FCC TEST REPORT

for

Panasonic AKME-BC
900MHz Dual Force Controller
Controller Unit Model KX-CC2000H

EMC Measurement / Technical Report

FCC Requirement	**:**	FCC Part 15, Subpart C §15.249
Type of Authorization	**:**	Certification
Manufacturer	**:**	Panasonic AKME-BC
Equipment Under Test	**:**	900MHz Dual Force Controller
		Controller Unit Model: KX-CC2000H
Test Report No.	**:**	FR1503-1
Purchase Order No.	**:**	KC132

Document History					
Revision	**Issue Date**	**Affected Pages**	**Description of Modifications**	**Revised By**	**Approved By**
N/C	September 14, 2000		Initial release		

EMC Measurement / Technical Report
Document No. FR1503-1
From
Garwood Laboratories, Inc.
World Compliance Division

Test for
Panasonic AKME-BC
900MHz Dual Force Controller
Controller Unit Model KX-CC2000H

WRITTEN BY	REVIEWED BY	REVIEWED BY
Arnulfo Tapia *EMC Sr. Technician*	*Lisa Anne Rodefeld* *Quality Manager*	*Tien Vu* *EMI Lab Manager*

Test Personnel	***Test Dates***
Arnulfo Tapia – EMC Sr. Technician	August 15, 2000

Test Facility	Garwood Laboratories, Inc.
Address	565 Porter Way
City, State, Zip Code	Placentia, CA 92870
Phone	(714) 572-2027
Fax	(714) 572-2025

TABLE OF CONTENTS (This document contains a total of 27 pages [excluding] attachments.)

MEASUREMENT / TECHNICAL REPORT SUMMARY

Manufacturer	Panasonic
Division	AKME-BC
Address	Parque Industrial El Aguila
City, State, Zip	Tijuana, B.C. 22580
Country	Mexico
Contact Name	Israel Sánchez
Phone	619-671-1940 Ext. 5427
Fax	619-671-1941
Type of Authorization	Certification for an Intentional Radiator
Applicable FCC Rules	Prepared in accordance with the requirements of FCC Rules and Regulations as listed in 47 CFR Ch.1 (10-1-98 Edition). The following subpart and sections are applicable to the results in this test report: PART 15 – RADIO FREQUENCY DEVICES Subpart C – Intentional Radiators § 15.209 Radiated emission limits; general requirements § 15.207 Conducted Limits § 15.203 Antenna requirement Radiated Emission Limits – Additional Provisions §15.249 Operation within the bands 902-928MHz, 2400-2483.5MHz, 5725-5875MHz, & 24.0-24.25GHz
Equipment Under Test	900MHz Dual Force Controller Controller Unit Model KX-CC200H
Summary of Data	The EUT complied with all the applicable FCC rules listed above.

Multiple Listing with the following Company

Company	Mad Catz, Inc.
Address	11487 Woodside Avenue
City, State, Zip	Santee, CA 92071
Country	USA
Contact Name	David Morelock
Phone	(619) 258-6920 Ext 340
Fax	(619) 258-6929
	900MHz Dual Force Controller Mad Catz, Inc Controller Unit Model 8056H

EMC Test Laboratory	Garwood Laboratories Inc.
Facility	World Compliance Division
Address	565 Porter Way
City, State, Zip Code	Placentia, CA 92870
Country	USA
Contact Name	Tien Vu
Title	EMI Lab Manager
Phone	(714) 572-2027
Fax	(714) 572-2025

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test	900MHz Dual Force Controller
Model Number	KX-CC2000H
Description	The EUT is a 900MHz wireless game controller that is used as an accessory for the Sony Play Station I or Play Station II video game systems. During normal operation, the wireless controller transmits to and receives data from a remote Base Unit that is connected to the Play Station. The test data in this report is from testing performed on the Controller Unit only. The operating frequency band of the EUT is 913.0 – 917.6 MHz (4.6MHz). A total of 24-channels are used in this frequency band with channel spacing of 200kHz. The table below lists the channel and frequency assignments. The modulation technique used during transmission is digital FSK. The EUT operates from a 3.6VDC Ni-Cd rechargeable battery.
Clock Frequencies	Transmitting operating frequency 913.0 – 917.6MHz Internal crystal frequencies – 4.0 MHz, 25.6MHz

The following tables list the channel and frequency assignments.

Channel	Frequency (MHz)
1	913.00
2	913.20
3	913.40
4	913.60
5	913.80
6	914.00
7	914.20
8	914.40
9	914.60
10	914.80
11	915.00
12	915.20

Channel	Frequency (MHz)
13	915.40
14	915.60
15	915.80
16	916.00
17	916.20
18	916.40
19	916.60
20	916.80
21	917.00
22	917.20
23	917.40
24	917.60

1.2 Related Submittal(s)/ Grant(s)

Peripherals tested with the EUT, if any, that contain FCC ID numbers can be located in the table in Section 3.6 of this report**.**

1.3 Tested System Description

The Tested System was configured with all typical peripherals (or terminations) and operated to generate the maximum emissions during the test. Refer to Section 3.5 and Section 3.6 for a list of the accessory/peripheral equipment used during testing of the EUT, if any, and cabling information.

1.4 Test Methodology

Conducted emissions tests were performed according to the general provisions of ANSI C63.4-1992 (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).

The Equipment Under Test (EUT) was setup in a shielded enclosure to perform the conducted emissions measurements in a typical installation configuration. The EUT was powered from the 50μH/50Ω Line Impedance Stabilization Networks (LISN). The LISN's unused connections were terminated with a 50-ohm load. The amplitude level (dBμV) of the emissions was maximized by varying the modes of operation of the EUT and its cables. The frequency range of 450 kHz to 30 MHz was measured with the receiver in peak detection. The peak measurements within 5 dB of the specification limits were re-measured with the receiver in either quasi-peak or average detection as required.

The test for radiated emissions was performed according to the general provisions of ANSI C63.4-1992 (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).

General Radiated Emissions
The preliminary radiated emissions scan was performed in the semi-ferrite and anechoic shielded enclosure at a distance of 3 meters. The amplitude level (dBμV) of the emissions was maximized by varying the modes of operation of the EUT and its cables. The frequency range of 30 to 200 MHz was measured with a Biconical antenna, and a Log-Periodic antenna was used to measure the frequency range of 200 to 1000 MHz. The final radiated emissions test was performed at a EUT to receiving antenna distance of 3 meters in the Open Area Test Site. Rotating the turntable 360 degrees and varying the antenna height from 1 to 4 meters maximized the emissions. The frequency range of 30 to 1000 MHz was measured utilizing a BiLog antenna. Measurements were made in both vertical and horizontal antenna polarizations.

Additional Radiated Emissions Provisions
The EUT was setup on a non-conductive table, 1.0 x 1.5m, in the Open Area Test Site. The antenna to EUT measurement distance was 3 meters. The emissions from the EUT were maximized by rotating the turntable 360 degrees and varying the antenna height from 1 to 4 meters. The field strength of the fundamental frequency and harmonics, up to the 10^{th} harmonic, were measured utilizing a BiLog and Double Ridge Guide Horn antenna. Measurements were made in both, vertical and horizontal antenna polarizations.

1.5 Test Facility

The Open Area Test Site (OATS) and measurement facilities used to collect the test data are located at Garwood Laboratories, Inc. World Compliance Division test facility in Placentia, CA. This facility has been fully described in a report submitted to the FCC and accepted in a letter dated 28 January 2000 (31040/SIT 1300F2) registration #90681.

The test facility is also recognized and accredited from following accreditation organizations:

NVLAP

Garwood Laboratories, Inc. is recognized under the National Voluntary Laboratory Accreditation Program (*NVLAP/NIST*) for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. NVLAP Code: 200119-0, Effective through December 31, 2000.

FCC

This site has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Reference : 31040/SIT 1300F2, Registration #90681, January 28, 2000. With the above and NVLAP, Garwood Laboratories is an authorized test laboratory for the DoC process.

Technology International (I^2T)

Garwood Laboratories, Inc. has been assessed in accordance with ISO Guide *25* and with ITI's assessment criteria. Based upon this assessment, Technology International (Europe), Ltd. Has granted approval for specifications implementing the EU Directive on EMC (89/336/EEC). The scope of the approval was provided on a Schedule of Assessment supplied with a certificate and is available upon request. Certificate #99-051, Dated: May 9, 2000.

ACA

Garwood Laboratories, Inc. can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation and the MRA (Mutual Recognition Agreement) between the US and Australia.

VCCI

Garwood Laboratories, Inc. has been accepted as a member to the VCCI. Our conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures.
Registration C574, C575, C576, R561.

Industry Canada

Garwood Laboratories, Inc. is registered by Industry Canada for performance of measurements and complies with RSP 100. Reference IC 3298, Dated: March 11, 1999.

BSMI (Formerly known as BCIQ)

Garwood Laboratories, Inc. can perform testing for Taiwan to the CNS requirements. This is as a result of our NVLAP accreditation and the MRA (Mutual Recognition Agreement) between the US and Taiwan.

Nmi (Nederlands Meetinstituut)

Garwood Laboratories, Inc. has entered into a cooperative agreement with Nmi Certin B.V. of the Netherlands. Ther are a Notified Body for the RATTE Directive and Maritime Directive as well as a Competent Body for the EMC Directive.

2. PRODUCT LABELING

2.1 FCC ID Label

All devices authorized under the certification procedures are required to display an identification label showing the FCC Identifier (FCC ID) under which they are authorized.
Example:

FCC ID: XXX123

XXX = Indicates manufacturer's Grantee Code
123 = Indicates manufacturer's Equipment Product Code

In addition, the manufacturer (or importer) is responsible for having the compliance label produced, and for having it affixed to each unit that is marketed or imported.

FCC Compliance Label:

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference including interference that may cause undesired operation.

2.2 Location of Label on EUT

As stated in §15.19, the label shall be located in a conspicuous location on the device. When the device is so small or for such use that it is not practicable to place the compliance label on it, the information required should be placed in a prominent location in the instruction manual or pamphlet supplied to the user. Alternatively, the compliance label can be placed on the container in which the device is marketed. However, the FCC identifier must be displayed on the device.

2.3 Information to user

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

3. SYSTEM TEST CONFIGURATION

3.1 Justification

The EUT was used in a system configured for testing in a typical fashion, as a customer would normally use it.

3.2 EUT Exercise Software/Equipment

The following operating mode was used during testing to exercise the functions of the EUT.

- During testing, the EUT was continuously transmitting in half-duplex mode.

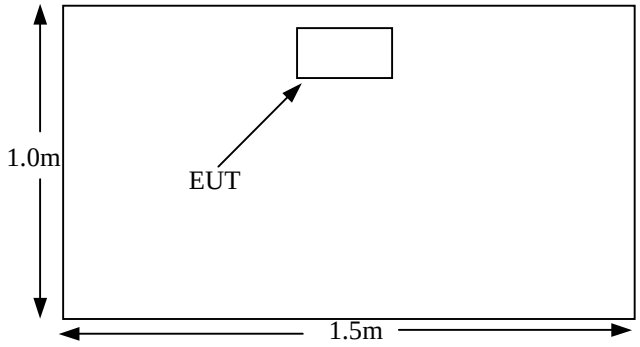
3.3 Special Accessories

The EUT requires no special accessories to comply with the limits.

3.4 Equipment Modifications

No modifications were made to achieve the required specification limit.

3.5 Configuration of Tested System



The Wireless Game Controller was tested as a stand-alone system

3.6 Details of Tested System

There was no support equipment needed or used during testing of the EUT.

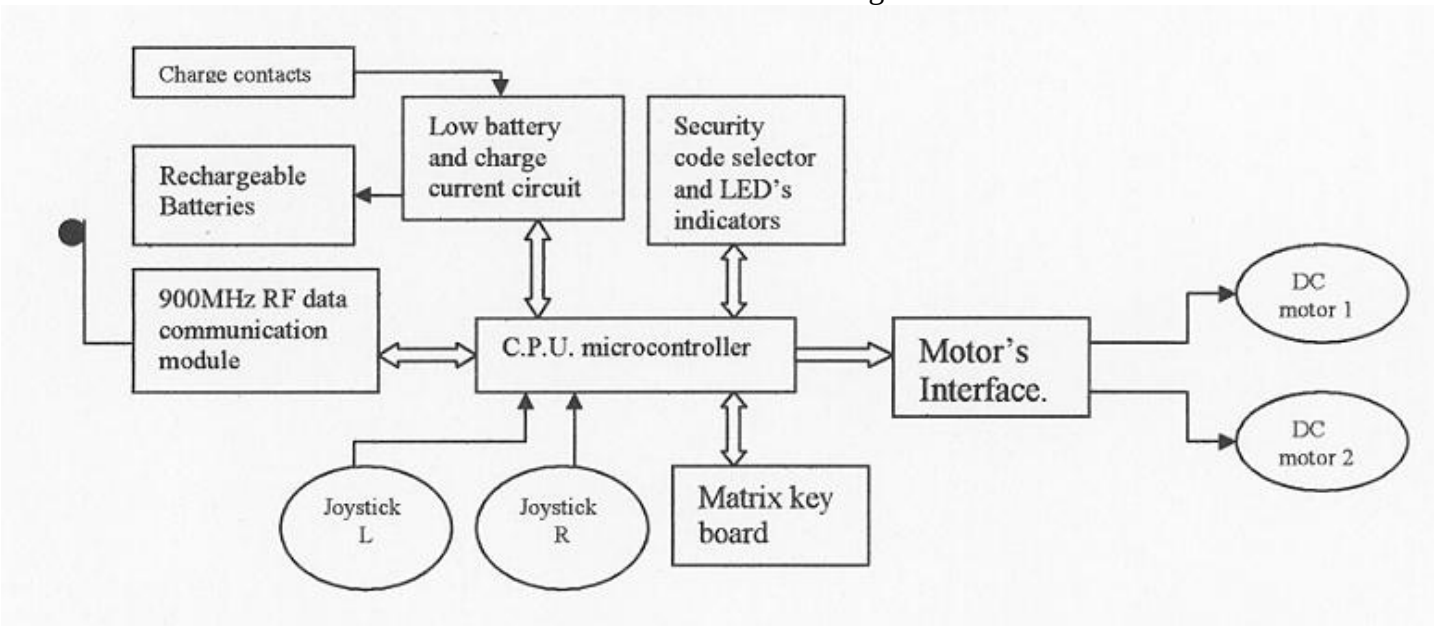
Item No.	***Manufacturer***	***Description***	***Identification Numbers***
1	---	---	Model No: --- Serial No.: ---

There were no cables needed or used during testing of the EUT.

Cabling of The Tested System					
Item No.	***Description***	***Length (m)***	***Type Shielded-S Unshielded-US***	***Connected From***	***Connected To***
A	---	---	---	---	---

4. BLOCK DIAGRAM(S) OF EUT

900MHz Controller Unit Block Diagram



5. TEST MEASUREMENT/EUT PHOTOS

Photo: Radiated Emissions Wireless Controller (Front View)

Photo: Radiated Emissions Wireless Controller (Rear View)

Photo: Front View of the EUT

Photo: Rear View of the EUT

Photo: EUT with Back Cover Removed

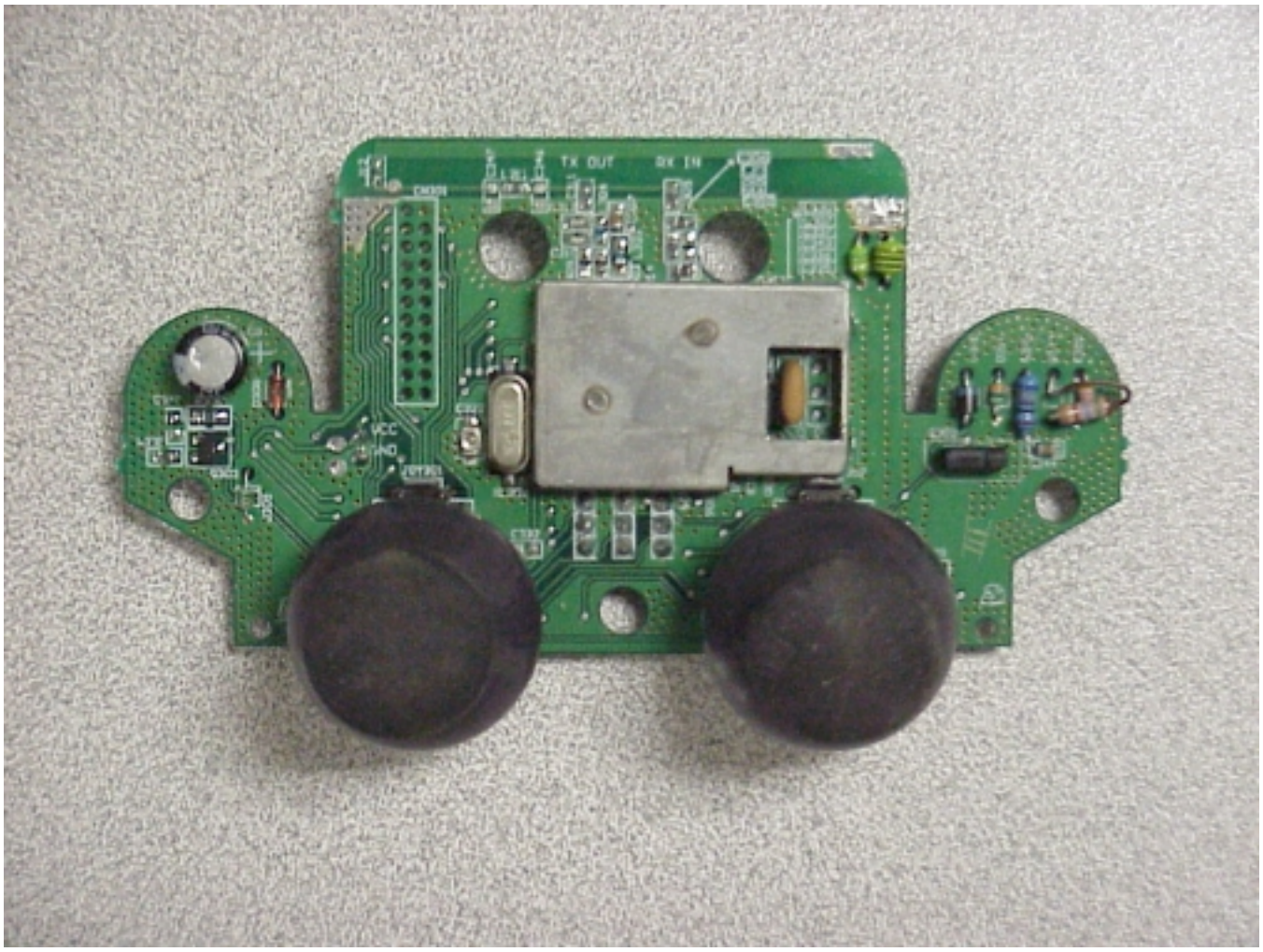


Photo: PCB 1 View 1

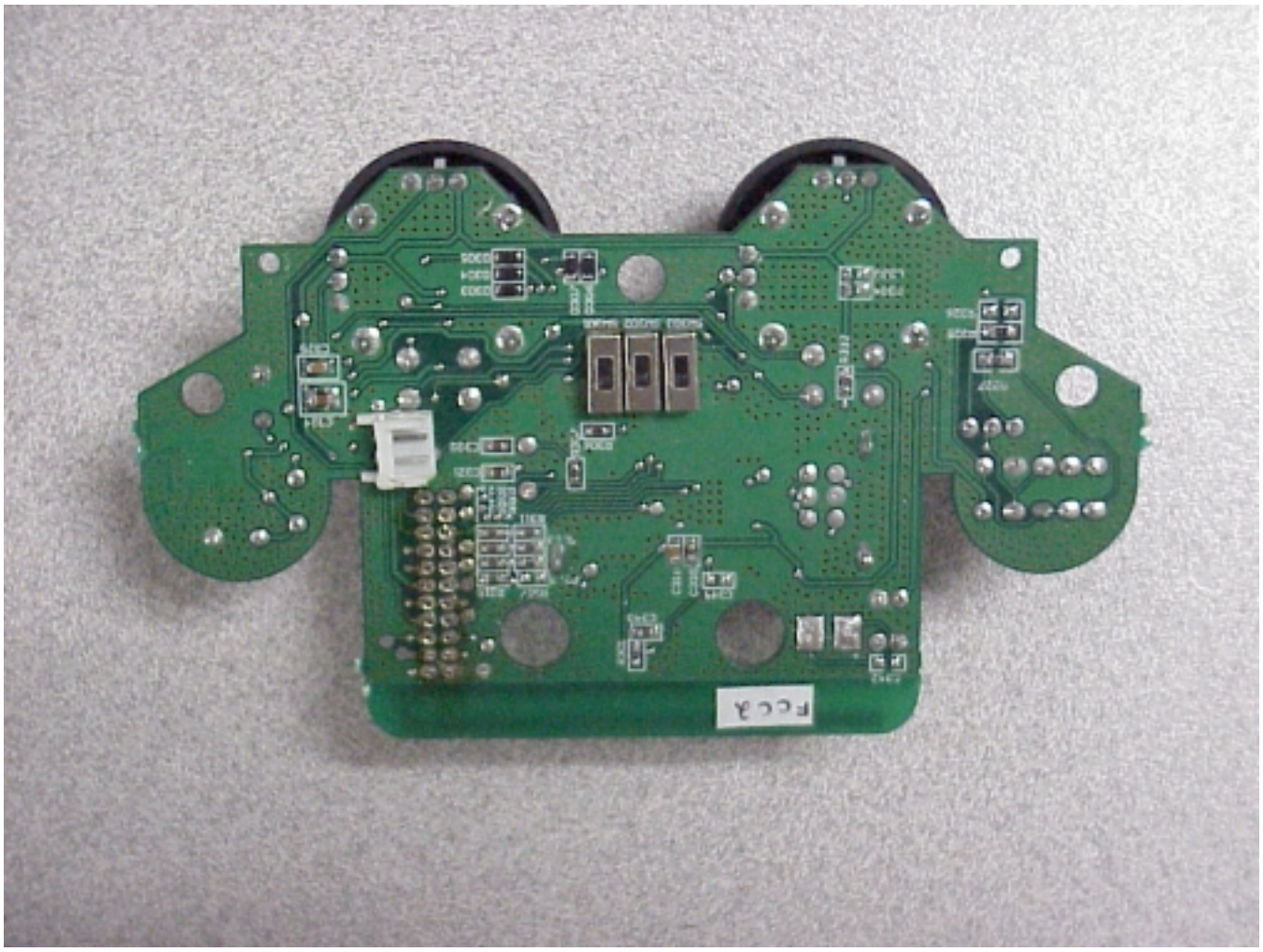


Photo: PCB 1 View 2

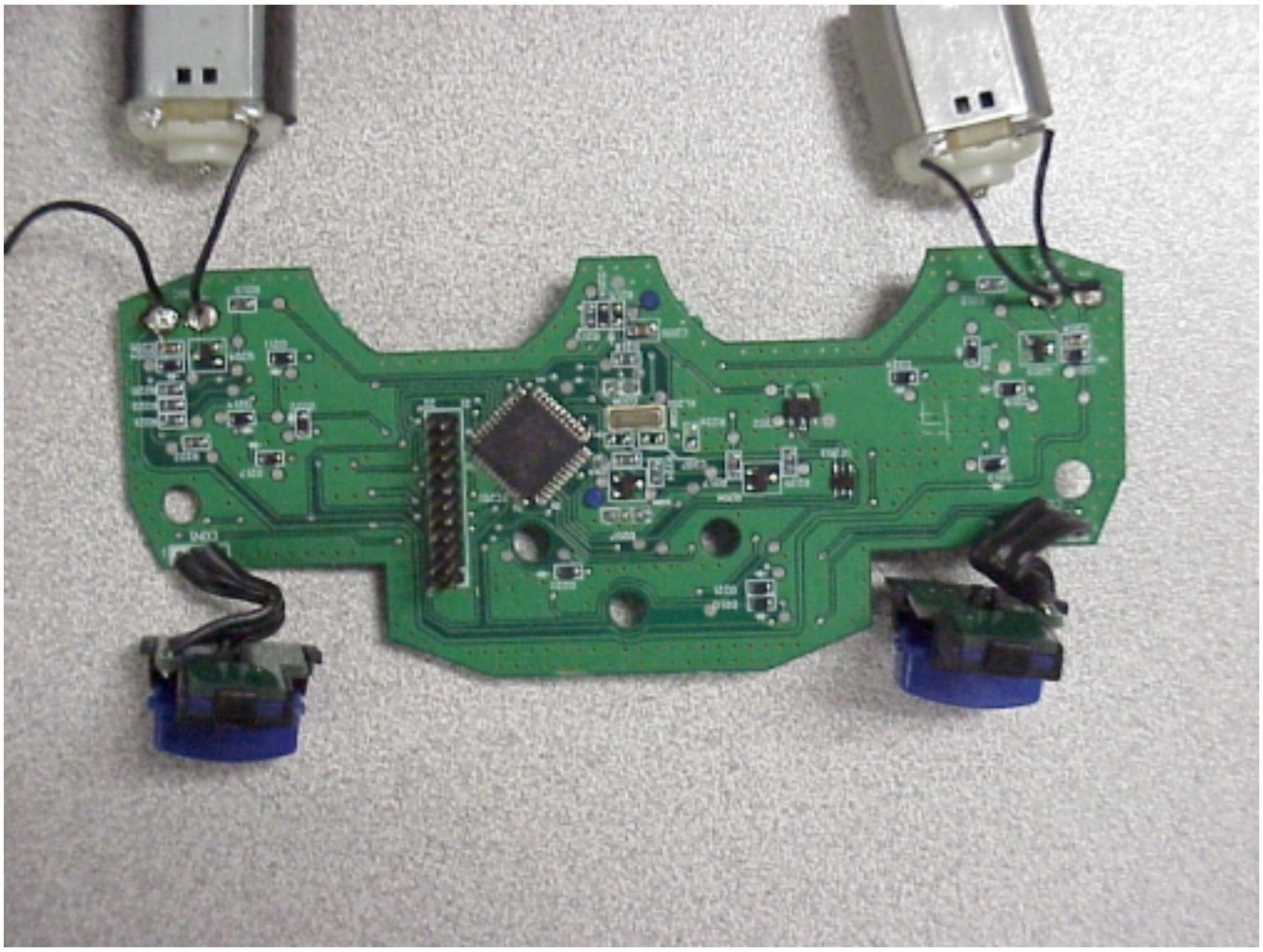


Photo: PCB 2 View 1

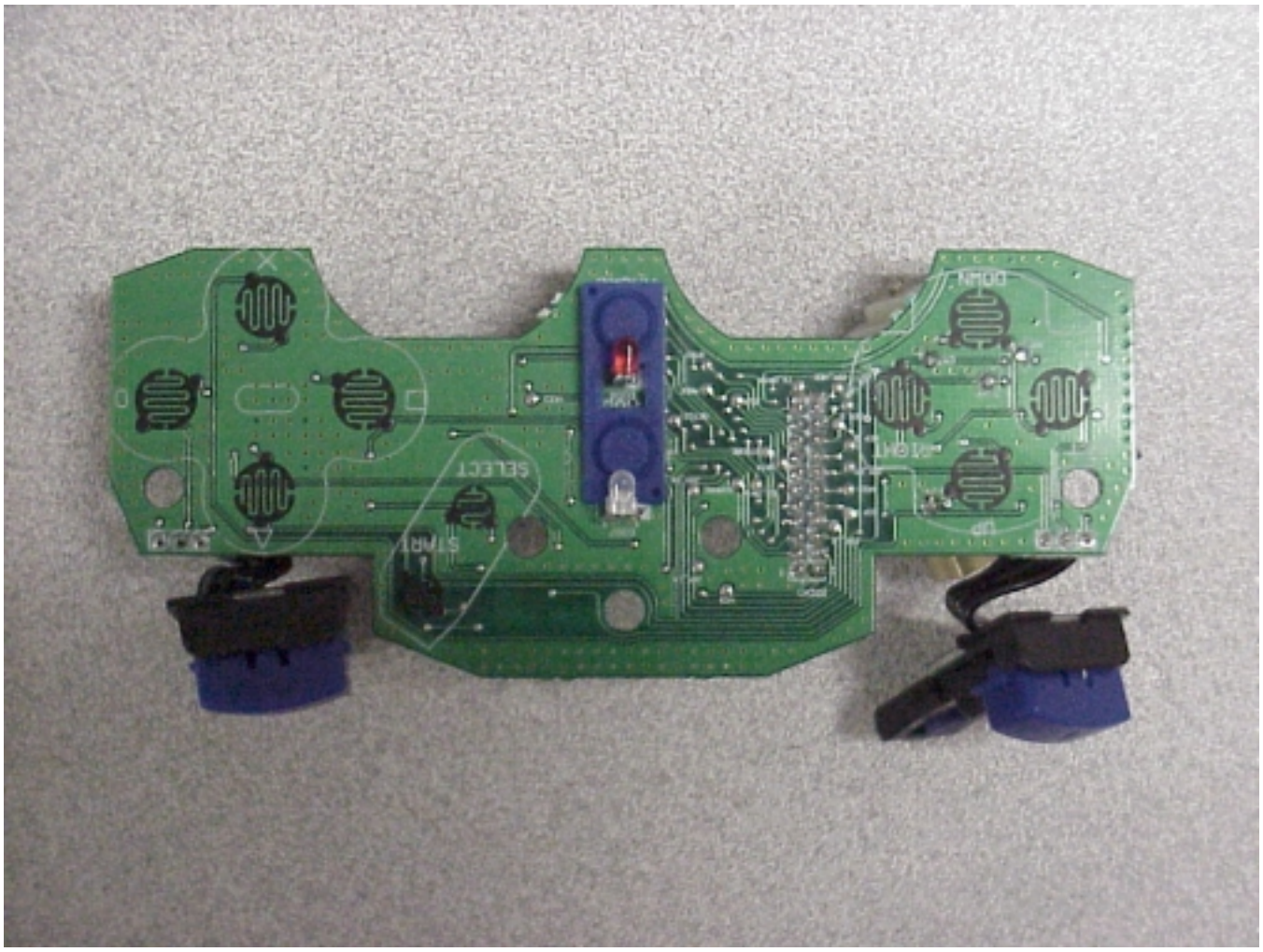


Photo: PCB 2 View 2

6. TEST DATA

6.1 Conducted Emission Limits

FCC Part 15, Subpart C, §15.207	
Frequency Range (MHz)	**Limit (dBμV)**
0.45 to 30.0	48

6.2 Conducted Emission Results

During normal operation, the EUT operates from a 3.6VDC rechargeable Ni-Cd battery; therefore, the conducted emissions test was not applicable.

Sensor Location	***Frequency Band (MHz)***	***Measured* (dBμV)***	***Delta To Limit (dB)***
Line	---	---	---
Neutral	---	---	---

- All readings are peak with specified CISPR bandwidth unless stated otherwise.

6.3 General Radiated Emission Requirements

Emissions that are radiated outside of the specified frequency bands, except for harmonics, should be attenuated by at least 50 dB below the level of the fundamental or to the general radiated limits in §15.209, whichever is the lesser attenuation.

FCC Part 15, Subpart C, §15.209 General Radiated Emissions Requirement	
Frequency Range (MHz)	**3 Meter Test Limit (dBμV)**
30 to 88	40.0
88 to 216	43.5
216 to 960	46.0
above 960	54.0

6.4 General Radiated Emission Results

The following data lists the significant emission frequencies, measured levels, correction factor (includes cable, preamplifier and antenna corrections), the corrected reading, plus the delta to the limit.

Worst-Case Radiated Emissions from 30 – 1000MHz				
	Frequency (MHz)	**Detection Mode**	**Corrected Reading (dBμV/m)**	**Delta to the 3m Limit (dB)**
1.	NDS	-	-	-

NDS: There were no detectable emissions from the EUT from 30 – 1000MHz.

6.5 Additional Radiated Emission Requirements

The following table lists the FCC requirements for the fundamental frequency and harmonics.

FCC Part 15, Subpart C, § 15.249		
Fundamental frequency	**Field Strength of Fundamental (millivolts/meter))**	**Field Strength of Harmonics (microvolts/meter)**
902 – 928 MHz	50	500
2400 – 2486.5 MHz	50	500
5725 – 5875 MHz	50	500
24.0 – 24.25 MHz	250	2500

The applicable limits for the EUT are those listed for a unit with the fundamental frequency falling within the band of 902 – 928 MHz. For the EUT, the limit for the fundamental frequency is 50mV/m and the limit for the harmonic frequencies is 500µV/m.

6.6 Additional Radiated Emission Results

The following table lists the fundamental and harmonic emission measured levels for the EUT. The frequency range over which the EUT operates is 4.6MHz; therefore, two frequencies were measured, one near the top and one near the bottom as describe in FCC Part 15 Subpart A §15.31 (m).

EUT Name: 900MHz Dual Force Controller
EUT Model: KX-CC2000H
Test Requirement: Field Strength of Fundamental and Harmonic Emissions
(Reference: FCC PT.15, Subpart C, §15.249)
Frequency Tuned: 913.0MHz (Bottom Channel)

Antenna Polarity (V or H)	Frequency (MHz)	S.A. Measurement (dBµV)	S.A. Detection Mode	Correction Factor (dB)	Corrected Measurement (dBµV/m)	Corrected Measurement (µV/m)	Limit 3m (µV/m)
V	913.0	73.4	Quasi-Peak	6.5	79.9	9,886	50,000
H	913.0	86.3	Quasi-Peak	6.5	92.8	43,652	50,000
V	1826	44.80	Average	-1.71	43.09	142.7	500
H	1826	48.10	Average	-1.71	46.39	208.7	500
V	2739	40.00	Average	5.15	45.15	180.9	500
H	2739	36.60	Average	5.15	41.75	122.3	500
V	3652	36.30	Average	9.89	46.19	203.9	500
H	3652	35.00	Average	9.89	44.89	175.6	500
Harmonics were measured up to the 10th Harmonic. There were no detectable emissions after the third harmonic.							

For frequencies above 1000MHz, the field strength limits set forth in §15.249 (a) are based on average limits; however, the peak field strength of any emission should not exceed the maximum permitted average limits specified by more than 20dB under any condition of modulation.
Average emission measurements were made above 1000MHz with the following spectrum analyzer settings, (RBW = 1MHz, VBW = 10Hz). The peak field strength of the emissions from the EUT did not exceed the average limits specified by more than 20dB.

.

Additional Radiated Emission Results – continued –

EUT Name: 900MHz Dual Force Controller
EUT Model: KX-CC2000H
Test Requirement: Field Strength of Fundamental and Harmonic Emissions
(Reference: FCC PT.15, Subpart C, §15.249)
Frequency Tuned: 917.2MHz (Top Channel)

Antenna Polarity (V or H)	Frequency (MHz)	S.A. Measurement (dBµV)	S.A. Detection Mode	Correction Factor (dB)	Corrected Measurement (dBµV/m)	Corrected Measurement (µV/m)	Limit 3m (µV/m)
V	917.2	86.6	Quasi-Peak	6.5	93.1	45,185.6	50,000
H	917.2	76.0	Quasi-Peak	6.5	82.5	13,335.2	50,000
V	1834.4	45.50	Average	-1.63	43.87	156.1	500
H	1834.4	47.00	Average	-1.63	45.37	185.6	500
V	2751.6	42.40	Average	5.24	47.64	241.0	500
H	2751.6	44.70	Average	5.24	49.94	314.1	500
V	3668.8	33.20	Average	9.96	43.16	143.9	500
H	3668.8	34.20	Average	9.96	44.16	161.4	500
Harmonics were measured up to the 10th Harmonic. There were no detectable emissions after the third harmonic.							

For frequencies above 1000MHz, the field strength limits set forth in §15.249 (a) are based on average limits; however, the peak field strength of any emission should not exceed the maximum permitted average limits specified by more than 20dB under any condition of modulation.
Average emission measurements were made above 1000MHz with the spectrum analyzer settings, (RBW = 1MHz, VBW = 10Hz). The peak field strength of the emissions from the EUT did not exceed the average limits specified by more than 20dB.

6.7 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG

Where: FS = Field strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Attenuation Factor
AG = Amplifier gain

Example:

Assume a receiver reading of 52.5 dBµV is obtained. The Antenna Factor of 7.4 and a Cable Factor of 1.1 is added. The Amplifier Gain of 29 dB is subtracted, giving a field strength of 32 dBµV/m.

FS = 52.5 + 7.4 + 1.1 - 29 = 32 dBµV/m

APPENDIX A - TEST EQUIPMENT USED

The absolute performance calibration of equipment requiring calibration is performed on an as needed basis in accordance with MIL-STD 45662A. However, calibration periods do not exceed one (1) year. The test equipment is capable of making measurements within tolerances of at least +/- 2dB amplitude and +/- 2% frequency deviation. Equipment certifications showing traceability to NIST (National Institute of Standards and Technology) are maintained on file at Garwood Laboratories, Inc. Placentia, CA. All equipment is checked and verified for proper operation before and after each series of tests.

A.1 Specific Equipment Used

Test	*Instrument*	*MFG / Model No.*	*Asset No.*	*CAL. Due Date*
Conducted Emission Test				
	EMI Receiver System	Hewlett Packard	System 1	11/25/00
	RF Coax Cable	Pasternack / RG 223	20170	03/05/01
	Line Impedance Stabilization Network	ISCI/3PH-20A	20071	03/16/01
Radiated Emission Test				
	EMI Receiver System	Hewlett Packard	System 3	10/14/00
	RF Coax Cable	Times Microwave / LMR 600	20180	03/05/01
	BiLog Antenna	Chase / CBL6111A	20062	07/09/01
	Pre-Amplifier	ISCI / RFPA/Z FL-2000	20007	03/05/01
	Spectrum Analyzer	Hewlett Packard / 8566B	20257	04/22/01
	Preamplifier (Above 1000MHz)	Hewlett Packard / 8449B	20003	10/14/00
	Double Ridge Guide Horn Antenna	Emco / 3115	20056	01/27/01

APPENDIX B – SUPPLEMENTAL TEST DATA

Test Type	*Basic Standard*	*Details*	*Data Format*	*Page No.*
No Supplemental Test Data Sheets				

ATTACHMENTS

INDEX OF ATTACHMENTS

900MHz Dual Force Controller™

Thank you for purchasing the Mad Catz 900 MHz Dual Force Controller. We hope that you will be pleased with your purchase and that you will turn to Mad Catz for all your gaming peripheral needs

TABLE OF CONTENTS

Set Up

- Plug in the Charge Dock
- Remove the battery cover and connect the battery pack. Replace battery cover
- place 900MHz Dual Force in the Charge Dock. **Allow the controller to charge for six hours before initial use.** The Mode Button will illuminate amber while charging. When the battery life is low, the Mode Button will flash amber. This indicates the battery has 10 minutes of life remainning
- Plug the receiver into port 1 of the PlayStation® game console

Control Modes

There are three different modes from which you can choose, depending on your style of play. You change modes by pressing the mode button. The color of the lighted Mode Button tells you which mode you are in:

Analog Mode: Green
Steering Wheel Mode: Red
Digital Mode: None

A description of eachmode follows:

Analoge Controller Mode - This is the standard "Dual Shock™" Mode. It provides support for most vibrational compatible PlayStation games. Some Vibration Function Compatible games will only vibrate if the controller is in Analog Controller mode

Figure A
Player Position switches

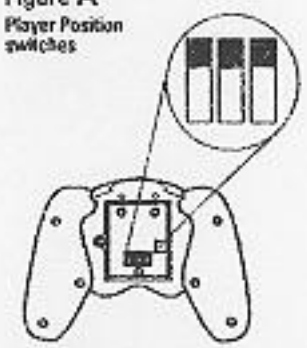


Figure B
Player Position switches

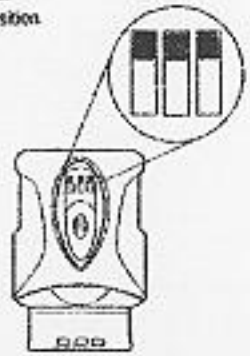
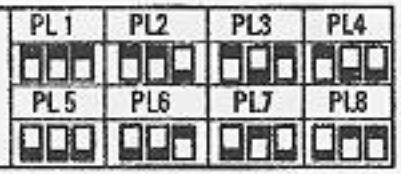


Figure C

To use multiple Mad Catz RF Controllers simultaneously, change the player select switch for each controller and receiver as follows:



Steering Wheel Mode - This mode is best for most driving games that use Steering Wheel (or neGcon™) protocols. Some compatable titles will support a calibration from within the software. This will allow the user to adjust the sensitivity of the game . This is only available in Steering Wheel Mode.

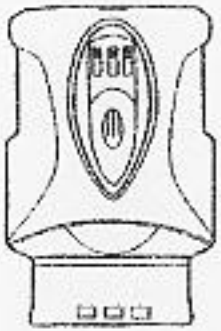
Digital Mode - This is the original playStation controller Mode. It works with all games.

USING TWO OR MORE 900 MHz DUAL FORCE CONTROLLERS

The controller and receiver both have Player Position switches, which will tell the controller and receiver which channels to use for communication. If you want to use two or more 900 MHz Dual Force Controllers at the same time (as multi-player games or with Multi Tap ™), the Player Position switches must be set to different settings.

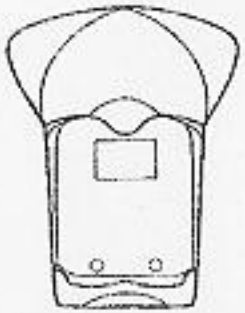
Your 900 MHz Dual Force Controller comes factory preset to a Player Position settings that matches its receiver. So if you are playing with one 900MHz Dual Force Controller, there is no need to change the Player Position setting.

To change the controller Player Position, simply remove the battery cover to expose the Player Position switches (see figure A). To change the receiver Player Position to the matching controller Player Position, slide open the switch cover to expose the Player Position switches (see figure B). It looks just like the switches in the controller. Set the switches in the controller and receiver to match (see figure C)



Receiver

Controller



Charge Dock

Charge Dock: Used to recharge the 900 MHz Dual Force Controller. While recharging, the mode Button will illuminate amber. If the Mode Button is not illuminated, the controller is not making proper contact with the Charge Dock. A fully charged battery should last up to ten hours. To fully charge a battery, leave the controller in the Charge Dock for six hours. For maximum battery life, run the controller batteryall the way down before recharging.

Receiver: Used to transmit and receive data from the controller to the PlayStation game console. There are Player Position switches located on the receiver and the controller. These settings must match in order for the controller to communicate to the receiver.

Analog Sticks: The two analog sticks each control two axes (x- and Y- axis). Different software titles will allow you to modify the way that the analog sticks react in the games. While in Analog Mode, any software tittle that is compatable with Vibration Function Compatible will cause the 900 MHz Dual Force Controller to vibrate at different levels, depending on actions taking place from within the game (e.g., being hit, crashing, or shooting) NOTE: NOT ALL GAMES ARE VIBRATION FUNCTION COMPATIBLE. LOOK FOR THE "VIBRATIONAL FUNCTION COMPATIBLE" ICON ON THE BACK OF THE PACKAGE OR INSTRUCTION MANUAL FOR THE GAME THAT YOU ARE PLAYING.

Shoulder Buttons: (L1, L2, R1and R2): These are the action buttons and their specific functions depend on the software being used.

Action Buttons:O ❐▲X : These buttons are used to perform various actions, depending on the software. For more details see the software instruction manual.

Start Button : This button is generaliy used to make selections in the menus and for pausing the game. For more details, see the software instruction manual.

Select Button : This is a standard button that allows you to do various things, depending on the software. For more details see the software instruction manual.

Mode Button : The 900 MHz Dual Force Controller has three different modes, Analog Controller Mode, Steering Wheel Mode and Digital Mode.The current mode is indicated by the color of the Mode Button on the faceplate of the controller:

Red Light - Steering Wheel Mode
Green Light - Analog Mode
Light Off - Digital Mode

Macro Button : Used for recording a series of commands to a single button. See "Programming Macros."

Player Position Switches : These switches will select the channels to use for the transmission of controller communications. The Player Position switch settings on the controller to communicate with the receiver.

Battery Compartment : This is where the rechargeable battery and Player Position switches are located.

TROUBLESHOOTING

- The 900 MHz Dual Force Controller does not respond.
  - Make sure the battery is fully charged. Place the controller in the Charge Dock for six hours
  - Make sure that the Player Position switches are set identically for the controller and receiver. If the Player Position settings do not match, the controller will not communicate with the receiver.
  - Make sure the receiver is fully plugged in to the PlayStation console.
  - Make sure no other controllers are set to the same Player Position setting.

- The 900 MHz Dual Force Controller does not vibrate.
  - Check the game to make sure that the game is "Vibration Function Compatible."
  - Change the control mode to Analog. Not all games will instruct the controller to vibrate unless it is in Analog Mode.
  - Check the options menu in the game. Some games require the vibration function to be turned on.

TECHNICAL SUPPORT

Macros

The 900 MHz Dual Force Controller features a powerful macro function. With this macro function, a series of button presses can be easily programmed and executed from a single button press. When playing certain games, especially fighting games, a combination of directional pad and action button presses create a more lethal, intricate attack or move. Being able to program a series of these commands to a single button will allow you to perform the complicated combinations on demand and without failure - every time.

Macros can be recorded to four different buttons for playback: L2, L3, R2 and R3 (Figure D. See controller layout section). You can store up to fifteen commands on each of the playback buttons. Pressing multiple buttons simultaneously counts as a single command. In other words, pressing X, O, and Triangle at the same time is one command, not three. A space also counts as a command.

Macro Speed

Some games want to read these combo moves at a certain speed. We have optimized the 900MHz Dual Force macro feature to play back the combo moves to work with most games. In a few cases (like "Soul Blade") you may have to slow down the macro playback speed. You control the speed by simply pressing the Macro Button, then down on the the D-Pad (Macro Button will momentarily flash slowly indicating slow mode). To increase the macro playback speed, press the Macro Button, then up on the D-Pad (Macro Button will momentarily flash quickly, indicating fast mode).

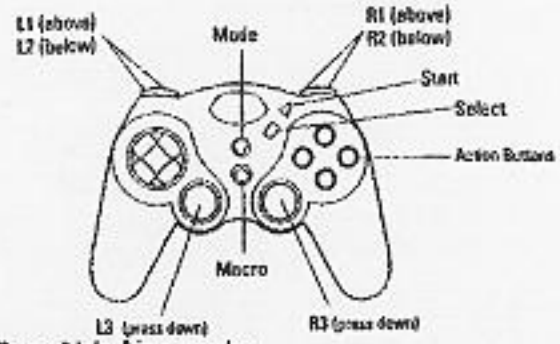
Recording Macros

To program a macro, press the Macro Button (Macro Button illuminates red). Next press the button to which the macro is to be assigned (Macro Button blinks). Then press the commands desired, in order and with pauses in appropriate places. To stop recording the macro, press the Macro button again (the macro light turns off).
Note: Once you reach the maximum fifteen segments the macro will automatically turn off.

While a macro is being entered, the buttons used for storing macros (L2, L3, R2 and R3) retain their orignal game function. For example, if a macro is recorded to L2, and L2 is needed to record another macro, the L2 Button retains its original game function.

While entering a macro, it is occasionally necessary to record a pause or separation between commands. While recording a macro, pressing the SELECT button will act as a pause, or separation. This is important when doing a "double tap", a press and "hold" or a "delay" in a combo.

Figure D
Controller Layout:



Delay: In some combo's, it can be necessary to have a delay between commands. To record a delay, press the SELECT button. If a longer delay is necessary, press the SELECT button as many times as needed.

Hold: In some cases it can be necessary to hold down a button or direction for an extended period of time. To hold, simply press and release the button or direction twice. If a longer hold is necessary, press the button or direction multiple times.

Double Tap: A "double tap" is hitting a certain action button or direction twice. To record a double tap, press the button or direction, then SELECT, then the same button or direction again.

Description	Combo Sequence	Macro Sequence
Hold Down	↓	↓ , ↓
Double Tap Down	↓ ↓	↓ , SELECT , ↓

The following are examples of how to enter commands as macros

Dead or Alive

Hayabusa

This is the way the game describes entering the combination:

↙ ↙ K ↓ K K K

This is how the same combination is recorded as a macro:

MACRO, L3/L2/R3/R2, ↙ ,SELECT,↙, 0,↓+ 0, SELECT, SELECT, SELECT, 0, SELECT, SELECT, SELECT, 0

Soul Blade

Mitsurugi

This is the way the game describes entering the combination:

A + B + K ← ↙ ↓ ↘ → A + K

This is how the same combination is recorded as a macro:

(set the macro playback speed to slow) MACRO, ↓ MACRO, L3/L2/R3/R2, SQ + Δ +0, SELECT, SELECT,SELECT ,SELECT,←, ↙ , ↓, ↘, → , SQ + Δ

Mad Catz provides technical support for all its products in a variety of ways.

Online - Check the Mad Catz Home Page at www.madcatz.com There you will find up to the minute solutions, tips and information about all of our products. Our comprehensive Tech Support area offers answers to nearly every question.

E - Mail - You can send e-mail to our Support Technicians at tech@madcatz.com. In most cases, you will receive a reply within one buisness day.

Telephone - Technical Support is available from 9A.M. to 5P.M. pacific standard time, Monday through Friday (excluding holidays) at 1.800.659.2287 (U.S. only) or 1.619.258.6920 (outside U.S.).

Fax - Technical Support is available via fax at 1.619.258.6929.

Warranty

Mad Catz offers a one year warranty period on all of its products. To obtain warranty service, you must:

- Obtain a Return Authorization Number from Mad Catz Technical Support by calling 1.800.659.2287 (U.S. only) or 1.619.258.6920 (outside U.S.).
- Return the product to Mad Catz with the postage prepaid and insured. Mad Catz will pay the full return shipping (see return address below).
- Enclose a copy of the original sales receipt showing a purchase date of less than one year before the package's postmark date.
- Enclose a full return address along with daytime and evening phone numbers.

Be Sure to pakage the Dual Force 900MHz Controller so that it it will not become damaged in shipping. We recommend placing the original box inside another box packed with foam peanuts. Mad Catz, inc., will not be responsible for any damage or loss to the product in shipment.

All returns should be addressed to:

Mad Catz, Inc.
1250 N. Marshall St.
El Cajon, CA 92020 USA
ATTN: WARRANTY

Please allow two to four weeks for processing. In the event of a problem, we can contact you at one of the phone numbers provided.

FCC ID:ACJ96NKX-CC2000BS

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant toPart 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can irradate radio frequency energy; and if not installed and used in accordance to instructions, may cause harmful interference to radio communications. However there is now guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures: re-orient or relocate the receiving antenna; increase the separation between the equipment and the receiver; connect the equipment into an outlet on a circuit different from that to which the receiver is connected; consult the dealer or an experienced radio/TV technician for help. To assure continued compliance, use only shielded interface cables when connecting to the PlayStation game console. Any changes or modifications not expressly approved by the party responsible for compliance could void the users authority to operate this equipment.

Features, product appearence, and specifications may change without notice. Mad Catz stands behind its product 100%

Questions? Visit our web site at www.madcatz.com or call 1.800.659.2287 (U.S. only) or 1.619.258.6920 (outside U.S.)

Product 8056 02/00