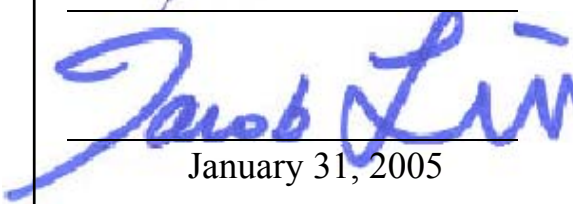


**Test Report**

1/17

|                   |                                                                                                                                          |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Report No.        | C3115491                                                                                                                                 |
| FCC ID            | IOWRMO317                                                                                                                                |
| Specifications    | FCC Part 15, Class B                                                                                                                     |
| Test Method       | ANSI C63.4                                                                                                                               |
| Application       | <input checked="" type="checkbox"/> Original <input type="checkbox"/> Class II Changes                                                   |
| Applicant         | Chic Technology Corp.                                                                                                                    |
| Applicant address | 16F, No. 150, Chien-I Road, 235 Chung Ho City, Taipei Hsien, Taiwan, R.O.C.                                                              |
| Product name      | M-RBC108                                                                                                                                 |
| Items tested      | Wireless Mouse                                                                                                                           |
| Model No.         | 852400-0000                                                                                                                              |
| Sample No.        | C31489                                                                                                                                   |
| EUT Condition     | <input checked="" type="checkbox"/> Engineering sample <input type="checkbox"/> Pre-production <input type="checkbox"/> Final production |
| Frequency Range   | 26.96MHz to 27.28MHz                                                                                                                     |
| Results           | <b>Passed</b> (As detailed within this report)                                                                                           |
| Date              | 12/20/2004 (month / day / year)(Sample received)<br>01/13/2005 (month / day / year)(Tested)                                              |
| Prepared by       |  Project Engineer                                      |
| Authorized by     |  V. General Manager<br>(Jacob Lin)                   |
| Issue date        | January 31, 2005 (month / day / year)                                                                                                    |
| Modified by TRC   | None                                                                                                                                     |
| Tested by         | Training Research Co., Ltd. <b>(Accredited by NVLAP)</b>                                                                                 |
| Office at         | 1F, No. 255, Nan Yang Street, Hsichih, Taipei Hsien 221, Taiwan                                                                          |
| Open site at      | No. 15, Lane 530, Pa-Lian RD., Sec. 1, Hsichih City, Taipei Hsien, Taiwan, R.O.C.                                                        |

**Conditions of issue :**

- *This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.*
- *The test data in this test report are following the procedures in accordance with the terms of accreditation.*
- *This test report and measurements made by TRC are traceable to the NIST only Conducted and Radiated Method (TRC is accredited by NVLAP, code No.: 200174-0).*
- *The device has been tested is fully complied with the requirements the Directive FCC Part 15.*

# Contents

## Chapter 1 Introduction

|                                   |   |
|-----------------------------------|---|
| Description of EUT .....          | 3 |
| Configuration of Test Setup ..... | 4 |
| List of Support Equipment .....   | 6 |

## Chapter 2 Conducted Emission Test

|                                |   |
|--------------------------------|---|
| Test Condition and Setup ..... | 8 |
| Conducted Test Placement ..... | 9 |

## Chapter 3 Peak Power Measurement (Frequency Band: 26.96 ~ 27.28)

|                     |    |
|---------------------|----|
| Test Setup.....     | 10 |
| Test Procedure..... | 10 |

## Chapter 4 Radiated Emission Test

|                                |    |
|--------------------------------|----|
| Test Condition and Setup ..... | 11 |
| Radiated Test Placement .....  | 12 |

## Appendix A :

|                             |    |
|-----------------------------|----|
| Conducted test result ..... | 13 |
|-----------------------------|----|

## Appendix B:

|                                           |    |
|-------------------------------------------|----|
| Peak Power and Radiated test result ..... | 14 |
|-------------------------------------------|----|

## Appendix C:

|                                |    |
|--------------------------------|----|
| Band Edge of Measurement ..... | 16 |
|--------------------------------|----|

## ***Chapter 1 Introduction***

**EUT** : Wireless Mouse  
**Model No.** : 852400-0000  
**Product name** : M-RBC108  
**Frequency Range** : 26.96 – 27.28 MHz  
**Power Type** : Powered by two 1.5VDC AAA batteries

\*This EUT has one channel (each with 256 IDs): 27.0450MHz

### ***Test method:***

Pretest was found that the emission of operating mode is worse than standby mode. So, The final test is made at the operating mode.

During the measurement, the following mode were tested:

#1 Stand-alone Transmitting

#2 Charging by Adaptor

The conduction pretest was found out “**#2 Charging by Adaptor**” was the worst case.

The radiation pretest was found out “**#1 Stand-alone transmitting**” was the worst case.

We only recorded this data in this report.

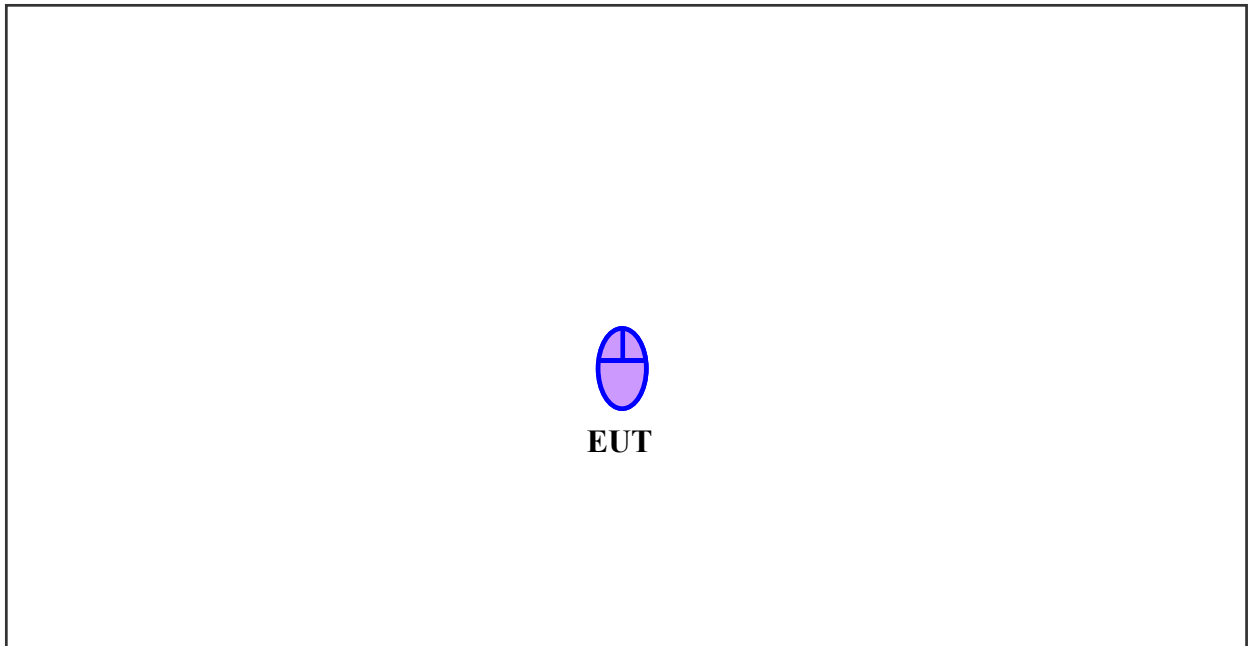
While testing, the EUT was made to transmit continuously and adjusted at a position, which transmitted the maximum emission.

The test placement as the photographs showed is the worst case emission placed. (If the emission is close to the ambient, the resolution BW and view resolution will be reduced and the data will be recorded by detection of maximum hold peak mode.)

***The testing configuration of test setup is showing in the next page.***

***There is no deviation from standard test method.***

***Configuration of Test Setup (Test mode: “#1”)***

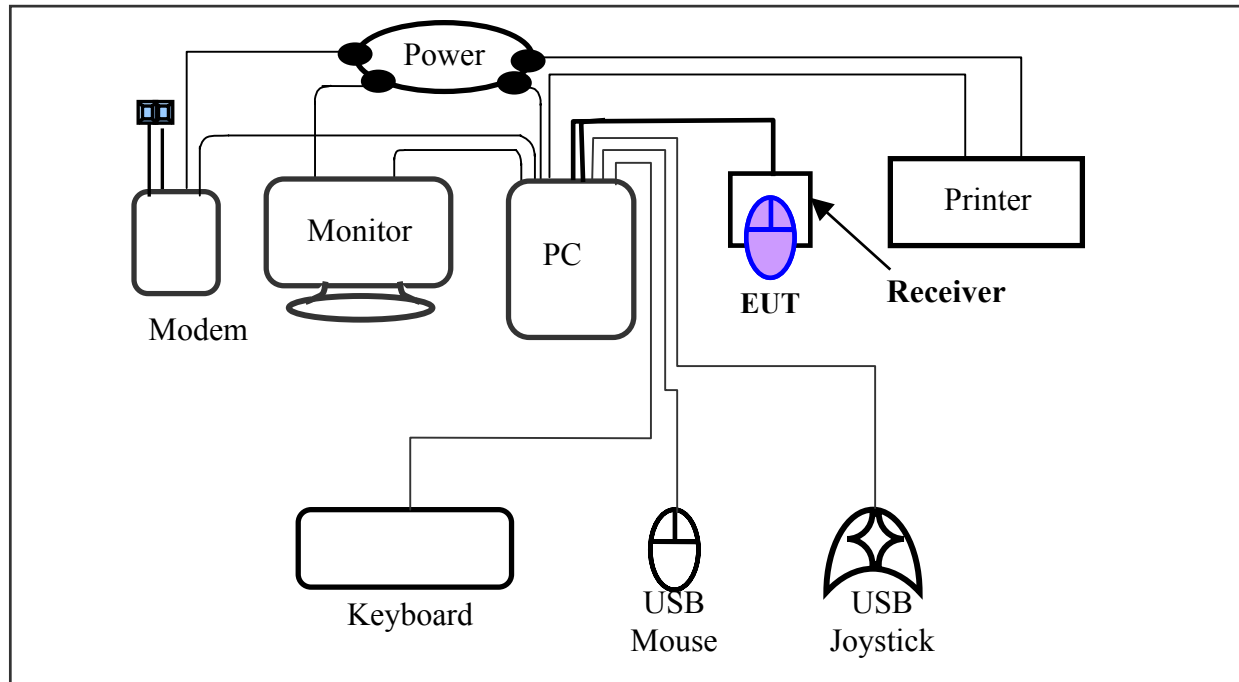


**EUT:**

\*Put two AAA size, 1.5V battery into the battery cell of EUT, powers the subject device.

The EUT does not be connected with any product.

### Configuration of Test Setup (Test mode: #2)



### Connections:

#### PC:

- \*Serial Port --- via a 110cm shielded RS-232 cable to an external modem.
  - \*Monitor Port --- a monitor with 1.5m length data cable.
  - \*Keyboard port --- a keyboard with 1.5m length data cable.
  - \*Mouse port --- to EUT.
  - \*USB port A --- an USB joystick with 1.8m long, shielded, no ferrite bead data cable.
  - \*USB port B --- a USB mouse with 1.88m long, shielded, no ferrite bead data cable.
  - \*Printer port --- a printer with 1.8m length data cable
- (Each port on PC is connected with suitable device)

#### Receiver:

- \*PS/2 Jack --- via a 1.52 m length data cable with a ferrite core that connect to the Keyboard port and Mouse port of PC.
- \*Power Jack --- via a 1.86m length power cable with an adapter connected to the power source.
- \*Power Adaptor --- Trade: TOM LEE; Model: AD3506003; I/P: 120Vac 60Hz;  
O/P: 6Vdc 300mA

#### EUT:

- \*Put two AAA size, 1.5V battery into the battery cell of EUT, and put the EUT on the Receiver.

**List of Support Equipment**

**Conducted (Radiated) test:**

**PC** : **HP Pavilion w1064d**  
Model No. : HP Pavilion w1000  
Serial No. : THT 42610VZ  
FCC ID : Doc Approved  
Power type : AC 100 –127 4.0A, 200-240 2.0A, 50 ~ 60Hz  
Power cord : Non-shielded, 2.33m long, Plastic, No ferrite core

**PC** : **HP Pavilion t123d**  
Model No. : DD281A-AB0  
Serial No. : TW31720157  
FCC ID : Doc Approved  
Power type : AC 100 –127 4.0A, 200-240 2.0A, 50 ~ 60Hz  
Power cord : Non-shielded, 2.33m length, Plastic, No ferrite core

**Monitor** : **HP pavilion mx70**  
Model No. : P1283A  
Serial No. : THTBR00257  
FCC ID : DOC Approved  
Power type : 100 ~ 240V AC 15A 50/60Hz  
Power cord : Shielded, 1.83m long, No ferrite core  
Data cable : Shielded, 1.46m (1.80m) length, with two ferrite cores (no ferrite core)

**Keyboard** : **HP**  
Model No. : 5219  
Serial No. : BN31206351  
FCC ID : E5XKB5209  
Power type : By PC  
Data cable : Shielded, 1.60m length

**Mouse** : **HP**  
Model No. : MO42KOA  
Serial No. : 0306044011  
FCC ID : DOC Approved  
Power type : By PC  
Power cord : Non-shielded, 1.88m length, No ferrite core

**Printer : HP**  
Model No. : C2642A  
Serial No. : SG69A196GV  
FCC ID : B94C2642X  
Power type : 230 VAC, 50Hz  
Power cord : Non-shielded, 2m long, no ferrite core  
Data cable : Shielded, 1.84m long, no ferrite core

**Modem : ACEEX**  
Model No. : DM-1414V  
FCC ID : IFAXDM1414  
Power type : 120VAC, 60Hz/ 9VAC, 1A  
Power cord : Non-shielded, 1.9m long, no ferrite cord  
Data cable : RS232, Shielded, 1.2m long, no ferrite core  
RJ11C x 2, 7' length, non-shielded, no ferrite core

**USB Joystick : Rockfire**  
Model No. : QF-337uv  
Serial No. : 10600545  
FCC ID : CE Approval  
Power type : Powered by PC  
Power cable : Shielded, 1.8m length, No ferrite bead data cable

**Wireless Receiver: Chic Technology Corp.**

Model No. : 852401-0000  
Serial No. : N/A  
FCC ID : Doc Approved  
Power type : By PC

## ***Chapter 2 Conducted Emission Test***

### ***Test Condition and Setup:***

All the equipment is placed and setup according to the standard.  
The EUT is assembled on a wooden table that is 80 cm high, is placed 40 cm from the back-wall that is a vertical conducting plane. One LISN is for EUT, the other LISN is for support equipment. They are all placed on the conductive ground. The EUT's LISN connect a line switch box for selecting L1 or L2, then connect to a preamplifier and Spectrum.

The spectrum measured from 150KHz to 30MHz. Conducted emission levels are detected at max. peak mode. But if the max. peak mode failed or over average limit, it will be measured by QP and average detection mode using the Receiver.

While testing, there is the worst-emission plot printed at peak detection mode, and there are more than 6 highest emissions relative to limit recorded. The plot is kept as the original data, not included in test report.

### ***List of test Instrument :***

| Instrument Name    | Model No.     | Brand         | Serial No.      | <u><b>Calibration Date</b></u> |           |
|--------------------|---------------|---------------|-----------------|--------------------------------|-----------|
|                    |               |               |                 | Last time                      | Next time |
| Spectrum analyzer  | 8591EM        | H P           | 3710A01203      | 05/13/04                       | 05/12/05  |
| LISN (EUT)         | 3825/2        | EMCO          | 9411-2284       | 07/21/04                       | 07/20/05  |
| LISN (Support E.)  | 3825/2        | EMCO          | 9210-2007       | 09/03/04                       | 09/02/05  |
| Preamplifier       | CB-001        | TRC           | 98-02           | 05/29/04                       | 05/28/05  |
| Line switch box    | CB-01         | TRC           | 98-04           | 05/29/04                       | 05/28/05  |
| FTB-1-6 Attenuator | 15542         | mini-circuits | 9620 03         | 05/29/04                       | 05/28/05  |
| 20dB Attenuator    | CAT-20        | mini-circuits | 9620 13         | 05/29/04                       | 05/28/05  |
| Coaxial Cable      | BNC3200B-0058 | Jyebao        | CL-05           | 05/29/04                       | 05/28/05  |
| Coaxial Cable      | BNC31VB-0316  | Jyebao        | IF-01ca0069-036 | 05/29/04                       | 05/28/05  |
| 50ohm terminator   | 370BNM        | NARDA         | PWR5W           | 07/21/04                       | 07/20/05  |
| 50ohm terminator   | 370BNM        | NARDA         | PWR5W           | 07/21/04                       | 07/20/05  |
| 50ohm terminator   | 370BNM        | NARDA         | PWR5W           | 09/03/04                       | 09/02/05  |
| 50ohm terminator   | 370BNM        | NARDA         | PWR5W           | 09/03/04                       | 09/02/05  |

The level of confidence of 95% , the uncertainty of measurement of conducted emission is +3.1/-4.84 dB .

### ***Test Result: Pass (Appendix A)***

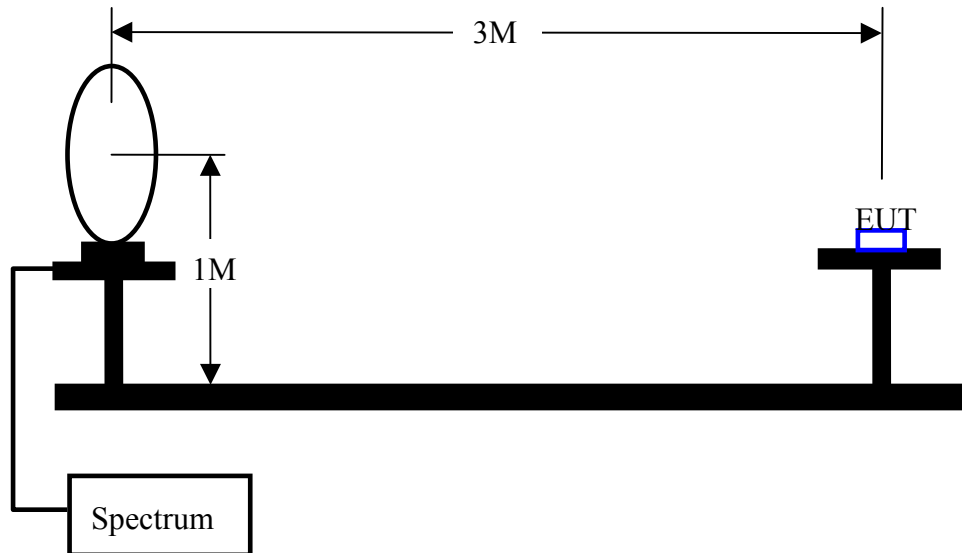
***Conducted Test Placement: (Photographs)(Test mode: #2)***



### Chapter 3 Peak Power Measurement (Frequency Band: 26.96 ~ 27.28)

#### Test Setup:

##### 1. Test Setup:



##### 2. Test Procedure:

- The EUT was setup in the anechoic chamber as shown above.
- The loop antenna was located upon its plane vertical, 3-meter distance from the EUT. The center of the loop is 1-meter above the ground plane.
- In order to find the maximum radiation, the EUT was rotated 360°. The measuring antenna was rotated about its axis at each azimuth about the EUT.

#### List of test Instrument :

| Instrument Name         | Model No.    | Brand     | Serial No. | Calibration Date |           |
|-------------------------|--------------|-----------|------------|------------------|-----------|
|                         |              |           |            | Last time        | Next time |
| Receiver                | SCR3102      | SCHAFFNER | 012        | 05/13/04         | 05/12/05  |
| Control Box             | TWR95-4      | TRC       | C9001-2    | N/A              | N/A       |
| Antenna                 | 6502         | EMCO      | 9206-2777  | 06/10/04         | 06/09/05  |
| Open test side          |              |           |            | 05/29/04         | 05/28/05  |
| Pre-amplifier           | TRC-CB-2     | TRC       | CB-002     | 05/29/04         | 05/28/05  |
| Coaxial Cable (20meter) | RG-214/U     | Jyebao    | CL-002     | 05/29/04         | 05/28/05  |
| Coaxial Cable (50cm)    | BNC31VB-0316 | Jyebao    | CL-002     | 05/29/04         | 05/28/05  |
| Coaxial Cable (20cm)    | BNC31VB-0318 | Jyebao    | CL-007     | 05/29/04         | 05/28/05  |
| Coaxial Cable (55cm)    | BNC31VB-0316 | Jyebao    | CL-006     | 05/29/04         | 05/28/05  |
| Coaxial Cable (55cm)    | BNC31VB-0316 | Jyebao    | CL-005     | 05/29/04         | 05/28/05  |

The level of confidence of 95%, the uncertainty of measurement of radiated emission is +2.85/-2.77 dB.

**Test Result : Pass**

## **Chapter 4 Radiated Emission Test**

### **Test Condition and Setup:**

**Pretest :** Prior to the final test ,the EUT is placed in an anechoic chamber, and scan from 30MHz to 1GHz. The devices rotated through three orthogonal axes to determine which attitude and configuration produces the highest emission relative to the limit. This is done to ensure the radiation exactly emits form the EUT.

**Final test:** Final radiation measurement was made on a **3 – meter** open-field test site. The EUT's maximum emission of radiation is placed on a nonconductive table, which is 0.8m height, the top surface is 1.0 x 1.5 meter. All placement is according to standard.

The emissions was examined from 30 MHz to 1000 MHz measured by receiver.

The whole range Antenna is used to measure frequency from 30 MHz to 1 GHz. The final test is used the receiver.

Measure more than six top marked frequencies generated form pretest by computer step by step at each frequency. The EUT is rotated 360 degrees, and antenna is raised and lowered from 1 to 4 meters to find the maximum emission levels. The antenna is used with both horizontal and vertical polarization.

Appropriated preamplifier, which is made by TRC is used for improving sensitivity and precautions is taken to avoid overloading. The spectrum analyzer's 6dB bandwidth is set to 120 KHz, and the EUT is measured at quasi-peak mode.

If the emission is close to the frequency band of ambient, the tester will recheck the data and the corrected data will be written in the test data sheet. If the emission is just within the ambient, the data from shield room will be taken as the final data.

### **List of test Instrument :**

| <b>Instrument Name</b>  | <b>Model No.</b> | <b>Brand</b> | <b>Serial No.</b> | <b>Calibration Date</b> |                  |
|-------------------------|------------------|--------------|-------------------|-------------------------|------------------|
|                         |                  |              |                   | <b>Last time</b>        | <b>Next time</b> |
| Receiver                | SCR3102          | SCHAFFNER    | 012               | 05/13/04                | 05/12/05         |
| Control Box             | TWR95-4          | TRC          | C9001-2           | N/A                     | N/A              |
| Antenna                 | 6502             | EMCO         | 9206-2777         | 06/10/04                | 06/09/05         |
| Open test side          |                  |              |                   | 05/29/04                | 05/28/05         |
| Pre-amplifier           | TRC-CB-2         | TRC          | CB-002            | 05/29/04                | 05/28/05         |
| Coaxial Cable (20meter) | RG-214/U         | Jyebao       | CL-002            | 05/29/04                | 05/28/05         |
| Coaxial Cable (50cm)    | BNC31VB-0316     | Jyebao       | CL-002            | 05/29/04                | 05/28/05         |
| Coaxial Cable (20cm)    | BNC31VB-0318     | Jyebao       | CL-007            | 05/29/04                | 05/28/05         |
| Coaxial Cable (55cm)    | BNC31VB-0316     | Jyebao       | CL-006            | 05/29/04                | 05/28/05         |
| Coaxial Cable (55cm)    | BNC31VB-0316     | Jyebao       | CL-005            | 05/29/04                | 05/28/05         |

The level of confidence of 95%, the uncertainty of measurement of radiated emission is +2.85/-2.77 dB.

### **Test Result : Pass (Appendix B)**

***Radiated Test Placement: (Photographs)***



## Appendix A

### Conducted Emission Test Result: (Test mode: #2)

Testing room :      Temperature : 19 ° C      Humidity : 65 % RH

#### Line 1

| Frequency<br>(KHz) | READING AMPLITUDE    |                            |                         | LIMIT                      |                         | Margin<br>(dB) |
|--------------------|----------------------|----------------------------|-------------------------|----------------------------|-------------------------|----------------|
|                    | Peak<br>(dB $\mu$ V) | Quasi-Peak<br>(dB $\mu$ V) | Average<br>(dB $\mu$ V) | Quasi-Peak<br>(dB $\mu$ V) | Average<br>(dB $\mu$ V) |                |
| 182.00             | 31.65                | ***.**                     | ***.**                  | 65.09                      | 55.09                   | -23.43         |
| 201.00             | 31.78                | ***.**                     | ***.**                  | 64.54                      | 54.54                   | -22.76         |
| 215.00             | 31.48                | ***.**                     | ***.**                  | 64.14                      | 54.14                   | -22.66         |
| 284.00             | 29.03                | ***.**                     | ***.**                  | 62.17                      | 52.17                   | -23.14         |
| 326.00             | 28.57                | ***.**                     | ***.**                  | 60.97                      | 50.97                   | -22.40         |
| 18530.00           | 28.24                | ***.**                     | ***.**                  | 60.00                      | 50.00                   | -21.76         |
| 27200.00           | 37.13                | ***.**                     | ***.**                  | 60.00                      | 50.00                   | -12.87         |

#### Line 2

| Frequency<br>(KHz) | READING AMPLITUDE    |                            |                         | LIMIT                      |                         | Margin<br>(dB) |
|--------------------|----------------------|----------------------------|-------------------------|----------------------------|-------------------------|----------------|
|                    | Peak<br>(dB $\mu$ V) | Quasi-Peak<br>(dB $\mu$ V) | Average<br>(dB $\mu$ V) | Quasi-Peak<br>(dB $\mu$ V) | Average<br>(dB $\mu$ V) |                |
| 164.00             | 33.79                | ***.**                     | ***.**                  | 65.60                      | 55.60                   | -21.81         |
| 275.00             | 31.78                | ***.**                     | ***.**                  | 62.43                      | 52.43                   | -20.65         |
| 358.00             | 29.49                | ***.**                     | ***.**                  | 60.06                      | 50.06                   | -20.57         |
| 908.00             | 27.71                | ***.**                     | ***.**                  | 56.00                      | 46.00                   | -18.29         |
| 18530.00           | 29.81                | ***.**                     | ***.**                  | 60.00                      | 50.00                   | -20.19         |
| 27200.00           | 39.00                | ***.**                     | ***.**                  | 60.00                      | 50.00                   | -11.00         |

\*The reading amplitudes are all under limit.

## Appendix B

### Peak Power Test Result: (Horizontal) (Test mode: #1)

| Frequency | Reading Amplitude | Correction Factors | Corrected Amplitude | Limit  | Margin |
|-----------|-------------------|--------------------|---------------------|--------|--------|
| MHz       | dBμV/m            | dB                 | dBμV/m              | dBμV/m | dB     |
| 27.0450   | 54.79             | -8.30              | 46.49               | 80.00  | -33.51 |

### Radiated Emission Test Result: (Horizontal) (Test mode: #1)

Test Conditions:

Testing site : Temperature : 19 ° C Humidity : 70 % RH

| Frequency | Reading Amplitude | Ant. Height | Table  | Correction Factors | Corrected Amplitude | Limit  | Margin |
|-----------|-------------------|-------------|--------|--------------------|---------------------|--------|--------|
| MHz       | dBμV              | m           | degree | dB/m               | dBμV/m              | dBμV/m | dB     |
| 54.1013   | 28.46             | 3.72        | 359    | -6.22              | 22.24               | 40.00  | -17.76 |
| 81.1500   | 34.88             | 3.98        | 52     | -9.90              | 24.98               | 40.00  | -15.02 |
| 108.2000  | 29.39             | 3.30        | 145    | -6.37              | 2302                | 43.52  | -20.50 |
| 135.2125  | 19.55             | 2.35        | 31     | -4.40              | 15.15               | 43.52  | -28.37 |
| 162.2563  | 18.75             | 1.00        | 216    | -5.59              | 13.16               | 43.52  | -30.36 |
| ***       |                   |             |        |                    |                     |        |        |

Note:

1. Margin = Amplitude – limit, *if margin is minus means under limit.*
2. Corrected Amplitude = Reading Amplitude – Correction Factors
3. Correction factor = Antenna factor + ( Cable Loss – Amplitude gain)  
(For example : 30MHz correction factor = 15.5 + (–15.26) = 0.24 dB/m)

**Peak Power Test Result: (Vertical) (Test mode: #1)**

| Frequency | Reading Amplitude | Correction Factors | Corrected Amplitude | Limit  | Margin |
|-----------|-------------------|--------------------|---------------------|--------|--------|
| MHz       | dBμV              | dB/m               | dBμV                | dBμV/m | dB     |
| 27.0450   | 38.12             | -8.30              | 29.82               | 80.00  | -50.18 |

**Radiated Emission Test Result: (Vertical) (Test mode: #1)**

Test Conditions:

Testing site : Temperature : 19 ° C Humidity : 70 % RH

| Frequency | Reading Amplitude | Ant. Height | Table  | Correction Factors | Corrected Amplitude | Limit  | Margin |
|-----------|-------------------|-------------|--------|--------------------|---------------------|--------|--------|
| MHz       | dBμV              | m           | degree | dB/m               | dBμV/m              | dBμV/m | dB     |
| 54.1013   | 27.94             | 1.00        | 14     | -6.22              | 21.72               | 40.00  | -18.28 |
| 81.1500   | 37.05             | 0.99        | 103    | -9.90              | 27.15               | 40.00  | -12.85 |
| 108.2000  | 37.37             | 1.00        | 106    | -6.37              | 31.00               | 43.52  | -12.52 |
| 135.2125  | 24.12             | 3.49        | 58     | -4.40              | 19.72               | 43.52  | -23.80 |
| 162.2563  | 20.14             | 1.01        | 244    | -5.59              | 14.55               | 43.52  | -28.97 |
| ***       |                   |             |        |                    |                     |        |        |

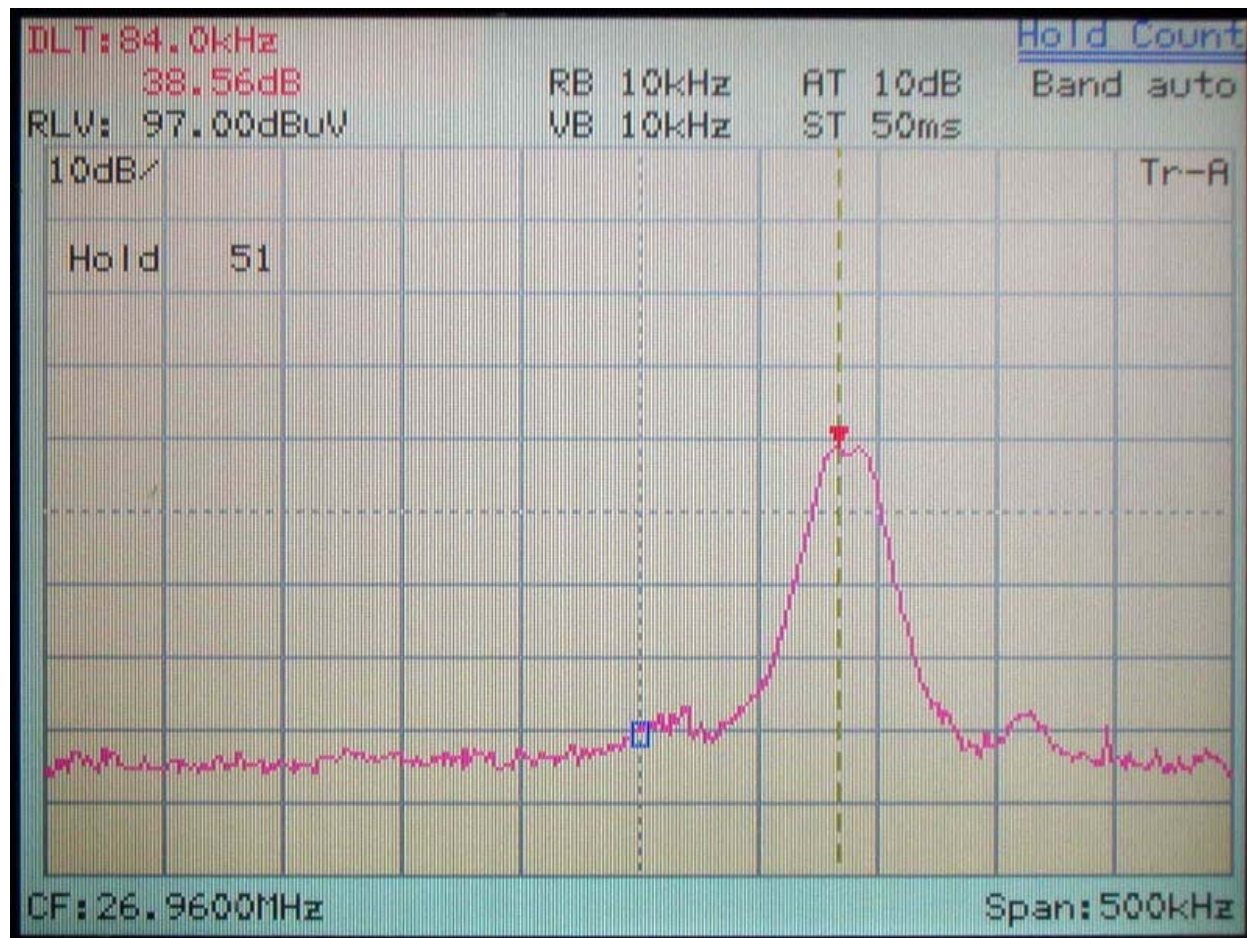
Note:

1. Margin = Amplitude – limit, *if margin is minus means under limit.*
2. Corrected Amplitude = Reading Amplitude – Correction Factors
3. Correction factor = Antenna factor + ( Cable Loss – Amplitude gain)  
(For example : 30MHz correction factor = 15.5 + (-15.26) = 0.24 dB/m)

## Appendix C

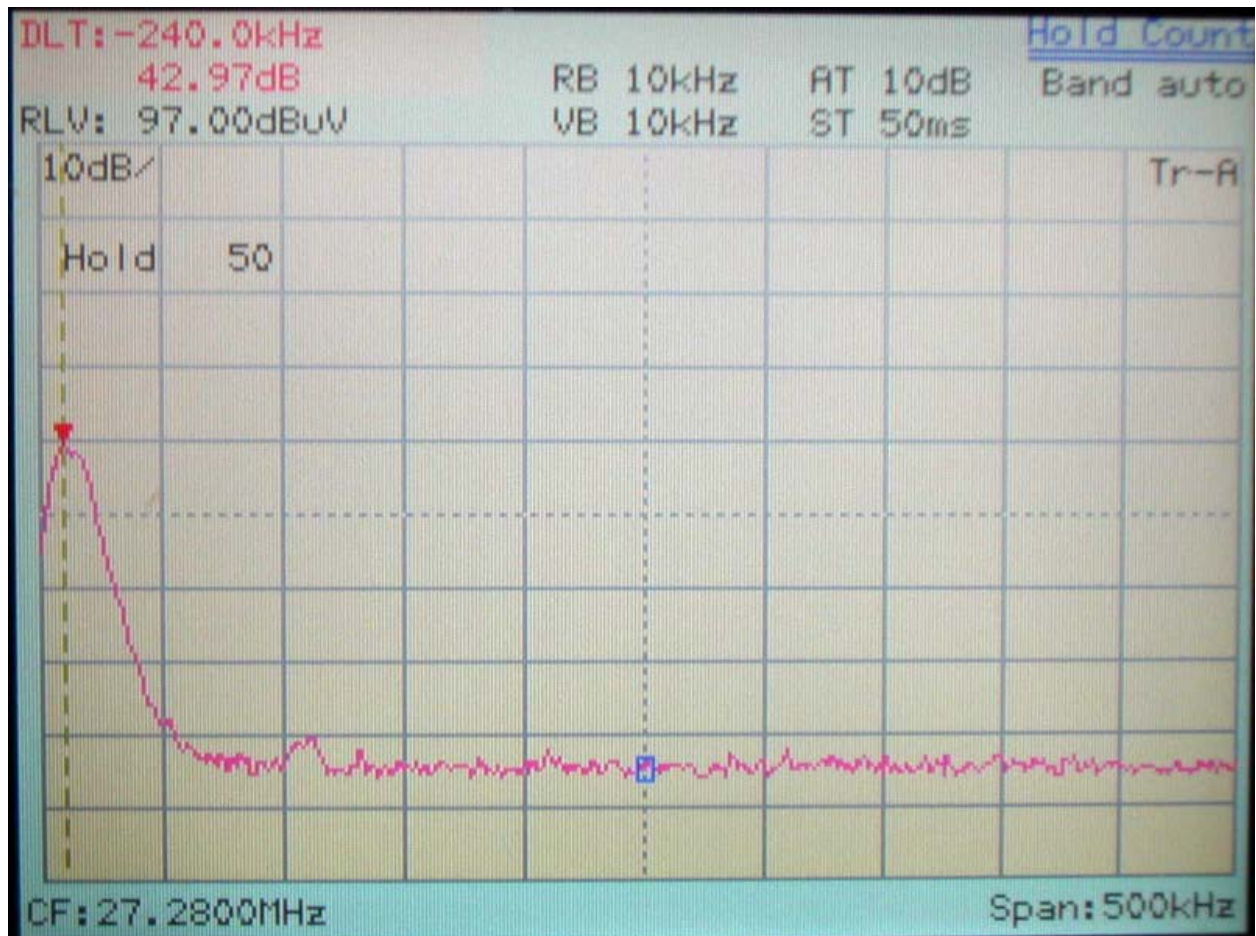
**Band Edge of Measurement: (Frequency Band: 26.96 ~ 27.28)**

**Lower channel**



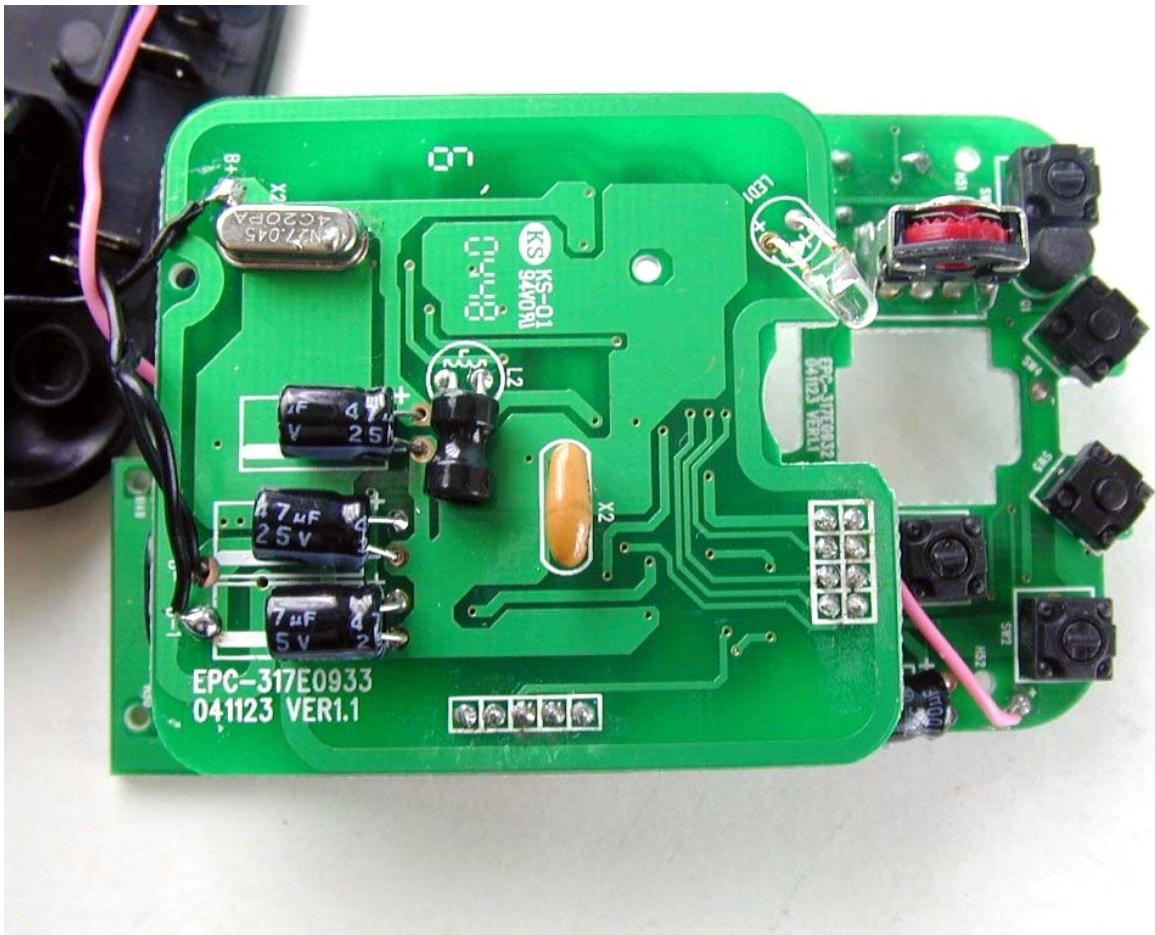
26.96MHz << Class B Limit.

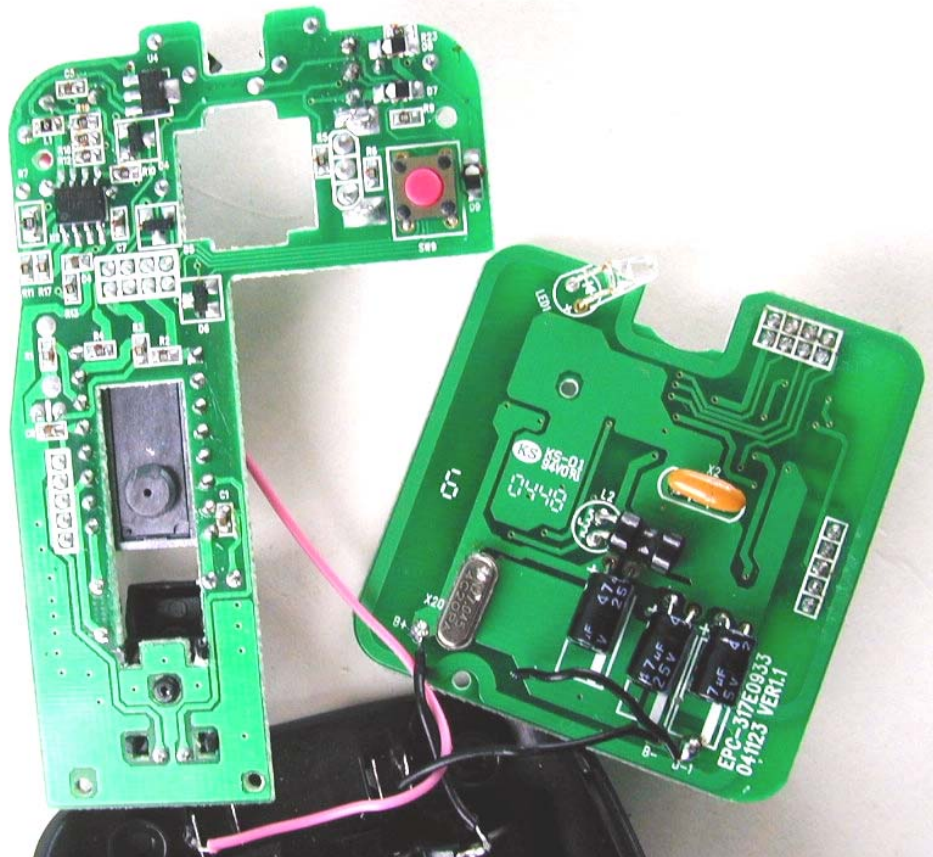
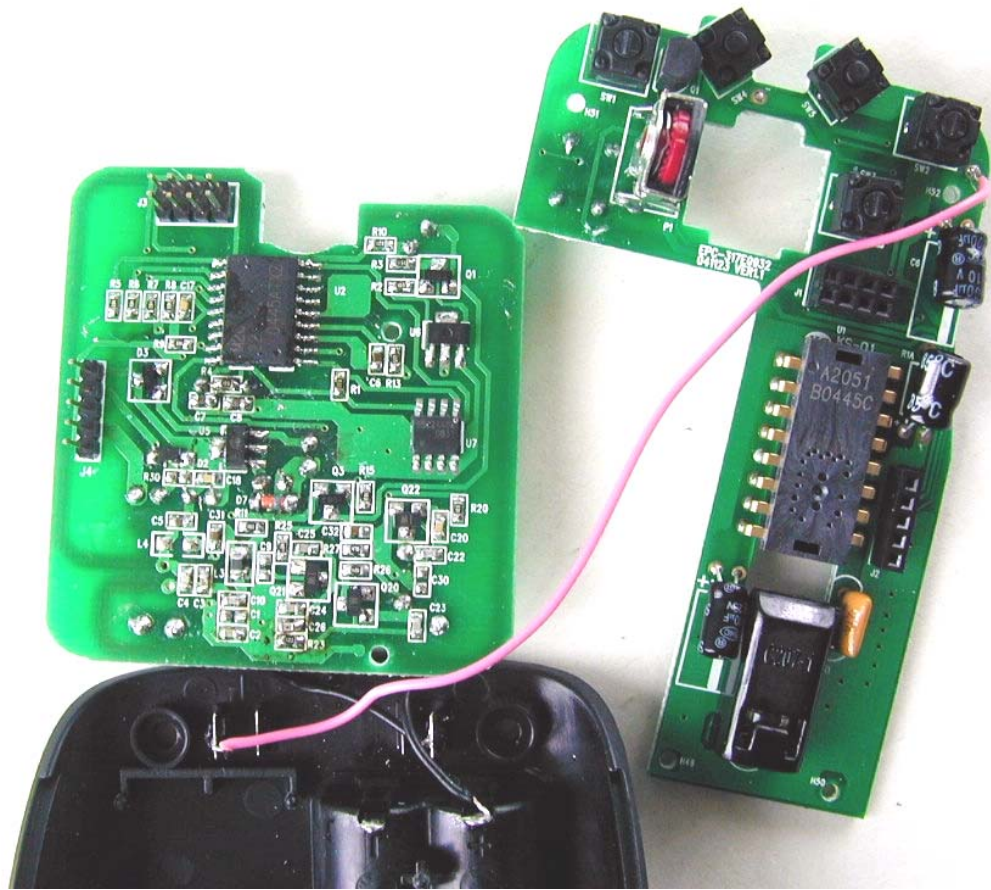
**Upper channel:**



**27.28 MHz << Class B Limit.**







LABEL Format:



LABEL Size: 55.4 x 33.09 mm

LABEL Position:

