

FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

MONITOR AUDIO LTD

Wireless Speaker

Model Number: AirStream WS100

FCC ID: O7VMA191823

Prepared for : MONITOR AUDIO LTD

Unit 2, 24 Brook Road, Rayleigh, Essex England SS6 7XJ
United Kingdom

Prepared By : EST Technology Co., Ltd.

Santun(guantai Road), Houjie Town,
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Report Number: ESTE-R1205004

Date of Test : May.3~18, 2012

Date of Report : May.19, 2012

TABLE OF CONTENTS

Description	Page
TEST REPORT VERIFICATION.....	3
1. GENERAL INFORMATION.....	5
1.1. Description of Device (EUT)	5
2. SUMMARY OF TEST	6
2.1. Summary of test result.....	6
2.2. Test Facilities	7
2.3. Assistant equipment used for test	8
2.4. Block Diagram	8
2.5. Test mode	8
2.6. Test Equipment.....	9
3. MAXIMUM PEAK OUTPUT POWER	10
3.1. Limit	10
3.2. Test Procedure	10
3.3. Test Result	10
3.4. Test Data	11
4. 20 DB BANDWIDTH.....	15
4.1. Limit	15
4.2. Test Procedure	15
4.3. Test Result	15
4.4. Test Data	16
5. CARRIER FREQUENCY SEPARATION	20
5.1. Limit	20
5.2. Test Procedure	20
5.3. Test Result	20
5.4. Test Data	21
6. NUMBER OF HOPPING CHANNEL	25
6.1. Limit	25
6.2. Test Procedure	25
6.3. Test Result	25
6.4. Test Data	26
7. DWELL TIME	28
7.1. Limit	28
7.2. Test Result	28
7.3. Test Data	29
8. RADIATED EMISSIONS.....	31
8.1. Limit	31
8.2. Block Diagram of Test setup.....	32
8.3. Test Procedure	32
8.4. Test Result	32
8.5. Test Data	33
9. BAND EDGE COMPLIANCE	69

9.1. Limit 69

9.2. Block Diagram of Test setup 69

9.3. Test Procedure 69

9.4. Test Result 69

9.5. Test Data 70

10. POWER LINE CONDUCTED EMISSIONS 78

10.1. Limit 78

10.2. Test Procedure 78

11. ANTENNA REQUIREMENTS 83

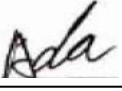
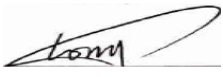
11.1. Limit 83

11.2. Result 83

12. TEST SETUP PHOTO 84

13. PHOTOS OF EUT 86

Test Report Verification

Applicant:	MONITOR AUDIO LTD		
Address:	Unit 2, 24 Brook Road, Rayleigh, Essex England SS6 7XJ United Kingdom		
Manufacturer:	MONITOR AUDIO LTD		
Address:	Unit 2, 24 Brook Road, Rayleigh, Essex England SS6 7XJ United Kingdom		
Factory:	Premium Loudspeakers (Huizhou) Co,Ltd		
Address:	Tymphany Industrial Area, Xin Lian Village, Xin Xu Town, HuiYang District, Huizhou City, GuangDong Province, China.		
E.U.T:	Wireless Speaker		
Model Number:	AirStream WS100		
Power Supply:	DC 20V From Adapter Input AC 120V/60Hz		
Test Voltage:	DC 20V From Adapter Input AC 120V/60Hz Adapter 1: GPE060D-200325D ; Adapter 2: DYS602-200325W		
Trade Name:	MONITOR AUDIO	Serial No.:	-----
Date of Receipt:	March.16.2012	Date of Test:	May.3~18, 2012
Test Specification:	FCC Rules and Regulations Part 15 Subpart C:2011 ANSI C63.4:2003		
Test Result:	The device described above is tested by EST Technology Co., Ltd.. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the ETSI EN FCC Rules and Regulations Part 15 Subpart C requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd. Date:May.20.2012		
Prepared by:	Tested by:	Approved by:	
			
Ada / Assistant	Tony.Tang/ Engineer	IcemanHu / Manager	
Other Aspects:	None.		
Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested			
This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.			

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Product Name	: Wireless Speaker
Model Number	: AirStream WS100
FCC ID	: O7VMA191823
Operation frequency	: 2403.585MHz~2477.313MHz
Number of channel	: 49
Antenna	: Integrated antenna, 2.2 dBi gain
Modulation	: FHSS
Power Supply	: DC 20V From Adapter Input AC 120V/60Hz
Applicant	: MONITOR AUDIO LTD. Unit 2, 24 Brook Road, Rayleigh, Essex England SS6 7XJ United Kingdom
Manufacturer	: MONITOR AUDIO LTD. Unit 2, 24 Brook Road, Rayleigh, Essex England SS6 7XJ United Kingdom
Sample Type	: Prototype production

2. SUMMARY OF TEST

2.1. Summary of test result

Description of Test Item	Standard	Results
Maximum Peak Output Power	FCC Part 15: 15.247(b)(1) DA 00-705	PASS
20dB Bandwidth	FCC Part 15: 15.215 DA 00-705	PASS
Carrier Frequency Separation	FCC Part 15: 15.247(a)(1) DA 00-705	PASS
Number Of Hopping Channel	FCC Part 15: 15.247(a)(1)(iii) DA 00-705	PASS
Dwell Time	FCC Part 15: 15.247(a)(1)(iii) DA 00-705	PASS
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.247(d) ANSI C63.4: 2003 DA 00-705	PASS
Band Edge Compliance	FCC Part 15: 15.247(d) DA 00-705	PASS
Power Line Conducted Emissions	FCC Part 15: 15.207 ANSI C63.4: 2003 DA 00-705	PASS
Power Line Conducted Emissions	FCC Part 15: 15.207 ANSI C63.4: 2003 DA 00-705	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

2.2. Test Facilities

EMC Lab	:	Certificated by CNAL, CHINA Registration No.: L5288 Date of registration: October 28, 2011 Certificated by FCC, USA Registration No.: 989591 Date of registration: December 07, 2010 Certificated by Industry Canada Registration No.: 46405-9405 Date of registration: December 16, 2010 Certificated by VCCI, Japan Registration No.: R-3663 & C-4103 Date of registration: July 25, 2011 Certificated by TUV Rheinland, Germany Registration No.: UA 50195514 0001 Date of registration: January 07, 2011 Certificated by TUV/PS, Shenzhen Registration No.: SCN1017 Date of registration: January 27, 2011 Certificated by Intertek ETL SEMKO Registration No.: 2011-RTL-L1-18 Date of registration: April 28, 2011 Certificated by Siemic, Inc. Registration No.: SLCN021 Date of registration: November 8, 2011 Certificated by Nemko, Hong Kong Registration No.: 175193 Date of registration: May 4, 2011
Name of Firm	:	EST Technology Co., Ltd.
Site Location	:	San Tun Management Zone, Houjie Town, Dongguan, Guangdong, China

2.3. Assistant equipment used for test

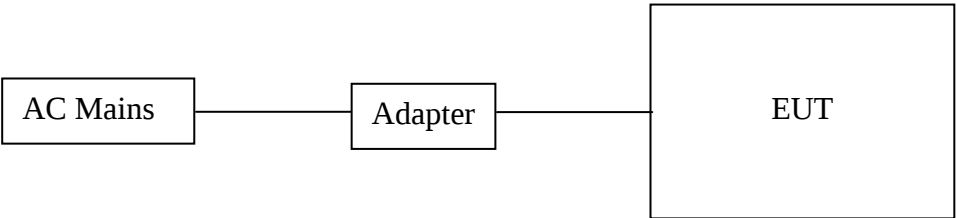
2.3.1. Adapter 1

Manufacturer : GOLDEN PROFIT ELECTRONICS LTD
M/N : GPE060D-200325D

2.3.2. Adapter 2

Manufacturer : DONGGUAN DONGSONG ELECTRONIC CO., LTD
M/N : DYS602-200325W

2.4. Block Diagram



(EUT: Wireless Speaker)

2.5. Test mode

Control EUT work in Continuous TX mode, and select test channel, wireless mode

Mode	Channel	Frequency
FHSS	Low	2403.585MHz
	Middle	2438.913MHz
	High	2477.313MHz

2.6. Test Equipment

2.6.1. For conducted emission test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESHS30	832354	Mar,13,12	1 Year
Artificial Mains Networ	Rohde & Schwarz	ENV216	101260	Mar,13,12	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	101100	Aug,25,11	1 Year

2.6.2. For radiated emission test(30-1000MHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESVS10	100004	Mar,18,12	1 Year
Spectrum Analyzer	Agilent	E4411B	MY50140697	Mar,18,12	1 Year
Bilog Antenna	Teseq	CBL 6111D	25872	June.08,11	1 .5Year
Signal Amplifier	Agilent	310N	187037	Aug,25,11	1 Year

2.6.3. For radiated emission test(above 1000MHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Temperature controller	Terchy	MHQ	120	May.02,12	1 Year
Spectrum Analyzer	Agilent	E4408B	MY44211139	May.02,12	1 Year
Vector Signal Generator	R&S	SMBV100A	1407.6004K02	May.02,12	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Jan.16.11	2 Year
Double Ridged Horn Antenna	R&S	HF907	100268	Jan.16.11	2 Year
Log-periodic Dipole Antenna	R&S	HL223	100435	Jan.16.11	2 Year
Biconical Antenna	R&S	HK116	100431	Jan.16.11	2 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	9163-462	Jan.16.11	2 Year
Pre-amplifier	AH	PAM-0118	10008	May.02,12	1 Year
Pre-amplifier	R&S	SCU-01	10049	May.02,12	1 Year
High Pass filter	Micro	HPM50111	324455	May.02,12	1 Year
RF Cable	Hubersuhner	W10.02	534096	May.02,12	1 Year
RF Cable	Hubersuhner	W10.02	534123	May.02,12	1 Year
RF Cable	Hubersuhner	RG 214/U	513423	May.02,12	1 Year
RF Cable	Hubersuhner	RG 214/U	523455	May.02,12	1 Year

3. MAXIMUM PEAK OUTPUT POWER

3.1. Limit

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

3.2. Test Procedure

The transmitter output (antenna port) was connected to the spectrum analyzer

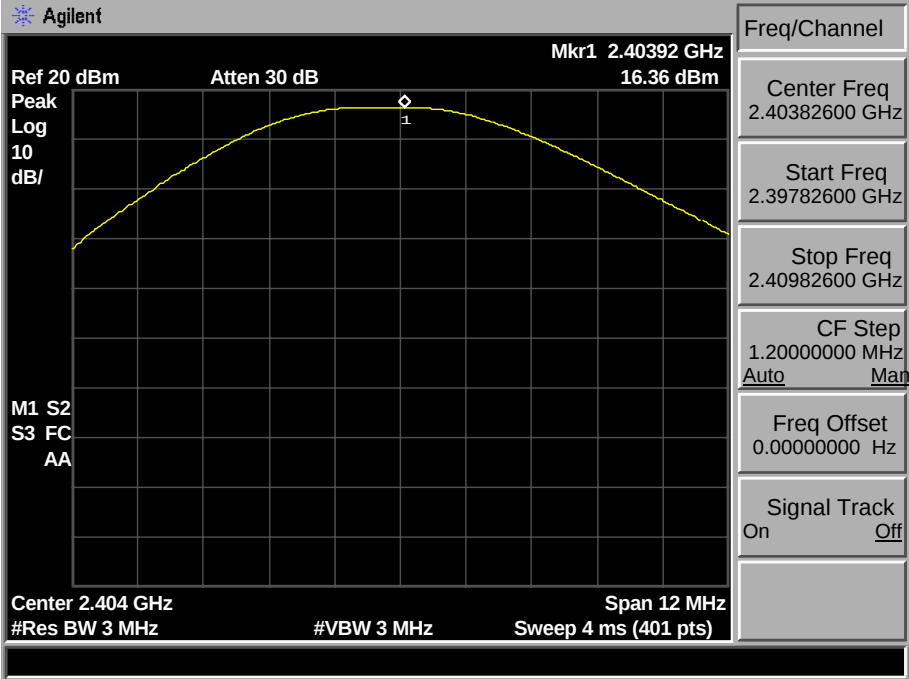
3.3. Test Result

EUT: Wireless Speaker		M/N: AirStream WS100			
Test date: 2012-5-10		Test site: RF site		Tested by: Tony Tang	
Mode	Freq (MHz)	Result (dBm)	Limit		Margin (dB)
			dBm	W	
Power From Adapter 1					
FHSS	2403.585MHz	16.36	21.00	0.125	4.64
	2438.913MHz	16.57	21.00	0.125	4.43
	2477.313MHz	16.21	21.00	0.125	4.79
Power From Adapter 2					
FHSS	2403.585MHz	16.33	21.00	0.125	4.67
	2438.913MHz	16.48	21.00	0.125	4.52
	2477.313MHz	16.20	21.00	0.125	4.80
Conclusion: PASS					

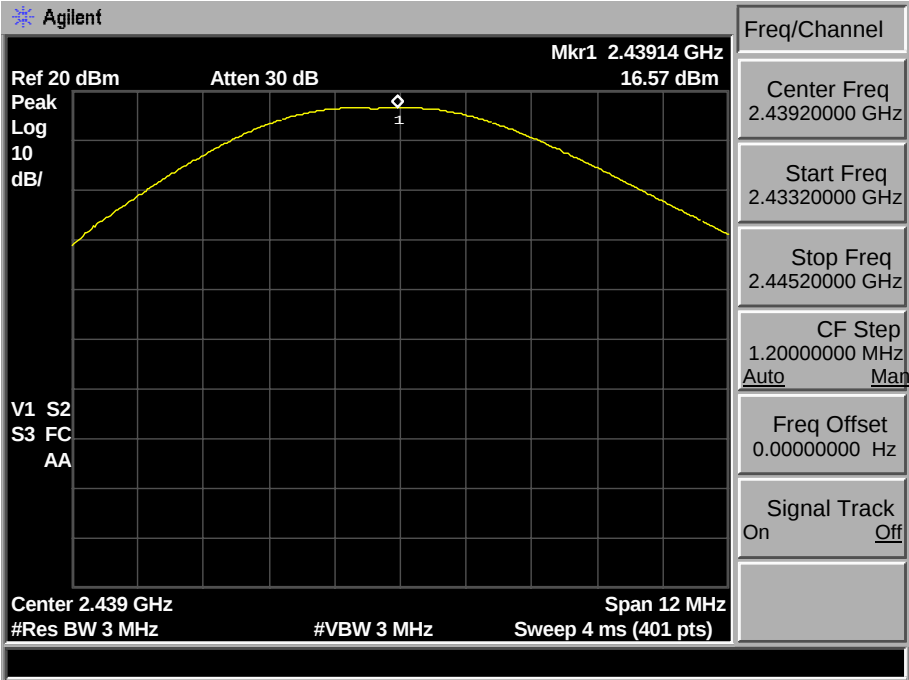
3.4. Test Data

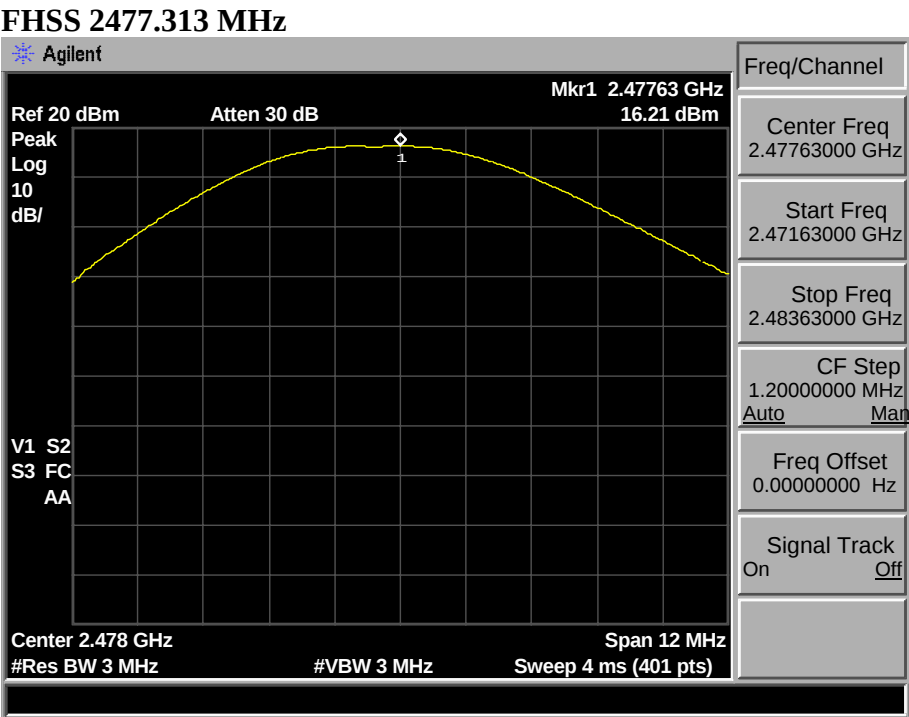
Power Form Adapter 1

FHSS 2403.585 MHz



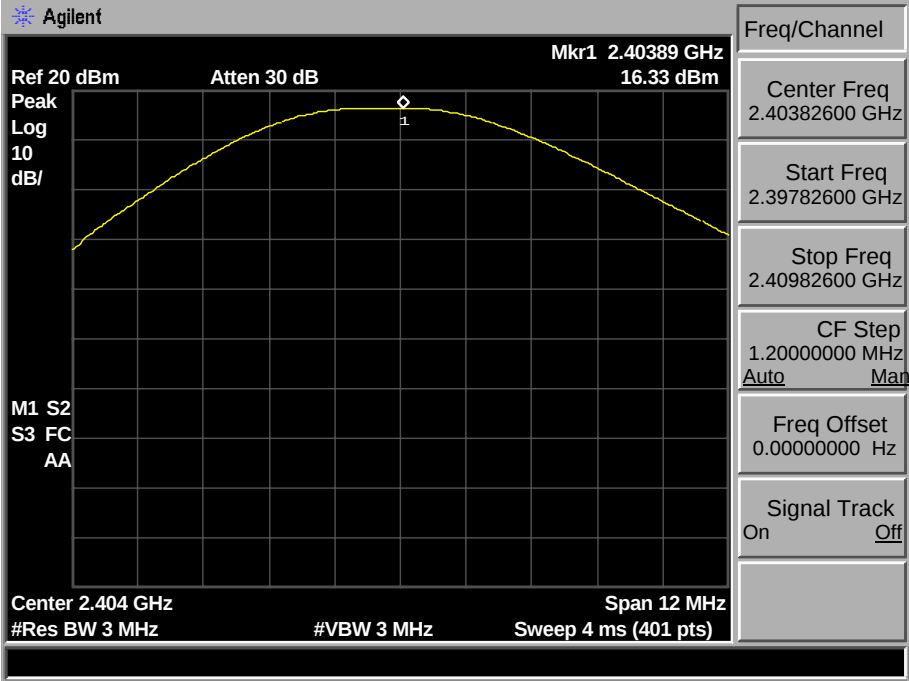
FHSS 2438.913 MHz



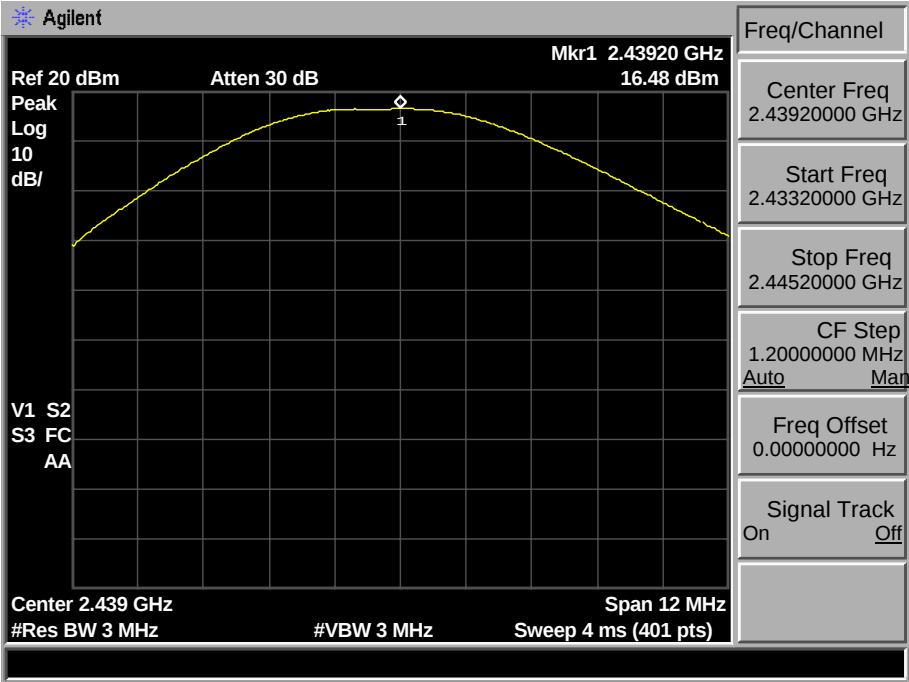


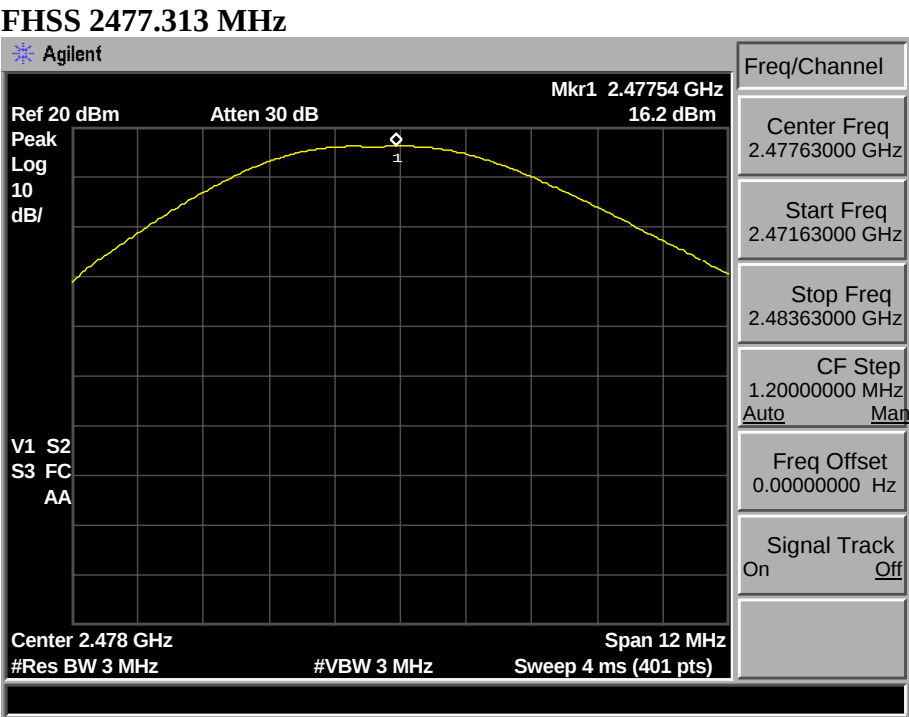
Power From Adapter 2

FHSS 2403.585 MHz



FHSS 2438.913 MHz





4. 20 DB BANDWIDTH

4.1. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

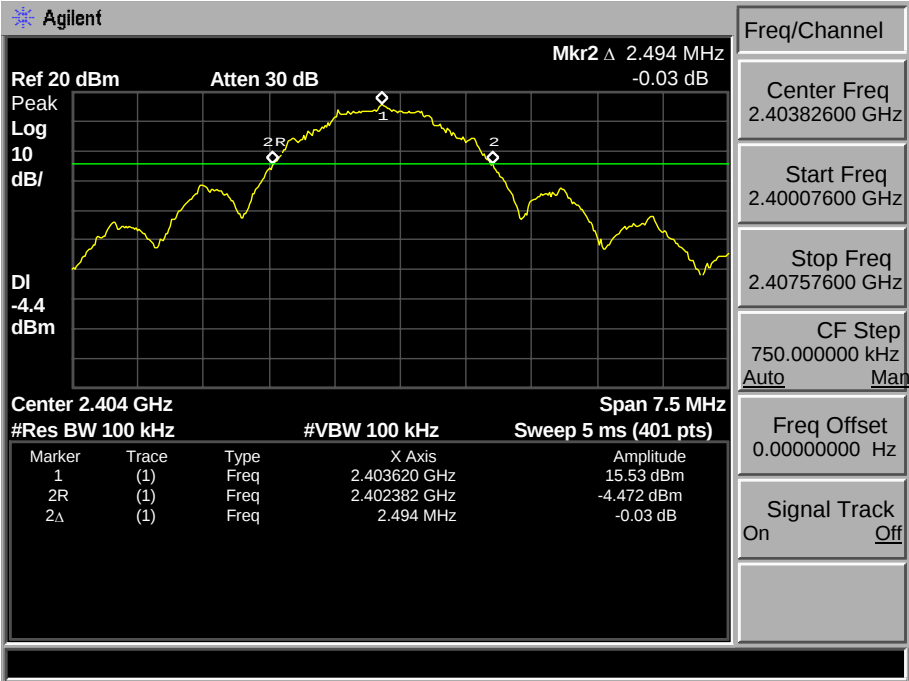
4.3. Test Result

EUT: Wireless Speaker		M/N: AirStream WS100		
Test date: 2012-5-10		Test site: RF site		Tested by: Tony Tang
Mode	Freq (MHz)	20dB Bandwidth (MHz)	Limit (kHz)	Conclusion
Power From Adapter 1				
FHSS	2403.585MHz	2.494	/	PASS
	2438.913MHz	2.531	/	PASS
	2477.313MHz	2.569	/	PASS
Power From Adapter 2				
FHSS	2403.585MHz	2.531	/	PASS
	2438.913MHz	2.550	/	PASS
	2477.313MHz	2.531	/	PASS

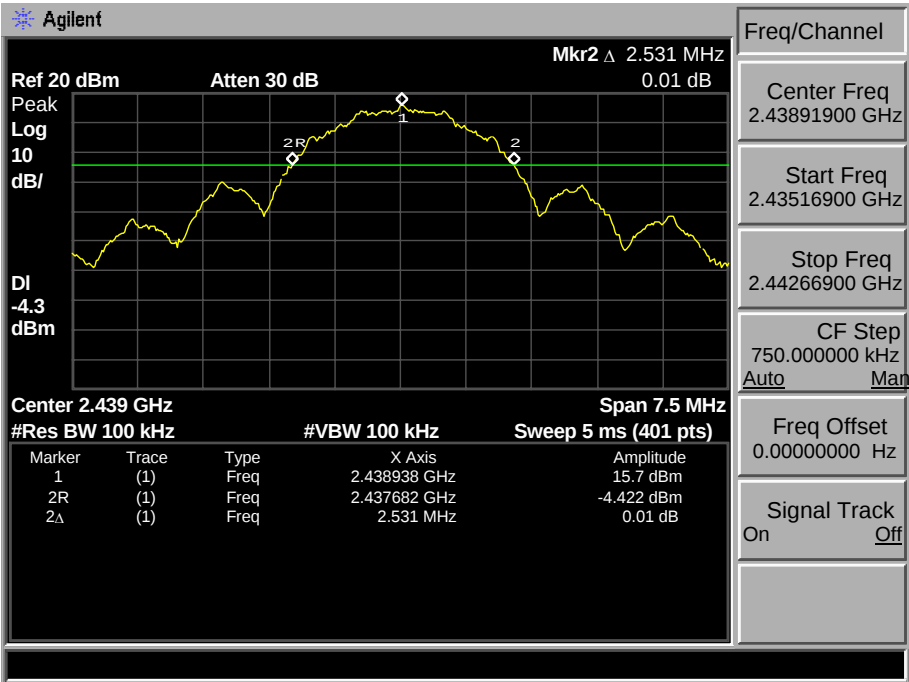
4.4. Test Data

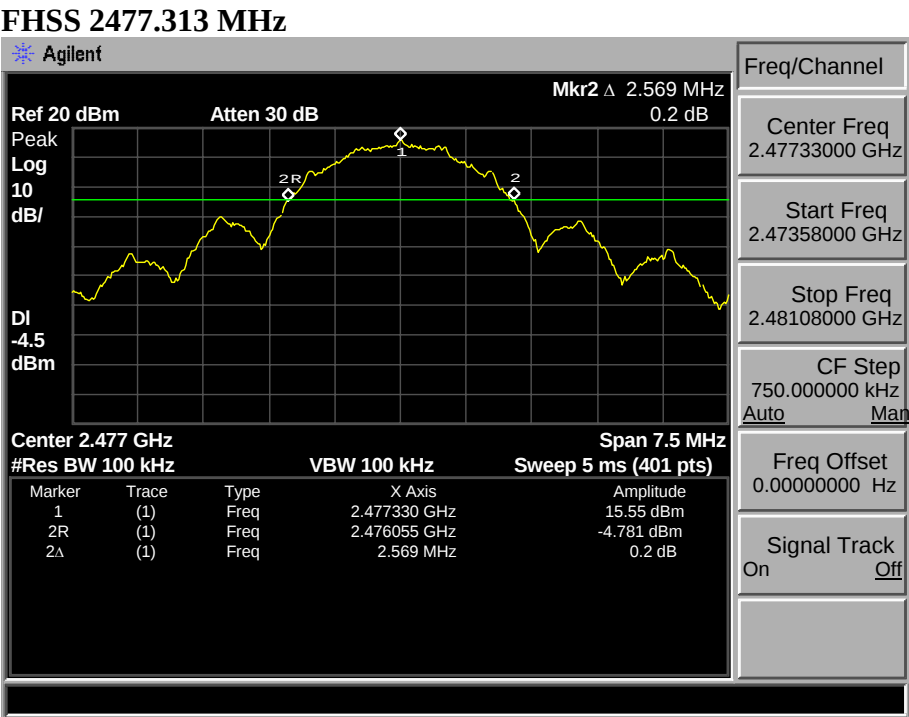
Power Form Adapter 1

FHSS 2403.585 MHz

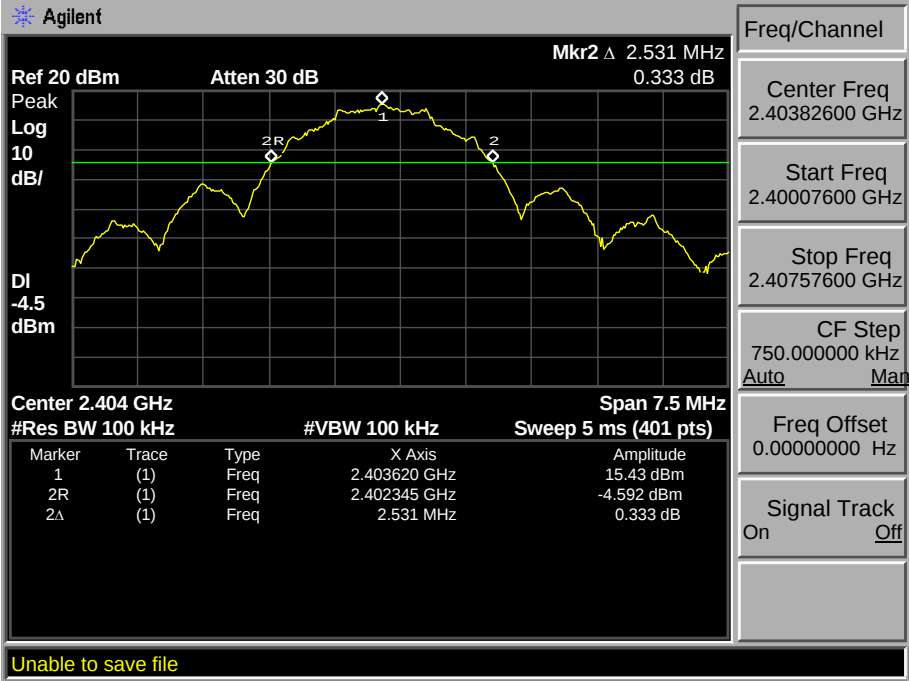


FHSS 2438.913 MHz

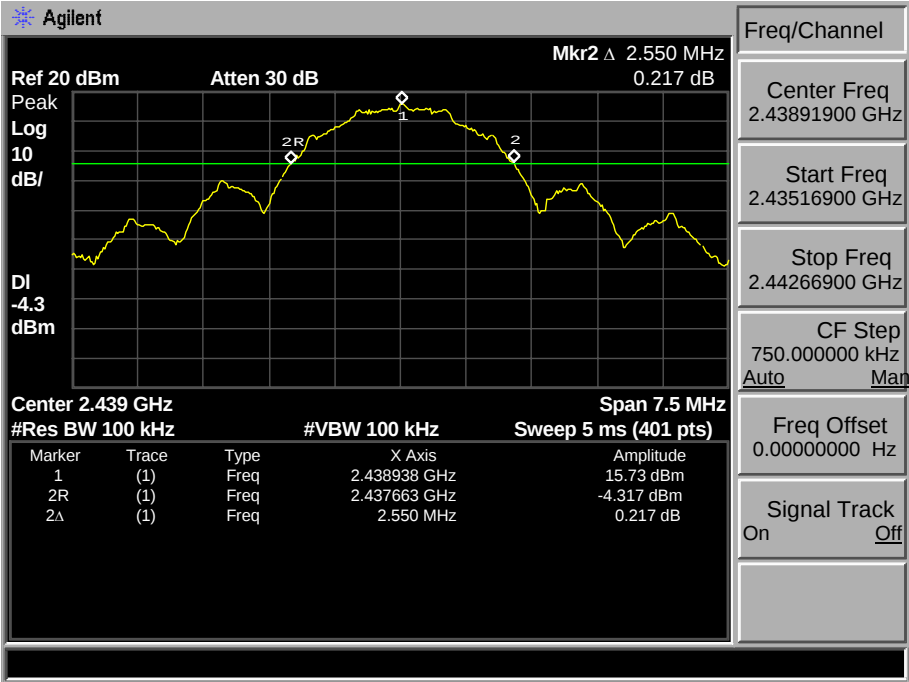


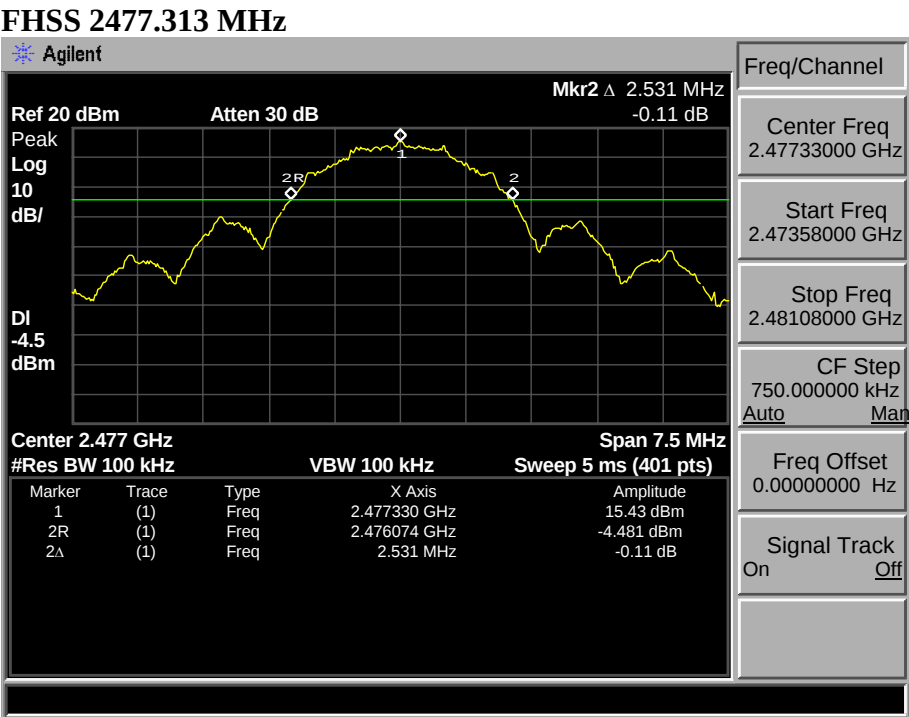


Power From Adapter 2
FHSS 2403.585 MHz



FHSS 2438.913 MHz





5. CARRIER FREQUENCY SEPARATION

5.1. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

5.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The carrier frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW.

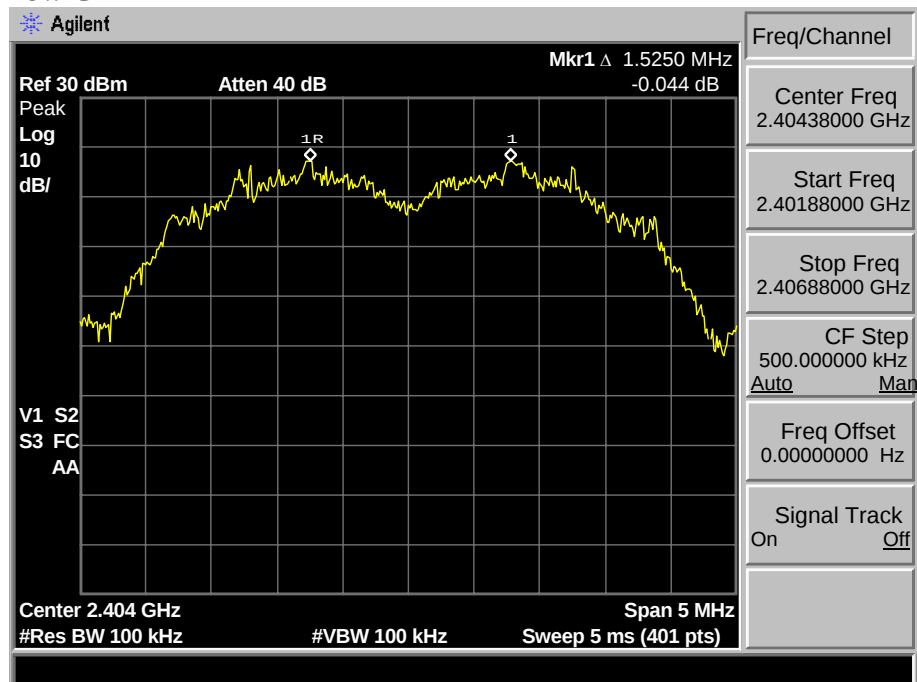
5.3. Test Result

EUT: Wireless Speaker		M/N: AirStream WS100	
Test date: 2012-5-10		Test site: RF site	Tested by: Tony Tang
Mode	Channel separation (MHz)	Limit	Conclusion
Power From Adapter 1			
Low	1.5250	>the 20dB Bandwidth or 25[kHz](whichever is greater)	PASS
Mid	3.0810	>the 20dB Bandwidth or 25[kHz](whichever is greater)	PASS
High	1.5375	>the 20dB Bandwidth or 25[kHz](whichever is greater)	PASS
Power From Adapter 2			
Low	1.5375	>the 20dB Bandwidth or 25[kHz](whichever is greater)	PASS
Mid	3.0810	>the 20dB Bandwidth or 25[kHz](whichever is greater)	PASS
High	1.5375	>the 20dB Bandwidth or 25[kHz](whichever is greater)	PASS

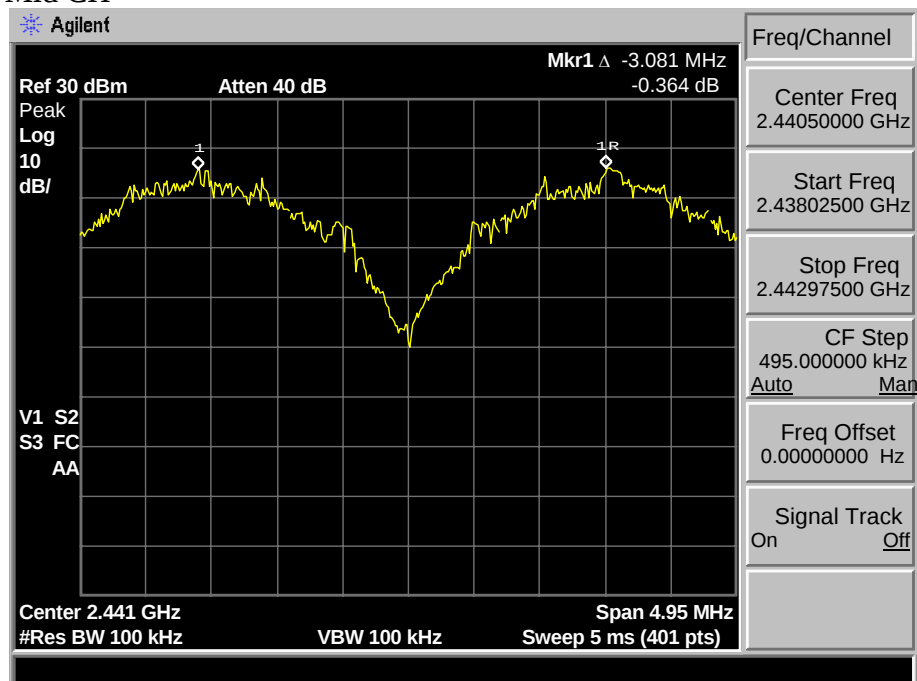
5.4. Test Data

Power From Adapter 1

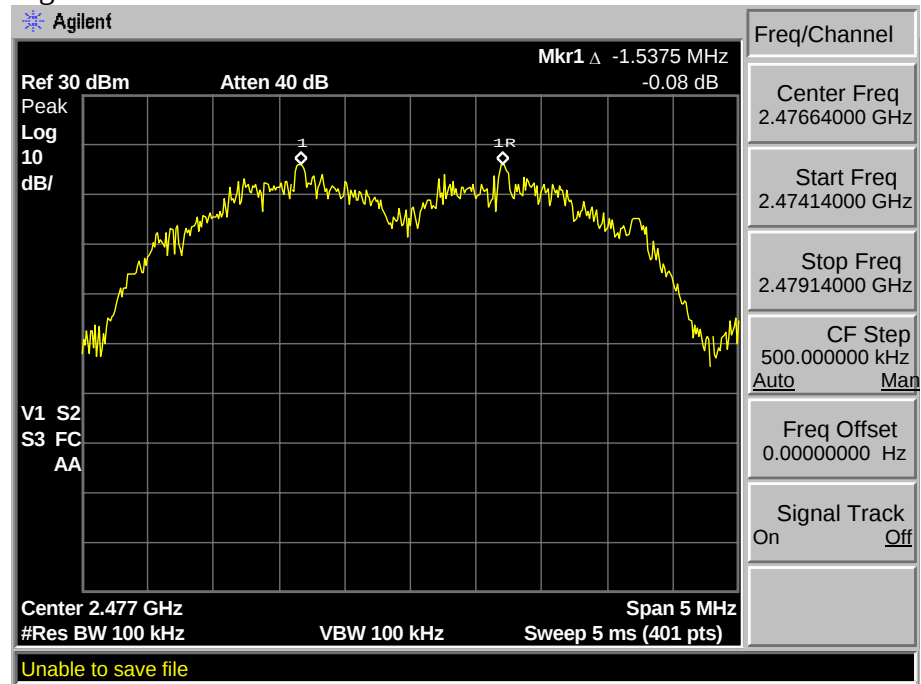
Low CH



Mid CH

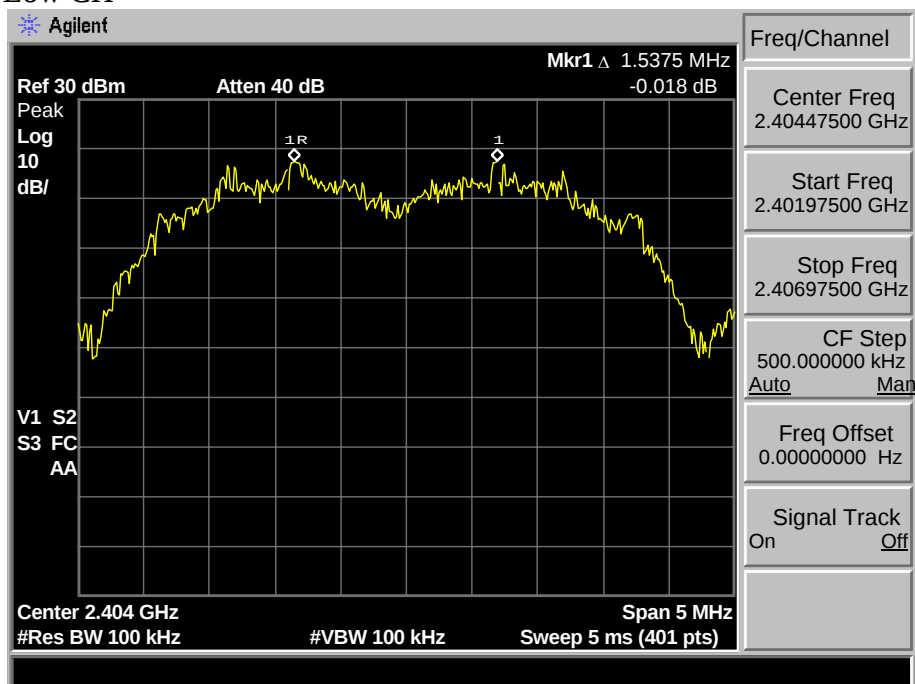


High CH

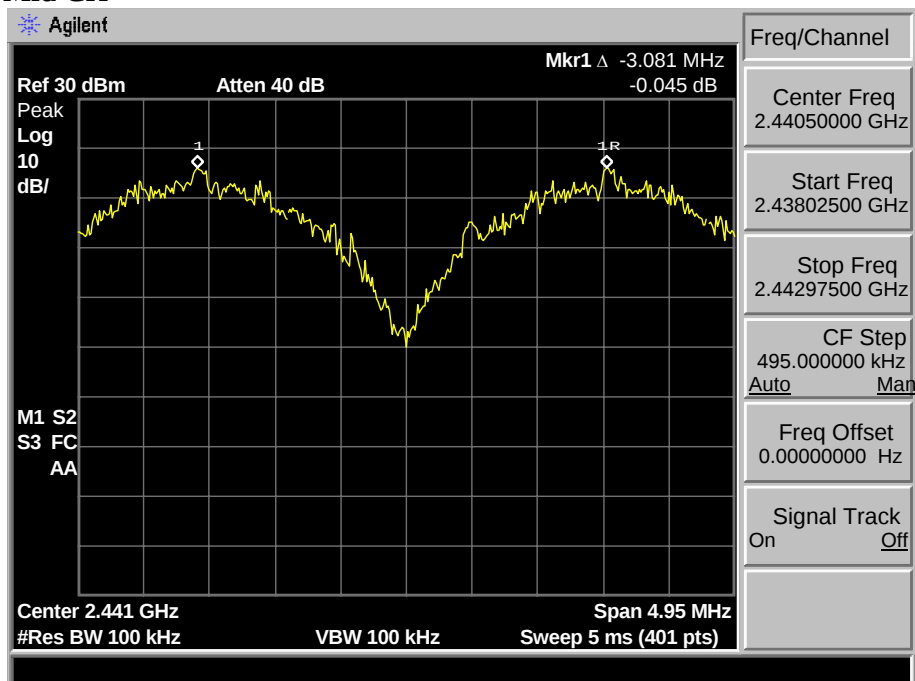


Power From Adapter 2

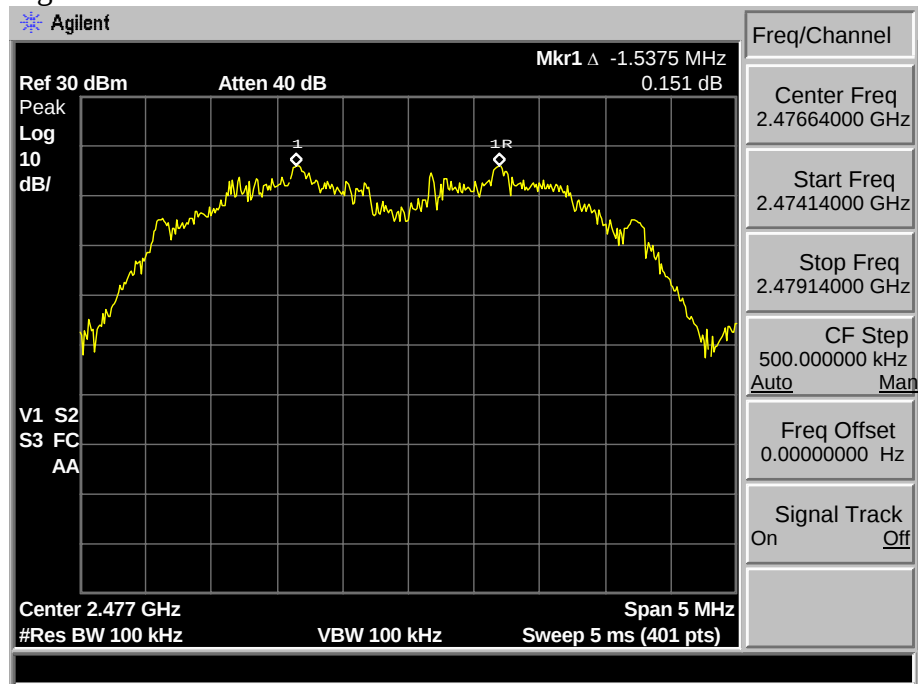
Low CH



Mid CH



High CH



6. NUMBER OF HOPPING CHANNEL

6.1. Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

6.2. Test Procedure

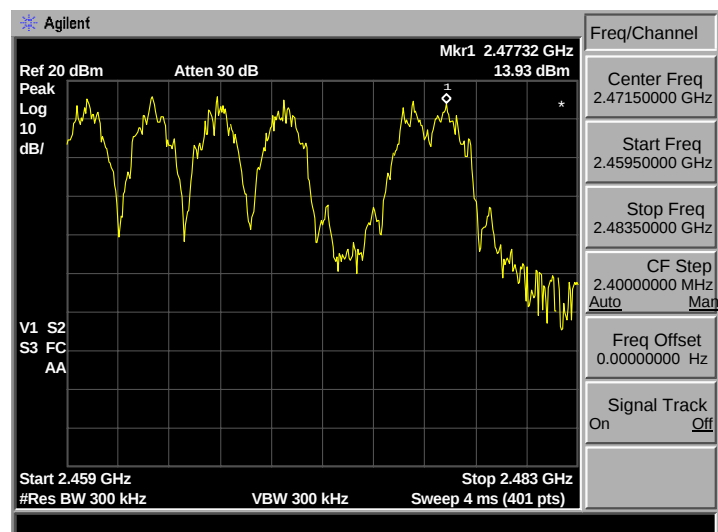
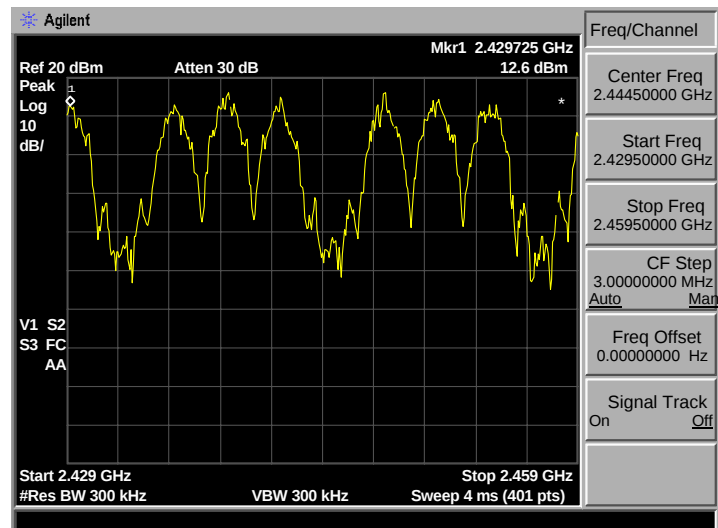
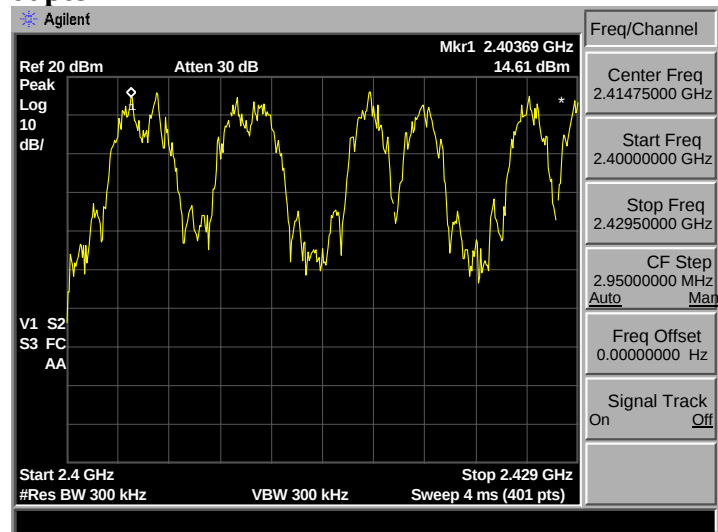
The transmitter output was coupled to a spectrum analyzer via a antenna. The number of hopping channel was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW.

6.3. Test Result

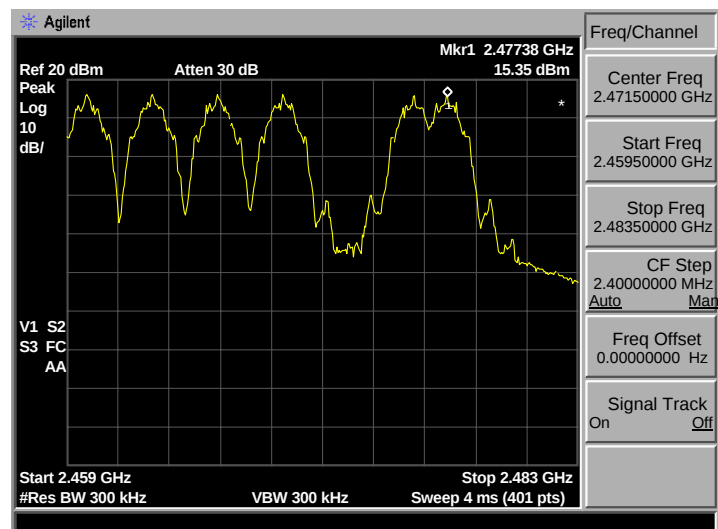
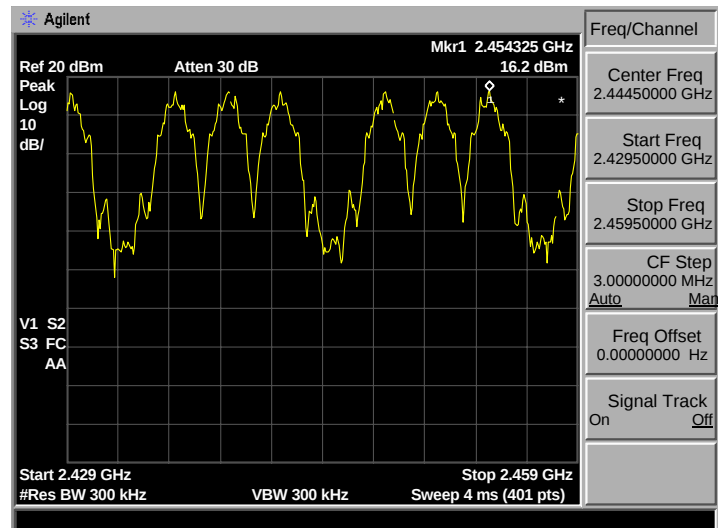
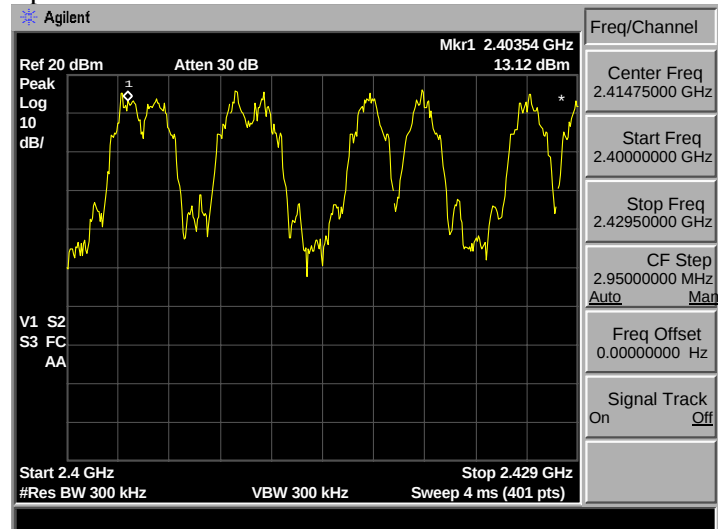
EUT: Wireless Speaker M/N: AirStream WS100			
Test date: 2012-5-10		Test site: RF site	Tested by: TaTa jiang
Mode	Number of hopping channel		Conclusion
Power From Adapter 1			
FHSS	20	>15	PASS
Power From Adapter 2			
FHSS	20	>15	PASS

6.4. Test Data

Power From Adapter 1



Power From Adapter 2



7. DWELL TIME

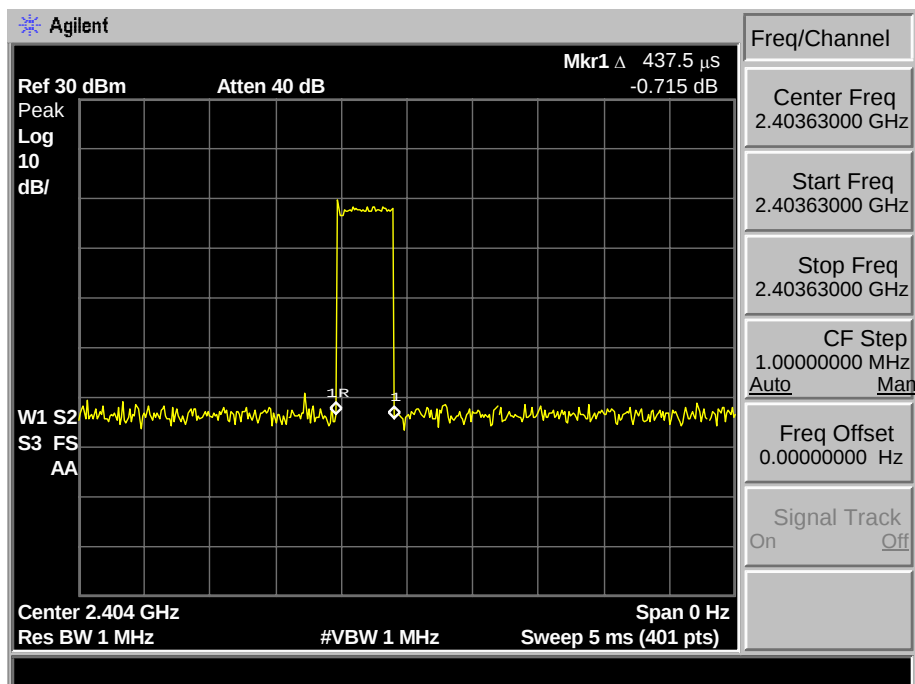
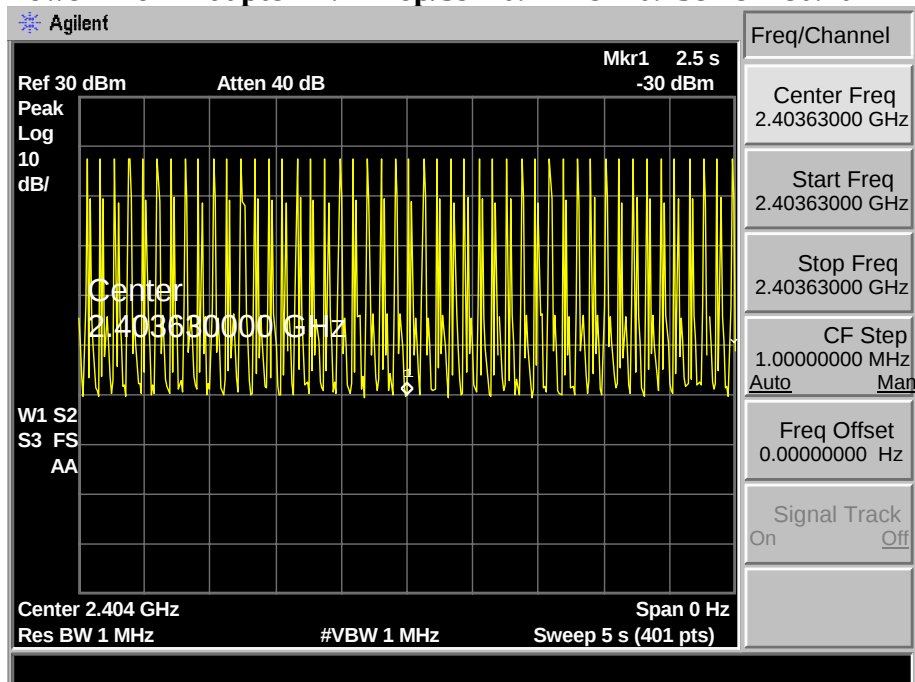
7.1. Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

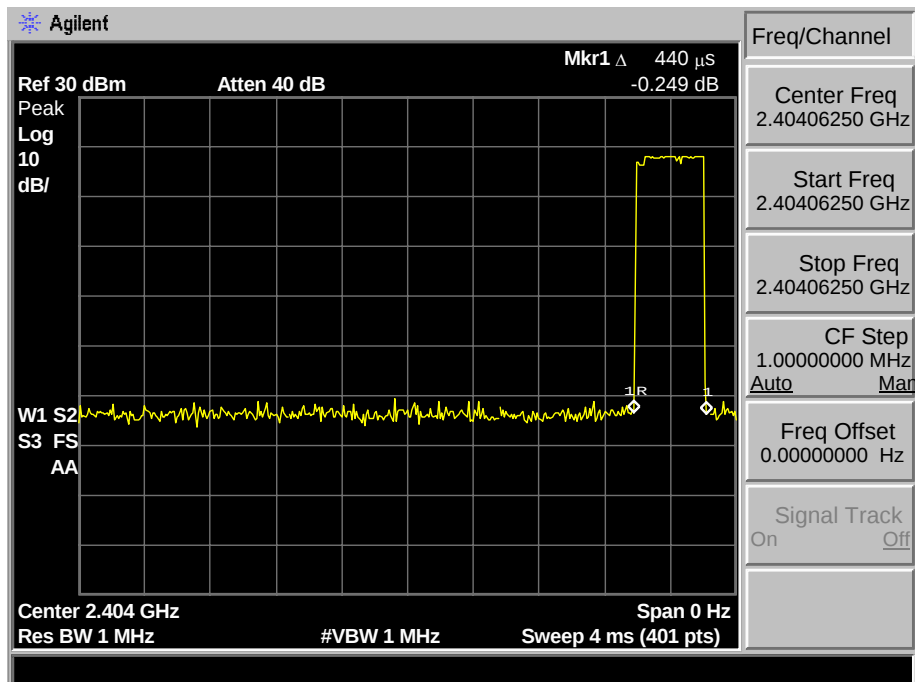
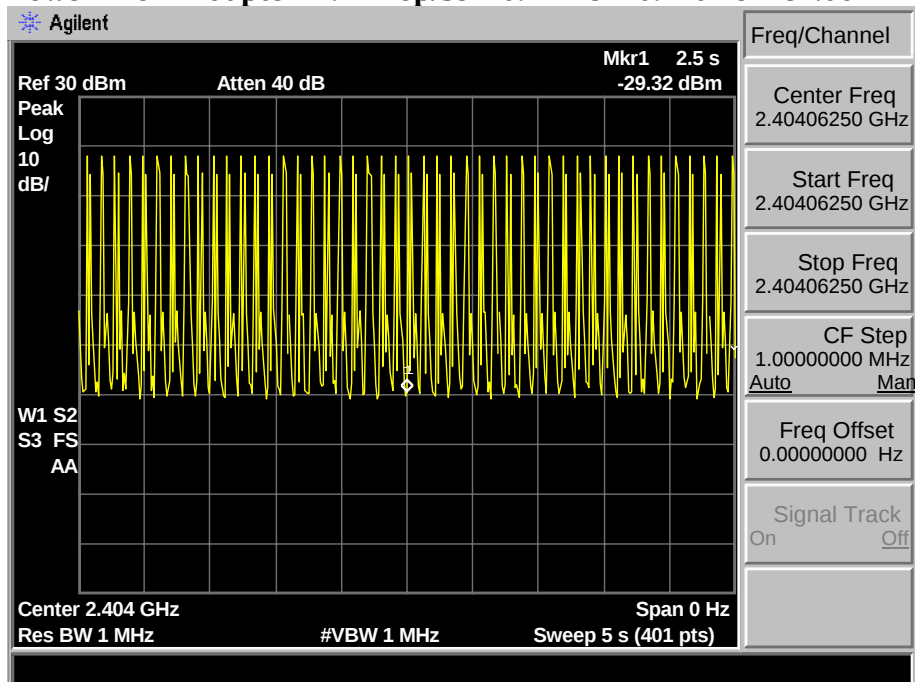
7.2. Test Result

EUT: Wireless Speaker		M/N:WS100	
Test date: 2012-3-10		Test site: RF site	Tested by: Tony Tang
Mode	Dwell time	Limit	Conclusion
Power From Adapter 1			
FHSS	80.70	<400ms	PASS
Power From Adapter 2			
FHSS	81.06	<400ms	PASS

7.3. Test Data

Power From Adapter 1 : $47\text{hop}/5\text{s} * 0.4 * 49 * 0.438\text{ms} = 80.70$ 

Power From Adapter 1 : $47\text{hop}/5\text{s} * 0.4 * 49 * 0.440\text{ms} = 81.06$



8. RADIATED EMISSIONS

8.1. Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

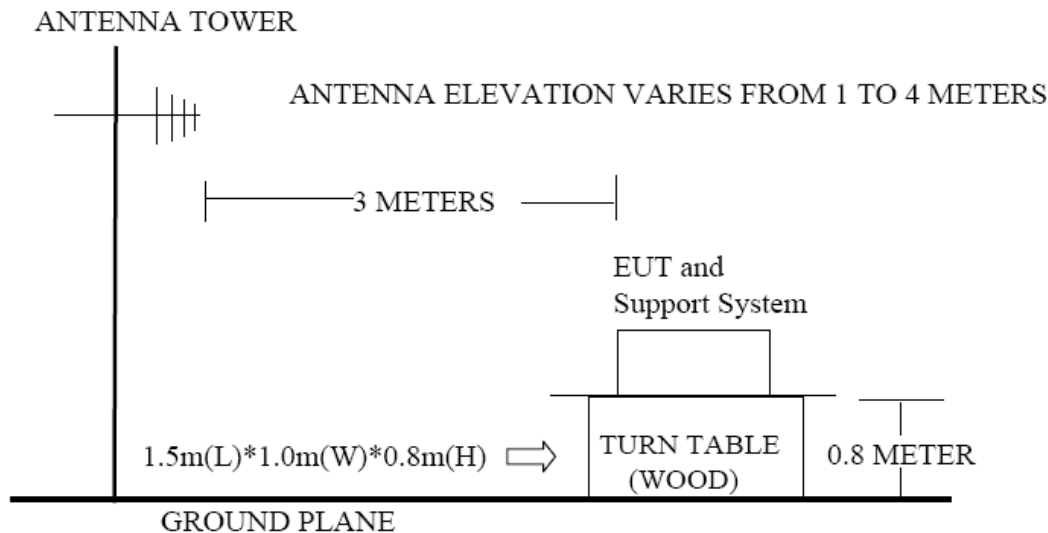
15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

15.209 Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

8.2. Block Diagram of Test setup



8.3. Test Procedure

EUT was placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved 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 test.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 1MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

The frequency range from 30MHz to 10th harmonic (26GHz) are checked.

8.4. Test Result

30MHz—26GHz Radiated emission Test result	
EUT: Wireless Speaker	M/N: AirStream WS100
Power: DC 20V From Adapter Input AC 120V/60Hz	
Test date: 2012-5-12~2012-05-13	Test site: 3m Chamber Tested by: Tony Tang
Test mode: Tx Mode	
Pass	

Note: If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

8.5. Test Data

Power From Adapter 1
30 MHz – 1000 MHz

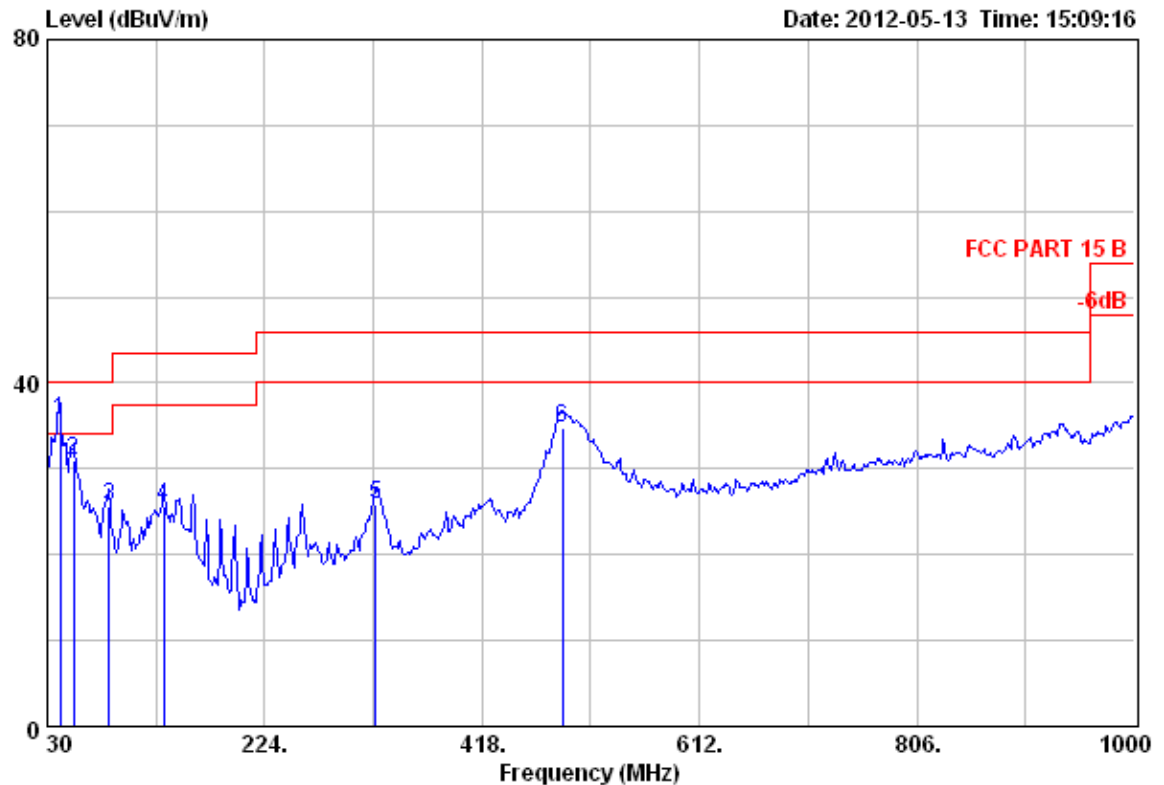
EST Technology

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Data: 133

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 15:09:16



Site no. : 3m Chamber Data no. : 133
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 1

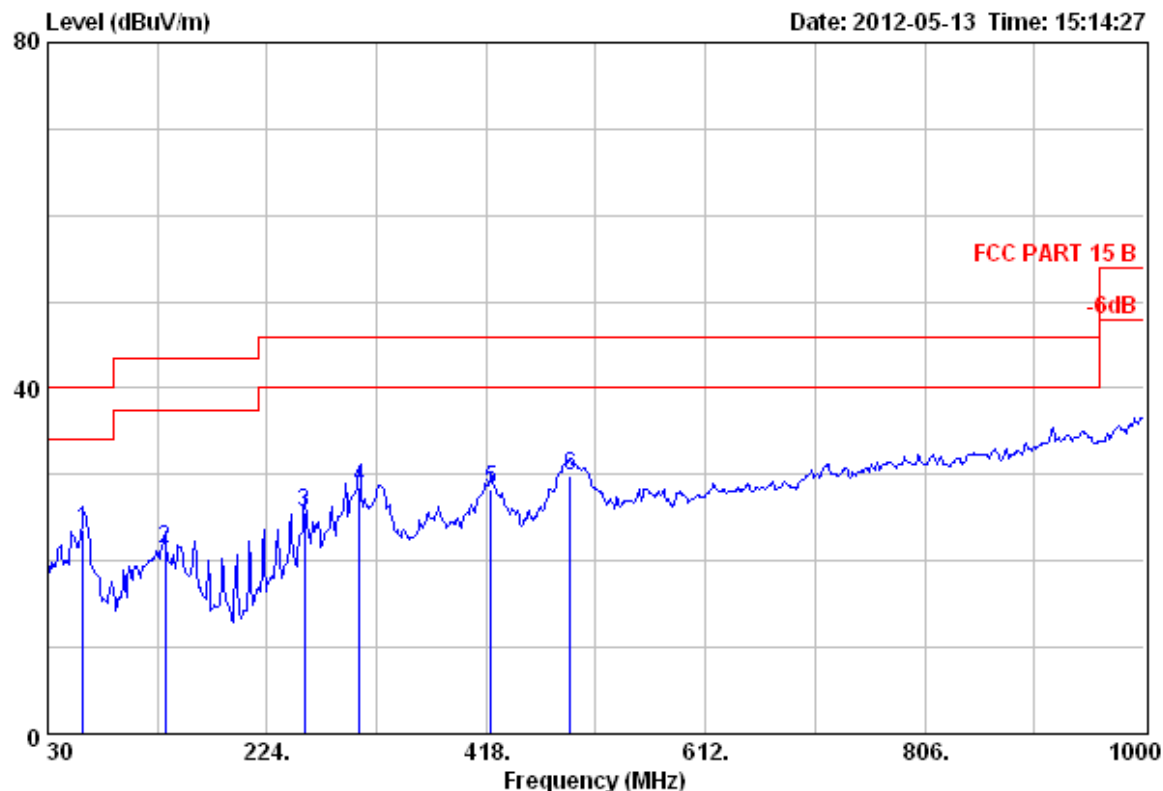
	Ant.	Cable	Emission					
Freq.	Factor	Loss	Reading	Level	Limits	Margin	Reamark	
(MHz)	(dB/m)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	
1	41.64	11.75	2.17	21.84	35.76	40.00	4.24	QP
2	53.28	6.11	2.43	22.49	31.03	40.00	8.97	QP
3	85.29	7.72	2.87	14.99	25.58	40.00	14.42	QP
4	133.79	11.36	3.58	10.75	25.69	43.50	17.81	QP
5	322.94	13.65	5.41	6.75	25.81	46.00	20.19	QP
6	489.78	17.81	6.70	10.15	34.66	46.00	11.34	QP

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Data: 134

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 134
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark (dB)
1	61.04	4.74	2.56	16.30	23.60	40.00	16.40	QP
2	133.79	11.36	3.58	6.48	21.42	43.50	22.08	QP
3	256.98	12.63	4.91	8.10	25.64	46.00	20.36	QP
4	305.48	13.11	5.28	10.14	28.53	46.00	17.47	QP
5	421.88	16.25	6.21	5.85	28.31	46.00	17.69	QP
6	492.69	17.83	6.69	5.39	29.91	46.00	16.09	QP

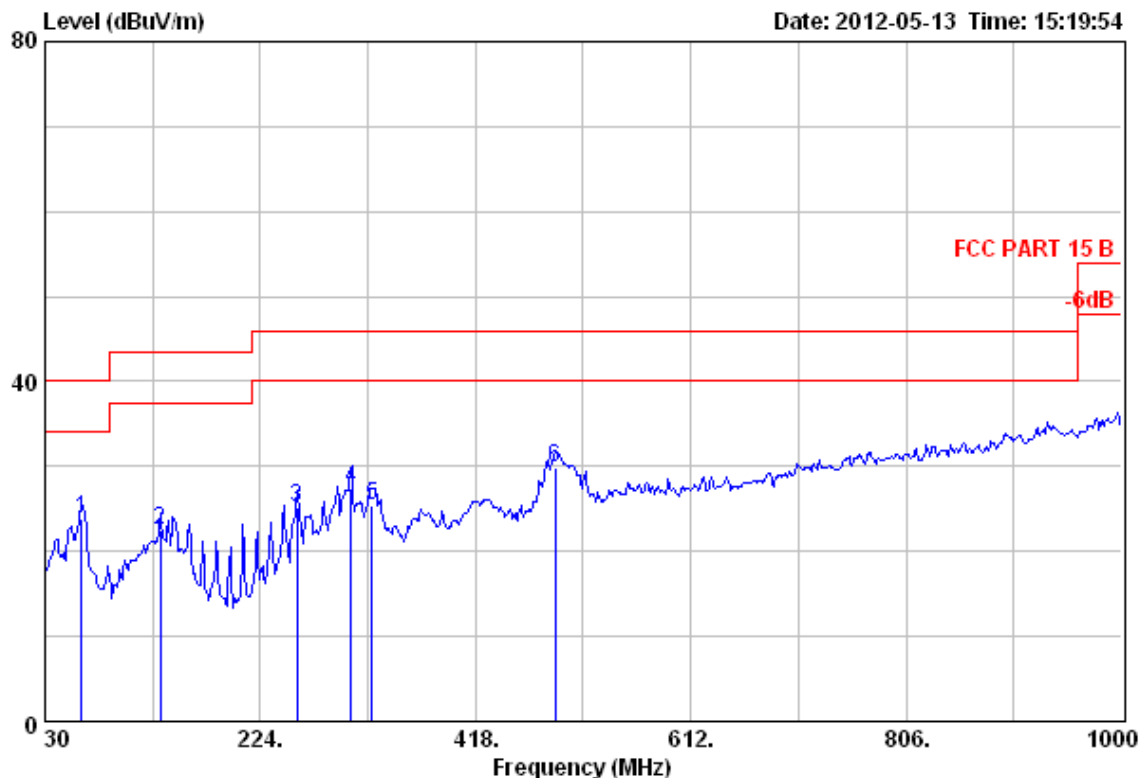
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Data: 135

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 15:19:54



Site no. : 3m Chamber Data no. : 135
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission		Margin (dB)	Remark
					Level (dBuV/m)	Limits (dBuV/m)		
1	62.98	4.82	2.63	16.43	23.88	40.00	16.12	QP
2	133.79	11.36	3.58	7.57	22.51	43.50	20.99	QP
3	256.98	12.63	4.91	7.66	25.20	46.00	20.80	QP
4	305.48	13.11	5.28	9.05	27.44	46.00	18.56	QP
5	324.88	13.71	5.43	6.36	25.50	46.00	20.50	QP
6	489.78	17.81	6.70	5.24	29.75	46.00	16.25	QP

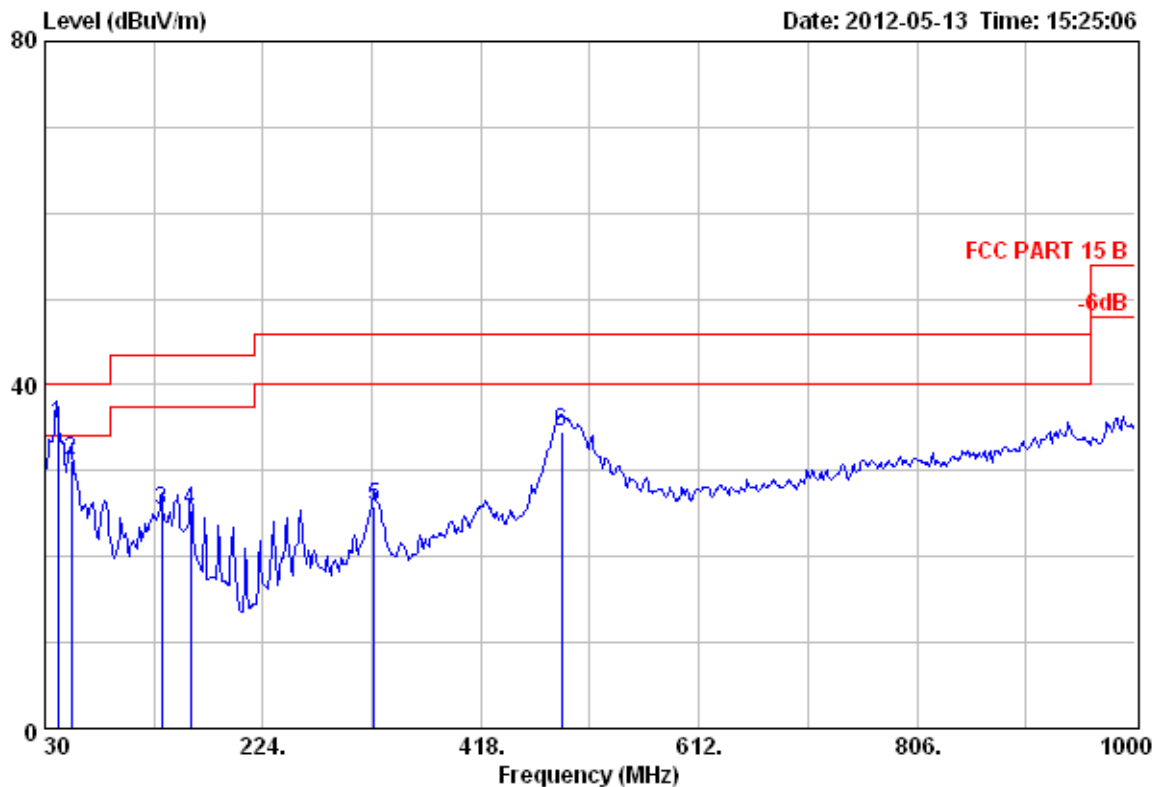
EST Technology

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Data: 136

File: D:\test data\2012\MM\MONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 15:25:06



Site no. : 3m Chamber Data no. : 136
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark (dB)
1	41.64	11.75	2.17	21.53	35.45	40.00	4.55	QP
2	53.28	6.11	2.43	22.55	31.09	40.00	8.91	QP
3	133.79	11.36	3.58	10.54	25.48	43.50	18.02	QP
4	159.98	10.36	3.89	11.06	25.31	43.50	18.19	QP
5	322.94	13.65	5.41	6.75	25.81	46.00	20.19	QP
6	489.78	17.81	6.70	9.96	34.47	46.00	11.53	QP

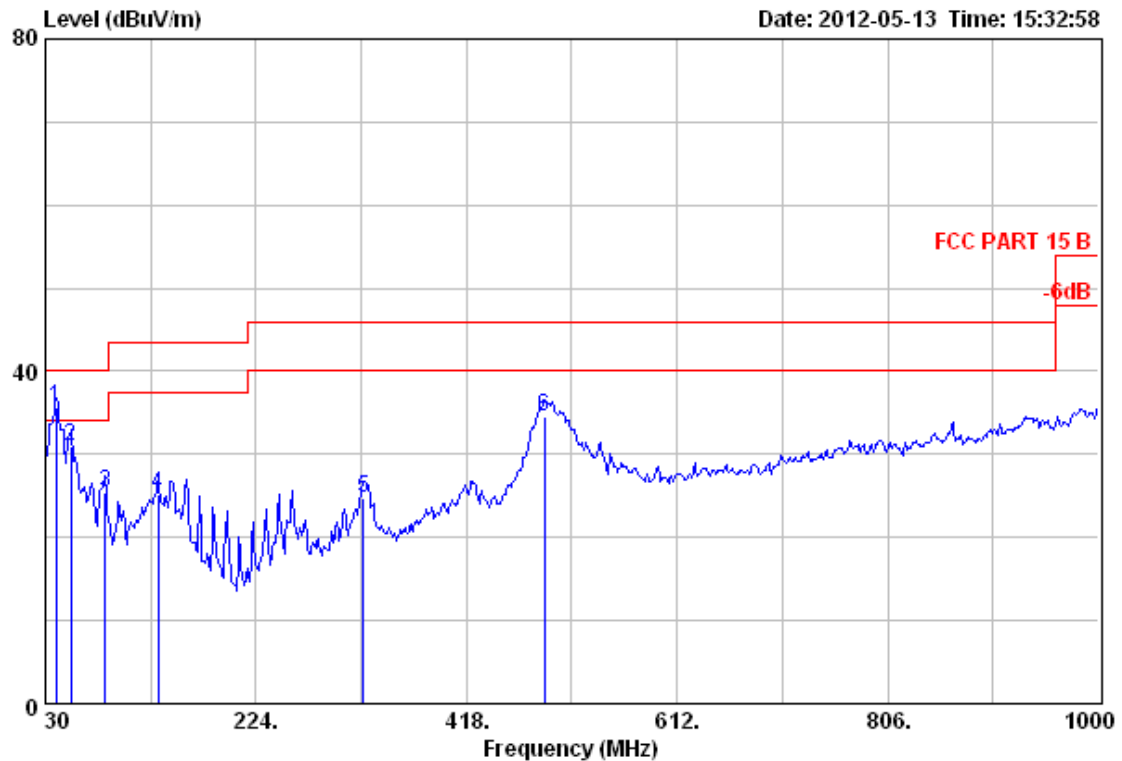
EST Technology

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Data: 137

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 15:32:58



Site no. : 3m Chamber Data no. : 137
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBUV)	Emission		Margin (dB)	Remark
					Level (dBUV/m)	Limits (dBUV/m)		
1	39.70	12.90	2.12	20.64	35.66	40.00	4.34	QP
2	53.28	6.11	2.43	22.51	31.05	40.00	8.95	QP
3	85.29	7.72	2.87	14.89	25.48	40.00	14.52	QP
4	133.79	11.36	3.58	10.25	25.19	43.50	18.31	QP
5	322.94	13.65	5.41	5.64	24.70	46.00	21.30	QP
6	489.78	17.81	6.70	10.02	34.53	46.00	11.47	QP

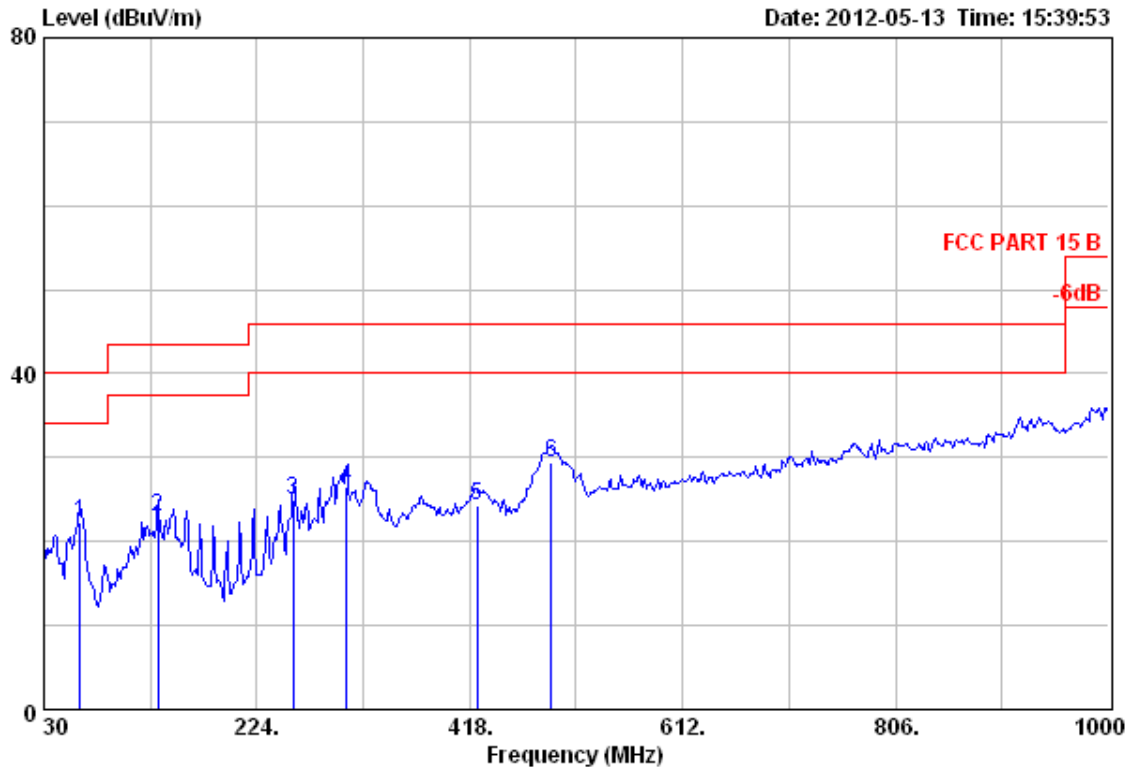
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Data: 138

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 15:39:53



Site no. : 3m Chamber Data no. : 138
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 1

	Ant.	Cable	Emission					
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Reading (dBUV)	Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Reamark (dB)	
1	62.98	4.82	2.63	14.94	22.39	40.00	17.61	QP
2	133.79	11.36	3.58	7.91	22.85	43.50	20.65	QP
3	256.98	12.63	4.91	7.31	24.85	46.00	21.15	QP
4	305.48	13.11	5.28	8.16	26.55	46.00	19.45	QP
5	424.79	16.18	6.24	1.95	24.37	46.00	21.63	QP
6	492.69	17.83	6.69	4.88	29.40	46.00	16.60	QP

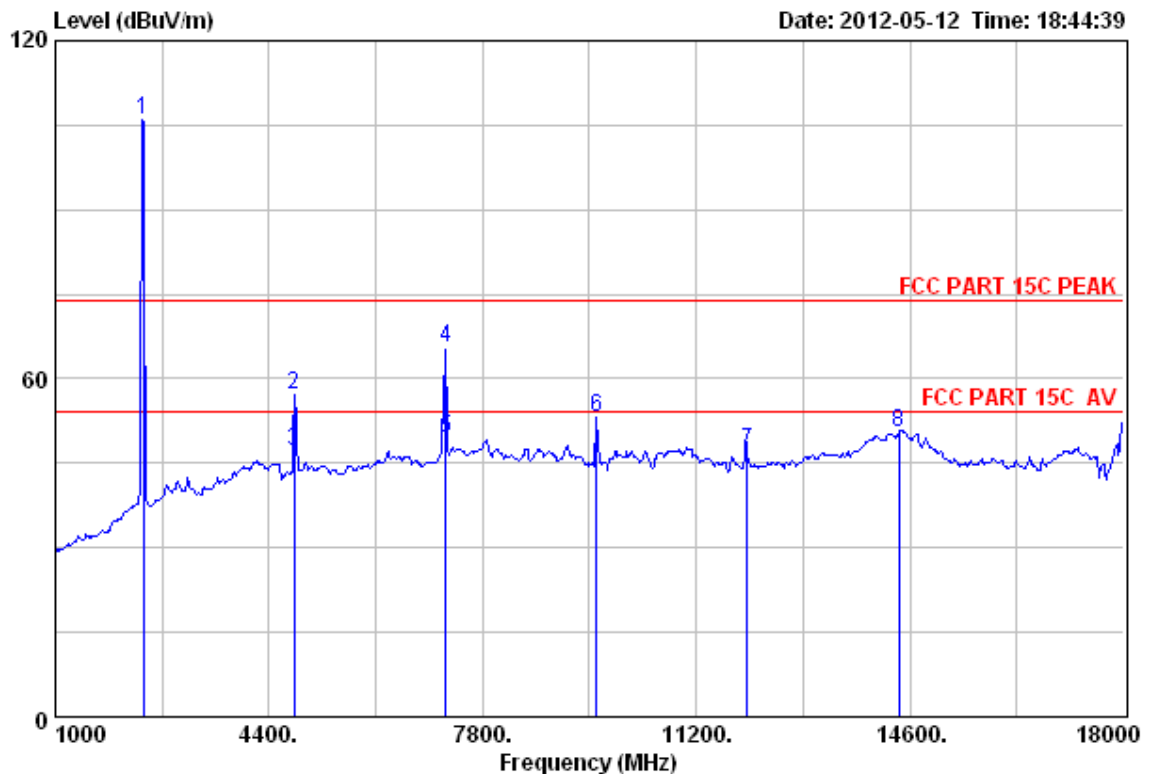
1000 MHz – 18000MHz

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Data: 53

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 53
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 1

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
					Level				
1	2403.59	27.61	6.64	34.18	105.90	105.97	74.00	-31.97	Peak
2	4807.17	31.25	11.77	31.81	45.79	57.00	74.00	17.00	Peak
3	4807.17	31.25	11.77	31.81	35.79	47.00	54.00	7.00	Average
4	7210.76	36.52	11.54	32.09	49.67	65.64	74.00	8.36	Peak
5	7210.76	36.52	11.54	32.09	33.52	49.49	54.00	4.51	Average
6	9614.34	37.91	11.68	31.93	35.35	53.01	74.00	20.99	Peak
7	12017.92	38.62	11.40	35.53	32.48	46.97	74.00	27.03	Peak
8	14421.51	41.82	10.93	32.84	30.52	50.43	74.00	23.57	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

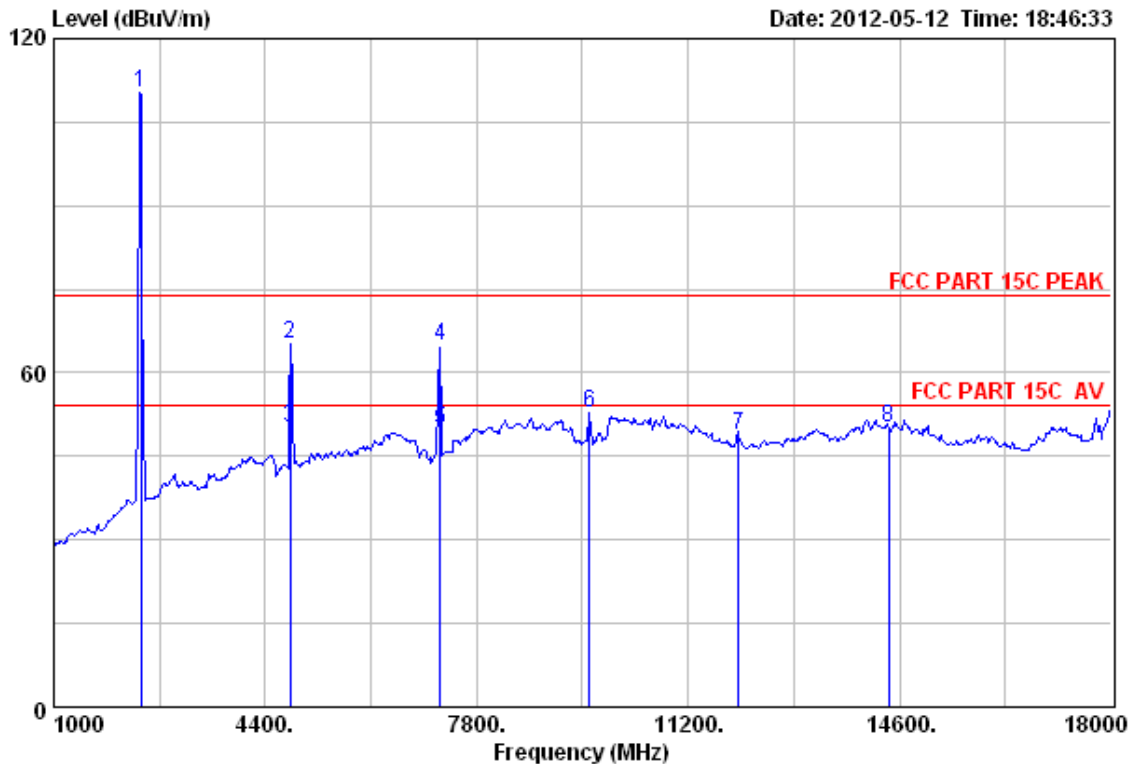
EST Technology

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Data: 54

File: D:\test data\2012\MM\MONITOR AUDIO.EMI (172)

Date: 2012-05-12 Time: 18:46:33



Site no. : 3m Chamber Data no. : 54
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2403.59	27.61	6.64	34.18	110.37	110.44	74.00	-36.44	Peak
2	4807.17	31.25	11.77	31.81	53.97	65.18	74.00	8.82	Peak
3	4807.17	31.25	11.77	31.81	38.97	50.18	54.00	3.82	Average
4	7210.76	36.52	11.54	32.09	48.78	64.75	74.00	9.25	Peak
5	7210.76	36.52	11.54	32.09	33.78	49.75	54.00	4.25	Average
6	9614.34	37.91	11.68	31.93	35.29	52.95	74.00	21.05	Peak
7	12017.92	38.62	11.40	35.53	34.16	48.65	74.00	25.35	Peak
8	14421.51	41.82	10.93	32.84	30.29	50.20	74.00	23.80	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

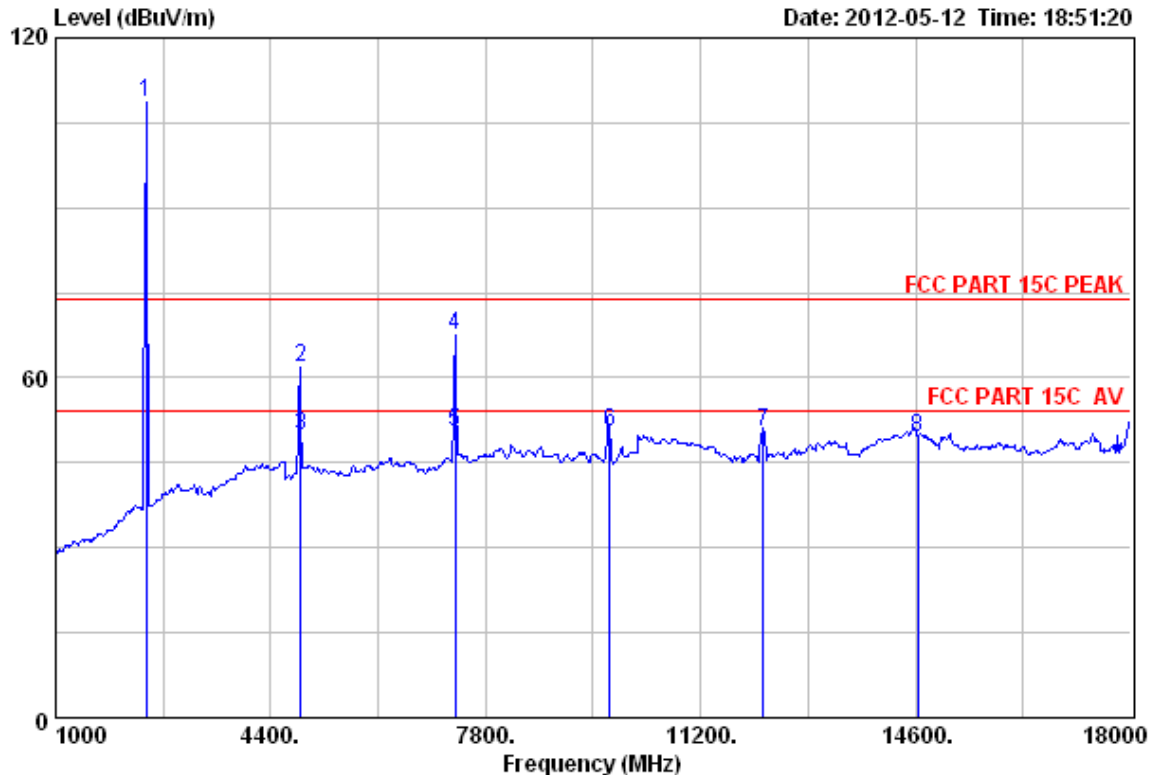
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Data: 55

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-12 Time: 18:51:20



Site no. : 3m Chamber Data no. : 55
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2438.91	27.60	6.67	34.12	108.59	108.74	74.00	-34.74	Peak
2	4877.83	31.37	12.07	31.90	50.41	61.95	74.00	12.05	Peak
3	4877.83	31.37	12.07	31.90	38.41	49.95	54.00	4.05	Average
4	7316.74	36.55	11.57	31.99	51.51	67.64	74.00	6.36	Peak
5	7316.74	36.55	11.57	31.99	34.51	50.64	54.00	3.36	Average
6	9755.65	38.13	11.65	31.86	32.67	50.59	74.00	23.41	Peak
7	12194.57	38.67	11.20	35.69	36.29	50.47	74.00	23.53	Peak
8	14633.48	41.48	10.91	33.56	30.75	49.58	74.00	24.42	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

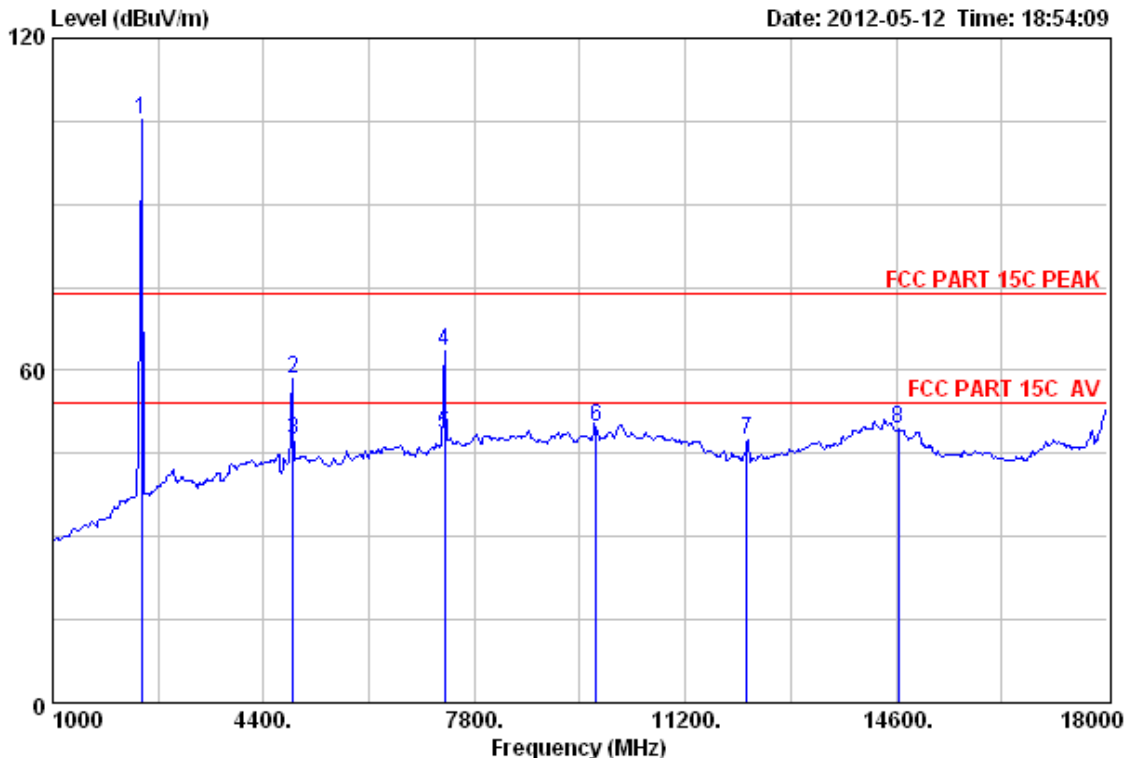
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Data: 56

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-12 Time: 18:54:09



Site no. : 3m Chamber Data no. : 56
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2438.91	27.60	6.67	34.12	105.16	105.31	74.00	-31.31	Peak
2	4877.83	31.37	12.07	31.90	46.89	58.43	74.00	15.57	Peak
3	4877.83	31.37	12.07	31.90	35.89	47.43	54.00	6.57	Average
4	7316.74	36.55	11.57	31.99	47.45	63.58	74.00	10.42	Peak
5	7316.74	36.55	11.57	31.99	32.45	48.58	54.00	5.42	Average
6	9755.65	38.13	11.65	31.86	31.83	49.75	74.00	24.25	Peak
7	12194.57	38.67	11.20	35.69	33.23	47.41	74.00	26.59	Peak
8	14633.48	41.48	10.91	33.56	30.55	49.38	74.00	24.62	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

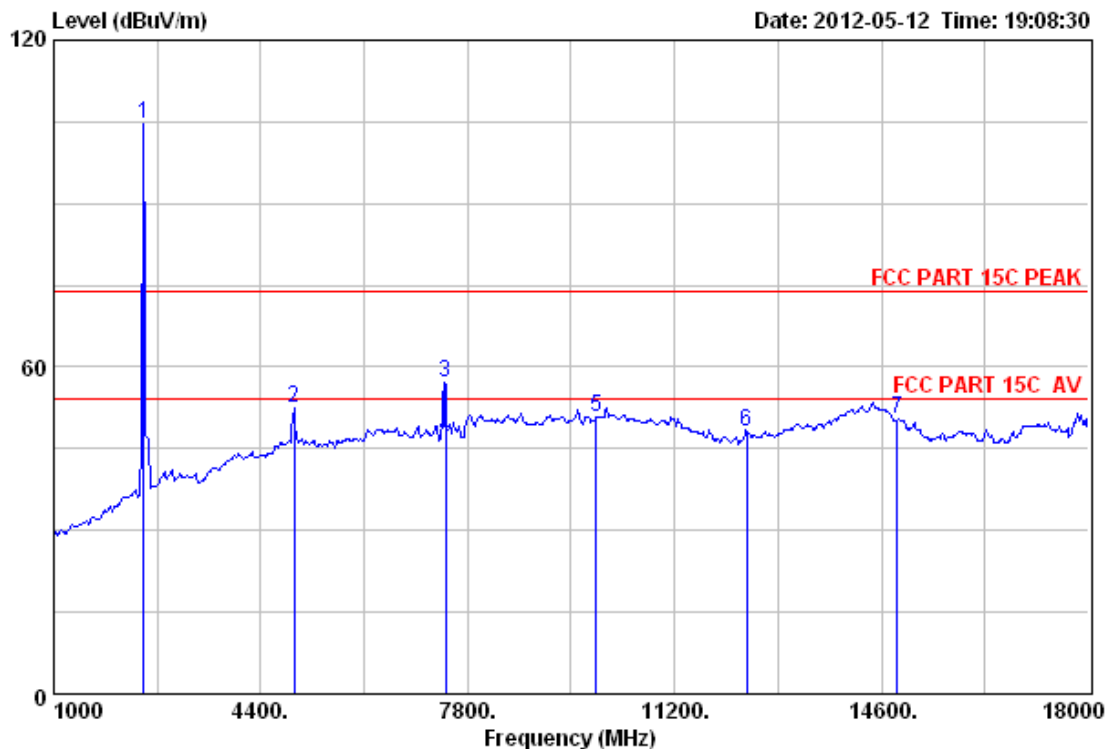
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Data: 57

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-12 Time: 19:08:30



Site no. : 3m Chamber Data no. : 57
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2477.31	27.58	6.71	34.03	104.37	104.63	74.00	-30.63	Peak
2	4954.63	31.49	12.44	31.97	40.61	52.57	74.00	21.43	Peak
3	7431.94	36.54	11.60	31.93	40.98	57.19	74.00	16.81	Peak
4	7431.94	36.54	11.60	31.93	30.98	47.19	54.00	6.81	Average
5	9909.25	38.14	11.61	31.76	32.71	50.70	74.00	23.30	Peak
6	12386.57	38.73	11.01	35.36	33.73	48.11	74.00	25.89	Peak
7	14863.88	40.65	10.88	34.39	33.19	50.33	74.00	23.67	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

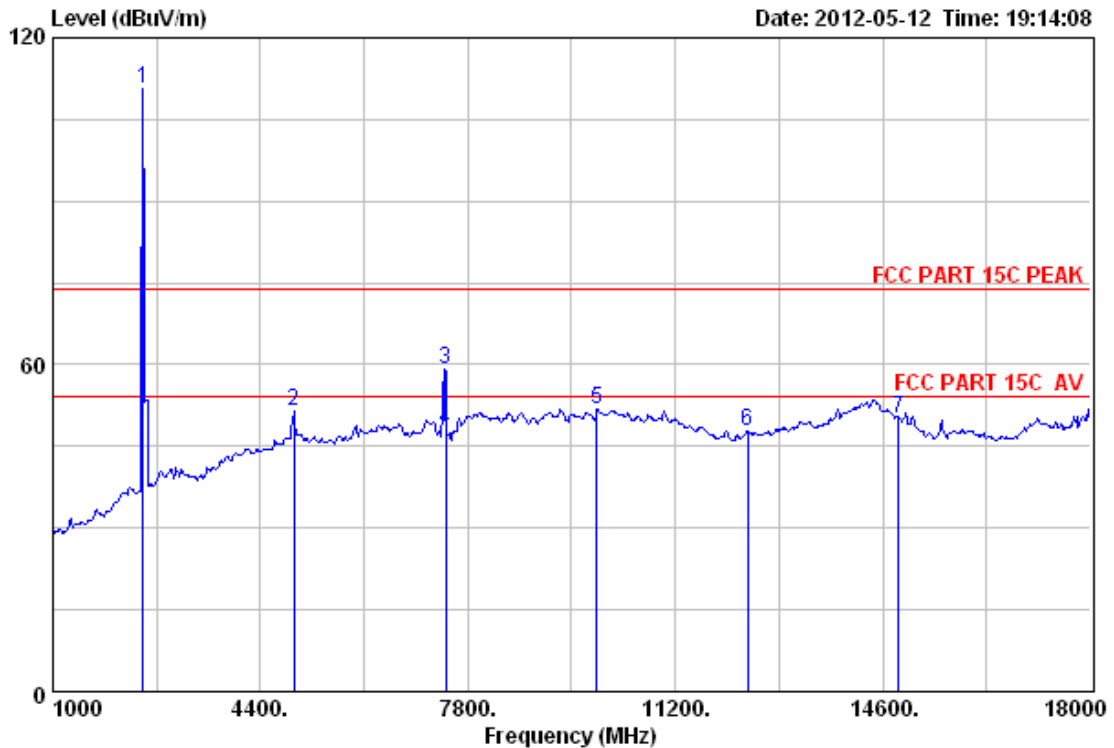
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Fax: +86-769-83081878

Data: 58

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-12 Time: 19:14:08



Site no. : 3m Chamber Data no. : 58
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2477.31	27.58	6.71	34.03	110.22	110.48	74.00	-36.48	Peak
2	4954.63	31.49	12.44	31.97	39.67	51.63	74.00	22.37	Peak
3	7431.94	36.54	11.60	31.93	42.86	59.07	74.00	14.93	Peak
4	7431.94	36.54	11.60	31.93	31.86	48.07	54.00	5.93	Average
5	9909.25	38.14	11.61	31.76	33.96	51.95	74.00	22.05	Peak
6	12386.57	38.73	11.01	35.36	33.32	47.70	74.00	26.30	Peak
7	14863.88	40.65	10.88	34.39	33.01	50.15	74.00	23.85	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

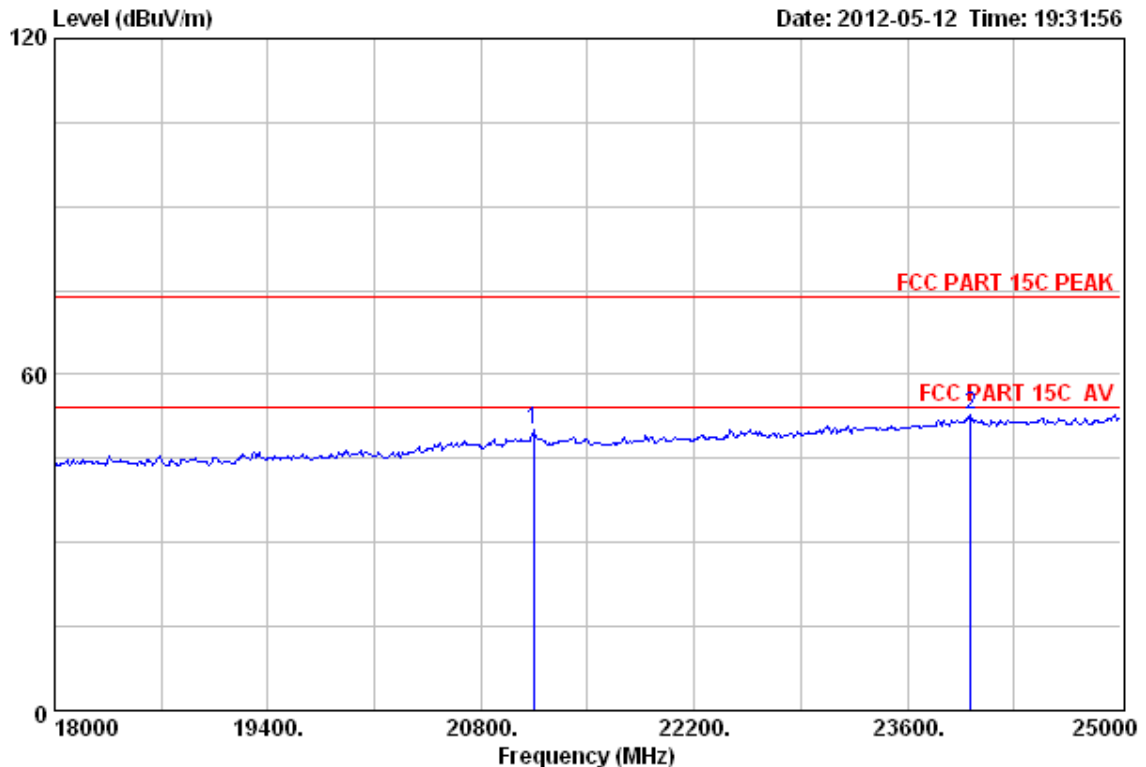
18000 MHz – 25000MHz

EST Technology

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Data: 63

File: D:\test data\2012\MM\MONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 63
 Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 1

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
					Level (dBuV/m)				
1 21143.00	46.21	20.19	35.67	19.38	50.11		74.00	23.89	Peak
2 24013.00	45.60	22.05	32.84	17.89	52.70		74.00	21.30	Peak

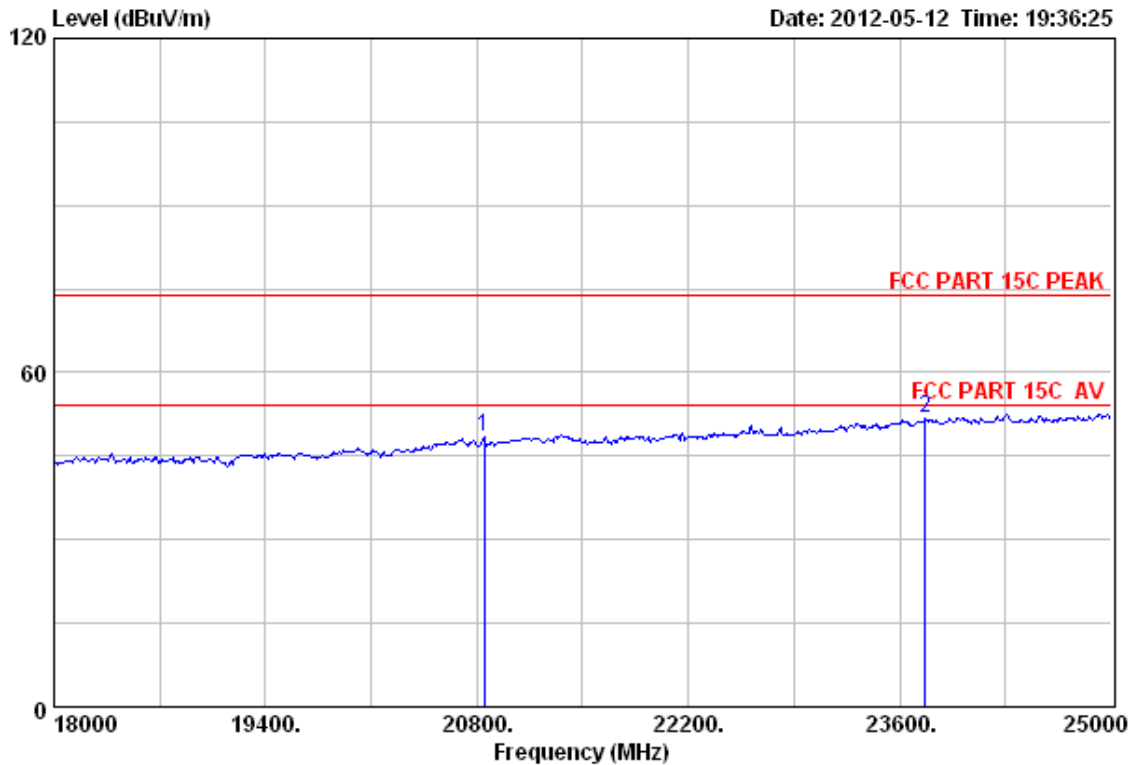
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 64

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 64
 Dis. / Ant. : 3m ANT ABVOE 18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6°; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 1

		Ant.	Cable	Amp	Emission				
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	20849.00	46.22	20.07	35.94	18.26	48.61	74.00	25.39	Peak
2	23768.00	45.65	21.84	33.04	17.25	51.70	74.00	22.30	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

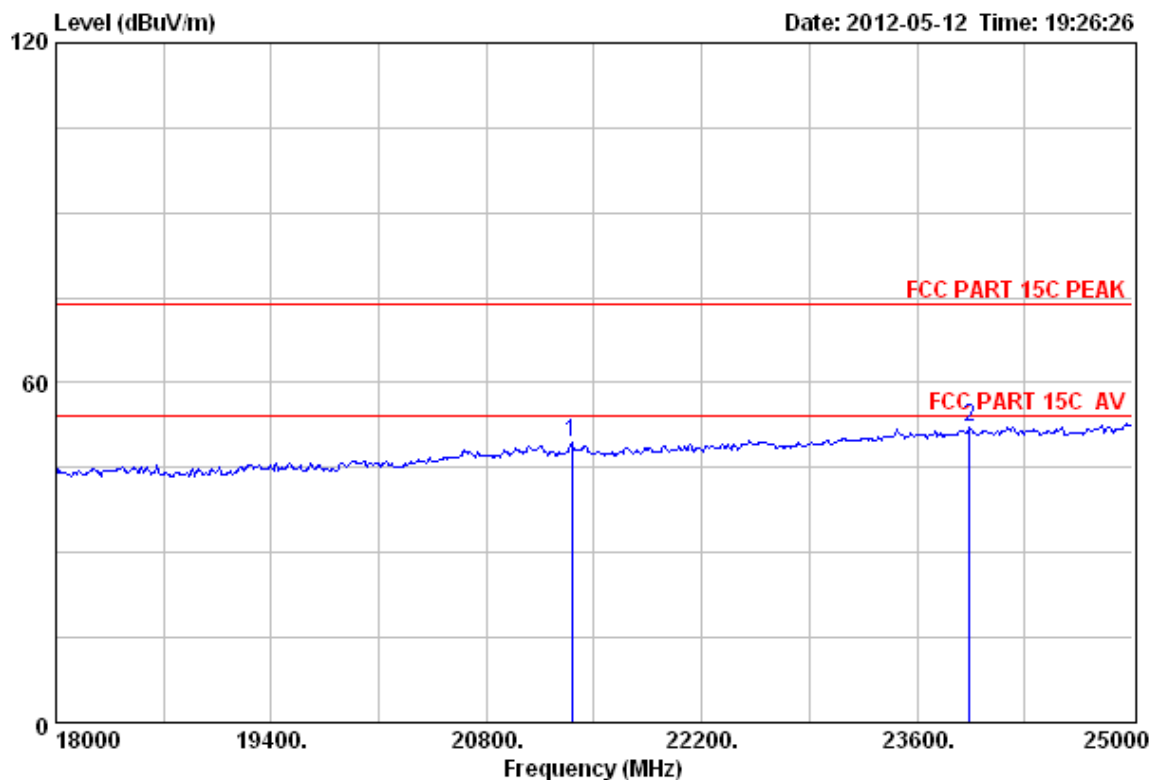
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Data: 62

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-12 Time: 19:26:26



Site no. : 3m Chamber Data no. : 62
 Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 1

	Freq.	Ant.	Cable	Amp	Emission				
	(MHz)	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBUV)	(dBUV/m)	(dBUV/m)	(dB)	
1	21353.00	46.09	20.28	35.49	18.74	49.62	74.00	24.38	Peak
2	23943.00	45.61	21.99	32.85	17.27	52.02	74.00	21.98	Peak

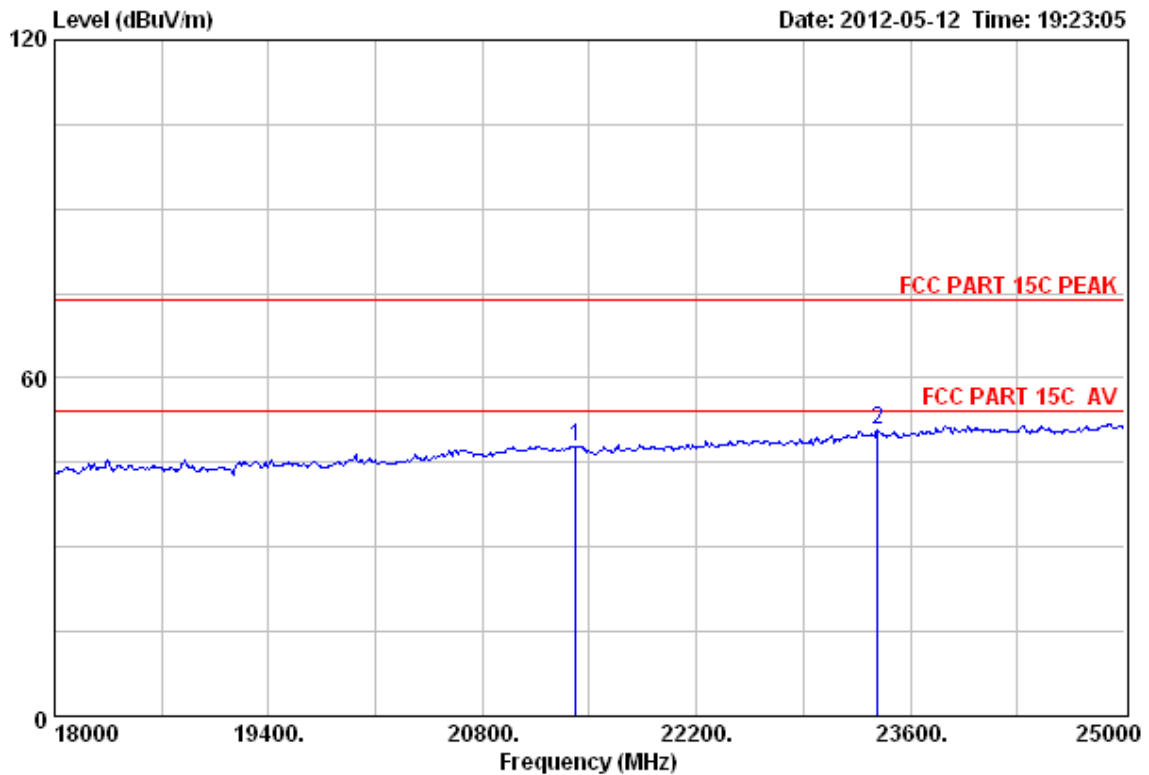
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 61

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 61
 Dis. / Ant. : 3m ANT ABVOE 18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 1

		Ant.	Cable	Amp	Emission				
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 21409.00	46.05	20.31	35.44	17.03	47.95	74.00	26.05	Peak	
2 23383.00	45.68	21.49	33.46	17.16	50.87	74.00	23.13	Peak	

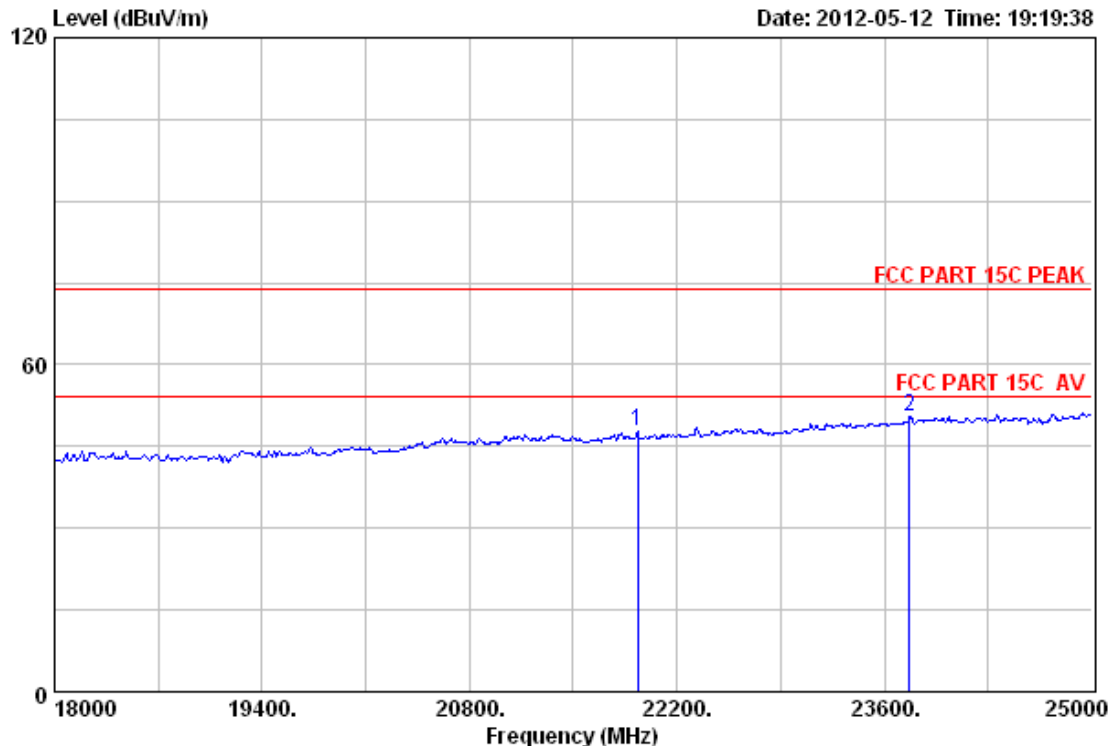
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 60

File: D:\test data\2012\MM\MONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 60
 Dis. / Ant. : 3m ANT ABVOE 18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 1

		Ant.	Cable	Amp	Emission				
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 21934.00	45.74	20.53	34.97	16.58	47.88	74.00	26.12	Peak	
2 23768.00	45.65	21.84	33.04	16.08	50.53	74.00	23.47	Peak	

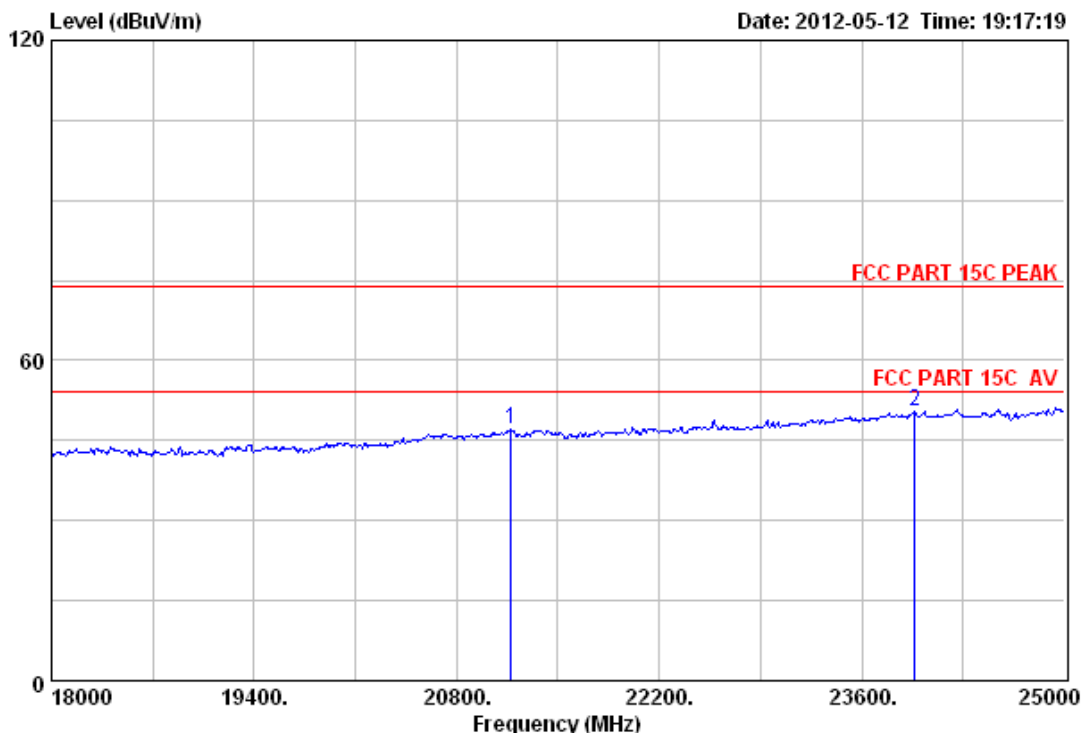
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 59

File: D:\test data\2012\W\MONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 59
 Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 1

		Ant.	Cable	Amp	Emission				
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 21178.00	46.20	20.21	35.64	16.40	47.17	74.00	26.83	Peak	
2 23964.00	45.61	22.02	32.83	15.84	50.64	74.00	23.36	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Power From Adapter 2 30 MHz – 1000 MHz

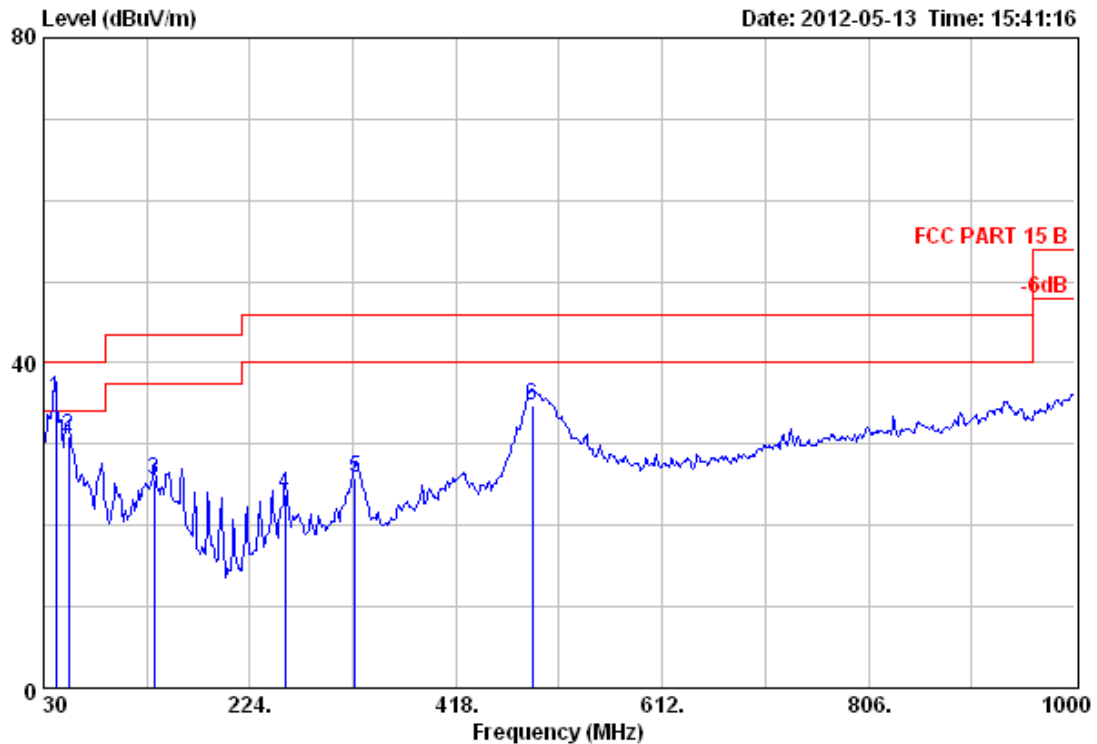
EST Technology

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Data: 139

File: D:\test data\2012\MM-MONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 15:41:16



Site no. : 3m Chamber Data no. : 139
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 2

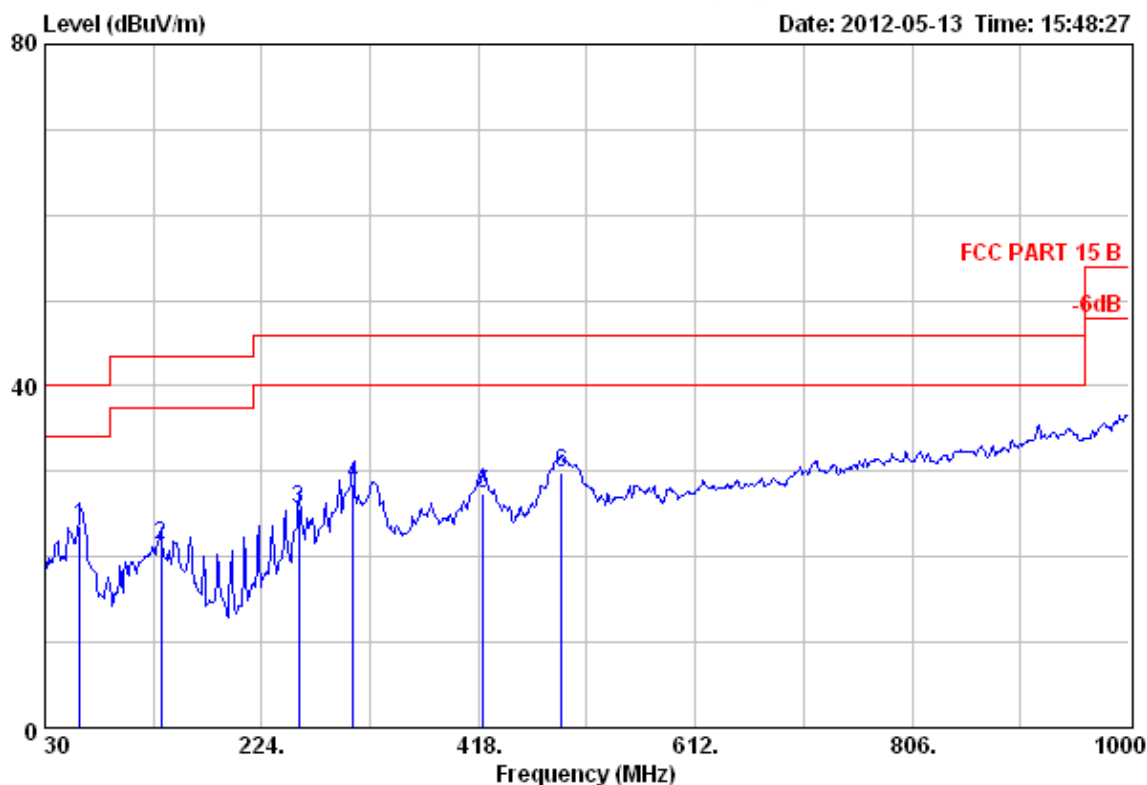
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark (dB)
1	41.64	11.75	2.17	21.84	35.76	40.00	4.24	QP
2	53.28	6.11	2.43	22.49	31.03	40.00	8.97	QP
3	133.79	11.36	3.58	10.75	25.69	43.50	17.81	QP
4	256.98	12.63	4.91	6.39	23.93	46.00	22.07	QP
5	322.94	13.65	5.41	6.75	25.81	46.00	20.19	QP
6	489.78	17.81	6.70	10.15	34.66	46.00	11.34	QP

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Data: 140

File: D:\test data\2012\MM\MONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 140
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reamark (dB)
1	61.04	4.74	2.56	16.30	23.60	40.00	16.40	QP
2	133.79	11.36	3.58	6.48	21.42	43.50	22.08	QP
3	256.98	12.63	4.91	8.10	25.64	46.00	20.36	QP
4	305.48	13.11	5.28	10.14	28.53	46.00	17.47	QP
5	421.88	16.25	6.21	4.85	27.31	46.00	18.69	QP
6	492.69	17.83	6.69	5.39	29.91	46.00	16.09	QP

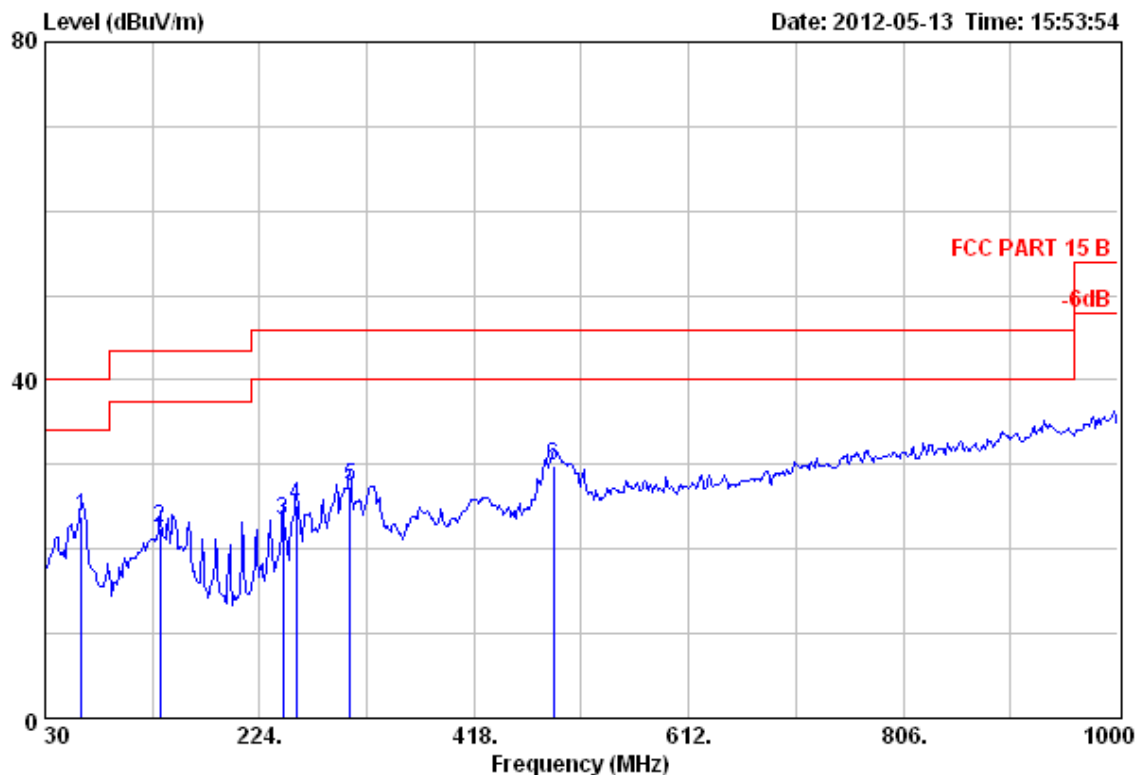
EST Technology

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Data: 141

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 15:53:54



Site no. : 3m Chamber Data no. : 141
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B
 Env. / Ins. : Temp:25.6°; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark (dB)
1	62.98	4.82	2.63	16.43	23.88	40.00	16.12	QP
2	133.79	11.36	3.58	7.57	22.51	43.50	20.99	QP
3	245.34	11.06	4.77	7.64	23.47	46.00	22.53	QP
4	256.98	12.63	4.91	7.66	25.20	46.00	20.80	QP
5	305.48	13.11	5.28	9.05	27.44	46.00	18.56	QP
6	489.78	17.81	6.70	5.24	29.75	46.00	16.25	QP

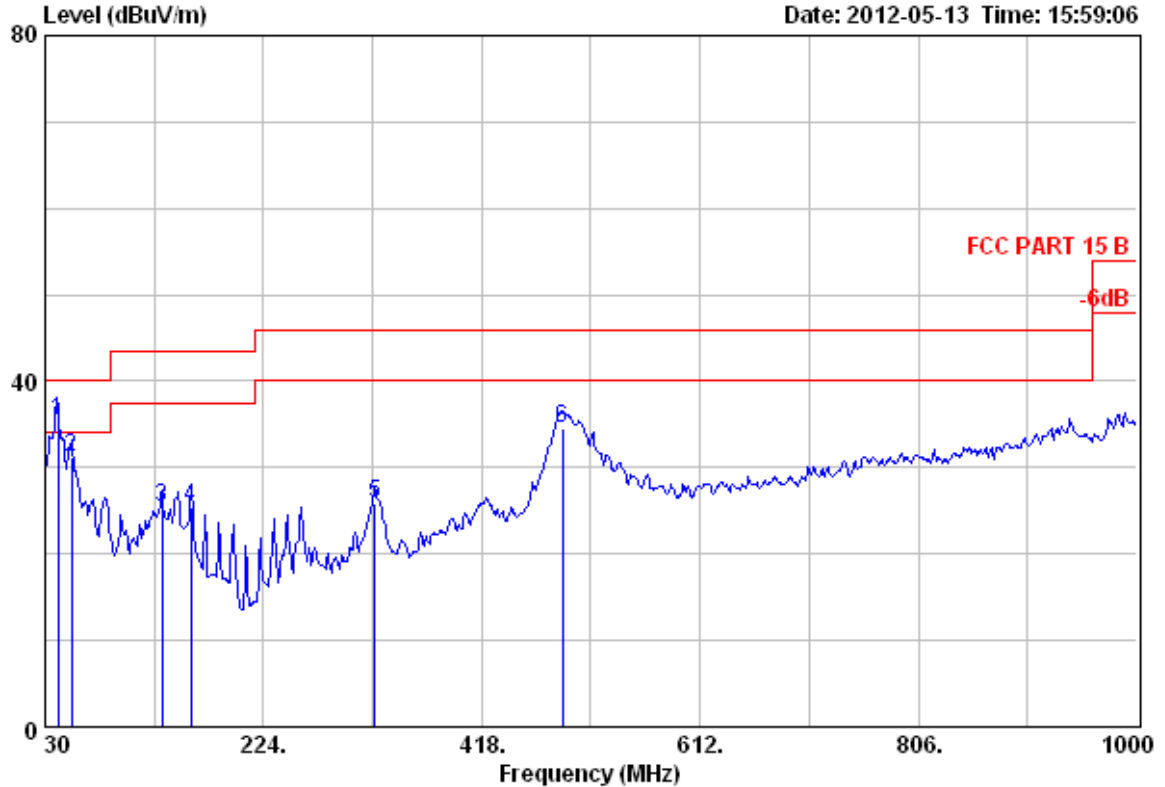
EST Technology

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Data: 142

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 15:59:06



Site no. : 3m Chamber Data no. : 142
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 2

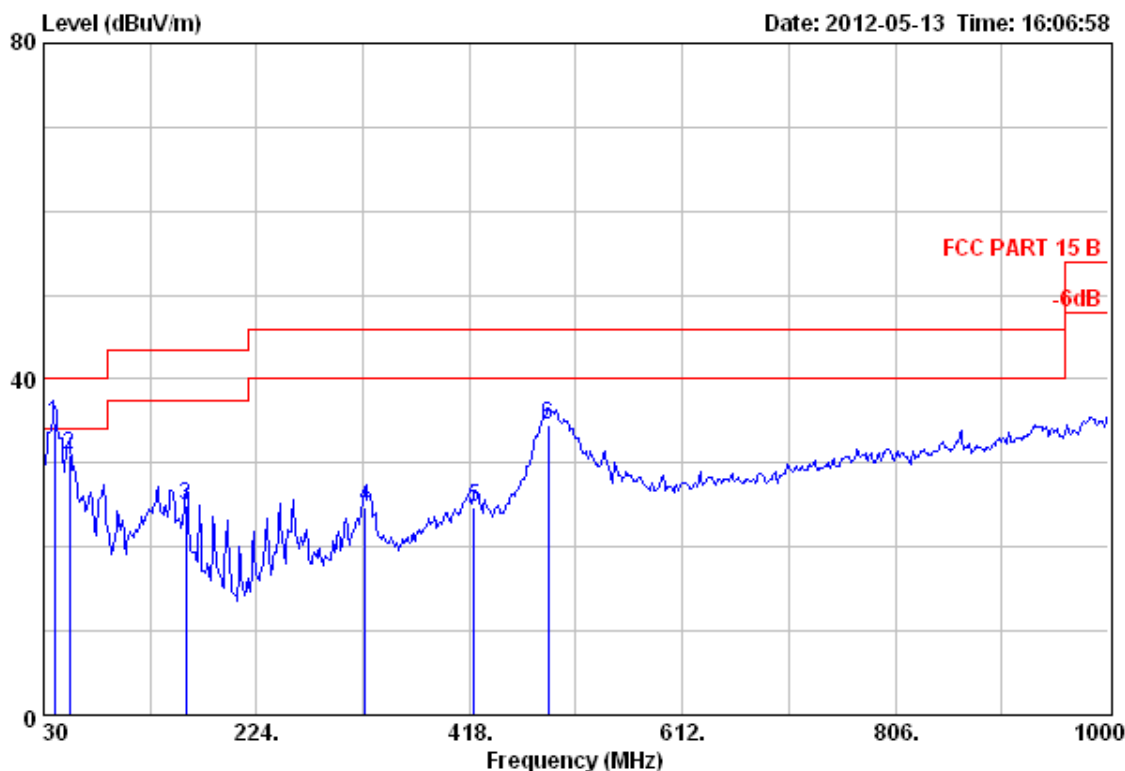
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark (dB)
1	41.64	11.75	2.17	21.53	35.45	40.00	4.55	QP
2	53.28	6.11	2.43	22.55	31.09	40.00	8.91	QP
3	133.79	11.36	3.58	10.54	25.48	43.50	18.02	QP
4	159.98	10.36	3.89	11.06	25.31	43.50	18.19	QP
5	322.94	13.65	5.41	6.75	25.81	46.00	20.19	QP
6	489.78	17.81	6.70	9.96	34.47	46.00	11.53	QP

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Data: 143

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 143
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 2

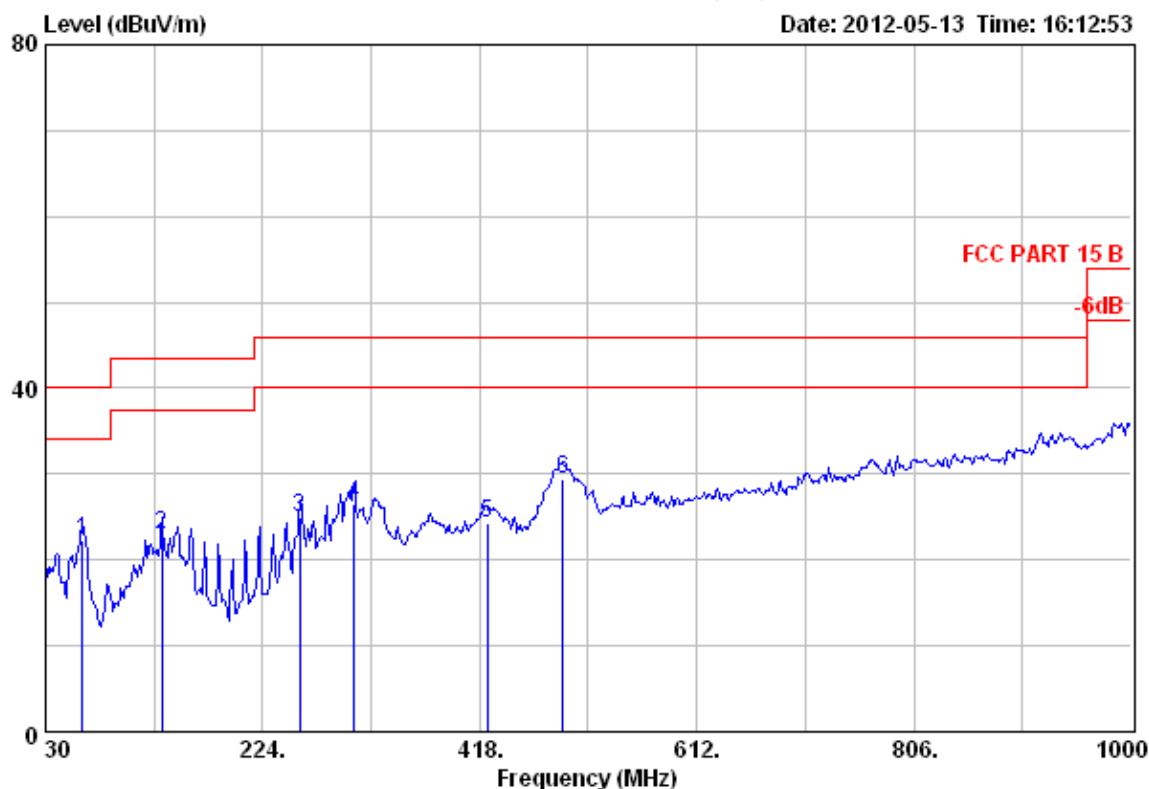
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission		Margin (dB)	Remark (dB)
					Level (dBuV/m)	Limits (dBuV/m)		
1	39.70	12.90	2.12	19.64	34.66	40.00	5.34	QP
2	53.28	6.11	2.43	22.51	31.05	40.00	8.95	QP
3	159.98	10.36	3.89	10.76	25.01	43.50	18.49	QP
4	322.94	13.65	5.41	5.64	24.70	46.00	21.30	QP
5	421.88	16.25	6.21	2.30	24.76	46.00	21.24	QP
6	489.78	17.81	6.70	10.02	34.53	46.00	11.47	QP

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Data: 144

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no.	: 3m Chamber	Data no.	: 144
Dis. / Ant.	: 3m 27137	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15 B		
Env. / Ins.	: Temp:25.6'; Humi:56%; Press:101.52kPa		
Engineer	: Tony		
EUT	: Wireless Speaker		
Power	: DC 20V From Adapter Input AC 120V/60Hz		
M/N	: AirStream WS100		
Test Mode	: TX 2477.313MHz		
	Adapter 2		

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark (dB)
1	62.98	4.82	2.63	14.94	22.39	40.00	17.61	QP
2	133.79	11.36	3.58	7.91	22.85	43.50	20.65	QP
3	256.98	12.63	4.91	7.31	24.85	46.00	21.15	QP
4	305.48	13.11	5.28	8.16	26.55	46.00	19.45	QP
5	424.79	16.18	6.24	1.95	24.37	46.00	21.63	QP
6	492.69	17.83	6.69	4.88	29.40	46.00	16.60	QP

1000MHz-18000MHz

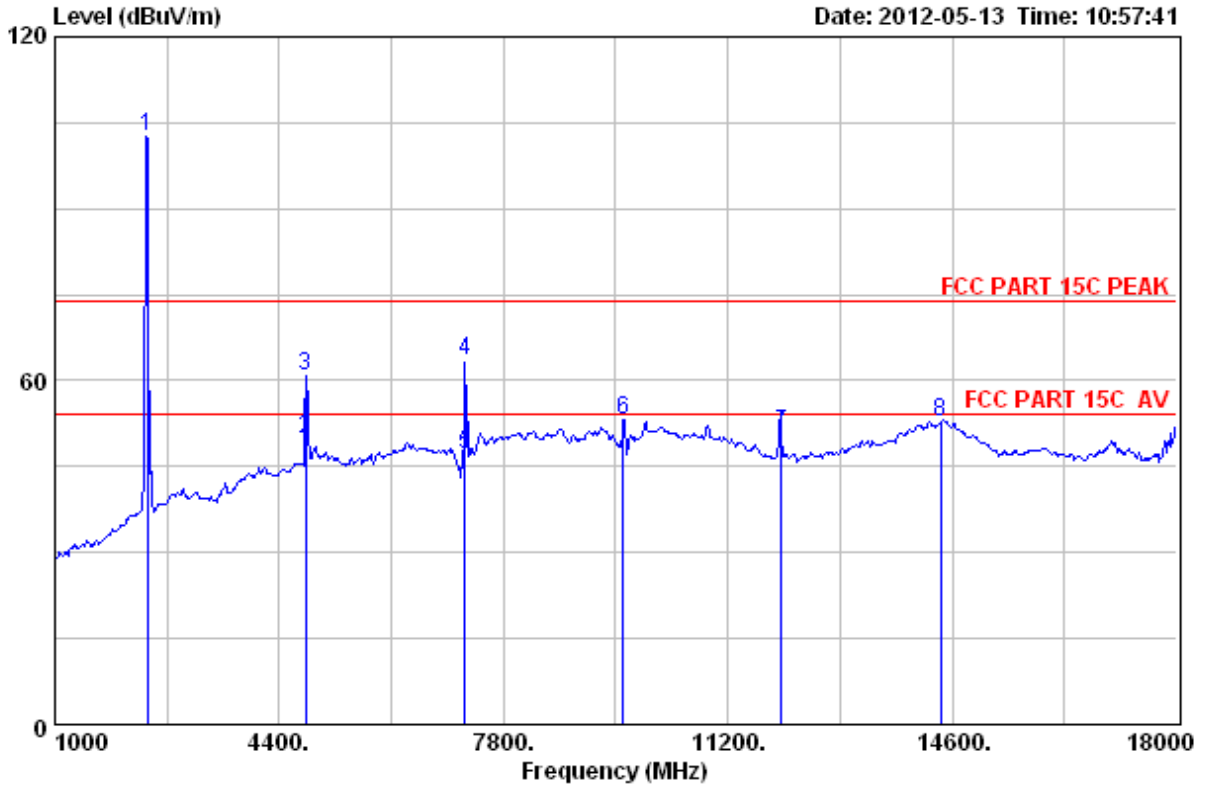
EST Technology

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Data: 69

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 10:57:41



Site no. : 3m Chamber Data no. : 69
Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
Engineer : Tony
EUT : Wireless Speaker
Power : DC 20V From Adapter Input AC 120V/60Hz
M/N : AirStream WS100
Test Mode : TX 2403.585MHz
Adapter 2

		Ant.	Cable	Amp	Emission				
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2403.59	27.61	6.64	34.18	102.64	102.71	74.00	-28.71	Peak
2	4807.17	31.25	11.77	31.81	38.50	49.71	54.00	4.29	Average
3	4807.17	31.25	11.77	31.81	49.50	60.71	74.00	13.29	Peak
4	7210.76	36.52	11.54	32.09	47.51	63.48	74.00	10.52	Peak
5	7210.76	36.52	11.54	32.09	31.23	47.20	54.00	6.80	Average
6	9614.34	37.91	11.68	31.93	35.56	53.22	74.00	20.78	Peak
7	12017.92	38.62	11.40	35.53	36.16	50.65	74.00	23.35	Peak
8	14421.51	41.82	10.93	32.84	32.80	52.71	74.00	21.29	Peak

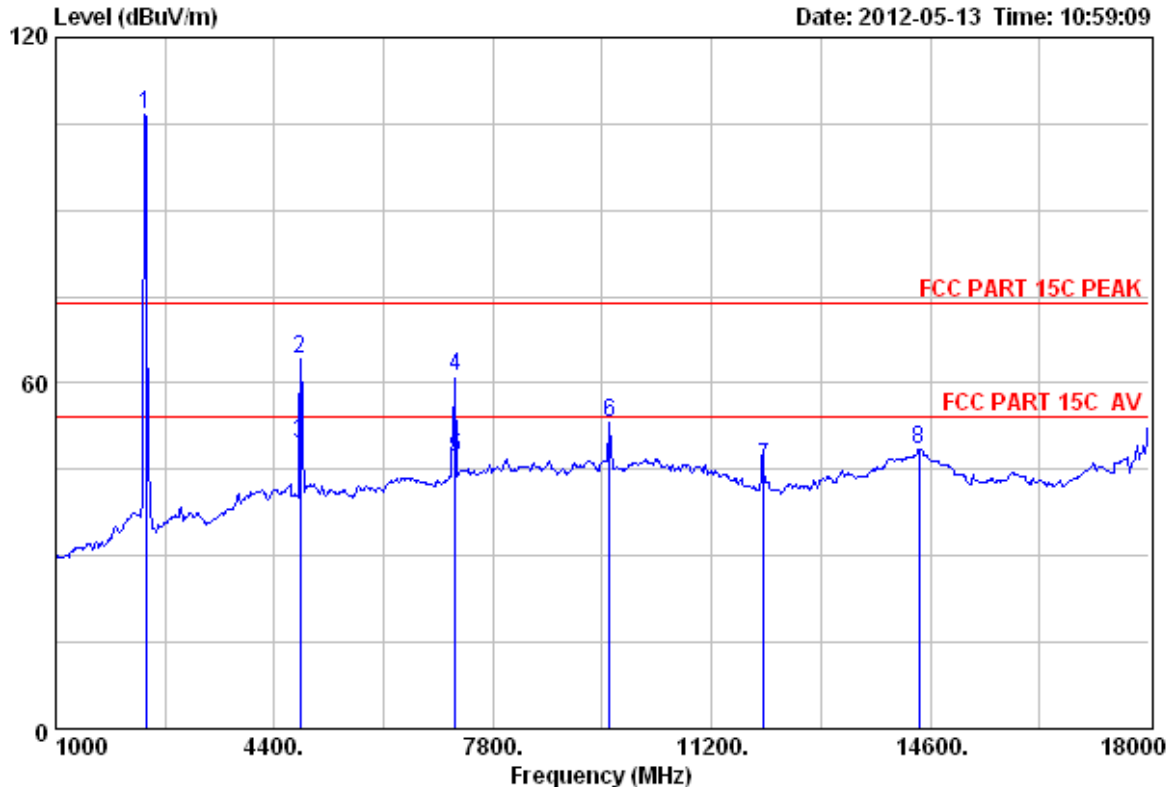
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

EST Technology

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Data: 70

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 70
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 2

		Ant.	Cable	Amp	Emission				
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2403.59	27.61	6.64	34.18	106.54	106.61	74.00	-32.61	Peak
2	4807.17	31.25	11.77	31.81	53.12	64.33	74.00	9.67	Peak
3	4807.17	31.25	11.77	31.81	38.12	49.33	54.00	4.67	Average
4	7210.76	36.52	11.54	32.09	45.23	61.20	74.00	12.80	Peak
5	7210.76	36.52	11.54	32.09	31.23	47.20	54.00	6.80	Average
6	9614.34	37.91	11.68	31.93	35.62	53.28	74.00	20.72	Peak
7	12017.92	38.62	11.40	35.53	31.00	45.49	74.00	28.51	Peak
8	14421.51	41.82	10.93	32.84	28.48	48.39	74.00	25.61	Peak

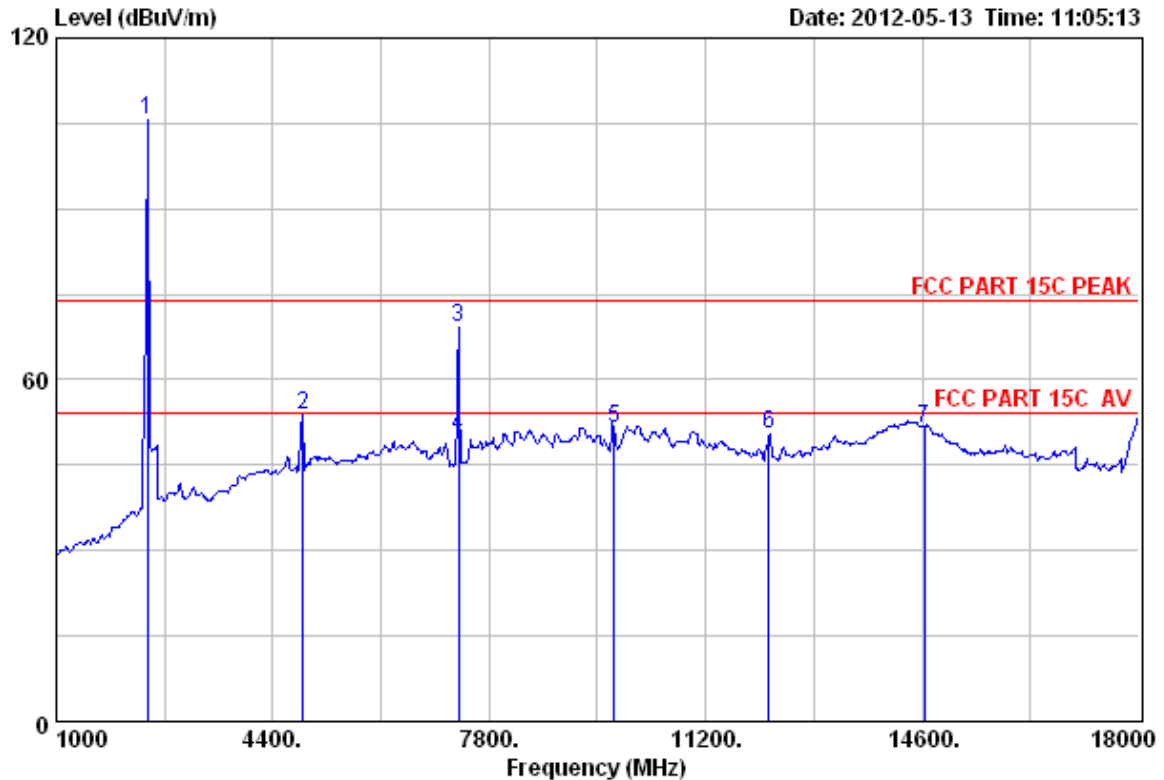
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 71

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 71
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 2

	Freq.	Ant.	Cable	Amp	Emission				
	(MHz)	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2438.91	27.60	6.67	34.12	105.47	105.62	74.00	-31.62	Peak
2	4877.83	31.37	12.07	31.90	42.38	53.92	74.00	20.08	Peak
3	7316.74	36.55	11.57	31.99	52.98	69.11	74.00	4.89	Peak
4	7316.74	36.55	11.57	31.99	33.98	50.11	54.00	3.89	Average
5	9755.65	38.13	11.65	31.86	33.40	51.32	74.00	22.68	Peak
6	12194.57	38.67	11.20	35.69	36.22	50.40	74.00	23.60	Peak
7	14633.48	41.48	10.91	33.56	32.80	51.63	74.00	22.37	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

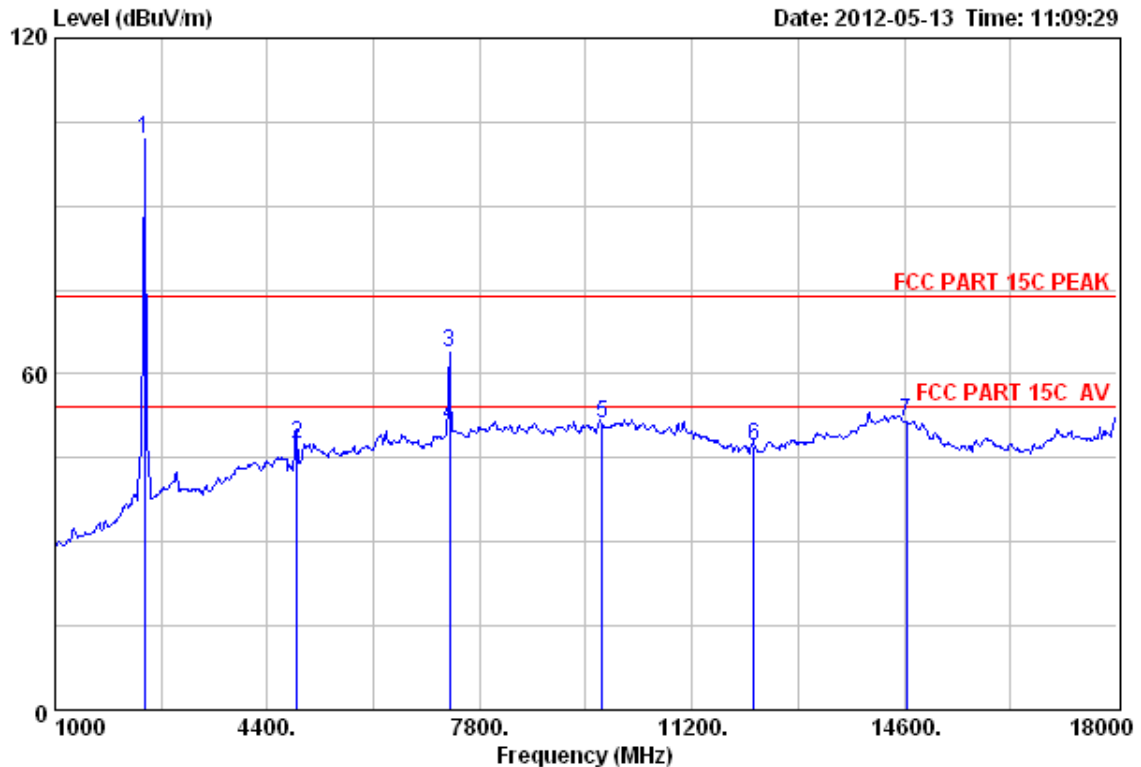
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Data: 72

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 11:09:29



Site no. : 3m Chamber Data no. : 72
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 2

		Ant.	Cable	Amp	Emission				
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	2438.91	27.60	6.67	34.12	101.69	101.84	74.00	-27.84	Peak
2	4877.83	31.37	12.07	31.90	36.06	47.60	74.00	26.40	Peak
3	7316.74	36.55	11.57	31.99	47.57	63.70	74.00	10.30	Peak
4	7316.74	36.55	11.57	31.99	34.57	50.70	54.00	3.30	Average
5	9755.65	38.13	11.65	31.86	33.37	51.29	74.00	22.71	Peak
6	12194.57	38.67	11.20	35.69	32.88	47.06	74.00	26.94	Peak
7	14633.48	41.48	10.91	33.56	32.68	51.51	74.00	22.49	Peak

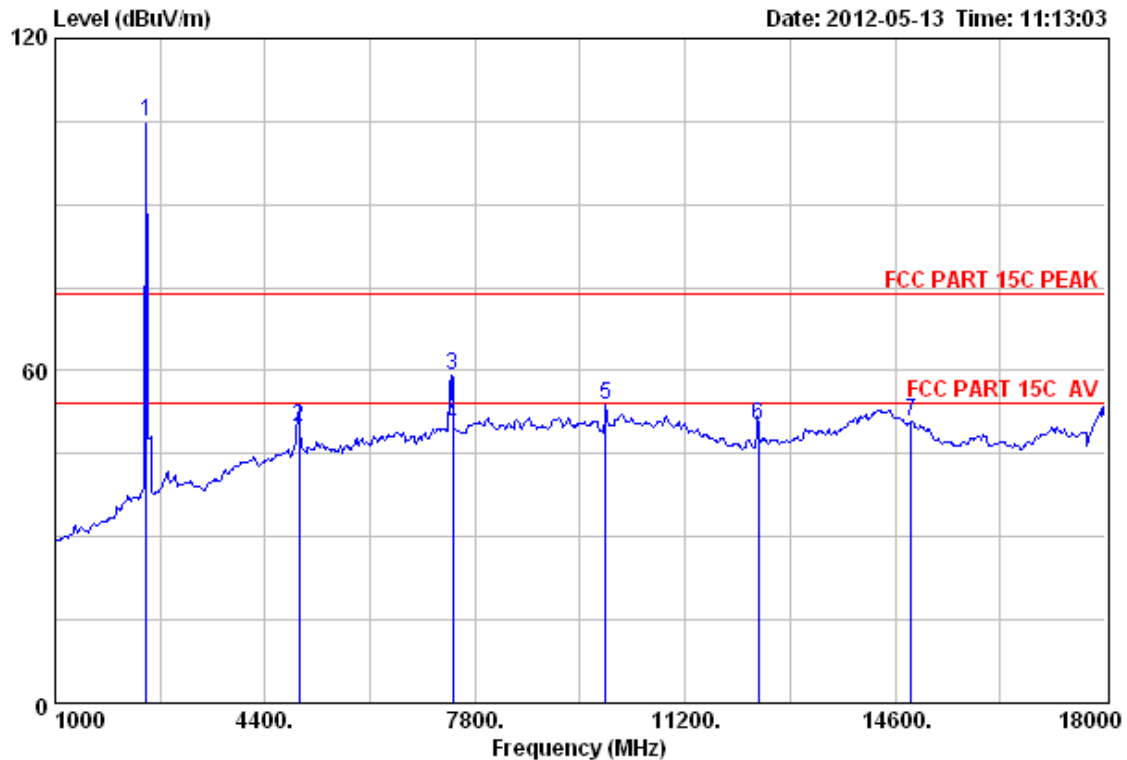
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 73

File: D:\test data\2012\MM\MONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 73
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 2

		Ant.	Cable	Amp	Emission				
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	2477.31	27.58	6.71	34.03	104.74	105.00	74.00	-31.00	Peak
2	4954.63	31.49	12.44	31.97	37.88	49.84	74.00	24.16	Peak
3	7431.94	36.54	11.60	31.93	42.82	59.03	74.00	14.97	Peak
4	7431.94	36.54	11.60	31.93	33.82	50.03	54.00	3.97	Average
5	9909.25	38.14	11.61	31.76	35.87	53.86	74.00	20.14	Peak
6	12386.57	38.73	11.01	35.36	35.79	50.17	74.00	23.83	Peak
7	14863.88	40.65	10.88	34.39	33.69	50.83	74.00	23.17	Peak

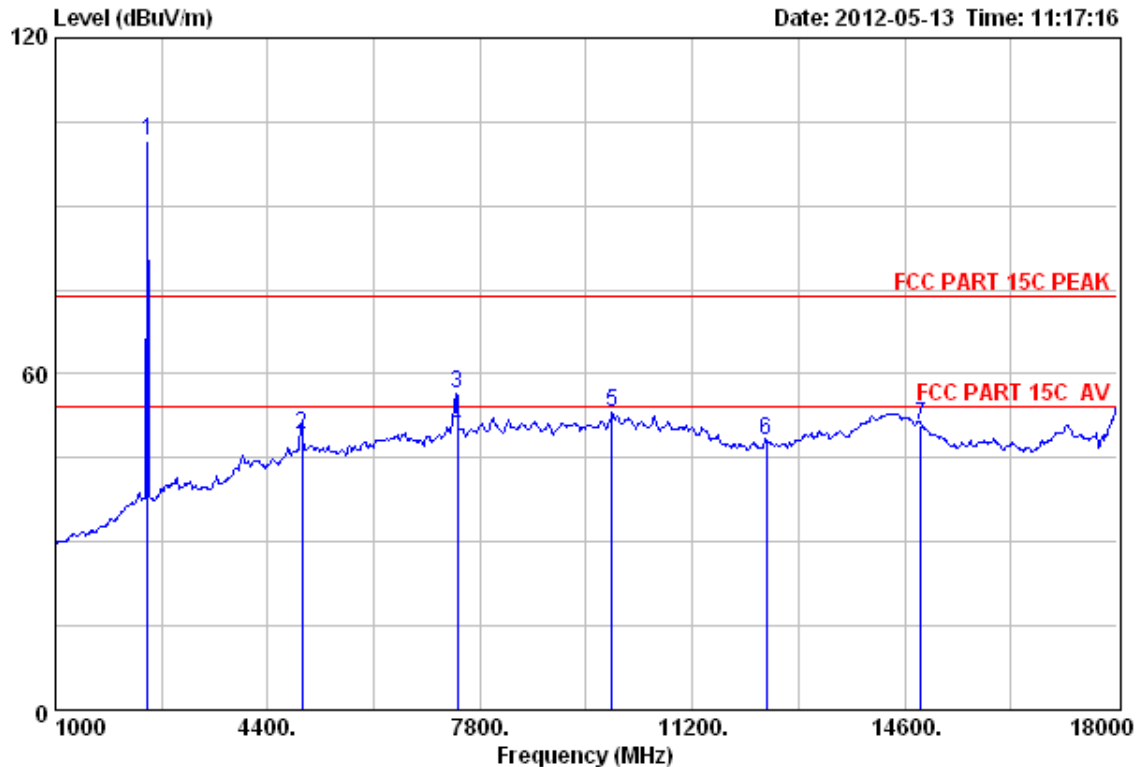
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 74

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 74
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 2

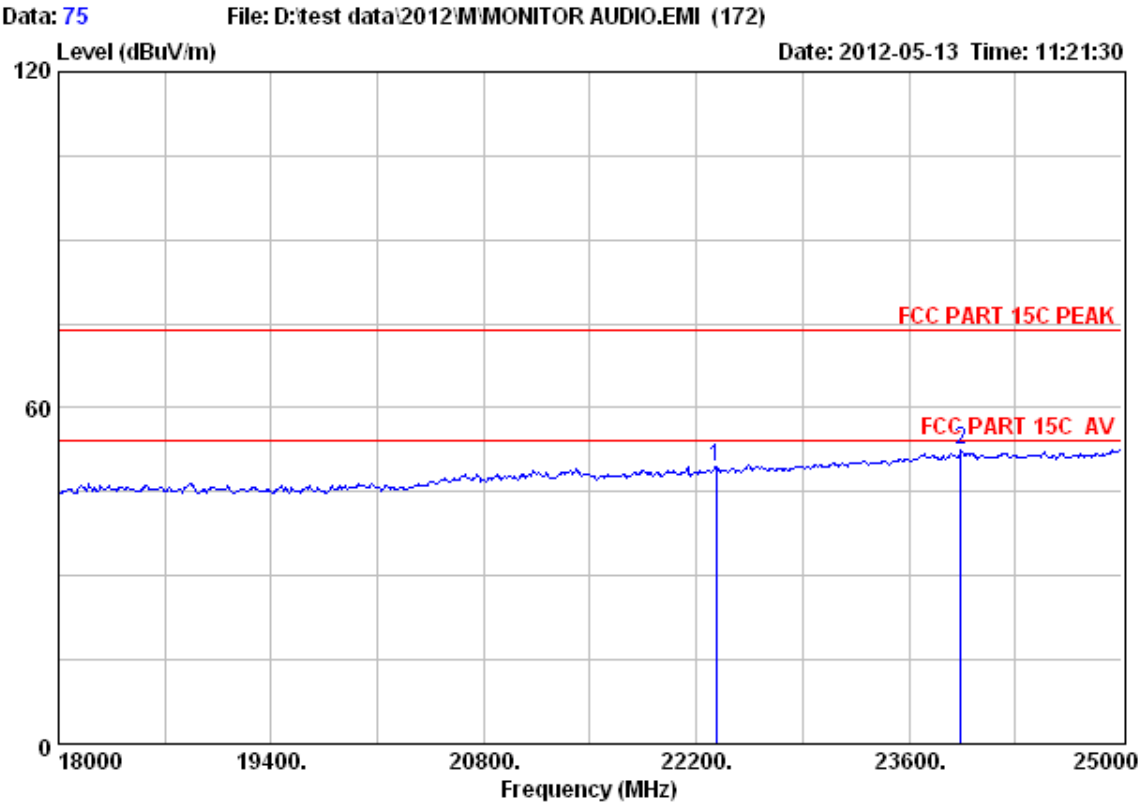
		Ant.	Cable	Amp	Emission				
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2477.31	27.58	6.71	34.03	101.32	101.58	74.00	-27.58	Peak
2	4954.63	31.49	12.44	31.97	37.11	49.07	74.00	24.93	Peak
3	7431.94	36.54	11.60	31.93	40.24	56.45	74.00	17.55	Peak
4	7431.94	36.54	11.60	31.93	34.24	50.45	54.00	3.55	Average
5	9909.25	38.14	11.61	31.76	35.30	53.29	74.00	20.71	Peak
6	12386.57	38.73	11.01	35.36	33.85	48.23	74.00	25.77	Peak
7	14863.88	40.65	10.88	34.39	33.77	50.91	74.00	23.09	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

18000MHz-25000MHz

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Site no. : 3m Chamber Data no. : 75
Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : Temp:25.6';Humi:56%;Press:101.52kPa
Engineer : Tony
EUT : Wireless Speaker
Power : DC 20V From Adapter Input AC 120V/60Hz
M/N : AirStream WS100
Test Mode : TX 2403.585MHz
Adapter 2

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission					Remark
				Reading	Level	Limits	Margin		
1	22333.00	45.77	20.75	34.56	17.61	49.57	74.00	24.43	Peak
2	23943.00	45.61	21.99	32.85	17.66	52.41	74.00	21.59	Peak

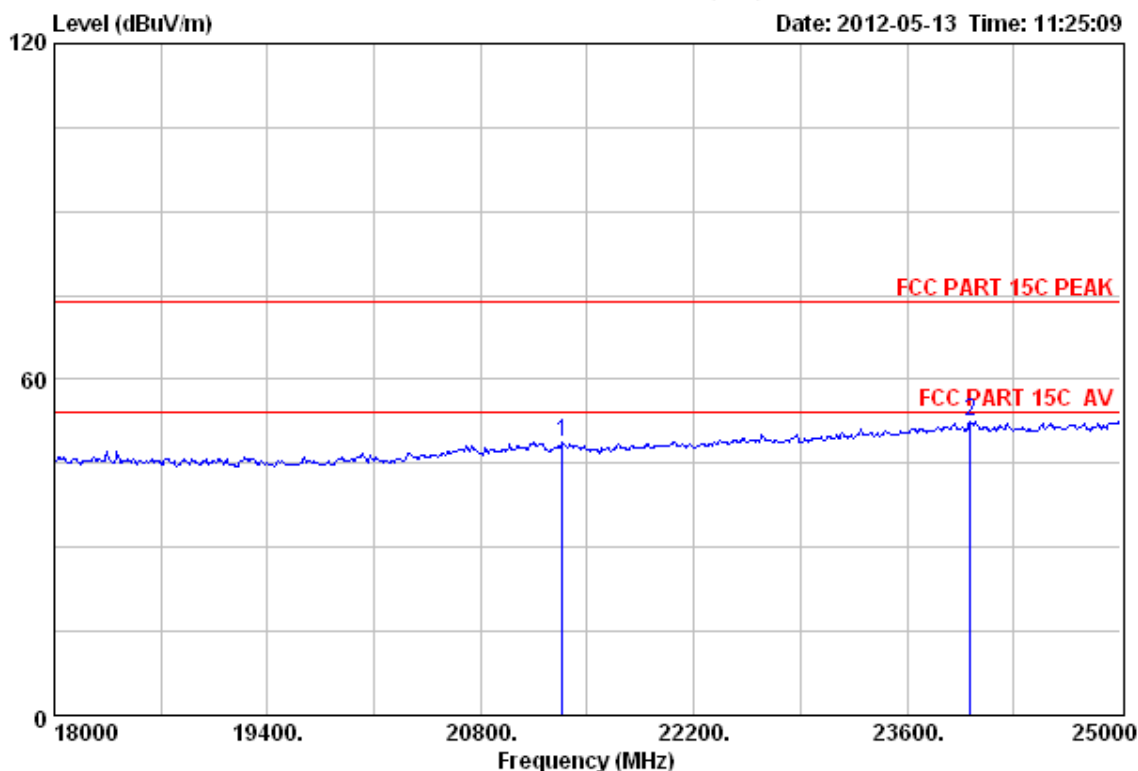
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

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Data: 76

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 76
 Dis. / Ant. : 3m ANT ABVOE 18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 2

		Ant.	Cable	Amp	Emission				
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	21339.00	46.09	20.28	35.49	18.09	48.97	74.00	25.03	Peak
2	24013.00	45.60	22.05	32.84	17.62	52.43	74.00	21.57	Peak

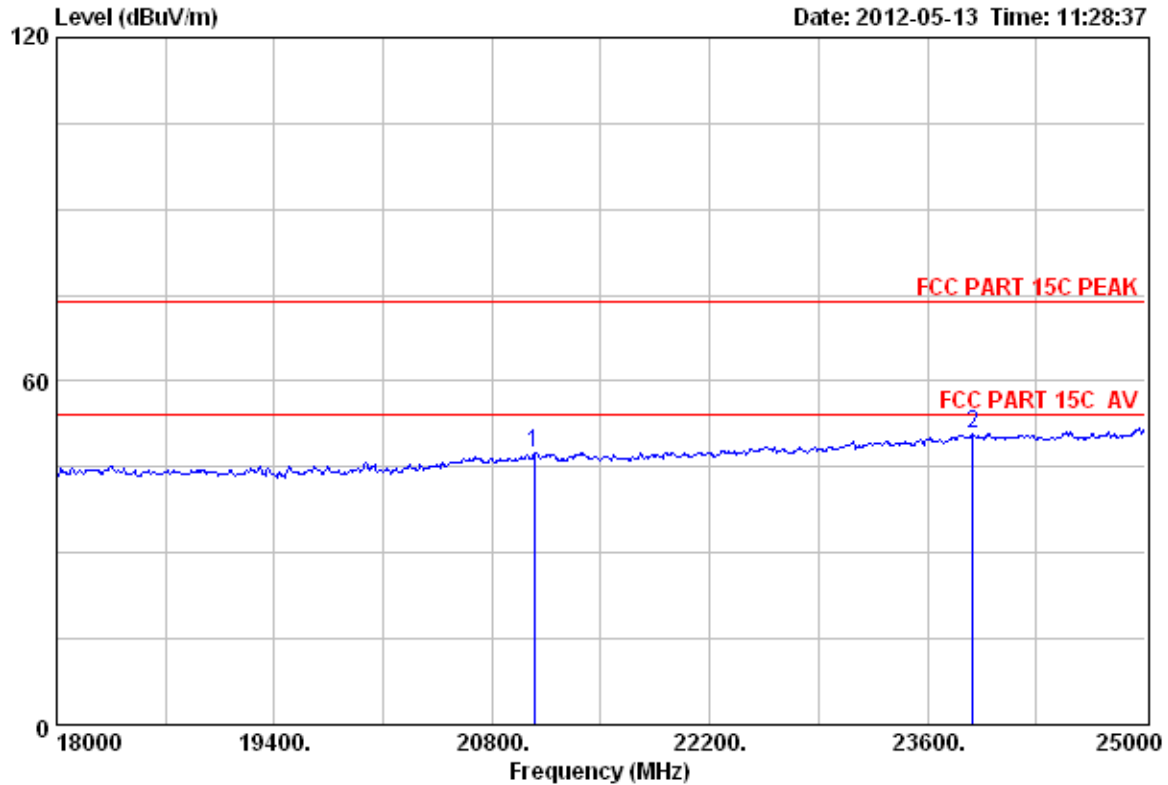
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 77

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 77
 Dis. / Ant. : 3m ANT ABVOE 18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 2

		Ant.	Cable	Amp	Emission				
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	21073.00	46.25	20.16	35.73	16.85	47.53	74.00	26.47	Peak
2	23894.00	45.62	21.95	32.90	16.25	50.92	74.00	23.08	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

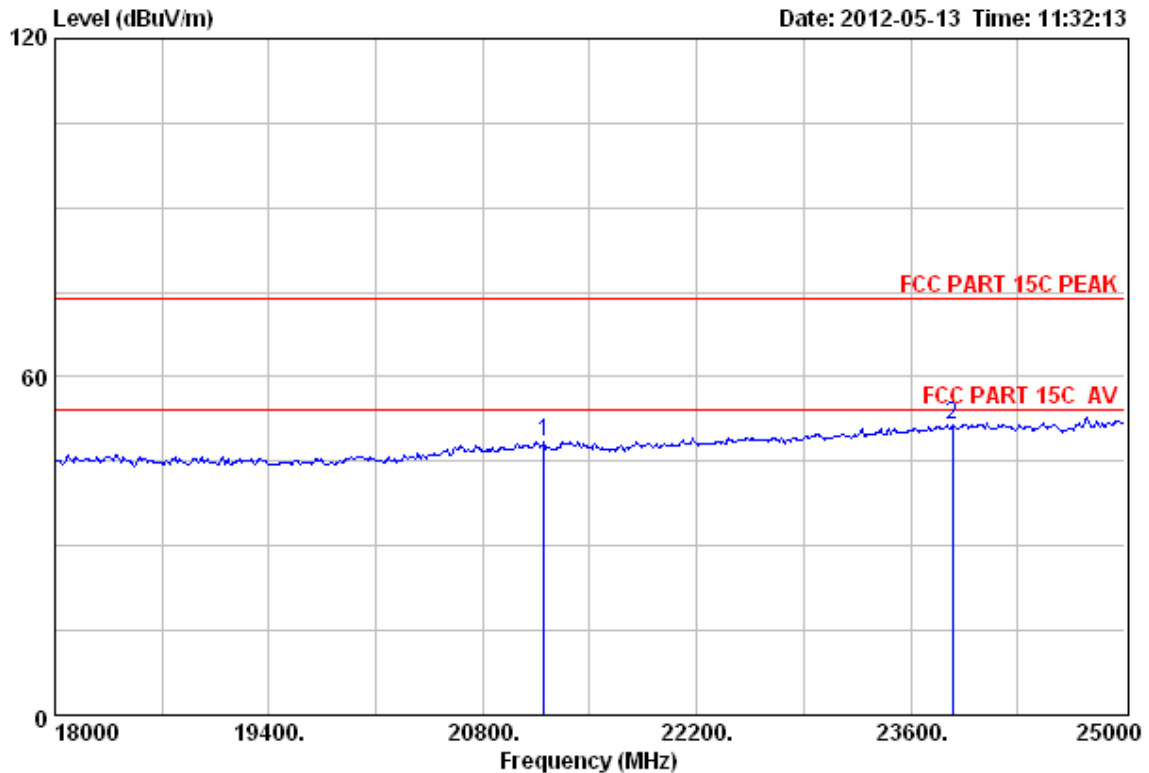
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Data: 78

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 11:32:13



Site no. : 3m Chamber Data no. : 78
 Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2438.913MHz
 Adapter 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission		Margin (dB)	Remark
						Level	Limits		
						(dBuV/m)	(dBuV/m)		
1	21199.00	46.18	20.22	35.62	17.78	48.56	74.00	25.44	Peak
2	23873.00	45.63	21.94	32.93	16.81	51.45	74.00	22.55	Peak

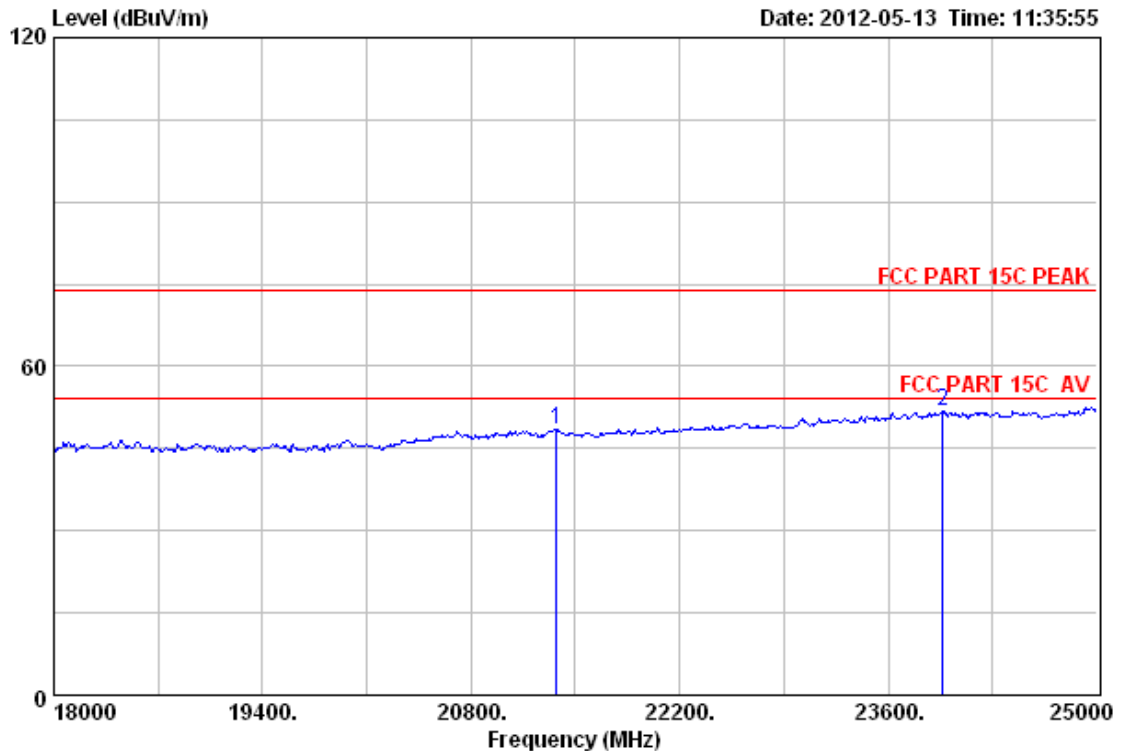
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 79

File: D:\test data\2012\MM\MONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 79
 Dis. / Ant. : 3m ANT ABVOE 18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	21374.00	46.08	20.29	35.46	17.60	48.51	74.00	25.49	Peak
2	23964.00	45.61	22.02	32.83	16.94	51.74	74.00	22.26	Peak

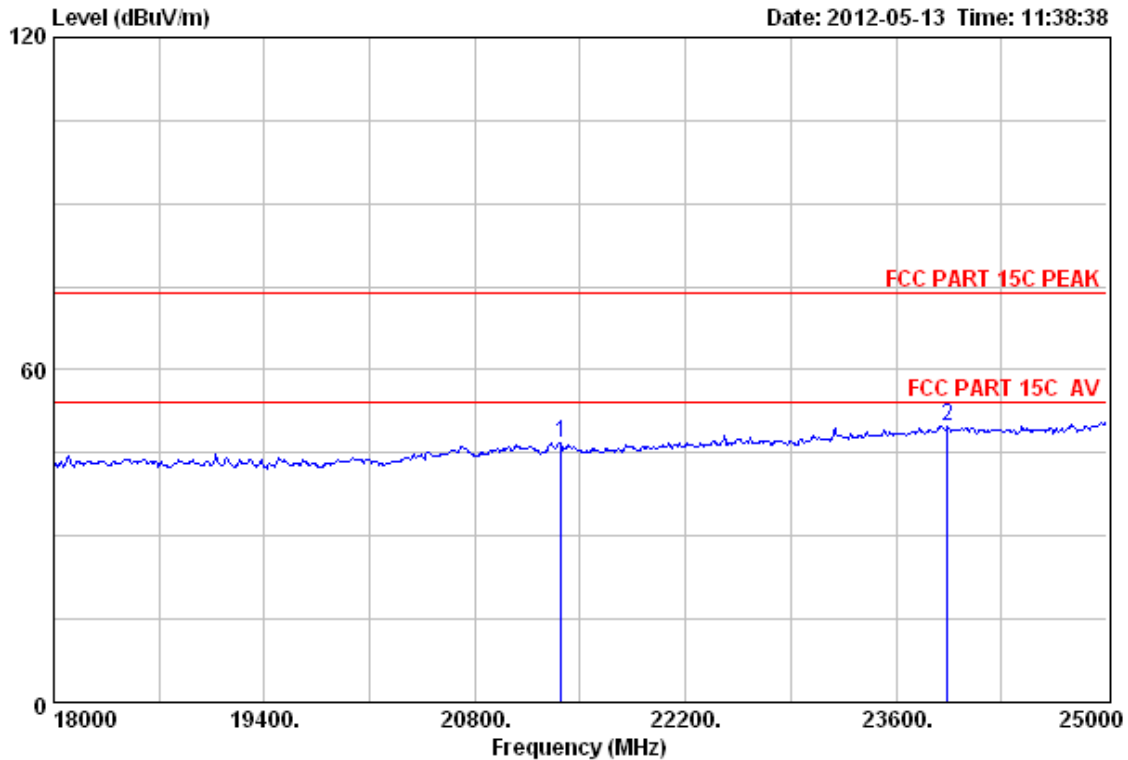
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 80

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 80
 Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 2

		Ant.	Cable	Amp	Emission				
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	21374.00	46.08	20.29	35.46	15.96	46.87	74.00	27.13	Peak
2	23943.00	45.61	21.99	32.85	15.20	49.95	74.00	24.05	Peak

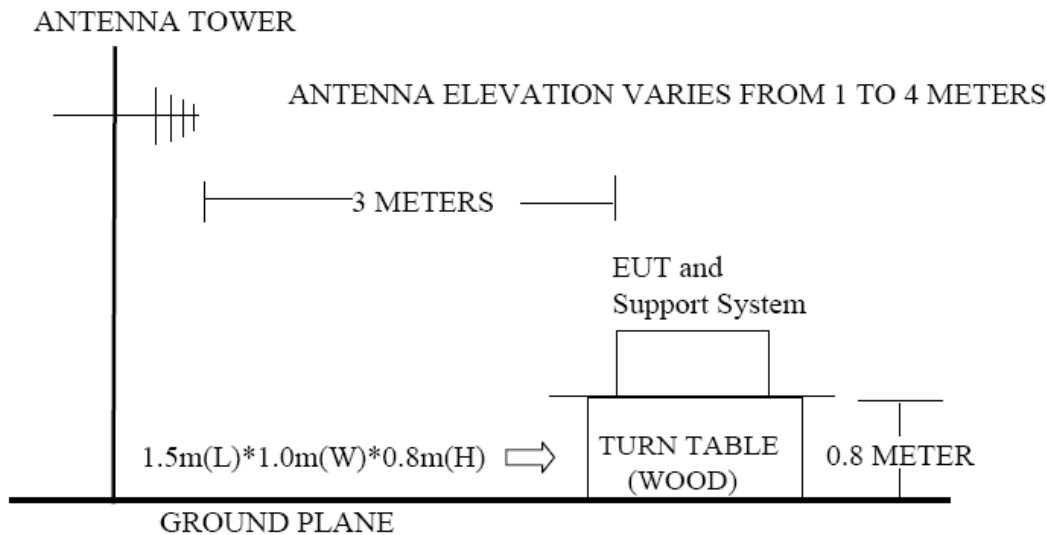
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

9. BAND EDGE COMPLIANCE

9.1. Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

9.2. Block Diagram of Test setup



9.3. Test Procedure

EUT was placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved 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 test.

Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of emissions

(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

9.4. Test Result

EUT: Wireless Speaker	M/N: AirStream WS100
Power:DC 20V From Adapter Input AC 120V/60Hz	
Test date: 2012-05-13	Test site: 3m Chamber Tested by: Tony Tang
Test mode: Tx Mode	
Pass	

Note: If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

9.5. Test Data

Power From Adapter 1

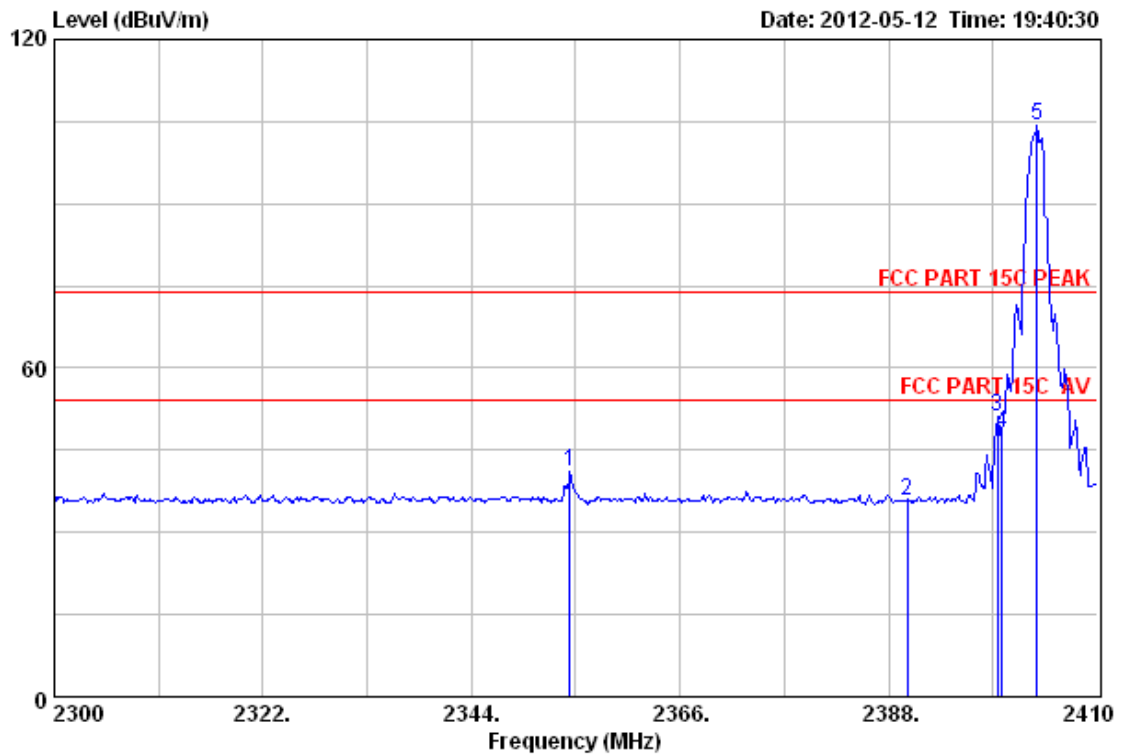
EST Technology

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Data: 65

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-12 Time: 19:40:30



Site no. : 3m Chamber Data no. : 65
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2354.34	27.70	6.58	34.22	40.96	41.02	74.00	32.98	Peak
2	2390.00	27.64	6.62	34.19	35.83	35.90	74.00	38.10	Peak
3	2399.44	27.61	6.62	34.18	51.19	51.24	74.00	22.76	Peak
4	2400.00	27.61	6.62	34.18	48.15	48.20	74.00	25.80	Peak
5	2403.62	27.61	6.64	34.18	104.38	104.45	74.00	-30.45	Peak

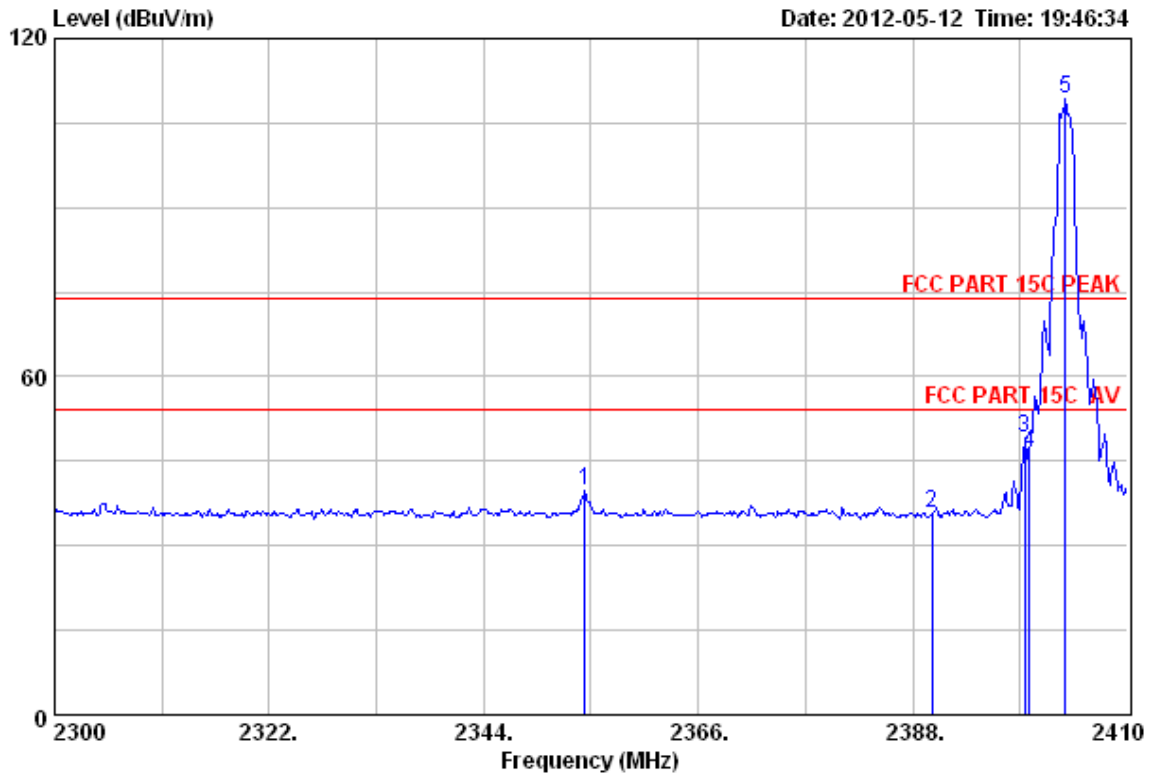
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 66

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 66
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
					Reading	Level			
1	2354.34	27.70	6.58	34.22	39.59	39.65	74.00	34.35	Peak
2	2390.00	27.64	6.62	34.19	35.68	35.75	74.00	38.25	Peak
3	2399.44	27.61	6.62	34.18	49.14	49.19	74.00	24.81	Peak
4	2400.00	27.61	6.62	34.18	46.45	46.50	74.00	27.50	Peak
5	2403.62	27.61	6.64	34.18	109.28	109.35	74.00	-35.35	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

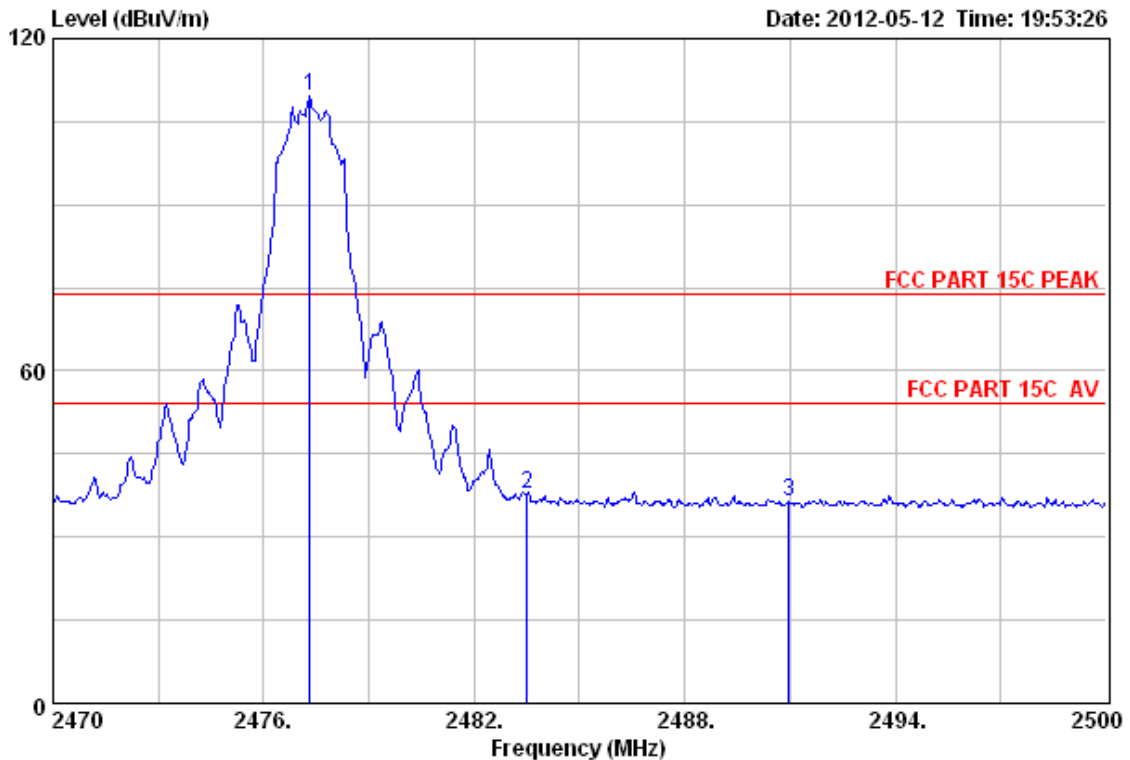
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Data: 67

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)

Date: 2012-05-12 Time: 19:53:26



Site no. : 3m Chamber Data no. : 67
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 1

		Ant.	Cable	Amp	Emission				
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBUV)	(dBUV/m)	(dBUV/m)	(dB)		
1	2477.32	27.58	6.71	34.03	109.50	109.76	74.00	-35.76	Peak
2	2483.50	27.58	6.71	34.03	37.57	37.83	74.00	36.17	Peak
3	2490.97	27.58	6.73	34.03	36.06	36.34	74.00	37.66	Peak

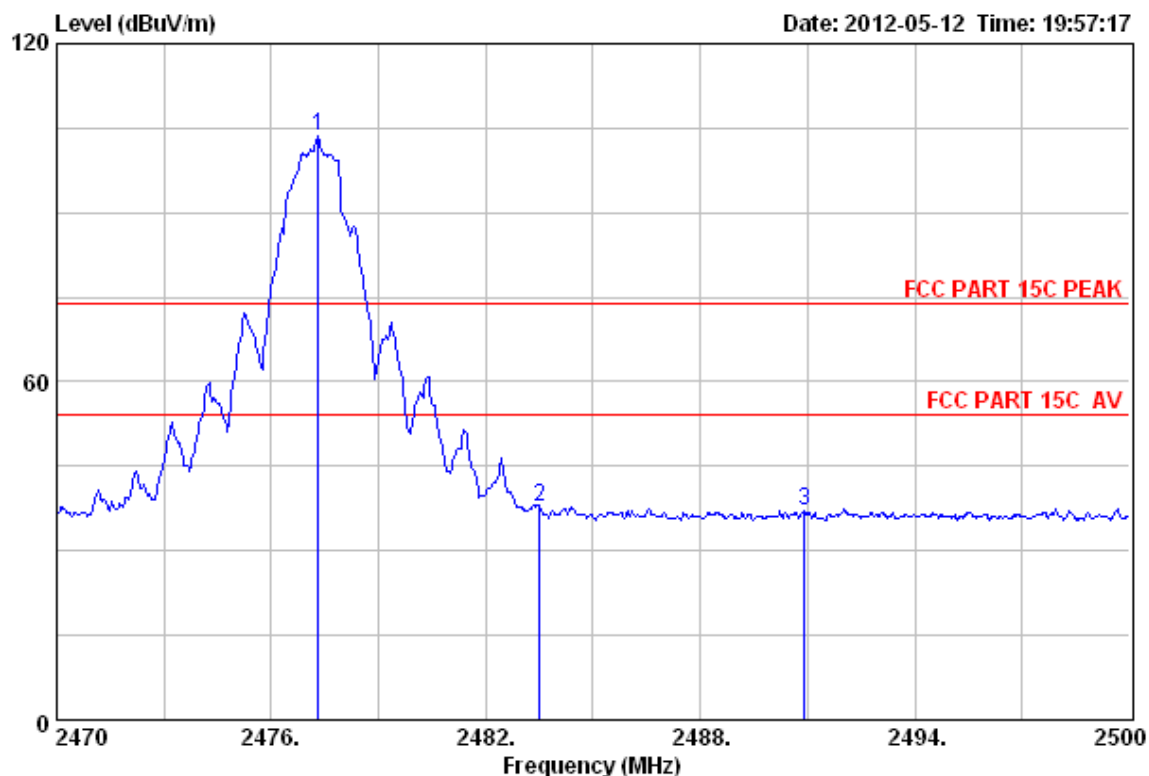
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 68

File: D:\test data\2012\MM\MONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 68
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 1

	Freq. (MHz)	Ant.	Cable	Amp	Emission			Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)		
1	2477.32	27.58	6.71	34.03	103.47	103.73	74.00	-29.73	Peak
2	2483.50	27.58	6.71	34.03	37.58	37.84	74.00	36.16	Peak
3	2490.91	27.58	6.73	34.03	36.77	37.05	74.00	36.95	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Power From Adapter 2

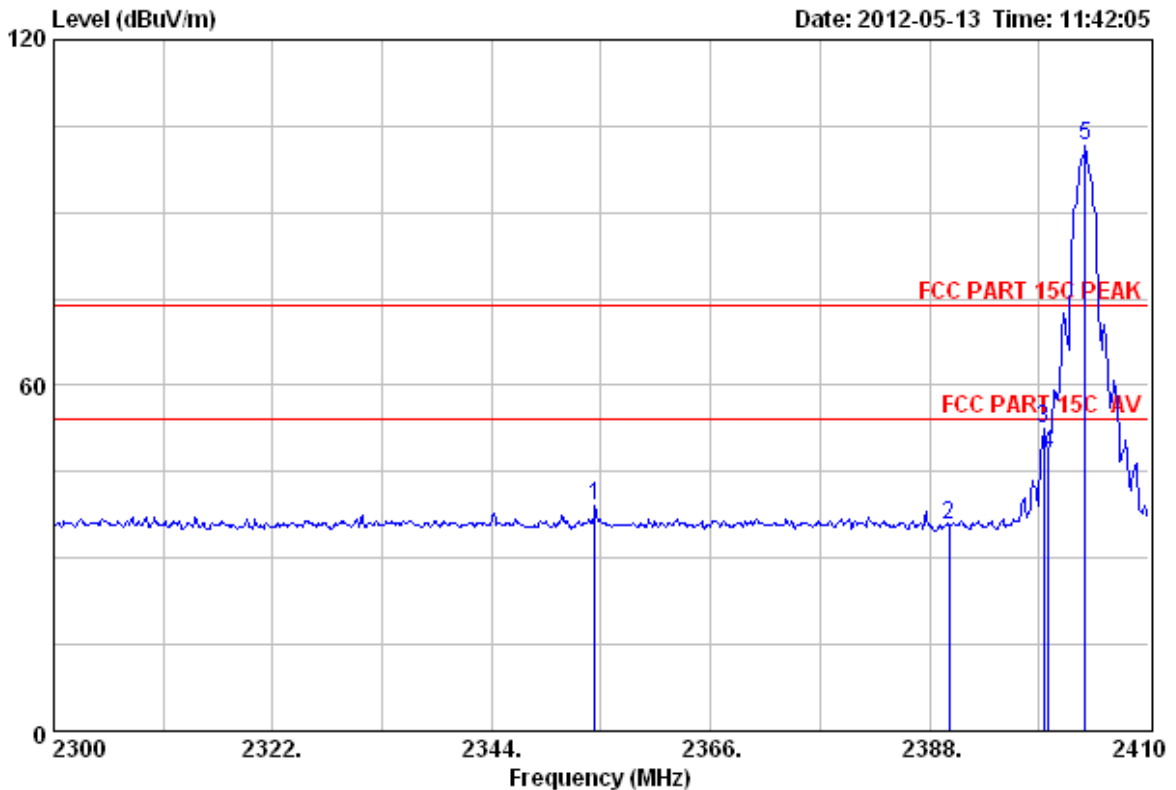
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Data: 81

File: D:\test data\2012\MM\MONITOR AUDIO.EMI (172)

Date: 2012-05-13 Time: 11:42:05



Site no. : 3m Chamber Data no. : 81
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBUV/m)	Margin (dB)	Remark
					Reading (dBUV)	Level (dBUV/m)			
1	2354.34	27.70	6.58	34.22	38.97	39.03	74.00	34.97	Peak
2	2390.00	27.64	6.62	34.19	35.71	35.78	74.00	38.22	Peak
3	2399.44	27.61	6.62	34.18	52.55	52.60	74.00	21.40	Peak
4	2400.00	27.61	6.62	34.18	48.25	48.30	74.00	25.70	Peak
5	2403.62	27.61	6.64	34.18	101.44	101.51	74.00	-27.51	Peak

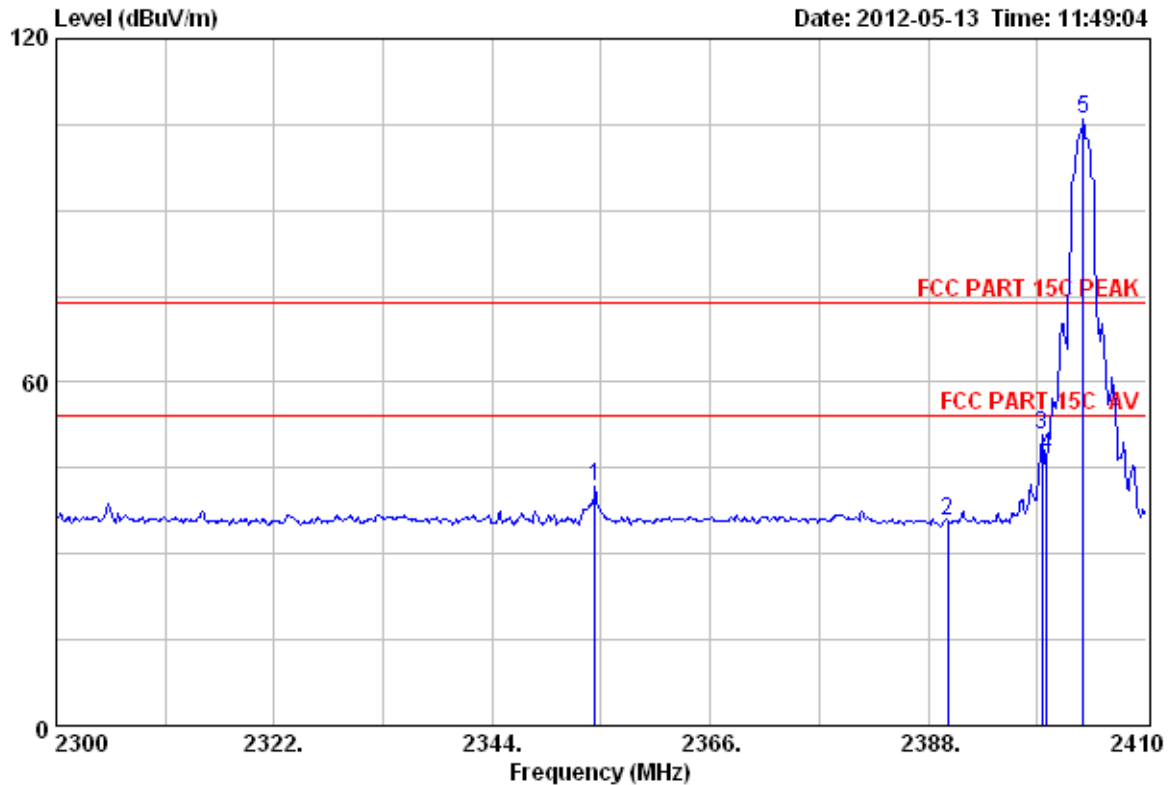
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 82

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 82
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2403.585MHz
 Adapter 2

	Freq.	Ant.	Cable	Amp	Emission				
	(MHz)	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2354.34	27.70	6.58	34.22	41.65	41.71	74.00	32.29	Peak
2	2390.00	27.64	6.62	34.19	35.70	35.77	74.00	38.23	Peak
3	2399.44	27.61	6.62	34.18	50.60	50.65	74.00	23.35	Peak
4	2400.00	27.61	6.62	34.18	47.03	47.08	74.00	26.92	Peak
5	2403.62	27.61	6.64	34.18	106.01	106.08	74.00	-32.08	Peak

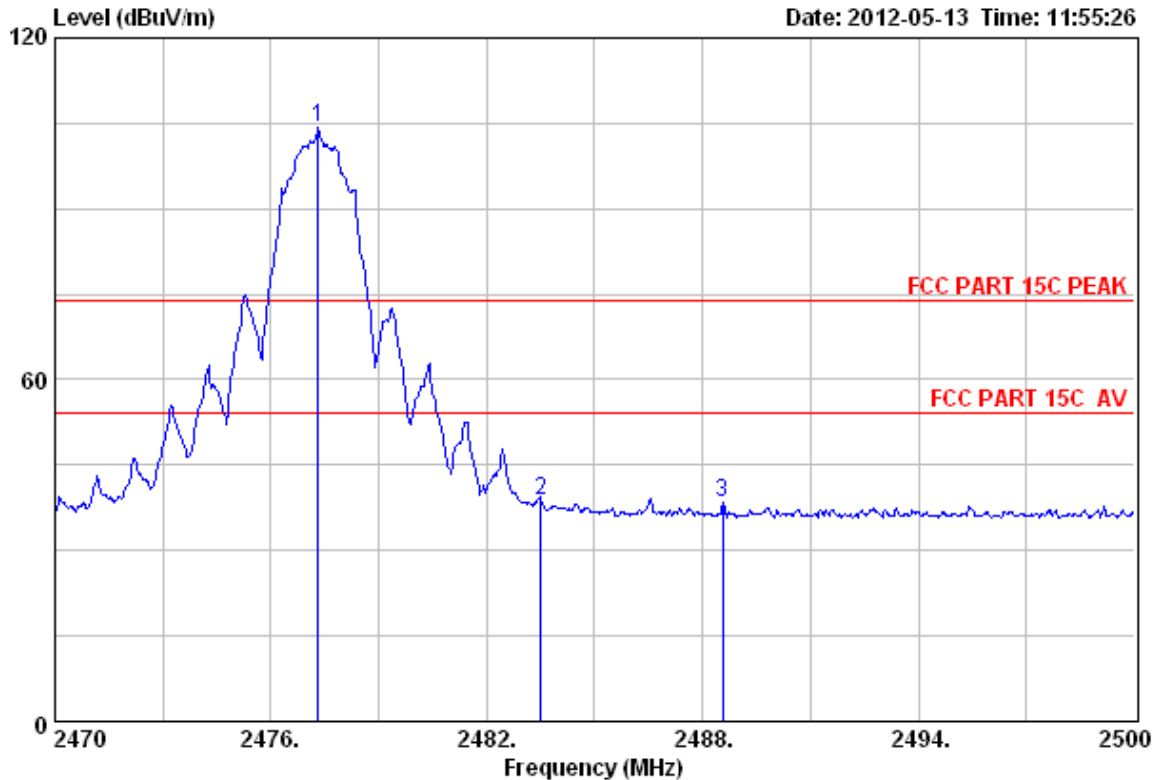
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 83

File: D:\test data\2012\MMONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 83
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6';Humi:56%;Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 2

		Ant.	Cable	Amp	Emission				
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	2477.32	27.58	6.71	34.03	104.18	104.44	74.00	-30.44	Peak
2	2483.50	27.58	6.71	34.03	38.62	38.88	74.00	35.12	Peak
3	2488.57	27.58	6.73	34.03	38.12	38.40	74.00	35.60	Peak

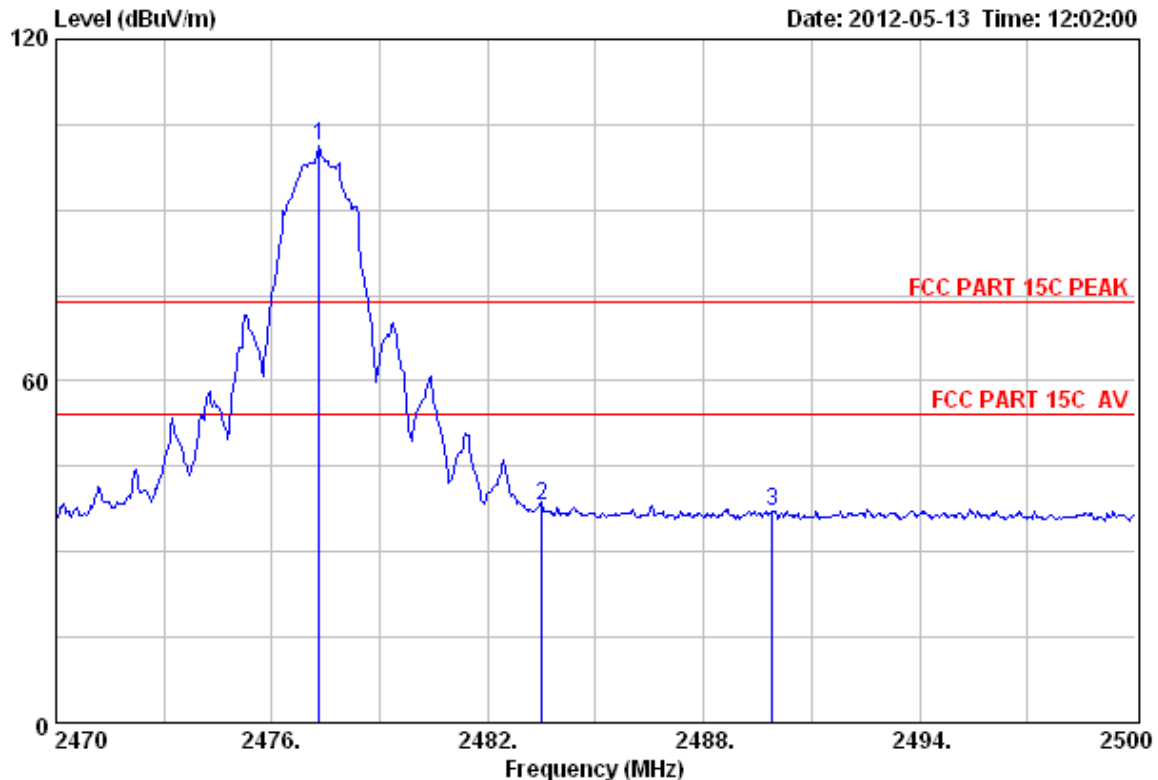
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

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Data: 84

File: D:\test data\2012\MM\MONITOR AUDIO.EMI (172)



Site no. : 3m Chamber Data no. : 84
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:25.6'; Humi:56%; Press:101.52kPa
 Engineer : Tony
 EUT : Wireless Speaker
 Power : DC 20V From Adapter Input AC 120V/60Hz
 M/N : AirStream WS100
 Test Mode : TX 2477.313MHz
 Adapter 2

	Freq.	Ant.	Cable	Amp	Emission				
	(MHz)	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
		(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	2477.32	27.58	6.71	34.03	100.86	101.12	74.00	-27.12	Peak
2	2483.50	27.58	6.71	34.03	37.89	38.15	74.00	35.85	Peak
3	2489.92	27.58	6.73	34.03	36.87	37.15	74.00	36.85	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

10. POWER LINE CONDUCTED EMISSIONS

10.1. Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

10.2. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT was charged from PC's USB port which connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#).. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2003 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS30) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked.

10.3. Test Result

0.15MHz—30MHz Conducted emissison Test result		
EUT: Wireless Speaker	M/N:AirStream WS100	
Power:DC 20V From Adapter Input AC 120V/60Hz		
Test date: 2012-5-3	Test site: 3m Chamber	Tested by: Bible.Hu
Test mode: Tx Mode		
Pass		

10.4. Test data

Power From Adapter 1

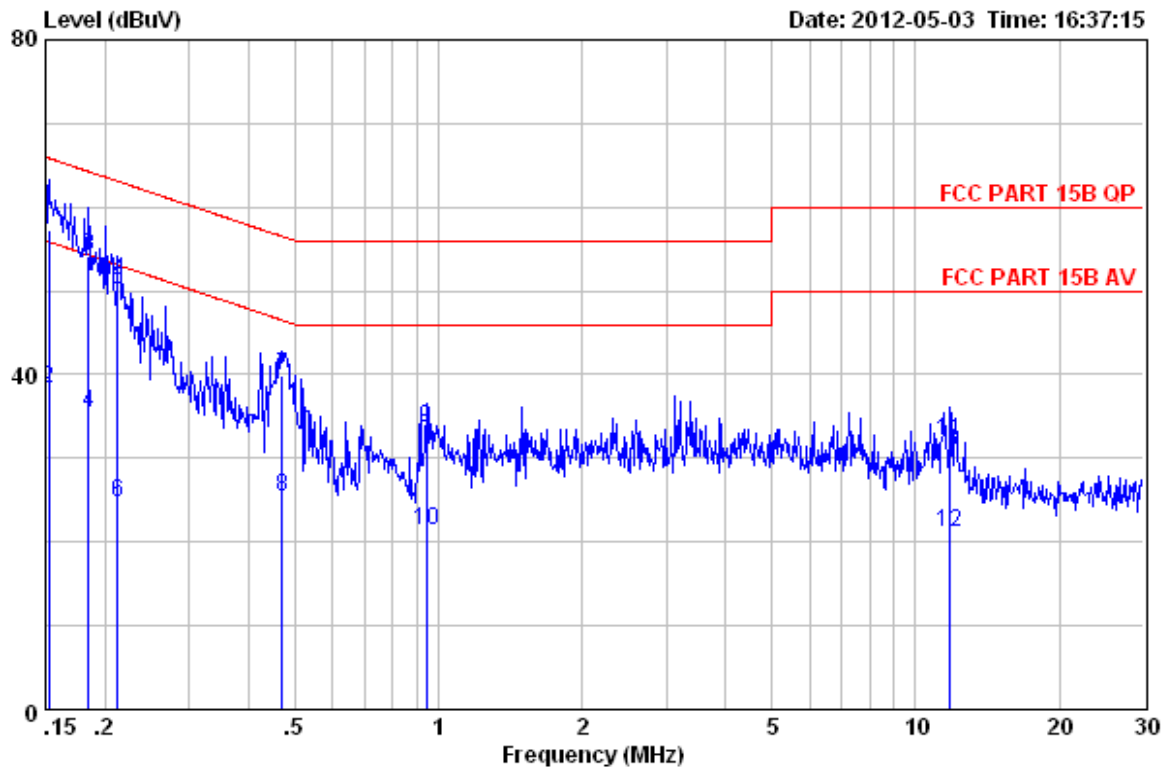
EST Technology

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Data: 61

File: D:\test data\2012\MMONITOR AUDIO.EMI (68)

Date: 2012-05-03 Time: 16:37:15



Site no. : EST 844 Shielded Room Data no. : 61
Limit : FCC PART 15B QP LINE Phase : LINE
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa
Engineer : Bible
EUT : Wireless Speaker
Power : DC 20V From Adapter Input AC 120V/60Hz
M/N : AirStream WS100
Test Mode : TX MODE
Adapter 1

	Freq. (MHz)	Reading (dBuV)	Emission		Margin (dB)	Remark
			Level (dBuV/m)	Limits (dBuV/m)		
1	0.15	37.85	57.27	65.87	8.60	QP
2	0.15	18.82	38.24	55.87	17.63	Average
3	0.18	34.64	54.05	64.28	10.23	QP
4	0.18	16.04	35.45	54.28	18.83	Average
5	0.21	30.69	50.10	63.10	13.00	QP
6	0.21	5.24	24.65	53.10	28.45	Average
7	0.47	20.42	39.84	56.49	16.65	QP
8	0.47	5.97	25.39	46.49	21.10	Average
9	0.94	14.14	33.59	56.00	22.41	QP
10	0.94	1.90	21.35	46.00	24.65	Average
11	11.81	12.47	32.04	60.00	27.96	QP
12	11.81	1.55	21.12	50.00	28.88	Average

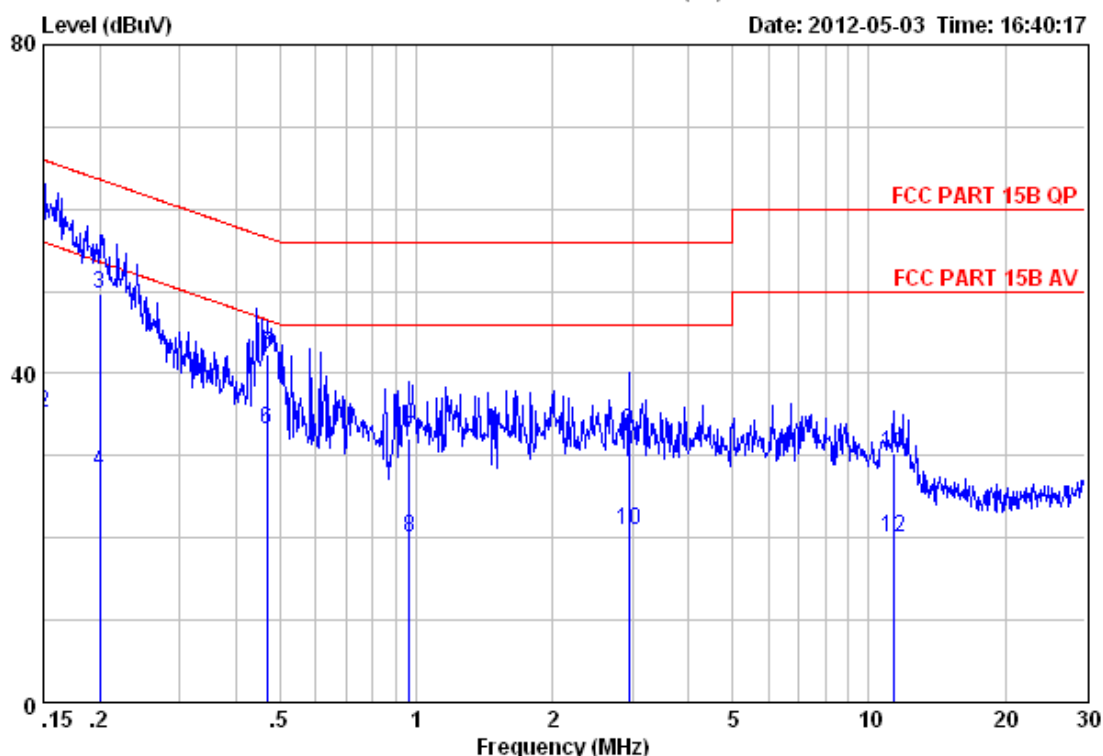
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Data: 63

File: D:\test data\2012\MMONITOR AUDIO.EMI (68)

Date: 2012-05-03 Time: 16:40:17



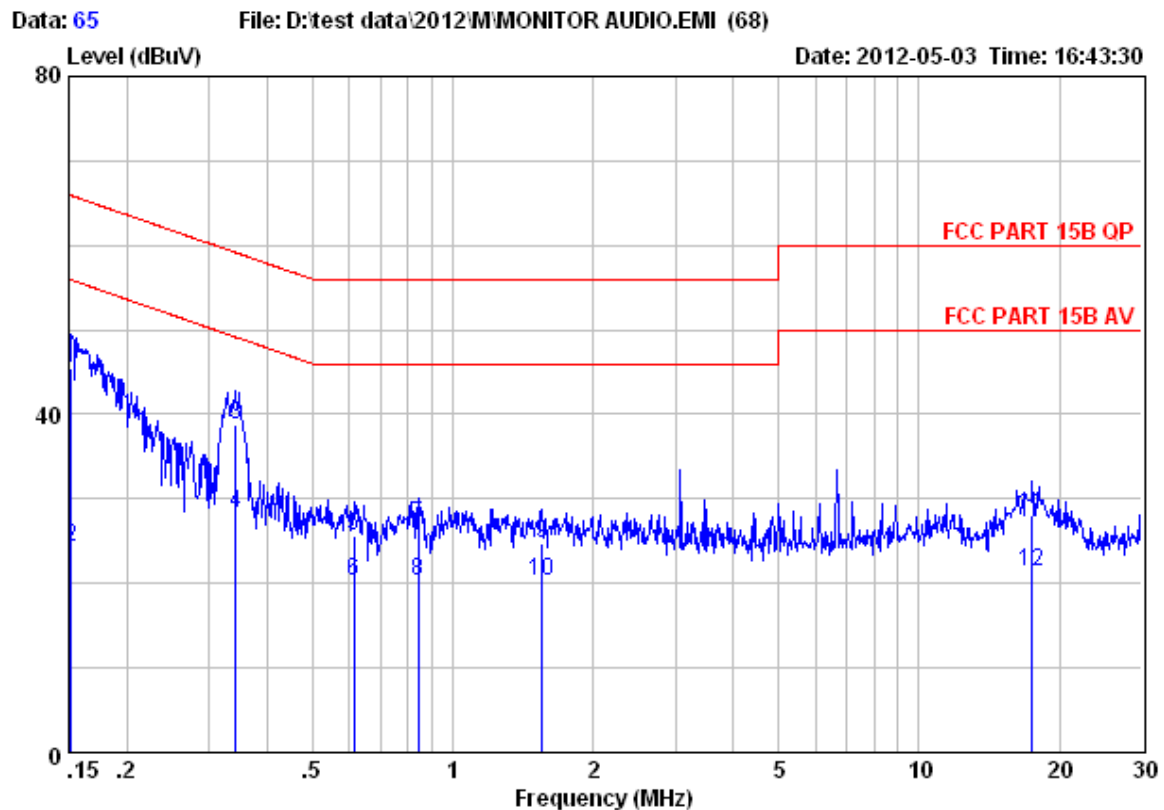
Site no. : EST 844 Shielded Room Data no. : 63
Limit : FCC PART 15B QP LINE Phase : NEUTRAL
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa
Engineer : Bible
EUT : Wireless Speaker
Power : DC 20V From Adapter Input AC 120V/60Hz
M/N : AirStream WS100
Test Mode : TX MODE
Adapter 1

Emission						
	Freq.	Reading	Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.15	38.85	58.12	66.00	7.88	QP
2	0.15	15.98	35.25	56.00	20.75	Average
3	0.20	30.37	49.77	63.62	13.85	QP
4	0.20	8.60	28.00	53.62	25.62	Average
5	0.47	22.84	42.24	56.54	14.30	QP
6	0.47	13.72	33.12	46.54	13.42	Average
7	0.96	12.57	32.00	56.00	24.00	QP
8	0.96	0.69	20.12	46.00	25.88	Average
9	2.95	13.54	33.02	56.00	22.98	QP
10	2.95	1.53	21.01	46.00	24.99	Average
11	11.32	10.79	30.40	60.00	29.60	QP
12	11.32	0.51	20.12	50.00	29.88	Average

Power From Adapter 2

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Site no. : EST 844 Shielded Room Data no. : 65
Limit : FCC PART 15B QP LINE Phase : NEUTRAL
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa
Engineer : Bible
EUT : Wireless Speaker
Power : DC 20V From Adapter Input AC 120V/60Hz
M/N : AirStream WS100
Test Mode : TX MODE
Adapter 2

	Freq. (MHz)	Reading (dBUV)	Emission		Margin (dB)	Remark
			Level (dBUV/m)	Limits (dBUV/m)		
1	0.15	26.26	45.53	65.91	20.38	QP
2	0.15	5.05	24.32	55.91	31.59	Average
3	0.34	19.46	38.88	59.13	20.25	QP
4	0.34	8.89	28.31	49.13	20.82	Average
5	0.61	6.25	25.68	56.00	30.32	QP
6	0.61	0.89	20.32	46.00	25.68	Average
7	0.84	7.55	26.99	56.00	29.01	QP
8	0.84	0.88	20.32	46.00	25.68	Average
9	1.55	5.33	24.78	56.00	31.22	QP
10	1.55	0.87	20.32	46.00	25.68	Average
11	17.47	8.27	28.00	60.00	32.00	QP
12	17.48	1.60	21.33	50.00	28.67	Average

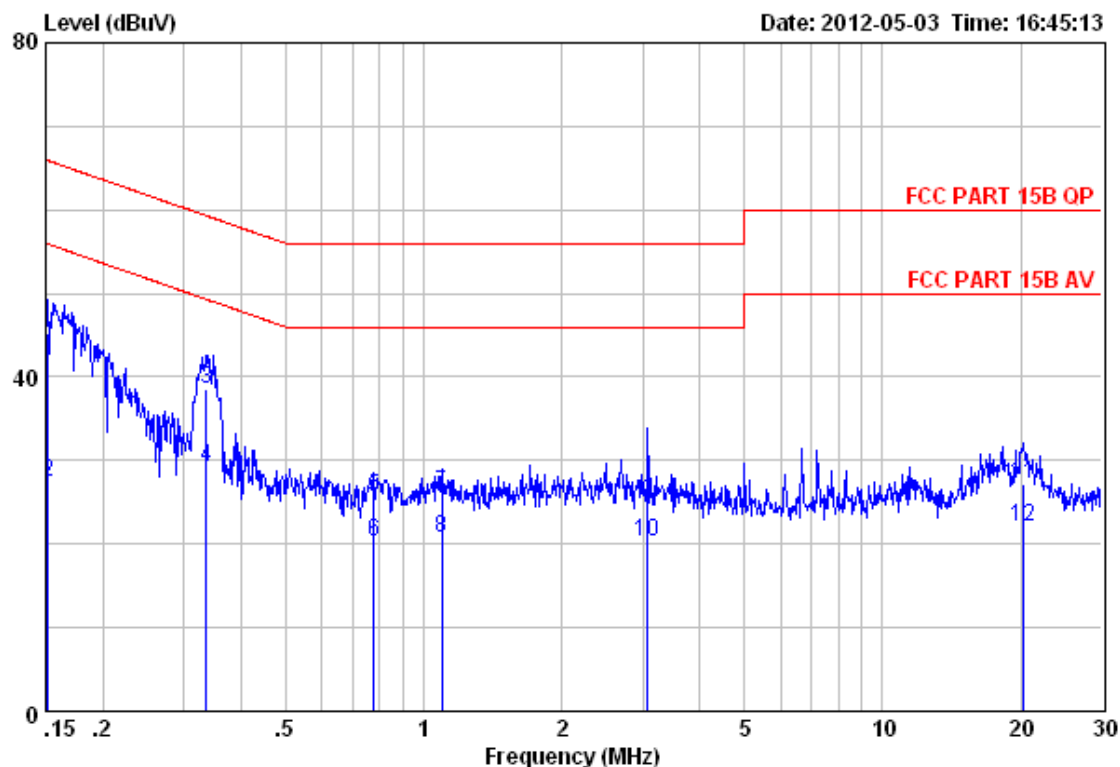
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Data: 67

File: D:\test data\2012\MMONITOR AUDIO.EMI (68)

Date: 2012-05-03 Time: 16:45:13



Site no. : EST 844 Shielded Room Data no. : 67
Limit : FCC PART 15B QP LINE Phase : LINE
Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa
Engineer : Bible
EUT : Wireless Speaker
Power : DC 20V From Adapter Input AC 120V/60Hz
M/N : AirStream WS100
Test Mode : TX MODE
Adapter 2

Emission						
	Freq. (MHz)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	0.15	25.81	45.23	65.91	20.68	QP
2	0.15	7.93	27.35	55.91	28.56	Average
3	0.34	19.14	38.58	59.31	20.73	QP
4	0.34	9.77	29.21	49.31	20.10	Average
5	0.78	6.20	25.61	56.00	30.39	QP
6	0.78	0.96	20.37	46.00	25.63	Average
7	1.09	6.53	26.00	56.00	30.00	QP
8	1.09	1.18	20.65	46.00	25.35	Average
9	3.07	5.49	24.97	56.00	31.03	QP
10	3.07	0.84	20.32	46.00	25.68	Average
11	20.27	7.44	27.09	60.00	32.91	QP
12	20.27	2.36	22.01	50.00	27.99	Average

11. ANTENNA REQUIREMENTS

11.1. Limit

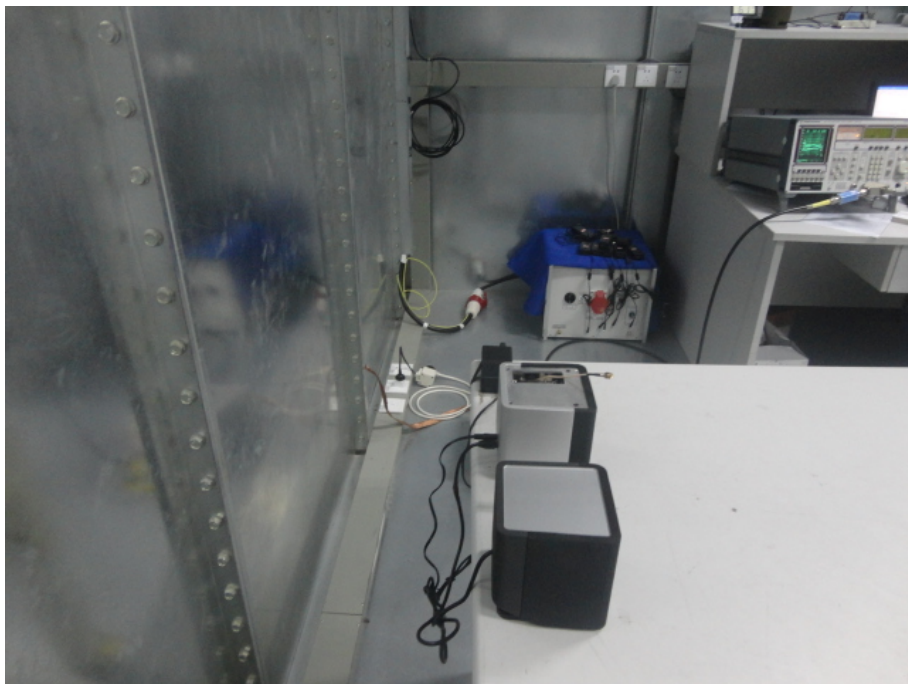
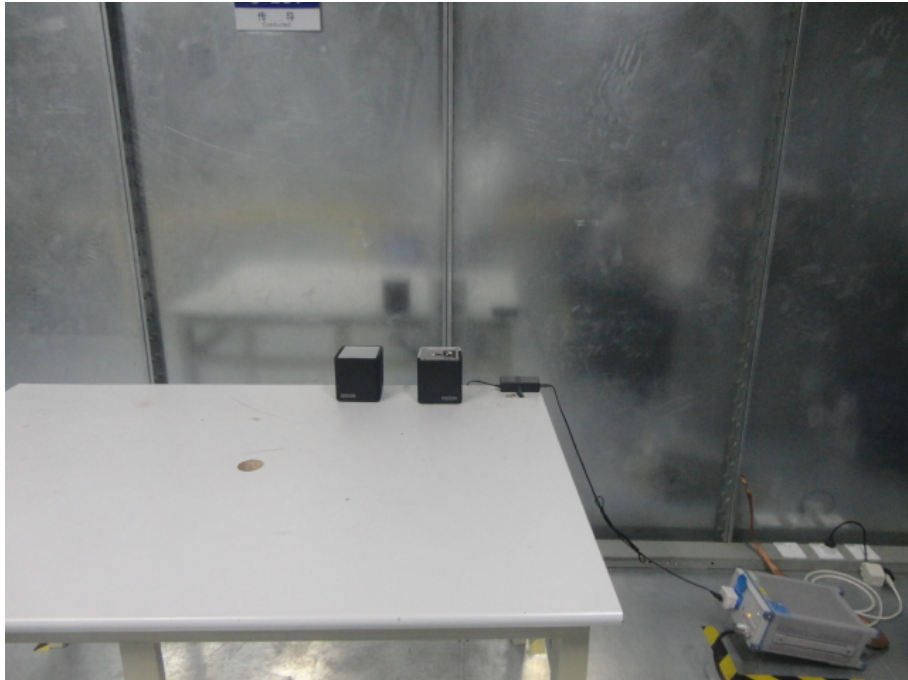
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2. Result

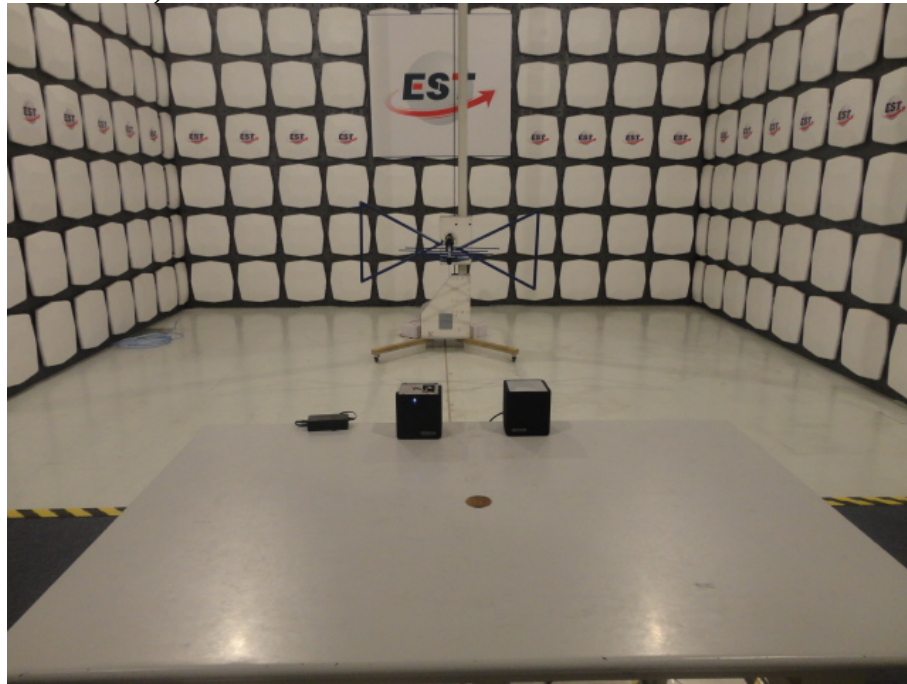
The antennas used for this product are integral Patch Antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 2.2 dBi.

12. TEST SETUP PHOTO

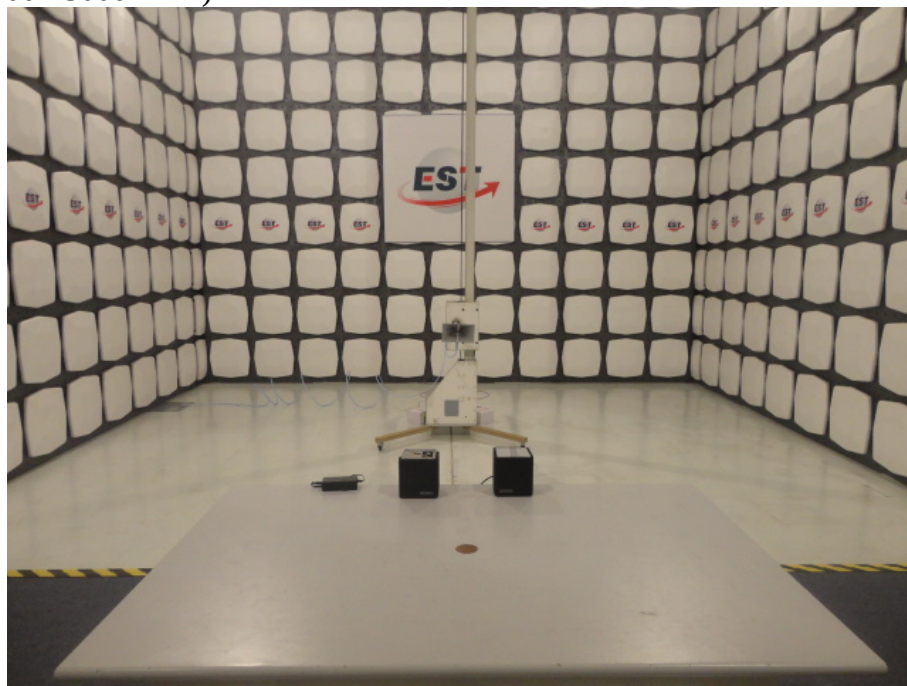
Conducted Test



Radiated Test (30-1000 MHz)



Radiated Test (1000-25000 MHz)



13. PHOTOS OF EUT

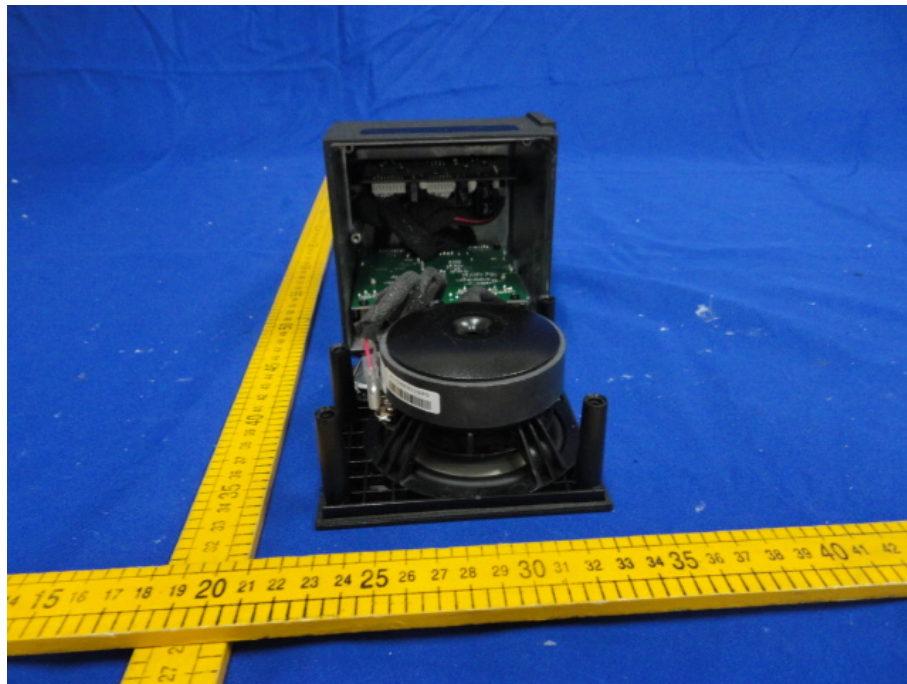
External Photos



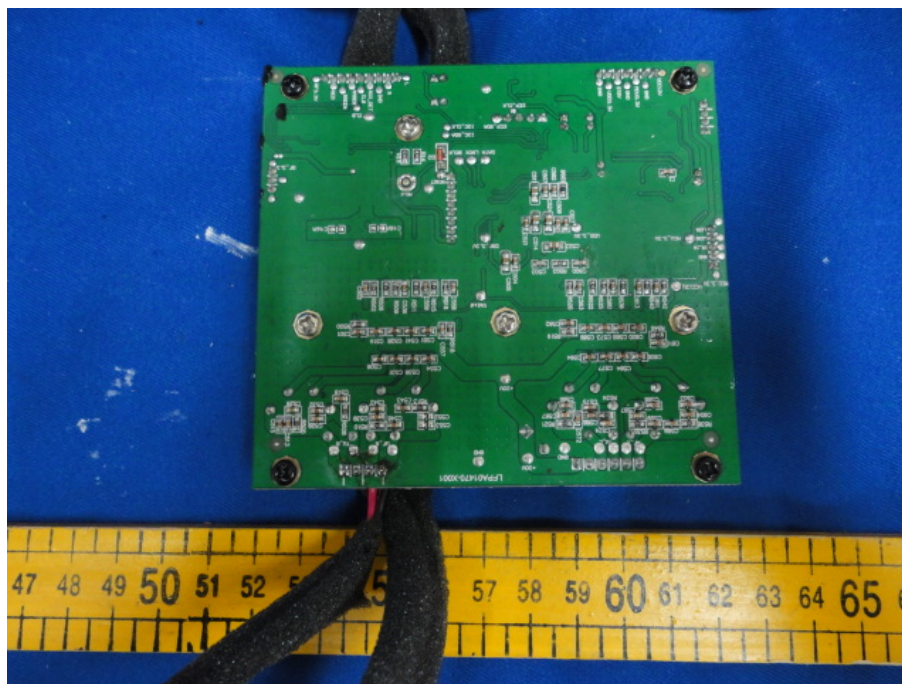
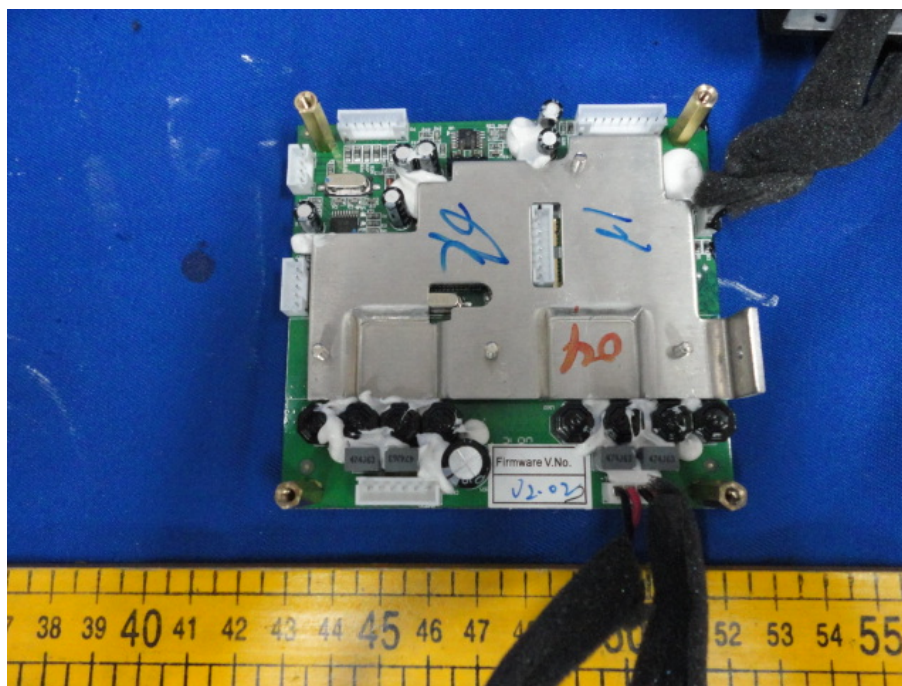
External Photos



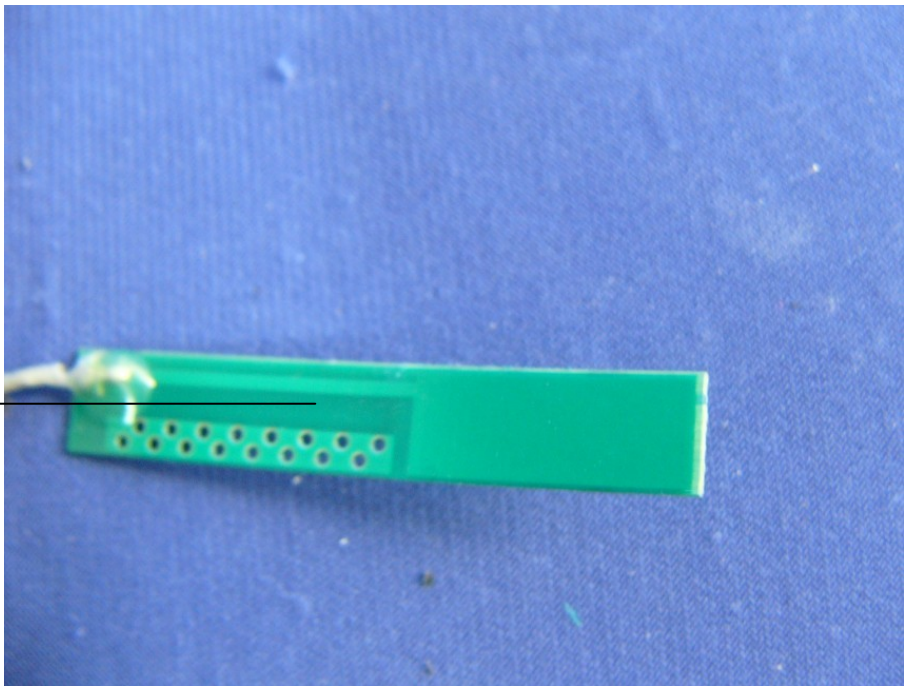
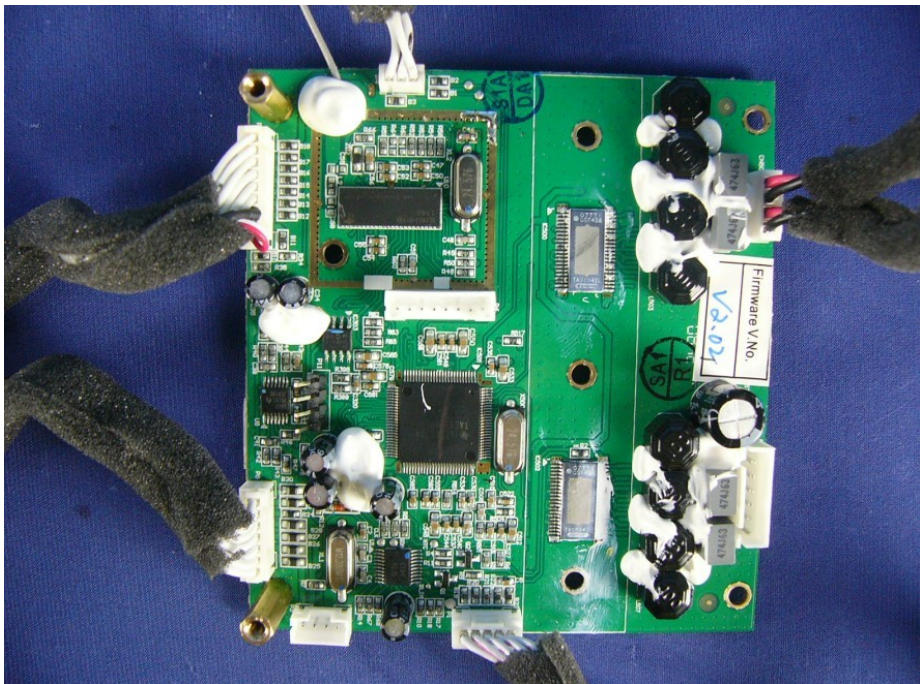
Internal Photos



Internal Photos

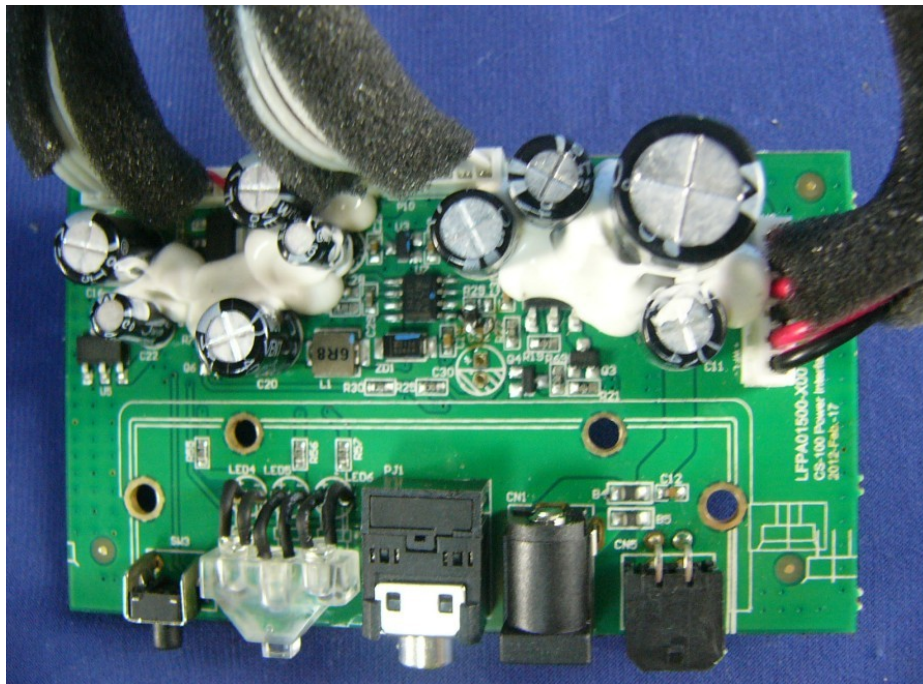
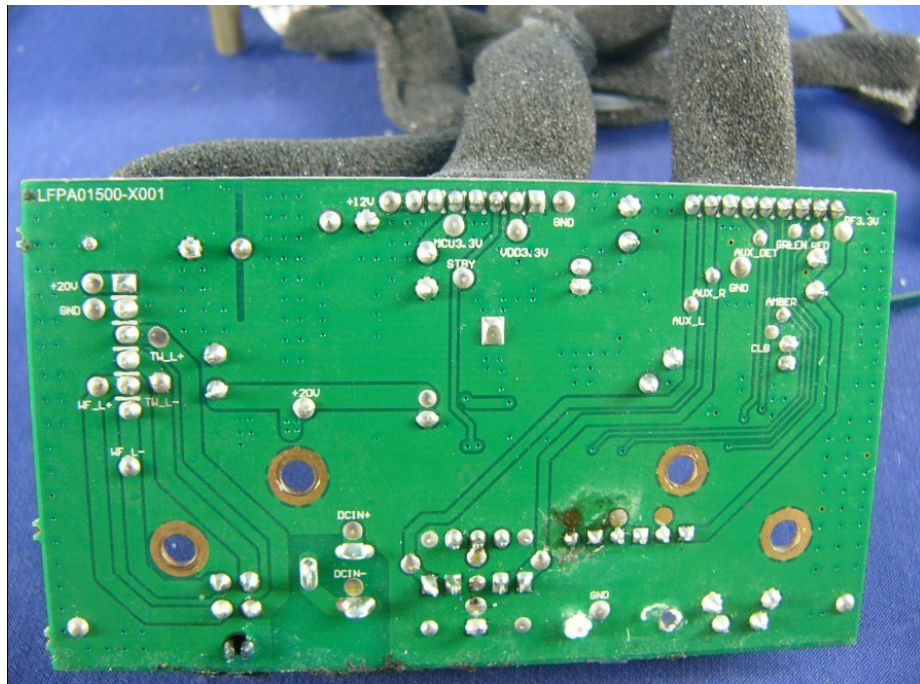


Internal Photos



Antenna

Internal Photos



Internal Photos

