SPORTON LAB.

- THE TEST RESULT REFERS EXCLUSIVELY TO THE TEST PRESENTED TEST MODEL / SAMPLE.
- WITHOUT WRITTEN AUTHORIZATION OF TEST LAB., THE TEST REPORT MAY NOT BE COPIED.

SPORTON INTERNATIONAL INC.

FCC TEST REPORT

for

CISPR PUB. 22 Class A

Equipment	: Display Monitor
Model No.	: AMB-255A, AMB-255AT, AMB-255AR, AMB-255ART
FCC ID	: N/A
Filing Type	: Verification
Applicant	: **AAEON Technology Inc.** 5F, No. 135, 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.
- **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.

Table of Contents

CERTIFICATE OF COMPLIANCE

for

CISPR PUB. 22 Class A

Equipment	:	Display Monitor
Model No.	:	AMB-255A, AMB-255AT, AMB-255AR, AMB-255ART
FCC ID	:	N/A
Applicant	:	**AAEON Technology Inc.** 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien City, 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 **ANSI C63.4 - 1992** and the energy emitted by this equipment was ***passed*** **CISPR PUB. 22** both radiated and conducted emission class A limits. Testing was carried out on Apr. 27, 2001 at **SPORTON International Inc.** LAB. in Nei Hwu.

May 28, 2001

K. J. Lin
Manager

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

AAEON Technology Inc.
5F, No. 135, 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	: Display Monitor
Model No.	: AMB-255A, AMB-255AT, AMB-255AR, AMB-255ART
Trade Name	: AAEON
VGA Cable	: Shielded, 1.1m
AV Cable	: Non-Shielded, 1.4m
Com Cable	: Shielded, 1.7m
Power Supply Type	: Switching
AC Power Cord	: Non-Shielded, 1.75m, 2 pin
DC Power Cable	: Non-Shielded, 1.7m

1.4. Feature of Equipment under Test

- 15" XGA color TFT LCD display
- Heavy-duty stainless steel chassis and aluminum alloy front panel
- Front panel is NEMA 4/12 compliant
- Rack-mount (optional)
- Touch Screen (optional)
- Strengthened glass protects the front panel from shock damage
- Analog RGB signal directly input offering multi-scan function
- RGB, RCA video AV signal selectable
- VGA Cable length support up to 20Meters

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, LOGITECH PS/2 Mouse, HP Printer, ACEEX Modem, SONY 1394 D8 and EUT were connected to the FIC PC for EMI test.
c. Frequency range investigated: conduction 150 KHz to 30 MHz, radiation 30 MHz to 1000MHz.

2.2. Description of Test System

Support Unit 1. -- Personal Computer (FIC)

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 2. -- PS/2 Keyboard (DELL)

FCC ID	: GYUM90SK
Model No.	: AT101W
Serial No.	: SP0019
Data Cable	: Shielded, 360 degree via metal backshells, 1.5m

Support Unit 3. -- PS/2 Mouse (LOGITECH)

FCC ID	: DZL211029
Model No.	: M-S34
Serial No.	: SP0108
Data Cable	: Non-Shielded, 1.8m

Support Unit 4. -- Printer (HP)

FCC ID	: DSI6XU2225
Model No.	: 2225C
Power Supply Type	: Linear
Power Cord	: Non-Shielded
Serial No.	: SP0014
Data Cable	: Shielded, 360 degree via metal backshells, 1.2m

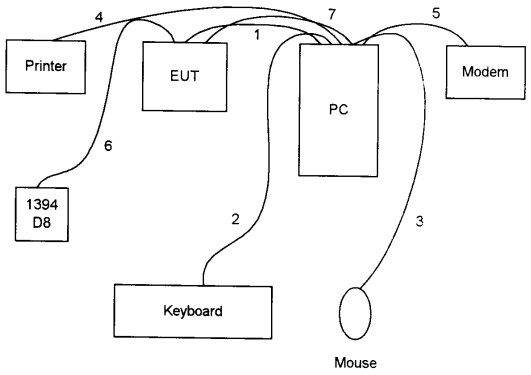
Support Unit 5. -- Modem (ACEEX)

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. – 1394 D8 (SONY)

FCC ID	: N/A
Model No.	: DCR-TRV310
Serial No.	: SP0140
Data Cable	: Non-Shielded, 1.4m

2.3. Connection Diagram of Test System



1. The Com cable is connected from PC to the EUT.
2. The I/O cable is connected from PC to the support unit 2.
3. The I/O cable is connected from PC to the support unit 3.
4. The I/O cable is connected from PC to the support unit 4.
5. The I/O cable is connected from PC to the support unit 5.
6. The I/O cable is connected from EUT to the support unit 6.
7. The VGA cable is connected from PC to the EUT.

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 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.

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

CISPR PUB. 22 Class A

4.4. Frequency Range Investigated

a. Conduction: from 150 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 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 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.

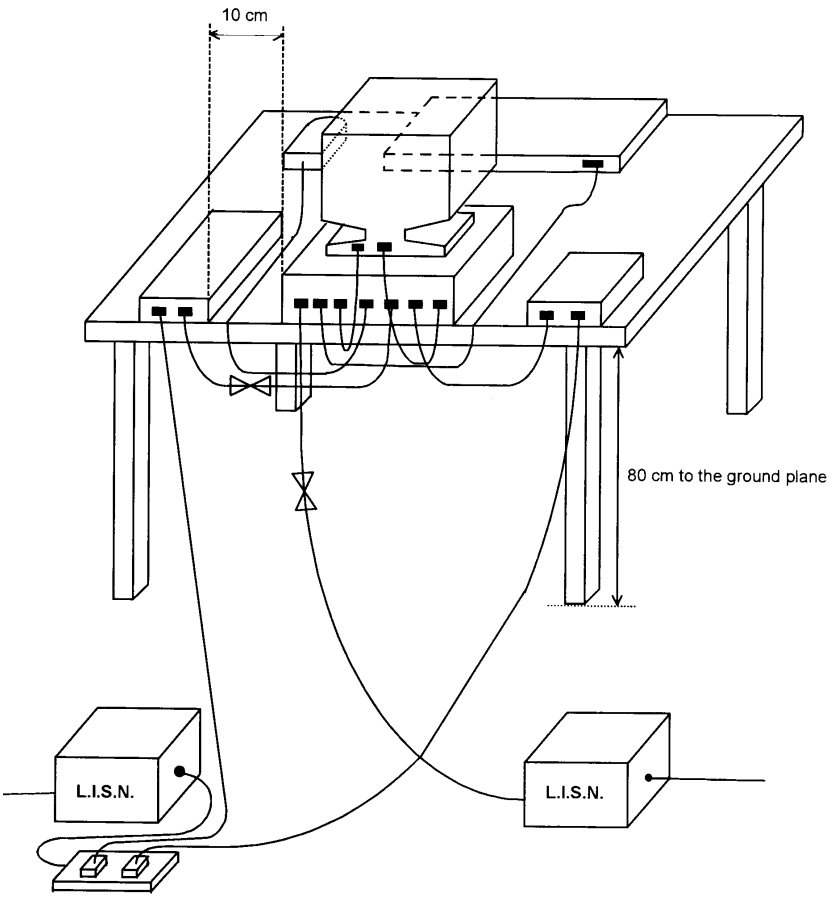
5.1. Major Measuring Instruments

• Test Receiver	(R&S ESH3)
Attenuation	0 dB
Start Frequency	0.15 MHz
Stop Frequency	30 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

5.4.1. Test mode : 1024 x 768, 69K/85Hz

- Temperature : 23°C
- Relative Humidity : 51 %
- Test Date : Apr. 27, 2001

The Conducted Emission test was passed at minimum margin LINE 0.176 MHz / 51.50 dBuV.

Freq.	Line	Meter Reading				Limits				Margin	
	or	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.
(MHz)	Neutral	(dBuV)	(dBuV)	(uV)	(uV)	(dBuV)	(dBuV)	(uV)	(uV)	(dB)	(dB)
0.176	L	56.20	51.50	645.65	375.84	79.00	66.00	8912.51	1995.26	-22.8	-14.5
0.236	L	50.70	44.60	342.77	169.82	79.00	66.00	8912.51	1995.26	-28.3	-21.4
0.295	L	43.50	38.50	149.62	84.14	79.00	66.00	8912.51	1995.26	-35.5	-27.5
0.176	N	53.70	48.20	484.17	257.04	79.00	66.00	8912.51	1995.26	-25.3	-17.8
0.293	N	42.00	36.50	125.89	66.83	79.00	66.00	8912.51	1995.26	-37.0	-29.5
0.450	N	35.70	31.40	60.95	37.15	79.00	66.00	8912.51	1995.26	-43.3	-34.6

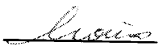
Test Engineer : LOUIS LIN

5.4.2. Test mode : AV INPUT

- Temperature : 23°C
- Relative Humidity : 51 %
- Test Date : Apr. 27, 2001

The Conducted Emission test was passed at minimum margin LINE 0.182 MHz / 48.60 dBuV.

Freq.	Line	Meter Reading				Limits				Margin	
	or	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.
(MHz)	Neutral	(dBuV)	(dBuV)	(uV)	(uV)	(dBuV)	(dBuV)	(uV)	(uV)	(dB)	(dB)
0.182	L	52.00	48.60	398.11	269.15	79.00	66.00	8912.51	1995.26	-27.0	-17.4
0.232	L	39.70	35.70	96.61	60.95	79.00	66.00	8912.51	1995.26	-39.3	-30.3
0.296	L	40.20	36.60	102.33	67.61	79.00	66.00	8912.51	1995.26	-38.8	-29.4
0.177	N	52.70	47.10	431.52	226.46	79.00	66.00	8912.51	1995.26	-26.3	-18.9
0.236	N	48.70	43.60	272.27	151.36	79.00	66.00	8912.51	1995.26	-30.3	-22.4
0.348	N	40.50	37.90	105.93	78.52	79.00	66.00	8912.51	1995.26	-38.5	-28.1

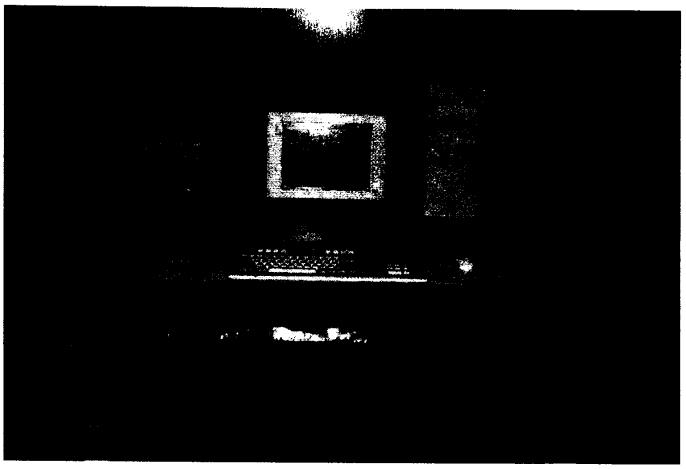
Test Engineer : 
LOUIS LIN

5.5. Photographs of Conducted Powerline Test Configuration

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

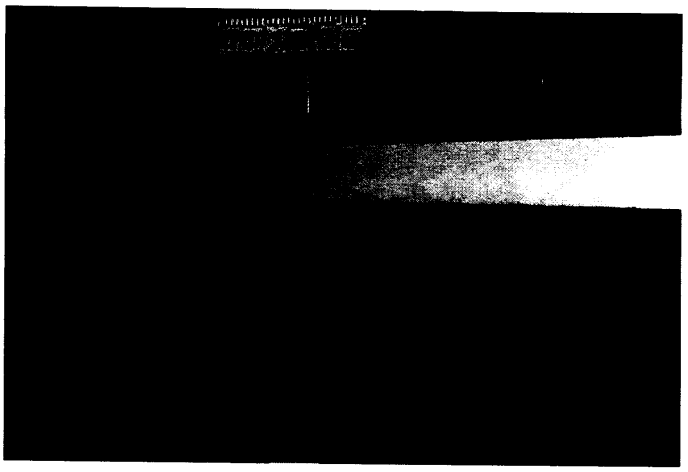
1024 x 768, 69K/85Hz

FRONT VIEW



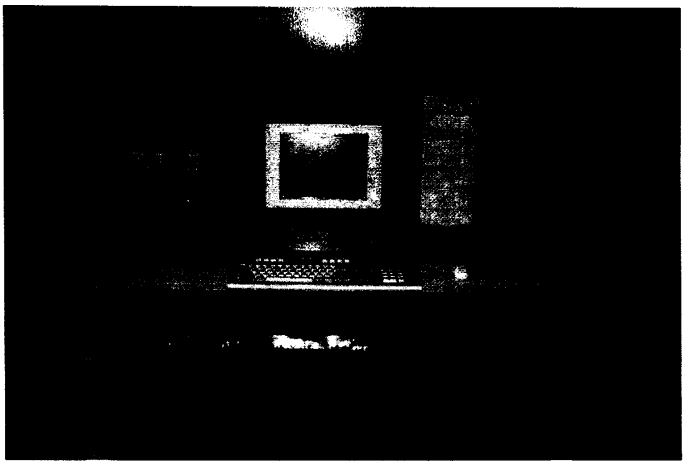
REAR VIEW

SIDE VIEW



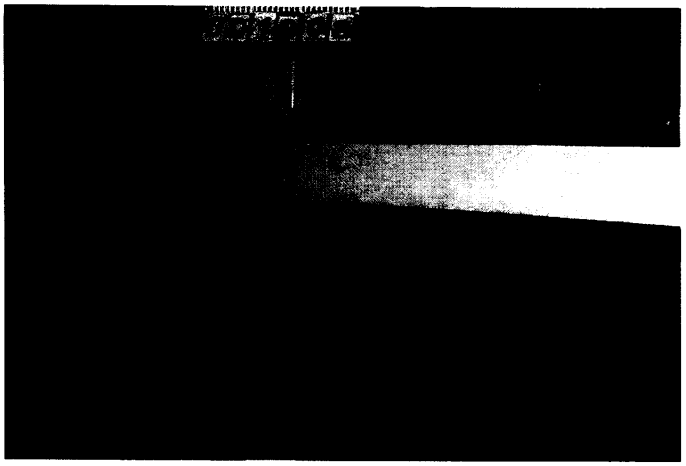
AV INPUT

FRONT VIEW



REAR VIEW

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.

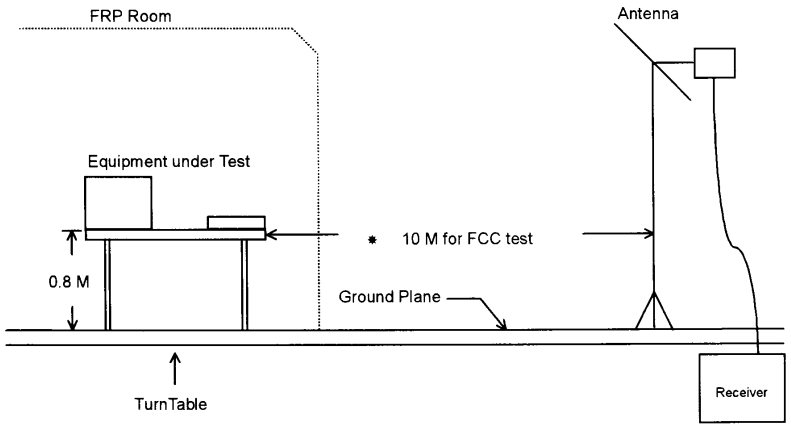
6.1. Major Measuring Instruments

• 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

6.4.1. Test mode : 1024 x 768, 69K/85Hz

- Test Distance : 10 M
- Temperature : 24°C
- Relative Humidity : 62 %
- Test Date : Apr. 9, 2001
- 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

164.895 MHz / 36.88 dBuV (VERTICAL) Antenna Height 2 Meter, Turntable Degree 180 °.

Frequency (MHz)	Polarity	Antenna Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Limits (dBuV/m)	Limits (uV/m)	Emission (dBuV/m)	Level (uV/m)	Margin (dB)
164.885	H	9.66	1.54	23.88	40.00	100.00	35.08	56.75	-4.92
220.000	H	10.70	1.72	22.36	40.00	100.00	34.78	54.83	-5.22
70.828	V	6.46	0.96	28.54	40.00	100.00	35.96	62.81	-4.04
164.895	V	9.66	1.54	25.68	40.00	100.00	36.88	69.82	-3.12
256.800	V	12.77	1.99	28.27	47.00	223.87	43.03	141.74	-3.97
268.800	V	13.15	1.98	26.30	47.00	223.87	41.43	117.90	-5.57

Test Engineer : Castries

Castries Huang

6.4.2. Test mode : AV INPUT

- Test Distance : 10 M
- Temperature : 24°C
- Relative Humidity : 62 %
- Test Date : Apr. 9, 2001
- 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

41.764 MHz / 36.03 dBuV (VERTICAL) Antenna Height 1 Meter, Turntable Degree 180 °.

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)
187.430	H	9.49	1.62	23.83	40.00	100.00	34.94	55.85	-5.06
470.400	H	17.20	2.55	21.37	47.00	223.87	41.12	113.76	-5.88
41.764	V	13.92	0.81	21.30	40.00	100.00	36.03	63.31	-3.97
45.224	V	12.62	0.80	19.31	40.00	100.00	32.73	43.30	-7.27
81.208	V	7.29	1.08	26.97	40.00	100.00	35.34	58.48	-4.66
264.000	V	12.99	2.00	25.10	47.00	223.87	40.09	101.04	-6.91

Test Engineer : Castries

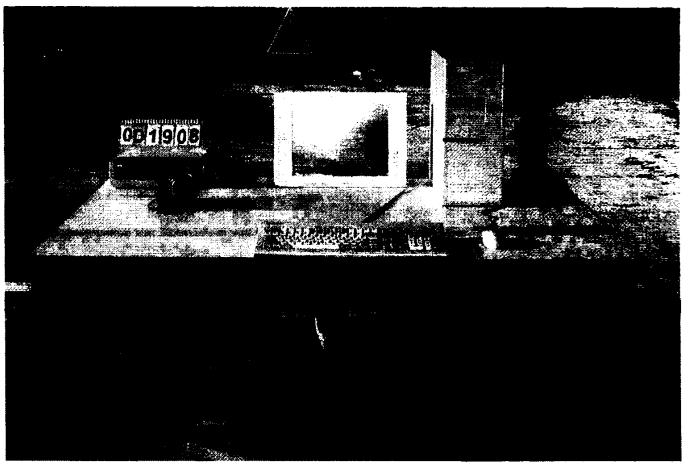
Castries Huang

6.5. Photographs of Radiated Emission Test Configuration

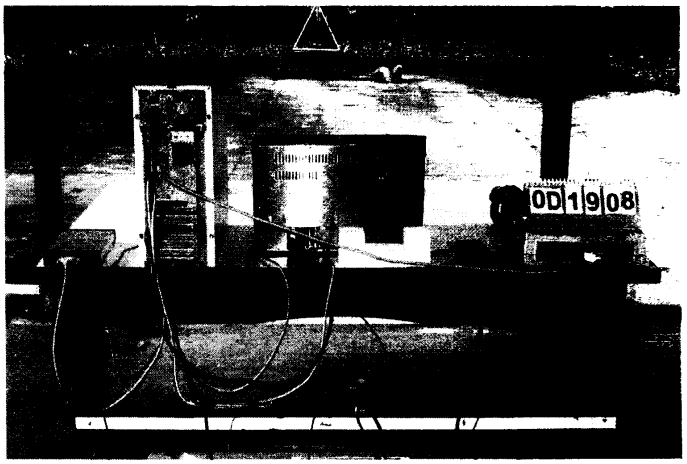
- The photographs show the configuration that generates the maximum emission.

1024 x 768, 69K/85Hz

FRONT VIEW

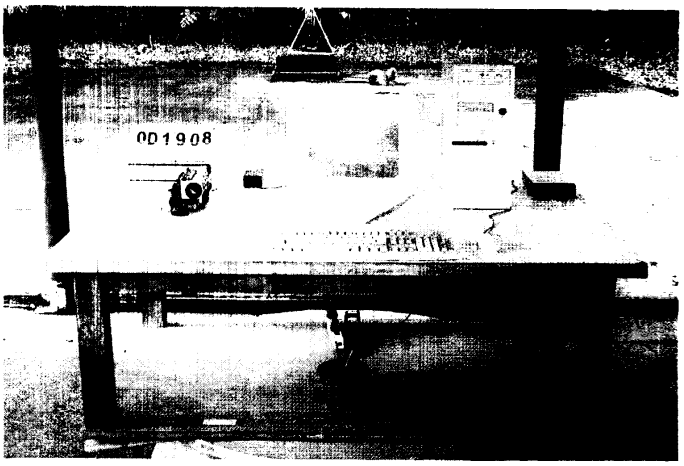


REAR VIEW

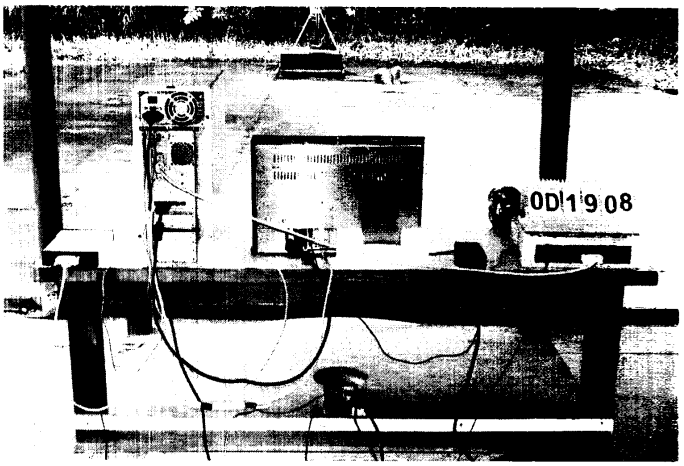


AV INPUT

FRONT VIEW



REAR VIEW



7. Antenna Factor & Cable Loss

Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)
30	17.3	0.7
35	15.9	0.8
40	14.4	0.8
45	12.6	0.8
50	10.1	0.8
55	8.5	0.9
60	6.8	0.9
65	6.6	1.0
70	6.4	0.9
75	6.7	1.1
80	7.0	1.1
85	8.3	1.1
90	9.6	1.2
95	10.0	1.1
100	10.4	1.2
110	11.6	1.2
120	12.8	1.3
130	13.0	1.4
140	12.6	1.5
150	11.4	1.5
160	9.9	1.5
170	9.4	1.6
180	9.5	1.6
190	9.5	1.7
200	9.4	1.7
220	10.7	1.7
240	11.9	1.8
260	12.9	2.0
280	13.5	1.9
300	14.2	2.0
320	14.4	2.0
340	14.6	2.1
360	14.9	2.2
380	15.2	2.3
400	15.6	2.4
450	16.8	2.5
500	17.8	2.7
550	19.4	2.8
600	18.3	2.9
650	18.6	3.1
700	19.9	3.2
750	20.4	3.3
800	20.5	3.4
850	20.0	3.8
900	21.1	3.9
950	21.6	3.8
1000	21.2	3.8

NHOP3

8. List of Measuring Equipment Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Test Receiver	R&S	ESH3	893495/013	9KHz – 30MHz	Jun. 19, 2000	Conduction
Spectrum Monitor	R&S	EZM	894987/011	-	Jun. 19, 2000	Conduction
LISN	EMCO	3810/2	9703-1838	50uH / 50 ohm	Sep. 01, 2000	Conduction
LISN	KYORITSU	KNW-407	8-1010-15	50uH / 50 ohm	Nov. 13, 2000	Conduction
Power Filter	CORCOM	MR12030	N/A	30A*2	N/A	Conduction
Spectrum Analyzer (site 3)	Advantest	R3261C	71720471	9KHz - 2.6GHz	Jan. 08, 2001	Radiation
Amplifier (Site 3)	HP	8447D	2944A08290	0.1MHz -1.3GHz	Nov. 21, 2000	Radiation
Bilog Antenna (Site 3)	CHASE	CBL6112A	2218	30MHz - 2GHz	Jan. 30, 2001	Radiation
Half-wave dipole antenna (Site 3)	EMCO	3121C	8912-1285	20MHz - 1GHz	Aug. 06, 2000	Radiation
Turn Table	EMCO	2080	9508-1805	0 ~ 360 degree	N/A	Radiation
Antenna Mast	EMCO	2075	9804-2151	1 m - 4 m	N/A	Radiation

※ Calibration Interval of instruments listed above is one year.

9. Uncertainty of Test Site

Uncertainty of Conducted Emission Measurement

Contribution	Probability Distribution	150KHz – 30MHz
Cable and I/P attenuator calibration	normal(k=2)	±0.3
RCV/SPA specification	Rectangular	±2
LISN coupling specification	rectangular	±1.5
Transducer factor frequency interpolation	rectangular	±0.2
Mismatch Receiver VSWR Γ1=0.09 LISN VSWR Γ2=0.33 Uncertainty=20log(1-Γ1*Γ2)	U-shaped	0.2
combined standard uncertainty Ue(y)	**normal**	**±1.66**
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	**normal (k=2)**	**±3.32**

$U=\sqrt{\{(0.3/2)^2+(2^2+1.5^2+0.2^2)/3+(0.2)^2/2\}}=1.66$

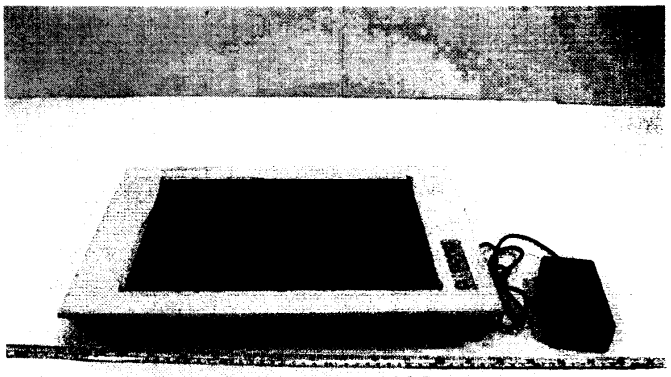
Uncertainty of Radiated Emission Measurement

Contribution	**Probability Distribution**	3m	10m
Antenna factor calibration	normal(k=2)	±1.6	±1.6
cable loss calibration	normal(k=2)	±0.3	±0.3
RCV/SPA specification	rectangular	±2	±2
Antenna Directivity	rectangular	±3	±0.5
Antenna Factor V.S. Height	rectangular	±2	±2
Antenna Factor Interpolation for Frequency	rectangular	±0.25	±0.25
site imperfection	rectangular	±2	±2
Mismatch Receiver VSWR Γ1=0.09 Antenna VSWR Γ2=0.67 Uncertainty=20log(1-Γ1*Γ2)	U-shaped	±0.54	±0.54
combined standard uncertainty Ue(y)	**normal**	**±2.8**	**±2.2**
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	**normal (k=2)**	**±5.6**	**±4.4**

$U=\sqrt{\{(1.6/2)^2+(0.3/2)^2+(3^2+0.5^2+2^2+0.25^2+2^2)/3+(0.54)^2/2\}}=2.2$ for 10m test distance

$U=\sqrt{\{(1.6/2)^2+(0.3/2)^2+(3^2+3^2+2^2+0.25^2+2^2)/3+(0.54)^2/2\}}=2.8$ for 3m test distance

APPENDIX A. Photographs of EUT



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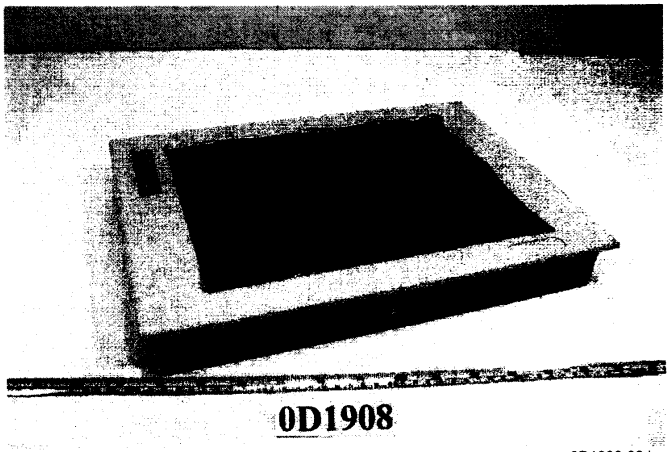

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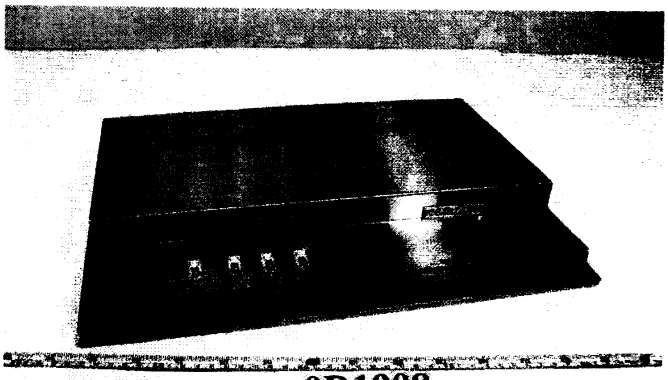

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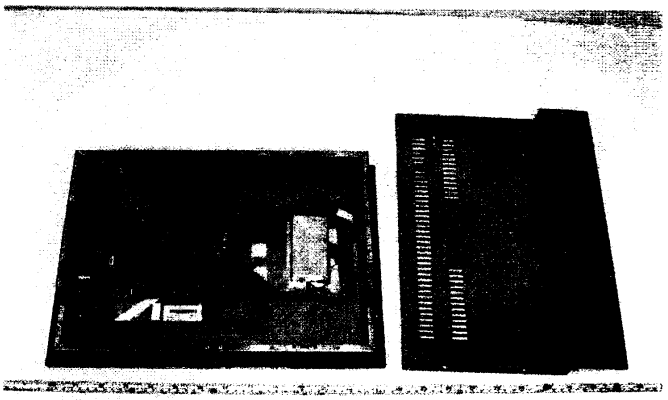

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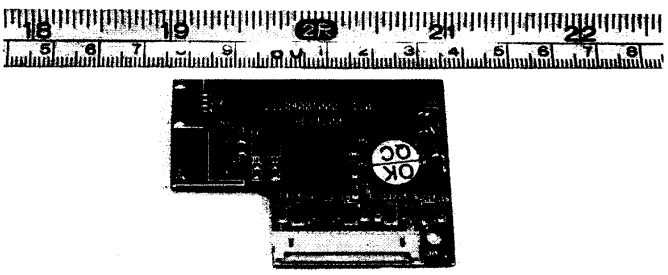

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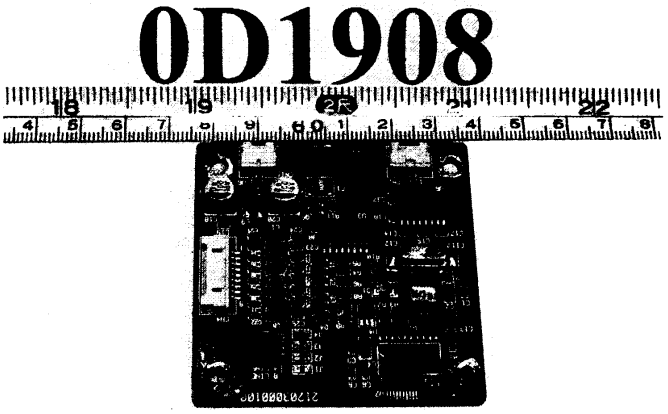

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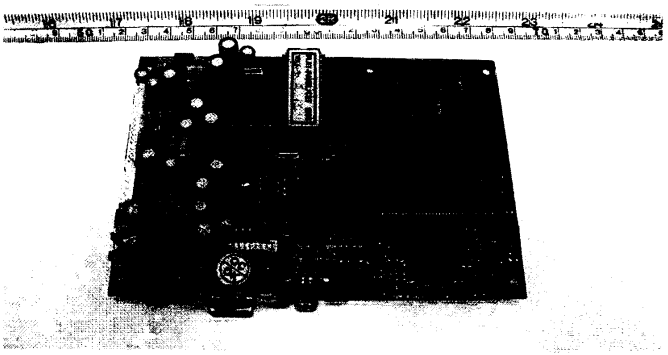
0D1908-08.jpg

0D1908



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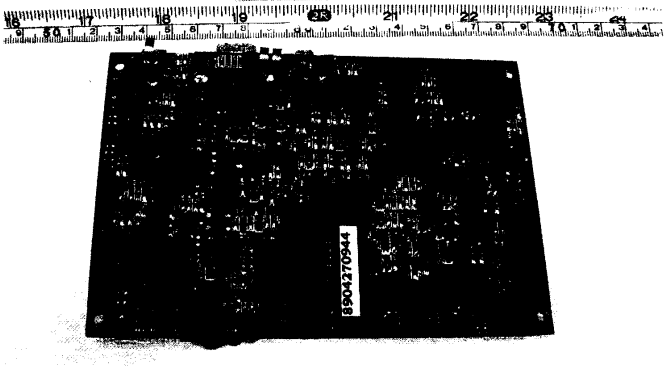

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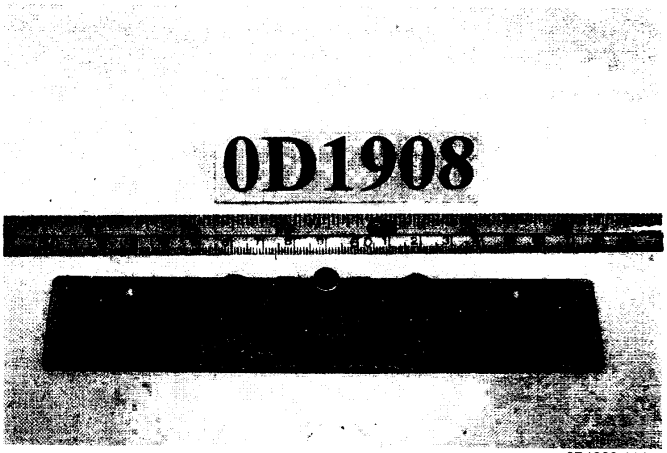

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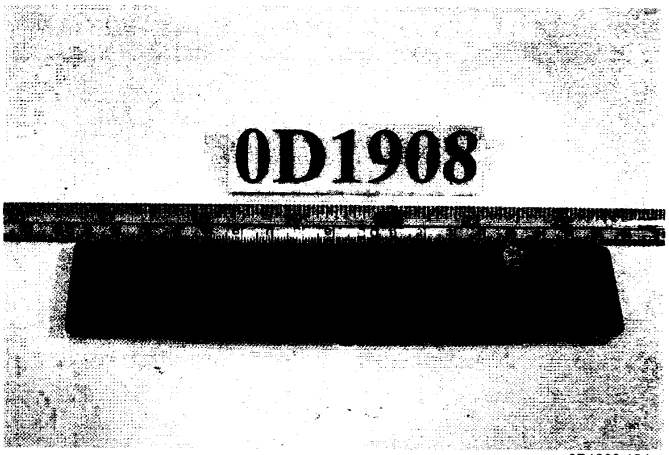

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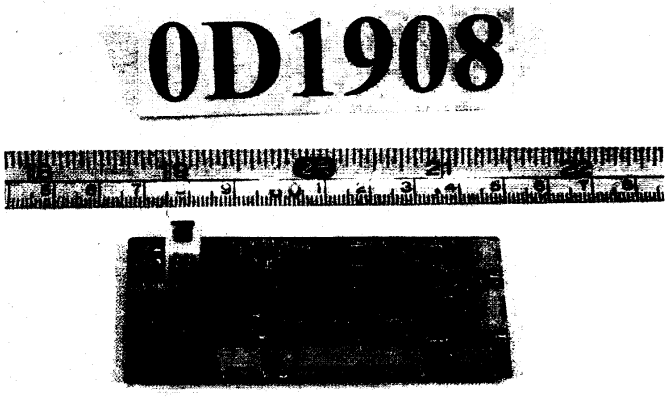
0D1908-13.jpg



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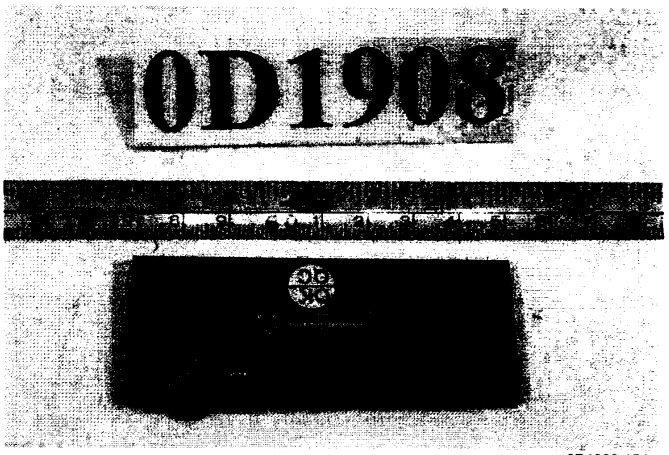

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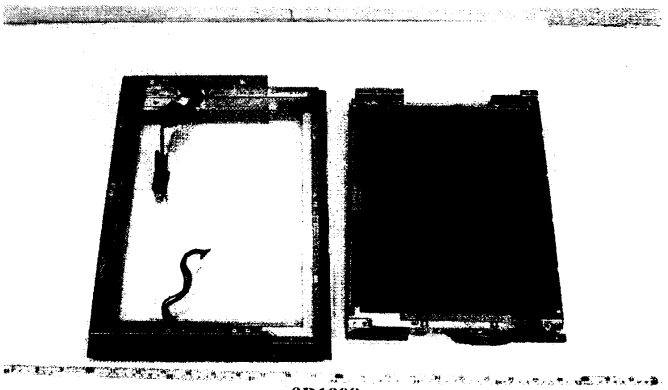

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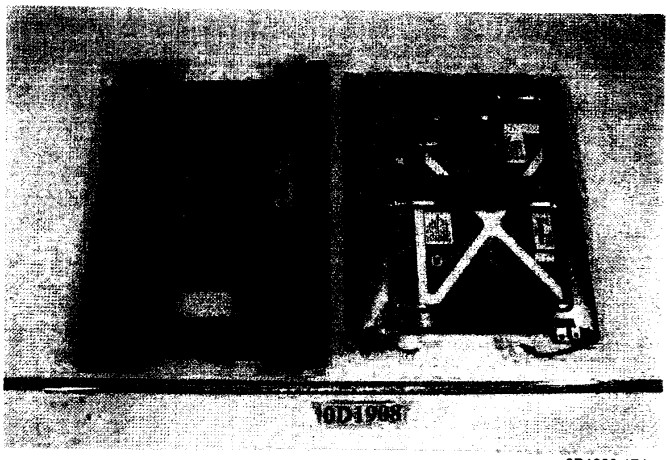

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0D1908-19.jpg

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