



Test Report

Product Name	Wireless Laser Mouse
Model No.	MW-95X (X=0~9, A~Z or blank),
	MP-95X (X=0~9, A~Z or blank),
	MW-96X (X=0~9, A~Z or blank)
FCC ID	MSQV95-96

Applicant	ASUSTeK COMPUTER INC.
Address	4FL., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Date of Receipt	Mar. 19, 2009
Issued Date	May 08, 2009
Report No.	093303R-RFUSP07V01
Report Version	V0.2-Draft

The test results relate only to the samples tested.

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Test Report Certification

Issued Date: May 08, 2009 Report No.: 093303R-RFUSP07V01

> Testing Laboratory 0914



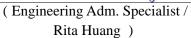
Product Name	Wireless Laser Mouse		
Applicant	ASUSTeK COMPUTER INC.		
Address	4FL., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.		
Manufacturer	Enertronix (Huizhou) inc.		
Model No.	MW-95X (X=0~9, A~Z or blank), MP-95X (X=0~9, A~Z or blank),		
	MW-96X (X=0~9, A~Z or blank)		
Rated Voltage	DC 4.2V(Power by Battery)		
Working Voltage	DC 4.2V(Power by Battery)		
Trade Name	ASUS, Vento, Vento By ASUS		
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2007		
	ANSI C63.4: 2003		
Test Result	Complied		

Test results relate only to the samples tested.

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Documented By

Rita Fluang



Tested By

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(Engineer / Eason Hung)

Approved By

(Manager / Vincent Lin)



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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Wireless Laser Mouse
Trade Name	ASUS, Vento, Vento By ASUS
Model No.	MW-95X (X=0~9, A~Z or blank), MP-95X (X=0~9, A~Z or blank),
	MW-96X (X=0~9, A~Z or blank)
FCC ID	MSQV95-96
Frequency Range 2402~2480MHz	
Type of Modulation GFSK	
Number of Channels	79
Channel Control	Auto
Antenna Type	Printed
Antenna Gain	Refer to the table "Antenna List"

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	ASUS	N/A	-3.72 dBi in 2.4 GHz

Frequency of Each Channel

Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1 2		1 .		1 2		1 2
2403 MHz	Channel 23:	2424 MHz	Channel 44:	2445 MHz	Channel 65:	2466 MHz
2404 MHz	Channel 24:	2425 MHz	Channel 45:	2446 MHz	Channel 66:	2467 MHz
2405 MHz	Channel 25:	2426 MHz	Channel 46:	2447 MHz	Channel 67:	2468 MHz
2406 MHz	Channel 26:	2427 MHz	Channel 47:	2448 MHz	Channel 68:	2469 MHz
2407 MHz	Channel 27:	2428 MHz	Channel 48:	2449 MHz	Channel 69:	2470 MHz
2408 MHz	Channel 28:	2429 MHz	Channel 49:	2450 MHz	Channel 70:	2471 MHz
2409 MHz	Channel 29:	2430 MHz	Channel 50:	2451 MHz	Channel 71:	2472 MHz
2410 MHz	Channel 30:	2431 MHz	Channel 51:	2452 MHz	Channel 72:	2473 MHz
2411 MHz	Channel 31:	2432 MHz	Channel 52:	2453 MHz	Channel 73:	2474 MHz
2412 MHz	Channel 32:	2433 MHz	Channel 53:	2454 MHz	Channel 74:	2475 MHz
2413 MHz	Channel 33:	2434 MHz	Channel 54:	2455 MHz	Channel 75:	2476 MHz
2414 MHz	Channel 34:	2435 MHz	Channel 55:	2456 MHz	Channel 76:	2477 MHz
2415 MHz	Channel 35:	2436 MHz	Channel 56:	2457 MHz	Channel 77:	2478 MHz
2416 MHz	Channel 36:	2437 MHz	Channel 57:	2458 MHz	Channel 78:	2479 MHz
2417 MHz	Channel 37:	2438 MHz	Channel 58:	2459 MHz	Channel 79:	2480 MHz
2418 MHz	Channel 38:	2439 MHz	Channel 59:	2460 MHz		
2419 MHz	Channel 39:	2440 MHz	Channel 60:	2461 MHz		
2420 MHz	Channel 40:	2441 MHz	Channel 61:	2462 MHz		
2421 MHz	Channel 41:	2442 MHz	Channel 62:	2463 MHz		
2422 MHz	Channel 42:	2443 MHz	Channel 63:	2464 MHz		
	2402 MHz 2403 MHz 2404 MHz 2405 MHz 2406 MHz 2406 MHz 2407 MHz 2409 MHz 2409 MHz 2410 MHz 2410 MHz 2411 MHz 2412 MHz 2413 MHz 2415 MHz 2415 MHz 2416 MHz 2417 MHz 2419 MHz 2419 MHz 2420 MHz 2421 MHz	2402 MHz Channel 22: 2403 MHz Channel 23: 2404 MHz Channel 24: 2405 MHz Channel 24: 2405 MHz Channel 25: 2406 MHz Channel 26: 2407 MHz Channel 27: 2408 MHz Channel 28: 2409 MHz Channel 29: 2410 MHz Channel 30: 2411 MHz Channel 31: 2412 MHz Channel 31: 2413 MHz Channel 33: 2414 MHz Channel 34: 2415 MHz Channel 35: 2416 MHz Channel 36: 2417 MHz Channel 36: 2417 MHz Channel 37: 2418 MHz Channel 38: 2419 MHz Channel 38: 2419 MHz Channel 39: 2420 MHz Channel 40: 2421 MHz Channel 41:	2402 MHzChannel 22:2423 MHz2403 MHzChannel 23:2424 MHz2404 MHzChannel 24:2425 MHz2405 MHzChannel 25:2426 MHz2406 MHzChannel 26:2427 MHz2407 MHzChannel 26:2427 MHz2408 MHzChannel 27:2428 MHz2409 MHzChannel 28:2429 MHz2409 MHzChannel 30:2431 MHz2410 MHzChannel 30:2431 MHz2411 MHzChannel 31:2432 MHz2413 MHzChannel 31:2432 MHz2413 MHzChannel 33:2434 MHz2415 MHzChannel 36:2437 MHz2416 MHzChannel 36:2437 MHz2417 MHzChannel 37:2438 MHz2418 MHzChannel 38:2439 MHz2419 MHzChannel 39:2440 MHz2420 MHzChannel 40:2441 MHz2421 MHzChannel 40:2441 MHz2421 MHzChannel 41:2442 MHz	2402 MHzChannel 22:2423 MHzChannel 43:2403 MHzChannel 23:2424 MHzChannel 44:2404 MHzChannel 24:2425 MHzChannel 45:2405 MHzChannel 25:2426 MHzChannel 46:2406 MHzChannel 26:2427 MHzChannel 47:2407 MHzChannel 27:2428 MHzChannel 48:2408 MHzChannel 28:2429 MHzChannel 49:2409 MHzChannel 29:2430 MHzChannel 49:2409 MHzChannel 30:2431 MHzChannel 50:2410 MHzChannel 31:2432 MHzChannel 51:2411 MHzChannel 31:2432 MHzChannel 52:2412 MHzChannel 31:2432 MHzChannel 53:2413 MHzChannel 33:2434 MHzChannel 55:2415 MHzChannel 35:2436 MHzChannel 55:2415 MHzChannel 36:2437 MHzChannel 56:2416 MHzChannel 36:2437 MHzChannel 56:2417 MHzChannel 37:2438 MHzChannel 56:2418 MHzChannel 38:2439 MHzChannel 59:2419 MHzChannel 38:2439 MHzChannel 59:2419 MHzChannel 40:2441 MHzChannel 60:2420 MHzChannel 40:2441 MHzChannel 61:2421 MHzChannel 41:2442 MHzChannel 61:	2402 MHzChannel 22:2423 MHzChannel 43:2444 MHz2403 MHzChannel 23:2424 MHzChannel 44:2445 MHz2404 MHzChannel 24:2425 MHzChannel 45:2446 MHz2405 MHzChannel 25:2426 MHzChannel 46:2447 MHz2406 MHzChannel 26:2427 MHzChannel 47:2448 MHz2407 MHzChannel 26:2427 MHzChannel 47:2448 MHz2407 MHzChannel 27:2428 MHzChannel 48:2449 MHz2408 MHzChannel 28:2429 MHzChannel 49:2450 MHz2409 MHzChannel 29:2430 MHzChannel 50:2451 MHz2410 MHzChannel 30:2431 MHzChannel 51:2452 MHz2411 MHzChannel 31:2432 MHzChannel 51:2452 MHz2413 MHzChannel 33:2434 MHzChannel 53:2454 MHz2413 MHzChannel 33:2434 MHzChannel 55:2456 MHz2414 MHzChannel 34:2435 MHzChannel 55:2456 MHz2415 MHzChannel 35:2436 MHzChannel 56:2457 MHz2416 MHzChannel 36:2437 MHzChannel 57:2458 MHz	2419 MHzChannel 39:2440 MHzChannel 60:2461 MHz2420 MHzChannel 40:2441 MHzChannel 61:2462 MHz2421 MHzChannel 41:2442 MHzChannel 62:2463 MHz

QuieTer

Note:

- 1. The EUT is a Wireless Laser Mouse with a built-in 2.4GHz transceiver.
- 2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 3. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249 for spread spectrum devices.
- 4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

1.2. Operational Description

The EUT is 2.4GHz Wireless Laser Mouse built-in 2.4GHz transceiver. The operation frequency is from 2402 MHz to 2480MHz with GFSK modulation. The signal will be transmitted through 2.4 GHz RF signal from the Printed antenna. DC 4.2V shall be provided for EUT operation.

Test Mode	Mode 1: Transmitter

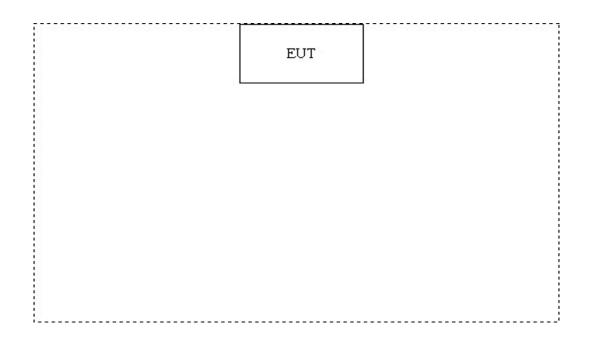
1.3. Tested System Datails

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

Proc	duct	Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

Signal Cable Type		Signal cable Description	
А	N/A	N/A	

1.4. Configuration of Test System



1.5. EUT Exercise Software

1	Setup the EUT and display as shown on 1.4
2	Installs the battery.
3	The EUT will continuously transmit the radio signal.

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

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : <u>http://tw.quietek.com/modules/myalbum/</u> The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : <u>http://www.quietek.com/</u>

Site Description: File on

Federal Communications Commission FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046 Registration Number: 92195

Accreditation on NVLAP NVLAP Lab Code: 200533-0





Site Name: Quietek Corporation Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen, Lin-Kou Shiang, Taipei, Taiwan, R.O.C. TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : <u>service@quietek.com</u>

FCC Accreditation Number: TW1014



2. Radiated Emission

2.1. Test Equipment

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

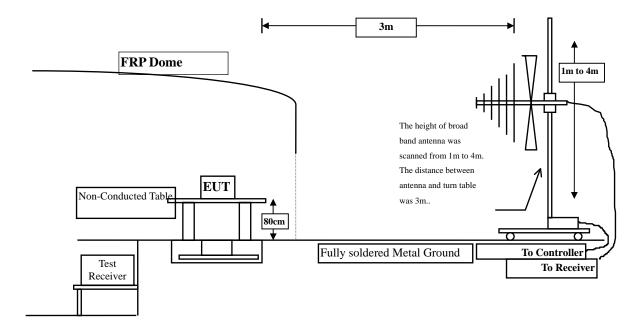
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	Х	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2008
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2008
	Х	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2008
	Х	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2008
	Х	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2008
	Х	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2008
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2009
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	Х	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

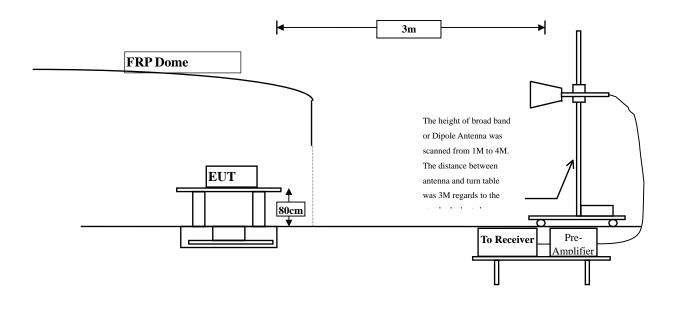
2. The test instruments marked with "X" are used to measure the final test results.

2.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



2.3. Limits

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits						
Frequency MHz	uV/m @3m dBuV/m@3m					
30-88	100	40				
88-216	150	43.5				
216-960	200	46				
Above 960	500	54				

Remarks: E field strength $(dBuV/m) = 20 \log E$ field strength (uV/m)

2.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.249 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 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 is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2003 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB beamwidth of the antenna.

The worst radiated emission is measured on the Final Measurement.

The frequency range from is checked.

2.5. Uncertainty

- ± 3.9 dB above 1GHz
- \pm 3.8 dB below 1GHz

2.6. Test Result of Radiated Emission

Product:Test Item:Test Site:Test Mode:	Fundamenta No.3OATS	Wireless Laser Mouse Fundamental Radiated Emission No.3OATS Mode 1: Transmitter (2402MHz)				
Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit	
MHz	dB	dBuV	dBuV/m	dB	dBuV/m	
Horizontal Peak Detector: Channel 01 2402.000 Average Detector	-6.693	82.723	76.030	-37.970	114.000	
Vertical Peak Detector: Channel 01 2402.000	-6.693	84.973	78.280	-35.720	114.000	

Average Detector

- 1. Measurement Level = Reading Level + Correct Factor.
- 2. Correct Factor = Antenna Factor + Cable Loss PreAMP.

Product	:	Wireless Laser Mouse						
Test Item	:	Fundamental Radiated Emission						
Test Site	:	No.3OATS						
Test Mode	:	Mode 1: Transmitter (2440MHz)						
Frequency		Correct	Reading	Measurement	Margin	Limit		
		Factor	Level	Level				
MHz		dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal								
Peak Detector:								
Channel 39								
2440.000		-6.542	82.092	75.550	-38.450	114.000		
Average Detector								
Vertical								
Peak Detector:								
Channel 39								
		< 5 10		F (200	27 (10	114.000		
2440.000		-6.542	82.932	76.390	-37.610	114.000		

--

- 1. Measurement Level = Reading Level + Correct Factor.
- 2. Correct Factor = Antenna Factor + Cable Loss PreAMP.

Product	: Wireless La	Wireless Laser Mouse						
Test Item	: Fundamenta	Fundamental Radiated Emission						
Test Site	: No.3OATS	No.3OATS						
Test Mode	: Mode 1: Tra	Mode 1: Transmitter (2480MHz)						
Frequency	Correct	Reading	Measurement	Margin	Limit			
	Factor	Level	Level					
MHz	dB	dBuV	dBuV/m	dB	dBuV/m			
Horizontal								
Peak Detector:								
Channel 79								
2480.000	-6.427	81.857	75.430	-38.570	114.000			
Average Detector								
T 1								
Vertical								
Peak Detector:								
Channel 79								
2480.000	-6.427	83.577	77.150	-36.850	114.000			

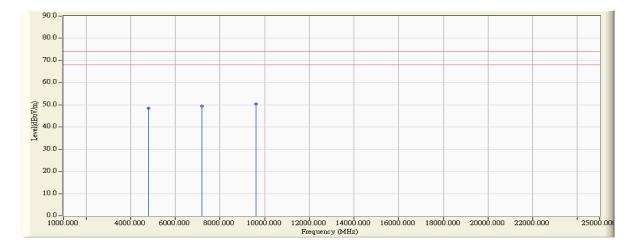
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Note:

1. Measurement Level = Reading Level + Correct Factor.

2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.

Product	:	Wireless Laser Mouse
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmitter (2402MHz)

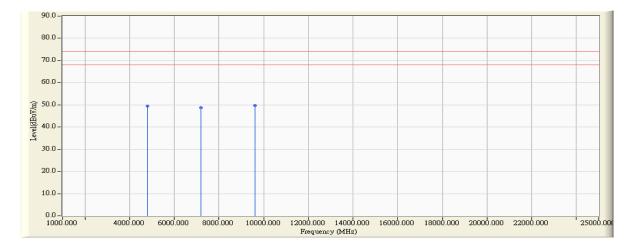


Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4804.000	0.643	47.800	48.443	-25.557	74.000
7206.000	5.014	44.520	49.534	-24.466	74.000
9608.000	8.255	42.210	50.464	-23.536	74.000

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- 1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
- 2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz •
- 3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; Span:20MHz °
- 4. Emission Level = Reading Level + Correct Factor.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

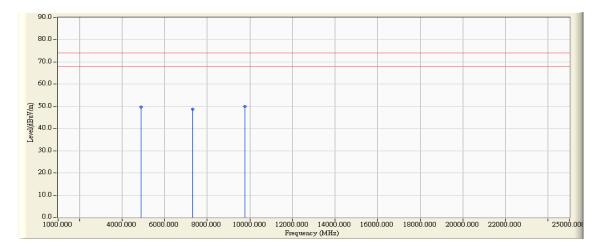
Product	:	Wireless Laser Mouse
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmitter (2402MHz)



Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Peak Detector:					
4804.000	0.643	48.710	49.353	-24.647	74.000
7206.000	5.014	43.740	48.754	-25.246	74.000
9608.000	8.255	41.390	49.644	-24.356	74.000

- 1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
- 2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz •
- 3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; Span:20MHz •
- 4. Emission Level = Reading Level + Correct Factor.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	:	Wireless Laser Mouse
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmitter (2440 MHz)

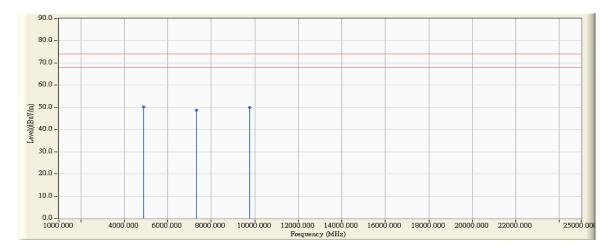


Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4880.000	34.837	48.970	49.594	-24.406	74.000
7320.000	40.318	43.760	48.834	-25.166	74.000
9760.000	42.949	41.170	49.853	-24.147	74.000

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- 1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
- 2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
- 3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; Span:20MHz \circ
- 4. Emission Level = Reading Level + Correct Factor.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	:	Wireless Laser Mouse
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmitter (2440 MHz)

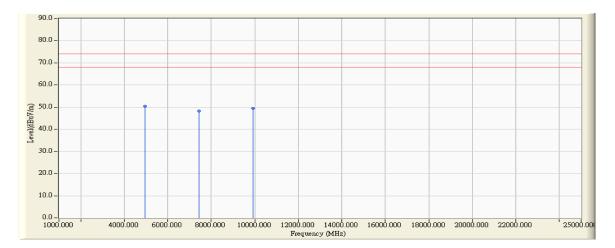


Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Peak Detector:					
4880.000	0.624	49.560	50.184	-23.816	74.000
7320.000	5.073	43.750	48.824	-25.176	74.000
9760.000	8.683	41.190	49.873	-24.127	74.000

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- 1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
- 2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
- 3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; Span:20MHz \circ
- 4. Emission Level = Reading Level + Correct Factor.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

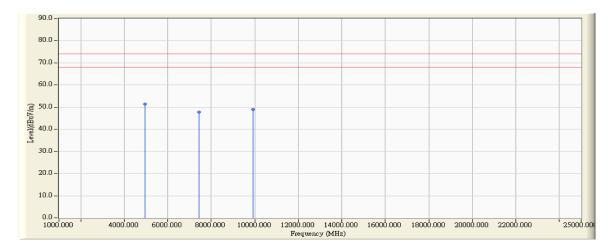
Product	:	Wireless Laser Mouse
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmitter (2480 MHz)



Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
				JD	ID-V/m
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4960.000	1.553	48.940	50.493	-23.507	74.000
7440.000	5.714	42.460	48.174	-25.826	74.000
9920.000	8.878	40.560	49.438	-24.562	74.000

- 1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
- 2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
- 3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; Span:20MHz •
- 4. Emission Level = Reading Level + Correct Factor.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	:	Wireless Laser Mouse
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmitter (2480 MHz)



Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical	-		-		
Peak Detector:					
4960.000	1.553	49.890	51.443	-22.557	74.000
7440.000	5.714	42.150	47.864	-26.136	74.000
9920.000	8.878	40.080	48.958	-25.042	74.000

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- 1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
- 2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
- 3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; Span:20MHz •
- 4. Emission Level = Reading Level + Correct Factor.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	:	Wireless Laser Mouse
Test Item	:	General Radiated Emission Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmitter (2440 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
39.700	-3.710	33.955	30.245	-9.755	40.000
383.080	1.010	30.151	31.161	-14.839	46.000
468.440	3.403	29.950	33.353	-12.647	46.000
606.180	3.964	30.328	34.292	-11.708	46.000
844.800	6.300	30.171	36.471	-9.529	46.000
1000.000	9.421	29.001	38.422	-15.578	54.000
Vertical					
41.640	-11.807	43.605	31.798	-8.202	40.000
381.140	0.536	29.920	30.456	-15.544	46.000
534.400	1.050	29.734	30.784	-15.216	46.000
604.240	1.964	30.770	32.735	-13.265	46.000
815.700	2.845	29.610	32.455	-13.545	46.000
935.980	2.582	30.450	33.032	-12.968	46.000

- 1. The reading levels below 1GHz are quasi-peak values.
- 2. "" " means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor.
- 4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

3. Band Edge

3.1. Test Equipment

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr, 2009
		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2008
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2008
Site # 3	Х	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2008
	Х	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2008
	Х	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2008
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2009
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	Х	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

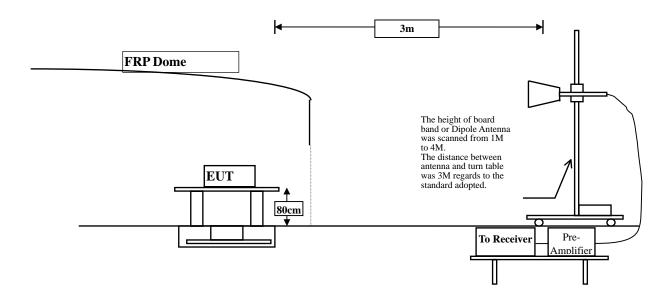
The following test equipments are used during the band edge tests:

Note: 1. All equipments are calibrated every one year.

2. The test equipments marked by "X" are used to measure the final test results.

3.2. Test Setup

RF Radiated Measurement:



3.3. Limits

In any 100 kHz 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 20 dB below that in the 100 kHz 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)).

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: 2003 on radiated measurement.

The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

3.5. Uncertainty

Conducted is \pm 1.27 dB Radiated is \pm 3.9 dB

3.6. Test Result of Band Edge

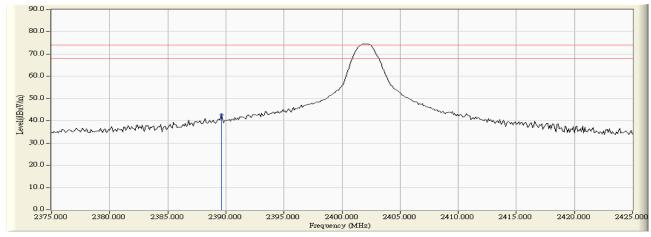
Product	:	Wireless Laser Mouse
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmitter

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2389.600	-6.742	49.334	42.591	74.00	54.00	Pass
01(Average)					74.00	54.00	Pass

Figure Channel 01:

Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms



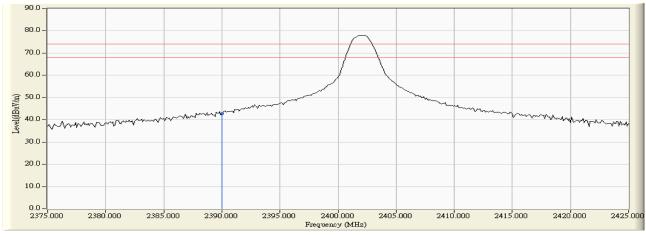
Product	:	Wireless Laser Mouse
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmitter

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	-6.742	49.415	42.674	74.00	54.00	Pass
01(Average)					74.00	54.00	Pass

Figure Channel 01:

Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

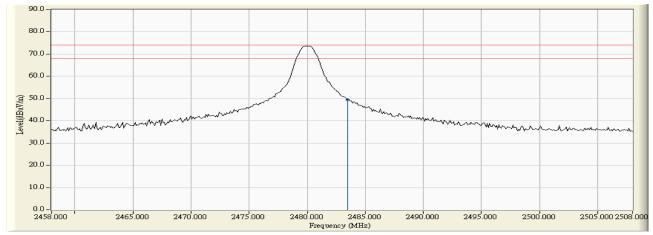
Product	:	Wireless Laser Mouse
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmitter

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
79(Peak)	2483.500	-6.419	55.892	49.473	74.00	54.00	Pass
79(Average)					74.00	54.00	Pass

Figure Channel 79:

Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

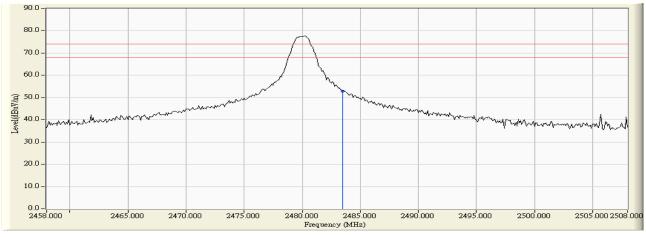
Product	:	Wireless Laser Mouse
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmitter

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
79(Peak)	2483.500	-6.419	59.358	52.939	74.00	54.00	Pass
79(Average)					74.00	54.00	Pass

Figure Channel 79:

Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

4. EMI Reduction Method During Compliance Testing

No modification was made during testing.