

# **FCC TEST REPORT**

for

**CISPR PUB.22 CLASS B**

Equipment : SOUND CARD

MODEL NO. : SOUND MAKER Live

**F C C I D** : FSUG9002

Filing Type : Original Certification

**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.



D7O0701

**SPORTON LAB.**

Certificate No:

# CERTIFICATE OF COMPLIANCE

Authorized under Declaration of Conformity  
according to

47 CFR, Part 2 and Part 15 of the FCC Rules

Equipment Under Test : PERSONAL COMPUTER

Model No. : P2L97

Applicant : FIRST INTERNATIONAL COMPUTER INC.

6F, Formosa Plastics Rear Building 201,  
Tung Hwa N. Rd., Taipei, Taiwan, R.O.C.



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 BOTH  
RADIATED AND CONDUCTED EMISSIONS CLASS B LIMITS. THE TESTING  
WAS COMPLETED ON SEP. 02, 1997 AT SPORTON INTERNATIONAL  
INC. LAB. IN NEI HWU.

W. L. Huang OCT 02, 97

W. L. Huang  
GENERAL MANAGER

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## **1. GENERAL DESCRIPTION OF EQUIPMENT UNDER TEST**

### **1.1. APPLICANT**

**KYE SYSTEM 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 : SOUND CARD

MODEL NO. : SOUND MAKER Live

FCC ID : FSUG9002

TRADE NAME : **KYE SYSTEMS CORP.**

DATA CABLE : Shielded

SPEAKER , MICROPHONE, STEREO CASSETTE PLAYER DATA CABLE : Non-shielded

POWER SUPPLY TYPE : N/A

POWER CORD : N/A

### **1.4. FEATURE OF EQUIPMENT UNDER TEST**

- Support DirectX
- Multi-Spraker / 4-Channcl Spcakcr
- Hardware Synthesizer
- Optional Qsound HSP dynamic 3D positional audio support
- Proprietary Logic for Real DOS SoundBlaster Pro game support
- AC-97 2.1 compliance
- Analog / Digital Game Port

## **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 keyboard, PRIMAX PS/2 mouse, HP printer, ACEEX modem, JUSTER speaker, KOKA microphone, MICROSOFT joystick, KOKA stereo cassette player and EUT were connected to the F.I.C. P.C. for EMI test.
- c. Frequency range investigated: Conduction 150 KHz to 30 MHz, Radiation 30 MHz to 1000MHz.

### **2.2. DESCRIPTION OF TEST SYSTEM**

#### **Support Device 1. --- P.C. (FIC)**

FCC ID : N/A  
Model No. : P2L97  
Serial No. : SP1005  
Data Cable : Shielded  
Power Cord : Non-shielded  
Power Supply Type : Switching

( Remark : This support device was tested to comply with FCC standards and  
authorized under a declaration of conformity.)

#### **Support Device 2. --- MONITOR (SONY)**

FCC ID : AK8GDM17SE2T  
Model No. : GDM-17SE2T  
Serial No. : SP1006  
Data Cable : Shielded, 360 degree via metal backshells, 1.7m  
Power Supply Type : Switching  
Power Cord : Non-shielded

**FCC TEST REPORT****REPORT NO. : F921105****Support Device 3. --- KEYBOARD (DELL)**

FCC ID : GYUM92SK  
Model No. : AT101 (DE8M)  
Serial No. : SP1009  
Data Cable : Shielded, 360 degree via metal backshells, 1.9m

**Support Device 4. --- PS/2 MOUSE (PRIMAX)**

FCC ID : EMJMUSJQ  
Model No. : MUS9J  
Serial No. : SP1012  
Data Cable : Shielded, 1.7m

**Support Device 5 --- PRINTER (HP)**

FCC ID : B94C2642X  
Model No. : DESK JET 400  
Serial No. : SP1040  
Data Cable : Shielded, 360 degree via metal backshells, 1.35m  
Power Supply Type : Linear, Adapter  
Power Cord : Non-shielded

**Support Device 6. --- MODEM (ACEEX)**

FCC ID : IFAXDM1414  
Model No. : DM1414  
Power Supply Type : Linear, AC Adapter  
Power Cord : Non-shielded  
Serial No. : SP1019  
Data Cable : Shielded, 360 degree via metal backshells, 2.3m

**Support Device 7. --- SPEAKER (JUSTER)**

FCC ID : N/A  
Model No. : SP-480  
Serial No. : SP1053  
Data Cable : Non-shielded, 1.1m

**Support Device 8. -- MICROPHONE (KOKA)**

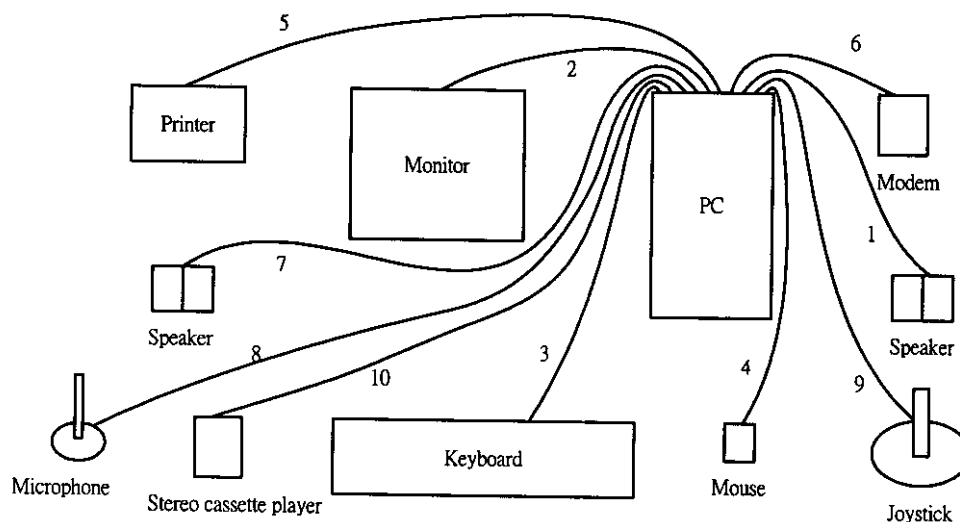
FCC ID : N/A  
Model No. : SR-M02  
Serial No. : SP1057  
Data Cable : Non-shielded, 2.1m

**Support Device 9. --- JOYSTICK (MICROSOFT)**

FCC ID : C3KMJ1  
Model No. : 3D Pro  
Serial No. : SP1062  
Data Cable : Shielded, 2.0m

**Support Device 10. --- STEREO CASSETTE PLAYER (KOKA)**

FCC ID : N/A  
Model No. : KW-247  
Serial No. : SP1064  
Data Cable : Non-shielded, 1.7m

**2.3. CONNECTION DIAGRAM OF TEST SYSTEM**

1. The I/O cable is connected from the EUT to the support device 7.
2. The I/O cable is connected from the PC to the support device 2.
3. The I/O cable is connected from the PC to the support device 3.
4. The I/O cable is connected from the PC to the support device 4.
5. The I/O cable is connected from the PC to the support device 5.
6. The I/O cable is connected from the PC to the support device 6.
7. The I/O cable is connected from the EUT to the support device 7.
8. The I/O cable is connected from the EUT to the support device 8.
9. The I/O cable is connected from the EUT to the support device 9.
10. The I/O cable is connected from the EUT to the support device 10.

### **3. TEST SOFTWARE**

An executive program, EMITEST.EXE under WIN98, 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, MEDIA PLAYER, was used during tested.



## **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. 30-1, 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 1000 MHz.

### **4.5. TEST DISTANCE**

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

## **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 Figure 5-3. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

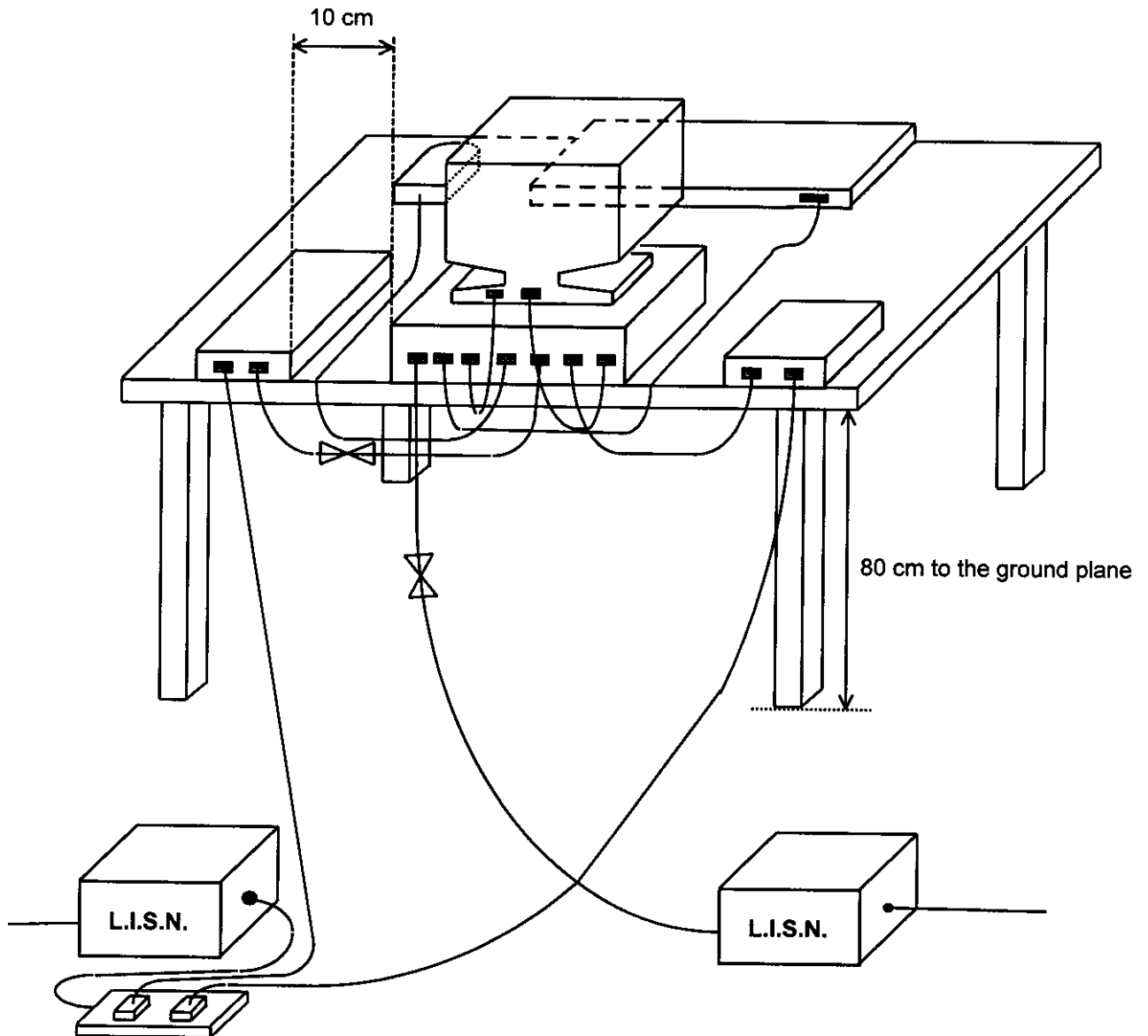
### **5.1. MAJOR MEASURING INSTRUMENTS**

- 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 and 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 on by one using the quasi-peak method and reported.

**5.3. TYPICAL TEST SETUP LAYOUT OF CONDUCTED POWERLINE**



## 5.4. TEST RESULT OF AC POWERLINE CONDUCTED EMISSION

- All emissions not reported here are more than 10 dB below the prescribed limit.
- Frequency Range of Test : from 0.15 MHz to 30 MHz
- Temperature : 19°C
- Relative Humidity : 48% RH
- Test Date : Feb. 12, 1999

The Conducted Emission test was passed at Line 0.25 MHz / 48.70 dBuV.

Frequency ( 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 )
0.25	Line	48.70	48.00	272.27	251.19	63.04	53.04	1419.52	448.89	-14.34	-5.04
0.78	Line	34.50	33.50	53.09	47.32	56.00	46.00	630.96	199.53	-21.50	-12.50
12.00	Line	37.80	37.40	77.62	74.13	60.00	50.00	1000.00	316.23	-22.20	-12.60
0.25	Neutral	48.00	47.70	251.19	242.66	63.14	53.14	1435.96	454.09	-15.14	-5.44
0.78	Neutral	34.40	33.50	52.48	47.32	56.00	46.00	630.96	199.53	-21.60	-12.50
12.00	Neutral	35.90	35.40	62.37	58.88	60.00	50.00	1000.00	316.23	-24.10	-14.60

Test Engineer :

Kenny Chuang

## **6. TEST OF RADIATED EMISSION**

Radiated emissions from 30 MHz to 1000 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 Figure 6-3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

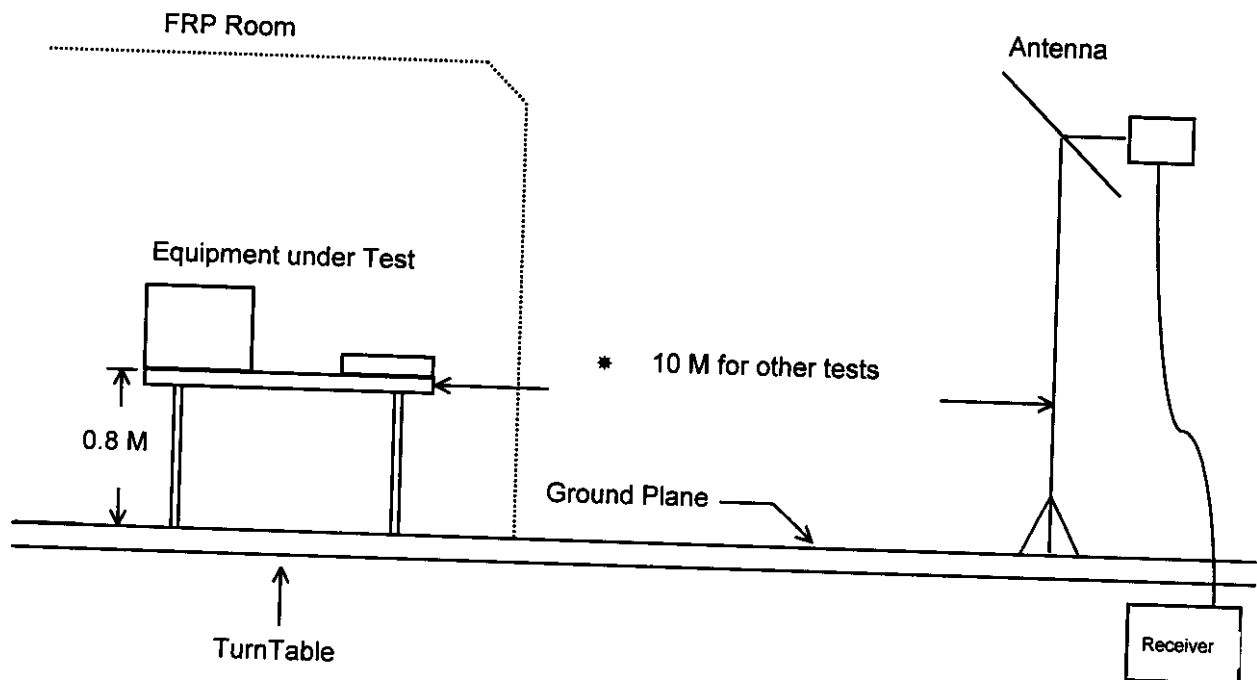
### **6.1. MAJOR MEASURING INSTRUMENTS**

- 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 1000 MHz
  - Resolution Bandwidth 1 MHz
  - Video Bandwidth 1 MHz
  - Signal Input 100 Hz to 1.5 GHz
  
- Quasi-Peak Adapter ( HP 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**





# FCC TEST REPORT

REPORT NO. : F921105

## 6.4. TEST RESULT OF RADIATED EMISSION

- Equipment meets the technical specifications of CISPR PUB.22
- Frequency Range of Test : from 30 MHz to 1000 MHz
- Test Distance : 10 M
- Temperature : 21°C
- Relative Humidity : 53 % RH
- Test Date : Feb. 11, 1999

- Emission level ( dBuV/m ) = 20 log Emission level ( uV/m )
- Sample Calculation at 196.60 MHz  
Corrected Reading = 9.08 + 2.25 + 15.58 = 26.91 (dBuV/m)

The Radiated Emission test was passed at minimum margin

Horizontal 663.60 MHz / 33.92 dBuV

Antenna Height 1.35 Meter , Turntable Degree 67°

Frequency ( MHz )	Polarity	Antenna Factor (dB/m)	Cable Loss ( dB )	Reading ( dBuV )	Limits (dBuV/m) (uV/m)	Emission (dBuV/m)	Level (uV/m)	Margin ( dB )
196.60	H	9.08	2.25	15.58	30.00 32	26.91	22.16	-3.09
663.60	H	20.56	4.38	8.98	37.00 71	33.92	49.66	-3.08
712.80	H	21.10	4.68	6.92	37.00 71	32.70	43.15	-4.30
159.40	V	10.58	2.11	12.85	30.00 32	25.54	18.92	-4.46
196.80	V	9.08	2.25	15.04	30.00 32	26.38	20.84	-3.62
712.00	V	21.10	4.67	8.10	37.00 71	33.87	49.37	-3.13

Test Engineer : Jones Jan  
Jones Jan

**SPORTON International Inc.**

TEL : 886-2-2696-2468

FAX : 886-2-2696-2255

**FCC ID** : FSUG9002

**PAGE NUMBER** : 20 OF 23

**ISSUED DATE** : Feb. 25, 1999

## 7. ANTENNA FACTOR AND CABLE LOSS

Frequency ( Mhz )	Antenna Factor ( dB )	Cable Loss ( dB )
30	-1.91	0.90
35	-0.50	0.92
40	0.61	1.04
45	1.40	1.28
50	2.39	1.10
55	3.54	1.11
60	4.40	1.30
65	4.84	1.40
70	5.59	1.37
75	6.21	1.24
80	7.60	1.51
85	7.73	1.60
90	8.22	1.60
95	8.90	1.70
100	9.36	1.70
110	10.01	1.70
120	10.41	1.90
130	10.84	1.90
140	11.42	1.91
150	11.91	2.01
160	12.25	2.11
170	12.72	2.21
180	13.02	2.30
190	13.50	2.30
200	14.05	2.40
220	15.11	2.50
240	16.81	2.60
260	17.51	2.71
280	17.70	2.90
300	17.89	2.91
320	18.00	3.10
340	18.33	3.20
360	19.44	3.30
380	20.31	3.40
400	21.19	3.50
450	21.10	3.70
500	22.21	4.10
550	23.42	4.30
600	24.01	4.50
650	25.11	4.70
700	26.00	4.90
750	26.41	5.11
800	27.10	5.50
850	27.51	5.60
900	27.90	5.80
950	28.01	5.90
1000	29.00	6.20

## 8. LIST OF MEASURING INSTRUMENTS USED

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver (site 2)	HP	8591EM	3710A01187	9 KHz - 18 GHz	Sep. 18, 1998	Conduction
LISN (EUT) (site 2)	Telemeter	NNB-2/16Z	98009	50 ohm / 50 uH	Jan. 22, 1999	Conduction
LISN (Support Unit) (site 2)	EMCO	3810/2NM	9703-1839	50 ohm / 50 uH	Jul. 06, 1998	Conduction
Quasi-peak Adapter (site 5)	HP	85650A	2521A00821	9KHz -1 GHz	Nov. 14, 1998	Radiation
Spectrum Analyzer (Site 5)	HP	8568B	2634A03000	100Hz - 1.5GHz	Nov. 14, 1998	Radiation
Amplifier (Site 5)	HP	8447D	2944A08290	0.1MHz -1.3GHz	Nov. 13, 1998	Radiation
Bilog Antenna (Site 5)	CHASE	CBL6112A	2287	30MHz -2GHz	Jan. 27, 1999	Radiation
Half-wave dipole antenna (Site 5)	EMCO	3121C	9705-1285	28 M - 1GHz	May 19, 1998	Radiation
Turn Table (site 5)	EMCO	2080	9711-2021	0 ~ 360 degree	N/A	Radiation
Antenna Mast (site 5)	EMCO	2075	9711-2115	1 m- 4 m	N/A	Radiation

※ The column of Remark indicates that the instruments used for conduction ("C") or radiation ("R") test.