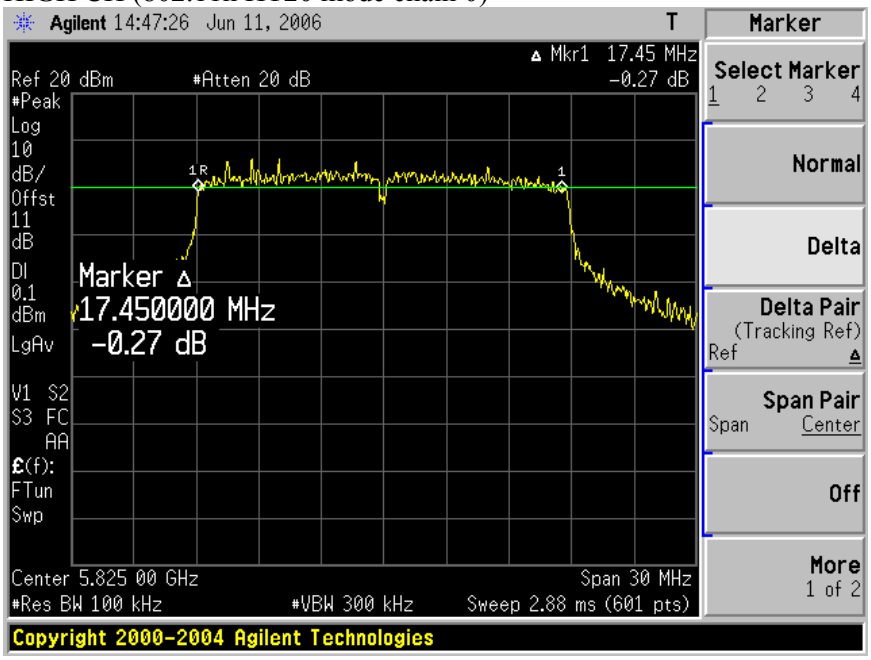
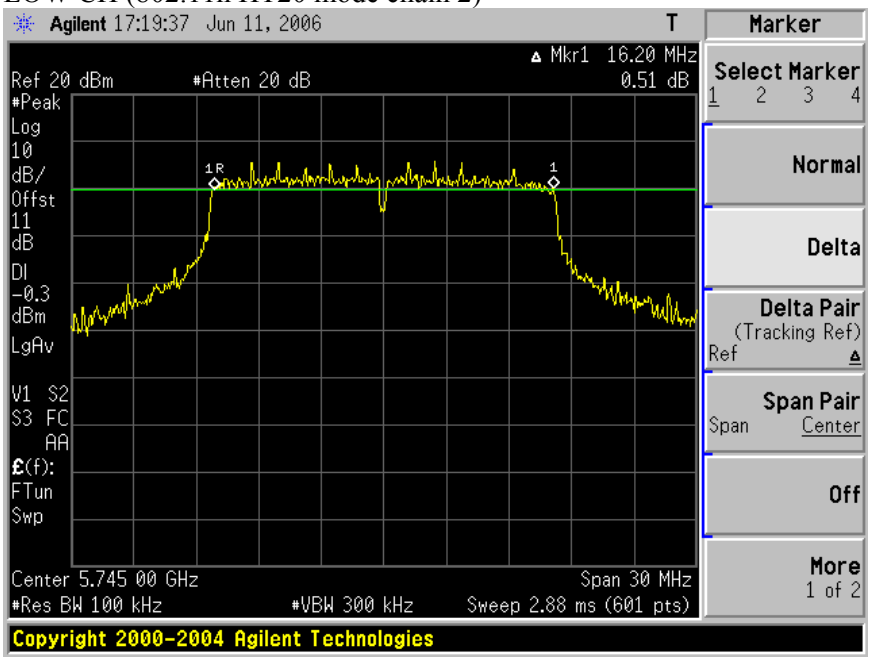
HIGH CH (802.11n HT20 mode chain 0)

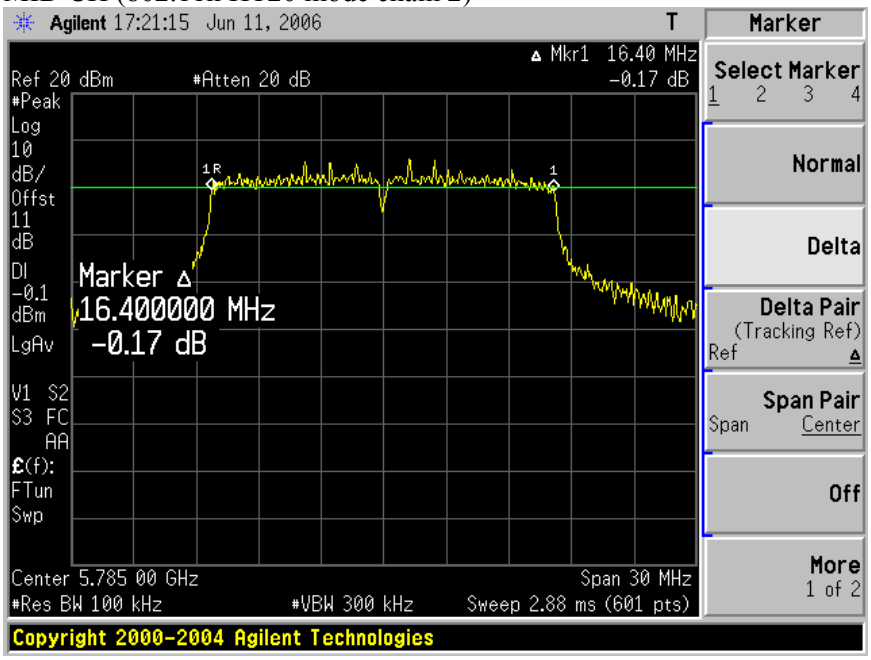


(802.11 HT20 MODE CHAIN 2)

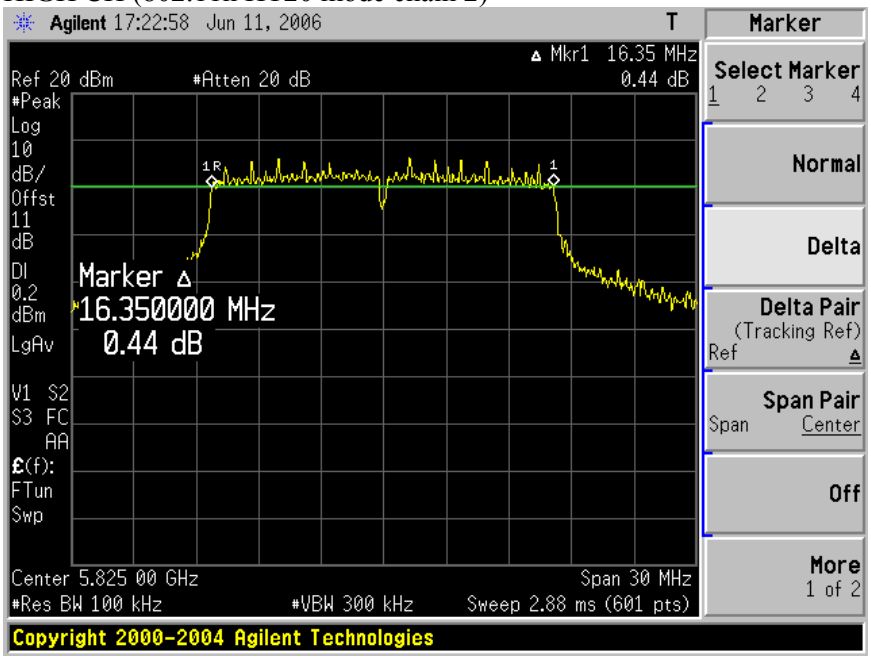
LOW CH (802.11n HT20 mode chain 2)



MID CH (802.11n HT20 mode chain 2)

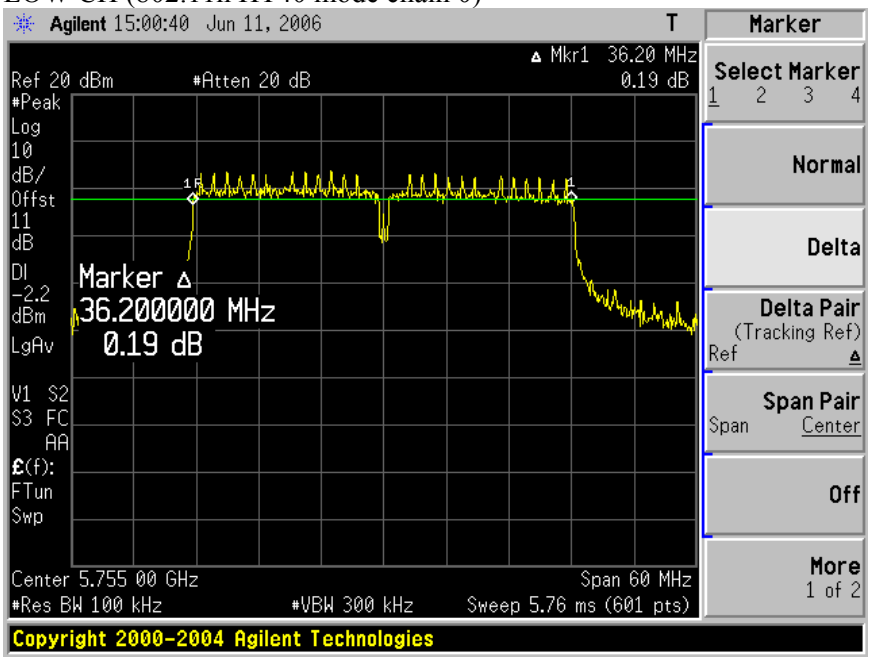


HIGH CH (802.11n HT20 mode chain 2)

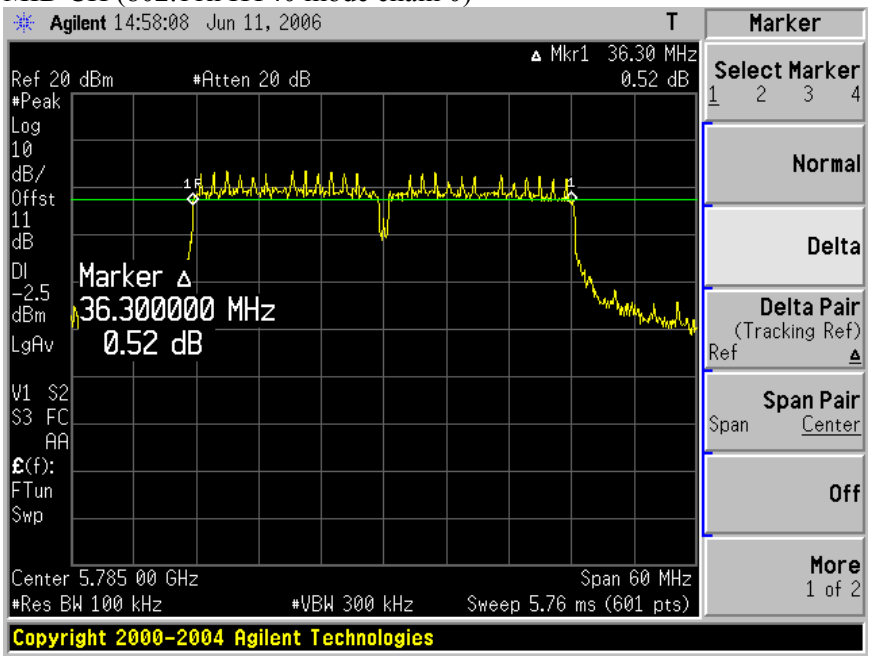


(802.11 HT40 MODE CHAIN 0)

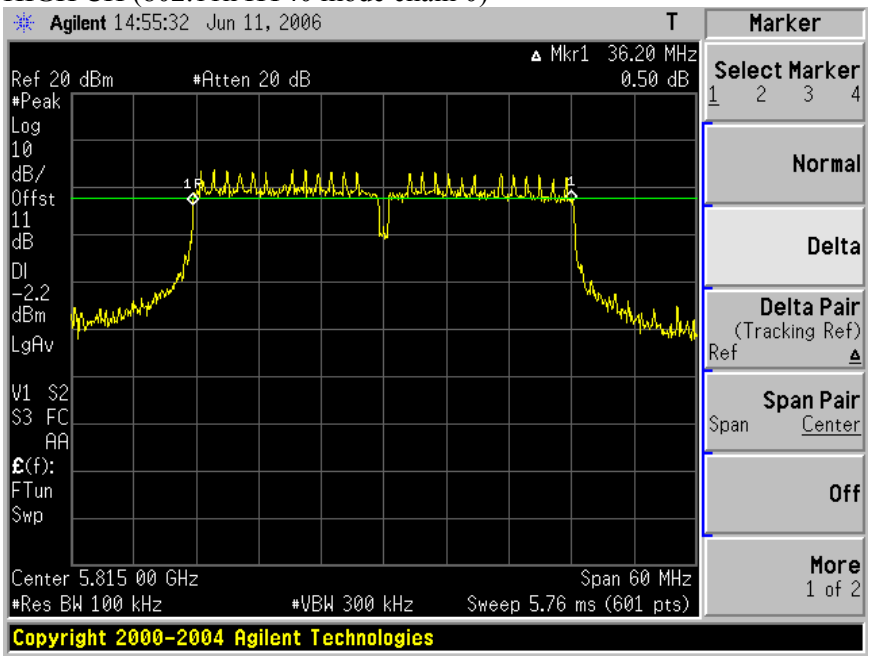
LOW CH (802.11n HT40 mode chain 0)



MID CH (802.11n HT40 mode chain 0)

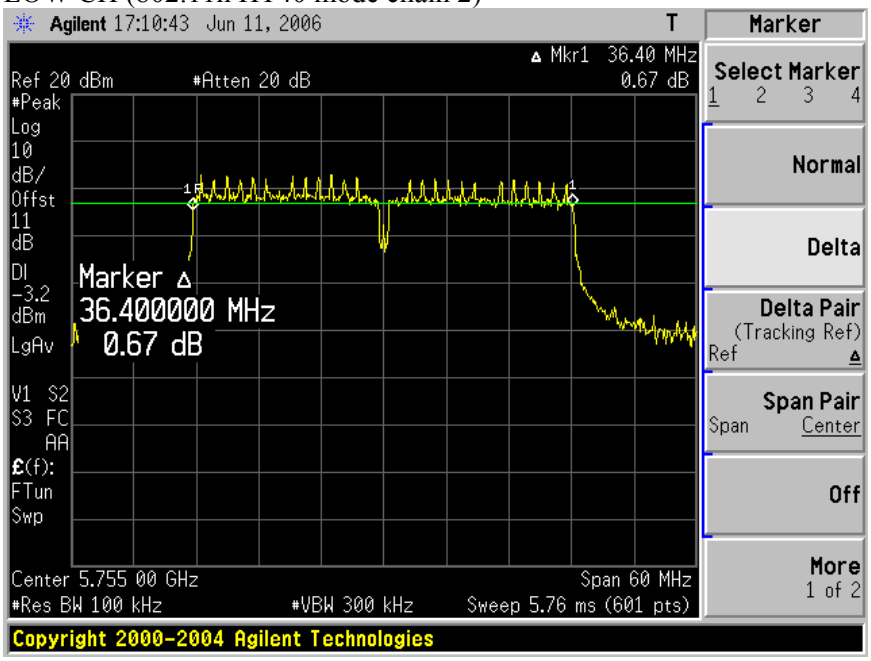


HIGH CH (802.11n HT40 mode chain 0)

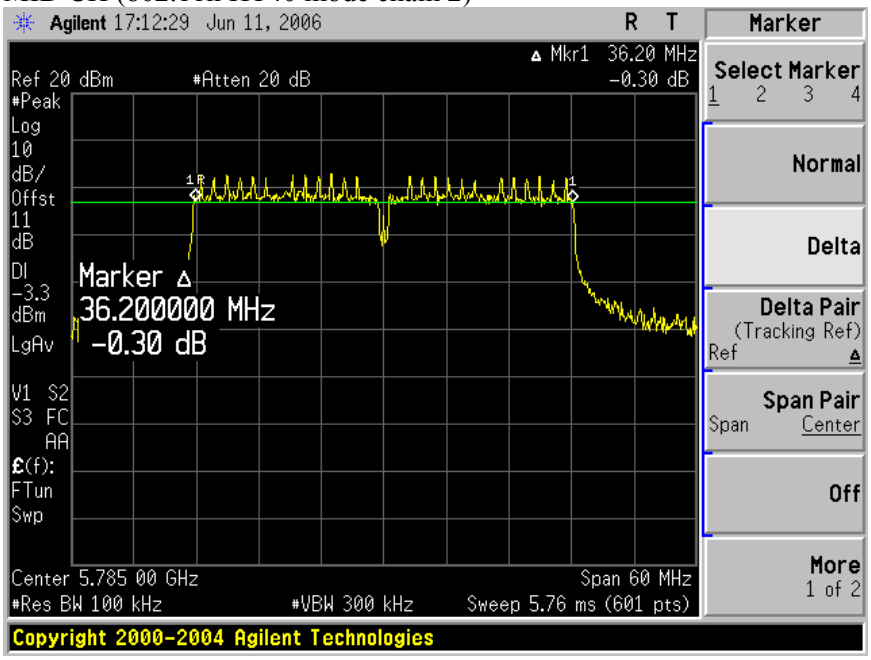


(802.11 HT40 MODE CHAIN 2)

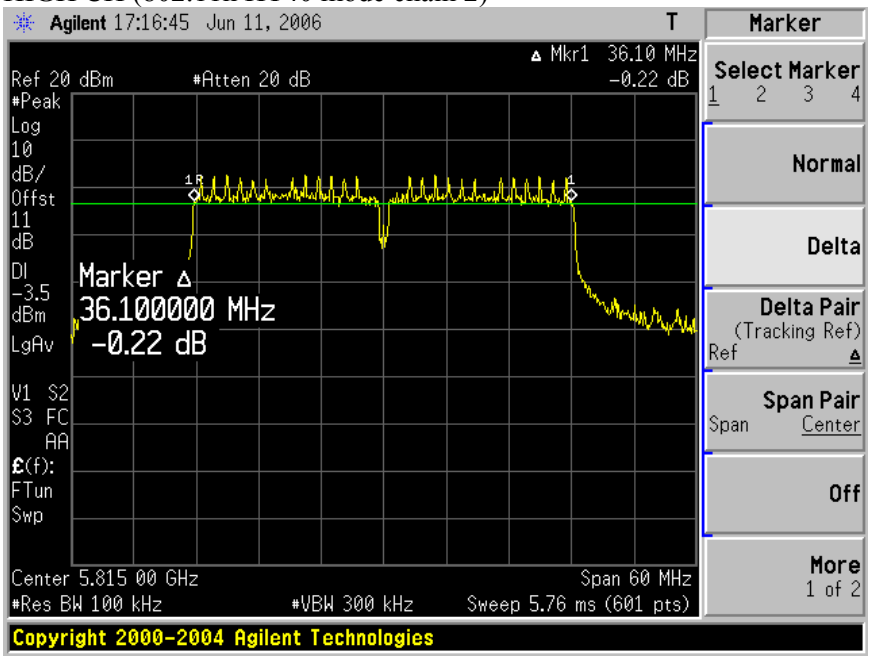
LOW CH (802.11n HT40 mode chain 2)



MID CH (802.11n HT40 mode chain 2)



HIGH CH (802.11n HT40 mode chain 2)



7.2.2. 99% BANDWIDTH AND 26 dB 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 and 26 dB bandwidth functions are utilized.

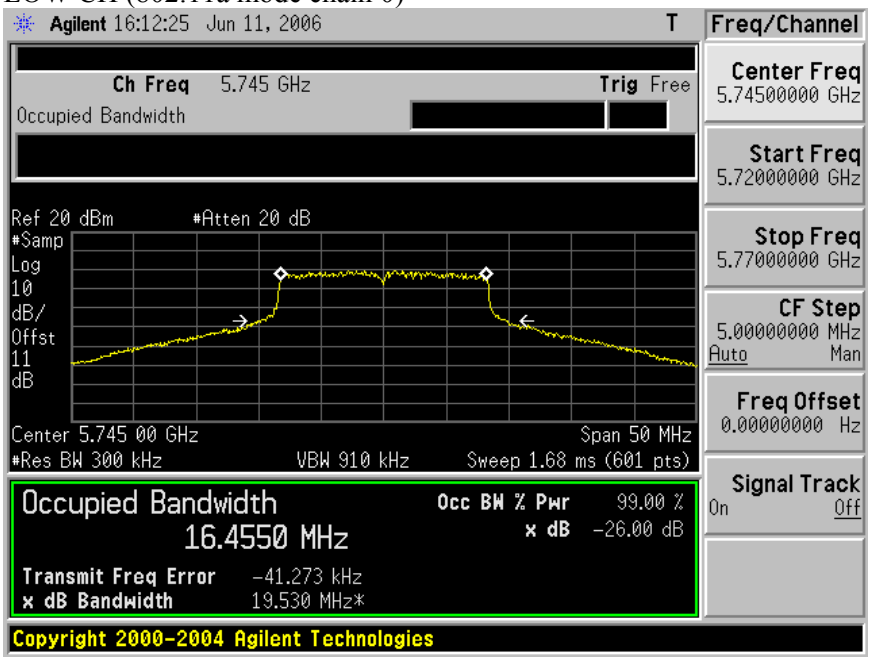
RESULTS

No non-compliance noted:

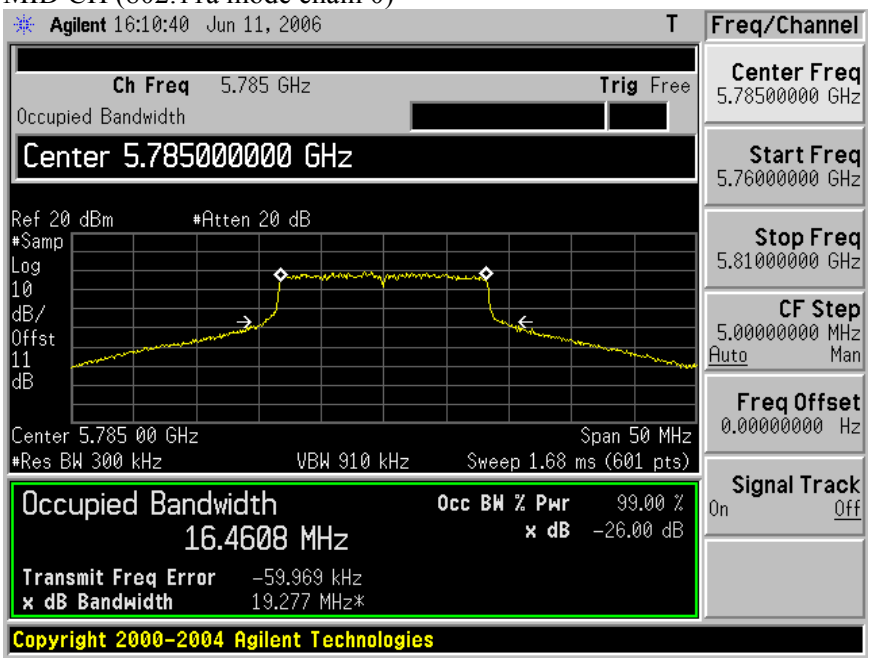
Mode Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 2 (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 2 (MHz)
802.11a Mode					
Low	5745	16.455	16.4815	19.53	18.9570
Middle	5785	16.4608	16.4909	19.277	19.4210
High	5825	16.4745	16.4668	19.683	19.8760
802.11n HT20 Mode					
Low	5745	17.5472	16.4815	19.902	18.9570
Mid	5785	16.4608	16.4909	19.277	19.4210
High	5825	16.4745	16.4668	19.683	19.8760
802.11n HT40 Mode					
Low	5755	36.4234	36.4013	40.731	38.2290
Mid	5785	36.3285	36.2539	39.066	38.0290
High	5815	36.2112	36.3184	38.449	39.1360

(802.11a MODE CHAIN 0)

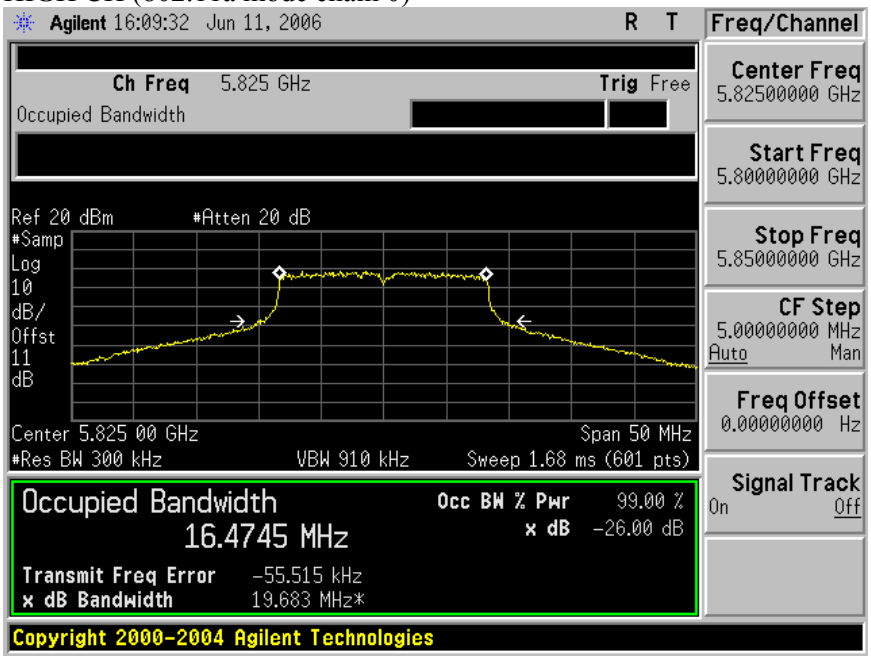
LOW CH (802.11a mode chain 0)



MID CH (802.11a mode chain 0)

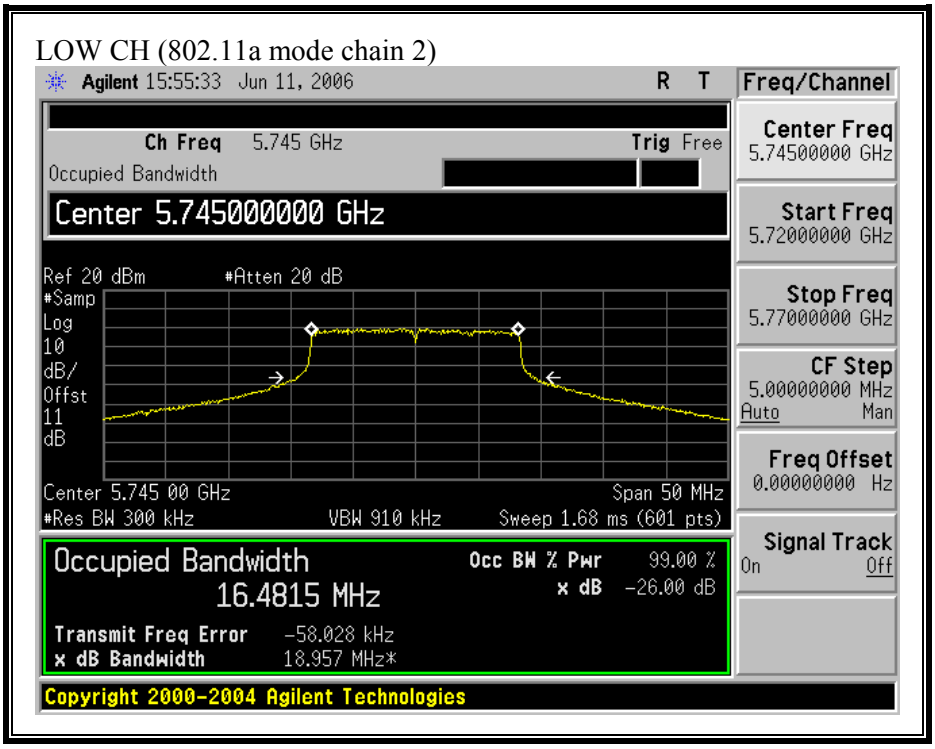


HIGH CH (802.11a mode chain 0)

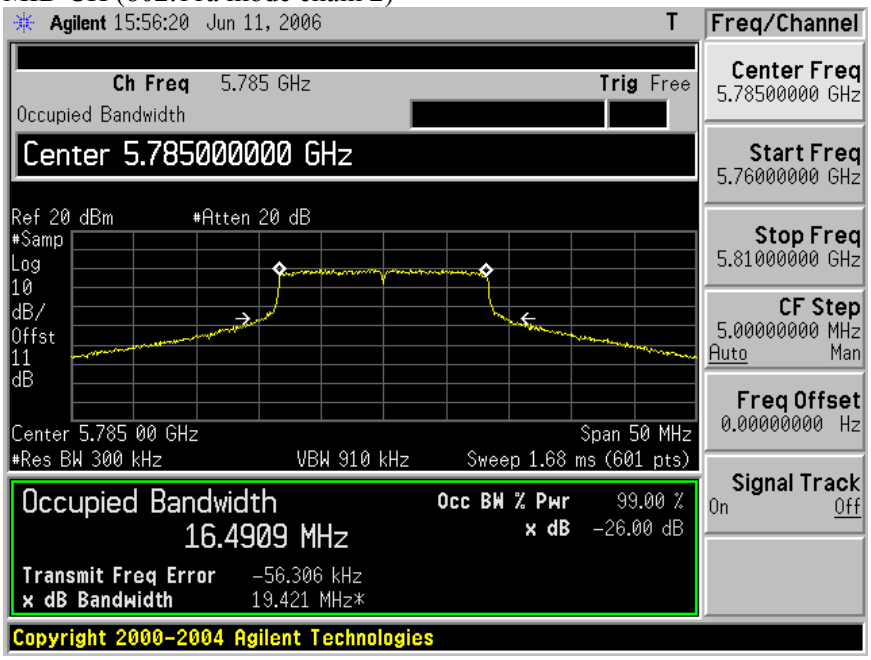


(802.11a MODE CHAIN 2)

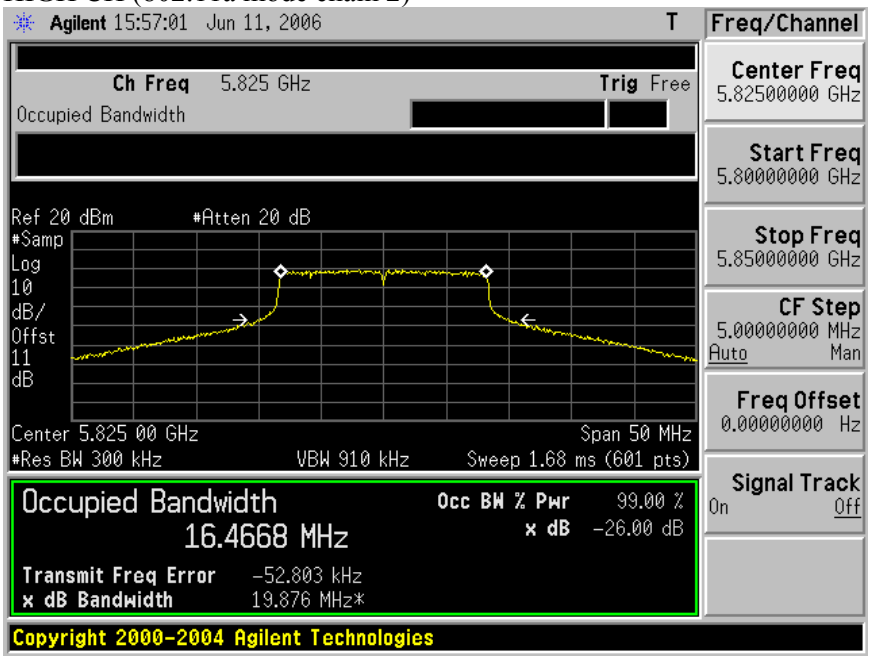
LOW CH (802.11a mode chain 2)



MID CH (802.11a mode chain 2)

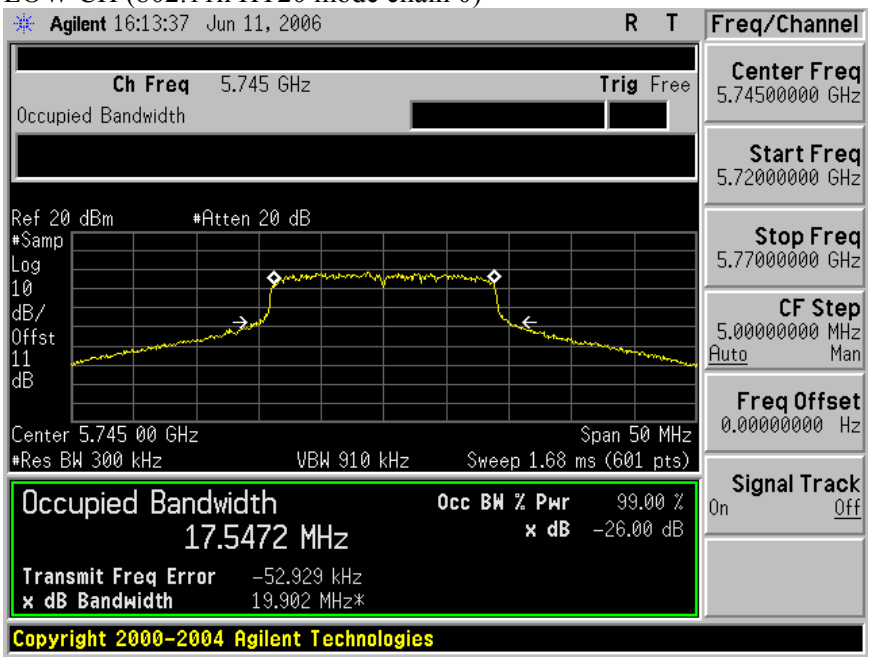


HIGH CH (802.11a mode chain 2)

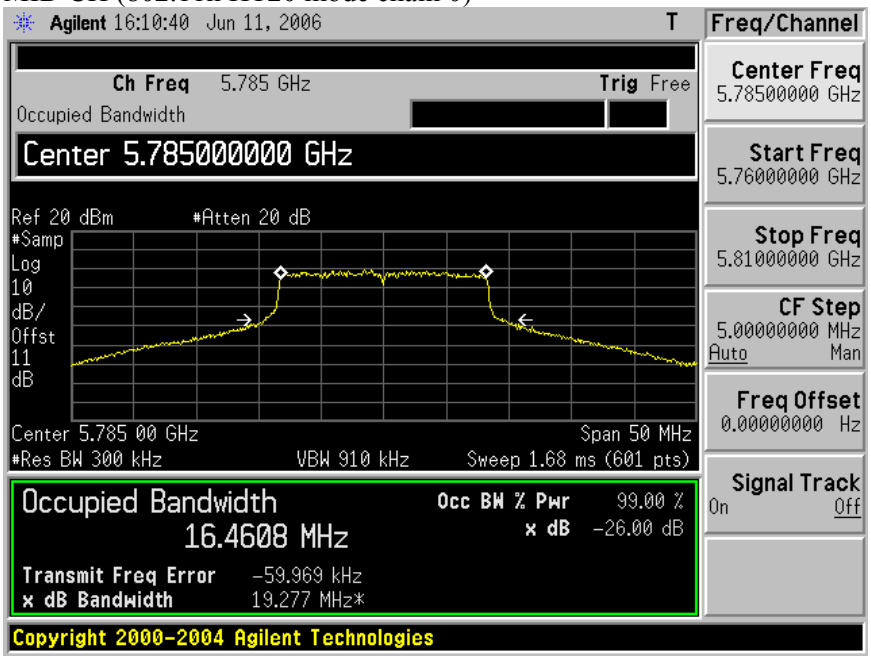


(802.11n HT20 MODE CHAIN 0)

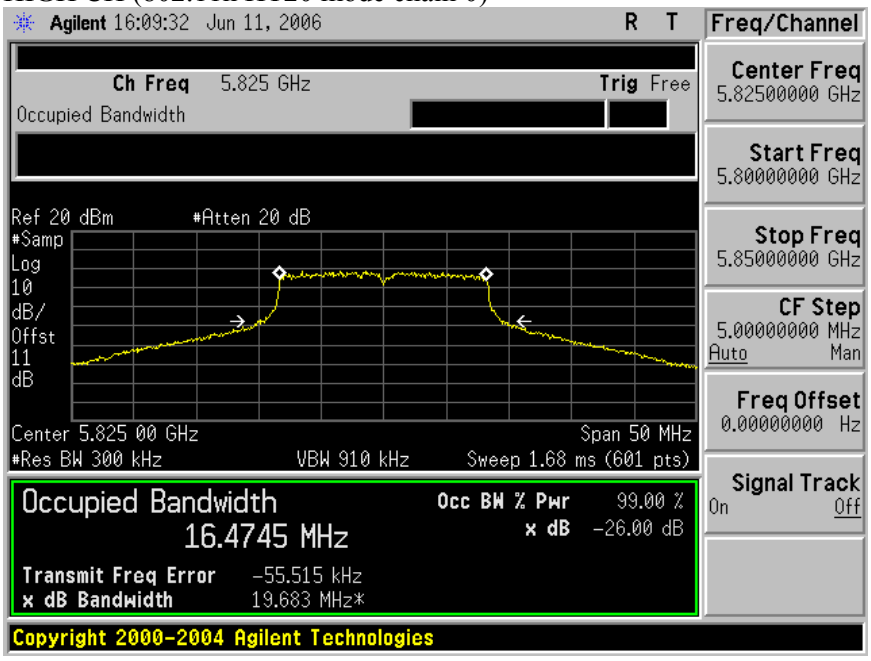
LOW CH (802.11n HT20 mode chain 0)



MID CH (802.11n HT20 mode chain 0)

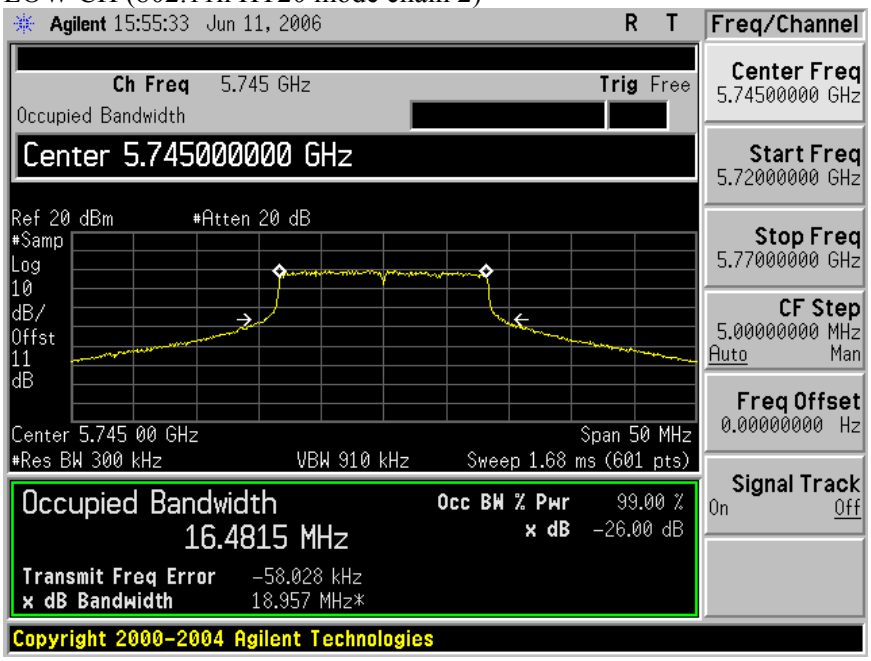


HIGH CH (802.11n HT20 mode chain 0)

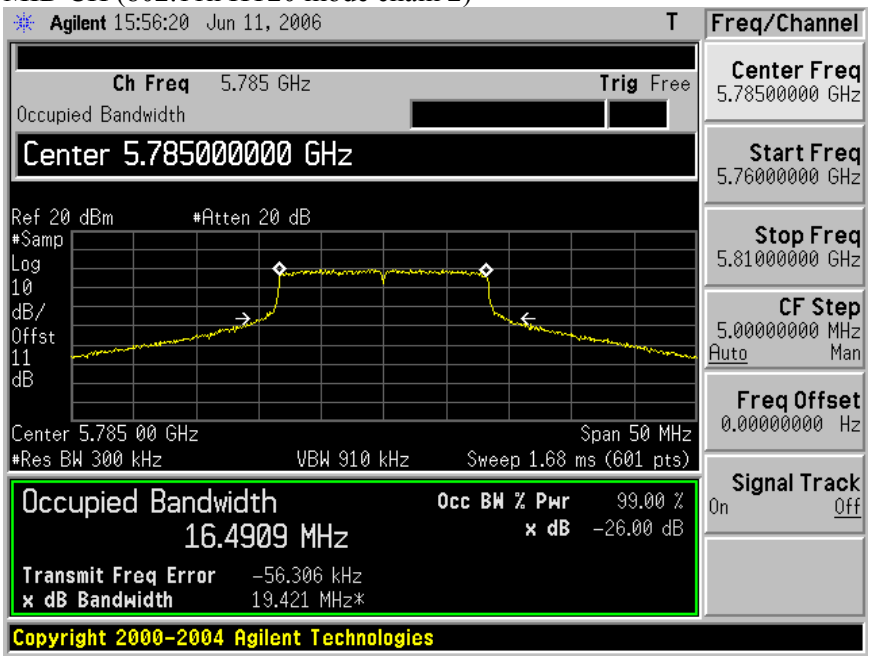


(802.11 HT20 MODE CHAIN 2)

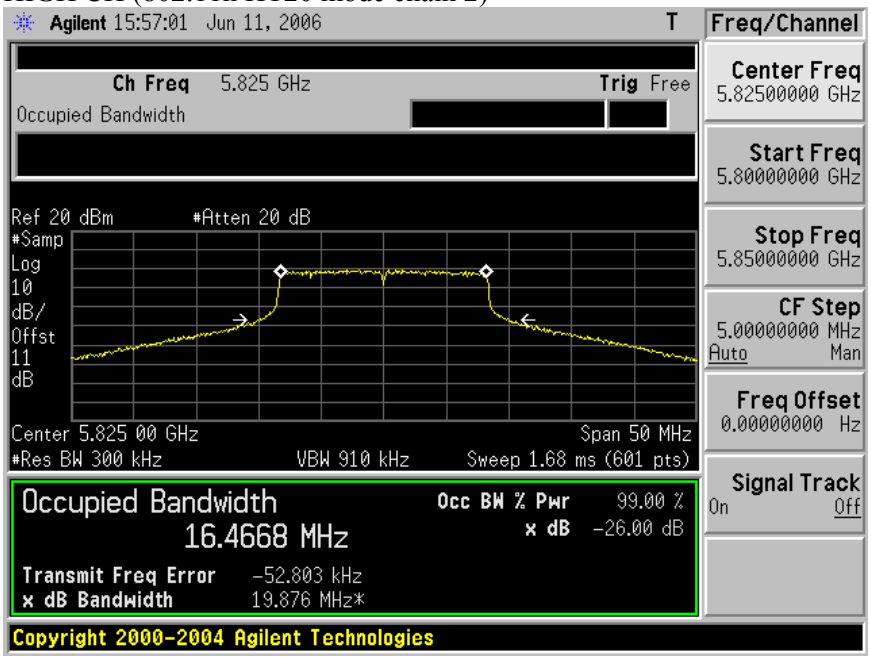
LOW CH (802.11n HT20 mode chain 2)



MID CH (802.11n HT20 mode chain 2)

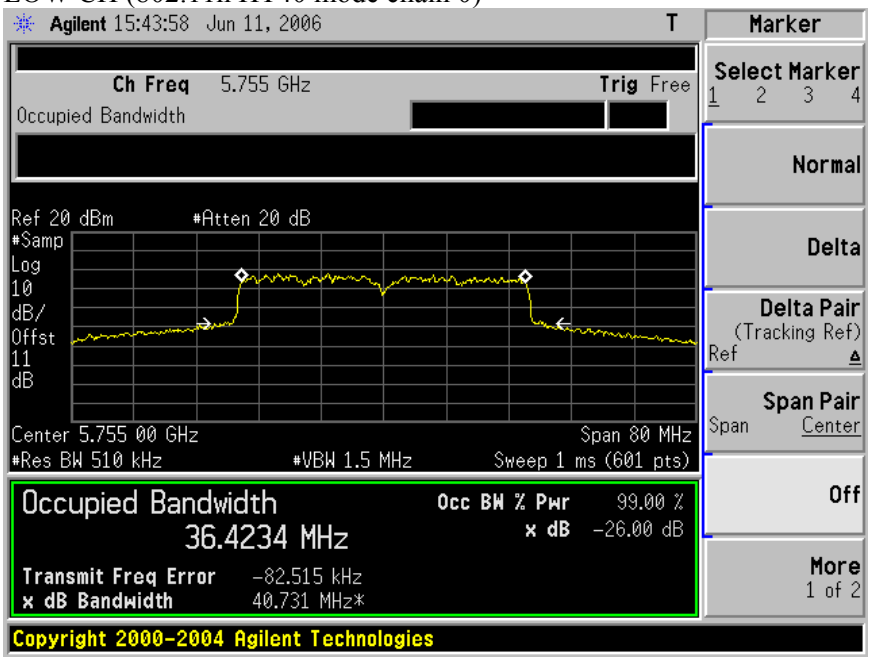


HIGH CH (802.11n HT20 mode chain 2)

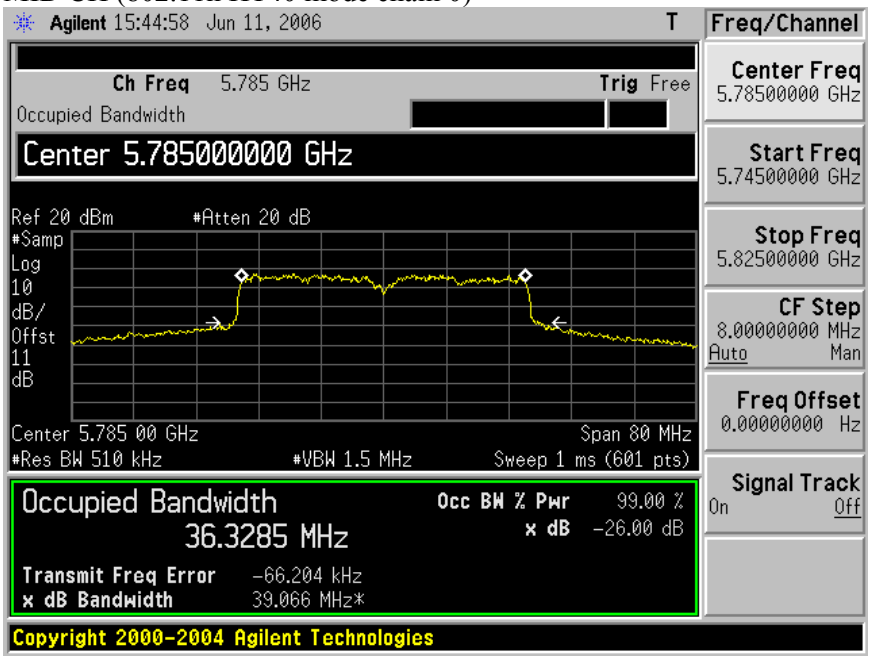


(802.11 HT40 MODE CHAIN 0)

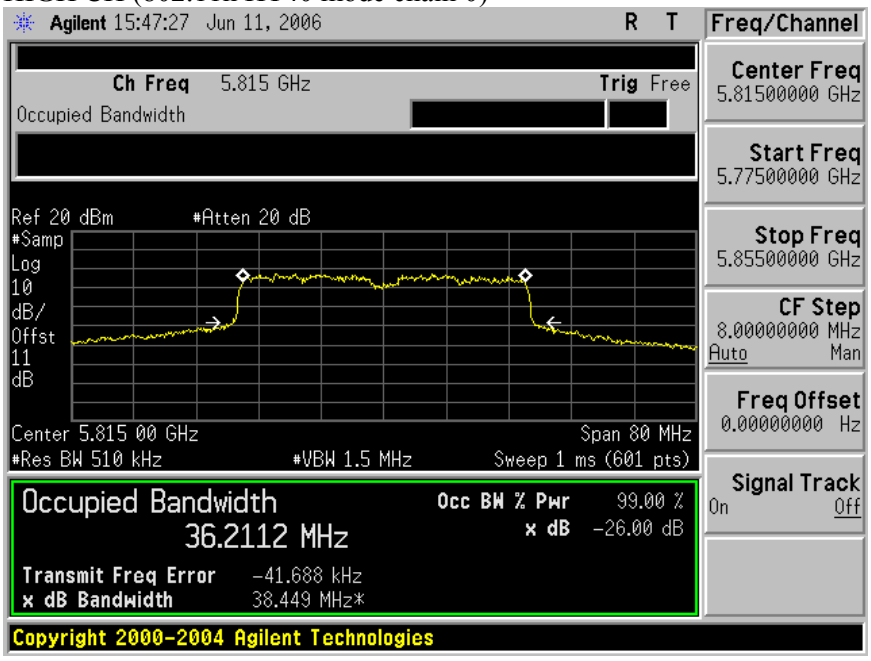
LOW CH (802.11n HT40 mode chain 0)



MID CH (802.11n HT40 mode chain 0)

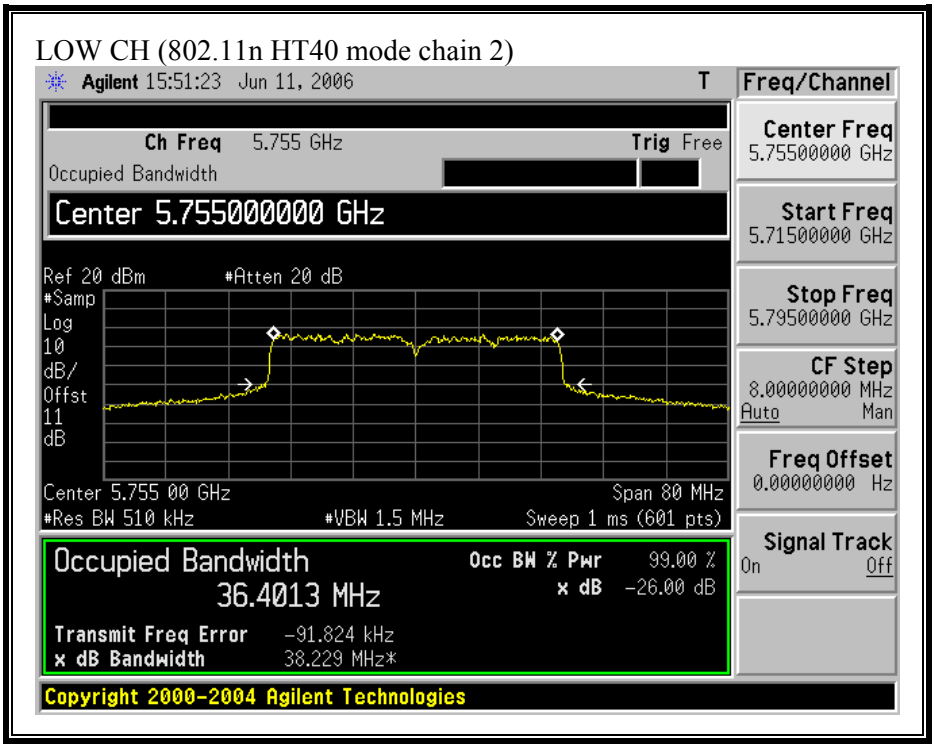


HIGH CH (802.11n HT40 mode chain 0)

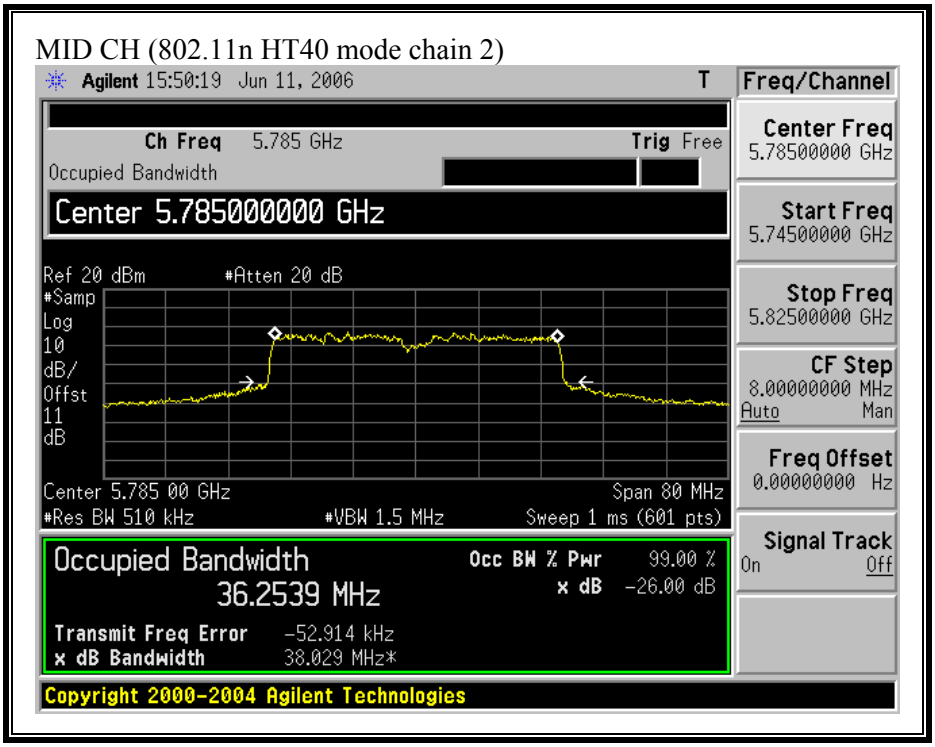


(802.11 HT40 MODE CHAIN 2)

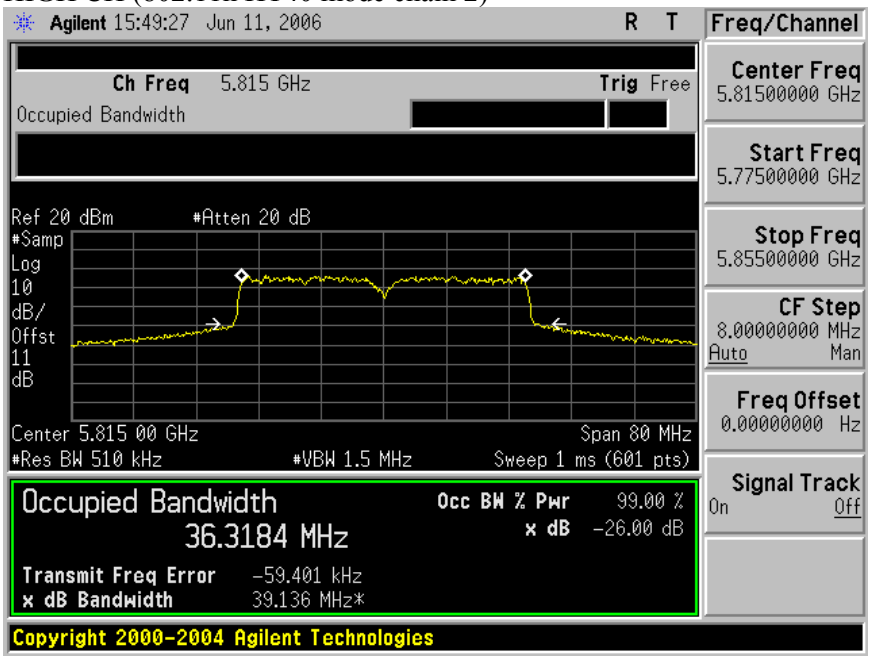
LOW CH (802.11n HT40 mode chain 2)



MID CH (802.11n HT40 mode chain 2)



HIGH CH (802.11n HT40 mode chain 2)



7.2.3. MAXIMUM OUTPUT 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. 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.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The test is performed in accordance with Option 2 procedures in FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005. The transmitter operates continuously therefore Method # 1 is used.

Each chain is measured separately and the total power is calculated using:

Total Power = 10 log (10^ (Chain 0 Power / 10) + 10^ (Chain 2 Power / 10))

RESULTS

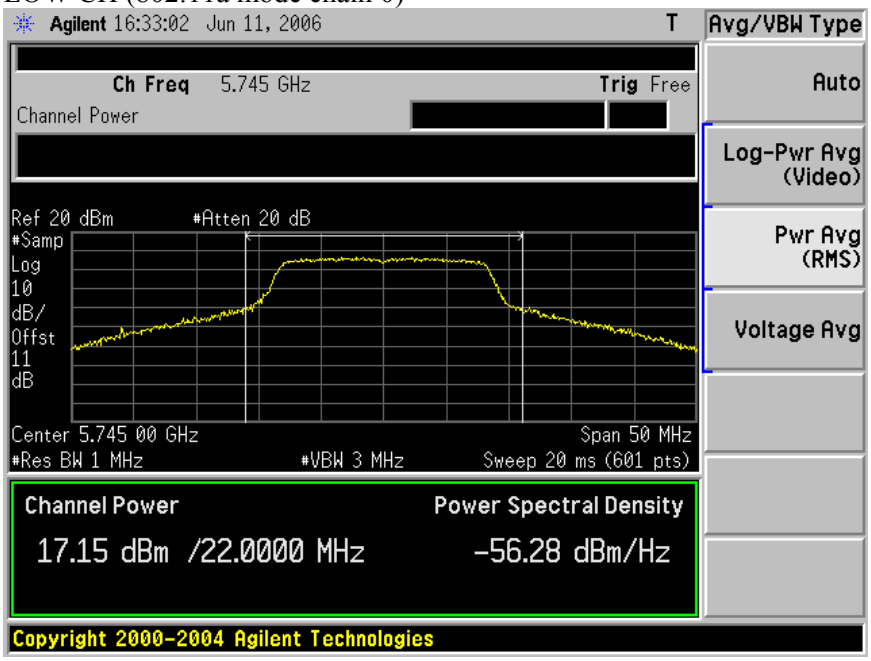
The maximum antenna gain is 4.76 dBi for other than fixed, point-to-point operations, therefore the limit is 30 dBm. In the legacy mode, the effective antenna gain is 4.76 + 10*Log(2) = 7.77 dBi.

No non-compliance noted:

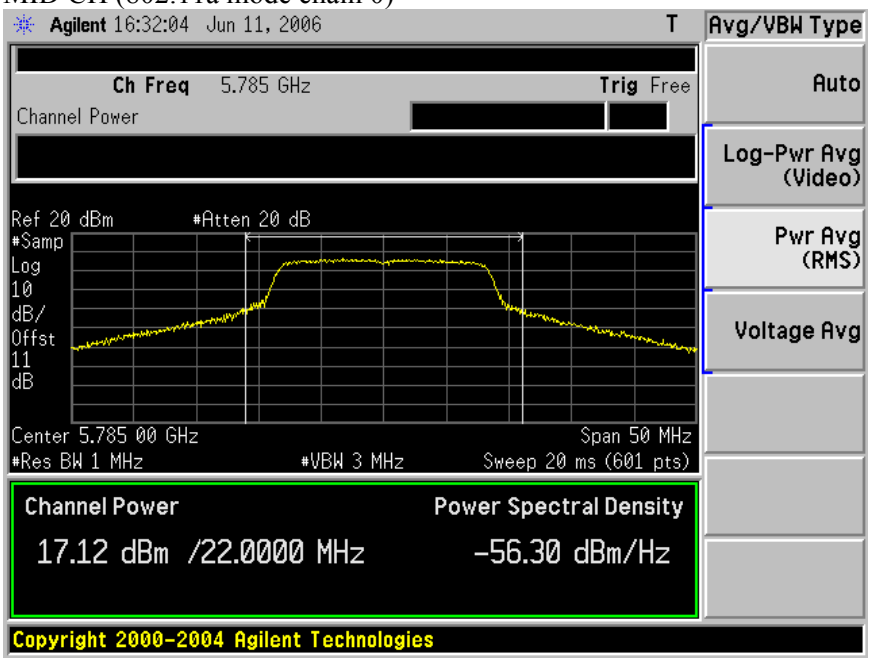
Mode Channel	Frequency (MHz)	Max Power Chain 0 (dBm)	Max Power Chain 2 (dBm)	Max Power Total (dBm)	Limit (dBm)	Margin (dB)
802.11a Mode						
Low	5745	17.15	17.27	20.22	28.2	-8.01
Middle	5785	17.12	17.20	20.17	28.2	-8.06
High	5825	17.33	16.89	20.13	28.2	-8.10
802.11n HT20 Mode						
Low	5745	17.18	17.00	20.10	30.0	-9.90
Middle	5785	17.10	17.26	20.19	30.0	-9.81
High	5825	17.26	17.15	20.22	30.0	-9.78
802.11n HT40 Mode						
Low	5755	17.18	16.97	20.09	30.0	-9.91
Middle	5785	17.29	17.08	20.20	30.0	-9.80
High	5815	17.12	17.12	20.13	30.0	-9.87

(802.11a MODE CHAIN 0)

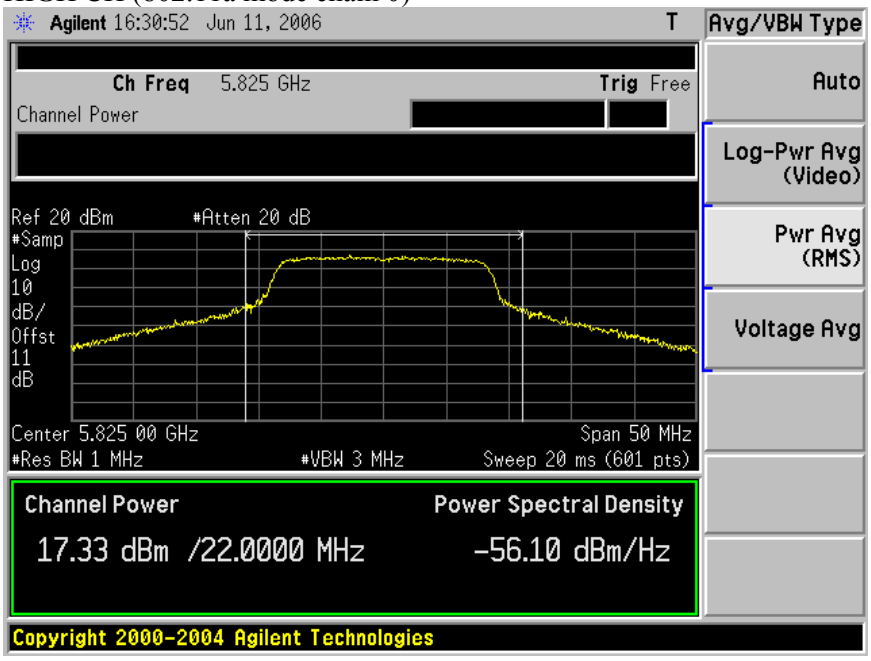
LOW CH (802.11a mode chain 0)



MID CH (802.11a mode chain 0)

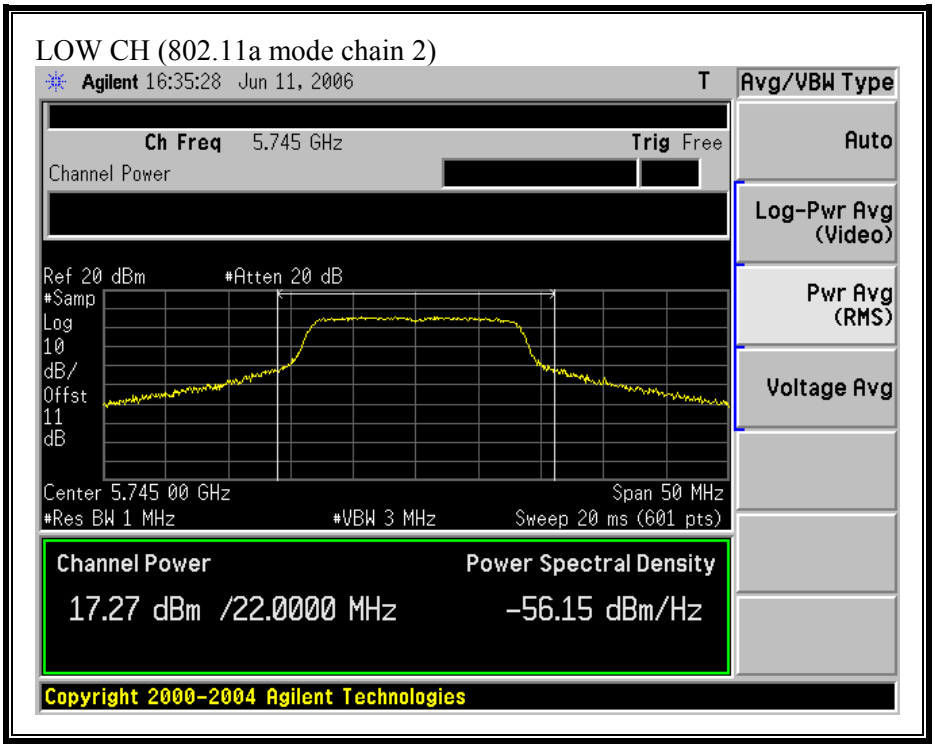


HIGH CH (802.11a mode chain 0)

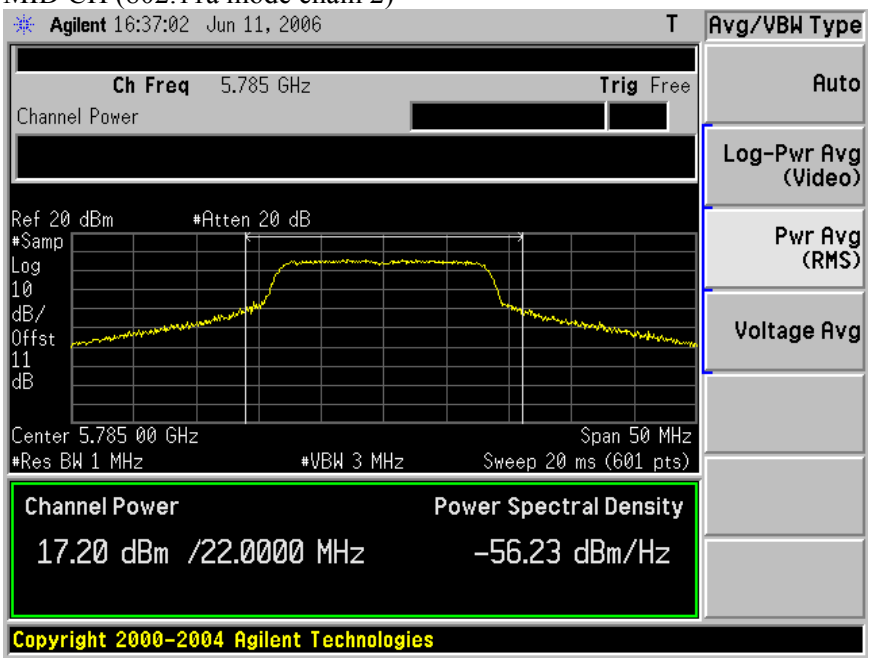


(802.11a MODE CHAIN 2)

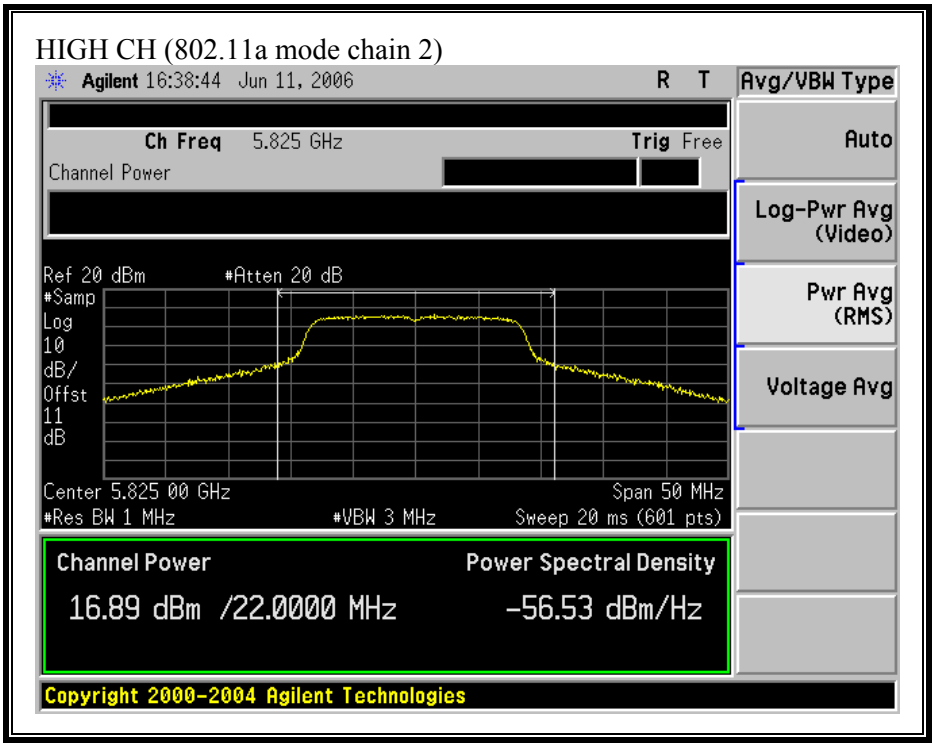
LOW CH (802.11a mode chain 2)



MID CH (802.11a mode chain 2)

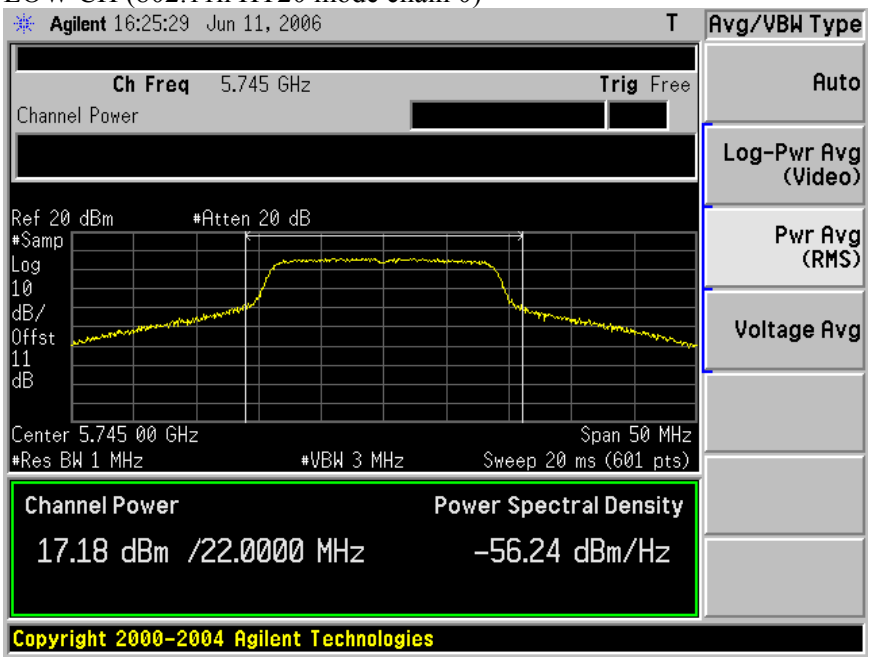


HIGH CH (802.11a mode chain 2)

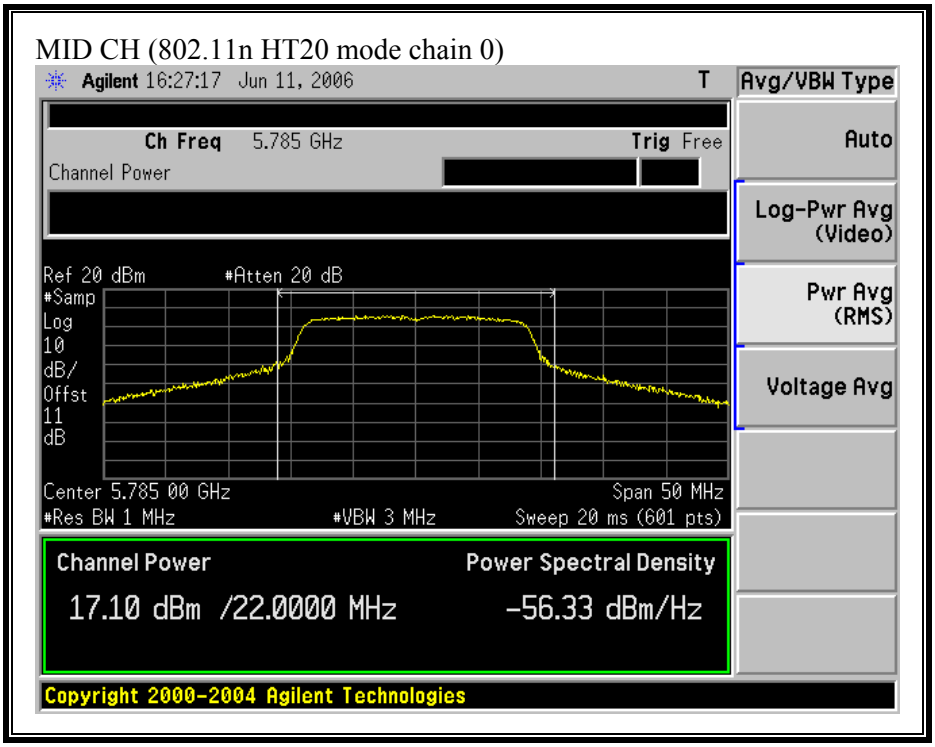


(802.11n HT20 MODE CHAIN 0)

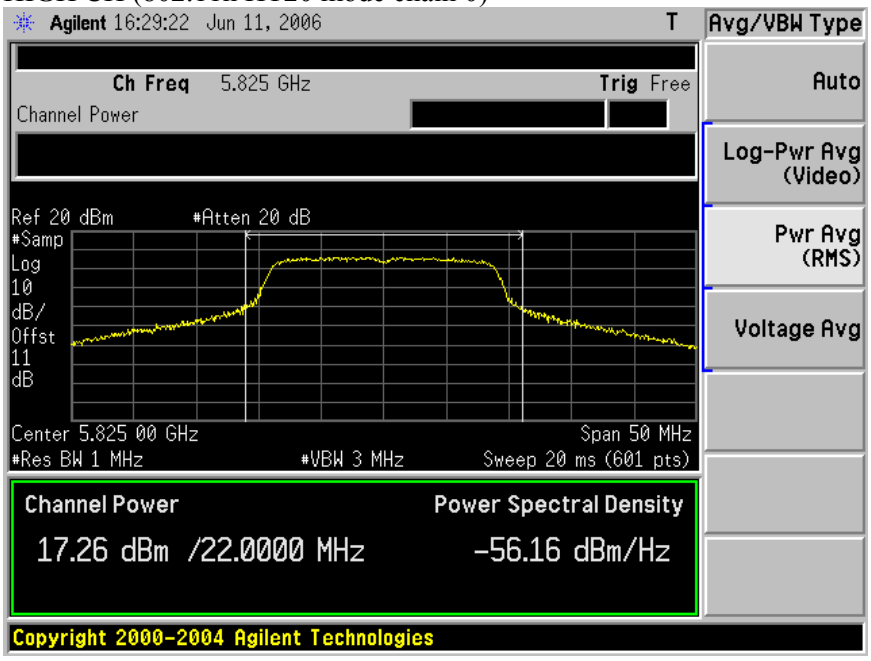
LOW CH (802.11n HT20 mode chain 0)



MID CH (802.11n HT20 mode chain 0)

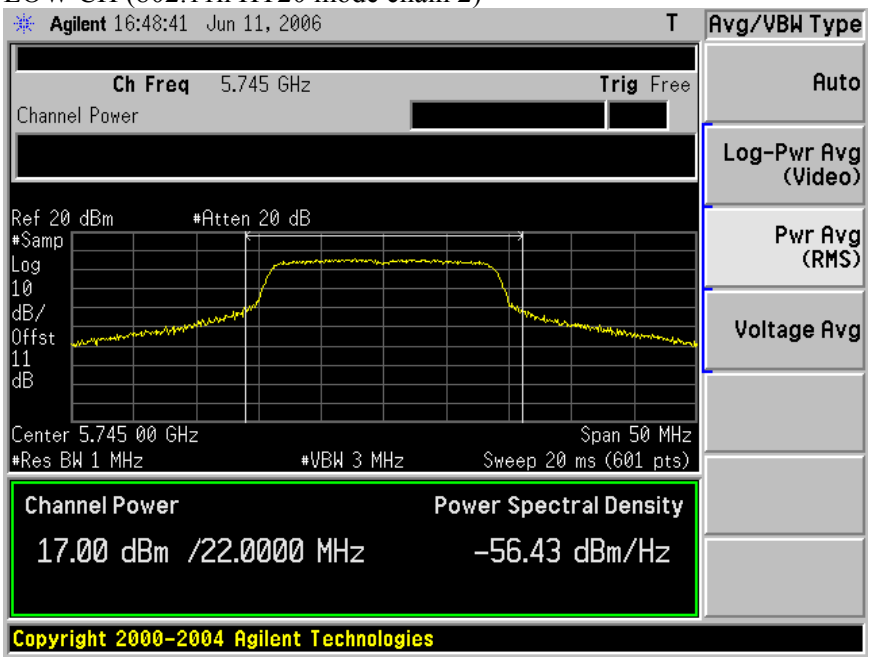


HIGH CH (802.11n HT20 mode chain 0)

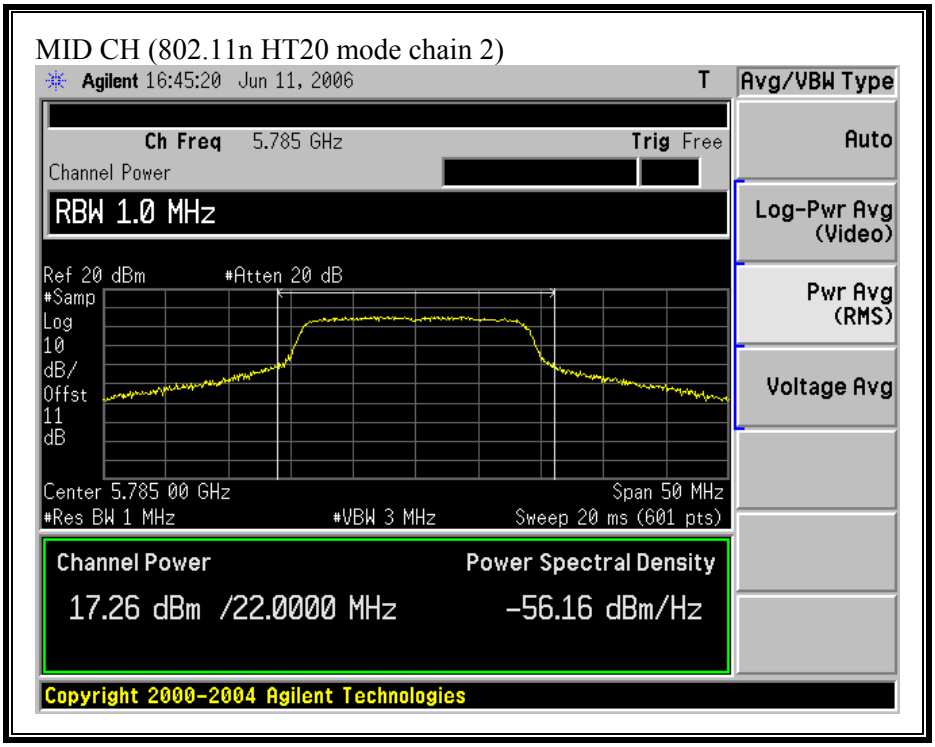


(802.11 HT20 MODE CHAIN 2)

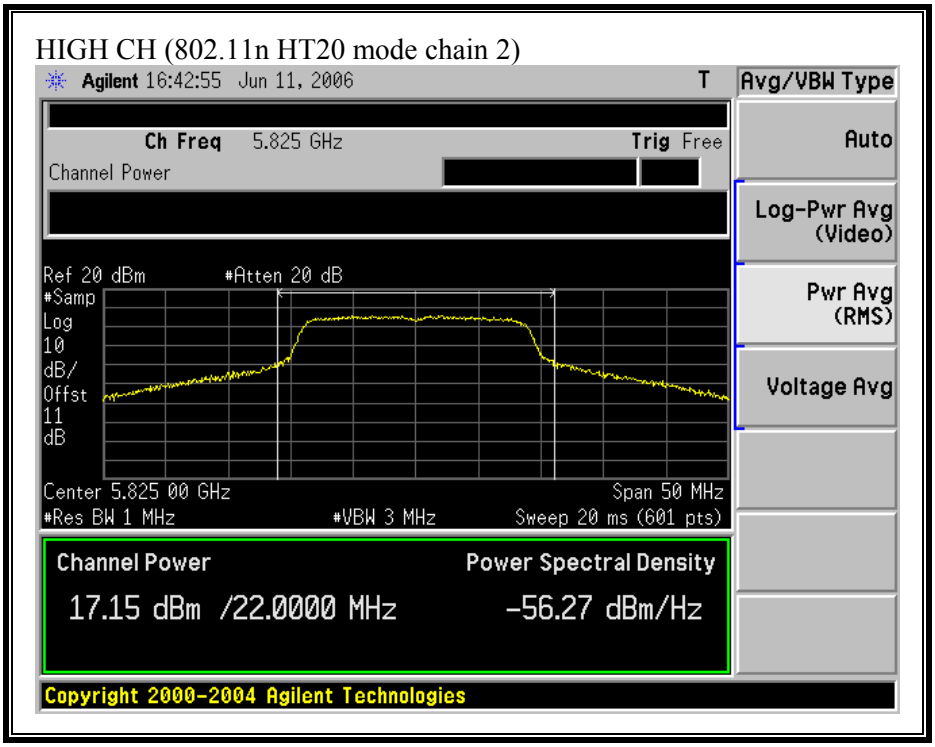
LOW CH (802.11n HT20 mode chain 2)



MID CH (802.11n HT20 mode chain 2)

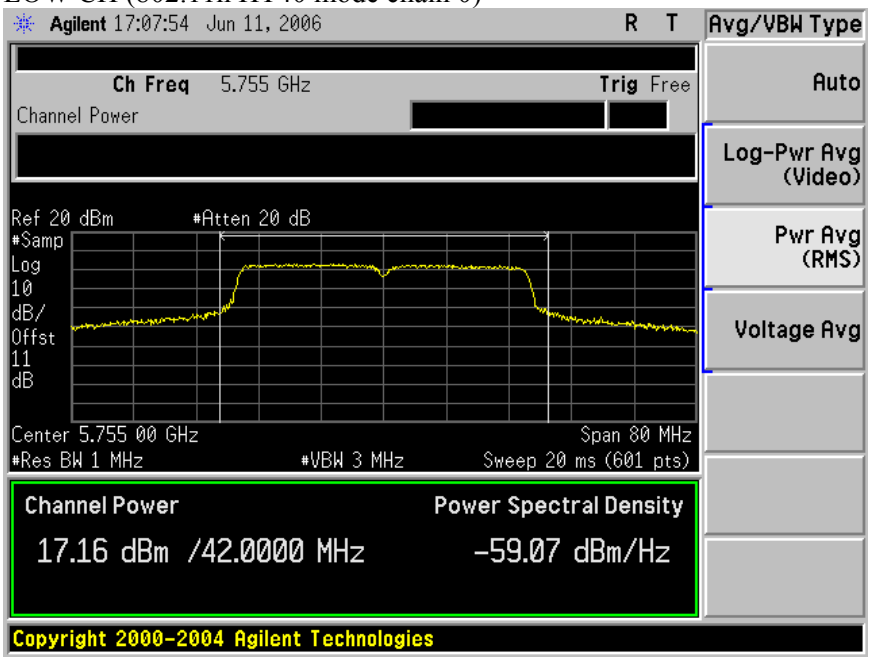


HIGH CH (802.11n HT20 mode chain 2)

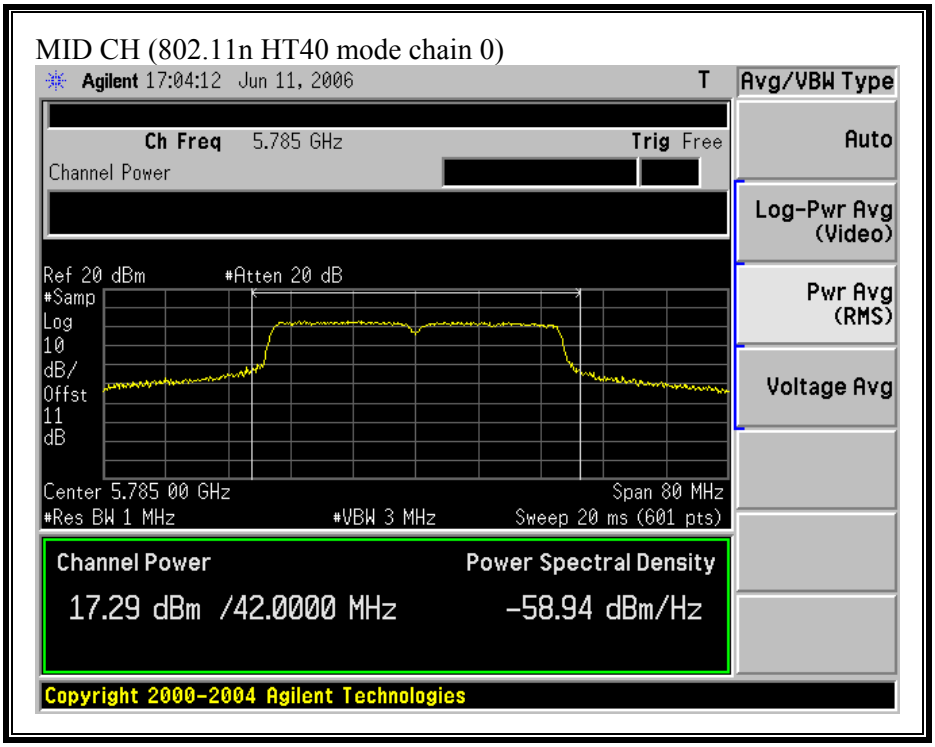


(802.11 HT40 MODE CHAIN 0)

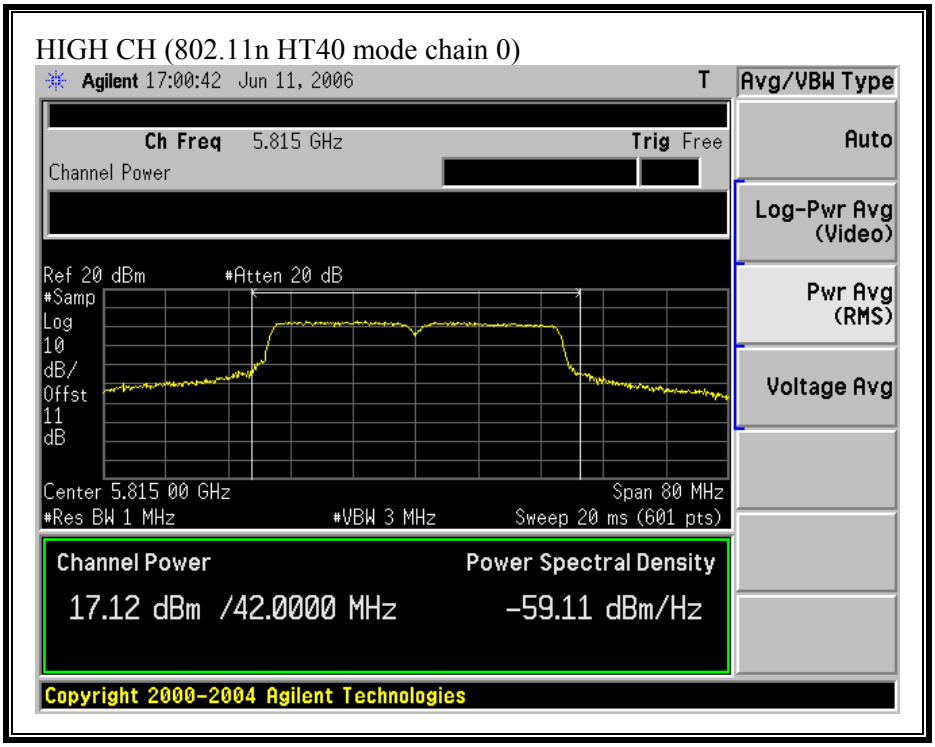
LOW CH (802.11n HT40 mode chain 0)



MID CH (802.11n HT40 mode chain 0)

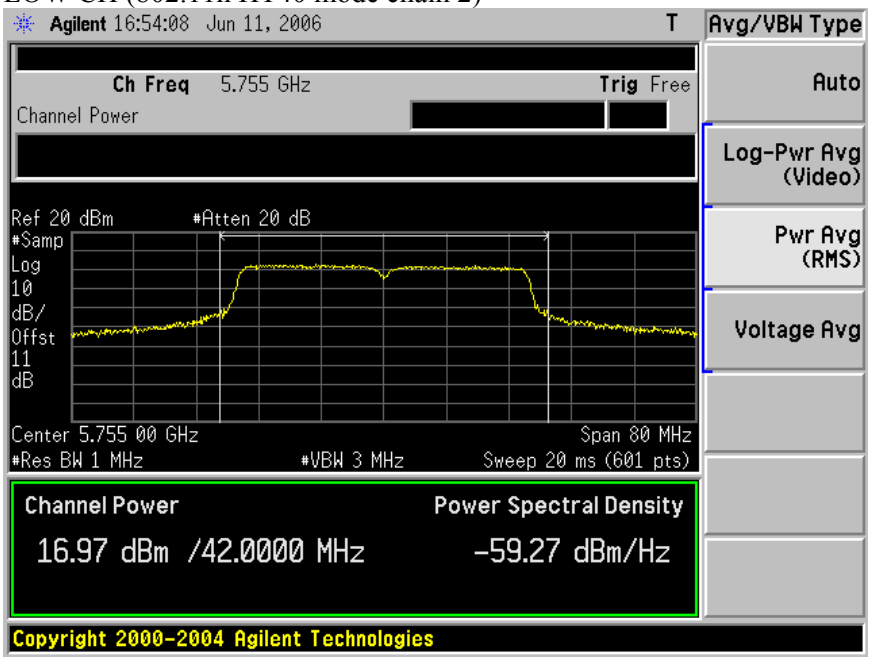


HIGH CH (802.11n HT40 mode chain 0)

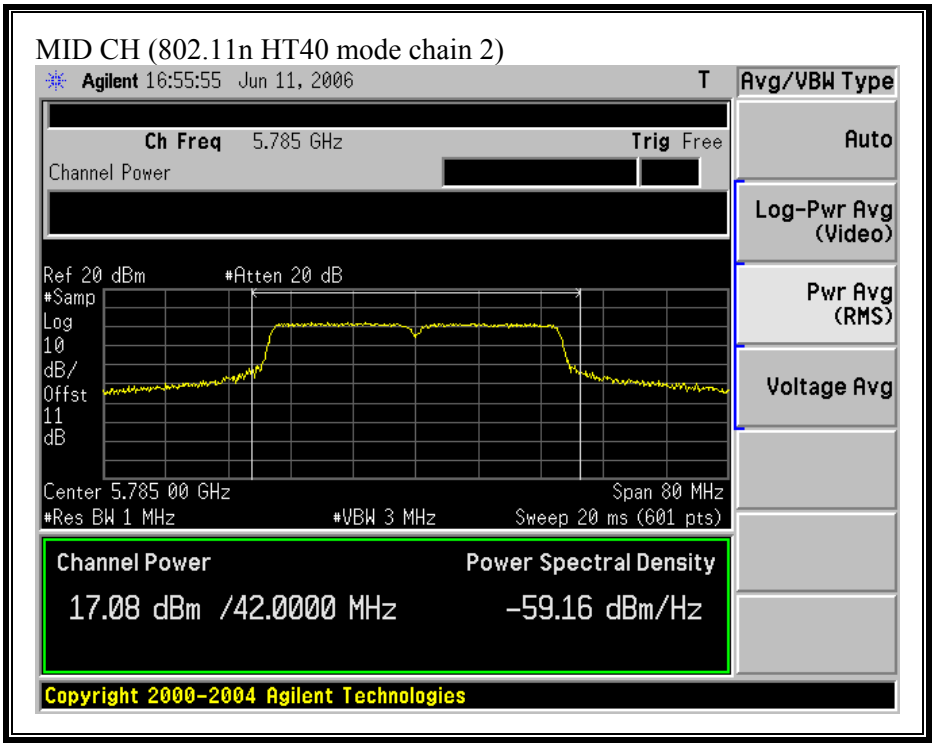


(802.11 HT40 MODE CHAIN 2)

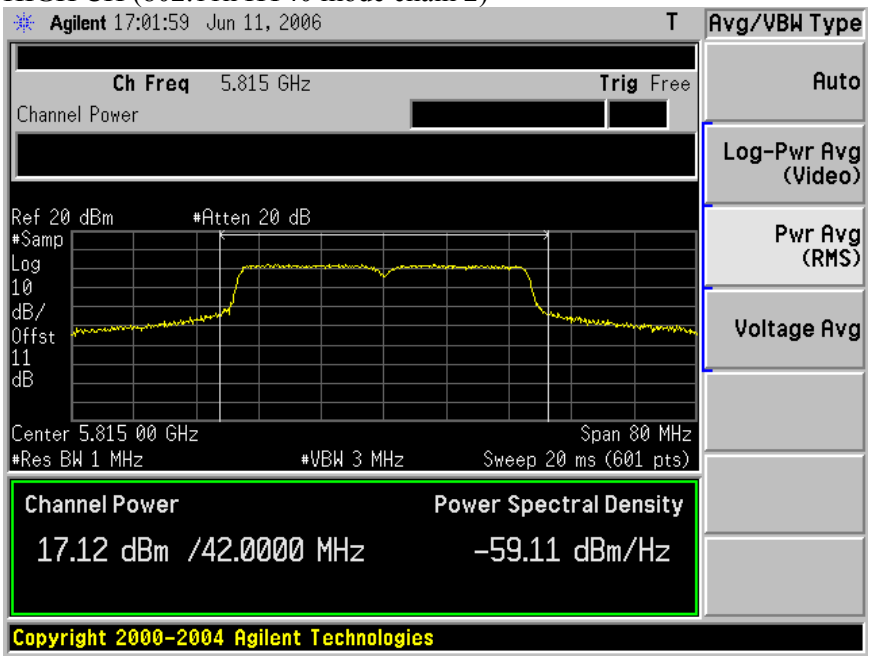
LOW CH (802.11n HT40 mode chain 2)



MID CH (802.11n HT40 mode chain 2)



HIGH CH (802.11n HT40 mode chain 2)



7.2.4. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

Each chain is measured separately and the total power is calculated using:

Total Power = 10 log (10^ (Chain 0 Power / 10) + 10^ (Chain 2 Power / 10))

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Mode Channel	Frequency (MHz)	Average Power Chain 0 (dBm)	Average Power Chain 2 (dBm)	Average Power Total (dBm)
802.11a Mode				
Low	5745	16.90	16.65	19.8
Middle	5785	16.85	16.74	19.8
High	5825	17.01	16.90	20.0
802.11n HT20 Mode				
Low	5745	16.79	16.40	19.6
Middle	5785	16.75	16.30	19.5
High	5825	16.86	16.25	19.6
802.11n HT40 Mode				
Low	5755	16.35	16.95	19.7
Middle	5785	16.26	16.89	19.6
High	5815	16.25	16.85	19.6

7.2.5. 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 test is performed in accordance with Option 2 procedures in FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005. The conditions for sample detection are satisfied. The PPSD is the highest level found across the emission in any 3 kHz band.

Each chain is measured separately and the total PPSD is calculated using:

Total PPSD = 10 log (10^ (Chain 0 PPSD / 10) + 10^ (Chain 2 PPSD / 10))

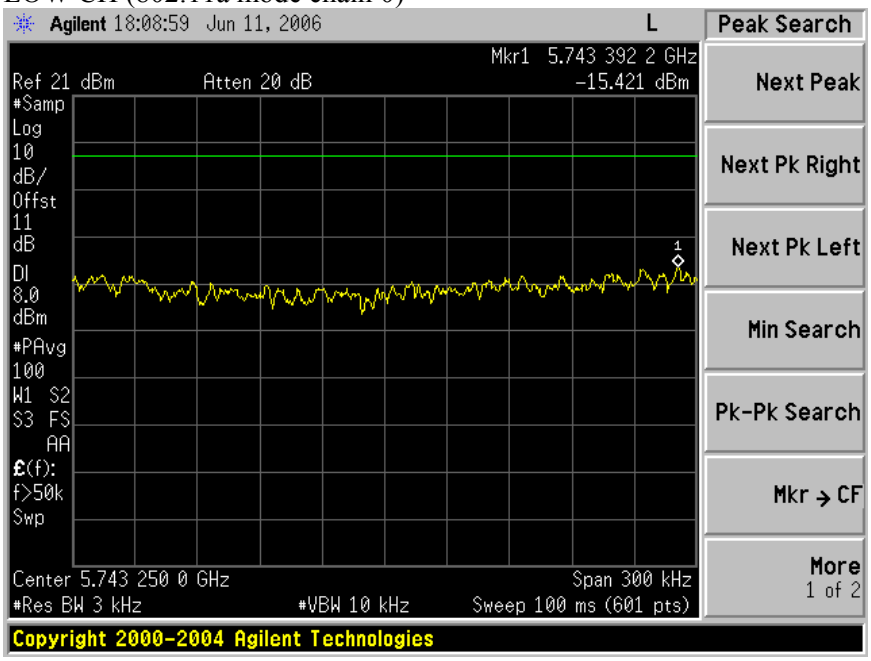
RESULTS

No non-compliance noted:

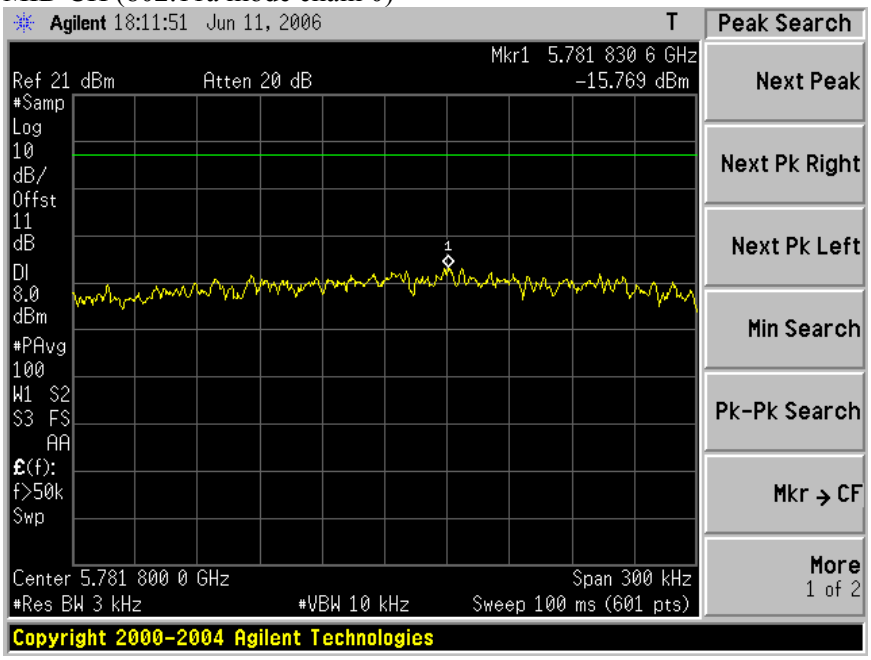
Mode Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 2 (dBm)	PPSD Total (dBm)	Limit (dBm)	Margin (dB)
802.11a Mode						
Low	5745	-15.42	-17.37	-13.28	8	-21.28
Middle	5785	-15.77	-16.23	-12.98	8	-20.98
High	5825	-15.09	-17.06	-12.95	8	-20.95
802.11n HT20 Mode						
Low	5745	-15.82	-17.37	-13.52	8	-21.52
Middle	5785	-15.56	-18.34	-13.72	8	-21.72
High	5825	-15.09	-16.98	-12.92	8	-20.92
802.11n HT40 Mode						
Low	5755	-16.24	-17.53	-13.82	8	-21.82
Middle	5785	-17.80	-16.77	-14.25	8	-22.25
High	5815	-17.31	-18.17	-14.70	8	-22.70

(802.11a MODE CHAIN 0)

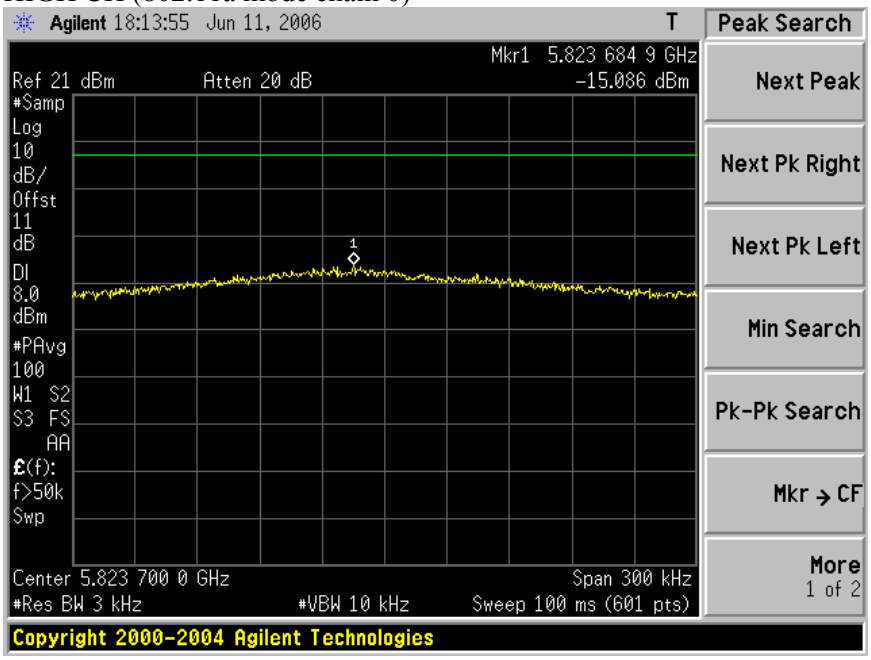
LOW CH (802.11a mode chain 0)



MID CH (802.11a mode chain 0)

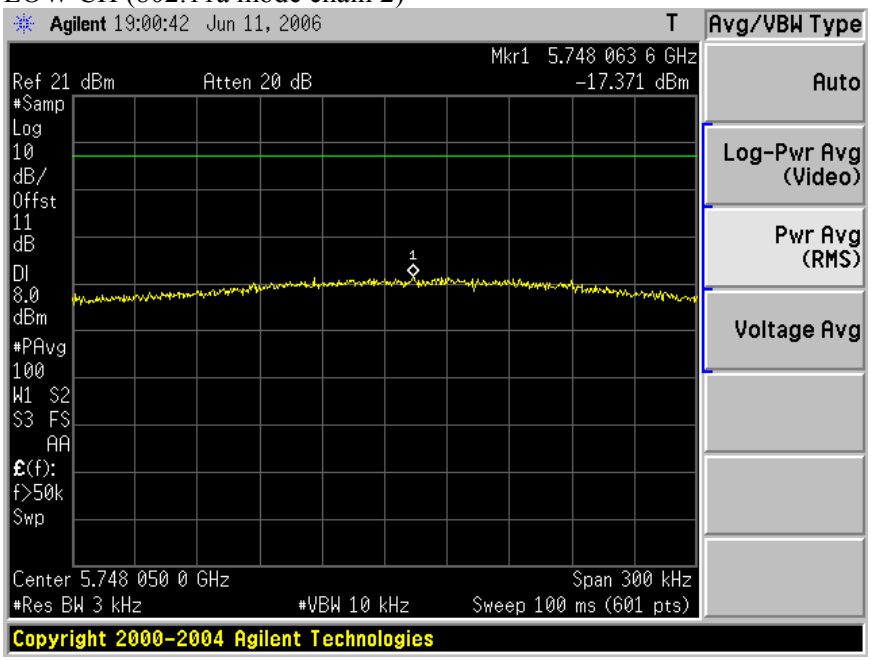


HIGH CH (802.11a mode chain 0)

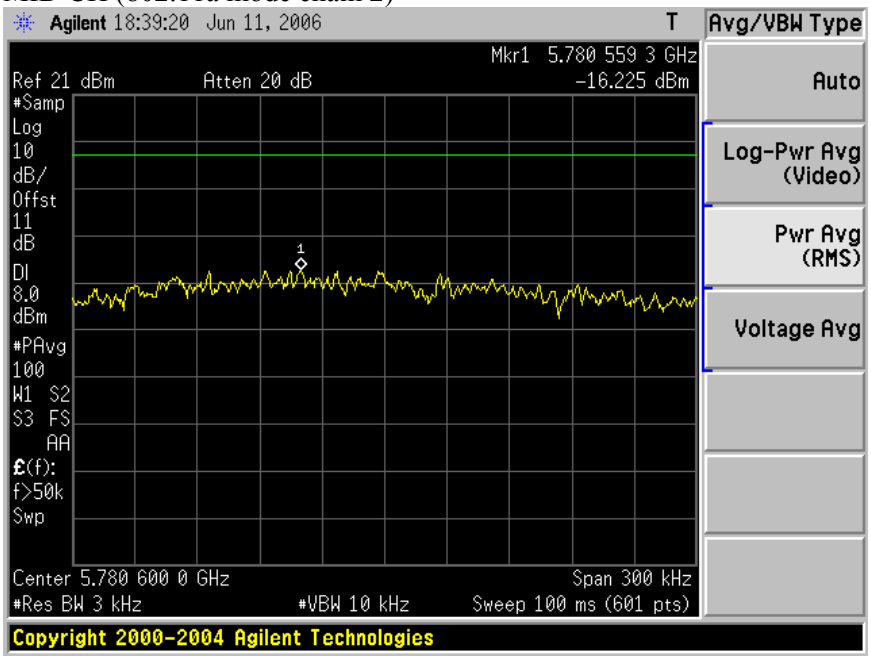


(802.11a MODE CHAIN 2)

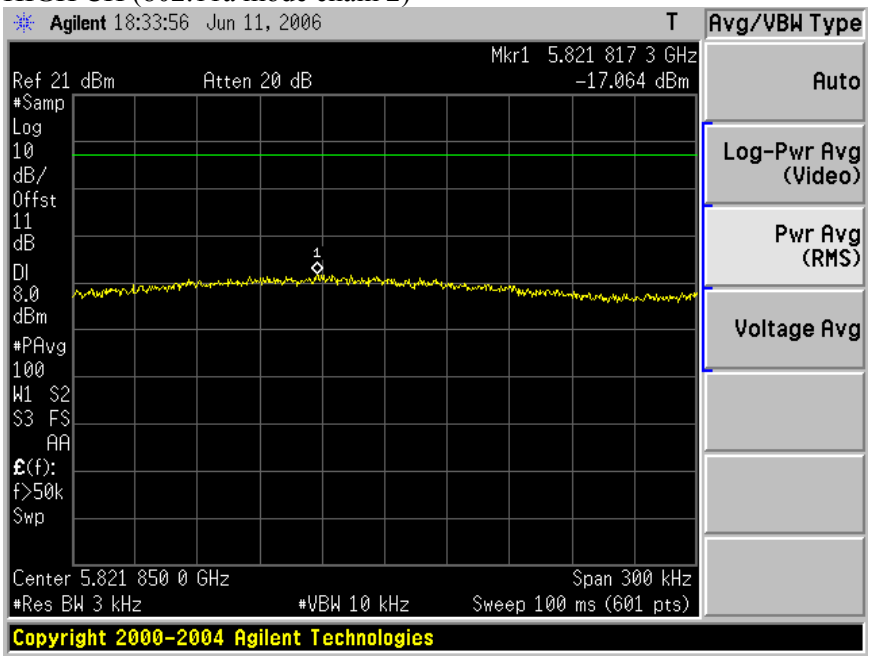
LOW CH (802.11a mode chain 2)



MID CH (802.11a mode chain 2)

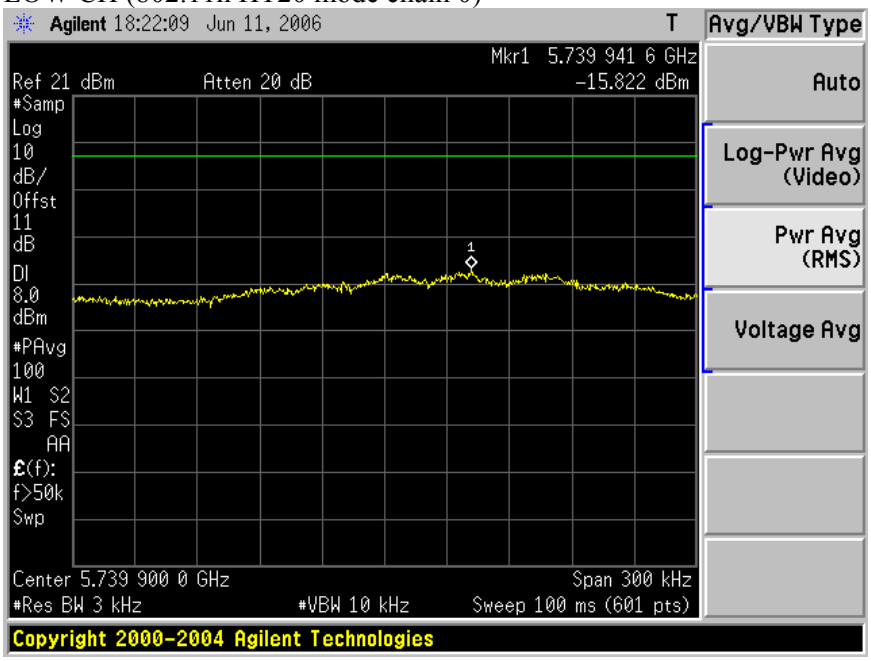


HIGH CH (802.11a mode chain 2)

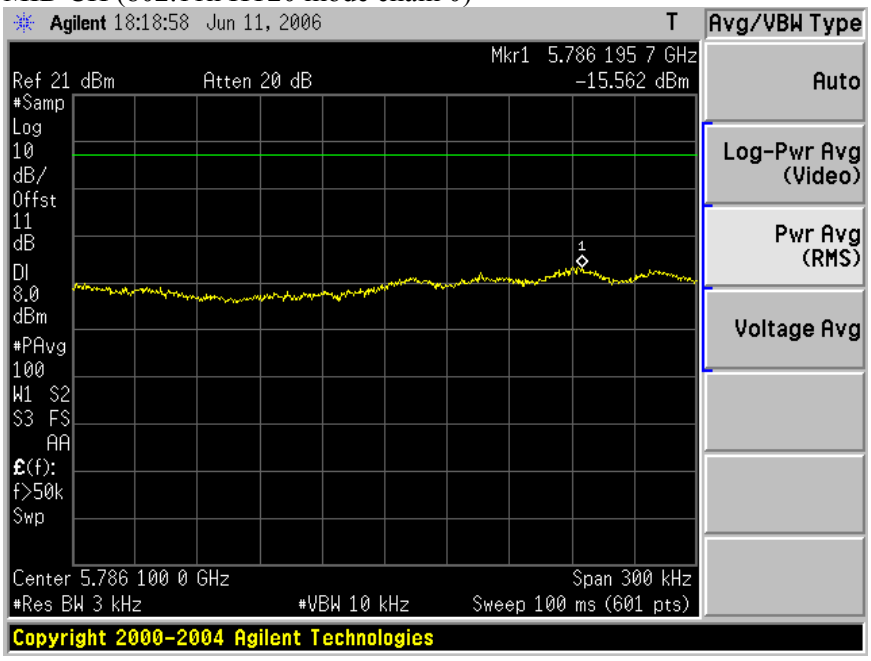


(802.11n HT20 MODE CHAIN 0)

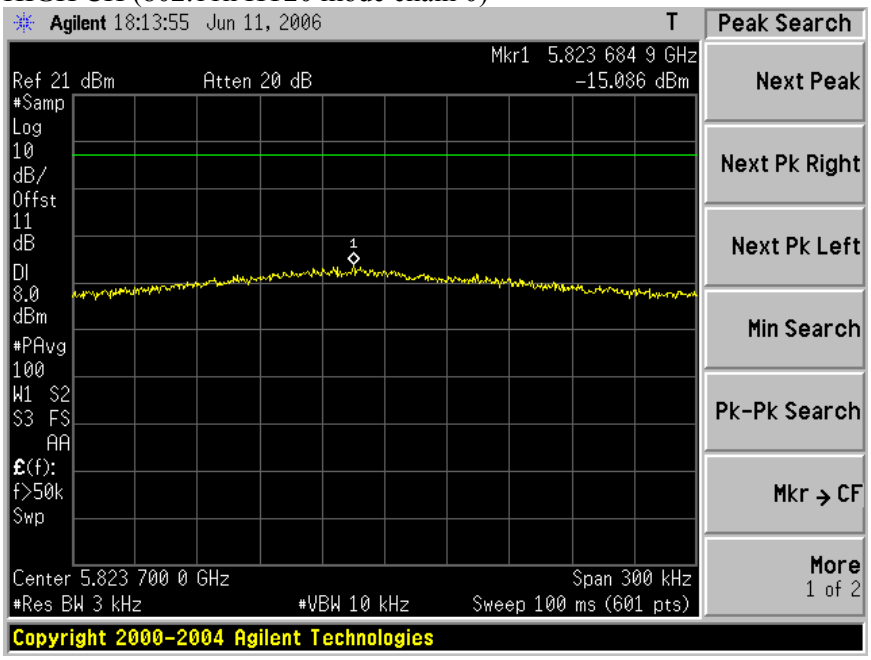
LOW CH (802.11n HT20 mode chain 0)



MID CH (802.11n HT20 mode chain 0)

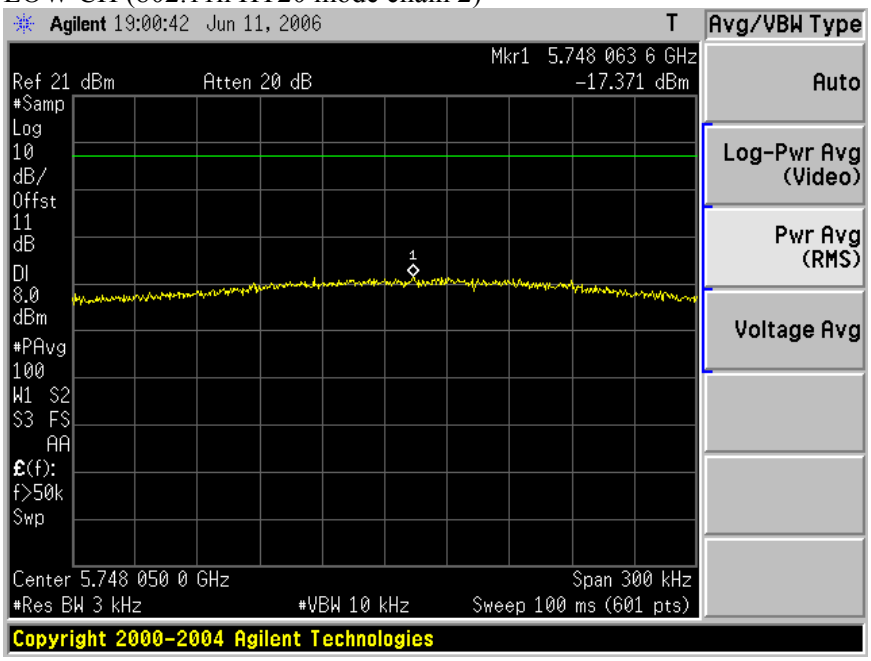


HIGH CH (802.11n HT20 mode chain 0)

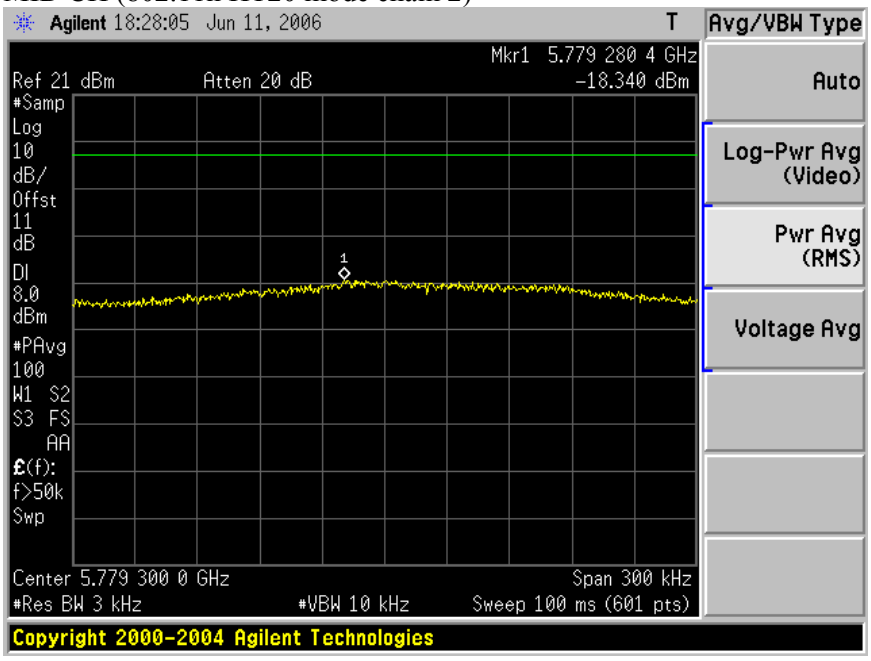


(802.11 HT20 MODE CHAIN 2)

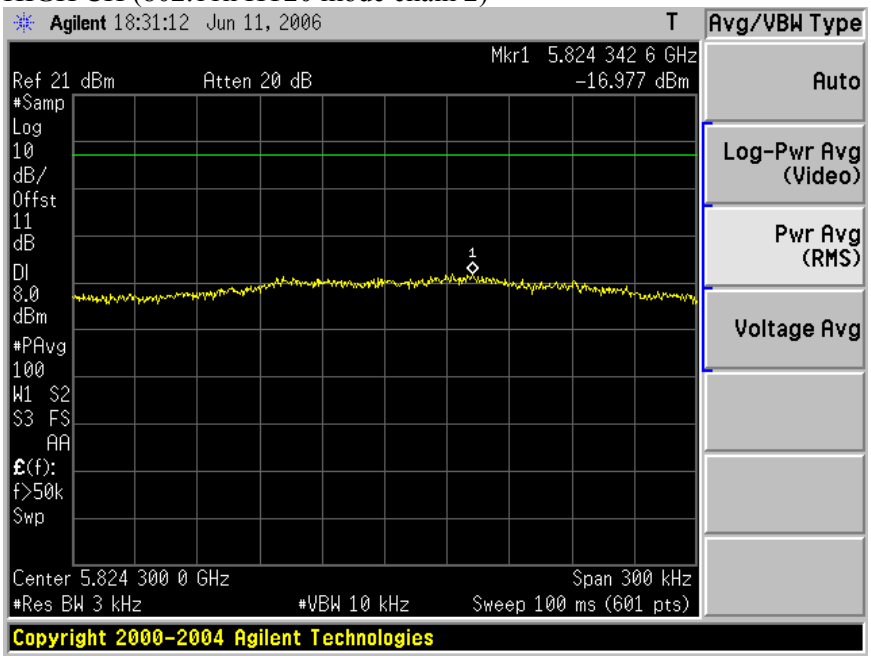
LOW CH (802.11n HT20 mode chain 2)



MID CH (802.11n HT20 mode chain 2)

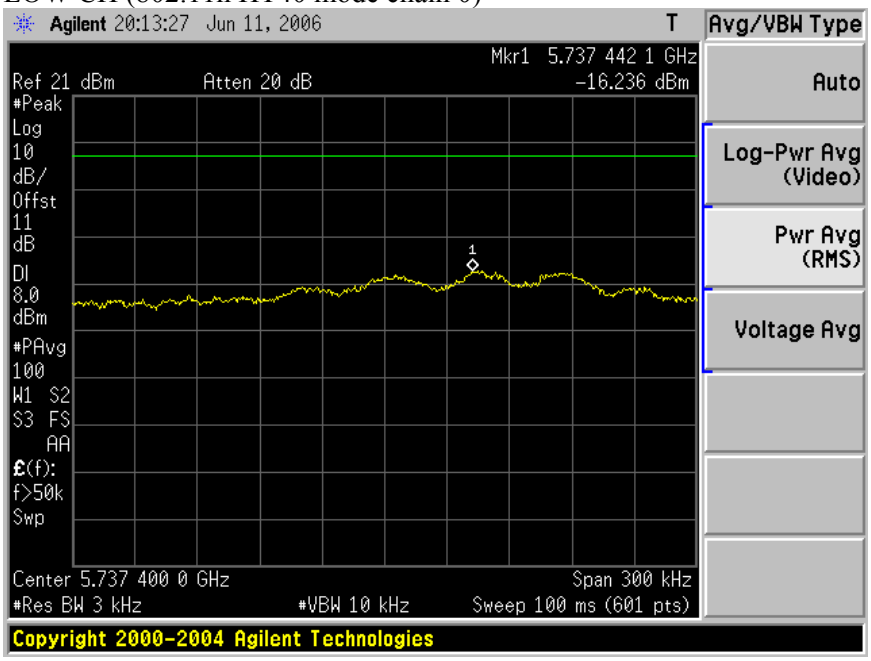


HIGH CH (802.11n HT20 mode chain 2)

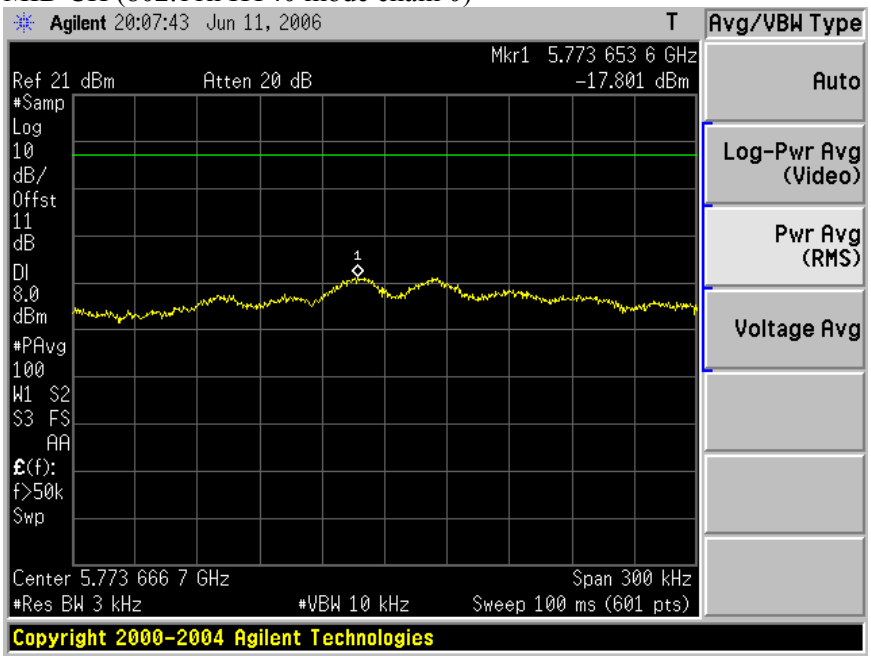


(802.11 HT40 MODE CHAIN 0)

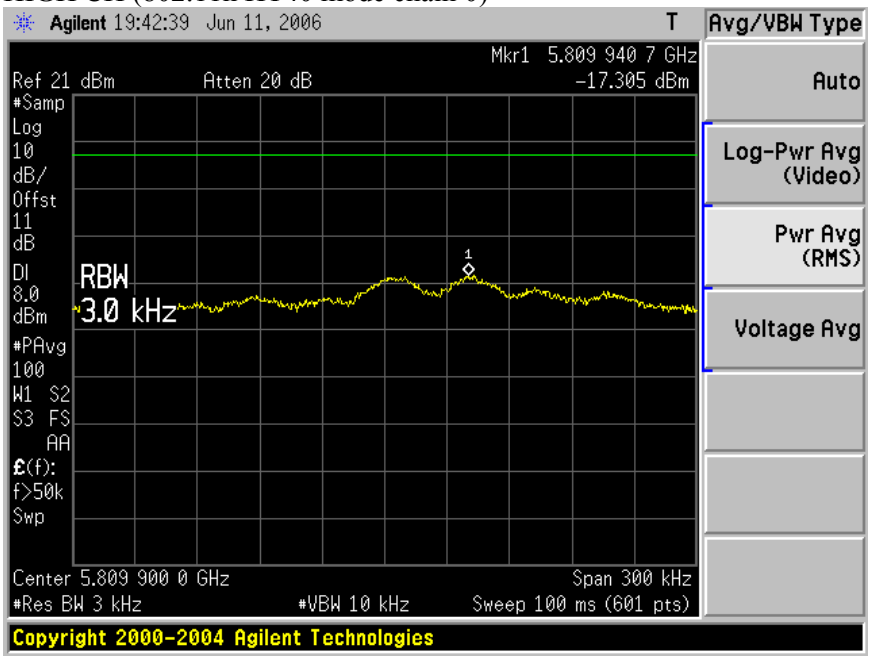
LOW CH (802.11n HT40 mode chain 0)



MID CH (802.11n HT40 mode chain 0)

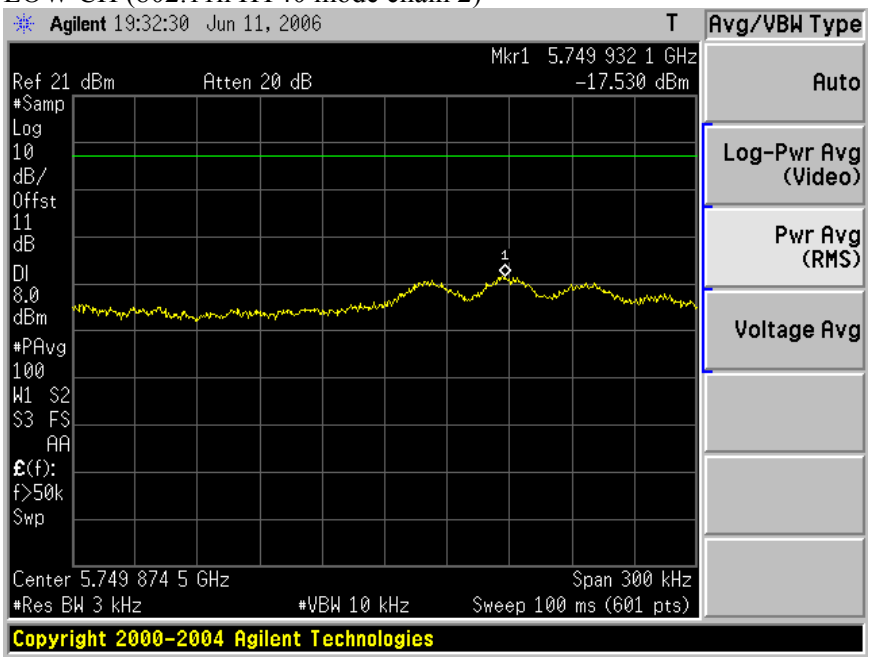


HIGH CH (802.11n HT40 mode chain 0)

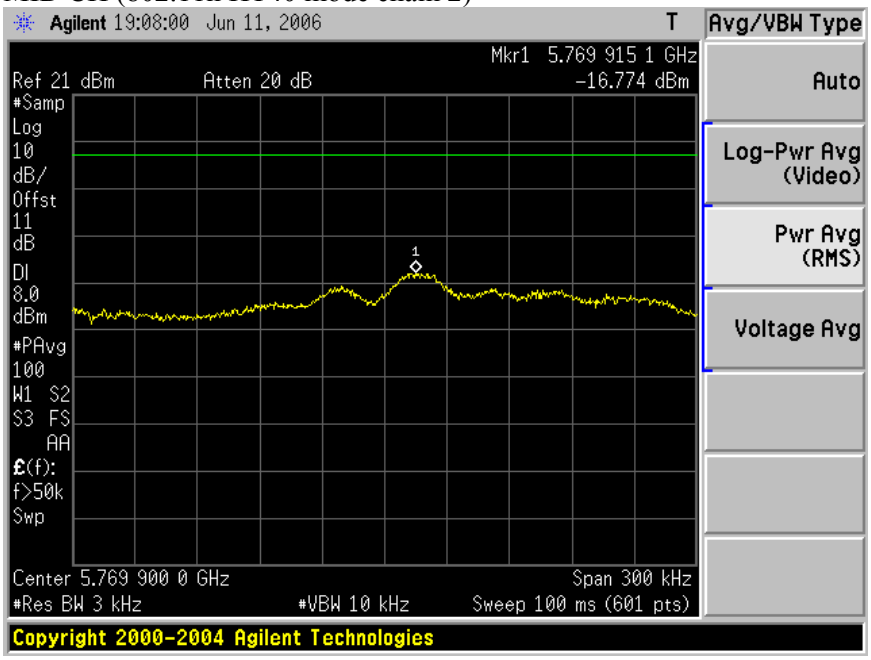


(802.11 HT40 MODE CHAIN 2)

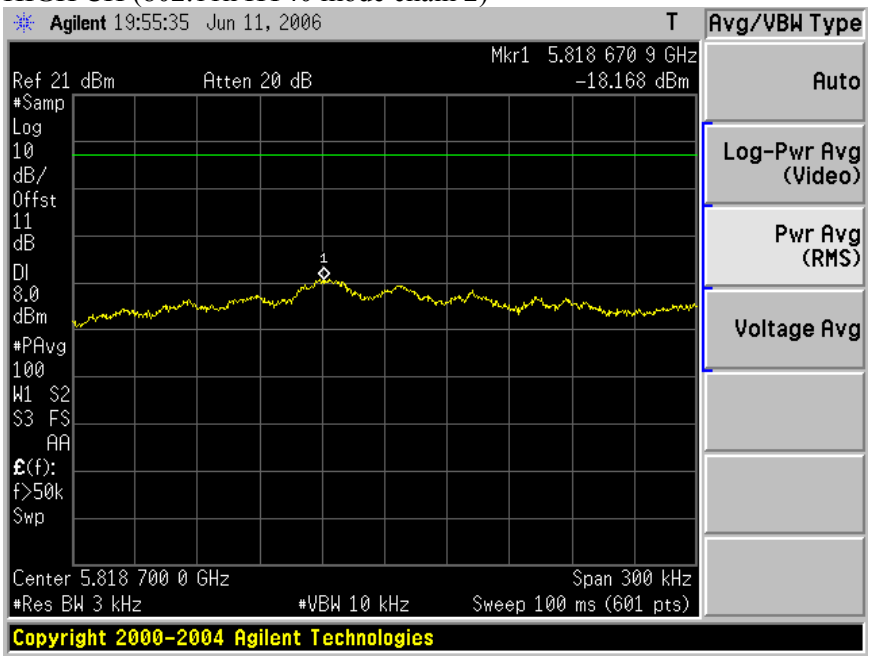
LOW CH (802.11n HT40 mode chain 2)



MID CH (802.11n HT40 mode chain 2)



HIGH CH (802.11n HT40 mode chain 2)



7.2.6. 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 using the Option 2 procedures, 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 150 kHz.

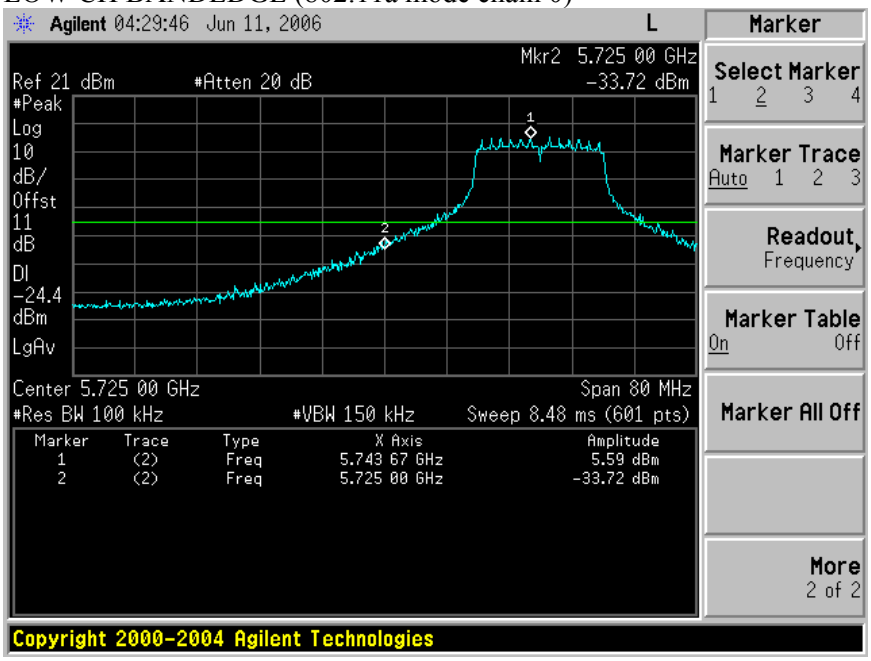
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

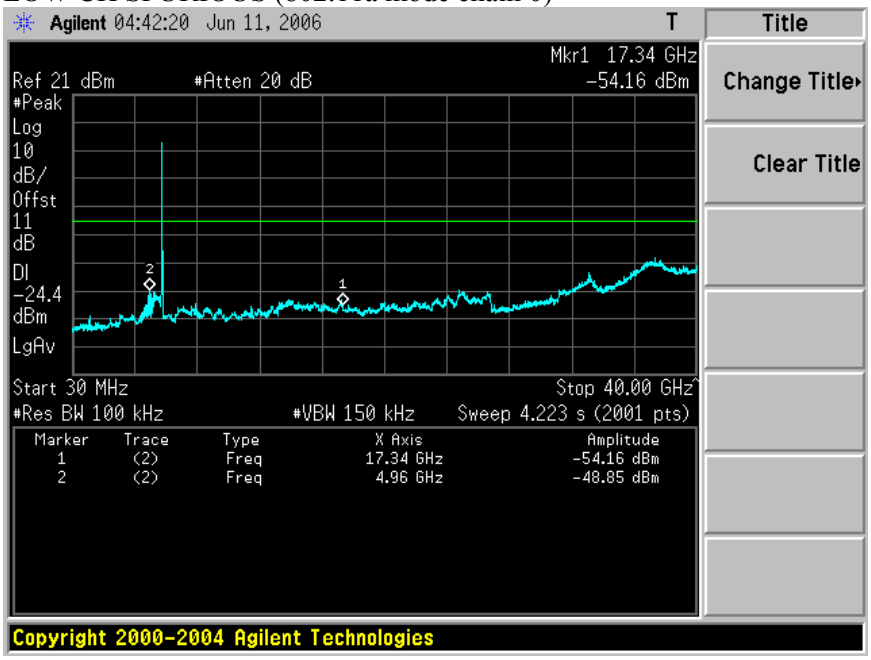
No non-compliance noted:

SPURIOUS EMISSIONS (802.11a MODE CHAIN 0)

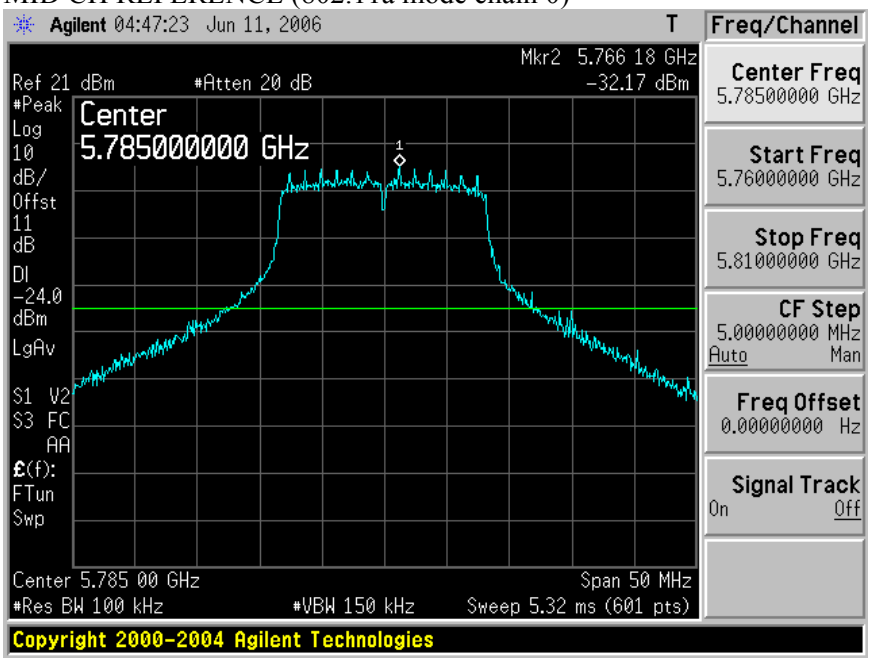
LOW CH BANDEDGE (802.11a mode chain 0)



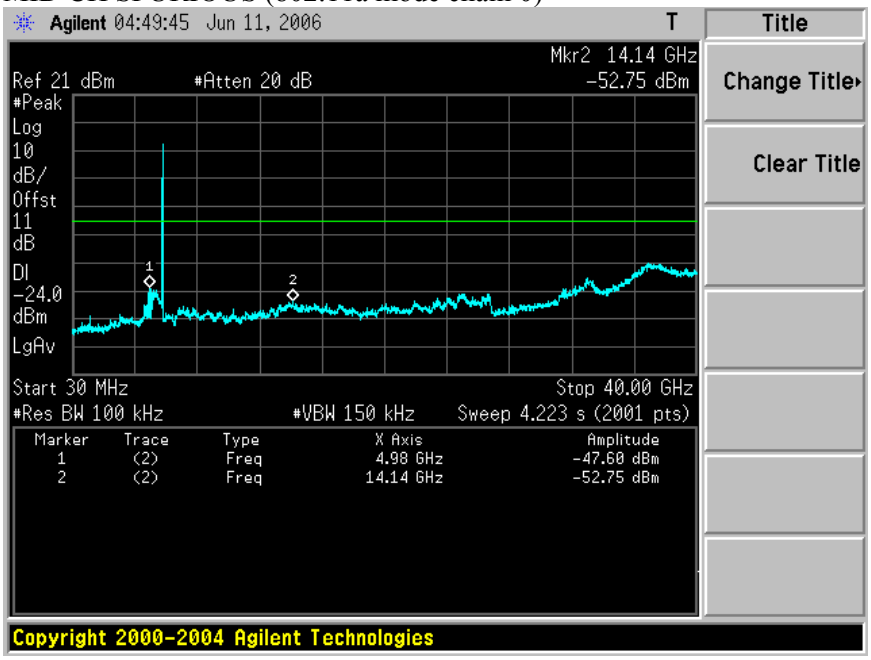
LOW CH SPURIOUS (802.11a mode chain 0)



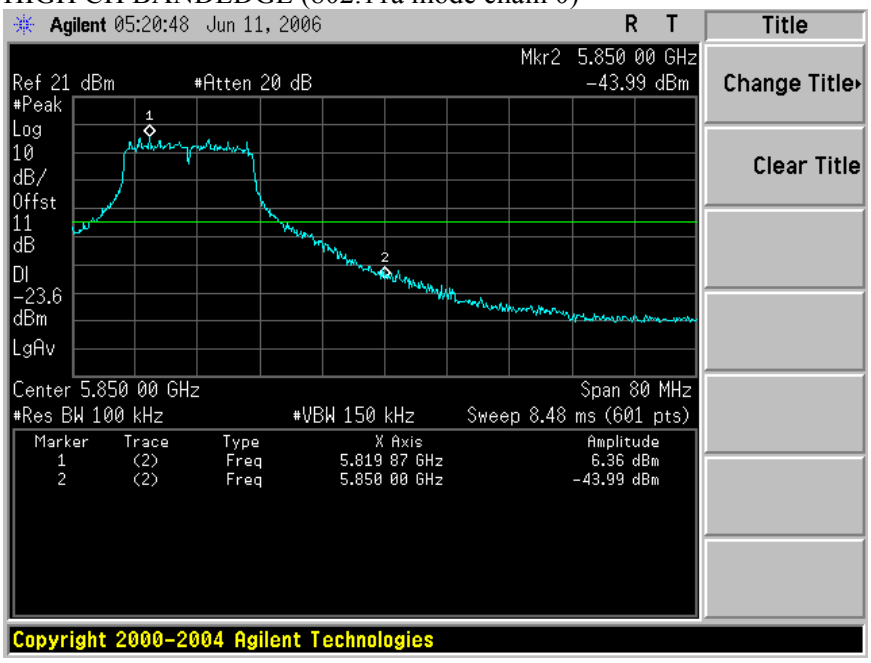
MID CH REFERENCE (802.11a mode chain 0)



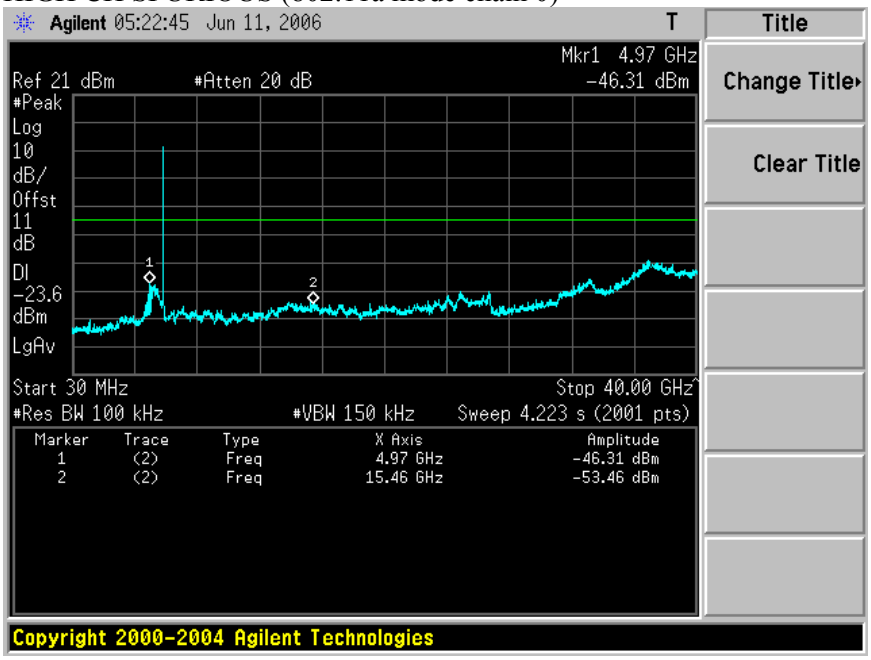
MID CH SPURIOUS (802.11a mode chain 0)



HIGH CH BANDEDGE (802.11a mode chain 0)

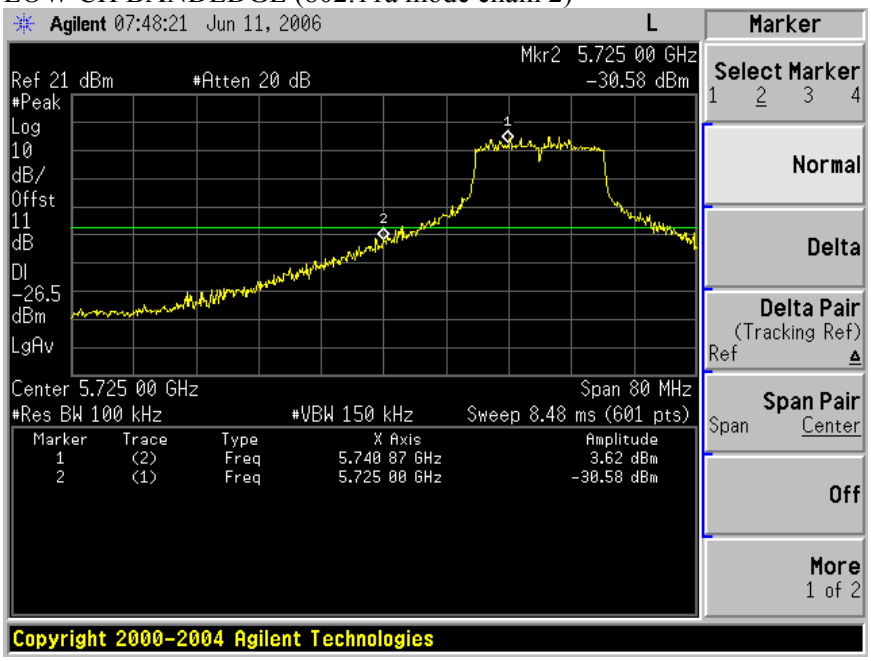


HIGH CH SPURIOUS (802.11a mode chain 0)

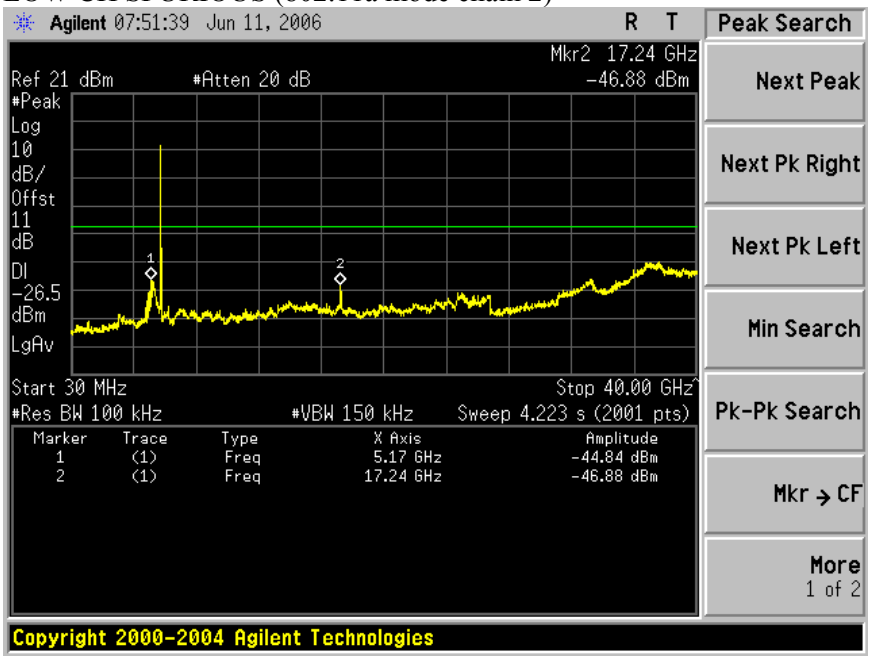


SPURIOUS EMISSIONS (802.11a MODE CHAIN 2)

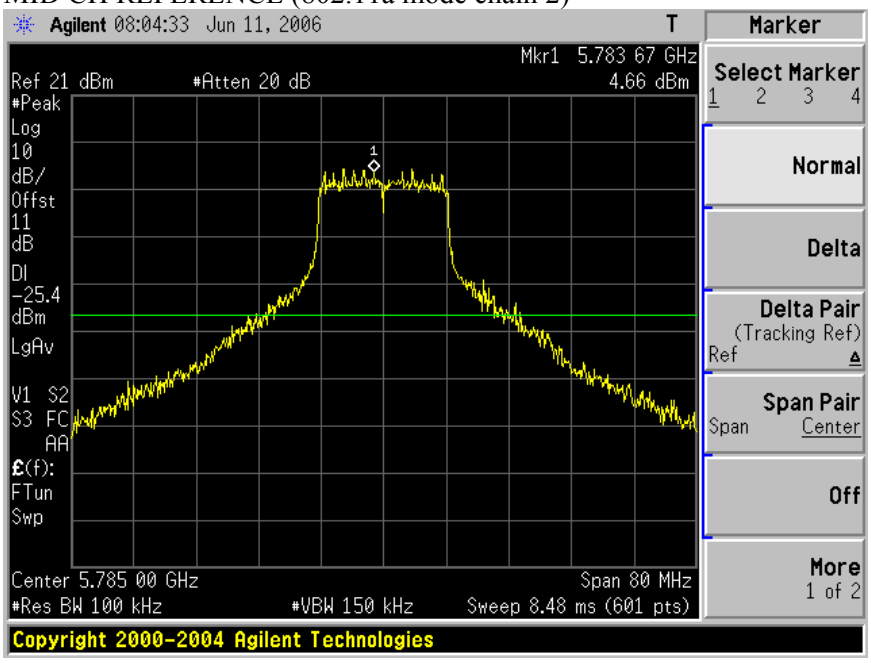
LOW CH BANDEDGE (802.11a mode chain 2)



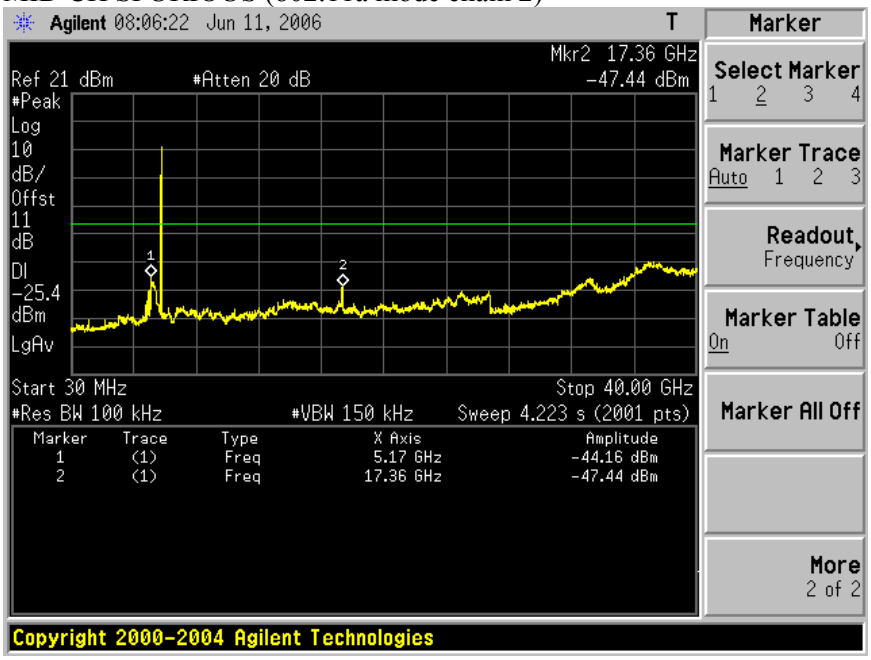
LOW CH SPURIOUS (802.11a mode chain 2)



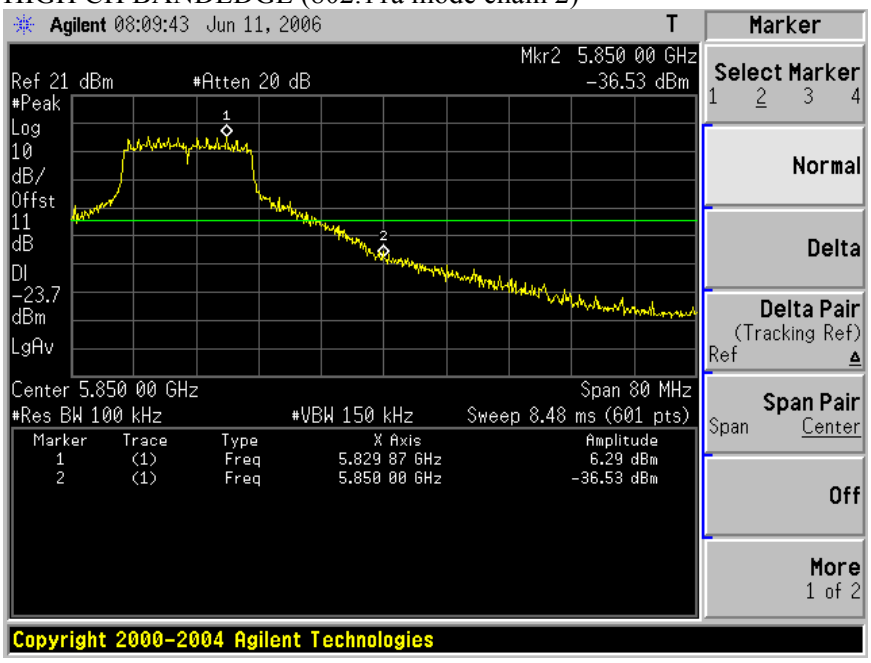
MID CH REFERENCE (802.11a mode chain 2)



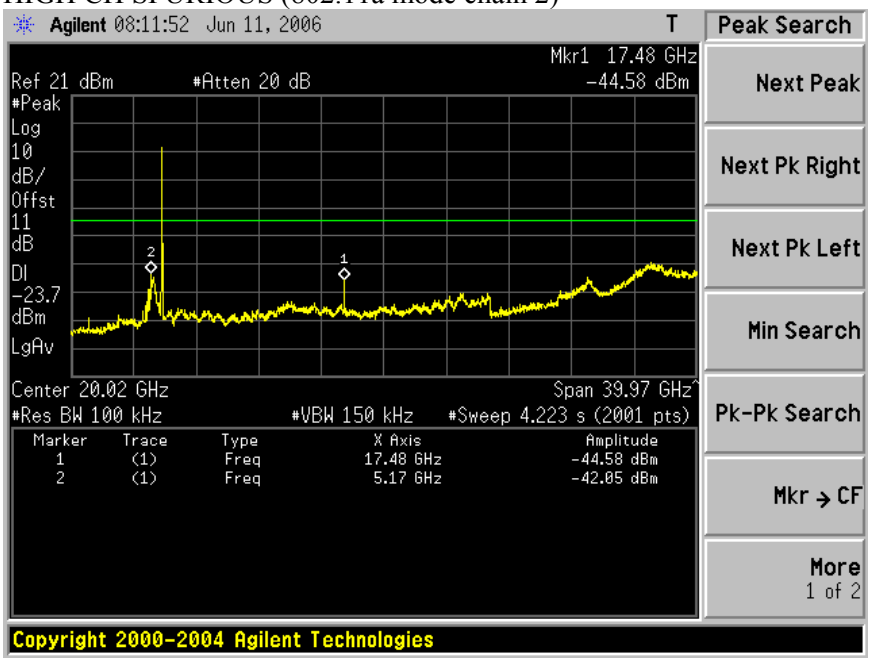
MID CH SPURIOUS (802.11a mode chain 2)



HIGH CH BANDEDGE (802.11a mode chain 2)

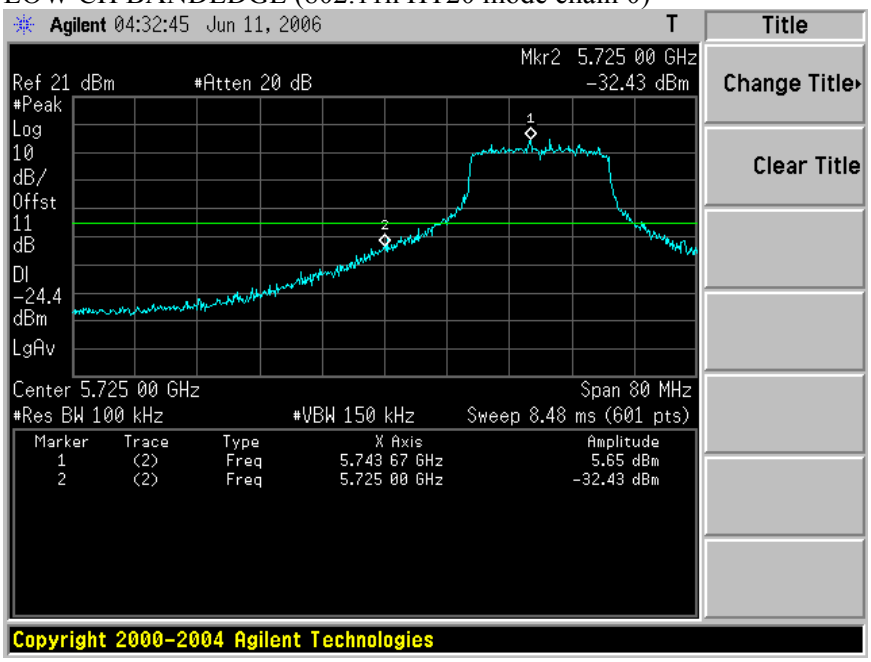


HIGH CH SPURIOUS (802.11a mode chain 2)

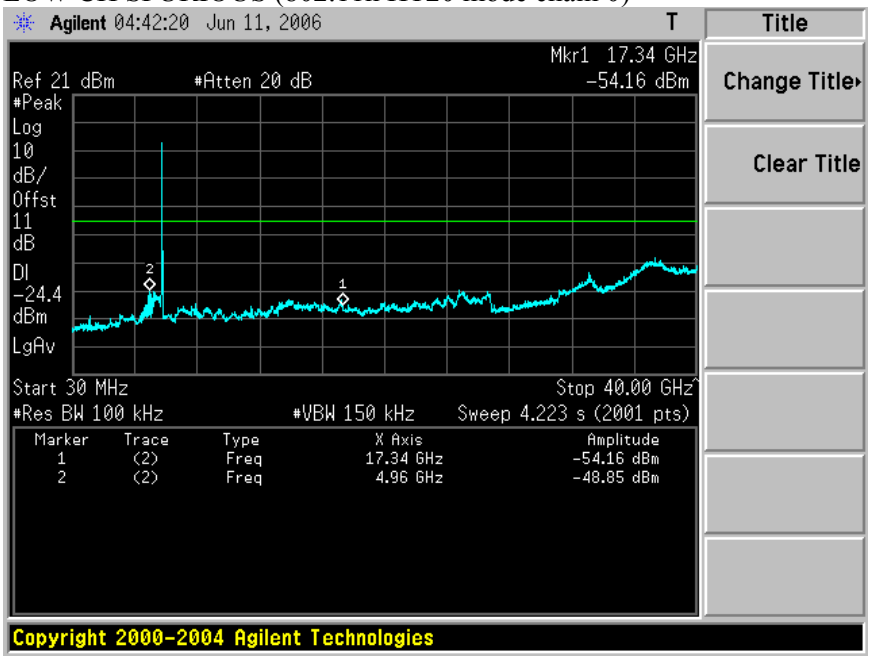


SPURIOUS EMISSIONS (802.11n HT20 MODE CHAIN 0)

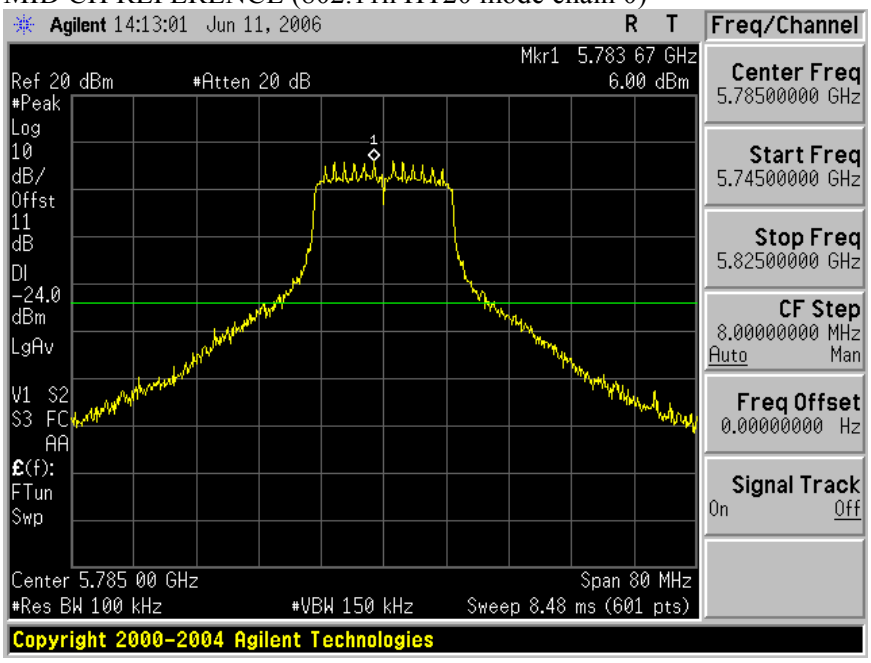
LOW CH BANDEDGE (802.11n HT20 mode chain 0)



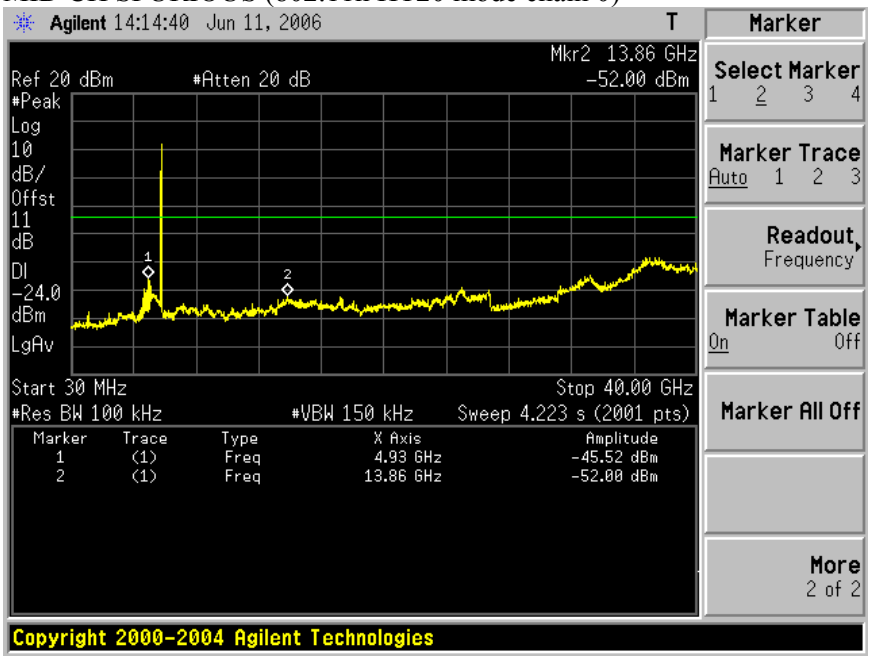
LOW CH SPURIOUS (802.11n HT20 mode chain 0)



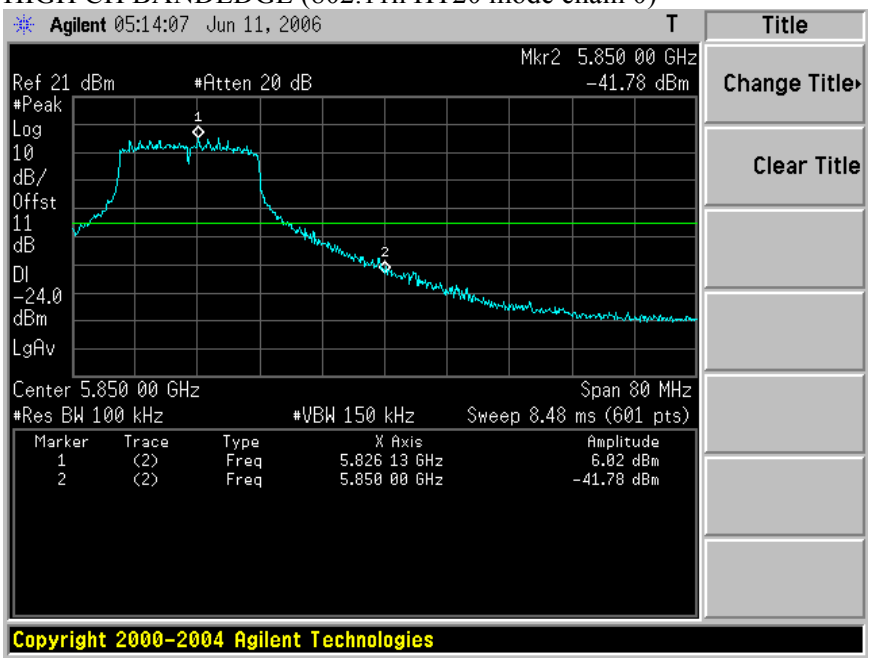
MID CH REFERENCE (802.11n HT20 mode chain 0)



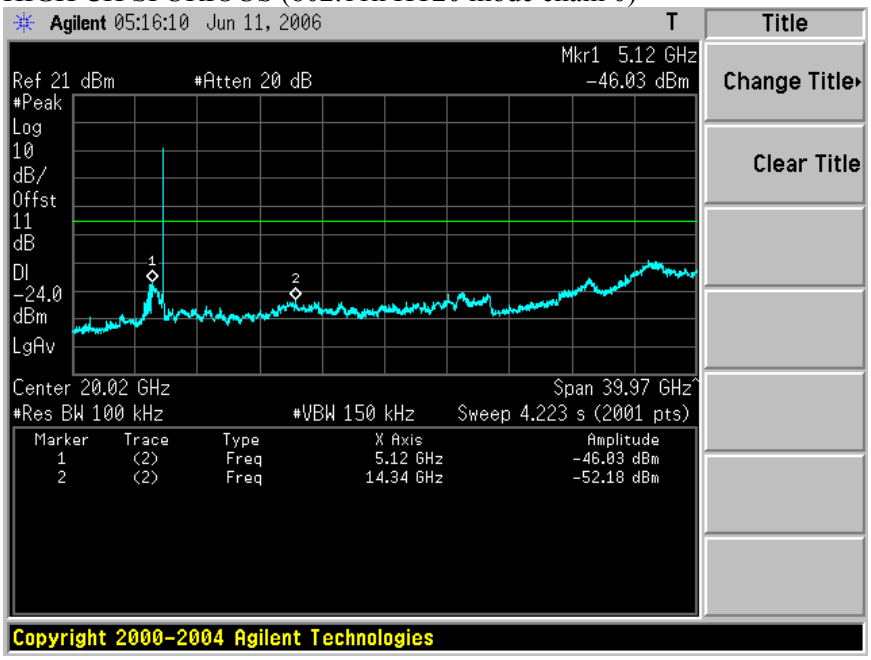
MID CH SPURIOUS (802.11n HT20 mode chain 0)



HIGH CH BANDEDGE (802.11n HT20 mode chain 0)

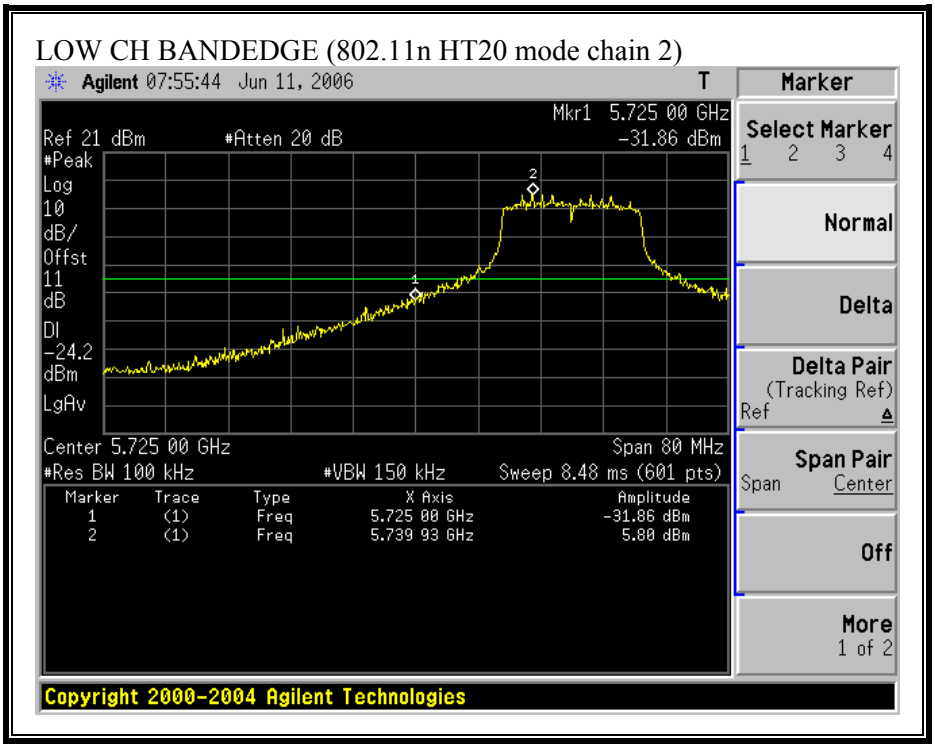


HIGH CH SPURIOUS (802.11n HT20 mode chain 0)

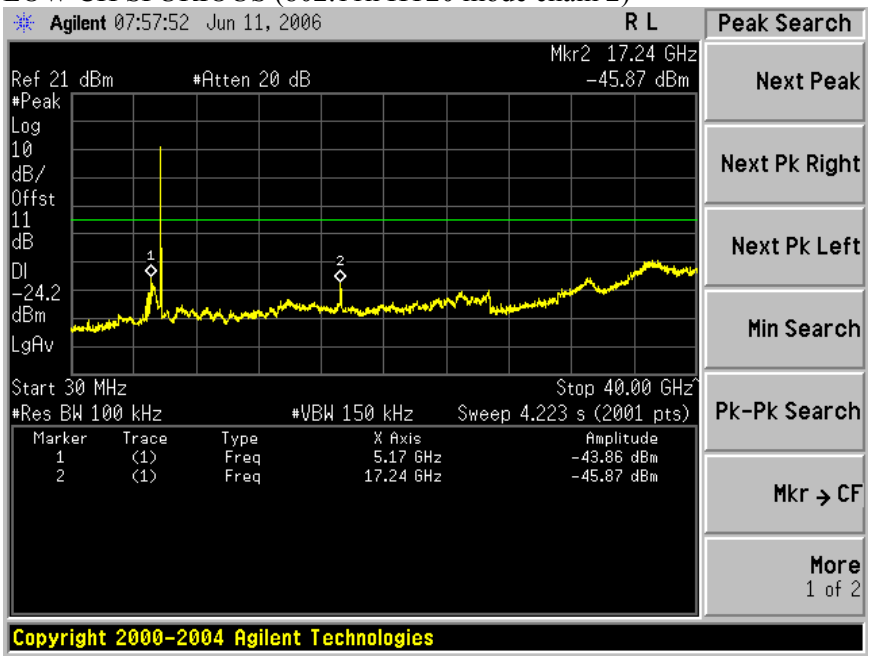


SPURIOUS EMISSIONS (802.11 HT20 MODE CHAIN 2)

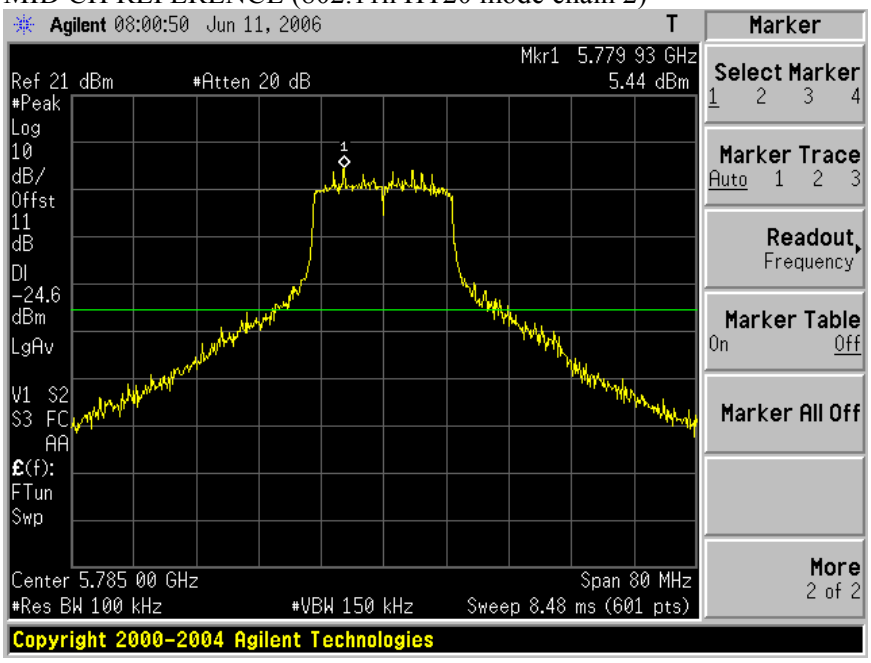
LOW CH BANDEDGE (802.11n HT20 mode chain 2)



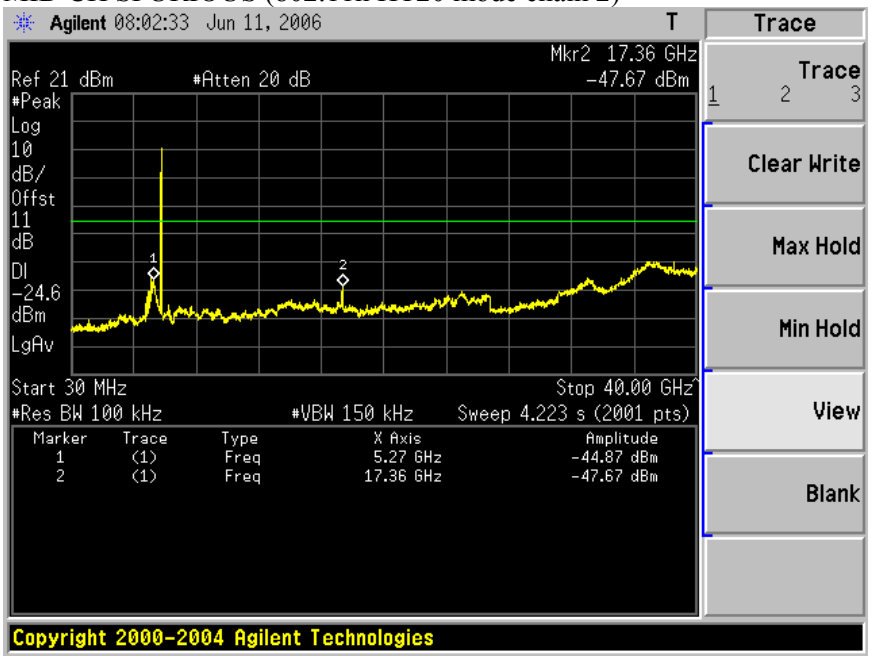
LOW CH SPURIOUS (802.11n HT20 mode chain 2)



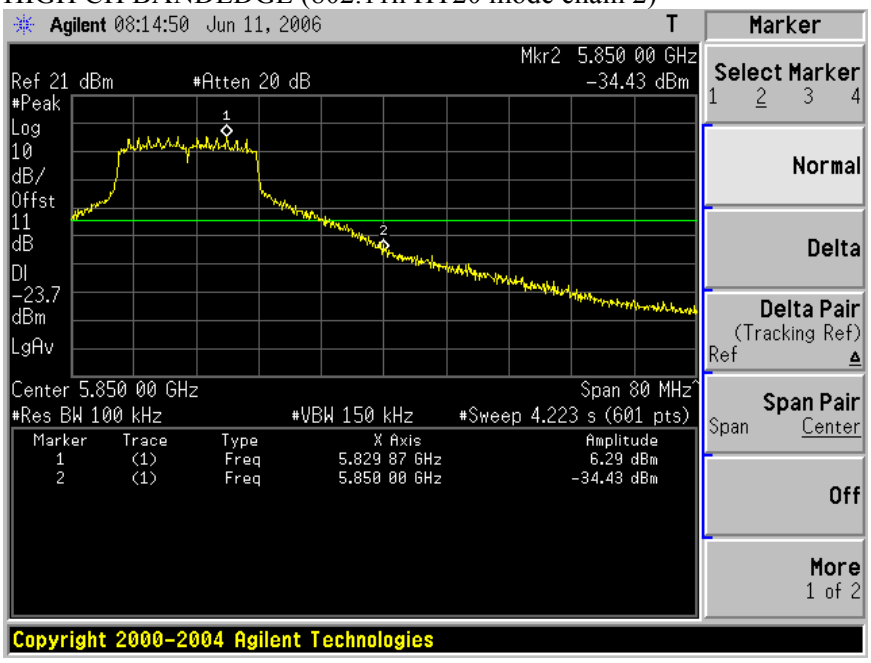
MID CH REFERENCE (802.11n HT20 mode chain 2)



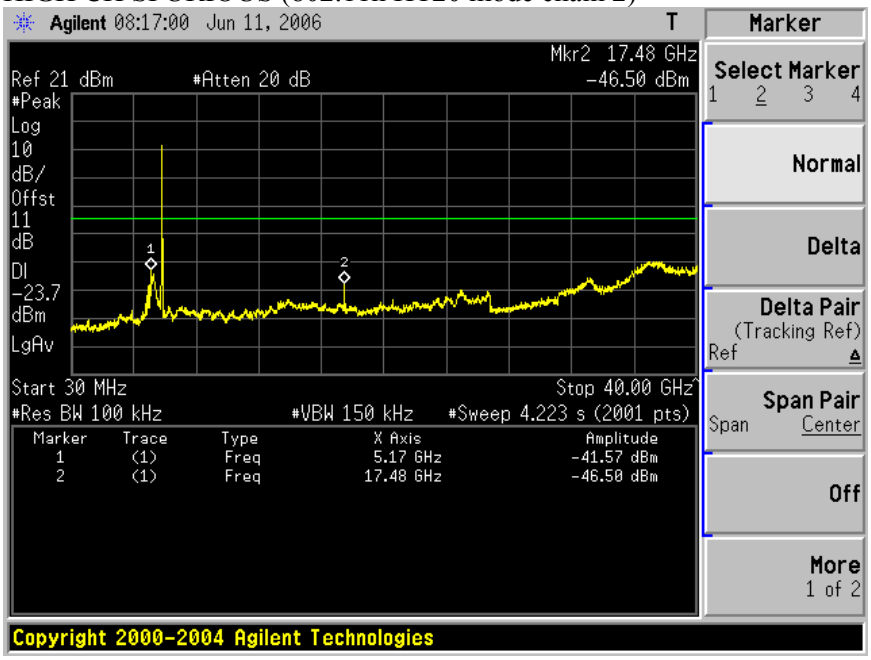
MID CH SPURIOUS (802.11n HT20 mode chain 2)



HIGH CH BANDEDGE (802.11n HT20 mode chain 2)

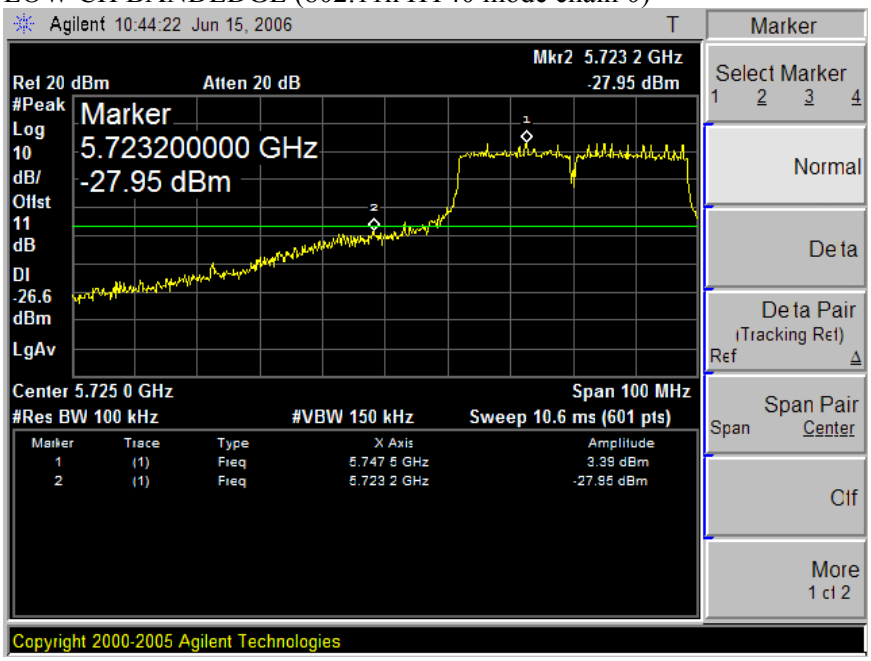


HIGH CH SPURIOUS (802.11n HT20 mode chain 2)

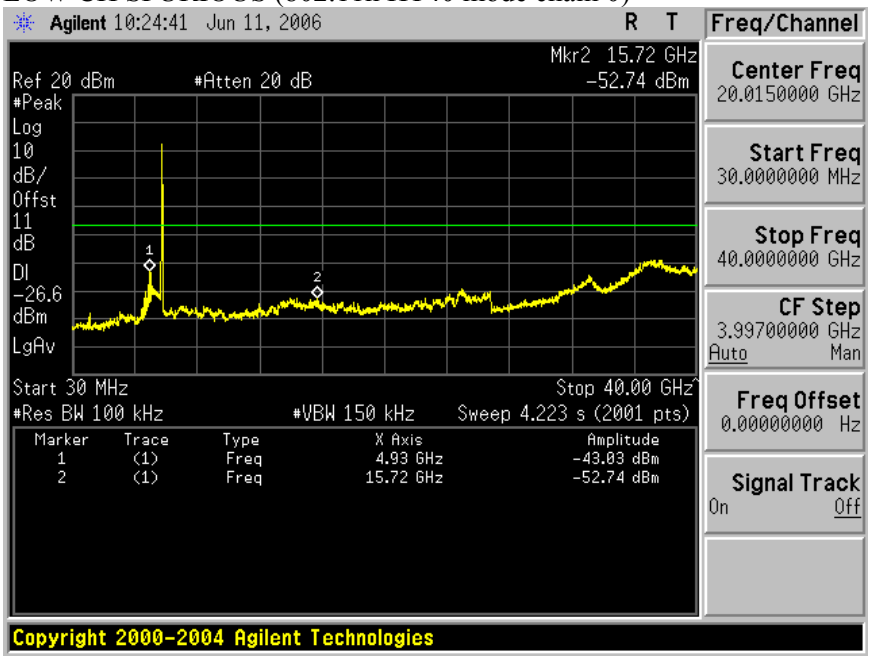


SPURIOUS EMISSIONS (802.11 HT40 MODE CHAIN 0)

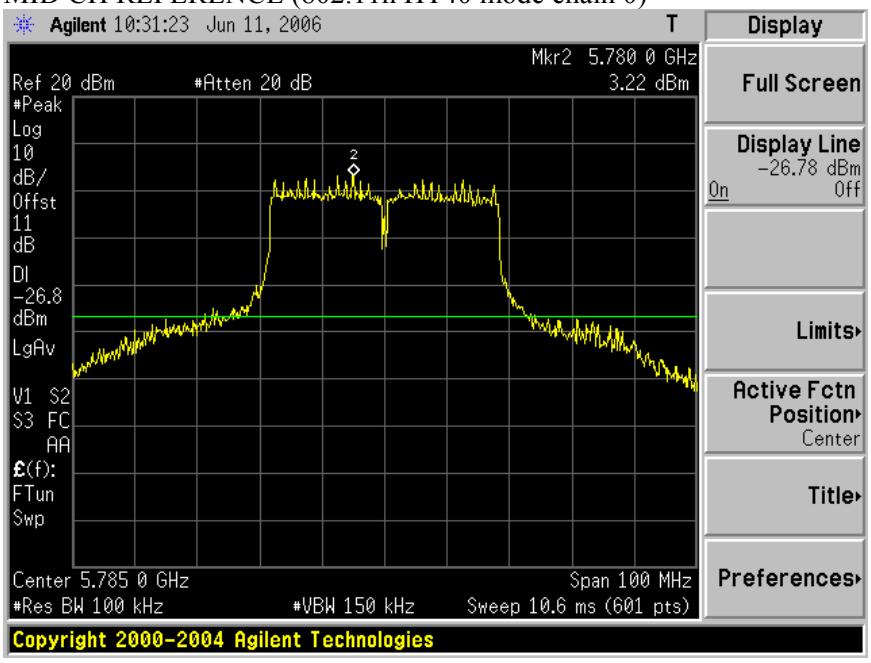
LOW CH BANDEDGE (802.11n HT40 mode chain 0)



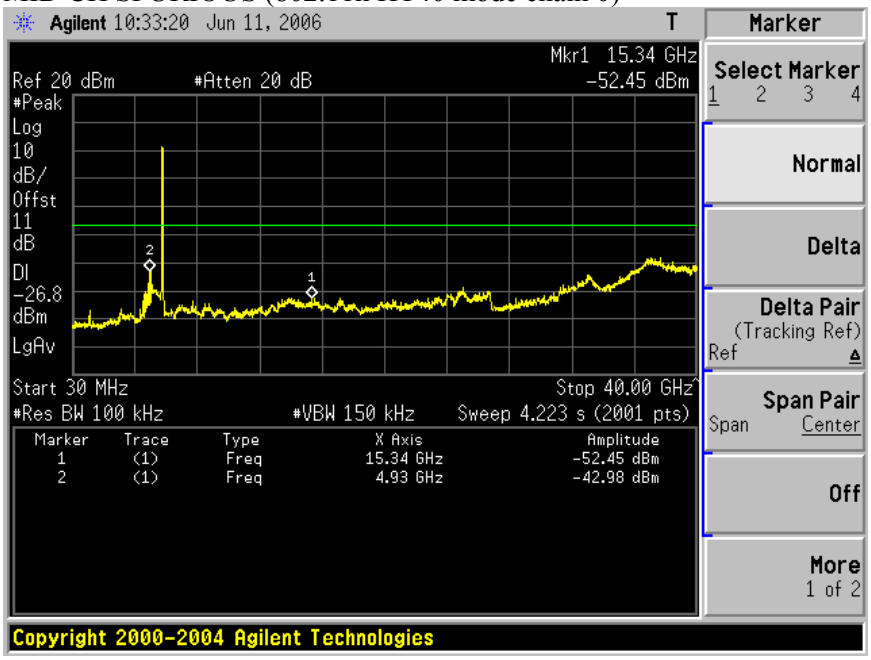
LOW CH SPURIOUS (802.11n HT40 mode chain 0)



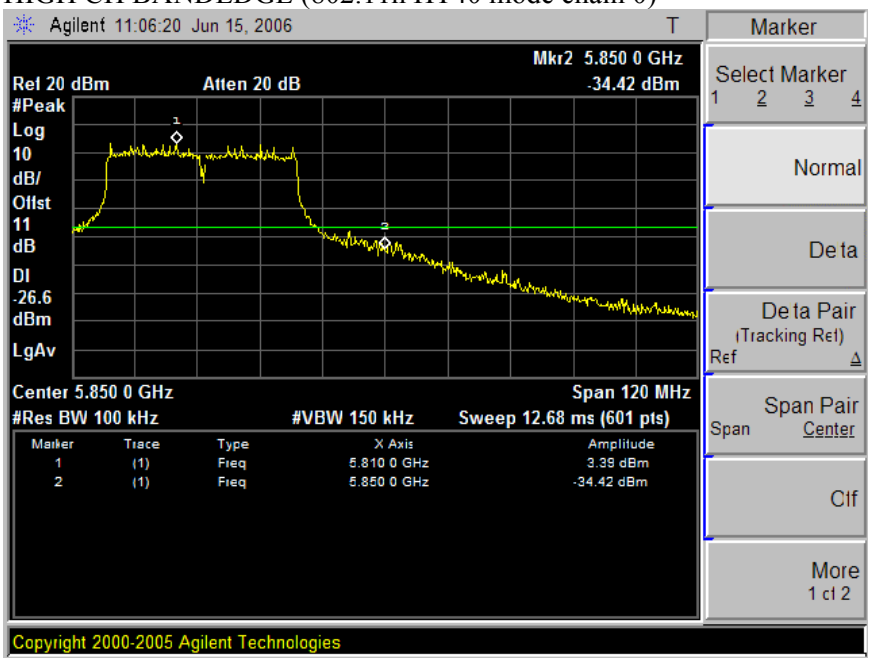
MID CH REFERENCE (802.11n HT40 mode chain 0)



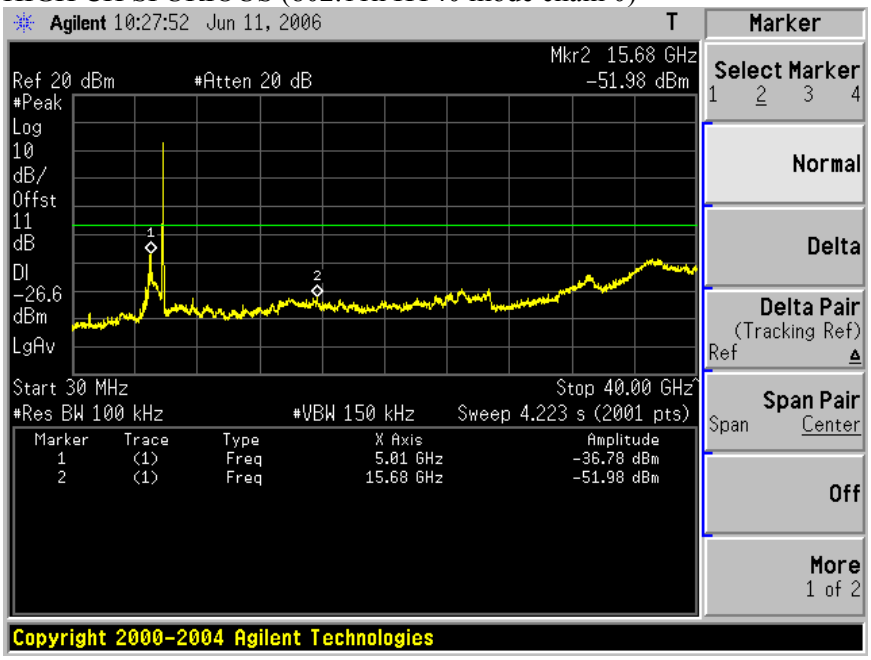
MID CH SPURIOUS (802.11n HT40 mode chain 0)



HIGH CH BANDEDGE (802.11n HT40 mode chain 0)

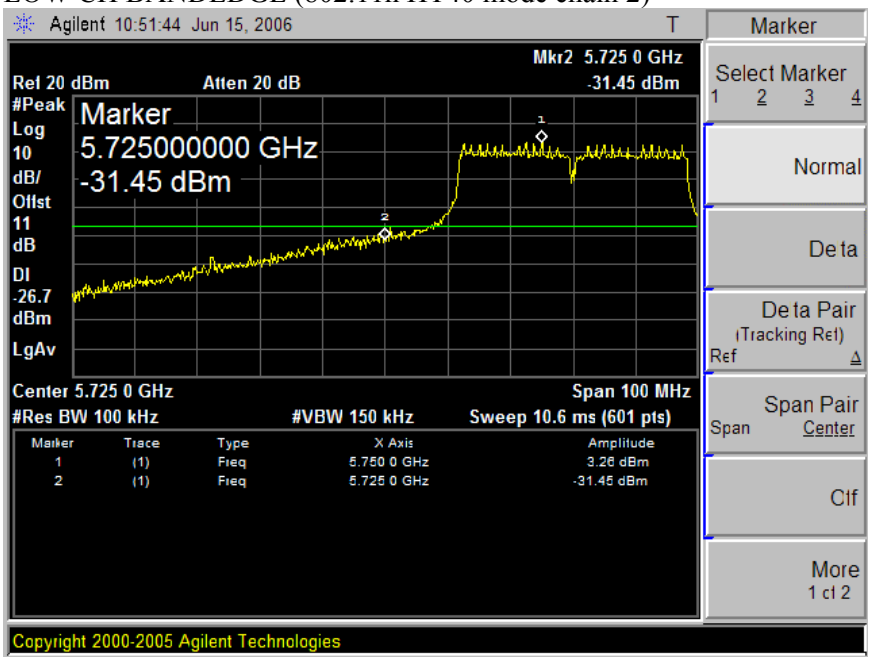


HIGH CH SPURIOUS (802.11n HT40 mode chain 0)

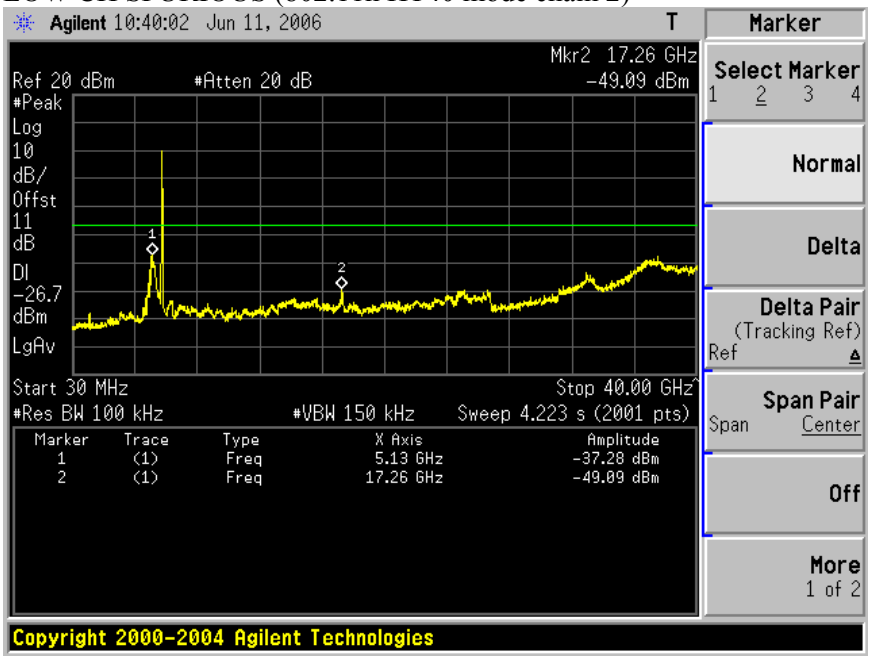


SPURIOUS EMISSIONS (802.11 HT40 MODE CHAIN 2)

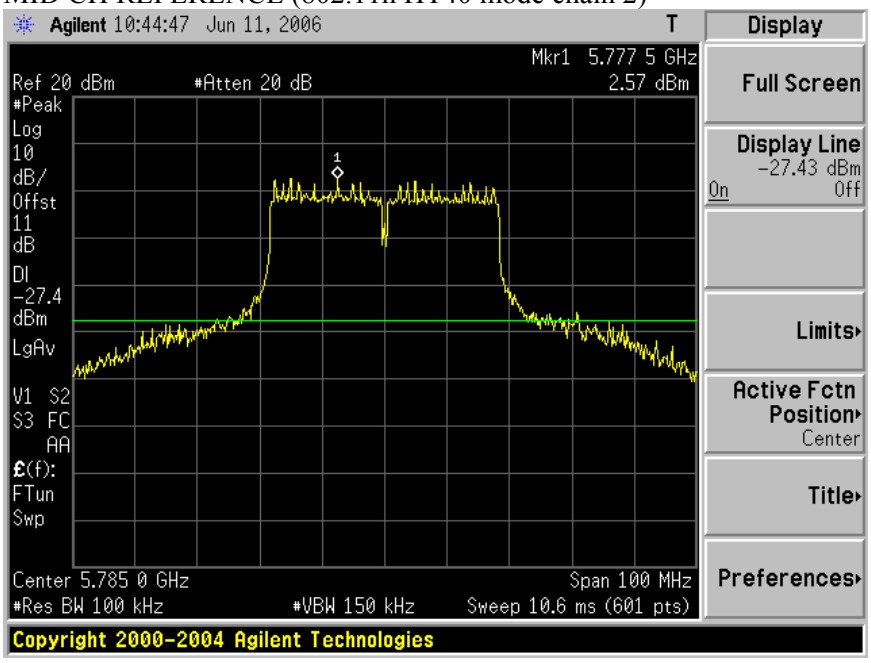
LOW CH BANDEDGE (802.11n HT40 mode chain 2)



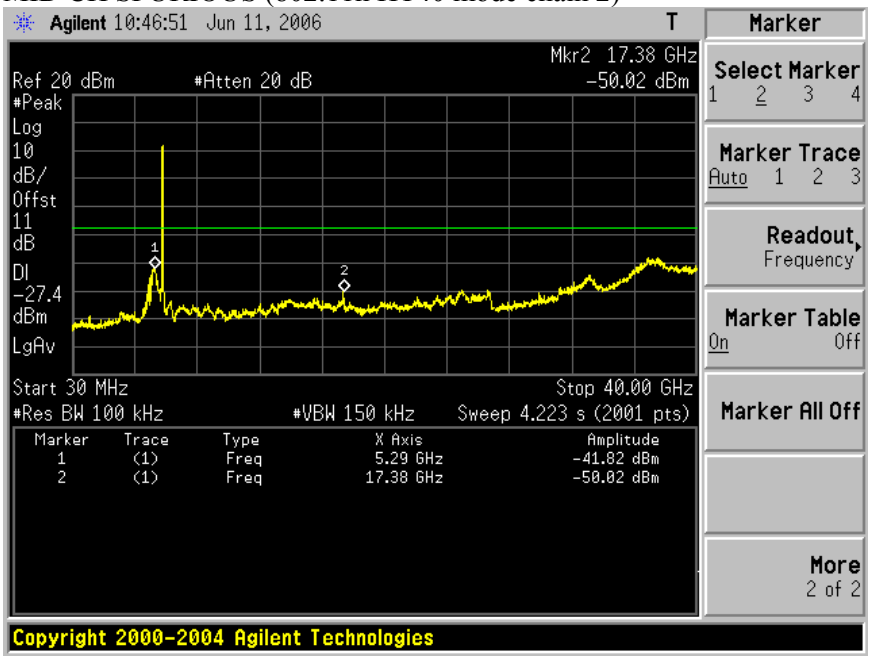
LOW CH SPURIOUS (802.11n HT40 mode chain 2)



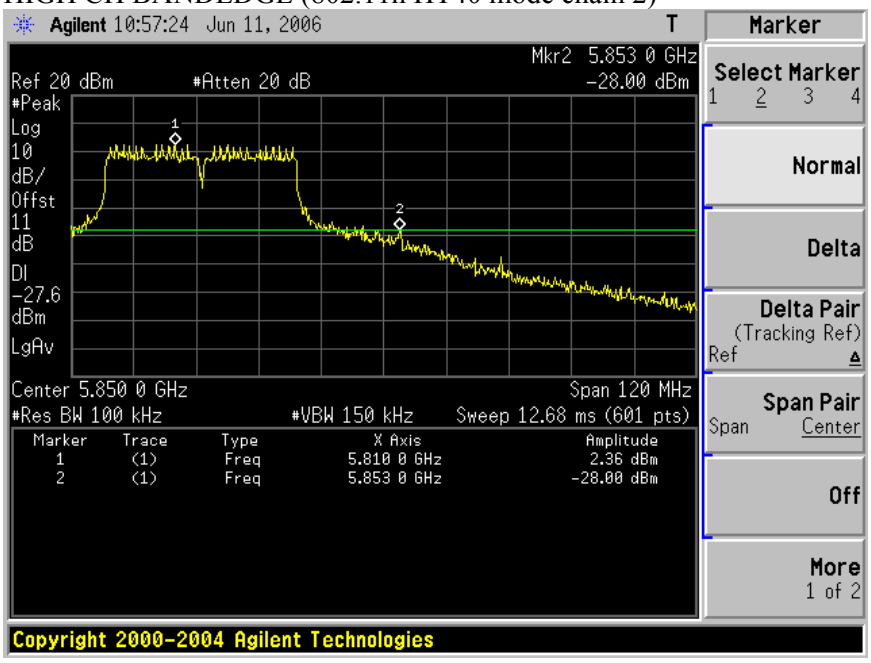
MID CH REFERENCE (802.11n HT40 mode chain 2)



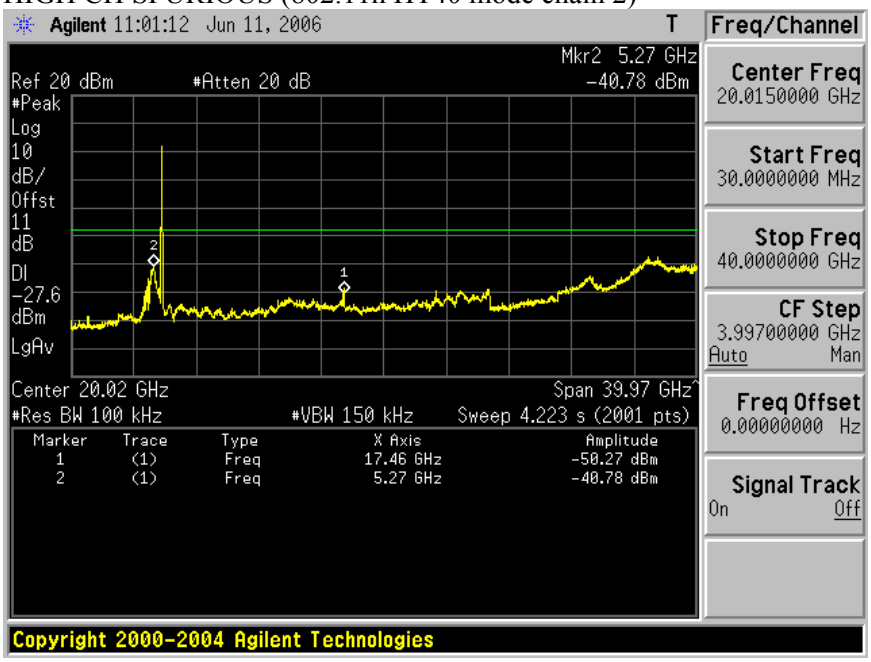
MID CH SPURIOUS (802.11n HT40 mode chain 2)



HIGH CH BANDEDGE (802.11n HT40 mode chain 2)

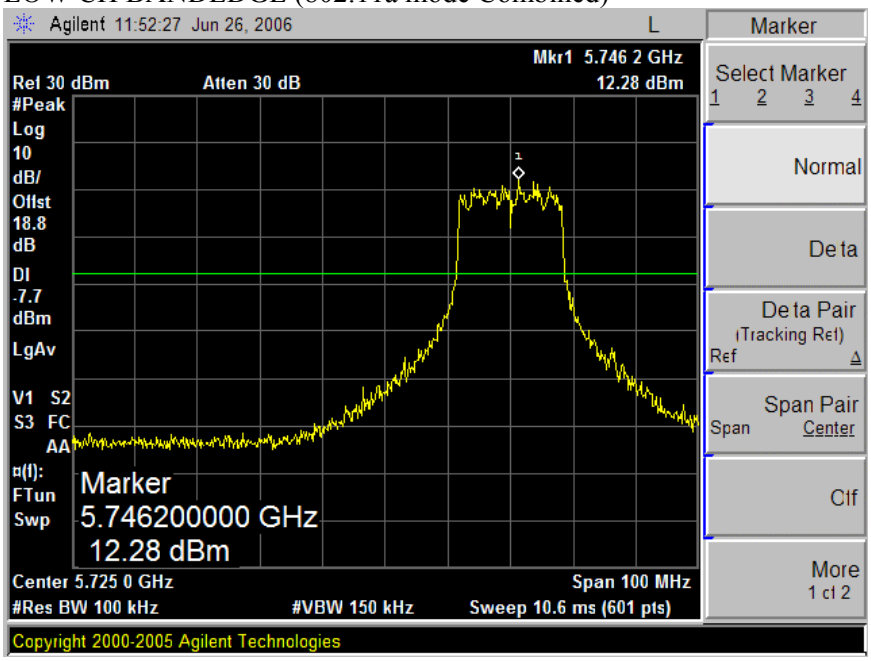


HIGH CH SPURIOUS (802.11n HT40 mode chain 2)

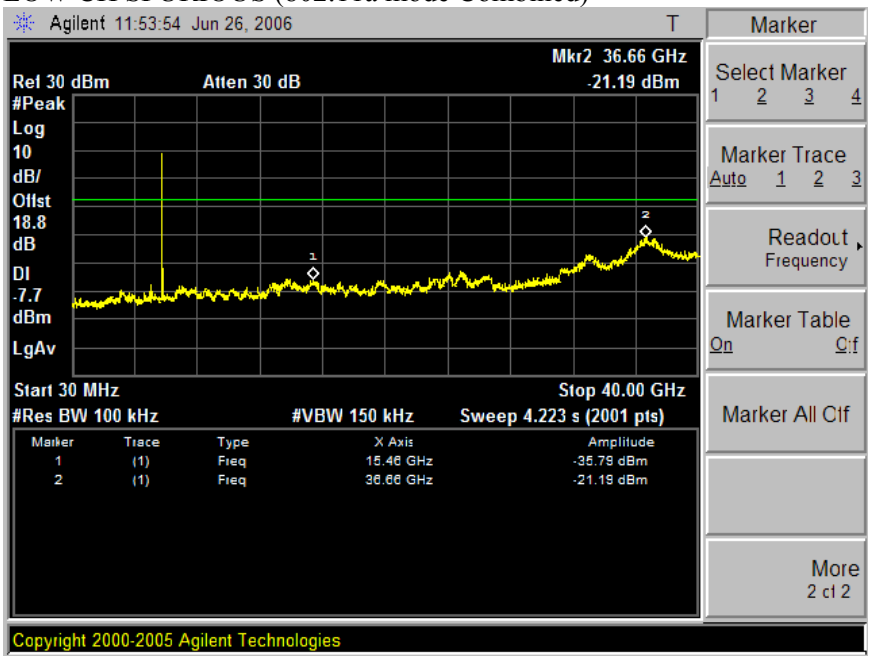


COMBINED SPURIOUS EMISSIONS (802.11a MODE)

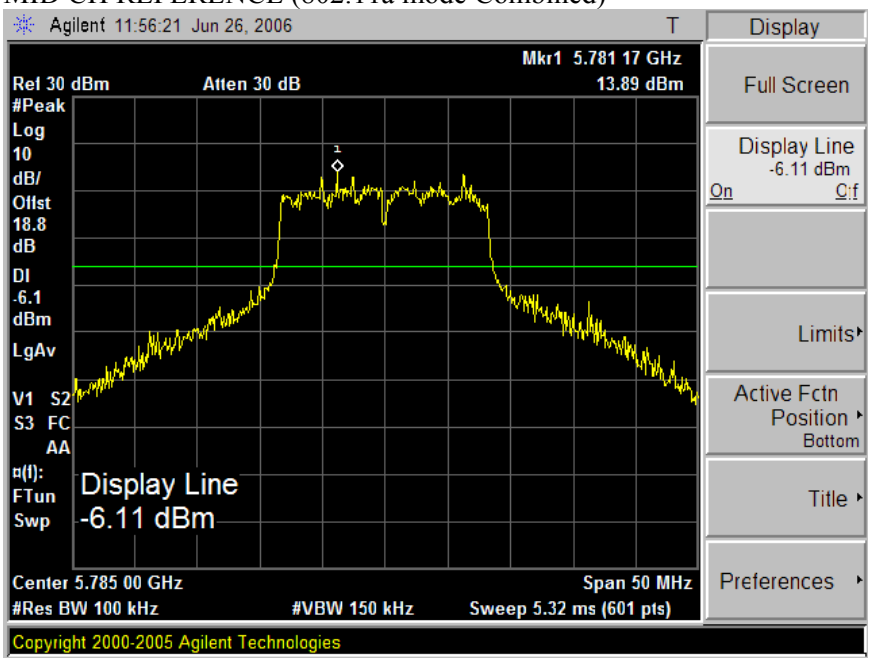
LOW CH BANDEDGE (802.11a mode Combined)



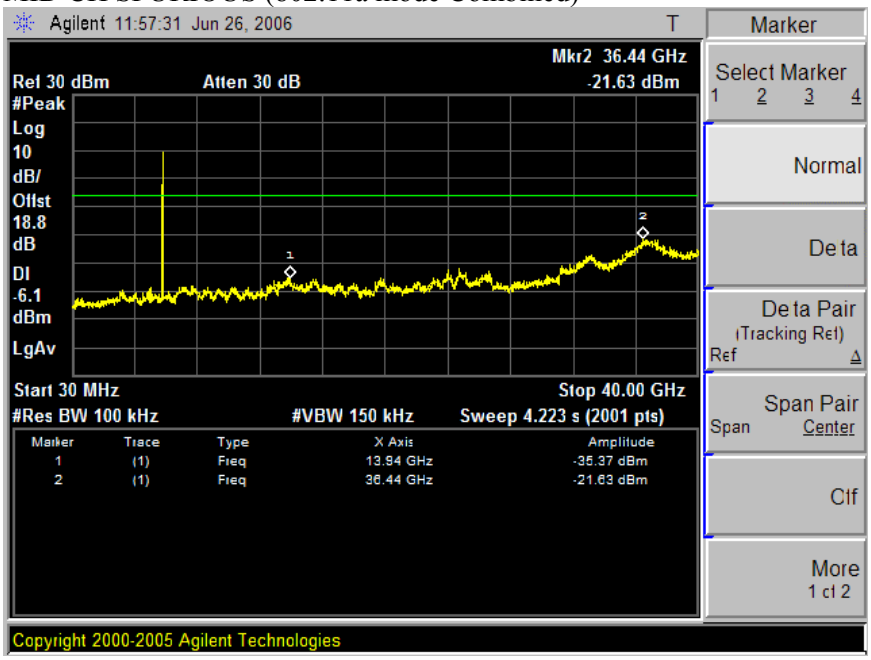
LOW CH SPURIOUS (802.11a mode Combined)



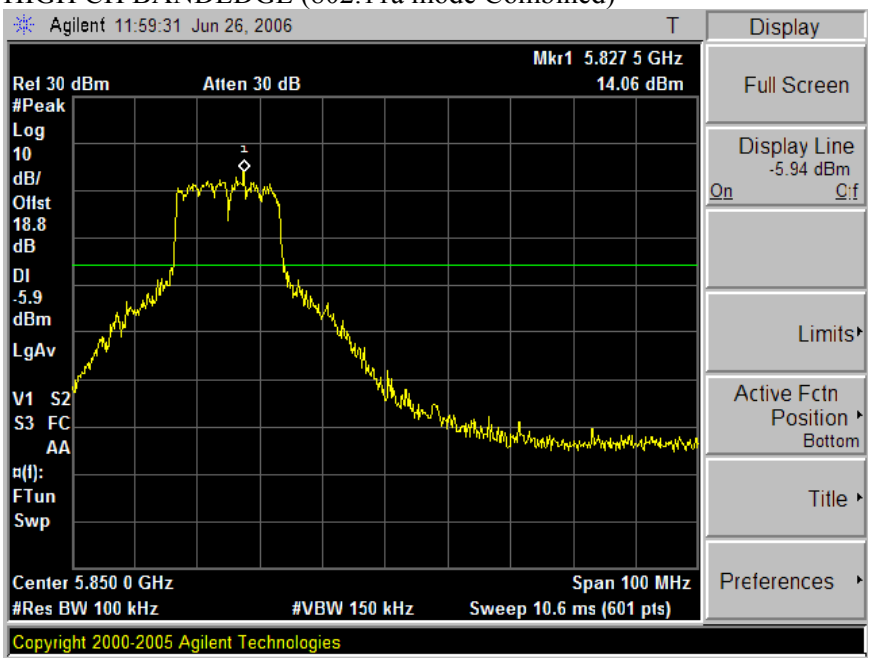
MID CH REFERENCE (802.11a mode Combined)



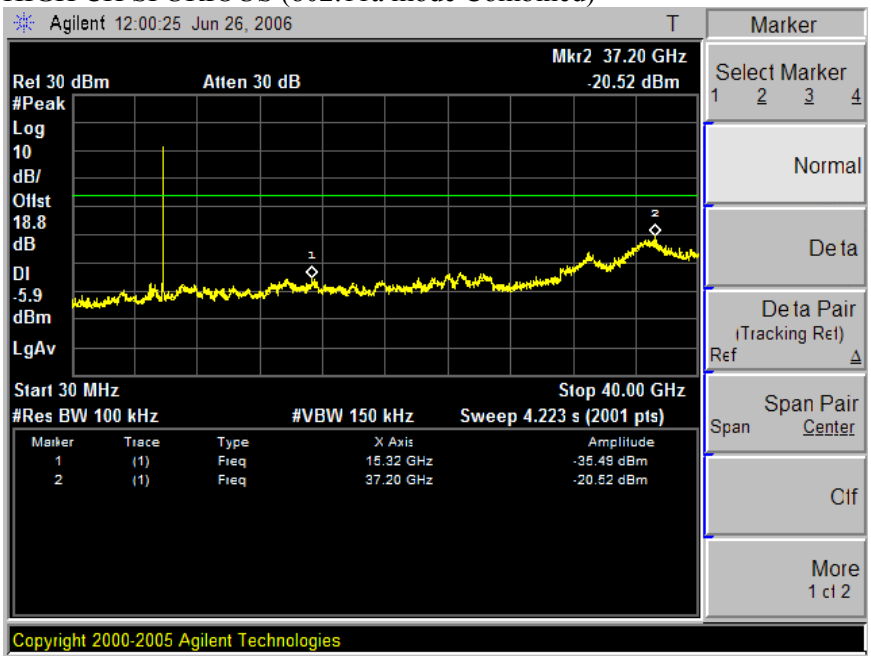
MID CH SPURIOUS (802.11a mode Combined)



HIGH CH BANDEDGE (802.11a mode Combined)

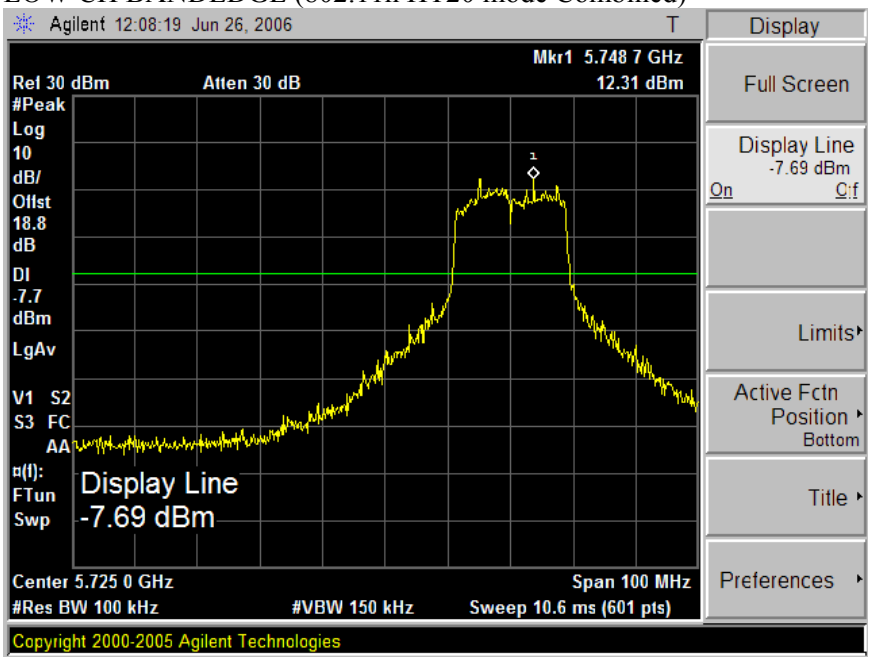


HIGH CH SPURIOUS (802.11a mode Combined)

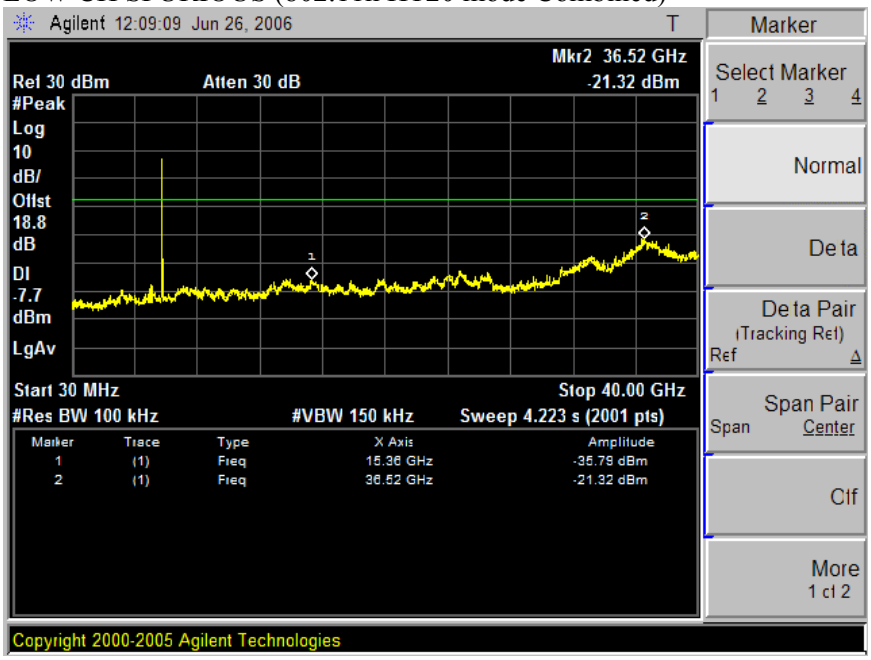


COMBINED SPURIOUS EMISSIONS (802.11n HT20 MODE)

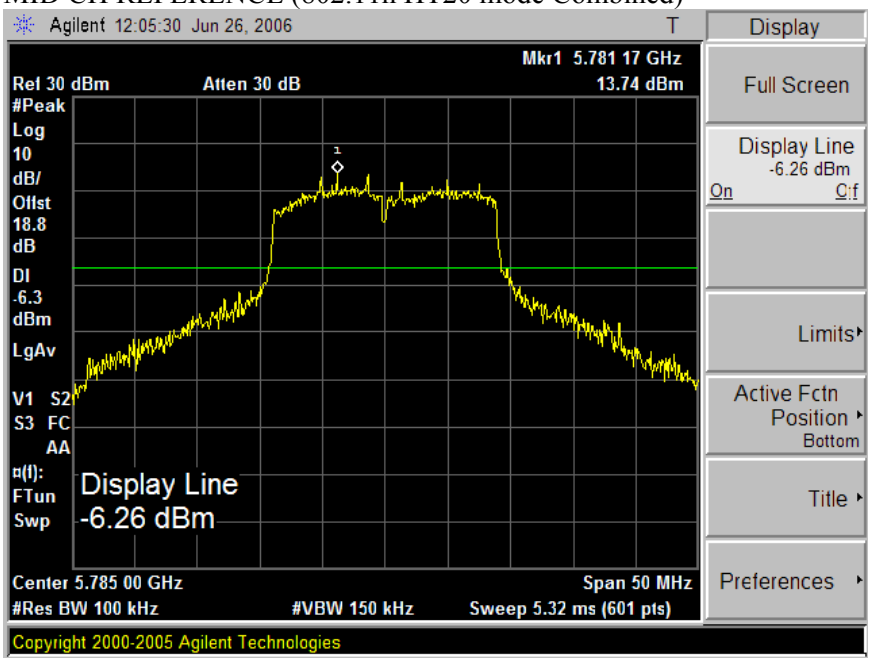
LOW CH BANDEDGE (802.11n HT20 mode Combined)



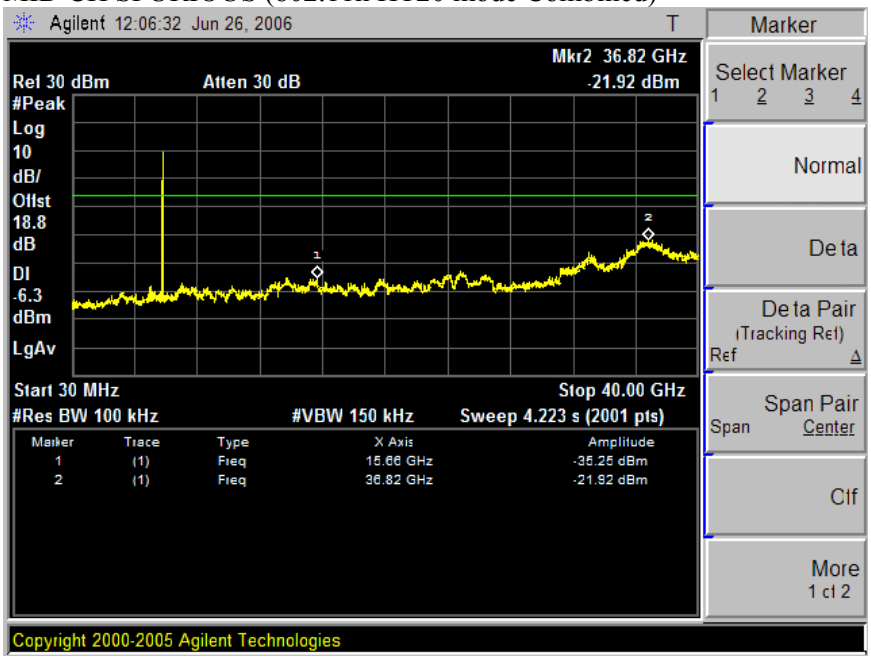
LOW CH SPURIOUS (802.11n HT20 mode Combined)



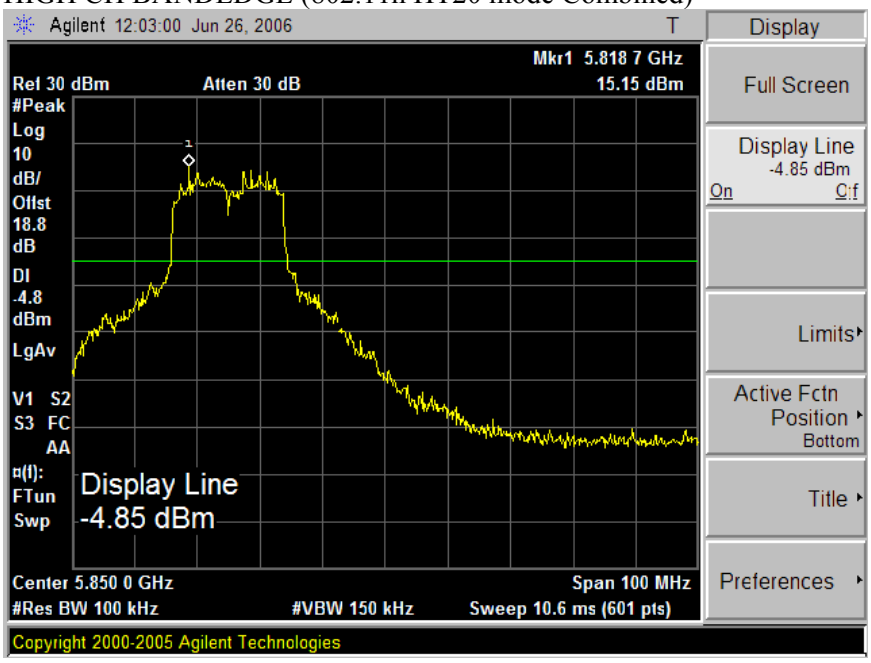
MID CH REFERENCE (802.11n HT20 mode Combined)



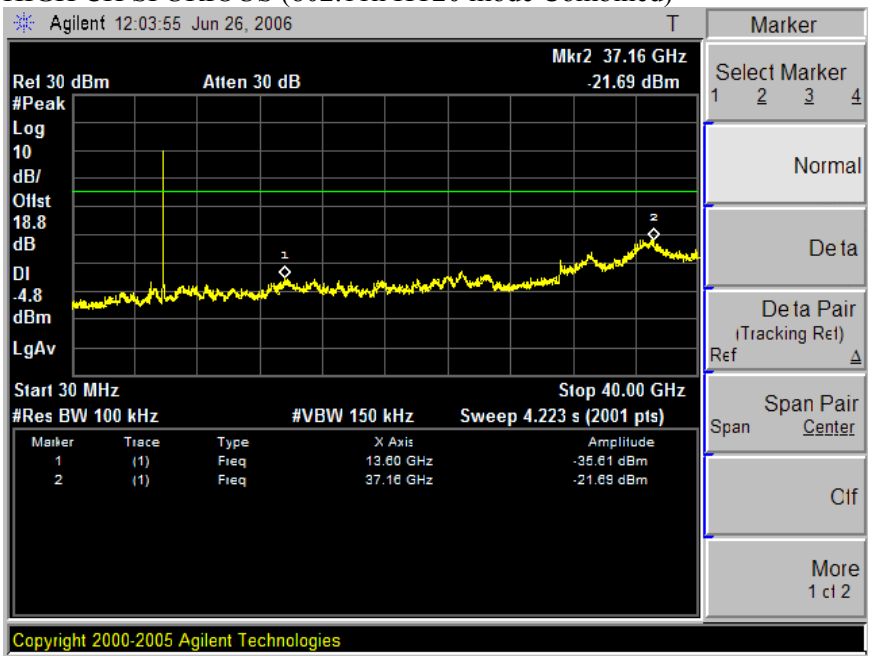
MID CH SPURIOUS (802.11n HT20 mode Combined)



HIGH CH BANDEDGE (802.11n HT20 mode Combined)

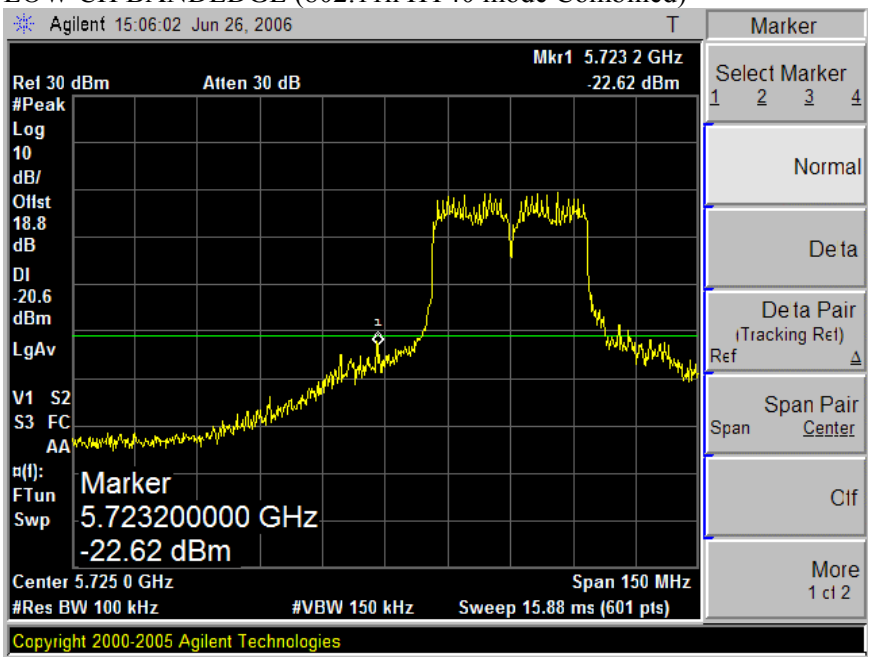


HIGH CH SPURIOUS (802.11n HT20 mode Combined)

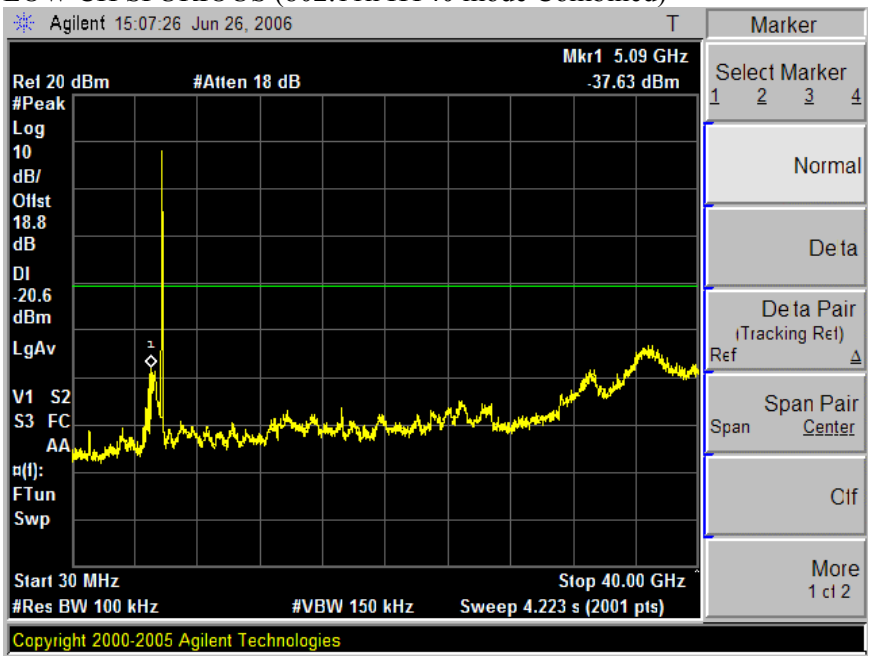


COMBINED SPURIOUS EMISSIONS (802.11 HT40 MODE)

LOW CH BANDEDGE (802.11n HT40 mode Combined)



LOW CH SPURIOUS (802.11n HT40 mode Combined)



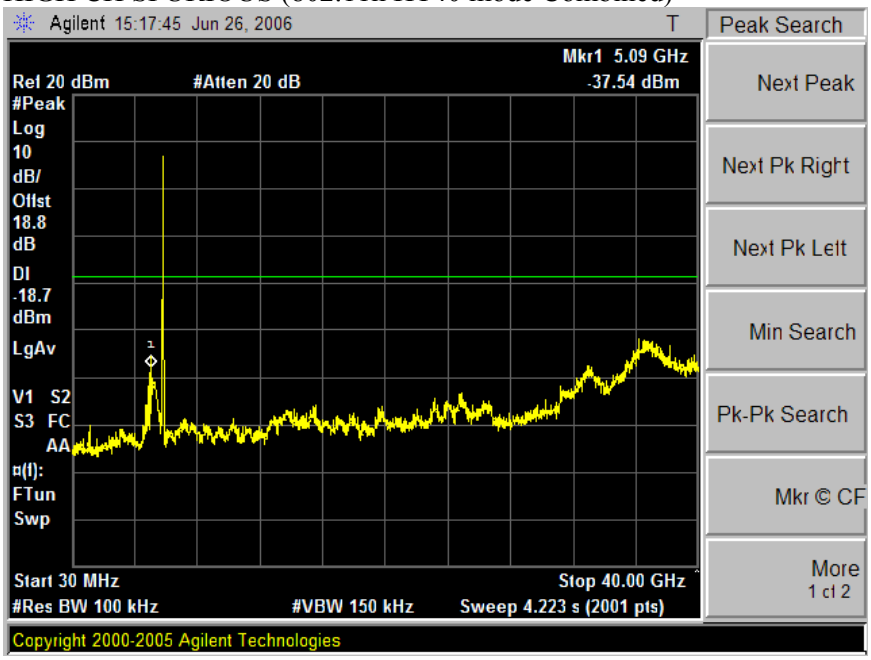
COMBINED SPURIOUS EMISSIONS (802.11 HT40 MODE)

MID CH REFERENCE (802.11n HT40 mode Combined)

MID CH SPURIOUS (802.11n HT40 mode Combined)

HIGH CH BANDEDGE (802.11n HT40 mode Combined)

HIGH CH SPURIOUS (802.11n HT40 mode Combined)



7.3. 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 yields:

$S = (30 * P * G) / (3770 * (d ^ 2))$

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

P (W) = P (mW) / 1000 and
d (m) = d (cm) / 100

and substituting the logarithmic form of power and gain using:

P (mW) = 10 ^ (P (dBm) / 10) and
G (numeric) = 10 ^ (G (dBi) / 10)

yields

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

where

d = MPE distance in cm
P = Power in dBm
G = Antenna Gain in dBi
S = Power Density Limit in mW/cm^2

LIMITS

From §1.1310 Table 1 (B), the maximum value of S = 1.0 mW/cm^2

RESULTS

No non-compliance noted: (MPE distance equals 20 cm)

Band (GHz)	MPE Distance (cm)	Total Power (dBm)	Antenna Gain (dBi)	Power Density (mW/cm^2)
2.4	20.0	23.70	3.62	0.11
5.8	20.0	20.22	4.76	0.06

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. RADIATED EMISSIONS

7.4.1. 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.

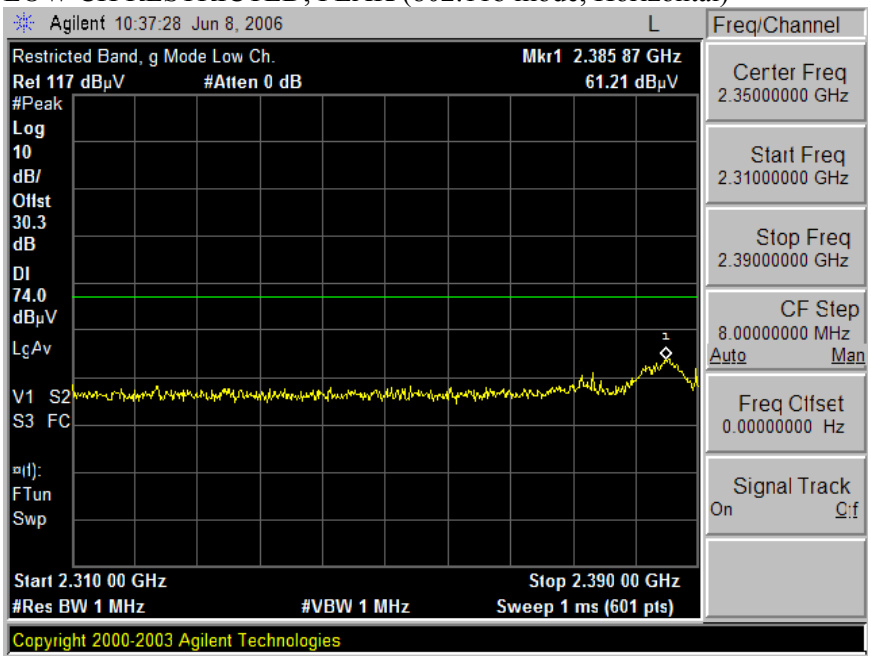
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

Both transmitting chains were activated simultaneously and continuously during all radiated emissions tests.

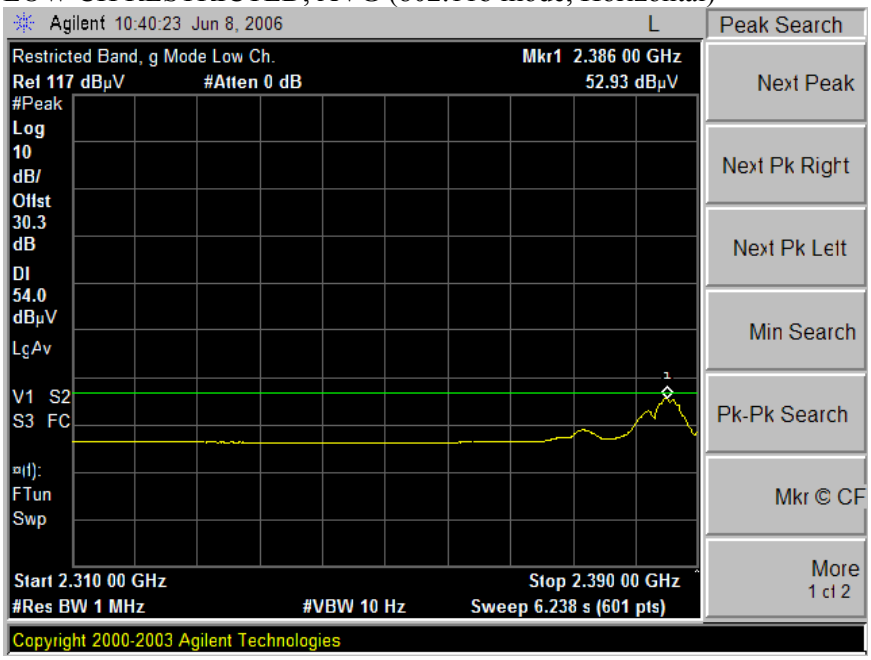
7.4.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND WITH PIFA ANTENNAS

RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (802.11b mode, Horizontal)

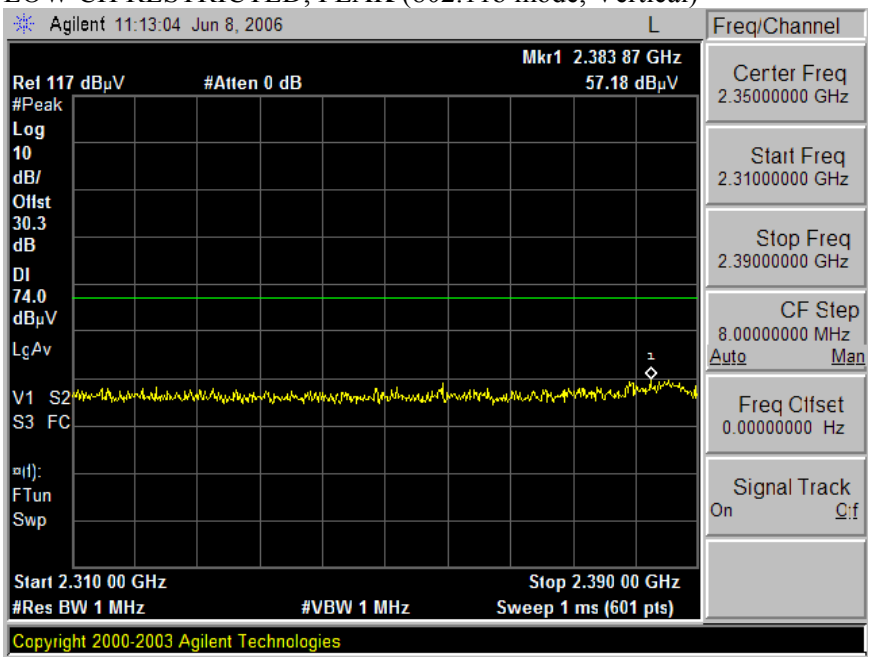


LOW CH RESTRICTED, AVG (802.11b mode, Horizontal)

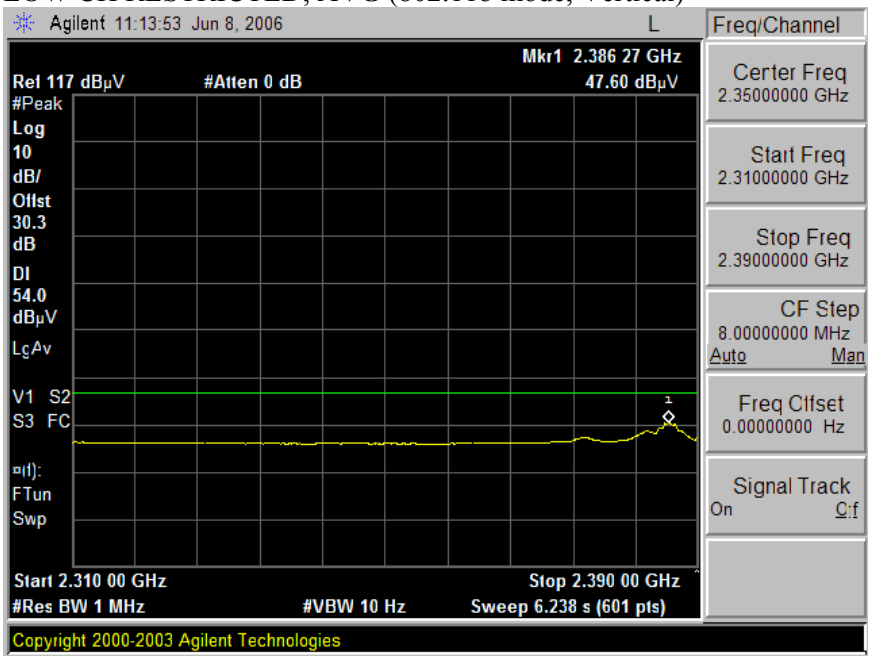


RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (802.11b mode, Vertical)

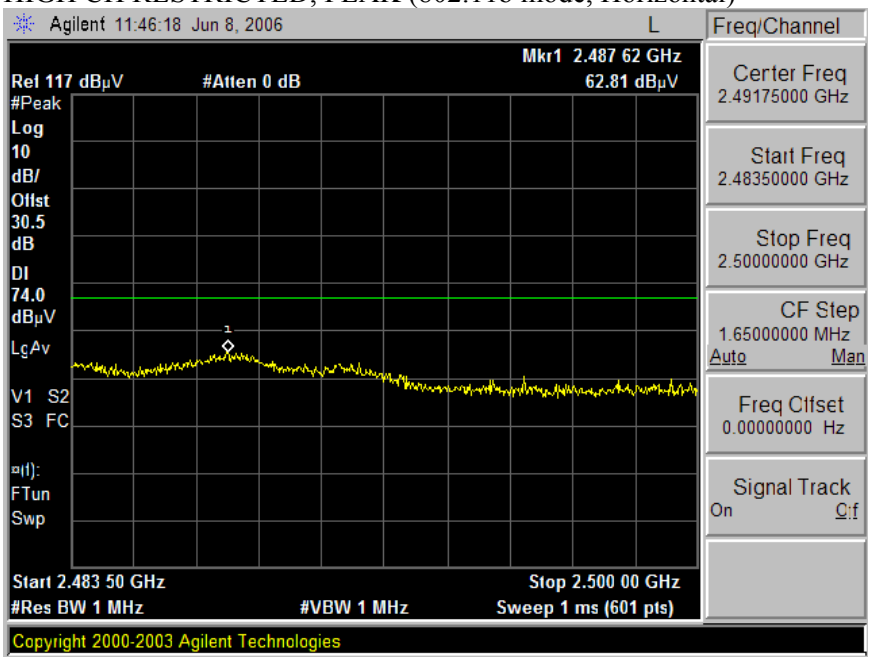


LOW CH RESTRICTED, AVG (802.11b mode, Vertical)

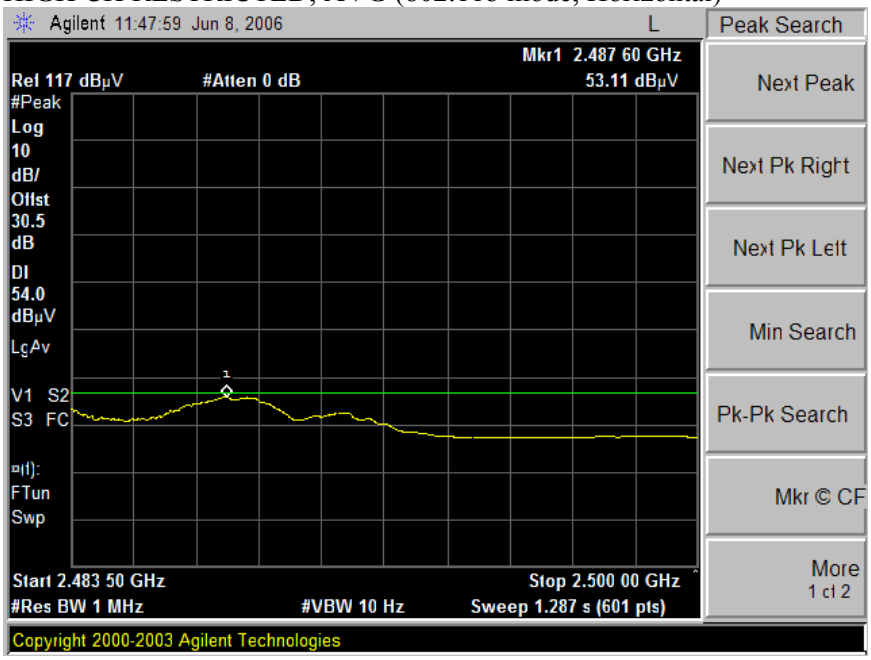


RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (802.11b mode, Horizontal)

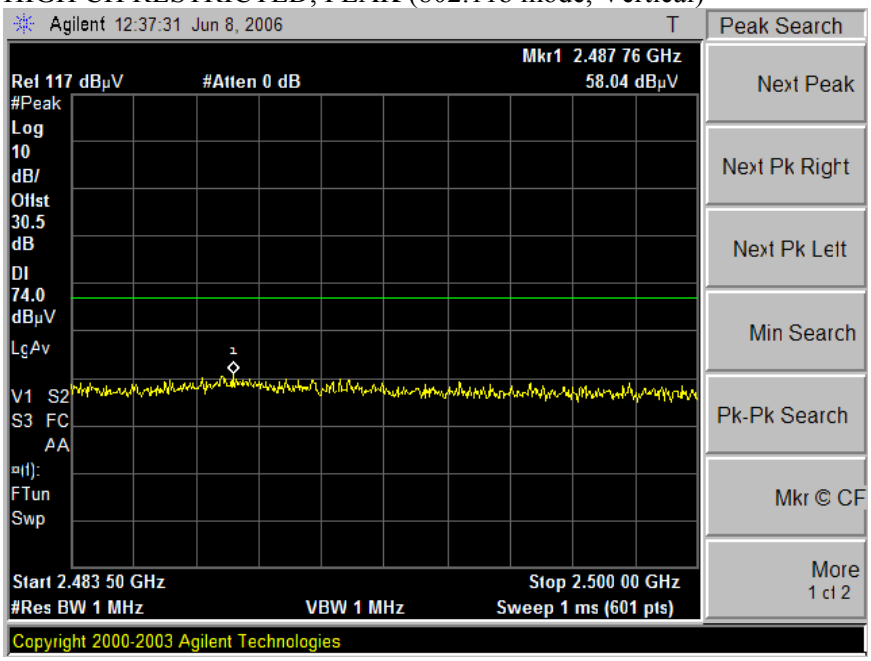


HIGH CH RESTRICTED, AVG (802.11b mode, Horizontal)

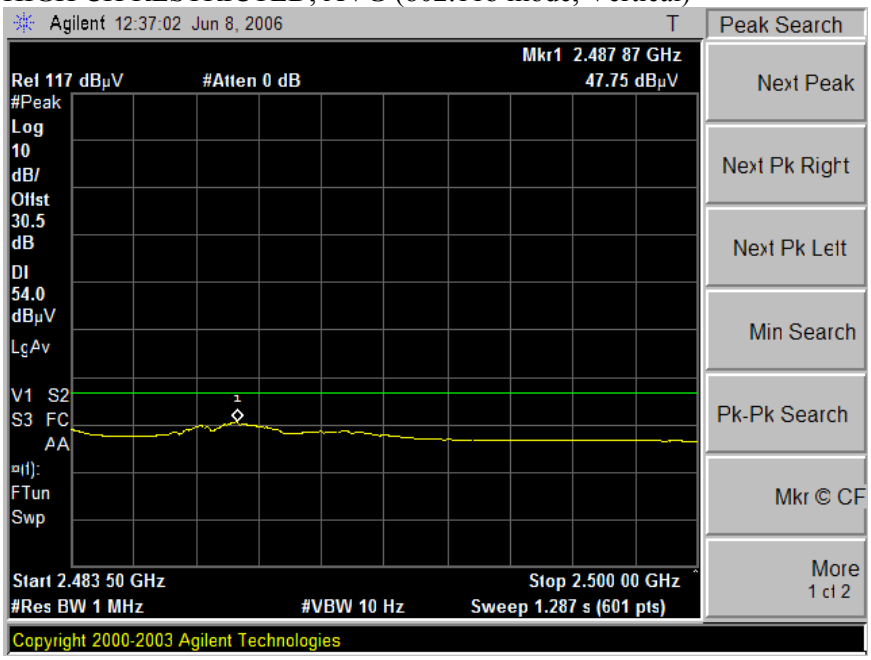


RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11b mode, Vertical)



HIGH CH RESTRICTED, AVG (802.11b mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS (802.11b MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company: Atheros
Project #: 06U10365
Date: 06/24/2006
Test Engineer: Chin Pang
Configuration: EUT (XB72)
Mode: B mode with EBJ antenna
Average Power Meter: Low = 16.5 dBm, Mid = 17 dBm, High = 17 dBm

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Chin 197538001	Chin 200354001	HPF_4.0GHz	

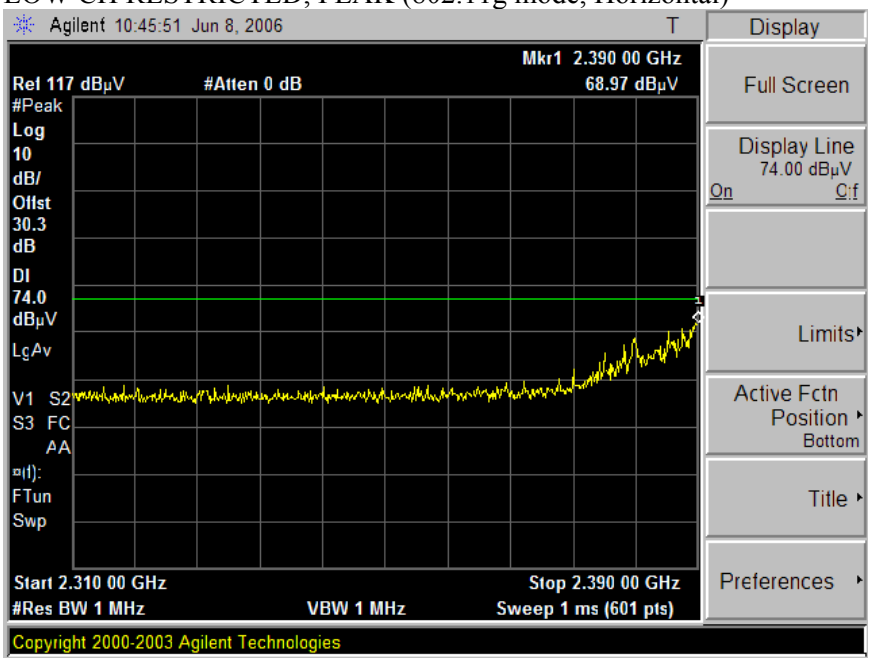
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

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, 2412 MHz															
4.824	3.0	50.0	45.8	33.0	3.2	-36.5	0.0	0.6	50.3	46.1	74	54	-23.7	-7.9	H
4.824	3.0	48.5	43.0	33.0	3.2	-36.5	0.0	0.6	48.8	43.3	74	54	-25.2	-10.7	V
MID CH, 2437 MHz															
4.874	3.0	46.0	38.0	33.1	3.2	-36.5	0.0	0.6	46.4	38.4	74	54	-27.6	-15.6	H
7.311	3.0	47.0	40.0	35.5	3.6	-36.2	0.0	0.6	50.5	43.5	74	54	-23.5	-10.5	H
4.874	3.0	45.0	35.0	33.1	3.2	-36.5	0.0	0.6	45.4	35.4	74	54	-28.6	-18.6	V
7.311	3.0	43.5	32.2	35.5	3.6	-36.2	0.0	0.6	47.0	35.7	74	54	-27.0	-18.3	V
HI CH, 2462 MHz															
4.924	3.0	45.0	33.8	33.1	3.2	-36.5	0.0	0.6	45.5	34.3	74	54	-28.5	-19.7	H
7.386	3.0	42.8	34.0	35.6	3.6	-36.2	0.0	0.6	46.4	37.6	74	54	-27.6	-16.4	H
4.924	3.0	44.4	33.2	33.1	3.2	-36.5	0.0	0.6	44.9	33.7	74	54	-29.1	-20.3	V
7.386	3.0	43.0	31.0	35.6	3.6	-36.2	0.0	0.6	46.6	34.6	74	54	-27.4	-19.4	V
		No other emissions were detected above system noisre floor													

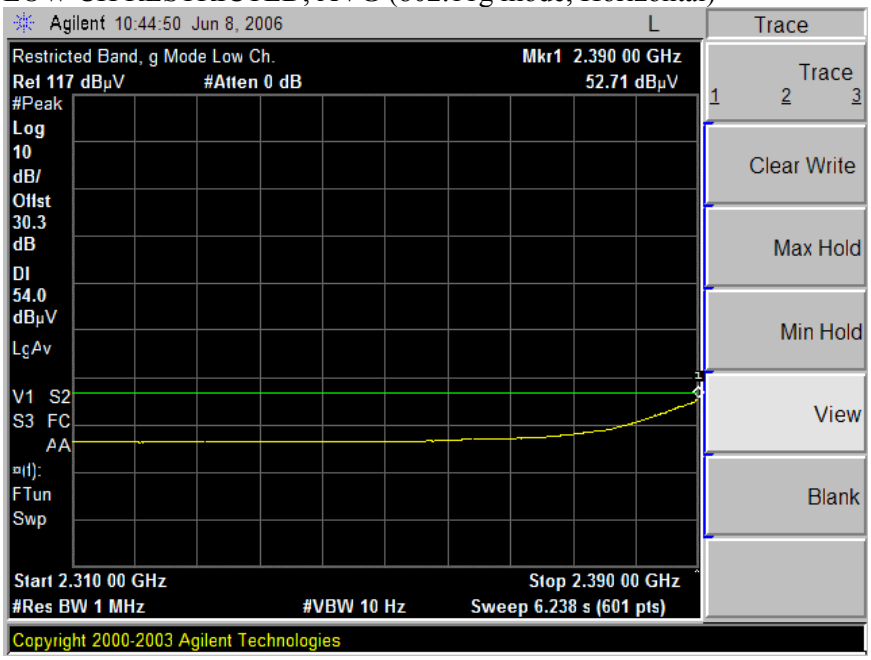
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (802.11g mode, Horizontal)

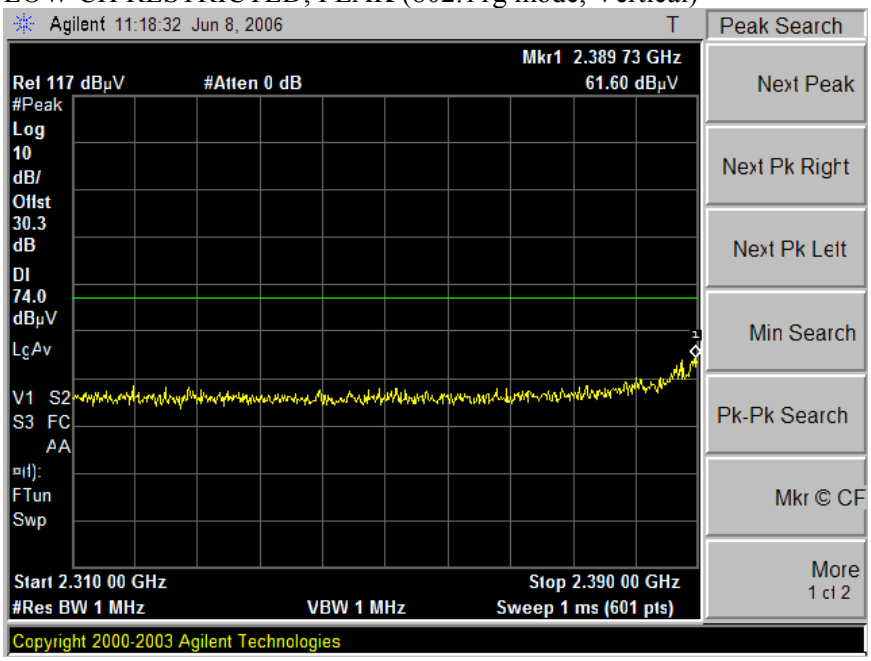


LOW CH RESTRICTED, AVG (802.11g mode, Horizontal)

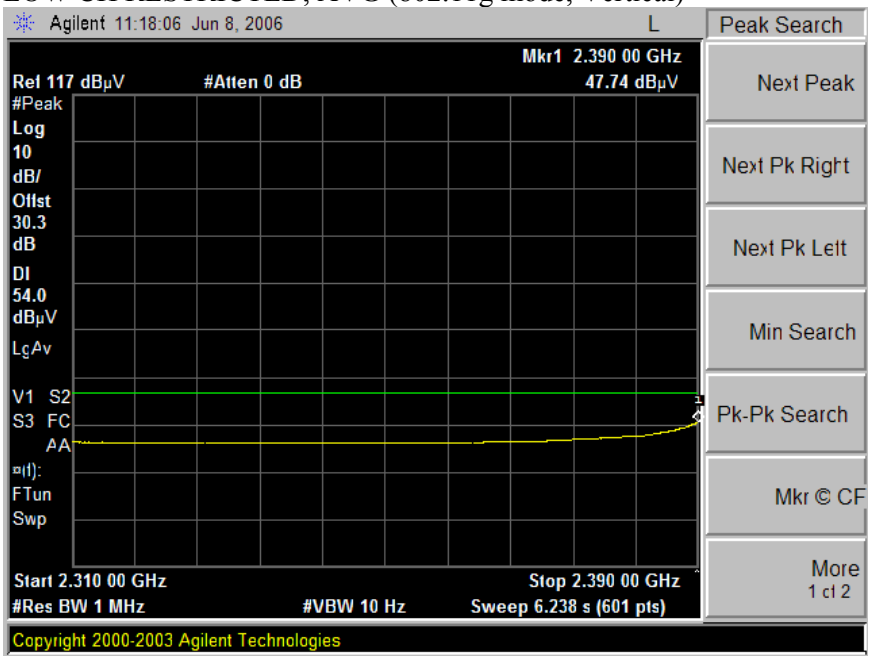


RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (802.11g mode, Vertical)

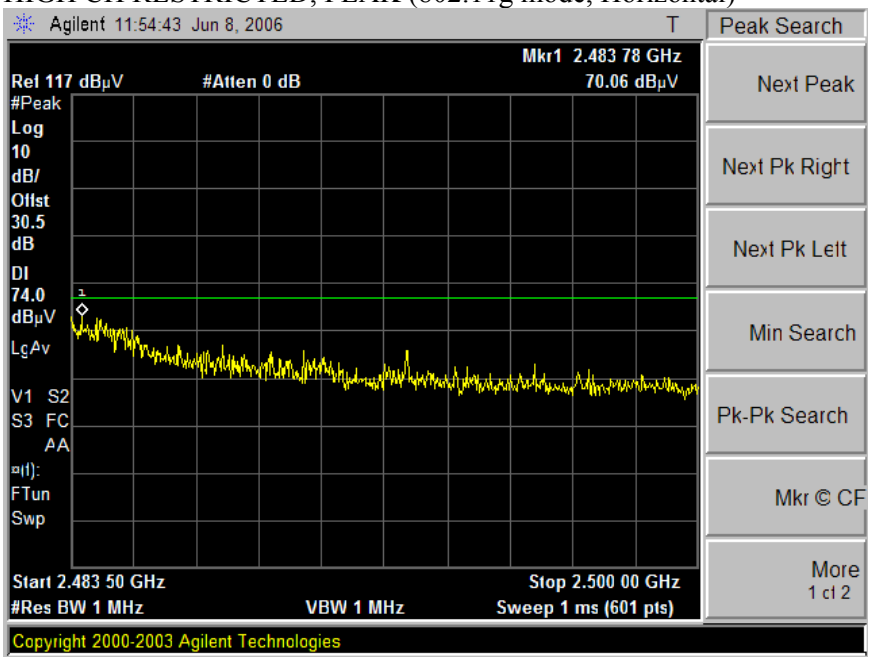


LOW CH RESTRICTED, AVG (802.11g mode, Vertical)

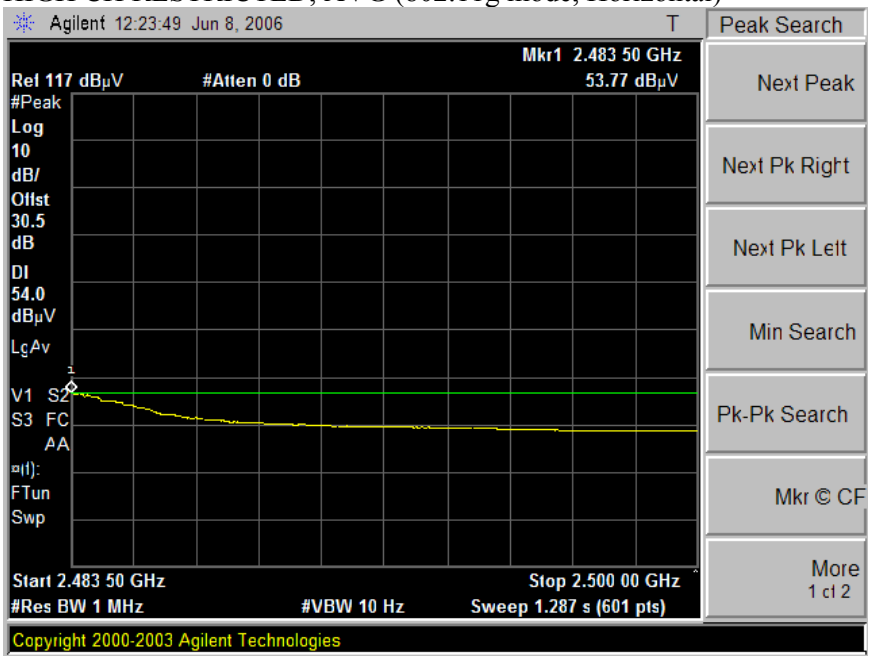


RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (802.11g mode, Horizontal)

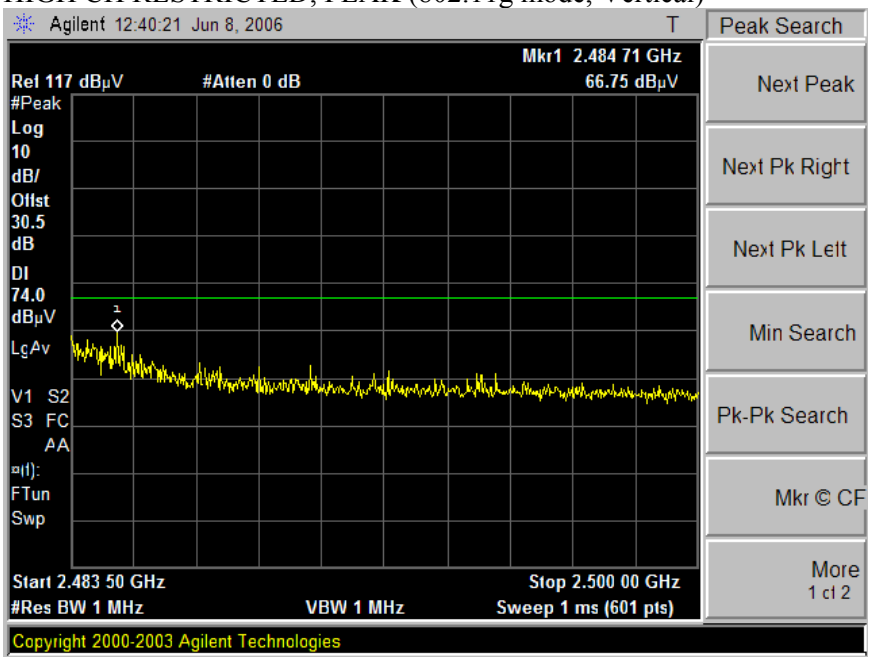


HIGH CH RESTRICTED, AVG (802.11g mode, Horizontal)

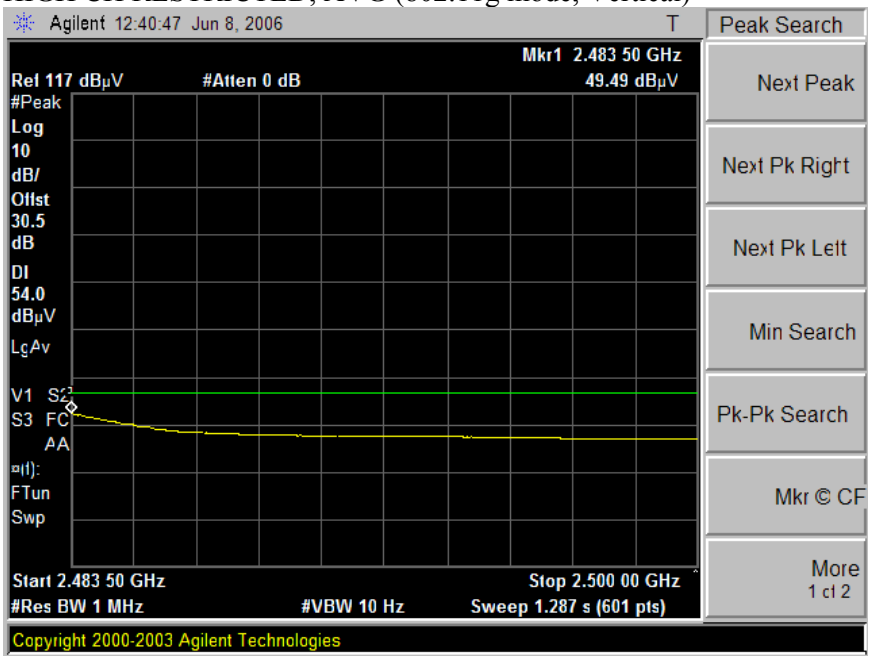


RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11g mode, Vertical)



HIGH CH RESTRICTED, AVG (802.11g mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS (802.11g MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company: Atheros
Project #: 06U10365
Date: 06/14/2006
Test Engineer: Chin Pang
Configuration: EUT (XB72)
Mode: g mode with EBJ antenna
Average Power Meter: Low = 16.5 dBm, Mid = 20 dBm, High = 17 dBm

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Chin 197538001	Chin 200354001	HPF_4.0GHz	

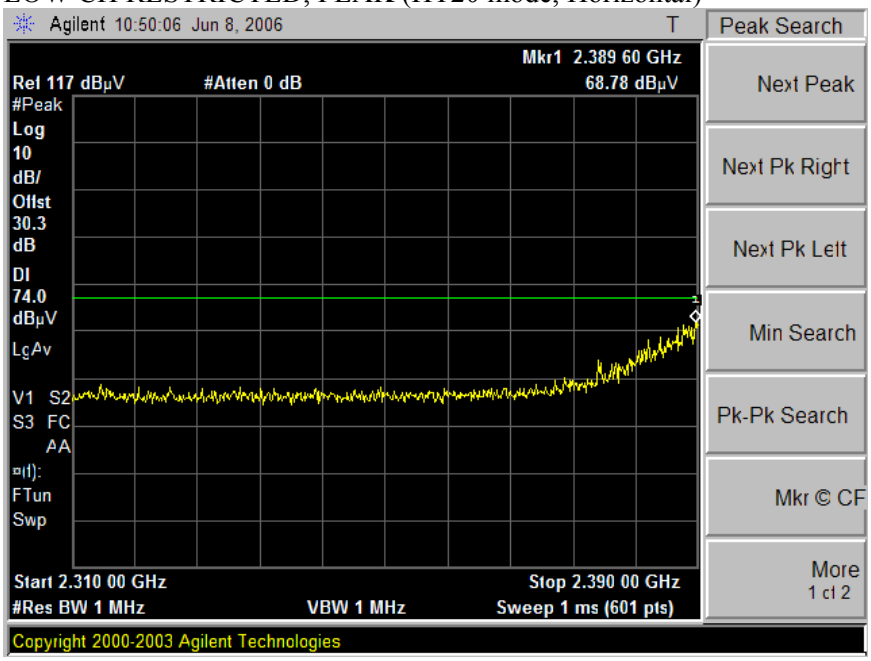
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

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, 2412 MHz															
4.824	3.0	47.0	35.0	33.0	3.2	-36.5	0.0	0.6	47.3	35.3	74	54	-26.7	-18.7	H
4.824	3.0	46.2	34.0	33.0	3.2	-36.5	0.0	0.6	46.5	34.3	74	54	-27.5	-19.7	V
MID CH, 2437 MHz															
4.874	3.0	46.0	34.7	33.1	3.2	-36.5	0.0	0.6	46.4	35.1	74	54	-27.6	-18.9	H
7.311	3.0	46.3	34.2	35.5	3.6	-36.2	0.0	0.6	49.8	37.7	74	54	-24.2	-16.3	H
4.874	3.0	45.0	32.5	33.1	3.2	-36.5	0.0	0.6	45.4	32.9	74	54	-28.6	-21.1	V
7.311	3.0	43.0	32.0	35.5	3.6	-36.2	0.0	0.6	46.5	35.5	74	54	-27.5	-18.5	V
HI CH, 2462 MHz															
4.924	3.0	43.5	32.6	33.1	3.2	-36.5	0.0	0.6	44.0	33.1	74	54	-30.0	-20.9	H
7.386	3.0	43.0	32.0	35.6	3.6	-36.2	0.0	0.6	46.6	35.6	74	54	-27.4	-18.4	H
4.924	3.0	43.0	31.5	33.1	3.2	-36.5	0.0	0.6	43.5	32.0	74	54	-30.5	-22.0	V
7.386	3.0	42.3	31.3	35.6	3.6	-36.2	0.0	0.6	45.9	34.9	74	54	-28.1	-19.1	V
		No other emissions were detected above system noisre floor													

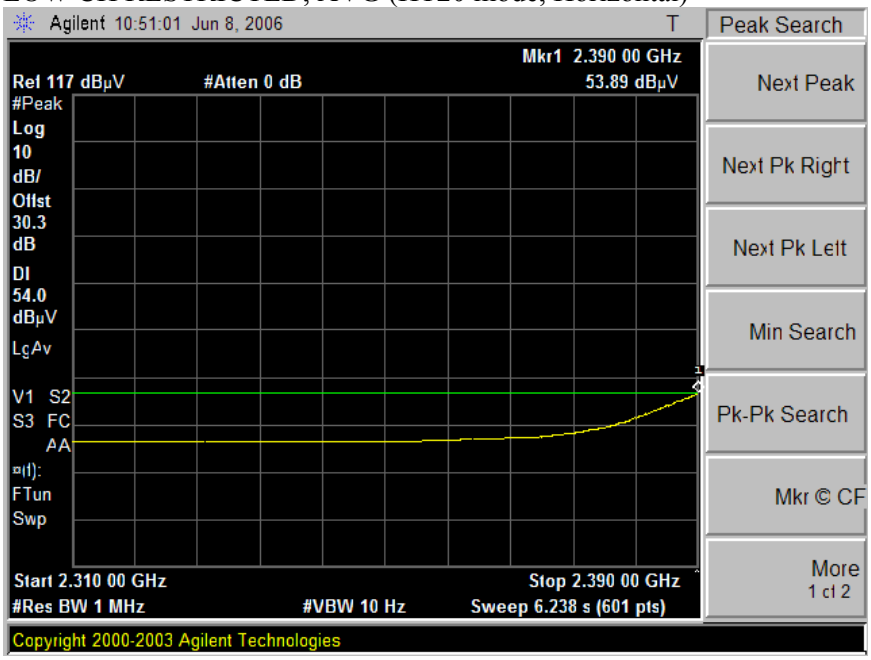
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

RESTRICTED BANDEDGE (HT20 MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (HT20 mode, Horizontal)

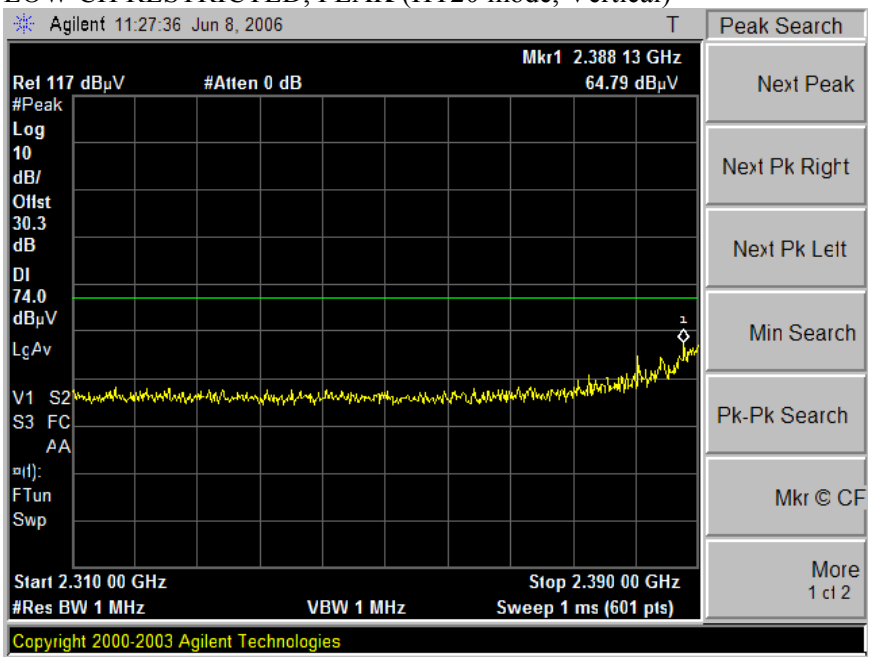


LOW CH RESTRICTED, AVG (HT20 mode, Horizontal)

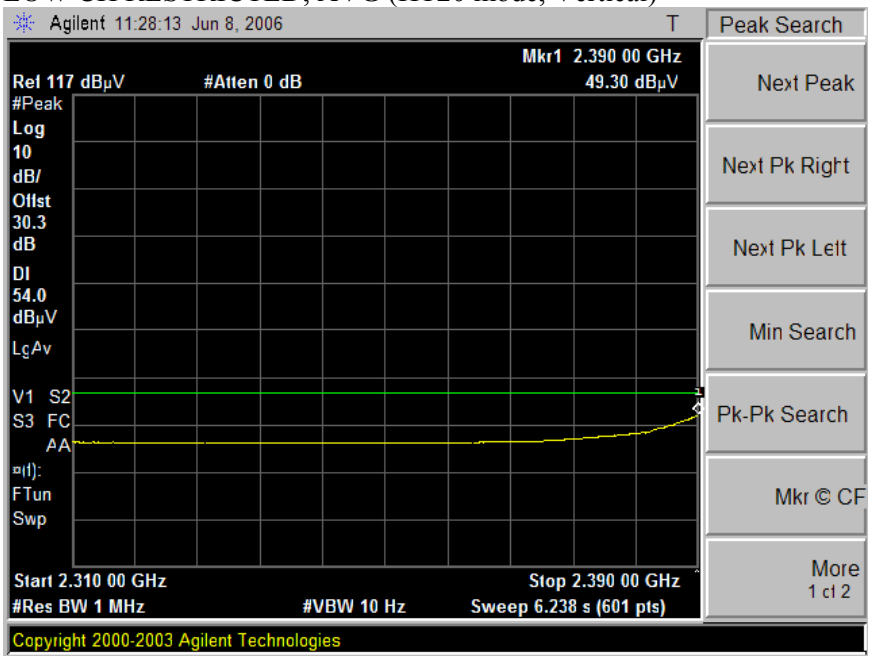


RESTRICTED BANDEDGE (HT20 MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (HT20 mode, Vertical)

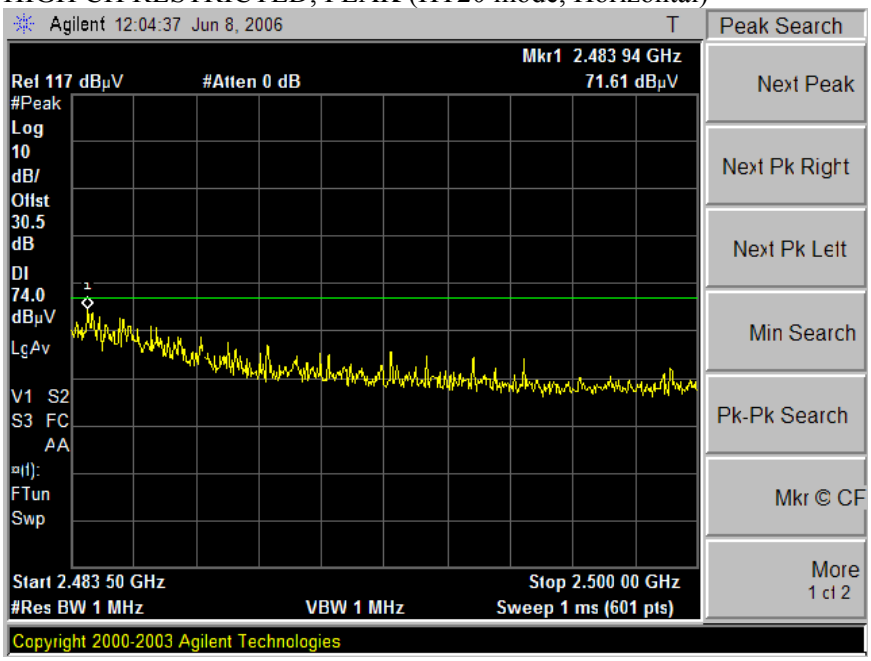


LOW CH RESTRICTED, AVG (HT20 mode, Vertical)

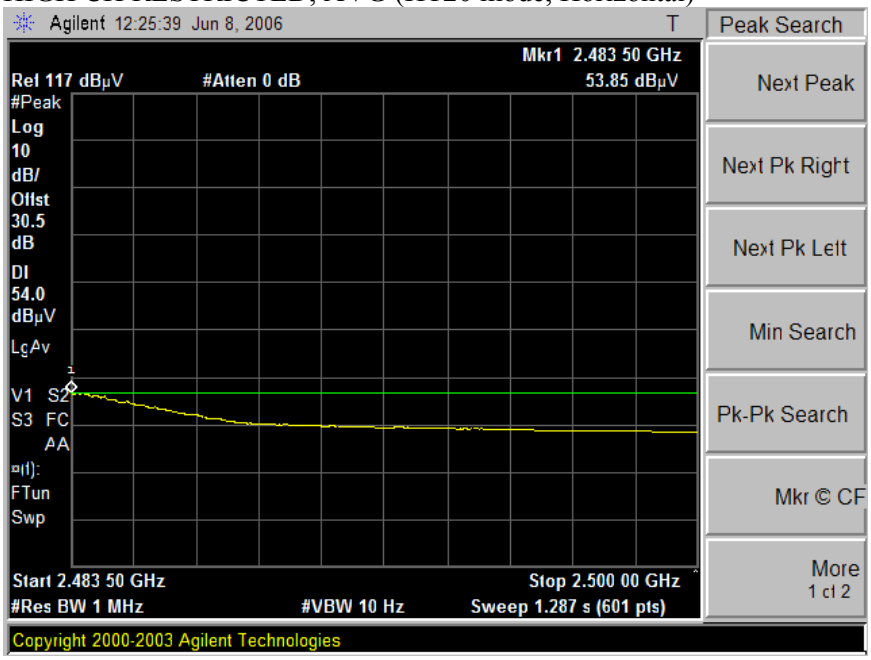


RESTRICTED BANDEDGE (HT20 MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (HT20 mode, Horizontal)

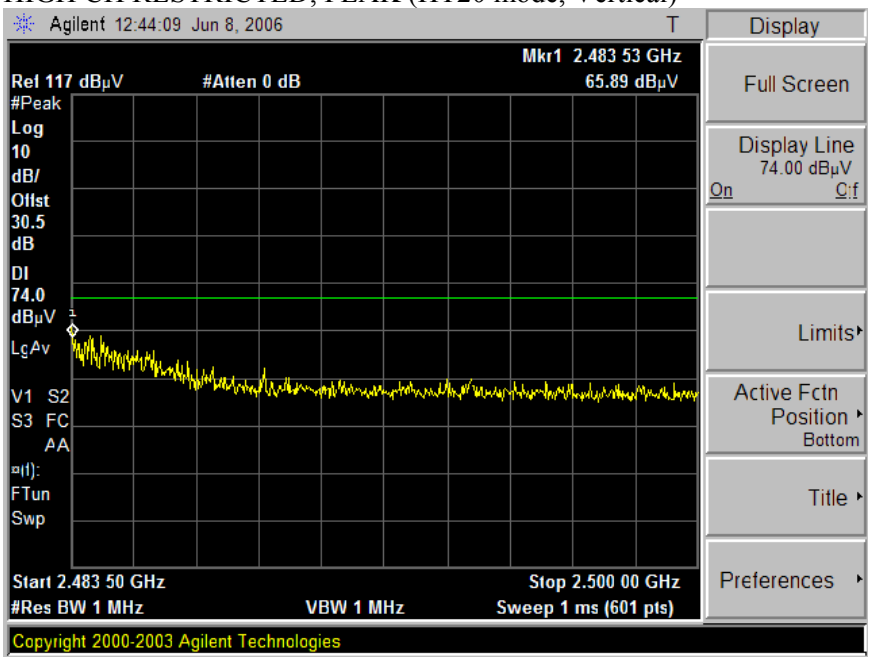


HIGH CH RESTRICTED, AVG (HT20 mode, Horizontal)

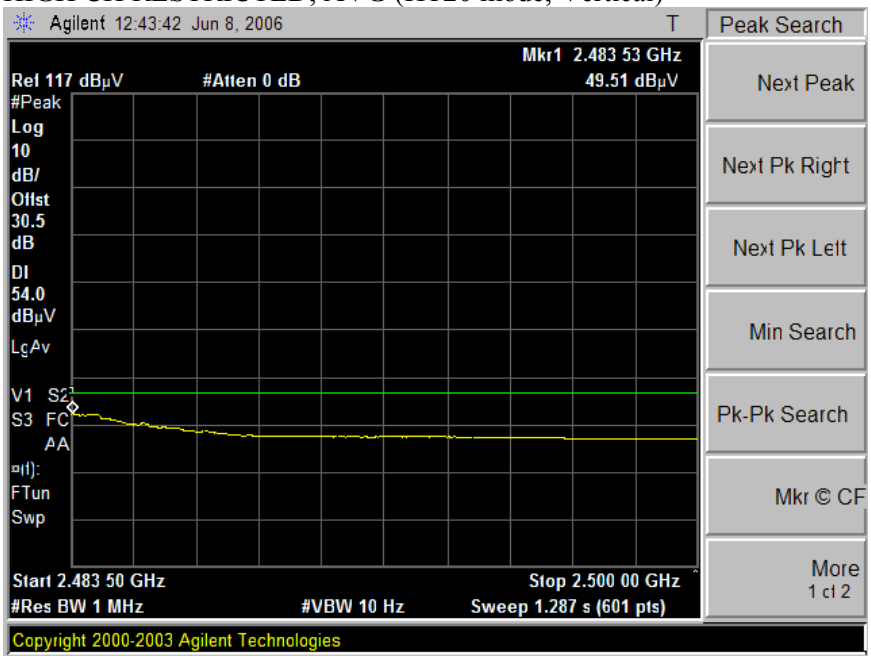


RESTRICTED BANDEDGE (HT20 MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (HT20 mode, Vertical)



HIGH CH RESTRICTED, AVG (HT20 mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS (802.11n HT20 MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company: Atheros
Project #: 06U10365
Date: 06/14/2006
Test Engineer: Chin Pang
Configuration: EUT (XB72)
Mode: HT20 mode with EBJ antenna
Average Power Meter: Low = 15 dBm, Mid = 20 dBm, High = 14 dBm

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Chin 197538001	Chin 200354001	HPF_4.0GHz	

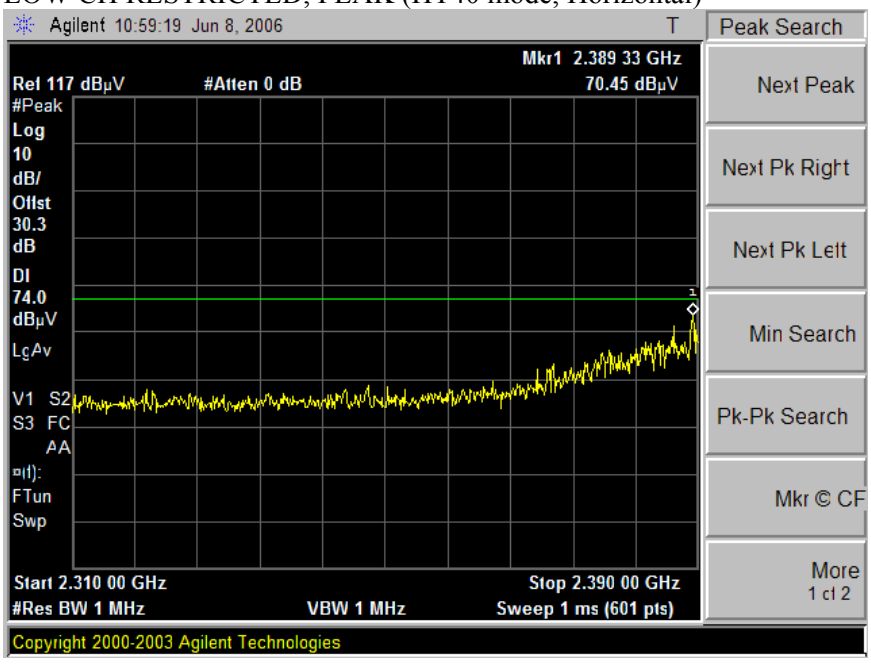
Peak Measurements RBW=VBW=1MHz
Average Measurements RBW=1MHz ; VBW=10Hz

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, 2412 MHz															
4.824	3.0	46.5	35.0	33.0	3.2	-36.5	0.0	0.6	46.8	35.3	74	54	-27.2	-18.7	H
4.824	3.0	46.0	34.4	33.0	3.2	-36.5	0.0	0.6	46.3	34.7	74	54	-27.7	-19.3	V
MID CH, 2437 MHz															
4.874	3.0	47.5	34.3	33.1	3.2	-36.5	0.0	0.6	47.9	34.7	74	54	-26.1	-19.3	H
7.311	3.0	45.6	33.4	35.5	3.6	-36.2	0.0	0.6	49.1	36.9	74	54	-24.9	-17.1	H
4.874	3.0	45.3	32.0	33.1	3.2	-36.5	0.0	0.6	45.7	32.4	74	54	-28.3	-21.6	V
7.311	3.0	43.2	32.0	35.5	3.6	-36.2	0.0	0.6	46.7	35.5	74	54	-27.3	-18.5	V
HI CH, 2462 MHz															
4.924	3.0	43.4	32.0	33.1	3.2	-36.5	0.0	0.6	43.9	32.5	74	54	-30.1	-21.5	H
7.386	3.0	44.0	32.3	35.6	3.6	-36.2	0.0	0.6	47.6	35.9	74	54	-26.4	-18.1	H
4.924	3.0	43.0	31.4	33.1	3.2	-36.5	0.0	0.6	43.5	31.9	74	54	-30.5	-22.1	V
7.386	3.0	43.4	31.6	35.6	3.6	-36.2	0.0	0.6	47.0	35.2	74	54	-27.0	-18.8	V
		No other emissions were detected above system noisre floor													

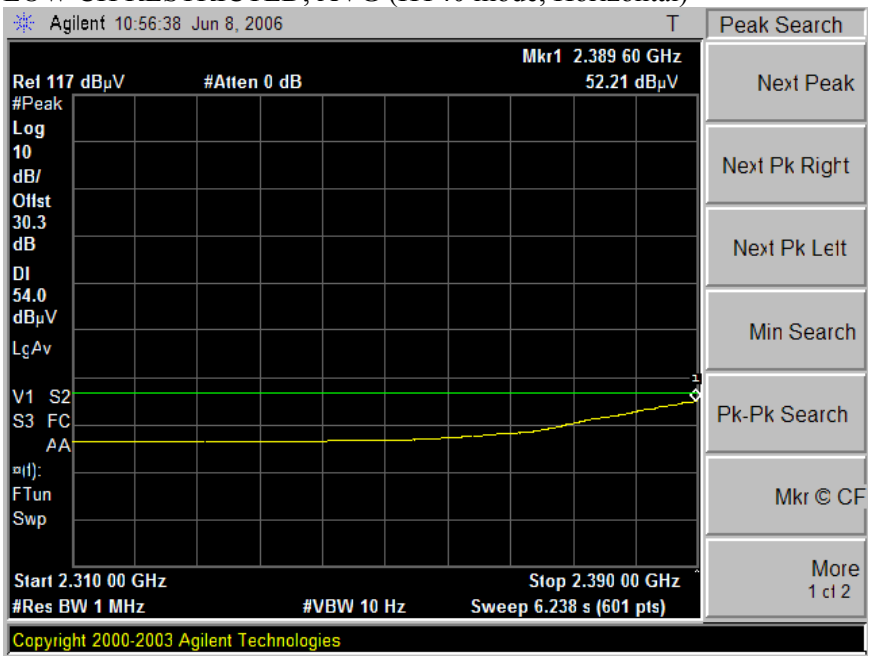
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

RESTRICTED BANDEDGE (HT40 MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (HT40 mode, Horizontal)

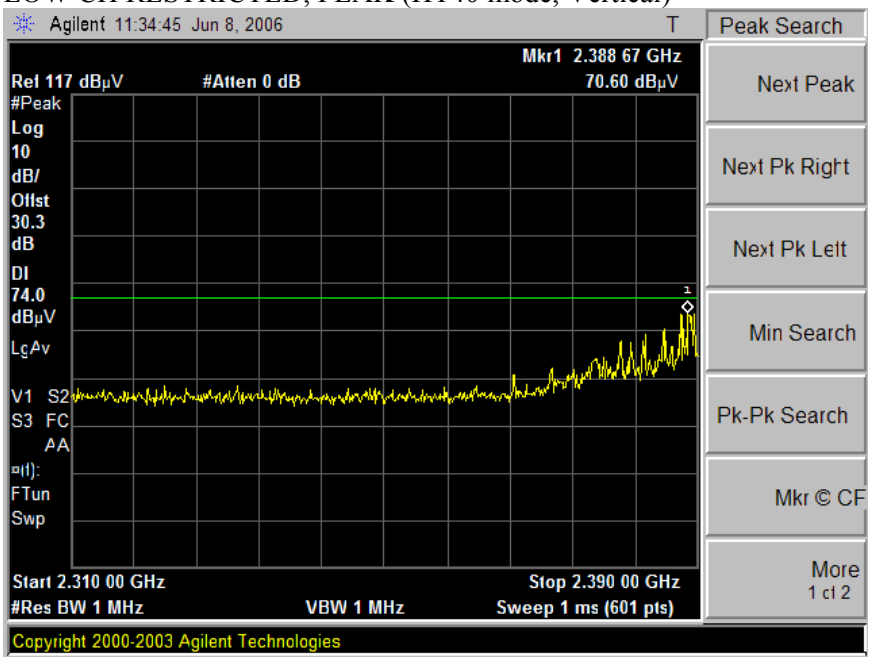


LOW CH RESTRICTED, AVG (HT40 mode, Horizontal)

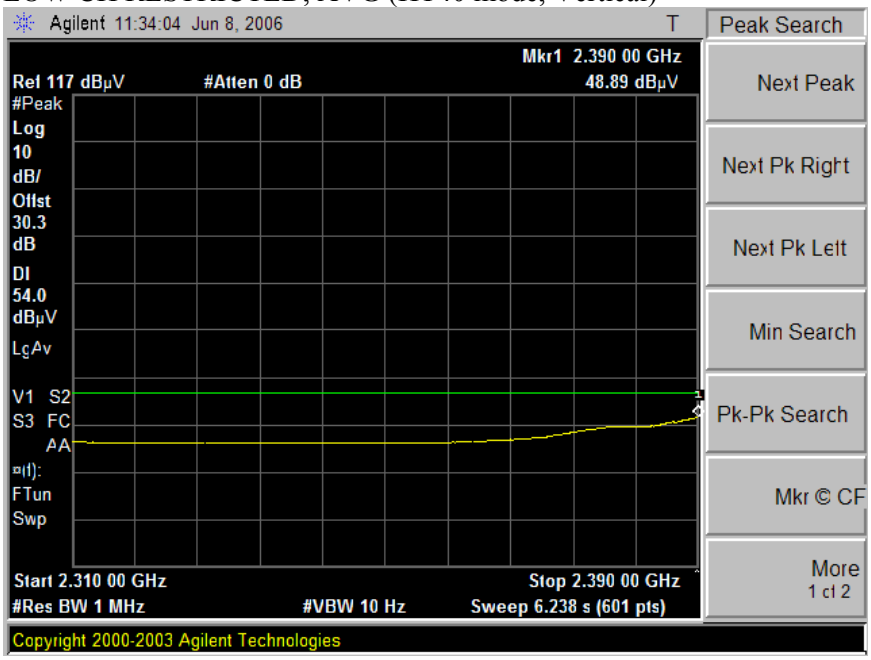


RESTRICTED BANDEDGE (HT40 MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (HT40 mode, Vertical)

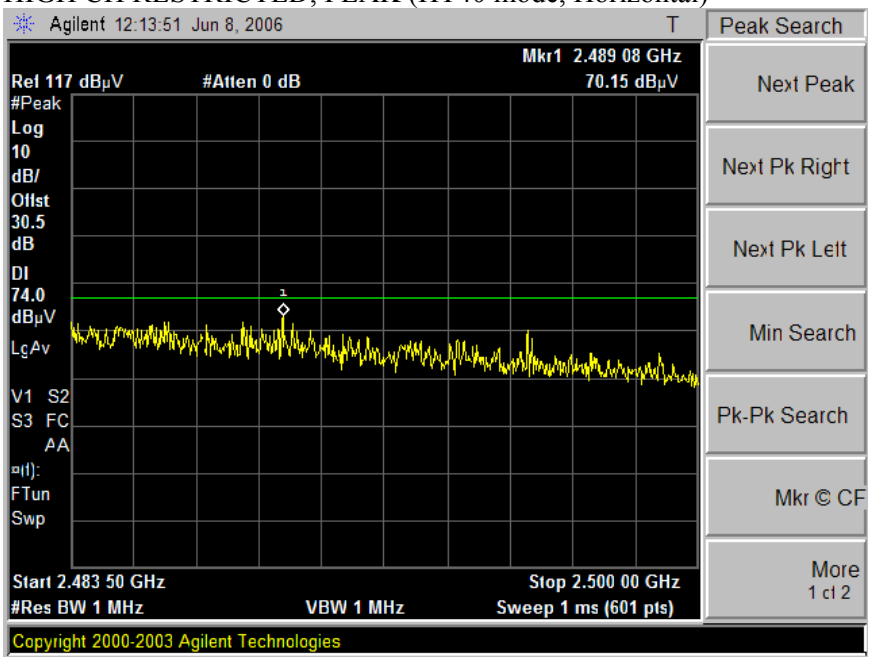


LOW CH RESTRICTED, AVG (HT40 mode, Vertical)

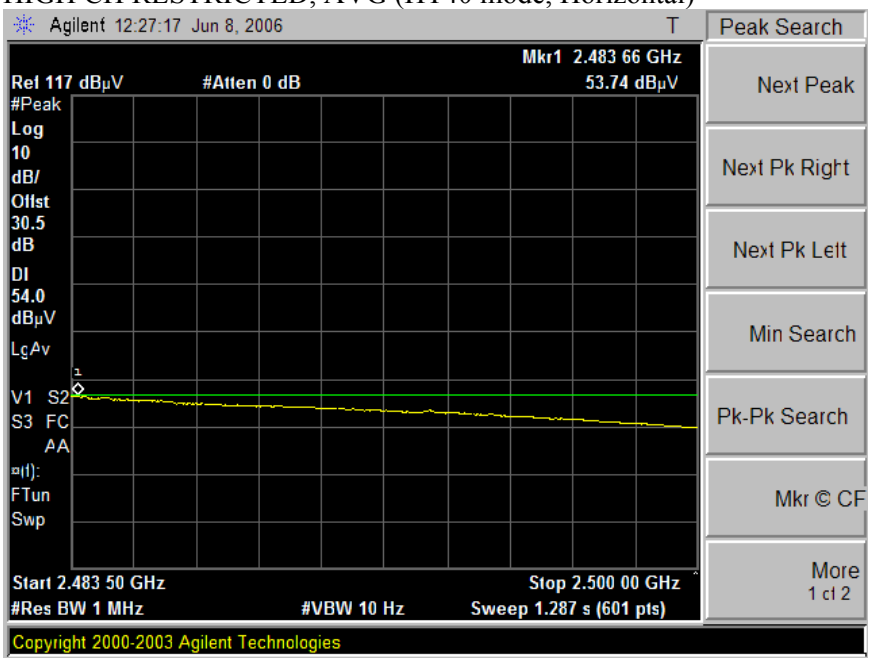


RESTRICTED BANDEDGE (HT40 MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (HT40 mode, Horizontal)

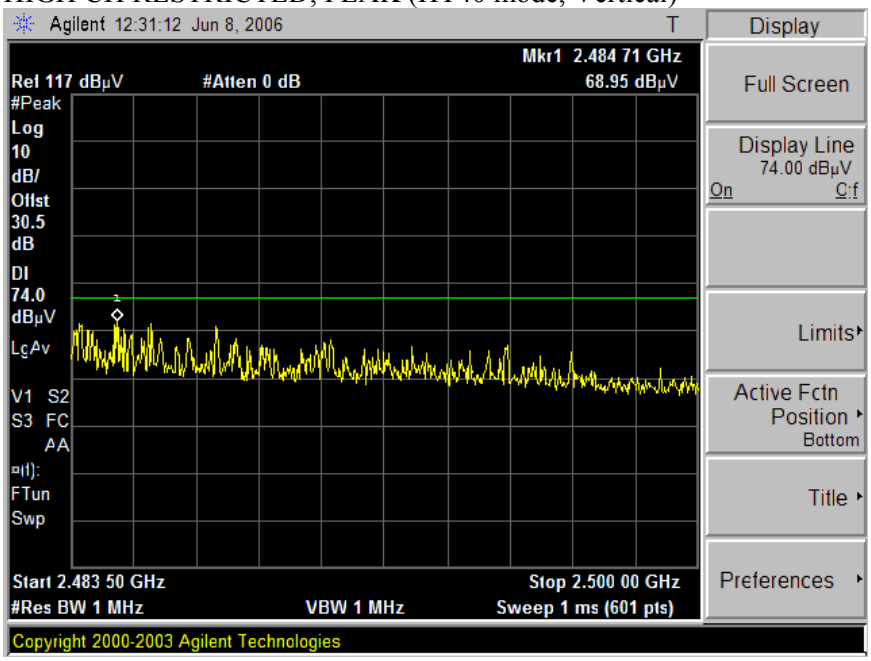


HIGH CH RESTRICTED, AVG (HT40 mode, Horizontal)

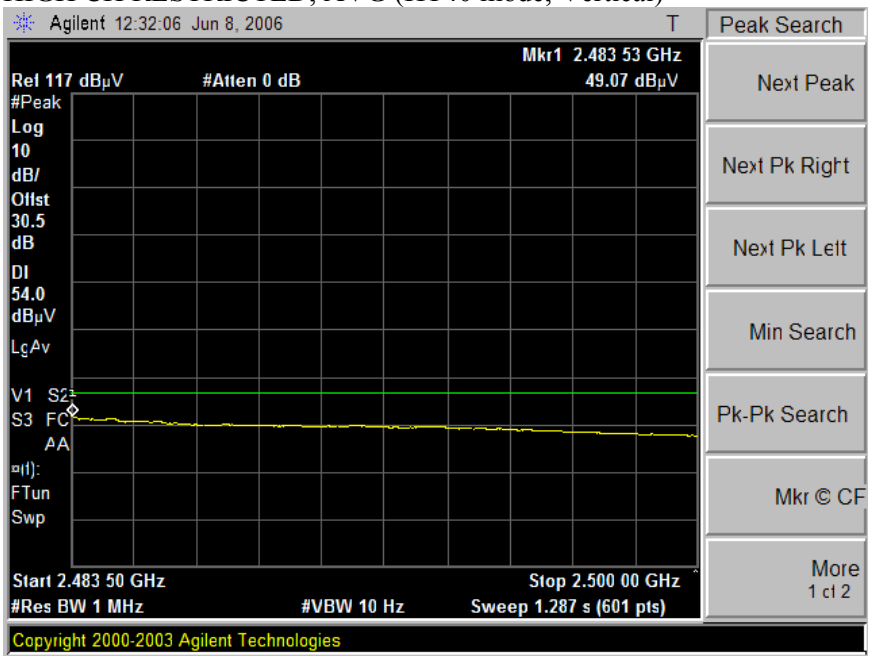


RESTRICTED BANDEDGE (HT40 MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (HT40 mode, Vertical)



HIGH CH RESTRICTED, AVG (HT40 mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS (802.11n HT40 MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company: Atheros
Project #: 06U10365
Date: 06/14/2006
Test Engineer: Chin Pang
Configuration: EUT (XB72)
Mode: HT40 mode with EBJ antenna
Average Power Meter: Low = 15 dBm, Mid = 20 dBm, High = 14 dBm

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Chin 197538001	Chin 200354001	HPF_4.0GHz	

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

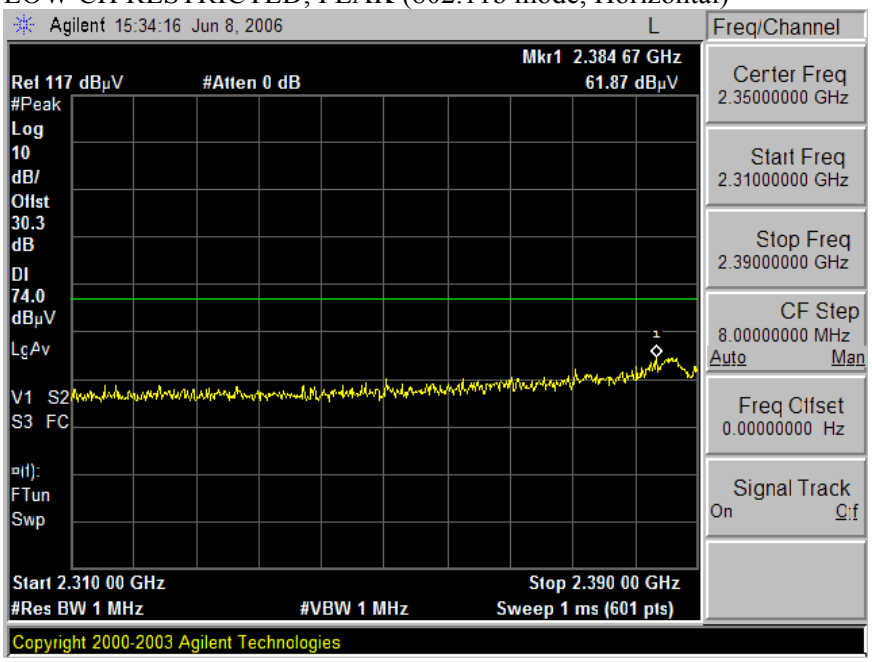
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CH, 2422 MHz															
4.824	3.0	45.5	33.0	33.0	3.2	-36.5	0.0	0.6	45.8	33.3	74	54	-28.2	-20.7	H
4.824	3.0	43.7	32.0	33.0	3.2	-36.5	0.0	0.6	44.0	32.3	74	54	-30.0	-21.7	V
MID CH, 2437 MHz															
4.874	3.0	46.6	34.0	33.1	3.2	-36.5	0.0	0.6	47.0	34.4	74	54	-27.0	-19.6	H
7.311	3.0	43.8	32.0	35.5	3.6	-36.2	0.0	0.6	47.3	35.5	74	54	-26.7	-18.5	H
4.874	3.0	45.5	33.5	33.1	3.2	-36.5	0.0	0.6	45.9	33.9	74	54	-28.1	-20.1	V
7.311	3.0	44.0	31.3	35.5	3.6	-36.2	0.0	0.6	47.5	34.8	74	54	-26.5	-19.2	V
HI CH, 2452 MHz															
4.904	3.0	45.8	33.5	33.1	3.2	-36.5	0.0	0.6	46.3	34.0	74	54	-27.7	-20.0	H
7.356	3.0	44.0	32.0	35.5	3.6	-36.2	0.0	0.6	47.5	35.5	74	54	-26.5	-18.5	H
4.904	3.0	43.5	31.7	33.1	3.2	-36.5	0.0	0.6	44.0	32.2	74	54	-30.0	-21.8	V
7.356	3.0	42.0	32.0	35.5	3.6	-36.2	0.0	0.6	45.5	35.5	74	54	-28.5	-18.5	V
		No other emissions were detected above system noisre 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		

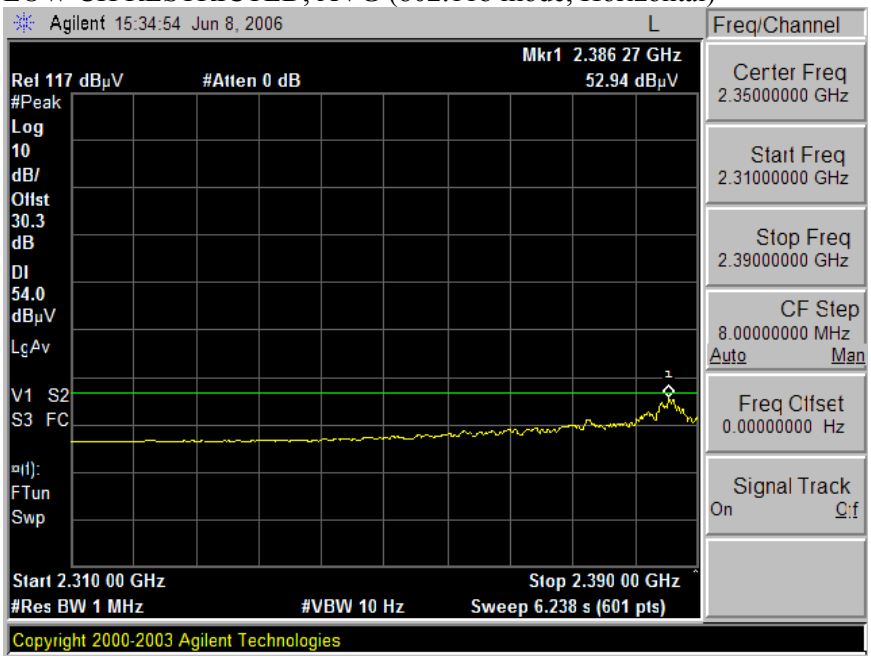
7.4.3. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND WITH MONOPOLE ANTENNAS

RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (802.11b mode, Horizontal)

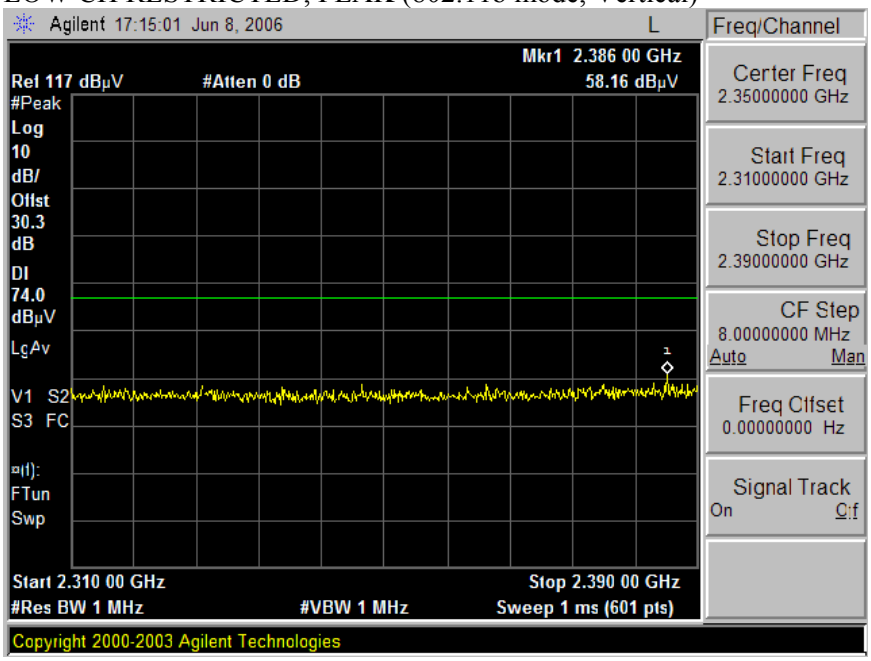


LOW CH RESTRICTED, AVG (802.11b mode, Horizontal)

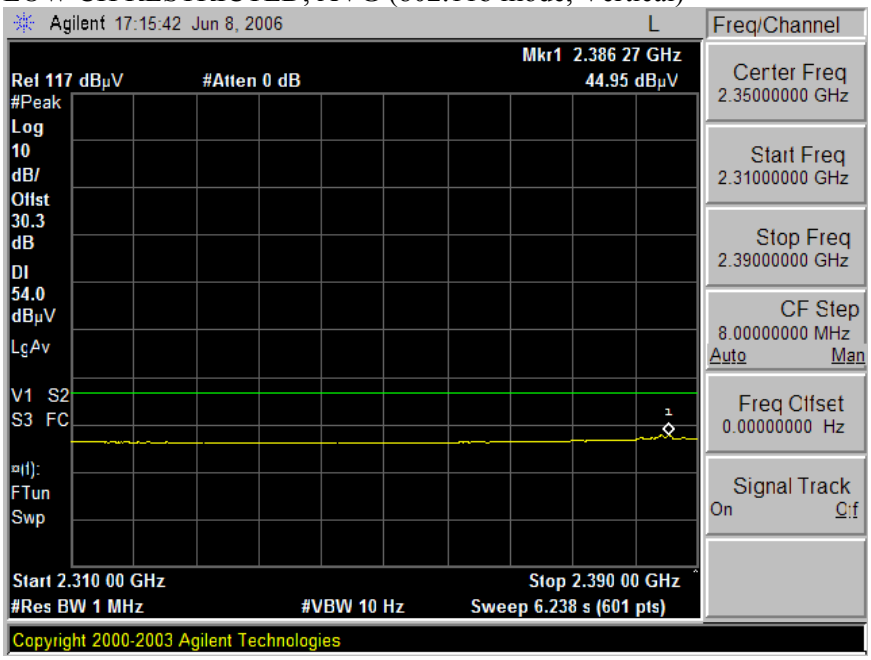


RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (802.11b mode, Vertical)

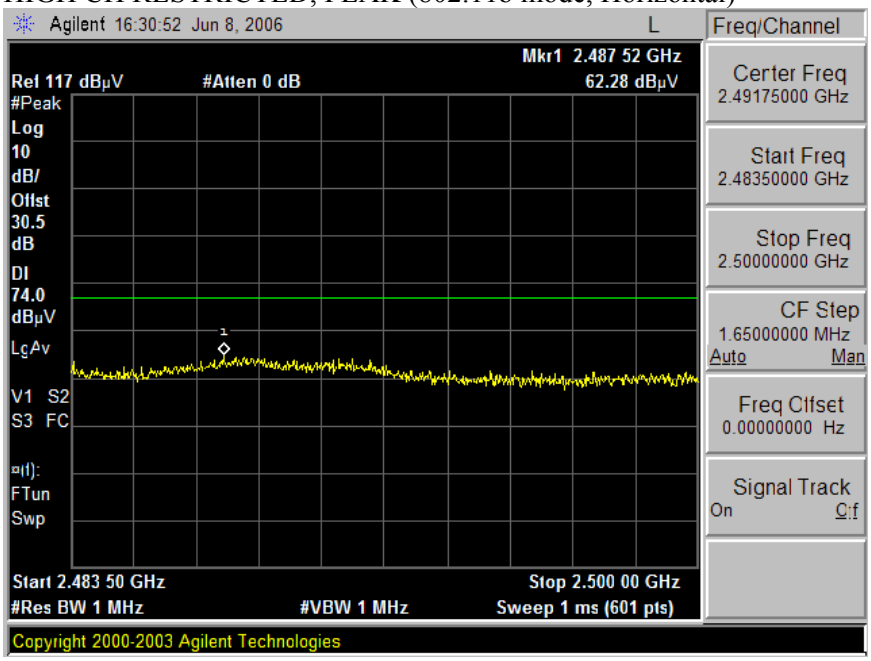


LOW CH RESTRICTED, AVG (802.11b mode, Vertical)

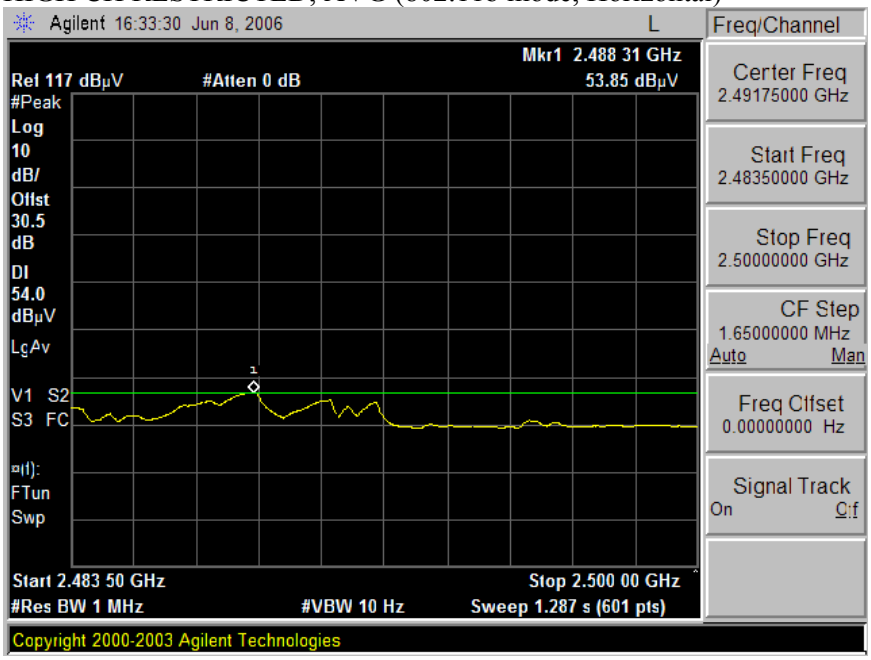


RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (802.11b mode, Horizontal)

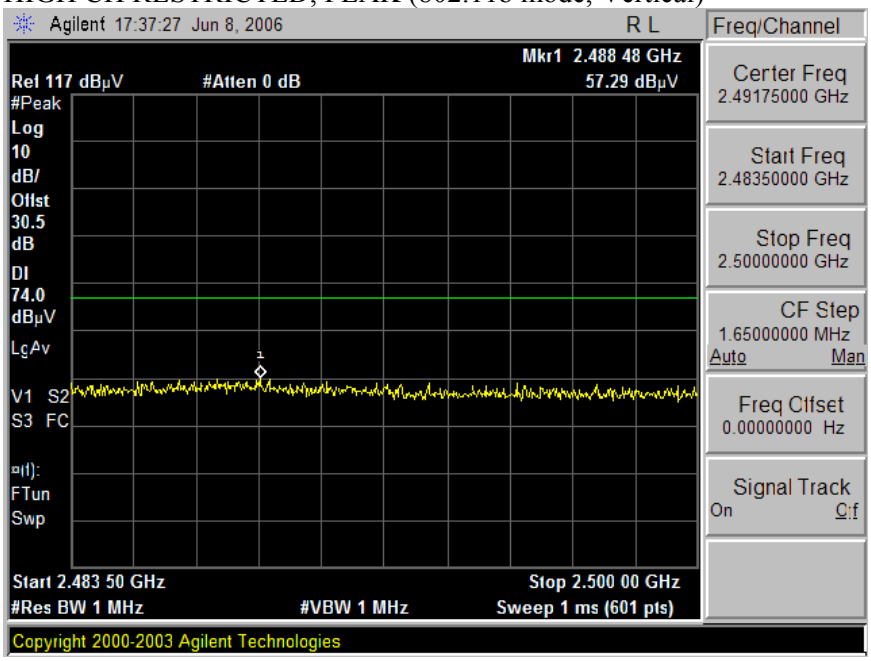


HIGH CH RESTRICTED, AVG (802.11b mode, Horizontal)

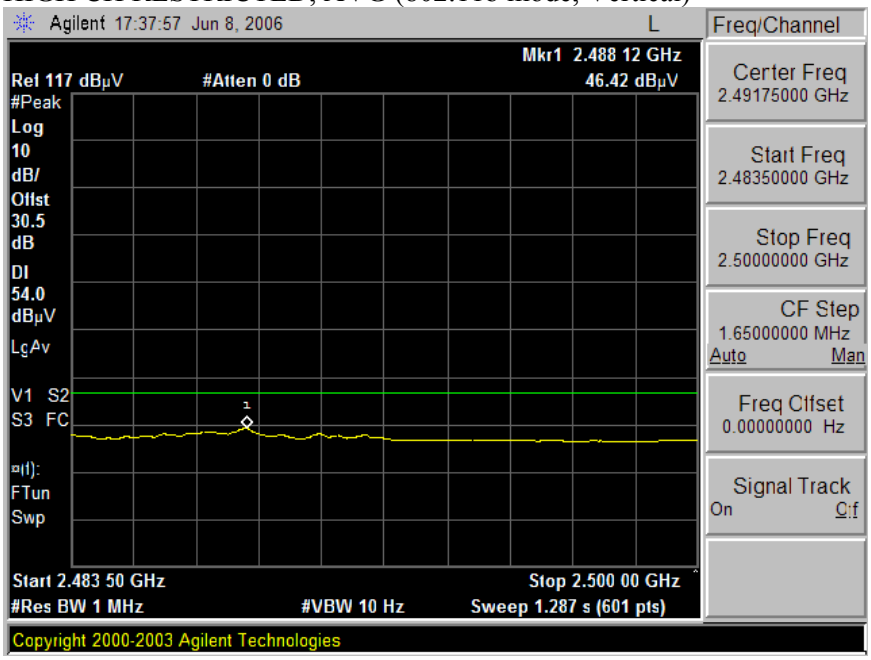


RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11b mode, Vertical)



HIGH CH RESTRICTED, AVG (802.11b mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS (802.11b MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company: Atheros
Project #: 06U10365-1
Date: June 24, 2006
Test Engineer: Chin Pang
Configuration: EUT/Foxconn antenna
Mode: TX, b mode
Average Power Meter: Low =16.5 dBm, Mid = 17dBm, High = 17dBm

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Chin 197538001	Chin 200354001	HPF_4.0GHz	

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

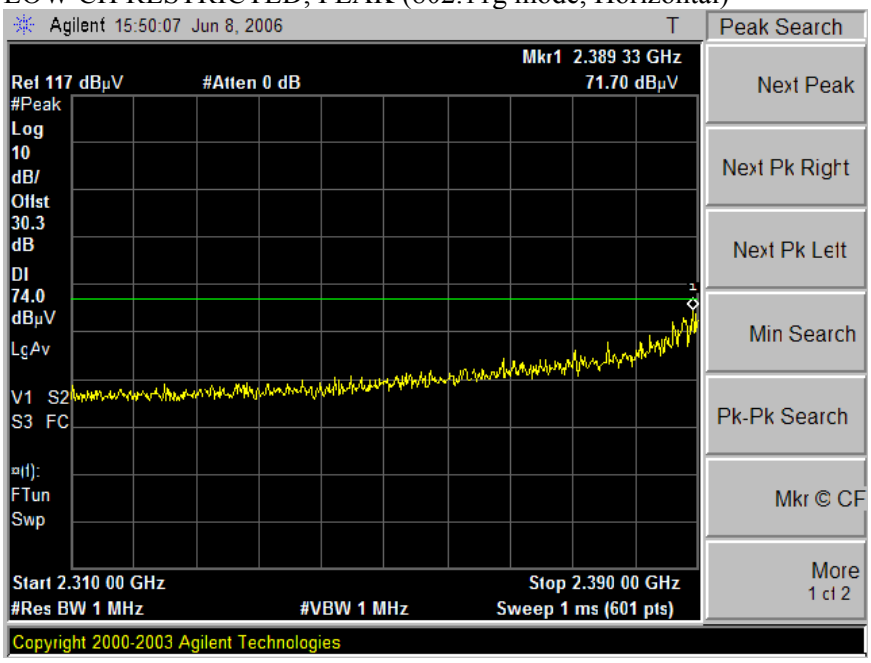
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch															
4.824	3.0	47.0	42.0	33.0	3.2	-36.5	0.0	0.6	47.3	42.3	74	54	-26.7	-11.7	V
4.824	3.0	48.0	43.0	33.0	3.2	-36.5	0.0	0.6	48.3	43.3	74	54	-25.7	-10.7	H
Mid Ch															
4.874	3.0	46.8	41.6	33.1	3.2	-36.5	0.0	0.6	47.2	42.0	74	54	-26.8	-12.0	V
7.311	3.0	42.5	31.5	35.5	3.6	-36.2	0.0	0.6	46.0	35.0	74	54	-28.0	-19.0	V
4.874	3.0	47.8	42.0	33.1	3.2	-36.5	0.0	0.6	48.2	42.4	74	54	-25.8	-11.6	H
7.311	3.0	43.4	32.0	35.5	3.6	-36.2	0.0	0.6	46.9	35.5	74	54	-27.1	-18.5	H
High Ch															
4.924	3.0	48.0	42.0	33.1	3.2	-36.5	0.0	0.6	48.5	42.5	74	54	-25.5	-11.5	V
7.386	3.0	43.0	31.6	35.6	3.6	-36.2	0.0	0.6	46.6	35.2	74	54	-27.4	-18.8	V
4.924	3.0	47.6	41.5	33.1	3.2	-36.5	0.0	0.6	48.1	42.0	74	54	-25.9	-12.0	H
7.386	3.0	44.3	33.2	35.6	3.6	-36.2	0.0	0.6	47.9	36.8	74	54	-26.1	-17.2	H

Rev. 5.1.6
Note: No other emissions were detected above the system noise floor.

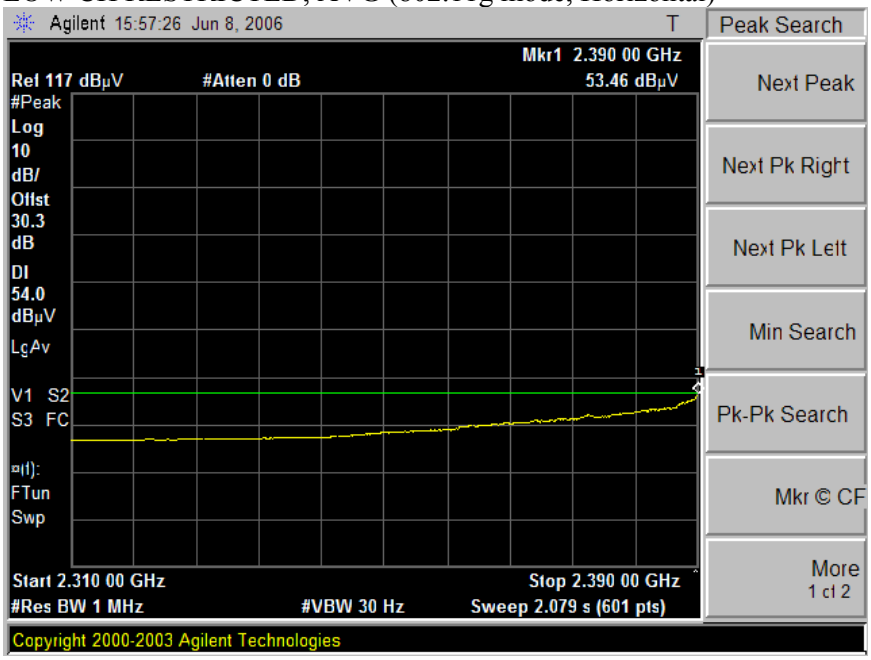
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (802.11g mode, Horizontal)

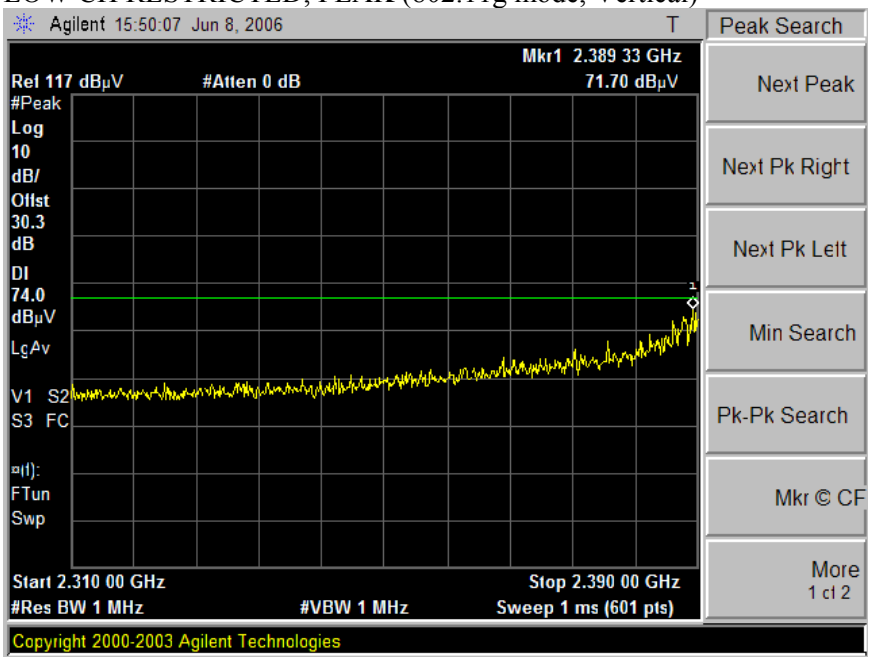


LOW CH RESTRICTED, AVG (802.11g mode, Horizontal)

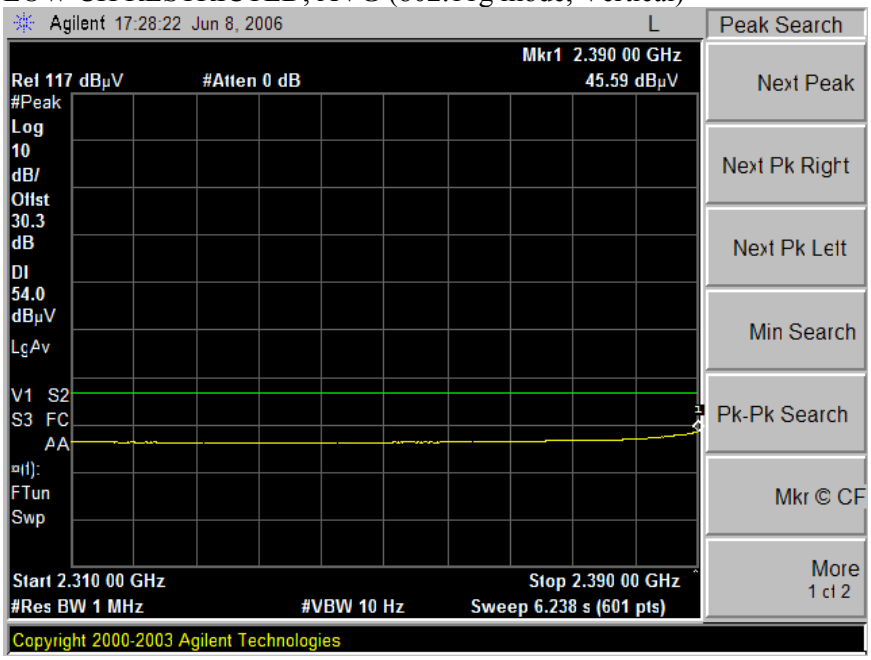


RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (802.11g mode, Vertical)

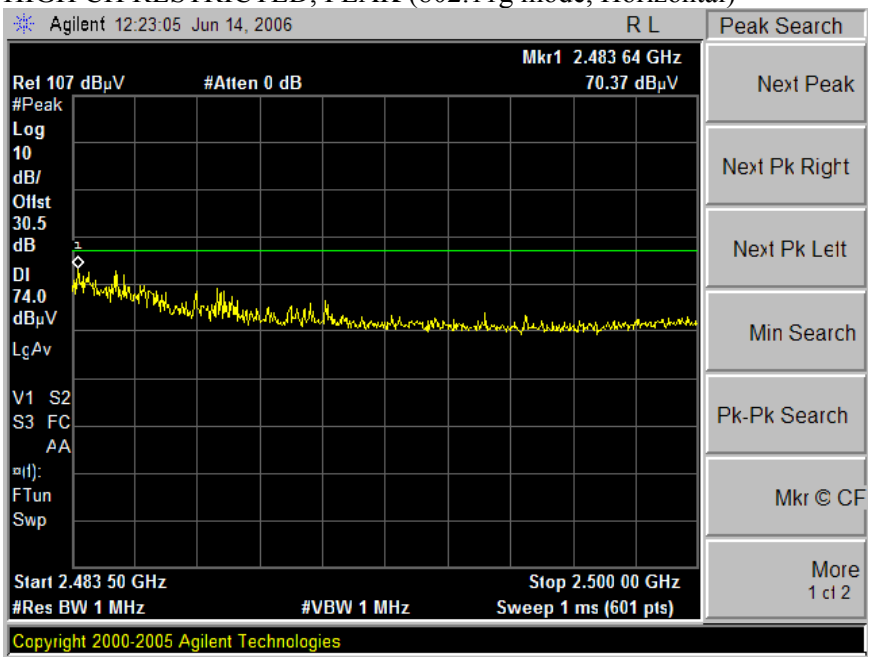


LOW CH RESTRICTED, AVG (802.11g mode, Vertical)

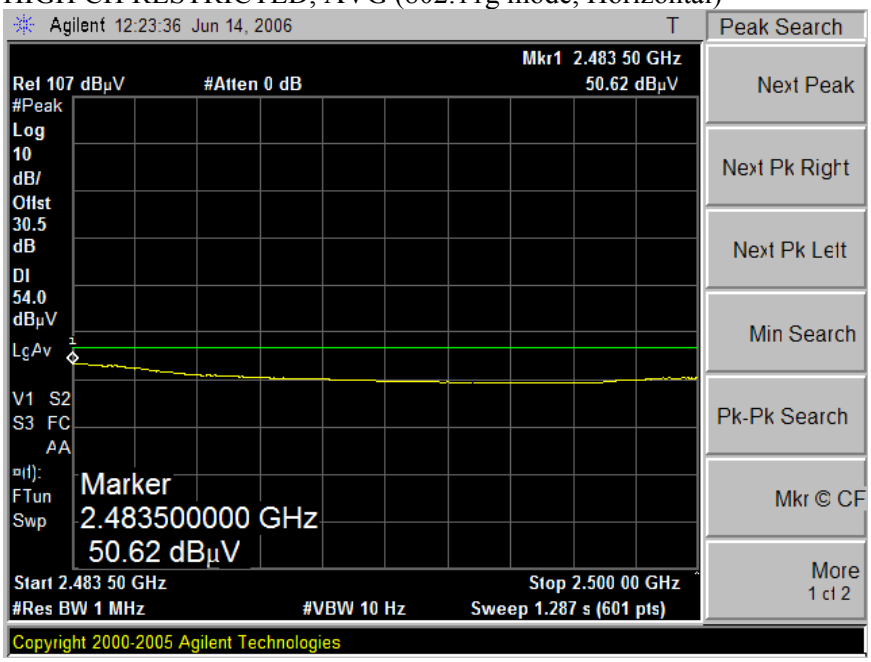


RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (802.11g mode, Horizontal)

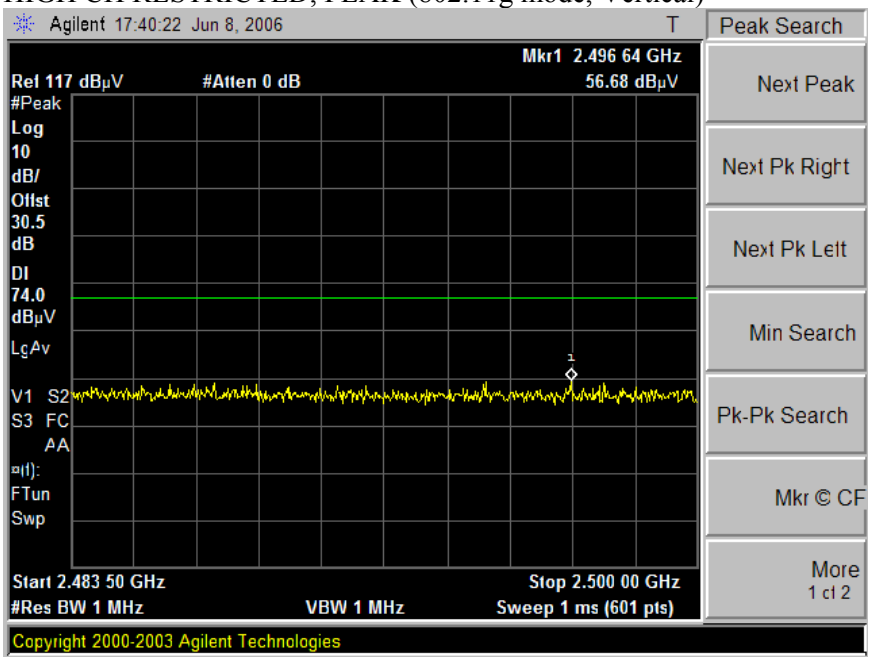


HIGH CH RESTRICTED, AVG (802.11g mode, Horizontal)

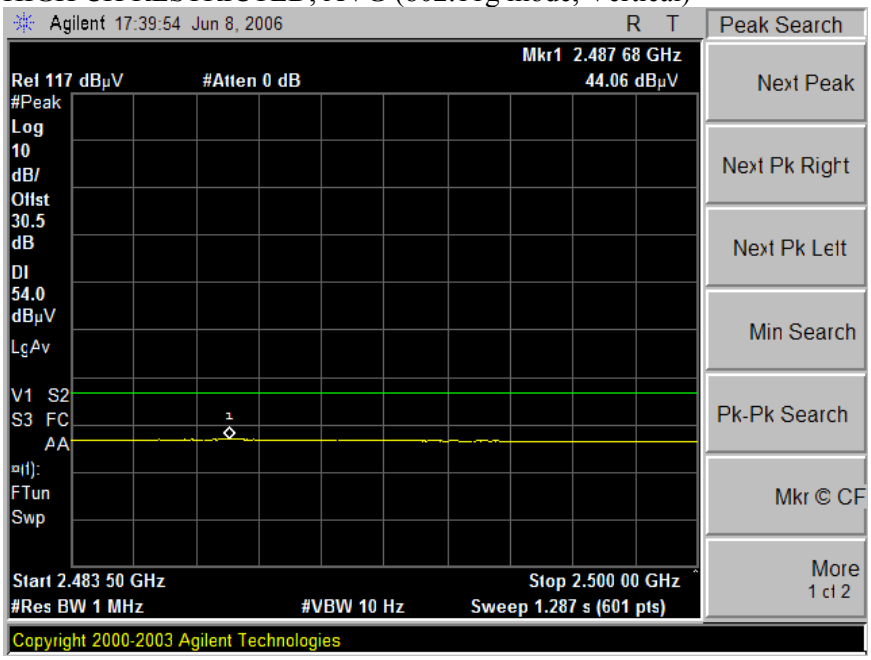


RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11g mode, Vertical)



HIGH CH RESTRICTED, AVG (802.11g mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS (802.11g MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:Atheros
Project #:06U10365-1
Date:June 14, 2006
Test Engineer:Chin Pang
Configuration:EUT/Foxconn antenna
Mode:TX, g mode
Average Power Meter: Low = 14.5 dBm, Mid = 20dBm, High = 13.5 dBm

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Chin 197538001	Chin 200354001	HPF_4.0GHz	

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

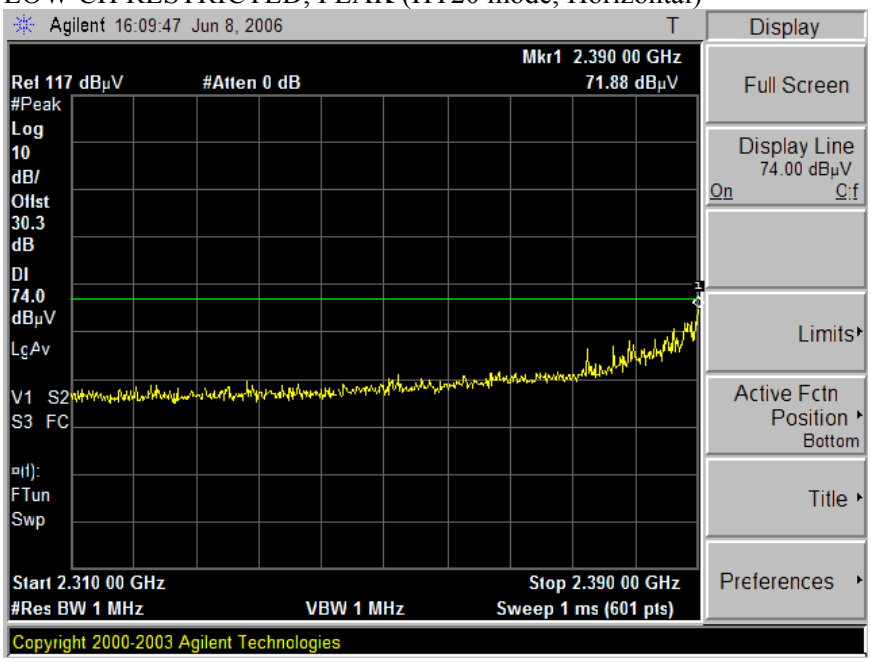
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch															
4.824	3.0	48.3	35.0	33.0	3.2	-36.5	0.0	0.6	48.7	35.3	74	54	-25.3	-18.7	V
4.824	3.0	46.3	34.0	33.0	3.2	-36.5	0.0	0.6	46.6	34.3	74	54	-27.4	-19.7	H
Mid Ch															
4.874	3.0	50.0	38.0	33.1	3.2	-36.5	0.0	0.6	50.4	38.4	74	54	-23.6	-15.6	V
7.311	3.0	42.0	31.3	35.5	3.6	-36.2	0.0	0.6	45.5	34.8	74	54	-28.5	-19.2	V
4.874	3.0	47.5	35.0	33.1	3.2	-36.5	0.0	0.6	47.9	35.4	74	54	-26.1	-18.6	H
7.311	3.0	48.6	34.3	35.5	3.6	-36.2	0.0	0.6	52.1	37.8	74	54	-21.9	-16.2	H
High Ch															
4.924	3.0	48.0	35.0	33.1	3.2	-36.5	0.0	0.6	48.5	35.5	74	54	-25.5	-18.5	V
7.386	3.0	43.0	31.0	35.6	3.6	-36.2	0.0	0.6	46.6	34.6	74	54	-27.4	-19.4	V
4.924	3.0	45.0	32.6	33.1	3.2	-36.5	0.0	0.6	45.5	33.1	74	54	-28.5	-20.9	H
7.386	3.0	52.0	35.0	35.6	3.6	-36.2	0.0	0.6	55.6	38.6	74	54	-18.4	-15.4	H

Rev. 5.1.6
Note: No other emissions were detected above the system noise floor.

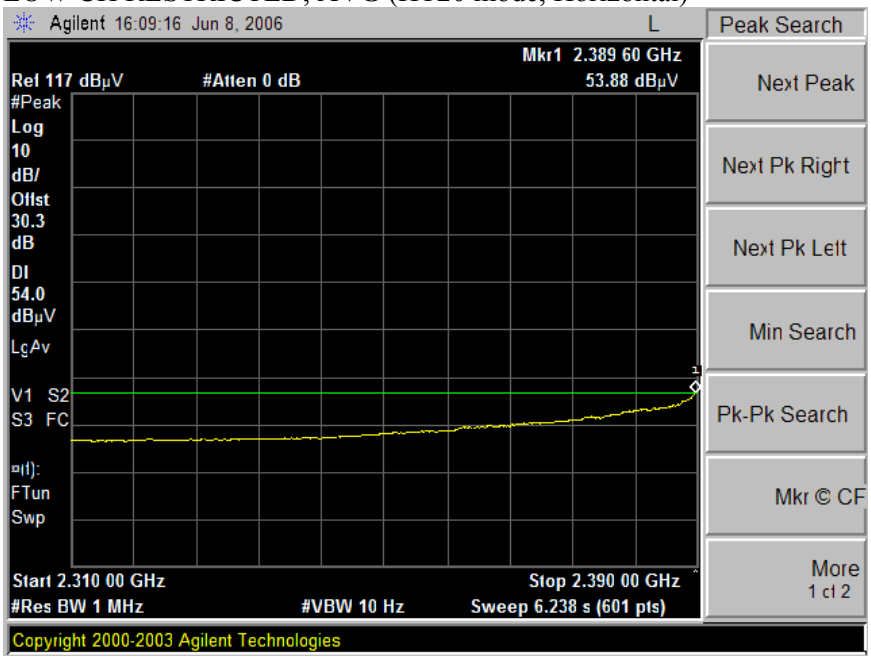
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

RESTRICTED BANDEDGE (HT20 MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (HT20 mode, Horizontal)

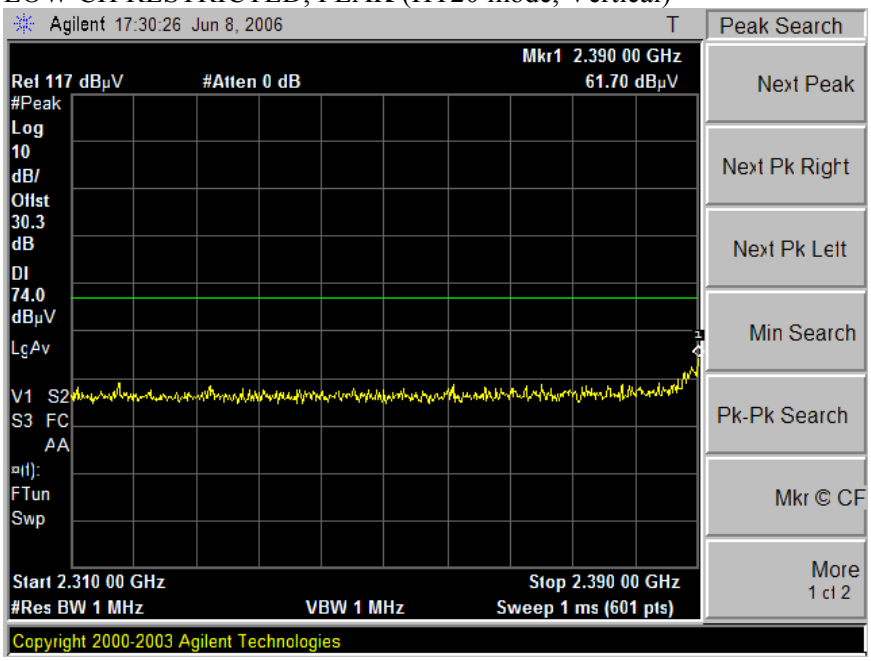


LOW CH RESTRICTED, AVG (HT20 mode, Horizontal)

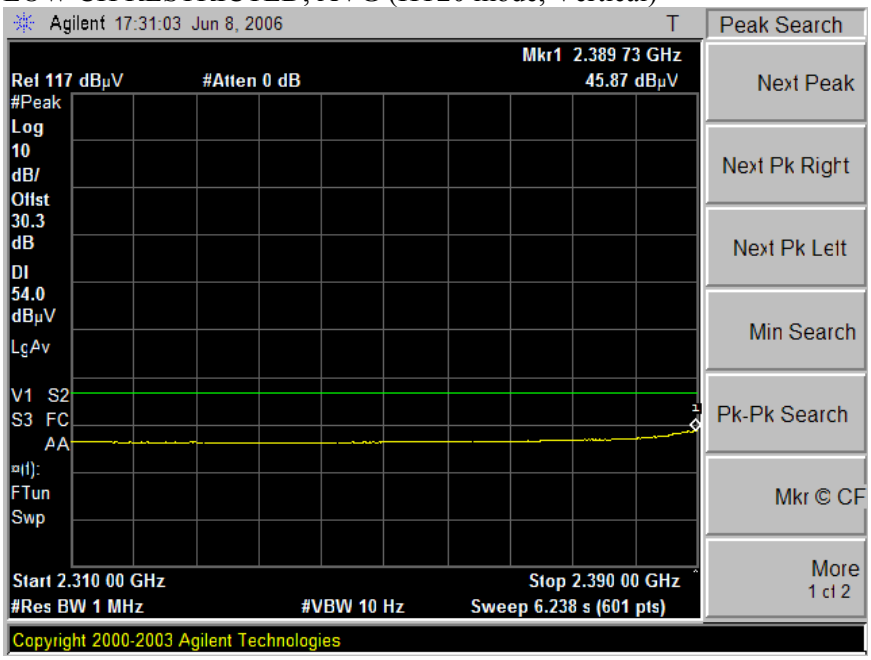


RESTRICTED BANDEDGE (HT20, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (HT20 mode, Vertical)

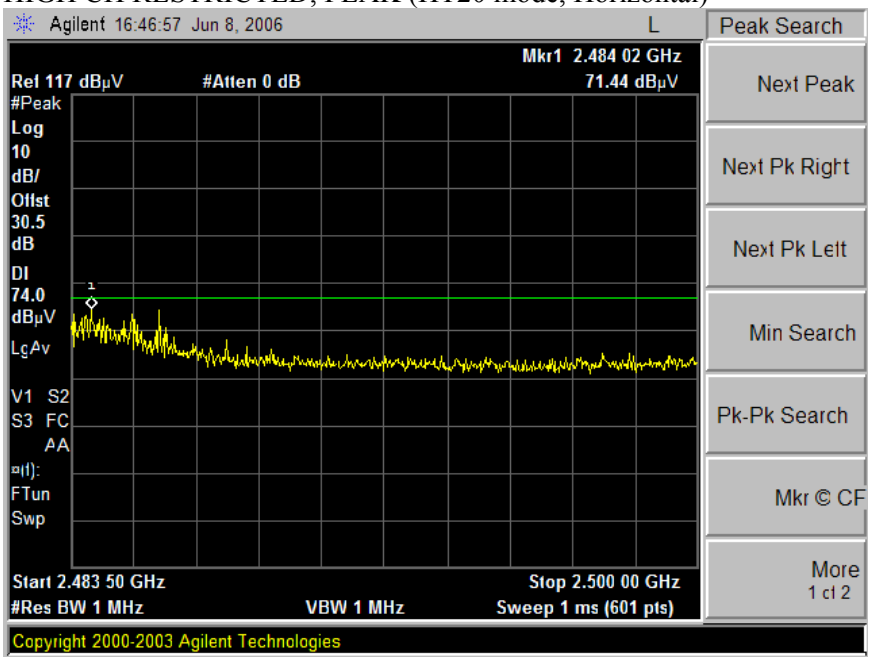


LOW CH RESTRICTED, AVG (HT20 mode, Vertical)

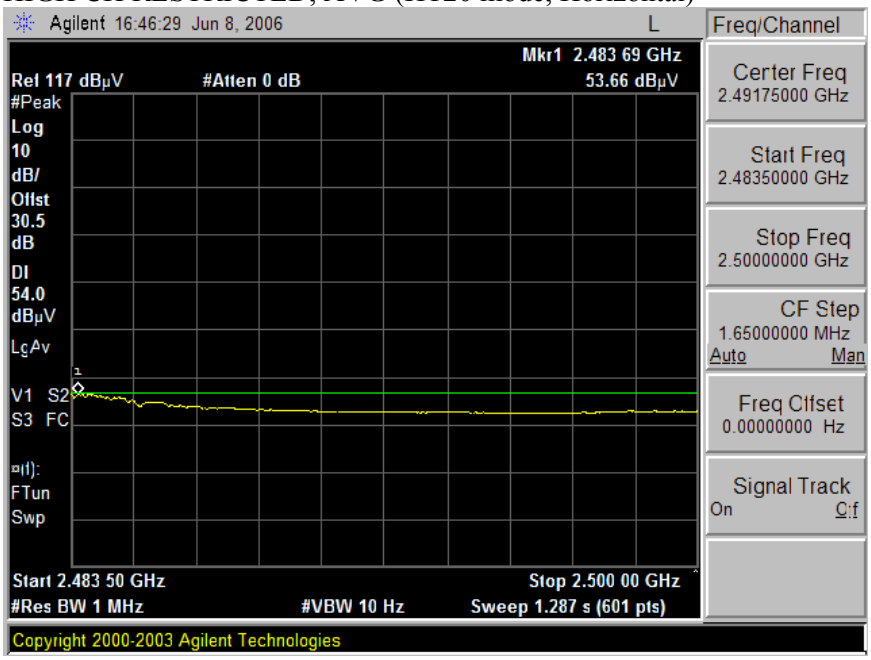


RESTRICTED BANDEDGE (HT20 MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (HT20 mode, Horizontal)

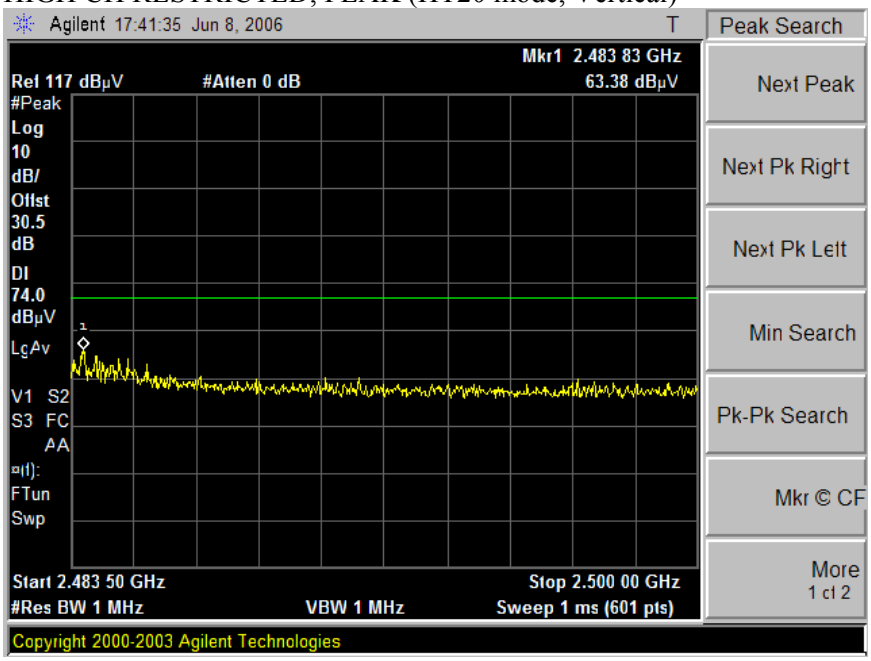


HIGH CH RESTRICTED, AVG (HT20 mode, Horizontal)

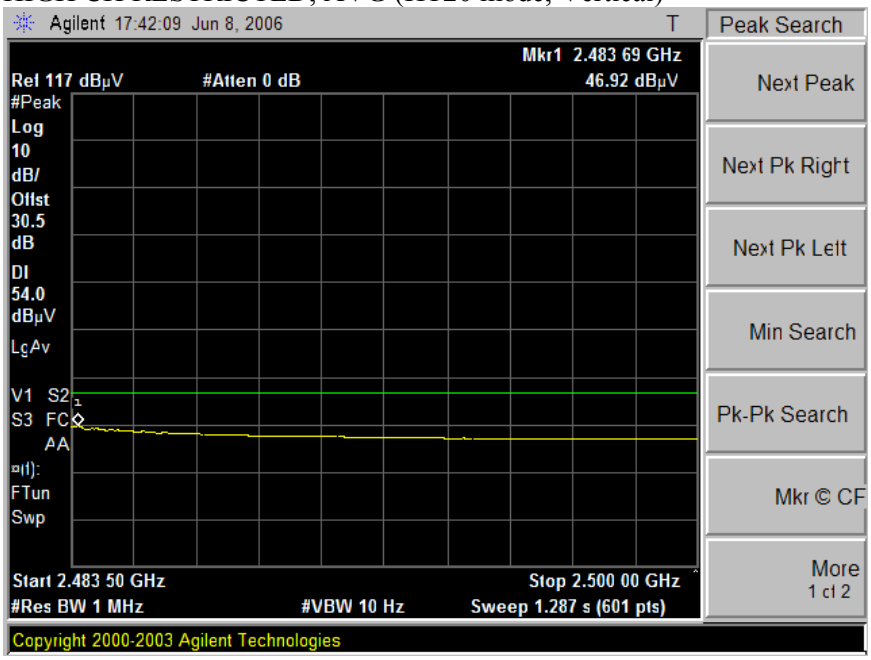


RESTRICTED BANDEDGE (HT20 MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (HT20 mode, Vertical)



HIGH CH RESTRICTED, AVG (HT20 mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS 802.11n (HT20 MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:Atheros
Project #:06U10365-1
Date:June 14, 2006
Test Engineer:Chin Pang
Configuration:EUT/Foxconn antenna
Mode: TX, HT20 mode
Average Power Meter: Low = 14.5 dBm, Mid = 20dBm, High = 12.5dBm

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Chin 197538001	Chin 200354001	HPF_4.0GHz	

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

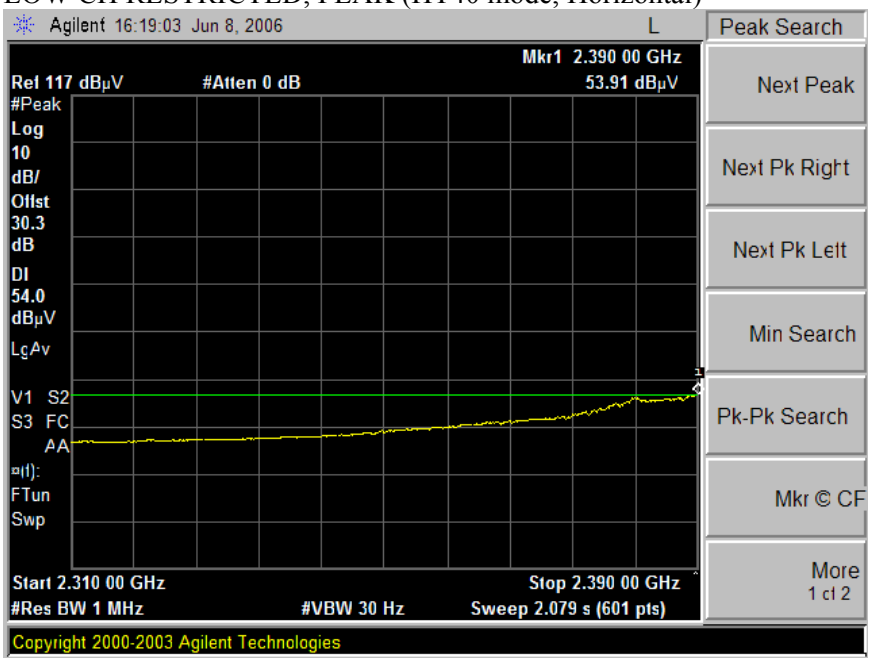
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch															
4.824	3.0	48.0	35.0	33.0	3.2	-36.5	0.0	0.6	48.3	35.3	74	54	-25.7	-18.7	V
4.824	3.0	45.4	33.4	33.0	3.2	-36.5	0.0	0.6	45.7	33.7	74	54	-28.3	-20.3	H
Mid Ch															
4.874	3.0	52.0	36.5	33.1	3.2	-36.5	0.0	0.6	52.4	36.9	74	54	-21.6	-17.1	V
7.311	3.0	42.0	32.3	35.5	3.6	-36.2	0.0	0.6	45.5	35.8	74	54	-28.5	-18.2	V
4.874	3.0	47.8	35.5	33.1	3.2	-36.5	0.0	0.6	48.2	35.9	74	54	-25.8	-18.1	H
7.311	3.0	49.6	34.0	35.5	3.6	-36.2	0.0	0.6	53.1	37.5	74	54	-20.9	-16.5	H
High Ch															
4.924	3.0	47.0	34.3	33.1	3.2	-36.5	0.0	0.6	47.5	34.8	74	54	-26.5	-19.2	V
7.386	3.0	45.0	31.0	35.6	3.6	-36.2	0.0	0.6	48.6	34.6	74	54	-25.4	-19.4	V
4.924	3.0	45.0	33.0	33.1	3.2	-36.5	0.0	0.6	45.5	33.5	74	54	-28.5	-20.5	H
7.386	3.0	51.0	34.5	35.6	3.6	-36.2	0.0	0.6	54.6	38.1	74	54	-19.4	-15.9	H

Rev. 5.1.6
Note: No other emissions were detected above the system noise floor.

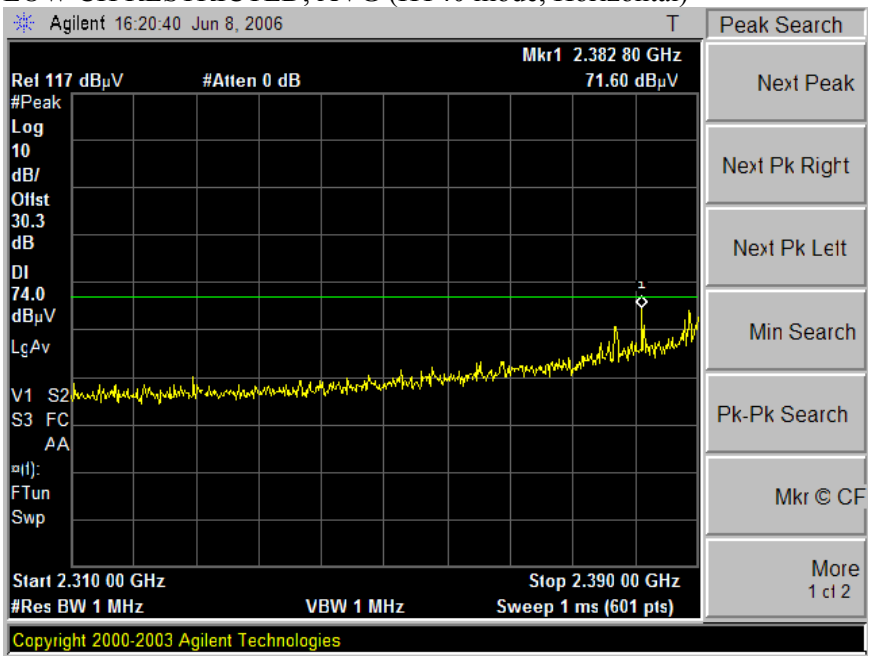
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field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

RESTRICTED BANDEDGE (HT40 MODE, LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (HT40 mode, Horizontal)

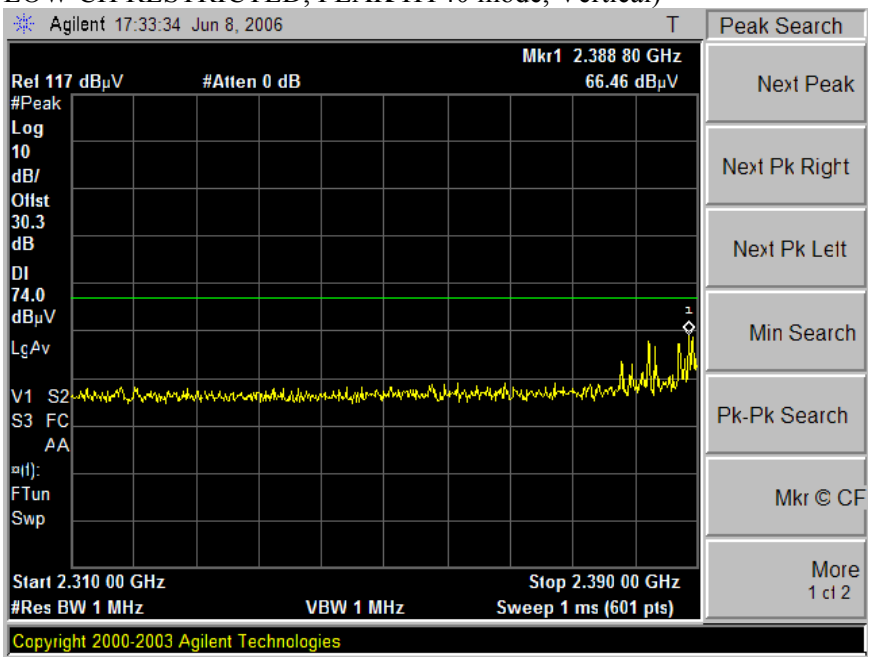


LOW CH RESTRICTED, AVG (HT40 mode, Horizontal)

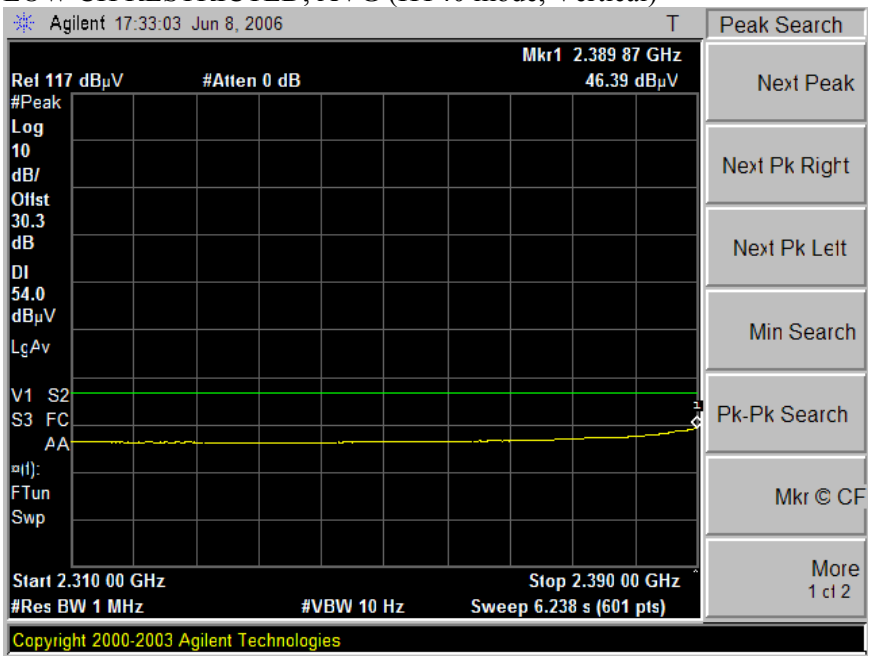


RESTRICTED BANDEDGE (HT40 MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK HT40 mode, Vertical)

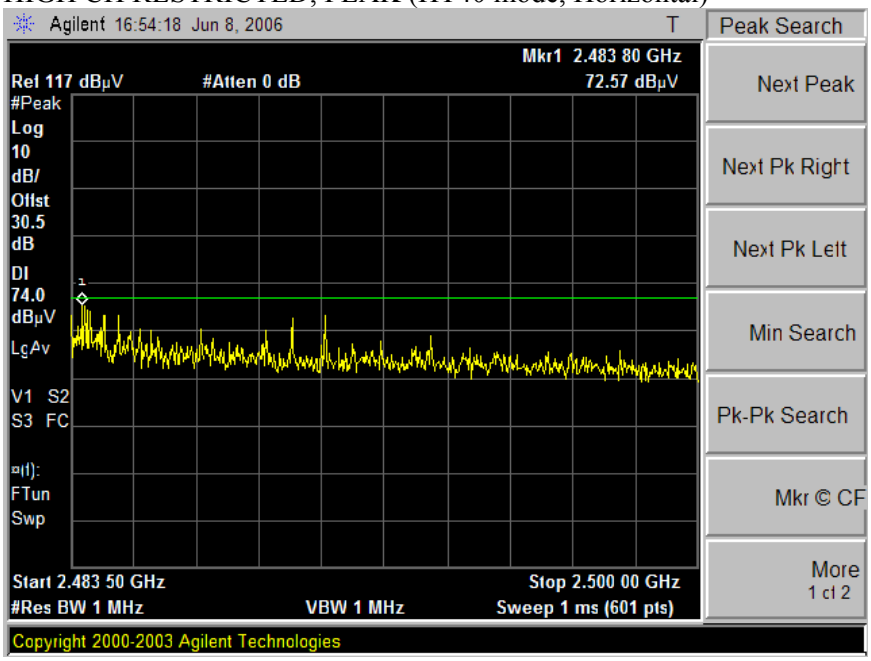


LOW CH RESTRICTED, AVG (HT40 mode, Vertical)

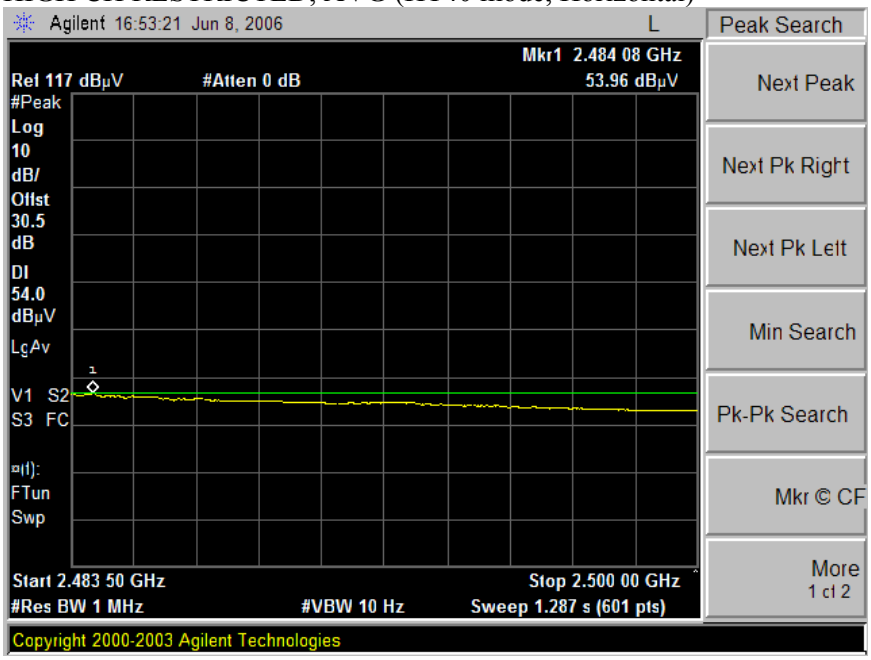


RESTRICTED BANDEDGE (HT40 MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (HT40 mode, Horizontal)

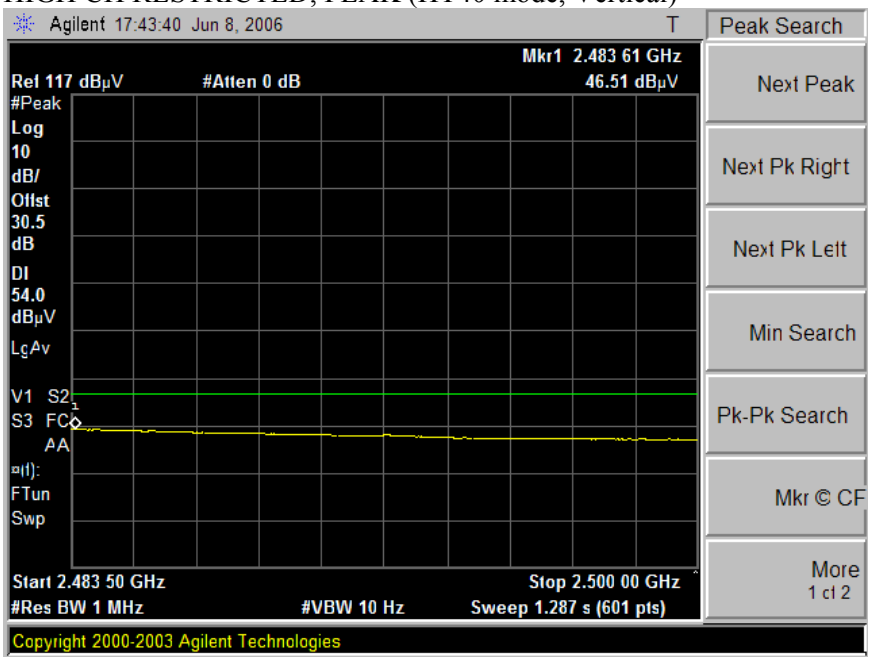


HIGH CH RESTRICTED, AVG (HT40 mode, Horizontal)

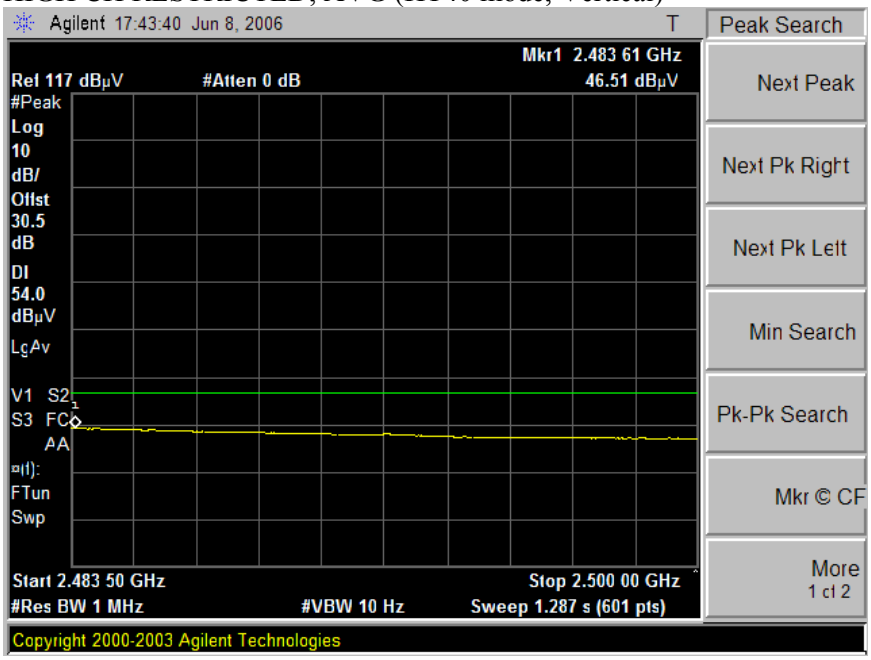


RESTRICTED BANDEDGE (HT40 MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (HT40 mode, Vertical)



HIGH CH RESTRICTED, AVG (HT40 mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS (802.11n HT40 MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:Atheros
Project #:06U10365-1
Date:June 14, 2006
Test Engineer:Chin Pang
Configuration:EUT/Foxconn antenna
Mode:TX, HT40 mode
Average Power Meter: Low = 12 dBm, Mid = 18 dBm, High = 10dBm

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Chin 197538001	Chin 200354001	HPF_4.0GHz	

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	47.7	34.4	33.0	3.2	-36.5	0.0	0.6	48.1	34.8	74	54	-25.9	-19.2	V
4.844	3.0	45.6	33.4	33.0	3.2	-36.5	0.0	0.6	46.0	33.8	74	54	-28.0	-20.2	H
Mid Ch, 2437MHz															
4.874	3.0	50.0	36.5	33.1	3.2	-36.5	0.0	0.6	50.4	36.9	74	54	-23.6	-17.1	V
7.311	3.0	43.0	31.2	35.5	3.6	-36.2	0.0	0.6	46.5	34.7	74	54	-27.5	-19.3	V
4.874	3.0	46.0	33.4	33.1	3.2	-36.5	0.0	0.6	46.4	33.8	74	54	-27.6	-20.2	H
7.311	3.0	46.8	33.5	35.5	3.6	-36.2	0.0	0.6	50.3	37.0	74	54	-23.7	-17.0	H
High Ch, 2452MHz															
4.904	3.0	47.5	33.0	33.1	3.2	-36.5	0.0	0.6	48.0	33.5	74	54	-26.0	-20.5	V
7.356	3.0	42.0	31.0	35.5	3.6	-36.2	0.0	0.6	45.5	34.5	74	54	-28.5	-19.5	V
4.904	3.0	44.0	32.6	33.1	3.2	-36.5	0.0	0.6	44.5	33.1	74	54	-29.5	-20.9	H
7.356	3.0	46.4	32.3	35.5	3.6	-36.2	0.0	0.6	49.9	35.8	74	54	-24.1	-18.2	H

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

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

7.4.4. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND WITH PIFA ANTENNAS

HARMONICS AND SPURIOUS EMISSIONS (802.11a MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:ATHEROS
Project #:06U10365
EUT Descrip:802.11 n
Test Engineer:Devin Chang
Configuration:EBJ antenna
Mode:TX, 11a 5.8GHz

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T119; S/N: 29301 @3m	T34 HP 8449B			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Gordon 187207002		Gordon 203134001		

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, 5745MHz															
7.660	3.0	43.8	39.5	35.2	3.6	-34.0	0.0	0.0	48.6	44.3	74	54	-25.4	-9.7	V
11.490	3.0	50.7	39.1	37.2	3.7	-32.5	0.0	0.0	59.1	47.4	74	54	-14.9	-6.6	V
7.660	3.0	44.7	35.3	35.2	3.6	-34.0	0.0	0.0	49.5	40.0	74	54	-24.5	-14.0	H
11.490	3.0	47.0	34.5	37.2	3.7	-32.5	0.0	0.0	55.4	42.8	74	54	-18.6	-11.2	H
Mid Ch, 5785MHz															
7.713	3.0	45.8	39.2	35.2	3.6	-33.9	0.0	0.0	50.6	44.0	74	54	-23.4	-10.0	V
11.570	3.0	50.3	39.6	37.2	3.7	-32.5	0.0	0.0	58.7	47.9	74	54	-15.3	-6.1	V
7.713	3.0	42.2	35.7	35.2	3.6	-33.9	0.0	0.0	47.0	40.5	74	54	-27.0	-13.5	H
11.570	3.0	46.4	35.7	37.2	3.7	-32.5	0.0	0.0	54.8	44.1	74	54	-19.2	-9.9	H
High Ch, 5825MHz															
7.767	3.0	43.7	38.1	35.2	3.6	-33.9	0.0	0.0	48.5	43.0	74	54	-25.5	-11.0	V
11.650	3.0	52.3	38.6	37.2	3.7	-32.5	0.0	0.0	60.8	47.0	74	54	-13.2	-7.0	V
7.767	3.0	43.5	37.2	35.2	3.6	-33.9	0.0	0.0	48.3	42.0	74	54	-25.7	-12.0	H
11.650	3.0	46.1	35.2	37.2	3.7	-32.5	0.0	0.0	54.5	43.6	74	54	-19.5	-10.4	H
		No other emissions were detected above system noise floor													

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

HARMONICS AND SPURIOUS EMISSIONS (802.11n HT20 MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:ATHEROS
Project #:06U10365
EUT Descrip:802.11 n
Test Engineer:Devin Chang
Configuration:EBJ antenna
Mode:TX, 11n HT20 5.8GHz

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T119; S/N: 29301 @3m	T34 HP 8449B			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Gordon 187207002		Gordon 203134001		

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. 5745MHz															
7.660	3.0	44.7	38.5	35.2	3.6	-34.0	0.0	0.0	49.5	43.3	74	54	-24.5	-10.7	V
11.490	3.0	50.2	38.2	37.2	3.7	-32.5	0.0	0.0	58.5	46.5	74	54	-15.5	-7.5	V
7.660	3.0	42.6	35.0	35.2	3.6	-34.0	0.0	0.0	47.4	39.8	74	54	-26.6	-14.2	H
11.490	3.0	49.0	37.9	37.2	3.7	-32.5	0.0	0.0	57.4	46.3	74	54	-16.6	-7.7	H
Mid Ch, 5785MHz															
7.713	3.0	48.2	39.8	35.2	3.6	-33.9	0.0	0.0	53.1	44.7	74	54	-20.9	-9.3	V
11.570	3.0	49.8	38.4	37.2	3.7	-32.5	0.0	0.0	58.2	46.8	74	54	-15.8	-7.2	V
7.713	3.0	43.3	35.6	35.2	3.6	-33.9	0.0	0.0	48.1	40.4	74	54	-25.9	-13.6	H
11.570	3.0	50.0	37.9	37.2	3.7	-32.5	0.0	0.0	58.4	46.3	74	54	-15.6	-7.7	H
High Ch.5825MHz															
7.767	3.0	44.3	38.4	35.2	3.6	-33.9	0.0	0.0	49.1	43.3	74	54	-24.9	-10.7	V
11.650	3.0	51.4	38.3	37.2	3.7	-32.5	0.0	0.0	59.8	46.7	74	54	-14.2	-7.3	V
7.767	3.0	44.2	38.0	35.2	3.6	-33.9	0.0	0.0	49.1	42.8	74	54	-24.9	-11.2	H
11.650	3.0	52.5	40.1	37.2	3.7	-32.5	0.0	0.0	60.9	48.5	74	54	-13.1	-5.5	H
		No other emissions were detected above system noise floor													

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

HARMONICS AND SPURIOUS EMISSIONS (802.11n HT40 MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:ATHEROS
Project #:06U10365
EUT Descrip:802.11 n
Test Engineer:Devin Chang
Configuration:EBJ antenna
Mode:TX, 11n HT40 5.8GHz

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T119; S/N: 29301 @3m	T34 HP 8449B			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Gordon 187207002		Gordon 203134001		

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. 5755MHz															
7.673	3.0	46.5	39.0	35.2	3.6	-34.0	0.0	0.0	51.3	43.8	74	54	-22.7	-10.2	V
11.510	3.0	47.1	36.1	37.2	3.7	-32.5	0.0	0.0	55.5	44.5	74	54	-18.5	-9.5	V
7.673	3.0	47.5	34.3	35.2	3.6	-34.0	0.0	0.0	52.3	39.1	74	54	-21.7	-14.9	H
11.510	3.0	44.6	33.8	37.2	3.7	-32.5	0.0	0.0	53.0	42.1	74	54	-21.0	-11.9	H
Mid Ch, 5785MHz															
7.713	3.0	45.5	38.5	35.2	3.6	-33.9	0.0	0.0	50.3	43.3	74	54	-23.7	-10.7	V
11.570	3.0	50.3	35.2	37.2	3.7	-32.5	0.0	0.0	58.7	43.6	74	54	-15.3	-10.4	V
7.713	3.0	43.6	35.9	35.2	3.6	-33.9	0.0	0.0	48.4	40.7	74	54	-25.6	-13.3	H
11.570	3.0	46.8	33.5	37.2	3.7	-32.5	0.0	0.0	55.2	41.9	74	54	-18.8	-12.1	H
High Ch.5815MHz															
7.753	3.0	44.7	37.2	35.2	3.6	-33.9	0.0	0.0	49.6	42.0	74	54	-24.4	-12.0	V
11.630	3.0	47.2	33.4	37.2	3.7	-32.5	0.0	0.0	55.6	41.8	74	54	-18.4	-12.2	V
7.753	3.0	43.9	38.2	35.2	3.6	-33.9	0.0	0.0	48.7	43.1	74	54	-25.3	-10.9	H
11.630	3.0	45.7	33.6	37.2	3.7	-32.5	0.0	0.0	54.1	42.0	74	54	-19.9	-12.0	H
		No other emissions were detected above system noise floor													

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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		

7.4.5. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND WITH MOMOPOLE ANTENNAS

HARMONICS AND SPURIOUS EMISSIONS (802.11a MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:ATHEROS
Project #:06U10365
EUT Descrip:802.11 n
Test Engineer:Devin Chang
Configuration:Foxcon antenna
Mode:TX, 11a 5.8GHz

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T119; S/N: 29301 @3m	T34 HP 8449B			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Gordon 187207002		Gordon 203134001		

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, 5745MHz															
7.660	3.0	44.3	36.3	35.2	3.6	-34.0	0.0	0.0	49.1	41.0	74	54	-24.9	-13.0	V
11.490	3.0	47.2	35.5	37.2	3.7	-32.5	0.0	0.0	55.5	43.9	74	54	-18.5	-10.1	V
7.660	3.0	47.8	34.8	35.2	3.6	-34.0	0.0	0.0	52.6	39.6	74	54	-21.4	-14.4	H
11.490	3.0	48.6	36.4	37.2	3.7	-32.5	0.0	0.0	57.0	44.8	74	54	-17.0	-9.2	H
Mid Ch, 5785MHz															
7.713	3.0	43.7	36.2	35.2	3.6	-33.9	0.0	0.0	48.5	41.0	74	54	-25.5	-13.0	V
11.570	3.0	45.7	35.5	37.2	3.7	-32.5	0.0	0.0	54.1	43.9	74	54	-19.9	-10.1	V
7.713	3.0	48.5	34.3	35.2	3.6	-33.9	0.0	0.0	53.3	39.1	74	54	-20.7	-14.9	H
11.570	3.0	49.9	38.5	37.2	3.7	-32.5	0.0	0.0	58.3	46.9	74	54	-15.7	-7.1	H
High Ch, 5825MHz															
7.767	3.0	43.8	36.5	35.2	3.6	-33.9	0.0	0.0	48.6	41.4	74	54	-25.4	-12.6	V
11.650	3.0	46.7	35.0	37.2	3.7	-32.5	0.0	0.0	55.1	43.4	74	54	-18.9	-10.6	V
7.767	3.0	43.5	35.0	35.2	3.6	-33.9	0.0	0.0	48.4	39.9	74	54	-25.6	-14.1	H
11.650	3.0	48.3	35.9	37.2	3.7	-32.5	0.0	0.0	56.7	44.4	74	54	-17.3	-9.6	H
		No other emissions were detected above system noise floor													

Rev. 5.1.6

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

HARMONICS AND SPURIOUS EMISSIONS (802.11n HT20 MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company: ATHEROS
Project #: 06U10365
EUT Descrip: 802.11 n
Test Engineer: Devin Chang
Configuration: Foxcon antenna
Mode: TX, 11n HT20 5.8GHz

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T119; S/N: 29301 @3m	T34 HP 8449B			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Gordon 187207002		Gordon 203134001		

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. 5745MHz															
7.660	3.0	44.1	36.6	35.2	3.6	-34.0	0.0	0.0	48.9	41.3	74	54	-25.1	-12.7	V
11.490	3.0	46.3	36.1	37.2	3.7	-32.5	0.0	0.0	54.6	44.5	74	54	-19.4	-9.5	V
7.660	3.0	44.0	35.0	35.2	3.6	-34.0	0.0	0.0	48.7	39.8	74	54	-25.3	-14.2	H
11.490	3.0	50.8	38.4	37.2	3.7	-32.5	0.0	0.0	59.1	46.8	74	54	-14.9	-7.2	H
Mid Ch, 5785MHz															
7.713	3.0	43.7	36.1	35.2	3.6	-33.9	0.0	0.0	48.5	40.9	74	54	-25.5	-13.1	V
11.570	3.0	49.2	36.7	37.2	3.7	-32.5	0.0	0.0	57.6	45.1	74	54	-16.4	-8.9	V
7.713	3.0	42.7	34.0	35.2	3.6	-33.9	0.0	0.0	47.5	38.9	74	54	-26.5	-15.1	H
11.570	3.0	50.0	38.4	37.2	3.7	-32.5	0.0	0.0	58.4	46.7	74	54	-15.6	-7.3	H
High Ch.5825MHz															
7.767	3.0	44.6	37.2	35.2	3.6	-33.9	0.0	0.0	49.5	42.1	74	54	-24.5	-11.9	V
11.650	3.0	47.1	35.2	37.2	3.7	-32.5	0.0	0.0	55.5	43.7	74	54	-18.5	-10.3	V
7.767	3.0	43.6	35.0	35.2	3.6	-33.9	0.0	0.0	48.4	39.8	74	54	-25.6	-14.2	H
11.650	3.0	48.4	35.5	37.2	3.7	-32.5	0.0	0.0	56.9	43.9	74	54	-17.1	-10.1	H
		No other emissions were detected above system noise floor													

Rev. 5.1.6

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

HARMONICS AND SPURIOUS EMISSIONS (802.11n HT40 MODE)

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company: ATHEROS
Project #: 06U10365
EUT Descrip: 802.11 n
Test Engineer: Devin Chang
Configuration: Foxcon antenna
Mode: TX, 11n HT40 5.8GHz

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T119; S/N: 29301 @3m	T34 HP 8449B			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Gordon 187207002		Gordon 203134001		

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, 5755MHz															
7.673	3.0	44.2	37.8	35.2	3.6	-34.0	0.0	0.0	49.0	42.6	74	54	-25.0	-11.4	V
11.510	3.0	45.4	33.7	37.2	3.7	-32.5	0.0	0.0	53.8	42.0	74	54	-20.2	-12.0	V
7.673	3.0	43.1	43.2	35.2	3.6	-34.0	0.0	0.0	47.9	48.0	74	54	-26.1	-6.0	H
11.510	3.0	49.0	36.9	37.2	3.7	-32.5	0.0	0.0	57.4	45.2	74	54	-16.6	-8.8	H
Mid Ch, 5785MHz															
7.713	3.0	43.5	35.6	35.2	3.6	-33.9	0.0	0.0	48.4	40.4	74	54	-25.6	-13.6	V
11.570	3.0	45.7	33.9	37.2	3.7	-32.5	0.0	0.0	54.1	42.3	74	54	-19.9	-11.7	V
7.713	3.0	43.2	33.1	35.2	3.6	-33.9	0.0	0.0	48.0	37.9	74	54	-26.0	-16.1	H
11.570	3.0	50.9	36.7	37.2	3.7	-32.5	0.0	0.0	59.3	45.0	74	54	-14.7	-9.0	H
High Ch, 5815MHz															
7.753	3.0	42.5	38.7	35.2	3.6	-33.9	0.0	0.0	47.3	43.5	74	54	-26.7	-10.5	V
11.630	3.0	44.7	31.9	37.2	3.7	-32.5	0.0	0.0	53.1	40.3	74	54	-20.9	-13.7	V
7.753	3.0	44.4	34.6	35.2	3.6	-33.9	0.0	0.0	49.2	39.5	74	54	-24.8	-14.5	H
11.630	3.0	49.0	34.9	37.2	3.7	-32.5	0.0	0.0	57.4	43.3	74	54	-16.6	-10.7	H
No other emissions were detected above system noise floor															

Rev. 5.1.6

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		

7.4.6. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz WITH PIFA ANTENNAS

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

HORIZONTAL DATA

Condition: FCC CLASS-B HORIZONTAL
Test Operator: : Chin Pang
Company: : Atheros
Project #: : 06U10365
Model: : AR5BXB72
Configuration: : EUT/Laptop
Mode of Operation: TX (b mode Mid Ch with ED4 Antennas)

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	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	251.160	25.63	13.93	39.56	46.00	-6.44	Peak
2	373.380	21.29	17.46	38.75	46.00	-7.25	Peak
3	456.800	19.55	19.36	38.91	46.00	-7.09	Peak
4	609.090	22.14	21.66	43.80	46.00	-2.20	Peak
5	708.030	15.71	23.23	38.94	46.00	-7.06	Peak
6	807.940	17.99	24.69	42.68	46.00	-3.32	Peak

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

VERTICAL DATA

```
Condition: FCC CLASS-B VERTICAL
Test Operator:    : Chin Pang
Company:          : Atheros
Project #:        : 06U10365
Model:            : AR5BXB72
Configuration:    : EUT/Laptop
Mode of Operation: TX ( b mode Mid Ch with ED4 Antennas)
```

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	48.430	28.04	10.29	38.33	40.00	-1.67	Peak
2	177.440	25.04	13.11	38.15	43.50	-5.35	Peak
3	371.440	22.16	17.44	39.60	46.00	-6.40	Peak
4	407.330	21.65	18.21	39.86	46.00	-6.14	Peak
5	567.380	19.12	21.12	40.24	46.00	-5.76	Peak
6	806.000	16.55	24.64	41.19	46.00	-4.81	Peak

7.4.7. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz WITH MONOPOLE ANTENNAS

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

HORIZONTAL DATA

```
Condition: FCC CLASS-B HORIZONTAL
Test Operator:    : Chin Pang
Company:          : Atheros
Project #:        : 06U10365
Model:            : AR5BXB72
Configuration:    : EUT/Laptop
Mode of Operation: TX ( b mode Mid Ch with Foxconn Antenna)
```

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	150.280	22.34	14.10	36.44	43.50	-7.06	Peak
2	239.520	29.20	13.47	42.67	46.00	-3.33	QP
3	239.520	31.57	13.47	45.03	46.00	-0.97	Peak
4	303.540	27.70	15.75	43.45	46.00	-2.55	QP
5	303.540	28.71	15.75	44.46	46.00	-1.54	Peak
6	371.440	26.20	17.44	43.64	46.00	-2.36	QP
7	371.440	27.96	17.44	45.40	46.00	-0.60	Peak
8	405.390	23.83	18.18	42.01	46.00	-3.99	Peak
9	606.180	18.99	21.63	40.62	46.00	-5.38	Peak
10	707.060	16.80	23.20	40.00	46.00	-6.00	Peak
11	853.530	17.17	25.30	42.47	46.00	-3.53	Peak

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

VERTICAL DATA

Condition: FCC CLASS-B VERTICAL
Test Operator: : Chin Pang
Company: : Atheros
Project #: : 06U10365
Model: : AR5BXB72
Configuration: : EUT/Laptop
Mode of Operation: TX (b mode Mid Ch with Foxconn Antenna)

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	48.430	26.78	10.29	37.07	40.00	-2.93	Peak
2	305.480	24.68	15.80	40.48	46.00	-5.52	Peak
3	373.380	22.00	17.46	39.46	46.00	-6.54	Peak
4	403.450	21.55	18.12	39.67	46.00	-6.33	Peak
5	606.180	16.46	21.63	38.09	46.00	-7.91	Peak
6	706.090	17.19	23.17	40.36	46.00	-5.64	Peak
7	924.340	14.47	26.20	40.67	46.00	-5.33	Peak

7.5. 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 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

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

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

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

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

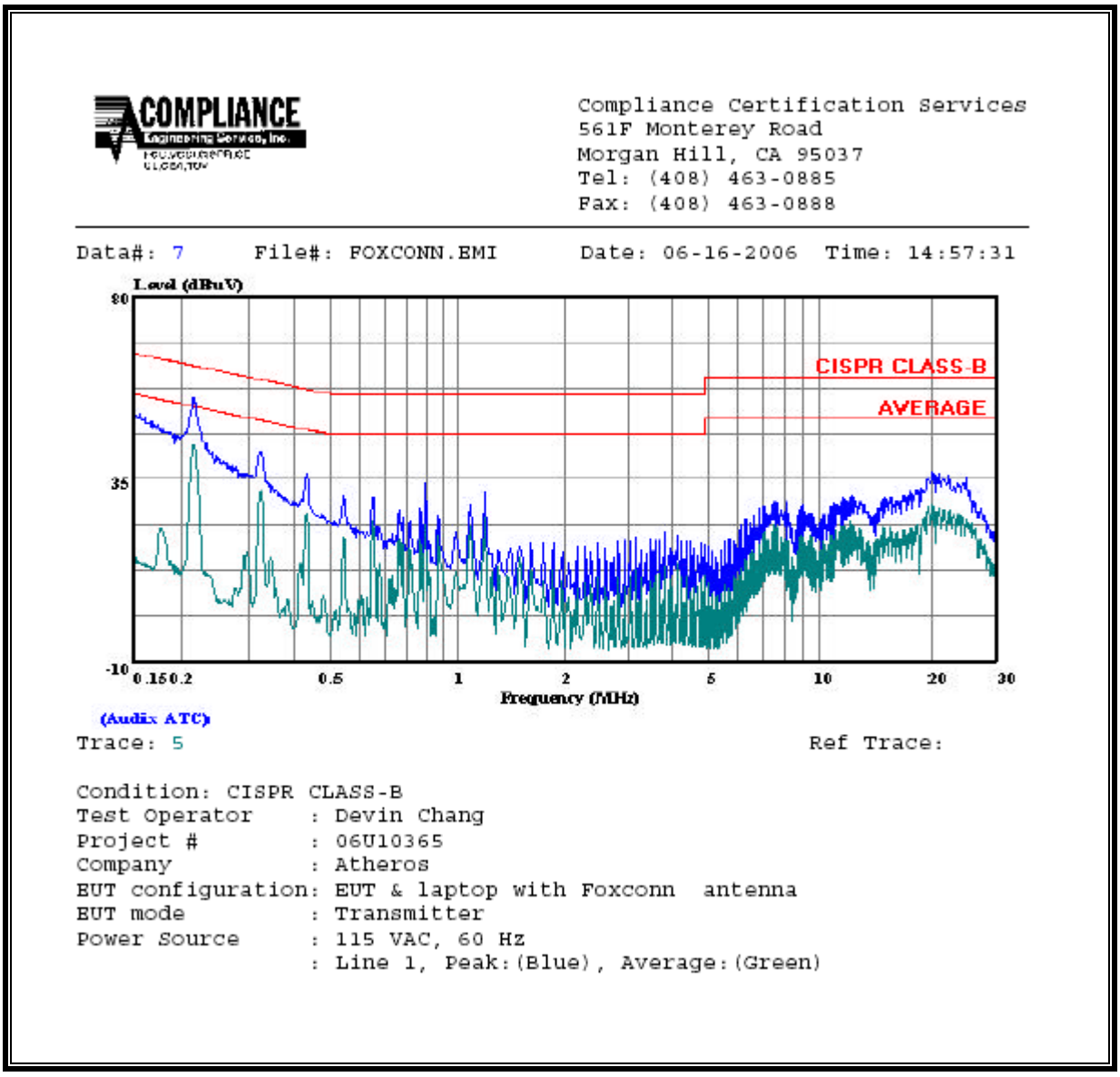
RESULTS

No non-compliance noted:

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.22	54.94	--	42.83	0.00	62.82	52.82	-7.88	-9.99	L1
0.33	45.00	--	31.89	0.00	59.45	49.45	-14.45	-17.56	L1
0.89	33.94	--	33.94	0.00	56.00	46.00	-22.06	-12.06	L1
0.22	50.22	--	39.72	0.00	62.82	52.82	-12.60	-13.10	L2
0.33	39.44	--	30.03	0.00	59.45	49.45	-20.01	-19.42	L2
0.89	34.90	--	33.89	0.00	56.00	46.00	-21.10	-12.11	L2
6 Worst Data									

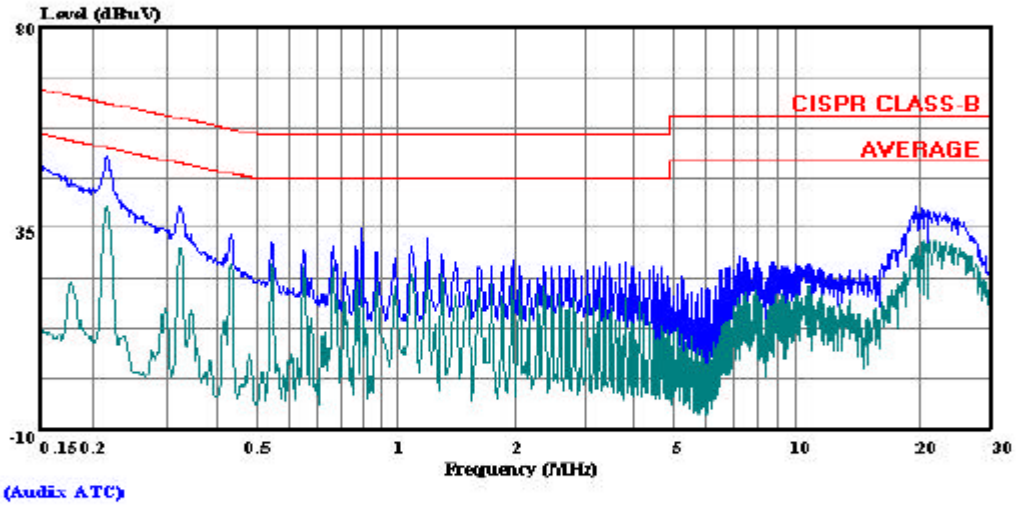
LINE 1 RESULTS



LINE 2 RESULTS

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

Data#: 7 File#: Foxconn L2.EMI Date: 06-16-2006 Time: 15:46:43



Trace: 5 Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Devin Chang
Project # : 06U10365
Company : Atheros
EUT configuration: EUT & laptop with Foxconn antenna
EUT mode : Transmitter
Power Source : 115 VAC, 60 Hz
: Line 2, Peak:(Blue), Average:(Green)