APPLICATION FOR CERTIFICATION
On Behalf of
Jing Mold Plastic Electronic (Shenzhen) Co., Ltd.
Keyboard

Model : JME-3310

Prepared for : Jing Mold Plastic Electronic (Shenzhen) Co., Ltd.
3rd Industrial, Xin Qiao, Shajing,
Pao An, Shen Zhen, China

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6 Ke Feng Rd., 52 Block,
Shenzhen Science & Industrial Park,
Nantou, Shenzhen, Guangdong, China

Tel: (0755)663-9496

Report Number	ACS-F99056
Date of Test	Sep. 13, 1999
Date of Report	Sep. 17, 1999

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Description Page

TEST REPORT CERTIFICATION

Applicant	Jing Mold Plastic Electronic (Shenzhen) Co., Ltd.
Manufacturer	Jing Mold Plastic Electronic (Shenzhen) Co., Ltd.
EUT Description	Keyboard
	(A) MODEL NO. : JME-3310
	(B) SERIAL NO. : N/A
	(C) POWER SUPPLY : +5V DC

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B Class B October 1998 & FCC / ANSI C63.4-1992

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions.
The measurement results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.
This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

Date of Test : Sep. 13, 1999

Prepared by : Katherine Ge Sep. 21, 99.
(ASSISTANT: KATHERINE GE)

Reviewer : Martin Lu 22/9
(SUPERVISOR: MARTIN LU)

For and on behalf of
AUDIX TECHNOLOGY (SHENZHEN) CO.,LTD.

Approved & Authorized Signer : Alan Liao Sep-23-99
Authorized Signature(s)
(DEPUTY MANAGER: ALAN LIAO)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Keyboard (with keyboard and write function together.)
Model Number	:	JME-3310
Applicant	:	Jing Mold Plastic Electronic (Shenzhen) Co., Ltd. 3rd Industrial, Xin Qiao, Shajing, Pao An, Shen Zhen, China
Manufacturer	:	Jing Mold Plastic Electronic (Shenzhen) Co., Ltd. 3rd Industrial, Xin Qiao, Shajing, Pao An, Shen Zhen, China
Data Cable	:	Shielded, Nondetachable, 1.5m
Date of Test	:	May 04 / 05, 1999

1.2. Tested Supporting System Details

1.2.1. PERSONAL COMPUTER

Model Number	PC763
Serial Number	TA341U1417
FCC ID	AO9-PC76X
Manufacturer	Digital
Switching Power Supply	Astec Model SA20I-3438
Floppy Driver	Teac Model FD235HF
Hard Disk Driver	Quantum, Model 540AT
Disk Ctrl Card	Within Mother Board
Serial/Parallel Card	Within Mother Board
Power Cord	Unshielded, Detachable, 1.8m

1.2.2. MONITOR

Model Number	KS-M1421
Serial Number	120954
Manufacturer	KASI Electronics Co., Ltd.
Data Cable	Shielded, Nondetachable, 1.2m
Power Cord	Unshielded, Nondetachable, 1.2m
FCC ID	KVCKS-M1421

1.2.3. PRINTER

Model Number	2225C
Serial Number	22937S56660
FCC ID	BS46XU2225C
Manufacturer	Hewlett Packard
Power Cord	Unshielded, Nondetachable, 1.8m
Data Cable	Shielded, Detachable, 1.5m

1.2.4. MODEM

Model Number	MODEM 1414
Serial Number	980013578
FCC ID	IFAXDM1414
Manufacturer	Aceex
Data Cable	Shielded, Detachable, 1.5m
AC Adapter	M/N: SCP41-91000A

1.3. Test Facility

Site Description

3m Anechoic Chamber	:	certificated by FCC, USA Aug. 18, 1997
3m & 10m Open Site	:	certificated by FCC, USA Feb. 13, 1998
EMC Lab.	:	certificated by TUV Rheinland Taiwan Dec.05, 1995
		certificated by COMMERCE, New Zealand May 19, 1997
		certificated by NEMKO, Norway Feb. 28, 1998
		certificated by VCCI, Japan Oct. 29, 1998
		certificated by DATech, German Feb. 02, 1999
		certificated by NVLAP, USA until Mar. 03, 2000 NVLAP Code: 200372-0
Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd.
Site Location	:	No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park, Nantou, Shenzhen, Guangdong, China

1.4. Measurement Uncertainty

Conduction Uncertainty	=	±2.66dB
Radiation Uncertainty	=	±4.26dB

2. POWER LINE CONDUCTED MEASUREMENT

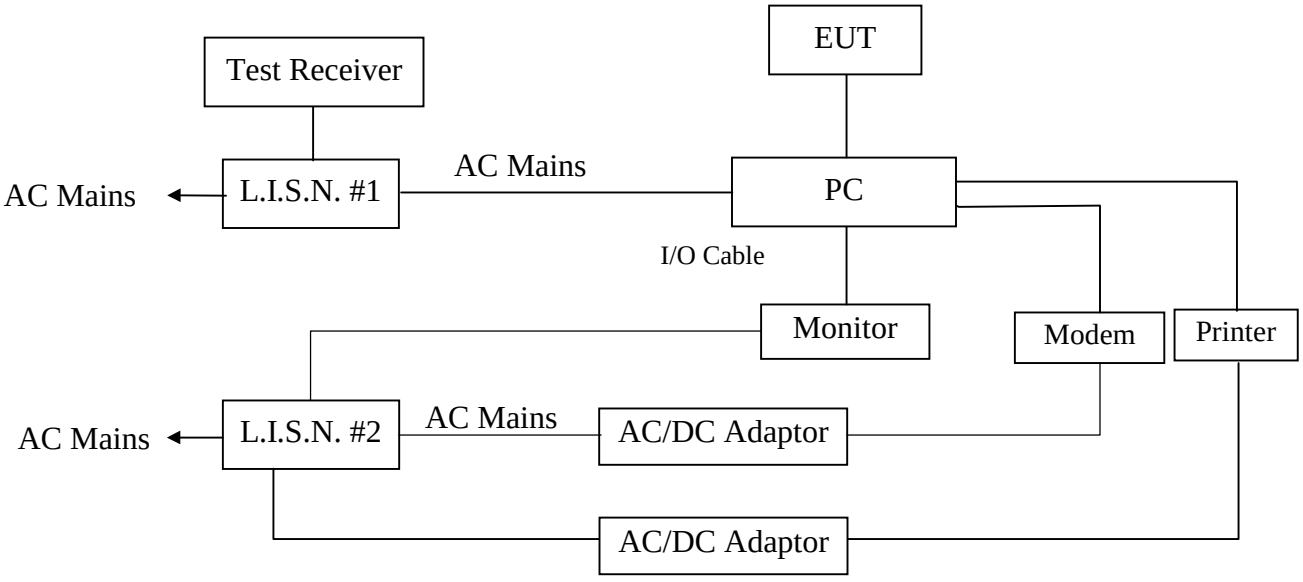
2.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS20	836600/006	Jun. 06, 99	1 Year
2.	L.I.S.N. #1	Kyoritsu	KNW-407	8-541-4	Jun. 06, 99	1 Year
3.	L.I.S.N. #2	EMCO	3825/2	9006-1660	Jun. 06, 99	1 Year
4.	Terminator	N/A	50Ω	No. 1	Jun. 06, 99	1 Year
5.	Terminator	N/A	50Ω	No. 2	Jun. 06, 99	1 Year
6.	RF Cable	FUJIKURA	RG-55/U	LISN Cable	Aug. 31, 99	1/2 Year
7.	Coaxial Switch	Anritsu	MP59B	M73989	Jun. 06, 99	1/2 Year

2.2. Block Diagram of Test Setup

2.2.1. Block diagram of connection between the EUT and simulators



(EUT: Keyboard)

2.3. Power Line Conducted Emission Measurement Limits (Class B)

Frequency MHz	Maximum RF Line Voltage	
	μV	dB(μV)
0.45 ~ 30	250	48

Remarks: RF Line Voltage (dB(μV)) = 20 log RF Line Voltage (μV)

2.4. Configuration of EUT on Measurement

The following equipment are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

2.4.1. Keyboard (EUT)

Model Number	:	JME-3310
Serial Number	:	N/A
Manufacturer	:	Jing Mold Plastic Electronic (Shenzhen) Co., Ltd.

2.5. Operating Condition of EUT

2.5.1. Setup the EUT and simulator as shown as Section 2.2.
2.5.2. Turn on the power of all equipment.
2.5.3. Let the EUT work in test mode (Running) and measure it.

2.6. Test Procedure

The EUT is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm coupling impedance for the EUT. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-1992 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESHS20) is set at 10KHz.

The frequency range from 450KHz to 30MHz is checked.

The test result are reported on Section 2.7., all the scanning waveforms for Conducted Emission Measurement are attached in Appendix I.

2.7. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 450KHz to 30 MHz is investigated.
All emissions not reported below are too low against the prescribed limits.

Date of Test	May 05, 1999	Temperature	25
EUT	Keyboard	Humidity	50
Model No.	JME-3310	Test Mode	Running
Test Engineer	Cherry Zhou		

Frequency MHz	Reading		Limit dB(μV)
	Phase VA dB(μV)	Phase VB dB(μV)	
0.522	23.2	*	48.0
0.523	*	23.5	48.0
6.270	**31.9**	**31.5**	**48.0**
9.000	25.0	25.3	48.0
27.750	19.2	19.2	48.0

Remark 1. All readings are Quasi-Peak values.
2. The worst emission is detected at 6.270MHz with corrected signal level of 31.9dB(μV) (limit is 48dB(μV)) when the VA side of the EUT is connected to L.I.S.N.

Reviewer : Martin 22/9

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

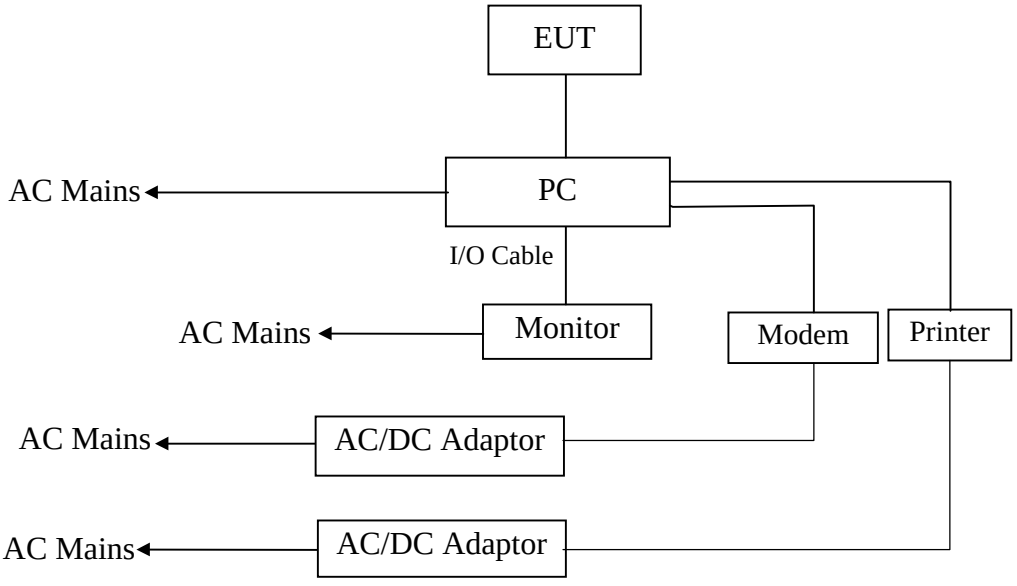
The following test equipments are used during the radiated emission measurement:

3.1.1. For Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	85422E	3625A00181	Jun. 06, 99	1 Year
2.	Test Receiver	Rohde & Schwarz	ESVS20	830350/005	Jun. 06, 99	1 Year
3.	Amplifier	HP	8447D	2944A07794	Jun. 06, 99	1/2 Year
4.	Bilog Antenna	Chase	CBL6112A	2176	Sep. 27, 98	1 Year
5.	Computer	N/A	N/A	N/A	N/A	N/A
6.	Printer	NEC	P3800	568101448	N/A	N/A
7.	Coaxial Switch	Anritsu	MP59B	M20531	Jun. 06, 99	1 Year
8.	FR Cable	MIYAZAKI	5D-2W	3# Chamber No.1	Aug. 11, 99	1/2 Year
9.	FR Cable	MIYAZAKI	5D-2W	3# Chamber No.2	Aug. 11, 99	1/2 Year
10.	FR Cable	FUJIKURA	RG-55/U	3# Chamber No.3	Aug. 11, 99	1/2 Year
11.	FR Cable	FUJIKURA	RG-55/U	3# Chamber No.4	Aug. 11, 99	1/2 Year

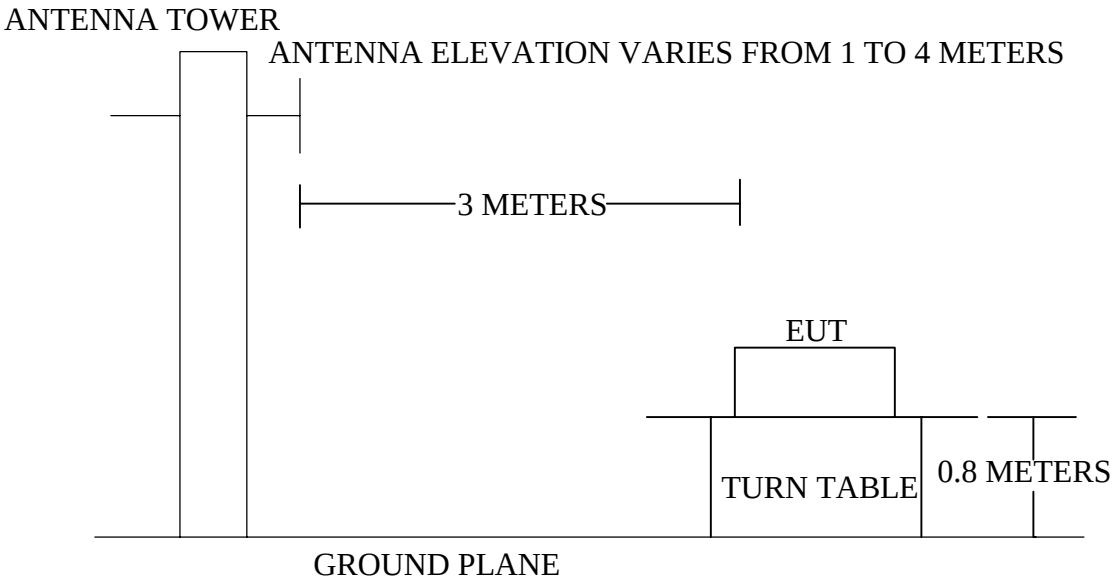
3.2. Block Diagram of Test Setup

3.2.1. diagram of connection between the EUT and simulators



(EUT: Keyboard)

3.2.2. Chamber # 3 Test Setup Diagram



3.3. Radiated Emission Limit (Class B)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Remark (1) Emission level (dB)μV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.4. EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.4.1. Keyboard (EUT)

Model Number	:	JME-3310
Serial Number	:	N/A
Manufacturer	:	Jing Mold Plastic Electronic (Shenzhen) Co., Ltd.

3.4.2. Support Equipment : As Tested Supporting System Detail, in Section 1.2.

3.5. Operating Condition of EUT

1. Setup the EUT as shown in Section 3.2..
2. Let the the EUT work in test mode (Running) and measure it.

3.6. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-1992 on radiated emission measurement.

The bandwidth of the EMI test receiver (R&S ESVS20) is set at 120KHz.

The frequency range from 30MHz to 1000MHz is checked.

The two test modes (Running) are tested in Anechoic Chamber and all the scanning waveforms are attached in Appendix II.

3.7. Radiated Emission Noise Measurement Result

PASS.

The frequency range from 30MHz to 1000MHz is investigated. Please see the following pages.

Date of Test :	May 04, 1999		Temperature :	22	
EUT :	Keyboard		Humidity :	50	
Model No. :	JME-3310		Test Mode :	Running	
Test Engineer:	Cherry Zhou				

Frequency	Antenna Factor	Cable Loss	Meter Reading Horizontal	Emission Level Horizontal	Over Limits	Limits
MHz	dB/m	dB	dBμV	dBμV/m	dBμV/m	dBμV/m
48.00	9.60	1.19	19.00	29.79	-10.21	40.00
75.090	7.45	1.60	19.10	28.15	-11.85	40.00
200.000	10.21	2.62	15.00	27.83	-15.67	43.50
336.063	15.25	3.49	13.40	32.14	-13.86	46.00
816.150	20.22	5.76	10.03	36.00	-10.00	46.00

Remark: 1. All readings are Quasi-Peak values.
2. Emission Level = Antenna Factor + Cable Loss + Meter Reading

Date of Test :	May 04, 1999		Temperature :	22	
EUT :	Keyboard		Humidity :	50	
Model No. :	JME-3310		Test Mode :	Running	
Test Engineer:	Cherry Zhou				

Frequency	Antenna Factor	Cable Loss	Meter Reading Vertical	Emission Level Vertical	Over Limits	Limits
MHz	dB/m	dB	dBμV	dBμV/m	dBμV/m	dBμV/m
48.100	5.45	1.19	16.40	23.04	-16.96	40.00
75.250	6.77	1.60	18.40	26.77	-13.23	40.00
336.060	14.75	3.49	15.00	33.24	-12.76	46.00
568.475	18.33	4.64	10.40	33.37	-12.63	46.00
590.180	18.93	4.84	11.00	34.77	-11.23	46.00

Remark: 1. All readings are Quasi-Peak values.
2. Emission Level = Antenna Factor + Cable Loss + Meter Reading

Reviewer : Martin 22/9

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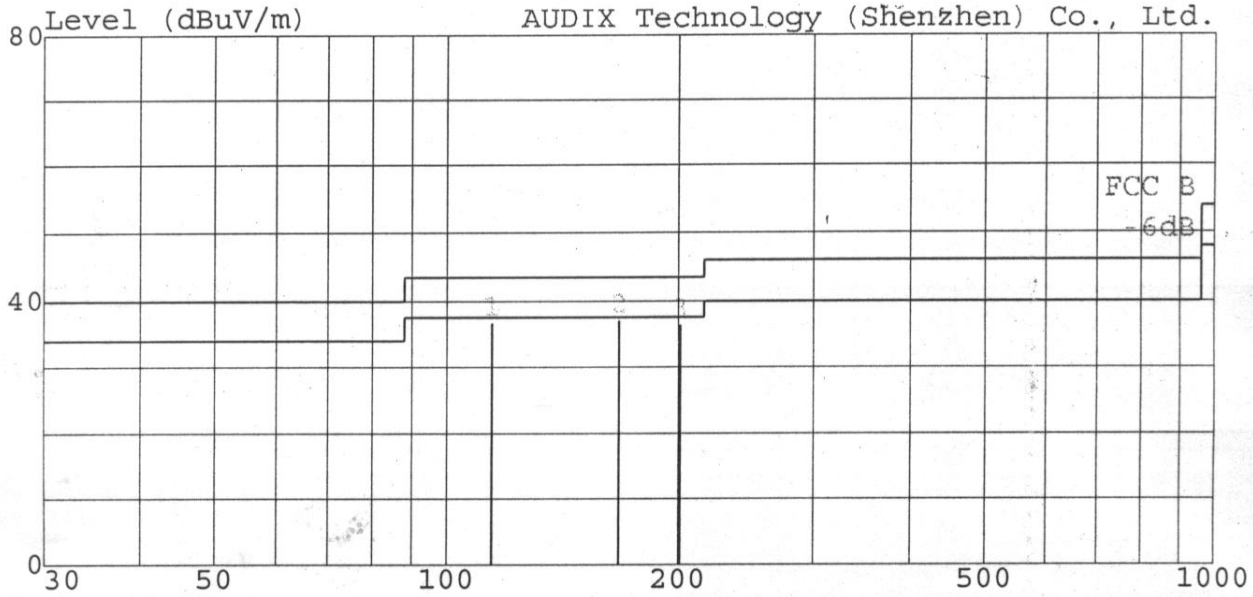

Anechoic Chamber
Trace :
Limit : FCC B 3m
Probe : 2176FACTOR HORIZONTAL
Margin: -6.0dB
EUT : Keyboard M/N:JME-3310
Power : +5V DC
Memo : TEST MODE
:
:

Ref Trace:

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
	MHz	dB	dB	dB	dB	dB	dB	dB	
1	114.460	36.65	-6.85	43.50	18.90	14.82	2.93	0.00	
2	167.510	36.99	-6.51	43.50	19.30	14.19	3.49	0.00	
3	200.995	36.32	-7.18	43.50	18.90	13.66	3.76	0.00	

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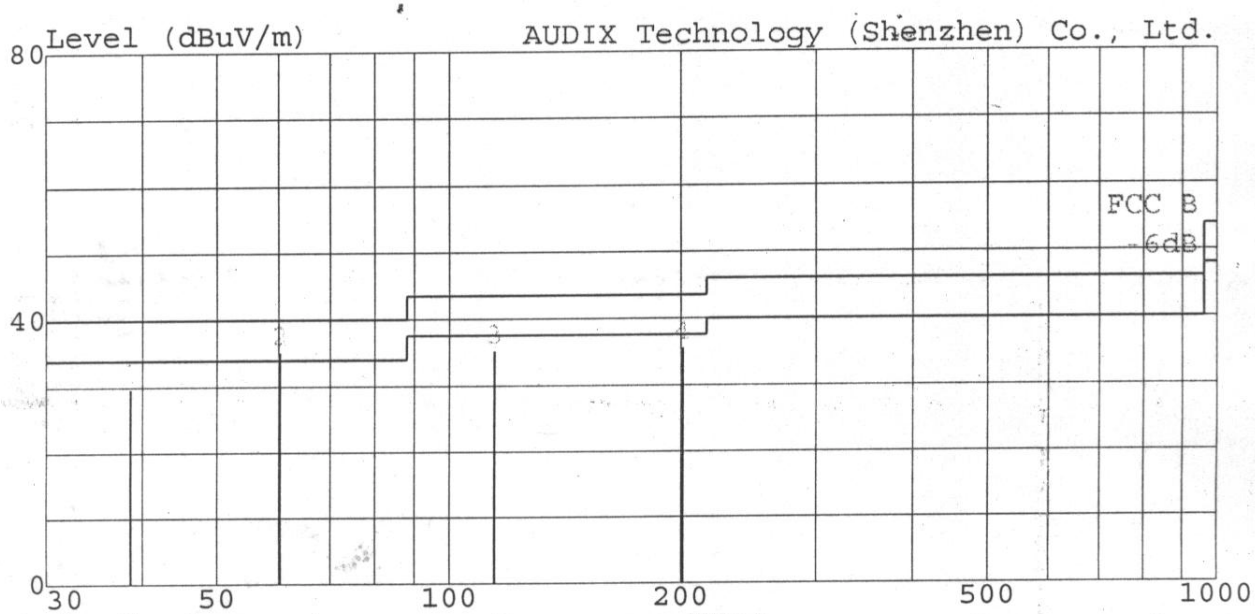


Anechoic Chamber
Trace :
Limit : FCC B 3m
Probe : 2176FACTOR VERTICAL
Margin: -6.0dB
EUT : Keyboard M/N:JME-3310
Power : +5V DC
Memo : TEST MODE
:
:

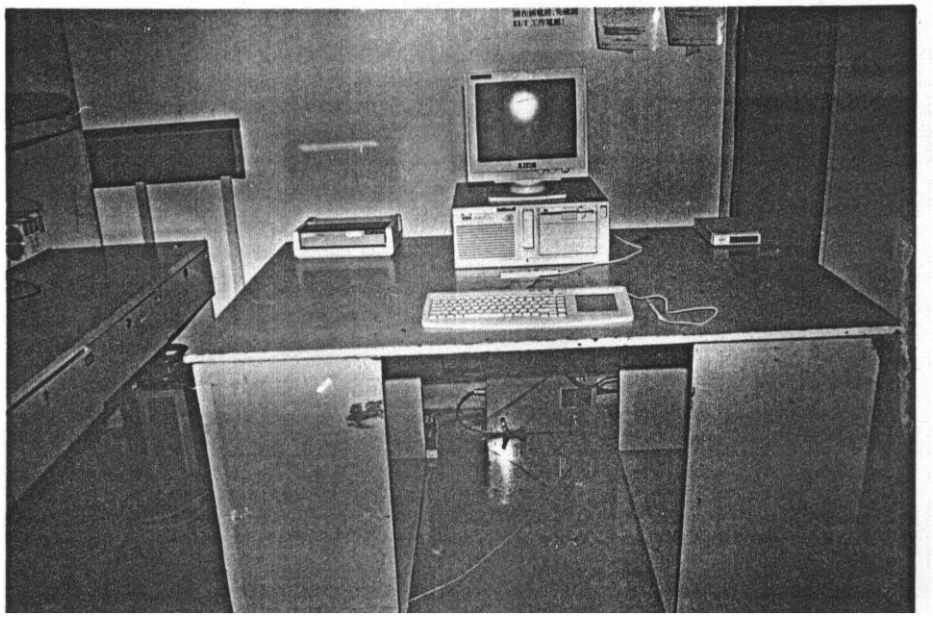
Ref Trace:

Page: 1

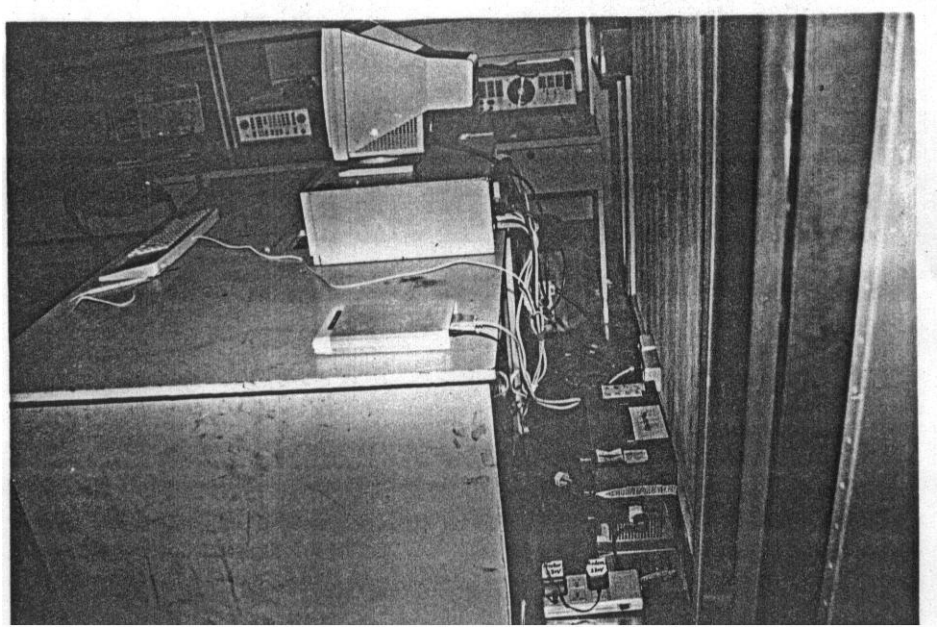
		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark
		MHz	dB	dB	dB	dB	dB	dB	dB	
1		38.663	29.58	-10.42	40.00	11.80	16.46	1.32	0.00	
2	!	60.211	35.00	-5.00	40.00	17.90	15.12	1.98	0.00	
3		114.455	35.12	-8.38	43.50	15.40	16.80	2.93	0.00	
4		201.075	35.49	-8.01	43.50	16.20	15.53	3.76	0.00	

4. PHOTOGRAPH

4.1. Photos of Power Line Conducted Measurement

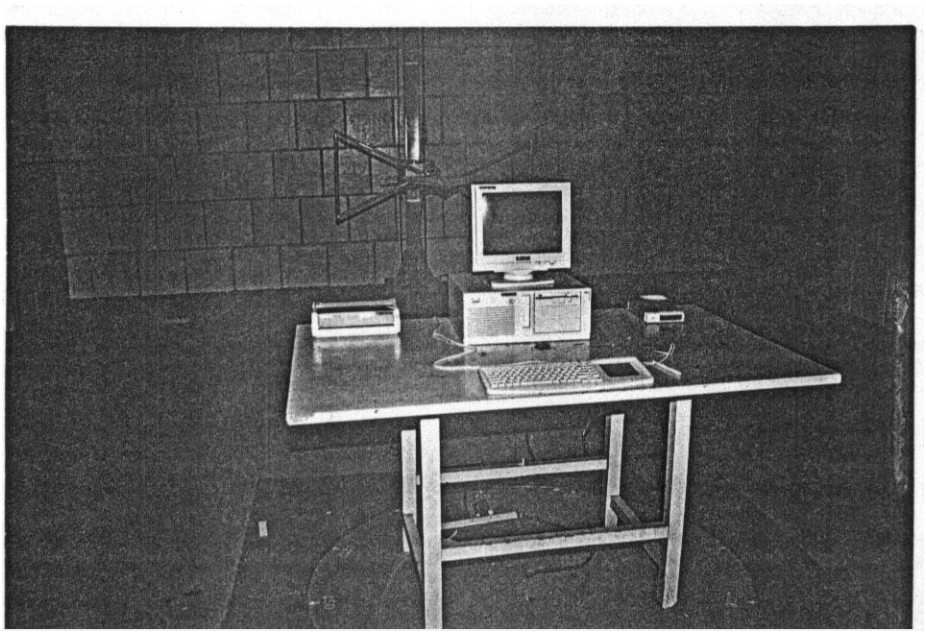


FRONT VIEW OF CONDUCTED MEASUREMENT

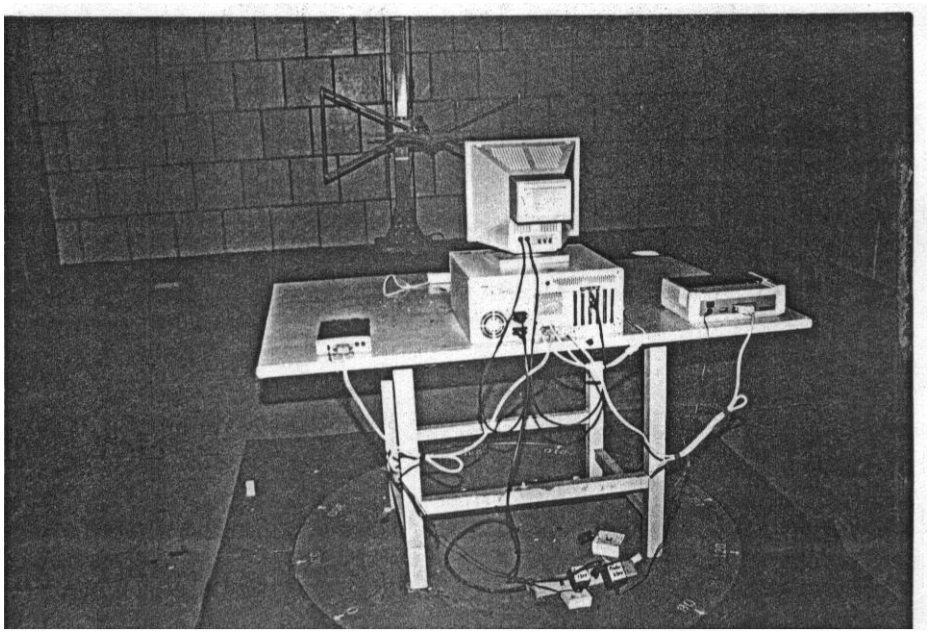


SIDE VIEW OF CONDUCTED MEASUREMENT

4.2. Photos of Radiated Measurement



FRONT VIEW OF RADIATED MEASUREMENT



BACK VIEW OF RADIATED MEASUREMENT

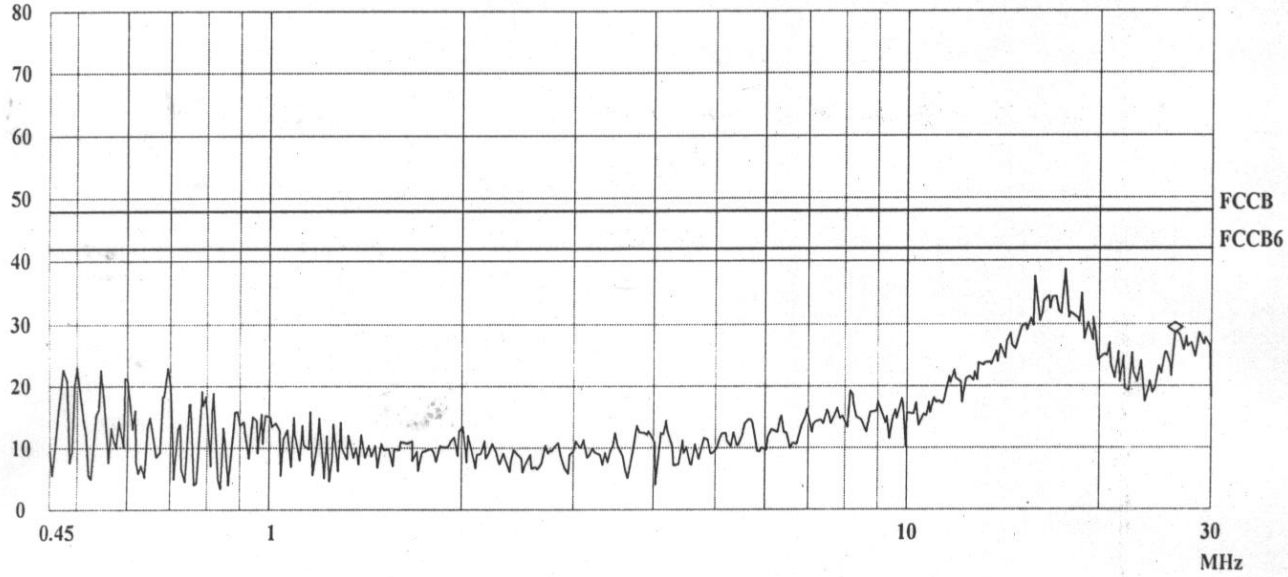
APPENDIX I

CONDUCTION TEST
FCC Part15 B

13. Sep 99 09:39

EUT: Keyboard M/N:JME-3310
Manuf: Jing Mold
Op Cond: Running
Operator: Cherry
Test Spec: Va
Comment: Tep:24'C
Humi:60%

dBuV Mkr : 26.30000MHz 28.6 dBuV

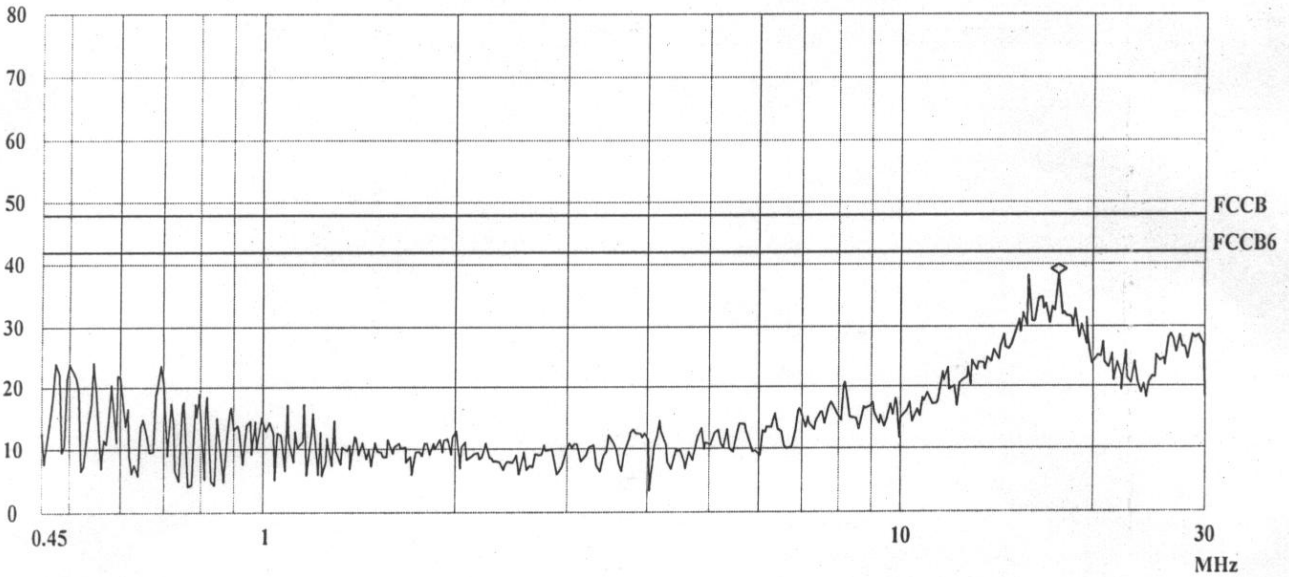


CONDUCTION TEST
FCC Part15 B

13. Sep 99 09:43

EUT: Keyboard M/N:JME-3310
Manuf: Jing Mold
Op Cond: Running
Operator: Cherry
Test Spec: Vb
Comment: Tep:24'C
Humi:60%

dBuV Mkr : 17.68000MHz 38.3 dBuV



APPENDIX II

52 Block
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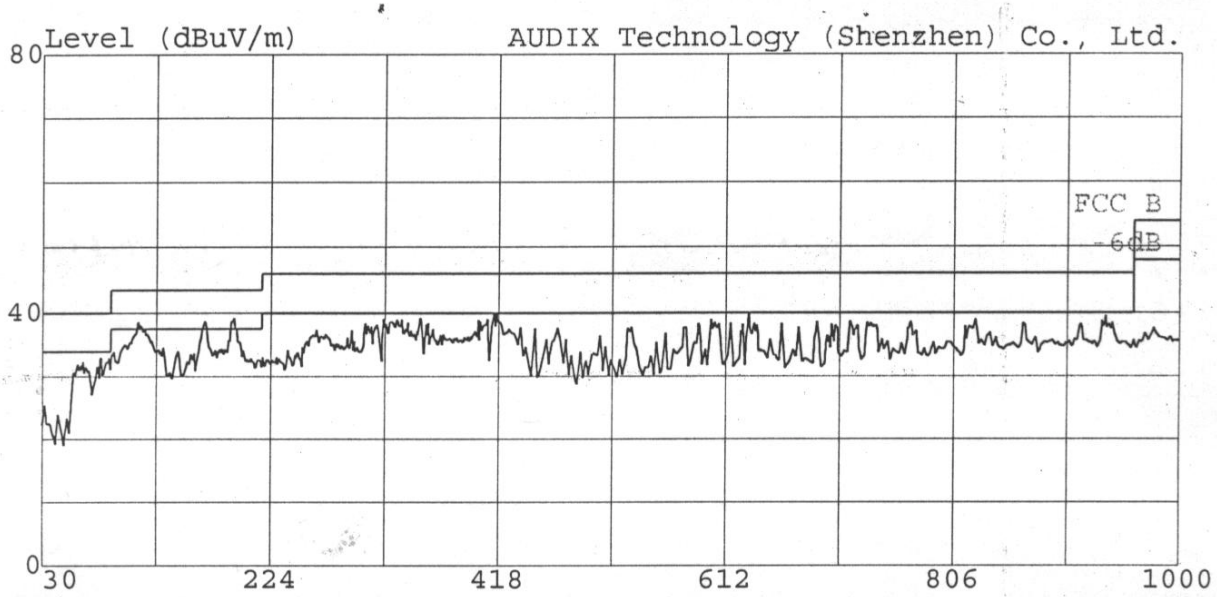

Anechoic Chamber
Trace :
Ref Trace:
Limit : FCC B 3m
Probe : 2176FACTOR HORIZONTAL
Margin: -6.0dB
EUT : Keyboard M/N:JME-3310
Power : +5V DC
Memo : TEST MODE
:
:

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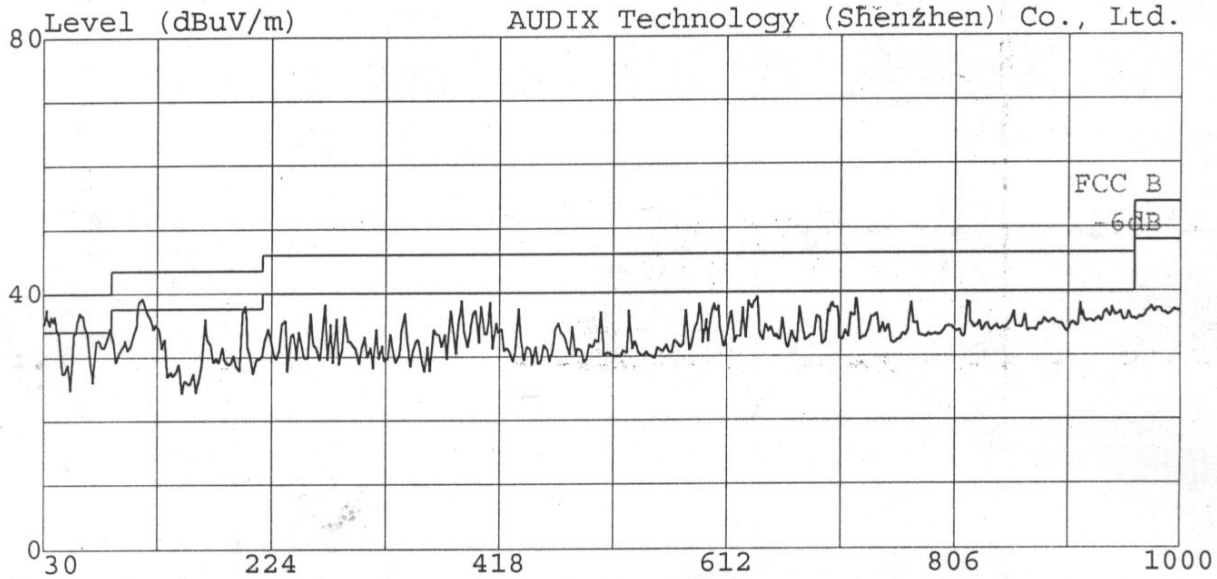

Anechoic Chamber
Trace :
Limit : FCC B 3m
Probe : 2176FACTOR VERTICAL
Margin: -6.0dB
EUT : Keyboard M/N:JME-3310
Power : +5V DC
Memo : TEST MODE
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Ref Trace: