CE EMI TEST REPORT

according to

European Standard EN 55022:1994/A1:1995 Class A

Equipment : INDUSTRIAL WORKSTATION

MODEL NO. : WS-615/ROCKY-538TXV/ACE-925A

APPLICANT : **ACQUIRE INC.**
2F, No. 11, Lane 403, Sec. 4, Pa-Ta Rd.,
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.

No. 38, Alley 119, Lane 30, Yung Gi Road, Taipei 10541, Taiwan, R.O.C.

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United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation

SPORTON INTERNATIONAL, INC.
TAIPEI 10541
TAIWAN

der the National Voluntary Laboratory Accreditation Program for satisfactory c
ed in Title 15, Part 285 Code of Federal Regulations. These criteria encompass th
le 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987)
t results. Accreditation is awarded for specific services, listed on the Scope of Ac

TROMAGNETIC COMPATIBILITY AND TELECOMMU
FCC

cember 31, 1997

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CERTIFICATE OF COMPLIANCE

according to

European Standard EN 55022:1994/A1:1995 Class A

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Taipei, Taiwan, R.O.C.

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **EUROPEAN COUNCIL DIRECTIVE 89/336/EEC.** The equipment was ***passed*** the test performed according to**EUROPEAN STANDARD EN 55022:1994/A1:1995 CLASS A.** The test was carried out on **SEP. 03, 1997** at **SPORTON INTERNATIONAL INC.** LAB in NEI HWU.

Lenore Chang Sep. 11, 1997

Lenore Chang
PRESIDENT

SPORTON International Inc.
No. 38, Alley 119, Lane 30, Yung Gi Road, Taipei 10541, Taiwan, R.O.C.

1. GENERAL DESCRIPTION OF EQUIPMENT UNDER TEST

1.1. APPLICANT

ACQUIRE INC.
2F, No. 11, Lane 403, Sec. 4, Pa-Ta Rd.,
Taipei, Taiwan, R.O.C.

1.2. MANUFACTURER

Same as 1.1

1.3. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

EQUIPMENT : INDUSTRIAL WORKSTATION
MODEL NO. : WS-615/ROCKY-538TXV/ACE-925A
TRADE NAME : ACQUIRE
DATA CABLE : Shielded
POWER SUPPLY TYPE : Switching
POWER CORD : Non-shielded

1.4. FEATURE OF EQUIPMENT UNDER TEST

*Processor: AMD pentium-166MHz
*Memory: Up to 256MB, 4pcs 72-pin SIMMs and 1pce 168-pin DIMM supports 3.3V SDRAM
*Multi-I/O chip: W83977F, all I/O setup by BIOS, two 16C550 RS-232 ports, one EPP/ECP parallel port, floppy port
* BIOS: AWARD BIOS with 1M-bit Flash EPROM.
*VGA controller: ET6000 128-bit GUI/VIDEO accelerator
*Two PCI bus master IDE channels

2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST

2.1. TEST MANNER

a. The SILITEK keyboard, two DATATRONICS modems, KYE mouse and HP printer were connected to the ACQUIRE PC for EMI test. During testing, the interface cables and equipment positions were varied according to European Standard EN 55022.

2.2. DESCRIPTION OF TEST SYSTEM

Support Device 1. --- MOUSE (KYE)

FCC ID	:FSUGMZFC
Model No.	:NETMOUSE
Serial No.	:SP1036
Data Cable	:Non-shielded

Support Device 2. --- PRINTER (HP)

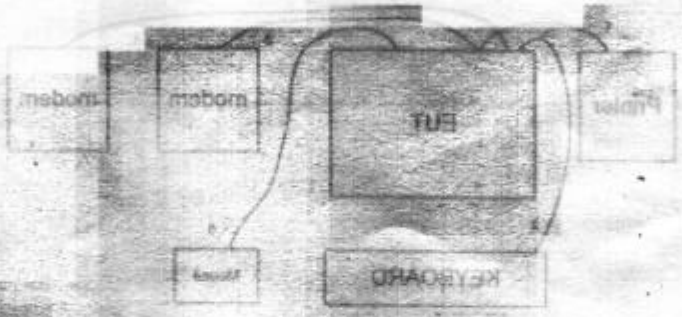
FCC ID	:DSI6XU2225
Model No.	:2225C
Serial No.	:SP0003
Data Cable	:Shielded, 360 degree via metal backshells
Power Supply Type	:Linear

Support Device 3. --- KEYBOARD (SILITEK)

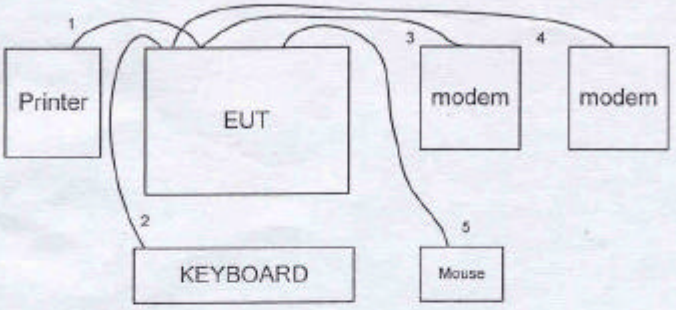
FCC ID	:GYUM99SK
Model No.	:SK9001AS2U
Serial No.	:SP1008
Data Cable	:Shielded, 360 degree via metal backshells

Support Device 4. --- MODEM (DATATRONICS)

FCC ID	:E2O5OV1200CK
Model No.	:1200CK
Serial No.	:SP1016
Data Cable	:Shielded, 360 degree via metal backshells
Power Supplay Type	:Linear



2.3. CONNECTION DIAGRAM OF TEST SYSTEM



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

3. TEST SOFTWARE

An executive program, FCC.EXE, 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 EUT reads the test program from the floppy disk drive and runs it.
c. The EUT sends " H " messages to the monitor, and the monitor displays " H " patterns on the screen.
d. The EUT sends " H " messages to the printer, then the printer prints them on the paper.
e. The EUT sends " H " messages to the modem.
f. The EUT sends " H " messages to the internal Hard Disk, and the Hard Disk reads and writes the message.
g. 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.

Openarea Test Site Location : No. 3, Lane 238, Kang Lo Street, Nei Hwu District, Taipei 11424, Taiwan, R.O.C.

TEL : 886-2-631-4739

FAX : 886-2-631-9740

4.2. STANDARD FOR METHODS OF MEASUREMENT

EMI Test (conduction and radiation) : European Standard EN 55022 Class A.

4.3 .TEST IN COMPLIANCE WITH

EMI Test (conduction and radiation) : European Standard EN 55022 Class A.

4.4. FREQUENCY RANGE INVESTIGATED

a. Conducted emission test: from 150 KHz to 30 MHz

b. Radiated emission test: from 30 MHz to 1000 MHz

4.5. TEST DISTANCE

The test distance of radiated emission test from antenna to EUT is 10 M.

5. TEST OF CONDUCTED POWERLINE

Conducted Emissions were measured from 150 KHz to 30 MHz with a bandwidth of 9 KHz on the 230VAC power and return leads of the EUT according to the methods defined in European Standard EN 55022 Clause 9. 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 producing maximum conducted emissions.

5.1. DESCRIPTION OF MAJOR TEST INSTRUMENTS

- Test Receiver

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 on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters 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 CISPR states that a 50 ohm , 50 microhenry LISN should be used.

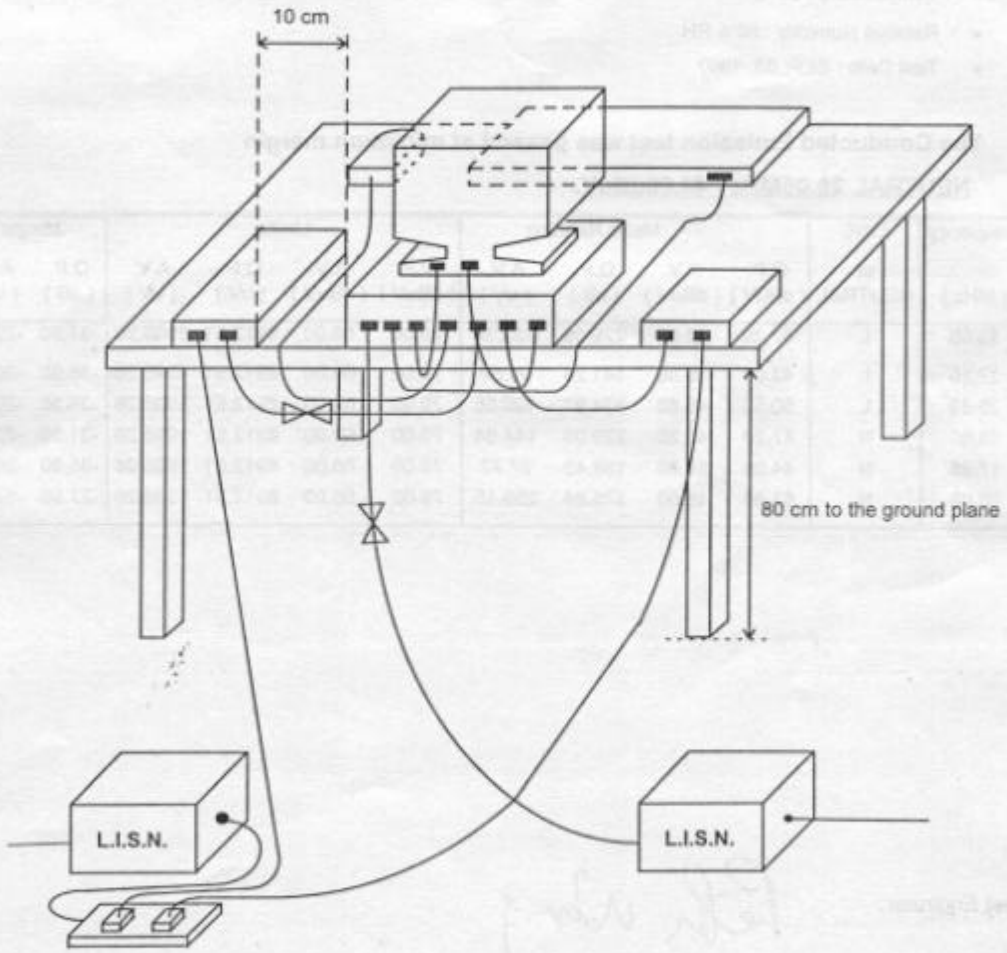
f. Both sides of AC line were checked for maximum conducted interference.

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/or average methods and reported.

5.3. TYPICAL TEST SETUP LAYOUT OF CONDUCTED POWERLINE



5.4. TEST RESULT OF AC POWERLINE CONDUCTED EMISSION

- Equipment meets the technical specifications of EN 55022 (1994)
- Frequency Range of Test : from 0.15 MHz to 30 MHz
- Temperature : 25 ℃
- Relative Humidity : 86% RH
- Test Date : SEP. 03, 1997

The Conducted Emission test was passed at minimum margin

NEUTRAL 26.05MHz / 48.60dBuV.

Frequency	LINE	Meter Reading				Limits				Margin	
(MHz)	or NEUTRAL	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)
13.00	L	47.20	42.50	229.09	133.35	79.00	66.00	8912.51	1995.26	-31.80	-23.50
17.25	L	43.00	39.60	141.25	95.50	79.00	66.00	8912.51	1995.26	-36.00	-26.40
25.89	L	50.50	45.60	334.97	190.55	79.00	66.00	8912.51	1995.26	-28.50	-20.40
13.00	N	47.20	43.20	229.09	144.54	79.00	66.00	8912.51	1995.26	-31.80	-22.80
17.25	N	44.00	39.80	158.49	97.72	79.00	66.00	8912.51	1995.26	-35.00	-26.20
26.05	N	51.50	48.60	375.84	269.15	79.00	66.00	8912.51	1995.26	-27.50	-17.40

Test Engineer: Peter Wang

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 European Standard EN 55022, Clause 10. 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. DESCRIPTION OF MAJOR TEST INSTRUMENTS

- Spectrum Analyzer

Attenuation	0 dB
Start Frequency	30 MHz
Stop Frequency	1000 MHz
Resolution Bandwidth	100 KHz
Video Bandwidth	300 KHz
Signal Input	50 ohm, 50 VDC MAX., +30 dBm MAX.

- Quasi-Peak Adapter

Resolution Bandwidth	1 MHz
Frequency Band	120 KHz
Quasi-Peak Detector	1 ms/MHz (OFF), 20s/MHz (ON)

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.

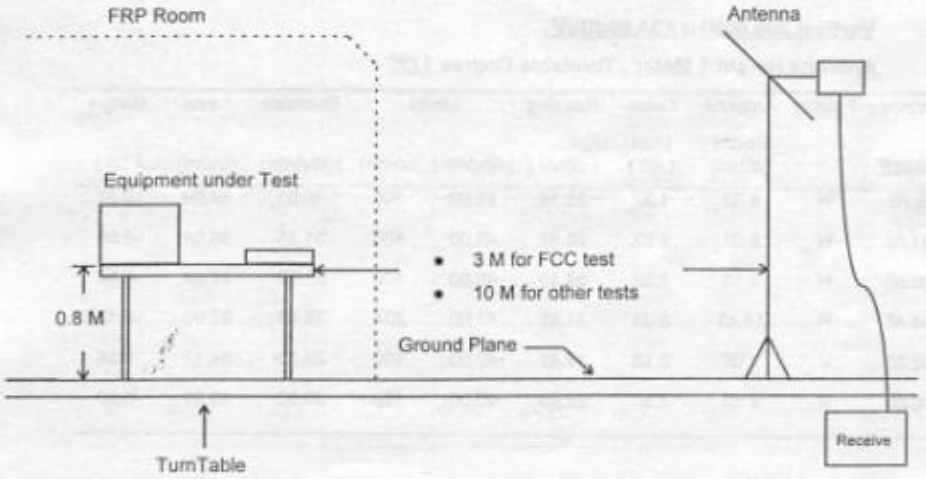
d. The antenna is a half wave dipole and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.

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 (HP 8568B) 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 EN 55022 (1994)
- Frequency Range of Test : from 30 MHz to 1000 MHz
- Test Distance : 10 M
- Temperature : 25 ℃
- Relative Humidity : 86% RH
- Test Date : SEP. 03, 1997
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Sample Calculation at 200.00MHz
  Corrected Reading = 9.10+ 2.30+ 22.40= 33.80(dBuV/m)

The Radiated Emission test was passed at minimun margin

Vertical 200.00MHz / 33.80dBuV

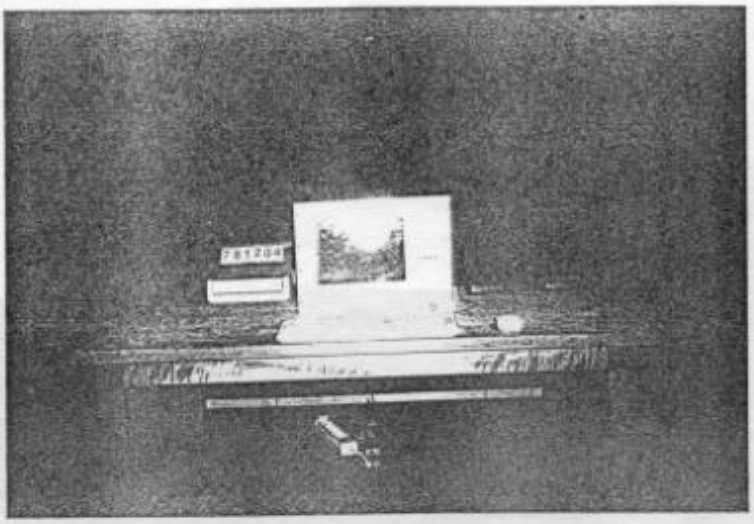
Antenna Height 1 Meter , Turntable Degree 129°

Frequency	Polarity	Antenna	Cable	Reading	Limits		Emission	Level	Margin
(MHz)		Factor (dB/m)	Loss (dB)	(dBuV)	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	(dB)
66.70	H	6.07	1.37	23.19	40.00	100	30.63	34.00	-9.37
181.60	H	9.01	2.02	20.32	40.00	100	31.35	36.94	-8.65
200.00	H	9.10	2.30	20.10	40.00	100	31.50	37.58	-8.50
334.40	H	14.43	3.04	21.42	47.00	224	38.88	87.90	-8.12
192.20	V	9.06	2.18	19.42	40.00	100	30.66	34.12	-9.34
200.00	V	9.10	2.30	22.40	40.00	100	33.80	48.98	-6.20

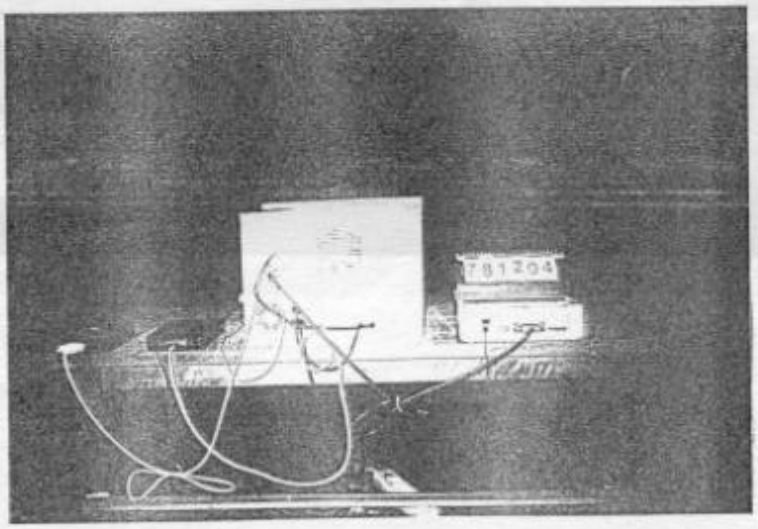
Test Engineer : Peter Wang

6.5. PHOTOGRAPHS OF RADIATED EMISSION TEST CONFIGURATION

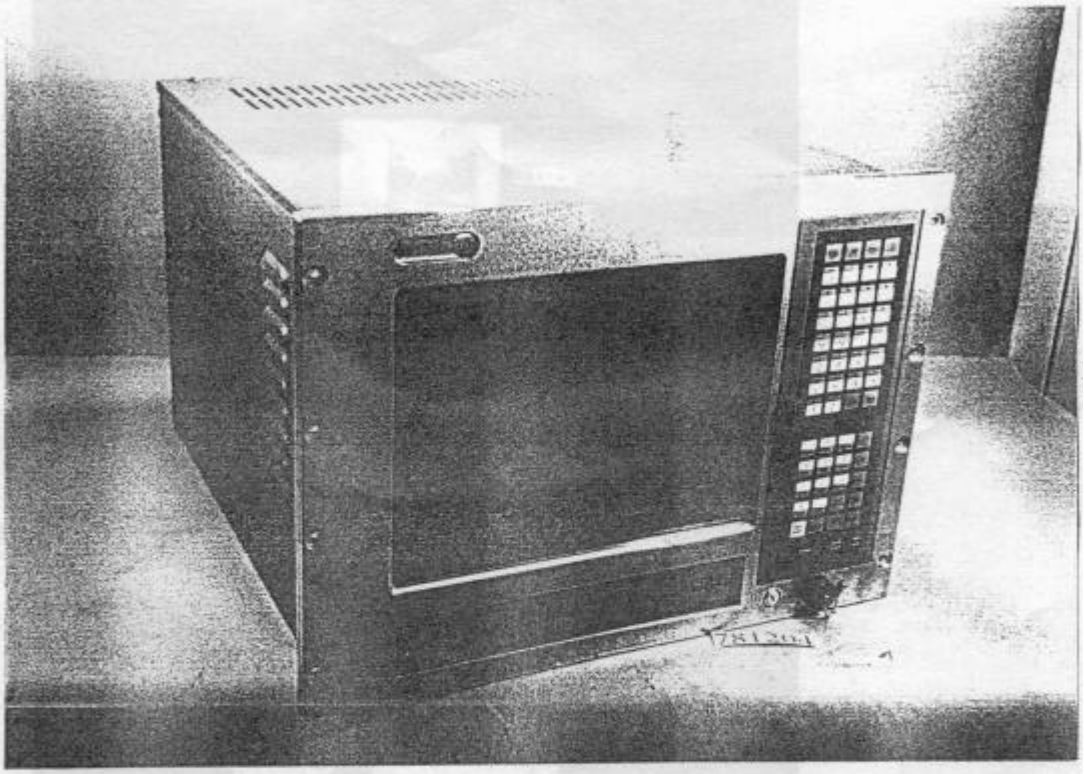
FRONT VIEW

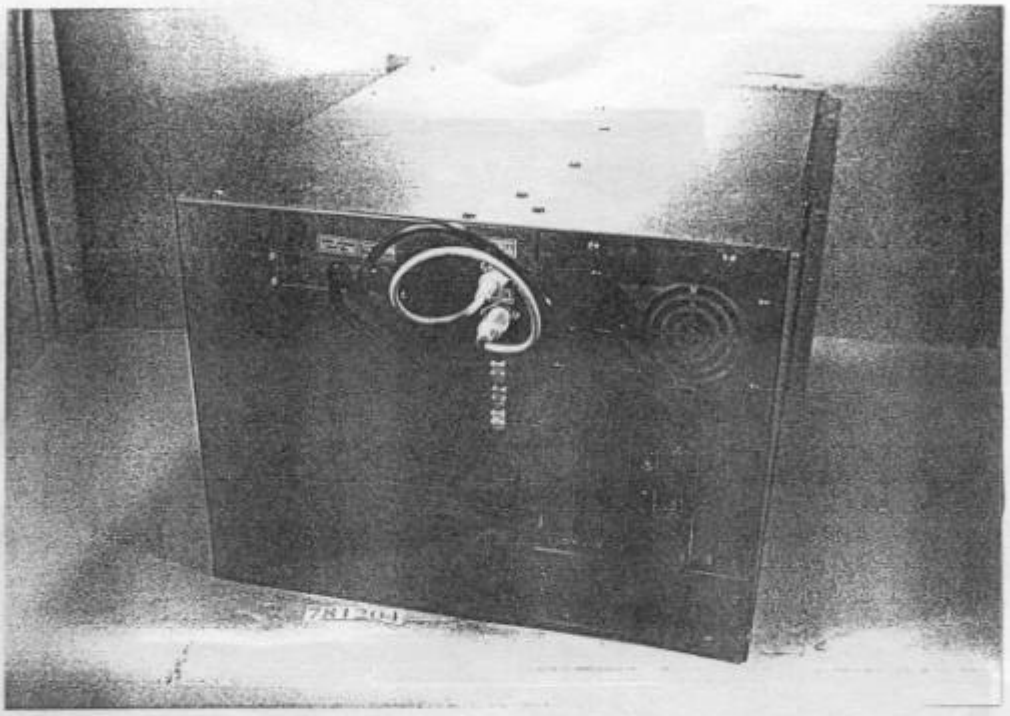


REAR VIEW



7. PHOTOGRAPHS OF EUT APPEARANCE

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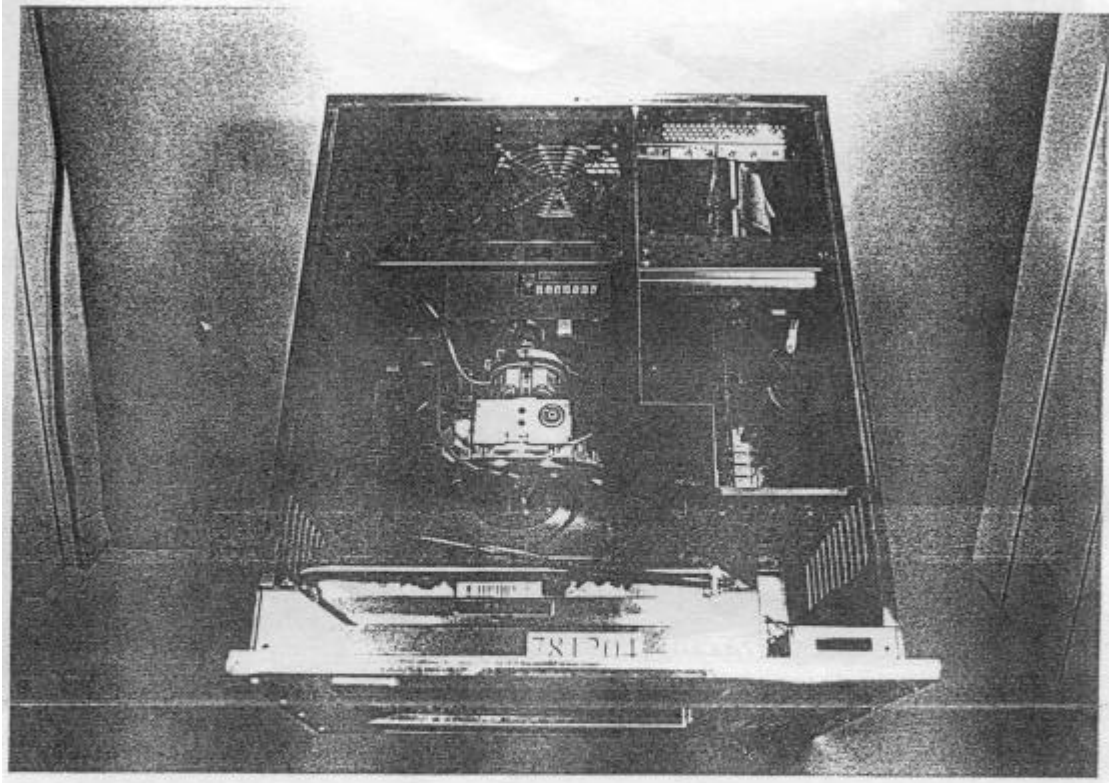

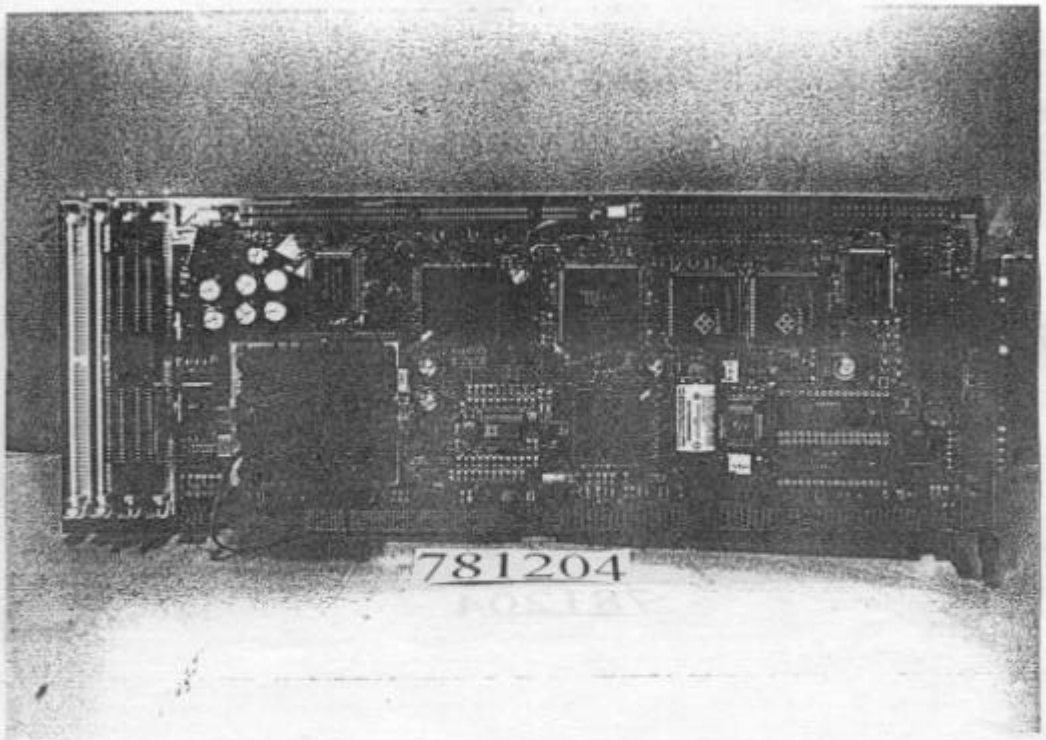
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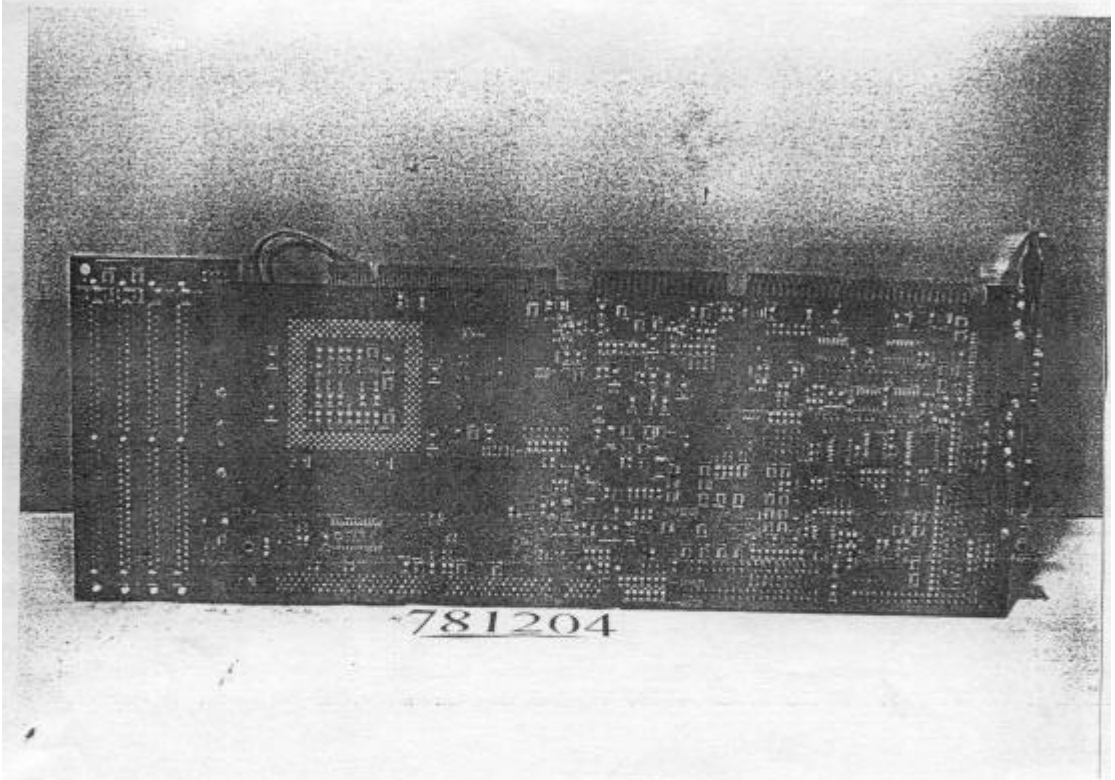
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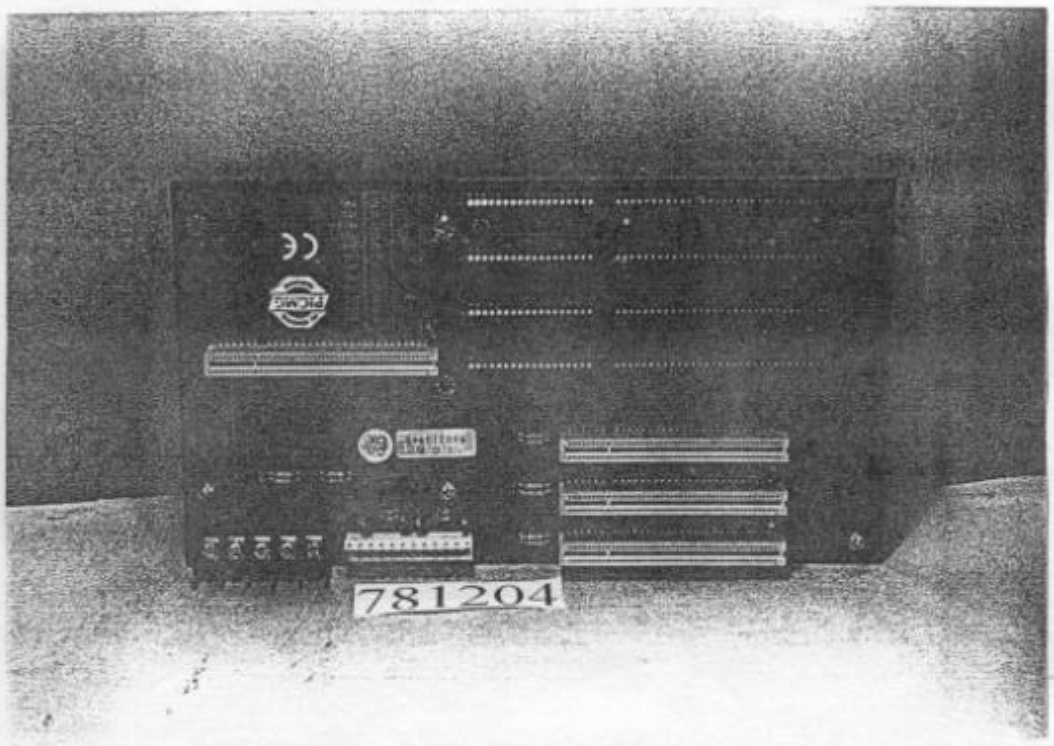
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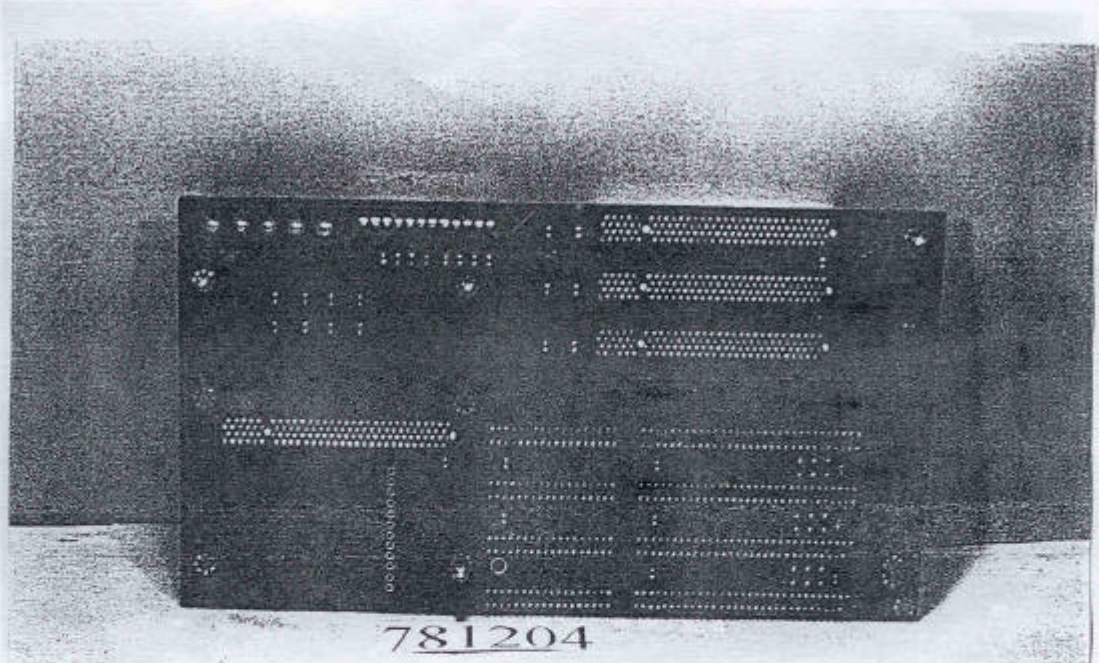
781204

8. ANTENNA FACTOR & CABLE LOSS

Frequency (Mhz)	Antenna Factor (dB)	Cable Loss (dB)
30	17.7	0.9
35	15.6	1.1
40	13.0	1.0
45	10.1	1.2
50	8.0	1.2
55	6.4	1.2
60	6.1	1.2
65	5.9	1.4
70	6.4	1.3
75	6.3	1.5
80	7.2	1.5
85	7.5	1.6
90	8.5	1.6
100	10.1	1.7
110	10.4	1.9
120	11.8	1.8
130	11.2	2.3
140	11.7	2.0
150	11.9	2.2
160	10.5	2.1
180	9.0	2.0
200	9.1	2.3
225	9.5	2.5
250	11.8	2.6
300	13.6	2.9
350	14.8	3.1
400	16.3	3.4
450	17.3	3.7
500	17.7	3.7
550	19.5	3.9
600	20.0	4.1
650	20.4	4.3
700	21.0	4.6
750	21.4	4.9
800	22.1	4.8
850	22.9	5.0
900	22.7	5.1
950	24.1	5.3
1000	24.9	5.5

9. LIST OF MEASURING EQUIPMENT USED

INSTRUMENT	Manufacturer	Model No	Serial No	Characteristic	Calibration Date	Calibration Interval	Remark
Spectrum Analyzer	HP	8568B	2928A04713	100Hz - 1500MHz	JUL. 04, 1997	1 Year	R
Quasi-Peak Adapter	HP	85650A	2811A01285	100Hz - 1500MHz	JUL. 04, 1997	1 Year	R
RF. Preselector	HP	85685A	2926A00951	20MHz- 2000MHz	JUL. 04, 1997	1 Year	R
Test Receiver	R&S	ESVP	893610/003	20Hz - 1300MHz	MAY. 19, 1997	1 Year	C
Test Receiver	R&S	ESH3	893495/013	9KHz - 30 MHz	MAY. 19, 1997	1 Year	C
Spectrum monitor	R&S	EZM	894987/011	N/A	MAY. 19, 1997	1 Year	C
LISN	KYORITSU	KNW407	8-1010-15	50 ohm / 50uH	JAN. 26, 1997	1 Year	C
LISN	EMCO	3825/2	9510-2484	250Vac, 50A(Max.)	OCT. 02 ,1996	1 Year	C
Signal Generator	R&S	SMX-B1	8269519	100KHz - 2000MHz	JUN. 25, 1997	1 Year	N/A
Antenna Mast	EMCO	1051-1.2	N/A	N/A	N/A	N/A	R
Turntable	EMCO	1060-7.21	N/A	N /A	N/A	N/A	R
Wooden Table	SPORTON	N/A	N/A	N/A	N/A	N/A	C
Bilog Antenna	CHASE	CBL6111	1373	30MHz-1000MHz	AUG. 13, 1997	1 Year	R
Biconical Antenna	EMCO	3104	102314	20MHz - 200MHz	DEC. 05, 1996	1 Year	N/A
Log-Period Antenna	EMCO	3146	10332	200MHz - 1 GHz	DEC. 05, 1996	1 Year	N/A
Dipole Antenna	EMCO	3121C	8912-496	28MHz - 1 GHz	DEC. 02, 1996	1 Year	R
Absorbing Clamp	R&S	MDS 21	1145-1	30MHz - 1 GHz	JAN. 14, 1997	1 Year	N/A
Shielding Room	SPORTON	N/A	N/A	8m x 4.8m x 4.8m	N/A	N/A	N/A
Spectrum	HP	8594A	2741A0311	9 KHz - 2.9GHz	MAR. 02, 1997	1 Year	N/A
Horn Antenna	EMCO	3115	34-234	1GHz - 18 GHz	JUN. 21, 1997	1 Year	N/A

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