



Test Report

Product Name	SPEAKER DOCK
Model No	DSD-300
FCC ID.	PPQ-DSD300

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

Date of Receipt	Apr. 25, 2012
Issue Date	July 18, 2012
Report No.	124522R-RFUSP42V01
Report Version	V1.0



The test results relate only to the samples tested.
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Test Report Certification

Issue Date: July 18, 2012

Report No.: 124522R-RFUSP42V01


Accredited by NIST (NVLAP)

NVLAP Lab Code: 200533-0

Product Name	SPEAKER DOCK
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.	DSD-300
FCC ID.	PPQ-DSD300
EUT Rated Voltage	DC 20V
EUT Test Voltage	AC 120V/60Hz
Trade Name	DENON
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	SPEAKER DOCK
Trade Name	DENON
Model No.	DSD-300
FCC ID.	PPQ-DSD300
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 Gain	Refer to the table "Antenna List"
Channel Control	Auto
Power Cord Cable	Shielded, 2.0m
RJ45 Cable	Shielded, 3.0m
Power Adapter	MFR: SIL, M/N: SSA-200250 Input: AC 100-240V~50/60Hz, 2A Output: DC 20V, 2.5A Cable Out: Non-shielded, 1.8m, with one ferrite core bonded. Power Cord: Non-shielded, 1.8m

Antenna List

No.	Manufacturer	Model No.	Peak Gain
1	Lite-on	MSA-3810-2G4C1-A30_C MSA-3810-2G4C1-A40_A	6.54d Bi for 2.4GHz

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		

Note:

1. The EUT is a SPEAKER DOCK 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.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps 、 802.11g is 6Mbps)
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.
5. The different of the each model is shown as below:

Module	SDRAM brand	Note
#1	Winbond	Two modules are different at SDRAM brand, the other components and PCB layout are identical.
#2	ESMT	

6. The SDRAM are digital circuits function and not part of RF circuits.
7. The test item conducted emission and 30MHz – 1GHz radiated emission are tested at two WLAN modules which describe in above note.
8. After tested conducted emission and 30MHz – 1GHz radiated emission, the worst case are system include WLAN module #1. The worst case are tested all test item.

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

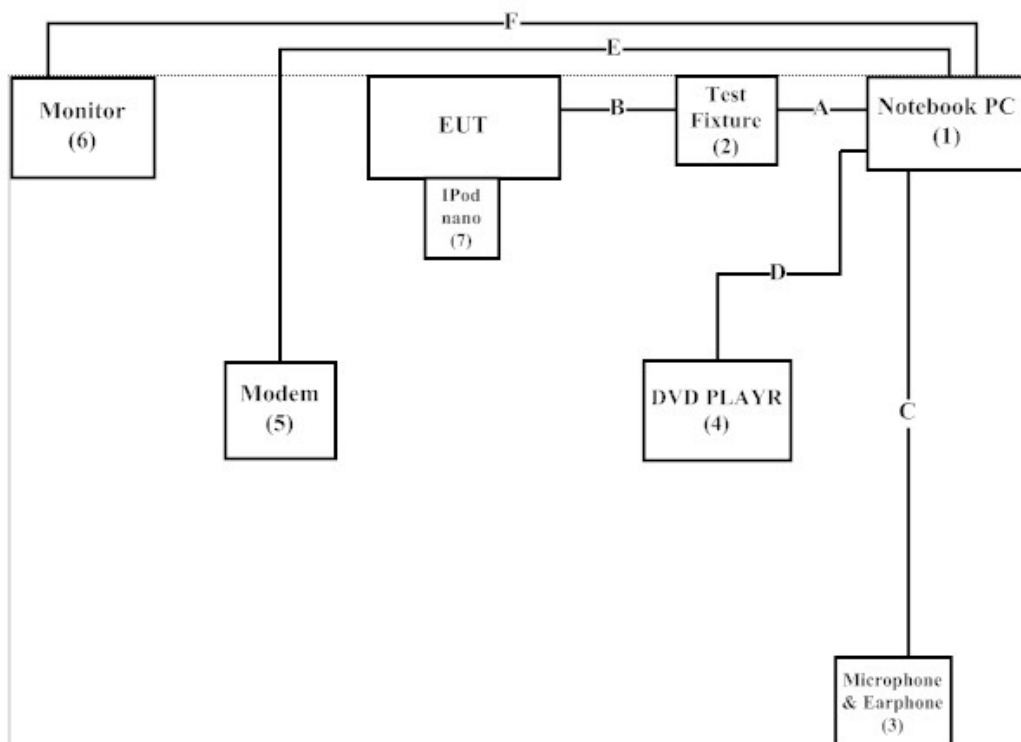
1.3. Tested System Details

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

Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1 Notebook PC	DELL	PPT	N/A	DoC	Non-Shielded, 0.8m
2 Test Fixture	LITE-ON	N/A	N/A	N/A	N/A
3 Microphone & Earphone	PCHOME	N/A	N/A	N/A	N/A
4 DVD PLAYER	DELL	PD01S	N/A	N/A	N/A
5 Modem	ACEEX	DM-1414	0102027558	IFAXDM1414	Non-Shielded, 1.8m
6 Monitor	LG	W2261VT	907YHZK07303	DoC	Non-Shielded, 1.8m
7 iPod nano	Apple	A1199	YM708A72VQ5	N/A	N/A

Signal Cable Type	Signal cable Description
A USB Cable	Shielded, 1.0m
B Test Fixture Cable	Non-Shielded, 0.1m
C Microphone & Earphone Cable	Non-Shielded, 2.0m
D USB Cable	Shielded, 0.5m
E RS-232 Cable	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 command 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: <http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site:

<http://www.quietek.com/>

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

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

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E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

2. Conducted Emission

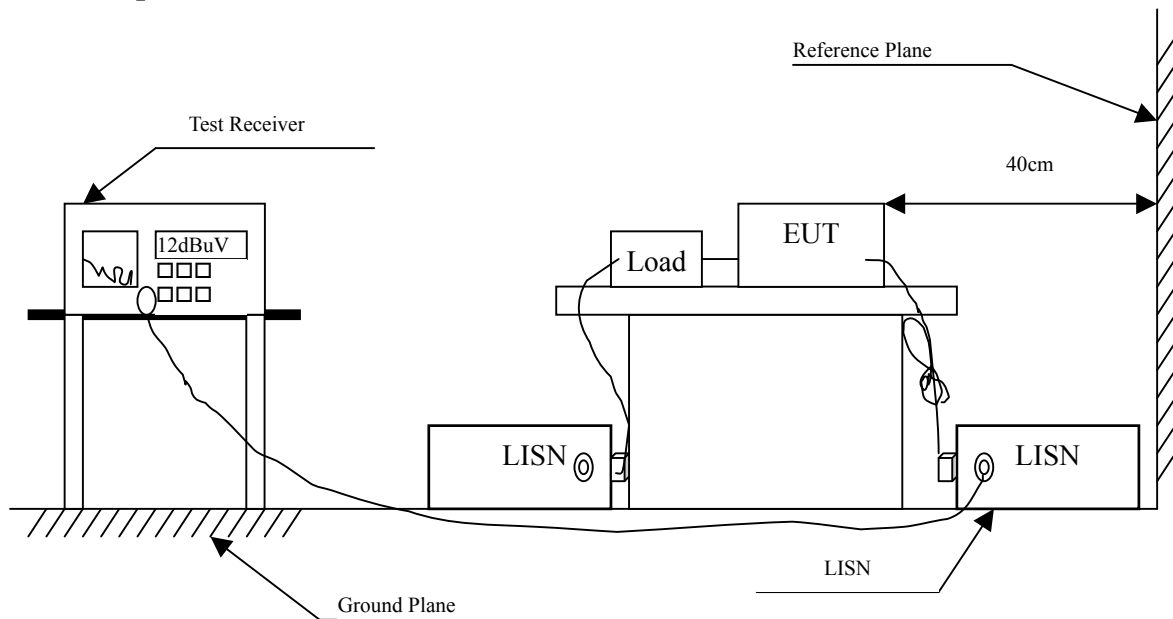
2.1. Test Equipment

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 Room			N/A	

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	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 : SPEAKER DOCK
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) (winbond)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.162	9.712	31.780	41.492	-24.165	65.657
0.189	9.694	28.240	37.934	-26.952	64.886
0.252	9.656	20.010	29.666	-33.420	63.086
0.732	9.645	24.670	34.315	-21.685	56.000
1.322	9.670	11.040	20.710	-35.290	56.000
20.798	9.930	18.780	28.710	-31.290	60.000
Average					
0.162	9.712	18.340	28.052	-27.605	55.657
0.189	9.694	14.520	24.214	-30.672	54.886
0.252	9.656	3.270	12.926	-40.160	53.086
0.732	9.645	14.320	23.965	-22.035	46.000
1.322	9.670	2.820	12.490	-33.510	46.000
20.798	9.930	11.900	21.830	-28.170	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 : SPEAKER DOCK
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) (winbond)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 2					
Quasi-Peak					
0.154	9.727	31.430	41.157	-24.729	65.886
0.181	9.702	27.920	37.622	-27.492	65.114
0.259	9.653	18.180	27.833	-35.053	62.886
0.482	9.650	20.090	29.740	-26.774	56.514
0.701	9.650	28.000	37.650	-18.350	56.000
20.146	10.100	21.590	31.690	-28.310	60.000
Average					
0.154	9.727	14.530	24.257	-31.629	55.886
0.181	9.702	11.970	21.672	-33.442	55.114
0.259	9.653	2.770	12.423	-40.463	52.886
0.482	9.650	10.880	20.530	-25.984	46.514
0.701	9.650	18.330	27.980	-18.020	46.000
20.146	10.100	14.990	25.090	-24.910	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 : SPEAKER DOCK
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) (ESMT)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.158	9.715	29.590	39.305	-26.466	65.771
0.201	9.686	25.280	34.966	-29.577	64.543
0.474	9.640	19.580	29.220	-27.523	56.743
0.709	9.640	26.200	35.840	-20.160	56.000
1.443	9.670	11.380	21.050	-34.950	56.000
23.998	9.950	25.180	35.130	-24.870	60.000
Average					
0.158	9.715	12.030	21.745	-34.026	55.771
0.201	9.686	11.170	20.856	-33.687	54.543
0.474	9.640	9.780	19.420	-27.323	46.743
0.709	9.640	18.200	27.840	-18.160	46.000
1.443	9.670	4.770	14.440	-31.560	46.000
23.998	9.950	21.500	31.450	-18.550	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 : SPEAKER DOCK
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) (ESMT)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 2					
Quasi-Peak					
0.150	9.730	30.940	40.670	-25.330	66.000
0.173	9.710	27.750	37.460	-27.883	64.229
0.220	9.673	22.040	31.713	-32.287	59.200
0.490	9.650	21.590	31.240	-25.046	56.000
0.693	9.650	25.300	34.950	-21.050	56.000
20.107	10.100	21.330	31.430	-28.570	60.000
Average					
0.150	9.730	16.900	26.630	-29.370	56.000
0.173	9.710	13.190	22.900	-32.443	54.229
0.220	9.673	7.270	16.943	-37.057	49.200
0.490	9.650	13.670	23.320	-22.966	46.000
0.693	9.650	15.230	24.880	-21.120	46.000
20.107	10.100	14.860	24.960	-25.040	50.000

Note:

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

3. Peak Power Output

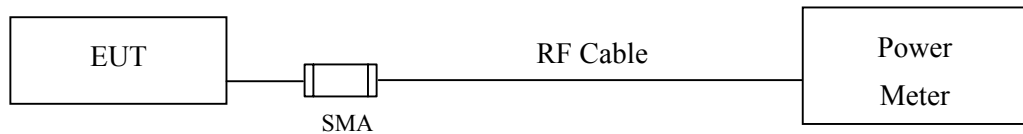
3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2012
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 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.

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 : SPEAKER DOCK
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11			
		Measurement Level (dBm)						
01	2412	17.33	--	--	--	19.83	<30dBm	Pass
06	2437	17.72	17.62	17.55	17.46	20.25	<30dBm	Pass
11	2462	17.74	--	--	--	20.47	<30dBm	Pass

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

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

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
		Measurement Level (dBm)										
01	2412	13.21	--	--	--	--	--	--	--	23.2	<30dBm	Pass
06	2437	16.52	16.48	16.35	16.27	16.18	16.05	15.93	15.84	24.83	<30dBm	Pass
11	2462	13.57	--	--	--	--	--	--	--	23.11	<30dBm	Pass

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

4. Radiated Emission

4.1. Test Equipment

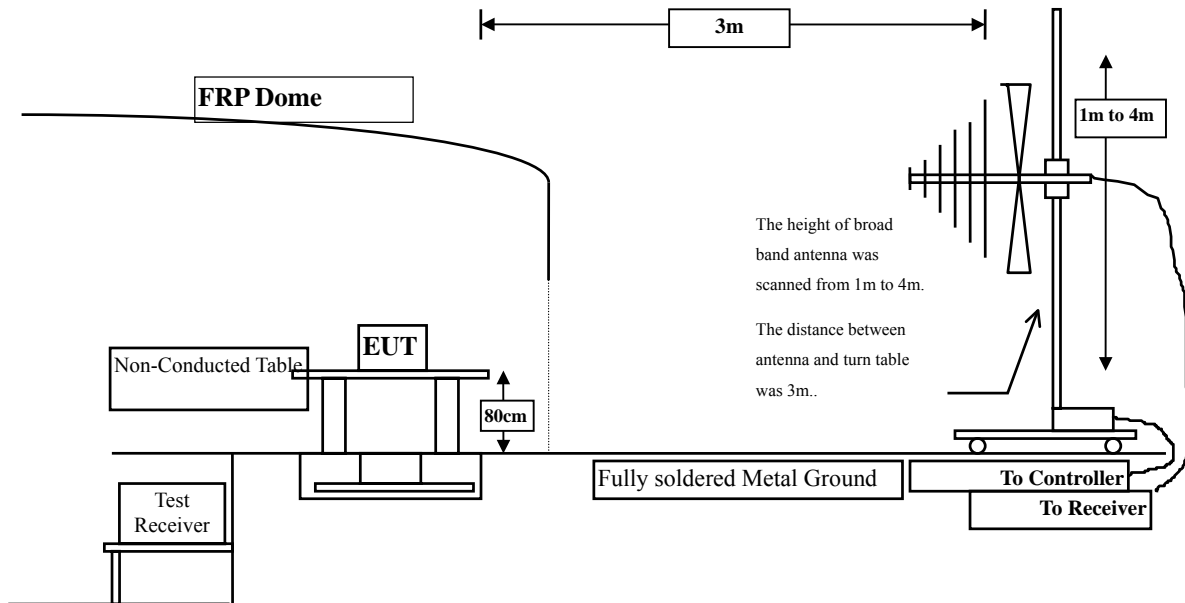
The following test equipment are used during the radiated emission test:

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

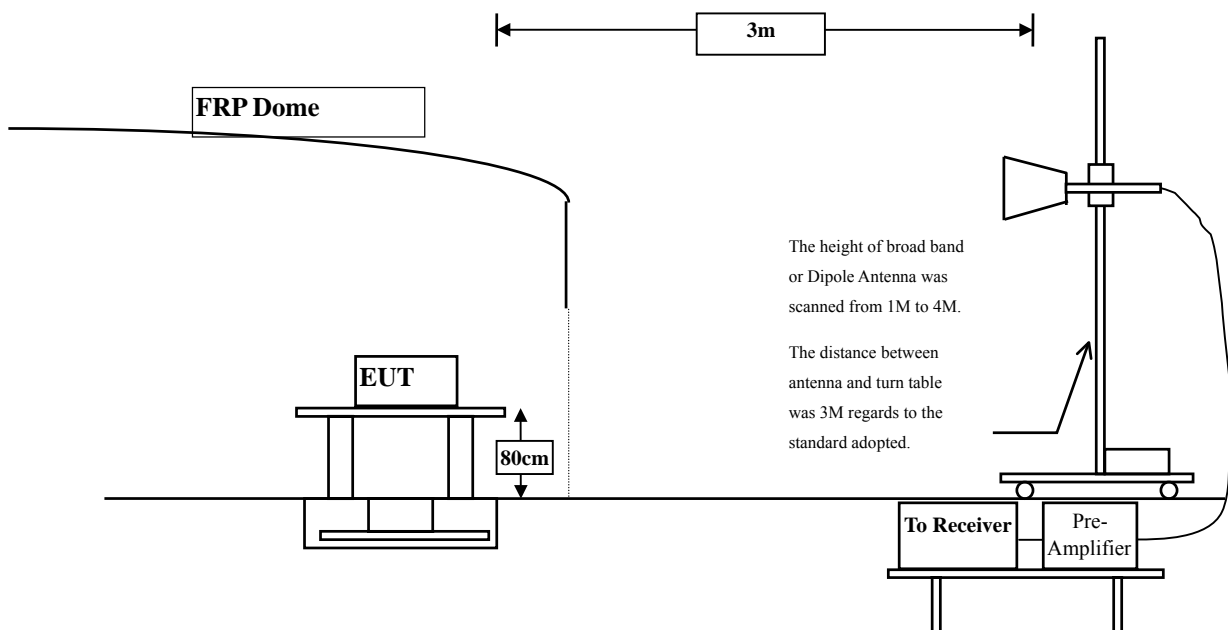
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with “X” are used to measure the final test results.

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 harmonics is checked.

4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

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

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	0.428	43.460	43.889	-30.111	74.000
7236.000	7.177	39.220	46.397	-27.603	74.000
9648.000	8.019	38.530	46.550	-27.450	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	0.836	43.840	44.677	-29.323	74.000
7236.000	7.676	39.360	47.036	-26.964	74.000
9648.000	8.556	39.210	47.767	-26.233	74.000

Average Detector:

--

Note:

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 : SPEAKER DOCK
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	0.076	43.610	43.687	-30.313	74.000
7311.000	7.512	38.690	46.202	-27.798	74.000
9748.000	7.630	38.580	46.210	-27.790	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	0.532	43.960	44.492	-29.508	74.000
7311.000	8.089	38.170	46.259	-27.741	74.000
9748.000	8.266	38.400	46.667	-27.333	74.000
Average Detector:					
--					

Note:

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 : SPEAKER DOCK
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
------------------	-------------------------	--------------------------	--------------------------------	--------------	-----------------

Horizontal

Peak Detector:

4924.000	0.191	40.910	41.101	-32.899	74.000
7386.000	8.373	38.320	46.694	-27.306	74.000
9848.000	7.964	39.560	47.524	-26.476	74.000

Average Detector:

--

Vertical

Peak Detector:

4924.000	0.805	44.000	44.805	-29.195	74.000
7386.000	9.180	38.330	47.510	-26.490	74.000
9848.000	8.801	38.960	47.761	-26.239	74.000

Average Detector:

--

Note:

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 : SPEAKER DOCK
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
------------------	-------------------------	--------------------------	--------------------------------	--------------	-----------------

Horizontal

Peak Detector:

4824.000	0.428	41.170	41.599	-32.401	74.000
7236.000	7.177	38.800	45.977	-28.023	74.000
9648.000	8.019	39.050	47.070	-26.930	74.000

Average Detector:

--

Vertical

Peak Detector:

4824.000	0.836	41.400	42.237	-31.763	74.000
7236.000	7.676	39.190	46.866	-27.134	74.000
9648.000	8.556	39.240	47.797	-26.203	74.000

Average Detector:

--

Note:

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 : SPEAKER DOCK
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level	dB	dBuV/m
	dB	dBuV	dBuV/m		

Horizontal
Peak Detector:

4874.000	0.076	41.700	41.777	-32.223	74.000
7311.000	7.512	37.870	45.382	-28.618	74.000
9748.000	7.630	38.030	45.660	-28.340	74.000

Average Detector:

--

Peak Detector:

4874.000	0.532	38.810	39.342	-34.658	74.000
7311.000	8.089	34.810	42.899	-31.101	74.000
9748.000	8.266	38.590	46.857	-27.143	74.000

Average Detector:

--

Note:

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 : SPEAKER DOCK
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	0.191	40.290	40.481	-33.519	74.000
7386.000	8.373	38.320	46.694	-27.306	74.000
9848.000	7.964	39.290	47.254	-26.746	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	0.805	40.290	41.095	-32.905	74.000
7386.000	9.180	37.730	46.910	-27.090	74.000
9848.000	8.801	39.400	48.201	-25.799	74.000

Average Detector:

--

Note:

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 : SPEAKER DOCK
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz) (winbond)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
144.460	-7.703	46.519	38.816	-4.684	43.500
251.160	-5.988	45.452	39.464	-6.536	46.000
608.120	3.925	35.990	39.915	-6.085	46.000
722.580	3.823	33.983	37.806	-8.194	46.000
875.840	5.816	32.397	38.213	-7.787	46.000
996.120	8.107	37.171	45.278	-8.722	54.000
Vertical					
136.700	-4.561	43.279	38.718	-4.782	43.500
365.620	0.282	39.696	39.978	-6.022	46.000
480.080	-3.390	40.944	37.554	-8.446	46.000
606.180	2.246	33.148	35.394	-10.606	46.000
813.760	2.886	30.411	33.297	-12.703	46.000
945.680	3.300	30.062	33.362	-12.638	46.000

Note:

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 : SPEAKER DOCK
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz) (winbond)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
202.660	-10.183	47.733	37.551	-5.949	43.500
383.080	1.305	38.166	39.471	-6.529	46.000
458.740	3.298	36.146	39.444	-6.556	46.000
633.340	1.530	36.466	37.996	-8.004	46.000
790.480	6.363	31.718	38.081	-7.919	46.000
875.840	5.816	32.826	38.642	-7.358	46.000
Vertical					
134.760	-4.093	43.174	39.081	-4.419	43.500
338.460	-1.640	40.756	39.115	-6.885	46.000
480.080	-3.390	42.827	39.437	-6.563	46.000
608.120	2.175	34.213	36.388	-9.612	46.000
749.740	2.023	33.681	35.704	-10.296	46.000
875.840	0.516	32.402	32.918	-13.082	46.000

Note:

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 : SPEAKER DOCK
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz) (ESMT)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
177.440	-10.838	41.686	30.848	-12.652	43.500
361.740	-0.006	41.071	41.064	-4.936	46.000
474.260	2.294	35.965	38.259	-7.741	46.000
625.580	1.419	37.806	39.226	-6.774	46.000
722.580	3.823	32.232	36.055	-9.945	46.000
875.840	5.816	31.055	36.871	-9.129	46.000
Vertical					
86.260	-4.042	32.092	28.050	-11.950	40.000
177.440	-1.248	33.420	32.172	-11.328	43.500
450.980	-5.625	38.145	32.520	-13.480	46.000
542.160	1.855	36.164	38.019	-7.981	46.000
672.140	-0.561	35.634	35.073	-10.927	46.000
875.840	0.516	33.618	34.134	-11.866	46.000

Note:

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 : SPEAKER DOCK
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz) (ESMT)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
39.700	-3.625	32.129	28.504	-11.496	40.000
175.500	-9.792	43.943	34.151	-9.349	43.500
361.740	-0.006	41.298	41.291	-4.709	46.000
474.260	2.294	36.127	38.421	-7.579	46.000
625.580	1.419	39.952	41.372	-4.628	46.000
800.180	6.417	33.370	39.787	-6.213	46.000
Vertical					
175.500	-1.842	34.766	32.924	-10.576	43.500
361.740	-0.646	36.128	35.481	-10.519	46.000
518.880	0.763	36.821	37.584	-8.416	46.000
623.640	0.376	36.178	36.554	-9.446	46.000
701.240	-0.541	37.463	36.922	-9.078	46.000
875.840	0.516	33.535	34.051	-11.949	46.000

Note:

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

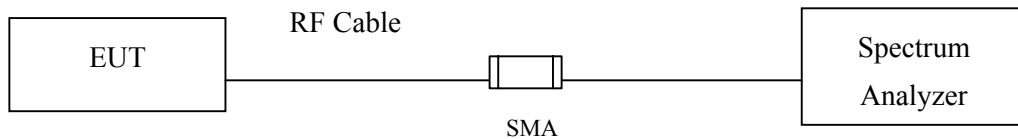
5.1. Test Equipment

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

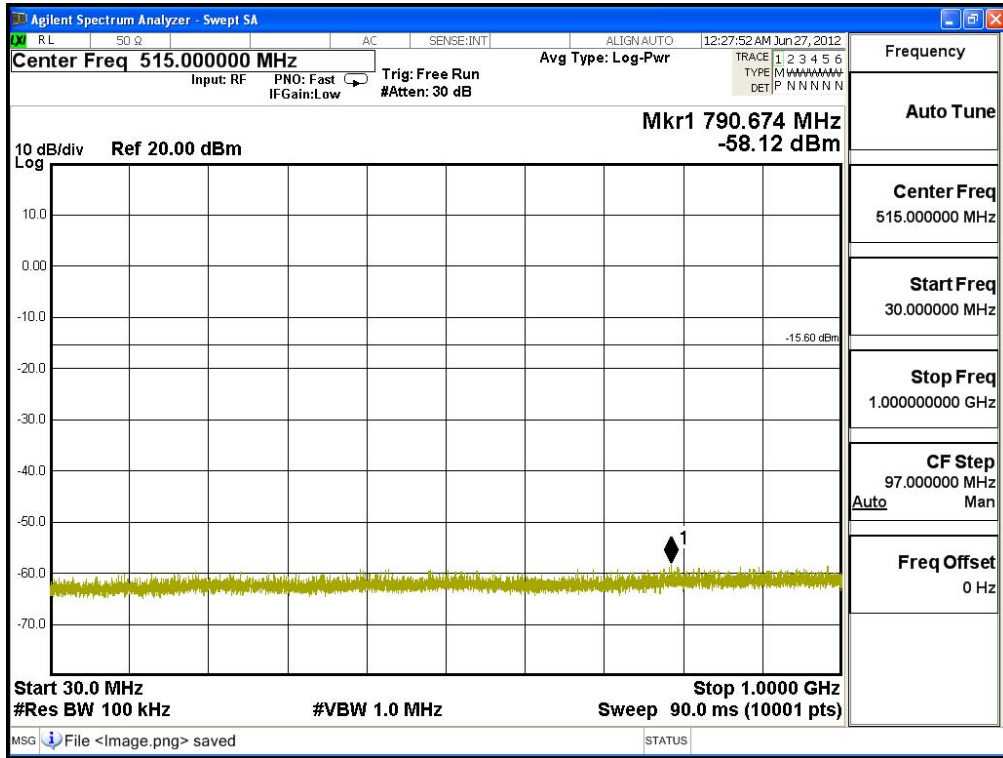
The measurement uncertainty

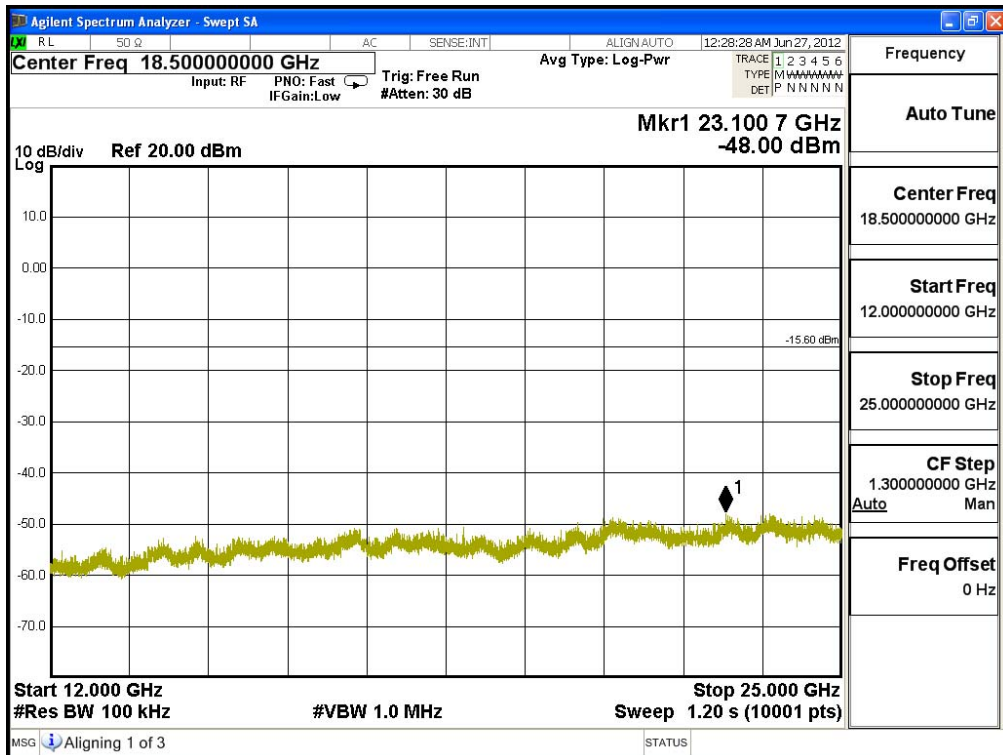
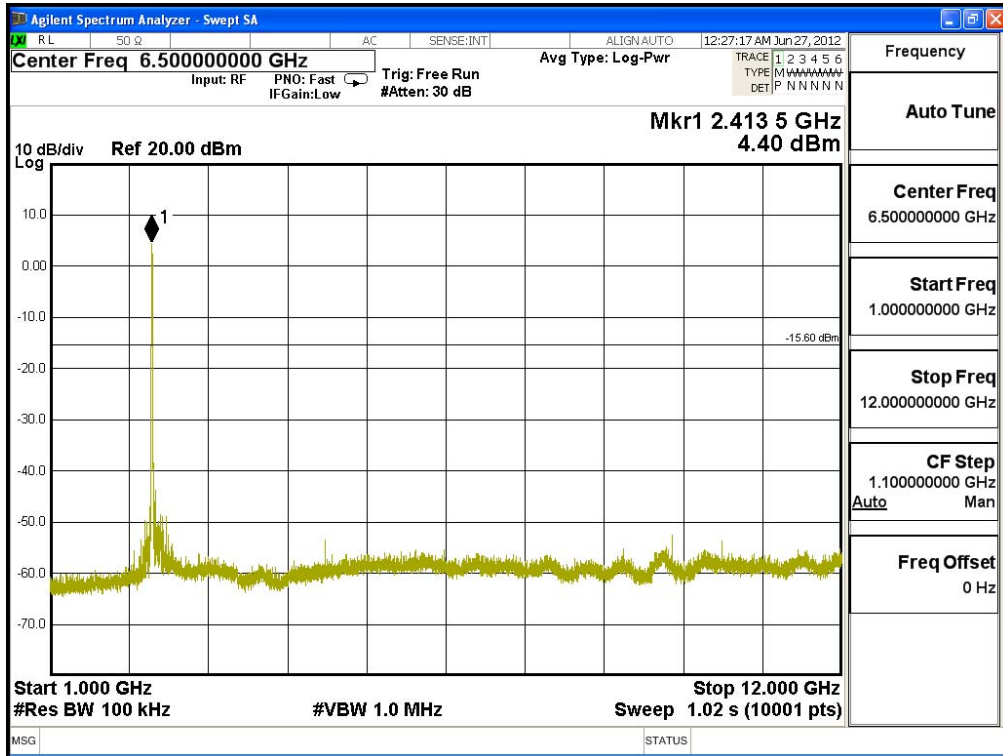
Conducted is defined as $\pm 1.27\text{dB}$

5.6. Test Result of RF antenna conducted test

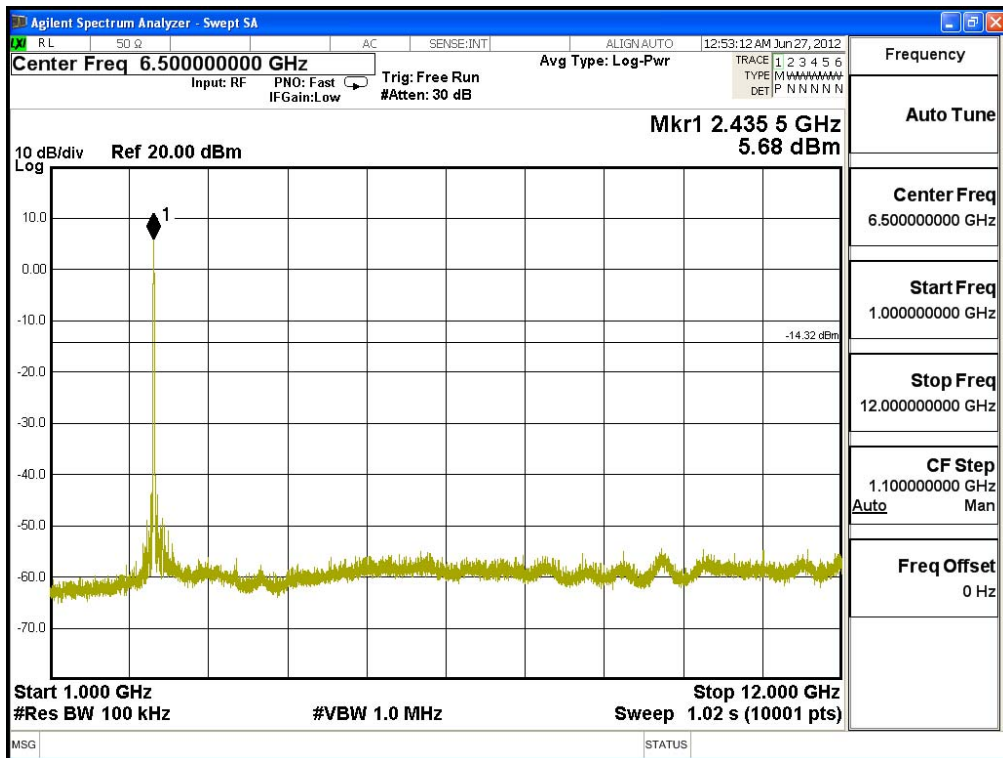
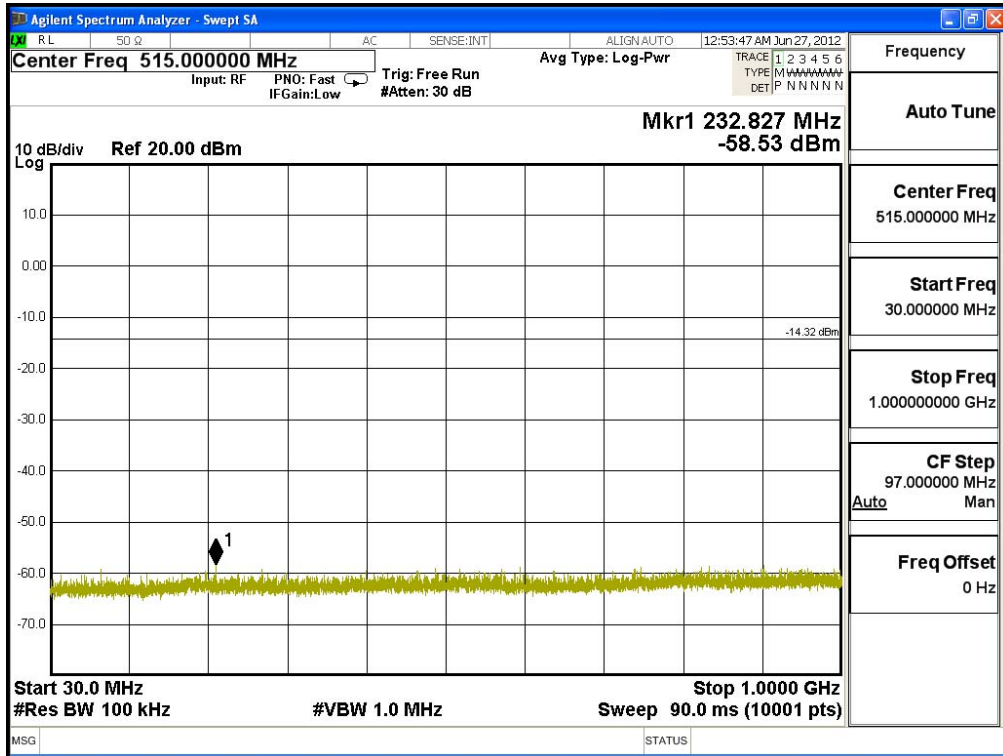
Product : SPEAKER DOCK
 Test Item : RF antenna conducted test
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

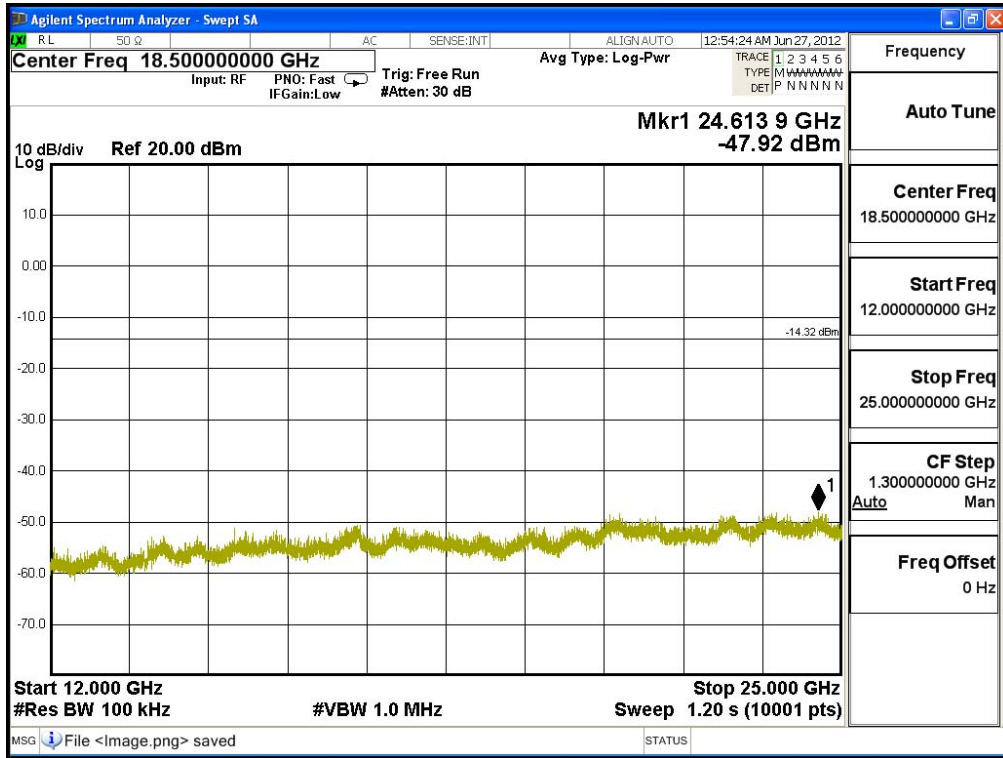
Channel 01 (2412MHz)



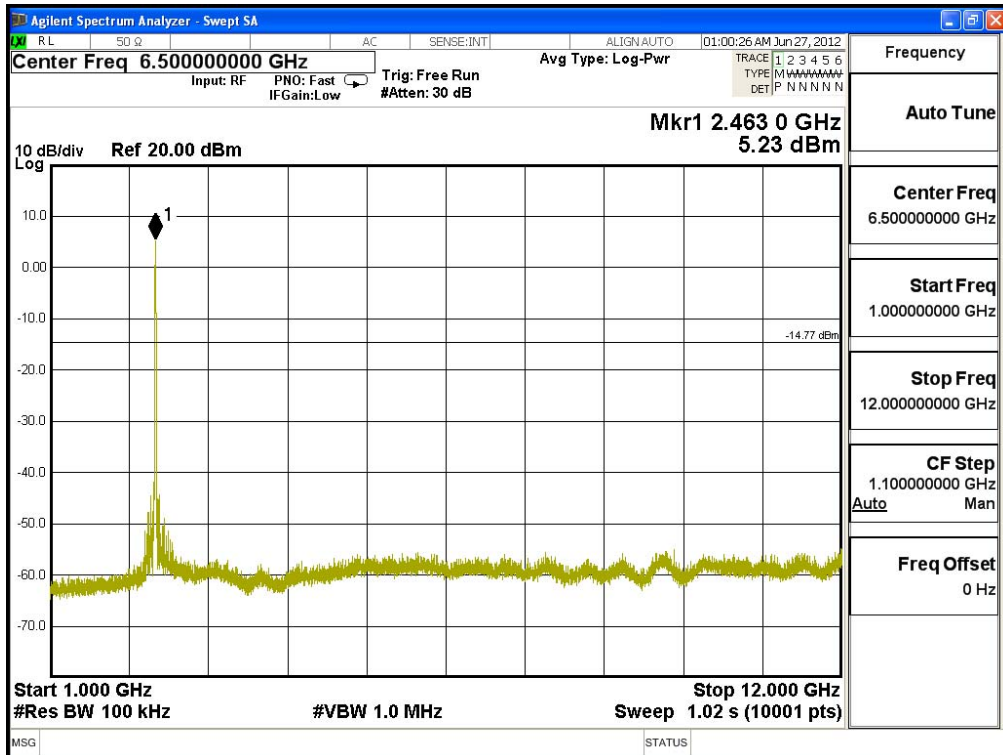
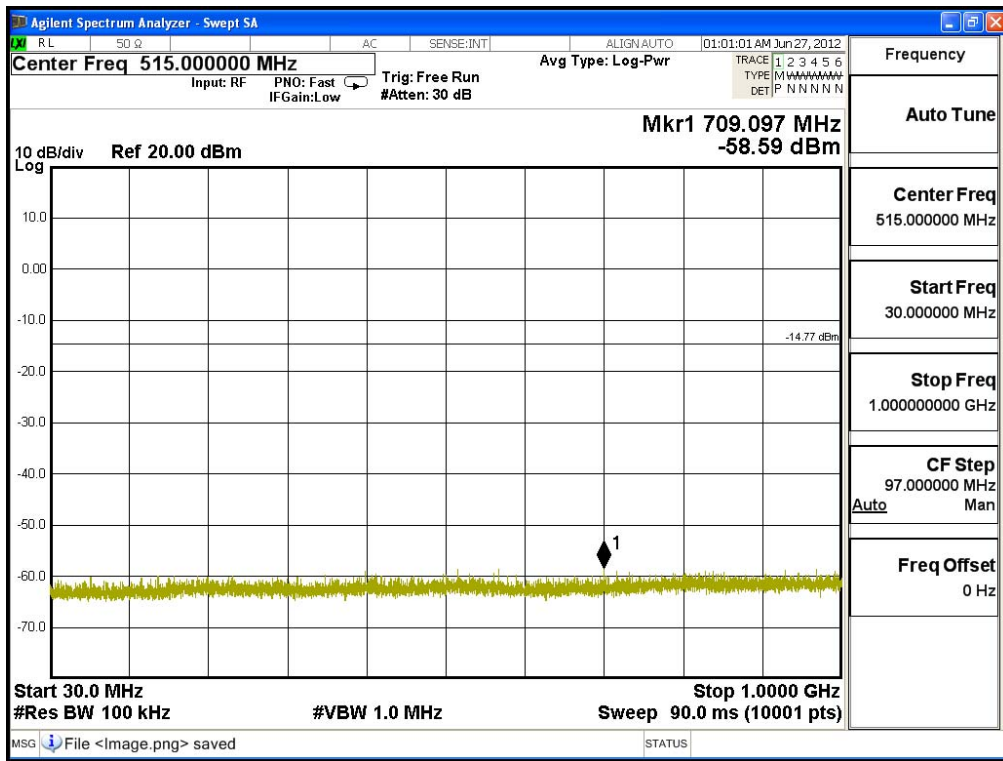


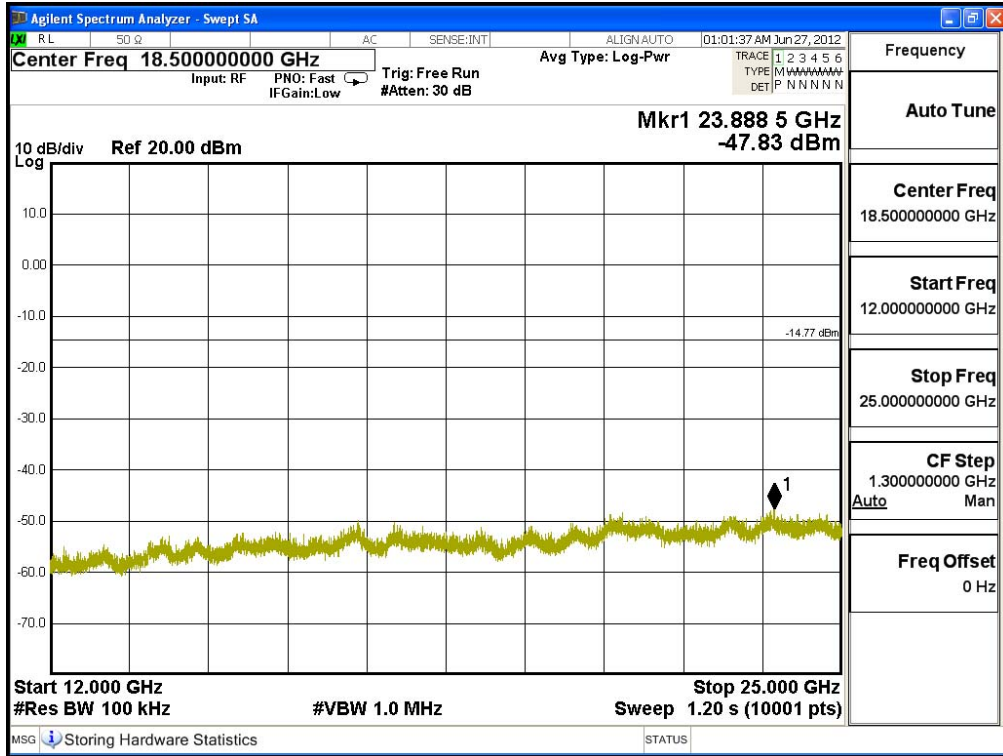
Channel 06 (2437MHz)





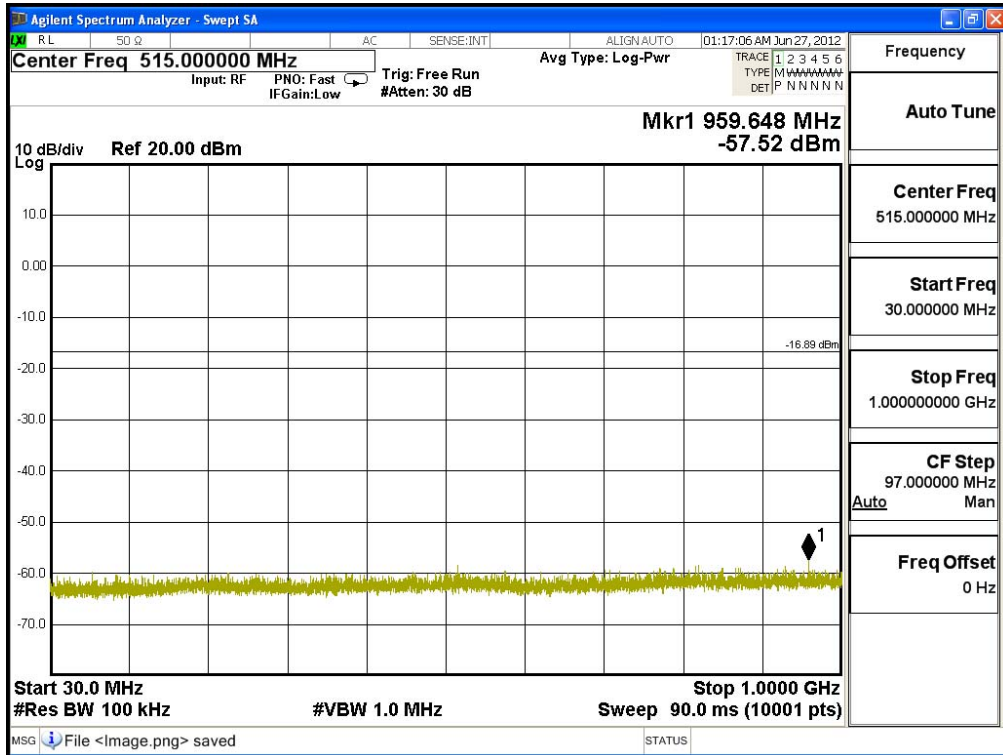
Channel 11 (2462MHz)

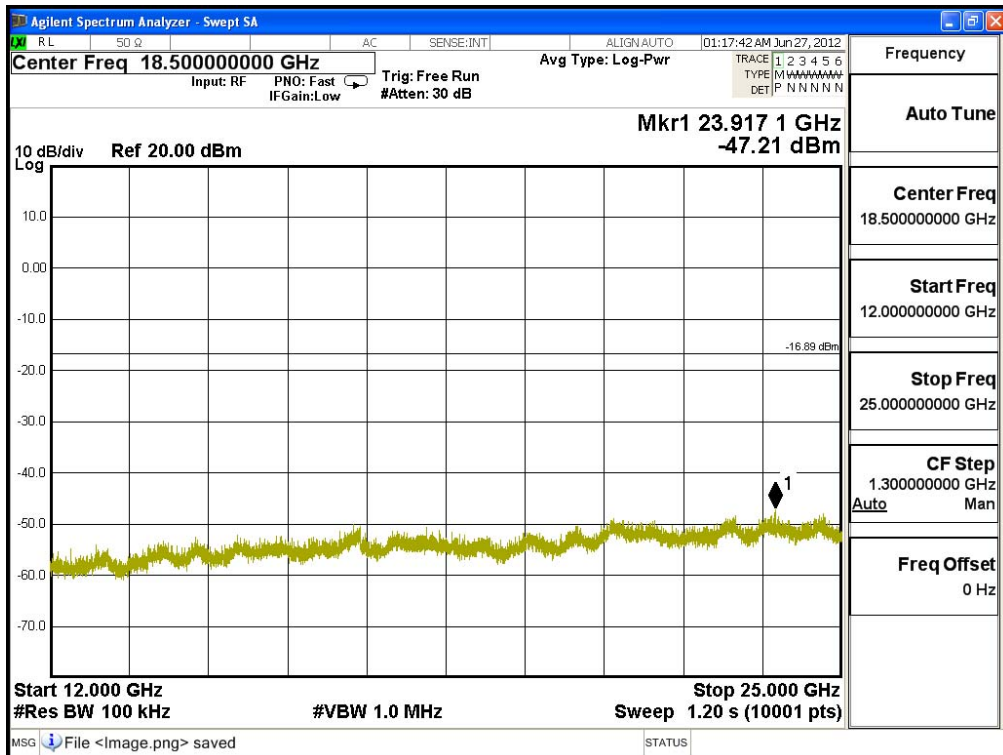
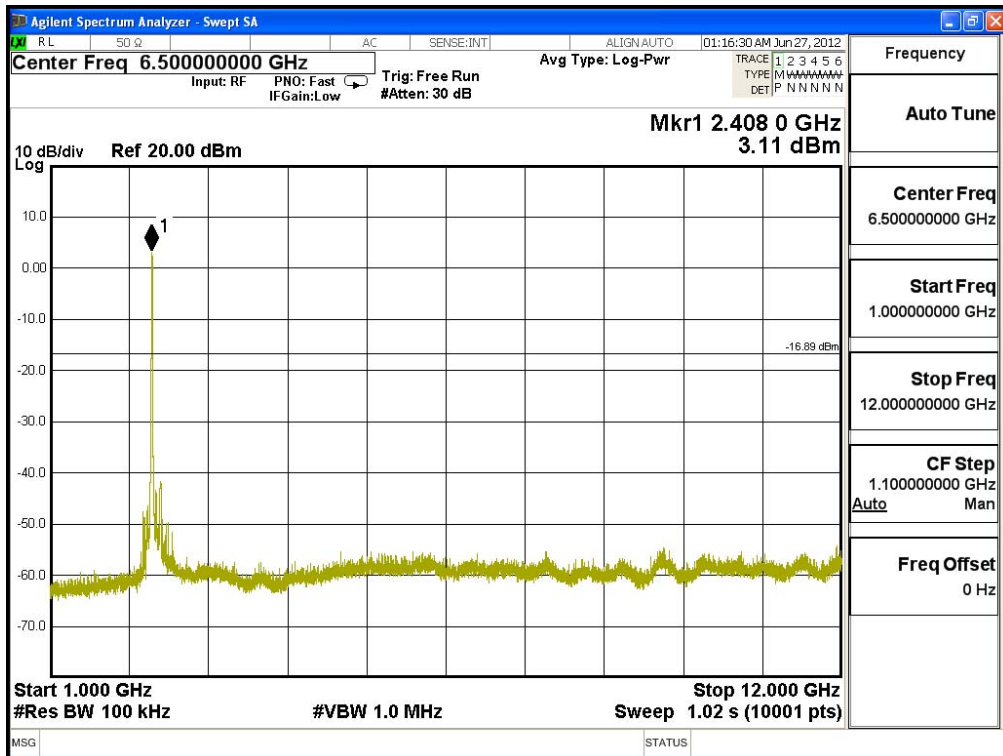




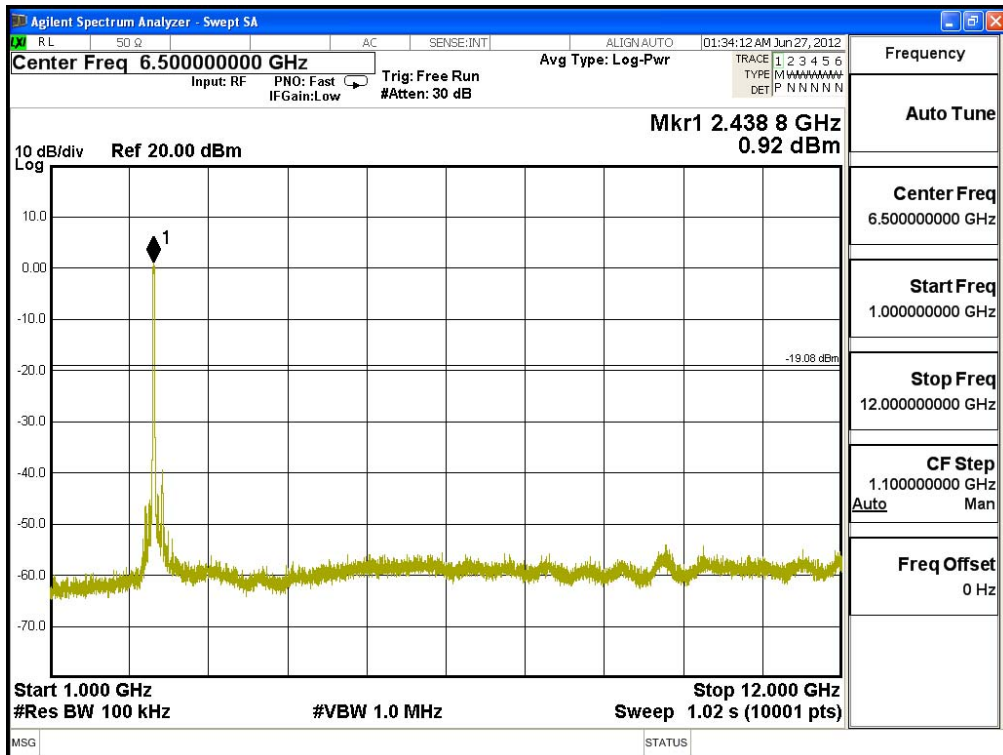
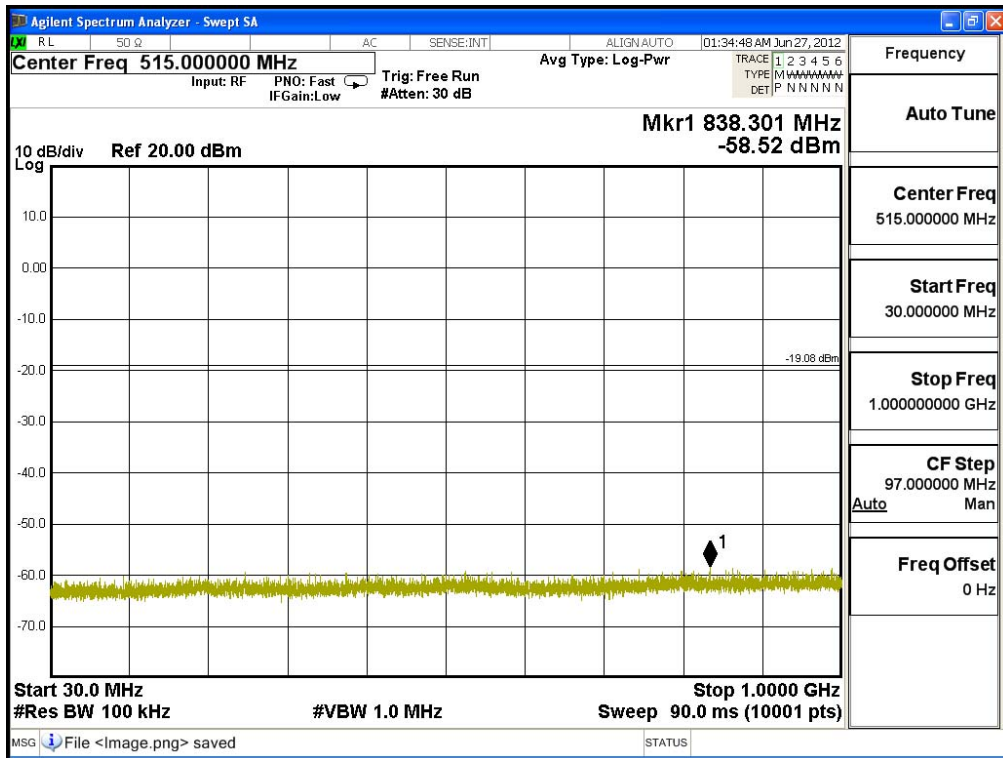
Product : SPEAKER DOCK
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

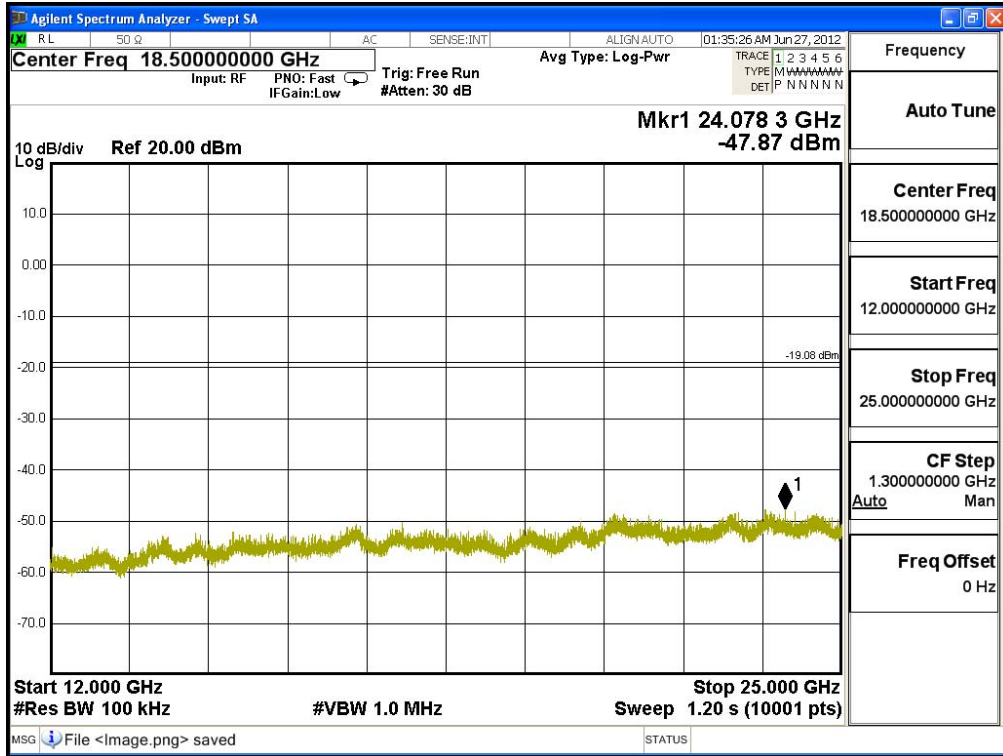
Channel 01 (2412MHz)



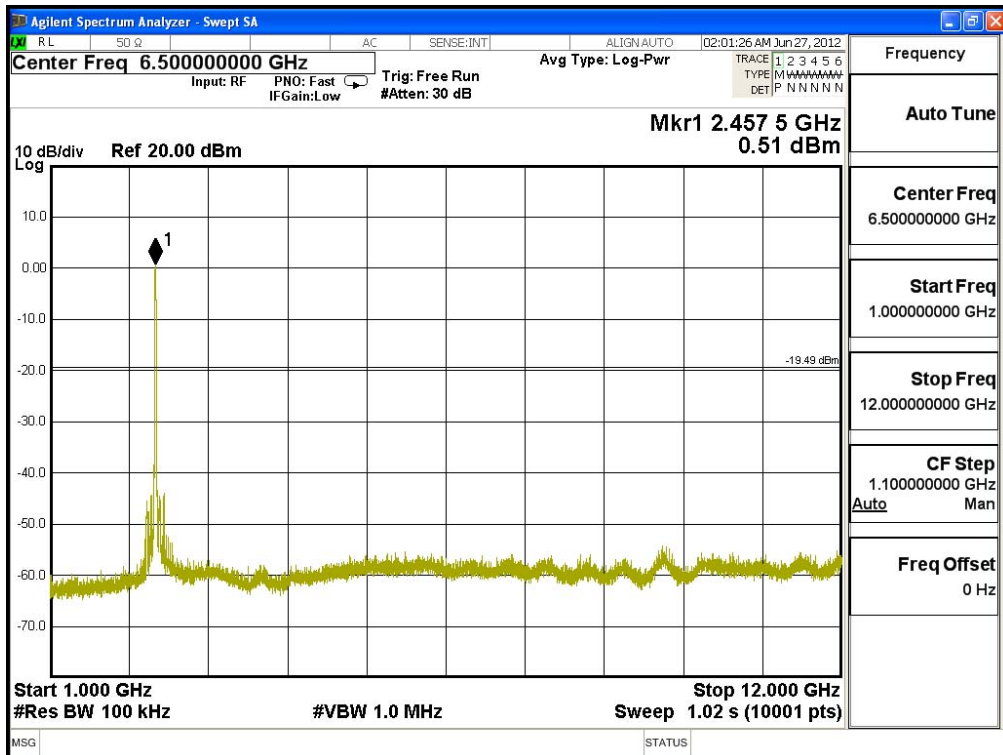
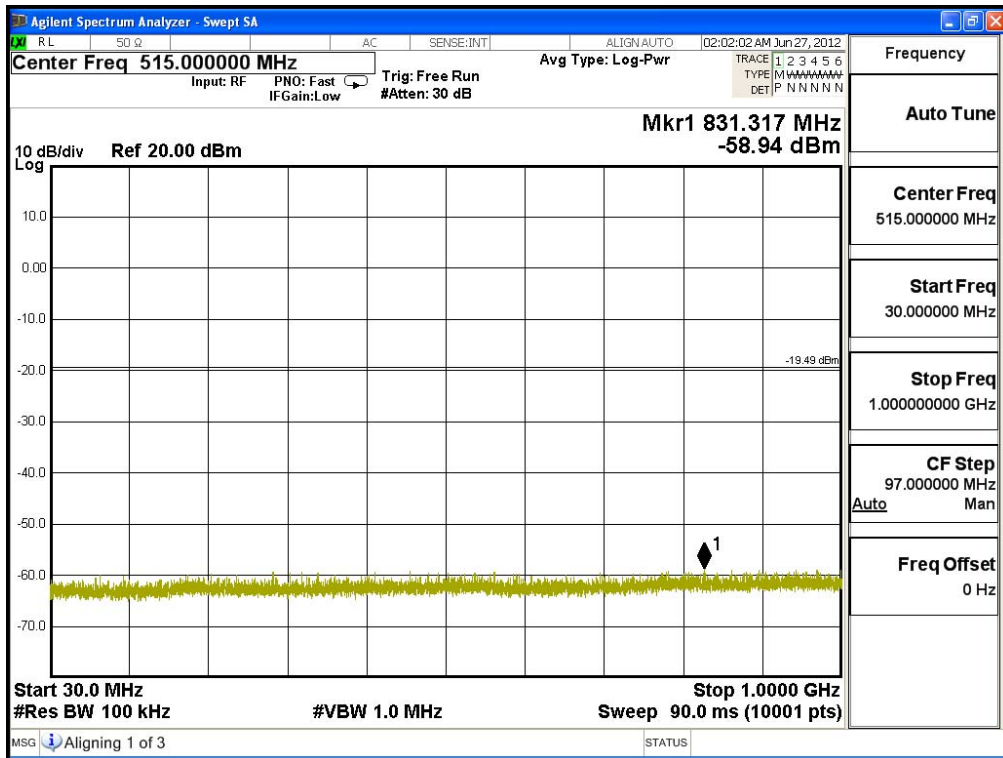


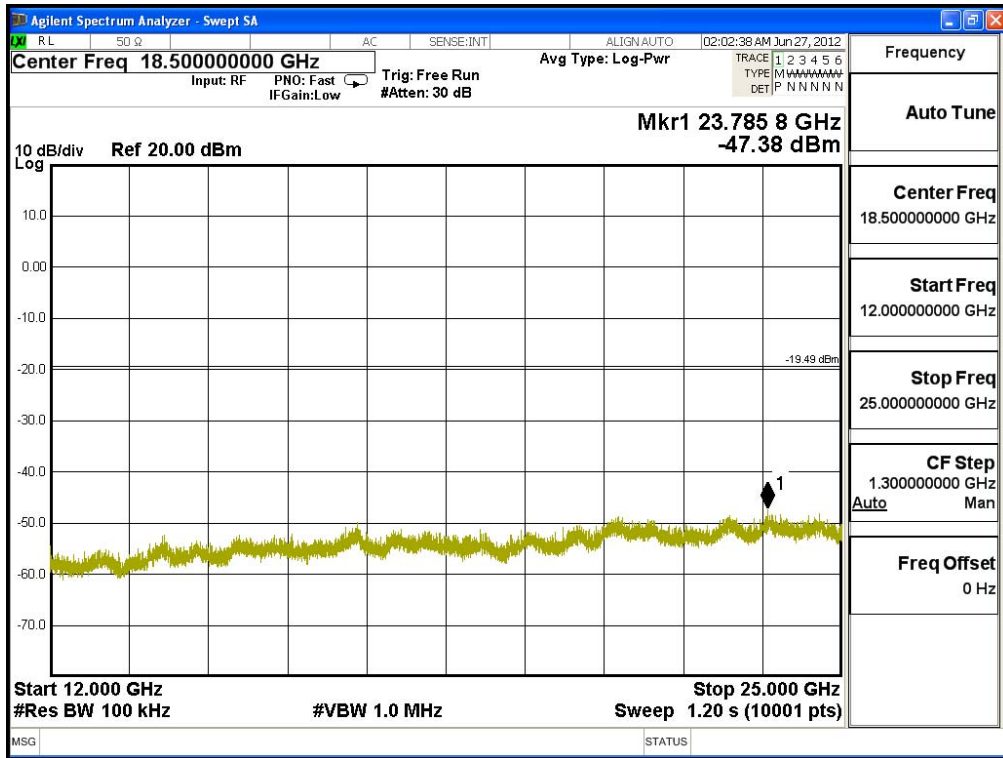
Channel 06 (2437MHz)





Channel 11 (2462MHz)





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
X	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:

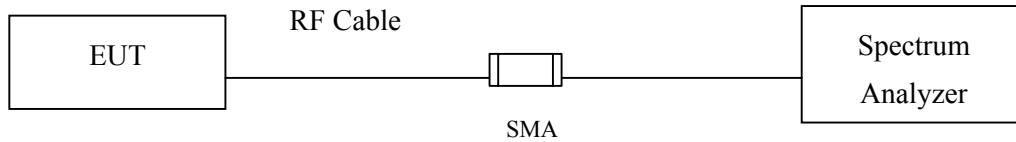
The following test equipments are used during the band edge tests:

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

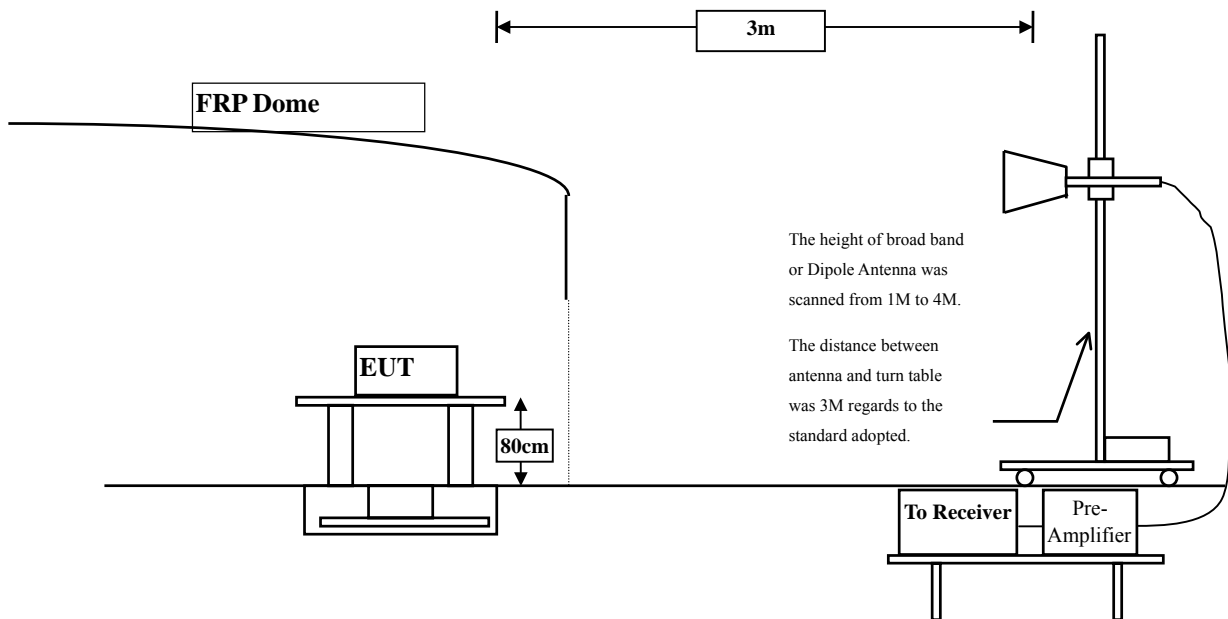
- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

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 : SPEAKER DOCK
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2386.200	31.735	28.059	59.795	74.00	54.00	Pass
01 (Peak)	2390.000	31.739	25.700	57.439	74.00	54.00	Pass
01 (Peak)	2413.000	31.775	75.580	107.354	--	--	Pass
01 (Average)	2387.000	31.736	18.724	50.460	74.00	54.00	Pass
01 (Average)	2390.000	31.739	15.428	47.167	74.00	54.00	Pass
01 (Average)	2411.200	31.770	71.794	103.564	--	--	Pass

Figure Channel 01: Horizontal (Peak)

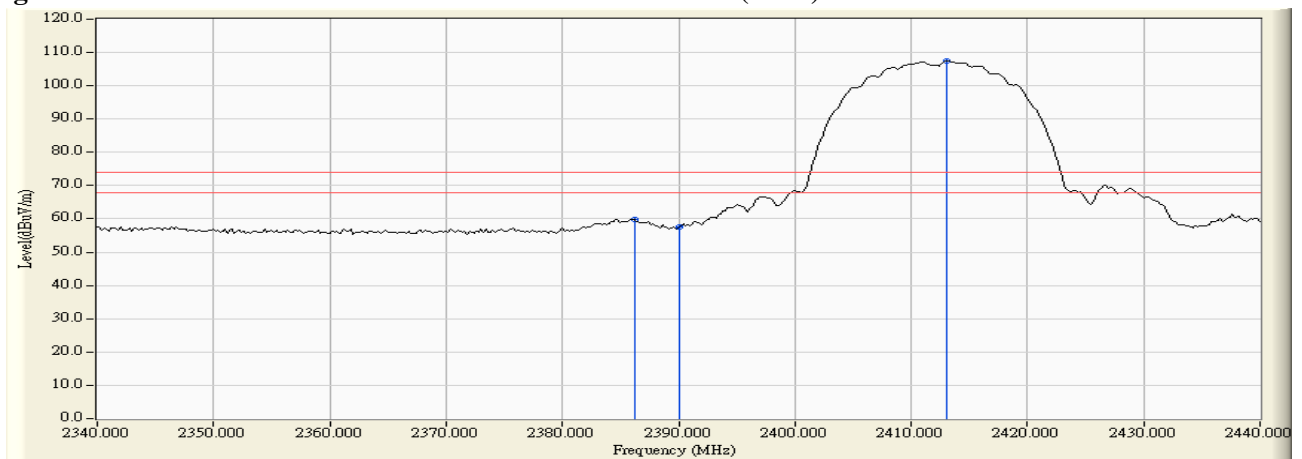
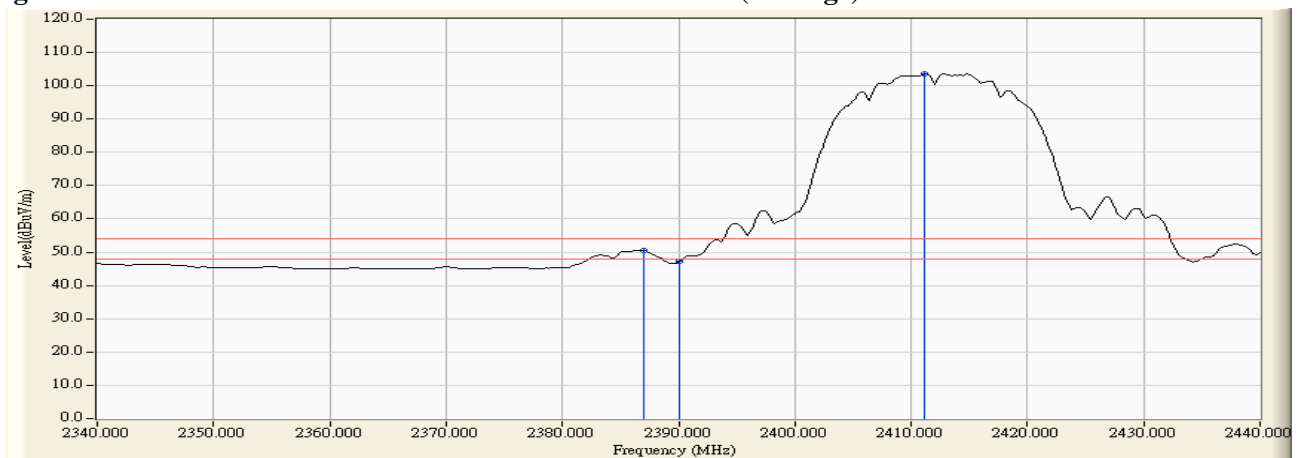


Figure Channel 01: Horizontal (Average)



Note:

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

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

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2386.000	30.295	29.369	59.664	74.00	54.00	Pass
01 (Peak)	2390.000	30.267	27.058	57.325	74.00	54.00	Pass
01 (Peak)	2413.000	30.254	76.616	106.869	--	--	Pass
01 (Average)	2386.600	30.291	20.519	50.810	74.00	54.00	Pass
01 (Average)	2390.000	30.267	16.288	46.555	74.00	54.00	Pass
01 (Average)	2411.200	30.245	72.613	102.858	--	--	Pass

Figure Channel 01: Vertical (Peak)

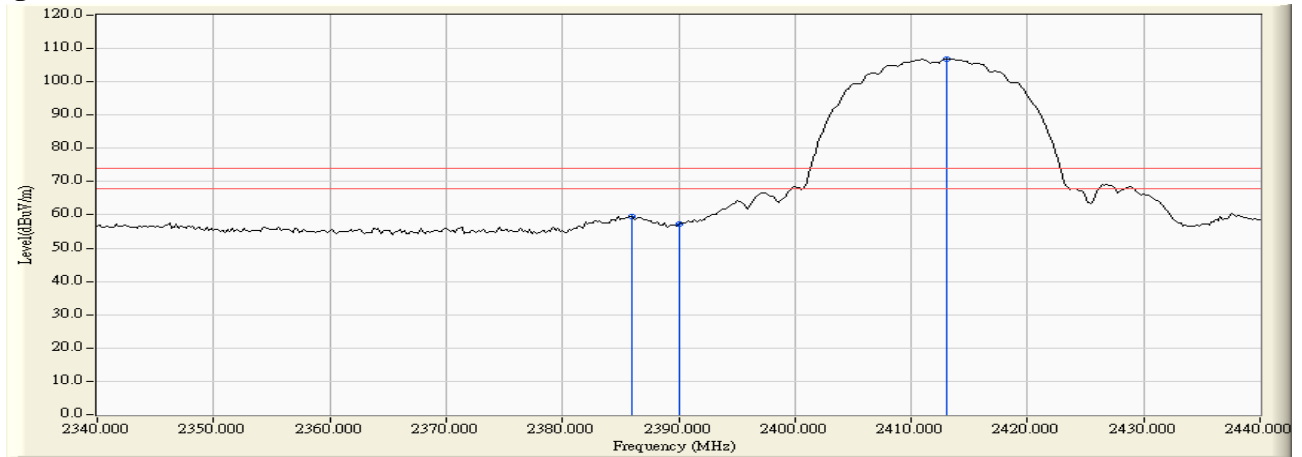
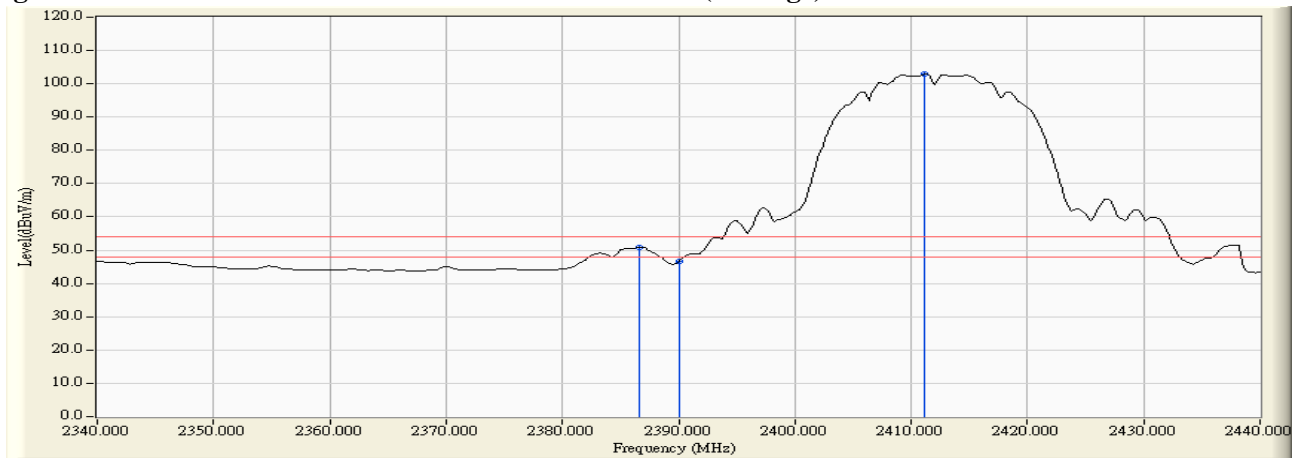


Figure Channel 01: Vertical (Average)



Note:

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

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

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2460.900	31.890	75.864	107.754	--	--	Pass
11 (Peak)	2483.500	31.951	26.161	58.111	74.00	54.00	Pass
11 (Peak)	2487.700	31.961	28.447	60.408	74.00	54.00	Pass
11 (Average)	2461.300	31.890	72.067	103.958	--	--	Pass
11 (Average)	2483.500	31.951	15.524	47.474	74.00	54.00	Pass
11 (Average)	2488.100	31.962	19.501	51.463	74.00	54.00	Pass
11 (Average)	2512.100	31.902	19.909	51.811	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

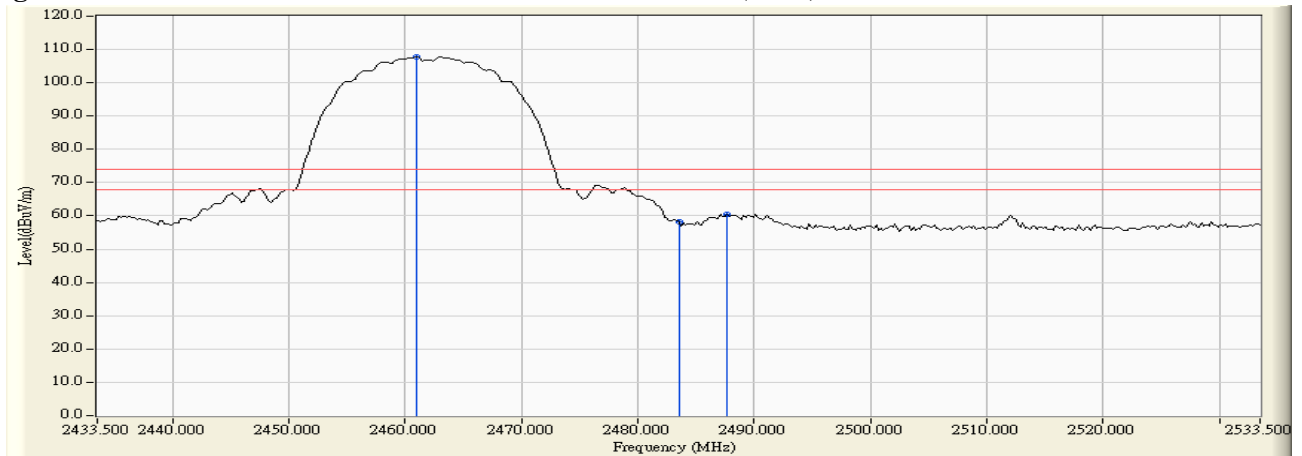
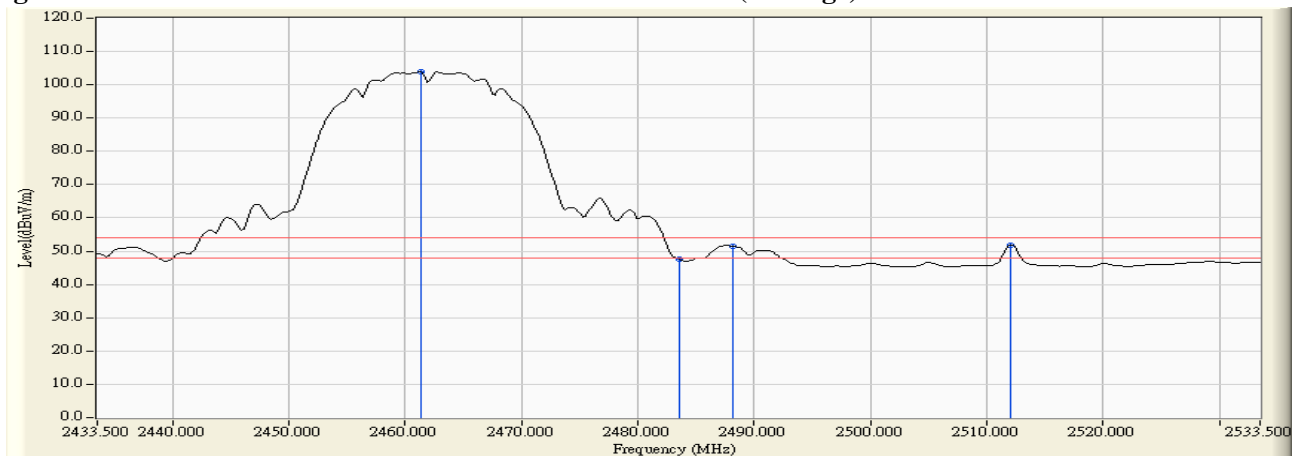


Figure Channel 11: Horizontal (Average)



Note:

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

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

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2463.100	30.486	77.410	107.896	--	--	Pass
11 (Peak)	2483.500	30.586	25.871	56.456	74.00	54.00	Pass
11 (Peak)	2487.900	30.607	29.567	60.173	74.00	54.00	Pass
11 (Average)	2461.100	30.476	73.664	104.140	--	--	Pass
11 (Average)	2483.500	30.586	16.198	46.783	74.00	54.00	Pass
11 (Average)	2487.300	30.603	20.465	51.068	74.00	54.00	Pass

Figure Channel 11: Vertical (Peak)

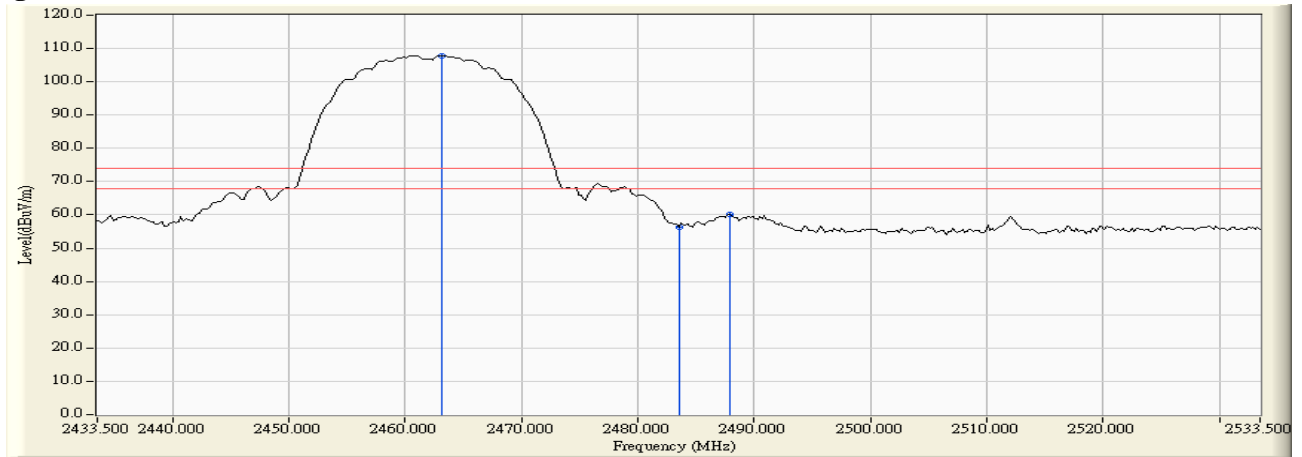
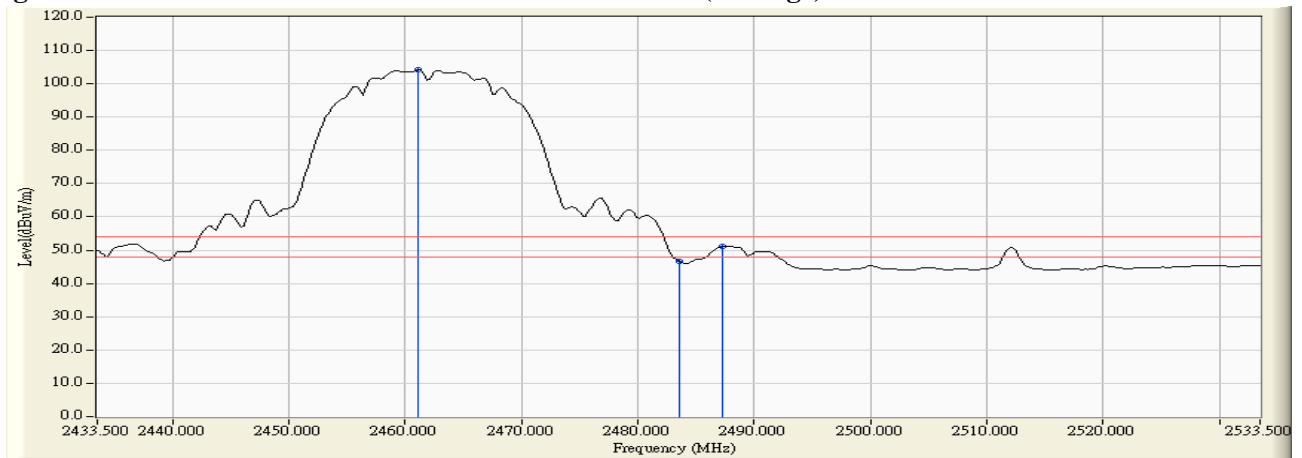


Figure Channel 01: Vertical (Average)



Note:

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

Product : SPEAKER DOCK
 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 (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.739	36.766	68.505	74.00	54.00	Pass
01 (Peak)	2416.000	31.782	76.445	108.226	--	--	Pass
01(Average)	2390.000	31.739	18.831	50.570	74.00	54.00	Pass
01 (Average)	2414.200	31.777	64.288	96.065	--	--	Pass

Figure Channel 01:

Horizontal (Peak)

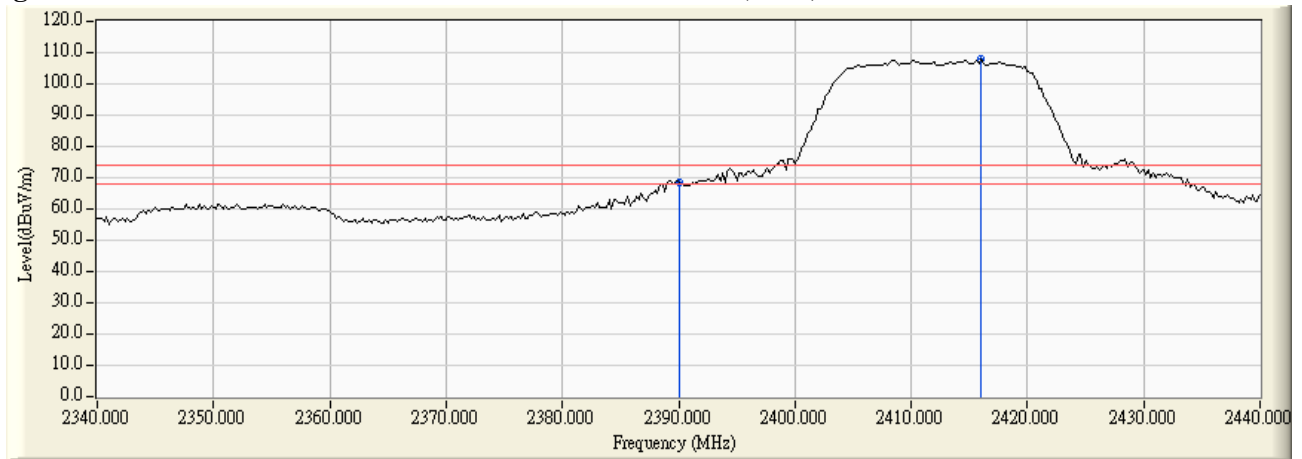
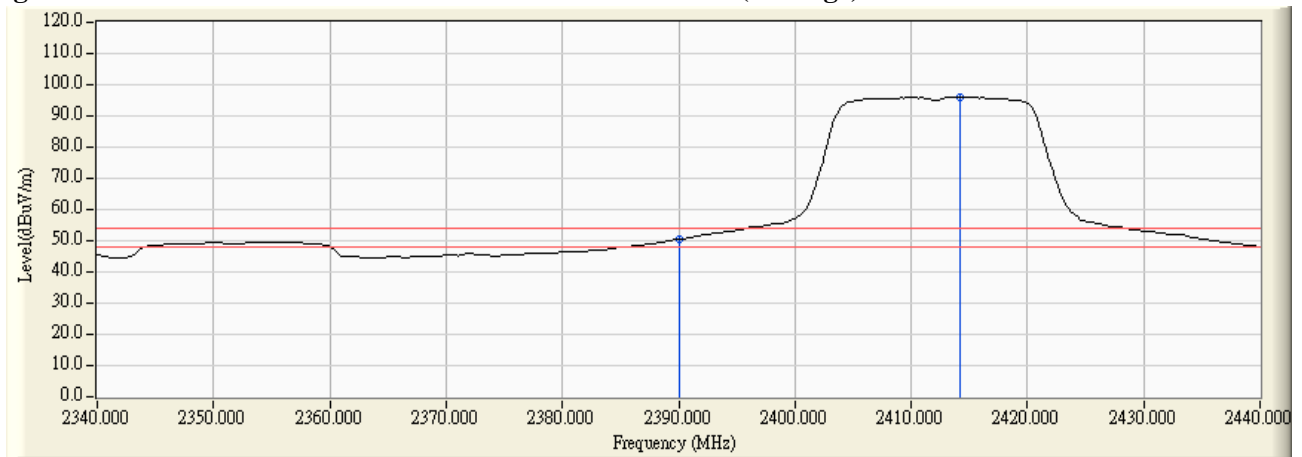


Figure Channel 01:

Horizontal (Average)



Note:

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

Product : SPEAKER DOCK
 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 (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.267	38.088	68.355	74.00	54.00	Pass
01 (Peak)	2415.800	30.266	78.276	108.542	--	--	Pass
01 (Average)	2390.000	30.267	19.776	50.043	74.00	54.00	Pass
01 (Average)	2414.400	30.260	65.979	96.239	--	--	Pass

Figure Channel 01: Vertical (Peak)

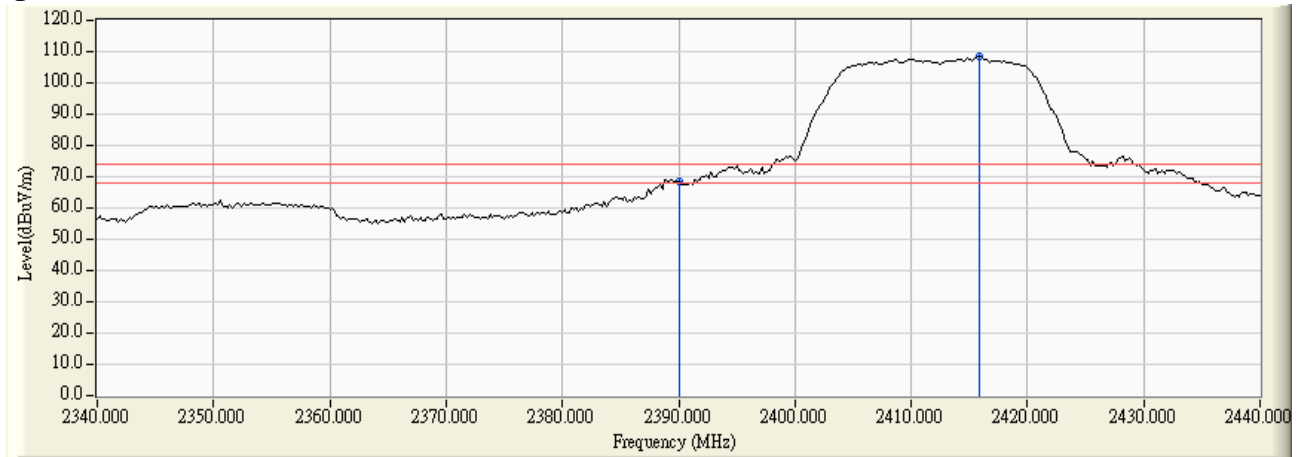
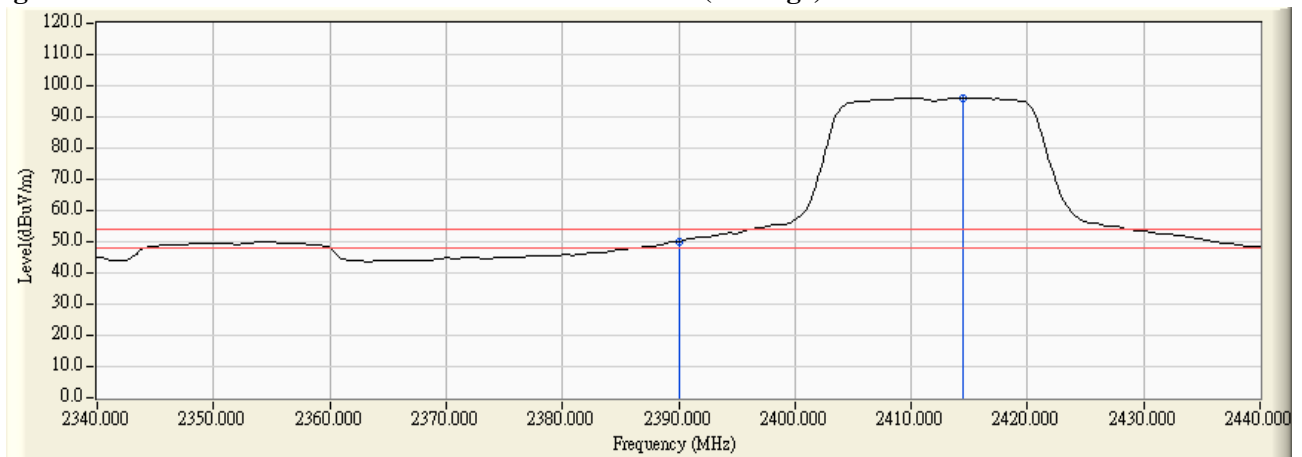


Figure Channel 01: Vertical (Average)



Note:

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

Product : SPEAKER DOCK
 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 (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2462.100	31.892	77.933	109.826	--	--	Pass
11 (Peak)	2483.500	31.951	36.639	68.589	74.00	54.00	Pass
11(Average)	2459.900	31.887	64.559	96.446	--	--	Pass
11 (Average)	2483.500	31.951	20.216	52.166	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

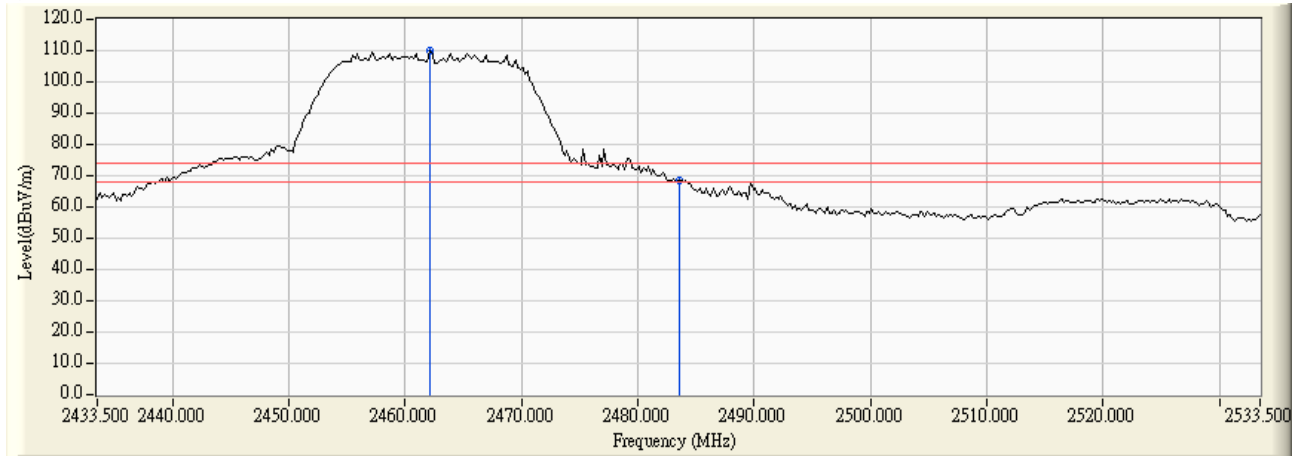
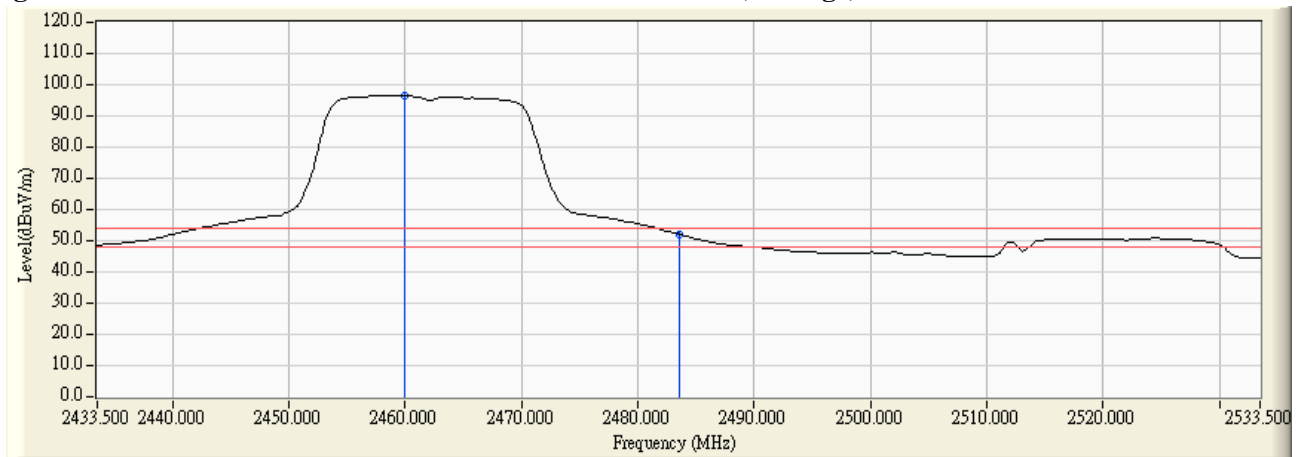


Figure Channel 11: Horizontal (Average)



Note:

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

Product : SPEAKER DOCK
 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 (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2458.700	30.465	79.850	110.315	--	--	Pass
11 (Peak)	2483.500	30.586	38.549	69.134	--	--	Pass
11 (Peak)	2484.500	30.590	39.401	69.991	74.00	54.00	
11 (Average)	2459.300	30.468	66.929	97.396	--	--	Pass
11 (Average)	2483.500	30.586	22.725	53.310	74.00	54.00	Pass

Figure Channel 11: Vertical (Peak)

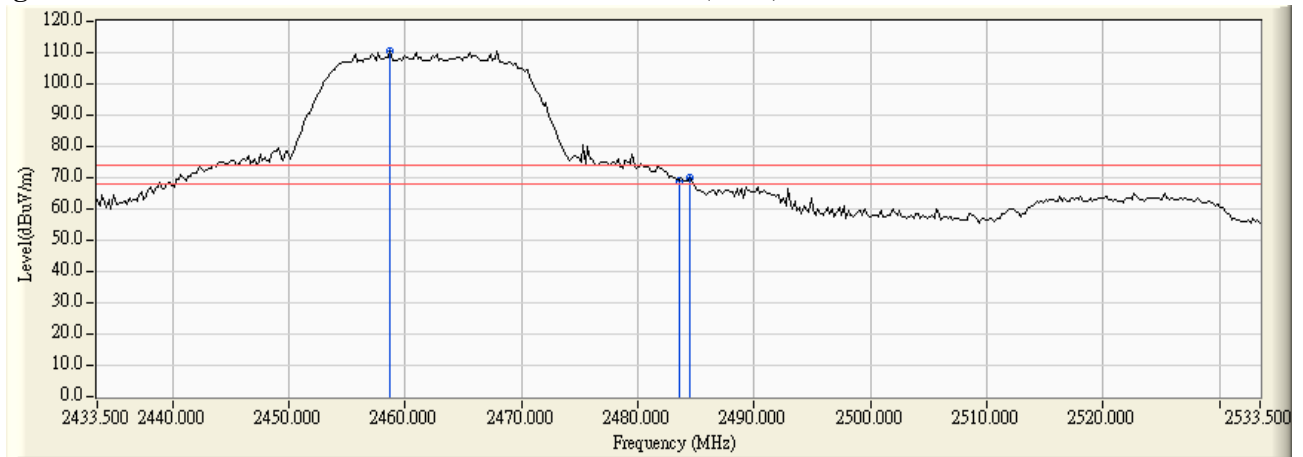
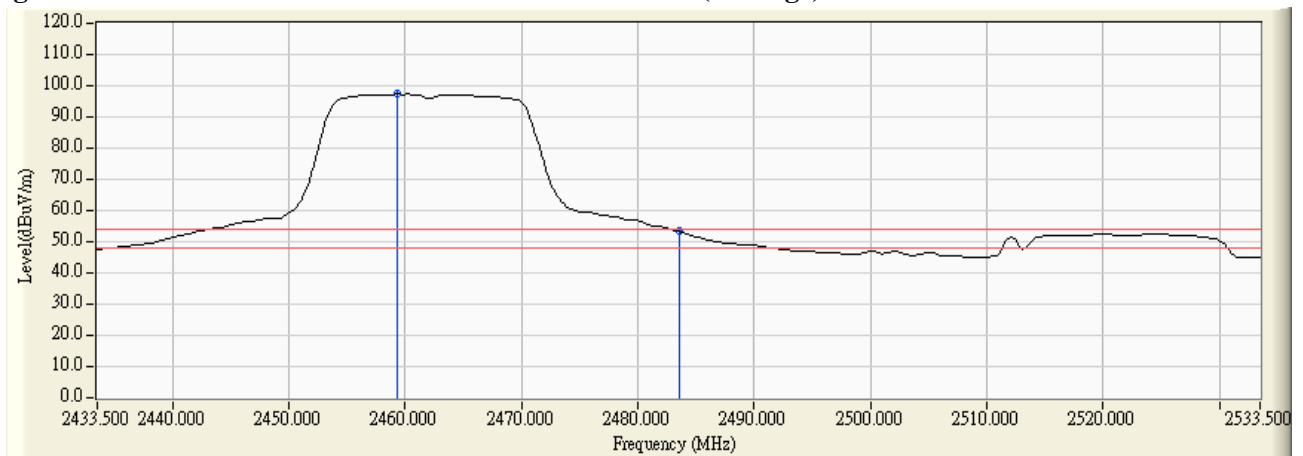


Figure Channel 11: Vertical (Average)



Note:

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

7. Occupied Bandwidth

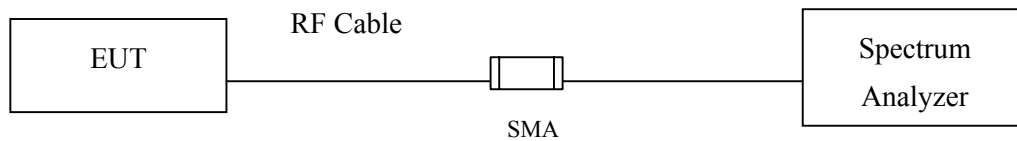
7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	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 ≥ 3*RBW

7.5. Uncertainty

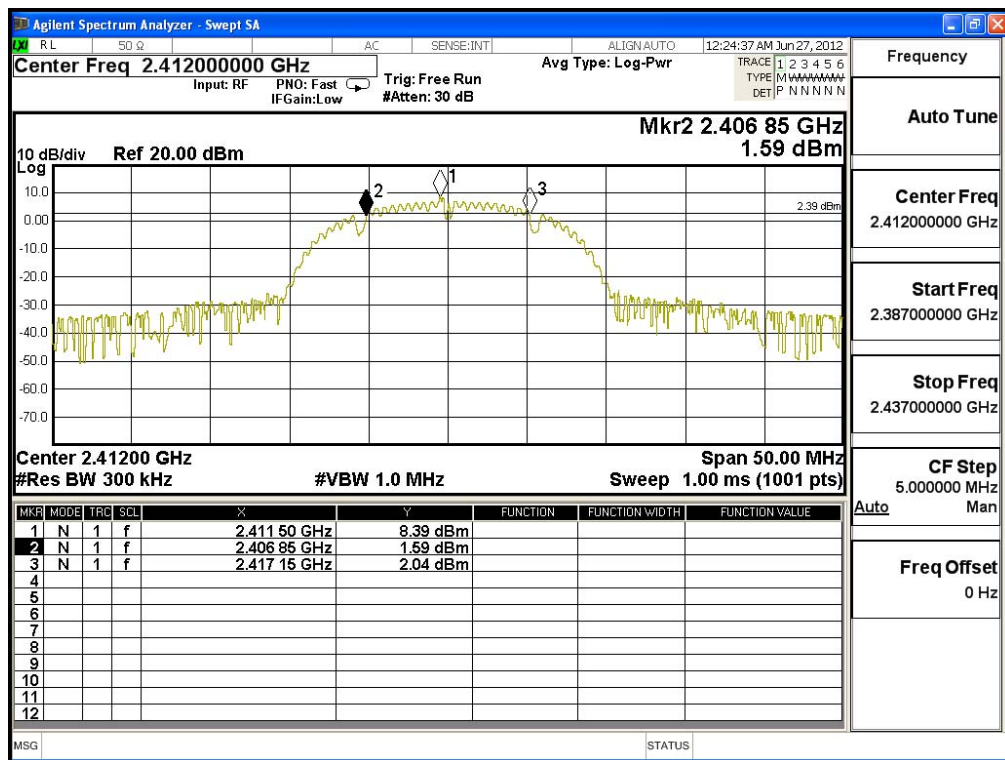
± 150Hz

7.6. Test Result of Occupied Bandwidth

Product : SPEAKER DOCK
 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	10300	>500	Pass

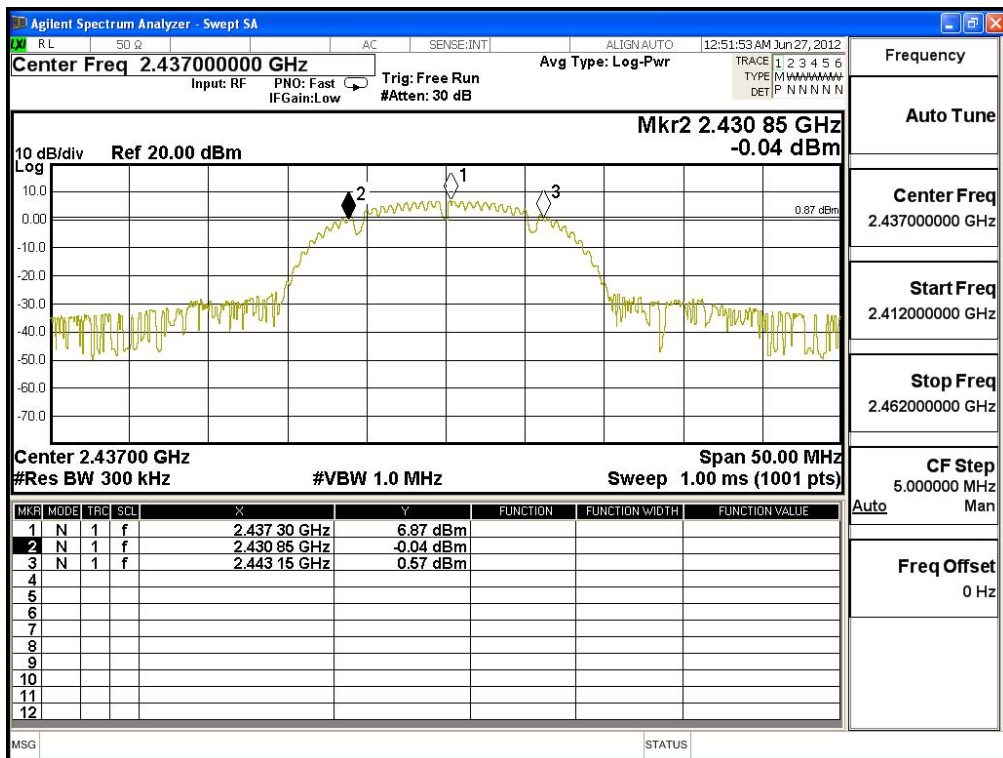
Figure Channel 1:



Product : SPEAKER DOCK
 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	12300	>500	Pass

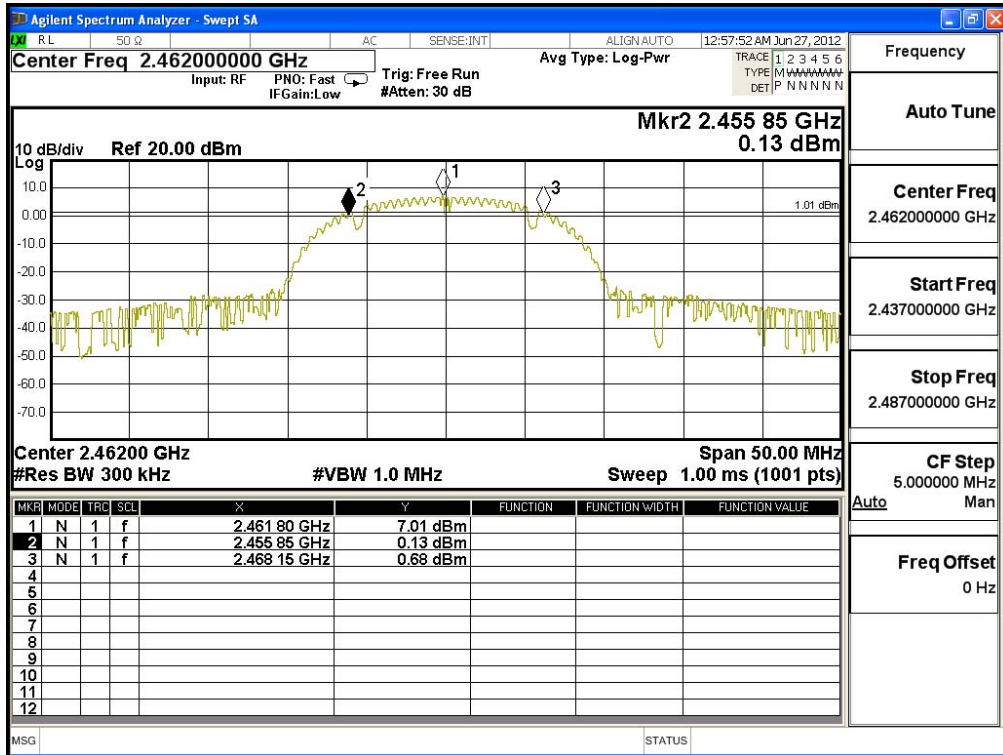
Figure Channel 6:



Product : SPEAKER DOCK
 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	12300	>500	Pass

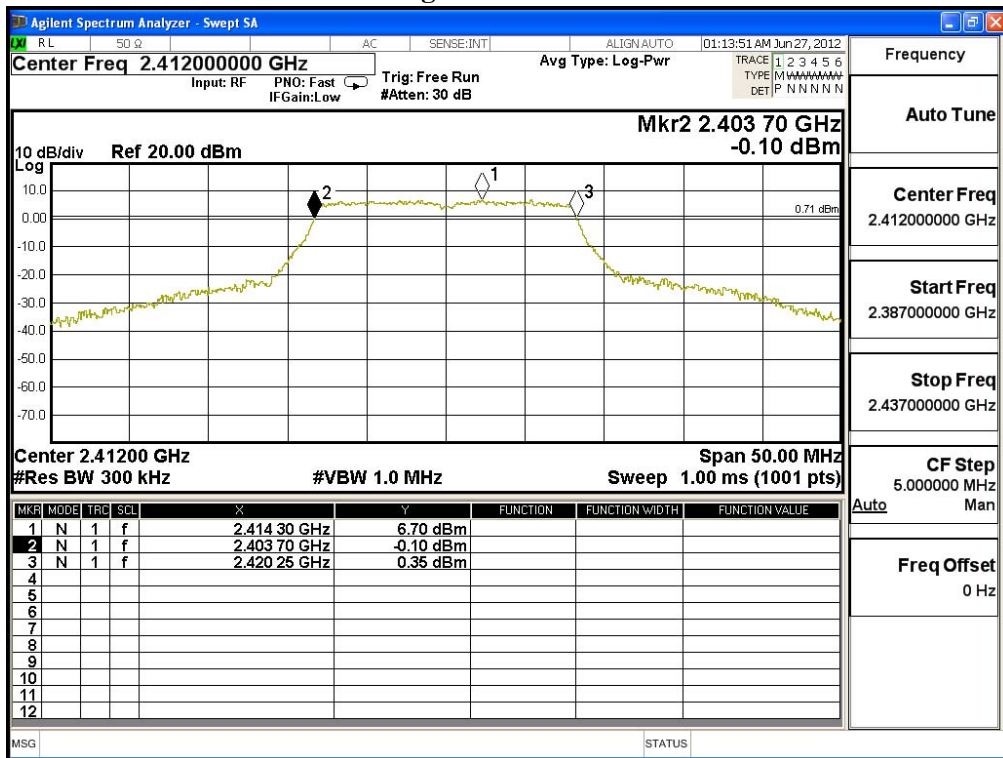
Figure Channel 11:



Product : SPEAKER DOCK
 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	16550	>500	Pass

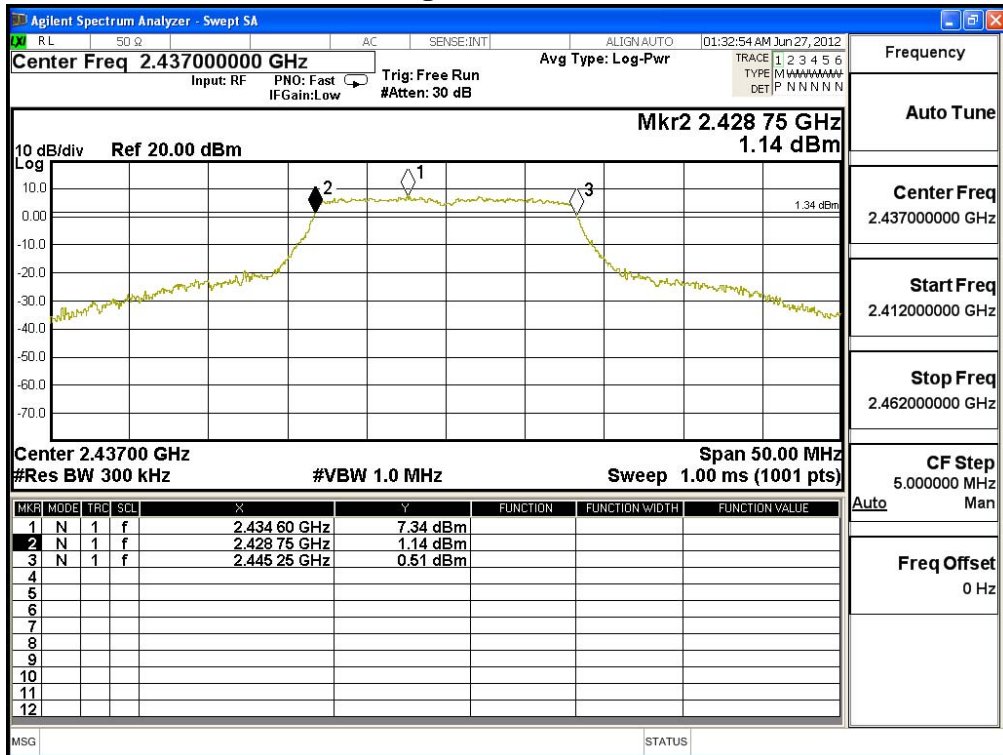
Figure Channel 1:



Product : SPEAKER DOCK
 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	16500	>500	Pass

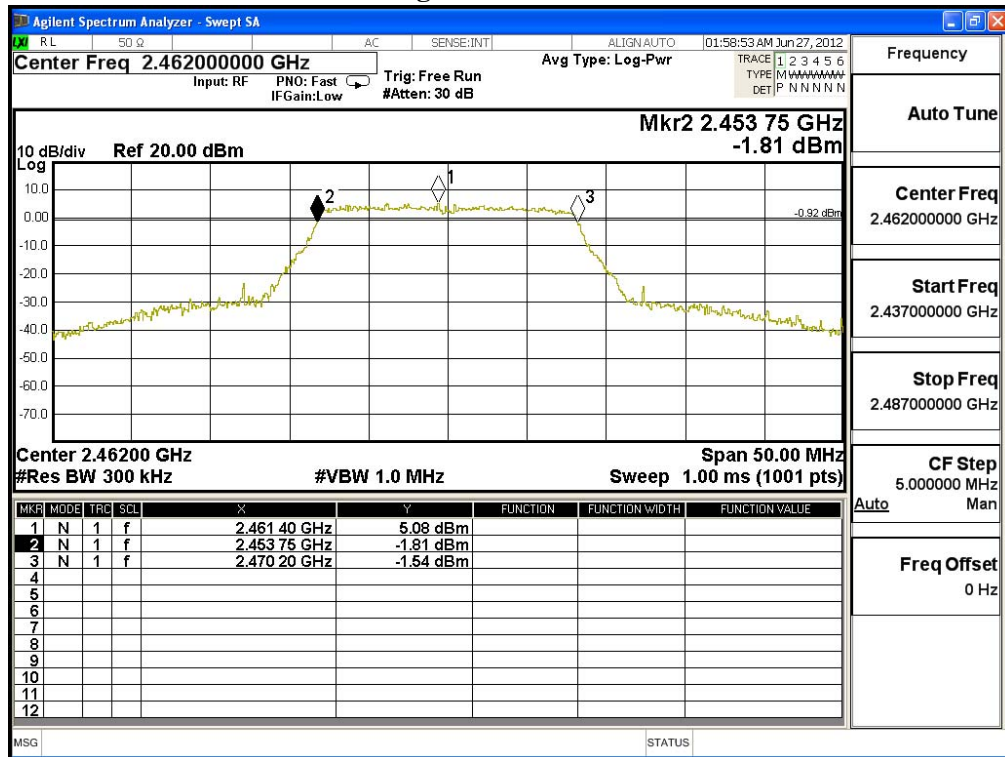
Figure Channel 6:



Product : SPEAKER DOCK
 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	16450	>500	Pass

Figure Channel 11:



8. Power Density

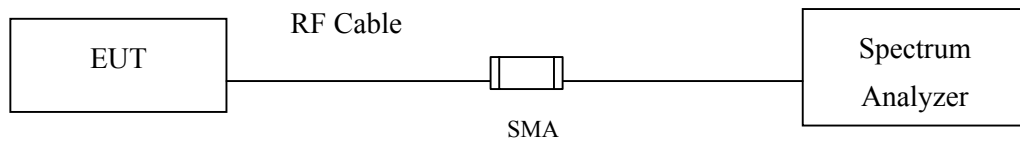
8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	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 $BWCF = 10\log(3\text{ kHz}/100\text{ kHz}) = -15.2\text{ dB}$.

8.5. Uncertainty

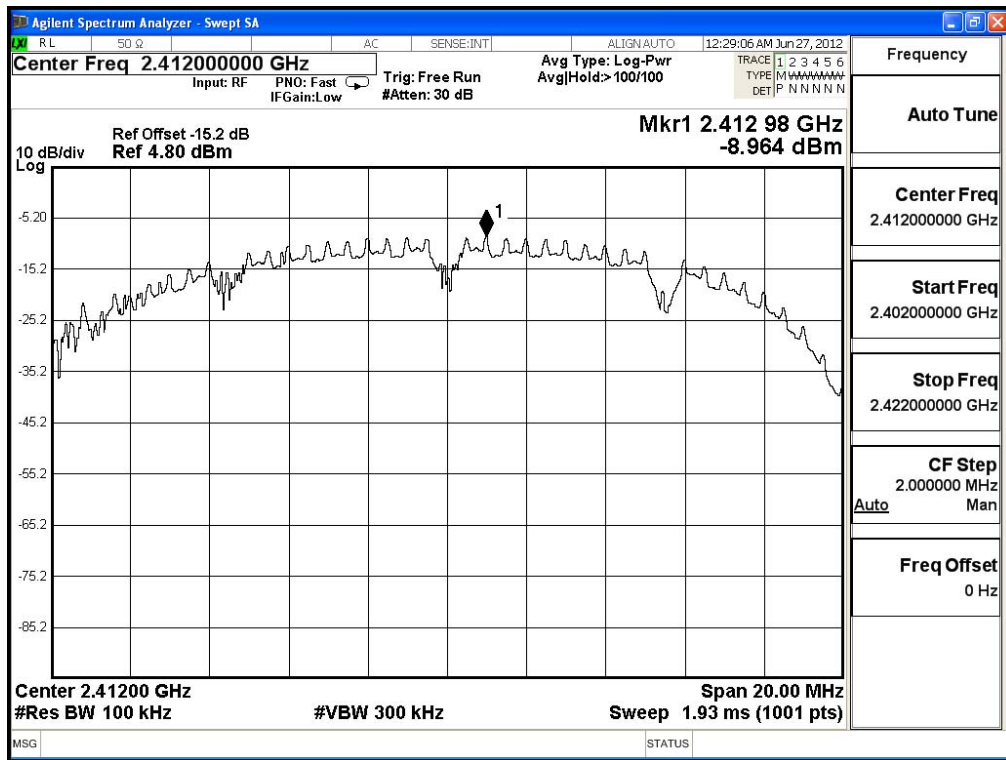
$\pm 1.27\text{ dB}$

8.6. Test Result of Power Density

Product : SPEAKER DOCK
 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	-8.964	< 8dBm	Pass

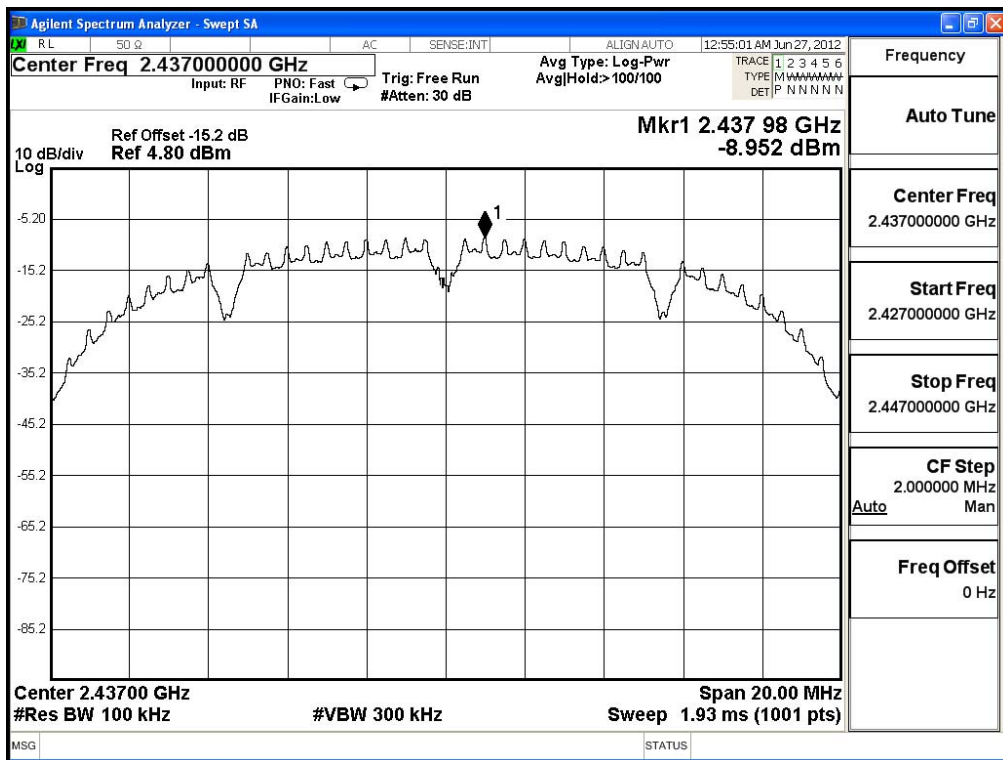
Figure Channel 1:



Product : SPEAKER DOCK
 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	-8.952	< 8dBm	Pass

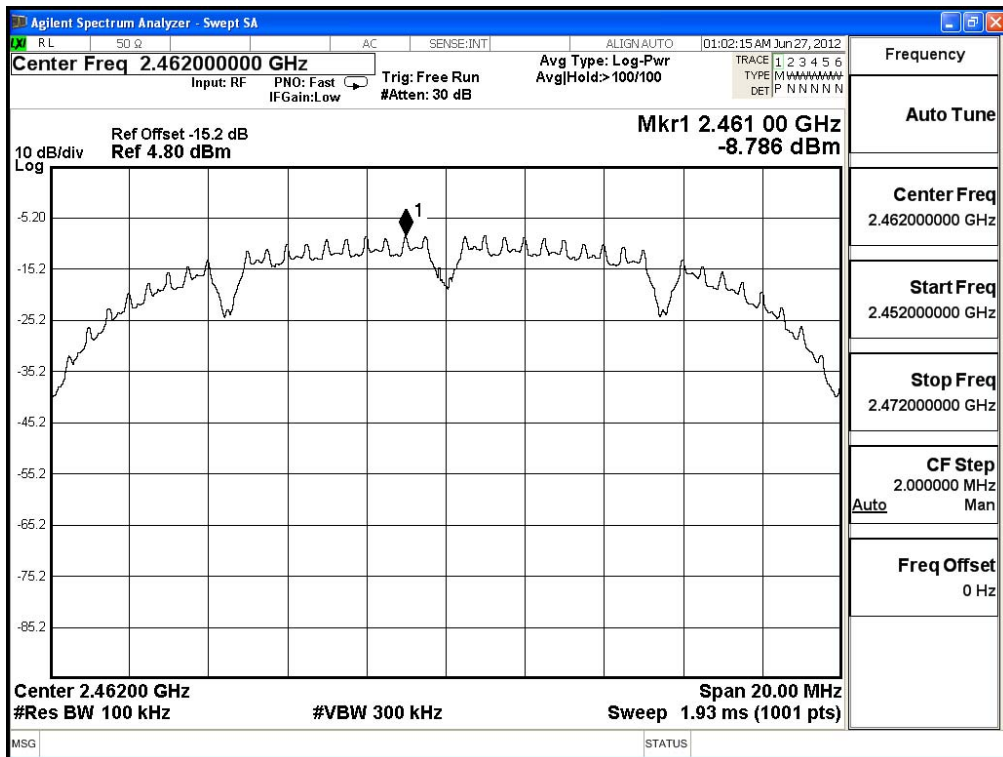
Figure Channel 6:



Product : SPEAKER DOCK
 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	-8.786	< 8dBm	Pass

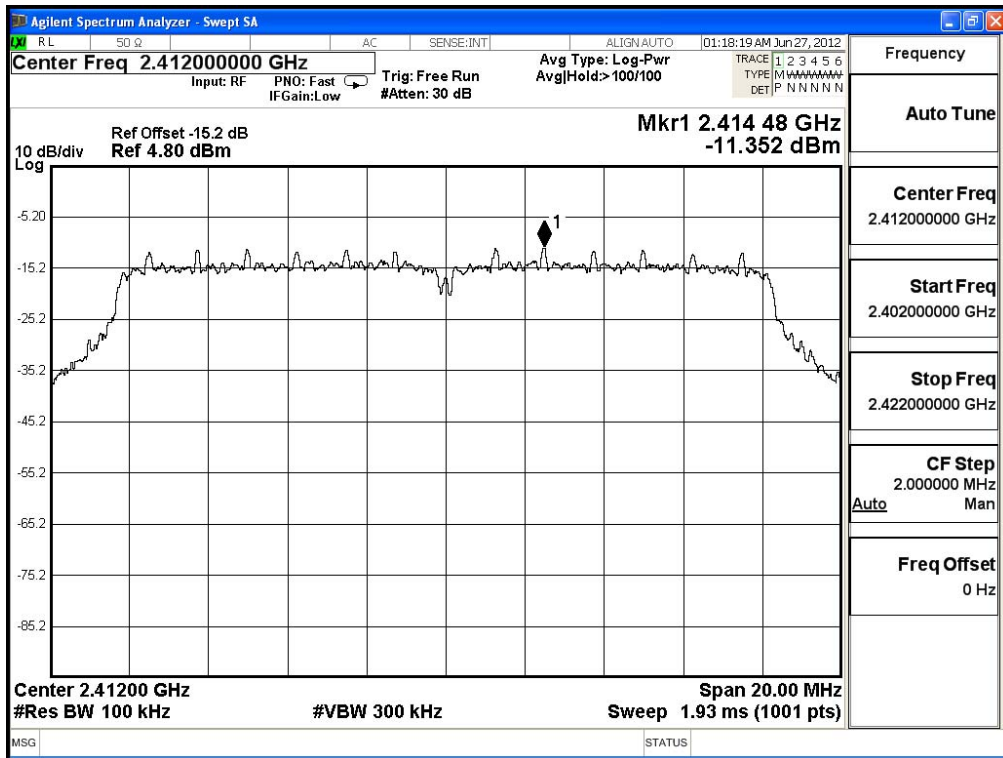
Figure Channel 11:



Product : SPEAKER DOCK
 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	-11.352	< 8dBm	Pass

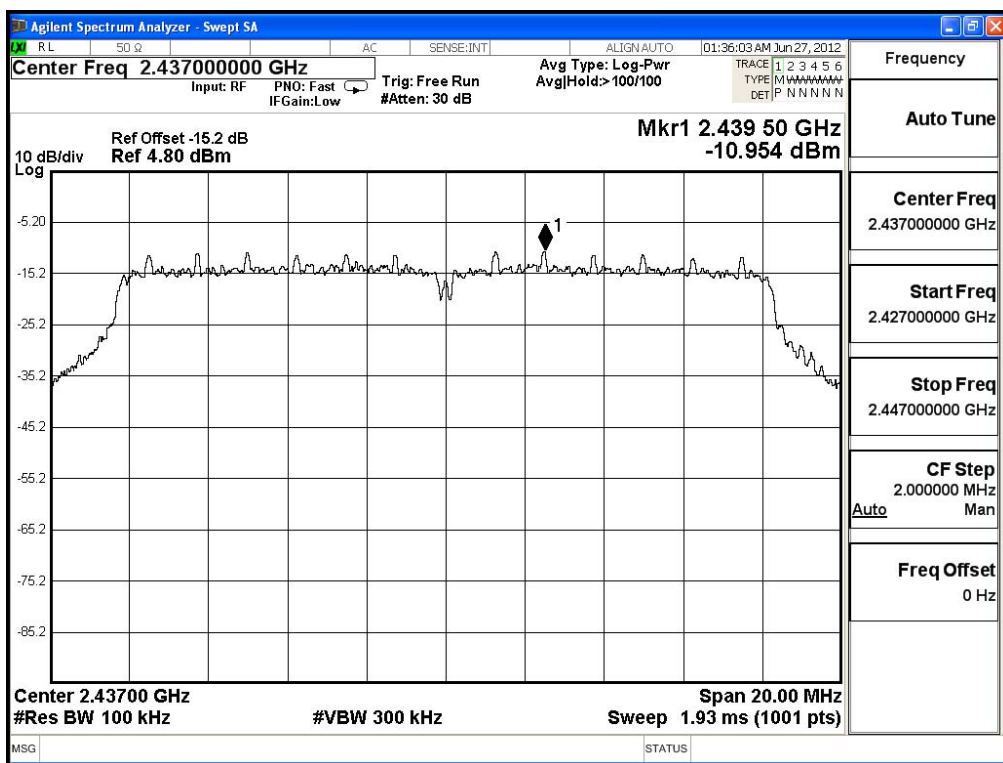
Figure Channel 1:



Product : SPEAKER DOCK
 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	-10.954	< 8dBm	Pass

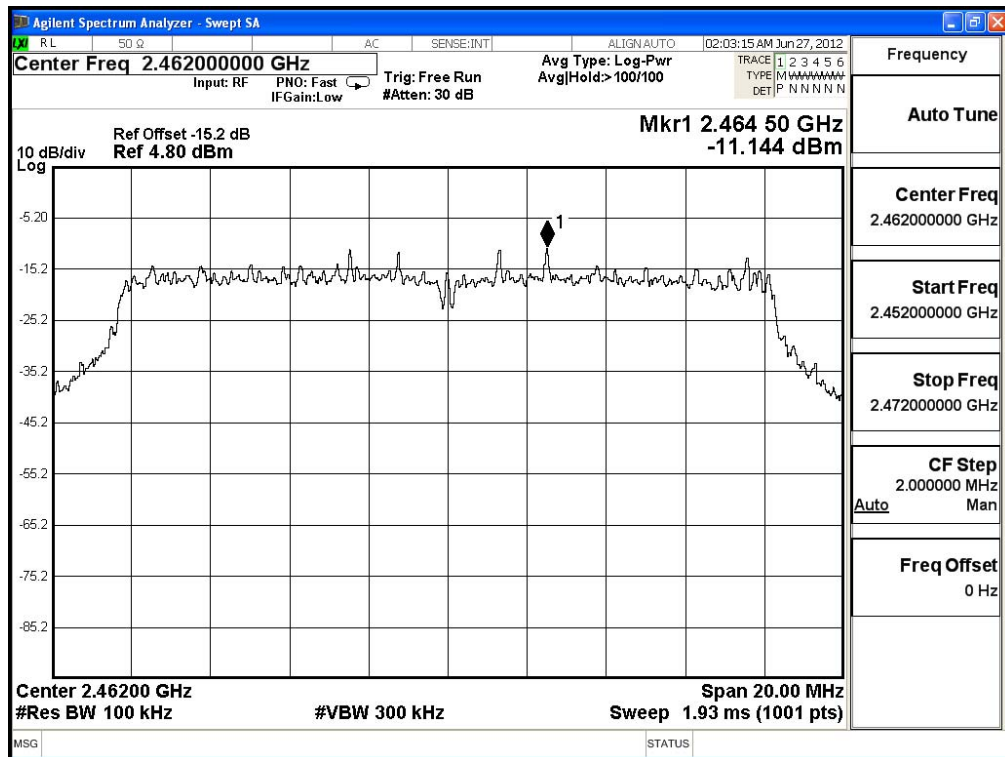
Figure Channel 6:



Product : SPEAKER DOCK
 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	-11.144	< 8dBm	Pass

Figure Channel 11:



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.