Ke Mei Ou Laboratory Co., Ltd.

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Ke Mei Ou Lab Corp.
FEDERAL COMMUNICATIONS COMMISSION
Registration Number: 125782
INDUSTRY CANADA
Registration Number: IC4986

FCC TEST REPORT

Under
FCC 15 Subpart C, Paragraph 15.227

Prepared For:

MLK Technologies Limited

Block A1, 1st Industries Park, 3rd Industries Zone, Fenghuang, FuYong, BaoAn, Shenzhen

FCC ID: PP2MK63952WCM
EUT: Slim Full Laser Desktop Wireless – Mouse
Model: MK63952WC

November 7, 2006

Report Type: Original Report
Test Engineer: Jacky Huang
Test Date: November 4, 2006
Review By: _____ Apollo Liu / Manager

TABLE OF CONTENTS

1. General Information

1. 1 Notes

The test results of this report relate exclusively to the test item specified in 1.5. The KMO Lab does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the KMO Lab.

1. 2 Testing Laboratory

Ke Mei Ou Laboratory Co., Ltd.
7A, Jiaxiangge, Jiahuixincheng, No.3027, Shennan Rd., Futian, Shenzhen, Guangdong, P.R.China.
Tel: +86 755 83642690 Fax: +86 755 83297077
Email: kmo@kmolab.com
Internet: www.kmolab.com

Site on File with the Federal Communications Commission – United Sates
Registration Number: 125782
For 3 & 10 meter OATS

Site Listed with Industry Canada of Ottawa, Canada
Registration Number: IC4986
For 3 & 10 meter OATS

1. 3 Details of Applicant

Name : MLK Technologies Limited
Address : Block A1, 1st Industries Park, 3rd Industries Zone, Fenghuang, FuYong, BaoAn, Shenzhen
Contact : N/A
Tel : N/A
Fax : N/A

1. 4 Application Details

Date of Receipt of Application : November 4, 2006
Date of Receipt of Test Item : November 4, 2006
Date of Test : November 4~November 7, 2006

1. 5 Test Item

Manufacturer : See Applicant
Brand Name : MLK
Model No. : MK63952WC
Description : Slim Full Size Laser Desktop Wireless

Additional Information

Frequency : 27.045MHz & 27.195MHz
Number of Channels : 2
Power Supply : DC3V
Operation Distance : 1.8 Meter
Resolution : N/A

1. 6 Test Standards

FCC 15 Subpart C, Paragraph 15.227

Note: All radiated measurements were made in all three orthogonal planes. The values reported are the maximum values.

2. Technical Test

2. 1 Summary of Test Results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	**PASS**	Complies
FCC Part 15, Paragraph 15.207	Conducted Test	**N/A**	Owing to the DC operation of EUT, this test item is not performed.
FCC Part 15 Subpart C Paragraph 15.227 Limit	Field Strength of Fundamental	**PASS**	Complies.
FCC Part 15 , Paragraph 15.209	Radiated Test	**PASS**	Complies.
Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).	Band Edge Test	**PASS**	The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.

2. 2 Antenna Requirement

A. Regulation

FCC section 15.203, An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of Part 15C. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

B. Result

The EUT no antenna connector for printed antenna. Therefore the EUT complies with Section 15.203 of the FCC rules.

3. EUT Modifications

No modification by Ke Mei Ou Laboratory Co., Ltd.

4. Conducted Power Line Test

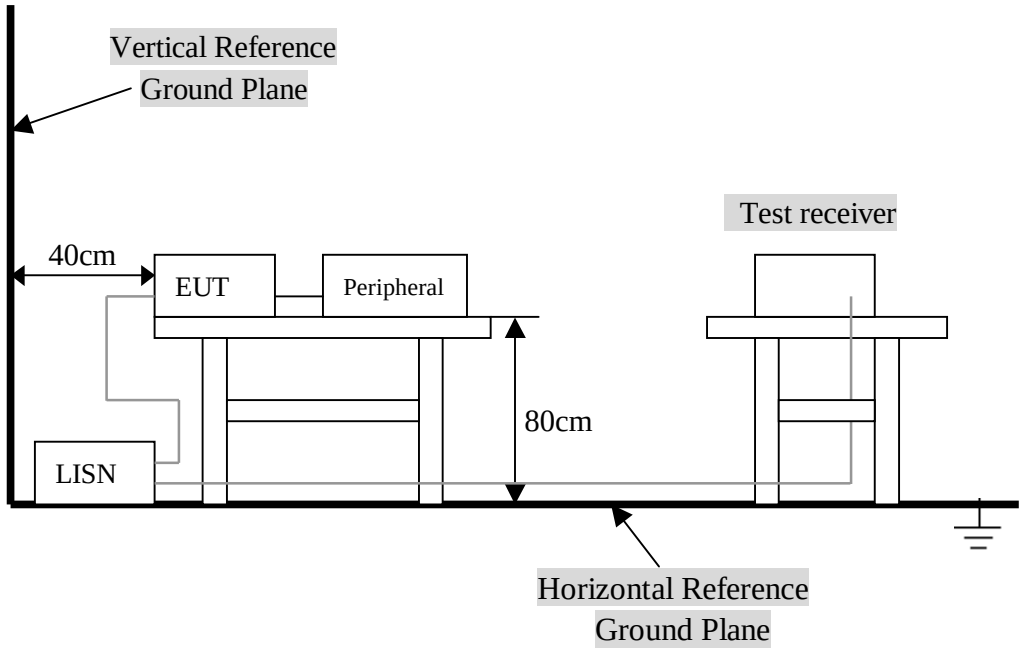
4. 1 Test Equipment

Please refer to Section 9 this report.

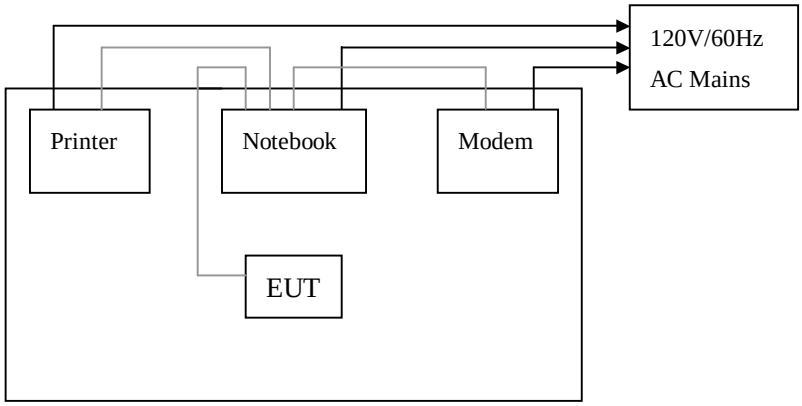
4. 2 Test Procedure

The EUT was tested according to ANSI C63.4 - 2003. 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 - 2003. cables and peripherals were moved to find the maximum emission levels for each frequency.

4. 3 Test Setup



For the actual test configuration, Please refer to the related items – Photos of Testing.



4. 4 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model #	FCC ID
Slim Full Size Laser Desktop Wireless	MLK Technologies Limited	MK63952WC	PP2MK63952WCM

B. Internal Devices

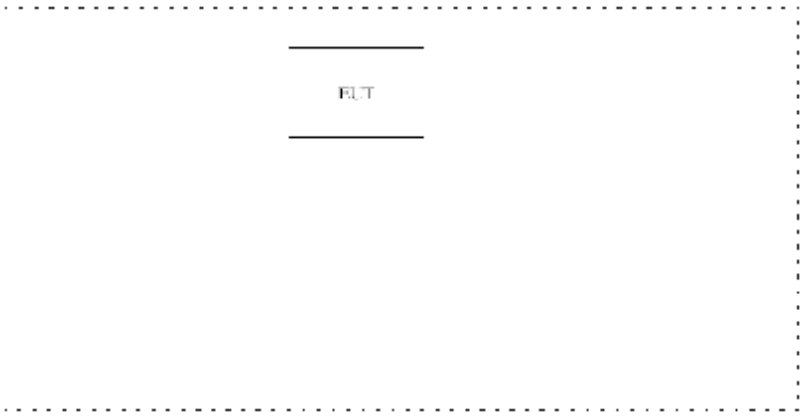
Device	Manufacturer	Model #	FCCID / DoC
N/A			

C. Peripherals

Device	Manufacturer	Model # Serial #	FCC ID/ DoC	Cable
Printer	HP	HP930C	DoC	1.5m unshielded power cord 1.2m unshielded data cable.
Modem	GVC	N/A	DoC	1.5m unshielded power cord 1.2m unshielded data cable.
Notebook	DELL	PP10L	DoC	1.5m unshielded power cord
PC	Dell	2400n	DoC	1.5m unshielded power cord

4. 5 EUT Operating Condition

Operating condition is according to ANSI C63.4 - 2003.
A. Setup the EUT and simulators as shown on follow.
B. Enable RF signal and confirm EUT active.
D. Modulate output capacity of EUT up to specification.



4. 6 Conducted Power Line Emission Limits

FCC Part 15 Paragraph 15.207 (dBuV)		
FREQUENCY RANGE (MHz)	**CLASS A QP/AV**	**CLASS B QP/AV**
0.15 – 0.5	79/66	66-56/56-46
0.5 – 5.0	73/60	56/46
5.0 - 30	73/60	60/50

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

4. 7 Conducted Power Line Test Result

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All readings are quasi -peak values with a resolution bandwidth of 9 KHz.
· Temperature ： 26 ℃
· Humidity ： 53 % RH
· Result ： **PASSED**

Receiver

EN55022 Class B							
Frequency (MHz)	**Emission (dBuV) QP**	**AV**	**LINE/ NEUTRAL**	**Limit (dBuV) QP**	**AV**	**Margin (dB) QP**	**AV**
0.174	45.08	36.29	LINE	64.77	54.77	-19.69	-18.48
0.158	48.93	40.02	NEUTRAL	65.57	55.57	-16.64	-15.55
0.210	44.81	35.26	LINE	63.21	53.21	-18.40	-17.95
0.206	43.04	36.15	NEUTRAL	63.37	53.37	-20.33	-17.22
0.310	42.34	33.13	LINE	59.97	49.97	-17.63	-16.84
0.302	40.38	34.25	NEUTRAL	60.19	50.19	-19.81	-15.94

Note: NF = No Significant Peak was Found.
Remarks：
1.Uncertainty in conducted emission measured is <+/ -2dB.
2.QP and AV are abbreviations of quasi-peak and average individually.
3.The emission levels of other frequencies were very low against the limit.
4.The Quasi-peak emission level also meets average limit and measurement with the average detector is unnecessary.
5.Margin Value= Emission Level – Limit Value.

Conducted Emission

EN55022

EUT: Receiver of Slim Full Size Laser Desktop Wireless, M/N: MK63952WC

Manufacturer: MLK Technologies Limited.

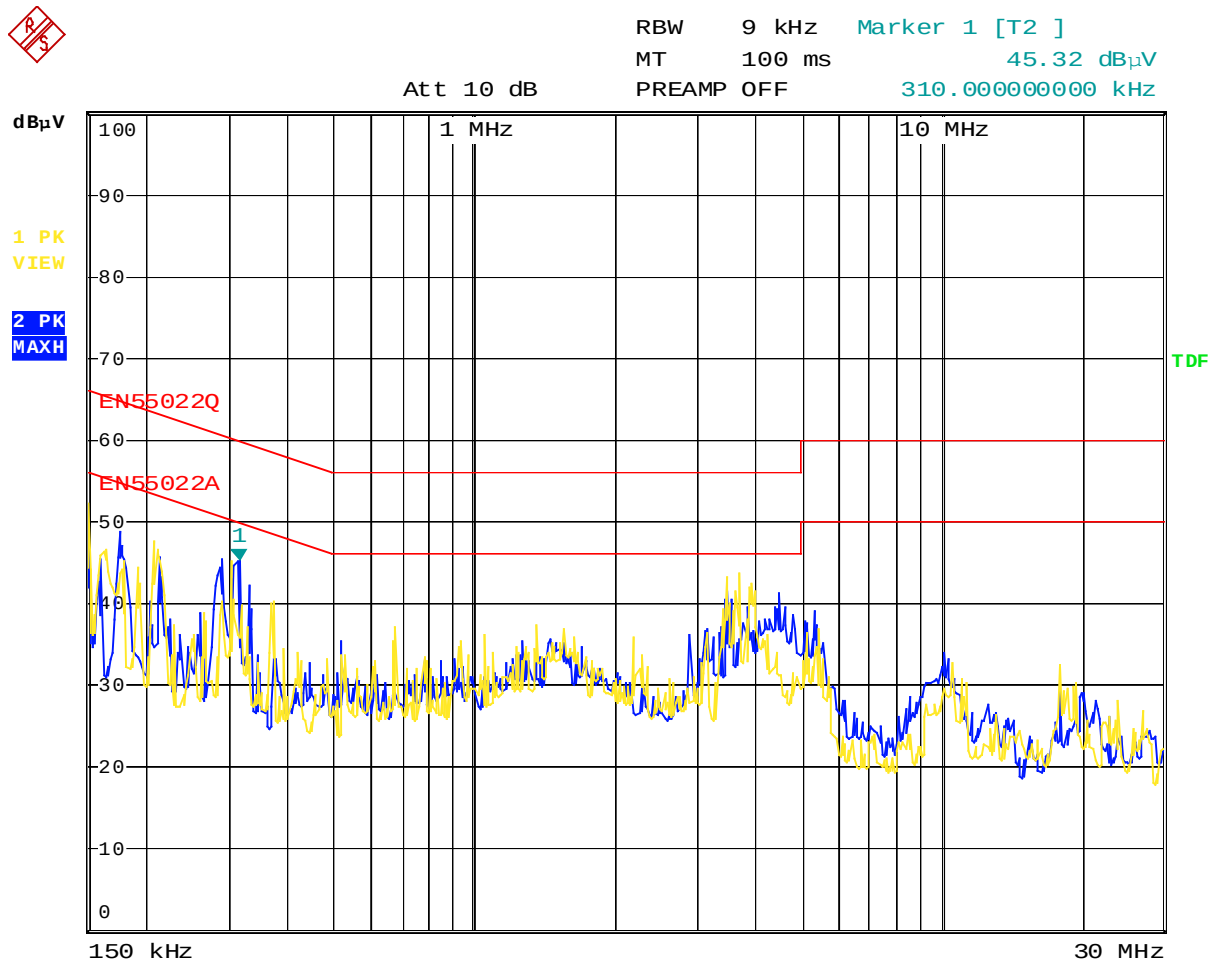
Operating Condition: Normal

Test Site: Ke Mei Ou Laboratory

Operator: Jacky Huang

Test Specification: LINE&NEUTRAL

Comment:



Date: 3.NOV.2006 22:51:56

5. Radiated Emission Test

5. 1 Test Equipment

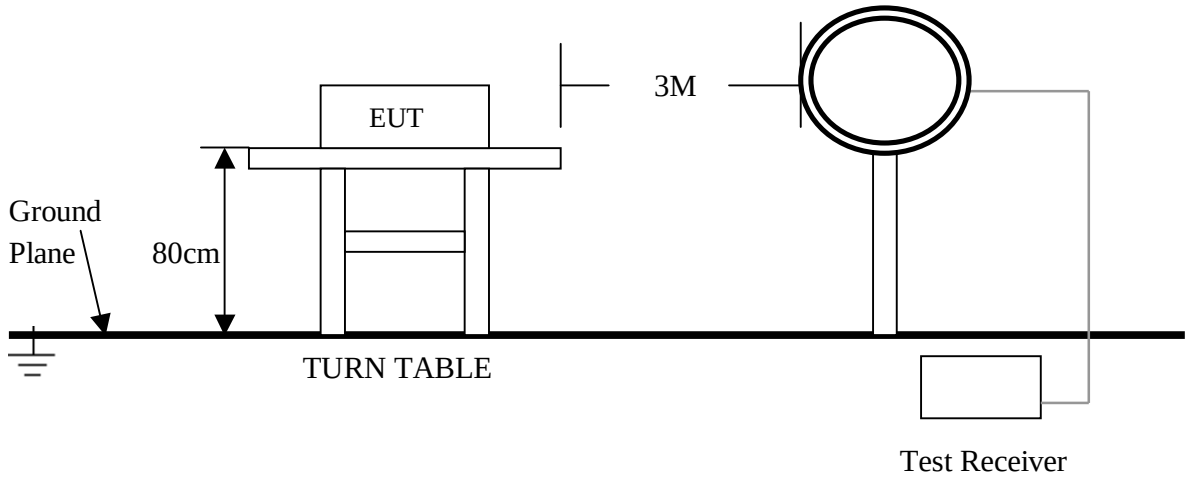
Please refer to Section 9 this report.

5. 2 Test Procedure

1. The EUT was tested according to ANSI C63.4 - 2003. The radiated test was performed at Ke Mei Ou Laboratory. This site is on file with the FCC laboratory division, Registration No. 125782.
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 C63.4-2003.
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 emissions from the EUT were measured continuously at every azimuth by rotating the turntable. The Receiving antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency. Emissions below 30MHz were measured with a loop antenna while emission above 30MHz were measured using a broadband E-field antenna.
5. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.
6. Both the horizontal and vertical field components were measured above 30 MHz while below 30 MHz the antenna was rotated in 3 axes.

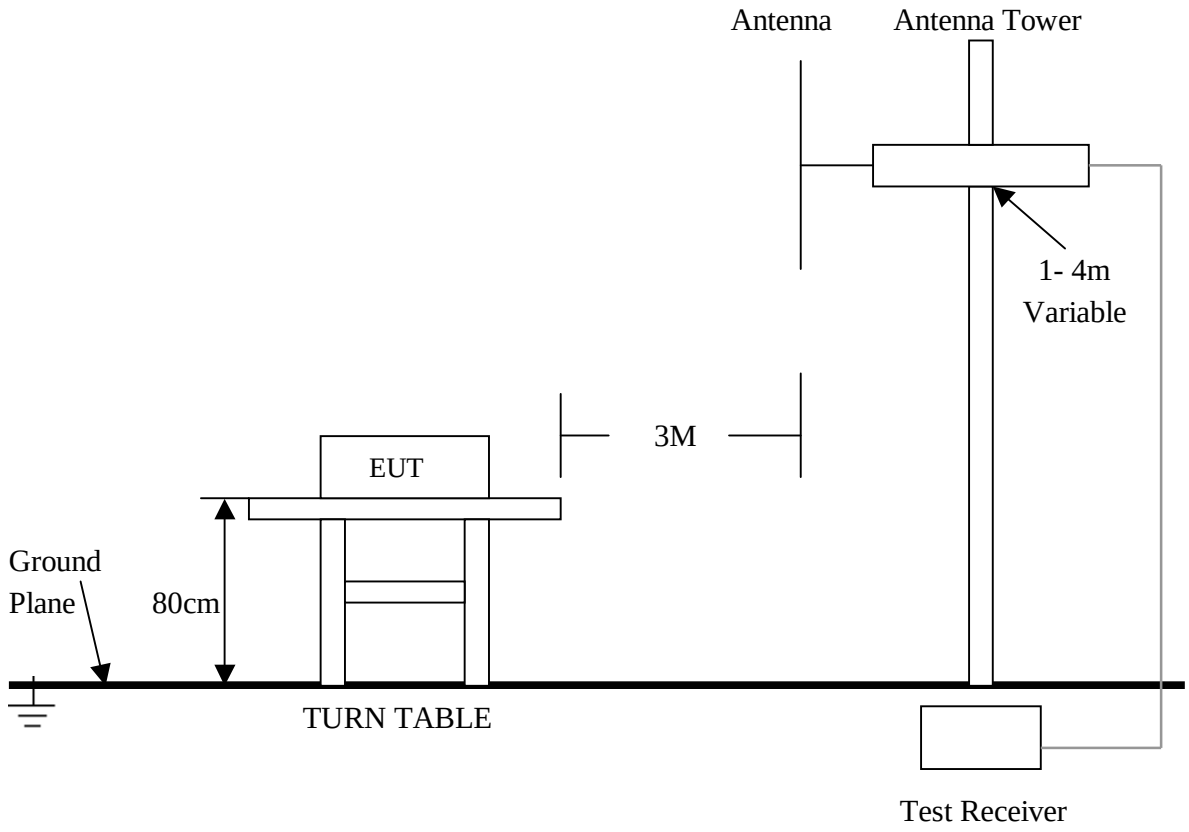
5. 3 Radiated Test Setup

For Frequencies below 30 MHz



For the actual test configuration , please refer to the related items – Photos of Testing

For Frequencies below 1 GHz



For the actual test configuration , please refer to the related items – Photos of Testing

5. 4 Configuration of The EUT

Same as section 4 . 4 of this report

5. 5 EUT Operating Condition

Same as section 4 . 5 of this report.

5. 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 ：

A. FCC Part 15 Subpart C Paragraph 15.227 Limit

Fundamental Frequency (MHz)	Field Strength of Fundamental	
	uV/m	dBuV/m
26.96 – 27.28	10000	80.0

Note:
(1) RF Voltage (dBuV) = 20 log RF Voltage (uV)
(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
(3) The emission limit in this paragraph is based on measurement instrumentation employing an average detector. Measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency (MHz)	Distance (m)	Field Strength (dBuV/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
Above 960	3	54.0

Note:
(1) RF Voltage (dBuV) = 20 log RF Voltage (uV)
(2) In the Above Table, the tighter limit applies at the band edges.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the

5. 7 Radiated Emission Test Result

A. Fundamental Radiated Emission Data

Product : Slim Full Size Laser Desktop Wireless
Test Item : Fundamental Radiated Emission Data
Test Voltage : DC 3V (Power by Battery)
Test Result : **PASS**
Test Mode : CH1 & CH2
Temperature : 25 ℃
Humidity : 50%RH

CH1

Freq. (MHz)	Emission (dBuV/m)	HORIZ / VERT	Limits (dBuV/m)	Margin (dB)
27.045	48.16	HORIZ	80	-31.84
27.045	46.20	VERT	80	-33.80

CH2

Freq. (MHz)	Emission (dBuV/m)	HORIZ / VERT	Limits (dBuV/m)	Margin (dB)
27.195	48.92	HORIZ	80	-31.08
27.195	46.87	VERT	80	-33.13

Note:
(1) All Readings are Peak value.
(2) Emission Level = Reading Level + Probe Factor + Cable Loss.
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

B. General Radiated Emission Data

Product : Slim Full Size Laser Desktop Wireless
Test Item : General Radiated Emission Data
Test Voltage : DC 3V (Power by Battery)
Test Result : **PASS**
Test Mode : Tx & Rx
Temperature : 25 ℃
Humidity : 50%RH

CH1

Freq. (MHz)	Emission (dBuV/m)	HORIZ / VERT	Limits (dBuV/m)	Margin (dB)
81.135	18.86	HORIZ	40.0	-21.14
81.135	16.78	VERT	40.0	-23.22
108.180	18.90	HORZ	43.5	-24.60
108.180	18.21	VERT	43.5	-25.29
297.480	23.02	HORZ	46.0	-22.98
157.840	19.43	VERT	43.5	-24.07

CH2

Freq. (MHz)	Emission (dBuV/m)	HORIZ / VERT	Limits (dBuV/m)	Margin (dB)
81.585	18.34	HORIZ	40.0	-21.66
81.585	15.67	VERT	40.0	-24.33
108.780	20.03	HORZ	43.5	-23.47
108.780	16.34	VERT	43.5	-27.16
155.760	19.61	HORZ	43.5	-23.89
158.000	19.41	VERT	43.5	-24.09

Rx

Freq. (MHz)	Emission (dBuV/m)	HORIZ / VERT	Limits (dBuV/m)	Margin (dB)
120.320	21.85	HORIZ	43.5	-21.65
119.600	26.68	VERT	43.5	-16.82
173.960	25.07	HORZ	43.5	-18.43
173.920	25.07	VERT	43.5	-18.43
255.960	23.77	HORZ	46.0	-22.23
256.080	15.83	VERT	46.0	-30.17

Note:
(1) All Reading Levels below 1GHz are Quasi-Peak, above are peak and average value.
(2) Emission Level = Reading Level + Probe Factor + Cable Loss.

6. Band Edge

6. 1 Test Equipment

Please refer to Section 9 this report.

6. 2 Test Procedure

Please refer to Section 5.2 this report.

6. 3 Radiated Test Setup

Please refer to Section 5.3 this report.

6. 4 Configuration of The EUT

Same as section 4 . 4 of this report

6. 5 EUT Operating Condition

Same as section 4 . 5 of this report.

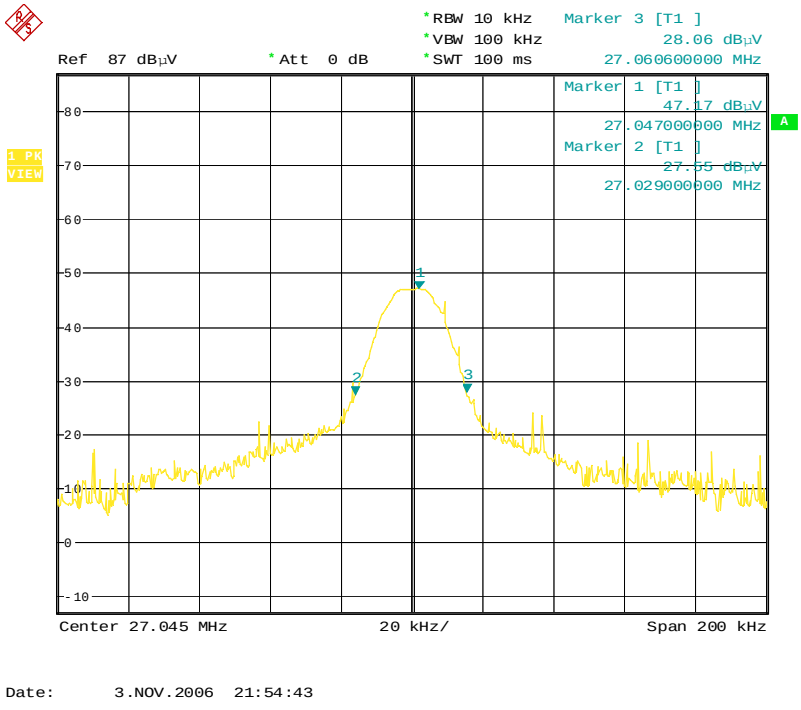
6. 6 Band Edge Limit

Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

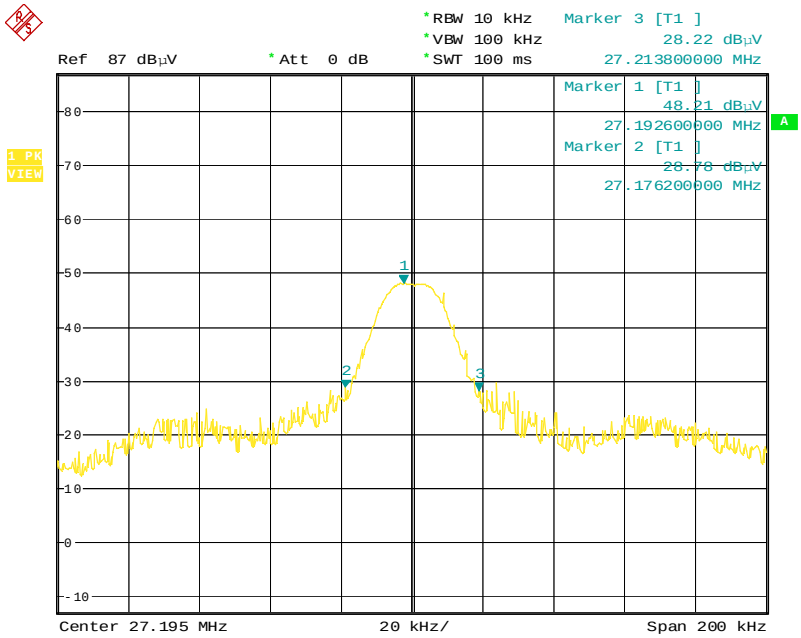
6. 7 Band Edge Test Result

Product	: Slim Full Size Laser Desktop Wireless	Test Mode	: CH1&CH2
Test Item	: Band Edge Data	Temperature	: 25 ℃
Test Voltage	: DC 3V (Power by Battery)	Humidity	: 50%RH
Test Result	: **PASS**		

CH1



CH2



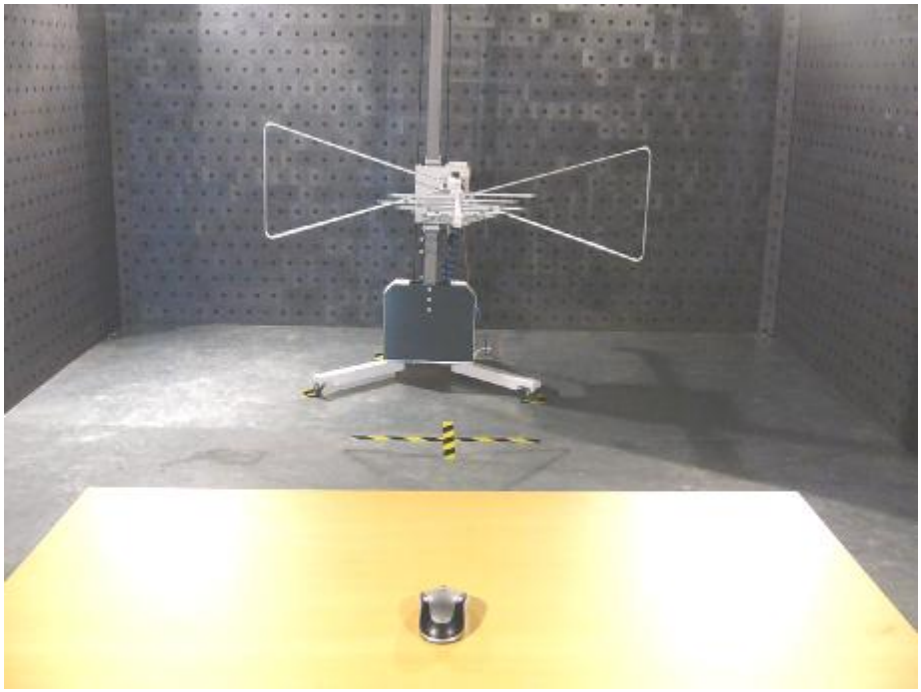
Note: (1) The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.

(2) The average measurement was not performed when the peak measured data under the limit of average detection.

7. Photos of Testing

7. 1 EUT Test Photographs

Radiated emission test view

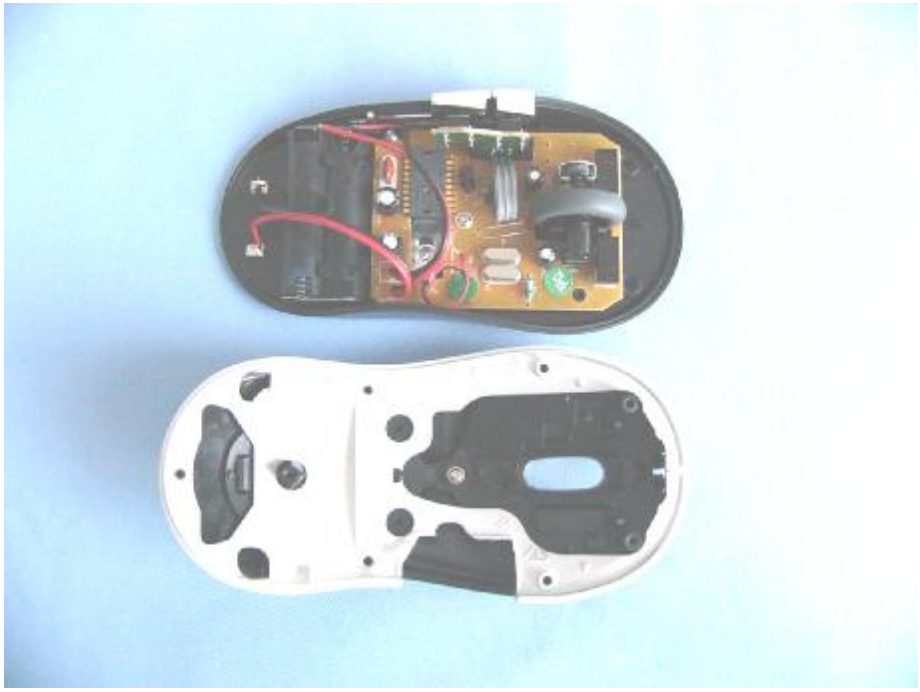


7. 2 EUT Detailed Photographs

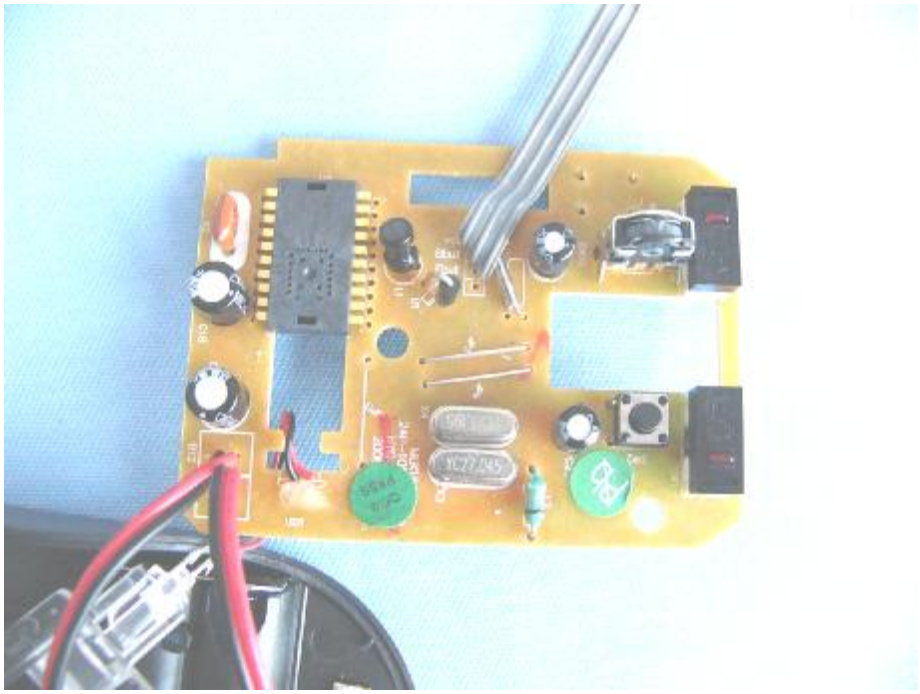
EUT top view

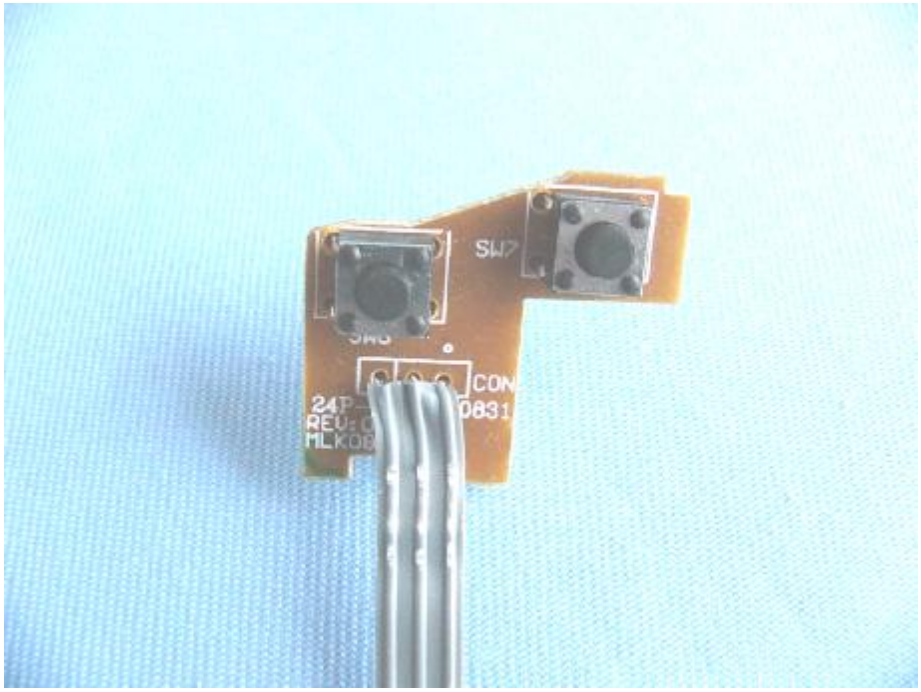
EUT bottom view

EUT inside whole view

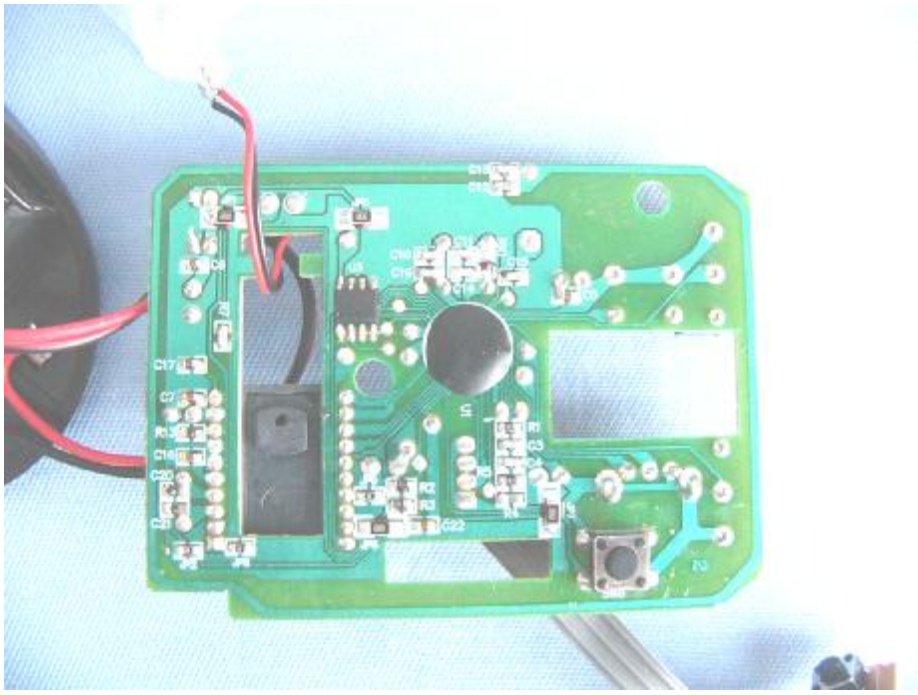


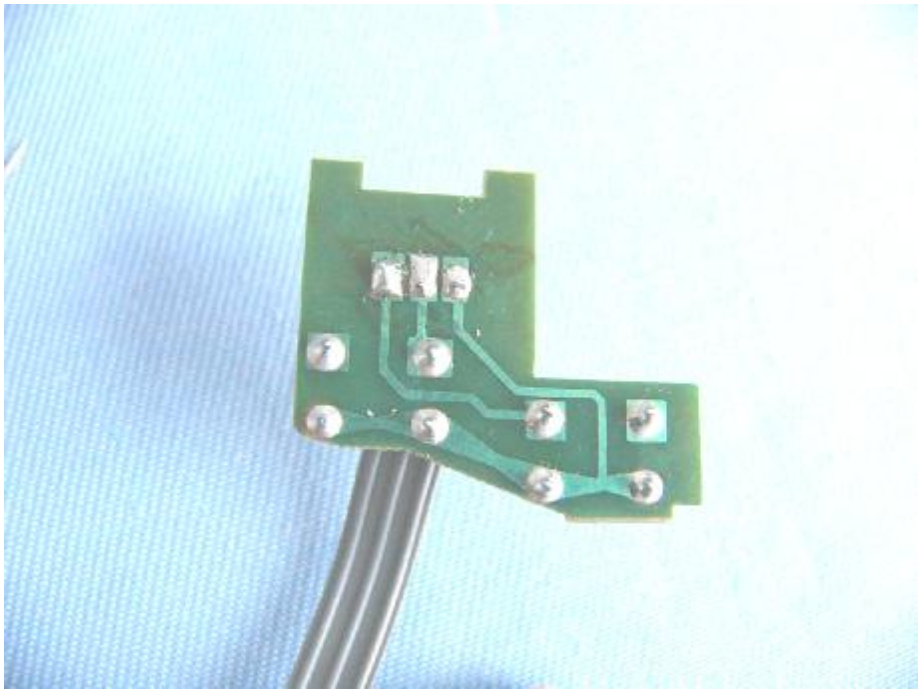
Main board component side





Main board solder side



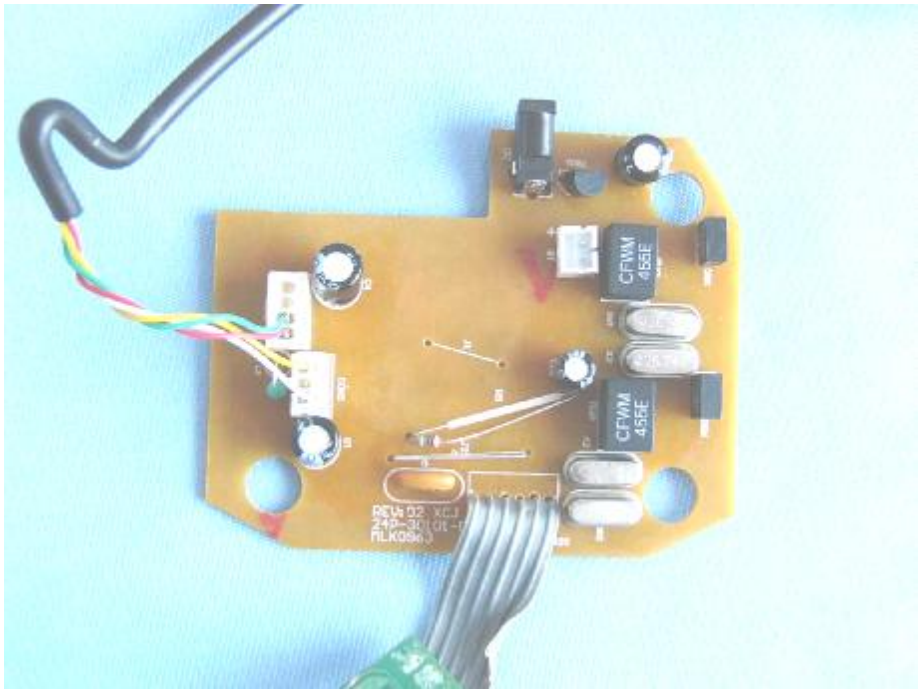


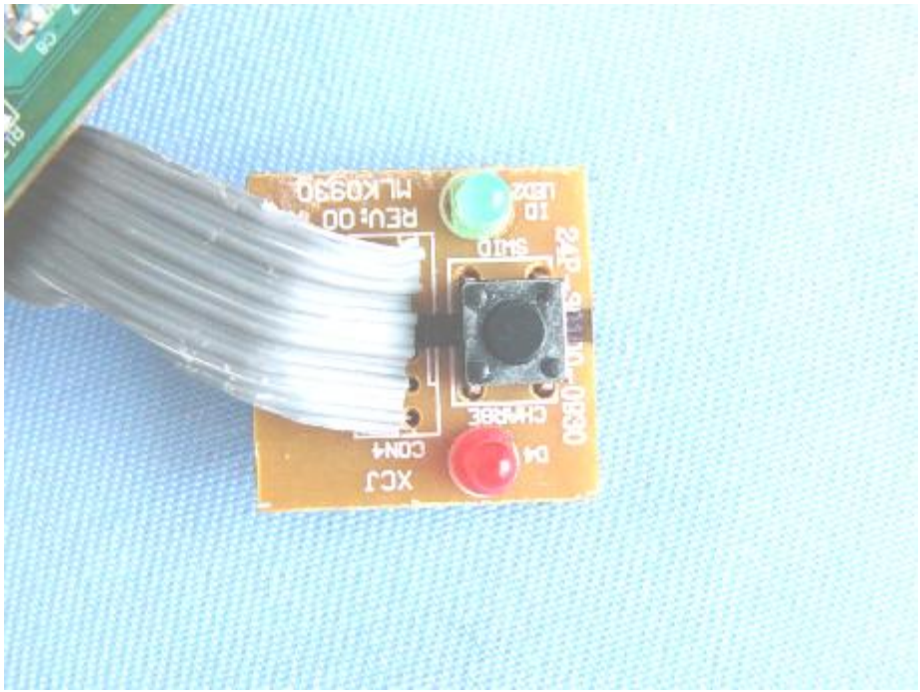
Rx top view

Rx bottom view

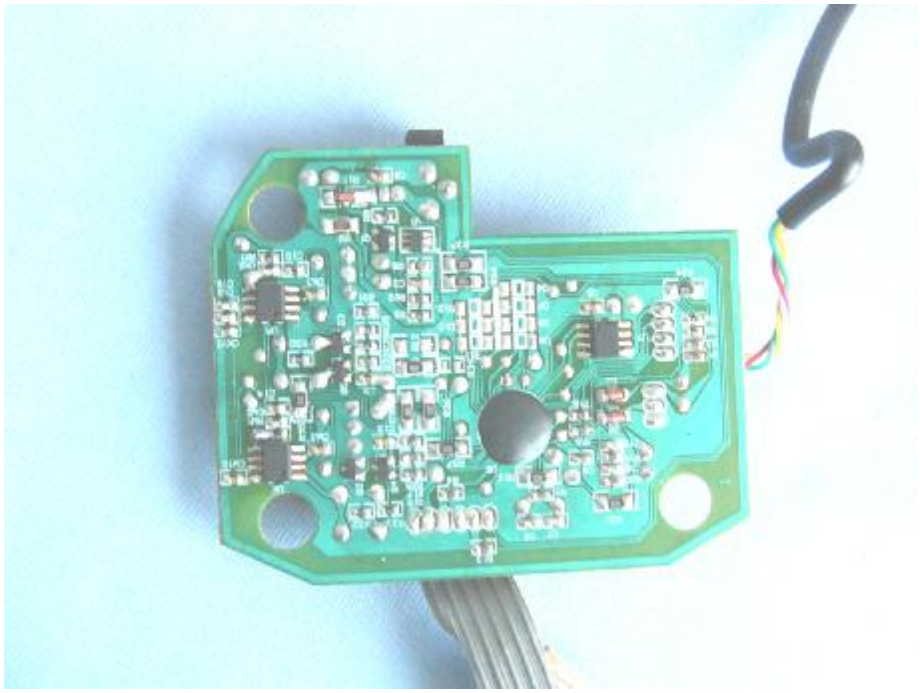
Rx inside whole view

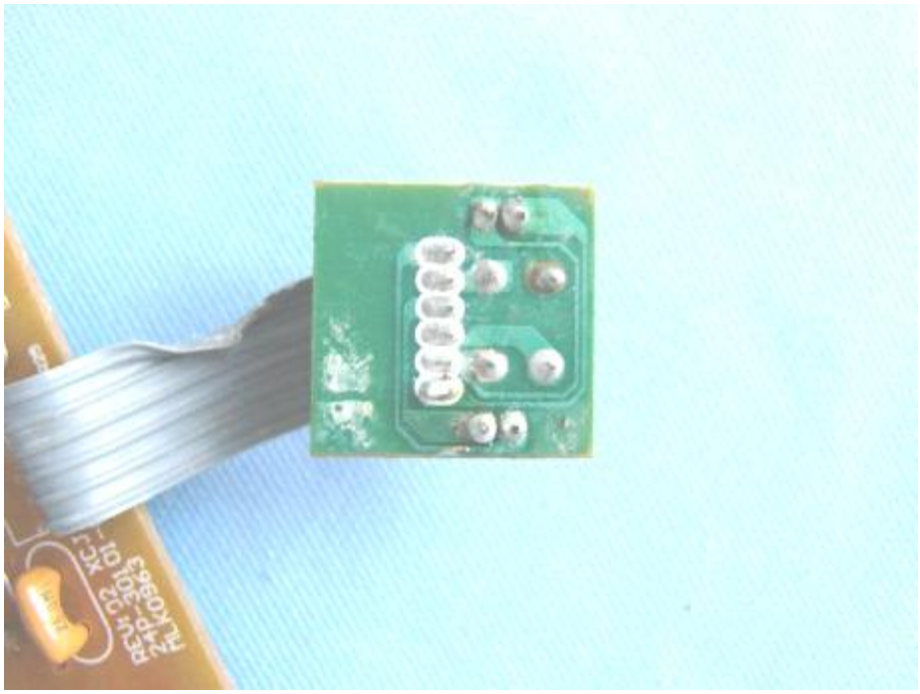
Rx board component side





Rx board solder side





8. FCC ID Label

FCC ID: PP2MK63952WC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Label must not be a stick-on paper label. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

The remained portion of label statement required by FCC is attached in the user's manual.

Proposed Label Location on EUT

EUT Bottom View/Proposed FCC ID Label Location

9. Test Equipment

The following test equipments were used during the radiated & conducted emission test:

Equipment/ Facilities	Manufacturer	Model #	Serial No.	Date of Cal.	Due Date
Turntable	KMO	KSZ001T	200306	NCR	NCR
Antenna Tower	KMO	KSZ002AT	200307	NCR	NCR
OATS	KMO	KSZSITE001	N/A	July 06, 2005	July 06, 2006
EMI Test Receiver	Rohde & Schwarz	ESPI3	100180	Oct.18, 2005	Oct.18, 2006
Signal Generator	Rohde & Schwarz	SMT03	100059	Feb.10, 2006	Feb.10, 2007
Signal Generator	FLUKE	PM5418+Y/C	LO747012	Feb.10, 2006	Feb.10, 2007
Signal Generator	FLUKE	PM5418TX	LO738007	Feb.10, 2006	Feb.10, 2007
Loop Antenna	SCHWARZBECK	FMZB1516	113	Jan. 30, 2005	Jan. 30, 2006
Loop Antenna	Rohde & Schwarz	HFH2-Z2	872096/16	Jan. 30, 2005	Jan. 30, 2006
Bilog Antenna	Chase	CBL6111C	2576	Feb.01, 2006	Feb.01, 2007
Ultra Broadband Antenna	Rohde & Schwarz	HL 562	100110	June.05, 2005	June.05, 2006
AMN	Rohde & Schwarz	ESH3-Z5	100196	Oct. 23,2005	Oct. 23, 2006
AMN	Rohde & Schwarz	ESH3-Z5	100197	Oct. 23,2005	Oct. 23, 2006
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	N/A	N/A	N/A
Absorbing Clamp	Rohde & Schwarz	MDS-21	N/A	Oct. 29,2005	Oct. 29,2006
KMO Shielded Room	KMO	KMO-001	N/A	N/A	N/A
EMI Test Receiver	Rohde & Schwarz	ESCS30	100003	Feb. 27, 2006	Feb.27, 2007
AMN	Rohde & Schwarz	ESH3-Z5	100002	Feb.10, 2006	Feb.10, 2007
LISN	Kyoritsu	KNW-407	8-1441-8	Feb.10, 2006	Feb.10, 2007
EMI Test Receiver	Rohde & Schwarz	ESI26	838786/013	Feb.10, 2006	Feb.10, 2007
Bilog Antenna	Chase	CBL6112B	2591	Feb.10, 2006	Feb.10, 2007
Horn Antenna	Rohde & Schwarz	HF906	100014	Feb.10, 2006	Feb.10, 2007
Power Meter	Rohde & Schwarz	NRVD	100041	Feb.10, 2006	Feb.10, 2007
Radio Communication Test Set	Rohde & Schwarz	CMS 54	846621/024	Feb.10, 2006	Feb.10, 2007
Modulation Analyzer	Hewlett-Packard	8901B	2303A00362	Feb.10, 2006	Feb.10, 2007
SOHO Telephone Switching System	IKE	2000-108C	N/A	Feb.10, 2006	Feb.10, 2007
Temperature Chamber	TABAI	PSL-4GTW	N/A	Feb.10, 2006	Feb.10, 2007
3m Semi-Anechoic Chamber	Albatross Projects	9mX6mX6m	N/A	Feb.10, 2006	Feb.10, 2007