



FCC Certification Test Report
for
Mad Catz, Inc.
P25WSMC8246B1103C

March 20, 2003

Prepared for:

Mad Catz, Inc.
7480 Mission Valley Road
San Diego, CA 92108

Prepared By:

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Gaithersburg, Maryland 20879



FCC Certification Test Program

**FCC Certification Test Report
for the
Mad Catz, Inc.
Model 8246 (D2038P) Lynx Wireless Controller
P25WSMC8246B1103C**

March 20, 2003

WLL JOB# 7417

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Abstract

This report has been prepared on behalf of Mad Catz, Inc. to support the attached Application for Equipment Authorization. The test report and application are submitted for a Low Powered Transceiver 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 Mad Catz, Inc. Model 8246 (D2038P) Lynx 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 Mad Catz, Inc. Model 8246 (D2038P) Lynx Wireless Controller complies with the limits for a Low Powered Transceiver device under Part 15.249 of the FCC Rules and Regulations.

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1 Introduction

1.1 Compliance Statement

The Mad Catz, Inc. Model 8246 (D2038P) Lynx Wireless Controller complies with the limits for a Low Powered Transceiver device under Part 15.249 of the FCC Rules and Regulations.

1.2 Test Scope

Tests for radiated 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 (USA): Mad Catz, Inc.
7480 Mission Valley Road
San Diego, CA 92108

Customer (Asia) Mad Catz (Asia) Ltd.
(Grantee Holder) Unit 1717-19, 17/F., Grand Central Plaza,
Tower 2, 138 Shatin Rural Committee Road,
Shatin, Hong Kong

Purchase Order Number: 021003-01

Quotation Number: 60637

1.4 Test Dates

Testing was performed from February 12, 2003 to February 17, 2003.

1.5 Test and Support Personnel

Washington Laboratories, LTD

Greg Snyder, 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 Mad Catz, Inc. Model 8246 (D2038P) Lynx Wireless Controller is part of the wireless controller system for the Sony™ PlayStation 2® video game system. The D2038P Wireless Controller replaces the hard-wired controller, and transmits and receives play commands to the Mad Catz system interface (the D2038H Host, separate certification, FCC ID: P25WSMC8246B1103R).

The RF controller pad is battery powered and has 4 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:	Mad Catz, Inc.
FCC ID Number	P25WSMC8246B1103C
EUT Name:	Lynx Wireless Controller
Model:	Model 8246 (D2038P)
FCC Rule Parts:	§15.249
Frequency Range:	906 MHz to 926.5 MHz: CH1 ~906M, CH2 ~926.5M, CH3 ~920M and CH4 ~913MHz
Maximum Output Power:	<1mW
Modulation:	FSK
Occupied Bandwidth:	223.5kHz
Keying:	Manual
Type of Information:	Control
Number of Channels:	4
Power Output Level	Fixed
Antenna Type	Fixed/Integral
Interface Cables:	None
Power Source & Voltage:	3Vdc from batteries

2.2 Test Configuration

The Model 8246 (D2038P) Controller was configured with a Sony PlayStation 2 game console, a television set, and a Mad Catz 8246 (D2038H) Host game console interface.

2.3 Testing Algorithm

The Model 8246 (D2038P) Controller was operated continuously by transmitting play commands to the interface/game console.

The D2038P, PlayStation 2 and television were powered on and a game was inserted into the PlayStation 2. Once communication was established the D2038P continuously transmitted to the D2038H (Host) connected to the PlayStation 2 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
Antenna Research Associates DRG-118/A	Horn Antenna	1010	00004	10/20/03
Antenna Research Associates LPB-2520	Biconilog Antenna Site 2	1044	00007	6/19/03
Hewlett Packard 8449B	Pre-Amplifier	3008A00729	00066	2/11/04
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.

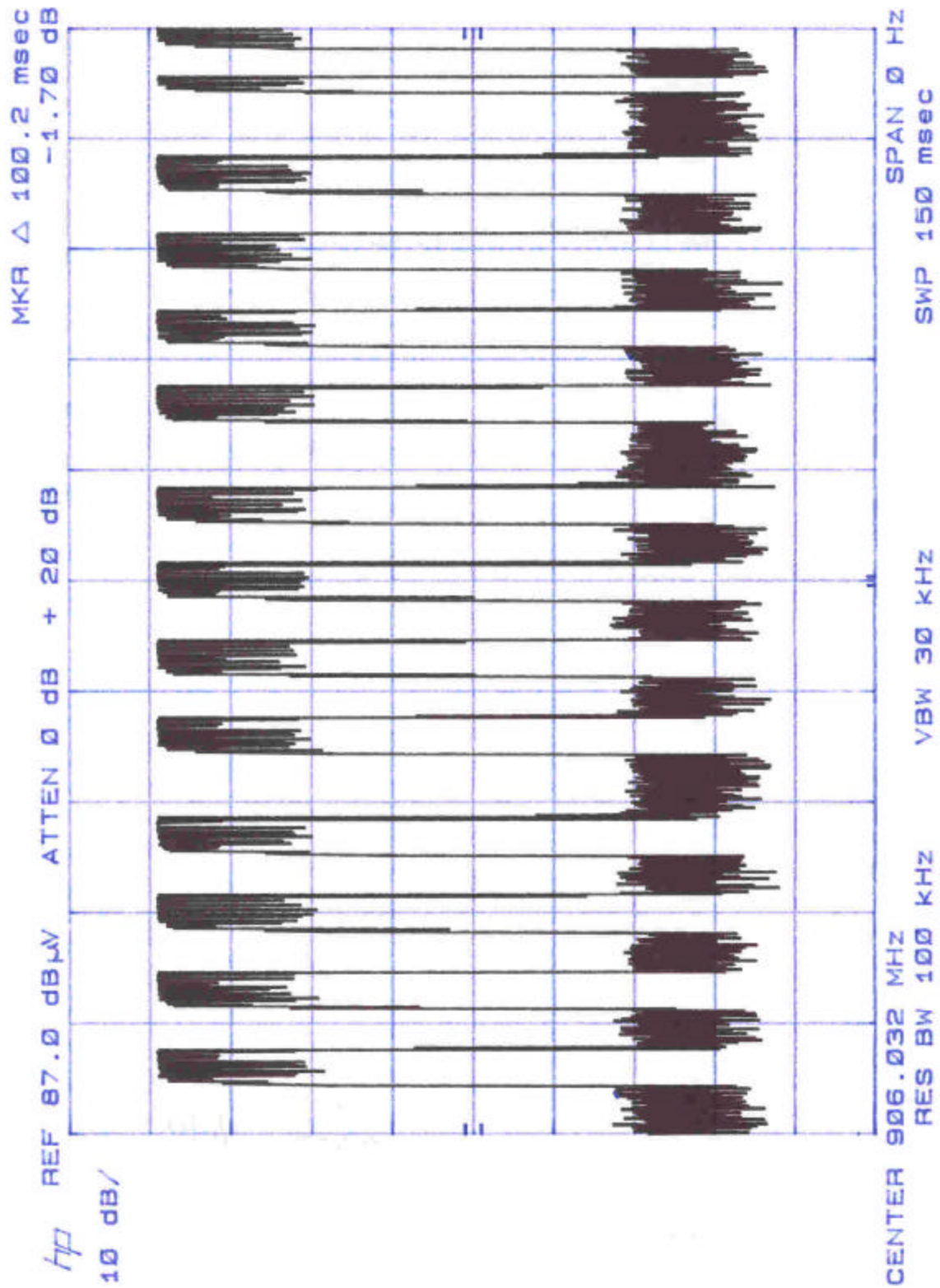


Figure 1. Duty Cycle Plot Full Period

From the data in Figure 1 the following calculations are made.

Pulse Width = 4.92ms

On Time Per 100ms (worst case):

$9 \times 4.92\text{ms} = 44.28\text{ms}$

Duty cycle calculation:

$44.28\text{ms}/100\text{ms} = 44.28\% \text{ on time} = -7.1\text{dB duty cycle correction}$

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 as shown:

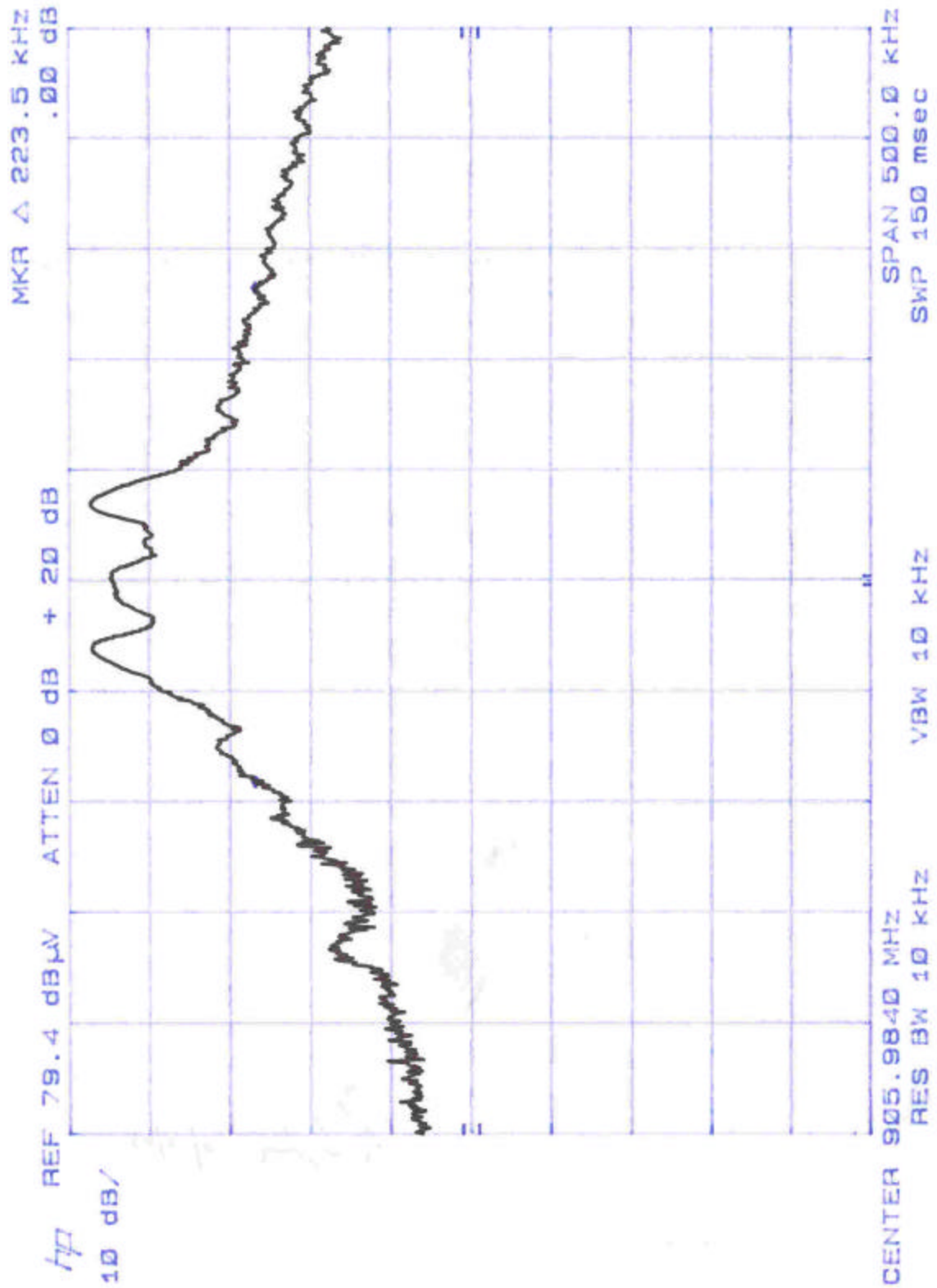


Figure 2. Occupied Bandwidth, Low Channel

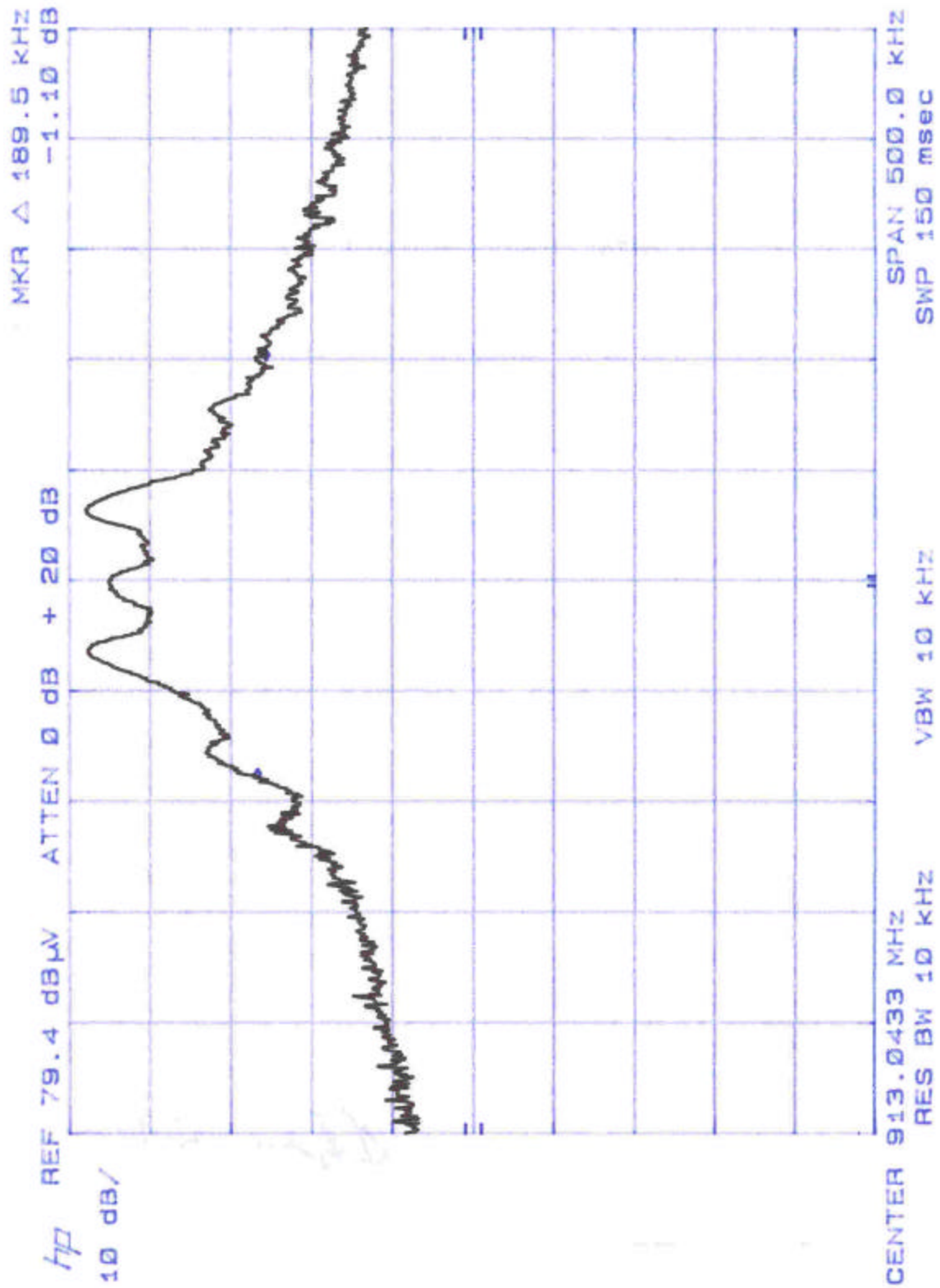


Figure 3. Occupied Bandwidth, Mid Channel

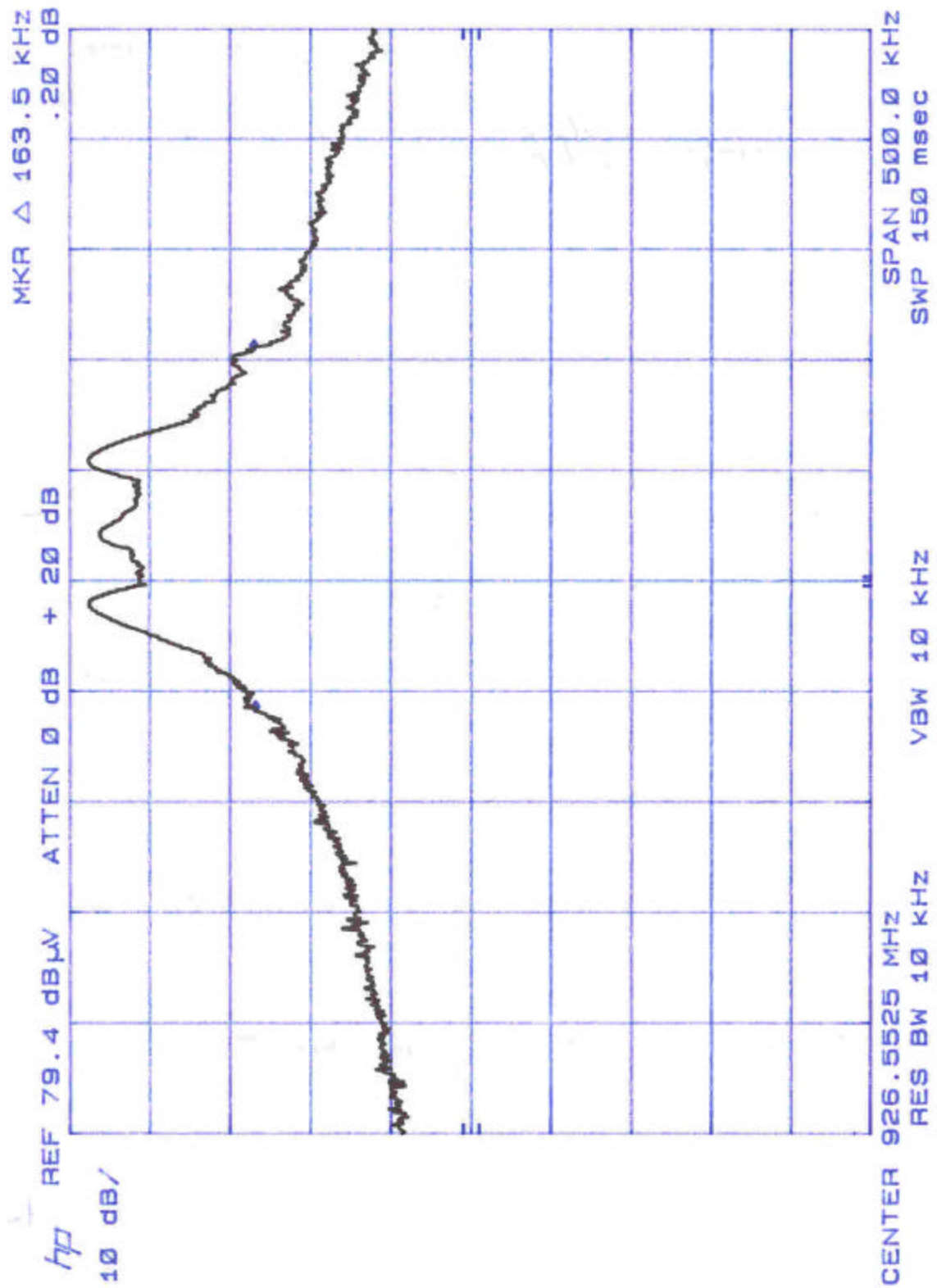


Figure 4. Occupied Bandwidth, High Channel

Table 3 provides a summary of the Occupied Bandwidth Results.

Table 3. Occupied Bandwidth Results

Frequency	Bandwidth
Low Channel 905.984MHz	223.5kHz
Mid Channel 913.043MHz	189.5kHz
High Channel 926.552MHz	163.5kHz

4.3 Radiated Emissions: (FCC Part §2.1053)

The EUT must comply with requirements for radiated emissions. 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. 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): $Ed_{\text{dB}\mu\text{V/m}} = V_{\text{dB}\mu\text{V}} + AF_{\text{dB/m}} + CC_{\text{dB}} + DCC_{\text{dB}} - G_{\text{dB}}$

Table 5: Radiated Emission Test Data

CLIENT:	Mad Catz	DATE:	2/14/2003
TESTER:	Ken Gemmell	JOB #:	7417
<u>EUT Information:</u>		<u>Test Requirements:</u>	
EUT:	Lynx Wireless Controller	TEST STD:	FCC Part 15
CONFIGURATION:	Modulated Carrier	DISTANCE:	3m
CLOCKS:		CLASS:	B
<u>Test Equipment/Limit:</u>			
ANTENNA:	A_00382	CABLE:	CSITE1_3m
LIMIT:	LFCC_3m_Class_B	AMPLIFIER (dB)	0

Frequency (MHz)	Polarity H/V	Azimuth Degree	Ant. Height (m)	SA Level (QP) (dBuV)	Ant. Corr. (dB/m)	Cable Corr. (dB)	Corr. Level (dBuV/m)	Corr. Level (uV/m)	Limit (uV/m)	Margin dB	Orth. Plane
Channel 1 (906 Mhz)											
906.00	V	225.0	1.0	60.9	22.2	6.7	89.8	30812.0	50000.0	-4.2	Z
906.00	H	135.0	1.0	62.7	22.2	6.7	91.6	37907.0	50000.0	-2.4	X
Channel 2 (926.5 Mhz)											
926.50	H	180.0	1.0	60.5	22.8	6.9	90.2	32270.0	50000.0	-3.8	Z
926.50	V	225.0	1.0	61.0	22.8	6.9	90.7	34182.1	50000.0	-3.3	Y
Channel 4 (913 Mhz)											
913.00	V	135.0	1.0	59.5	22.4	6.8	88.7	27333.0	50000.0	-5.2	Y
913.00	H	180.0	1.0	60.2	22.4	6.8	89.4	29627.0	50000.0	-4.5	Y

Table 6. Radiated Emissions Data, Average Above 1GHz

CLIENT: Mad Catz DATE: 2/14/03
TESTER: Ken Gemmell JOB #: 7417
EUT: Lynx Wireless Controller TEST STD: FCC Part 15.249
DISTANCE: 3m LIMIT: LFCC_3m_Class_B
ANTENNA: A_00004 CABLE: CSITE1_HF AMPLIFIER (dB) A_00066

Frequency	Pol	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
Channel 1 (906 MHz) (Position: Flat)												
1812.00	V	180.0	1.0	58.7	28.3	2.4	35.6	-7.1	46.7	216.6	500.0	-7.3
2718.00	V	180.0	1.0	47.1	30.3	3.2	35.6	-7.1	37.8	77.9	500.0	-16.1
3624.00	V	180.0	1.0	42.7	31.4	3.7	35.5	-7.1	35.2	57.7	500.0	-18.8
4530.00	V	180.0	1.0	42.5	32.4	4.0	35.7	-7.1	36.1	63.8	500.0	-17.9
5436.00	V	180.0	1.0	41.1	33.9	4.2	35.8	-7.1	36.4	65.9	500.0	-17.6
6342.00	V	180.0	1.0	35.7	35.9	4.6	35.6	-7.1	33.6	48.0	500.0	-20.3
7248.00	V	180.0	1.0	38.2	37.8	5.0	35.9	-7.1	38.1	80.3	500.0	-15.9
8154.00	V	180.0	1.0	43.4	38.5	5.3	36.1	-7.1	44.0	157.8	500.0	-10.0
9060.00	V	180.0	1.0	39.3	39.1	5.5	36.2	-7.1	40.6	106.8	500.0	-13.4
1812.00	H	180.0	1.0	58.2	28.3	2.4	35.6	-7.1	46.2	204.5	500.0	-7.8
2718.00	H	180.0	1.0	48.4	30.3	3.2	35.6	-7.1	39.1	90.5	500.0	-14.8
3624.00	H	180.0	1.0	44.7	31.4	3.7	35.5	-7.1	37.2	72.6	500.0	-16.8
4530.00	H	180.0	1.0	43.6	32.4	4.0	35.7	-7.1	37.2	72.4	500.0	-16.8
5436.00	H	180.0	1.0	39.1	33.9	4.2	35.8	-7.1	34.4	52.3	500.0	-19.6
6342.00	H	180.0	1.0	42.6	35.9	4.6	35.6	-7.1	40.5	106.3	500.0	-13.4
7248.00	H	180.0	1.0	37.6	37.8	5.0	35.9	-7.1	37.5	74.9	500.0	-16.5
8154.00	H	180.0	1.0	43.8	38.5	5.3	36.1	-7.1	44.4	165.3	500.0	-9.6
9060.00	H	180.0	1.0	39.2	39.1	5.5	36.2	-7.1	40.5	105.6	500.0	-13.5
Position: Upright												
1812.00	V	180.0	1.0	54.3	28.3	2.4	35.6	-7.1	42.3	130.5	500.0	-11.7
2718.00	V	180.0	1.0	48.5	30.3	3.2	35.6	-7.1	39.2	91.5	500.0	-14.7
3624.00	V	180.0	1.0	44.5	31.4	3.7	35.5	-7.1	37.0	71.0	500.0	-17.0
4530.00	V	180.0	1.0	43.7	32.4	4.0	35.7	-7.1	37.3	73.3	500.0	-16.7
5436.00	V	180.0	1.0	42.4	33.9	4.2	35.8	-7.1	37.7	76.5	500.0	-16.3
6342.00	V	180.0	1.0	39.8	35.9	4.6	35.6	-7.1	37.7	77.0	500.0	-16.2
7248.00	V	180.0	1.0	40.7	37.8	5.0	35.9	-7.1	40.6	107.0	500.0	-13.4
8154.00	V	180.0	1.0	39.7	38.5	5.3	36.1	-7.1	40.3	103.1	500.0	-13.7
9060.00	V	180.0	1.0	40.1	39.1	5.5	36.2	-7.1	41.4	117.1	500.0	-12.6
1812.00	H	180.0	1.0	58.6	28.3	2.4	35.6	-7.1	46.6	214.1	500.0	-7.4
2718.00	H	180.0	1.0	47.8	30.3	3.2	35.6	-7.1	38.5	84.4	500.0	-15.4
3624.00	H	180.0	1.0	44.8	31.4	3.7	35.5	-7.1	37.3	73.5	500.0	-16.7
4530.00	H	180.0	1.0	38.8	32.4	4.0	35.7	-7.1	32.4	41.7	500.0	-21.6
5436.00	H	180.0	1.0	44.5	33.9	4.2	35.8	-7.1	39.8	97.4	500.0	-14.2
6342.00	H	180.0	1.0	39.4	35.9	4.6	35.6	-7.1	37.3	73.5	500.0	-16.6

Frequency	Pol	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
7248.00	H	180.0	1.0	38.3	37.8	5.0	35.9	-7.1	38.2	81.2	500.0	-15.8
8154.00	H	180.0	1.0	44.1	38.5	5.3	36.1	-7.1	44.7	171.1	500.0	-9.3
9060.00	H	180.0	1.0	41.3	39.1	5.5	36.2	-7.1	42.6	134.5	500.0	-11.4
Position: Sideways												
1812.00	V	180.0	1.0	56.9	28.3	2.4	35.6	-7.1	44.9	176.0	500.0	-9.1
2718.00	V	180.0	1.0	47.4	30.3	3.2	35.6	-7.1	38.1	80.6	500.0	-15.8
3624.00	V	180.0	1.0	41.5	31.4	3.7	35.5	-7.1	34.0	50.2	500.0	-20.0
4530.00	V	180.0	1.0	43.4	32.4	4.0	35.7	-7.1	37.0	70.8	500.0	-17.0
5436.00	V	180.0	1.0	38.8	33.9	4.2	35.8	-7.1	34.1	50.6	500.0	-19.9
6342.00	V	180.0	1.0	41.3	35.9	4.6	35.6	-7.1	39.2	91.5	500.0	-14.7
7248.00	V	180.0	1.0	43.3	37.8	5.0	35.9	-7.1	43.2	144.4	500.0	-10.8
8154.00	V	180.0	1.0	39.0	38.5	5.3	36.1	-7.1	39.6	95.1	500.0	-14.4
9060.00	V	180.0	1.0	39.2	39.1	5.5	36.2	-7.1	40.5	105.6	500.0	-13.5
1812.00	H	180.0	1.0	59.1	28.3	2.4	35.6	-7.1	47.1	226.8	500.0	-6.9
2718.00	H	180.0	1.0	45.0	30.3	3.2	35.6	-7.1	35.7	61.2	500.0	-18.2
3624.00	H	180.0	1.0	46.5	31.4	3.7	35.5	-7.1	39.0	89.4	500.0	-15.0
4530.00	H	180.0	1.0	40.0	32.4	4.0	35.7	-7.1	33.6	47.9	500.0	-20.4
5436.00	H	180.0	1.0	42.4	33.9	4.2	35.8	-7.1	37.7	76.5	500.0	-16.3
6342.00	H	180.0	1.0	40.1	35.9	4.6	35.6	-7.1	38.0	79.7	500.0	-15.9
7248.00	H	180.0	1.0	43.0	37.8	5.0	35.9	-7.1	42.9	139.5	500.0	-11.1
8154.00	H	180.0	1.0	43.7	38.5	5.3	36.1	-7.1	44.3	163.4	500.0	-9.7
9060.00	H	180.0	1.0	39.7	39.1	5.5	36.2	-7.1	41.0	111.9	500.0	-13.0
Channel 2 (926.5 MHz) Position: Flat												
1853.00	V	180.0	1.0	56.9	28.4	2.4	35.6	-7.1	45.1	180.2	500.0	-8.9
2779.50	V	180.0	1.0	47.4	30.4	3.2	35.7	-7.1	38.3	81.8	500.0	-15.7
3706.00	V	180.0	1.0	41.5	31.4	3.7	35.5	-7.1	34.2	51.0	500.0	-19.8
4632.50	V	180.0	1.0	43.4	32.6	4.0	35.8	-7.1	37.1	71.5	500.0	-16.9
5559.00	V	180.0	1.0	38.8	34.2	4.3	35.7	-7.1	34.5	52.8	500.0	-19.5
6485.50	V	180.0	1.0	41.3	36.3	4.7	35.6	-7.1	39.6	95.7	500.0	-14.4
7412.00	V	180.0	1.0	43.3	37.9	5.1	35.9	-7.1	43.3	146.6	500.0	-10.7
8338.50	V	180.0	1.0	39.0	38.6	5.3	36.1	-7.1	39.7	96.8	500.0	-14.3
9265.00	V	180.0	1.0	39.2	39.2	5.6	36.3	-7.1	40.7	108.0	500.0	-13.3
1853.00	H	180.0	1.0	59.1	28.4	2.4	35.6	-7.1	47.3	232.2	500.0	-6.7
2779.50	H	180.0	1.0	45.0	30.4	3.2	35.7	-7.1	35.9	62.1	500.0	-18.1
3706.00	H	180.0	1.0	46.5	31.4	3.7	35.5	-7.1	39.2	90.7	500.0	-14.8
4632.50	H	180.0	1.0	40.0	32.6	4.0	35.8	-7.1	33.7	48.4	500.0	-20.3
5559.00	H	180.0	1.0	42.4	34.2	4.3	35.7	-7.1	38.1	79.9	500.0	-15.9
6485.50	H	180.0	1.0	40.1	36.3	4.7	35.6	-7.1	38.4	83.4	500.0	-15.6
7412.00	H	180.0	1.0	43.0	37.9	5.1	35.9	-7.1	43.0	141.6	500.0	-11.0
8338.50	H	180.0	1.0	43.7	38.6	5.3	36.1	-7.1	44.4	166.3	500.0	-9.6
9265.00	H	180.0	1.0	39.7	39.2	5.6	36.3	-7.1	41.2	114.4	500.0	-12.8
Position: Upright												
1853.00	V	180.0	1.0	57.1	28.4	2.4	35.6	-7.1	45.3	184.4	500.0	-8.7

Frequency	Pol	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
2779.50	V	180.0	1.0	47.3	30.4	3.2	35.7	-7.1	38.2	80.9	500.0	-15.8
3706.00	V	180.0	1.0	41.2	31.4	3.7	35.5	-7.1	33.9	49.3	500.0	-20.1
4632.50	V	180.0	1.0	44.7	32.6	4.0	35.8	-7.1	38.4	83.1	500.0	-15.6
5559.00	V	180.0	1.0	40.6	34.2	4.3	35.7	-7.1	36.3	65.0	500.0	-17.7
6485.50	V	180.0	1.0	40.7	36.3	4.7	35.6	-7.1	39.0	89.3	500.0	-15.0
7412.00	V	180.0	1.0	40.1	37.9	5.1	35.9	-7.1	40.1	101.4	500.0	-13.9
8338.50	V	180.0	1.0	42.6	38.6	5.3	36.1	-7.1	43.3	146.5	500.0	-10.7
9265.00	V	180.0	1.0	38.0	39.2	5.6	36.3	-7.1	39.5	94.1	500.0	-14.5
1853.00	H	180.0	1.0	57.8	28.4	2.4	35.6	-7.1	46.0	199.9	500.0	-8.0
2779.50	H	180.0	1.0	48.6	30.4	3.2	35.7	-7.1	39.5	94.0	500.0	-14.5
3706.00	H	180.0	1.0	48.3	31.4	3.7	35.5	-7.1	41.0	111.6	500.0	-13.0
4632.50	H	180.0	1.0	41.7	32.6	4.0	35.8	-7.1	35.4	58.8	500.0	-18.6
5559.00	H	180.0	1.0	40.8	34.2	4.3	35.7	-7.1	36.5	66.5	500.0	-17.5
6485.50	H	180.0	1.0	39.7	36.3	4.7	35.6	-7.1	38.0	79.6	500.0	-16.0
7412.00	H	180.0	1.0	40.4	37.9	5.1	35.9	-7.1	40.4	105.0	500.0	-13.6
8338.50	H	180.0	1.0	40.8	38.6	5.3	36.1	-7.1	41.5	119.1	500.0	-12.5
9265.00	H	180.0	1.0	43.4	39.2	5.6	36.3	-7.1	44.9	175.2	500.0	-9.1
Position: Sideways												
1853.00	V	180.0	1.0	58.0	28.4	2.4	35.6	-7.1	46.2	204.5	500.0	-7.8
2779.50	V	180.0	1.0	45.9	30.4	3.2	35.7	-7.1	36.8	68.9	500.0	-17.2
3706.00	V	180.0	1.0	41.1	31.4	3.7	35.5	-7.1	33.8	48.7	500.0	-20.2
4632.50	V	180.0	1.0	45.7	32.6	4.0	35.8	-7.1	39.4	93.2	500.0	-14.6
5559.00	V	180.0	1.0	38.8	34.2	4.3	35.7	-7.1	34.5	52.8	500.0	-19.5
6485.50	V	180.0	1.0	38.5	36.3	4.7	35.6	-7.1	36.8	69.3	500.0	-17.2
7412.00	V	180.0	1.0	42.8	37.9	5.1	35.9	-7.1	42.8	138.4	500.0	-11.2
8338.50	V	180.0	1.0	40.7	38.6	5.3	36.1	-7.1	41.4	117.7	500.0	-12.6
9265.00	V	180.0	1.0	36.3	39.2	5.6	36.3	-7.1	37.8	77.3	500.0	-16.2
1853.00	H	180.0	1.0	56.8	28.4	2.4	35.6	-7.1	45.0	178.1	500.0	-9.0
2779.50	H	180.0	1.0	45.7	30.4	3.2	35.7	-7.1	36.6	67.3	500.0	-17.4
3706.00	H	180.0	1.0	47.9	31.4	3.7	35.5	-7.1	40.6	106.6	500.0	-13.4
4632.50	H	180.0	1.0	39.6	32.6	4.0	35.8	-7.1	33.3	46.2	500.0	-20.7
5559.00	H	180.0	1.0	41.2	34.2	4.3	35.7	-7.1	36.9	69.6	500.0	-17.1
6485.50	H	180.0	1.0	39.1	36.3	4.7	35.6	-7.1	37.4	74.3	500.0	-16.6
7412.00	H	180.0	1.0	43.8	37.9	5.1	35.9	-7.1	43.8	155.3	500.0	-10.2
8338.50	H	180.0	1.0	43.7	38.6	5.3	36.1	-7.1	44.4	166.3	500.0	-9.6
9265.00	H	180.0	1.0	43.6	39.2	5.6	36.3	-7.1	45.1	179.2	500.0	-8.9
Channel 4 (913 MHz) Position: Flat												
1826.00	V	180.0	1.0	58.5	28.3	2.4	35.6	-7.1	46.6	213.2	500.0	-7.4
2739.00	V	180.0	1.0	49.2	30.3	3.2	35.6	-7.1	40.0	99.7	500.0	-14.0
3652.00	V	180.0	1.0	43.8	31.4	3.7	35.5	-7.1	36.4	65.8	500.0	-17.6
4565.00	V	180.0	1.0	43.5	32.5	4.0	35.8	-7.1	37.1	71.9	500.0	-16.8
5478.00	V	180.0	1.0	41.2	34.0	4.2	35.7	-7.1	36.6	67.6	500.0	-17.4
6391.00	V	180.0	1.0	38.6	36.1	4.7	35.6	-7.1	36.7	68.1	500.0	-17.3

Frequency	Pol	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
7304.00	V	180.0	1.0	43.3	37.9	5.0	35.9	-7.1	43.2	145.1	500.0	-10.7
8217.00	V	180.0	1.0	43.2	38.5	5.3	36.1	-7.1	43.8	155.2	500.0	-10.2
9130.00	V	180.0	1.0	41.2	39.1	5.5	36.2	-7.1	42.5	134.0	500.0	-11.4
1826.00	H	180.0	1.0	58.0	28.3	2.4	35.6	-7.1	46.1	201.3	500.0	-7.9
2739.00	H	180.0	1.0	48.9	30.3	3.2	35.6	-7.1	39.7	96.3	500.0	-14.3
3652.00	H	180.0	1.0	44.6	31.4	3.7	35.5	-7.1	37.2	72.2	500.0	-16.8
4565.00	H	180.0	1.0	42.4	32.5	4.0	35.8	-7.1	36.0	63.3	500.0	-17.9
5478.00	H	180.0	1.0	41.5	34.0	4.2	35.7	-7.1	36.9	70.0	500.0	-17.1
6391.00	H	180.0	1.0	40.0	36.1	4.7	35.6	-7.1	38.1	80.0	500.0	-15.9
7304.00	H	180.0	1.0	43.0	37.9	5.0	35.9	-7.1	42.9	140.2	500.0	-11.0
8217.00	H	180.0	1.0	43.7	38.5	5.3	36.1	-7.1	44.3	164.4	500.0	-9.7
9130.00	H	180.0	1.0	42.1	39.1	5.5	36.2	-7.1	43.4	148.6	500.0	-10.5
Position: Upright												
1826.00	V	180.0	1.0	59.2	28.3	2.4	35.6	-7.1	47.3	231.1	500.0	-6.7
2739.00	V	180.0	1.0	49.4	30.3	3.2	35.6	-7.1	40.2	102.0	500.0	-13.8
3652.00	V	180.0	1.0	43.3	31.4	3.7	35.5	-7.1	35.9	62.1	500.0	-18.1
4565.00	V	180.0	1.0	44.9	32.5	4.0	35.8	-7.1	38.5	84.4	500.0	-15.4
5478.00	V	180.0	1.0	42.6	34.0	4.2	35.7	-7.1	38.0	79.5	500.0	-16.0
6391.00	V	180.0	1.0	39.6	36.1	4.7	35.6	-7.1	37.7	76.4	500.0	-16.3
7304.00	V	180.0	1.0	43.1	37.9	5.0	35.9	-7.1	43.0	141.8	500.0	-10.9
8217.00	V	180.0	1.0	42.5	38.5	5.3	36.1	-7.1	43.1	143.2	500.0	-10.9
9130.00	V	180.0	1.0	39.5	39.1	5.5	36.2	-7.1	40.8	110.2	500.0	-13.1
1826.00	H	180.0	1.0	59.9	28.3	2.4	35.6	-7.1	48.0	250.5	500.0	-6.0
2739.00	H	180.0	1.0	48.0	30.3	3.2	35.6	-7.1	38.8	86.8	500.0	-15.2
3652.00	H	180.0	1.0	46.5	31.4	3.7	35.5	-7.1	39.1	89.8	500.0	-14.9
4565.00	H	180.0	1.0	41.9	32.5	4.0	35.8	-7.1	35.5	59.8	500.0	-18.4
5478.00	H	180.0	1.0	42.6	34.0	4.2	35.7	-7.1	38.0	79.5	500.0	-16.0
6391.00	H	180.0	1.0	41.5	36.1	4.7	35.6	-7.1	39.6	95.1	500.0	-14.4
7304.00	H	180.0	1.0	42.0	37.9	5.0	35.9	-7.1	41.9	125.0	500.0	-12.0
8217.00	H	180.0	1.0	43.7	38.5	5.3	36.1	-7.1	44.3	164.4	500.0	-9.7
9130.00	H	180.0	1.0	42.3	39.1	5.5	36.2	-7.1	43.6	152.1	500.0	-10.3
Position: Sideways												
1826.00	V	180.0	1.0	57.9	28.3	2.4	35.6	-7.1	46.0	199.0	500.0	-8.0
2739.00	V	180.0	1.0	48.4	30.3	3.2	35.6	-7.1	39.2	90.9	500.0	-14.8
3652.00	V	180.0	1.0	44.1	31.4	3.7	35.5	-7.1	36.7	68.1	500.0	-17.3
4565.00	V	180.0	1.0	43.3	32.5	4.0	35.8	-7.1	36.9	70.2	500.0	-17.0
5478.00	V	180.0	1.0	43.5	34.0	4.2	35.7	-7.1	38.9	88.2	500.0	-15.1
6391.00	V	180.0	1.0	38.4	36.1	4.7	35.6	-7.1	36.5	66.6	500.0	-17.5
7304.00	V	180.0	1.0	44.5	37.9	5.0	35.9	-7.1	44.4	166.7	500.0	-9.5
8217.00	V	180.0	1.0	44.0	38.5	5.3	36.1	-7.1	44.6	170.2	500.0	-9.4
9130.00	V	180.0	1.0	41.3	39.1	5.5	36.2	-7.1	42.6	135.5	500.0	-11.3
1826.00	H	180.0	1.0	59.5	28.3	2.4	35.6	-7.1	47.6	239.3	500.0	-6.4
2739.00	H	180.0	1.0	49.6	30.3	3.2	35.6	-7.1	40.4	104.4	500.0	-13.6
3652.00	H	180.0	1.0	44.7	31.4	3.7	35.5	-7.1	37.3	73.0	500.0	-16.7

Frequency (MHz)	Pol 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
4565.00	H	180.0	1.0	40.4	32.5	4.0	35.8	-7.1	34.0	50.3	500.0	-19.9
5478.00	H	180.0	1.0	41.8	34.0	4.2	35.7	-7.1	37.2	72.5	500.0	-16.8
6391.00	H	180.0	1.0	40.4	36.1	4.7	35.6	-7.1	38.5	83.8	500.0	-15.5
7304.00	H	180.0	1.0	41.5	37.9	5.0	35.9	-7.1	41.4	118.0	500.0	-12.5
8217.00	H	180.0	1.0	43.7	38.5	5.3	36.1	-7.1	44.3	164.4	500.0	-9.7
9130.00	H	180.0	1.0	41.6	39.1	5.5	36.2	-7.1	42.9	140.3	500.0	-11.0

Table 7. Radiated Emissions Data, Peak Above 1GHz

CLIENT: Mad Catz
TESTER: Ken Gemmell
EUT: Lynx Wireless Controller
DISTANCE: 3m
ANTENNA: A_00004 CABLE: CSITE1_HF

DATE: 2/14/03
JOB #: 7417
TEST STD: FCC Part 15.249
LIMIT: LFCC_3m_Class_B
AMPLIFIER (dB): A_00066

Frequency (MHz)	Pol 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 1 (906 MHz) (Position: Flat)											
1812.00	V	180.0	1.0	58.7	28.3	2.4	35.6	53.8	489.8	5000	-20.2
2718.00	V	180.0	1.0	47.1	30.3	3.2	35.6	45	177.8	5000	-29.0
3624.00	V	180.0	1.0	42.7	31.4	3.7	35.5	42.3	130.3	5000	-31.7
4530.00	V	180.0	1.0	42.5	32.4	4.0	35.7	43.2	144.5	5000	-30.8
5436.00	V	180.0	1.0	41.1	33.9	4.2	35.8	43.4	147.9	5000	-30.6
6342.00	V	180.0	1.0	35.7	35.9	4.6	35.6	40.6	107.2	5000	-33.4
7248.00	V	180.0	1.0	38.2	37.8	5.0	35.9	45.1	179.9	5000	-28.9
8154.00	V	180.0	1.0	43.4	38.5	5.3	36.1	51.1	358.9	5000	-22.9
9060.00	V	180.0	1.0	39.3	39.1	5.5	36.2	47.7	242.7	5000	-26.3
1812.00	H	180.0	1.0	58.2	28.3	2.4	35.6	53.3	462.4	5000	-20.7
2718.00	H	180.0	1.0	48.4	30.3	3.2	35.6	46.3	206.5	5000	-27.7
3624.00	H	180.0	1.0	44.7	31.4	3.7	35.5	44.3	164.1	5000	-29.7
4530.00	H	180.0	1.0	43.6	32.4	4.0	35.7	44.3	164.1	5000	-29.7
5436.00	H	180.0	1.0	39.1	33.9	4.2	35.8	41.4	117.5	5000	-32.6
6342.00	H	180.0	1.0	42.6	35.9	4.6	35.6	47.5	237.1	5000	-26.5
7248.00	H	180.0	1.0	37.6	37.8	5.0	35.9	44.5	167.9	5000	-29.5
8154.00	H	180.0	1.0	43.8	38.5	5.3	36.1	51.5	375.8	5000	-22.5
9060.00	H	180.0	1.0	39.2	39.1	5.5	36.2	47.6	239.9	5000	-26.4
Position: Upright											
1812.00	V	180.0	1.0	54.3	28.3	2.4	35.6	49.4	295.1	5000	-24.6
2718.00	V	180.0	1.0	48.5	30.3	3.2	35.6	46.4	208.9	5000	-27.6
3624.00	V	180.0	1.0	44.5	31.4	3.7	35.5	44.1	160.3	5000	-29.9
4530.00	V	180.0	1.0	43.7	32.4	4.0	35.7	44.4	166.0	5000	-29.6
5436.00	V	180.0	1.0	42.4	33.9	4.2	35.8	44.7	171.8	5000	-29.3
6342.00	V	180.0	1.0	39.8	35.9	4.6	35.6	44.7	171.8	5000	-29.3
7248.00	V	180.0	1.0	40.7	37.8	5.0	35.9	47.6	239.9	5000	-26.4

Frequency (MHz)	Pol 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
8154.00	V	180.0	1.0	39.7	38.5	5.3	36.1	47.4	234.4	5000	-26.6
9060.00	V	180.0	1.0	40.1	39.1	5.5	36.2	48.5	266.1	5000	-25.5
1812.00	H	180.0	1.0	58.6	28.3	2.4	35.6	53.7	484.2	5000	-20.3
2718.00	H	180.0	1.0	47.8	30.3	3.2	35.6	45.7	192.8	5000	-28.3
3624.00	H	180.0	1.0	44.8	31.4	3.7	35.5	44.4	166.0	5000	-29.6
4530.00	H	180.0	1.0	38.8	32.4	4.0	35.7	39.5	94.4	5000	-34.5
5436.00	H	180.0	1.0	44.5	33.9	4.2	35.8	46.8	218.8	5000	-27.2
6342.00	H	180.0	1.0	39.4	35.9	4.6	35.6	44.3	164.1	5000	-29.7
7248.00	H	180.0	1.0	38.3	37.8	5.0	35.9	45.2	182.0	5000	-28.8
8154.00	H	180.0	1.0	44.1	38.5	5.3	36.1	51.8	389.0	5000	-22.2
9060.00	H	180.0	1.0	41.3	39.1	5.5	36.2	49.7	305.5	5000	-24.3
Position: Sideways											
1812.00	V	180.0	1.0	56.9	28.3	2.4	35.6	52	398.1	5000	-22.0
2718.00	V	180.0	1.0	47.4	30.3	3.2	35.6	45.3	184.1	5000	-28.7
3624.00	V	180.0	1.0	41.5	31.4	3.7	35.5	41.1	113.5	5000	-32.9
4530.00	V	180.0	1.0	43.4	32.4	4.0	35.7	44.1	160.3	5000	-29.9
5436.00	V	180.0	1.0	38.8	33.9	4.2	35.8	41.1	113.5	5000	-32.9
6342.00	V	180.0	1.0	41.3	35.9	4.6	35.6	46.2	204.2	5000	-27.8
7248.00	V	180.0	1.0	43.3	37.8	5.0	35.9	50.2	323.6	5000	-23.8
8154.00	V	180.0	1.0	39.0	38.5	5.3	36.1	46.7	216.3	5000	-27.3
9060.00	V	180.0	1.0	39.2	39.1	5.5	36.2	47.6	239.9	5000	-26.4
1812.00	H	180.0	1.0	59.1	28.3	2.4	35.6	54.2	512.9	5000	-19.8
2718.00	H	180.0	1.0	45.0	30.3	3.2	35.6	42.9	139.6	5000	-31.1
3624.00	H	180.0	1.0	46.5	31.4	3.7	35.5	46.1	201.8	5000	-27.9
4530.00	H	180.0	1.0	40.0	32.4	4.0	35.7	40.7	108.4	5000	-33.3
5436.00	H	180.0	1.0	42.4	33.9	4.2	35.8	44.7	171.8	5000	-29.3
6342.00	H	180.0	1.0	40.1	35.9	4.6	35.6	45	177.8	5000	-29.0
7248.00	H	180.0	1.0	43.0	37.8	5.0	35.9	49.9	312.6	5000	-24.1
8154.00	H	180.0	1.0	43.7	38.5	5.3	36.1	51.4	371.5	5000	-22.6
9060.00	H	180.0	1.0	39.7	39.1	5.5	36.2	48.1	254.1	5000	-25.9
Channel 2 (926.5 MHz) Position: Flat											
1853.00	V	180.0	1.0	56.9	28.4	2.4	35.6	52.1	402.7	5000	-21.9
2779.50	V	180.0	1.0	47.4	30.4	3.2	35.7	45.3	184.1	5000	-28.7

Frequency (MHz)	Pol 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
3706.00	V	180.0	1.0	41.5	31.4	3.7	35.5	41.1	113.5	5000	-32.9
4632.50	V	180.0	1.0	43.4	32.6	4.0	35.8	44.2	162.2	5000	-29.8
5559.00	V	180.0	1.0	38.8	34.2	4.3	35.7	41.6	120.2	5000	-32.4
6485.50	V	180.0	1.0	41.3	36.3	4.7	35.6	46.7	216.3	5000	-27.3
7412.00	V	180.0	1.0	43.3	37.9	5.1	35.9	50.4	331.1	5000	-23.6
8338.50	V	180.0	1.0	39.0	38.6	5.3	36.1	46.8	218.8	5000	-27.2
9265.00	V	180.0	1.0	39.2	39.2	5.6	36.3	47.7	242.7	5000	-26.3
1853.00	H	180.0	1.0	59.1	28.4	2.4	35.6	54.3	518.8	5000	-19.7
2779.50	H	180.0	1.0	45.0	30.4	3.2	35.7	42.9	139.6	5000	-31.1
3706.00	H	180.0	1.0	46.5	31.4	3.7	35.5	46.1	201.8	5000	-27.9
4632.50	H	180.0	1.0	40.0	32.6	4.0	35.8	40.8	109.6	5000	-33.2
5559.00	H	180.0	1.0	42.4	34.2	4.3	35.7	45.2	182.0	5000	-28.8
6485.50	H	180.0	1.0	40.1	36.3	4.7	35.6	45.5	188.4	5000	-28.5
7412.00	H	180.0	1.0	43.0	37.9	5.1	35.9	50.1	319.9	5000	-23.9
8338.50	H	180.0	1.0	43.7	38.6	5.3	36.1	51.5	375.8	5000	-22.5
9265.00	H	180.0	1.0	39.7	39.2	5.6	36.3	48.2	257.0	5000	-25.8
Position: Upright											
1853.00	V	180.0	1.0	57.1	28.4	2.4	35.6	52.3	412.1	5000	-21.7
2779.50	V	180.0	1.0	47.3	30.4	3.2	35.7	45.2	182.0	5000	-28.8
3706.00	V	180.0	1.0	41.2	31.4	3.7	35.5	40.8	109.6	5000	-33.2
4632.50	V	180.0	1.0	44.7	32.6	4.0	35.8	45.5	188.4	5000	-28.5
5559.00	V	180.0	1.0	40.6	34.2	4.3	35.7	43.4	147.9	5000	-30.6
6485.50	V	180.0	1.0	40.7	36.3	4.7	35.6	46.1	201.8	5000	-27.9
7412.00	V	180.0	1.0	40.1	37.9	5.1	35.9	47.2	229.1	5000	-26.8
8338.50	V	180.0	1.0	42.6	38.6	5.3	36.1	50.4	331.1	5000	-23.6
9265.00	V	180.0	1.0	38.0	39.2	5.6	36.3	46.5	211.3	5000	-27.5
1853.00	H	180.0	1.0	57.8	28.4	2.4	35.6	53	446.7	5000	-21.0
2779.50	H	180.0	1.0	48.6	30.4	3.2	35.7	46.5	211.3	5000	-27.5
3706.00	H	180.0	1.0	48.3	31.4	3.7	35.5	47.9	248.3	5000	-26.1
4632.50	H	180.0	1.0	41.7	32.6	4.0	35.8	42.5	133.4	5000	-31.5
5559.00	H	180.0	1.0	40.8	34.2	4.3	35.7	43.6	151.4	5000	-30.4
6485.50	H	180.0	1.0	39.7	36.3	4.7	35.6	45.1	179.9	5000	-28.9
7412.00	H	180.0	1.0	40.4	37.9	5.1	35.9	47.5	237.1	5000	-26.5
8338.50	H	180.0	1.0	40.8	38.6	5.3	36.1	48.6	269.2	5000	-25.4

Frequency (MHz)	Pol 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
9265.00	H	180.0	1.0	43.4	39.2	5.6	36.3	51.9	393.6	5000	-22.1
Position: Sideways											
1853.00	V	180.0	1.0	58.0	28.4	2.4	35.6	53.2	457.1	5000	-20.8
2779.50	V	180.0	1.0	45.9	30.4	3.2	35.7	43.8	154.9	5000	-30.2
3706.00	V	180.0	1.0	41.1	31.4	3.7	35.5	40.7	108.4	5000	-33.3
4632.50	V	180.0	1.0	45.7	32.6	4.0	35.8	46.5	211.3	5000	-27.5
5559.00	V	180.0	1.0	38.8	34.2	4.3	35.7	41.6	120.2	5000	-32.4
6485.50	V	180.0	1.0	38.5	36.3	4.7	35.6	43.9	156.7	5000	-30.1
7412.00	V	180.0	1.0	42.8	37.9	5.1	35.9	49.9	312.6	5000	-24.1
8338.50	V	180.0	1.0	40.7	38.6	5.3	36.1	48.5	266.1	5000	-25.5
9265.00	V	180.0	1.0	36.3	39.2	5.6	36.3	44.8	173.8	5000	-29.2
1853.00	H	180.0	1.0	56.8	28.4	2.4	35.6	52	398.1	5000	-22.0
2779.50	H	180.0	1.0	45.7	30.4	3.2	35.7	43.6	151.4	5000	-30.4
3706.00	H	180.0	1.0	47.9	31.4	3.7	35.5	47.5	237.1	5000	-26.5
4632.50	H	180.0	1.0	39.6	32.6	4.0	35.8	40.4	104.7	5000	-33.6
5559.00	H	180.0	1.0	41.2	34.2	4.3	35.7	44	158.5	5000	-30.0
6485.50	H	180.0	1.0	39.1	36.3	4.7	35.6	44.5	167.9	5000	-29.5
7412.00	H	180.0	1.0	43.8	37.9	5.1	35.9	50.9	350.8	5000	-23.1
8338.50	H	180.0	1.0	43.7	38.6	5.3	36.1	51.5	375.8	5000	-22.5
9265.00	H	180.0	1.0	43.6	39.2	5.6	36.3	52.1	402.7	5000	-21.9
Channel 4 (913 MHz) Position: Flat											
1826.00	V	180.0	1.0	58.5	28.3	2.4	35.6	53.6	478.6	5000	-20.4
2739.00	V	180.0	1.0	49.2	30.3	3.2	35.6	47.1	226.5	5000	-26.9
3652.00	V	180.0	1.0	43.8	31.4	3.7	35.5	43.4	147.9	5000	-30.6
4565.00	V	180.0	1.0	43.5	32.5	4.0	35.8	44.2	162.2	5000	-29.8
5478.00	V	180.0	1.0	41.2	34.0	4.2	35.7	43.7	153.1	5000	-30.3
6391.00	V	180.0	1.0	38.6	36.1	4.7	35.6	43.8	154.9	5000	-30.2
7304.00	V	180.0	1.0	43.3	37.9	5.0	35.9	50.3	327.3	5000	-23.7
8217.00	V	180.0	1.0	43.2	38.5	5.3	36.1	50.9	350.8	5000	-23.1
9130.00	V	180.0	1.0	41.2	39.1	5.5	36.2	49.6	302.0	5000	-24.4
1826.00	H	180.0	1.0	58.0	28.3	2.4	35.6	53.1	451.9	5000	-20.9
2739.00	H	180.0	1.0	48.9	30.3	3.2	35.6	46.8	218.8	5000	-27.2
3652.00	H	180.0	1.0	44.6	31.4	3.7	35.5	44.2	162.2	5000	-29.8

Frequency (MHz)	Pol 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
4565.00	H	180.0	1.0	42.4	32.5	4.0	35.8	43.1	142.9	5000	-30.9
5478.00	H	180.0	1.0	41.5	34.0	4.2	35.7	44	158.5	5000	-30.0
6391.00	H	180.0	1.0	40.0	36.1	4.7	35.6	45.2	182.0	5000	-28.8
7304.00	H	180.0	1.0	43.0	37.9	5.0	35.9	50	316.2	5000	-24.0
8217.00	H	180.0	1.0	43.7	38.5	5.3	36.1	51.4	371.5	5000	-22.6
9130.00	H	180.0	1.0	42.1	39.1	5.5	36.2	50.5	335.0	5000	-23.5
Position: Upright											
1826.00	V	180.0	1.0	59.2	28.3	2.4	35.6	54.3	518.8	5000	-19.7
2739.00	V	180.0	1.0	49.4	30.3	3.2	35.6	47.3	231.7	5000	-26.7
3652.00	V	180.0	1.0	43.3	31.4	3.7	35.5	42.9	139.6	5000	-31.1
4565.00	V	180.0	1.0	44.9	32.5	4.0	35.8	45.6	190.5	5000	-28.4
5478.00	V	180.0	1.0	42.6	34.0	4.2	35.7	45.1	179.9	5000	-28.9
6391.00	V	180.0	1.0	39.6	36.1	4.7	35.6	44.8	173.8	5000	-29.2
7304.00	V	180.0	1.0	43.1	37.9	5.0	35.9	50.1	319.9	5000	-23.9
8217.00	V	180.0	1.0	42.5	38.5	5.3	36.1	50.2	323.6	5000	-23.8
9130.00	V	180.0	1.0	39.5	39.1	5.5	36.2	47.9	248.3	5000	-26.1
1826.00	H	180.0	1.0	59.9	28.3	2.4	35.6	55	562.3	5000	-19.0
2739.00	H	180.0	1.0	48.0	30.3	3.2	35.6	45.9	197.2	5000	-28.1
3652.00	H	180.0	1.0	46.5	31.4	3.7	35.5	46.1	201.8	5000	-27.9
4565.00	H	180.0	1.0	41.9	32.5	4.0	35.8	42.6	134.9	5000	-31.4
5478.00	H	180.0	1.0	42.6	34.0	4.2	35.7	45.1	179.9	5000	-28.9
6391.00	H	180.0	1.0	41.5	36.1	4.7	35.6	46.7	216.3	5000	-27.3
7304.00	H	180.0	1.0	42.0	37.9	5.0	35.9	49	281.8	5000	-25.0
8217.00	H	180.0	1.0	43.7	38.5	5.3	36.1	51.4	371.5	5000	-22.6
9130.00	H	180.0	1.0	42.3	39.1	5.5	36.2	50.7	342.8	5000	-23.3
Position: Sideways											
1826.00	V	180.0	1.0	57.9	28.3	2.4	35.6	53	446.7	5000	-21.0
2739.00	V	180.0	1.0	48.4	30.3	3.2	35.6	46.3	206.5	5000	-27.7
3652.00	V	180.0	1.0	44.1	31.4	3.7	35.5	43.7	153.1	5000	-30.3
4565.00	V	180.0	1.0	43.3	32.5	4.0	35.8	44	158.5	5000	-30.0
5478.00	V	180.0	1.0	43.5	34.0	4.2	35.7	46	199.5	5000	-28.0
6391.00	V	180.0	1.0	38.4	36.1	4.7	35.6	43.6	151.4	5000	-30.4
7304.00	V	180.0	1.0	44.5	37.9	5.0	35.9	51.5	375.8	5000	-22.5
8217.00	V	180.0	1.0	44.0	38.5	5.3	36.1	51.7	384.6	5000	-22.3

Frequency (MHz)	Pol H/V	Azimuth Degree	Ant. Hght (m)	SA Level (QP) dB μ V	Ant. Corr. dB/m	Cable Corr. dB	Amp Gain dB	Corr. Level dB μ V/m	Corr. Level μ V/m	Limit μ V/m	Margin dB
9130.00	V	180.0	1.0	41.3	39.1	5.5	36.2	49.7	305.5	5000	-24.3
1826.00	H	180.0	1.0	59.5	28.3	2.4	35.6	54.6	537.0	5000	-19.4
2739.00	H	180.0	1.0	49.6	30.3	3.2	35.6	47.5	237.1	5000	-26.5
3652.00	H	180.0	1.0	44.7	31.4	3.7	35.5	44.3	164.1	5000	-29.7
4565.00	H	180.0	1.0	40.4	32.5	4.0	35.8	41.1	113.5	5000	-32.9
5478.00	H	180.0	1.0	41.8	34.0	4.2	35.7	44.3	164.1	5000	-29.7
6391.00	H	180.0	1.0	40.4	36.1	4.7	35.6	45.6	190.5	5000	-28.4
7304.00	H	180.0	1.0	41.5	37.9	5.0	35.9	48.5	266.1	5000	-25.5
8217.00	H	180.0	1.0	43.7	38.5	5.3	36.1	51.4	371.5	5000	-22.6
9130.00	H	180.0	1.0	41.6	39.1	5.5	36.2	50	316.2	5000	-24.0