



FCC Certification Test Report
for
Pelican Accessories
O7X-ECLP-S-1

February 28, 2003

Prepared for:

Pelican Accessories
1840 East 27th Street
Vernon, CA 90058

Prepared By:

Washington Laboratories, Ltd.
7560 Lindbergh Drive
Gaithersburg, Maryland 20879



FCC Certification Test Program

**FCC Certification Test Report
for the
Pelican Accessories
D2027P (PL-2006) Microsoft X-Box Wireless Controller
O7X-ECLP-S-1**

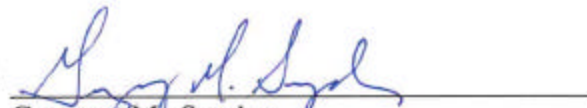
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Abstract

This report has been prepared on behalf of Pelican Accessories to support the attached Application for Equipment Authorization. The test report and application are submitted for a 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 D2027P (PL-2006) Microsoft X-Box Wireless Controller.

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 D2027P (PL-2006) Microsoft X-Box Wireless Controller 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 D2027P (PL-2006) Microsoft X-Box Wireless Controller 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 D2027P. 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 1992 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
1840 East 27th Street
Vernon, CA 90058

Quotation Number: 60544

1.4 Test Dates

Testing was performed from December 12, 2002 to January 28, 2003.

1.5 Test and Support Personnel

Washington Laboratories, LTD Steve Koster, Ken Gemmell

1.6 Abbreviations

A	Ampere
Ac	alternating current
AM	Amplitude Modulation
Amps	Amperes
b/s	bits per second
BW	Bandwidth
CE	Conducted Emission
Cm	centimeter
CW	Continuous Wave
DB	decibel
Dc	direct current
EMI	Electromagnetic Interference
EUT	Equipment Under Test
FM	Frequency Modulation
G	giga - prefix for 10^9 multiplier
Hz	Hertz
IF	Intermediate Frequency
K	kilo - prefix for 10^3 multiplier
M	Mega - prefix for 10^6 multiplier
M	Meter
μ	micro - prefix for 10^{-6} multiplier
NB	Narrowband
LISN	Line Impedance Stabilization Network
RE	Radiated Emissions
RF	Radio Frequency
Rms	root-mean-square
SN	Serial Number
S/A	Spectrum Analyzer
V	Volt

2 Equipment Under Test

2.1 EUT Identification & Description

The Pelican Accessories D2027P X-Box Wireless Controller is part of the wireless controller system for the X-Box video game system. The D2027P replaces the hard-wired controller, and transmits and receives play commands to the Pelican system interface (the D2027H “Host”, separate certification).

The RF controller pad is battery powered and has 8 selectable channels. Channels are selectable via a slide switch on the controller. Table 1 lists the channels and frequencies along with other characteristics.

Table 1. Device Summary

ITEM	DESCRIPTION
Manufacturer:	Pelican Accessories
FCC ID Number	
EUT Name:	X-Box Wireless Controller
Model:	D2027P
FCC Rule Parts:	§15.249
Frequency Range:	906 MHz to 926.5 MHz: CH1 ~903M, CH2 ~923.5M, CH3 ~916.5M, CH4 ~909.5MHz, CH5 ~906M, CH6 ~926.5M, CH7 ~920M and CH8 ~913MHz
Maximum Output Power:	<1mW
Modulation:	FSK
Necessary Bandwidth:	416 kHz
Keying:	Manual
Type of Information:	Control
Number of Channels:	8
Power Output Level	Fixed
Antenna Type	Fixed/Integral
Interface Cables:	None
Power Source & Voltage:	3VDC from batteries

2.2 Test Configuration

The D2027P was configured with a X-Box game console, a television set, and a Pelican D2027H (Host) interface.

2.3 Testing Algorithm

The D2027P was operated continuously by transmitting play commands to the interface/game console.

The D2027P, X-Box and television were powered on and a game was inserted into the X-Box. Once communication was established the D2027P (PL651) continuously transmitted to the D2027H connected to the X-Box console. All controller pad buttons

were pressed to determine the worst-case duty cycle operation. It was verified that there was no difference in duty cycle or bandwidth for pressing different buttons.

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

Manufacturer & Model	Description	Serial Number	Property Number	Calibration Due Date
A.H. Systems SAS-200/518	Log Periodic Antenna	117	00001	3/1/03
Antenna Research Associates DRG-118/A	Horn Antenna	1010	00004	8/29/03
Antenna Research Associates LPB-2520	Biconilog Antenna	1044	00007	6/19/03
Hewlett Packard 8449B	Pre-Amplifier	3008A00729	00066	1/31/03
Hewlett Packard 8564E	Spectrum Analyzer	3643A00657	00067	4/18/03
Hewlett Packard 85650A	Q.P. Adapter (Site 2)	2811A01283	00068	7/05/03
Hewlett Packard 85685A	RF Preselector (Site 2)	3221A01395	00071	5/17/03
Hewlett Packard 8568B	Spectrum Analyzer (Site 2)	2928A04750	00072	7/03/03
Solar Electronics 8012-50-R-24-BNC	LISN	8379493	00124	7/05/03

4 Test Results

4.1 Duty Cycle Correction

Measurements may be adjusted where pulsed RF is utilized to find the average level associated with a quantity. This calculation is applied to limits for pulsed licensed and unlicensed devices.

On time = $N_1L_1 + N_2L_2 + \dots + N_{N-1}L_{N-1} + N_NL_N$, where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.

- For Licensed Transmitters basic formula can be stated as $20\log[\text{Duty Cycle}]$
- For Unlicensed Intentional Radiators under 47CFR Part 15, all duty cycle measurements compared to a 100 millisecond period
- i.e. duty cycle = on time/100 milliseconds or period, whichever is less
- Restating the basic formula:
 - o Duty cycle = $(N_1L_1 + N_2L_2 + \dots + N_{N-1}L_{N-1} + N_NL_N)/100$ or T, whichever is less

Where T is the period of the pulse train.

The following Figures show the plots of the modulated carrier. The spectrum analyzer was set to Zero Span and the video triggered to collect the pulse train of the modulation. Calculations of the duty cycle correction factor were obtained from time data provided by the plots.

The worst case 100ms duty cycle was captured for the operation of the D2027P (PL-2006). Different buttons were depressed to assure that the worst case duty cycle was captured. Figure 1 shows the worst case 100ms along with the pulse train of the transmitter. Figure 2 is a measurement of the pulse width.

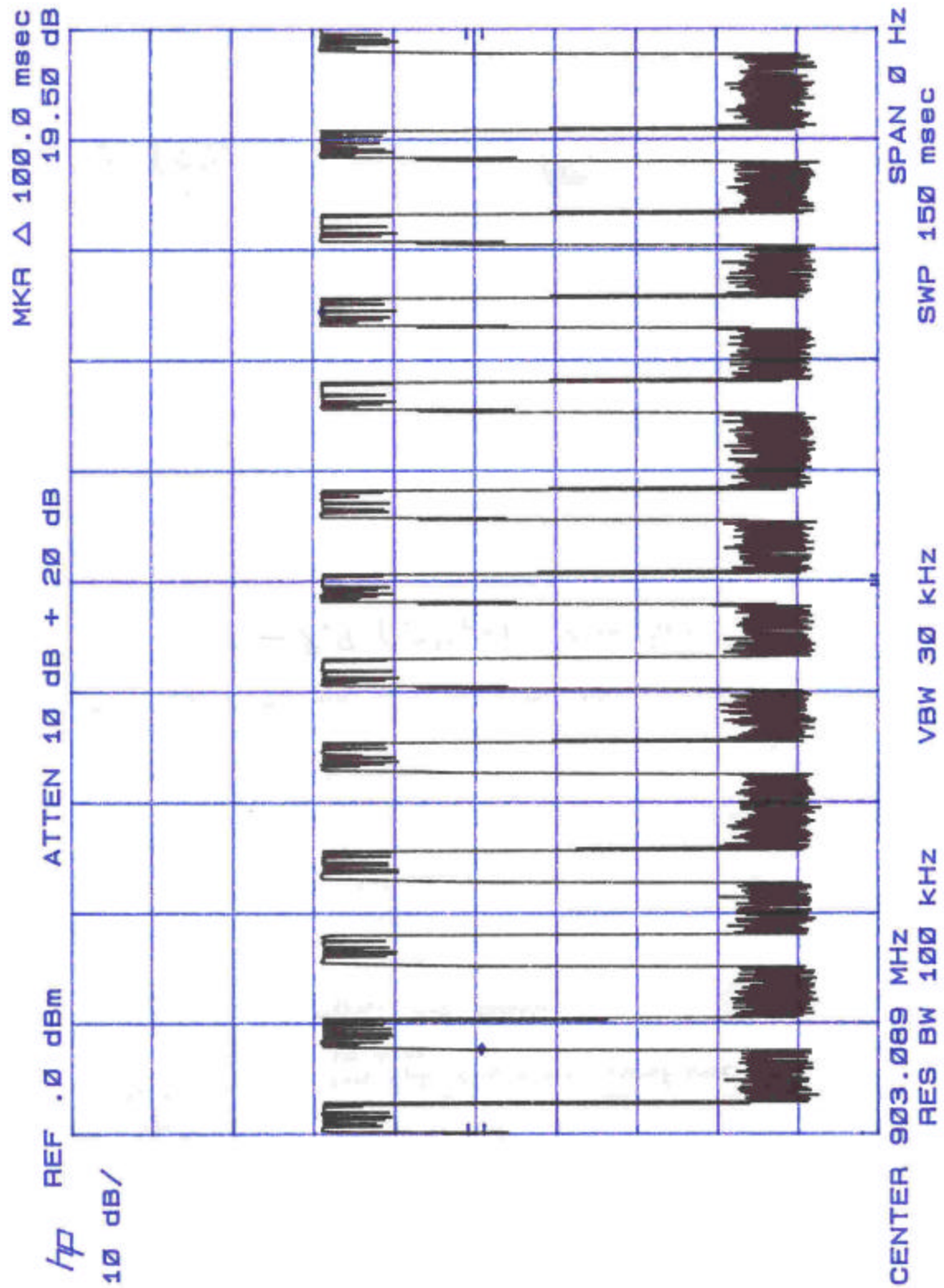


Figure 1. Duty Cycle Plot – Worst Case 100ms and Pulse Train

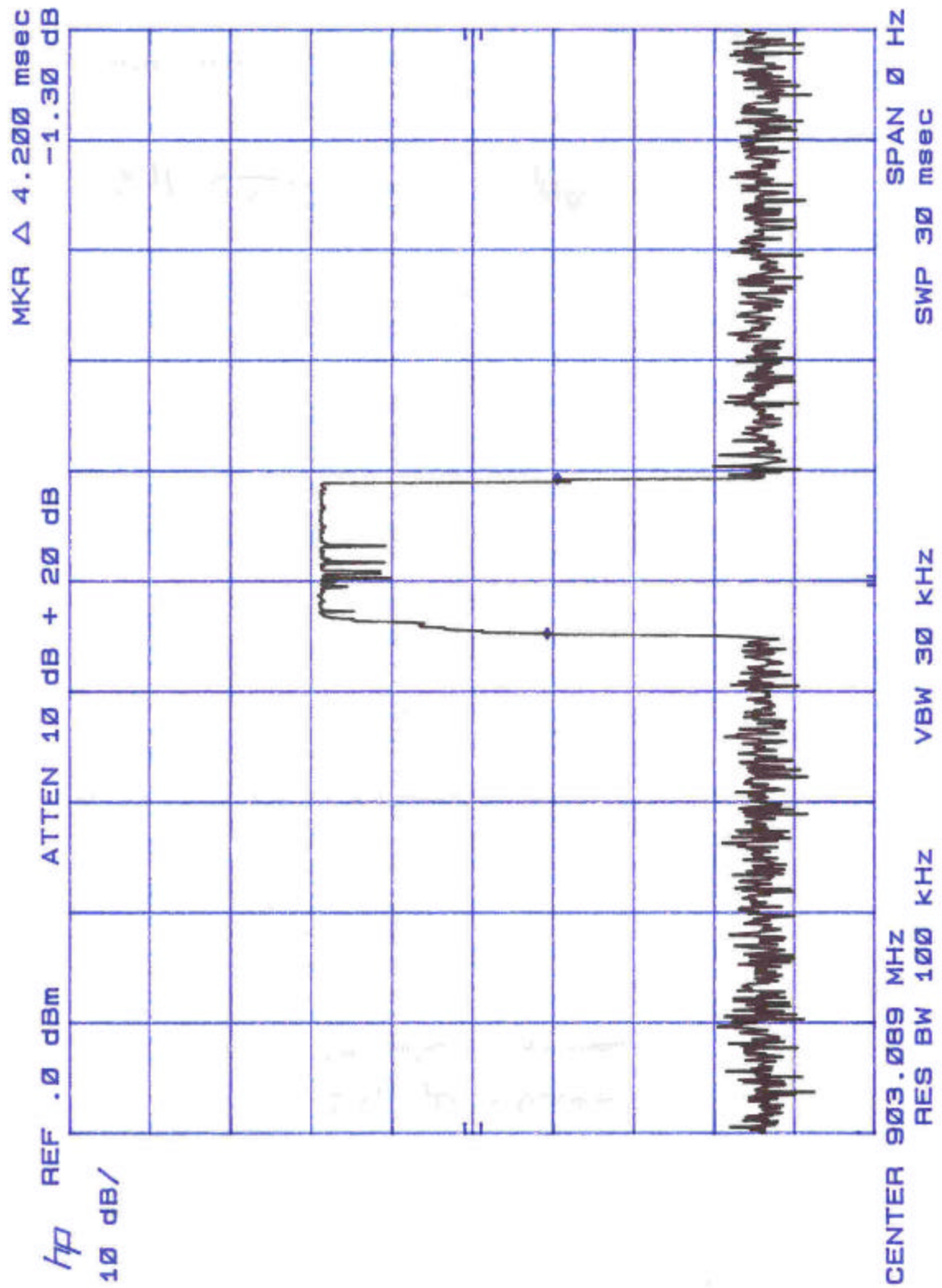


Figure 2. Duty Cycle Plot – Pulse Width

From the data in Figure 1 and Figure 2, the following calculations are made.

On Time Per 100ms (worst case):

$$8.5 \times 4.2\text{ms} = 35.7\text{ms}$$

Duty cycle calculation:

$$35.7\text{ms}/100\text{ms} = 35.77 \text{ on time} = -8.9\text{dB duty cycle correction.}$$

4.2 Occupied Bandwidth: (FCC Part §2.1049)

Occupied bandwidth was performed by coupling the output of the EUT to the input of a spectrum analyzer.

At full modulation, the occupied bandwidth was measured for a low, middle and high channel as shown in Figures 3 through 5:

:

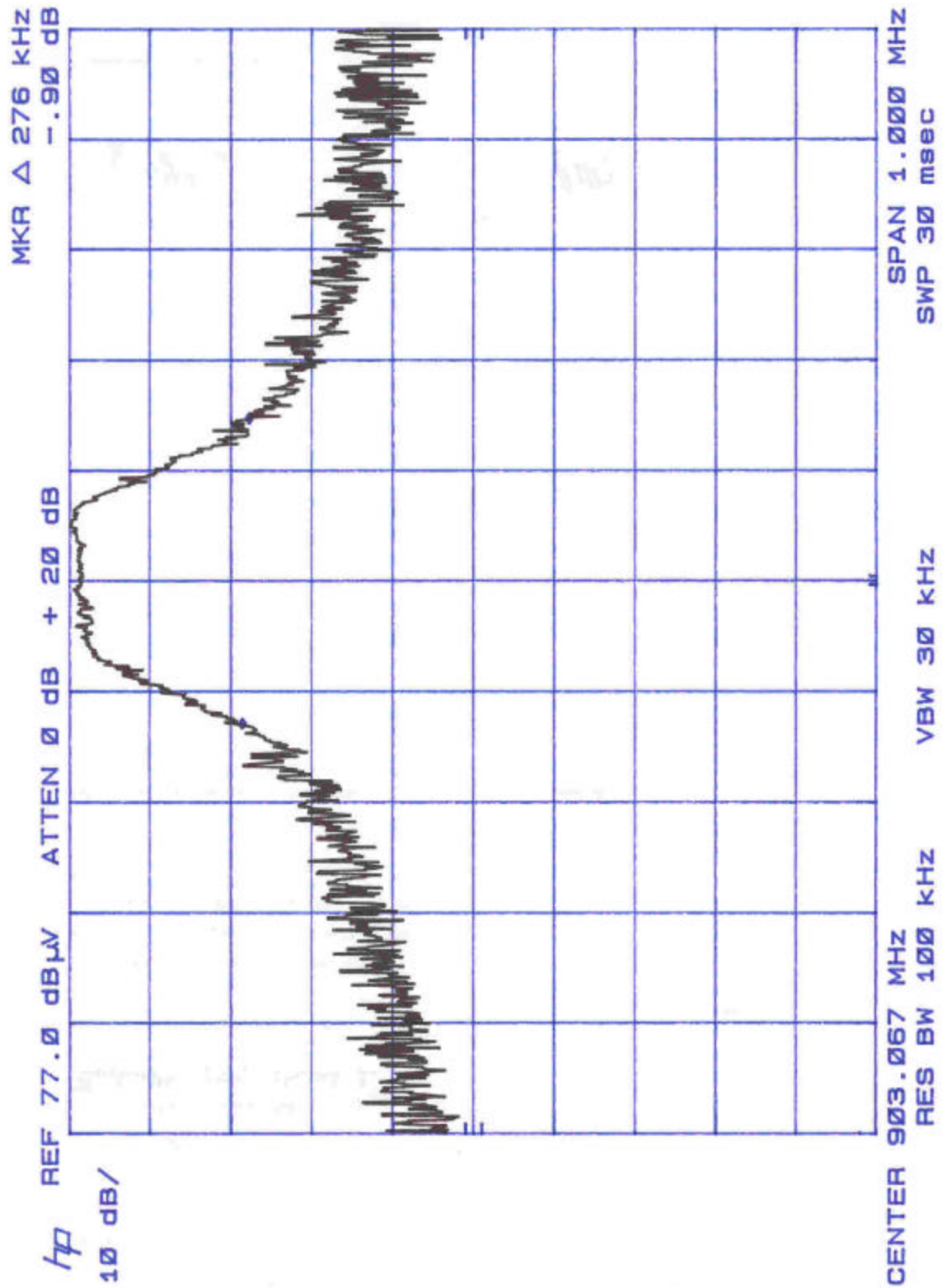


Figure 3. Occupied Bandwidth, Low Channel

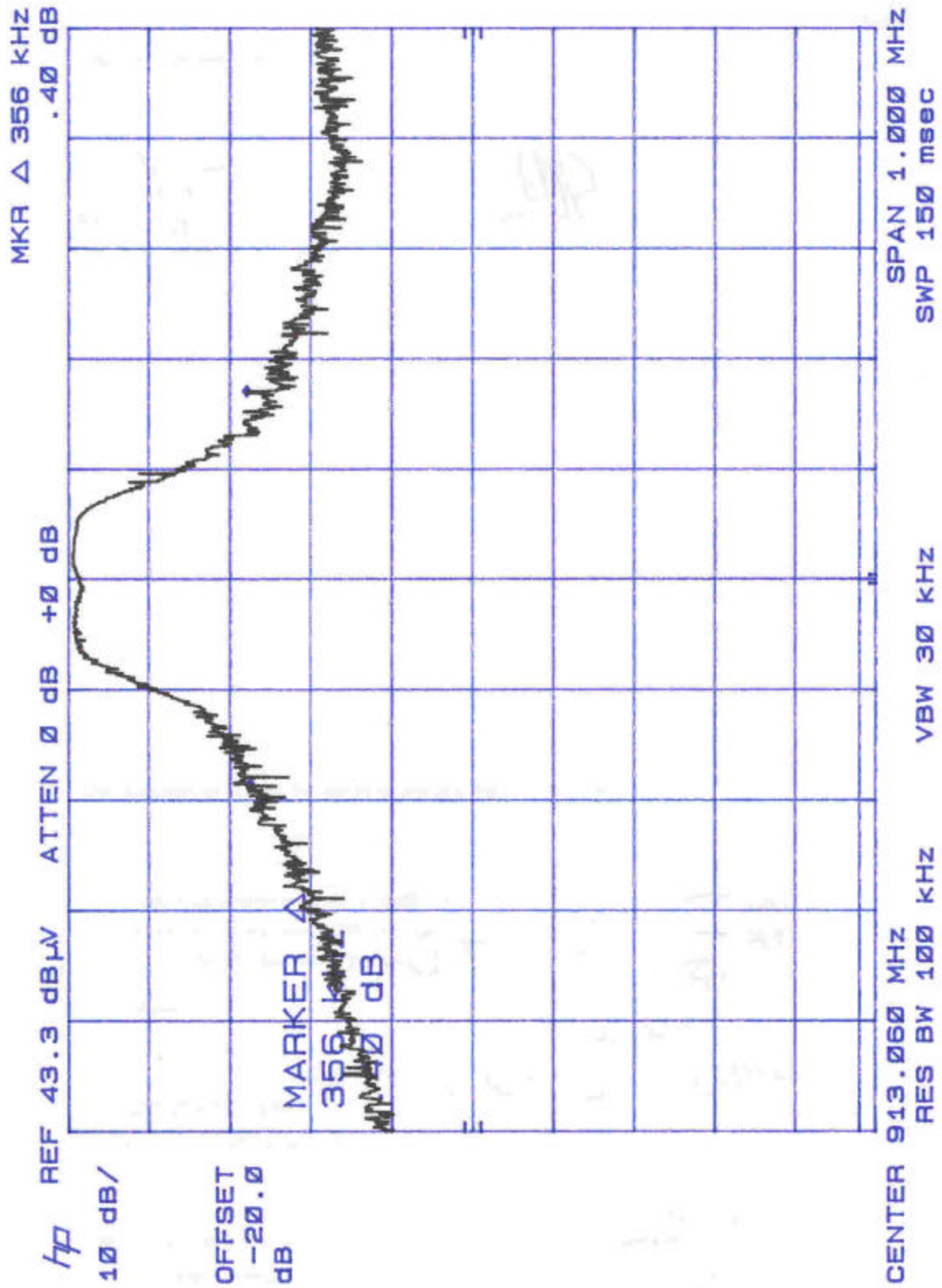


Figure 4. Occupied Bandwidth, Mid Channel

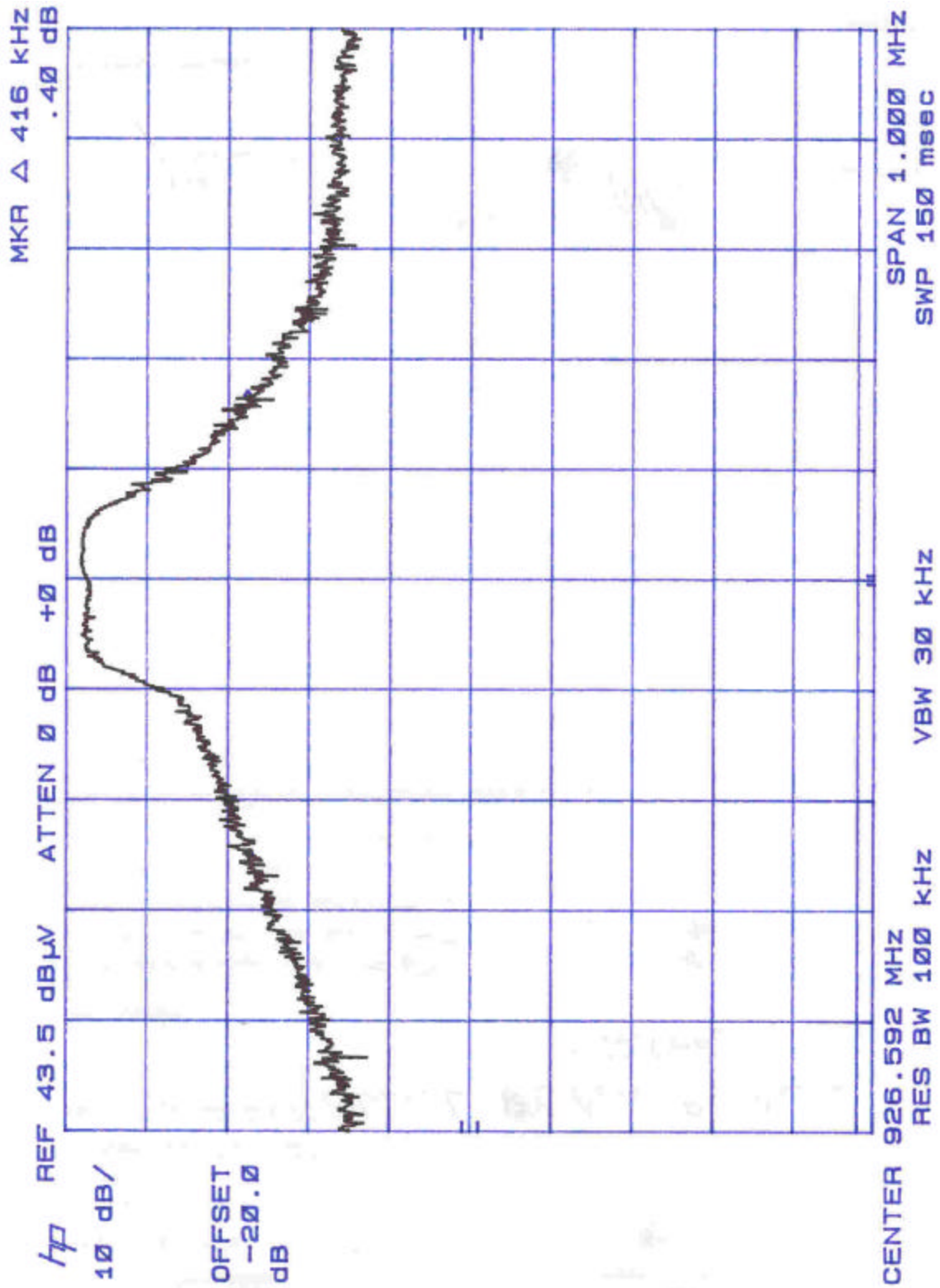


Figure 5. Occupied Bandwidth, High Channel

Table 3 provides a summary of the Occupied Bandwidth Results.

Table 3. Occupied Bandwidth Results

Channel	Frequency	Bandwidth
Low	903.067 MHz	276 kHz
Middle	913.06 MHz	356 kHz
High	926.59 MHz	416 kHz

4.3 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 MHz	250,000	2500

4.3.1 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 C63.4-1992. 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 10th harmonic of the transmit frequency. The controller was tested in three orthogonal planes. 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
Amplifier Gain:	GdB
Electric Field (Corr Level):	$\text{EdB}\mu\text{V/m} = \text{VdB}\mu\text{V} + \text{AFdB/m} + \text{CCdB} + \text{DCCdB} - \text{GdB}$

*Note: The amplifier gain is listed at the top of the data sheet and is included in the final field strength calculation.

Table 5. Radiated Emissions Test Data

CLIENT: Electrosources, Pelican LLC DATE: 1/31/03
TESTER: Ken Gemmell JOB #: 7358X
EUT Information: **Test Requirements:**
EUT: X-Box RF Pad TEST STD: FCC Part 15 Class B
CONFIGURATION: Controller in CW mode DISTANCE: 3m
Test Equipment/Limit:
ANTENNA: A_00007 LIMIT: LFCC_3m_Class_B
CABLE: CSITE2_3m

Frequency (MHz)	Polarity H/V	Azimuth Degree	Ant. Hght (m)	SA Level (QP) (dBµV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Corr. Level (dBµV/m)	Corr. Level (µV/m)	Limit (µV/m)	Margin dB
Channel 6 926.5 MHz											
EUT Hor											
926.50	H	0.0	1.0	55.9	22.3	7.6	0.0	85.9	19641.3	50000.0	-8.1
926.50	V	0.0	1.0	54.9	22.3	7.6	0.0	84.9	17505.3	50000.0	-9.1
EUT Vert											
926.50	H	0.0	1.0	55.2	22.3	7.6	0.0	85.2	18120.5	50000.0	-8.8
926.50	V	0.0	1.0	53.4	22.3	7.6	0.0	83.4	14728.9	50000.0	-10.6
EUT Side											
926.50	H	0.0	1.0	52.1	22.3	7.6	0.0	82.1	12681.5	50000.0	-11.9
926.50	V	0.0	1.0	52.9	22.3	7.6	0.0	82.9	13905.0	50000.0	-11.1
Channel 1 903 MHz											
EUT Hor											
903.00	V	180.0	1.0	52.8	21.5	7.6	0.0	81.9	12505.9	50000.0	-12.0
903.00	H	90.0	1.0	53.4	21.5	7.6	0.0	82.5	13400.3	50000.0	-11.4
EUT Vert											
903.00	H	180.0	1.0	52.6	21.5	7.6	0.0	81.7	12221.3	50000.0	-12.2
903.00	V	180.0	1.0	53.8	21.5	7.6	0.0	82.9	14031.9	50000.0	-11.0
EUT Side											
903.00	H	180.0	1.0	54.5	21.5	7.6	0.0	83.6	15209.5	50000.0	-10.3
903.00	V	180.0	1.0	49.7	21.5	7.6	0.0	78.8	8752.2	50000.0	-15.1
Channel 8 913 MHz											
EUT Hor											
913.00	H	0.0	1.0	52.8	22.0	7.5	0.0	82.3	13096.0	50000.0	-11.6
913.00	V	0.0	1.0	49.4	22.0	7.5	0.0	78.9	8854.0	50000.0	-15.0
EUT Vert											
913.00	H	0.0	1.0	50.1	22.0	7.5	0.0	79.6	9597.1	50000.0	-14.3
913.00	V	0.0	1.0	48.7	22.0	7.5	0.0	78.2	8168.4	50000.0	-15.7
EUT Side											
913.00	H	0.0	1.0	46.5	22.0	7.5	0.0	76.0	6340.7	50000.0	-17.9
913.00	V	0.0	1.0	52.8	22.0	7.5	0.0	82.3	13096.0	50000.0	-11.6

Table 6: Radiated Emission Test Data, Average Data Above 1GHz

CLIENT:	Electrosources, Pelican LLC	DATE:	1/31/03
TESTER:	Ken Gemmell	JOB #:	7358X
<u>EUT Information:</u>		<u>Test Requirements:</u>	
EUT:	X-Box RF Pad	TEST STD:	FCC Part 15
CONFIGURATION:	Controller in CW mode	DISTANCE:	3m
		CLASS:	B
<u>Test Equipment/Limit:</u>			
ANTENNA:	A_00004	LIMIT:	LFCC_3m_Class_B
CABLE:	CSITE2_HF	AMPLIFIER (dB)	A_00312

Frequency	Polarity	Azimuth	Ant. Hght	SA Level (QP)	Ant. Corr.	Cable Corr.	Amp Gain	Duty Cycle Corr	Corr. Level	Corr. Level	Limit	Margin
(MHz)	H/V	Degree	(m)	(dBμV)	(dB/m)	(dB)	(dB)	(db)	(dBμV/m)	(μV/m)	(μV/m)	dB
EUT Hor Chan 1 903 MHz												
1806.00	H	135.0	1.0	53.2	28.3	3.1	34.1	-8.9	41.6	119.9	500.0	-12.4
2709.00	H	180.0	1.0	51.2	30.2	2.9	34.4	-8.9	41.0	112.4	500.0	-13.0
3612.00	H	180.0	1.0	47.2	31.3	2.8	34.6	-8.9	37.8	77.7	500.0	-16.2
4515.00	H	180.0	1.0	43.5	32.4	3.7	34.5	-8.9	36.2	64.3	500.0	-17.8 a
5418.00	H	180.0	1.0	40.5	33.9	4.3	34.5	-8.9	35.3	58.2	500.0	-18.7 a
6321.00	H	180.0	1.0	42.2	35.9	4.2	34.6	-8.9	38.7	86.5	500.0	-15.2 a
7224.00	H	180.0	1.0	43.5	37.8	4.5	34.8	-8.9	42.1	127.3	500.0	-11.9 a
8127.00	H	180.0	1.0	44.3	38.5	4.9	34.3	-8.9	44.4	166.1	500.0	-9.6 a
9030.00	H	180.0	1.0	42.6	39.0	4.9	33.0	-8.9	44.6	170.0	500.0	-9.4 a
1806.00	V	135.0	1.0	60.0	28.3	3.1	34.1	-8.9	48.4	263.3	500.0	-5.6
2709.00	V	180.0	1.0	48.5	30.2	2.9	34.4	-8.9	38.3	82.7	500.0	-15.6
3612.00	V	180.0	1.0	47.3	31.3	2.8	34.6	-8.9	38.0	79.1	500.0	-16.0 a
4515.00	V	180.0	1.0	43.7	32.4	3.7	34.5	-8.9	36.4	65.8	500.0	-17.6 a
5418.00	V	180.0	1.0	42.3	33.9	4.3	34.5	-8.9	37.1	71.9	500.0	-16.8 a
6321.00	V	180.0	1.0	42.0	35.9	4.2	34.6	-8.9	38.6	84.8	500.0	-15.4 a
7224.00	V	180.0	1.0	43.3	37.8	4.5	34.8	-8.9	41.9	124.8	500.0	-12.1 a
8127.00	V	180.0	1.0	44.0	38.5	4.9	34.3	-8.9	44.1	160.5	500.0	-9.9 a
9030.00	V	180.0	1.0	43.2	39.0	4.9	33.0	-8.9	45.2	181.5	500.0	-8.8 a
EUT Upright												
1806.00	H	135.0	1.0	54.3	28.3	3.1	34.1	-8.9	42.7	137.1	500.0	-11.2
2709.00	H	180.0	1.0	50.7	30.2	2.9	34.4	-8.9	40.5	106.2	500.0	-13.5
3612.00	H	180.0	1.0	48.5	31.3	2.8	34.6	-8.9	39.1	90.5	500.0	-14.8
4515.00	H	180.0	1.0	41.8	32.4	3.7	34.5	-8.9	34.5	53.0	500.0	-19.5 a
5418.00	H	180.0	1.0	41.5	33.9	4.3	34.5	-8.9	36.3	65.3	500.0	-17.7 a
6321.00	H	180.0	1.0	41.2	35.9	4.2	34.6	-8.9	37.7	77.1	500.0	-16.2 a
7224.00	H	180.0	1.0	42.5	37.8	4.5	34.8	-8.9	41.1	113.5	500.0	-12.9 a
8127.00	H	180.0	1.0	43.7	38.5	4.9	34.3	-8.9	43.8	154.5	500.0	-10.2 a
9030.00	H	180.0	1.0	43.3	39.0	4.9	33.0	-8.9	45.3	184.9	500.0	-8.6 a

Frequency	Polarity	Azimuth	Ant. Hght	SA Level (QP)	Ant. Corr.	Cable Corr.	Amp Gain	Duty Cycle Corr	Corr. Level	Corr. Level	Limit	Margin
(MHz)	H/V	Degree	(m)	(dBμV)	(dB/m)	(dB)	(dB)	(db)	(dBμV/m)	(μV/m)	(μV/m)	dB
1806.00	V	135.0	1.0	56.0	28.3	3.1	34.1	-8.9	44.4	166.1	500.0	-9.6
2709.00	V	180.0	1.0	47.2	30.2	2.9	34.4	-8.9	37.0	71.0	500.0	-17.0
3612.00	V	180.0	1.0	45.7	31.3	2.8	34.6	-8.9	36.3	65.4	500.0	-17.7
4515.00	V	180.0	1.0	43.3	32.4	3.7	34.5	-8.9	36.0	63.0	500.0	-18.0 a
5418.00	V	180.0	1.0	42.2	33.9	4.3	34.5	-8.9	37.0	70.6	500.0	-17.0 a
6321.00	V	180.0	1.0	42.8	35.9	4.2	34.6	-8.9	39.4	93.3	500.0	-14.6 a
7224.00	V	180.0	1.0	43.5	37.8	4.5	34.8	-8.9	42.1	127.3	500.0	-11.9 a
8127.00	V	180.0	1.0	45.5	38.5	4.9	34.3	-8.9	45.6	190.7	500.0	-8.4 a
9030.00	V	180.0	1.0	42.8	39.0	4.9	33.0	-8.9	44.8	174.6	500.0	-9.1 a
EUT Sideways												
1806.00	H	135.0	1.0	52.3	28.3	3.1	34.1	-8.9	40.7	108.9	500.0	-13.2
2709.00	H	180.0	1.0	50.8	30.2	2.9	34.4	-8.9	40.7	108.1	500.0	-13.3
3612.00	H	180.0	1.0	48.5	31.3	2.8	34.6	-8.9	39.1	90.5	500.0	-14.8
4515.00	H	180.0	1.0	42.8	32.4	3.7	34.5	-8.9	35.5	59.5	500.0	-18.5 a
5418.00	H	180.0	1.0	43.5	33.9	4.3	34.5	-8.9	38.3	82.2	500.0	-15.7 a
6321.00	H	180.0	1.0	41.3	35.9	4.2	34.6	-8.9	37.9	78.5	500.0	-16.1 a
7224.00	H	180.0	1.0	41.3	37.8	4.5	34.8	-8.9	39.9	99.2	500.0	-14.1 a
8127.00	H	180.0	1.0	41.0	38.5	4.9	34.3	-8.9	41.1	113.6	500.0	-12.9 a
9030.00	H	180.0	1.0	39.7	39.0	4.9	33.0	-8.9	41.7	121.3	500.0	-12.3 a
1806.00	V	135.0	1.0	52.2	28.3	3.1	34.1	-8.9	40.6	106.9	500.0	-13.4
2709.00	V	180.0	1.0	46.3	30.2	2.9	34.4	-8.9	36.2	64.4	500.0	-17.8
3612.00	V	180.0	1.0	46.7	31.3	2.8	34.6	-8.9	37.3	73.3	500.0	-16.7
4515.00	V	180.0	1.0	44.5	32.4	3.7	34.5	-8.9	37.2	72.1	500.0	-16.8 a
5418.00	V	180.0	1.0	41.8	33.9	4.3	34.5	-8.9	36.6	67.9	500.0	-17.3 a
6321.00	V	180.0	1.0	40.0	35.9	4.2	34.6	-8.9	36.6	67.4	500.0	-17.4 a
7224.00	V	180.0	1.0	41.8	37.8	4.5	34.8	-8.9	40.4	104.7	500.0	-13.6 a
8127.00	V	180.0	1.0	41.6	38.5	4.9	34.3	-8.9	41.7	121.7	500.0	-12.3 a
9030.00	V	180.0	1.0	41.0	39.0	4.9	33.0	-8.9	43.0	141.4	500.0	-11.0 a
EUT Hor Chan 6 926.5 MHZ												
1826.00	H	0.0	1.0	62.0	28.3	3.1	34.1	-8.9	50.5	335.7	500.0	-3.5
2739.00	H	0.0	1.0	47.5	30.3	2.9	34.4	-8.9	37.4	73.8	500.0	-16.6
3652.00	H	0.0	1.0	46.0	31.4	2.8	34.6	-8.9	36.7	68.2	500.0	-17.3
4565.00	H	0.0	1.0	41.8	32.5	3.8	34.5	-8.9	34.6	54.0	500.0	-19.3 a
5478.00	H	0.0	1.0	40.8	34.0	4.2	34.4	-8.9	35.7	61.2	500.0	-18.2 a
6391.00	H	0.0	1.0	41.2	36.1	4.2	34.6	-8.9	37.9	78.7	500.0	-16.1 a
7304.00	H	0.0	1.0	42.0	37.9	4.6	34.8	-8.9	40.7	108.8	500.0	-13.3 a
8217.00	H	0.0	1.0	41.7	38.5	4.9	34.2	-8.9	42.0	125.6	500.0	-12.0 a
9130.00	H	0.0	1.0	42.7	39.1	4.9	33.0	-8.9	44.8	174.0	500.0	-9.2 a
1826.00	V	0.0	1.0	59.0	28.3	3.1	34.1	-8.9	47.5	237.7	500.0	-6.5
2739.00	V	0.0	1.0	47.0	30.3	2.9	34.4	-8.9	36.9	69.7	500.0	-17.1

Frequency	Polarity	Azimuth	Ant. Hght	SA Level (QP)	Ant. Corr.	Cable Corr.	Amp Gain	Duty Cycle Corr	Corr. Level	Corr. Level	Limit	Margin
(MHz)	H/V	Degree	(m)	(dBμV)	(dB/m)	(dB)	(dB)	(db)	(dBμV/m)	(μV/m)	(μV/m)	dB
3652.00	V	0.0	1.0	46.0	31.4	2.8	34.6	-8.9	36.7	68.2	500.0	-17.3
4565.00	V	0.0	1.0	42.2	32.5	3.8	34.5	-8.9	35.0	56.1	500.0	-19.0 a
5478.00	V	0.0	1.0	42.0	34.0	4.2	34.4	-8.9	36.9	70.0	500.0	-17.1 a
6391.00	V	0.0	1.0	40.8	36.1	4.2	34.6	-8.9	37.6	75.7	500.0	-16.4 a
7304.00	V	0.0	1.0	41.8	37.9	4.6	34.8	-8.9	40.6	106.7	500.0	-13.4 a
8217.00	V	0.0	1.0	42.3	38.5	4.9	34.2	-8.9	42.6	135.5	500.0	-11.3 a
9130.00	V	0.0	1.0	42.8	39.1	4.9	33.0	-8.9	45.0	177.2	500.0	-9.0 a
EUT Upright												
1826.00	H	0.0	1.0	53.3	28.3	3.1	34.1	-8.9	41.8	123.7	500.0	-12.1
2739.00	H	0.0	1.0	51.7	30.3	2.9	34.4	-8.9	41.5	119.3	500.0	-12.4
3652.00	H	0.0	1.0	47.2	31.4	2.8	34.6	-8.9	37.8	78.0	500.0	-16.1
4565.00	H	0.0	1.0	43.0	32.5	3.8	34.5	-8.9	35.8	61.8	500.0	-18.2 a
5478.00	H	0.0	1.0	41.3	34.0	4.2	34.4	-8.9	36.2	64.8	500.0	-17.7 a
6391.00	H	0.0	1.0	41.7	36.1	4.2	34.6	-8.9	38.4	83.4	500.0	-15.6 a
7304.00	H	0.0	1.0	39.7	37.9	4.6	34.8	-8.9	38.4	83.2	500.0	-15.6 a
8217.00	H	0.0	1.0	40.5	38.5	4.9	34.2	-8.9	40.8	109.8	500.0	-13.2 a
9130.00	H	0.0	1.0	42.3	39.1	4.9	33.0	-8.9	44.5	167.3	500.0	-9.5 a
1826.00	V	0.0	1.0	59.8	28.3	3.1	34.1	-8.9	48.3	261.5	500.0	-5.6
2739.00	V	0.0	1.0	46.5	30.3	2.9	34.4	-8.9	36.4	65.8	500.0	-17.6
3652.00	V	0.0	1.0	45.8	31.4	2.8	34.6	-8.9	36.5	66.9	500.0	-17.5
4565.00	V	0.0	1.0	39.7	32.5	3.8	34.5	-8.9	32.5	42.1	500.0	-21.5 a
5478.00	V	0.0	1.0	40.5	34.0	4.2	34.4	-8.9	35.4	58.9	500.0	-18.6 a
6391.00	V	0.0	1.0	40.2	36.1	4.2	34.6	-8.9	36.9	70.1	500.0	-17.1 a
7304.00	V	0.0	1.0	41.3	37.9	4.6	34.8	-8.9	40.1	100.7	500.0	-13.9 a
8217.00	V	0.0	1.0	41.6	38.5	4.9	34.2	-8.9	41.9	124.6	500.0	-12.1 a
9130.00	V	0.0	1.0	40.5	39.1	4.9	33.0	-8.9	42.6	135.5	500.0	-11.3 a
EUT Sideways												
1826.00	H	0.0	1.0	54.3	28.3	3.1	34.1	-8.9	42.8	138.8	500.0	-11.1
2739.00	H	0.0	1.0	50.2	30.3	2.9	34.4	-8.9	40.0	100.4	500.0	-13.9
3652.00	H	0.0	1.0	45.3	31.4	2.8	34.6	-8.9	36.0	63.1	500.0	-18.0
4565.00	H	0.0	1.0	42.0	32.5	3.8	34.5	-8.9	34.8	55.0	500.0	-19.2 a
5478.00	H	0.0	1.0	42.5	34.0	4.2	34.4	-8.9	37.4	74.1	500.0	-16.6 a
6391.00	H	0.0	1.0	41.7	36.1	4.2	34.6	-8.9	38.4	83.4	500.0	-15.6 a
7304.00	H	0.0	1.0	42.3	37.9	4.6	34.8	-8.9	41.1	113.0	500.0	-12.9 a
8217.00	H	0.0	1.0	42.3	38.5	4.9	34.2	-8.9	42.6	135.5	500.0	-11.3 a
9130.00	H	0.0	1.0	42.7	39.1	4.9	33.0	-8.9	44.8	174.6	500.0	-9.1 a
1826.00	V	0.0	1.0	60.7	28.3	3.1	34.1	-8.9	49.2	288.1	500.0	-4.8
2739.00	V	0.0	1.0	47.7	30.3	2.9	34.4	-8.9	37.5	75.3	500.0	-16.4
3652.00	V	0.0	1.0	47.5	31.4	2.8	34.6	-8.9	38.2	81.0	500.0	-15.8
4565.00	V	0.0	1.0	41.5	32.5	3.8	34.5	-8.9	34.3	52.0	500.0	-19.7 a

Frequency (MHz)	Polarity H/V	Azimuth Degree	Ant. Hght (m)	SA Level (QP) (dBμV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Duty Cycle Corr (db)	Corr. Level (dBμV/m)	Corr. Level (μV/m)	Limit (μV/m)	Margin dB
5478.00	V	0.0	1.0	42.3	34.0	4.2	34.4	-8.9	37.2	72.7	500.0	-16.7 a
6391.00	V	0.0	1.0	41.8	36.1	4.2	34.6	-8.9	38.6	84.9	500.0	-15.4 a
7304.00	V	0.0	1.0	42.3	37.9	4.6	34.8	-8.9	41.0	112.6	500.0	-13.0 a
8217.00	V	0.0	1.0	42.3	38.5	4.9	34.2	-8.9	42.6	135.5	500.0	-11.3 a
9130.00	V	0.0	1.0	43.7	39.1	4.9	33.0	-8.9	45.8	195.2	500.0	-8.2 a
EUT Hor Chan 8 913 MHZ												
1853.00	H	180.0	1.0	62.0	28.4	3.2	34.0	-8.9	50.7	341.5	500.0	-3.3
2779.50	H	180.0	1.0	49.7	30.4	2.9	34.5	-8.9	39.6	95.0	500.0	-14.4
3706.00	H	180.0	1.0	46.5	31.4	2.8	34.6	-8.9	37.2	72.6	500.0	-16.8
4632.50	H	180.0	1.0	41.5	32.6	3.9	34.5	-8.9	34.5	53.2	500.0	-19.5 a
5559.00	H	0.0	1.0	42.0	34.2	4.2	34.4	-8.9	37.0	71.1	500.0	-16.9 a
6485.50	H	0.0	1.0	43.0	36.3	4.2	34.6	-8.9	40.0	99.8	500.0	-14.0 a
7412.00	H	0.0	1.0	42.5	37.9	4.6	34.7	-8.9	41.4	117.6	500.0	-12.6 a
8338.50	H	0.0	1.0	41.8	38.6	4.9	34.0	-8.9	42.4	131.9	500.0	-11.6 a
9265.00	H	0.0	1.0	40.7	39.2	5.0	33.0	-8.9	43.0	141.4	500.0	-11.0 a
1853.00	V	180.0	1.0	54.7	28.4	3.2	34.0	-8.9	43.3	146.8	500.0	-10.6
2779.50	V	225.0	1.0	52.2	30.4	2.9	34.5	-8.9	42.1	126.7	500.0	-11.9
3706.00	V	180.0	1.0	45.2	31.4	2.8	34.6	-8.9	35.9	62.3	500.0	-18.1
4632.50	V	180.0	1.0	42.7	32.6	3.9	34.5	-8.9	35.7	60.9	500.0	-18.3 a
5559.00	V	180.0	1.0	41.3	34.2	4.2	34.4	-8.9	36.4	65.8	500.0	-17.6 a
6485.50	V	0.0	1.0	42.3	36.3	4.2	34.6	-8.9	39.3	92.4	500.0	-14.7 a
7412.00	V	0.0	1.0	41.0	37.9	4.6	34.7	-8.9	39.9	98.9	500.0	-14.1 a
8338.50	V	0.0	1.0	41.8	38.6	4.9	34.0	-8.9	42.4	131.9	500.0	-11.6 a
9265.00	V	0.0	1.0	43.0	39.2	5.0	33.0	-8.9	45.3	184.3	500.0	-8.7 a
EUT Upright												
v	H	180.0	1.0	54.7	28.4	3.2	34.0	-8.9	43.3	146.8	500.0	-10.6
2779.50	H	180.0	1.0	55.0	30.4	2.9	34.5	-8.9	44.9	175.5	500.0	-9.1
3706.00	H	180.0	1.0	48.2	31.4	2.8	34.6	-8.9	38.9	88.1	500.0	-15.1
4632.50	H	180.0	1.0	42.5	32.6	3.9	34.5	-8.9	35.5	59.7	500.0	-18.5 a
5559.00	H	180.0	1.0	41.3	34.2	4.2	34.4	-8.9	36.4	65.8	500.0	-17.6 a
6485.50	H	0.0	1.0	41.3	36.3	4.2	34.6	-8.9	38.3	82.4	500.0	-15.7 a
7412.00	H	0.0	1.0	41.2	37.9	4.6	34.7	-8.9	40.1	100.9	500.0	-13.9 a
8338.50	H	0.0	1.0	41.3	38.6	4.9	34.0	-8.9	41.9	124.5	500.0	-12.1 a
9265.00	H	0.0	1.0	41.6	39.2	5.0	33.0	-8.9	43.9	156.9	500.0	-10.1 a
1853.00	V	180.0	1.0	60.2	28.4	3.2	34.0	-8.9	48.8	276.6	500.0	-5.1
2779.50	V	135.0	1.0	46.8	30.4	2.9	34.5	-8.9	36.7	68.5	500.0	-17.3
3706.00	V	180.0	1.0	48.2	31.4	2.8	34.6	-8.9	38.9	88.1	500.0	-15.1
4632.50	V	180.0	1.0	42.0	32.6	3.9	34.5	-8.9	35.0	56.3	500.0	-19.0 a
5559.00	V	0.0	1.0	41.8	34.2	4.2	34.4	-8.9	36.9	69.7	500.0	-17.1 a
6485.50	V	0.0	1.0	42.7	36.3	4.2	34.6	-8.9	39.7	96.1	500.0	-14.3 a

Frequency	Polarity	Azimuth	Ant. Hght	SA Level (QP)	Ant. Corr.	Cable Corr.	Amp Gain	Duty Cycle Corr	Corr. Level	Corr. Level	Limit	Margin
(MHz)	H/V	Degree	(m)	(dBμV)	(dB/m)	(dB)	(dB)	(db)	(dBμV/m)	(μV/m)	(μV/m)	dB
7412.00	V	0.0	1.0	41.0	37.9	4.6	34.7	-8.9	39.9	98.9	500.0	-14.1 a
8338.50	V	0.0	1.0	41.0	38.6	4.9	34.0	-8.9	41.6	119.9	500.0	-12.4 a
9265.00	V	0.0	1.0	42.7	39.2	5.0	33.0	-8.9	45.0	177.5	500.0	-9.0 a
EUT Sideways												
1853.00	H	180.0	1.0	53.3	28.4	3.2	34.0	-8.9	42.0	125.8	500.0	-12.0
2779.50	H	180.0	1.0	46.8	30.4	2.9	34.5	-8.9	36.7	68.5	500.0	-17.3
3706.00	H	180.0	1.0	49.3	31.4	2.8	34.6	-8.9	40.1	100.6	500.0	-13.9
4632.50	H	180.0	1.0	42.7	32.6	3.9	34.5	-8.9	35.7	60.9	500.0	-18.3 a
5559.00	H	0.0	1.0	41.8	34.2	4.2	34.4	-8.9	36.9	69.7	500.0	-17.1 a
6485.50	H	0.0	1.0	41.8	36.3	4.2	34.6	-8.9	38.8	87.3	500.0	-15.2 a
7412.00	H	0.0	1.0	42.3	37.9	4.6	34.7	-8.9	41.2	115.3	500.0	-12.7 a
8338.50	H	0.0	1.0	42.2	38.6	4.9	34.0	-8.9	42.7	137.2	500.0	-11.2 a
9265.00	H	0.0	1.0	41.8	39.2	5.0	33.0	-8.9	44.1	161.1	500.0	-9.8 a
1853.00	V	180.0	1.0	59.8	28.4	3.2	34.0	-8.9	48.5	266.0	500.0	-5.5
2779.50	V	135.0	1.0	49.0	30.4	2.9	34.5	-8.9	38.9	87.9	500.0	-15.1
3706.00	V	180.0	1.0	48.3	31.4	2.8	34.6	-8.9	39.1	89.7	500.0	-14.9
4632.50	V	180.0	1.0	40.2	32.6	3.9	34.5	-8.9	33.2	45.6	500.0	-20.8 a
5559.00	V	0.0	1.0	41.3	34.2	4.2	34.4	-8.9	36.3	65.6	500.0	-17.6 a
6485.50	V	0.0	1.0	40.7	36.3	4.2	34.6	-8.9	37.7	76.4	500.0	-16.3 a
7412.00	V	0.0	1.0	43.8	37.9	4.6	34.7	-8.9	42.7	137.0	500.0	-11.2 a
8338.50	V	0.0	1.0	40.5	38.6	4.9	34.0	-8.9	41.1	113.2	500.0	-12.9 a
9265.00	V	0.0	1.0	41.7	39.2	5.0	33.0	-8.9	44.0	158.7	500.0	-10.0 a

a = ambient

Table 7: Radiated Emission Test Data, Peak Data Above 1GHz

CLIENT:	Electrosorce, Pelican LLC	DATE:	1/31/03
TESTER:	Ken Gemmell	JOB #:	7358X
<u>EUT Information:</u>		<u>Test Requirements:</u>	
EUT:	X-Box RF Pad	TEST STD:	FCC Part 15
CONFIGURATION:	Controller in CW mode	DISTANCE:	3m
		CLASS:	B
<u>Test Equipment/Limit:</u>			
ANTENNA:	A_00004	LIMIT:	LFCC_3m_Class_B
CABLE: CSITE2_HF		AMPLIFIER (dB)	A_00312

Frequency (MHz)	Polarity H/V	Azimuth Degree	Ant. Hght (m)	SA Level (QP) (dBμV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Corr. Level (dBμV/m)	Corr. Level (μV/m)	Limit (μV/m)	Margin dB
EUT Hor Chan 1 903 MHZ											
1806.00	H	135.0	1.0	53.2	28.3	3.1	34.1	50.5	334.2	5000.0	-23.5
2709.00	H	180.0	1.0	51.2	30.2	2.9	34.4	49.9	313.3	5000.0	-24.1
3612.00	H	180.0	1.0	47.2	31.3	2.8	34.6	46.7	216.4	5000.0	-27.3
4515.00	H	180.0	1.0	43.5	32.4	3.7	34.5	45.1	179.1	5000.0	-28.9 a
5418.00	H	180.0	1.0	40.5	33.9	4.3	34.5	44.2	162.2	5000.0	-29.8 a
6321.00	H	180.0	1.0	42.2	35.9	4.2	34.6	47.6	241.0	5000.0	-26.3 a
7224.00	H	180.0	1.0	43.5	37.8	4.5	34.8	51.0	354.7	5000.0	-23.0 a
8127.00	H	180.0	1.0	44.3	38.5	4.9	34.3	53.3	462.8	5000.0	-20.7 a
9030.00	H	180.0	1.0	42.6	39.0	4.9	33.0	53.5	473.7	5000.0	-20.5 a
1806.00	V	135.0	1.0	60.0	28.3	3.1	34.1	57.3	733.7	5000.0	-16.7
2709.00	V	180.0	1.0	48.5	30.2	2.9	34.4	47.2	230.4	5000.0	-26.7
3612.00	V	180.0	1.0	47.3	31.3	2.8	34.6	46.9	220.4	5000.0	-27.1 a
4515.00	V	180.0	1.0	43.7	32.4	3.7	34.5	45.3	183.3	5000.0	-28.7 a
5418.00	V	180.0	1.0	42.3	33.9	4.3	34.5	46.0	200.2	5000.0	-27.9 a
6321.00	V	180.0	1.0	42.0	35.9	4.2	34.6	47.5	236.4	5000.0	-26.5 a
7224.00	V	180.0	1.0	43.3	37.8	4.5	34.8	50.8	347.8	5000.0	-23.2 a
8127.00	V	180.0	1.0	44.0	38.5	4.9	34.3	53.0	447.1	5000.0	-21.0 a
9030.00	V	180.0	1.0	43.2	39.0	4.9	33.0	54.1	505.8	5000.0	-19.9 a
EUT Upright											
1806.00	H	135.0	1.0	54.3	28.3	3.1	34.1	51.6	381.9	5000.0	-22.3
2709.00	H	180.0	1.0	50.7	30.2	2.9	34.4	49.4	295.8	5000.0	-24.6
3612.00	H	180.0	1.0	48.5	31.3	2.8	34.6	48.0	252.2	5000.0	-25.9
4515.00	H	180.0	1.0	41.8	32.4	3.7	34.5	43.4	147.8	5000.0	-30.6
5418.00	H	180.0	1.0	41.5	33.9	4.3	34.5	45.2	182.0	5000.0	-28.8
6321.00	H	180.0	1.0	41.2	35.9	4.2	34.6	46.6	214.8	5000.0	-27.3
7224.00	H	180.0	1.0	42.5	37.8	4.5	34.8	50.0	316.1	5000.0	-24.0
8127.00	H	180.0	1.0	43.7	38.5	4.9	34.3	52.7	430.4	5000.0	-21.3

Frequency (MHz)	Polarity H/V	Azimuth Degree	Ant. Hght (m)	SA Level (QP) (dBµV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Corr. Level (dBµV/m)	Corr. Level (µV/m)	Limit (µV/m)	Margin dB
9030.00	H	180.0	1.0	43.3	39.0	4.9	33.0	54.2	515.2	5000.0	-19.7
1806.00	V	135.0	1.0	56.0	28.3	3.1	34.1	53.3	462.9	5000.0	-20.7
2709.00	V	180.0	1.0	47.2	30.2	2.9	34.4	45.9	197.7	5000.0	-28.1
3612.00	V	180.0	1.0	45.7	31.3	2.8	34.6	45.2	182.1	5000.0	-28.8
4515.00	V	180.0	1.0	43.3	32.4	3.7	34.5	44.9	175.6	5000.0	-29.1
5418.00	V	180.0	1.0	42.2	33.9	4.3	34.5	45.9	196.6	5000.0	-28.1
6321.00	V	180.0	1.0	42.8	35.9	4.2	34.6	48.3	260.1	5000.0	-25.7
7224.00	V	180.0	1.0	43.5	37.8	4.5	34.8	51.0	354.7	5000.0	-23.0
8127.00	V	180.0	1.0	45.5	38.5	4.9	34.3	54.5	531.3	5000.0	-19.5
9030.00	V	180.0	1.0	42.8	39.0	4.9	33.0	53.7	486.4	5000.0	-20.2
EUT Sideways											
1806.00	H	135.0	1.0	52.3	28.3	3.1	34.1	49.6	303.4	5000.0	-24.3
2709.00	H	180.0	1.0	50.8	30.2	2.9	34.4	49.6	301.3	5000.0	-24.4
3612.00	H	180.0	1.0	48.5	31.3	2.8	34.6	48.0	252.2	5000.0	-25.9
4515.00	H	180.0	1.0	42.8	32.4	3.7	34.5	44.4	165.8	5000.0	-29.6 a
5418.00	H	180.0	1.0	43.5	33.9	4.3	34.5	47.2	229.1	5000.0	-26.8 a
6321.00	H	180.0	1.0	41.3	35.9	4.2	34.6	46.8	218.8	5000.0	-27.2 a
7224.00	H	180.0	1.0	41.3	37.8	4.5	34.8	48.8	276.3	5000.0	-25.2 a
8127.00	H	180.0	1.0	41.0	38.5	4.9	34.3	50.0	316.5	5000.0	-24.0 a
9030.00	H	180.0	1.0	39.7	39.0	4.9	33.0	50.6	338.0	5000.0	-23.4 a
1806.00	V	135.0	1.0	52.2	28.3	3.1	34.1	49.5	297.8	5000.0	-24.5
2709.00	V	180.0	1.0	46.3	30.2	2.9	34.4	45.1	179.5	5000.0	-28.9
3612.00	V	180.0	1.0	46.7	31.3	2.8	34.6	46.2	204.3	5000.0	-27.8
4515.00	V	180.0	1.0	44.5	32.4	3.7	34.5	46.1	200.9	5000.0	-27.9 a
5418.00	V	180.0	1.0	41.8	33.9	4.3	34.5	45.5	189.0	5000.0	-28.4 a
6321.00	V	180.0	1.0	40.0	35.9	4.2	34.6	45.5	187.8	5000.0	-28.5 a
7224.00	V	180.0	1.0	41.8	37.8	4.5	34.8	49.3	291.7	5000.0	-24.7 a
8127.00	V	180.0	1.0	41.6	38.5	4.9	34.3	50.6	339.1	5000.0	-23.4 a
9030.00	V	180.0	1.0	41.0	39.0	4.9	33.0	51.9	394.0	5000.0	-22.1 a
EUT Hor Chan 6 926.5 MHZ											
1826.00	H	0.0	1.0	62.0	28.3	3.1	34.1	59.4	935.4	5000.0	-14.6
2739.00	H	0.0	1.0	47.5	30.3	2.9	34.4	46.3	205.7	5000.0	-27.7
3652.00	H	0.0	1.0	46.0	31.4	2.8	34.6	45.6	190.0	5000.0	-28.4
4565.00	H	0.0	1.0	41.8	32.5	3.8	34.5	43.5	150.4	5000.0	-30.4 a
5478.00	H	0.0	1.0	40.8	34.0	4.2	34.4	44.6	170.4	5000.0	-29.3 a
6391.00	H	0.0	1.0	41.2	36.1	4.2	34.6	46.8	219.3	5000.0	-27.2 a
7304.00	H	0.0	1.0	42.0	37.9	4.6	34.8	49.6	303.0	5000.0	-24.4 a
8217.00	H	0.0	1.0	41.7	38.5	4.9	34.2	50.9	349.9	5000.0	-23.1 a
9130.00	H	0.0	1.0	42.7	39.1	4.9	33.0	53.7	484.7	5000.0	-20.3 a
1826.00	V	0.0	1.0	59.0	28.3	3.1	34.1	56.4	662.2	5000.0	-17.6

Frequency (MHz)	Polarity H/V	Azimuth Degree	Ant. Hght (m)	SA Level (QP) (dBμV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Corr. Level (dBμV/m)	Corr. Level (μV/m)	Limit (μV/m)	Margin dB
2739.00	V	0.0	1.0	47.0	30.3	2.9	34.4	45.8	194.2	5000.0	-28.2
3652.00	V	0.0	1.0	46.0	31.4	2.8	34.6	45.6	190.0	5000.0	-28.4
4565.00	V	0.0	1.0	42.2	32.5	3.8	34.5	43.9	156.4	5000.0	-30.1 a
5478.00	V	0.0	1.0	42.0	34.0	4.2	34.4	45.8	195.0	5000.0	-28.2 a
6391.00	V	0.0	1.0	40.8	36.1	4.2	34.6	46.5	210.9	5000.0	-27.5 a
7304.00	V	0.0	1.0	41.8	37.9	4.6	34.8	49.5	297.1	5000.0	-24.5 a
8217.00	V	0.0	1.0	42.3	38.5	4.9	34.2	51.5	377.5	5000.0	-22.4 a
9130.00	V	0.0	1.0	42.8	39.1	4.9	33.0	53.9	493.7	5000.0	-20.1 a
EUT Upright											
1826.00	H	0.0	1.0	53.3	28.3	3.1	34.1	50.7	344.7	5000.0	-23.2
2739.00	H	0.0	1.0	51.7	30.3	2.9	34.4	50.4	332.4	5000.0	-23.5
3652.00	H	0.0	1.0	47.2	31.4	2.8	34.6	46.7	217.4	5000.0	-27.2
4565.00	H	0.0	1.0	43.0	32.5	3.8	34.5	44.7	172.1	5000.0	-29.3 a
5478.00	H	0.0	1.0	41.3	34.0	4.2	34.4	45.1	180.5	5000.0	-28.8 a
6391.00	H	0.0	1.0	41.7	36.1	4.2	34.6	47.3	232.3	5000.0	-26.7 a
7304.00	H	0.0	1.0	39.7	37.9	4.6	34.8	47.3	231.7	5000.0	-26.7 a
8217.00	H	0.0	1.0	40.5	38.5	4.9	34.2	49.7	305.8	5000.0	-24.3 a
9130.00	H	0.0	1.0	42.3	39.1	4.9	33.0	53.4	466.1	5000.0	-20.6 a
1826.00	V	0.0	1.0	59.8	28.3	3.1	34.1	57.2	728.6	5000.0	-16.7
2739.00	V	0.0	1.0	46.5	30.3	2.9	34.4	45.3	183.3	5000.0	-28.7
3652.00	V	0.0	1.0	45.8	31.4	2.8	34.6	45.4	186.5	5000.0	-28.6
4565.00	V	0.0	1.0	39.7	32.5	3.8	34.5	41.4	117.3	5000.0	-32.6 a
5478.00	V	0.0	1.0	40.5	34.0	4.2	34.4	44.3	164.1	5000.0	-29.7 a
6391.00	V	0.0	1.0	40.2	36.1	4.2	34.6	45.8	195.4	5000.0	-28.2 a
7304.00	V	0.0	1.0	41.3	37.9	4.6	34.8	49.0	280.5	5000.0	-25.0 a
8217.00	V	0.0	1.0	41.6	38.5	4.9	34.2	50.8	347.1	5000.0	-23.2 a
9130.00	V	0.0	1.0	40.5	39.1	4.9	33.0	51.5	377.5	5000.0	-22.4 a
EUT Sideways											
1826.00	H	0.0	1.0	54.3	28.3	3.1	34.1	51.7	386.8	5000.0	-22.2
2739.00	H	0.0	1.0	50.2	30.3	2.9	34.4	48.9	279.7	5000.0	-25.0
3652.00	H	0.0	1.0	45.3	31.4	2.8	34.6	44.9	175.9	5000.0	-29.1
4565.00	H	0.0	1.0	42.0	32.5	3.8	34.5	43.7	153.4	5000.0	-30.3 a
5478.00	H	0.0	1.0	42.5	34.0	4.2	34.4	46.3	206.6	5000.0	-27.7 a
6391.00	H	0.0	1.0	41.7	36.1	4.2	34.6	47.3	232.3	5000.0	-26.7 a
7304.00	H	0.0	1.0	42.3	37.9	4.6	34.8	50.0	314.8	5000.0	-24.0 a
8217.00	H	0.0	1.0	42.3	38.5	4.9	34.2	51.5	377.5	5000.0	-22.4 a
9130.00	H	0.0	1.0	42.7	39.1	4.9	33.0	53.7	486.3	5000.0	-20.2 a
1826.00	V	0.0	1.0	60.7	28.3	3.1	34.1	58.1	802.6	5000.0	-15.9
2739.00	V	0.0	1.0	47.7	30.3	2.9	34.4	46.4	209.8	5000.0	-27.5
3652.00	V	0.0	1.0	47.5	31.4	2.8	34.6	47.1	225.8	5000.0	-26.9
4565.00	V	0.0	1.0	41.5	32.5	3.8	34.5	43.2	144.8	5000.0	-30.8 a

Frequency (MHz)	Polarity H/V	Azimuth Degree	Ant. Hght (m)	SA Level (QP) (dBµV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Corr. Level (dBµV/m)	Corr. Level (µV/m)	Limit (µV/m)	Margin dB
5478.00	V	0.0	1.0	42.3	34.0	4.2	34.4	46.1	202.6	5000.0	-27.8 a
6391.00	V	0.0	1.0	41.8	36.1	4.2	34.6	47.5	236.6	5000.0	-26.5 a
7304.00	V	0.0	1.0	42.3	37.9	4.6	34.8	49.9	313.7	5000.0	-24.1 a
8217.00	V	0.0	1.0	42.3	38.5	4.9	34.2	51.5	377.5	5000.0	-22.4 a
9130.00	V	0.0	1.0	43.7	39.1	4.9	33.0	54.7	543.8	5000.0	-19.3 a
EUT Hor Chan 8 913 MHZ											
1853.00	H	180.0	1.0	62.0	28.4	3.2	34.0	59.6	951.3	5000.0	-14.4
2779.50	H	180.0	1.0	49.7	30.4	2.9	34.5	48.5	264.7	5000.0	-25.5
3706.00	H	180.0	1.0	46.5	31.4	2.8	34.6	46.1	202.4	5000.0	-27.9
4632.50	H	180.0	1.0	41.5	32.6	3.9	34.5	43.4	148.2	5000.0	-30.6 a
5559.00	H	0.0	1.0	42.0	34.2	4.2	34.4	45.9	198.0	5000.0	-28.0 a
6485.50	H	0.0	1.0	43.0	36.3	4.2	34.6	48.9	278.2	5000.0	-25.1 a
7412.00	H	0.0	1.0	42.5	37.9	4.6	34.7	50.3	327.5	5000.0	-23.7 a
8338.50	H	0.0	1.0	41.8	38.6	4.9	34.0	51.3	367.6	5000.0	-22.7 a
9265.00	H	0.0	1.0	40.7	39.2	5.0	33.0	51.9	394.1	5000.0	-22.1 a
1853.00	V	180.0	1.0	54.7	28.4	3.2	34.0	52.2	409.1	5000.0	-21.7
2779.50	V	225.0	1.0	52.2	30.4	2.9	34.5	51.0	353.0	5000.0	-23.0
3706.00	V	180.0	1.0	45.2	31.4	2.8	34.6	44.8	173.7	5000.0	-29.2
4632.50	V	180.0	1.0	42.7	32.6	3.9	34.5	44.6	169.6	5000.0	-29.4 a
5559.00	V	180.0	1.0	41.3	34.2	4.2	34.4	45.3	183.3	5000.0	-28.7 a
6485.50	V	0.0	1.0	42.3	36.3	4.2	34.6	48.2	257.5	5000.0	-25.8 a
7412.00	V	0.0	1.0	41.0	37.9	4.6	34.7	48.8	275.6	5000.0	-25.2 a
8338.50	V	0.0	1.0	41.8	38.6	4.9	34.0	51.3	367.6	5000.0	-22.7 a
9265.00	V	0.0	1.0	43.0	39.2	5.0	33.0	54.2	513.5	5000.0	-19.8 a
EUT Upright											
1853.00	H	180.0	1.0	54.7	28.4	3.2	34.0	52.2	409.1	5000.0	-21.7
2779.50	H	180.0	1.0	55.0	30.4	2.9	34.5	53.8	488.9	5000.0	-20.2
3706.00	H	180.0	1.0	48.2	31.4	2.8	34.6	47.8	245.3	5000.0	-26.2
4632.50	H	180.0	1.0	42.5	32.6	3.9	34.5	44.4	166.3	5000.0	-29.6 a
5559.00	H	180.0	1.0	41.3	34.2	4.2	34.4	45.3	183.3	5000.0	-28.7 a
6485.50	H	0.0	1.0	41.3	36.3	4.2	34.6	47.2	229.5	5000.0	-26.8 a
7412.00	H	0.0	1.0	41.2	37.9	4.6	34.7	49.0	281.0	5000.0	-25.0 a
8338.50	H	0.0	1.0	41.3	38.6	4.9	34.0	50.8	347.0	5000.0	-23.2 a
9265.00	H	0.0	1.0	41.6	39.2	5.0	33.0	52.8	437.1	5000.0	-21.2 a
1853.00	V	180.0	1.0	60.2	28.4	3.2	34.0	57.7	770.6	5000.0	-16.2
2779.50	V	135.0	1.0	46.8	30.4	2.9	34.5	45.6	190.9	5000.0	-28.4
3706.00	V	180.0	1.0	48.2	31.4	2.8	34.6	47.8	245.3	5000.0	-26.2
4632.50	V	180.0	1.0	42.0	32.6	3.9	34.5	43.9	157.0	5000.0	-30.1 a
5559.00	V	0.0	1.0	41.8	34.2	4.2	34.4	45.8	194.2	5000.0	-28.2 a
6485.50	V	0.0	1.0	42.7	36.3	4.2	34.6	48.6	267.8	5000.0	-25.4 a
7412.00	V	0.0	1.0	41.0	37.9	4.6	34.7	48.8	275.6	5000.0	-25.2 a

Frequency (MHz)	Polarity H/V	Azimuth Degree	Ant. Hght (m)	SA Level (QP) (dBμV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Amp Gain (dB)	Corr. Level (dBμV/m)	Corr. Level (μV/m)	Limit (μV/m)	Margin dB
8338.50	V	0.0	1.0	41.0	38.6	4.9	34.0	50.5	334.1	5000.0	-23.5 a
9265.00	V	0.0	1.0	42.7	39.2	5.0	33.0	53.9	494.4	5000.0	-20.1 a
EUT Sideways											
1853.00	H	180.0	1.0	53.3	28.4	3.2	34.0	50.9	350.6	5000.0	-23.1
2779.50	H	180.0	1.0	46.8	30.4	2.9	34.5	45.6	190.9	5000.0	-28.4
3706.00	H	180.0	1.0	49.3	31.4	2.8	34.6	49.0	280.4	5000.0	-25.0
4632.50	H	180.0	1.0	42.7	32.6	3.9	34.5	44.6	169.6	5000.0	-29.4 a
5559.00	H	0.0	1.0	41.8	34.2	4.2	34.4	45.8	194.2	5000.0	-28.2 a
6485.50	H	0.0	1.0	41.8	36.3	4.2	34.6	47.7	243.1	5000.0	-26.3 a
7412.00	H	0.0	1.0	42.3	37.9	4.6	34.7	50.1	321.2	5000.0	-23.8 a
8338.50	H	0.0	1.0	42.2	38.6	4.9	34.0	51.6	382.2	5000.0	-22.3 a
9265.00	H	0.0	1.0	41.8	39.2	5.0	33.0	53.0	448.8	5000.0	-20.9 a
1853.00	V	180.0	1.0	59.8	28.4	3.2	34.0	57.4	741.0	5000.0	-16.6
2779.50	V	135.0	1.0	49.0	30.4	2.9	34.5	47.8	245.0	5000.0	-26.2
3706.00	V	180.0	1.0	48.3	31.4	2.8	34.6	48.0	249.9	5000.0	-26.0
4632.50	V	180.0	1.0	40.2	32.6	3.9	34.5	42.1	127.1	5000.0	-31.9 a
5559.00	V	0.0	1.0	41.3	34.2	4.2	34.4	45.2	182.7	5000.0	-28.7 a
6485.50	V	0.0	1.0	40.7	36.3	4.2	34.6	46.6	212.7	5000.0	-27.4 a
7412.00	V	0.0	1.0	43.8	37.9	4.6	34.7	51.6	381.7	5000.0	-22.3 a
8338.50	V	0.0	1.0	40.5	38.6	4.9	34.0	50.0	315.4	5000.0	-24.0 a
9265.00	V	0.0	1.0	41.7	39.2	5.0	33.0	52.9	442.2	5000.0	-21.1 a