

7.4. CHANNEL TESTS FOR THE 5725 TO 5850 MHz BAND

7.4.1. 6 dB BANDWIDTH

LIMIT

§15.247 (a) (2) For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

No non-compliance noted:

6 dB BANDWIDTH

802.11a Mode CDD is covered by the worst case 802.11n Mode 20 MHz CDD MCS0

802.11n Mode 20 MHz CDD MCS0

20 MHz Tx BANDWIDTH - CHAIN 0

Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
Low	5745	16920	500	16420
Middle	5785	16000	500	15500
High	5825	16330	500	15830

20 MHz Tx BANDWIDTH - CHAIN 1

Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
Low	5745	16000	500	15500
Middle	5785	15250	500	14750
High	5825	15750	500	15250

802.11n Mode 40 MHz CDD MCS32

40 MHz Tz BANDWIDTH - CHAIN 0

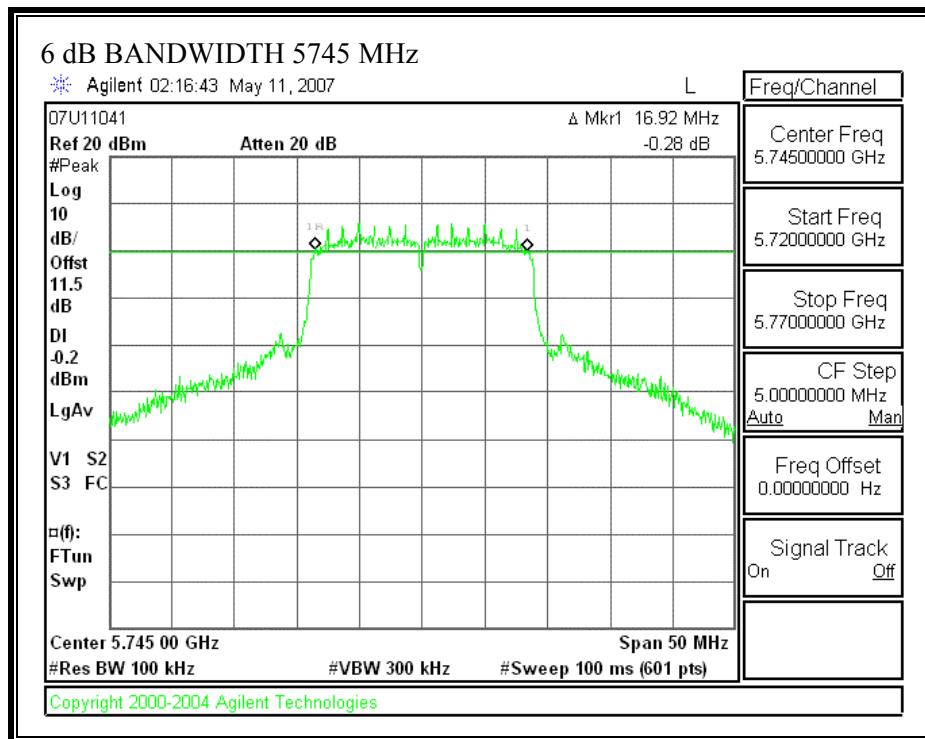
Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
High	5755	35830.00	500	35330
High	5795	36170.00	500	35670

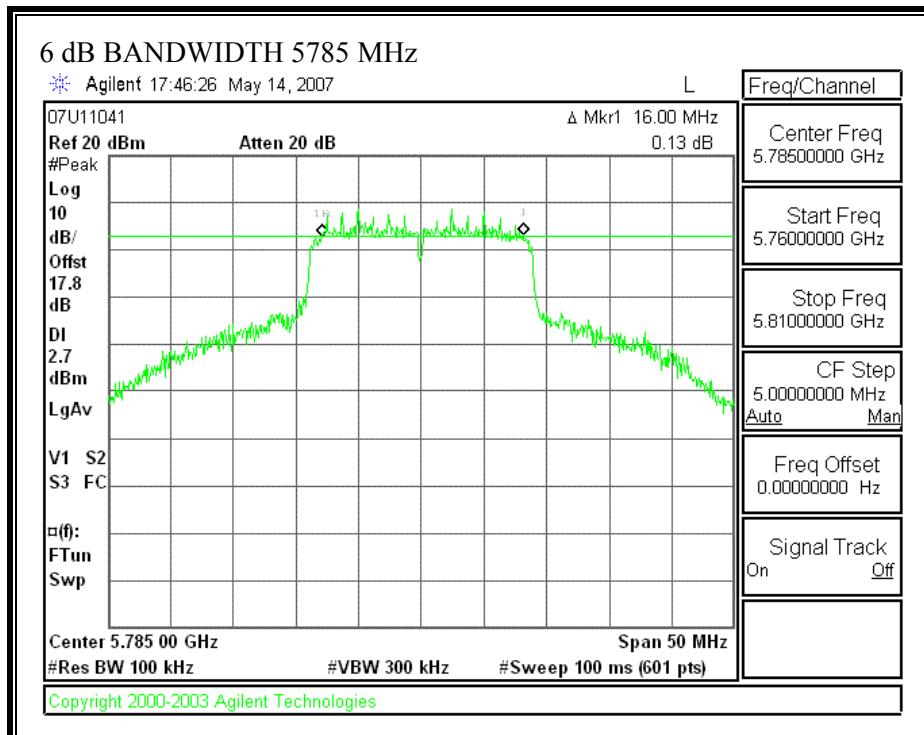
40 MHz Tx BANDWIDTH - CHAIN 1

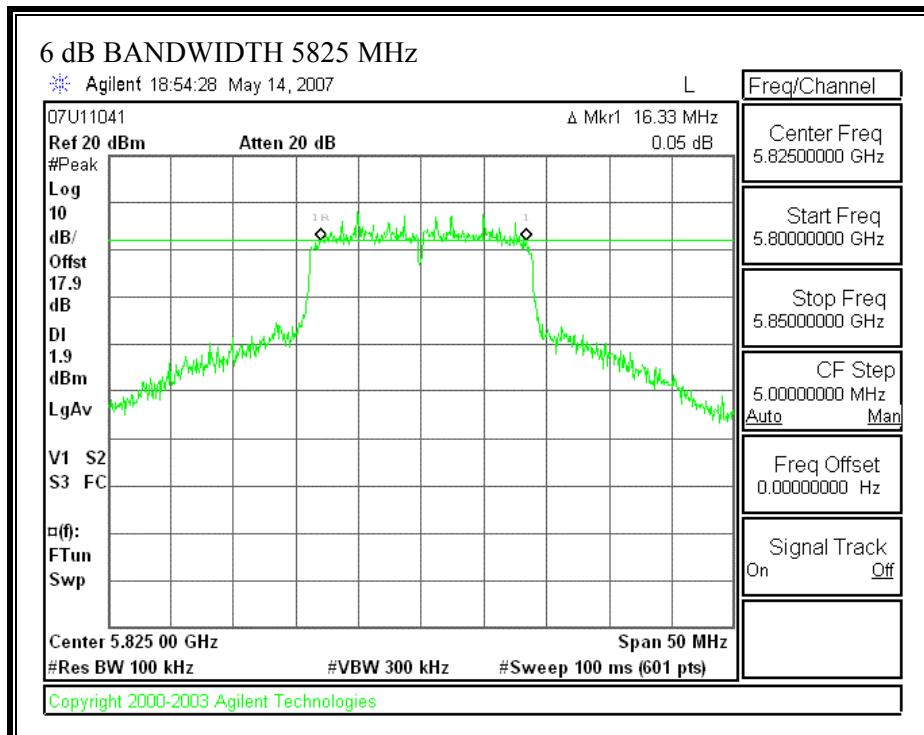
Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
High	5755	35420.00	500	34920
High	5795	35250.00	500	34750

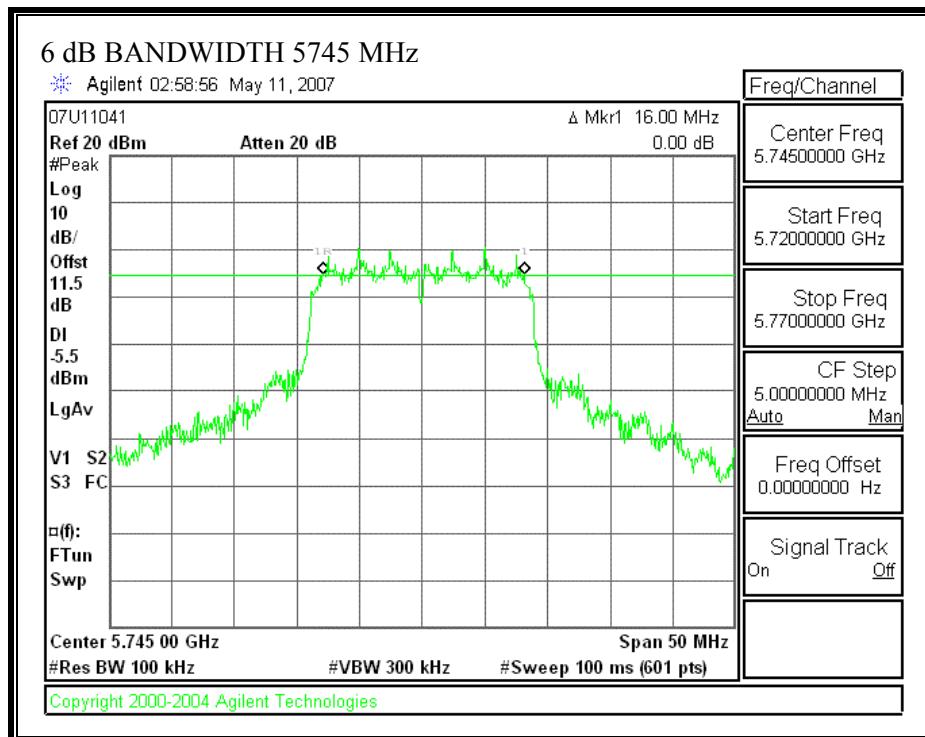
802.11n Mode 20 MHz CDD MCS0

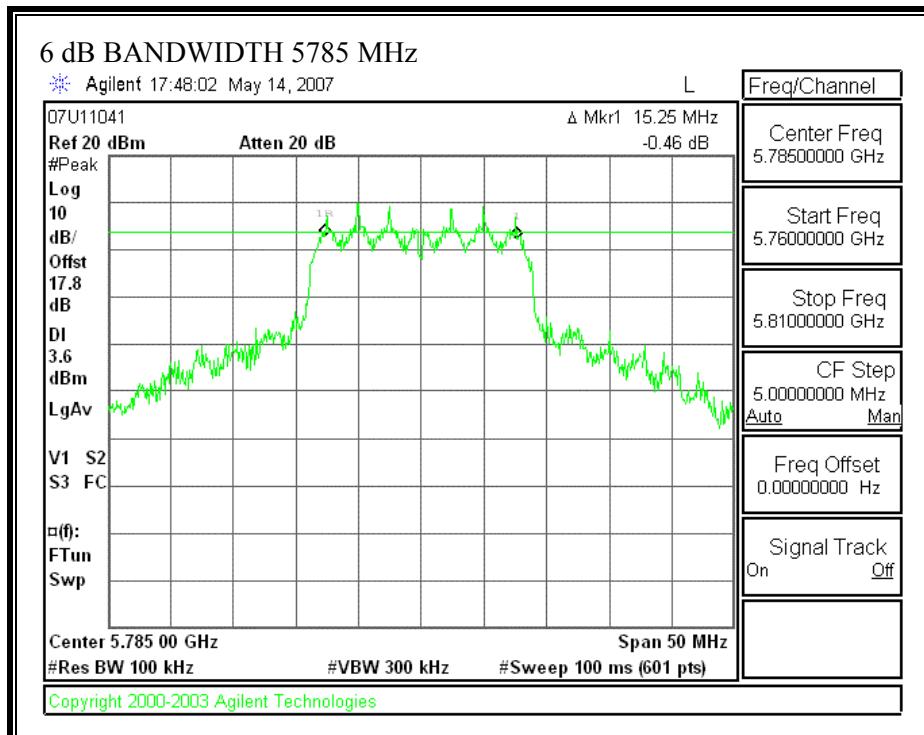
6 dB BANDWIDTH (802.11n - 20 MHz TX BANDWIDTH – CHAIN 0)

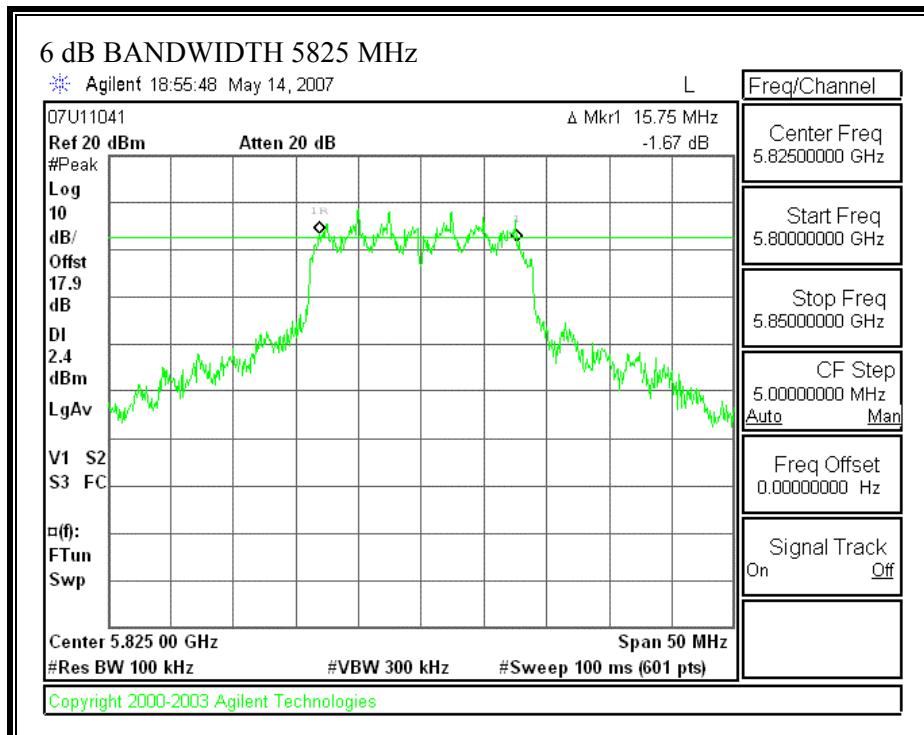






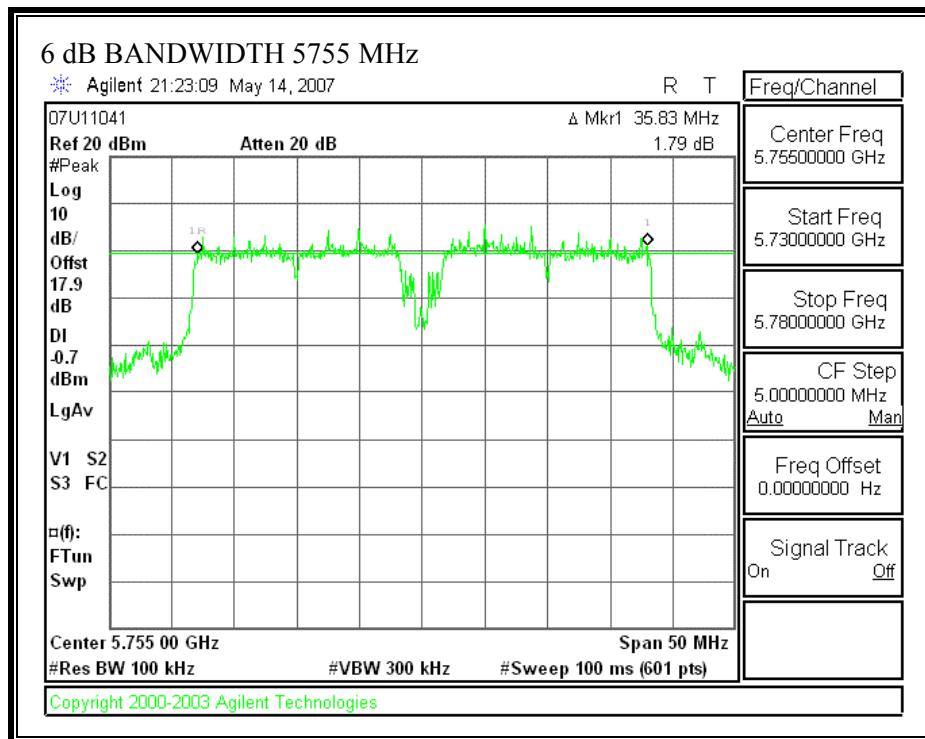
6 dB BANDWIDTH (802.11 - 20 MHz TX BANDWIDTH – CHAIN 1)

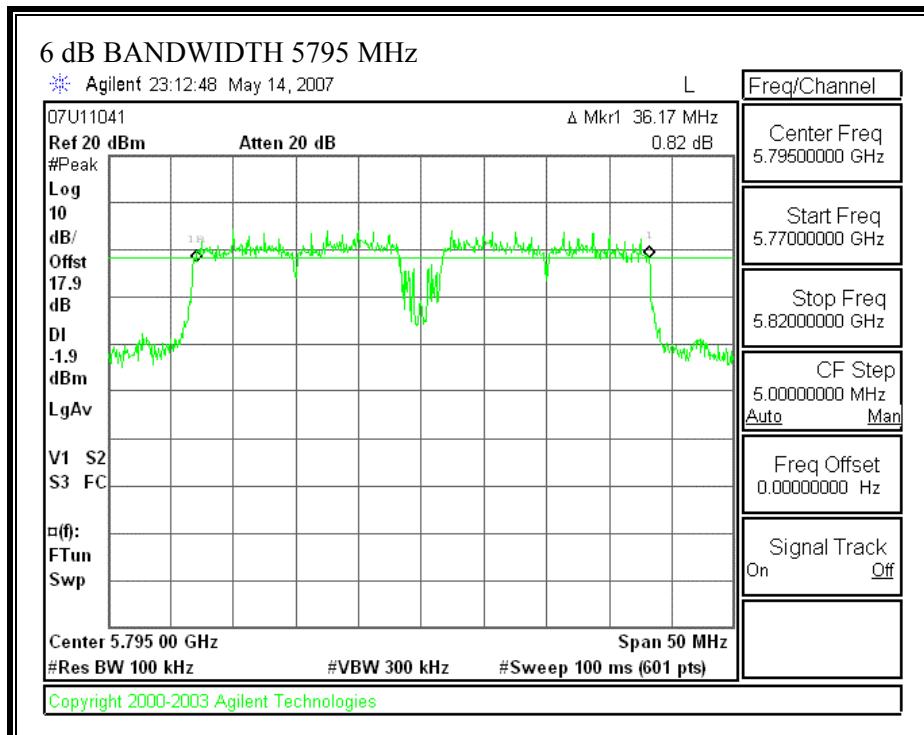


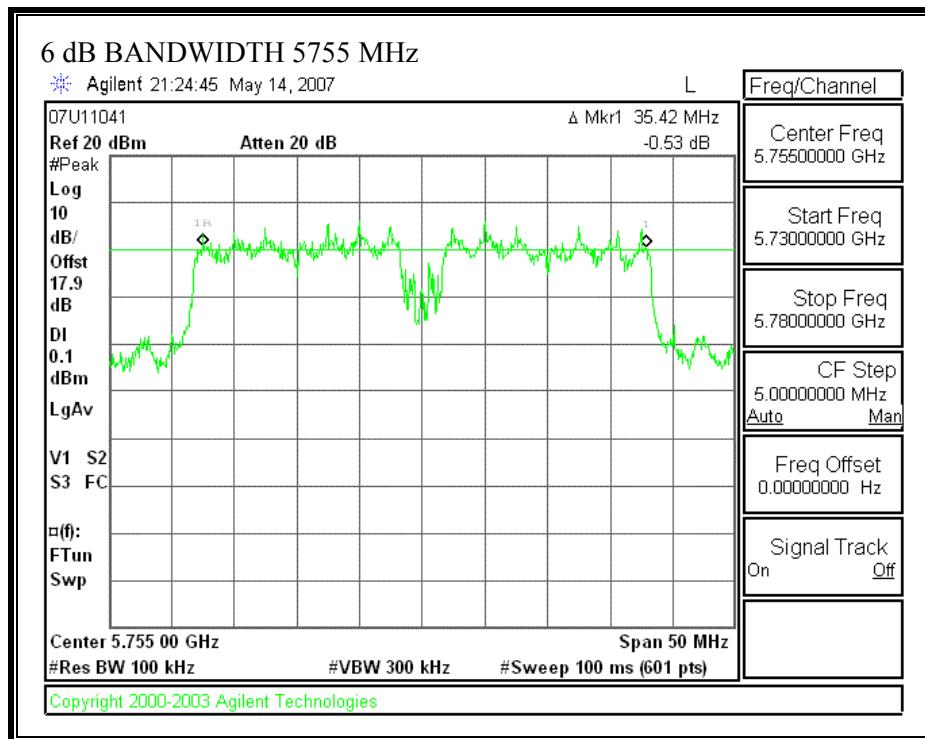


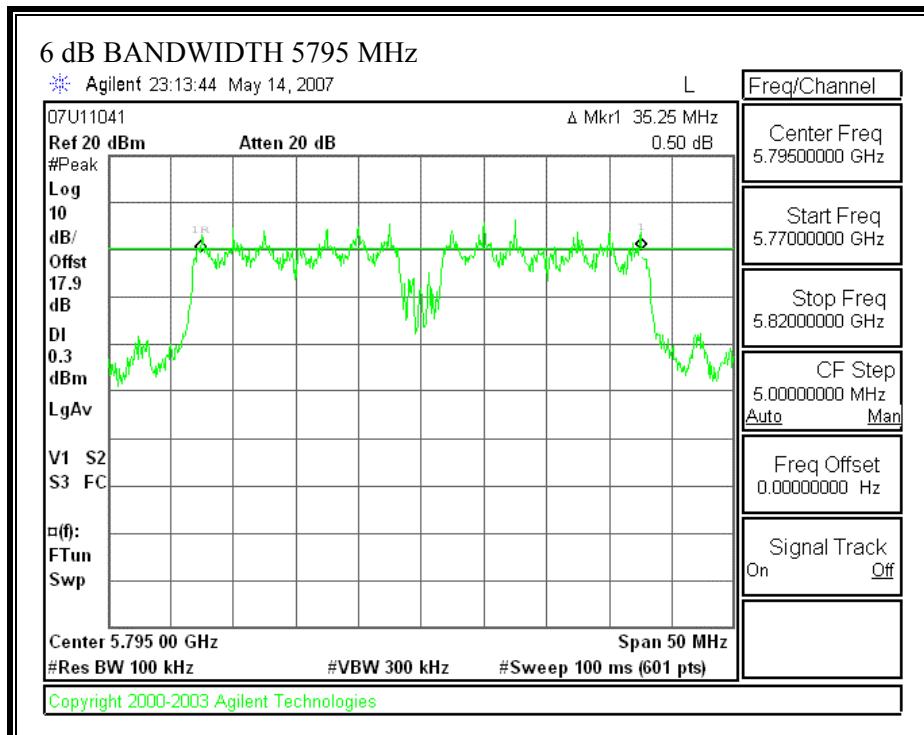
802.11n Mode 40 MHz CDD MCS32

6 dB BANDWIDTH (802.11 - 40 MHz TX BANDWIDTH – CHAIN 0)





6 dB BANDWIDTH (802.11 - 40 MHz TX BANDWIDTH – CHAIN 1)



7.4.2. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

No non-compliance noted:

99% BANDWIDTH

802.11a Mode CDD is covered by the worst case 802.11n Mode 20 MHz CDD MCS0

802.11n Mode 20 MHz CDD MCS0

20MHz Tx Bandwidth

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5745	17.4903	17.0526
Middle	5785	17.5687	17.1051
High	5825	17.5733	17.3309

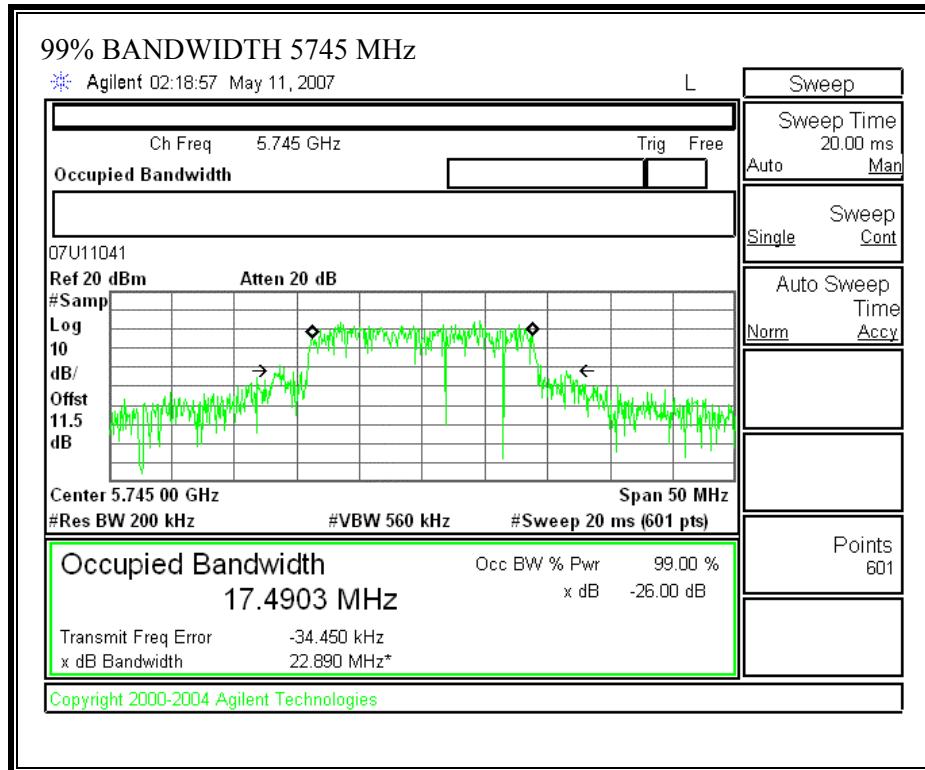
802.11n Mode 40 MHz CDD MCS32

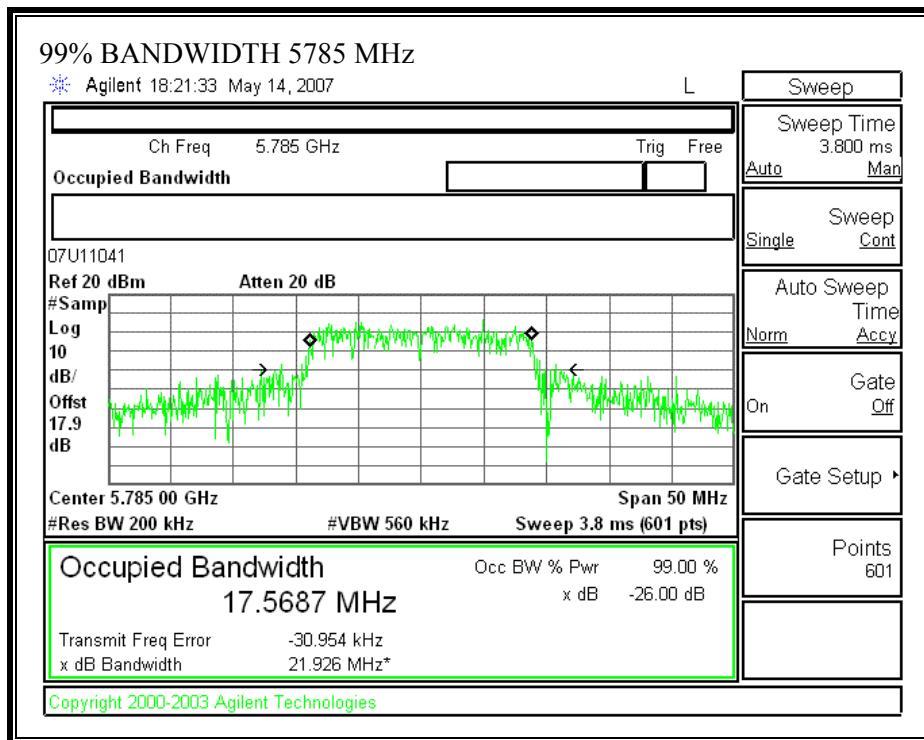
40MHz Tx Bandwidth

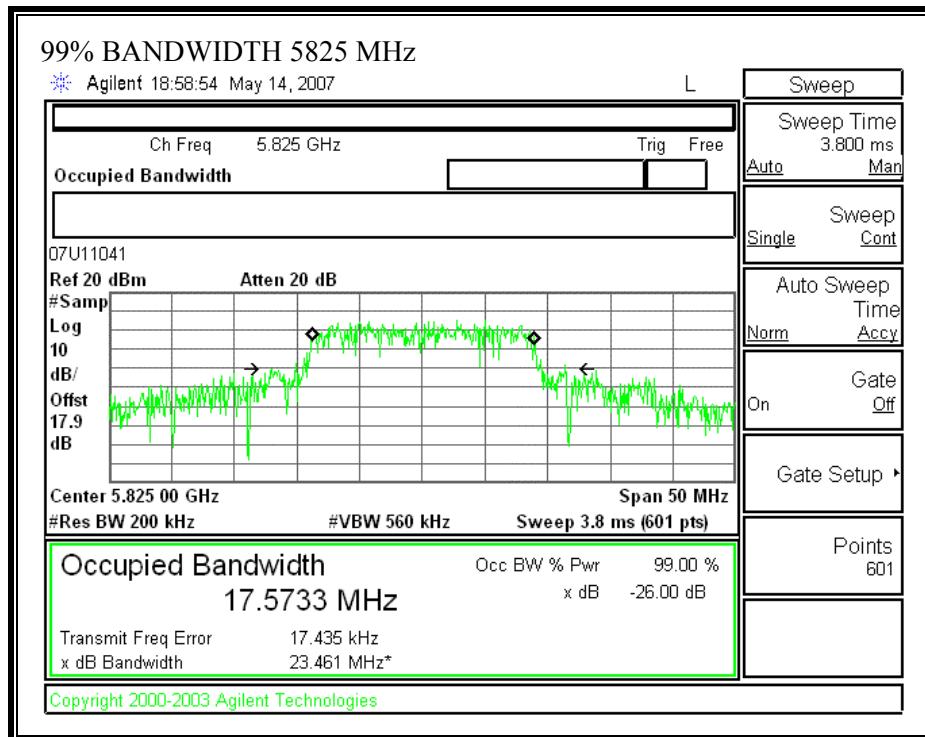
Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low	5755	36.2020	36.2048
High	5795	36.2458	36.1808

802.11n Mode 20 MHz CDD MCS0

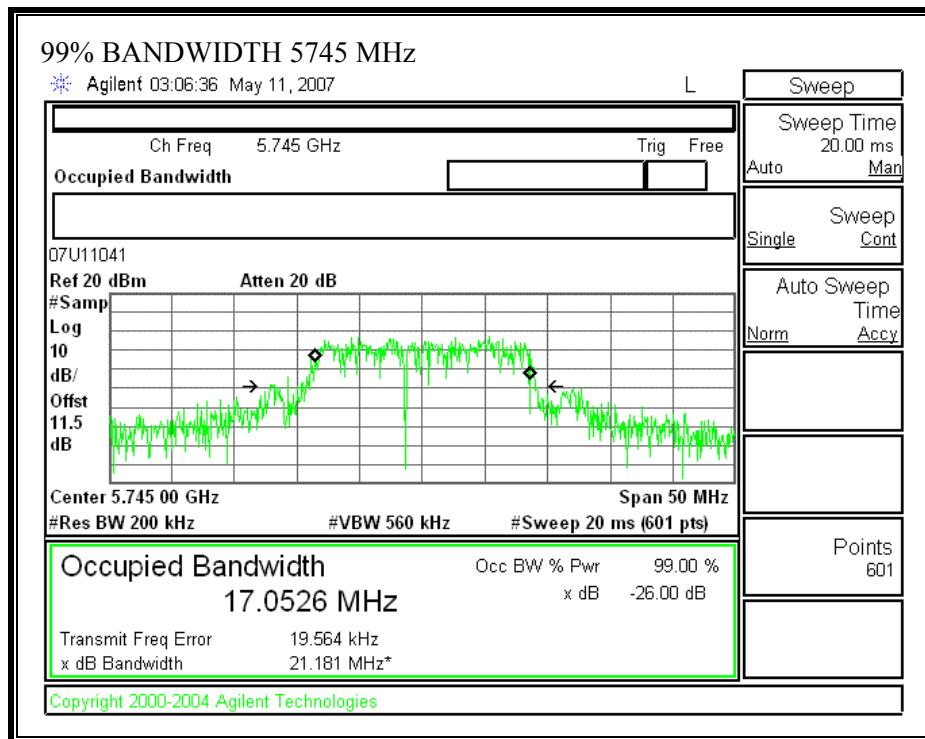
99% BANDWIDTH (802.11 - 20 MHz Tx BANDWIDTH – CHAIN 0)

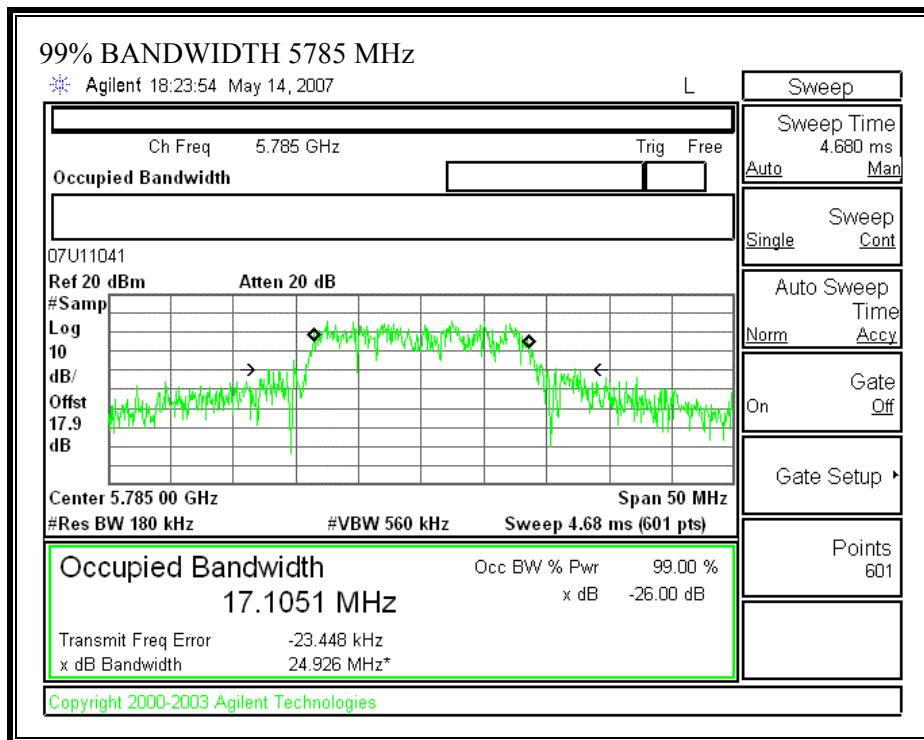


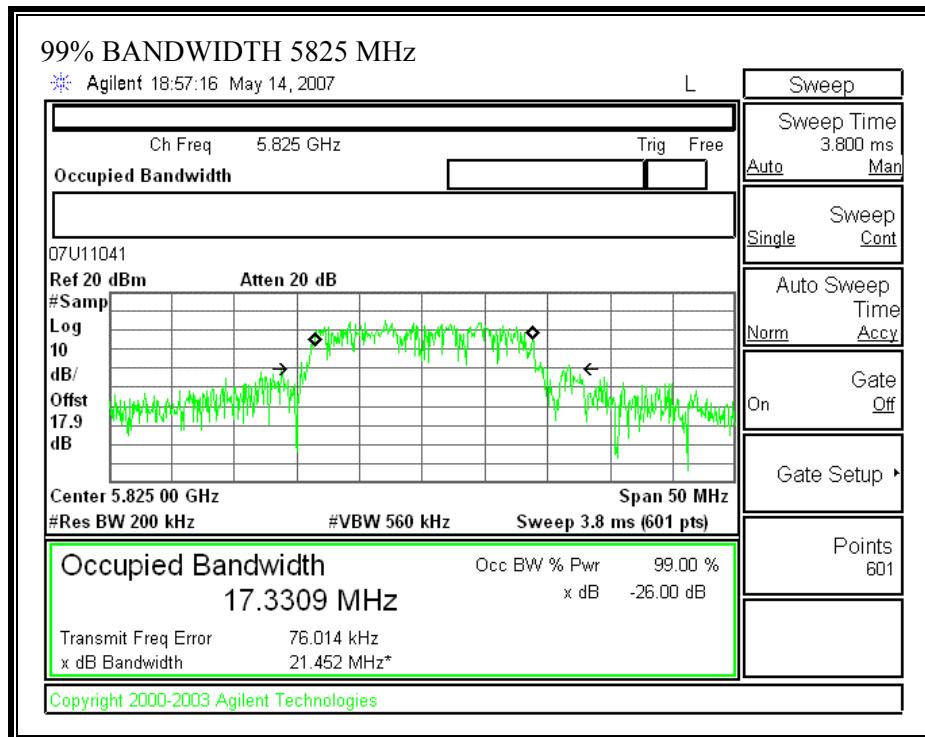




99% BANDWIDTH (802.11 - 20 MHz Tx BANDWIDTH – CHAIN 1)

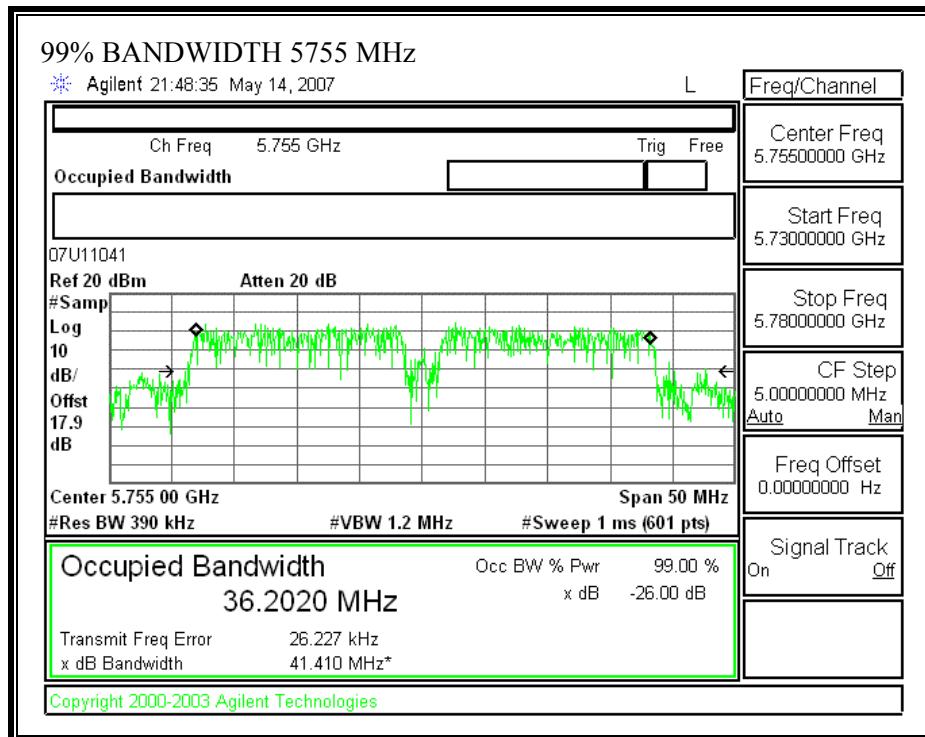


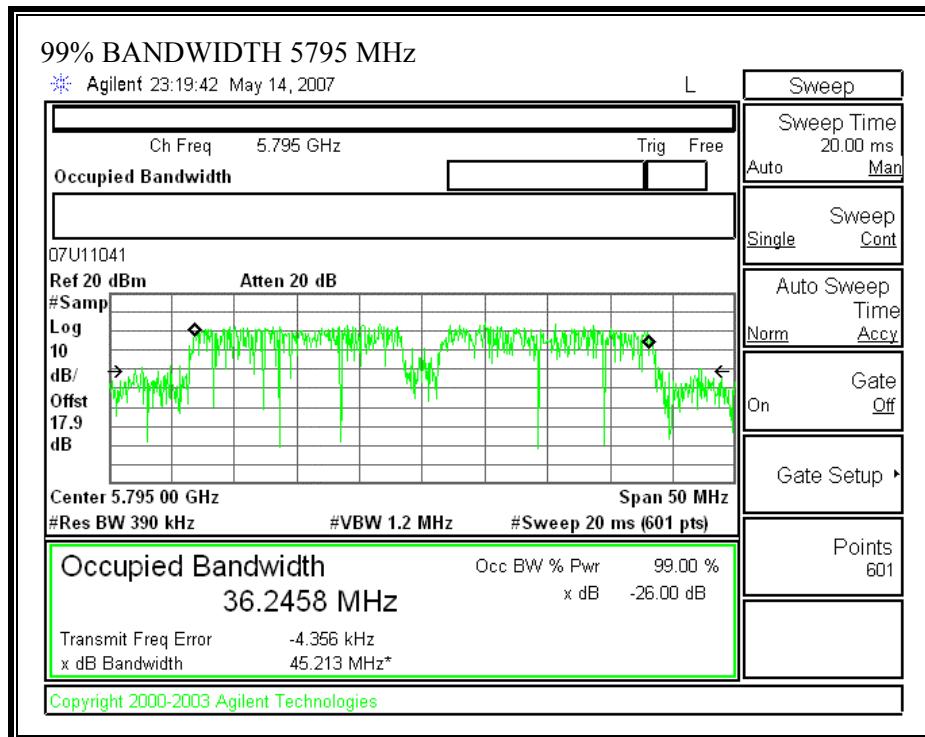




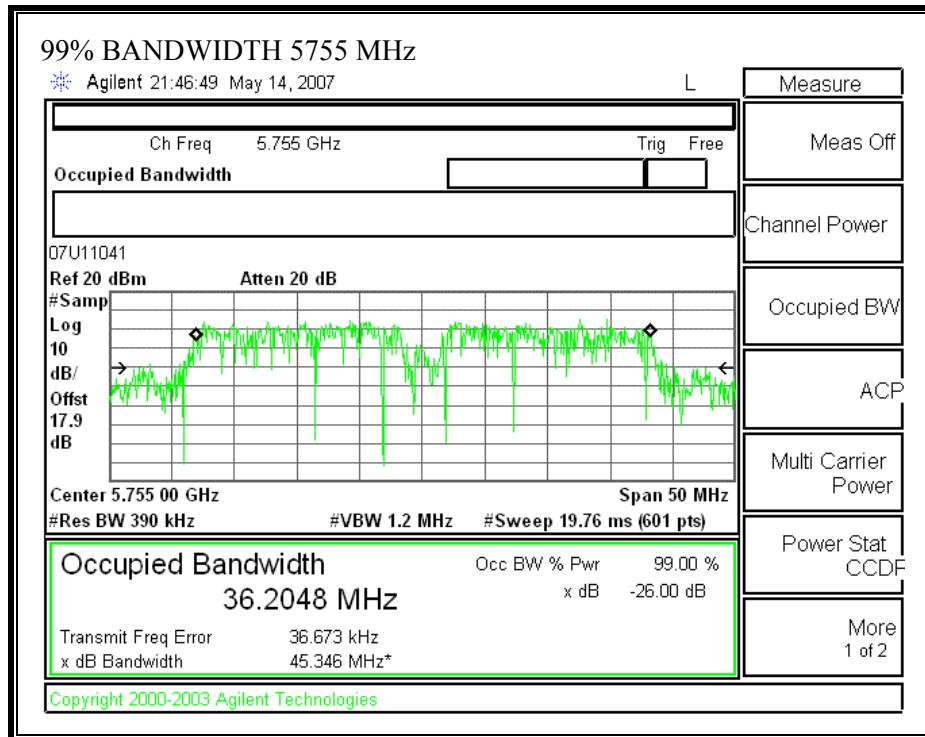
802.11n Mode 40 MHz CDD MCS32

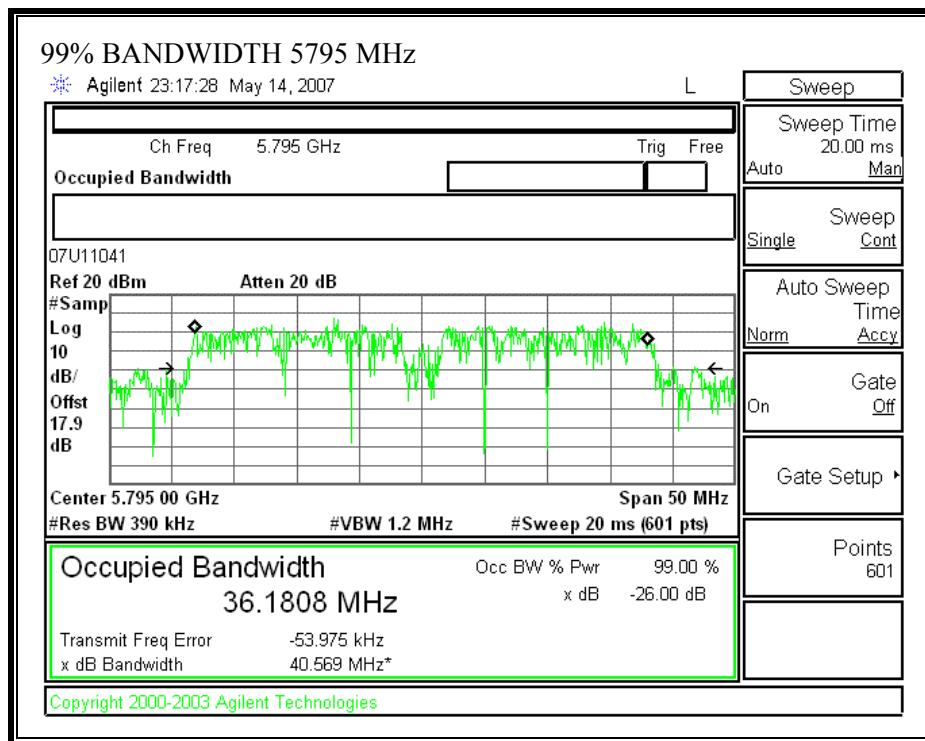
99% BANDWIDTH (802.11 - 40 MHz TX BANDWIDTH – CHAIN 0)





99% BANDWIDTH (802.11 - 40 MHz TX BANDWIDTH – CHAIN 1)





7.4.3. PEAK OUTPUT POWER

PEAK POWER LIMIT

§15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz , and 5725-5850 MHz bands: 1 watt.

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz , and 5725-5850 MHz bands: 1 watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

§15.247 (b) (4) (i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.

Following formula to calculate the array gain:

$$\text{Array gain} = 10 * \log (10^{\text{main gain}/10} + 10^{\text{aux gain}/10})$$

5.8GHz band: 8.555 dBi

RESULTS,

The maximum antenna gain is 8.555 dBi @ 5.8 GHz for other than fixed, point-to-point operations, therefore the limit is 27.45dBm for 5.8 GHz band.

Total peak power calculation formula: $10 \log (10^8 (P_{chain0} / 10) + 10^8 (P_{chain1} / 10))$

Note: Pchain 0 and Pchain1 are in dBm

No non-compliance noted:

802.11a Mode CDD is covered by the worst case 802.11n Mode 20 MHz CDD MCS0**802.11n Mode 20 MHz CDD MCS0**

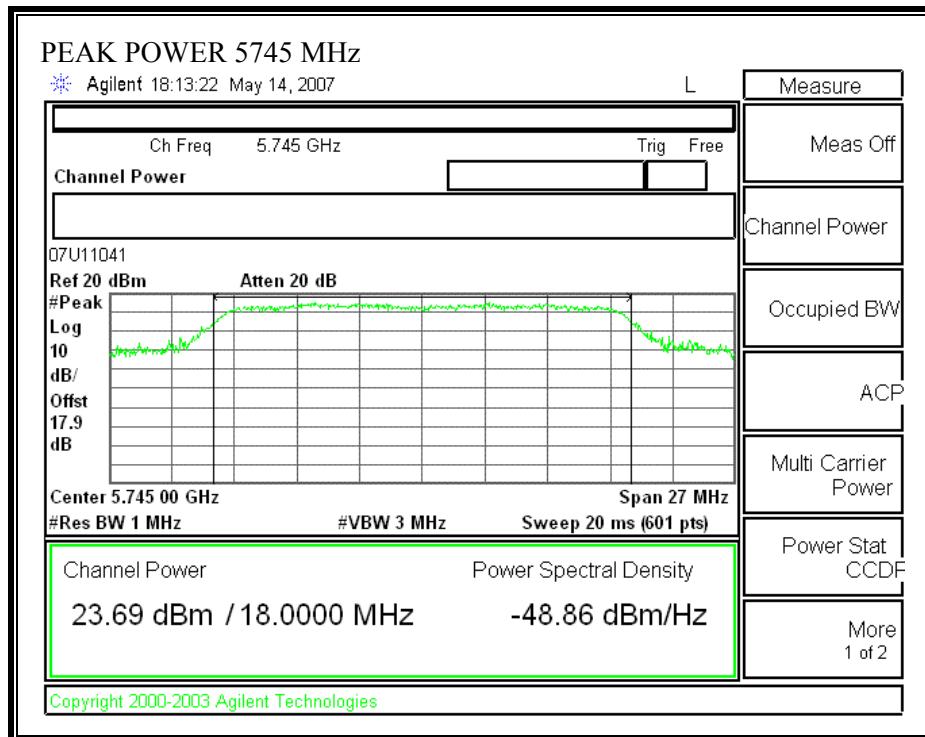
Channel	Frequency (MHz)	Peak Power Chain 0 (dBm)	Peak Power Chain 1 (dBm)	Peak Power Total (dBm)	Limit (dBm)	Margin (dB)
Low	5745	23.69	23.65	26.68	27.45	-0.76
Middle	5785	23.73	23.71	26.73	27.45	-0.71
High	5825	23.76	23.83	26.81	27.45	-0.64

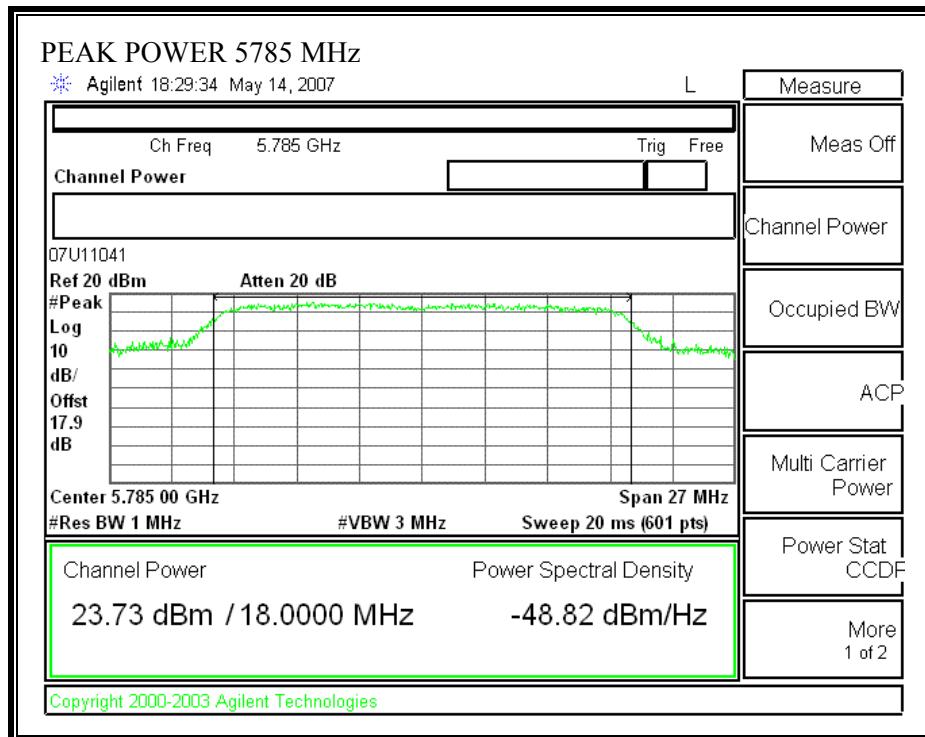
802.11n Mode 40 MHz CDD MCS32

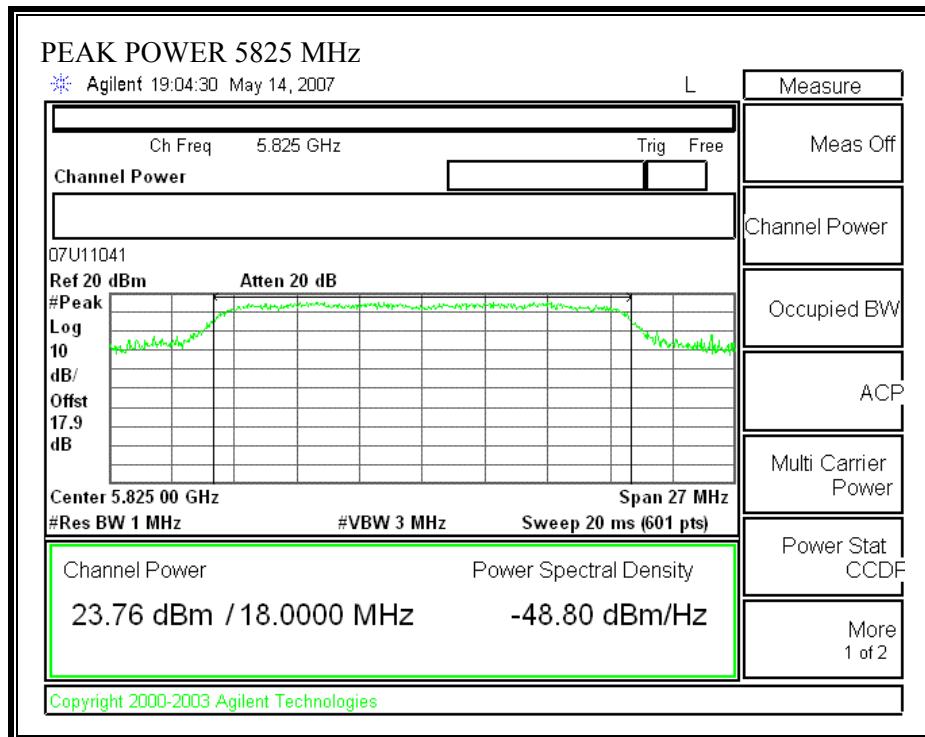
Channel	Frequency (MHz)	Peak Power Chain 0 (dBm)	Peak Power Chain 1 (dBm)	Peak Power Total (dBm)	Limit (dBm)	Margin (dB)
Low	5755	21.98	23.20	25.64	27.46	-1.81
High	5795	22.84	23.10	25.98	27.46	-1.47

802.11n Mode 20 MHz CDD MCS0

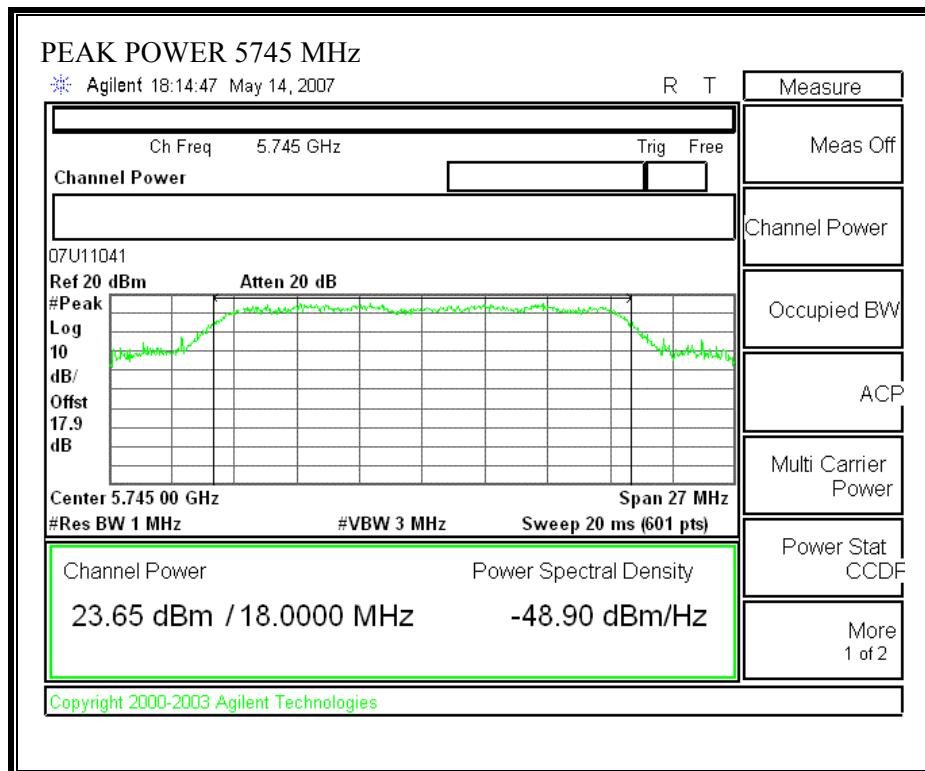
OUTPUT POWER (802.11 - 20 MHz TX BANDWIDTH – CHAIN 0)

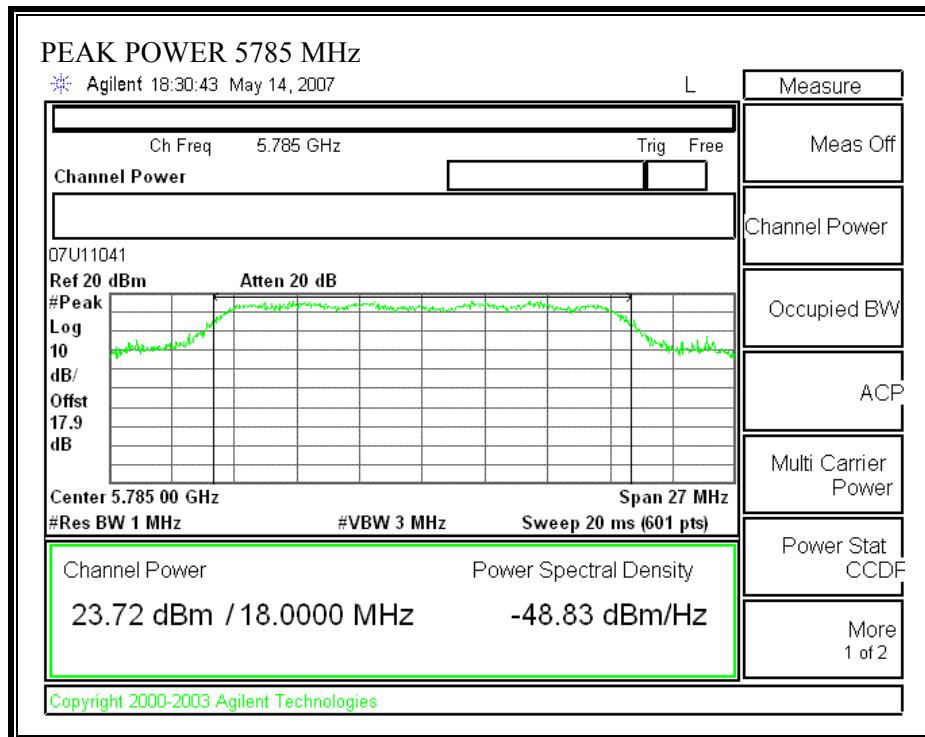


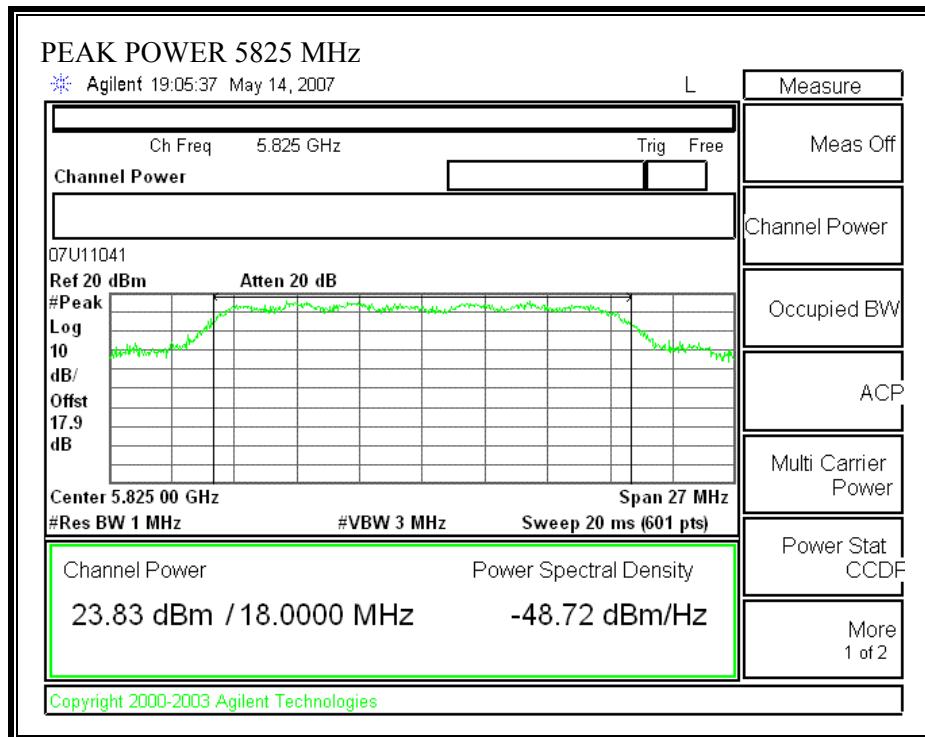




OUTPUT POWER (802.11 - 20 MHz TX BANDWIDTH – CHAIN 1)

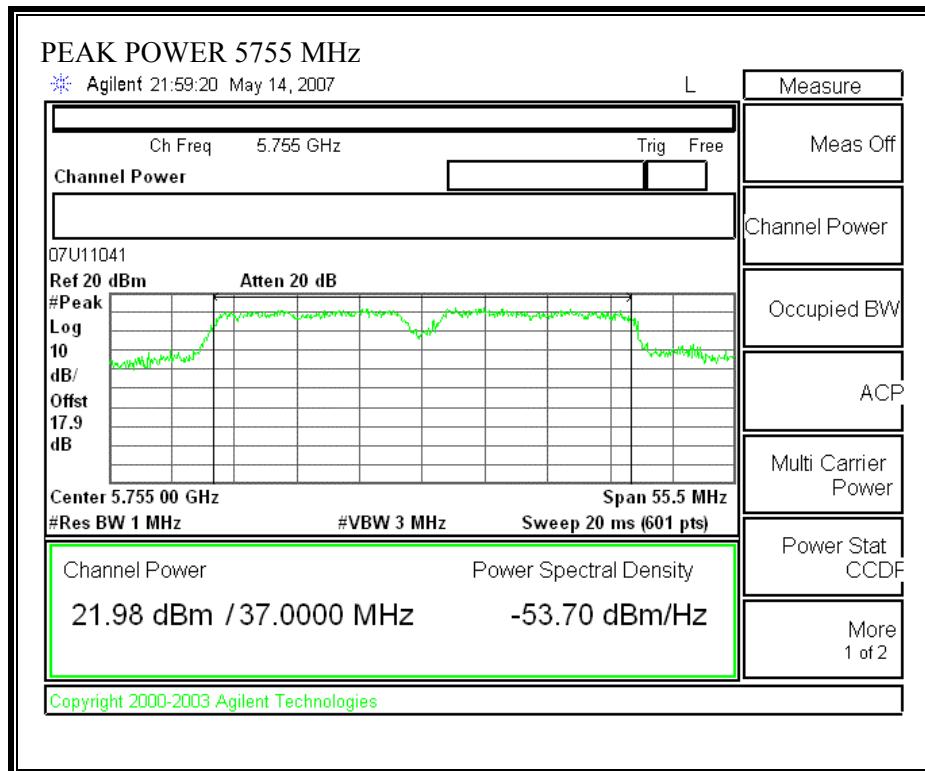


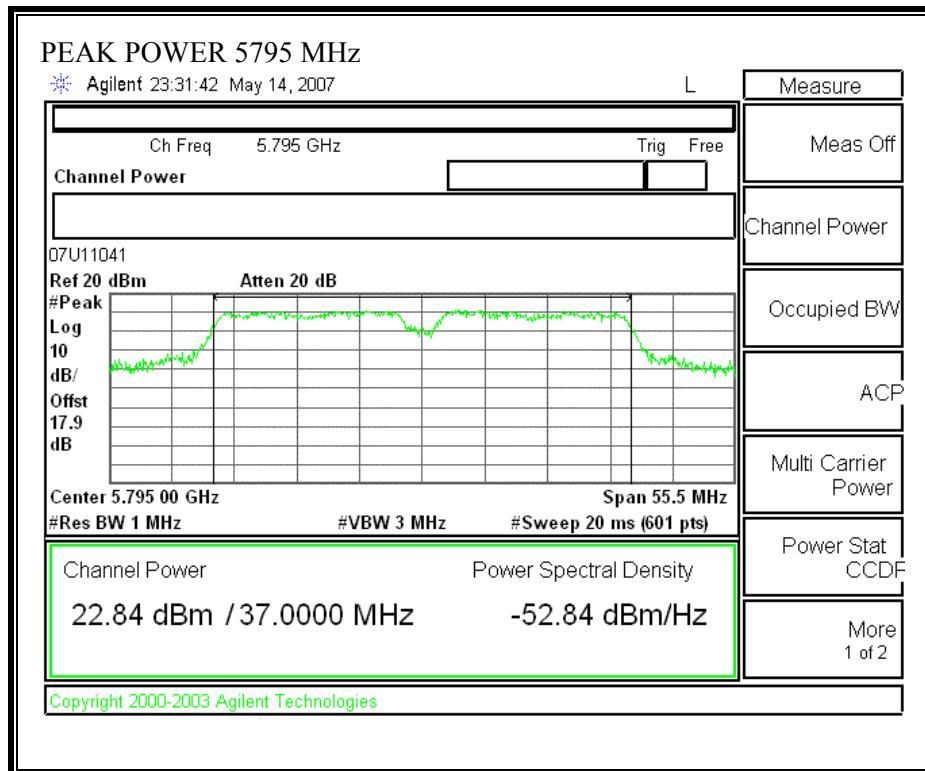




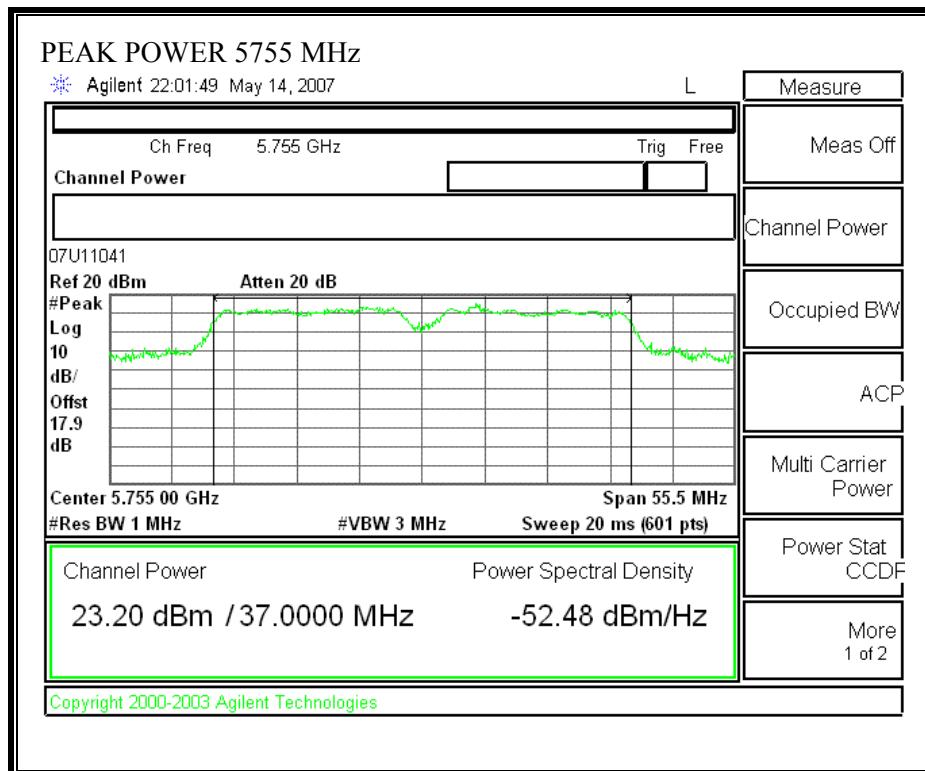
802.11n Mode 40 MHz CDD MCS32

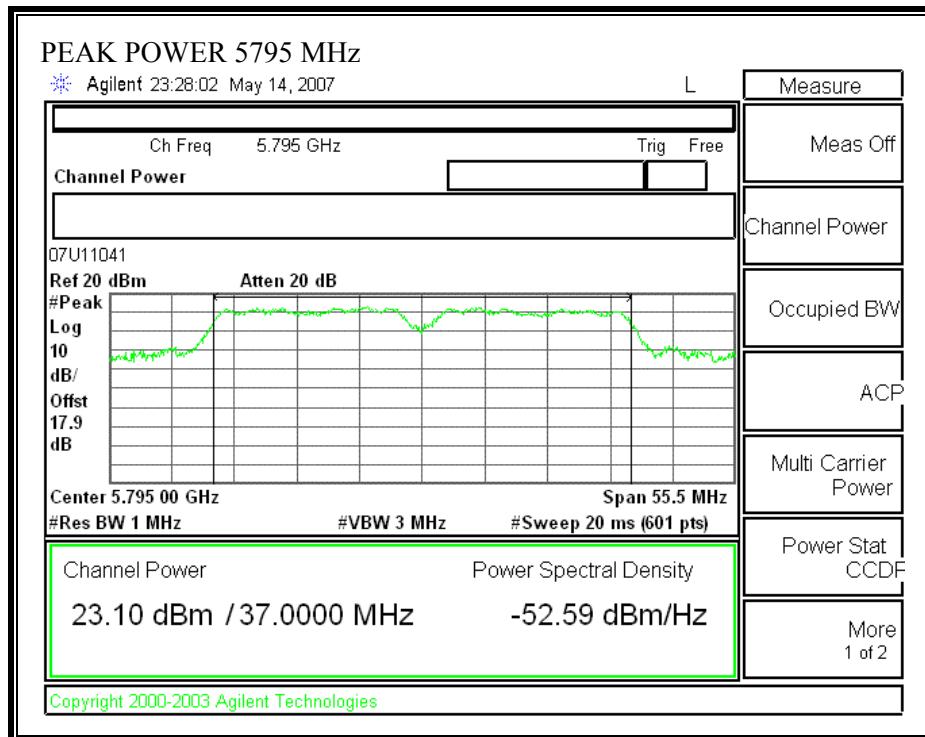
OUTPUT POWER (802.11 - 40 MHz TX BANDWIDTH – CHAIN 0)





OUTPUT POWER (802.11 - 40 MHz TX BANDWIDTH – CHAIN 1)





7.4.4. MAXIMUM PERMISSIBLE EXPOSURE

LIMITS

§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.

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 and rearranging the terms to express the distance as a function of the remaining variables yields:

$$d = \sqrt{(30 * P * G) / (3770 * S)}$$

Changing to units of Power to mW and Distance to cm, using:

$$P (\text{mW}) = P (\text{W}) / 1000 \text{ and}$$

$$d (\text{cm}) = 100 * d (\text{m})$$

yields

$$d = 100 * \sqrt{(30 * (P / 1000) * G) / (3770 * S)}$$

$$d = 0.282 * \sqrt{(P * G / S)}$$

where

d = distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power Density in mW/cm²

Substituting the logarithmic form of power and gain using:

$$P (\text{mW}) = 10^{(P (\text{dBm}) / 10)} \text{ and}$$

$$G (\text{numeric}) = 10^{(G (\text{dBi}) / 10)}$$

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

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

LIMITS

From §1.1310 Table 1 (B), $S = 1.0 \text{ mW/cm}^2$ in the 5.8 GHz band

RESULTS

No non-compliance noted

802.11a Mode CDD is covered by the worst case 802.11n Mode 20 MHz CDD

Mode	MPE Distance (cm)	Total Power (dBm)	Antenna Gain (dBi)	Power Density (mW/cm ²)
20MHz CDD	20.0	26.81	8.56	0.68
40MHz CDD	20.0	25.98	8.56	0.56

NOTE: For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.

7.4.5. PEAK POWER SPECTRAL DENSITY

LIMIT

§15.247 (d) For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = 3 kHz and VBW > 3 kHz, sweep time = span / 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

Following formula to calculate the array gain:

$$\text{Array gain} = 10 * \log (10^8 (\text{main gain}/10) + 10^8 (\text{aux gain}/10))$$

5.8GHz band: 8.555 dBi

RESULTS

No non-compliance noted:

802.11a Mode CDD is covered by the worst case 802.11n Mode 20 MHz CDD MCS0

802.11n Mode20 MHz CDD MCS0

CHAIN 0 & CHAIN 1

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Total (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-7.70	-6.25	-3.90	8	-11.90
Middle	5785	-6.43	-6.73	-3.57	8	-11.57
High	5825	-7.32	-6.06	-3.63	8	-11.63

COMBINER

Channel	Frequency (MHz)	PPSD Combiner (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-2.90	8	-10.90
Middle	5785	-2.80	8	-10.80
High	5825	-2.97	8	-10.97

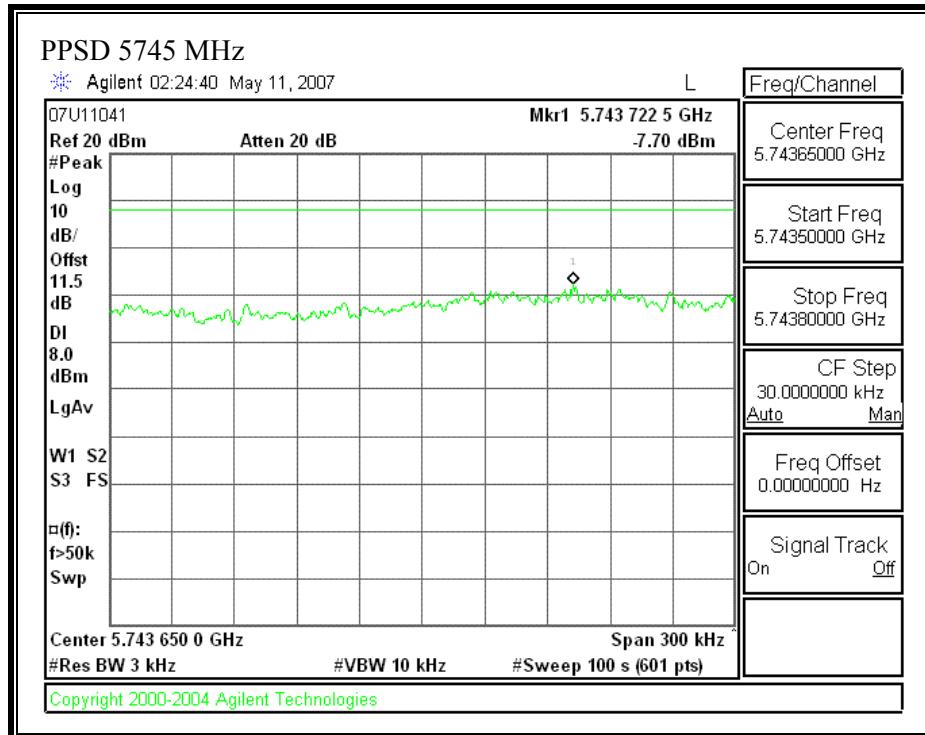
802.11n 40 MHz CDD MCS32

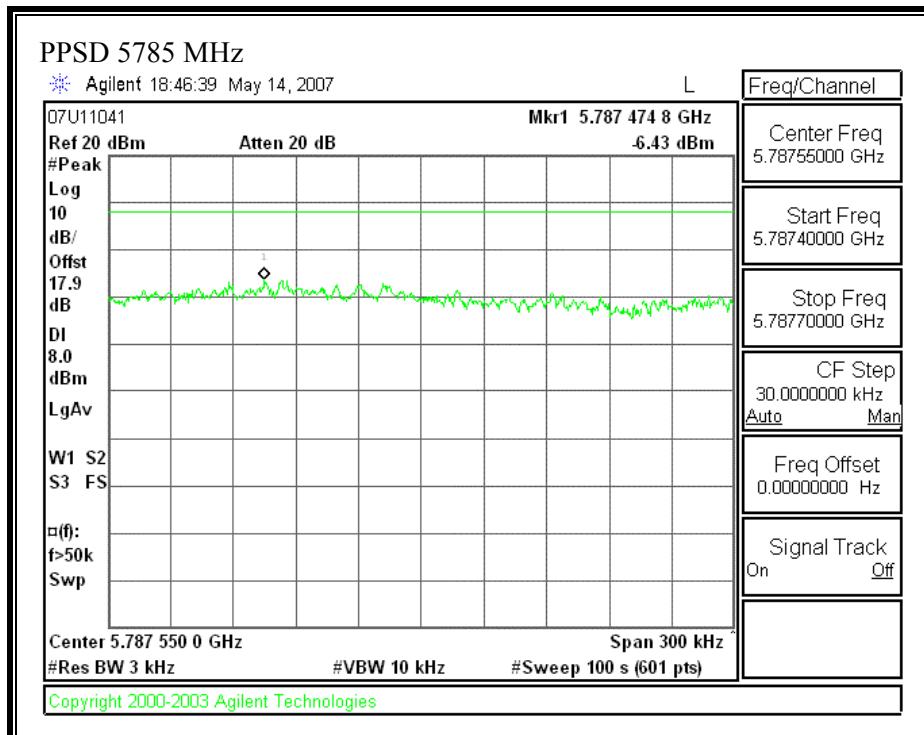
CHAIN 0 & CHAIN 1

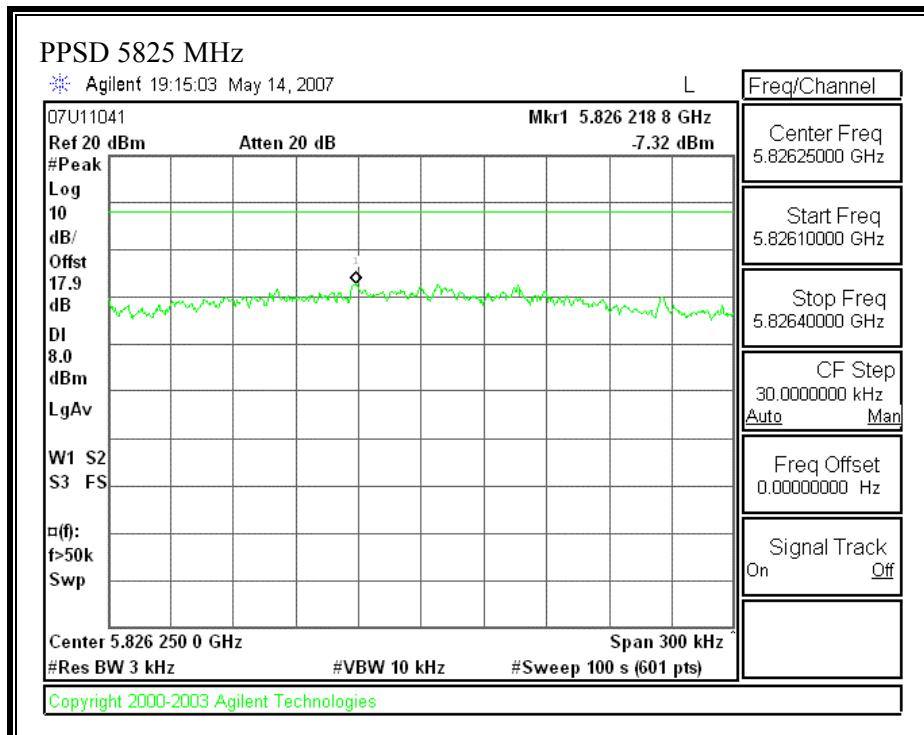
Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Total (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-9.56	-9.52	-6.53	8	-14.53
High	5795	-8.16	-8.48	-5.31	8	-13.31

COMBINER

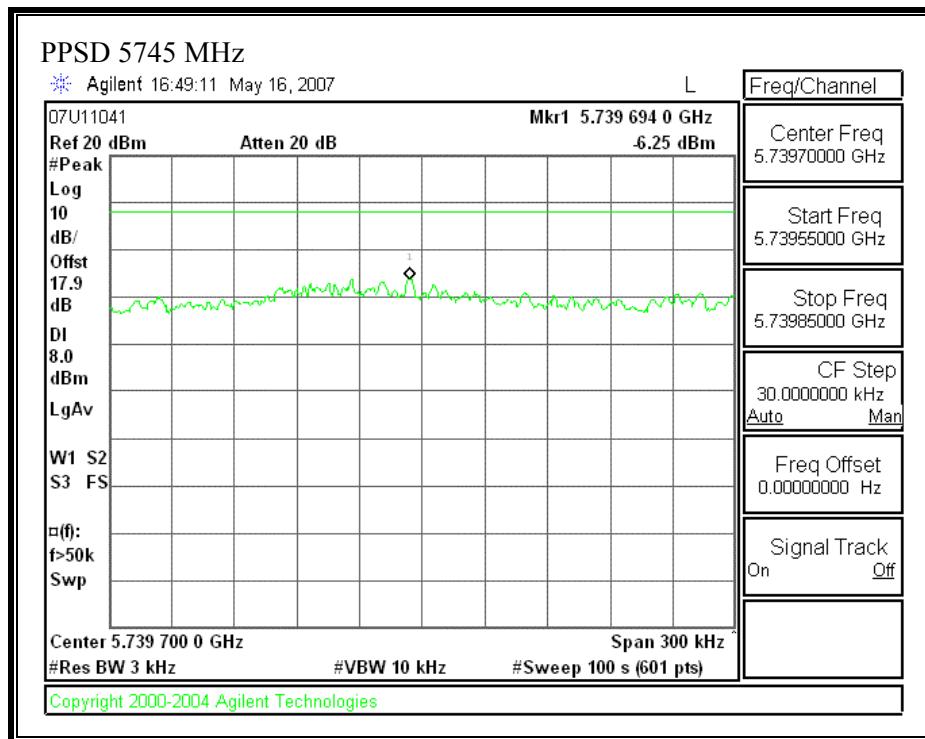
Channel	Frequency (MHz)	PPSD Combiner (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-5.88	8	-13.88
High	5795	-6.18	8	-14.18

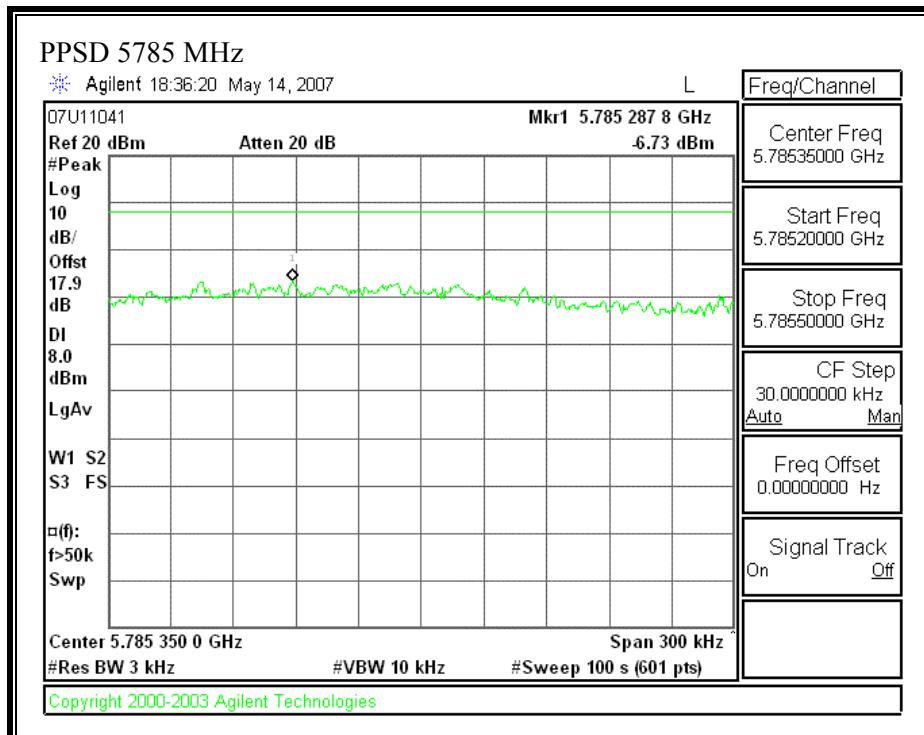
802.11n Mode 20 MHz CDD MCS0**PEAK POWER SPECTRAL DENSITY (802.11 - 20 MHz TX BANDWIDTH – CHAIN 0)**

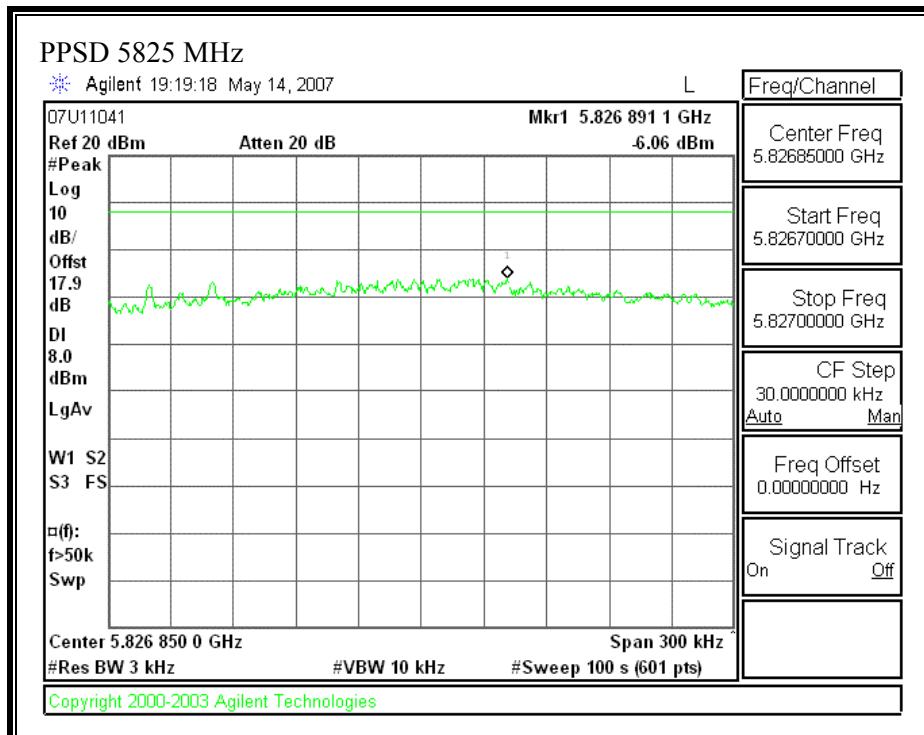




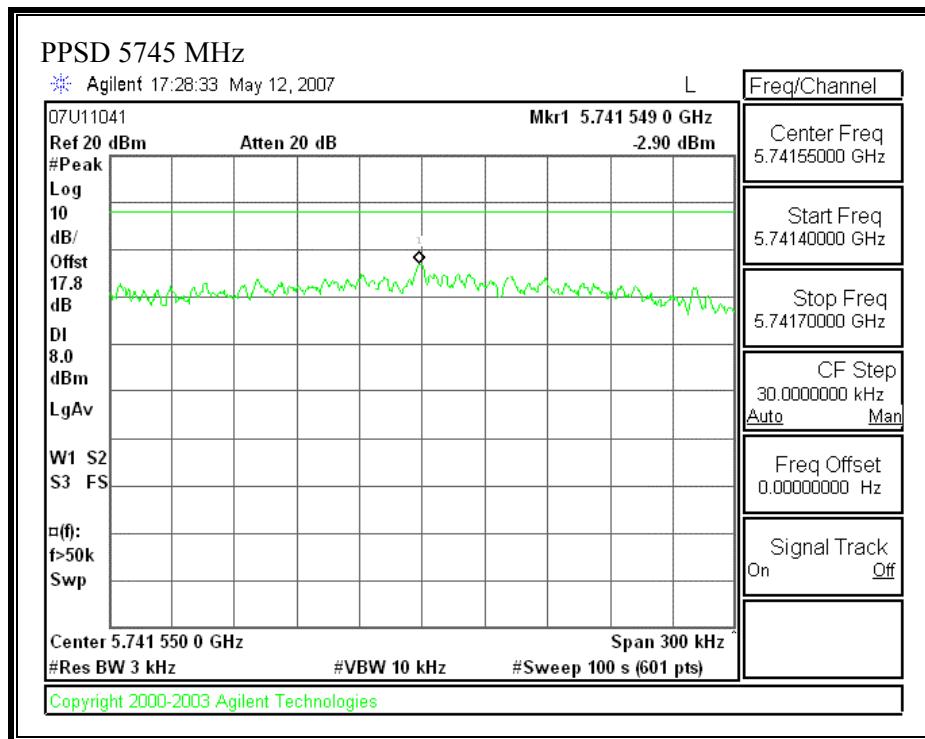
PEAK POWER SPECTRAL DENSITY (802.11 - 20 MHz TX BANDWIDTH – CHAIN 1)

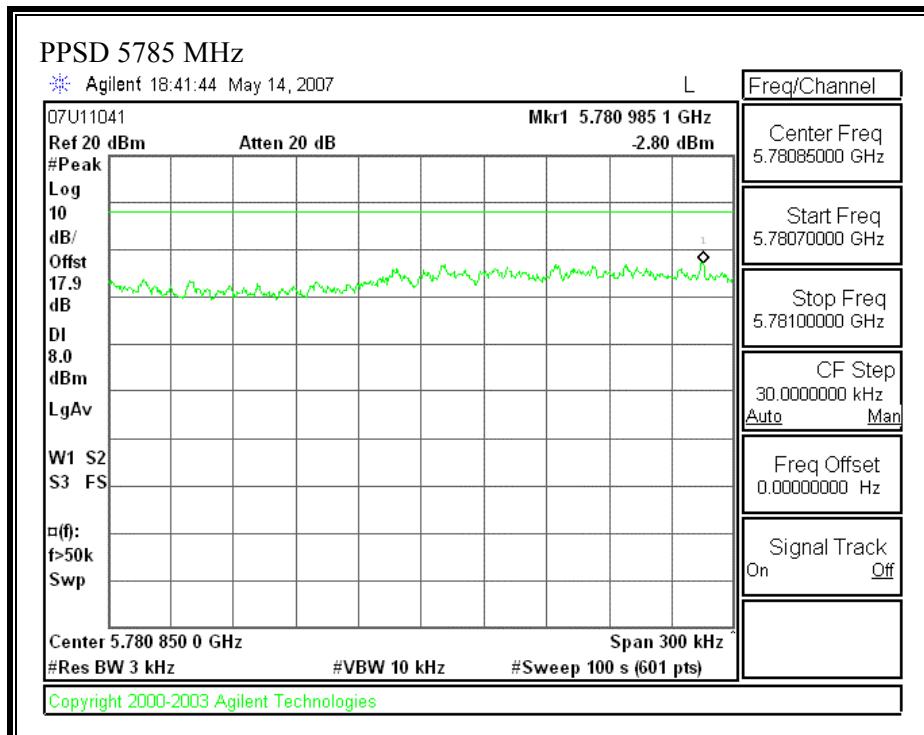


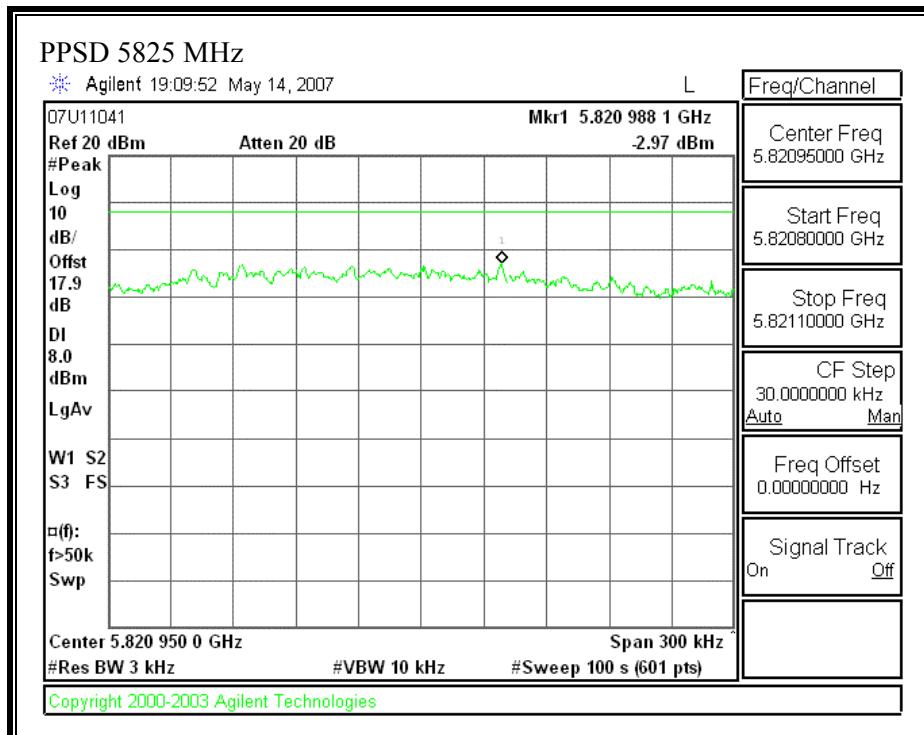




PEAK POWER SPECTRAL DENSITY (802.11 - 20 MHz TX BANDWIDTH – COMBINER)

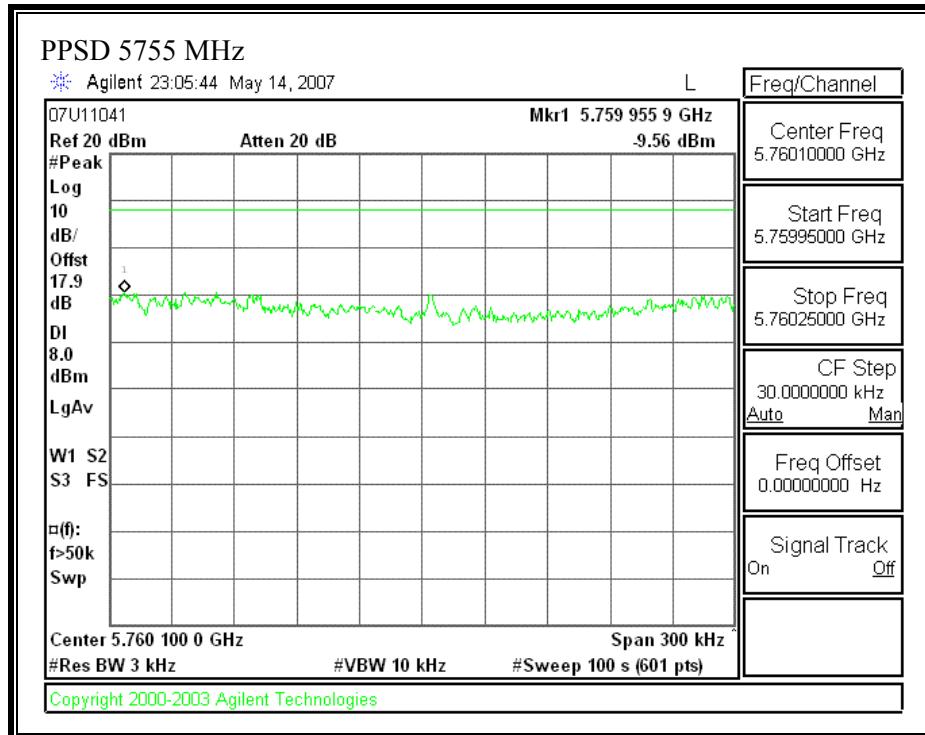


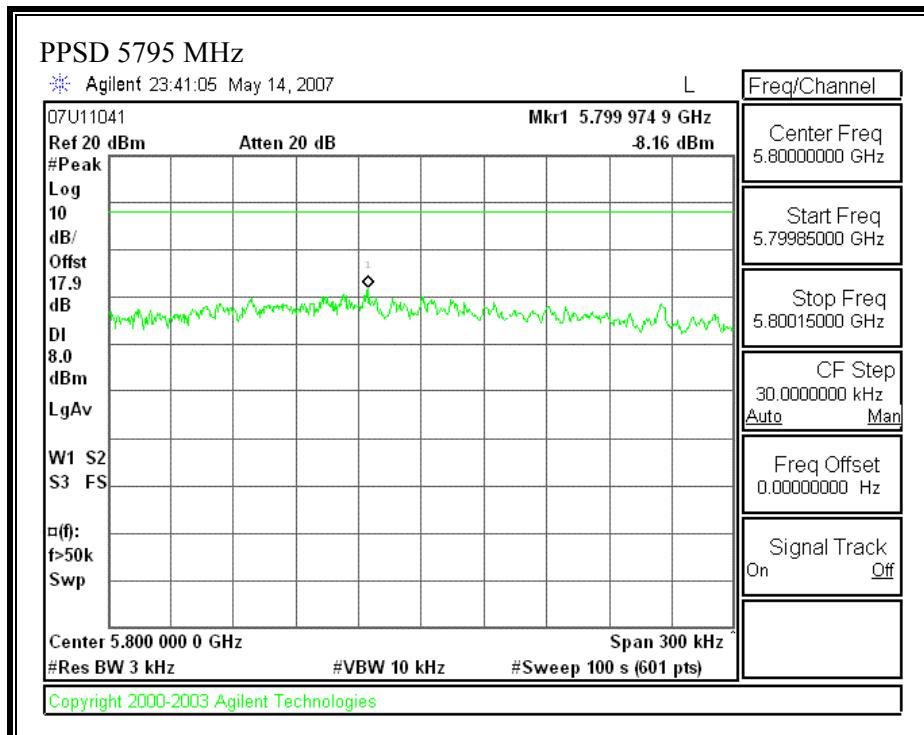




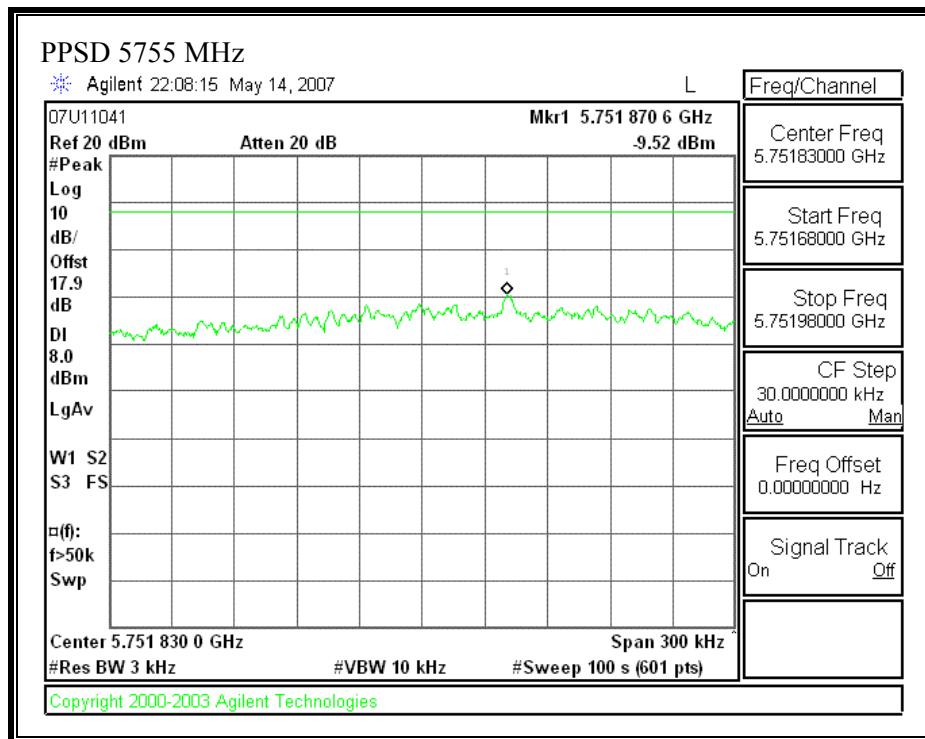
802.11n Mode40 MHz CDD MCS32

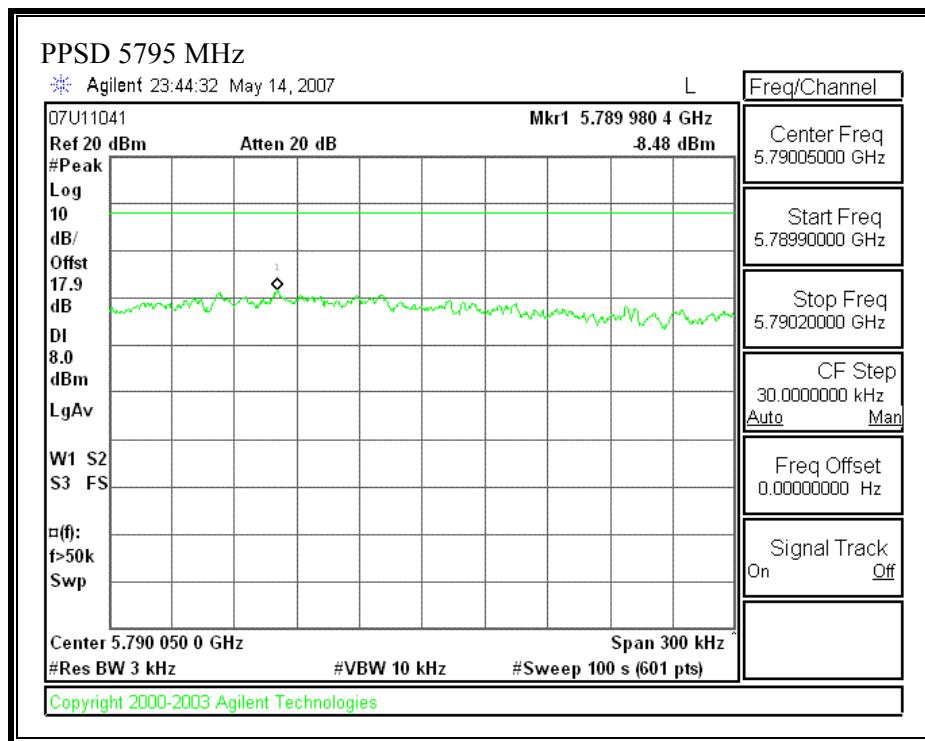
PEAK POWER SPECTRAL DENSITY (802.11 - 40 MHz TX BANDWIDTH – CHAIN 0)



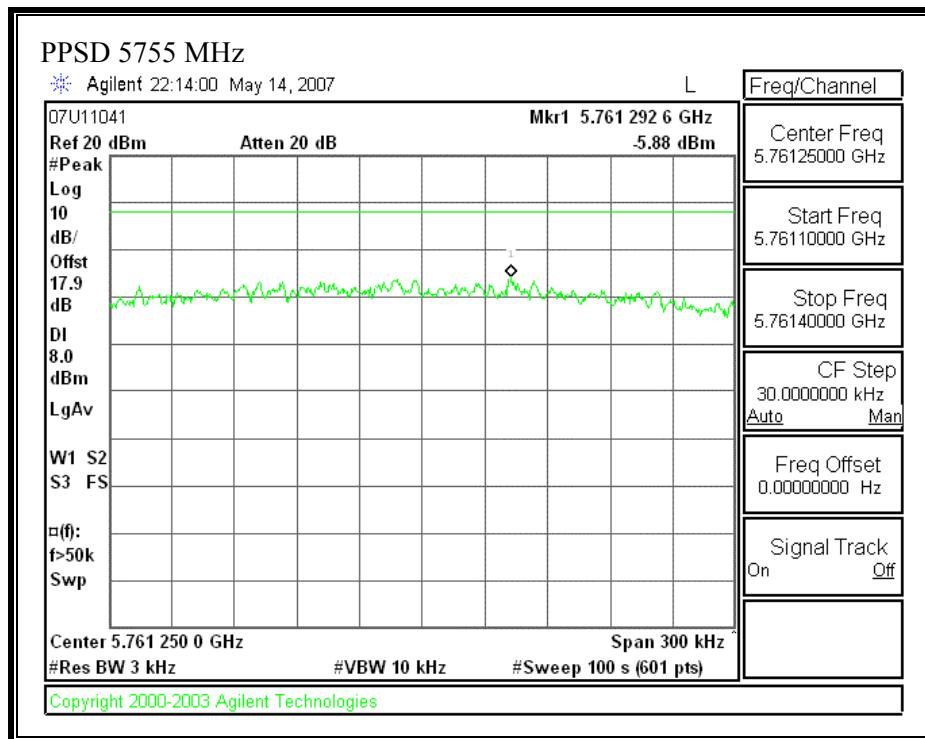


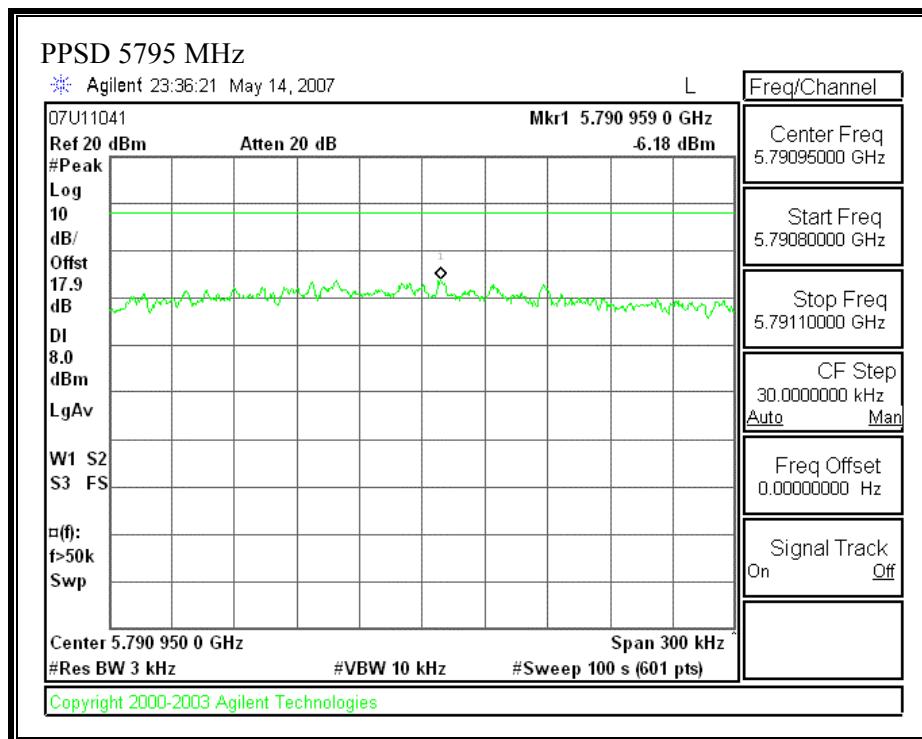
PEAK POWER SPECTRAL DENSITY (802.11 - 40 MHz TX BANDWIDTH – CHAIN 1)





PEAK POWER SPECTRAL DENSITY (802.11 - 40 MHz TX BANDWIDTH – COMBINER)





7.4.6. 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.

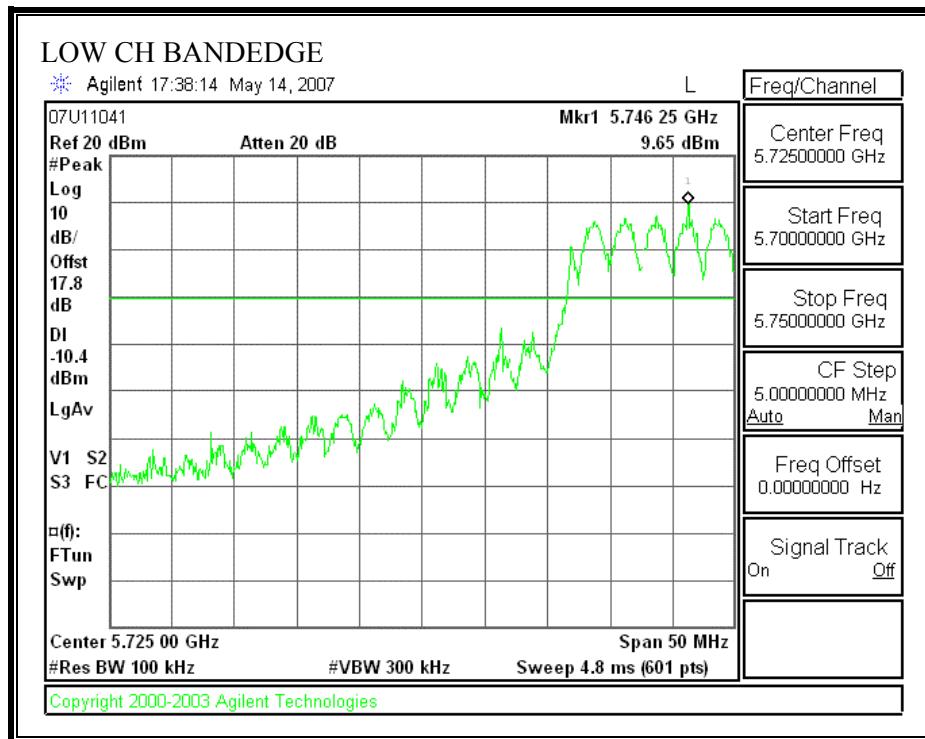
TEST PROCEDURE

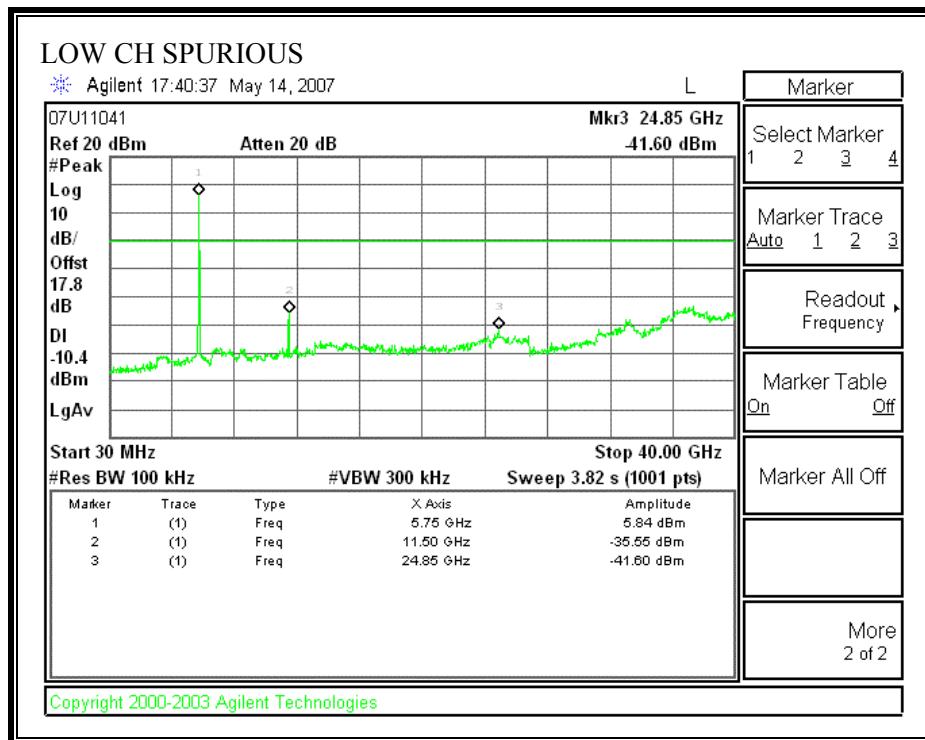
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

RESULTS

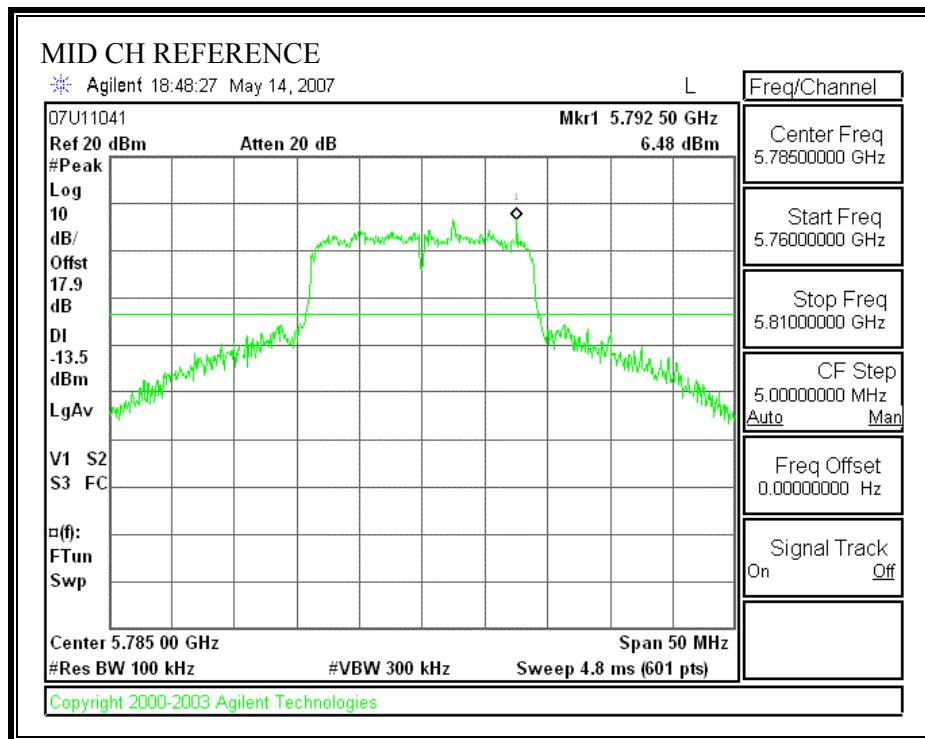
No non-compliance noted:

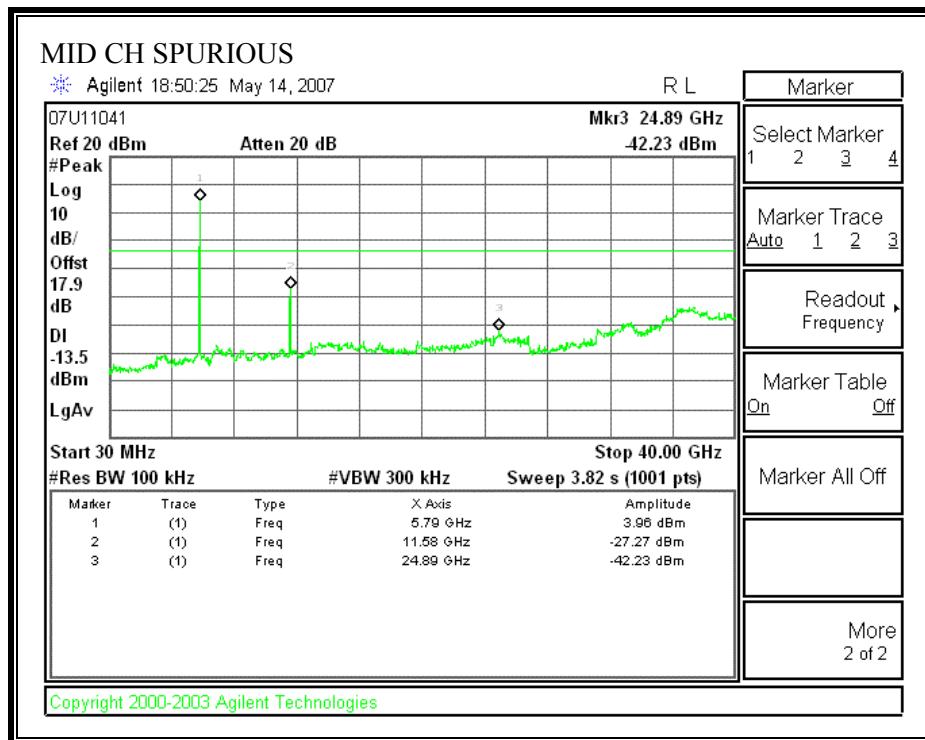
802.11a Mode CDD is covered by the worst case 802.11n Mode 20 MHz CDD MCS0**802.11n Mode 20 MHz CDD MCS0****SPURIOUS EMISSIONS, LOW CHANNEL (802.11 - 20 MHz TX BANDWIDTH – CHAIN 0)****LOW CH BANDEDGE, 5745 MHz**



SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11 - 20 MHz TX BANDWIDTH – CHAIN 0)

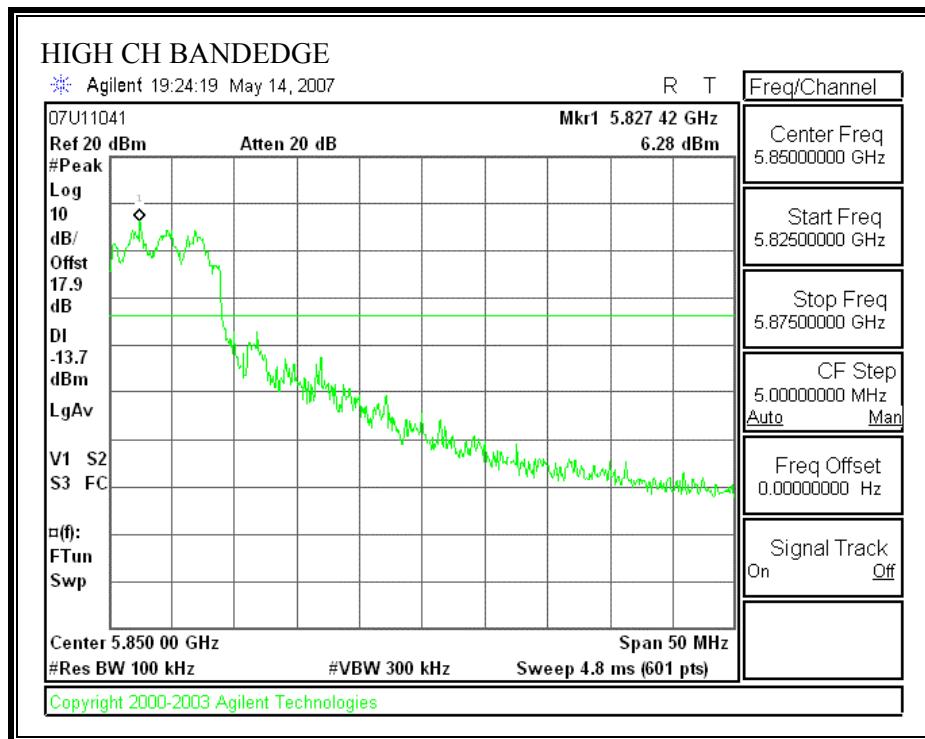
MID CH BANDEGE, 5785 MHz

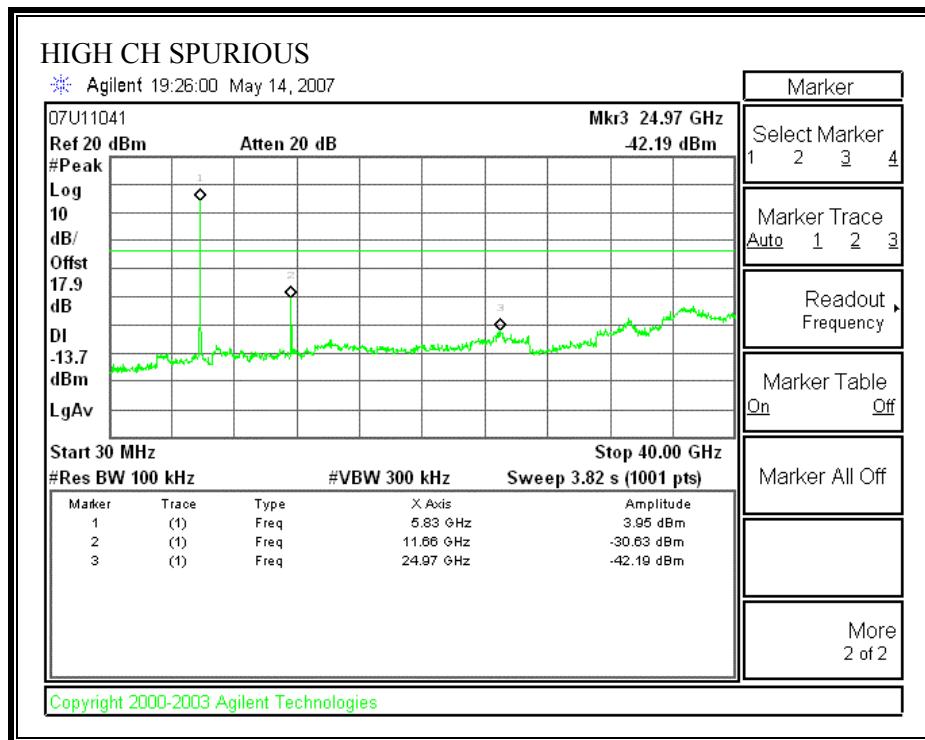




SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 - 20 MHz TX BANDWIDTH – CHAIN 0)

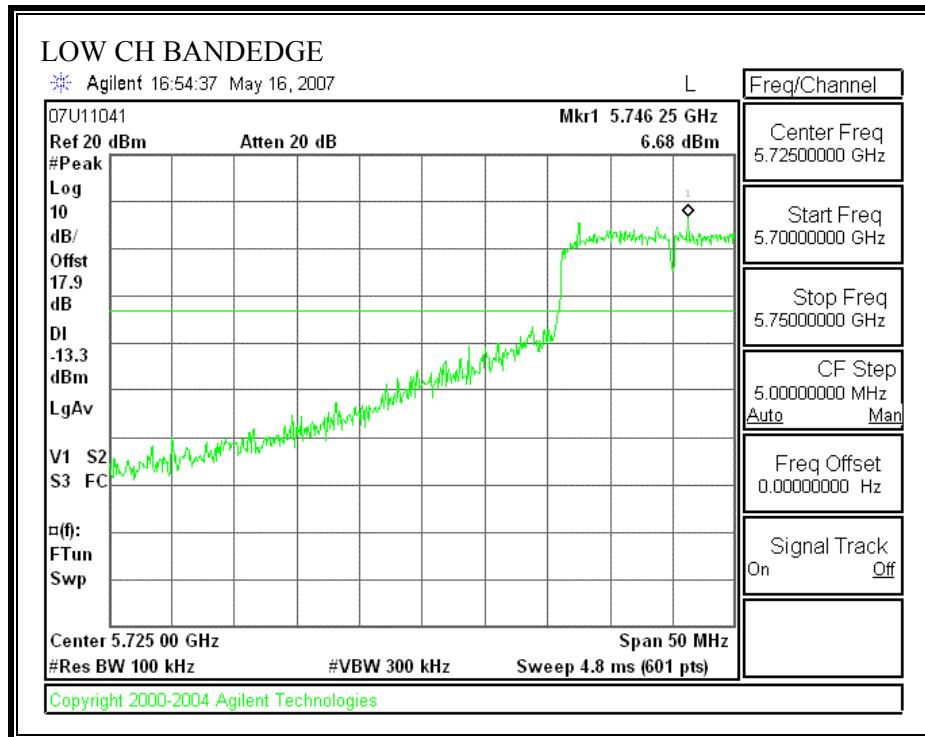
HI CH BANDEDGE, 5825 MHz

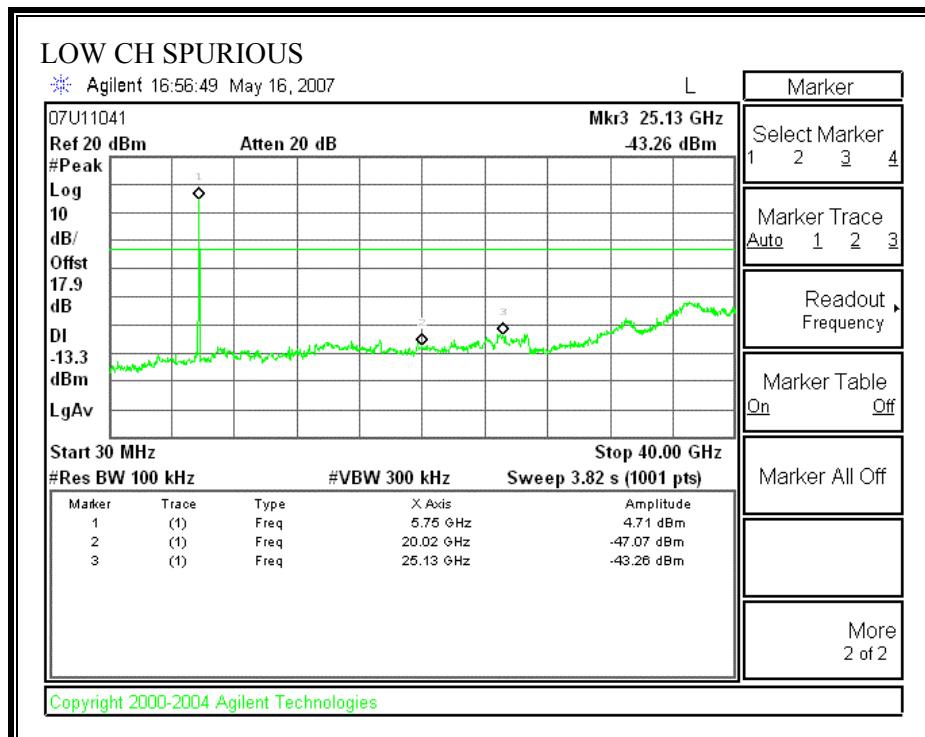




SPURIOUS EMISSIONS, LOW CHANNEL (802.11 - 20 MHz TX BANDWIDTH – CHAIN 1)

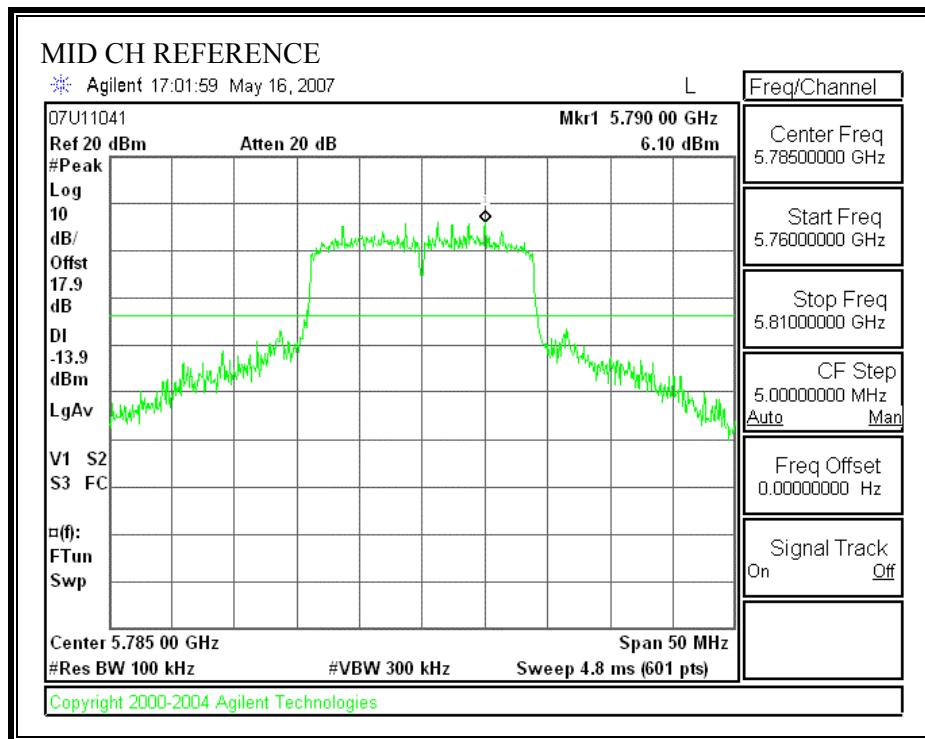
LOW CH BANDEDGE, 5745 MHz

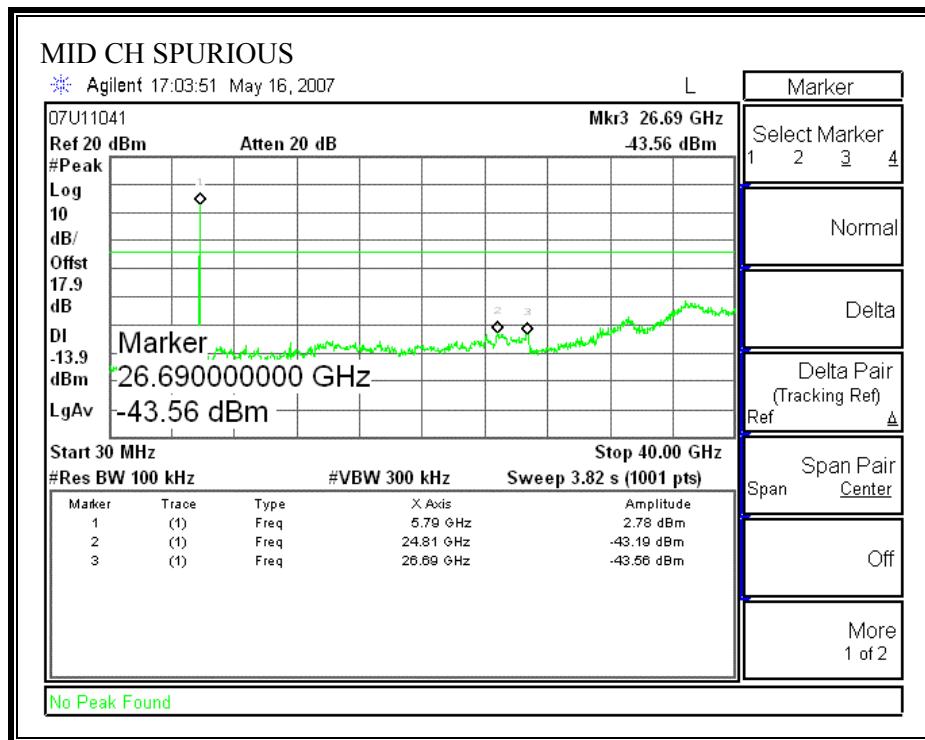




SPURIOUS EMISSIONS, MIDDLE CHANNEL (802.11 - 20 MHz TX BANDWIDTH – CHAIN 1)

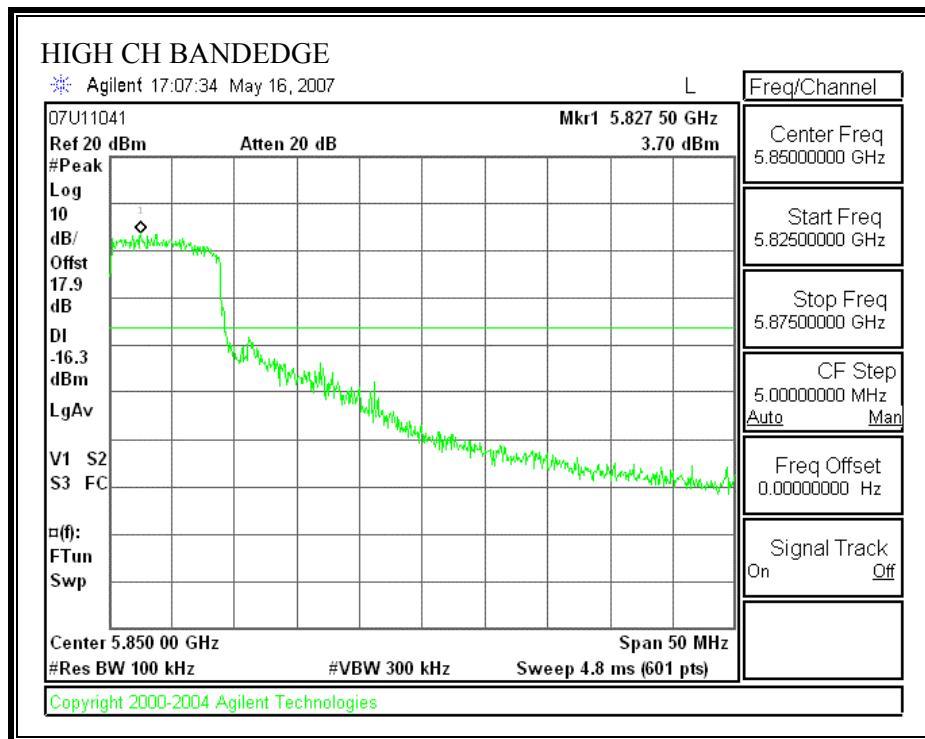
MID CH BANDEGE, 5785 MHz

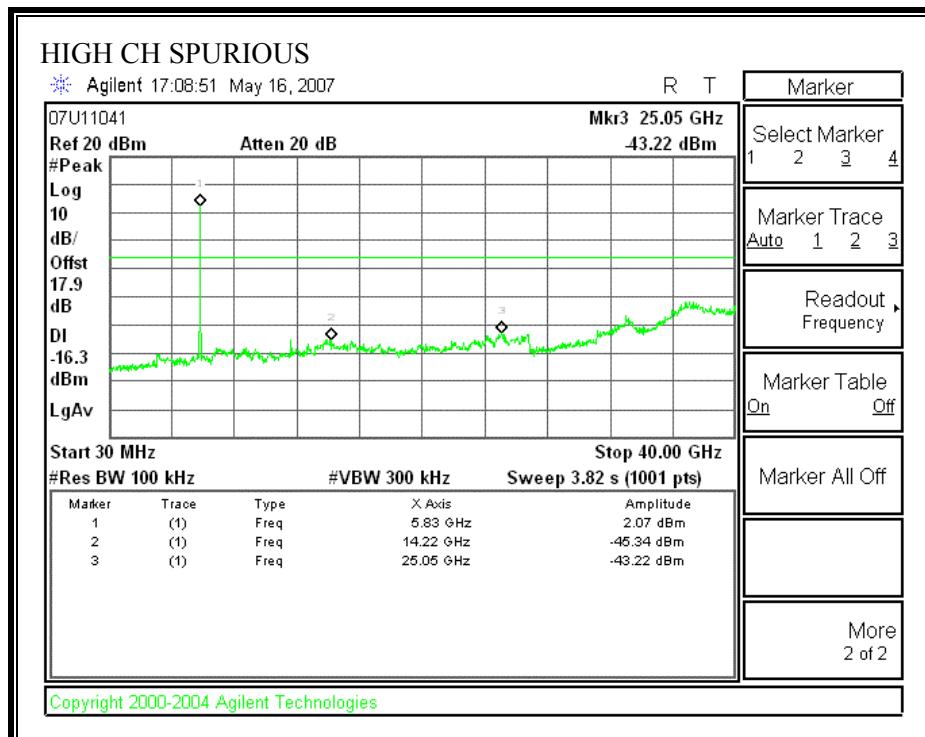


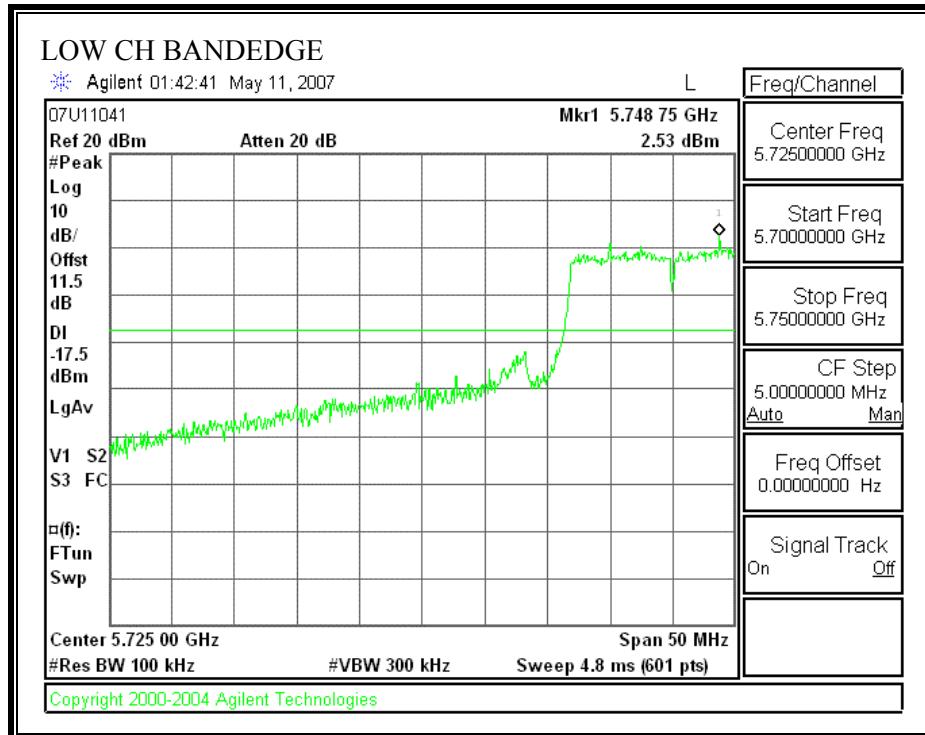


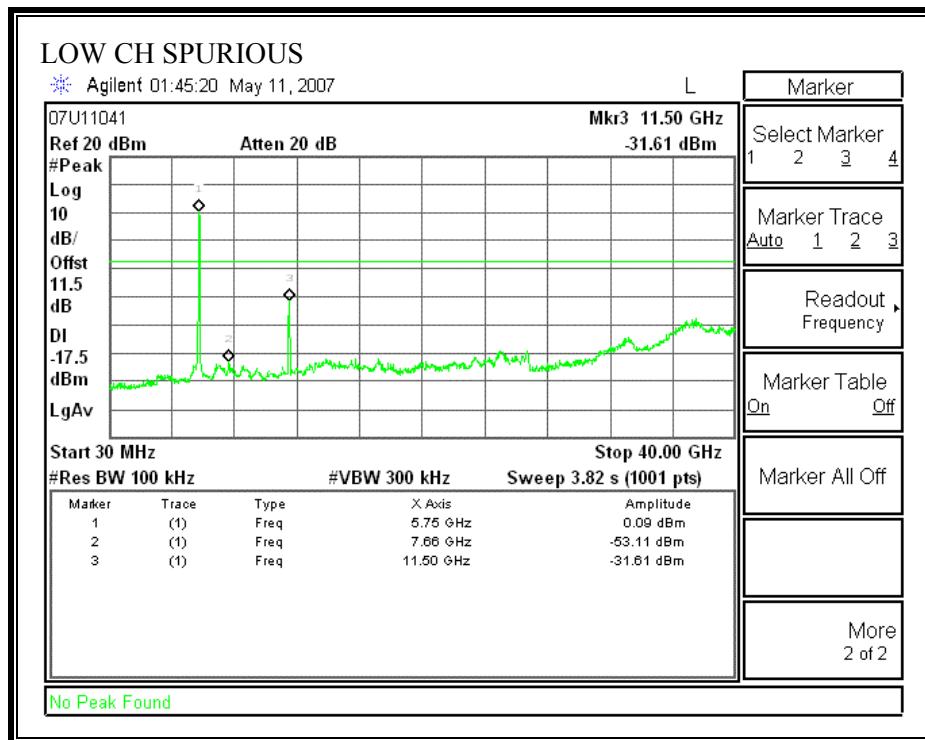
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 20 - MHz TX BANDWIDTH – CHAIN 1)

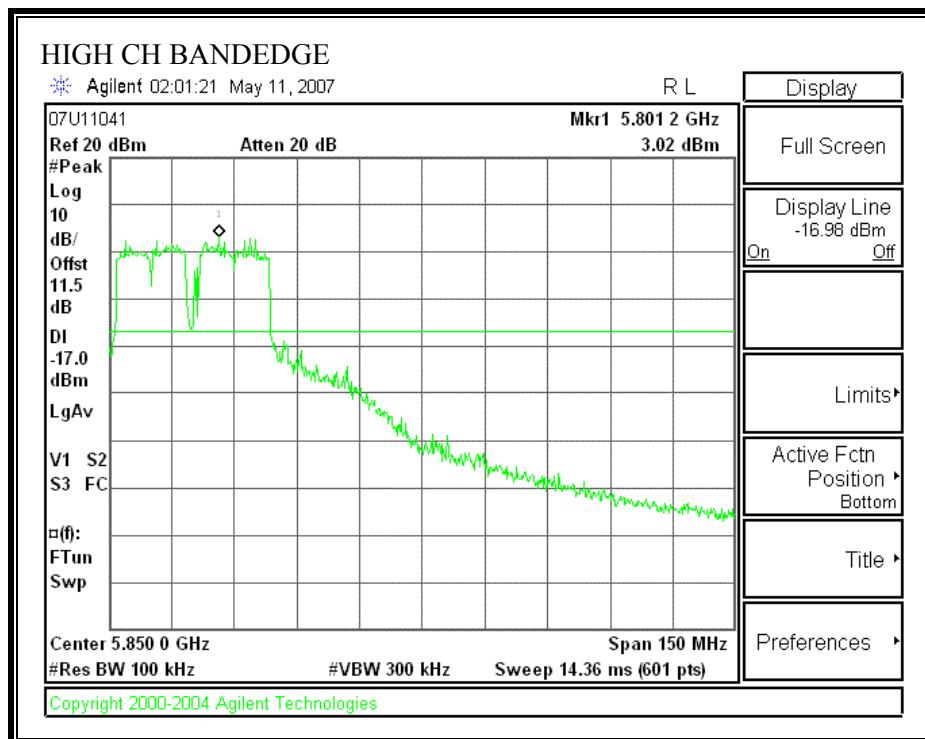
HI CH BANDEDGE, 5825 MHz

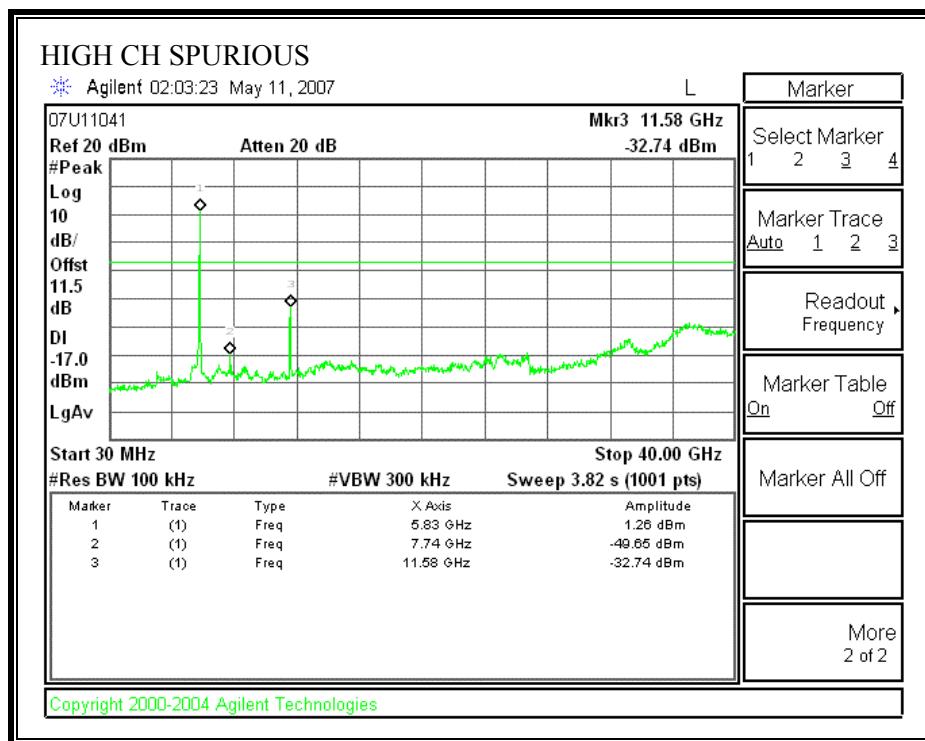




802.11n Mode40 MHz CDD MCS32**SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 - 40 MHz TX BANDWIDTH – CHAIN 0)****LOW CH BANDEDGE, 5755 MHz**

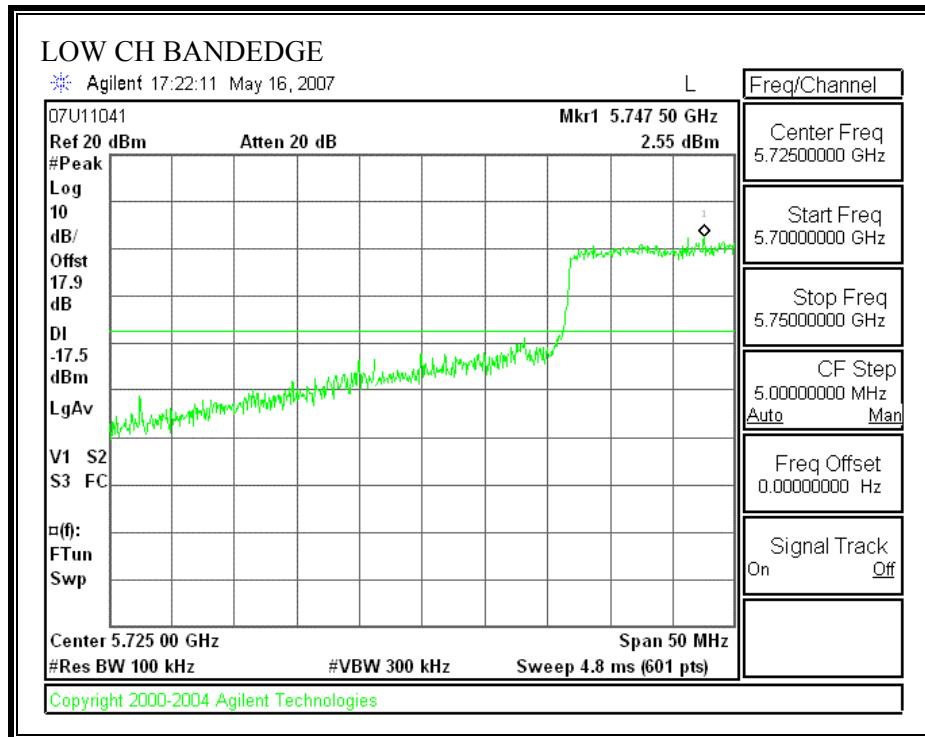


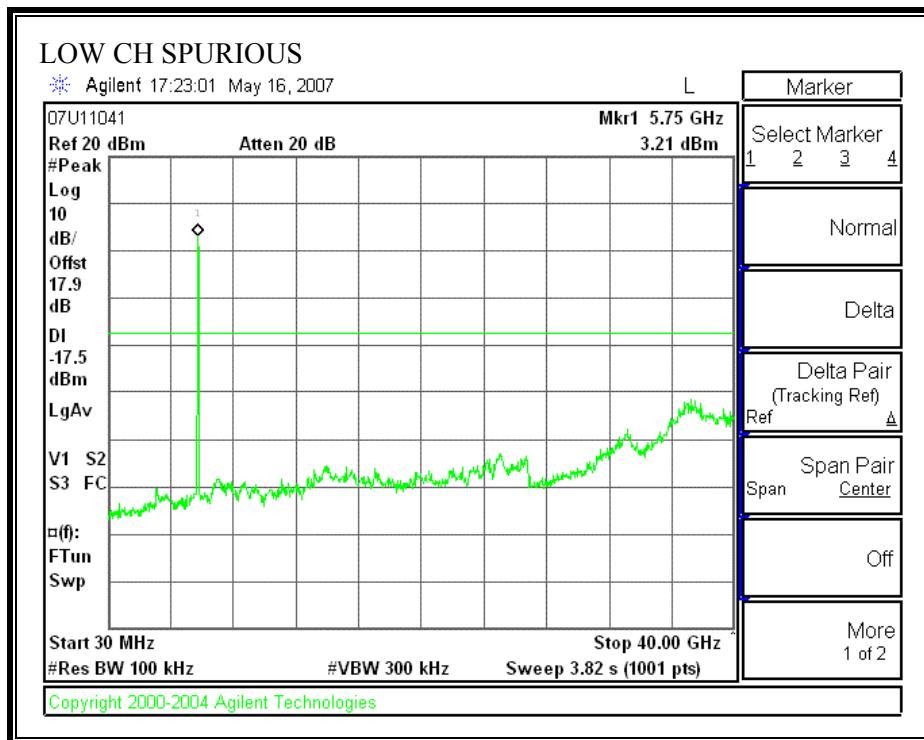
HIGH CH BANDEDGE, 5795 MHz

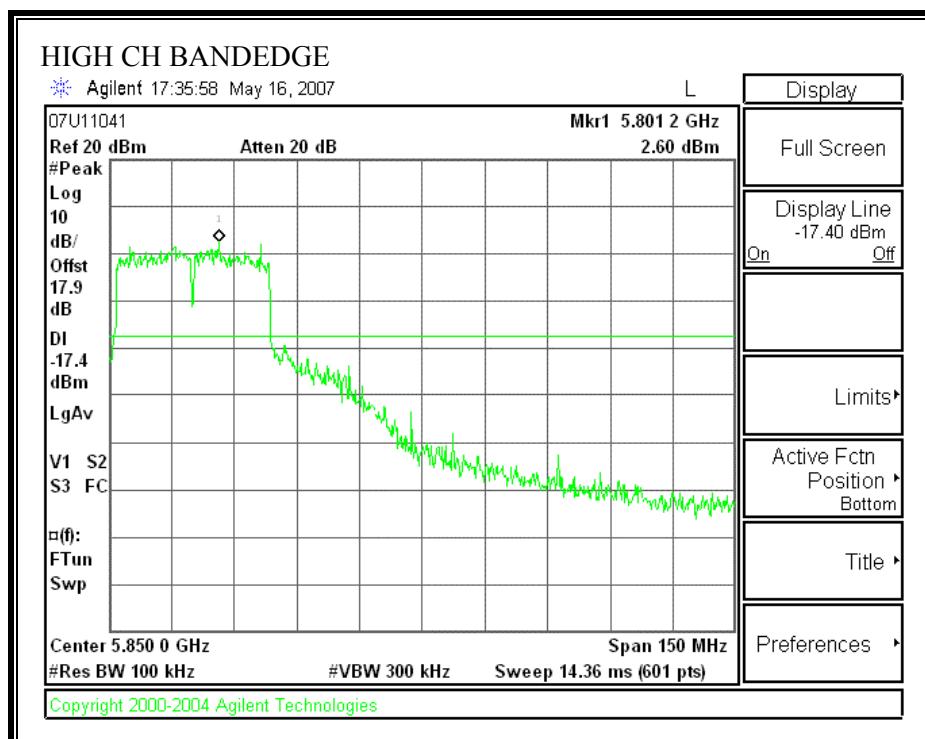


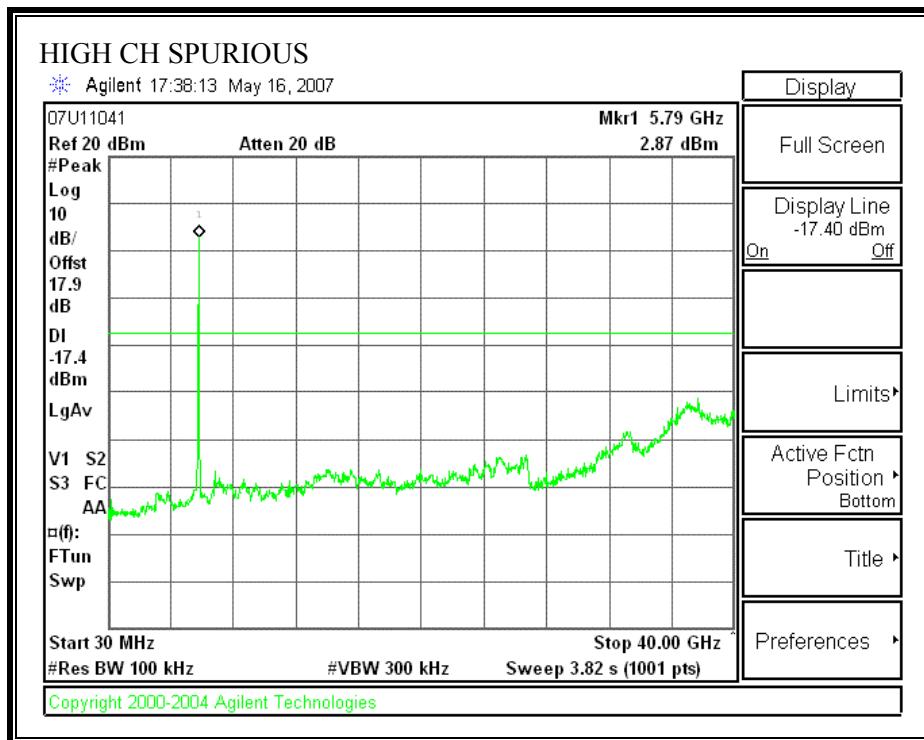
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 - 40 MHz TX BANDWIDTH – CHAIN 1)

LOW CH BANDEDGE, 5755 MHz





HI CH BANDEDGE, 5795 MHz



7.5. RADIATED EMISSIONS

7.5.1. 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.

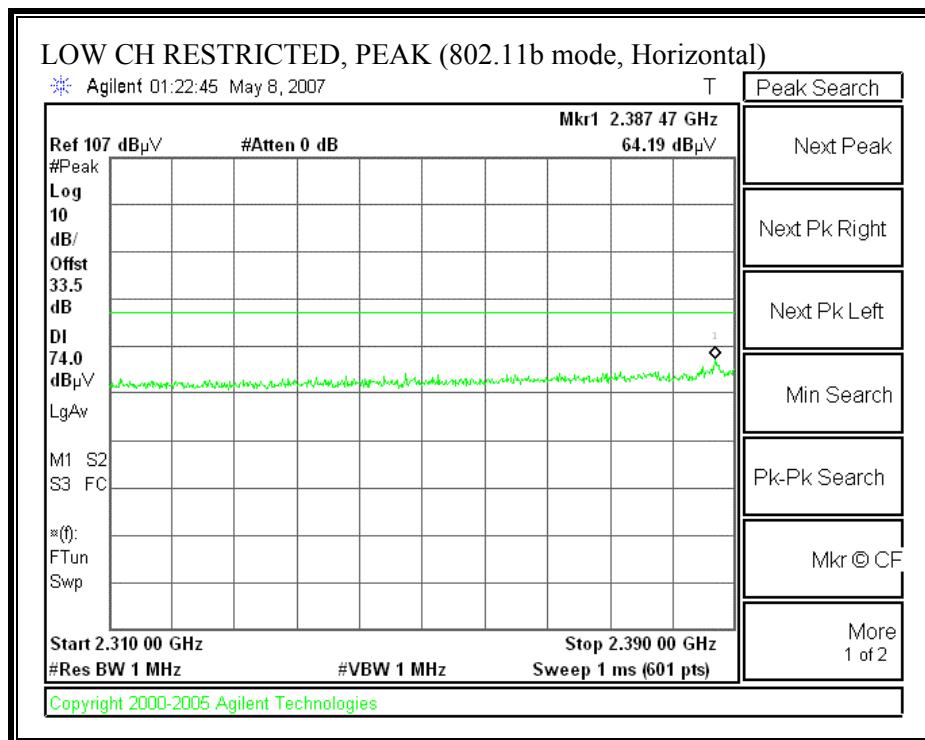
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

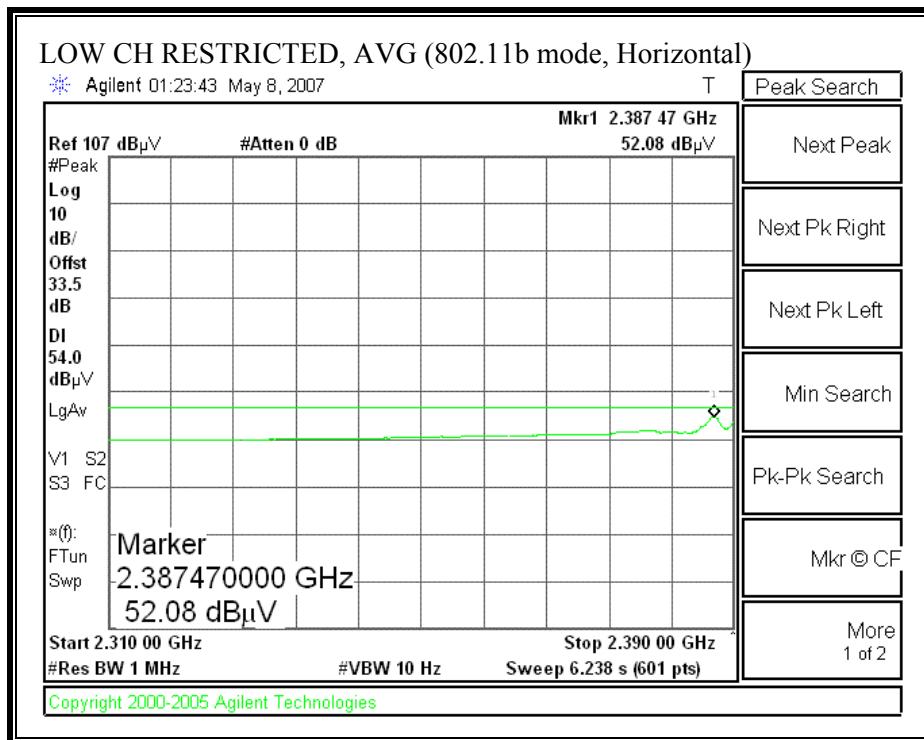
LEGACY MODE

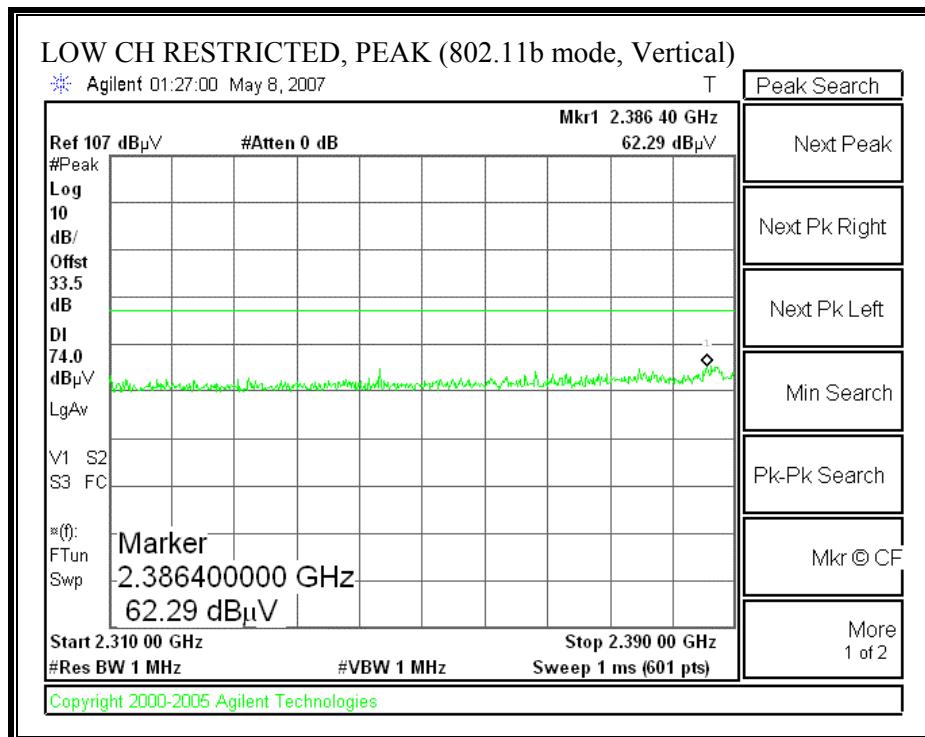
7.5.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND

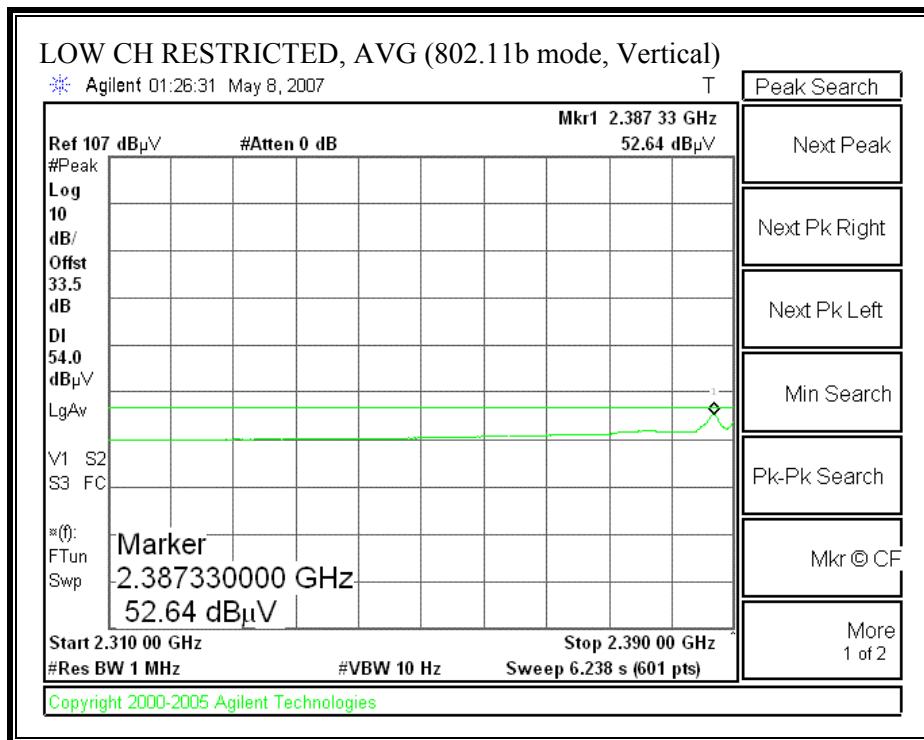
11b Legacy Mode

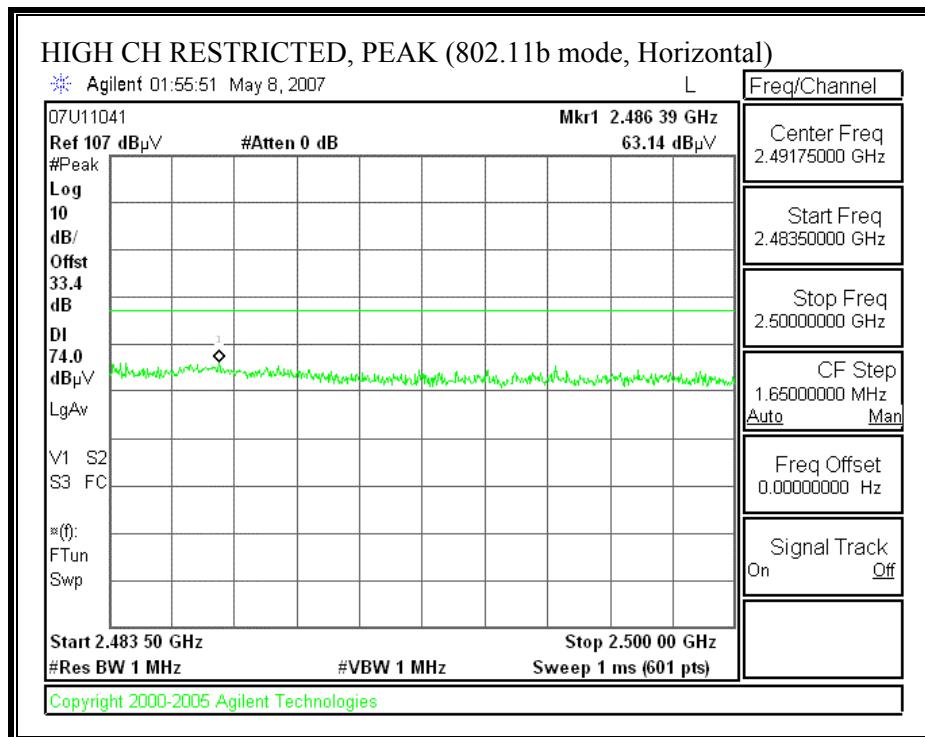
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, 2412 MHz, HORIZONTAL)

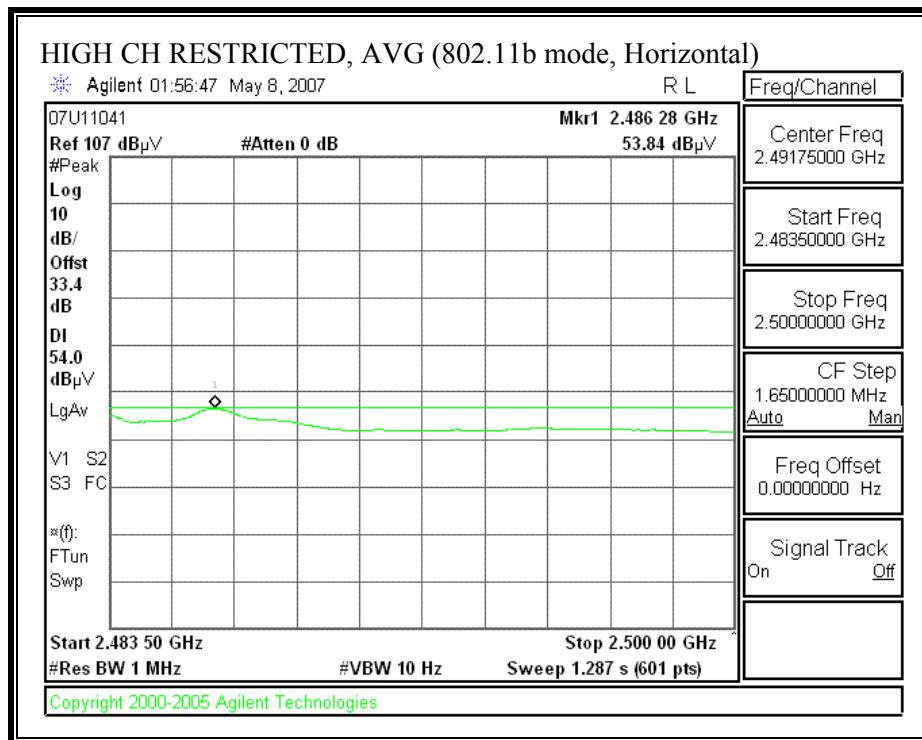


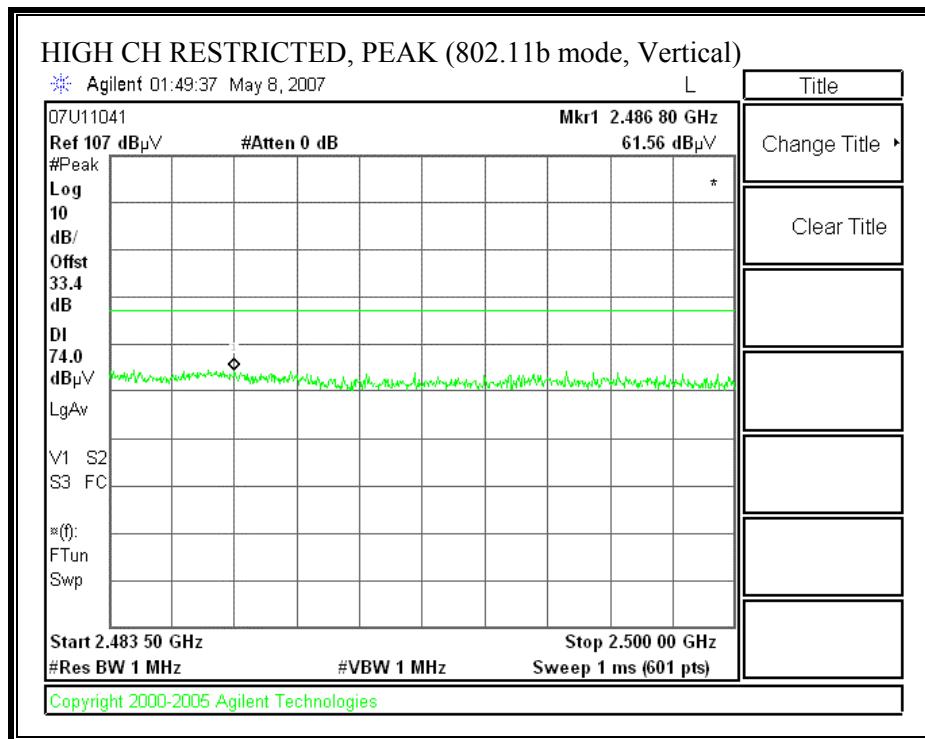


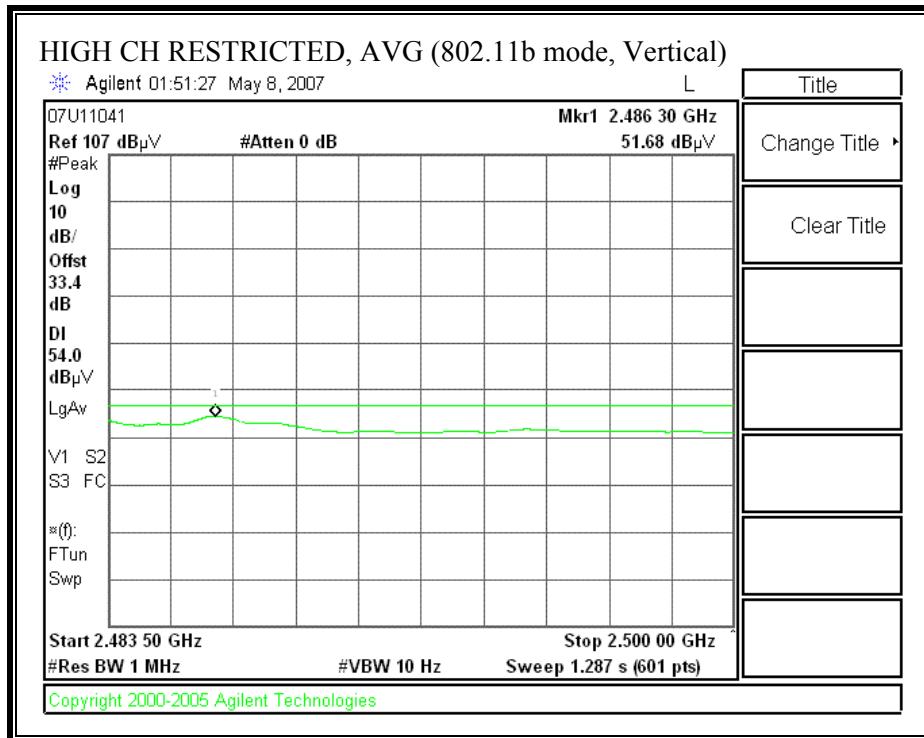
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, 2412 MHz, VERTICAL)



RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, 2462 MHz, HORIZONTAL)

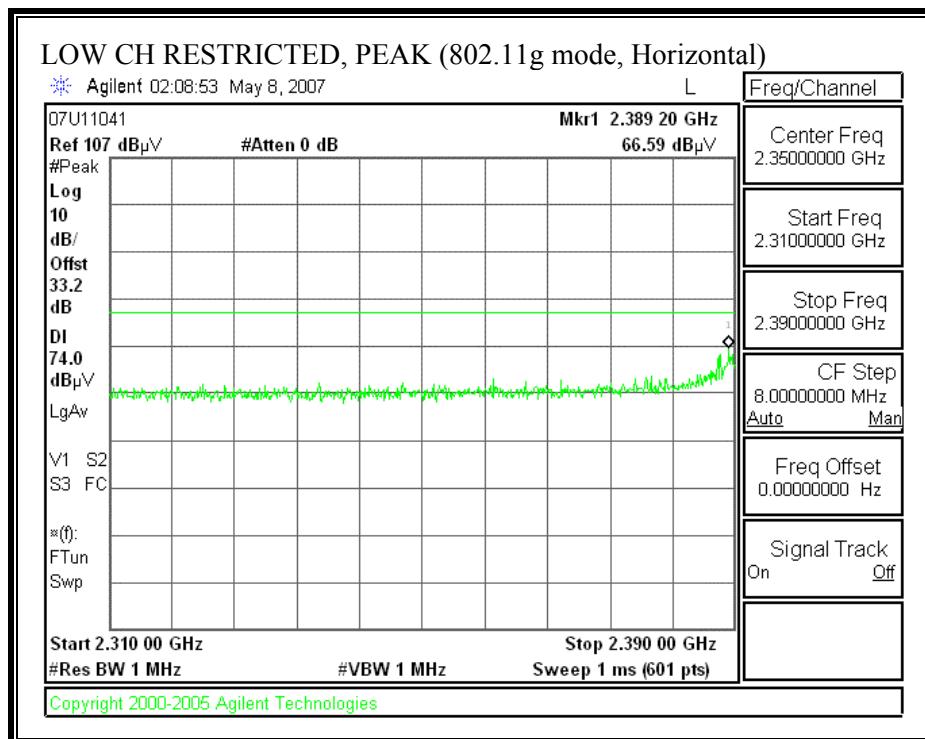


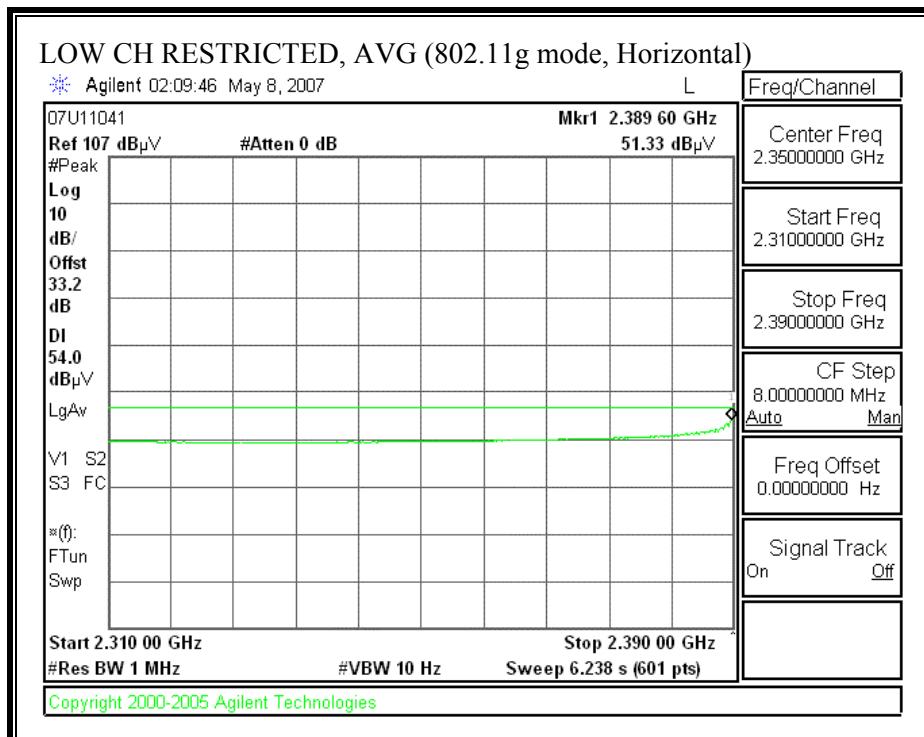
RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, 2462 MHz, VERTICAL)

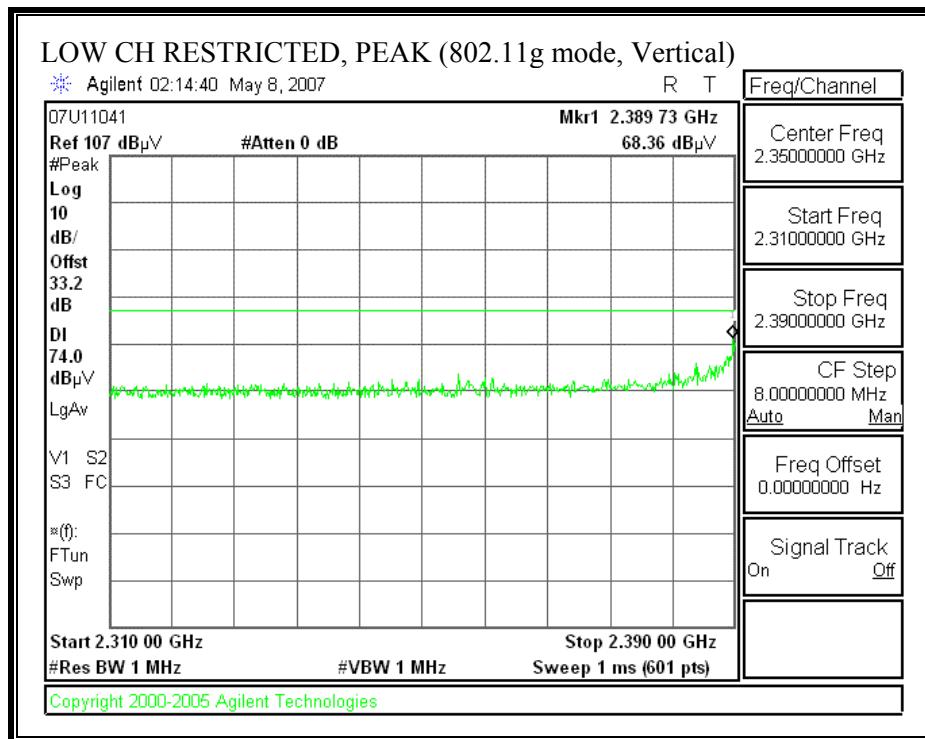


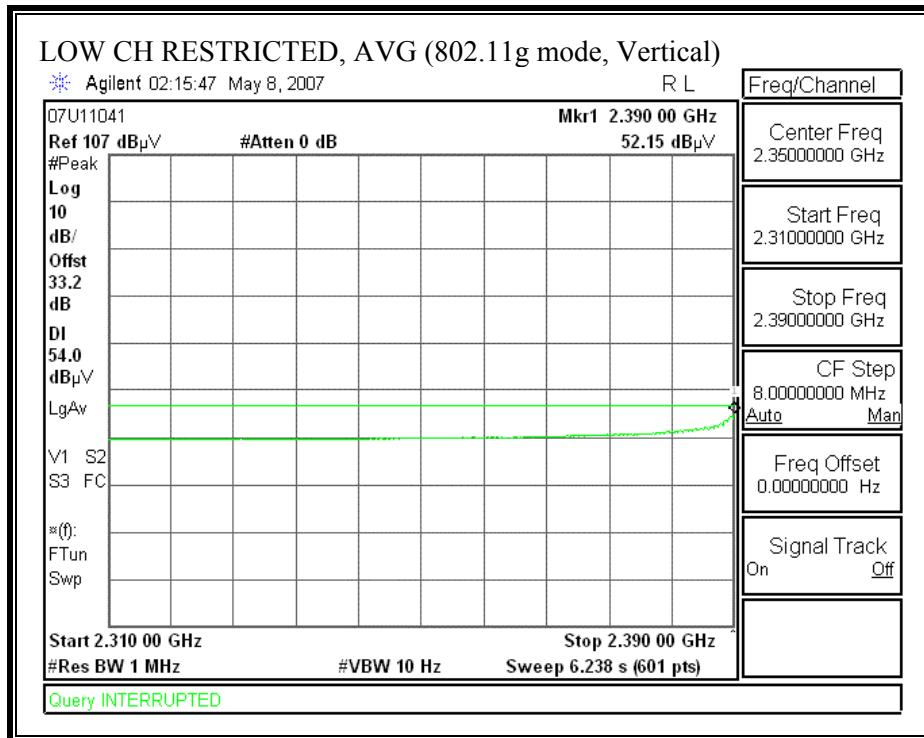
HARMONICS AND SPURIOUS EMISSIONS (b MODE)

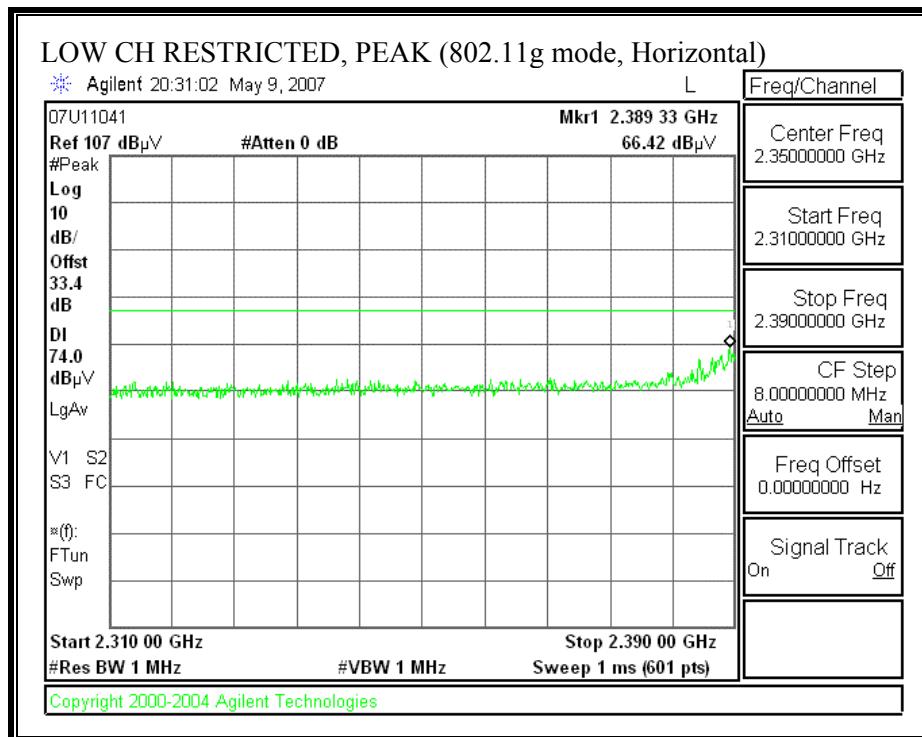
High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Company:	Broadcom														
Project #:	07U11041														
Date:	5/8/2007														
Test Engineer:	Mengistu Mekuria														
Configuration:	EUT Only														
Mode:	Transmit, 11b mode 2.4GHz														
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T60: S/N: 2238 @3m		T144 Miteq 3008A00931						FCC 15.209							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		B-5m Chamber		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz			
								HPF_2.7GHz				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	47.3	43.6	33.0	7.1	-36.5	0.0	0.5	51.5	47.7	74	54	-22.5	-6.3	V
4.824	3.0	49.4	46.4	33.0	7.1	-36.5	0.0	0.5	53.6	50.5	74	54	-20.4	-3.5	H
Mid Ch(2437MHz)															
4.874	3.0	49.4	47.0	33.1	7.2	-36.5	0.0	0.5	53.6	51.3	74	54	-20.4	-2.7	V
4.874	3.0	51.4	49.3	33.1	7.2	-36.5	0.0	0.5	55.7	53.6	74	54	-18.3	-0.4	H
Hi Ch(2462MHz)															
4.924	3.0	48.9	46.2	33.1	7.2	-36.5	0.0	0.5	53.3	50.6	74	54	-20.7	-3.4	V
4.924	3.0	51.4	49.4	33.1	7.2	-36.5	0.0	0.5	55.8	53.8	74	54	-18.2	-0.2	H
No other emissions were detected above system noise floor.															
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										

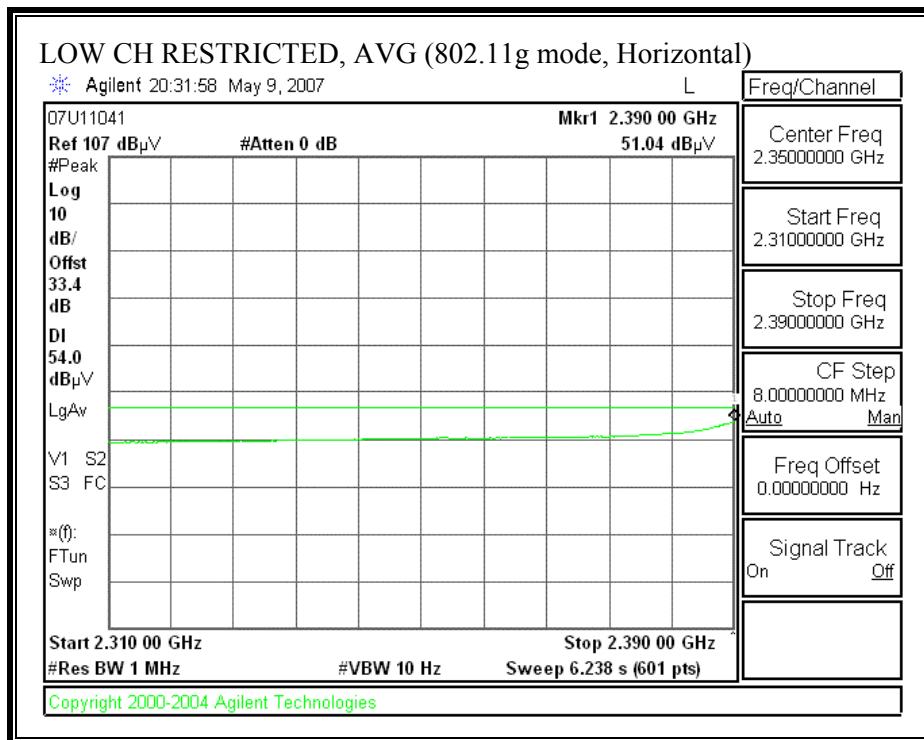
11g Legacy Mode**RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2412 MHz, HORIZONTAL)**

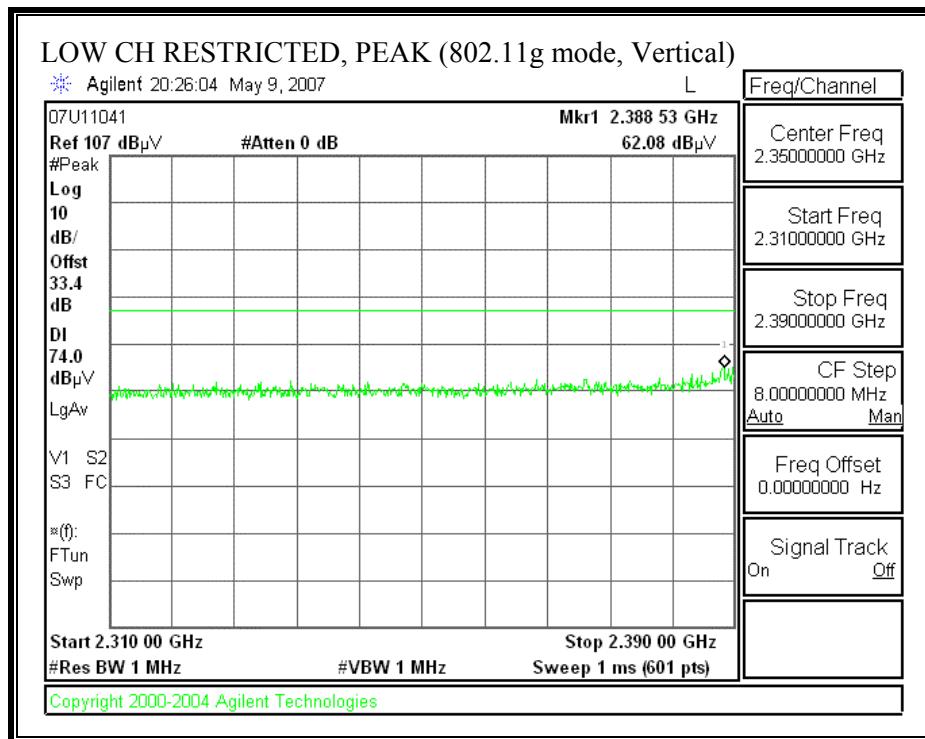


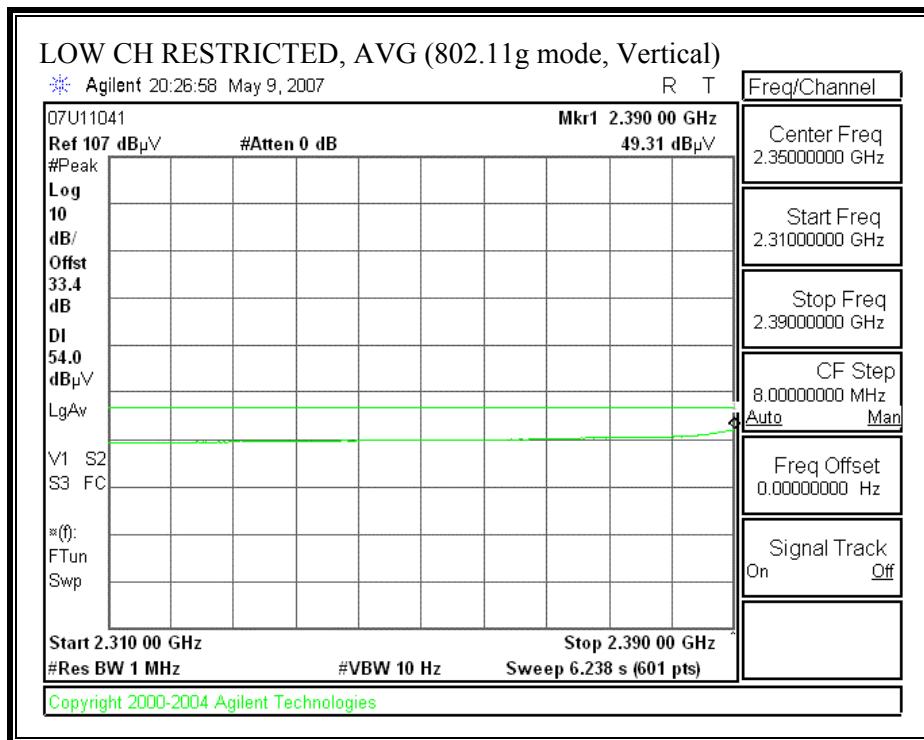
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2412 MHz, VERTICAL)

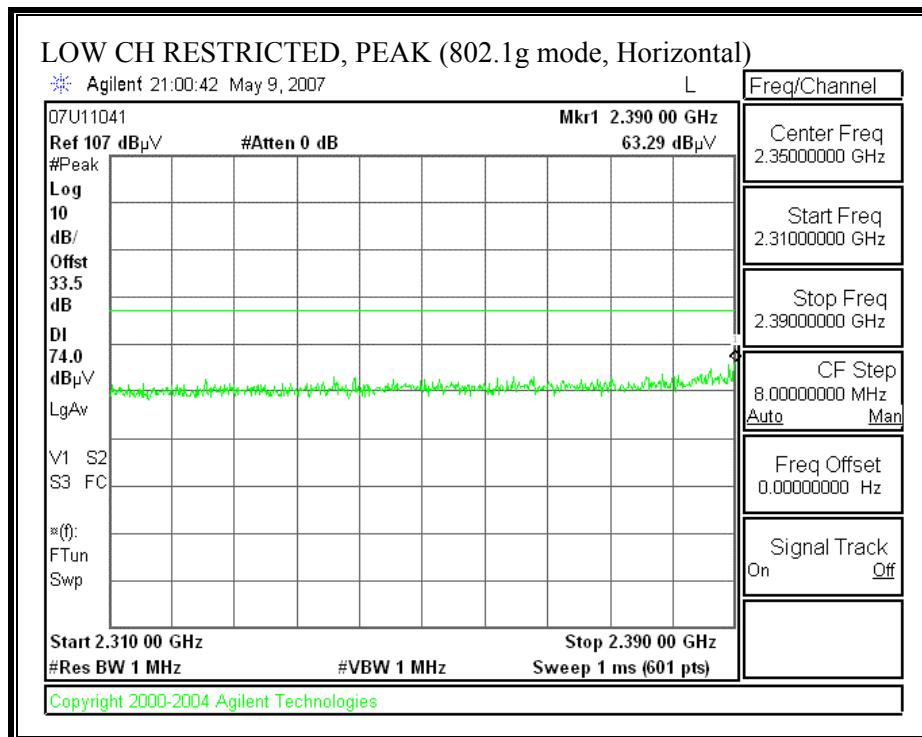


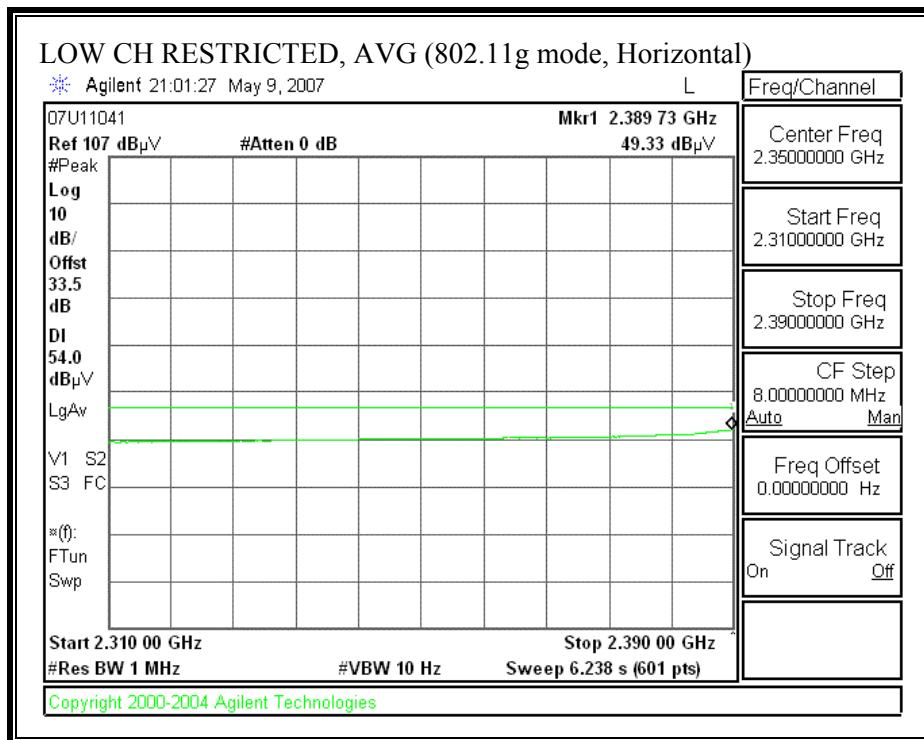
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2417 MHz, HORIZONTAL)

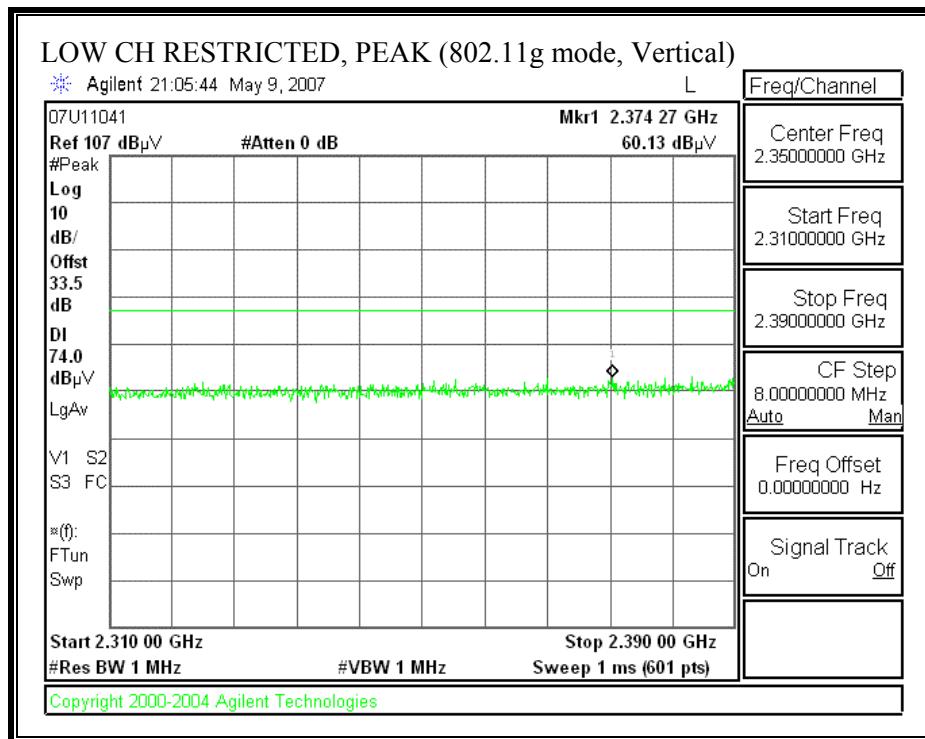


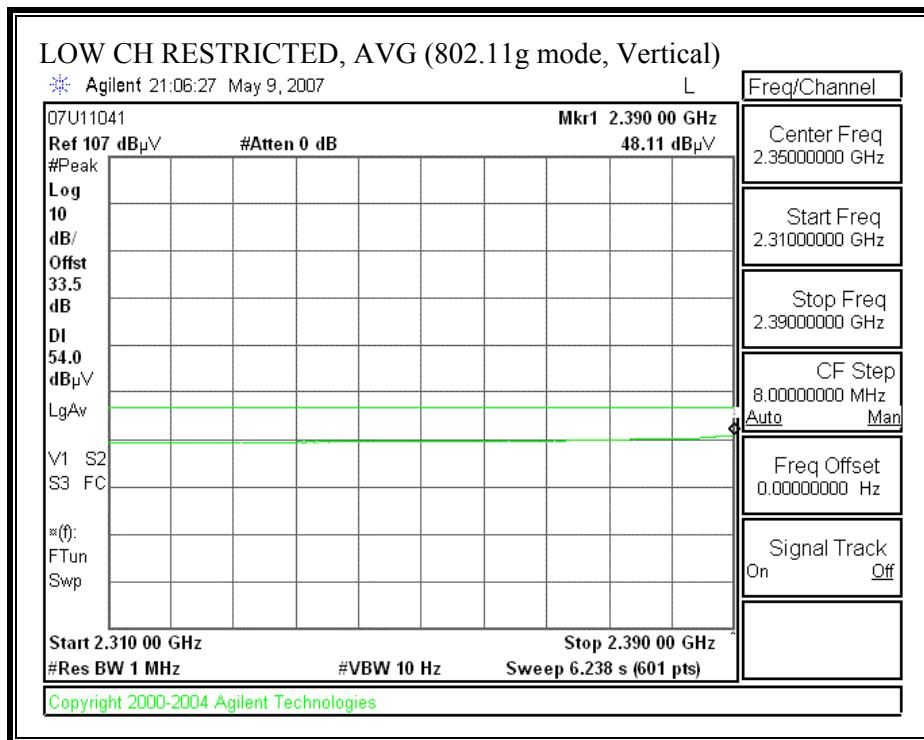
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2417 MHz, VERTICAL)

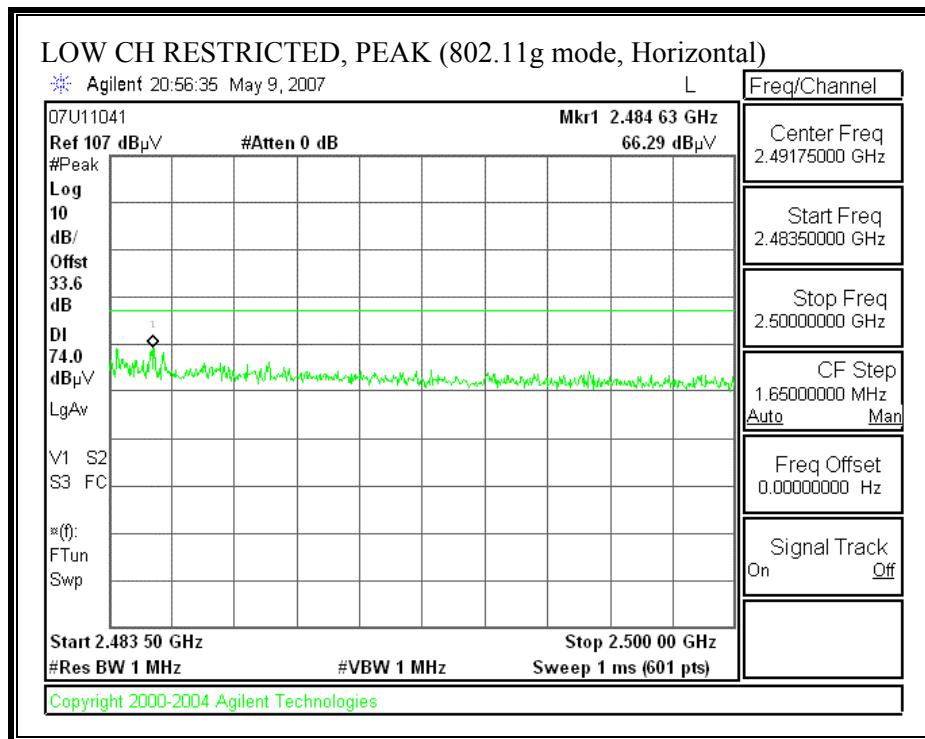


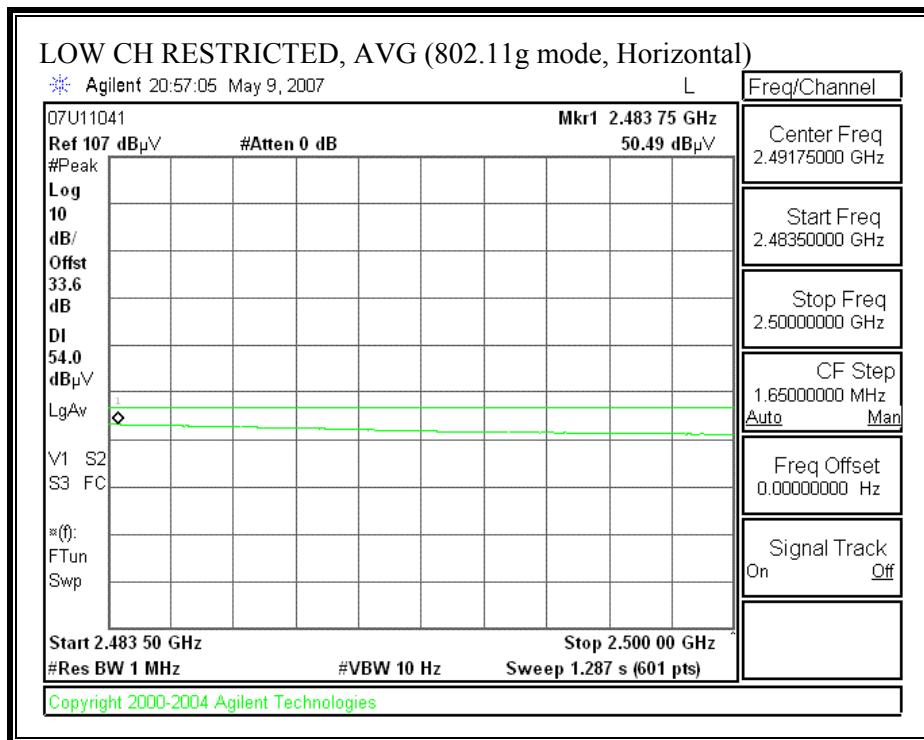
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2422 MHz, HORIZONTAL)

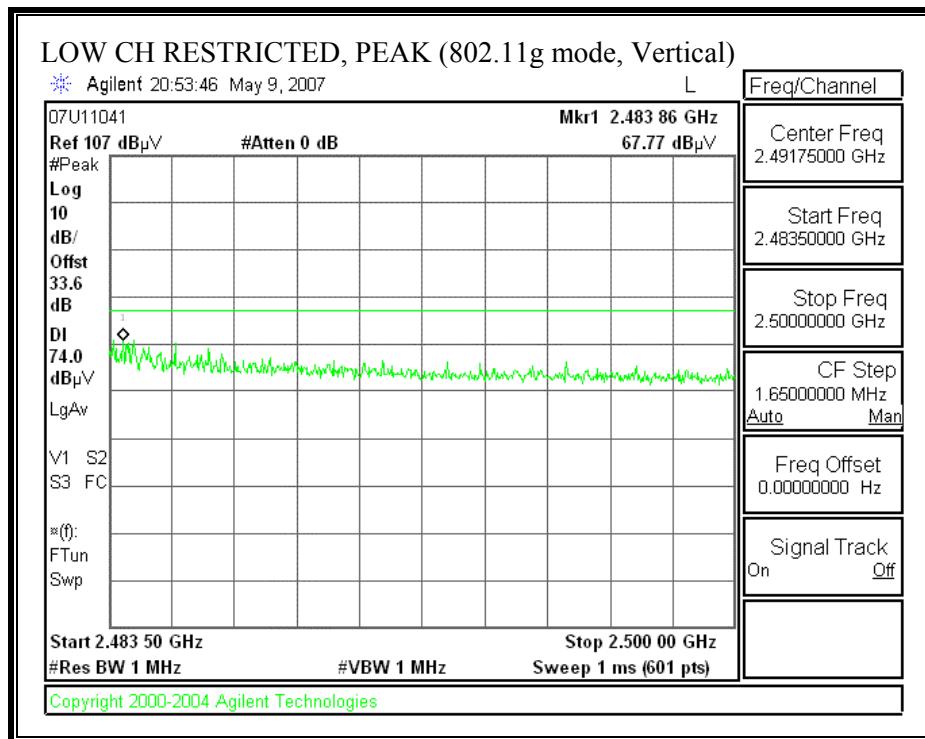


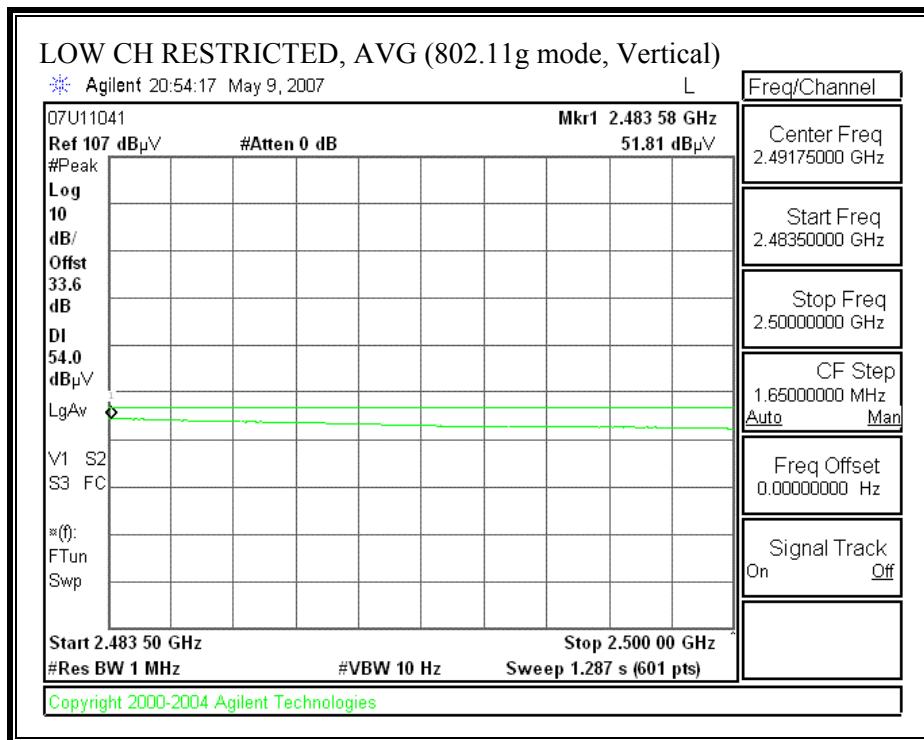
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2422 MHz, VERTICAL)

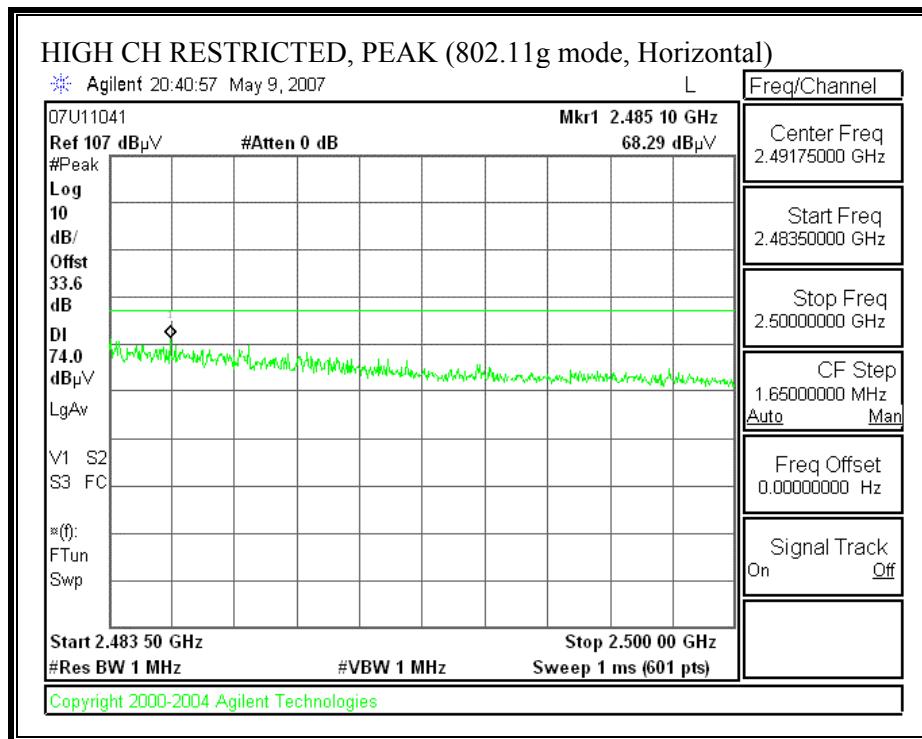


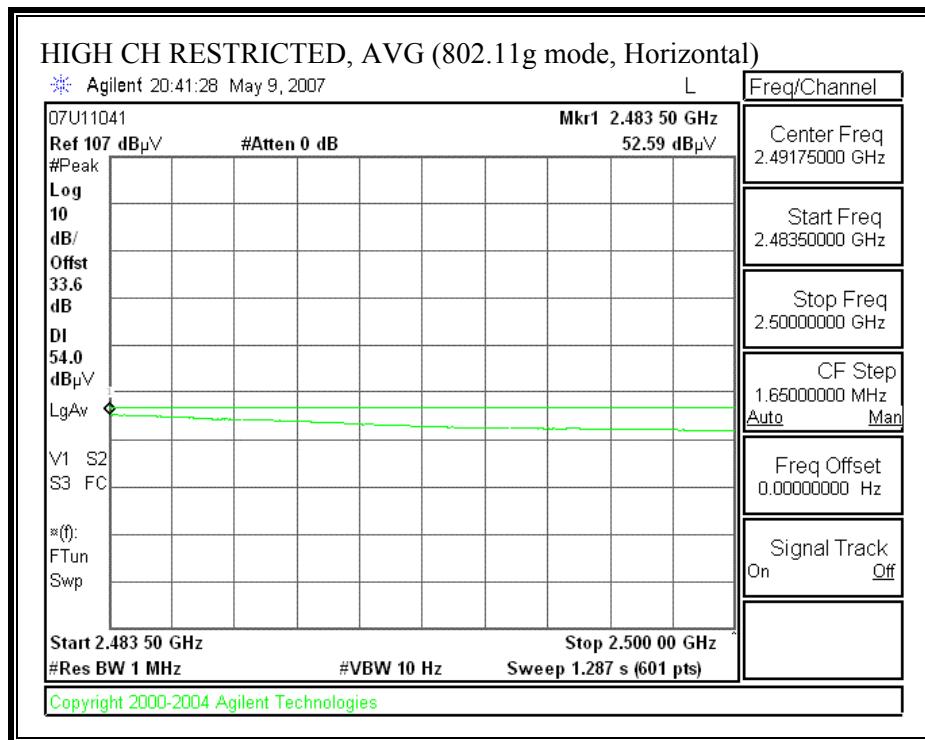
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2452 MHz, HORIZONTAL)

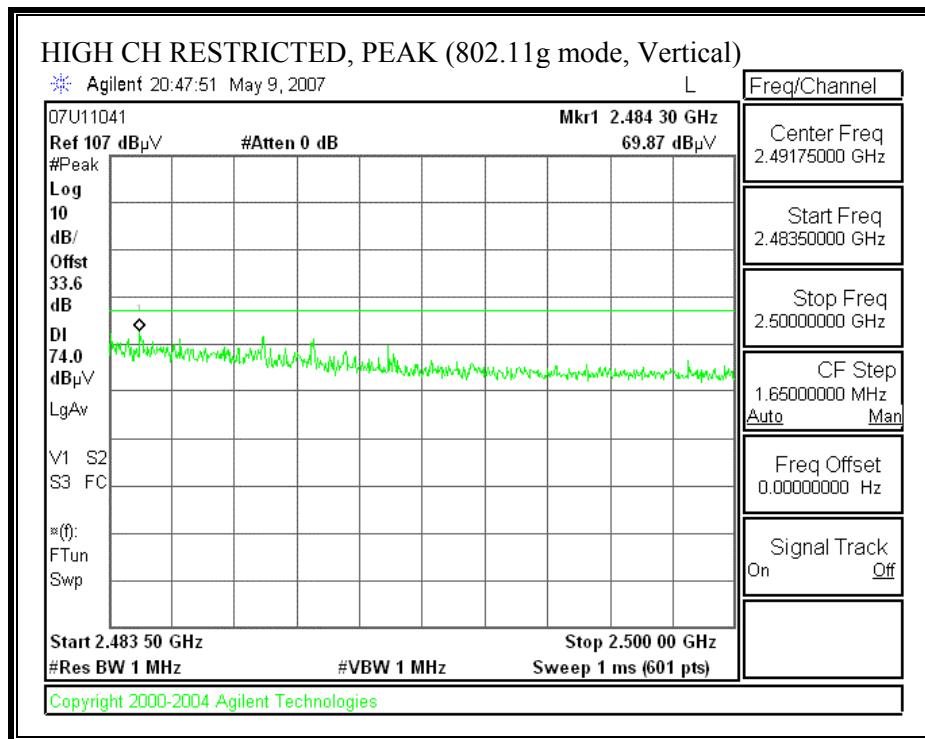


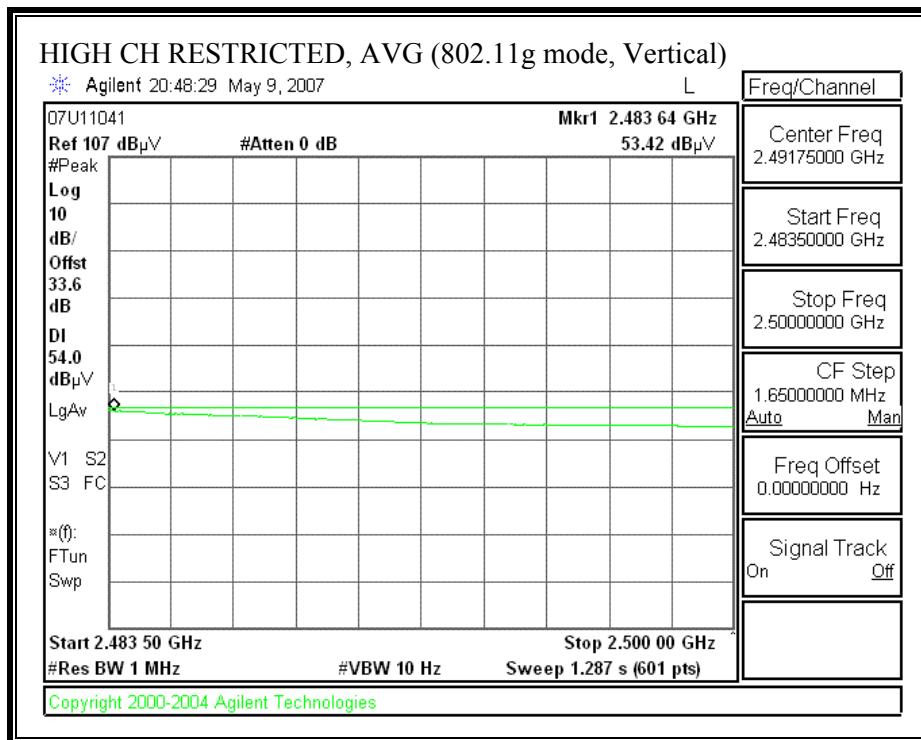
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, 2452 MHz, VERTICAL)

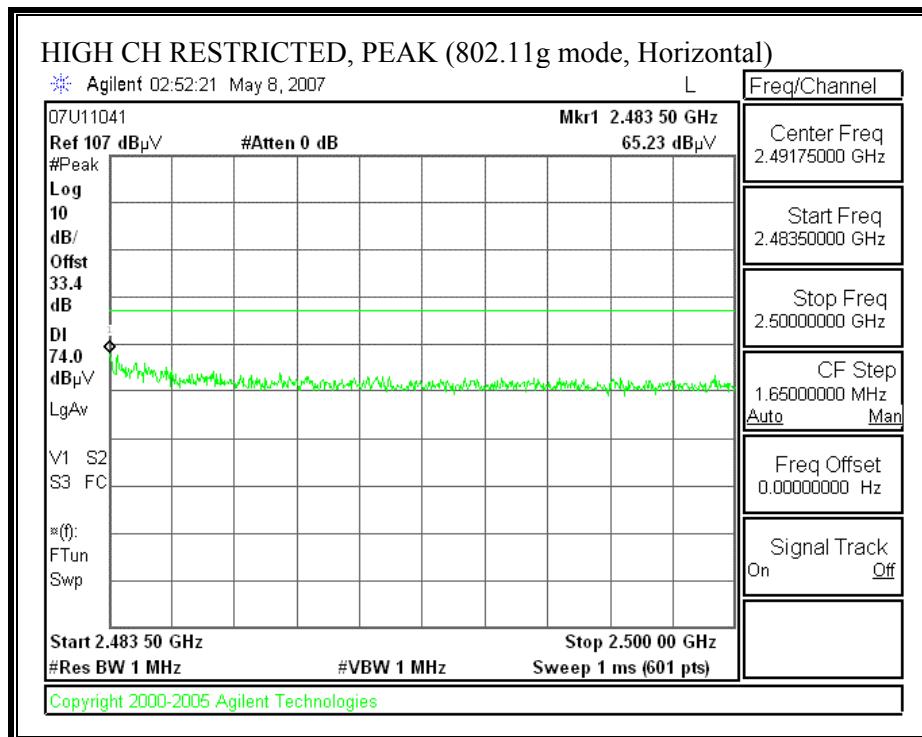


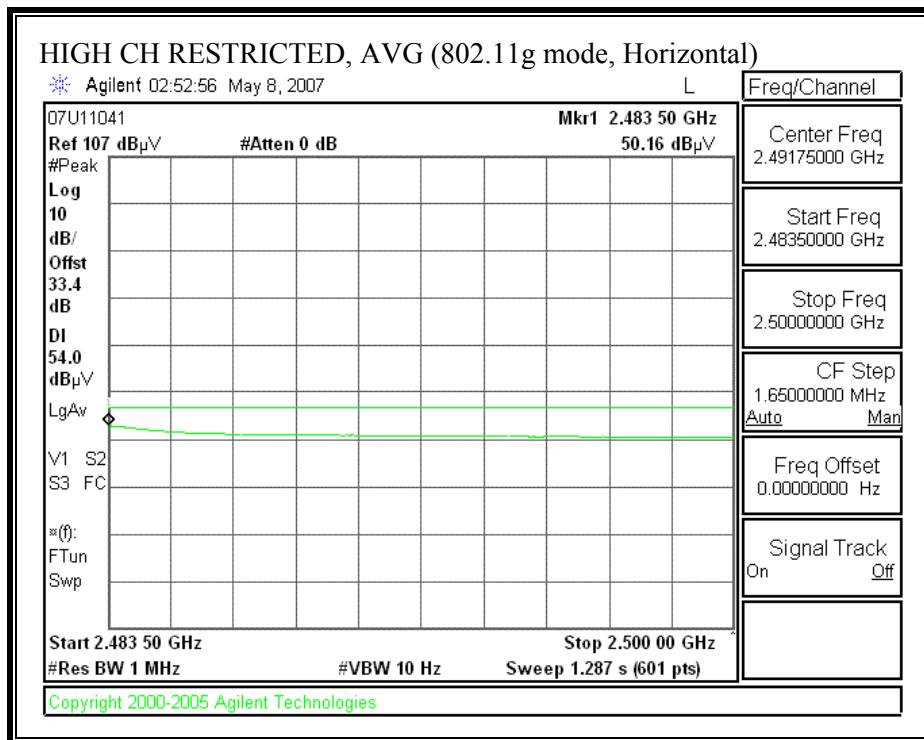
RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, 2457 MHz, HORIZONTAL)

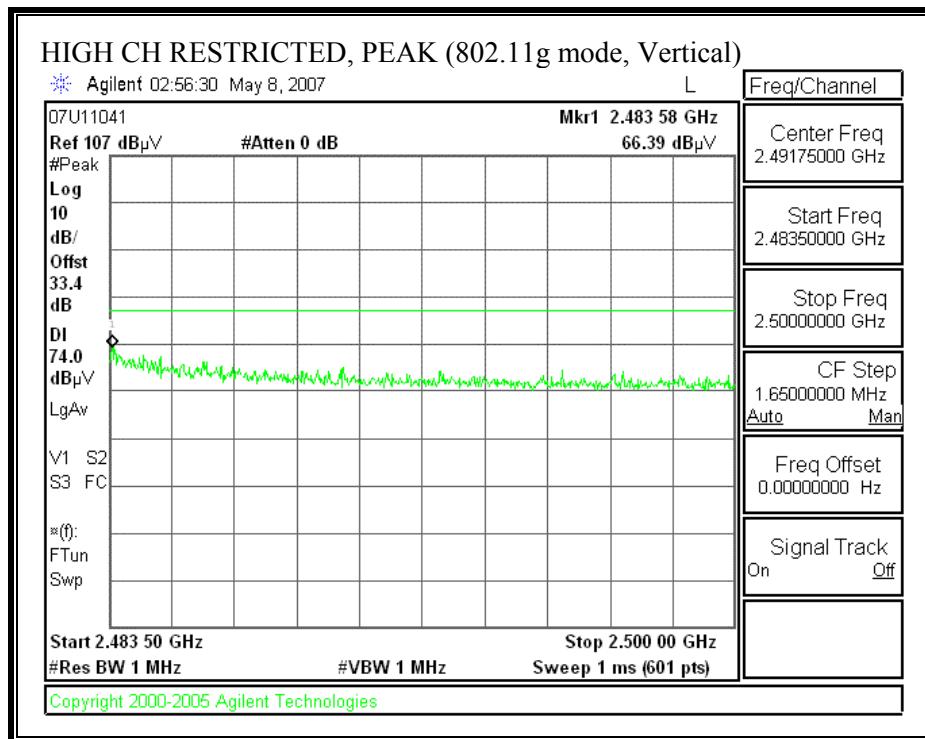


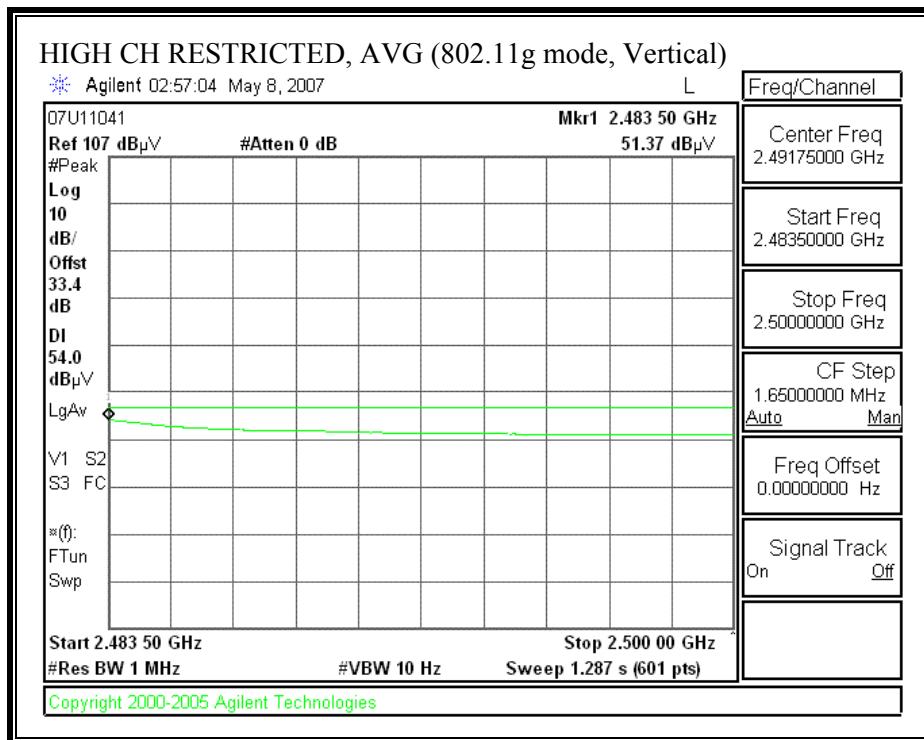
RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, 2457 MHz, VERTICAL)



RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, 2462 MHz, HORIZONTAL)



RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, 2462 MHz, VERTICAL)



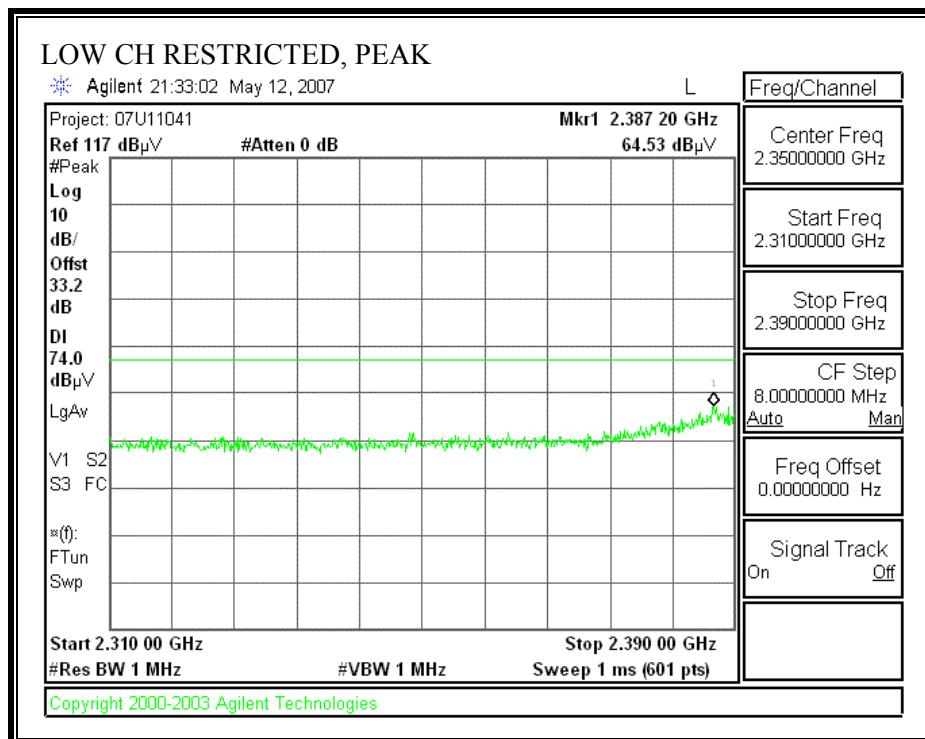
HARMONICS AND SPURIOUS EMISSIONS (g MODE)

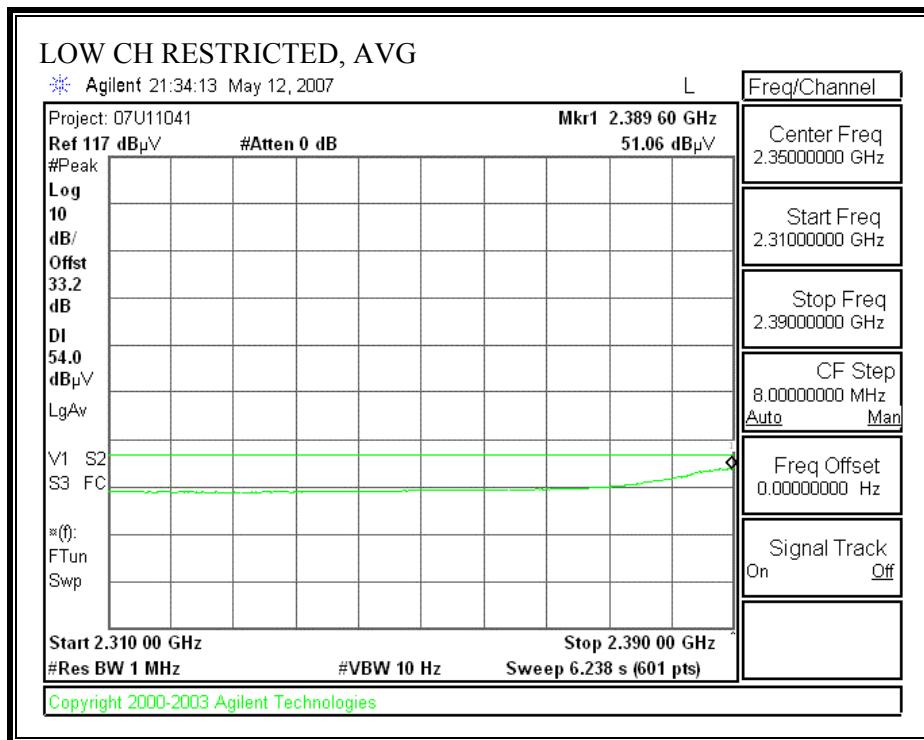
High Frequency Measurement Compliance Certification Services																			
Company:	Broadcom																		
Project #:	07U11041																		
Date:	5/8/2007																		
Test Engineer:	Mengistu Mekuria																		
Configuration:	EUT Only																		
Mode:	Transmit, 11g mode 2.4GHz																		
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			
								Gordon 203134001				HPF_2.7GHz							
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	43.6	31.5	33.3	6.9	-34.8	0.0	0.5	49.5	37.4	74	54	-24.5	-16.6	V				
9.648	3.0	36.9	23.0	36.7	9.7	-33.6	0.0	0.7	50.4	36.5	74	54	-23.6	-17.5	V				
4.824	3.0	43.2	29.9	33.3	6.9	-34.8	0.0	0.5	49.1	35.8	74	54	-24.9	-18.2	H				
9.648	3.0	36.2	23.9	36.7	9.7	-33.6	0.0	0.7	49.7	37.5	74	54	-24.3	-16.5	H				
Mid Ch(2437MHz)																			
4.874	3.0	48.8	34.7	33.4	6.9	-34.8	0.0	0.5	54.8	40.7	74	54	-19.2	-13.3	V				
9.748	3.0	36.3	23.0	36.8	9.8	-33.3	0.0	0.7	50.3	36.9	74	54	-23.7	-17.1	V				
4.874	3.0	46.5	33.2	33.4	6.9	-34.8	0.0	0.5	52.5	39.2	74	54	-21.5	-14.8	H				
9.748	3.0	35.8	22.9	36.8	9.8	-33.3	0.0	0.7	49.8	36.8	74	54	-24.2	-17.2	H				
Hi Ch(2462MHz)																			
4.924	3.0	47.4	34.1	33.4	7.0	-34.8	0.0	0.5	53.5	40.2	74	54	-20.5	-13.8	V				
9.848	3.0	36.8	23.5	36.8	9.9	-33.1	0.0	0.7	51.2	37.9	74	54	-22.8	-16.1	V				
4.924	3.0	46.7	32.4	33.4	7.0	-34.8	0.0	0.5	52.8	38.5	74	54	-21.2	-15.5	H				
9.848	3.0	37.1	23.6	36.8	9.9	-33.1	0.0	0.7	51.4	37.9	74	54	-22.6	-16.1	H				
No other emissions were detected above 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														

802.11n Mode 20 MHz SISO is covered by the worst case 802.11g mode Legacy testing.

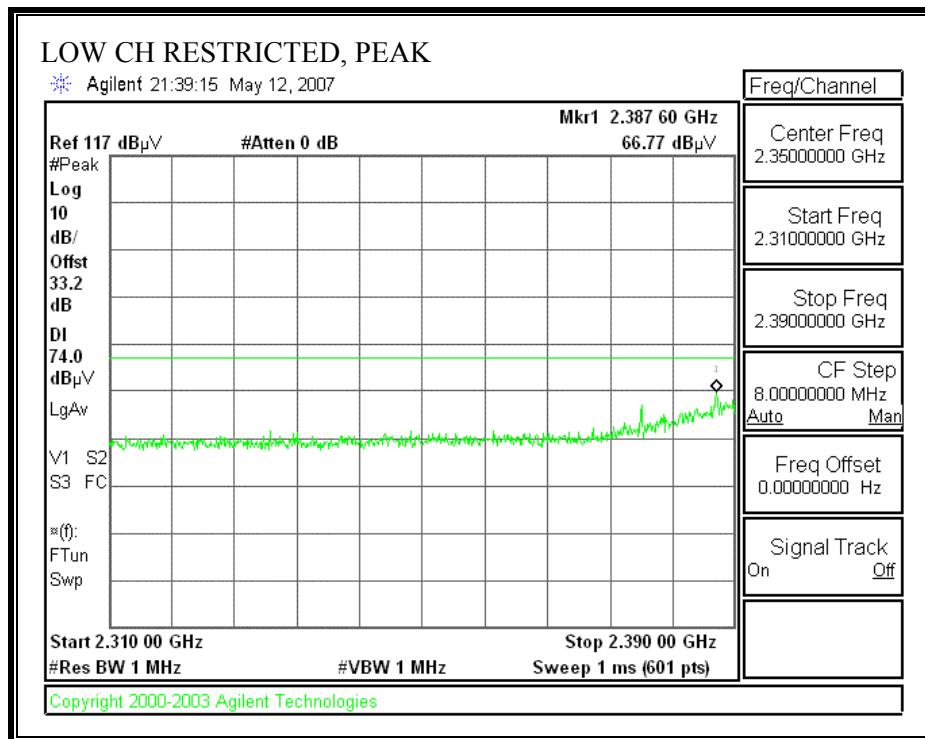
802.11n Mode 40 MHz SISO

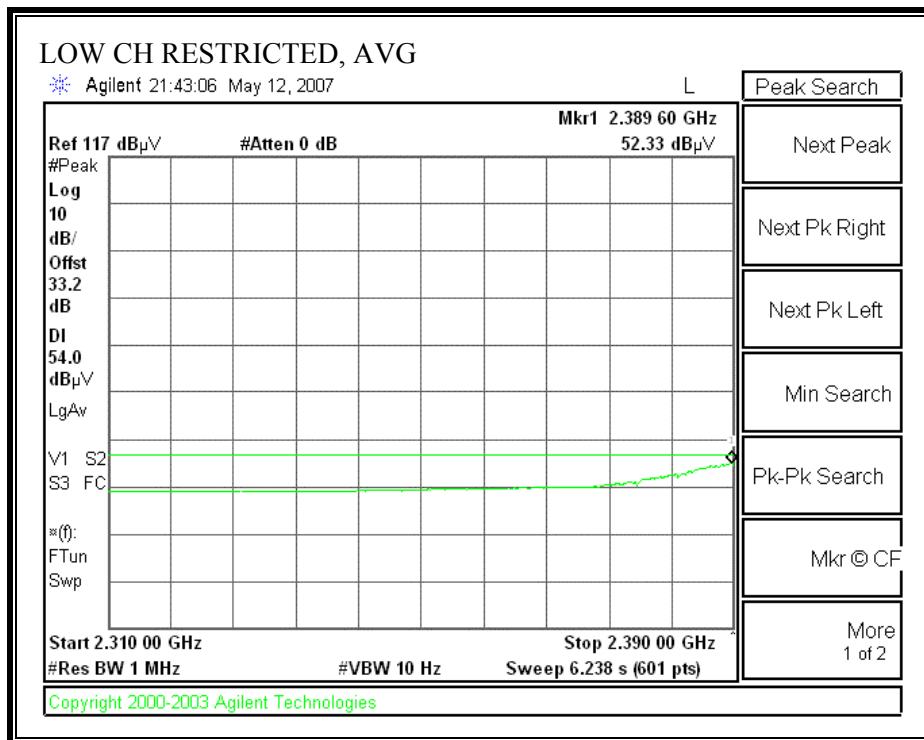
LOW CHANNEL, 2422 MHz, HORIZONTAL



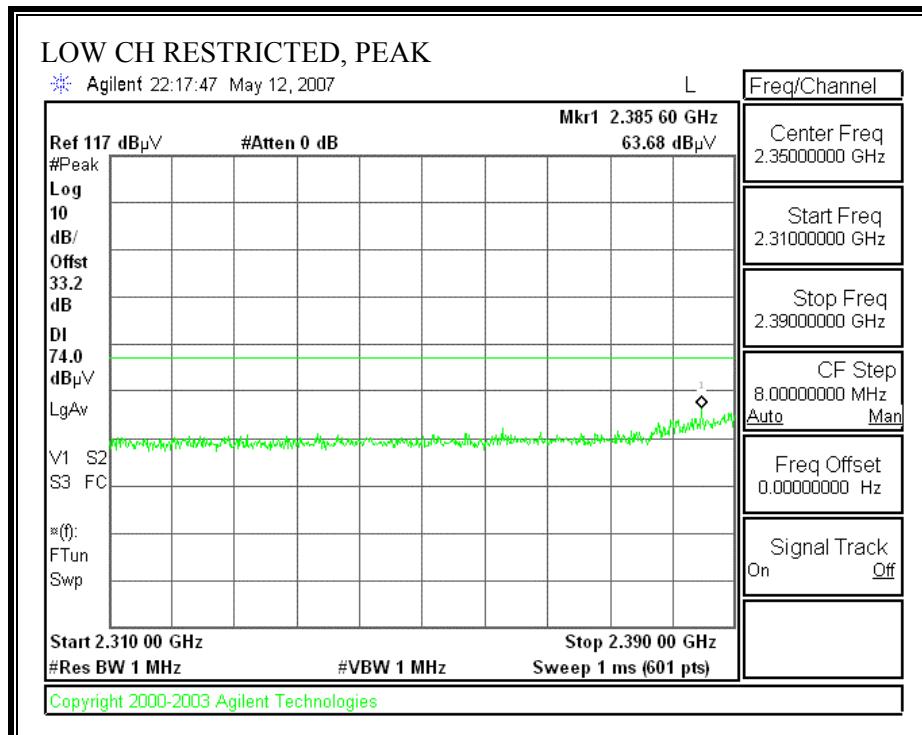


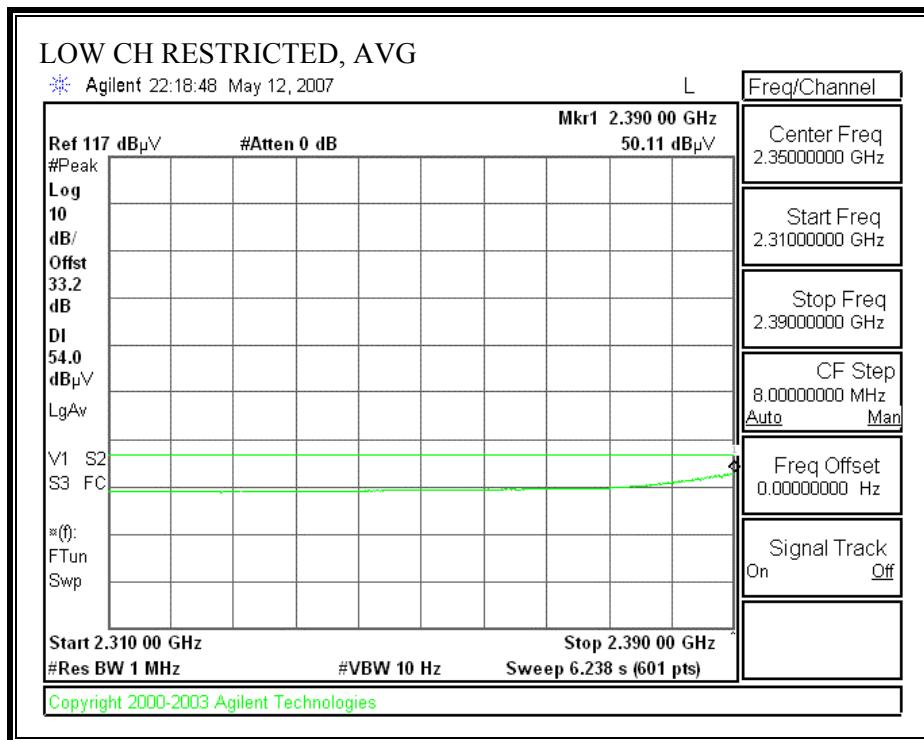
RESTRICTED BANDEDGE (LOW CHANNEL, 2422 MHz, VERTICAL)



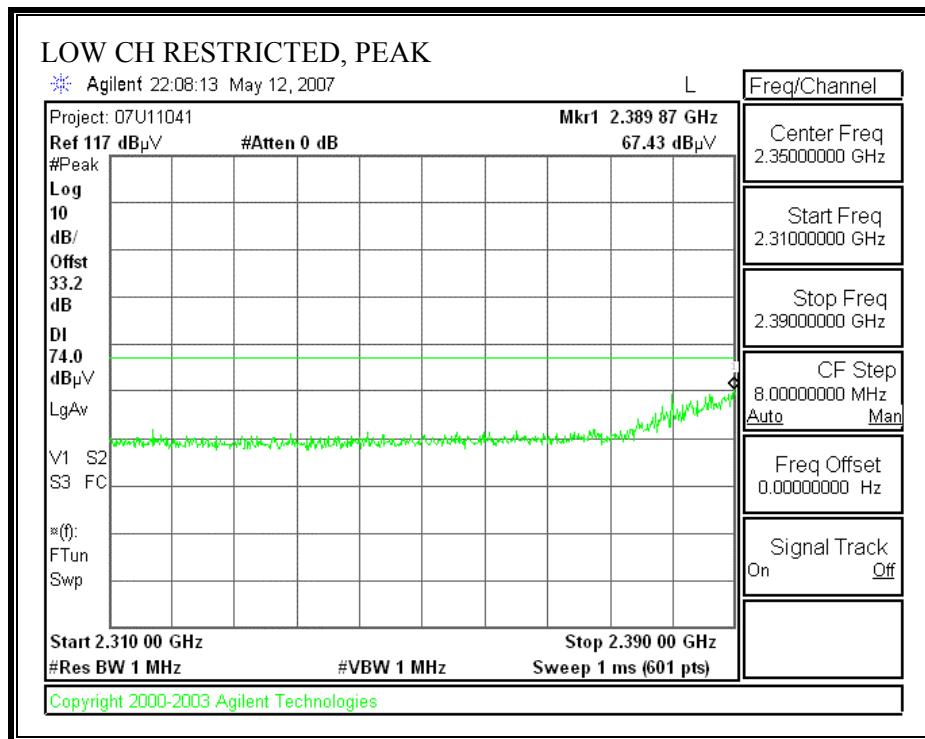


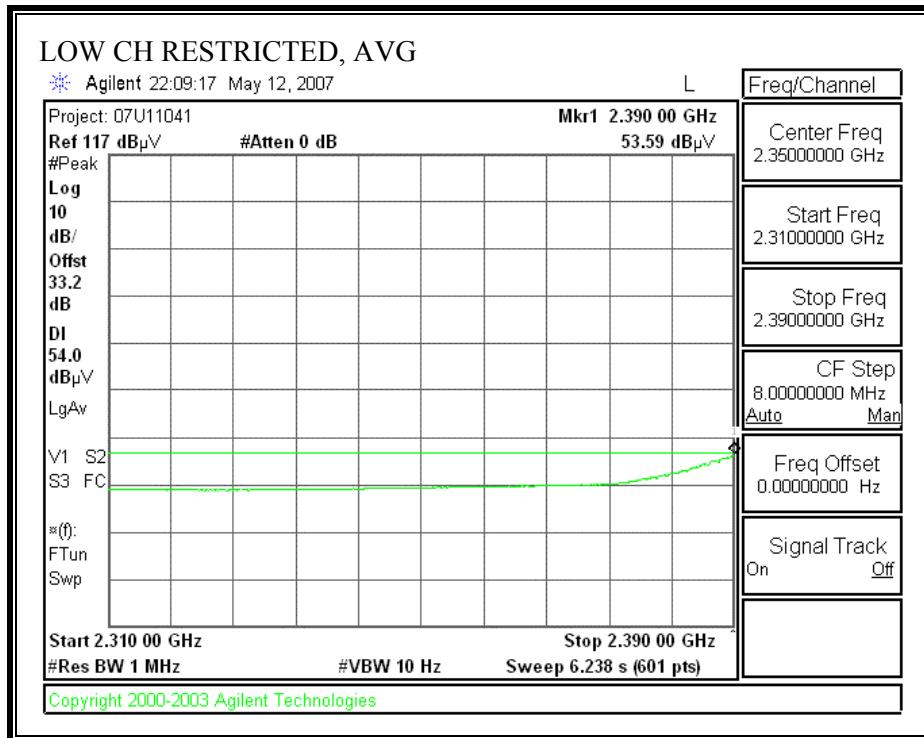
RESTRICTED BANDEDGE (LOW CHANNEL, 2427 MHz, HORIZONTAL)

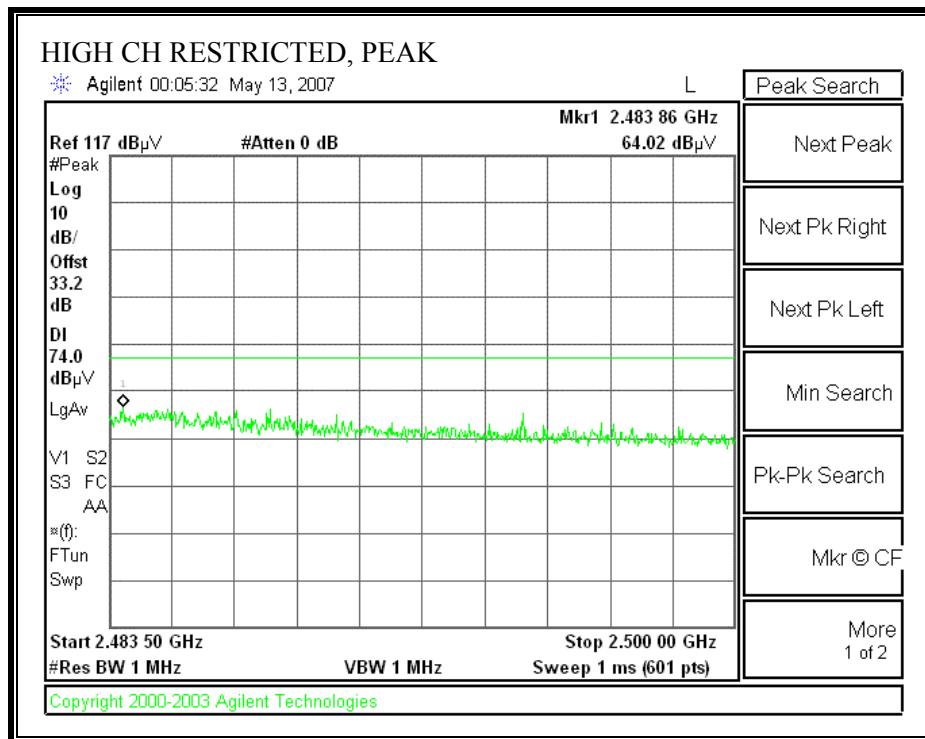


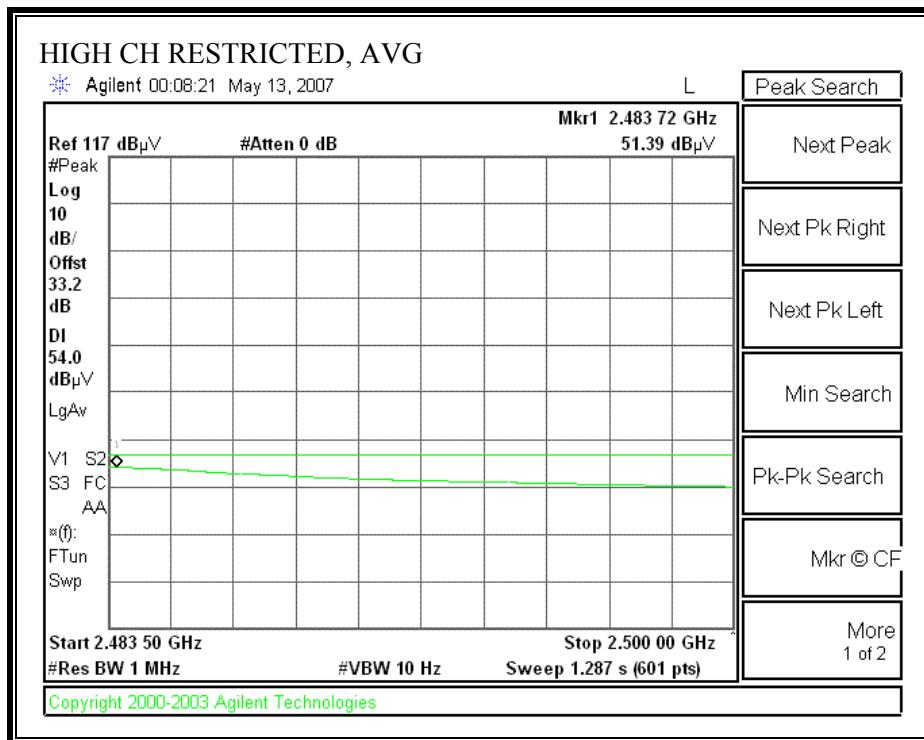


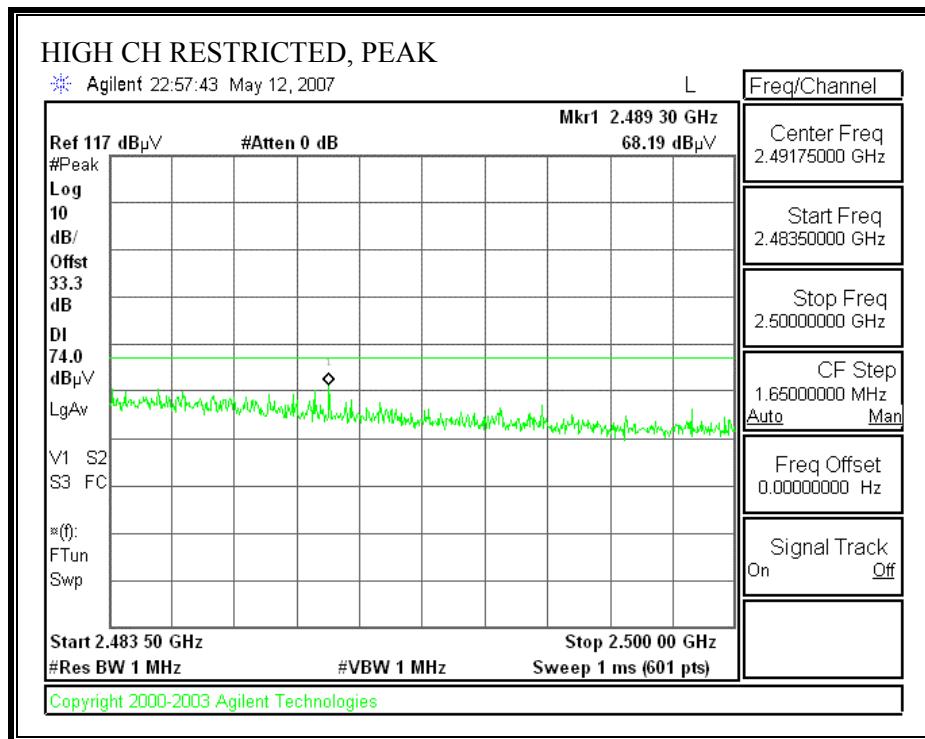
RESTRICTED BANDEDGE (LOW CHANNEL, 2427 MHz, VERTICAL)

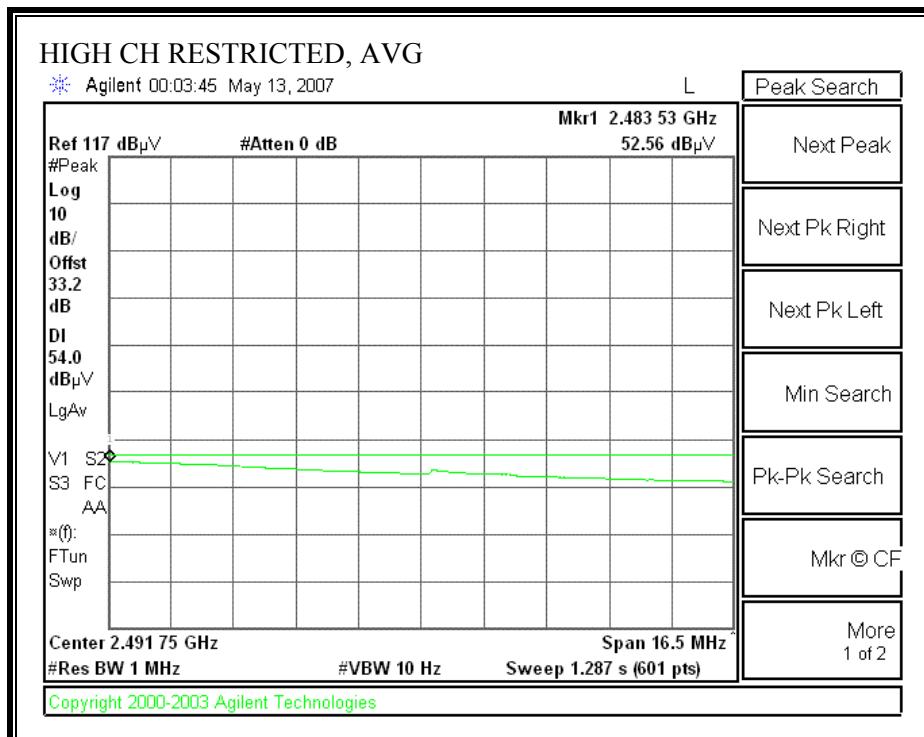


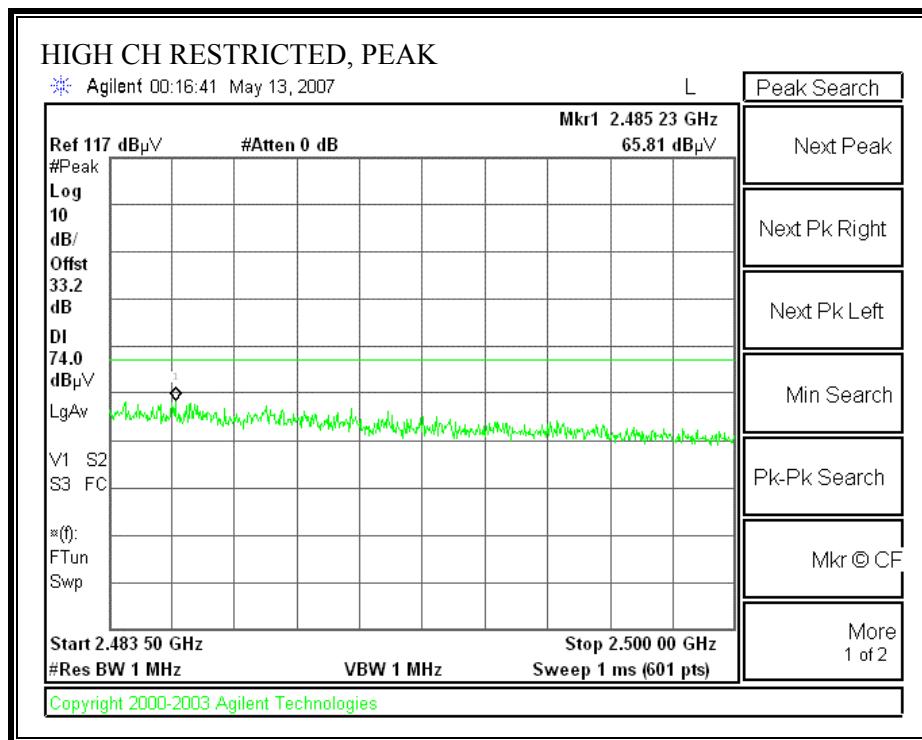


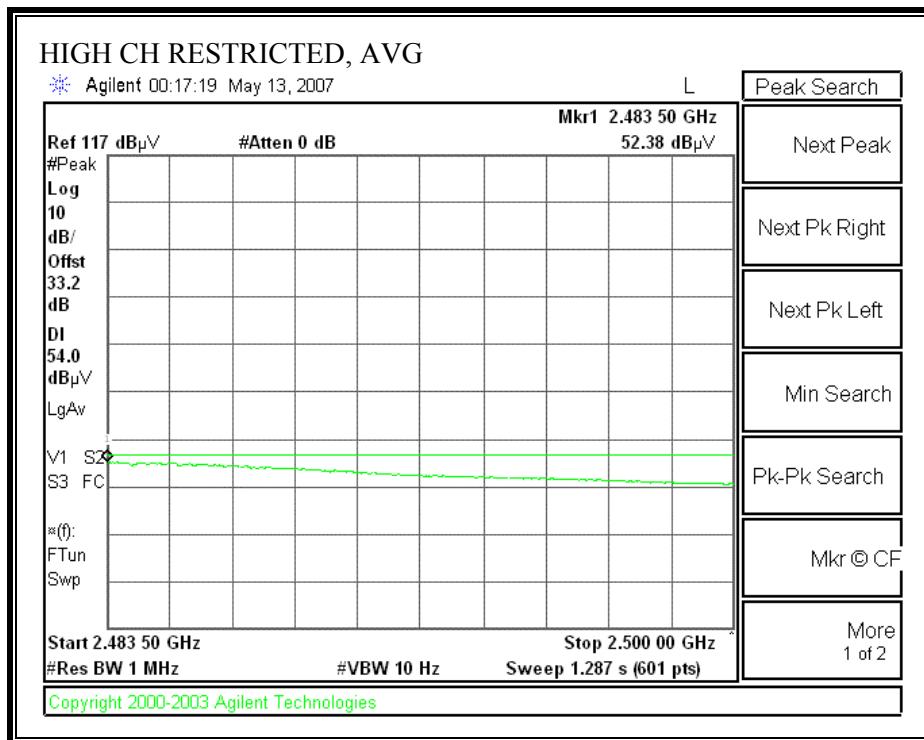
RESTRICTED BANDEDGE (HIGHCHANNEL, 2447MHz, HORIZONTAL)

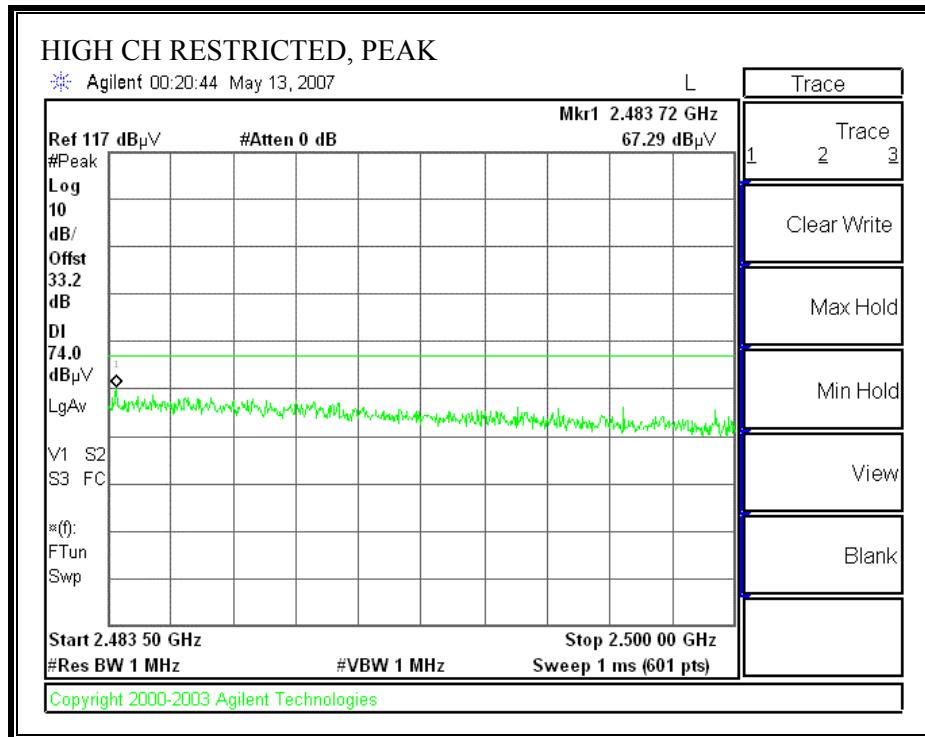


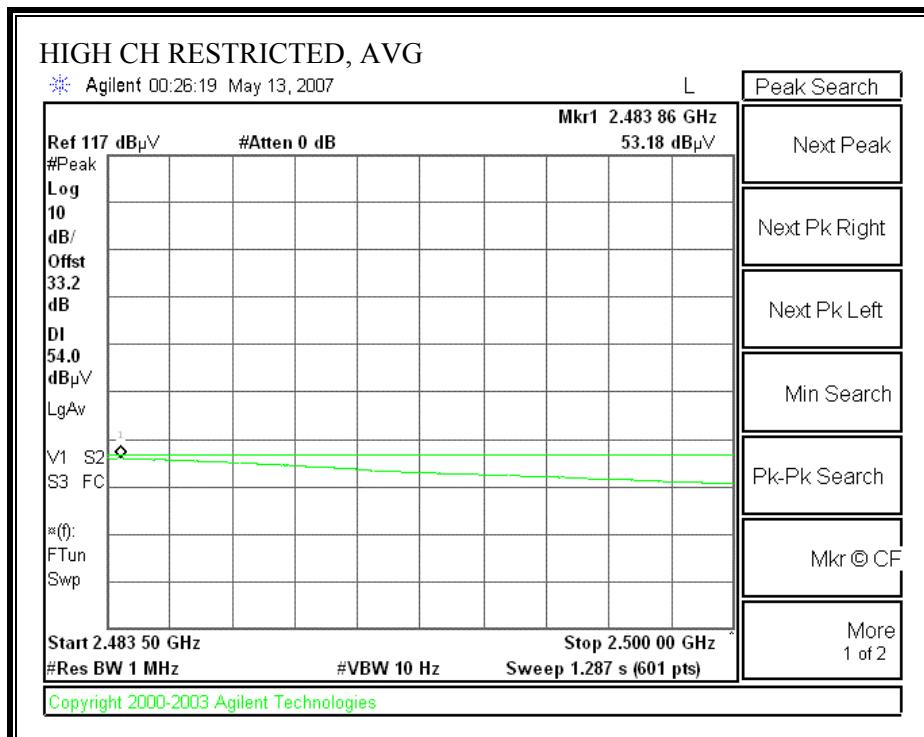
RESTRICTED BANDEDGE (HIGH CHANNEL, 2447 MHz, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, 2452 MHz, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, 2452 MHz, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS (11n 40 MHz SISO)

High Frequency Measurement Compliance Certification Services															
Company:	Broadcom														
Project #:	07U11041														
Date:	5/8/2007														
Test Engineer:	Mengistu Mekuria														
Configuration:	EUT Only														
Mode:	Transmit, 11n mode 2.4GHz (40MHz SISO)														
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			
						Gordon 203134001			HPF_2.7GHz						
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(2422MHz)															
4.844	3.0	40.1	28.5	33.3	6.9	-34.8	0.0	0.5	46.1	34.4	74	54	-27.9	-19.6	V
4.844	3.0	40.0	29.1	33.3	6.9	-34.8	0.0	0.5	45.9	35.0	74	54	-28.1	-19.0	H
Mid Ch(2447MHz)															
4.894	3.0	48.2	45.6	33.4	6.9	-34.8	0.0	0.5	54.2	51.6	74	54	-19.8	-2.4	V
9.788	3.0	36.3	24.1	36.8	9.8	-33.2	0.0	0.7	50.3	38.2	74	54	-23.7	-15.8	V
4.894	3.0	46.8	44.3	33.4	6.9	-34.8	0.0	0.5	52.9	50.4	74	54	-21.1	-3.6	H
9.788	3.0	37.0	24.3	36.8	9.8	-33.2	0.0	0.7	51.1	38.4	74	54	-22.9	-15.6	H
Hi Ch(2452MHz)															
4.904	3.0	39.4	29.8	33.4	7.0	-34.8	0.0	0.5	45.4	35.9	74	54	-28.6	-18.1	V
4.904	3.0	39.1	27.2	33.4	7.0	-34.8	0.0	0.5	45.1	33.3	74	54	-28.9	-20.7	H
No other emissions were detected above 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										

7.5.3. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND

802.11a Legacy Mode

HARMONICS AND SPURIOUS EMISSIONS (802.11a LEGACY MODE)

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Company:	Broadcom Corporation														
Project #:	07U11041														
Date:	5/10/2007														
Test Engineer:	Tom Chen														
Configuration:	EUT Only														
Mode:	Transmit, 11a mode Legacy														
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T60; S/N: 2238 @3m		T144 Miteq 3008A00931						FCC 15.209							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		B-5m Chamber		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz			
								HPF_7.6GHz				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. (5745MHz)															
11.490	3.0	48.9	34.3	37.4	11.8	-35.9	0.0	0.7	63.0	48.4	74	54	-11.0	-5.6	V
11.490	3.0	49.5	34.8	37.4	11.8	-35.9	0.0	0.7	63.6	48.9	74	54	-10.4	-5.1	H
Mid CH. (5785MHz)															
11.570	3.0	51.6	36.8	37.4	11.9	-35.8	0.0	0.7	65.8	51.0	74	54	-8.2	-3.0	V
11.570	3.0	51.3	37.3	37.4	11.9	-35.8	0.0	0.7	65.5	51.5	74	54	-8.5	-2.5	H
Hi CH. (5825MHz)															
11.650	3.0	52.0	38.5	37.4	12.0	-35.7	0.0	0.7	66.4	52.9	74	54	-7.6	-1.1	V
11.650	3.0	49.0	36.5	37.4	12.0	-35.7	0.0	0.7	63.4	50.9	74	54	-10.6	-3.1	H
No other emissions were detected above 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										

802.11n Mode 20 MHz SISO is covered by the worst case 802.11a Mode Legacy testing.

802.11n MODE 40 MHz SISO**HARMONICS AND SPURIOUS EMISSIONS (802.11n 40 MHz SISO MODE)**

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber																																																																																																	
Company:	Broadcom																																																																																																
Project #:	07U11041																																																																																																
Date:	5/9/2007																																																																																																
Test Engineer:	Mengistu Mekuria																																																																																																
Configuration:	EUT Only																																																																																																
Mode:	Transmit, 11n 40MHz SISO																																																																																																
Test Equipment:																																																																																																	
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz						Limit																																																																																					
T60; S/N: 2238 @3m		T145 Agilent 3008A005t										FCC 15.209																																																																																					
Hi Frequency Cables																																																																																																	
2 foot cable		3 foot cable		12 foot cable		B-5m Chamber		HPF		Reject Filter		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)																																																																																		
Mid CH. (5755MHz)																																																																																																	
11.510	3.0	45.8	30.4	37.4	11.9	-33.1	0.0	0.7	62.7	47.2	74	54	-11.3	-6.8	V																																																																																		
11.510	3.0	43.2	29.3	37.4	11.9	-33.1	0.0	0.7	60.1	46.2	74	54	-13.9	-7.8	H																																																																																		
Hi CH. (5795MHz)																																																																																																	
11.575	3.0	45.1	31.9	37.4	11.9	-33.0	0.0	0.7	62.1	49.0	74	54	-11.9	-5.0	V																																																																																		
11.575	3.0	45.0	32.5	37.4	11.9	-33.0	0.0	0.7	62.1	49.5	74	54	-11.9	-4.5	H																																																																																		
<table> <tr> <td>f</td> <td colspan="3">Measurement Frequency</td> <td>Amp</td> <td colspan="3">Preamp Gain</td> <td colspan="3">Avg Lim</td> <td colspan="5">Average Field Strength Limit</td> </tr> <tr> <td>Dist</td> <td colspan="3">Distance to Antenna</td> <td>D Corr</td> <td colspan="3">Distance Correct to 3 meters</td> <td colspan="3">Pk Lim</td> <td colspan="5">Peak Field Strength Limit</td> </tr> <tr> <td>Read</td> <td colspan="3">Analyzer Reading</td> <td>Avg</td> <td colspan="3">Average Field Strength @ 3 m</td> <td colspan="3">Avg Mar</td> <td colspan="5">Margin vs. Average Limit</td> </tr> <tr> <td>AF</td> <td colspan="3">Antenna Factor</td> <td>Peak</td> <td colspan="3">Calculated Peak Field Strength</td> <td colspan="3">Pk Mar</td> <td colspan="5">Margin vs. Peak Limit</td> </tr> <tr> <td>CL</td> <td colspan="3">Cable Loss</td> <td>HPF</td> <td colspan="3">High Pass Filter</td> <td colspan="3"></td> <td colspan="5"></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																																																																																												

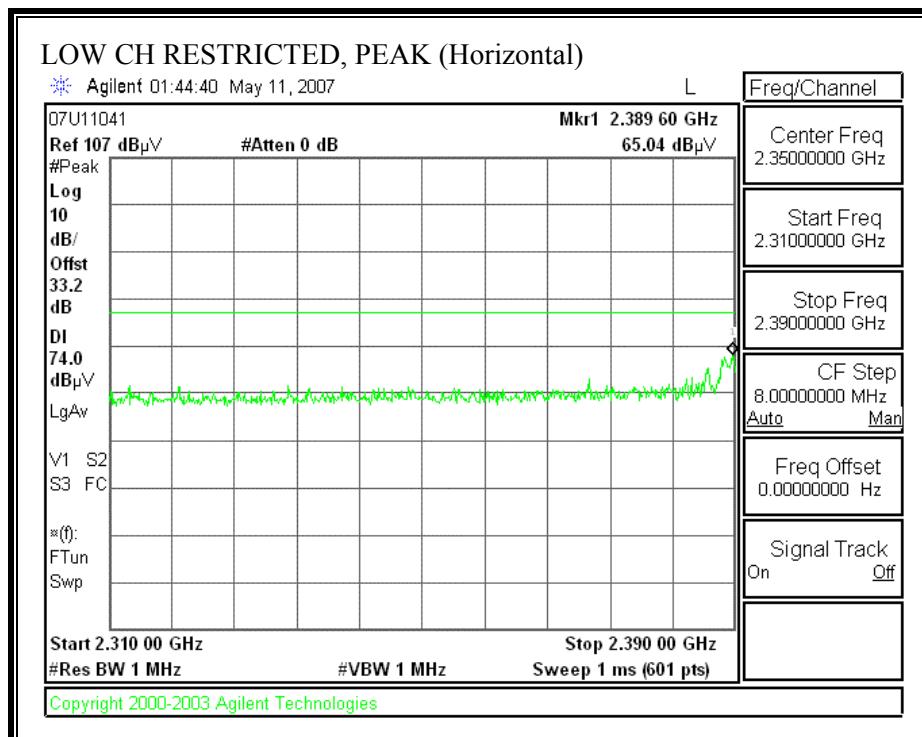
MIMO MODE

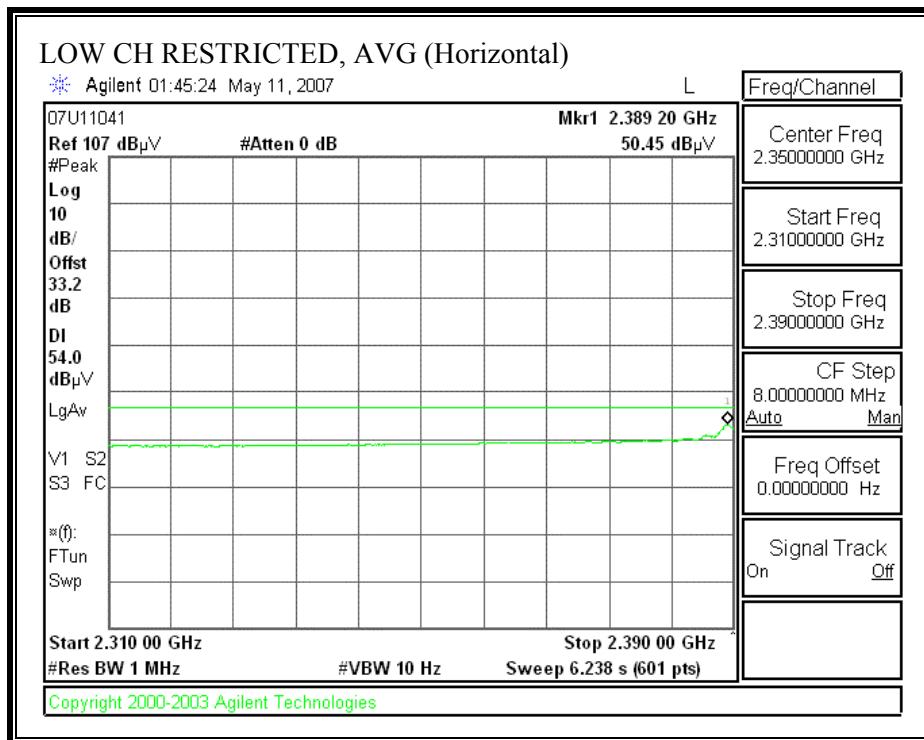
7.5.4. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND

802.11g Mode CDD is covered by the worst-case 802.11n Mode 20 MHz CDD MCS0.

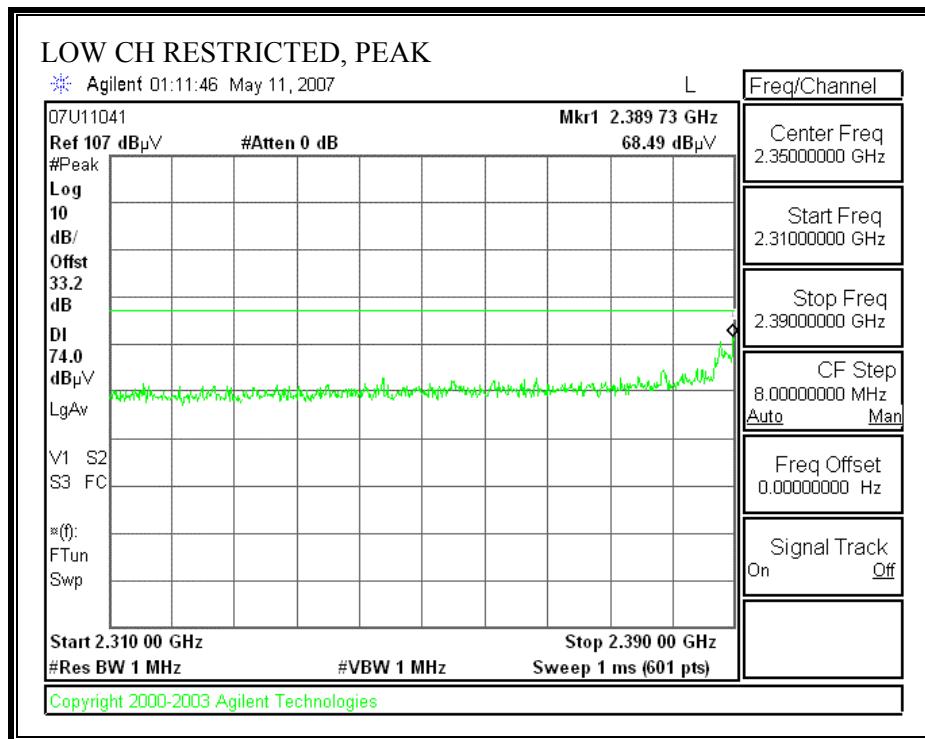
802.11n Mode 20 MHz CDD MCS 0:

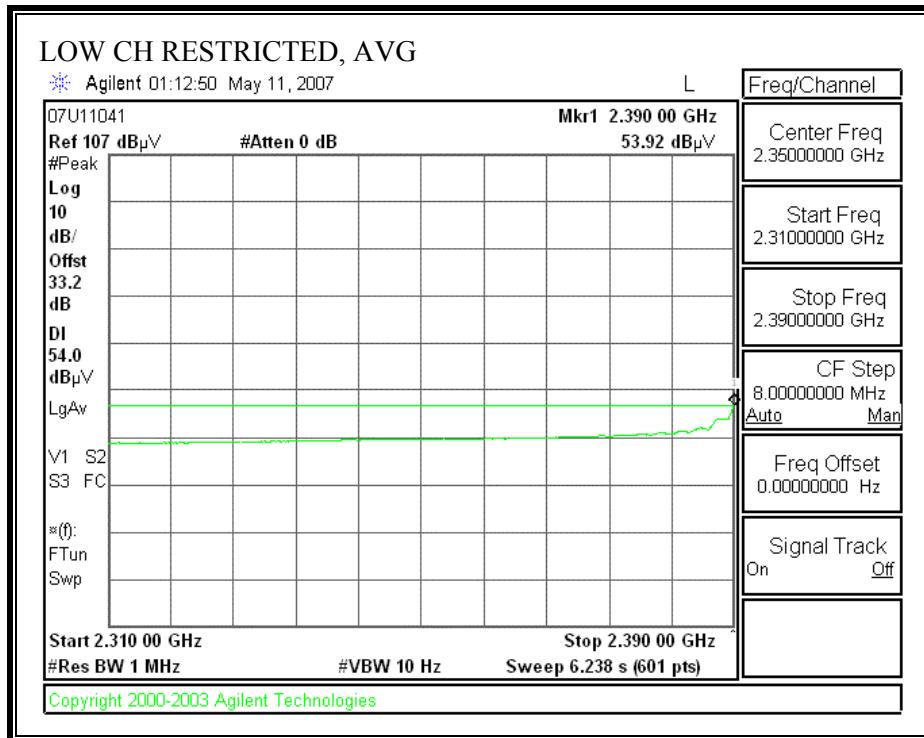
RESTRICTED BANDEDGE (LOW CHANNEL, 2412 MHz, HORIZONTAL)

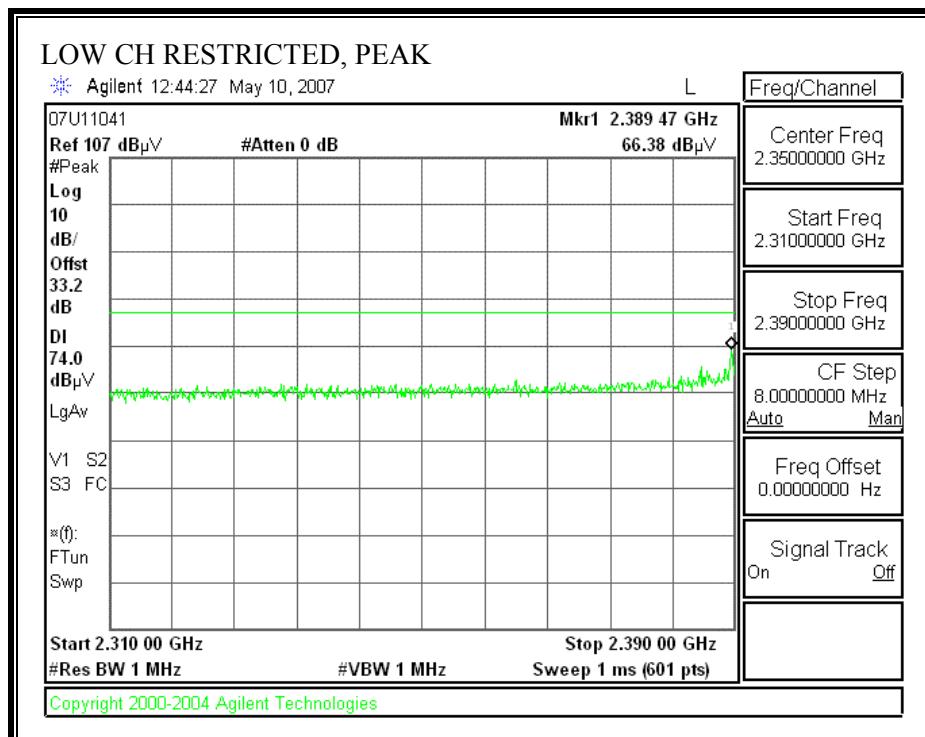


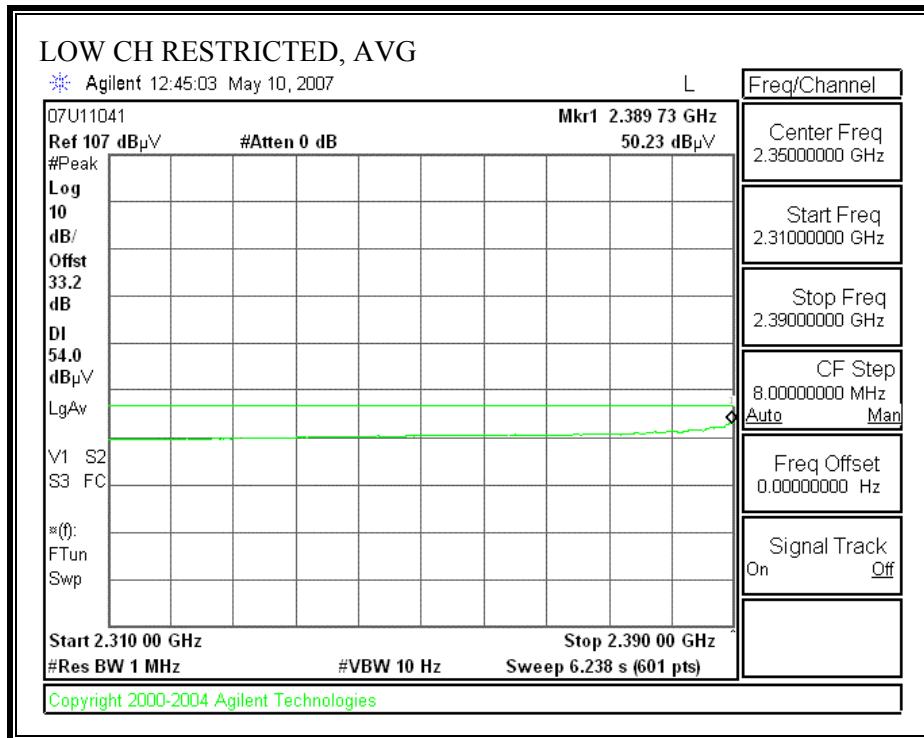


RESTRICTED BANDEDGE (LOW CHANNEL, 2412 MHz, VERTICAL)

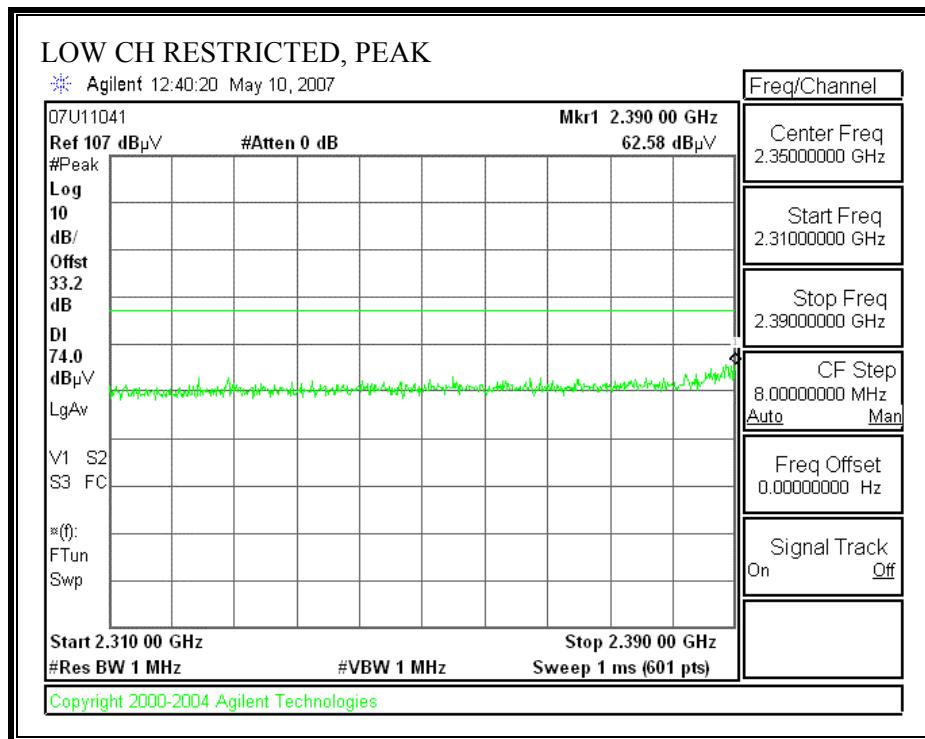


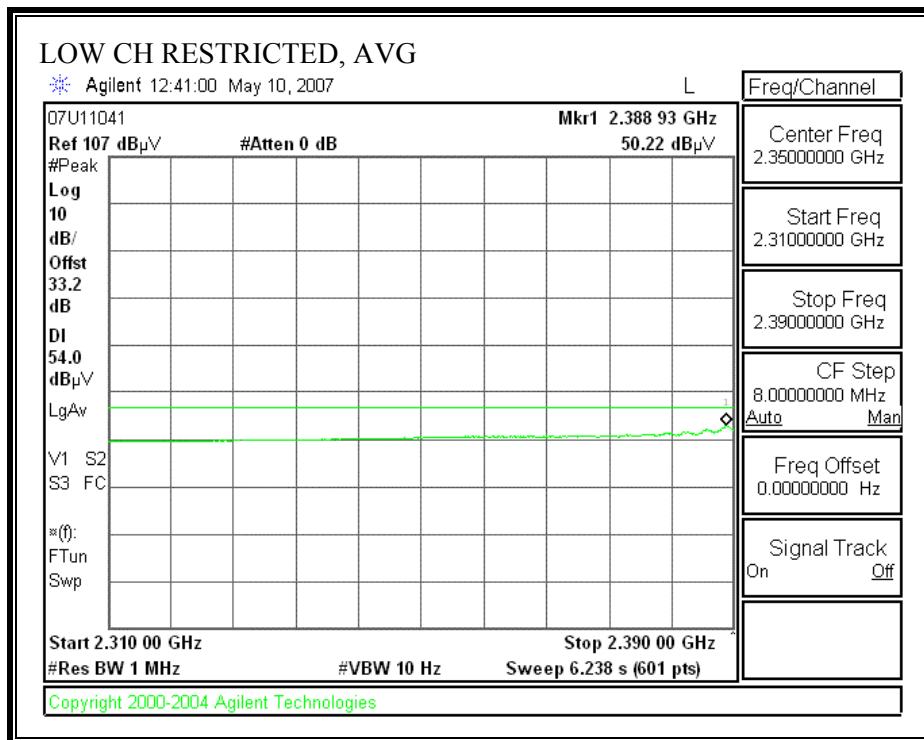


RESTRICTED BANDEDGE (LOW CHANNEL, 2417 MHz, HORIZONTAL)

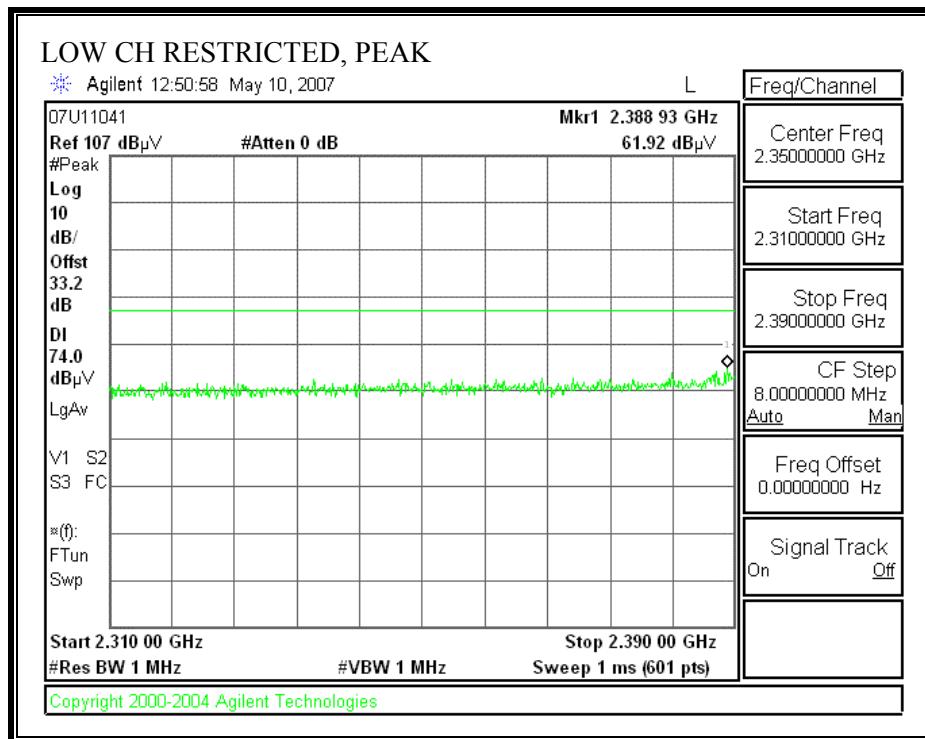


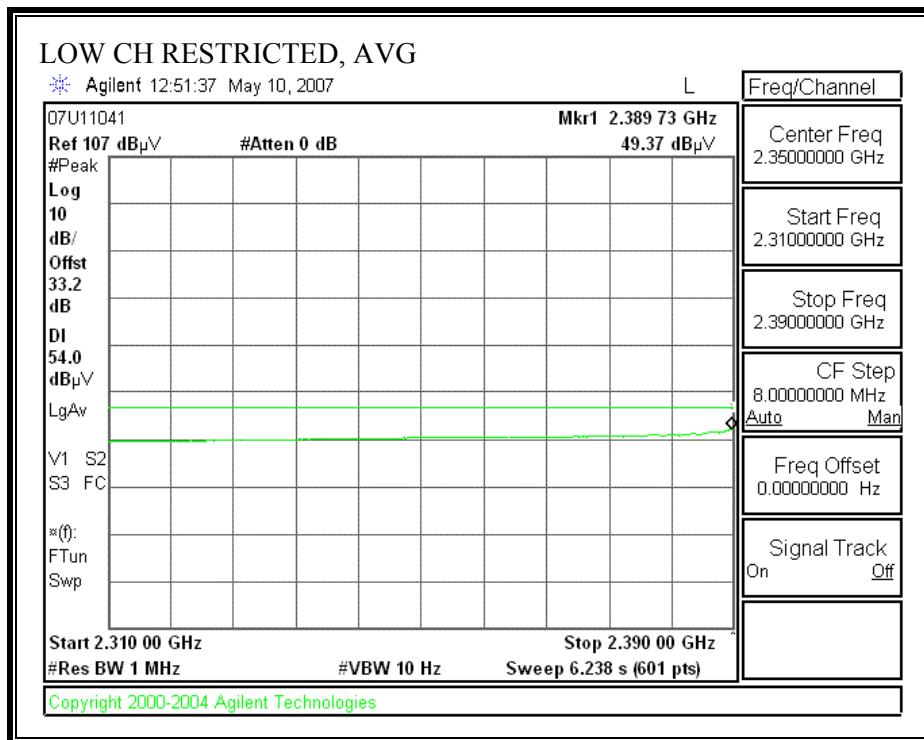
RESTRICTED BANDEDGE (LOW CHANNEL, 2417 MHz, VERTICAL)



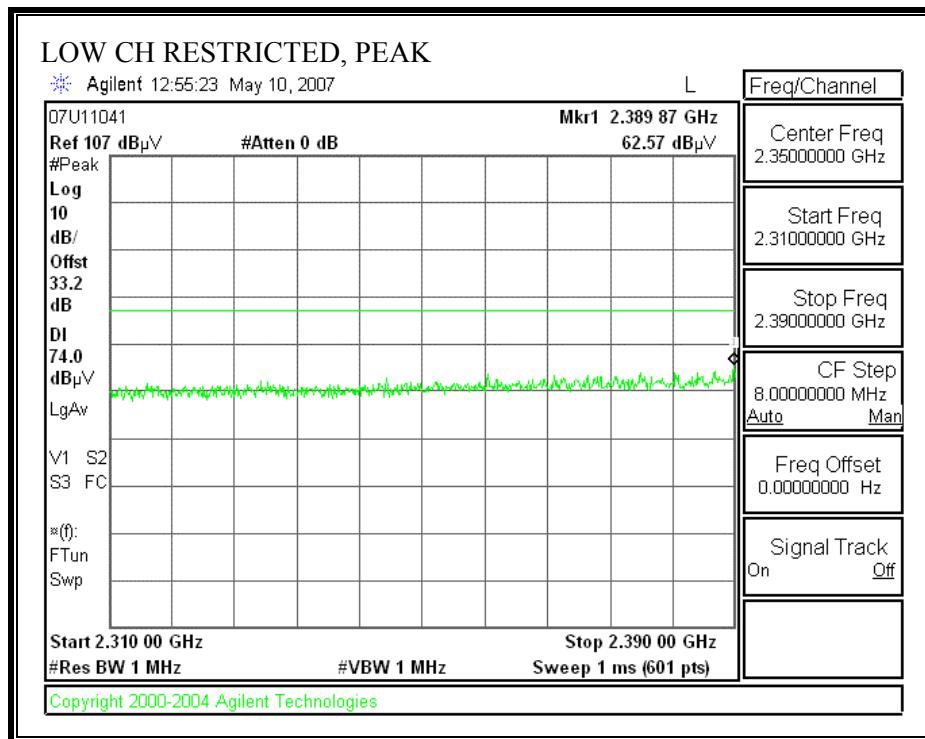


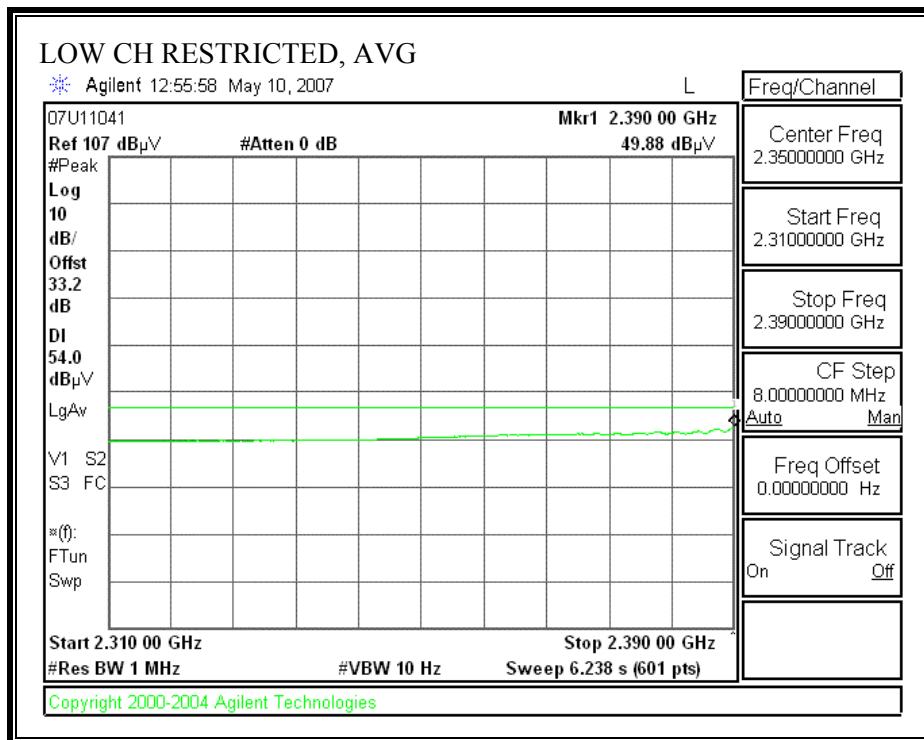
RESTRICTED BANDEDGE (LOW CHANNEL, 2422 MHz, HORIZONTAL)



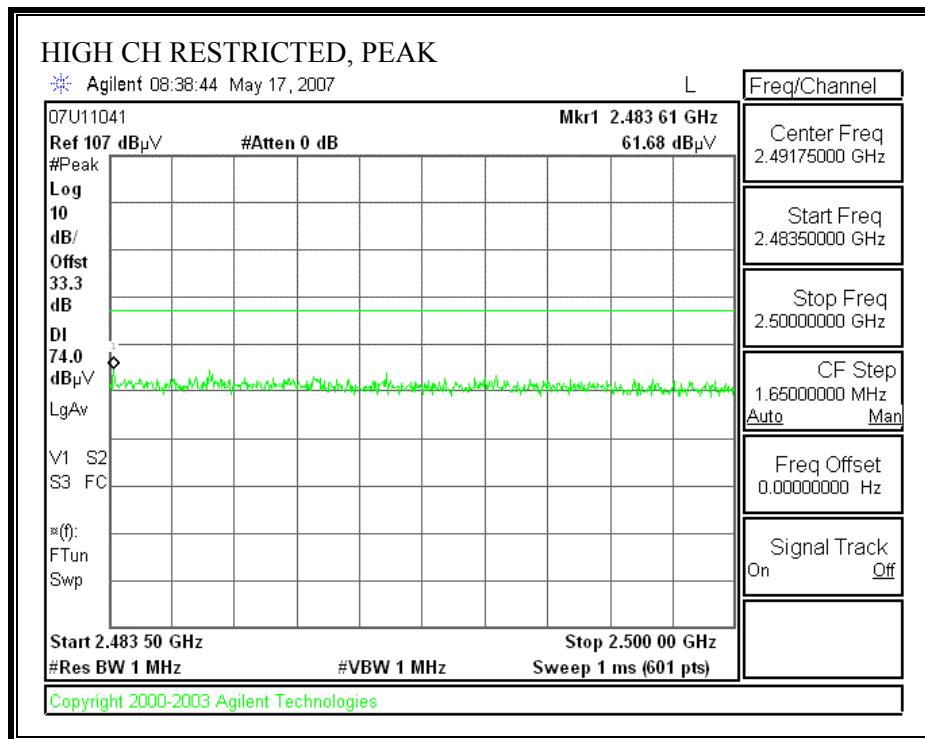


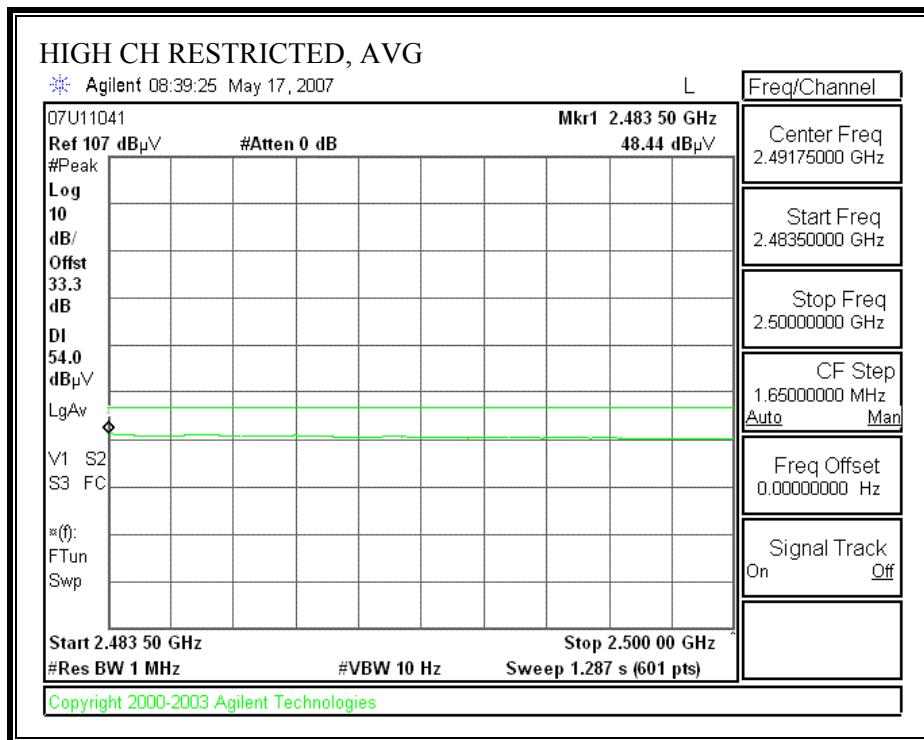
RESTRICTED BANDEDGE (LOW CHANNEL, 2422 MHz, VERTICAL)

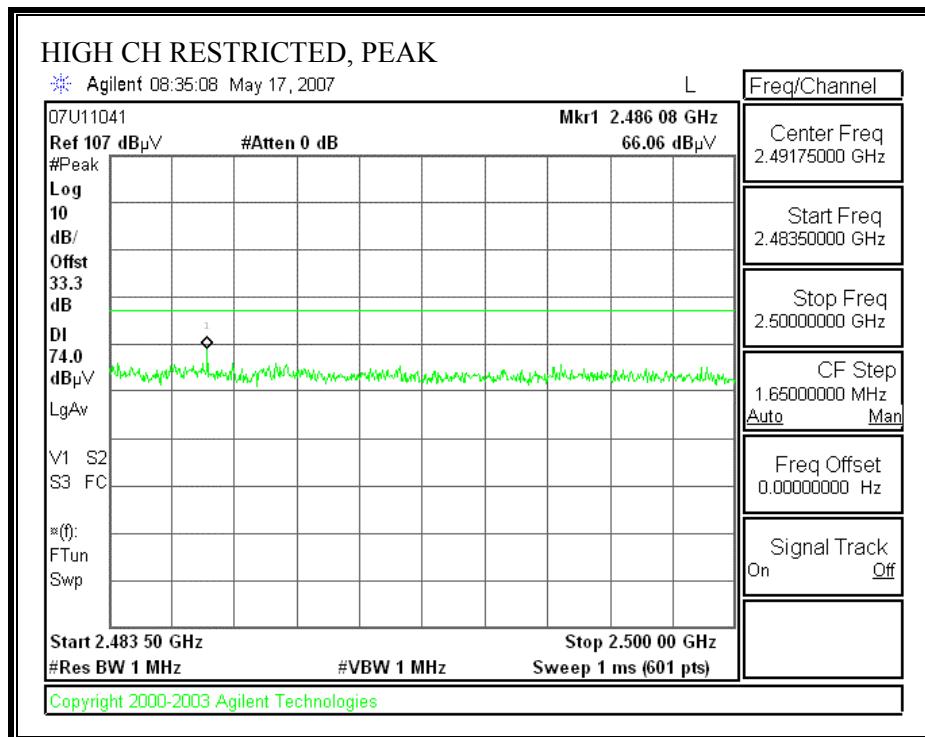


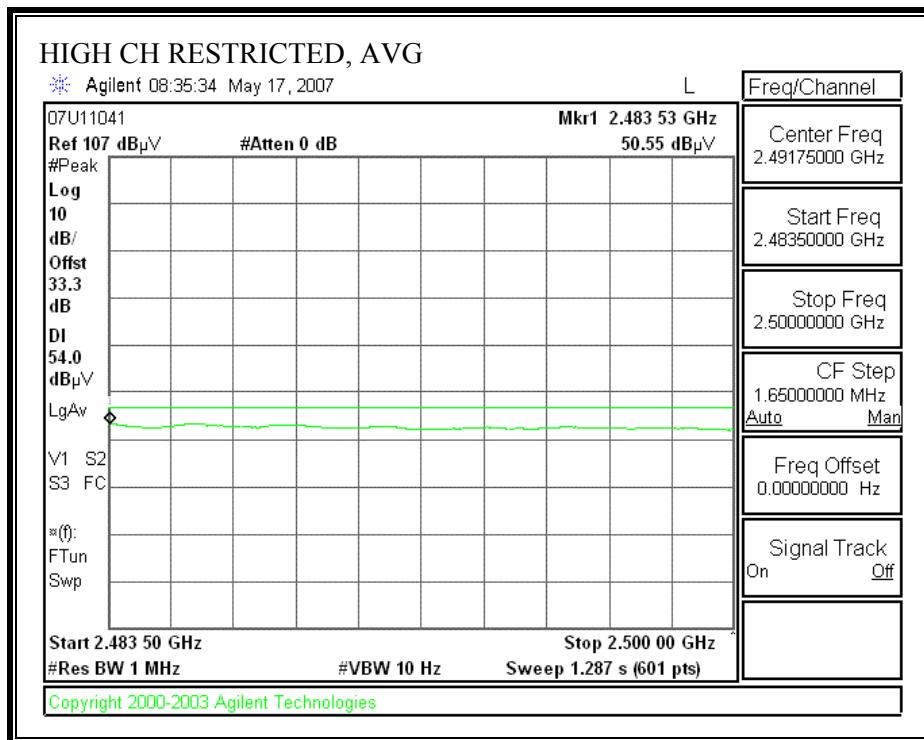


RESTRICTED BANDEDGE (HIGHCHANNEL, 2447 MHz, HORIZONTAL)

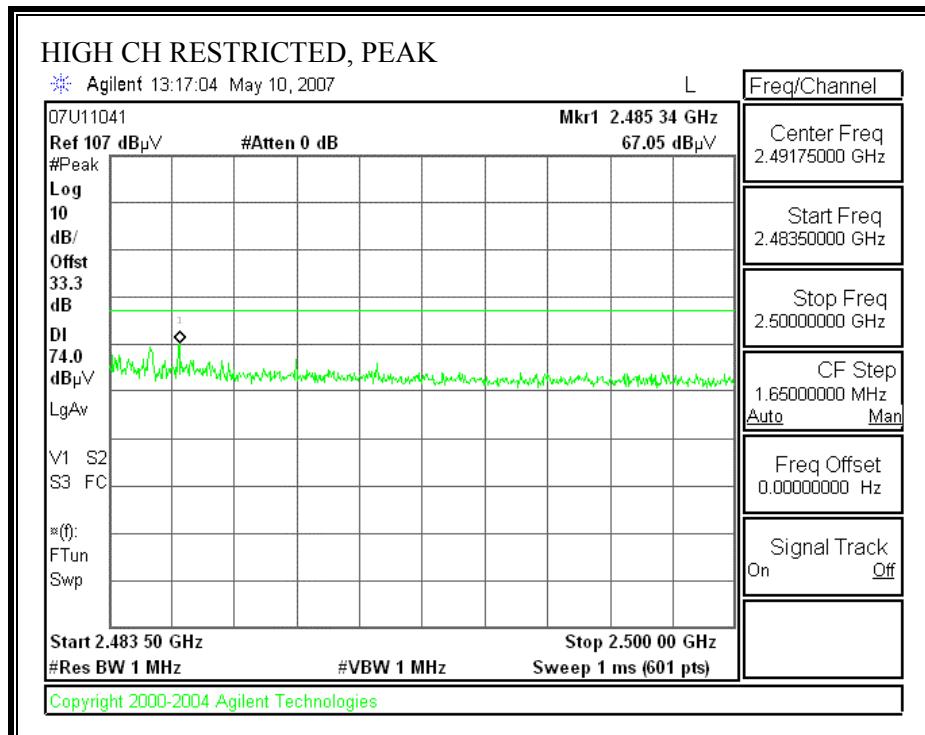


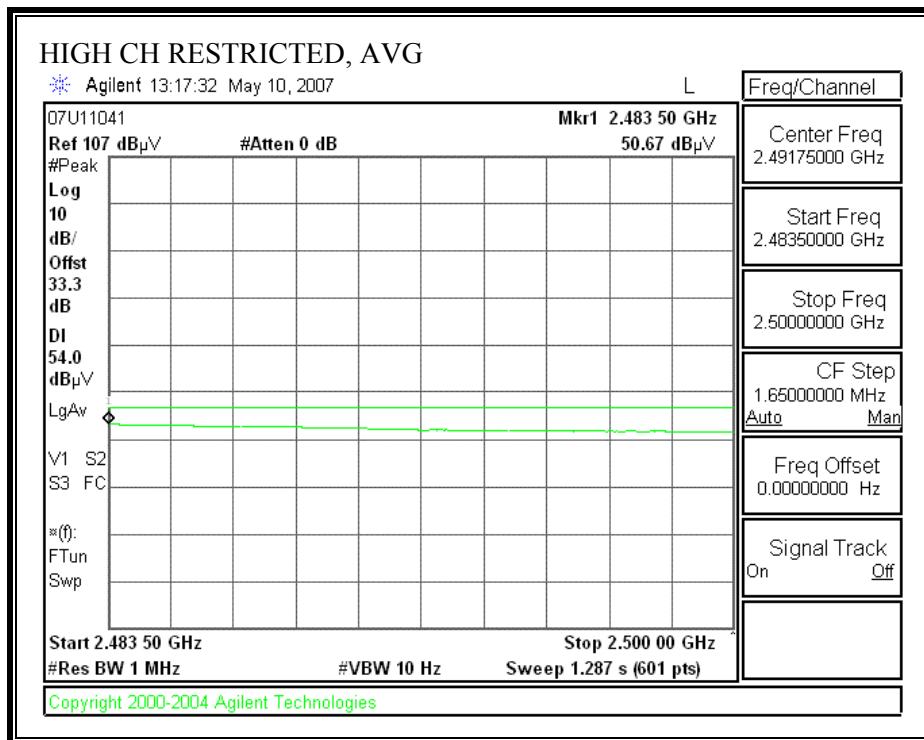


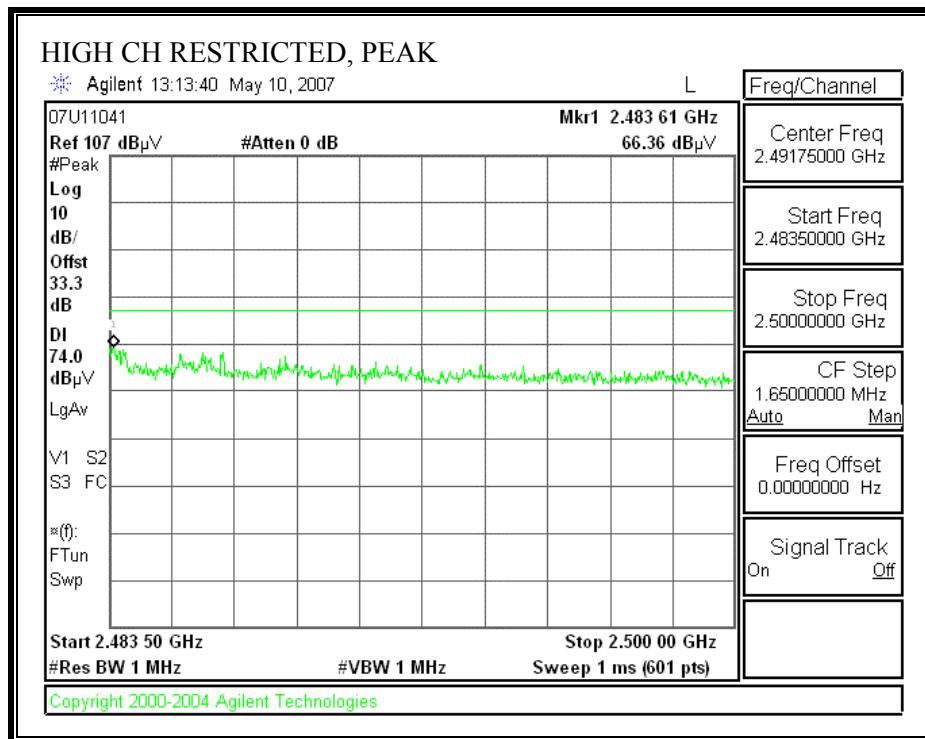
RESTRICTED BANDEDGE (HIGH CHANNEL, 2447 MHz, VERTICAL)

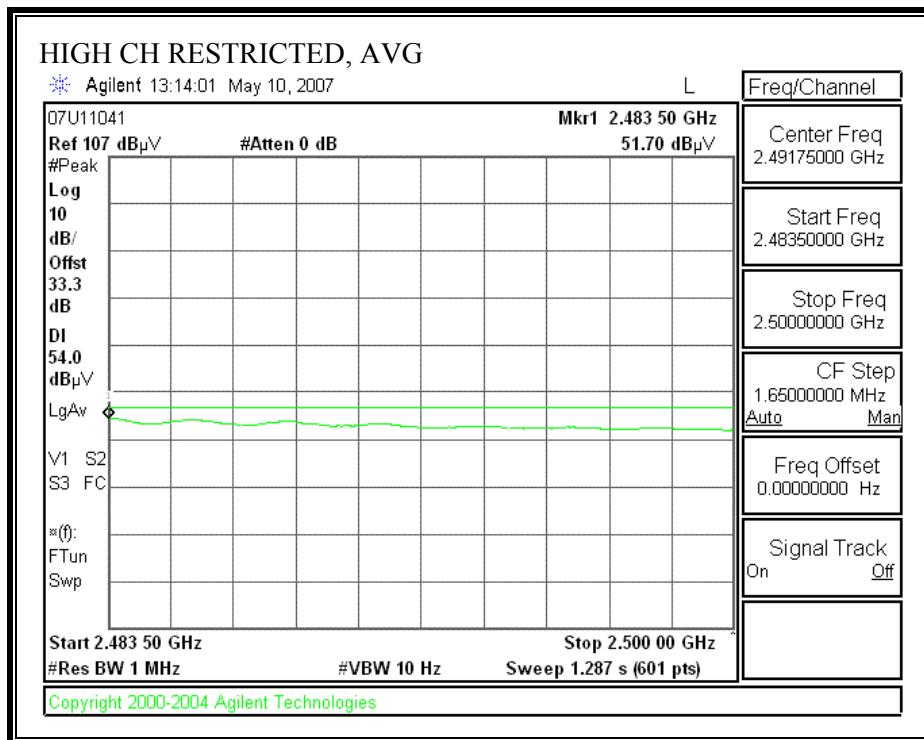


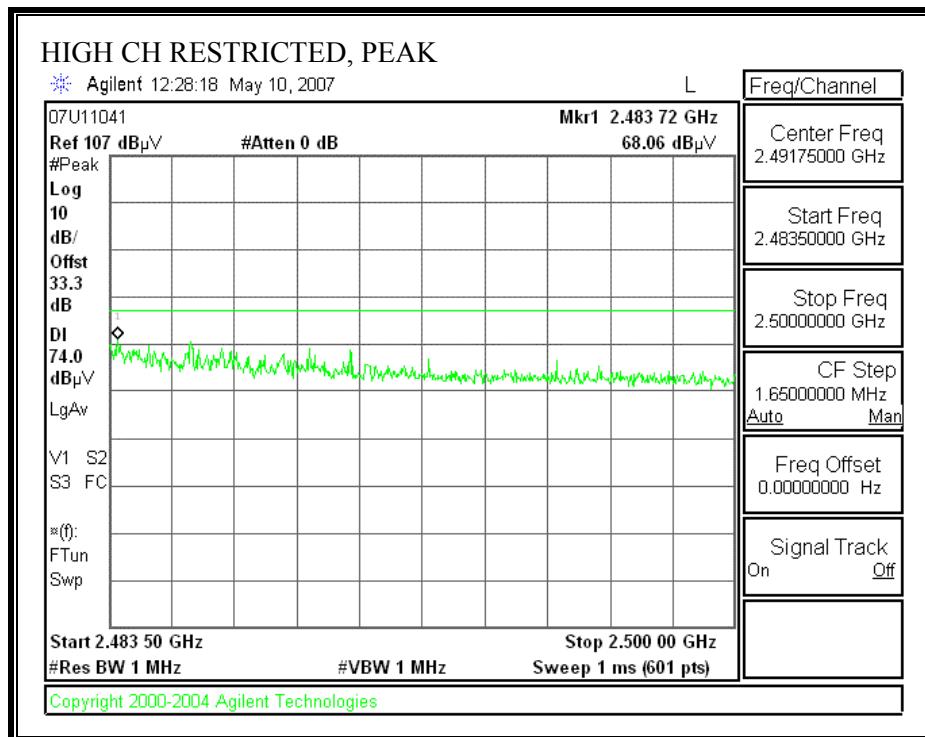
RESTRICTED BANDEDGE (HIGHCHANNEL, 2452 MHz, HORIZONTAL)

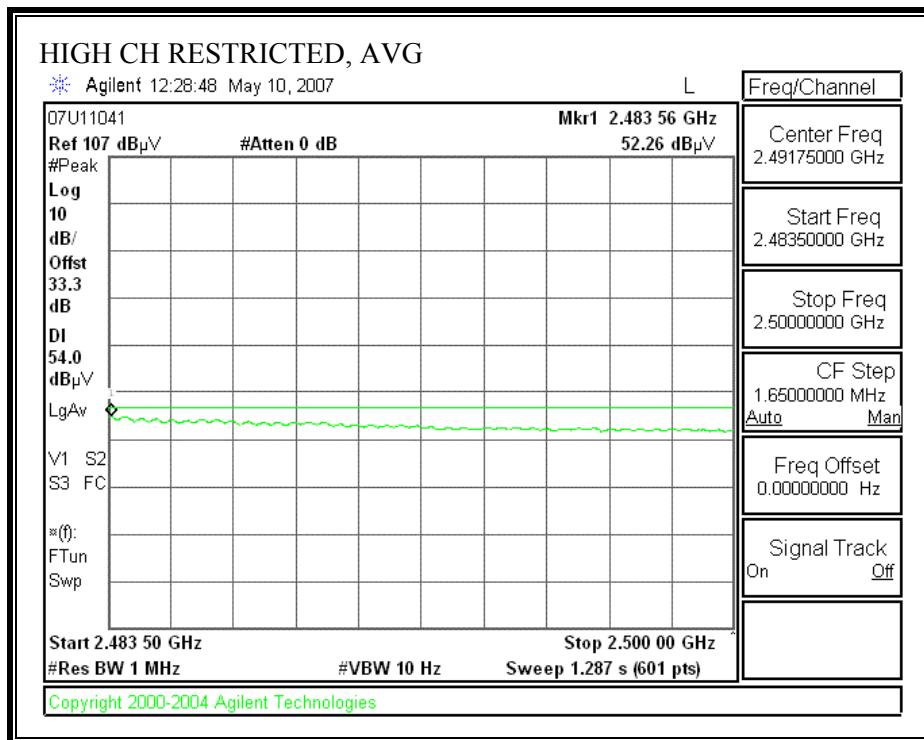


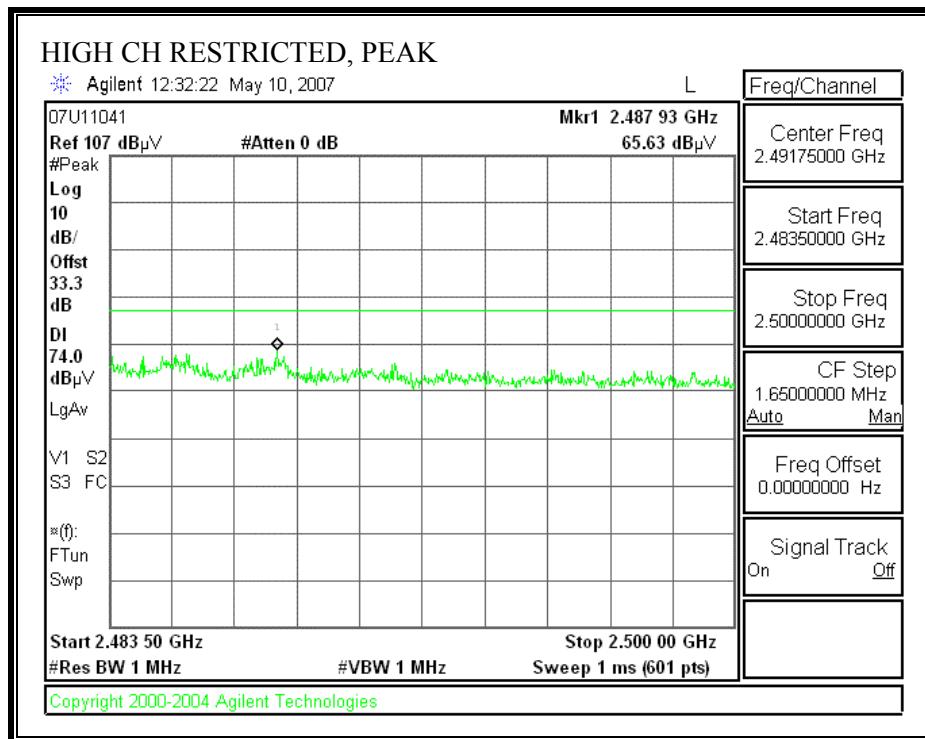


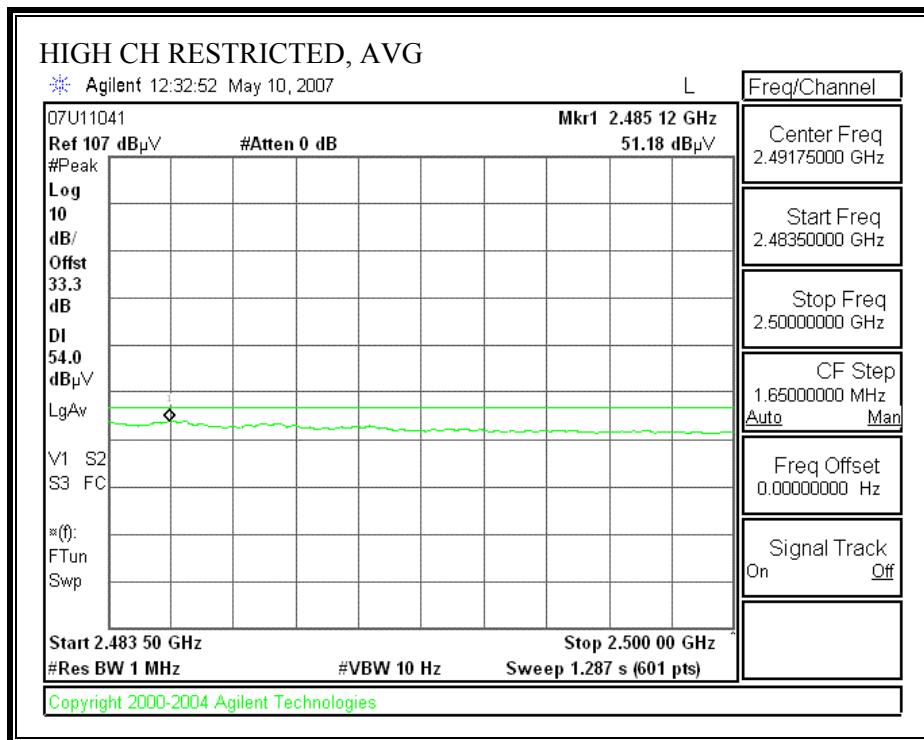
RESTRICTED BANDEDGE (HIGH CHANNEL, 2452 MHz, VERTICAL)

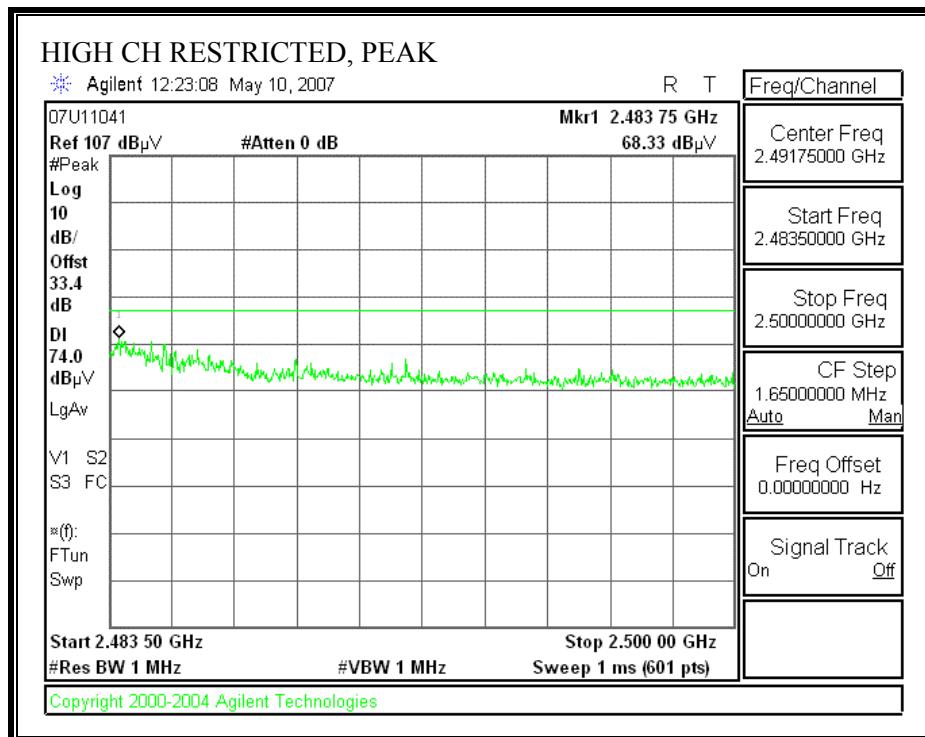


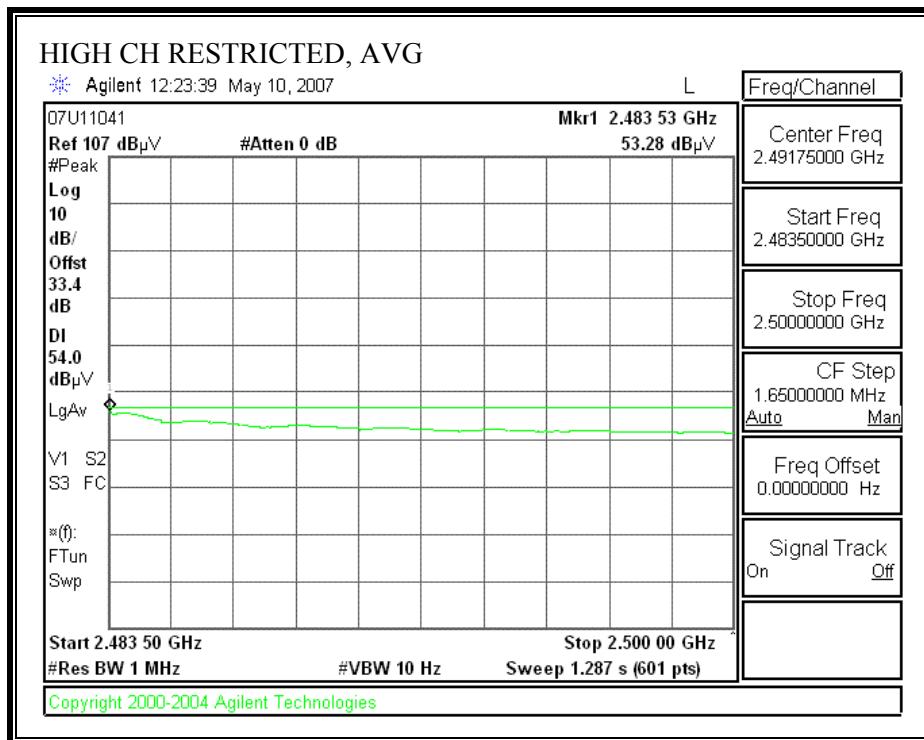
RESTRICTED BANDEDGE (HIGHCHANNEL, 2457 MHz, HORIZONTAL)

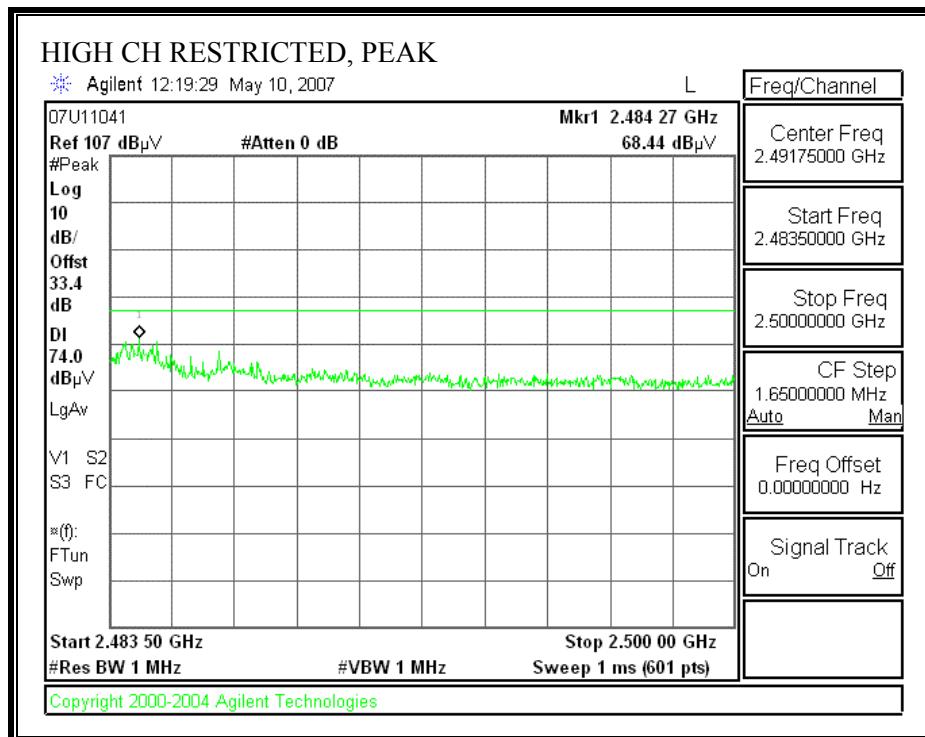


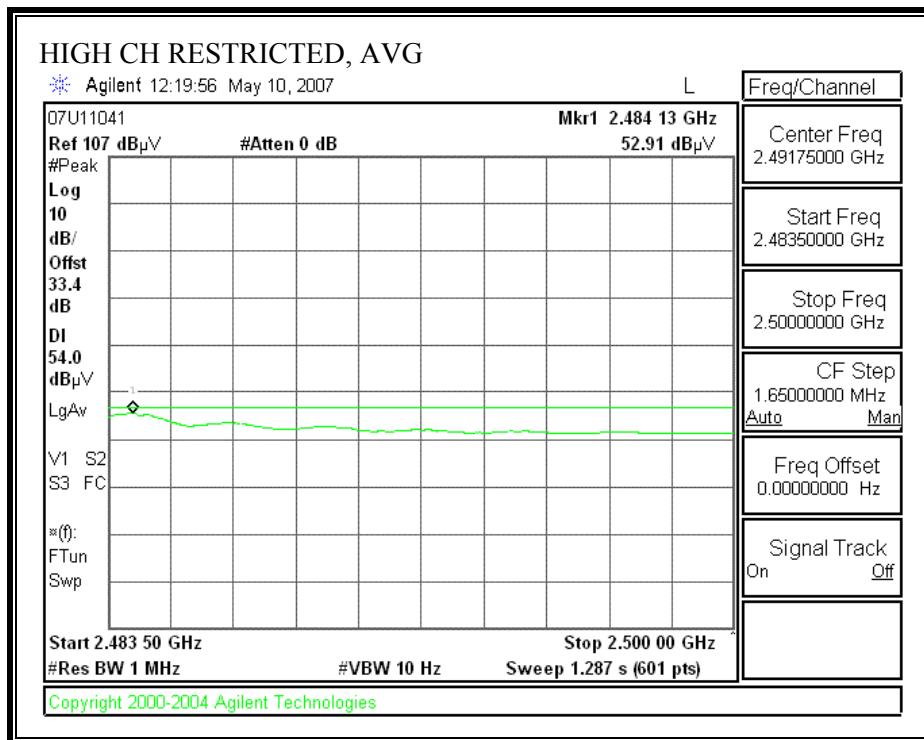
RESTRICTED BANDEDGE (HIGH CHANNEL, 2457 MHz, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, 2462 MHz, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, 2462 MHz, VERTICAL)

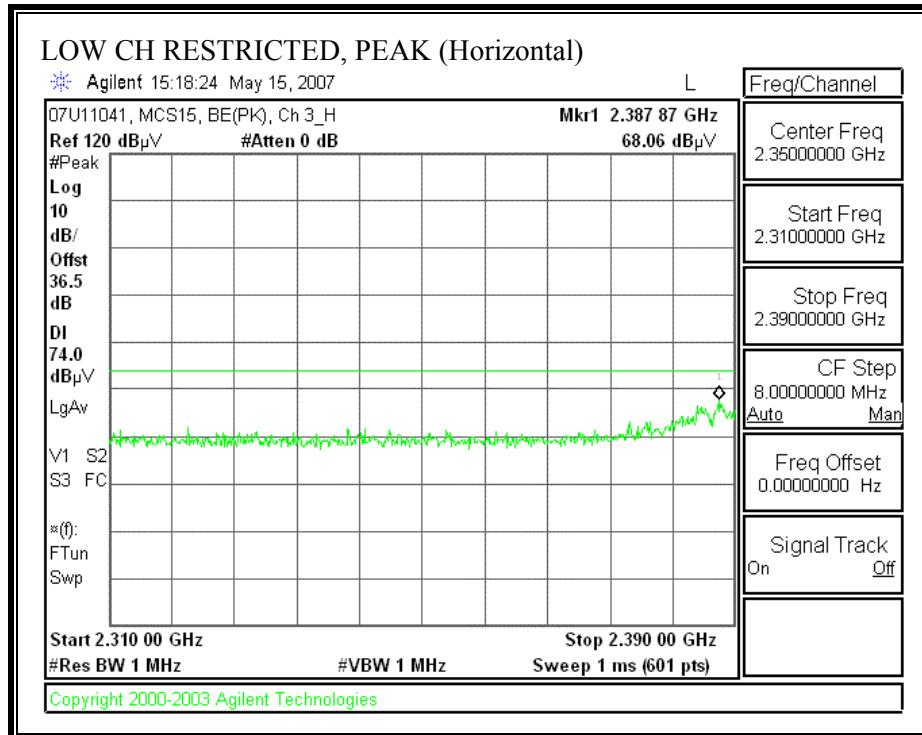


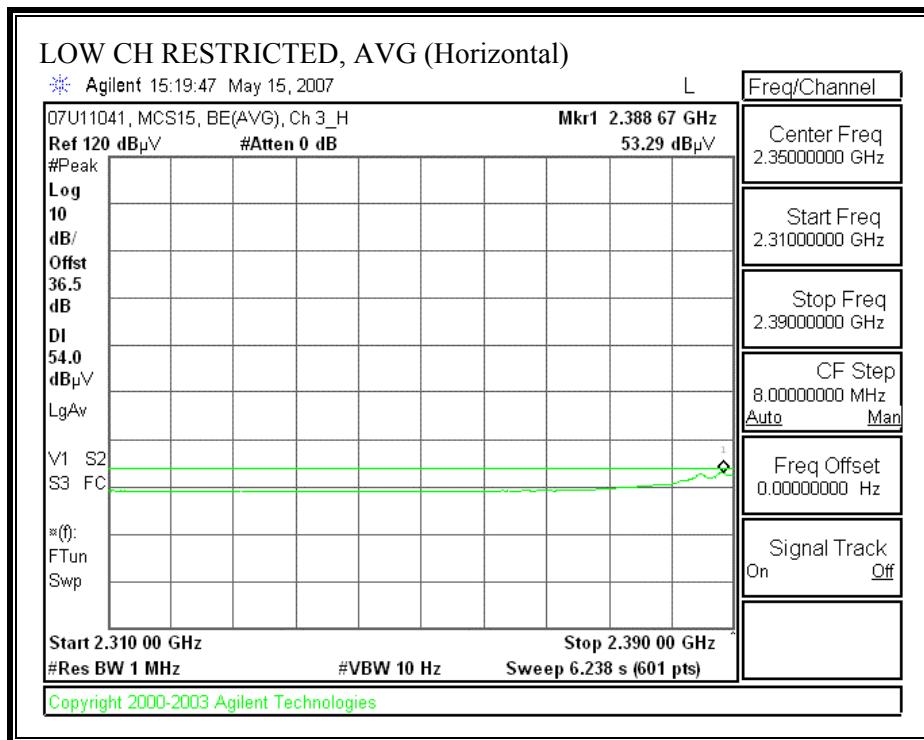
HARMONICS AND SPURIOUS EMISSIONS (802.11n Mode 20 MHz CDD MCS 0)

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Company:	Broadcom														
Project #:	07U11041														
Date:	5/10/2007														
Test Engineer:	Mengistu Mekuria														
Configuration:	EUT Only														
Mode:	Transmit, 11n mode 2.4GHz (20MHz MIMO)														
<u>Test Equipment:</u>															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T144 Miteq 3008A00931						FCC 15.205							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz					
				A-5m Chamber		HPF_2.7GHz				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	48.8	45.4	33.3	6.9	-36.5	0.0	0.5	53.0	49.6	74	54	-21.0	-4.4	V
4.824	3.0	50.2	46.3	33.3	6.9	-36.5	0.0	0.5	54.4	50.5	74	54	-19.6	-3.5	H
V															
Mid CH. (2437MHz)															
4.874	3.0	47.6	44.1	33.4	6.9	-36.5	0.0	0.5	51.9	48.4	74	54	-22.1	-5.6	V
7.311	3.0	38.8	25.4	35.0	8.4	-36.2	0.0	0.5	46.5	33.1	74	54	-27.5	-20.9	V
4.874	3.0	44.3	40.0	33.4	6.9	-36.5	0.0	0.5	48.7	44.3	74	54	-25.3	-9.7	H
7.311	3.0	38.3	25.4	35.0	8.4	-36.2	0.0	0.5	46.0	33.1	74	54	-28.0	-20.9	H
V															
Hi CH. (2462MHz)															
4.924	3.0	48.8	36.9	33.4	7.0	-36.5	0.0	0.5	53.3	41.4	74	54	-20.7	-12.6	V
4.924	3.0	47.3	35.2	33.4	7.0	-36.5	0.0	0.5	51.7	39.7	74	54	-22.3	-14.3	H
V															
No other emissions were detected above 3rd Harmonic.															
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										

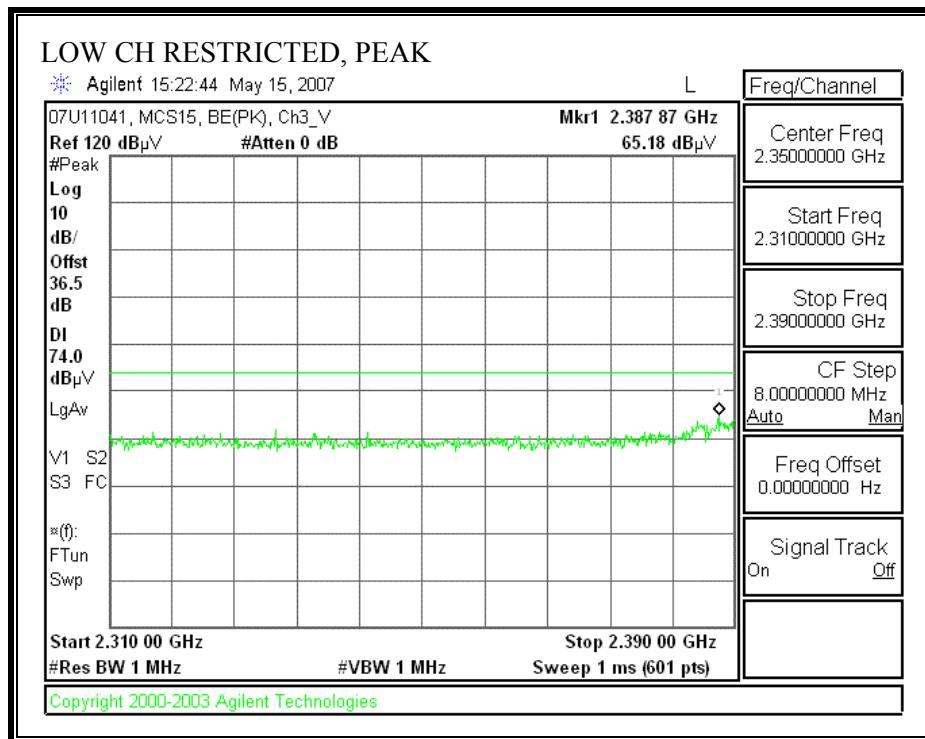
802.11n Mode 40 MHz CDD MCS 15:

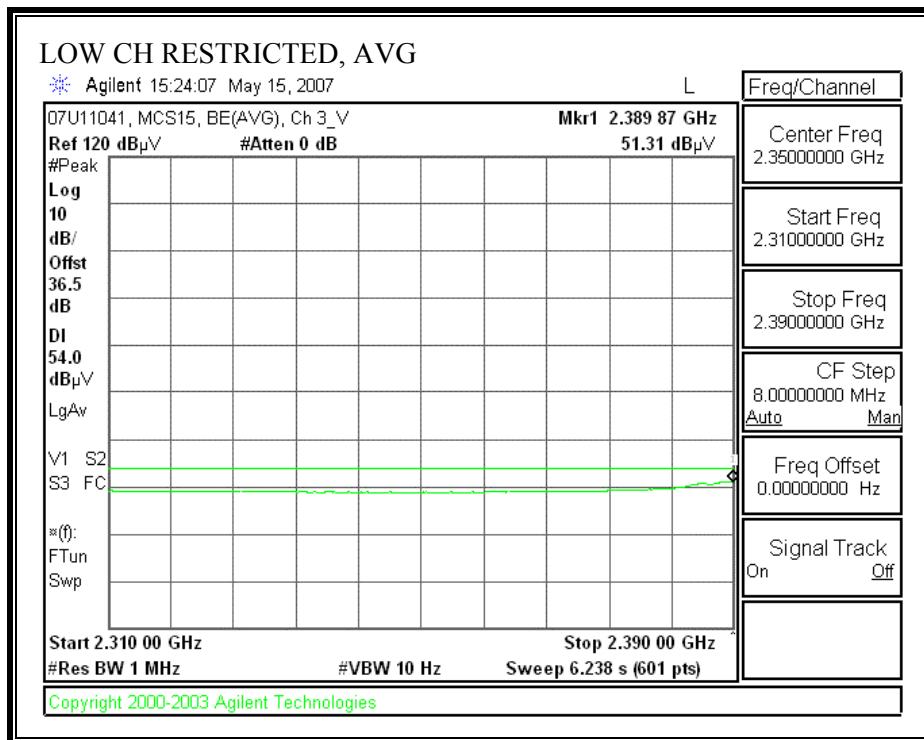
RESTRICTED BANDEDGE (LOW CHANNEL, 2422 MHz, HORIZONTAL)



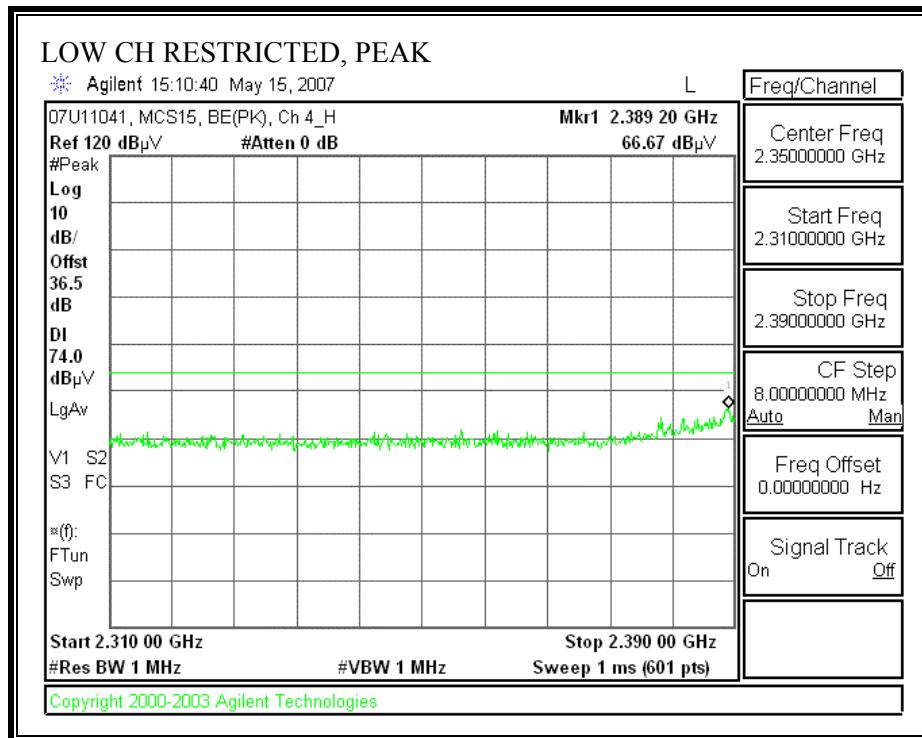


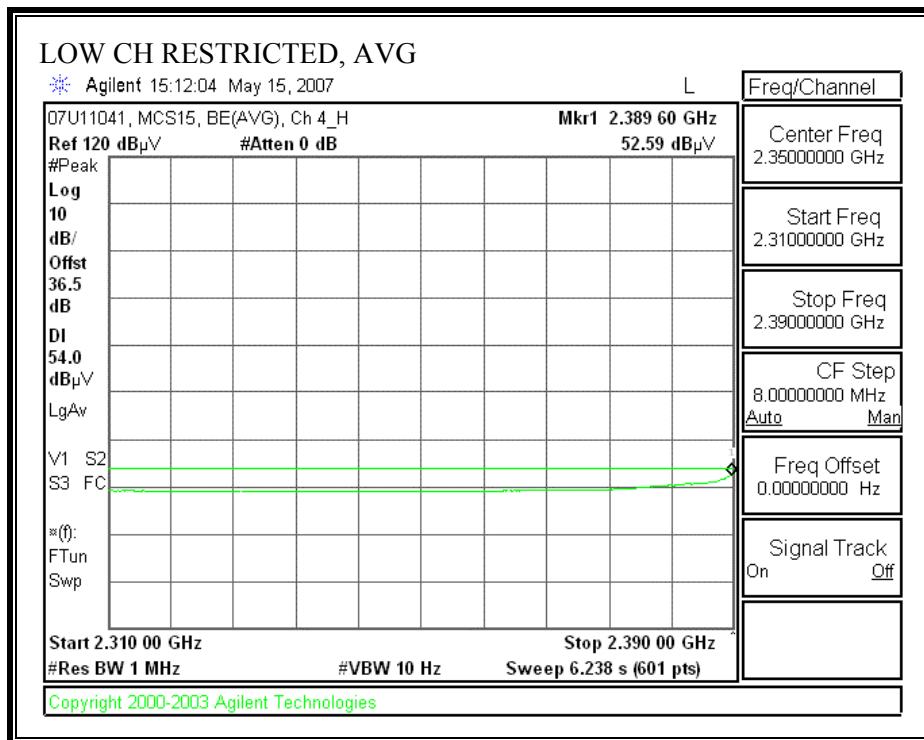
RESTRICTED BANDEDGE (LOW CHANNEL, 2422 MHz, VERTICAL)



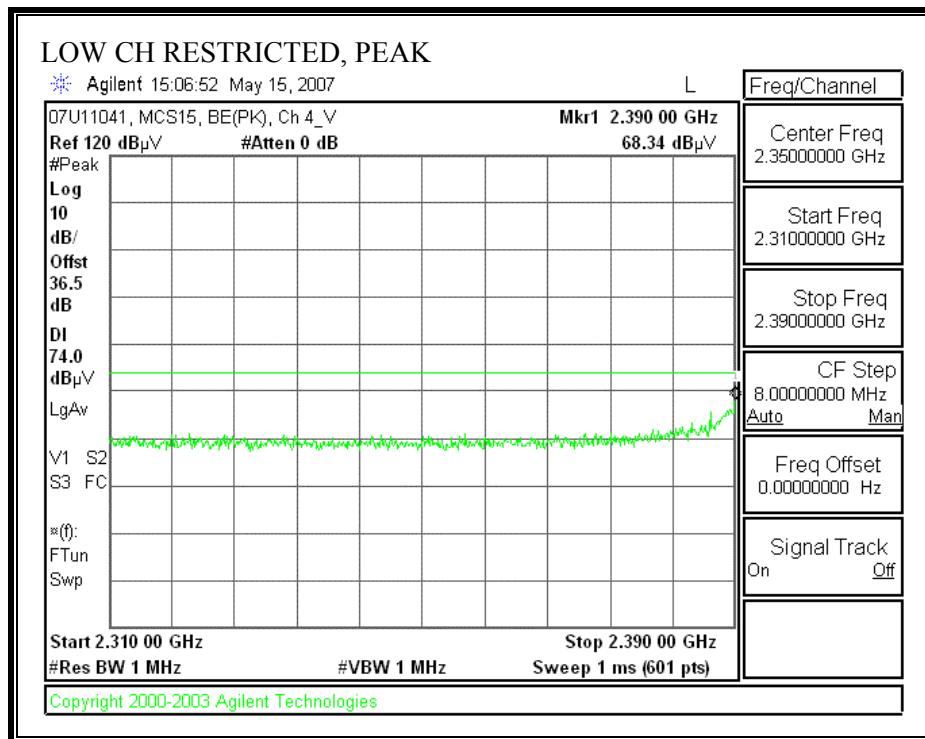


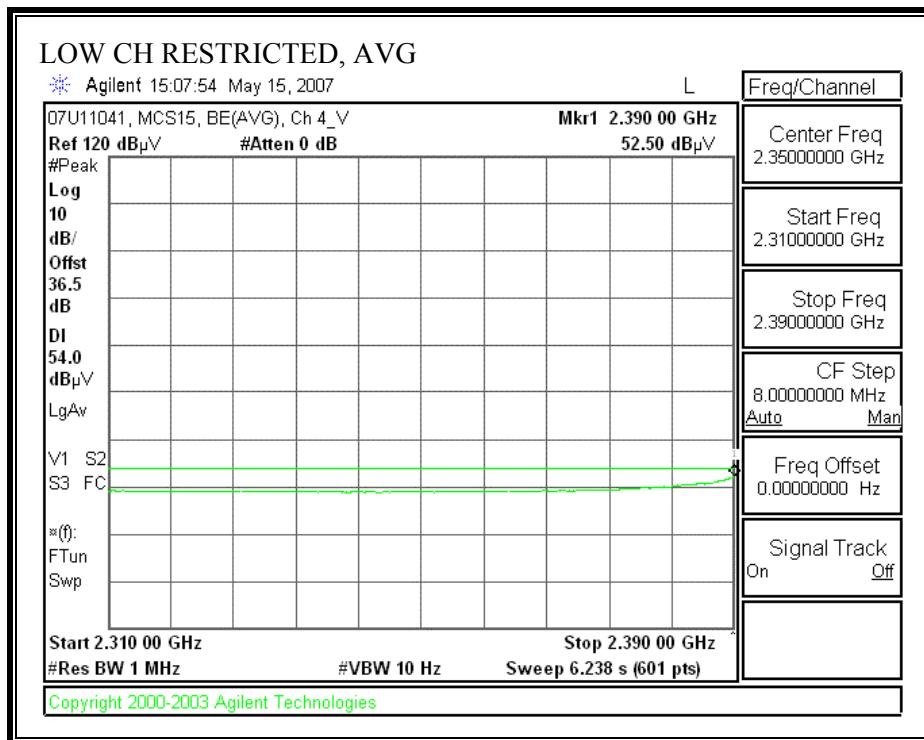
RESTRICTED BANDEDGE (LOW CHANNEL, 2427 MHz, HORIZONTAL)

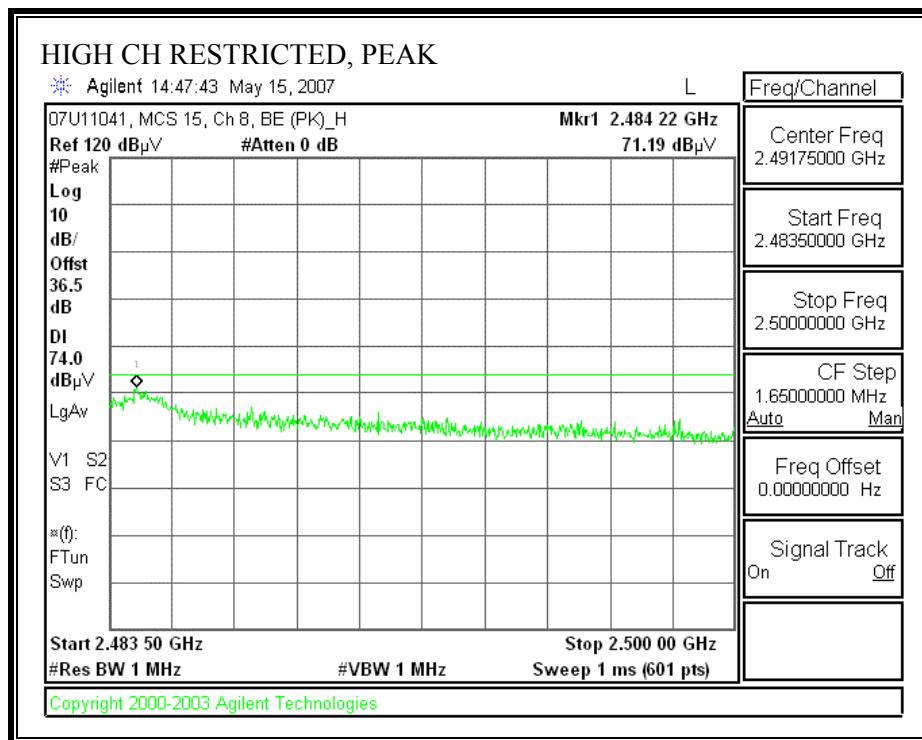


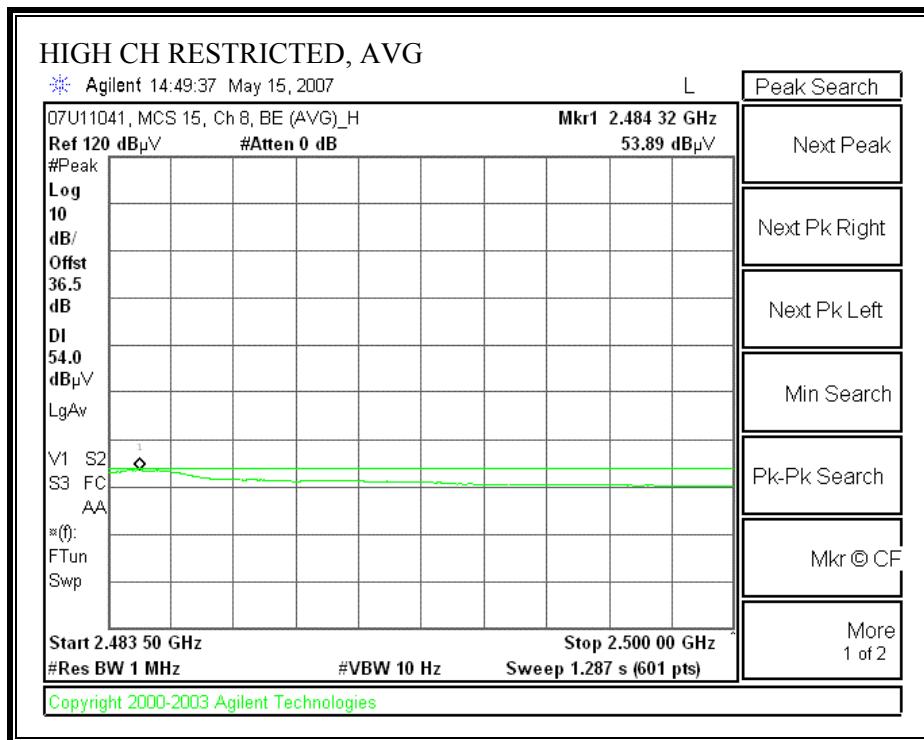


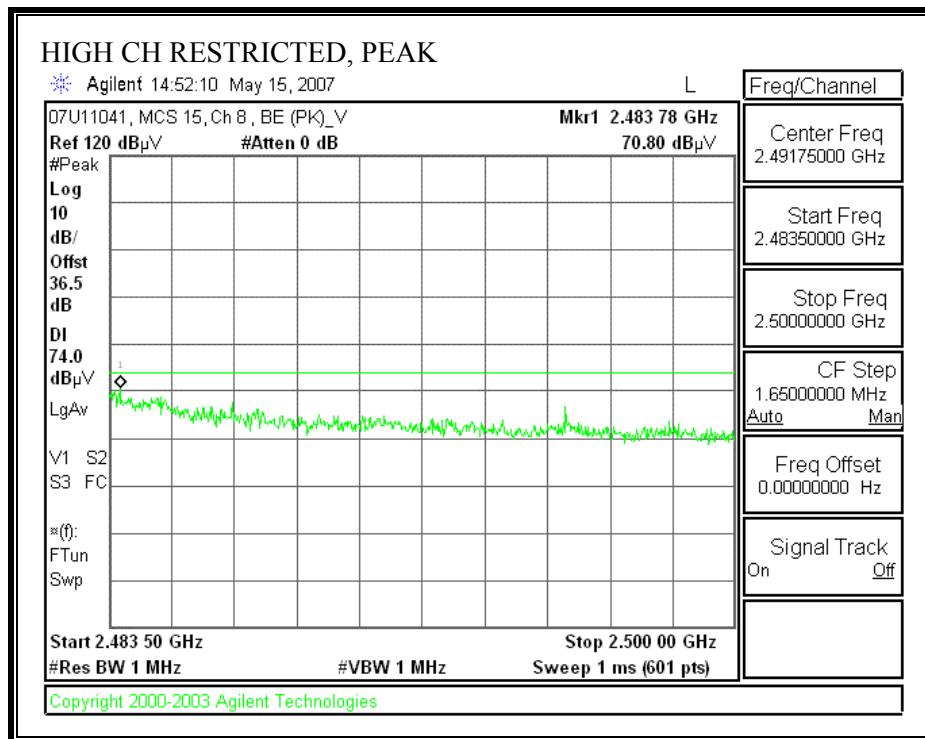
RESTRICTED BANDEDGE (LOW CHANNEL, 2427 MHz, VERTICAL)

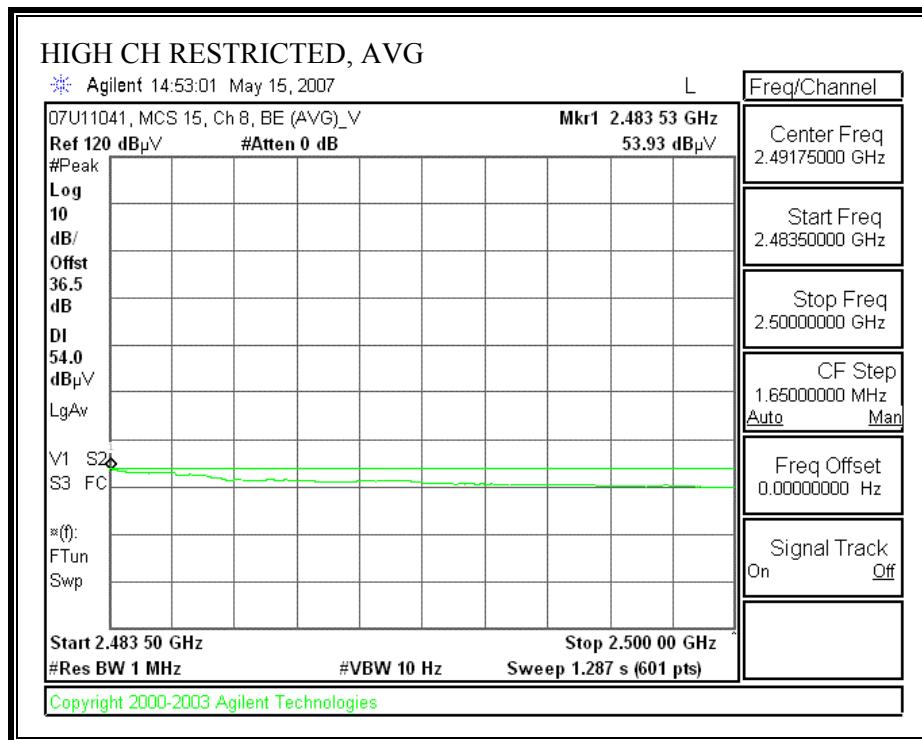


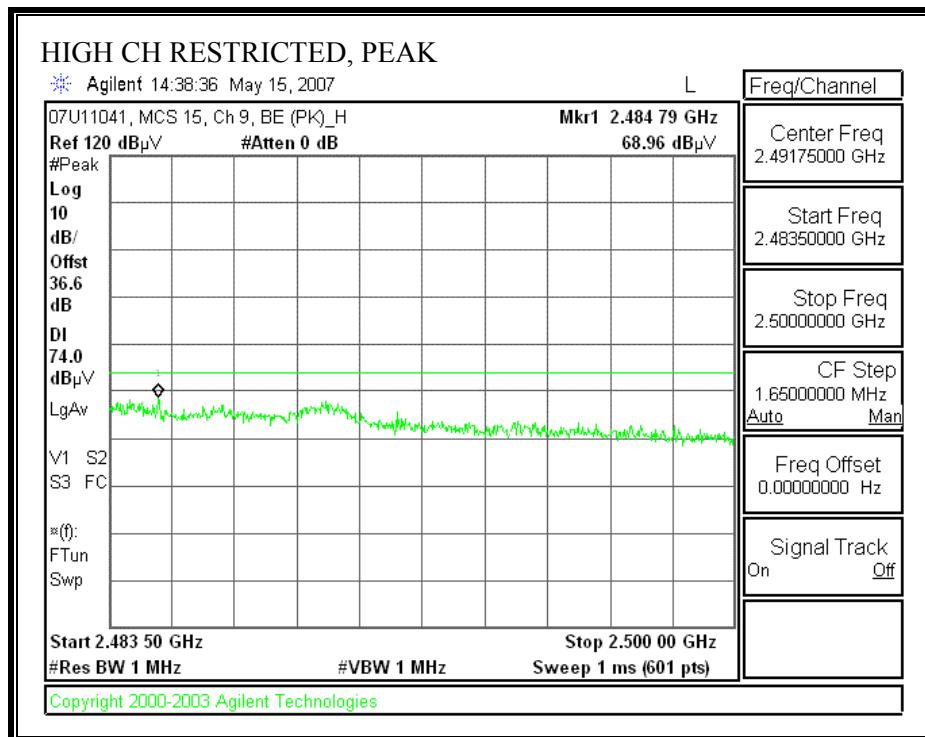


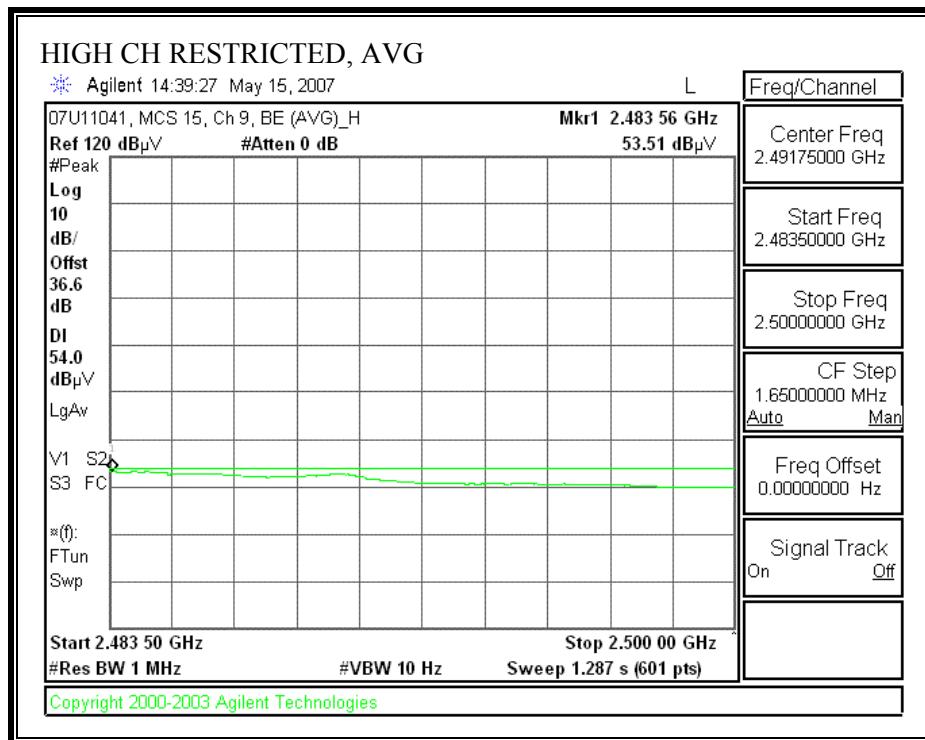
RESTRICTED BANDEDGE (HIGHCHANNEL, 2447 MHz, HORIZONTAL)

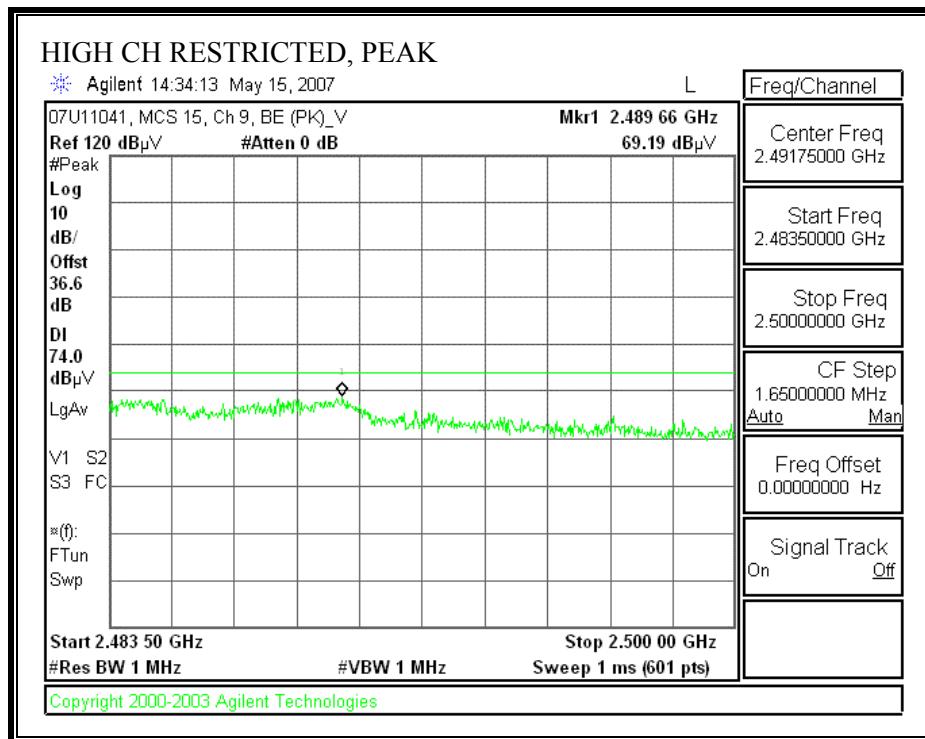


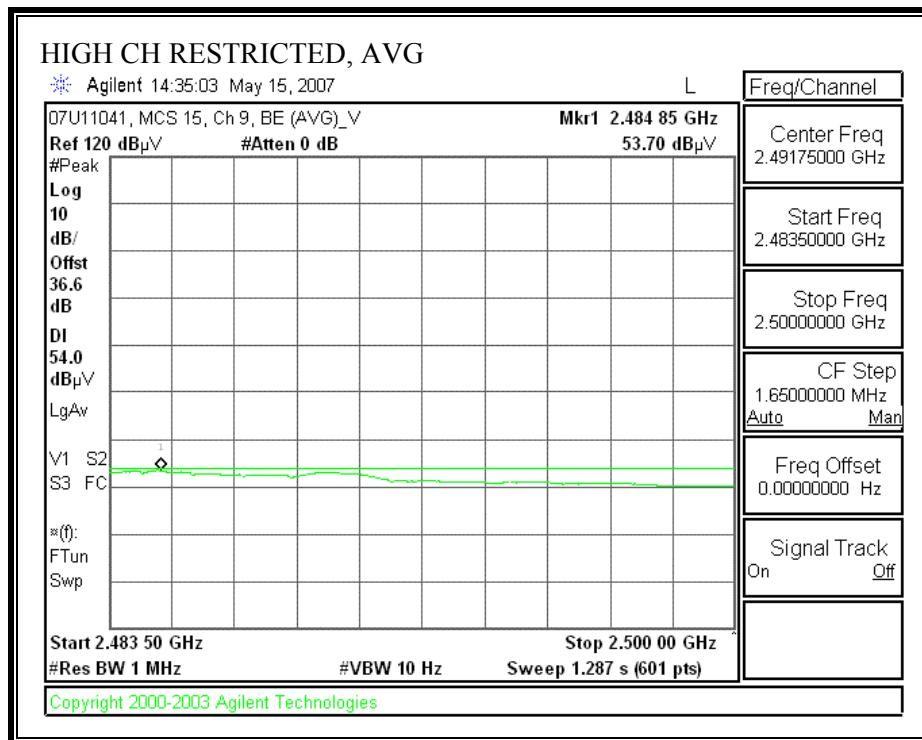
RESTRICTED BANDEDGE (HIGH CHANNEL, 2447 MHz, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, 2452 MHz, HORIZONTAL)



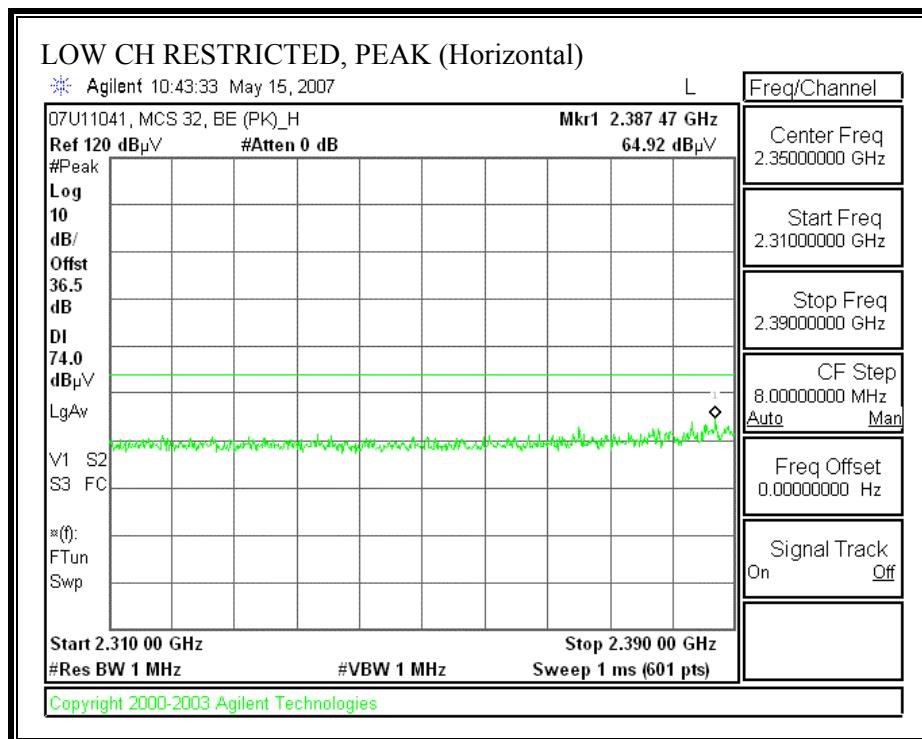
RESTRICTED BANDEDGE (HIGH CHANNEL, 2452 MHz, VERTICAL)

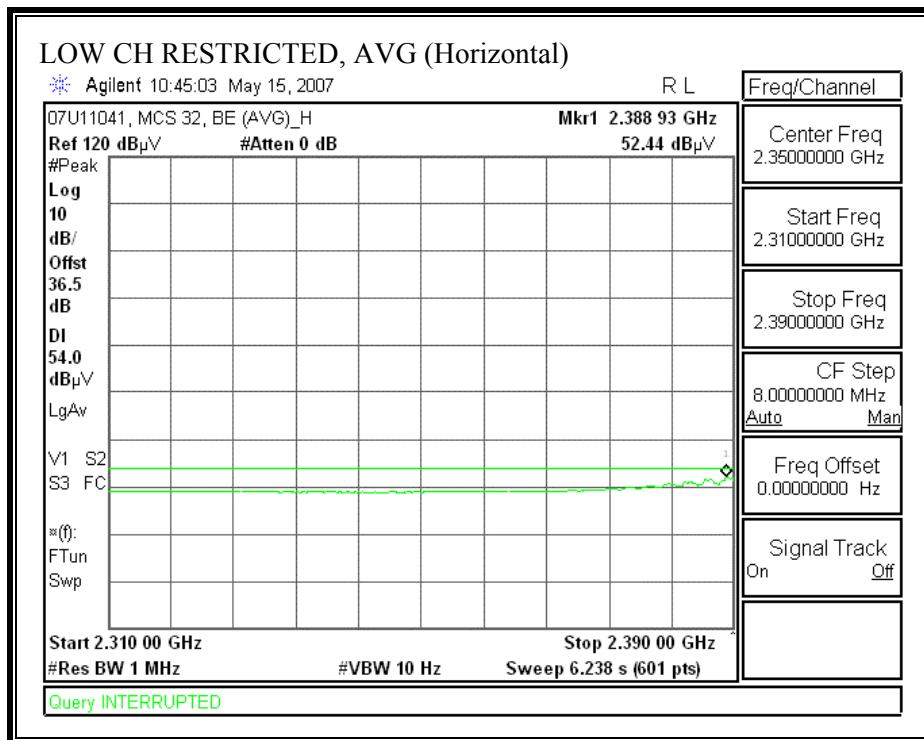


HARMONICS AND SPURIOUS EMISSIONS (802.11n Mode 40 MHz SDM MCS 15)

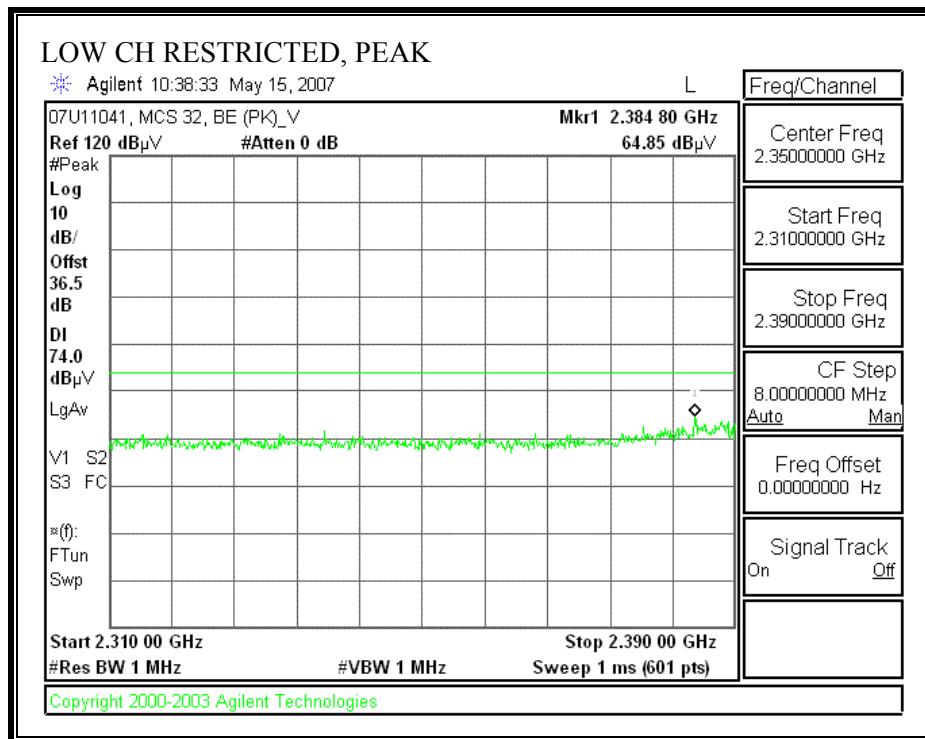
High Frequency Measurement																				
Compliance Certification Services, Morgan Hill Open Field Site																				
Company:	Broadcom																			
Project #:	07U11041																			
Date:	05/15/07																			
Test Engineer:	Thanh Nguyen																			
Configuration:	EUT connected to a host laptop PC.																			
Mode:	MIMO 40MHz, MCS15																			
S/N:																				
Mode:	Continuous Transmit.																			
Test Equipment:																				
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit								
T120; S/N: 29310 @3m			T144 Miteq 3008A00931												FCC 15.209					
Hi Frequency Cables																				
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter			Peak Measurements					
						Gordon 203134001									R_001			RBW=VBW=1MHz		
Average Measurements																				
RBW=1MHz ; VBW=10Hz																				
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dBm	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)					
LowCH (2422 MHz)																				
4.844	3.0	46.75	44.53	33.7	6.9	-36.5	0.0	0.0	50.89	48.67	74	54	-23.11	-5.33	V					
7.266	3.0	39.27	25.38	35.2	8.4	-36.2	0.0	0.0	46.63	32.74	74	54	-27.37	-21.26	V					
9.688	3.0	38.34	25.78	37.0	9.7	-37.0	0.0	0.0	48.05	35.49	74	54	-25.95	-18.51	V					
4.844	3.0	43.31	36.36	33.7	6.9	-36.5	0.0	0.0	47.45	40.50	74	54	-26.55	-13.50	H					
7.266	3.0	38.29	25.62	35.2	8.4	-36.2	0.0	0.0	45.65	32.98	74	54	-28.35	-21.02	H					
9.688	3.0	38.39	28.25	37.0	9.7	-37.0	0.0	0.0	48.10	37.96	74	54	-25.90	-16.04	H					
MidCH (2437 MHz)																				
4.874	3.0	47.72	43.75	33.7	6.9	-36.5	0.0	0.0	51.92	47.95	74	54	-22.08	-6.05	H					
7.311	3.0	37.36	25.34	35.2	8.4	-36.2	0.0	0.0	44.74	32.72	74	54	-29.26	-21.28	H					
9.748	3.0	40.18	31.57	37.1	9.8	-37.0	0.0	0.0	50.02	41.41	74	54	-23.98	-12.59	H					
4.874	3.0	47.52	43.29	33.7	6.9	-36.5	0.0	0.0	51.72	47.49	74	54	-22.28	-6.51	V					
7.311	3.0	38.69	25.26	35.2	8.4	-36.2	0.0	0.0	46.07	32.64	74	54	-27.93	-21.36	V					
9.748	3.0	37.71	25.94	37.1	9.8	-37.0	0.0	0.0	47.55	35.78	74	54	-26.45	-18.22	V					
HighCH (2452 MHz)																				
4.904	3.0	47.10	44.27	33.8	7.0	-36.5	0.0	0.0	51.36	48.53	74	54	-22.64	-5.47	V					
7.356	3.0	36.50	24.55	35.2	8.4	-36.2	0.0	0.0	43.90	31.95	74	54	-30.10	-22.05	V					
9.808	3.0	39.19	30.52	37.2	9.9	-37.0	0.0	0.0	49.17	40.50	74	54	-24.83	-13.50	V					
4.904	3.0	47.29	44.48	33.8	7.0	-36.5	0.0	0.0	51.55	48.74	74	54	-22.45	-5.26	H					
7.352	3.0	36.82	25.33	35.2	8.4	-36.2	0.0	0.0	44.22	32.73	74	54	-29.78	-21.27	H					
9.808	3.0	40.49	30.92	37.2	9.9	-37.0	0.0	0.0	50.47	40.90	74	54	-23.53	-13.10	H					
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																			

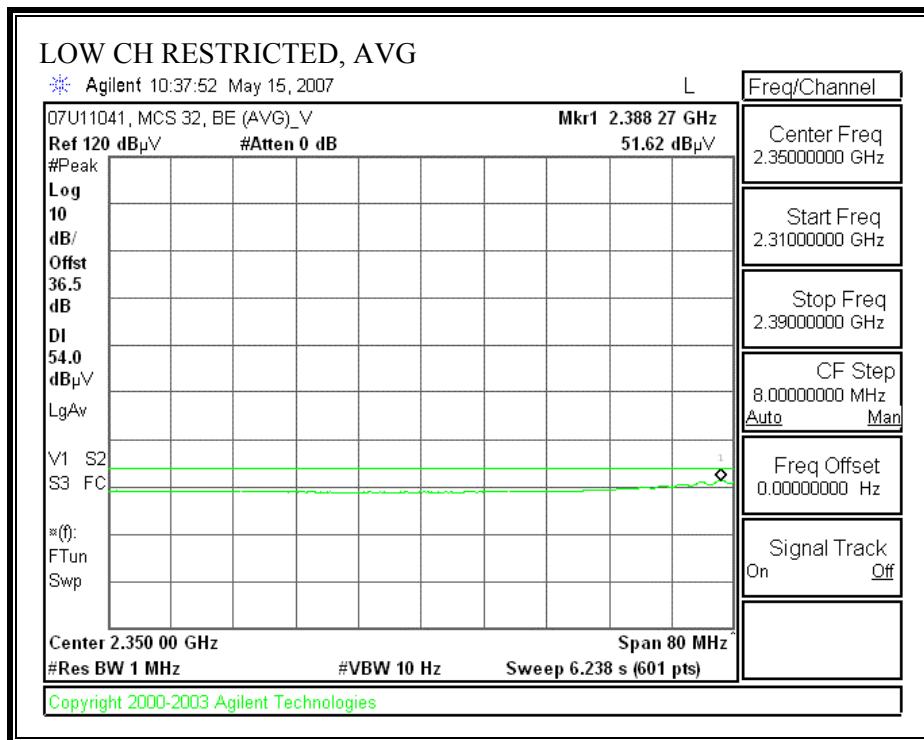
Note: Test was performed from 1 GHz to 18 GHz, no other emissions from EUT were detected above system noise floor.

802.11n Mode 40 MHz SDM MCS 32:**RESTRICTED BANDEDGE (LOW CHANNEL, 2422 MHz, HORIZONTAL)**

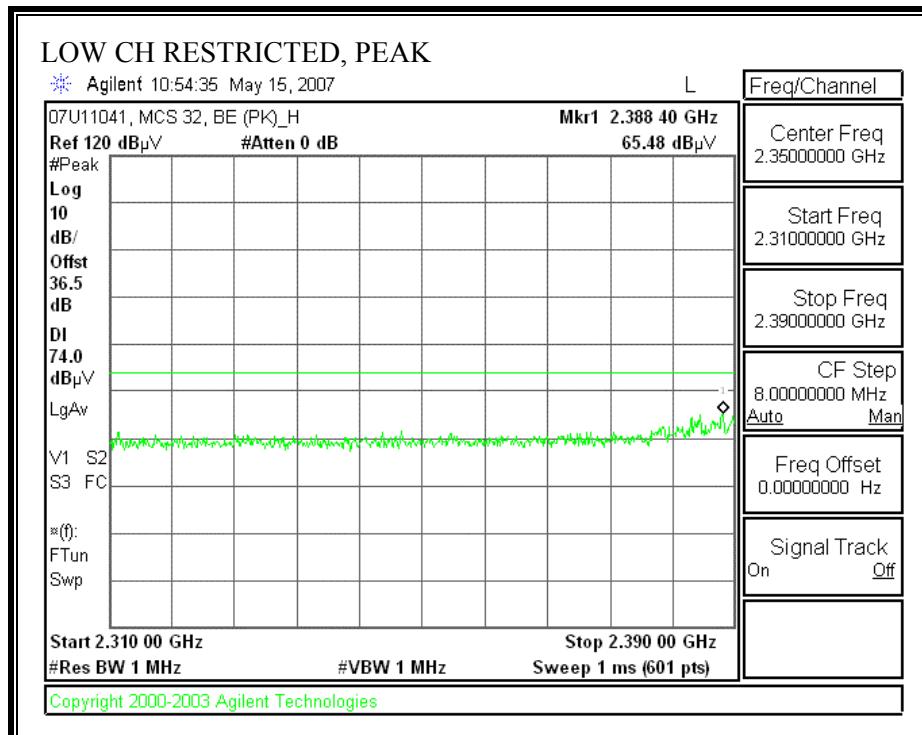


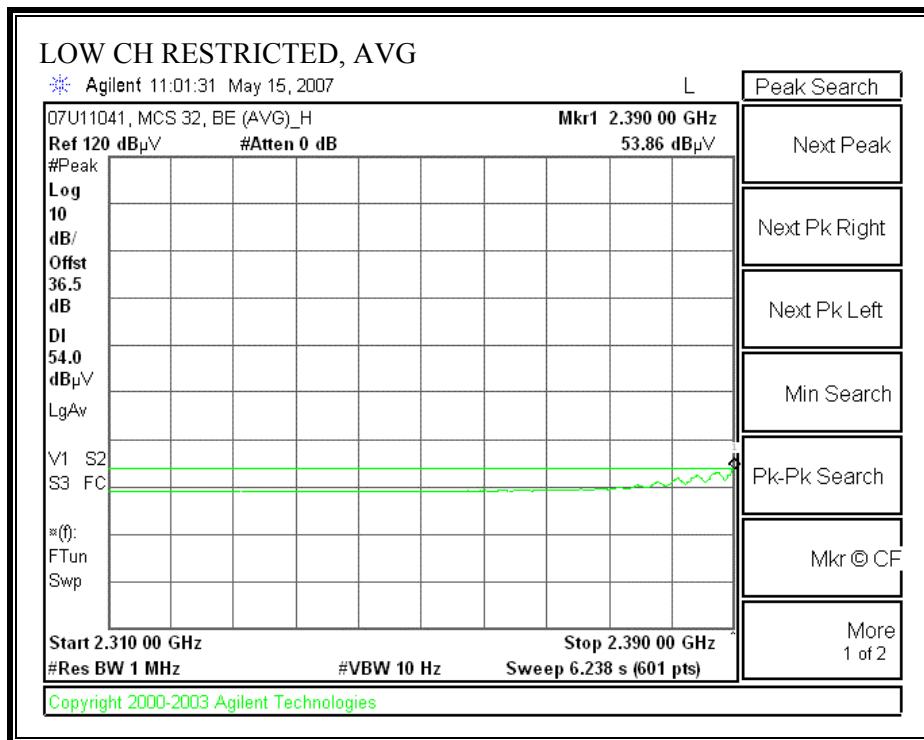
RESTRICTED BANDEDGE (LOW CHANNEL, 2422 MHz, VERTICAL)



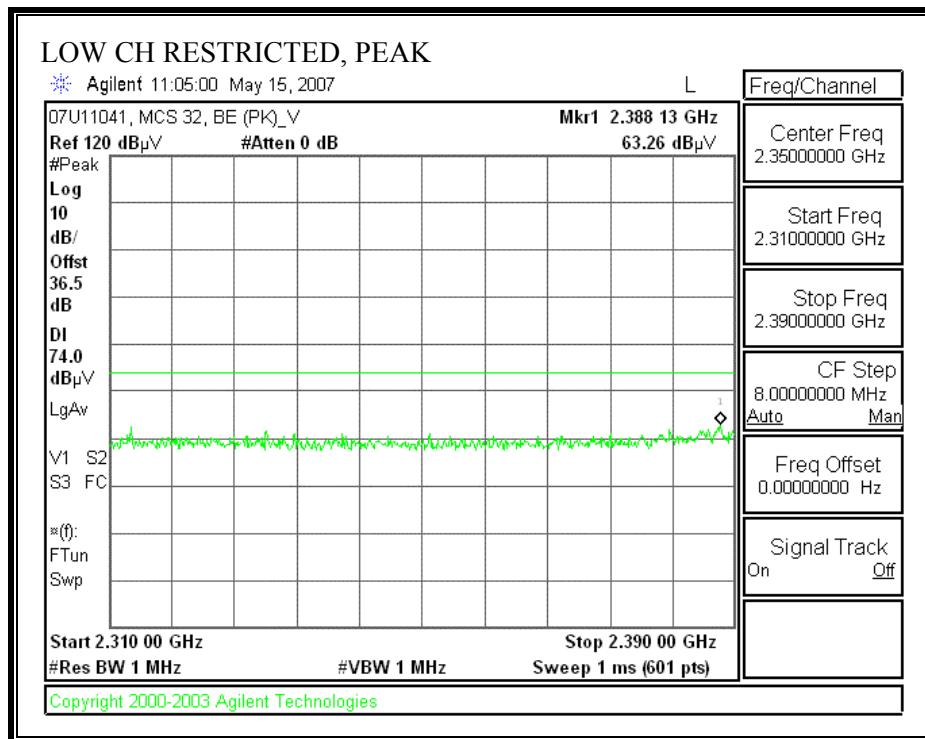


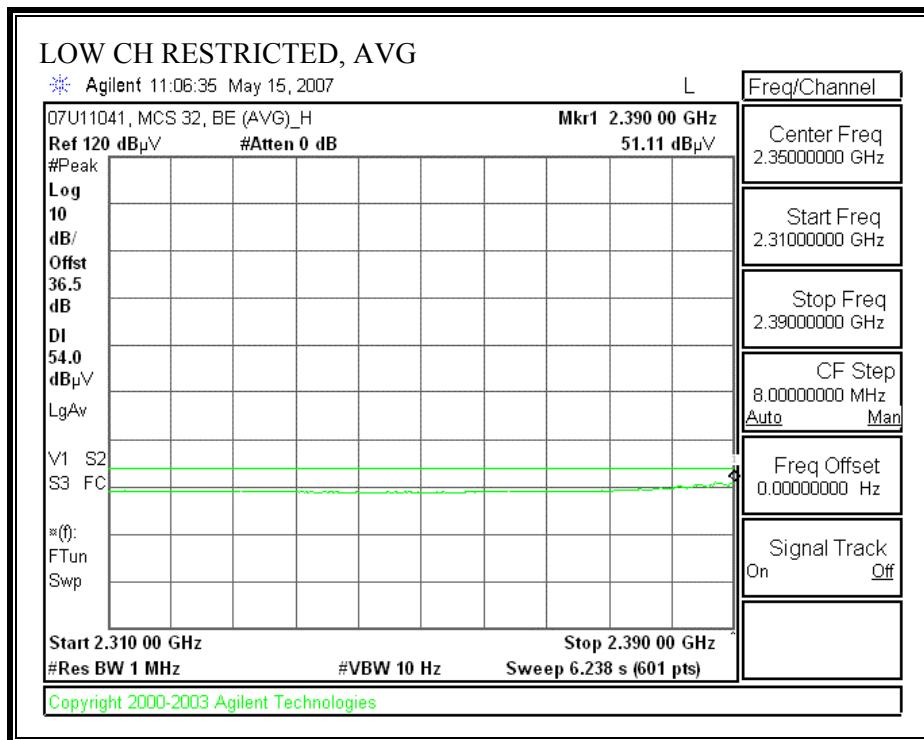
RESTRICTED BANDEDGE (LOW CHANNEL, 2427 MHz, HORIZONTAL)



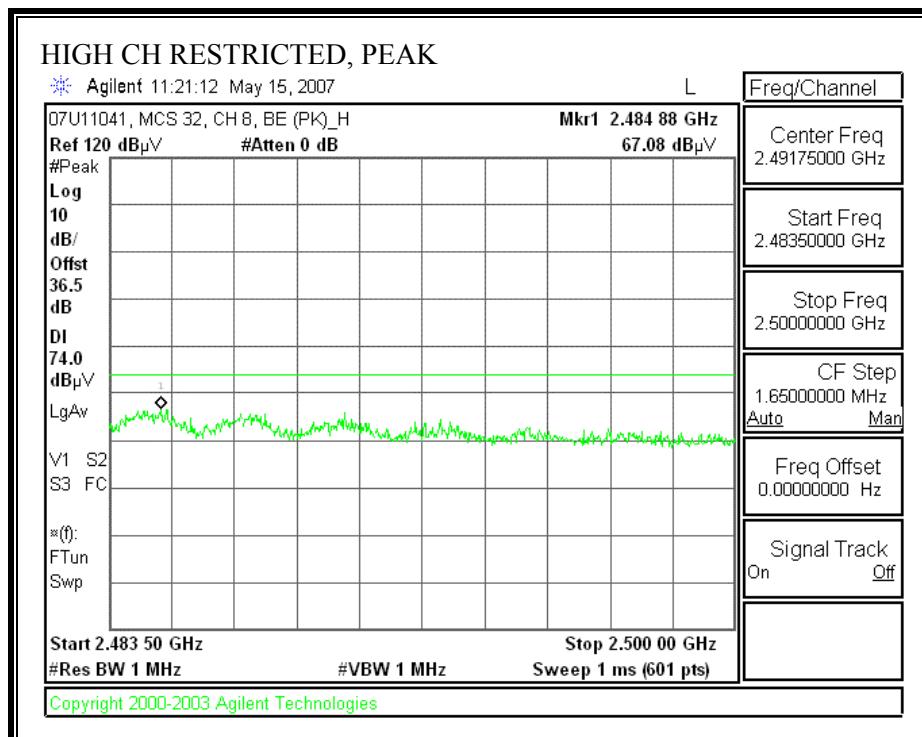


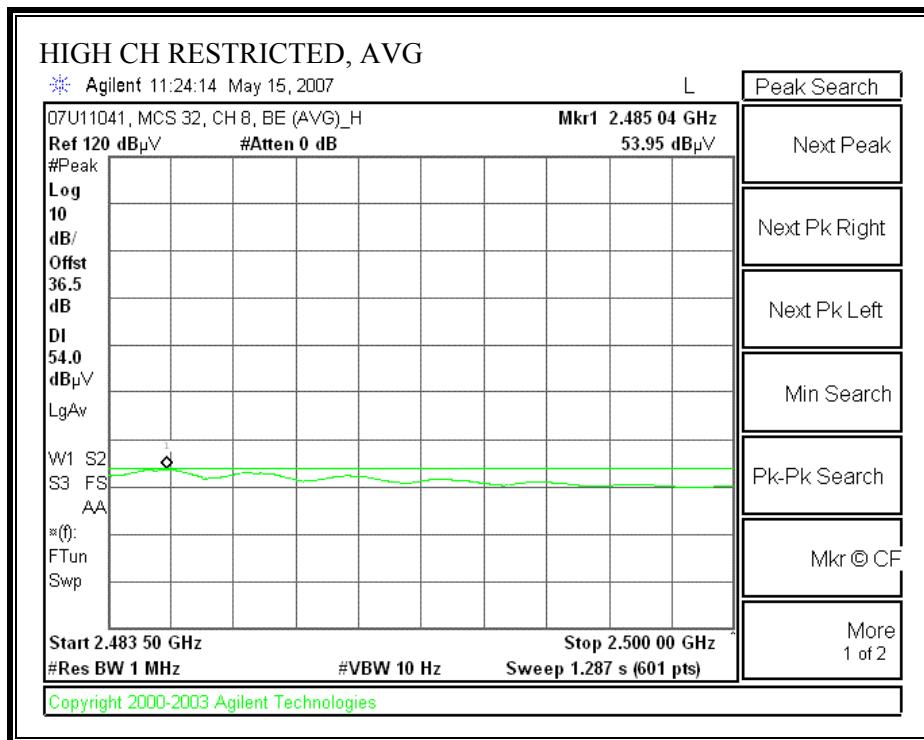
RESTRICTED BANDEDGE (LOW CHANNEL, 2427 MHz, VERTICAL)

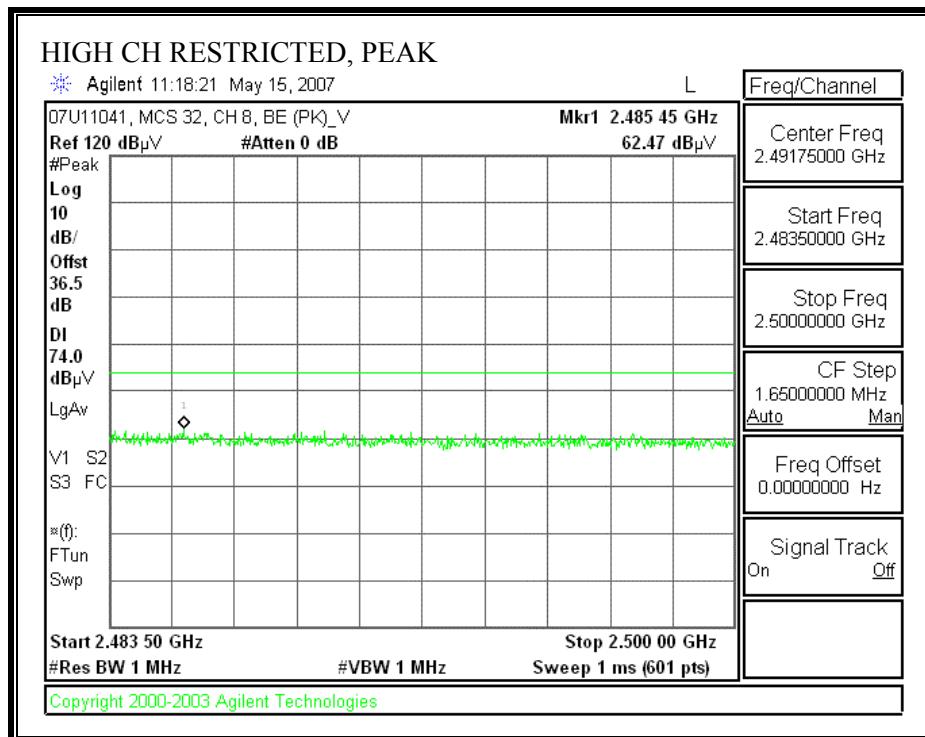


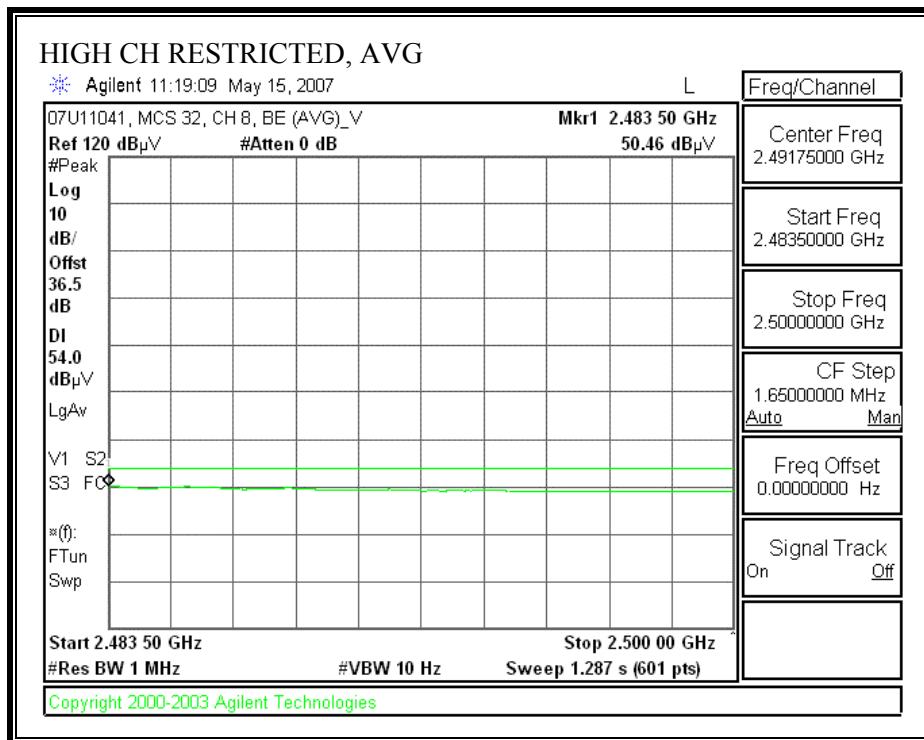


RESTRICTED BANDEDGE (HIGHCHANNEL, 2447 MHz, HORIZONTAL)

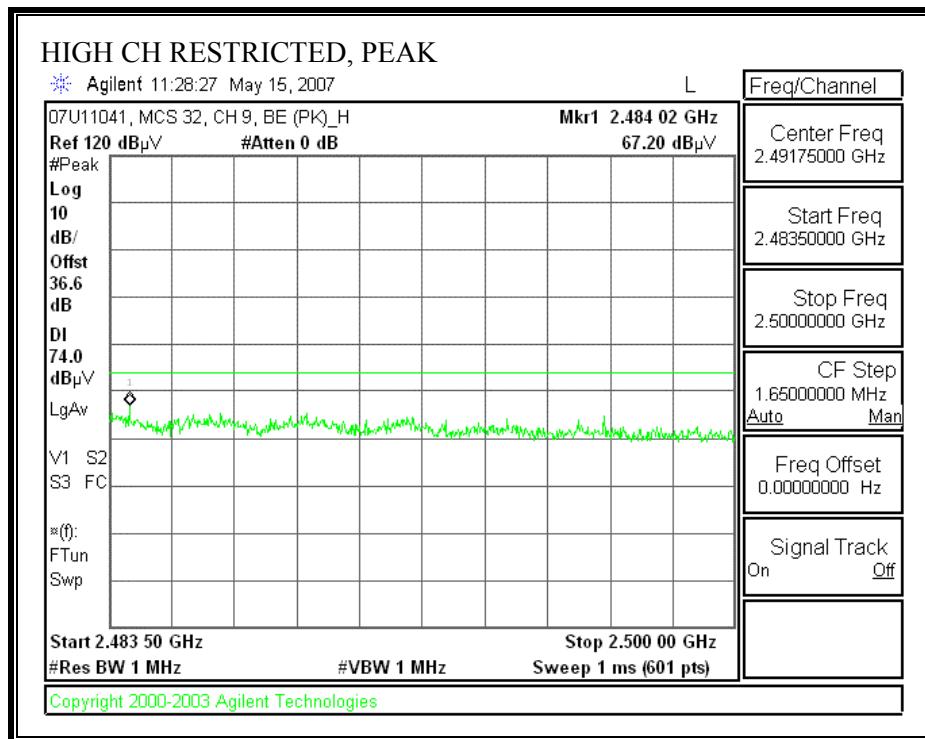


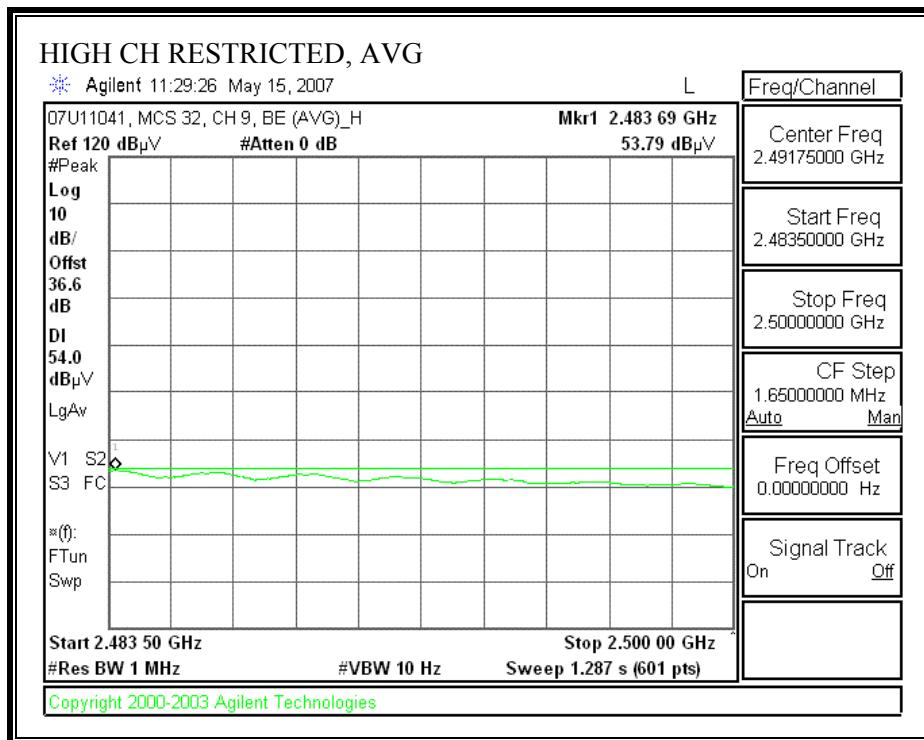


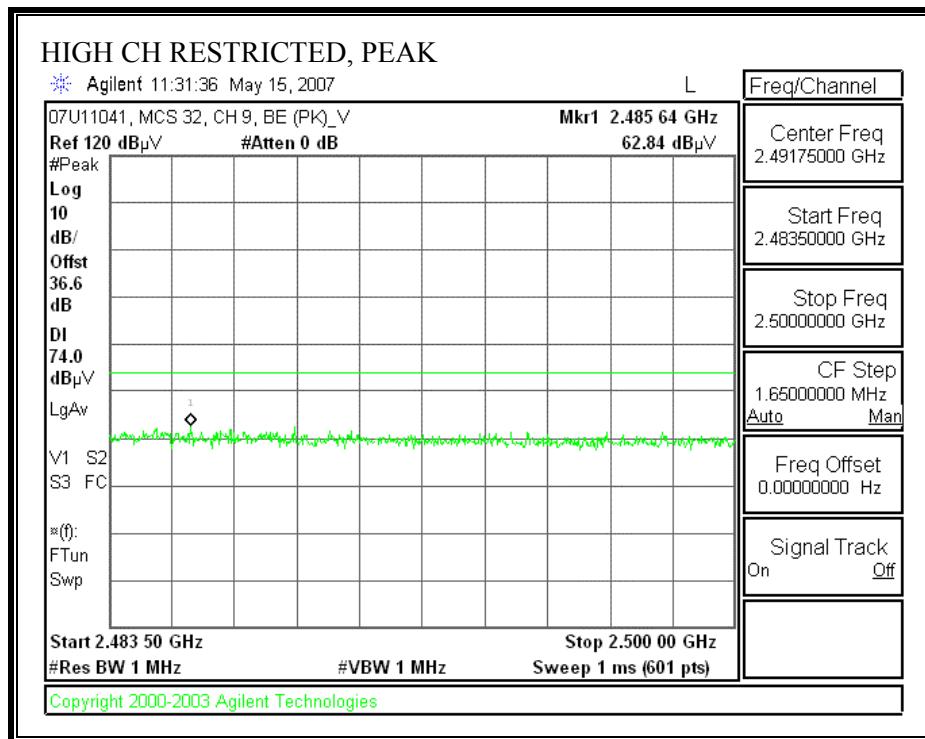
RESTRICTED BANDEDGE (HIGH CHANNEL, 2447 MHz, VERTICAL)

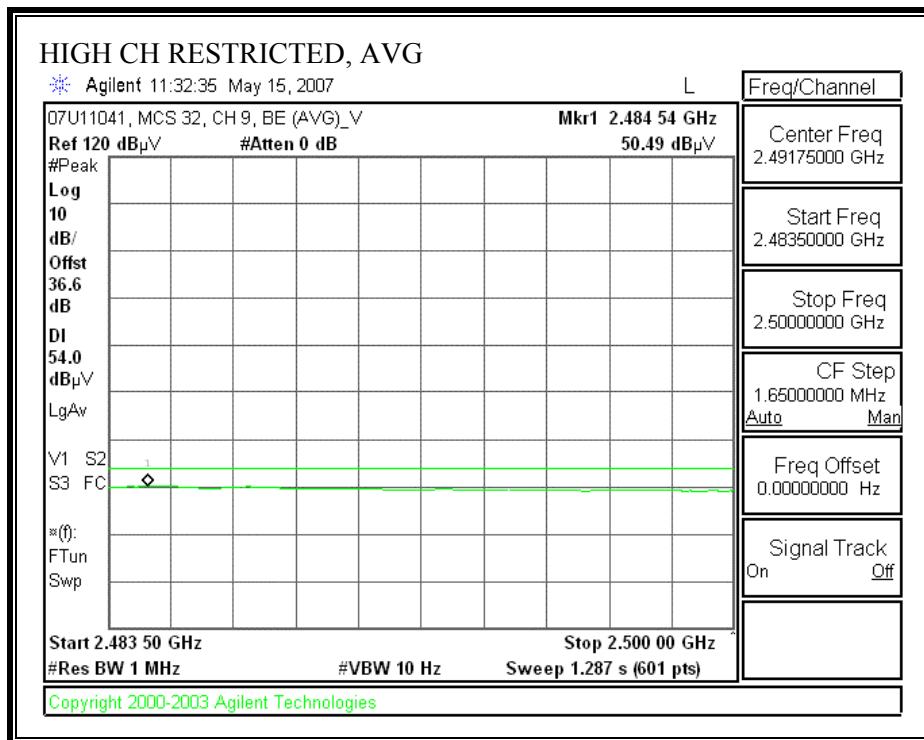


RESTRICTED BANDEDGE (HIGH CHANNEL, 2452 MHz, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, 2452 MHz, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS (802.11n Mode 40 MHz CDD MCS 32)

High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site															
Company:	Broadcom														
Project #:	07U11041														
Date:	05/15/07														
Test Engineer:	Thanh Nguyen														
Configuration:	EUT connected to a host laptop PC.														
Mode:	MIMO 40MHz, MCS32														
S/N:															
Mode:	Continuous Transmit.														
Test Equipment:															
Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz										Limit		
T120; S/N: 29310 @3m	T144 Miteq 3008A00931												FCC 15.209		
Hi Frequency Cables															
2 foot cable	3 foot cable	12 foot cable	HPF										Reject Filter	Peak Measurements RBW=VBW=1MHz	
		Gordon 203134001											R_001	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)
LowCH (2422 MHz)															
4.844	3.0	41.18	33.37	33.7	6.9	-36.5	0.0	0.0	45.32	37.51	74	54	-28.68	-16.49	V
7.266	3.0	38.71	25.47	35.2	8.4	-36.2	0.0	0.0	46.07	32.83	74	54	-27.93	-21.17	V
9.688	3.0	37.68	30.24	37.0	9.7	-37.0	0.0	0.0	47.39	39.95	74	54	-26.61	-14.05	V
4.844	3.0	41.27	37.36	33.7	6.9	-36.5	0.0	0.0	45.41	41.50	74	54	-28.59	-12.50	H
7.266	3.0	38.18	25.93	35.2	8.4	-36.2	0.0	0.0	45.54	33.29	74	54	-28.46	-20.71	H
9.688	3.0	38.71	25.47	37.0	9.7	-37.0	0.0	0.0	48.42	35.18	74	54	-25.58	-18.82	H
MidCH (2437 MHz)															
4.874	3.0	42.79	35.09	33.7	6.9	-36.5	0.0	0.0	46.99	39.29	74	54	-27.01	-14.71	H
7.311	3.0	37.84	25.41	35.2	8.4	-36.2	0.0	0.0	45.22	32.79	74	54	-28.78	-21.21	H
9.748	3.0	40.03	32.90	37.1	9.8	-37.0	0.0	0.0	49.87	42.74	74	54	-24.13	-11.26	H
4.874	3.0	41.35	33.00	33.7	6.9	-36.5	0.0	0.0	45.55	37.20	74	54	-28.45	-16.80	V
7.311	3.0	38.56	25.30	35.2	8.4	-36.2	0.0	0.0	45.94	32.68	74	54	-28.06	-21.32	V
9.748	3.0	38.16	26.27	37.1	9.8	-37.0	0.0	0.0	48.00	36.11	74	54	-26.00	-17.89	V
HighCH (2452 MHz)															
4.904	3.0	47.14	42.76	33.8	7.0	-36.5	0.0	0.0	51.40	47.02	74	54	-22.60	-6.98	V
7.356	3.0	37.82	25.07	35.2	8.4	-36.2	0.0	0.0	45.22	32.47	74	54	-28.78	-21.53	V
9.808	3.0	38.82	27.53	37.2	9.9	-37.0	0.0	0.0	48.80	37.51	74	54	-25.20	-16.49	V
4.904	3.0	42.11	30.72	33.8	7.0	-36.5	0.0	0.0	46.37	34.98	74	54	-27.63	-19.02	H
7.352	3.0	37.61	25.07	35.2	8.4	-36.2	0.0	0.0	45.01	32.47	74	54	-28.99	-21.53	H
9.808	3.0	40.00	32.98	37.2	9.9	-37.0	0.0	0.0	49.98	42.96	74	54	-24.02	-11.04	H
f	Measurement Frequency			Amp	Preampl Gain			D Corr	Distance Correct to 3 meters			Avg Lim	Average Field Strength Limit		
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Read	Analyzer Reading			Avg	Average Field Strength @ 3 m		
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			AF	Antenna Factor			Peak	Calculated Peak Field Strength		
AF	Antenna Factor			Peak	Calculated Peak Field Strength			CL	Cable Loss			HPF	High Pass Filter		
Note: Test was performed from 1 GHz to 18 GHz, no other emissions from EUT were detected above system noise floor.															

7.5.5. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND**11n 20 MHz CDD MCS 0****HARMONICS AND SPURIOUS EMISSIONS – 20 MHz TX BANDWIDTH**

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber															
Company: BroadCom	Project #: 07U11041	Date: 5/10/2007													
Test Engineer: Tom Chen	Configuration: EUT Only	Mode: TX 11n 20 MHz CDD MCS 0													
Test Equipment:															
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit			
T73; S/N: 6717 @3m			T144 Miteq 3008A00931									FCC 15.209			
Hi Frequency Cables															
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz
						B-5m Chamber			HPF_7.6GHz						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 5745MHz															
11.490	3.0	49.6	37.1	37.5	11.8	-35.9	0.0	0.7	63.8	51.3	74	54	-10.2	-2.7	V
11.490	3.0	47.7	35.1	37.5	11.8	-35.9	0.0	0.7	61.9	49.3	74	54	-12.1	-4.7	H
MID CH 5785MHz															
11.570	3.0	52.0	39.6	37.5	11.9	-35.8	0.0	0.7	66.3	53.9	74	54	-7.7	-0.1	V
11.490	3.0	49.3	36.5	37.5	11.8	-35.9	0.0	0.7	63.5	50.7	74	54	-10.5	-3.3	H
HI CH 5825MHz															
11.650	3.0	51.4	39.0	37.5	12.0	-35.7	0.0	0.7	65.9	53.5	74	54	-8.1	-0.5	V
11.650	3.0	48.5	35.9	37.5	12.0	-35.7	0.0	0.7	63.0	50.4	74	54	-11.0	-3.6	H
No other emissions were detected above 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									

11n 40 MHz CDD MCS 32**HARMONICS AND SPURIOUS EMISSIONS – 40 MHz TX BANDWIDTH**

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber																	
Company:	BroadCom																
Project #:	07U11041																
Date:	5/10/2007																
Test Engineer:	Mengistu Mekuria																
Configuration:	EUT Only																
Mode:	TX 11n 40 MHz CDD MCS 32																
Test Equipment:																	
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit					
T73; S/N: 6717 @3m			T144 Miteq 3008A00931									FCC 15.209					
Hi Frequency Cables																	
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz		
						B-5m Chamber			HPF_7.6GHz						Average Measurements RBW=1MHz ; VBW=10Hz		
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF	CL	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 5755MHz																	
11.510	3.0	47.7	34.2	37.5	11.9	-35.8	0.0	0.7	61.9	48.4	74	54	-12.1	-5.6	V		
11.510	3.0	46.8	34.1	37.5	11.9	-35.8	0.0	0.7	61.0	48.3	74	54	-13.0	-5.7	H		
HII CH 5795MHz																	
11.590	3.0	49.4	36.5	37.5	12.0	-35.8	0.0	0.7	63.7	50.9	74	54	-10.3	-3.1	V		
11.590	3.0	47.4	34.6	37.5	12.0	-35.8	0.0	0.7	61.8	49.0	74	54	-12.2	-5.0	H		
No other emissions were detected above 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																

ALL MODES

7.5.6. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

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

2.4 GHz BAND

HORIZONTAL DATA



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

Data#: 33 File#: 07U11034 A.EMI

Date: 05-18-2007 Time: 23:30:02

Condition: FCC CLASS-B HORIZONTAL
Test Operator:: Mengistu Mekuria
Project #: 07U11041
Company: Broadcom
Configuration:: EUT With Host Laptop
Mode : Tx @ 2.4GHz (Worst Case)
Target: FCC Class B

Page: 1

Freq	Read		Limit	Over	Remark
	Level	Factor			
MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1	202.660	54.50	-17.32	37.19	43.50 -6.31 Peak
2	247.280	61.47	-17.94	43.53	46.00 -2.47 Peak
3	319.060	54.50	-15.33	39.17	46.00 -6.83 Peak
4	364.650	54.20	-14.11	40.09	46.00 -5.91 Peak
5	566.410	50.00	-10.35	39.65	46.00 -6.35 Peak
6	633.340	50.90	-9.34	41.56	46.00 -4.44 Peak
7	696.390	47.30	-8.54	38.76	46.00 -7.24 Peak
8	800.180	44.70	-6.88	37.82	46.00 -8.18 Peak

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

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

Data#: 34 File#: 07U11034 A.EMI

Date: 05-18-2007 Time: 23:31:39

Condition: FCC CLASS-B VERTICAL
 Test Operator: Mengistu Mekuria
 Project #: 07U11041
 Company: Broadcom
 Configuration: EUT With Host Laptop
 Mode : Tx @ 2.4GHz (Worst Case)
 Target: FCC Class B

Page: 1

Freq	MHz	Read	Factor	Limit	Over	Remark	
		Level		Level	Line		
	MHz	dBuV		dB	dBuV/m	dB	
1	211.390	57.30	-18.90	38.40	43.50	-5.10	Peak
2	246.310	57.90	-17.94	39.96	46.00	-6.04	Peak
3	283.170	61.20	-16.55	44.65	46.00	-1.35	Peak
4	364.650	54.80	-14.11	40.69	46.00	-5.31	Peak
5	425.760	51.60	-12.67	38.93	46.00	-7.07	Peak
6	566.410	49.00	-10.35	38.65	46.00	-7.35	Peak
7	633.340	51.20	-9.34	41.86	46.00	-4.14	Peak
8	697.360	47.70	-8.48	39.22	46.00	-6.78	Peak
9	800.180	44.20	-6.88	37.32	46.00	-8.68	Peak

5 GHz BAND**HORIZONTAL DATA**

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

Data#: 37 File#: 07U11034 A.EMI

Date: 05-18-2007 Time: 23:35:54

Condition: FCC CLASS-B HORIZONTAL
 Test Operator:: Mengistu Mekuria
 Project #: 07U11041
 Company: Broadcom
 Configuration:: EUT With Host Laptop
 Mode : Tx @ 5.8GHz (Worst Case)
 Target: FCC Class B

Page: 1

Freq	Read		Limit	Over	Limit	Remark
	Level	Factor				
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1	198.780	59.60	-17.19	42.41	43.50	-1.09 Peak
2	283.170	61.60	-16.55	45.05	46.00	-0.95 Peak
3	319.060	55.10	-15.33	39.77	46.00	-6.23 Peak
4	399.570	54.70	-13.47	41.23	46.00	-4.77 Peak
5	597.450	53.30	-9.91	43.39	46.00	-2.61 Peak
6	633.340	51.20	-9.34	41.86	46.00	-4.14 Peak
7	700.270	51.70	-8.46	43.24	46.00	-2.76 Peak
8	800.180	47.70	-6.88	40.82	46.00	-5.18 Peak

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

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

Data#: 38 File#: 07U11034 A.EMI

Date: 05-18-2007 Time: 23:37:42

Condition: FCC CLASS-B VERTICAL
 Test Operator: Mengistu Mekuria
 Project #: 07U11041
 Company: Broadcom
 Configuration: EUT With Host Laptop
 Mode : Tx @ 5.8GHz (Worst Case)
 Target: FCC Class B

Page: 1

Freq	Read Level	Factor	Limit		Over Line	Limit	Remark
			dB	dBuV/m			
MHz	dBuV						
1	198.780	52.30	-17.19	35.11	43.50	-8.39	Peak
2	283.170	52.70	-16.55	36.15	46.00	-9.85	Peak
3	337.490	50.90	-14.80	36.10	46.00	-9.90	Peak
4	566.410	48.90	-10.35	38.55	46.00	-7.45	Peak
5	597.450	49.60	-9.91	39.69	46.00	-6.31	Peak
6	633.340	49.00	-9.34	39.66	46.00	-6.34	Peak
7	700.270	49.90	-8.46	41.44	46.00	-4.56	Peak
8	797.270	42.90	-6.90	36.00	46.00	-10.00	Peak

7.6. 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.

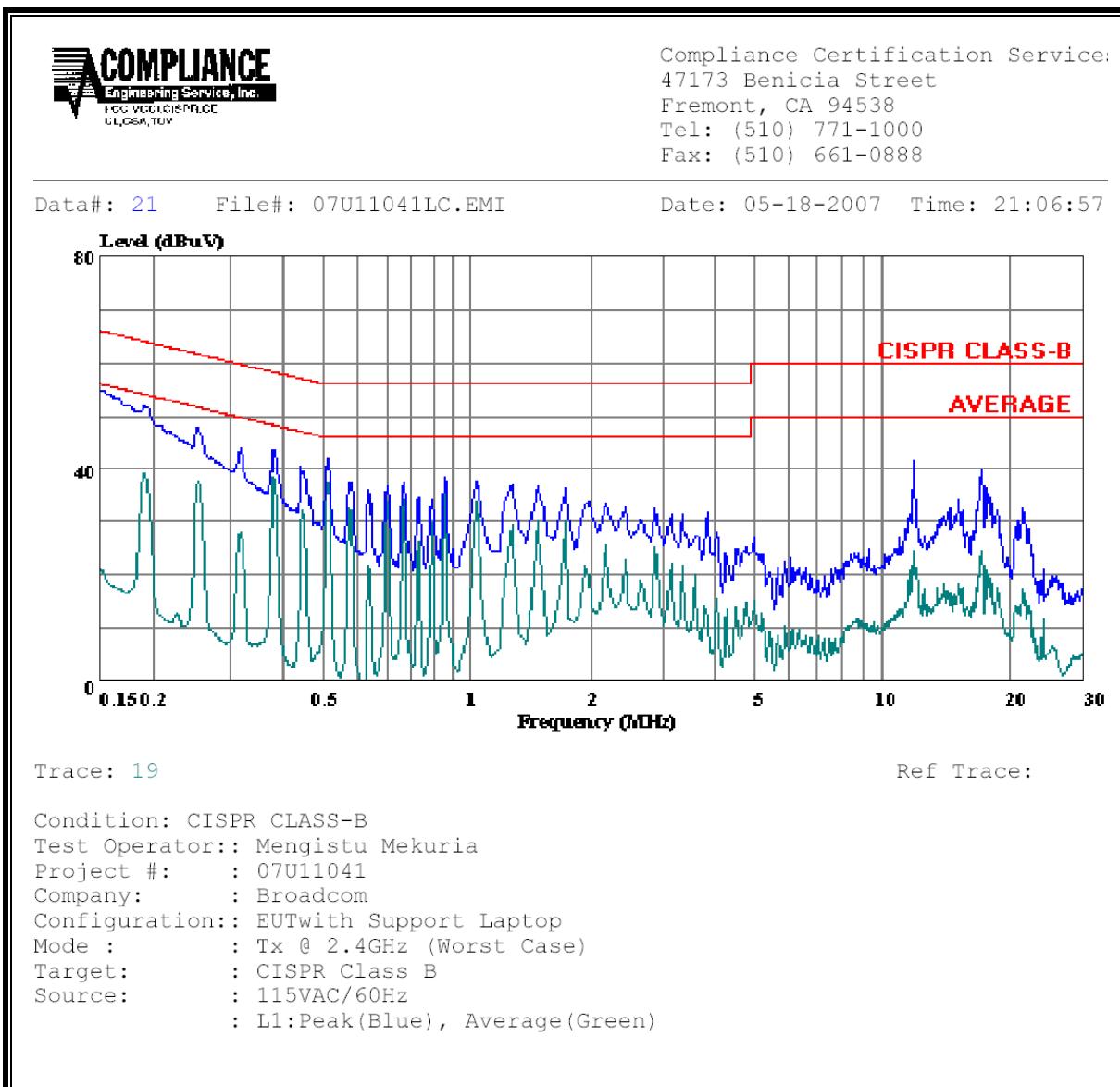
RESULTS

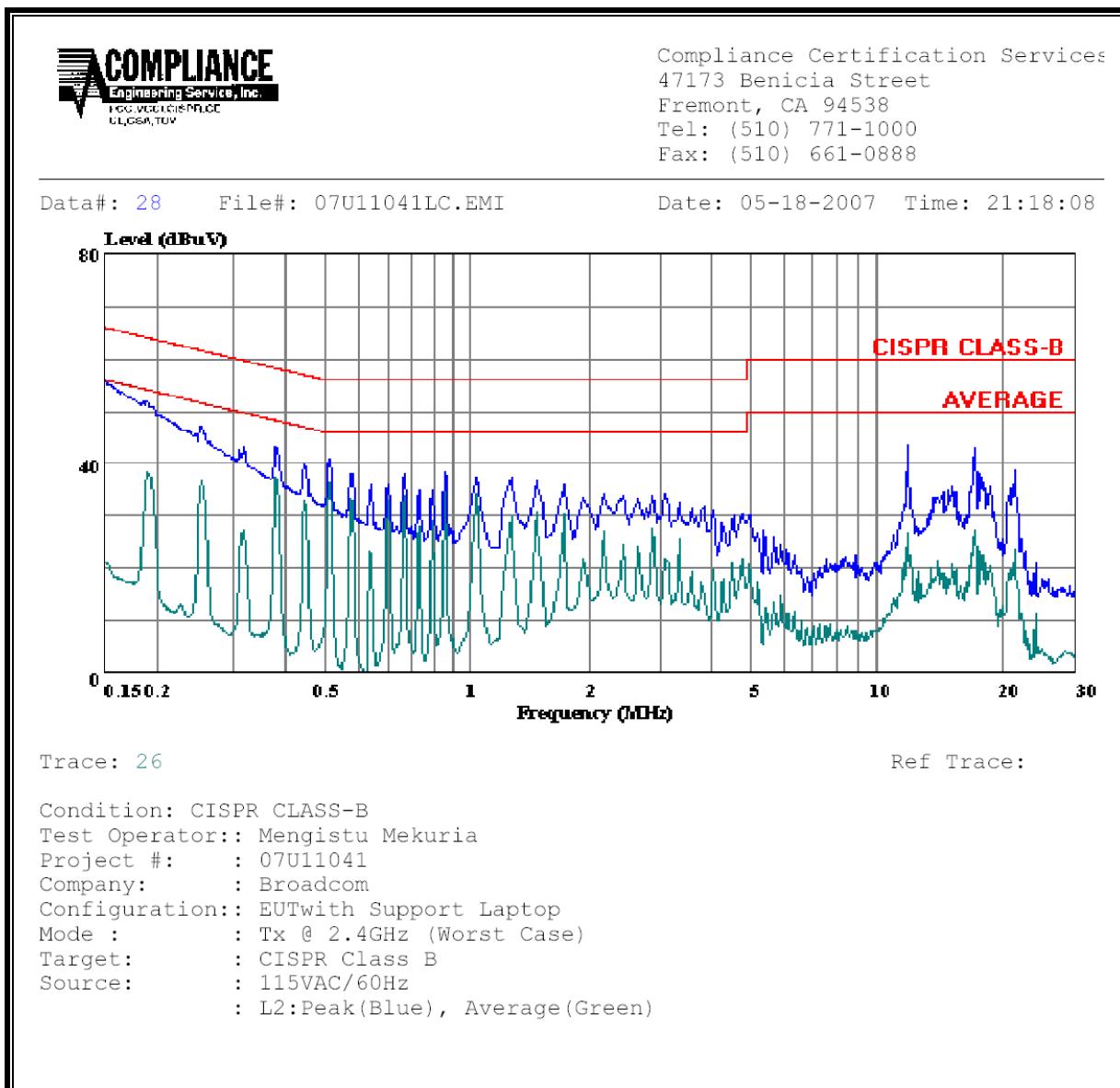
No non-compliance noted:

2.4 GHz BAND

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Closs (dB)	Limit QP	EN_B AV	Margin		Remark
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.15	54.88	--	--	0.00	66.00	56.00	-11.12	-1.12	L1
0.19	52.09	--	--	0.00	64.08	54.08	-11.99	-1.99	L1
0.38	43.64	--	--	0.00	58.26	48.26	-14.62	-4.62	L1
0.15	55.72	--	--	0.00	66.00	56.00	-10.28	-0.28	L2
0.19	51.95	--	--	0.00	64.08	54.08	-12.13	-2.13	L2
0.38	43.22	--	--	0.00	58.30	48.30	-15.08	-5.08	L2
6 Worst Data									

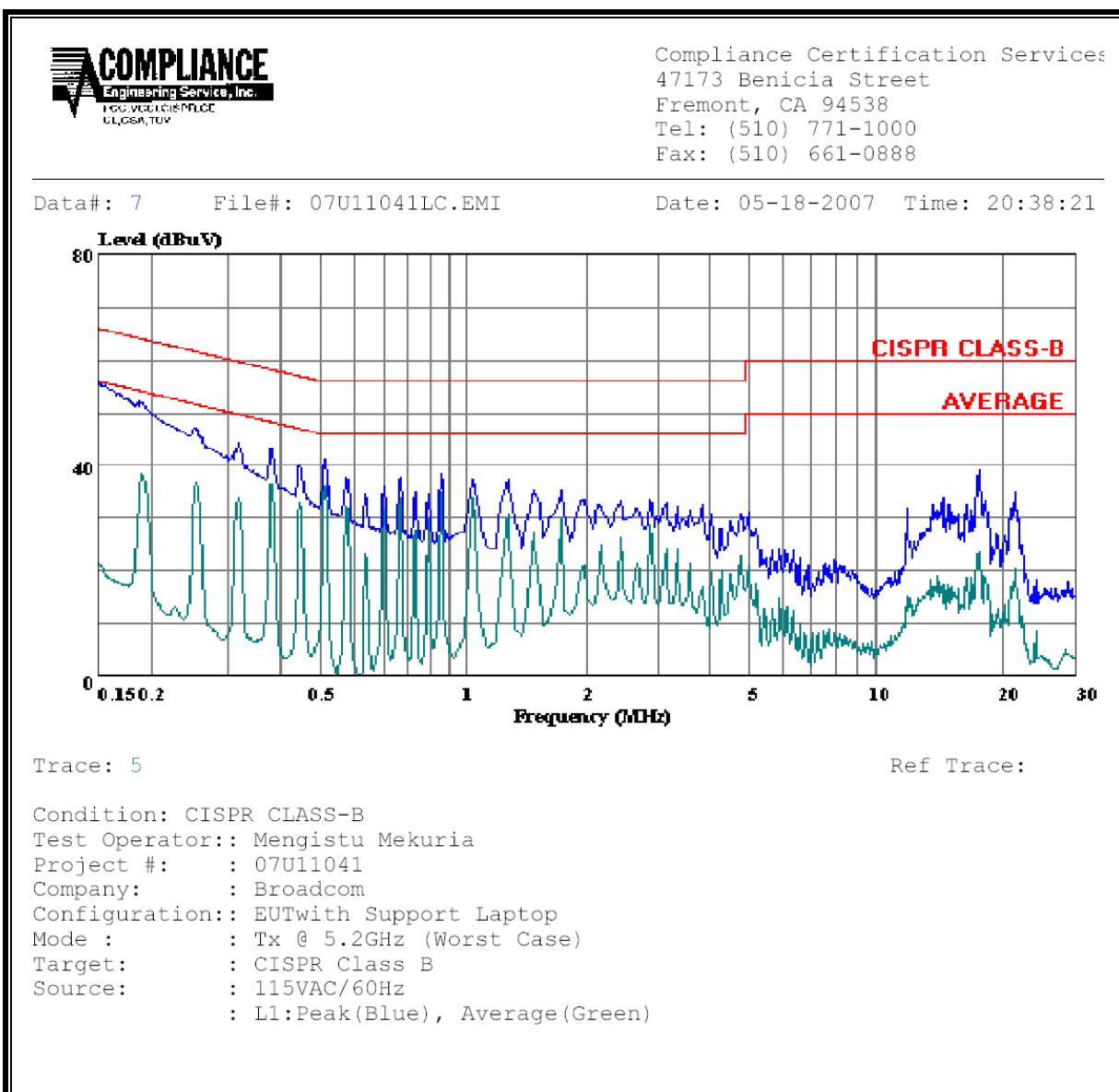
LINE 1 RESULTS

LINE 2 RESULTS

5 GHz BAND

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Closs (dB)	Limit QP	EN_B AV	Margin		Remark
	PK(dBuV)	QP (dBuV)	AV(dBuV)				QP (dB)	AV(dB)	
0.15	55.81	--	--	0.00	66.00	56.00	-10.19	-0.19	L1
0.19	52.27	--	--	0.00	64.17	54.17	-11.90	-1.90	L1
0.38	43.46	--	--	0.00	58.26	48.26	-14.80	-4.80	L1
0.15	55.75	--	--	0.00	66.00	56.00	-10.25	-0.25	L2
0.19	52.67	--	--	0.00	64.08	54.08	-11.41	-1.41	L2
0.25	47.69	--	--	0.00	61.66	51.66	-13.97	-3.97	L2
6 Worst Data									

LINE 1 RESULTS

LINE 2 RESULTS

