Test Report

Product Name : Wireless HD Headphones

Model No. : AWD210

FCC ID. : BJM-AWD210

Applicant : TATUNG CO.

Address : 22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C.

Date of Receipt : July. 18, 2008

Issued Date : Sep. 08, 2008

Report No. : 089027R-RFUSP07V01

Version : V1.0

Test Report Certification

Issued Date: Sep. 08, 2008

Report No. : 089027R-RFUSP07V01

Product Name	:	Wireless HD Headphones
Applicant	:	TATUNG CO.
Address	:	22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C.
Manufacturer	:	TATUNG CO.
Model No.	:	AWD210
FCC ID.	:	BJM-AWD210
Rated Voltage	:	AC 120V/60Hz
Working Voltage	:	DC 3.7V(Power by Battery)
Trade Name	:	Acoustic Research
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C: 2007
		ANSI C63.4: 2003
Test Result	:	Complied

NVLAP Lab Code: 200533-0

The Test Results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By : Leven Huang

(Adm. Specialist / Leven Huang)

Tested By : Dino Chen

(Engineer / Dino Chen)

Approved By :

(Manager / Vincent Lin)

Testing Laboratory 0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	:	Wireless HD Headphones
Trade Name	:	Acoustic Research
FCC ID.	:	BJM-AWD210
Model No.	:	AWD210
Frequency Range	:	2405 – 2477MHz
Type of Modulation	:	π/4 DQPSK (Differential Quadrature Phase Shift Keying)
Number of Channels	:	37
Channel Control	:	Auto
Antenna Type	:	Printed on PCB
Antenna Gain	:	Refer to the table "Antenna List"
Power Adapter (1)	:	MFR: PHIHONG,M/N:PSAA05A-050 Input: AC 100-240V,50-60Hz,13-20VA Output: DC 5V,1A Cable Out: Non-Shielded,1.8m
Power Adapter (2)	:	MFR: KINGS,M/N:KSS05-050-1000U Input: AC 100-240V,50-60Hz,150mA Output: DC 5V,1000mA Cable Out: Non-Shielded,1.85m

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	TATUNG	N/A	2.0 dBi for 2.4 GHz

Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 2:	2405 MHz	Channel 3:	2407 MHz	Channel 4:	2409 MHz
Channel 5:	2411 MHz	Channel 6:	2413 MHz	Channel 7:	2415 MHz
Channel 8:	2417 MHz	Channel 9:	2419 MHz	Channel 10:	2421 MHz
Channel 11:	2423 MHz	Channel 12:	2425 MHz	Channel 13:	2427 MHz
Channel 14:	2429 MHz	Channel 15:	2431 MHz	Channel 16:	2433 MHz
Channel 17:	2435 MHz	Channel 18:	2437 MHz	Channel 19:	2439 MHz
Channel 20:	2441 MHz	Channel 21:	2443 MHz	Channel 22:	2445 MHz
Channel 23:	2447 MHz	Channel 24:	2449 MHz	Channel 25:	2451 MHz
Channel 26:	2453 MHz	Channel 27:	2455 MHz	Channel 28:	2457 MHz
Channel 29:	2459 MHz	Channel 30:	2461 MHz	Channel 31:	2463 MHz
Channel 32:	2465 MHz	Channel 33:	2467 MHz	Channel 34:	2469 MHz
Channel 35:	2471 MHz	Channel 36:	2473 MHz	Channel 37:	2475 MHz
Channel 38:	2477 MHz				

Note:

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

EMI Test Mode	Mode 1: Transmitter (Adapter 1) Mode 2: Transmitter (Adapter 2)

1.2. Operation Description

The EUT is a Wireless HD Headphones with a built-in 2.4GHz transceiver. The EUT operation frequency is 2.405GHz-2.477GHz. The signals modulated byπ/4 DQPSK (Differential Quadrature Phase Shift Keying) are transmitted from the Printed on the PCB of the EUT.

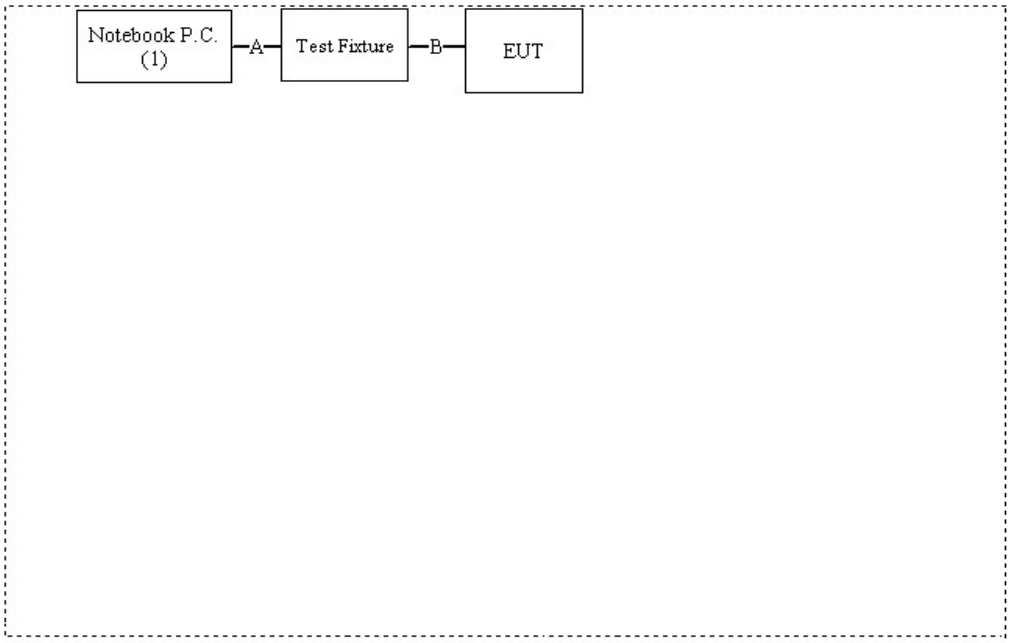
1.3. Tested System Details

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.	FCC ID	Power Cord
1.	Notebook PC	ASUS	L4000L	37NP067733	DoC	Non-Shielded, 1.8m

Signal Cable Type		Signal Cable Description
A.	USB Cable	Shielded, 1.5m
B.	Controller Cable	Non-Shielded, 0.3m

1.4. Configuration of Test System



1.5. EUT Exercise Software

(1) Setup the EUT as shown in section 1.4.
(2) Connect the EUT to a notebook via a USB.
(3) Execute Avnera Wireless.exe on the notebook.
(4) Double-click “Audio Suite Ver1.67” and select USB as a primary connection interface.
(5) Setup the test channel.
(6) Presses “Apply” to start the continuous transmit.
(7) Verify that the EUT works correctly.

1.6. Test Facility

Ambient conditions in the laboratory:

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

Site Description: 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

Testing Laboratory
0914

2. Conducted Emission

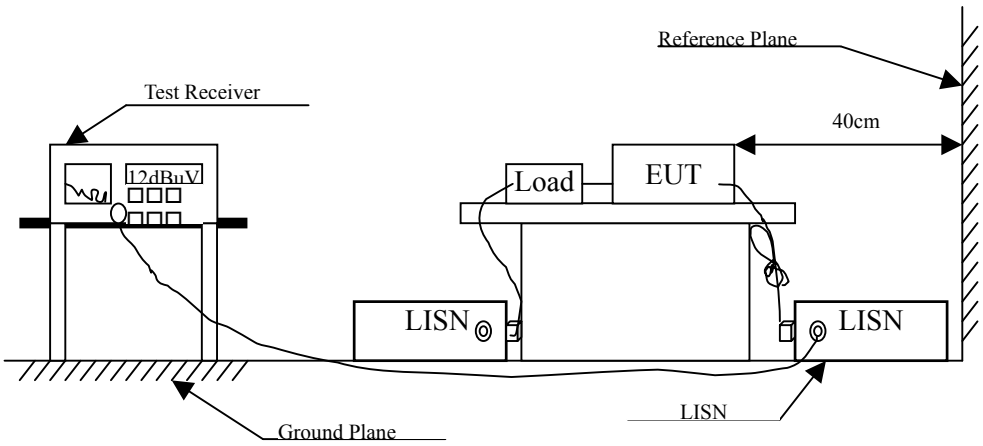
2.1. Test Equipment

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, 2008	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2008	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2008	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2008	
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	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 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

Product : Wireless HD Headphones
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Transmitter (Adapter 1) (2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.185	9.853	30.940	40.793	-24.207	65.000
0.232	9.850	29.180	39.030	-24.627	63.657
0.396	9.840	20.110	29.950	-29.021	58.971
0.689	9.820	23.780	33.600	-22.400	56.000
0.982	9.830	17.020	26.850	-29.150	56.000
2.591	9.850	22.790	32.640	-23.360	56.000
Average					
0.185	9.853	16.230	26.083	-28.917	55.000
0.232	9.850	16.200	26.050	-27.607	53.657
0.396	9.840	6.940	16.780	-32.191	48.971
0.689	9.820	14.530	24.350	-21.650	46.000
0.982	9.830	6.540	16.370	-29.630	46.000
2.591	9.850	13.770	23.620	-22.380	46.000

Note:

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

Product : Wireless HD Headphones
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Transmitter (Adapter 1) (2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.150	9.876	33.850	43.726	-22.274	66.000
0.232	9.860	31.770	41.630	-22.027	63.657
0.455	9.831	37.320	47.151	-10.135	57.286
0.533	9.830	30.160	39.990	-16.010	56.000
0.630	9.840	24.770	34.610	-21.390	56.000
2.224	9.840	19.500	29.340	-26.660	56.000
Average					
0.150	9.876	21.590	31.466	-24.534	56.000
0.232	9.860	22.640	32.500	-21.157	53.657
0.455	9.831	29.300	39.131	-8.155	47.286
0.533	9.830	16.360	26.190	-19.810	46.000
0.630	9.840	14.660	24.500	-21.500	46.000
2.224	9.840	7.740	17.580	-28.420	46.000

Note:

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

Product : Wireless HD Headphones
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 2: Transmitter (Adapter 2) (2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.244	9.830	20.590	30.420	-32.894	63.314
0.357	9.824	22.600	32.424	-27.662	60.086
0.447	9.820	24.150	33.970	-23.544	57.514
0.498	9.820	22.870	32.690	-23.367	56.057
0.810	9.830	16.040	25.870	-30.130	56.000
6.361	9.880	36.010	45.890	-14.110	60.000
Average					
0.244	9.830	6.380	16.210	-37.104	53.314
0.357	9.824	10.850	20.674	-29.412	50.086
0.447	9.820	11.810	21.630	-25.884	47.514
0.498	9.820	9.350	19.170	-26.887	46.057
0.810	9.830	4.510	14.340	-31.660	46.000
6.361	9.880	27.180	37.060	-12.940	50.000

Note:

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

Product : Wireless HD Headphones
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 2: Transmitter (Adapter 2) (2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.177	9.864	24.710	34.574	-30.655	65.229
0.322	9.850	22.350	32.200	-28.886	61.086
0.439	9.837	23.130	32.967	-24.776	57.743
0.541	9.830	21.840	31.670	-24.330	56.000
0.713	9.830	18.660	28.490	-27.510	56.000
6.576	9.890	35.260	45.150	-14.850	60.000
Average					
0.177	9.864	12.950	22.814	-32.415	55.229
0.322	9.850	9.920	19.770	-31.316	51.086
0.439	9.837	11.420	21.257	-26.486	47.743
0.541	9.830	7.470	17.300	-28.700	46.000
0.713	9.830	6.440	16.270	-29.730	46.000
6.576	9.890	26.890	36.780	-13.220	50.000

Note:

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

3. Radiated Emission

3.1. Test Equipment

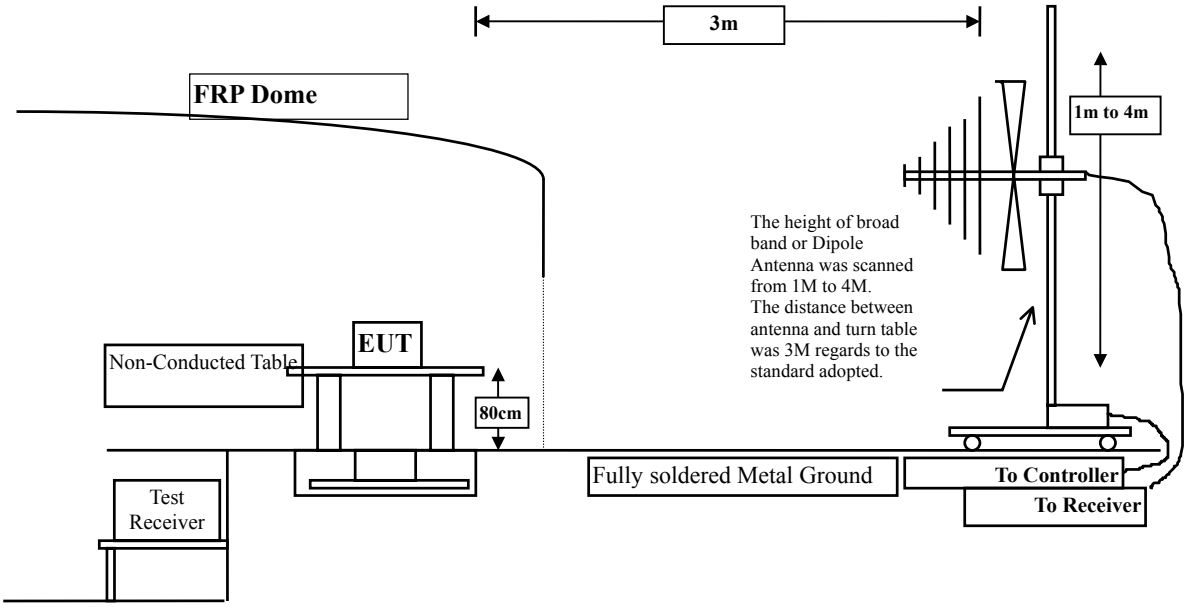
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☐Site # 1		Test Receiver	R & S	ESVS 10 / 834468/003	May, 2008
		Spectrum Analyzer	Advantest	R3162/ 00803480	May, 2008
		Pre-Amplifier	Advantest	BB525C/ 3307A01812	May, 2008
		Bilog Antenna	SCHAFFNER	CBL6112B / 2697	Sep., 2007
☐Site # 2		Test Receiver	R & S	ESCS 30 / 836858 / 022	May, 2008
		Spectrum Analyzer	Advantest	R3162 / 100803466	May, 2008
		Pre-Amplifier	Advantest	BB525C/3307A01814	May, 2008
		Bilog Antenna	SCHAFFNER	CBL6112B / 2705	May, 2008
		Horn Antenna	ETS	3115 / 0005-6160	Sep., 2007
		Pre-Amplifier	QTK	QTK-AMP-01/ 0001	May, 2008
☒Site # 3	X	Test Receiver	R & S	ESI 26 / 838786/004	May, 2008
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2008
	X	Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2008
	X	Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2008
	X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2008
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2008
	X	Pre-Amplifier	HP	8449B / 3008A01123	July, 2008

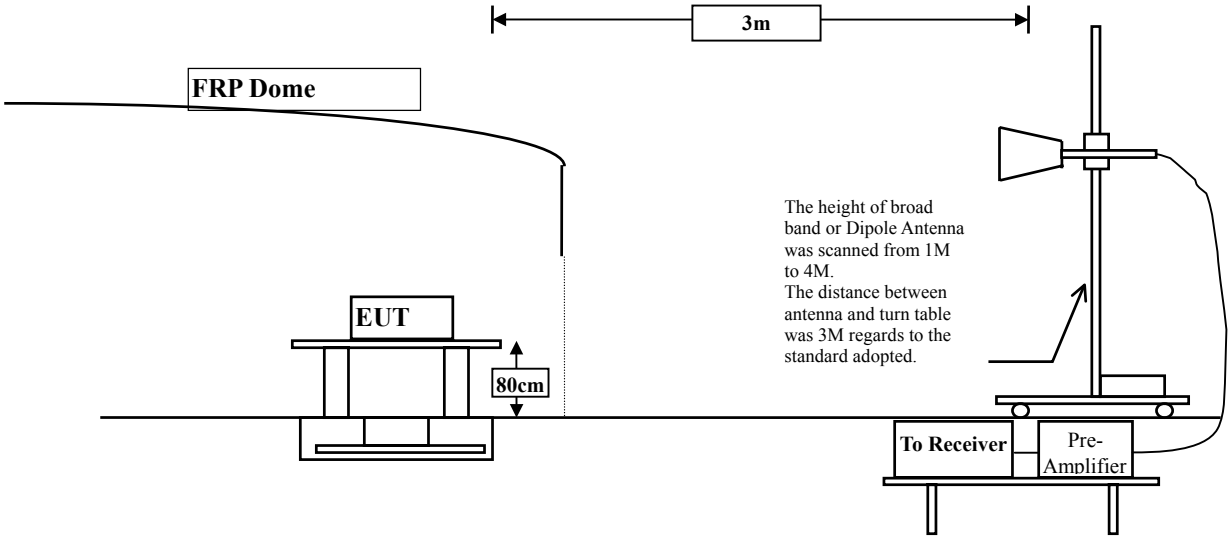
Note: 1. All equipments are calibrated every one year.
2. Test equipments marked by "X" are used to measure the final test results.

3.2. Test Setup

Below 1GHz



Above 1GHz



3.3. Limits

➢ **Fundamental and Harmonics Emission Limits**

FCC Part 15 Subpart C Paragraph 15.249 Limits				
Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m @3m)	(dBuV/m @3m)	(uV/m @3m)	(dBuV/m @3m)
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54

Remarks : 1. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➢ **General Radiated Emission Limits**

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

FCC Part 15 Subpart C Paragraph 15.209 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 : 1. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.
The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.
Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.
The measurement is divided into the Preliminary Measurement and the Final Measurement.
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB beamwidth of the antenna.
The worst radiated emission is measured on the Final Measurement.
The frequency range from 30MHz to 10th harminics is checked.

3.5. Uncertainty

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

3.6. Test Result of Radiated Emission

Product : Wireless HD Headphones
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (Adapter 1) (2405 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector					
Channel 02					
2405.000	-2.303	86.190	83.887	-30.113	114.000
Average Detector					
Channel 02					
2405.000	-2.303	81.540	79.237	-14.763	94.000
Vertical					
Peak Detector					
Channel 02					
2405.000	-2.303	89.960	87.657	-26.343	114.000
Average Detector					
Channel 02					
2405.000	-2.303	86.880	84.577	-9.423	94.000

Note:

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

Product : Wireless HD Headphones
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (Adapter 1) (2441 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector					
Channel 20					
2441.000	-2.128	85.310	83.181	-30.819	114.000
Average Detector					
Channel 20					
2441.000	-2.128	81.980	79.851	-14.149	94.000
Vertical					
Peak Detector					
Channel 20					
2441.000	-2.128	88.710	86.581	-27.419	114.000
Average Detector					
Channel 20					
2441.000	-2.128	85.450	83.321	-10.679	94.000

Note:

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

Product : Wireless HD Headphones
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (Adapter 1) (2477 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector					
Channel 38					
2477.000	-1.966	84.340	82.375	-31.625	114.000
Average Detector					
Channel 38					
2477.000	-1.966	81.410	79.445	-14.555	94.000
Vertical					
Peak Detector					
Channel 38					
2477.000	-1.966	87.900	85.935	-28.065	114.000
Average Detector					
Channel 38					
2477.000	-1.966	84.930	82.965	-11.035	94.000

Note:

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

Product : Wireless HD Headphones
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (Adapter 1) (2405 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Peak Limit dBuV/m
Horizontal					
Peak Detector:					
4810.000	3.581	38.420	42.001	-31.969	74.000
7215.000	9.131	39.450	48.581	-25.389	74.000
9620.000	11.690	36.500	48.190	-25.780	74.000
Average Detector					
--					
Vertical					
Peak Detector:					
4810.000	3.581	40.210	43.791	-30.179	74.000
7215.000	9.131	44.400	53.531	-20.439	74.000
9620.000	11.690	36.400	48.090	-25.880	74.000
Average Detector					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : Wireless HD Headphones
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (Adapter 1) (2441 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Peak Limit dBuV/m
Horizontal					
Peak Detector:					
4882.000	3.831	38.490	42.321	-31.649	74.000
7323.000	9.417	38.740	48.157	-25.813	74.000
9764.000	11.668	38.600	50.268	-23.702	74.000
Average Detector					
--					
Vertical					
Peak Detector:					
4882.000	3.831	38.720	42.551	-31.419	74.000
7323.000	9.417	36.940	46.357	-27.613	74.000
9764.000	11.668	36.520	48.188	-25.782	74.000
Average Detector					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : Wireless HD Headphones
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (Adapter 1) (2477 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Peak Limit dBuV/m
Horizontal					
Peak Detector:					
4954.000	4.095	38.040	42.134	-31.836	74.000
7431.000	9.693	36.640	46.333	-27.637	74.000
9908.000	11.732	36.350	48.082	-25.888	74.000
Average Detector					
--					
Vertical					
Peak Detector:					
4954.000	4.095	40.200	44.294	-29.676	74.000
7431.000	9.693	38.070	47.763	-26.207	74.000
9908.000	11.732	36.100	47.832	-26.138	74.000
Average Detector					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz。
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : Wireless HD Headphones
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (Adapter 1) (2441 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
544.100	19.945	7.919	27.864	-18.136	46.000
644.980	20.932	3.100	24.032	-21.968	46.000
745.860	20.804	2.750	23.554	-22.446	46.000
885.540	22.530	0.484	23.014	-22.986	46.000
934.040	22.853	-0.047	22.806	-23.194	46.000
967.020	23.439	-0.945	22.494	-31.506	54.000
Vertical					
515.000	18.679	5.964	24.643	-21.357	46.000
544.100	20.532	3.182	23.714	-22.286	46.000
753.620	23.002	2.091	25.093	-20.907	46.000
806.000	21.759	0.974	22.733	-23.267	46.000
889.420	23.062	1.730	24.792	-21.208	46.000
968.960	22.949	6.421	29.370	-24.630	54.000

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

Product : Wireless HD Headphones
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter (Adapter 2) (2441 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
544.100	19.945	7.739	27.684	-18.316	46.000
644.980	20.932	3.352	24.284	-21.716	46.000
745.860	20.804	3.817	24.621	-21.379	46.000
885.540	22.530	0.594	23.124	-22.876	46.000
934.040	22.853	0.218	23.071	-22.929	46.000
967.020	23.439	-0.446	22.993	-31.007	54.000
Vertical					
515.000	18.679	4.862	23.541	-22.459	46.000
544.100	20.532	4.099	24.631	-21.369	46.000
753.620	23.002	1.569	24.571	-21.429	46.000
806.000	21.759	1.585	23.344	-22.656	46.000
889.420	23.062	1.062	24.124	-21.876	46.000
968.960	22.949	5.725	28.674	-25.326	54.000

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

4. Band Edge

4.1. Test Equipment

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

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Test Receiver	R & S	ESI 26 / 838786/004	May, 2008
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2008
X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2008
X	Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2008
X	Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2008
X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2008
X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2008
X	Pre-Amplifier	HP	8449B / 3008A01123	July, 2008

OATS No.3

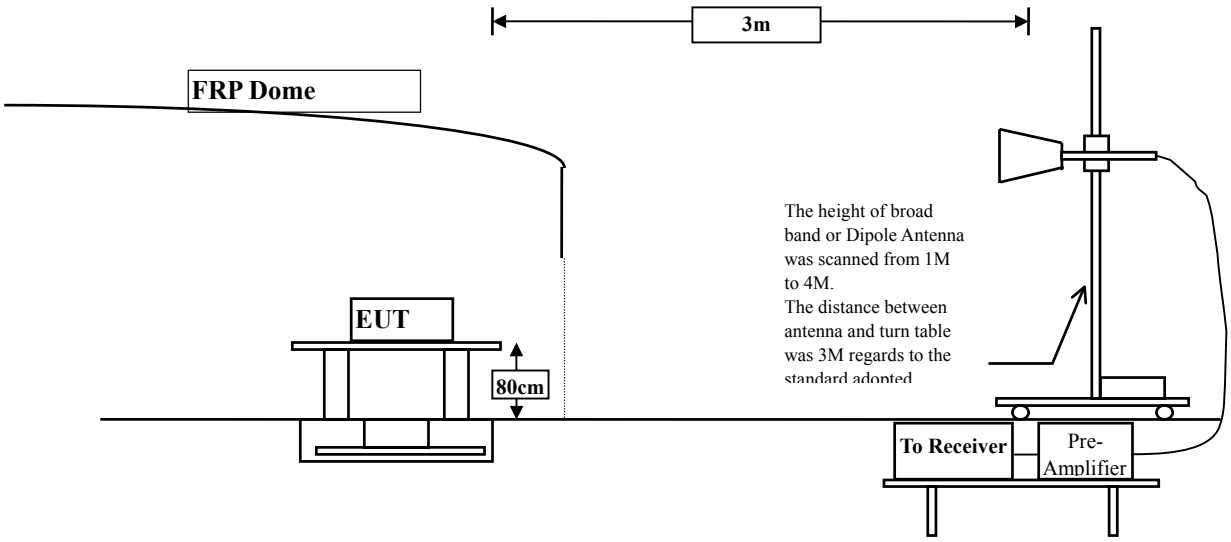
Note: 1. All equipments are calibrated every one year.

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

4.2. Test Setup

RF Radiated Measurement:

Above 1GHz



4.3. Limit

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 50 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)).

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.
The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30)is 120 kHz, above 1GHz are 1 MHz.

4.5. Uncertainty

Conducted is ± 1.27 dB
Radiated is ± 3.9 dB.

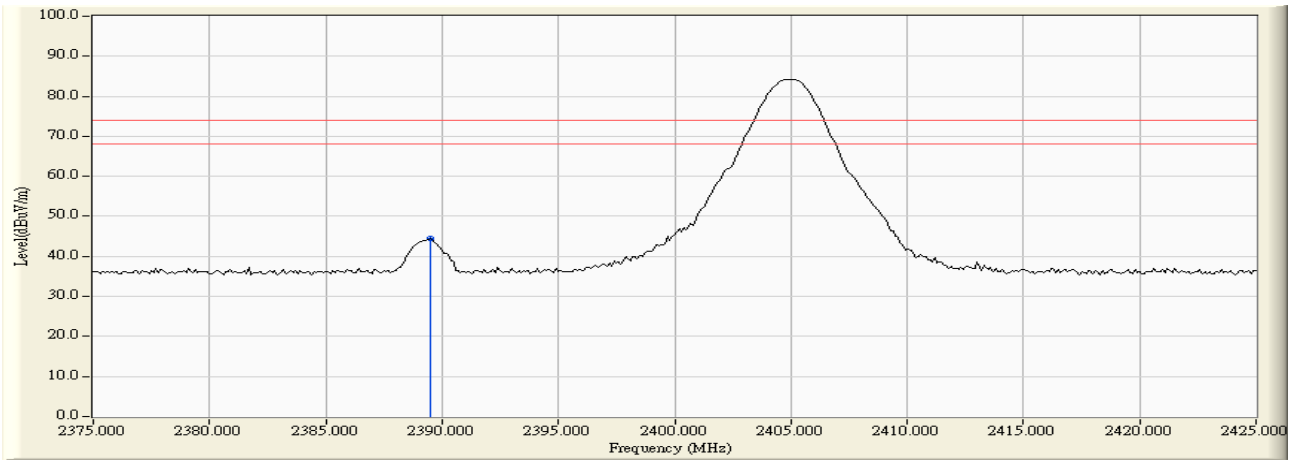
4.6. Test Result of Band Edge

Product : Wireless HD Headphones
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (Adapter 1) (2405 MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
02(Peak)	2389.500	-2.379	46.787	44.407	74.000	54.000	Pass
02(Average)	--	--	--	--	74.000	54.000	Pass

Figure Channel 02: Horizontal (Peak)



Note:

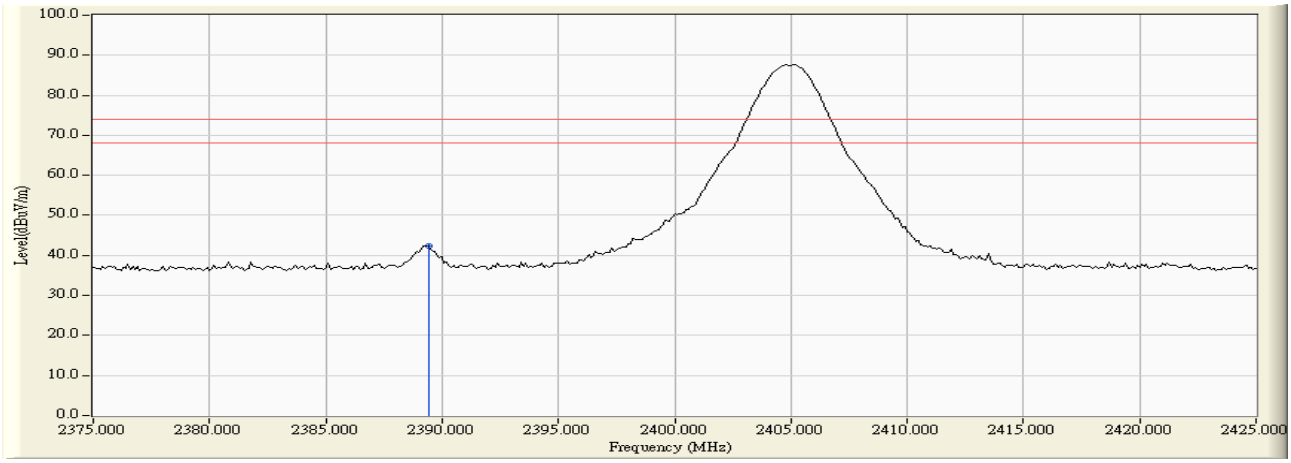
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Wireless HD Headphones
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (Adapter 1) (2405 MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
02(Peak)	2389.400	-2.381	44.848	42.468	74.000	54.000	Pass
02(Average)	--	--	--	--	74.000	54.000	Pass

Figure Channel 02: Vertical (Peak)



Note:

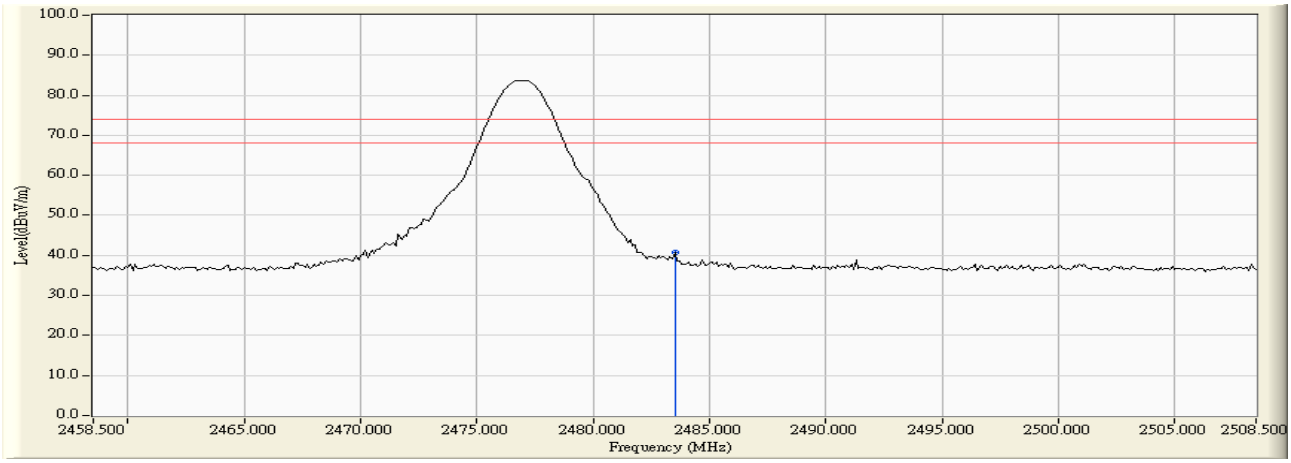
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Wireless HD Headphones
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (Adapter 1) (2477 MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
38(Peak)	2483.500	-1.937	42.609	40.672	74.000	54.000	Pass
38(Average)	--	--	--	--	74.000	54.000	Pass

Figure Channel 38: Horizontal (Peak)



Note:

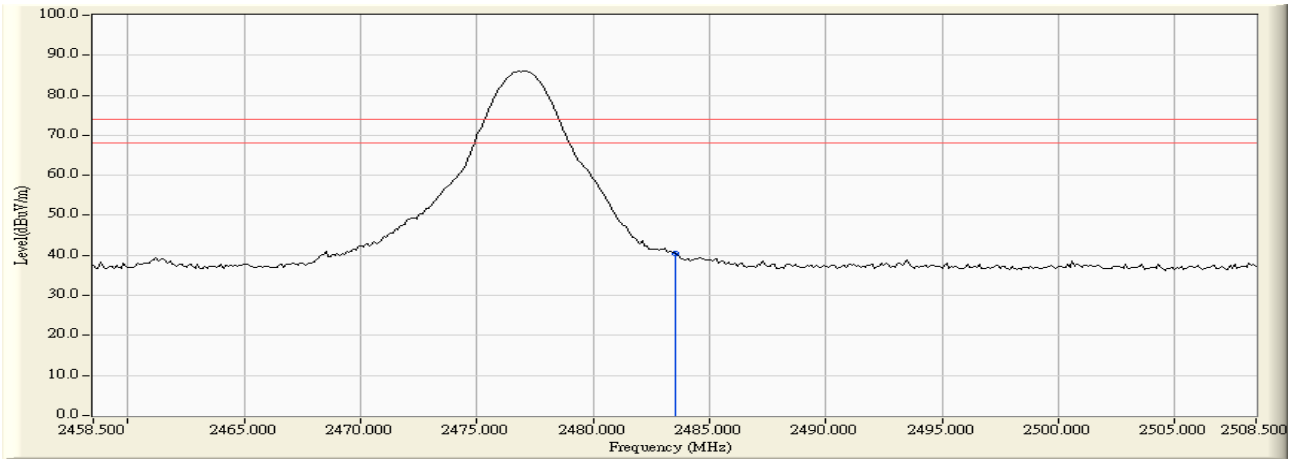
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Wireless HD Headphones
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (Adapter 1) (2477 MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
38(Peak)	2483.500	-1.937	42.395	40.458	74.000	54.000	Pass
38(Average)	--	--	--	--	74.000	54.000	Pass

Figure Channel 38: Vertical (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. EMI Reduction Method During Compliance Testing

No modification was made during testing.