Test Report

Product Name : Wireless 2.1 Stereo Headphone

Model No. : AWD209T

FCC ID. : BJM-AWD209T

Applicant : TATUNG CO.

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

Date of Receipt : July. 23, 2008

Issued Date : Aug. 05, 2008

Report No. : 087369R-RFUSP07V01

Version : V1.0

Test Report Certification

Issued Date: Aug. 05, 2008
Report No. : 087369R-RFUSP07V01

Product Name	:	Wireless 2.1 Stereo Headphone
Applicant	:	TATUNG CO.
Address	:	22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C.
Manufacturer	:	TATUNG CO.
Model No.	:	AWD209T
FCC ID.	:	BJM-AWD209T
Rated Voltage	:	120V/60Hz
Working Voltage	:	AC 120V/60Hz
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.
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This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By : Genie Chang
(Adm. Specialist / Genie Chang)

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 2.1 Stereo Headphone
Trade Name	:	Acoustic Research
FCC ID.	:	BJM-AWD209T
Model No.	:	AWD209T
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	:	MFR: KINGS, M/N: KSS05-050-1000U Cable Out: Non-Shielded, 1.6m with one ferrite core bonded.

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 2.1 Stereo Headphone 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

1.2. Operation Description

The EUT is Wireless 2.1 Stereo Headphone 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.

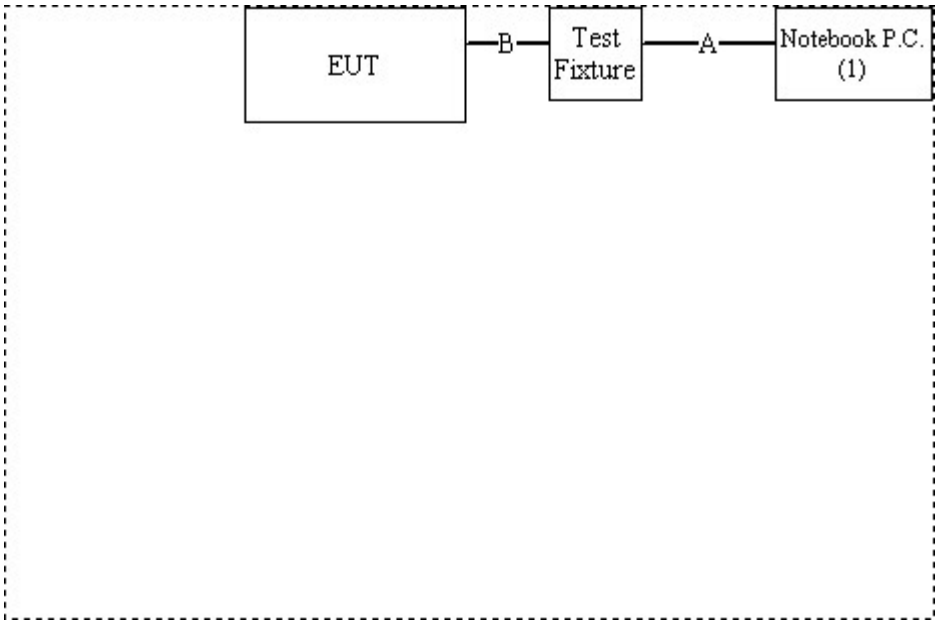
1.3. Tested System Details

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.	Power Cord
1.	Notebook PC	DELL	PPT	N/A	Shielded, 0.8m With Core* 1

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

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0914

2. Conducted Emission

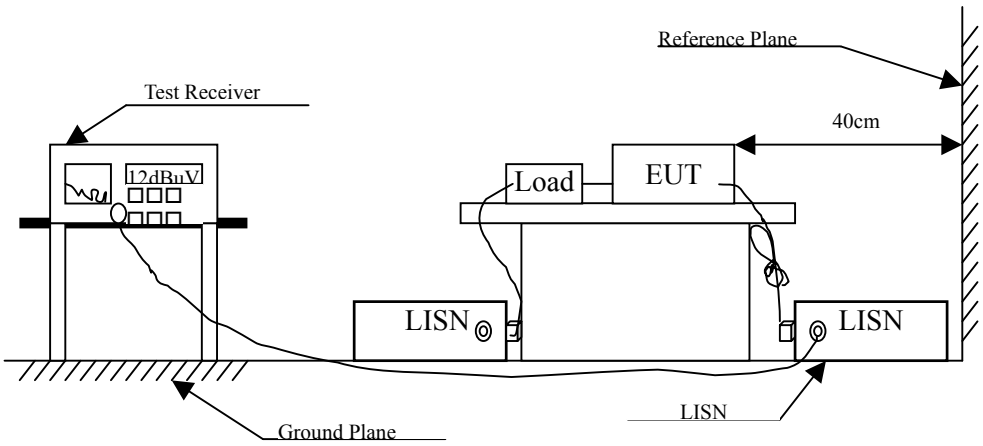
2.1. Test Equipment

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 2.1 Stereo Headphone
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Transmitter (2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.623	9.820	28.060	37.880	-18.120	56.000
0.978	9.830	24.440	34.270	-21.730	56.000
2.220	9.840	25.340	35.180	-20.820	56.000
2.755	9.850	26.110	35.960	-20.040	56.000
3.677	9.860	28.470	38.330	-17.670	56.000
5.552	9.880	32.940	42.820	-17.180	60.000
Average					
0.623	9.820	18.330	28.150	-17.850	46.000
0.978	9.830	17.060	26.890	-19.110	46.000
2.220	9.840	17.450	27.290	-18.710	46.000
2.755	9.850	18.420	28.270	-17.730	46.000
3.677	9.860	20.410	30.270	-15.730	46.000
5.552	9.880	24.130	34.010	-15.990	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 2.1 Stereo Headphone
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Transmitter (2441MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.490	9.830	24.120	33.950	-22.336	56.286
0.615	9.840	28.600	38.440	-17.560	56.000
1.162	9.830	24.210	34.040	-21.960	56.000
2.748	9.850	25.930	35.780	-20.220	56.000
3.603	9.860	27.630	37.490	-18.510	56.000
5.838	9.880	32.820	42.700	-17.300	60.000
Average					
0.490	9.830	16.270	26.100	-20.186	46.286
0.615	9.840	19.470	29.310	-16.690	46.000
1.162	9.830	15.760	25.590	-20.410	46.000
2.748	9.850	18.280	28.130	-17.870	46.000
3.603	9.860	19.880	29.740	-16.260	46.000
5.838	9.880	24.080	33.960	-16.040	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:

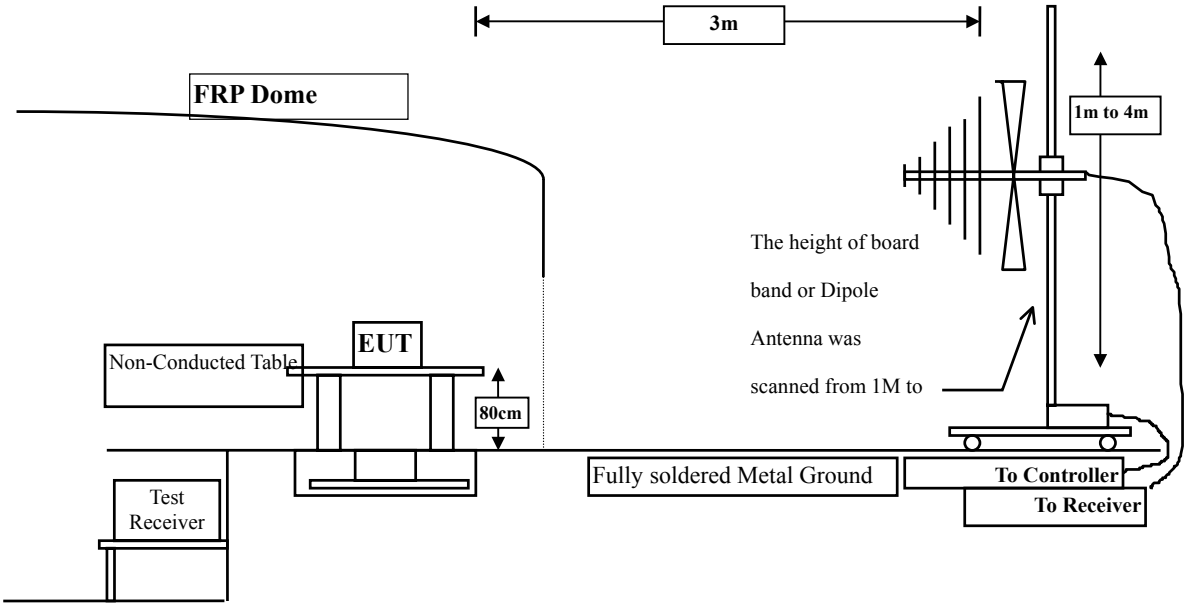
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☐Site # 1		Test Receiver	R & S	ESVS 10 / 834468/003	May, 2008
		Spectrum Analyzer	Advantest	R3162/ 00803480	May, 2008
		Pre-Amplifier	Advantest	BB525C/ 3307A01812	May, 2008
		Bilog Antenna	SCHAFFNER	CBL6112B / 2697	Sep., 2007
☐Site # 2		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.

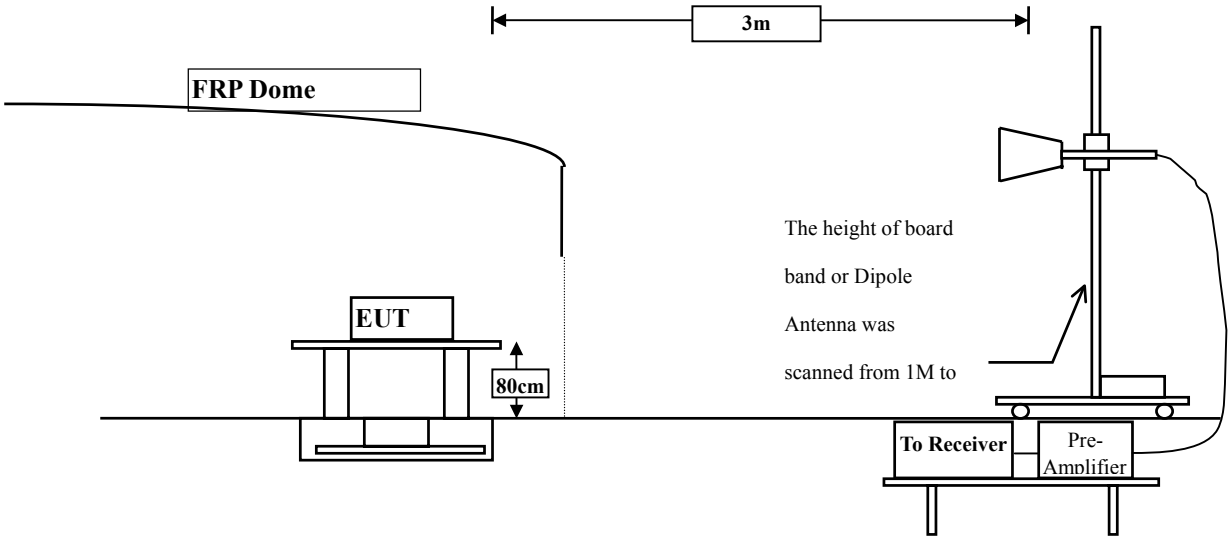
2. Test equipments marked by "X" are used to measure the final test results.

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.
Radiated emissions were invested over the frequency range from 30MHz to1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 3 meters.
The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.
Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.
The measurement is divided into the Preliminary Measurement and the Final Measurement.
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.
The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.
The 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 2.1 Stereo Headphone
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (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	85.090	82.787	-31.213	114.000
Vertical					
Peak Detector					
Channel 02					
2405.000	-2.303	87.250	84.947	-29.053	114.000

Note:

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

Product : Wireless 2.1 Stereo Headphone
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (2405 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Average Detector					
Channel 02					
2405.000	-2.303	82.330	80.027	-13.973	94.000
Vertical					
Average Detector					
Channel 02					
2405.000	-2.303	84.180	81.877	-12.123	94.000

Note:

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

Product : Wireless 2.1 Stereo Headphone
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (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	85.960	83.831	-30.169	114.000
Vertical					
Peak Detector					
Channel 20					
2441.000	-2.128	87.890	85.761	-28.239	114.000

Note:

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

Product : Wireless 2.1 Stereo Headphone
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (2441 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Average Detector					
Channel 20					
2441.000	-2.128	83.060	80.931	-13.069	94.000
Vertical					
Average Detector					
Channel 20					
2441.000	-2.128	84.750	82.621	-11.379	94.000

Note:

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

Product : Wireless 2.1 Stereo Headphone
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (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	85.130	83.165	-30.835	114.000
Vertical					
Peak Detector					
Channel 38					
2477.000	-1.966	87.340	85.375	-28.625	114.000

Note:

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

Product : Wireless 2.1 Stereo Headphone
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmitter (2477 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Average Detector					
Channel 38					
2477.000	-1.966	82.290	80.325	-13.675	94.000
Vertical					
Average Detector					
Channel 38					
2477.000	-1.966	84.360	82.395	-11.605	94.000

Note:

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

Product : Wireless 2.1 Stereo Headphone
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (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	3.681	37.840	41.521	-32.449	74.000
7215.000	9.381	40.260	49.641	-24.329	74.000
9620.000	11.834	35.730	47.564	-26.406	74.000
Average Detector					
--					
Vertical					
Peak Detector:					
4810.000	3.681	39.450	43.131	-30.839	74.000
7215.000	9.381	38.980	48.361	-25.609	74.000
9620.000	11.834	35.460	47.294	-26.676	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 2.1 Stereo Headphone
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (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	3.921	37.160	41.081	-32.889	74.000
7323.000	9.657	40.570	50.227	-23.743	74.000
9764.000	11.798	35.320	47.118	-26.852	74.000
Average Detector					
--					
Vertical					
Peak Detector:					
4882.000	3.921	38.960	42.881	-31.089	74.000
7323.000	9.657	39.670	49.327	-24.643	74.000
9764.000	11.798	35.130	46.928	-27.042	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 2.1 Stereo Headphone
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (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	4.176	37.450	41.626	-32.344	74.000
7431.000	9.933	41.030	50.963	-23.007	74.000
9908.000	11.851	35.170	47.022	-26.948	74.000
Average Detector					
--					
Vertical					
Peak Detector:					
4954.000	4.176	38.330	42.506	-31.464	74.000
7431.000	9.933	40.480	50.413	-23.557	74.000
9908.000	11.851	35.583	47.435	-26.535	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 2.1 Stereo Headphone
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (2441 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
613.940	20.655	8.595	29.250	-16.750	46.000
712.880	20.766	8.535	29.301	-16.699	46.000
811.820	21.608	11.902	33.510	-12.490	46.000
885.540	22.530	14.464	36.994	-9.006	46.000
934.040	22.853	16.009	38.862	-7.138	46.000
984.480	23.462	17.218	40.679	-13.321	54.000
Vertical					
544.100	20.532	3.843	24.375	-21.625	46.000
693.480	20.489	3.568	24.057	-21.943	46.000
763.320	22.749	3.569	26.318	-19.682	46.000
837.040	21.481	4.354	25.835	-20.165	46.000
934.040	24.053	7.421	31.474	-14.526	46.000
959.260	23.101	8.889	31.990	-14.010	46.000

Note:

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

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

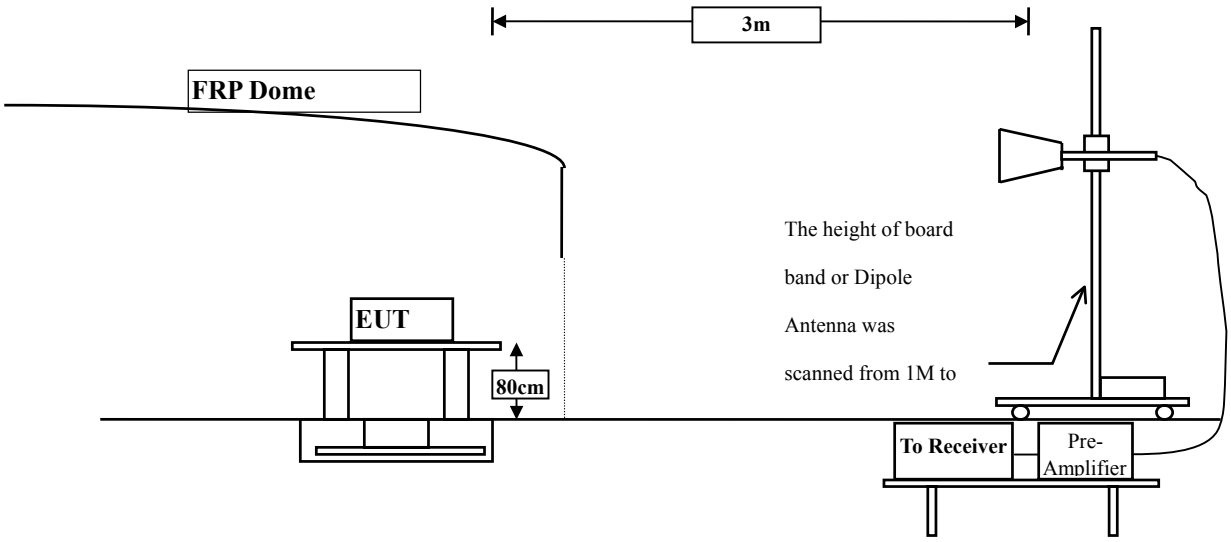
Note: 1. All equipments are calibrated every one year.

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.

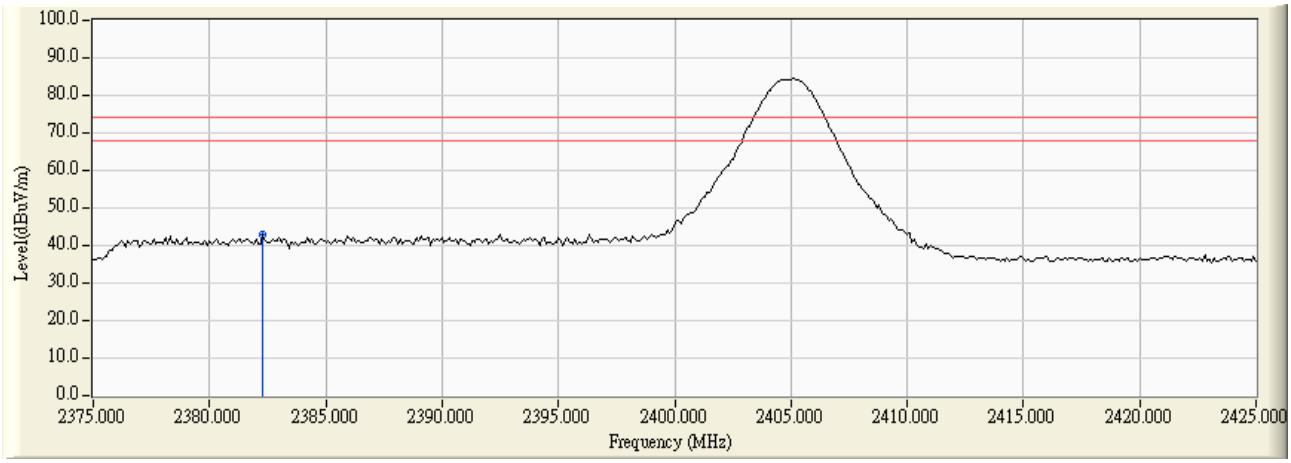
4.6. Test Result of Band Edge

Product : Wireless 2.1 Stereo Headphone
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (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)	2382.300	-2.414	45.440	43.026	74.000	54.000	Pass

Figure Channel 01: Horizontal



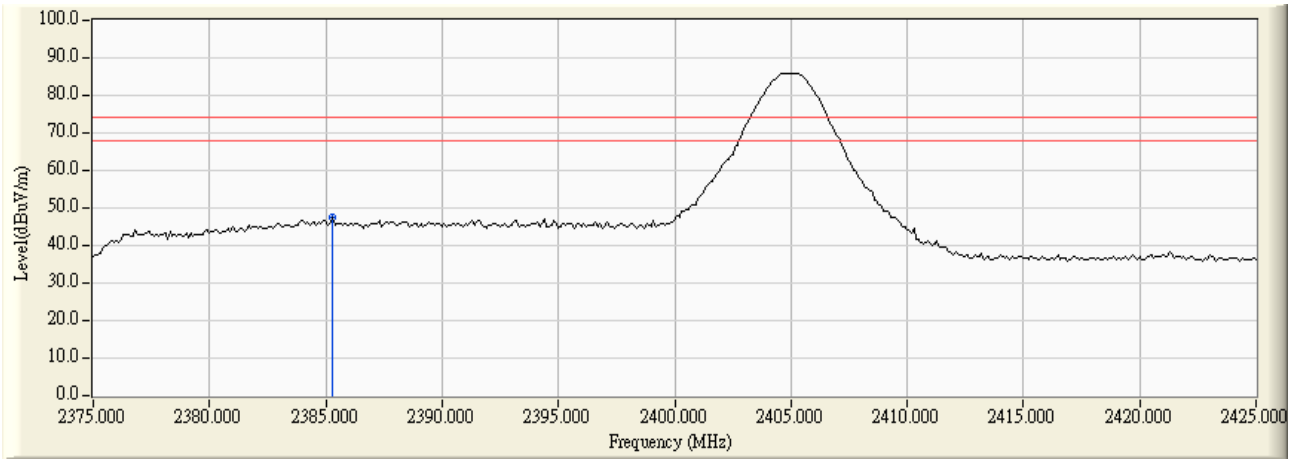
Note: RBW=1MHz, VBW=1MHz, Sweep Time=500ms

Product : Wireless 2.1 Stereo Headphone
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (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)	2385.300	-2.399	49.783	47.383	74.000	54.000	Pass

Figure Channel 01: Vertical



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

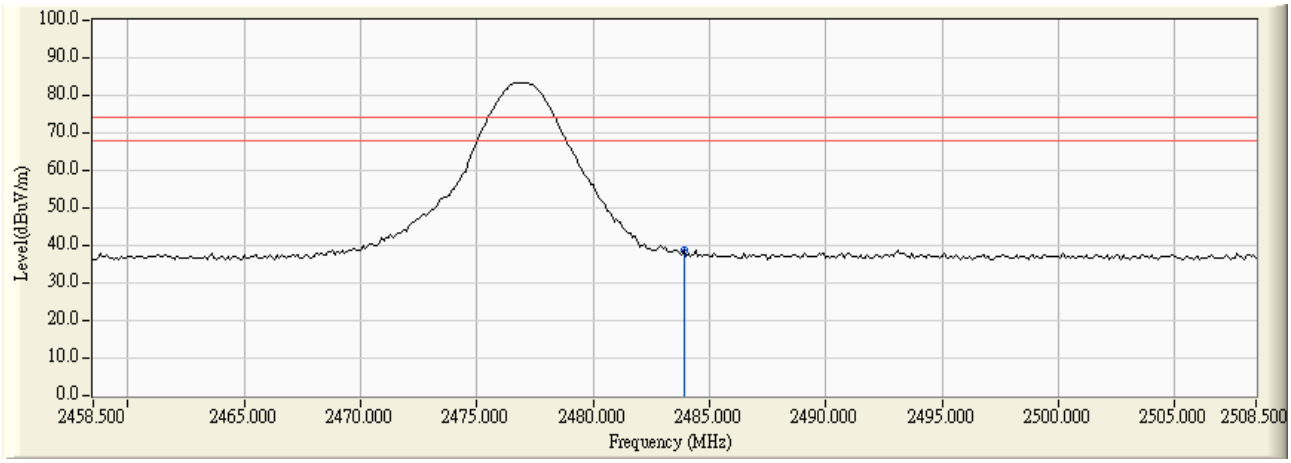
Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : Wireless 2.1 Stereo Headphone
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (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)	2483.900	-1.936	40.504	38.568	74.000	54.000	Pass

Figure Channel 01: Horizontal



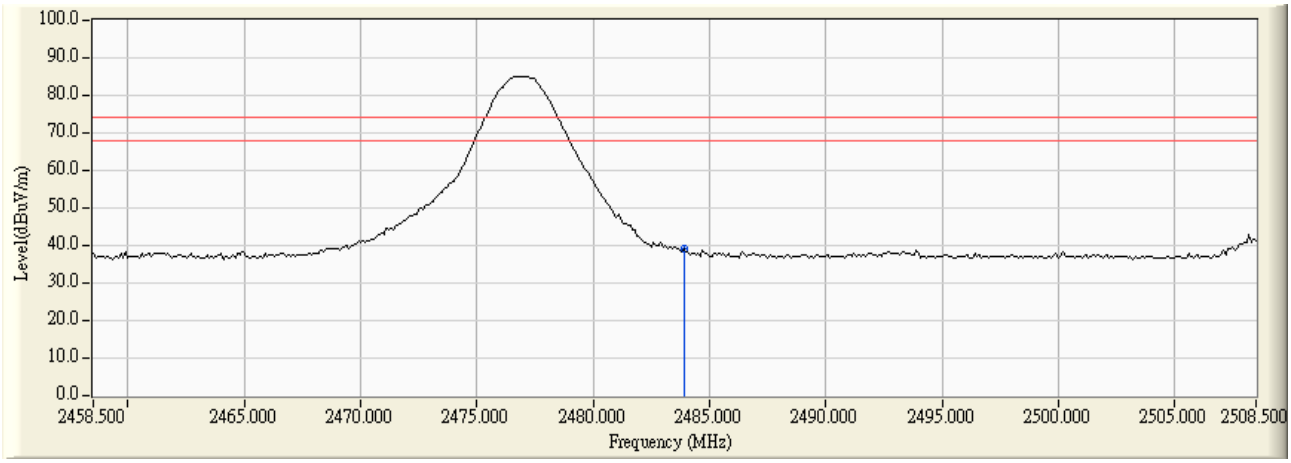
Note: RBW=1MHz, VBW=1MHz, Sweep Time=500ms

Product : Wireless 2.1 Stereo Headphone
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter (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)	2483.900	-1.936	41.047	39.111	74.000	54.000	Pass

Figure Channel 01: Vertical



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

Note: 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.

5. EMI Reduction Method During Compliance Testing

No modification was made during testing.