FCC Certification Test Report

FCC Certification Test Report
for
Pelican Accessories, Inc.
FCC ID: O7X-BLD02

June 29, 2005

Prepared for:

Pelican Accessories, Inc.
1840 East 27th Street
Vernon, CA 90058

Prepared By:

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FCC Certification Test Report
for the
Pelican Accessories, Inc.
Blade Wireless X-Box Controller Host
FCC ID: O7X-BLD02

June 29, 2005

WLL JOB# 8771

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Abstract

This report has been prepared on behalf of Pelican Accessories, Inc. to support the attached Application for Equipment Authorization. The test report and application are submitted for an Intentional Radiator under Part 15.249 of the FCC Rules and Regulations. This Federal Communication Commission (FCC) Certification Test Report documents the test configuration and test results for a Pelican Accessories, Inc. Blade Wireless X-Box Controller Host.

Testing was performed on an Open Area Test Site (OATS) of Washington Laboratories, Ltd, 7560 Lindbergh Drive, Gaithersburg, MD 20879. Site description and site attenuation data have been placed on file with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. Washington Laboratories, Ltd. has been accepted by the FCC and approved by NIST NVLAP (NVLAP Lab Code: 200066-0) as an independent FCC test laboratory.

The Pelican Accessories, Inc. Blade Wireless X-Box Controller Host complies with the limits for a Intentional Radiator device under Part 15.249 of the FCC Rules and Regulations.

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1 Introduction

1.1 Compliance Statement

The Pelican Accessories, Inc. Blade Wireless X-Box Controller Host complies with the limits for an Intentional Radiator device under Part 15.249 of the FCC Rules and Regulations.

This test report reflects the testing performed for the certification of the Blade Host. Separate testing was performed for the digital and receiver portion under the DoC process.

1.2 Test Scope

Tests for radiated and conducted emissions were performed. All measurements were performed according to the 2003 version of ANSI C63.4. The measurement equipment conforms to ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation.

1.3 Contract Information

Customer:	Pelican Accessories, Inc. 1840 East 27th Street Vernon, CA 90058
WLL Quotation Number:	62413

1.4 Test Dates

Testing was performed from June 21 to June 27, 2005.

1.5 Test and Support Personnel

Washington Laboratories, LTD	Greg Snyder, James Ritter, Adam Black

2 Equipment Under Test

2.1 EUT Identification & Description

The Pelican Accessories, Inc. Blade Wireless X-Box Controller Host is part of the wireless Controller system for the Microsoft X-Box video game console. It replaces the hard-wired Controller interface to the X-Box, and transmits play commands (rumble data) to the Pelican Wireless Controller Pad (separate certification, FCC ID: O7X-BLD01). The RF Controller Host is powered from the video game console and operates in the 2400M – 2483.5MHz band.

Table 1. Device Summary

ITEM	DESCRIPTION
Manufacturer:	Pelican Accessories, Inc.
FCC ID Number	O7X-BLD02
EUT Name:	Wireless X-Box Controller Host
Model:	Blade
FCC Rule Parts:	§15.249
Frequency Range:	2407MHz – 2470MHz
Maximum Output Power:	<1 mW
Modulation:	FSK
Occupied Bandwidth:	1.41MHz
Keying:	Automatic
Type of Information:	Control
Power Output Level	Fixed
Antenna Type	Integral
Interface Cables:	N/A
Power Source & Voltage:	120 Vac from the game console

2.2 Test Configuration

The Blade Host was connected to an X-Box console and configured with the Wireless Controller Pad. The X-Box game console was powered via 120Vac and the output was connected to a television.

2.3 Testing Algorithm

The Blade Wireless Controller host transmits “rumble” data to the Wireless Controller pad when commanded by the game console. The system was configured for normal game play with the Wireless Controller pad continuously sending data to the host so that the transmit of the host would be continuous.

Worst case emission levels are provided in the test results data.

2.4 Test Location

All measurements herein were performed at Washington Laboratories, Ltd. test center in Gaithersburg, MD. Site description and site attenuation data have been placed on file

with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. Washington Laboratories, Ltd. has been accepted by the FCC and approved by NIST NVLAP (NVLAP Lab Code: 200066-0) as an independent FCC test laboratory.

2.5 Measurements

2.5.1 References

ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation

ANSI C63.4 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

Land Mobile FM or PM Communications Equipment Measurement and Performance Standards (ANSI/TIA/EIA-603-93)

2.6 Measurement Uncertainty

All results reported herein relate only to the equipment tested. For the purposes of the measurements performed by Washington Laboratories, the measurement uncertainty is ±2.3 dB. This has been calculated for a *worst-case situation* (radiated emissions measurements performed on an open area test site).

The following measurement uncertainty calculation is provided:

$$\text{Total Uncertainty} = (A^2 + B^2 + C^2)^{1/2}/(n-1)$$

where:

A = Antenna calibration uncertainty, in dB = 2 dB

B = Spectrum Analyzer uncertainty, in dB = 1 dB

C = Site uncertainty, in dB = 4 dB

n = number of factors in uncertainty calculation = 3

Thus, Total Uncertainty = $0.5\ (2^2 + 1^2 + 4^2)^{1/2} = \pm 2.3$ dB.

3 Test Equipment

Table 2 shows a list of the test equipment used for measurements along with the calibration information.

Table 2: Test Equipment List

Equipment	WLL Asset #	Calibration Due
Hewlett-Packard 8568B Spectrum Analyzer	0073	7/08/05
Hewlett-Packard 85650A Quasi-Peak Adapter	0069	7/08/05
Hewlett-Packard 85685A RF Preselector	0071	7/08/05
Hewlett-Packard 8593A Spectrum Analyzer	0074	8/17/05
Hewlett-Packard 8449B Microwave Preamp	0312	9/29/05
ARA LPB-2520 BiconiLog Antenna	0007	9/14/05
ARA DRG118/A Microwave Horn Antenna	0425	6/30/05
Narda V638 Horn Antenna	0210	12/25/08

4 Test Results

4.1 Occupied Bandwidth: (FCC Part §2.1049)

Occupied bandwidth was performed by coupling the output of the EUT to the input of a spectrum analyzer. This coupling was performed by placing the receive antenna directly in front of the host.

At full modulation, the occupied bandwidth was measured as shown:

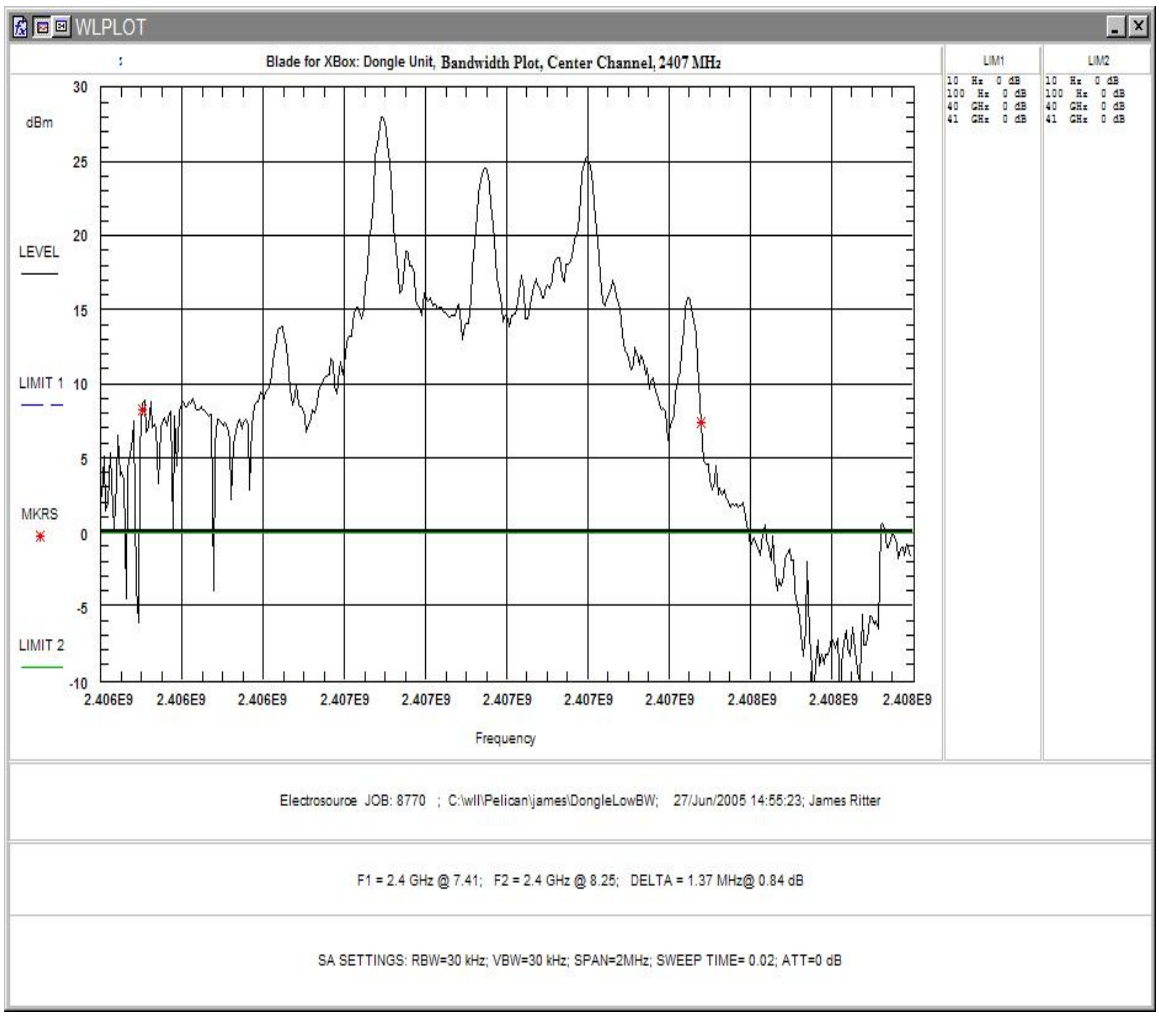

Figure 1. Occupied Bandwidth, Low Channel

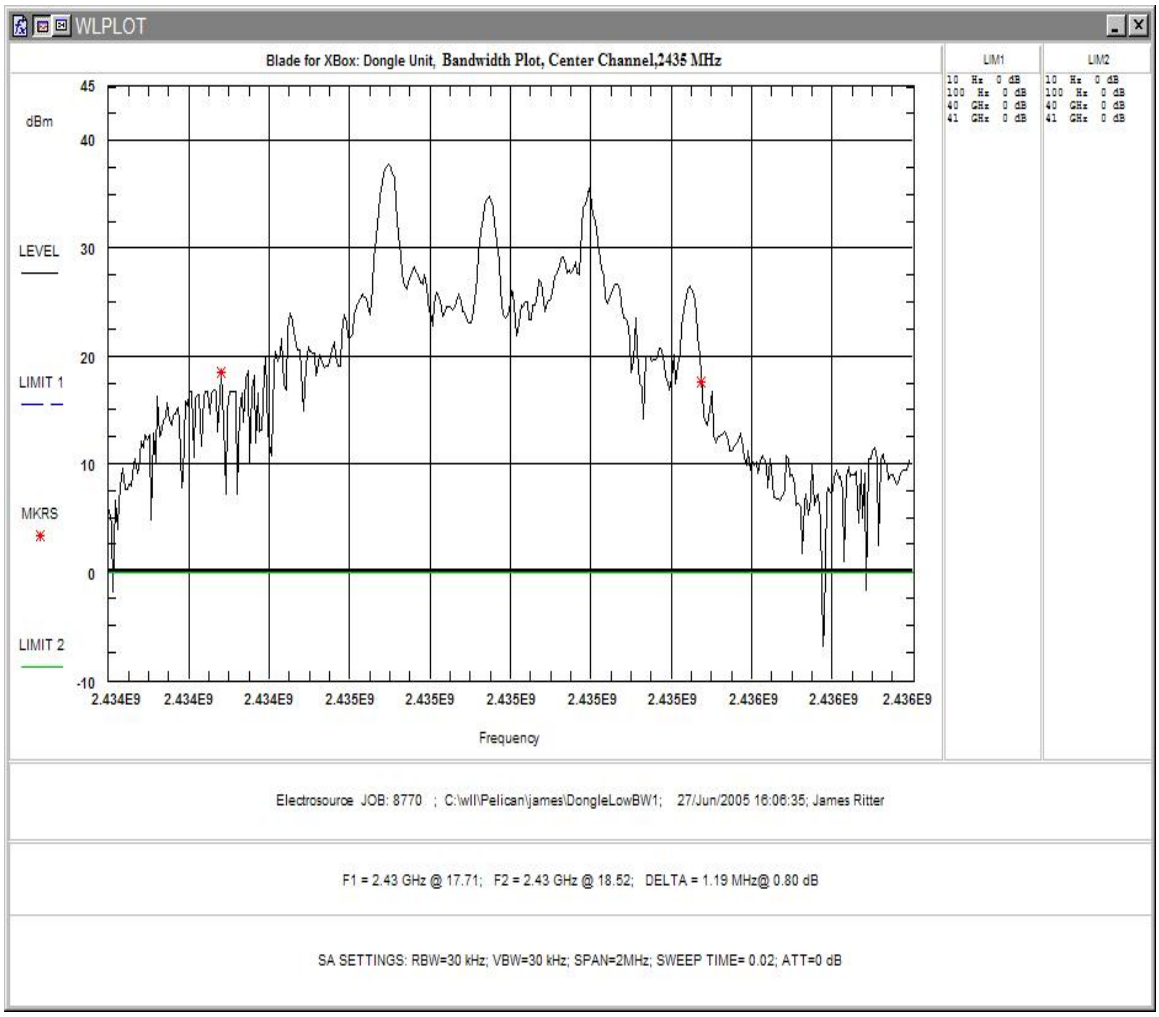

Figure 2. Occupied Bandwidth, Mid Channel

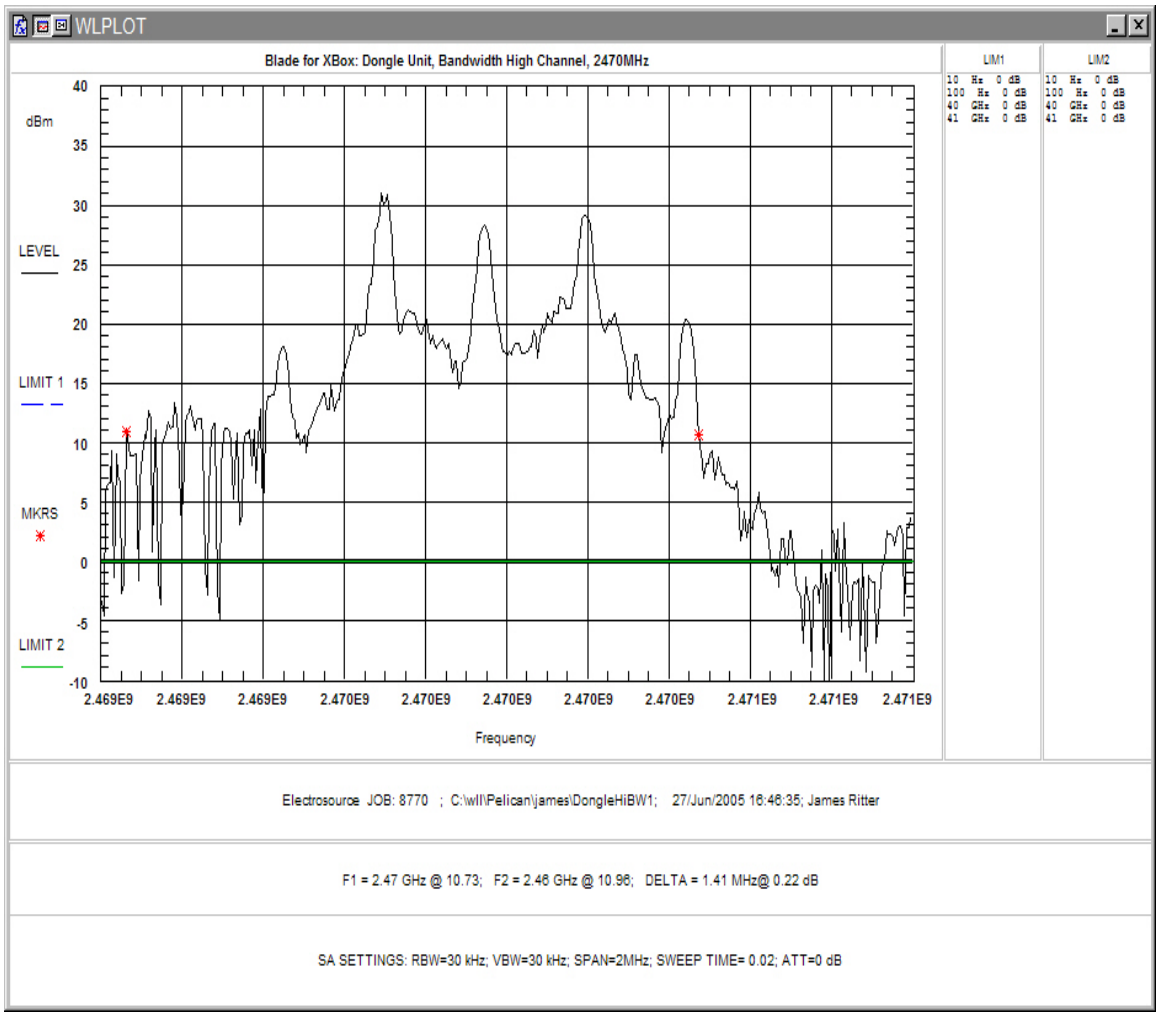

Figure 3. Occupied Bandwidth, High Channel

Table 3 provides a summary of the Occupied Bandwidth Results.

Table 3. Occupied Bandwidth Results

Frequency	Bandwidth
Low Channel 2407MHz	1.37MHz
Mid Channel 2438MHz	1.19MHz
High Channel 2470MHz	1.41MHz

4.2 Radiated Emissions: (FCC Part §2.1053)

The EUT must comply with the radiated emission limits of 15.249(a). The limits are as shown in the following table.

Table 4. Radiated Emissions Limits

Fundamental Frequency	Field Strength of Fundamental (µV/m)	Field Strength of Harmonics (µV/m)
902 – 928 MHz	50,000	500
2400 – 2483.5 MHz	50,000	500
5725 – 5875 MHz	50,000	500
24.00 – 24.25 GHz	250,000	2500

4.2.1 Test Procedure

The EUT was placed on motorized turntable for radiated testing on a 3-meter open field test site. The emissions from the EUT were measured continuously at every azimuth by rotating the turntable. Receiving antennas were mounted on an antenna mast to determine the height of maximum emissions. The height of the antenna was varied between 1 and 4 meters. The peripherals were placed on the table in accordance with ANSI C63.4-2003. Cables were varied in position to produce maximum emissions. Both the horizontal and vertical field components were measured.

The emissions were measured using the following resolution bandwidths:

Frequency Range	Resolution Bandwidth	Video Bandwidth
30MHz-1000 MHz	100kHz	>100kHz
>1000 MHz	1 MHz	1MHz (peak)

Emissions were measured to the 10^{th} harmonic of the transmit frequency. Worst case emission levels are reported.

The following is a sample calculation used in the data tables for calculating the final field strength of spurious emissions and comparing these levels to the specified limits.

Sample Calculation:

Spectrum Analyzer Voltage (SA Level): V dBµV

Antenna Factor (Ant Corr): AFdB/m

Cable Loss Correction (Cable Corr): CCdB

Duty Cycle Correction (Average) DCCdB (if applicable)

Amplifier Gain:	GdB
Electric Field (Corr Level):	EdBμV/m = VdBμV + AFdB/m + CCdB + DCCdB – GdB

All emissions reported in the data tables are peak unless otherwise indicated.

Table 5. Radiated Emissions Test Data, Low Frequency

CLIENT: Electrosource DATE: 6/24/2005
TESTER: Greg Snyder JOB #: 8771

EUT Information: **Test Requirements:**
EUT: Blade, Host TEST STANDARD: FCC Part 15.249
CONFIGURATION: XBOX DISTANCE: 3m
CLOCKS: CLASS: B

Test Equipment/Limit:
ANTENNA: A_00007 LIMIT: LFCC_3m_Class_B
CABLE: CSITE2_3m AMPLIFIER (dB) None

Frequency (MHz)	Polarity H/V	Az Deg	Ant. Hght (m)	SA Level Peak (dBµV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Corr. Level (dBµV/m)	Corr. Level (µV/m)	Limit (µV/m)	Margin dB
48	V	90	1	8.6	14.3	1.6	24.5	16.8	100.0	-15.5
112	V	90	1	10.4	10.4	2.2	22.9	14.0	150.0	-20.6
144	V	180	1	8.7	8.1	2.4	19.2	9.1	150.0	-24.3
160	V	180	1	9.2	8.8	2.5	20.5	10.6	150.0	-23.0
208	V	225	1.5	7.4	10.1	2.8	20.3	10.4	150.0	-23.2
224	V	270	2	6.1	11.3	2.9	20.4	10.4	200.0	-25.7
48	H	90	2	5.6	14.3	1.6	21.5	11.9	100.0	-18.5
112	H	180	1.5	6.8	10.4	2.2	19.3	9.3	150.0	-24.2
160	H	180	1.5	9.7	8.8	2.5	21.0	11.2	150.0	-22.5
192	H	90	1.5	14.3	9.5	2.7	26.5	21.2	150.0	-17.0
208	H	90	1.5	11.9	10.1	2.8	24.8	17.4	150.0	-18.7
224	H	180	2	10.4	11.3	2.9	24.7	17.1	200.0	-21.4

Table 6. Radiated Emissions Data, Low Channel Emissions

CLIENT: Electrosource DATE: 6/24/2005
TESTER: Greg Snyder JOB #: 8771

EUT Information:
EUT: Blade, Host
CONFIGURATION: X-Box
Tx Frequency: 2407M

Test Requirements:
TEST STANDARD: FCC Part 15.249
DISTANCE: 3m
CLASS: B

Test Equipment/Limit:
ANTENNA: A_00004 LIMIT: §15.249
CABLE: CSITE1_HF AMPLIFIER (dB) A_00066

Frequency (MHz)	Pol H/V	Az Deg	Ant. Hght (m)	SA Level Peak (dBµV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Corr. Level (dBµV/m)	Corr. Level (µV/m)	Limit (µV/m)	Margin dB	Notes
Fundamental												
2407.000	H	90.0	1.0	84.7	28.9	1.6	35.5	79.6	9529.0	50000.0	-14.4	
2407.000	V	315.0	1.0	88.7	28.9	1.6	35.5	83.6	15189.6	50000.0	-10.3	
Harmonics and spurious												
1179.550	V	90.0	1.0	54.2	25.4	2.3	36.1	44.4	165.6	500.0	-9.6	
1769.400	V	202.5	1.0	55.7	27.4	2.4	35.6	50.4	332.3	500.0	-3.5	
1179.550	H	180.0	1.0	49.7	25.4	2.3	36.1	43.5	149.3	500.0	-10.5	
1769.400	H	180.0	1.0	54.3	27.4	2.4	35.6	48.9	279.6	500.0	-5.0	
4821.800	V	90.0	1.0	41.8	32.5	4.1	35.9	44.2	162.0	500.0	-9.8	
4821.000	H	90.0	1.0	42.7	32.5	4.1	35.9	43.5	149.5	500.0	-10.5	
7221.800	V	0.0	1.0	34.8	37.1	5.0	35.7	41.2	114.2	500.0	-12.8	NF Avg
7221.800	H	0.0	1.0	34.8	37.1	5.0	35.7	41.2	114.2	500.0	-12.8	NF Avg
9628.000	H	0.0	1.0	34.5	38.6	5.7	36.3	42.5	132.8	500.0	-11.5	NF Avg
9628.000	V	0.0	1.0	34.6	38.6	5.7	36.3	42.6	134.3	500.0	-11.4	NF Avg
12035.000	H	0.0	1.0	36.5	40.0	6.6	35.7	47.4	234.9	500.0	-6.6	NF Avg
12035.000	V	0.0	1.0	36.5	40.0	6.6	35.7	47.4	234.9	500.0	-6.6	NF Avg
14442.000	H	0.0	1.0	33.7	41.4	7.5	34.6	48.0	251.6	500.0	-6.0	NF Avg
14442.000	V	0.0	1.0	33.7	41.4	7.5	34.6	48.0	251.6	500.0	-6.0	NF Avg
16849.000	H	0.0	1.0	32.8	42.5	8.0	34.9	48.3	260.2	500.0	-5.7	NF Avg
16849.000	V	0.0	1.0	32.8	42.5	8.0	34.9	48.3	260.2	500.0	-5.7	NF Avg
19256.000	H	0.0	1.0	36.8	40.0	1.9	34.3	44.4	165.8	500.0	-9.6	NF Avg
21663.000	H	0.0	1.0	36.8	40.3	2.2	34.5	44.8	174.5	500.0	-9.1	NF Avg
24070.000	H	0.0	1.0	35.8	40.5	2.4	33.7	45.0	176.8	500.0	-9.0	NF Avg
19256.000	V	0.0	1.0	36.8	40.0	1.9	34.3	44.4	165.8	500.0	-9.6	NF Avg
21663.000	V	0.0	1.0	36.8	40.3	2.2	34.5	44.8	174.5	500.0	-9.1	NF Avg
24070.000	V	0.0	1.0	35.8	40.5	2.4	33.7	45.0	176.8	500.0	-9.0	NF Avg

Note: NF = Noise floor/no detectable emissions.
All emissions are peak unless noted in notes column.

Table 7. Radiated Emissions Data, Mid Channel Emissions

CLIENT: Electrosource DATE: 6/24/2005
TESTER: Greg Snyder JOB #: 8771

EUT Information:
EUT: Blade, Host
CONFIGURATION: X-Box
Tx Frequency: 2438M

Test Requirements:
TEST STANDARD: FCC Part 15.249
DISTANCE: 3m
CLASS: B

Test Equipment/Limit:
ANTENNA: A_00004 LIMIT: §15.249
CABLE: CSITE1_HF AMPLIFIER (dB) A_00066

Frequency (MHz)	Pol H/V	Az Deg	Ant. Hght (m)	SA Level Peak (dBµV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Corr. Level (dBµV/m)	Corr. Level (µV/m)	Limit (µV/m)	Margin dB	Notes
Fundamental												
2438.000	V	315.0	1.0	86.8	29.0	1.6	35.5	81.8	12276.4	50000.0	-12.2	
2438.000	H	90.0	1.0	84.4	29.0	1.6	35.5	79.4	9312.6	50000.0	-14.6	
Harmonics and spurious												
4876.000	V	90.0	1.0	40.1	32.6	4.1	35.9	42.7	136.8	500.0	-11.3	
4876.000	H	90.0	1.0	42.2	32.6	4.1	35.9	44.5	168.3	500.0	-9.5	
7314.200	H	0.0	1.0	35.8	37.1	5.0	35.7	42.2	128.2	500.0	-11.8	NF Avg
7314.200	V	0.0	1.0	35.8	37.1	5.0	35.7	42.2	128.2	500.0	-11.8	NF Avg
9752.000	V	0.0	1.0	36.7	38.6	5.7	36.3	44.7	171.7	500.0	-9.3	NF Avg
9752.000	H	0.0	1.0	36.7	38.6	5.7	36.3	44.7	171.7	500.0	-9.3	NF Avg
12192.000	V	0.0	1.0	36.7	40.0	6.6	35.6	47.7	241.5	500.0	-6.3	NF Avg
12192.000	H	0.0	1.0	36.7	40.0	6.6	35.6	47.7	241.5	500.0	-6.3	NF Avg
14628.000	V	0.0	1.0	33.7	41.3	7.5	34.6	48.0	249.8	500.0	-6.0	NF Avg
14628.000	H	0.0	1.0	33.7	41.3	7.5	34.6	48.0	249.8	500.0	-6.0	NF Avg
17066.000	V	0.0	1.0	33.5	42.4	8.0	34.9	49.0	281.2	500.0	-5.0	NF Avg
17066.000	H	0.0	1.0	33.5	42.4	8.0	34.9	49.0	281.2	500.0	-5.0	NF Avg
19504.000	H	0.0	1.0	36.8	40.0	1.9	34.3	44.4	165.8	500.0	-9.6	NF Avg
21942.000	H	0.0	1.0	36.8	40.3	2.2	34.5	44.8	174.5	500.0	-9.1	NF Avg
24380.000	H	0.0	1.0	35.8	40.5	2.4	33.7	45.0	176.8	500.0	-9.0	NF Avg
19504.000	V	0.0	1.0	36.8	40.0	1.9	34.3	44.4	165.8	500.0	-9.6	NF Avg
21942.000	V	0.0	1.0	36.8	40.3	2.2	34.5	44.8	174.5	500.0	-9.1	NF Avg
24380.000	V	0.0	1.0	35.8	40.5	2.4	33.7	45.0	176.8	500.0	-9.0	NF Avg

Note: NF = Noise floor/no detectable emissions.
All emissions are peak unless noted in notes column.

Table 8. Radiated Emissions Data, High Channel Emissions

CLIENT: Electrosource DATE: 6/24/2005
TESTER: Greg Snyder JOB #: 8771

EUT Information:
EUT: Blade, Host
CONFIGURATION: X-Box
Tx Frequency: 2470M

Test Requirements:
TEST STANDARD: FCC Part 15.249
DISTANCE: 3m
CLASS: B

Test Equipment/Limit:
ANTENNA: A_00004 LIMIT: §15.249
CABLE: CSITE1_HF AMPLIFIER (dB) A_00066

Frequency (MHz)	Pol H/V	Az Deg	Ant. Hght (m)	SA Level Peak (dBµV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Corr. Level (dBµV/m)	Corr. Level (µV/m)	Limit (µV/m)	Margin dB	Notes
Fundamental												
2470.000	V	315.0	1.0	88.4	29.0	1.5	35.6	83.4	14847.2	50000.0	-10.5	
2470.000	H	90.0	1.0	84.2	29.0	1.5	35.6	79.2	9154.7	50000.0	-14.7	
Harmonics and spurious												
2483.500	V	0.0	1.0	43.5	29.1	3.0	35.6	40.0	99.9	500.0	-14.0	Amb
2483.500	H	0.0	1.0	43.5	29.1	3.0	35.6	40.0	99.9	500.0	-14.0	Amb
4940.000	V	90.0	1.0	40.3	32.6	4.1	35.9	42.6	134.2	500.0	-11.4	
4940.000	H	90.0	1.0	41.7	32.6	4.1	35.9	43.1	142.2	500.0	-10.9	
7410.000	H	0.0	1.0	35.7	37.1	5.0	35.7	42.1	126.8	500.0	-11.9	NF Avg
7410.000	V	0.0	1.0	35.7	37.1	5.0	35.7	42.1	126.8	500.0	-11.9	NF Avg
9880.000	V	0.0	1.0	36.5	38.6	5.7	36.3	44.5	168.4	500.0	-9.5	NF Avg
9880.000	H	0.0	1.0	36.5	38.6	5.7	36.3	44.5	168.4	500.0	-9.5	NF Avg
12350.000	V	0.0	1.0	35.5	40.0	6.6	35.6	46.5	211.3	500.0	-7.5	NF Avg
12350.000	H	0.0	1.0	35.5	40.0	6.6	35.6	46.5	211.3	500.0	-7.5	NF Avg
14820.000	V	0.0	1.0	33.5	41.3	7.5	34.6	47.7	242.4	500.0	-6.3	NF Avg
14820.000	H	0.0	1.0	33.5	41.3	7.5	34.6	47.7	242.4	500.0	-6.3	NF Avg
17290.000	V	0.0	1.0	33.3	42.3	8.0	34.9	48.8	274.1	500.0	-5.2	NF Avg
17290.000	H	0.0	1.0	33.3	42.3	8.0	34.9	48.8	274.1	500.0	-5.2	NF Avg
19760.000	H	0.0	1.0	36.8	40.0	1.9	34.3	44.4	165.8	500.0	-9.6	NF Avg
22230.000	H	0.0	1.0	36.8	40.3	2.2	34.5	44.8	174.5	500.0	-9.1	NF Avg
24700.000	H	0.0	1.0	35.8	40.5	2.4	33.7	45.0	176.8	500.0	-9.0	NF Avg
19760.000	V	0.0	1.0	36.8	40.0	1.9	34.3	44.4	165.8	500.0	-9.6	NF Avg
22230.000	V	0.0	1.0	36.8	40.3	2.2	34.5	44.8	174.5	500.0	-9.1	NF Avg
24700.000	V	0.0	1.0	35.8	40.5	2.4	33.7	45.0	176.8	500.0	-9.0	NF Avg

Note: NF = Noise floor/no detectable emissions.
All emissions are peak unless noted in notes column.

4.3 Conducted Emissions (AC Power Line)

The EUT was placed on an 80 cm high 1 x 1.5 m non-conductive table above a ground plane. Power to the EUT was provided through a Solar Corporation 50 Ω/50 µH Line Impedance Stabilization Network bonded to a 3 x 2 meter ground plane. The LISN has its AC input supplied from a filtered AC power source. Power and data cables were moved about to obtain maximum emissions.

The 50 Ω output of the LISN was connected to the input of the spectrum analyzer and the emissions in the frequency range of 150 kHz to 30 MHz were measured. The detector function was set to quasi-peak or peak, as appropriate, and the resolution bandwidth during testing was at least 9 kHz, with all post-detector filtering no less than 10 times the resolution bandwidth.

AC Power Line conducted emissions test data are included in Table 9.

Table 9: AC Power Line Conducted Emissions Test Data Sheet

CLIENT:	Electrosource	DATE:	6/24/2005
MODEL:	Xbox Blade Host	JOB #:	8771
TEST STANDARD:	FCC Part 15	CLASS:	*FCC_B*
TESTER:	Adam Black	TEST SITE:	*CSITE2_CE*
TEST VOLTAGE:	120 VAC		

LINE 1 - NEUTRAL

Frequency MHz	Level QP dBuV	Cable Loss dB	Limit QP dBuV	Level Corr dBuV	Margin QP dB	Level AVG dBuV	Cable Loss dB	Level Corr dBuV	Limit AVG dBuV	Margin AVG dB
0.157	36.3	10.1	65.6	46.4	-19.2	32.4	10.1	42.5	55.6	-13.1
0.235	33.7	10.2	62.3	43.9	-18.4	31.8	10.2	42.0	52.3	-10.3
0.472	31.2	10.3	56.5	41.5	-15.0	29.0	10.3	39.3	46.5	-7.2
0.564	26.3	10.4	56.0	36.7	-19.3	19.6	10.4	30.0	46.0	-16.0
1.699	33.4	10.5	56.0	43.9	-12.1	17.9	10.5	28.4	46.0	-17.6
2.640	36.0	10.5	56.0	46.5	-9.5	15.1	10.5	25.6	46.0	-20.4
3.977	32.9	10.5	56.0	43.4	-12.6	16.5	10.5	27.0	46.0	-19.0
4.717	29.5	10.7	56.0	40.2	-15.8	11.8	10.7	22.5	46.0	-23.5

LINE 2 - PHASE

Frequency MHz	Level QP dBuV	Cable Loss dB	Limit QP dBuV	Level Corr dBuV	Margin QP dB	Level AVG dBuV	Cable Loss dB	Level Corr dBuV	Limit AVG dBuV	Margin AVG dB
0.158	38.7	10.1	65.6	48.8	-16.8	32.5	10.1	42.6	55.6	-13.0
0.236	37.7	10.2	62.2	47.9	-14.4	31.9	10.2	42.1	52.2	-10.2
0.473	31.4	10.3	56.5	41.7	-14.7	29.0	10.3	39.3	46.5	-7.1
0.565	26.4	10.4	56.0	36.8	-19.2	20.1	10.4	30.5	46.0	-15.5
1.695	32.3	10.5	56.0	42.8	-13.2	21.5	10.5	32.0	46.0	-14.0
2.644	37.4	10.5	56.0	47.9	-8.1	15.0	10.5	25.5	46.0	-20.5
3.838	32.3	10.5	56.0	42.8	-13.2	17.2	10.5	27.7	46.0	-18.3
4.405	31.1	10.6	56.0	41.7	-14.3	16.4	10.6	27.0	46.0	-19.0