

FCC TEST REPORT

for

CISPR PUB.22 CLASS B

Equipment : Monitor

MODEL NO. : 17CX

F C C I D : NPU17CX

Filing Type : Original Certification

APPLICANT : ARIESTEC, INC.

3fl., No. 100, Min-Chuan Road, Hsin Tien City,
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.
- Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by NVLAP or any agency of the U.S Government.

SPORTON INTERNATIONAL INC.

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

TABLE OF CONTENT

SECTION TITLE	PAGE
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.....	15
6. TEST OF RADIATED EMISSION	17
6.1. MAJOR MEASURING INSTRUMENTS.....	17
6.2. TEST PROCEDURES	18
6.3. TYPICAL TEST SETUP LAYOUT OF RADIATED EMISSION	19
6.4. TEST RESULT OF RADIATED EMISSION	20
6.5. PHOTOGRAPHS OF RADIATED EMISSION TEST CONFIGURATION	22
7. ANTENNA FACTOR AND CABLE LOSS.....	23
8. LIST OF MEASURING INSTRUMENTS USED	24

CERTIFICATE OF COMPLIANCE

for

CISPR PUB.22 CLASS B

Equipment : Monitor

MODEL NO. : 17CX

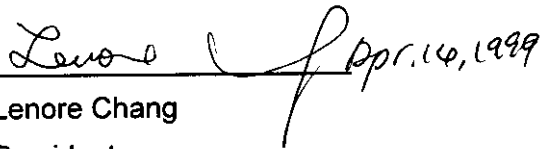
F C C I D : NPU17CX

APPLICANT : ARIESTEC, INC.

3fl., No. 100, Min-Chuan Road, Hsin Tien City,
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** CISPR PUB.22 both radiated and conducted emissions class B limits. Testing was carried out on **Mar. 31, 1999** at **SPORTON INTERNATIONAL INC. LAB.**


Lenore Chang
President

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**

ARISTEC, INC.

3fl., No. 100, Min-Chuan Road, Hsin Tien City,
Taipei, Taiwan, R.O.C.

1.2. MANUFACTURER

Same as 1.1.

1.3. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

EQUIPMENT : Monitor

MODEL NO. : 17CX

FCC IC : NPU17CX

TRADE NAME : ARISTEC, LEO

MONITOR CABLE : Shielded, 1.5m

POWER SUPPLY TYPE : Switching

POWER CORD : Non-shielded, 1.75m, 3pin

1.4. FEATURE OF EQUIPMENT UNDER TEST

- Screen : 17"CRT
- Dot Pitch (mm) : 0.27 or 0.28
- Display Size : 15.9"
- Scanning Frequency :
 - Horizontal (KHz) : 31.5-69KHz
 - Vertical (Hz) : 60-85Hz
- Max. Resolution : 1024x768
- Band Width : 110MHz
- Signal Cable : Captive 15 pin, mini D-sub
- Power :
 - Consumption : 90W
 - Supply : 100-250V AC 50/60Hz

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 PS/2 keyboard, PRIMAX PS/2 mouse, HP printer, ACEEX modem, S3 VGA card and EUT were connected to the F.I.C. P.C. for EMI test.
- c. The following display resolution were investigated during the compliance test :
 1. Horizontal frequency (640 x 480 to 1024 x 768, 31.5Khz to 69KHz)
 2. Vertical frequency (60Hz to 85Hz)
- d. According to the above tests, we listed the flowing display modes as the worst cases :
 1. 1024 x 768 (non-interlaced 106KHz), refresh rate 85Hz.
 2. 800 x 600 (non-interlaced 54KHz), refresh rate 85Hz.
- e. Frequency range investigated: Conduction 150 KHz to 30 MHz, Radiation 30 MHz to 2000MHz.

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. --- PS/2 KEYBOARD (DELL)

FCC ID : GYUM90SK
Model No. : AT101 W
Serial No. : SP1022
Data Cable : Shielded, 360 degree via metal backshells, 2.0m

Support Device 3. --- PS/2 MOUSE (PRIMAX)

FCC ID : EMJMUSJQ
Model No. : MUS9J
Serial No. : SP1012
Data Cable : Shielded, 1.75m

Support Device 4. --- PRINTER (HP)

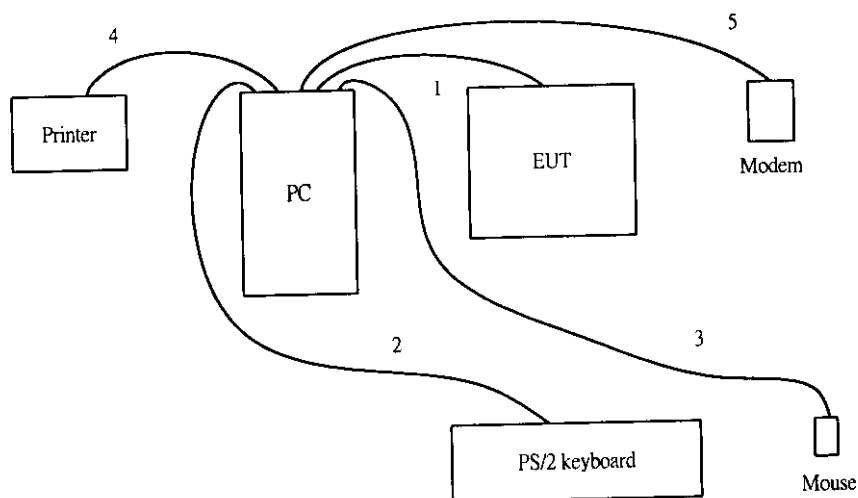
FCC ID : DSI6XU2225
Model No. : 2225C
Serial No. : SP1041
Data Cable : Shielded, 360 degree via metal backshells, 1.2m
Power Supply Type : Linear, AC Adapter
Power Cord : Non-shielded

Support Device 5. --- 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, 1.2m

Support Device 6. --- VGA CARD (S3)

FCC ID : ICUVGA-GW710
Model No. : GW710
Serial No. : SP1074
Data Cable : Shielded, 1.5m

2.3. CONNECTION DIAGRAM OF TEST SYSTEM

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

3. TEST SOFTWARE

An executive program, WINFCC.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.

4. GENERAL INFORMATION OF TEST

4.1. TEST FACILITY

This test was carried out by SPORTON INTERNATIONAL INC.

EMI TEST :

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

EMS TEST :

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 2000 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.

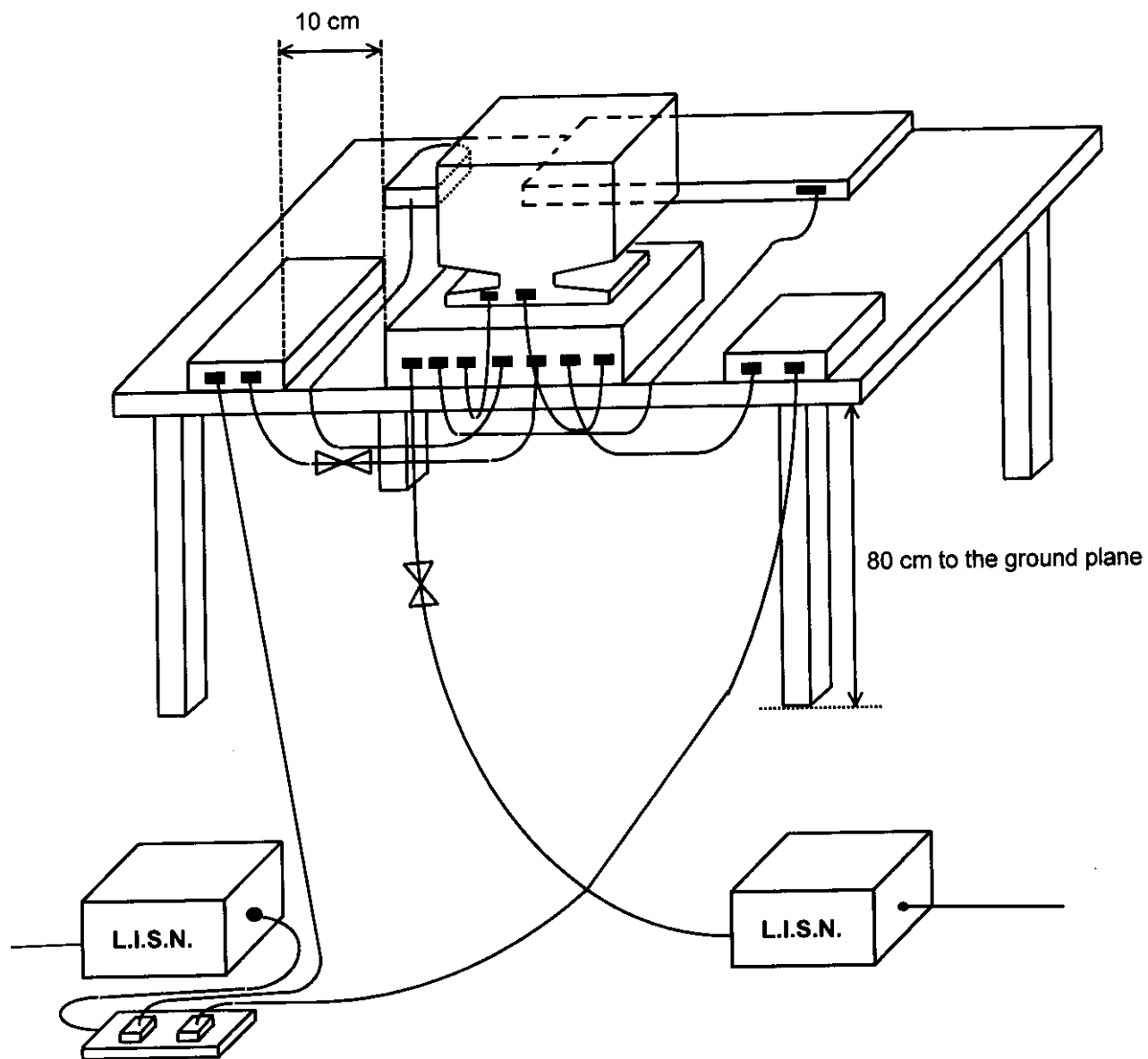
5.1. MAJOR MEASURING INSTRUMENTS

● Test Receiver	(R&S ESH3)
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 : 20°C
- Relative Humidity : 51% RH
- Test Mode : 800x600, 54K, 85Hz
- Test Date : Mar. 31, 1999

The Conducted Emission test was passed at Line 0.16 MHz / 53.10 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)
0.16	Line	53.10	50.80	451.86	346.74	65.46	55.46	1875.85	593.20	-12.36	-4.66
0.21	Line	41.50	37.60	118.85	75.86	63.21	53.21	1446.32	457.37	-21.71	-15.61
20.00	Line	44.20	40.30	162.18	103.51	60.00	50.00	1000.00	316.23	-15.80	-9.70
0.16	Neutral	51.20	48.50	363.08	266.07	65.46	55.46	1875.85	593.20	-14.26	-6.96
9.74	Neutral	42.50	38.10	133.35	80.35	60.00	50.00	1000.00	316.23	-17.50	-11.90
13.79	Neutral	43.00	39.80	141.25	97.72	60.00	50.00	1000.00	316.23	-17.00	-10.20

Test Engineer : *Louis Lin*
Louis Lin

5.4.1. 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 : 20°C
- Relative Humidity : 51% RH
- Test Mode : 1024x768, 69K, 85Hz
- Test Date : Mar. 31, 1999

The Conducted Emission test was passed at Line 23.70 MHz / 49.00 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)
0.21	Line	48.50	42.60	266.07	134.90	63.21	53.21	1446.32	457.37	-14.71	-10.61
20.10	Line	45.70	41.30	192.75	116.14	60.00	50.00	1000.00	316.23	-14.30	-8.70
23.70	Line	49.00	45.20	281.84	181.97	60.00	50.00	1000.00	316.23	-11.00	-4.80
0.21	Neutral	48.70	42.10	272.27	127.35	63.21	53.21	1446.32	457.37	-14.51	-11.11
13.79	Neutral	45.20	41.80	181.97	123.03	60.00	50.00	1000.00	316.23	-14.80	-8.20
23.84	Neutral	47.50	43.10	237.14	142.89	60.00	50.00	1000.00	316.23	-12.50	-6.90

Test Engineer :

Louis Lin

Louis Lin

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 10 MHz to 3 GHz

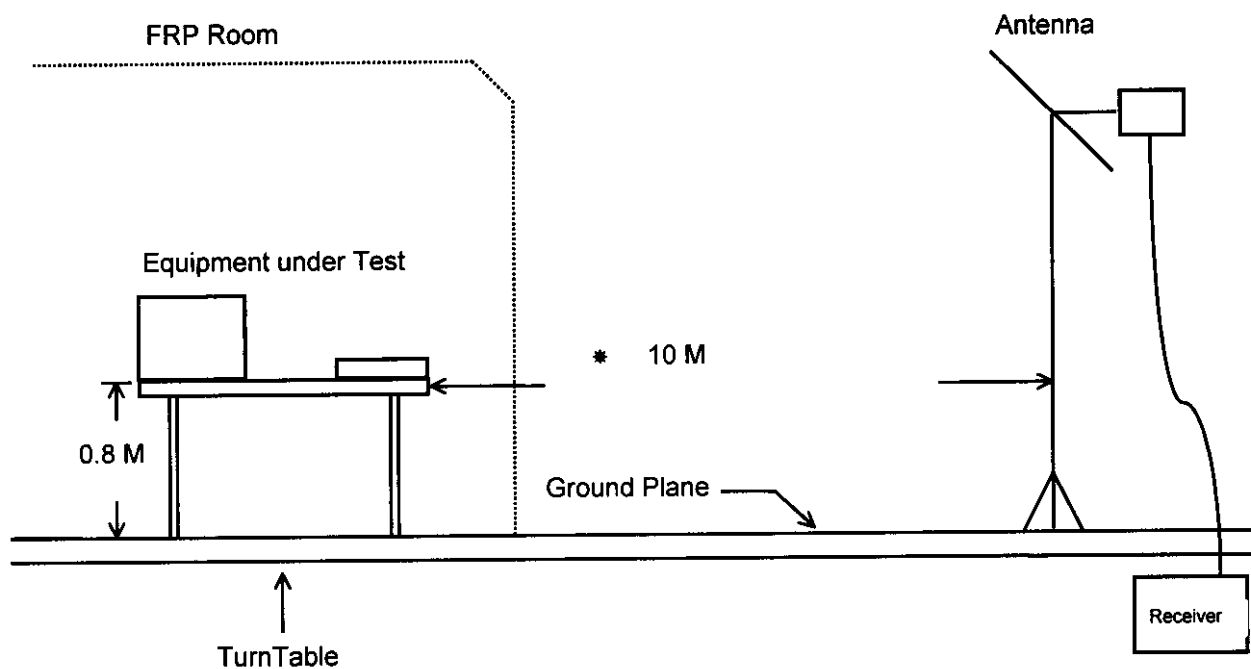
- Spectrum Analyzer (HP 8594A)
 - Attenuation 0 dB
 - Start Frequency 30 MHz
 - Stop Frequency 2000 MHz
 - Resolution Bandwidth 1 MHz
 - Video Bandwidth 1 MHz
 - Signal Input 9 KHz to 2.9 GHz

- 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 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

- Equipment meets the technical specifications of CISPR PUB.22
- Frequency Range of Test : from 30 MHz to 2000 MHz
- Test Distance : 10 M
- Temperature : 22°C
- Relative Humidity : 55 % RH
- Test Mode : 800x600, 54K, 85Hz
- Test Date : Mar. 30, 1999
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Sample Calculation at 154.10 MHz
Corrected Reading = 10.15 + 1.54 + 12.53 = 24.22 (dBuV/m)

The Radiated Emission test was passed at minimum margin

Horizontal 182.32 MHz / 26.46 dBuV

Antenna Height 4.0 Meter , Turntable Degree 160°

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)
154.10	H	10.15	1.54	12.53	30.00 32	24.22	16.26	-5.78
168.04	H	9.59	1.52	13.39	30.00 32	24.50	16.79	-5.50
182.32	H	9.71	1.96	14.79	30.00 32	26.46	21.04	-3.54
186.91	H	9.61	1.86	13.06	30.00 32	24.53	16.85	-5.47
208.80	H	9.92	1.65	14.26	30.00 32	25.83	19.57	-4.17
182.15	V	9.71	1.96	14.29	30.00 32	25.96	19.86	-4.04

Test Engineer :

Louis Lin

Louis Lin

6.4.1. TEST RESULT OF RADIATED EMISSION

- Equipment meets the technical specifications of CISPR PUB.22
- Frequency Range of Test : from 30 MHz to 2000 MHz
- Test Distance : 10 M
- Temperature : 22°C
- Relative Humidity : 55 % RH
- Test Mode : 1024x768, 69K, 85Hz
- Test Date : Mar. 30, 1999
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Sample Calculation at 153.93 MHz
Corrected Reading = 10.15 + 1.54 + 14.33 = 26.02 (dBuV/m)

The Radiated Emission test was passed at minimum margin

Vertical 118.56 MHz / 26.75 dBuV

Antenna Height 1.0 Meter , Turntable Degree 220°

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)	
153.93	H	10.15	1.54	14.33	30.00	32	26.02	20.00	-3.98
177.56	H	9.67	1.86	13.58	30.00	32	25.11	18.01	-4.89
189.66	H	9.55	1.80	13.95	30.00	32	25.30	18.41	-4.70
61.28	V	5.30	1.10	19.83	30.00	32	26.23	20.49	-3.77
118.56	V	12.16	1.31	13.28	30.00	32	26.75	21.75	-3.25
402.40	V	15.52	2.61	14.98	37.00	71	33.11	45.24	-3.89

Test Engineer :

Louis Lin

Louis Lin

7. ANTENNA FACTOR AND CABLE LOSS

Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)
30	17.2	0.8
35	16.2	0.9
40	13.0	0.9
45	10.5	0.9
50	7.0	1.0
55	6.2	1.1
60	5.3	1.1
65	5.2	1.1
70	5.2	1.1
75	5.9	1.1
80	6.8	1.2
85	7.9	1.2
90	9.0	1.2
95	9.8	1.3
100	10.6	1.4
110	11.5	1.3
120	12.3	1.3
130	10.9	1.3
140	10.5	1.2
150	10.5	1.5
160	9.6	1.6
170	9.6	1.5
180	9.7	2.0
190	9.5	1.8
200	9.4	1.6
220	10.7	1.7
240	12.0	1.8
260	12.8	1.9
280	13.0	2.0
300	13.3	2.0
320	13.8	2.1
340	14.3	2.2
360	14.7	2.4
380	15.1	2.5
400	15.5	2.6
450	16.7	2.8
500	17.8	2.9
550	19.2	2.9
600	19.0	2.9
650	18.7	3.3
700	18.5	3.7
750	18.5	3.6
800	16.8	3.4
850	17.0	3.7
900	19.0	4.0
950	19.9	4.1
1000	20.4	4.2

8. LIST OF MEASURING INSTRUMENTS USED

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Test Receiver	R&S	ESH3	893495/013	9 KHz - 30 MHz	Apr. 13, 1998	Conduction
LISN (for EUT)	KYORITSU	KNW-407	8-1010-15	50 ohm / 50 μ H	Nov. 17, 1998	Conduction
LISN (for support device)	EMCO	3810/2	9703-1838	50 ohm / 50 μ H	Aug. 27, 1998	Conduction
EMI Filter	CORCOM	MRI-2030	N/A	480VAC / 30A	N/A	Conduction
Spectrum Monitor	R&S	EZM	894987/011	N/A	Apr. 13, 1998	Conduction
Amplifier (Site 1)	HP	87405A	3207A01437	10MHz -3.0GHz	Jun. 26, 1998	Radiation
Spectrum Analyzer (site 1)	HP	8594A	3051A00172	9KHz -2.9GHz	Apr. 17, 1998	Radiation
Bilog Antenna (site 1)	CHASE	CBL6112A	2302	30MHz - 2GHz	Jan. 30, 1999	Radiation
Half-wave dipole antenna (site 1)	EMCO	3121C	8912-496	20MHz - 1GHz	Aug. 08, 1998	Radiation
Turn Table	EMCO	1060-1.211	9507-1805	0 ~ 360 degree	N/A	Radiation
Antenna Mast	EMCO	2075	9806-2160	1 m - 4 m	N/A	Radiation

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



SPORTON LAB

Certificate No: D700701

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

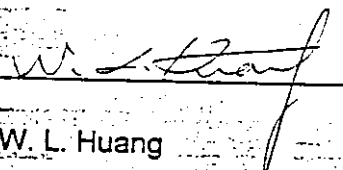
Applicant : FIRST INTERNATIONAL COMPUTER INC.

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

GENERAL MANAGER

OCT 08, 1997