



Product Name	Wireless Music System
Model No	Z2
FCC ID.	PPQ-Z2

Applicant	Lite-On Technology Corp.	
Address	4F,90,Chien 1 Road,Chung-Ho,Taipei Hsien	
	235, Taiwan, R.O.C.	

Date of Receipt	Jun, 06, 2012
Issue Date	Jun. 27, 2012
Report No.	126164R-RFUSP42V01
Report Version	V1.0



The test results relate only to the samples tested.

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Test Report Certification

Issue Date: Jun. 27, 2012 Report No.: 126164R-RFUSP42V01



Product Name	Wireless Music System		
Applicant	Lite-On Technology Corp.		
Address	4F,90,Chien 1 Road,Chung-Ho,Taipei Hsien 235,Taiwan,R.O.C.		
Manufacturer	DONG GUAN G-COM COMPUTER CO., LTD		
Model No.	Z2		
FCC ID.	PPQ-Z2		
EUT Rated Voltage	AC 100-240V, 50/60Hz		
EUT Test Voltage	AC 120V/60Hz		
Trade Name	Bowers & Wilkins		
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2010		
	ANSI C63.4: 2003		
Test Result	Complied		

The test results relate only to the samples tested.

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- Attachment 1: EUT Test Photographs
- Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Wireless Music System	
Trade Name	Bowers & Wilkins	
Model No.	Z2	
FCC ID.	PPQ-Z2	
Frequency Range	2412-2462MHz for 802.11b/g	
Number of Channels	802.11b/g: 11	
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps	
Type of Modulation 802.11b:DSSS (DBPSK, DQPSK, CCK)		
	802.11g:OFDM (BPSK, QPSK, 16QAM, 64QAM)	
Antenna Type	PIFA Antenna	
Antenna Gain	Refer to the table "Antenna List"	
Channel Control	Auto	
Power Cord	Non-Shielded, 1m	
Power Adapter	MFR: Bowers & Wilkins, M/N: SSA-60W-12 160300	
	Input: AC100-240V, 50/60Hz, 1.5A	
	Output: DC 16V, 3A	
	Cable Out: Non-shielded, 1.8m, with one ferrite core bonded.	

Antenna List

No.	Manufacturer	Model No.	Peak Gain
1	MAG.LAYERS	MSA-3810-2G4C1-A26	6.42 dBi for 2.4GHz
		MSA-3810-2G4C1-A27	

Note: The antenna of EUT is conform to FCC 15.203.

802.11b/g Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

- 1. The EUT is a Wireless Music System with a built-in 2.4GHz WLAN transceiver.
- 2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)

1.3. Tested System Details

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

Pro	duct	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	РРТ	N/A	Non-Shielded, 0.8m
2	Modem	ACEEX	DM-1414	0102027553	Non-Shielded, 1.8m
3	Microphone &	PCHOME	N/A	N/A	N/A
	Earphone				
4	DVD	DELL	PDO1S	N/A	N/A
5	Test Fixture	Lite-On	N/A	N/A	N/A
6	IPod nano	Apple	A1199	YM709RBUVQ5	N/A
7	Monitor	N/A	N/A	N/A	Non-Shielded, 1.8m

	Signal Cable Type	Signal cable Description
Α	Modem Cable	Shielded, 1.5m
В	Microphone & Earphone Cable	Non-Shielded, 2.0m
C	DVD Cable	Shielded, 0.5m
D	USB Cable	Non-Shielded, 1.0m
Е	Test Fixture Cable	Non-Shielded, 1.5m
F	VGA Cable	Shielded, 1.8m, with two ferrite cores bonded.

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in section 1.4.
- (2) Execute "HyperTerminal.exe" on the notebook.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Start the continuous transmission.
- (5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

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

The related certificate for our laboratories about the test site and management system can be downloaded from

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

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, Ruishukeng,						
	Linkou Dist. New Taipei City 24451,						
	Taiwan, R.O.C.						
	TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789						
	E-Mail : <u>service@quietek.com</u>						

FCC Accreditation Number: TW1014

2. Conducted Emission

2.1. Test Equipment

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

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2012	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2012	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2012	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2012	
5	No.1 Shielded Roor	n		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	Limits							
MHz	QP	AVG						
0.15 - 0.50	66-56	56-46						
0.50-5.0	56	46						
5.0 - 30	60	50						

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

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

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product	:	Wireless Music System
Test Item	:	Conducted Emission Test
Power Line	:	Line 1
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.224	9.670	23.520	33.190	-30.696	63.886
0.353	9.640	18.110	27.750	-32.450	60.200
0.947	9.670	4.530	14.200	-41.800	56.000
15.908	9.870	11.940	21.810	-38.190	60.000
18.244	9.890	11.920	21.810	-38.190	60.000
23.998	9.950	21.960	31.910	-28.090	60.000
Average					
0.224	9.670	23.250	32.920	-20.966	53.886
0.353	9.640	14.450	24.090	-26.110	50.200
0.947	9.670	-0.380	9.290	-36.710	46.000
15.908	9.870	8.370	18.240	-31.760	50.000
18.244	9.890	6.550	16.440	-33.560	50.000
23.998	9.950	20.590	30.540	-19.460	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 Music System											
Test Item	: Conducted Emission Test											
Power Line	: Line 2	: Line 2										
Test Mode	: Mode 2: Transmit (802.11g 6Mbps) (2437MHz)											
Frequency	Correct	Reading	Measurement	Margin	Limit							
	Factor	Level	Level									
MHz	dB	dBuV	dBuV	dB	dBuV							
Line 2												
Quasi-Peak												
0.224	9.670	23.460	33.130	-30.756	63.886							
0.357	9.650	18.680	28.330	-31.756	60.086							
0.451	9.650	10.270	19.920	-37.480	57.400							
5.896	9.740	6.320	16.060	-43.940	60.000							
11.216	9.880	4.770	14.650	-45.350	60.000							
23.998	10.160	23.320	33.480	-26.520	60.000							
Average												
0.224	9.670	23.150	32.820	-21.066	53.886							
0.357	9.650	11.650	21.300	-28.786	50.086							
0.451	9.650	8.320	17.970	-29.430	47.400							
5.896	9.740	-1.590	8.150	-41.850	50.000							
11.216	9.880	-0.170	9.710	-40.290	50.000							
23.998	10.160	17.010	27.170	-22.830	50.000							

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

_

3. Peak Power Output

3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Х	Power Meter	Anritsu	ML2495A/6K00003357	May, 2012
Х	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2012
Note:				
1.	All equipments are ca	librated with trace	eable calibrations. Each calibra	tion is traceable to the
	national or internation	nal standards.		

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

3.2. Test Setup



3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Test Procedure

The EUT was tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Peak Power Output

Product	:	Wireless Music System
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency	For d	Average ifferent Da	e Power ata Rate (N	/lbps)	Peak Power	Required	Result
Channel No ((MHz)	1	2	5.5	11	1	Limit	
			Measur					
01	2412	18.7				21.02	<29.58dBm	Pass
06	2437	18.81	18.75	18.61	18.54	21.03	<29.58dBm	Pass
11	2462	15.97				18.48	<29.58dBm	Pass

Note: 1. Peak Power Output Value =Reading value on power meter + cable loss

2. The maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Product	:	Wireless Music System
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

	Average PowerPeakFor different Data Rate (Mbps)Power								Dequired			
Channel No	(MHz)	6	9	12	18	24	36	48	54	6	Limit	Result
			Measurement Level (dBm)									
01	2412	13.31	-							22.54	<29.58dBm	Pass
06	2437	13.32	13.24	13.17	13.06	12.95	12.81	12.75	12.67	22.59	<29.58dBm	Pass
11	2462	13.48								22.61	<29.58dBm	Pass

Note: 1. Peak Power Output Value = Reading value on power meter + cable loss

2. The maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4. Radiated Emission

4.1. Test Equipment

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

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	Х	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
	Х	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2011
	Х	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2011
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
	Х	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2012
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	Χ	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

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

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

4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits						
Frequency MHz	uV/m@3m	dBuV/m@3m				
30-88	100	40				
88-216	150	43.5				
216-960	200	46				
Above 960	500	54				

Remarks: E field strength $(dBuV/m) = 20 \log E$ field strength (uV/m)

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement. The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The worst radiated emission is measured in the Open Area Test Site on the Final Measurement. The frequency range from 30MHz to 10th harminics is checked.

4.5. Uncertainty

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

4.6. Test Result of Radiated Emission

Product	:	Wireless Music System
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	0.428	45.970	46.399	-27.601	74.000
7236.000	7.177	39.640	46.817	-27.183	74.000
9648.000	8.019	40.600	48.620	-25.380	74.000
Average Detector:					
Vertical					
Peak Detector:					
4824.000	0.836	45.060	45.897	-28.103	74.000
7236.000	7.676	39.320	46.996	-27.004	74.000
9648.000	8.556	44.870	53.427	-20.573	74.000

Average Detector:

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- 1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: Wireless Music System						
Test Item	: Harmonic Radiated Emission Data						
Test Site	: No.3 OA	ATS					
Test Mode	: Mode 1:	Transmit (802.11	lb 1Mbps) (2437 MH	z)			
					.		
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal							
Peak Detector:							
4874.000	0.076	44.570	44.647	-29.353	74.000		
7311.000	7.512	38.790	46.302	-27.698	74.000		
9748.000	7.630	44.240	51.870	-22.130	74.000		
Average Detector:							
Vertical							
Peak Detector:							
4874.000	0.532	44.080	44.612	-29.388	74.000		
7311.000	8.089	39.770	47.859	-26.141	74.000		
9748.000	8.266	43.890	52.157	-21.843	74.000		

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- 1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: Wireless Music System						
Test Item	: Harmonic Radiated Emission Data						
Test Site	: No.3 OATS						
Test Mode	: Mode 1:	Transmit (802.11	b 1Mbps) (2462 MH	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal							
Peak Detector:							
4924.000	0.191	42.390	42.581	-31.419	74.000		
7386.000	8.373	38.300	46.674	-27.326	74.000		
9848.000	7.964	44.030	51.994	-22.006	74.000		
Average Detector:							
Vertical							
Peak Detector:							
4924.000	0.805	42.160	42.965	-31.035	74.000		
7386.000	9.180	38.380	47.560	-26.440	74.000		
9848.000	8.801	40.670	49.471	-24.529	74.000		

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- 1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: Wireless Music System						
Test Item	: Harmonic Radiated Emission Data						
Test Site	: No.3 OATS						
Test Mode	: Mode 2:	Transmit (802.11	g 6Mbps) (2412MHz	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal							
Peak Detector:							
4824.000	0.428	41.100	41.529	-32.471	74.000		
7236.000	7.177	38.570	45.747	-28.253	74.000		
9648.000	8.019	39.310	47.330	-26.670	74.000		
Assess Data dama							
Average Detector:							
Vertical							
Peak Detector:							
4824.000	0.836	40.110	40.947	-33.053	74.000		
7236.000	7.676	38.760	46.436	-27.564	74.000		
9648.000	8.556	38.710	47.267	-26.733	74.000		

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- 1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: Wireless Music System						
Test Item	: Harmonic Radiated Emission Data						
Test Site	: No.3 OATS						
Test Mode	: Mode 2:	Transmit (802.11	lg 6Mbps) (2437 MH	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal							
Peak Detector:							
4874.000	0.076	40.820	40.897	-33.103	74.000		
7311.000	7.512	38.190	45.702	-28.298	74.000		
9748.000	7.630	38.370	46.000	-28.000	74.000		
Average Detector:							
Peak Detector:							
4874.000	0.532	40.180	40.712	-33.288	74.000		
7311.000	8.089	38.120	46.209	-27.791	74.000		
9748.000	8.266	38.220	46.487	-27.513	74.000		

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- 1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	t : Wireless Music System						
Test Item	Item : Harmonic Radiated Emission Data						
Test Site	: No.3 OA	ATS					
Test Mode	: Mode 2:	Transmit (802.11	lg 6Mbps) (2462 MH	z)			
Fraguanay	Corrot	Dooding	Maguramant	Morgin	Limit		
Frequency	Contect	Keauling	Measurement	Margin	Lillint		
	Factor	Level	Level				
MHz	dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal							
Peak Detector:							
4924.000	0.191	40.380	40.571	-33.429	74.000		
7386.000	8.373	38.160	46.534	-27.466	74.000		
9848.000	7.964	38.880	46.844	-27.156	74.000		
Average Detector:							
Vertical							
Peak Detector:							
4924.000	0.805	40.630	41.435	-32.565	74.000		
7386.000	9.180	38.000	47.180	-26.820	74.000		
9848.000	8.801	40.140	48.941	-25.059	74.000		

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- 1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: Wireless Music System						
Test Item	: General Radiated Emission Data						
Test Site	: No.3 OATS						
Test Mode	: Mode 1	: Transmit (802.11	b 1Mbps)(2437 MHz	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal							
119.240	-7.291	38.658	31.368	-12.132	43.500		
202.660	-10.183	49.479	39.297	-4.203	43.500		
353.980	-1.274	42.681	41.407	-4.593	46.000		
483.960	1.462	41.152	42.614	-3.386	46.000		
747.800	3.915	33.345	37.260	-8.740	46.000		
885.540	6.542	32.980	39.522	-6.478	46.000		
Vertical							
125.060	-3.725	37.814	34.089	-9.411	43.500		
313.240	-4.090	44.128	40.038	-5.962	46.000		
441.280	-6.836	37.814	30.978	-15.022	46.000		
528.580	1.164	33.848	35.012	-10.988	46.000		
800.180	2.637	32.223	34.860	-11.140	46.000		
930.160	3.830	28.489	32.319	-13.681	46.000		

- 1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: Wireless Music System					
Test Item	: General Radiated Emission Data					
Test Site	: No.3 OATS					
Test Mode	: Mode 2	: Transmit (802.11	g 6Mbps)(2437 MHz			
			0	,		
Frequency	Correct	Reading	Measurement	Margin	Limit	
	Factor	Level	Level			
MHz	dB	dBuV	dBuV/m	dB	dBuV/m	
Horizontal						
117.300	-7.350	39.031	31.681	-11.819	43.500	
253.100	-5.669	45.475	39.806	-6.194	46.000	
352.040	-1.282	38.866	37.584	-8.416	46.000	
499.480	1.991	35.134	37.124	-8.876	46.000	
608.120	3.925	32.700	36.625	-9.375	46.000	
875.840	5.816	31.078	36.894	-9.106	46.000	
Vertical						
179.380	-0.824	36.918	36.094	-7.406	43.500	
379.200	0.881	31.485	32.366	-13.634	46.000	
499.480	-0.199	32.739	32.539	-13.461	46.000	
608.120	2.175	30.032	32.207	-13.793	46.000	
697.360	0.691	37.629	38.320	-7.680	46.000	
926.280	3.342	28.479	31.821	-14.179	46.000	

- 1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

5. **RF** antenna conducted test

5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

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

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

5.2. Test Setup

RF antenna Conducted Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT was tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

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

5.5. Uncertainty

The measurement uncertainty Conducted is defined as \pm 1.27dB

5.6. Test Result of RF antenna conducted test

Product	:	Wireless Music System
Test Item	:	RF antenna conducted test
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

Channel 01 (2412MHz)

🇊 Agi	ilent Spectru	m Analyzer -	Swept SA						100		
LXI R	L 5			A	.C SE	NSE:INT	Aug Type	ALIGN AUTO	06:57:28 F	M Jun 14, 2012	Frequency
Cen	iter Frec	515.0L	iput: RF PI IF(Z NO: Fast 😱 Gain:Low	Trig: Free Atten: 30	e Run ∣dB	Avg Type	. Log-r wi	TY	PE MWWWWW TP NNNNN	
10 di	B/div R	ef 20.00	dBm		0	0.		Mkr	1 879.2 -58.:	35 MHz 29 dBm	Auto Tune
10.0											Center Freq 515.000000 MHz
0.00											
-10.0			4		2					-13.26 dBm	Start Freq 30.000000 MHz
-20.0			2	1.							Stop Freq
-30.0											1.000000000 GHz
-40.0			0								CF Step 97.000000 MHz Auto Man
-50.0						14 23			♦ ¹		Erog Offect
-6U.O	alaya bari bir yang di katang Mangana katang menangkatang			a kaya ya sa pengan ta ing Maning bara sita sa kutata		in the second	ang syang bar banya kananan Mananan Kata Anta bara da si			and a second	0 Hz
-70.0											
Star #Re	t 30.0 M s BW 10	Hz 0 kHz		#VBW	1.0 MHz			Sweep 9	Stop 1.0 0.0 ms (1	0000 GHz 0001 pts)	
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D Agi	lent Spect	rum Anal	yzer - Sv	wept SA						5.0		
Cen	ter Fre	50 Ω ea 6.5	50000	0000 G	- A	C SE	NSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	06:56:51 P	M Jun 14, 2012 E 1 2 3 4 5 6	Frequency
10 dE	3/div	Ref 20	հոր։ 0.00 d	ut: RF PN IFG BM	IO: Fast 😱 iain:Low	² Trig: Fre Atten: 30	e Run I dB		Mk	r1 2.40 6.	9 1 GHz 74 dBm	Auto Tune
10.0			1									Center Freq 6.50000000 GHz
0.00 -10.0											-13.26 dBm	Start Freq 1.000000000 GHz
-20.0 -30.0												Stop Freq 12.000000000 GHz
-40.0 -50.0			1									CF Step 1.100000000 GHz <u>Auto</u> Man
-60.0	allen och ander som				and a described by	an a	i and a south a				a and the second	Freq Offset 0 Hz
-70.0 Star #Re:	t 1.000 s BW 1	GHz 00 kH	z		#VBW	1.0 MHz			Sweep	Stop 12 1.02 s (1	.000 GHz 0001 pts)	
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D Agi	lent Spectrum	n Analyzer	- Swept SA		10						
LXI RI	L 50	Ω		A	C SE	NSE:INT	A	ALIGN AUTO	06:58:04 F	M Jun 14, 2012	Frequency
Cen	ter Freq	18.50	nnut: RE P		Trig: Fre	e Run	Avgiype	. Log-Pwr	TYP	E MWWWWW	
			IFO	Gain:Low	Atten: 30	dB			Di	TPNNNNN	
								Mkr	1 23.302	2 2 GHz	Auto Tune
10 dE	B/div Re	ef 20.00	dBm						-47.3	30 dBm	
Log											
40.0											Center Freq
10.0				0							18.500000000 GHz
0.00											
0.00											Start Freq
10.0											12.000000000 GHz
-10.0			-							-13.26 dBm	
-20.0											
-20.0											Stop Freq
-30.0											25.00000000 GHz
00.0											
-40 N											CF Step
10.0									≜1		1.300000000 GHz
-50.0								and the second stars	A	dian , will	<u>Auto</u> Man
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-60.0		and the second	Contraction of the second	Control of the second		and the second se	1 free				Freq Offset
											0 Hz
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Star #Pow	τ 12.000 (GHZ		#\/D\M	10 MH-			Swoon	Stop 25	.000 GHz	
#Re:	5 6 10 100	NIIZ		# 4 0 44		11		aweep	1.20 \$ (1	ooo i pisj	
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D Agi	lent Spectr	rum Analyzer	- Swept SA								
Cen	ter Fre	50 Ω q 515.0	00000 MH	AC Z	: SE	NSE:INT	Avg Type	LIGNAUTO	07:07:56 P	M Jun 14, 2012	Frequency
10 di Log	3/div	Ref 20.00	nput: RF P IF dBm	NO: Fast 😱 Gain:Low	Atten: 30	dB		Mkr	1 563.5 -58.0	97 MHz 66 dBm	Auto Tune
10.0							2				Center Freq 515.000000 MHz
0.00 -10.0										-13.72 dBm	Start Freq 30.000000 MHz
-20.0 -30.0											Stop Freq 1.000000000 GHz
-40.0											CF Step 97.000000 MHz <u>Auto</u> Man
-60.0	Ale, fyllener tell			ri ni kryppenski republik i bri k er My mi k den ange sasideren er st	art of the set of the law	1	कृत्युत्स्य क्यां का वर्ष्य , त्या राजी क्यां के 1, व्या क्यां	terrent al traine de la	an a star a s	and the second secon	Freq Offset 0 Hz
-70.0 Star	t 30.0 N	AHz 00 kHz		#\/B)A/	1 0 MHz			Sween 0	Stop 1.0	0000 GHz	
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Channel 06 (2437MHz)

D Agi	ilent Spectrun	n Analyzer -	Swept SA								
Cen	L 50 Iter Freq	Ω 6.5000	00000 GI	م ا Hz	c se]	NSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	07:07:20 F	M Jun 14, 2012 E 1 2 3 4 5 6	Frequency
10 di	B/div Re	In ef 20.00 (put: RF PN IFG d B M	IO: Fast 😱 iain:Low	² Trig: Free Atten: 30	e Run ⊧dB		Mk	r1 2.43	5 5 GHz 28 dBm	Auto Tune
10.0		_ ∳ 1									Center Freq 6.50000000 GHz
0.00 -10.0										-13.72 dBm	Start Freq 1.000000000 GHz
-20.0 -30.0											Stop Freq 12.000000000 GHz
-40.0 -50.0											CF Step 1.100000000 GHz <u>Auto</u> Man
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star #Re	s BW 100	nz) kHz		#VBW	1.0 MHz	111		Sweep	Stop 12 1.02 s (1	.000 GHZ 0001 pts)	
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💴 Agilent Sp	ectrum Analyzer -	Swept SA			15					
Center F	50 Ω Freg 18.500	000000 0	GHz		NSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	07:08:32 P TRAC	M Jun 14, 2012 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref 20.00	put: RF PN IFG	NO: Fast 😱 Gain:Low	7 Trig: Free Atten: 30	dB		Mkr	1 24.582 -47.7	2 7 GHz 74 dBm	Auto Tune
10.0										Center Freq 18.50000000 GHz
-10.0									-13.72 dBm	Start Freq 12.000000000 GHz
-20.0										Stop Freq 25.000000000 GHz
-40.0								and the second	1	CF Step 1.30000000 GHz <u>Auto</u> Man
-60.0							All and the second second			Freq Offset 0 Hz
Start 12. #Res BW	000 GHz / 100 kHz		#VBW	1.0 MHz			Sweep	Stop 25 1.20 s (1	.000 GHz 0001 pts)	

🗊 Ag	ilent Spectru	m Analyzer -	Swept SA								
Cer	ter Fred	οΩ 515.00 Ιπ	0000 MH	Z 10: Fast 😱	.c s∈ Trig: Free	Run	Avg 1	ALIGNAUTO ype: Log-Pwr	08:34:32 F	M Jun 14, 2012 E 1 2 3 4 5 6 PE MWWWWW	Frequency
10 d	B/div R	ef 20.00 (d B m	Gain:Low	Atten: 30	dB		Mkı	1 943.2 -57.	55 MHz 84 dBm	Auto Tune
10.0											Center Free 515.000000 MH:
0.00										-15.55 dBm	Start Free 30.000000 MH
-20.0 -30.0											Stop Fre 1.000000000 GH
-40.0 -50.0											CF Stej 97.000000 MH <u>Auto</u> Ma
-60.0	al de pola de la cara		n an ann i thean an ann an ann an ann an ann an ann an a	nya ing tang ting ting ting ting.		tert i tan a da utalata Yalifuni di kata		NA ANNA 2014 MANDA ANA ANA ANA ANA ANA ANA ANA ANA ANA		1 page of the second second	Freq Offse 0 H
Stai #Re	t 30.0 M s BW 10	Hz 0 kHz		#VBW	1.0 MHz			Sweep 9	Stop 1.0 0.0 ms (1	0000 GHz 0001 pts)	
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Channel 11 (2462MHz)

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	L 5		00000 0	A	.C SE	NSE:INT	Δυσ Τν		08:33:56 F	M Jun 14, 2012	Frequency
Cen	ter Frec	0.5000	nput: RF PI	⊓Z 10: Fast ♀ Gain:Low	Trig: Free Atten: 30	e Run dB	~~y i yi	ve. Log-i wi	TYI	E MWWWWW T P N N N N N	
10 dE	3/div R	ef 20.00	dBm		0			Mk	r1 2.464 4.4	4 1 GHz 45 dBm	Auto Tune
Log											Center Freq
10.0		● ¹		12 							6.50000000 GHz
0.00											Start Fred
-10.0											1.000000000 GHz
			-							-15.55 dBm	
-20.0											Stop Freq
-30.0					5						12.00000000 GHz
-40.0											CF Step
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-30.0			1.4	ي. مەربىيەت	والمرافع ومعالية المرار	ر. او از دیاری می رو مالکار . و	e sale - a le	alar da	Intelligita beause it.	he was a set	
-60.0	Hang internet and in the second				al an an an an an an an An Anna an An Anna an Anna an Anna an Anna Anna Anna Anna Anna Anna Anna Anna Anna Ann				and the second second		Freq Offset 0 Hz
-70.0					2			-			
			4		<i>.</i>						
Star #Re:	t 1.000 C s BW 10	SHZ 0 kHz		#VBW	1.0 MHz			Sweep	Stop 12 1.02 s (1	.000 GHz 0001 pts)	
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LXI RI	50	Ω 40 F00	000000	A	: SEI	VSE:INT	0	ALIGN AUTO	08:35:08 F	M Jun 14, 2012	Frequency
Cen	ter Freq	18.500	OUUUUU (out: RF PI	SHZ NO: Fast 🕠	Trig: Free	Run	Avg Type	: Log-Pwr	TY		
		10000	IFC	Gain:Low	Atten: 30	dB			D	ETIPININININ	Auto Tuno
								Mkr	1 23.07	21 GHz	Auto Tune
10 dE	3/div Re	f 20.00 d	1Bm						-46.	81 dBm	
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10.0											Center Freq
10.0											18.500000000 GHz
0.00											
0.00											Start Fred
10.0											12.000000000 GHz
-10.0										-15.55 dBm	
20.0											
-20.0											Stop Freq
30.0											25.00000000 GHz
-30.0											
-40.0											CF Step
-40.0									≜ ¹		1.30000000 GHz
-50.0								and the		all all here	<u>Auto</u> Man
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											0 Hz
-70.0											
Star #P	t 12.000 C	GHz		40 (DIM					Stop 25	.000 GHz	
#Re	S BW 100	KHZ		#ARM	1.0 WHZ			sweep	1.20 s (1	uuun pts)	
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Product	:	Wireless Music System
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

Channel 01 (2412MHz)

🔎 Agilent Spect	rum Analyzer -	Swept SA								
Center Fre	so Ω eq 515.00	0000 MH	Z AC	Trig: Free	ISE:INT	Avg Type	ALIGNAUTO e: Log-Pwr	09:53:21 P TRAC TYP	M Jun 14, 2012 E 1 2 3 4 5 6 E M WAAAAAAA	Frequency
10 dB/div	Ref 20.00 (d Bm	Gain:Low	Atten: 30	dB		Mkr	1 978.5 -58.≎	63 MHz 88 dBm	Auto Tune
10.0										Center Freq 515.000000 MHz
-10.0										Start Free 30.000000 MHz
-20.0									-24.79 dBm	Stop Fred 1.000000000 GHz
-40.0										CF Step 97.000000 MH <u>Auto</u> Mar
-60.0		a talamat gata salaman yang Palahan ala ari pala matan	en para de la participió d Tamén de la calega de la participió de la p		an a star a s	an an painte	g ar gen een sin 'n opper 'n daar een die gedie die bestel	f og ser sægter skale sin er Letter skale sjoner at er gjoner		Freq Offset 0 Hz
-70.0 Start 30.0 f			#\/D\\/ 1	0.044-			Sween 0	Stop 1.0	0000 GHz	
H start	00 KHZ	D Agil	m v DVV I		NOD32 Antivirus		oweeh a	0.0 ms (1		😼 🕸 🔎 🚺 🖸 9:53 PM 1

D Agi	lent Spec	trum An	alyzer -	Swept SA		10						
Cen	ter Fr	50 Ω ea 6	.5000	00000 G	Hz A	.c s	ENSE:INT	Avg Type	ALIGNAUTO	09:52:45 F	M Jun 14, 2012	Frequency
10 d	B/div	Ref	In; 20.00 (put: RF PI IFC d Bm	NO: Fast 😱 Gain:Low	┘ Trig: Fre Atten: 3	e Run 0 dB		Mk	r1 2.40	9 1 GHz 79 dBm	Auto Tune
Log 10.0												Center Freq 6.50000000 GHz
0.00 -10.0			1									Start Freq 1.000000000 GHz
-20.0 -30.0											-24.79 dBm	Stop Freq 12.000000000 GHz
-40.0 -50.0												CF Step 1.100000000 GHz <u>Auto</u> Man
-60.0		_				an an an an Arbeitea Inne al Ionne an Anna a	h pinanan hain hain		**	a fille for a		Freq Offset 0 Hz
-70.0 Star #Re	t 1.000 s BW 1) GHz 100 kl	Ηz		#VBW	1.0 MH:	2		Sweep	Stop 12 1.02 s (1	.000 GHz 0001 pts)	
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🗊 Agi	lent Spectrum	Analyzer -	Swept SA						60		
LXI RI	50	Ω	000000	A	C SEI	VSE:INT	Aug Type	ALIGN AUTO	09:53:58 P	M Jun 14, 2012	Frequency
Cen	ter Freq	18.500 In	DUUUUUU C	JHZ NO: Fast 🕠	Trig: Free	Run	Avg Type	. Log-rwi	TY	E MWWWW	
			IFC	Gain:Low	Atten: 30	dB			Di	TPNNNNN	
								Mkr	1 23.103	3 3 GHz	Auto Tune
10 di	3/div Re	f 20.00	dBm						-47.0	61 dBm	
Log											
10.0											Center Freq
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Cen	ter Fr	50 Ω eq 5	515.00	0000	MHz	2	AC SE	NSE:INT	Avg Type	ALIGNAUTO	10:16:57 P TRAC	M Jun 14, 2012	Frequency
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0.00 -10.0				2									Start Freq 30.000000 MHz
-20.0 -30.0												-24.63 dBm	Stop Freq 1.000000000 GHz
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Channel 06 (2437MHz)

💴 Agilent Spectrum An	alyzer - Swept SA							
Center Freq 6.	500000000 G	Hz .	SENSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	10:16:21 P	M Jun 14, 2012 E 1 2 3 4 5 6	Frequency
10 dB/div Ref 2	Input: RF PI IFC 20.00 dBm	NO: Fast 😱 Trig Gain:Low Atte	: Free Run en: 30 dB		Mk	r1 2.432 -4.0	2 2 GHz 63 dBm	Auto Tune
10.0								Center Freq 6.50000000 GHz
-10.0	1							Start Freq 1.000000000 GHz
-20.0							-24.63 dBm	Stop Freq 12.000000000 GHz
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-60.0			innin (L _{el} (bereau)			and the second		Freq Offset 0 Hz
-70.0 Start 1.000 GHz						Stop 12	.000 GHz	
#Res BW 100 kH	łz	#VBW 1.0	MHz		Sweep STATUS	1.02 s (1	0001 pts)	

D Agi	ent Spectrum	Analyzer - S	Swept SA		5 K.				59.5		
LXI RL	. 50	Ω		β	.C SEM	ISE:INT		ALIGN AUTO	10:17:33 F	M Jun 14, 2012	Frequency
Cen	ter Freq	18.500	000000	GHz	Tria: Free	Run	Avg Type	: Log-Pwr	TRAC	E 1 2 3 4 5 6	requeries
		Inj	put:R⊢ Pr IF0	NU: Fast 🖵 Gain:Low	Atten: 30	dB			Di	PNNNN	
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Star	t 12.000 (GHz							Stop 25	.000 GHz	
#Res	s BW 100	kHz		#VBW	1.0 MHz			Sweep	1.20 s (1	0001 pts)	
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🗊 Agi	lent Spec	trum Analy	zer - Swe	ept SA								
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Log 10.0												Center Freq 515.000000 MHz
0.00 -10.0												Start Freq 30.000000 MHz
-20.0 -30.0											-23.50 dBm	Stop Freq 1.000000000 GHz
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-70.0 Star	t 30.0	MHz								Stop 1.0	0000 GHz	
#Re: MSG	s BW 1	00 kHz mage.pn	g> save	ed	#VBI	N 1.0 MHz			Sweep 9	0.0 ms (1	0001 pts)	

Channel 11 (2462MHz)

D Ag	gilent Spectrur	n Analyzer -	Swept SA								
⊮ ⊯u Cer	nter Freq	6.5000	00000 G	Hz		NSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	10:31:41 F	M Jun 14, 2012	Frequency
10 d	dB/div Re	In ef 20.00	put: RF PI IFC dBm	IO: Fast 😱 Sain:Low	Atten: 30	dB		Mk	r1 2.45	5 3 GHz 50 dBm	Auto Tune
10.0	D										Center Freq 6.50000000 GHz
0.00 -10.0	D	1									Start Freq 1.000000000 GHz
-20.0 -30.0) 									-23.50 dBm	Stop Freq 12.000000000 GHz
-40.0 -50.0											CF Step 1.100000000 GHz <u>Auto</u> Man
-60.0				Maril Harmal Lands	n Jayla] Jawa (Jayla) Marata (Jayla) Marata (Jayla)	aler Barpoloa		A A		hund the state	Freq Offset 0 Hz
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sia #Re	es BW 100) kHz		#VBW	1.0 MHz			Sweep	5.0p 12 1.02 s (1	0000 GHZ	
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D Agi	lent Spectrum	n Analyzer - S	Swept SA								
LXI RL	. 50	Ω		Α	C SEI	VSE:INT		ALIGN AUTO	10:32:53 F	M Jun 14, 2012	Frequency
Cen	ter Freq	18.500	000000 C	SHz	Tria: Free	Run	Avg Type	: Log-Pwr	TRAC	E 1 2 3 4 5 6	requeriey
		In	DUC: RF PT	io: Fast 🖵	Atten: 30	dB			Di	PNNNN	
Mkr1 24 708 8 GHz											
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											Start Freq
-10.0											12.00000000 GHZ
-20.0						-	-			22.60 dBm	Oton From
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-30.0											25.000000000 GHz
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-40.0										1	1.30000000 GHz
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6. Band Edge

6.1. Test Equipment

RF Conducted Measurement

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

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

Note:

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

RF Radiated Measurement:

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

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2011
	Х	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2011
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2012
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	Χ	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note:

1. All instruments are calibrated every one year.

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

6.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

6.5. Uncertainty

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

6.6. Test Result of Band Edge

Product	:	Wireless Music System
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Dogult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2386.000	31.736	29.904	61.640	74.00	54.00	Pass
01 (Peak)	2390.000	31.739	28.531	60.270	74.00	54.00	Pass
01 (Peak)	2413.000	31.775	77.572	109.346			Pass
01 (Average)	2386.200	31.735	21.264	53.000	74.00	54.00	Pass
01 (Average)	2390.000	31.739	19.270	51.009	74.00	54.00	Pass
01 (Average)	2411.200	31.770	73.476	105.246			Pass



Horizontal (Peak)





Horizontal (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3MHz, 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 Music System
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (VERTICAL):

	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Dogult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2390.000	30.267	28.213	58.480	74.00	54.00	Pass
01 (Peak)	2411.000	30.244	75.140	105.384			Pass
01 (Average)	2386.600	30.291	20.035	50.326	74.00	54.00	Pass
01 (Average)	2390.000	30.267	18.379	48.646	74.00	54.00	Pass
01 (Average)	2411.200	30.245	71.481	101.726			Pass

Figure Channel 01:

VERTICAL (Peak)





VERTICAL (Average)



- 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 Music System
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Dogult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2460.900	31.890	75.167	107.057			Pass
11 (Peak)	2483.500	31.951	25.898	57.848	74.00	54.00	Pass
11 (Peak)	2488.300	31.962	27.137	59.099	74.00	54.00	Pass
11 (Peak)	2511.700	31.905	28.019	59.923	74.00	54.00	Pass
11 (Average)	2461.100	31.890	71.513	103.403			Pass
11 (Average)	2483.500	31.951	15.129	47.079	74.00	54.00	Pass
11 (Average)	2488.100	31.962	17.303	49.265	74.00	54.00	Pass
11 (Average)	2511.900	31.903	19.393	51.296	74.00	54.00	Pass



Horizontal (Peak)



Figure Channel 11:

Horizontal (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3MHz, 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 Music System
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (VERTICAL):

	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Dogult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2460.900	30.476	70.841	101.316			Pass
11 (Peak)	2483.500	30.586	24.411	54.996	74.00	54.00	Pass
11 (Peak)	2512.100	30.723	27.080	57.804	74.00	54.00	Pass
11 (Average)	2461.100	30.476	67.188	97.664			Pass
11 (Average)	2483.500	30.586	13.862	44.447	74.00	54.00	Pass
11 (Average)	2487.700	30.605	15.265	45.870	74.00	54.00	Pass
11 (Average)	2512.100	30.723	15.986	46.710	74.00	54.00	Pass

Figure Channel 11:

VERTICAL (Peak)



Figure Channel 11:

VERTICAL (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3MHz, 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 Music System
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Horizontal):

	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Dogult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2388.800	31.738	35.232	66.970	74.00	54.00	Pass
01 (Peak)	2390.000	31.739	33.528	65.267	74.00	54.00	Pass
01 (Peak)	2415.800	31.781	75.987	107.768			Pass
01 (Average)	2350.600	31.724	19.178	50.902	74.00	54.00	Pass
01 (Average)	2390.000	31.739	17.671	49.410	74.00	54.00	Pass
01 (Average)	2410.000	31.768	63.629	95.397			Pass

Figure Channel 01:

Horizontal (Peak)





Horizontal (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3MHz, 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 Music System
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Dogult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2390.000	30.267	33.593	63.860	74.00	54.00	Pass
01 (Peak)	2415.600	30.264	74.516	104.781			Pass
01 (Average)	2390.000	30.267	16.781	47.048	74.00	54.00	Pass
01 (Average)	2409.800	30.244	62.389	92.633			Pass

Figure Channel 01:

VERTICAL (Peak)





VERTICAL (Average)



- 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 Music System
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Degult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2465.500	31.901	76.327	108.229			Pass
11 (Peak)	2483.500	31.951	38.734	70.684	74.00	54.00	Pass
11 (Average)	2459.500	31.886	64.306	96.192			Pass
11 (Average)	2483.500	31.951	21.551	53.501	74.00	54.00	Pass
11 (Average)	2519.100	31.854	21.046	52.900	74.00	54.00	Pass

Figure Channel 11:

Horizontal (Peak)



Figure Channel 11:

Horizontal (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3MHz, 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 Music System
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (VERTICAL):

	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Degult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2465.700	30.498	74.885	105.383			Pass
11 (Peak)	2483.500	30.586	36.128	66.713	74.00	54.00	Pass
11 (Average)	2460.300	30.472	63.079	93.551			Pass
11 (Average)	2483.500	30.586	19.321	49.906	74.00	54.00	Pass

Figure Channel 11:

VERTICAL (Peak)





VERTICAL (Average)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3MHz, 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. Occupied Bandwidth

7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

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.

7.2. Test Setup



7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

7.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements. Set RBW = 1-5% of the emission bandwidth, VBW \geq 3*RBW

7.5. Uncertainty

± 150Hz

7.6. Test Result of Occupied Bandwidth

Product	:	Wireless Music System
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	12700	>500	Pass

Figure Channel 1:

🎵 Agi	lent S	pectru	m Analyzer -	Swept SA						-		
Mar	ker	50 1 2.	າຊ 4126000	000000 G	Hz	AC SE		Avg Typ	ALIGNAUTO e: Log-Pwr	05:45:51 A	M Jun 15, 2012	Marker
_			In	put: RF PI IFC	i0: Fast 🕞 Jain:Low	Atten: 30	dB		Mkr	1 2 4 1 2		Select Marker
10 di	3/div	R	ef 20.00	dBm						8.	74 dBm	
10.0					\wedge^2		↓1 MMMmm	3			2 74 dBm	Norma
0.00					work			Mar Mar				Norma
-10.0					ſ			1	1			
-30.0	[Л	11 Mar	MMIN					4 WAW	What	1 h M	Delta
-40.0	m	tr	V WWW	M					Mª V	1	mil	
-50.0	v										N .	
-70.0												Fixed
Cen	ter 2	2.412	00 GHz							Span 5	0.00 MHz	
#Re	s BV	V 300) kHz		#VBN	1.0 MHz			Sweep	1.00 ms (1001 pts)	Of
MKR 1	MODE	TRC SI		× 2.412 6	0 GHz	¥ 8.74 di	FUN 3m	ICTION F	UNCTION WIDTH	FUNCTIO	IN VALUE	
23	N N	1 f 1 f		2.405 8 2.418 5	5 GHz 5 GHz	2.06 di 2.30 di	3m 3m					
4	_	+										Properties
6	=	_	8									
9	_	_					_					Mor
11	_											1 of 2
MSG									STATUS			

Product	:	Wireless Music System
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	12650	>500	Pass

Figure Channel 6:

🗊 Agi	lent S	ipectr	um /	Analyzer - S	Swept SA								50		
Mar	∟ ker	1 2	50 Ω	368000	00000	GHz	/ /	AC SE	NSE:INT	Avg T	ALI ype: Lo	GNAUTO og-Pwr	05:46:39/ TRA	M Jun 15, 2012 E 1 2 3 4 5 6	Marker
				Inj	put: RF	PNO: FGain	Fast 😱 :Low	Trig: Free Atten: 30	e Run ∣dB						Select Marker
10 di	B/div		Ref	20.00 c	dBm							WKr	1 2.436 9.	80 GHZ 02 dBm	1
10.0							2	www	1	m 2 ³				3.02 dBm	Normal
-10.0						d				U V	2				
-20.0 -30.0	6.46 rf	i notin h	M	um N	N ROMAN	N					1	May ~	My month	S A & JAK T	Delta
-40.0	IFL.	J#₩		No. W	१९ भू। भ	4					N				
-60.0						-				_	_				Fixed⊳
-70.0			T					0 6							6375355555757
Cen #Re	ter 2 s B\	2.43 N 30	700 00 I	0 GHZ kHz			#VBW	1.0 MHz			S	weep	Span 5 1.00 ms (0.00 MHz 1001 pts)	Off
MKR 1	MODE	TRC 1	SCI f		× 2.436	80 G	iHz	¥ 9.02 d	Bm FL	INCTION	FUNCTI	ON WIDTH	FUNCTI	DN VALUE	
23	N N	1	f		2.430 2.443	<u>90 G</u> 55 G	iHz iHz	2.98 d 2.14 d	Bm Bm						Broportion
5	_								_						Properues
- 7 - 8 - 9		_		n 10			0								More
10 11 12															1 of 2
MSG												STATUS			

Product	:	Wireless Music System
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	13200	>500	Pass

Figure Channel 11:

D Agi	ilent S	pectr	um A	nalyzer - S	Swept SA				10				Con		
⊯ Mar	∟ ker	1 2	50 Ω	625000	00000	GHz	z .	ac i s	ENSE:INT	Avg	Type	ALIGNAUTO : Log-Pwr	05:47:40 A TRAC	M Jun 15, 2012 E 1 2 3 4 5 6	Marker
				Inj	put: RF	PNO: IFGair	Fast 🕞 n:Low	Atten: 3	e Run 0 dB			Mkr	1 2 462		Select Marker
10 di	10 dB/div Ref 20.00 dBm 8.28 dBm														
10.0							2 2	www.	1 monor	m 23				2.28 dBm	Normal
-10.0						~	pro v			V *V.	hy				
-20.0 -30.0 -40.0	Д	1 T		\P°¶4∽	V Urby	1					2	h the c	b go bong	ALM MM A	Delta
-50.0 -60.0	u phy	JV - 1	ιų.	<u> </u>										Climatic S.	Fixed⊳
-70.0								-							
Cen #Re	ter : s B\	2.46 N 30	200 00) GHz (Hz			#VBW	1.0 MH	z			Sweep	Span 5 1.00 ms (0.00 MHz 1001 pts)	Off
MKR 1	MODE	TRC 1	SCO. f		× 2.462	2 50 G	Hz	Y 8.28	dBm	FUNCTION	FUN	ICTION WIDTH	FUNCTIO	IN VALUE	
2 3 4 5 6	N N	1	f		2.455	5 40 G 3 60 G	Hz Hz	1.77	dBm dBm						Properties▶
7 8 9 10 11															More 1 of 2
MSG		_	-	<u>.</u>					I			STATUS			

Product	:	Wireless Music System
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	16400	>500	Pass

Figure Channel 1:

🎾 Agilent Sp	ectrum Analyzer	- Swept SA					
w⊥ Marker ′	50 Ω 1 2.409700	000000 GHz		E:INT Avg Type:	ALIGNAUTO 05:44:02 Log-Pwr TR	AM Jun 15, 2012 ACE 1 2 3 4 5 6	Marker
10 dB/div	Ref 20.00	nput: RF PNO: Fast IFGain:Low	Atten: 30 dE	B	Mkr1 2.409 4	70 GHz	Select Marker
10.0 0.00		2	1	annan 3		-1.46 dBm	Normal
-20.0 -30.0 -40.0	Allower and Well Hours	A WARDEN CONTRACT		¥	Landren markene	Muluchan	Delta
-50.0 -60.0 -70.0							Fixed⊳
Center 2 #Res BW	.41200 GHz / 300 kHz 1RC SCL	#VI × 2.409 70 GHz	3W 1.0 MHz Y 4.54 dBn	FUNCTION FUN	Span Sweep 1.00 ms ction width func	50.00 MHz (1001 pts)	Off
2 N 3 N 4 5 6	1 f 1 f	2.403 75 GHz 2.420 15 GHz	-2.02 dBn -1.44 dBn	n			Properties►
7 8 9 10 11 12							More 1 of 2
MSG					STATUS		

Product	:	Wireless Music System
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	16400	>500	Pass

Figure Channel 6:

D Ag	ilent S	Spect	rum	Analyzer	- Swe	pt SA																			
₩ Mar	∟ ker	1	50 £ 2.4	39100	000	0000	Gŀ	łz	4		SEN	Bun		Avg	Туре	ALIGN Log	AUTO Pwr	05)	44:48 TRA TY	AM JU CE 1 PE M	n 15, 20 2 3 4 5	5 6		Marker	
			200 44		Input:	RF	PNC IFGa	D: Fast ain:Lov	v V	Atte	n: 30	dB				ļ	Mkr	1 2.4	439	10	GH	IZ	Se	lect Ma	rker 1►
10 d	B/div	1	Ref	20.00) dB	m													4.	46	aBI	m			_
10.0 0.00									er-ll-	ri	the start	- An	~~~	man	$\sqrt{3}$						<u>-1.54 d</u>	Bm		No	ormal
-10.0 -20.0 -30.0		L de	لمعند	uninha	hum	WW Ball	1	a d'a							N. N. S.	a server	Wrphas	and the second	warth y	Way.	white a		-	į	Delta
-40.0 -50.0 -60.0	MNO																				لمسية	41/-		Fi	xed⊳
Cer #Re	nter s Bi	2.4: N 3	370 100	0 GHz kHz				#V	вw	1.0 N	ЛНz					Swe	ep	Sp 1.00	an : ms i	50.0 (10)	0 MI 01 pt	IZ S)			0.55
MKR 1	MODE N	TRC 1	SCL f			× 2.43	9 10	GHz		¥ 4,4	46 dB	3m	FUNC	CTION	FUI	NCTION	WIDTH		UNCTI	ION V	ALUE				UII
2 3 4 5 6	N	1	f			2.428	8 75 5 15	GHz GHz		-2. -1.	14 dB 34 dB	Sm Sm												Proper	ties►
7 8 9 10 11																								1	More 1 of 2
MSG	-			<u>.</u>											1.:		STATUS								

Product	:	Wireless Music System
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	16350	>500	Pass

Figure Channel 11:

🎵 Agi	ilent S	pectr	um A	nalyzer -	Swept S	Ă														
Mar	∟ ker	1 2	50 Ω 2.46	643000	00000)0 G	Hz	1		NSE:INT	r	Avg T	ype:	LIGN AUT	10 /r	05:43:21 TRA	AM Ju	n 15, 2012 2 3 4 5 (2	Marker
_				In	iput: RF	PI IFC	NO: Fas Gain:Lo	st 🖵 ow	Atten: 30	dB				MI	kr1	2.464	DET P	GHz		Select Marker
10 di	B/div	F	Ref	20.00	dBm											4.	.98	dBm		
10.0 0.00							¢.	2 merri	manna		1	and	3					-1.02 dBm		Normal
-10.0			+			222	N.						La la						╟	
-20.0 -30.0 -40.0	the lat	Winds	1.10	and the second	ahmrigh	Martin								and the second second	Nur	And warding	or Mary	m ^r Mare		Delta
-50.0	-		+										-				-		╟	
-60.0	-		+										-		-		-			Fixed⊳
-70.0			+				2				_		-				-			
Cen #Re	ter 2 s B\	2.46 N 3(200 00 k) GHz (Hz			#\	VBW	1.0 MHz					Sweep	o 1.	Span : 00 ms	50.0 (100	0 MHz)1 pts)		Off
MKR	MODE	TRC	SCL		×	161 7	0.011-		Y 4.09 d	D ma	FUNC	TION	FUN	CTION WID	TH	FUNCT	ION VA	LUE		
2 3 4 5 6	N N	1	f		2.4	464 3 453 8 470 1	0 GHz 0 GHz 5 GHz	Z Z	4.98 d -1.00 d -0.70 d	Bm Bm										Properties►
7 8 9 10 11																				More 1 of 2
MSG			_											STA	TUS					

8. Power Density

8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

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.

8.2. Test Setup



8.3. Limits

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

8.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements. Set RBW= 100 kHz, VBW \geq 300KHz, SPAN to 5-30 % greater than the EBW, Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/100 kHz = -15.2 dB).

8.5. Uncertainty

 \pm 1.27 dB

8.6. Test Result of Power Density

Product	:	Wireless Music System
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-6.910	< 8dBm	Pass

Figure Channel 1:

D Agile	ent Spectrum An	alyzer - Swept S <i>l</i>	Í.							
uxu ∟ Refe	rence Lev	el 4.80 dB	ہ ا	AC SEI	ISE:INT	Avg Type	ALIGNAUTO	05:39:39 A	M Jun 15, 2012 E 1 2 3 4 5 6	Trace/Det
	Ref O	Input: RF	PNO: Fast 🖵 IFGain:Low	Trig: Free Atten: 30	dB	Avg Hold:	>100/100 Mkr	1 2.412	98 GHz	Select Trace
-5.20 -			ALAN	mm	Mr.	mm	ሲለ	-0.0		Clear Write
-15.2 - -25.2 -	www	m			<i>f</i>		V	han		Trace Average
-35.2 -45.2).									Max Hold
-55.2 - -65.2 -										Min Hold
-75.2										View/Blank Trace On
Cent #Res	er 2.41200 BW 100 kl	GHz Hz	#VBW	300 kHz			Sweep	Span 2 1.93 ms (0.00 MHz 1001 pts)	More 1 of 3
MSG							STATUS	6		

Product	:	Wireless Music System
Test Item	:	Power Density Data
Test Site	:	No.3OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	-7.161	< 8dBm	Pass

Figure Channel 6:

Agilent Sp	ectrum Analyzer	- Swept SA								
u⊥ Center F	50 Ω rea 2.4370	000000 G	⊢ _ △ Hz	C SE	NSE:INT	Avg Type	LIGNAUTO	05:40:04 A TRAC	M Jun 15, 2012	Frequency
0 dB/div	Ref Offset - Ref 4.80 c	nput: RF PI IFC I5.2 dB IB M	NO: Fast 😱 Gain:Low	┘ Trig: Free Atten: 30	e Run dB	Avg Hold:	>100/100 Mkr	1 2.438 -7.10	96 GHz 61 dBm	Auto Tun
5.20			in	m	Mr.m	1 March	. And			Center Fre 2.437000000 GH
15.2 25.2	man							-	W N	Start Fre 2.427000000 GF
35.2 45.2										Stop Fre 2.447000000 GH
55.2 55.2										CF Ste 2.000000 M <u>Auto</u> M
75.2 <u> </u>										Freq Offs 0
enter 2. Res BW	43700 GHz 100 kHz		#VBW	300 kHz			Sweep ·	Span 2 1.93 ms (0.00 MHz 1001 pts)	

Product	:	Wireless Music System
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462	-8.107	< 8dBm	Pass

Figure Channel 11:

DAgilent Spec	trum Analyzer -	Swept SA						<u>99</u>		
Center Fr	^{50 Ω} eq 2.4620	00000 GI	A Hz		NSE:INT	Avg Type	ALIGNAUTO	05:40:28 A	M Jun 15, 2012 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset -1 Ref 4.80 di	put: RF PM IFG 5.2 dB Bm	IO: Fast 😱 Sain:Low	Atten: 30	dB	Avginoia:	Mkr	1 2.460 -8.10	96 GHz 07 dBm	Auto Tune
-5.20			የረዲመ ልጥ ጉልሳ	€1	ֈֈֈ	haller as				Center Freq 2.462000000 GHz
-15.2 -25.2	markenthertert				/			MU Mull	hur hul a	Start Freq 2.452000000 GHz
-35.2										Stop Freq 2.472000000 GHz
-55.2										CF Step 2.000000 MHz <u>Auto</u> Man
-75.2										Freq Offset 0 Hz
-05.2 Center 2.4	6200 GHz		5					Span 2	0.00 MHz	
#Res BW	100 kHz		#VBW	300 kHz			Sweep '	1.93 ms (1001 pts)	

Product	:	Wireless Music System
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-13.945	< 8dBm	Pass

Figure Channel 1:

🕅 Agilent Sp	ectrum Analyzer -	Swept SA			12			-		
X L Center F	50 Ω req 2.4120	00000 G	Hz	C SE		Avg Type AvgHold	ALIGNAUTO	05:40:55 A TRAC	M Jun 15, 2012 E 1 2 3 4 5 6	Frequency
10 dB/div	In Ref Offset -1 Ref 4.80 d	put: RF PI IF0 5.2 dB BM	NO: Fast 🖵 Gain:Low	Atten: 30	dB	Grafining.	Mkr	1 2.406 -13.94	96 GHz 15 dBm	Auto Tune
-5.20		↓ 1								Center Fre 2.412000000 GH
-15.2	por the month	mon hour	lwowhn	mm	month	mbranal	www.how	vmmlm	<u>\</u>	Start Fre 2.402000000 G⊦
35.2 45.2 45.2	<u>/</u>								My North	Stop Fre 2.422000000 G⊦
65.2										CF Ste 2.000000 MH <u>Auto</u> Ma
75.2										Freq Offs 0 F
Center 2 #Res BW	41200 GHz 100 kHz		#VBW	300 kHz			Sweep	Span 2 1.93 ms (0.00 MHz 1001 pts)	

Product	:	Wireless Music System
Test Item	:	Power Density Data
Test Site	:	No.3OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	-13.787	< 8dBm	Pass

Figure Channel 6:

Agilent Sp	ectrum Analyzer -	Swept SA		c or	IOT IN IT			05.41.10.4	M 3 - 15 0010	
enter F	req 2.4370	00000 GH	IZ 0: Fast ♀	Trig: Free	Run	Avg Type Avg Hold	=: Log-Pwr >100/100	TRAC TRAC TYF	E 1 2 3 4 5 6 E MWWWW T P N N N N	Frequency
Ref Offset -15.2 dB Mkr1 2.438 24 GHz 0 dB/div Ref 4.80 dBm -13.787 dBm									Auto Tui	
°g 5.20			7		▲1					Center Fr 2.437000000 G
5.2	por towned	wymlwww	tmaratin	m	monto	walnut	maration	Marala	۹ ۱ ۱	Start Fr 2.427000000 G
5.2 ////////	/*								Wy was	Stop Fr 2.447000000 G
5.2										CF St 2.000000 M <u>Auto</u> M
5.2										Freq Off 0
enter 2. Res BW	43700 GHz 100 kHz		#VBW	300 kHz			Sweep	Span 2 1.93 ms (0.00 MHz 1001 pts)	

Product	:	Wireless Music System
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462	-13.850	< 8dBm	Pass

Figure Channel 11:

🎾 Agilent Sp	ectrum Analyzer -	Swept SA								
Center F	^{50 Ω} req 2.4620	00000 GI	Hz	C SEI	NSE:INT	Avg Type	LIGNAUTO	05:41:39 A	M Jun 15, 2012	Frequency
10 dB/div	Ref Offset -16 Ref 4.80 di	out: RF PN IFG 5.2 dB Bm	io: Fast () ain:Low	Atten: 30	dB	Avginoid.	Mkr1	2.464 -13.8	46 GHz 50 dBm	Auto Tune
-5.20			2			≬ 1			·	Center Free 2.462000000 GH
-15.2	mannin	watur	Munn	whown	www.how	nlowww.//	-an turn	Annala	1 1	Start Free 2.452000000 GH
-35.2	<u>^</u>								Allow Allow	Stop Fre 2.472000000 GH
-55.2										CF Ste 2.000000 MH <u>Auto</u> Ma
-75.2										Freq Offse 0 H
Center 2 #Res BW	46200 GHz 100 kHz		#VBW	300 kHz			Sweep 1	Span 2 I.93 ms ('	0.00 MHz 1001 pts)	

9. EMI Reduction Method During Compliance Testing

No modification was made during testing.