

FCC CERTIFICATION TEST REPORT

for

DYPC Life Tech CO.Ltd

MULTIMEDIA KEYBOARD

Model Number : DG-1KB 100UH / DG-1KB 100UHA

Prepared for : DYPC Life Tech CO.Ltd
Address : He Ban Qiao,Chong He,Qin Xi Dong Guan City,
Guang Dong

Prepared By : NS Electromagnetic Technology Co., Ltd.
Address : Chenwu Industrial Zone, Houjie Town, Dongguan City,
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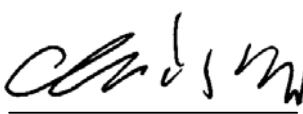
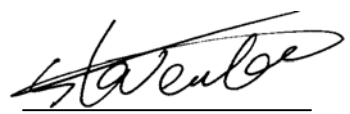
Report Number : NSE-F0605112
Date of Test : May 5~13, 2006
Date of Report : May 17, 2006

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NS Electromagnetic Technology Co., Ltd.

Applicant:	DYPC Life Tech CO.Ltd		
Address:	He Ban Qiao,Chong He,Qin Xi Dong Guan City,Guang Dong		
Manufacturer:	DYPC Life Tech CO.Ltd		
Address:	He Ban Qiao,Chong He,Qin Xi Dong Guan City,Guang Dong		
E.U.T:	MULTIMEDIA KEYBOARD		
Model Number:	DG-1KB 100UH / DG-1KB 100UHA		
Trade Name:	-----	Serial No.:	-----
Date of Receipt:	Mar. 15, 2005	Date of Test:	May 5~13, 2006
Test Specification:	FCC Part 15 Subpart B Class B: February, 2006 ANSI C63.4:2003		
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied.		
			Issue Date: May 18, 2006
Tested by:	Reviewed by:	Approved by:	
			
Wisdom / Engineer	Chris Du / Supervisor	Steven Lee / Manager	
Other Aspects:	None.		
Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested			
This test report is based on a single evaluation of one sample of above mentioned products, It is not permitted to be duplicated in extracts without written approval of NS Electromagnetic Technology Co., Ltd..			

1. GENERAL PRODUCT INFORMATION

1.1. Product Function

Refer to Technical Construction Form and User Manual.

1.2. Description of Device (EUT)

Description	:	MULTIMEDIA KEYBOARD
Model No.	:	DG-1KB 100UH
System Input Voltage	:	DC 5V (PC input AC 120V/60Hz)
Rated Current	:	500mA
Rated Power	:	2.5W
USB+Audio+MIC Cable	:	Shielded, Undetachable 1.6m

1.3. Difference between Model Numbers

Notes: The products are identical. But only the model names are different.

1.4.Independent Operation Modes

The basic operation modes are:

1.4.1. Running PC system

1.5. Test Supporting System

1.5.1. PC

Model Number	:	8179
Serial Number	:	99BZTL5
Manufacturer	:	IBM
Power Cord	:	Unshielded, Detachable, 1.5m

1.5.2.Keyboard (PS II)

Model Number	:	KB-0225
Serial Number	:	546362
Manufacturer	:	IBM
Data Cable	:	Shielded, Undetachable, 1.8m

1.5.3. Printer

Model Number	:	B161A
Serial Number	:	C48220005L73317358
Manufacturer	:	EPSON
Data Cable	:	Shielded, Detachable, 1.5m

1.5.4. Monitor

Model Number	:	6331-4NC
Serial Number	:	23-ZYK09
Manufacturer	:	IBM
Data Cable	:	Shielded, Undetachable, 1.5m

1.5.5. Modem

Model Number : DB-R6764
Manufacturer : Qiao shu
Data Cable : Shielded, Detachable, 1.5m

1.5.6. Mouse (PS II)

Model Number : SK-3325
Manufacturer : ComPAQ
Data Cable : Shielded, Undetachable, 1.5m

1.5.7. Mouse (USB)

Model Number : OK-720
Manufacturer : Shenfen4a

1.5.8. MIC

Model Number : DM-555
Manufacturer : ILIKE ELECTRONICS CO., LTD.

1.5.9. Headphone

Model Number : SY-716
Manufacturer : SONY

1.5.10. U-Disk 1# & 2#

Model Number : BL-U09
Manufacturer : B-Link ELECTRONIC LIMITED

2. TEST SITES

2.1. Test Facilities

EMC Lab : Certificated by TUV Rheinland, Germany.
Date of registration: July 28, 2003

Certificated by FCC, USA
Registration No.: 897109
Date of registration: October 10, 2003

Certificated by VCCI, Japan
Registration No.: R-1798 & C-1926
Date of registration: January 30, 2004

Certificated by CNAL, CHINA
Registration No.: L1744
Date of registration: November 25, 2004

Certificated by Intertek ETL SEMKO
Registration No.: TMP-013
Date of registration: June 11, 2005

Certificated by TUV/PS, Hong Kong
Date of registration: December 1, 2005

Certificated by Industry Canada
Registration No.: 5936
Date of registration: March 24, 2006

Name of Firm : NS Electromagnetic Technology Co., Ltd.

Site Location : Chenwu Industrial Zone, Houjie Town, Dongguan City,
Guangdong, China

2.2. List of Test and Measurement Instruments

2.2.1. For conducted emission test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Test Receiver	Rohde & Schwarz	ESCS30	100199	Jun. 5,05	Jun. 5,06
L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	100071	Jun. 5,05	Jun. 5,06
L.I.S.N.#2(AUX)	Rohde & Schwarz	ESH3-Z5	100317	Jun. 5,05	Jun. 5,06

2.2.2. For radiated emission test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Test Receiver	Rohde & Schwarz	ESCS30	100340	Jun. 5,05	Jun. 5,06
Spectrum Analyzer	HP	8590L	3412A00251	Jun. 5,05	Jun. 5,06
Amplifier	Agilent	8447D	2944A10488	May 2,06	May 2,07
Bilog Antenna	EMCO	3142B	00022050	May 2,06	May 2,07

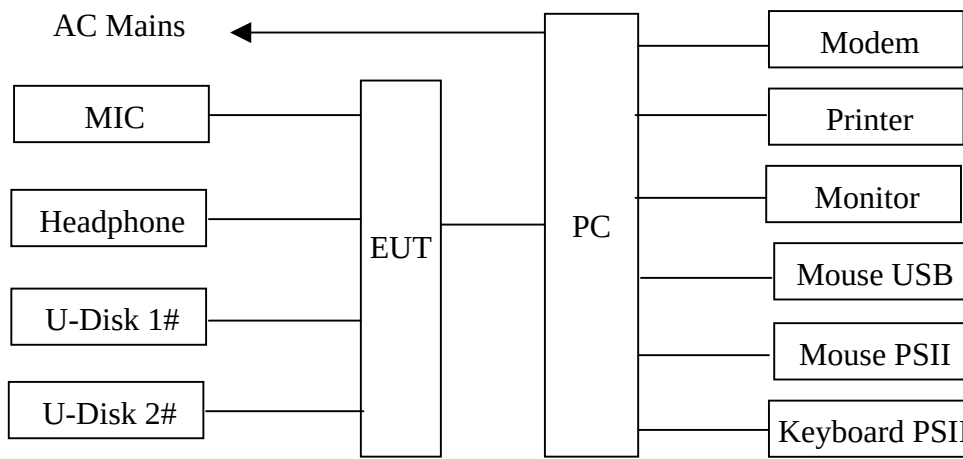
3. TEST SET-UP AND OPERATION MODES

3.1. Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

3.2. Block Diagram of Test Set-up

System Diagram of Connections Between EUT and Simulators



(EUT: MULTIMEDIA KEYBOARD)

3.3. Test Operation Mode and Test Software

Refer to Test Setup in clause 4 & 5.

3.4. Special Accessories and Auxiliary Equipment

None.

3.5. Countermeasures to Achieve EMC Compliance

None.

4. EMISSION TEST RESULTS

4.1. Conducted Emission Test

RESULT : **Pass**
Test procedure : ANSI C63.4:2003
Frequency range : 0.15~30MHz
Test Site : Shielded Room
Limits : FCC Part 15 Subpart B Class B

Test Setup

Date of testing : May 5, 2006
Model No. : DG-1KB 100UH
Input Voltage : DC 12V (PC input AC 120V/60Hz)
Operation Mode : Running PC system

The EUT was put on a wooden table which was 0.8metre high above the ground and connected to the AC mains through a Artificial Mains Network (A.M.N). The mains lead in excess of 1 m separating the EUT from the AMN was folded back and forth parallel to the lead so as to form a bundle with a length of 0.3m to 0.4m.

The EUT was kept 0.4m from any other earthed conducting surface. Both sides of AC line were checked to find out the maximum conducted emission levels according to the test procedure during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESCS30) was set at 9KHz.

The frequency range from 150 KHz to 30 MHz was investigated.

Test Data

EUT:	MULTIMEDIA KEYBOARD	Temperature:	25°C
M/N:	DG-1KB 100UH	Humidity:	56%
Test Mode:	Running PC system	Test Engineer:	Wisdom

Conducted Emission at The Mains Terminals Test					
Frequency (MHz)	Reading (dBμV)			Limit (dBμV)	
	Quasi-Peak	Average	Ports	Quasi-Peak	Average
0.209	35.8	34.0	Neutral	63.2	53.2
0.363	38.1	37.8	Neutral	58.6	48.6
0.630	38.0	37.3	Neutral	56.0	46.0
0.844	37.2	36.6	Neutral	56.0	46.0
3.509	43.0	42.4	Neutral	56.0	46.0
11.870	33.0	31.7	Neutral	60.0	50.0
0.212	38.3	37.2	Line	63.1	53.1
0.424	44.6	43.3	Line	57.4	47.4
0.630	40.3	39.4	Line	56.0	46.0
0.844	37.2	36.9	Line	56.0	46.0
3.509	43.6	42.4	Line	56.0	46.0
11.870	33.0	31.2	Line	60.0	50.0

Notes:

1. The above data and the following graph were recorded for the tests on the mains terminals.
2. Test uncertainty: $\pm 1.99\text{dB}$ at a level of confidence of 95%.

4.2. Radiated Emission Test

RESULT : **Pass**
Test procedure : ANSI C63.4:2003
Frequency range : 30~1000MHz
Test Site : 966 Chamber
Limits : FCC Part 15 Subpart B Class B

Test Setup

Date of testing : May 13, 2006
Model No. : DG-1KB 100UH
Input Voltage : DC 12V (PC input AC 120V/60Hz)
Operation Mode : Running PC system

The EUT was placed on a turn table which was 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 to 4 m for horizontal and vertical polarizations. The broadband antenna (calibrated by dipole antenna) was used as a receiving antenna.

The bandwidth setting on the test receiver (R&S TEST RECEIVER ESCS30) was 120 KHz.

The EUT was tested in Chamber Site.

The test data of the worst case condition(s) was reported on the following pages. All the scanning waveform were attached within Appendix II.

Test Data

EUT:	MULTIMEDIA KEYBOARD	Temperature:	25°C
M/N:	DG-1KB 100UH	Humidity:	55%
Test Mode:	Running PC system	Test Engineer:	Wisdom

Frequency MHz	Antenna Factor dB	Cable Loss dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Over Limits dB	Limits dBμV/m
43.580	14.17	0.93	18.50	33.60	-6.40	40.00
152.300	11.26	1.89	18.45	31.60	-11.90	43.50
241.600	13.47	2.47	14.86	30.80	-15.20	46.00
402.480	16.43	3.37	18.28	38.08	-7.92	46.00
445.990	16.78	3.61	18.91	39.30	-6.70	46.00
720.640	21.21	5.11	13.78	40.10	-5.90	46.00

Remark: The worst emission was detected at **720.640MHz** with corrected signal level of **40.10dBμV/m**(Limit is **46.00 dBμV/m**) when the antenna was at **Horizontal** polarization and at **1.7m** high and the turn table was at **250°** .

Frequency MHz	Antenna Factor dB	Cable Loss dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Over Limits dB	Limits dBμV/m
59.900	9.36	1.10	26.43	36.80	-3.20	40.00
78.800	9.74	1.31	25.85	38.90	-3.10	40.00
182.290	112.01	2.11	24.15	38.27	-5.23	43.50
480.080	17.31	4.03	16.56	37.90	-8.10	46.00
601.330	19.70	4.47	12.21	36.38	-9.62	46.00
720.640	21.21	5.11	12.22	38.54	-7.46	46.00

Remark: The worst emission was detected at **78.800MHz** with corrected signal level of **38.90dBμV/m** (Limit is **40.00 dBμV/m**) when the antenna was at **Vertical** polarization and at **1.2m** high and the turn table was at **125°** .

- Notes:
1. All readings were Quasi-Peak values.
 2. Emission Level = Antenna Factor + Cable Loss + Meter Reading
 3. 0 ° was the table front facing the antenna. Degree was calculated from 0 ° clockwise facing the antenna.
 4. Test uncertainty: **±4.76dB at a level of confidence of 95%.**

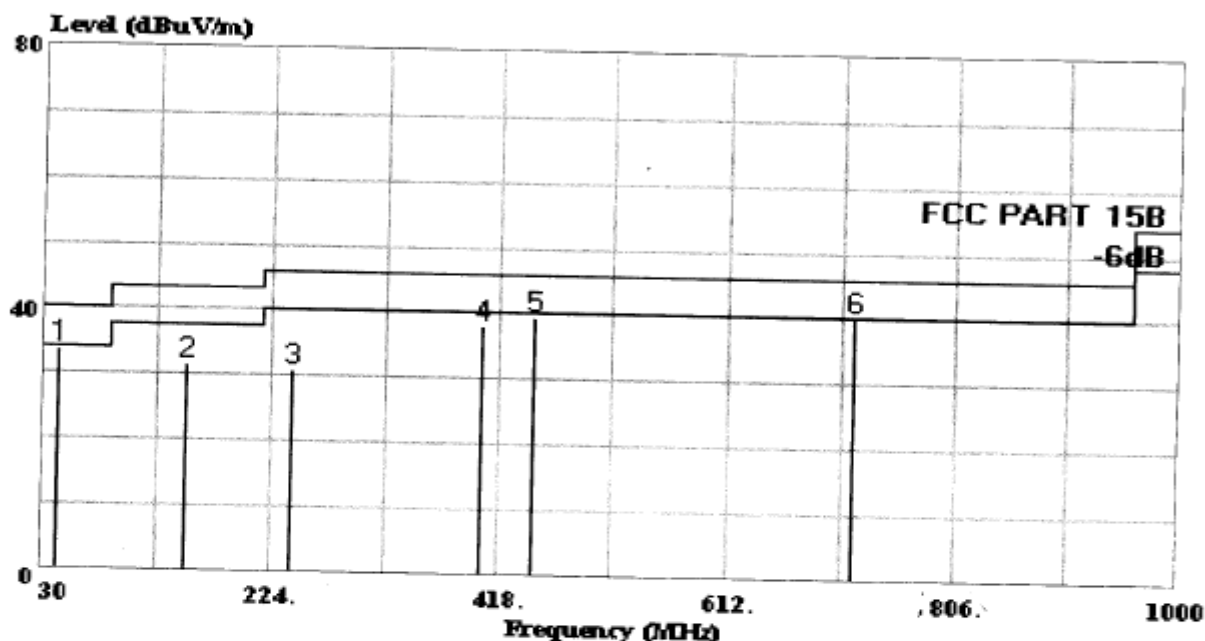
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Data#: 17 File#: E:\Radiation\D\Dypc.emi

Date: 2006-05-13 Time: 20:50:19



Site : 966 Chamber
Condition : FCC PART 15B 3m 3142B HORIZONTAL
EUT : MULTIMEDIA KEYBOARD
Power : DC 5V(PC input AC 120V/60Hz)
M/N : DG-1KB 100UH
Test Engineer: Wisdom
Comment : Temp:25'C Humi:55%
Memo : Running PC system
: Ant High:1.7m Table Angle:250'

Page: 1

	Freq	Level	Over	Limit	Read	Cable	Probe
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor
			dB	dBuV/m	dBuV	dB	dB
1	43.580	33.60	-6.40	40.00	18.50	0.93	14.17
2	152.300	31.60	-11.90	43.50	18.45	1.89	11.26
3	241.600	30.80	-15.20	46.00	14.86	2.47	13.47
4	402.480	38.08	-7.92	46.00	18.28	3.37	16.43
5	445.900	39.30	-6.70	46.00	18.91	3.61	16.78
6	720.640	40.10	-5.90	46.00	13.78	5.11	21.21

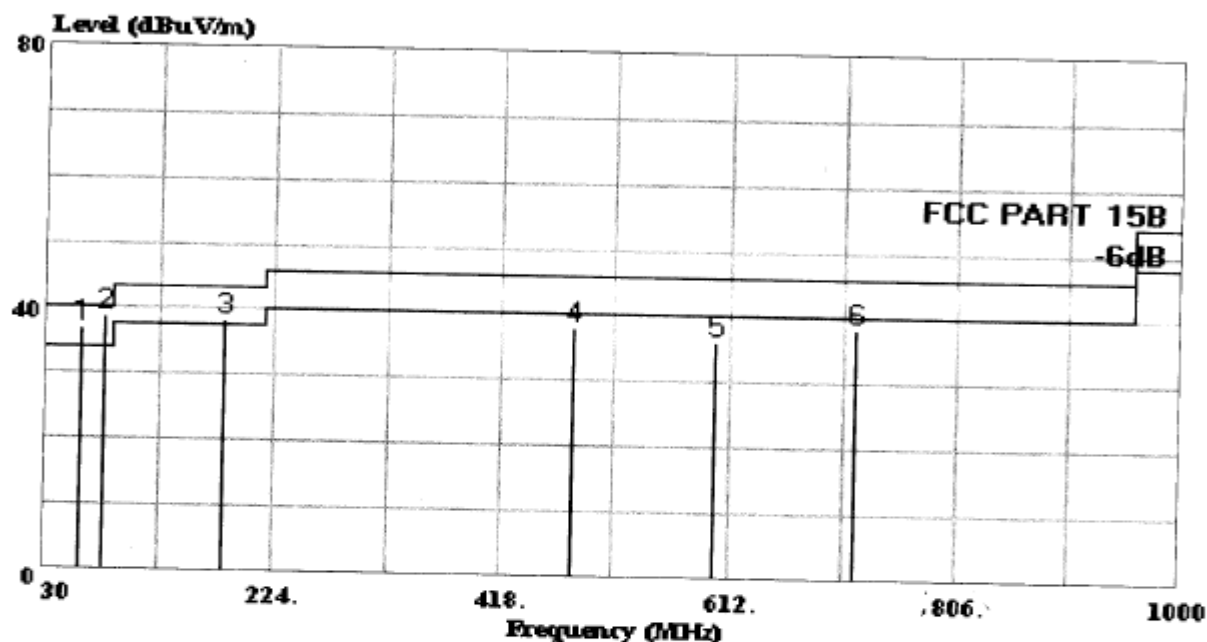
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Data#: 18 File#: E:\Radiation\D\Dypc.emi

Date: 2006-05-13 Time: 20:55:45



Site : 966 Chamber
Condition : FCC PART 15B 3m 3142B VERTICAL
EUT : MULTIMEDIA KEYBOARD
Power : DC 5V(PC input AC 120V/60Hz)
M/N : DG-1KB 100UH
Test Engineer: Wisdom
Comment : Temp:25'C Humi:55%
Memo : Running PC system
: Ant High:1.2m Table Angle:125'

Page: 1

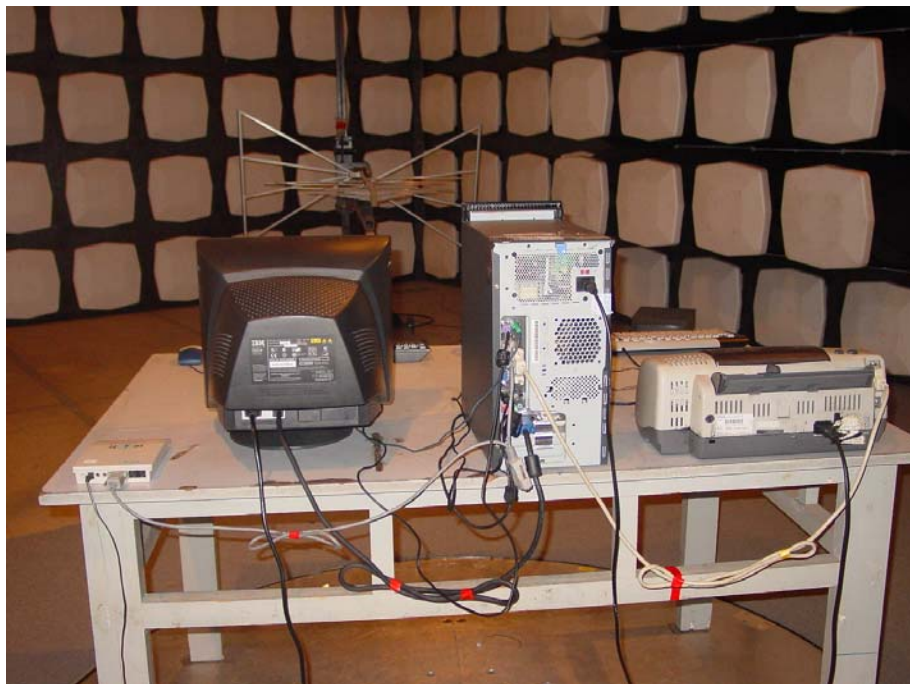
	Freq	Level	Over	Limit	Read	Cable	Probe
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor
			dB	dBuV/m	dBuV	dB	dB
1 !	59.900	36.80	-3.20	40.00	26.34	1.10	9.36
2 !	78.800	38.90	-1.10	40.00	27.85	1.31	9.74
3 !	182.290	38.27	-5.23	43.50	24.15	2.11	12.01
4	480.080	37.90	-8.10	46.00	16.56	4.03	17.31
5	601.330	36.38	-9.62	46.00	12.21	4.47	19.70
6	720.640	38.54	-7.46	46.00	12.22	5.11	21.21

5. PHOTOGRAPHS OF TEST SET-UP

5.1. Set-up for conducted emission at the mains terminals test



5.2.Set-up for radiated emission test



6. PHOTOGRAPHS OF THE EUT

Figure 1
General Appearance of the EUT



Figure 2
General Appearance of the EUT



Figure 3
General Appearance of the PCB

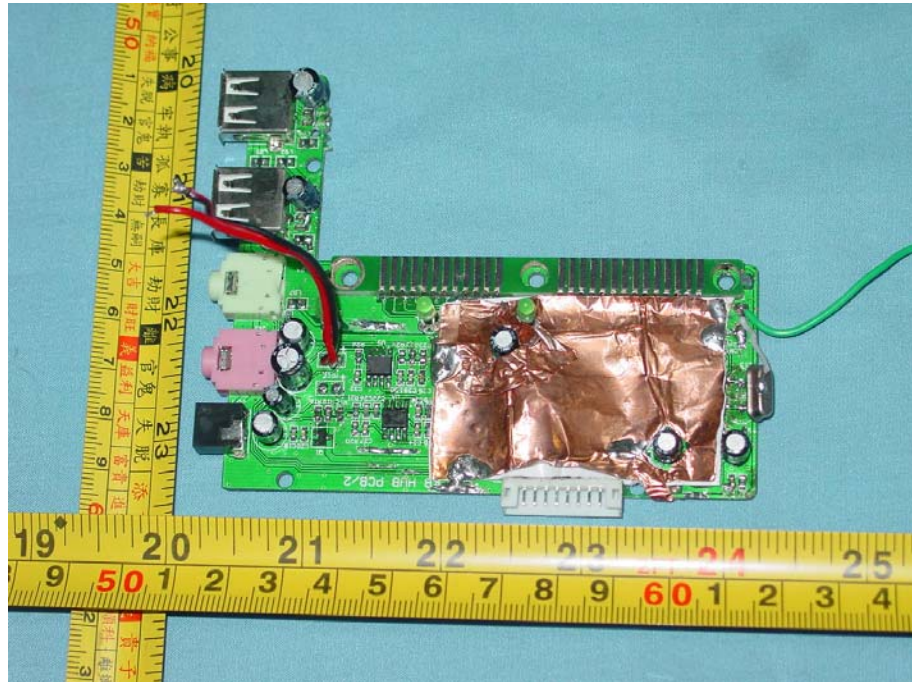


Figure 4
General Appearance of the PCB

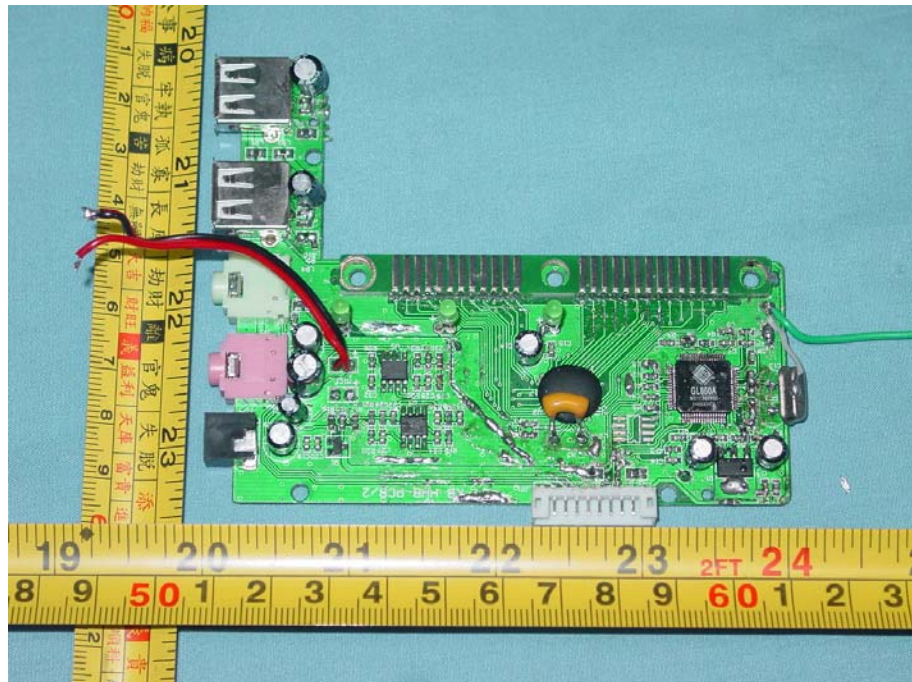
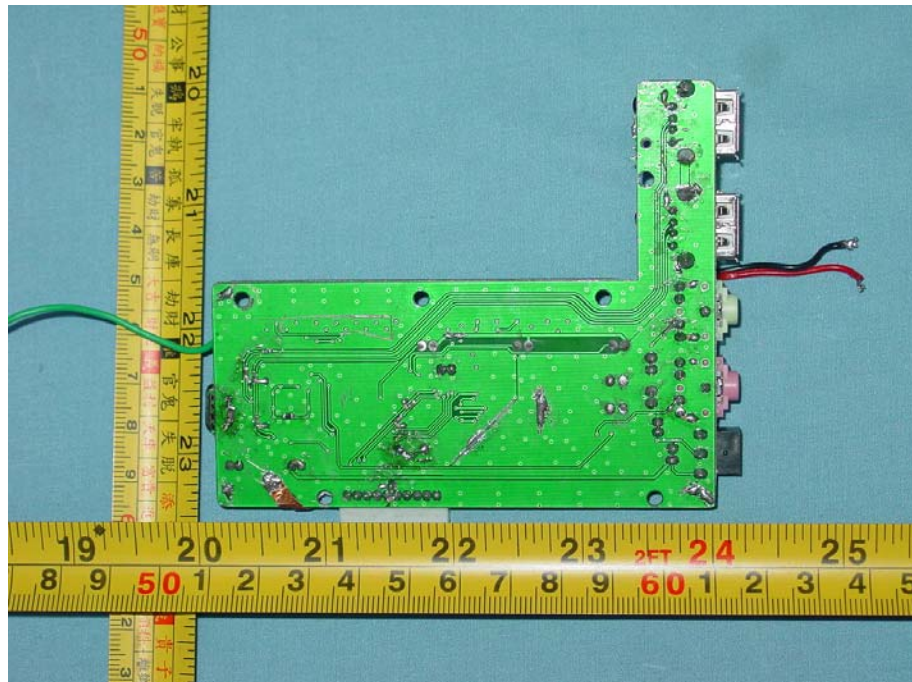


Figure 5
General Appearance of the PCB



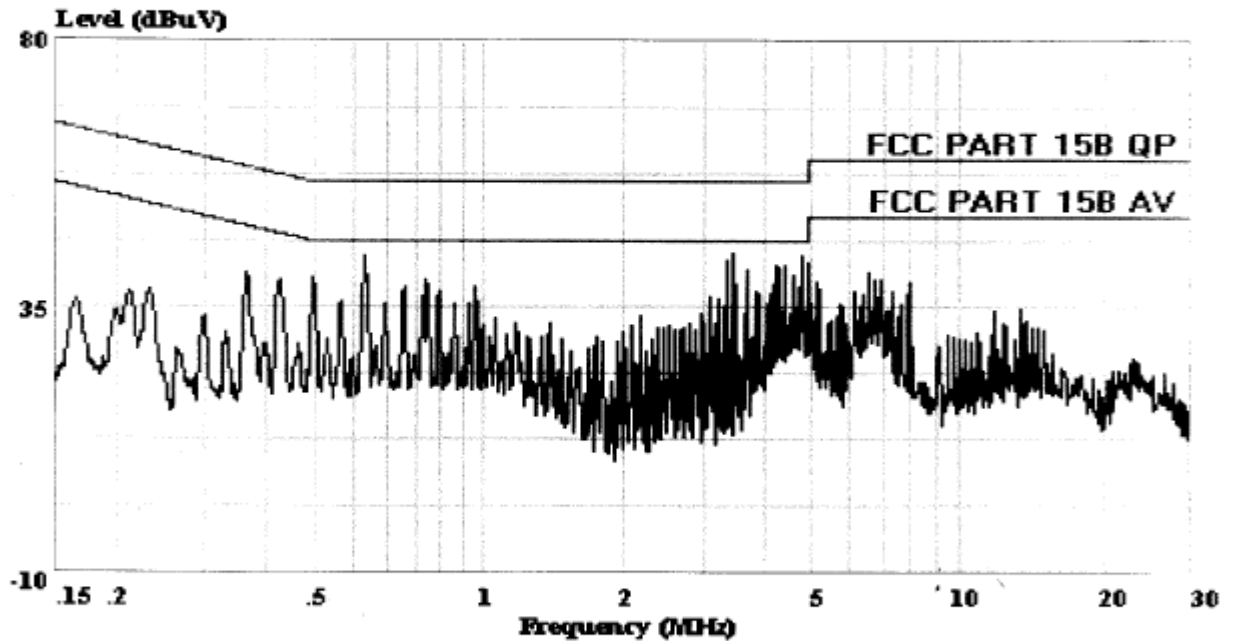
APPENDIX I

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Data#: 9 File#: D:\Conduction\D\Dypc.emi

Date: 2006-05-05 Time: 17:05:56



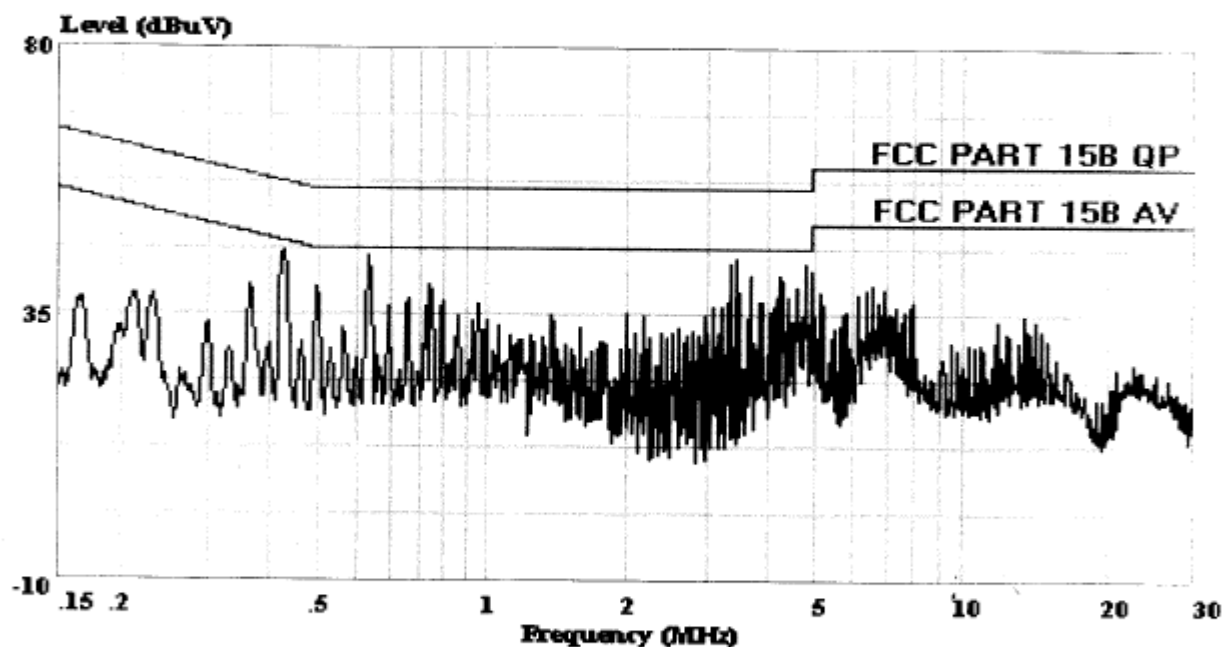
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Condition : FCC PART 15B AV FACTOR NEUTRAL
EUT : MULTIMEDIA KEYBOARD
Power : DC 5V(PC input AC 120V/60Hz)
M/N : DG-1KB 100UH
Test Engineer: Wisdom
Comment : Temp:25°C Humi:56%
Memo : Running PC system

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Data#: 11 File#: D:\Conduction\D\Dypc.emi

Date: 2006-05-05 Time: 17:09:15



Site : Shielded Room 1#
Condition : FCC PART 15B AV FACTOR LINE
EUT : MULTIMEDIA KEYBOARD
Power : DC 5V(PC input AC 120V/60Hz)
M/N : DG-1KB 100UH
Test Engineer: Wisdom
Comment : Temp:25'C Humi:56%
Memo : Running PC system

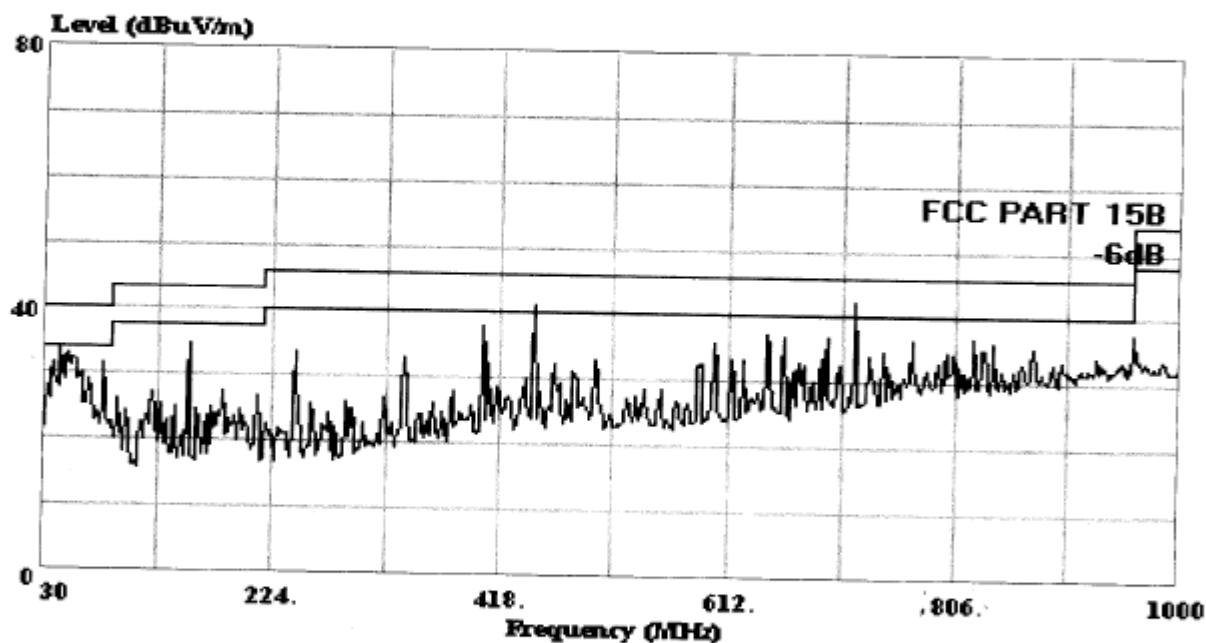
APPENDIX II

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Data#: 13 File#: E:\Radiation\D\Dypc.emi

Date: 2006-05-13 Time: 20:30:15



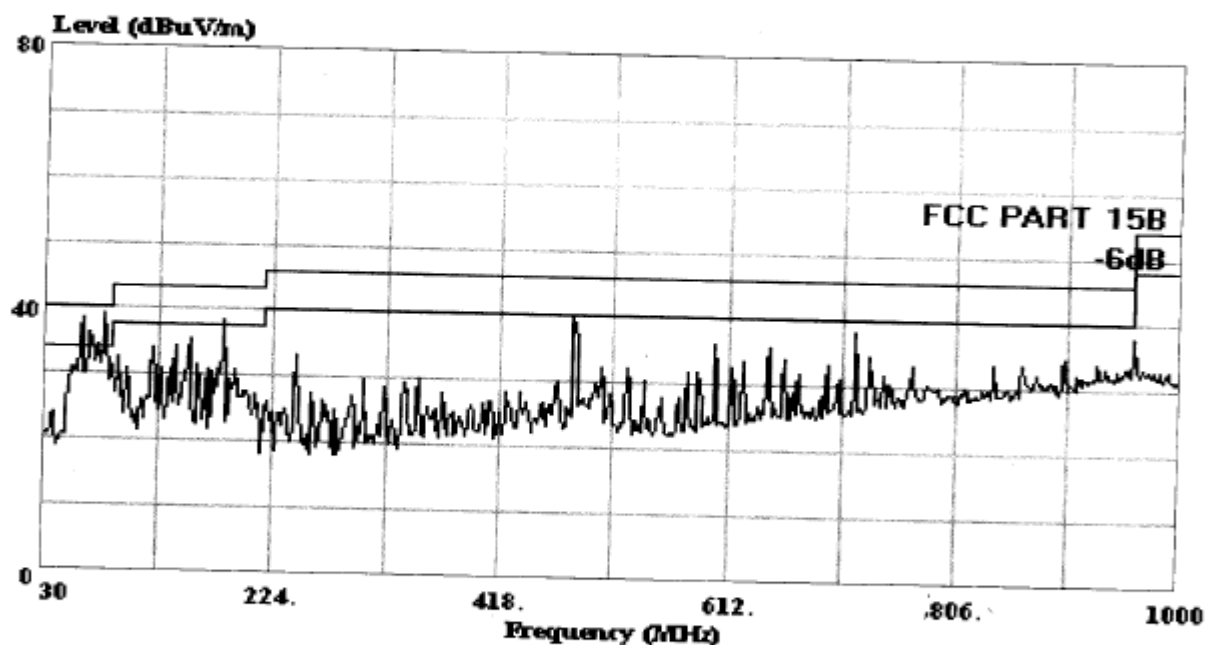
Site : 966 Chamber
Condition : FCC PART 15B 3m 3142B HORIZONTAL
EUT : MULTIMEDIA KEYBOARD
Power : DC 5V(PC input AC 120V/60Hz)
M/N : DG-1KB 100UH
Test Engineer: Wisdom
Comment : Temp:25'C Humi:55%
Memo : Running PC system

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Data#: 14 File#: E:\Radiation\D\Dypc.emi

Date: 2006-05-13 Time: 20:35:18



Site : 966 Chamber
Condition : FCC PART 15B 3m 3142B VERTICAL
EUT : MULTIMEDIA KEYBOARD
Power : DC 5V(PC input AC 120V/60Hz)
M/N : DG-1KB 100UH
Test Engineer: Wisdom
Comment : Temp:25'C Humi:55%
Memo : Running PC system