

FC

Test Report

Product Name	Wireless Mouse
Model No	JS-006
FCC ID.	YKAJS-006

Applicant	BYD PRECISION MFR CO LTD
Address	No.1.Baoping Road, Baolong Industrial Park,Longgang Shenzhen,518116, P.R.China

Date of Receipt	June 29, 2010
Issue Date	July 12, 2010
Report No.	107031R-RFUSP42V01-A
Report Version	V1.0

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

Test Report Certification


Issue Date: July 12, 2010

Report No.: 107031R-RFUSP42V01-A



Accredited by NIST (NVLAP)

NVLAP Lab Code: 200533-0

Product Name	Wireless Mouse
Applicant	BYD PRECISION MFR CO LTD
Address	No.1.Baoping Road, Baolong Industrial Park,Longgang Shenzhen,518116, P.R.China
Manufacturer	BYD PRECISION MFR CO LTD
Model No.	JS-006
EUT Rated Voltage	DC 3V (Power by Battery)
EUT Test Voltage	DC 3V (Power by Battery)
Trade Name	
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2009 ANSI C63.4: 2003
Test Result	Complied



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 : Genie Chang
(Senior Adm. Specialist / Genie Chang)



Tested By : Joe Guo
(Engineer / Joe Guo)



Approved By : Vincent Lin
(Manager / Vincent Lin)

Testing Laboratory
0914

TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION.....	5
1.1. EUT Description	5
1.2. Operational Description	7
1.3. Tested System Details.....	8
1.4. Configuration of Tested System.....	8
1.5. EUT Exercise Software	8
1.6. Test Facility	9
2. Conducted Emission	10
2.1. Test Equipment	10
2.2. Test Setup	10
2.3. Limits.....	11
2.4. Test Procedure	11
2.5. Uncertainty	11
2.6. Test Result of Conducted Emission	12
3. Peak Power Output	13
3.1. Test Equipment	13
3.2. Test Setup	13
3.3. Limits.....	13
3.4. Test Procedure	13
3.5. Uncertainty	13
3.6. Test Result of Peak Power Output	14
4. Radiated Emission	15
4.1. Test Equipment	15
4.2. Test Setup	16
4.3. Limits.....	17
4.4. Test Procedure	17
4.5. Uncertainty	17
4.6. Test Result of Radiated Emission	18
5. RF antenna conducted test.....	22
5.1. Test Equipment	22
5.2. Test Setup	22
5.3. Limits.....	22
5.4. Test Procedure	23
5.5. Uncertainty	23
5.6. Test Result of RF antenna conducted test.....	24
6. Band Edge	26
6.1. Test Equipment	26
6.2. Test Setup	27
6.3. Limits.....	27
6.4. Test Procedure	28
6.5. Uncertainty	28
6.6. Test Result of Band Edge	29


7.	Occupied Bandwidth	33
7.1.	Test Equipment	33
7.2.	Test Setup	33
7.3.	Limits.....	33
7.4.	Test Procedure	33
7.5.	Uncertainty	33
7.6.	Test Result of Occupied Bandwidth	34
8.	Power Density	37
8.1.	Test Equipment	37
8.2.	Test Setup	37
8.3.	Limits.....	37
8.4.	Test Procedure	37
8.5.	Uncertainty	37
8.6.	Test Result of Power Density	38
9.	EMI Reduction Method During Compliance Testing	41

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Wireless Mouse
Trade Name	
Model No.	JS-006
FCC ID.	YKAJS-006
Frequency Range	2405-2476MHz
Number of Channels	64CH
Channel Separation	1MHz
Type of Modulation	GFSK
Antenna Type	Printed on PCB
Antenna Gain	Refer to the table "Antenna List"
Channel Control	Auto

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	BYD PRECISION MFR CO LTD	N/A	1.64dBi for 2.4GHz

Note: The antenna of EUT is conform to FCC 15.203

Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	2405MHz	Channel 23:	2429MHz	Channel 45:	2457MHz
Channel 2:	2406MHz	Channel 24:	2430MHz	Channel 46:	2458MHz
Channel 3:	2407MHz	Channel 25:	2431MHz	Channel 47:	2459MHz
Channel 4:	2408MHz	Channel 26:	2432MHz	Channel 48:	2460MHz
Channel 5:	2409MHz	Channel 27:	2434MHz	Channel 49:	2461MHz
Channel 6:	2410MHz	Channel 28:	2435MHz	Channel 50:	2462MHz
Channel 7:	2411MHz	Channel 29:	2436MHz	Channel 51:	2463MHz
Channel 8:	2412MHz	Channel 30:	2437MHz	Channel 52:	2464MHz
Channel 9:	2413MHz	Channel 31:	2438MHz	Channel 53:	2465MHz
Channel 10:	2414MHz	Channel 32:	2439MHz	Channel 54:	2466MHz
Channel 11:	2415MHz	Channel 33:	2442MHz	Channel 55:	2467MHz
Channel 12:	2416MHz	Channel 34:	2443MHz	Channel 56:	2468MHz
Channel 13:	2417MHz	Channel 35:	2444MHz	Channel 57:	2469MHz
Channel 14:	2418MHz	Channel 36:	2446MHz	Channel 58:	2470MHz
Channel 15:	2419MHz	Channel 37:	2447MHz	Channel 59:	2471MHz
Channel 16:	2420MHz	Channel 38:	2448MHz	Channel 60:	2472MHz
Channel 17:	2421MHz	Channel 39:	2449MHz	Channel 61:	2473MHz
Channel 18:	2422MHz	Channel 40:	2451MHz	Channel 62:	2474MHz
Channel 19:	2423MHz	Channel 41:	2452MHz	Channel 63:	2475MHz
Channel 20:	2425MHz	Channel 42:	2453MHz	Channel 64:	2476MHz
Channel 21:	2427MHz	Channel 43:	2455MHz		
Channel 22:	2428MHz	Channel 44:	2456MHz		

Note:

1. The EUT is a Wireless Mouse.
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 for the purpose of demonstrating compliance of 2.4GHz transmitter with Part 15 Subpart C Paragraph 15.247 of 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 a Wireless Mouse, The Number of the channels is 64 in 2405~2476MHz. The device operation in 2.4GHz modulation is GFSK. The Antenna is Printed on PCB.

Test Mode:	Mode 1: Transmit
------------	------------------

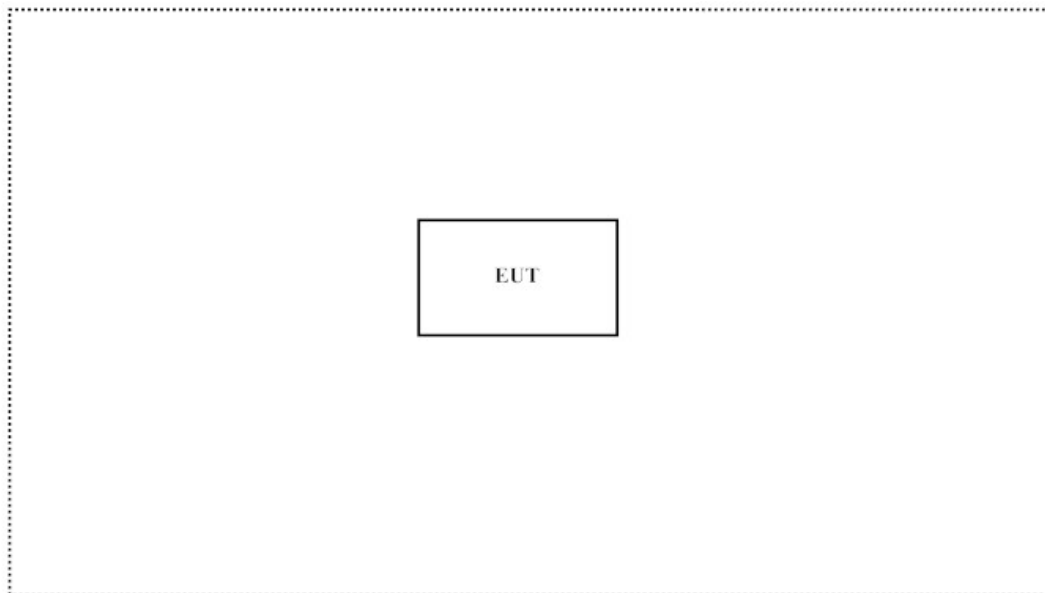
1.3. Tested System Details

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
N/A				

Signal Cable Type	Signal cable Description
N/A	

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in section 1.4.
- (2) Provide the DC Power Source.
- (3) Start transmits continually.
- (4) Verify that the EUT works properly.

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 : <http://tw.quietek.com/tw/emc/accreditations/accreditations.htm>
The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

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 : service@quietek.com

FCC Accreditation Number: TW1014



2. Conducted Emission

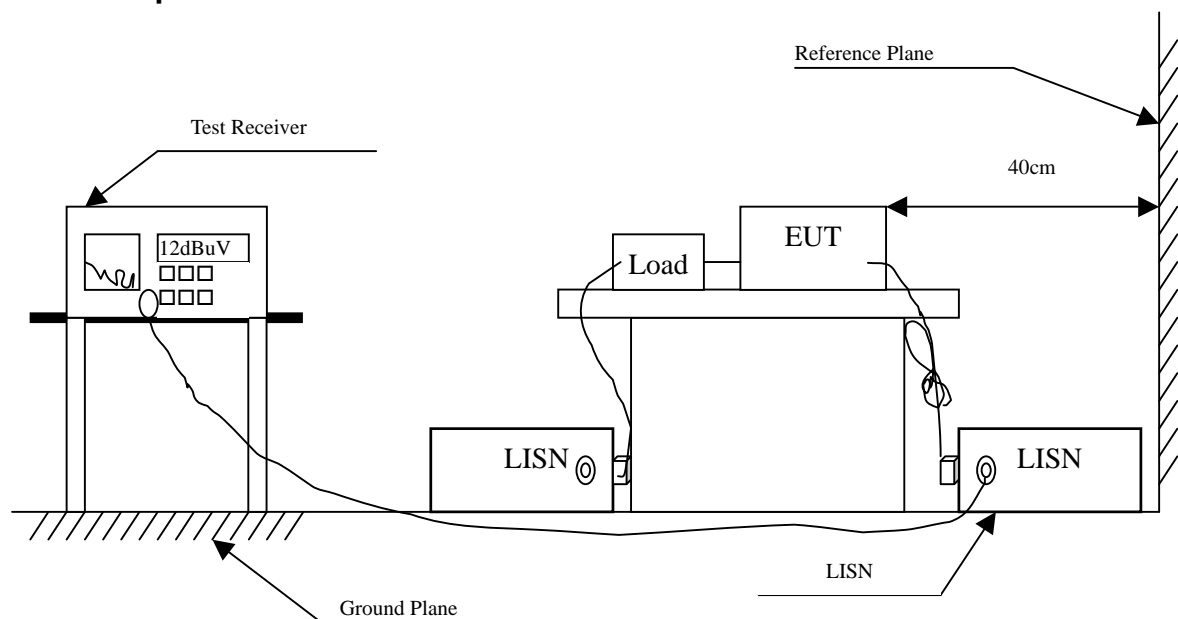
2.1. Test Equipment

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, 2010	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2010	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2010	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2010	
5	No.1 Shielded Room			N/A	

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

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: 2003 on conducted measurement. Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Owing to the DC operation of EUT, this test item is not performed.

3. Peak Power Output

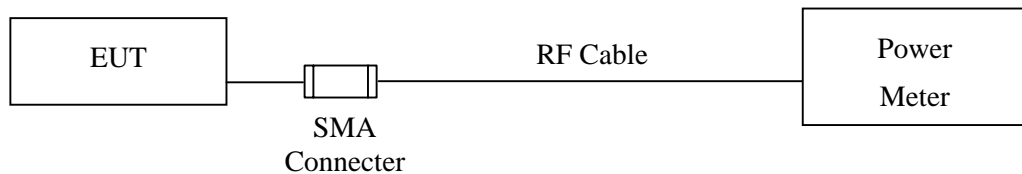
3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2010
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2010

Note: 1. All instruments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

3.2. Test Setup

Conducted Measurement



3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Peak Power Output

Product : Wireless Mouse
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
01	2405.00	-5.93	<30dBm	Pass
32	2439.00	-5.11	<30dBm	Pass
64	2476.00	-4.49	<30dBm	Pass

Note: Peak Power Output Value = Reading value on peak power meter + cable loss

4. Radiated Emission

4.1. Test Equipment

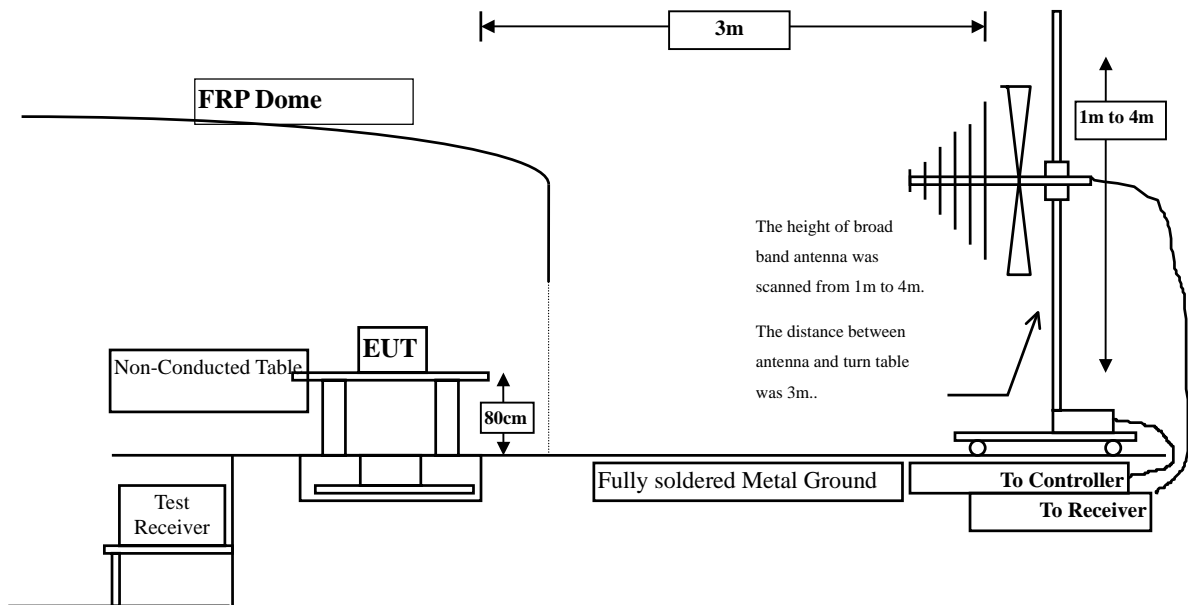
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2010
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2009
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2010
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2009
	X	Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2010
	X	Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

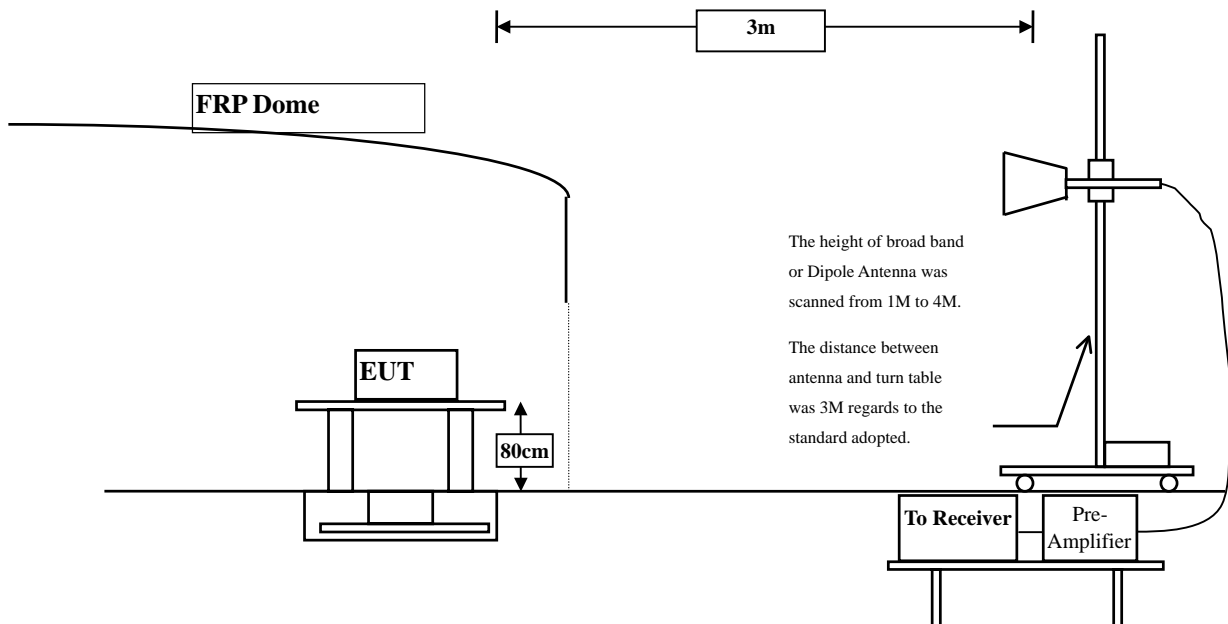
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with "X" are used to measure the final test results.

4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.3. 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)

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 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 bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range from 30MHz - 10th Harmonic of fundamental was investigated.

4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

Product : Wireless Mouse
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (2405MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4810.000	3.323	47.680	51.003	-22.997	74.000
7215.000	10.289	34.110	44.400	-29.600	74.000
9620.000	13.595	32.380	45.976	-28.024	74.000
Vertical					
Peak Detector:					
4810.000	6.654	41.030	47.684	-26.316	74.000
7215.000	11.151	34.190	45.342	-28.658	74.000
9620.000	14.014	33.140	47.155	-26.845	74.000

Note:

1. Correct factor = Antenna Factor + Cable Loss – Pre-amplifier Gain
2. 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 Mouse
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (2439MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4878.000	3.019	45.780	48.799	-25.201	74.000
7317.000	11.820	33.470	45.290	-28.710	74.000
9756.000	12.599	35.610	48.209	-25.791	74.000
Vertical					
Peak Detector:					
4878.000	5.762	43.260	49.023	-24.977	74.000
7317.000	12.678	34.090	46.769	-27.231	74.000
9756.000	13.077	34.460	47.537	-26.463	74.000

Note:

1. Correct factor = Antenna Factor + Cable Loss – Pre-amplifier Gain
2. 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 Mouse
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2476MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4952.000	2.783	47.360	50.143	-23.857	74.000
7428.000	12.453	33.030	45.483	-28.517	74.000
9904.000	13.358	34.390	47.748	-26.252	74.000
Vertical					
Peak Detector:					
4952.000	5.550	40.390	45.940	-28.060	74.000
7428.000	13.409	32.510	45.919	-28.081	74.000
9904.000	13.944	34.790	48.734	-25.266	74.000

Note:

1. Correct factor = Antenna Factor + Cable Loss – Pre-amplifier Gain
2. 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 Mouse
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (2439MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
30.000	2.120	27.253	29.373	-10.627	40.000
386.960	-1.524	24.463	22.939	-23.061	46.000
515.000	1.610	25.640	27.250	-18.750	46.000
629.460	1.560	26.724	28.284	-17.716	46.000
745.860	3.308	25.536	28.844	-17.156	46.000
906.880	5.848	23.838	29.686	-16.314	46.000
Vertical					
37.760	-1.539	34.219	32.680	-7.320	40.000
99.840	-0.021	29.301	29.280	-14.220	43.500
344.280	-3.171	24.625	21.455	-24.545	46.000
515.000	-1.090	23.370	22.280	-23.720	46.000
693.480	2.168	21.588	23.756	-22.244	46.000
928.220	6.203	22.135	28.338	-17.662	46.000
959.260	6.964	22.318	29.282	-16.718	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

5. RF antenna conducted test

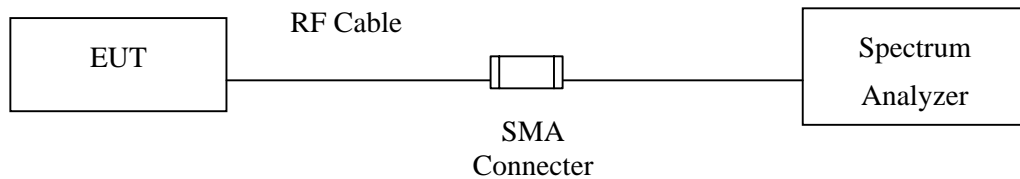
5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010

- 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.

5.2. Test Setup

RF antenna Conducted Measurement:



5.3. 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)).

5.4. Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

5.5. Uncertainty

The measurement uncertainty

Conducted is defined as $\pm 1.27\text{dB}$

5.6. Test Result of RF antenna conducted test

Product : Wireless Mouse
 Test Item : RF antenna conducted test
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit

Channel 01 (2405MHz) 30M-25GHz





6. Band Edge

6.1. Test Equipment

RF Conducted Measurement

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

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010

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.

RF Radiated Measurement:

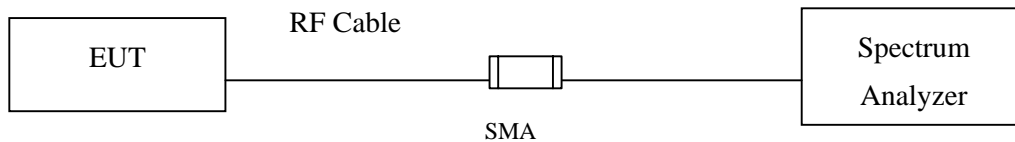
The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2009
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2010
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2009
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2010
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2009
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2010
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

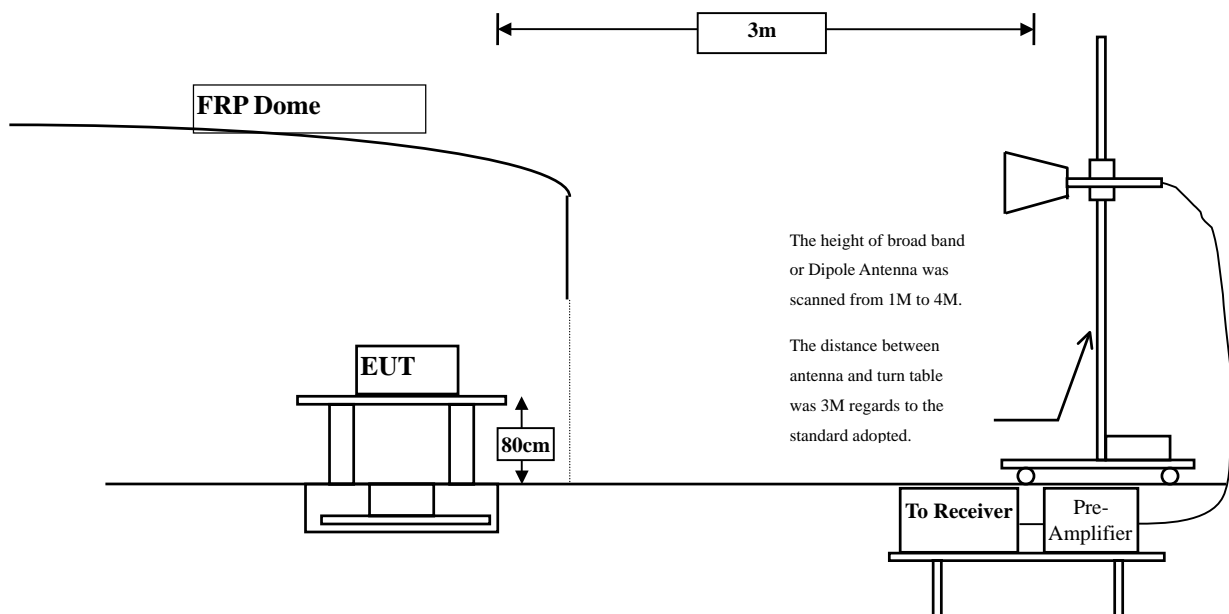
- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

6.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



6.3. 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.

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 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 from 1 meter to 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.

6.5. Uncertainty

± 3.9 dB above 1GHz
± 3.8 dB below 1GHz

6.6. Test Result of Band Edge

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

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2390	31.593	45.23	76.823	Peak
Horizontal	2390	--	--	--	Average
Vertical	2390	30.926	46.42	77.346	Peak
Vertical	2390	--	--	--	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2390	76.823	45.357	31.466	Peak
Horizontal	2390	--	--	--	Average
Vertical	2390	77.346	45.357	31.989	Peak
Vertical	2390	--	--	--	Average

Note:

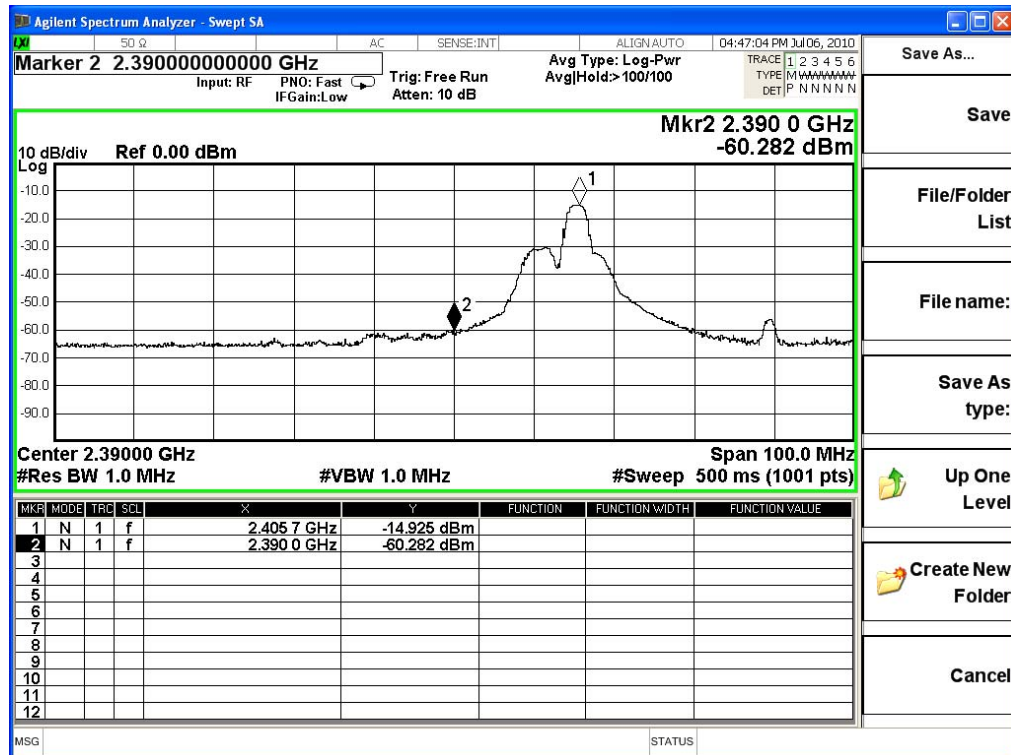
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



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

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2483.5	32.125	42.95	75.075	Peak
Horizontal	2483.5	--	--	--	Average
Vertical	2483.5	32.125	43.8	75.925	Peak
Vertical	2483.5	--	--	--	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2483.5	75.075	32.729	42.346	Peak
Horizontal	2483.5	--	--	--	Average
Vertical	2483.5	75.925	32.729	43.196	Peak
Vertical	2483.5	--	--	--	Average

Note:

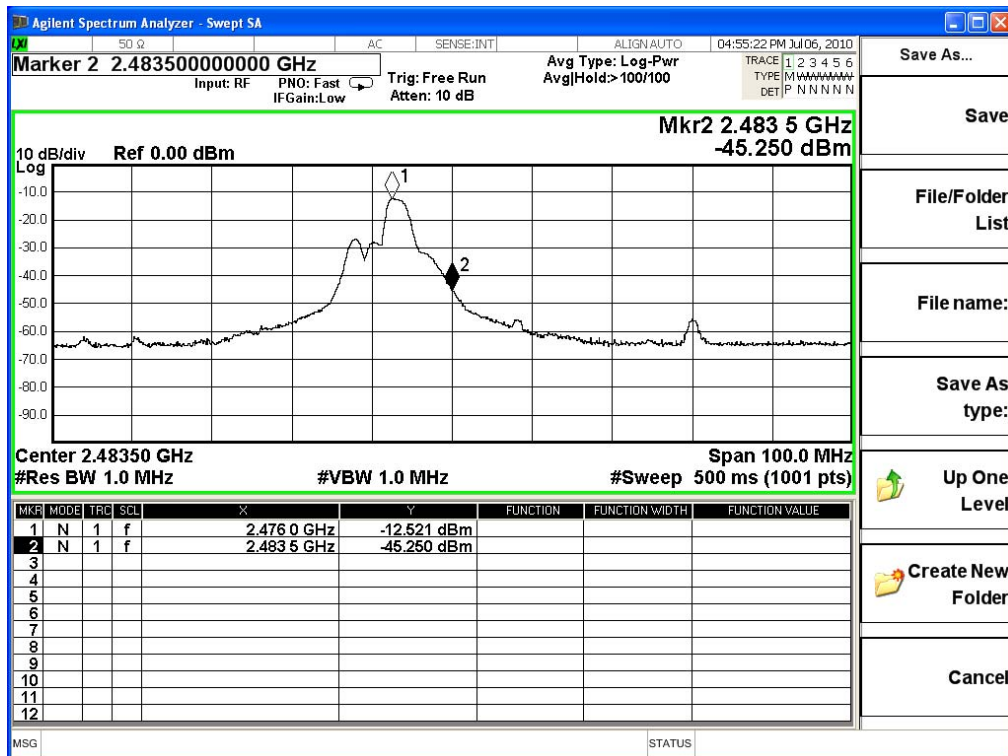
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



7. Occupied Bandwidth

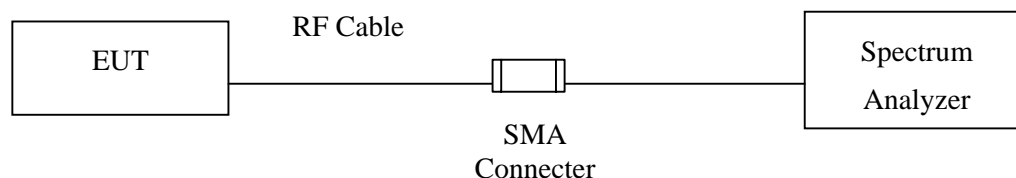
7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010

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

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

7.2. Test Setup



7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

7.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

7.5. Uncertainty

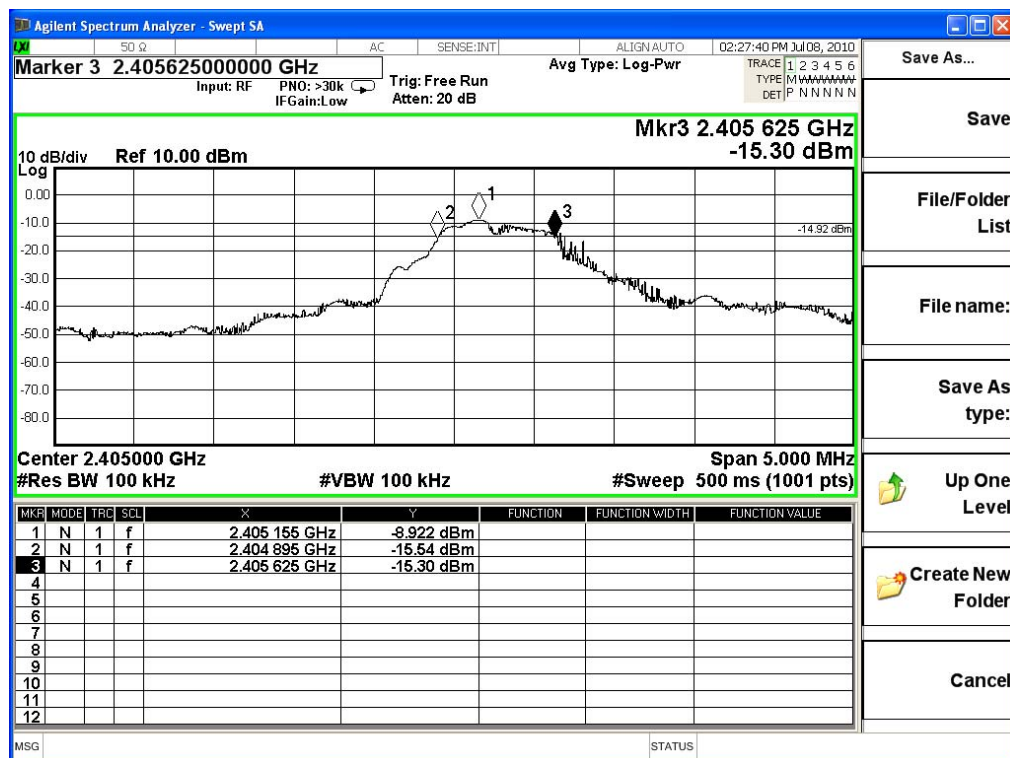
$\pm 150\text{Hz}$

7.6. Test Result of Occupied Bandwidth

Product : Wireless Mouse
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (2405MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2405.00	730	>500	Pass

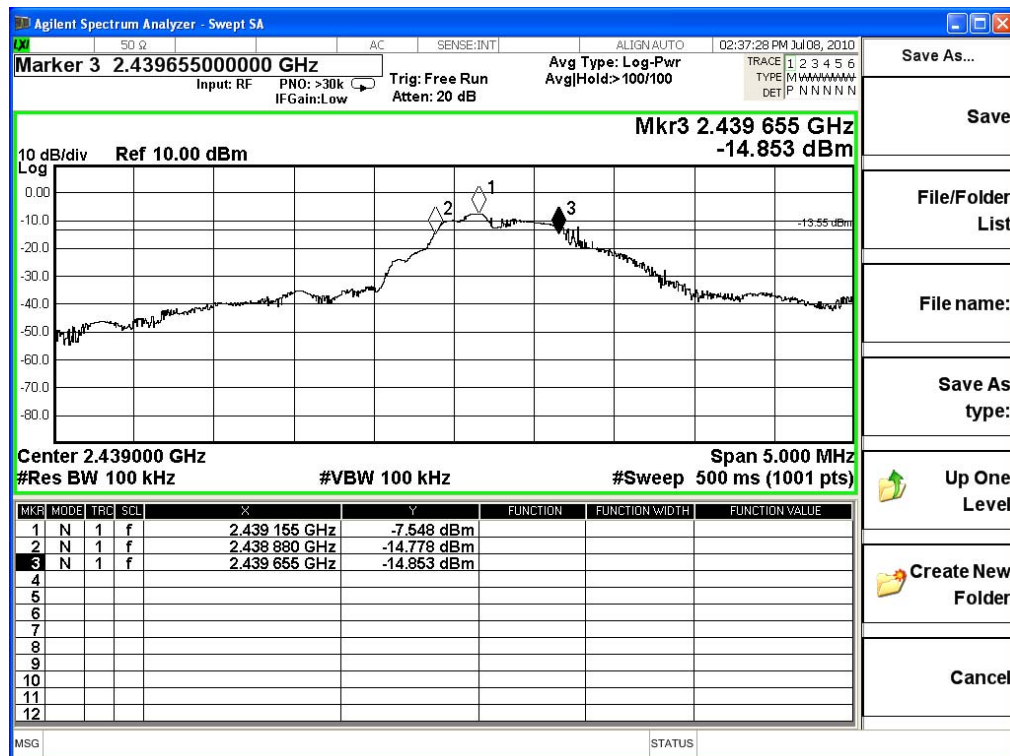
Figure Channel 02:



Product : Wireless Mouse
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (2439MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
32	2439.00	775	>500	Pass

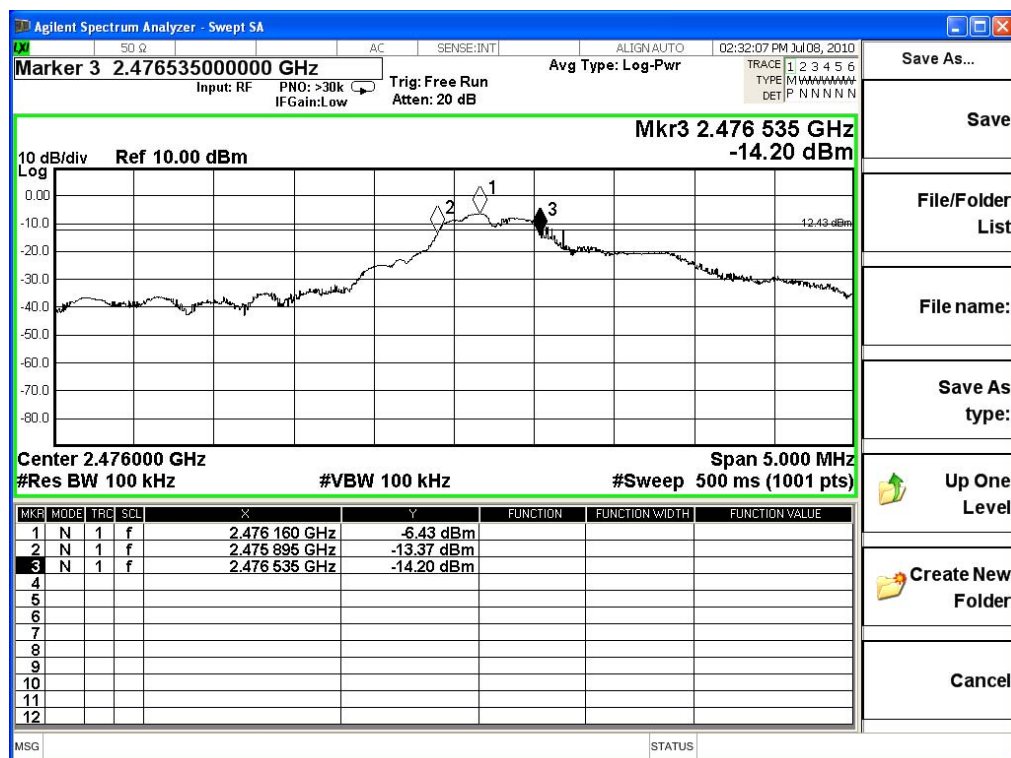
Figure Channel 41:



Product : Wireless Mouse
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (2476MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
64	2476.00	640	>500	Pass

Figure Channel 64:



8. Power Density

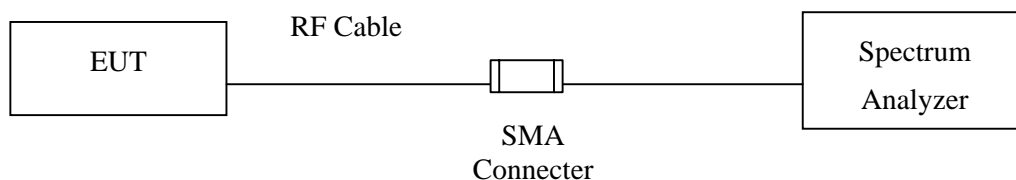
8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010

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

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

8.2. Test Setup



8.3. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

8.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW= 3 kHz, VBW=10KHz, Sweep time=(SPAN/3KHz), detector=Peak detector

8.5. Uncertainty

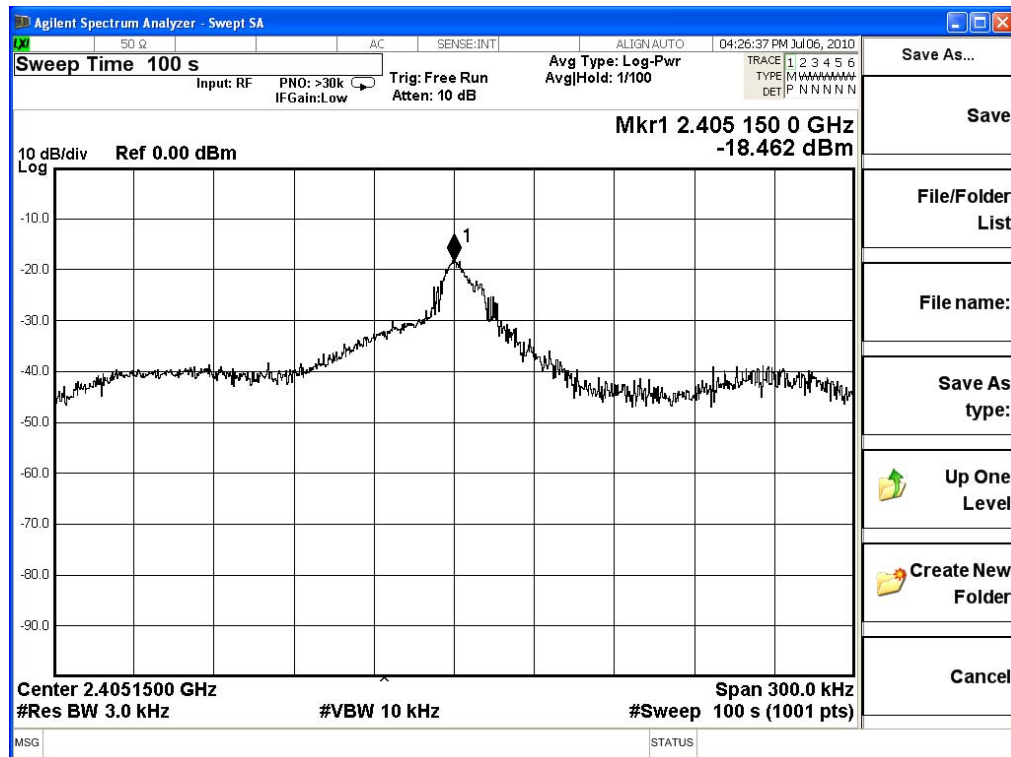
± 1.27 dB

8.6. Test Result of Power Density

Product : Wireless Mouse
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit(2405MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
02	2405.00	-18.462	< 8dBm	Pass

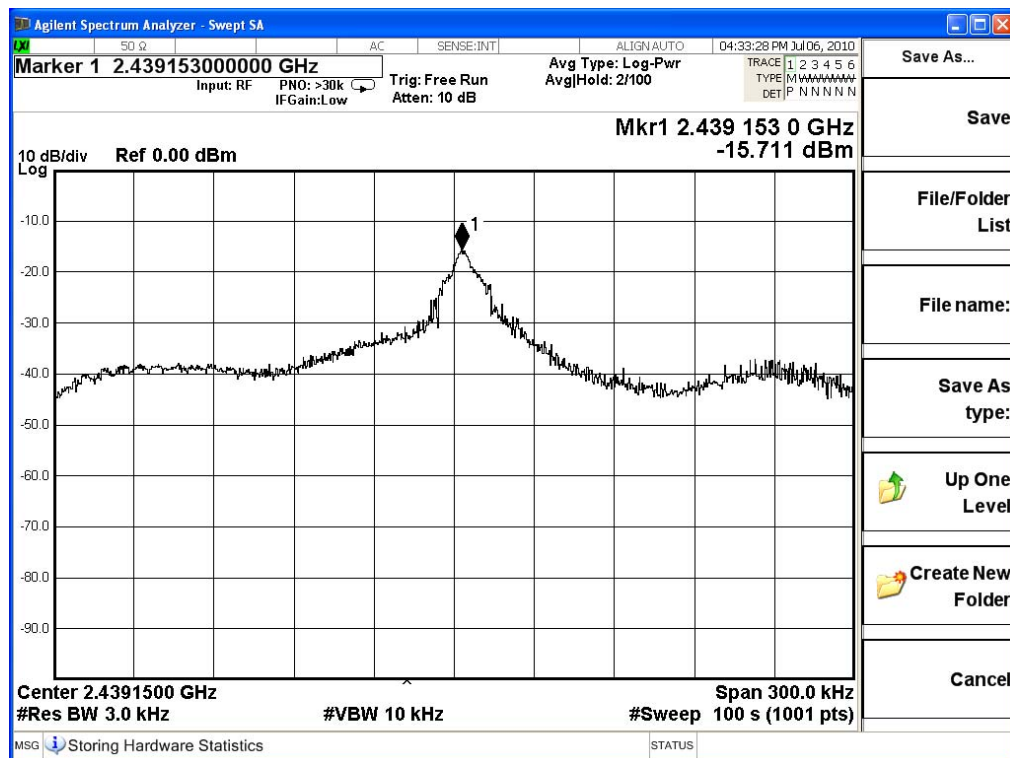
Figure Channel 02:



Product : Wireless Mouse
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmit (2439MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
32	2439	-15.711	< 8dBm	Pass

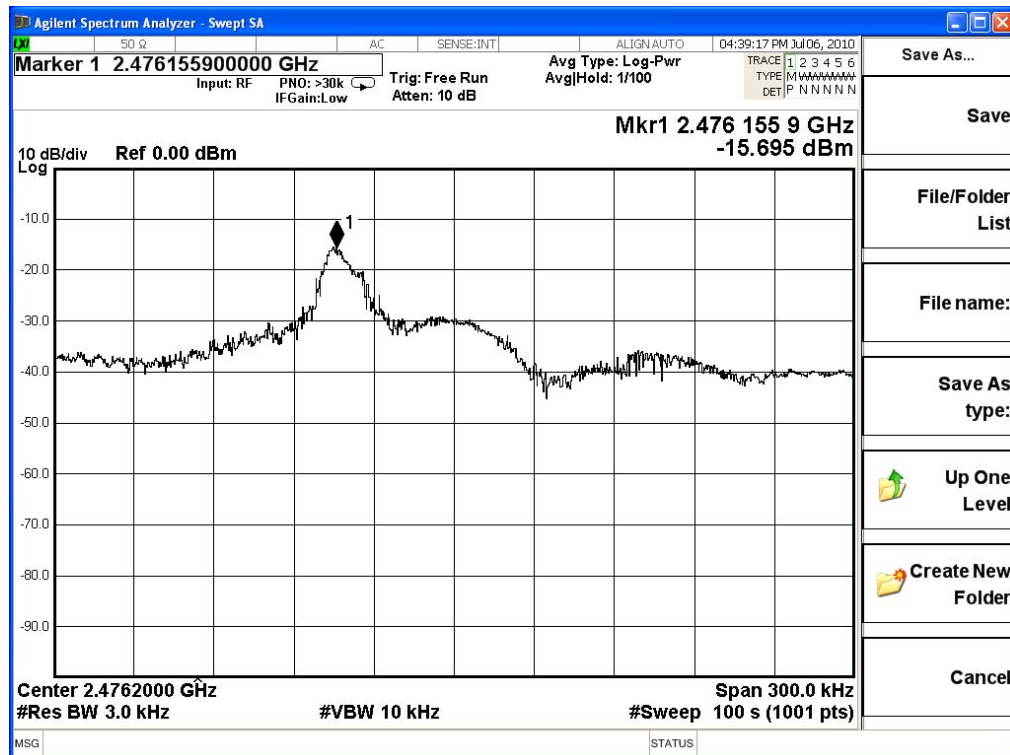
Figure Channel 32:



Product : Wireless Mouse
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (2476MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
64	2476.00	-15.695	< 8dBm	Pass

Figure Channel 64:



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.