

APPLICATION FOR CERTIFICATION
On Behalf of

Harmonix Music Systems, Inc.

Rock Band 2 XBox Wireless Drum

Model Number: #XBDMS2

FCC ID: VFRHMXDRM02

Prepared for : Harmonix Music Systems, Inc.
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USA

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Report Number : ACS-F08351
Date of Test : Jul.15~21, 2008
Date of Report : Aug.06, 2008

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TEST REPORT CERTIFICATION

Applicant : Harmonix Music Systems, Inc.
 Manufacturer : Early Light Industrial Co., LTD.
 EUT Description : Rock Band 2 Xbox Wireless Drum
 FCC ID : VFRHMXDRM02

(A) MODEL NO. : #XBDMS2

(B) SERIAL NO. : N/A

(C) POWER SUPPLY : DC 4.5V

(D) TEST VOLTAGE : DC 4.5V

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 both 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 these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the 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: Jul.15~21, 2008

Prepared by:

YoYo Wang / Assistant

Reviewer:

Jamy Yu / Senior Engineer

Approved & Authorized Signer:

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.

| Description of Test Item(FHSS) | Standard | Results |
|--|---|---------|
| Conducted Emission Test | FCC Part 15: 15.207 ANSI C63.4: 2003 | N/A |
| Radiated Emission Test | FCC Part 15: 15.209 ANSI C63.4: 2003 | PASS |
| Carrier Frequency Separation Test | FCC Part 15: 15.247(a)(1) DA 00-705 | PASS |
| 20 dB Bandwidth Test | FCC Part 15: 15.247(a)(1) DA 00-705 | PASS |
| Number Of Hopping Frequency Test | FCC Part 15: 15.247(a)(1)(iii) DA 00-705 | PASS |
| Dwell Time Test | FCC Part 15: 15.247(a)(1)(iii) | PASS |
| Maximum Peak Output Power Test | FCC Part 15: 15.247(b)(1) DA 00-705 | PASS |
| Band Edge Compliance Test | FCC Part 15: 15.247(d) DA 00-705 | PASS |
| Antenna requirement | FCC Part 15: 15.203 | PASS |
| N/A is an abbreviation for Not Applicable. | | |

2. GENERAL INFORMATION

2.1.Description of Device (EUT)

| | | |
|-----------------------|---|--|
| Description | : | Rock Band 2 XBox Wireless Drum |
| | | |
| Model Number | : | #XBDMS2 |
| | | |
| FCC ID | : | VFRHMXDRM02 |
| | | |
| Operation frequency | : | 2.402GHz-----2.482GHz ISM Band |
| | | |
| Operation Channel | : | 41Channels |
| | | |
| Modulation Technology | : | GMSK |
| | | |
| Output power | : | 1.86dBm(maximum measured) |
| | | |
| Antenna Assembly Gain | : | 0dBi(maximum) |
| | | |
| Power Supply | : | DC 4.5V (Note: New batteries were used for all test.) |
| | | |
| Applicant | : | Harmonix Music Systems, Inc. |
| | | 675 Massachusetts Ave 6 th Floor Cambridge, MA 02139 USA |
| | | |
| Manufacturer | : | Early Light Industrial Co., LTD. |
| | | Early Light International Centre, No.9 Ka Fu Close, Sheung Shui, New Territories, Hong Kong. |
| | | |
| Date of Test | : | Jul.15~21, 2008 |
| | | |
| Date of Receipt | : | Jul.14, 2008 |
| | | |
| Sample Type | : | Prototype production |

2.2. 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 Feb. 02, 2004 Accredited by NVLAP, USA NVLAP Code: 200372-0 Apr. 01, 2008 |

2.3. Measurement 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 | 3.46 dB | Distance: 10m Polarize: V |
| | | 3.82 dB | Distance: 10m Polarize: H |
| | | 3.64 dB | Distance: 3m Polarize: V |
| | | 4.02 dB | Distance: 3m Polarize: H |
| 4. | RF frequency | $\pm 0.5 \times 10^{-7}$ | |
| 5. | RF power, conducted | ± 3 dB | |

3. POWER LINE CONDUCTED EMISSION TEST

According to Paragraph (f) of FCC Part 15 section 15.207, Tests to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

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. | HF Cable | Hubersuhne | Sucoflex104 | - | May 10, 08 | 1 Year |

4.2. Block Diagram of Test Setup

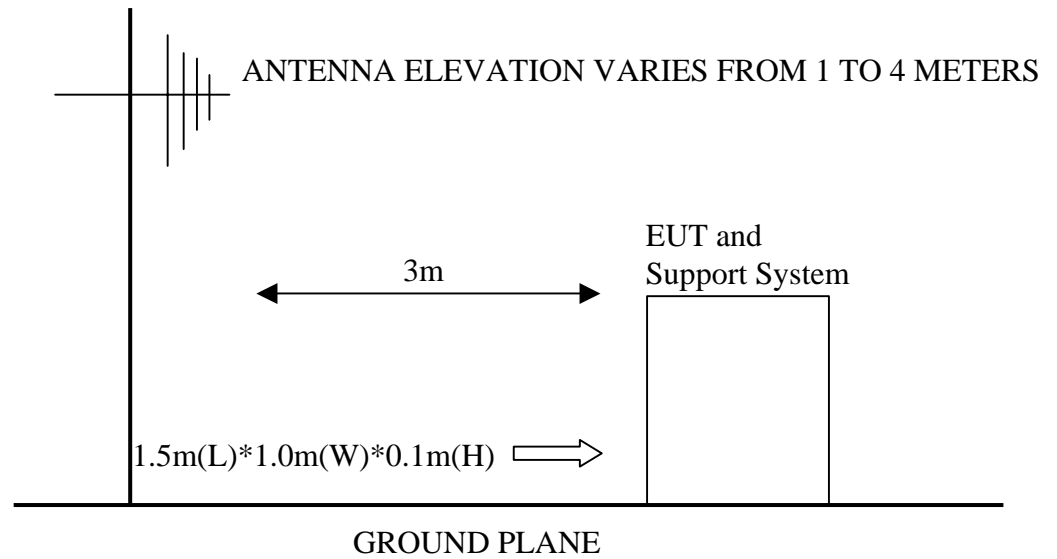
4.2.1. Block diagram of connection between the EUT and simulators

EUT

(EUT: Rock Band 2 XBox Wireless Drum)

4.2.2.In Anechoic Chamber

ANTENNA TOWER



4.3.Radiated Emission Limit

4.3.1.15.209 limits

| FREQUENCY MHz | DISTANCE Meters | FIELD STRENGTHS LIMIT | |
|------------------|--------------------|---|-----------------------------------|
| | | $\mu\text{V/m}$ | $\text{dB}(\mu\text{V})/\text{m}$ |
| 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 1000 | 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 $\mu\text{V/m}$
 - (2) The smaller limit shall apply at the cross point between two frequency bands.

4.3.2. 15.205 Restricted bands of operation

| 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 | 2690 - 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) |

All the emissions appearing within these frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

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.Rock Band 2 XBox Wireless Drum (EUT)

Model Number : #XBDMS2

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 work in test modes (TX Mode) and test it.

4.6.Test Procedure

EUT and its simulators are placed on a ground plane. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it work normally, we use a keyboard test soft ware, let EUT working in test mode, then test it. 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 are set on 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 Spectrum's VBW is set at 1MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

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

The frequency ranges from 30MHz to 10thharmonic (25GHz) are checked.

4.7.Radiated Emission Test Results

PASS.

All the emissions from 30MHz to 25 GHz are comply with 15.209 limits

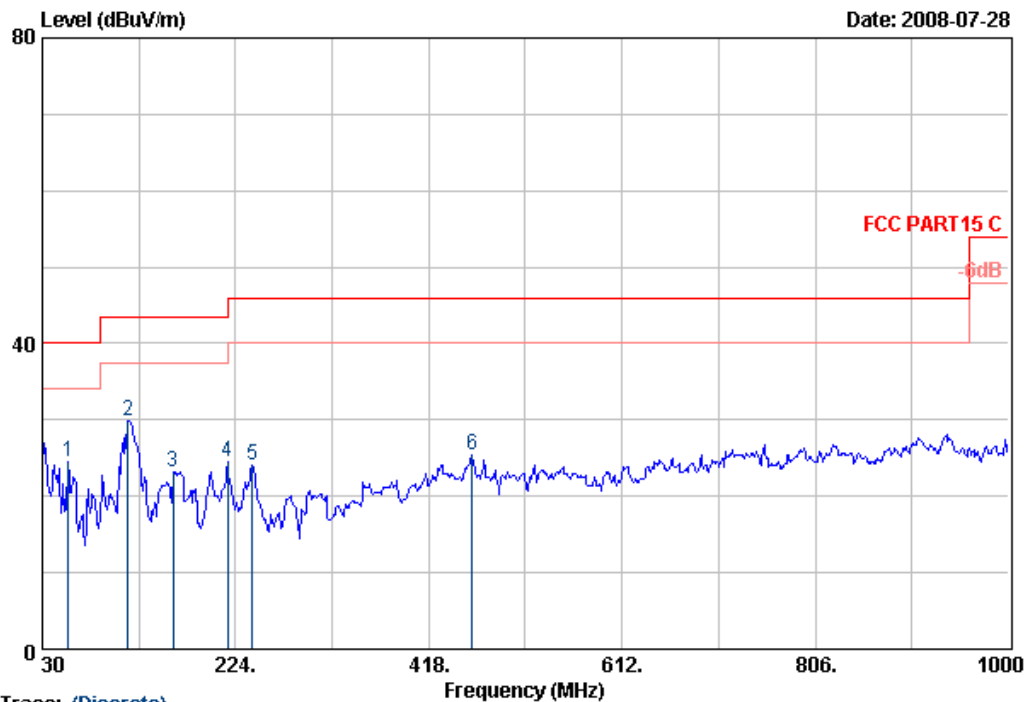
Test Frequency: 30MHz-1000MHz



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Data: 1 File: D:\2008 Report Data\HARMONIX\ACS8Q1159.EMI (6)

Date: 2008-07-28



Trace: (Discrete)

Site no. : 3# Chamber Radiation Data no. : 1
Dis. / Ant. : 3m CBL6112D Ant. pol. : HORIZONTAL
Limit : FCC PART15 C
Env. / Ins. : 24°C/56% ESVS20 Engineer : Power
EUT : Rock Band 2 XBox Wireless Drum
Power Rating : DC 4.5V
Test Mode : Tx Mode
#XBDMS2

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBuV) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 56.19 | 6.30 | 0.90 | 17.21 | 24.41 | 40.00 | 15.59 | QP |
| 2 | 116.33 | 10.95 | 1.09 | 17.77 | 29.81 | 43.50 | 13.69 | QP |
| 3 | 160.95 | 8.66 | 1.28 | 13.28 | 23.22 | 43.50 | 20.28 | QP |
| 4 | 216.24 | 8.64 | 1.39 | 14.56 | 24.59 | 46.00 | 21.41 | QP |
| 5 | 240.49 | 10.11 | 1.46 | 12.50 | 24.07 | 46.00 | 21.93 | QP |
| 6 | 461.65 | 15.23 | 1.97 | 8.16 | 25.36 | 46.00 | 20.64 | QP |

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

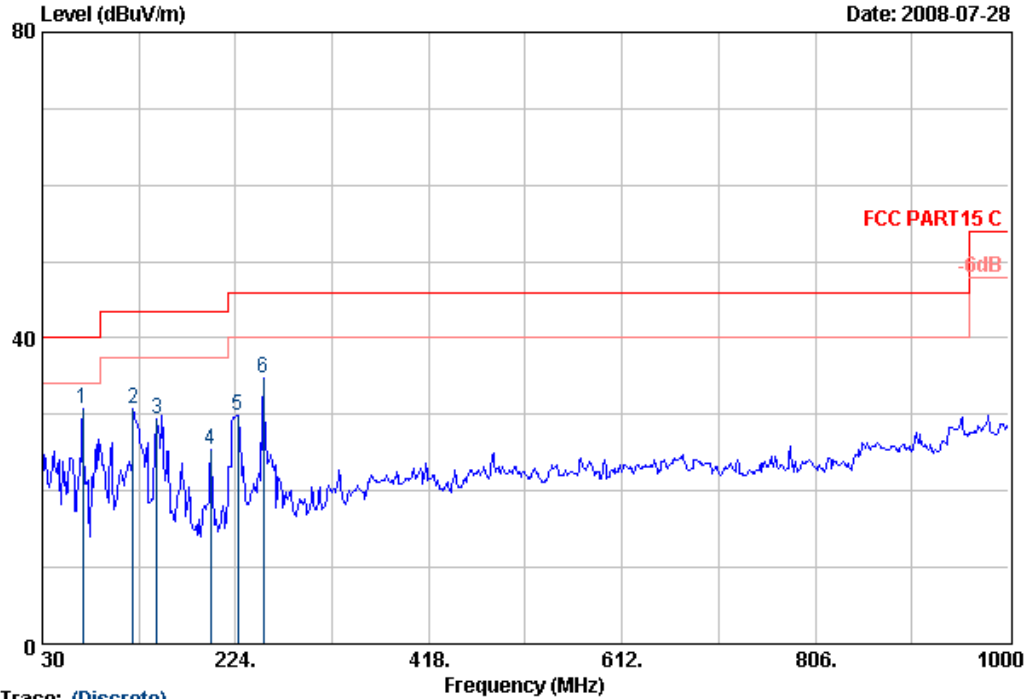


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Data: 2

File: D:\2008 Report Data\HARMONIX\ACS8Q1159.EMI (6)

Date: 2008-07-28



Trace: (Discrete)

Site no. : 3# Chamber Radiation Data no. : 2
Dis. / Ant. : 3m CBL6112D Ant. pol. : VERTICAL
Limit : FCC PART15 C
Env. / Ins. : 24°C/56% ESVS20 Engineer : Power
EUT : Rock Band 2 Xbox Wireless Drum
Power Rating : DC 4.5V
Test Mode : Tx Mode
#XBDMS2

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBuV) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 70.74 | 5.02 | 0.94 | 24.85 | 30.81 | 40.00 | 9.19 | QP |
| 2 | 121.18 | 11.04 | 1.07 | 18.73 | 30.84 | 43.50 | 12.66 | QP |
| 3 | 145.43 | 9.93 | 1.20 | 18.25 | 29.38 | 43.50 | 14.12 | QP |
| 4 | 198.78 | 8.29 | 1.32 | 15.77 | 25.38 | 43.50 | 18.12 | QP |
| 5 | 225.94 | 8.95 | 1.40 | 19.54 | 29.89 | 46.00 | 16.11 | QP |
| 6 | 252.13 | 10.98 | 1.58 | 22.11 | 34.67 | 46.00 | 11.33 | QP |

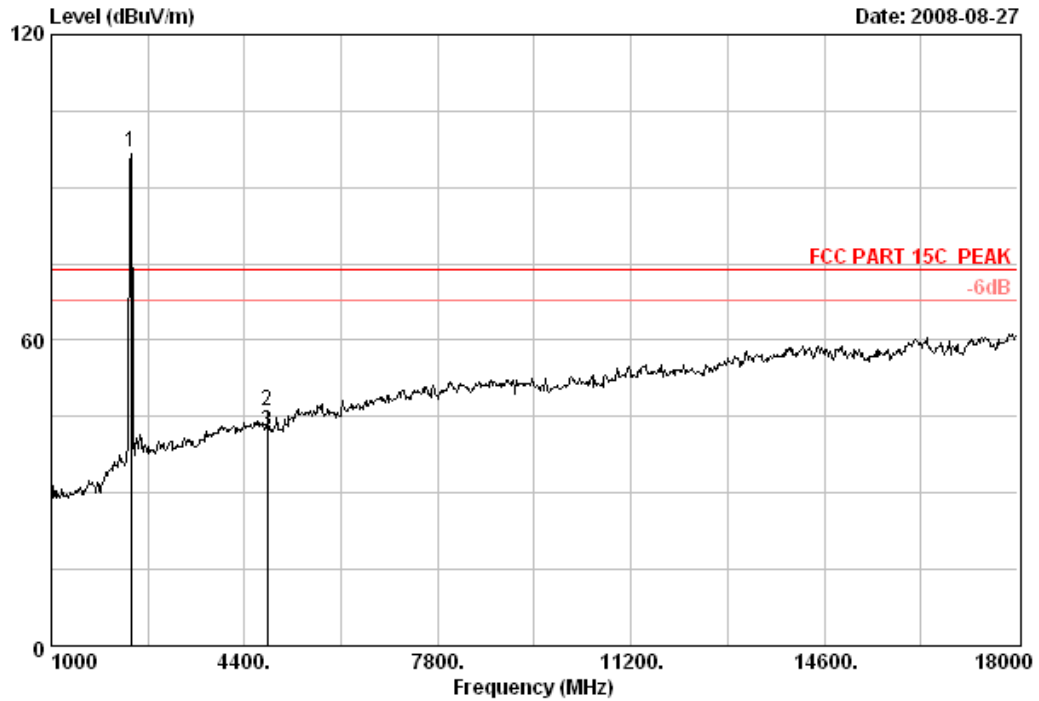
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Test Frequency: 1GHz-18GHz



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Data: 1 File: E:\2008 test data\E\ACS8Q1159.EMI (43)



Site no. : 3# Chamber Data no. : 1
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Jamy
EUT : Rock Band 2 Xbox wireless Drum
Power Rating: DC 4.5V
Test mode : Tx CHO 2402MHz
M/N : #XBDMS2

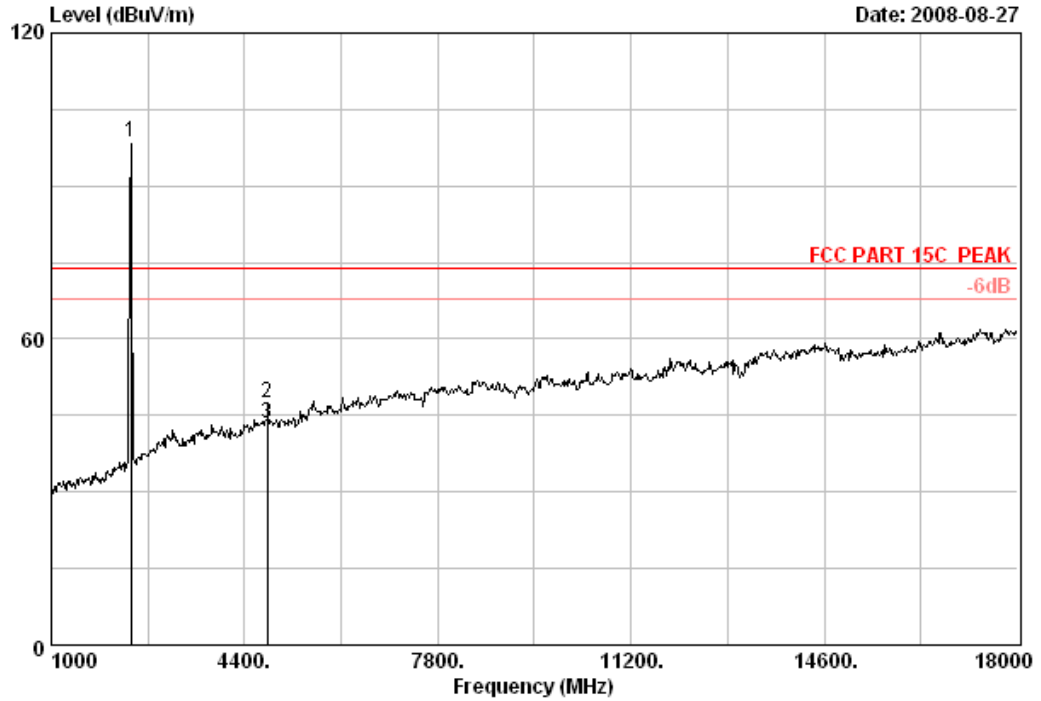
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Amp Factor (dB) | Reading (dBuV) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 | 2402.00 | 28.99 | 6.73 | 35.18 | 96.46 | 97.00 | 74.00 | -23.00 | Peak |
| 2 | 4804.00 | 33.98 | 10.53 | 34.50 | 36.12 | 46.13 | 74.00 | 27.87 | Peak |
| 3 | 4804.00 | 33.98 | 10.53 | 34.50 | 32.01 | 42.02 | 54.00 | 11.98 | Average |

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.



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Data: 2 File: E:\2008 test data\E\ACS8Q1159.EMI (43)



Site no. : 3# Chamber Data no. : 2
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Jamy
EUT : Rock Band 2 Xbox wireless Drum
Power Rating: DC 4.5V
Test mode : Tx CHO 2402MHz
M/N : #XBDMS2

| | 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 | 28.99 | 6.73 | 35.18 | 98.23 | 98.77 | 74.00 | -24.77 | Peak |
| 2 | 4804.00 | 33.98 | 10.53 | 34.50 | 37.56 | 47.57 | 74.00 | 26.43 | Peak |
| 3 | 4804.00 | 33.98 | 10.53 | 34.50 | 33.57 | 43.58 | 54.00 | 10.42 | Average |

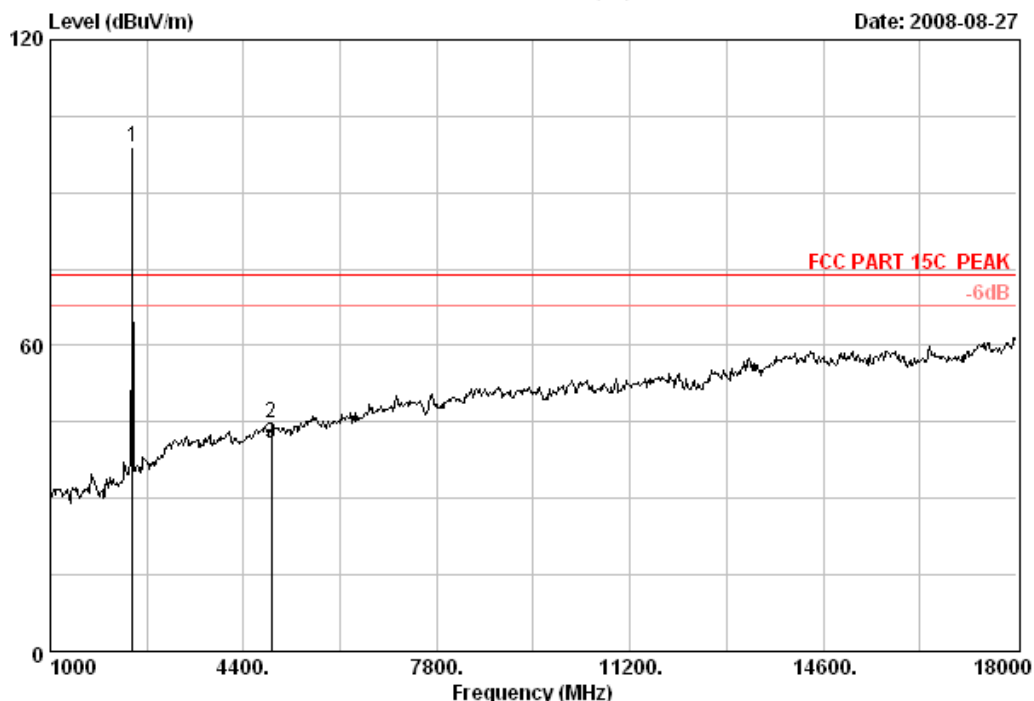
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 3 File: E:\2008 test data\E\ACS8Q1159.EMI (43)

Date: 2008-08-27



Site no. : 3# Chamber Data no. : 3
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Jamy
EUT : Rock Band 2 Xbox wireless Drum
Power Rating: DC 4.5V
Test mode : Tx CH20 2442MHz
M/N : #XBDMS2

| | 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 | 2442.00 | 29.11 | 6.80 | 35.17 | 98.37 | 99.11 | 74.00 | -25.11 | Peak |
| 2 | 4884.00 | 34.16 | 10.57 | 34.48 | 34.56 | 44.81 | 74.00 | 29.19 | Peak |
| 3 | 4884.00 | 34.16 | 10.57 | 34.48 | 30.56 | 40.81 | 54.00 | 13.19 | Average |

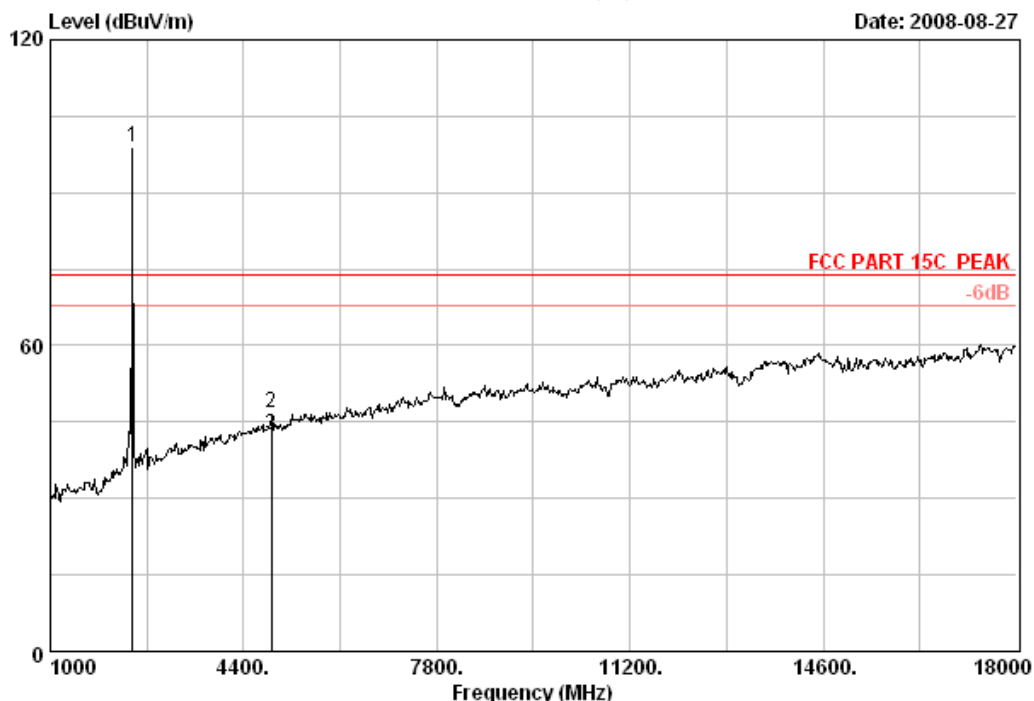
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 4 File: E:\2008 test data\E\ACS8Q1159.EMI (43)

Date: 2008-08-27



Site no. : 3# Chamber Data no. : 4
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Jamy
EUT : Rock Band 2 Xbox wireless Drum
Power Rating: DC 4.5V
Test mode : Tx CH20 2442MHz
M/N : #XBDMS2

| | 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 | 2442.00 | 29.11 | 6.80 | 35.17 | 98.25 | 98.99 | 74.00 | -24.99 | Peak |
| 2 | 4884.00 | 34.16 | 10.57 | 34.48 | 36.42 | 46.67 | 74.00 | 27.33 | Peak |
| 3 | 4884.00 | 34.16 | 10.57 | 34.48 | 32.33 | 42.58 | 54.00 | 11.42 | Average |

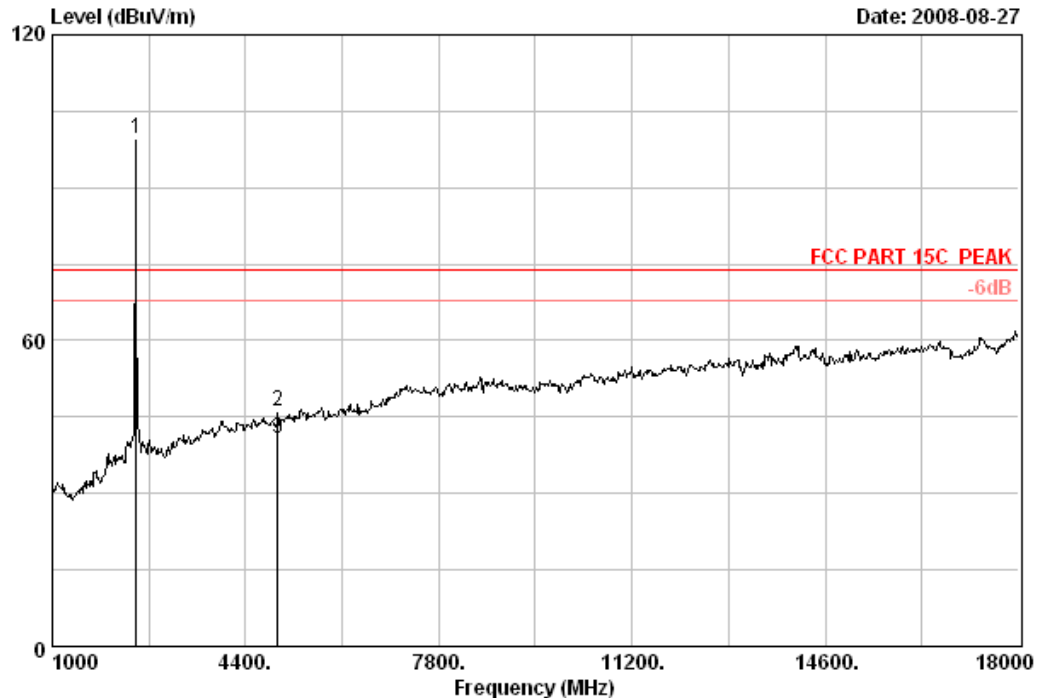
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Postcode:518057

Data: 5 File: E:\2008 test data\E\ACS8Q1159.EMI (43)

Date: 2008-08-27



Site no. : 3# Chamber Data no. : 5
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Jamy
EUT : Rock Band 2 Xbox wireless Drum
Power Rating: DC 4.5V
Test mode : Tx CH40 2482MHz
M/N : #XBDMS2

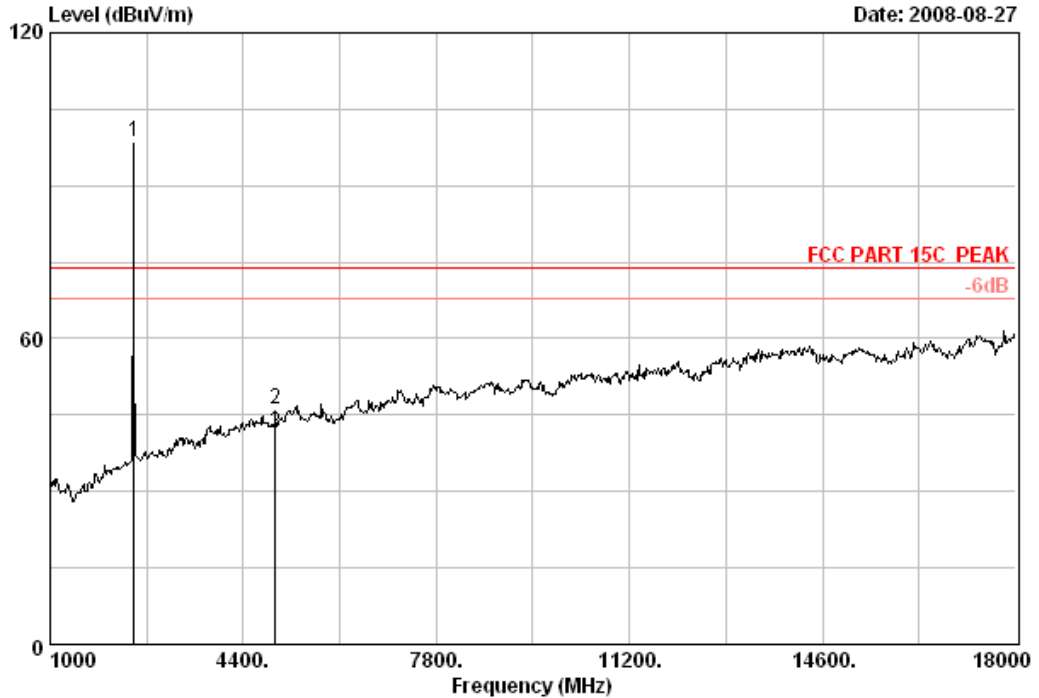
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Amp Factor (dB) | Reading (dBuV) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Remark |
|---|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 | 2482.00 | 29.19 | 6.87 | 35.16 | 98.57 | 99.47 | 74.00 | -25.47 | Peak |
| 2 | 4964.00 | 34.38 | 10.59 | 34.46 | 35.59 | 46.10 | 74.00 | 27.90 | Peak |
| 3 | 4964.00 | 34.38 | 10.59 | 34.46 | 30.39 | 40.90 | 54.00 | 13.10 | Average |

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.



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Data: 6 File: E:\2008 test data\E\ACS8Q1159.EMI (43)



Site no. : 3# Chamber Data no. : 6
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Jamy
EUT : Rock Band 2 Xbox wireless Drum
Power Rating: DC 4.5V
Test mode : Tx CH40 2482MHz
M/N : #XBDMS2

| | | 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 | 2482.00 | 29.19 | 6.87 | 35.16 | 97.55 | 98.45 | 74.00 | -24.45 | Peak |
| 2 | 4964.00 | 34.38 | 10.59 | 34.46 | 35.48 | 45.99 | 74.00 | 28.01 | Peak |
| 3 | 4964.00 | 34.38 | 10.59 | 34.46 | 31.02 | 41.53 | 54.00 | 12.47 | Average |

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.

5. CARRIER FREQUENCY SEPARATION 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 | RF Cable | Hubersuhner | SUCOFLEX 102 | 2861812 | May,28, 08 | 1 Year |
| 4 | RF Cable | Hubersuhner | SUCOFLEX 102 | 28862212 | May,28, 08 | 1 Year |

5.2. Test Information

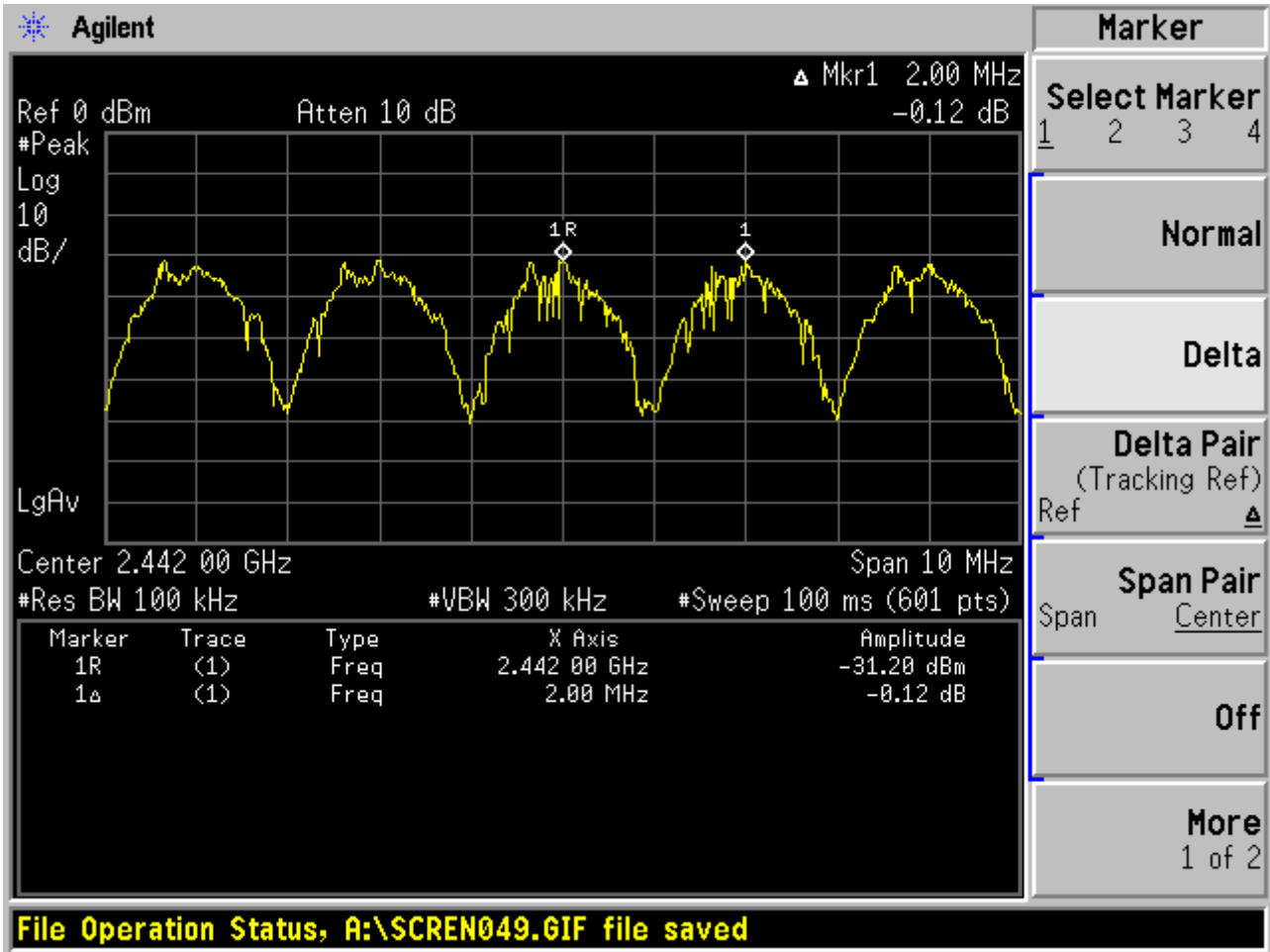
| | |
|----------------------|--------------------------------|
| EUT: | Rock Band 2 XBox Wireless Drum |
| M/N: | #XBDMS2 |
| Test Date: | Jul.21, 2008 |
| Ambient Temperature: | 23°C |
| Relative Humidity: | 54% |
| Test standard: | FCC PART 15C: 15.247(a)(1) |
| Test mode: | TX (Hopping on) |
| Test By: | Sunny |

5.3. Limit

Frequency hopping systems shall have hopping channel carrier frequency separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

5.4. Test Results (Pass.)

| | | |
|------------------------------|---------------------------|------------|
| carrier frequency separating | 20dB Bandwidth (MHz) | Conclusion |
| 2MHz | 1.45(see below test data) | PASS |



6. 20 DB 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 |
| 2 | Attenuator | Agilent | 8491B | MY39262165 | May,28, 08 | 1 Year |
| 3 | Horn Antenna | EMCO | 3115 | 9607-4877 | May, 27, 08 | 1.5 Year |
| 4 | RF Cable | Hubersuhner | SUCOFLEX 102 | 2861812 | May,28, 08 | 1Year |
| 5 | RF Cable | Hubersuhner | SUCOFLEX 102 | 28862212 | May,28, 08 | 1 Year |

6.2.Test Information

| | |
|----------------------|---|
| EUT: | Rock Band 2 XBox Wireless Drum |
| M/N: | #XBDMS2 |
| Test Date: | Jul.21, 2008 |
| Ambient Temperature: | 23°C |
| Relative Humidity: | 54% |
| Test standard: | FCC PART 15C: 15.247(a)(1) |
| Test mode: | TX (Hopping off) |
| Test Frequency: | Low: 2402MHz Mid: 2442MHz High: 2482MHz |
| Test By: | Jamy |

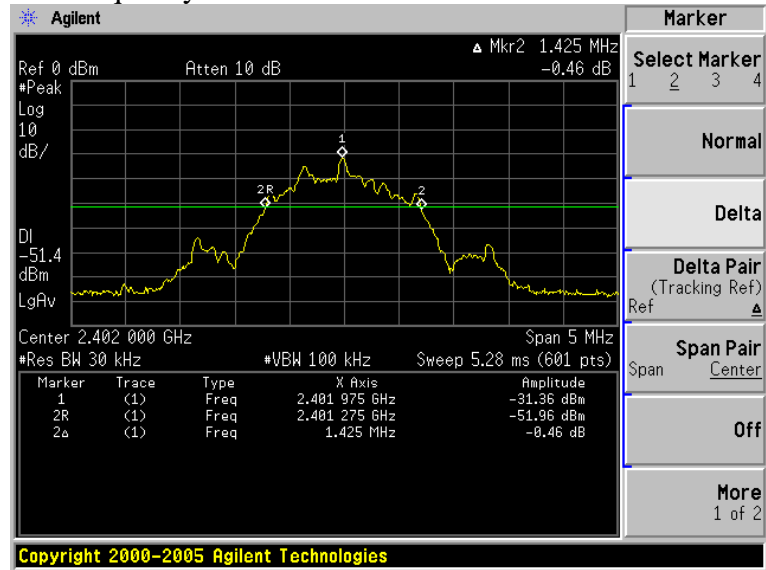
6.3.Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

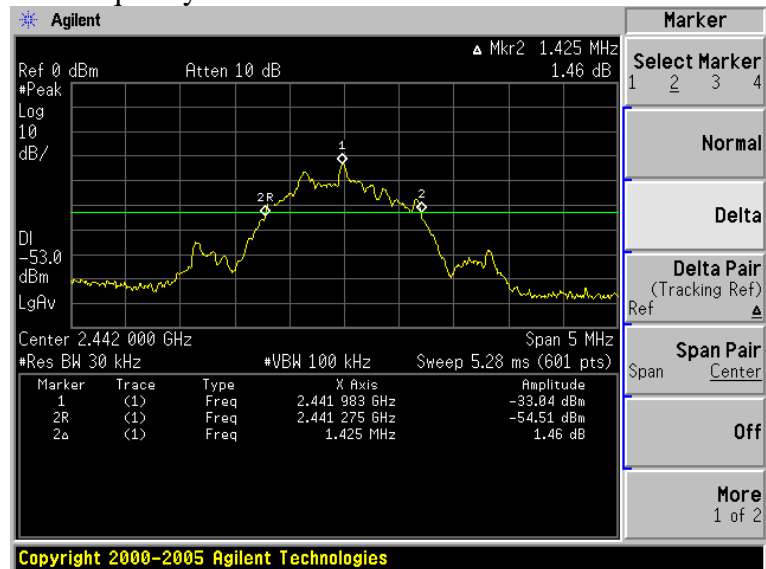
6.4.Test Results

| CH | 20dB Bandwidth (MHz) | Limit (kHz) | Conclusion |
|--------|----------------------|-------------|------------|
| (Low) | 1.425 | --- | PASS |
| (Mid) | 1.425 | --- | PASS |
| (High) | 1.417 | --- | PASS |

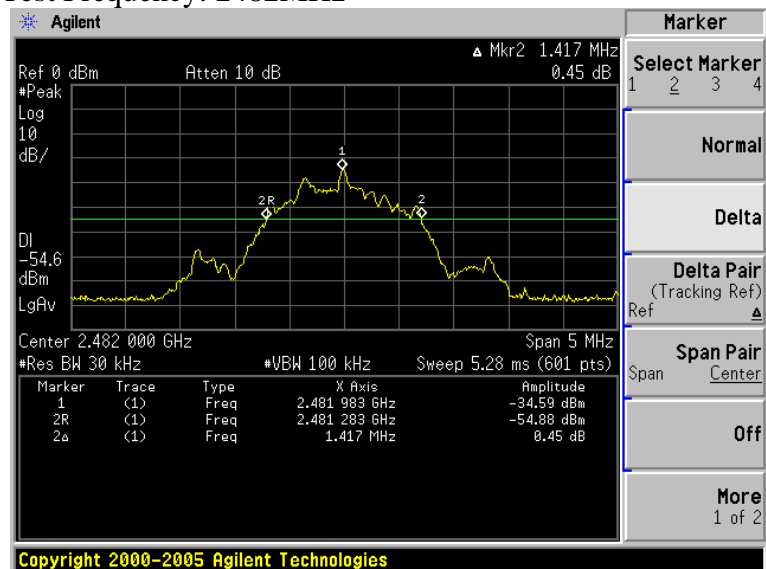
Test Frequency: 2402MHz



Test Frequency: 2442MHz



Test Frequency: 2482MHz



7. NUMBER OF HOPPING FREQUENCY TEST

7.1. Test Equipment

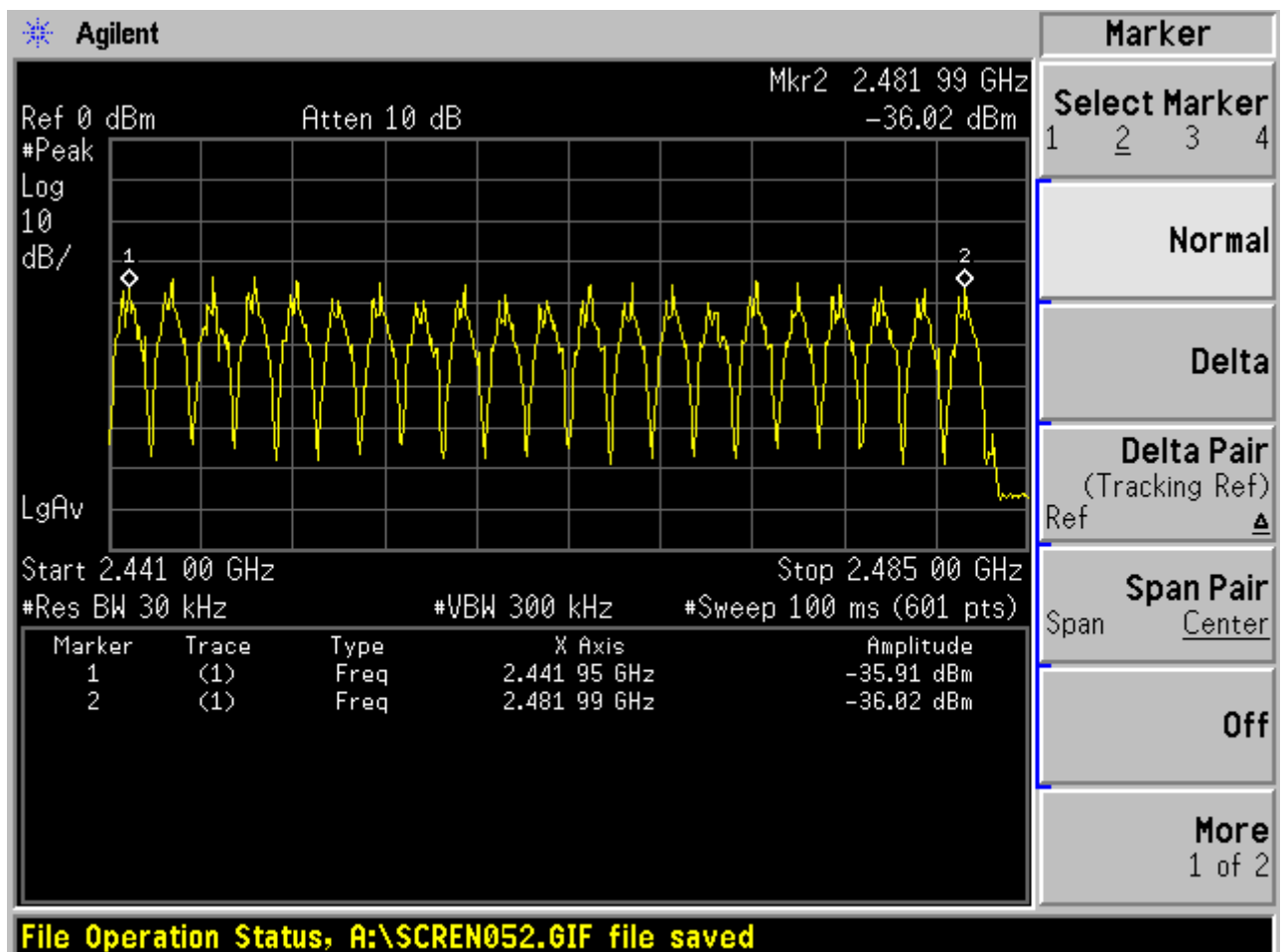
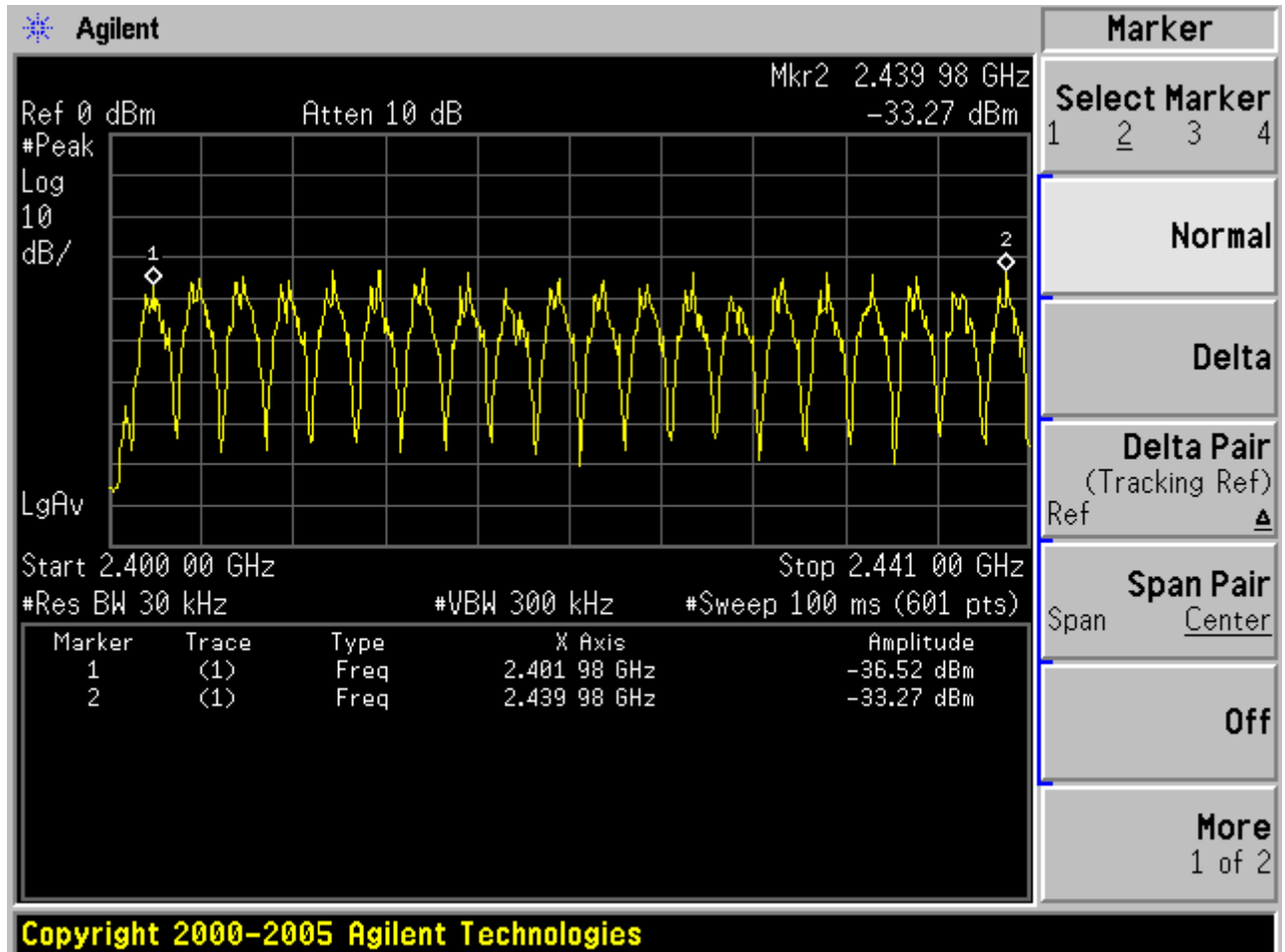
| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------|--------------|--------------|------------|-------------|---------------|
| 1 | Spectrum Analyzer | Agilent | E4446A | US44300459 | May,10, 08 | 1 Year |
| 2 | Attenuator | Agilent | 8491B | MY39262165 | May,28, 08 | 1 Year |
| 3 | Horn Antenna | EMCO | 3115 | 9607-4877 | May, 27, 08 | 1.5 Year |
| 4 | RF Cable | Hubersuhner | SUCOFLEX 102 | 2861812 | May,28, 08 | 1 Year |
| 5 | RF Cable | Hubersuhner | SUCOFLEX 102 | 28862212 | May,28, 08 | 1 Year |

7.2. Test Information

| | |
|----------------------|---------------------------------|
| EUT: | Rock Band 2 XBox Wireless Drum |
| M/N: | #XBDMS2 |
| Test Date: | Jul.21, 2008 |
| Ambient Temperature: | 23°C |
| Relative Humidity: | 54% |
| Test standard: | FCC PART 15C: 15.247(a)(1)(iii) |
| Test mode: | TX (Hopping on) |
| Test Frequency: | From 2402MHz to 2482MHz |
| Test By: | Jamy |

7.3. Test Results

| Number of channel | Limit | Conclusion |
|-------------------|-------|------------|
| 41 | >=15 | PASS |



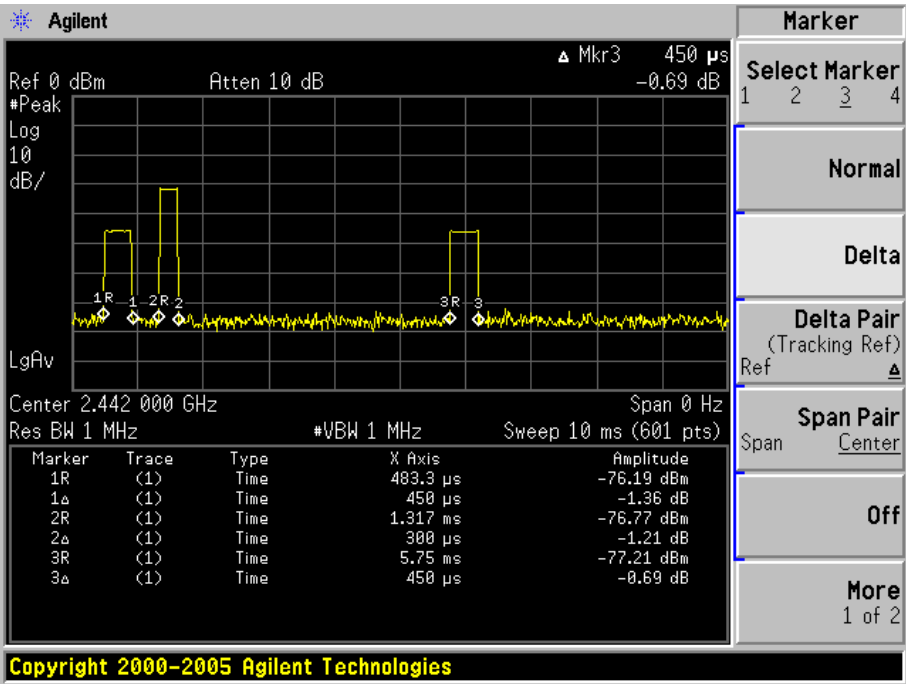
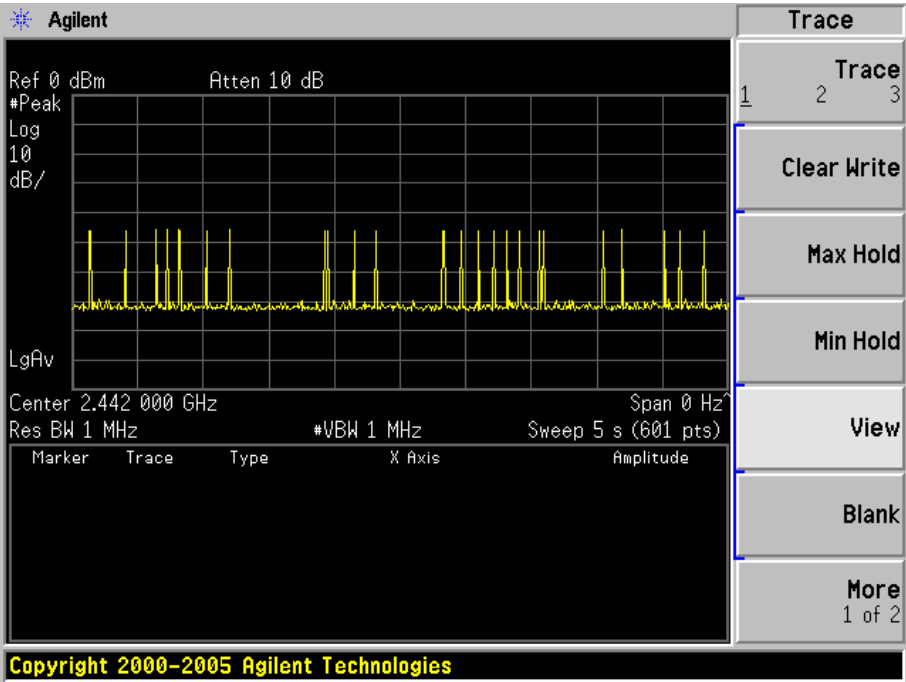
8. DWELL TIME

8.1.Limit

The average time of occupancy on any channel shall not be greater than 0.4s within a period of 0.4s multiplied by the number of hopping channels.

8.2 Result

Dwell time=24/5*0.4*41*(0.45+0.3+0.45)=94.464ms<0.4s



9. MAXIMUM PEAK OUTPUT POWER TEST

9.1. 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 | Horn Antenna | EMCO | 3115 | 9510-4580 | May,11, 07 | 1.5 Year |
| 4 | Signal Generator | HP | 83732B | 6K00003262 | May,10, 08 | 1 Year |
| 5 | RF Cable | Hubersuhner | SUCOFLEX | 182769/4 | May,28, 08 | 1Year |
| 6 | RF Cable | Hubersuhner | SUCOFLEX | 182768/4 | May,28, 08 | 1Year |
| 7 | RF Cable | Hubersuhner | SUCOFLEX | 182771/4 | May,28, 08 | 1Year |
| 8 | RF Cable | Hubersuhner | SUCOFLEX 102 | 2861812 | May,28, 08 | 1Year |
| 9 | RF Cable | Hubersuhner | SUCOFLEX 104 | 27147314 | May,28, 08 | 1Year |
| 10 | Amplifier | HP | 8449B | 3008A00863 | May,10, 08 | 1 Year |

9.2. Test Procedure

- (1). The EUT was placed on a 0.8m high table in the chamber and turned on in continuously transmitting mode.
- (2). The maximum fundamental emission at 3m distance was measured and recorded with receive antenna in both vertical and horizontal by rotating the turntable and by lowering the receive antenna.
- (3). The EUT was then removed and replaced with a substitution antenna in the same position and the substitution antenna must have the same polarization with the receive antenna.
- (4). A signal which have the same frequency obtained in step 2 was fed to the substitution, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver, the level of the signal generator was adjusted until the measured field strength level in step 2 was obtained, recorded the level of the signal generator.
- (5). Repeated step 4 with both antenna polarizations
- (6). The radiated power is equal to the power supplied by the signal generator and corrections due to the gain of the substitution antenna and the cable loss between the signal generator and the substitution antenna.

9.3. Test Information

| | |
|----------------------|---|
| EUT: | Rock Band 2 XBox Wireless Drum |
| M/N: | #XBDMS2 |
| Test Date: | Jul.21, 2008 |
| Ambient Temperature: | 24°C |
| Relative Humidity: | 50% |
| Test standard: | FCC PART 15C: 15.247(b)(1) |
| Test mode: | TX (Hopping off) |
| Test Frequency: | Low: 2402MHz Mid: 2442MHz High: 2482MHz |
| Test By: | Jamy |

9.4. Test Results

| CH | Freq (MHz) | Ant Pol. | Electric Field Strength (dBuV/m) | SG Reading (dBm) | Tx Cable Loss (dB) | Tx Ant. Gain (dBi) | Out put power Result (dBm) | Limit 0.125W 21(dBm) | Margin (dB) |
|--|---------------|-------------|--|------------------------|-----------------------------|-----------------------------|-------------------------------------|----------------------------|----------------|
| Low | 2402 | H | 97.00 | -2.78 | 6.06 | 9.25 | 0.41 | 21 | 20.59 |
| | 2402 | V | 98.77 | -1.67 | 6.06 | 9.25 | 1.52 | 21 | 19.48 |
| Mid | 2442 | H | 98.99 | -1.49 | 6.08 | 9.30 | 1.73 | 21 | 19.27 |
| | 2442 | V | 99.11 | -1.07 | 6.08 | 9.30 | 2.15 | 21 | 18.85 |
| Hig | 2482 | H | 99.47 | -1.07 | 6.15 | 9.33 | 2.11 | 21 | 18.89 |
| | 2482 | V | 98.45 | -2.27 | 6.15 | 9.33 | 0.91 | 21 | 20.09 |
| Result = SG Reading – Tx Cable Loss + Tx Antenna Gain – Antenna Gain | | | | | | | | | |

10.BAND EDGE COMPLIANCE TEST

10.1.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 | 182769/4 | May,28, 08 | 1 Year |
| 5 | RF Cable | Hubersuhner | SUCOFLEX | 182768/4 | May,28, 08 | 1 Year |
| 6 | RF Cable | Hubersuhner | SUCOFLEX | 182771/4 | May,28, 08 | 1 Year |

10.2.Limit

According to §15.247(c), in any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, 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).

10.3.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 / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

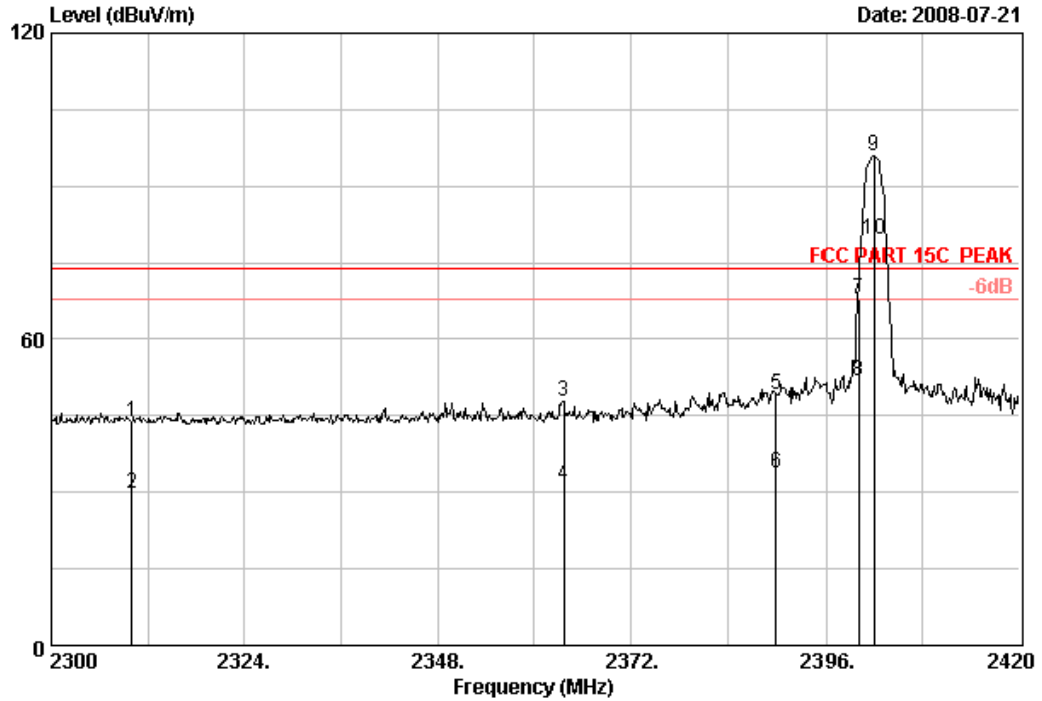
10.4.Test Results

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



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Postcode:518057

Data: 11 File: D:\2008 test data\E\ACS8Q1159.EMI (37)



Site no. : 3# Chamber Data no. : 11
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny
EUT : Rock Band 2 Xbox Wireless Drum
Power Rating: DC 4.5V
Test Mode : Tx CHO 2402MHz
M/N : #XBDMS2

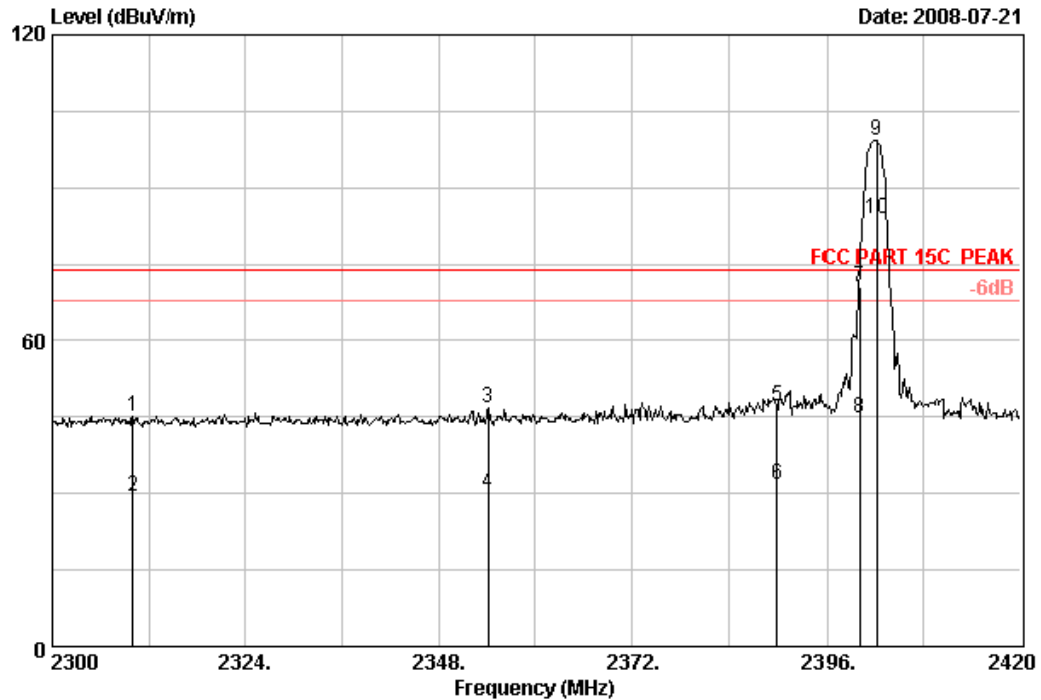
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Amp Factor (dB) | Reading (dBuV) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Remark |
|----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 | 2310.00 | 28.79 | 6.63 | 35.21 | 43.51 | 43.72 | 74.00 | 30.28 | Peak |
| 2 | 2310.00 | 28.79 | 6.63 | 35.21 | 29.45 | 29.66 | 54.00 | 24.34 | Average |
| 3 | 2363.60 | 28.91 | 6.69 | 35.19 | 47.54 | 47.95 | 74.00 | 26.05 | Peak |
| 4 | 2363.60 | 28.91 | 6.69 | 35.19 | 30.91 | 31.32 | 54.00 | 22.68 | Average |
| 5 | 2390.00 | 28.99 | 6.71 | 35.18 | 48.58 | 49.10 | 74.00 | 24.90 | Peak |
| 6 | 2390.00 | 28.99 | 6.71 | 35.18 | 33.12 | 33.64 | 74.00 | 40.36 | Average |
| 7 | 2400.00 | 28.99 | 6.73 | 35.18 | 67.31 | 67.85 | 74.00 | 6.15 | Peak |
| 8 | 2400.00 | 28.99 | 6.73 | 35.18 | 51.41 | 51.95 | 74.00 | 22.05 | Average |
| 9 | 2402.00 | 28.99 | 6.73 | 35.18 | 95.31 | 95.85 | 74.00 | -21.85 | Peak |
| 10 | 2402.00 | 28.99 | 6.73 | 35.18 | 78.95 | 79.49 | 54.00 | -25.49 | Average |

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.



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Data: 12 File: D:\2008 test data\E\ACS8Q1159.EMI (37)



Site no. : 3# Chamber Data no. : 12
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny
EUT : Rock Band 2 Xbox Wireless Drum
Power Rating: DC 4.5V
Test Mode : Tx CHO 2402MHz
M/N : #XBDMS2

| | 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 | 2310.00 | 28.79 | 6.63 | 35.21 | 44.81 | 45.02 | 74.00 | 28.98 | Peak |
| 2 | 2310.00 | 28.79 | 6.63 | 35.21 | 29.12 | 29.33 | 54.00 | 24.67 | Average |
| 3 | 2354.12 | 28.91 | 6.67 | 35.19 | 46.53 | 46.92 | 74.00 | 27.08 | Peak |
| 4 | 2354.12 | 28.91 | 6.67 | 35.19 | 29.84 | 30.23 | 54.00 | 23.77 | Average |
| 5 | 2390.00 | 28.99 | 6.71 | 35.18 | 46.76 | 47.28 | 74.00 | 26.72 | Peak |
| 6 | 2390.00 | 28.99 | 6.71 | 35.18 | 31.12 | 31.64 | 54.00 | 22.36 | Average |
| 7 | 2400.00 | 28.99 | 6.73 | 35.18 | 69.93 | 70.47 | 74.00 | 3.53 | Peak |
| 8 | 2400.00 | 28.99 | 6.73 | 35.18 | 44.21 | 44.75 | 54.00 | 9.25 | Average |
| 9 | 2402.12 | 28.99 | 6.73 | 35.18 | 98.77 | 99.31 | 74.00 | -25.31 | Peak |
| 10 | 2402.12 | 28.99 | 6.73 | 35.18 | 83.45 | 83.99 | 54.00 | -29.99 | Average |

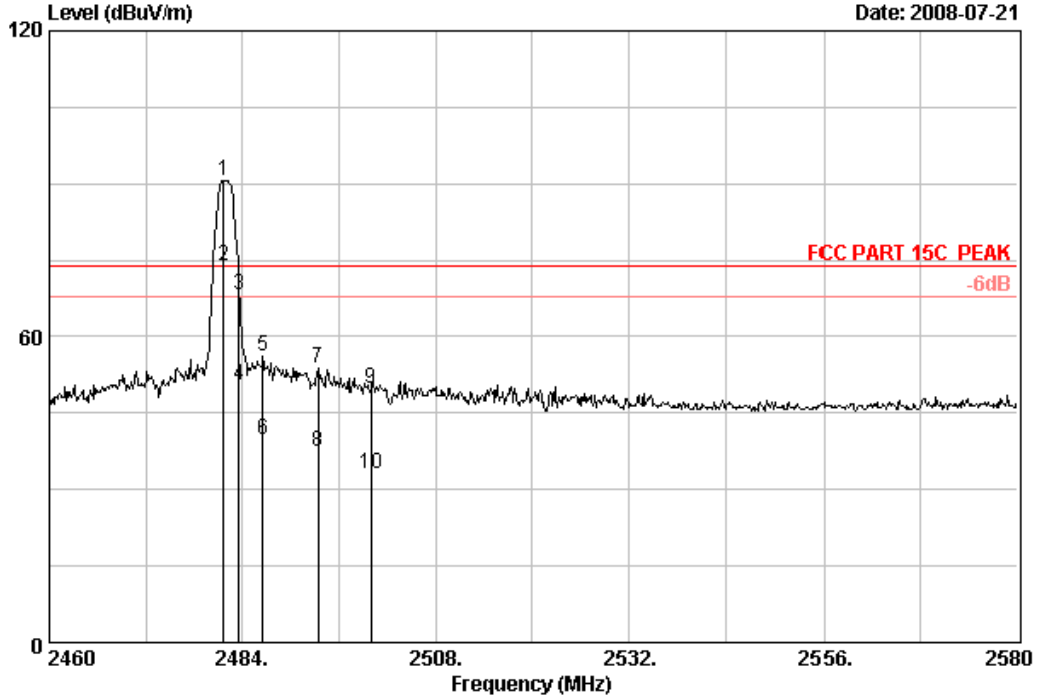
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 14 File: D:\2008 test data\E\ACS8Q1159.EMI (37)

Date: 2008-07-21



Site no. : 3# Chamber Data no. : 14
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny
EUT : Rock Band 2 Xbox Wireless Drum
Power Rating: DC 4.5V
Test Mode : Tx CH40 2482MHz
M/N : #XBDMS2

| | 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 | 2481.60 | 29.19 | 6.87 | 35.16 | 89.66 | 90.56 | 74.00 | -16.56 | Peak |
| 2 | 2481.60 | 29.19 | 6.87 | 35.16 | 73.09 | 73.99 | 54.00 | -19.99 | Average |
| 3 | 2483.50 | 29.19 | 6.87 | 35.16 | 67.14 | 68.04 | 74.00 | 5.96 | Peak |
| 4 | 2483.50 | 29.19 | 6.87 | 35.16 | 49.56 | 50.46 | 54.00 | 3.54 | Average |
| 5 | 2486.52 | 29.19 | 6.87 | 35.16 | 55.39 | 56.29 | 74.00 | 17.71 | Peak |
| 6 | 2486.52 | 29.19 | 6.87 | 35.16 | 38.82 | 39.72 | 54.00 | 14.28 | Average |
| 7 | 2493.36 | 29.23 | 6.91 | 35.15 | 52.86 | 53.85 | 74.00 | 20.15 | Peak |
| 8 | 2493.36 | 29.23 | 6.91 | 35.15 | 36.29 | 37.28 | 54.00 | 16.72 | Average |
| 9 | 2500.00 | 29.23 | 6.91 | 35.15 | 48.82 | 49.81 | 74.00 | 24.19 | Peak |
| 10 | 2500.00 | 29.23 | 6.91 | 35.15 | 32.24 | 33.23 | 54.00 | 20.77 | Average |

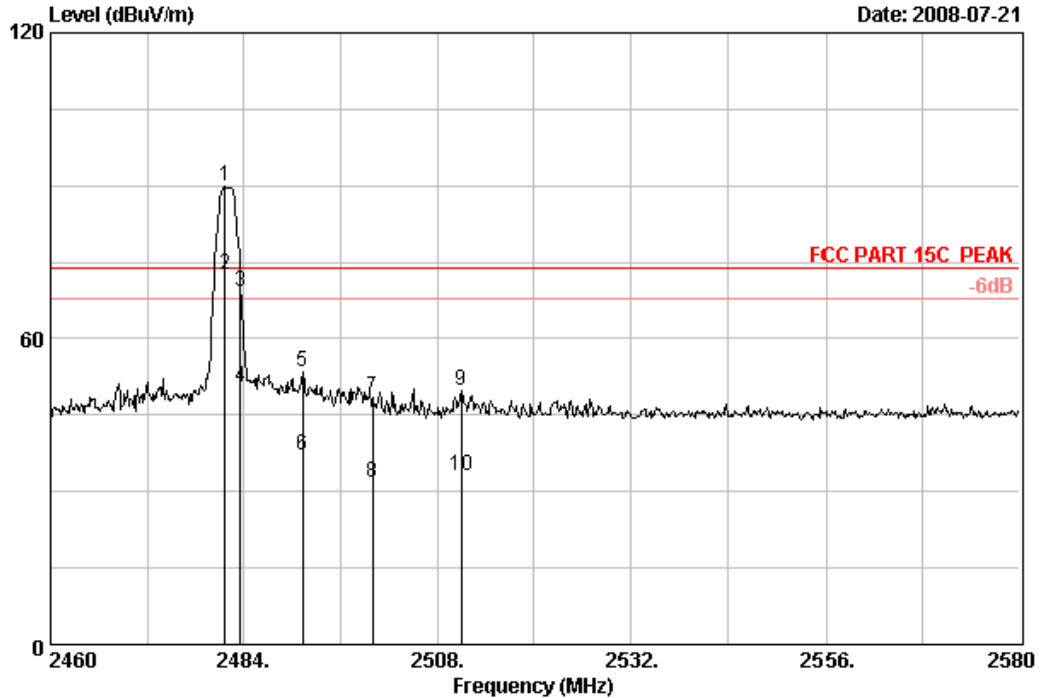
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Postcode:518057

Data: 13 File: D:\2008 test data\EACS8Q1159.EMI (37)

Date: 2008-07-21



Site no. : 3# Chamber Data no. : 13
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny
EUT : Rock Band 2 Xbox Wireless Drum
Power Rating: DC 4.5V
Test Mode : Tx CH40 2482MHz
M/N : #XBDMS2

| | 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 | 2481.60 | 29.19 | 6.87 | 35.16 | 88.85 | 89.75 | 74.00 | -15.75 | Peak |
| 2 | 2481.60 | 29.19 | 6.87 | 35.16 | 71.59 | 72.49 | 54.00 | -18.49 | Average |
| 3 | 2483.50 | 29.19 | 6.87 | 35.16 | 68.33 | 69.23 | 74.00 | 4.77 | Peak |
| 4 | 2483.50 | 29.19 | 6.87 | 35.16 | 49.71 | 50.61 | 54.00 | 3.39 | Average |
| 5 | 2491.32 | 29.23 | 6.91 | 35.15 | 52.54 | 53.53 | 74.00 | 20.47 | Peak |
| 6 | 2491.32 | 29.23 | 6.91 | 35.15 | 36.15 | 37.14 | 54.00 | 16.86 | Average |
| 7 | 2500.00 | 29.23 | 6.91 | 35.15 | 47.33 | 48.32 | 74.00 | 25.68 | Peak |
| 8 | 2500.00 | 29.23 | 6.91 | 35.15 | 30.84 | 31.83 | 54.00 | 22.17 | Average |
| 9 | 2511.00 | 29.29 | 6.93 | 35.15 | 48.62 | 49.69 | 74.00 | 24.31 | Peak |
| 10 | 2511.00 | 29.29 | 6.93 | 35.15 | 32.16 | 33.23 | 54.00 | 20.77 | Average |

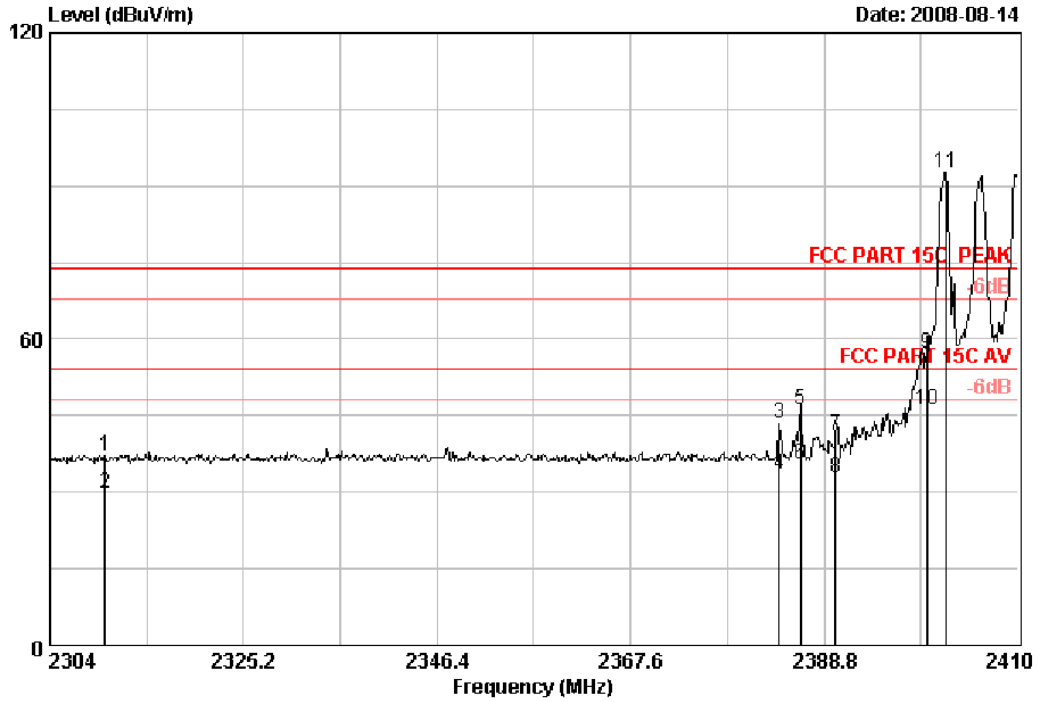
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 38 File: D:\2008 test data\EACS8Q1159.EMI (43)

Date: 2008-08-14



Site no. : 3# Chamber Data no. : 38
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny
EUT : Rock Band 2 Xbox Wireless Drum
Power Rating: DC 4.5V
Test mode : Tx CHO 2402MHz
M/N : #XBDMS2

| | 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 | 2310.00 | 28.79 | 6.63 | 35.21 | 37.04 | 37.25 | 74.00 | 36.75 | Peak |
| 2 | 2310.00 | 28.79 | 6.63 | 35.21 | 29.41 | 29.62 | 54.00 | 24.38 | Average |
| 3 | 2383.92 | 28.95 | 6.71 | 35.19 | 42.86 | 43.33 | 74.00 | 30.67 | Peak |
| 4 | 2383.92 | 28.95 | 6.71 | 35.19 | 32.91 | 33.38 | 54.00 | 20.62 | Average |
| 5 | 2386.20 | 28.99 | 6.71 | 35.19 | 45.65 | 46.16 | 74.00 | 27.84 | Peak |
| 6 | 2386.20 | 28.99 | 6.71 | 35.19 | 34.78 | 35.29 | 54.00 | 18.71 | Average |
| 7 | 2390.00 | 28.99 | 6.71 | 35.18 | 40.61 | 41.13 | 74.00 | 32.87 | Peak |
| 8 | 2390.00 | 28.99 | 6.71 | 35.18 | 32.12 | 32.64 | 54.00 | 21.36 | Average |
| 9 | 2400.00 | 28.99 | 6.73 | 35.18 | 56.65 | 57.19 | 74.00 | 16.81 | Peak |
| 10 | 2400.00 | 28.99 | 6.73 | 35.18 | 45.52 | 46.06 | 54.00 | 7.94 | Average |
| 11 | 2402.16 | 28.99 | 6.73 | 35.18 | 91.94 | 92.48 | 74.00 | -18.48 | Peak |

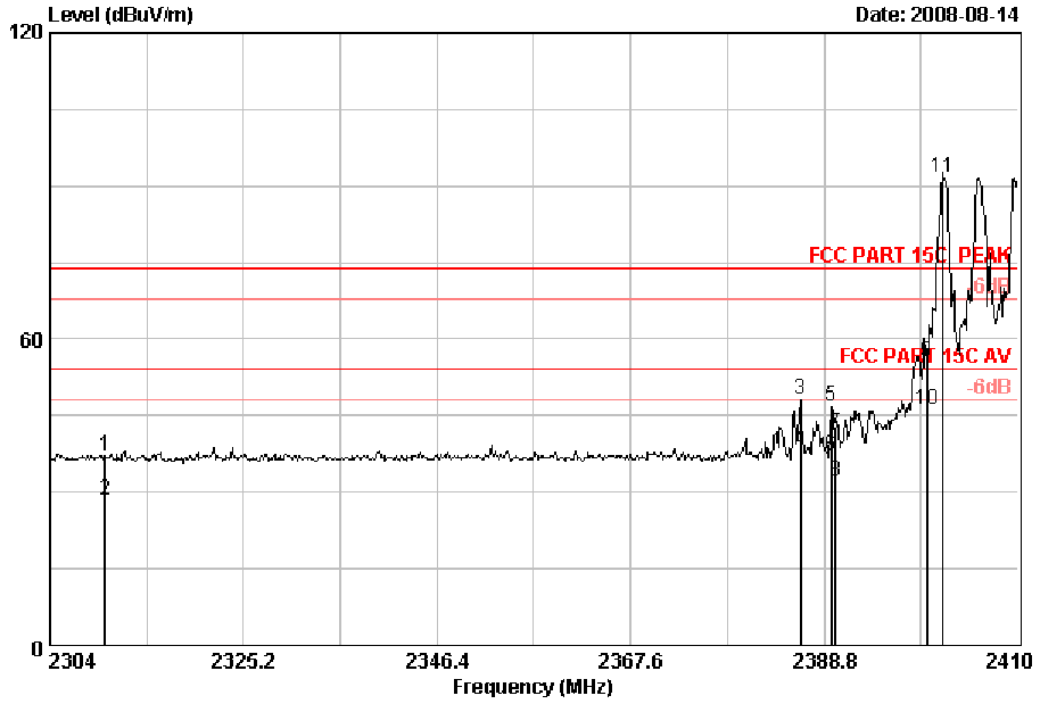
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 39 File: D:\2008 test data\EACS8Q1159.EMI (43)

Date: 2008-08-14



Site no. : 3# Chamber Data no. : 39
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny
EUT : Rock Band 2 Xbox Wireless Drum
Power Rating: DC 4.5V
Test mode : Tx CHO 2402MHz
M/N : #XBDMS2

| | 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 | 2310.00 | 28.79 | 6.63 | 35.21 | 36.92 | 37.13 | 74.00 | 36.87 | Peak |
| 2 | 2310.00 | 28.79 | 6.63 | 35.21 | 28.14 | 28.35 | 74.00 | 45.65 | Average |
| 3 | 2386.20 | 28.99 | 6.71 | 35.19 | 47.51 | 48.02 | 74.00 | 25.98 | Peak |
| 4 | 2386.20 | 28.99 | 6.71 | 35.19 | 37.58 | 38.09 | 74.00 | 35.91 | Average |
| 5 | 2389.56 | 28.99 | 6.71 | 35.18 | 46.27 | 46.79 | 74.00 | 27.21 | Peak |
| 6 | 2389.56 | 28.99 | 6.71 | 35.18 | 36.67 | 37.19 | 74.00 | 36.81 | Average |
| 7 | 2390.00 | 28.99 | 6.71 | 35.18 | 40.82 | 41.34 | 74.00 | 32.66 | Peak |
| 8 | 2390.00 | 28.99 | 6.71 | 35.18 | 31.48 | 32.00 | 74.00 | 42.00 | Average |
| 9 | 2400.00 | 28.99 | 6.73 | 35.18 | 55.02 | 55.56 | 74.00 | 18.44 | Peak |
| 10 | 2400.00 | 28.99 | 6.73 | 35.18 | 45.61 | 46.15 | 74.00 | 27.85 | Average |
| 11 | 2401.80 | 28.99 | 6.73 | 35.18 | 91.05 | 91.59 | 74.00 | -17.59 | Peak |

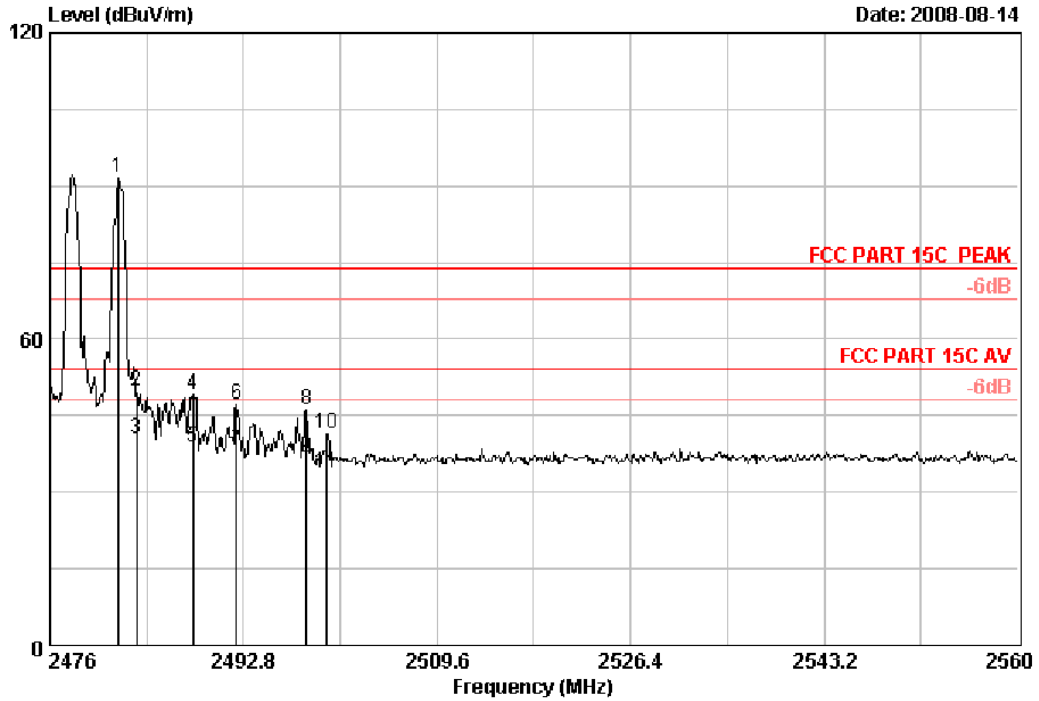
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 40 File: D:\2008 test data\E\ACS8Q1159.EMI (43)

Date: 2008-08-14



Site no. : 3# Chamber Data no. : 40
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny
EUT : Rock Band 2 Xbox Wireless Drum
Power Rating: DC 4.5V
Test mode : Tx CH40 2482MHz
M/N : #XBDMS2

| | 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 | 2481.88 | 29.19 | 6.87 | 35.16 | 90.83 | 91.73 | 74.00 | -17.73 | Peak |
| 2 | 2483.50 | 29.19 | 6.87 | 35.16 | 48.79 | 49.69 | 74.00 | 24.31 | Peak |
| 3 | 2483.50 | 29.19 | 6.87 | 35.16 | 39.43 | 40.33 | 74.00 | 33.67 | Average |
| 4 | 2488.43 | 29.23 | 6.91 | 35.15 | 48.18 | 49.17 | 74.00 | 24.83 | Peak |
| 5 | 2488.43 | 29.23 | 6.91 | 35.15 | 37.89 | 38.88 | 74.00 | 35.12 | Average |
| 6 | 2492.21 | 29.23 | 6.91 | 35.15 | 46.22 | 47.21 | 74.00 | 26.79 | Peak |
| 7 | 2492.21 | 29.23 | 6.91 | 35.15 | 37.02 | 38.01 | 74.00 | 35.99 | Average |
| 8 | 2498.26 | 29.23 | 6.91 | 35.15 | 45.10 | 46.09 | 74.00 | 27.91 | Peak |
| 9 | 2498.26 | 29.23 | 6.91 | 35.15 | 35.74 | 36.73 | 74.00 | 37.27 | Average |
| 10 | 2500.00 | 29.23 | 6.91 | 35.15 | 40.43 | 41.42 | 74.00 | 32.58 | Peak |
| 11 | 2500.00 | 29.23 | 6.91 | 35.15 | 32.84 | 33.83 | 74.00 | 40.17 | Average |

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.

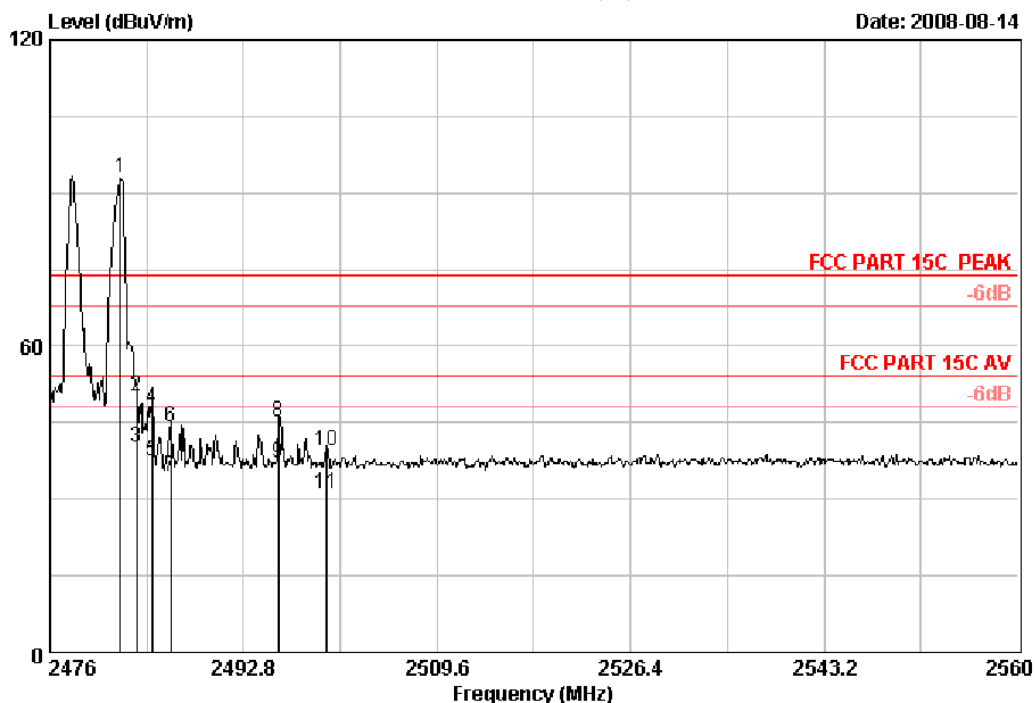


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Data: 41

File: D:\2008 test data\E\ACS8Q1159.EMI (43)

Date: 2008-08-14



Site no. : 3# Chamber Data no. : 41
Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54% Engineer : Sunny
EUT : Rock Band 2 Xbox Wireless Drum
Power Rating: DC 4.5V
Test mode : Tx CH40 2482MHz
M/N : #XBDM32

| | 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 | 2482.13 | 29.19 | 6.87 | 35.16 | 91.97 | 92.87 | 74.00 | -18.87 | Peak |
| 2 | 2483.50 | 29.19 | 6.87 | 35.16 | 49.22 | 50.12 | 74.00 | 23.88 | Peak |
| 3 | 2483.50 | 29.19 | 6.87 | 35.16 | 39.17 | 40.07 | 74.00 | 33.93 | Average |
| 4 | 2484.82 | 29.19 | 6.87 | 35.16 | 46.98 | 47.88 | 74.00 | 26.12 | Peak |
| 5 | 2484.82 | 29.19 | 6.87 | 35.16 | 36.68 | 37.58 | 74.00 | 36.42 | Average |
| 6 | 2486.50 | 29.19 | 6.87 | 35.16 | 43.23 | 44.13 | 74.00 | 29.87 | Peak |
| 7 | 2486.50 | 29.19 | 6.87 | 35.16 | 33.43 | 34.33 | 74.00 | 39.67 | Average |
| 8 | 2495.82 | 29.23 | 6.91 | 35.15 | 44.01 | 45.00 | 74.00 | 29.00 | Peak |
| 9 | 2495.82 | 29.23 | 6.91 | 35.15 | 36.10 | 37.09 | 74.00 | 36.91 | Average |
| 10 | 2500.00 | 29.23 | 6.91 | 35.15 | 38.41 | 39.40 | 74.00 | 34.60 | Peak |
| 11 | 2500.00 | 29.23 | 6.91 | 35.15 | 29.94 | 30.93 | 74.00 | 43.07 | Average |

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.

11. ANTENNA REQUIREMENT

10.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used for this product is a PCB integral antenna that no antenna other than that furnished by the responsible party shall be used with the device, The maximum peak gain of this antenna is only 0dBi.

12.DEVIATION TO TEST SPECIFICATIONS

[NONE]