# Test Report

Product Name : Wireless Pointer Mouse

Model No. : AGP8400

FCC ID.: HQXAGP8400

Applicant : SYSGRATION LTD.

Address : 8Fl., No. 542-7, Chung Cheng Rd., Hsin Tien, Taipei, Taiwan, R.O.C.

Date of Receipt : Oct. 11, 2001

Date of Test : Nov. 9, 2001

Report No. : 01AH029FI

# Test Report Certification

Test Date : Nov. 9, 2001
Report No. : 01AH029FI

QuieTek Corporation
**Accredited by NIST (NVLAP)**
NVLAP Lab Code: 200347-0

| | | |
|---|---|---|
| Product Name | : | Wireless Pointer Mouse |
| Applicant | : | SYSGRATION LTD. |
| Address | : | 8Fl., No. 542-7, Chung Cheng Rd., Hsin Tien, Taipei, Taiwan, R.O.C. |
| Manufacturer | : | SYSGRATION LTD. |
| Model No. | : | AGP8400 |
| FCC ID. | : | HQXAGP8400 |
| Rated Voltage | : | Battery 4.5V |
| Trade Name | : | Agiler |
| Measurement Standard | : | FCC Part 15 Subpart C Paragraph 15.249 |
| Measurement Procedure | : | ANSI C63.4:1992 |
| Test Result | : | Complied |

NVLAP®
NVLAP Lab Code : 200347-0

The Test Results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By : ( Kim Hung)

Tested By : Jackie Lin ( Jackie Lin )

Approved By : ( Kevin Wang )

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# 1. GENERAL INFORMATION

## 1.1. EUT Description

| | | |
|---|---|---|
| Product Name | : | Wireless Pointer Mouse |
| Trade Name | : | Agiler |
| FCC ID. | : | HQXAGP8400 |
| Model No. | : | AGP8400 |
| Frequency Range | : | 2405 MHz to 2480MHz |
| Channel Number | : | 16 |
| Type of Modulation | : | FSK |
| Antenna type | : | Printed |
| Operator Selection of Operating Frequency | : | Manual Switch |

Frequency of each Channel:

| Channel | Frequency | Channel | Frequency |
|---|---|---|---|
| Channel 1: | 2405 MHz | Channel 9: | 2445 MHz |
| Channel 2: | 2410 MHz | Channel 10: | 2450 MHz |
| Channel 3: | 2415 MHz | Channel 11: | 2455 MHz |
| Channel 4: | 2420 MHz | Channel 12: | 2460 MHz |
| Channel 5: | 2425 MHz | Channel 13: | 2465 MHz |
| Channel 6: | 2430 MHz | Channel 14: | 2470 MHz |
| Channel 7: | 2435 MHz | Channel 15: | 2475 MHz |
| Channel 8: | 2440 MHz | Channel 16: | 2480 MHz |

Note:

1. This device is a Wireless Pointer Mouse included a 2.4GHz transmitting function.
2. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249 for non-spread spectrum devices.
3. This device is a composite device in accordance with Part 15 regulations. The function for the receiver was, measured and made a test report that the report number is 01AH029F, certified under Declaration of Conformity.

## 1.2. Operation Description

The EUT is Wireless Pointer Mouse. The operation frequency is from 2.405GHz to 2.480GHz with FSK modulation. 16 manually selectable channels were built in the EUT. The signal will be transmitted through 2.4 GHz FSK RF signal from the printed antenna on PCB of EUT to receiver.

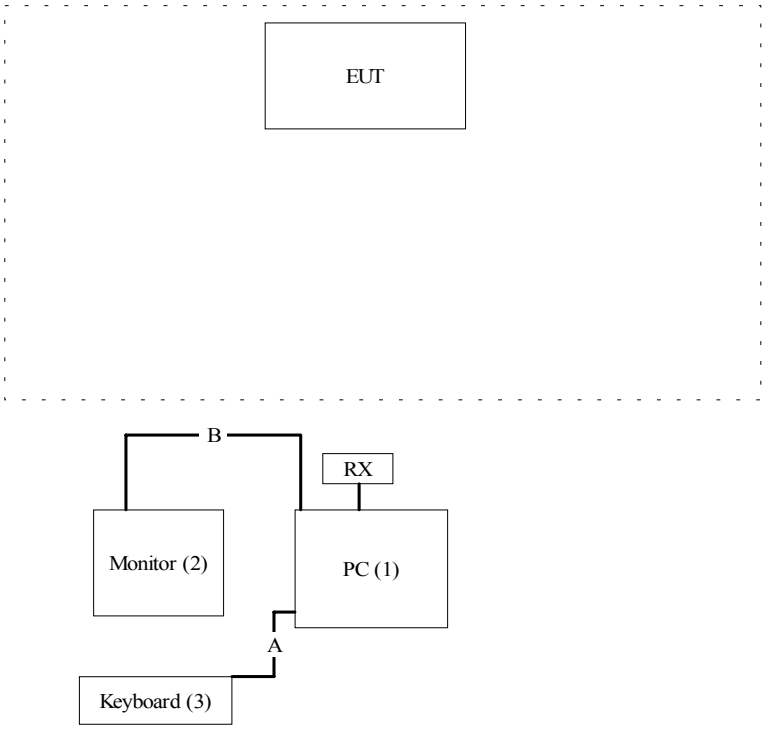
## 1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards ) are:

| Product | | Manufacturer | Model No. | Serial No. | Power Cord | FCC ID |
|---|---|---|---|---|---|---|
| (1) | PC | IBM | 16W | BNL6767 | Non-shielded,1.8m | DoC |
| (2) | Monitor | HITACHI | CM752ET-311 | T8E004439 | Shielded,1.7m | DoC |
| (3) | Keyboard | IBM | KB-9930 | 0073449 | -- | DoC |

| Signal Cable Type | | Signal Cable Description |
|---|---|---|
| A. | Keyboard Cable | Shielded, 1.8m |
| B. | VGA Cable | Shielded, 1.8m, two ferrite core bonded |

## 1.4. Configuration of Tested System




## 1.5. EUT Exercise Software

1.4.1 Setup the EUT and simulators as shown on 1.3.

1.4.2 Turn on the power of all equipment.

1.4.3 PC reads data from disk.

1.4.4 Data will be transmitted through EUT.

1.4.5 The transmission status will be shown on the monitor.

1.4.6 Repeat the above procedure 1.4.4 to 1.4.5

## 1.6. Test Facility

Ambient conditions in the laboratory:

| Items | Required (IEC 68-1) | Actual |
|---|---|---|
| Temperature (°C) | 15-35 | 20-35 |
| Humidity (%RH) | 25-75 | 50-65 |
| Barometric pressure (mbar) | 860-1060 | 950-1000 |

Site Description: November 3, 1998 File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Reference 31040/SIT1300F2

September 30, 1998 Accreditation on NVLAP
NVLAP Lab Code: 200347-0

NVLAP Lab Code : 200347-0

Site Name: Quietek Corporation

Site Address: No. 75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.

## 2. Conducted Emission

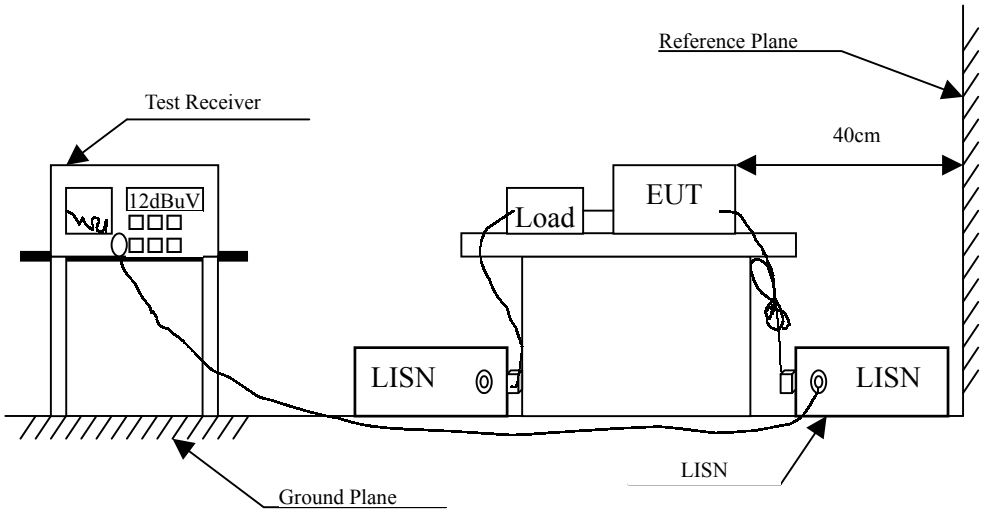
### 2.1. Test Equipment List

The following test equipment are used during the conducted emission test:

| Item | Instrument | Manufacturer | Type No./Serial No | Last Cal. | Remark |
|---|---|---|---|---|---|
| 1 | Test Receiver | R & S | ESCS 30/825442/17 | May, 2001 | |
| 2 | L.I.S.N. | R & S | ESH3-Z5/825016/6 | May, 2001 | EUT |
| 3 | L.I.S.N. | Kyoritsu | KNW-407/8-1420-3 | May, 2001 | Peripherals |
| 4 | Pulse Limiter | R & S | ESH3-Z2 | N/A | |
| 5 | No. 2 Shielded Room | | | N/A | |

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

### 2.2. Test Setup




### 2.3. Limits

| FCC Part 15 Paragraph 15.207 (dBuV) | | |
|---|---|---|
| Frequency MHz | Limits | |
| | uV | dBuV |
| 0.45 - 30 | 250 | 48.0 |

## 2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4:1992 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.45MHz to 30MHz using a receiver bandwidth of 9kHz.

## 2.5. Test Result of Conducted Emission

EUT is a battery operate device, so conducted emission were omitted.

# 3. Radiated Emission

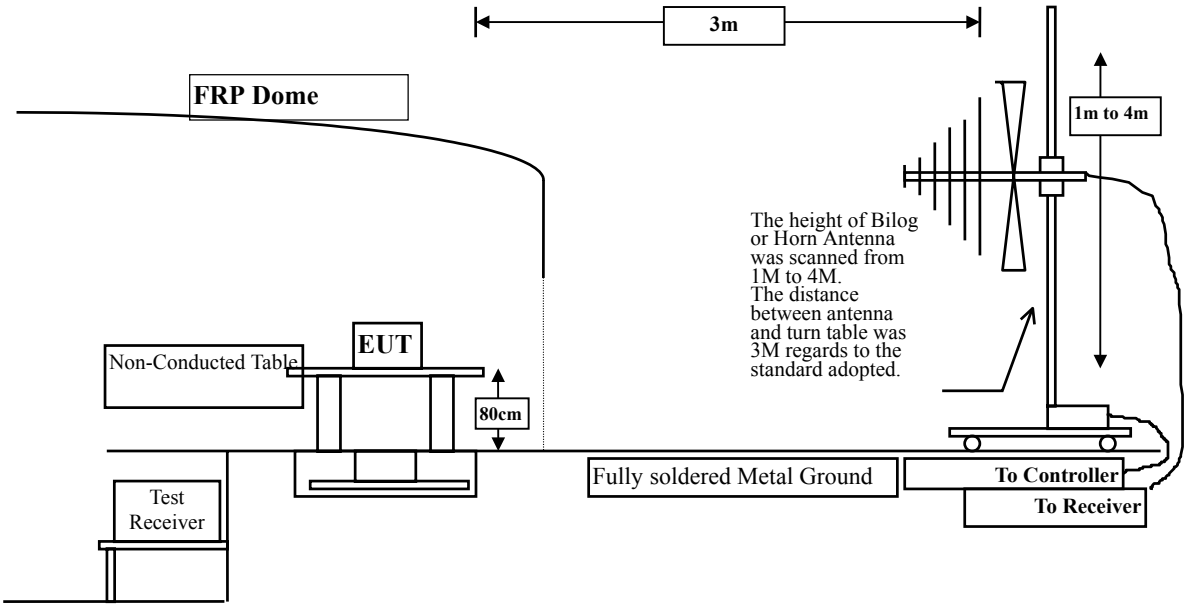
## 3.1. Test Equipment

The following test equipment are used during the radiated emission test:

| Test Site | | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|---|---|---|---|---|---|
| Site # 1 | X | Test Receiver | R & S | ESCS 30 / 825442/14 | May, 2001 |
| | X | Spectrum Analyzer | Advantest | R3261C / 71720140 | May, 2001 |
| | X | Pre-Amplifier | HP | 8447D/3307A01812 | May, 2001 |
| | X | Bilog Antenna | Chase | CBL6112B / 12452 | Sep., 2001 |
| | X | Horn Antenna | EM | EM6917 / 103325 | May, 2001 |
| Site # 2 | | Test Receiver | R & S | ESCS 30 / 825442/17 | May, 2001 |
| | | Spectrum Analyzer | Advantest | R3261C / 71720609 | May, 2001 |
| | | Pre-Amplifier | HP | 8447D/3307A01814 | May, 2001 |
| | | Bilog Antenna | Chase | CBL6112B / 2455 | Sep., 2001 |
| | | Horn Antenna | EM | EM6917 / 103325 | May, 2001 |

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
2. Mark "X" test instruments are used to measure the final test results.

## 3.2. Test Setup



## 3.3. Limits

➢ **Fundamental and Harmonics Emission Limits**

| Frequency | Field Strength of Fundamental | | Field Strength of Harmonics | |
|---|---|---|---|---|
| MHz | (mV/m @3m) | (dBuV/m @3m) | (uV/m @3m) | (dBuV/m @3m) |
| 2400-2483.5 | 50 | 94 (Average) | 500 | 54 (Average) |
| | | 114 (Peak) | | 74 (Peak) |

➢ **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 | 15.209 Limits |
|---|---|
| MHz | (dBuV/m @3m) |
| 30-88 | 40 |
| 88-216 | 43.5 |
| 216-960 | 46 |
| Above 960 | 54 |

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.

## 3.4. Test Procedure

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 C63.4:1992 on radiated measurement.
Radiated emissions were invested over the frequency range from 30MHz to1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 3 meters.
The frequency range from 30MHz to 10th harminics is checked.

## 3.5. Test Result of Radiated Emission

Product : Wireless Pointer Mouse
Test Item : Fundamental Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Normal Operation

| Freq. | Cable Loss | Probe Factor | PreAMP | Reading Level | Emission Level | Margin | Limit |
|---|---|---|---|---|---|---|---|
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dB | dBuV/m |
| Peak Detector (Horizontal) | | | | | | | |
| Channel 1 | | | | | | | |
| 2404.900 | 3.84 | 29.26 | 34.90 | 79.32 | 77.52 | 36.48 | 114.00 |
| Channel 9 | | | | | | | |
| 2445.060 | 3.88 | 29.35 | 34.90 | 82.81 | 81.13 | 32.87 | 114.00 |
| Channel 16 | | | | | | | |
| 2480.020 | 3.91 | 29.44 | 34.90 | 82.23 | 80.68 | 33.32 | 114.00 |
| Peak Detector (Vertical) | | | | | | | |
| Channel 1 | | | | | | | |
| 2404.900 | 3.84 | 29.26 | 34.90 | 75.39 | 73.59 | 40.41 | 114.00 |
| Channel 9 | | | | | | | |
| 2445.060 | 3.88 | 29.35 | 34.90 | 75.58 | 73.90 | 40.10 | 114.00 |
| Channel 16 | | | | | | | |
| 2480.020 | 3.91 | 29.44 | 34.90 | 74.98 | 73.43 | 40.57 | 114.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Pointer Mouse
Test Item : Harmonic Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 1

| Freq. | Cable Loss | Probe Factor | PreAMP | Reading Level | Emission Level | Margin | Limit |
|---|---|---|---|---|---|---|---|
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dB | dBuV/m |
| Peak Detector (Horizontal) | | | | | | | |
| 4809.000 | 6.26 | 33.48 | 35.90 | 43.50 | 47.34 | 26.66 | 74.00 |
| 7214.000 | 8.31 | 36.22 | 34.90 | 44.14 | 53.77 | 20.23 | 74.00 |
| 9619.000 | 10.15 | 37.42 | 35.10 | 43.10 | 55.58 | 18.42 | 74.00 |
| 12024.00 | 11.87 | 39.11 | 34.69 | 44.34 | 60.64 | 13.36 | 74.00 |
| 14430.00 | 13.49 | 40.91 | 34.22 | 43.15 | <63.33 | 10.67 | 74.00 |
| 16834.00 | 15.04 | 42.54 | 34.03 | 43.40 | <66.96 | 7.04 | 74.00 |
| Average Detector (Horizontal) | | | | | | | |
| 9619.000 | 10.15 | 37.42 | 35.10 | 32.47 | 44.95 | 9.05 | 54.00 |
| 12024.00 | 11.87 | 39.11 | 34.69 | 32.44 | 48.74 | 5.26 | 54.00 |
| 14430.00 | 13.49 | 40.91 | 34.22 | 32.15 | <52.33 | 1.67 | 54.00 |
| 16834.00 | 15.04 | 42.54 | 34.03 | 28.47 | <52.03 | 1.97 | 54.00 |
| Peak Detector (Vertical) | | | | | | | |
| 4809.700 | 6.27 | 33.50 | 34.77 | 43.29 | 48.29 | 25.71 | 74.00 |
| 7214.000 | 8.31 | 36.22 | 34.90 | 43.18 | 52.81 | 21.19 | 74.00 |
| 9619.000 | 10.15 | 37.42 | 35.10 | 43.30 | 55.78 | 18.22 | 74.00 |
| 12025.00 | 11.87 | 39.11 | 34.69 | 44.40 | 60.70 | 13.30 | 74.00 |
| 14430.00 | 13.49 | 40.91 | 34.22 | 42.50 | <62.68 | 11.32 | 74.00 |
| 16834.00 | 15.04 | 42.54 | 34.03 | 43.18 | <66.74 | 7.26 | 74.00 |
| Average Detector (Vertical) | | | | | | | |
| 9619.000 | 10.15 | 37.42 | 35.10 | 32.40 | 44.88 | 9.12 | 54.00 |
| 12025.00 | 11.87 | 39.11 | 34.69 | 32.30 | 48.60 | 5.40 | 54.00 |
| 14430.00 | 13.49 | 40.91 | 34.22 | 31.60 | <51.78 | 2.22 | 54.00 |
| 16834.00 | 15.04 | 42.54 | 34.03 | 28.96 | <52.52 | 1.48 | 54.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Pointer Mouse
Test Item : Harmonic Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 9

| Freq. | Cable Loss | Probe Factor | PreAMP | Reading Level | Emission Level | Margin | Limit |
|---|---|---|---|---|---|---|---|
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dB | dBuV/m |
| Peak Detector (Horizontal) | | | | | | | |
| 4890.000 | 6.34 | 33.58 | 34.74 | 43.13 | 48.30 | 25.70 | 74.00 |
| 7335.000 | 8.41 | 36.34 | 34.90 | 43.21 | 53.06 | 20.94 | 74.00 |
| 9781.100 | 10.27 | 37.45 | 35.10 | 43.97 | 56.59 | 17.41 | 74.00 |
| 12225.10 | 12.03 | 39.20 | 34.52 | 42.96 | 59.66 | 14.34 | 74.00 |
| 14670.00 | 13.65 | 40.41 | 34.47 | 43.40 | <62.99 | 11.01 | 74.00 |
| 17115.00 | 15.20 | 43.08 | 33.90 | 44.00 | <68.38 | 5.62 | 74.00 |
| Average Detector (Horizontal) | | | | | | | |
| 9781.100 | 10.27 | 37.45 | 35.10 | 32.34 | 44.96 | 9.04 | 54.00 |
| 12225.10 | 12.03 | 39.20 | 34.52 | 32.00 | 48.70 | 5.30 | 54.00 |
| 14670.00 | 13.65 | 40.41 | 34.47 | 32.01 | <51.60 | 2.40 | 54.00 |
| 17115.00 | 15.20 | 43.08 | 33.90 | 29.02 | <53.40 | 0.60 | 54.00 |
| Peak Detector (Vertical) | | | | | | | |
| 4890.000 | 6.34 | 33.58 | 34.74 | 42.86 | 48.03 | 25.97 | 74.00 |
| 7335.000 | 8.41 | 36.34 | 34.90 | 42.98 | 52.83 | 21.17 | 74.00 |
| 9780.000 | 10.27 | 37.45 | 35.10 | 42.90 | 55.52 | 18.48 | 74.00 |
| 12225.10 | 12.03 | 39.20 | 34.52 | 44.40 | 61.10 | 12.90 | 74.00 |
| 14670.00 | 13.65 | 40.41 | 34.47 | 44.50 | <64.09 | 9.91 | 74.00 |
| 17115.00 | 15.20 | 43.08 | 33.90 | 43.33 | <67.71 | 6.29 | 74.00 |
| Average Detector (Vertical) | | | | | | | |
| 9780.000 | 10.27 | 37.45 | 35.10 | 32.80 | 45.42 | 8.58 | 54.00 |
| 12225.10 | 12.03 | 39.20 | 34.52 | 32.50 | 49.20 | 4.80 | 54.00 |
| 14670.00 | 13.65 | 40.41 | 34.47 | 32.33 | <51.92 | 2.08 | 54.00 |
| 17115.00 | 15.20 | 43.08 | 33.90 | 28.65 | <53.03 | 0.97 | 54.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Pointer Mouse
Test Item : Harmonic Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 16

| Freq. | Cable Loss | Probe Factor | PreAMP | Reading Level | Emission Level | Margin | Limit |
|---|---|---|---|---|---|---|---|
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dB | dBuV/m |
| Peak Detector (Horizontal) | | | | | | | |
| 4960.000 | 6.40 | 33.66 | 34.72 | 42.86 | 48.20 | 25.80 | 74.00 |
| 7440.000 | 8.49 | 36.44 | 34.90 | 42.95 | 52.98 | 21.02 | 74.00 |
| 9920.000 | 10.38 | 37.48 | 35.10 | 43.00 | 55.76 | 18.24 | 74.00 |
| 12400.00 | 12.14 | 39.26 | 34.37 | 42.55 | 59.58 | 14.42 | 74.00 |
| 14880.00 | 13.78 | 39.98 | 34.55 | 43.30 | <62.51 | 11.49 | 74.00 |
| 17360.00 | 15.36 | 44.28 | 33.90 | 43.40 | <69.14 | 4.86 | 74.00 |
| Average Detector (Horizontal) | | | | | | | |
| 9920.000 | 10.38 | 37.48 | 35.10 | 31.97 | 44.73 | 9.27 | 54.00 |
| 12400.00 | 12.14 | 39.26 | 34.37 | 31.80 | 48.83 | 5.17 | 54.00 |
| 14880.00 | 13.78 | 39.98 | 34.55 | 31.97 | <51.18 | 2.82 | 54.00 |
| 17360.00 | 15.36 | 44.28 | 33.90 | 27.65 | <53.39 | 0.61 | 54.00 |
| Peak Detector (Vertical) | | | | | | | |
| 4960.000 | 6.40 | 33.66 | 34.72 | 43.01 | 48.35 | 25.65 | 74.00 |
| 7440.000 | 8.49 | 36.44 | 34.90 | 43.40 | 53.43 | 20.57 | 74.00 |
| 9920.000 | 10.38 | 37.48 | 35.10 | 42.70 | 55.46 | 18.54 | 74.00 |
| 12400.60 | 12.14 | 39.26 | 34.37 | 42.07 | 59.10 | 14.90 | 74.00 |
| 14880.10 | 13.78 | 39.98 | 34.55 | 42.90 | <62.11 | 11.89 | 74.00 |
| 17360.00 | 15.36 | 44.28 | 33.90 | 43.50 | <69.24 | 4.76 | 74.00 |
| Average Detector (Vertical) | | | | | | | |
| 9920.000 | 10.38 | 37.48 | 35.10 | 32.00 | 44.76 | 9.24 | 54.00 |
| 12400.60 | 12.14 | 39.26 | 34.37 | 31.30 | 48.33 | 5.67 | 54.00 |
| 14880.10 | 13.78 | 39.98 | 34.55 | 31.50 | <50.71 | 3.29 | 54.00 |
| 17360.00 | 15.36 | 44.28 | 33.90 | 27.78 | <53.52 | 0.48 | 54.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Emission Level = Reading Level + Probe Factor + Cable loss-PreAMP
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Pointer Mouse
Test Item : General Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 1

| Freq. | Cable Loss | Probe Factor | PreAMP | Reading Level | Emission Level | Margin | Limit |
|---|---|---|---|---|---|---|---|
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dB | dBuV/m |
| **Horizontal:** | | | | | | | |
| 43.920 | 1.28 | 12.66 | 0.00 | 1.80 | 15.74 | 24.26 | 40.00 |
| 57.580 | 1.41 | 6.17 | 0.00 | 2.81 | 10.39 | 29.61 | 40.00 |
| 62.860 | 1.47 | 5.69 | 0.00 | 2.36 | 9.52 | 30.48 | 40.00 |
| 75.140 | 1.59 | 8.26 | 0.00 | 2.10 | 11.95 | 28.05 | 40.00 |
| 120.380 | 2.02 | 12.81 | 0.00 | 1.40 | 16.22 | 27.28 | 43.50 |
| *440.920 | 4.48 | 16.99 | 0.00 | 0.87 | 22.34 | 23.66 | 46.00 |
| **Vertical:** | | | | | | | |
| 50.260 | 1.35 | 8.23 | 0.00 | 4.00 | 13.58 | 26.42 | 40.00 |
| 55.520 | 1.39 | 8.10 | 0.00 | 7.24 | 16.74 | 23.26 | 40.00 |
| *57.500 | 1.41 | 7.54 | 0.00 | 8.18 | 17.13 | 22.87 | 40.00 |
| 62.180 | 1.46 | 8.11 | 0.00 | 6.94 | 16.51 | 23.49 | 40.00 |
| 136.000 | 2.17 | 11.86 | 0.00 | 3.07 | 17.10 | 26.40 | 43.50 |
| 431.940 | 4.44 | 16.68 | 0.00 | 0.98 | 22.11 | 23.89 | 46.00 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss

Product : Wireless Pointer Mouse
Test Item : General Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 9

| Freq. | Cable Loss | Probe Factor | PreAMP | Reading Level | Emission Level | Margin | Limit |
|---|---|---|---|---|---|---|---|
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dB | dBuV/m |
| **Horizontal:** | | | | | | | |
| *40.660 | 1.25 | 14.60 | 0.00 | 1.81 | 17.66 | 22.34 | 40.00 |
| 49.350 | 1.34 | 9.24 | 0.00 | 2.08 | 12.66 | 27.34 | 40.00 |
| 57.740 | 1.42 | 6.04 | 0.00 | 2.67 | 10.13 | 29.87 | 40.00 |
| 70.320 | 1.54 | 7.16 | 0.00 | 2.02 | 10.72 | 29.28 | 40.00 |
| 197.735 | 2.77 | 9.64 | 0.00 | 2.67 | 15.08 | 28.42 | 43.50 |
| 226.498 | 3.05 | 10.58 | 0.00 | 2.75 | 16.37 | 29.63 | 46.00 |
| **Vertical:** | | | | | | | |
| *36.450 | 1.22 | 15.14 | 0.00 | 3.72 | 20.08 | 19.92 | 40.00 |
| 56.120 | 1.40 | 8.24 | 0.00 | 9.20 | 18.84 | 21.16 | 40.00 |
| 58.670 | 1.42 | 8.24 | 0.00 | 8.47 | 18.13 | 21.87 | 40.00 |
| 61.560 | 1.46 | 8.11 | 0.00 | 7.16 | 16.73 | 23.27 | 40.00 |
| 69.780 | 1.53 | 8.34 | 0.00 | 3.08 | 12.95 | 27.05 | 40.00 |
| 131.500 | 2.12 | 11.70 | 0.00 | 1.67 | 15.49 | 28.01 | 43.50 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss

Product : Wireless Pointer Mouse
Test Item : General Radiated Emission Data
Test Site : No.1 OATS
Test Mode : Channel 16

| Freq. | Cable Loss | Probe Factor | PreAMP | Reading Level | Emission Level | Margin | Limit |
|---|---|---|---|---|---|---|---|
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dB | dBuV/m |
| **Horizontal:** | | | | | | | |
| *41.240 | 1.26 | 13.30 | 0.00 | 1.78 | 16.34 | 23.66 | 40.00 |
| 55.285 | 1.39 | 6.81 | 0.00 | 2.56 | 10.76 | 29.24 | 40.00 |
| 57.800 | 1.42 | 6.04 | 0.00 | 2.63 | 10.09 | 29.91 | 40.00 |
| 60.100 | 1.44 | 5.94 | 0.00 | 2.79 | 10.16 | 29.84 | 40.00 |
| 85.800 | 1.69 | 9.98 | 0.00 | 1.70 | 13.37 | 26.63 | 40.00 |
| 152.285 | 2.33 | 11.90 | 0.00 | 1.43 | 15.65 | 27.85 | 43.50 |
| **Vertical:** | | | | | | | |
| *35.920 | 1.21 | 15.52 | 0.00 | 3.68 | 20.41 | 19.59 | 40.00 |
| 57.440 | 1.41 | 7.54 | 0.00 | 8.08 | 17.03 | 22.97 | 40.00 |
| 59.360 | 1.43 | 7.67 | 0.00 | 8.01 | 17.11 | 22.89 | 40.00 |
| 62.760 | 1.47 | 7.51 | 0.00 | 6.32 | 15.30 | 24.70 | 40.00 |
| 70.560 | 1.54 | 8.34 | 0.00 | 3.16 | 13.04 | 26.96 | 40.00 |
| 143.100 | 2.24 | 11.60 | 0.00 | 1.70 | 15.54 | 27.96 | 43.50 |

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable loss

# 4. Band Edge

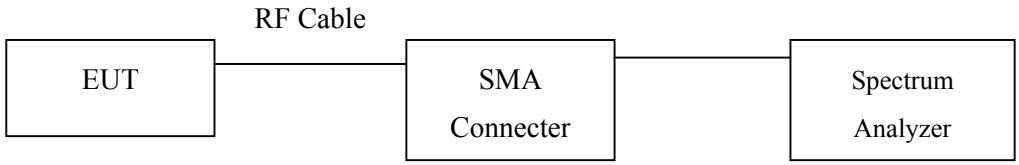
## 4.1. Test Equipment

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

| | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|---|---|---|---|---|
| X | Spectrum Analyzer | Advantest | R3272 / 72421194 | May, 2001 |

Note: 1. All equipment upon which need to calibrated are with calibration period of 1 year.
2. Mark "X" test instruments are used to measure the final test results.

## 4.2. Test Setup




## 4.3. Test Condition

Standard Temperature and Humidity, Standard Test Voltage

## 4.4. Standard Reqirement

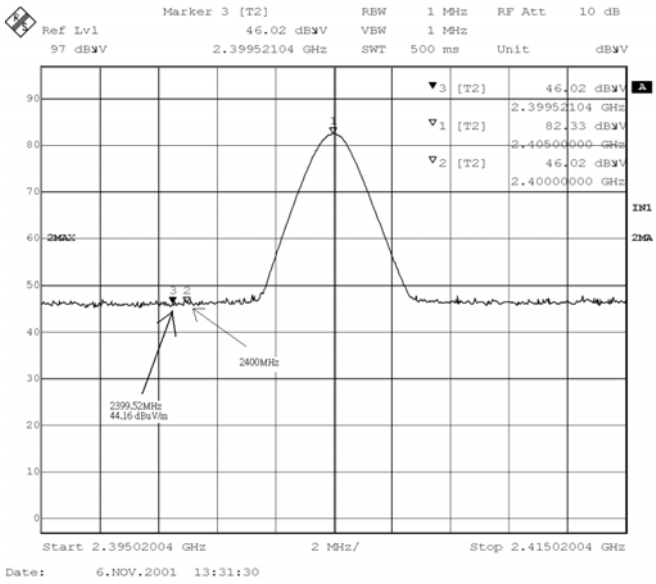
According to Part 15.209, above 1000 MHz, an averaging meter of wide bandwidth, equal to at least the 50 dB bandwidth of the signal to be measured, is to be used for measurement of the wanted signal and 100 kHz bandwidth for measurement of the unwanted signal.

## 4.5. Test Result of Band Edge

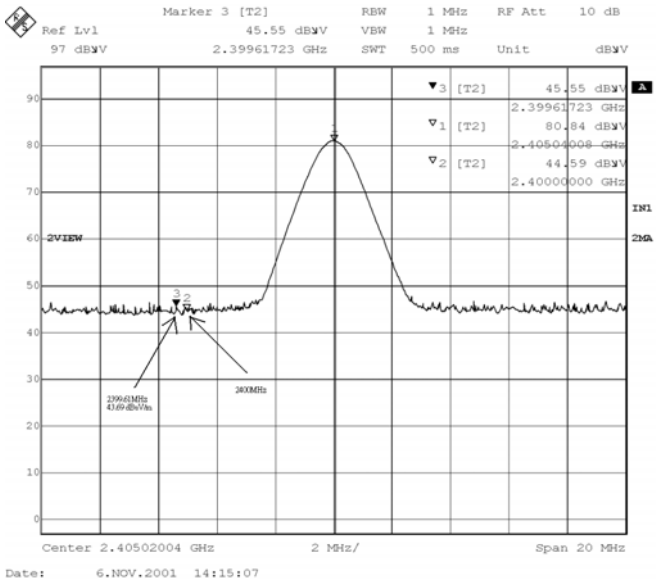
Product : Wireless Pointer Mouse
Test Item : Band Edge Data
Test Site : No.1 OATS
Test Mode : Channel 1

| Channel No. | Frequency (MHz) | Reading (dBuV) | Measurement Level (dBuV/m) | Limit | Result |
|---|---|---|---|---|---|
| 1(Horizontal) | 2399.50 | 46.02 | 44.16 | 54 | Pass |
| 1 (Vertical) | 2399.60 | 45.55 | 43.69 | 54 | Pass |

**Figure Channel 1:** Channel 1: Horizontal




Channel 1: Vertical

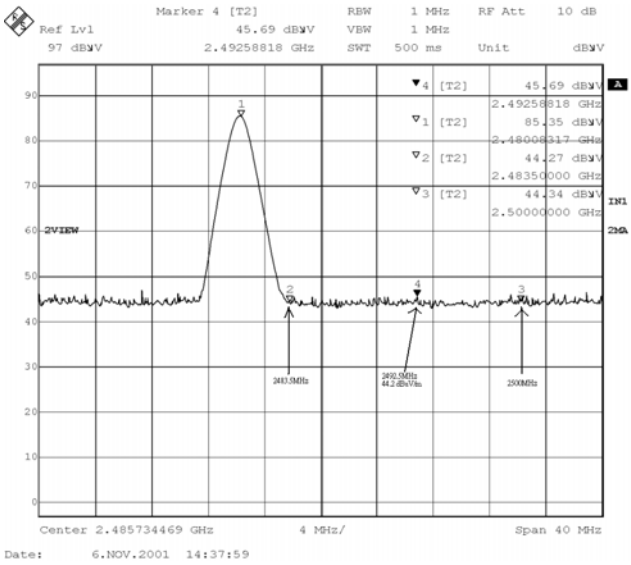


Product : Wireless Pointer Mouse
Test Item : Band Edge Data
Test Site : No.1 OATS
Test Mode : Channel 16

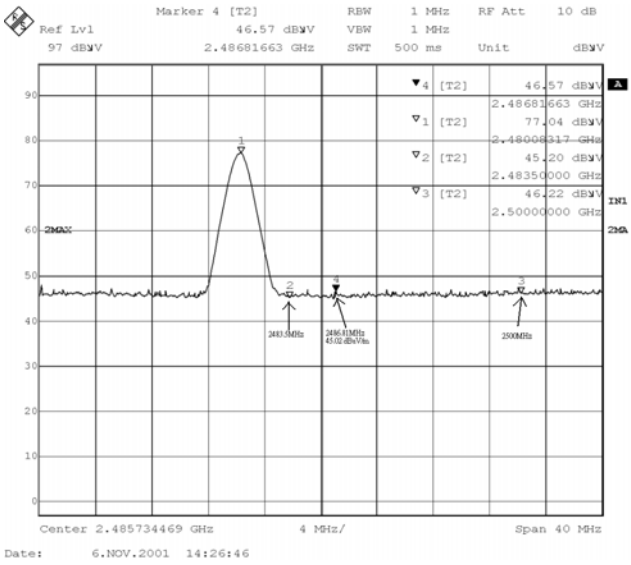
| Channel No. | Frequency (MHz) | Reading (dBuV) | Measurement Level (dBuV/m) | Limit | Result |
|---|---|---|---|---|---|
| 16 (Horizontal) | 2492.50 | 45.69 | 44.20 | 54 | Pass |
| 16 (Vertical) | 2486.80 | 46.57 | 45.02 | 54 | Pass |

**Figure Channel 16:**

Channel 16: Horizontal




Channel 16 Vertical



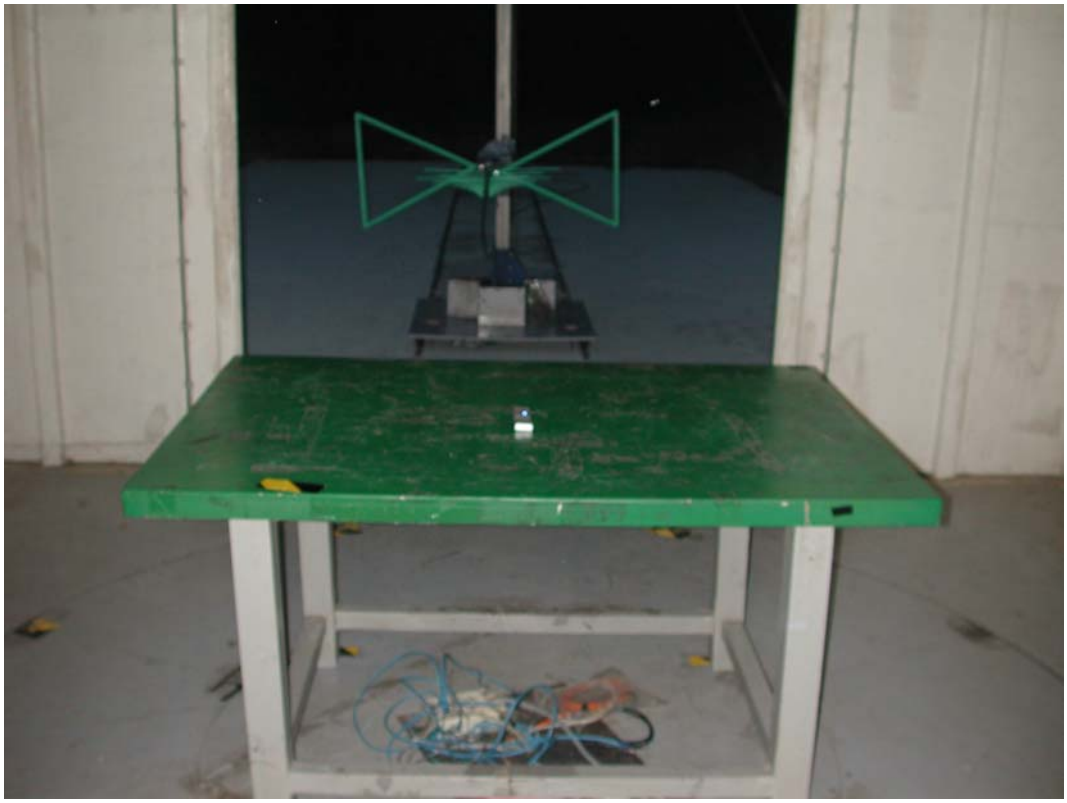
## 5. EMI Reduction Method During Compliance Testing

No modification was made during testing.

# Attachment 1 : EUT Test Photographs

## Attachment 1: EUT Test Setup Photographs

Front View of Radiated Test



Back View of Radiated Test

Front View of Radiated Test-Horn