Test Report

Product Name	PREMIUM SPEAKER DOCK
Model No	MS7000
FCC ID.	PPQ-MS7000

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	Aug. 14, 2012
Report No.	124518R-RFUSP42V01
Report Version	V1.0

Testing Laboratory
0914

The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Issue Date: Aug. 14, 2012
Report No.: 124518R-RFUSP42V01

Product Name	PREMIUM 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.	MS7000
FCC ID.	PPQ-MS7000
EUT Rated Voltage	AC 120V, 60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	marantz
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2010 ANSI C63.4: 2003
Test Result	Complied

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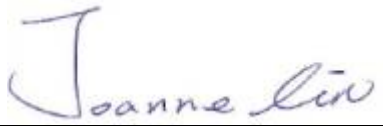
Documented By : 

(Adm. Specialist / Joanne Lin)

Tested By : 

(Assistant Engineer / Vincent Chu)

Approved By : 

(Manager / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	PREMIUM SPEAKER DOCK
Trade Name	marantz
Model No.	MS7000
FCC ID.	PPQ-MS7000
Frequency Range	2412-2462MHz for 802.11b/g
Number of Channels	802.11b/g: 11
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11g:OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	PIFA Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
RJ45 Cable	Shielded, 3.0m

Antenna List

No.	Manufacturer	Model No.	Peak Gain
1	MAGLAYERS	MSA-3810-25GC1-A4 MSA-3810-25GC1-A5	6.41 dBi 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 PREMIUM 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)

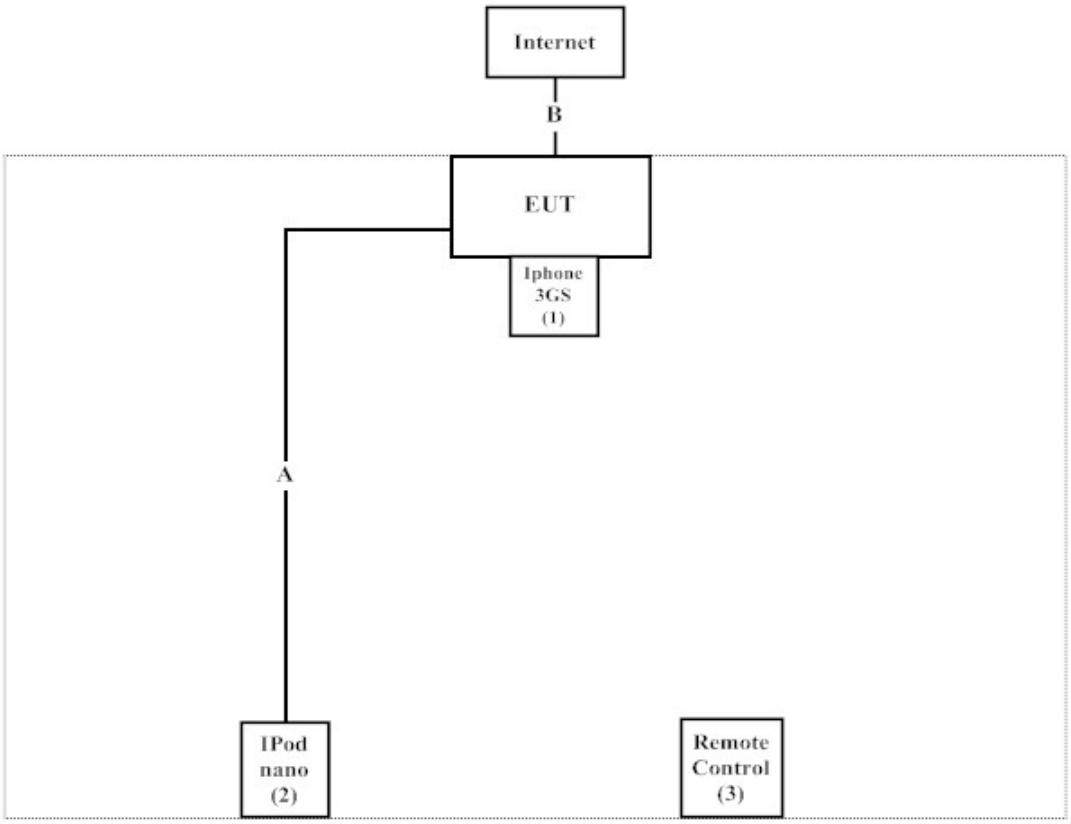
1.3. Tested System Details

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.	Power Cord
1	Iphone 3GS	APPLE	MS637TA	84029A7JEDG	N/A
2	IPod nano	Apple	A1199	YM706LSCVQ5	N/A
3	Remote Control	Lite-On	N/A	N/A	N/A

Signal Cable Type		Signal cable Description
A	Audio Cable	Non-Shielded, 1.8m
B	RJ45 Cable	Non-Shielded, 3.0m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

(1) Connect EUT and Notebook via test fixture.
(2) Execute program on the Notebook
(3) Configure the test mode, the test channel, and the data rate.
(4) Press “OK” to start the continuous transmission.
(5) Remove notebook and test fixture, Setup the EUT as shown in Section 1.4
(6) 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

Site Name: Quietek Corporation
Site Address: No.5-22, Ruishukeng,
Linkou Dist. New Taipei City 24451,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

2. Conducted Emission

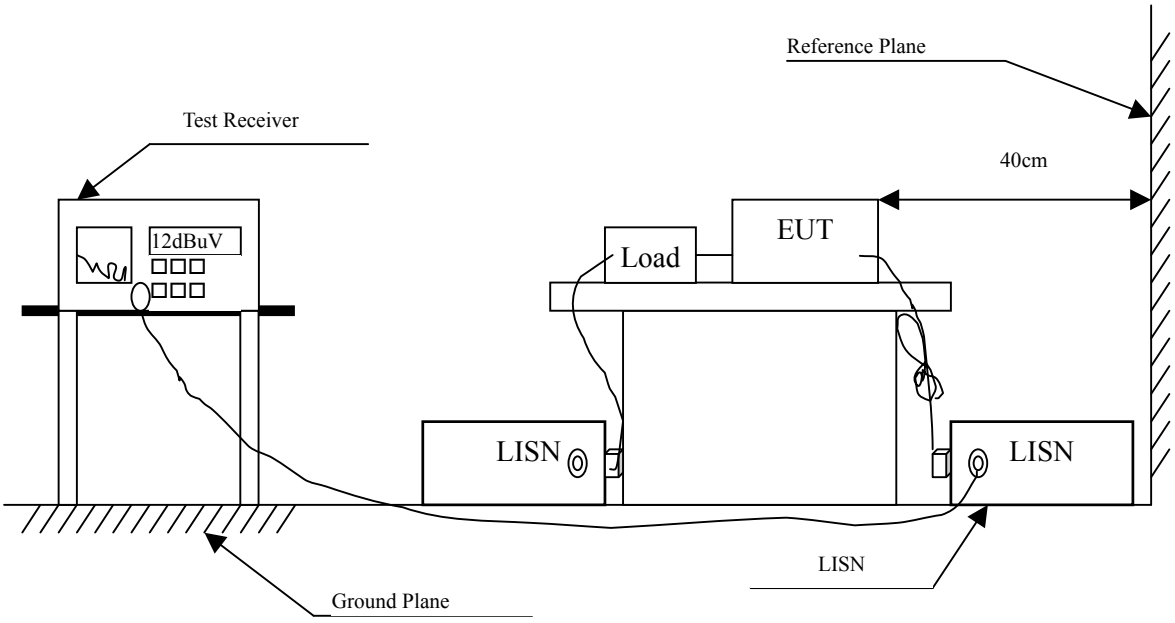
2.1. Test Equipment

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 : PREMIUM SPEAKER DOCK
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) (ESMT)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.166	9.710	31.630	41.340	-24.203	65.543
0.236	9.662	23.410	33.072	-30.471	63.543
0.334	9.640	13.610	23.250	-37.493	60.743
0.505	9.640	17.890	27.530	-28.470	56.000
1.455	9.670	14.840	24.510	-31.490	56.000
24.002	9.950	32.820	42.770	-17.230	60.000
Average					
0.166	9.710	17.000	26.710	-28.833	55.543
0.236	9.662	9.530	19.192	-34.351	53.543
0.334	9.640	3.710	13.350	-37.393	50.743
0.505	9.640	10.500	20.140	-25.860	46.000
1.455	9.670	8.360	18.030	-27.970	46.000
24.002	9.950	29.180	39.130	-10.870	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 : PREMIUM SPEAKER DOCK
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) (ESMT)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.177	9.706	29.660	39.366	-25.863	65.229
0.220	9.673	24.900	34.573	-29.427	64.000
0.349	9.650	17.170	26.820	-33.494	60.314
0.783	9.680	8.310	17.990	-38.010	56.000
2.740	9.700	12.460	22.160	-33.840	56.000
24.002	10.160	32.800	42.960	-17.040	60.000
Average					
0.177	9.706	12.540	22.246	-32.983	55.229
0.220	9.673	12.620	22.293	-31.707	54.000
0.349	9.650	14.120	23.770	-26.544	50.314
0.783	9.680	1.630	11.310	-34.690	46.000
2.740	9.700	6.480	16.180	-29.820	46.000
24.002	10.160	29.030	39.190	-10.810	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 : PREMIUM SPEAKER DOCK
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) (Winbond)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.166	9.710	31.410	41.120	-24.423	65.543
0.228	9.668	23.440	33.108	-30.663	63.771
0.349	9.640	18.810	28.450	-31.864	60.314
0.701	9.640	15.580	25.220	-30.780	56.000
1.408	9.670	13.020	22.690	-33.310	56.000
24.002	9.950	32.580	42.530	-17.470	60.000
Average					
0.166	9.710	18.860	28.570	-26.973	55.543
0.228	9.668	9.030	18.698	-35.073	53.771
0.349	9.640	15.680	25.320	-24.994	50.314
0.701	9.640	11.840	21.480	-24.520	46.000
1.408	9.670	6.620	16.290	-29.710	46.000
24.002	9.950	29.030	38.980	-11.020	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 : PREMIUM SPEAKER DOCK
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) (Winbond)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.166	9.718	31.230	40.948	-24.595	65.543
0.209	9.681	25.330	35.011	-29.303	64.314
0.252	9.656	20.870	30.526	-32.560	63.086
0.705	9.652	14.240	23.892	-32.108	56.000
2.736	9.700	15.870	25.570	-30.430	56.000
19.045	10.080	23.390	33.470	-26.530	60.000
Average					
0.166	9.718	18.430	28.148	-27.395	55.543
0.209	9.681	12.020	21.701	-32.613	54.314
0.252	9.656	6.450	16.106	-36.980	53.086
0.705	9.652	11.220	20.872	-25.128	46.000
2.736	9.700	8.840	18.540	-27.460	46.000
19.045	10.080	17.370	27.450	-22.550	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

3. Peak Power Output

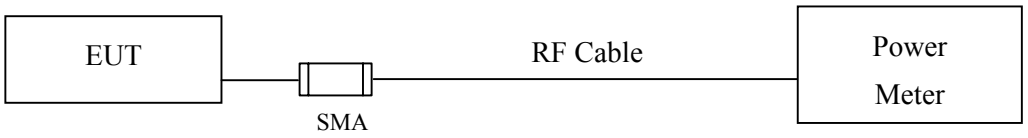
3.1. Test Equipment

	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 : PREMIUM 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	1		
		Measurement Level (dBm)						
01	2412	17.88	--	--	--	20.25	<30dBm	Pass
06	2437	17.79	17.65	17.58	17.43	20.13	<30dBm	Pass
11	2462	15	--	--	--	17.52	<30dBm	Pass

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

Product : PREMIUM 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	13.41	--	--	--	--	--	--	--	22.67	<30dBm	Pass
06	2437	16.43	16.35	16.25	16.17	16.03	15.95	15.87	15.71	24.04	<30dBm	Pass
11	2462	13.33	--	--	--	--	--	--	--	22.7	<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:

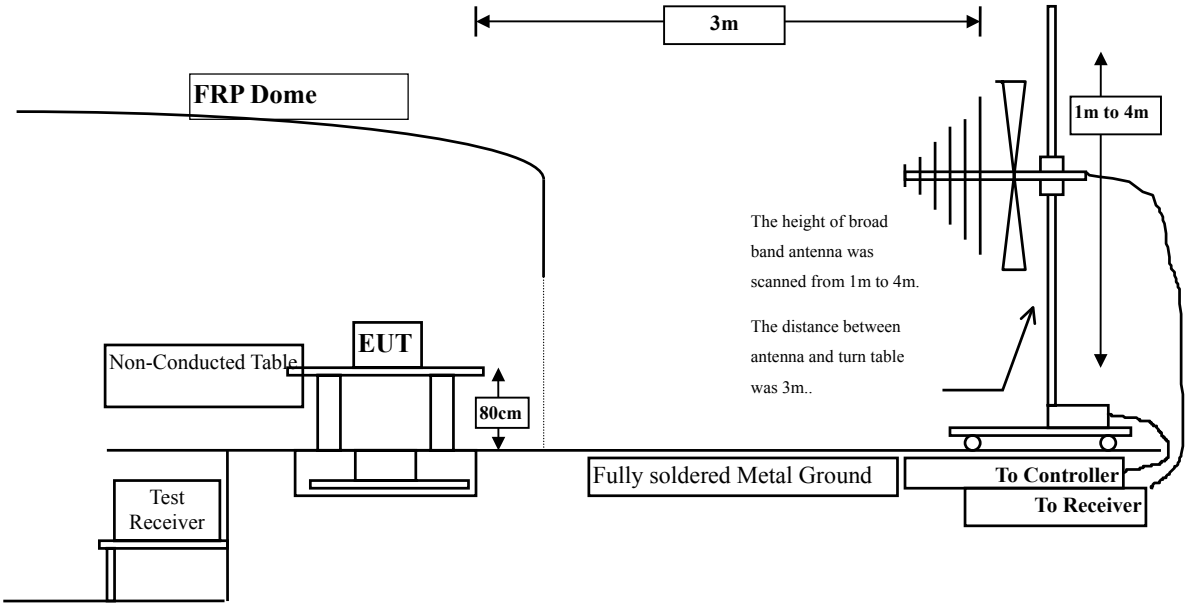
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2012
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2011
	X	Spectrum 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.

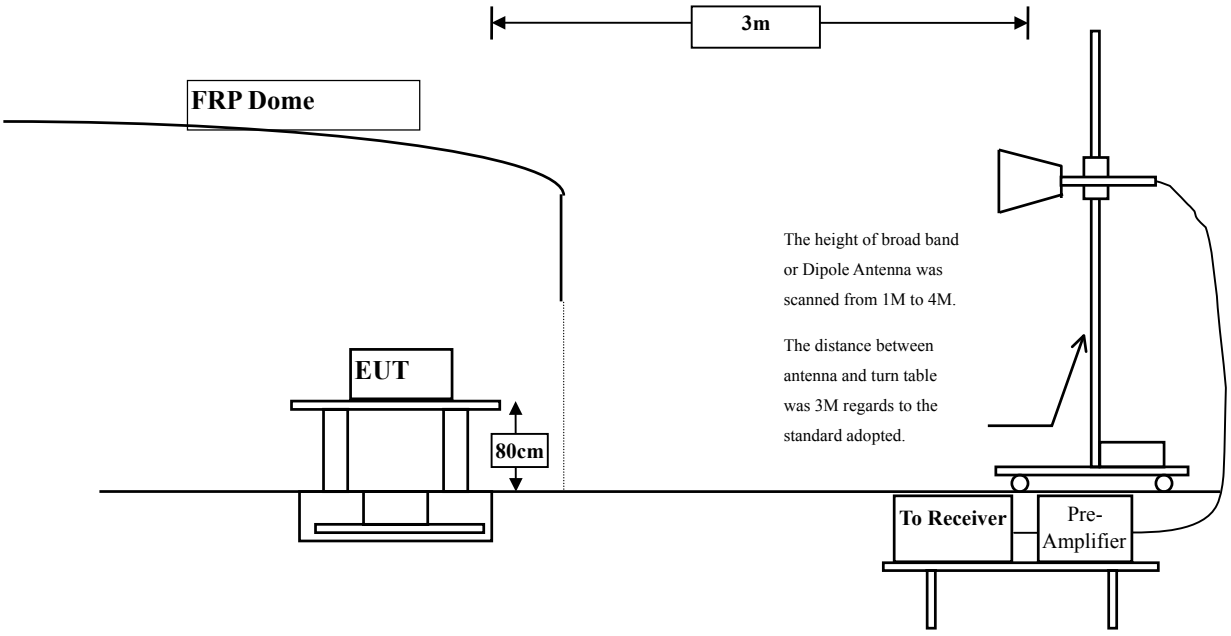
2. The test instruments marked with "X" are used to measure the final test results.

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 harminics is checked.

4.5. Uncertainty

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

4.6. Test Result of Radiated Emission

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

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	37.870	41.131	-32.869	74.000
7236.000	10.650	36.290	46.940	-27.060	74.000
9648.000	13.337	35.760	49.096	-24.904	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	37.110	43.531	-30.469	74.000
7236.000	11.495	36.840	48.335	-25.665	74.000
9648.000	13.807	37.340	51.146	-22.854	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 : PREMIUM SPEAKER DOCK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	36.830	39.867	-34.133	74.000
7311.000	11.795	36.020	47.814	-26.186	74.000
9748.000	12.635	37.220	49.855	-24.145	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	36.830	42.641	-31.359	74.000
7311.000	12.630	35.220	47.849	-26.151	74.000
9748.000	13.126	36.740	49.866	-24.134	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.
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7. The emission levels of other frequencies are very lower than the limit and not show in test report.

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

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	37.490	40.347	-33.653	74.000
7386.000	12.127	35.660	47.788	-26.212	74.000
9848.000	12.852	36.970	49.823	-24.177	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	36.500	42.020	-31.980	74.000
7386.000	13.254	35.530	48.784	-25.216	74.000
9848.000	13.367	36.520	49.887	-24.113	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 : PREMIUM SPEAKER DOCK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	38.810	42.071	-31.929	74.000
7236.000	10.650	36.420	47.070	-26.930	74.000
9648.000	13.337	36.120	49.456	-24.544	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	37.130	43.551	-30.449	74.000
7236.000	11.495	36.340	47.835	-26.165	74.000
9648.000	13.807	36.780	50.586	-23.414	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 : PREMIUM 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 Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	38.310	41.347	-32.653	74.000
7311.000	11.795	35.870	47.664	-26.336	74.000
9748.000	12.635	36.560	49.195	-24.805	74.000
Average Detector:					
--					
Peak Detector:					
4874.000	5.812	36.680	42.491	-31.509	74.000
7311.000	12.630	35.050	47.679	-26.321	74.000
9748.000	13.126	36.480	49.606	-24.394	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 : PREMIUM SPEAKER DOCK
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	37.040	39.897	-34.103	74.000
7386.000	12.127	35.230	47.358	-26.642	74.000
9848.000	12.852	36.440	49.293	-24.707	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	41.700	47.220	-26.780	74.000
7386.000	13.254	35.430	48.684	-25.316	74.000
9848.000	13.367	37.010	50.377	-23.623	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 : PREMIUM 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	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
119.240	-7.291	43.999	36.709	-6.791	43.500
375.320	0.918	37.731	38.649	-7.351	46.000
474.260	2.294	33.071	35.365	-10.635	46.000
610.060	3.657	32.832	36.489	-9.511	46.000
745.860	3.906	34.331	38.237	-7.763	46.000
875.840	5.816	32.337	38.153	-7.847	46.000
Vertical					
47.460	-11.425	46.566	35.141	-4.859	40.000
134.760	-4.093	38.034	33.941	-9.559	43.500
338.460	-1.640	41.006	39.365	-6.635	46.000
480.080	-3.390	37.157	33.767	-12.233	46.000
610.060	2.087	32.485	34.572	-11.428	46.000
745.860	1.316	38.316	39.632	-6.368	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 : PREMIUM 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	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
119.240	-7.291	43.453	36.163	-7.337	43.500
313.240	-4.640	43.249	38.609	-7.391	46.000
400.540	0.942	39.720	40.662	-5.338	46.000
474.260	2.294	33.243	35.537	-10.463	46.000
654.680	1.893	35.248	37.141	-8.859	46.000
829.280	7.376	29.435	36.811	-9.189	46.000
Vertical					
119.240	-3.571	37.425	33.855	-9.645	43.500
177.440	-1.248	36.048	34.800	-8.700	43.500
406.360	-4.472	40.804	36.333	-9.667	46.000
610.060	2.087	34.651	36.738	-9.262	46.000
745.860	1.316	37.527	38.843	-7.157	46.000
949.560	3.156	34.979	38.135	-7.865	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 : PREMIUM 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	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
119.240	-7.291	45.725	38.435	-5.065	43.500
255.040	-5.409	44.449	39.040	-6.960	46.000
350.100	-1.298	39.635	38.337	-7.663	46.000
480.080	1.870	39.435	41.305	-4.695	46.000
542.160	3.925	35.978	39.903	-6.097	46.000
833.160	6.616	33.504	40.120	-5.880	46.000
Vertical					
95.960	-6.836	40.293	33.457	-10.043	43.500
134.760	-4.093	38.377	34.284	-9.216	43.500
264.740	-5.071	40.887	35.817	-10.183	46.000
406.360	-4.472	39.328	34.857	-11.143	46.000
654.680	-3.047	39.208	36.161	-9.839	46.000
951.500	3.083	38.319	41.402	-4.598	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 : PREMIUM 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	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
222.060	-10.124	47.292	37.167	-8.833	46.000
350.100	-1.298	40.211	38.913	-7.087	46.000
429.640	0.630	35.968	36.597	-9.403	46.000
542.160	3.925	33.822	37.747	-8.253	46.000
654.680	1.893	36.607	38.500	-7.500	46.000
947.620	6.971	31.450	38.421	-7.579	46.000
Vertical					
95.960	-6.836	42.215	35.379	-8.121	43.500
245.340	-5.908	44.453	38.545	-7.455	46.000
361.740	-0.646	35.478	34.831	-11.169	46.000
542.160	1.855	31.692	33.547	-12.453	46.000
654.680	-3.047	39.429	36.382	-9.618	46.000
949.560	3.156	34.788	37.944	-8.056	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

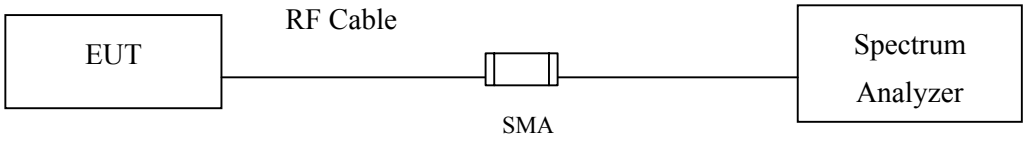
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

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.

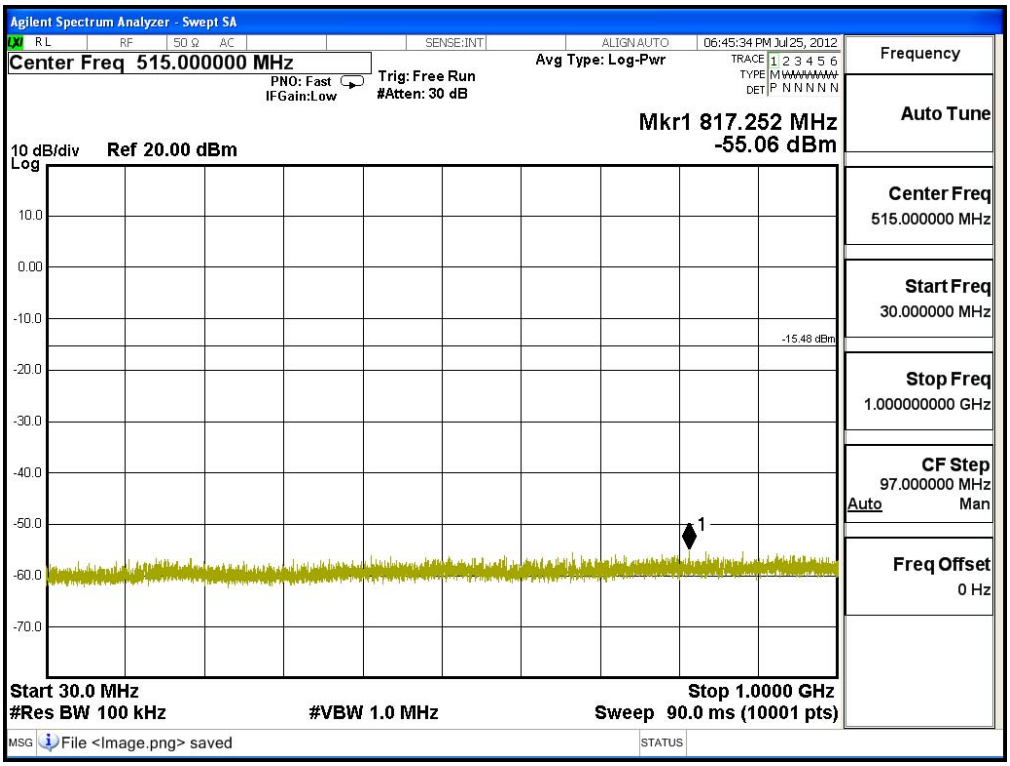
5.5. Uncertainty

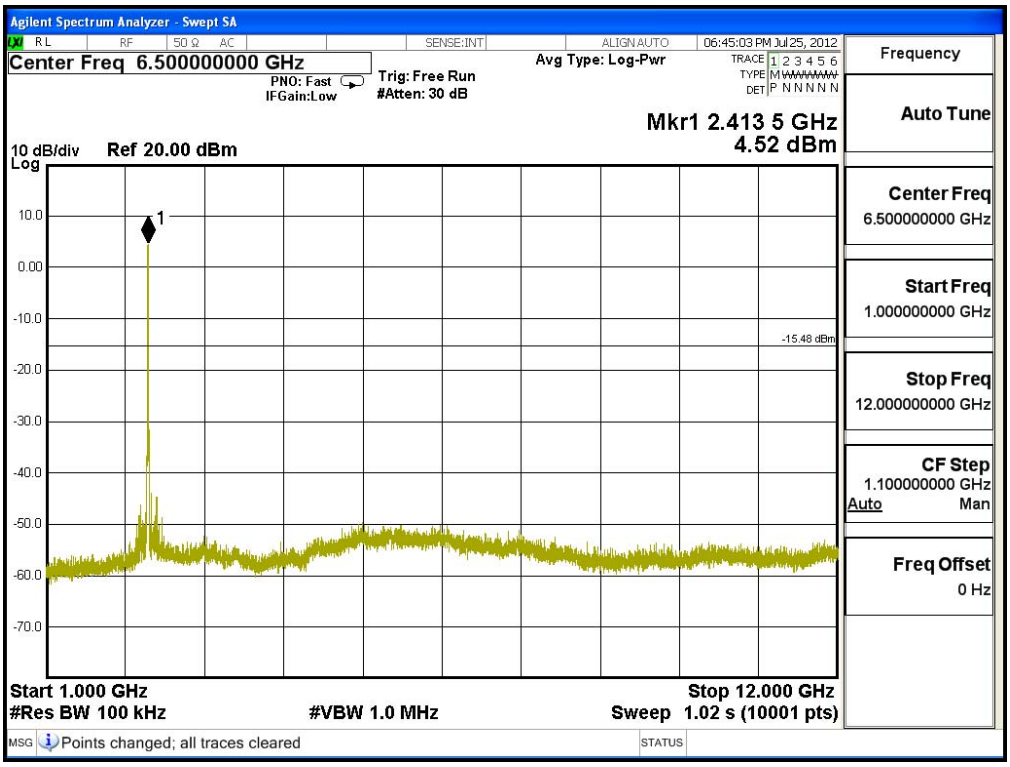
The measurement uncertainty
Conducted is defined as ± 1.27dB

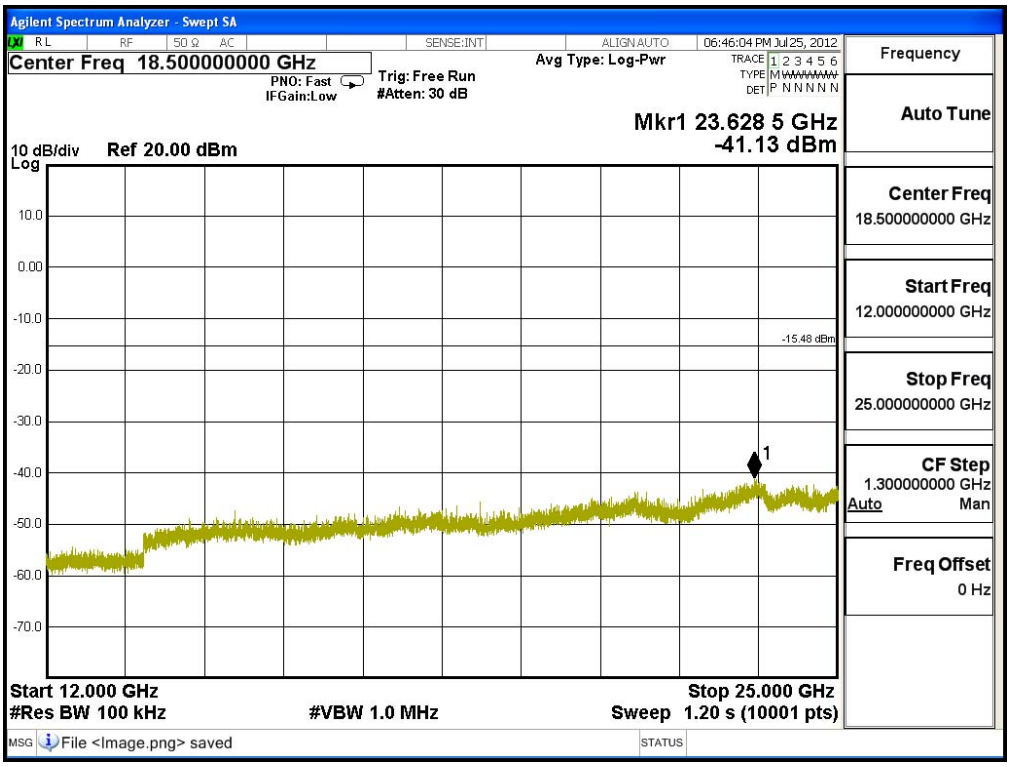
5.6. Test Result of RF antenna conducted test

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

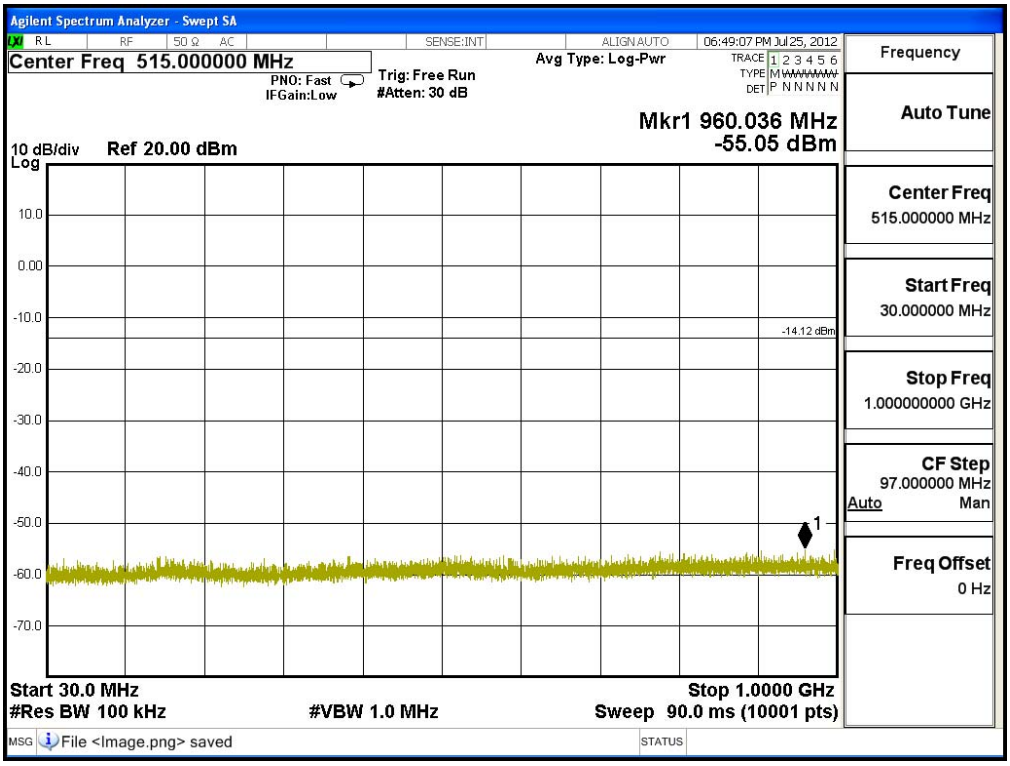
Channel 01 (2412MHz)

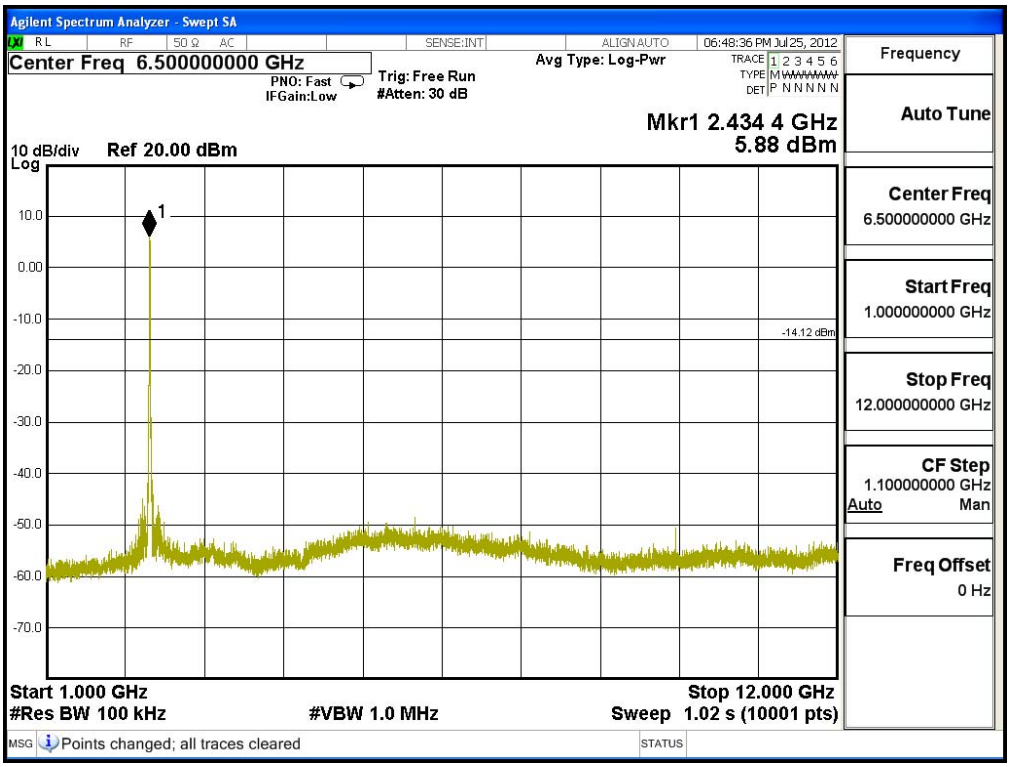


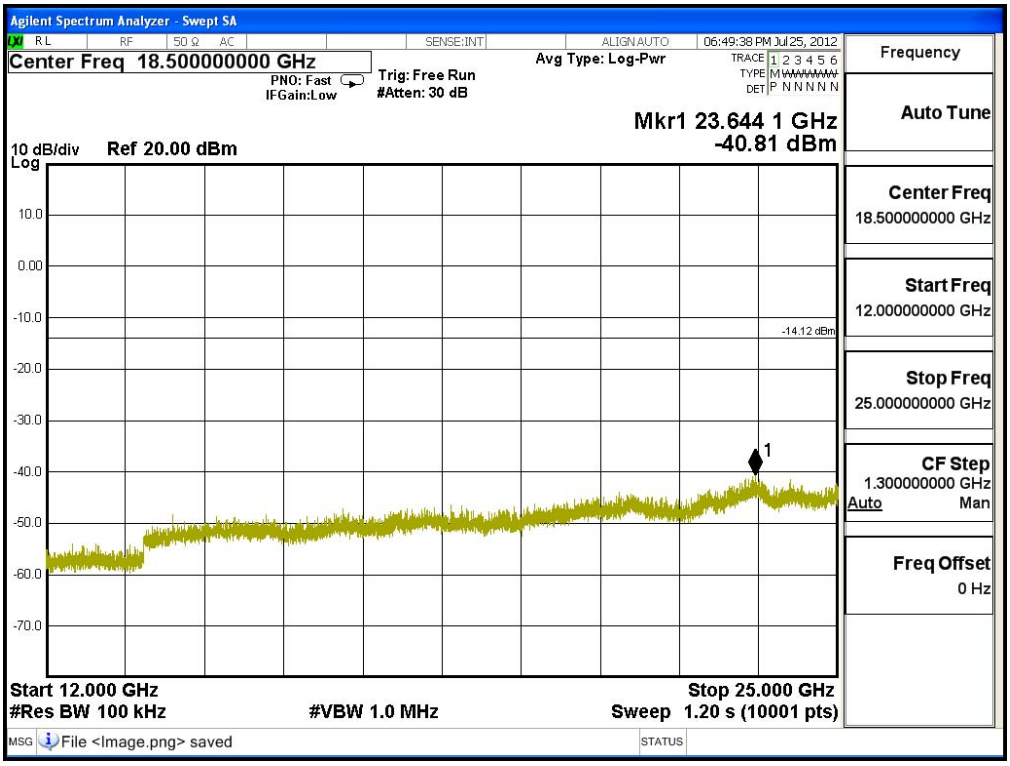

Agilent Spectrum Analyzer - Swept SA
Center Freq 6.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
06:45:03 PM Jul 25, 2012
Mkr1 2.413 5 GHz
4.52 dBm
10 dB/div
Log
Ref 20.00 dBm
-15.48 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 12.000 GHz
Sweep 1.02 s (10001 pts)
Points changed; all traces cleared
Frequency
Auto Tune
Center Freq
6.500000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
12.000000000 GHz
CF Step
1.100000000 GHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 18.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
06:46:04 PM Jul 25, 2012
Mkr1 23.628 5 GHz
-41.13 dBm
10 dB/div
Log
Ref 20.00 dBm
-15.48 dBm
Start 12.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 25.000 GHz
Sweep 1.20 s (10001 pts)
File <Image.png> saved
Frequency
Auto Tune
Center Freq
18.500000000 GHz
Start Freq
12.000000000 GHz
Stop Freq
25.000000000 GHz
CF Step
1.300000000 GHz
Auto
Man
Freq Offset
0 Hz

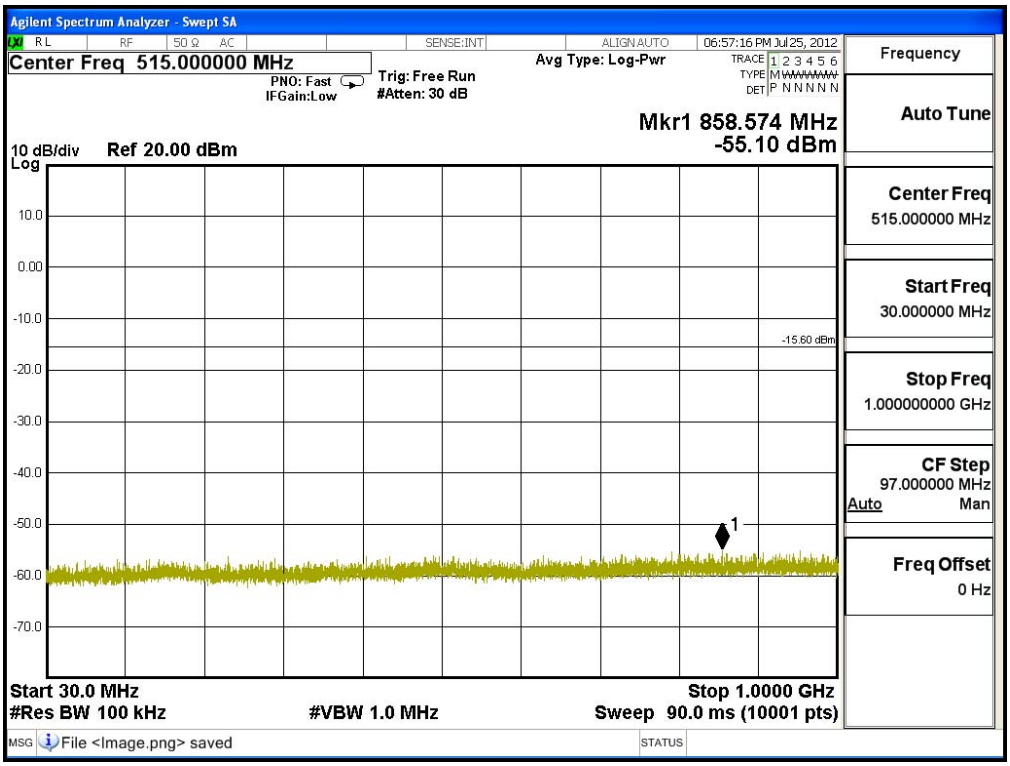
Channel 06 (2437MHz)

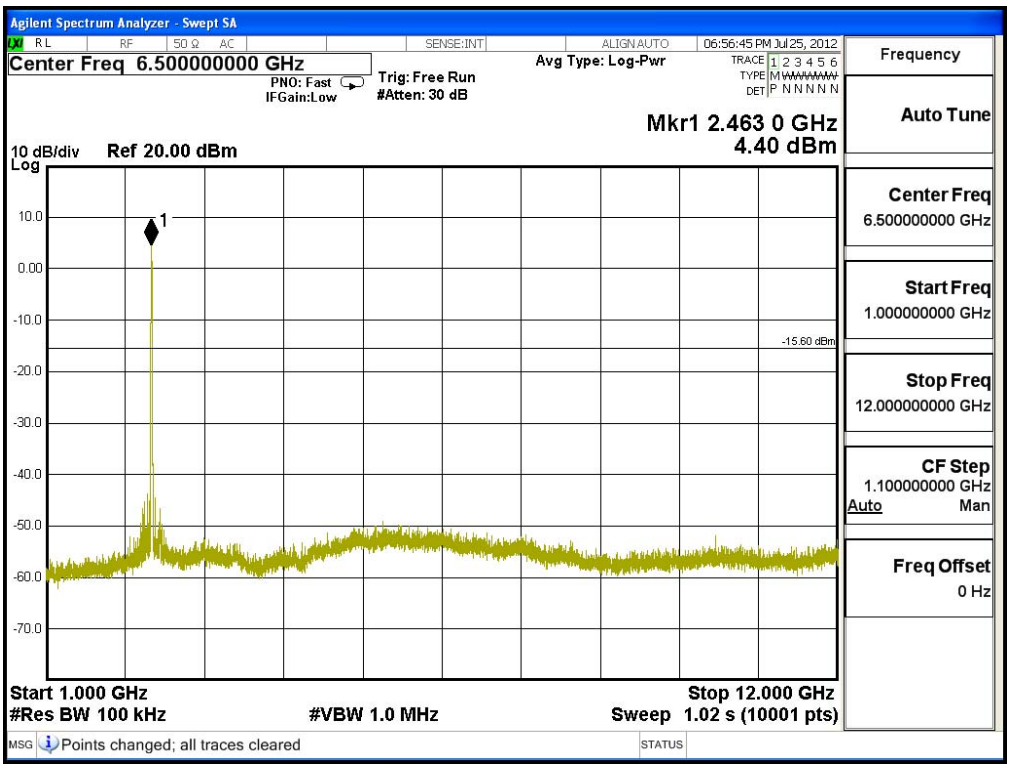


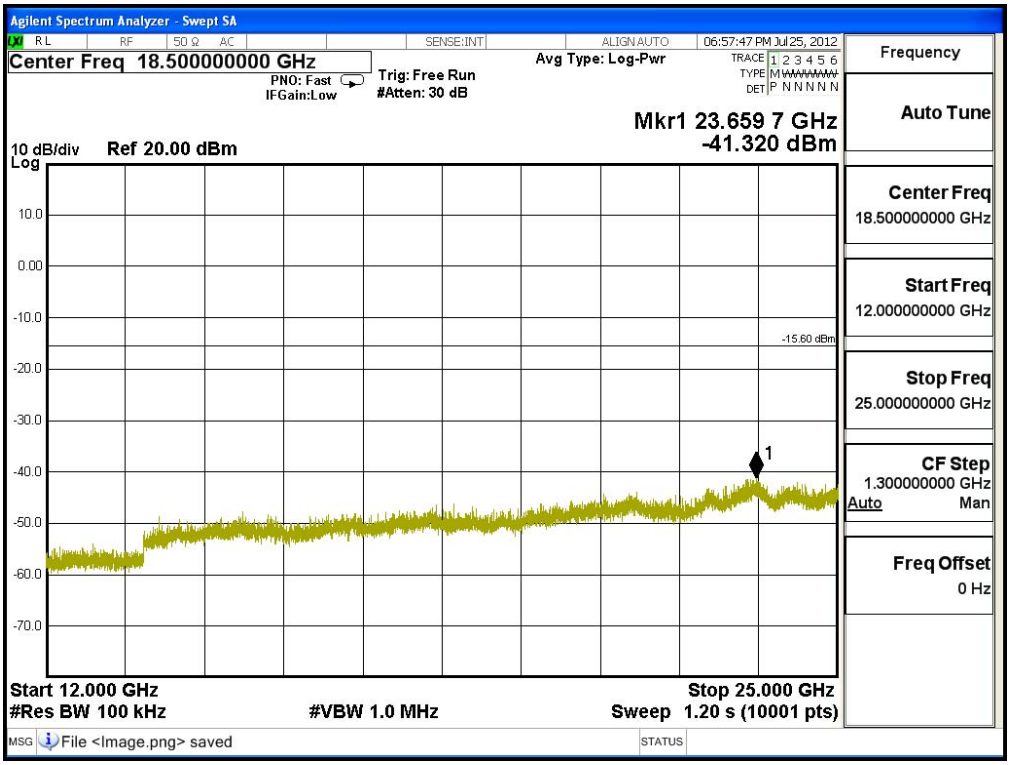



Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
06:49:38 PM Jul 25, 2012
Center Freq 18.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 23.644 1 GHz
-40.81 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-14.12 dBm
1
Start 12.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 25.000 GHz
Sweep 1.20 s (10001 pts)
MSG
File <Image.png> saved
STATUS
Frequency
Auto Tune
Center Freq
18.500000000 GHz
Start Freq
12.000000000 GHz
Stop Freq
25.000000000 GHz
CF Step
1.300000000 GHz
Auto
Man
Freq Offset
0 Hz

Channel 11 (2462MHz)

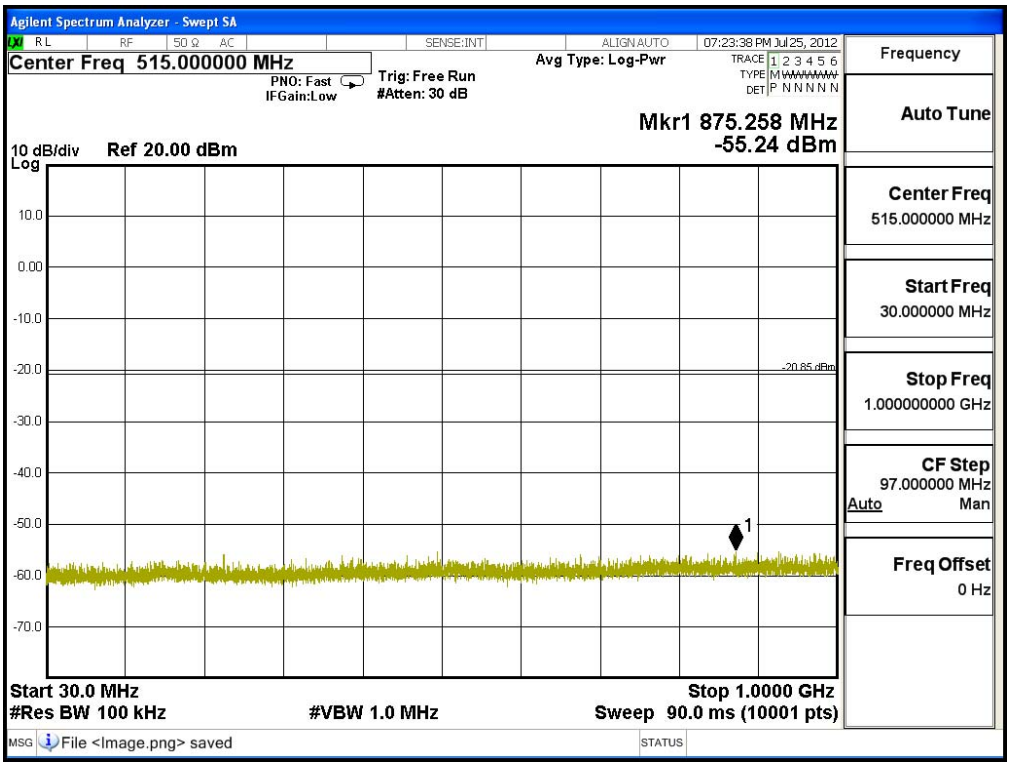


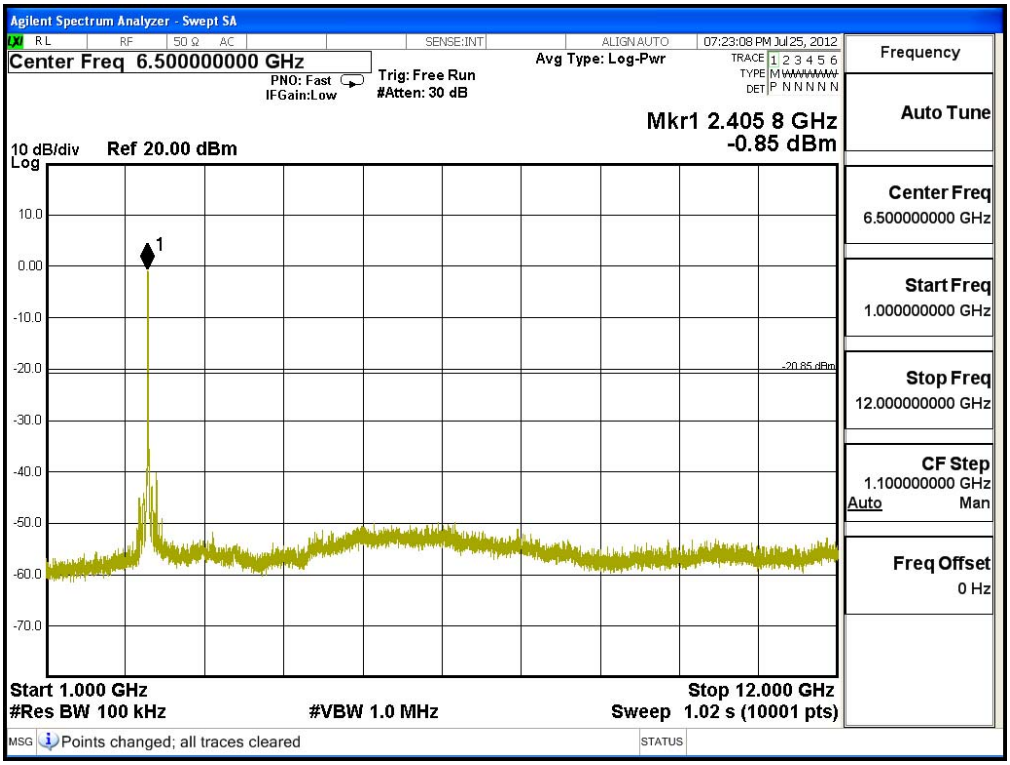


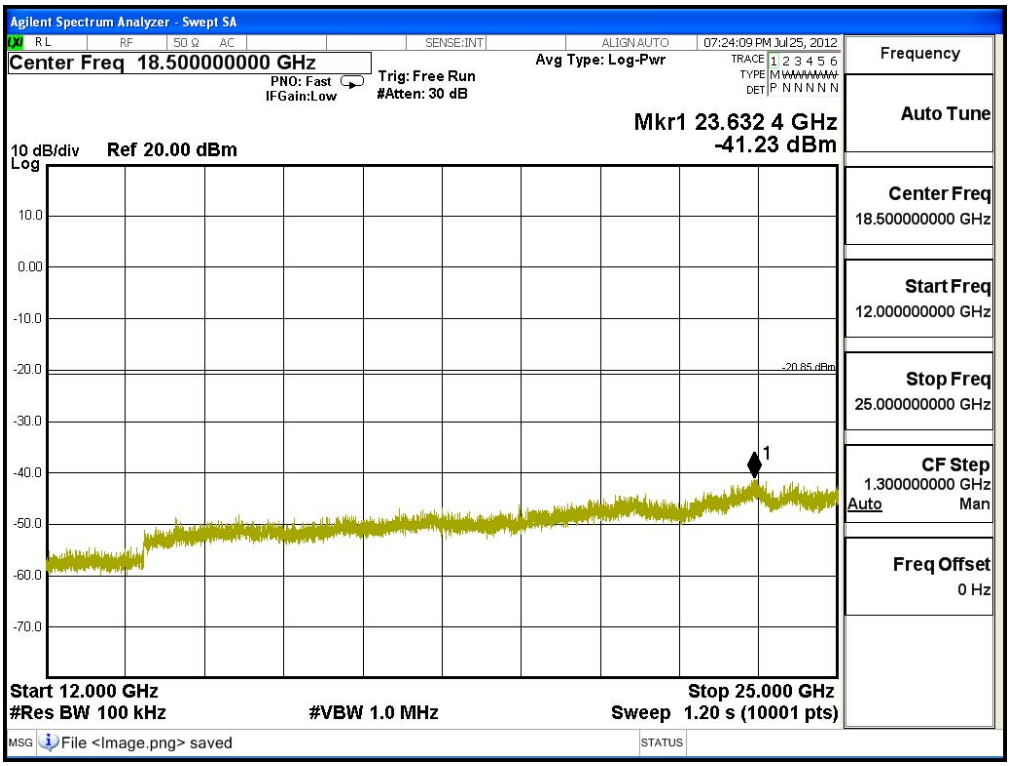

Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
06:57:47 PM Jul 25, 2012
Center Freq 18.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 23.659 7 GHz
-41.320 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-15.60 dBm
1
Start 12.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 25.000 GHz
Sweep 1.20 s (10001 pts)
MSG
File <Image.png> saved
STATUS
Frequency
Auto Tune
Center Freq
18.500000000 GHz
Start Freq
12.000000000 GHz
Stop Freq
25.000000000 GHz
CF Step
1.300000000 GHz
Auto
Man
Freq Offset
0 Hz

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

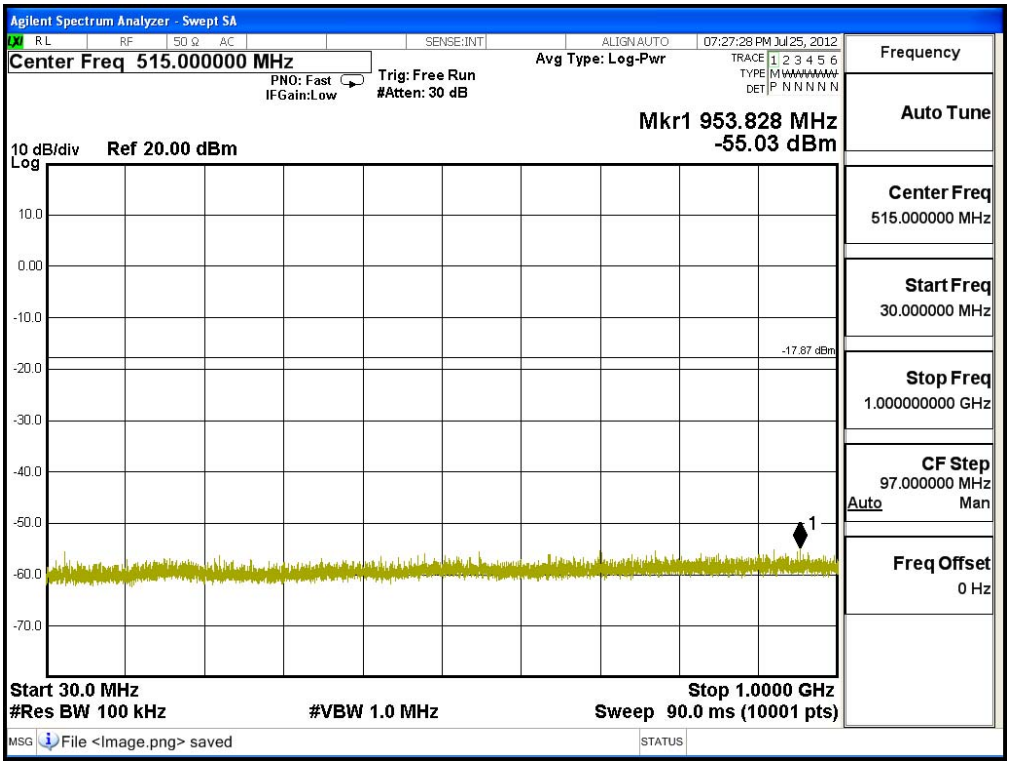
Channel 01 (2412MHz)

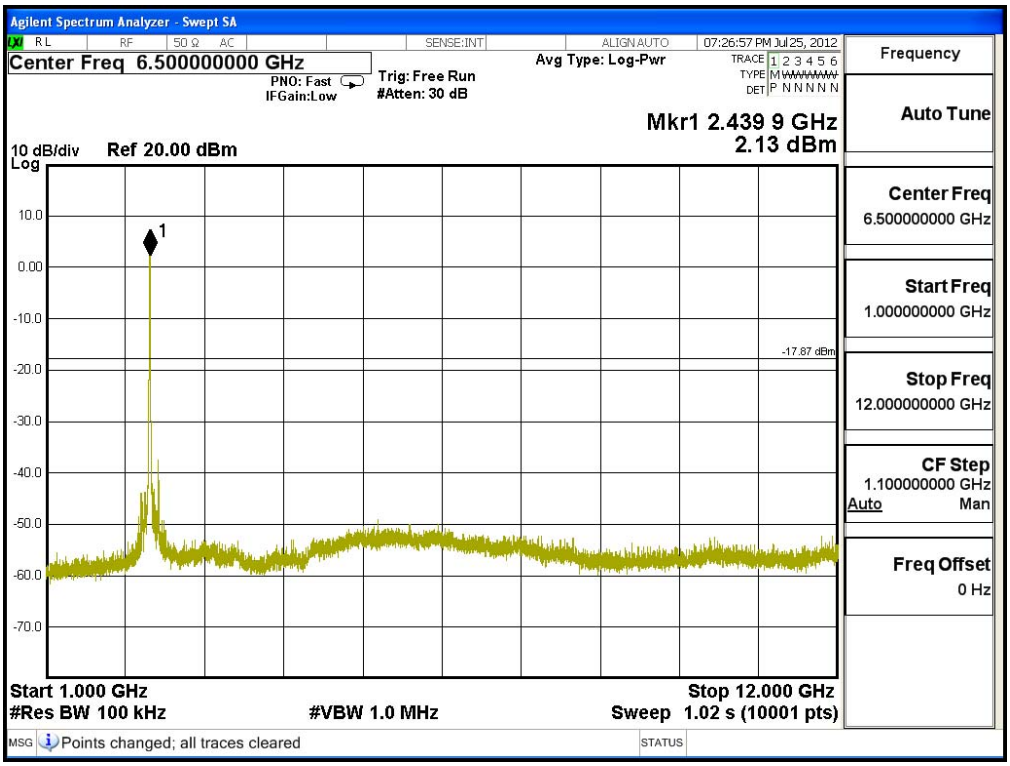


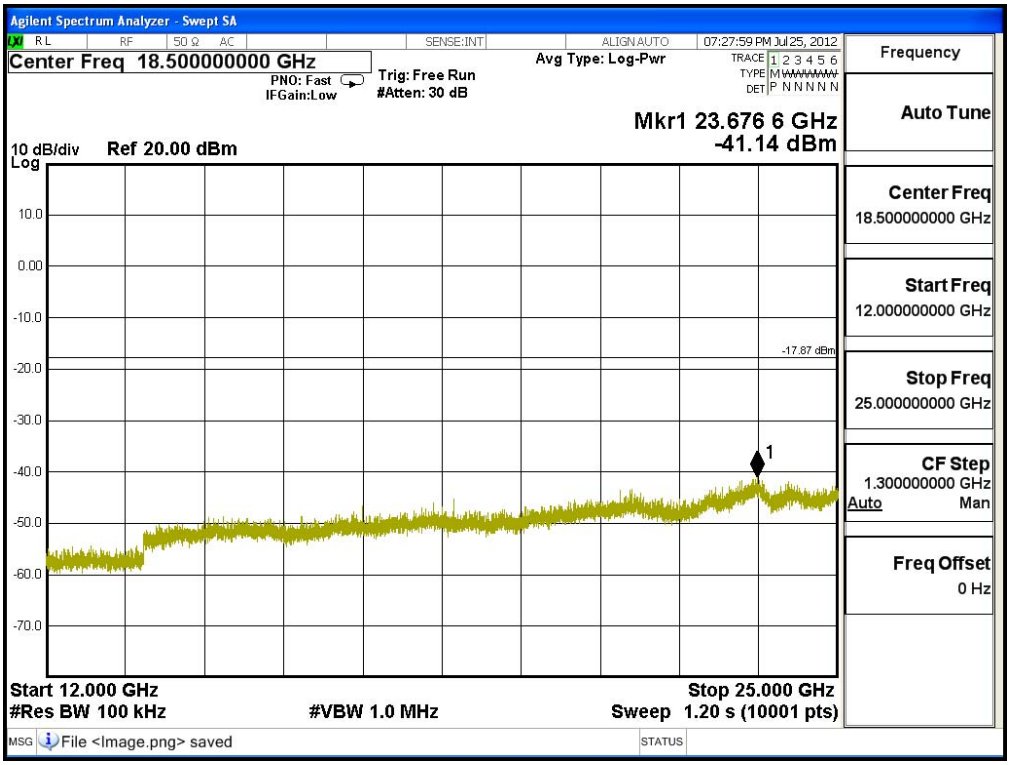

Agilent Spectrum Analyzer - Swept SA
Center Freq 6.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
07:23:08 PM Jul 25, 2012
Mkr1 2.405 8 GHz
-0.85 dBm
10 dB/div
Log
Ref 20.00 dBm
-20.85 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 12.000 GHz
Sweep 1.02 s (10001 pts)
Points changed; all traces cleared
Frequency
Auto Tune
Center Freq
6.500000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
12.000000000 GHz
CF Step
1.100000000 GHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 18.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
07:24:09 PM Jul 25, 2012
Mkr1 23.632 4 GHz
-41.23 dBm
10 dB/div
Log
Ref 20.00 dBm
-20.85 dBm
Start 12.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 25.000 GHz
Sweep 1.20 s (10001 pts)
File <Image.png> saved
Frequency
Auto Tune
Center Freq
18.500000000 GHz
Start Freq
12.000000000 GHz
Stop Freq
25.000000000 GHz
CF Step
1.300000000 GHz
Auto
Man
Freq Offset
0 Hz

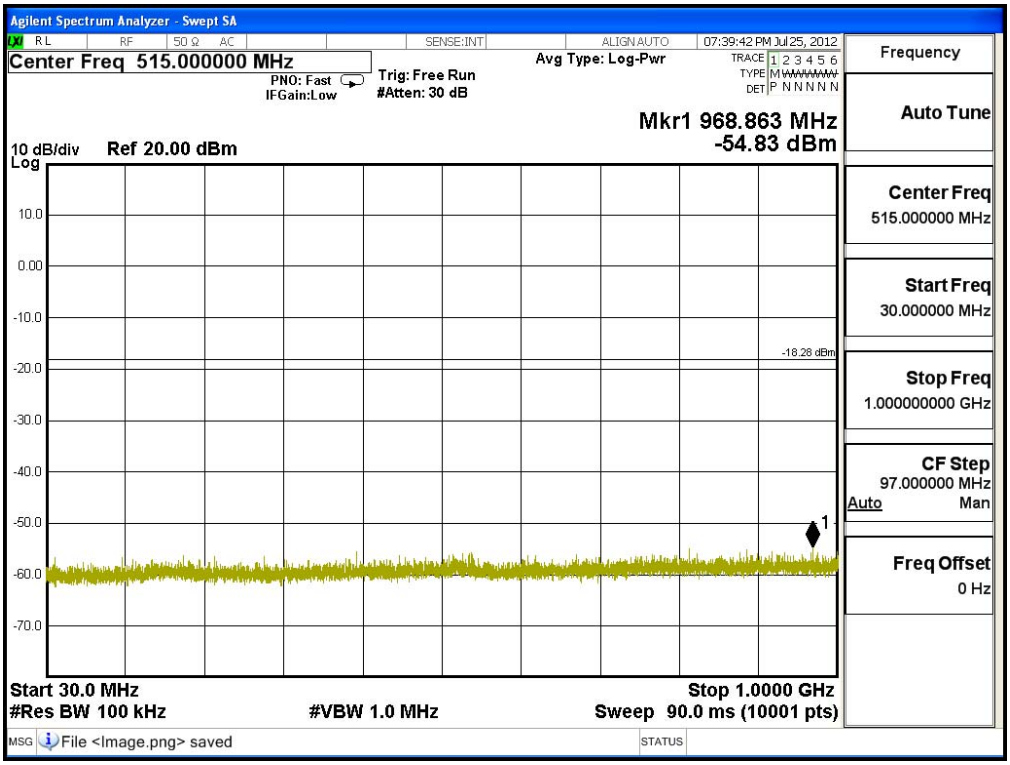
Channel 06 (2437MHz)

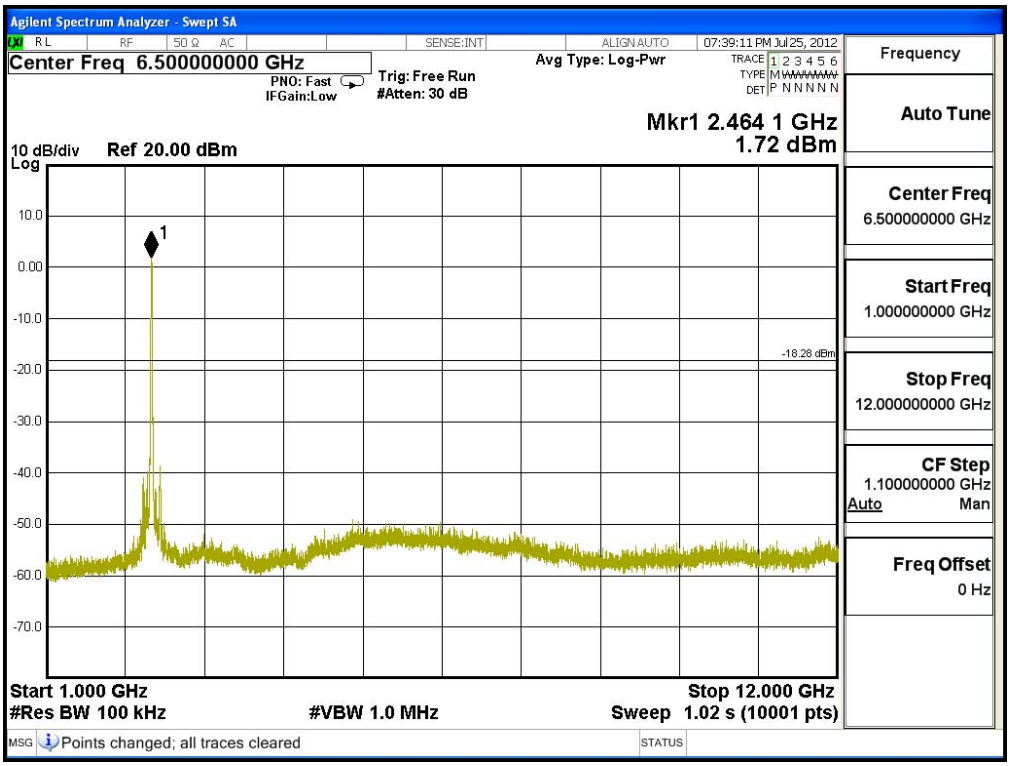


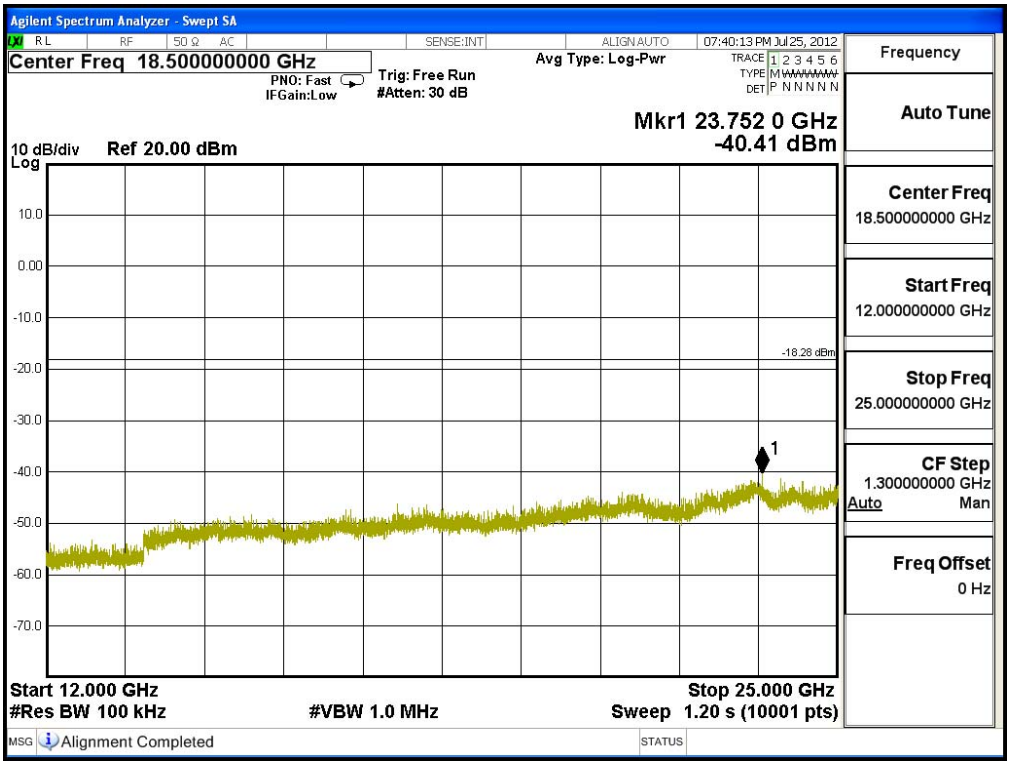



Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
07:27:59 PM Jul 25, 2012
Center Freq 18.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 23.676 6 GHz
-41.14 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-17.87 dBm
1
Start 12.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 25.000 GHz
Sweep 1.20 s (10001 pts)
MSG
File <Image.png> saved
STATUS
Frequency
Auto Tune
Center Freq
18.500000000 GHz
Start Freq
12.000000000 GHz
Stop Freq
25.000000000 GHz
CF Step
1.300000000 GHz
Auto
Man
Freq Offset
0 Hz

Channel 11 (2462MHz)






Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
07:40:13 PM Jul 25, 2012
Center Freq 18.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 23.752 0 GHz
-40.41 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-18.28 dBm
1
Start 12.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 25.000 GHz
Sweep 1.20 s (10001 pts)
MSG
Alignment Completed
STATUS
Frequency
Auto Tune
Center Freq
18.500000000 GHz
Start Freq
12.000000000 GHz
Stop Freq
25.000000000 GHz
CF Step
1.300000000 GHz
Auto
Man
Freq Offset
0 Hz

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:

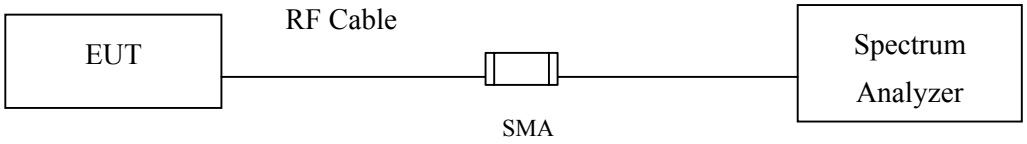
The following test equipments are used during the band edge tests:

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

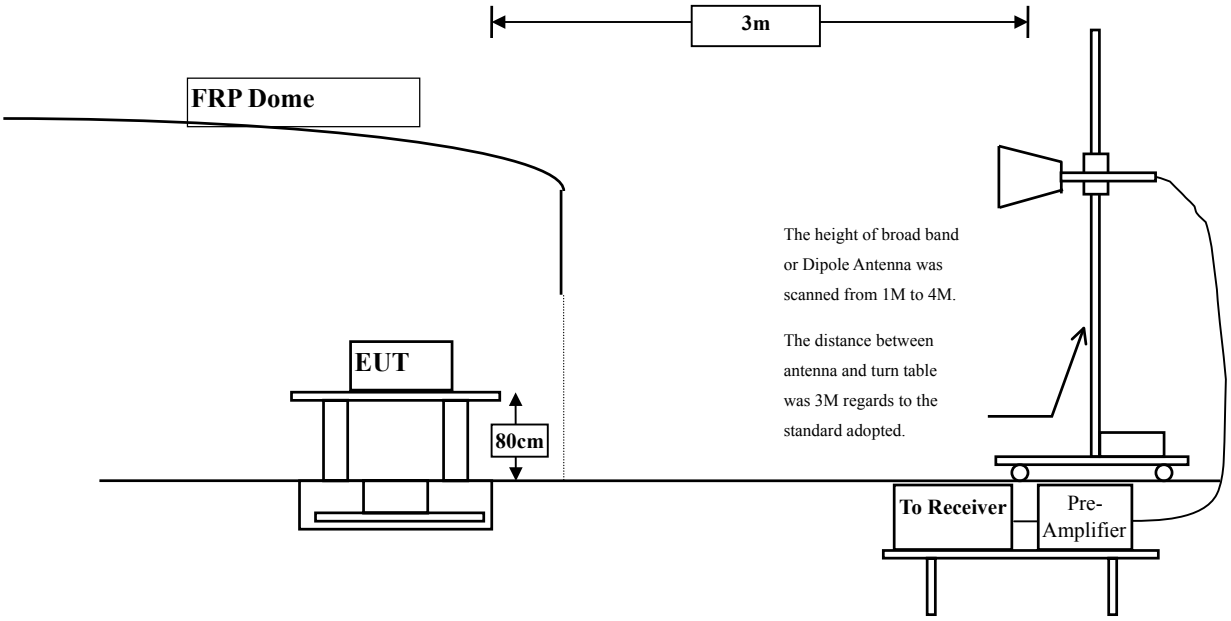
Note: 1. All instruments are calibrated every one year.
2. The test instruments marked by "X" are used to measure the final test results.

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 : PREMIUM 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)	Arerage Limit (dBuV/m)	Result
01 (Peak)	2384.800	31.489	30.059	61.548	74.00	54.00	Pass
01 (Peak)	2390.000	31.509	28.086	59.595	74.00	54.00	Pass
01 (Peak)	2413.000	31.646	78.392	110.038	--	--	Pass
01 (Average)	2387.000	31.497	21.865	53.362	74.00	54.00	Pass
01 (Average)	2390.000	31.509	18.137	49.646	74.00	54.00	Pass
01 (Average)	2411.400	31.634	74.606	106.240	--	--	Pass

Figure Channel 01: Horizontal (Peak)

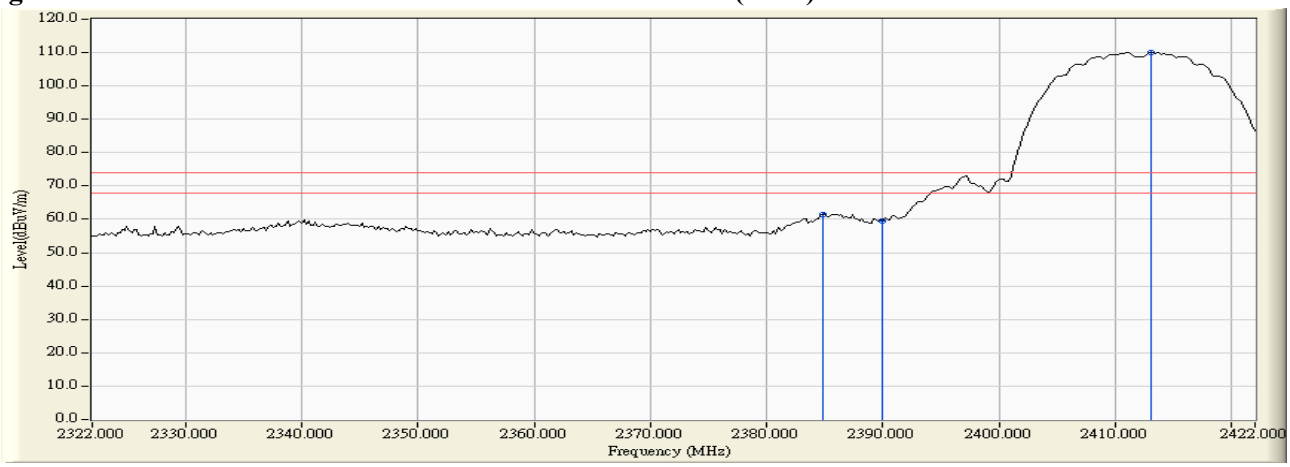
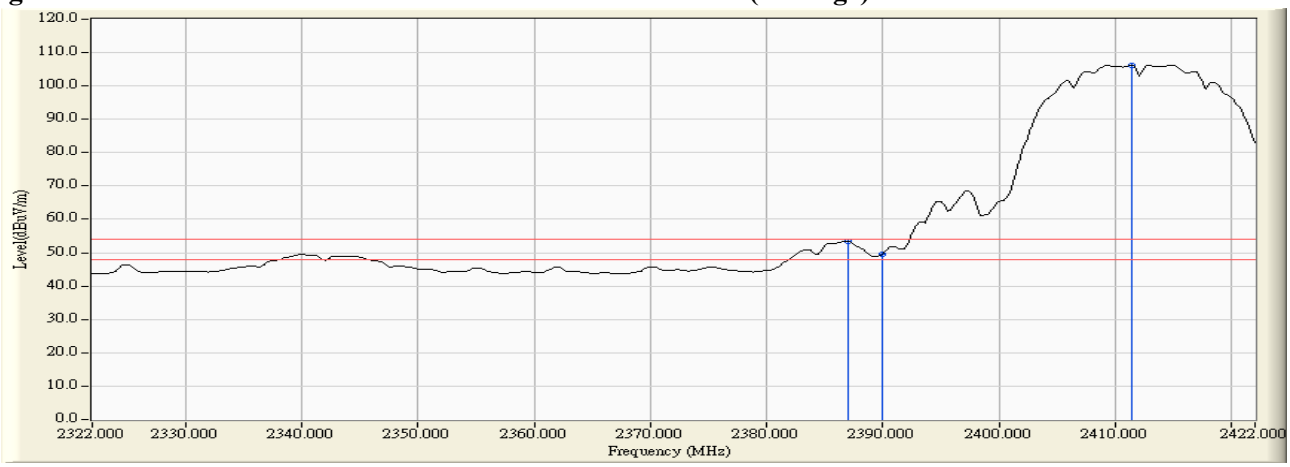


Figure Channel 01: Horizontal (Average)



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 : PREMIUM 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)	Arerage Limit (dBuV/m)	Result
01 (Peak)	2386.000	30.934	26.363	57.297	74.00	54.00	Pass
01 (Peak)	2390.000	30.915	24.460	55.375	74.00	54.00	Pass
01 (Peak)	2413.000	30.956	70.553	101.509	--	--	Pass
01 (Average)	2386.800	30.930	15.494	46.424	74.00	54.00	Pass
01 (Average)	2390.000	30.915	13.591	44.506	74.00	54.00	Pass
01 (Average)	2414.800	30.968	66.774	97.742	--	--	Pass

Figure Channel 01: VERTICAL (Peak)

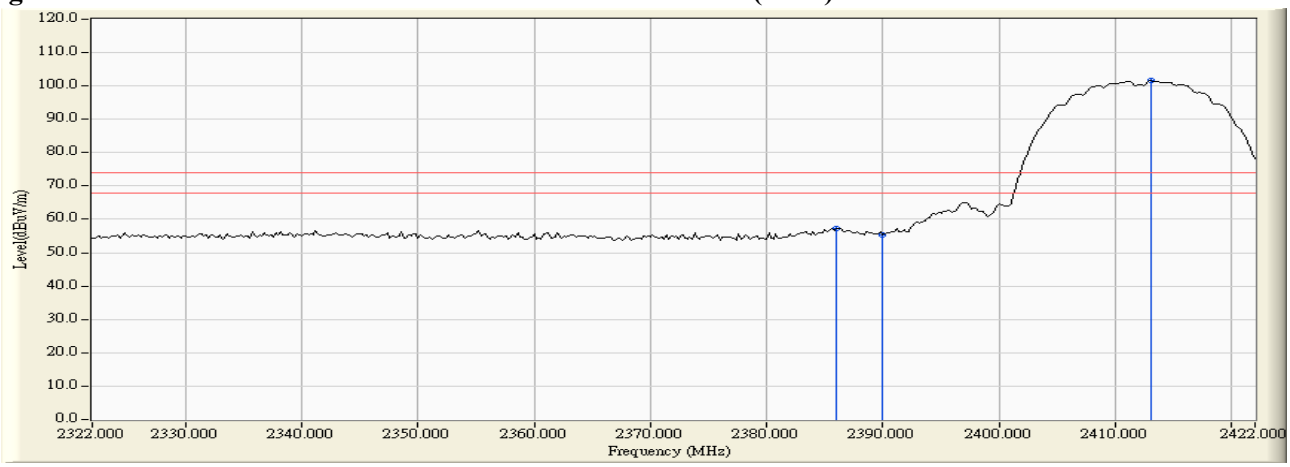
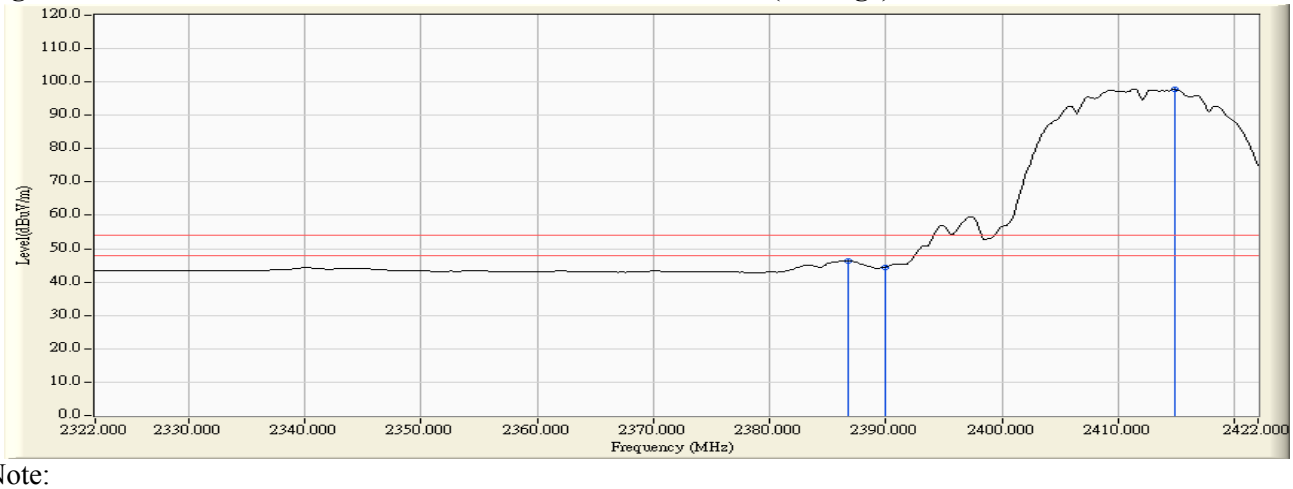


Figure Channel 01: VERTICAL (Average)



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

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	31.892	75.944	107.836	Peak
Horizontal	2462	31.892	72.216	104.108	Average
Vertical	2462	30.48	66.546	97.026	Peak
Vertical	2462	30.48	62.698	93.178	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2490.4	107.836	48.679	59.157	74.000	Peak
Horizontal	2490.4	104.108	58.042	46.066	54.000	Average
Vertical	2490.4	97.026	48.679	48.347	74.000	Peak
Vertical	2490.4	93.178	58.042	35.136	54.000	Average

Note:

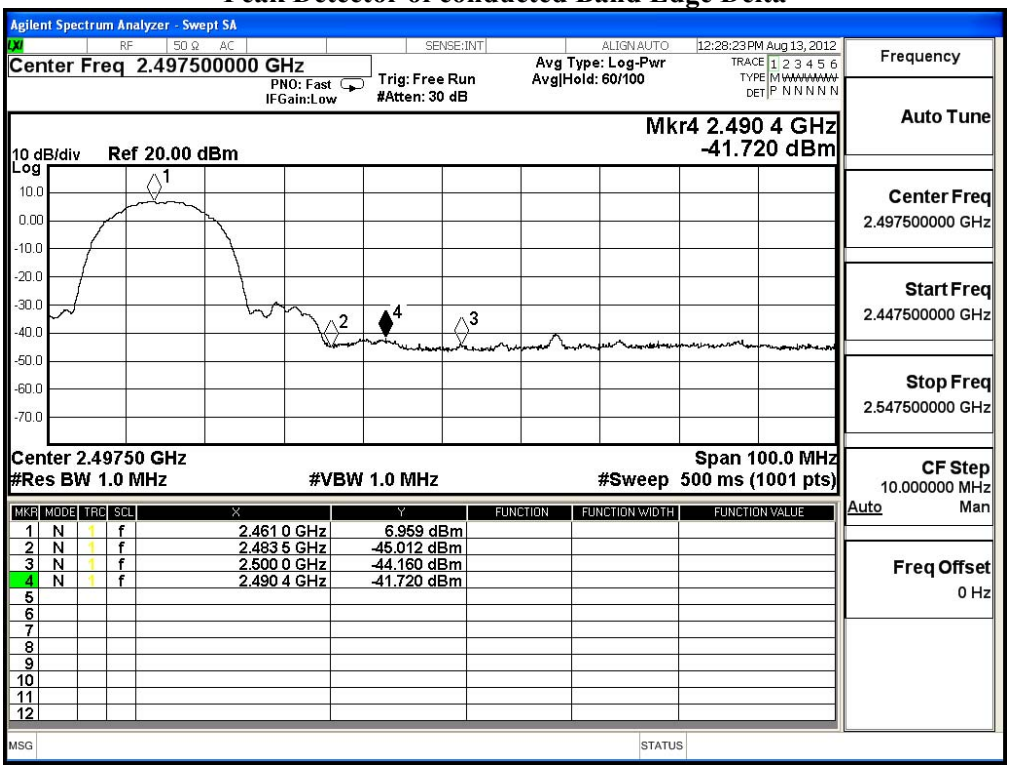
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

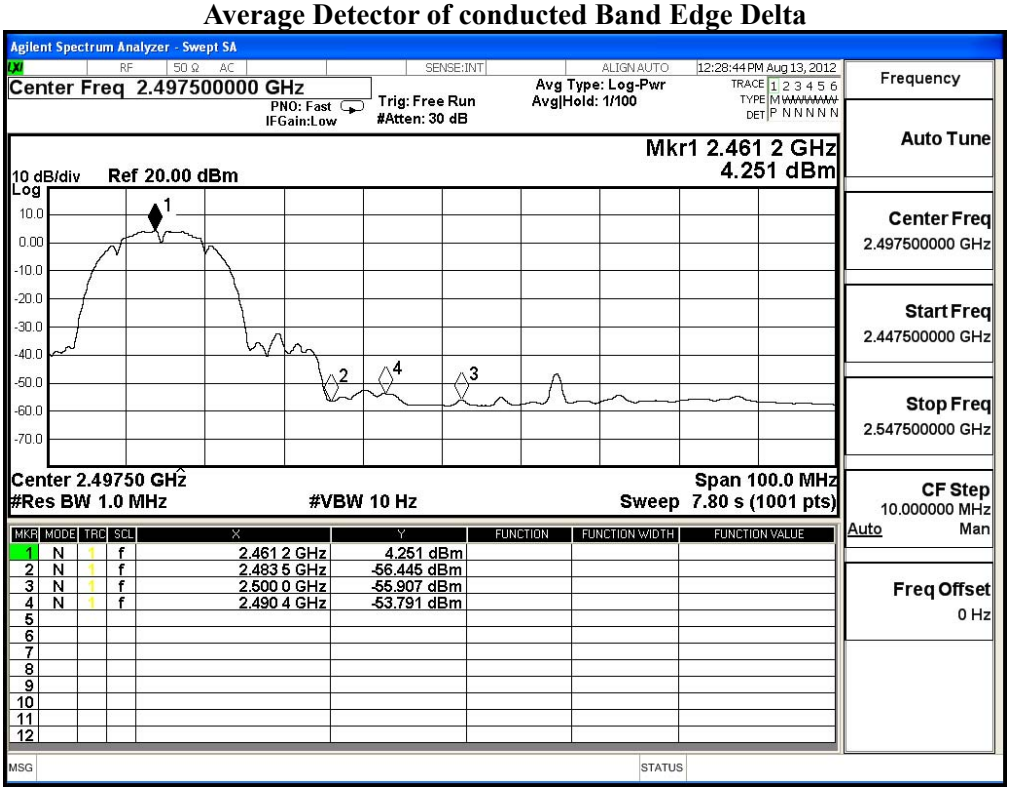
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : PREMIUM SPEAKER DOCK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	31.771	79.97	111.742	Peak
Horizontal	2412	31.771	63.26	95.032	Average
Vertical	2412	30.248	72.304	102.553	Peak
Vertical	2412	30.248	58.582	88.831	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2388.6	111.742	39.98	71.762	74.000	Peak
Horizontal	2353.7	95.032	42.248	52.784	54.000	Average
Vertical	2388.6	102.553	39.98	62.573	74.000	Peak
Vertical	2353.7	88.831	42.248	46.583	54.000	Average

Note:

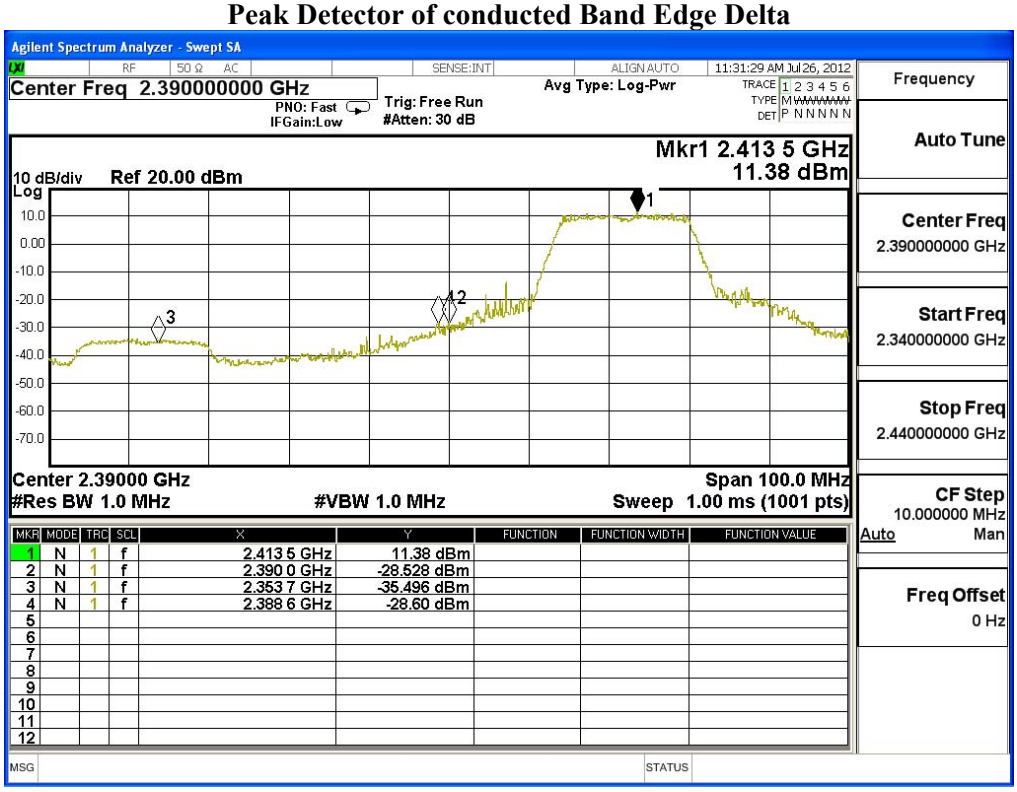
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

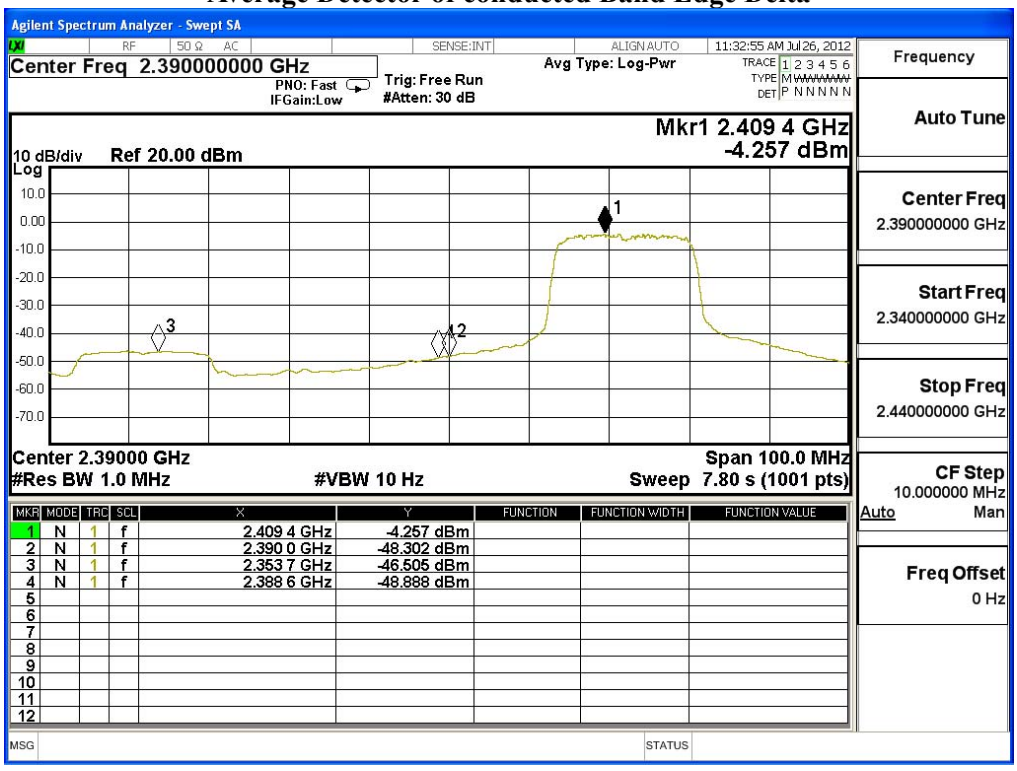
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : PREMIUM SPEAKER DOCK
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	31.892	79.74	111.632	Peak
Horizontal	2462	31.892	61.78	93.672	Average
Vertical	2462	30.48	71.515	101.995	Peak
Vertical	2462	30.48	58.021	88.501	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2483.5	111.632	38.553	73.079	74.000	Peak
Horizontal	2483.5	93.672	40.614	53.058	54.000	Average
Vertical	2483.5	101.995	38.553	63.442	74.000	Peak
Vertical	2483.5	88.501	40.614	47.887	54.000	Average

Note:

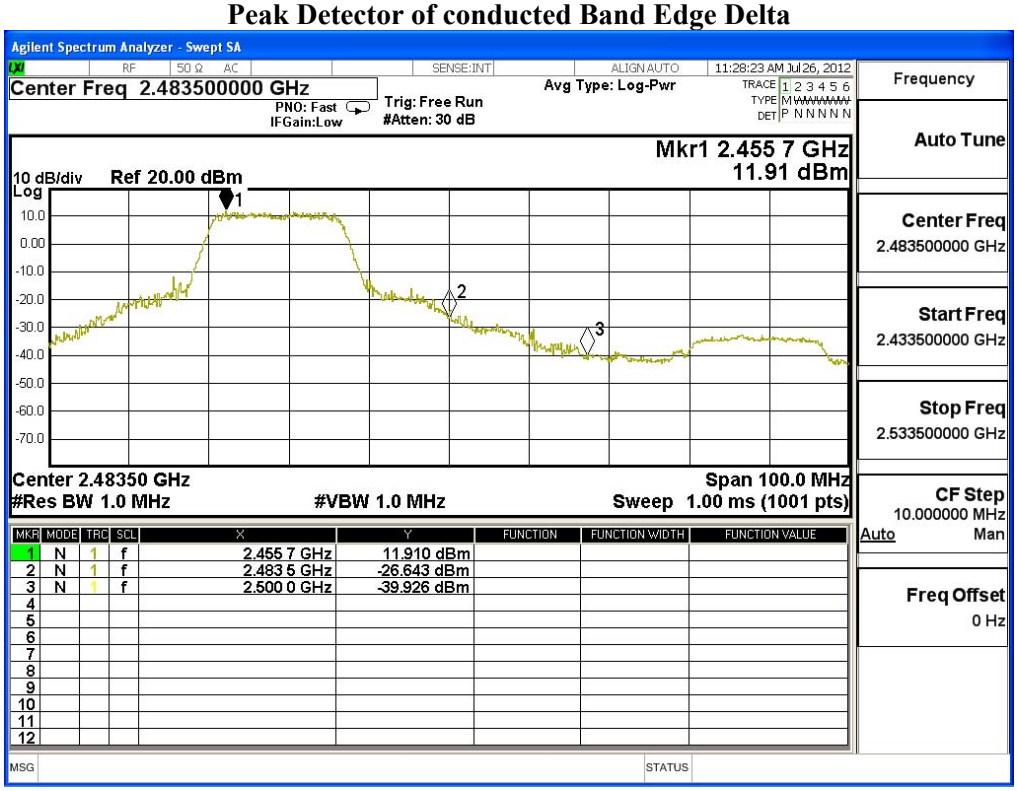
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

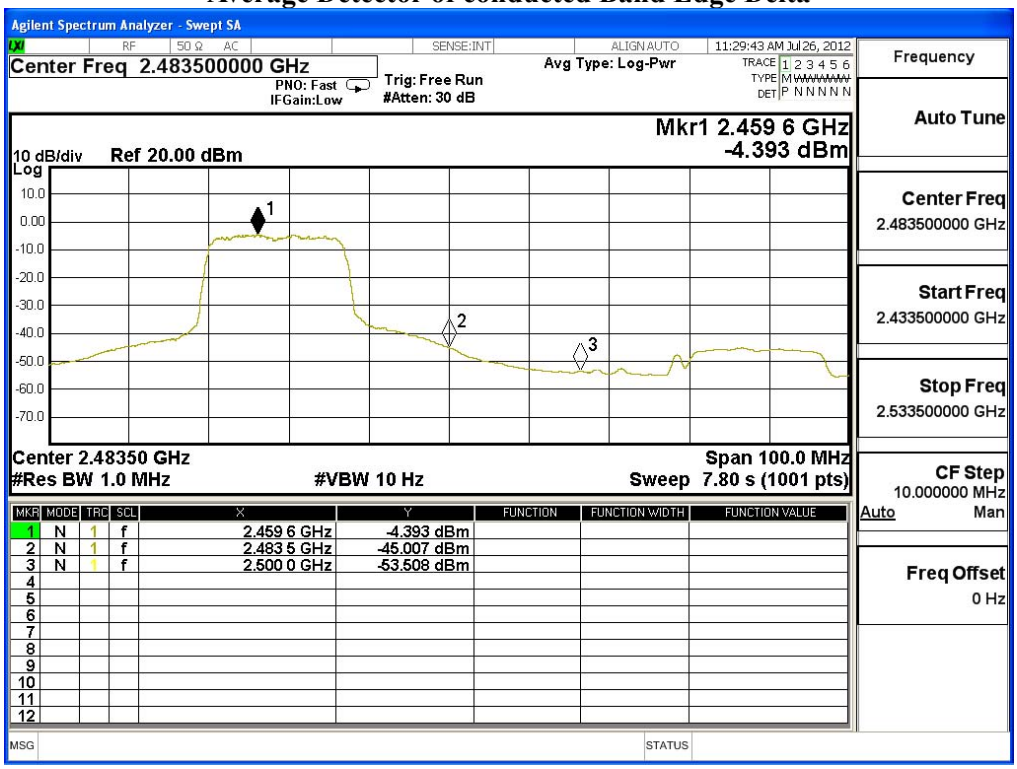
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



7. Occupied Bandwidth

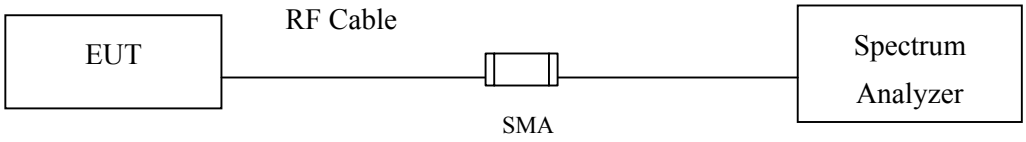
7.1. Test Equipment

	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

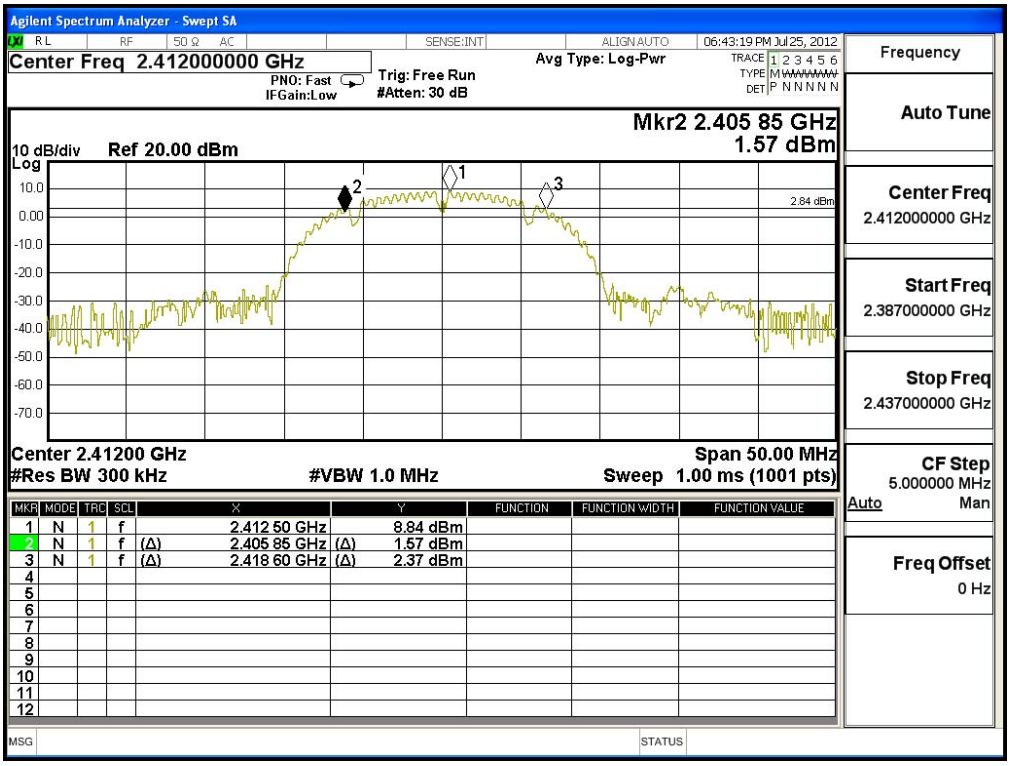
± 150Hz

7.6. Test Result of Occupied Bandwidth

Product : PREMIUM 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	12750	>500	Pass

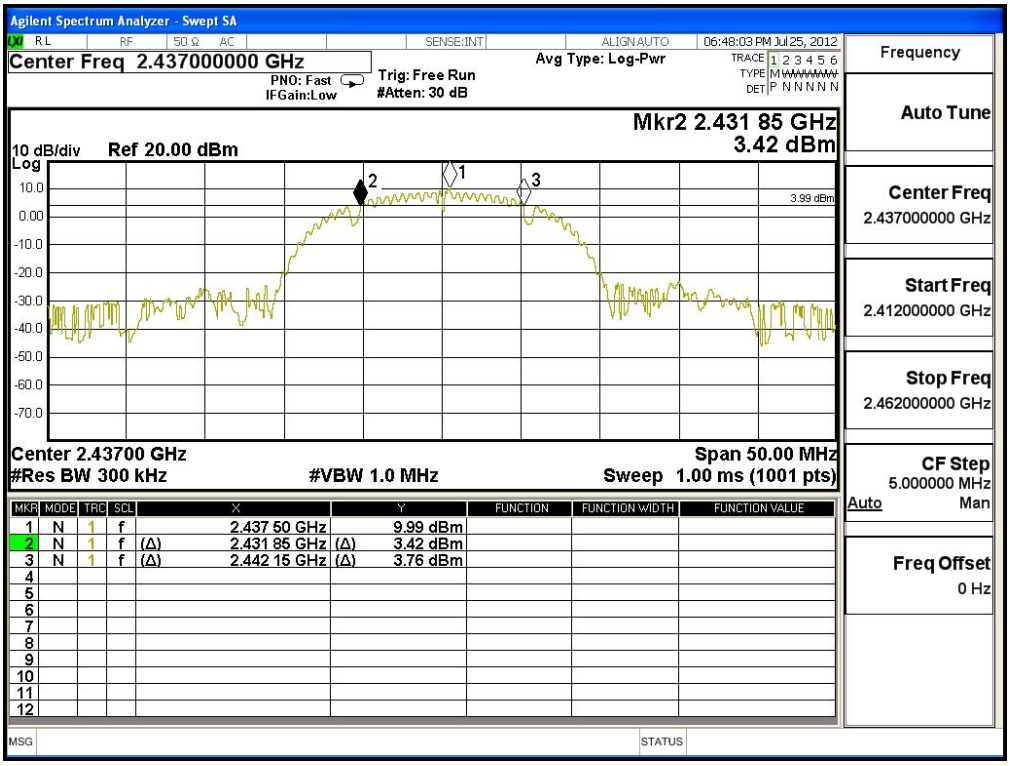
Figure Channel 1:



Product : PREMIUM 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	10300	>500	Pass

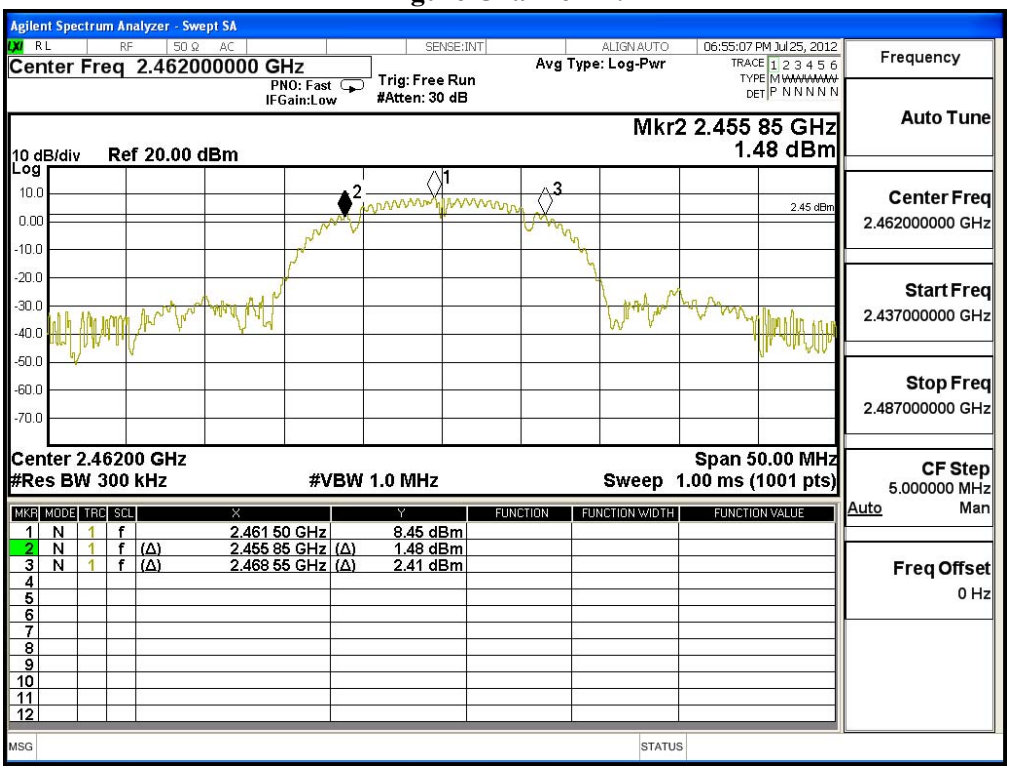
Figure Channel 6:



Product : PREMIUM 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	12700	>500	Pass

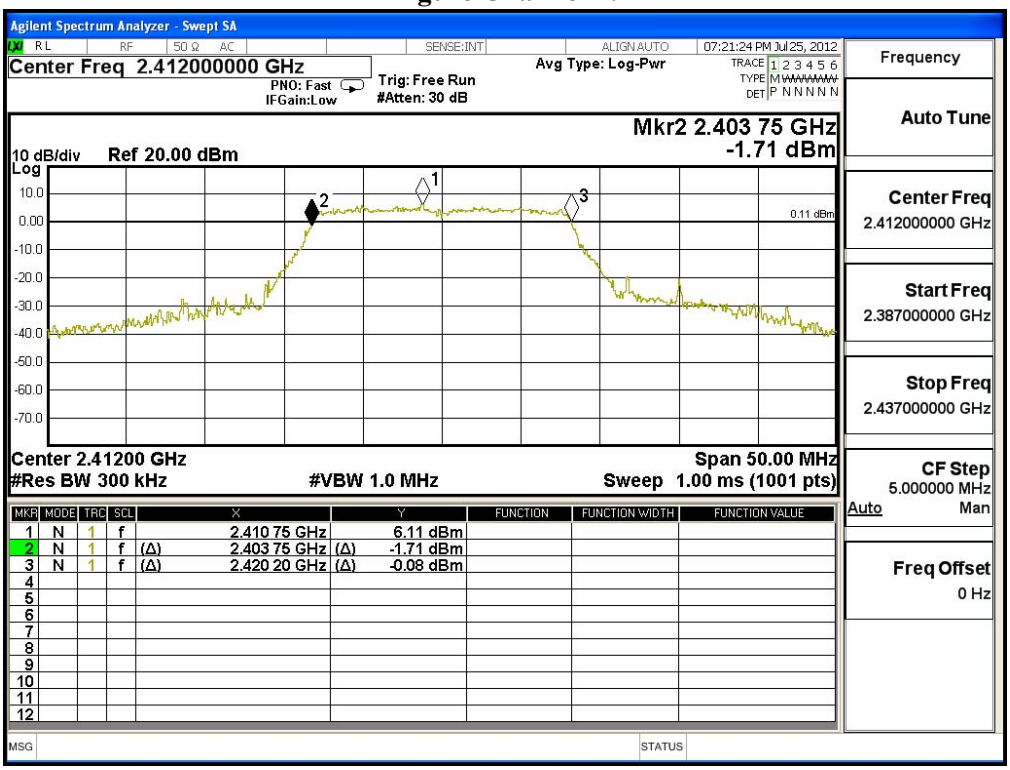
Figure Channel 11:



Product : PREMIUM 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	16450	>500	Pass

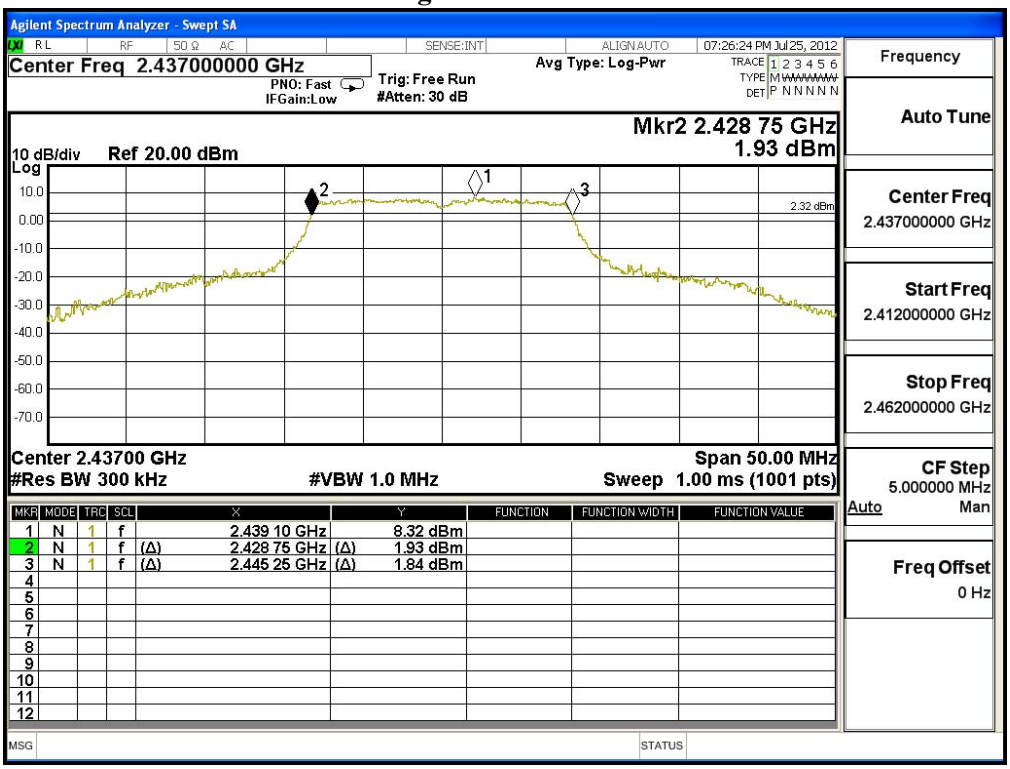
Figure Channel 1:



Product : PREMIUM 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

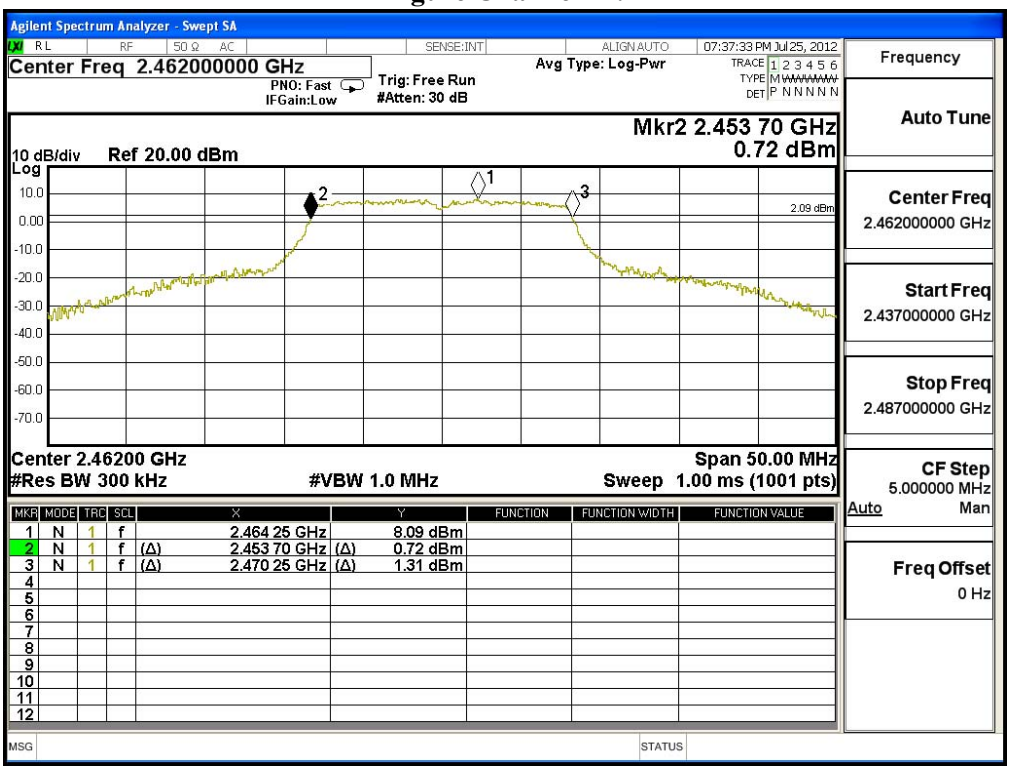
Figure Channel 6:



Product : PREMIUM 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	16550	>500	Pass

Figure Channel 11:



8. Power Density

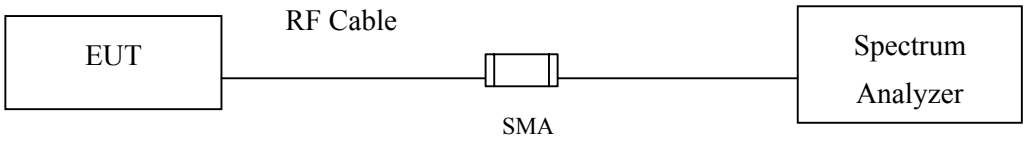
8.1. Test Equipment

	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≥300KHz, SPAN to 5-30 % greater than the EBW,
Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/100 kHz = -15.2 dB).

8.5. Uncertainty

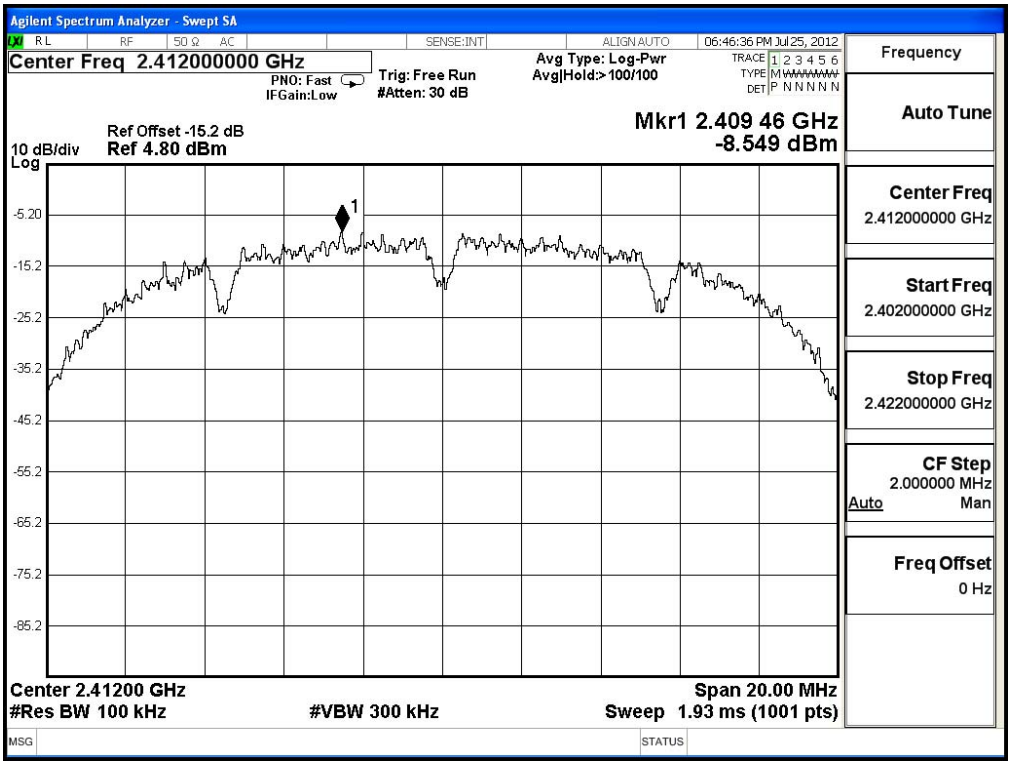
± 1.27 dB

8.6. Test Result of Power Density

Product : PREMIUM 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	-8.549	< 8dBm	Pass

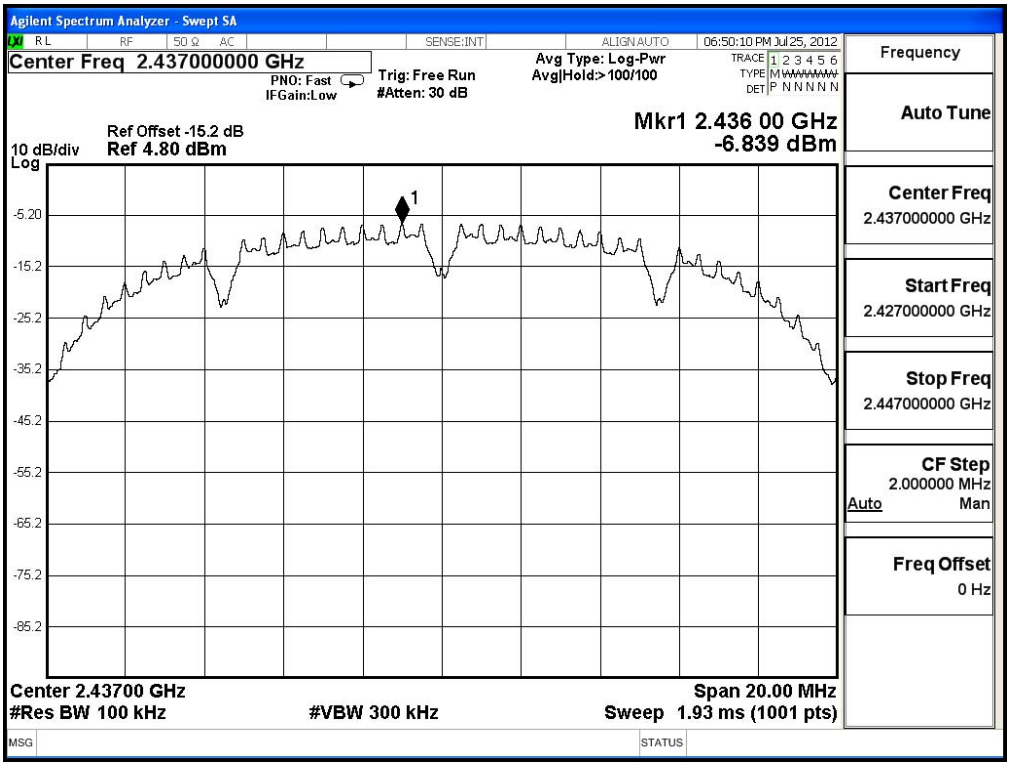
Figure Channel 1:



Product : PREMIUM 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	-6.839	< 8dBm	Pass

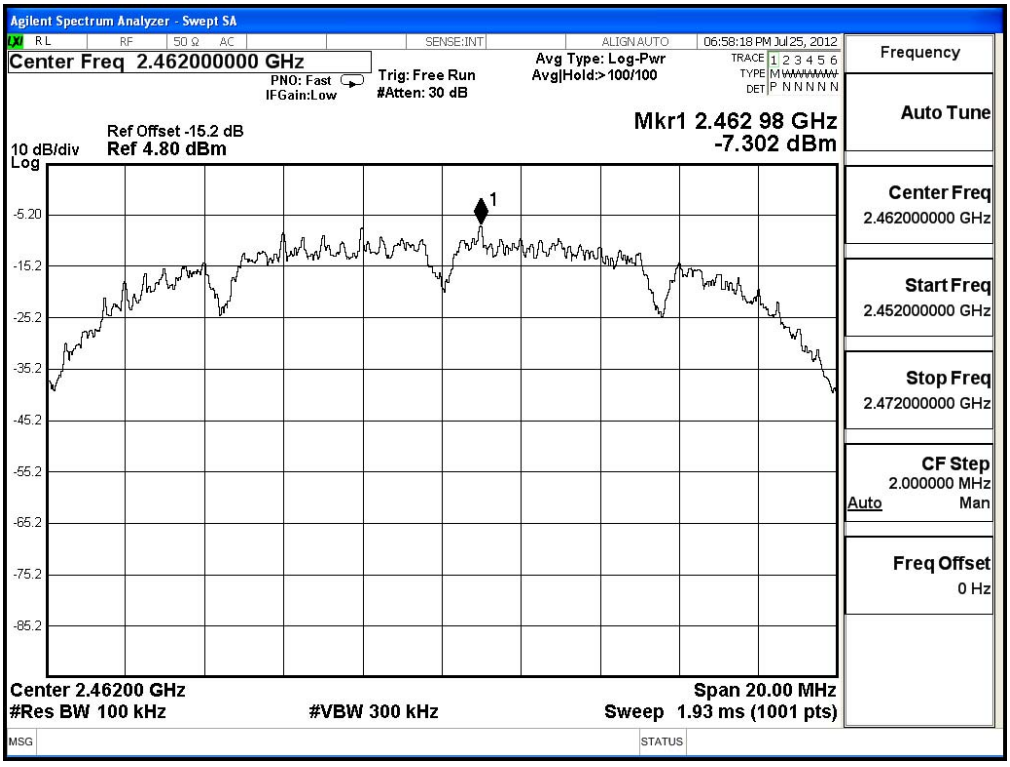
Figure Channel 6:



Product : PREMIUM 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	-7.302	< 8dBm	Pass

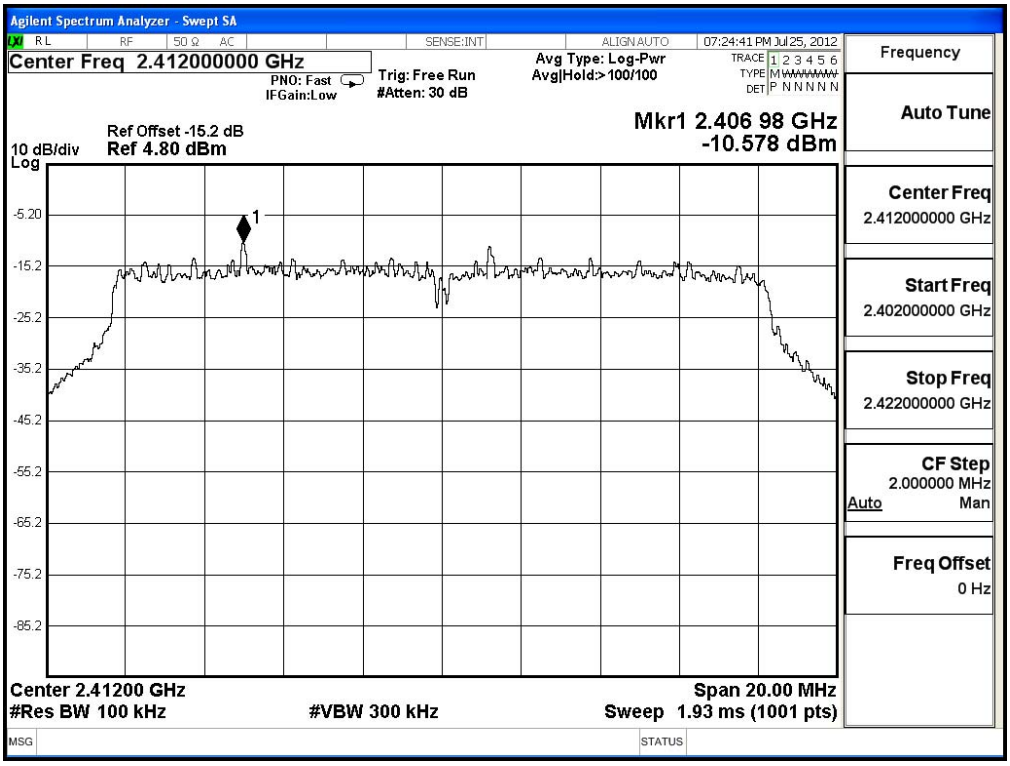
Figure Channel 11:



Product : PREMIUM 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	-10.578	< 8dBm	Pass

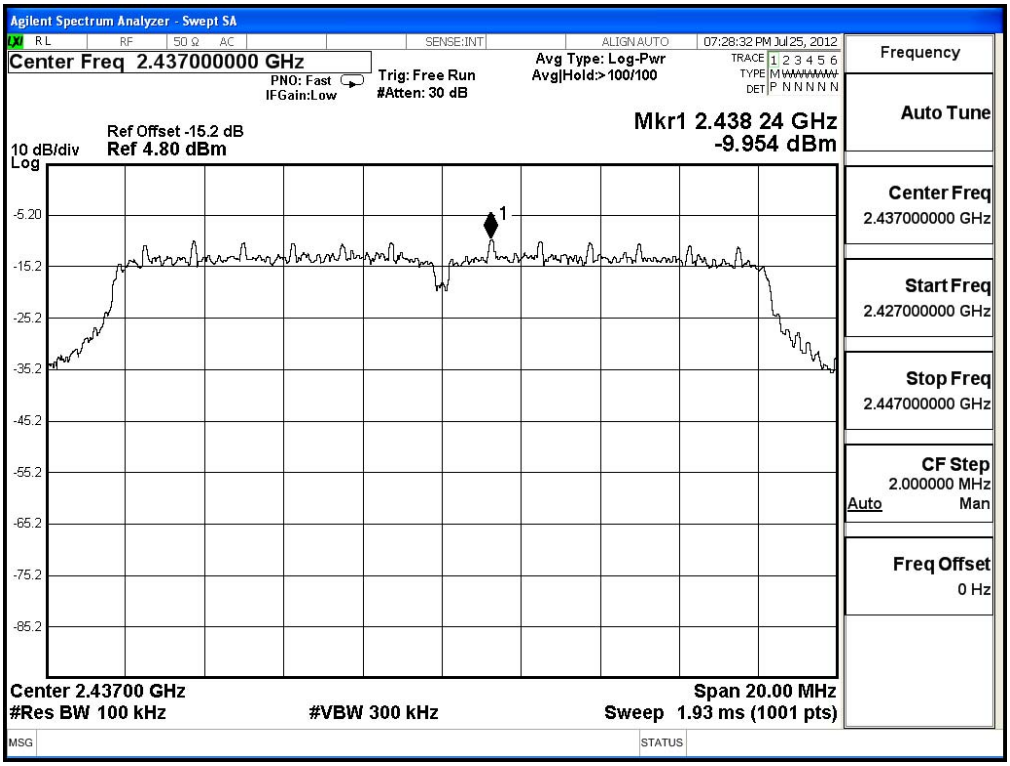
Figure Channel 1:



Product : PREMIUM 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	-9.954	< 8dBm	Pass

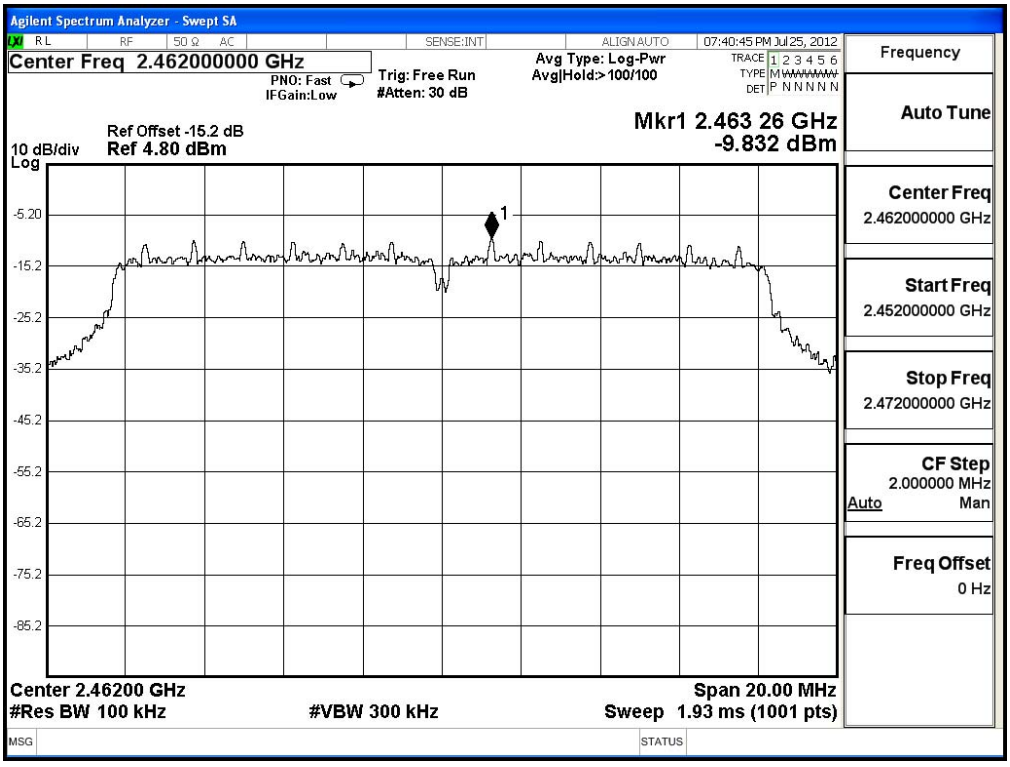
Figure Channel 6:



Product : PREMIUM 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	-9.832	< 8dBm	Pass

Figure Channel 11:



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.