FCC TEST REPORT

for

47 CFR, Part 15, Subpart B Class A

Equipment	:	Indstrial Workstaion
Model No.	:	AMB-618HT/ AMB-618HTT
FCC ID	:	N/A
Filing Type	:	Verification
Applicant	:	**Astech Technology Co., Ltd.** 6F-4, No. 351, Chung-Shan Rd., Sec. 2, Chung-Ho 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 U.S. government.**

SPORTON International Inc.

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

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Certificate No. : F082514

CERTIFICATE OF COMPLIANCE

for

47 CFR, Part 15, Subpart B Class A

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I **HEREBY** 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*** **47 CFR, Part 15, Subpart B** both radiated and conducted emission class A limits. Testing was carried out on Aug. 28, 2000 at **SPORTON International Inc.** LAB. in Lin Kou.

Aug. 31, 2000

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

Astech Technology Co., Ltd.
6F-4, No. 351, Chung-Shan Rd., Sec. 2,
Chung-Ho City, Taipei, Taiwan, R.O.C.

1.2. Manufacturer

Same as 1.1.

1.3. Basic Description of Equipment under Test

Equipment	: Indstrial Workstaion
Model No.	: AMB-618HT/ AMB-618HTT
FCC ID	: N/A
Trade Name	: Astech
to PC cable	: Shielded, 0.25 m
TP cable	: Non-shielded, 10m
Power Supply Type	: Switching
Power Cord	: Non-Shielded, 1.75m, 3 pin

1.4. Feature of Equipment under Test

-
- Display type: 10.4" VGA color TFT LCD display
- Heavy-duty steel chassis and aluminum alloy front panel
- Two sealed membrane keyboard, 62 Key membrane keypad
- 14 slots ISA/PCI-bus passive back plane or motherboard
- Two 64 CFM cooling fan
- Max. Resolution: 640*480
- Max. Colors: 256K

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 SILITEK PS/2 Keyboard, PRIMAX PS/2 Mouse, HP Printer, ACEEX Modem, PANASONIC VIDEO PLAY were connected to the EUT for EMI test. The remote workstation included SONY Monitor, DELL PS/2 Keyboard, PRIMAX PS/2 Mouse and FIC PC.

c. Frequency range investigated: conduction 150 KHz to 30 MHz, radiation 30 MHz to 1000MHz.

2.2. Description of Test System

Support Unit 1. -- Monitor (SONY)—for remote workstation

FCC ID	: AK8GDM17SE2T
Model No.	: GDM-17SE2T
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0013
Data Cable	: Shielded, 360 degree via metal backshells, 1.15m

Support Unit 2. -- AT Keyboard (SILITEK)

FCC ID	: GYUM99SK
Model No.	: SK9001AS2U
Serial No.	: SP0026
Data Cable	: Shielded, 360 degree via metal backshells, 2.5m

Support Unit 3. -- PS/2 Mouse (PRIMAX) —for local and remote workstation

FCC ID	: EMJMUSJQ
Model No.	: MUS9J
Serial No.	: SP0045
Data Cable	: Non-shielded , 1.75m

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Data Cable	: Shielded, 360 degree via metal backshells, 2.5m

Support Unit 3. -- PS/2 Mouse (PRIMAX) —for local and remote workstation

FCC ID	: EMJMUSJQ
Model No.	: MUS9J
Serial No.	: SP0045
Data Cable	: Non-shielded , 1.75m

Support Unit 5. -- Modem (ACEEX)

FCC ID	: IFAXDM1414
Model No.	: DM1414
Power Supply Type	: Linear
Power Cord	: Non-Shielded
Serial No.	: SP0015
Data Cable	: Shielded, 360 degree via metal backshells, 1.15m

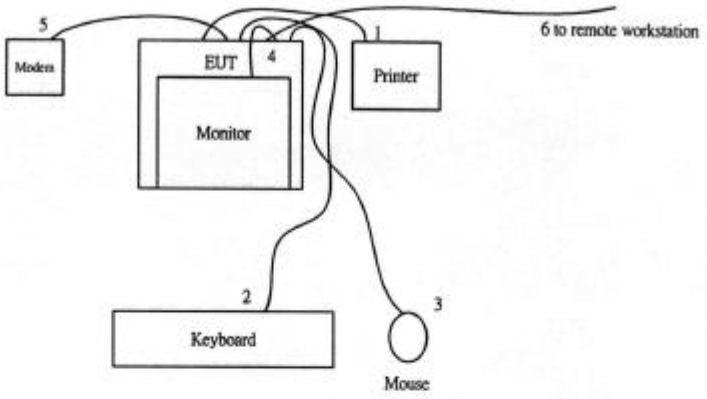
Support Unit 6. -- Personal Computer (FIC)—for remote workstation

FCC ID	: N/A
Model No.	: P2L97
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0037
Data Cable	: Shielded, 360 degree via metal backshells
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 7. -- PS/2 Keyboard (DELL)—for remote workstation

FCC ID	: GYUM90SK
Model No.	: AT101W
Power Supply Type	: From PC
Power Cord	: Shielded
Serial No.	: SP00188
Data Cable	: Shielded, 360 degree via metal backshells, 1.5m

2.3. Connection Diagram of Test System



1. The I/O cable is connected from EUT to the support unit 4.
2. The I/O cable is connected from EUT to the support unit 2.
3. The I/O cable is connected from EUT to the support unit 3.
4. The I/O cable is connected from EUT to the support unit 1.
5. The I/O cable is connected from EUT to the support unit 5.
6. The TP cable is connected from EUT to the remote workstation.

3. Test Software

Two executive programs, EMITEST.EXE & WINFCC.EXE under WIN 98, which generate a complete line of continuously repeating " H " pattern were used as the test software.

The programs were 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, "TP TESR.BAT" was executed to link with the remote workstation to receive and transmit data by TP Cable.

4. General Information of Test

4.1. Test Facility

This test was carried out by SPORTON International Inc.

Test Site Location : No. 30-2, 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 A

4.4. Frequency Range Investigated

a. Conduction: from 450 kHz to 30 MHz
b. Radiation : from 30 MHz to 1,000 MHz

4.5. Test Distance

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

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 section 5.3. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

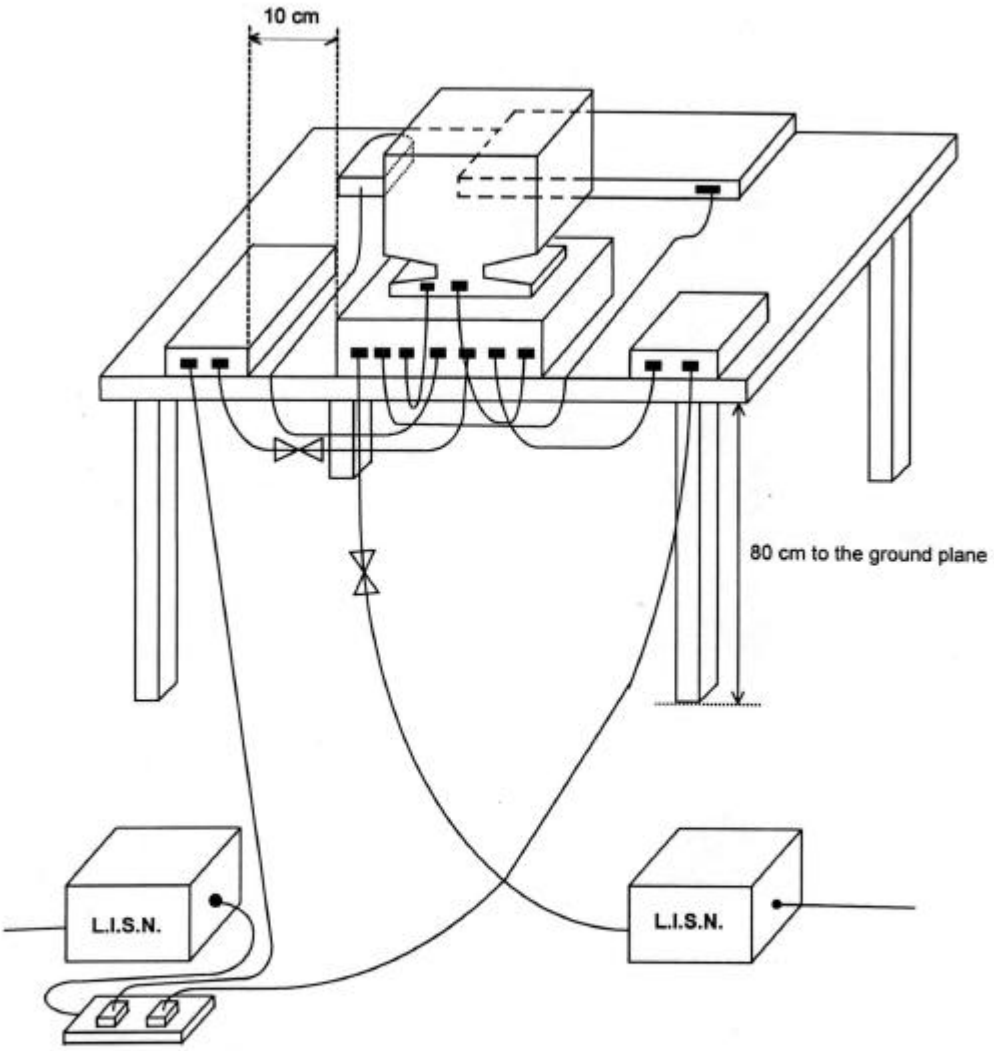
5.1. Major Measuring Instruments

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 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 one 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
- Temperature : 27°C
- Relative Humidity : 65 %
- Test Date : Aug. 28, 2000

The Conducted Emission test was passed at minimum margin

NEUTRAL 18.943 MHz / 45.40 dBuV.

Freq. (MHz)	Line/ Neutral	Meter Reading (dBuV)	(uV)	Limits (dBuV)	(uV)	Margin (dB)
6.314	L	35.20	57.54	69.50	2985.38	-34.30
18.941	L	44.70	171.79	69.50	2985.38	-24.80
25.257	L	34.90	55.59	69.50	2985.38	-34.60
6.623	N	31.70	38.46	69.50	2985.38	-37.80
18.943	N	45.40	186.21	69.50	2985.38	-24.10
25.256	N	35.00	56.23	69.50	2985.38	-34.50

Test Engineer : Jackson

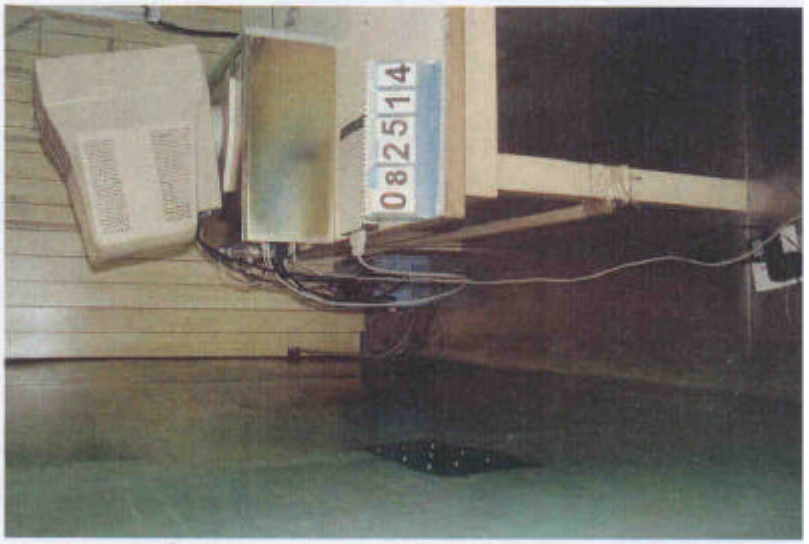
Jackson Huang

5.5. Photographs of Conducted Powerline Test Configuration

- The photographs show the configuration that generates the maximum emission.

FRONT VIEW

REAR VIDE



SIDE VIEW

6. Test of Radiated Emission

Radiated emissions from 30 MHz to 1,000 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 section 6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

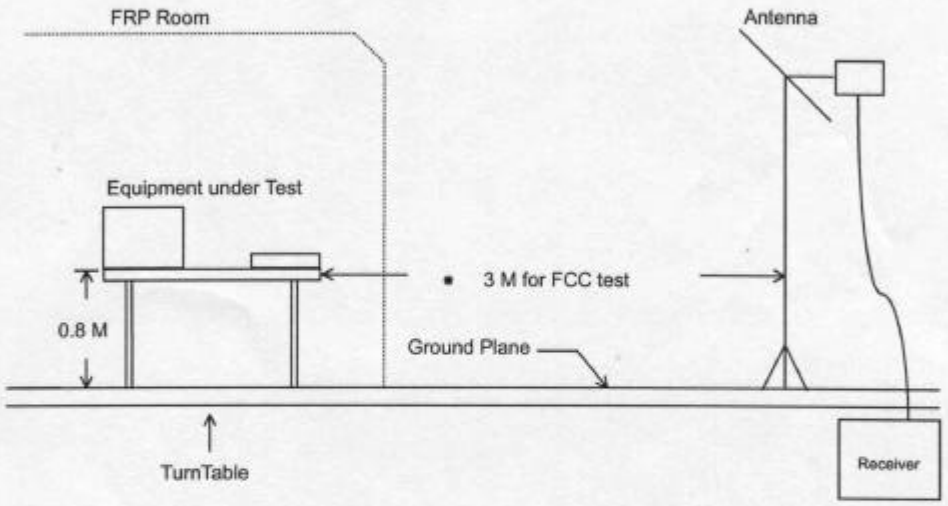
6.1. Major Measuring Instruments

• Amplifier	(HP 8447D)
Attenuation	0 dB
RF Gain	25 dB
Signal Input	0.1 MHz to 1.3 GHz
• Spectrum Analyzer	(ADVANTEST R3261C)
Attenuation	0 dB
Start Frequency	30 MHz
Stop Frequency	1000 MHz
Resolution Bandwidth	1 MHz
Video Bandwidth	1 MHz
Signal Input	9 KHz to 2.6 GHz

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

- Frequency Range of Test : from 30 MHz to ##MaxFreq_R## MHz
- Test Distance : 3 M
- Temperature : 28°C
- Relative Humidity : 55 %
- Test Date : Aug. 28, 2000
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Antenna Factor + Cable Loss + Reading = Emission

The Radiated Emission test was passed at minimum margin

211.600 MHz / 50.36 dBuV (VERTICAL) Antenna Height 1 Meter, Turntable Degree 0 °.

Frequency	Polarity	Antenna Factor	Cable Loss	Reading	Limits		Emission	Level	Margin
(MHz)		(dB/m)	(dB)	(dBuV)	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	(dB)
31.600	H	17.26	0.69	28.10	49.50	298.54	46.05	200.68	-3.45
183.200	H	8.66	1.55	40.05	53.50	473.15	50.26	325.84	-3.24
44.200	V	13.25	0.77	32.25	49.50	298.54	46.27	205.83	-3.23
57.000	V	7.80	0.95	37.21	49.50	298.54	45.96	198.61	-3.54
211.600	V	9.83	1.75	38.78	53.50	473.15	50.36	329.61	-3.14
520.900	V	19.23	2.67	31.50	56.90	699.84	53.40	467.74	-3.50

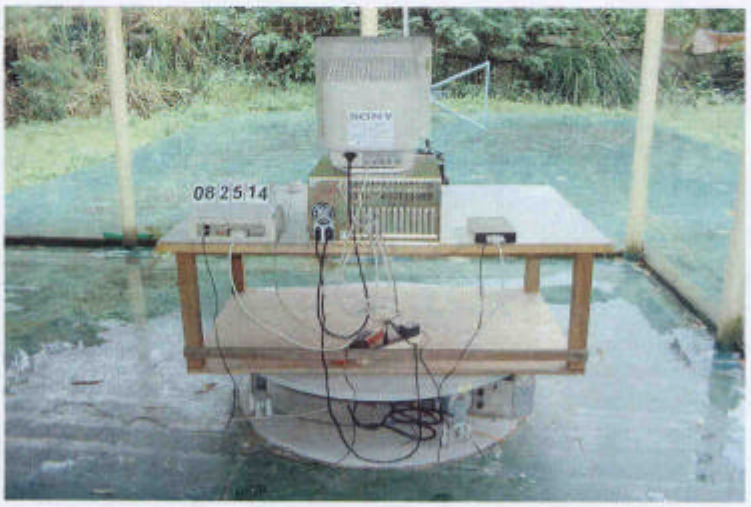
Test Engineer : Benson
BENSON TSAI

6.5. Photographs of Radiated Emission Test Configuration

- The photographs show the configuration that generates the maximum emission.

FRONT VIEW

REAR VIEW



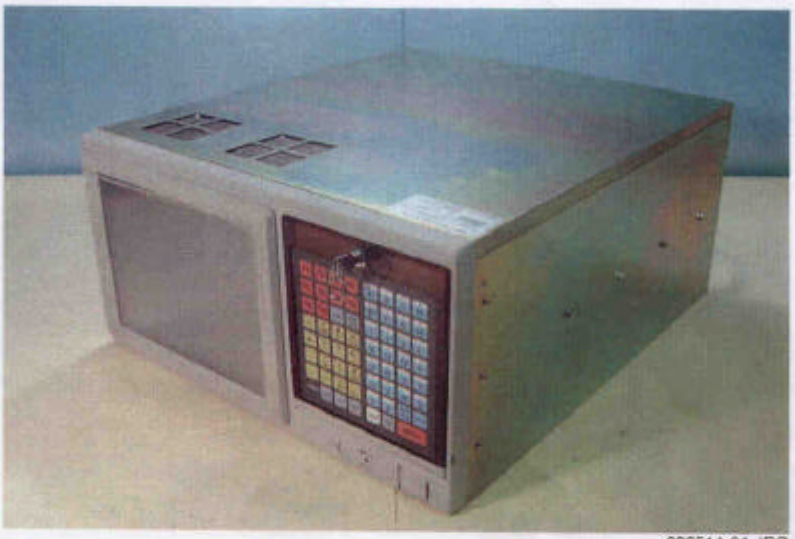
7. Antenna Factor & Cable Loss

Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)
30	17.1	0.9
35	17.5	0.9
40	15.1	1.0
45	12.9	1.0
50	11.4	1.1
55	8.8	1.1
60	6.3	1.2
65	6.2	1.3
70	6.2	1.3
75	6.5	1.3
80	6.8	1.4
85	7.7	1.4
90	8.7	1.5
95	9.5	1.5
100	10.4	1.6
110	11.6	1.7
120	12.8	1.8
130	13.0	2.0
140	12.7	2.1
150	10.6	2.1
160	9.9	2.2
170	9.5	2.2
180	8.6	2.2
190	8.8	2.3
200	9.0	2.6
220	10.4	2.6
240	11.8	3.0
260	12.7	2.7
280	13.2	2.8
300	13.6	3.1
320	14.1	3.0
340	14.6	3.0
360	15.2	3.2
380	15.7	3.5
400	16.3	3.7
450	17.6	4.2
500	19.0	4.4
550	19.5	4.6
600	19.9	4.9
650	19.3	5.0
700	18.6	5.3
750	19.2	5.8
800	19.8	5.9
850	21.2	6.5
900	22.6	6.9
950	22.4	7.5
1000	22.1	7.9

8. List of Measuring Equipment Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver (site1)	HP	8591EM	3536A00673	9 KHz – 1.8 GHz	Sep. 02, 1999	Conduction
LISN	EMCO	3810/2	9703-1838	50uH / 50 OHM	Aug. 30, 1999	Conduction
LISN	Kyoritsu	KNW-407	8-1010-15	50uH / 50 OHM	Nov. 16, 1999	Conduction
POWER FILTER	CORCOM	MRI2030	N/A	30A*2	N/A	Conduction
Spectrum Analyzer	ADVANTEST	R3261C	81720147	9KHz~2.6GHz	Mar. 02, 2000	Radiation
Amplifier	HP	87405A	2944A08292	100K~1.3GHz	Oct. 09, 1999	Radiation
Bilog Antenna	CHASE	CBL6112B	2444	30MHz~2GHz	Jun. 24, 2000	Radiation
Dipole Antenna	EMCO	3121C	8912-495	30MHz~1GHz	Aug. 06, 2000	Radiation
Antenna Mast	EMCO	2075	9804-2151	1M~4M	N/A	Radiation

APPENDIX A. Photographs of EUT



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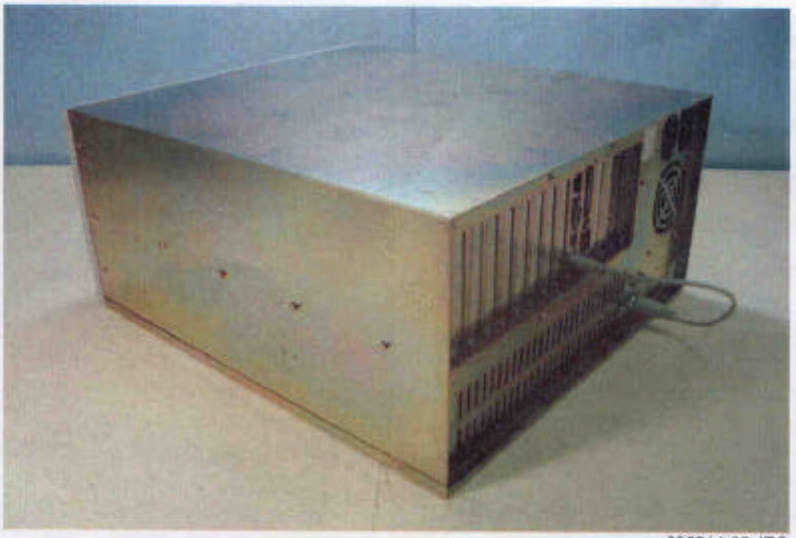

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