Test Report

Product Name	Professional Stereo Digital Wireless Audio Dongles (Receiver)
Model No.	JM-WAL35-R1, KEN4-R1, JM-WAL45-R1, KEN5-R1
FCC ID.	XZ3-KEN4-R

Applicant	Jangus Music, Inc.
Address	28202 Cabot Road, Third Floor Laguna Niguel, CA 92677 USA

Date of Receipt	June 24, 2009
Issued Date	Dec. 07, 2009
Report No.	09C130R-RFUSP44V01
Report Version	V1.0

Test Report Certification

Issued Date: Dec. 07, 2009
Report No. : 09C130R-RFUSP44V01

Product Name	Professional Stereo Digital Wireless Audio Dongles (Receiver)
Applicant	Jangus Music, Inc.
Address	28202 Cabot Road, Third Floor Laguna Niguel, CA 92677 USA
Manufacturer	Jangus Music, Inc.
Model No.	JM-WAL35-R1, KEN4-R1, JM-WAL45-R1, KEN5-R1
FCC ID.	XZ3-KEN4-R
EUT Rated Voltage	DC 3.7V (Power by Battery)
EUT Test Voltage	AC 120V/60Hz
Trade Name	Jangus Music, Inc.
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2008 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 : Anita Chou
(Senior Engineering Adm. Specialist / Anita Chou)

Tested By : Molin Huang
(Engineer / Molin Huang)

Approved By :
(Manager / Vincent Lin)

Testing Laboratory
0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Professional Stereo Digital Wireless Audio Dongles (Receiver)
Trade Name	Jangus Music, Inc.
FCC ID.	XZ3-KEN4-R
Model No.	JM-WAL35-R1, KEN4-R1, JM-WAL45-R1, KEN5-R1
Frequency Range	2405 – 2477MHz
Type of Modulation	π/4 DQPSK (Differential Quadrature Phase Shift Keying)
Number of Channels	37
Channel Control	Auto
Antenna Type	Printer on PCB
Antenna Gain	Refer to the table "Antenna List"
Power and USB Cable	Shielded, 0.2m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Jangus	N/A	Printer on PCB	-1.32 dBi for 2.4 GHz

Note: The antenna of EUT is conform to FCC 15.203

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 Professional Stereo Digital Wireless Audio Dongles (Receiver) 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 EUT is including four models The different of each model is shown as below:

Model Number	Description
JM-WAL35-R1	Brand: Jangus Music, Inc. Color: Black With Microphone Function
KEN4-R1	Brand: Jangus Music, Inc. Color: Black With Microphone Function
JM-WAL45-R1	Brand: Jangus Music, Inc. Color: Blue Without Microphone Function
KEN5-R1	Brand: T Jangus Music, Inc. Color: Blue Without Microphone Function

5. 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 a Professional Stereo Digital Wireless Audio Dongles (Receiver) with a built-in 2.4GHz transceiver. The EUT operation frequency is 2.405GHz-2.477GHz. The signals modulated by π/4 DQPSK (Differential Quadrature Phase Shift Keying) are transmitted from the Printer on PCB Antenna. DC 3.7V (Power by Battery) shall be provided for EUT operation.

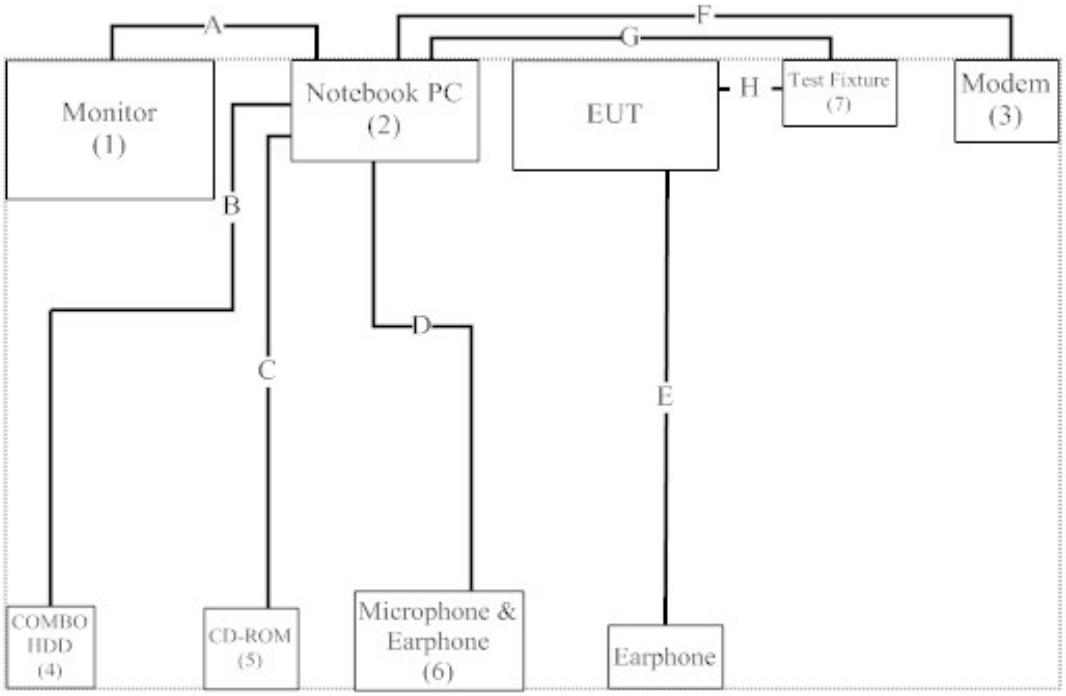
1.3. Tested System Details

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.	Monitor	Dell	2407WFPb	CN-0FC255-46633-638-1MDS	Non-Shielded, 1.8m
2.	Notebook PC	DELL	PPT	N/A	Non-Shielded, 0.8m
3.	Modem	ACEEX	DM-1414	0102027536	Non-Shielded, 1.8m
4.	COMBO HDD	TeraSys	F12-UF	A0100215-64b0006	Non-Shielded, 1.8m
5.	CD-ROM	DELL	N/A	N/A	N/A
6.	Microphone & Earphone	PCHOME	N/A	N/A	N/A
7	Test Fixture	TATUNG	N/A	N/A	N/A

Signal Cable Type		Signal Cable Description
A.	VGA Cable	Non-shielded, 1.6m, with one ferrite core bonded.
B.	1394 Cable	Non-shielded, 1.8m
C.	USB Cable	Non-shielded, 1.6m
D.	Microphone Cable	Non-shielded, 1.6m
E.	Earphone Cable	Non-shielded, 1.6m
F.	RS-232 Cable	Non-shielded, 1.8m, with one ferrite core bonded.
G.	USB Cable	Non-shielded, 1.8m
H.	Control Line Cable	Non-shielded, 0.1m

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 “AMD2 Debug.exe (V1.37.001)” on the notebook.
(4) Setup the test channel.
(5) Press “Apply” to start the continuous transmitter.
(6) 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

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

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

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation

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E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

Testing Laboratory
0914

2. Conducted Emission

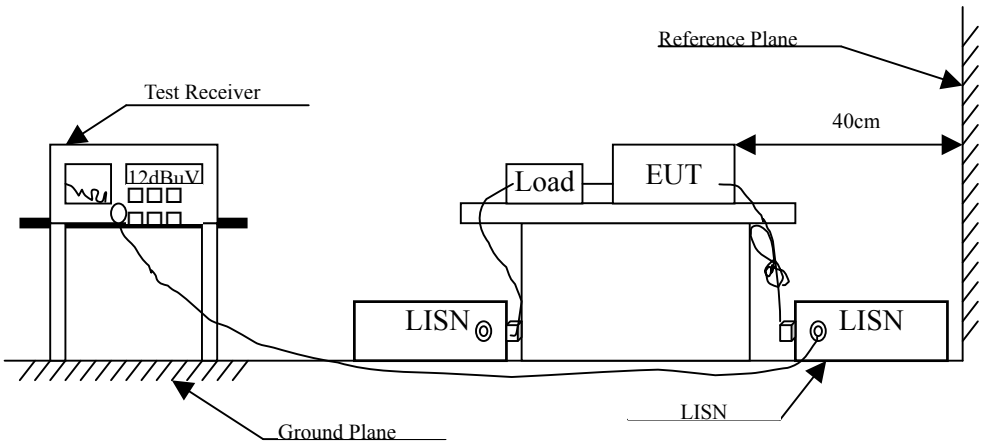
2.1. Test Equipment

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, 2009	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2009	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2009	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2009	
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 : Professional Stereo Digital Wireless Audio Dongles (Receiver)
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					
0.177	9.730	40.420	50.149	-15.080	65.229
0.302	9.650	29.730	39.380	-22.277	61.657
0.779	9.650	18.780	28.430	-27.570	56.000
2.181	9.680	25.980	35.660	-20.340	56.000
4.119	9.700	32.950	42.650	-13.350	56.000
15.759	10.000	29.860	39.860	-20.140	60.000
Average					
0.177	9.730	34.870	44.599	-10.630	55.229
0.302	9.650	24.950	34.600	-17.057	51.657
0.779	9.650	10.460	20.110	-25.890	46.000
2.181	9.680	23.490	33.170	-12.830	46.000
4.119	9.700	22.090	31.790	-14.210	46.000
15.759	10.000	28.950	38.950	-11.050	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 : Professional Stereo Digital Wireless Audio Dongles (Receiver)
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					
0.177	9.736	40.160	49.896	-15.333	65.229
0.302	9.660	29.530	39.190	-22.467	61.657
0.697	9.650	19.720	29.370	-26.630	56.000
2.181	9.680	25.120	34.800	-21.200	56.000
4.119	9.700	32.060	41.760	-14.240	56.000
15.326	10.000	31.140	41.140	-18.860	60.000
Average					
0.177	9.736	34.600	44.336	-10.893	55.229
0.302	9.660	24.150	33.810	-17.847	51.657
0.697	9.650	10.630	20.280	-25.720	46.000
2.181	9.680	22.210	31.890	-14.110	46.000
4.119	9.700	22.370	32.070	-13.930	46.000
15.326	10.000	30.690	40.690	-9.310	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:

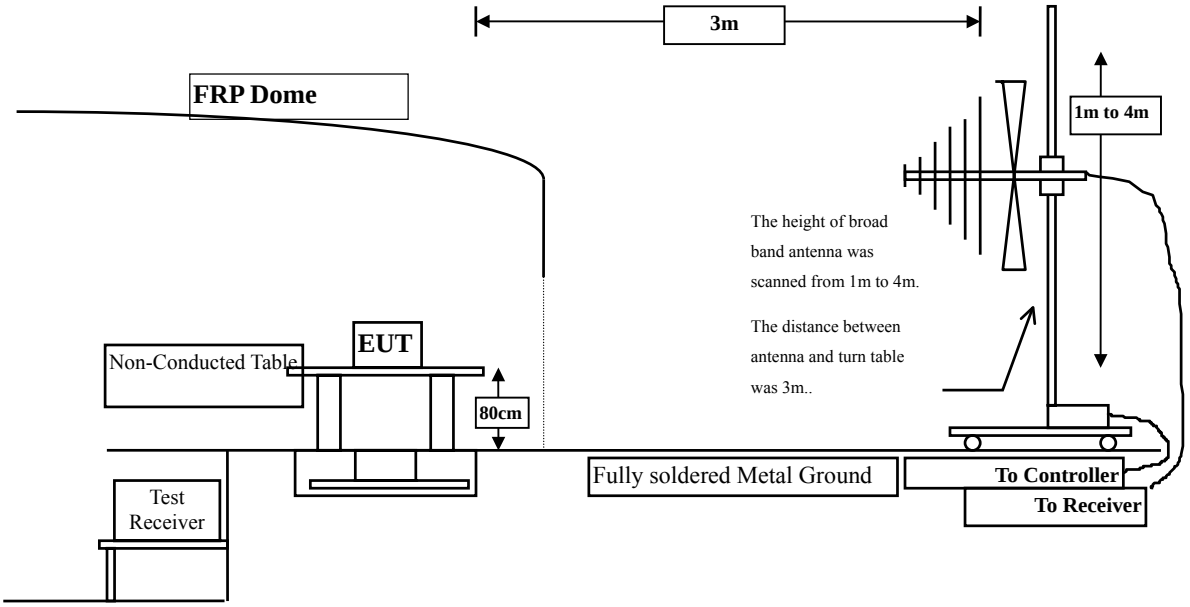
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2009
	X	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2009
	X	Test Receiver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

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

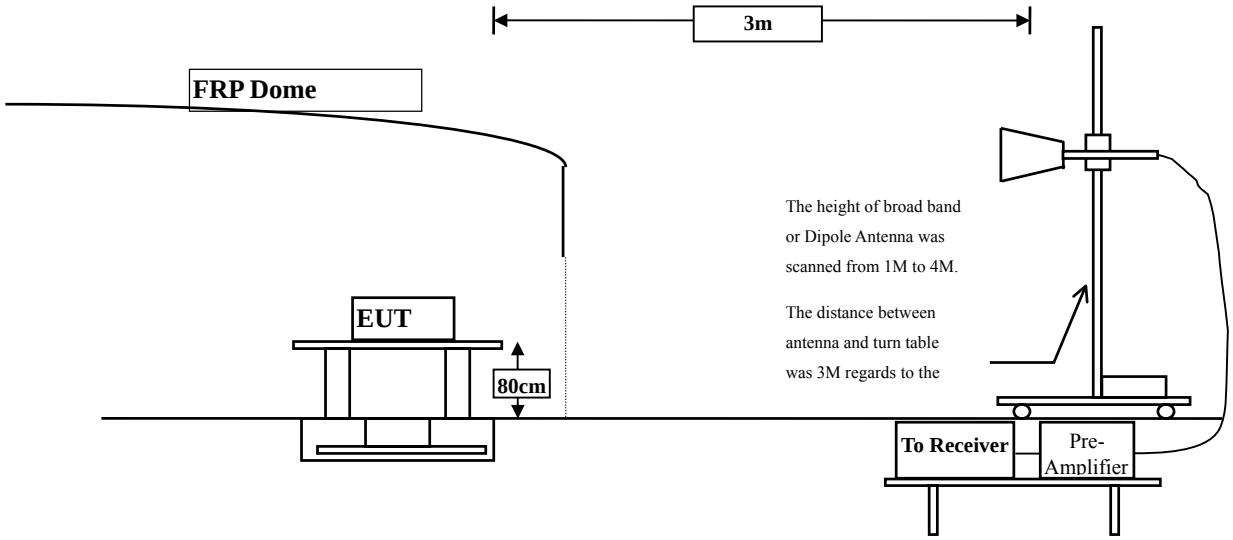
2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup

Radiated Emission Below 1GHz



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

The EUT 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 bandwidth of the antenna.

The worst radiated emission is measured on the Final Measurement.

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

3.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

3.6. Test Result of Radiated Emission

Product : Professional Stereo Digital Wireless Audio Dongles (Receiver)
Test Item : Fundamental Radiated Emission
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	Limit dBuV/m
Horizontal					
Peak Detector					
Channel 02					
2405.000	2.973	93.959	96.933	-17.067	114.000
Average Detector					
Channel 02					
2405.000	2.973	89.040	92.014	-1.986	94.000
Vertical					
Peak Detector					
Channel 02					
2405.000	1.969	93.598	95.567	-18.433	114.000
Average Detector					
Channel 02					
2405.000	1.969	87.910	89.879	-4.121	94.000

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.
3. The Duty Cycle is refer to section 4.
4. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.
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 : Professional Stereo Digital Wireless Audio Dongles (Receiver)
Test Item : Fundamental Radiated Emission
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	Limit dBuV/m
Horizontal					
Peak Detector					
Channel 20					
2441.000	2.976	91.275	94.250	-19.750	114.000
Average Detector					
Channel 20					
2441.000	2.976	88.560	91.535	-2.465	94.000
Vertical					
Peak Detector					
Channel 20					
2441.000	2.180	91.040	93.220	-20.780	114.000
Average Detector					
Channel 20					
2441.000	2.180	88.810	90.990	-3.010	94.000

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.
3. The Duty Cycle is refer to section 4.
4. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.
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 : Professional Stereo Digital Wireless Audio Dongles (Receiver)
Test Item : Fundamental Radiated Emission
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	Limit dBuV/m
Horizontal					
Peak Detector					
Channel 38					
2477.000	3.072	93.307	96.380	-17.620	114.000
Average Detector					
Channel 38					
2477.000	3.072	87.690	90.763	-3.237	94.000
Vertical					
Peak Detector					
Channel 38					
2477.000	2.509	91.824	94.334	-19.666	114.000
Average Detector					
Channel 38					
2477.000	2.509	88.950	91.460	-2.540	94.000

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.
3. The Duty Cycle is refer to section 4.
4. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.
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 : Professional Stereo Digital Wireless Audio Dongles (Receiver)
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	9.507	40.620	50.126	-23.874	74.000
7215.000	14.084	50.630	64.715	-9.285	74.000
9620.000	19.564	38.060	57.624	-16.376	74.000
Average Detector					
7215.000	14.084	38.610	52.695	-1.305	54.000
9620.000	19.564	24.460	44.024	-9.976	54.000
Vertical					
Peak Detector:					
4810.000	8.247	41.560	49.806	-24.194	74.000
7215.000	15.169	45.740	60.909	-13.091	74.000
9620.000	18.774	38.230	57.004	-16.996	74.000
Average Detector					
7215.000	15.169	36.960	52.129	-1.871	54.000
9620.000	18.774	24.430	43.204	-10.796	54.000

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:10Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Professional Stereo Digital Wireless Audio Dongles (Receiver)
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	9.399	41.310	50.709	-23.291	74.000
7323.000	14.328	45.290	59.618	-14.382	74.000
9764.000	19.925	39.210	59.135	-14.865	74.000
Average Detector					
7323.000	14.328	37.610	51.938	-2.062	54.000
9764.000	19.925	25.450	45.375	-8.625	54.000
Vertical					
Peak Detector:					
4882.000	8.889	41.920	50.809	-23.191	74.000
7323.000	15.022	41.160	56.182	-17.818	74.000
9764.000	19.125	38.100	57.225	-16.775	74.000
Average Detector					
7323.000	15.022	36.960	51.982	-2.018	54.000
9764.000	19.125	27.530	46.655	-7.345	54.000

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:10Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Professional Stereo Digital Wireless Audio Dongles (Receiver)
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	9.349	41.380	50.728	-23.272	74.000
7431.000	14.737	41.140	55.876	-18.124	74.000
9908.000	19.640	39.080	58.720	-15.280	74.000
Average Detector					
7431.000	14.737	31.810	46.546	-7.454	54.000
9908.000	19.640	27.350	46.990	-7.010	54.000
Vertical					
Peak Detector:					
4954.000	9.666	42.040	51.706	-22.294	74.000
7431.000	15.361	40.260	55.621	-18.379	74.000
9908.000	18.909	39.270	58.179	-15.821	74.000
Average Detector					
7431.000	15.361	30.300	45.661	-8.339	54.000
9908.000	18.909	26.800	45.709	-8.291	54.000

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:10Hz; Span:20MHz。
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Professional Stereo Digital Wireless Audio Dongles (Receiver)
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					
288.020	-5.106	33.249	28.143	-17.857	46.000
383.080	-1.799	28.187	26.388	-19.612	46.000
544.100	2.992	25.807	28.799	-17.201	46.000
699.300	2.422	24.915	27.337	-18.663	46.000
819.580	5.509	23.635	29.144	-16.856	46.000
932.100	6.430	22.905	29.335	-16.665	46.000
Vertical					
258.920	-7.898	36.044	28.146	-17.854	46.000
503.360	-1.350	27.570	26.220	-19.780	46.000
565.440	-5.893	27.850	21.957	-24.043	46.000
722.580	-0.608	27.404	26.796	-19.204	46.000
840.920	2.570	22.390	24.960	-21.040	46.000
965.080	7.397	23.984	31.381	-22.619	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. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

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, 2009
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2009
X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2009
X	Horn Antenna	Schwarzbeck	BBHA9120D / 305, 306	July, 2009
X	Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2009
X	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2009
X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2009
X	Pre-Amplifier	HP	8449B / 3008A01123	July, 2009
OATS No.3				

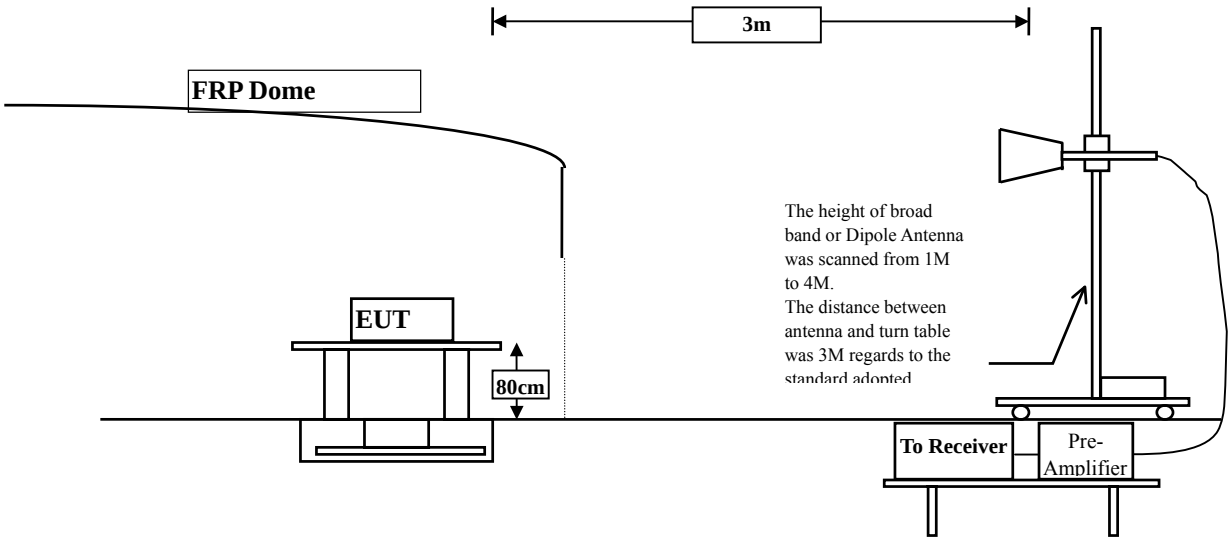
Note: 1. All equipments are calibrated every one year.

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 : Professional Stereo Digital Wireless Audio Dongles (Receiver)
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)	2389.400	2.937	39.742	42.680	74.000	54.000	Pass
02(Peak)	2400.000	2.965	52.868	55.834	74.000	54.000	Pass
02(Average)	2400.000	2.965	41.801	44.767	74.000	54.000	Pass

Figure Channel 02: Horizontal (Peak)

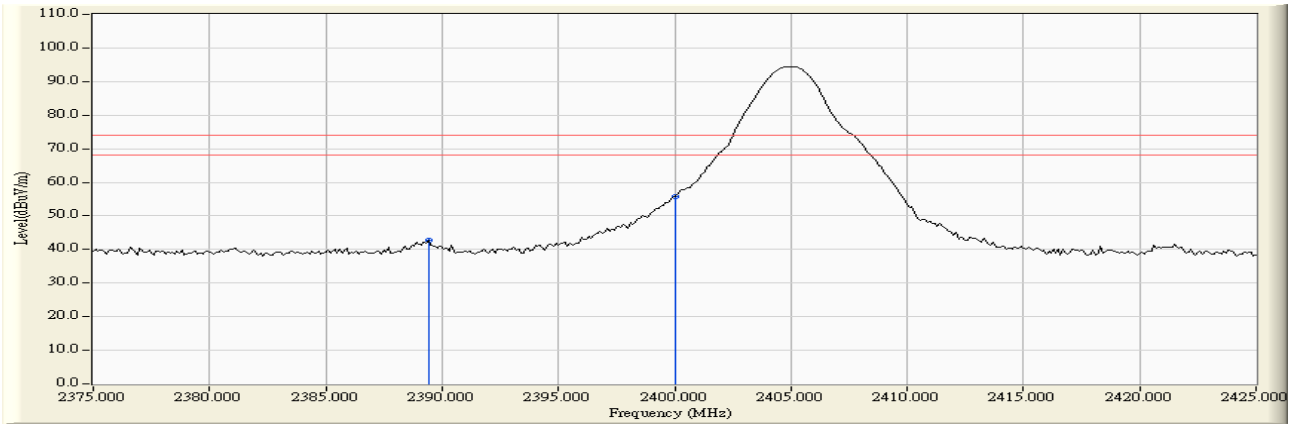
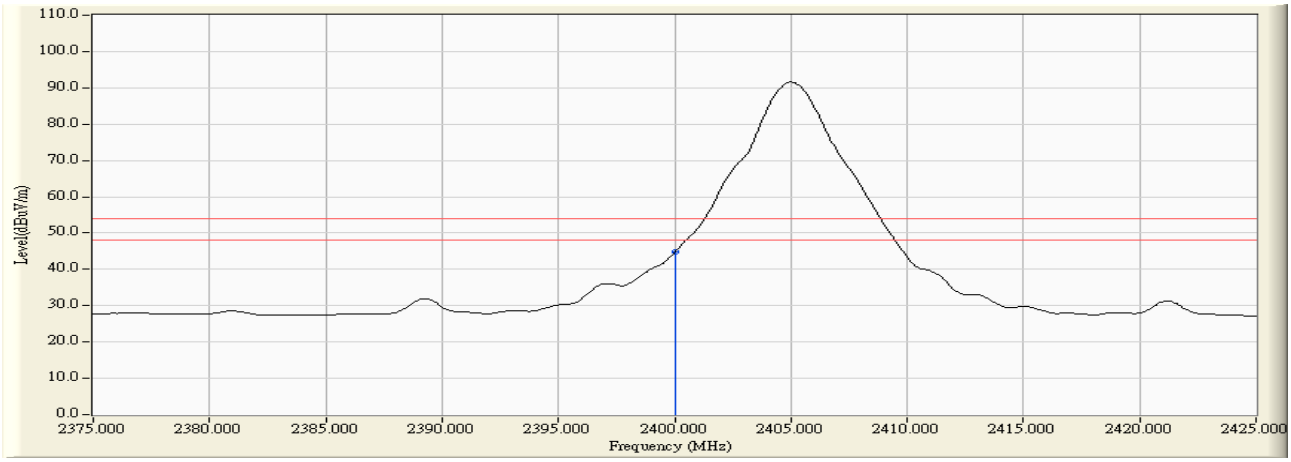


Figure Channel 02: Horizontal (Average)



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.

Product : Professional Stereo Digital Wireless Audio Dongles (Receiver)
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)	2389.200	1.932	42.207	44.139	74.000	54.000	Pass
02(Peak)	2400.000	1.949	55.334	57.284	74.000	54.000	Pass
02(Average)	2400.000	1.949	43.632	45.582	74.000	54.000	Pass

Figure Channel 02: Vertical (Peak)

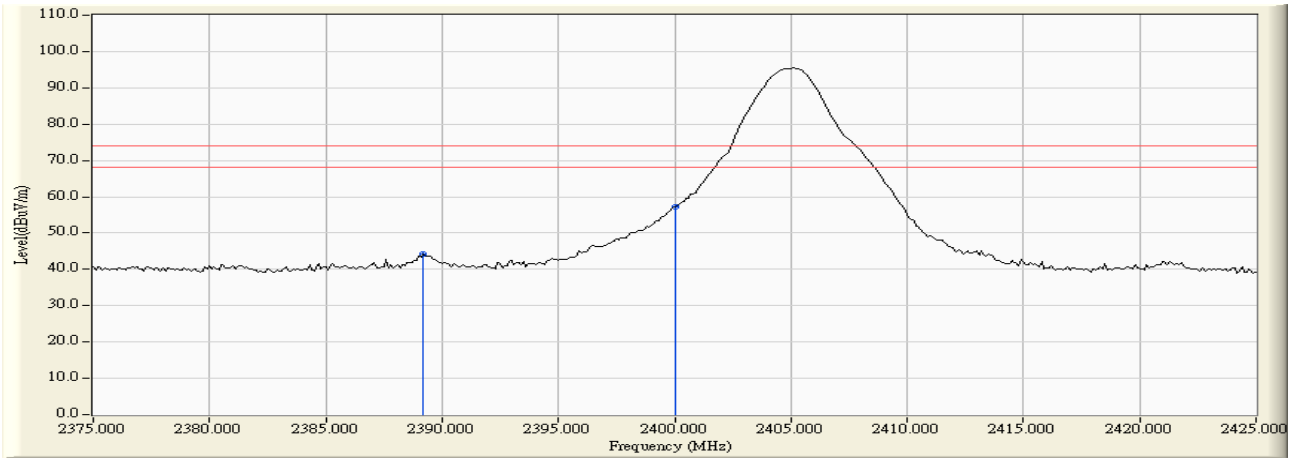
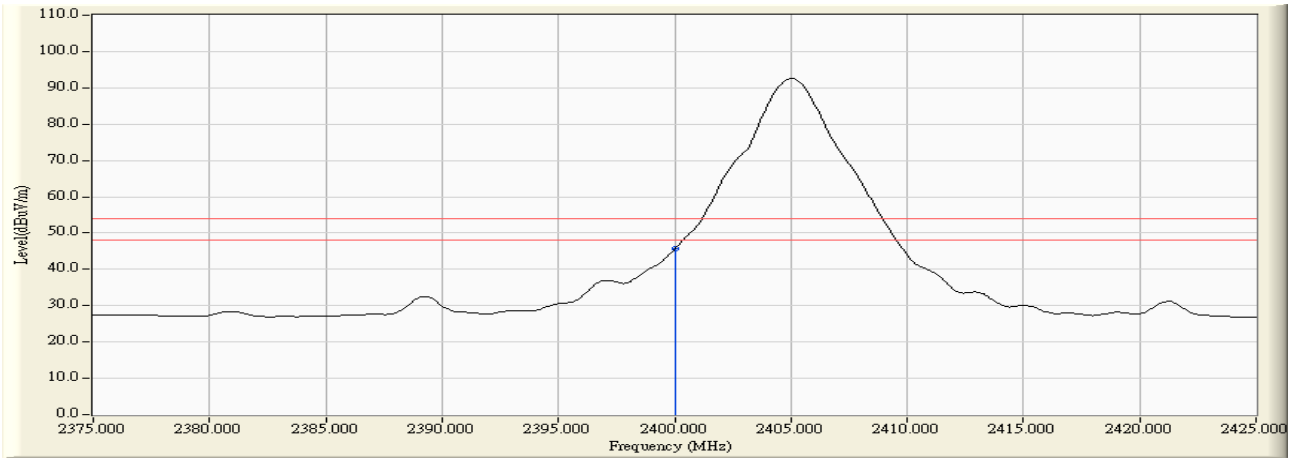


Figure Channel 02: Vertical (Average)



Note:

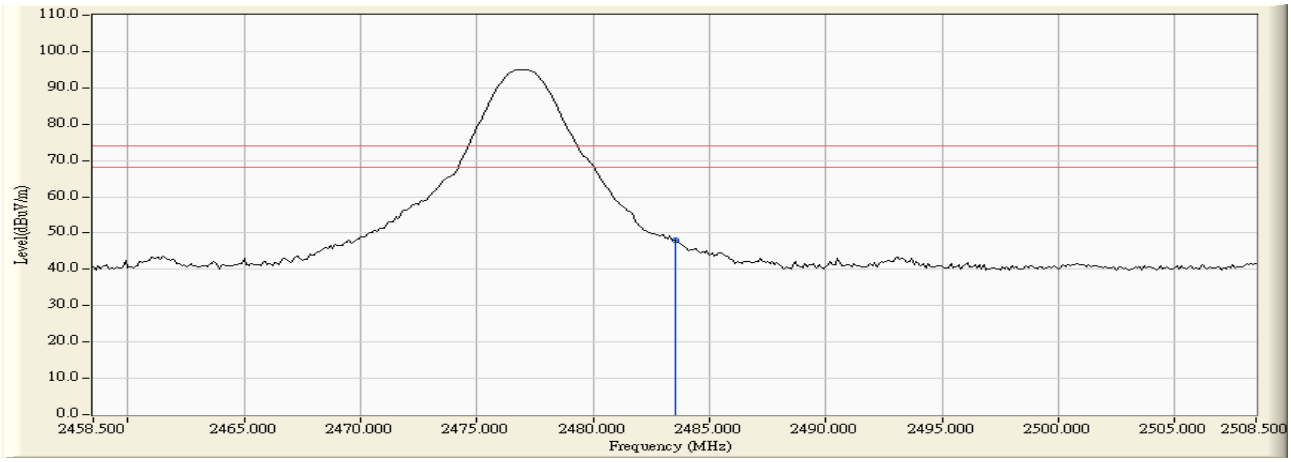
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Professional Stereo Digital Wireless Audio Dongles (Receiver)
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)	2483.500	3.077	44.872	47.949	74.000	54.000	Pass
38(Average)	--	--	--	--	74.000	54.000	Pass

Figure Channel 38: Horizontal (Peak)



Note:

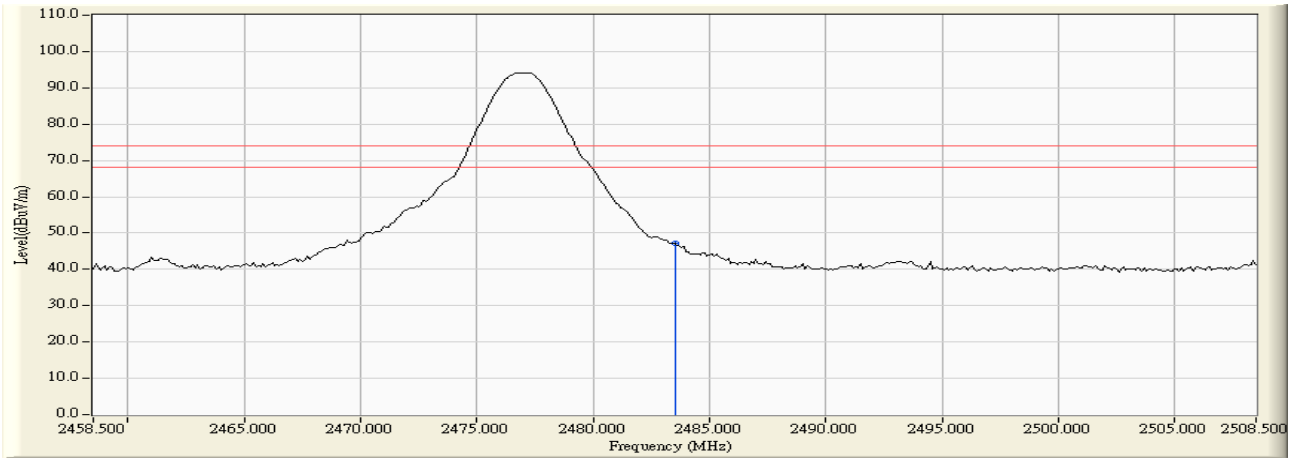
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Professional Stereo Digital Wireless Audio Dongles (Receiver)
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)	2483.500	2.554	44.696	47.249	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.