FCC CFR47 PART 15 SUBPART C
CERTIFICATION

TEST REPORT

FOR

PDA PHONE

MODEL NUMBER: PA10A

FCC ID: NM8PA10A

REPORT NUMBER: 05T3291-3

ISSUE DATE: JUNE 27, 2005

Prepared for

HIGH TECH COMPUTER CORP.
1F, 6-3, BAU CHIAN ROAD, HSIN-TIEN
TAIPEI, 231, TAIWAN

Prepared by

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d.b.a.
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LAB CODE:200065-0

Revision History

Rev.	Revisions	Revised By
A	Initial Issue / Digital Emission for second LCD source (Toppoly)	Thu

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: HIGH TECH COMPUTER CORP.
1F, 6-3, BAU CHIAN ROAD, HSIN-TIEN
TAIPEI 231, TAIWAN

EUT DESCRIPTION: PDA PHONE

MODEL: PA10A

SERIAL NUMBER: HT510E600005

DATE TESTED: APRIL 4-JUNE 25, 2005

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:

CHIN PANG
EMC TECHNICIAN
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a PDA phone.

This report is for the WLAN performance of the PDA phone.

The software that resides on the phone does not allow co-transmission of the Bluetooth and the WLAN.

The Device is manufactured by High Tech Computer Corp.

EUT auxiliary equipment

Auxiliary Equipment	Brand	Model No.
Li-Ion Rechargeable Battery	Celxpert Energy Co.	PA16A
AC adaptor	Delta Electronic	ADP-5FH B
USB Cable	MEC	60-4008-201A
Cradle	High Tech Computer	PA15A
Headset	Merry	EMC147-012-01

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

2400 to 2483.5 MHz Authorized Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	16.55	45.19

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes monopole antennas for WLAN and CDMA and Patch antenna for BT with a antenna of –2.0 dBi in the 2400-2483.5 GHz range.

5.4. SOFTWARE AND FIRMWARE

The EUT support driver software and hardware installed in the equipment during testing was Mapi_firmware_1100

The test utility software used during testing was mitty116 and mapi via interface card, 3254009-01R3-6 connected from laptop to EUT

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at 2462 MHz.

5.6. DESCRIPTION OF TEST SETUP

SETUP FOR RF WIRELESS TESTS

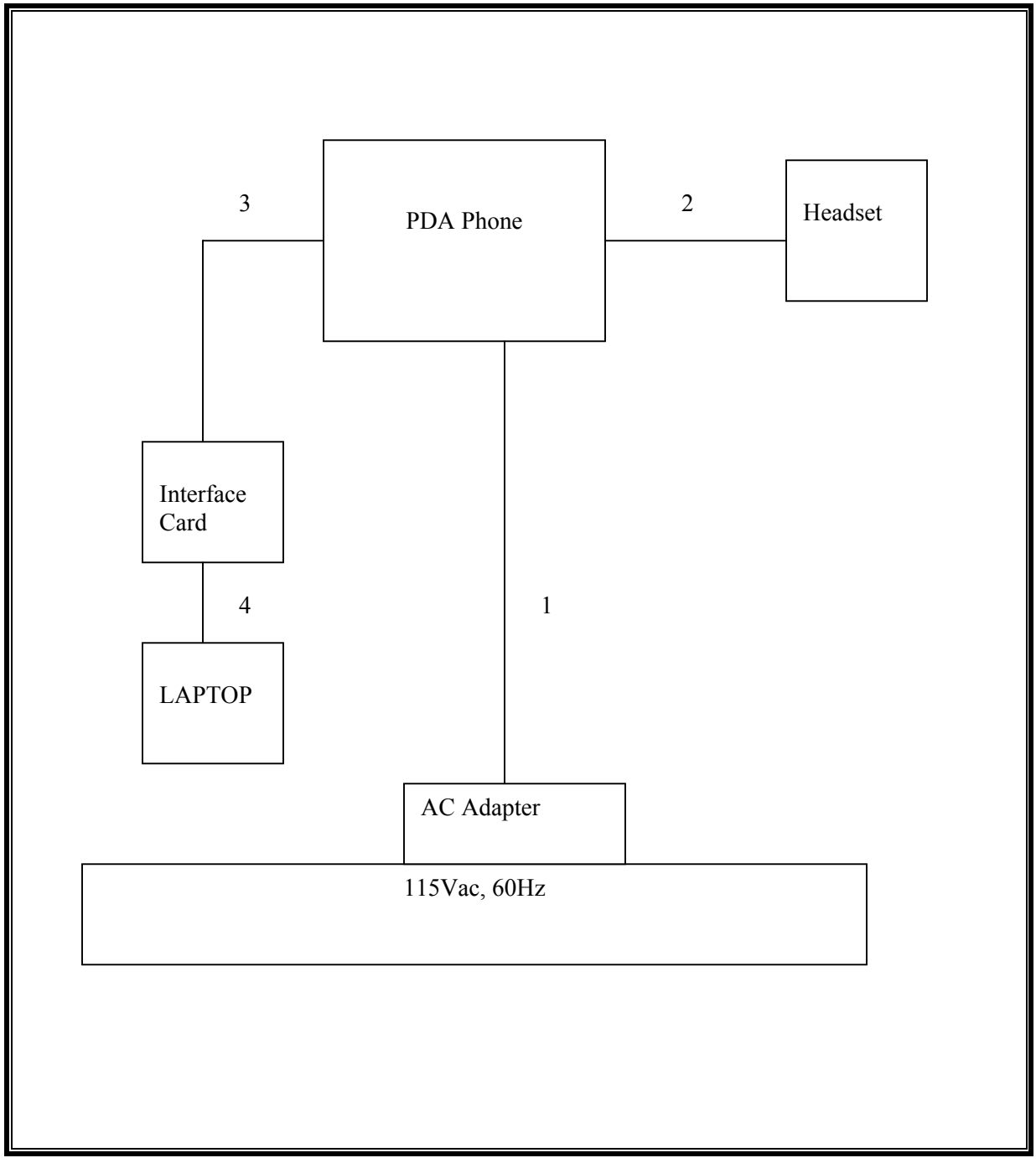
SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
DC Power Supply	Delta Electronic	ADP-5FH B	3UW0450071925	NA
Headset	Merry	EMC147-012-01	NA	NA
Interface card	HTC	3254009-01R3-6	NA	NA
Laptop	HP	Ze4101	CN24600011	DoC

I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	DC	1	DC	Un-shielded	1.5m	NA
2	Mic	1	Din	Un-shielded	2m	NA
3	USB	1	USB	Un-shielded	1m	NA
4	Serial	1	DB9	Un-shielded	1m	NA

SETUP DIAGRAM FOR TESTS



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SETUP FOR DIGITAL DEVICE TESTS

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Printer	HP	2225C	2930S52614	DSI6XU2225
Modem	ACEEX	1414	NA	IFAXDM1415
Mouse	HP	M-S34	LZB75062022	DZL211029
Laptop	HP	Ze4101	CN24600011	DoC
AC Adapter	HP	ADP-75HB	MVT0240165286	DoC
AC Adapter	Delta Electronic	ADP-5FH B	3UW0450072243	DoC
Headset	MERRY	EMC147-012-01	NA	NA
Cradle	High Tech Computer	PA15A	NA	NA

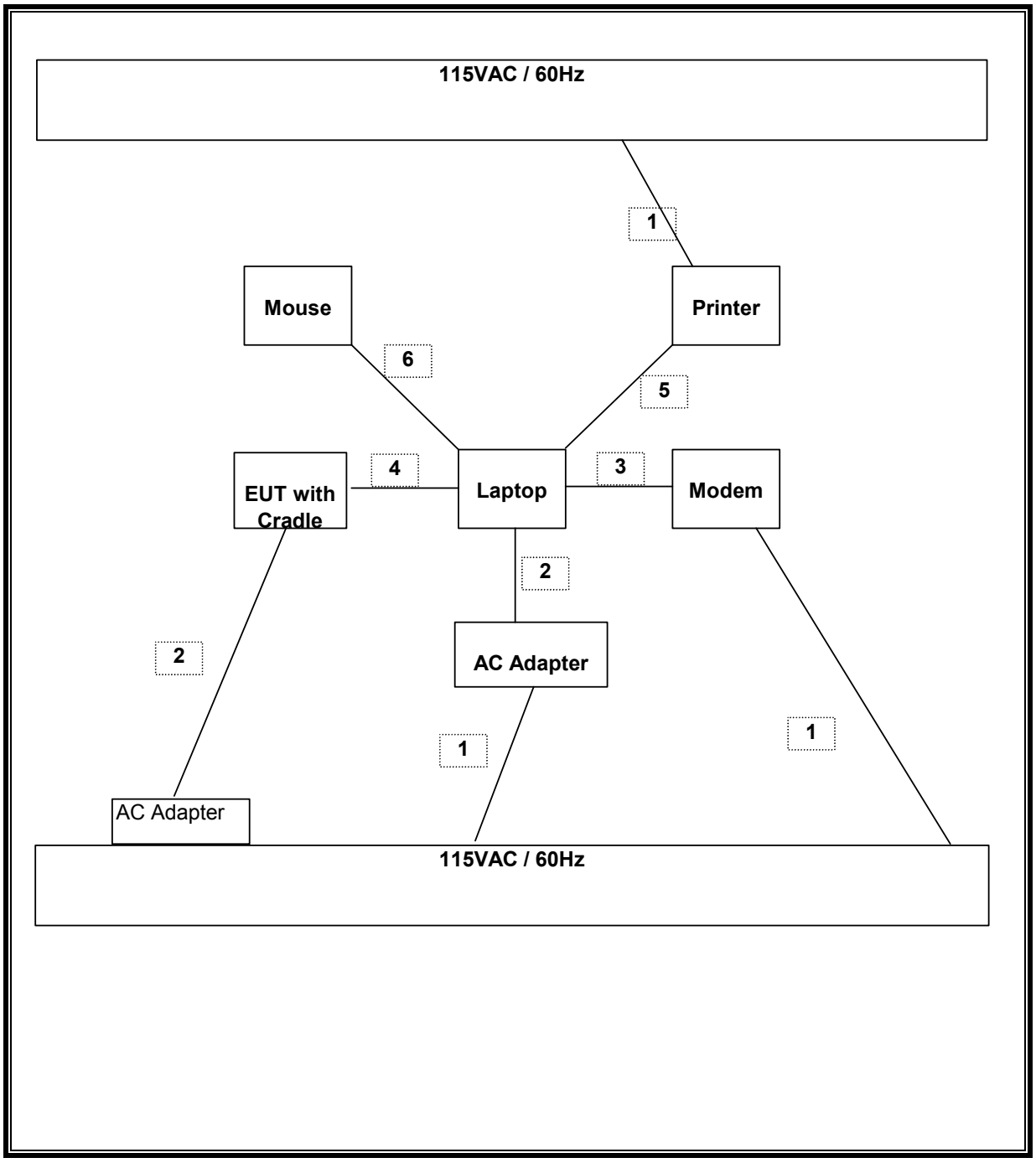
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	3	US 115V	Un-shielded	2m	Bundled Power Cable for LC test
2	DC	2	DC	Un-shielded	1m	N/A
3	Serial	1	DB9	Shielded	1m	N/A
4	USB	1	USB	Shielded	2m	N/A
5	Parallel	1	DB25	Shielded	2m	N/A
6	Mouse	1	PS/2	Un-shielded	2m	N/A

TEST SETUP

The EUT is installed in the cradle. The cradle is connected to a laptop computer system with minimum configuration during the tests. Test software exercised and linked with the EUT.

SETUP DIAGRAM FOR DIGITAL DEVICE TESTS (WORST CASE)



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	Cal Due
Spectrum Analyzer	HP	E4446A	US42510266	8/25/2005
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	3/29/06
RF Filter Section	HP	85420E	3705A00256	3/29/06
30MHz---- 2Ghz	Sunol Sciences	JB1 Antenna	A121003	9/12/05
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	9/12/05
Preamplifier, 1 ~ 26 GHz	Miteq	NSP2600-44	646456	8/17/05
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	8/30/05
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	837990	10/21/05
EMI Test Receiver	R & S	ESHS 20	827129/006	10/22/05
Peak Power Meter	Agilent	E4416A	GB41291160	2/9/06
Peak / Average Power Sensor	Agilent	E9327A	US40440755	2/10/06
DC Power Suppy	Kenwood	PA-36-3A	N/A	NCR
4GHz HPF	MicroTronic	HPM13194	1	CNR
Antenna, Horn 18-26 GHz	ARA	HWH-1826/B	1013	9/12/05

7. LIMITS AND RESULTS

7.1. CHANNEL TESTS FOR THE 2400 TO 2483.5 MHz BAND

7.1.1. 6 dB BANDWIDTH

LIMIT

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

TEST PROCEDURE

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

RESULTS

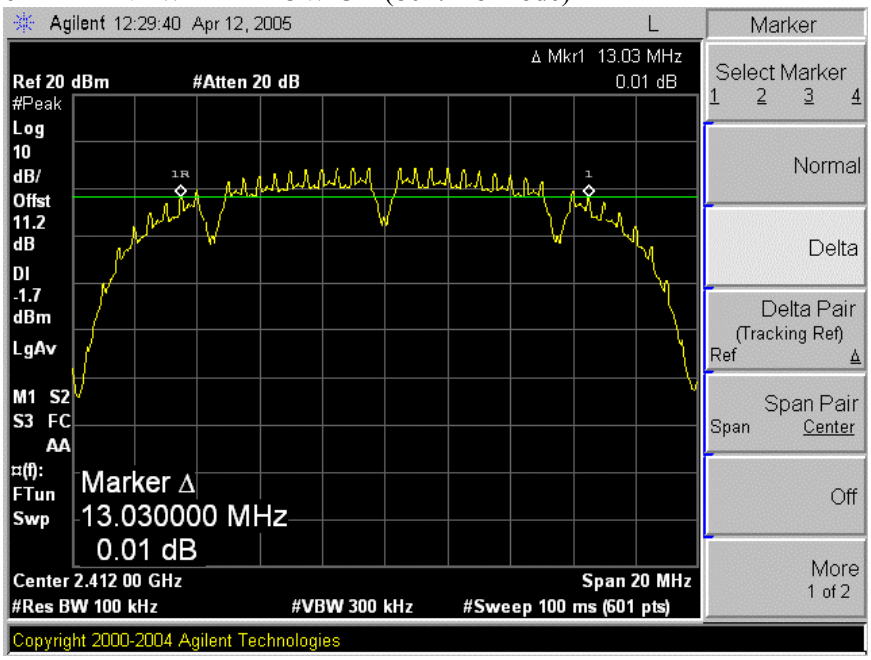
No non-compliance noted:

802.11b Mode

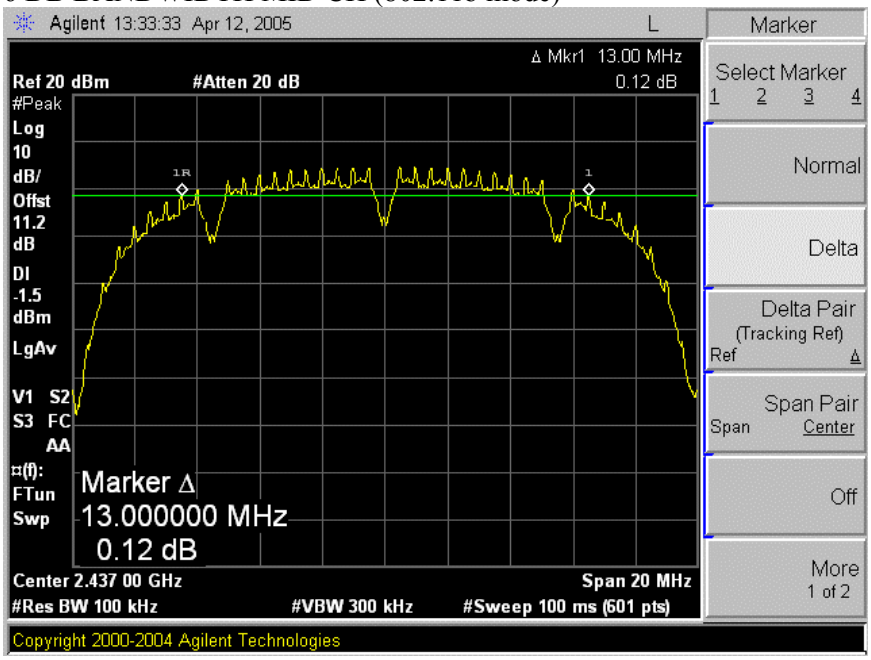
Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
Low	2412	13003	500	12503
Middle	2437	13000	500	12500
High	2462	13003	500	12503

6 DB BANDWIDTH (802.11b MODE)

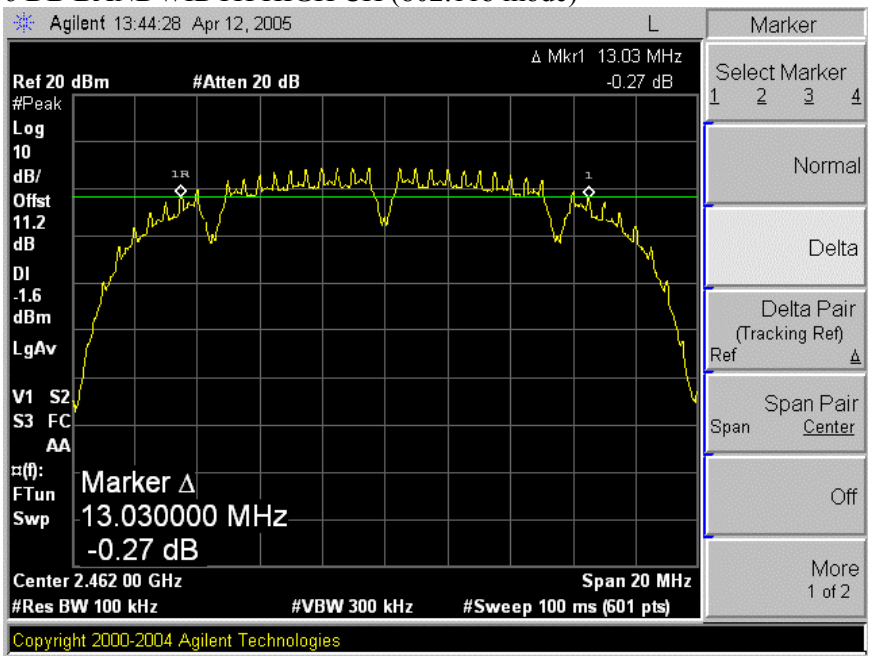
6 DB BANDWIDTH LOW CH (802.11b mode)



6 DB BANDWIDTH MID CH (802.11b mode)



6 DB BANDWIDTH HIGH CH (802.11b mode)



7.1.2. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

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

RESULTS

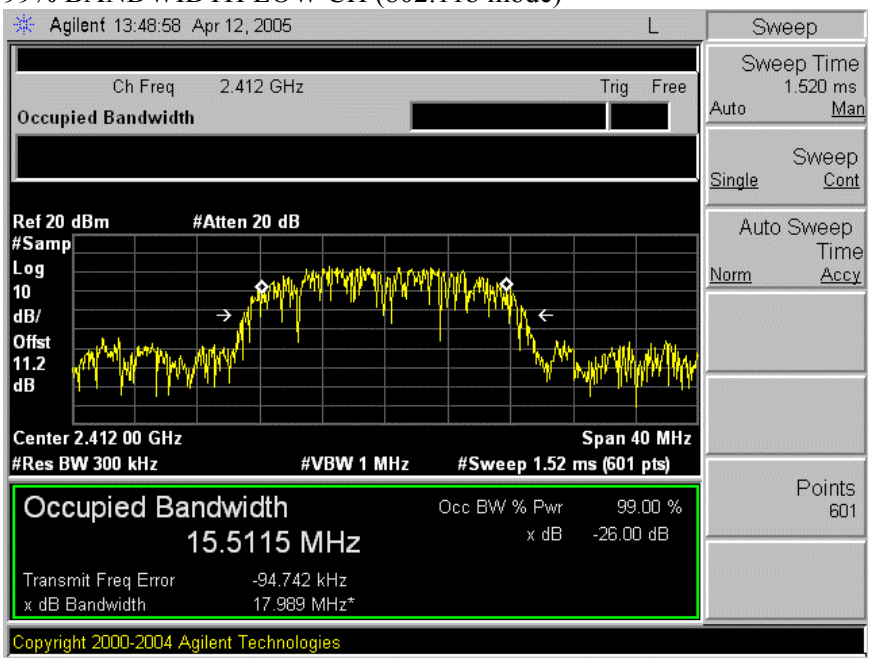
No non-compliance noted:

802.11b Mode

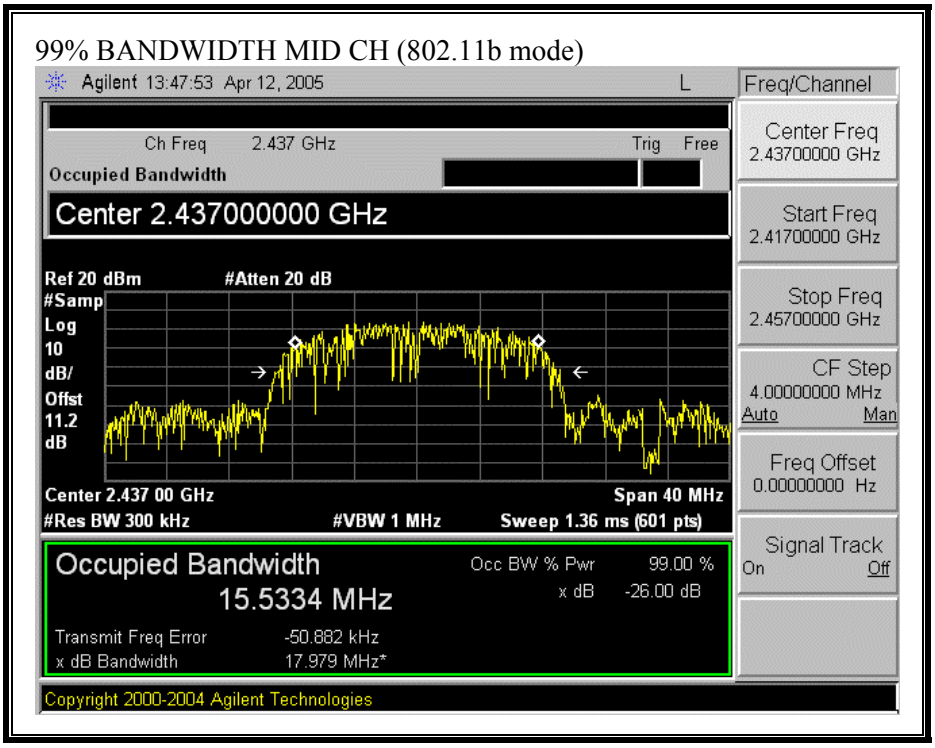
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	15.5115
Middle	2437	15.5334
High	2462	15.5261

99% BANDWIDTH (802.11 MODE)

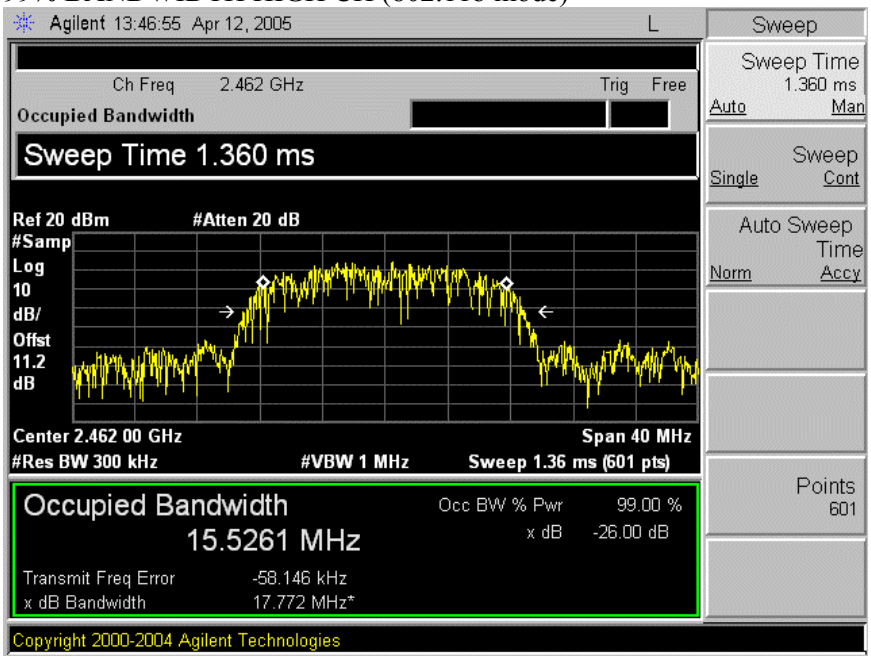
99% BANDWIDTH LOW CH (802.11b mode)



99% BANDWIDTH MID CH (802.11b mode)



99% BANDWIDTH HIGH CH (802.11b mode)



7.1.3. PEAK OUTPUT POWER

PEAK POWER LIMIT

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

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

§15.247 (b) (4) Except as shown in paragraphs (b)(4) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

TEST PROCEDURE

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

RESULTS

The maximum antenna gain is -2dBi therefore the limit is 30 dBm.

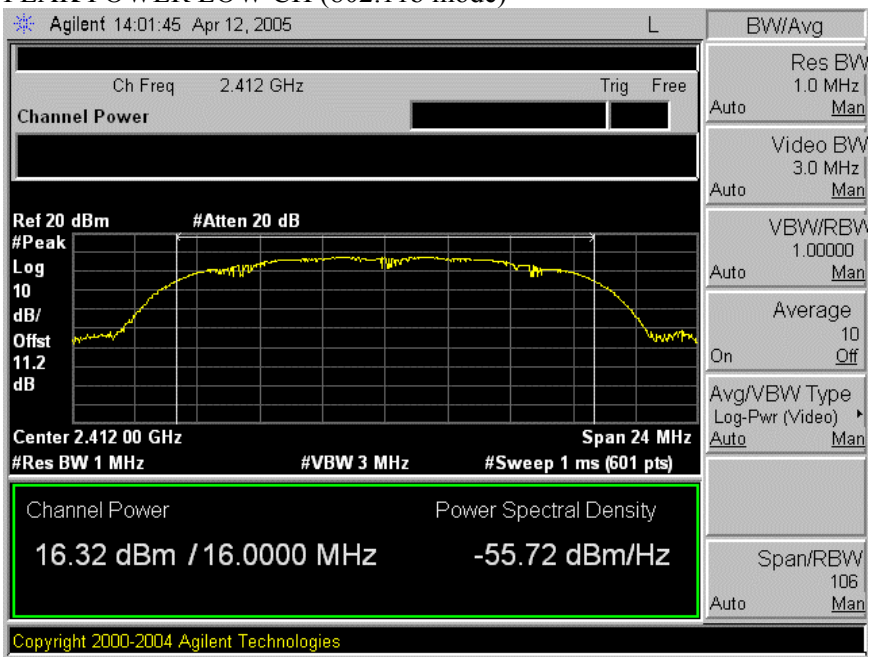
No non-compliance noted:

802.11b Mode

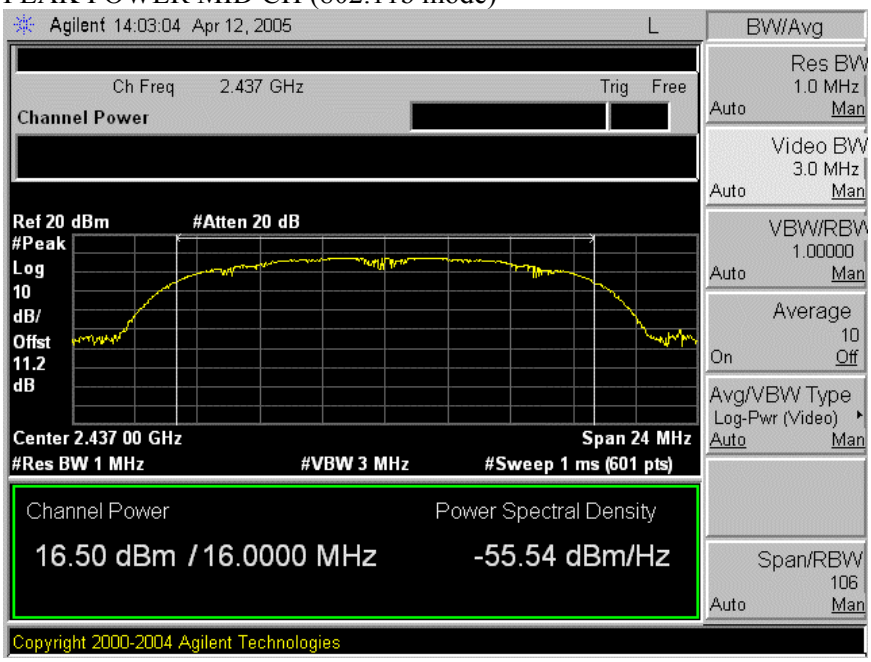
Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	16.32	30	-13.68
Middle	2437	16.50	30	-13.50
High	2462	16.55	30	-13.45

OUTPUT POWER (802.11b MODE)

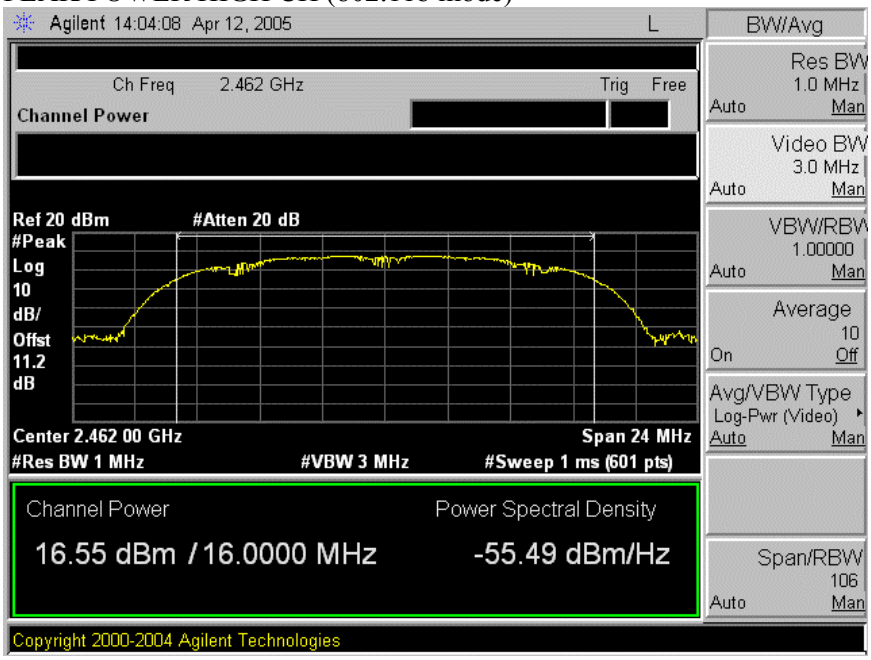
PEAK POWER LOW CH (802.11b mode)



PEAK POWER MID CH (802.11b mode)



PEAK POWER HIGH CH (802.11b mode)



7.1.4. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.11b Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	14.00
Middle	2437	14.20
High	2462	14.10

7.1.5. PEAK POWER SPECTRAL DENSITY

LIMIT

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

TEST PROCEDURE

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

RESULTS

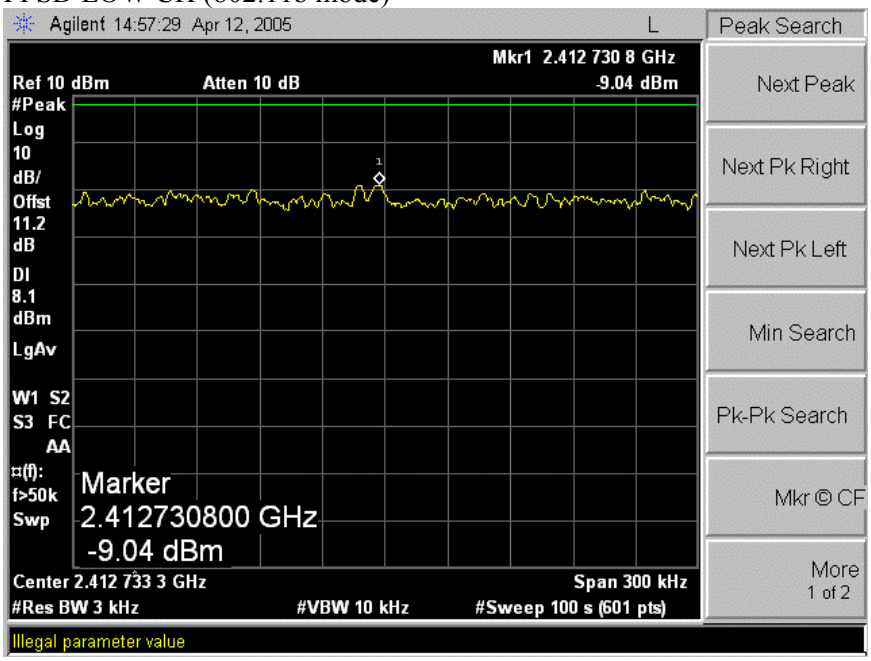
No non-compliance noted:

802.11b Mode

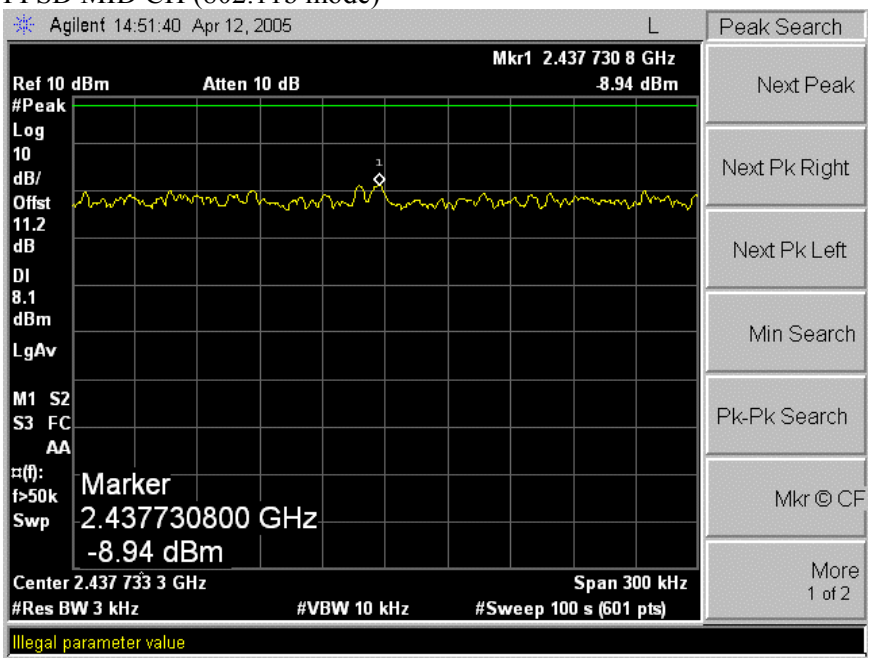
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-9.04	8	-17.04
Middle	2437	-8.94	8	-16.94
High	2462	-8.93	8	-16.93

PEAK POWER SPECTRAL DENSITY (802.11b MODE)

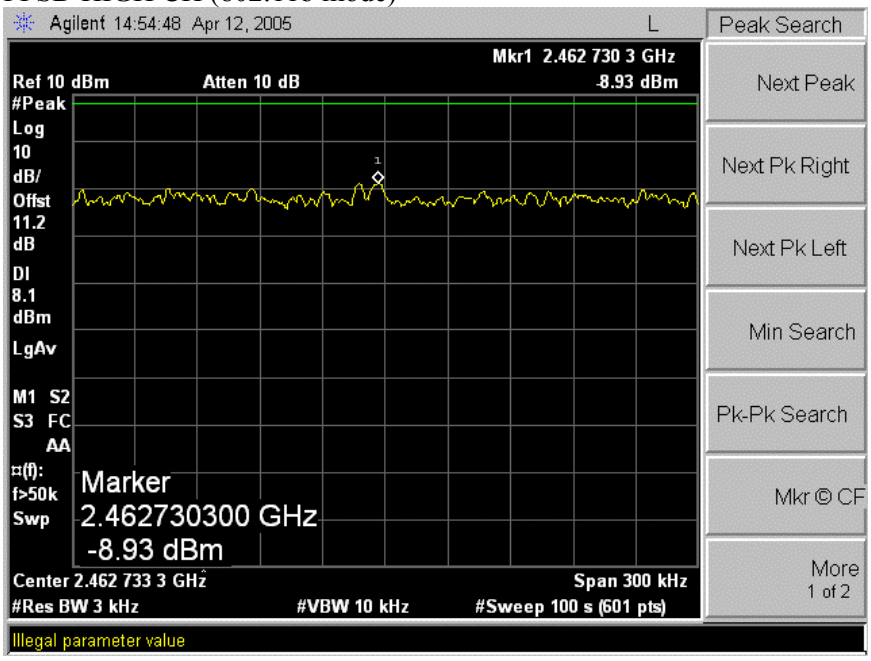
PPSD LOW CH (802.11b mode)



PPSD MID CH (802.11b mode)



PPSD HIGH CH (802.11b mode)



7.1.6. 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)).

TEST PROCEDURE

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

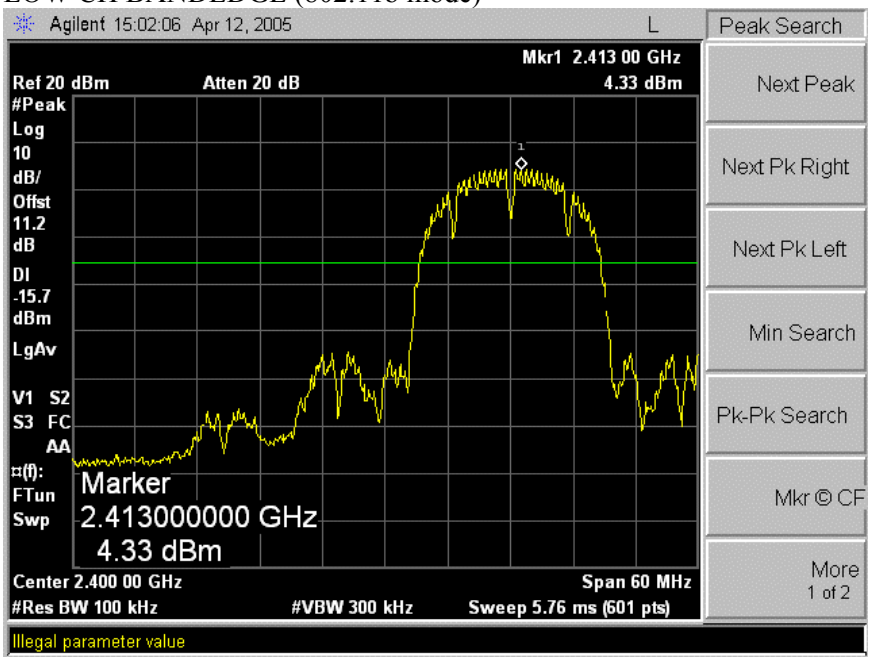
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

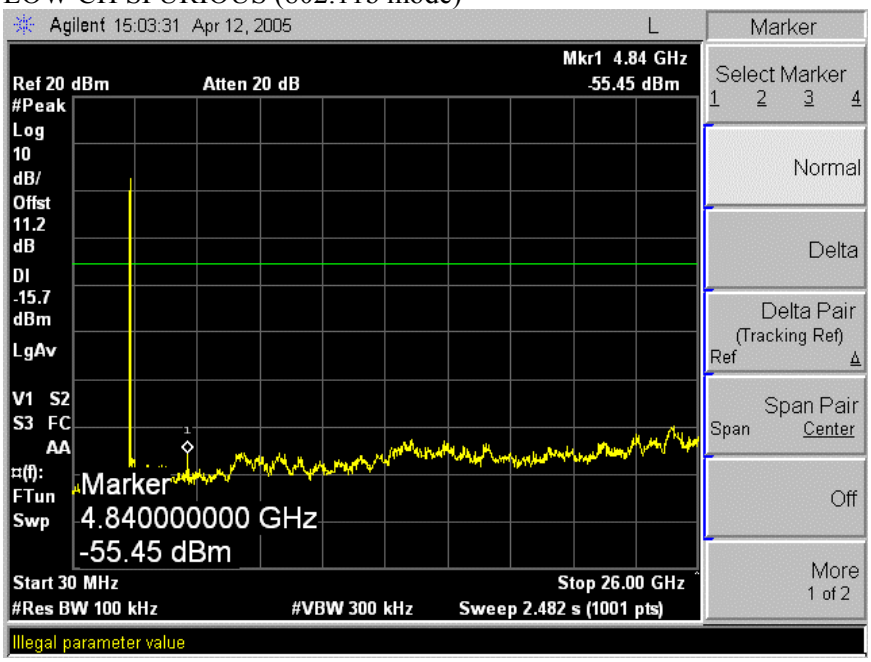
No non-compliance noted:

SPURIOUS EMISSIONS, LOW CHANNEL (802.11b MODE)

LOW CH BANDEDGE (802.11b mode)

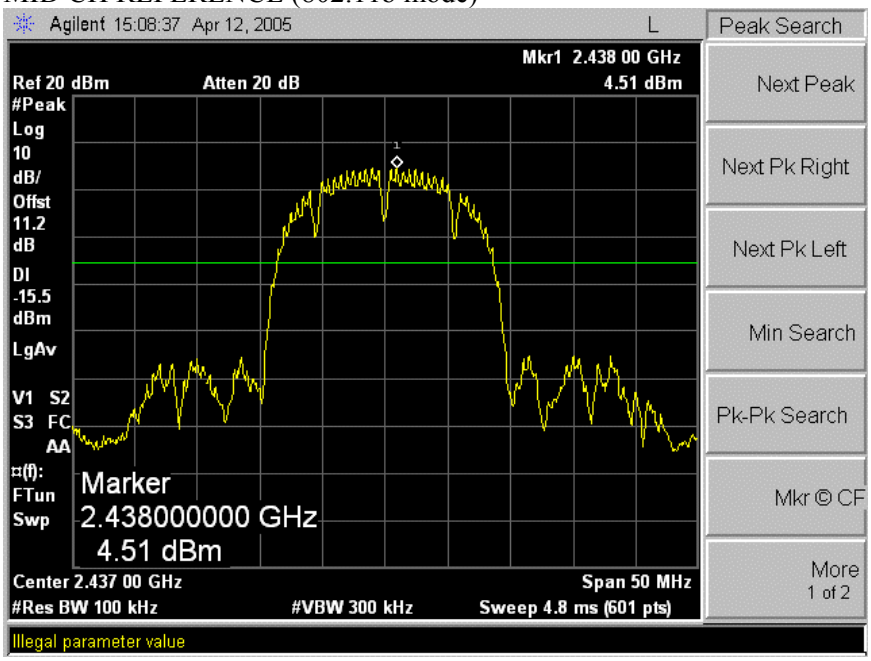


LOW CH SPURIOUS (802.11b mode)

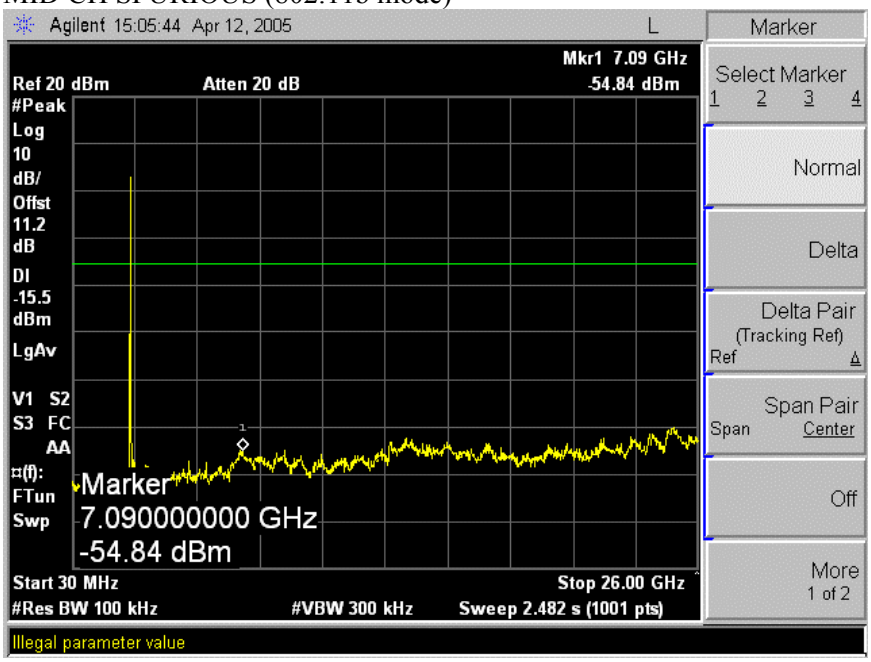


SPURIOUS EMISSIONS, MID CHANNEL (802.11b MODE)

MID CH REFERENCE (802.11b mode)

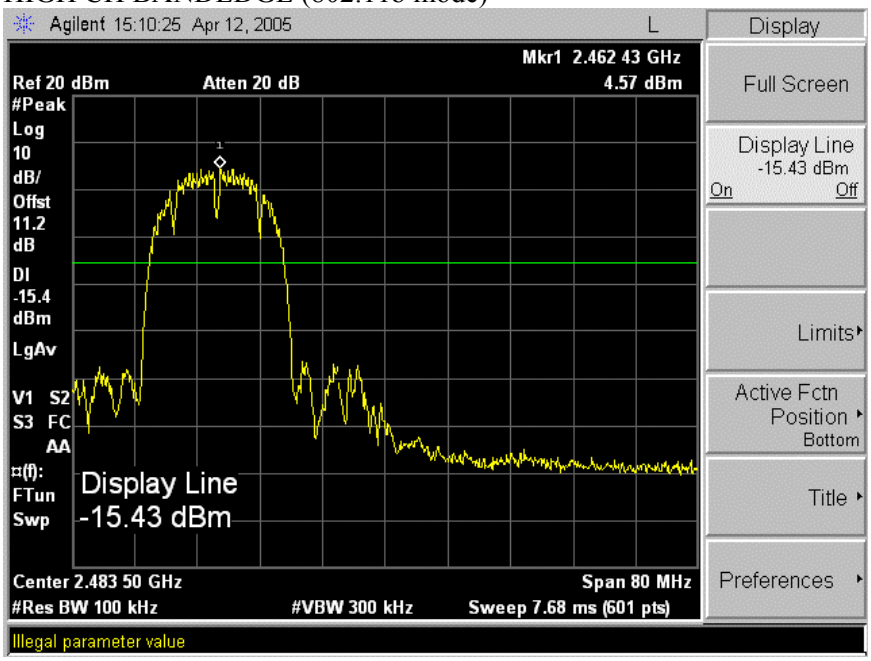


MID CH SPURIOUS (802.11b mode)

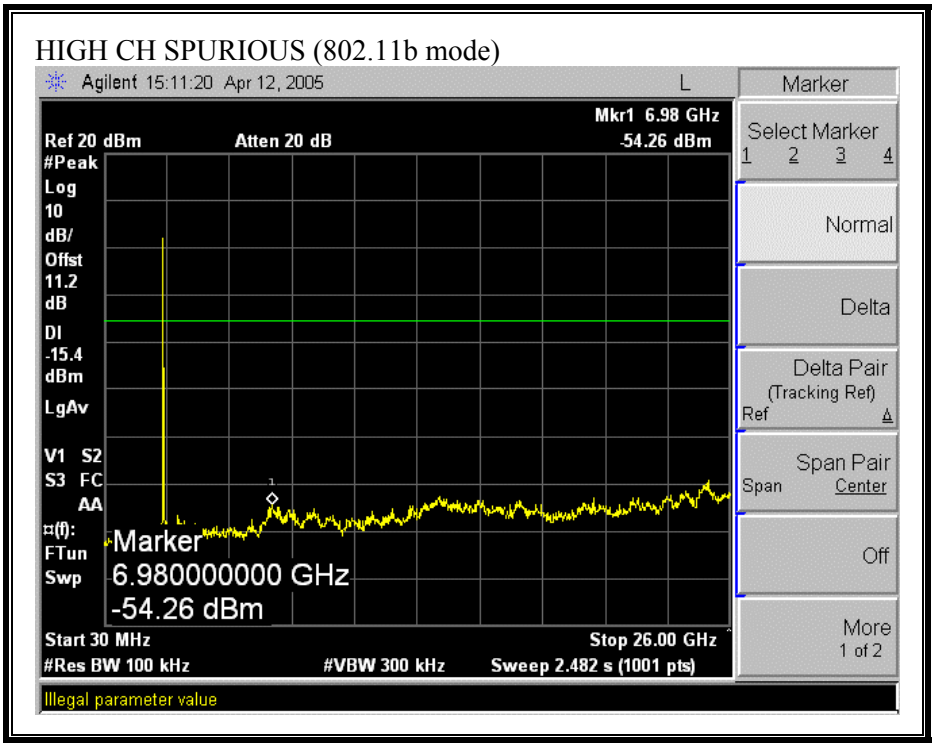


SPURIOUS EMISSIONS, HIGH CHANNEL (802.11b MODE)

HIGH CH BANDEDGE (802.11b mode)



HIGH CH SPURIOUS (802.11b mode)



7.2. RADIATED EMISSIONS ABOVE 1GHz

7.2.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

LIMITS

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

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

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2] Above 38.6

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

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

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

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

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

TEST PROCEDURE

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

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

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

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

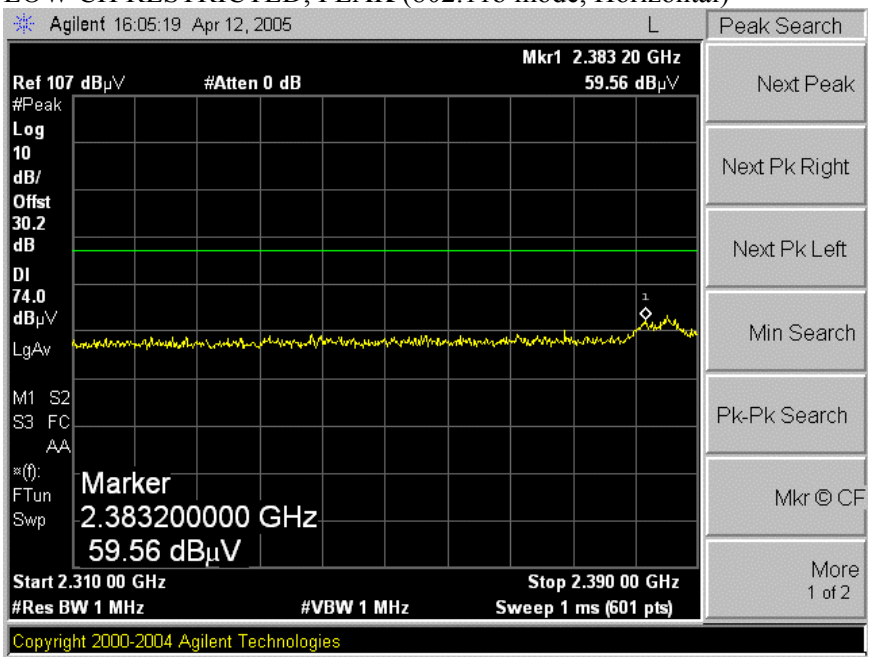
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

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

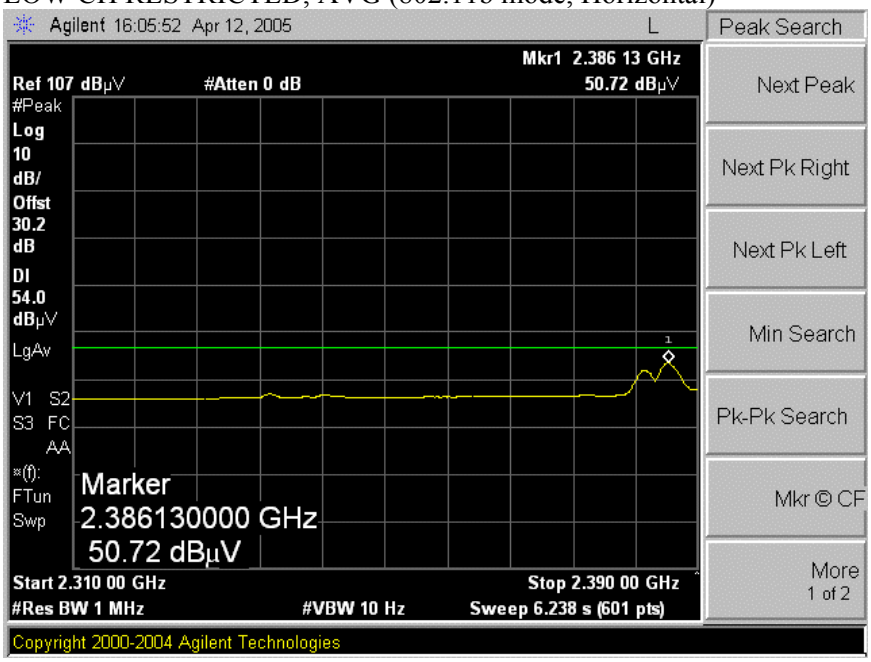
7.2.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND

RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)

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

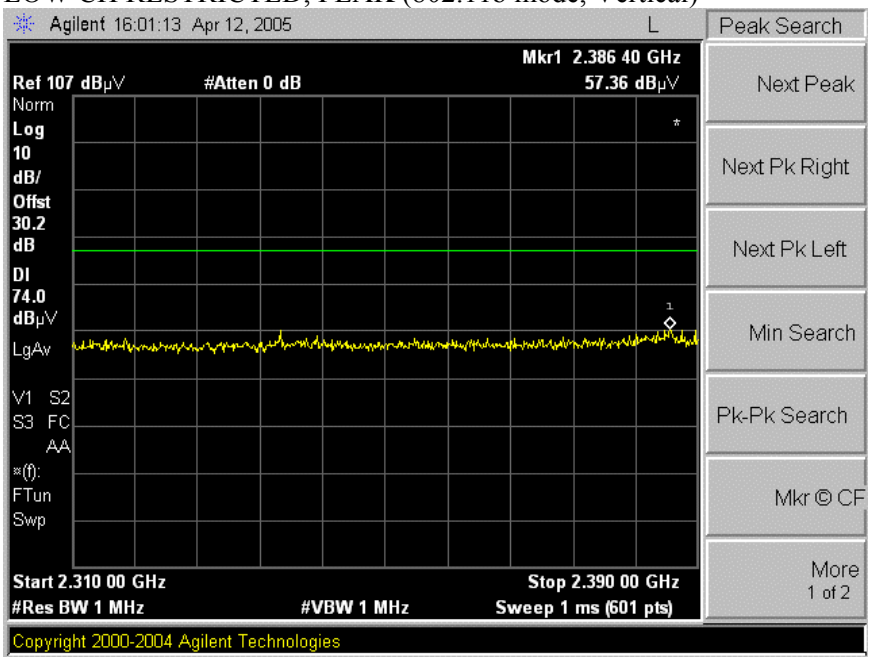


LOW CH RESTRICTED, AVG (802.11b mode, Horizontal)

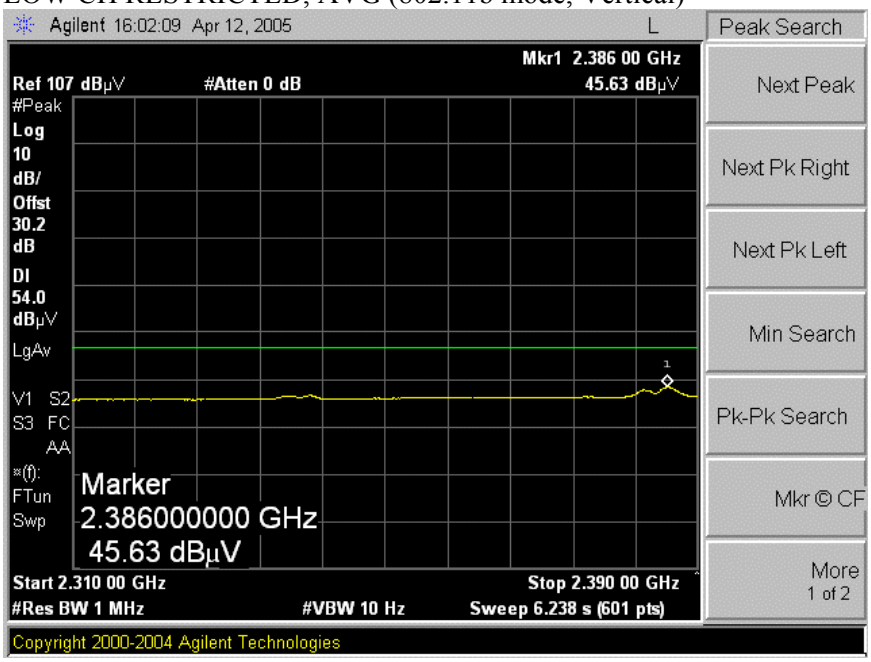


RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)

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

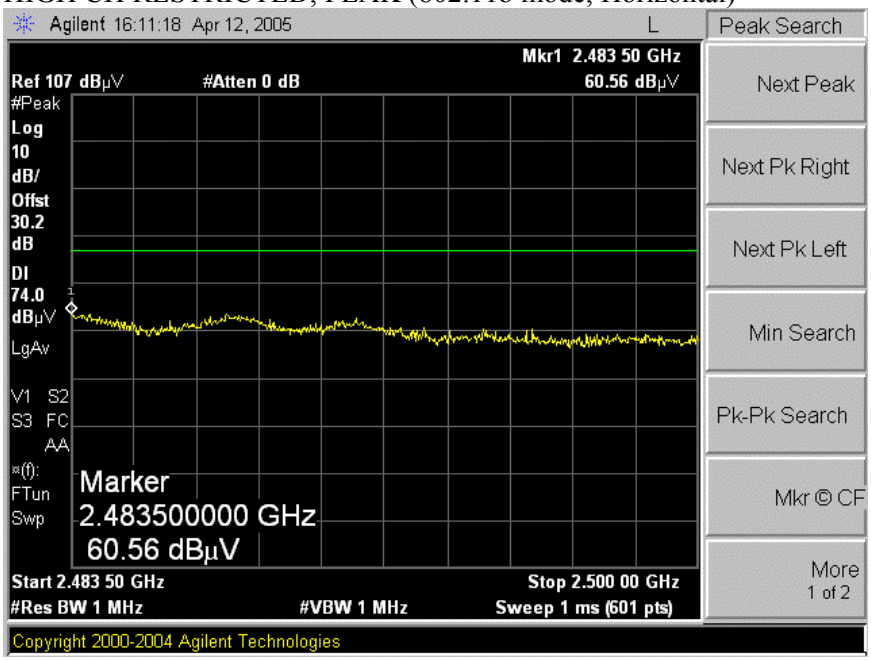


LOW CH RESTRICTED, AVG (802.11b mode, Vertical)

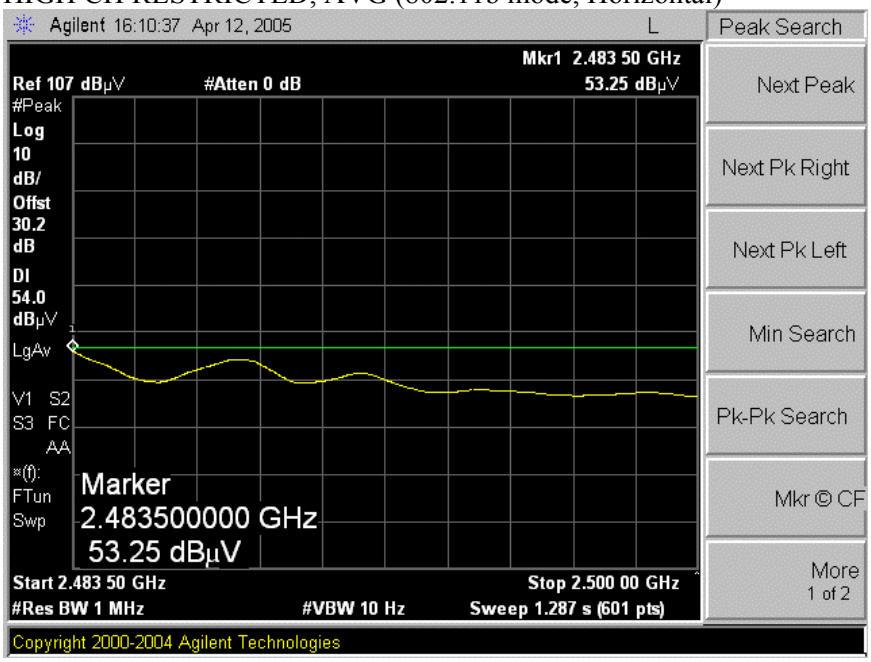


RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)

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

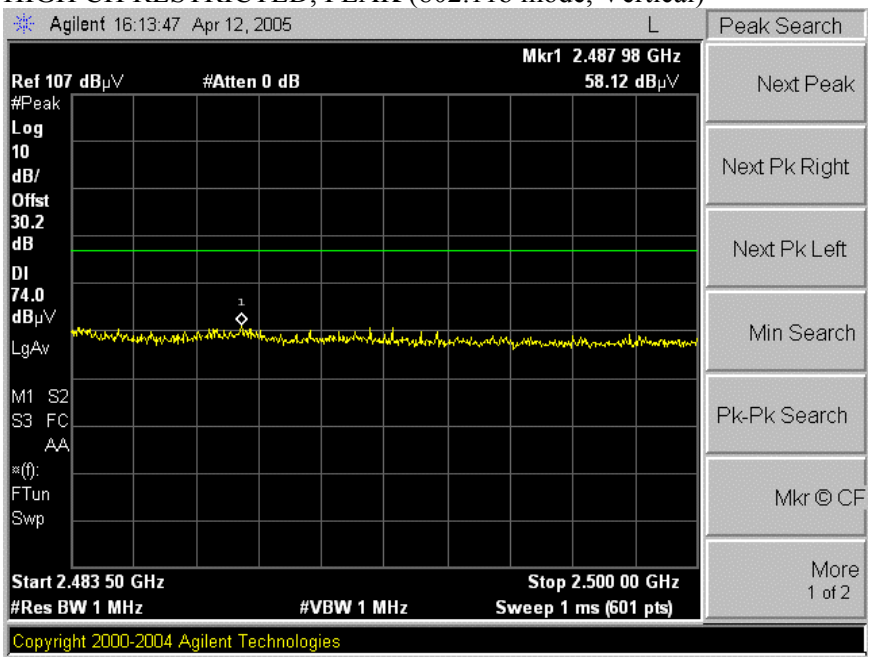


HIGH CH RESTRICTED, AVG (802.11b mode, Horizontal)

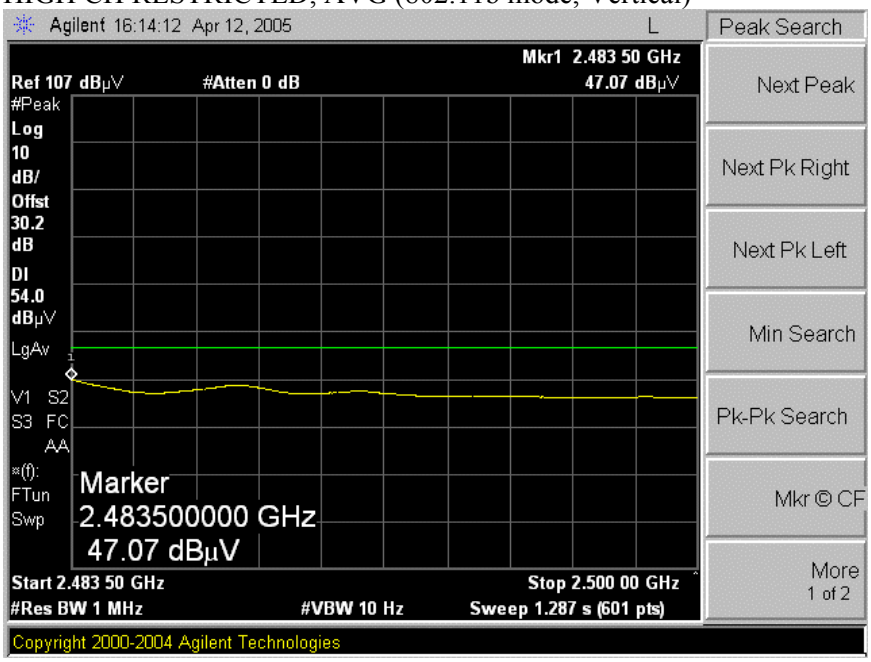


RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)

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



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



HARMONICS AND SPURIOUS EMISSIONS (b MODE)

04/13/05 High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
Project #: 05T3291-3
Company: High Tech Computer
EUT Descrip.: PDA Phone
EUT M/N: PA10A
Test Target: FCC 15.247
Mode Oper: TX, WLAN
Average Power Meter: Low = 14dBm, Mid = 14.2dBm, High = 14.18dBm

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T86 Miteq 924341			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	4 foot cable	12 foot cable	HPF	Reject Filter
		4_Vien	12_Neelesh	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	56.0	50.0	33.0	3.9	-44.0	0.0	0.6	49.5	43.5	74	54	-24.5	-10.5	V
4.824	3.0	56.2	51.0	33.0	3.9	-44.0	0.0	0.6	49.7	44.5	74	54	-24.3	-9.5	H
mid ch															
4.874	3.0	54.0	46.7	33.0	3.9	-44.1	0.0	0.6	47.4	40.1	74	54	-26.6	-13.9	V
7.311	3.0	51.0	39.0	35.9	4.7	-44.7	0.0	0.6	47.6	35.6	74	54	-26.4	-18.4	V
4.874	3.0	54.6	47.0	33.0	3.9	-44.1	0.0	0.6	48.0	40.4	74	54	-26.0	-13.6	H
7.311	3.0	52.0	39.4	35.9	4.7	-44.7	0.0	0.6	48.6	36.0	74	54	-25.4	-18.0	H
high ch															
4.924	3.0	53.3	44.5	33.0	3.9	-44.2	0.0	0.6	46.7	37.9	74	54	-27.3	-16.1	V
7.386	3.0	50.4	38.6	36.0	4.7	-44.7	0.0	0.6	47.1	35.3	74	54	-26.9	-18.7	V
4.924	3.0	54.0	46.2	33.0	3.9	-44.2	0.0	0.6	47.4	39.6	74	54	-26.6	-14.4	H
7.386	3.0	51.2	39.0	36.0	4.7	-44.7	0.0	0.6	47.9	35.7	74	54	-26.1	-18.3	H
Note: No other emissions were detected above the system noise floor.															

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

7.2.3. CO-LOCATED TRANSMITTER RADIATED EMISSIONS

RESULTS

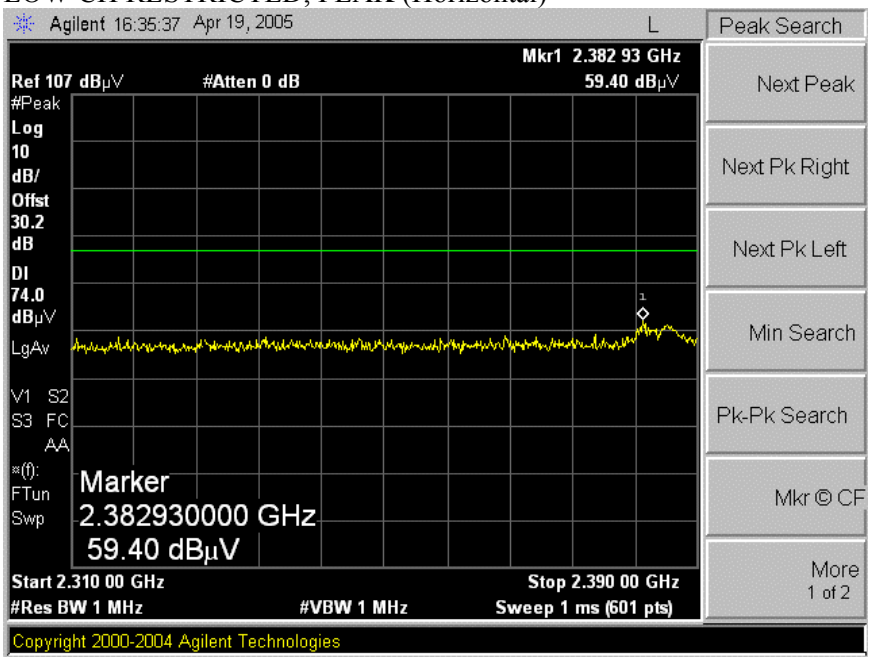
Worst-case configurations are determined as:

Lower bandedge: WLAN at low channel and CDMA 800MHz at low channel;
Upper bandedge: WLAN at high channel and CDMA 800MHz at high channel;
Harmonics and spurious emissions: WLAN at mid channel and CDMA 800MHz at mid channel
No non-compliance noted:

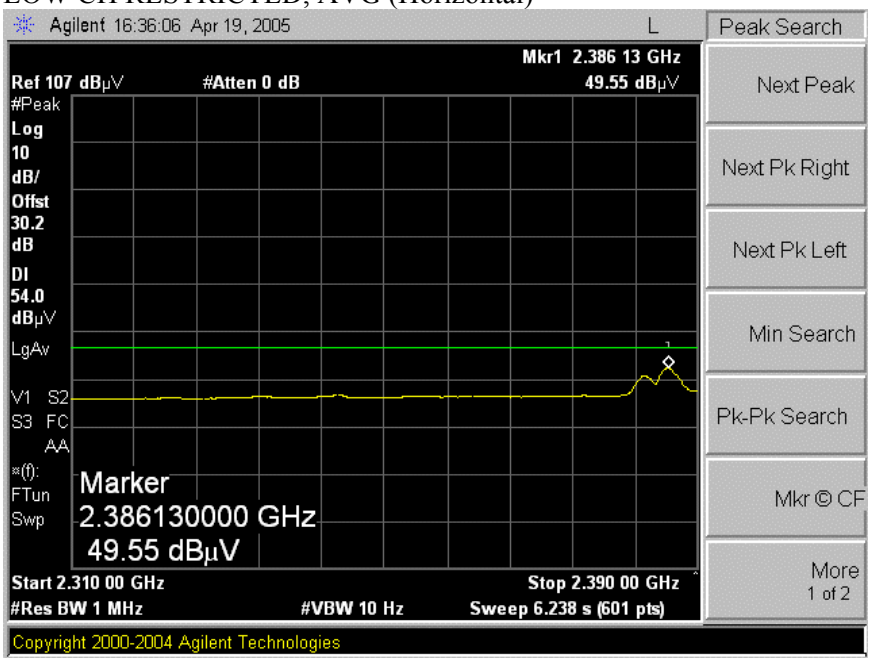
The dominant transmitter is the WLAN, and the non-dominant transmitter is CDMA 800MHz.

WORST-CASE RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (Horizontal)

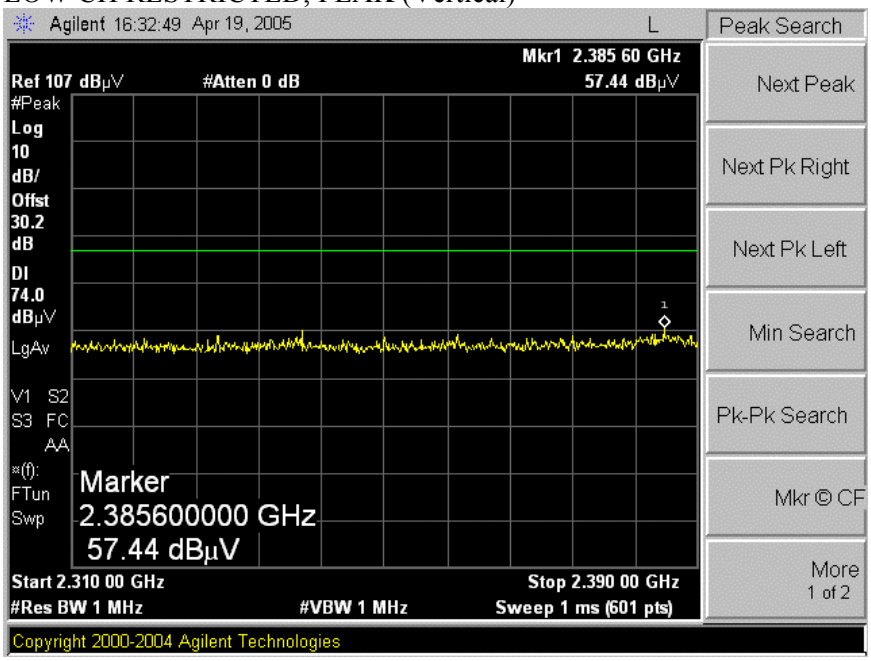


LOW CH RESTRICTED, AVG (Horizontal)

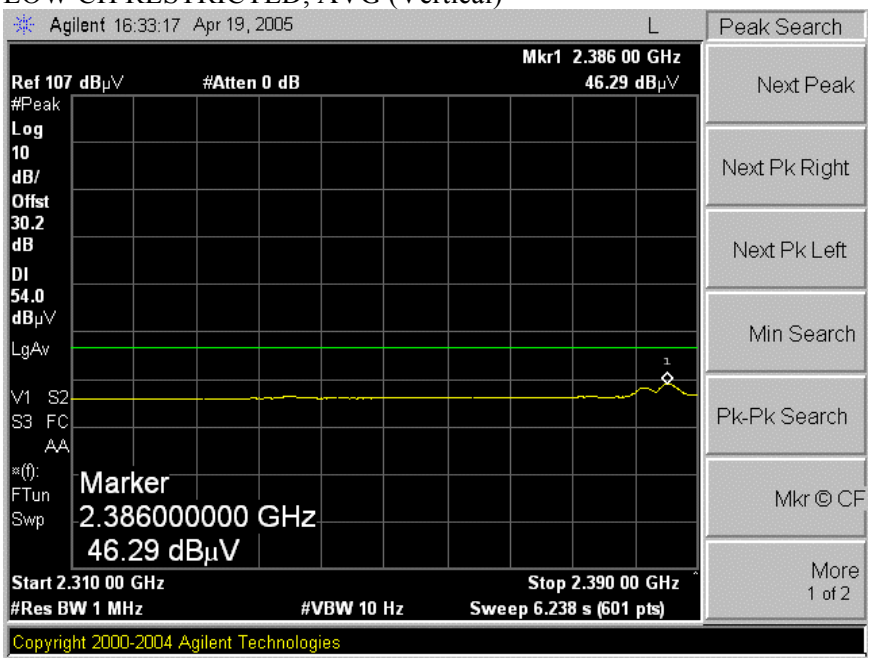


WORST-CASE RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (Vertical)

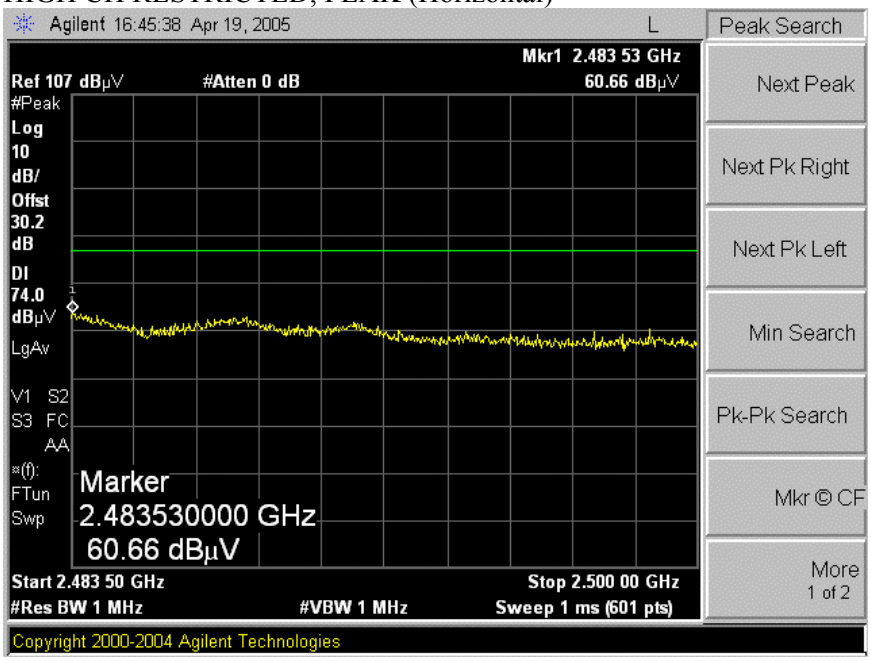


LOW CH RESTRICTED, AVG (Vertical)

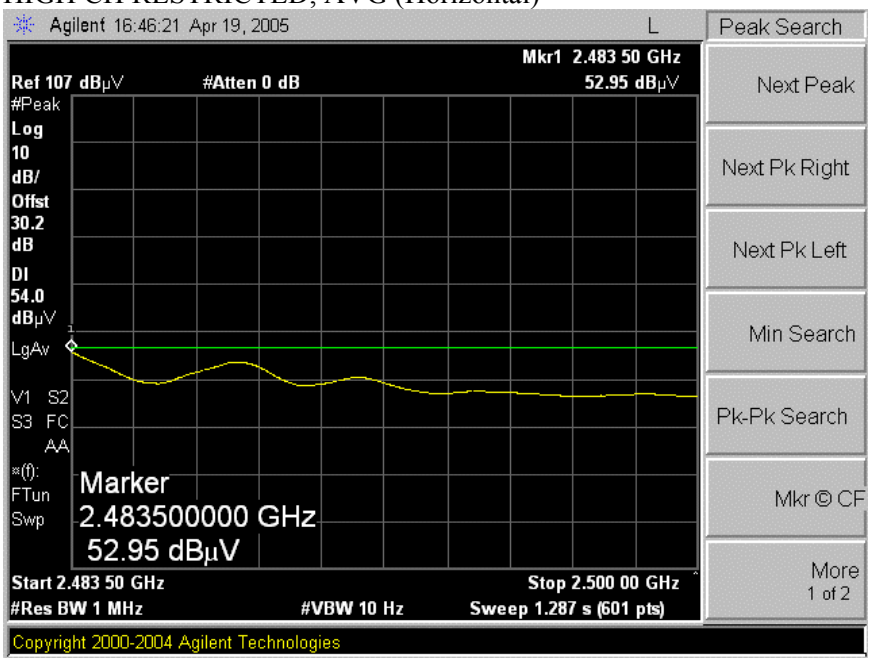


WORST-CASE RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (Horizontal)

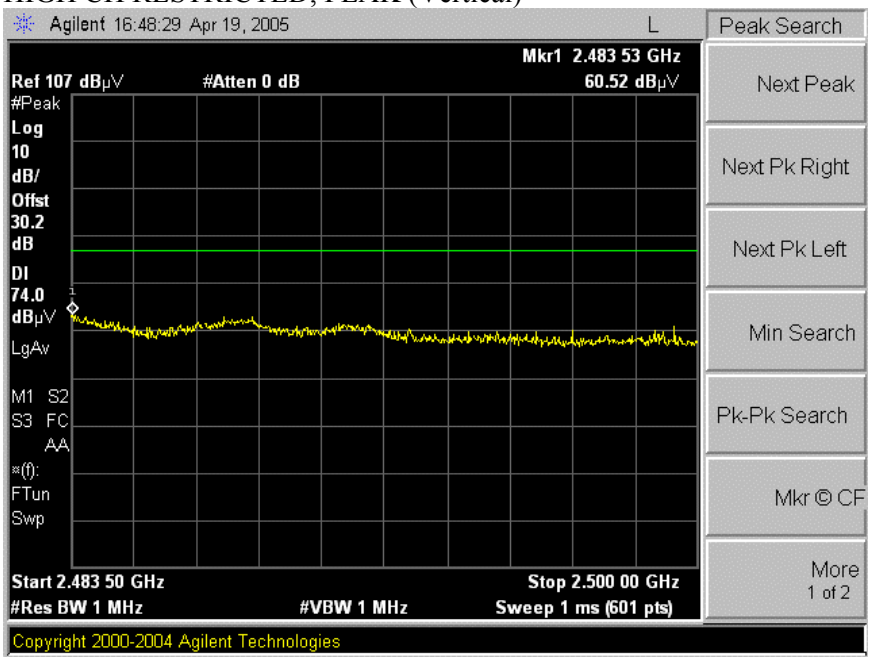


HIGH CH RESTRICTED, AVG (Horizontal)

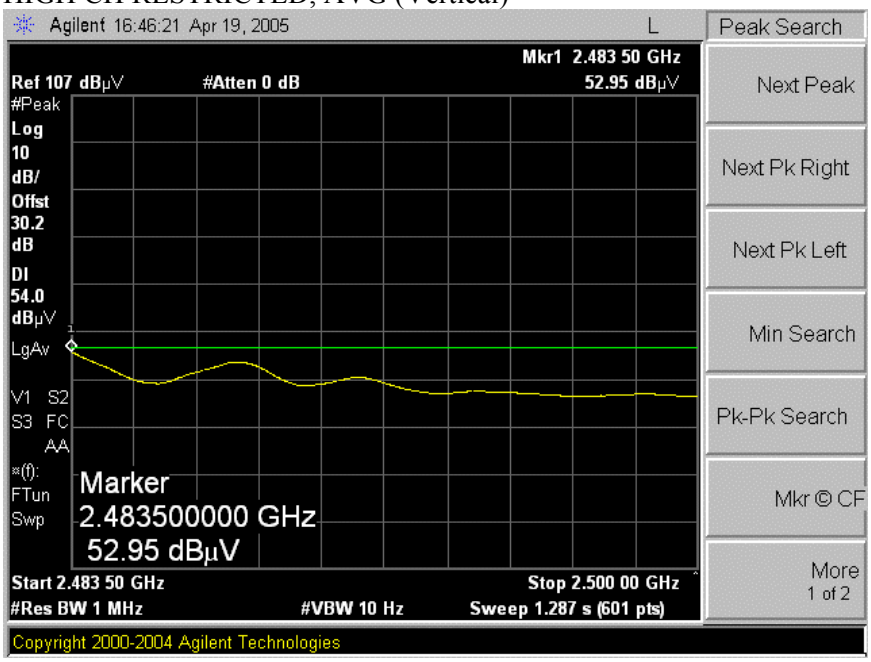


WORST-CASE RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (Vertical)



HIGH CH RESTRICTED, AVG (Vertical)



WORST-CASE HARMONICS AND SPURIOUS EMISSIONS

04/13/05 High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
Project #: 05T3291-4
Company: High Tech Computer
EUT Descrip.: PDA Phone
EUT M/N: PA10A
Test Target: FCC 15.247
Mode Oper: Co-Location, TX Dominant is WLAN and non-dominnt is CDMA 800MHz
Average Power Meter: Low = 14 dBm, Mid = 14.2 dBm, High = 14.16 dBm

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T86 Miteq 924341			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	4 foot cable	12 foot cable	HPF	Reject Filter
		4_Vien	12_Neelesh	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)
mid ch															
4.874	3.0	52.0	45.0	33.0	3.9	-44.1	0.0	0.6	45.4	38.4	74	54	-28.6	-15.6	V
7.311	3.0	52.2	39.4	35.9	4.7	-44.7	0.0	0.6	48.8	36.0	74	54	-25.2	-18.0	V
4.874	3.0	53.3	47.5	33.0	3.9	-44.1	0.0	0.6	46.7	40.9	74	54	-27.3	-13.1	H
7.311	3.0	52.5	39.5	35.9	4.7	-44.7	0.0	0.6	49.1	36.1	74	54	-24.9	-17.9	H

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

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

RESULTS

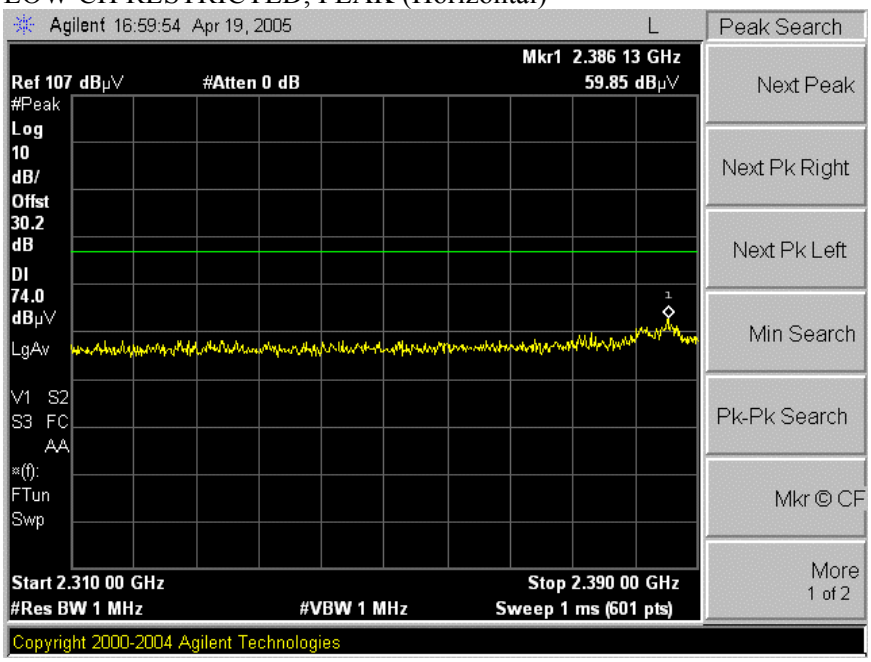
Worst-case configurations are determined as:

Lower bandedge: WLAN at low channel and CDMA 1900MHz at low channel;
Upper bandedge: WLAN at high channel and CDMA 1900MHz at high channel;
Harmonics and spurious emissions: WLAN at mid channel and CDMA 1900MHz at mid channel
No non-compliance noted:

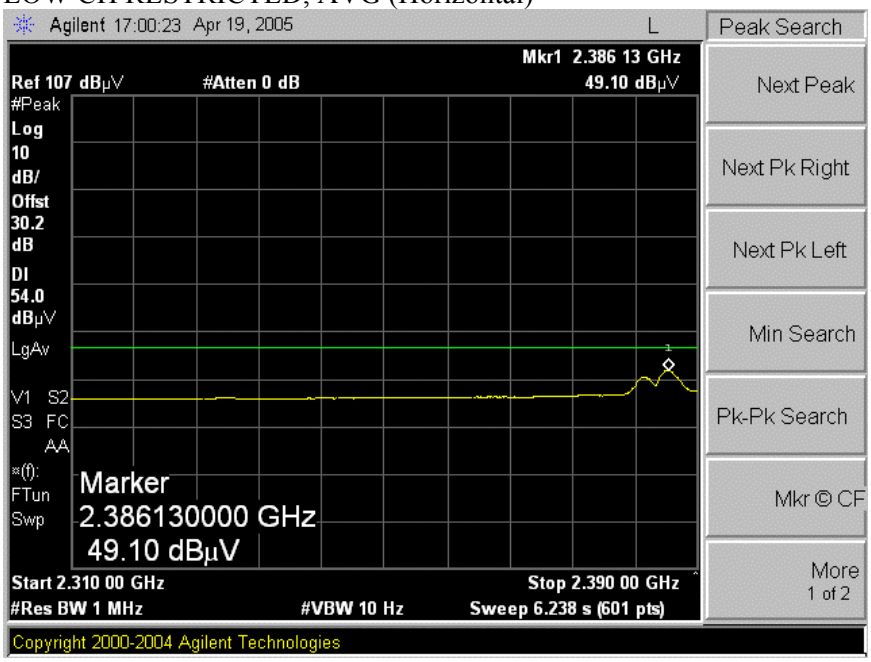
The dominant transmitter is the WLAN, and the non-dominant transmitter is CDMA 1900MHz.

WORST-CASE RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CH RESTRICTED, PEAK (Horizontal)

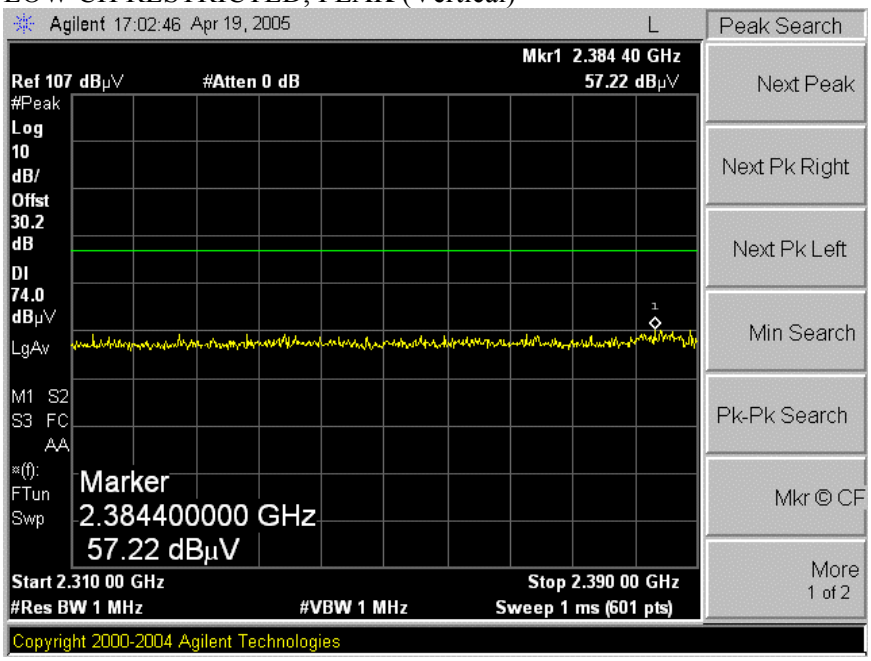


LOW CH RESTRICTED, AVG (Horizontal)

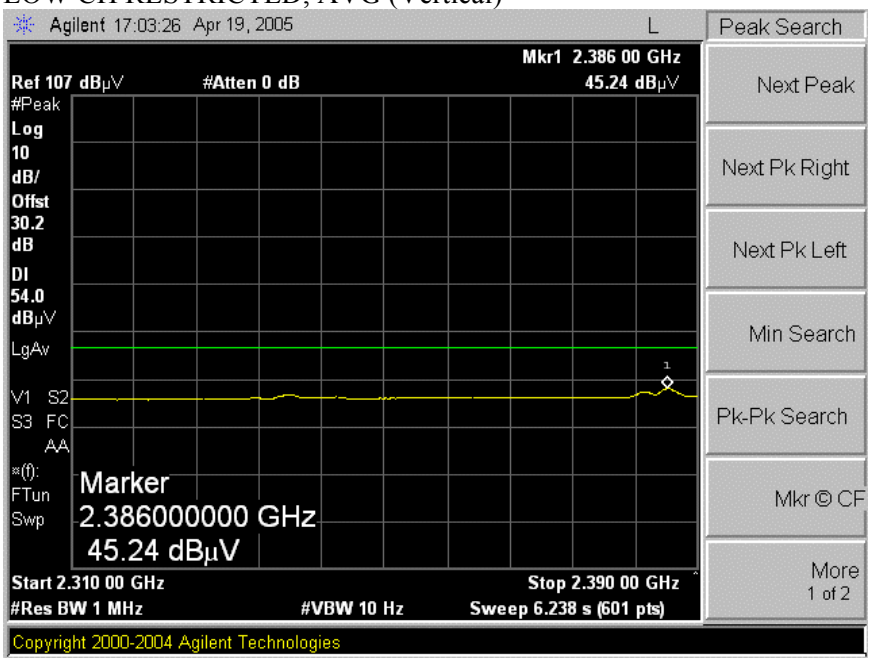


WORST-CASE RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (Vertical)

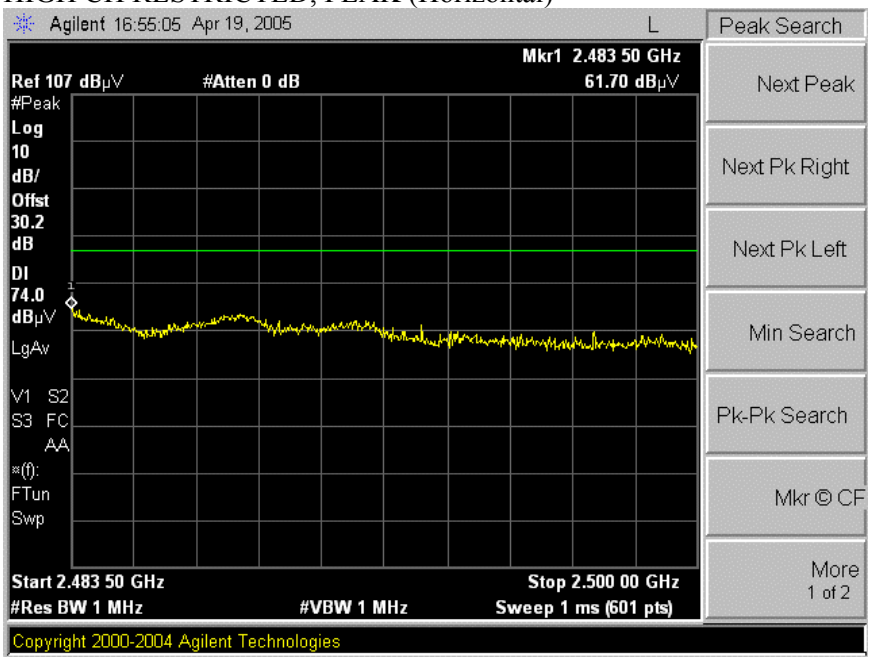


LOW CH RESTRICTED, AVG (Vertical)

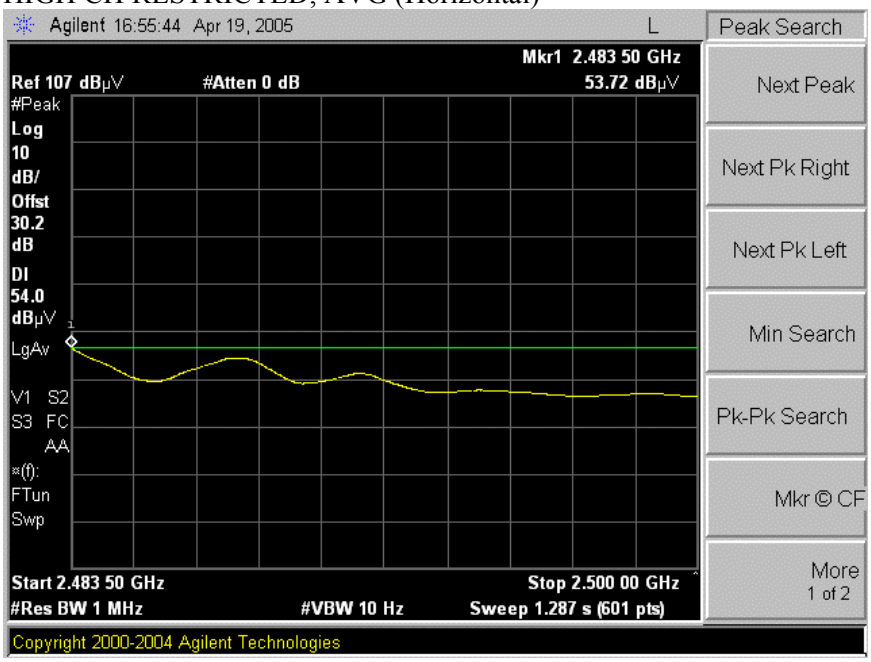


WORST-CASE RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (Horizontal)

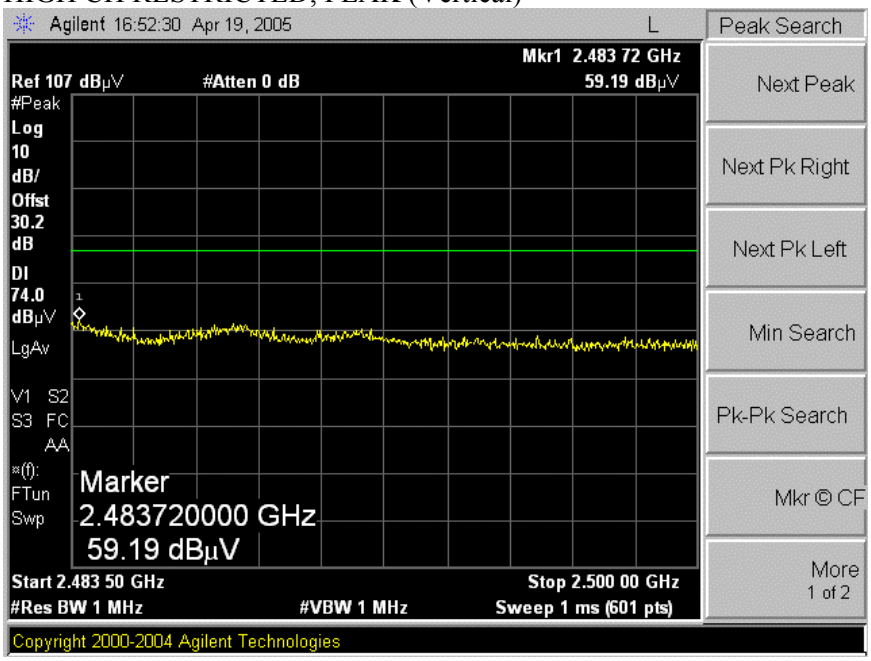


HIGH CH RESTRICTED, AVG (Horizontal)

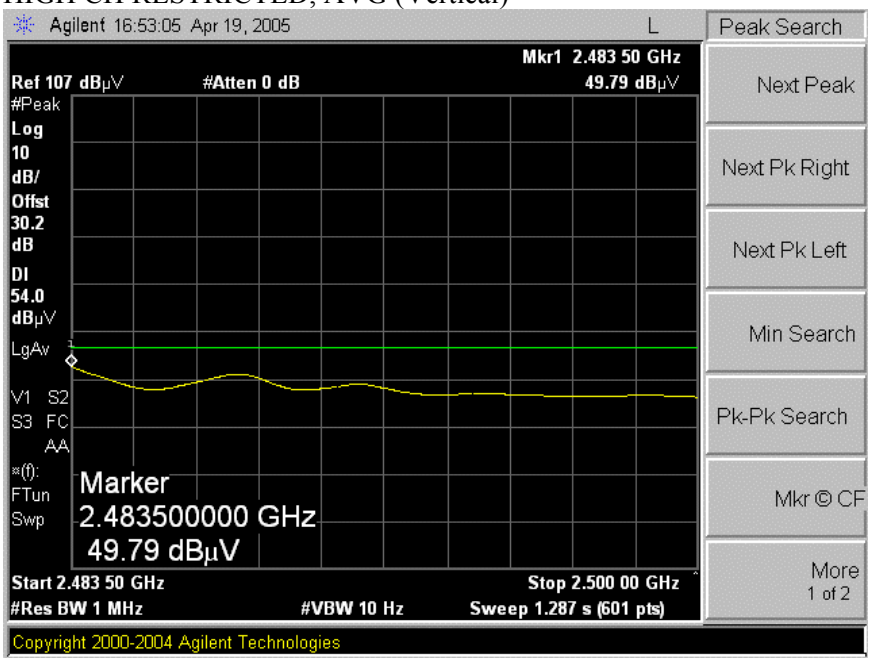


WORST-CASE RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (Vertical)



HIGH CH RESTRICTED, AVG (Vertical)



WORST-CASE HARMONICS AND SPURIOUS EMISSIONS

04/19/05 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
Project #: 05T3291-4
Company: High Tech Computer
EUT Descrip.: PDA Phone
EUT M/N: PA10A
Test Target: FCC 15.247
Mode Oper: Co-Location, TX Dominant is WLAN and non-dominnt is CDMA 1900MHz
Average Power Meter: Low = 14 dBm, Mid = 14.2 dBm, High = 14.16 dBm

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T86 Miteq 924341			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	4 foot cable	12 foot cable	HPF	Reject Filter
		4_Vien	12_Neelesh	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)
mid ch															
4.874	3.0	52.1	45.0	33.0	3.9	-44.1	0.0	0.6	45.5	38.4	74	54	-28.5	-15.6	V
7.311	3.0	51.0	38.6	35.9	4.7	-44.7	0.0	0.6	47.6	35.2	74	54	-26.4	-18.8	V
4.874	3.0	54.0	47.2	33.0	3.9	-44.1	0.0	0.6	47.4	40.6	74	54	-26.6	-13.4	H
7.311	3.0	51.4	39.0	35.9	4.7	-44.7	0.0	0.6	48.0	35.6	74	54	-26.0	-18.4	H

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

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

7.3. RADIATED EMISSIONS BELOW 1 GHz

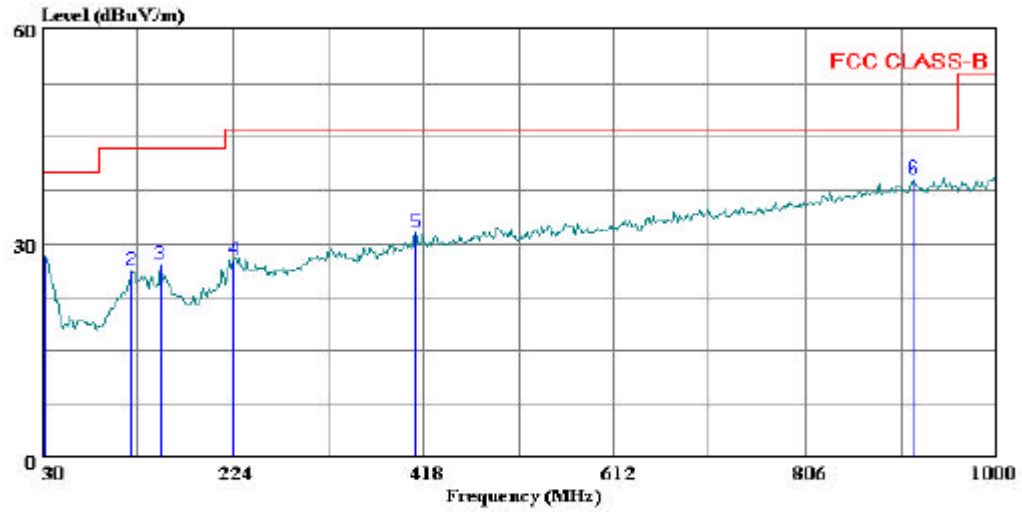
7.3.1. WORST-CASE RADIATED EMISSIONS (TX MODE)

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

HORIZONTAL PLOT

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

Data#: 38 File#: Htc 3291.emi Date: 04-06-2005 Time: 20:42:01



(Audix ATC)
Trace: 37 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: : Chin Pang
Project #: : 05T3291-3
Company: : High Tech Computer
EUT: : PDA Phone
Model No : PA10A
Configuration: : EUT/Support Equipment
Target of Test: : FCC Class B
Mode of Operation: TX,WLAN Mid Ch

HORIZONTAL DATA

Page: 1

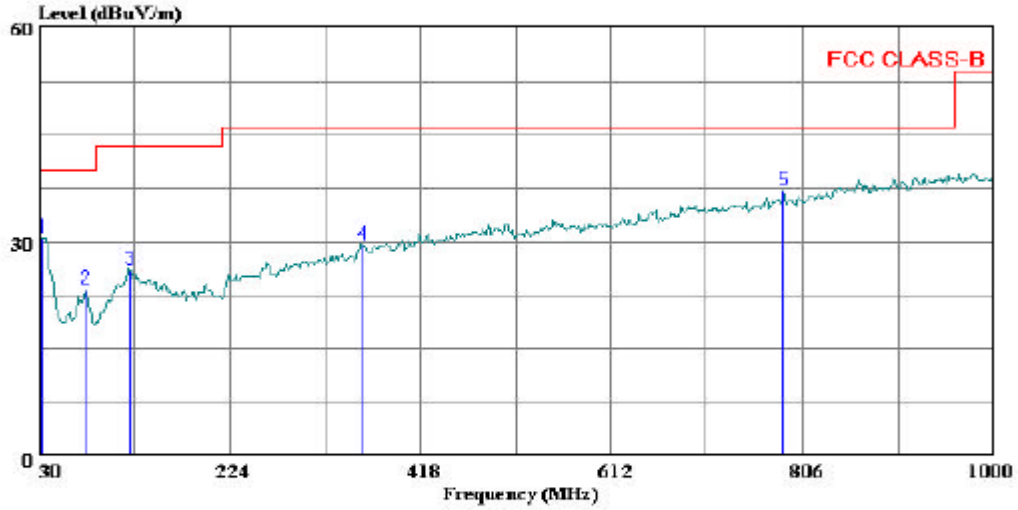
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	32.910	8.26	19.94	28.20	40.00	-11.80	Peak
2	121.180	10.94	15.16	26.10	43.50	-17.40	Peak
3	150.280	13.00	14.10	27.10	43.50	-16.40	Peak
4	224.970	14.69	12.86	27.55	46.00	-18.45	Peak
5	410.240	13.29	18.31	31.60	46.00	-14.40	Peak
6	914.640	13.06	26.03	39.09	46.00	-6.91	Peak

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

VERTICAL PLOT

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

Data#: 36 File#: Htc 3291.emi Date: 04-06-2005 Time: 20:39:33



(Audix ATC)
Trace: 35 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : Chin Pang
Project #: : 05T3291-3
Company: : High Tech Computer
EUT: : PDA Phone
Model No : PA10A
Configuration: : EUT/AC Adapter
Target of Test: : FCC Class B
Mode of Operation: TX, WLAN Mid ch

VERTICAL DATA

Page: 1

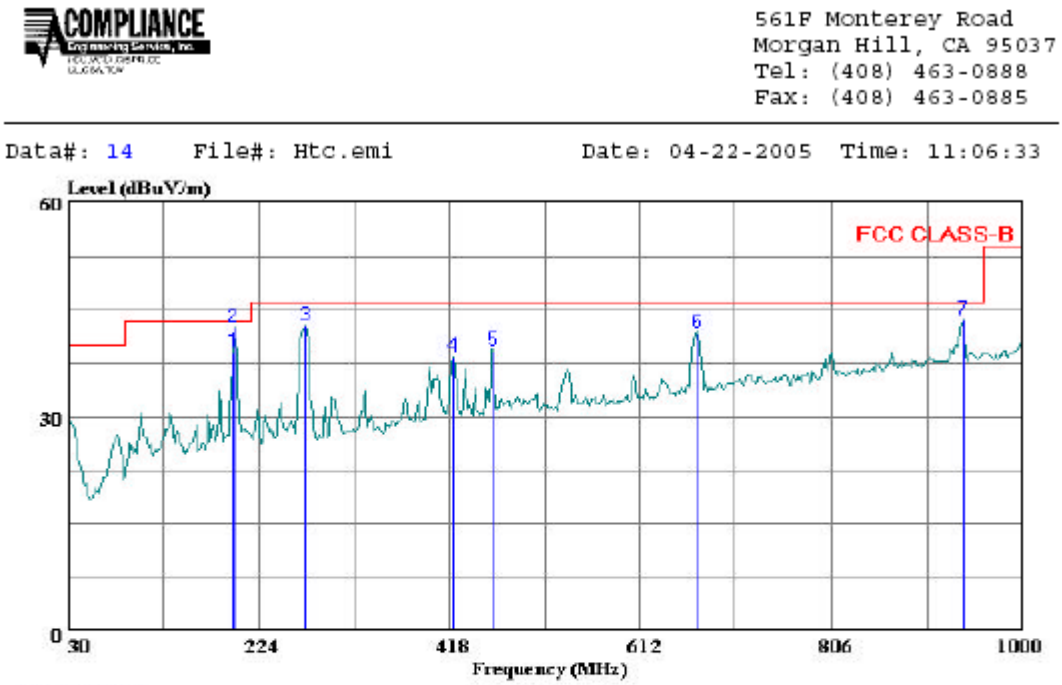
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	33.880	11.54	19.05	30.59	40.00	-9.41	Peak
2	77.530	14.27	9.03	23.30	40.00	-16.70	Peak
3	122.150	10.75	15.18	25.93	43.50	-17.57	Peak
4	358.830	12.43	17.12	29.55	46.00	-16.45	Peak
5	785.630	12.85	24.35	37.20	46.00	-8.80	Peak

7.3.2. WORST-CASE RADIATED EMISSIONS (DIGITAL MODE)

Case 1: LCD Original Source from Samsung P/N: LPT280QV-E01

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

HORIZONTAL PLOT



HORIZONTAL DATA

Page: 1

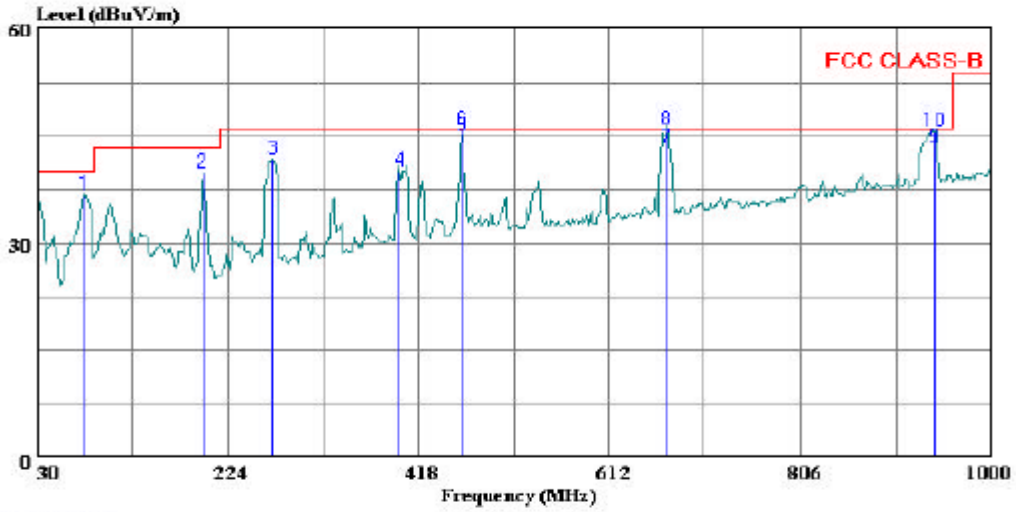
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	198.170	24.87	14.24	39.11	43.50	-4.39	QP
2	198.780	28.17	14.37	42.54	43.50	-0.96	Peak
3	271.530	28.14	14.65	42.79	46.00	-3.21	Peak
4	421.880	19.80	18.58	38.38	46.00	-7.62	Peak
5	463.590	19.84	19.50	39.34	46.00	-6.66	Peak
6	670.200	19.14	22.66	41.80	46.00	-4.20	Peak
7	938.890	17.14	26.43	43.57	46.00	-2.43	Peak

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

VERTICAL PLOT

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

Data#: 10 File#: Htc.emi Date: 04-22-2005 Time: 10:48:00



(Audix ATC)

Trace: 7 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : Chin Pang
Project #: : 05T3291-1
Company: : High Tech Computer
EUT: : PDA Phone with Cradle
Model No : PA10A
Configuration: : EUT/Laptop/Printer/Modem/Mouse
Target of Test: : FCC Class B
Mode of Operation: Link to Laptop

VERTICAL DATA

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	78.500	27.87	8.95	36.83	40.00	-3.17	Peak
2	198.780	25.41	14.37	39.78	43.50	-3.72	Peak
3	269.590	27.04	14.61	41.65	46.00	-4.35	Peak
4	398.600	22.16	18.01	40.17	46.00	-5.83	Peak
5	463.590	25.60	19.49	45.09	46.00	-0.91	QP
6	463.590	26.31	19.50	45.81	46.00	-0.19	Peak
7	671.170	20.71	22.66	43.37	46.00	-2.63	QP
8	671.170	23.29	22.67	45.95	46.00	-0.05	Peak
9	941.800	17.05	26.43	43.48	46.00	-2.52	QP
10	941.800	19.16	26.43	45.60	46.00	-0.40	Peak

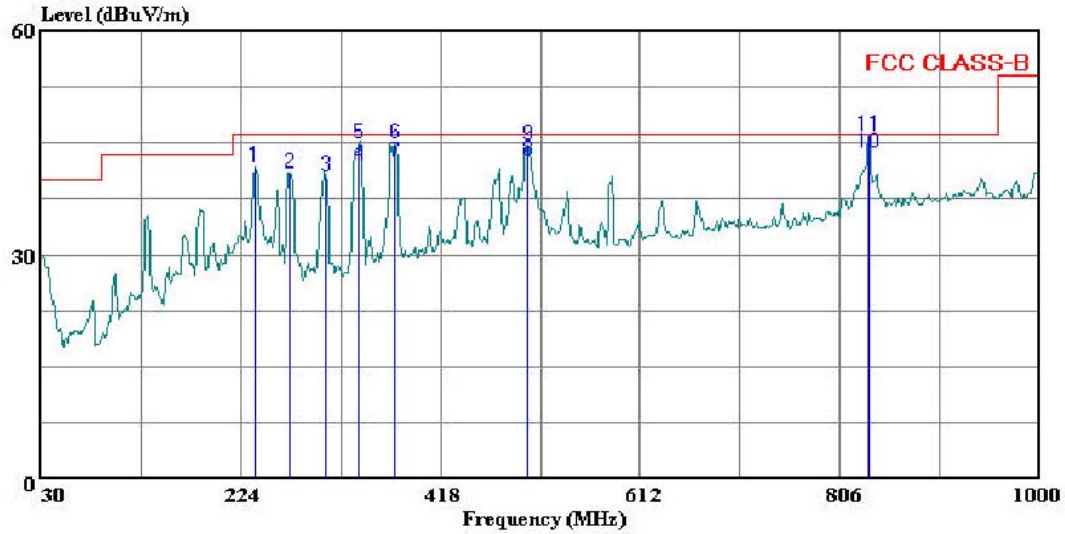
Case 2: LCD Second Source from Toppoly P/N: TD28STEB1

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

HORIZONTAL PLOT

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

Data#: 7 File#: htc 3291a.EMI Date: 06-25-2005 Time: 12:59:07



(Audix ATC)

Trace: 4 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: : Chin Pang
Project #: : 05T3291-1
Company: : High Tech Computer
EUT: : PDA Phone
Model No. : PA10A
Configuration : EUT/Printer/Mouse/Microphone
Target of Test : FCC Class B
Mode of Operation: Linking to Laptop

HORIZONTAL DATA

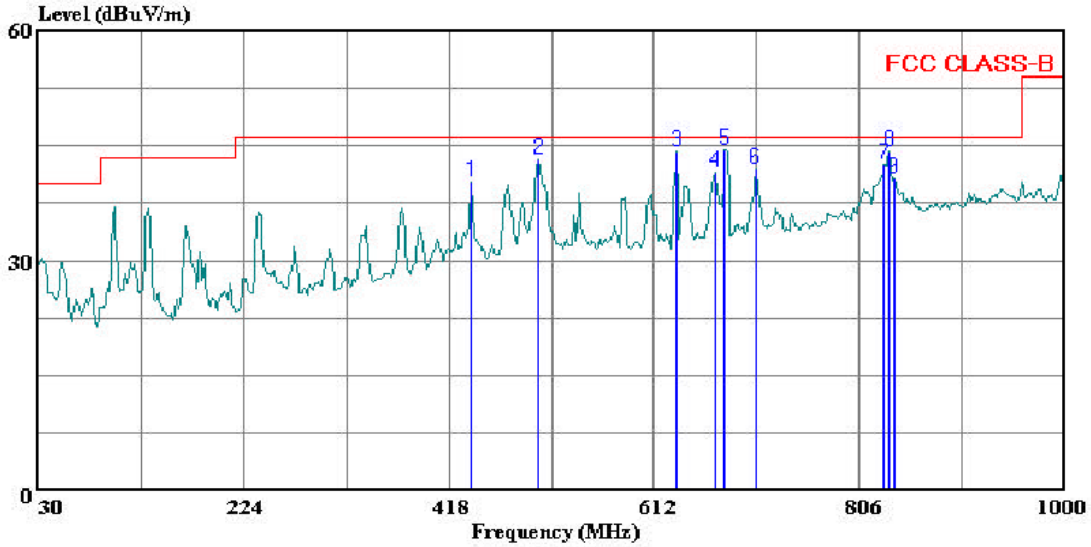
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	237.580	28.42	13.39	41.81	46.00	-4.19	Peak
2	271.530	26.24	14.65	40.89	46.00	-5.11	Peak
3	306.450	24.62	15.82	40.44	46.00	-5.56	Peak
4	338.460	25.34	16.59	41.93	46.00	-4.07	QP
5	338.460	28.23	16.59	44.81	46.00	-1.19	Peak
6	373.380	27.29	17.46	44.75	46.00	-1.25	Peak
7	373.380	24.90	17.46	42.36	46.00	-3.64	QP
8	502.390	22.43	20.24	42.67	46.00	-3.33	QP
9	502.390	24.36	20.24	44.60	46.00	-1.40	Peak
10	834.130	18.60	24.99	43.59	46.00	-2.41	QP
11	834.130	20.98	24.99	45.97	46.00	-0.03	Peak

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

VERTICAL PLOT

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

Data#: 2 File#: htc 3291a.EMI Date: 06-25-2005 Time: 12:43:03



(Audix ATC)

Trace: 1 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : Chin Pang
Project #: : 05T3291-1
Company: : High Tech Computer
EUT: : PDA Phone
Model No. : PA10A
Configuration : EUT/Printer/Mouse/Microphone
Target of Test : FCC Class B
Mode of Operation: Linking to Laptop

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	439.340	21.27	18.96	40.23	46.00	-5.77	Peak
2	502.390	22.87	20.24	43.11	46.00	-2.89	Peak
3	633.340	22.20	22.05	44.25	46.00	-1.75	Peak
4	669.230	18.86	22.65	41.51	46.00	-4.49	Peak
5	678.930	21.67	22.82	44.49	46.00	-1.51	Peak
6	708.030	18.64	23.23	41.87	46.00	-4.13	Peak
7	829.280	17.61	24.92	42.53	46.00	-3.47	Peak
8	834.130	19.21	24.99	44.20	46.00	-1.80	Peak
9	838.980	15.52	25.10	40.62	46.00	-5.38	Peak

7.4 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:

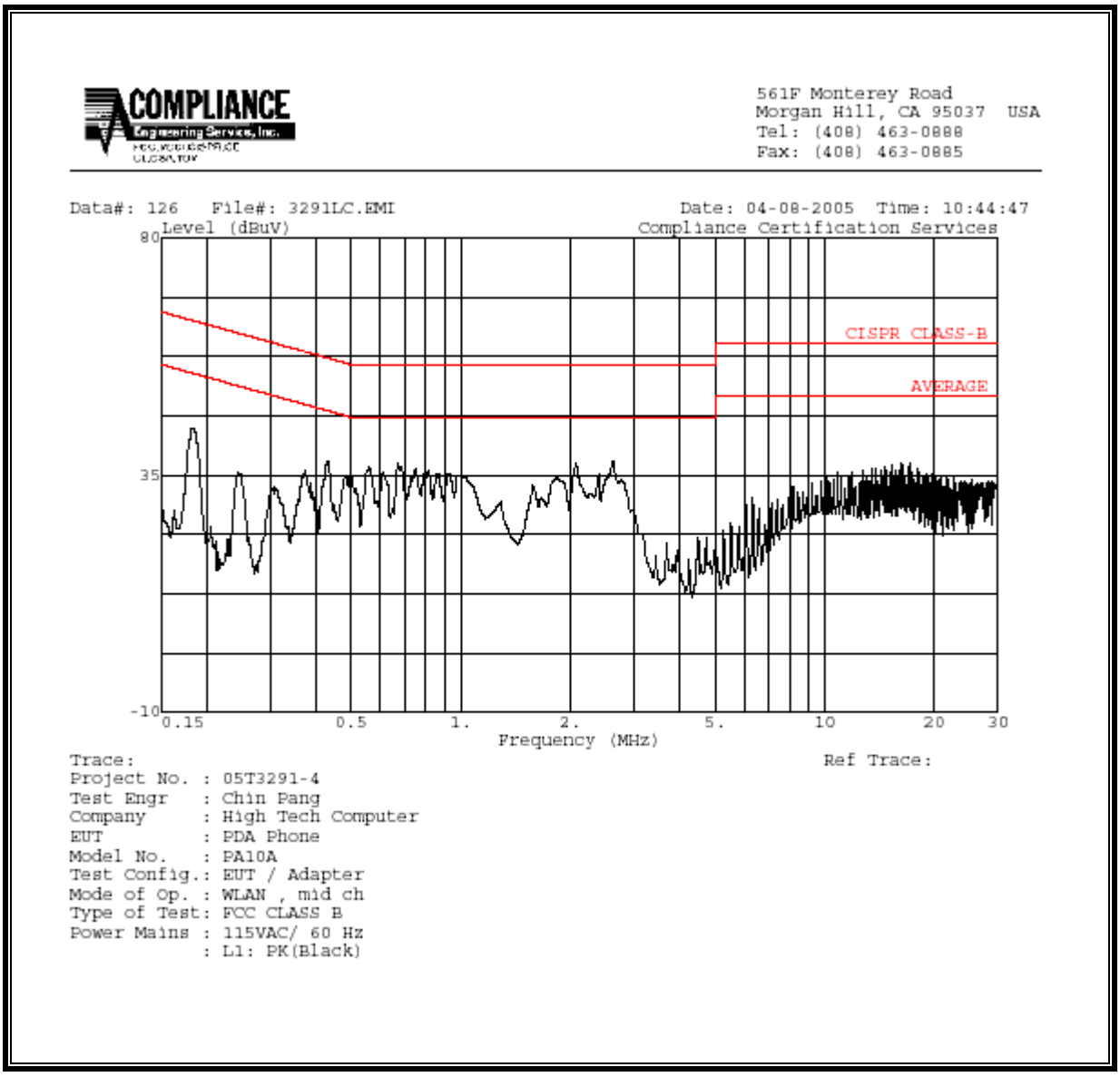
7.3.3. WORST-CASE LINE CONDUCTED EMISSIONS (TX MODE)

EUT AND AC ADAPTER:

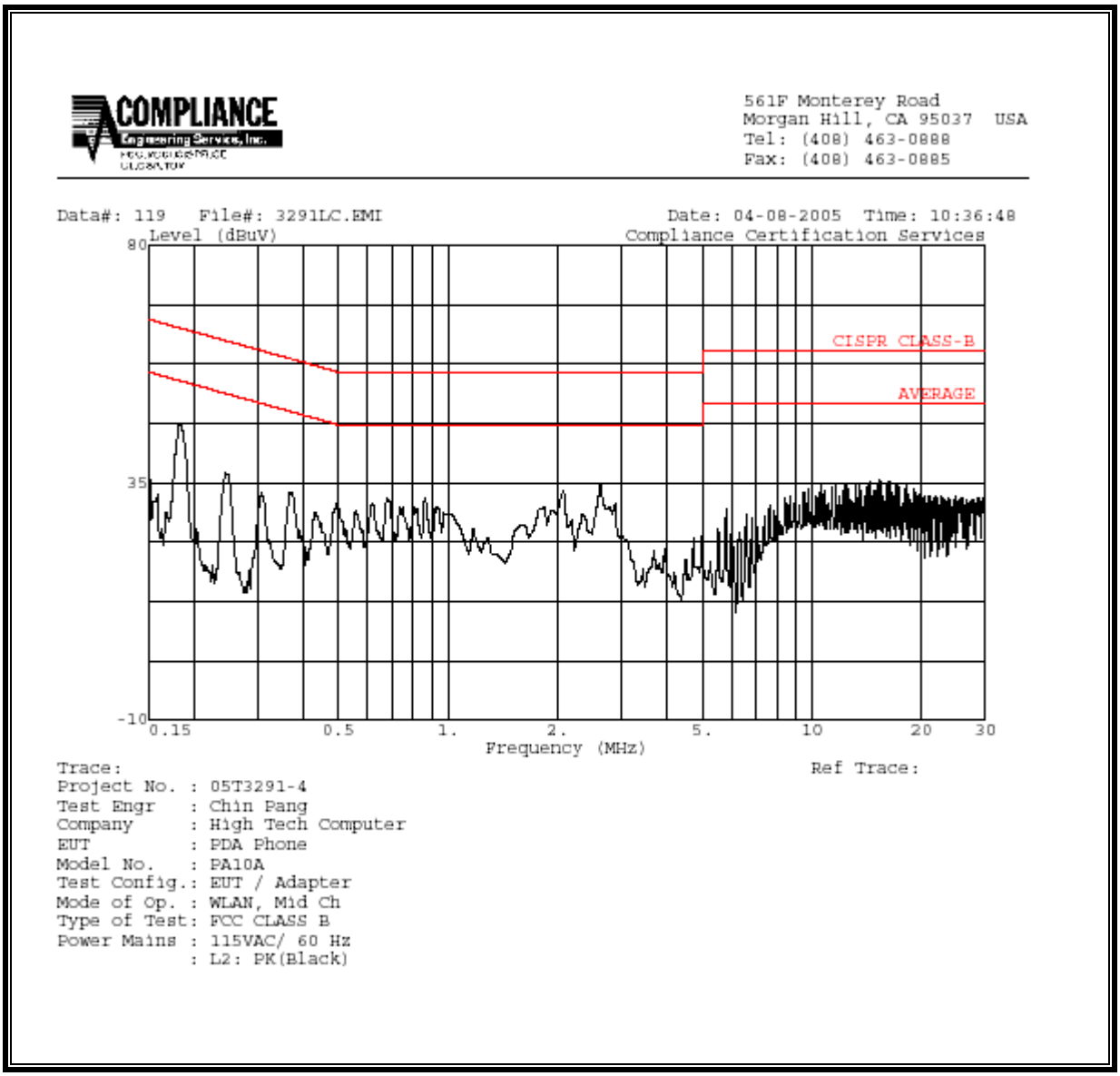
6 WORST EMISSIONS:

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
0.18	43.83	--	--	0.00	64.39	54.39	-20.56	-10.56	L1
2.62	37.72	--	--	0.00	56.00	46.00	-18.28	-8.28	L1
16.14	37.42	--	--	0.00	60.00	50.00	-22.58	-12.58	L1
0.18	45.82	--	--	0.00	64.30	54.30	-18.48	-8.48	L2
2.62	34.66	--	--	0.00	56.00	46.00	-21.34	-11.34	L2
14.52	35.16	--	--	0.00	60.00	50.00	-24.84	-14.84	L2
6 Worst Data									

LINE 1 RESULTS



LINE 2 RESULTS



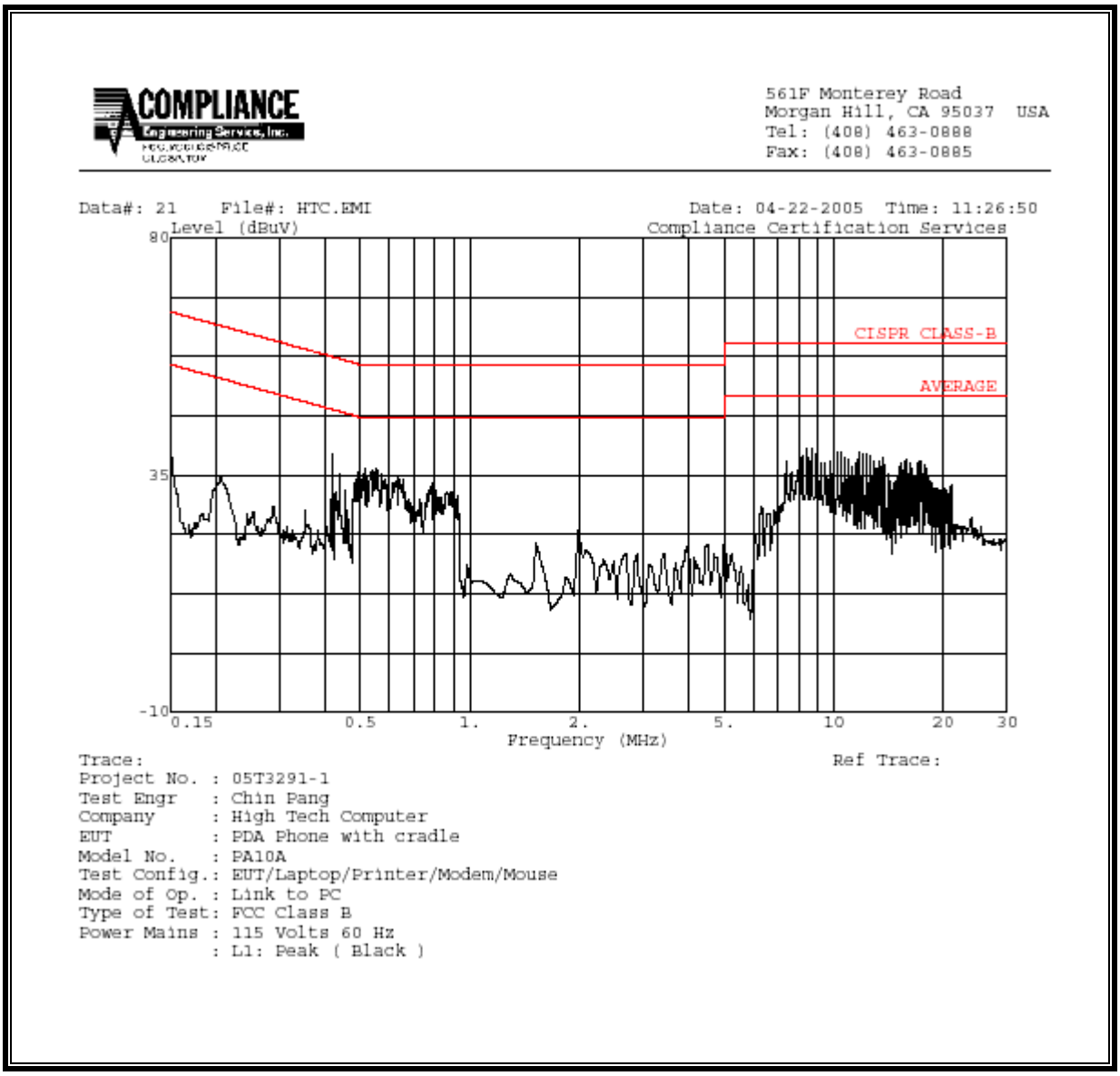
7.3.4. WORST-CASE LINE CONDUCTED EMISSIONS (DIGITAL MODE)

EUT WITH CRADLE VIA LAPTOP

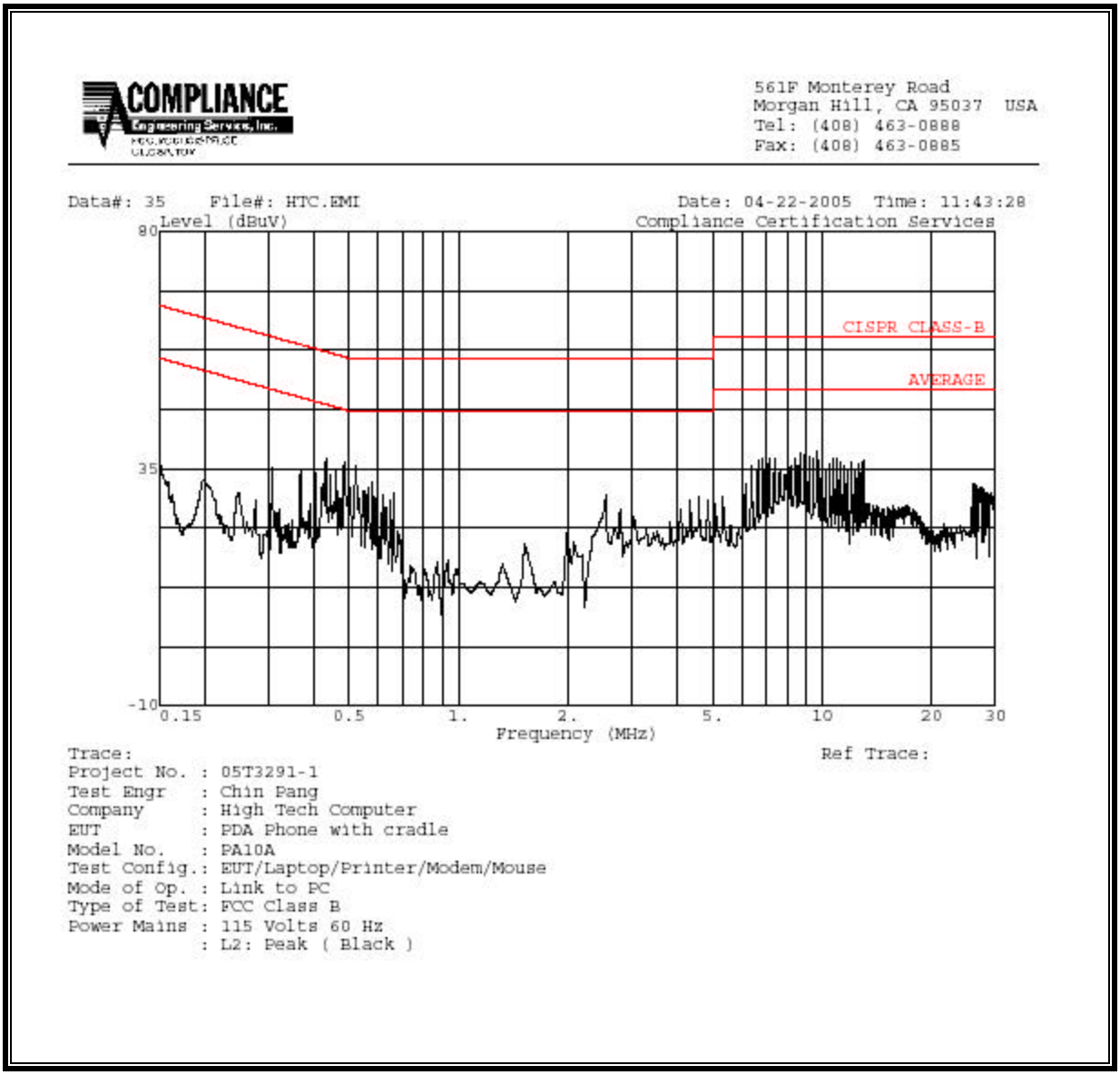
6 WORST EMISSIONS:

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
0.42	39.16	--	--	0.00	57.47	47.47	-18.31	-8.31	L1
8.46	40.10	--	--	0.00	60.00	50.00	-19.90	-9.90	L1
11.81	39.40	--	--	0.00	60.00	50.00	-20.60	-10.60	L1
0.43	36.96	--	--	0.00	57.19	47.19	-20.23	-10.23	L2
6.66	36.74	--	--	0.00	60.00	50.00	-23.26	-13.26	L2
9.71	38.34	--	--	0.00	60.00	50.00	-21.66	-11.66	L2
6 Worst Data									

LINE 1 RESULTS



LINE 2 RESULTS



(Note: The setup photos on pages 86 through 100 have been extracted under a separate file purposely.)