



Test Report

Product Name : Wireless Audio Dongle

Model No. : WA2301

FCC ID. : SW8WA2301

Applicant : GOOD WAY TECHNOLOGY CO., LTD.

Address : 3F, No. 135 Lane 235, Pau Chiao Rd., Hsin Tien Taipei
County, Taiwan.

Date of Receipt : 2010/03/17

Issued Date : 2010/04/27

Report No. : 103257R-RFUSP37V02

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.

Test Report Certification

Issued Date : 2010/04/27

Report No. : 103257R-RFUSP42V01



Product Name : Wireless Audio Dongle
Applicant : GOOD WAY TECHNOLOGY CO., LTD.
Address : 3F, No. 135 Lane 235, Pau Chiao Rd., Hsin Tien Taipei County,
Taiwan.
Manufacturer : GOOD WAY TECHNOLOGY CO., LTD.
Model No. : WA2301
FCC ID. : SW8WA2301
EUT Voltage : DC 5V (Power by PC)
Trade Name : GOOD WAY
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2009
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.

Documented By :

(Carol Tsai / Engineering Adm. Specialist)

Reviewed By :

(Sheena Huang / Engineer)

Approved By :

(Roy Wang / Manager)

TABLE OF CONTENTS

Description	Page
1. General Information	6
1.1. EUT Description	6
1.2. Operational Description	7
1.3. Test Mode	8
1.4. Tested System Details	9
1.5. Configuration of tested System	10
1.6. EUT Exercise Software	11
1.7. Test Facility	12
2. Conducted Emission	14
2.1. Test Equipment	14
2.2. Test Setup	14
2.3. Limits	15
2.4. Test Procedure	15
2.5. Test Specification	15
2.6. Uncertainty	15
2.7. Test Result	16
2.8. Test Photo	18
3. Peak Power Output	19
3.1. Test Equipment	19
3.2. Test Setup	19
3.3. Test procedures	19
3.4. Limits	19
3.5. Test Specification	19
3.6. Uncertainty	19
3.7. Test Result	20
4. Radiated Emission	23
4.1. Test Equipment	23
4.2. Test Setup	23
4.3. Limits	24
4.4. Test Procedure	25
4.5. Test Specification	25

4.6.	Uncertainty	25
4.7.	Test Result.....	26
4.8.	Test Photo	34
5.	RF antenna conducted test.....	36
5.1.	Test Equipment.....	36
5.2.	Test Setup	36
5.3.	Limits	37
5.4.	Test Procedure	37
5.5.	Test Specification.....	37
5.6.	Uncertainty	37
5.7.	Test Result.....	38
6.	Radiated Emission Band Edge	42
6.1.	Test Equipment.....	42
6.2.	Test Setup	42
6.3.	Limits	43
6.4.	Test Procedure	43
6.5.	Test Specification.....	43
6.6.	Uncertainty	43
6.7.	Test Result.....	44
7.	Number of hopping frequency	52
7.1.	Test Equipment.....	52
7.2.	Test Setup	52
7.3.	Limits	53
7.4.	Test Procedures	53
7.5.	Test Specification.....	53
7.6.	Test Result.....	54
8.	Carrier Frequency Separation	58
8.1.	Test Equipment.....	58
8.2.	Test Setup	58
8.3.	Limits	58
8.4.	Test Procedures	58
8.5.	Test Specification.....	58
8.6.	Test Result.....	59
9.	Occupied Bandwidth (20dB).....	62

9.1.	Test Equipment.....	62
9.2.	Test Setup	62
9.3.	Limits	62
9.4.	Test Procedures	63
9.5.	Test Specification.....	63
9.6.	Uncertainty	63
9.7.	Test Result.....	64
10.	Occupied Bandwidth (6dB).....	67
10.1.	Test Equipment.....	67
10.2.	Test Setup	67
10.3.	Test Procedures	67
10.4.	Limits	67
10.5.	Uncertainty	67
10.6.	Test Result.....	68
11.	Dwell Time	71
11.1.	Test Equipment.....	71
11.2.	Test Setup	71
11.3.	Limits	72
11.4.	Test Procedures	72
11.5.	Test Specification.....	72
11.6.	Test Result.....	73
12.	Power Density	76
12.1.	Test Equipment.....	76
12.2.	Test Setup	76
12.3.	Limits	76
12.4.	Test Procedures	76
12.5.	Uncertainty	76
12.6.	Test Result.....	77
Attachement.....		80
	EUT Photograph.....	80

1. General Information

1.1. EUT Description

Product Name	Wireless Audio Dongle
Trade Name	GOOD WAY
Model No.	WA2301
Frequency Range	2404~2476MHz
Channel Number	25
Type of Modulation	GFSK
Channel Control	Auto
Antenna Type	Ceramic
Antenna Gain	2.6dBi

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1	2404 MHz	Channel 8	2425 MHz	Channel 15	2446 MHz	Channel 22	2467 MHz
Channel 2	2407 MHz	Channel 9	2428 MHz	Channel 16	2449 MHz	Channel 23	2470 MHz
Channel 3	2410 MHz	Channel 10	2431 MHz	Channel 17	2452 MHz	Channel 24	2473 MHz
Channel 4	2413 MHz	Channel 11	2434 MHz	Channel 18	2455 MHz	Channel 25	2476 MHz
Channel 5	2416 MHz	Channel 12	2437 MHz	Channel 19	2458 MHz		
Channel 6	2419 MHz	Channel 13	2440 MHz	Channel 20	2461 MHz		
Channel 7	2422 MHz	Channel 14	2443 MHz	Channel 21	2464 MHz		

Note:

1. This device is a Wireless Audio Dongle included a 2.4GHz receiving function, and 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 15.247 for spread spectrum devices.
3. Regards to the frequency band operation; the lowest 、 middle and highest frequency of channel were selected to perform the test, and then shown on this report.

This device is a composite device in accordance with Part 15 regulations. The function receiving was measured and made a test report that the report number is 103257R-RFUSP37V02 under Declaration of Conformity.

1.3. Test Mode

Quietek has verified the construction and function in typical operation. The preliminary tests were performed in different modulations to determine the worst case condition, base on EUT's peak output power level. After evaluated, EUT with GFSK modulation has highest peak output power level which means that GFSK modulation is the worst condition. The following table is the final test mode.

Pre-Test Mode	
EMI	Mode 1: Transmit-Dongle
Final Test Mode	
EMI	Mode 1: Transmit-Dongle

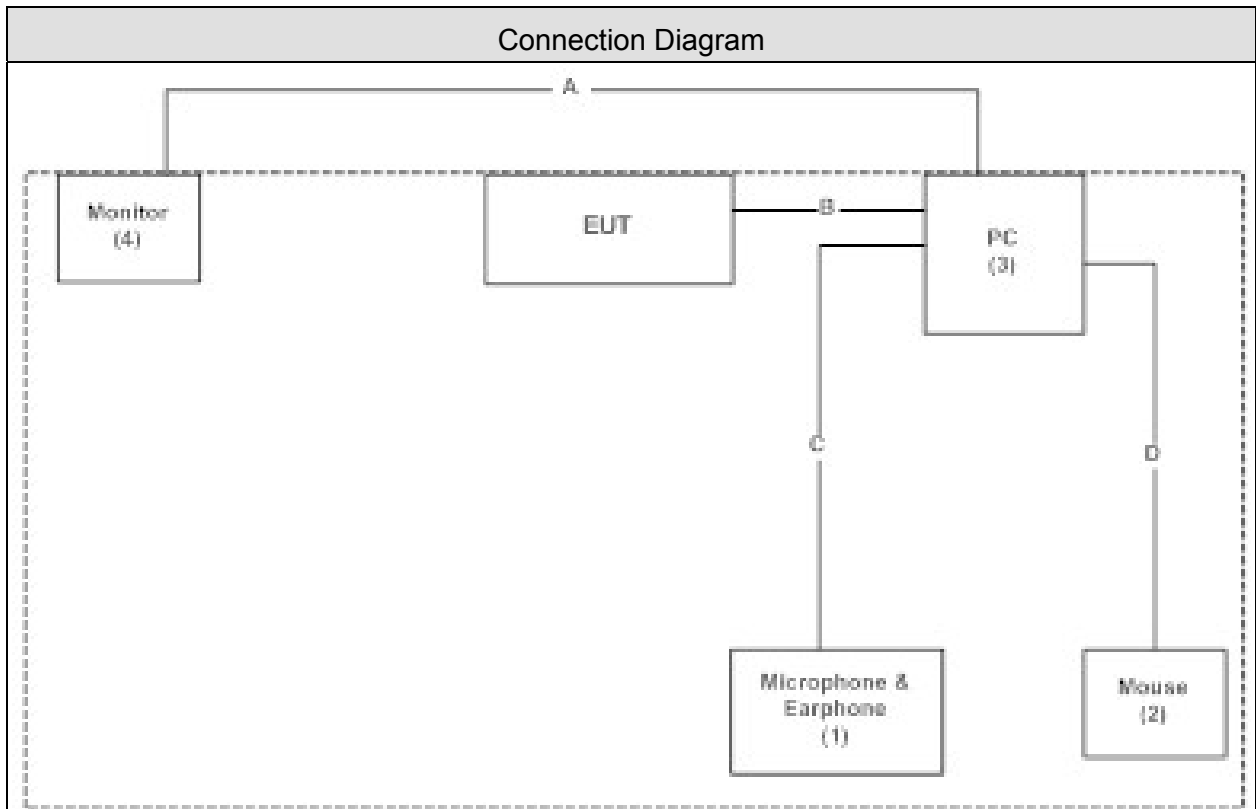
Emission	
Performed Item	Mode 1
Conducted Emission	Yes
Peak Power Output	Yes
Radiated Emission	Yes
Band Edge	Yes
Channel of Number	Yes
Channel Separation	Yes
Occupied Bandwidth (20dB)	Yes
Occupied Bandwidth (6dB)	Yes
Dwell Time	Yes
Power Density	Yes

1.4. Tested System Details

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

Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1 Microphone & Earphone	Fujiei	SBZ-38	N/A	DoC	--
2 Mouse	Logitech	M-SBF83	HCA52200179	DoC	--
3 PC	HP	HSTNN-146C	CNV8253S1X	DoC	Non-Shielded, 1.8m
4 Monitor	ViewSonic	E653	ER01502861	DoC	Non-Shielded, 1.8m

1.5. Configuration of tested System



Signal Cable Type		Signal cable Description
A	VGA Cable	Shielded, 1.8m, two ferrite cores bonded.
B	USB Cable	Shielded, 1.7m
C	Microphone & Earphone Cable	Non-Shielded, 1.2m
D	USB Mouse Cable	Shielded, 1m

1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.5.
2	Turn on the power of all equipment.
3	The EUT will play the audio function.
4	Verify the model operation.
5	Repeat the above procedure (3) to (4).

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	Conducted Emission	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	Peak Power Output	15 - 35	23
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	Radiated Emission	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	RF antenna conducted test	15 - 35	25
Humidity (%RH)		25 - 75	53
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	Radiated Emission Band Edge	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	Number of hopping frequency	15 - 35	25
Humidity (%RH)		25 - 75	53
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	Carrier Frequency Separation	15 - 35	26
Humidity (%RH)		25 - 75	54
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	Occupied Bandwidth	15 - 35	26
Humidity (%RH)		25 - 75	56
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	Dwell Time	15 - 35	26
Humidity (%RH)		25 - 75	53
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description:

Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2010



Accredited by TAF
Accreditation Number: 1313
Effective through: December 27, 2010



March 23, 2008 Accreditation on DNV
Statement No. : 413-99-LAB11



March 27, 2008 Accreditation on TÜV Rheinland
Certificate No.: 10011438-2-2008



October 31, 2007 Accreditation on Nemko
Certificate No.: ELA 165



Site Name: Quietek Corporation

Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.
TEL : 886-3-5928858 / FAX : 886-3-5928859
E-Mail : service@quietek.com

2. Conducted Emission

2.1. Test Equipment

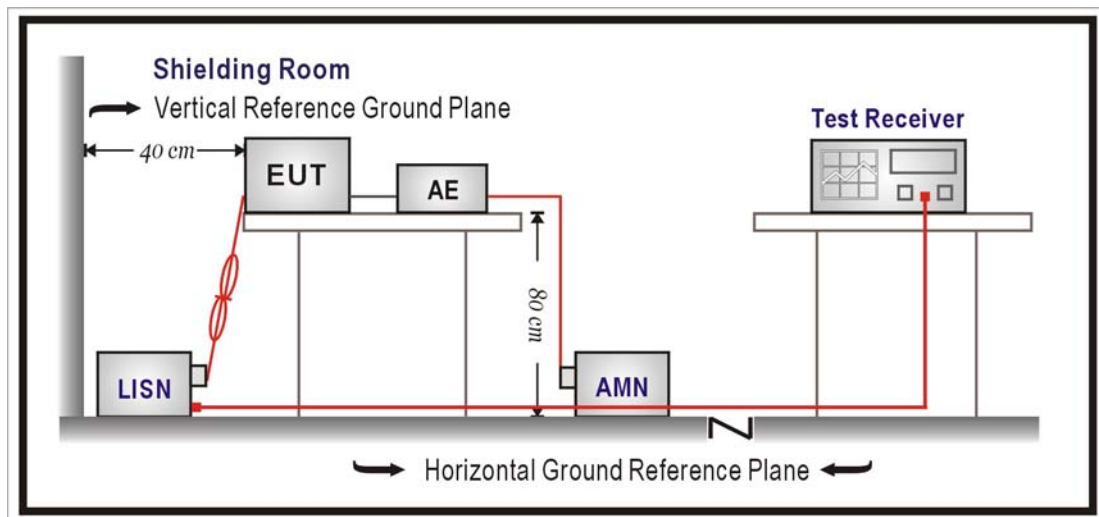
The following test equipment are used during the test:

Conducted Emission / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
LISN	R&S	ENV216	100096	2009/09/28
LISN	R&S	ESH3-Z5	836679/022	2009/06/08
Test Receiver	R&S	ESCS 30	825442/017	2010/02/05

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 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT was setup and tested according to ANSI C63.4: 2009.

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: 2009 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

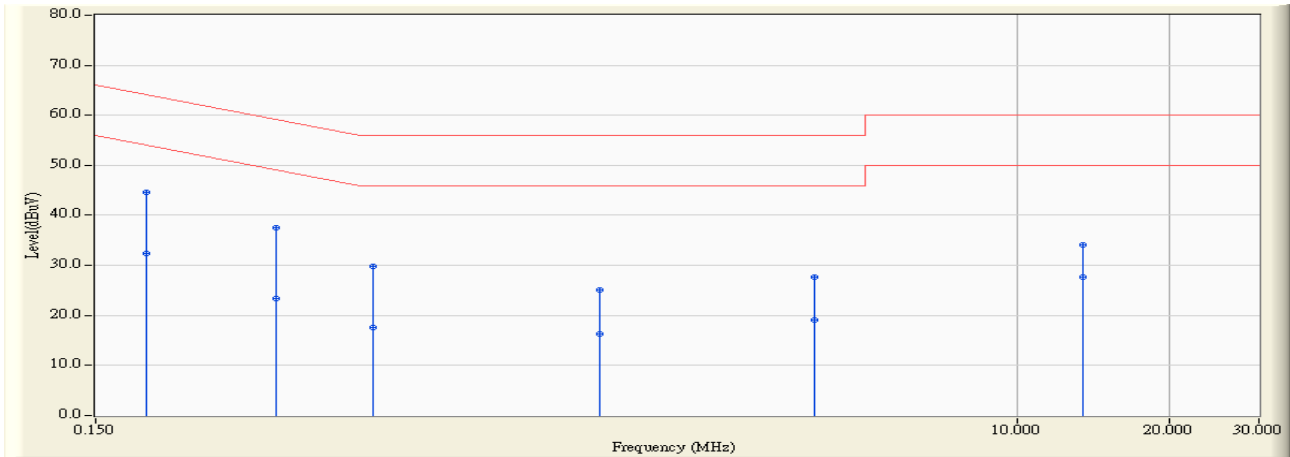
According to FCC Part 15 Subpart C Paragraph 15.207: 2009

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR3	Time : 2010/03/22 - 21:47
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A) - Line1	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle

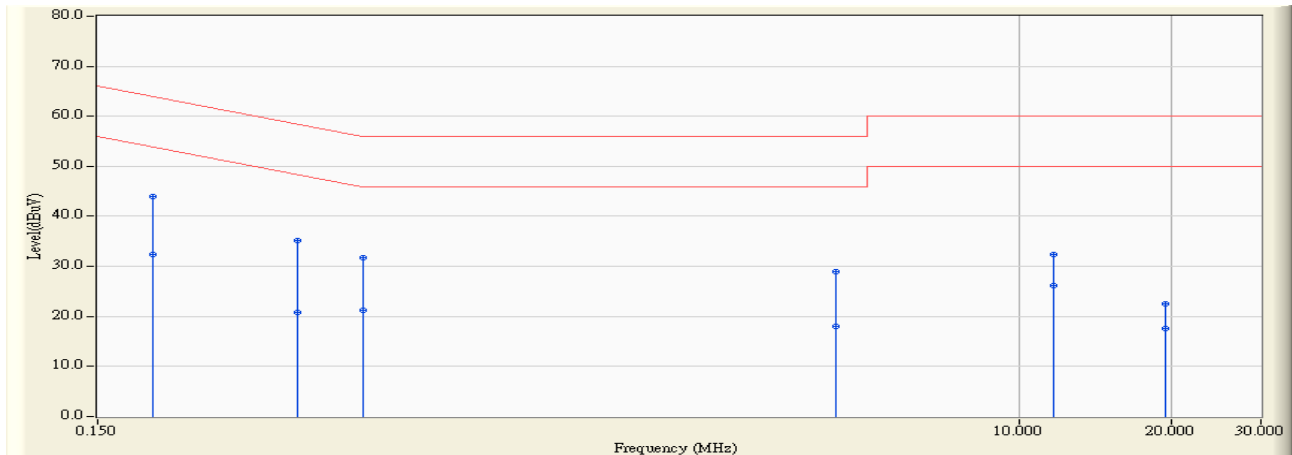


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.189	9.826	34.770	44.596	-19.482	64.078	QUASIPeAK
2		0.189	9.826	22.610	32.436	-21.642	54.078	AVERAGE
3		0.341	9.799	27.650	37.449	-21.720	59.169	QUASIPeAK
4		0.341	9.799	13.660	23.459	-25.710	49.169	AVERAGE
5		0.529	9.763	20.140	29.903	-26.097	56.000	QUASIPeAK
6		0.529	9.763	7.840	17.603	-28.397	46.000	AVERAGE
7		1.486	9.814	15.280	25.093	-30.907	56.000	QUASIPeAK
8		1.486	9.814	6.560	16.373	-29.627	46.000	AVERAGE
9		3.962	9.880	17.690	27.570	-28.430	56.000	QUASIPeAK
10		3.962	9.880	9.140	19.020	-26.980	46.000	AVERAGE
11		13.498	10.154	24.020	34.174	-25.826	60.000	QUASIPeAK
12		13.498	10.154	17.500	27.654	-22.346	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR3	Time : 2010/03/22 - 21:29
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A) - Line2	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.193	9.830	34.200	44.029	-19.879	63.908	QUASPEAK
2		0.193	9.830	22.550	32.379	-21.529	53.908	AVERAGE
3		0.373	9.788	25.300	35.088	-23.354	58.442	QUASPEAK
4		0.373	9.788	11.090	20.878	-27.564	48.442	AVERAGE
5		0.502	9.766	21.920	31.686	-24.314	56.000	QUASPEAK
6		0.502	9.766	11.550	21.316	-24.684	46.000	AVERAGE
7		4.330	9.895	18.990	28.885	-27.115	56.000	QUASPEAK
8		4.330	9.895	8.100	17.995	-28.005	46.000	AVERAGE
9		11.693	10.200	22.280	32.480	-27.520	60.000	QUASPEAK
10		11.693	10.200	15.950	26.150	-23.850	50.000	AVERAGE
11		19.404	10.416	12.130	22.546	-37.454	60.000	QUASPEAK
12		19.404	10.416	7.140	17.556	-32.444	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

3. Peak Power Output

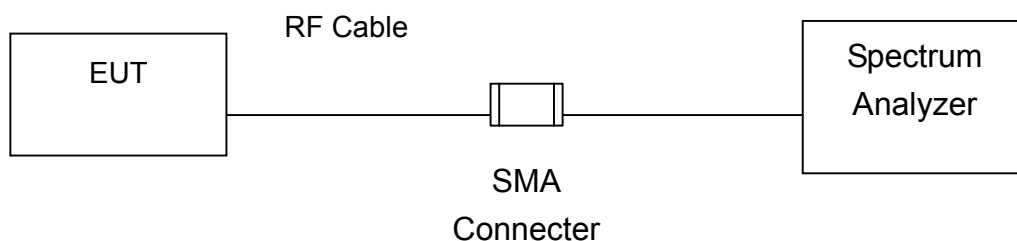
3.1. Test Equipment

The following test equipments are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R&S	FSP/ 100005	Oct., 2009
2	No.1 OATS			Sep., 2009

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

3.2. Test Setup



3.3. Test procedures

The EUT was setup according to ANSI C63.4: 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

3.4. Limits

For frequency hopping systems operating in the 902-928 MHz band: 1 Watt for systems employing at least 50 hopping channels; and, 0.25 Watts for systems employing less than 50 hopping channels.

For frequency hopping systems in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1Watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 Watt.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

3.6. Uncertainty

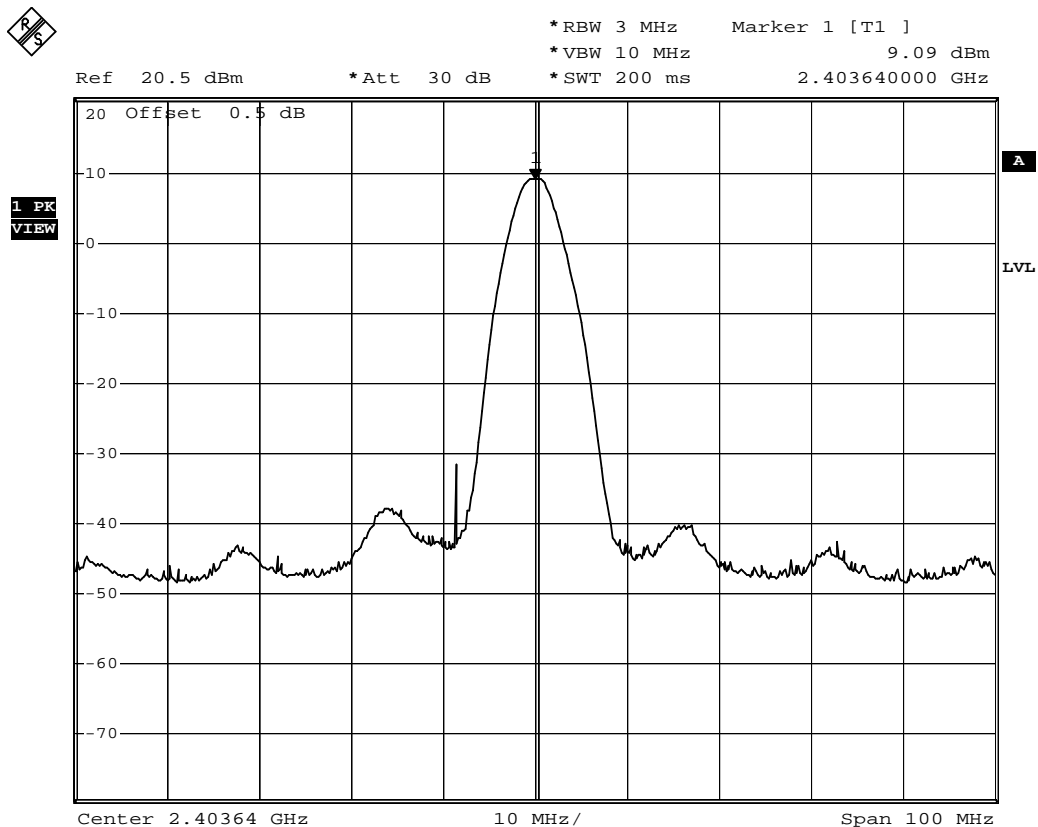
The measurement uncertainty is defined as ± 1.27 dB.

3.7. Test Result

Product	Wireless Audio Dongle		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit-Dongle		
Date of Test	2010/04/27	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2404	9.09	1Watt= 30 dBm	Pass
13	2440	9.97	1Watt= 30 dBm	Pass
25	2476	10.34	1Watt= 30 dBm	Pass

Channel 1



Date: 27.APR.2010 17:37:25

Channel 13

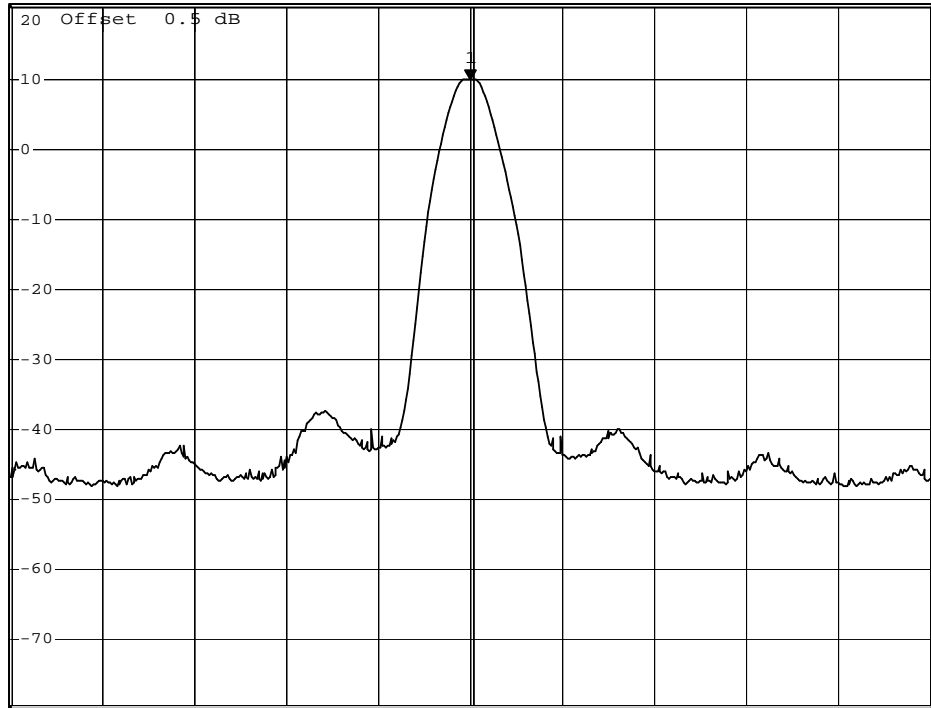


*RBW 3 MHz Marker 1 [T1]
*VBW 10 MHz 9.97 dBm
*SWT 200 ms 2.440440000 GHz

Ref 20.5 dBm

*Att 30 dB

1 PK
VIEW



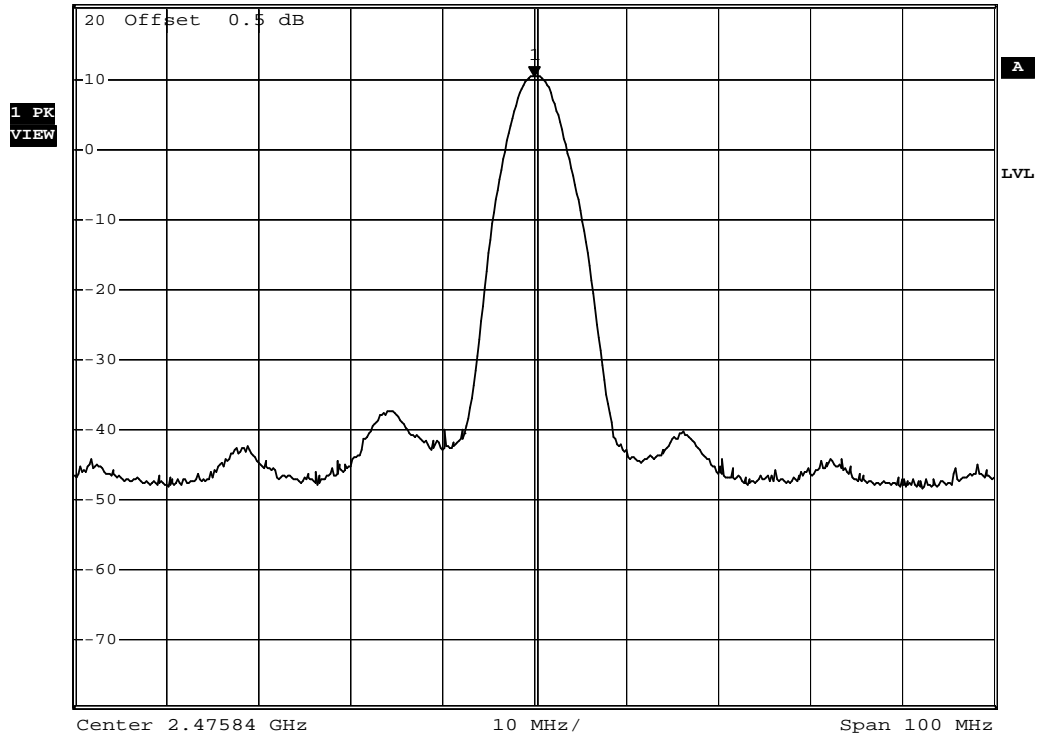
Date: 27.APR.2010 17:38:21

Channel 25



*RBW 3 MHz Marker 1 [T1]
*VBW 10 MHz 10.34 dBm
*SWT 200 ms 2.475840000 GHz

Ref 20.5 dBm *Att 30 dB



Date: 27.APR.2010 17:39:04

4. Radiated Emission

4.1. Test Equipment

The following test equipment are used during the test:

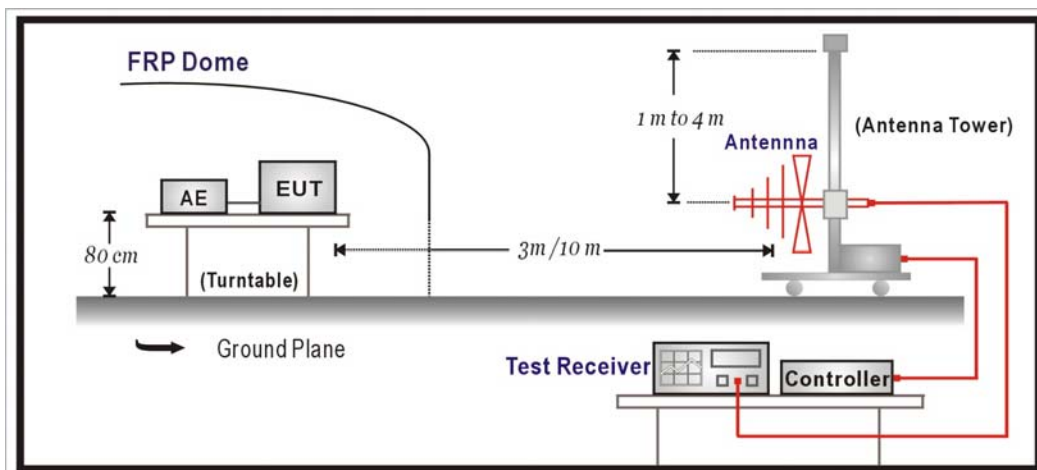
Radiated Emission / CB1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2895	2009/09/03
Horn Antenna	Schwarzback	BBHA 9120D	743	2010/03/16
Loop Antenna	R & S	HFH2-Z2	833799/004	2009/09/13
Pre-Amplifier	Quietek	AP-025C	CHM0608021	2009/11/13
Pre-Amplifier	MITEQ	AMF-4D-005180 -24-10P	888003	2009/12/04
Spectrum Analyzer	R & S	FSP40	100005	2009/08/25
Test Receiver	R & S	ESCS 30	825442/017	2010/02/03

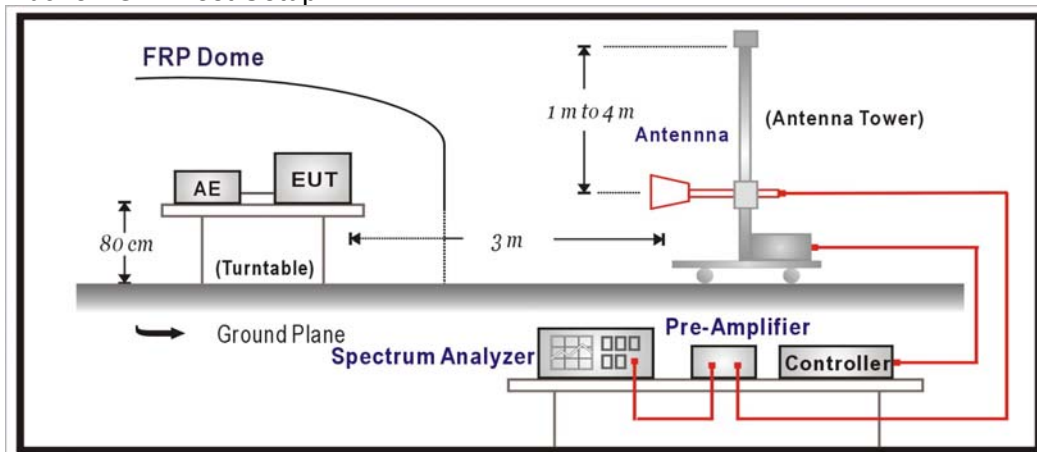
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



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 Limits		
Frequency MHz	uV/m	dBuV/m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

- Remarks :
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 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.

4.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

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 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: 2009 on radiated measurement.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.209: 2009

4.6. Uncertainty

The measurement uncertainty

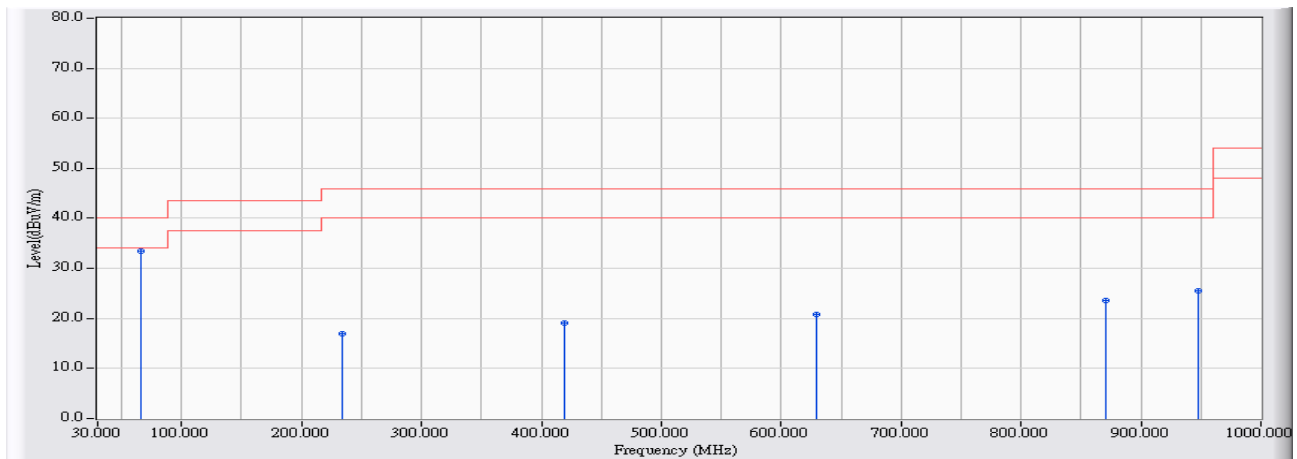
30MHz~1GHz as $\pm 3.19\text{dB}$

1GHz~26.5Ghz as $\pm 3.9\text{dB}$

4.7. Test Result

30MHz-1GHz Spurious:

Site : CB1	Time : 2010/04/21 - 10:50
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : FCC_30-1G(2009) - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2440MHz)

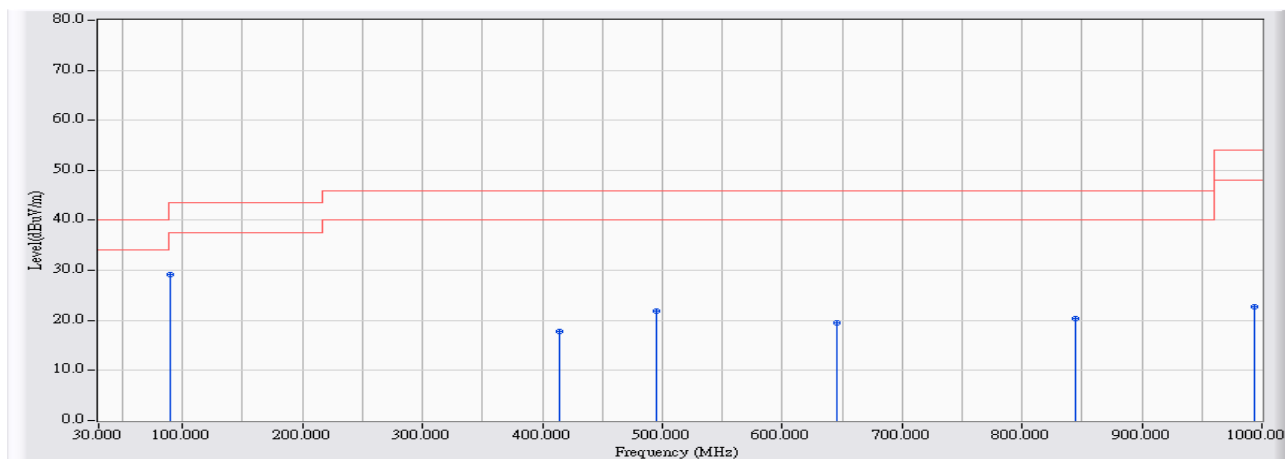


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	65.568	-13.887	47.396	33.509	-6.491	40.000	QUASIPeAK
2		233.701	-12.177	29.026	16.849	-29.151	46.000	QUASIPeAK
3		419.622	-3.332	22.515	19.183	-26.817	46.000	QUASIPeAK
4		629.787	-1.280	22.025	20.745	-25.255	46.000	QUASIPeAK
5		870.668	0.422	23.182	23.604	-22.396	46.000	QUASIPeAK
6		948.262	2.632	22.845	25.477	-20.523	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : CB1	Time : 2010/04/21 - 11:08
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : FCC_30-1G(2009) - VERTICAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2440MHz)



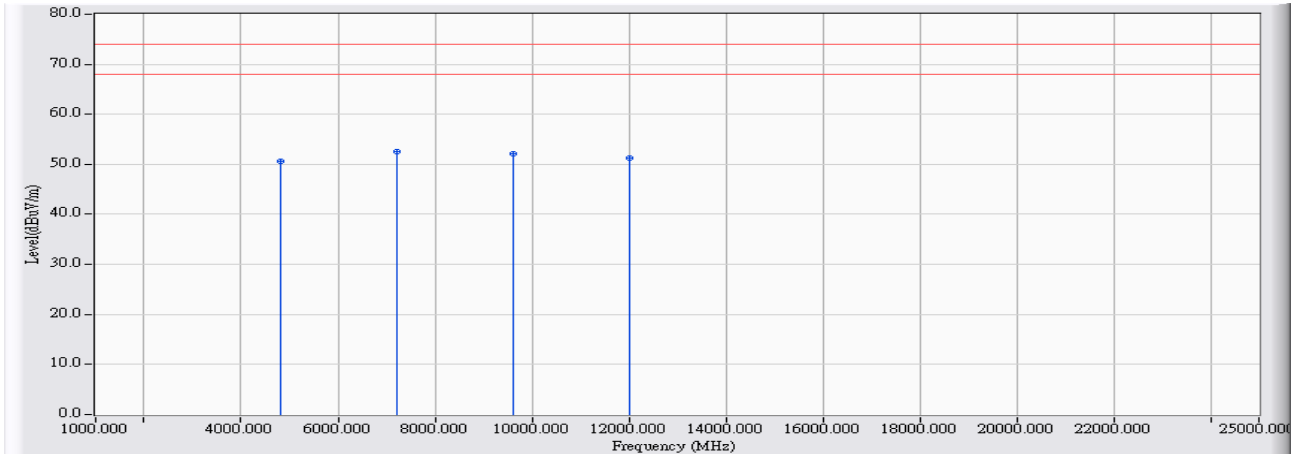
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	89.819	-12.188	41.409	29.221	-14.279	43.500	QUASPEAK
2		414.762	-3.605	21.325	17.720	-28.280	46.000	QUASPEAK
3		495.593	-4.810	26.709	21.899	-24.101	46.000	QUASPEAK
4		645.955	-1.888	21.461	19.573	-26.427	46.000	QUASPEAK
5		844.795	-1.429	21.725	20.296	-25.704	46.000	QUASPEAK
6		993.535	-0.130	22.841	22.711	-31.289	54.000	QUASPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Above 1GHz Spurious:

Site : CB1	Time : 2010/04/19 - 11:29
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2404MHz)

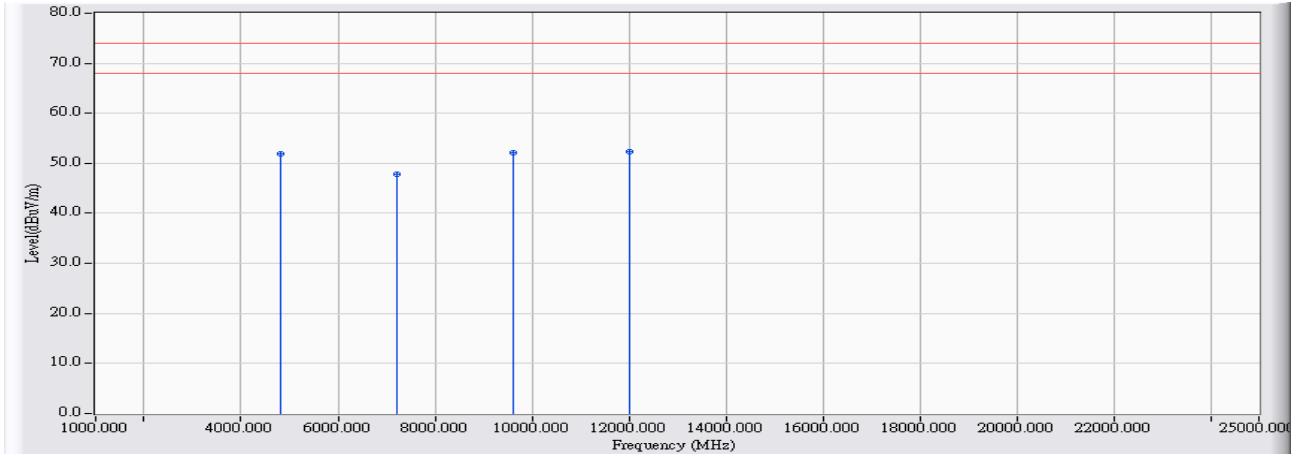


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	4806.960	3.352	47.258	50.610	-23.390	74.000	54.00	PEAK
2	* 7210.796	9.767	42.741	52.508	-21.492	74.000	54.00	PEAK
3	9615.166	13.678	38.453	52.131	-21.869	74.000	54.00	PEAK
4	12019.927	18.775	32.466	51.241	-22.759	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2010/04/19 - 11:47
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - VERTICAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2404MHz)

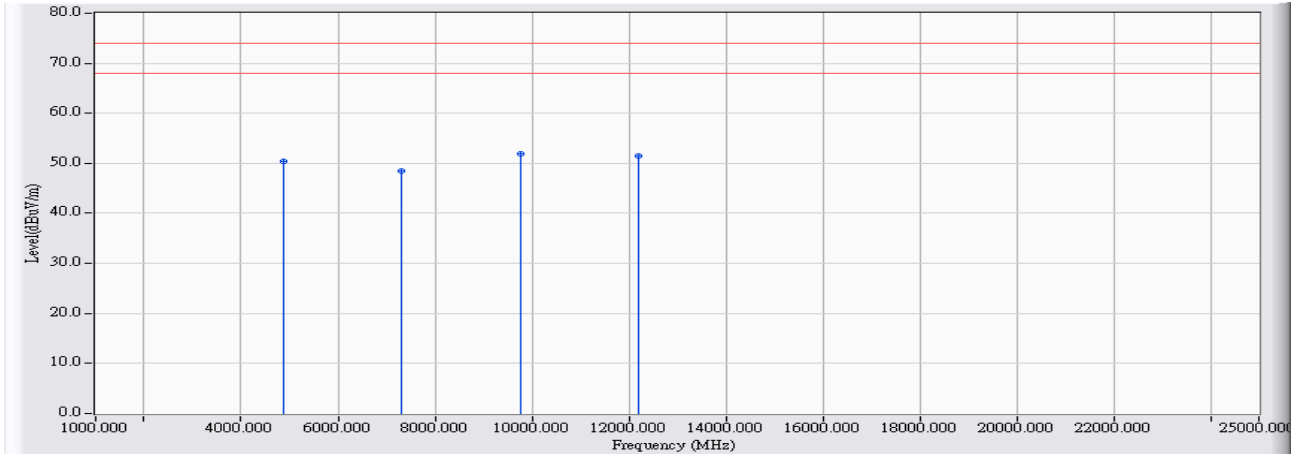


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	4807.189	5.533	46.300	51.833	-22.167	74.000	54.00	PEAK
2	7210.773	9.409	38.373	47.782	-26.218	74.000	54.00	PEAK
3	9615.236	13.750	38.361	52.111	-21.889	74.000	54.00	PEAK
4	* 12020.200	17.426	34.979	52.405	-21.595	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2010/04/19 - 13:15
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2440MHz)

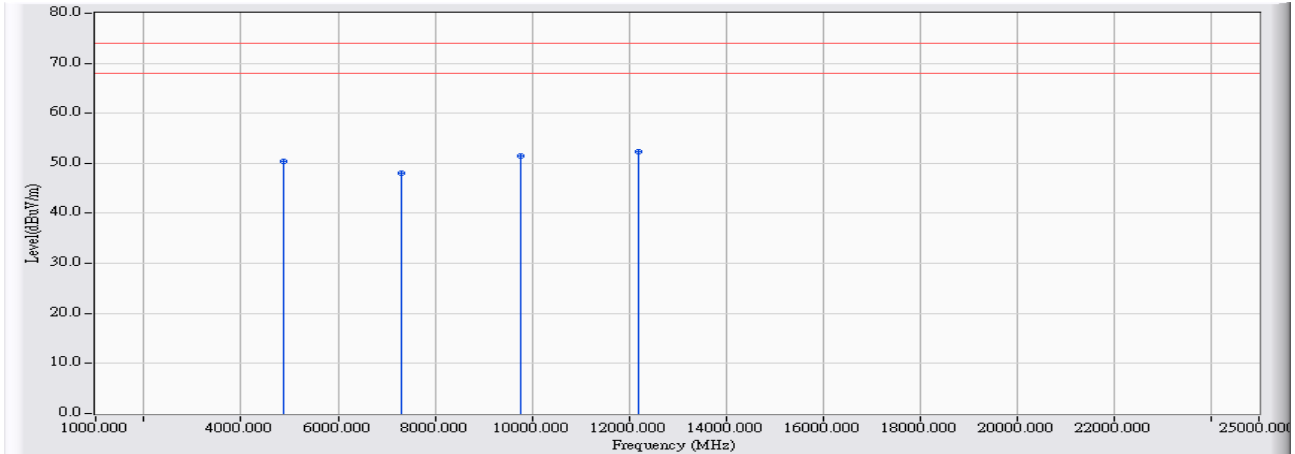


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	4879.071	3.544	46.815	50.359	-23.641	74.000	54.00	PEAK
2	7319.642	10.266	38.253	48.519	-25.481	74.000	54.00	PEAK
3	* 9760.115	14.267	37.598	51.865	-22.135	74.000	54.00	PEAK
4	12198.748	18.067	33.472	51.539	-22.461	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2010/04/19 - 13:33
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - VERTICAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2440MHz)

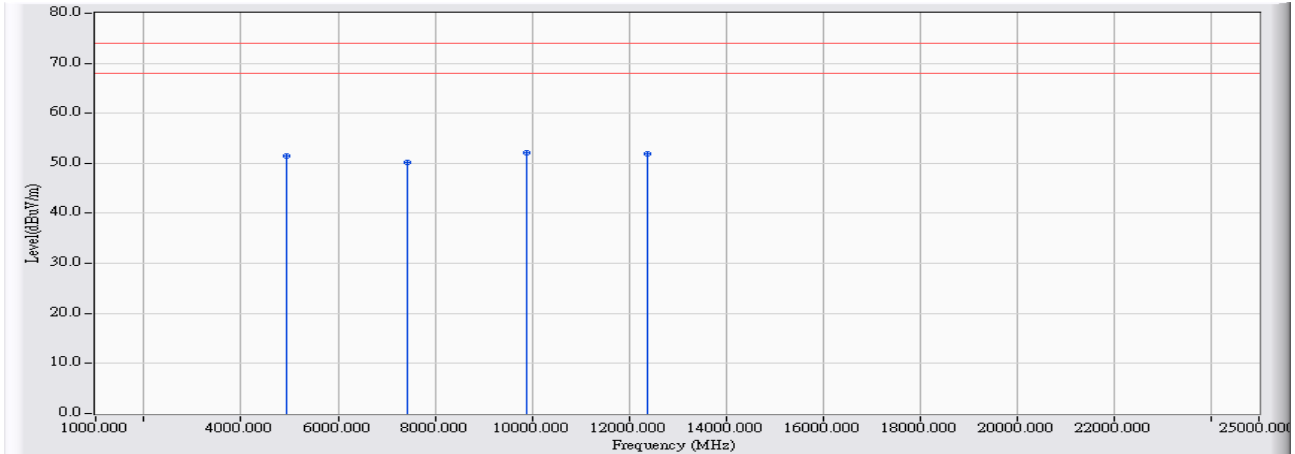


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	4879.381	5.580	44.839	50.419	-23.581	74.000	54.00	PEAK
2	7319.249	9.620	38.415	48.035	-25.965	74.000	54.00	PEAK
3	9760.016	14.478	37.057	51.535	-22.465	74.000	54.00	PEAK
4	* 12198.661	17.099	35.162	52.261	-21.739	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2010/04/19 - 13:46
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2476MHz)

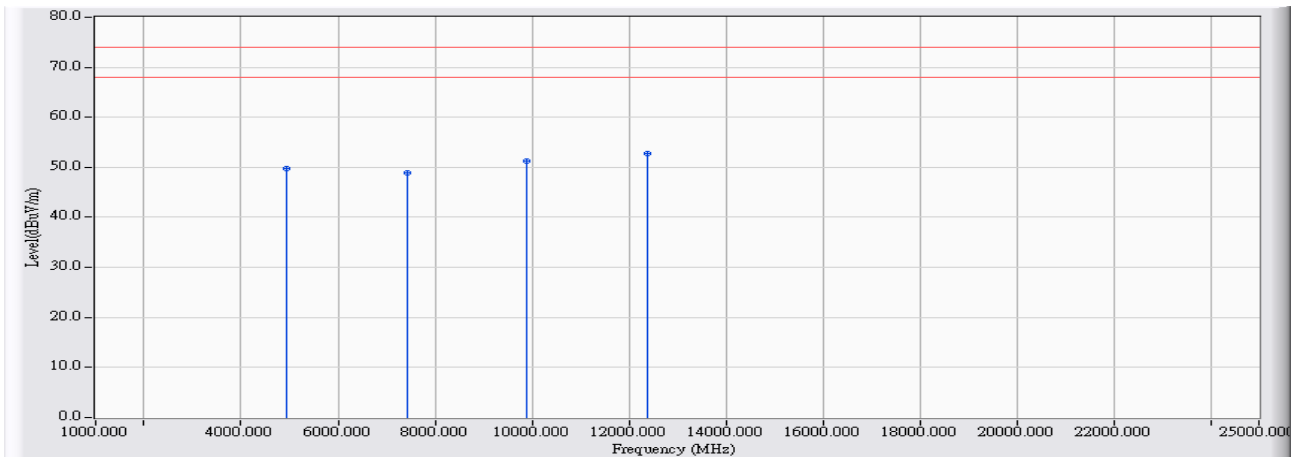


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	4952.400	3.750	47.654	51.404	-22.596	74.000	54.00	PEAK
2	7429.547	10.781	39.349	50.130	-23.870	74.000	54.00	PEAK
3	* 9905.955	14.851	37.264	52.115	-21.885	74.000	54.00	PEAK
4	* 12381.457	17.344	34.645	51.989	-22.011	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2010/04/19 - 13:59
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - VERTICAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2476MHz)



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	4952.892	3.751	46.111	49.862	-24.138	74.000	54.00	PEAK
2	7429.481	10.782	38.212	48.994	-25.006	74.000	54.00	PEAK
3	9906.435	14.852	36.497	51.349	-22.651	74.000	54.00	PEAK
4	* 12381.447	17.344	35.488	52.832	-21.168	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

5. RF antenna conducted test

5.1. Test Equipment

The following test equipments are used during the test:

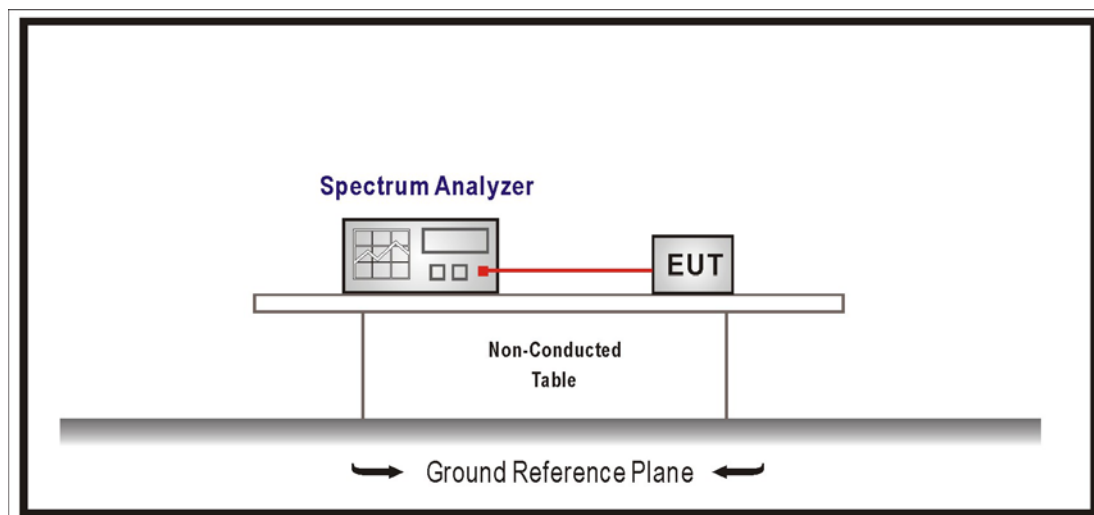
RF Conducted Measurement:				
Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2010
2	No.1 OATS			Sep., 2009

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

2. Test instruments are 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 an RF conducted or 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 setup according to ANSI C63.4: 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

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

5.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

5.6. Uncertainty

The measurement uncertainty

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

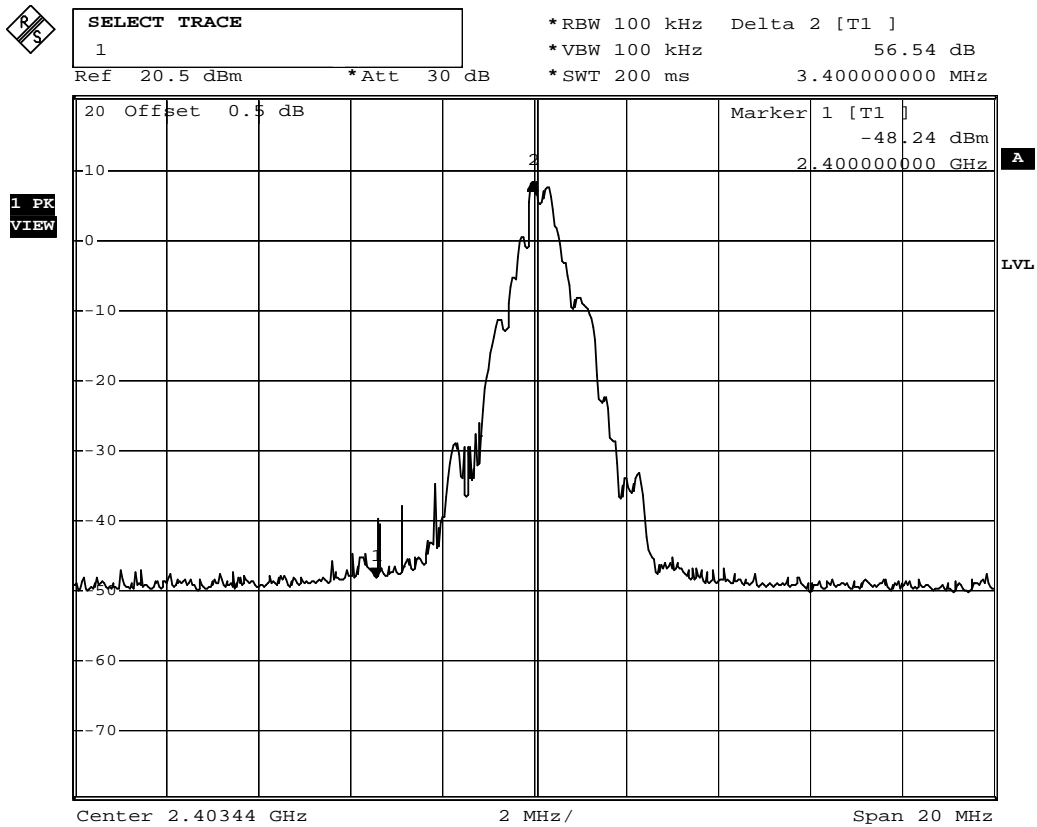
Radiated is defined as $\pm 3.9\text{dB}$

5.7. Test Result

Product	Wireless Audio Dongle		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit-Dongle		
Date of Test	2010/04/27	Test Site	No.1 OATS

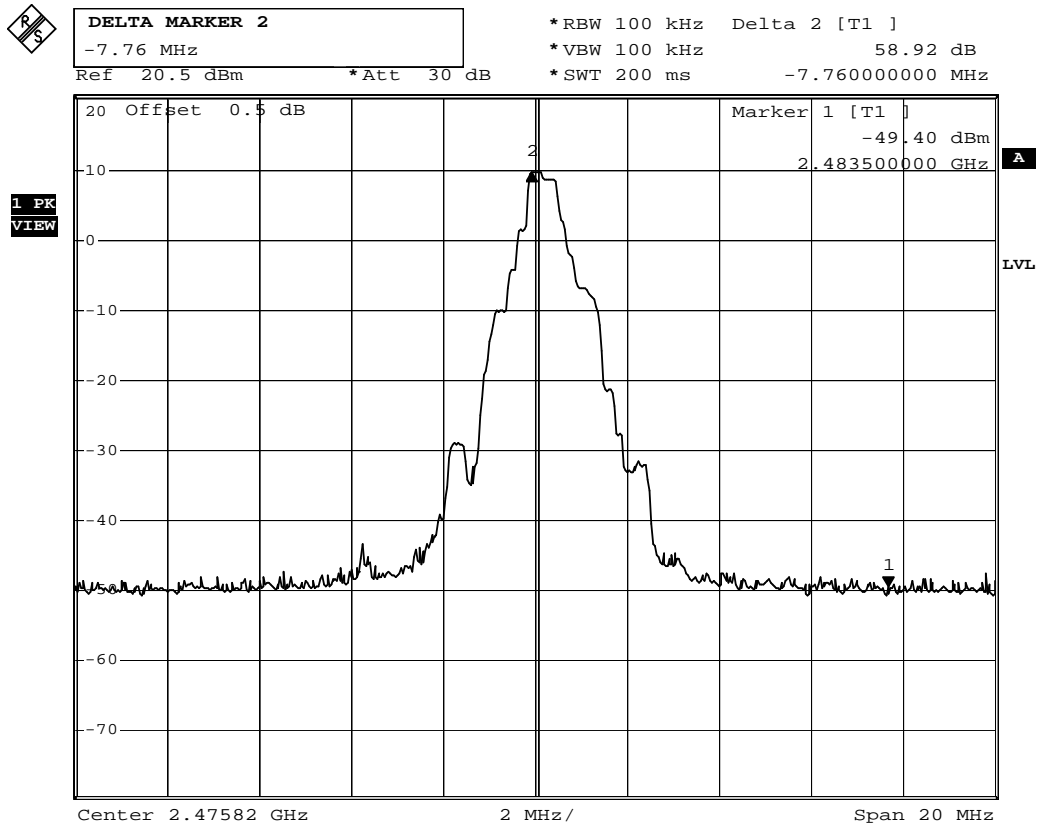
Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
1	2404	56.54	≥ 20	Pass
25	2476	58.92	≥ 20	Pass

Channel 1-Bandedge



Date: 27.APR.2010 17:51:22

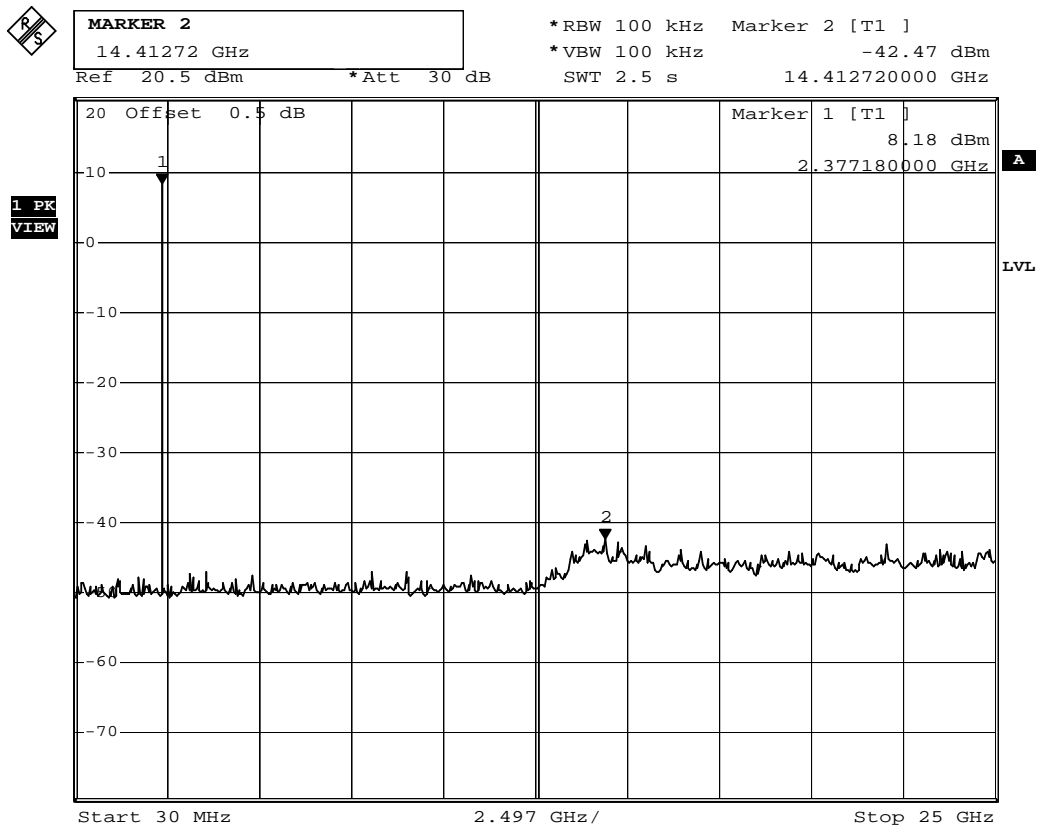
Channel 25-Bandedge



Date: 27.APR.2010 17:48:12

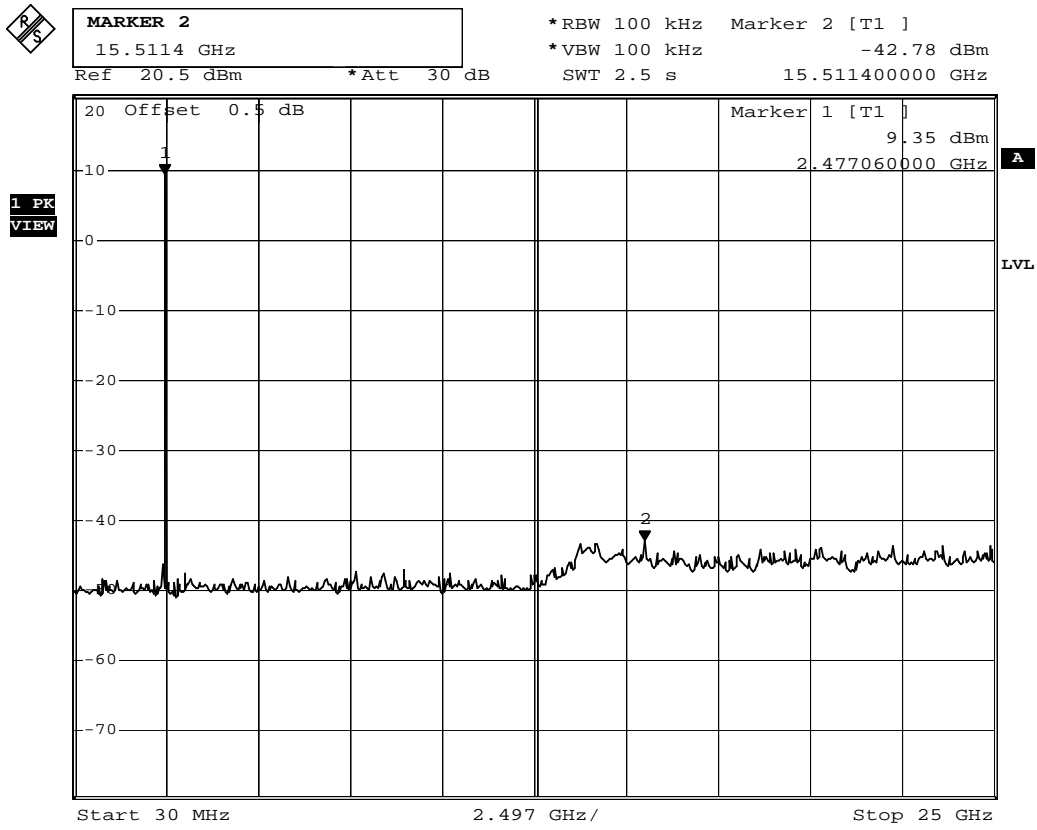
Product	Wireless Audio Dongle		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit-Dongle		
Date of Test	2010/04/27	Test Site	No.1 OATS

Conducted Spurious Channel 1 (30M-25G)



Date: 27.APR.2010 17:56:03

Conducted Spurious
Channel 25(30M-25G)



Date: 27.APR.2010 17:57:11

6. Radiated Emission Band Edge

6.1. Test Equipment

The following test equipments are used during the test:

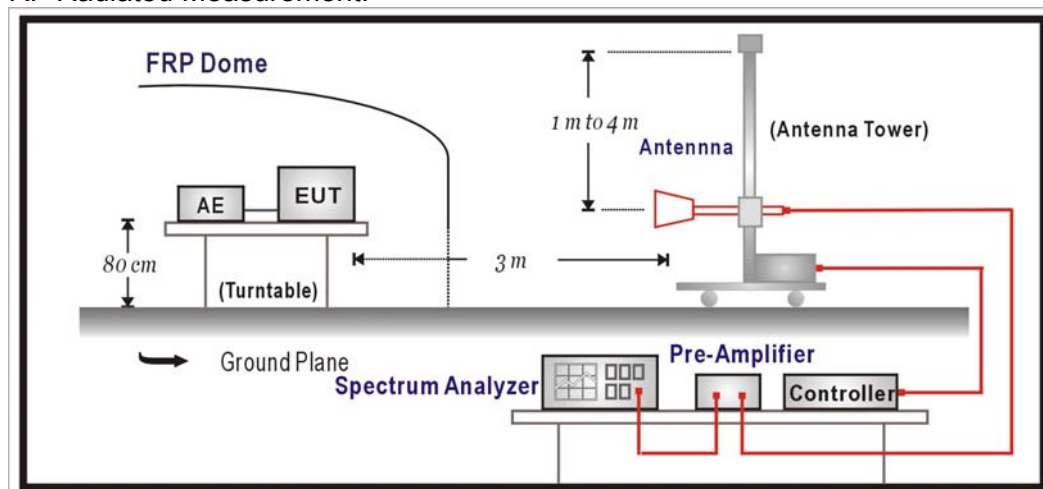
RF Radiated Measurement:					
Item		Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	X	Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2009
2	X	Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2010
3		Loop Antenna	R & S	HFH2-Z2 / 833799/004	Sep., 2009
4		BiconiLog Antenna	Schwarzbeck	VULB 9166 / 1061	Sep., 2009
5		Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2009
6	X	Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Sep., 2009
7		No.1 OATS			Sep., 2009

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

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

6.2. Test Setup

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: 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

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: 2009 on radiated measurement.

6.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

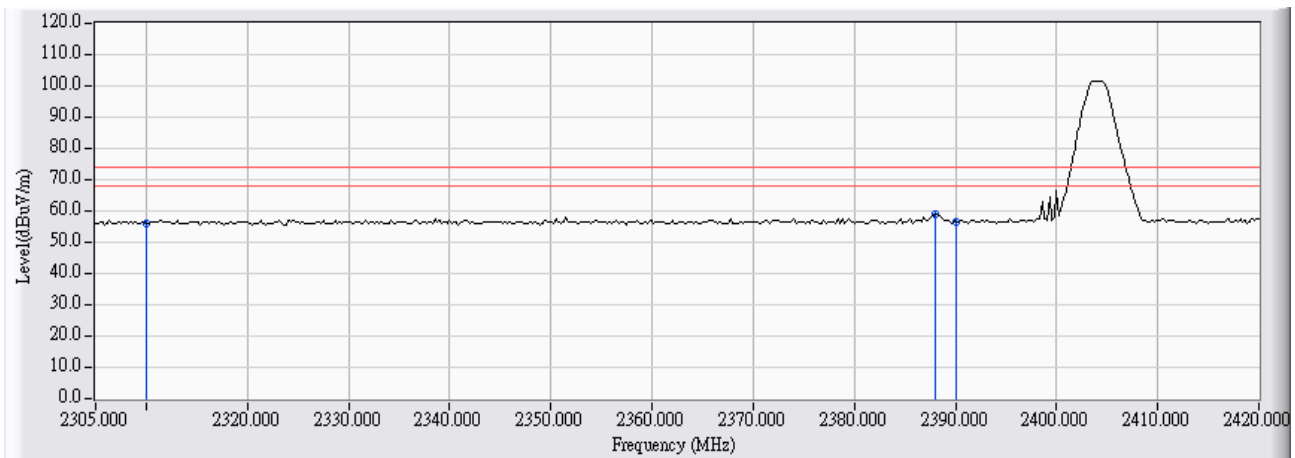
6.6. Uncertainty

The measurement uncertainty ± 3.9 dB above 1GHz

6.7. Test Result

Radiated is defined as

Site : Site1	Time : 2010/04/26 - 14:15
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2404MHz)

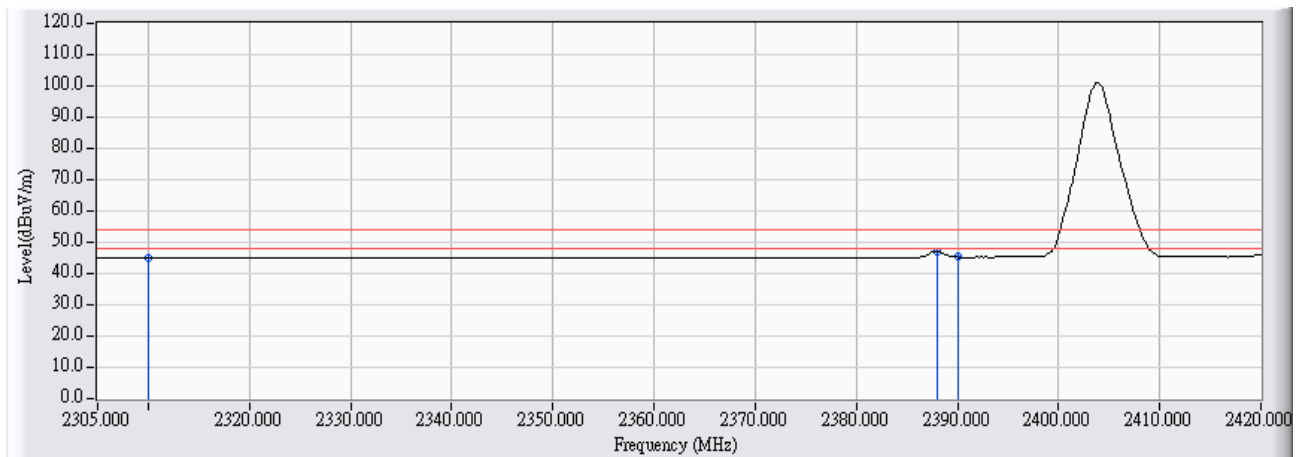


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2310.000	31.658	24.582	56.239	-17.761	74.000	PEAK
2	* 2388.030	32.026	26.736	58.762	-15.238	74.000	PEAK
3	2390.000	32.036	24.673	56.709	-17.291	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : Site1	Time : 2010/04/26 - 14:17
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2404MHz)

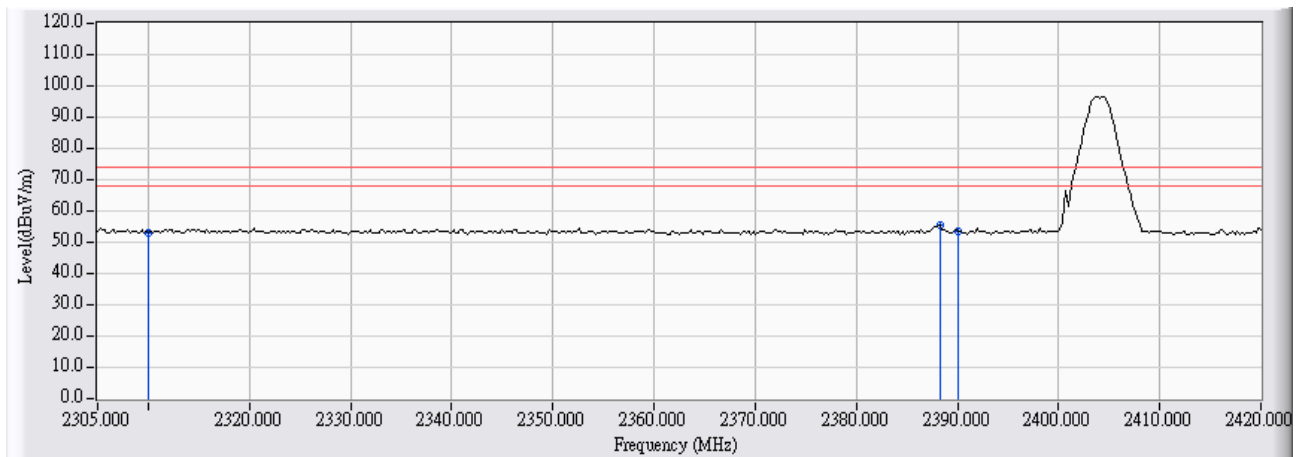


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2310.000	31.658	13.138	44.795	-9.205	54.000	AVERAGE
2	* 2388.030	32.026	15.074	47.100	-6.900	54.000	AVERAGE
3	2390.000	32.036	13.229	45.265	-8.735	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : Site1	Time : 2010/04/26 - 14:22
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - VERTICAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2404MHz)

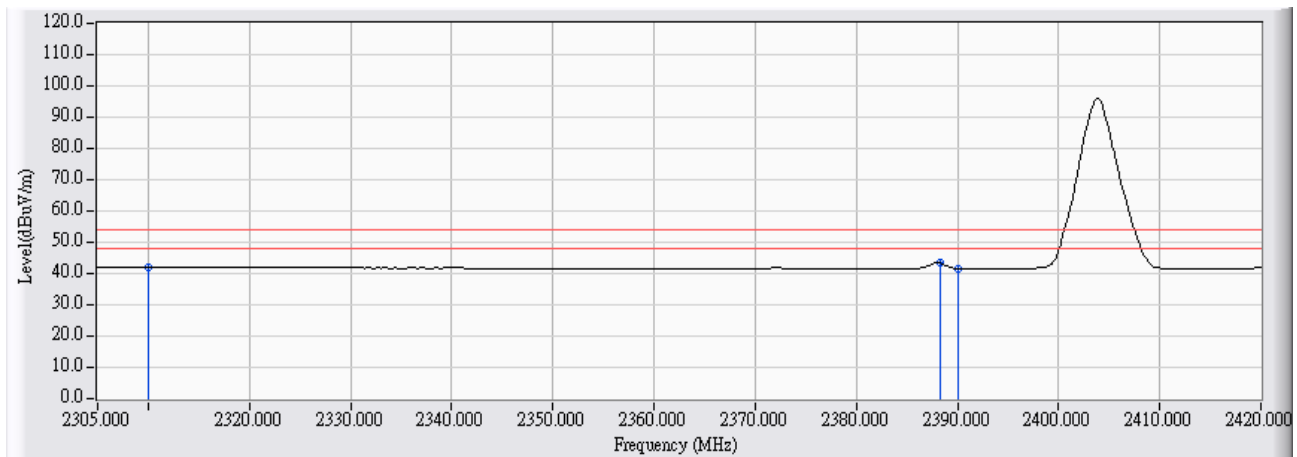


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2310.000	28.738	24.494	53.231	-20.769	74.000	PEAK
2	* 2388.260	28.476	26.958	55.433	-18.567	74.000	PEAK
3	2390.000	28.470	25.070	53.540	-20.460	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : Site1	Time : 2010/04/26 - 14:23
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - VERTICAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2404MHz)

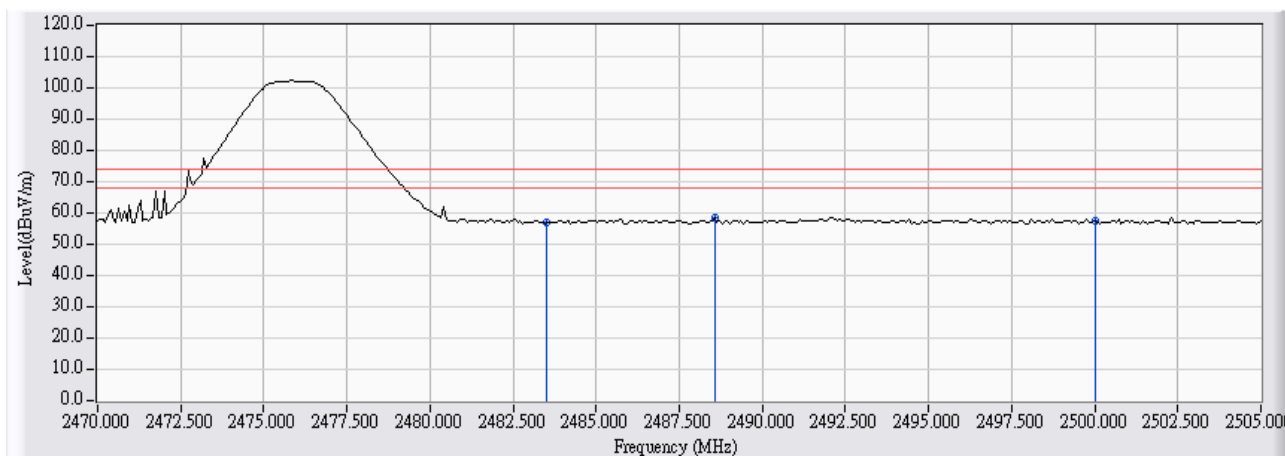


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2310.000	28.738	13.142	41.879	-12.121	54.000	AVERAGE
2	* 2388.260	28.476	14.854	43.329	-10.671	54.000	AVERAGE
3	2390.000	28.470	13.208	41.678	-12.322	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : Site1	Time : 2010/04/26 - 14:32
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2476MHz)

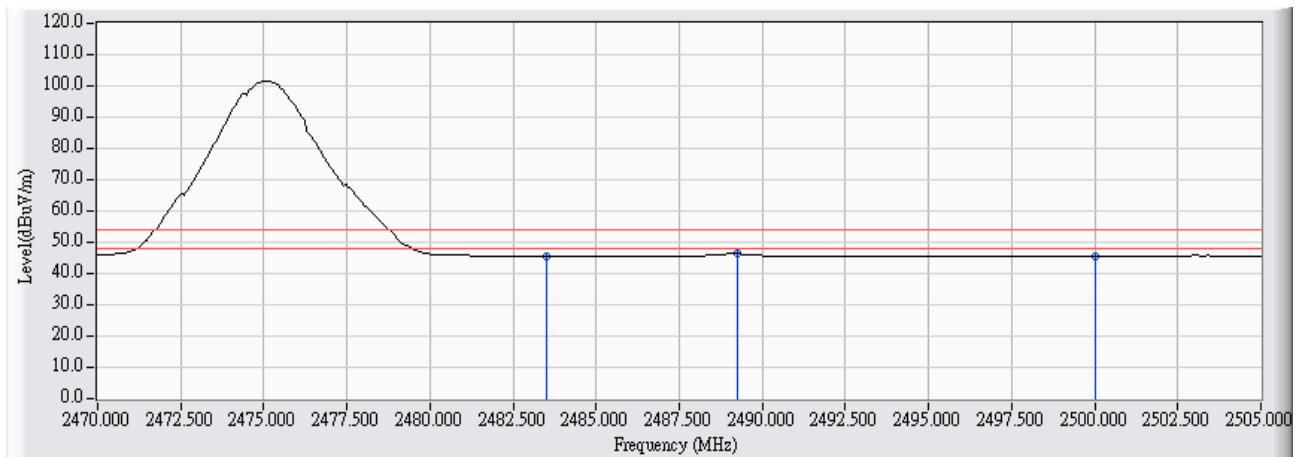


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2483.500	32.480	24.561	57.041	-16.959	74.000	PEAK
2	* 2488.560	32.505	25.906	58.410	-15.590	74.000	PEAK
3	2500.000	32.557	24.887	57.445	-16.555	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : Site1	Time : 2010/04/26 - 14:34
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2476MHz)

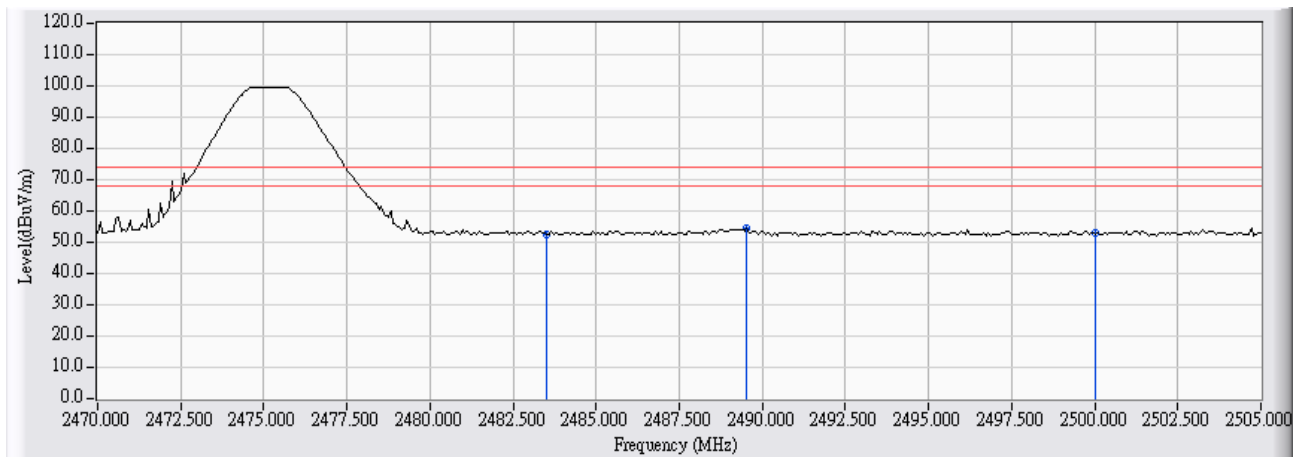


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2483.500	32.480	13.189	45.669	-8.331	54.000	AVERAGE
2	* 2489.250	32.508	13.800	46.308	-7.692	54.000	AVERAGE
3	2500.000	32.557	13.067	45.625	-8.375	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : Site1	Time : 2010/04/26 - 14:39
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - VERTICAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2476MHz)

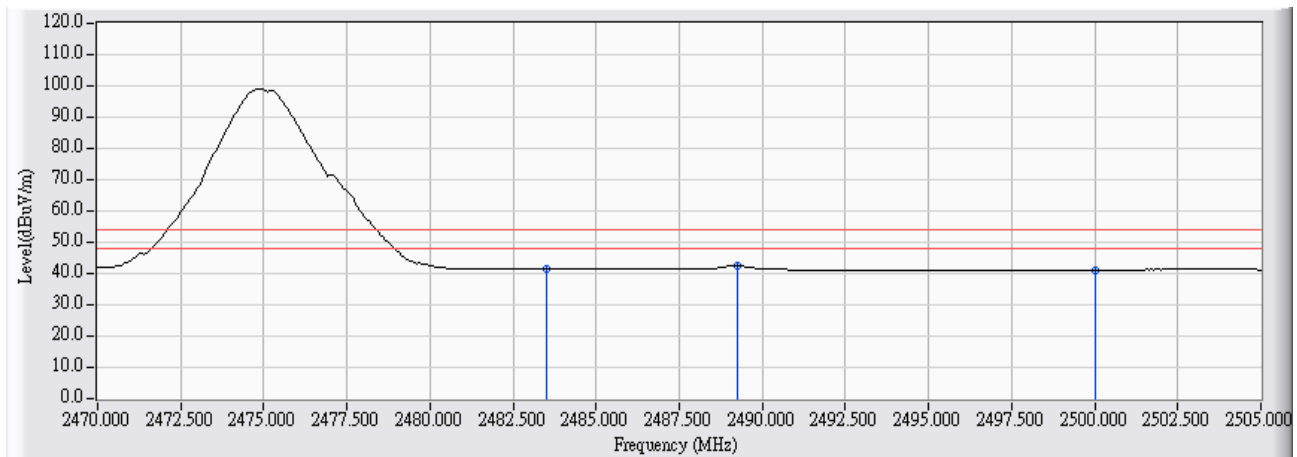


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2483.500	28.156	24.395	52.550	-21.450	74.000	PEAK
2	* 2489.530	28.132	26.529	54.661	-19.339	74.000	PEAK
3	2500.000	28.142	24.621	52.763	-21.237	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : Site1	Time : 2010/04/26 - 14:40
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : FCC_EFS_1-18G(2009-06) - VERTICAL	Power : DC 5V (Power by PC)
EUT : Wireless Audio Dongle	Note : Mode 1: Transmit-Dongle (2476MHz)



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	2483.500	28.156	13.251	41.406	-12.594	54.000	AVERAGE
2	* 2489.250	28.133	14.249	42.382	-11.618	54.000	AVERAGE
3	2500.000	28.142	13.076	41.218	-12.782	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

7. Number of hopping frequency

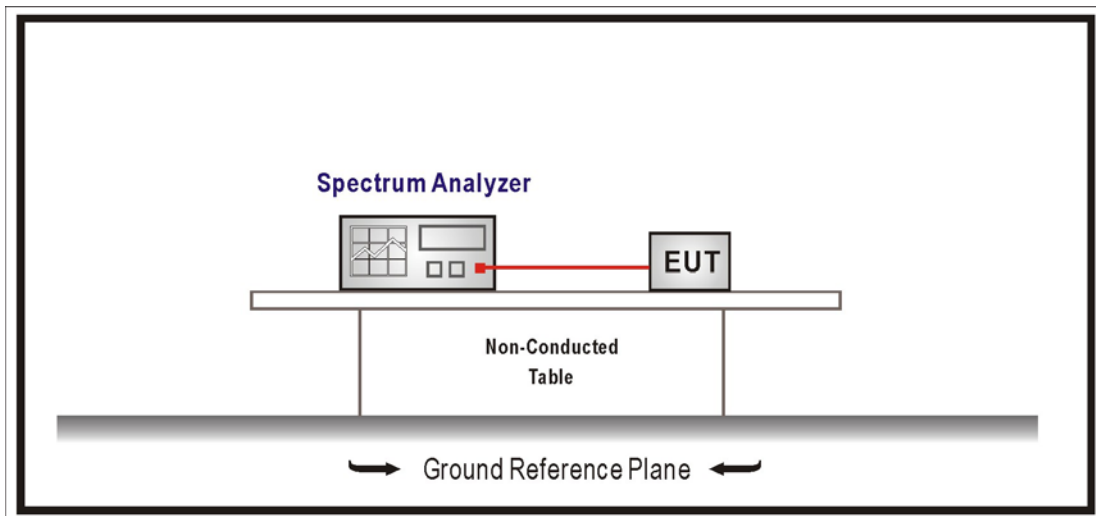
7.1. Test Equipment

The following test equipments are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2010
2	No.1 OATS			Sep., 2009

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup



7.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

For frequency hopping systems operating in the 2400-2483.5 MHz bands, which use fewer than 75 hopping frequencies, may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels are used.

For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

7.4. Test Procedures

The EUT was setup according to ANSI C63.4: 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = the frequency band of operation

RBW \geq 1% of the span , VBW \geq RBW

Sweep = auto, Detector function = peak, Trace = max hold

7.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

7.6. Test Result

Product	Wireless Audio Dongle		
Test Item	Number of hopping frequency		
Test Mode	Mode 1: Transmit-Dongle		
Date of Test	2010/03/31	Test Site	No.1 OATS

Frequency Range (MHz)	Measure Level (Hopping Channel)	Limit (Hopping Channel)	Result
2404 ~ 2476	25	>15	Pass

2404-2419MHz



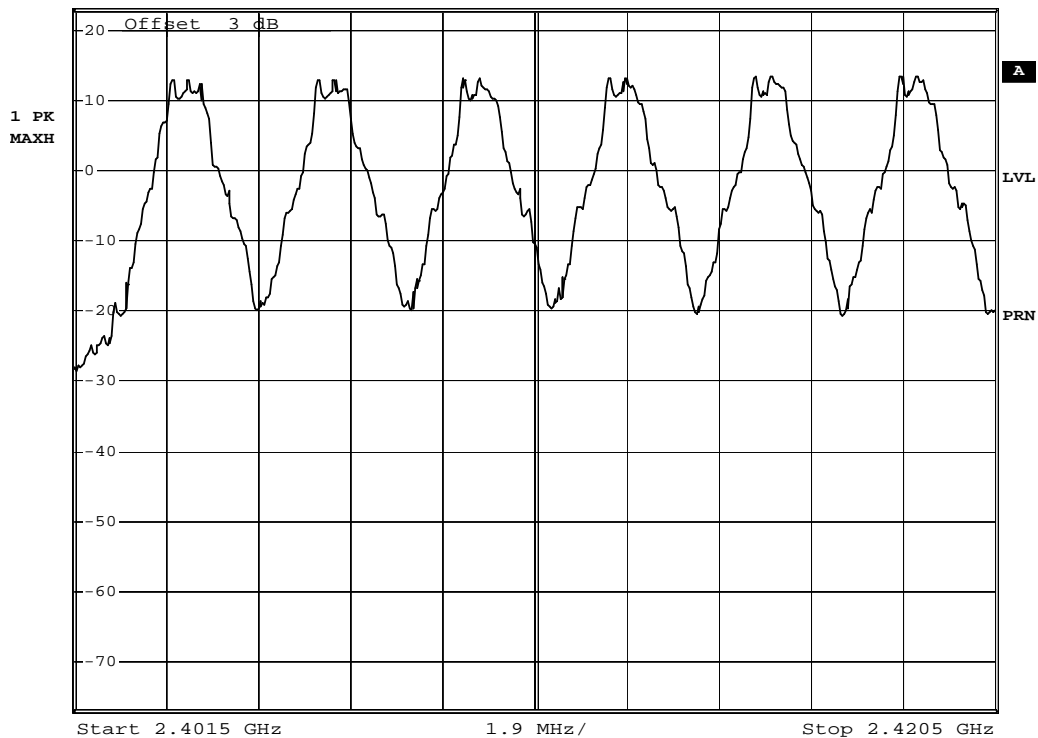
*RBW 100 kHz

*VBW 1 MHz

*SWT 200 ms

Ref 23 dBm

*Att 30 dB



Date: 31.MAR.2010 14:59:12

2422-2440MHz

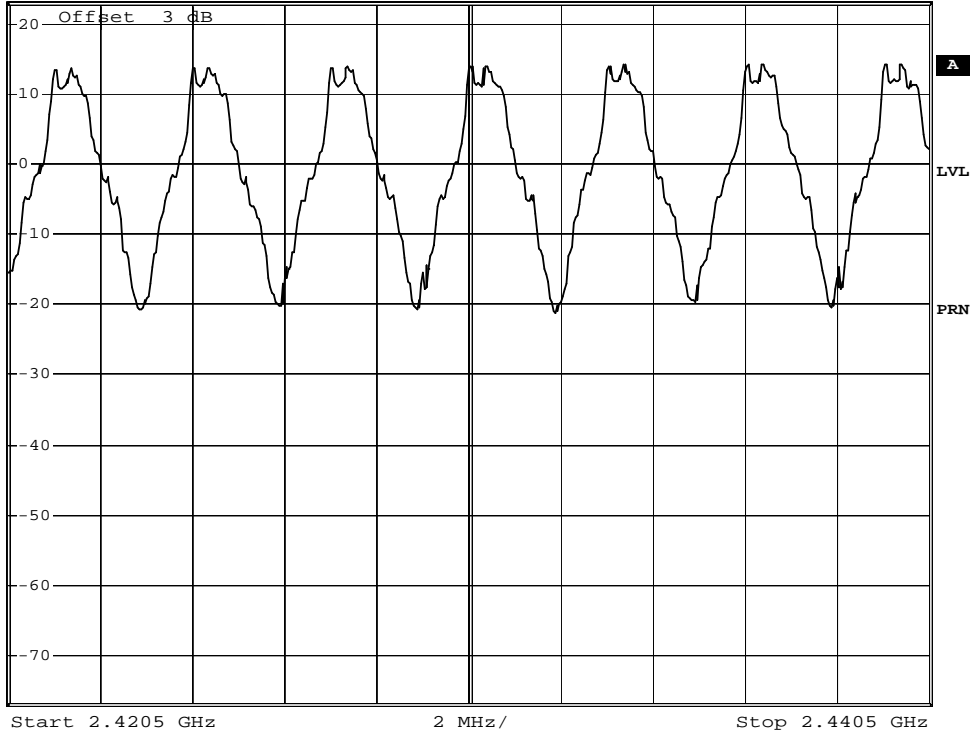


*RBW 100 kHz
*VBW 1 MHz
*SWT 200 ms

Ref 23 dBm

*Att 30 dB

1 PK
VIEW



Date: 31.MAR.2010 15:04:19

2443-2458MHz

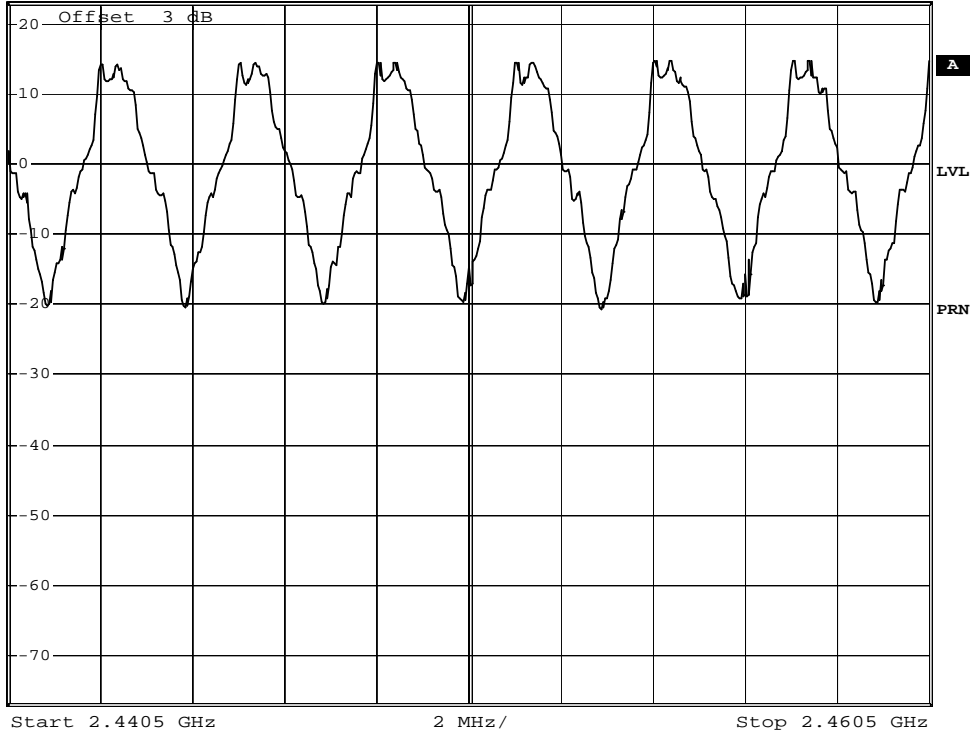


*RBW 100 kHz
*VBW 1 MHz
*SWT 200 ms

Ref 23 dBm

*Att 30 dB

1 PK
VIEW



Date: 31.MAR.2010 15:08:26

2461-2476MHz

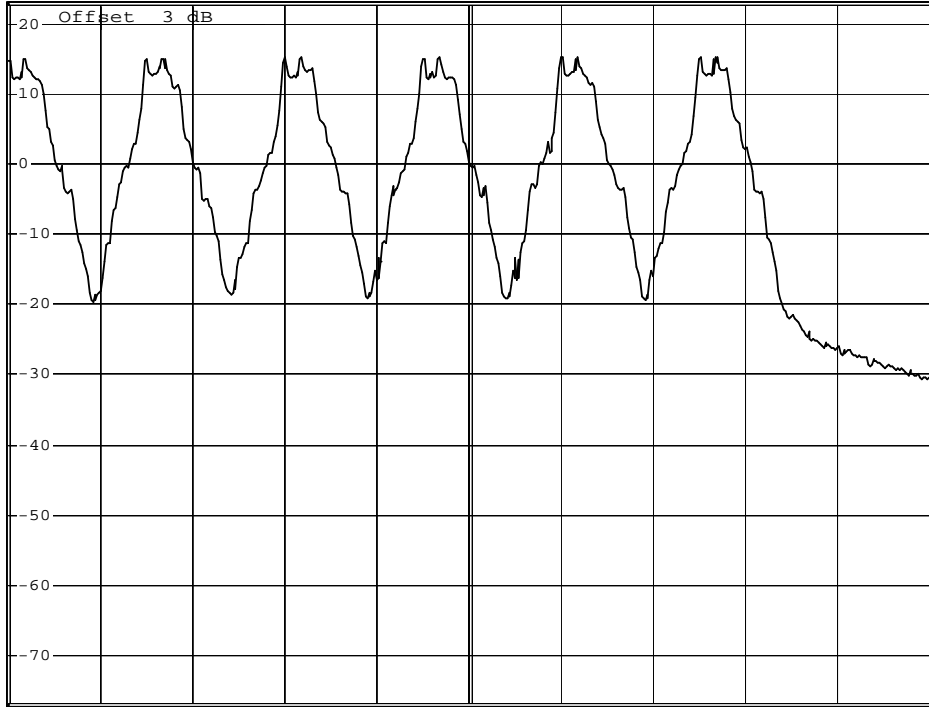


*RBW 100 kHz
*VBW 1 MHz
*SWT 200 ms

Ref 23 dBm

*Att 30 dB

1 PK
VIEW



Date: 31.MAR.2010 15:11:37

8. Carrier Frequency Separation

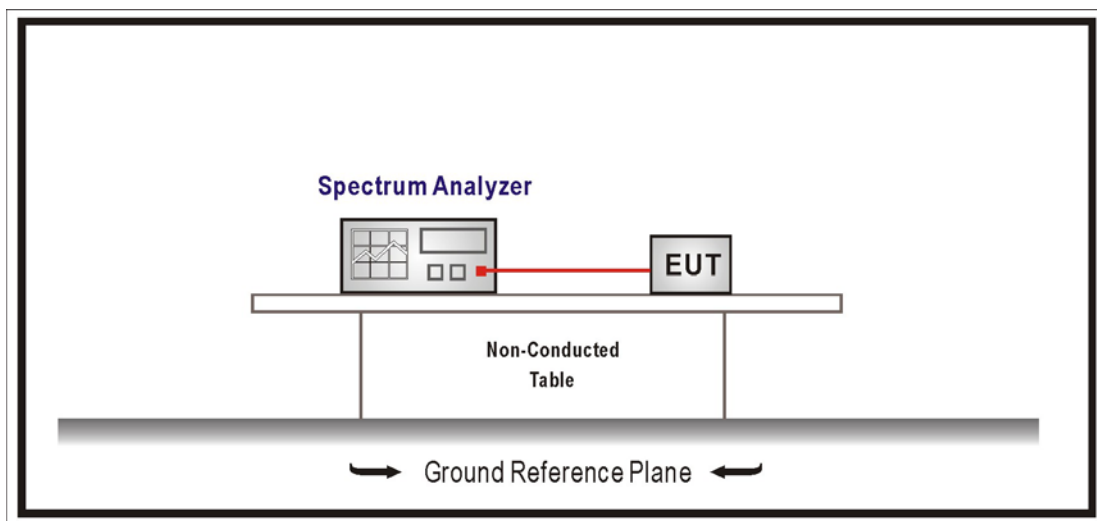
8.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2010
2	No.1 OATS			Sep., 2009

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

8.2. Test Setup



8.3. Limits

For frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

8.4. Test Procedures

The EUT was setup according to ANSI C63.4: 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = wide enough to capture the peaks of two adjacent channels

Resolution Bandwidth (RBW) \geq 1% of the span, VBW \geq RBW

Sweep = auto, Detector function = peak, Trace = max hold

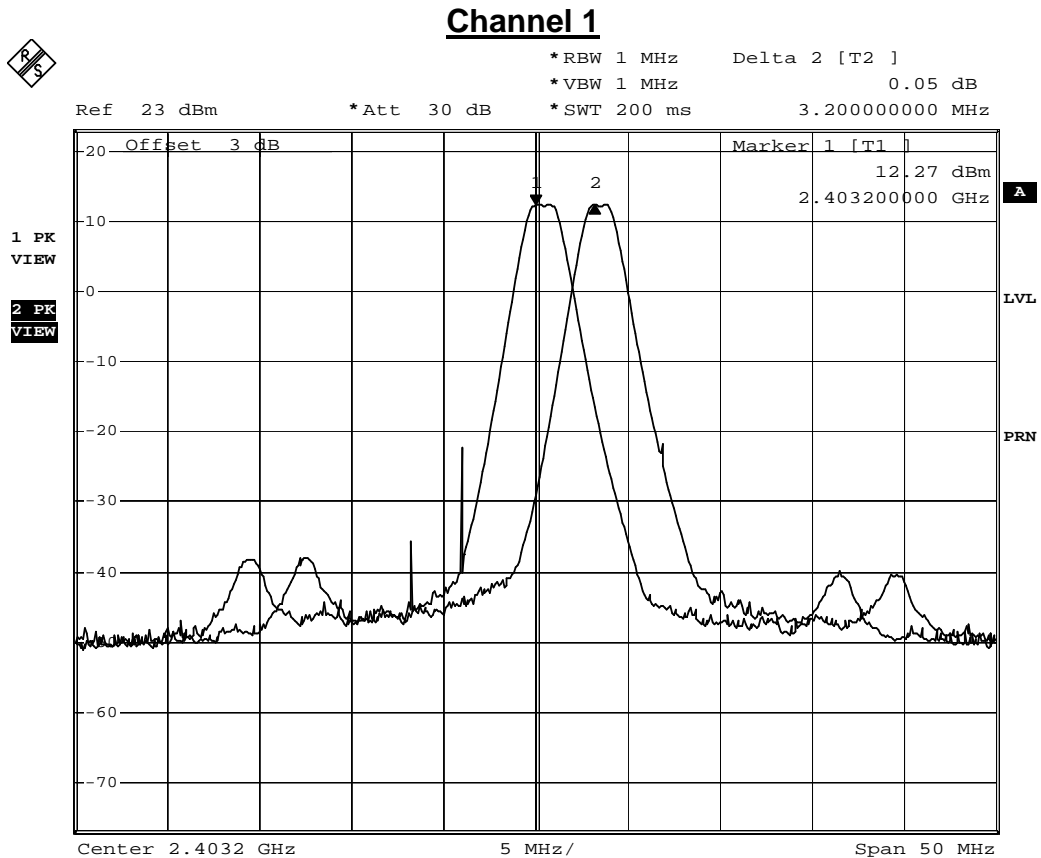
8.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

8.6. Test Result

Product	Wireless Audio Dongle		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Transmit-Dongle		
Date of Test	2010/03/31	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2404	3.2	>1.400	Pass
13	2440	3.2	>1.413	Pass
25	2476	3.2	>1.426	Pass



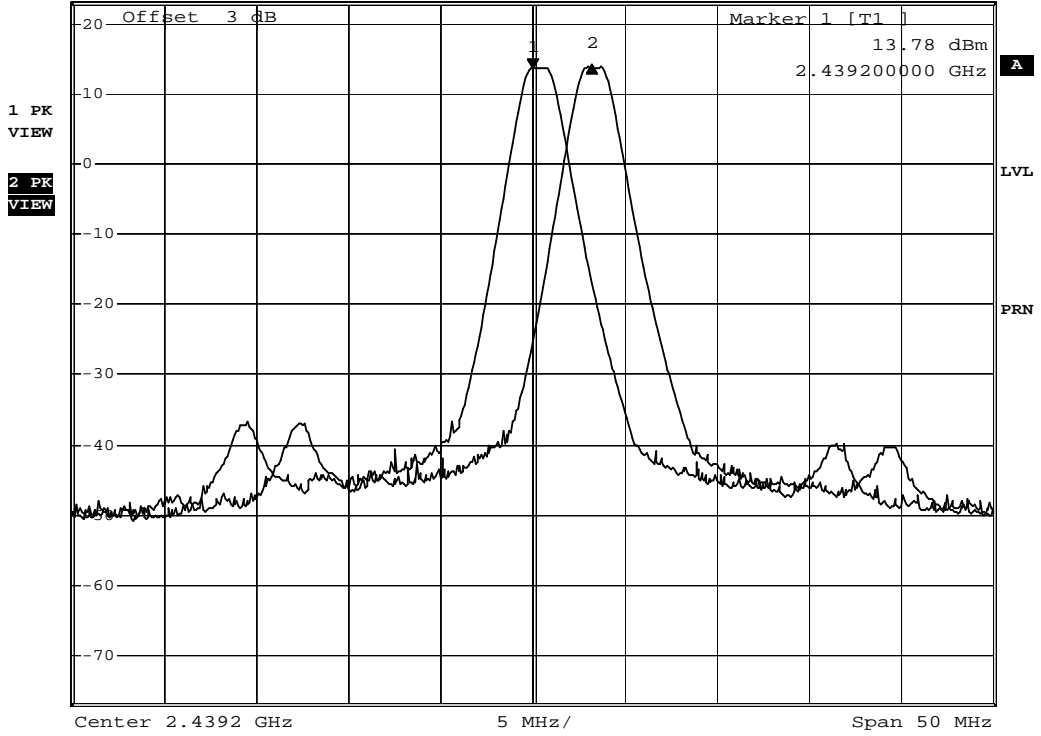
Date: 31.MAR.2010 13:51:56

Channel 13



*RBW 1 MHz Delta 2 [T2]
*VBW 1 MHz 0.41 dB
*SWT 200 ms 3.200000000 MHz

Ref 23 dBm *Att 30 dB



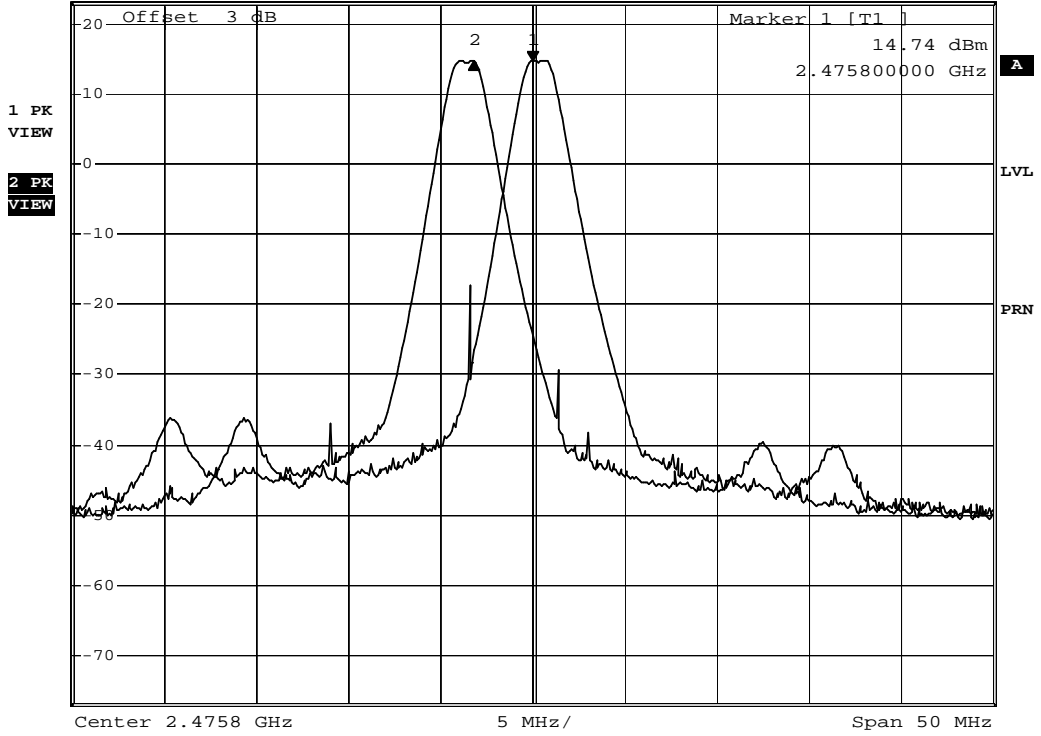
Date: 31.MAR.2010 13:58:23

Channel 25



*RBW 1 MHz Delta 2 [T2]
 *VBW 1 MHz -0.08 dB
 *SWT 200 ms -3.200000000 MHz

Ref 23 dBm *Att 30 dB



Date: 31.MAR.2010 14:43:57

9. Occupied Bandwidth (20dB)

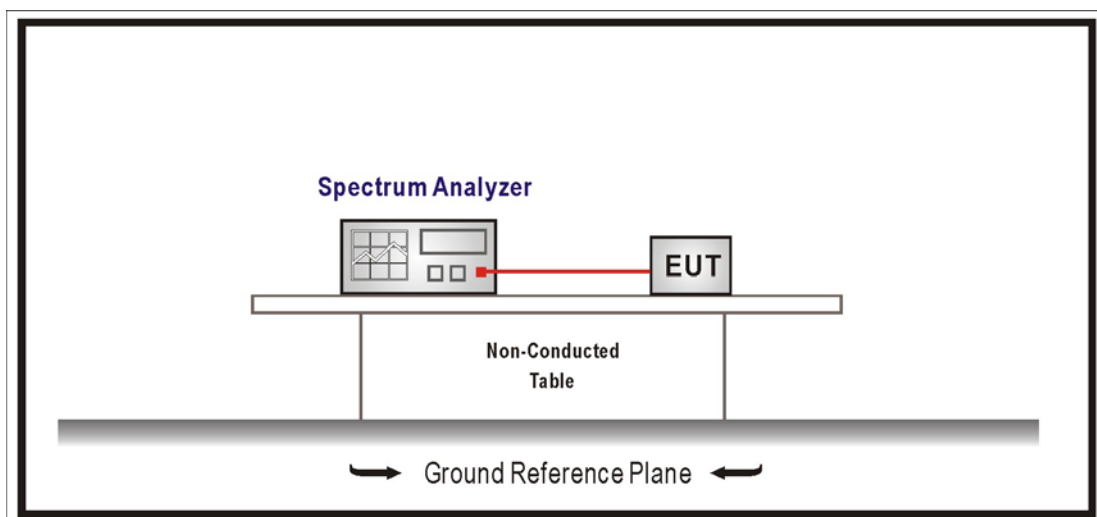
9.1. Test Equipment

The following test equipments are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2010
2	No.1 OATS			Sep., 2009

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

9.2. Test Setup



9.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

For frequency hopping systems operating in the 5725-5850 MHz bands. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

For frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

9.4. Test Procedures

The EUT was setup according to ANSI C63.4: 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

RBW \geq 1% of the 20 dB bandwidth, VBW \geq RBW

Sweep = auto, Detector function = peak, Trace = max hold

The EUT should be transmitting at its maximum data rate.

9.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

9.6. Uncertainty

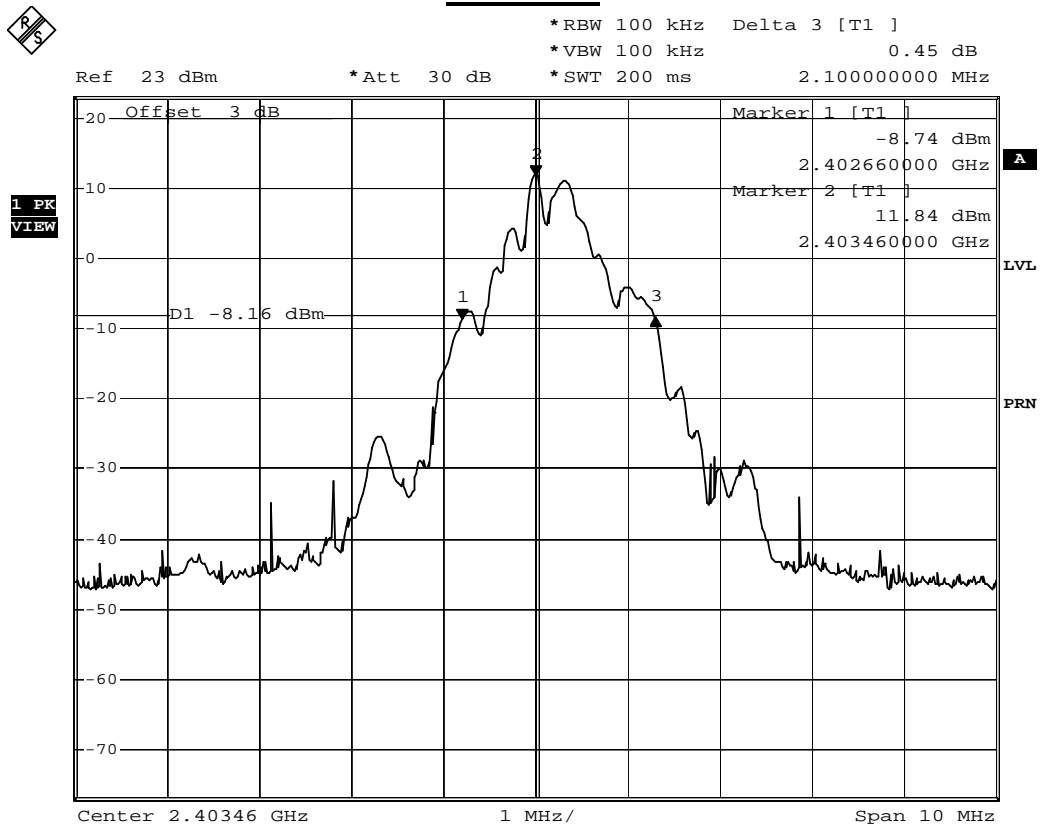
The measurement uncertainty is defined as $\pm 150\text{Hz}$

9.7. Test Result

Product	Wireless Audio Dongle		
Test Item	Occupied Bandwidth (20dB)		
Test Mode	Mode 1: Transmit-Dongle		
Date of Test	2010/03/31	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2404	2.10	--	Pass
13	2440	2.12	--	Pass
25	2476	2.14	--	Pass

Channel 1



Date: 31.MAR.2010 13:28:40

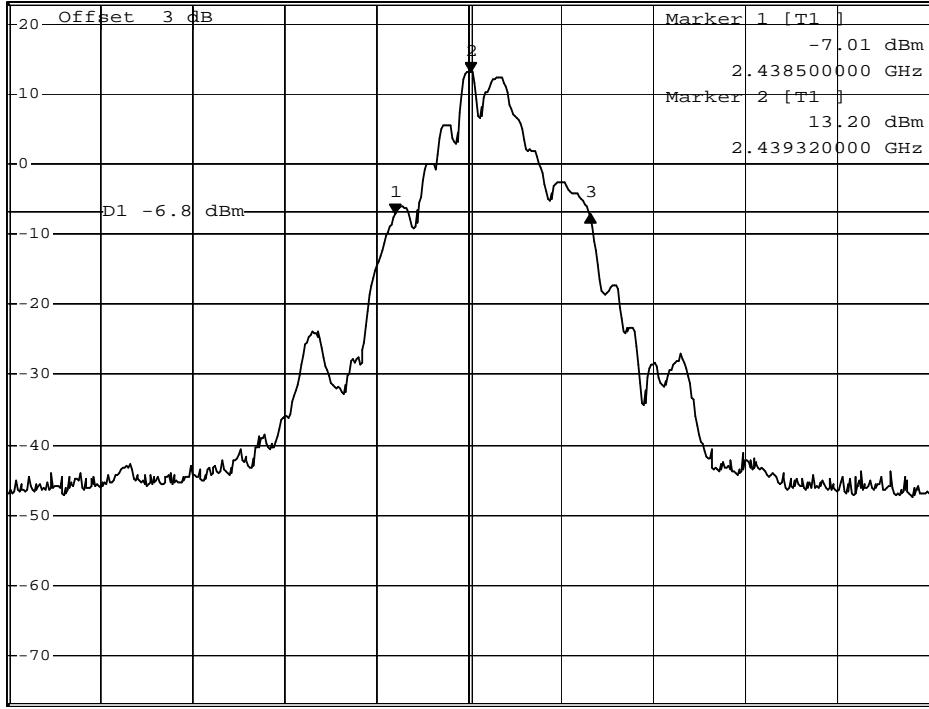
Channel 13



*RBW 100 kHz Delta 3 [T1]
 *VBW 100 kHz 0.00 dB
 *SWT 200 ms 2.120000000 MHz

Ref 23 dBm *Att 30 dB

1 PK
VIEW



Center 2.4393 GHz 1 MHz/ Span 10 MHz

Date: 31.MAR.2010 13:33:31

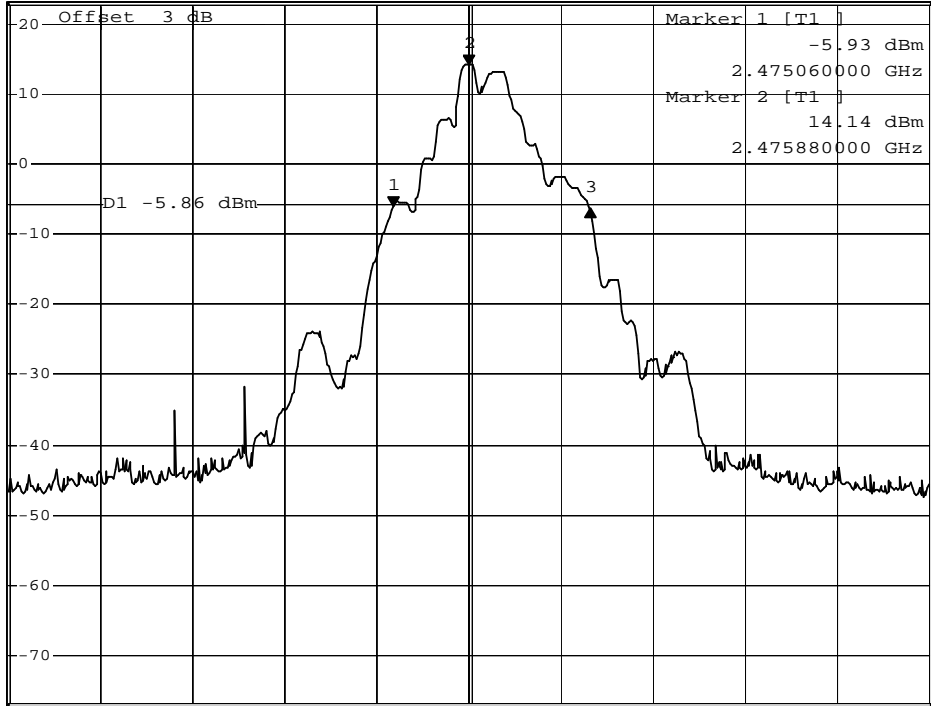
Channel 25



*RBW 100 kHz Delta 3 [T1]
 *VBW 100 kHz -0.34 dB
 *SWT 200 ms 2.140000000 MHz

Ref 23 dBm *Att 30 dB

1 PK
VIEW



Center 2.47588 GHz 1 MHz/ Span 10 MHz

Date: 31.MAR.2010 13:38:48

10. Occupied Bandwidth (6dB)

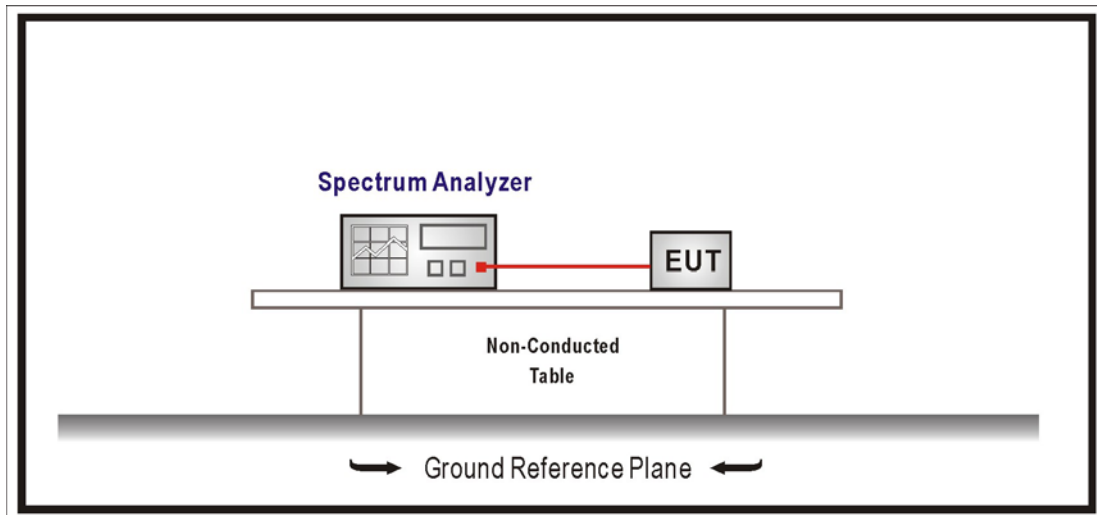
10.1. Test Equipment

The following test equipments are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2010
2	No.1 OATS			Sep., 2009

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

10.2. Test Setup



10.3. Test Procedures

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

10.4. Limits

The 6 dB bandwidth must be greater than 500 kHz.

10.5. Uncertainty

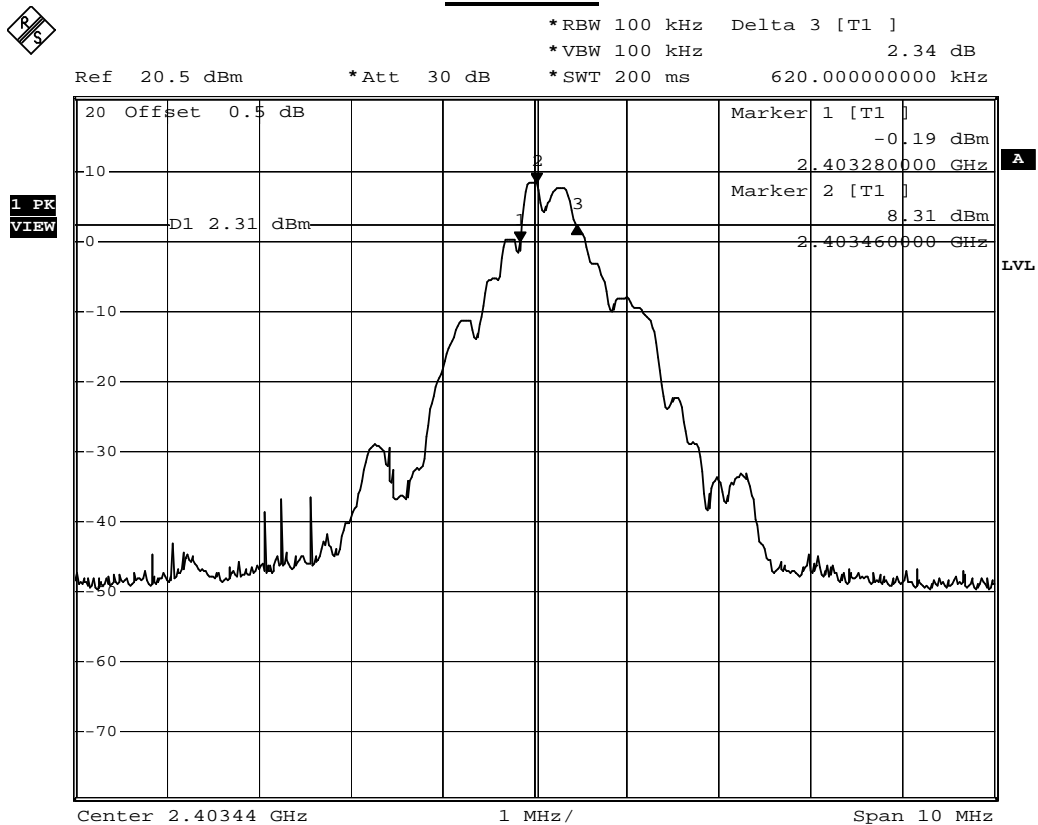
The measurement uncertainty is defined as $\pm 150\text{Hz}$

10.6. Test Result

Product	Wireless Audio Dongle		
Test Item	Occupied Bandwidth (6dB)		
Test Mode	Mode 1: Transmit-Dongle		
Date of Test	2010/04/27	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (kHz)	Limit (kHz)	Result
1	2404	620	≥ 500	Pass
13	2440	640	≥ 500	Pass
25	2476	780	≥ 500	Pass

Channel 1



Date: 27.APR.2010 17:31:14

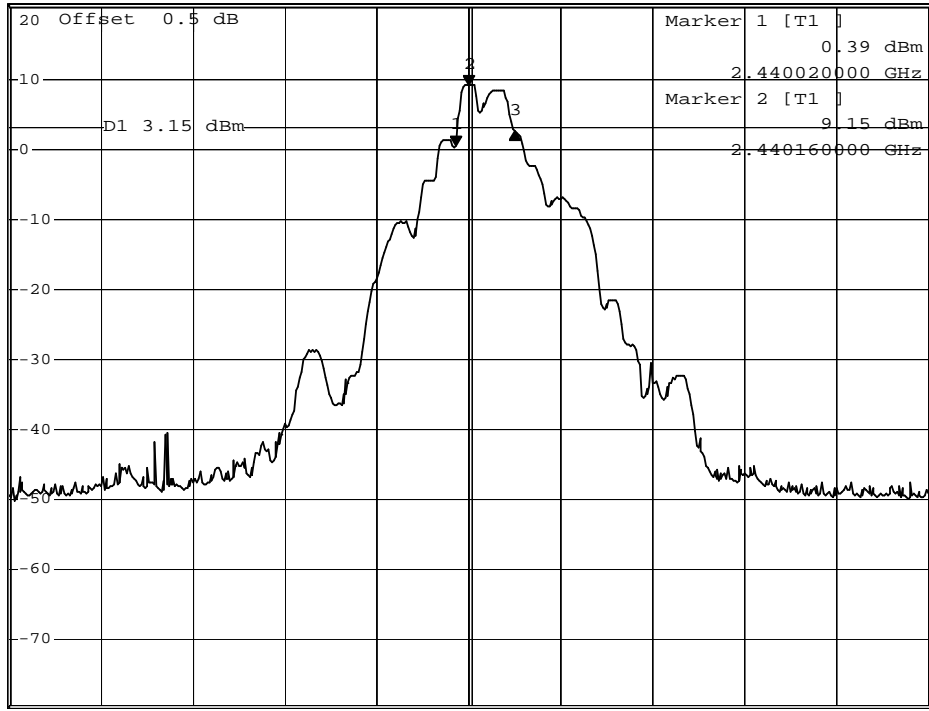
Channel 13



DELTA MARKER 3
 640 kHz
 Ref 20.5 dBm *Att 30 dB

*RBW 100 kHz Delta 3 [T1]
 *VBW 100 kHz 2.25 dB
 *SWT 200 ms 640.000000000 kHz

1 PK
 VIEW



Center 2.44016 GHz 1 MHz/ Span 10 MHz

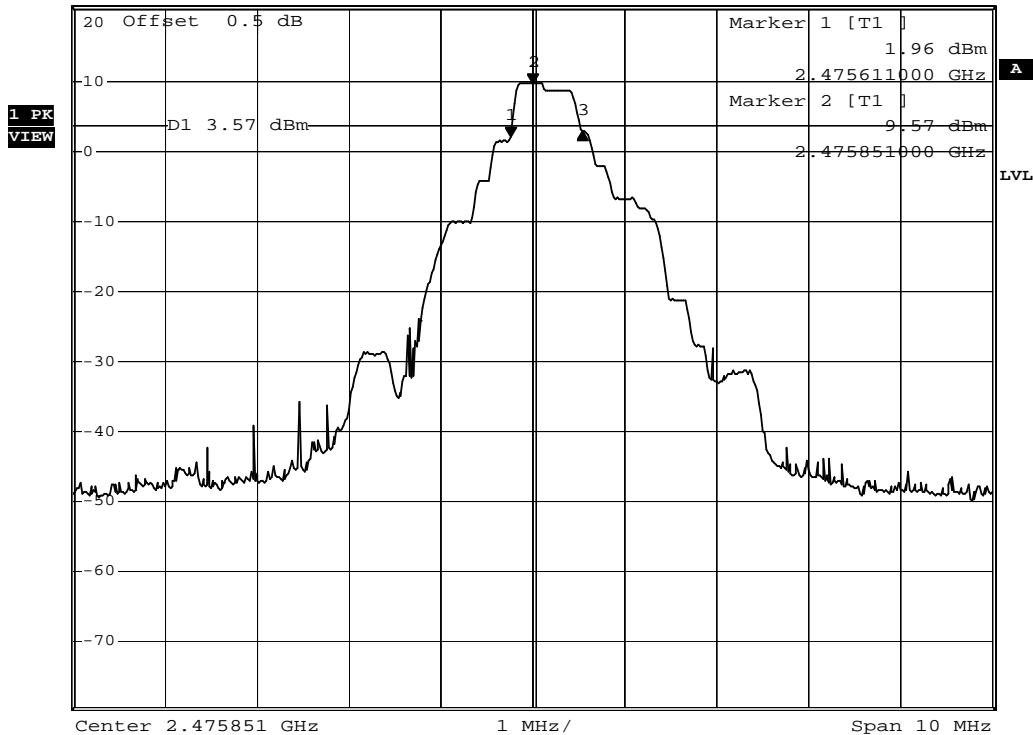
Date: 27.APR.2010 17:28:52

Channel 25



DELTA MARKER 3
780 kHz
Ref 20.5 dBm *Att 30 dB

*RBW 100 kHz Delta 3 [T1]
*VBW 100 kHz 0.93 dB
*SWT 200 ms 780.000000000 kHz



Date: 27.APR.2010 17:26:15

11. Dwell Time

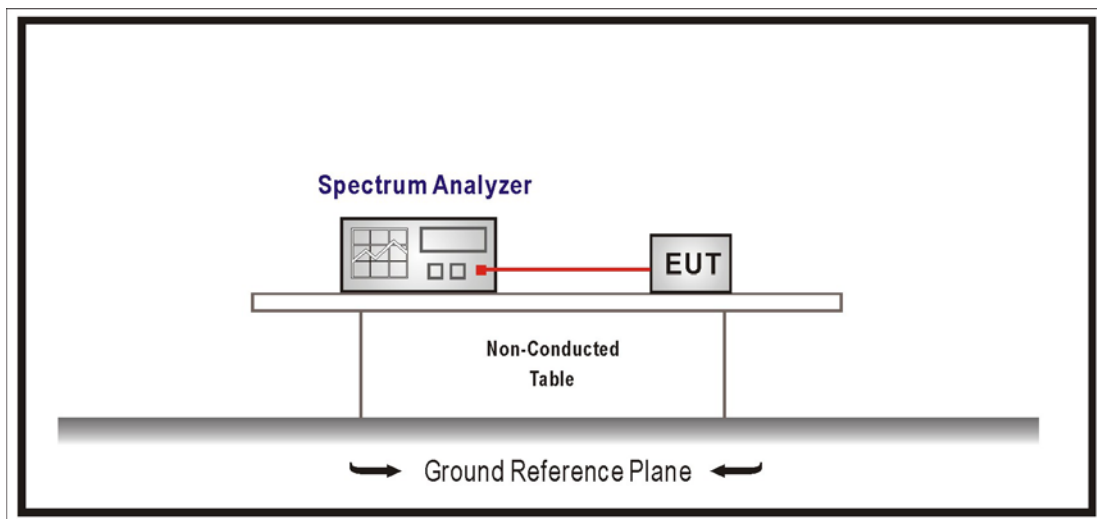
11.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2010
2	No.1 OATS			Sep., 2009

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

11.2. Test Setup



11.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. For frequency hopping systems operating in the 2400-2483.5 MHz bands. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. For frequency hopping systems operating in the 5725-5850 MHz bands. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

11.4. Test Procedures

The EUT was setup according to ANSI C63.4: 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = zero span, centered on a hopping channel

RBW = 1 MHz, VBW ≥ RBW

Sweep = as necessary to capture the entire dwell time per hopping channel

Detector function = peak, Trace = max hold

11.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

11.6. Test Result

Product	Wireless Audio Dongle		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit-Dongle		
Date of Test	2010/03/19	Test Site	No.1 OATS

Occupancy Time of Frequency Hopping System

A) 2404MHz Test Time Period: $0.4 \times 25 = 10\text{sec}$, Hopping Times Within 1sec: $3/20\text{msec} = 150 / \text{sec}$

The Maximum Occupancy Time Within 10sec: $0.00384 \times (150/25) \times 10 = 0.2304\text{sec}$.

B) 2440MHz Test Time Period: $0.4 \times 25 = 10\text{sec}$, Hopping Times Within 1sec: $3/20\text{msec} = 150 / \text{sec}$

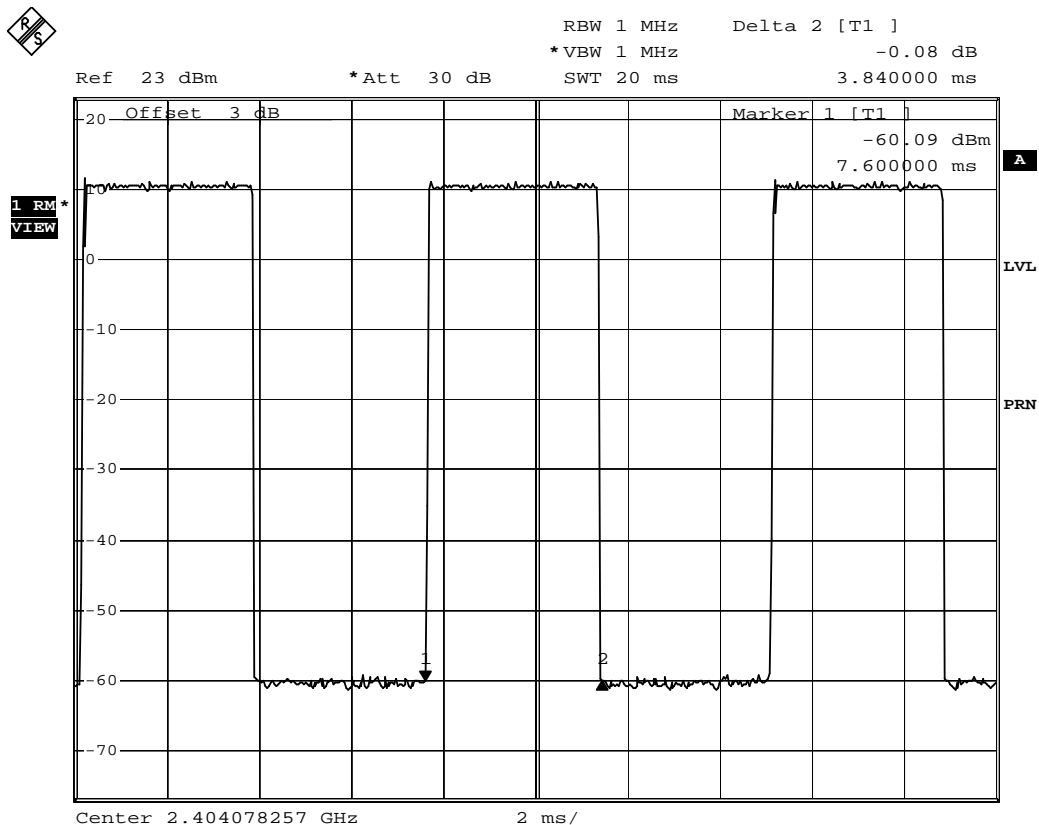
The Maximum Occupancy Time Within 10sec: $0.00384 \times (150/25) \times 10 = 0.2304\text{sec}$.

C) 2476MHz Test Time Period: $0.4 \times 25 = 10\text{sec}$, Hopping Times Within 1sec: $3/20\text{msec} = 150 / \text{sec}$

The Maximum Occupancy Time Within 10sec: $0.00384 \times (150/25) \times 10 = 0.2304\text{sec}$.

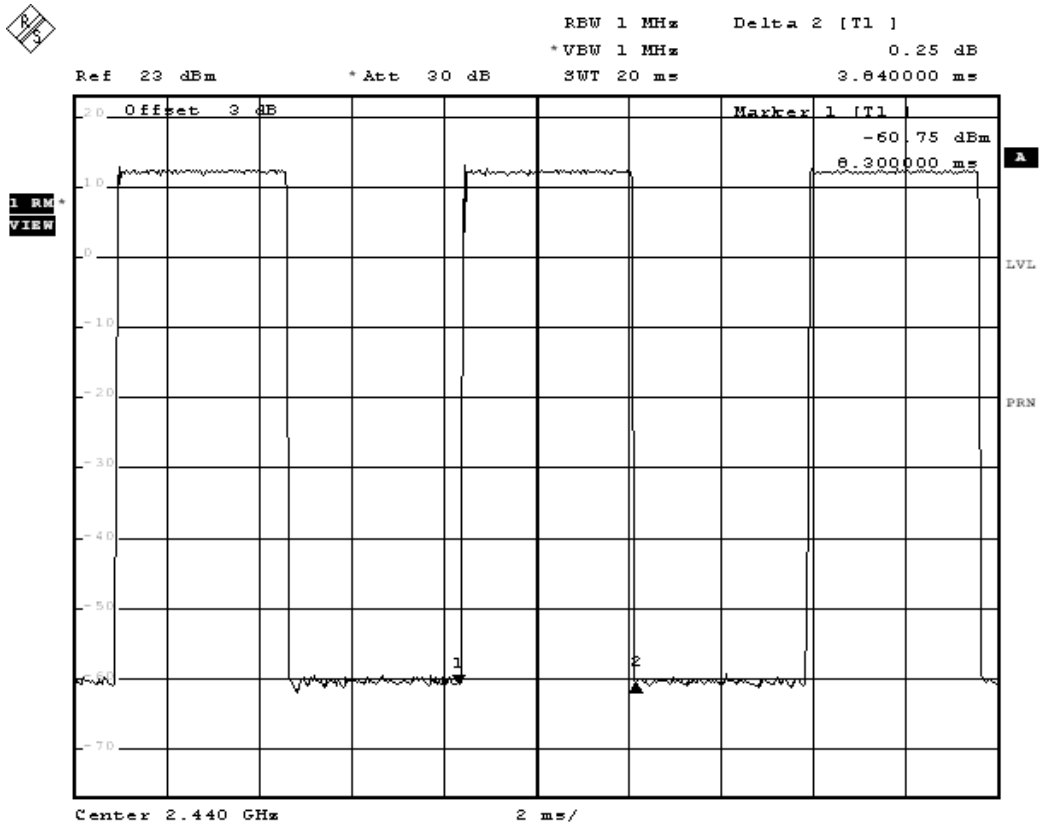
Test Result: The Average Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard .

Hop rate-2404MHz



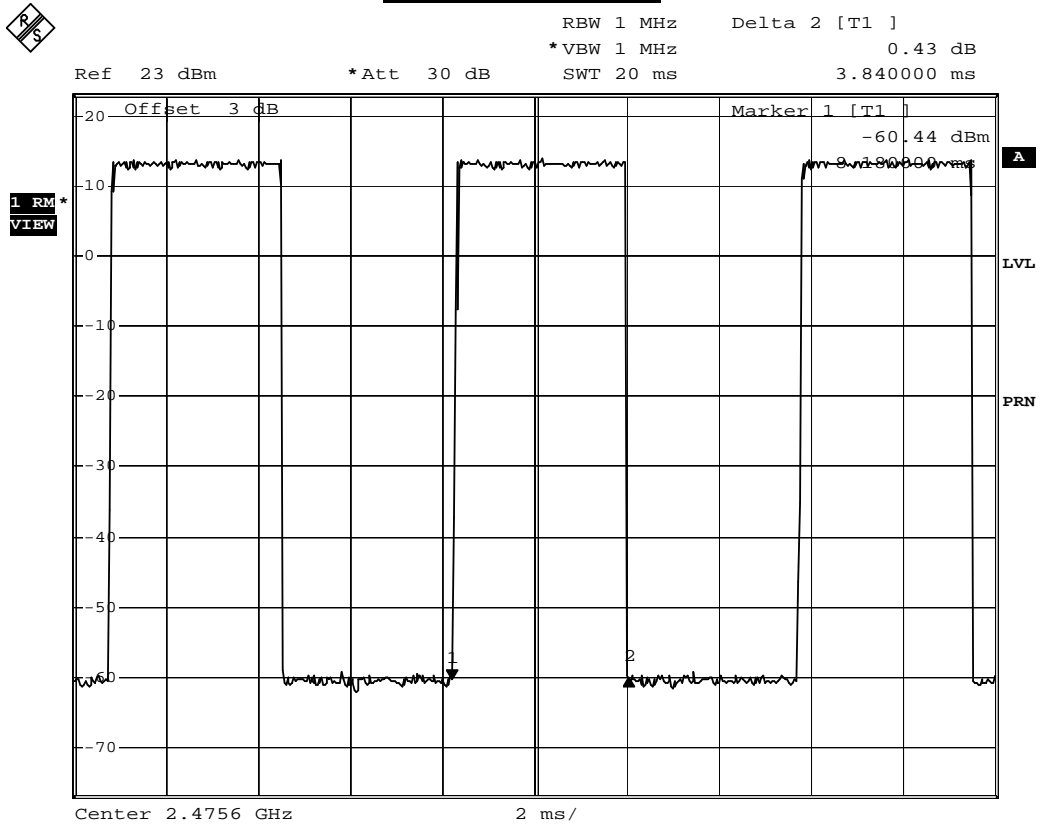
Date: 19.MAR.2010 13:01:06

Hop rate-2440MHz



Date: 19.MAR.2010 13:16:23

Hop rate-2476MHz



Date: 19.MAR.2010 13:21:20

Note: Dwell time = time slot length * hop rate / number of hopping channels * period

12. Power Density

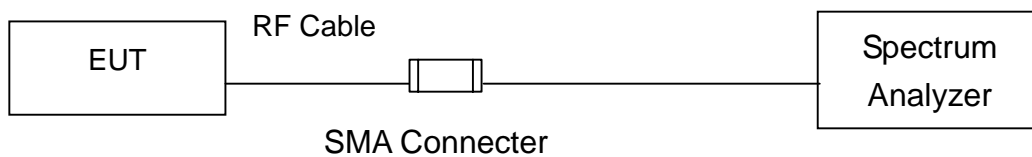
12.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2010
2	No.1 OATS			Sep., 2009

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

12.2. Test Setup



12.3. Limits

The peak power spectral density conducted from the intentional radiated to the antenna shall not be greater than +8dBm in any 3kHz band during any time interval of continuous transmission.

12.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW= 3 kHz, Set VBW \geq 9 kHz, Sweep time=Auto, Set detector=Peak detector

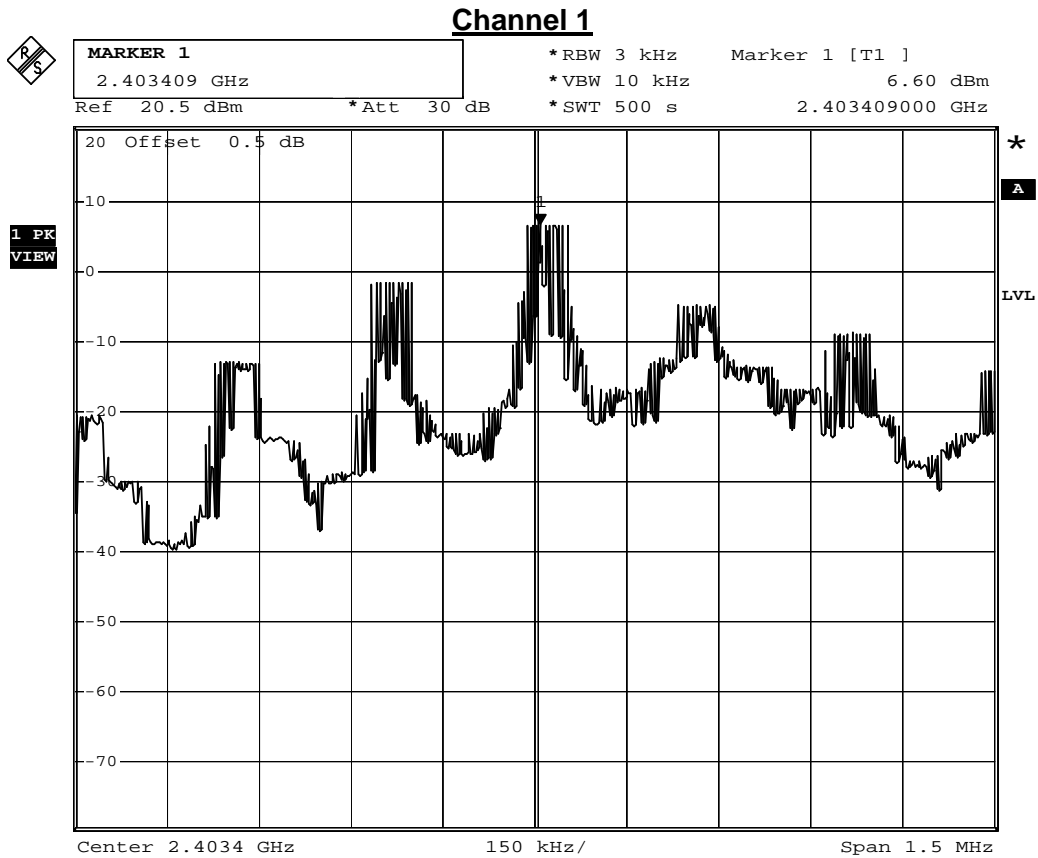
12.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB.

12.6. Test Result

Product	Wireless Audio Dongle		
Test Item	Power Density		
Test Mode	Mode 1: Transmit-Dongle		
Date of Test	2009/04/27	Test Site	No.1 OATS

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2404	6.60	≤ 8	Pass
13	2440	7.36	≤ 8	Pass
25	2476	7.83	≤ 8	Pass



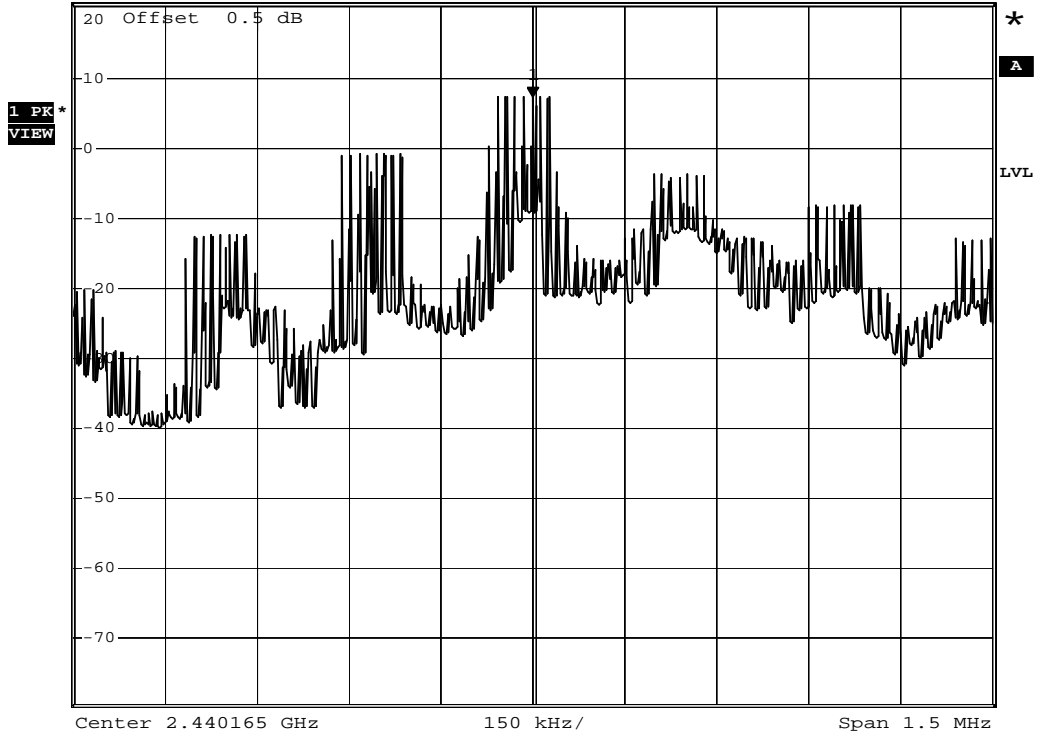
Date: 27.APR.2010 17:09:48

Channel 13



SWEEP TIME
500 s
Ref 20.5 dBm *Att 30 dB

*RBW 3 kHz Marker 1 [T1]
*VBW 10 kHz 7.36 dBm
*SWT 500 s 2.440165000 GHz

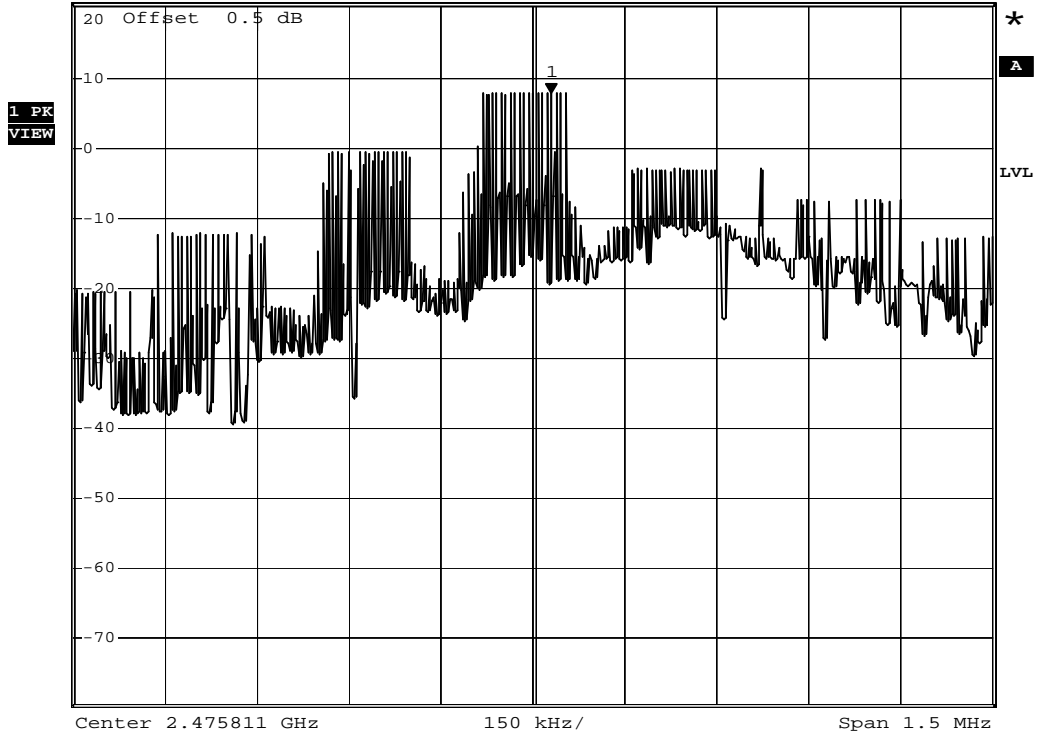


Date: 27.APR.2010 17:04:02

Channel 25



SWEEP TIME
500 s
Ref 20.5 dBm *Att 30 dB *RBW 3 kHz Marker 1 [T1]
*VW 10 kHz 7.83 dBm
*SWT 500 s 2.475841000 GHz



Date: 27.APR.2010 17:16:25