

APPLICATION FOR CERTIFICATION

On Behalf of

Mad Catz, Inc.

PS2 Wireless Controller

Model Number: 8256

FCC ID: P25G0MC8246G4205R

Prepared for : Mad Catz, Inc.
7480 Mission Valley Road, Suite 101, San Diego,
California, 92108

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block,
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Report Number : ACS-F08446
Date of Test : Nov.12~17, 2008
Date of Report : Nov.21, 2008

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TEST REPORT CERTIFICATION

Applicant : Mad Catz, Inc.
 EUT Description : PS2 Wireless Controller
 MODEL NO. : 8256
 FCC ID : P25G0MC8246G4205R
 POWER SUPPLY : DC 3.5V
 TEST VOLTAGE : DC 3.5V From PS2 AC 120V/60Hz

Test Procedure Used:

FCC Rules and Regulations Part 15 Subpart C 2007

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits for radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of tests. Also, this report shows that EUT is technically compliant with FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd.

Date of Test : Nov.12~17, 2008

Prepared by : Edie Huang
 Edie Huang / Assistant

Reviewer : Jamy Yu
 Jamy Yu / Senior Engineer

Approved & Authorized Signer : Ken Lu
 Ken Lu / Deputy Manager



1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Power Line Conducted Emission Test	FCC Part 15C: 15.207 ANSI C63.4-2003	PASS
Radiated Emission Test	FCC Part 15C: 15.209 FCC Part 15C: 15.249 ANSI C63.4-2003	PASS
Band Edge Compliance Test	FCC Part 15: 15.249	PASS
20dB Bandwidth Test	FCC Part 15: 15.215	PASS

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product name : PS2 Wireless Controller

Model Number : 8256

FCC ID : P25G0MC8246G4205R

Operation frequency : 2402MHz~2481MHz

Power Supply : DC 3.5V From PS2

Applicant : Mad Catz, Inc.
7480 Mission Valley Road, Suite 101, San Diego, California,
92108

Date of Test : Nov.12~17, 2008

Date of Receipt : Nov.10, 2008

Sample Type : Prototype production

Note: This EUT has two parts, one is controller, the other one is dongle. We test dongle in this report.

2.2. Tested Supporting System Details

2.2.1.TV

EMC CODE : ACS-EMC-TV01T

M/N : 1419A

Manufacturer : TCL

Power cord : Unshielded,Undetachabled, 1.8m

2.2.2.PS2

Manufacturer : SONY

M/N : SCPH-39001

S/N : FV2181856

2.3. Test Facility

Site Description

- Name of Firm : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park, Nantou, Shenzhen, Guangdong, China
- 3m Anechoic Chamber : Jun. 13, 2006 File on Federal Communication Commission
Registration Number: 90454
- 3m & 10m Anechoic Chamber : Jan. 31, 2007 File on Federal Communication Commission
Registration Number: 794232
- EMC Lab. : Accredited by DATech, German
Registration Number: DAT-P-091/99-01
Dec. 20, 2007
- Accredited by NVLAP, USA
NVLAP Code: 200372-0
Apr.01, 2008

2.4. Test Uncertainty

No.	Item	MU	Remark
1.	Uncertainty for Conducted Emission Test	2.02dB	
2.	Uncertainty for Radiation Emission test in 3m chamber	3.44 dB	Polarize: V
		3.96 dB	Polarize: H
3.	Uncertainty for Radiation Emission test in 10m chamber	3.86dB	Distance: 10m Polarize: V
		4.18dB	Distance: 10m Polarize: H
		4.02dB	Distance: 3m Polarize: V
		4.36dB	Distance: 3m Polarize: H

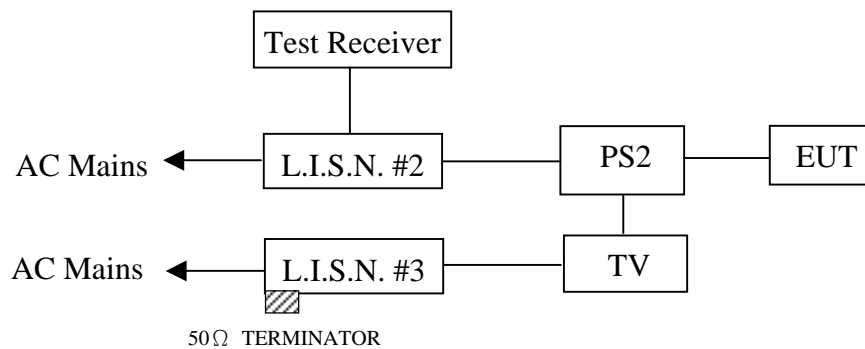
3. POWER LINE CONDUCTED EMISSION TEST

3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	844077/020	Mar.07, 08	1 Year
2.	L.I.S.N.#2	Kyoritsu	KNW-407	8-1636-1	May 10,08	1 Year
3.	L.I.S.N.#3	EMCO	3825/2	9006-1660	May 10,08	1 Year
4.	Terminator	Hubersuhner	50Ω	No. 1	May 10,08	1 Year
5.	RF Cable	Fujikura	3D-2W	LISN Cable 1#	Jul.08, 08	1/2 Year
6.	Coaxial Switch	Anritsu	MP59B	M55367	Jul.08, 08	1/2 Year
7.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100340	Jul.08, 08	1/2 Year

3.2. Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators



(EUT: PS2 Wireless Controller)

3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. PS2 Wireless Controller (EUT)

Model Number : 8256

Serial Number : N/A

3.4.2. Support Equipment: As Tested Supporting System Detail, in Section 2.2..

3.5. Operating Condition of EUT

3.5.1. Setup the EUT as shown in Section 3.2..

3.5.2. Let the EUT worked in test modes (Running) and tested it.

3.6. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via Wii connected to the power mains through a line impedance stabilization network (L.I.S.N. 2#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#3). Power on the Wii and let it work normally, we use a test software, let EUT working in test mode, then test it. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2003 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS10) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked.

The test result are reported on Section 3.7.

3.7. Power Line Conducted Emission Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

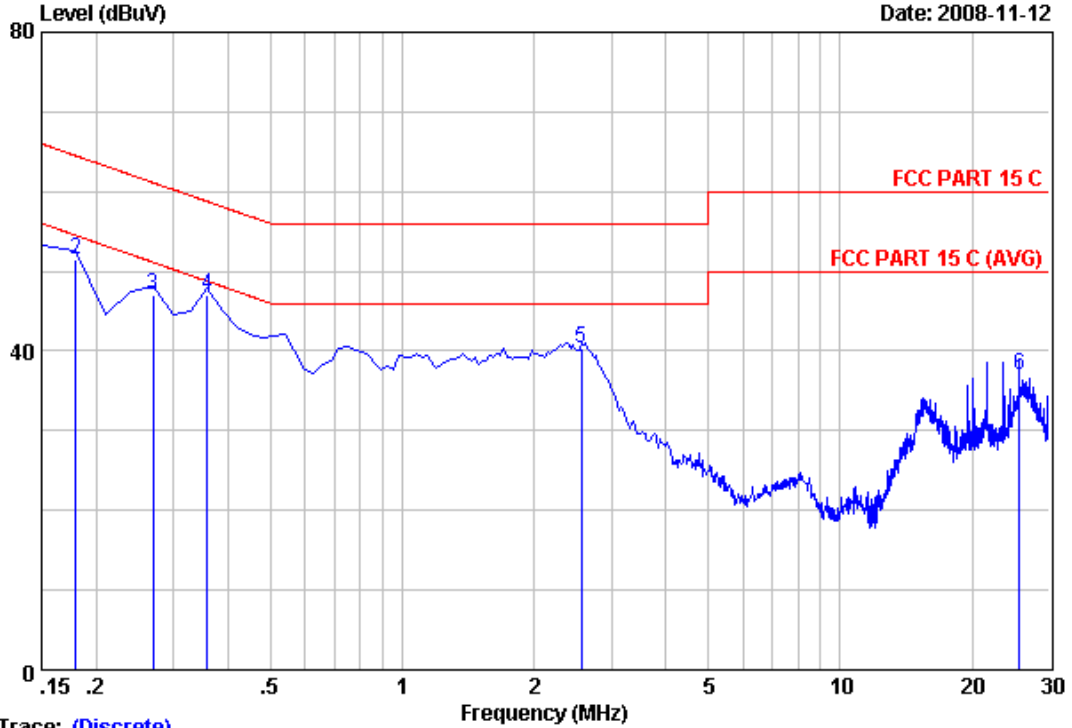


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Data: 2

File: D:\DATA\2008 Report\M\MAD CATZ\ACS8QH210.EMI (2)

Date: 2008-11-12



Trace: (Discrete)
 Site no :Audix No.1 Conduction Data no :2
 Dis./Ant. :-- KNW407 1# VA LISN phase:
 Limit :FCC PART 15 C
 Env./Ins. :29.5*C/55% ESHS 10 Engineer :Power
 EUT :PS2 Wireless Cntroller M/N:8256
 Power Rating :DC 3.5V from PS2 AC120V/60Hz
 Test Mode :Running
 Memo :Dongle

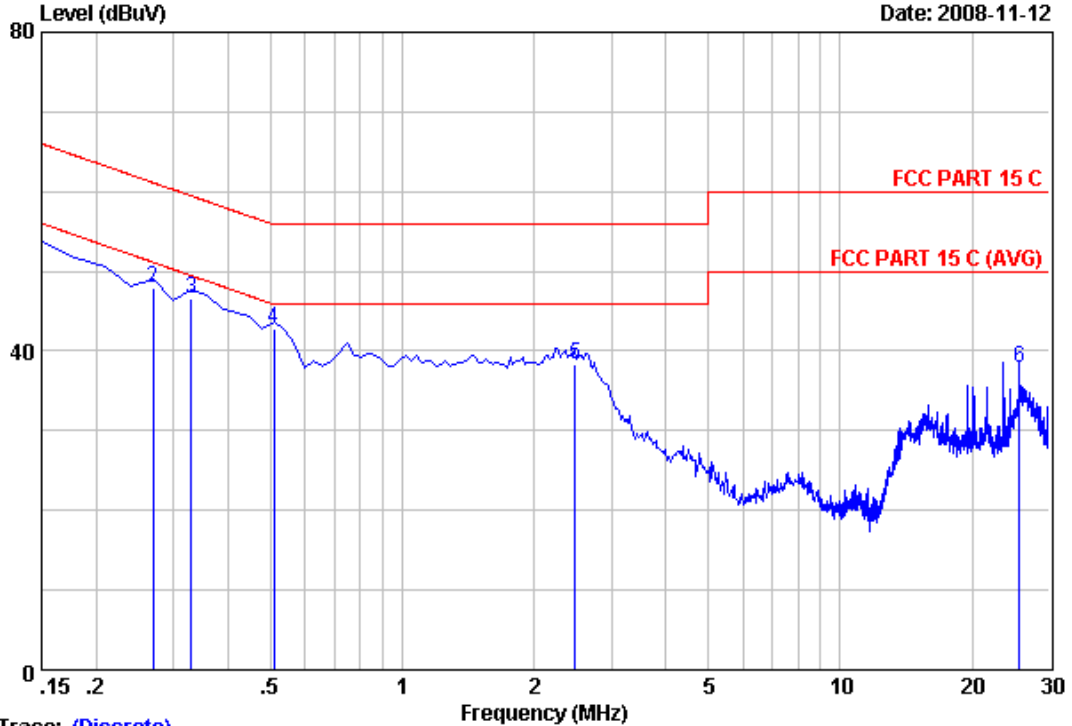
No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15	0.26	10.15	42.20	52.61	66.00	13.39	QP
2	0.18	0.29	10.15	41.11	51.55	64.49	12.94	QP
3	0.27	0.27	10.15	36.69	47.11	61.14	14.03	QP
4	0.36	0.24	10.14	36.55	46.93	58.75	11.82	QP
5	2.57	0.10	10.16	30.06	40.32	56.00	15.68	QP
6	25.64	0.64	10.33	26.11	37.08	60.00	22.92	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector.
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.



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Data: 1 File: D:\DATA\2008 Report\M\MAD CATZ\ACS8QH210.EMI (2) Date: 2008-11-12



Trace: (Discrete)
 Site no :Audix No.1 Conduction Data no :1
 Dis./Ant. :-- KNW407 1# VB LISN phase:
 Limit :FCC PART 15 C
 Env./Ins. :29.5*C/55% ESHS 10 Engineer :Power
 EUT :PS2 Wireless Cntroller M/N:8256
 Power Rating :DC 3.5V from PS2 AC120V/60Hz
 Test Mode :Running
 Memo :Dongle

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15	0.24	10.15	42.27	52.66	66.00	13.34	QP
2	0.27	0.13	10.15	37.65	47.93	61.14	13.21	QP
3	0.33	0.15	10.14	36.39	46.68	59.47	12.79	QP
4	0.51	0.20	10.14	32.37	42.71	56.00	13.29	QP
5	2.48	0.03	10.16	28.14	38.33	56.00	17.67	QP
6	25.64	0.55	10.33	26.92	37.80	60.00	22.20	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector.
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1. Test Equipment

Frequency rang: 30~1000MHz

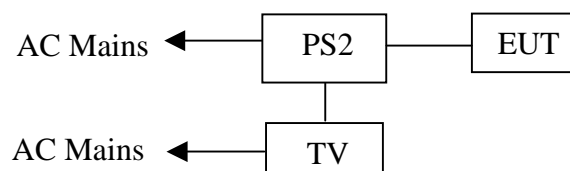
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Jun.09, 08	1/2 Year
2.	EMI Spectrum	Agilent	E7403A	MY42000106	May 10, 08	1 Year
3.	Test Receiver	Rohde & Schwarz	ESVS20	830350/005	May 10, 08	1 Year
4.	Amplifier	HP	8447D	2648A04738	Jul.08.08	1/2 Year
5.	Bilog Antenna	Schaffner	CBL6112D	25237	Feb.21, 08	1 Year
6.	RF Cable	JINGCHENG	KLMR400	3# Chamber No.1	Jul.08.08	1/2 Year
7.	RF Cable	JINGCHENG	JB Y400	3# Chamber No.2	Jul.08.08	1/2 Year
8.	RF Cable	JINGCHENG	JB Y400	3# Chamber No.3	Jul.08.08	1/2 Year
9.	RF Cable	JINGCHENG	JB Y400	3# Chamber No.4	Jul.08.08	1/2 Year
10.	Coaxial Switch	Anritsu	MP59B	M73989	Jul.08.08	1/2 Year

Frequency rang: above 1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	MY41440292	May 10, 08	1 Year
2.	Amp	HP	8449B	3008A00863	May 10, 08	1 Year
3.	Antenna	EMCO	3115	9607-4877	May 27, 08	1.5 Year
4.	Antenna	EMCO	3116	00060088	May 28, 07	1.5Year
5.	RF Cable	Hubersuhner	SUCOFLEX1 02	271473/4	May,28, 08	1Year
6.	RF Cable	Hubersuhner	SUCOFLEX 102	29091/2	May,28, 08	1Year
7.	RF Cable	Hubersuhner	SUCOFLEX 102	28620/2	May,28, 08	1Year

4.2. Block Diagram of Test Setup

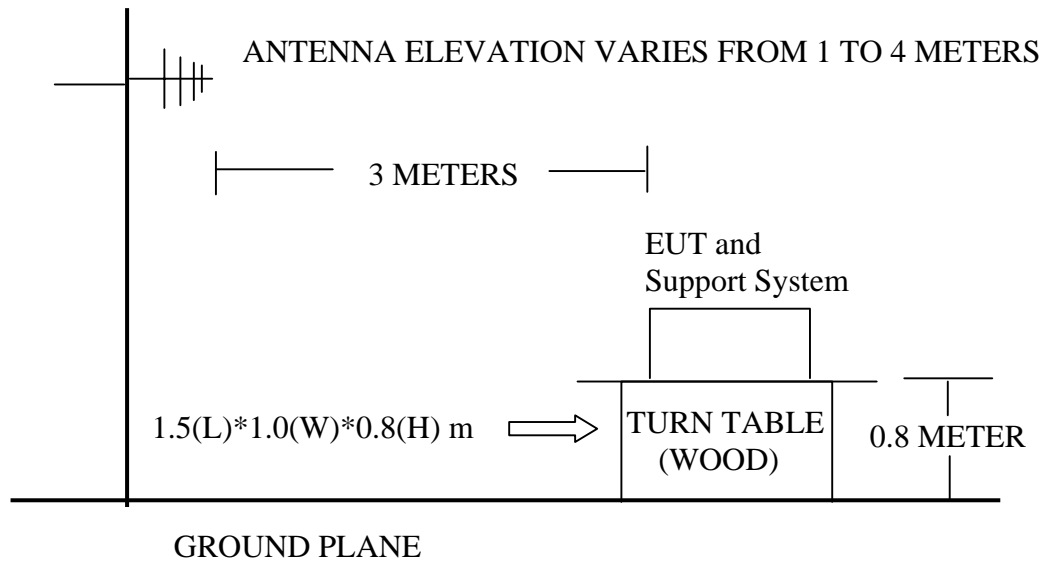
4.2.1. Block Diagram of connection between EUT and simulators



(EUT: PS2 Wireless Controller)

4.2.2. Anechoic Chamber Setup Diagram

ANTENNA TOWER



4.3. Radiated Emission Limit Standard: FCC 15.209 and 15.249

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 960MHz	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	
Field Strength of Fundamental emission for 2.4GHz-2.4835GHz	3	94.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average) 114.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak)	
Field Strength of Harmonics	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

- Remark :
- (1) Emission level $\text{dB}\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$
 - (2) The smaller limit shall apply at the cross point between two frequency bands.
 - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.
 - (4) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

4.4. EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.4.1. PS2 Wireless Controller (EUT)

Model Number : 8256

Serial Number : N/A

4.4.2. Support Equipment: As Tested Supporting System Detail, in Section 2.2.

4.5. Operating Condition of EUT

4.5.1. Setup the EUT as shown in Section 4.2..

4.5.2. Let the EUT worked in test modes (Tx Mode) and tested it.

4.6. Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2003 on radiated emission Test.

The bandwidth of the EMI test receiver (R&S ESVS20) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the VBW is set at 1MHz and RBW is set at 1MHz,PK detector for peak emissions measurement above 1GHz.

The duty cycle factor was use to calculate Average Level above 1 GHz.

The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

4.7. Radiated Emission Test Results

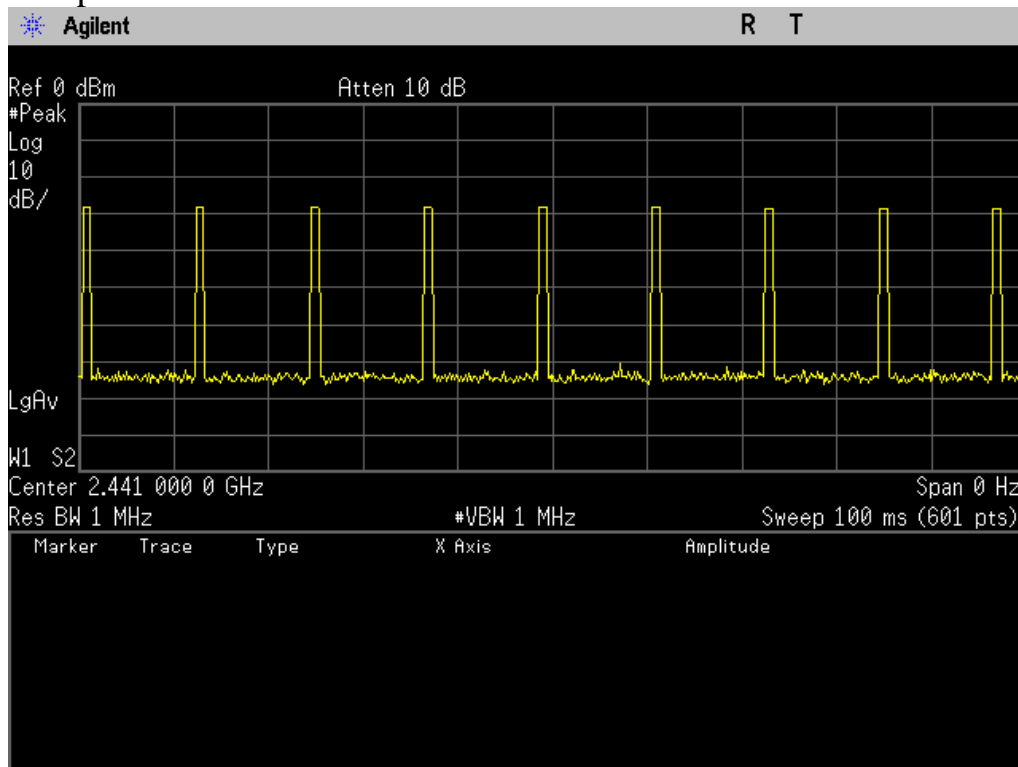
PASS.

All the emissions from 30MHz to 25GHz were comply with the 15.209 and 15.249 Limit.

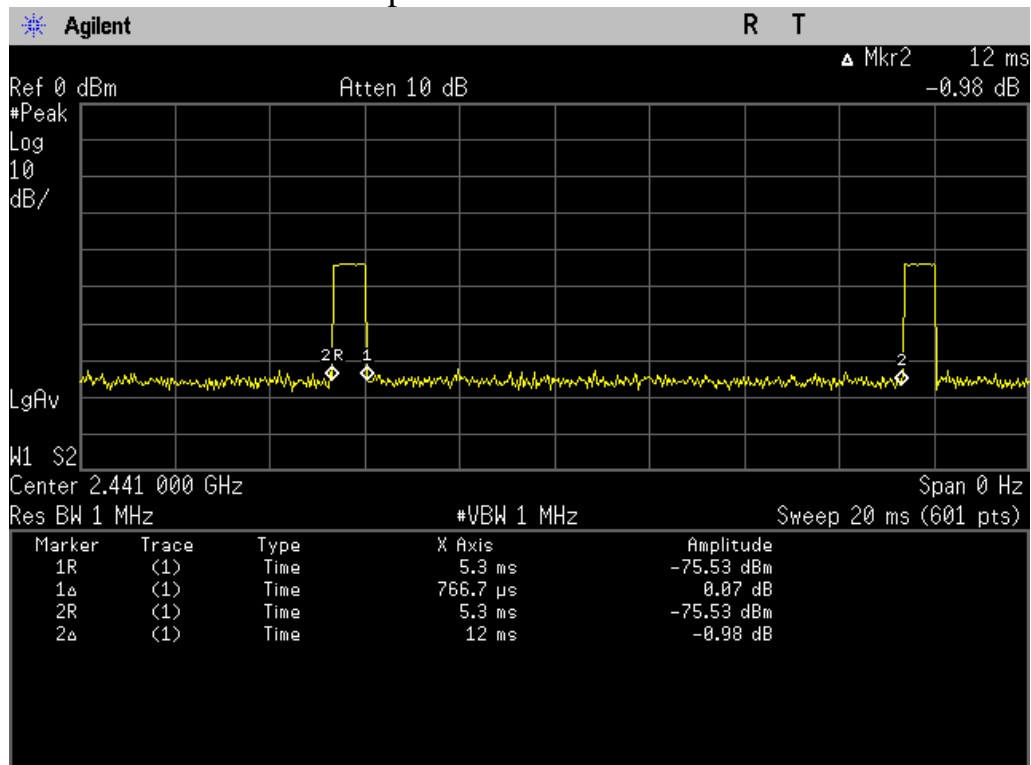
$X = \text{on time} / (\text{on time} + \text{off time}) = 0.767\text{ms} / 12\text{ms}$

Correct factor = $20\log(1/X) = 23.89\text{dB}$

The pulse train in 100 ms



On time=0.767ms One period=on time+off time=12ms



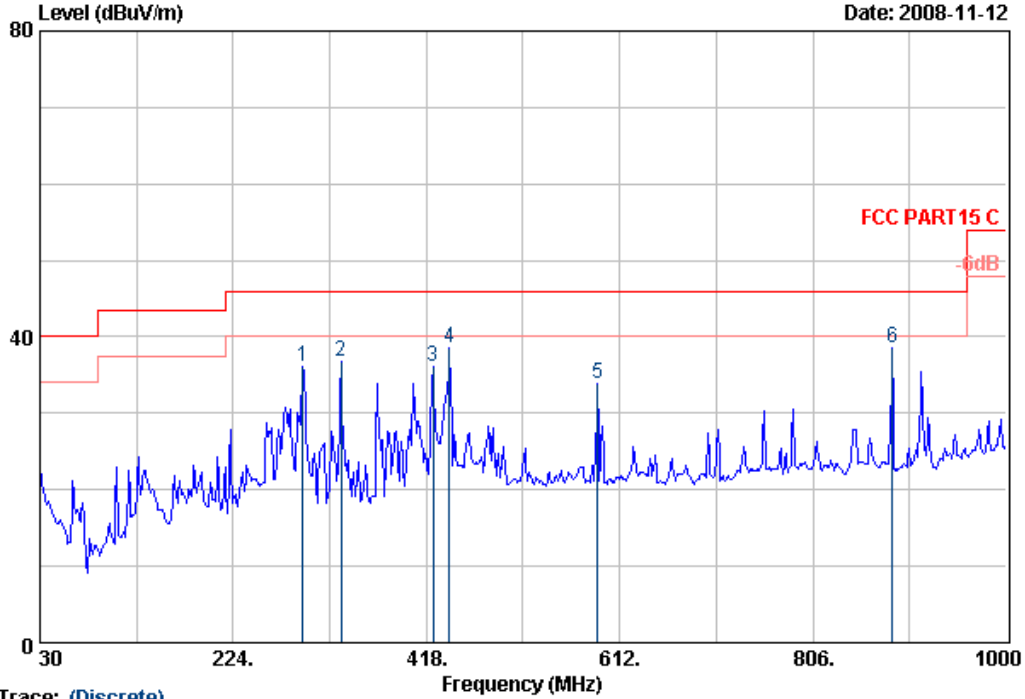
Test Frequency: 30MHz-1000MHz



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Data: 1 File: D:\2008 Report Data\MMADCATZ\ACS8QH210.EMI (4)

Date: 2008-11-12



Trace: (Discrete)
 Site no. : AUDIX 3m chamber Data no. : 1
 Dis. / Ant. : 3m CBL6112D Ant. pol. : HORIZONTAL
 Limit : FCC PART15 C
 Env. / Ins. : 29.5°C/55% ESVS 20 Engineer : Victory
 EUT : PS2 wireless controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test Mode : Running
 Memo : Dongle

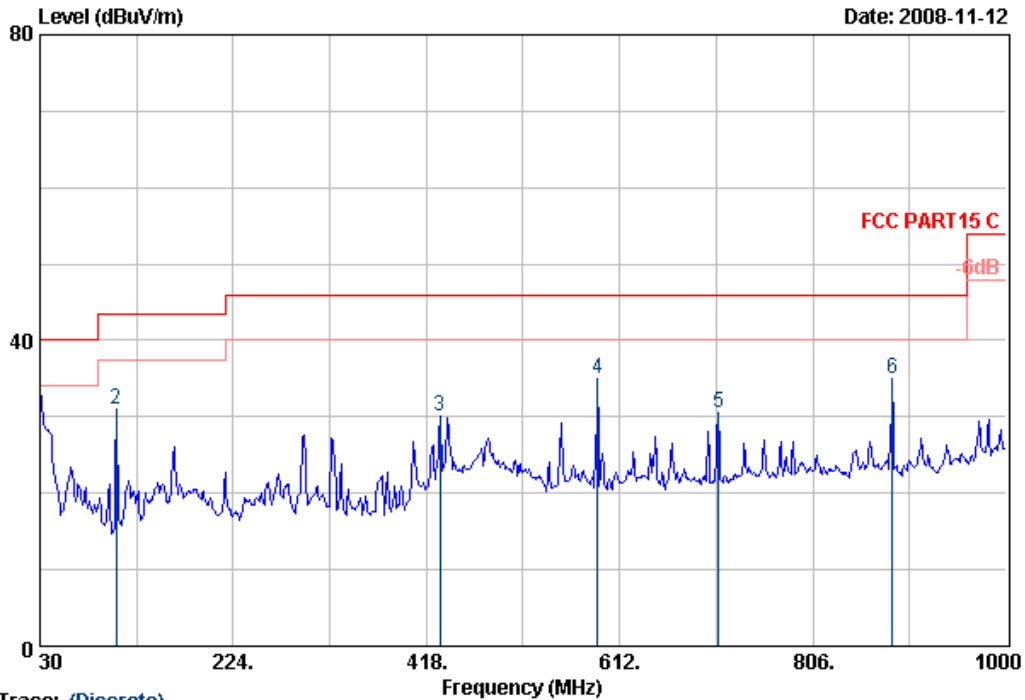
	Ant.	Cable	Emission		Limits	Margin	Remark
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Reading (dBuV)	Level (dBuV/m)	(dBuV/m)	(dB)	
1	293.84	12.63	1.53	21.96	36.12	46.00	9.88 QP
2	332.64	14.01	1.76	20.92	36.69	46.00	9.31 QP
3	424.79	16.76	1.85	17.43	36.04	46.00	9.96 QP
4	441.28	16.79	2.04	19.83	38.66	46.00	7.34 QP
5	589.69	18.48	1.99	13.31	33.78	46.00	12.22 QP
6	885.54	20.03	2.52	16.08	38.63	46.00	7.37 QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 2 File: D:\2008 Report Data\M\MADCATZ\ACS8QH210.EMI (4)



Trace: (Discrete)
 Site no. : AUDIX 3m chamber Data no. : 2
 Dis. / Ant. : 3m CBL6112D Ant. pol. : VERTICAL
 Limit : FCC PART15 C
 Env. / Ins. : 29.5*C/55% ESVS 20 Engineer : Victory
 EUT : PS2 wireless controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test Mode : Running
 Memo : Dongle

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	30.00	19.51	0.68	13.37	33.56	40.00	6.44	QP
2	106.63	11.15	1.09	18.72	30.96	43.50	12.54	QP
3	431.58	16.77	1.99	11.35	30.11	46.00	15.89	QP
4	589.69	18.48	1.99	14.43	34.90	46.00	11.10	QP
5	710.94	18.68	2.35	9.45	30.48	46.00	15.52	QP
6	885.54	20.03	2.52	12.44	34.99	46.00	11.01	QP

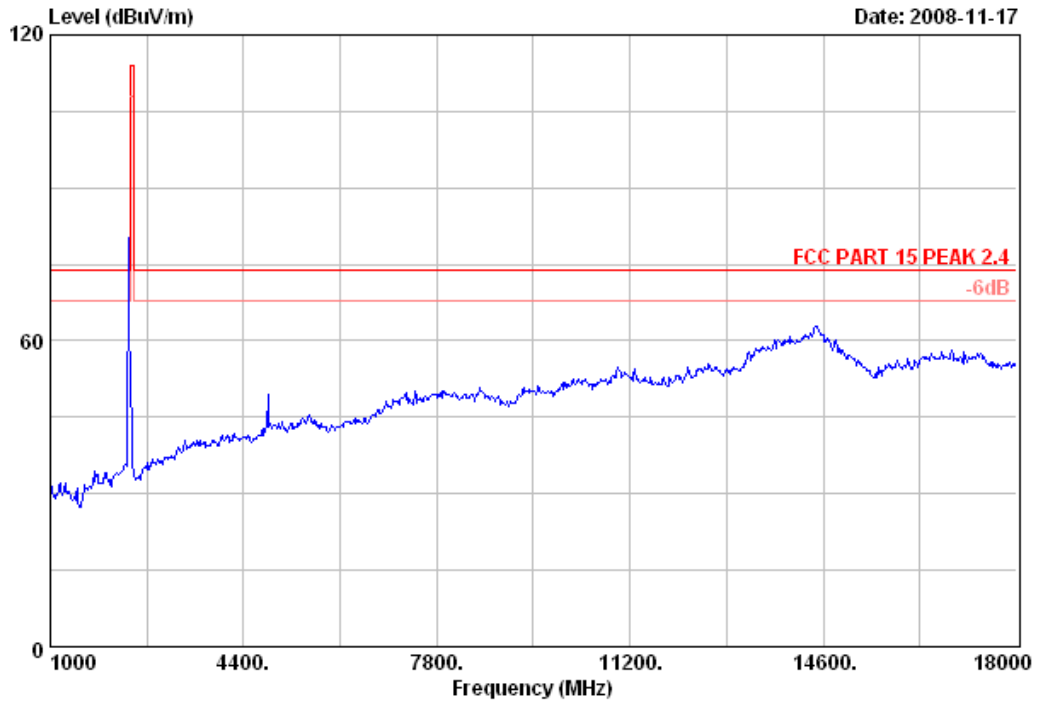
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Test Frequency: 1GHz-18GHz



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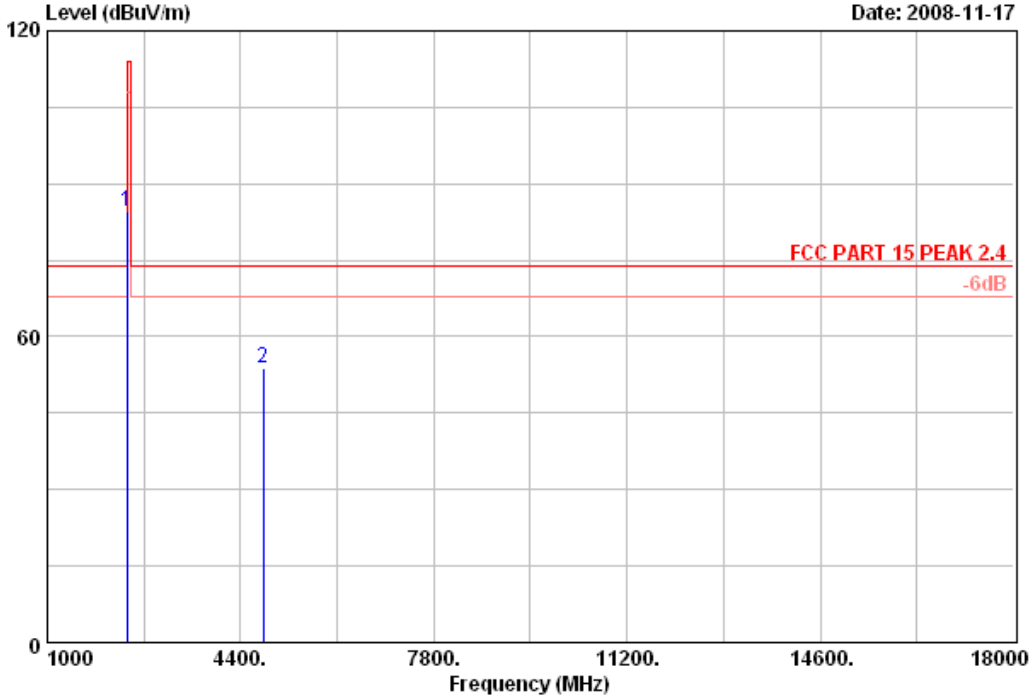
Site no.	: 3# Chamber	Data no.	: 21
Dis. / Ant.	: 3m 3115	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15 PEAK 2.4		
Env. / Ins.	: 26°C/55%	Engineer	: Power
EUT	: PS2 Wireless Controller	M/N:	8256
Power Rating	: DC 3.5V from PS2 AC120V/60Hz		
Test mode	: Tx 2402MHz		
Memo	: Dongle		



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Data: 22 File: E:\2008 report data\Mmad catz\ACS80H210.EMI (32)

Date: 2008-11-17



Site no. : 3# Chamber Data no. : 22
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 26°C/55% Engineer : Power
 EUT : PS2 Wireless Controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test mode : Tx 2402MHz
 Memo : Dongle

	Ant.	Cable	Amp	Emission					
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	28.46	6.73	35.95	85.19	84.43	114.00	29.57	Peak	
2	34.36	10.53	35.23	44.22	53.88	74.00	20.12	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

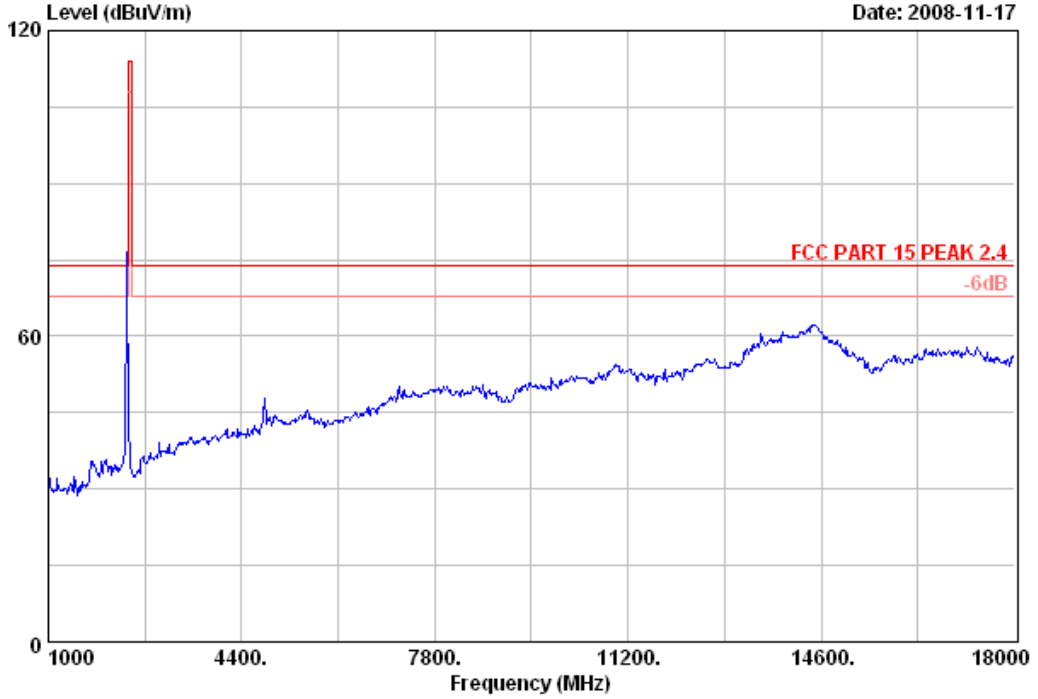
Frequency (MHz)	PK Level (dBuV/m)	Duty cycle factor (dB)	Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2402	84.43	23.89	60.54	94	33.46
4804	53.88	23.89	29.99	54	24.01



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Data: 23 File: E:\2008 report data\M\mad catz\ACS80H210.EMI (32)

Date: 2008-11-17

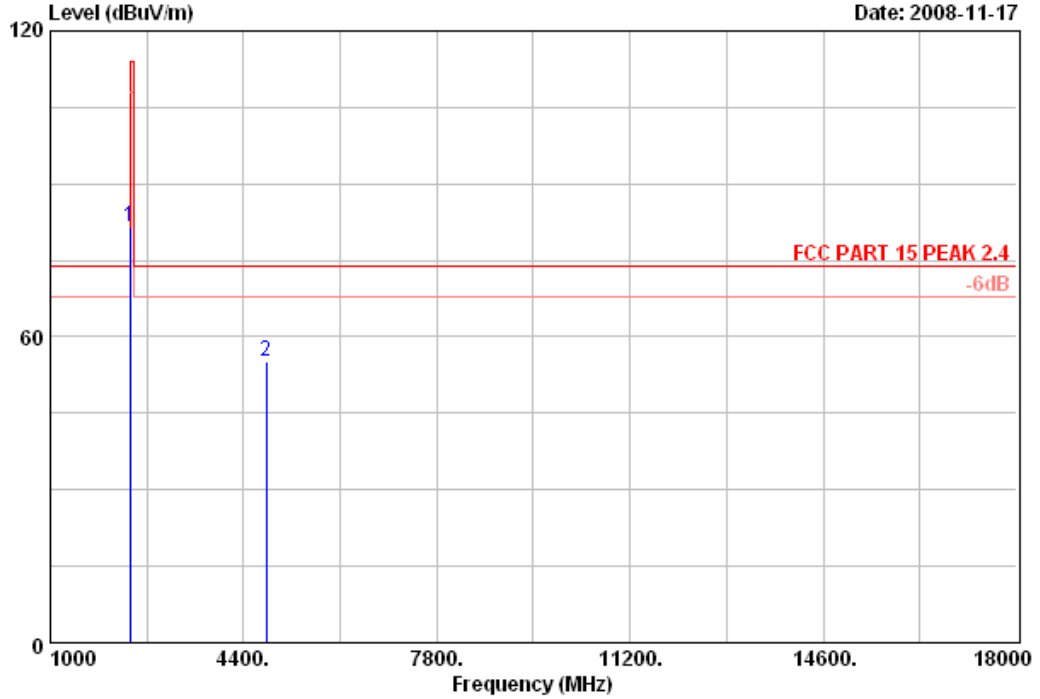


Site no.	: 3# Chamber	Data no.	: 23
Dis. / Ant.	: 3m 3115	Ant. pol.	: VERTICAL
Limit	: FCC PART 15 PEAK 2.4		
Env. / Ins.	: 26°C/55%	Engineer	: Power
EUT	: PS2 Wireless Controller	M/N:	8256
Power Rating	: DC 3.5V from PS2 AC120V/60Hz		
Test mode	: Tx 2402MHz		
Memo	: Dongle		



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Data: 24 File: E:\2008 report data\mad catz\ACS8QH210.EMI (32)



Site no. : 3# Chamber Data no. : 24
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 26°C/55% Engineer : Power
 EUT : PS2 Wireless Controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test mode : Tx 2402MHz
 Memo : Dongle

	Freq.	Ant.	Cable	Amp	Emission				
	(MHz)	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2402.00	28.46	6.73	35.95	82.21	81.45	114.00	32.55	Peak
2	4804.00	34.36	10.53	35.23	45.52	55.18	74.00	18.82	Peak

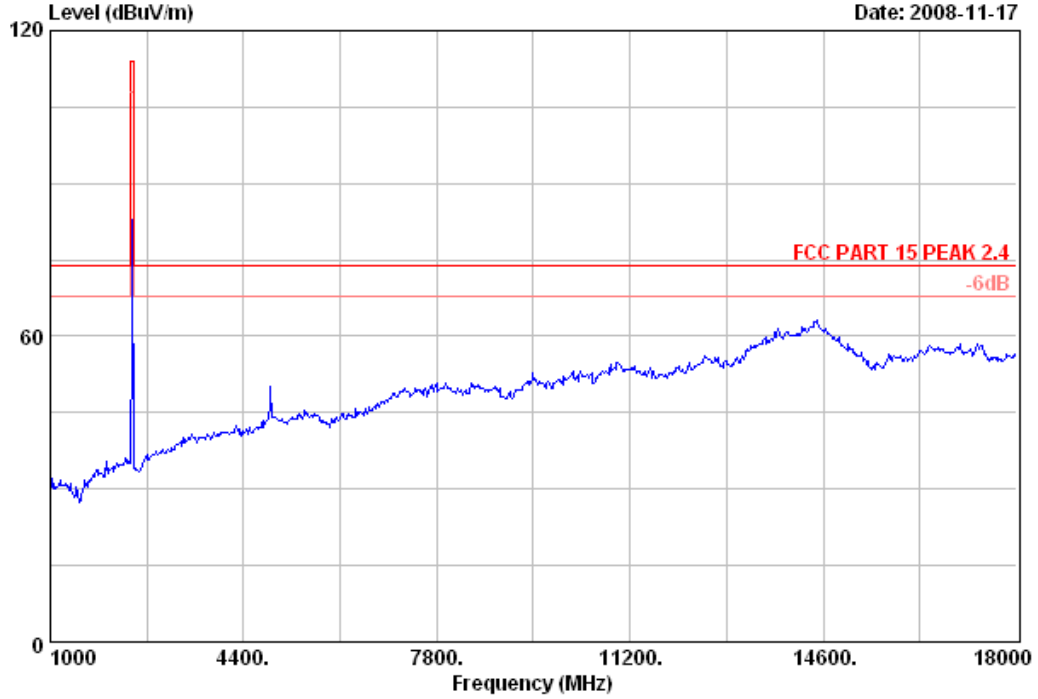
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Frequency (MHz)	PK Level (dBuV/m)	Duty cycle factor (dB)	Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2402	81.45	23.89	57.56	94	36.44
4804	55.18	23.89	31.29	54	22.71



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Data: 17 File: E:\2008 report data\Mmad catz\ACS80H210.EMI (32)



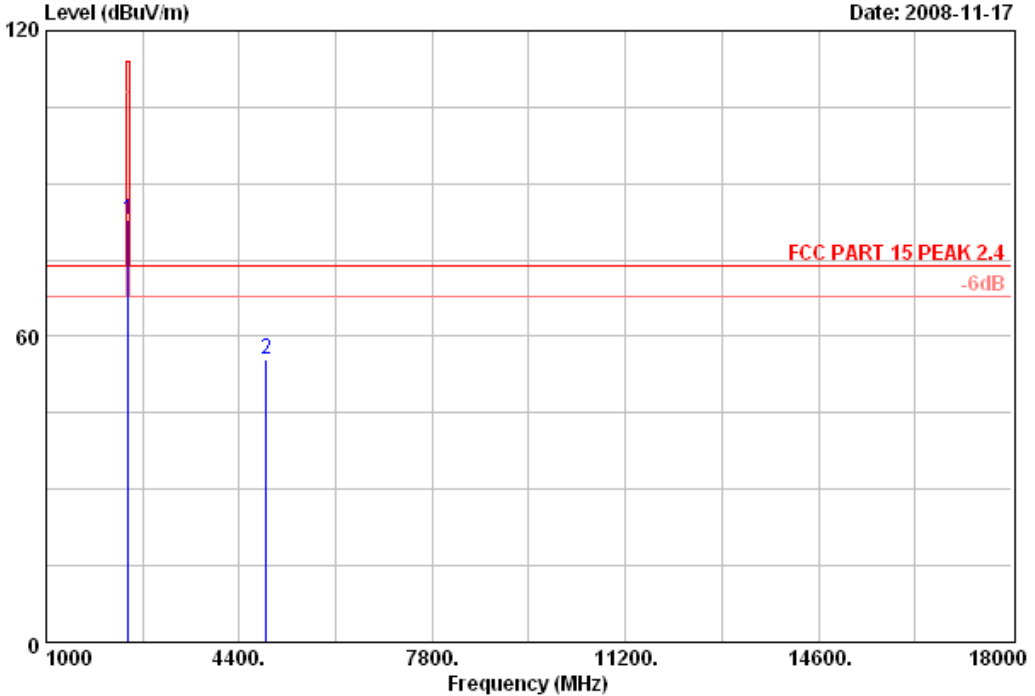
Site no.	: 3# Chamber	Data no.	: 17
Dis. / Ant.	: 3m 3115	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15 PEAK 2.4		
Env. / Ins.	: 26°C/55%	Engineer	: Power
EUT	: PS2 Wireless Controller	M/N:	: 8256
Power Rating	: DC 3.5V from PS2 AC120V/60Hz		
Test mode	: Tx 2441MHz		
Memo	: Dongle		



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Data: 18 File: E:\2008 report data\l\mad catz\ACS80H210.EMI (32)

Date: 2008-11-17



Site no. : 3# Chamber Data no. : 18
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 26*C/55% Engineer : Power
 EUT : PS2 Wireless Controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test mode : Tx 2441MHz
 Memo : Dongle

	Ant.	Cable	Amp	Emission					
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	28.53	6.80	35.96	83.63	83.00	114.00	31.00	Peak	
2	34.78	10.57	35.13	45.11	55.33	74.00	18.67	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

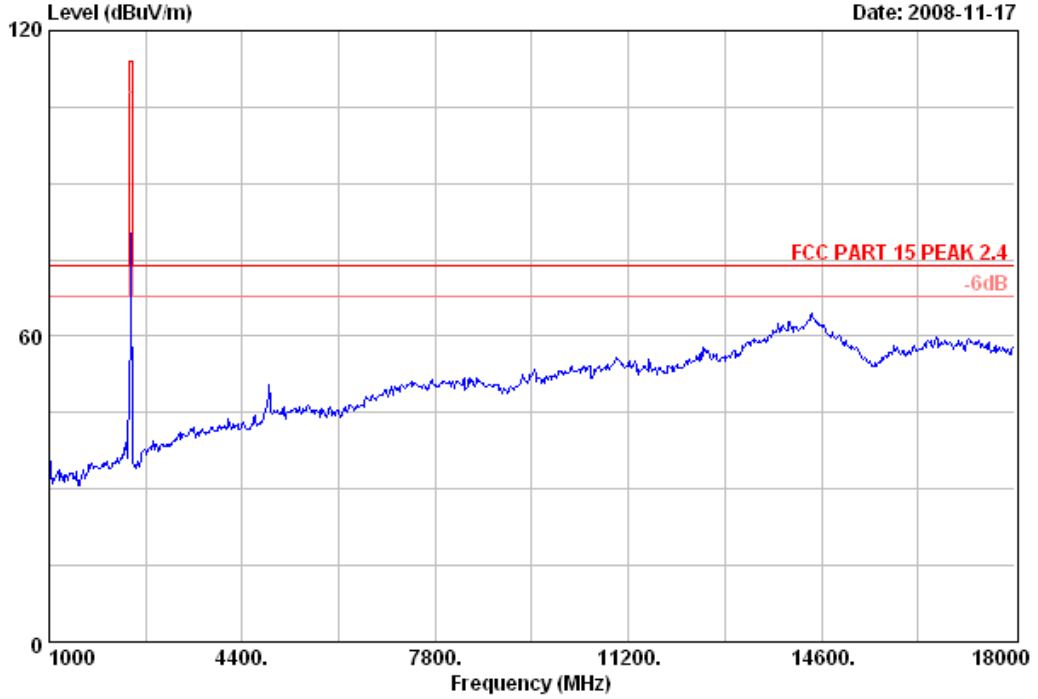
Frequency (MHz)	PK Level (dBuV/m)	Duty cycle factor (dB)	Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2441	83.00	23.89	59.11	94	34.89
4882	55.33	23.89	31.44	54	22.56



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Data: 19 File: E:\2008 report data\l\mad catz\ACS80H210.EMI (32)

Date: 2008-11-17

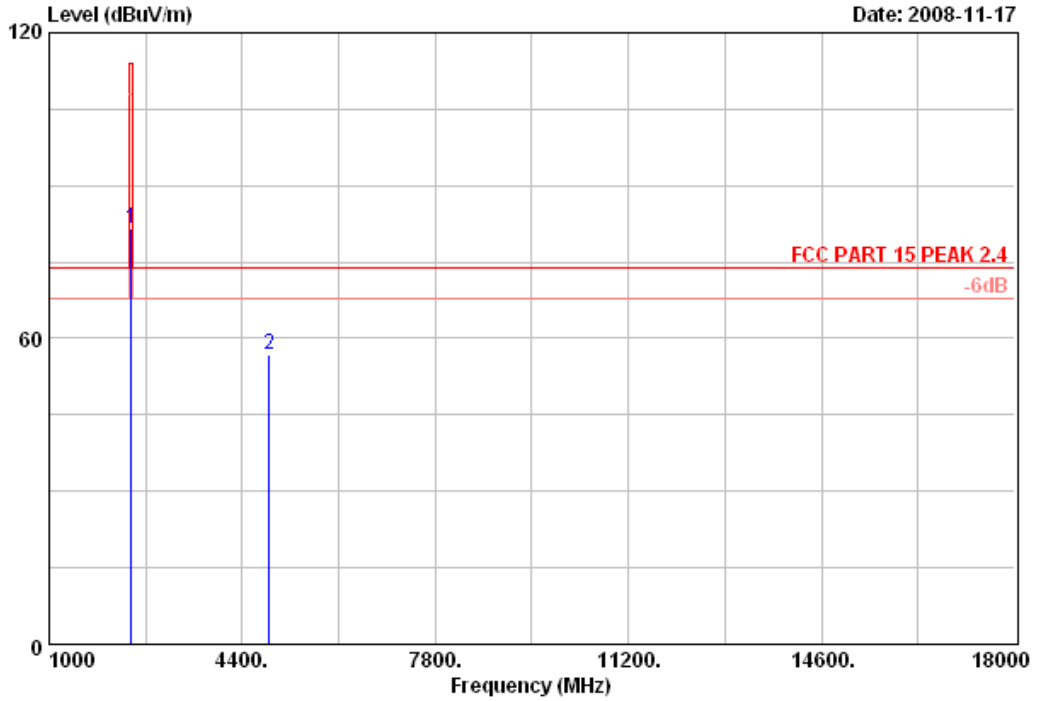


Site no.	: 3# Chamber	Data no.	: 19
Dis. / Ant.	: 3m 3115	Ant. pol.	: VERTICAL
Limit	: FCC PART 15 PEAK 2.4		
Env. / Ins.	: 26°C/55%	Engineer	: Power
EUT	: PS2 Wireless Controller	M/N:	: 8256
Power Rating	: DC 3.5V from PS2 AC120V/60Hz		
Test mode	: Tx 2441MHz		
Memo	: Dongle		



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Data: 20 File: E:\2008 report data\l\mad catz\ACS80H210.EMI (32)



Site no. : 3# Chamber Data no. : 20
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 26°C/55% Engineer : Power
 EUT : PS2 Wireless Controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test mode : Tx 2441MHz
 Memo : Dongle

	Freq.	Ant.	Cable	Amp	Emission				
	(MHz)	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2441.00	28.53	6.80	35.96	82.18	81.55	114.00	32.45	Peak
2	4882.00	34.78	10.57	35.13	46.68	56.90	74.00	17.10	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

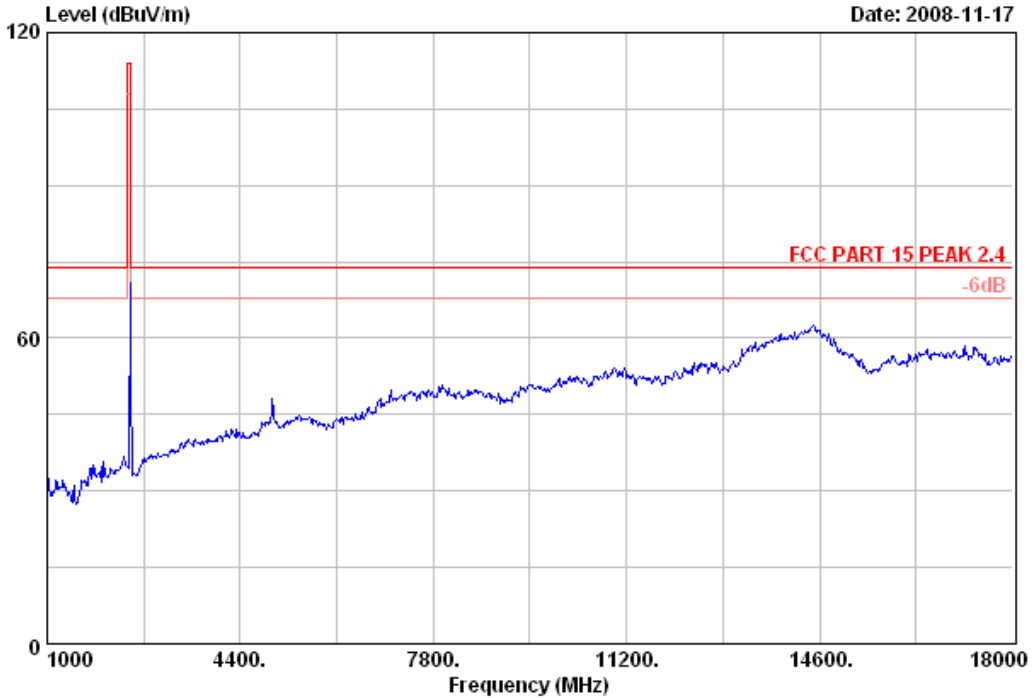
Frequency (MHz)	PK Level (dBuV/m)	Duty cycle factor (dB)	Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2441	81.55	23.89	57.66	94	36.34
4882	56.90	23.89	33.01	54	20.99



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Data: 31 File: E:\2008 report data\l\mad catz\ACS80H210.EMI (32)

Date: 2008-11-17

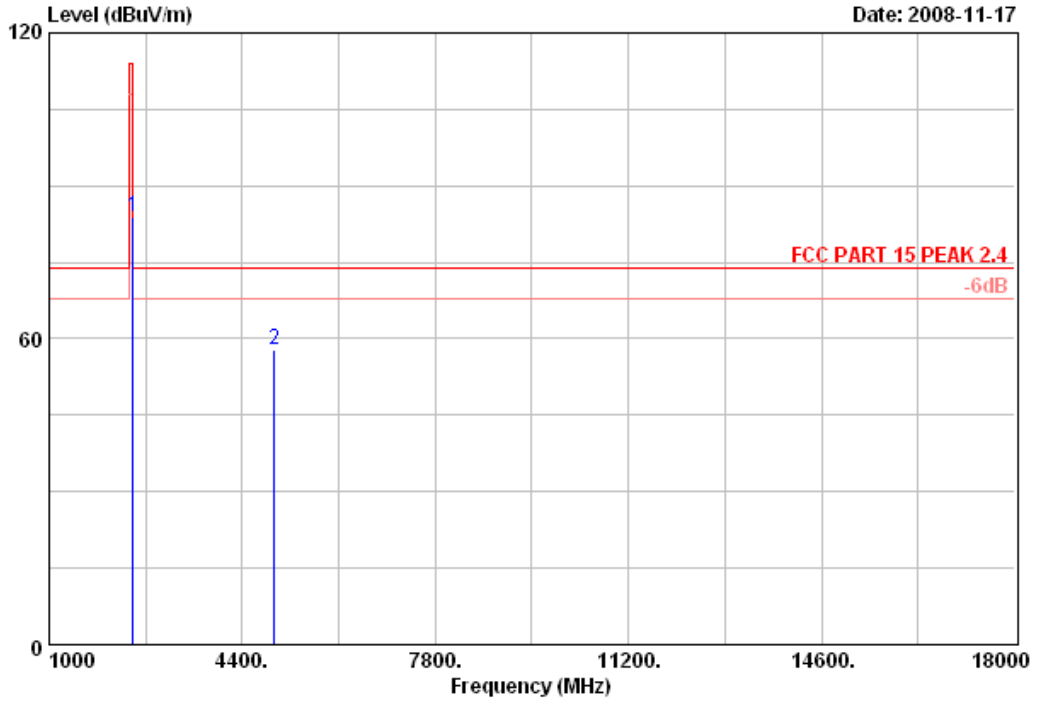


Site no. : 3# Chamber Data no. : 31
Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 PEAK 2.4
Env. / Ins. : 26°C/55% Engineer : Power
EUT : PS2 Wireless Controller M/N:8256
Power Rating : DC 3.5V from PS2 AC120V/60Hz
Test mode : Tx 2481MHz
Memo : Dongle



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Data: 32 File: E:\2008 report data\l\mad catz\ACS80H210.EMI (32)



Site no. : 3# Chamber Data no. : 32
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 26°C/55% Engineer : Power
 EUT : PS2 Wireless Controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test mode : Tx 2481MHz
 Memo : Dongle

	Freq.	Ant. Factor	Cable Loss	Amp Factor	Reading	Emission Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2481.00	28.58	6.87	35.96	84.35	83.84	114.00	30.16	Peak
2	4962.00	35.29	10.59	35.10	47.11	57.89	74.00	16.11	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

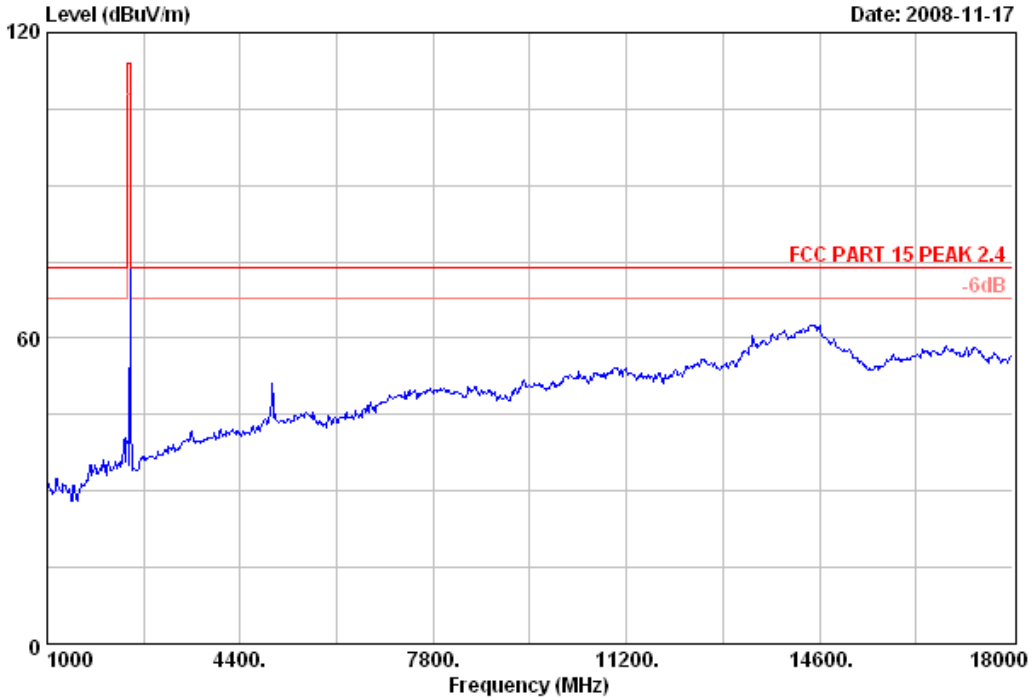
Frequency (MHz)	PK Level (dBuV/m)	Duty cycle factor (dB)	Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2481	83.84	23.89	59.95	94	34.05
4962	57.89	23.89	34	54	20



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Data: 29 File: E:\2008 report data\l\mad catz\ACS80H210.EMI (32)

Date: 2008-11-17

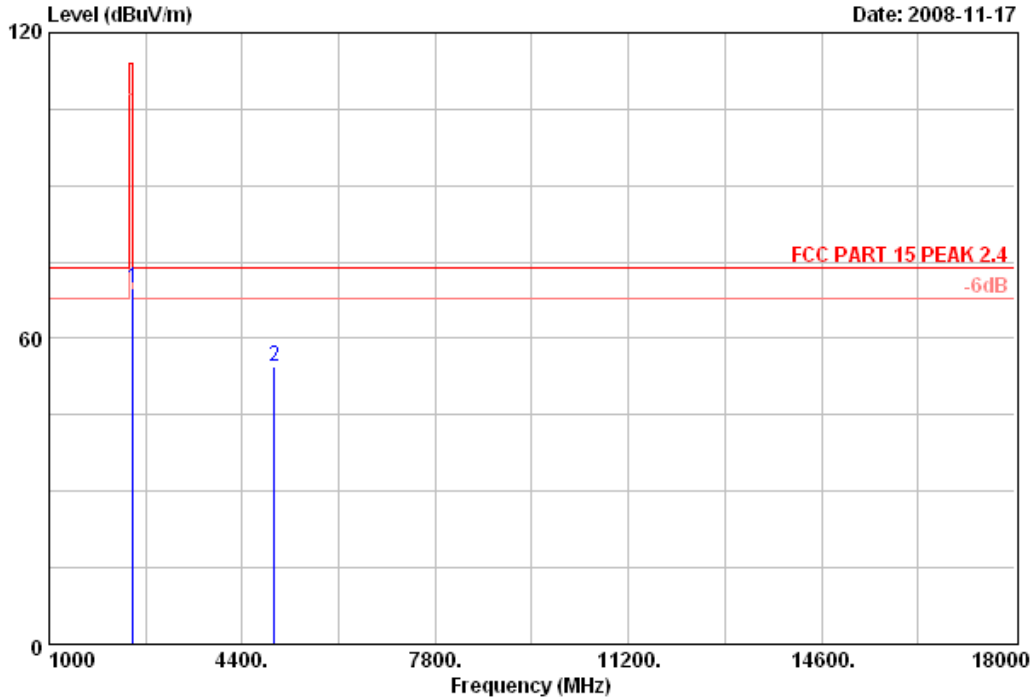


Site no.	: 3# Chamber	Data no.	: 29
Dis. / Ant.	: 3m 3115	Ant. pol.	: VERTICAL
Limit	: FCC PART 15 PEAK 2.4		
Env. / Ins.	: 26°C/55%	Engineer	: Power
EUT	: PS2 Wireless Controller	M/N:	8256
Power Rating	: DC 3.5V from PS2 AC120V/60Hz		
Test mode	: Tx 2481MHz		
Memo	: Dongle		



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Data: 30 File: E:\2008 report data\l\mad catz\ACS80H210.EMI (32)



Site no. : 3# Chamber Data no. : 30
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 26*C/55% Engineer : Power
 EUT : PS2 Wireless Controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test mode : Tx 2481MHz
 Memo : Dongle

	Freq.	Ant.	Cable	Amp	Emission				
	(MHz)	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2481.00	28.58	6.87	35.96	70.41	69.90	114.00	44.10	Peak
2	4962.00	35.29	10.59	35.10	43.56	54.34	74.00	19.66	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Frequency (MHz)	PK Level (dBuV/m)	Duty cycle factor (dB)	Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2481	69.90	23.89	46.01	94	47.99
4962	54.34	23.89	30.45	54	23.55

5. BAND EDGE COMPLIANCE TEST

5.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May,10, 08	1 Year
2	Horn Antenna	EMCO	3115	9607-4877	May,27, 08	1.5 Year
3	Amplifier	HP	8449B	3008A00863	May,10, 08	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX 102	271473/4	May,28, 08	1Year
5	RF Cable	Hubersuhner	SUCOFLEX 102	29091/2	May,28, 08	1Year
6	RF Cable	Hubersuhner	SUCOFLEX 102	28620/2	May,28, 08	1Year

5.2. Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in section 15.209, which is the lesser attenuation.

5.3. Test Produce

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upperband-edges of the emission:
 - (a) PEAK: RBW=VBW=1MHz, PK detector, Sweep=AUTO

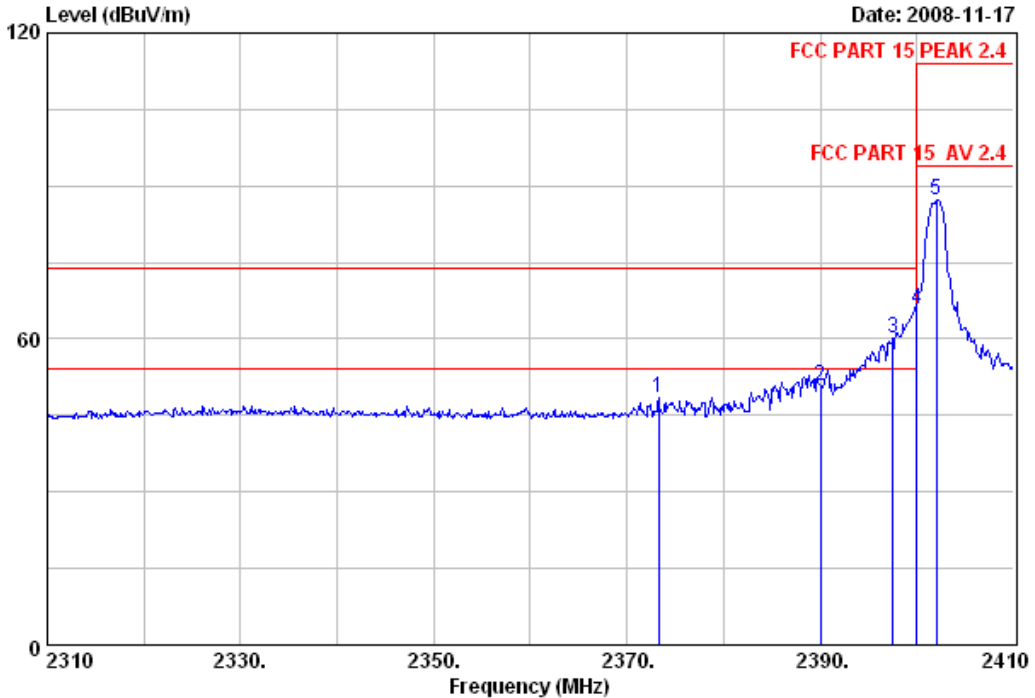
5.4. Test Results

Pass (The testing data was attached in the next pages.)



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Data: 26 File: E:\2008 report data\Mmad catz\ACS80H210.EMI (32)



Site no. : 3# Chamber Data no. : 26
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 26°C/55% Engineer : Power
 EUT : PS2 Wireless Controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test mode : Tx 2402MHz
 Memo : Dongle

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2373.30	28.43	6.69	35.97	49.31	48.46	74.00	25.54	Peak
2	2390.00	28.46	6.71	35.95	51.49	50.71	74.00	23.29	Peak
3	2397.50	28.46	6.73	35.95	60.88	60.12	74.00	13.88	Peak
4	2400.00	28.46	6.73	35.95	66.76	66.00	74.00	8.00	Peak
5	2402.00	28.46	6.73	35.95	87.89	87.13	114.00	26.87	Peak

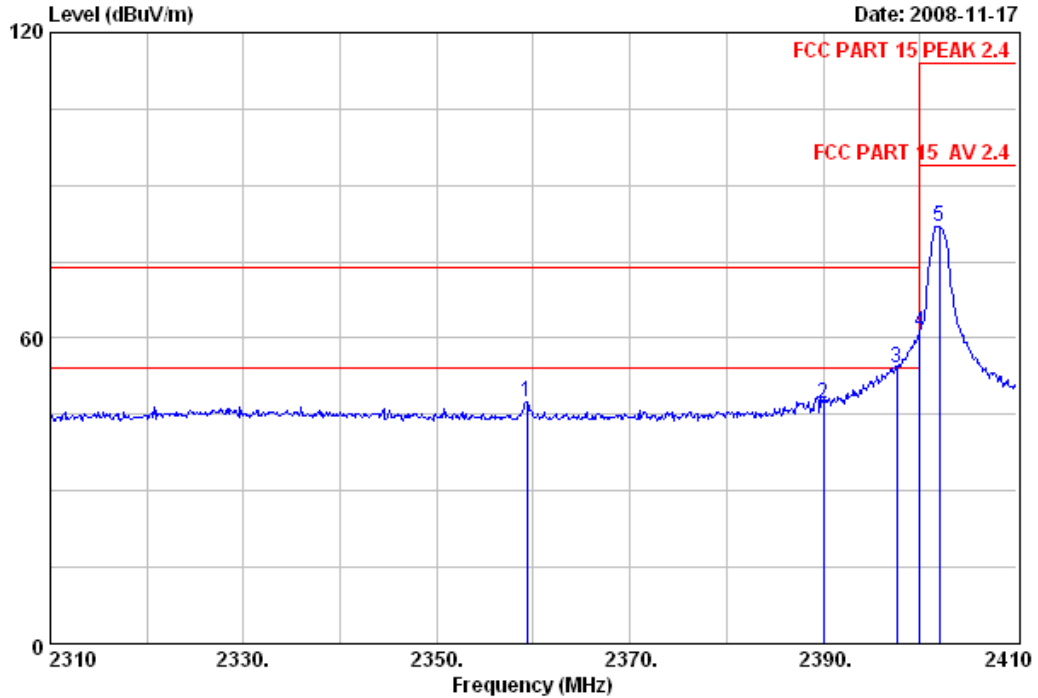
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Note: All the PK levels fall in the restricted bands comply with Average limit, so the average levels are deemed to comply with average limit.



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Data: 25 File: E:\2008 report data\M\mad catz\ACS80H210.EMI (32)



Site no. : 3# Chamber Data no. : 25
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 26°C/55% Engineer : Power
 EUT : PS2 Wireless Controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test mode : Tx 2402MHz
 Memo : Dongle

	Freq.	Ant.	Cable	Amp	Emission				
	(MHz)	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2359.30	28.41	6.69	35.99	48.40	47.51	74.00	26.49	Peak
2	2390.00	28.46	6.71	35.95	47.82	47.04	74.00	26.96	Peak
3	2397.60	28.46	6.73	35.95	54.85	54.09	74.00	19.91	Peak
4	2400.00	28.46	6.73	35.95	61.85	61.09	74.00	12.91	Peak
5	2402.00	28.46	6.73	35.95	82.66	81.90	114.00	32.10	Peak

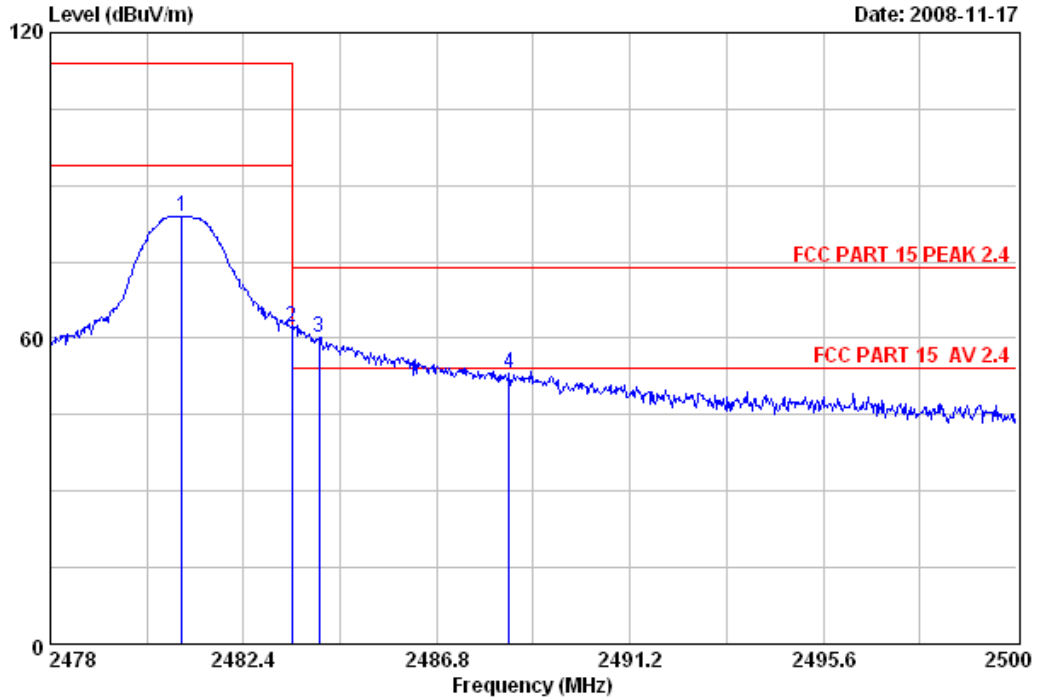
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Note: All the PK levels fall in the restricted bands comply with Average limit, so the average levels are deemed to comply with average limit.



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Data: 27 File: E:\2008 report data\M\mad catz\ACS80H210.EMI (32)



Site no. : 3# Chamber Data no. : 27
 Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 26°C/55% Engineer : Power
 EUT : PS2 Wireless Controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test mode : Tx 2481MHz
 Memo : Dongle

	Ant.	Cable	Amp	Emission					
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	2481.00	28.58	6.87	35.96	84.43	83.92	114.00	30.08	Peak
2	2483.50	28.58	6.87	35.96	62.66	62.15	74.00	11.85	Peak
3	2484.12	28.58	6.87	35.96	60.61	60.10	74.00	13.90	Peak
4	2488.45	28.60	6.91	35.96	53.63	53.18	74.00	20.82	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

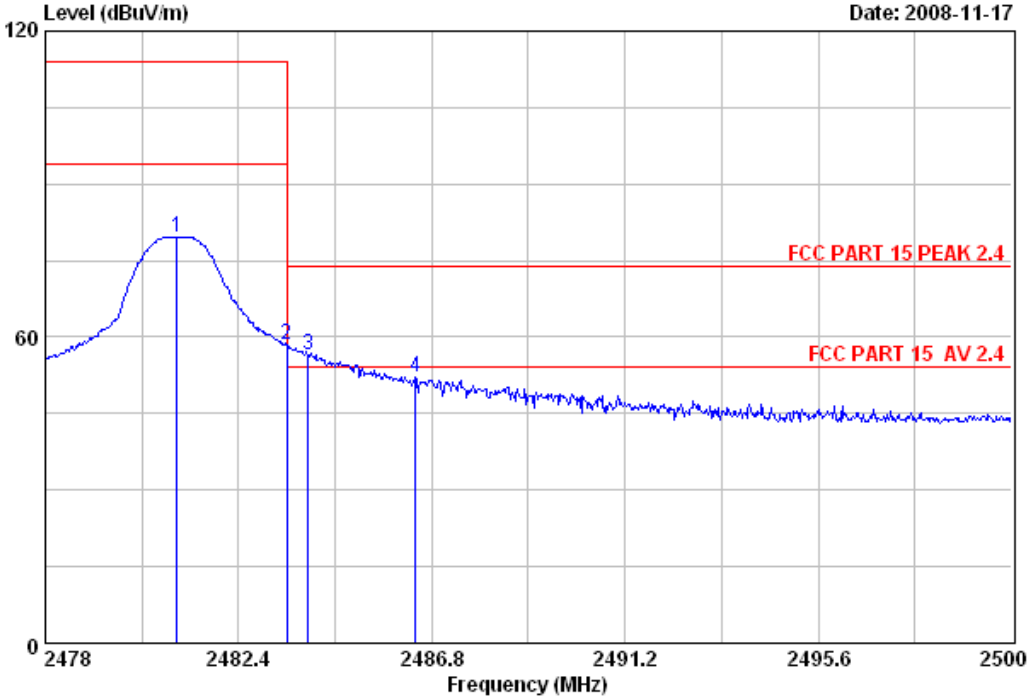
Frequency (MHz)	PK Level (dBuV/m)	Duty cycle factor (dB)	Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2483.5	62.15	23.89	38.26	54	15.74
2484.12	60.61	23.89	36.72	54	17.28



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Date: 2008-11-17



Site no. : 3# Chamber Data no. : 28
 Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 2.4
 Env. / Ins. : 26°C/55% Engineer : Power
 EUT : PS2 Wireless Controller M/N:8256
 Power Rating : DC 3.5V from PS2 AC120V/60Hz
 Test mode : Tx 2481MHz
 Memo : Dongle

	Ant.	Cable	Amp	Emission					
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	2481.00	28.58	6.87	35.96	80.14	79.63	114.00	34.37	Peak
2	2483.50	28.58	6.87	35.96	58.93	58.42	74.00	15.58	Peak
3	2483.98	28.58	6.87	35.96	56.98	56.47	74.00	17.53	Peak
4	2486.43	28.58	6.87	35.96	52.69	52.18	74.00	21.82	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Frequency (MHz)	PK Level (dBuV/m)	Duty cycle factor (dB)	Average Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2483.5	58.93	23.89	35.04	54	18.96
2483.98	56.47	23.89	32.58	54	21.42

6. 20DB BANDWIDTH TEST

6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May,10, 08	1 Year

6.2. Test Information

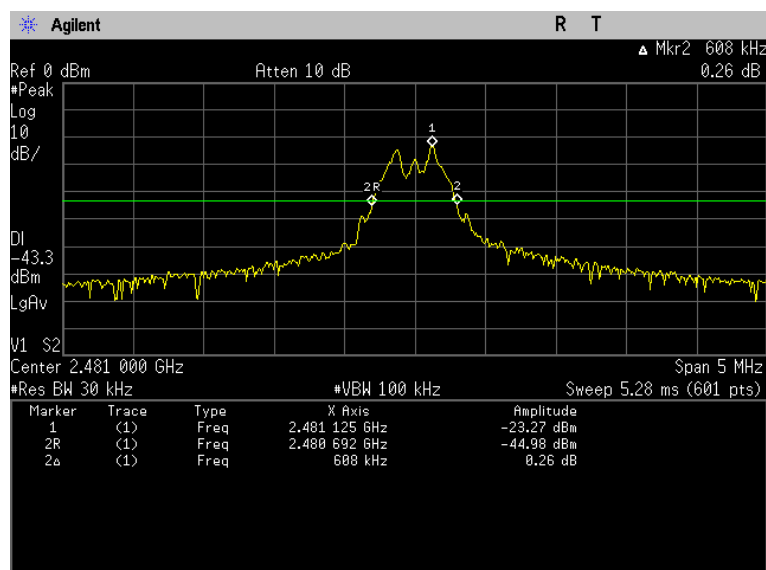
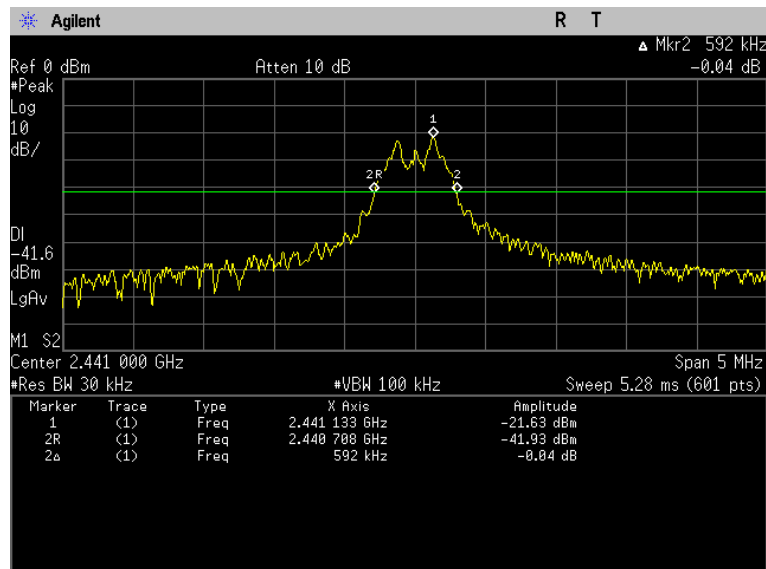
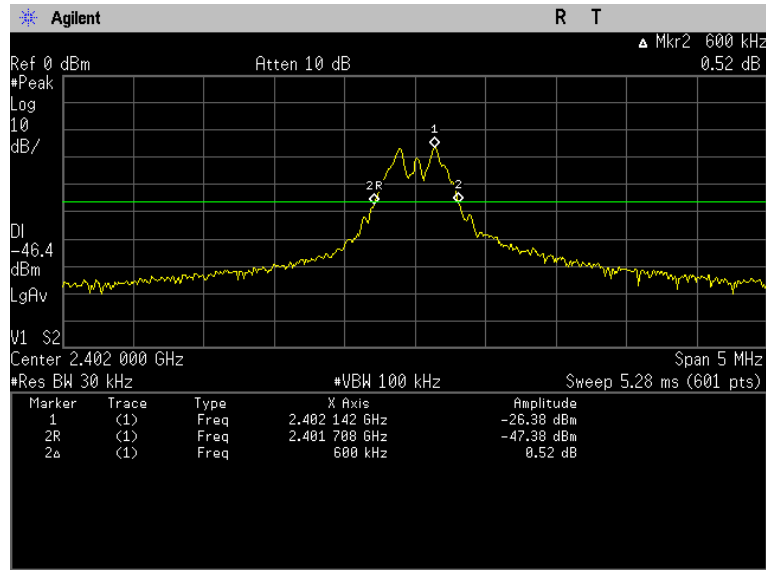
EUT:	PS2 Wireless Controller
M/N:	8256
Test Date:	Nov.15, 2008
Ambient Temperature:	23°C
Relative Humidity:	54%
Test standard:	FCC PART 15C: 15.215
Test mode:	Transmitting
Test Frequency:	Low: 2402MHz Mid: 2441MHz High: 2481MHz
Test By:	Power

6.3. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

6.4. Test Results

CH	20dB Bandwidth (kHz)	Limit (kHz)	Conclusion
(Low)	600	---	PASS
(Mid)	592	---	PASS
(High)	608	---	PASS



7. DEVIATION TO TEST SPECIFICATIONS

[NONE]