EMI TESTING REPORT

EUT : MOUSE

MODEL : MA7EIV1

FCC ID : MA7EIV1

PREPARED FOR :

ALLSPIRIT CO., LTD.

7FL, NO. 4, LANE 609,

SEC. 5, CHUNG HSIN RD.,

SAN CHUNG CITY, TAIPEI,

TAIWAN, R.O.C.

PREPARED BY :

SPECTRUM RESEARCH & TESTING LABORATORY INC.
NO. 101-10, LING 8, SHAN-TONG LI CHUNG-LI CITY,
TAOYUAN, TAIWAN, R. O. C.
TEL : (03) 4987684 FAX : (03) 4986528

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1. TEST REPORT CERTIFICATION

APPLICANT : ALLSPIRIT CO., LTD.

ADDRESS : 7FL, NO. 4, LANE 609,
SEC. 5, CHUNG HSIN RD.,
SAN CHUNG CITY, TAIPEI,
TAIWAN, R.O.C.

EUT DESCRIPTION : MOUSE

(A) POWER SUPPLY : FROM PC

(B) MODEL : MA7EIV1

(C) FCC ID : MA7EIV1

FINAL TEST DATE : 04/08/1999

MEASUREMENT PROCEDURE USED :

* PART 15 SUB PART B OF FCC RULES AND REGULATIONS (47 CFR PART 15)
FCC / ANSI C63.4 - 1992

We hereby show that :

The measurement shown in the attachment were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable.

TESTING ENGINEER : Addison Liu DATE 4/8/99
Addison Liu

SUPERVISOR : DATE 4/8/99
Jesse Ho

APPROVED BY : DATE 4/9/99
Johnson Ho

2. TEST STATEMENT

2.1 TEST STATEMENT

To whom it may concern,

This letter is to explain the EUT (Mouse) will be class II changed.

The original FCC ID: MA7EIV1 was approved by FCC.

The different between new one and old one is changed EUT circuit board layout and IC (GL311MC-A009A).

PC CPU : Pentium – 166MMX **Clock Chip: 66MHz**

Resolution : 640 * 480

The data was shown in this report reflects the worst – case data for the condition as listed above.

2.2 DEPARTURE FROM DOCUMENT POLICIES, PROCEDURE OR SPECIFICATIONS , THE STATEMNT

A . DID HAVE

Any departure from document policies & procedures or from specifications.

Yes _____, No ____√____ .

If yes , the description as below.

B . The certificate and report shall not be reproduced except in full , without the written approval of SRT LABORATORY.

C . The report must not be used by the client to claim product endorsement by NVLAP or any agency the government.

3. EUT MODIFICATIONS

The following accessories were added to the EUT during testing :

PS2 port:

1). Took out C1.
2). Pin2 of CON1 added 100pF to ground.
3). Pin1 of CON1 added 100pF to ground.
4). Serial bead (1000Ω at 100MHz) on Pin4 of CON1.
5). Added bead (1000Ω at 100MHz) between ground of Y1 and ground of C1.
6). Changed cable to shielding cable.

Serial port:

1). Took out C1.
2). Pin2 of CON1 added 100pF to ground.
3). Pin1 of CON1 added 100pF to ground.
4). Serial bead (1000Ω at 100MHz) on Pin4 of CON1.
5). Added bead (1000Ω at 100MHz) between ground of Y1 and ground of C1.

4. MODIFICATION LETTER

This section contains the following documents :

A. Letter of modifications

AllSpirit co., Ltd.

7F, No. 4, lane 609, sec.5, Chung Hsin Rd., San Chung City,
Taipei, Taiwan, R.O.C.
Tel: 886-2-2299-4642 Fax:886-2-2999-4643
http://www.allmouse.com.tw E-mail: allmouse@ts.net.tw

Federal Communications Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

To whom it may concern:

This is to serve as proper written authorization that Spectrum Research and Testing Laboratory, Inc., 15200, Shady Grove Rd., Rockville, MD. 20850, will Act as our representative in all matters relating to FCC applications for equipment Approval. This includes the signing of all related documents, the transmitting of required fees, and receiving correspondence and notifications from the FCC. All Acts performed by Spectrum Research and Testing Laboratory, Inc., especially modifications to our equipment under testing will be carried out on our behalf.

Meantime, the applicant certifies that in the case of an individual applicant (e.g., corporation), no party to the applicant is subject to a denial of federal benefits, that includes FCC benial of federal benefits, that includes FCC benefits, pursuant to Section 5301 of the Anti-Drug Abuse Act of 1998, 21 U.S.C. 862. For a definition of a "party" for these purposes see 47 C.F.R 1.2002(b).

If you have any questions regarding our applications for equipment approval, please contact Spectrum Research and Testing Laboratory, Inc. by calling (301)670-2818.

Respectfully,

Anne C. H. Chiang
(Name, Surname)

Engineering Department Manager
(Position/Title)

Effective Dates:

From 1999/3 to 2002/3

DATE: Mar 22 '99

AllSpirit co., Ltd.

7F, No. 4, lane 609, sec.5, Chung Hsin Rd., San Chung City,
Taipei, Taiwan, R.O.C.
Tel: 886-2-2299-4642 Fax:886-2-2999-4643
http://www.allmouse.com.tw E-mail: allmouse@ms.nct.tw

Federal Communications Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

To whom it may concern:

This is to serve as proper notice that our company agrees to make all modifications to FCC ID: MA7EIV1 as listed in section 3.0 of modification to submitted by Spectrum Research and Testing Laboratory, Inc.

Respectfully,

Arno C. H. Chiang
(Name, Surname)

Engineering Department Manager
(Position/Title)

DATE: Mar 22 '99

Effective Dates:

From 1999/3 to 2002/3

5. CONDUCTED POWER LINE TEST

5.1 TEST EQUIPMENT

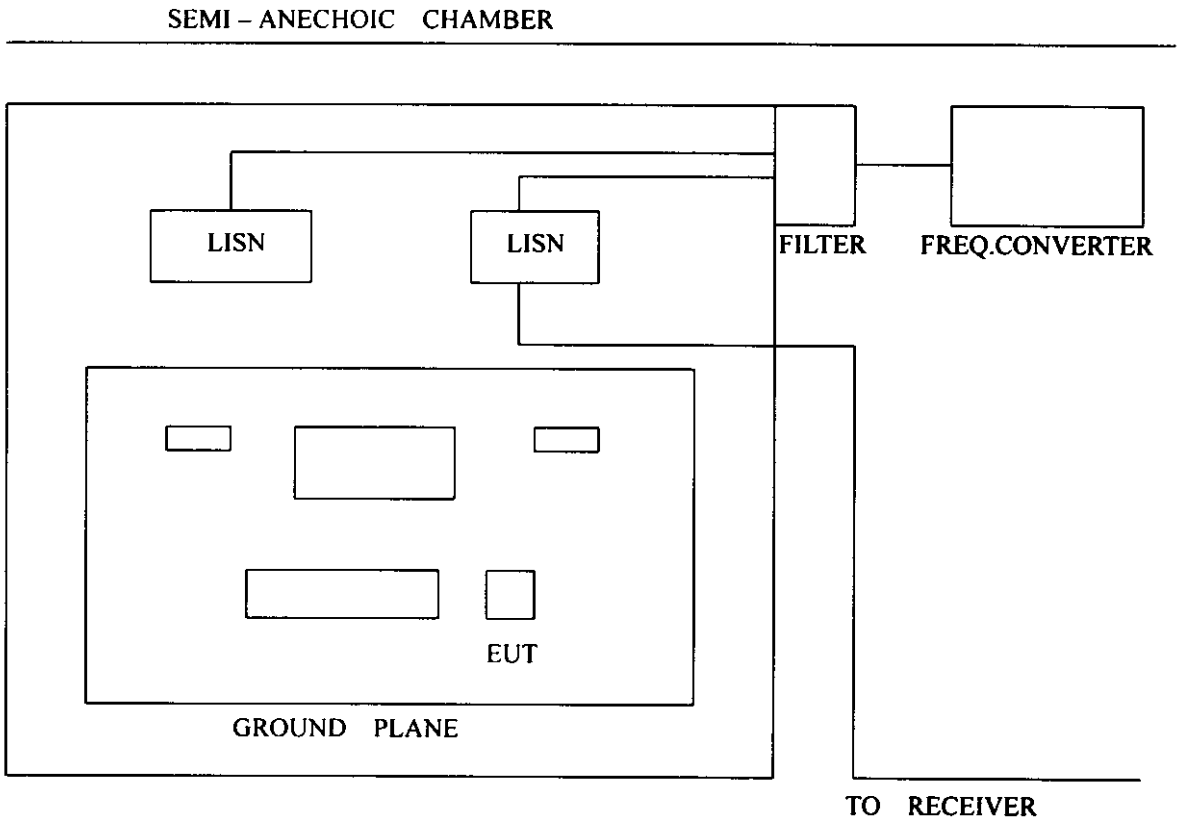
The following test equipment was used during the conducted power line test :

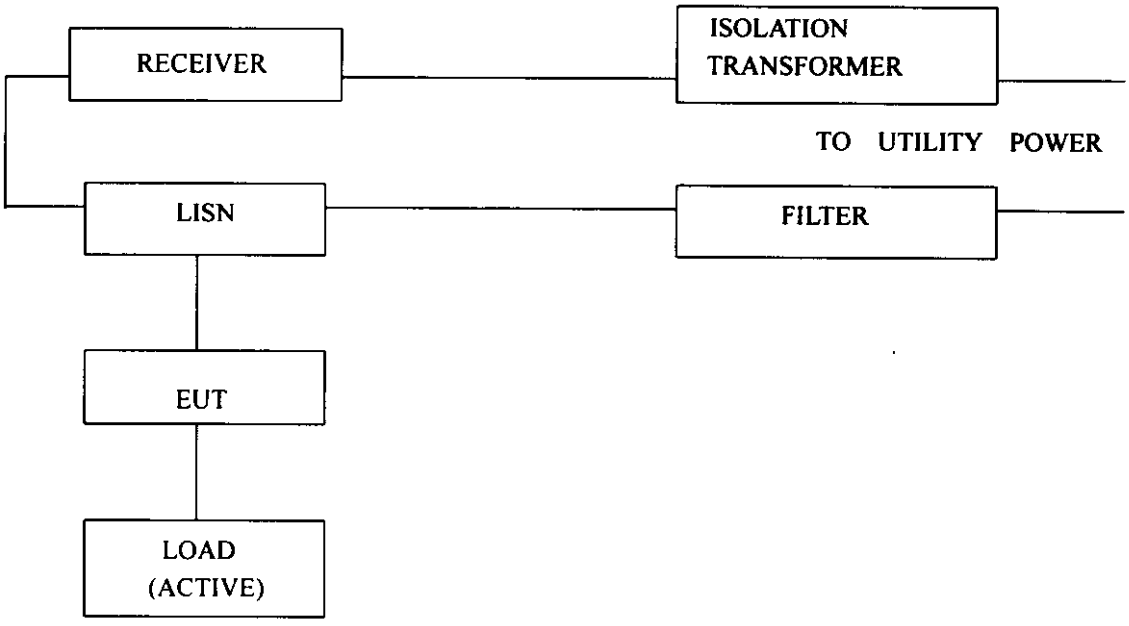
EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL/ SERIAL	CALIBRATION DATE	INTERVAL
SPECTRUM ANALYZER	9 KHz TO 1 GHz	HP	8590L/ 3624A01317	AUGUST , 1998 ETC	1Y
EMI TEST RECEIVER	9 KHz TO 30 MHz	ROHDE & SCHWARZ	ESHS30/ 826003/008	AUGUST , 1998 ETC	1Y
LISN	50 uH, 50 ohm	SOLAR ELECTRONICS	9252-50-R24-BNC/ 951315	AUGUST , 1998 ETC	1Y
LISN	50uH, 50 ohm	SOLAR ELECTRONICS	9252-50-R24-BNC/ 951315	AUGUST , 1998 ETC	1Y
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APPIL , 1998 ITRI	1Y
POWER CONVERTER	0 TO 300 VAC VAC 47-500 Hz	AFC	AFC-1KW/ 850510	APPIL , 1998 SRT	1Y

5.2 TEST PROCEDURE

The EUT was tested according to ANSI C63.4 - 1992. The frequency spectrum from 0.45 MHz to 30 MHz was investigated. The LISN used was 50 ohm / 50 uHenry as specified by SECTION 5.1 of ANSI C63.4 - 1992. Cables and peripherals were moved to find the maximum emission levels for each frequency.

5.3 TEST SETUP





5.4 CONFIGURATION OF THE EUT

The EUT was configured according to ANSI C63.4 - 1992. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

DEVICE	MANUFACTURER	MODEL	SERIAL
MOUSE	ALLSPIRIT CO., LTD.	MA7EIV1	MA7EIV1

B. INTERNAL DEVICES

DEVICE	MANUFACTURER	MODEL	SERIAL

C. PERIPHERALS

MONITOR	PHILIPS	14B1320W	A3KM064	POWER-UNS DATA-S
PRINTER	HP	2225C	BS46XU2225C	POWER-UNS DATA-S
MODEM	HAYES	4007AM	BFJ4000AM	POWER-UNS DATA-S
KEYBOARD	CYRIX	RT6856TW	AQ6-CYPRESSZ15	DATA-UNS
PC	COMPAQ	3431	EUN3431	POWER-UNS

- [redacted] :

(1). Cable - uns : Unshielded
s : Shielded

(2). Cables - All 1m or greater in length – bundled according to ANSI C63.4 – 1992.

5.5 EUT OPERATING CONDITION

Operating condition is according to ANSI C63.4 - 1992.

1. EUT power on.
2. " H" patiern sent to the following peripherals :
   - Printer
   - Monitor
   - Modem
3. PC CPU : Pentium - 166MMX
   Clock Chip : 66MHz
4. Resolution : 640 * 480

5.6 CONDUCTED POWER LINE EMISSION LIMIT

FREQUENCY RANGE (MHz)	[illegible]	[illegible]
0.45 - 1.705	1000 (μV)	250 (μV)
1.705 - 30	3000 (μV)	250 (μV)

NOTE : In the above table, the toghter limit applies at the band edges.

5.7 CONDUCTED POWER LINE TEST RESULT

The frequency spectrum from 0.45 MHz to 30 MHz was investigated. All readinges are QUASI-PEAK VALUES with a resolution bandwidth of 9 KHz.

TEMPERATURE : 29 °C HUMIDITY : 48 %RH

0.62	33.88	*	250
3.61	74.99	117.5	250
3.96	*	146.2	250
4.02	123.0	*	250
6.45	98.86	*	250
6.94	*	116.1	250
11.3	*	96.61	250

[redacted]: (1). * = measurement does not apply for this frequency
(2). Uncertainty in conducted emmission measured is <+/-2dB
(3). Any departure from specification : N/A
(4). PC CPU : Pentium - 166MMX Clock Chip : 66MHz
(5). Resolution : 640*480
(6). PS2 port

SIGNED BY TESTING ENGINEER : _____

5.7 CONDUCTED POWER LINE TEST RESULT

The frequency spectrum from 0.45 MHz to 30 MHz was investigated. All readinges are QUASI – PEAK VALUES with a resolution bandwidth of 9 KHz.

TEMPERATURE : 29 °C HUMIDITY : 48 %RH

0.56	56.89	*	250
0.82	37.58	45.19	250
1.09	28.18	26.61	250
2.21	11.09	13.18	250
9.71	59.57	62.37	250
22.2	*	80.35	250
22.6	51.88	*	250

: (1). * = measurement does not apply for this frequency
(2). Uncertainty in conducted emmission measured is <+/ -2dB
(3). Any departure from specification : N/A
(4). PC CPU : Pentium - 166MMX Clock Chip : 66MHz
(5). Resolution : 640*480
(6). Serial port

SIGNED BY TESTING ENGINEER : _____

6. RADIATED EMISSION TEST

6.1 TEST EQUIPMENT

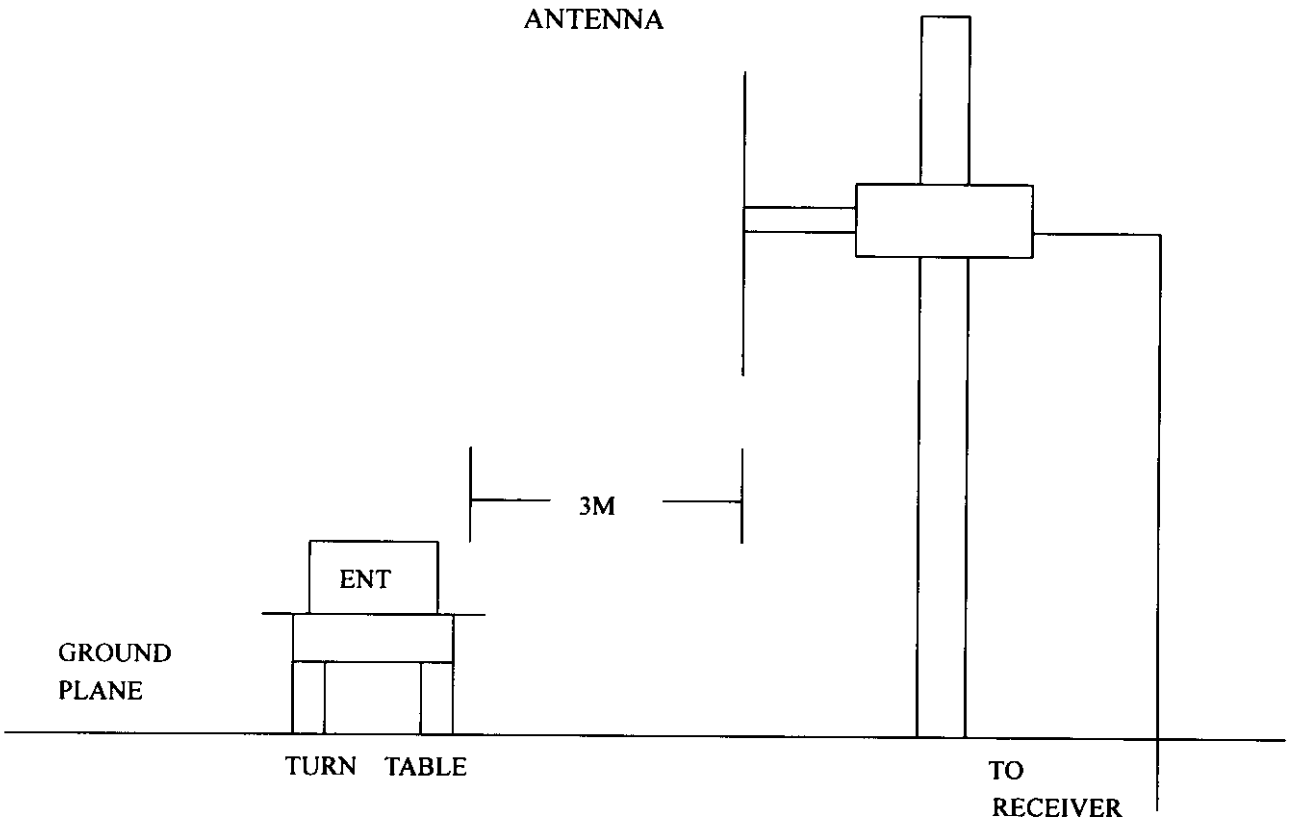
THE FOLLOWING TEST EQUIPMENT WAS USED DURING THE RADIATED EMISSION TEST :

EQUIPMENT / FACILITIES	SPECIFICAT-IONS	MANU-FACTURER	MODEL / SERIAL NO.	CALIBRATION DATE	CALIBRATION INTERVAL
RECEIVER	20 MHz TO 1000 MHz	R & S	ESVS30/ 841977/03	APRIL, 1998 ITRI	1Y
SPECTRUM ANALYZER	100 Hz TO 1500 MHz	HP	8568B/ 3019A05294	OCT., 1998 ETC	1Y
SPECTRUM ANALYZER	9 KHz TO 22 GHz	HP	8593E/ 3322A00670	APRIL, 1998 ITRI	1Y
SPECTRUM ANALYZER	100 Hz TO 1000 MHz	IFR	A-7550/ 2684/1248	JULY, 1998 ETC	1Y
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APPRIL, 1998 ITRI	1Y
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9003-535	SEP., 1998 SRT	1Y
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9611-1239	NOV., 1998 SRT	1Y
BI-LOG ANTENNA	26 MHz TO 2000 MHz	EMCO	3142/ 9608-1073	NOV., 1998 SRT	1Y
BI-LOG ANTENNA	26 MHz TO 1100 MHz	EMCO	3143/ 9509-1152	SEP., 1998 SRT	1Y
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A08402	APRIL, 1998 ITRI	1Y
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A06412	AUGUST, 1998 ETC	1Y
HORN ANTENNA	1 GHz TO 18 GHz	EMCO	3115/ 9012-3619	JAN, 1999 EMCO	1Y

6 . 2 TEST PROCEDURE

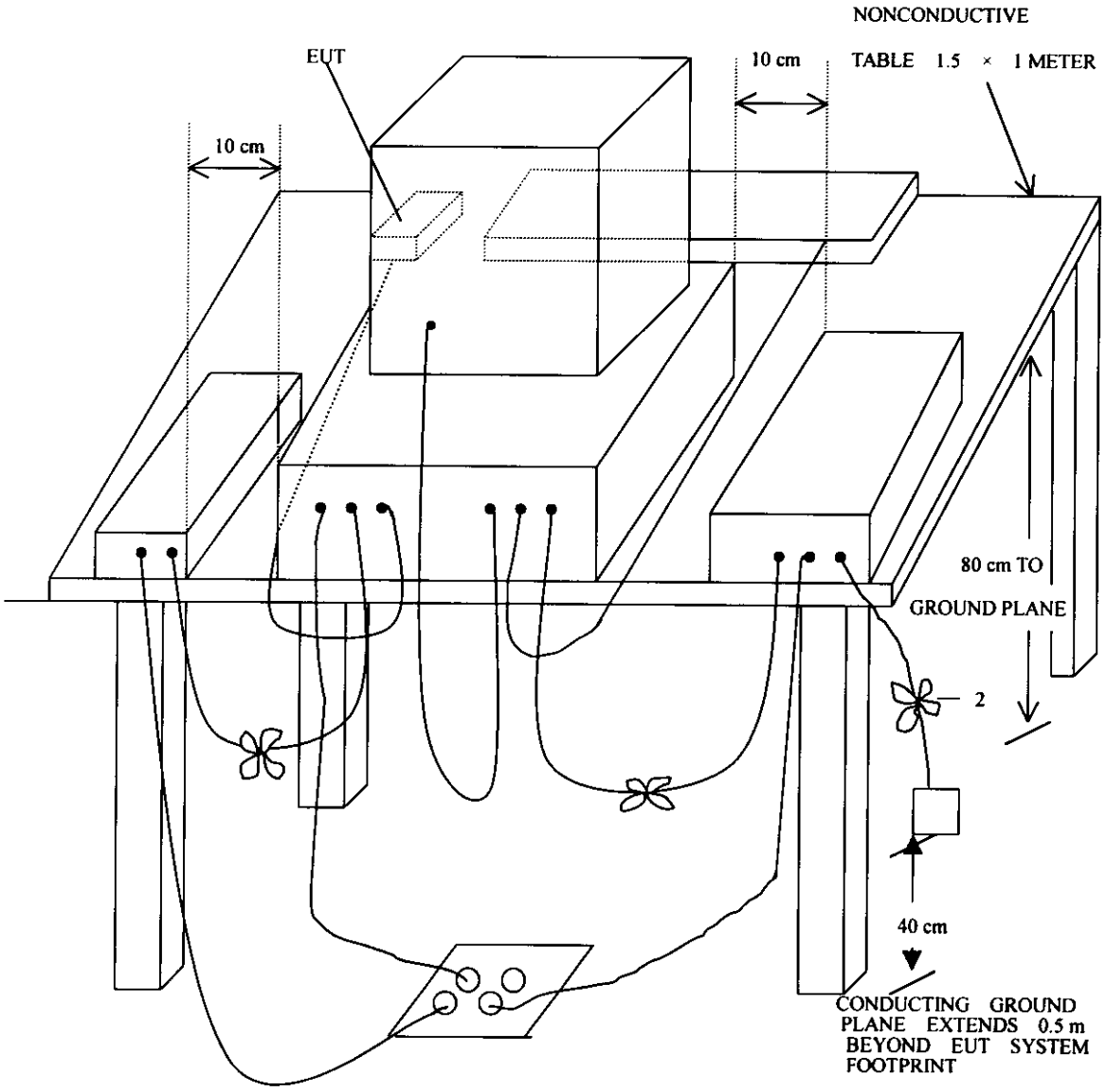
(1).The EUT was tested according to ANSI C63.4 - 1992. The radiated test was performed at SRT LAB'S OPEN SITE. this site is on file with the FCC laboratory division, reference 31040 / SRT.
(2).The EUT, peripheralls were put on the turntable which table size is 1m x 1.5 m, table heigh 0.8 m. All set up is according to ANSI C63.4-1992.
(3).The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are QUASI-PEAK values with a resolution bandeidth of 120 KHz. All readings are above 1 GHz, PEAK values with a resolution bandwidth of 1 MHz. Measurements were made at 3 METERS.
(4). The antenna heigh were varied from 1 m to 4 m heigh to find the maximum emission for each frequency.
(5). The antenna polarization : vertical polarization and horizontal polarization.

6 . 3 RADIATED TEST SET-UP



6 . 3 RADIATED TEST SET-UP

	ANSI
ELECTRICAL AND ELECTRONIC EQUIIPMENT IN THE RANGE IN THE RANGE OF 9 KHz TO 40 GHz	C63.4-1992



6.4 CONFIGURATION OF THE THE EUT

Same as section 4.4 of this report

6.5 EUT OPERATING CONDITION

Same as section 4.5 of this report.

6.6 REDIATED EMISSION LIMIT

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below :

CLASS B

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (uV/m)
30 - 88	3	100
88 - 216	3	150
216 - 960	3	200
ABOVE 960	3	500

CLASS B (OPEN CASE)

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (uV/m)
30 - 88	3	199.5
88 - 216	3	298.5
216 - 960	3	398.1

CLASS A

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (uV/m)
30 - 88	3	316.3
88 - 216	3	473.2
216 - 960	3	613.0
ABOVE 960	3	1000.0

NOTE : 1. In the emission tables above, the toghter limit applies at the band edges.

2. Distance refers to the distance between measuring instrument, antenna, and the closest point of any part of the device or system.

6.7 RADIATED EMISSION TEST RESULT

The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are QUASI-PEAK VALUES with a resolution bandwidth of 120 KHz. Measurements were made at 3 meters. The measurements above 1 GHz with a resolution bandwidth of 1 MHz are PEAK READING at a distance of 3 meters.

TEMPERATURE : 29 °C HUMIDITY : 48 %RH

[illegible]	[illegible]	[illegible] (dB)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
75.3445	0.7	7.9	21.6	19.0	32.36	23.99	40.0
126.5776	1.0	9.7	29.1	24.0	97.72	54.33	43.5
132.6062	1.0	10.8	24.9	23.9	68.39	60.95	43.5
135.6197	1.0	11.3	26.0	21.7	82.22	50.12	43.5
138.6353	1.0	11.9	26.6	22.8	94.41	60.95	43.5

[illegible] : (1) .*=measurement does not apply for this frequency.
(2). The maximum condition was with the monitor power cord connected to the personal computer.
(3). Sample calculation
20 LOG(EMISSION)Uv/m = CABLE LOSS(dB)+FACTOR(dB)+READING (dBuV/m)
(4). Uncertainty in radiated emission measured is <+/-4dB
(5). Any departure from specification : N/A
(6). CPU: Pentium – 166MMX Clock Chip: 66MHz
(7). Resolution: 640 * 480
(8). PS2 port

SIGNED BY TESTING ENGINEER : _____

6.7 RADIATED EMISSION TEST RESULT

The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are QUASI-PEAK VALUES with a resolution bandwidth of 120 KHz. Measurements were made at 3 meters. The measurements above 1 GHz with a resolution bandwidth of 1 MHz are PEAK READING at a distance of 3 meters.

TEMPERATURE : 29 °C HUMIDITY : 48 %RH

[illegible] (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING HORZ				
36.1464	0.5	13.7	*	12.6	*	21.88	40.0
42.1671	0.5	11.9	*	14.1	*	21.13	40.0
51.2054	0.5	10.2	*	12.8	*	14.96	40.0
126.5246	1.0	9.7	26.0	*	68.39	*	43.5
138.5643	1.0	11.8	23.1	*	62.37	*	43.5
299.5309	1.6	15.0	14.9	*	37.58	*	46.0

[redacted] : (1) .*=measurement does not apply for this frequency.
(2). The maximum condition was with the monitor power cord connected to the personal computer.
(3). Sample calculation
20 LOG(EMISSION)Uv/m = CABLE LOSS(dB)+FACTOR(dB)+READING (dBuV/m)
(4). Uncertainty in radiated emission measured is <+/-4dB
(5). Any departure from specification : N/A
(6). CPU: Pentium – 166MMX Clock Chip: 66MHz
(7). Resolution: 640 * 480
(8). Serial port

SIGNED BY TESTING ENGINEER : _____