

# **FCC TEST REPORT**

for

## **PART 15, SUBPART B CLASS B**

**EQUIPMENT : 19" COLOR MONITOR**

**MODEL NO. : C903**

**F C C I D : IQX98C1995**

**FILING TYPE : Original Grant**

**APPLICANT : SHAMROCK TECHNOLOGY CO., LTD.**  
No. 3, Chung-Shan Rd., Tu-Cheng Industrial District,  
Tu-Cheng City, Taipei Hsien, Taiwan, R.O.C.

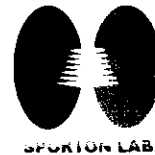
- The test result refers exclusively to the test presented test model / sample.
- Without the written authorization of the test lab., the Test Report may not be copied.

**SPORTON INTERNATIONAL INC.**

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

**TABLE OF CONTENT**

<b>SECTION TITLE</b>	<b>PAGE</b>
<b>CERTIFICATE OF COMPLIANCE .....</b>	<b>3</b>
<b>1. GENERAL DESCRIPTION OF EQUIPMENT UNDER TEST .....</b>	<b>4</b>
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
<b>2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST .....</b>	<b>5</b>
2.1. TEST MANNER .....	5
2.2. DESCRIPTION OF TEST SYSTEM .....	5
2.3. CONNECTION DIAGRAM OF TEST SYSTEM .....	8
<b>3. TEST SOFTWARE .....</b>	<b>9</b>
<b>4. GENERAL INFORMATION OF TEST .....</b>	<b>10</b>
4.1. TEST FACILITY .....	10
4.2. STANDARD FOR METHODS OF MEASUREMENT .....	10
4.3. TEST IN COMPLIANCE WITH .....	10
4.4. FREQUENCY RANGE INVESTIGATED .....	10
4.5. TEST DISTANCE .....	10
<b>5. TEST OF CONDUCTED POWERLINE .....</b>	<b>11</b>
5.1. MAJOR MEASURING INSTRUMENTS .....	11
5.2. TEST PROCEDURES .....	12
5.3. TYPICAL TEST SETUP LAYOUT OF CONDUCTED POWERLINE .....	13
5.4. TEST RESULT OF AC POWERLINE CONDUCTED EMISSION .....	14
5.5. PHOTOGRAPHS OF CONDUCTED POWERLINE TEST CONFIGURATION .....	18
<b>6. TEST OF RADIATED EMISSION .....</b>	<b>22</b>
6.1. MAJOR MEASURING INSTRUMENTS .....	22
6.2. TEST PROCEDURES .....	23
6.3. TYPICAL TEST SETUP LAYOUT OF RADIATED EMISSION .....	24
6.4. TEST RESULT OF RADIATED EMISSION .....	25
6.5. PHOTOGRAPHS OF RADIATED EMISSION TEST CONFIGURATION .....	29
<b>7. ANTENNA FACTOR AND CABLE LOSS .....</b>	<b>31</b>
<b>8. LIST OF MEASURING EQUIPMENT USED .....</b>	<b>32</b>



## CERTIFICATE OF COMPLIANCE

for

### FCC PART 15, SUBPART B CLASS B

EQUIPMENT : 19" COLOR MONITOR

MODEL NO. : C903


F C C I D : IQX98C1995

APPLICANT : **SHAMROCK TECHNOLOGY CO., LTD.**  
No. 3, Chung-Shan Rd., Tu-Cheng Industrial District,  
Tu-Cheng City, Taipei Hsien, Taiwan, R.O.C.

### I HEREBY CERTIFY THAT :

The measurement shown in this 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.

Testing was carried out on **Aug. 21, 1998** at **SPORTON International Inc.**

 067 00, 98  
W. L. Huang  
General Manager

**SPORTON INTERNATIONAL INC.**

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

**1. GENERAL DESCRIPTION OF EQUIPMENT UNDER TEST****1.1. APPLICANT****SHAMROCK TECHNOLOGY CO., LTD.**

No. 3, Chung-Shan Rd., Tu-Cheng Industrial District,  
Tu-Cheng City, Taipei Hsien, Taiwan, R.O.C.

**1.2. MANUFACTURER**

Same as 1.1

**1.3. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST**

EQUIPMENT : 19" COLOR MONITOR

MODEL NO. : C903

FCC ID : IQX98C1995

TRADE NAME : SHAMROCK

DATA CABLE : Shielded, 1.25m

( **Remark** : A ferrite core is added on the video cable at PC end.)

POWER SUPPLY TYPE : Switching

POWER CORD : Non-shielded

**1.4. FEATURE OF EQUIPMENT UNDER TEST**

<b>CRT</b>	19" (18" viewable image), 0.26 mm dot pitch, 90° deflection, dark tint, F.S.T. double focus, ARASC coating
<b>Resolution</b>	1600 × 1200 max. (depends on video card)
<b>Input / Video Sync</b>	Analog : 0.7 Vp-p, 75 ohm, RGB (+) Horizontal : 31 – 94 KHz. Vertical : 60 – 85 Hz.
<b>Video Response</b>	150 MHz nominal
<b>Power</b>	100 - 240VAC, 60/50 Hz, 2.5A (max.) Consumption : 120W (max.)
<b>Video Cable</b>	15 pin, D-type male connector.

## **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 HP printer, ACEEX modem, SILITEK USB keyboard, DELL keyboard, GENIUS mouse, LOGITECH USB mouse and EUT were connected to the FIC P.C. for EMI test.
- c. Two kinds of monitor were investigated in order to find the maximum emissions. One is the monitor without USB connectors, the other is the monitor with five USB connectors.
- d. The following display resolution were investigated during the compliance test:
  1. Horizontal frequency ( 640 x 480 to 1600 x 1200, 31.5KHz to 94KHz )
  2. Vertical frequency ( 60Hz to 85Hz)
- e. According to the above tests, we listed the following display modes as the worst cases:
  1. 1600 x 1200 ( Non-interlanced, 94KHz ), refresh rate 75Hz.
  2. 1280 x 1024 (Non-interlanced, 91KHz), refresh rate 85Hz.
- f. Frequency range investigated: Conduction 450 KHz to 30 MHz, Radiation 30 MHz to 2000MHz.

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

#### **Support Device 1. --- USB KEYBOARD (SILITEK)**

FCC ID	: GYUR50SK
Model No.	: SK-2000U
Serial No.	: SP1042
Data Cable	: Shielded, 360 degree via metal backshells, 1.5m

#### **Support Device 2. --- KEYBOARD (DELL)**

FCC ID	: GYUM90SK
Model No.	: AT101 W
Serial No.	: SP1009
Data Cable	: Shielded, 360 degree via metal backshells, 2.0m

**Support Device 3. -- PS/2 MOUSE (GENIUS)**

FCC ID : FSUGMZFC  
Model No. : NETMOUSE  
Serial No. : SP1034  
Data Cable : Non-shielded, 1.75m

**Support Device 4. -- USB MOUSE (LOGITECH)**

FCC ID : DZL211087  
Model No. : M-UA3U  
Serial No. : SP1017  
Data Cable : Non-shielded, 1.75m

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

FCC ID : DSI6XU2225  
Model No. : 2225C  
Serial No. : SP1015  
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, 1.15m

**Support Device 7. --- P.C. (FIC)**

FCC ID : N/A

Model No. : P2L97

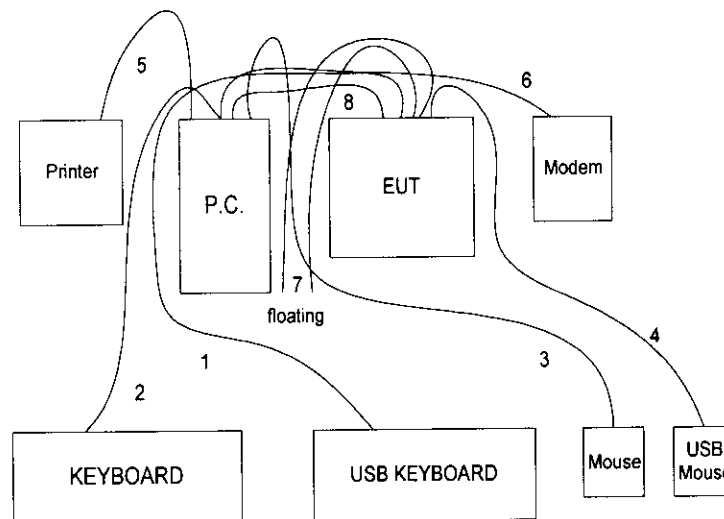
Serial No. : SP1005

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.)

**2.3. CONNECTION DIAGRAM OF TEST SYSTEM**

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



### **3. TEST SOFTWARE**

An executive program, WINFCC.EXE under WIN98, which generate 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.

## **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. 3, Lane 238, Kang Lo Street, Nei Hwu District,  
Taipei 11424, Taiwan, R.O.C.

TEL : 886-2-2631-4739, FAX : 886-2-2631-9740

### **4.2. STANDARD FOR METHODS OF MEASUREMENT**

ANSI C63.4-1992

### **4.3 .TEST IN COMPLIANCE WITH**

FCC PART 15, SUBPART B CLASS B

### **4.4. FREQUENCY RANGE INVESTIGATED**

- a. Conduction : from 450 KHz to 30 MHz
- b. Radiation : from 30 MHz to 2000 MHz.

### **4.5. TEST DISTANCE**

The test distance of radiated emission from antenna to EUT is 3M.

## **5. TEST OF CONDUCTED POWERLINE**

Conducted Emissions were measured from 450 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.

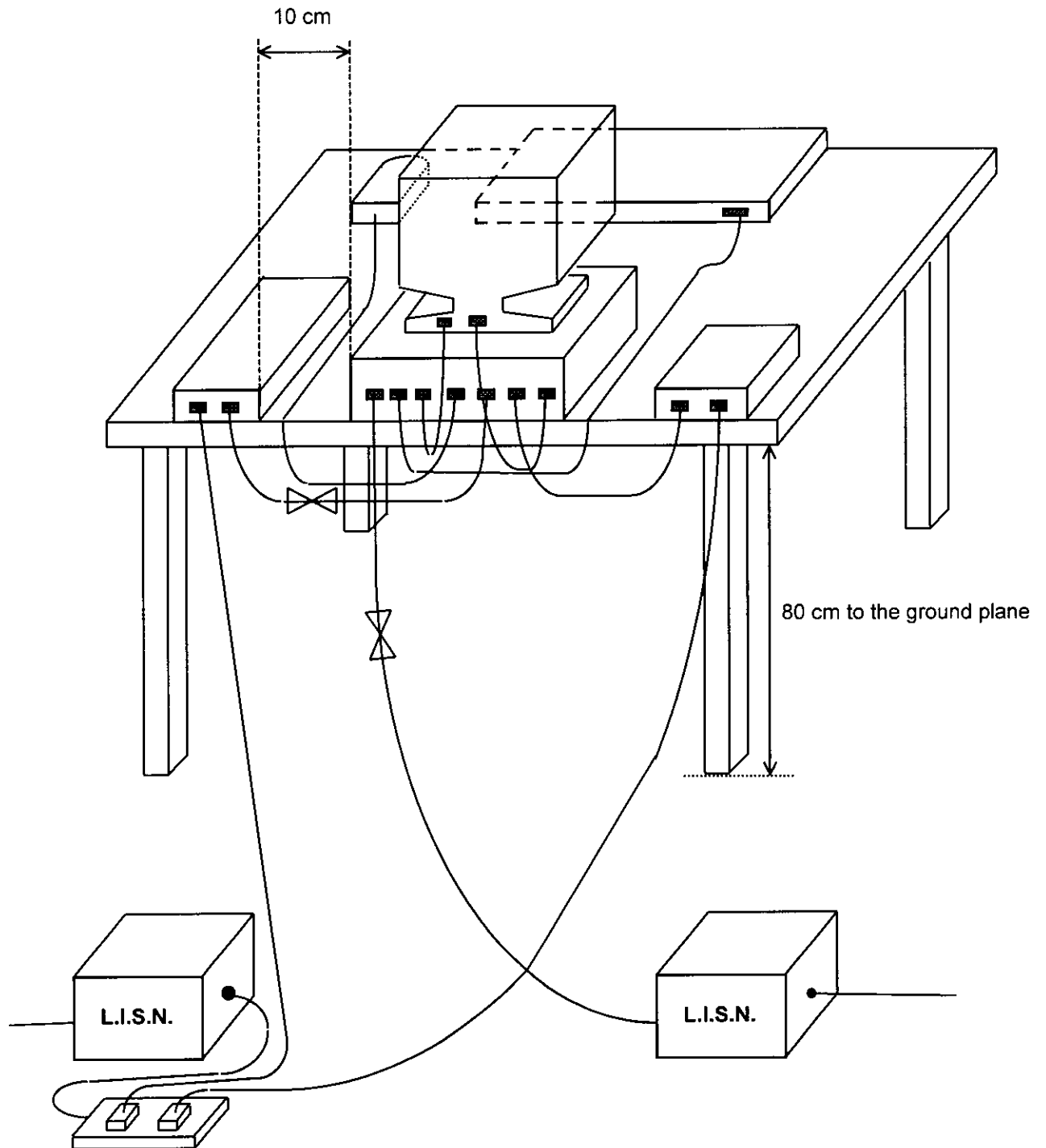
### **5.1. MAJOR MEASURING INSTRUMENTS**

- Test Receiver ( R&S ESH3 )
  - Attenuation 0 dB
  - Start Frequency 0.45 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 450 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**

- Frequency Range of Test : from 0.45 MHz to 30 MHz
- All emissions not reported here are more than 10 dB below the prescribed limit.
- Temperature : 29°C
- Relative Humidity : 57 % RH
- Test Mode : **1600 × 1200, 75Hz, 94K (C903)**
- Test Date : Aug. 20, 1998

**The Conducted Emission test was passed at Line 2.19 MHz / 43.20 dBuV.**

Frequency ( MHz )	Line / Neutral	Meter Reading		Limits		Margin
		( dBuV )	( uV )	( dBuV )	( uV )	( dB )
0.56	L	42.80	138.04	48.00	251.19	-5.20
2.19	L	43.20	144.54	48.00	251.19	-4.80
8.12	L	40.30	103.51	48.00	251.19	-7.70
0.47	N	42.30	130.32	48.00	251.19	-5.70
1.92	N	42.10	127.35	48.00	251.19	-5.90
8.22	N	38.90	88.10	48.00	251.19	-9.10

Test Engineer : Louis Lin

Louis Lin

**5.4.1. TEST RESULT OF AC POWERLINE CONDUCTED EMISSION**

- Frequency Range of Test : from 0.45 MHz to 30 MHz
- All emissions not reported here are more than 10 dB below the prescribed limit.
- Temperature : 29°C
- Relative Humidity : 57 % RH
- Test Mode : **1280 × 1024, 85Hz, 91K (C903)**
- Test Date : Aug. 20, 1998

**The Conducted Emission test was passed at Line 2.28 MHz / 42.80 dBuV.**

Frequency ( MHz )	Line / Neutral	Meter Reading		Limits		Margin
		( dBuV )	( uV )	( dBuV )	( uV )	( dB )
0.55	L	41.20	114.82	48.00	251.19	-6.80
2.28	L	42.80	138.04	48.00	251.19	-5.20
8.31	L	38.90	88.10	48.00	251.19	-9.10
0.56	N	41.30	116.14	48.00	251.19	-6.70
2.89	N	40.20	102.33	48.00	251.19	-7.80
8.21	N	38.20	81.28	48.00	251.19	-9.80

Test Engineer : \_\_\_\_\_

Louis Lin

**5.4.2. TEST RESULT OF AC POWERLINE CONDUCTED EMISSION**

- Frequency Range of Test : from 0.45 MHz to 30 MHz
- All emissions not reported here are more than 10 dB below the prescribed limit.
- Temperature : 29°C
- Relative Humidity : 57 % RH
- Test Mode : **1600 × 1200, 75Hz, 94K (C903 USB)**
- Test Date : Aug. 21, 1998

**The Conducted Emission test was passed at Line 2.53 MHz / 42.50 dBuV.**

Frequency ( MHz )	Line / Neutral	Meter Reading		Limits		Margin ( dB )
		( dBuV )	( uV )	( dBuV )	( uV )	
0.59	L	40.20	102.33	48.00	251.19	-7.80
1.02	L	40.50	105.93	48.00	251.19	-7.50
2.53	L	42.50	133.35	48.00	251.19	-5.50
0.47	N	42.20	128.82	48.00	251.19	-5.80
0.75	N	40.50	105.93	48.00	251.19	-7.50
1.96	N	40.50	105.93	48.00	251.19	-7.50

Test Engineer : Louis Lin

Louis Lin



**5.4.3. TEST RESULT OF AC POWERLINE CONDUCTED EMISSION**

- Frequency Range of Test : from 0.45 MHz to 30 MHz
- All emissions not reported here are more than 10 dB below the prescribed limit.
- Temperature : 29°C
- Relative Humidity : 57 % RH
- Test Mode : **1280 × 1024, 85Hz, 91K (C903 USB)**
- Test Date : Aug. 21, 1998

**The Conducted Emission test was passed at Line 2.55 MHz / 40.30 dBuV.**

Frequency ( MHz )	Line / Neutral	Meter Reading		Limits		Margin
		( dBuV )	( uV )	( dBuV )	( uV )	( dB )
0.58	L	39.80	97.72	48.00	251.19	-8.20
1.03	L	38.70	86.10	48.00	251.19	-9.30
2.55	L	40.30	103.51	48.00	251.19	-7.70
0.47	N	40.30	103.51	48.00	251.19	-7.70
0.78	N	38.50	84.14	48.00	251.19	-9.50
1.03	N	39.50	94.41	48.00	251.19	-8.50

Test Engineer : Louis Lin

Louis Lin

## **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.

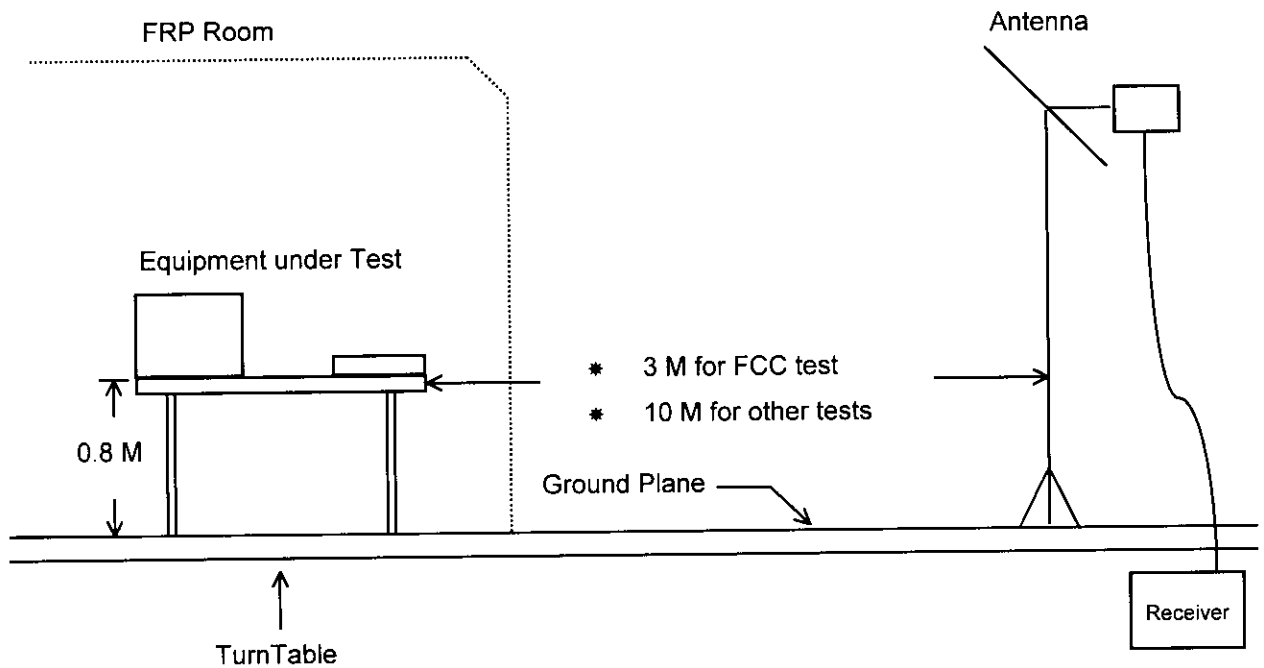
### **6.1. MAJOR MEASURING INSTRUMENTS**

- Amplifier ( HP 87405A )
  - Attenuation 0 dB
  - RF Gain 25 dB
  - Signal Input 10 MHz to 3 GHz
  
- Spectrum Analyzer ( HP 8594A )
  - Attenuation 0 dB
  - Start Frequency 30 MHz
  - Stop Frequency 1000 MHz
  - Resolution Bandwidth 1 MHz
  - Video Bandwidth 1 MHz
  - Signal Input 9 KHz to 2.9 GHz
  
- Spectrum Analyzer ( HP 8594A )
  - 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 3 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

- Equipment meets the technical specifications of 15.109
- Frequency Range of Test : from 30 MHz to 2000 MHz
- Test Distance : 3 M
- Temperature : 32°C
- Relative Humidity : 68% RH
- Test Mode : **1600 × 1200, 75Hz, 94K (C903)**
- Test Date : Aug. 20, 1998
- Emission level ( dBuV/m ) = 20 log Emission level ( uV/m )
- Sample Calculation at 252.80 MHz  
Corrected Reading = 17.26 + 2.67 + 22.86 = 42.79 (dBuV/m )

The Radiated Emission test was passed at

Horizontal 252.80 MHz / 42.79 dBuV

Antenna Height 2.5 Meter , Turntable Degree 185°.

Frequency	Antenna	Cable	Reading	Limits	Emission	Level	Margin		
Polarity	Factor	Loss							
( MHz )	(dB/m)	( dB )	( dBuV )	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	( dB )	
48.00	H	1.99	1.17	33.30	40.00	100	36.47	66.60	-3.53
76.60	H	6.65	1.33	26.85	40.00	100	34.83	55.14	-5.17
191.80	H	13.60	2.32	19.24	43.50	150	35.16	57.28	-8.34
227.75	H	15.77	2.54	17.70	46.00	200	36.01	63.17	-9.99
252.80	H	17.26	2.67	22.86	46.00	200	42.79	137.88	-3.21
216.01	V	14.90	2.48	19.42	46.00	200	36.80	69.18	-9.20

Test Engineer : Louis Lin

Louis Lin

**6.4.1. TEST RESULT OF RADIATED EMISSION**

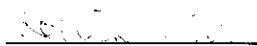
- Equipment meets the technical specifications of 15.109
- Frequency Range of Test : from 30 MHz to 2000 MHz
- Test Distance : 3 M
- Temperature : 32°C
- Relative Humidity : 68% RH
- Test Mode : **1280 × 1024, 85Hz, 91K (C903)**
- Test Date : Aug. 21, 1998
- Emission level ( dBuV/m ) = 20 log Emission level ( uV/m )
- Sample Calculation at 47.98 MHz  
Corrected Reading = 1.99 + 1.17 + 33.41 = 36.57 (dBuV/m )

**The Radiated Emission test was passed at**

**Vertical 47.98 MHz / 36.57 dBuV**

**Antenna Height 1.0 Meter , Turntable Degree 189°.**

Frequency	Antenna	Cable	Reading	Limits	Emission	Level	Margin		
Polarity	Factor	Loss							
( MHz )	(dB/m)	( dB )	( dBuV )	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	( dB )	
66.60	H	5.08	1.39	28.41	40.00	100	34.88	55.46	-5.12
79.00	H	7.32	1.46	27.69	40.00	100	36.47	66.60	-3.53
128.03	H	10.76	1.90	23.66	43.50	150	36.32	65.46	-7.18
191.80	H	13.60	2.32	18.54	43.50	150	34.46	52.84	-9.04
47.98	V	1.99	1.17	33.41	40.00	100	36.57	67.38	-3.43
128.02	V	10.75	1.90	21.87	43.50	150	34.52	53.21	-8.98

Test Engineer : 

Louis Lin

## 6.4.2. TEST RESULT OF RADIATED EMISSION

- Equipment meets the technical specifications of 15.109
- Frequency Range of Test : from 30 MHz to 2000 MHz
- Test Distance : 3 M
- Temperature : 32°C
- Relative Humidity : 68% RH
- Test Mode : **1600 × 1200, 75Hz, 94K (C903 USB)**
- Test Date : Aug. 21, 1998
- Emission level ( dBuV/m ) = 20 log Emission level ( uV/m )
- Sample Calculation at 77.90 MHz  
Corrected Reading = 7.02 + 1.40 + 28.24 = 36.65 (dBuV/m )

The Radiated Emission test was passed at

Horizontal 77.90 MHz / 36.65 dBuV

Antenna Height 4.0 Meter , Turntable Degree 193°.

Frequency	Antenna	Cable	Reading		Limits	Emission	Level	Margin	
Polarity	Factor	Loss							
( MHz )	(dB/m)	( dB )	( dBuV )	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	( dB )	
62.50	H	4.62	1.35	30.11	40.00	100	36.08	63.68	-3.92
77.90	H	7.02	1.40	28.24	40.00	100	36.65	68.00	-3.35
601.60	H	24.05	4.51	12.75	46.00	200	41.30	116.14	-4.70
80.00	V	7.60	1.51	26.99	40.00	100	36.10	63.83	-3.90
203.20	V	14.22	2.42	18.97	43.50	150	35.61	60.33	-7.89
414.40	V	21.16	3.56	16.57	46.00	200	41.29	116.01	-4.71

Test Engineer : Louis Lin

Louis Lin

**6.4.3. TEST RESULT OF RADIATED EMISSION**

- Equipment meets the technical specifications of 15.109
- Frequency Range of Test : from 30 MHz to 2000 MHz
- Test Distance : 3 M
- Temperature : 32°C
- Relative Humidity : 68% RH
- Test Mode : **1280 × 1024, 85Hz, 91K (C903 USB)**
- Test Date : Aug. 21, 1998
- Emission level ( dBuV/m ) = 20 log Emission level ( uV/m )
- Sample Calculation at 600.80 MHz  
Corrected Reading = 24.03 + 4.50 + 14.57 = 43.10 (dBuV/m )

The Radiated Emission test was passed at

Horizontal 600.80 MHz / 43.10 dBuV

Antenna Height 2.5 Meter , Turntable Degree 190°.

Frequency	Antenna	Cable	Reading		Limits	Emission	Level	Margin	
Polarity	Factor	Loss							
( MHz )	(dB/m)	( dB )	( dBuV )	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	( dB )	
63.20	H	4.68	1.36	26.17	40.00	100	32.22	40.83	-7.78
80.00	H	7.60	1.51	27.49	40.00	100	36.60	67.61	-3.40
600.80	H	24.03	4.50	14.57	46.00	200	43.10	142.89	-2.90
47.30	V	1.86	1.20	32.35	40.00	100	35.40	58.88	-4.60
79.13	V	7.36	1.46	25.36	40.00	100	34.18	51.17	-5.82
601.60	V	24.05	4.51	14.05	46.00	200	42.60	134.90	-3.40

Test Engineer : Louis Lin

Louis Lin



**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

## 8. LIST OF MEASURING EQUIPMENT USED

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Test Receiver	R&S	ESH3	893495/013	9 KHz - 30MHz	April 13, 1998	Conduction
Test Receiver	R&S	ESVP	893610/003	20MHz - 1.3 GHz	April 13, 1998	Conduction
LISN	EMCO	3825/2	9510-2484	50 ohm / 50 $\mu$ H	Nov. 29, 1997	Conduction
LISN	KYORITSU	KNW-407	8-1010-15	50 ohm / 50 $\mu$ H	Nov. 10, 1997	Conduction
EMI Filter	CORCOM	MRI-2030	N/A	480VAC / 30A	N/A	Conduction
Spectrum Monitor	R & S	EZM	894987/011	N/A	April 13, 1998	Conduction
RF Preselector (Site 1)	HP	85685A	2926A00951	20MHz -1.5GHz	July 18, 1998	Radiation
Spectrum Analyzer (site 1)	HP	8568B	2928A04713	100Hz - 1.5GHz	July 18, 1998	Radiation
Quasi-peak Adapter (site 1)	HP	85650A	2811A01285	9KHz -1 GHz	Jul. 18, 1998	Radiation
Bilog Antenna (1)	CHASE	CBL6112A	2302	30MHz - 2GHz	Jan. 27, 1998	Radiation
Half-wave dipole antenna (1)	EMCO	3121C	8912-496	20MHz - 1GHz	Aug. 12, 1998	Radiation
Turn Table	EMCO	1060-1.211	9507-1805	0 ~360 degree	N/A	Radiation
Antenna Mast	EMCO	1051-1.2	9502-1868	1 m - 4 m	N/A	Radiation