

FCC TEST REPORT

for

CISPR PUB. 22 Class B

Equipment : Game Pad

Model No. : MaxFire Programmable Force Feedback G09

FCC ID : FSUGG09

Filing Type : Original Grant

Applicant : KYE Systems Corp.
No. 492, Sec. 5, Chung Hsin Rd., San Chung, Taipei
Hsien, 241, Taiwan, R.O.C.

- The test result refers exclusively to the test presented test model / sample.
- Without the written authorization of the test lab., the Test Report may not be copied.

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

Table of Contents

CERTIFICATE OF COMPLIANCE	3
1. General Description of Equipment under Test	4
1.1. Applicant.....	4
1.2. Manufacturer.....	4
1.3. Basic Description of Equipment under Test.....	4
1.4. Feature of Equipment under Test.....	4
2. Test Configuration of Equipment under Test.....	5
2.1. Test Manner.....	5
2.2. Description of Test System	5
2.3. Connection Diagram of Test System.....	7
3. Test Software	8
4. General Information of Test	9
4.1. Test Facility.....	9
4.2. Standard for Methods of Measurement	9
4.3. Test in Compliance with	9
4.4. Frequency Range Investigated	9
4.5. Test Distance	9
5. Test of Conducted Powerline.....	10
5.1. Major Measuring Instruments.....	10
5.2. Test Procedures.....	11
5.3. Typical Test Setup Layout of Conducted Powerline	12
5.4. Test Result of AC Powerline Conducted Emission	13
5.5. Photographs of Conducted Powerline Test Configuration.....	14
6. Test of Radiated Emission	16
6.1. Major Measuring Instruments	16
6.2. Test Procedures.....	17
6.3. Typical Test Setup Layout of Radiated Emission.....	18
6.4. Test Result of Radiated Emission	19
6.5. Photographs of Radiated Emission Test Configuration.....	20
7. Antenna Factor & Cable Loss	21
8. List of Measuring Equipments Used	22

CERTIFICATE OF COMPLIANCE

for

CISPR PUB. 22 Class B

Equipment : Game Pad

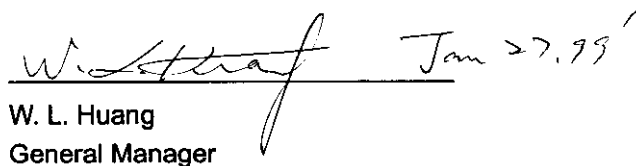
Model No. : MaxFire Programmable Force Feedback G09

FCC ID : FSUGG09

Applicant : KYE Systems Corp.
No. 492, Sec. 5, Chung Hsin Rd., San Chung, Taipei Hsien,
241, Taiwan, R.O.C.

HEREBY CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 - 1992** and the energy emitted by this equipment was **passed** CISPR PUB. 22 both radiated and conducted emission class B limits. Testing was carried out on Jan. 21, 1999 at **SPORTON International Inc. LAB.** in Lin Kou.


W. L. Huang
General Manager

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1. Applicant

KYE Systems Corp.
No. 492, Sec. 5, Chung Hsin Rd., San Chung, Taipei Hsien, 241, Taiwan, R.O.C.

1.2. Manufacturer

Same as 1.1.

1.3. Basic Description of Equipment under Test

Equipment : Game Pad
Model No. : MaxFire Programmable Force Feedback G09
FCC ID : FSUGG09
Trade Name : Genius
Data Cable : Shielded
Power Supply Type : Linear
Output Power Cord : Non-Shielded

1.4. Feature of Equipment under Test

- The digital joystick works efficiently in each game you play. It works in both analog or digital joystick mode.
- Force Feedback: Define a button to enable the motor in the handle and which degree of vibration you want with the Genius Amusement Software.
- Multi-directional pad: Eight directional pad speed up to movement easily.
- Joystick: New technique to increase precision for flight simulation games.
- Steering Wheel: Especially design for car racing game control.
- Ten programmable buttons: Most games use button 1 (the trigger) to fire weapons. Games often use other buttons to select, load weapons, assign targets..and so on.

2. Test Configuration of Equipment under Test

2.1. Test Manner

- a. The EUT has been associated with personal computer and peripherals pursuant to ANSI C63.4-1992 and configuration operated in a manner which tended to maximize its emission characteristics in a typical application.
- b. The SONY Monitor, DELL PS/2 Keyboard, PRIMAX PS/2 Mouse, HP Printer, ACEEX Modem and EUT were connected to the FIC PC for EMI test.
- c. Frequency range investigated: conduction 150 KHz to 30 MHz, radiation 30 MHz to 1,000 MHz.

2.2. Description of Test System

Support Unit 1. -- Personal Computer (FIC)

FCC ID	: N/A
Model No.	: P55T2P4
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0007
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 2. -- Monitor (SONY)

FCC ID	: AK8GDM17SE2T
Model No.	: GDM-17SE2T
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0063
Data Cable	: Double-Shielded, 360 degree via metal backshells

Support Unit 3. -- PS/2 Keyboard (DELL)

FCC ID	: GYUM92SK
Model No.	: AT101(DE8M)
Power Supply Type	: N/A
Serial No.	: SP0054
Data Cable	: Shielded, 360 degree via metal backshells

FCC TEST REPORT**Report No. : F910601****Support Unit 4. -- PS/2 Mouse (PRIMAX)**

FCC ID : EMJMUSJQ
Model No. : MUS9J
Power Supply Type : N/A
Serial No. : SP0045
Data Cable : Braided-Shielded, 360 degree via metal backshells

Support Unit 5. -- Printer (HP)

FCC ID : B94C2642X
Model No. : DeskJet 400
Power Supply Type : Linear
Power Cord : N/A
Serial No. : SP0048
Data Cable : Braided-Shielded, 360 degree via metal backshells

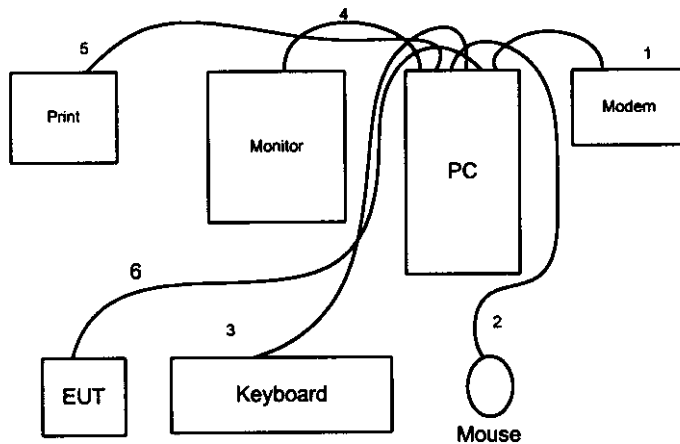
Support Unit 6. -- Modem (ACEEX)

FCC ID : IFAXDM1414
Model No. : DM1414
Power Supply Type : Linear
Power Cord : N/A
Serial No. : SP0016
Data Cable : Shielded, 360 degree via metal backshells

Support Unit 7. --Sound Card (CREATIVE)

FCC ID : N/A
Model No. : 4170
Serial No. : SP0028
Remark : This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

2.3. Connection Diagram of Test System



1. The I/O cable is connected from PC to the support unit 6.
2. The I/O cable is connected from PC to the support unit 4.
3. The I/O cable is connected from PC to the support unit 3.
4. The I/O cable is connected from PC to the support unit 2.
5. The I/O cable is connected from PC to the support unit 5.
6. The I/O cable is connected from the support 7 to the EUT.

3. Test Software

An executive program, EMITEST.EXE under WIN 98, which generates a complete line of continuously repeating " H " pattern was used as the test software.

The program was executed as follows :

- a. Turn on the power of all equipment.
- b. The PC reads the test program from the floppy disk drive and runs it.
- c. The PC sends " H " messages to the monitor, and the monitor displays " H " patterns on the screen.
- d. The PC sends " H " messages to the printer, then the printer prints them on the paper.
- e. The PC sends " H " messages to the modem.
- f. The PC sends " H " messages to the internal Hard Disk, and the Hard Disk reads and writes the message.
- g. Repeat the steps from b to f.

At the same time, Joystick of Control Panel under WIN98, was executed during testing..

4. General Information of Test

4.1. Test Facility

This test was carried out by SPORTON International Inc. in an openarea test site.
Openarea Test Site Location : No. 30-2, Lin 6, Diing-Fwu Tsuen, Lin-Kou-Hsiang,
Taipei Hsien, Taiwan, R.O.C.
TEL : 886-2-2601-1640
FAX : 886-2-2601-1695

4.2. Standard for Methods of Measurement

ANSI C63.4-1992

4.3. Test in Compliance with

CISPR PUB. 22 Class B

4.4. Frequency Range Investigated

- a. Conduction: from 150 kHz to 30 MHz
- b. Radiation : from 30 MHz to 1,000 MHz

4.5. Test Distance

The test distance of radiated emission from antenna to EUT is 10 M.

5. Test of Conducted Powerline

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 115 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-1992 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 5.3. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

5.1. Major Measuring Instruments

Test Receiver	HP 8591EM
Attenuation	0 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
Step MHz	0.007 MHz
IF Bandwidth	9 kHz

5.2. Test Procedures

- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connect to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- i. If the emission level of the EUT in peak mode was 6 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 6 dB margin will be retested one by one using the quasi-peak method and reported.

The diagram illustrates a laboratory setup for measuring the radiation dose rate of a Cs-137 source. The setup is mounted on a table that is 80 cm above the ground plane. The components include:

- Source:** A Cs-137 source housed in a lead container, with a 10 cm scale bar indicating its size.
- Detector:** A NaI(Tl) detector connected to a PMT (Photomultiplier Tube).
- Electronics:** The detector and PMT are connected to a multi-channel analyzer (MCA) and a power supply.
- Computer System:** The MCA is connected to a computer system consisting of a keyboard and a unit labeled "L.I.S.N." (likely a data logger or interface).

5.4. Test Result of AC Powerline Conducted Emission

- Frequency Range of Test : from 0.15 MHz to 30 MHz
- Temperature : 15°C
- Relative Humidity : 60 %
- Test Date : Jan. 8, 1999

The Conducted Emission test was passed at minimum margin

NEUTRAL 29.883 MHz / 47.20 dBuV.

Freq. (MHz)	Line or Neutral	Meter Reading				Limits				Margin	
		Q.P. (dBuV)	A.V. (dBuV)	Q.P. (uV)	A.V. (uV)	Q.P. (dBuV)	A.V. (dBuV)	Q.P. (uV)	A.V. (uV)	Q.P. (dB)	A.V. (dB)
0.346	L	39.70	39.30	96.61	92.26	60.41	50.41	1047.99	331.40	-20.71	-11.11
15.938	L	41.70	40.50	121.62	105.93	60.00	50.00	1000.00	316.23	-18.30	-9.50
29.880	L	43.70	43.30	153.11	146.22	60.00	50.00	1000.00	316.23	-16.30	-6.70
15.937	N	43.00	41.90	141.25	124.45	60.00	50.00	1000.00	316.23	-17.00	-8.10
21.914	N	41.50	40.80	118.85	109.65	60.00	50.00	1000.00	316.23	-18.50	-9.20
29.883	N	47.20	47.00	229.09	223.87	60.00	50.00	1000.00	316.23	-12.80	-3.00

Test Engineer :

Kenny Chuang
KENNY CHUANG

6. Test of Radiated Emission

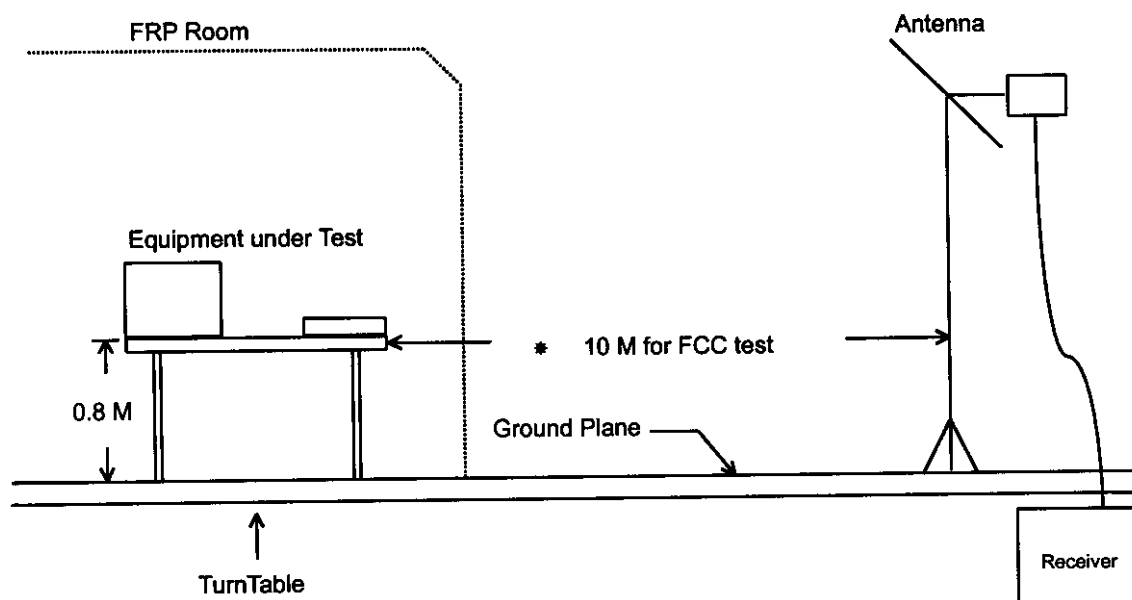
Radiated emissions from 30 MHz to 1,000 MHz were measured with a bandwidth of 120 kHz according to the methods defines in ANSI C63.4-1992. The EUT was placed on a nonmetallic stand in the open-field site, 0.8 meter above the ground plane, as shown in section 6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

6.1. Major Measuring Instruments

Amplifier	(HP 8447D)
Attenuation	0 dB
RF Gain	25 dB
Signal Input	0.1 MHz to 1.3 GHz
Spectrum Analyzer	(HP 8568B)
Attenuation	0 dB
Start Frequency	30 MHz
Stop Frequency	1,000 MHz
Resolution Bandwidth	1 MHz
Video Bandwidth	1 MHz
Signal Input	100 Hz to 1.5 GHz
Quasi-Peak Adapter	(85650A)
Resolution Bandwidth	120 KHz
Frequency Band	30 MHz to 1 GHz
Quasi-Peak Detector	ON for Quasi-Peak Mode OFF for Peak Mode

6.2. Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 10 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a half wave dipole and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 6 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 6 dB margin will be repeated one by one using the quasi-peak method and reported.

6.3. Typical Test Setup Layout of Radiated Emission

6.4. Test Result of Radiated Emission

- Frequency Range of Test : from 30 MHz to 1,000 MHz
- Test Distance : 10 M
- Temperature : 17°C
- Relative Humidity : 68 %
- Test Date : Jan. 6, 1999
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Antenna Factor + Cable Loss + Reading = Emission

The Radiated Emission test was passed at minimum margin

47.789 MHz / 25.35 dBuV (VERTICAL) Antenna Height 1.2 Meter, Turntable Degree 120 °.

Frequency (MHz)	Polarity	Antenna Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Limits		Emission (dBuV)	Level (uV)	Margin (dB)
					(dBuV)	(uV)			
42.580	H	12.70	1.25	7.87	30.00	31.62	21.83	12.35	-8.17
39.833	V	14.24	1.20	9.18	30.00	31.62	24.62	17.02	-5.38
47.789	V	9.68	1.24	14.42	30.00	31.62	25.35	18.51	-4.65
61.620	V	5.26	1.44	17.27	30.00	31.62	23.97	15.79	-6.03
67.716	V	5.87	1.41	17.84	30.00	31.62	25.12	18.03	-4.88
137.270	V	11.07	2.15	8.98	30.00	31.62	22.20	12.88	-7.80

Test Engineer :

T. C. Tseng

7. Antenna Factor & Cable Loss

Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)
30	16.7	1.0
35	15.5	1.2
40	14.2	1.2
45	11.3	1.3
50	8.4	1.2
55	6.8	1.3
60	5.1	1.5
65	5.6	1.3
70	6.1	1.5
75	6.6	1.5
80	7.2	1.7
85	8.2	1.5
90	9.2	1.7
95	10.0	1.7
100	10.8	1.7
110	11.7	2.0
120	12.4	2.0
130	11.8	2.0
140	10.8	2.2
150	10.8	2.2
160	10.5	2.3
170	10.1	2.2
180	9.7	2.3
190	9.4	2.5
200	9.0	2.5
220	10.0	2.6
240	11.0	2.7
260	11.8	2.7
280	12.3	2.9
300	12.9	3.2
320	13.8	3.3
340	14.8	3.3
360	15.6	3.3
380	16.1	3.4
400	16.6	3.5
450	16.7	3.8
500	17.7	4.2
550	19.0	4.3
600	19.0	4.5
650	18.7	4.7
700	18.7	4.8
750	19.9	5.2
800	21.3	5.3
850	21.4	5.7
900	21.2	5.7
950	22.4	6.0
1000	23.0	6.2

8. List of Measuring Equipments Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver (site 2)	HP	8591EM	3710A01187	9 KHz – 1.8 GHz	Sep. 18, 1998	Conduction
LISN (EUT) (site 2)	Telemeter	NNB-2/16Z	98009	50 ohm / 50 uH	Jan. 29, 1998	Conduction
LISN (Support Unit) (site 2)	EMCO	3810/2NM	9703-1839	50 ohm / 50 uH	Jul. 06, 1998	Conduction
Quasi-peak Adapter (site 3)	HP	85650A	2811A01116	9KHz -1 GHz	Jul. 19, 1998	Radiation
Amplifier (Site 3)	HP	8447D	2944A09068	0.1MHz -1.3GHz	Aug. 27, 1998	Radiation
Spectrum Analyzer (site 3)	HP	8568B	2732A04100	100Hz – 1.5GHz	July 19, 1998	Radiation
Bilog Antenna (Site 3)	CHASE	CBL6112A	2320	30MHz -2GHz	Sep. 10, 1998	Radiation
Half-wave dipole antenna (Site 3)	EMCO	3121C	9705-1285	28 M - 1GHz	May 19, 1998	Radiation
Turn Table (site 3)	EMCO	2080	9711-2022	0 ~ 360 degree	N/A	Radiation
Antenna Mast (site 3)	EMCO	2075	9710-2101	1 m- 4 m	N/A	Radiation