

# FCC TEST REPORT

for

## PART 15, SUBPART B CLASS B

**EQUIPMENT** : Docking

**MODEL NO.** : DP 10

**F C C I D** : EUNDP10

**FILING TYPE** : Original Grant

**APPLICANT** : **First International Computer, Inc.**  
B1 No. 133, MING SHENG E. RD., SEC 3.  
Taipei, 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.*

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**FCC TEST REPORT**

**REPORT NO. : F891502**

**CERTIFICATE NO. : F891502**

# **CERTIFICATE OF COMPLIANCE**

for

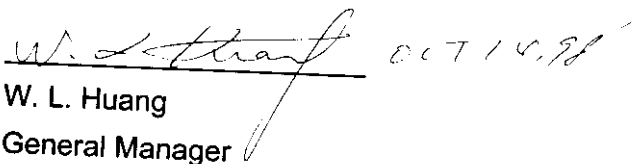
## **FCC PART 15, SUBPART B CLASS B**

**EQUIPMENT** : Docking  
**MODEL NO.** : DP 10  
**F C C I D** : EUNDP10  
**FILING TYPE** : Original Grant  
**APPLICANT** : **First International Computer, Inc.**  
B1 No. 133, MING SHENG E. RD., SEC 3.  
Taipei, 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 **Oct. 02, 1998** at **SPORTON International Inc.**

  
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**

**First International Computer, Inc.**  
B1 No. 133, MING SHENG E. RD., SEC 3.  
Taipei, Taiwan, R.O.C.

**1.2. MANUFACTURER : Same as 1.1**

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

EQUIPMENT : Docking  
FCC ID:EUNDP10  
MODEL NO. : DP 10  
TRADE NAME :FIC  
DATA CABLE: Shielded  
AV DATA CABLE : Non-shielded  
S-Video DATA CABLE: Shielded  
POWER ADAPTER CABLE: Shielded  
POWER SUPPLY TYPE : Switchong  
POWER CORD : Non-shielded

**1.4. FEATURE OF EQUIPMENT UNDER TEST**

- UniDock 1.0 Delete the stereo line jack, headphone jack, microphone jack, thumb wheel volume controller and the speakers.
- DESIGENG TO BE COMPATIBLE WITH ALL THE NOTEBOOK PRODUCTS CURRENTLY UNDER DEVELOPMENT: GARNET, AND TOPAZ.
- ONE DB 15-PIN (3-ROW) VGA PORT
- ONE DB 25-PIN PRINTER PORT
- ONE DB 9-PIN SERIAL PORT
- ONE DB 15-PIN GAME PORT
- ONE MINI DIN 6-PIN PS/2 PORT FOR KEYBOARD
- ONE MNI DIN 6-PIN PS/2 PORT MOUSE
- ONE USB PORTS
- ONE TV-OUT PORT (PAL/NTSC)
- ONE S-VIDEO OUT PORT
- ONE STEREO LINE IN JACK (EXCLUDED IN UNIDOCK 1.0)
- ONE HERAPHONE JACK (EXCLUDED IN UNIDOCK 1.0)
- ONE MICROPHONE JACK (EXCLUDED IN UNIDOCK 1.0)

## **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 DELL keyboard, SONY monitor, HP printer, PANASONIC TV, DATATEK joystick, JUSTER speaker, J-S earphone, LOGITECH mouse, GENIUS mouse, GALLANT microphone, TRANBON telephone, AIWA stereo cassette player and ACEEX modem were connected to the F.I.C NOTEBOOK PC.
- c. The V-video and S-video were tested in order to find the maximum emission. Since The V-video generates the worst case, the mode was used as the final data.
- d. The following display resolution were investigated during the compliance test:
  1. Horizontal frequency ( 640 x 480 to 1024 x 768, 31KHz to 48KHz )
  2. Vertical frequency ( 60Hz to 85Hz)
- e. According to the above tests, we listed the following display modes as the worst cases:
  1. 1024 x 768 (Non-interlanced 48KHz), refresh rate 60Hz.
  2. 800 x 600 (31KHz), refresh rate 60Hz. (CRT + TV MODE)
- f. Frequency range investigated: Conduction 450 KHz to 30 MHz, Radiation 30 MHz to 2000MHz.

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

Support Device 1. --- NOTEBOOK PC (F.I.C.)

FCC ID :N/A  
Model No. :7100D3  
Serial No. :SP1038  
Data Cable :Shielded, 360 degree via metal backshells.  
Power Supply Type :Switching  
Power Cord :Non-shielded

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

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## Support Device 2. --- MODEM ( ACEEX )

FCC ID : IFAXDM1414  
Model No. : DM1414  
Serial No. : SP0016  
Data Cable : Shielded, 360 degree via metal backshells  
Power Supply Type : Linear  
Serial No. : SP1009  
Data Cable : Shielded, 360 degree via metal backshells, 1.9m

## Support Device 3. --- PRINTER ( HP )

FCC ID : B94C2642X  
Model No. : DESKJET 400  
Serial No. : SP0037  
Data Cable : Shielded, 360 degree via metal backshells, 1.35m  
Power Supply Type : Linear

## Support Device 4. -- USB MOUSE ( GENIUS )

FCC ID : FSUGMZFG  
Model No. : NICHE USB  
Serial No. : SP1010  
Data Cable : Shielded, 1.7m

## Support Device 5. --- 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

## Support Device 6. --- KEYBOARD ( DELL )

FCC ID : GYUM92SK  
Model No. : AT101  
Serial No. : SP1008  
Data Cable : Shielded, 360 degree via metal backshells

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**Support Device 7. -- PS/2 MOUSE (LOGITECH)**

FCC ID : DZL210472  
Model No. : M-UA34  
Serial No. : SP1039  
Data Cable : Non-shielded, 1.9m

**Support Device 8. --- EARPHONE (J-S)**

FCC ID : N/A  
Model No. : H-201  
Serial No. : SP1038  
Data Cable : Non-shielded, 1.7m

**Support Device 9. --- STEREO CASSETTE PLAYER (KOKA)**

FCC ID : N/A  
Model No. : KW-247  
Serial No. : SP1032  
Data Cable : Non-shielded, 1.7m

**Support Device 10. --- MICROPHONE (KOKA)**

FCC ID : N/A  
Model No. : DM510  
Serial No. : SP1033  
Data Cable : Non-shielded, 2.8m

**Support Device 11. --- JOYSTICK (DATATEK)**

FCC ID : N/A  
Model No. : RTX-10E  
Serial No. : SP1035  
Data Cable : Non-shielded, 1.35m

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Support Device 12. --- SPEAKER(JUSTER)

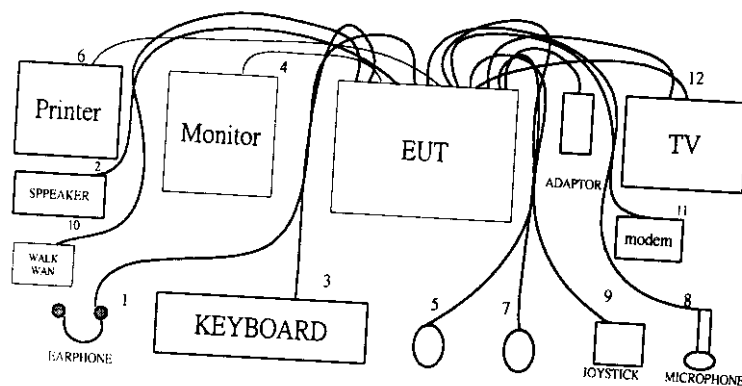
FCC ID : N/A  
Model No. : SP-201  
Serial No. : SP1035  
Data Cable : Non-shielded, 1.7m

Support Device 13. --- VIDEO MONITOR (PANASONIC)

FCC ID : N/A  
Model No. : WV-CM1450  
Serial No. : SP1005  
Data Cable : Shielded  
Power Cord : Non-shielded  
Power Supply Type : Switching



2.3. CONNECTION DIAGRAM OF TEST SYSTEM



1. The I/O cable is connected to the support device 8.
2. The I/O cable is connected to the support device 11.
3. The I/O cable is connected to the support device 5.
4. The I/O cable is connected to the support device 4.
5. The I/O cable is connected to the support device 13.
6. The I/O cable is connected to the support device 3.
7. The I/O cable is connected to the support device 6.
8. The I/O cable is connected to the support device 9.
9. The I/O cable is connected to the support device 10.
10. The I/O cable is connected to the support device 8.
11. The I/O cable is connected to the support device 2.
12. The I/O cable is connected to the support device 12.

**3. TEST SOFTWARE**

An executive program, EMITEST & WINFCC.EXE under WIN 98, 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 monitor and TV, and the monitor and TV displays " H " patterns on the screen.
- e. The PC sends " H " messages to the printer, then the printer prints them on the paper.
- f. The PC sends " H " messages to the modem.
- g. The PC sends " H " messages to the internal Hard Disk, and the Hard Disk reads and writes the message.
- h. Repeat the steps from b to g.

## **4. GENERAL INFORMATION OF TEST**

### **4.1. TEST FACILITY**

This test was carried out by SPORTON INTERNATIONAL INC.

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**

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.

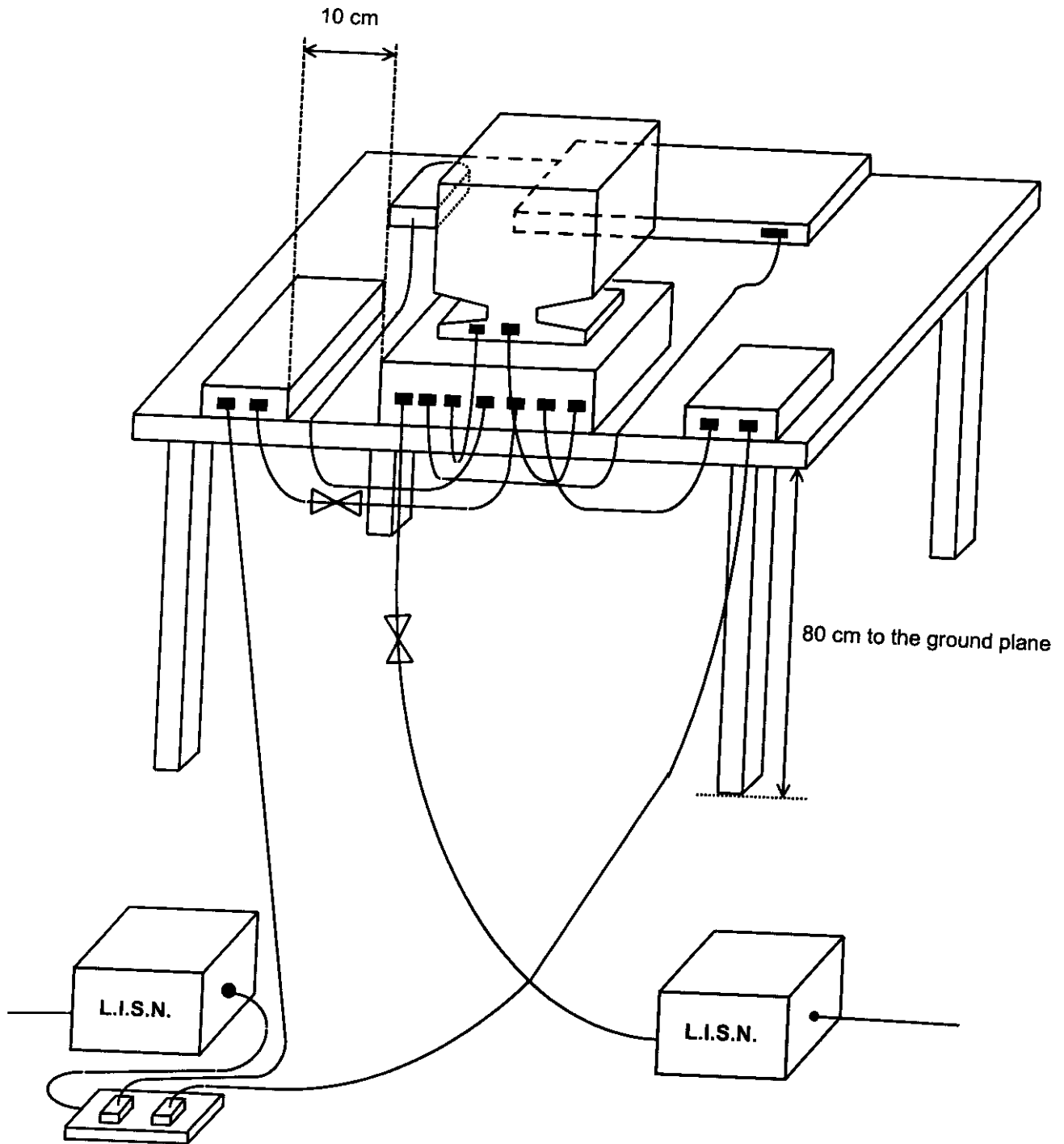
### **5.1. MAJOR MEASURING INSTRUMENTS**

- Test Receiver ( HP 8591EM )
  - 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 : 25 °C
- Relative Humidity : 64 % RH
- Test Mode : 1024 x 768, 48K, 60Hz (CRT + LCD)
- Test Date : Sep. 19, 1998

**The Conducted Emission test was passed at minimum margin**

**Line 6.00 MHz / 35.40 dBuV.**

Frequency ( MHz )	Line / Neutral	Meter Reading		Limits		Margin ( dB )
		( dBuV )	( uV )	( dBuV )	( uV )	
6.01	N	32.80	43.65	48.00	251.19	-15.20
13.03	N	30.60	33.88	48.00	251.19	-17.40
23.03	N	25.80	19.50	48.00	251.19	-22.20
6.00	L	35.40	58.88	48.00	251.19	-12.60
13.03	L	32.90	44.16	48.00	251.19	-15.10
24.28	L	33.50	47.32	48.00	251.19	-14.50

Test Engineer : *Kenny Chuang*  
 KENNY CHUANG

**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 : 25 °C
- Relative Humidity : 64 % RH
- Test Mode : 800 x 600 , 38K/60Hz (CRT + TV )
- Test Date : Oct. 02, 1998

**The Conducted Emission test was passed at minimum margin**

**Line 13.03 MHz / 31.00 dBuV.**

Frequency ( MHz )	Line / Neutral	Meter Reading		Limits		Margin ( dB )
		( dBuV )	( uV )	( dBuV )	( uV )	
1.08	N	30.50	33.50	48.00	251.19	-17.50
13.22	N	24.70	17.18	48.00	251.19	-23.30
23.78	N	23.70	15.31	48.00	251.19	-24.30
6.00	L	30.00	31.62	48.00	251.19	-18.00
13.03	L	31.00	35.48	48.00	251.19	-17.00
24.28	L	28.00	25.12	48.00	251.19	-20.00

Test Engineer : *Kenny Chuang*  
**KENNY CHUANG**



## 6. TEST OF RADIATED EMISSION

Radiated emissions from 30 MHz to 2000 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.

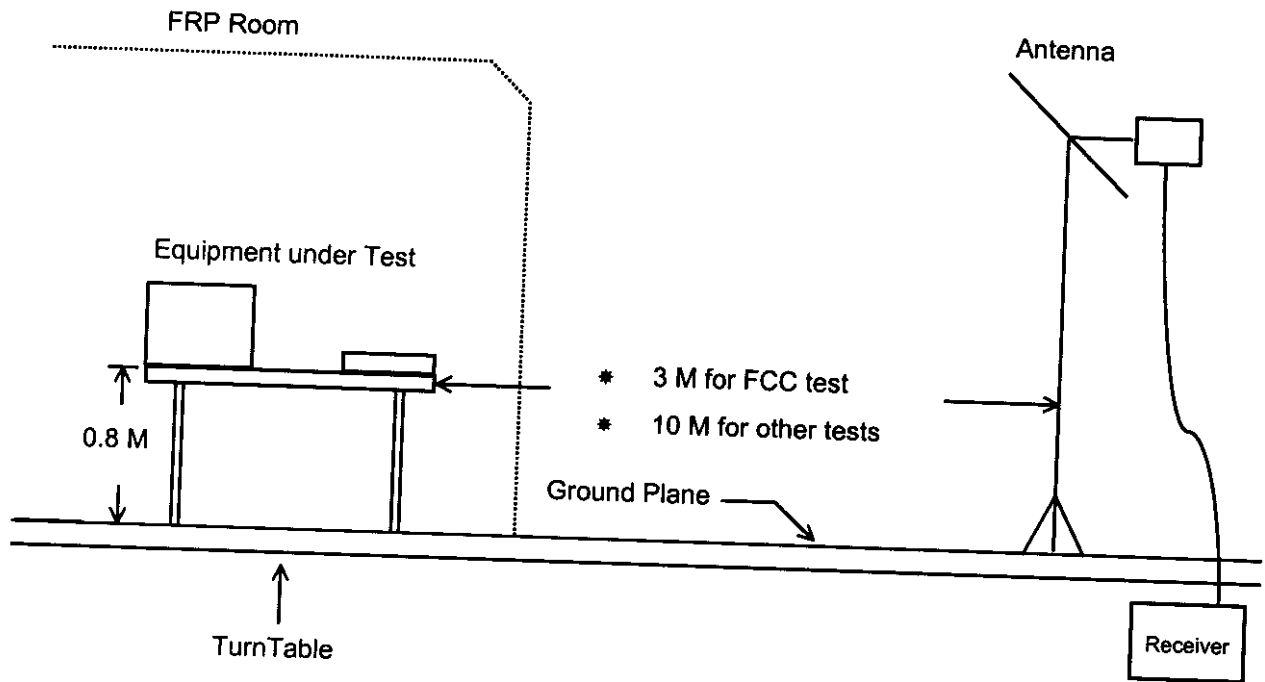
### 6.1. MAJOR MEASURING INSTRUMENTS

- Amplifier ( HP 87405A )
  - Attenuation 0 dB
  - RF Gain 20 dB
  - Signal Input 0.1 MHz to 1.3 GHz
  
- Spectrum Analyzer (8594A )
  - Attenuation 0 dB
  - Start Frequency 30 MHz
  - Stop Frequency 2000 MHz
  - Resolution Bandwidth 1 MHz
  - Video Bandwidth 1 MHz
  - Signal Input 9 KHz to 2.6 GHz
  
- Quasi-Peak Adapter ( 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 : 34°C
- Relative Humidity : 45 % RH
- Test Mode :1024 x 768, 48K, 60Hz (CRT + LCD)
- Test Date : Sep. 17, 1998
- Emission level ( dBuV/m ) = 20 log Emission level ( uV/m )
- Sample Calculation at 199.95 MHz  
Corrected Reading = 14.05 + 2.40 + 19.65 = 36.10 (dBuV/m )

**The Radiated Emission test was passed at minimum margin**

**Vertical 37.74 MHz / 35.90 dBuV**

**Antenna Height 1.0 Meter , Turntable Degree 176 .**

Frequency ( MHz )	Antenna Polarity	Antenna Factor ( dB )	Cable Loss ( dB )	Reading ( dBuV )	Limits ( dBuV )	Emission ( uV )	Emission ( dBuV )	Level ( uV )	Margin ( dB )
199.95	H	14.05	2.40	19.65	43.50	150	36.10	63.83	-7.40
188.68	V	13.44	2.30	20.76	43.50	150	36.50	66.83	-7.00
37.74	V	-0.04	0.89	35.05	40.00	100	35.90	62.37	-4.10
80.95	H	7.18	1.40	27.32	40.00	100	35.90	62.37	-4.10
226.46	V	14.57	2.43	21.40	46.00	200	38.40	83.18	-7.60
465.60	V	22.37	3.89	16.03	46.00	200	42.30	130.32	-3.70

Test Engineer : *Terry Chang*  
Terry Chang

**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 : 34°C
- Relative Humidity : 45% RH
- Test Mode : 800 x 600, 38K/60Hz (CRT + TV)
- Test Date : Sep. 17, 1998
- Emission level ( dBuV/m ) = 20 log Emission level ( uV/m )
- Sample Calculation at 66.59 MHz  
Corrected Reading = 5.28+ 1.20 + 26.72 = 33.20 (dBuV/m )

**The Radiated Emission test was passed at minimum margin**

**Vertical 50.35 MHz / 36.86 dBuV**

**Antenna Height 1.0 Meter , Turntable Degree 186° .**

Frequency ( MHz )	Polarity	Antenna Factor ( dB )	Cable Loss ( dB )	Reading ( dBuV )	Limits ( dBuV )	Emission ( uV )	Level ( uV )	Margin ( dB )	
50.35	V	2.44	1.01	33.41	40.00	100	36.86	69.66	-3.14
66.59	V	5.28	1.20	26.72	40.00	100	33.20	45.71	-6.80
200.47	V	14.06	2.40	19.84	43.50	150	36.30	65.31	-7.20
368.00	V	20.81	3.34	16.57	46.00	200	40.72	108.64	-5.28
440.00	V	22.38	3.76	13.89	46.00	200	40.03	100.35	-5.97
465.60	V	22.37	3.89	15.05	46.00	200	41.32	116.41	-4.68

Test Engineer : *Terry Chang*  
Terry Chang

**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	28.50	5.80
2000	29.00	6.10

## 8. LIST OF MEASURING EQUIPMENT USED

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver (site 2)	HP	8591EM	3710A01187	9 KHz - 18 GHz	Sep. 15, 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
Amplifier (Site 5)	HP	87405A	3207A01437	10MHz -3.0GHz	Jun. 26, 1998	Radiation
Spectrum Analyzer (Site 5)	HP	8594A	3051A00172	9KHz -2.9GHz	Apr. 17, 1998	Radiation
Bilog Antenna (Site 5)	CHASE	CBL6112A	2287	30MHz -2GHz	Jan. 27, 1998	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.