CLASS B CERTIFICATION APPLICATION
UNDER PART15, SUBPART B

EUT Keyboard
MODEL NK-101M, NK-101
FCC ID OULNK-101

SRT REPORT # T9L02-1

PREPARED FOR

NEWMATE ELECTRONIC LTD.
FLAT T, 10/F., VALIANT INDUSTRIAL CENTRE,
2-12 AU PUI WAN STREET, FO TAN,
SHATIN, N. T., HONG KONG

新美电子有限公司

NEWMATE ELECTRONIC LTD.

Flat T, 10th Floor, Valiant Industrial Center, 2-21 Au Pui
Wan Street, Fotan, Shatin, N.T. Hong Kong
Tel: (852) 2602-3827 Fax: 852-2602-3956

Federal Communication Commission
Authorization and Evaluation Division
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 purpose 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 (310) 670-2818.

Respectfully,

Joe Wei
General Manager

Effective Dates:

From Dec. 10, 1999 to Dec. 10, 2000

Date: Dec 10, 1999

EMI TESTING REPORT

EUT Keyboard

MODEL NK-101M, NK-101

FCC ID OULNK-101

PREPARED FOR

NEWMATE ELECTRONIC LTD.
FLAT T, 10/F., VALIANT INDUSTRIAL CENTRE,
2-12 AU PUI WAN STREET, FO TAN,
SHATIN, N. T., HONG KONG

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 NEWMATE ELECTRONIC LTD.

ADDRESS FLAT T, 10/F., VALIANT INDUSTRIAL CENTRE,

2-12 AU PUI WAN STREET, FO TAN,

SHATIN, N. T., HONG KONG

EUT DESCRIPTION Keyboard

(A) POWER SUPPLY FRONT PC

(B) MODEL NK-101M, NK-101

(C) FCC ID OULNK-101

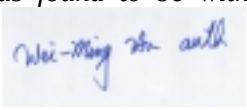
FINAL TEST DATE 12/17/1999

MEASUREMENT PROCEDURE USED

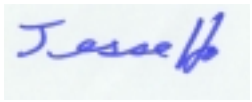
* PART 15 SUB PART B OF FCC RULES AND REGULATIONS (47 CFR PART 15)
* ANSI C63.4 - 1992

We hereby show that

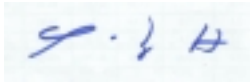
The measurement shown in the attachment were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable.



TESTING ENGINEER _____ DATE 12/17/1999
Bruce Chen



SUPERVISOR _____ DATE 12/17/1999
Jesse Ho



APPROVED BY _____ DATE 12/17/1999
Johnson Ho

2. TEST STATEMENT

2.1 TEST STATEMENT

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

2. 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.

3. EUT conditions.

Support windows 98 function key.
(SLEEP, POWER, WAKEUP, WWW, VOLUME, CD, VCD, DVD, DOS, MY DOC)

4. NVLAP logo is to be approved by management (it is according to NVLAP requirement if it need) before use.

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 ____ˇ____ .
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.

D . This product is a prototype product.

E . The effect that the results relate only to the items tested.

3. EUT MODIFICATIONS

The following accessories were added to the EUT during testing

1). Added a core KCF-65-B at cable of keyboard near keyboard. (1 turns)

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Federal Communication Commission
Authorization and Evaluation Division
Columbia, MD 21046

To whom it may concern:

This is to serve as proper notice that our company agree to make all modifications to FCC ID: OULNK-101 as listed in section 3.0 of modification to submitted by Spectrum Research and Testing Laboratory, Inc.

Respectfully,

Joe Wei
General Manager

Effective Dates:

From Dec.10,1999 to Dec.10,2000

Date: Dec. 10, 1999

4. MODIFICATION LETTER

This section contatins the following documents

A. Letter of modifications.

5. CONDUCTED POWER LINE TEST

5 . 1 TEST EQUIPMENT

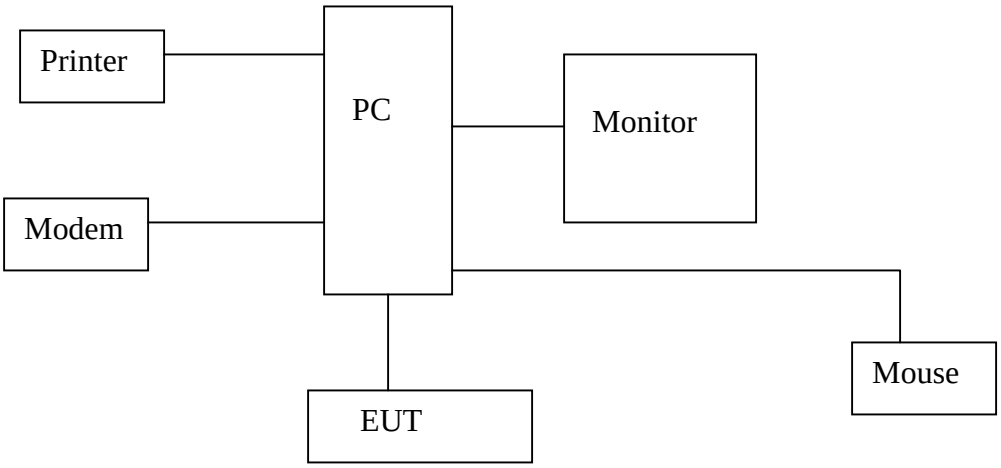
The following test equipment were used during the conducted power line test

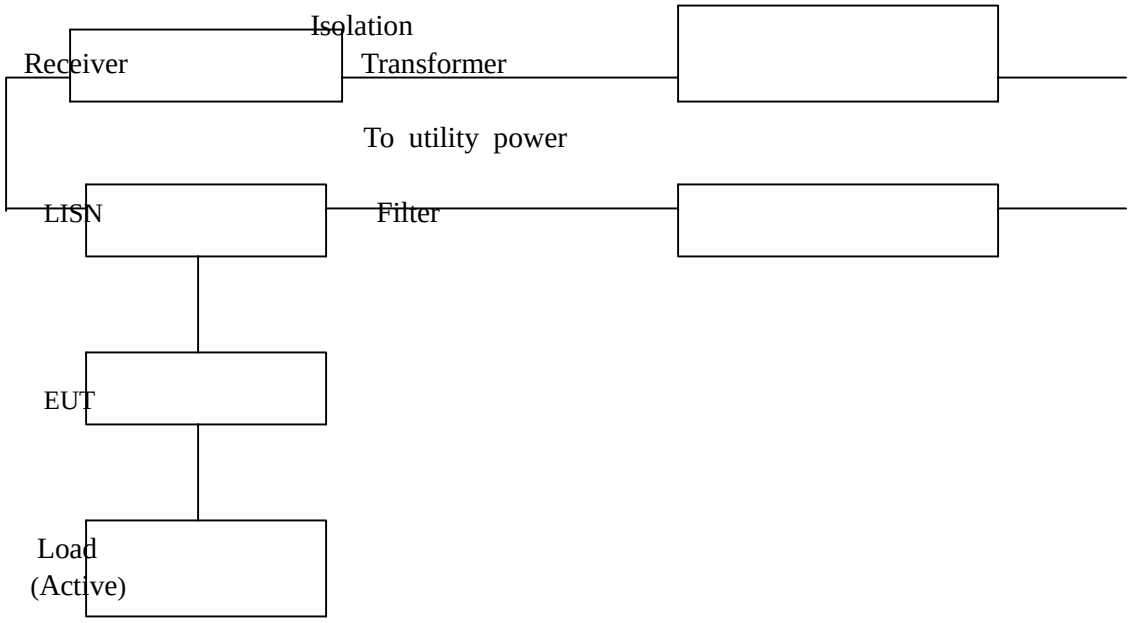
EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DATE OF CAL. & CAL. CENTER	DUE DATE	FINAL TEST
SPECTRUM ANALYZER	9 KHz TO 1 GHz	HP	8590L/ 3624A01317	AUGUST 1999 ETC	1Y	
EMI TEST RECEIVER	9 KHz TO 30 MHz	ROHDE & SCHWARZ	ESHS30/ 826003/008	AUGUST 1999 ETC	1Y	
EMI TEST RECEIVER	9 KHz TO 2750 MHz	ROHDE & SCHWARZ	ESHS30/ 830245/012	AUGUST 1999 R&S	1Y	√
LISN	50 uH, 50 ohm	SOLAR ELECTRONICS	9252-50-R24-BNC/ 951315	AUGUST 1999 ETC	1Y	√
LISN	50uH, 50 ohm	SOLAR ELECTRONICS	9252-50-R24-BNC/ 951318	AUGUST 1999 ETC	1Y	√
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APRIL 1999 ETC	1Y	√
POWER CONVERTER	0 TO 300 VAC VAC 47-500 Hz	AFC	AFC-1KW/ 850510	MARCH 1999 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
Keyboard	NEWMATE ELECTRONIC LTD.	NK-101M, NK-101	OULNK-101

B. INTERNAL DEVICES

DEVICE	MANUFACTURER	MODEL #	FCCID / DoC
NONE			

C. **PERIPHERALS**

DEVICE	MANUFACTURER	MODEL # SERIAL #	FCCID / DoC	CABLE
MONITOR	PHILIPS	14B1320W	A3KM064	1.8m unshielded power cord 1.0m shielded data cable (S2)
PRINTER	HP	2225C	BS46XU2225C	1.8m unshielded power cord 1.0m shielded data cable (S2)
MODEM	TEAM	103/212A	EF56A5103/212A	1.8m unshielded power cord 1.0m shielded data cable (S2)
MOUSE	LOGITECH	M-S34	DZL211029	1.8m unshielded data cable
PC	HP	VL SERIES 45/100	B94VECTRA500T	1.8m unshielded power cord

- **REMARK**

(1). Cable - S1 Single point shielding
S2 360° shielding
S3 Double point shielding

(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 :
   - monitor or VGA
   - printer
   - modem
   - keyboard
   - FDD
   - HDD
3. Support windows 98 function key.
(SLEEP, POWER, WAKEUP, WWW, VOLUME, CD, VCD, DVD, DOS, MY DOC)

5 . 6 CONDUCTED POWER LINE EMISSION LIMIT

FREQUENCY RANGE (MHz)	CLASS A	CLASS B
0 . 45 - 1.705	60.0 dBuV	48.0 dBuV
1.705 - 30	69.5 dBuV	48.0 dBuV

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

5 . 7 CONDUCTED POWER LINE TEST RESULT

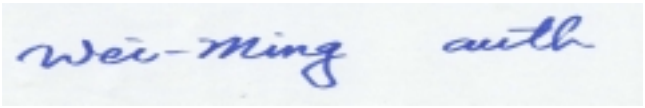
The frequency spectrum from 0.45 MHz to 30 MHz was investigated.
All readinges are quasi – peak values with a resolution bandwidth
of 9 KHz.

Temperature 21 C Humidity 50 %RH

QUASI – PEAK

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.45	28.0	37.4	48
0.16	25.5	22.7	48
0.32	25.2	*	48
7.78	22.2	22.5	48
17.5	22.8	*	48
21.3	40.9	40.4	48

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



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	SPECIFICA-TIONS	MANUFACTUR - ER	MODEL # / SERIAL #	DATE OF CAL. & CAL. CENTER	DUE DATE	FINAL TEST
RECEIVER	20 MHz TO	R & S	ESVS30/	APRIL 1999	1Y	√

	1000 MHz		841977/003	ETC		
SPECTRUM ANALYZER	100 Hz TO 1500 MHz	HP	8568B/ 3019A05294	OCT. 1999 ETC	1Y	
SPECTRUM ANALYZER	9 KHz TO 22 GHz	HP	8593E/ 3322A00670	MAY 1999 ETC	1Y	
SPECTRUM ANALYZER	100 Hz TO 1000 MHz	IFR	A-7550/ 2684/1248	JULY 1999 ETC	1Y	
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APRIL 1999 ETC	1Y	√
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9003-534	MARCH 1999 SRT	1Y	
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9611-1239	SEP. 1999 SRT	1Y	
BI-LOG ANTENNA	26 MHz TO 2000 MHz	EMCO	3142/ 9608-1073	SEP. 1999 SRT	1Y	√
BI-LOG ANTENNA	26 MHz TO 1100 MHz	EMCO	3143/ 9509-1152	SEP. 1999 SRT	1Y	
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A08402	APRIL 1999 ETC	1Y	
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A06412	AUGUST 1999 ETC	1Y	
HORN ANTENNA	1 GHz TO 18 GHz	EMCO	3115/ 9012-3619	JAN. 1999 EMCO	1Y	

6 . 2 TEST PROCEDURE

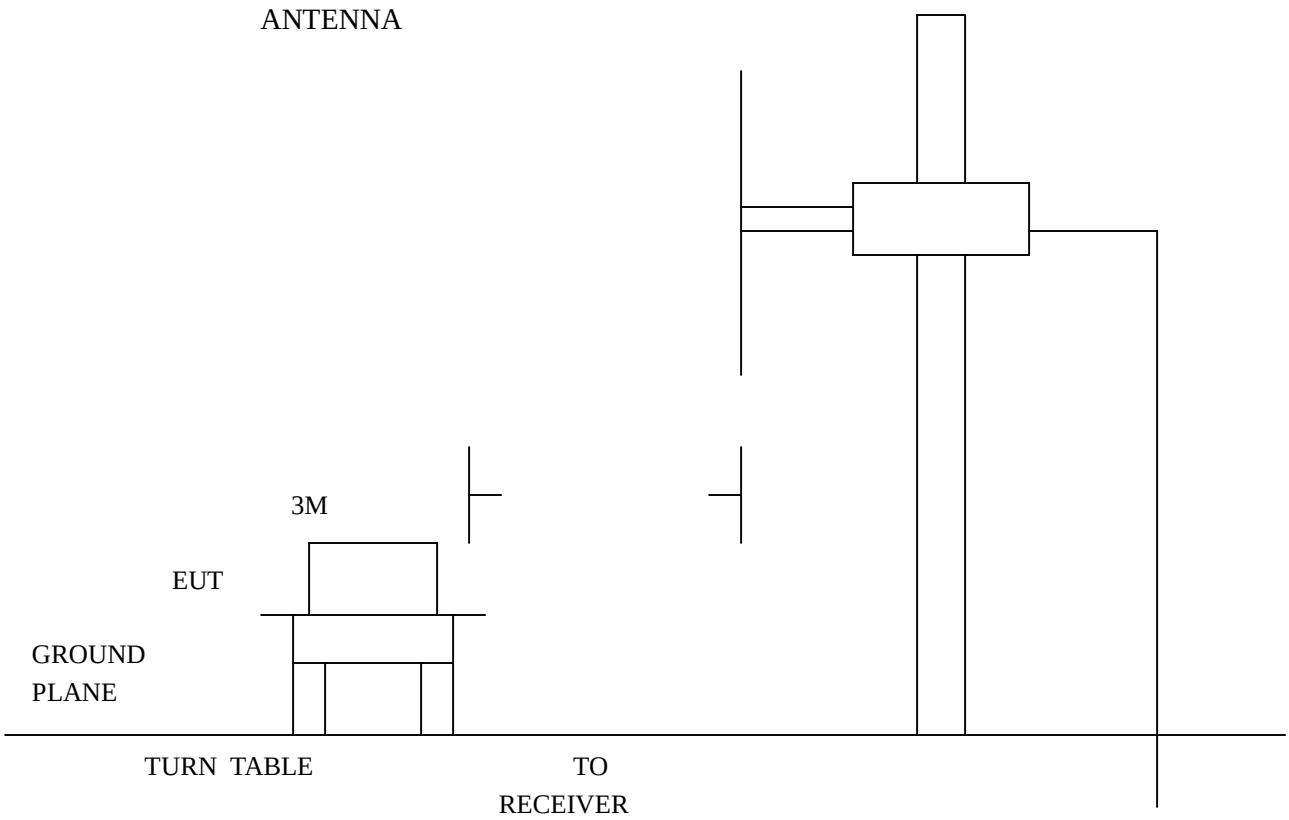
(1).The EUT was tested according to ANSI C63.4 - 1992. The radiated test was performed at SRT lab's open site. this site is on file with the FCC laboratory division, reference 31040 / SIT.

(2).The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 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.

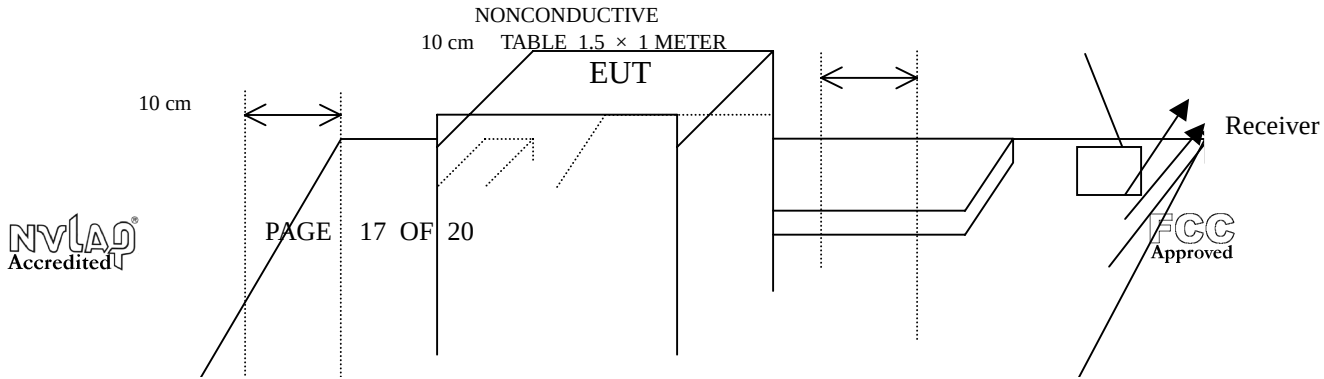
(4). The antenna high were varied from 1 m to 4 m high to find the maximum emission for each frequency.
(5). The antenna polarization Vertical polarization and horizontal polarization.

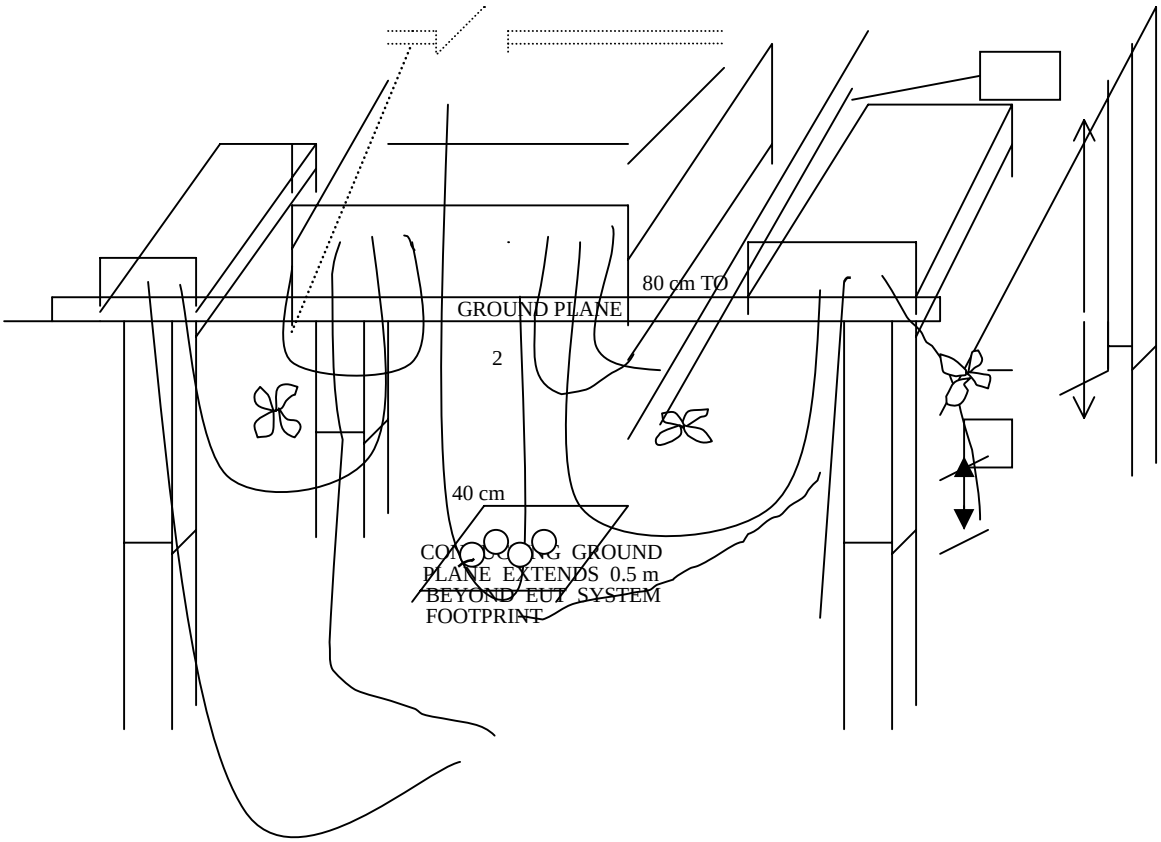
6 . 3 RADIATED TEST SET-UP



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 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)	FIELS STRENGTH (dBuV/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
ABOVE 960	3	54.0

CLASS B (OPEN CASE)

FREQUENCY (MHz)	DISTANCE (m)	FIELS STRENGTH (dBuV/m)

30 - 88	3	46.0
88 - 216	3	49.5
216 - 960	3	52.0
ABOVE 960	3	60.0

CLASS A

FREQUENCY (MHz)	DISTANCE (m)	FIELS STRENGTH (dBuV/m)
30 - 88	3	50.0
88 - 216	3	53.5
216 - 960	3	56.0
ABOVE 960	3	64.0

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 : 25 C Humidity : 50 %RH

FREQ. (MHz)	FACTOR (dB)	ANT. FACTOR (dB/m)	READING (dBuV)		EMISSION (dBuV/m)		LIMITS (dBuV/m)
			HORIZ	VERT	HORIZ	VERT	
97.34	1.2	8.60	26.60	24.30	36.40	34.10	43.5
114.3	1.3	8.60	23.40	21.60	33.30	31.50	43.5
130.8	1.3	8.60	20.50	22.10	30.40	32.00	43.5
163.4	1.5	9.90	21.20	23.30	32.60	34.70	43.5
199.8	1.9	10.7	22.60	19.80	35.20	32.40	43.5

REMARKS (1). *=Measurement does not apply for this frequency.

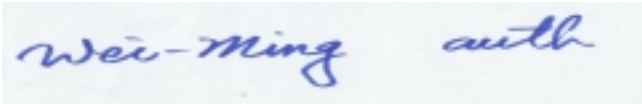
(2). Uncertainty in radiated emission measured is <+/-4dB

(3). Any departure from specification N/A

(4). Factor will include cable loss and correction factor.

(5). Sample calculation

20 log (emission) uV/m = Factor(dB)+Ant. factor(dB/m)+reading(dBuV)



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