

**FCC/MELLON**

**AUG 31 1998**

EXHIBIT B

# **FCC TEST REPORT**

for

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

**EQUIPMENT : FAX / MODEM CARD**

**MODEL NO. : PT-3023**

**F C C I D : H52PT-3023**

**FILING TYPE : ORIGINAL CERTIFICATION**

**APPLICANT : Puretek Industrial Co., LTD.**  
4F, No. 12, LANE 235, PAO-CHIAO RD.,  
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.

**SPORTON INTERNATIONAL INC.**

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

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## CERTIFICATE OF COMPLIANCE

for

### FCC PART 15, SUBPART B CLASS B

EQUIPMENT : FAX / MODEM CARD

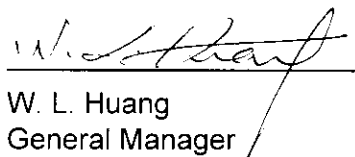
MODEL NO. : PT-3023

F C C I D : H52PT-3023

APPLICANT : **Puretek Industrial Co., LTD.**  
4F, No. 12, LANE 235, PAO-CHIAO RD.,  
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*** both radiated and conducted emissions **Class B** limits. Testing was carried out on **Aug. 11, 1998** at **SPORTON International Inc. LAB.**

 Aug 24, 1998  
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**

**Puretek Industrial Co., LTD.**

4F, No. 12, LANE 235, PAO-CHIAO RD.,  
HSIN TIEN CITY, TAIPEI, TAIWAN, R.O.C.

### **1.2. MANUFACTURER :**

Same as 1.1.

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

EQUIPMENT : FAX / MODEM CARD

MODEL NO. : PT-3023

FCC ID : H52PT-3023

TRADE NAME : Puretek

POWER SUPPLY TYPE : N/A

POWER CORD : N/A

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

Complete PC telephony solution

- Up to 56-kbps data rates
- PCI 2.1 - compliant
- Future versions include ACPI ( advanced configuration power interface ) power management
- Full-duplex, echo-cancelled digital speakerphone

Data modulation

- U.S. Robotics®x2™ Technology
- ITU-T V.34 ( 33.6 to 2.4 kbps ) symmetric and asymmetric operation
- ITU-T V.32 bis, V.23, V.22 bis, V.21
- Bell® 212A and 103

Fax modulation

- ITU-T V.17, V.29 to 14.4 kbps

Voice telephony

- Full-duplex, echo-cancelled digital speakerphone
- ITU-V.80 for videophone

## **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, HONEYWELL keyboard, GENIUS PS/2 mouse, HP printer, KOKA microphone, J-S headphone, TRANBON telephones and EUT were connected to the F.I.C. P.C. for EMI test.
- c. The phone jack of the EUT was connected to the TRANBON telephone by telephone line and line jack was connected to the PUBLIC telephone network by telephone line.
- d. Frequency range investigated: Conduction 450 KHz to 30 MHz, Radiation 30 MHz to 1000 MHz.

### **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. : SP1009  
Data Cable : Shielded, 360 degree via metal backshells, 1.7m  
Power Supply Type : Switching  
Power Cord : Non-shielded

## Support Device 3. --- KEYBOARD (HONEYWELL)

FCC ID : GJK101RX-6  
Model No. : PC7XL-AA  
Serial No. : SP1019  
Data Cable : Shielded, 360 degree via metal backshells, 3.0m

## Support Device 4. --- PS/2 MOUSE (GENIUS)

FCC ID : FSUGMZFC  
Model No. : NETMOUSE  
Serial No. : SP1033  
Data Cable : Non-shielded, 1.75m

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

FCC ID : DSI6XU2225  
Model No. : 2225C  
Serial No. : SP1041  
Data Cable : Shielded, 360 degree via metal backshells, 1.35m  
Power Supply Type : Linear, Adapter  
Power Cord : Non-shielded

## Support Device 6. -- MICROPHONE (KOKA)

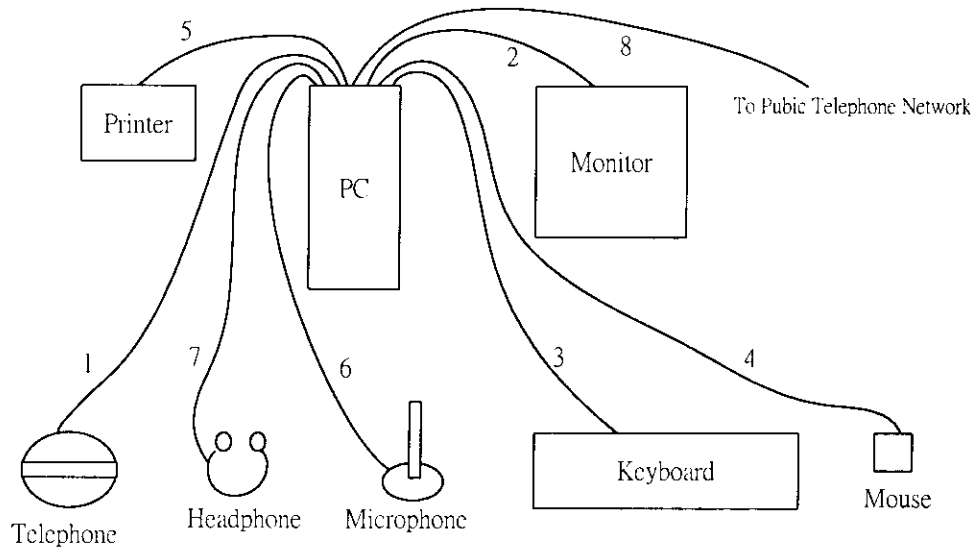
FCC ID : N/A  
Model No. : SR-M02  
Serial No. : SP1057  
Data Cable : Non-shielded, 2.1m

## Support Device 7. -- HEADPHONE (J-S)

FCC ID : N/A  
Model No. : H-201  
Serial No. : SP1046  
Data Cable : Non-shielded, 1.1m

## Support Device 8. --- TELEPHONE (TRANBON)

FCC ID : N/A  
Model No. : TE-302  
Serial No. : SP1066  
Data Cable : Non-shielded, 2.1m

**2.3. CONNECTION DIAGRAM OF TEST SYSTEM**

1. The I/O cable is connected from the EUT to the support device 8.
2. The I/O cable is connected to the support device 2.
3. The I/O cable is connected to the support device 3.
4. The I/O cable is connected to the support device 4.
5. The I/O cable is connected to the support device 5.
6. The I/O cable is connected from the EUT 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 P.T.N..



### **3. TEST SOFTWARE**

An executive program, FCC.EXE under WIN98, which generates a complete line of continuously repeating " H " pattern is 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, and modem return the "H" to P.C..
- f. The PC read and writes the floppy disk drive.
- 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 1000 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.

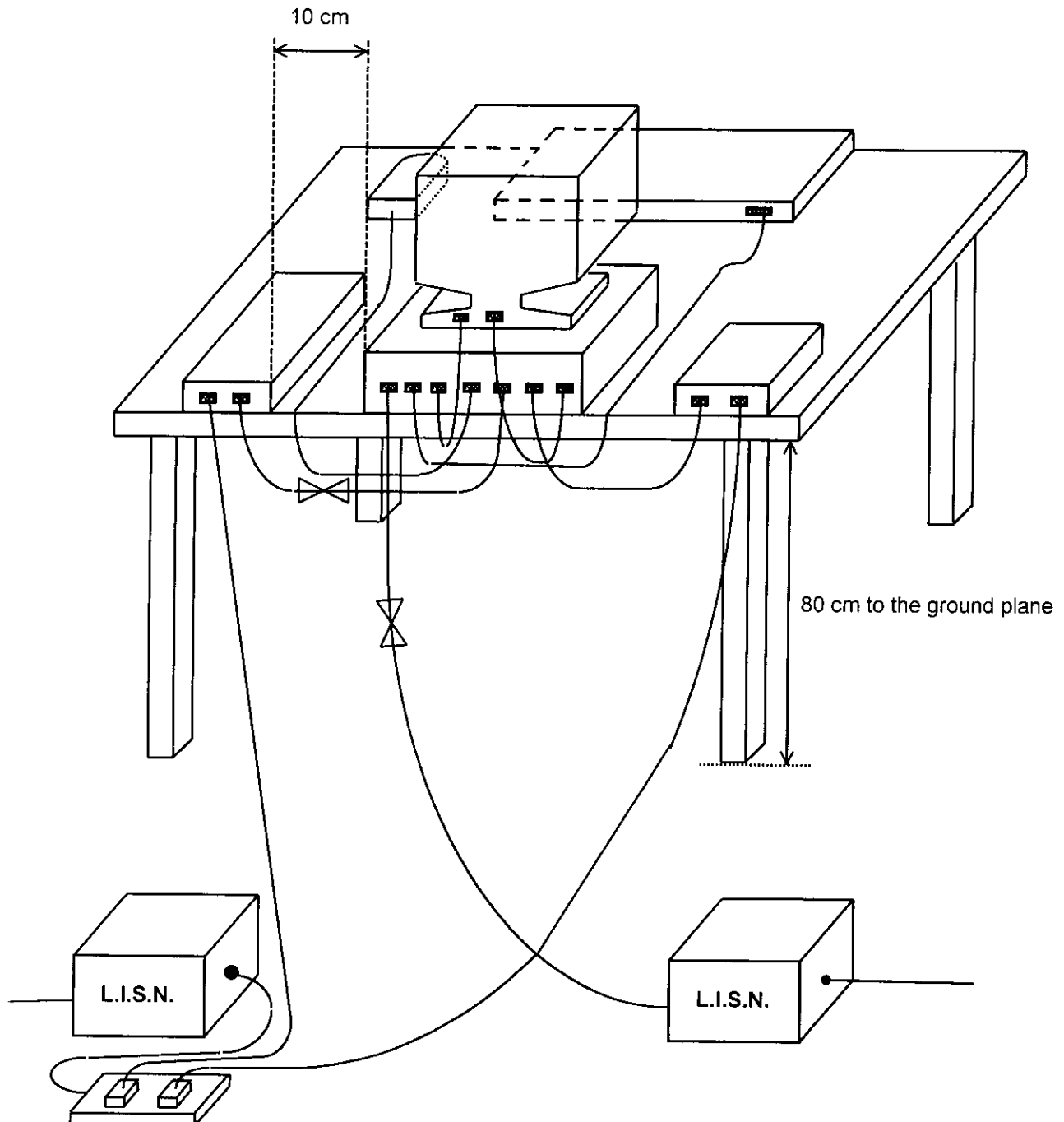
### **5.1. MAJOR MEASURING INSTRUMENTS**

- 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 : 27°C
- Relative Humidity : 55 % RH
- Test Date : Aug. 11, 1998

**The Conducted Emission test was passed at Line 23.99 MHz/ 37.70 dBuV.**

Frequency ( MHz )	Line / Neutral	Meter Reading		Limits		Margin
		( dBuV )	( uV )	( dBuV )	( uV )	( dB )
0.48	L	30.20	32.36	48.00	251.19	-17.80
8.57	L	35.00	56.23	48.00	251.19	-13.00
23.99	L	37.70	76.74	48.00	251.19	-10.30
0.62	N	33.00	44.67	48.00	251.19	-15.00
8.51	N	35.20	57.54	48.00	251.19	-12.80
23.99	N	35.70	60.95	48.00	251.19	-12.30

Test Engineer : *Benson Tsai*  
Benson Tsai

## **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**

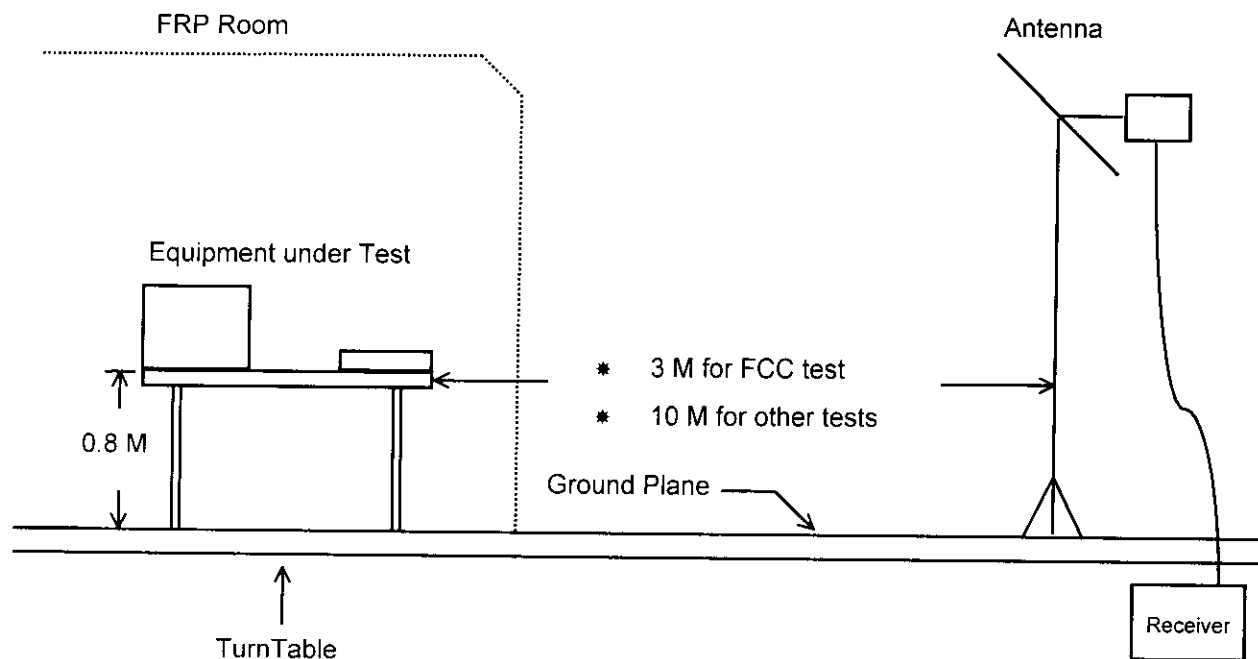
- RF Preselector ( HP 85685A )
  - Attenuation 0 dB
  - RF Gain 25 dB
  - Signal Input 20 Hz to 1.5 GHz
  
- Spectrum Analyzer ( HP 8568B )
  - Attenuation 0 dB
  - Start Frequency 30 MHz
  - Stop Frequency 1000 MHz
  - Resolution Bandwidth 1 MHz
  - Video Bandwidth 1 MHz
  - Signal Input 100 Hz to 1.5 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 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 1000 MHz
- Test Distance : 3 M
- Temperature : 33°C
- Relative Humidity : 57 % RH
- Test Date : Aug. 11, 1998
- Emission level ( dBuV/m ) = 20 log Emission level ( uV/m )
- Sample Calculation at 200.06 MHz  
Corrected Reading = 14.05 + 2.40 + 15.88 = 32.33 (dBuV/m )

The Radiated Emission test was passed at

Vertical 120.48 MHz / 34.78 dBuV

Antenna Height 1.0 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 )
200.06 H	14.05	2.40	15.88	43.50	150	32.33	41.35	-11.17
299.78 H	17.89	2.91	20.16	46.00	200	40.96	111.69	-5.04
335.92 H	18.26	3.18	17.09	46.00	200	38.53	84.43	-7.47
46.09 V	1.62	1.24	29.76	40.00	100	32.62	42.76	-7.38
120.48 V	10.43	1.90	22.45	43.50	150	34.78	54.83	-8.72
161.31 V	12.31	2.12	17.88	43.50	150	32.31	41.26	-11.19

Test Engineer : Benson Tsai

Benson Tsai

**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	Apr. 13, 1998	Conduction
Test Receiver	R&S	ESVP	893610/003	20MHz - 1.3 GHz	Apr. 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	Apr. 13, 1998	Conduction
RF Preselector	HP	85685A	2926A00951	20Hz - 1.5GHz	Jul. 20, 1998	Radiation
Spectrum Analyzer (site 1)	HP	8568B	2928A04713	100Hz - 1.5GHz	Jul. 20, 1998	Radiation
Quasi-peak Adapter (site 1)	HP	85650A	2811A01285	9KHz -1 GHz	Jul. 20, 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

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