

### 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 COMPLIANCE ENGINEERING SERVICES, INC. d.b.a. COMPLIANCE CERTIFICATION SERVICES 561F MONTEREY ROAD, MORGAN HILL, CA 95037, USA TEL: (408) 463-0885 FAX: (408) 463-0888

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 Pany

CHIN PANG EMC TECHNICIAN COMPLIANCE CERTIFICATION SERVICES

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# 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 <u>http://www.ccsemc.com</u>.

# 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%.

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# 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	Mode	Output Power	Output Power
(MHz)		(dBm)	(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.

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### 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

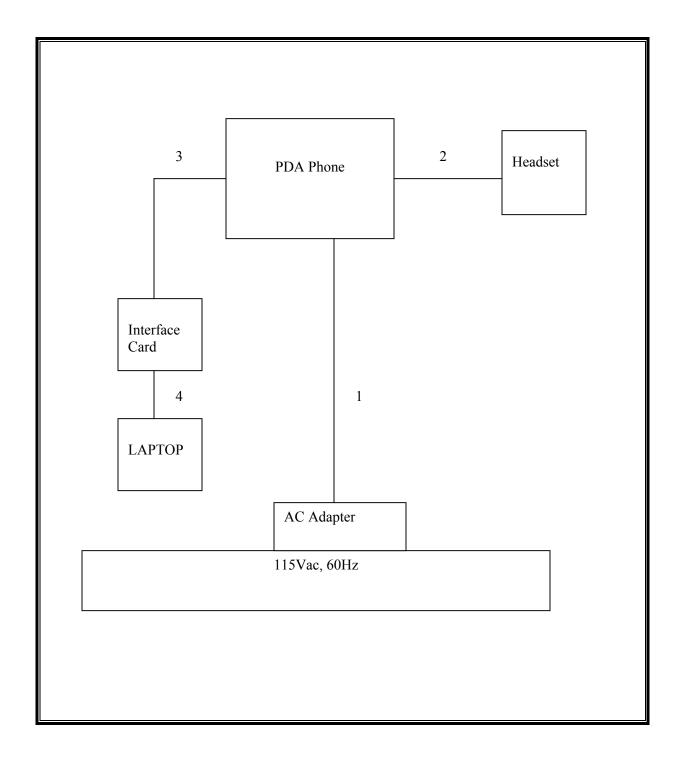
PERIPHERAL SUPPORT EQUIPMENT LIST								
Description Manufacturer Model Serial Number FCC ID								
DC Power Supply	Delta Electronic	ADP-5FH B	3UW0450071925	NA				
Headset	Merry	EMC147-012-01	NA	NA				
Interface card	HTC	3254009-01R3-6	NA	NA				
Laptop	HP	Ze4101	CN24600011	DoC				

### I/O CABLES

	I/O CABLE LIST								
Cable No.	Port	# of Identical	Connector	Cable	Cable Length	Remarks			
110.		Ports	Туре	Туре	Length				
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			

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### 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	2930852614	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

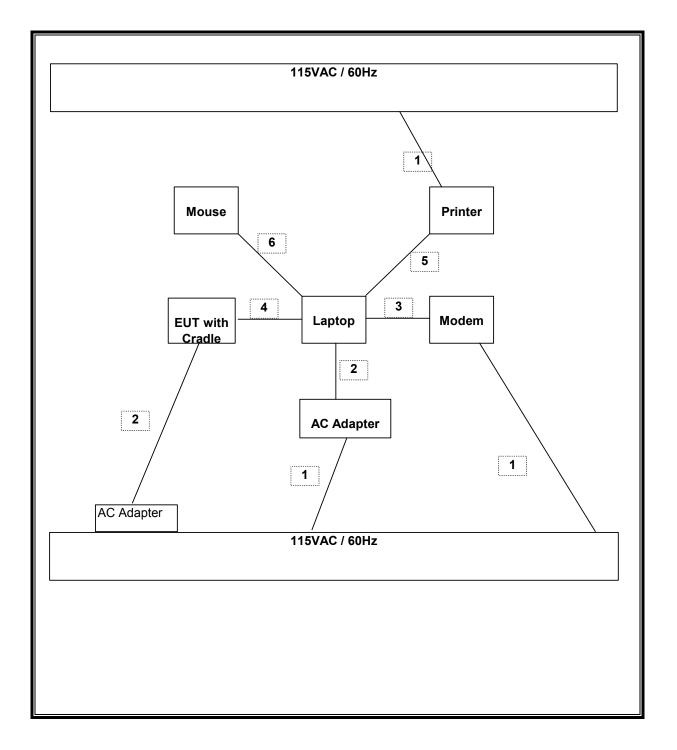
	I/O CABLE LIST								
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks			
1	AC	3	US 115V	Un-shielded	2m	Bundled Power Cable for LC test			
2	DC	2	DC	Un-shielded	1m	N/A			
3	Serial	1	DB9	Shielded	1m	N/A			
4	USB	1	USB	Shielded	2m	N/A			
5	Parallel	1	DB25	Shielded	2m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

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### SETUP DIAGRAM FOR DIGITAL DEVICE TESTS (WORST CASE)



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# 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	H₽	E4446A	US42510266	8/25/2005			
EMI Receiver, 9 kHz~2.9 GHz	H₽	8542E	3942A00286	3/29/06			
RF Filter Section	H₽	85420E	3705A00256	3/29/06			
30MHz2Ghz	Sunol Sciences	JB1 Antenna	A121003	9/12/05			
Antenna, Hom 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			

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# 7. LIMITS AND RESULTS

### 7.1. CHANNEL TESTS FOR THE 2400 TO 2483.5 MHz BAND

### 7.1.1.6 dB BANDWIDTH

### <u>LIMIT</u>

§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

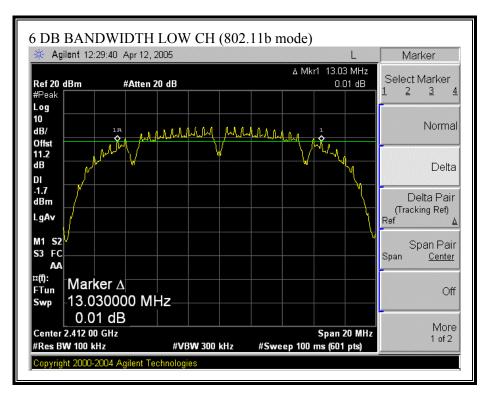
No non-compliance noted:

### 802.11b Mode

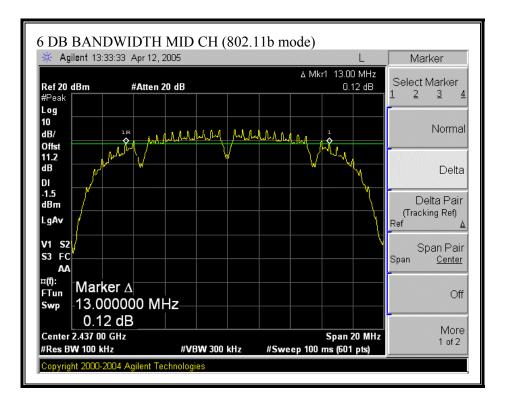
Channel	Frequency	6 dB Bandwidth	Minimum Limit	Margin
	(MHz)	(kHz)	(kHz)	(kHz)
Low	2412	13003	500	12503
Middle	2437	13000	500	12500
High	2462	13003	500	12503

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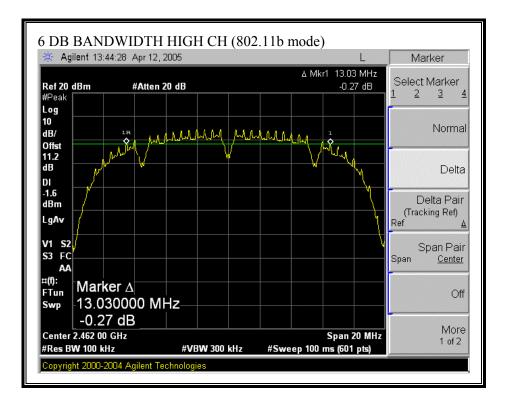
### 6 DB BANDWIDTH (802.11b MODE)



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### 7.1.2. 99% BANDWIDTH

#### <u>LIMIT</u>

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.

#### <u>RESULTS</u>

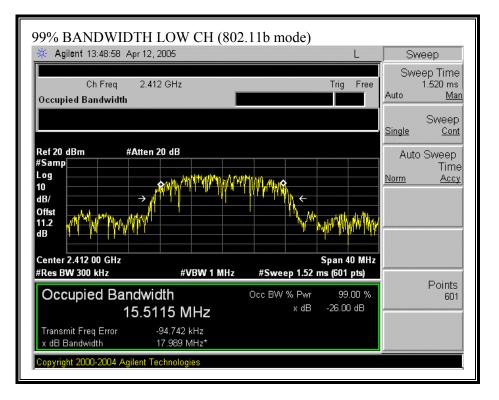
No non-compliance noted:

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

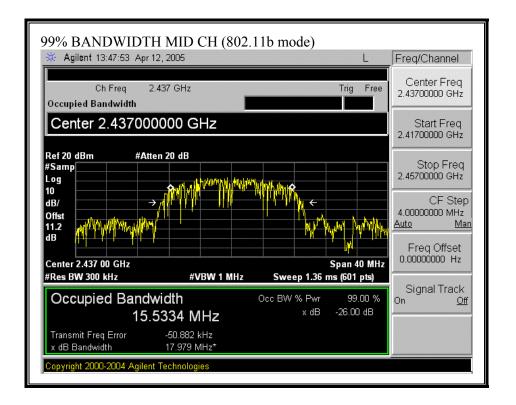
802.11b Mode

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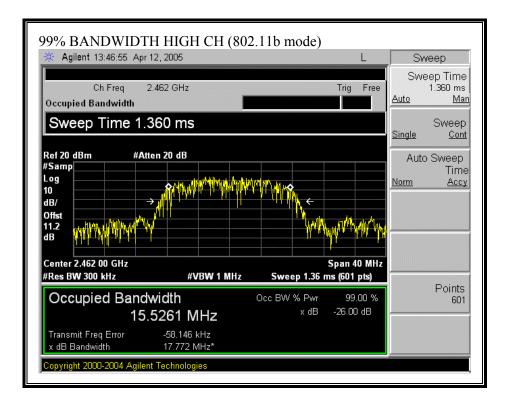
#### 99% BANDWIDTH (802.11 MODE)



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### 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.

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### **RESULTS**

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

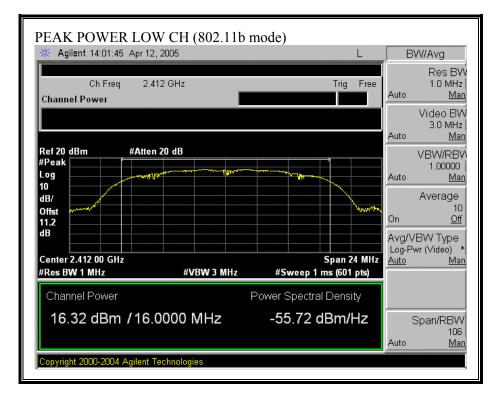
No non-compliance noted:

802.11b Mode

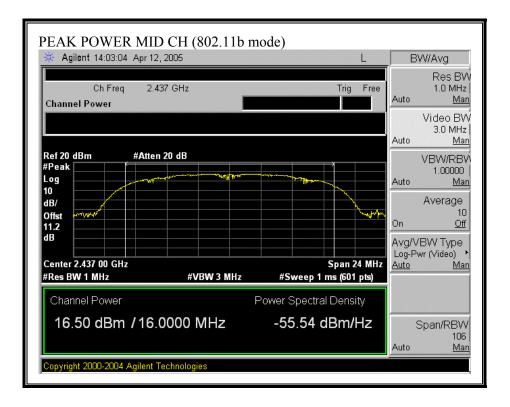
Channel	Frequency	Peak Power	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	2412	16.32	30	-13.68
Middle	2437	16.50	30	-13.50
High	2462	16.55	30	-13.45

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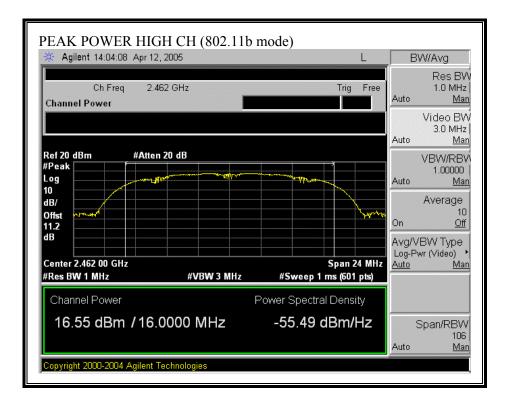
### OUTPUT POWER (802.11b MODE)



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

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### 7.1.5. PEAK POWER SPECTRAL DENSITY

#### <u>LIMIT</u>

§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

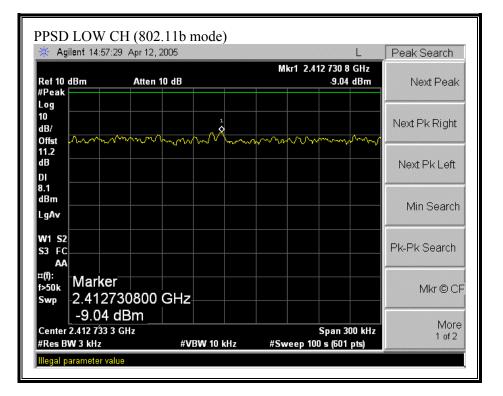
No non-compliance noted:

802.11	b Mode
--------	--------

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

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#### PEAK POWER SPECTRAL DENSITY (802.11b MODE)



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🔆 Agilent 14:5	1:40 Apr 12, 2005		L	Peak Search
Ref 10 dBm /Peak	Atten 10 dB	Mkı	r1 2.437 730 8 GHz -8.94 dBm	Next Peak
-og 10 1B/ Dffst	mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm	1 Marana Ara	mmmmmmm	Next Pk Right
11.2 1B DI				Next Pk Left
3.1 iBm _gAv				Min Search
M1 S2 53 FC AA				Pk-Pk Search
	730800 GHz			Mkr © C
_ −8.94 Center 2.437 733 /Res BW 3 kHz		/ 10 kHz #Swe	Span 300 kHz eep 100 s (601 pts)	More 1 of 2

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🔆 Agile	ent 14:54:48	Apr 12, 200	5				L	Peak Search
Ref 10 di #Peak	Bm	Atten 10	IB		м	kr1 2.46	2 730 3 GHz -8.93 dBm	Next Peak
Log 10 dB/ Offst /	www.ww	mm	man		4. ~~ ^~ \u0	<u></u>	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Next Pk Right
11.2 dB DI							4	Next Pk Left
8.1 dBm								Min Search
LgAv M1 S2 S3 FC								Pk-Pk Search
	Marker 2.46273	0300 G	Hz					Mkr © Cl
	-8.93 dE .462 733 3 GI / 3 kHz		#VBW 1	0 kHz	#Sw		Span 300 kHz s (601 pts)	More 1 of 2

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### 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 §15.205(a).

### 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.

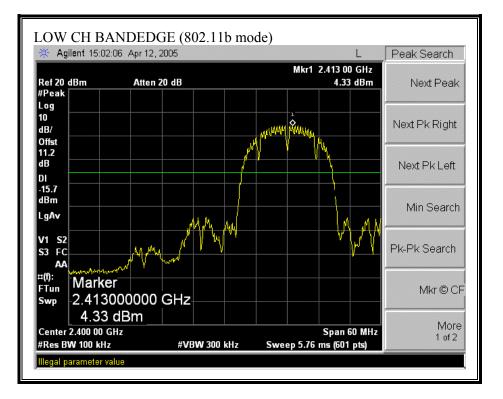
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

### **RESULTS**

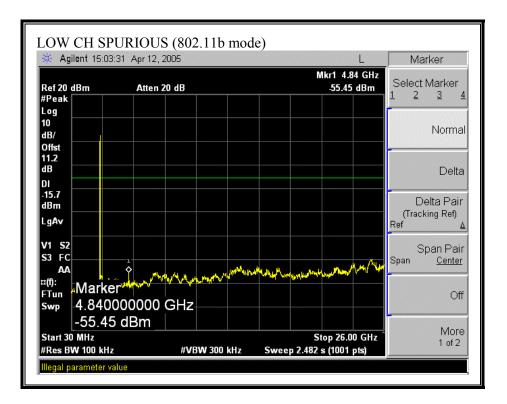
No non-compliance noted:

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#### SPURIOUS EMISSIONS, LOW CHANNEL (802.11b MODE)

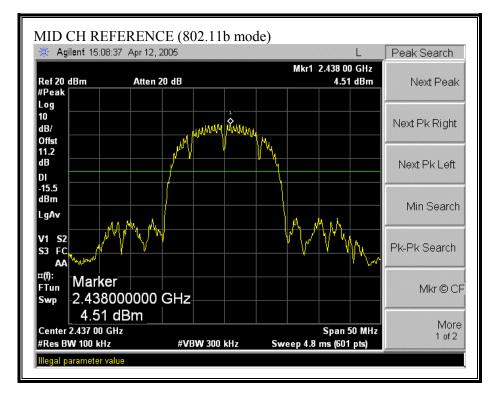


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#### SPURIOUS EMISSIONS, MID CHANNEL (802.11b MODE)

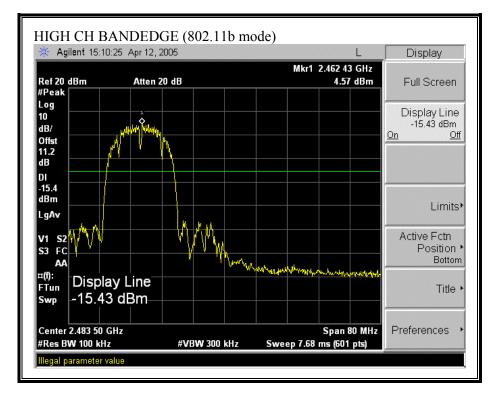


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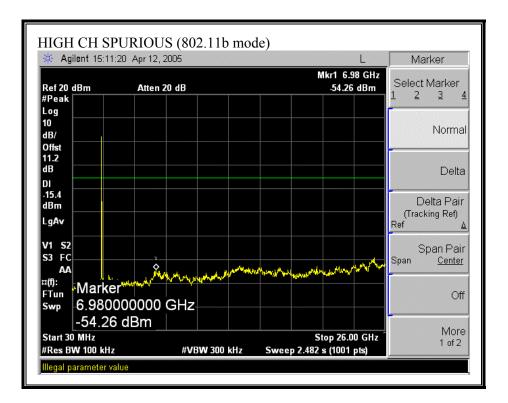
🔆 Agilent 15:05:	44 Apr 12, 2005	L _	Marker
Ref 20 dBm #Peak	Atten 20 dB	Mkr1 7.09 GHz -54.84 dBm 1	Select Marker <u>2 3</u> 4
Log			
10 dB/			Norma
Offst 11.2 dB			Delta
DI			Delta Pair
LgAv		R	(Tracking Ref) lef <u>∆</u>
V1 S2 S3 FC	reductor the and the a	1441-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	Span Pair <sub>Ipan <u>Center</u></sub>
AA ¤(f): Marka	and and any and any and any any any and and	water way has a server the server and the server an	
FTun Viviarke Swp 7.0900	000000 GHz		Off
-54.84	dBm		
Start 30 MHz #Res BW 100 kHz	#VBW 300 kHz	Stop 26.00 GHz Sweep 2.482 s (1001 pts)	More 1 of 2

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#### SPURIOUS EMISSIONS, HIGH CHANNEL (802.11b MODE)



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# 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
<sup>1</sup> 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	$\binom{2}{}$
13.36 - 13.41			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> 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.

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\$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.

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## 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.

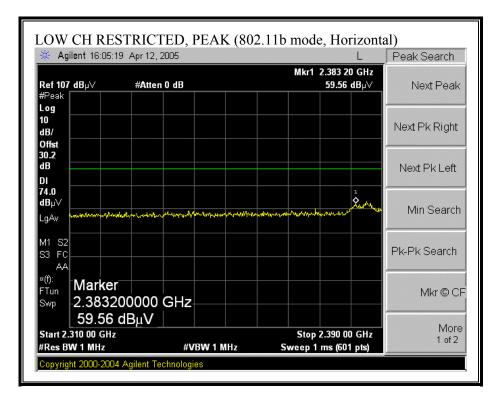
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

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.

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

## RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)

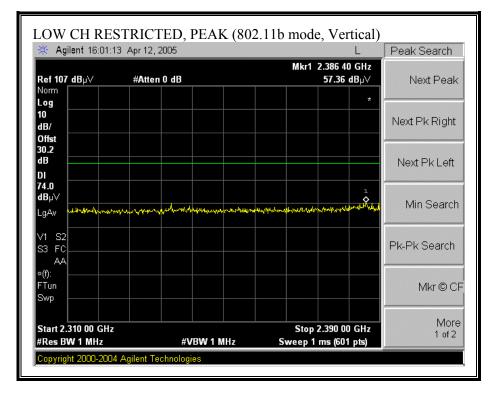


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🔆 Agilent 16:05:5	52 Apr 12, 2005		L	Peak Search
Ref 107 dBµ∨ #Peak	#Atten 0 dB	Mkr1 2.386 1: 50.72		Next Peak
Log 10 dB/ Offst				Next Pk Right
dB DI				Next Pk Left
54.0 dBµ∨ LgAv				Min Search
V1 S2				Pk-Pk Search
*(f): Tun <b>Marker</b> Swp 2.3861	30000 GHz			Mkr © Cl
50.72 Start 2.310 00 GHz #Res BW 1 MHz		Stop 2.390 00 1z Sweep 6.238 s (601	1.0	More 1 of 2

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## RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)

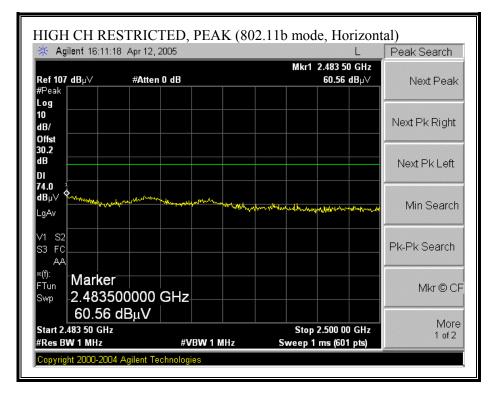


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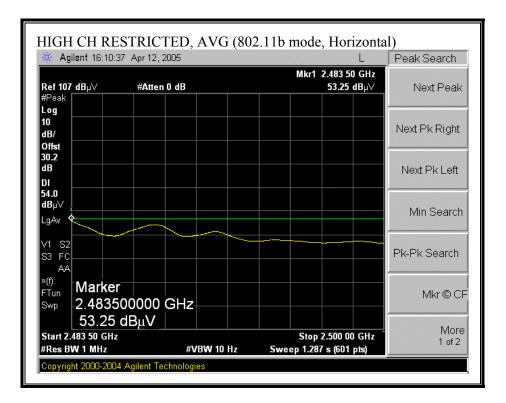
Agilent 16:02:0	09 Apr 12, 2005			L	Peak Search
l <b>ef 107 dB</b> µ∨ Peak	#Atten 0 dB		M	tr1 2.386 00 GHz 45.63 dBµ∀	Next Peak
og 0 B/					Next Pk Right
0.2 B					Next Pk Left
4.0 Βμ∨ gAv				1	Min Search
1 S2 3 FC AA				~~~	Pk-Pk Search
(): Tun WP 2.3860 45.63	00000 GHz				Mkr © C
tart 2.310 00 GHz Res BW 1 MHz		/BW 10 Hz		top 2.390 00 GHz .238 s (601 pts)	More 1 of 2

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## RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)

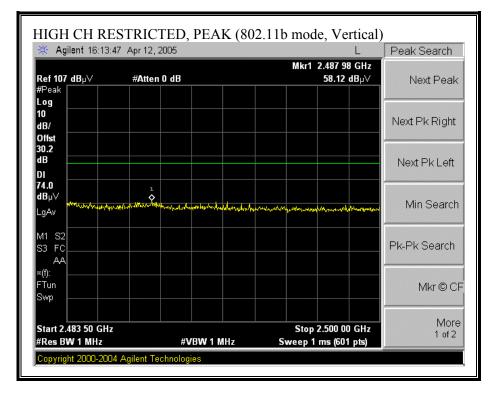


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## RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)



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🔆 Agilent 16:14:12 A	or 12, 2005	L	Peak Search
Ref 107 dBµ∨ = #Peak	#Atten 0 dB	Mkr1 2.483 50 GHz 47.07 dBµ∨	Next Peak
10 10 1B/ Offst			Next Pk Right
80.2 IB DI			Next Pk Left
54.0 1Bµ∨ _gAv			Min Search
/1 S2 53 FC AA			Pk-Pk Search
(): Tun Marker Swp 2.4835000			Mkr © C
47.07 dB Start 2.483 50 GHz #Res BW 1 MHz	μ <b>∨</b>    #VBW 10 Hz	Stop 2.500 00 GHz Sweep 1.287 s (601 pts)	More 1 of 2

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#### HARMONICS AND SPURIOUS EMISSIONS (b MODE)

omplia	nce Ce	rtification	Services, M	organ l	Hill O <sub>I</sub>	en Fiel	d Site								
est Eng	-	0													
roject #															
		Tech Com DA Phone													
UT M/I			,												
		C 15.247													
		, WLAN Meter: Lo	ow = 14dBm, 1	Mid = 14	4.2dBn	n, High =	14.18dBn	n							
est Equ	tipmen	<u>t:</u>													
		-18GHz		plifer 1-2			Pre-amplife	er 26-40	GHz		Horn	>18GHz		FCC	Limit
T60; S/	N: 2238	@3m 🔻	T86 Mit	teq 92434	41	r			•				-		•
	Jency Cab													Peak Measu	
2 fo	ot cable	3 fo	ot cable	4 foot	cable	12	2 foot cable		-	HPF	Rej	ect Filter		RBW=VBW=	=1MHz
		•	•	4_Vien	•	12	_Neelesh	•	HPF_	4.0 GHz 🗸		•			asurements ; VBW=10Hz
f	Dist		Read Avg.	AF	CL	Amp	D Corr	Fltr	Peak	Avg	Pk Lim	-	1	Avg Mar	Notes
GHz wch	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
.824	3.0	56.0	50.0	33.D	39	-44.0	0.0	6.0	49.5	43.5	74	54	-24.5	-10.5	v
.824	3.0	56.2	51.0	33.0	39	-44.0	0.0	6.0	49.7	44.5	74	54	-24.3	-9.5	H
uid ch .874	3.0	54.0	46.7	33.0	3.9	-44.1	0.0	0.0	47.4	40.1	74	54	-26.6	-13.9	v
8/4 311	3.0 3.0	54.0 51.0	40./ 39.0	35.9	39 4.7	-44.1 -44.7	0.0 0.0	a.u 6.0	47.6	40.1 35.6	74	54 54	-20.0 -26.4	-13.9 -18.4	v
.874	3.0	54.6	47.0	33.0	39	-44.1	0.0	0.0	48.0	40.4	74	54	- <b>26.0</b>	-13.6	H
311	3.0	52.0	39.4	35.9	4.7	-44.7	0.0	0.0	48.6	36.0	74	54	-25.4	-18.0	Н
igh ch												1			
924 286	3.0 2.0	53.3 50.4	44.5	33.D 26.0	3.9	-44.2	0.0	0.0 2.0	46.7	37.9	74	54 54	-27.3	-16.1	V
.386 .924	3.0 3.0	50.4 54.0	38.6 46.2	36.0 33.0	4.7 3.9	-44.7 -44.2	0.0 0.0	6.0 6.0	47.1 47.4	35.3 39.6	74 74	54 54	-26.9 -26.6	-18.7 -14.4	V H
386	3.0 3.0	51.2	39.0	36.0	4.7	-44.7	0.0	0.0	47.9	35.7	74	54	-26.1	-18.3	H
												-			
lote: No o	ther emi	ssions were	detected above 1	the syste	m noise	floor.									
	f	Measurem	ent Frequency			Amp	Preamp	Gain				Aug Tim	Average 1	Field Strength	Timit
	-	Distance to		,			-		ct to 3 mete	ers		Pk Lim	-	d Strength Lin	
	Dist					Avg			Strength @					. Average Lin	
		Analyzer R				-						-	-	-	
		Analyzer R Antenna F:	-			Peak	Calculate	o rea	c riela Sue	ngm		Pk Mar	Margin vs	. Feak Linn	

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# 7.2.3. CO-LOCATED TRANSMITTER RADIATED EMISSIONS

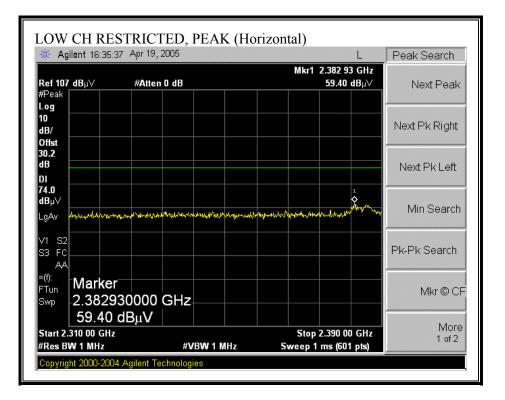
## RESULTS

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)

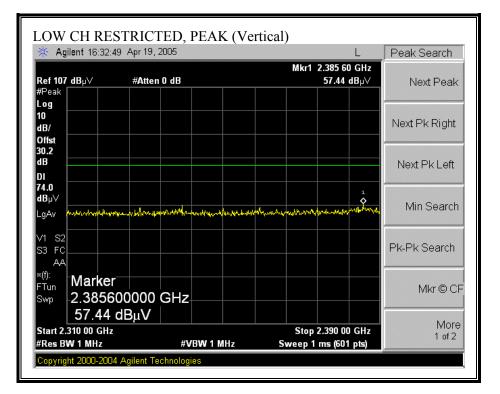


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🗧 Agilent 16:36:	06 Apr 19, 2005			L	Peak Search
lef 107 dBµ∨ Peak	#Atten 0 dE		Mkr	I 2.386 13 GHz 49.55 dBµ∨	Next Peak
og 0 B/					Next Pk Right
0.2 B I					Next Pk Left
4.0 Βμ∨ gAv				- 2	Min Search
1 S2 3 FC AA					Pk-Pk Search
(): Tun WP 2.3861 49.55	30000 GH	z			Mkr © C
tart 2.310 00 GHz Res BW 1 MHz		#VBW 10 Hz		p 2.390 00 GHz 38 s (601 pts)	More 1 of 2

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## WORST-CASE RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

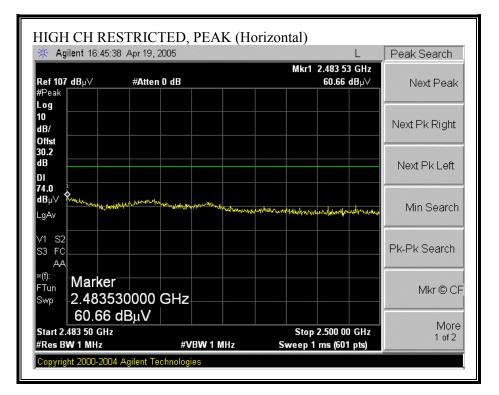


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🗧 Agilent 16:33:	17 Apr 19, 200	5		L	Peak Search
<b>lef 107 dB</b> µ∨ Peak	#Atten 0 c	IB	Mkr1 2	.386 00 GHz 46.29 dBµ∨	Next Peak
og 0 IB/					Next Pk Right
0.2 IB )I					Next Pk Left
4.0  Βμ√ gAv				1	Min Search
/1 S2 33 FC AA					Pk-Pk Search
	r )000000 Gi dBµV	Hz			Mkr © C
itart 2.310 00 GHz Res BW 1 MHz		#VBW 10 Hz	Stop 2 Sweep 6.238	.390 00 GHz s (601 pts)	More 1 of 2

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## WORST-CASE RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

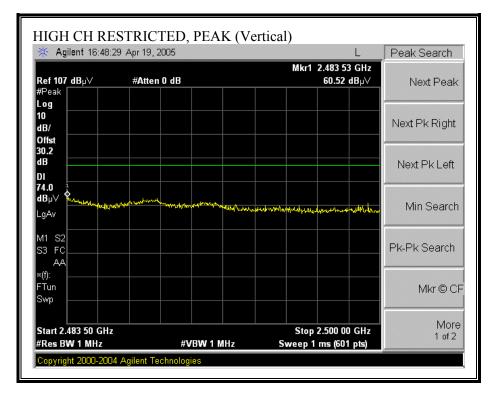


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🔆 Agilent 16:40	6:21 Apr 19, 2005				L	Peak Search
<b>Ref 107 dB</b> µ∨ #Peak	#Atten 0 dB			Mkr1 2.483 5 52.95	0 GHz dBµ∨	Next Peak
Log 10 dB/ Offst						Next Pk Right
30.2 dB DI						Next Pk Left
54.0 dBµ∨ LgAv						Min Search
V1 S2 S3 FC						Pk-Pk Search
	500000 GH	z				Mkr © Cl
⊖ Start 2.483 50 GF #Res BW 1 MHz		#VBW 10 Hz	Swe	Stop 2.500 0 ep 1.287 s (601		More 1 of 2

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## WORST-CASE RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



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Agilent 16:46:	21 Apr 19, 2005			L	Peak Search
<b>ef 107 dB</b> µ∨ Peak	#Atten 0 dB		M	lkr1 2.483 50 GH 52.95 dBµ	
og D B/					Next Pk Right
D.2 B I					Next Pk Left
4.0 Βμ∨ gAv					Min Search
1 S2 3 FC AA					Pk-Pk Search
	00000 GH	z			Mkr © C
52.95 tart 2.483 50 GHz Res BW 1 MHz		#VBW 10 Hz		Stop 2.500 00 GH 1.287 s (601 pts)	Z Mor 1 of 2

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## WORST-CASE HARMONICS AND SPURIOUS EMISSIONS

	-		7 Measuren Services, M		Hill Oj	pen Fielo	d Site								
est En	gr: Chin	Pang													
	#:05T32														
		Tech Comj													
	-	PDA Phone													
	N:PA10	JA C 15.247													
	~		TX Domina	unt is W	LAN a	ind non-	dominnt i	s CDI	MA 800 MI	Hz					
	•		w = 14 dBm,												
-+ E~		L.													
SULQ	uipmen	<u></u>													
EMC	O Horn I	-18GHz	Pre-am	plifer 1-2	26 GHz	F	Pre-amplife	r 26-40	DGHz		Horn >	18GHz			Limit
T60; S	/N: 2238	@3m _	T86 Mi	iteq 92434	41 .				-				-	. FCC	+ 15.205
	uency Cab	-			_				_	1			_		_
														Peak Meas	
2 fo	ot cable	3 foo	ot cable	4 foot	cable	12	2 foot cable			HPF	Reje	ct Filter		RBW=VBW	V=1MHz
				4_Vien			Neelesh	-	HPF -	4.0GHz _				Average M	leasurements
			•	-	_		_reclose	-		•		•		RBW=1MH	z; VBW=10Hz
f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	Fltr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	-	dBuV/m	dBuV/m	dB	dB	(V/H)
d ch															
74 11	3.0 3.0	52.0 52.2	45.0 39.4	33.0 35.9	39 4.7	-44.1 -44.7	0.0 0.0	6.0 6.0	45.4 48.8	38.4 36.0	74 74	54 54	-28.6 -25.2	-15.6 -18.0	v
374	3.0	53.3	47.5	33.0	3.9	-44.1	0.0	0.0	46.7	40.9	74	54 54	-25.2	-13.1	H
11	3.0	52.5	39 <i>.</i> 5	35.9	4.7	-44.7	0.0	0.0	49.1	36.1	74	54	- <b>24</b> .9	- <b>17.9</b>	Н
te: No o	ther emi	ssions were (	detected above	the syste	m noise	floor.									
	f	Measureme	ent Frequenc	v		Amp	Preamp (	Gain				Avg Lim	Average H	Field Strength	n Limit
		Distance to	-	,			-		ct to 3 mete	ers		-	-	d Strength Li	
Dist Distance to Antenna D Corr Distance Correct to 3 meters Read Analyzer Reading Aver age Field Strength @, 3 m							Average	Field 3	Strength @	3 m		Avg Mar	Margin vs	. Average Li	mit
	AF	Antenna Fa	actor			Peak	Calculate	d Peal	k Field Stre	ngth		Pk Mar	Margin vs	. Peak Limit	
	CL	Cable Loss	3			HPF	High Pas	s Filter	r						

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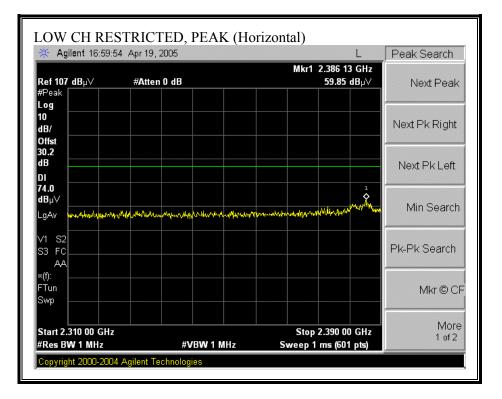
## **RESULTS**

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)

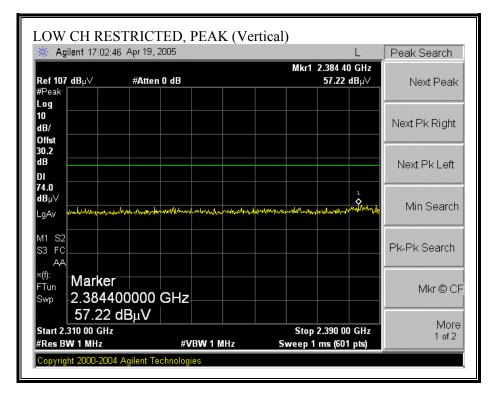


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🔆 Agilent 17:00:	23 Apr 19, 2005			L	Peak Search
Ref 107 dBµ∨ #Peak	#Atten 0 dl	3	Mk	r1 2.386 13 GHz 49.10 dBµ∨	Next Peak
.og 10 1B/ Dffst					Next Pk Right
0.2 IB					Next Pk Left
i4.0 IBµ∨ .gAv					Min Search
/1 S2					Pk-Pk Search
(): Tun <b>Marke</b> Swp 2.3861	130000 GH	łz			Mkr © C
49.10 Start 2.310 00 GHz Res BW 1 MHz	dBμV	#VBW 10 Hz		op 2.390 00 GHz 238 s (601 pts)	More 1 of 2

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## WORST-CASE RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

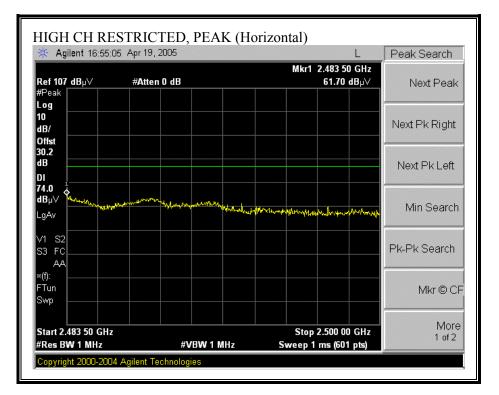


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Agilent 17:03:	26 Apr 19, 2005	i i		L	Peak Search
<b>ef 107 dB</b> µ∨ Peak	#Atten 0 d	B	Mkr	1 2.386 00 GHz 45.24 dBµ∀	Next Peak
og D B/					Next Pk Right
D.2 B I					Next Pk Left
<b>4.0</b> Βμ∨ gAv				1	Min Search
1 S2 3 FC AA				×	Pk-Pk Search
0: Tun <b>Marke</b> r wp 2.3860	00000 GH	Ιz			Mkr © C
45.24 tart 2.310 00 GHz Res BW 1 MHz		#VBW 10 Hz		p 2.390 00 GHz 238 s (601 pts)	More 1 of 2

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## WORST-CASE RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

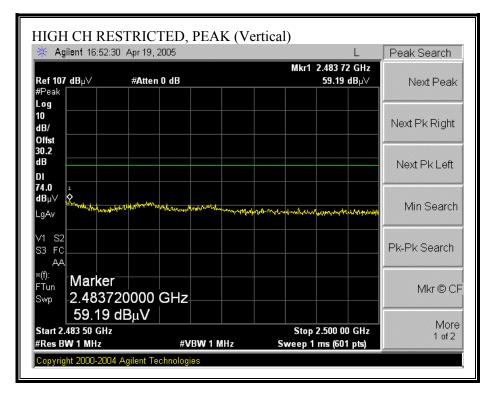


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🔆 Agilent 16:55:	44 Apr 19, 2005		L	Peak Search
<b>Ref 107 dB</b> µ∨ #Peak	#Atten 0 dB		Mkr1 2.483 50 GHz 53.72 dBµ∀	
dB/				Next Pk Right
30.2 dB DI				Next Pk Left
54.0 dBµ√ _gAv				Min Search
V1 S2 53 FC AA				Pk-Pk Search
«(f): =Tun Swp				Mkr © C
Start 2.483 50 GHz #Res BW 1 MHz	#VBW 1	0 Hz Swee	Stop 2.500 00 GHz p 1.287 s (601 pts)	More 1 of 2

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## WORST-CASE RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



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Agilent 16:53:05	Apr 19, 2005			L	Peak Search
<b>f 107 dB</b> µ∨ eak	#Atten 0 dB		Mkr1	2.483 50 GHz 49.79 dBµ∨	Next Peal
g					Next Pk Right
.2					Next Pk Left
0 μ√ 4v					Min Searcl
S2 FC AA					Pk-Pk Search
	00000 GHz				Mkr © C
49.79 c art 2.483 50 GHz es BW 1 MHz		<b>N</b> 10 Hz	Stop Sweep 1.28	2.500 00 GHz 7 s (601 pts)	• Mor 1 of 2

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## WORST-CASE HARMONICS AND SPURIOUS EMISSIONS

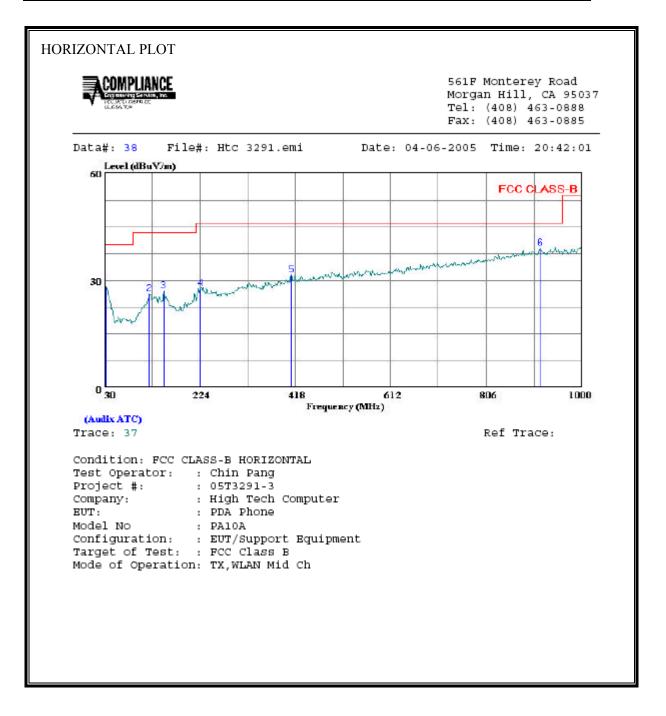
	0	Pang													
	#:05T32 w:High	91-4 Tech Com	nuter												
JT De	escrip.:P	DA Phone													
JT M/	/N:PA10	)A													
	0	C 15.247 -Location,	TX Domina	nt is W	LAN a	nd non-	dominnt i	s CDF	MA 1900M	(Hz					
			w = 14 dBm,												
SLLY	uipment	2													Limit
EMC	O Horn 1	-18GHz	Pre-ang	plifer 1-2	6 GHz	I	Pre-amplife	r 26-40	JGHz		Horn >	>18GHz			
T60; S	5/N: 2238	@3m 🗸	T86 Min	teq 92434	41 <b>,</b>	1 [			-				-	FCO	C 15.205
Hi Freq	quency Cab	les —	I							1					
	oot cable		ot cable	4 East	-110		• •		1	HPF	Reje	ect Filter		Peak Meas RBW=VBV	
4 10	001 Cabito	0.000	/t came	4 foot o	apre	17	2 foot cable			HPF	neje	crrmer		Terror and a	V-11V1112
_															
$\square$	_	-	•	4_Vien	•		_Neelesh	-	HPF_4	4.0GHz 🗸	<u> </u>	•			<u>Jeasurements</u> Ja: NBW=10Hz
			•	4_Vien	•		_Neelesh	•	HPF_4	4.0GHz 🔻		•			<del>/leasurements</del> Hz ; VBW=10Hz
f	Dist	Read Pk	Read Avg.	AF	CL	12	D Сонт	• Fltr	Peak	Avg	1	· · ·	1	RBW=1MF	Hz ; VBW=10Hz Notes
GHz				-		12		• Fltr dB	Peak			• Avg Lim dBuV/m	Pk Mar dB	RBW=1MH	Hz;VBW=10Hz
GHz id ch	Dist	Read Pk	Read Avg.	AF	CL	12	D Сонт		Peak	Avg		· · ·	1	RBW=1MF	Hz ; VBW=10Hz Notes
GHz id ch 874 311	Dist (m) 3.0 3.0	Read Pk dBuV 52.1 51.0	Read Avg. dBuV 45.0 38.6	AF dB/m 33.0 35.9	CL dB 39 4.7	Amp dB -44.1 -44.7	D Corr dB 0.0 0.0	dB 0.6 0.6	Peak dBuV/m 455 47.6	Avg dBuV/m 38.4 35.2	dBuV/m 74 74	dBuV/m 54 54	dB -28.5 -26.4	RBW=1MF Avg Mar dB -15.6 -18.8	Hz ; VBW=10Hz Notes (V/H) V V
GHz d ch 374 311 374	Dist (m) 3.0 3.0 3.0 3.0	Read Pk dBuV 52.1 51.0 54.0	Read Avg. dBuV 45.0 38.6 47.2	AF dB/m 33.0 35.9 33.0	CL dB 39 4.7 39	Amp dB -44.1 -44.7 -44.1	D Corr dB 0.0 0.0 0.0	dB 0.6 0.6 0.6	Peak dBuV/m 45.5 47.6 47.4	Avg dBuV/m 38.4 35.2 40.6	dBuV/m 74 74 74 74	dBuV/m 54 54 54	dB -28.5 -26.4 -26.6	RBW=1MF Avg Mar dB -15.6 -18.8 -13.4	Hz; VBW=10Hz Notes (V/H) V V H
GHz id ch 374 311 374	Dist (m) 3.0 3.0	Read Pk dBuV 52.1 51.0	Read Avg. dBuV 45.0 38.6	AF dB/m 33.0 35.9	CL dB 39 4.7	Amp dB -44.1 -44.7	D Corr dB 0.0 0.0	dB 0.6 0.6	Peak dBuV/m 455 47.6	Avg dBuV/m 38.4 35.2	dBuV/m 74 74	dBuV/m 54 54	dB -28.5 -26.4	RBW=1MF Avg Mar dB -15.6 -18.8	Hz ; VBW=10Hz Notes (V/H) V V
GHz d ch 374 311 374 311	Dist (m) 3.0 3.0 3.0 3.0	Read Pk dBuV 52.1 51.0 54.0 51.4	Read Avg. dBuV 45.0 38.6 47.2	AF dB/m 33.0 35.9 33.0 35.9	CL dB 39 4.7 39 4.7	Amp dB -44.1 -44.7 -44.1 -44.7	D Corr dB 0.0 0.0 0.0	dB 0.6 0.6 0.6	Peak dBuV/m 45.5 47.6 47.4	Avg dBuV/m 38.4 35.2 40.6	dBuV/m 74 74 74 74	dBuV/m 54 54 54	dB -28.5 -26.4 -26.6	RBW=1MF Avg Mar dB -15.6 -18.8 -13.4	Hz; VBW=10Hz Notes (V/H) V V H
GHz d ch 374 311 374 311	Dist (m) 3.0 3.0 3.0 3.0	Read Pk dBuV 52.1 51.0 54.0 51.4	Read Avg. dBuV 45.0 38.6 47.2 39.0	AF dB/m 33.0 35.9 33.0 35.9	CL dB 39 4.7 39 4.7	Amp dB -44.1 -44.7 -44.1 -44.7	D Corr dB 0.0 0.0 0.0	dB 0.6 0.6 0.6	Peak dBuV/m 45.5 47.6 47.4	Avg dBuV/m 38.4 35.2 40.6	dBuV/m 74 74 74 74	dBuV/m 54 54 54	dB -28.5 -26.4 -26.6	RBW=1MF Avg Mar dB -15.6 -18.8 -13.4	Hz; VBW=10Hz Notes (V/H) V V H
GHz id ch 374 311 374 311	Dist (m) 3.0 3.0 3.0 3.0 dther emi	Read Pk dBuV 52.1 51.0 54.0 51.4 ssions were of Measuremet	Read Avg. dBuV 45.0 38.6 47.2 39.0 detected above ent Frequency	AF dB/m 33.0 35.9 33.0 35.9 the system	CL dB 3.9 4.7 3.9 4.7 m noise	Amp dB -44.1 -44.7 -44.1 -44.7 floor.	D Corr dB 0.0 0.0 0.0 0.0 Preamp (	dB 0.6 0.6 0.6 0.6	Peak dBuV/m 455 47.6 47.4 48.0	Avg dBuV/m 38.4 35.2 40.6 35.6	dBuV/m 74 74 74 74	dBuV/m 54 54 54 54 54	dB -28.5 -26.4 -26.6 -26.0	RBW=1MF Avg Mar dB -15.6 -18.8 -13.4	Hz; VBW=10Hz Notes (V/H) V V H H H
GHz id ch 874 311 874 311	Dist (m) 3.0 3.0 3.0 3.0 0 other emi f Dist	Read Pk dBuV 52.1 51.0 51.4 51.4 ssions were of Measurement Distance to	Read Avg. dBuV 45.0 38.6 47.2 39.0 detected above ent Frequency Antenna	AF dB/m 33.0 35.9 33.0 35.9 the system	CL dB 3.9 4.7 3.9 4.7 m noise	Amp dB -44.1 -44.7 -44.1 -44.7 floor. Amp D Corr	D Corr dB 0.0 0.0 0.0 0.0 0.0 Preamp ( Distance	dB 0.6 0.6 0.6 0.6 Gain Corre	Peak dBuV/m 455 47.6 47.4 48.0 ct to 3 mete	Avg dBuV/m 38.4 35.2 40.6 35.6 	dBuV/m 74 74 74 74 74	dBuV/m 54 54 54 54 54 84 84 84 84 84 84 84 84 84 84 84 84 84	dB -28.5 -26.4 -26.6 -26.0 Average F Peak Field	RBW=1MF Avg Mar dB -15.6 -16.8 -13.4 -18.4 -18.4 -18.4 Field Strength	Hz ; VBW=10Hz Notes (V/H) V V H H h Limit imit
GHz id ch 874 311 874 311	Dist (m) 3.0 3.0 3.0 3.0 0 0 0 0 0 0 0 0 0 0 0 0	Read Pk dBuV 52.1 51.0 54.0 51.4 ssions were of Measureme Distance to Analyzer R	Read Avg. dBuV 45.0 38.6 47.2 39.0 detected above ent Frequency Antenna eading	AF dB/m 33.0 35.9 33.0 35.9 the system	CL dB 39 4.7 39 4.7 m noise	Amp dB -44.1 -44.7 -44.1 -44.7 floor. Amp D Corr Avg	D Corr dB 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	dB 0.6 0.6 0.6 Jain Correc Field S	Peak dBuV/m 455 47.6 47.4 48.0 ct to 3 mete Strength @	Avg dBuV/m 38.4 35.2 40.6 35.6 ers 3 m	dBuV/m 74 74 74 74 74	dBuV/m 54 54 54 54 54 Pk Lim Avg Lim Avg Mar	dB -28.5 -26.4 -26.6 -26.0 Average F Peak Field Margin vs	RBW=1MF dB -15.6 -18.8 -13.4 -18.4 -18.4 -18.4 -18.4 -18.4 -18.4 -18.4 -18.4 -18.4 -18.4 -18.4 -18.5 -18	Hz ; VBW=10Hz (V/H) V H H H h Limit imit
GHz id ch 874 311 874 311	f Dist (m) 3.0 3.0 3.0 0 ther emi Dist Read AF	Read Pk dBuV 52.1 51.0 51.4 51.4 ssions were of Measurement Distance to	Read Avg. dBuV 45.0 38.6 47.2 39.0 detected above to ent Frequency Antenna eading actor	AF dB/m 33.0 35.9 33.0 35.9 the system	CL dB 3.9 4.7 3.9 4.7 m noise	Amp dB -44.1 -44.7 -44.7 -44.7 -44.7 -44.7 -44.7 floor. D Corr Avg Peak	D Corr dB 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	dB 0.6 0.6 0.6 Jain Correct Field S d Peal	Peak dBuV/m 45.5 47.6 47.4 48.0 ct to 3 mete Strength @ k Field Stre	Avg dBuV/m 38.4 35.2 40.6 35.6 ers 3 m	dBuV/m 74 74 74 74 74	dBuV/m 54 54 54 54 54 Pk Lim Avg Lim Avg Mar	dB -28.5 -26.4 -26.6 -26.0 Average F Peak Field Margin vs	RBW=1MF Avg Mar dB -15.6 -16.8 -13.4 -18.4 -18.4 -18.4 Field Strength	Hz ; VBW=10Hz (V/H) V H H H h Limit imit

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# 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)

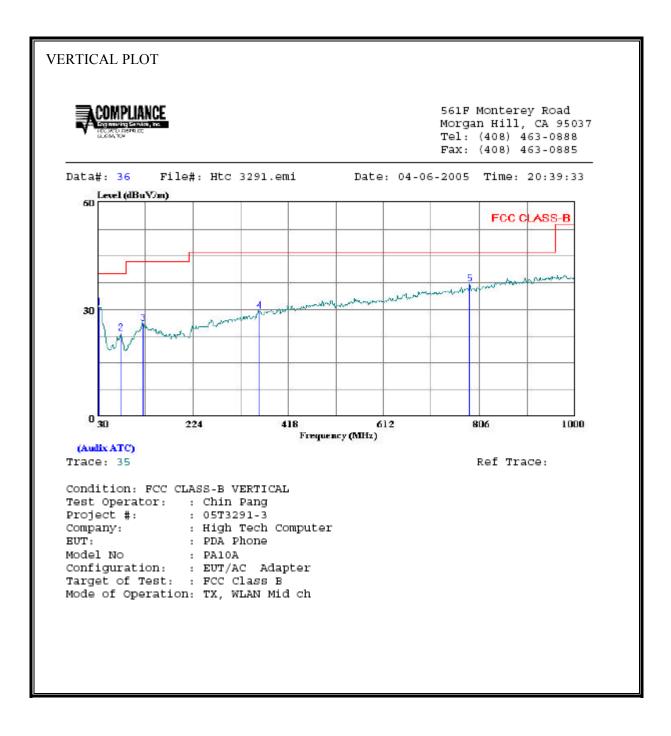


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HORIZON	ITAL DATA	Δ						
	Freq	Read Level		Level	Limit Line	Over Limit	Remark	Page: 1
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1 2 4 5 6	32.910 121.180 150.280 224.970 410.240 914.640	10.94 13.00 14.69 13.29	15.16 14.10 12.86 18.31	26.10 27.10 27.55 31.60	43.50 46.00 46.00	-17.40 -16.40 -18.45 -14.40	Peak Peak Peak Peak	

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



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## REPORT NO: 05T3291-3 EUT: PDA PHONE

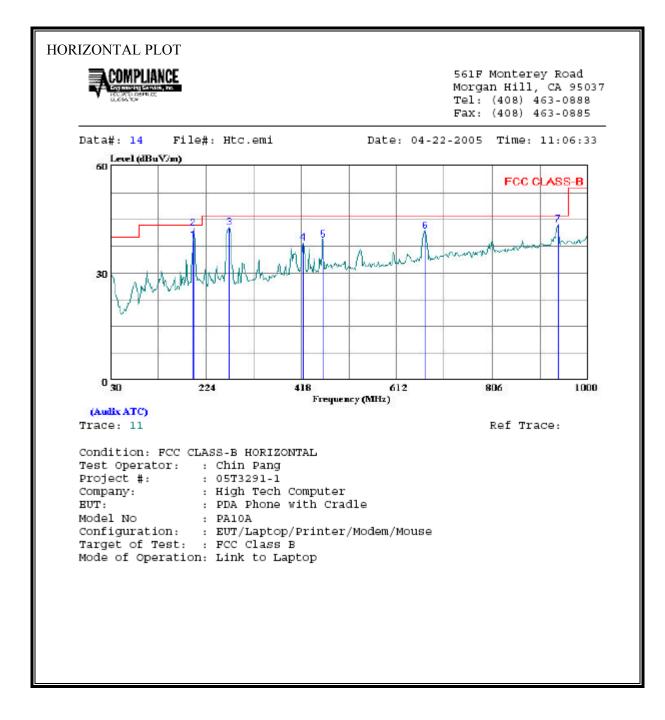
VERTICAL DA	ТА						
	Read req Level	Factor		Line			Page: 1
1 33. 2 77. 3 122. 4 358.		15.18 17.12	30.59 23.30 25.93 29.55	40.00 40.00 43.50 46.00	-9.41 -16.70 -17.57 -16.45	Peak Peak Peak	

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## 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)

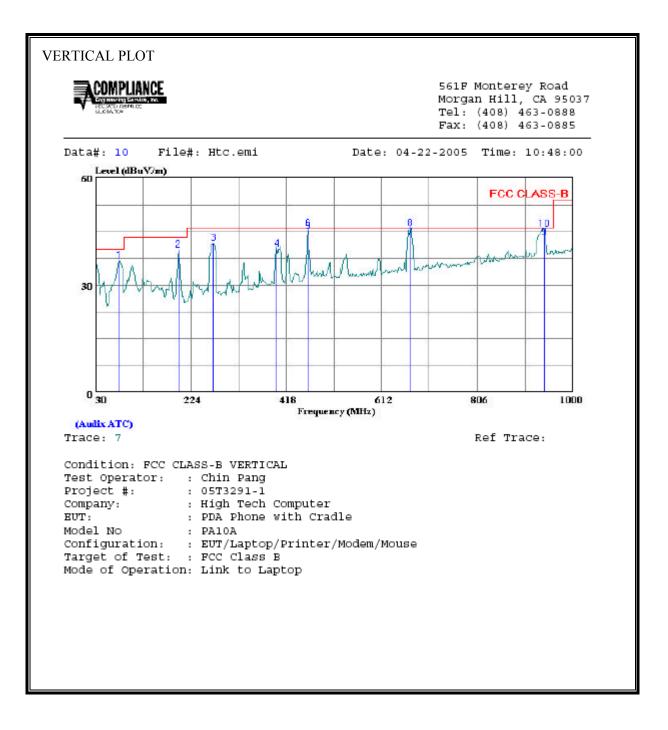


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HORIZO	HORIZONTAL DATA									
	Freq	Read Level	Factor	Level	Limit Line		Remark	Page: 1		
	MHZ	dBuV			dBuV/m					
1 2 3 4 5 6 7	198.780 271.530 421.880 463.590 670.200	28.17 28.14 19.80 19.84 19.14	14.37 14.65 18.58 19.50 22.66	42.54 42.79 38.38 39.34 41.80	46.00 46.00 46.00	-0.96 -3.21 -7.62 -6.66 -4.20	Peak Peak Peak Peak Peak			

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



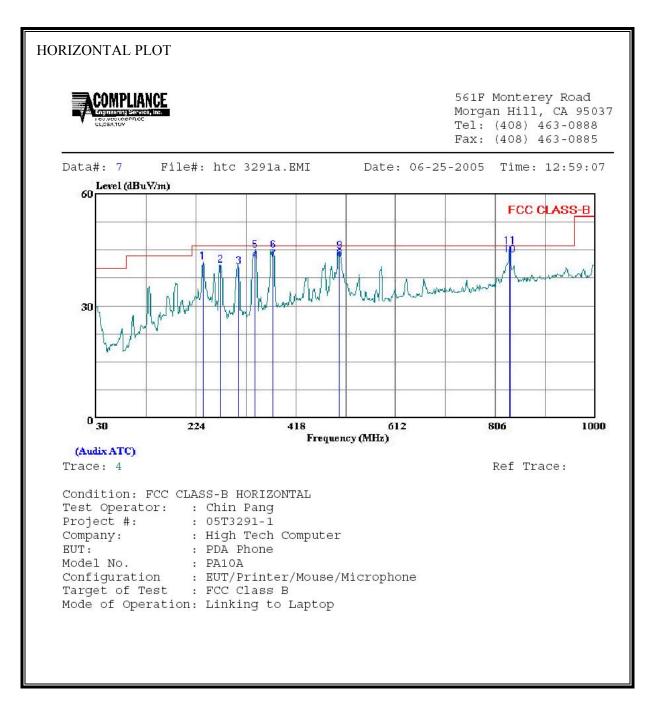
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VERTICAL DATA Page: 1 Read Limit Over Freq Level Factor Level Line Limit Remark dBuV dB dBuV/m dBuV/m dв MHz 8.95 36.83 40.00 -3.17 Peak 78.500 27.87 1 198.780 25.41 14.37 39.78 43.50 -3.72 Peak 269.590 27.04 14.61 41.65 46.00 -4.35 Peak 398.600 22.16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

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

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

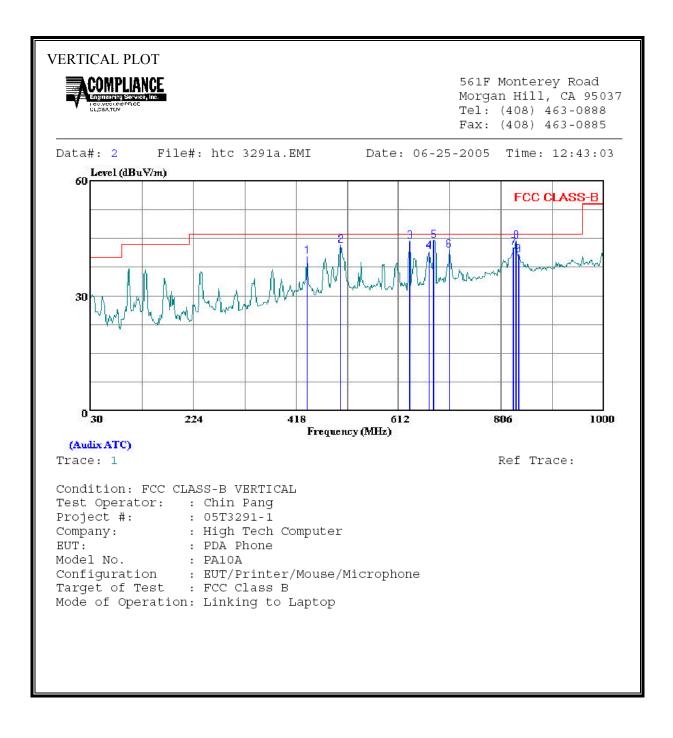


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HORIZONTAL DATA Read Limit Over Freq Level Factor Level Line Limit Remark dB dBuV/m dBuV/m MHz dBuV dB 237.580 28.42 13.39 41.81 46.00 -4.19 Peak 1 2 40.89 -5.11 Peak 271.530 26.24 14.65 46.00 3 306.450 24.62 15.82 40.44 46.00 -5.56 Peak 4 338.460 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 834.130 20.98 24.99 45.97 46.00 -0.03 Peak 11

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



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VERTICA	AL DATA						
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	<u>dBuV</u> /m	$\overline{\mathtt{dBu}\mathtt{V}/\mathtt{m}}$	dB	
1 2 3 4 5 6 7 8 9	439.340 502.390 633.340 669.230 678.930 708.030 829.280 834.130 838.980	22.87 22.20 18.86 21.67 18.64 17.61 19.21	18.96 20.24 22.05 22.65 22.82 23.23 24.92 24.99 25.10	43.11 44.25 41.51 44.49 41.87 42.53 44.20	46.00 46.00 46.00 46.00 46.00 46.00	-2.89 -1.75 -4.49 -1.51 -4.13 -3.47 -1.80	Peak Peak Peak Peak Peak Peak Peak

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# 7.4 POWERLINE CONDUCTED EMISSIONS

#### <u>LIMIT</u>

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

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

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

\* Decreases with the logarithm of the frequency.

#### TEST PROCEDURE

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

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

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

#### RESULTS

No non-compliance noted:

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

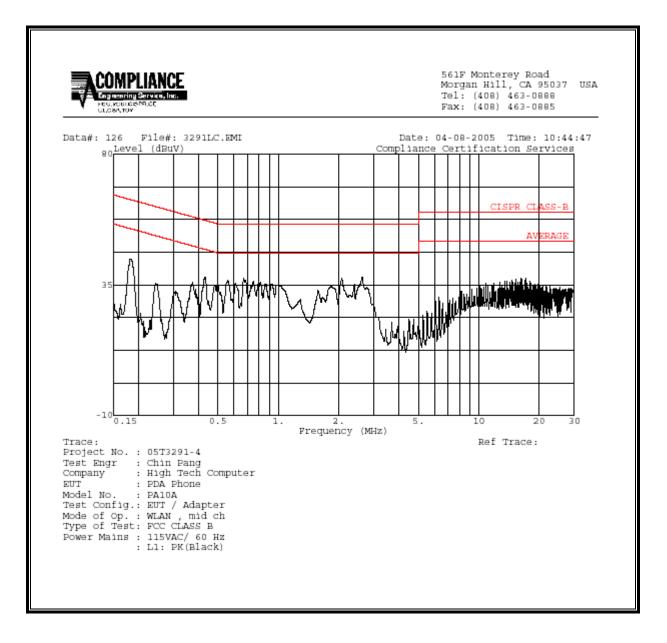
#### **EUT AND AC ADAPTER:**

#### 6 WORST EMISSIONS:

Freq.	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 I	Dete								l

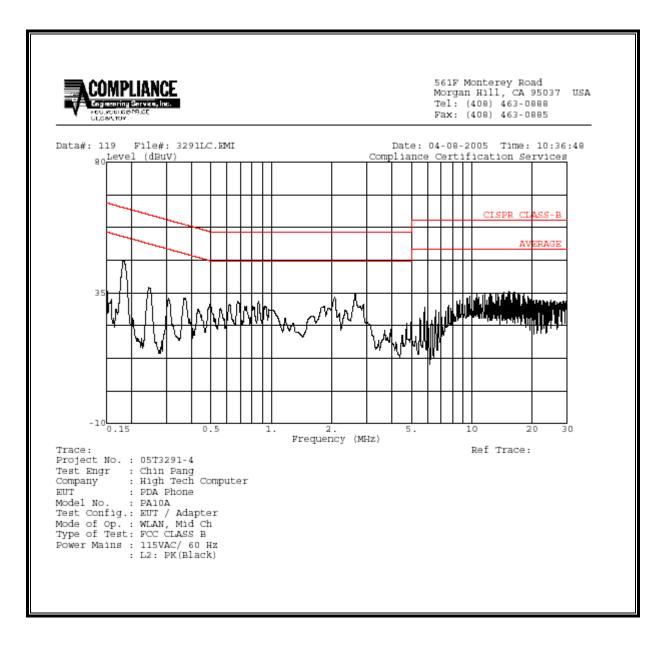
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#### LINE 1 RESULTS



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#### LINE 2 RESULTS



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

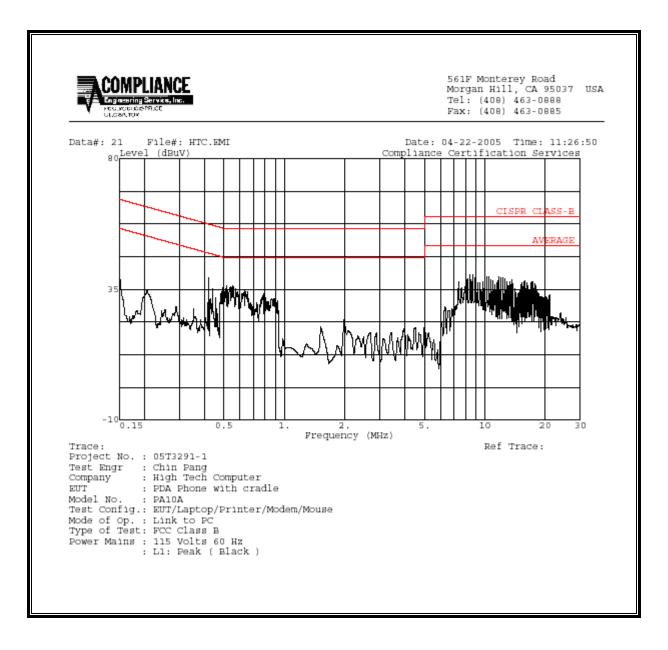
### **EUT WITH CRADLE VIA LAPTOP**

### 6 WORST EMISSIONS:

Freq.	Freq. Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
).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
).43	36.96			0.00	57.19	47.19	-20.23	-10.23	L2
5.66	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

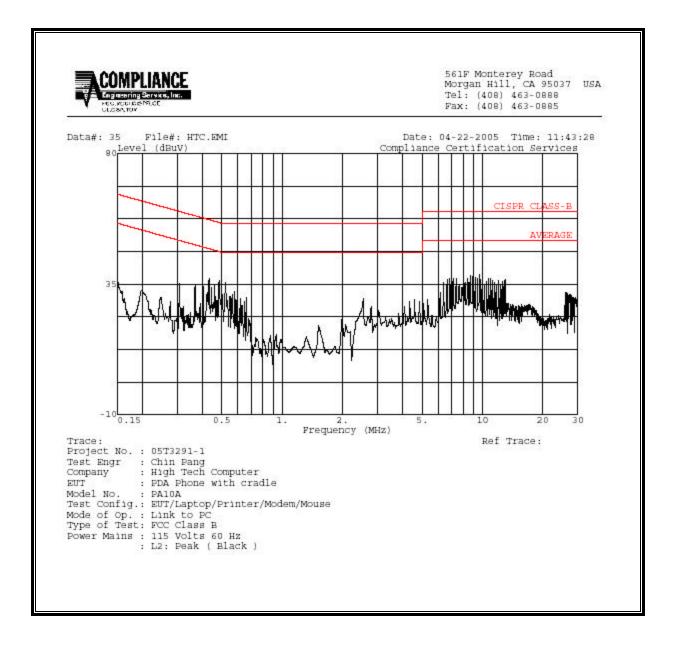
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#### LINE 1 RESULTS



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LINE 2 RESULTS



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

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