

**CLASS B CERTIFICATION APPLICATION  
UNDER PART15, SUBPART B**

**EUT : MiniDoc USB  
MODEL : MD-2  
FCC ID : N3VSWN3SU**

**SRT REPORT # T9C05**

**PREPARED FOR :**

**AVIGRAMM TECHNOLOGIES CORPORATION.**

**5F., No.324, Sec. 1,  
Chung-Hua Road, Hsin-Chu,  
Taiwan , R. O. C.**

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 denial 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,

Tyrone

(Name, Surname)

Manager

(Position/Title)

DATE : 3/18/99

Effective Dates :

From 3/18/99 to 3/18/99

SPECTRUM RESEARCH & TESTING LAB.      FCC ID : N3VSWN3SU      REPORT# : T9C05

**EMI TESTING REPORT**

**EUT** : Mini USB

**MODEL** : MD-2

**FCC ID** : N3VSWN3SU

**PREPARED FOR :**

AVIGRAMM TECHNOLOGIES CORPORATION

5F., No. 324, Sec. 1,

Chung-Hua Road, Hsin-Chu,

Taiwan, R.O.C.

**PREPARED BY :**

SPECTRUM RESEARCH & TESTING LABORATORY INC.  
NO. 101-10, LING 8, SHAN-TONG LI CHUNG-LI CITY,  
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1. TEST REPORT CERTIFICATION

**APPLICANT** : AVIGRAMM TECHNOLOGIES CORPORATION

**ADDRESS** : 5F, No. 324, Sec. 1,

Chung-Hua Road, Hsin-Chu,

Taiwan, R.O.C.

**EUT DESCRIPTION** : MiniDoc USB

(A) POWER SUPPLY : 100/240Vac 60Hz

(B) MODEL : MD-2

(C) FCC ID : N3VSWN3SU

**FINAL TEST DATE** : 03/11/1999

**MEASUREMENT PROCEDURE USED :**

\* PART 15 SUB PART B OF FCC RULES AND REGULATIONS (47 CFR PART 15)

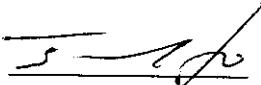
\* ANSI C63.4 - 1992

*We hereby show that :*

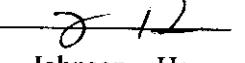
*The measurement shown in the attachment were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable.*

TESTING ENGINEER :  DATE 3.11

Tom Chuang

SUPERVISOR :  DATE 3/11/991

Jesse Ho

APPROVED BY :  DATE 3/11/991

Johnson Ho

## **2. TEST STATEMENT**

### **2.1 TEST STATEMENT**

To whom it may concern,

This letter is to explain the test condition of this project.  
The EUT be tested as the following status.

**Resolution : 640 x 480**

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

Please disregard any other oricessir(s) speed shown in this user manual.

### **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.

SPECTRUM RESEARCH & TESTING LAB.      FCC ID : N3VSWN3SU      REPORT# : T9C05

**3. EUT MODIFICATIONS**

The following accessories were added to the EUT during testing :

No modifications by SRT LAB.

#### **4. MODIFICATION LETTER**

This section contains the following documents :

- A. Letter of modifications.

From:

TEL:

03-17-99 11:05

P:001

**Avigramm**  
Technologies Corporation

5F No 324  
Chang-Hua Road, Sec. 1  
Hsinchu 300, Taiwan, R.O.C.  
tel: 886-3-531-8577  
Fax: 886 3 535 6627  
Http://www.avigramm.com.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 : A3V5WV3S U as listed in section  
3.0 of modification to submitted by Spectrum Research and Testing  
Laboratory, Inc.

Respectfully,

Tyronne  
(Name, Surname)

Effective Dates :

From 3/18/99 to 3/18/99

Manager  
(Position/Title)

DATE : 3/18/99

## 5. CONDUCTED POWER LINE TEST

### 5.1 TEST EQUIPMENT

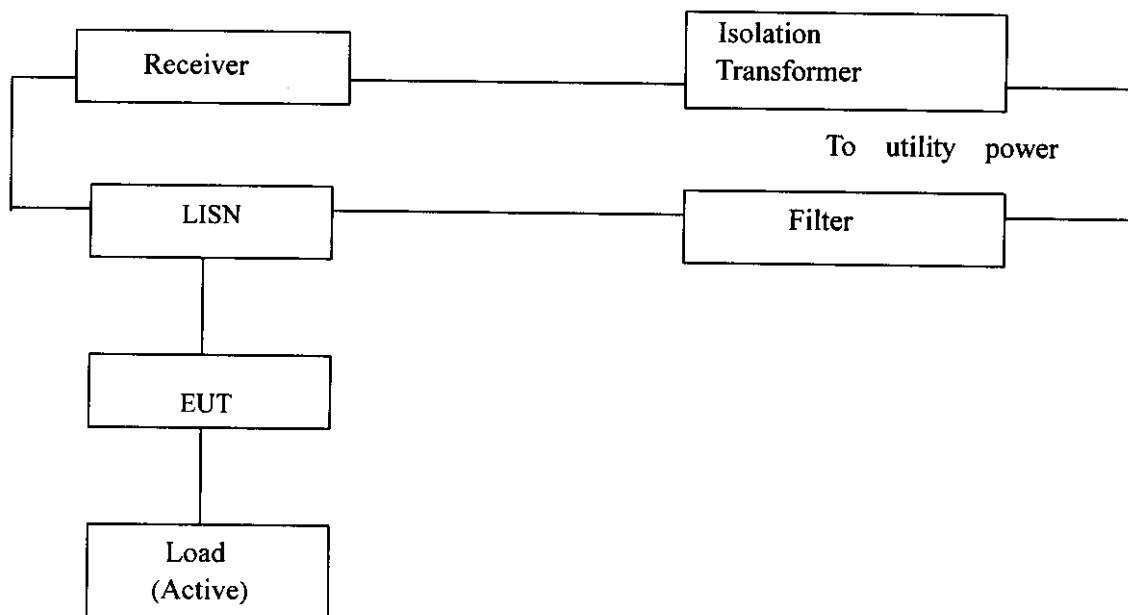
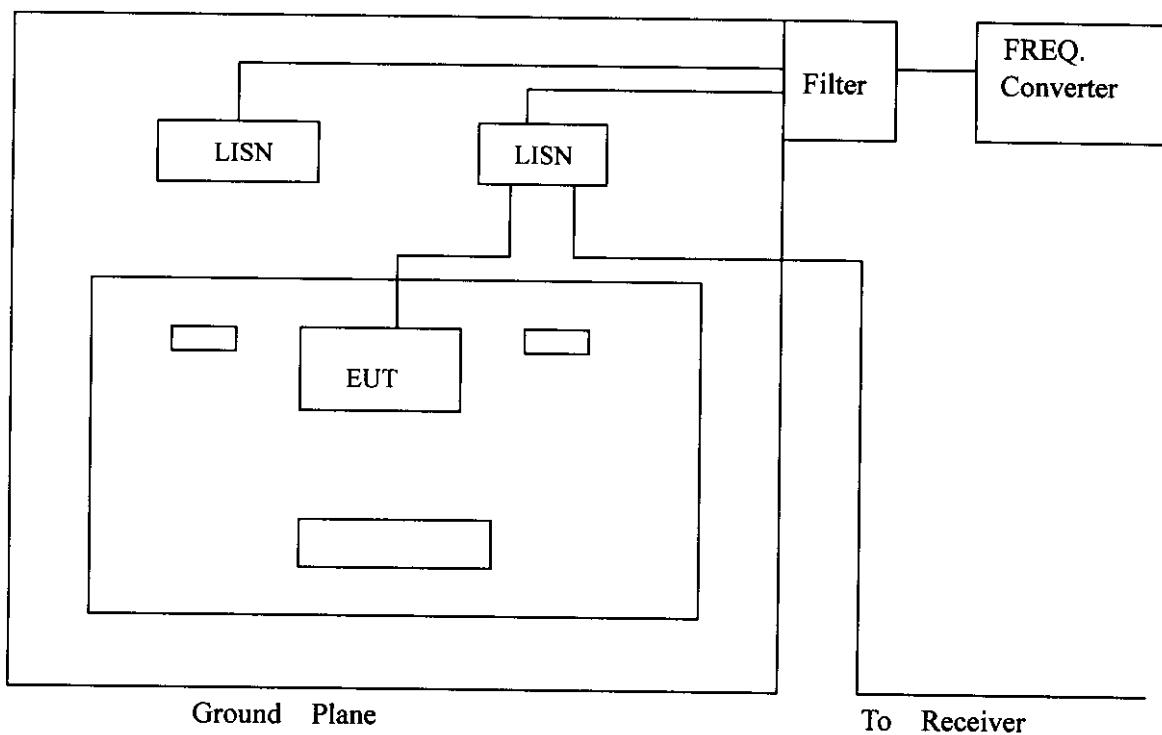
The following test equipment were used during the conducted power line test :

EQUIPMENT / FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL / SERIAL	DATE OF CAL. & TESTED	DATE EXPIRE
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	APRIL 1998 ITRI	1Y
POWER CONVERTER	0 TO 300 VAC VAC 47-500 Hz	AFC	AFC-1KW/ 850510	APRIL 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 #	FCCID / DoC
MiniDoc USB	AVIGRAMM TECHNOLOGIES CORPORATION.	MD-2	N3VSWN3SU

##### B. INTERNAL DEVICES

DEVICE	MANUFACTURER	MODEL #	FCCID / DoC

**C. PERIPHERALS**

DEVICE	MANUFACTURER	MODEL # SERIAL #	FCCID / DoC	CABLE
MONITOR	PHILIPS	14B1320W	A3KM064	POWER-UNS DATA-S
PRINTER	HP	2225C	DSI6XU2225	POWER-UNS DATA-S
MODEM	SMARTTEAM	103/212A	EF56A103/212A	POWER-UNS DATA-S
KEYBOARD	HP	SK-2502	GYUR41SR	DATA-UNS
MOUSE	HP	M-S34	DZL211029	DATA-UNS
PC	HP	D38083A	D94VECTRA500T	POWER-UNS

**REMARK :**

- (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" pattern sent to the following peripherals :
  - printer
  - monitor
  - modem
3. Resolution : 640 x 480

### 5 . 6 CONDUCTED POWER LINE EMISSION LIMIT

FREQUENCY RANGE (MHz)	CLASS A	CLASS B
0 . 45 - 1.705	1000 uV	250 uV
1.705 - 30	3000 uV	250 uV

**NOTE :** In the above table, the tighter 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 readings are QUASI-PEAK values with a resolution bandwidth of 9 KHz.

Temperature : 28 C

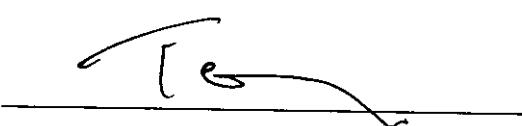
Humidity : 78 %RH

#### QUASI-PEAK

FREQUENCY (MHz)	LINE1 (mV)	LINE2 (mV)	LIMIT (mV)
0.60	35.48	39.81	250
0.86	35.48	35.07	250
2.28	64.56	44.66	250
5.38	*	28.84	250
11.77	21.13	*	250

**REMARKS :**

- (1). \* = Measurement does not apply for this frequency
- (2). Uncertainty in conducted emmission measured is <+/-2dB
- (3). Any departure from specification : N/A
- (4). Resolution : 640 x 480

SIGNED BY TESTING ENGINEER : 

## 6. RADIATED EMISSION TEST

### 6.1 TEST EQUIPMENT

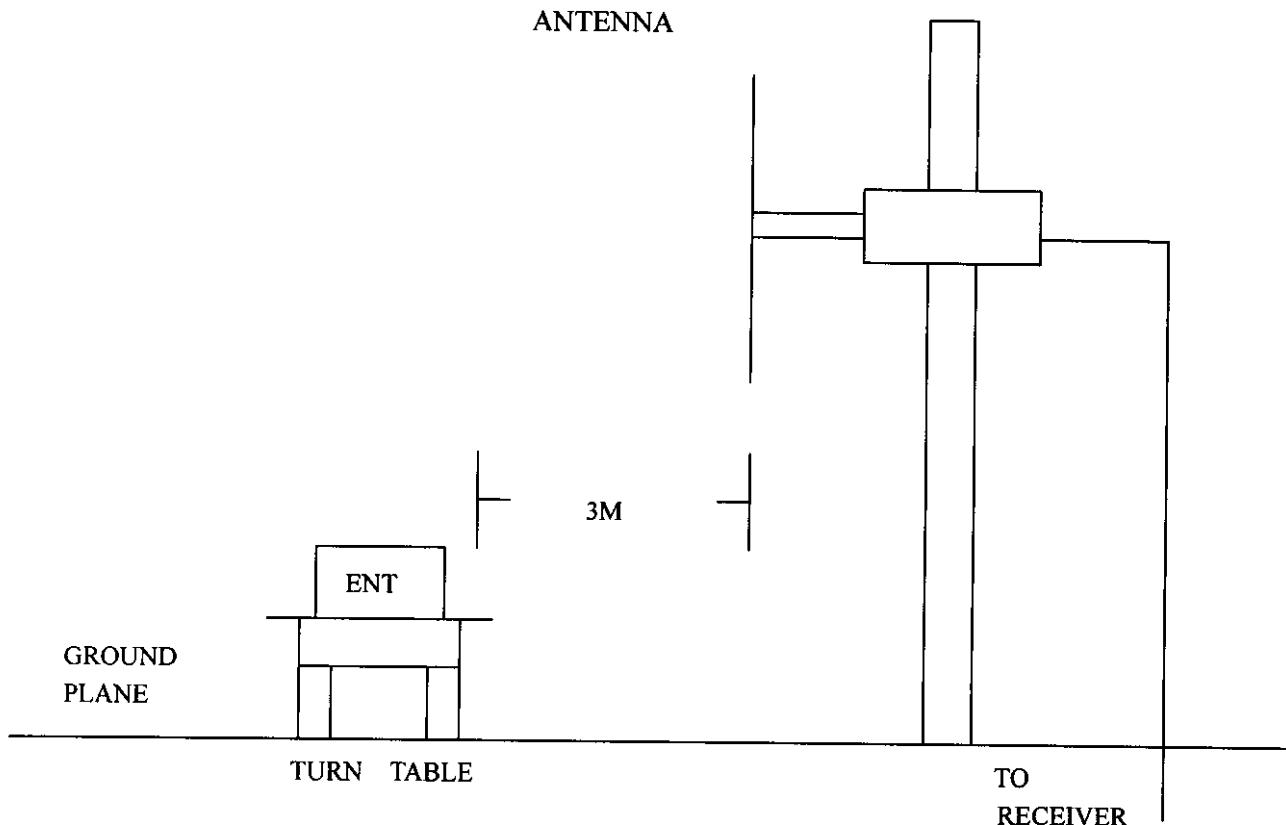
The following test equipment were used during the radiated emission test :

EQIPMENT / FACILITIES	SPECIFICAT- IONS	MANUFACTUR- ER	MODEL #/ SERIAL #	MANUFACTURE DATE TEST EQUIPMENT	TIME DUE
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	APRIL 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/ 9612-3619	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, peripherals 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 bandwidth 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.

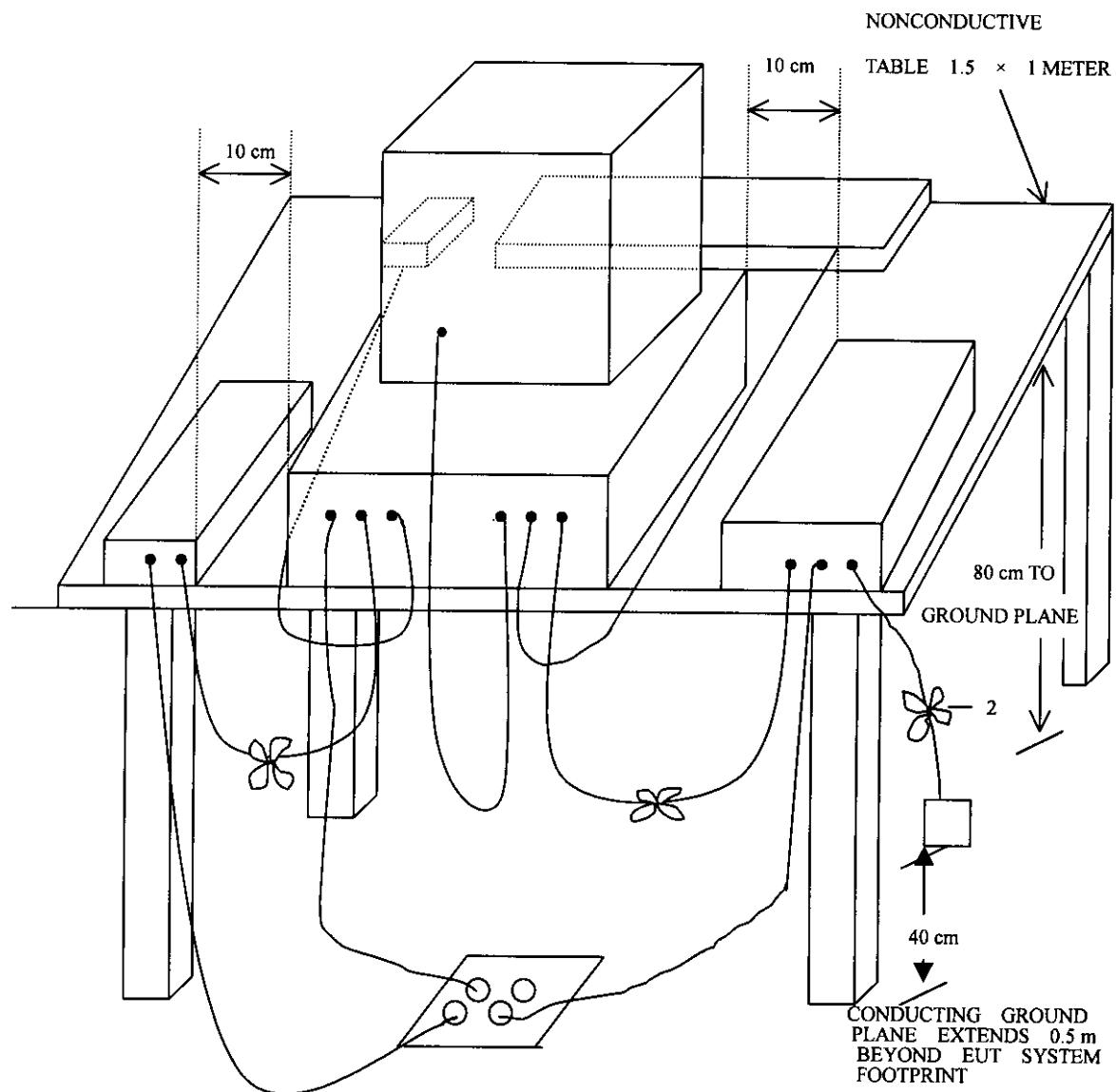
## 6 . 3 RADIATED TEST SET-UP



**6 . 3 RADIATED TEST SET-UP**

ANSI

ELECTRICAL AND ELECTRONIC EQUIPMENT 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 RADIATED 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
ABOVE 960	3	

**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 tighter 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. All readings are above 1 GHz, PEAK values with a resolution bandwidth of 1 MHz. Measurements were made at 3 meters.

Temperature : 28 C

Humidity : 78 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV/m)		EMISSION (dB)		TIME(S) (mV)
			HORIZ	VERT	HORIZ	VERT	
55.99	0.6	9.4	*	14.8	*	17.4	100
66.81	0.8	8.2	*	22.5	*	37.6	100
71.59	0.8	7.9	23.8	*	42.2	*	100
168.74	1.1	10.2	16.6	23.6	24.8	55.6	150
200.10	1.2	12.2	15.2	*	26.9	*	150
667.15	2.2	22.3	16.2	*	108.4	*	200

**REMARKS :**

- (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  
 $20 \log(\text{emission}) \text{Uv/m} = \text{cable loss(dB)} + \text{factor(dB)} + \text{reading (dBuV/m)}$
- (4). Uncertainty in radiated emission measured is  $<+/-4\text{dB}$
- (5). Any departure from specification : N/A
- (6). Resolution : 640 x 480

SIGNED BY TESTING ENGINEER :