



**FCC CFR47 PART 15 SUBPART C
CERTIFICATION
CLASS II PERMISSIVE CHANGE**

FOR

PORTABLE GAME MACHINE WITH WLAN

MODEL NUMBER: NTR-001

FCC ID: BKENTR001

REPORT NUMBER: 05I3420-3

ISSUE DATE: JUNE 15, 2005

Prepared for

**NINTENDO CO., LTD.
11-1 KAMITOBA-HOKOTATE-CHO
MINAMI-KU, KYOTO 601-8501, JAPAN**

Prepared by

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LAB CODE:200065-0

Revision History

Rev.	Revisions	Revised By
A	Initial Issue	Thu
B	Removed MPE Section	Thu
C	Revised I/O Cable length to 1.9m , Updated Power Supply Information and added EUT Antenna Description for LC testing	Thu

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: NINTENDO CO., LTD.
11-1 KAMITOBA-HOKOTATE-CHO
MINAMI-KU, KYOTO 601-8501
JAPAN

EUT DESCRIPTION: PORTABLE GAME MACHINE WITH WIRELESS LAN

MODEL: NTR-001

SERIAL NUMBER: 00A096200ED3 & 00A096200ECE

DATE TESTED: JUNE 3-JUNE 6, 2005

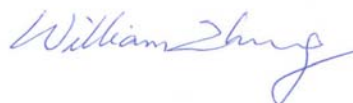
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	NO NON-COMPLIANCE NOTED

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:

Tested By:



THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

WILLIAM ZHUANG
EMC ENGINEER
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 portable game machine with an 802.11 transceiver.

The radio module is manufactured by Nintendo Co., Ltd.

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 - 2472	802.11	2.04	1.60

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes one of two optional antennas. One antenna is manufactured by Mitsumi with a maximum gain of 2.86 dBi and the other antenna is manufactured by Foxconn with a maximum gain of 1.46 dBi.

5.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was RF Test Program.

Mariona/ WL Ver 1. 77. 00/1. 77. 00 [DEBUG/SDK_ARM7]
MAC Ver 2004_1_8_0
BBP Ver 0_8545
Build on 16:26:52 Aug 30 2004

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 2412 MHz.

The worst-case data rate for this channel is determined to be the maximum available data rate, which was 2 Mb/s.

Thus all emissions tests were made in the 802.11 Wireless LAN mode, 2412 MHz, 2 Mb/s.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Description	Manufacturer	Model	Serial Number	FCC ID
Power Supply 1	Kyushu Mitsumi	NTR-002 (JPN/USA)	O036-05	N/A
Power Supply 2	Tabuchi	NTR-002 (JPN/USA)	O036-04	N/A

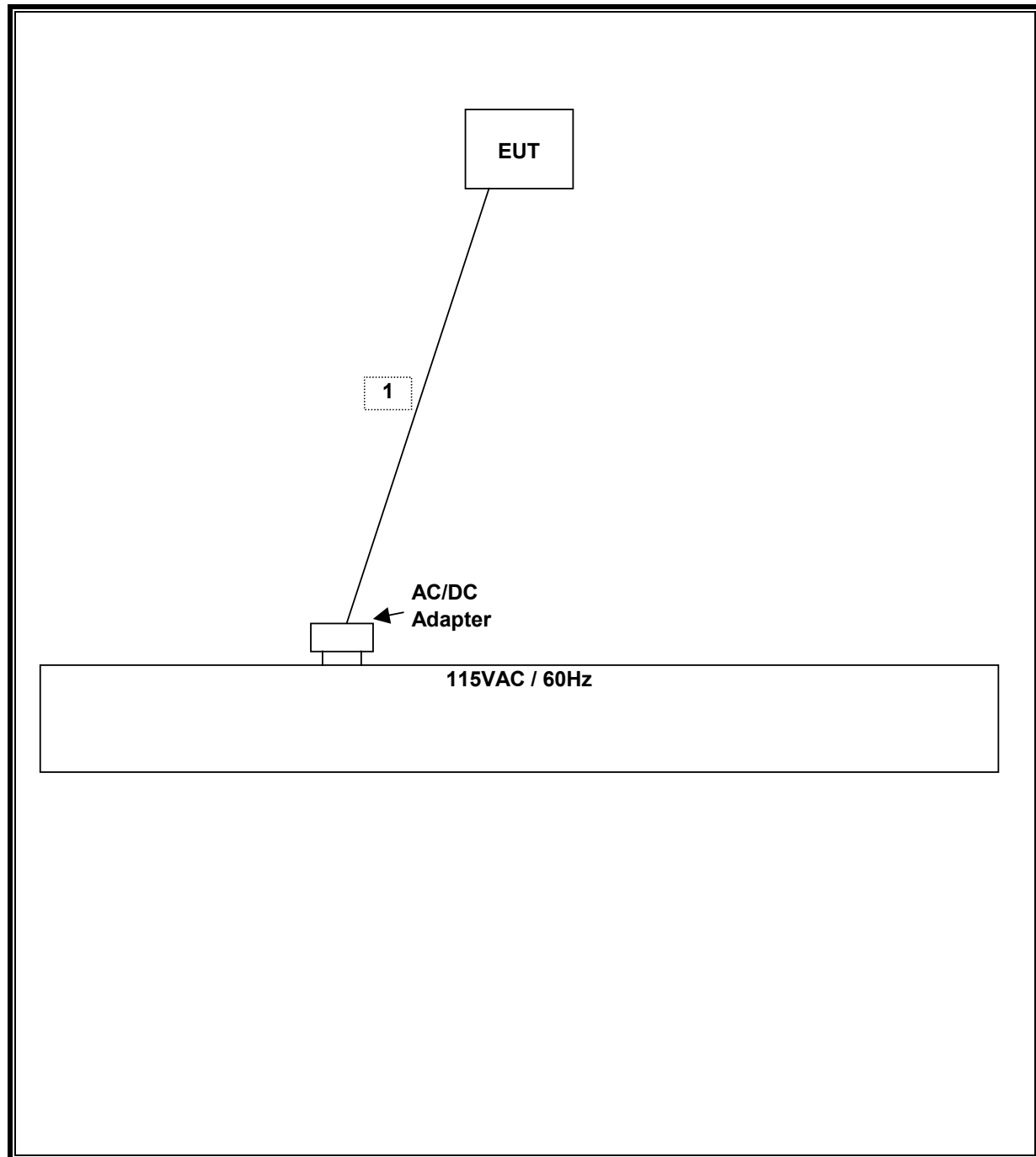
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	DC	Unshielded	1.9 m	

TEST SETUP

The EUT is a standalone unit. Test software exercised the transceiver.

SETUP DIAGRAM FOR TESTS



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
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	3/29/2006
RF Filter Section	HP	85420E	3705A00256	3/29/2006
Antenna, Bilog 30MHz ~ 2Ghz	Sunol Sciences	JB1	A121003	3/3/2006
Preamplifier, 1 ~ 26 GHz	Miteq	NSP2600-44	646456	8/17/2005
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent	E4446A	US42510266	8/25/2005
Preamplifier, 1 ~ 26.5 GHz	HP	8449B	3008A00369	8/17/2005
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	8/30/2005
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	10/21/2005
Site A Line Stabilizer/Conditioner	Tripplite	LC-1800a	A005181	CNR
EMI Test Receiver	R & S	ESHS 20	827129/006	6/3/2006
AC Power Source, 10 kVA	ACS	AFC-10K-AFC-2	J1568	CNR

7. LIMITS AND RESULTS

7.1. CHANNEL TESTS

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.

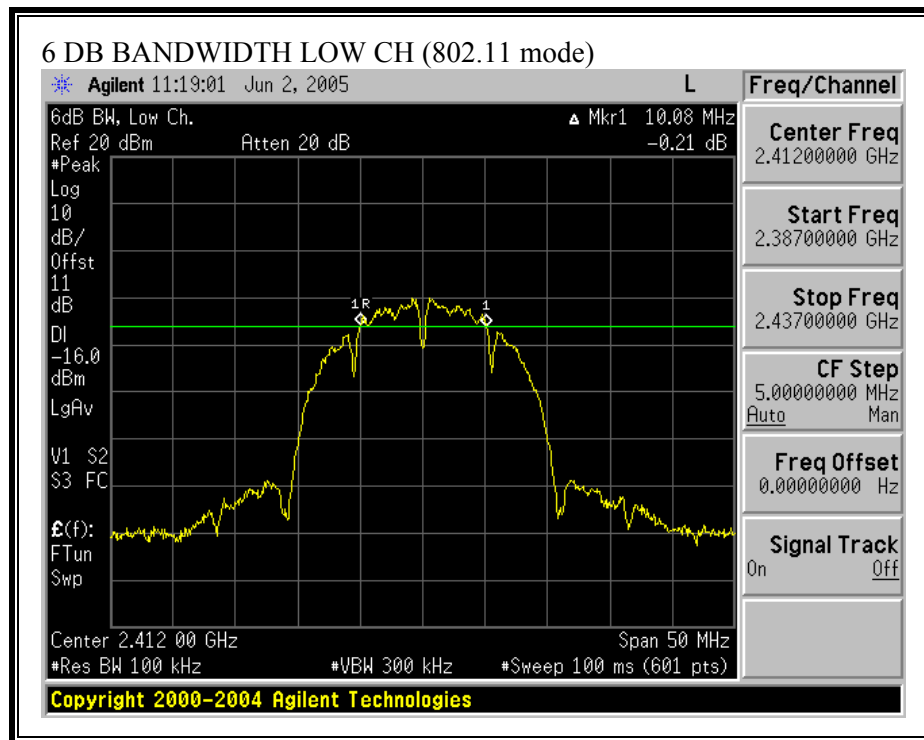
RESULTS

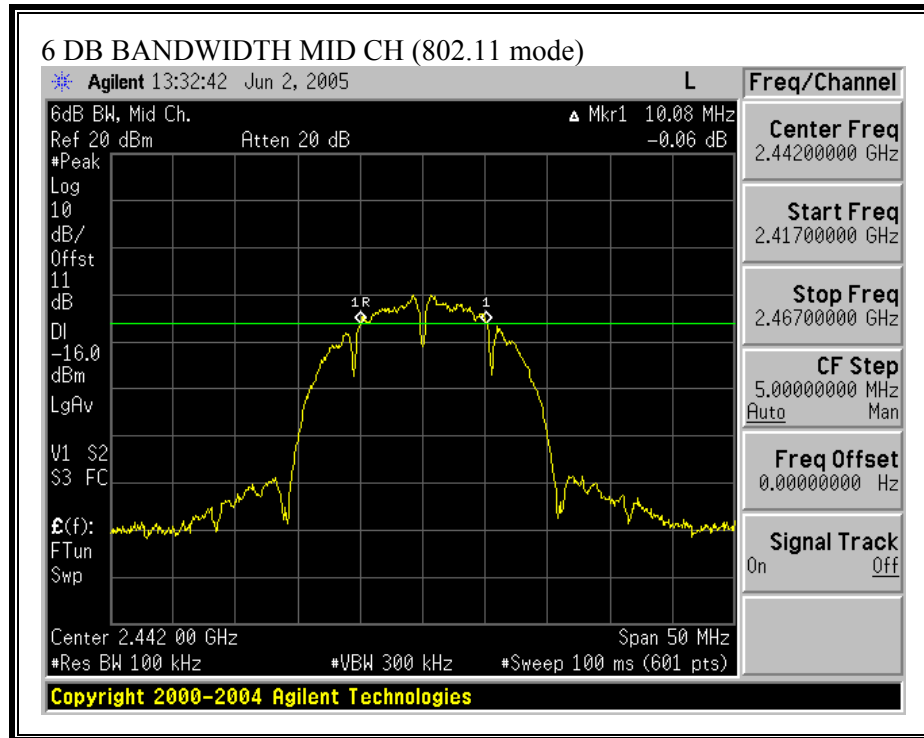
No non-compliance noted:

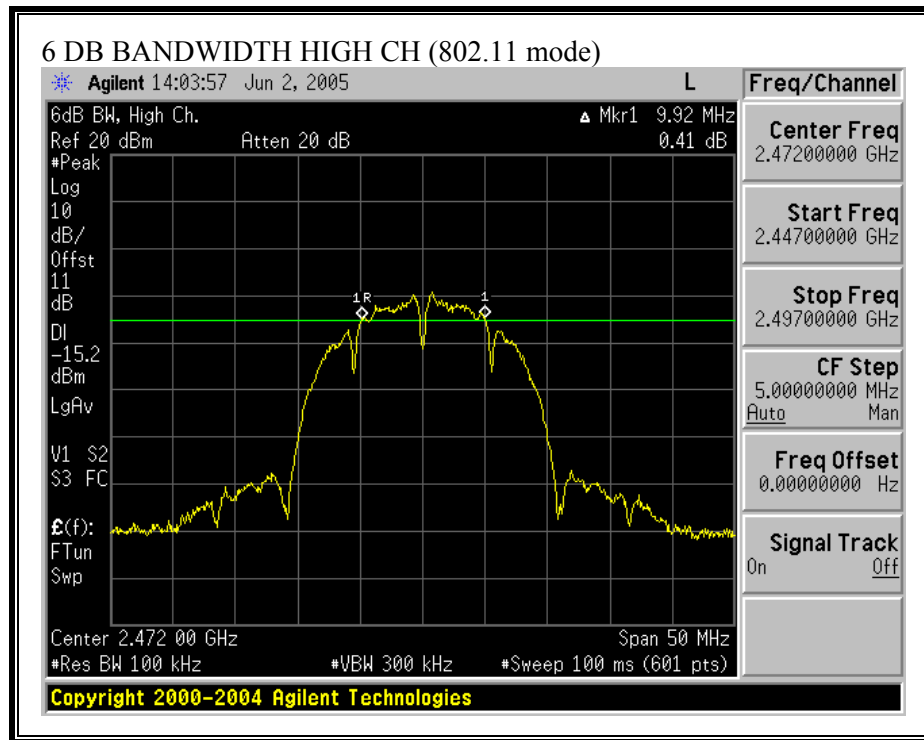
802.11 Mode

Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
Low	2412	10083.333	500	9583
Middle	2442	10083.333	500	9583
High	2472	9916.667	500	9417

6 DB BANDWIDTH (802.11 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.

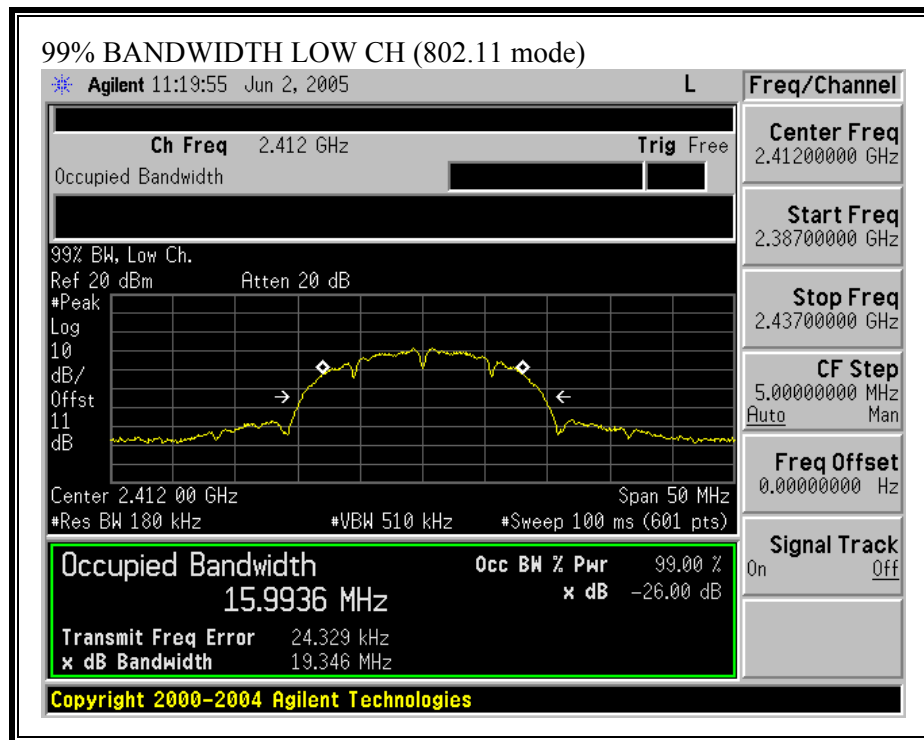
RESULTS

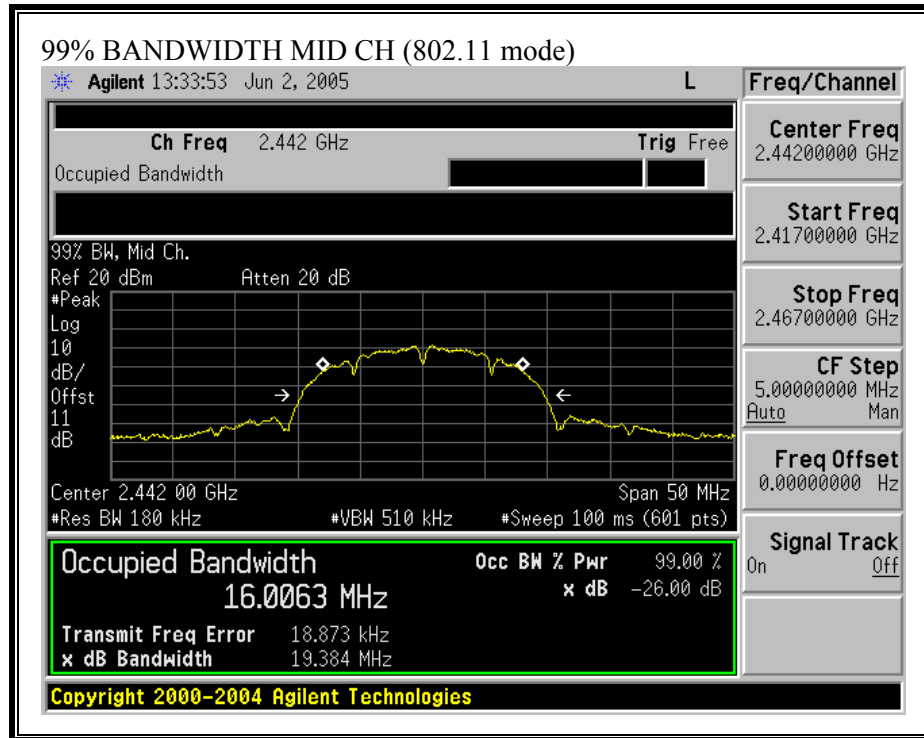
No non-compliance noted:

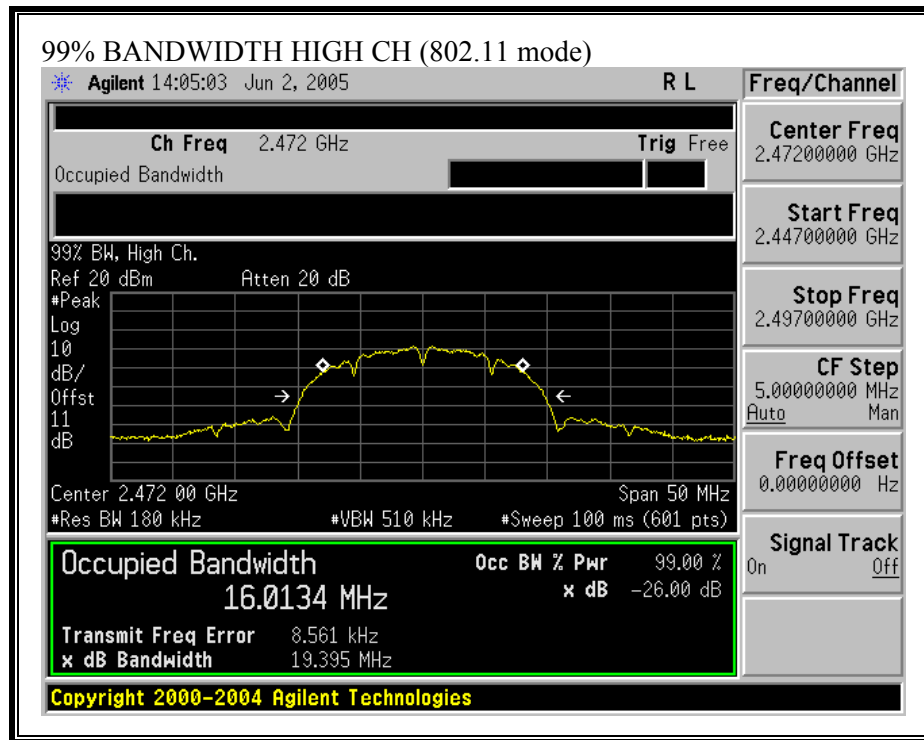
802.11 Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	15.994
Middle	2442	16.006
High	2472	16.013

99% BANDWIDTH (802.11 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

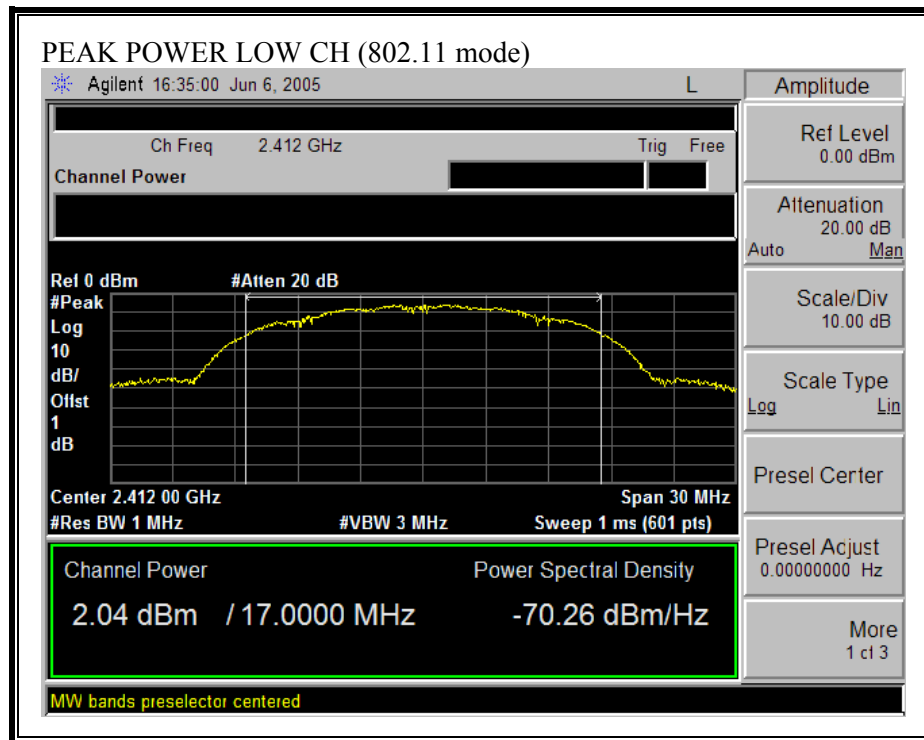
The maximum antenna gain is 2.86 dBi for other than fixed, point-to-point operations, therefore the limit is 30 dBm.

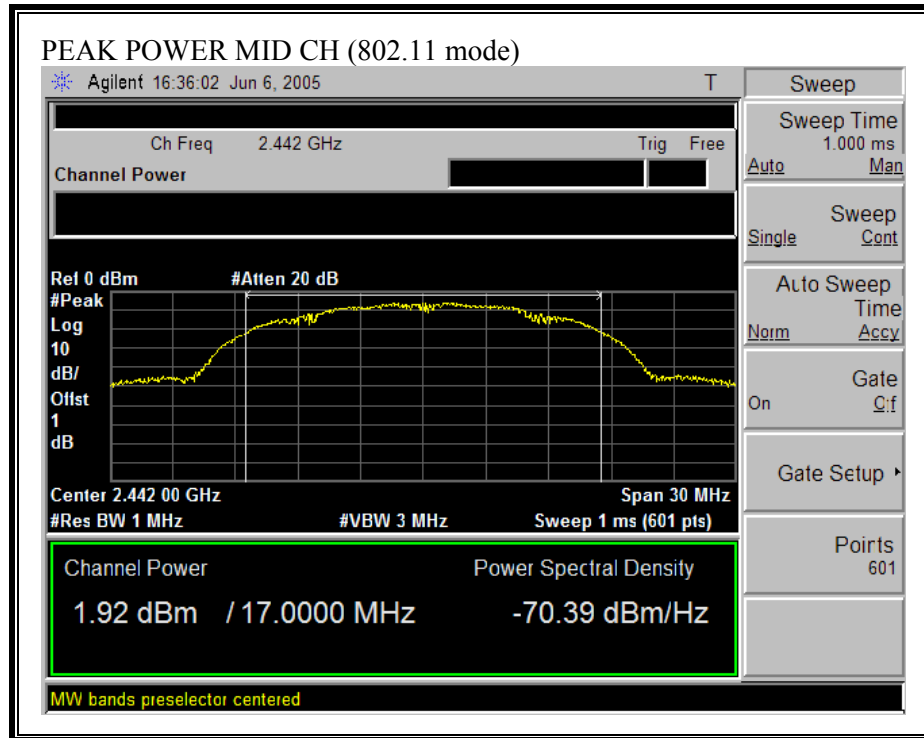
No non-compliance noted:

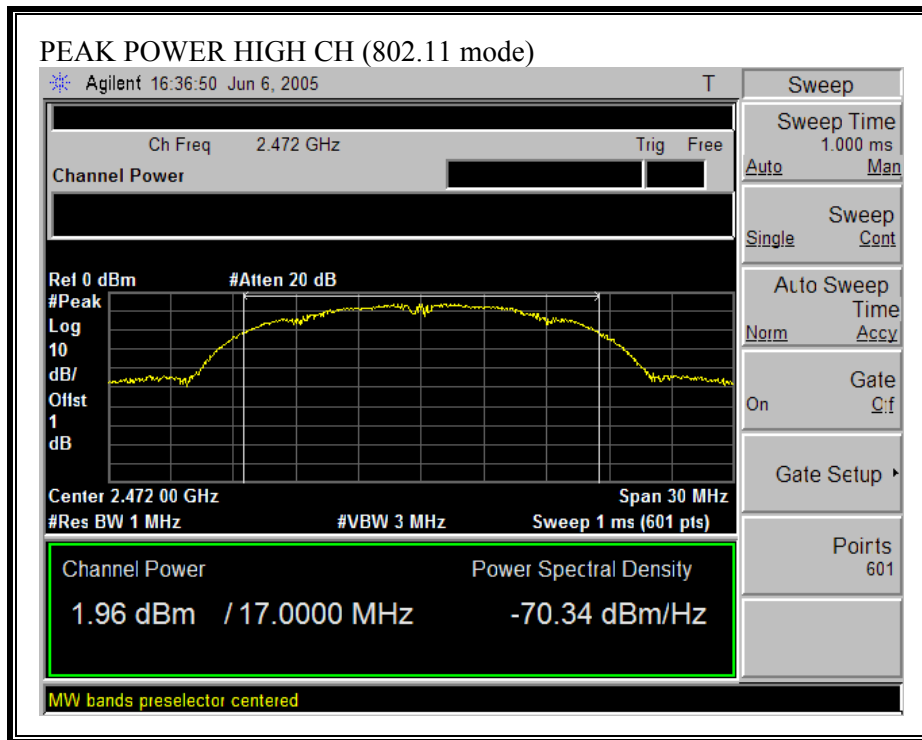
802.11 Mode

Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	2.04	30	-27.96
Middle	2442	1.92	30	-28.08
High	2472	1.96	30	-28.04

OUTPUT POWER (802.11 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 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.11 Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	-0.65
Middle	2442	-0.70
High	2472	-0.51

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.

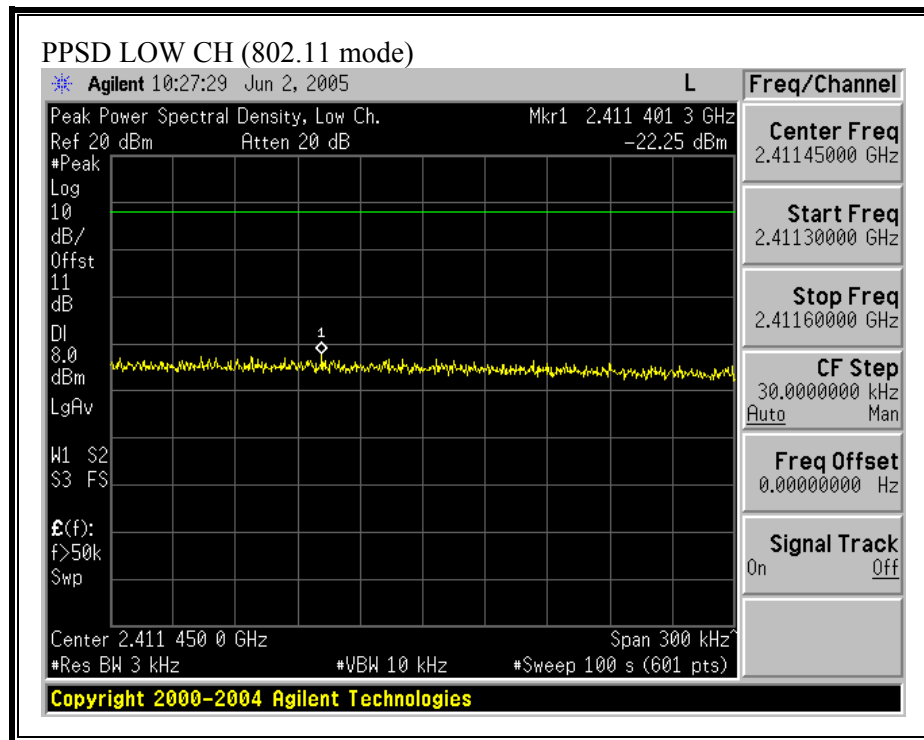
RESULTS

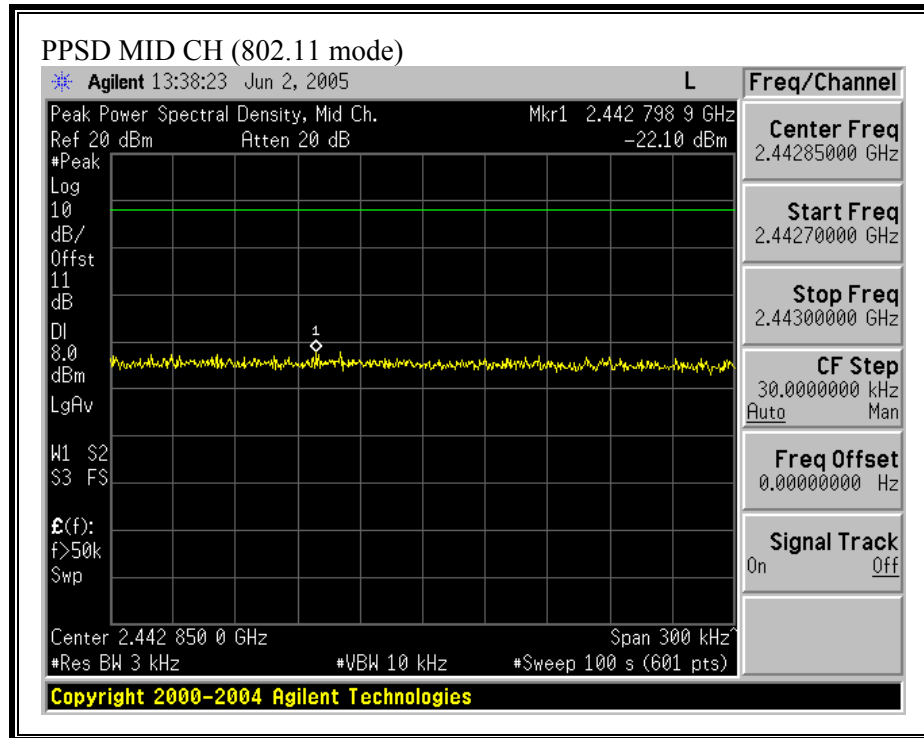
No non-compliance noted:

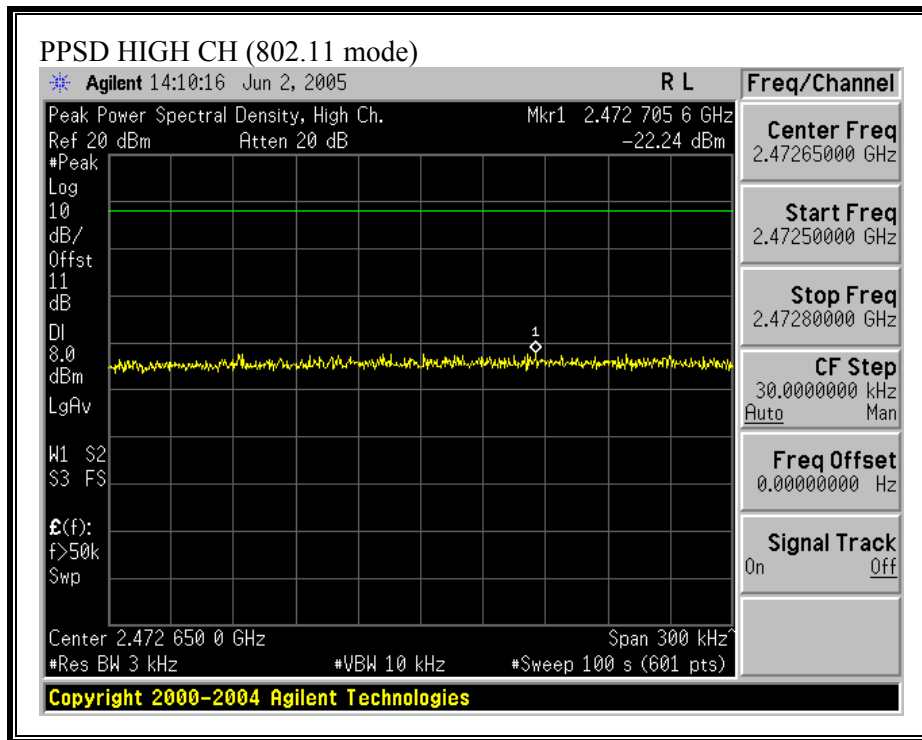
802.11 Mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-22.25	8	-30.25
Middle	2442	-22.10	8	-30.10
High	2472	-22.24	8	-30.24

PEAK POWER SPECTRAL DENSITY (802.11 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

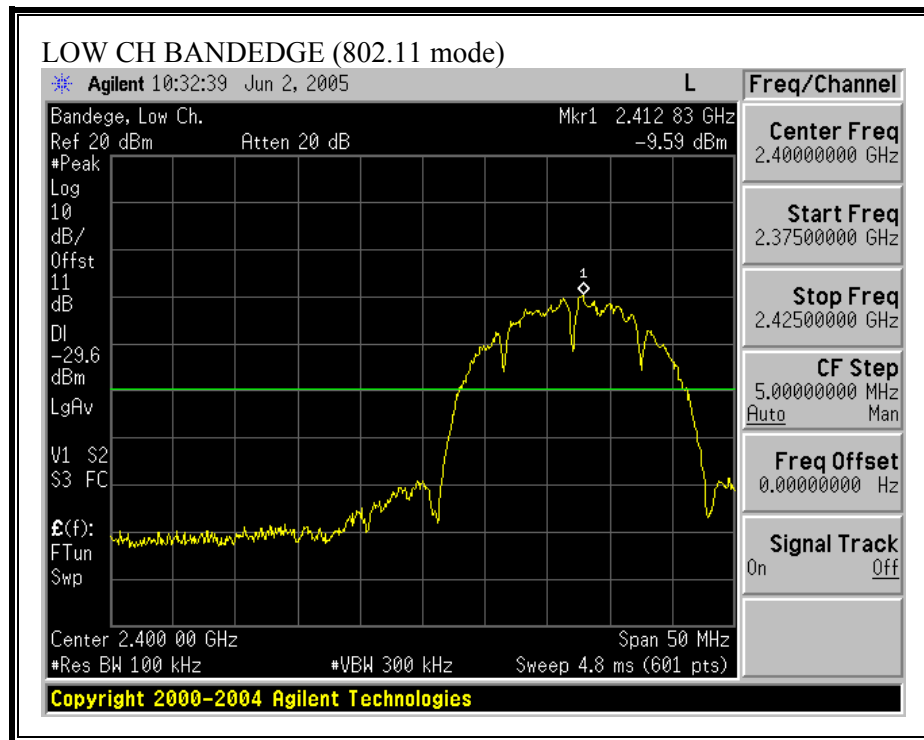
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

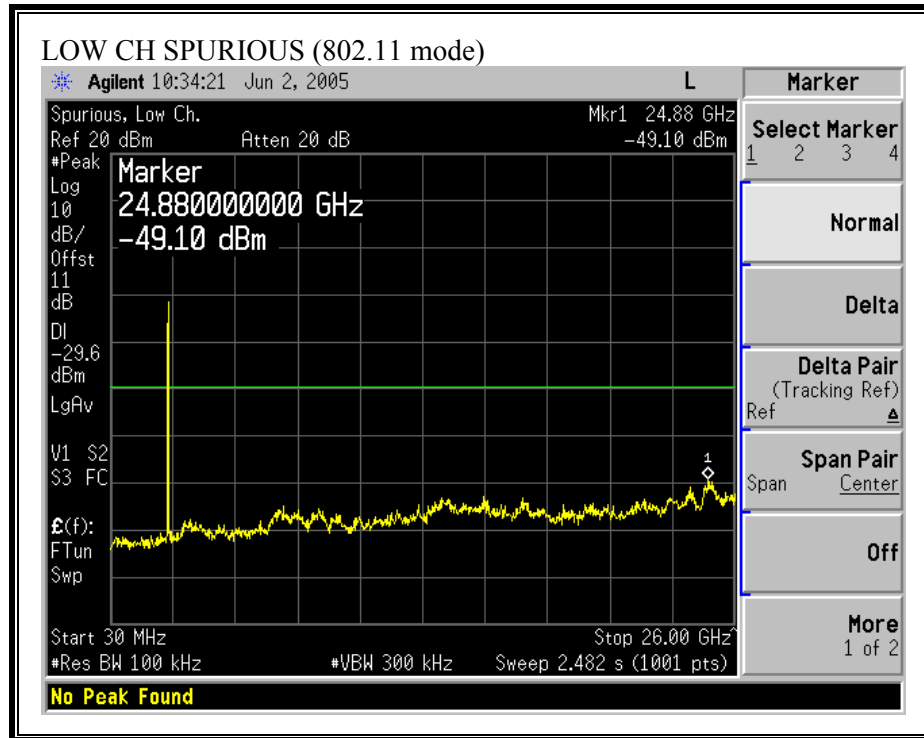
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

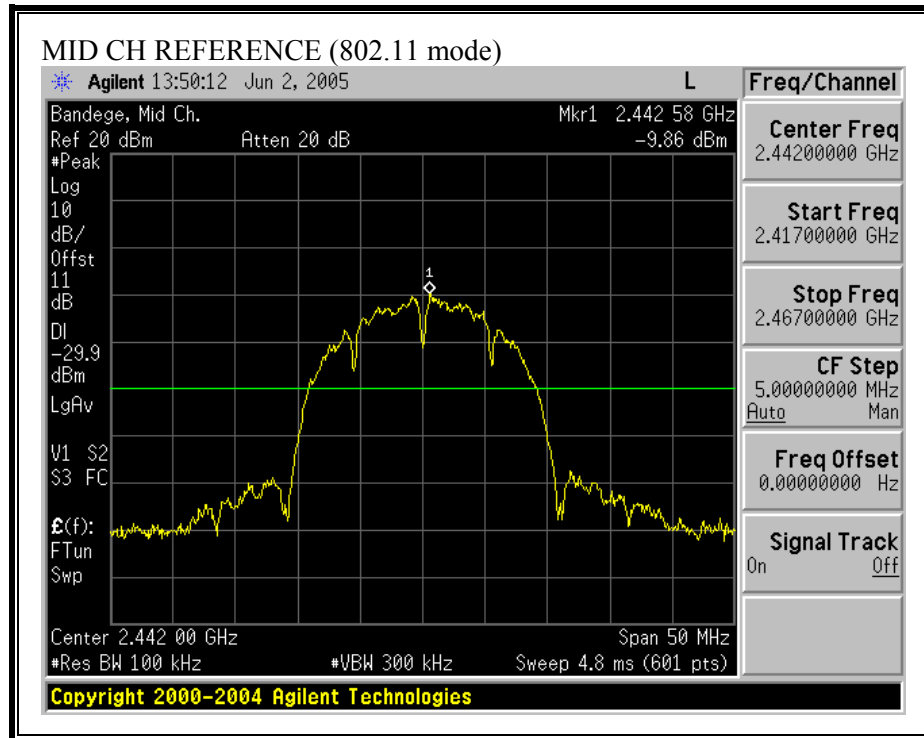
No non-compliance noted:

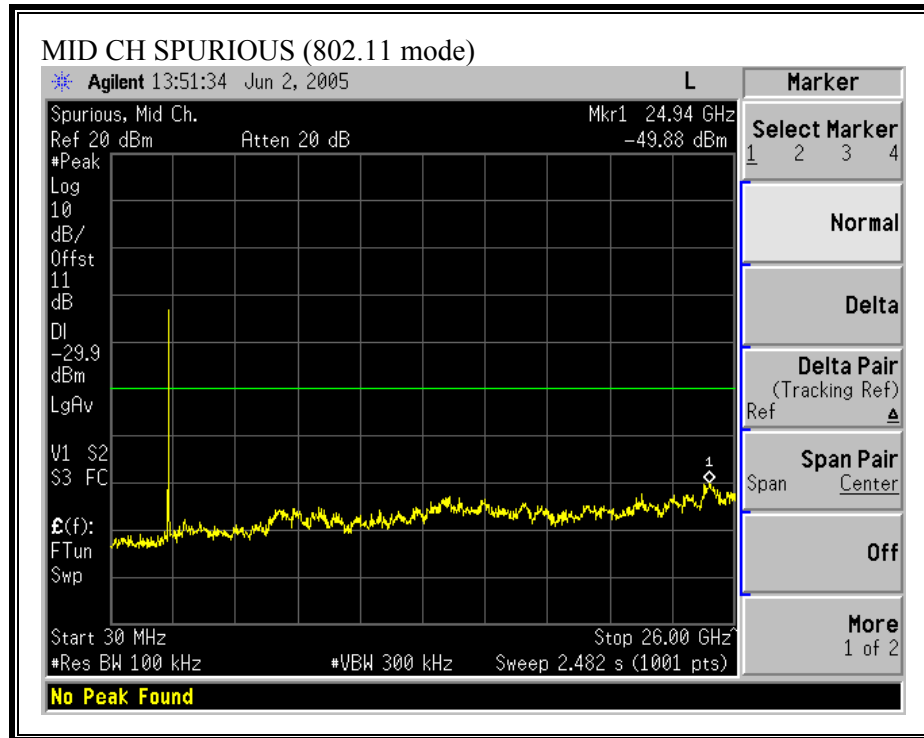
SPURIOUS EMISSIONS, LOW CHANNEL (802.11 MODE)



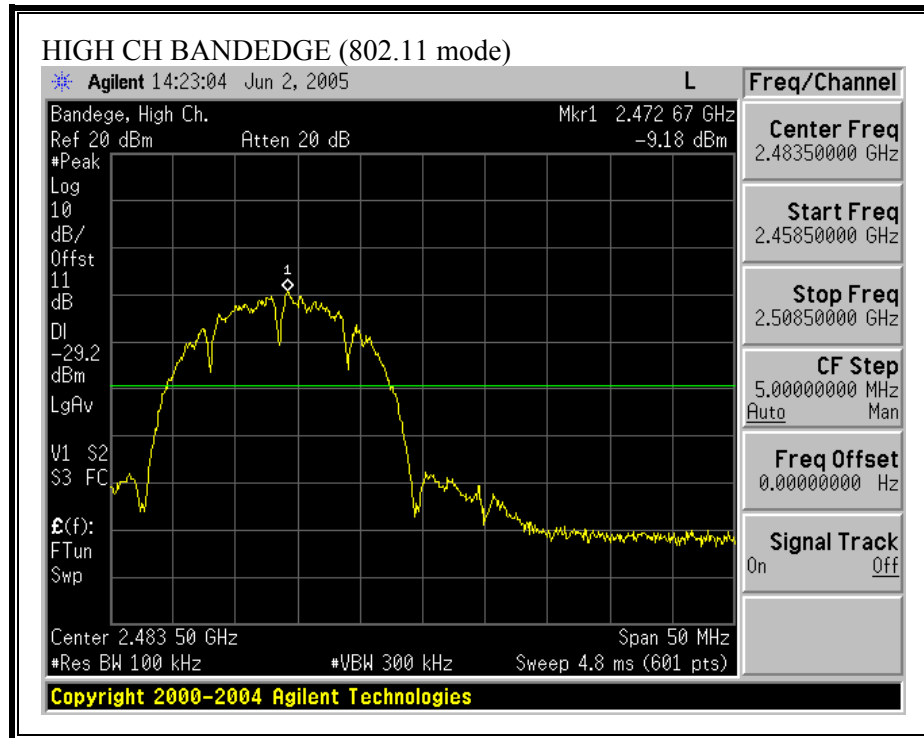


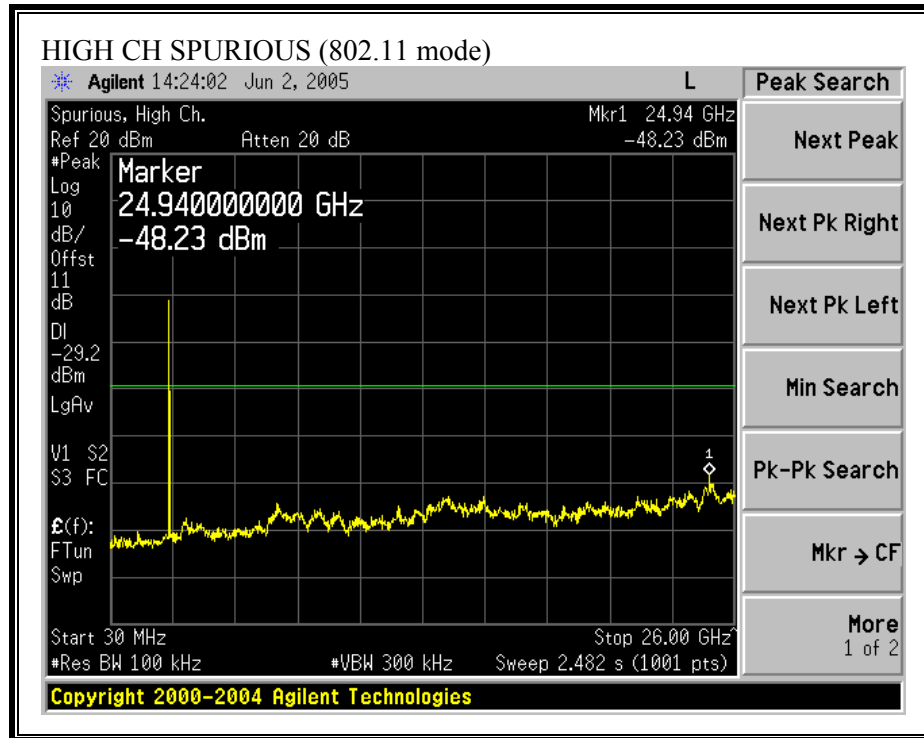
SPURIOUS EMISSIONS, MID CHANNEL (802.11 MODE)





SPURIOUS EMISSIONS, HIGH CHANNEL (802.11 MODE)





7.2. RADIATED EMISSIONS

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.

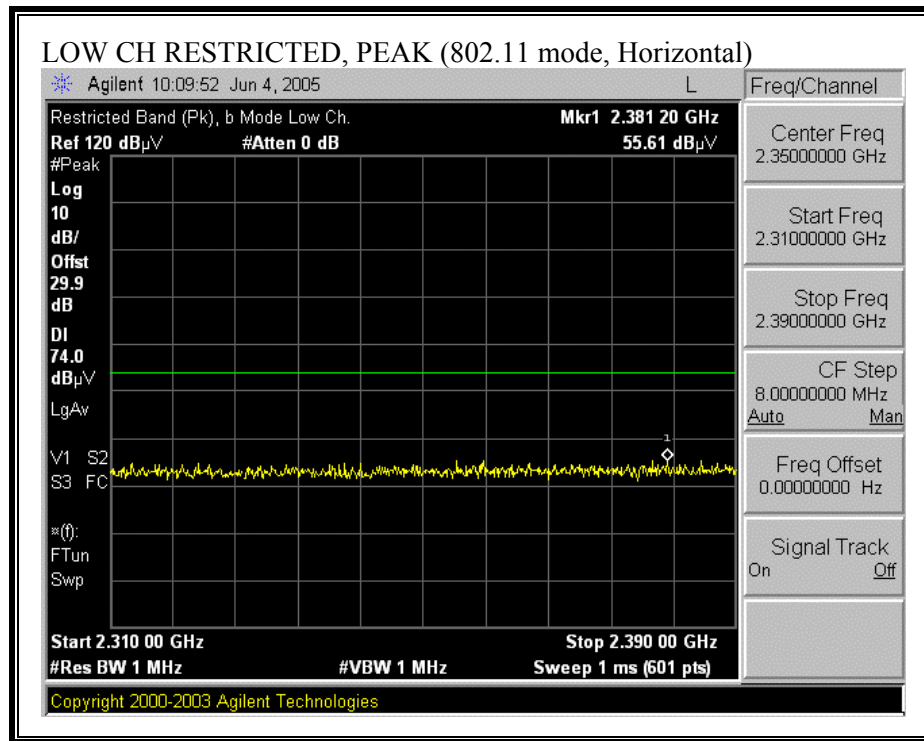
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

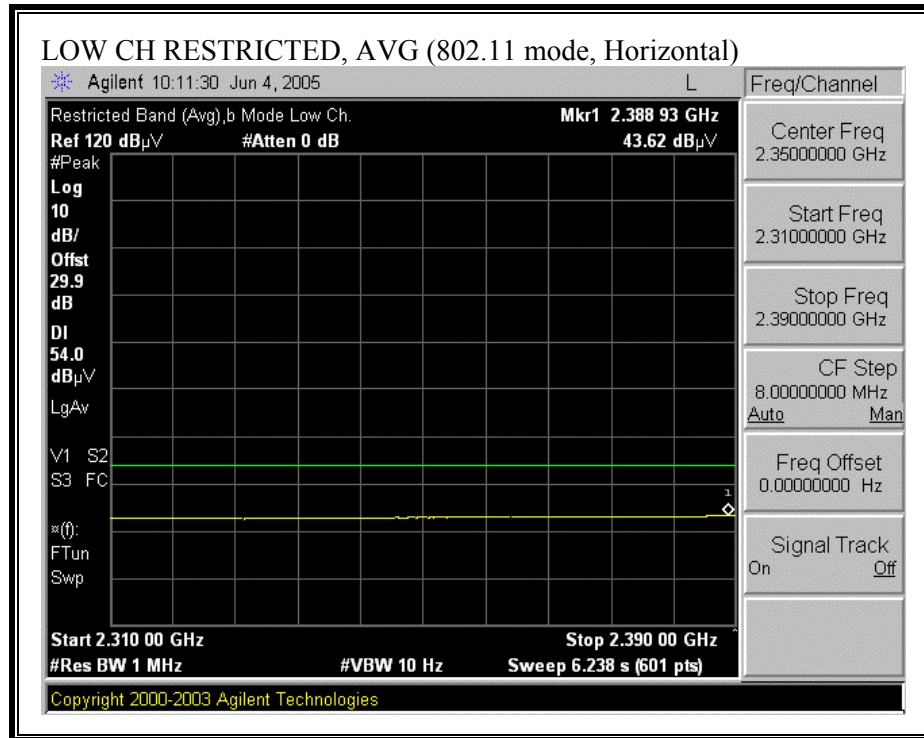
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

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.

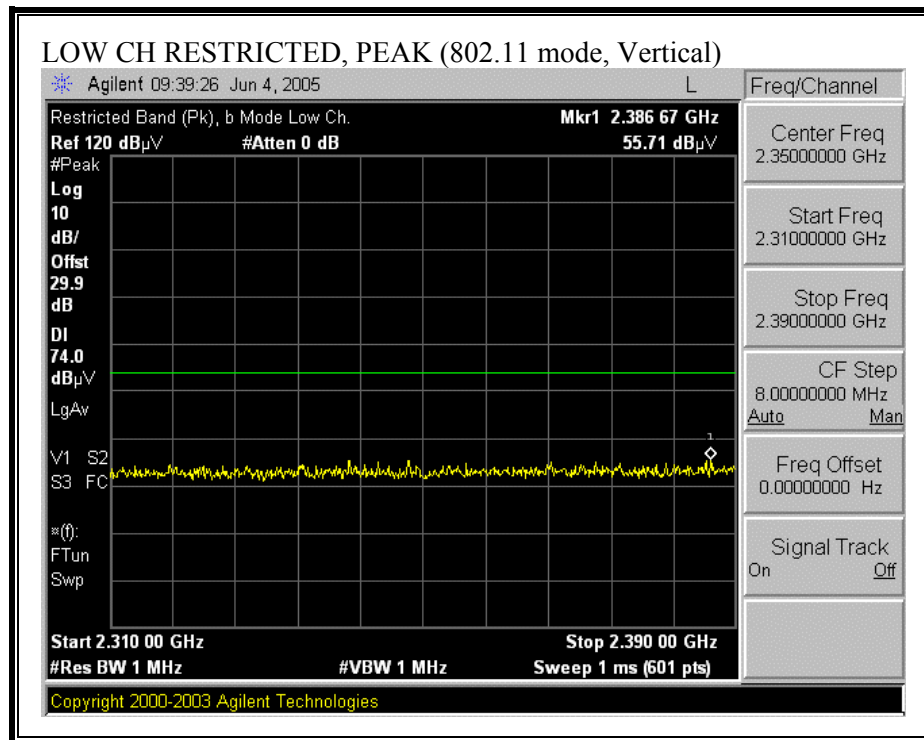
7.2.2. TRANSMITTER ABOVE 1 GHz (2.86 dBi MITSUMI ANTENNA)

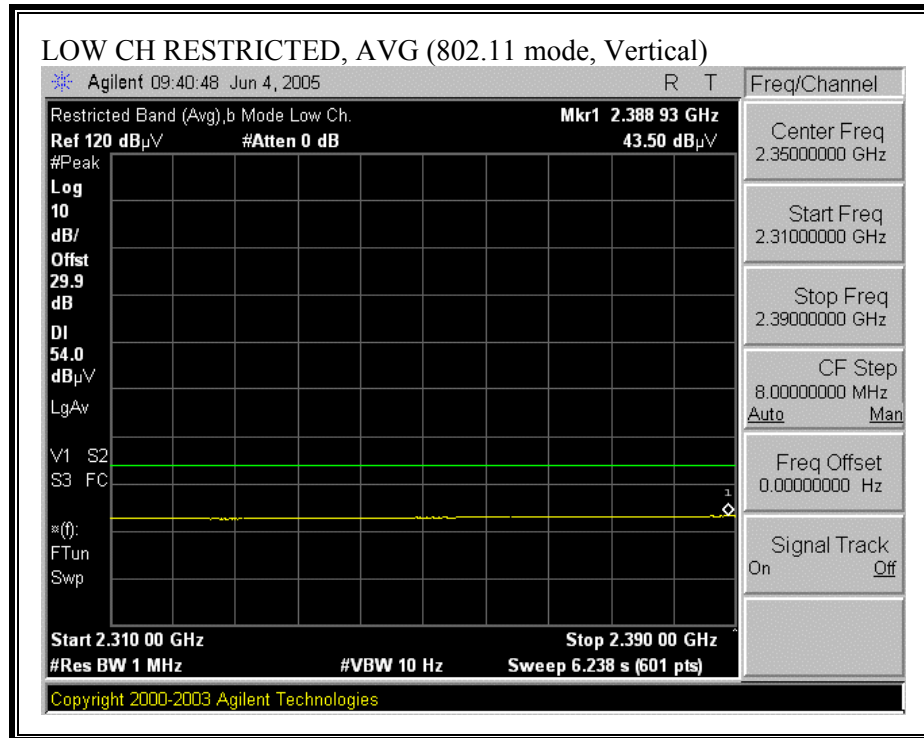
RESTRICTED BANDEDGE (802.11 MODE, LOW CHANNEL, HORIZONTAL)



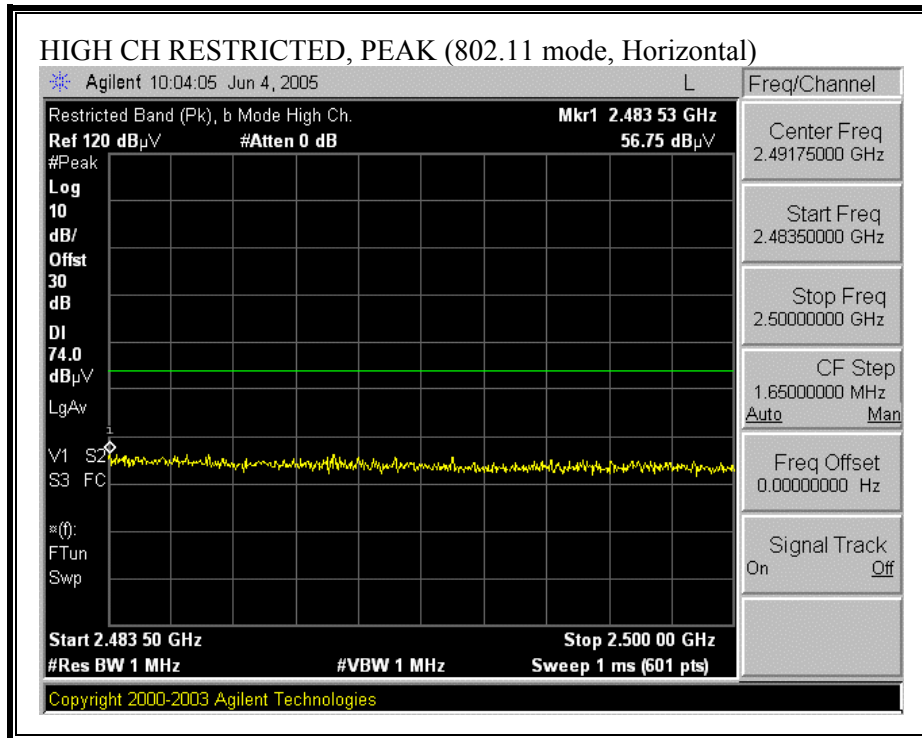


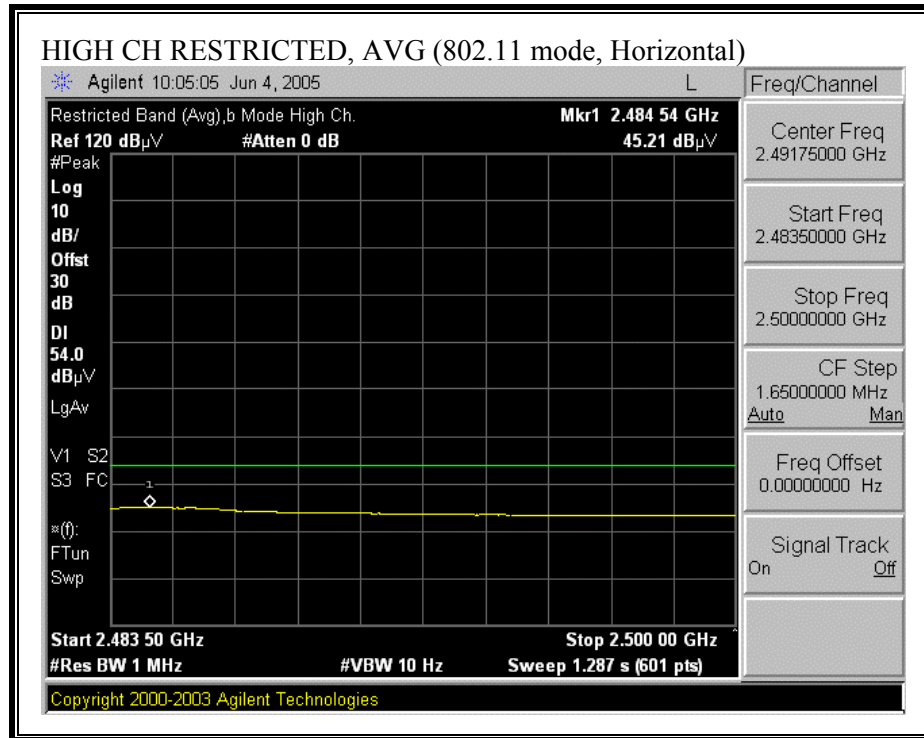
RESTRICTED BANDEDGE (802.11 MODE, LOW CHANNEL, VERTICAL)



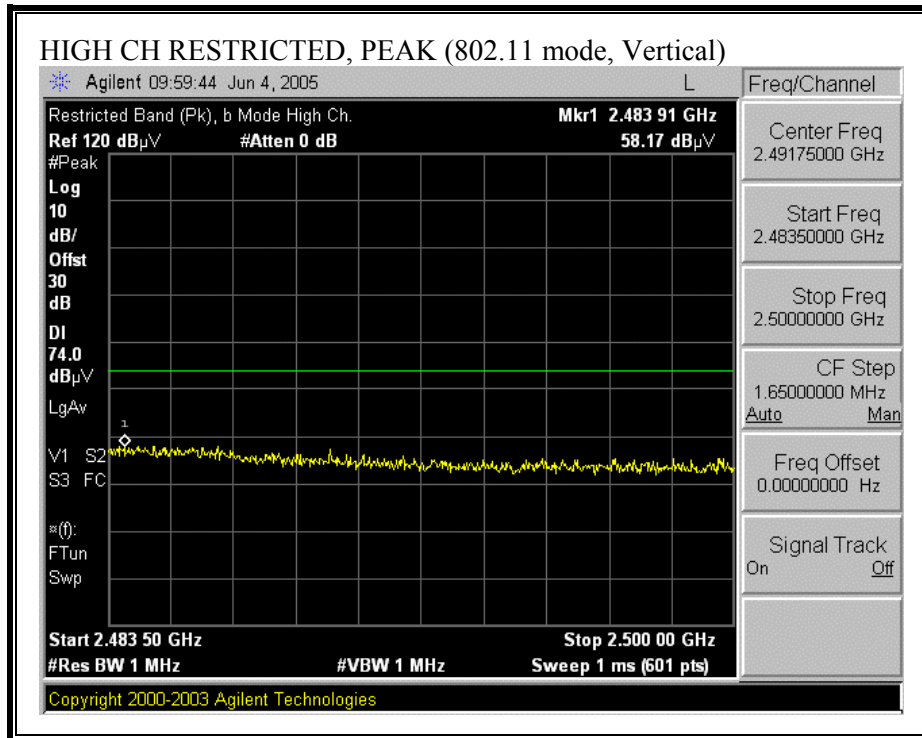


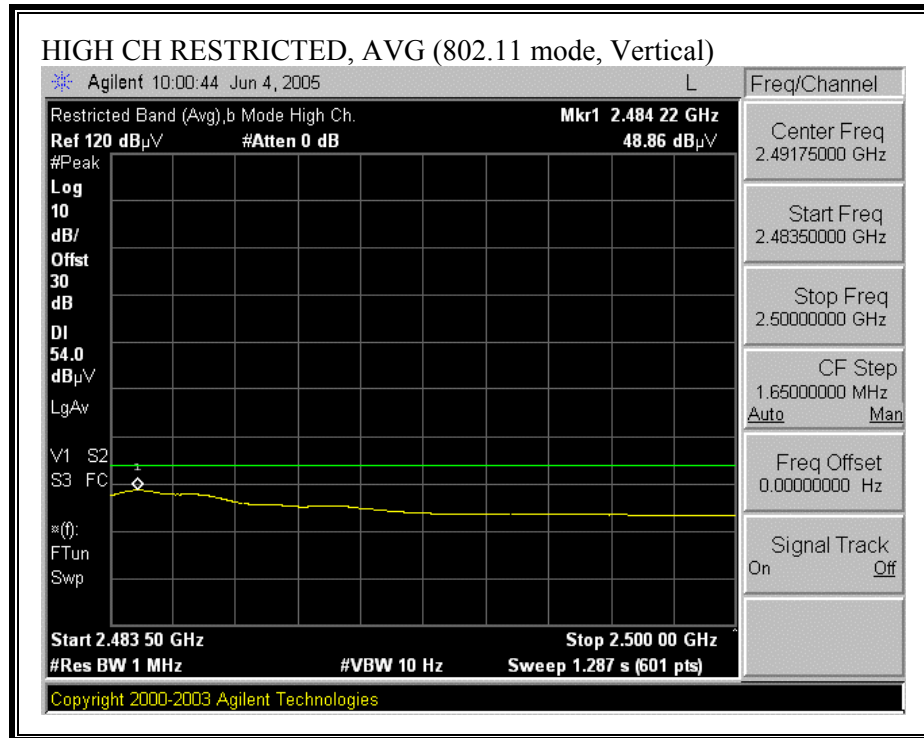
RESTRICTED BANDEDGE (802.11 MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (802.11 MODE, HIGH CHANNEL, VERTICAL)





06/04/05
High Frequency Measurement

Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Thanh Nguyen
Project #: 0513420-3
Company: NINTENDO CO., LTD.
EUT Descrip.: Portable Game with Wireless LAN. (MITSUMI, 00A096200ECB)
EUT M/N: NTR-001
Test Target: FCC Part 15.247
Mode Oper: Transmit Low, Mid and High Channel

Test Equipment:

EMCO Horn 1-18GHz

T60; S/N: 2238 @3m

Pre-amplifier 1-26GHz

T34 HP 8449B

Pre-amplifier 26-40GHz

Horn > 18GHz

Limit

Hi Frequency Cables

2 foot cable

2_Thanh

3 foot cable

4 foot cable

12 foot cable

12_Thanh

HPF

Reject Filter

Peak Measurements

RBW=VBW=1MHz

Average Measurements

RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fldr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
TX Low Channel 2412MHz															
Harmonics Spurious															
4.824	3.0	45.8	38.4	33.6	3.3	-33.6	0.0	0.0	49.1	41.7	74	54	-24.9	-12.3	V
4.824	3.0	45.2	35.5	33.6	3.3	-33.6	0.0	0.0	48.5	38.8	74	54	-25.5	-15.2	H
Spurious Emissions															
1.080	3.0	55.4	45.7	24.4	1.4	-37.9	0.0	0.0	43.4	33.7	74	54	-30.6	-20.3	H
TX MID Channel 2437MHz															
Harmonics Spurious															
4.874	3.0	45.4	36.8	33.7	3.3	-33.5	0.0	0.0	48.9	40.2	74	54	-25.1	-13.8	V
4.874	3.0	47.2	41.0	33.7	3.3	-33.5	0.0	0.0	50.6	44.4	74	54	-23.4	-9.6	H
Spurious Emissions															
1.080	3.0	53.3	46.2	24.4	1.4	-37.9	0.0	0.0	41.2	34.1	74	54	-32.8	-19.9	H
TX High Channel 2472MHz															
4.944	3.0	43.9	31.2	33.7	3.3	-33.5	0.0	0.0	47.5	34.7	74	54	-26.5	-19.3	V
4.944	3.0	45.9	39.0	33.7	3.3	-33.5	0.0	0.0	49.4	42.6	74	54	-24.6	-11.4	H
Harmonics Spurious															
1.080	3.0	51.6	47.2	24.4	1.4	-37.9	0.0	0.0	39.6	35.2	74	54	-34.4	-18.8	H
No more Spurious Emission were detected up to 25GHz.															

f
Measurement Frequency

Dist
Distance to Antenna

Read
Analyzer Reading

AF
Antenna Factor

CL
Cable Loss

Amp
Preamp Gain

D Corr
Distance Correct to 3 meters

Avg
Average Field Strength @ 3 m

Peak
Calculated Peak Field Strength

HPF
High Pass Filter

Avg Lim
Average Field Strength Limit

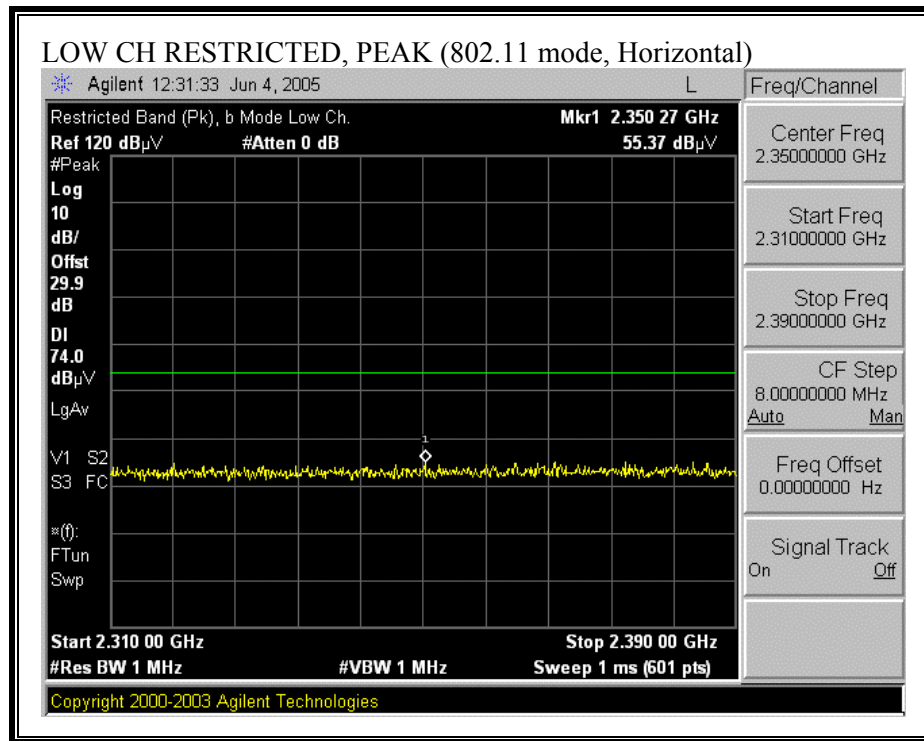
Pk Lim
Peak Field Strength Limit

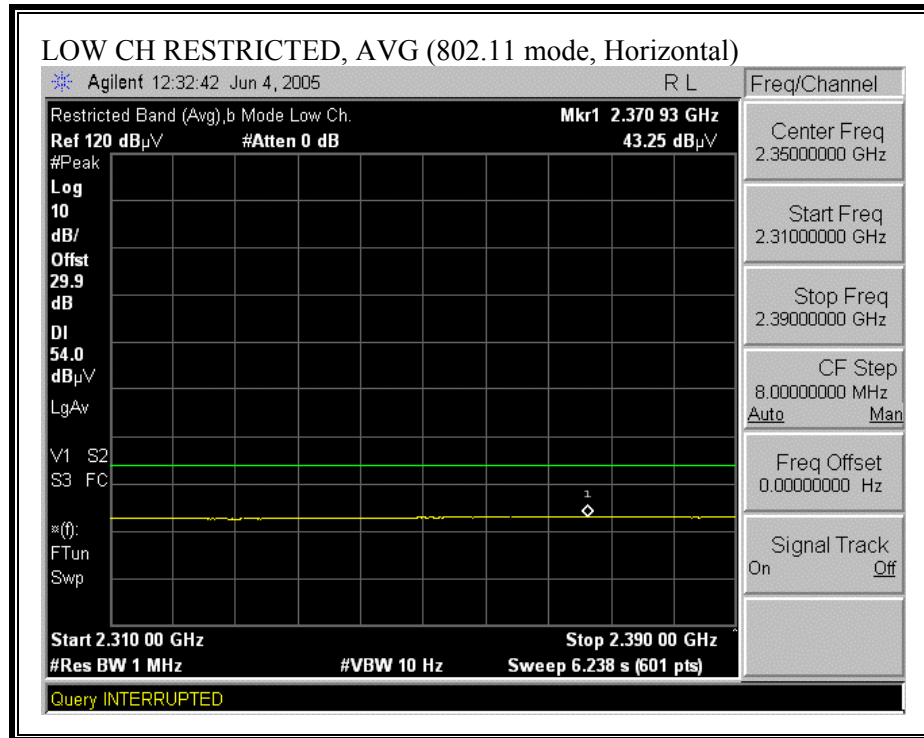
Avg Mar
Margin vs. Average Limit

Pk Mar
Margin vs. Peak Limit

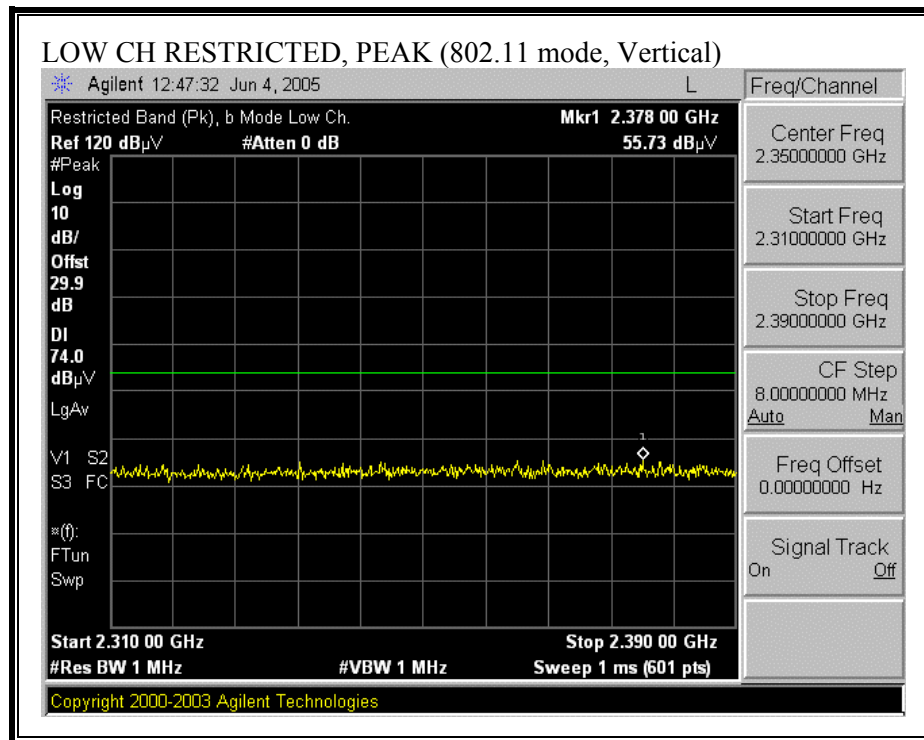
7.2.3. TRANSMITTER ABOVE 1 GHz (1.46 dBi FOXCONN ANTENNA)

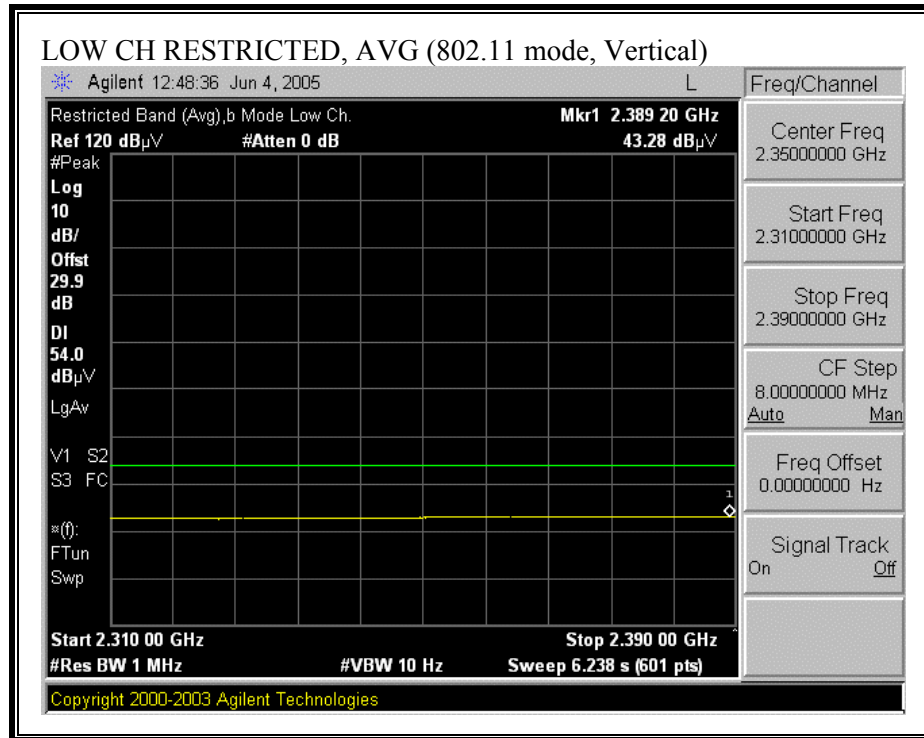
RESTRICTED BANDEDGE (802.11 MODE, LOW CHANNEL, HORIZONTAL)



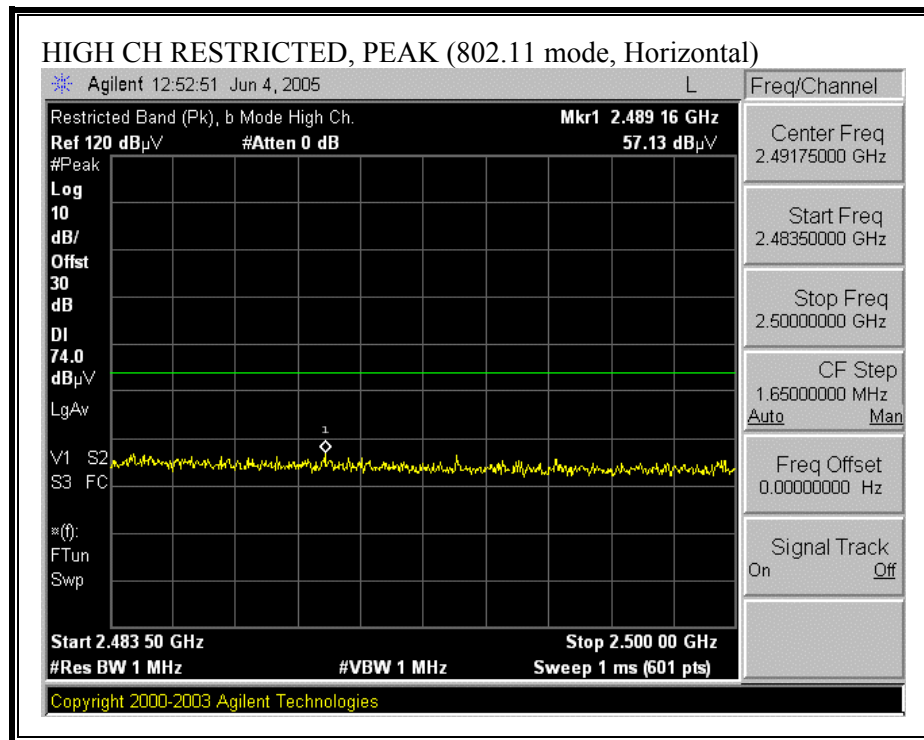


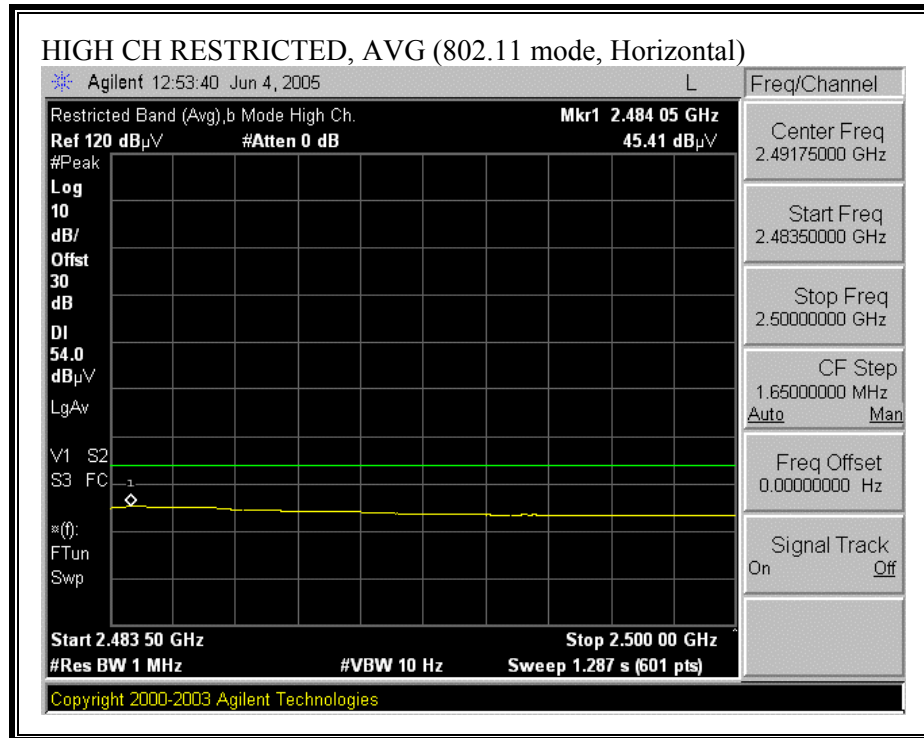
RESTRICTED BANDEDGE (802.11 MODE, LOW CHANNEL, VERTICAL)



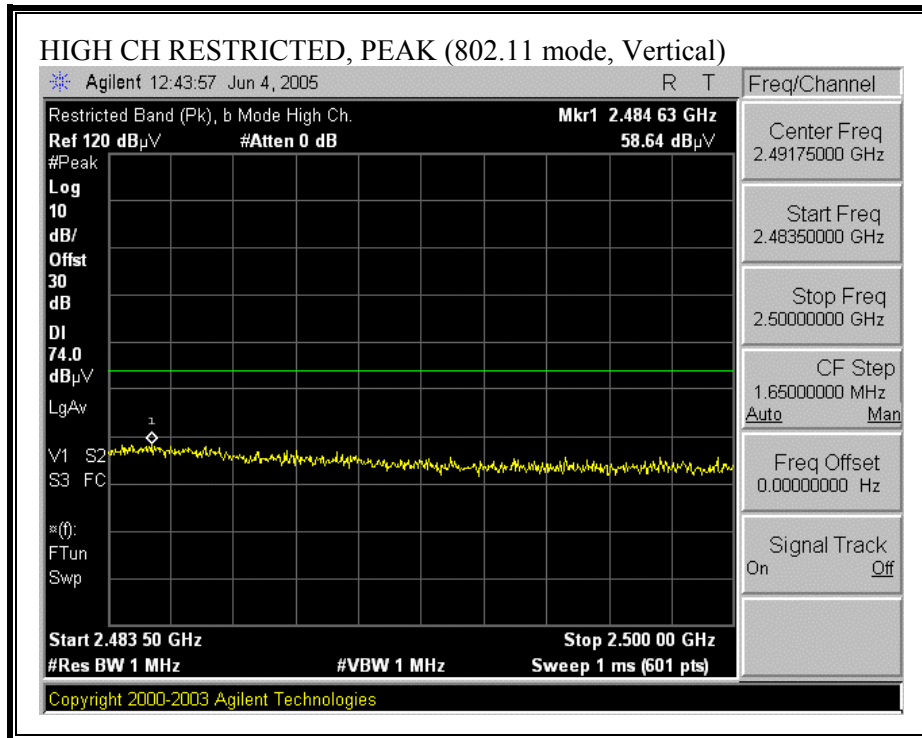


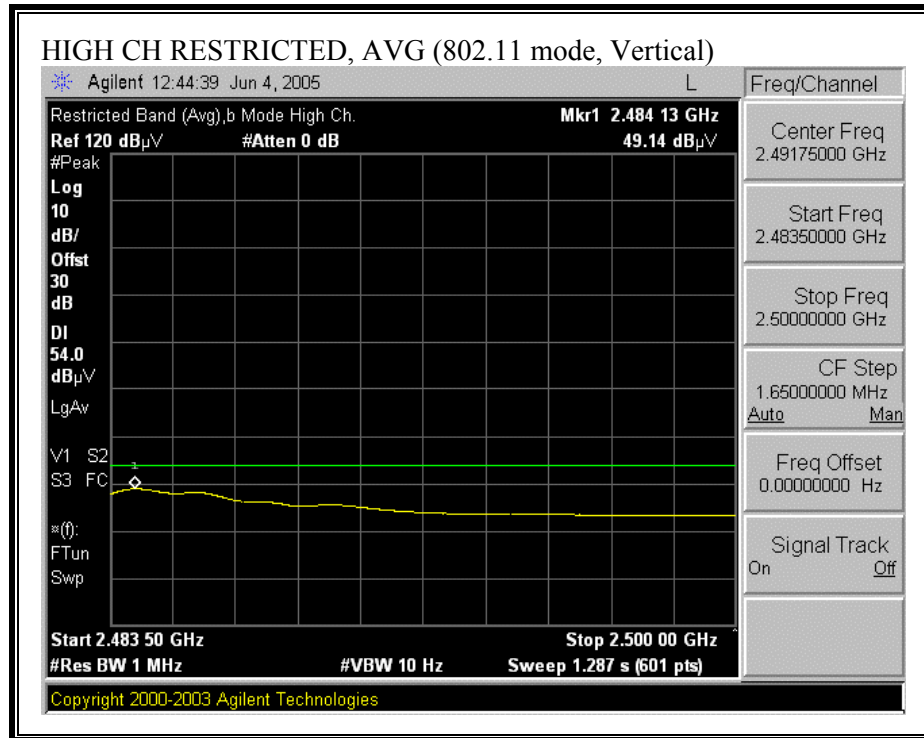
RESTRICTED BANDEDGE (802.11 MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (802.11 MODE, HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS (802.11 MODE)

06/04/05
High Frequency Measurement

Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Thanh Nguyen
Project #: 0513420-3
Company: NINTENDO CO., LTD.
EUT Descr.: Portable Game with Wireless LAN. (FOXCONN, 00A096200ECE)
EUT M/N: NTR-001
Test Target: FCC Part 15.247
Mode Oper: Transmit Low, Mid and High Channel

Test Equipment:

EMCO Horn 1-18GHz

Pre-amplifier 1-26GHz

Pre-amplifier 26-40GHz

Horn > 18GHz

Limit

T60; S/N: 2238 @3m

T34 HP 8449B

Hi Frequency Cables

2 foot cable

3 foot cable

4 foot cable

12 foot cable

2_Thanh

12_Thanh

HPF

Reject Filter

Peak Measurements

RBW=VBW=1MHz

Average Measurements

RBW=1MHz; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
TX Low Channel 2412MHz															
Harmonics Spurious															
4.824	3.0	43.9	35.9	33.6	3.3	-33.6	0.0	0.0	47.2	39.2	74	54	-26.8	-14.8	V
4.824	3.0	43.0	32.6	33.6	3.3	-33.6	0.0	0.0	46.4	35.9	74	54	-27.6	-18.1	H
Spurious Emissions															
1.080	3.0	50.8	44.8	24.4	1.4	-37.9	0.0	0.0	38.7	32.8	74	54	-35.3	-21.2	H
TX MID Channel 2437MHz															
Harmonics Spurious															
4.874	3.0	43.8	36.1	33.7	3.3	-33.5	0.0	0.0	47.2	39.5	74	54	-26.8	-14.5	V
4.874	3.0	42.8	33.3	33.7	3.3	-33.5	0.0	0.0	46.2	36.7	74	54	-27.8	-17.3	H
Spurious Emissions															
1.080	3.0	50.7	45.0	24.4	1.4	-37.9	0.0	0.0	38.7	33.0	74	54	-35.3	-21.0	H
TX High Channel 2472MHz															
4.944	3.0	44.5	34.6	33.7	3.3	-33.5	0.0	0.0	48.0	38.1	74	54	-26.0	-15.9	V
4.944	3.0	40.6	34.6	33.7	3.3	-33.5	0.0	0.0	44.1	38.1	74	54	-29.9	-15.9	H
Harmonics Spurious															
1.080	3.0	53.4	46.2	24.4	1.4	-37.9	0.0	0.0	41.3	34.2	74	54	-32.7	-19.8	H
No more Spurious Emission were detected up to 25GHz.															

f
Measurement Frequency

Dist
Distance to Antenna

Read
Analyzer Reading

AF
Antenna Factor

CL
Cable Loss

Amp
Preamp Gain

D Corr
Distance Correct to 3 meters

Avg
Average Field Strength @ 3 m

Peak
Calculated Peak Field Strength

HPF
High Pass Filter

Avg Lim
Average Field Strength Limit

Pk Lim
Peak Field Strength Limit

Avg Mar
Margin vs. Average Limit

Pk Mar
Margin vs. Peak Limit

7.2.4. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz WITH 2.86 dBi MITSUMI ANTENNA, KYUSHU MITSUMI AC ADAPTER

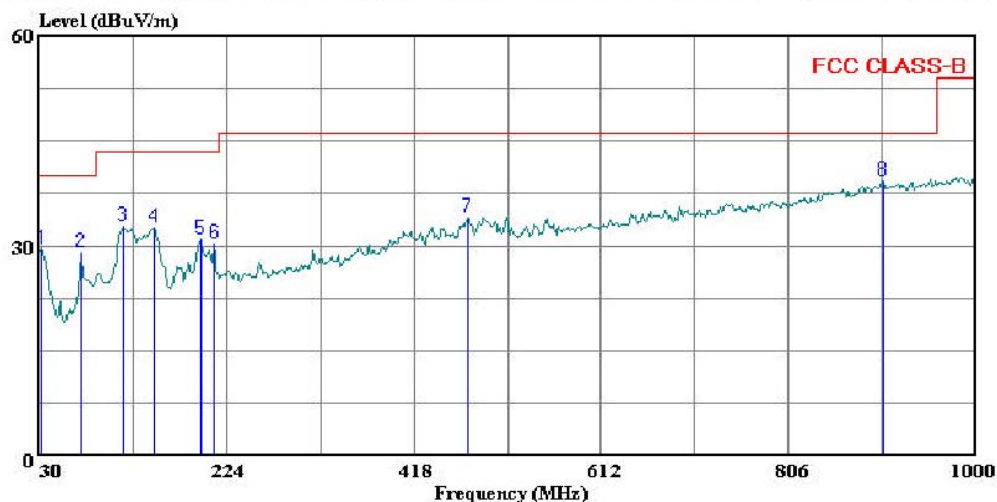
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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

Data#: 8 File#: EMI-05I3420-3.EMI Date: 06-03-2005 Time: 10:25:06



(Aux ATC)

Trace: 7

Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: : William Zhuang
Project #: : 05I3420-3
Company: : Nintendo
EUT: : Portable gamemachine with Wireless LAN
Model No. : NTR-001
Configuration : EUT, (Mitsumi) with Game card NTR-005
: AC/DC Adapter Mgr:KYUSHU MITSUMI
Target of Test : FCC CLASS B
Mode of Operation: Tx On, worst case

HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	31.940	9.63	19.94	29.57	40.00	-10.43	Peak
2	72.680	19.81	9.23	29.04	40.00	-10.96	Peak
3	116.330	18.15	14.71	32.86	43.50	-10.64	Peak
4	148.340	18.29	14.33	32.61	43.50	-10.89	Peak
5	196.840	16.94	14.00	30.94	43.50	-12.56	Peak
6	211.390	17.38	12.92	30.30	43.50	-13.20	Peak
7	473.290	14.42	19.71	34.13	46.00	-11.87	Peak
8	903.970	13.18	25.97	39.15	46.00	-6.85	Peak

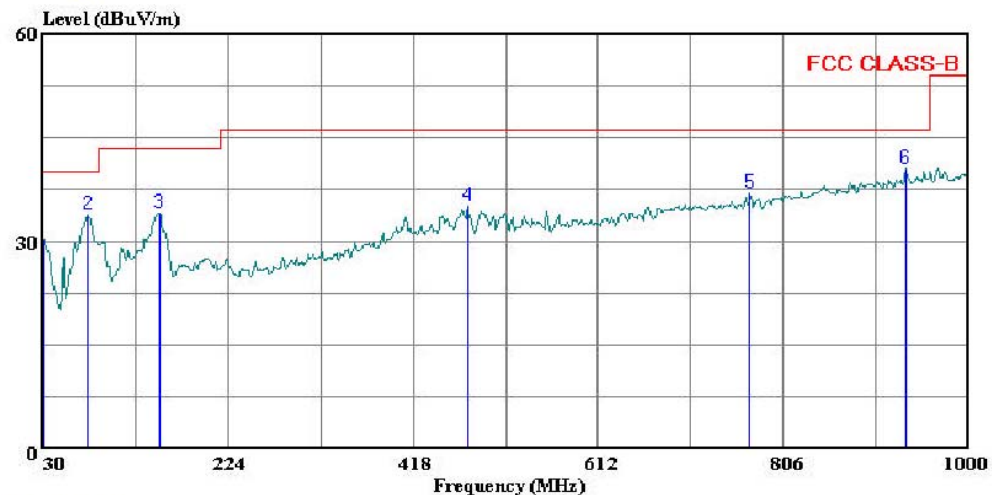
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



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

Data#: 6 File#: EMI-05I3420-3.EMI Date: 06-03-2005 Time: 10:16:35



(Audix ATC)

Trace: 5

Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : William Zhuang
Project #: : 05I3420-3
Company: : Nintendo
EUT: : Portable gamemachine with Wireless LAN
Model No. : NTR-001
Configuration : EUT, (Mitsumi) with Game card NTR-005
: AC/DC Adapter Mgr:KYUSHU MITSUMI
Target of Test : FCC CLASS B
Mode of Operation: Tx On, worst case

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	9.91	20.45	30.36	40.00	-9.64	Peak
2	77.530	24.79	9.03	33.82	40.00	-6.18	Peak
3	152.220	19.92	14.06	33.98	43.50	-9.52	Peak
4	475.230	15.36	19.75	35.11	46.00	-10.89	Peak
5	771.080	12.89	24.17	37.06	46.00	-8.94	Peak
6	934.040	14.13	26.33	40.46	46.00	-5.54	Peak

7.2.5. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz WITH 2.86 dBi MITSUMI ANTENNA, TABUCHI AC ADAPTER

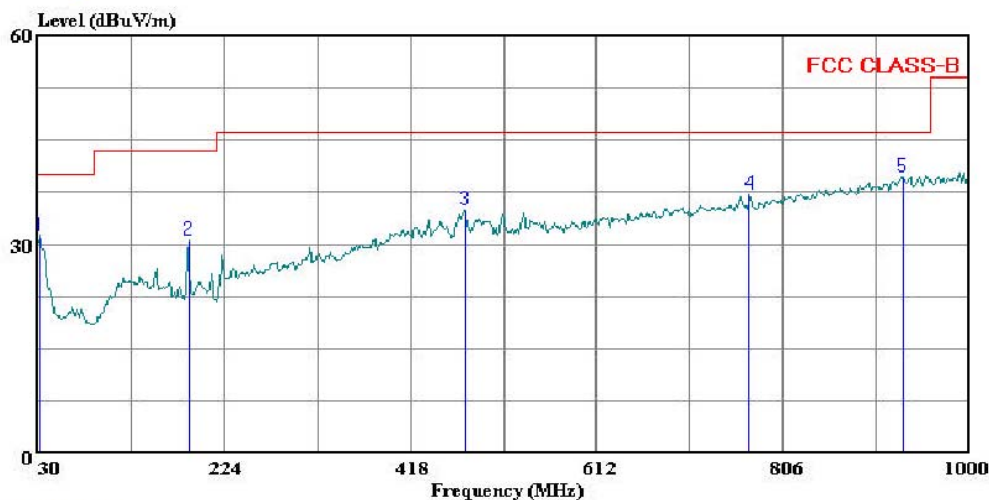
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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

Data#: 2 File#: EMI-05I3420-3.EMI Date: 06-03-2005 Time: 09:46:50



(Auxiliary)

Trace: 1

Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: William Zhuang
Project #: 05I3420-3
Company: Nintendo
EUT: Portable gamemachine with Wireless LAN
Model No.: NTR-001
Configuration: EUT, (Mitsumi) with Game card NTR-005
AC/DC Adapter Mgr: TABUCHI
Target of Test: FCC CLASS B
Mode of Operation: Tx On, worst case

HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.970	10.65	20.45	31.10	40.00	-8.90	Peak
2	187.140	17.72	12.87	30.59	43.50	-12.91	Peak
3	475.230	15.19	19.75	34.94	46.00	-11.06	Peak
4	771.080	13.05	24.17	37.22	46.00	-8.78	Peak
5	931.130	13.36	26.28	39.64	46.00	-6.36	Peak

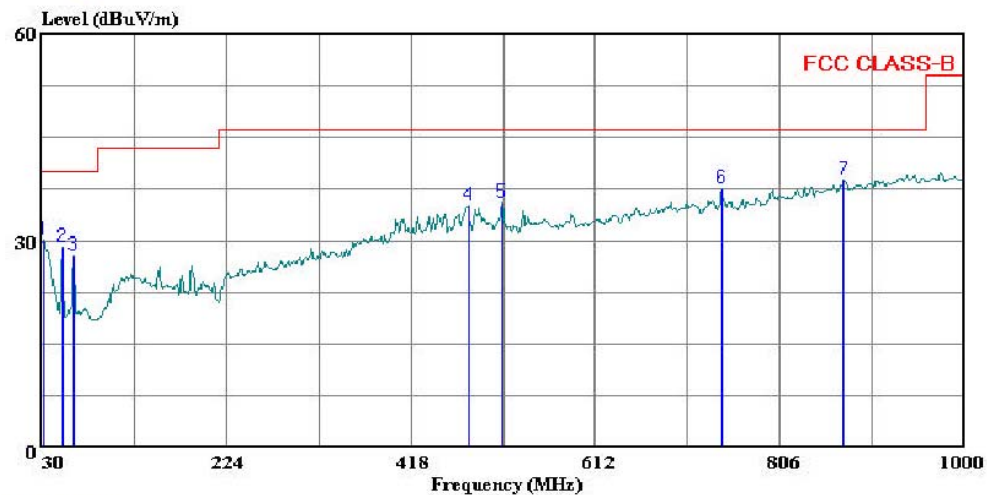
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



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

Data#: 4 File#: EMI-05I3420-3.EMI Date: 06-03-2005 Time: 10:03:03



(Audix ATC)

Trace: 3

Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : William Zhuang
Project #: : 05I3420-3
Company: : Nintendo
EUT: : Portable gamemachine with Wireless LAN
Model No. : NTR-001
Configuration : EUT, (Mitsumi) with Game card NTR-005
: AC/DC Adapter Mgr:TABUCHI
Target of Test : FCC CLASS B
Mode of Operation: Tx On, worst case

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.970	9.73	20.45	30.18	40.00	-9.82	Peak
2	51.340	19.92	9.05	28.97	40.00	-11.03	Peak
3	62.980	18.91	8.90	27.81	40.00	-12.19	Peak
4	478.140	15.22	19.79	35.01	46.00	-10.99	Peak
5	514.030	15.07	20.44	35.51	46.00	-10.49	Peak
6	744.890	13.69	23.80	37.49	46.00	-8.51	Peak
7	872.930	13.15	25.61	38.76	46.00	-7.24	Peak

7.2.6. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz WITH 1.46 dBi FOXCONN ANTENNA, KYUSHU MITSUMI AC ADAPTER

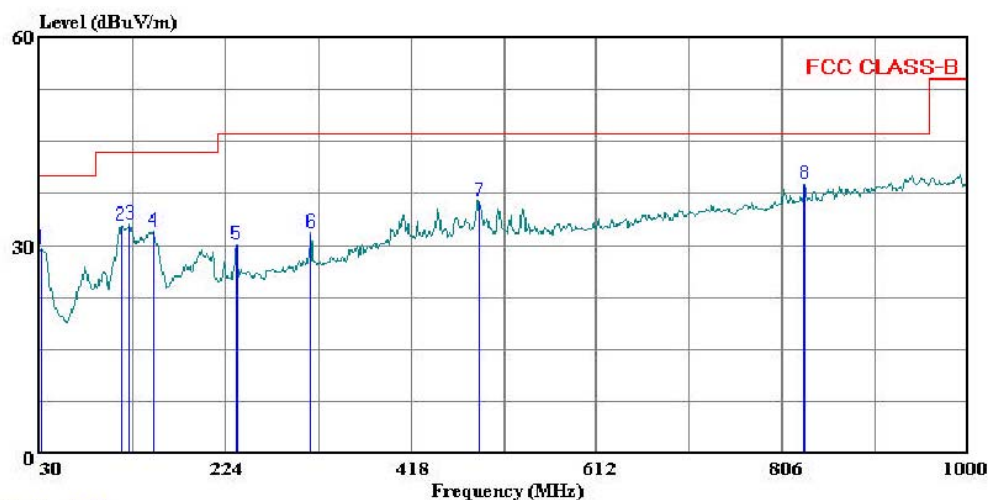
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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

Data#: 10 File#: EMI-05I3420-3.EMI Date: 06-03-2005 Time: 10:46:39



Trace: 9

Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: : William Zhuang
Project #: : 05I3420-3
Company: : Nintendo
EUT: : Portable gamemachine with Wireless LAN
Model No. : NTR-001
Configuration : EUT, (Foxconn) with Game card NTR-005
: AC/DC Adapter Mgr:KYUSHU MITSUMI
Target of Test : FCC CLASS B
Mode of Operation: Tx On, worst case

HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.970	9.12	20.45	29.57	40.00	-10.43	Peak
2	115.360	18.13	14.60	32.73	43.50	-10.77	Peak
3	124.090	17.77	15.23	33.00	43.50	-10.50	Peak
4	148.340	17.58	14.33	31.90	43.50	-11.60	Peak
5	235.640	16.89	13.30	30.19	46.00	-15.81	Peak
6	313.240	15.69	16.05	31.74	46.00	-14.26	Peak
7	489.780	16.25	20.05	36.30	46.00	-9.70	Peak
8	829.280	13.88	24.92	38.80	46.00	-7.20	Peak

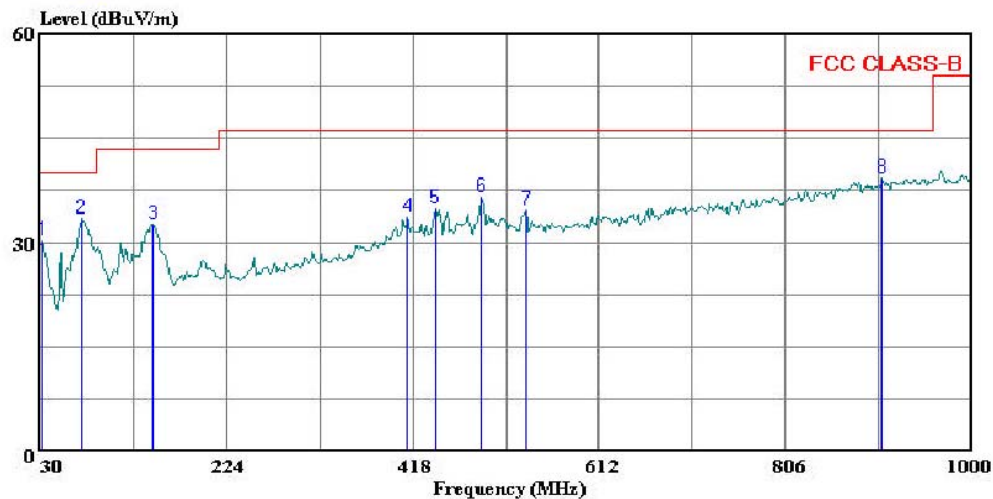
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



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

Data#: 12 File#: EMI-05I3420-3.EMI Date: 06-03-2005 Time: 10:56:56



(Auxilx ATC)

Trace: 11

Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : William Zhuang
Project #: : 05I3420-3
Company: : Nintendo
EUT: : Portable gamemachine with Wireless LAN
Model No. : NTR-001
Configuration : EUT, (Foxconn) with Game card NTR-005
: AC/DC Adapter Mgr:KYUSHU MITSUMI
Target of Test : FCC CLASS B
Mode of Operation: Tx On, worst case

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	31.940	10.37	19.94	30.31	40.00	-9.69	Peak
2	72.680	24.22	9.23	33.45	40.00	-6.55	Peak
3	147.370	18.12	14.39	32.51	43.50	-10.99	Peak
4	412.180	15.39	18.34	33.73	46.00	-12.27	Peak
5	441.280	15.86	19.02	34.88	46.00	-11.12	Peak
6	489.780	16.57	20.05	36.62	46.00	-9.38	Peak
7	536.340	13.90	20.73	34.63	46.00	-11.37	Peak
8	906.880	13.33	26.01	39.34	46.00	-6.66	Peak

7.2.7. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz WITH 1.46 dBi FOXCONN ANTENNA, TABUCHI AC ADAPTER

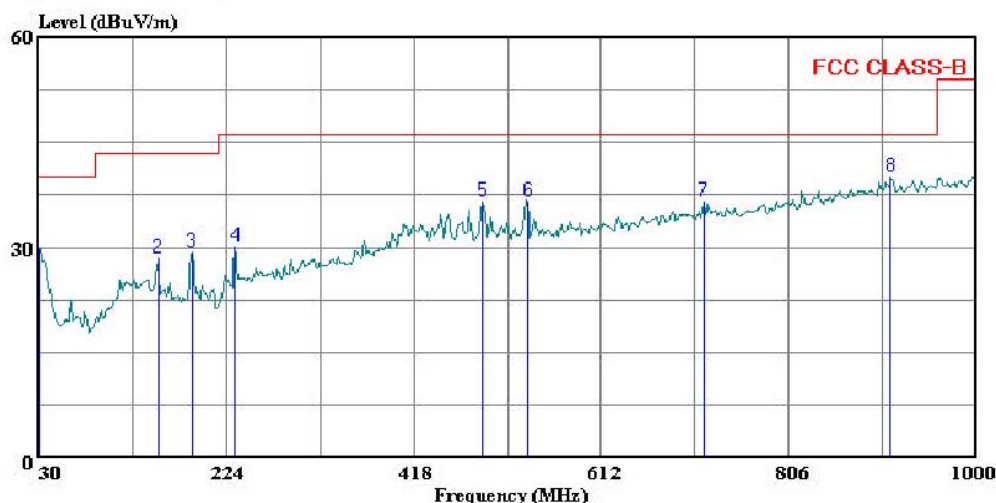
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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

Data#: 16 File#: EMI-05I3420-3.EMI Date: 06-03-2005 Time: 11:13:42



(Audix ATC)

Trace: 15

Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: : William Zhuang
Project #: : 05I3420-3
Company: : Nintendo
EUT: : Portable gamemachine with Wireless LAN
Model No. : NTR-001
Configuration : EUT, (Foxconn) with Game card NTR-005
: AC/DC Adapter Mgr:TABUCHI
Target of Test : FCC CLASS B
Mode of Operation: Tx On, worst case

HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	9.44	20.45	29.89	40.00	-10.11	Peak
2	153.190	14.41	14.03	28.44	43.50	-15.06	Peak
3	189.080	16.33	12.93	29.26	43.50	-14.24	Peak
4	232.730	17.00	13.17	30.17	46.00	-15.83	Peak
5	489.780	16.57	20.05	36.62	46.00	-9.38	Peak
6	536.340	15.78	20.73	36.51	46.00	-9.49	Peak
7	717.730	13.25	23.39	36.64	46.00	-9.36	Peak
8	911.730	14.11	26.00	40.11	46.00	-5.89	Peak

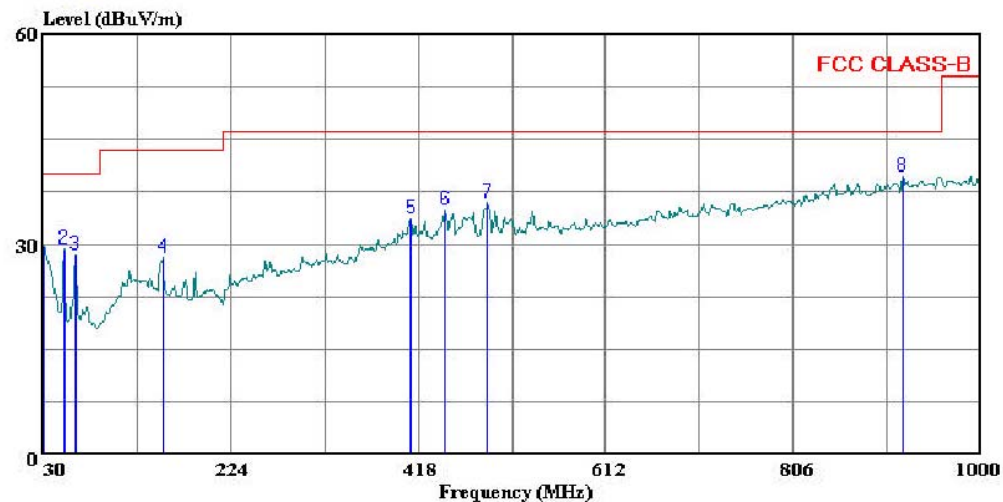
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



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

Data#: 14 File#: EMI-05I3420-3.EMI Date: 06-03-2005 Time: 11:06:37



(Auxiliary ATC)

Trace: 13

Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : William Zhuang
Project #: : 05I3420-3
Company: : Nintendo
EUT: : Portable gamemachine with Wireless LAN
Model No. : NTR-001
Configuration : EUT, (Foxconn) with Game card NTR-005
: AC/DC Adapter Mgr:TABUCHI
Target of Test : FCC CLASS B
Mode of Operation: Tx On, worst case

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	9.25	20.45	29.70	40.00	-10.30	Peak
2	51.340	20.20	9.05	29.25	40.00	-10.75	Peak
3	62.980	19.58	8.90	28.48	40.00	-11.52	Peak
4	153.190	14.03	14.03	28.06	43.50	-15.44	Peak
5	410.240	15.25	18.31	33.56	46.00	-12.44	Peak
6	446.130	15.87	19.09	34.96	46.00	-11.04	Peak
7	489.780	15.95	20.05	36.00	46.00	-10.00	Peak
8	919.490	13.55	26.08	39.63	46.00	-6.37	Peak

7.3. POWERLINE CONDUCTED EMISSIONS

LIMIT

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

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

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

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

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

RESULTS

No non-compliance noted:

6 WORST EMISSIONS

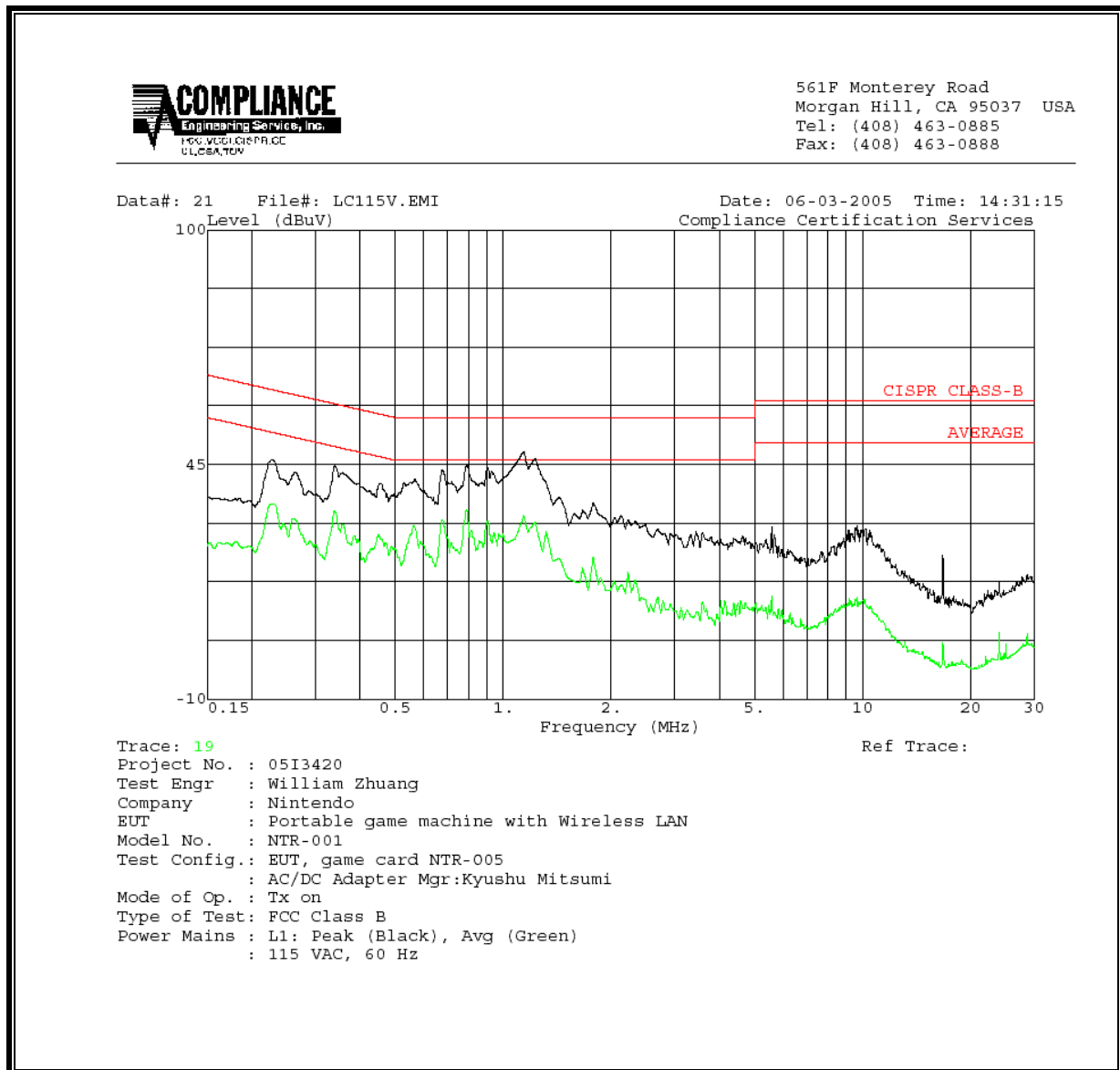
EUT with Foxconn Antenna, KYUSHU MITSUMI AC ADAPTER

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	FCC B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.79	44.88	--	34.25	0.00	56.00	46.00	-11.12	-11.75	L1
1.14	48.00	--	32.94	0.00	56.00	46.00	-8.00	-13.06	L1
1.22	46.13	--	31.48	0.00	56.00	46.00	-9.87	-14.52	L1
0.68	43.44	--	32.76	0.00	56.00	46.00	-12.56	-13.24	L2
0.79	43.72	--	33.94	0.00	56.00	46.00	-12.28	-12.06	L2
1.14	44.16	--	32.47	0.00	56.00	46.00	-11.84	-13.53	L2
6 Worst Data									

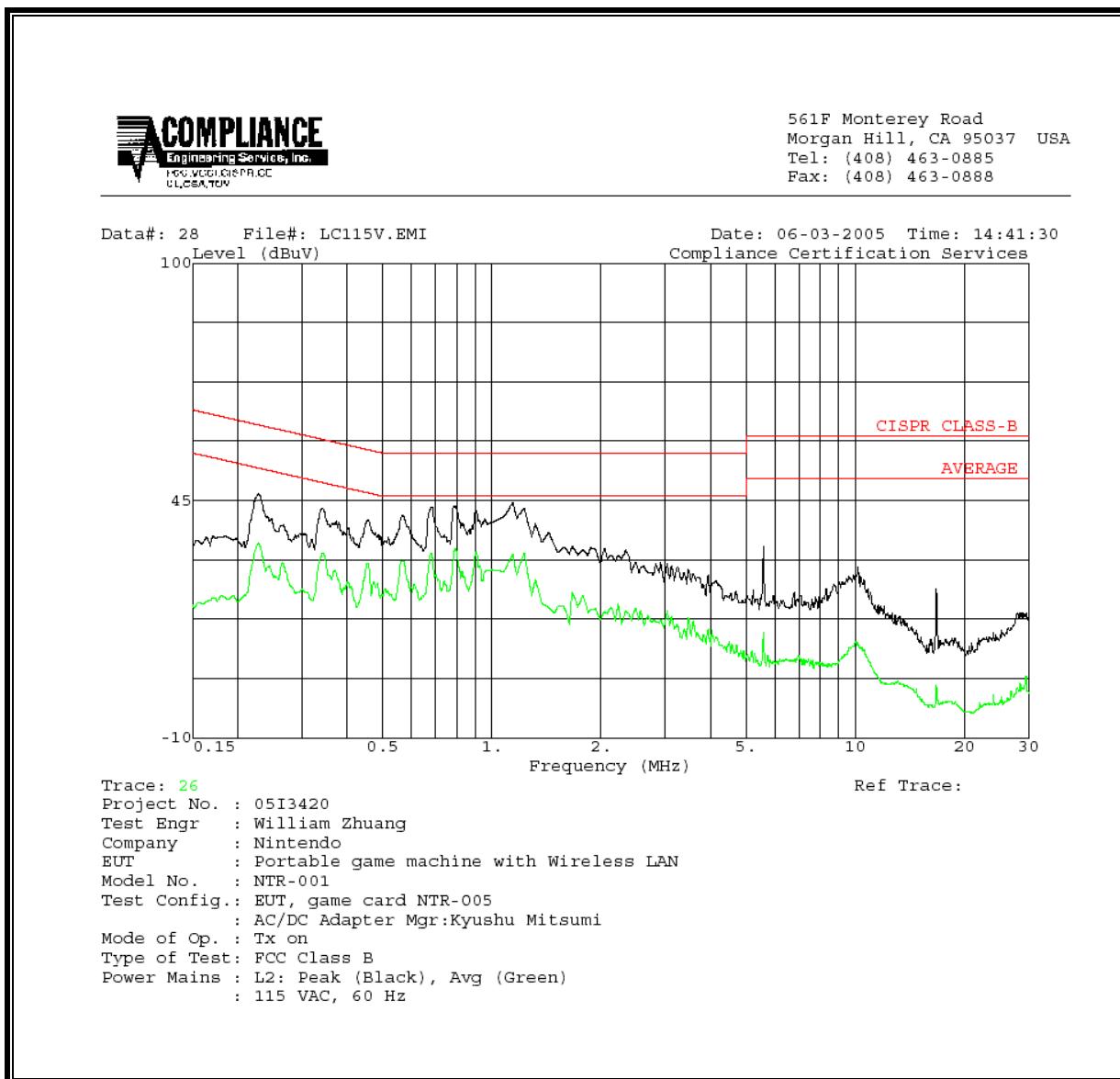
EUT with Mitsumi Antenna, TABUCHI AC ADAPTER

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	FCC B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.89	47.68	--	31.33	0.00	56.00	46.00	-8.32	-14.67	L1
0.77	45.28	--	30.27	0.00	56.00	46.00	-10.72	-15.73	L1
8.64	46.08	--	22.32	0.00	60.00	50.00	-13.92	-27.68	L1
0.93	45.24	--	31.05	0.00	56.00	46.00	-10.76	-14.95	L2
0.62	44.24	--	28.93	0.00	56.00	46.00	-11.76	-17.07	L2
0.77	42.90	--	30.18	0.00	56.00	46.00	-13.10	-15.82	L2
6 Worst Data									

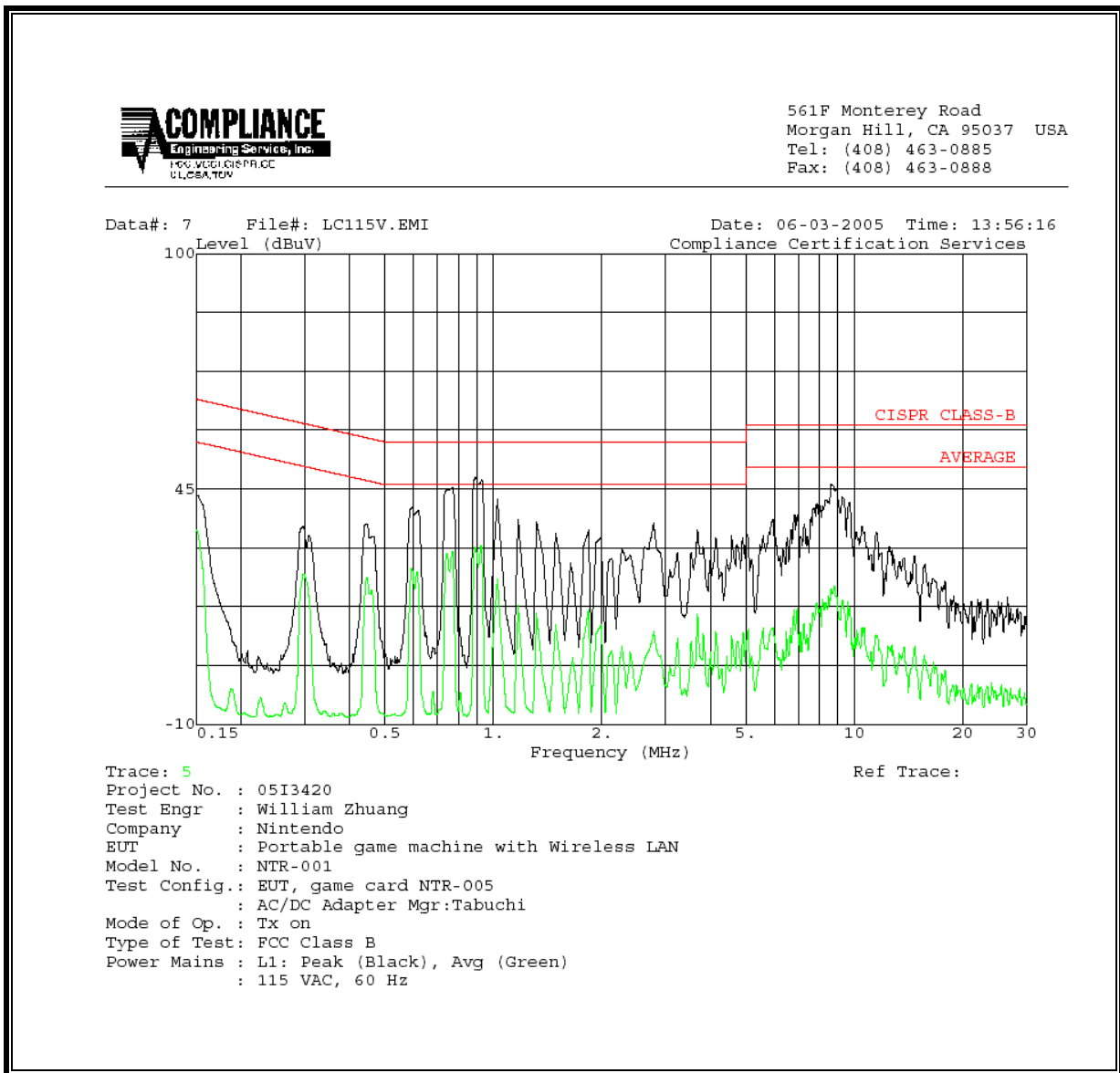
LINE 1 RESULTS, KYUSHU MITSUMI AC ADAPTER



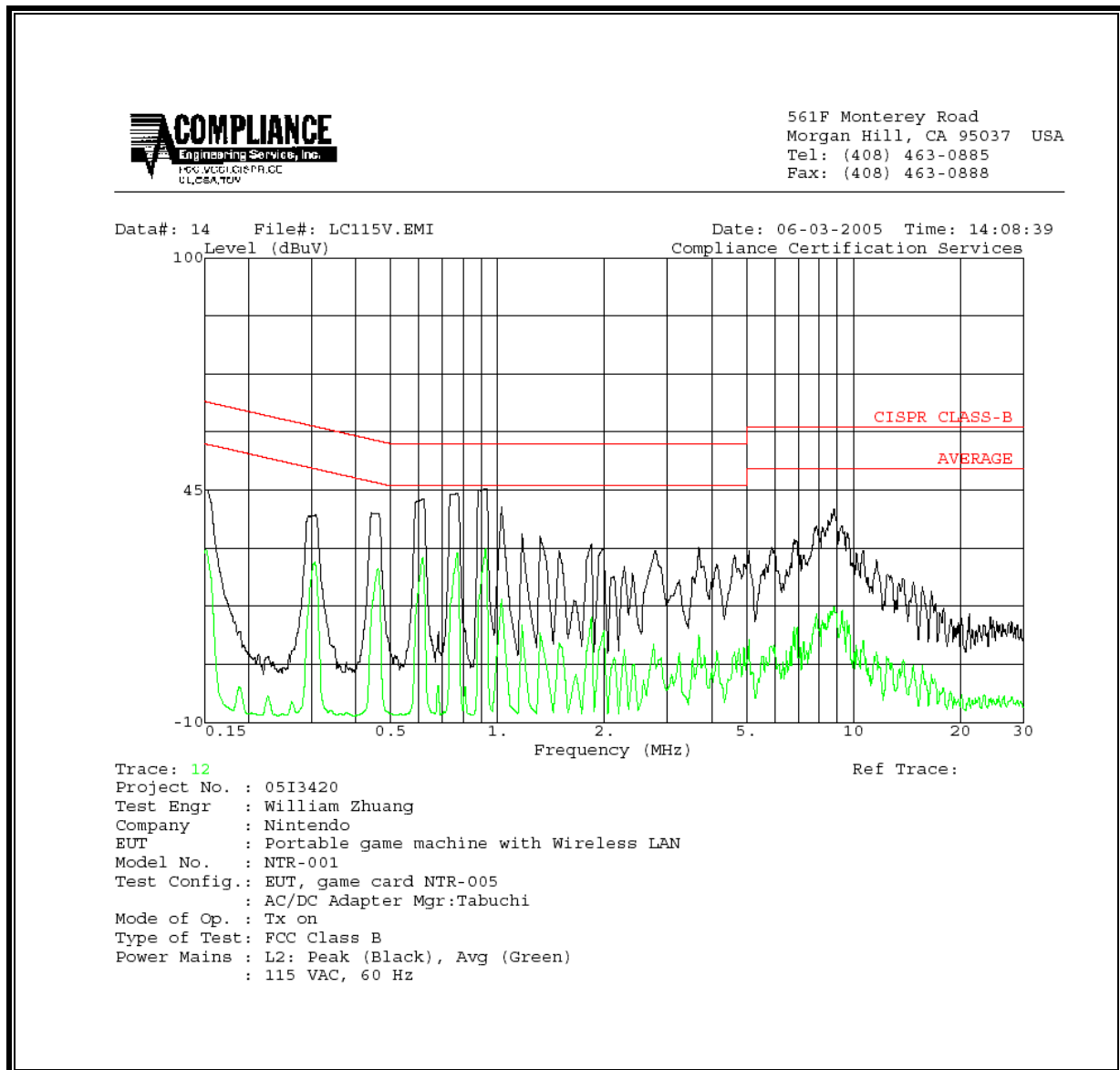
LINE 2 RESULTS, KYUSHU MITSUMI AC ADAPTER



LINE 1 RESULTS, TABUCHI AC ADAPTER

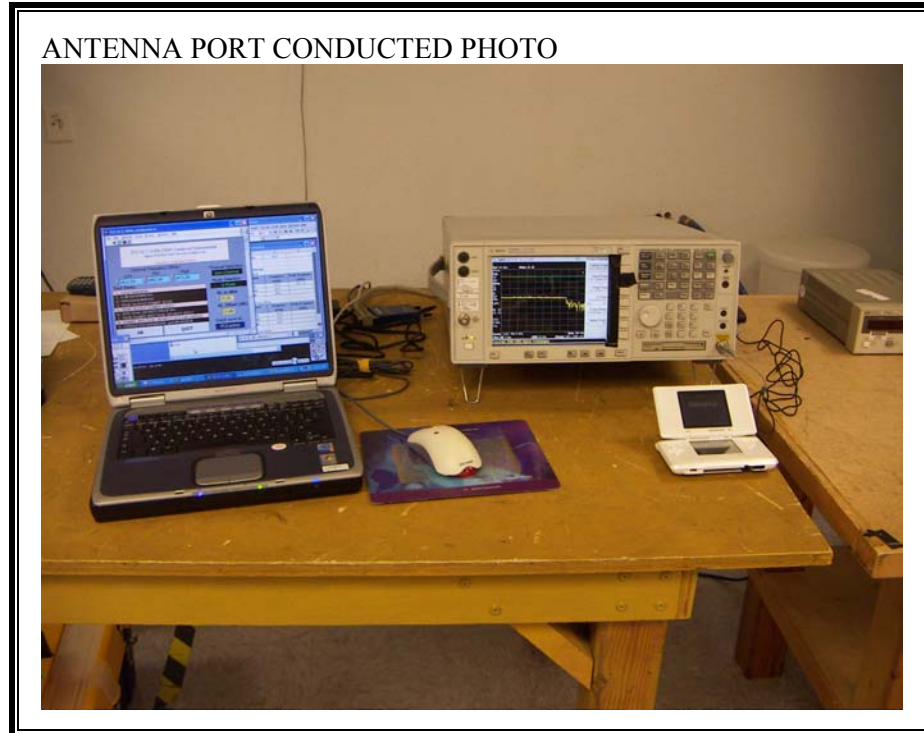


LINE 2 RESULTS, TABUCHI AC ADAPTER

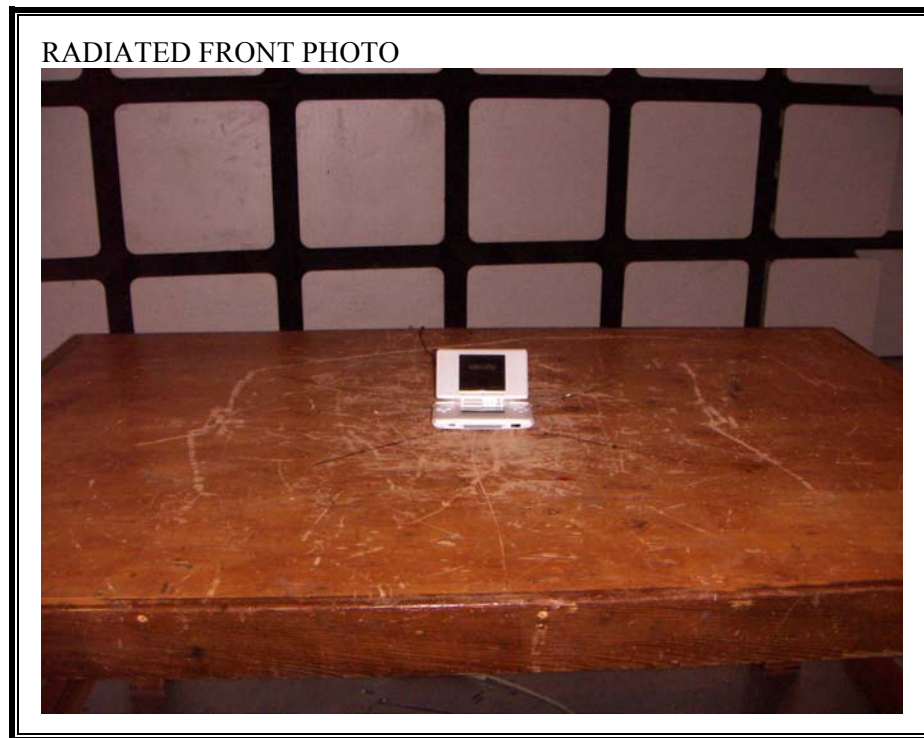


8. SETUP PHOTOS

ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP



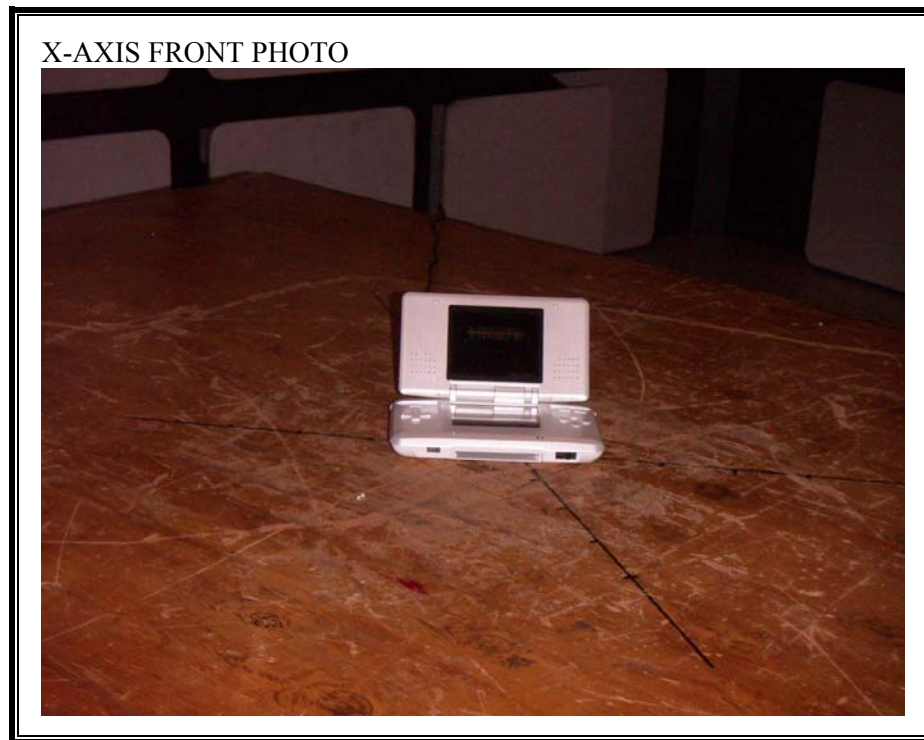
RADIATED RF MEASUREMENT SETUP FOR MOBILE CONFIGURATION



RADIATED BACK PHOTO



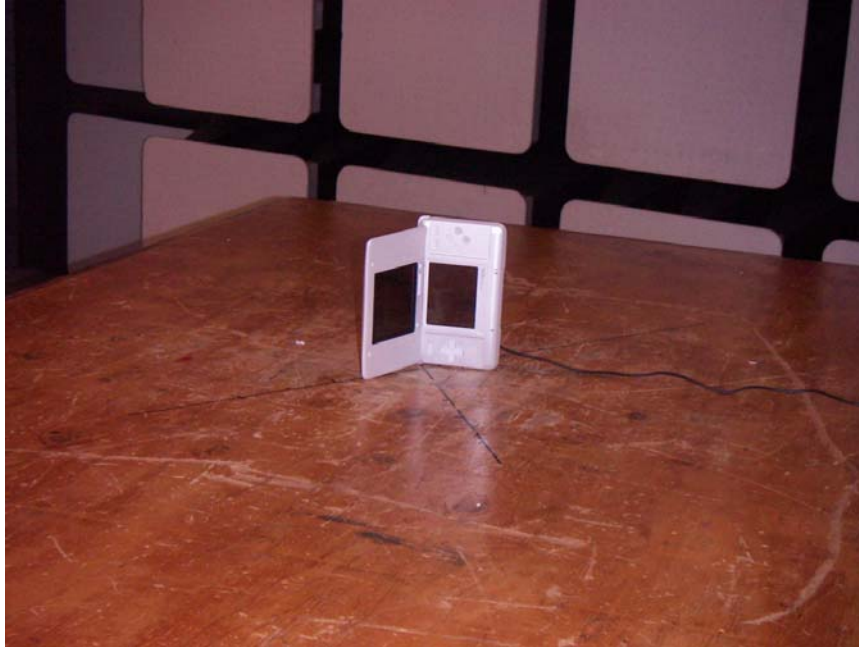
RADIATED RF MEASUREMENT SETUP FOR PORTABLE CONFIGURATION



X-AXIS BACK PHOTO



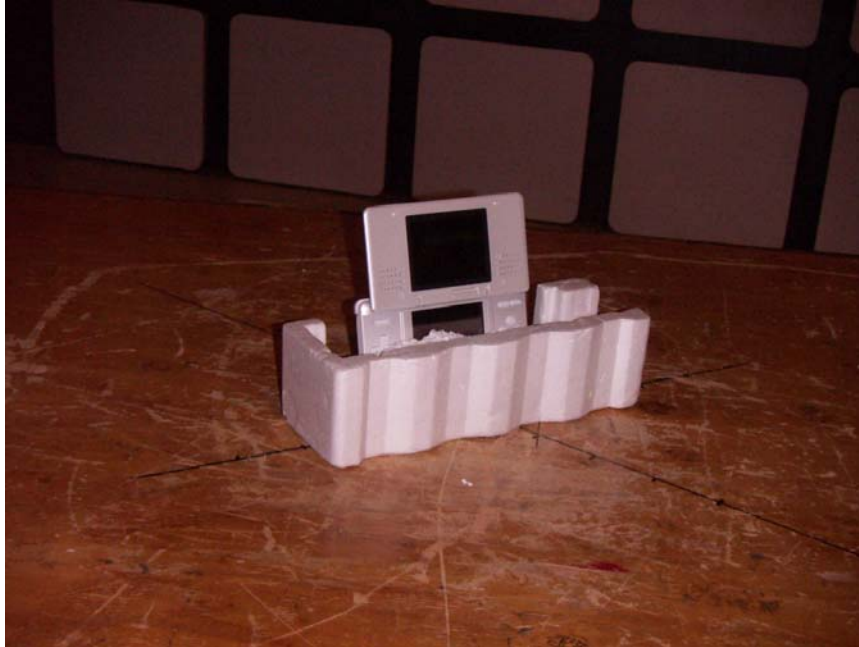
Y-AXIS FRONT PHOTO



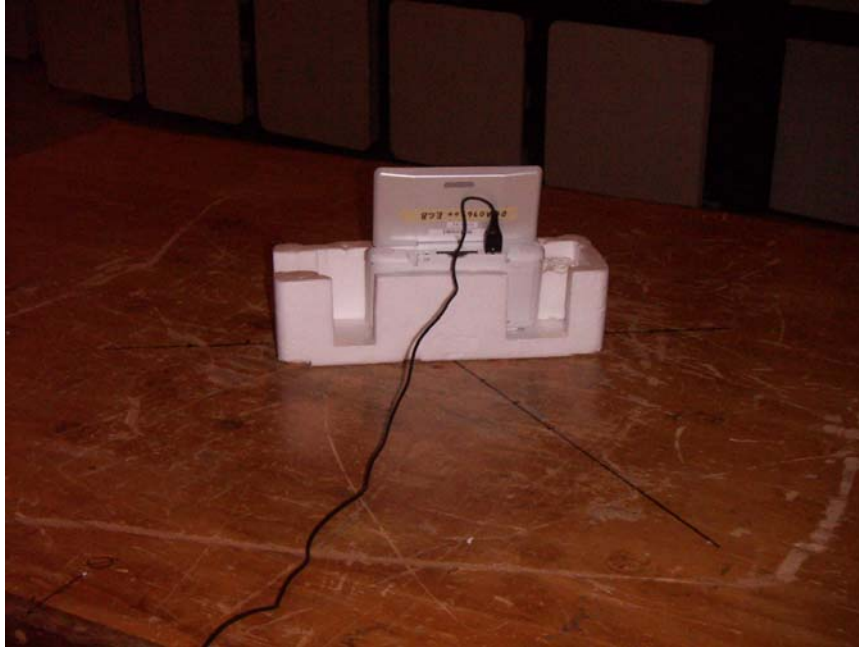
Y-AXIS BACK PHOTO



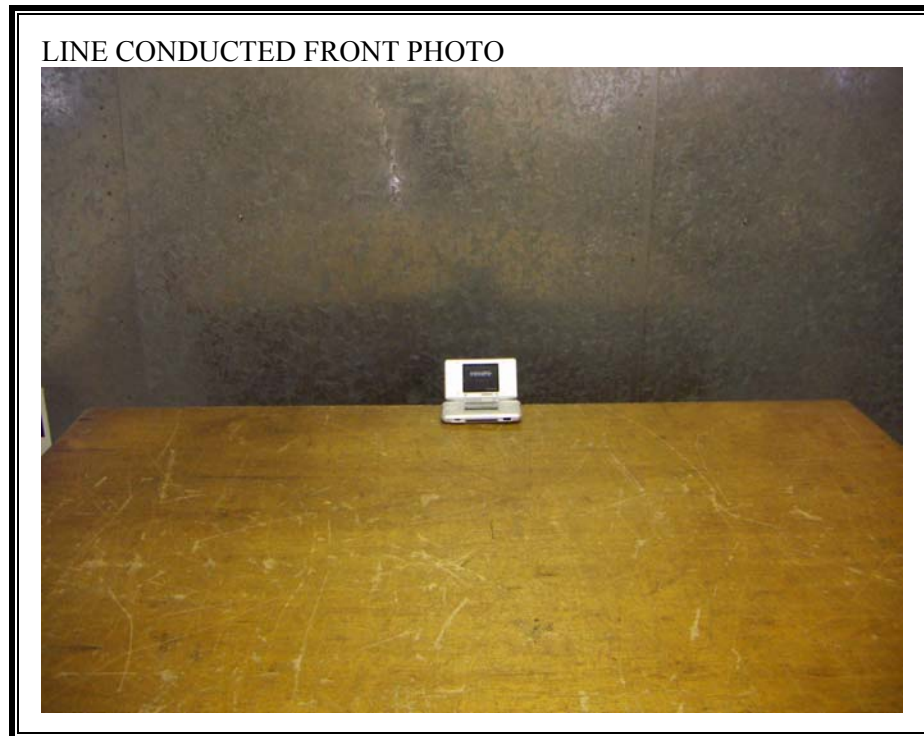
Z-AXIS FRONT PHOTO



Z-AXIS BACK PHOTO



POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP



LINE CONDUCTED BACK PHOTO



END OF REPORT