# Certificate of Test

August 2006

## Cherry GmbH

| | |
|---|---|
| **Product Type** | **: Wireless Keyboard** |
| **Model Number** | **: G258** |
| **Test Report Number** | **: 0607121 Rev. 1** |
| **Date of Test** | **: July 02, 2006- August 01, 2006** |

**This Product was tested to the following standards at the laboratory of Global EMC Standard Tech. Corp., and found Compliance.**

**Standards:**
**FCC Part 15 Subpart C Paragraph 15.249**
**ANSI C63.4: 2003**

*http : //www.gestek.com.tw*

**Sharon Chang, President**

**Date: August 07, 2006**


**GesTek EMC Lab**
**N0. 3, Pau-Tou-Tsuo Valley, Chia-Pau Tsuen,**
**Lin Kou Hsiang, Taipei County, Taiwan, R.O.C.**
**TEL:886-2-2603-5321**
**FAX:886-2-2603-5325**


NEMKO NVLAP 200085-0 VCCI BSMI

# Test Report Application for Certification

**On Behalf Of**

## Cherry GmbH

**EUT:**
**Wireless Keyboard**

**Model Number:**
**G258**

**FCC ID:**
**GDDG258**

**Prepared for:**

**Cherry GmbH**
**Cherrystrasse D91275 Auerbach/Opf. Germany**

**Report By :Global EMC Standard Tech. Corp.**
**No.3 Pau-Tou-Tsuo Valley, Chia-Pau Tsuen, Lin Kou Hsiang, Taipei County, Taiwan, R.O.C.**
**Tel : 886-2-2603-5321**
**Fax : 886-2-2603-5325**

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# 1. CERTIFICATION

## Applicant : Cherry GmbH

| | |
|---|---|
| Applicant Address | : Cherrystrasse D91275 Auerbach/Opf. Germany |
| EUT Description | : Wireless Keyboard |
| Model Number | : G258 |
| Serial Number | : N/A |
| Brand Name | : CHERRY |
| FCC ID | : GDDG258 |
| Tested Power Supply | : Battery DC 2.2~3.2V |
| Manufacturer | : Sunrex Technology Corp. |
| Address | : No. 188-1, Chung Cheng Road., Ta Ya Shiang, Taichung Hsien, Taiwna, R.O.C. |

### MEASUREMENT PROCEDURES USED:

| | |
|---|---|
| ☑ **CFR 47, Part 15** | Radio Frequency Device Subpart C Intentional Radiators :2005 |
| ☑ **ANSI C63.4** | Methods of Measurements of Radio-Noise Emissions from Low- Voltage Electrical and Electronic Equipment in the range of 9kHz To 40GHz. 2003 |

THE MEASUREMENT SHOWN IN THE ATTACHMENT WAS MADE IN ACCORDANCE WITH THE PROCEDURES INDICATED, AND THE MAXIMUM ENERGY EMITTED BY THE EQUIPMENT WAS FOUND TO BE WITHIN THE ABOVE LIMITS APPLICABLE.

Sample Received Date : **July 25, 2006**
Final Test Date : **August 01, 2006**

In order to ensure the quality and accuracy of this document, the contents have been thoroughly reviewed by the following qualified personnel from GesTek Lab.

**Documented By :**
Rini Chen / adm. Dept. Supervisor

**Tested By :**
Perry Lin / eng. Dept. Engineer

**Technical Reviewed By :**
Shine Chang / eng. Dept. Supervisor

**Approved By :**
Tonny Lin / General Manager

This test data shown below is traceable to National or international standard such as NIST/USA, etc. The laboratory's NVLAP accreditation in no way constitutes or implies product certification, approval, or endorsement by NVLAP or the United States government.

# 2. GENERAL INFORMATION

## 2.1 PRODUCTION DESCRIPTION

**Product Name** : Wireless Keyboard
**Model Number** : G258
**Serial Number** : N/A
**Brand Name** : CHERRY
**FCC ID** : GDDG258
**Modulation Type** : FHSS / GFSK
**Antenna Type** : Printed on PCB
**Frequencg Range** : 2.404G~2.467G
**Channel Number** 16 Channel
**Channel Control** N/A
**Working Voltage** : Battery DC 2.2~3.2V

### Frequency of Each Channel:

| Channel | Frequency 1 | Frequency 2 |
|---|---|---|
| 0 | 2404 | 2452 |
| 1 | 2405 | 2453 |
| 2 | 2406 | 2454 |
| 3 | 2407 | 2455 |
| 4 | 2408 | 2456 |
| 5 | 2409 | 2457 |
| 6 | 2410 | 2458 |
| 7 | 2411 | 2458 |
| 8 | 2412 | 2460 |
| 9 | 2413 | 2461 |
| 10 | 2414 | 2462 |
| 11 | 2415 | 2463 |
| 12 | 2416 | 2464 |
| 13 | 2417 | 2465 |
| 14 | 2418 | 2466 |
| 15 | 2419 | 2467 |

**Note:**

1. This device is a Wireless Keyboard included wireless transmition of keyboard and receiver. The test report is for transmitter.
2. This device is 16 channel and perform the test, then record on this report.
3. The antenna of EUT is printer on PCB and conform to FCC 15.203.
4. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249.
5. The device of receiver to accordance with Part 15 regulations and under Declaration of Conformity.

## 2.2 OPERATIONAL DESCRIPTION

This device is a Wireless Keyboard included wireless transmitter of keyboard and receiver. It is powered by Battery DC 3V.
This device is 16 channel with two frequency hopping carrier per each channel.
The channel control are seted by manufacturer and only one channel is used for end users. End users can not change channel by themselves.
The device is operated in 2.404 to 2.467GHz with FHSS / GFSK modulation.
The Receiver is USB interface and it is capable to receive signal from transmitter to control PC or notebook.
Another information please refer to users manual.

## 2.3 TEST MODES & EUT COMPONENTS DESCRIPTION

| **EUT: Wireless Keyboard, M/N: G258** | |
|---|---|
| **Test Mode** | **Mode 1**<br>**Continue Transmit** |
| Frequency | Channel 0: 2404MHz & 2452MHz<br>Channel 7: 2411MHz & 2459MHz<br>Channel 15: 2419MHz & 2467MHz |

## 2.4 SUMMARY OF TEST PROCEDURE AND TEST RESULTS

| Test Item | Applied Standard Section | Test Resut |
|---|---|---|
| Radistion Emission | 15.209, ANSI C63.4 Section 8 | Pass (refer to section 3.7) |
| Peak Power Output | 15.249(a), ANSI C63.4 Section 13 & Annex I | Pass (refer to section 3.7) |
| Band Edge | 15.249(d) , ANSI C63.4 Section 13 & Annex I | Pass (refer to section 4.6) |

## 2.5 CONFIGURATION OF THE TESTED SYSTEM

The FCC IDs/Types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards, which have grants) are:

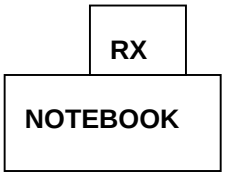
| Device | No. | Configuration |
|---|---|---|
| **NOTEBOOK** | **DELL NB 2** | Model Number : Latitude D600 PPO5L<br>BSMI ID : R33002<br>Serial Number : 11444680576<br>C.P.U : Intel Pentium M 1.4G HZ<br>DDR : PC2100 256MB<br>F.D.D : N/A<br>H.D.D. : Manufacturer : HITACHI 20.G<br>M/N: IC25N020ATMR04-0,<br>S/N:MRG157K1GJP9JH<br>BSMI ID:D33082<br>CD-ROM : Manufacturer :DELL<br>M/N:6T980-A01<br>BATTERY : Manufacturer :DELL Li-ion<br>MODULE M/N:6Y270<br>RATING:14.8V 220mAh<br>AC ADAPTOR : Manufacturer :DELL<br>M/N: PA-1650-05D<br>S/N:CN-05U092-71615-41K-58C3<br>INPUT:AC 100-240 V~1.5A 50-60HZ<br>Shielded, Undetachable, 2.5m |
| **Receiver** | **-----** | Manufacturer : CHERRY<br>Model Number : R200 |

## 2.6 TEST FACILITY

Ambient conditions in the laboratory:

| ITEMS | REQIORED |
|---|---|
| **TEMPERATURE (°C)** | 15-35 |
| **HUMIDITY (%RH)** | 30-60 |
| **BAROMETRIC PRESSURE (mbar)** | 860-1060 |
| **FCC SITE DESCRIPTION** | Aug. 10, 1995 /Aug. 25, 1998 File on<br>FCC Engineering Laboratory<br>Federal Communication Commission<br>7435 Oakland Mills Road<br>Columbia, MD 21046<br>Reference 31040/SIT1300F2 |
| **NVLAP LAB. CODE** | 200085-0<br>United Stated Department of commerce<br>National Institute of Standards and Technology<br>National Voluntary Laboratory Accreditation Program<br>Accreditation on NVLAP effective through Sep. 30,2006<br>For CISPR 22, FCC Method and AS/NZS CISPR 22 Measurement. |
| **Chinese National Laboratory Accreditation Certificate R.O.C.** | Recognized by the Council of Chinese National Laboratory Accreditation and confirmed to meet the requirements of ISO/IEC 17025 also has been registered for fifteen items, and meet the requirements of the Article 4 of Measures Governing the Recognition both Approval of Designated Laboratory for Commodities Inspection and has been registered for four items within the field of Electrical Testing.<br>Registration No.: 1082<br>Registration on CNLA effective through April 30, 2006. |

## 2.7 TEST SETUP


## 2.8 EUT OPERATING CONDITIONS

The EUT exercise program used during conducted testing was designed to exercise the EUT in a manner similar to a typical use. The exercise sequence is listed as below:

1. Setup the EUT and simulators as shown on 2.7.
2. Turn on the power of all equipments.
3. The transmitter will transmit the signal continue.
4. Confirm the receiver is reveive signal continue.
5. Repeat the above steps.

# 3. RADIATION EMISSION DATA

## 3.1 TEST EQUIPMENT

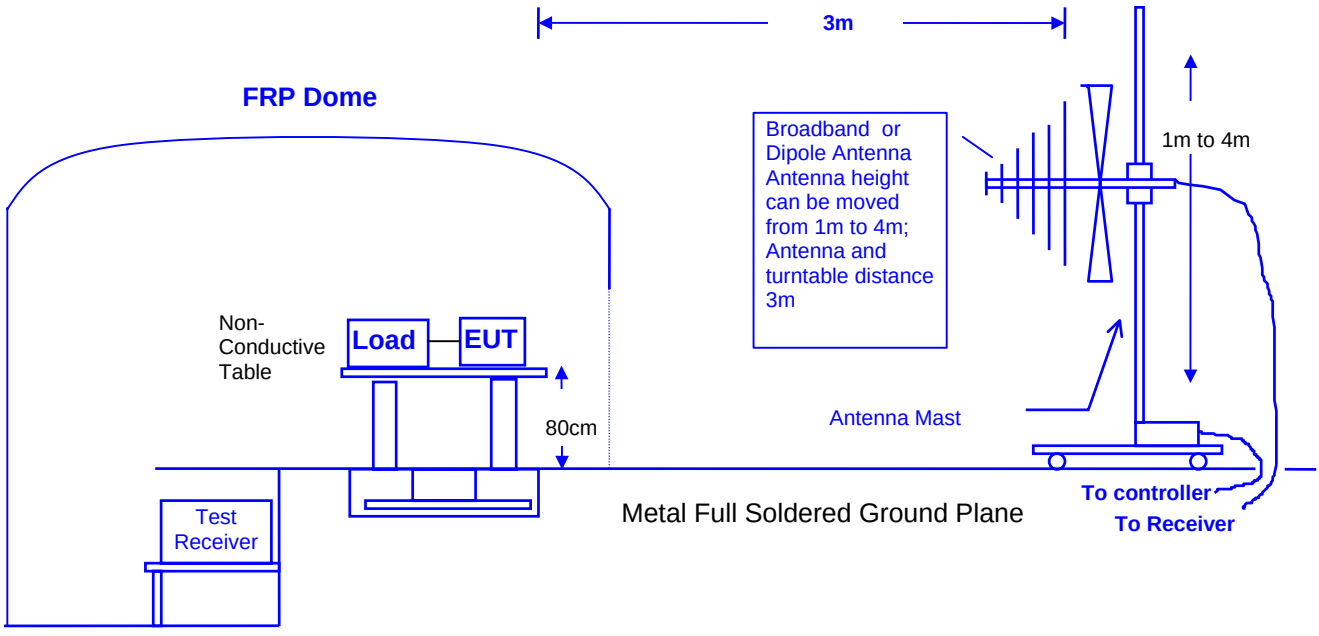
The following test equipments are used during the radiated emission tests:

Radiated test was performed on: ☐Site #1 ☐Site #2 ☒Site #3 ☐Site #4

| Item | Instrument | Manufacturer | Model | Serial No. | Last Cal. |
|---|---|---|---|---|---|
| 1 | Test Receiver | Rohde & Schwarz | ESVS30 | 829007/014 | 01/19/06 |
| 2 | Spectrum Analyzer | HP | E4407B | 39240339 | 07/26/06 |
| 3 | Power Meter | Rohde & Schwarz | NRVS | 100666 | 04/07/06 |
| 4 | Peak Power Sensor | Rohde & Schwarz | NRV-Z32 | 8360191058 | 04/07/06 |
| 5 | Pre-Amplifier | HP | 8449B | 3008A01264 | 06/14/06 |
| 6 | BILOG ANTENNA | SCHAFFNER | CBL6112B | 2620 | 11/26/05 |
| 7 | Horn Antenna | Schwarzbeck | BBHA 9120 | D243 | 12/21/05 |
| 8 | RF Cable | GesTek | N/A | GTK-E-A152-01 | 12/20/05 |
| 9 | Open Site | GesTek | N/A | B1 | 11/22/05 |
| 10 | Test Program Software | GesTek | N/A | GTK-E-S001-01 | N/A |

Note: All measurement critical items of test instrumentation were within their calibration period of 1 year.

## 3.2 OPEN TEST SITE SETUP DIAGRAM



## 3.3 RADIATED EMISSION LIMIT

### ☒ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| Frequency | Distance | Field Strength | |
|---|---|---|---|
| MHz | Meter | μV/M | dBμV/M |
| 30 to 88 | 3 | 100 | 40.0 |
| 88 to 216 | 3 | 150 | 43.5 |
| 216 to 960 | 3 | 200 | 46.0 |
| Above 960 | 3 | 500 | 54.0 |

**Remarks :**

1. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)
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 closed point of any part of the device or system.

### ☒ Fundamental and Harmonics Emission Limits

| Frequency | Distance | Field Strength of Fundamental | | Field Strength of Harmonics | |
|---|---|---|---|---|---|
| MHz | Meter | μV/M | dBμV/M | μV/M | dBμV/M |
| 902-928 | 3 | 50 | 94 | 500 | 54 |
| 2400-2483.5 | 3 | 50 | 94 | 500 | 54 |
| 5725-5875 | 3 | 50 | 94 | 500 | 54 |

**Remarks :**

1. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)
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.

## 3.4 EUT CONFIGURATION

The equipment which is listed 2.6 are installed on Radiated Emission Test to meet the Commission requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

The device under test, installed in a representative system as described in section 3.2, was placed on a non-conductive table whose total height equaled 80 cm. This table can be rotated 360 degree. The measurement antenna was mounted to a non-conductive mast capable of moving the antenna vertically. Antenna height was varied from 1 meter to 4 meters and the system under test was rotated from 0 degree through 360 degrees relative to the antenna position and polarization (Horizontal and Vertical). Also the I/O cable position was investigated to find the maximum emission condition.

## 3.5 OPERATING CONDITION OF EUT

Same as section 2.8.

## 3.6 RADIATED EMISSION DATA

The measurement range of radiated emission, which is from **30 MHz to 10 Harminics,** was investigated. All readings below 1GHz are quasi-peak values with a resolution bandwidth of 120 KHz. Above 1GHz are peak and avg. values with a resolution bandwidth of 1MHz. The initial step in collecting radiated emission data is a spectrum analyzer peak scans of the measurement range for all the test modes and then use test receiver for final measurement. Then the worst modes were reported the following data pages.

## 3.7 RADIATED EMISSIONS MEASUREMENT RESULTS

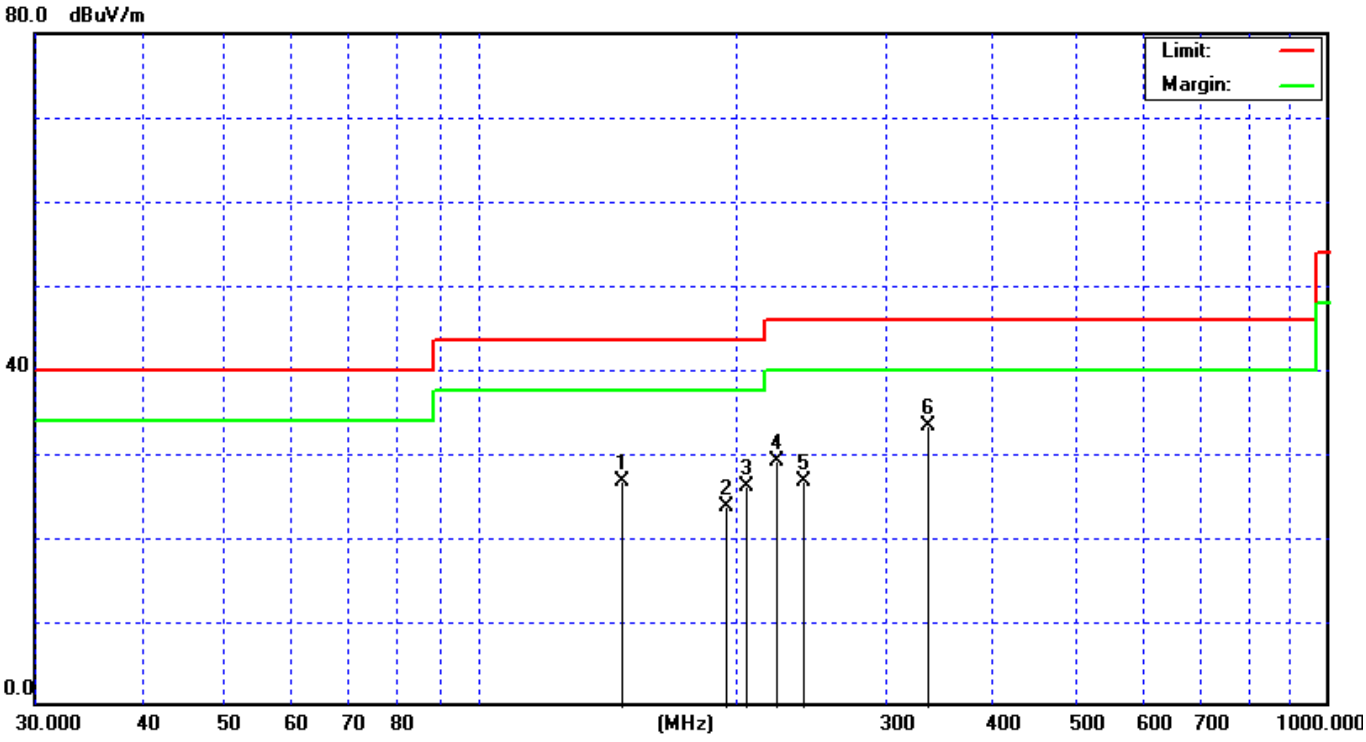
### 3.7.1 HARMONIC RADIATED EMISSIONS

| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2006 | **Temperature** | 25 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 59 %RH |
| **Working Cond.** | Channel 0 | | |
| **Antenna distance** | 3m at **Horizontal** | **Frequency Range** | 30-1000MHz |

| No. | Frequency MHz | Reading Level dBuV | Factor dB | Measurement dBuV/m | Limit dBuV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 146.5800 | 38.72 | -12.02 | 26.70 | 43.50 | -16.80 | QP |
| 2 | 194.5100 | 36.88 | -13.18 | 23.70 | 43.50 | -19.80 | QP |
| 3 | 205.1700 | 38.99 | -12.95 | 26.04 | 43.50 | -17.46 | QP |
| 4 | 222.9700 | 41.37 | -12.34 | 29.03 | 46.00 | -16.97 | QP |
| 5 | 239.4700 | 38.47 | -11.77 | 26.70 | 46.00 | -19.30 | QP |
| 6 | ★336.7800 | 40.01 | -6.74 | 33.27 | 46.00 | -12.73 | QP |

**Remarks:**

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement = Reading + Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
3. Over Limit (Margin Value)=Measurement level-Limit value.
4. The "★" means this data is worst-case Measurement level.

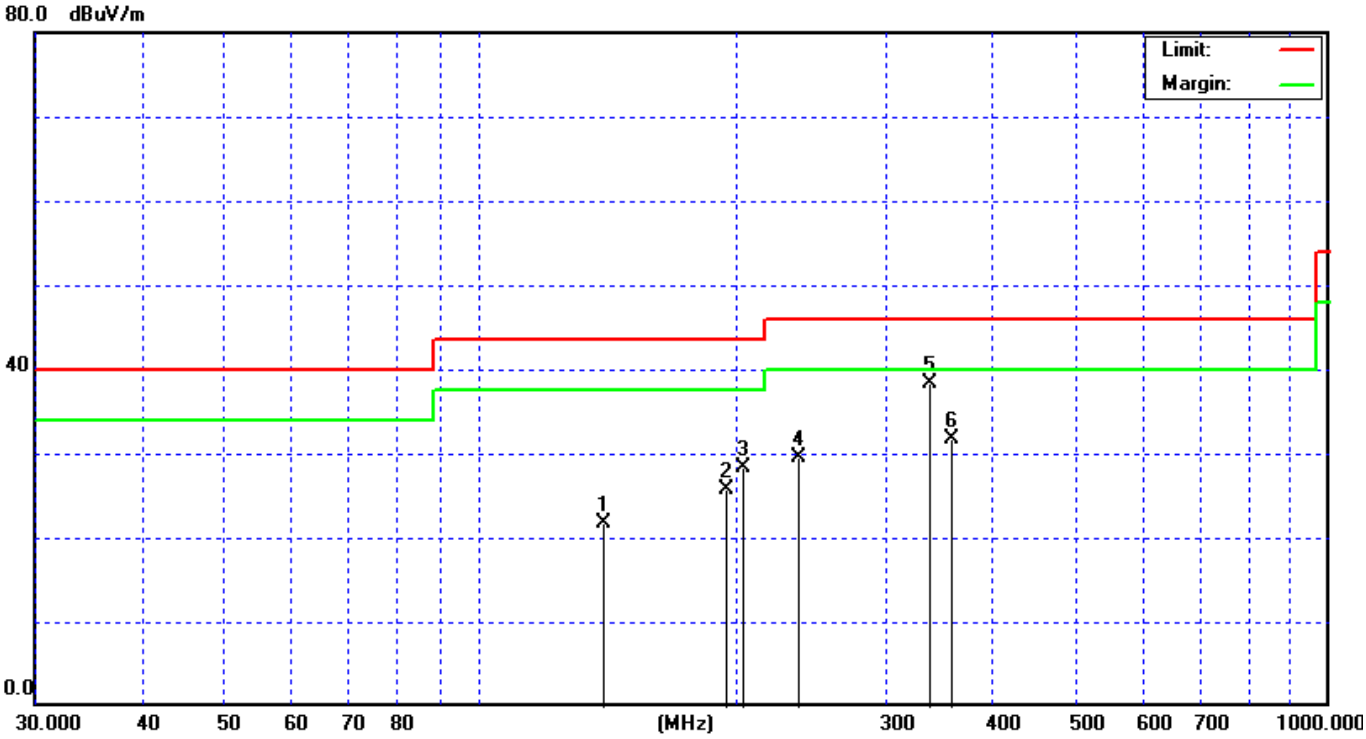


| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2005 | **Temperature** | 25 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 59 %RH |
| **Working Cond.** | Channel 0 | | |
| **Antenna distance** | 3m at **Vertical** | **Frequency Range** | 30-1000MHz |

| No. | Frequency MHz | Reading Level dBuV | Factor dB | Measurement dBuV/m | Limit dBuV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 139.5100 | 33.39 | -11.64 | 21.75 | 43.50 | -21.75 | QP |
| 2 | 193.8400 | 38.91 | -13.19 | 25.72 | 43.50 | -17.78 | QP |
| 3 | 203.7900 | 41.37 | -13.00 | 28.37 | 43.50 | -15.13 | QP |
| 4 | 237.1500 | 41.43 | -11.85 | 29.58 | 46.00 | -16.42 | QP |
| 5 | ★338.1900 | 45.00 | -6.70 | 38.30 | 46.00 | -7.70 | QP |
| 6 | 356.7800 | 37.94 | -6.15 | 31.79 | 46.00 | -14.21 | QP |

**Remarks:**

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement = Reading + Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
3. Over Limit (Margin Value)=Measurement level-Limit value.
4. The "★" means this data is worst-case Measurement level.

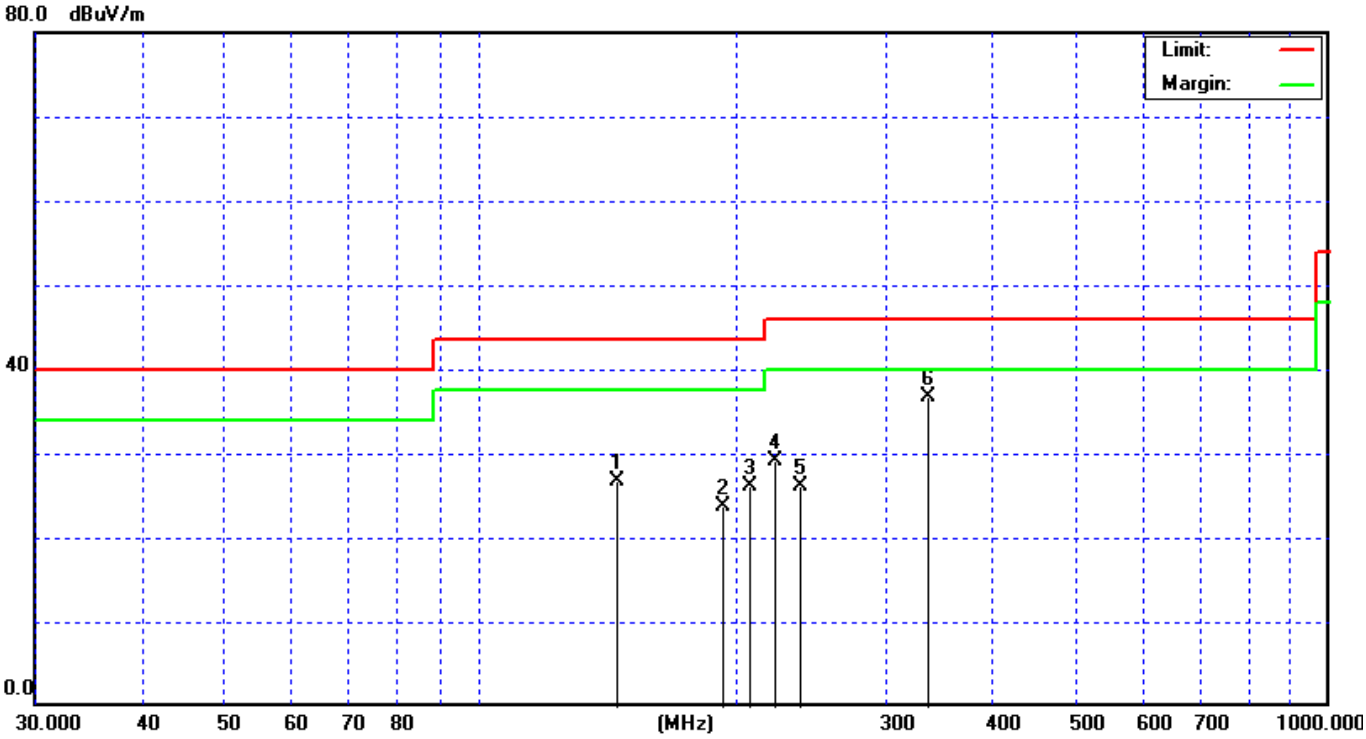


| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2006 | **Temperature** | 25 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 59 %RH |
| **Working Cond.** | Channel 7 | | |
| **Antenna distance** | 3m at **Horizontal** | **Frequency Range** | 30-1000MHz |

| No. | Frequency MHz | Reading Level dBuV | Factor dB | Measurement dBuV/m | Limit dBuV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 145.2000 | 38.64 | -11.94 | 26.70 | 43.50 | -16.80 | QP |
| 2 | 192.9400 | 36.90 | -13.20 | 23.70 | 43.50 | -19.80 | QP |
| 3 | 206.8700 | 38.93 | -12.89 | 26.04 | 43.50 | -17.46 | QP |
| 4 | 222.1700 | 41.40 | -12.37 | 29.03 | 46.00 | -16.97 | QP |
| 5 | 238.6600 | 37.85 | -11.80 | 26.05 | 46.00 | -19.95 | QP |
| 6 | ★337.1400 | 43.51 | -6.73 | 36.78 | 46.00 | -9.22 | QP |

**Remarks:**

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement = Reading + Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
3. Over Limit (Margin Value)=Measurement level-Limit value.
4. The "★" means this data is worst-case Measurement level.

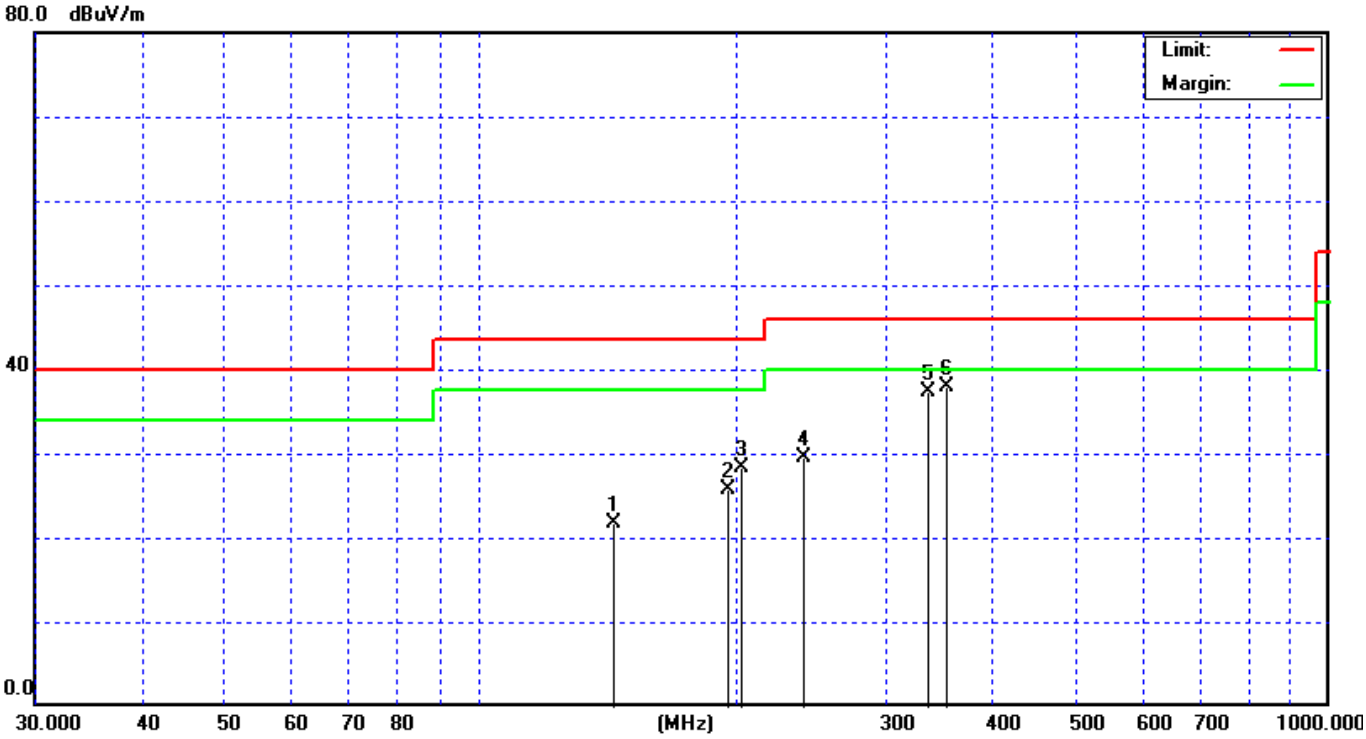


| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2005 | **Temperature** | 25 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 59 %RH |
| **Working Cond.** | Channel 7 | | |
| **Antenna distance** | 3m at **Vertical** | **Frequency Range** | 30-1000MHz |

| No. | Frequency MHz | Reading Level dBuV | Factor dB/m | Measurement dBuV/m | Limit dBuV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 143.7000 | 33.61 | -11.86 | 21.75 | 43.50 | -21.75 | QP |
| 2 | 195.4700 | 38.89 | -13.17 | 25.72 | 43.50 | -17.78 | QP |
| 3 | 203.4700 | 41.38 | -13.01 | 28.37 | 43.50 | -15.13 | QP |
| 4 | 240.1700 | 41.32 | -11.74 | 29.58 | 46.00 | -16.42 | QP |
| 5 | 337.1700 | 44.03 | -6.73 | 37.30 | 46.00 | -8.70 | QP |
| 6 | ★352.7000 | 44.14 | -6.27 | 37.87 | 46.00 | -8.13 | QP |

**Remarks:**

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement = Reading + Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
3. Over Limit (Margin Value)=Measurement level-Limit value.
4. The "★" means this data is worst-case Measurement level.

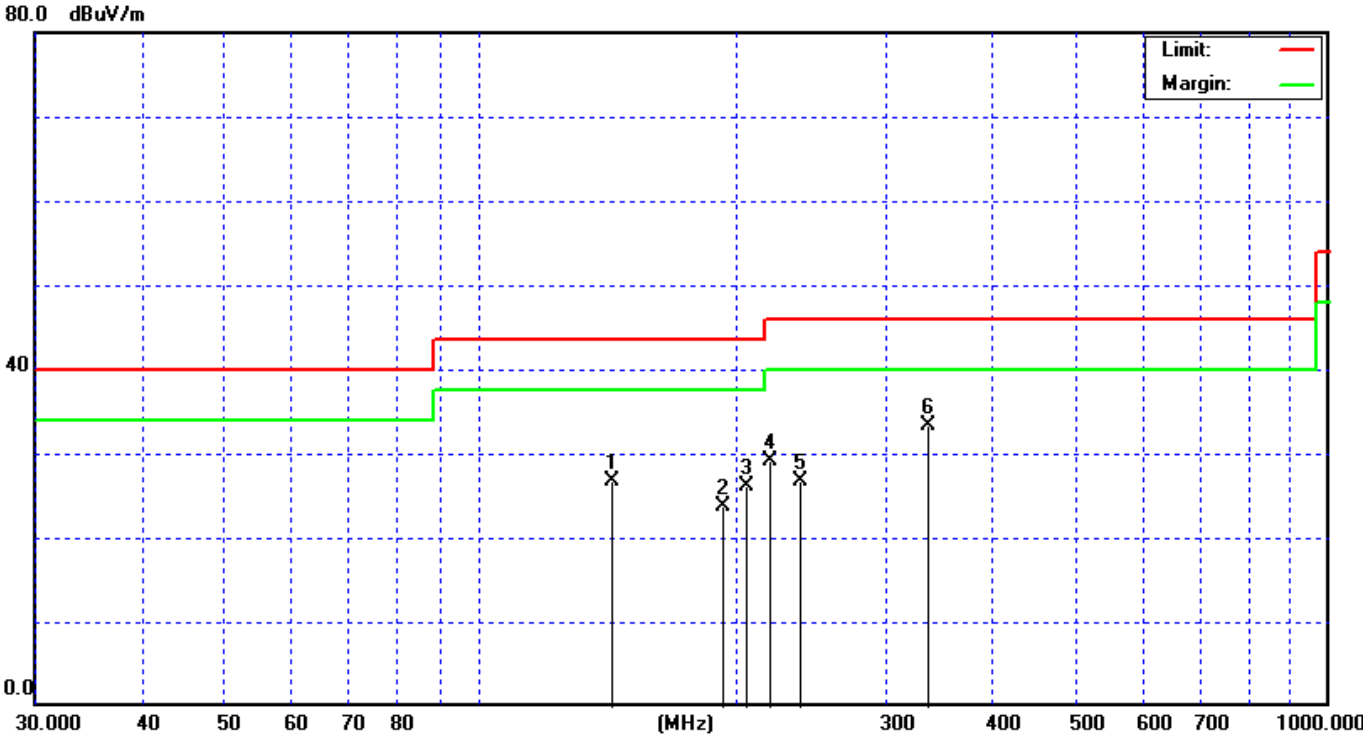


| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2006 | **Temperature** | 25 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 59 %RH |
| **Working Cond.** | Channel 15 | | |
| **Antenna distance** | 3m at **Horizontal** | **Frequency Range** | 30-1000MHz |

| No. | Frequency MHz | Reading Level dBuV | Factor dB | Measurement dBuV/m | Limit dBuV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 143.2500 | 38.54 | -11.84 | 26.70 | 43.50 | -16.80 | QP |
| 2 | 193.4176 | 36.89 | -13.19 | 23.70 | 43.50 | -19.80 | QP |
| 3 | 204.9800 | 39.00 | -12.96 | 26.04 | 43.50 | -17.46 | QP |
| 4 | 219.3000 | 41.50 | -12.47 | 29.03 | 46.00 | -16.97 | QP |
| 5 | 238.6600 | 38.50 | -11.80 | 26.70 | 46.00 | -19.30 | QP |
| 6 | ★337.1400 | 40.00 | -6.73 | 33.27 | 46.00 | -12.73 | QP |

**Remarks:**

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement = Reading + Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
3. Over Limit (Margin Value)=Measurement level-Limit value.
4. The "★" means this data is worst-case Measurement level.

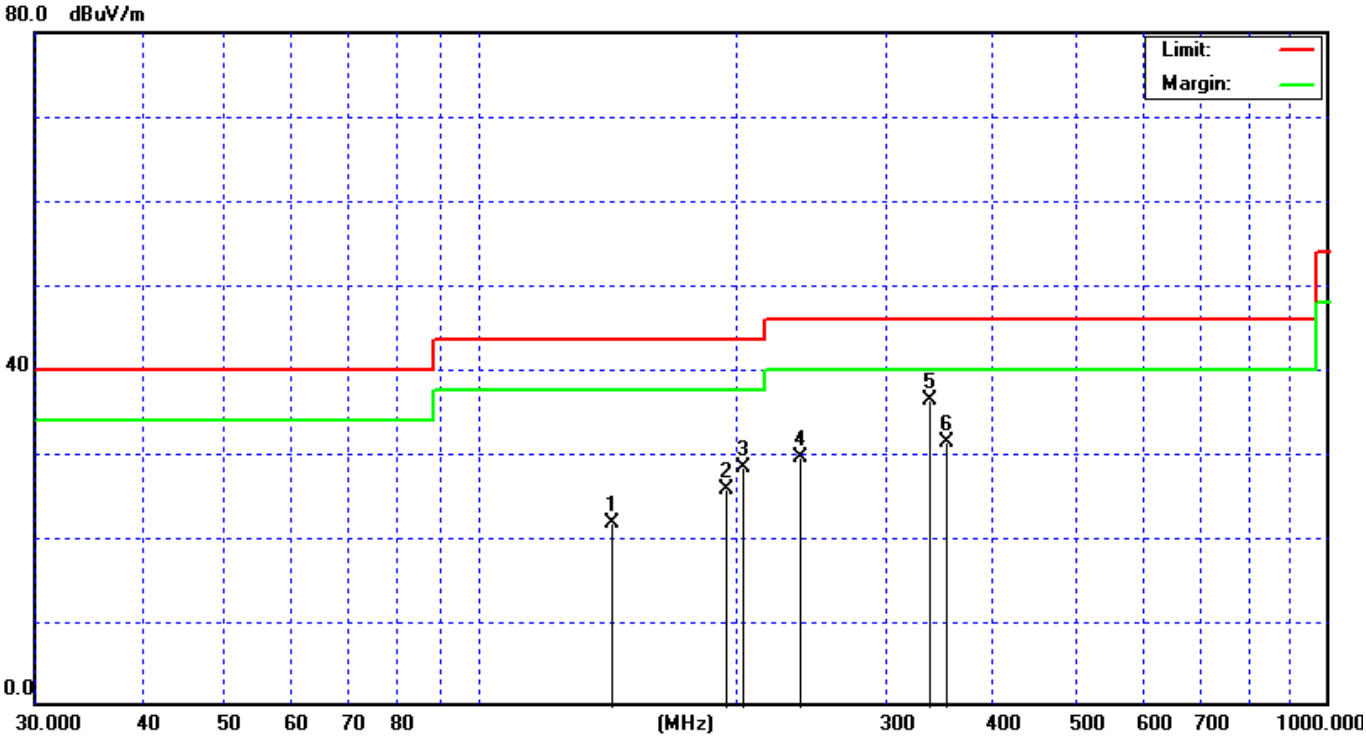


| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2005 | **Temperature** | 25 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 59 %RH |
| **Working Cond.** | Channel 15 | | |
| **Antenna distance** | 3m at **Vertical** | **Frequency Range** | 30-1000MHz |

| No. | Frequency MHz | Reading Level dBuV | Factor dB | Measurement dBuV/m | Limit dBuV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 142.5200 | 33.54 | -11.79 | 21.75 | 43.50 | -21.75 | QP |
| 2 | 194.5600 | 38.90 | -13.18 | 25.72 | 43.50 | -17.78 | QP |
| 3 | 204.1200 | 41.36 | -12.99 | 28.37 | 43.50 | -15.13 | QP |
| 4 | 239.1400 | 41.36 | -11.78 | 29.58 | 46.00 | -16.42 | QP |
| 5 | ★338.1900 | 43.01 | -6.70 | 36.31 | 46.00 | -9.69 | QP |
| 6 | 352.7000 | 37.61 | -6.27 | 31.34 | 46.00 | -14.66 | QP |

**Remarks:**

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement = Reading + Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
3. Over Limit (Margin Value)=Measurement level-Limit value.
4. The "★" means this data is worst-case Measurement level.



| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 0 | | |
| **Antenna distance** | 3m at **Horizontal** | **Frequency Range** | Above 1GHz |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 4810.0000 | 53.05 | 1.46 | 54.51 | 74.00 | -19.49 | peak |
| 2 | 4900.0000 | 51.97 | 1.40 | 53.37 | 74.00 | -20.63 | peak |
| 3 | 7212.0000 | 45.66 | 9.11 | < 54.77 | 74.00 | -19.23 | peak |
| 4 | 7356.0000 | 43.55 | 9.12 | < 52.67 | 74.00 | -21.33 | peak |
| 5 | 9616.0000 | 43.86 | 6.58 | < 50.44 | 74.00 | -23.56 | peak |
| 6 | 9808.0000 | 43.85 | 6.27 | < 50.12 | 74.00 | -23.88 | peak |

## Average

| No. | Frequency [MHz] | Peak Emission Level [dB(uV/m)] | Duty Cycle [dB] | Emission Level [dB(uV/m)] | Limit [dB(uV/m)] | Margin [dB] |
|---|---|---|---|---|---|---|
| 1 | 4180.0000 | 54.51 | -20 | 34.51 | 54.00 | 19.49 |
| 2 | 7212.0000 | 54.77 | -20 | 34.77 | 54.00 | 19.23 |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 0 | | |
| **Antenna distance** | 3m at **Vertical** | **Frequency Range** | Above 1GHz |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 4810.0000 | 47.77 | 1.50 | 49.27 | 74.00 | -24.73 | peak |
| 2 | 4900.0000 | 48.08 | 2.20 | 50.28 | 74.00 | -23.72 | peak |
| 3 | 7212.0000 | 44.07 | 8.72 | < 52.79 | 74.00 | -21.21 | peak |
| 4 | 7356.0000 | 43.26 | 8.51 | < 51.77 | 74.00 | -22.23 | peak |
| 5 | 9616.0000 | 43.05 | 10.15 | < 53.20 | 74.00 | -20.80 | peak |
| 6 | 9808.0000 | 42.75 | 9.79 | < 52.54 | 74.00 | -21.46 | peak |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

| | | | |
|---|---|---|---|
| **Date of Test** | July 25, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 7 | | |
| **Antenna distance** | 3m at **Horizontal** | **Frequency Range** | Above 1GHz |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 4816.0000 | 53.36 | 1.46 | 54.82 | 74.00 | -19.18 | peak |
| 2 | 4912.0000 | 52.22 | 1.39 | 53.61 | 74.00 | -20.39 | peak |
| 3 | 7233.0000 | 44.91 | 9.35 | < 54.26 | 74.00 | -19.74 | peak |
| 4 | 7377.0000 | 44.78 | 9.05 | < 53.83 | 74.00 | -20.17 | peak |
| 5 | 9644.0000 | 43.23 | 6.69 | < 49.92 | 74.00 | -24.08 | peak |
| 6 | 9836.0000 | 43.19 | 5.86 | < 49.05 | 74.00 | -24.95 | peak |

## Average

| No. | Frequency [MHz] | Peak Emission Level [dB(uV/m)] | Duty Cycle [dB] | Emission Level [dB(uV/m)] | Limit [dB(uV/m)] | Margin [dB] |
|---|---|---|---|---|---|---|
| 1 | 4816.0000 | 54.82 | -20 | 34.82 | 54.00 | 19.18 |
| 2 | 7233.0000 | 54.26 | -20 | 34.26 | 54.00 | 19.74 |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

| | | | |
|---|---|---|---|
| **Date of Test** | July 25, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 7 | | |
| **Antenna distance** | 3m at **Vertical** | **Frequency Range** | Above 1GHz |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 4816.0000 | 48.05 | 1.55 | 49.60 | 74.00 | -24.40 | peak |
| 2 | 4912.0000 | 48.26 | 2.29 | 50.55 | 74.00 | -23.45 | peak |
| 3 | 7233.0000 | 43.95 | 8.71 | < 52.66 | 74.00 | -21.34 | peak |
| 4 | 7377.0000 | 43.36 | 8.48 | < 51.84 | 74.00 | -22.16 | peak |
| 5 | 9644.0000 | 43.86 | 10.06 | < 53.92 | 74.00 | -20.08 | peak |
| 6 | 9836.0000 | 43.52 | 9.78 | < 53.30 | 74.00 | -20.70 | peak |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

| | | | |
|---|---|---|---|
| **Date of Test** | July 25, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 15 | | |
| **Antenna distance** | 3m at **Horizontal** | **Frequency Range** | Above 1GHz |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 4840.0000 | 51.54 | 1.45 | 52.99 | 74.00 | -21.01 | peak |
| 2 | 4928.0000 | 53.57 | 1.38 | 54.95 | 74.00 | -19.05 | peak |
| 3 | 7257.0000 | 42.82 | 9.50 | < 52.32 | 74.00 | -21.68 | peak |
| 4 | 7401.0000 | 42.69 | 8.94 | < 51.63 | 74.00 | -22.37 | peak |
| 5 | 9676.0000 | 42.72 | 6.80 | < 49.52 | 74.00 | -24.48 | peak |
| 6 | 9868.0000 | 43.87 | 5.39 | < 49.26 | 74.00 | -24.74 | peak |

## Average

| No. | Frequency [MHz] | Peak Emission Level [dB(uV/m)] | Duty Cycle [dB] | Emission Level [dB(uV/m)] | Limit [dB(uV/m)] | Margin [dB] |
|---|---|---|---|---|---|---|
| 1 | 4928.0000 | 54.95 | -20 | 34.95 | 54.00 | 19.05 |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

| | | | |
|---|---|---|---|
| **Date of Test** | July 25, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 15 | | |
| **Antenna distance** | 3m at **Vertical** | **Frequency Range** | Above 1GHz |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 4832.0000 | 48.62 | 1.68 | 50.30 | 74.00 | -23.70 | peak |
| 2 | 4928.0000 | 50.41 | 2.41 | 52.82 | 74.00 | -21.18 | peak |
| 3 | 7257.0000 | 42.42 | 8.68 | < 51.10 | 74.00 | -22.90 | peak |
| 4 | 7401.0000 | 42.56 | 8.43 | < 50.99 | 74.00 | -23.01 | peak |
| 5 | 9676.0000 | 42.71 | 9.97 | < 52.68 | 74.00 | -21.32 | peak |
| 6 | 9868.0000 | 43.64 | 9.78 | < 53.42 | 74.00 | -20.58 | peak |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

### 3.7.2 FUNDAMEDTAL RADIATED EMISSIONS

| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 0 | | |
| **Antenna distance** | 3m at Horizontal | | |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 2403.8000 | 62.55 | 31.49 | 94.04 | 114.00 | -19.96 | peak |
| 2 | 2452.0000 | 62.42 | 31.38 | 93.80 | 114.00 | -20.20 | peak |

## Average

| No. | Frequency [MHz] | Peak Emission Level [dB(uV/m)] | Duty Cycle [dB] | Emission Level [dB(uV/m)] | Limit [dB(uV/m)] | Margin [dB] |
|---|---|---|---|---|---|---|
| 1 | 2403.8 | 94.04 | -20 | 74.04 | 94.00 | 19.96 |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 0 | | |
| **Antenna distance** | 3m at Vertical | | |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 2404.0000 | 48.17 | 24.57 | 72.74 | 114.00 | -41.26 | peak |
| 2 | 2451.8000 | 47.13 | 23.79 | 70.92 | 114.00 | -43.08 | peak |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

| | | | |
|---|---|---|---|
| **Date of Test** | July 25, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 7 | | |
| **Antenna distance** | 3m at Horizontal | | |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 2411.0000 | 61.43 | 31.47 | 92.90 | 114.00 | -21.10 | peak |
| 2 | 2458.8000 | 61.14 | 31.36 | 92.50 | 114.00 | -21.50 | peak |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

| | | | |
|---|---|---|---|
| **Date of Test** | July 25, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 7 | | |
| **Antenna distance** | 3m at Vertical | | |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 2410.8000 | 46.58 | 24.46 | 71.04 | 114.00 | -42.96 | peak |
| 2 | 2458.8000 | 44.70 | 23.68 | 68.38 | 114.00 | -45.62 | peak |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

| | | | |
|---|---|---|---|
| **Date of Test** | July 25, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 15 | | |
| **Antenna distance** | 3m at Horizontal | | |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 2419.0000 | 59.96 | 31.45 | 91.41 | 114.00 | -22.59 | peak |
| 2 | 2467.0000 | 58.75 | 31.35 | 90.10 | 114.00 | -23.90 | peak |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

| | | | |
|---|---|---|---|
| **Date of Test** | July 25, 2006 | **Temperature** | 25.6 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 63 %RH |
| **Working Cond.** | Channel 15 | | |
| **Antenna distance** | 3m at Vertical | | |

## Peak

| No. | Frequency MHz | Reading Level dBµV | Factor dB | Measurement dBµV/m | Limit dBµV/m | Over Limit dB | Detector |
|---|---|---|---|---|---|---|---|
| 1 | 2418.8000 | 44.88 | 24.33 | 69.21 | 114.00 | -44.79 | peak |
| 2 | 2467.0000 | 41.46 | 23.55 | 65.01 | 114.00 | -48.99 | peak |

**Remark**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ, Span=100MHz.
3. AVG Emission=Peak Emission + Duty Cycle(Log Scale).
4. Measurement = Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
5. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor
6. Margin Value=Emission level-Limit value.
7. The average measurement was not performed when the peak measured data under the limit of average detection. If the average value is measured, peak measurement should also be supplied.
8. The Duty Cycle is refer to section 5.
9. If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.

# 4. BAND EDGE

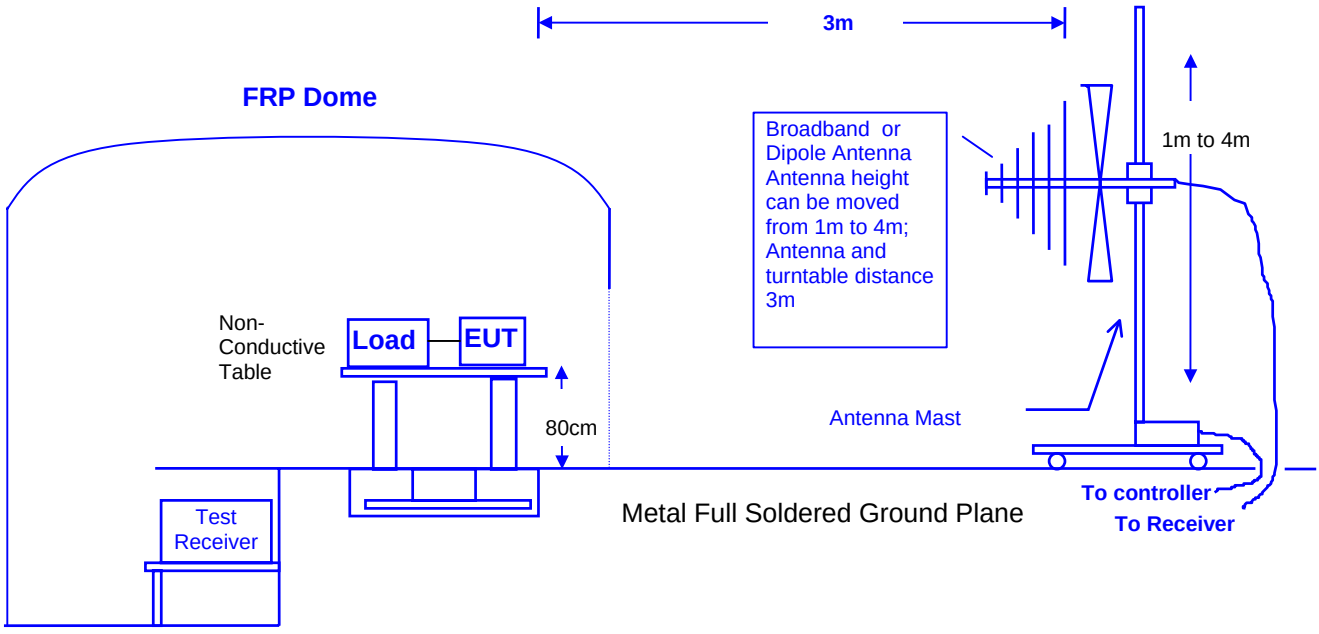
## 4.1 TEST EQUIPMENT

| Item | Instrument | Manufacturer | Model | Serial No. | Last Cal. |
|---|---|---|---|---|---|
| 1 | Test Receiver | Rohde & Schwarz | ESVS30 | 829007/014 | 01/19/06 |
| 2 | Spectrum Analyzer | Rohde & Schwarz | FSP40 | 100061 | 04/03/06 |
| 3 | Spectrum Analyzer | HP | E4407B | 39240339 | 07/26/06 |
| 4 | Power Meter | Rohde & Schwarz | NRVS | 100666 | 04/07/06 |
| 5 | Peak Power Sensor | Rohde & Schwarz | NRV-Z32 | 8360191058 | 04/07/06 |
| 6 | Pre-Amplifier | HP | 8449B | 3008A01264 | 06/14/06 |
| 7 | BILOG ANTENNA | SCHAFFNER | CBL6112B | 2620 | 11/26/05 |
| 8 | Horn Antenna | Schwarzbeck | BBHA 9120 | D243 | 12/21/05 |
| 9 | RF Cable | GesTek | N/A | GTK-E-A152-01 | 12/20/05 |
| 10 | Open Site | GesTek | N/A | B1 | 11/22/05 |
| 11 | Test Program Software | GesTek | N/A | GTK-E-S001-01 | N/A |

Note: All measurement critical items of test instrumentation were within their calibration period of 1 year.

## 4.2 BLOCK DIAGRAM OF TEST SETUP

**◎ RF Radiated Measurement: ◎**



## 4.3 BAND EDGE LIMIT

In any 100KHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 50dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. 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)).

## 4.4 EUT CONFIGURATION

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2000 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120KHz, above 1GHz are 1MHz.

## 4.5 OPERATING CONDITION OF EUT

Same as section 2.8.

## 4.6 TEST RELULT

| | | | |
|---|---|---|---|
| **Date of Test** | Augsut 01, 2006 | **Temperature** | 25 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 40 %RH |
| **Working Cond.** | TX Mode | | |
| **Antenna distance** | 3m at **Horizontal** | **Test Band** | Lower |

# Radiation Emission of Fundamental

## Peak

| Frequency [MHz] | Reading Level [dB(uV)] | Correction Factor [dB/m] | Emission Level [dB(uV/m)] |
|---|---|---|---|
| 2403.8 | 62.55 | 31.49 | 94.04 |

**Remark:**

1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ.
3. Emission Level= Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
4. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor

**TEST Result**

The band edge emission plot on next page are Peak and Average. The polt for peak is appear (25.38)dB delta between carry power and maximum emission in restrict band 2400 MHz.

The above tables are list of fundamental emission test result.

Therefore, peak field strength of 2400 MHz is 94.04 dBuV/m – 25.38 dB = 68.66 dBuV/m which is under 74dBuV/m.

Average filed strength = Peak filed strength ㄨ Duty Cycle

(20logAVG = 20logPeak + 20logDuty Cycle)

20logDuty Cycle = (-42.49)dB

Average field strength of (2400)MHz is

(68.66) dBuV/m + (-20)dB = (48.66)dBuV/m which is under 54dBuV/m.

**Remark:**

**If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.**

| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2006 | **Temperature** | 25 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 40 %RH |
| **Working Cond.** | TX Mode | | |
| **Antenna distance** | 3m at **Vertical** | **Test Band** | Lower |

# Radiation Emission of Fundamental

## Peak

| Frequency [MHz] | Reading Level [dB(uV)] | Correction Factor [dB/m] | Emission Level [dB(uV/m)] |
|---|---|---|---|
| 2404 | 48.17 | 24.57 | 72.74 |

Remark:
1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ.
3. Emission Level= Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
4. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor

### TEST Result

The band edge emission plot on next page are Peak and Average. The polt for peak is appear (25.38)dB delta between carry power and maximum emission in restrict band 2400 MHz.

The above tables are list of fundamental emission test result.

Therefore, peak field strength of 2400 MHz is 72.74 dBuV/m – 25.38 dB = 47.36 dBuV/m which is under 74dBuV/m.

Average filed strength = Peak filed strength ╳ Duty Cycle

(20logAVG = 20logPeak + 20logDuty Cycle)

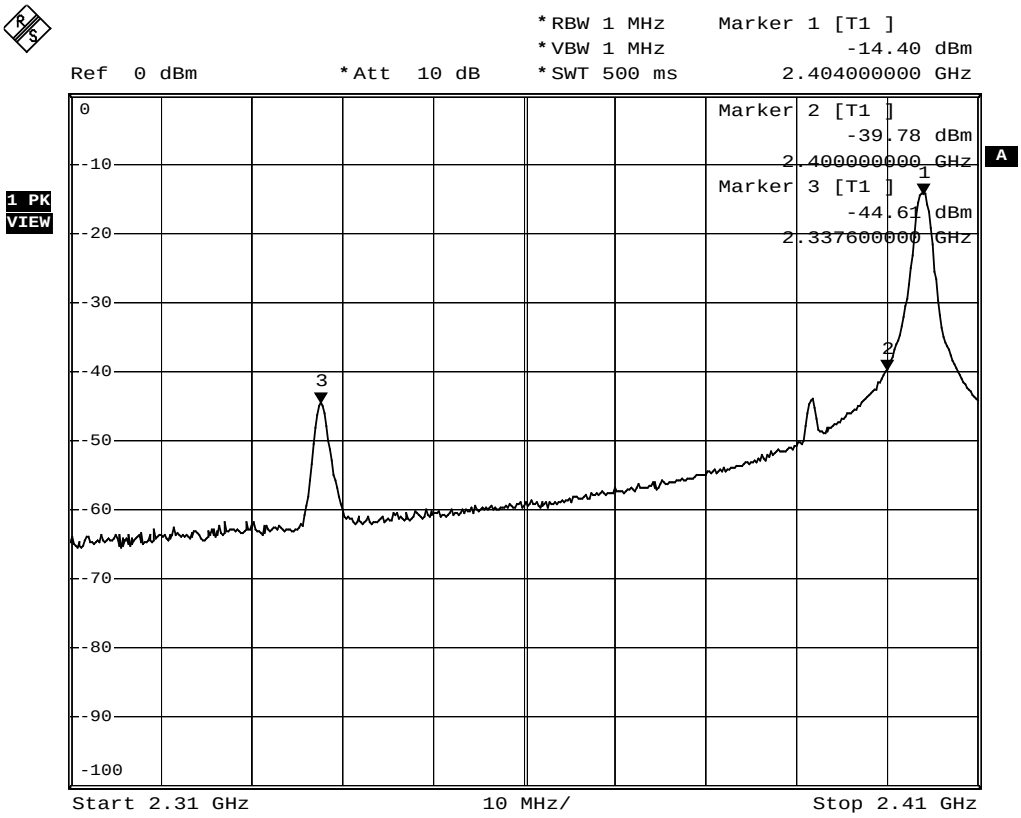
20logDuty Cycle = (-42.49)dB

Average field strength of (2400)MHz is

(47.36) dBuV/m + (-20)dB = (27.36)dBuV/m which is under 54dBuV/m.

**Remark:**

**If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.**

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| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2006 | **Temperature** | 25 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 40 %RH |
| **Working Cond.** | TX Mode | | |
| **Antenna distance** | 3m at **Horizontal** | **Test Band** | Higher |

# Radiation Emission of Fundamental

## Peak

| Frequency [MHz] | Reading Level [dB(uV)] | Correction Factor [dB/m] | Emission Level [dB(uV/m)] |
|---|---|---|---|
| 2467 | 58.75 | 31.35 | 90.1 |

Remark:
1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ.
3. Emission Level= Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
4. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor

### TEST Result

The band edge emission plot on next page are Peak and Average. The polt for peak is appear (28.43)dB delta between carry power and maximum emission in restrict band 2504.2 MHz.

The above tables are list of fundamental emission test result.

Therefore, peak field strength of 2504.2 MHz is 90.1dBuV/m – 28.43 dB = 61.67 dBuV/m which is under 74dBuV/m.

Average filed strength = Peak filed strength ╳ Duty Cycle

(20logAVG = 20logPeak + 20logDuty Cycle)

20logDuty Cycle = (-42.49)dB

Average field strength of (2504.2)MHz is

( 61.67) dBuV/m + (-20)dB = (41.67)dBuV/m which is under 54dBuV/m.

**Remark:**

**If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.**

| | | | |
|---|---|---|---|
| **Date of Test** | August 01, 2006 | **Temperature** | 25 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 40 %RH |
| **Working Cond.** | TX Mode | | |
| **Antenna distance** | 3m at **Vertical** | **Test Band** | Higher |

# Radiation Emission of Fundamental

## Peak

| Frequency [MHz] | Reading Level [dB(uV)] | Correction Factor [dB/m] | Emission Level [dB(uV/m)] |
|---|---|---|---|
| 2467 | 41.46 | 23.55 | 65.01 |

Remark:
1. All Readings below 1GHz are Quasi-Peak and above 1GHz are peak or average.
2. Spectrum Analizyer Setting(Peak Detector): RBW=1MHz, VBW=1MHZ.
3. Emission Level= Reading + Correction Factor (Could have ±0.01 tolerance due to computer automatically round off calculation).
4. Correction Factor= Antenna Factor + Cable Loss – Amplifier Factor

### TEST Result

The band edge emission plot on next page are Peak and Average. The polt for peak is appear (28.43)dB delta between carry power and maximum emission in restrict band 2504.2 MHz.

The above tables are list of fundamental emission test result.

Therefore, peak field strength of 2504.2 MHz is 65.01 dBuV/m – 28.43 dB = 36.58 dBuV/m which is under 74dBuV/m.

Average filed strength = Peak filed strength ╳ Duty Cycle

(20logAVG = 20logPeak + 20logDuty Cycle)

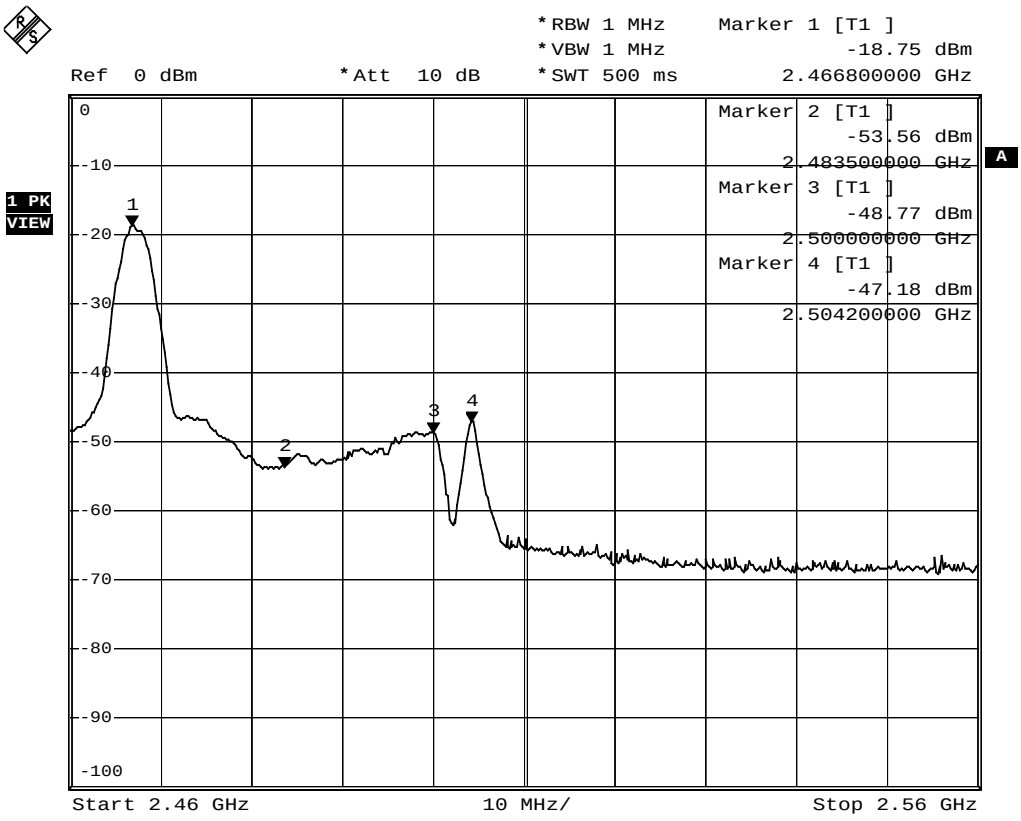
20logDuty Cycle = (-42.49)dB

Average field strength of (2504.2)MHz is

(36.58) dBuV/m + (-20)dB = (16.58)dBuV/m which is under 54dBuV/m.

**Remark:**

**If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.**

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# 5. DUTY CYCLE

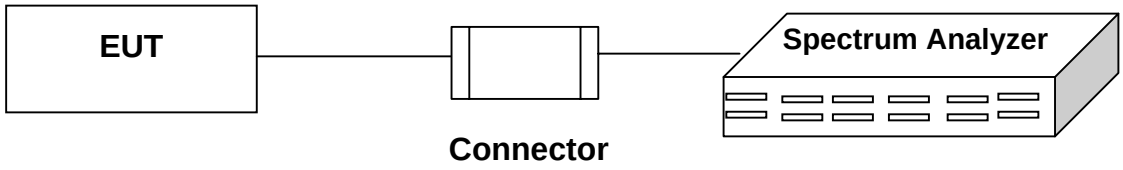
## 5.1 TEST EQUIPMENT

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

| Item | Instrument | Manufacturer | Model | Serial No. | Last Cal. |
|---|---|---|---|---|---|
| 1 | Spectrum Analyzer | Rohde & Schwarz | FSP40 | 100061 | 04/03/06 |
| 2 | Spectrum Analyzer | HP | E4407B | 39240339 | 07/26/06 |

Note: All measurement critical items of test instrumentation were within their calibration period of 1 year.

## 5.2 BLOCK DIAGRAM OF TEST SETUP




## 5.3 TEST RESULT

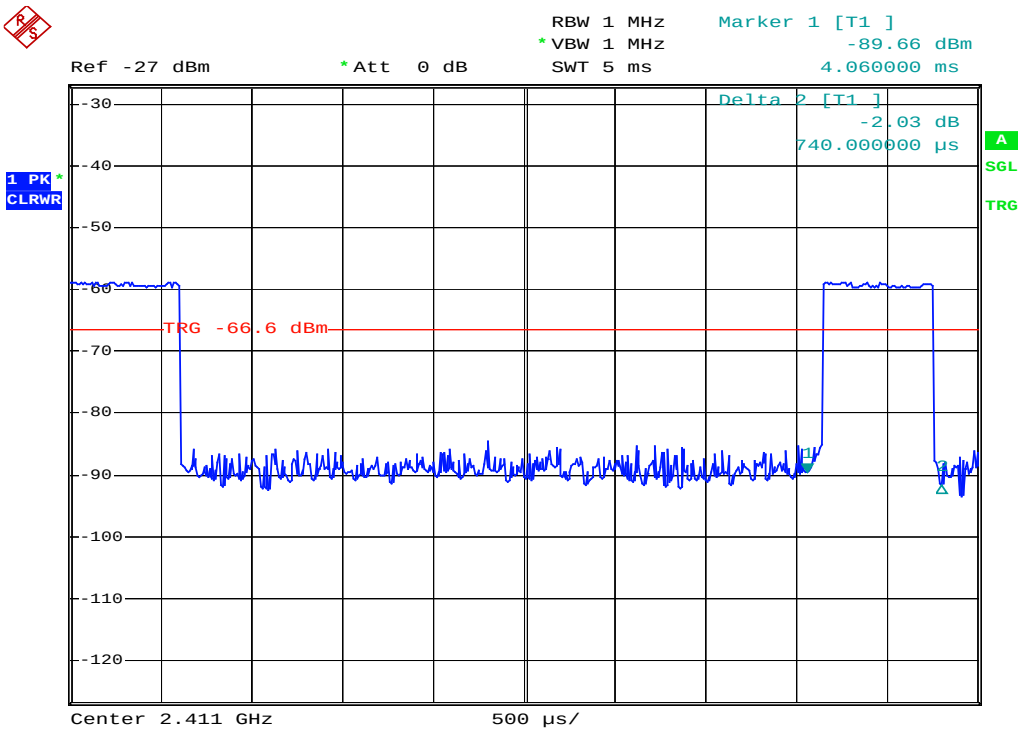
| | | | |
|---|---|---|---|
| **Date of Test** | July 27, 2006 | **Temperature** | 25 deg/C |
| **EUT** | Wireless Keyboard | **Humidity** | 40 %RH |
| **Working Cond.** | TX Mode | | |

Duty Cycle＝Time on of one cycle / Totally time of one cycle

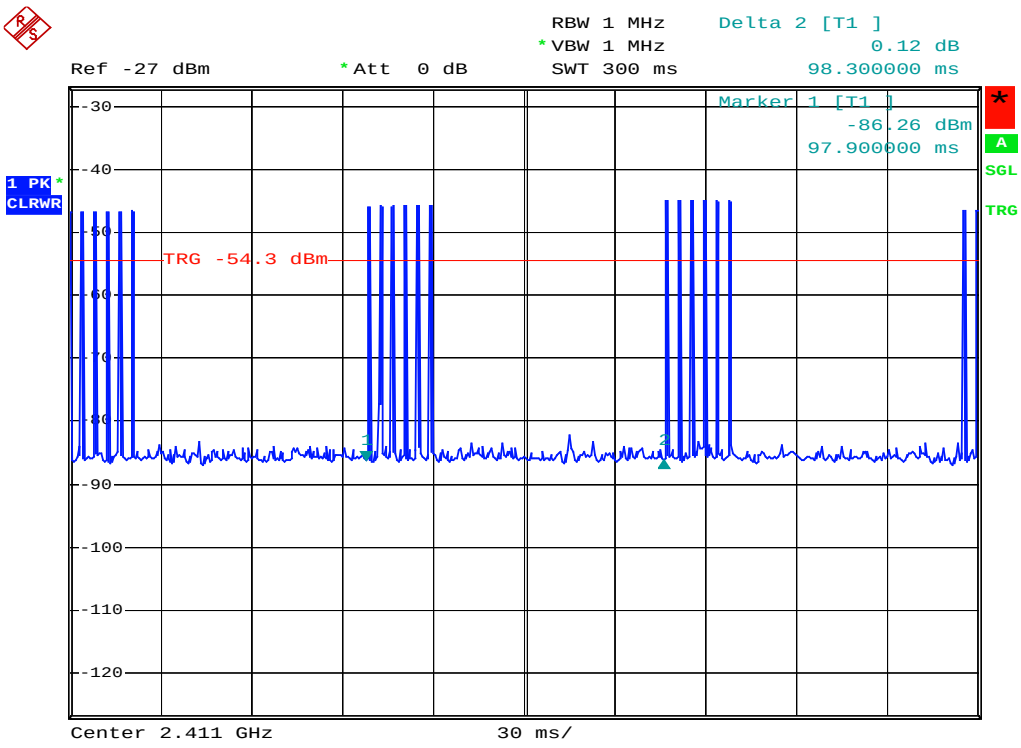
Frequency _2411_ MHz
Time on of one slot length＝ _740_ (μs)＝ _0.74_ (msec)
Time on of one cycle＝ _98.3_ (msec)
Totally time of one cycle＝ _98.3_ (msec)
Duty Cycle ＝ _0.74_ / _98.3_ ＝ _0.0075_
_20_ log _0.0075_ = _-42.49_ dB

**Remark:**

**If Duty Cycle is smaller than -20dB, based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.**




Date: 27.JUL.2006 19:36:10

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# 6. PHOTOGRAPHS FOR TEST

## 6.1 TEST PHOTOGRAPHS FOR RADIATION

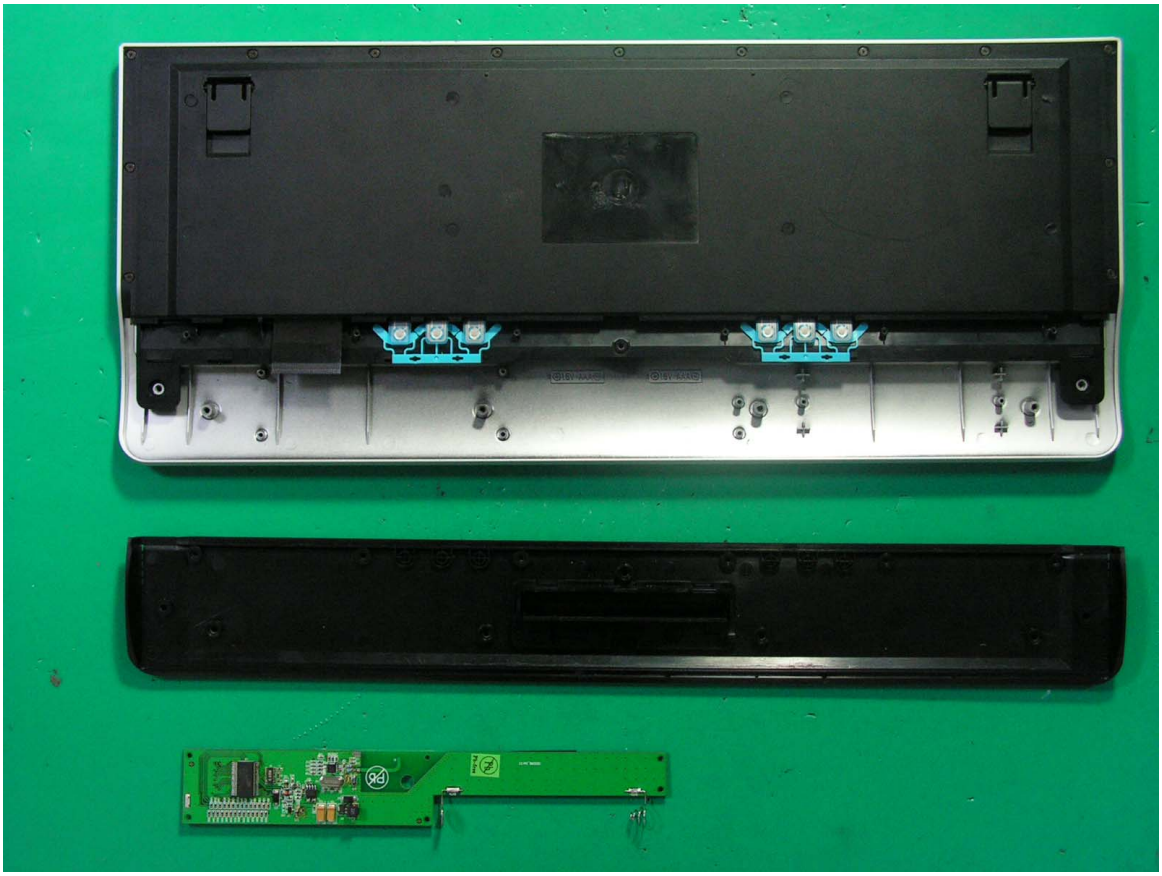
**30-1000MHz**

**Above 1GHz**

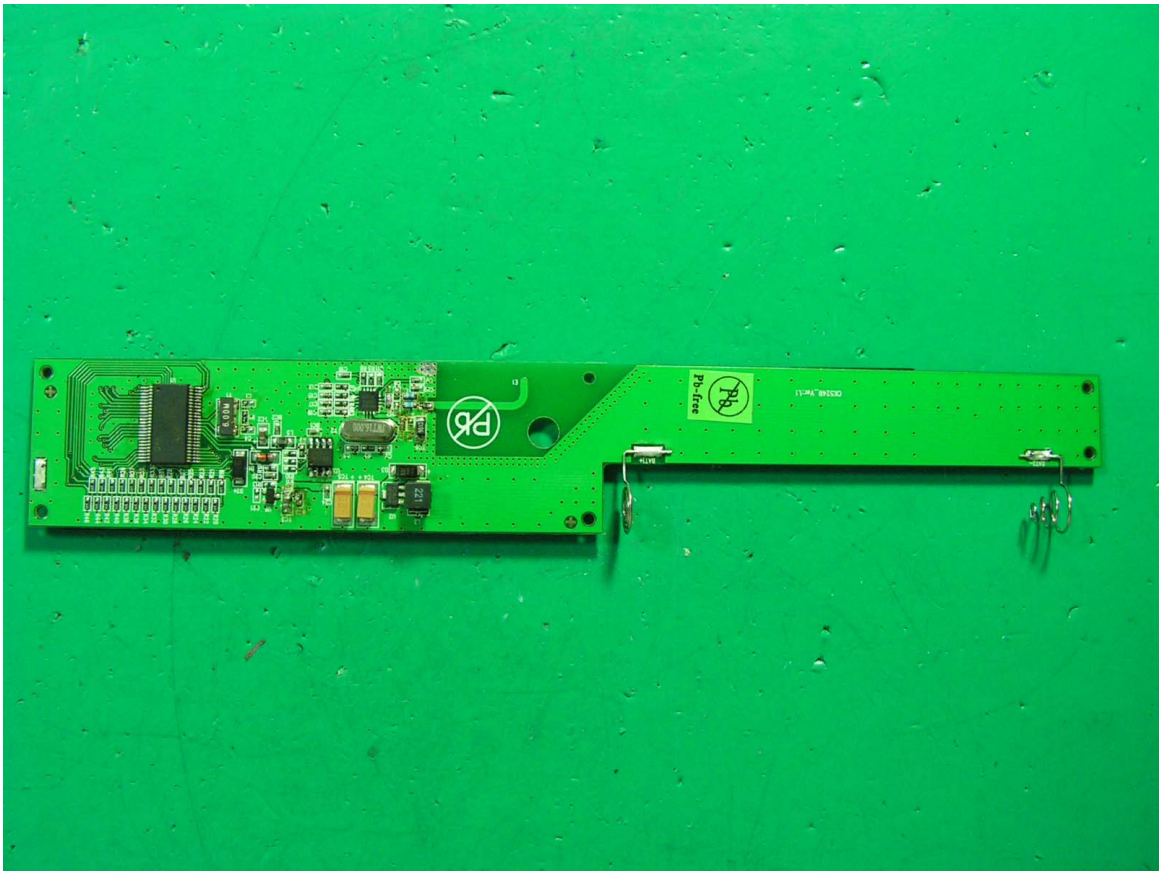
# 7. PHOTOGRAPHS FOR PRODUCT

1. Front View Of Wireless Keyboard (EUT)
2. Back View Of Wireless Keyboard (EUT)

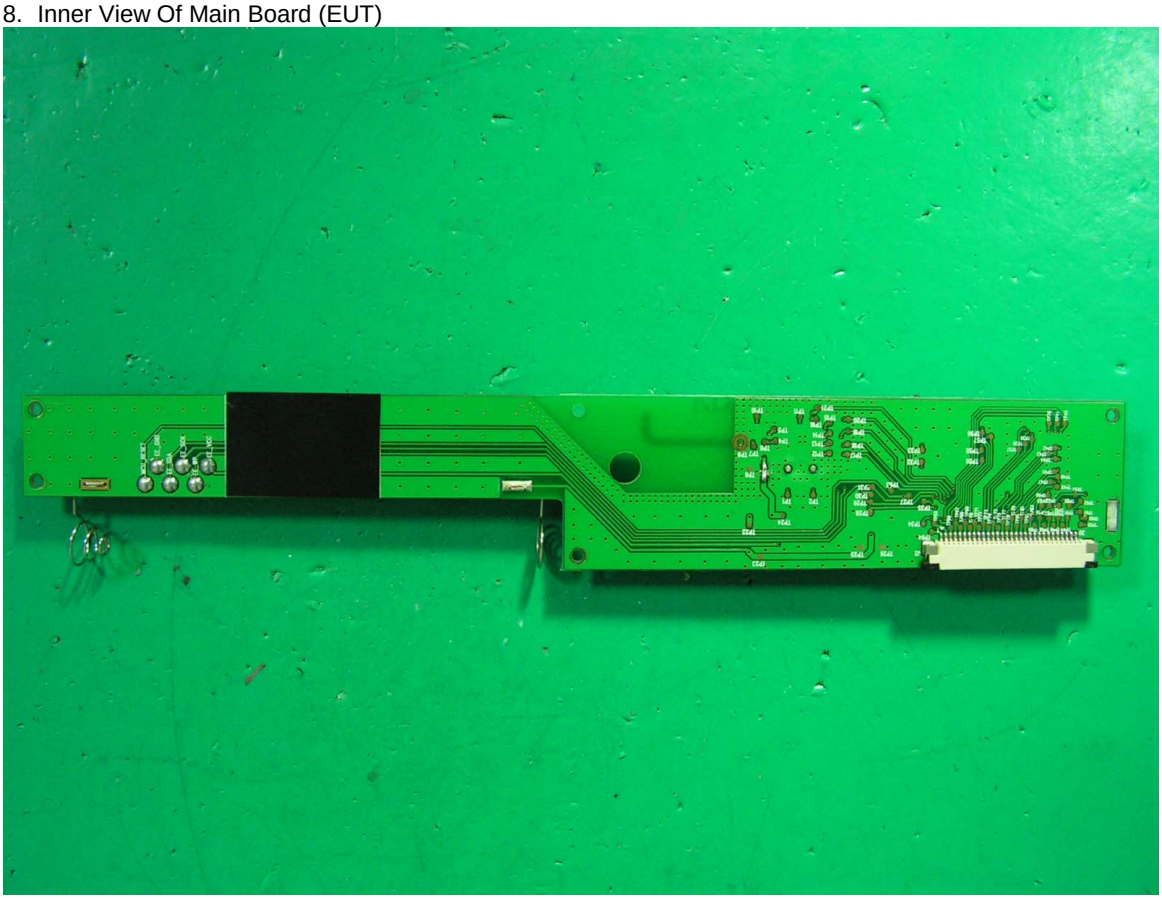

3. Inner View Of Wireless Keyboard (EUT)
4. Inner View Of Wireless Keyboard (EUT)

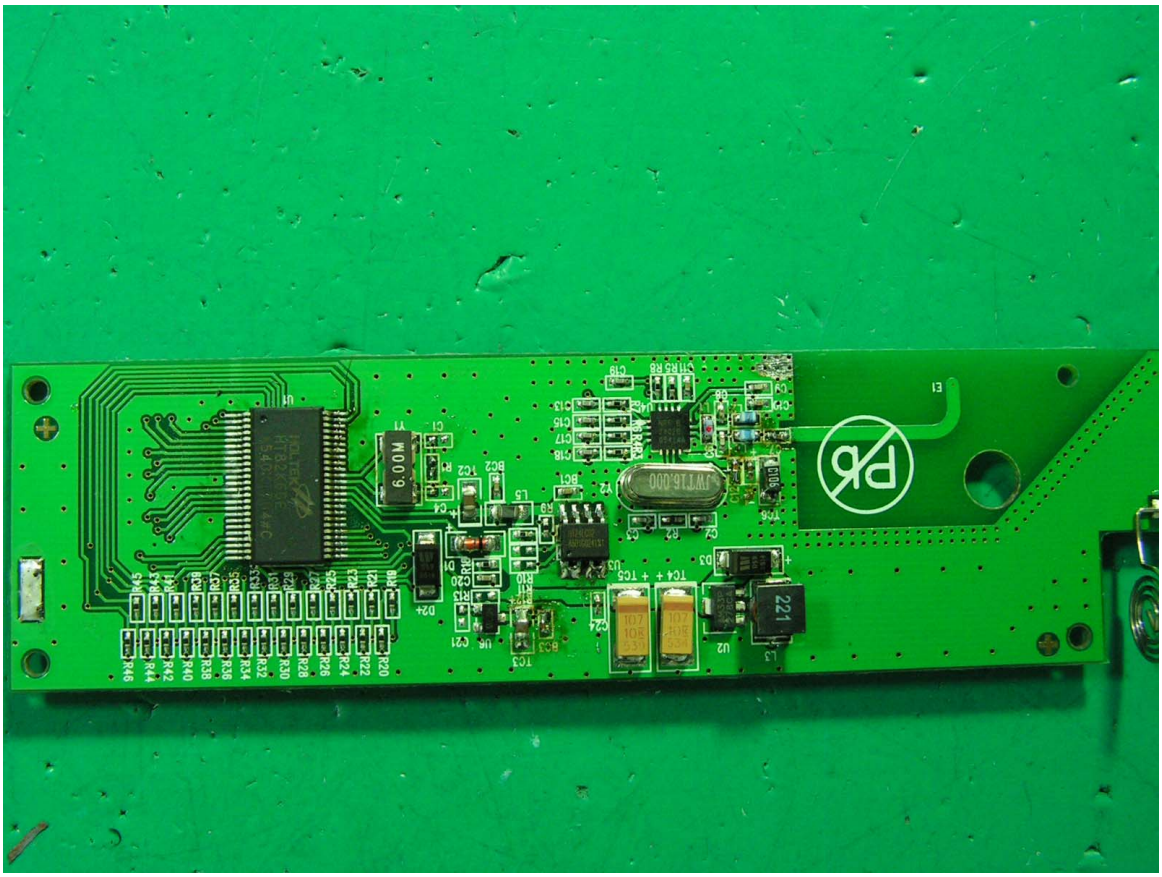


5. Inner View Of Wireless Keyboard (EUT)
6. Inner View Of Main Board (EUT)

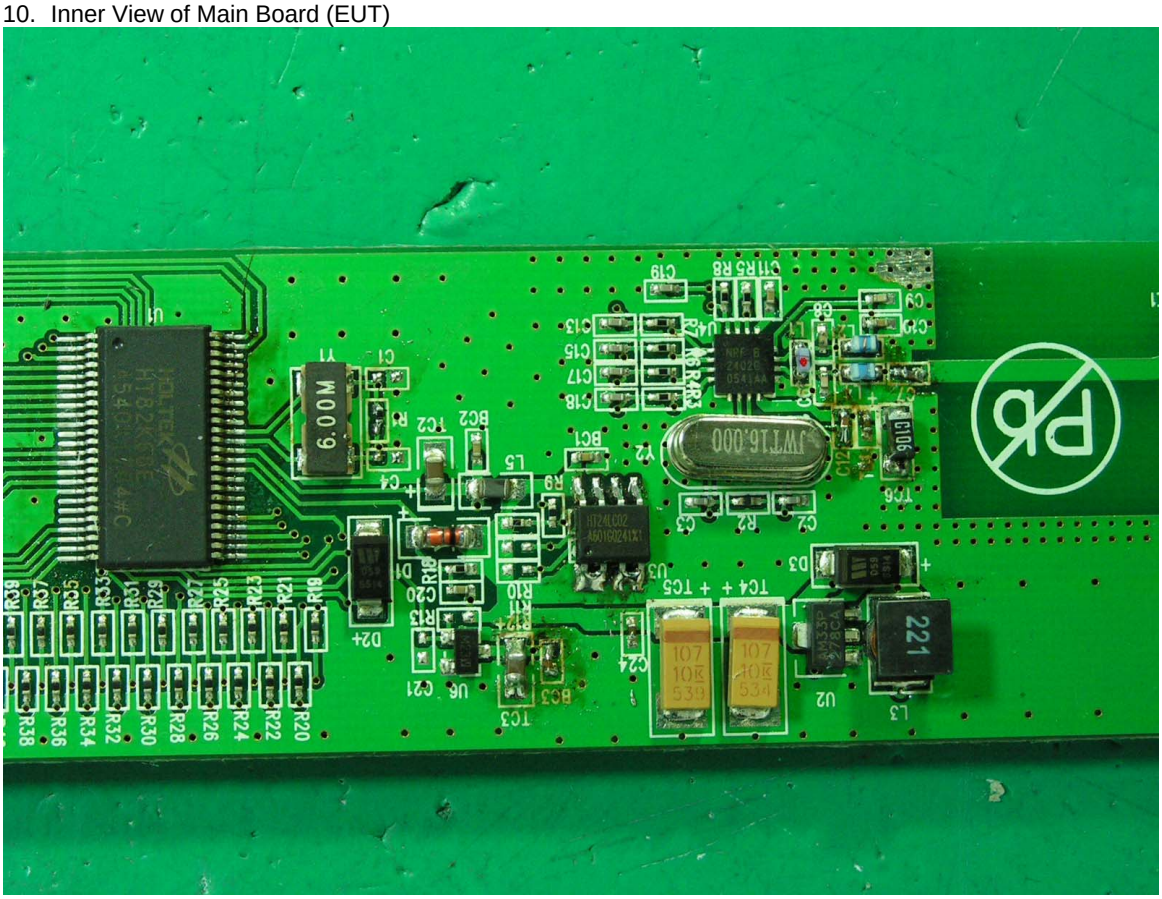


7. Inner View Of Main Board (EUT)
8. Inner View Of Main Board (EUT)





9. Inner View of Main Board(EUT)
10. Inner View of Main Board (EUT)



11. LABEL HERE

# 8. EMI REDUCTION METHOD DURING COMPLIANCE TESTING

No modification was made during testing.

# Appendix A

# Circuit (Block) Diagram

(Shall be added by Applicant)

# Appendix B

# User Manual

(Shall be added by Applicant)