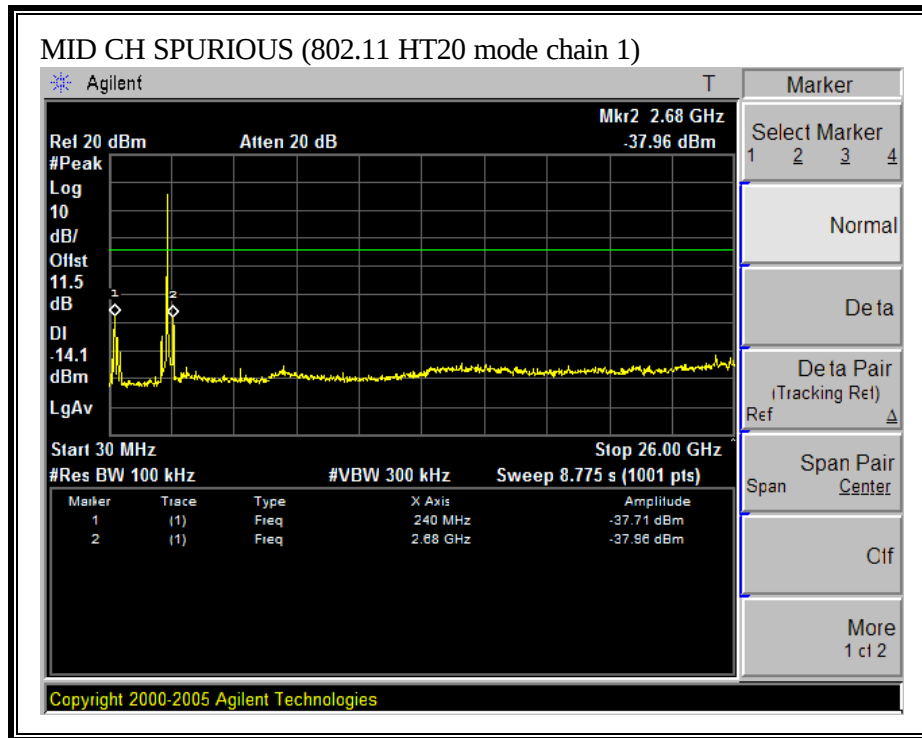
SPURIOUS EMISSIONS, LOW CHANNEL (802.11 HT20 MODE CHAIN 1)



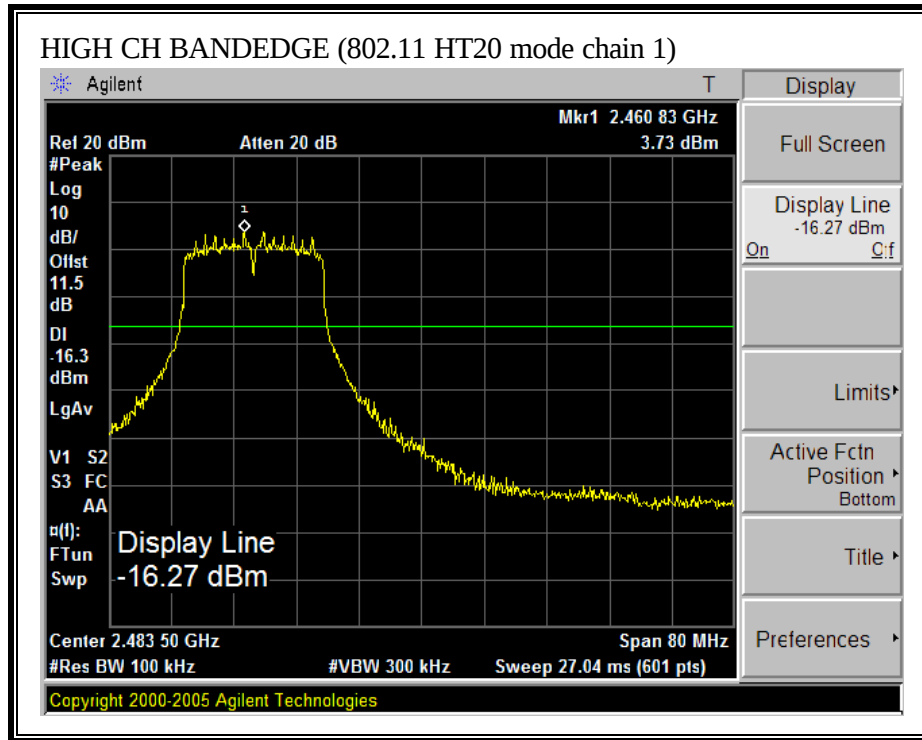


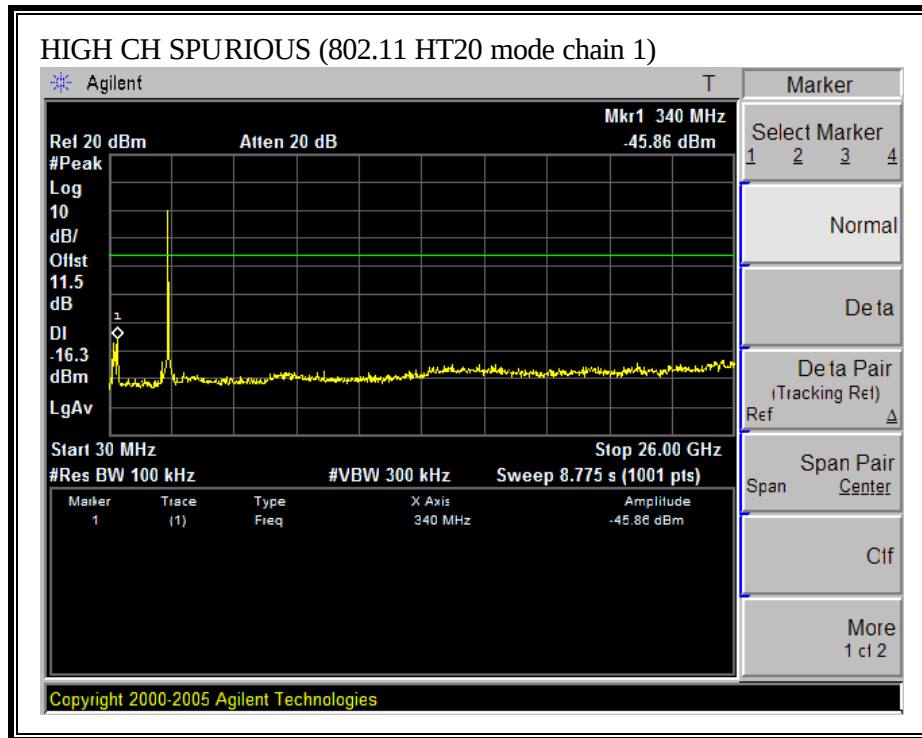
SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11 HT20 MODE CHAIN 1)



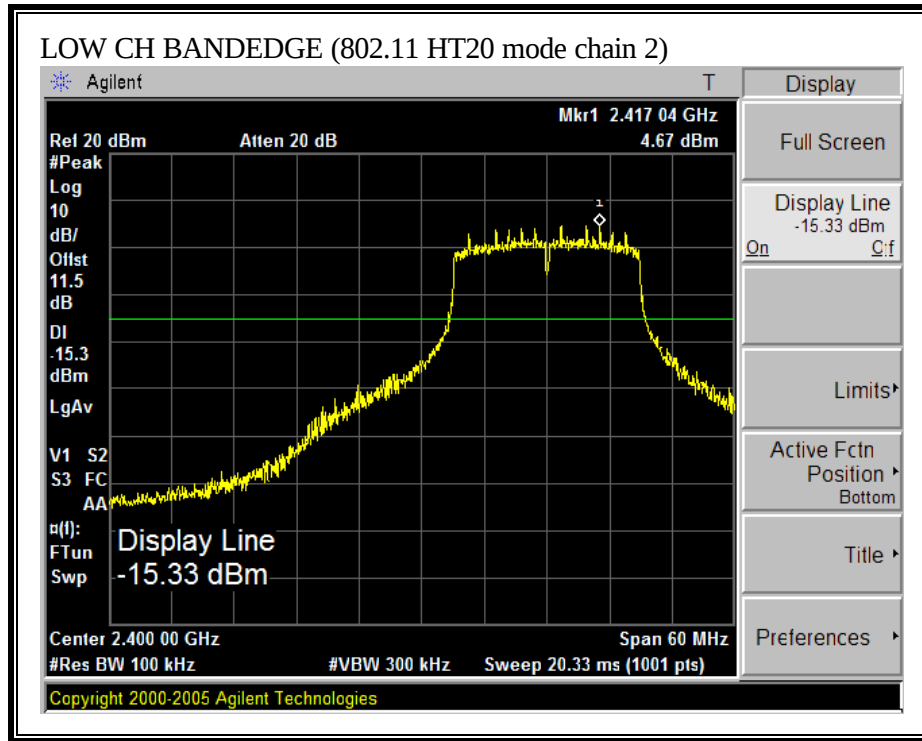


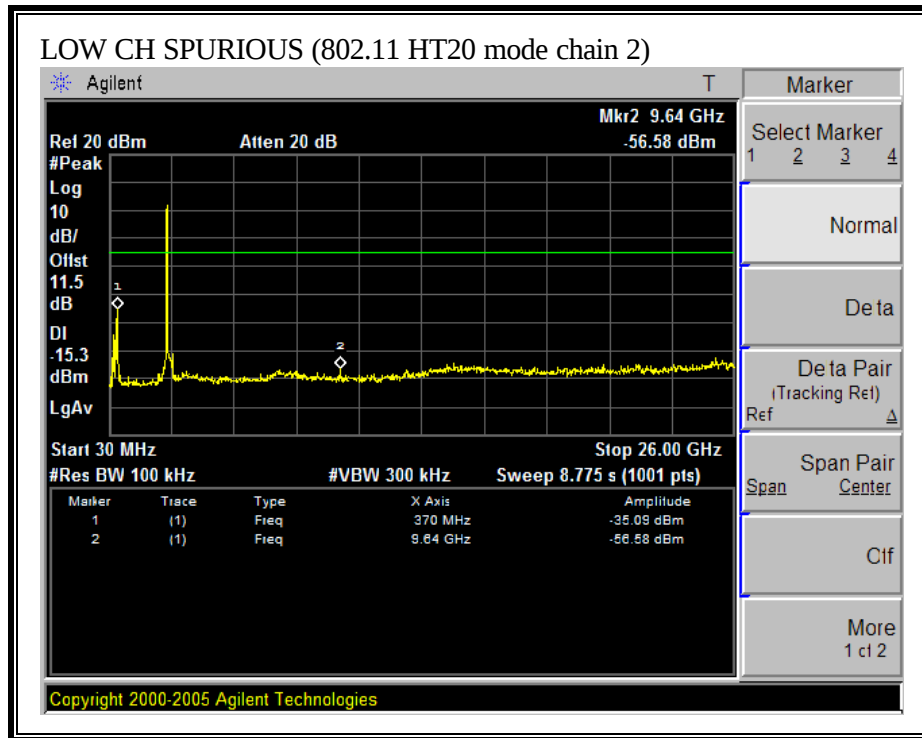
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 HT20 MODE CHAIN 1)



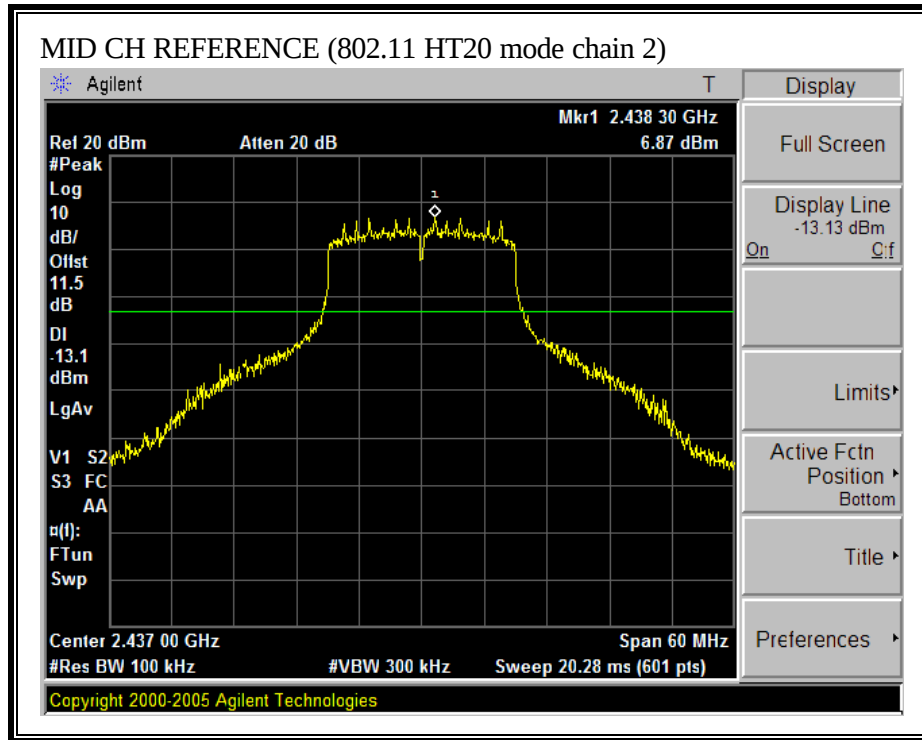


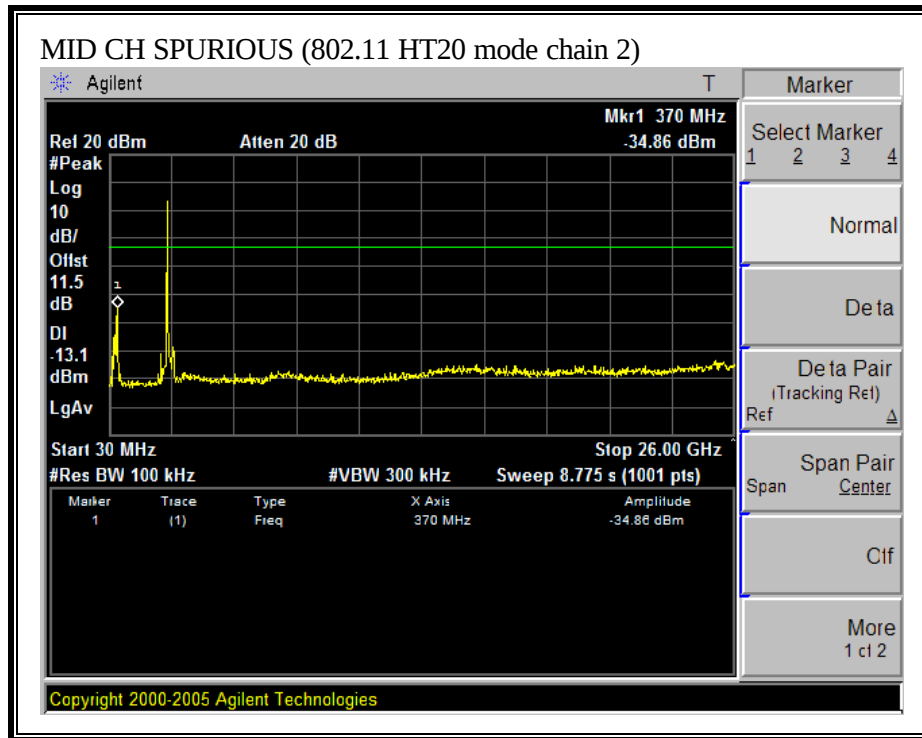
SPURIOUS EMISSIONS, LOW CHANNEL (802.11 HT20 MODE CHAIN 2)



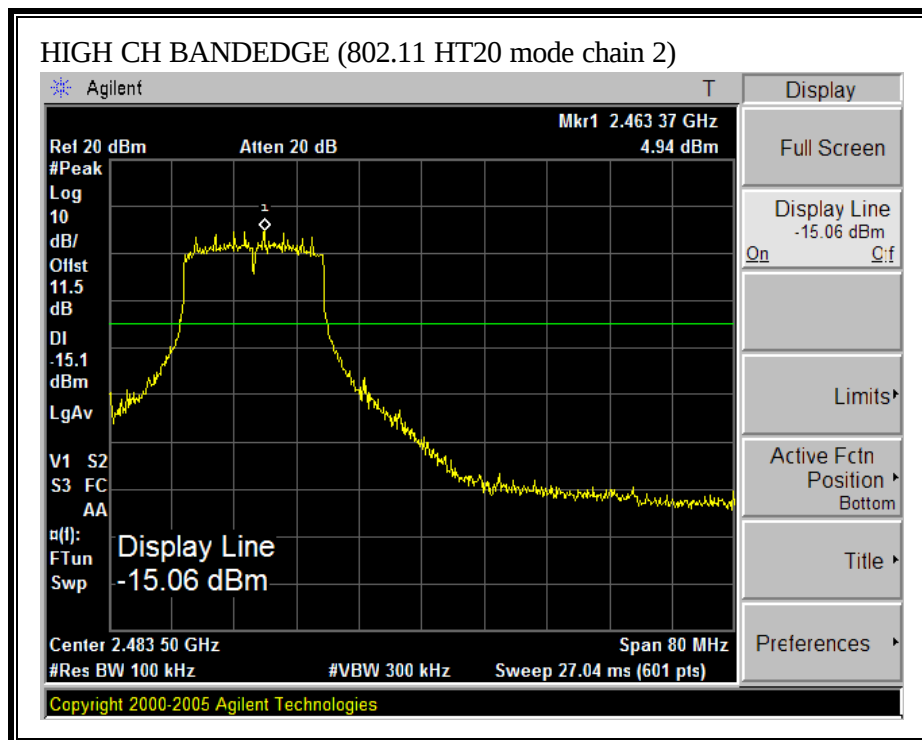


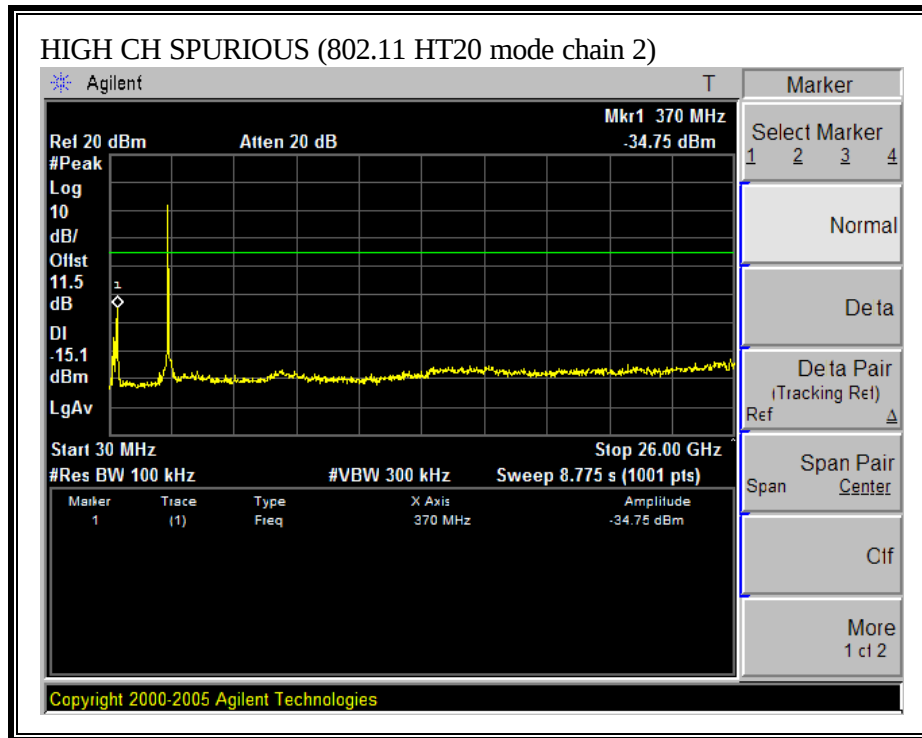
SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11 HT20 MODE CHAIN 2)



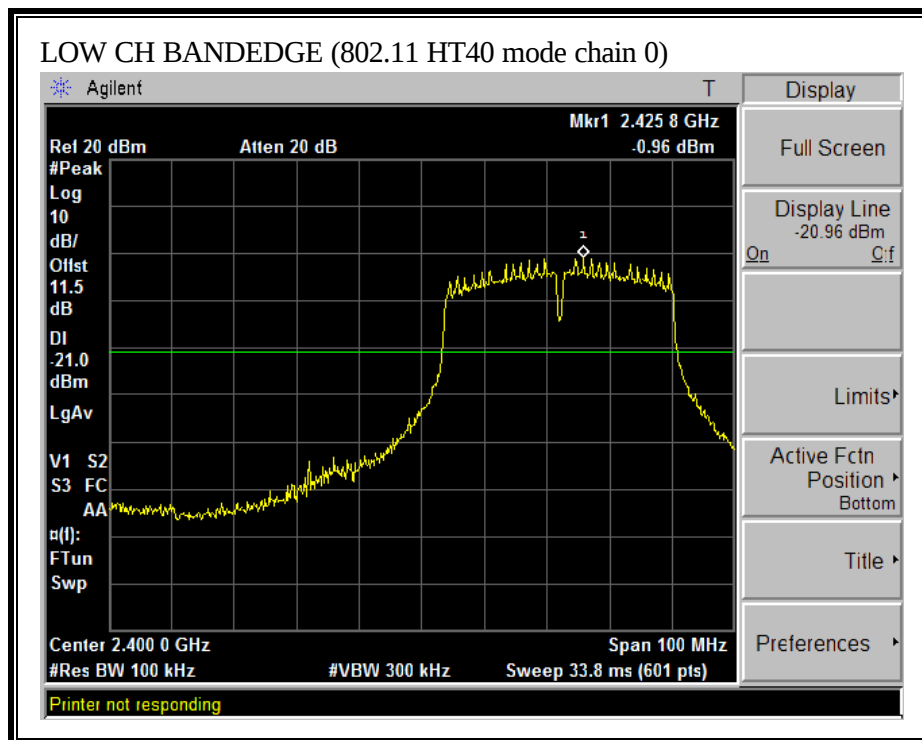


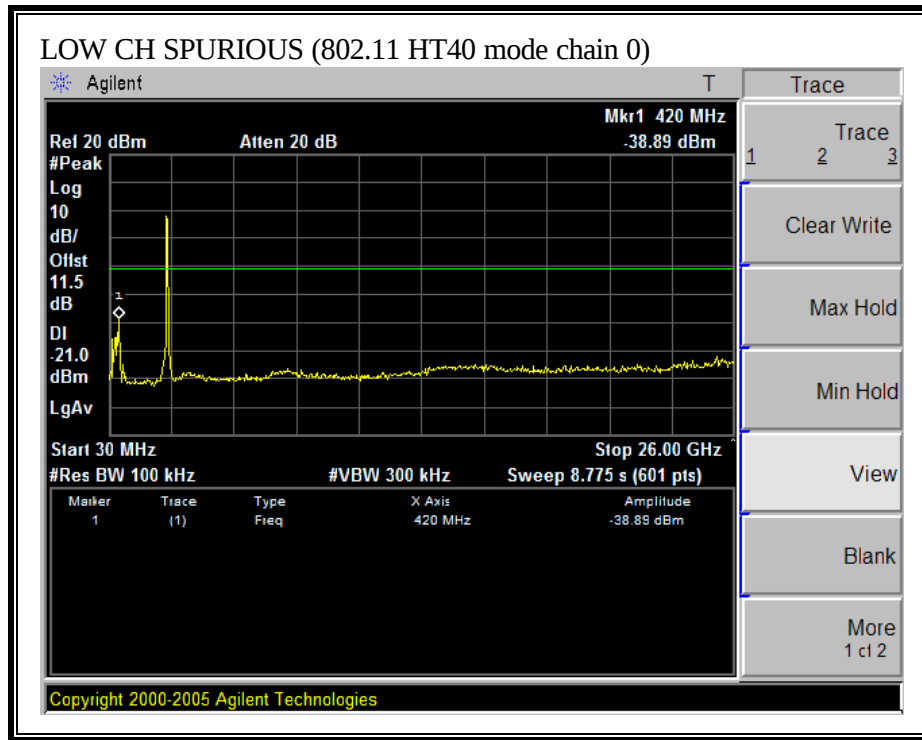
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 HT20 MODE CHAIN 2)



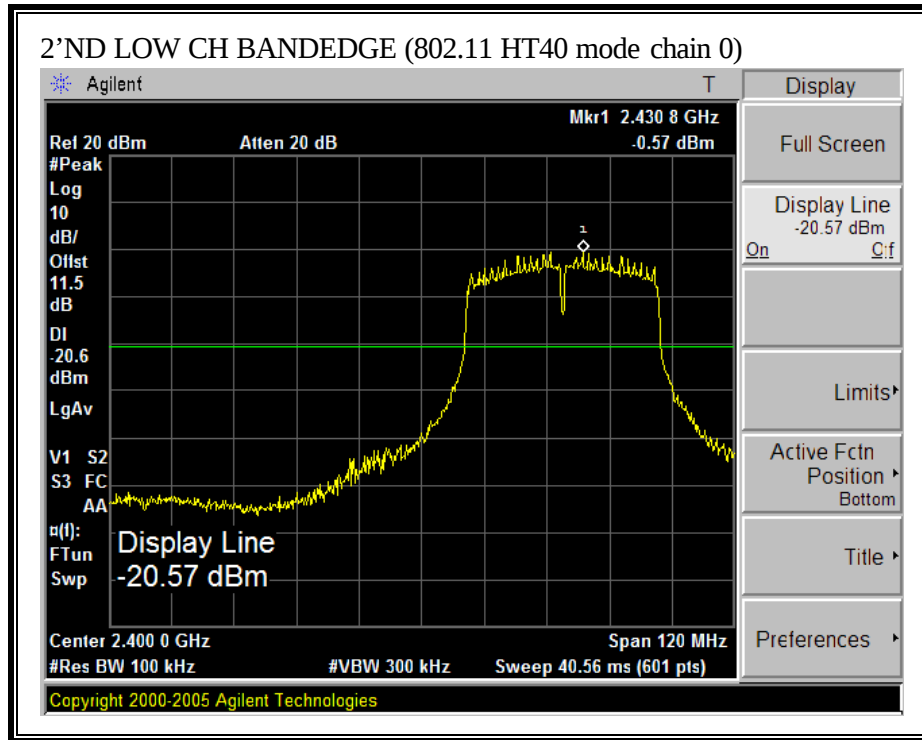


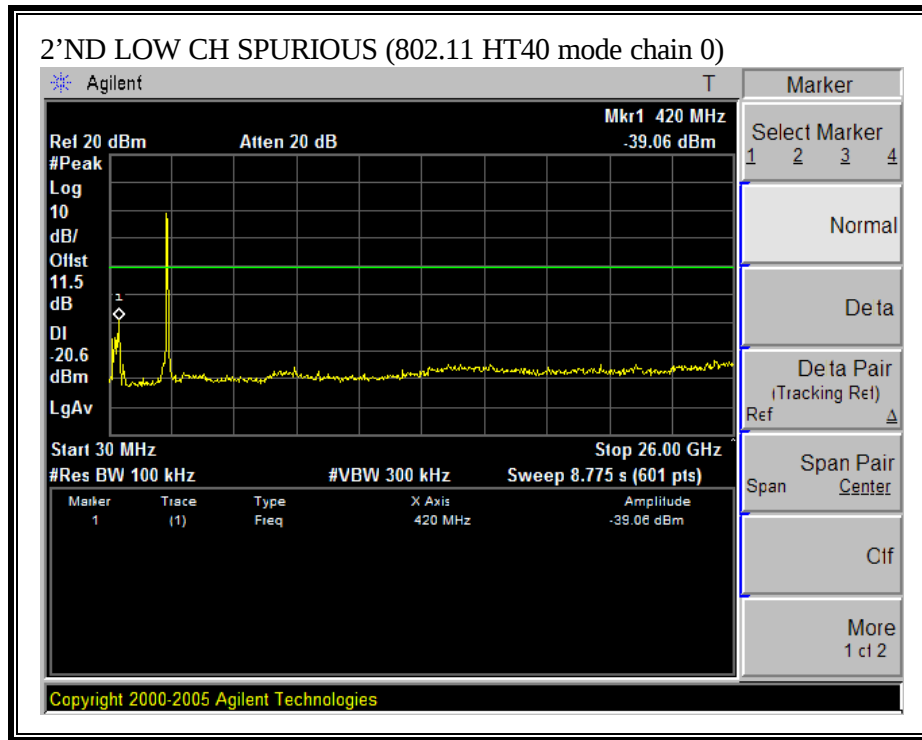
SPURIOUS EMISSIONS, LOW CHANNEL (802.11 HT40 MODE CHAIN 0)



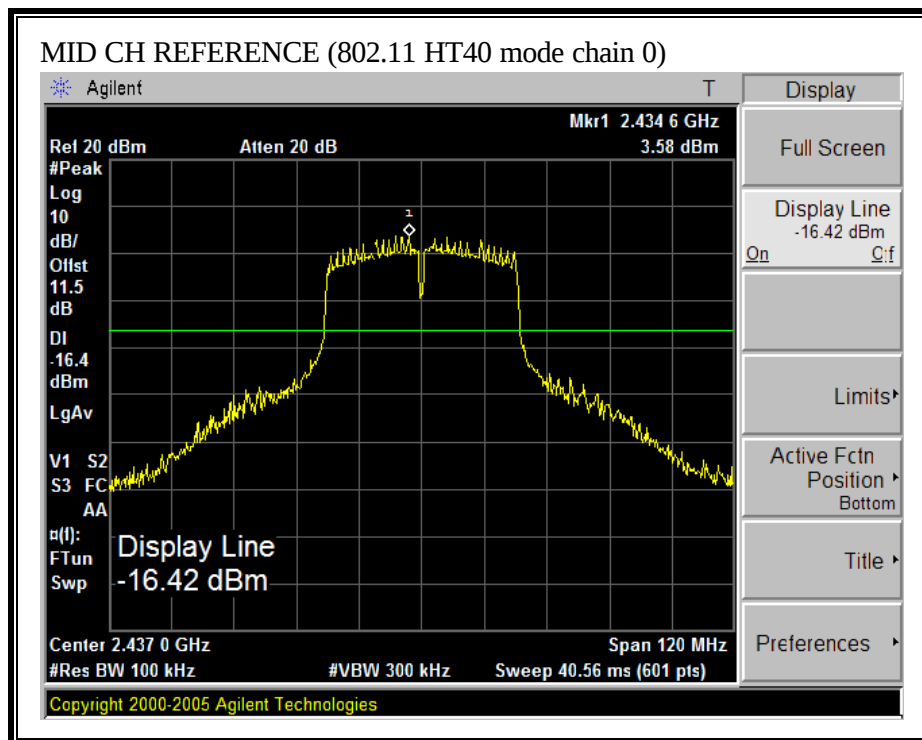


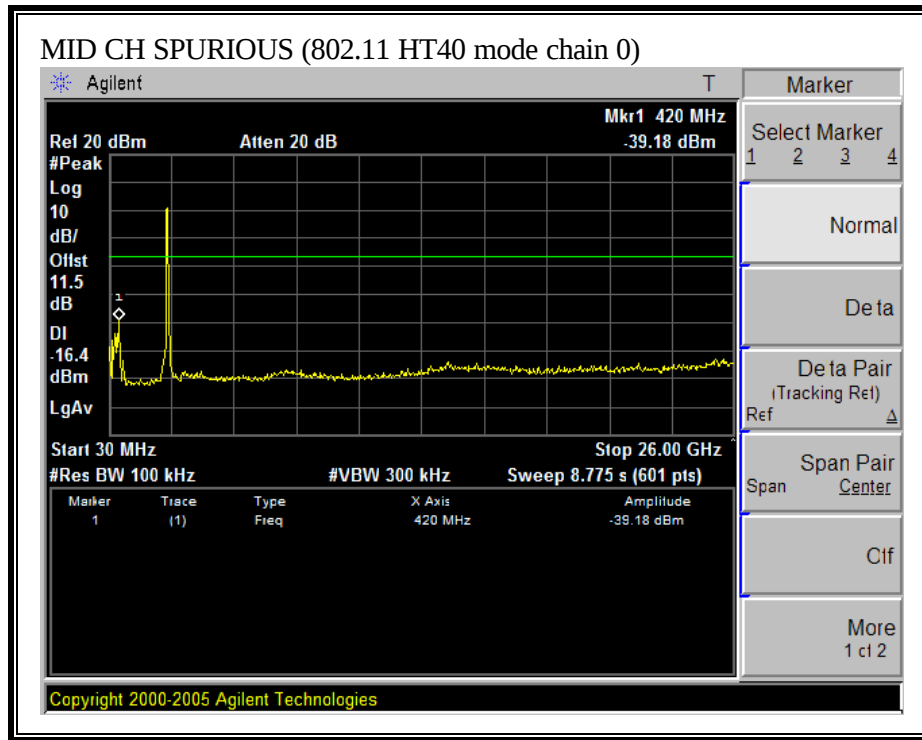
SPURIOUS EMISSIONS, 2'ND LOW CHANNEL (802.11 HT40 MODE CHAIN 0)



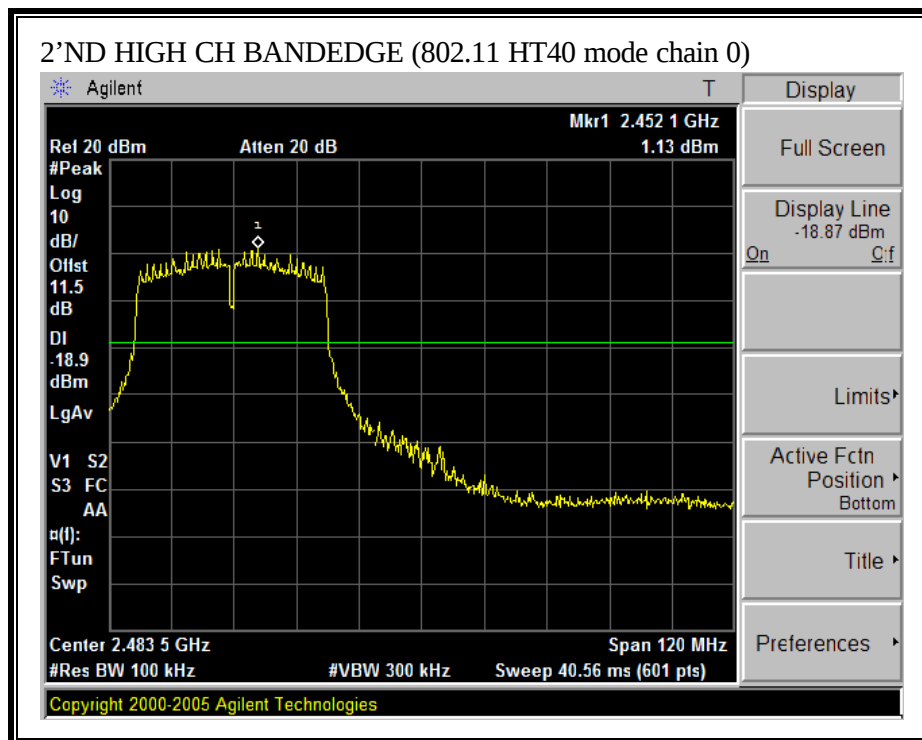


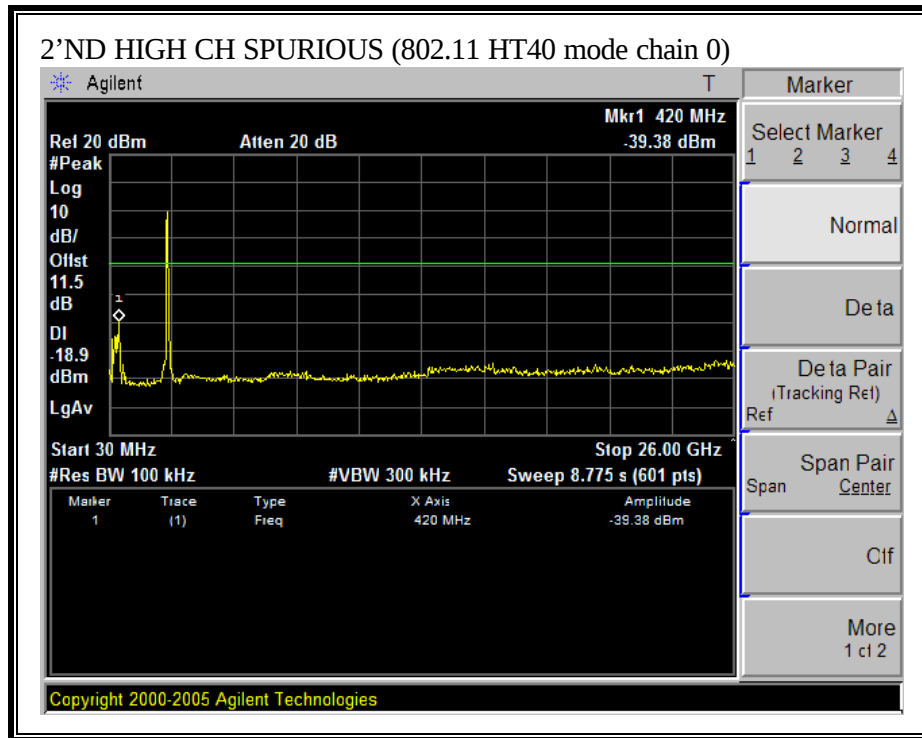
SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11 HT40 MODE CHAIN 0)



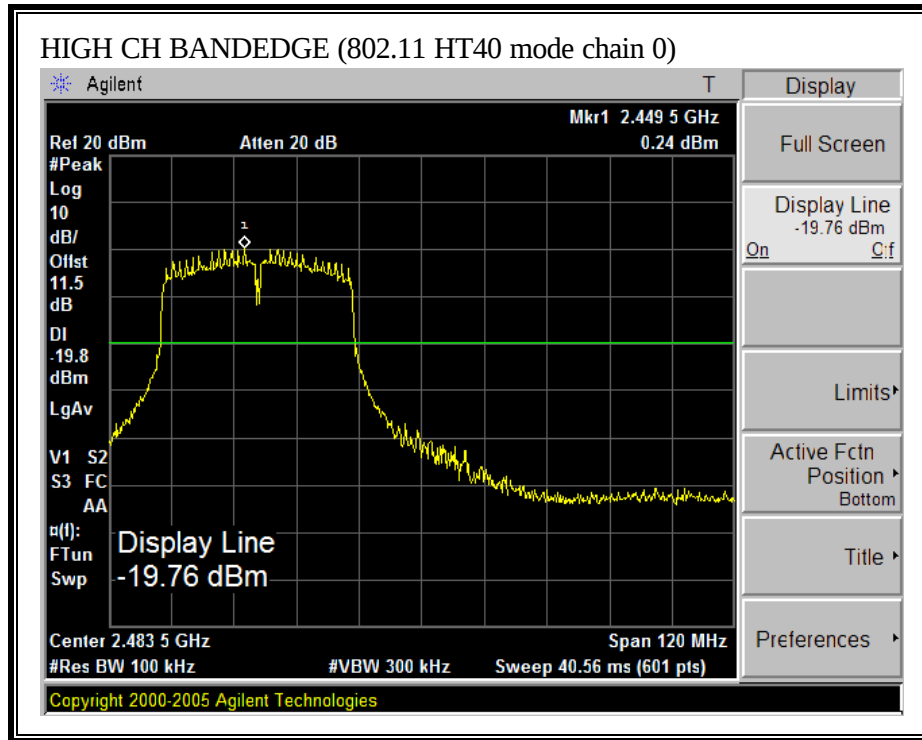


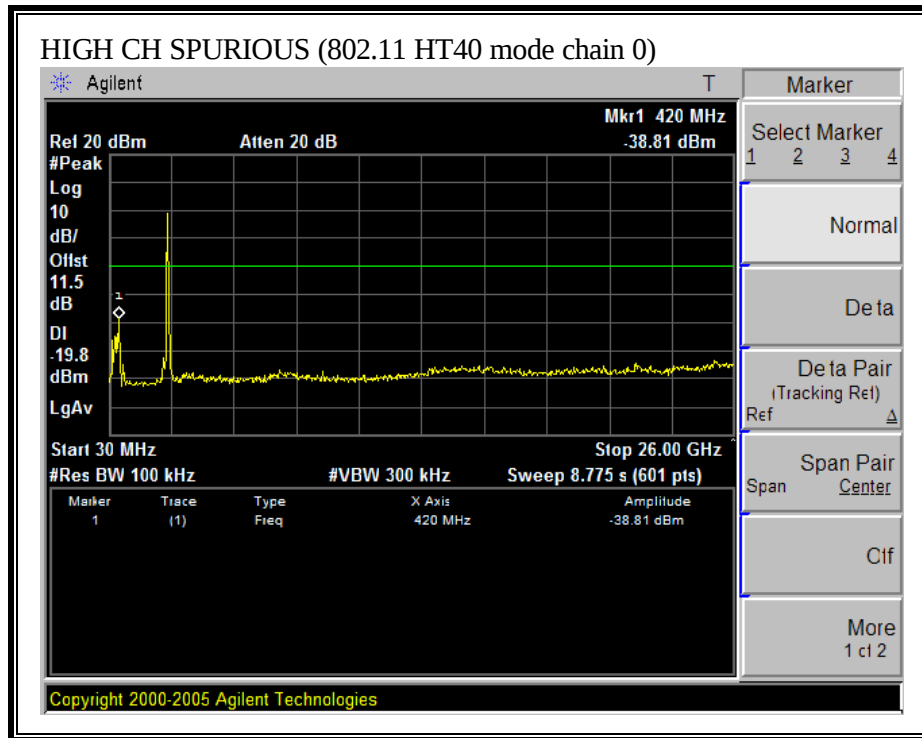
SPURIOUS EMISSIONS, 2'ND HIGH CHANNEL (802.11 HT40 MODE CHAIN 0)



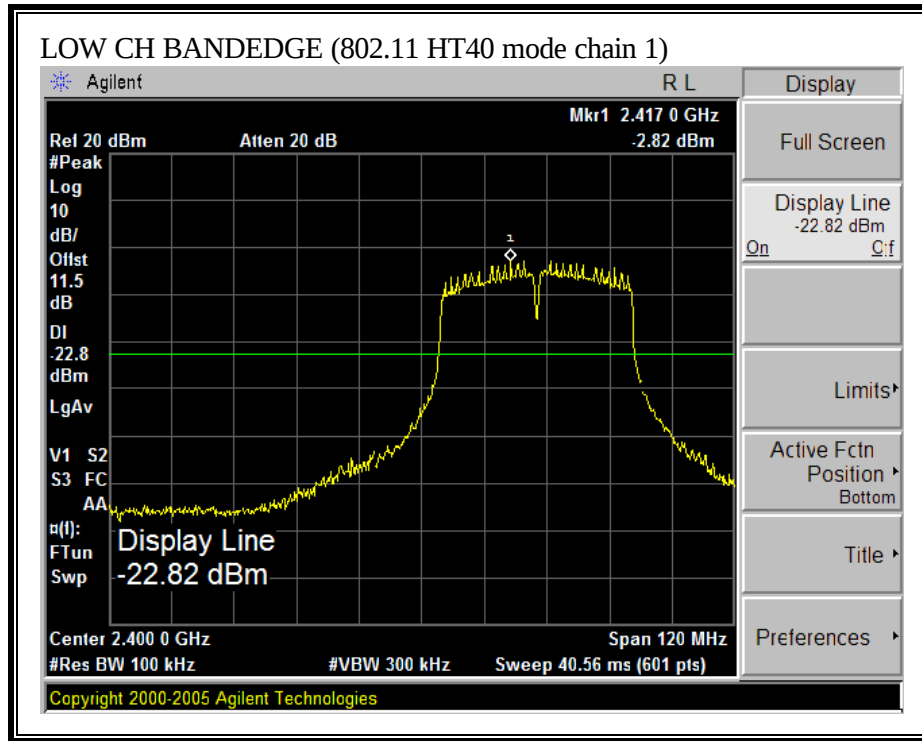


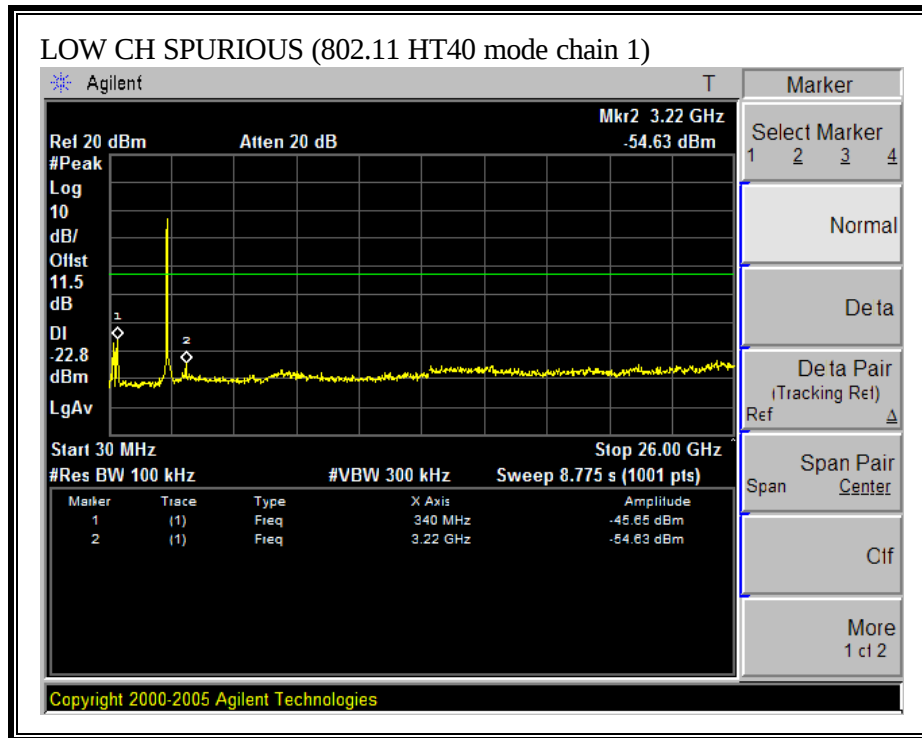
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 HT40 MODE CHAIN 0)



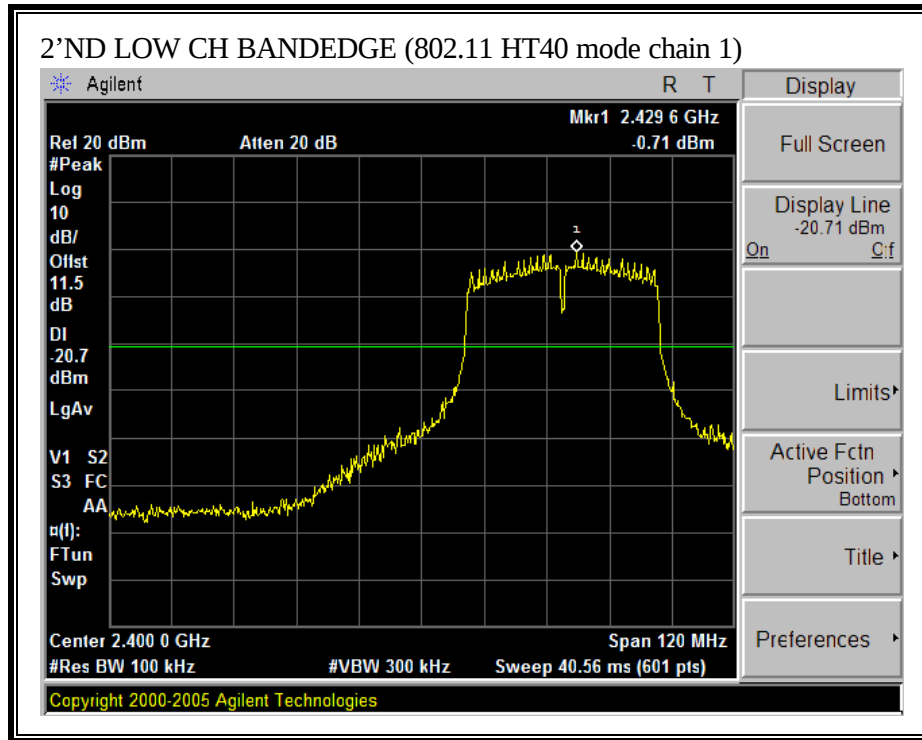


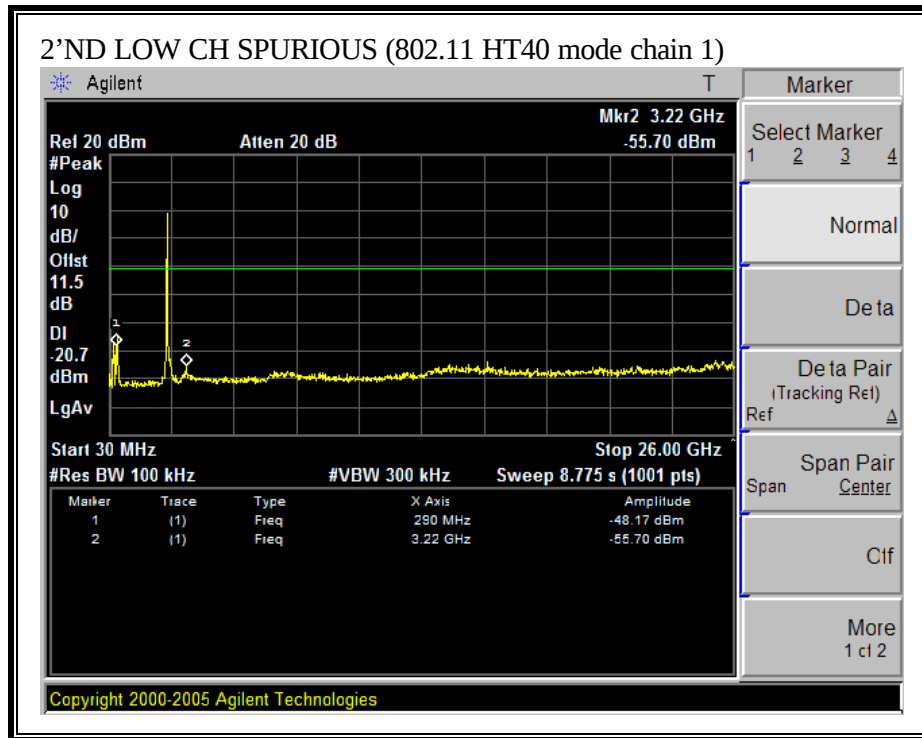
SPURIOUS EMISSIONS, LOW CHANNEL (802.11 HT40 MODE CHAIN 1)

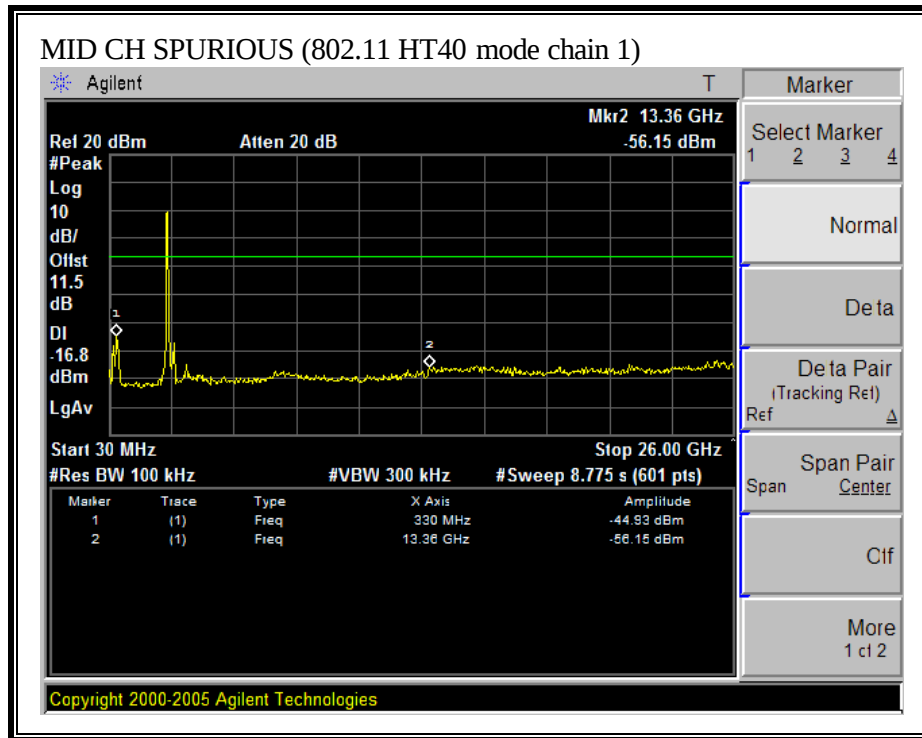




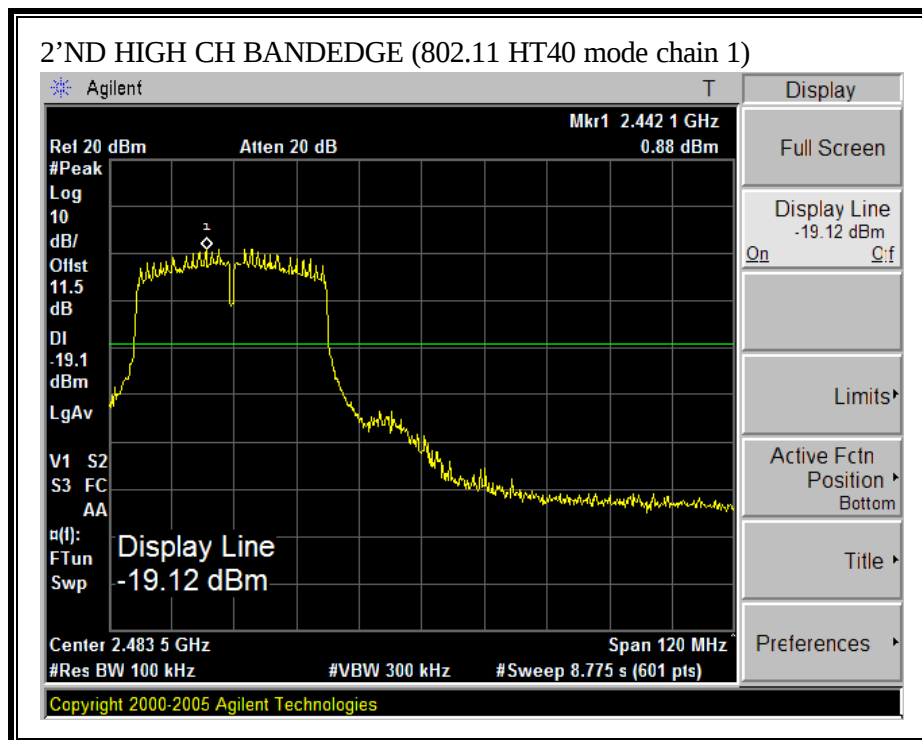
SPURIOUS EMISSIONS, 2'ND LOW CHANNEL (802.11 HT40 MODE CHAIN 1)

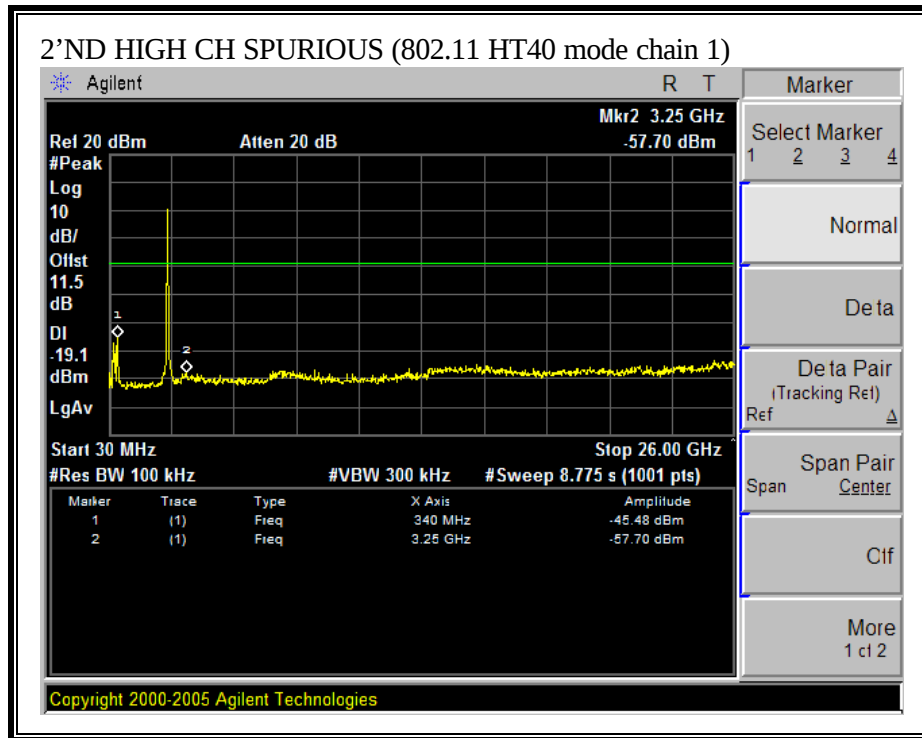




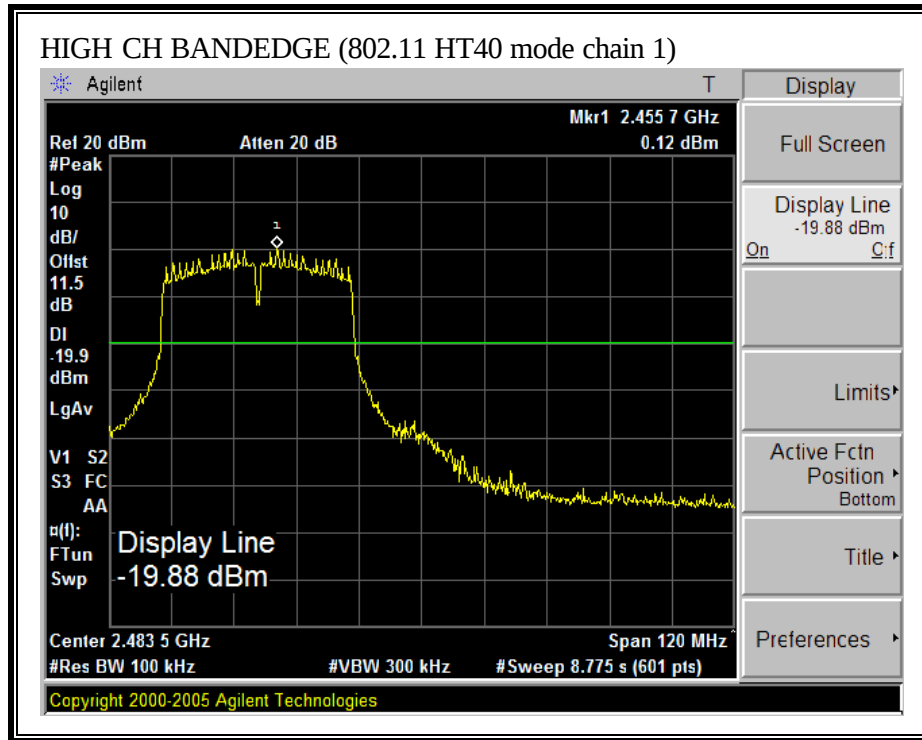


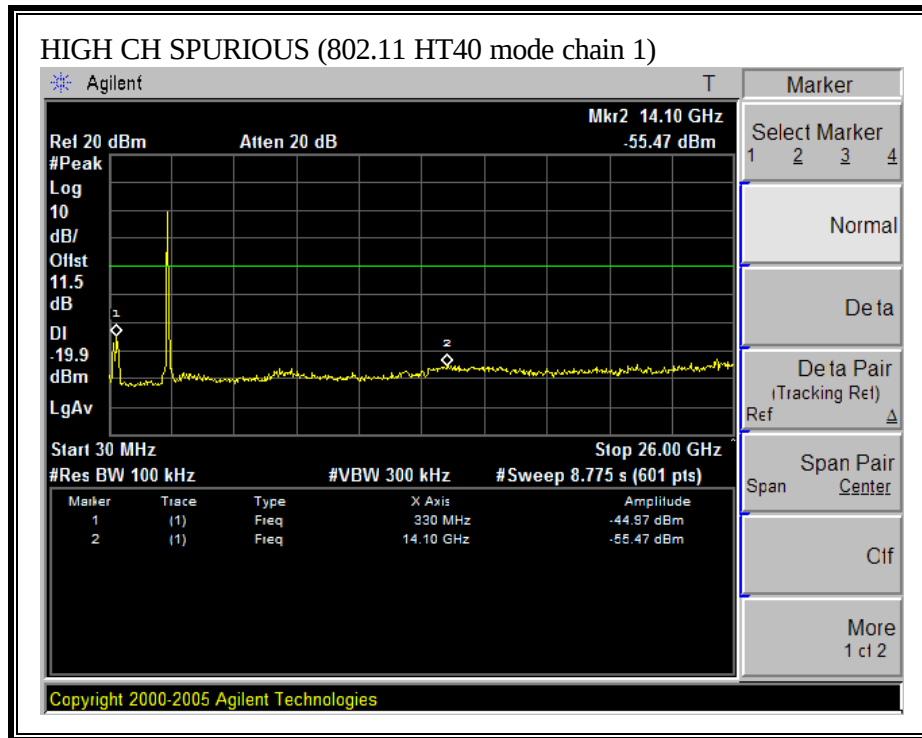
SPURIOUS EMISSIONS, 2'ND HIGH CHANNEL (802.11 HT40 MODE CHAIN 1)



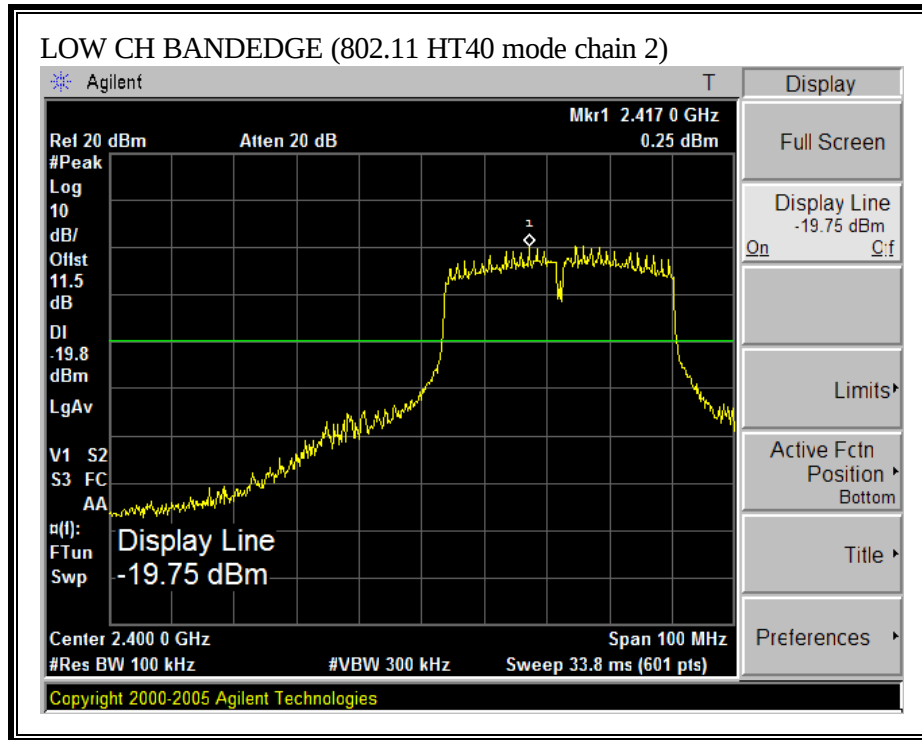


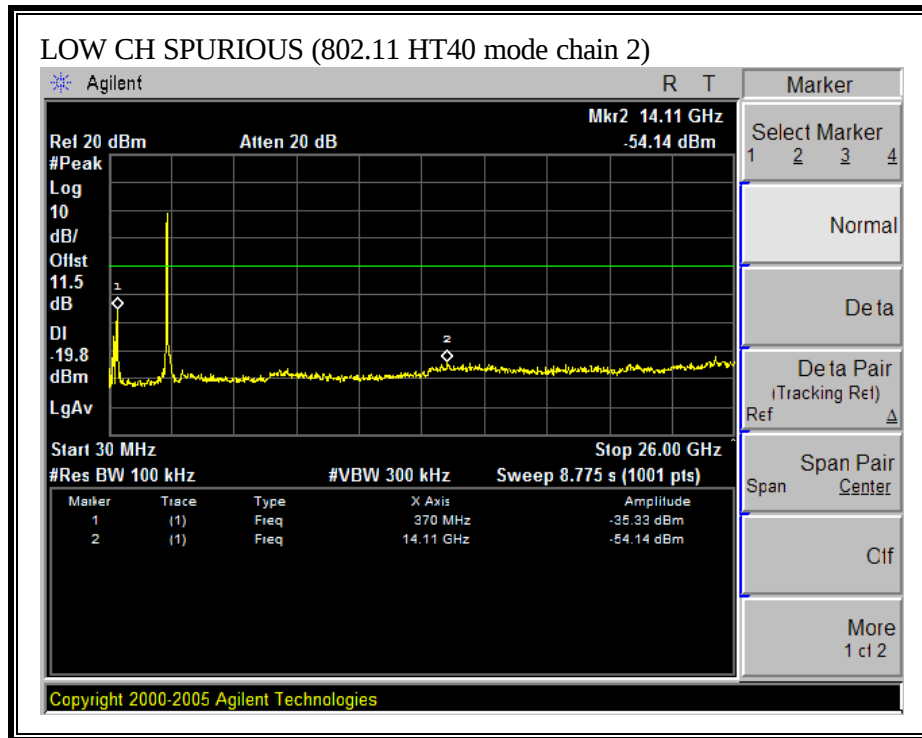
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 HT40 MODE CHAIN 1)



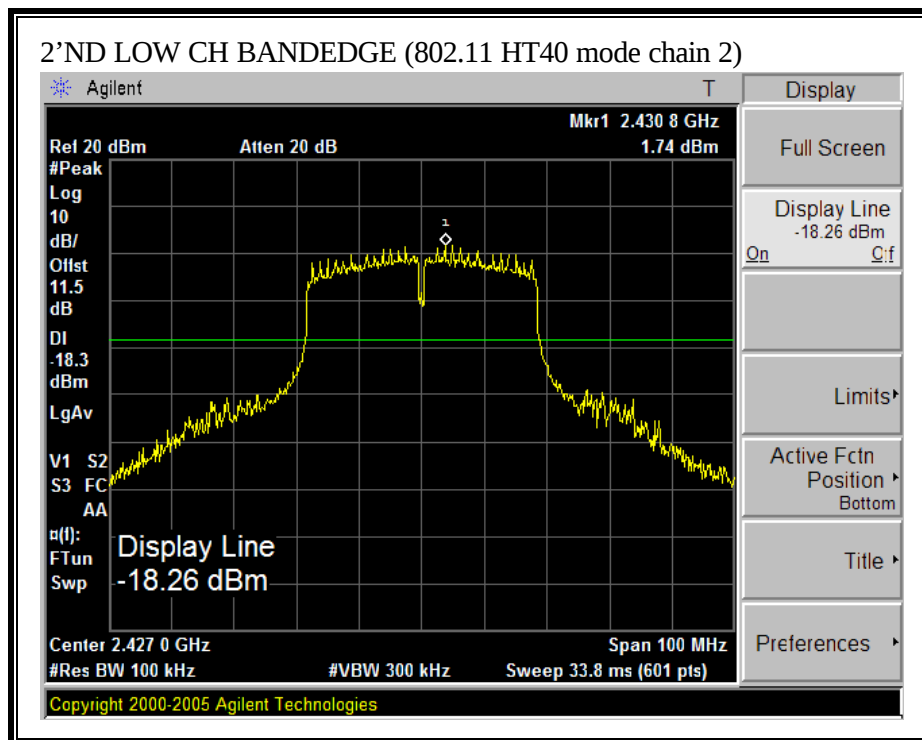


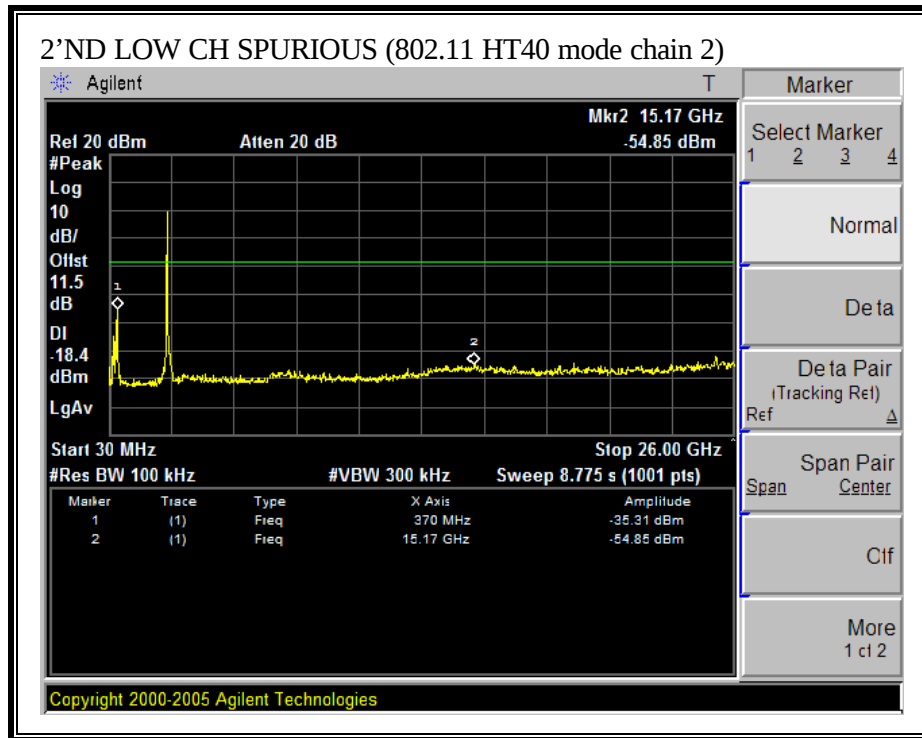
SPURIOUS EMISSIONS, LOW CHANNEL (802.11 HT40 MODE CHAIN 2)



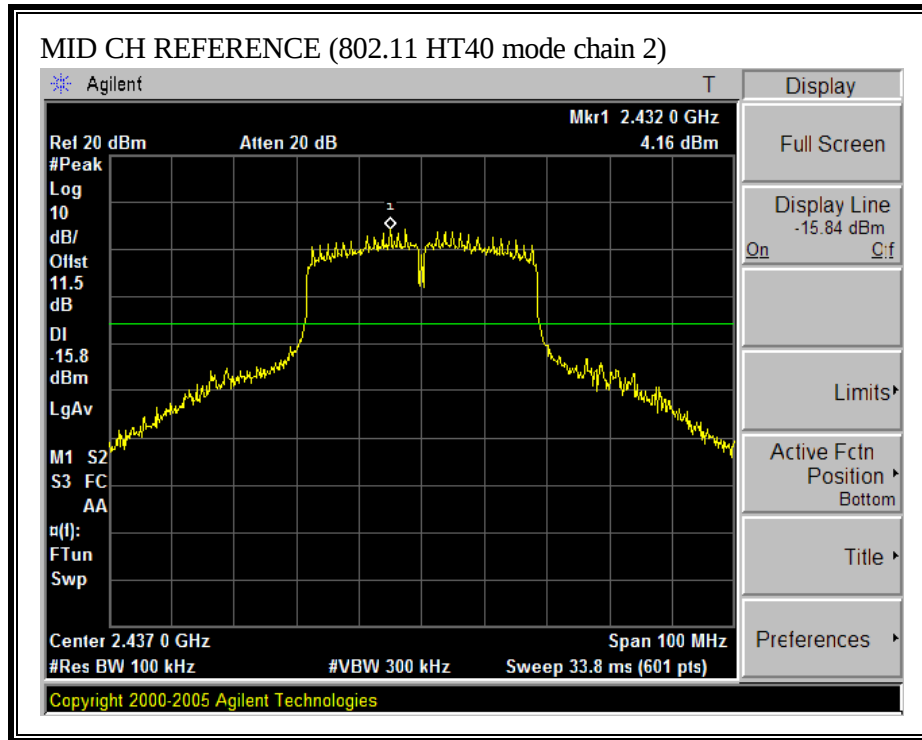


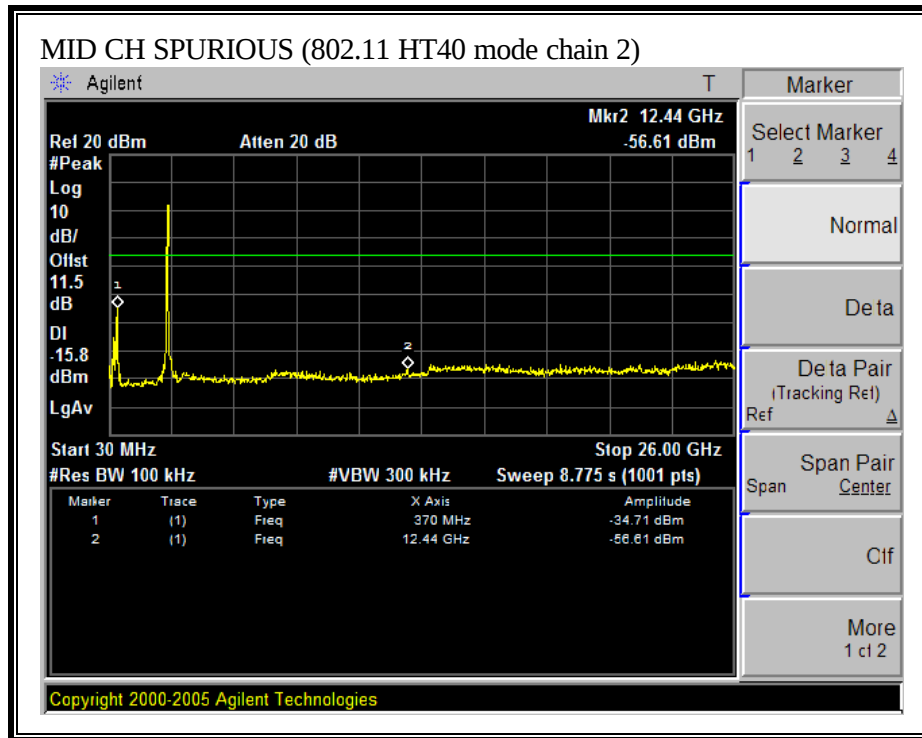
SPURIOUS EMISSIONS, 2'ND LOW CHANNEL (802.11 HT40 MODE CHAIN 2)



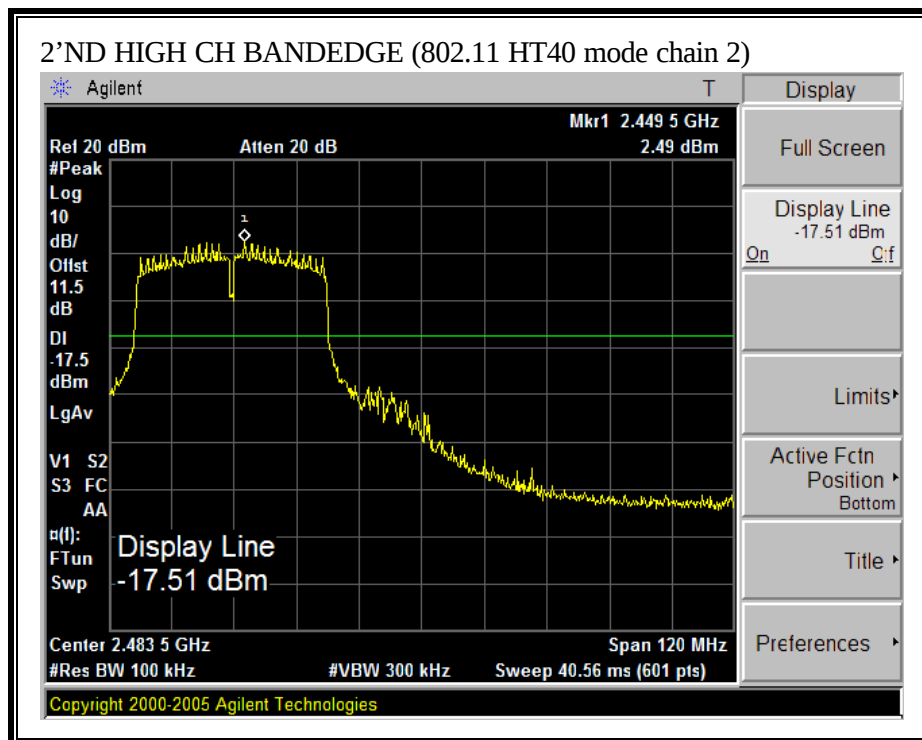


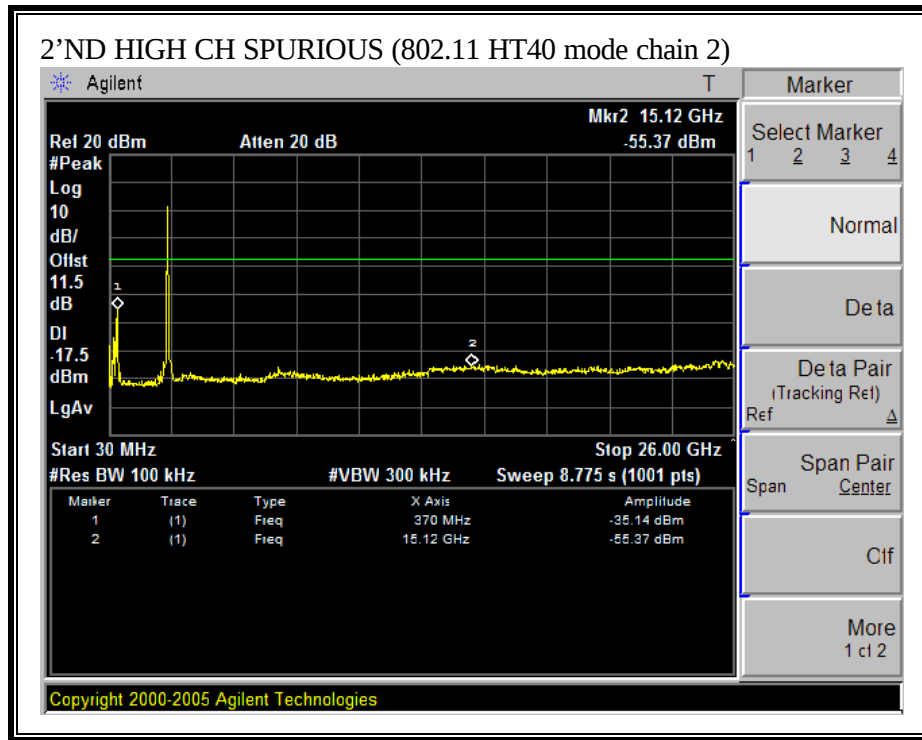
SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11 HT40 MODE CHAIN 2)



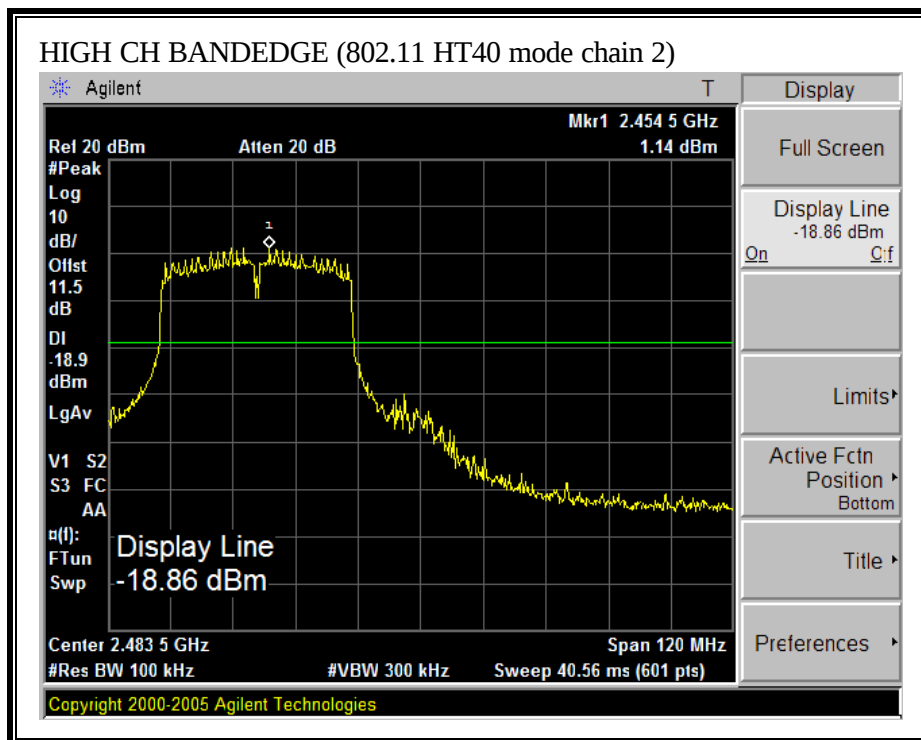


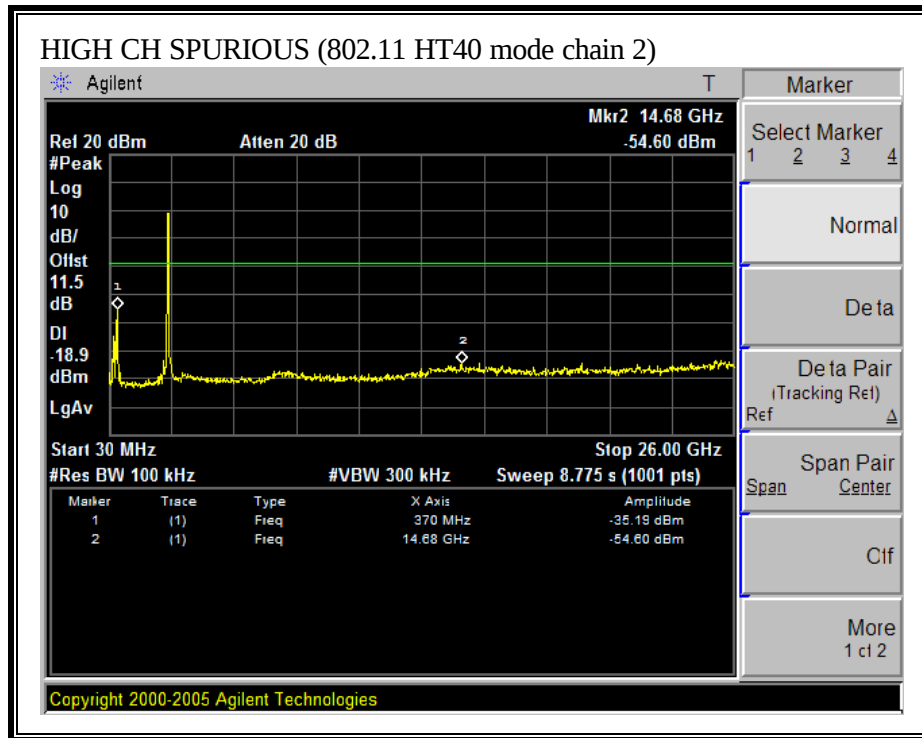
SPURIOUS EMISSIONS, 2'ND HIGH CHANNEL (802.11 HT40 MODE CHAIN 2)





SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 HT40 MODE CHAIN 2)





6.2. RADIATED EMISSIONS

6.2.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

LIMITS

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

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.

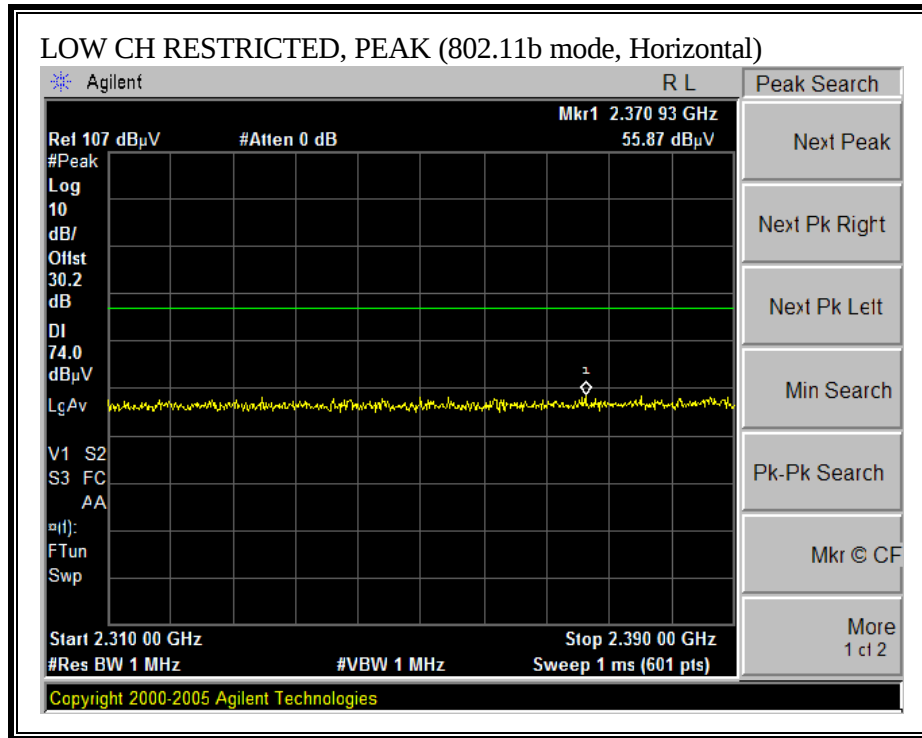
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

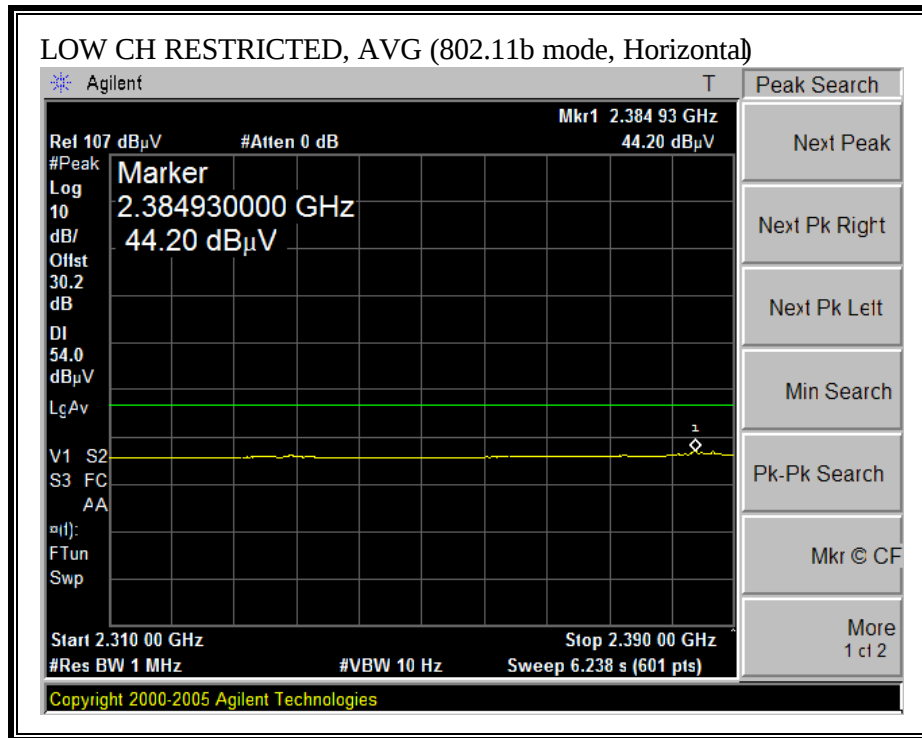
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

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.

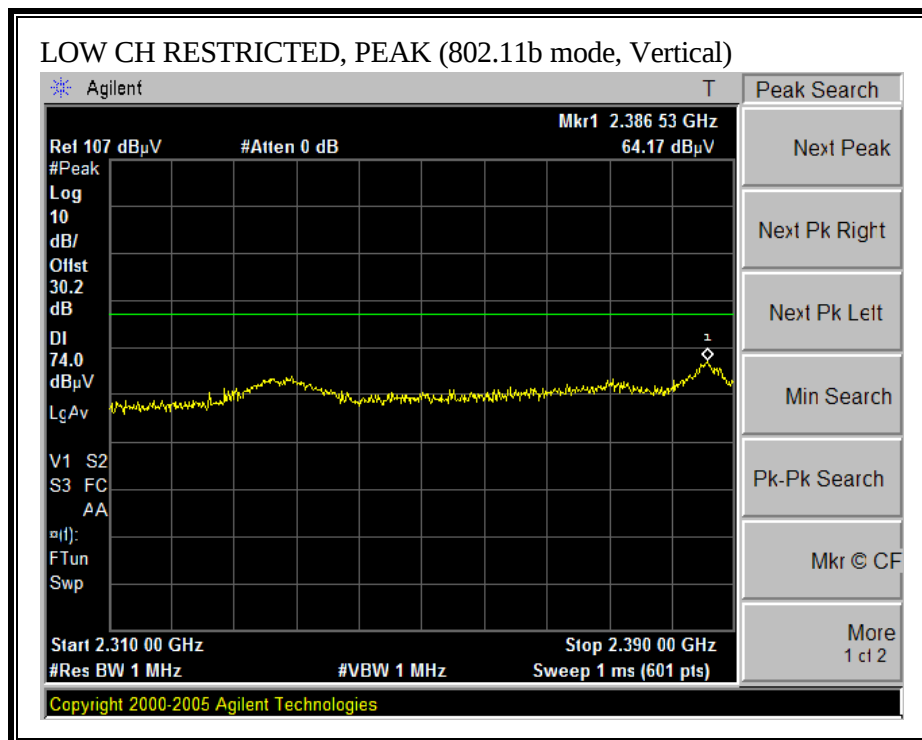
6.2.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND

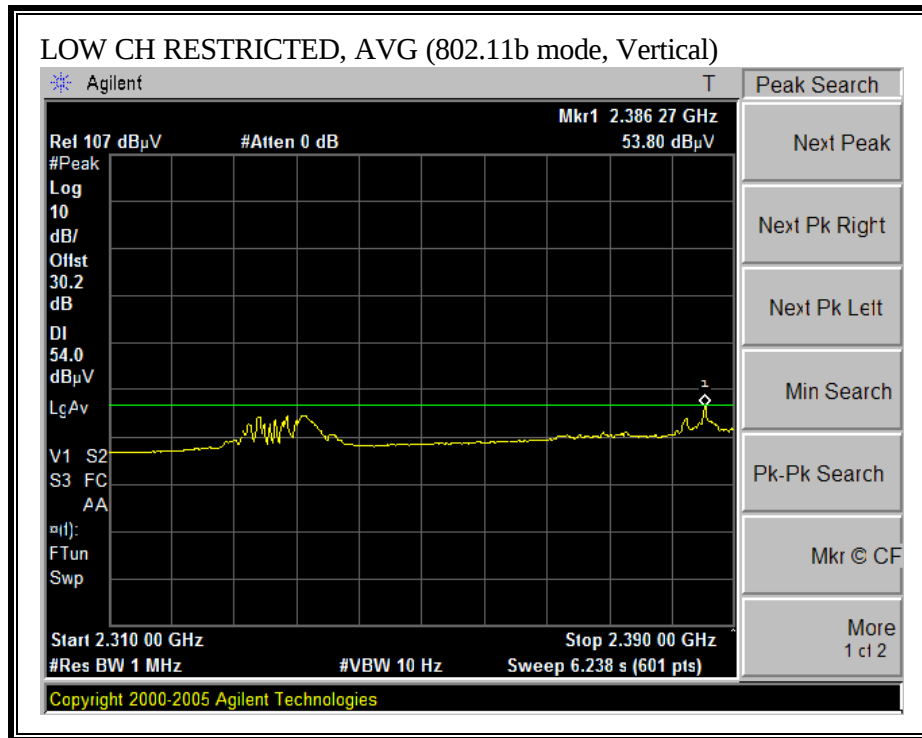
CH 0, RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)



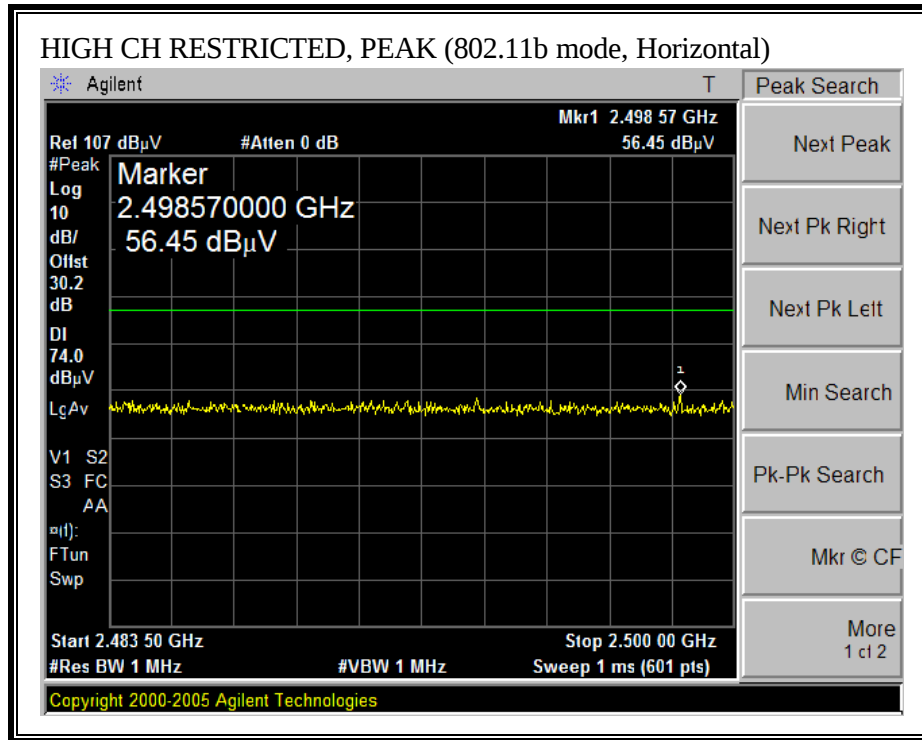


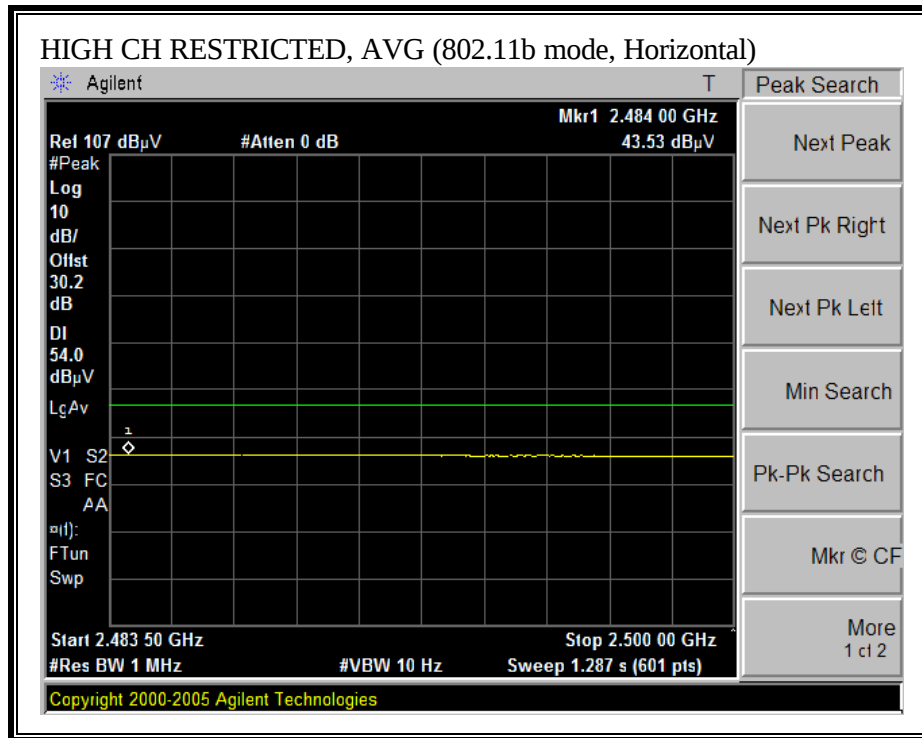
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)



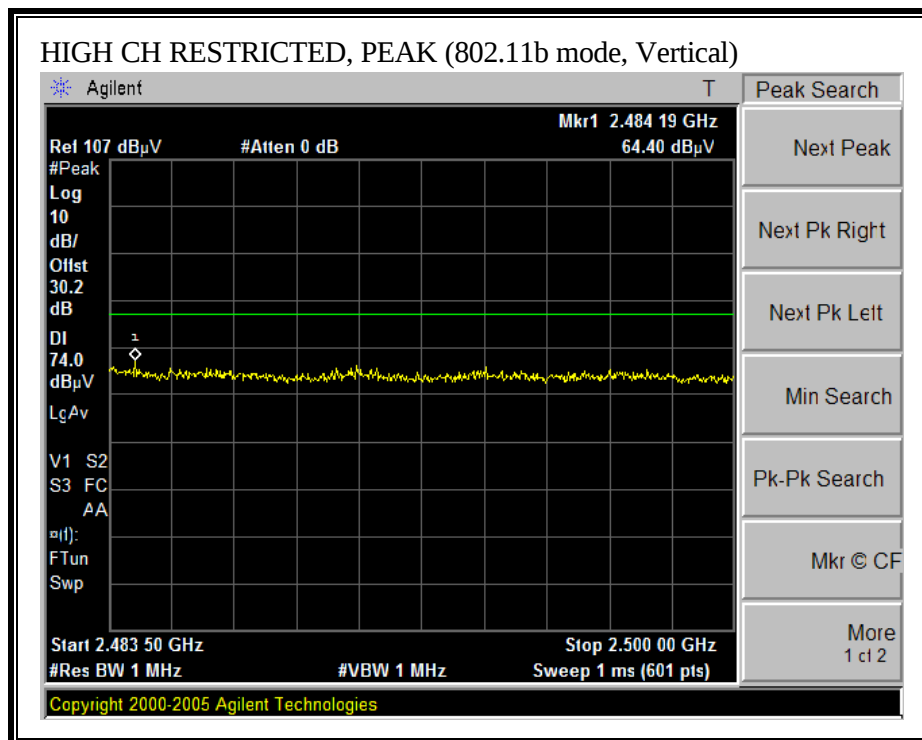


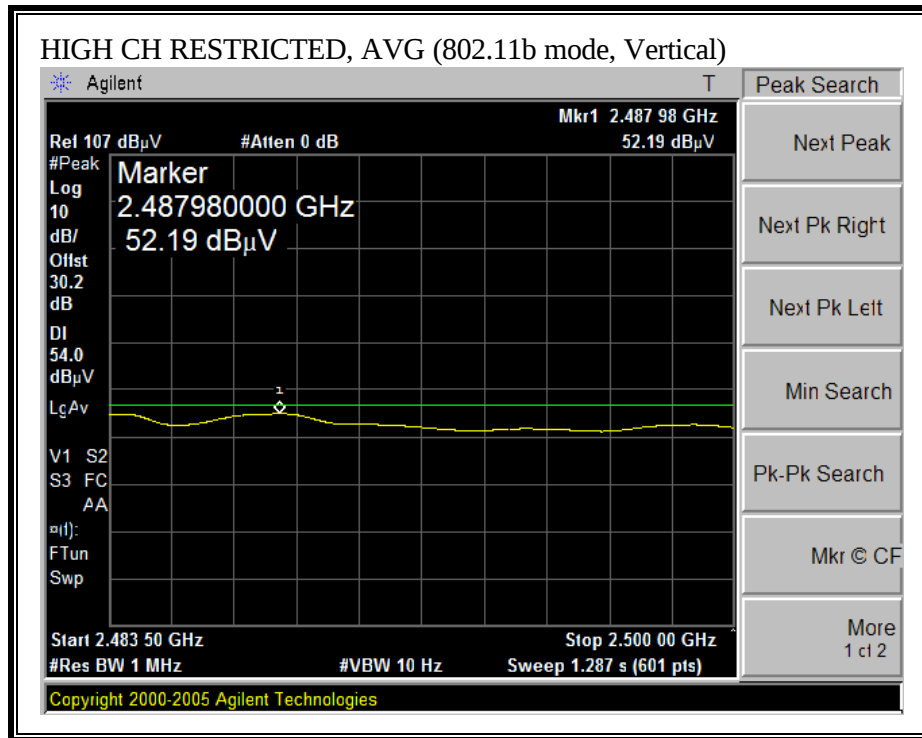
RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)

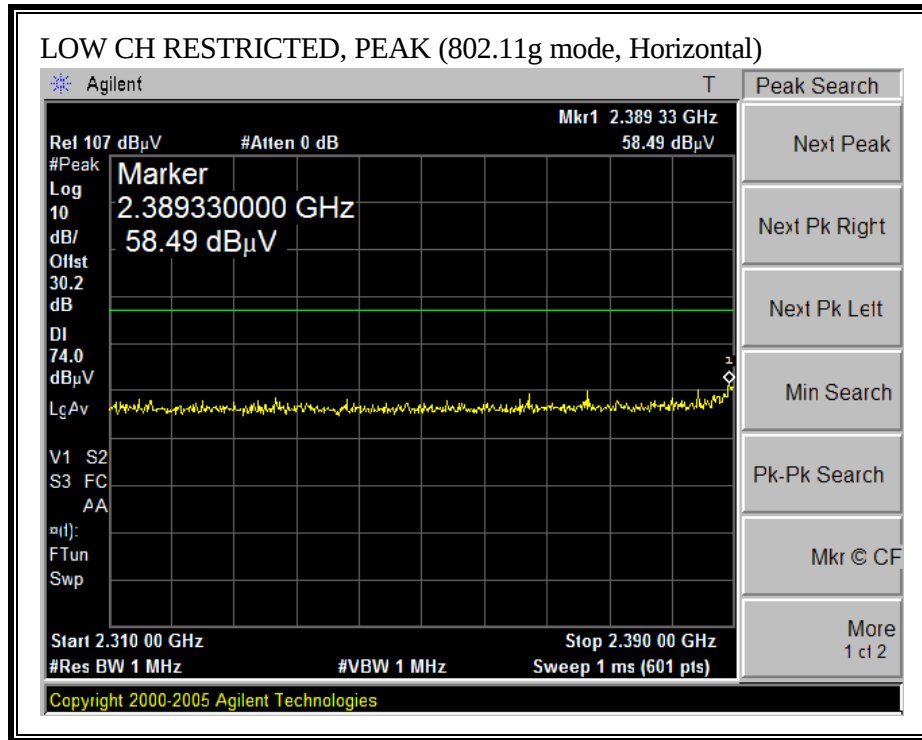


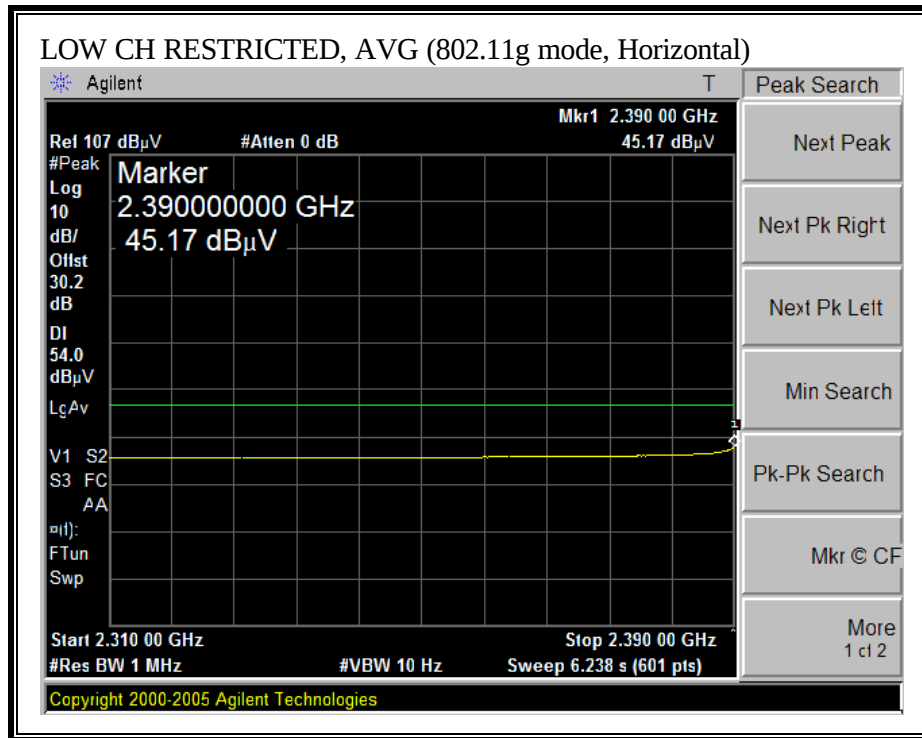


HARMONICS AND SPURIOUS EMISSIONS (b MODE)

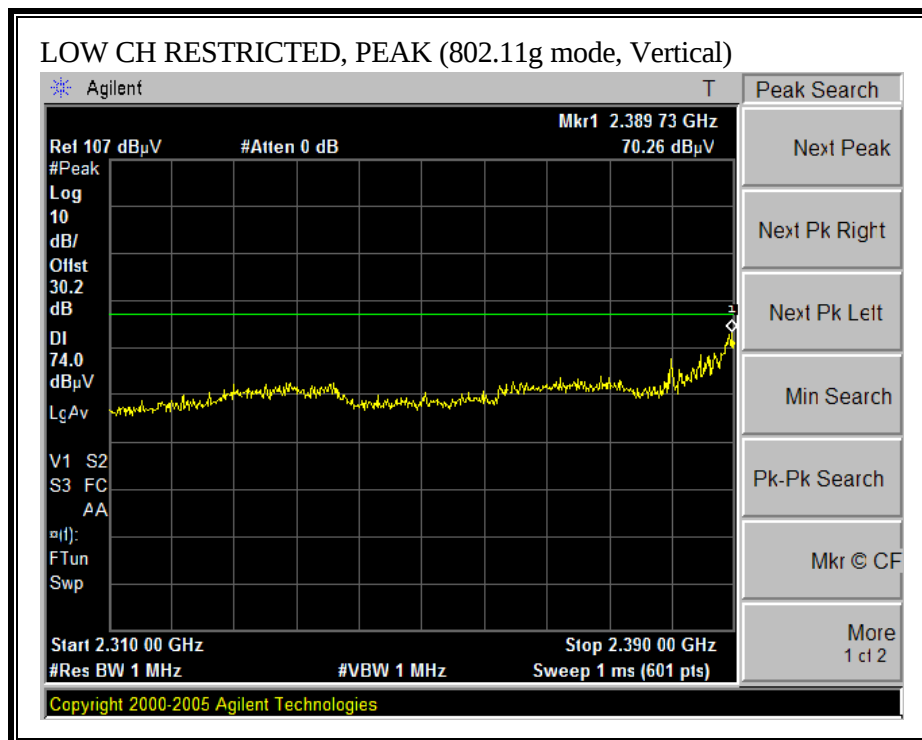
04/12/06 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site																	
Test Engineer:Chin Pang Project #:06U10235 Company:Atheros EUT Description:2.4GHz 802.11n MPC1 Module EUT M/N:WLN-1305 EUT S/N: Test Target:FCC 15.247 Mode Of Operation:TX. 11b																	
Test Equipment:																	
Horn 1-18GHz T73; S/N: 6717 @3m				Pre-amplifier 1-26GHz T145 Agilent 3008A0056				Pre-amplifier 26-40GHz				Horn > 18GHz					
Hi Frequency Cables:																	
2 foot cable				3 foot cable Chin 197538001				12 foot cable Chin 200354001				HPF		Reject Filter R_001		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz	
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)		
Low Ch, 2412MHz																	
4.824	3.0	51.4	47.8	33.7	3.2	-34.8	0.0	0.0	53.5	49.9	74	54	-20.5	-4.1	V		
4.824	3.0	51.3	47.7	33.7	3.2	-34.8	0.0	0.0	53.4	49.8	74	54	-20.6	-4.2	H		
Mid Ch, 2437MHz																	
4.874	3.0	54.0	51.0	33.8	3.2	-34.9	0.0	0.0	56.1	53.1	74	54	-17.9	-0.9	V		
7.311	3.0	46.1	37.4	35.5	3.6	-34.7	0.0	0.0	50.5	41.8	74	54	-23.5	-12.2	V		
4.874	3.0	51.6	47.7	33.8	3.2	-34.9	0.0	0.0	53.7	49.8	74	54	-20.3	-4.2	H		
7.311	3.0	45.0	32.0	35.5	3.6	-34.7	0.0	0.0	49.4	36.4	74	54	-24.6	-17.6	H		
High Ch, 2462MHz																	
4.924	3.0	52.5	50.0	33.8	3.2	-34.9	0.0	0.0	54.7	52.2	74	54	-19.3	-1.8	V		
7.386	3.0	47.5	37.6	35.6	3.6	-34.6	0.0	0.0	52.1	42.2	74	54	-21.9	-11.8	V		
4.924	3.0	48.0	43.0	33.8	3.2	-34.9	0.0	0.0	50.2	45.2	74	54	-23.8	-8.8	H		
7.386	3.0	45.0	33.0	35.6	3.6	-34.6	0.0	0.0	49.6	37.6	74	54	-24.4	-16.4	H		
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										

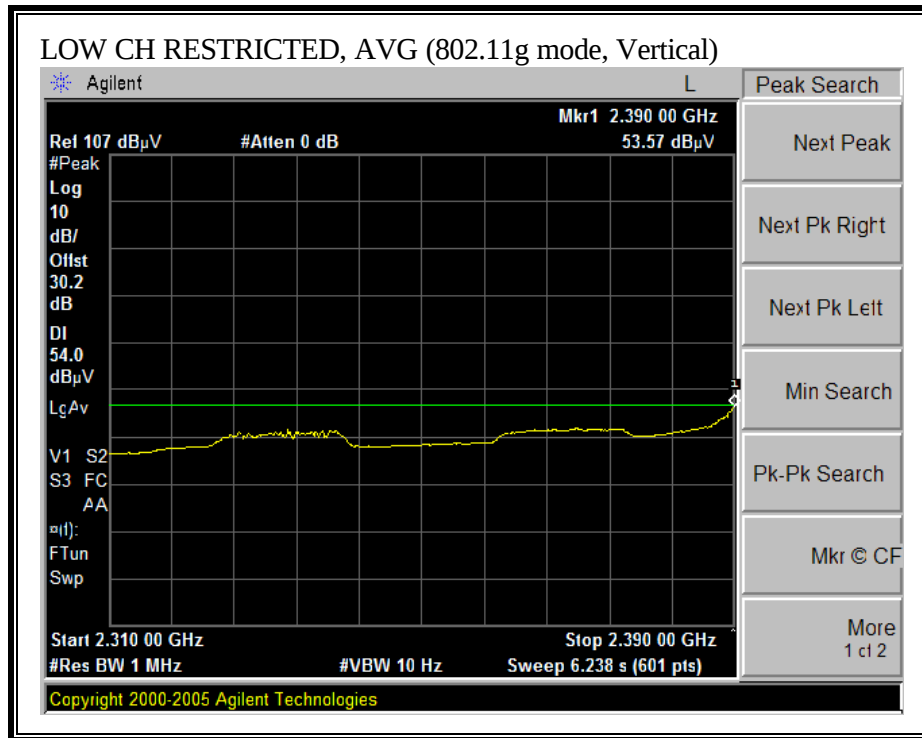
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)



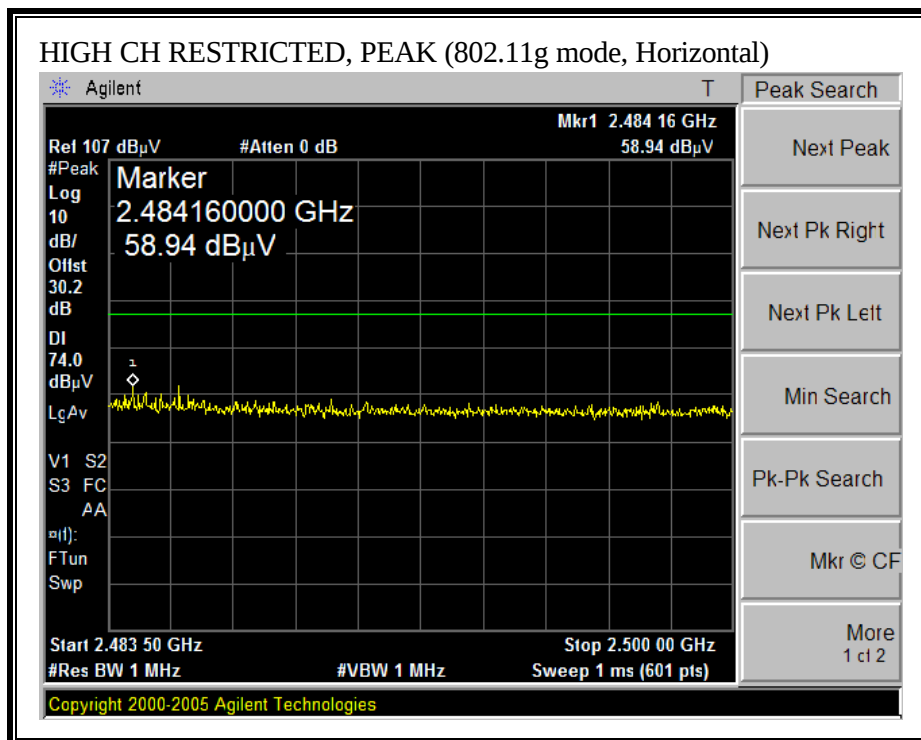


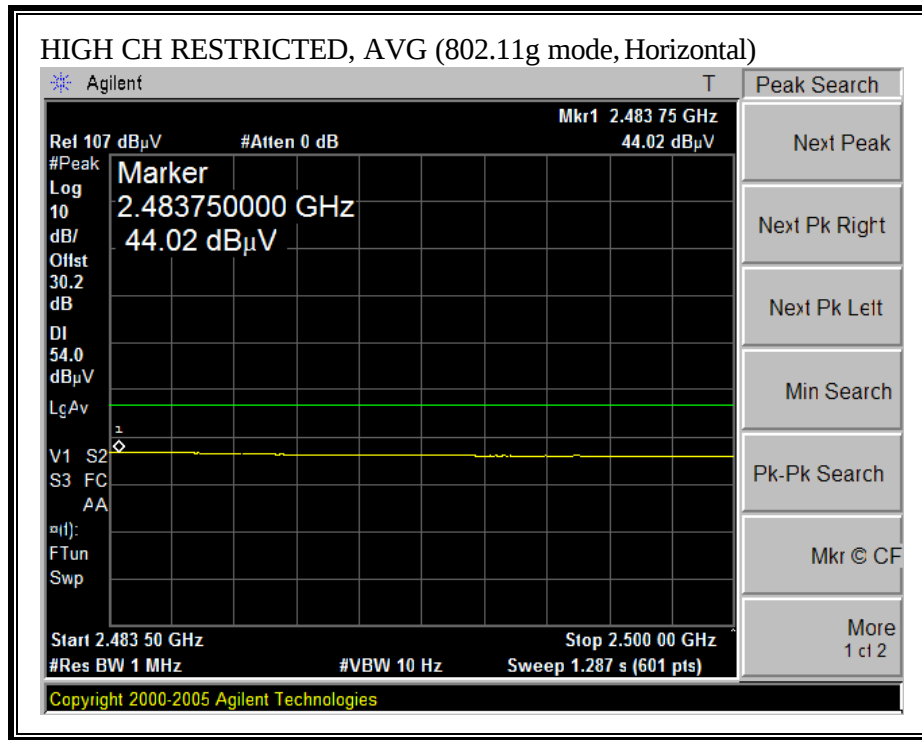
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)



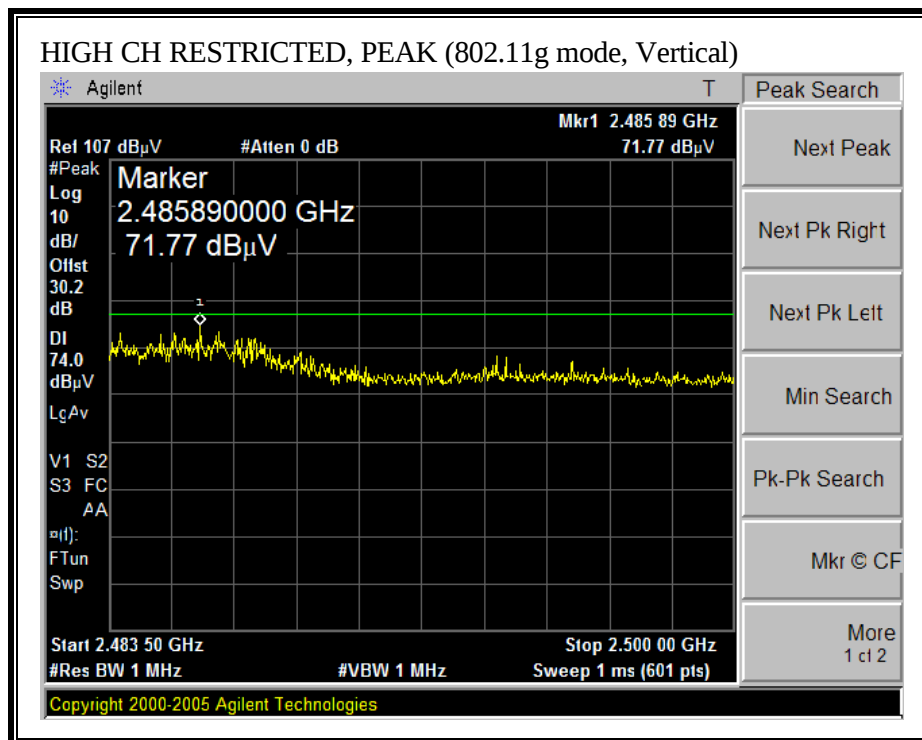


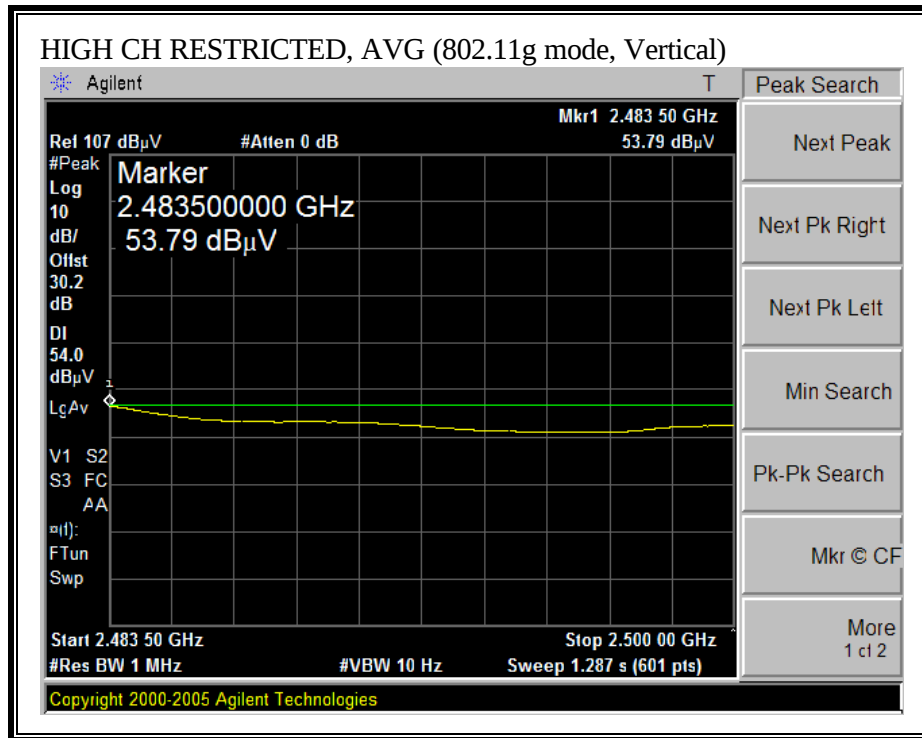
RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)

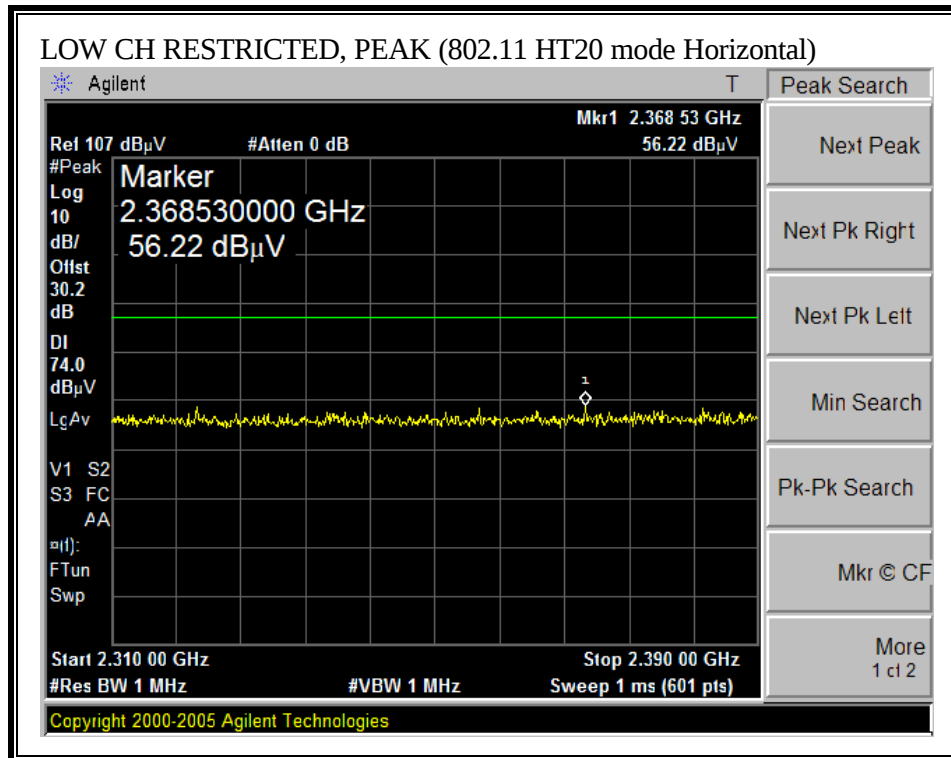


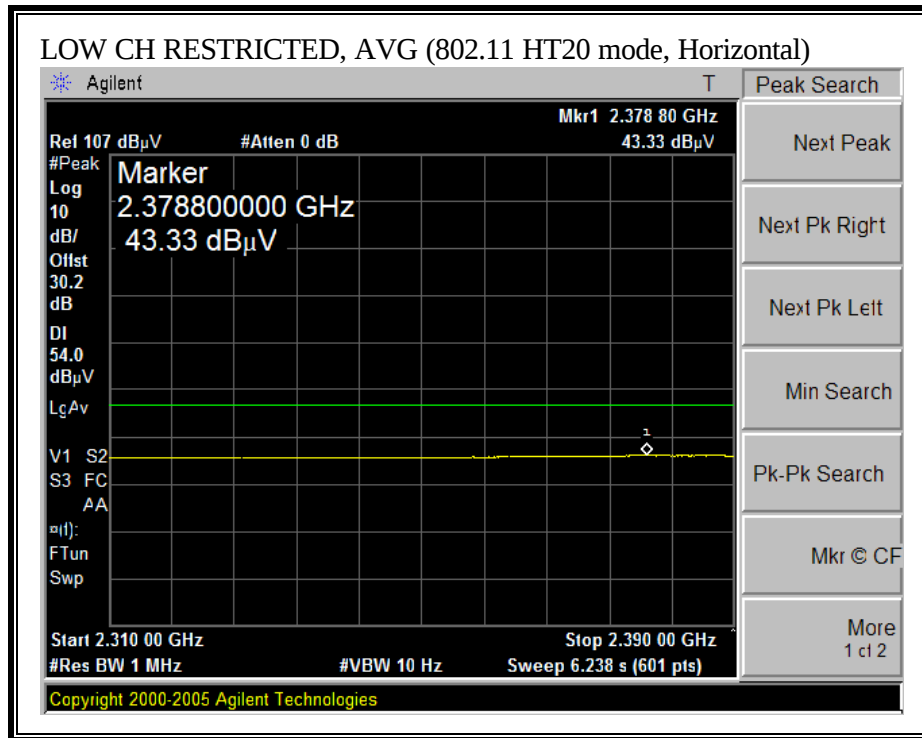


HARMONICS AND SPURIOUS EMISSIONS (g MODE)

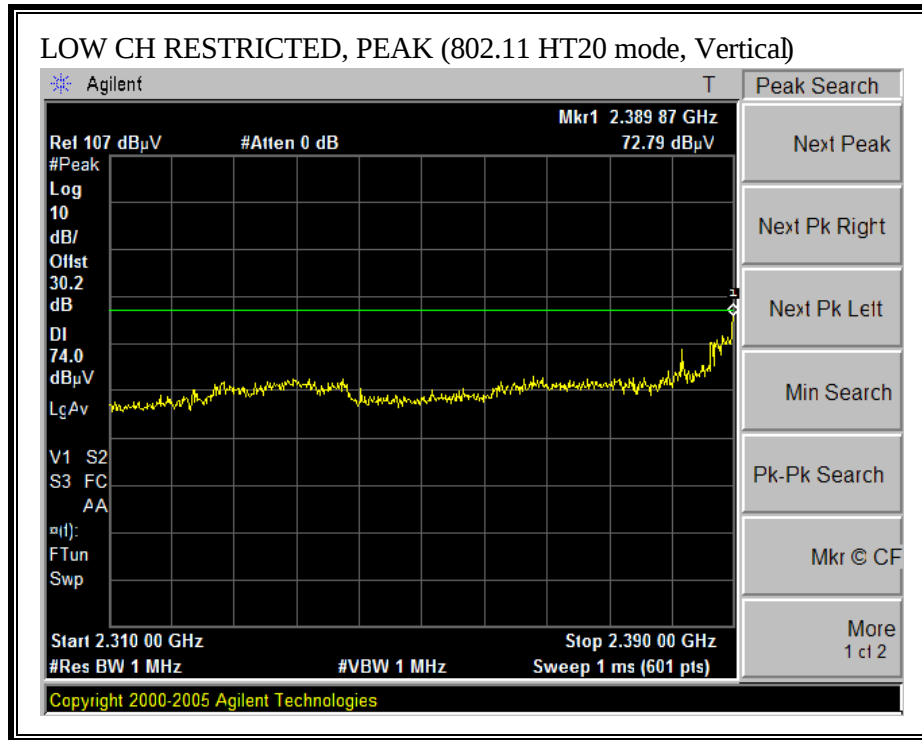
04/12/06 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site																	
Test Engineer:Chin Pang Project #:06U10235 Company:Atheros EUT Description:2.4GHz 802.11n MPC1 Module EUT M/N:WLN-1305 EUTS/N: Test Target:FCC 15.247 Mode Of Operation:TX. 11g																	
Test Equipment:																	
Horn 1-18GHz T73; S/N: 6717 @3m				Pre-amplifier 1-26GHz T145 Agilent 3008A0056				Pre-amplifier 26-40GHz				Horn > 18GHz					
Hi Frequency Cables:																	
2 foot cable				3 foot cable Chin 197538001				12 foot cable Chin 200354001				HPF		Reject Filter R_001		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz	
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)		
Low Ch, 2412MHz																	
4.824	3.0	54.5	42.0	33.7	3.2	-34.8	0.0	0.0	56.6	44.1	74	54	-17.4	-9.9	V		
4.824	3.0	45.0	34.0	33.7	3.2	-34.8	0.0	0.0	47.1	36.1	74	54	-26.9	-17.9	H		
Mid Ch, 2437MHz																	
4.874	3.0	53.0	40.0	33.8	3.2	-34.9	0.0	0.0	55.1	42.1	74	54	-18.9	-11.9	V		
7.311	3.0	45.0	33.0	35.5	3.6	-34.7	0.0	0.0	49.4	37.4	74	54	-24.6	-16.6	V		
4.874	3.0	46.0	34.0	33.8	3.2	-34.9	0.0	0.0	48.1	36.1	74	54	-25.9	-17.9	H		
7.311	3.0	44.6	32.5	35.5	3.6	-34.7	0.0	0.0	49.0	36.9	74	54	-25.0	-17.1	H		
High Ch, 2462MHz																	
4.924	3.0	49.0	37.0	33.8	3.2	-34.9	0.0	0.0	51.2	39.2	74	54	-22.8	-14.8	V		
7.386	3.0	46.0	33.0	35.6	3.6	-34.6	0.0	0.0	50.6	37.6	74	54	-23.4	-16.4	V		
4.924	3.0	45.0	31.6	33.8	3.2	-34.9	0.0	0.0	47.2	33.8	74	54	-26.8	-20.2	H		
7.386	3.0	43.0	33.0	35.6	3.6	-34.6	0.0	0.0	47.6	37.6	74	54	-26.4	-16.4	H		
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												

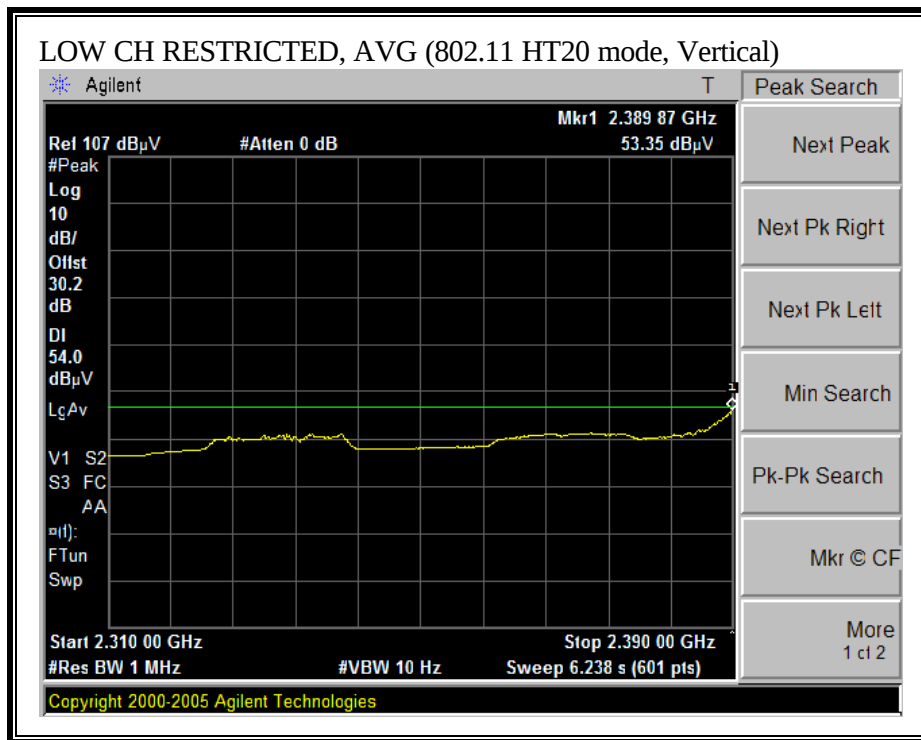
RESTRICTED BANDEDGE (HT20 MODE, LOW CHANNEL, HORIZONTAL



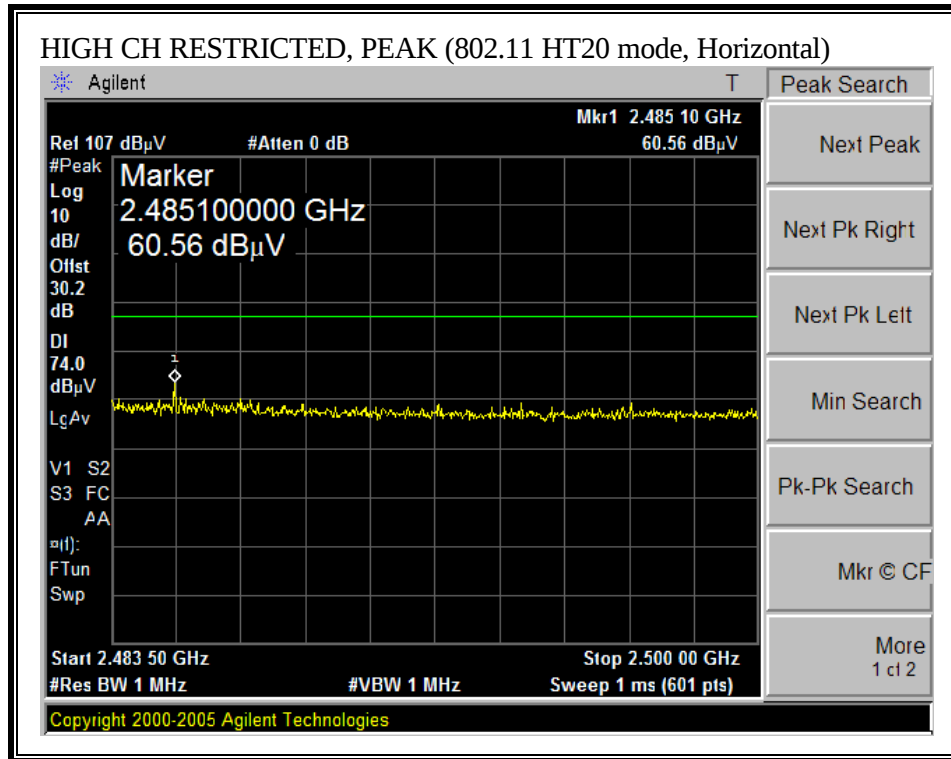


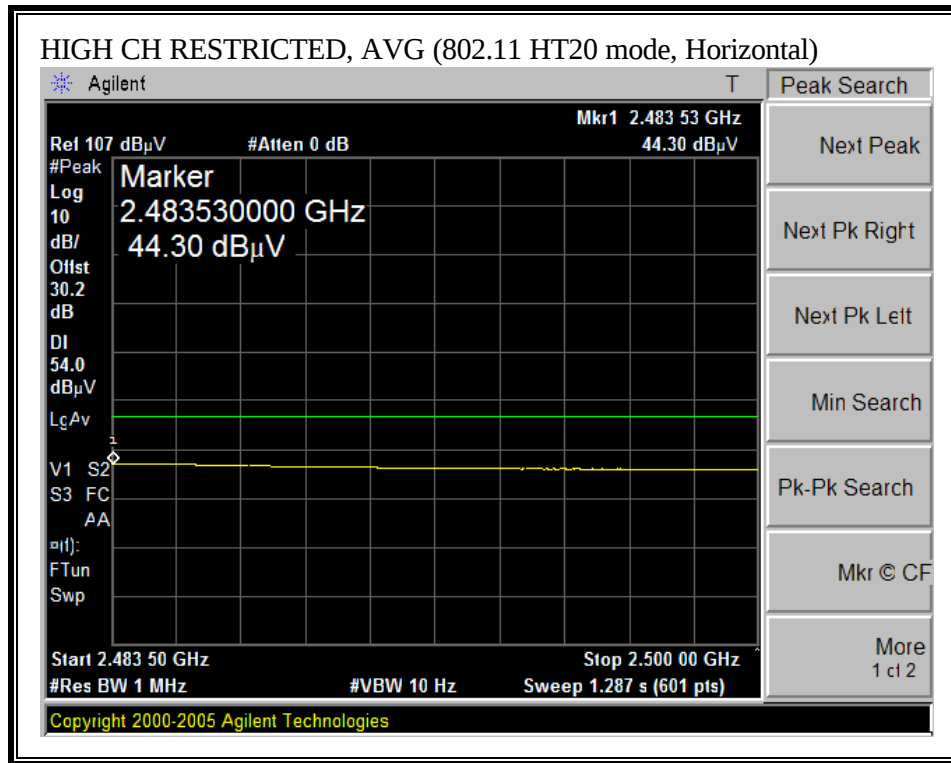
RESTRICTED BANDEDGE (HT20 MODE, LOW CHANNEL, VERTICAL)



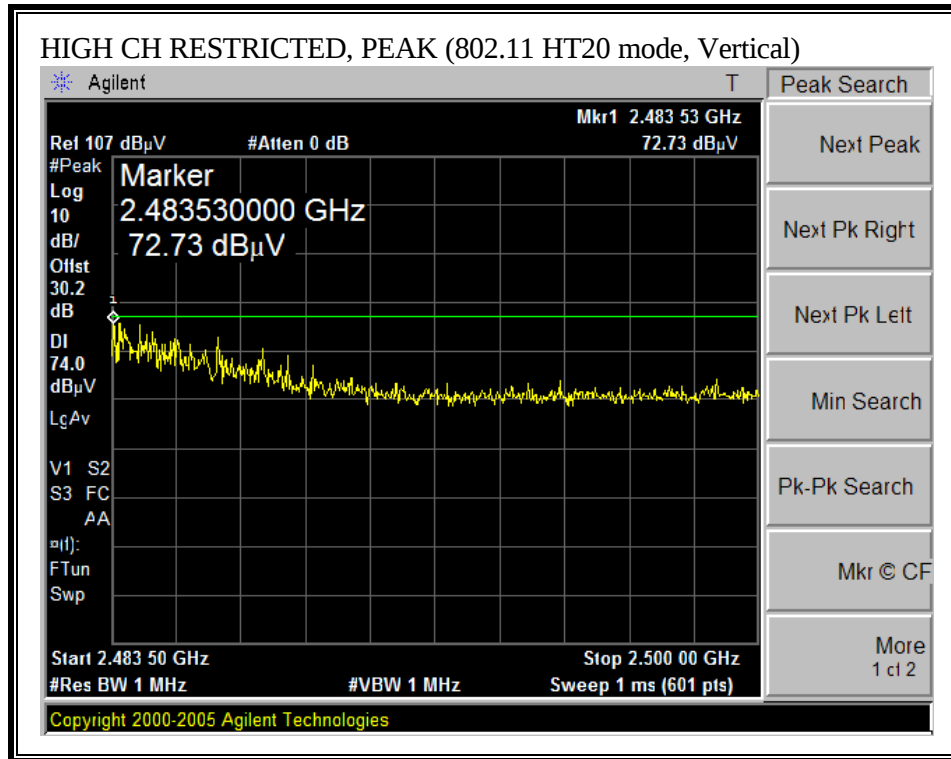


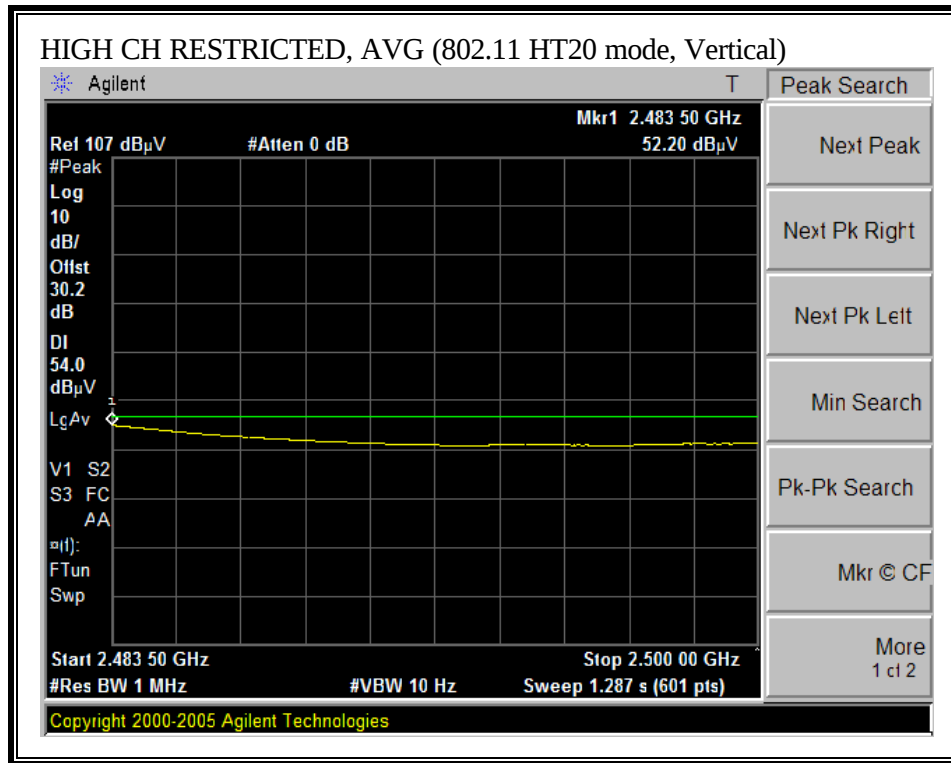
RESTRICTED BANDEDGE (HT20 MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HT20 MODE, HIGH CHANNEL, VERTICAL)





04/12/06
High Frequency Measurement

Compliance Certification Services, Morgan Hill Open Field Site

Test Engineer:Chin Pang
Project #:06U10235
Company:Cameo
EUT Description:2.4GHz 802.11n MPC1 Module
EUTM/N:WLN-1305
EUTS/N:
Test Target:FCC 15.247
Mode Of Operation:TX. HT20

Test Equipment:

Horn 1-18GHz

T73; SIN: 6717 @3m

Pre-amplifier 1-26GHz

T145 Agilent 3008A0056

Pre-amplifier 26-40GHz

Horn > 18GHz

2 foot cable

3 foot cable

Chin 197538001

12 foot cable

Chin 200354001

HPF

Reject Filter

R_001

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

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	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 Ch, 2412MHz															
4.824	3.0	54.0	40.0	33.7	3.2	-34.8	0.0	0.0	56.1	42.1	74	54	-17.9	-11.9	V
4.824	3.0	44.6	32.0	33.7	3.2	-34.8	0.0	0.0	46.7	34.1	74	54	-27.3	-19.9	H
Mid Ch, 2437MHz															
4.874	3.0	53.6	39.5	33.8	3.2	-34.9	0.0	0.0	55.7	41.6	74	54	-18.3	-12.4	V
7.311	3.0	45.5	33.4	35.5	3.6	-34.7	0.0	0.0	49.9	37.8	74	54	-24.1	-16.2	V
4.874	3.0	45.0	32.0	33.8	3.2	-34.9	0.0	0.0	47.1	34.1	74	54	-26.9	-19.9	H
7.311	3.0	44.0	31.7	35.5	3.6	-34.7	0.0	0.0	48.4	36.1	74	54	-25.6	-17.9	H
High Ch, 2462MHz															
4.924	3.0	52.0	36.0	33.8	3.2	-34.9	0.0	0.0	54.2	38.2	74	54	-19.8	-15.8	V
7.386	3.0	45.0	32.0	35.6	3.6	-34.6	0.0	0.0	49.6	36.6	74	54	-24.4	-17.4	V
4.924	3.0	44.0	32.0	33.8	3.2	-34.9	0.0	0.0	46.2	34.2	74	54	-27.8	-19.8	H
7.386	3.0	43.6	31.7	35.6	3.6	-34.6	0.0	0.0	48.2	36.3	74	54	-25.8	-17.7	H
Note: No other emissions were detected above the system noise floor.															

f
Measurement Frequency

Dist
Distance to Antenna

Read
Analyzer Reading

AF
Antenna Factor

CL
Cable Loss

Amp
Preamp Gain

D Corr
Distance Correct to 3 meters

Avg
Average Field Strength @ 3 m

Peak
Calculated Peak Field Strength

HPF
High Pass Filter

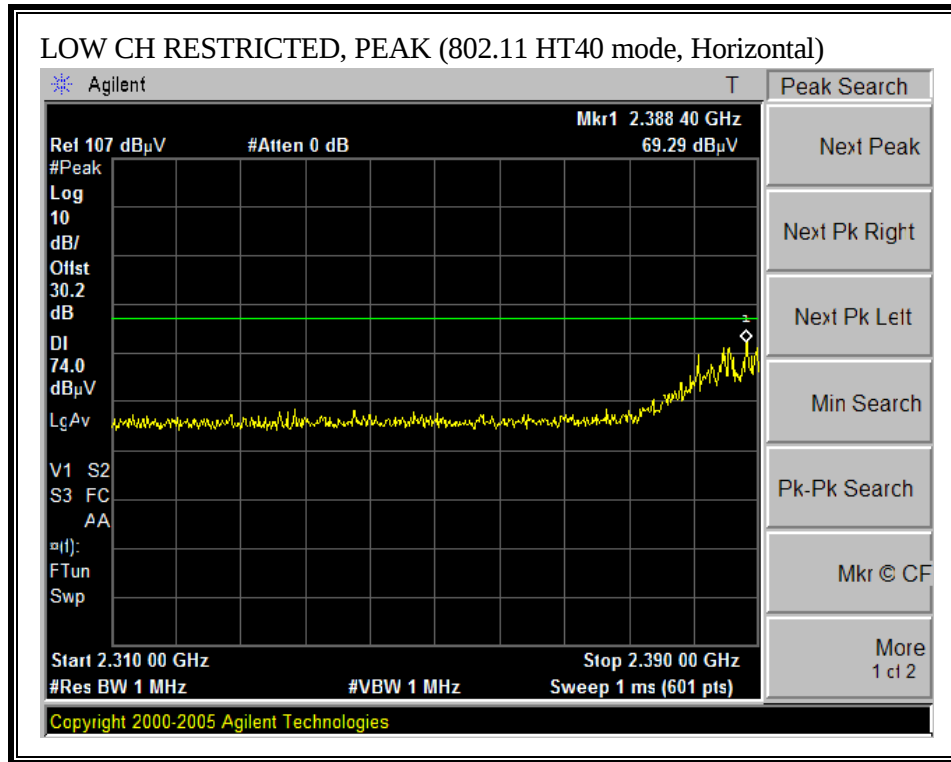
Avg Lim
Average Field Strength Limit

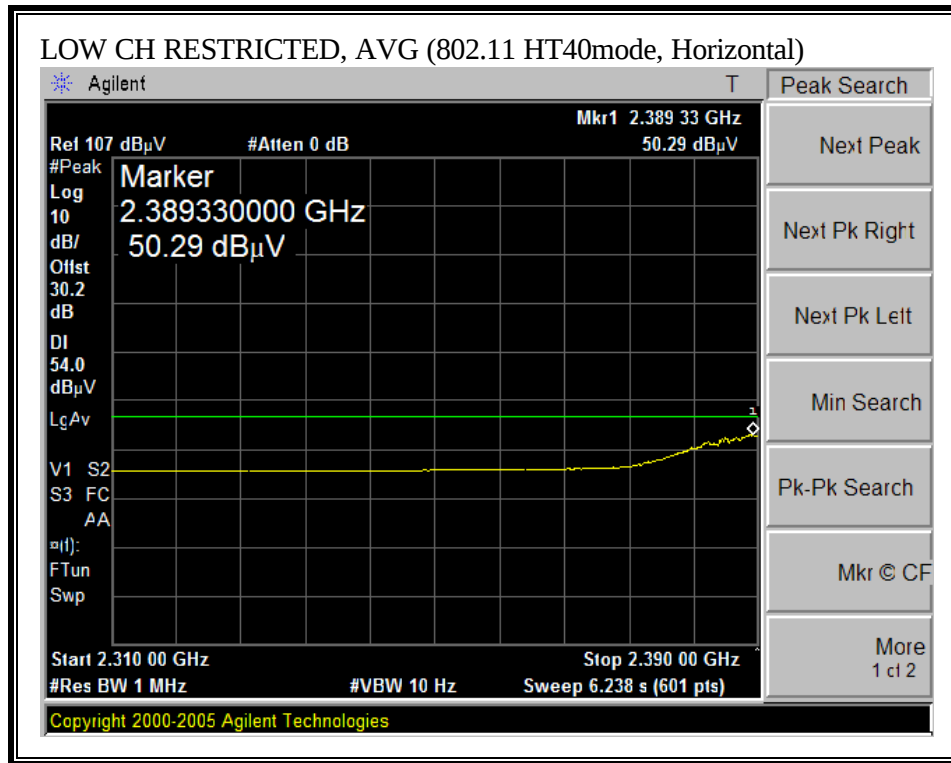
Pk Lim
Peak Field Strength Limit

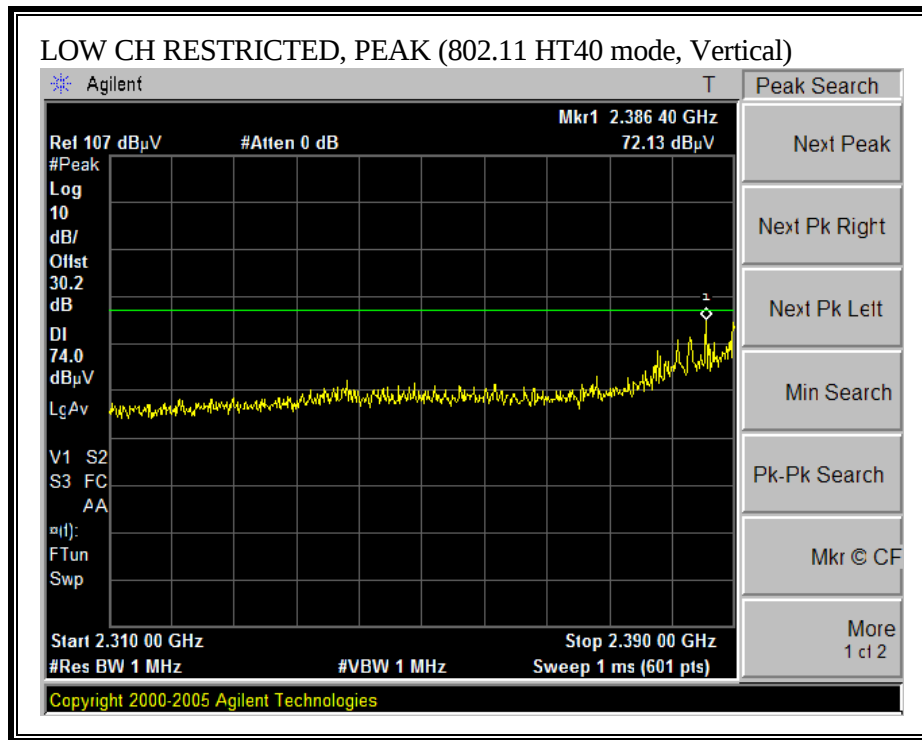
Avg Mar
Margin vs. Average Limit

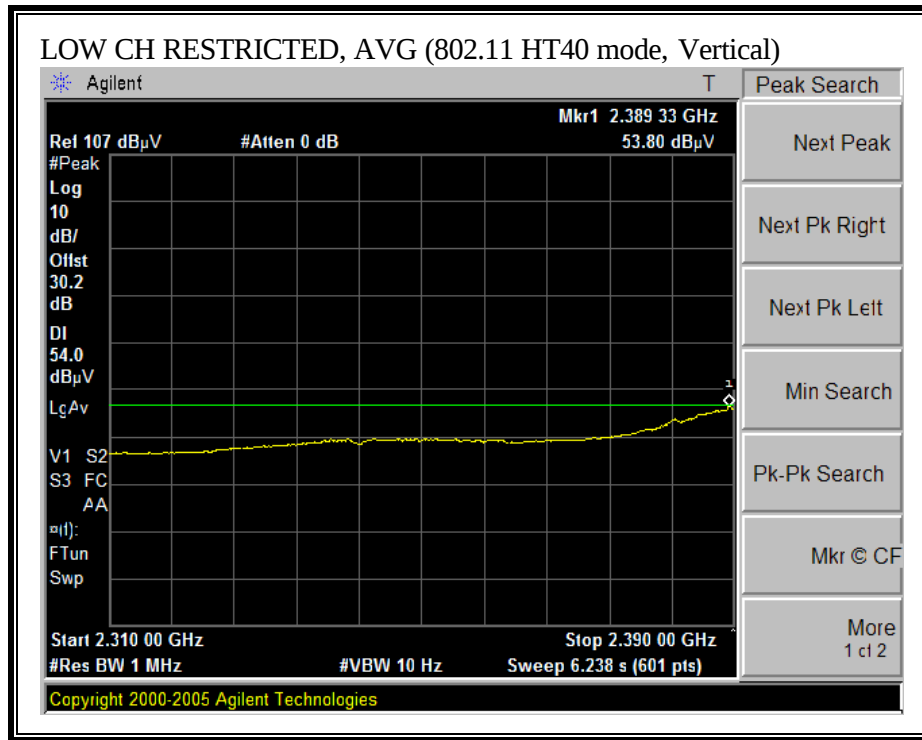
Pk Mar
Margin vs. Peak Limit

LOW CH, 2422MHz RESTRICTED BANDEDGE (HT40 MODE, LOW CHANNEL, HORIZONTAL

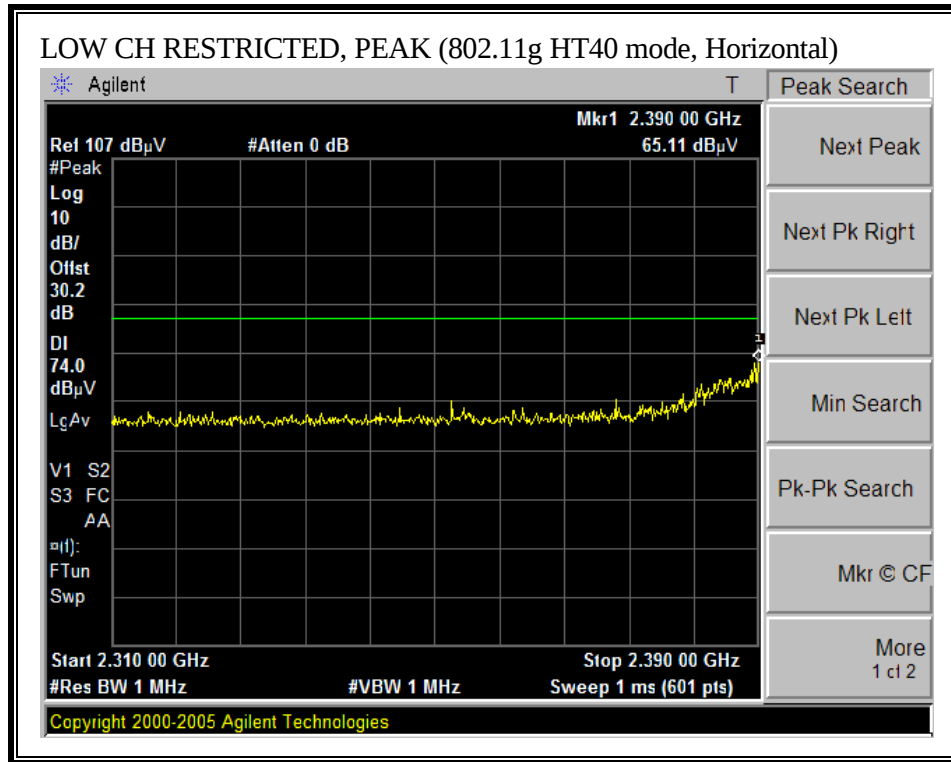


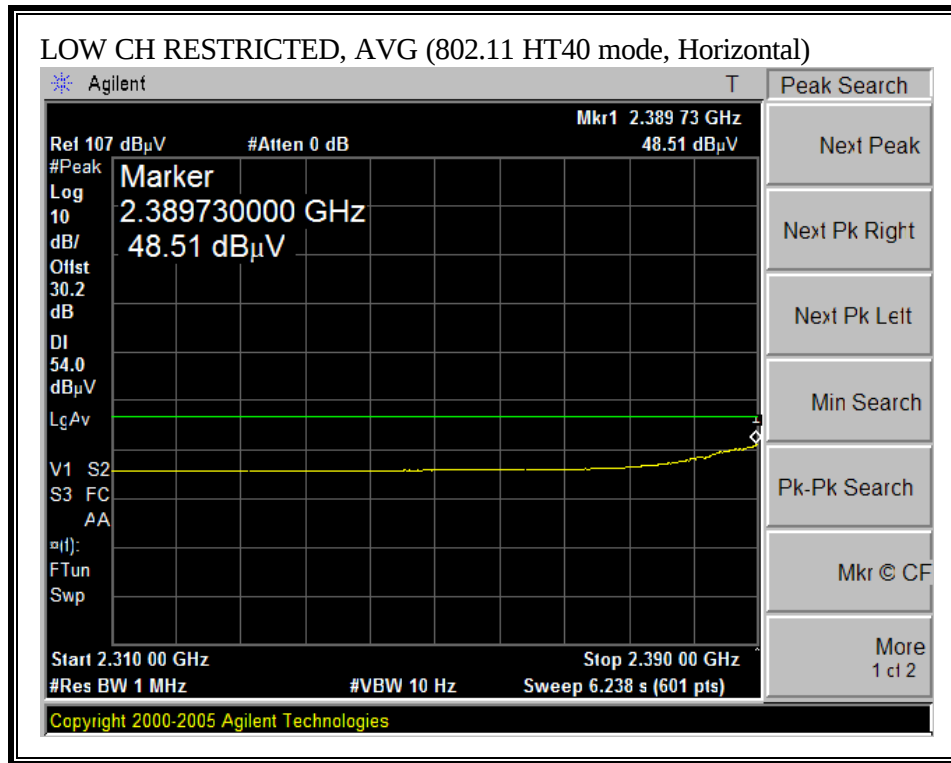


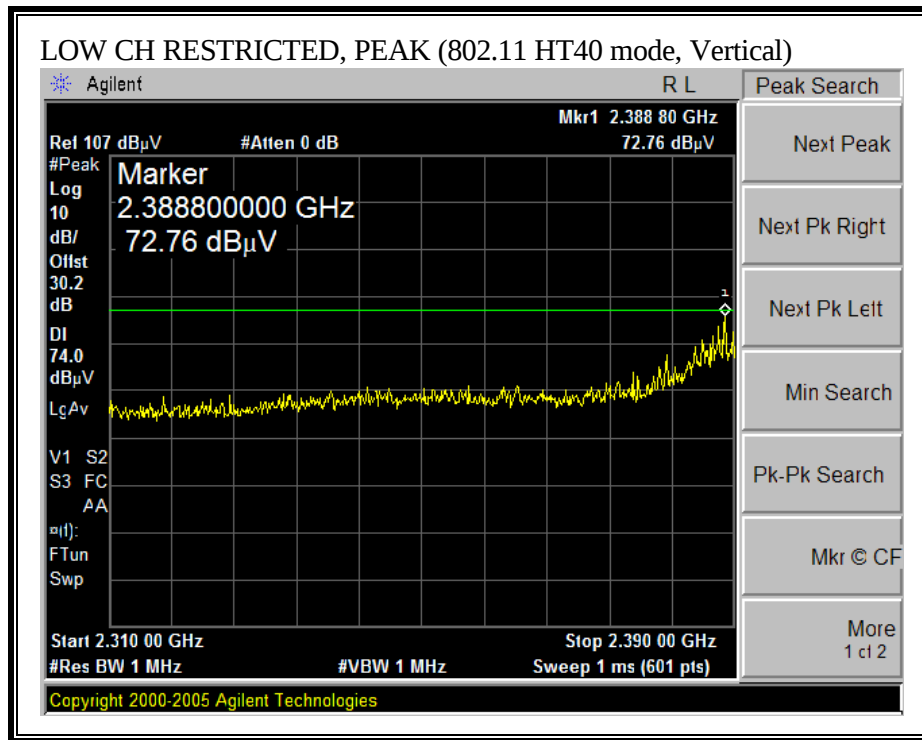


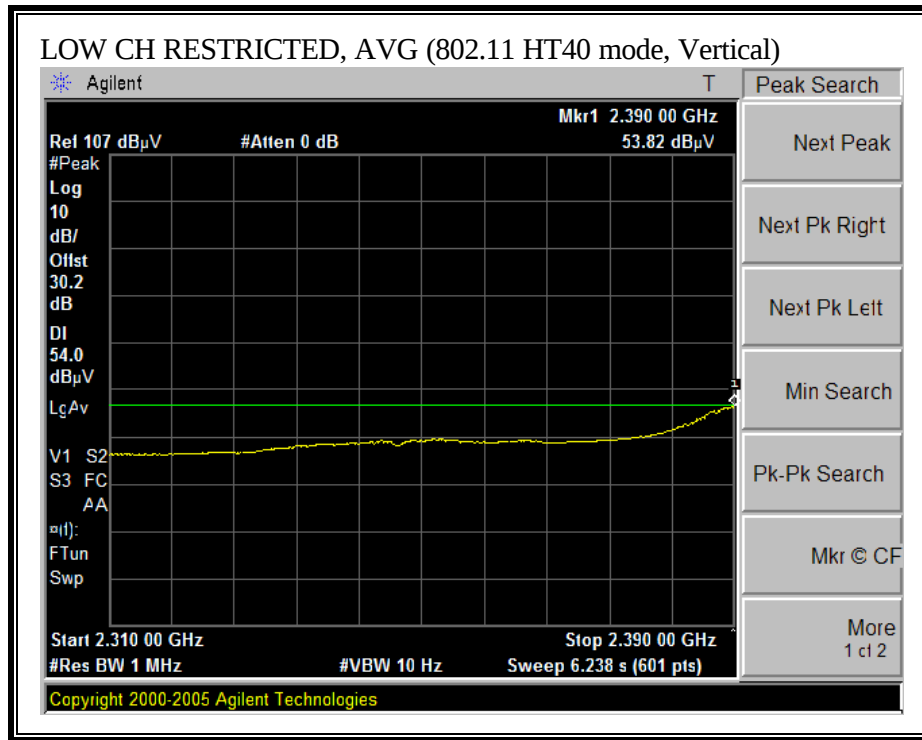


SECOND CH, 2427MHz RESTRICTED BANDEDGE (g HT40 MODE, LOW CHANNEL, HORIZONTAL

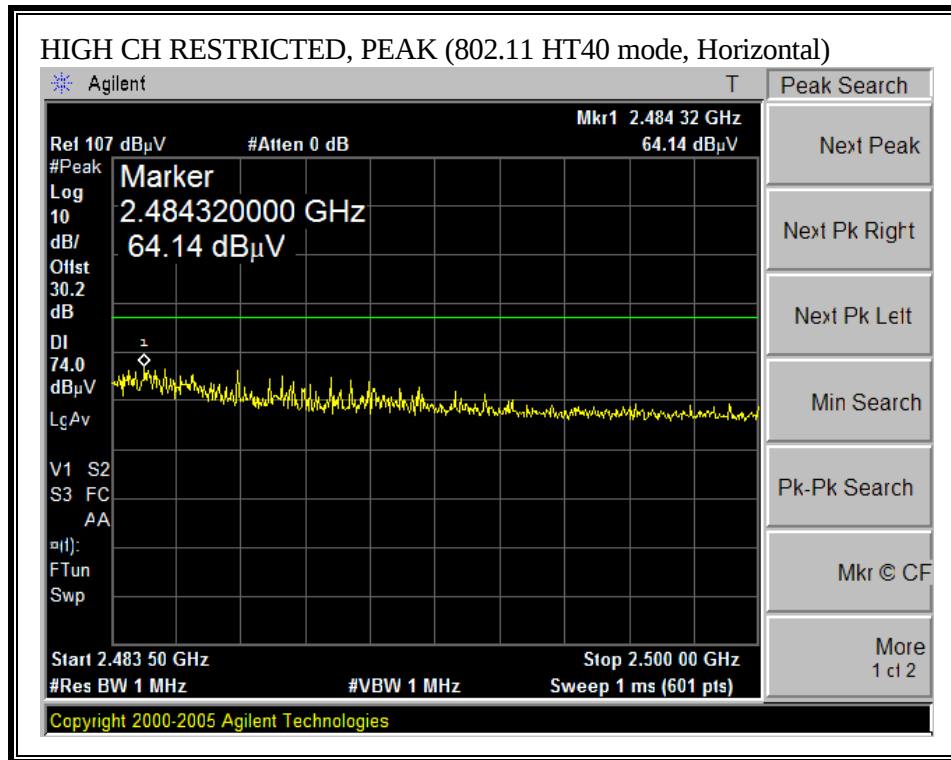


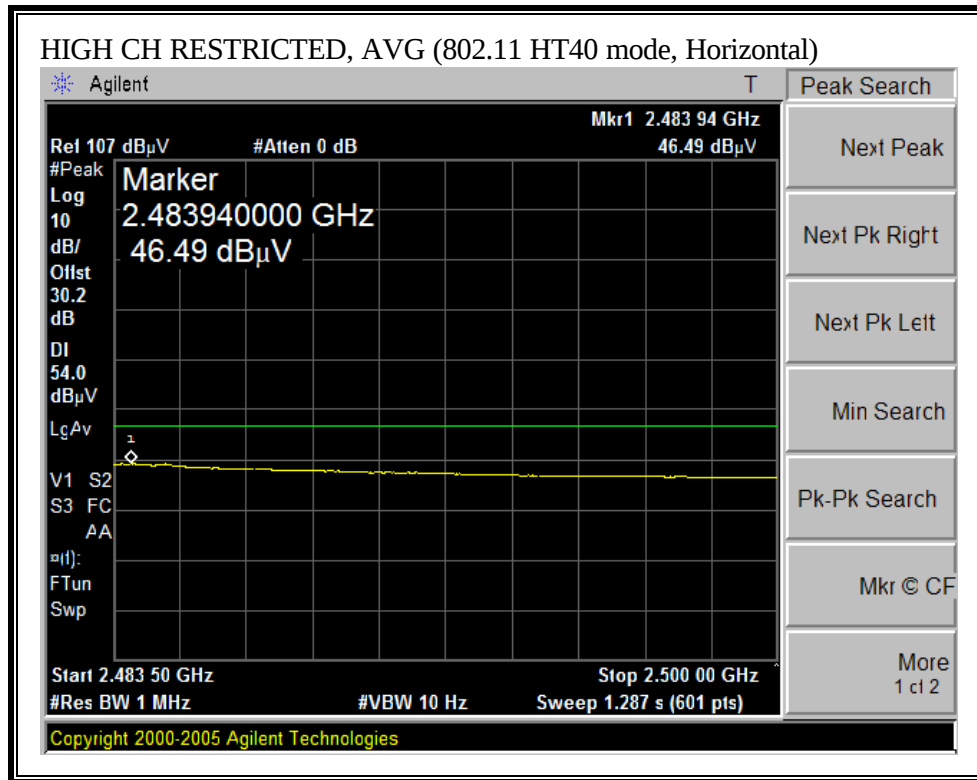




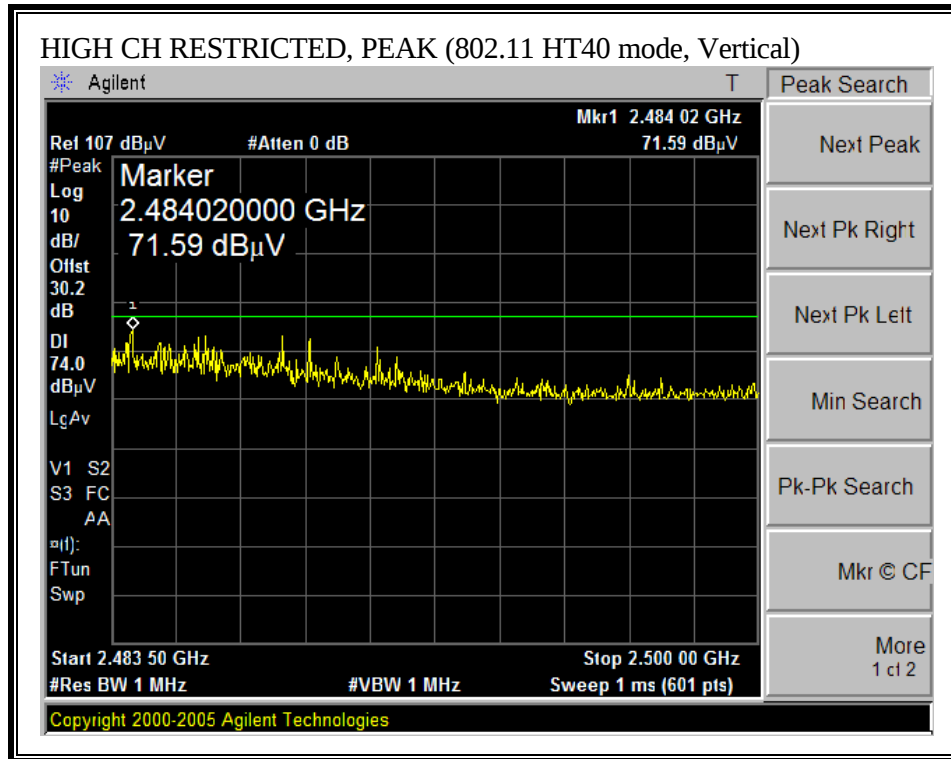


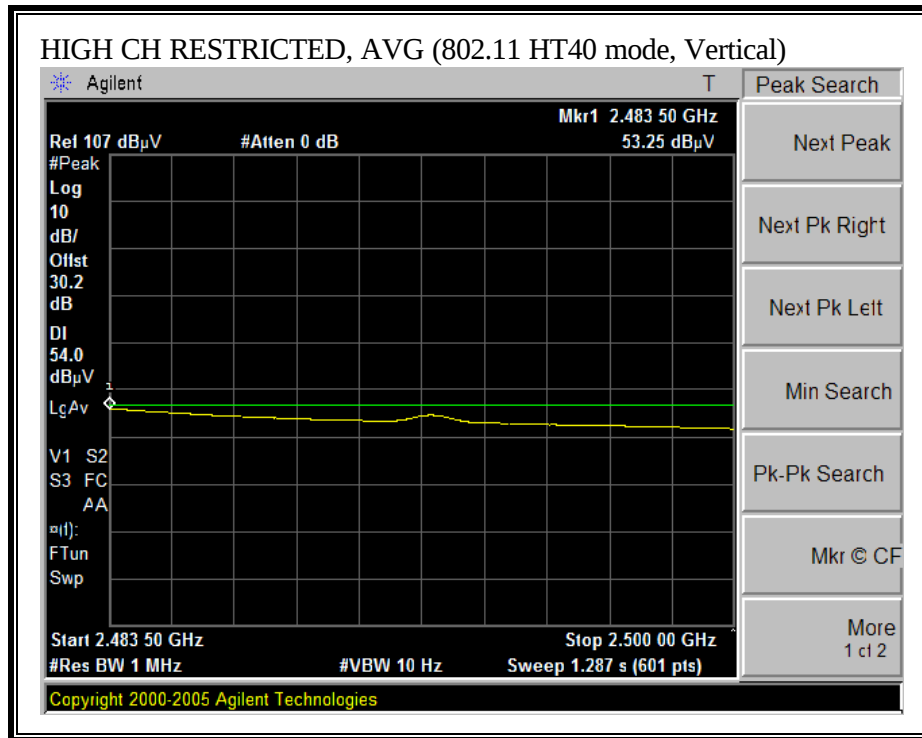
SECOND HIGH CH, 2447MHz RESTRICTED BANDEDGE (HT40 MODE, HIGH CHANNEL, Horizontal)



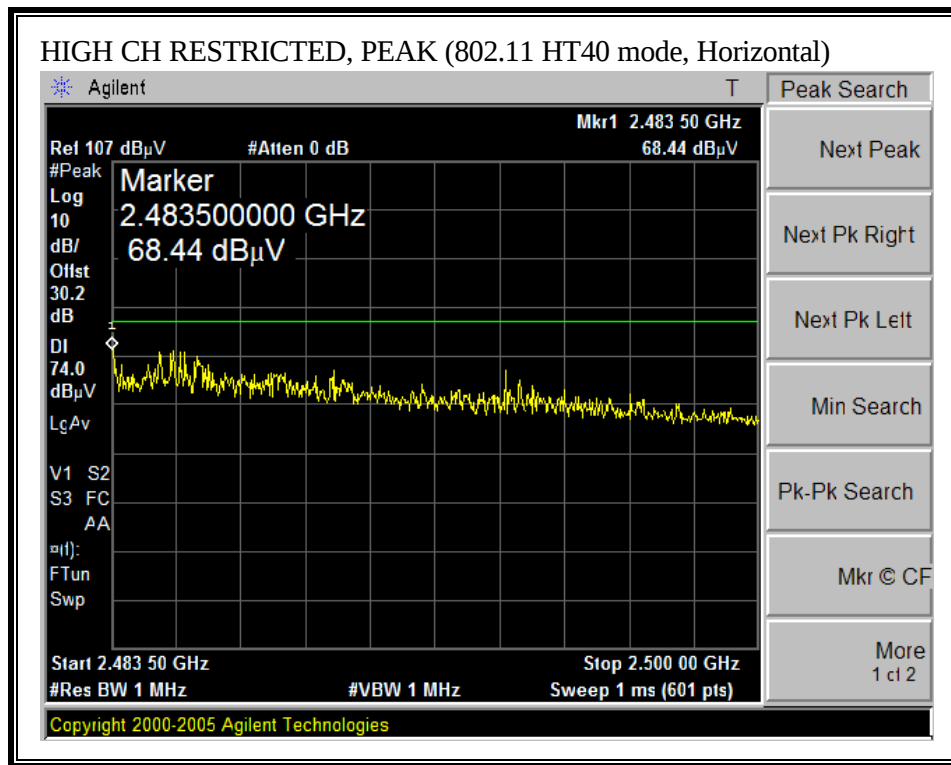


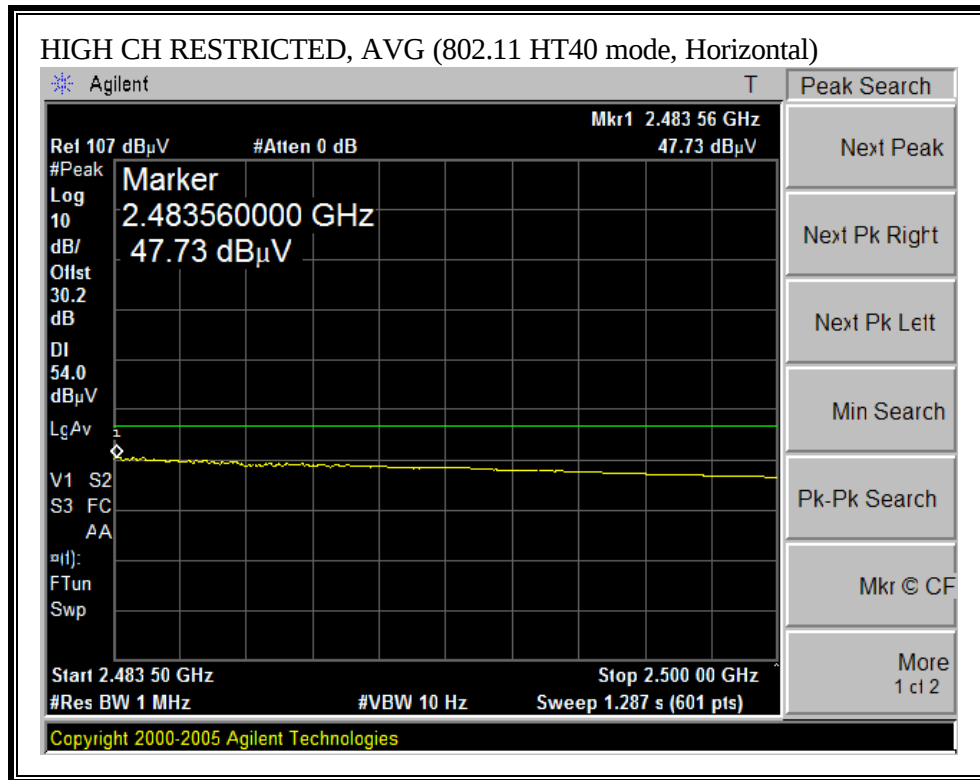
RESTRICTED BANDEDGE (HT40 MODE, HIGH CHANNEL, Vertical)



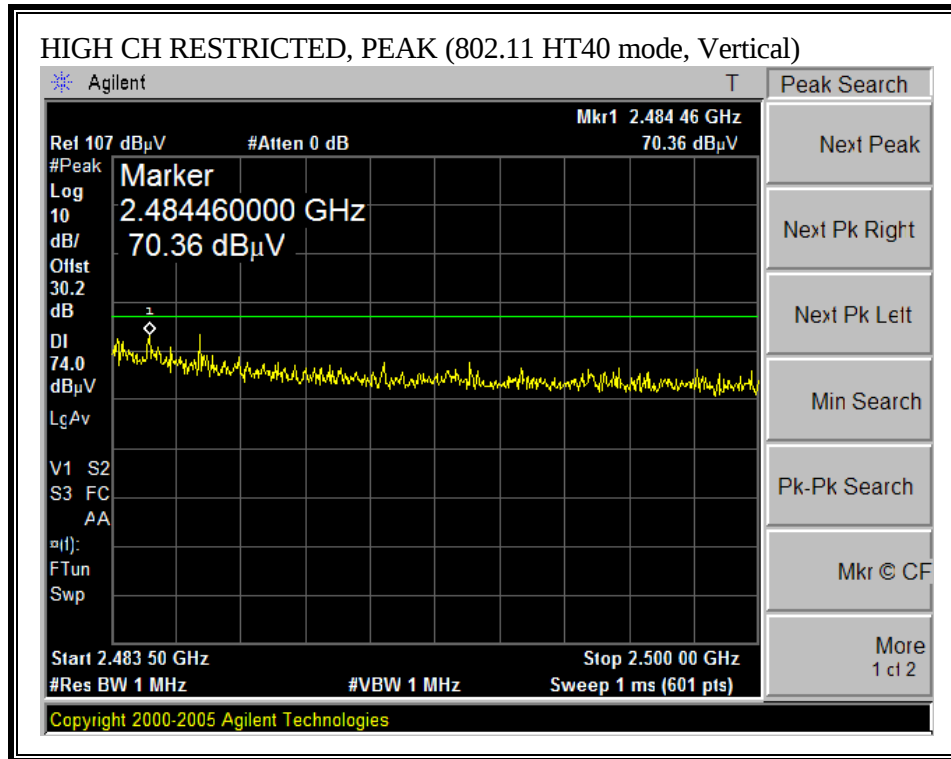


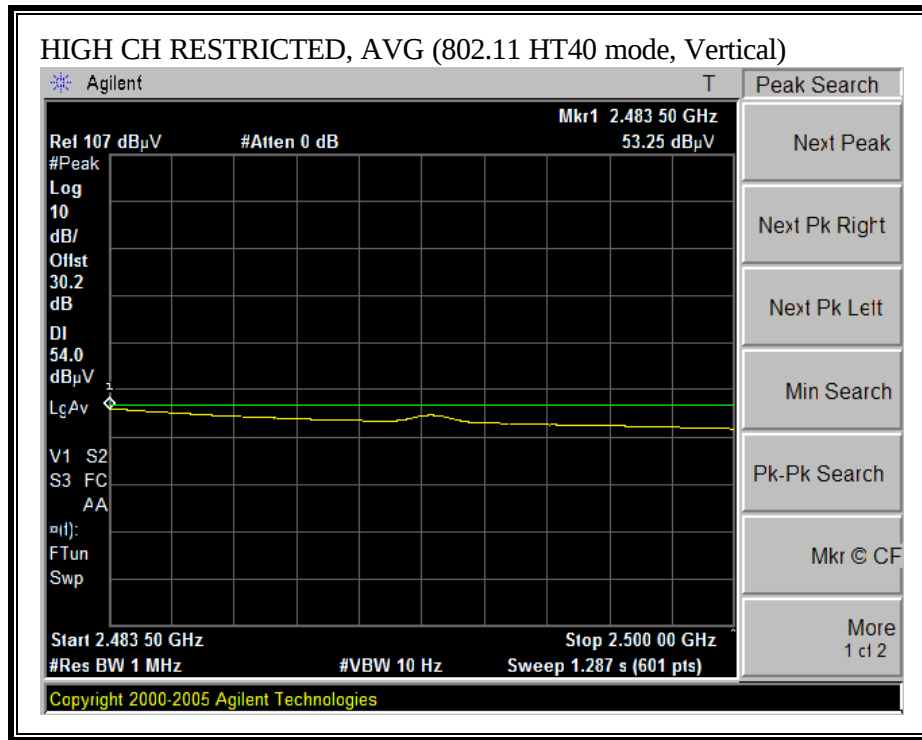
HIGH CH, 2452MHz RESTRICTED BANDEDGE (HT40 MODE, HIGH CHANNEL, Horizontal)





RESTRICTED BANDEDGE (HT40 MODE, HIGH CHANNEL, Vertical)





[illegible]

6.2.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

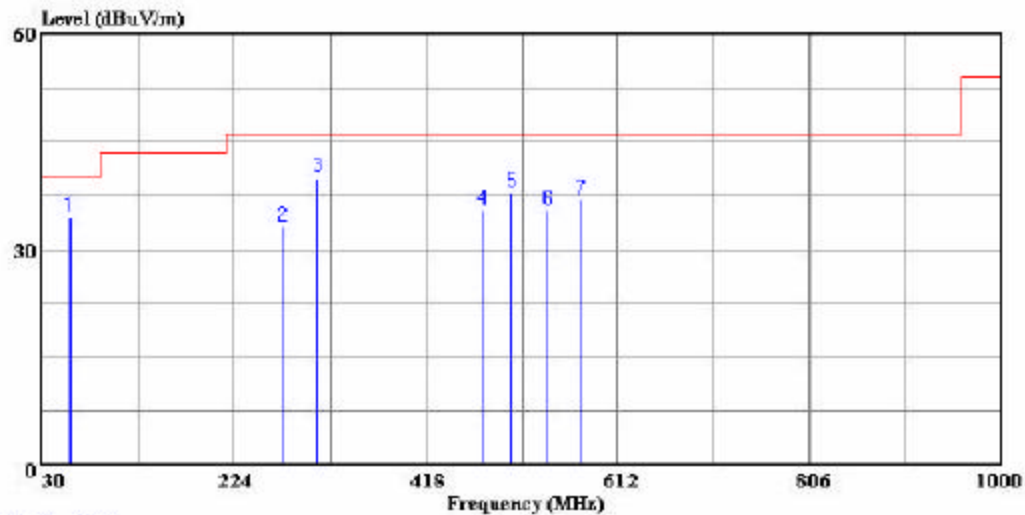
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 11 File#: Cameo.emi Date: 04-12-2006 Time: 11:33:23



(Auxiliary ATC)

Trace:

Ref Trace:

Condition: FCC CLASS-B HORIZONTAL

Test Operator : Chin Pang

Project # : 06U10236-1

Company : Atheros Communications, Inc.

EUT : 2.4GHz 802.11n MPC1 Module

Model No : AR5BMB71

S/N :

Configuration : EUT/Laptop/Power Supply

Mode of operation: 802.11g, mid ch

Target of Test : FCC Class B

HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	58.130	25.83	8.61	34.44	40.00	-5.56	Peak
2	274.440	18.41	14.76	33.17	46.00	-12.83	Peak
3	308.390	24.24	15.87	40.11	46.00	-5.89	Peak
4	475.230	15.75	19.75	35.50	46.00	-10.50	Peak
5	504.330	17.82	20.26	38.08	46.00	-7.92	Peak
6	541.190	14.66	20.78	35.44	46.00	-10.56	Peak
7	575.140	15.79	21.20	36.99	46.00	-9.01	Peak

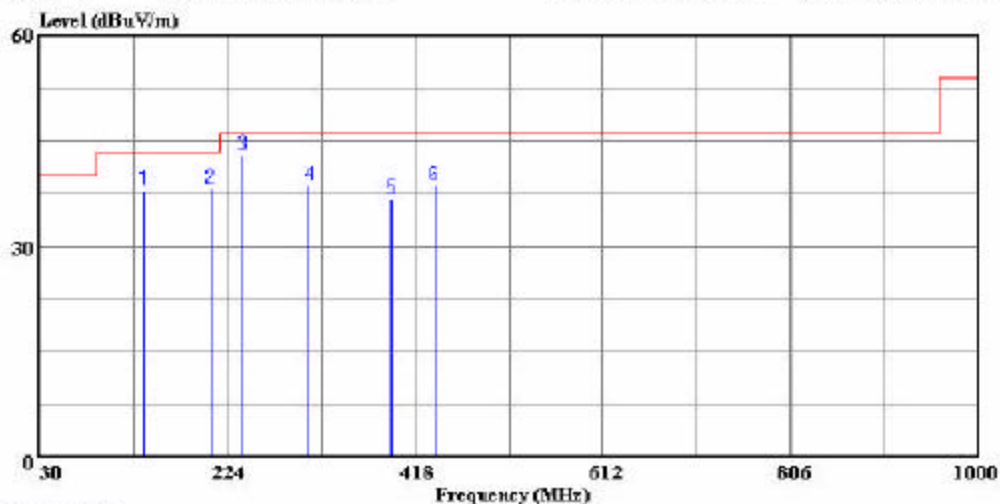
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 5 File#: Cameo.emi Date: 04-12-2006 Time: 11:11:53



(Auxiliary ATC)

Trace:

Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator : Chin Pang
Project # : 06U10236-1
Company : Atheros Communications, Inc.
EUT : 2.4GHz 802.11n MPC1 Module
Model No : AR5BMB71
S/N :
Configuration : EUT/Laptop/Power Supply
Mode of operation: 802.11g, mid ch
Target of Test : FCC Class B

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	137.670	23.17	14.89	38.06	43.50	-5.44	Peak
2	207.510	24.79	13.50	38.29	43.50	-5.21	Peak
3	239.520	29.48	13.47	42.94	46.00	-3.06	Peak
4	308.390	22.82	15.87	38.69	46.00	-7.31	Peak
5	393.750	18.86	17.88	36.74	46.00	-9.26	Peak
6	438.370	19.75	18.93	38.69	46.00	-7.31	Peak

6.3. POWERLINE CONDUCTED EMISSIONS

LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

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

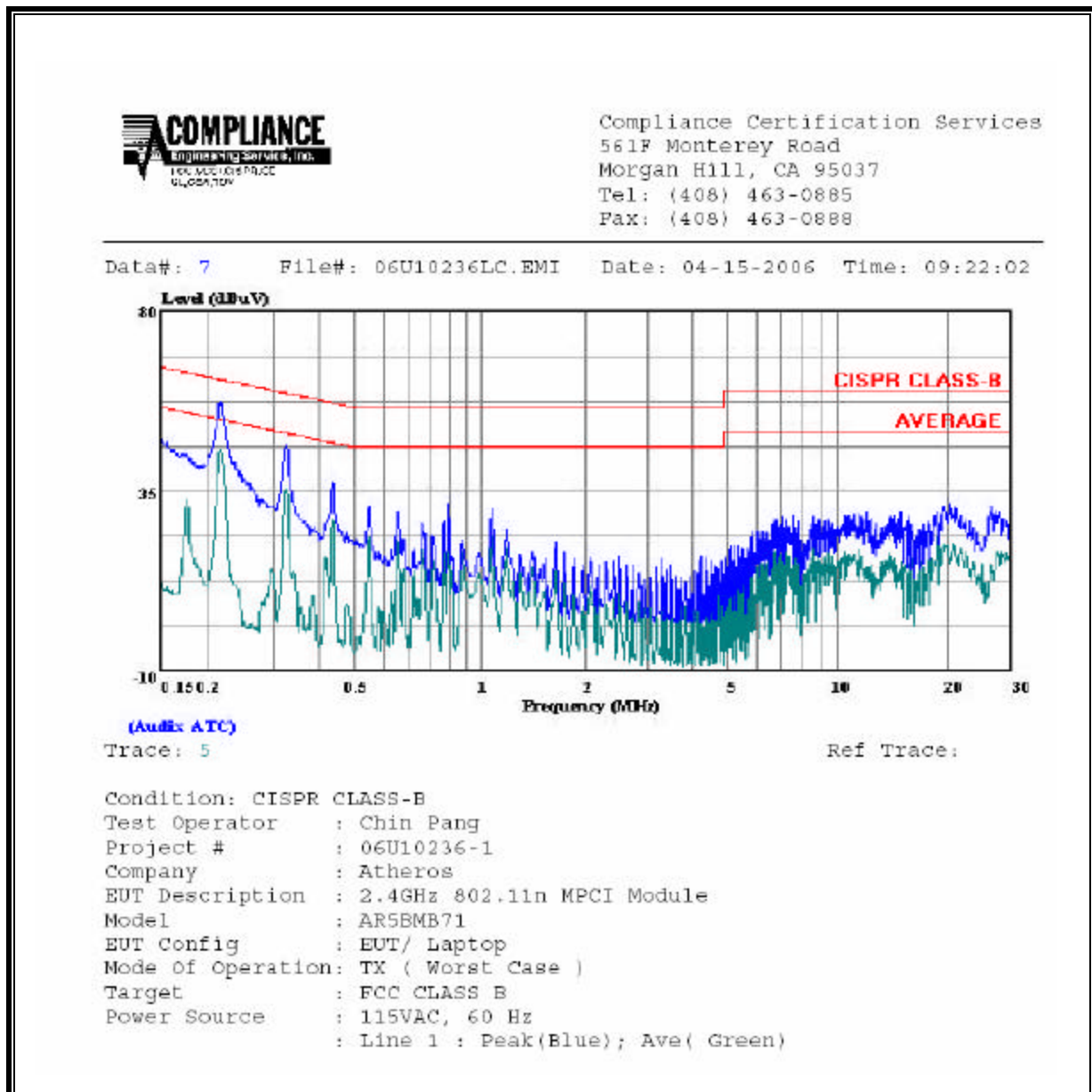
RESULTS

No non-compliance noted:

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.22	57.44	--	44.71	0.00	62.97	52.97	-5.53	-8.26	L1
0.33	46.32	--	35.50	0.00	59.58	49.58	-13.26	-14.08	L1
19.53	30.90	--	23.64	0.00	60.00	50.00	-29.10	-26.36	L1
0.22	55.42	--	43.45	0.00	62.97	52.97	-7.55	-9.52	L2
0.33	44.84	--	34.09	0.00	59.58	49.58	-14.74	-15.49	L2
22.54	36.42	--	29.79	0.00	60.00	50.00	-23.58	-20.21	L2
6 Worst Data									

LINE 1 RESULTS



LINE 2 RESULTS

