Test Report

Product Name	Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Model No	PL-9929R, PL3771R, PL6471R
FCC ID.	X5B-PL9929R

Applicant	Performance Designed Products, LLC
Address	14144 Ventura Blvd., Suite 200 Sherman Oaks, CA 91423 USA

Date of Receipt	Jun. 22, 2012
Issue Date	Aug. 01, 2012
Report No.	126401R-RFUSP28V01
Report Version	V1.0

Testing Laboratory
0914

Test Report Certification

Issue Date: Aug. 01, 2012
Report No.: 126401R-RFUSP28V01

Accredited by NIST (NVLAP)
NVLAP Lab Code: 200533-0

Product Name	Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Applicant	Performance Designed Products, LLC
Address	14144 Ventura Blvd., Suite 200 Sherman Oaks, CA 91423 USA
Manufacturer	Performance Designed Products, LLC
Model No.	PL-9929R, PL3771R, PL6471R
EUT Rated Voltage	DC 5V (Power by USB)
EUT Test Voltage	AC 120V/60Hz
Trade Name	pdp
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.
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

Documented By : Jinn Chen
(Senior Adm. Specialist / Jinn Chen)

Tested By : Alan Chen
(Assistant Engineer / Alan Chen)

Approved By :
(Manager / Vincent Lin)

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Trade Name	pdp
Model No.	PL-9929R, PL3771R, PL6471R
FCC ID.	X5B-PL9929R
Frequency Range	2403.35 – 2479.35MHz
Number of Channels	39CH
Channel Separation	2MHz
Type of Modulation	Pi/4 DQPSK
Antenna Type	Printed on PCB
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
1.5mm Audio Cable	Non-shielded, 0.9m
USB Cable	Non-shielded, 0.8m Non-shielded, 3m
3.5mm Audio Cable	Non-shielded, 1.2m
Battery	DC 3.7V, 900mAh

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	TATUNG(AUX)	PL992R	0.07dBi for 2.4 GHz
	TATUNG(MAIN)	PL992R	1.09dBi for 2.4 GHz

Note: The antenna of EUT is conform to FCC 15.203

Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	2403.35 MHz	Channel 11:	2423.35 MHz	Channel 21:	2443.35 MHz	Channel 31:	2463.35 MHz
Channel 2:	2405.35 MHz	Channel 12:	2425.35 MHz	Channel 22:	2445.35 MHz	Channel 32:	2465.35 MHz
Channel 3:	2407.35 MHz	Channel 13:	2427.35 MHz	Channel 23:	2447.35 MHz	Channel 33:	2467.35 MHz
Channel 4:	2409.35 MHz	Channel 14:	2429.35 MHz	Channel 24:	2449.35 MHz	Channel 34:	2469.35 MHz
Channel 5:	2411.35 MHz	Channel 15:	2431.35 MHz	Channel 25:	2451.35 MHz	Channel 35:	2471.35 MHz
Channel 6:	2413.35 MHz	Channel 16:	2433.35 MHz	Channel 26:	2453.35 MHz	Channel 36:	2473.35 MHz
Channel 7:	2415.35 MHz	Channel 17:	2435.35 MHz	Channel 27:	2455.35 MHz	Channel 37:	2475.35 MHz
Channel 8:	2417.35 MHz	Channel 18:	2437.35 MHz	Channel 28:	2457.35 MHz	Channel 38:	2477.35 MHz
Channel 9:	2419.35 MHz	Channel 19:	2439.35 MHz	Channel 29:	2459.35 MHz	Channel 39:	2479.35 MHz
Channel 10:	2421.35 MHz	Channel 20:	2441.35 MHz	Channel 30:	2461.35 MHz		

Note:

1. The EUT is a Afterglow Universal/ XBOX360/ PS3 Wireless Headset.
2. The EUT is including three models and each models are different in product name and shown as below:

Model Number	Product Name
PL-9929R	Afterglow Universal Wireless Headset
PL3771R	Afterglow XBOX360 Wireless Headset
PL6471R	Afterglow PS3 Wireless Headset

3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 2.4GHz transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode:	Mode 1: Transmit

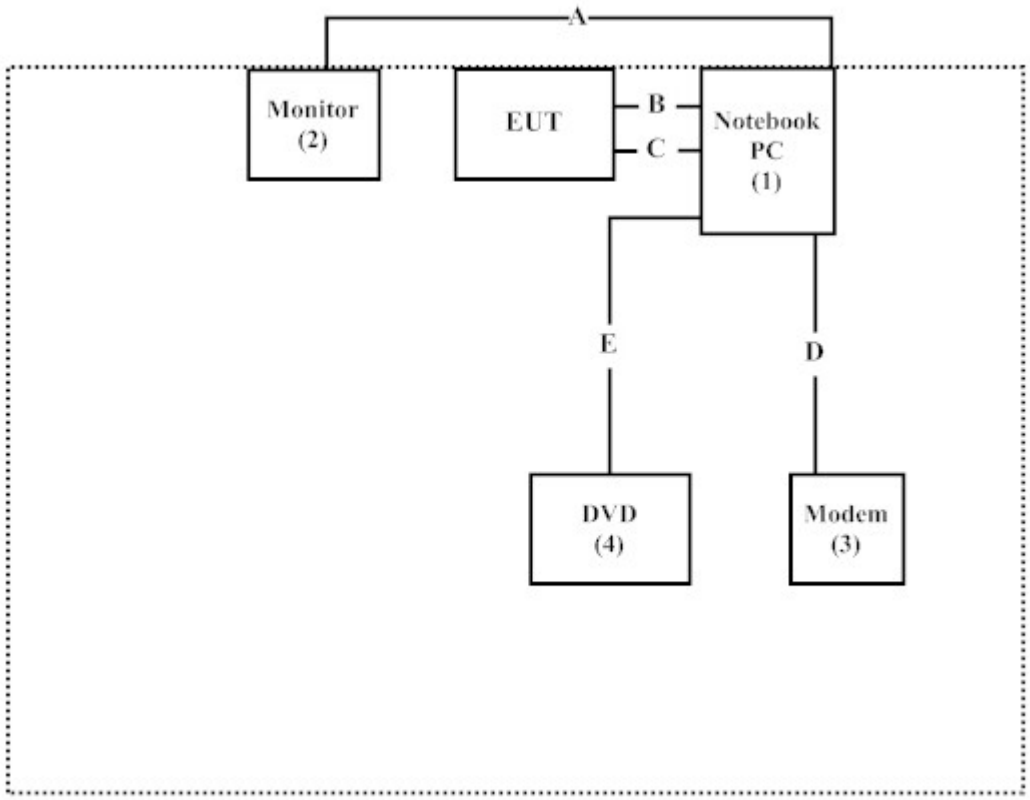
1.3. Tested System Details

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	Notebook PC	DELL	PPT	N/A	Non-Shielded, 0.8m
2	Monitor	LG	W2261VT	907YHZK07373	Non-Shielded, 1.8m
3	Modem	ACEEX	DM-1414	0102027541	Non-Shielded, 1.8m
4	DVD	Dell	PD01S	P0690-A01	N/A

Signal Cable Type		Signal cable Description
A	VGA Cable	Non-Shielded, 1.8m, with two ferrite cores bonded.
B	USB Cable	Non-Shielded, 0.5m
C	Audio cable	Non-Shielded, 0.5m
D	Modem Cable	Non-Shielded, 1.5m
E	DVD cable	Non-Shielded, 0.3m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

(1) Setup the EUT as shown in Section 1.4.
(2) Execute “Vmidev.exe (v1.1.6.38)” on the Notebook.
(3) Configure the test mode, the test channel, and the data rate.
(4) Press “OK” to start the continuous Transmit.
(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://tw.quietek.com/tw/emc/accreditations/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, Ruei-Shu Valley, Ruei-Ping Tsuen,
Lin-Kou Shiang, Taipei,
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

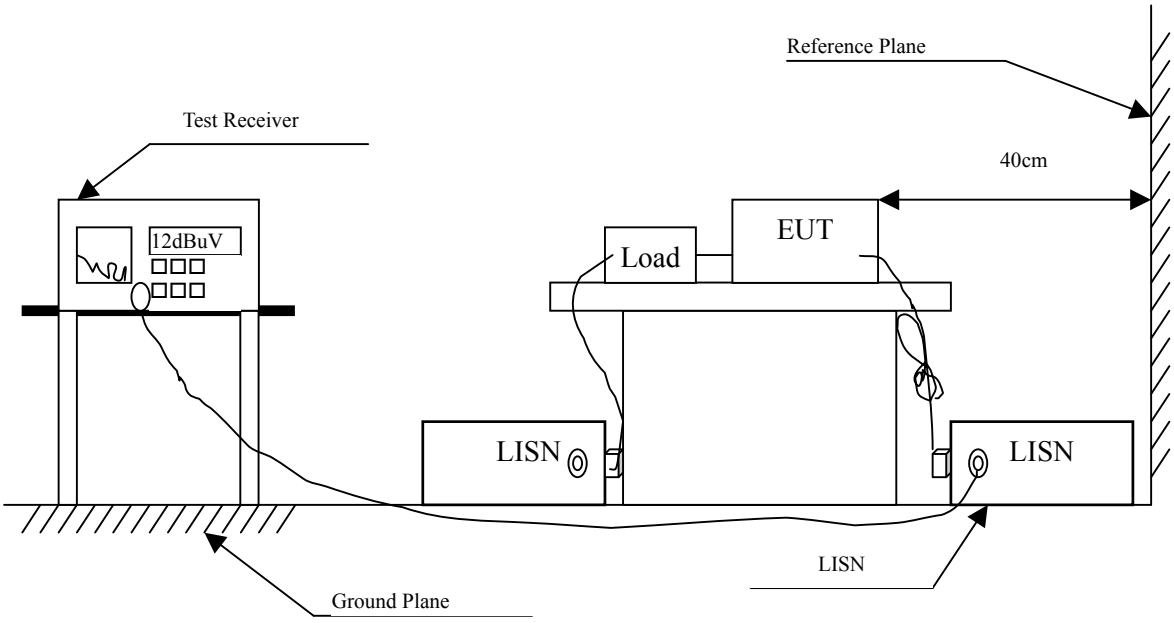
2.1. Test Equipment

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 : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Transmit

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.158	9.715	19.300	29.015	-36.756	65.771
0.224	9.670	22.540	32.210	-31.676	63.886
0.416	9.640	15.360	25.000	-33.400	58.400
0.502	9.640	15.030	24.670	-31.330	56.000
1.830	9.680	14.490	24.170	-31.830	56.000
16.283	9.870	17.360	27.230	-32.770	60.000
Average					
0.158	9.715	-2.650	7.065	-48.706	55.771
0.224	9.670	22.530	32.200	-21.686	53.886
0.416	9.640	13.490	23.130	-25.270	48.400
0.502	9.640	12.460	22.100	-23.900	46.000
1.830	9.680	13.250	22.930	-23.070	46.000
16.283	9.870	8.550	18.420	-31.580	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 : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Transmit

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.166	9.718	24.540	34.258	-31.285	65.543
0.224	9.670	20.790	30.460	-33.426	63.886
0.502	9.650	23.180	32.830	-23.170	56.000
2.002	9.700	19.380	29.080	-26.920	56.000
4.916	9.710	12.920	22.630	-33.370	56.000
22.791	10.140	20.650	30.790	-29.210	60.000
Average					
0.166	9.718	23.810	33.528	-22.015	55.543
0.224	9.670	20.780	30.450	-23.436	53.886
0.502	9.650	22.170	31.820	-14.180	46.000
2.002	9.700	17.180	26.880	-19.120	46.000
4.916	9.710	8.310	18.020	-27.980	46.000
22.791	10.140	14.330	24.470	-25.530	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

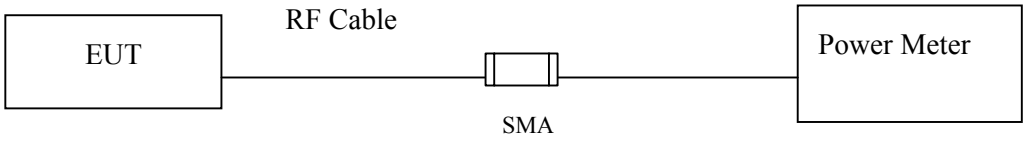
3.1. Test Equipment

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

3.2. Test Setup

Conducted Measurement



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 : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
01	2403.35	3.32	<30dBm	Pass
20	2441.35	1.89	<30dBm	Pass
39	2479.35	0.44	<30dBm	Pass

4. Radiated Emission

4.1. Test Equipment

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

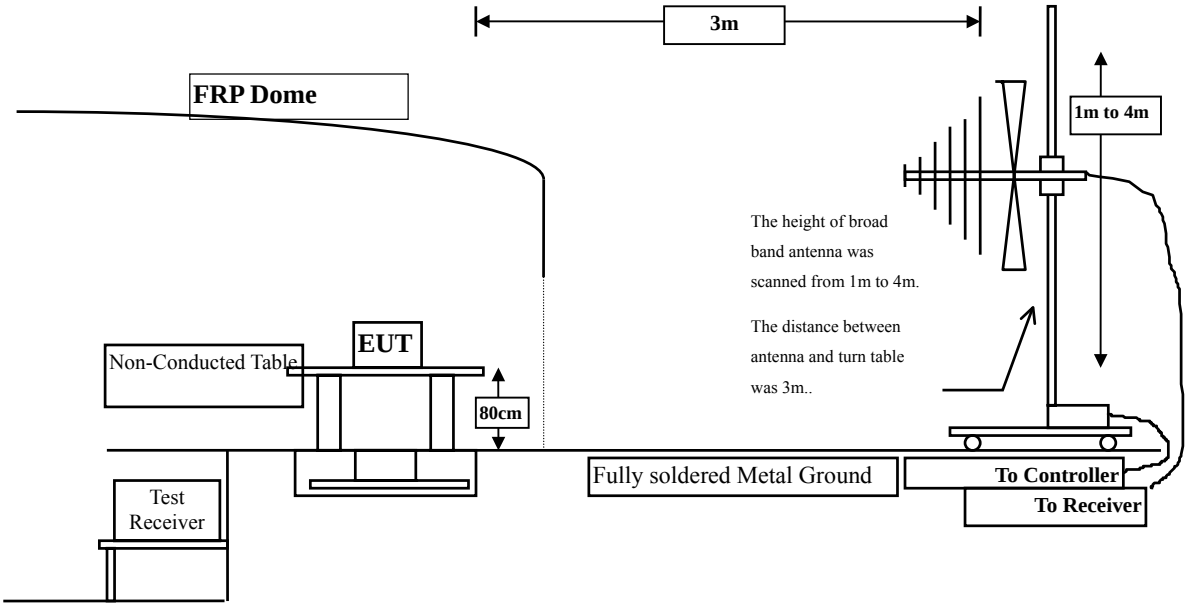
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2012
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2012
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2011
	X	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2012
	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.

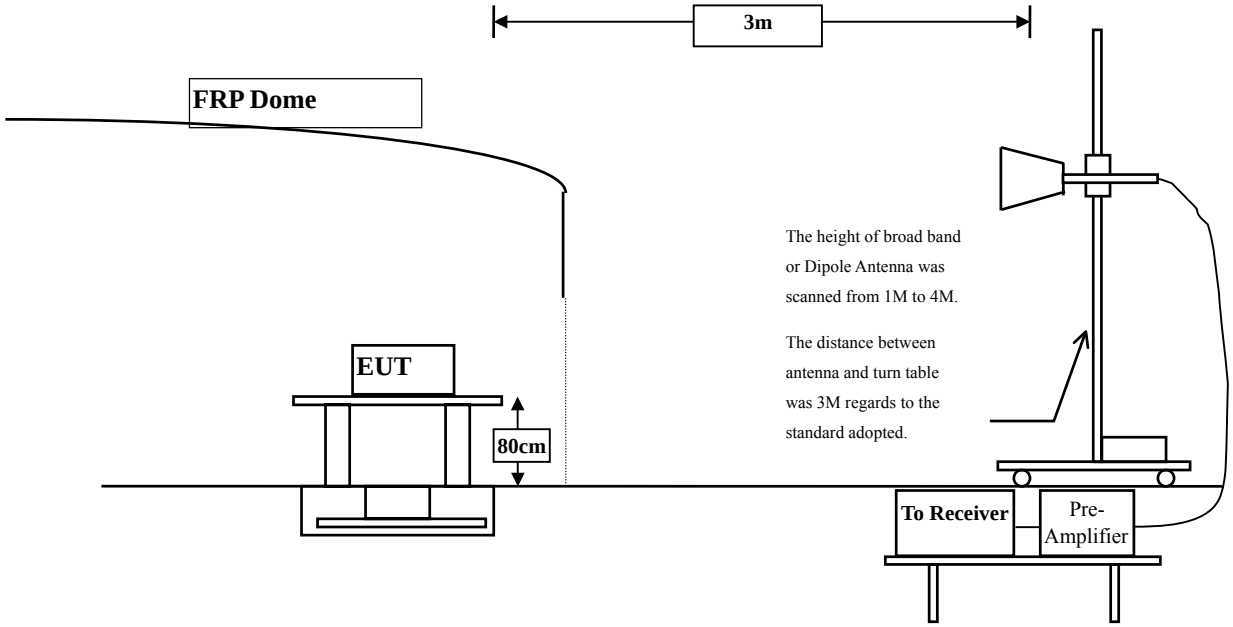
2. The test instruments marked with "X" are used to measure the final test results.

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

4.5. Uncertainty

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

4.6. Test Result of Radiated Emission

Product : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2403.35MHz) -

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4806.700	3.331	43.090	46.420	-27.580	74.000
7210.050	10.205	40.440	50.645	-23.355	74.000
9613.400	13.656	35.620	49.276	-24.724	74.000
Vertical					
Peak Detector:					
4806.700	6.623	38.470	45.092	-28.908	74.000
7210.050	11.071	37.730	48.801	-25.199	74.000
9613.400	14.063	36.000	50.063	-23.937	74.000

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 : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2441.35MHz) -

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4882.700	2.999	37.860	40.858	-33.142	74.000
7324.050	11.851	40.240	52.091	-21.909	74.000
9765.400	12.556	36.790	49.346	-24.654	74.000
Vertical					
Peak Detector:					
4882.700	5.706	37.870	43.575	-30.425	74.000
7324.050	12.736	36.440	49.177	-24.823	74.000
9765.400	13.019	37.660	50.679	-23.321	74.000

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 : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2479.35MHz) -

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4958.700	2.764	38.140	40.904	-33.096	74.000
7438.050	12.548	37.490	50.038	-23.962	74.000
9917.400	13.441	36.720	50.162	-23.838	74.000
Vertical					
Peak Detector:					
4958.700	5.556	37.710	43.266	-30.734	74.000
7438.050	13.423	35.970	49.393	-24.607	74.000
9917.400	13.960	36.380	50.340	-23.660	74.000

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 : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2441.35MHz) -

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
47.460	-9.151	43.545	34.395	-5.605	40.000
105.660	-6.673	37.586	30.913	-12.587	43.500
249.220	-6.014	45.234	39.220	-6.780	46.000
365.620	-1.329	40.889	39.560	-6.440	46.000
499.480	0.048	35.183	35.231	-10.769	46.000
666.320	2.031	35.376	37.408	-8.592	46.000
Vertical					
97.900	-1.400	41.559	40.158	-3.342	43.500
249.220	-7.634	42.588	34.954	-11.046	46.000
365.620	-2.179	42.582	40.403	-5.597	46.000
617.820	-2.327	35.074	32.747	-13.253	46.000
809.880	3.279	34.976	38.255	-7.745	46.000
967.020	8.071	27.688	35.759	-18.241	54.000

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

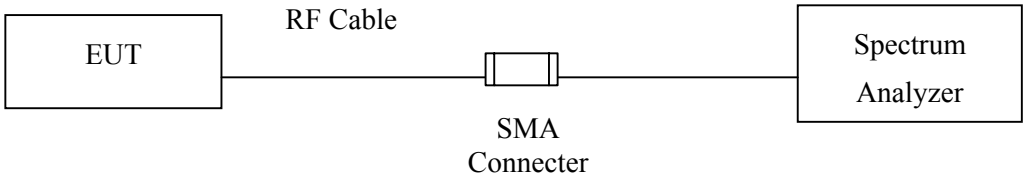
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr.,2012

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

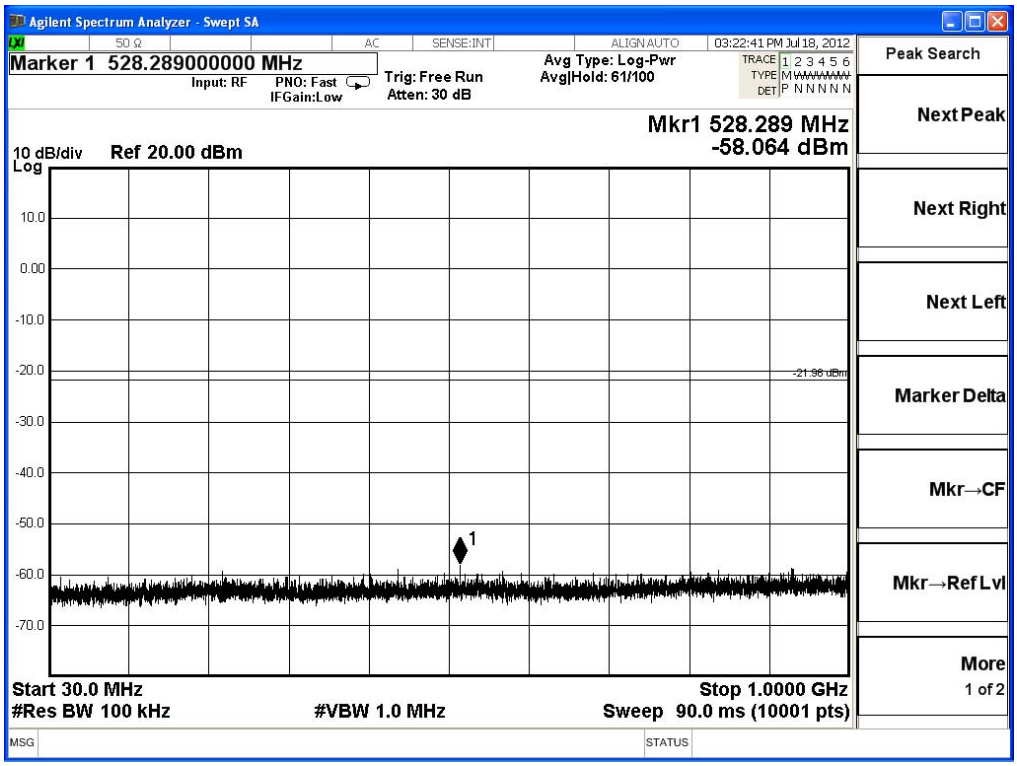
The measurement uncertainty

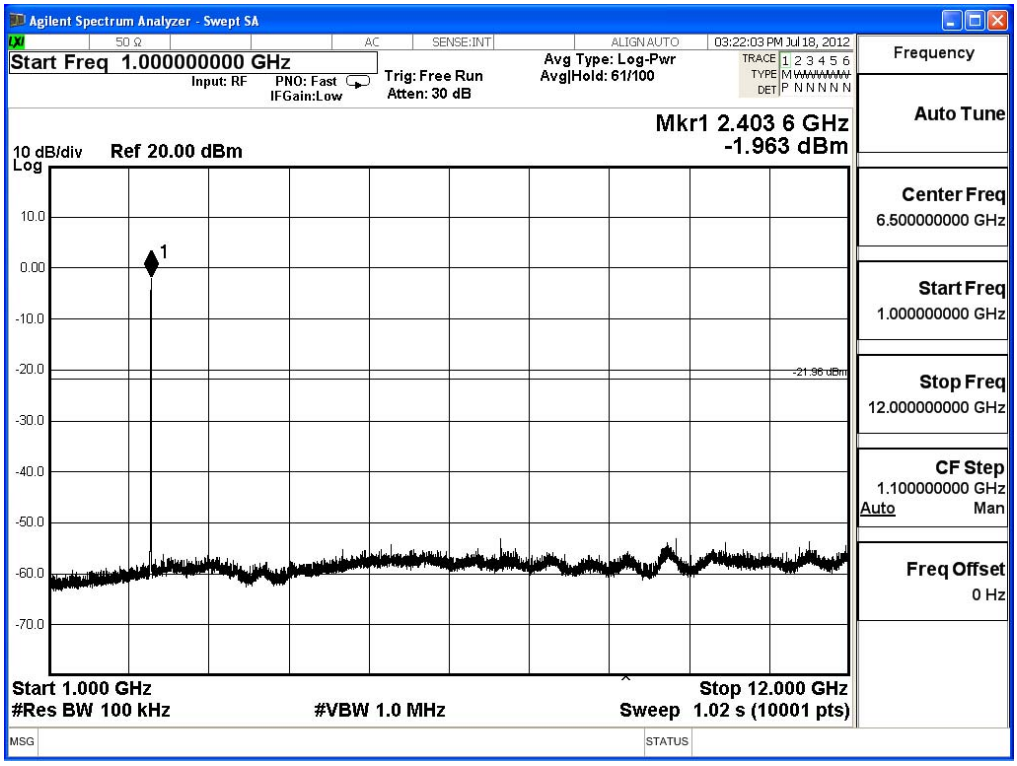
Conducted is defined as ± 1.27dB

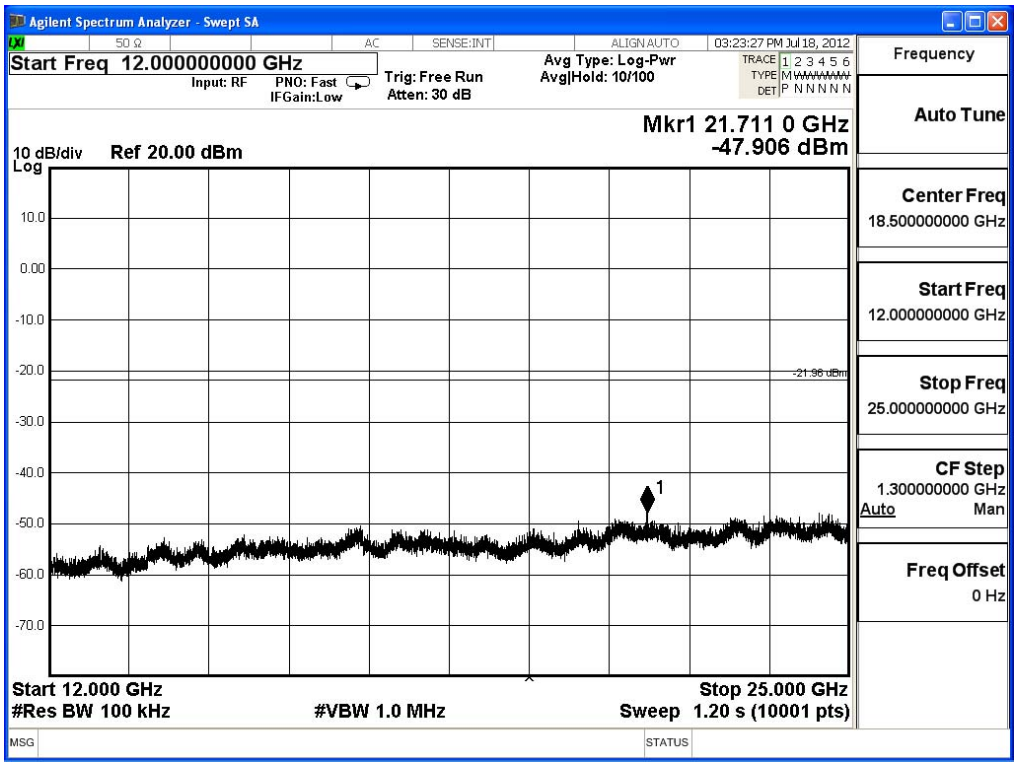
5.6. Test Result of RF antenna conducted test

Product : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : RF antenna conducted test
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit -

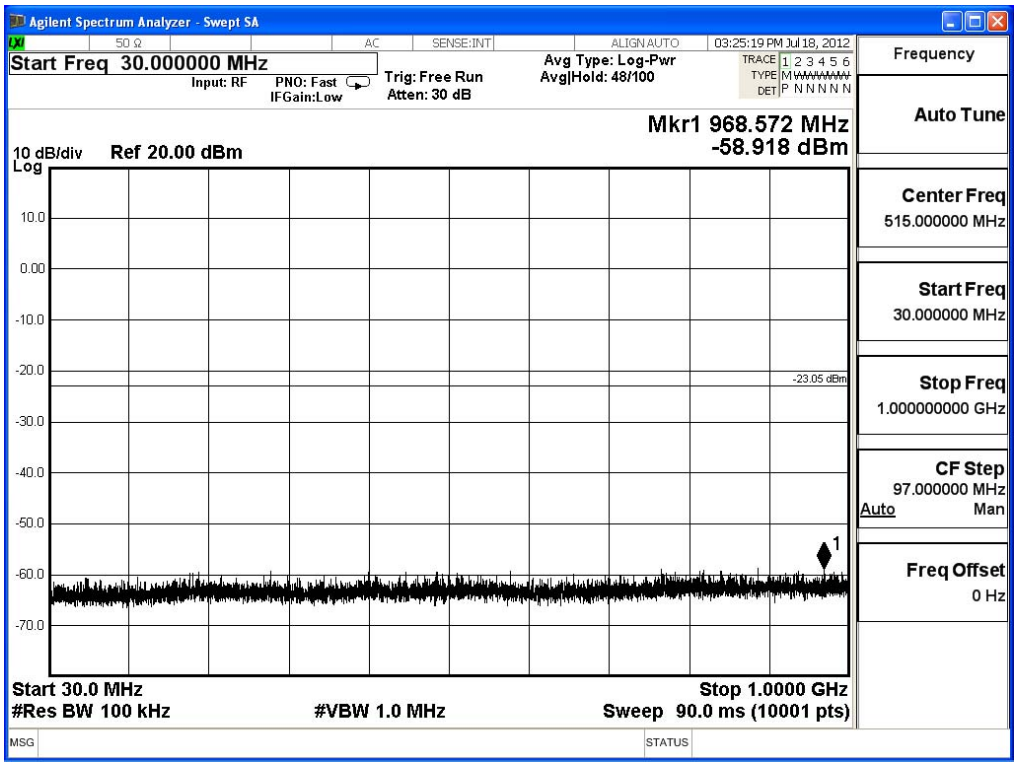
Channel 01 (2403.35MHz) 30M-25GHz

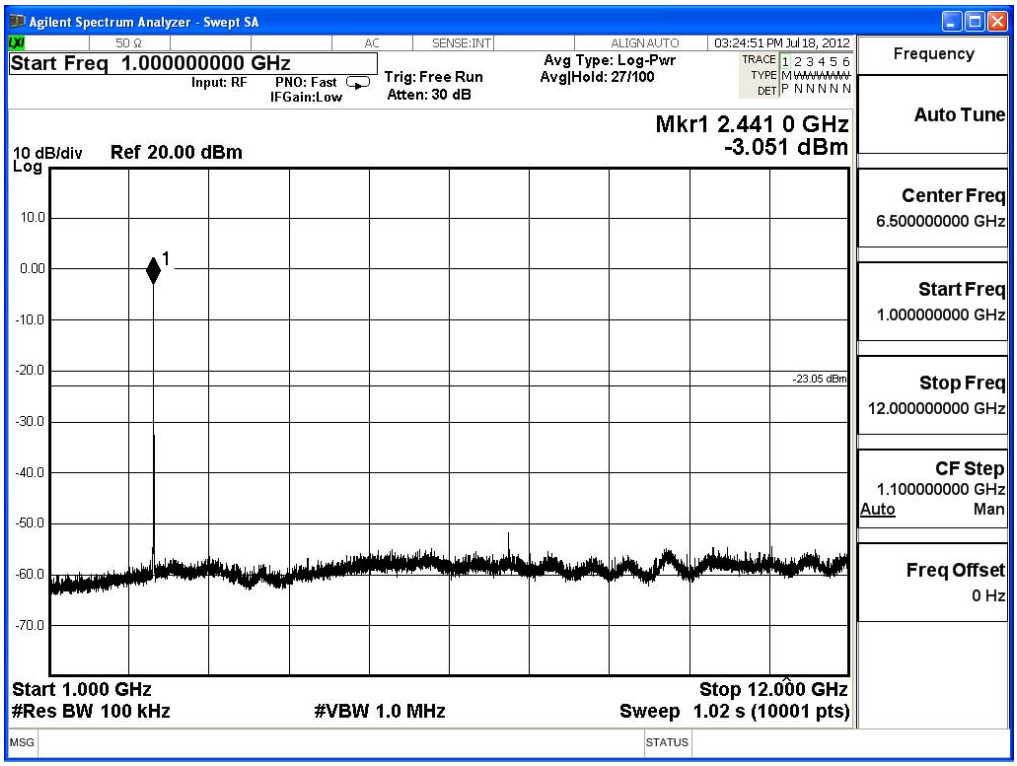


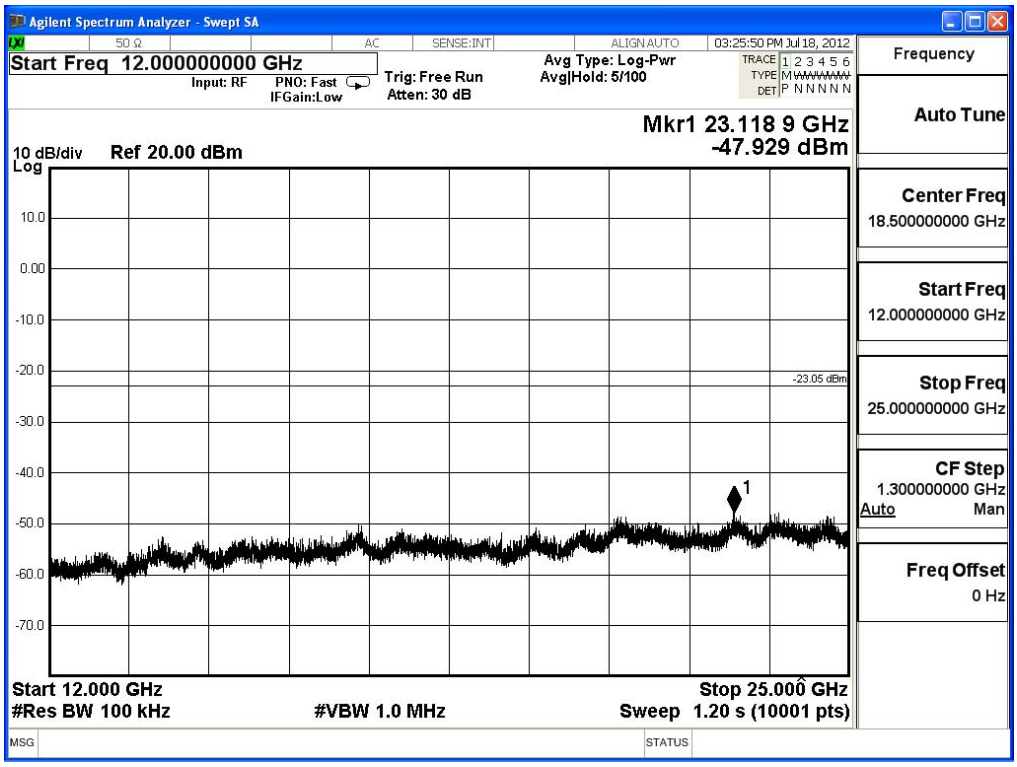

Agilent Spectrum Analyzer - Swept SA
Start Freq 1.000000000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 61/100
03:22:03 PM Jul 18, 2012
Mkr1 2.403 6 GHz
-1.963 dBm
10 dB/div
Log
Ref 20.00 dBm
-21.96 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 12.000 GHz
Sweep 1.02 s (10001 pts)
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
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Start Freq 12.000000000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/100
03:23:27 PM Jul 18, 2012
Mkr1 21.711 0 GHz
-47.906 dBm
10 dB/div
Log
Ref 20.00 dBm
-21.96 dBm
Start 12.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 25.000 GHz
Sweep 1.20 s (10001 pts)
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
MSG
STATUS

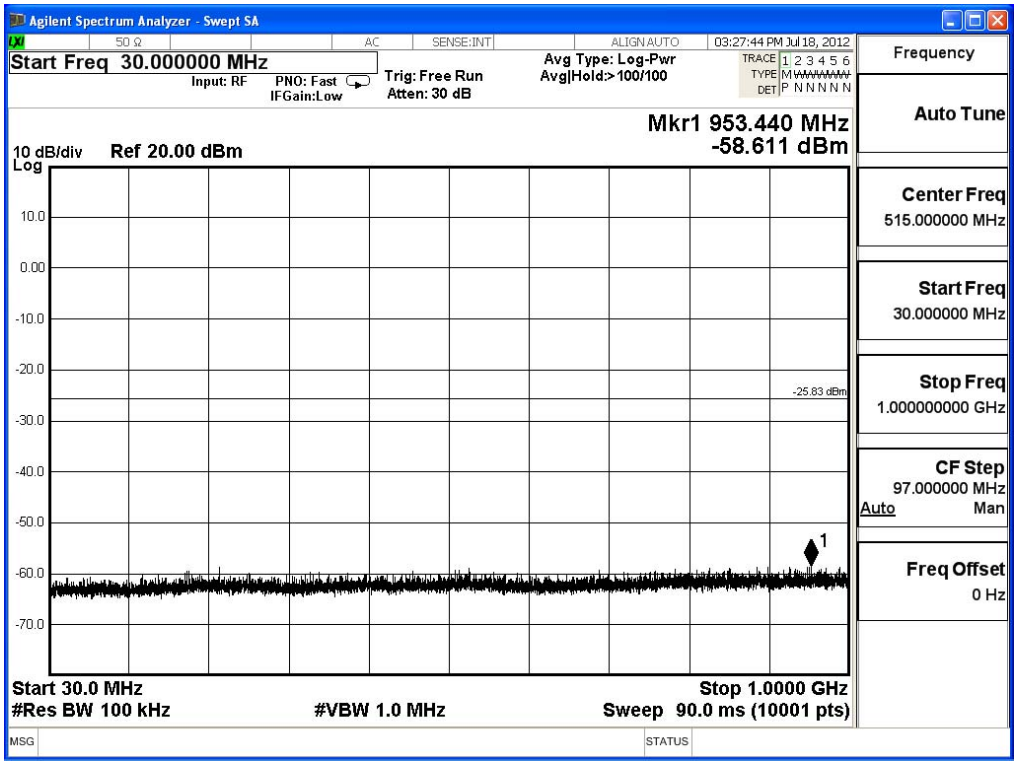
Channel 20 (2441.35MHz) 30M-25GHz

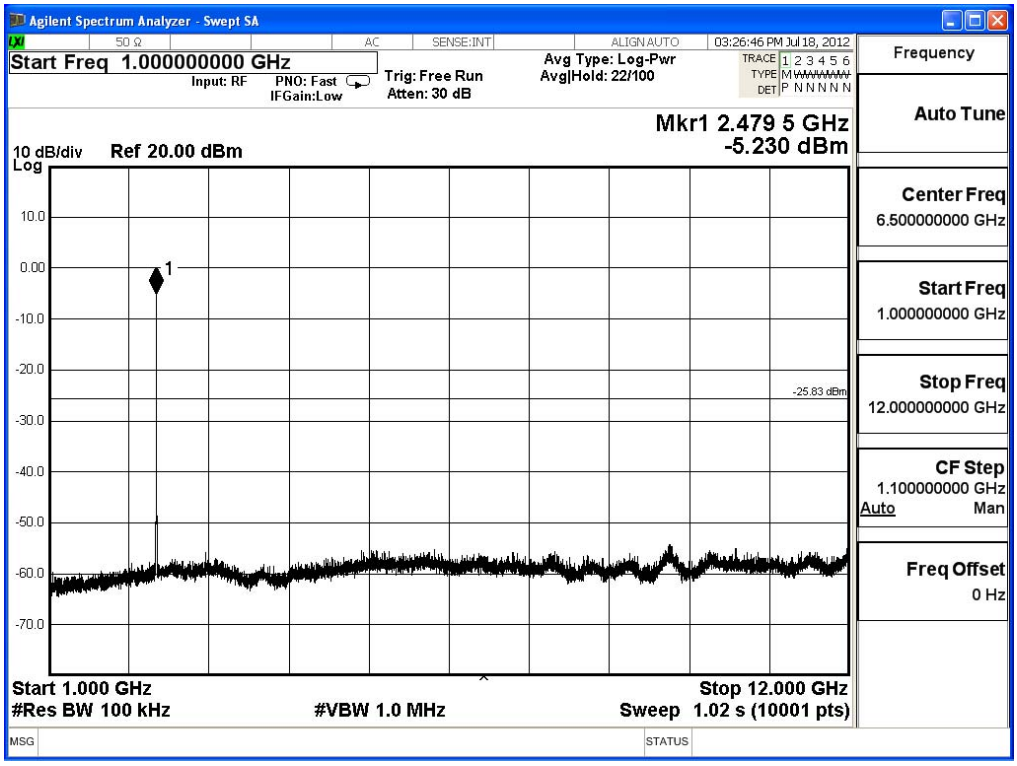


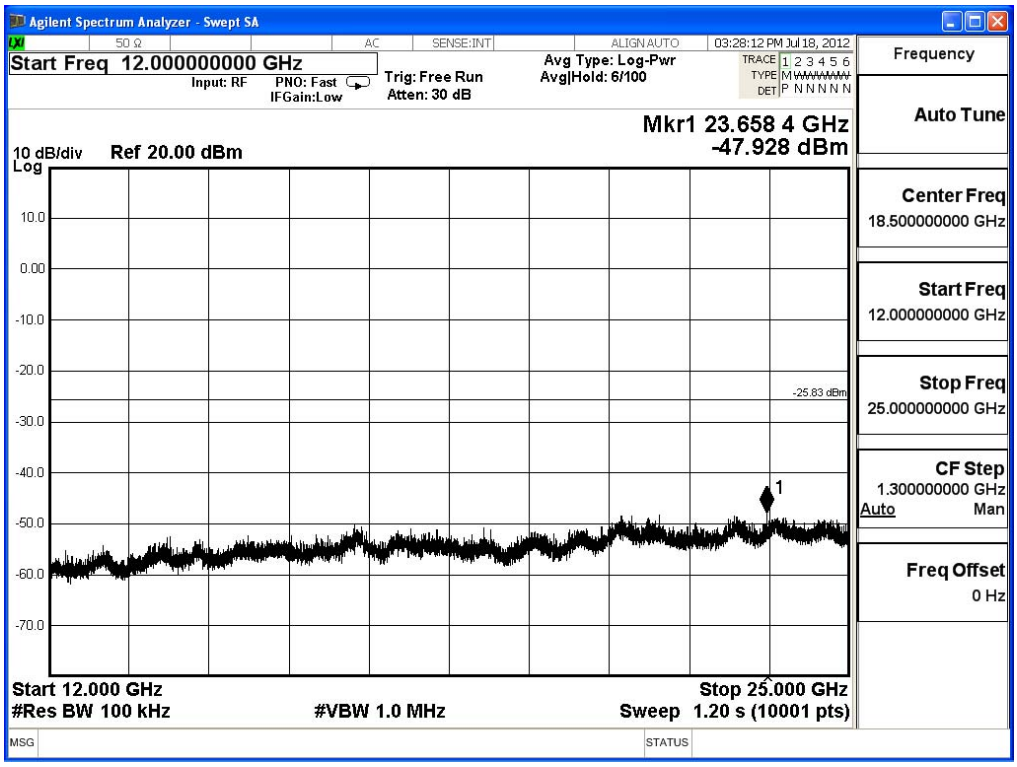




Channel 39 (2479.35MHz) 30M-25GHz




Agilent Spectrum Analyzer - Swept SA
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:26:46 PM Jul 18, 2012
Start Freq 1.000000000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 22/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Mkr1 2.479 5 GHz
-5.230 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
-25.83 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 12.000 GHz
Sweep 1.02 s (10001 pts)
MSG
STATUS
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
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:28:12 PM Jul 18, 2012
Start Freq 12.000000000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 6/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Mkr1 23.658 4 GHz
-47.928 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
-25.83 dBm
Start 12.000 GHz
#Res BW 100 kHz
#VBW 1.0 MHz
Stop 25.000 GHz
Sweep 1.20 s (10001 pts)
MSG
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:

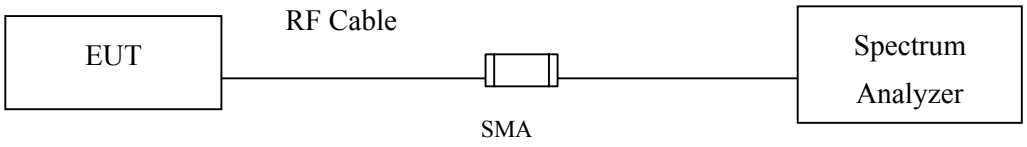
The following test equipments are used during the band edge tests:

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
		Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2012
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2011
		Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2012
	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

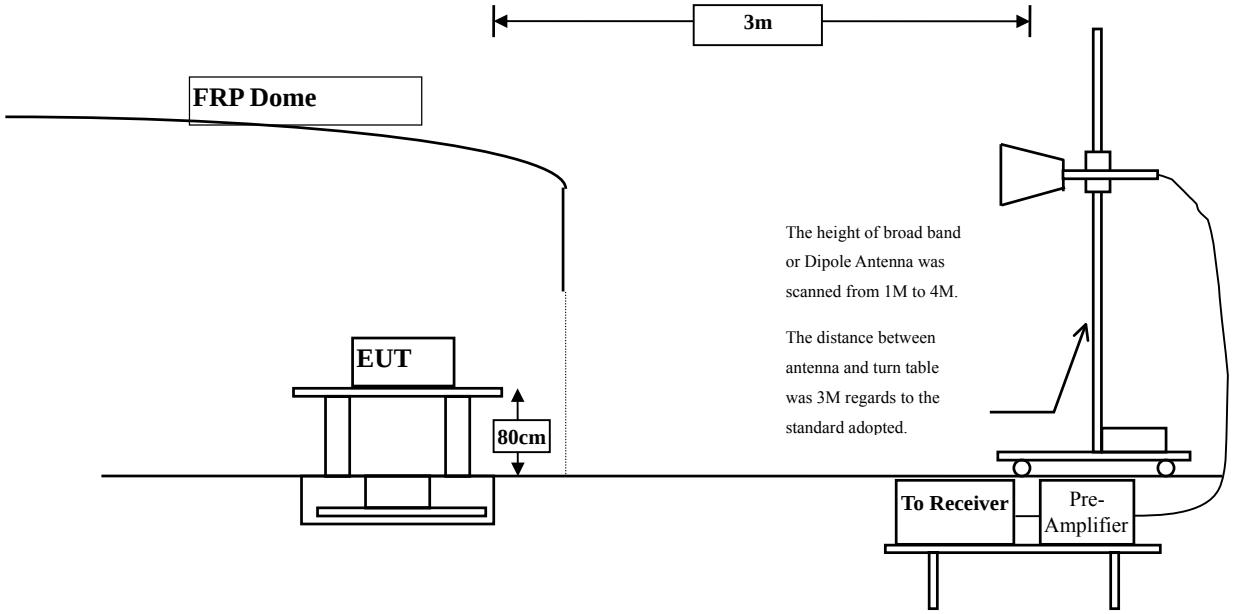
Note: 1. All instruments are calibrated every one year.
2. The test instruments marked by "X" are used to measure the final test results.

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 : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit-

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2403.35	31.583	61.38	92.962	Peak
Horizontal	2403.35	31.583	57.93	89.512	Average
Vertical	2403.35	31.583	62.54	94.122	Peak
Vertical	2403.35	31.583	59.16	90.742	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)	Detector
Horizontal	2390	92.962	46.519	46.443	Peak
Horizontal	2390	89.512	58.484	31.028	Average
Vertical	2390	94.122	46.519	47.603	Peak
Vertical	2390	90.742	58.484	32.258	Average

Note:

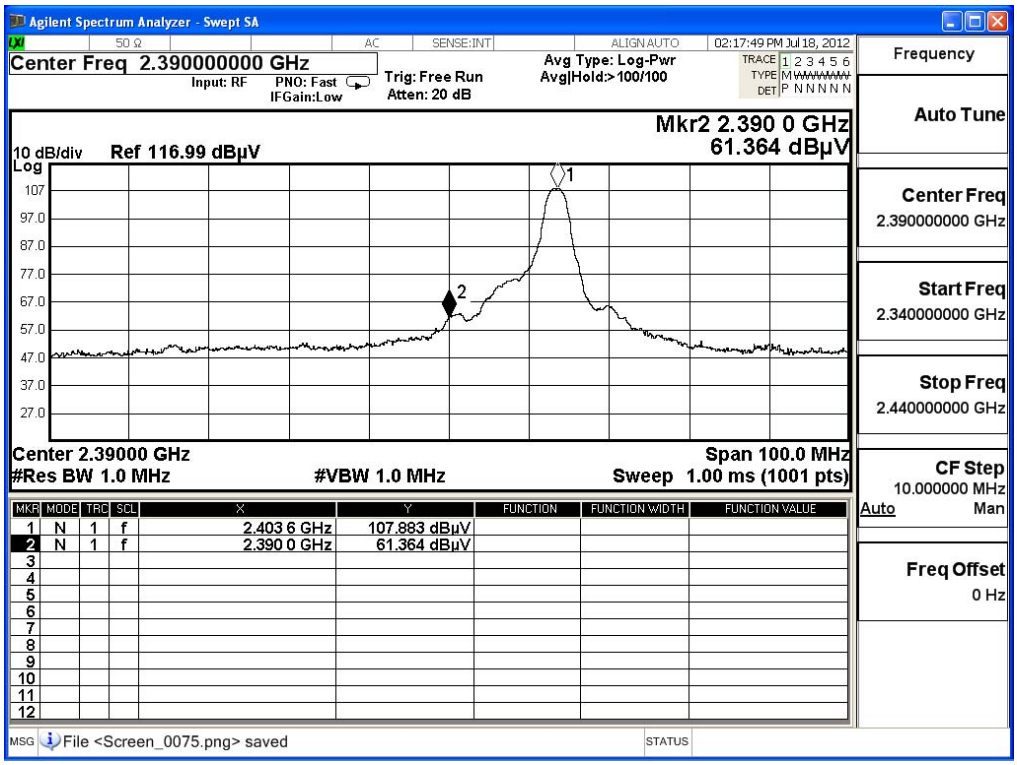
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

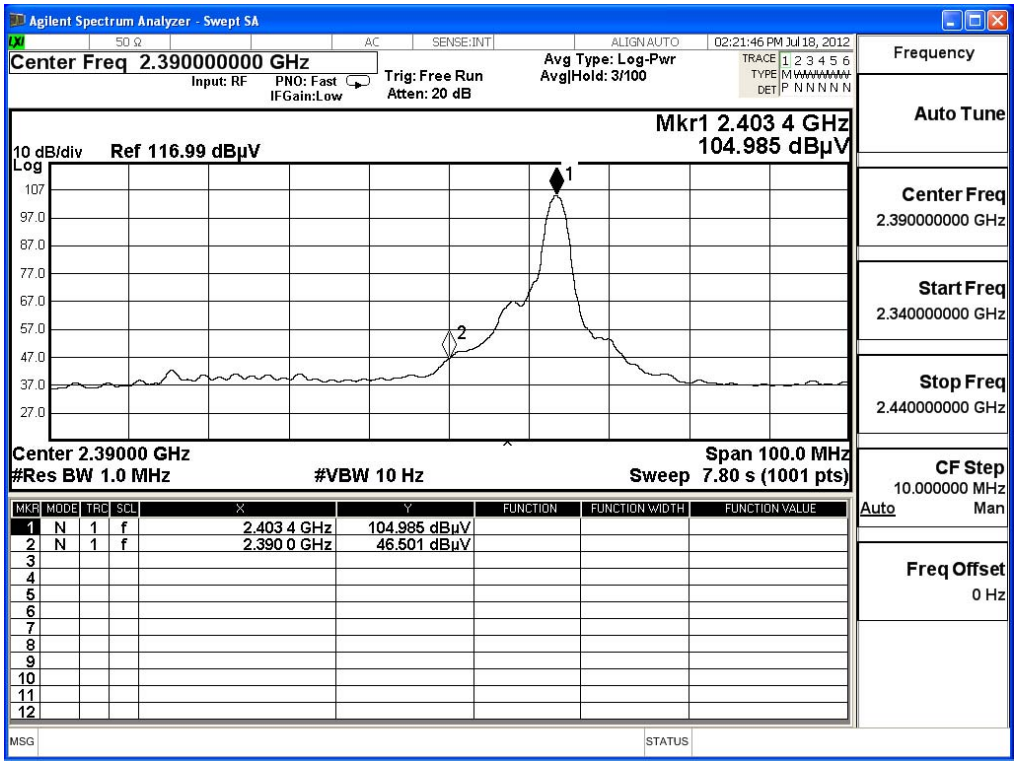
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit-

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2479.35	32.15	60.44	92.591	Peak
Horizontal	2479.35	32.15	57.11	89.261	Average
Vertical	2479.35	31.407	62.11	93.517	Peak
Vertical	2479.35	32.15	58.68	90.831	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)	Detector
Horizontal	2483.5	92.591	38.467	54.124	Peak
Horizontal	2483.5	89.261	46.238	43.023	Average
Vertical	2483.5	93.517	38.467	55.05	Peak
Vertical	2483.5	90.831	46.238	44.593	Average

Note:

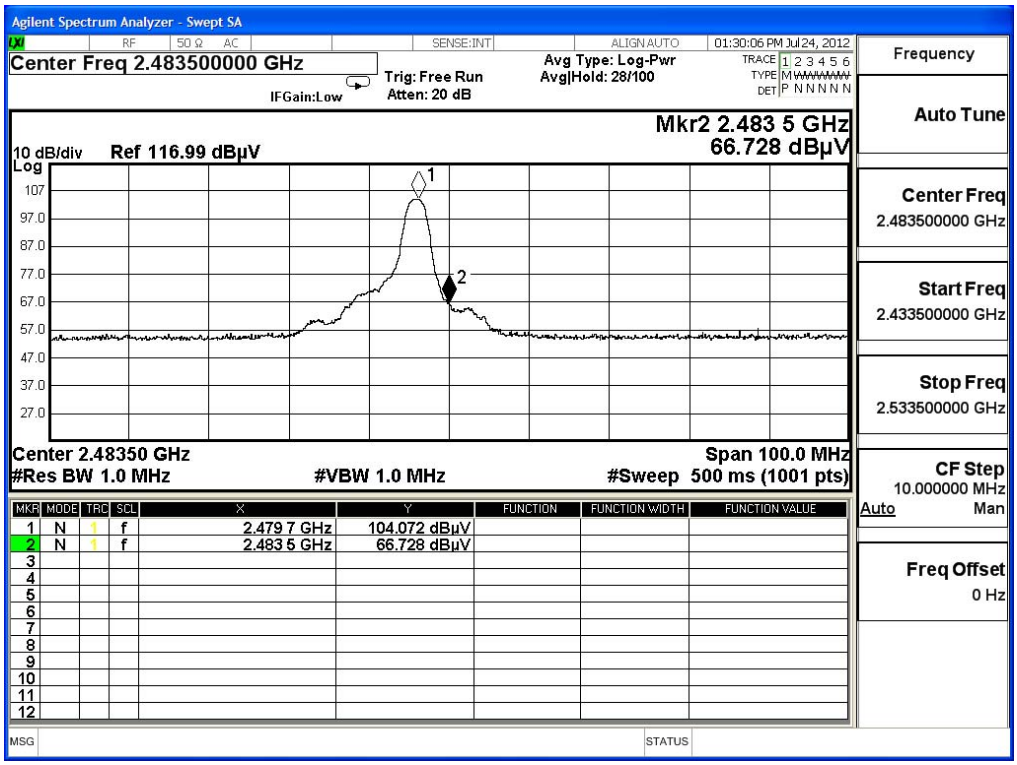
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

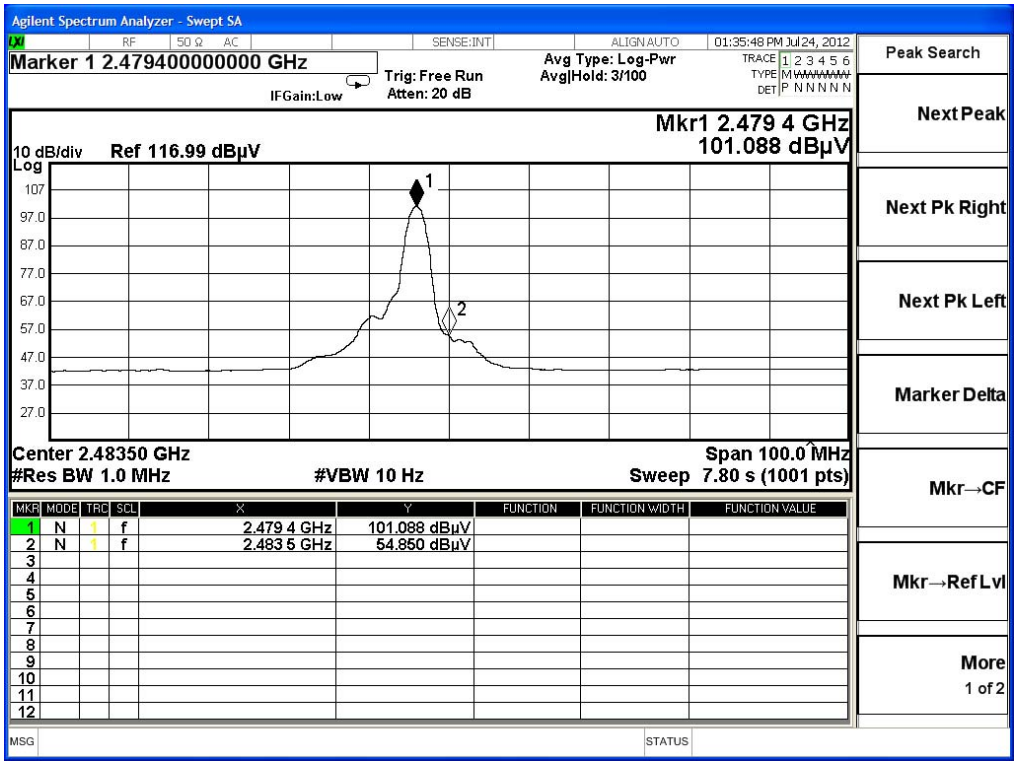
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



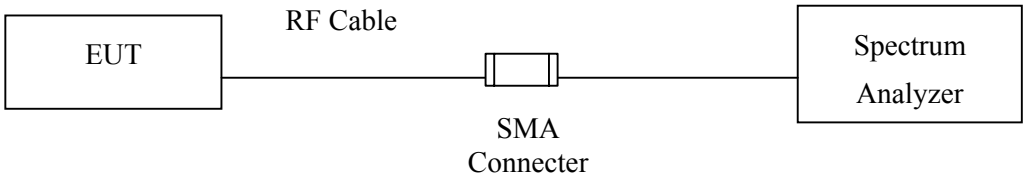
7. Occupied Bandwidth

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 instruments are calibrated every one year.
2. The test instruments marked by "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

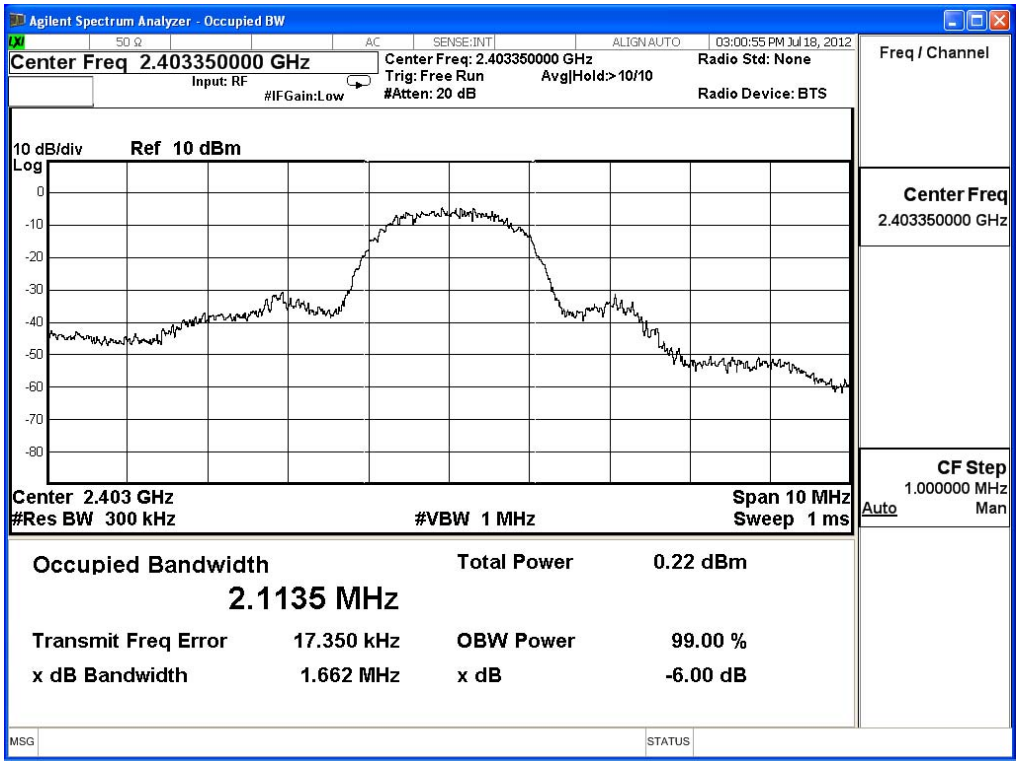
± 150Hz

7.6. Test Result of Occupied Bandwidth

Product : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2403.35MHz) -

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2403.35	1662	>500	Pass

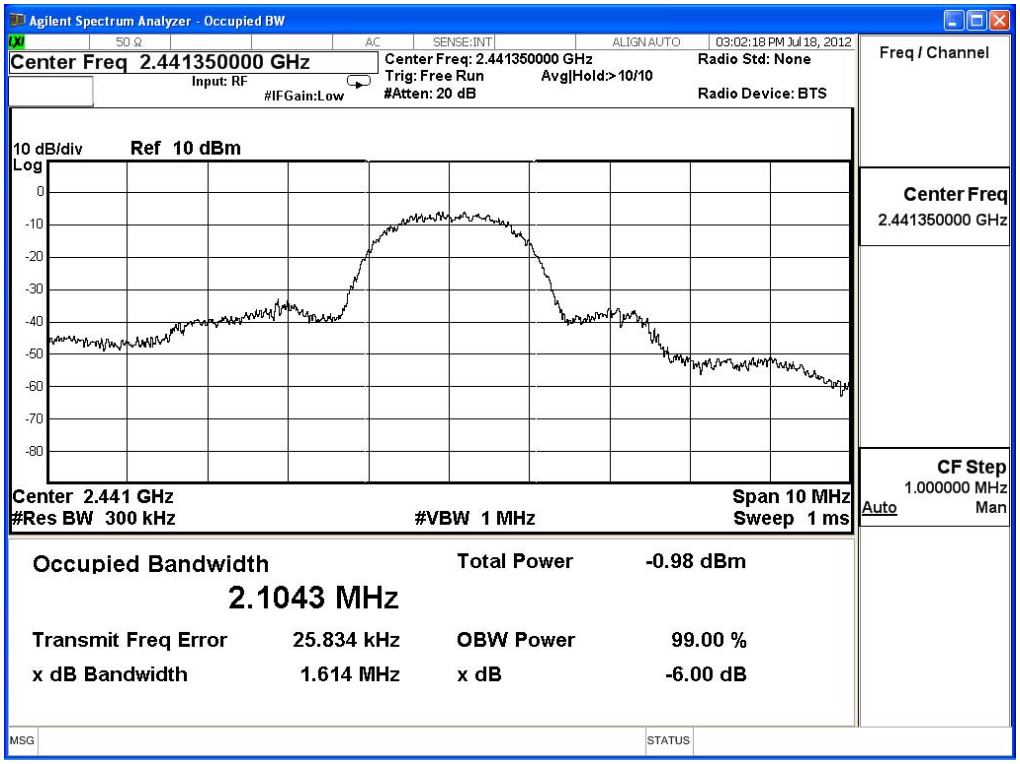
Figure Channel 01:



Product : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2441.35MHz) -

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
20	2441.35	1614	>500	Pass

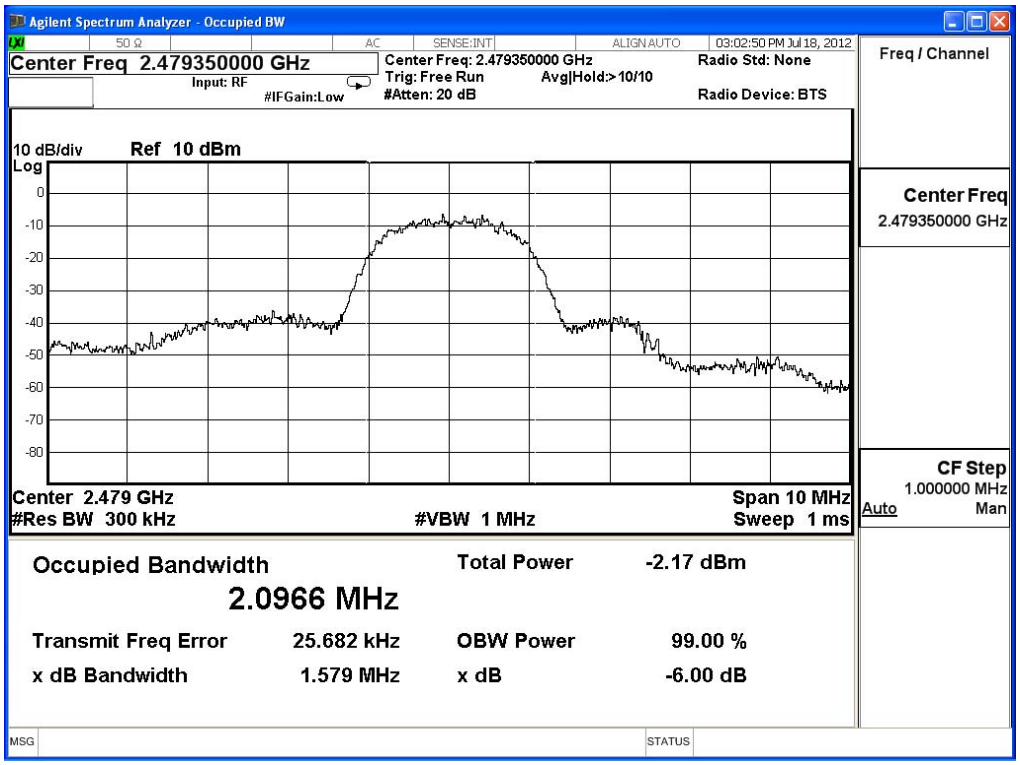
Figure Channel 20:



Product : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2479.35MHz) -

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2479.35	1579	>500	Pass

Figure Channel 39:



8. Power Density

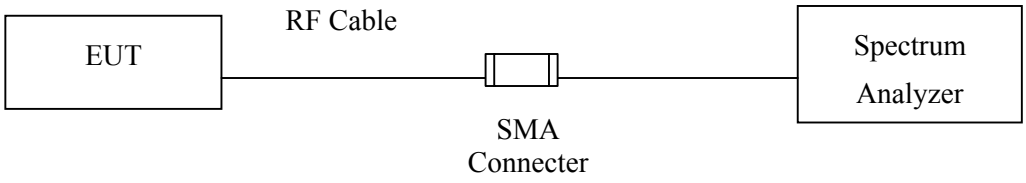
8.1. Test Equipment

	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 every one year.

2. The test instruments marked by "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

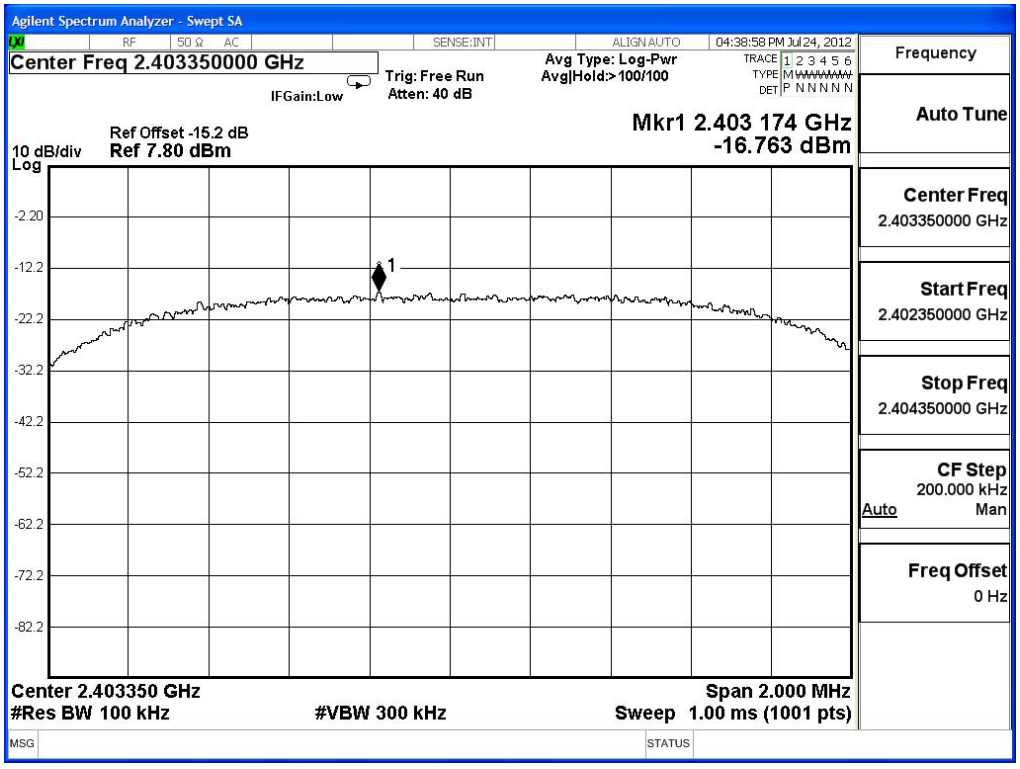
± 1.27 dB

8.6. Test Result of Power Density

Product : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit(2403.35MHz) -

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2403.35	-16.763	< 8dBm	Pass

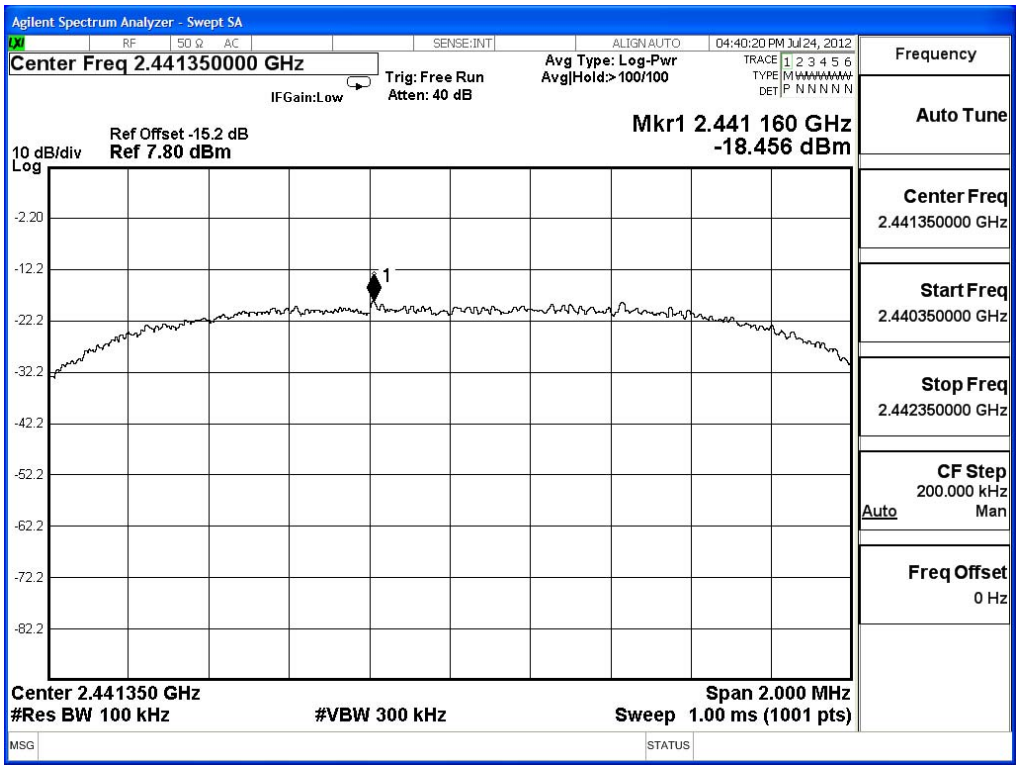
Figure Channel 01:



Product : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Power Density Data
Test Site : No.3OATS
Test Mode : Mode 1: Transmit (2441.35MHz) -

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
20	2441.35	-18.456	< 8dBm	Pass

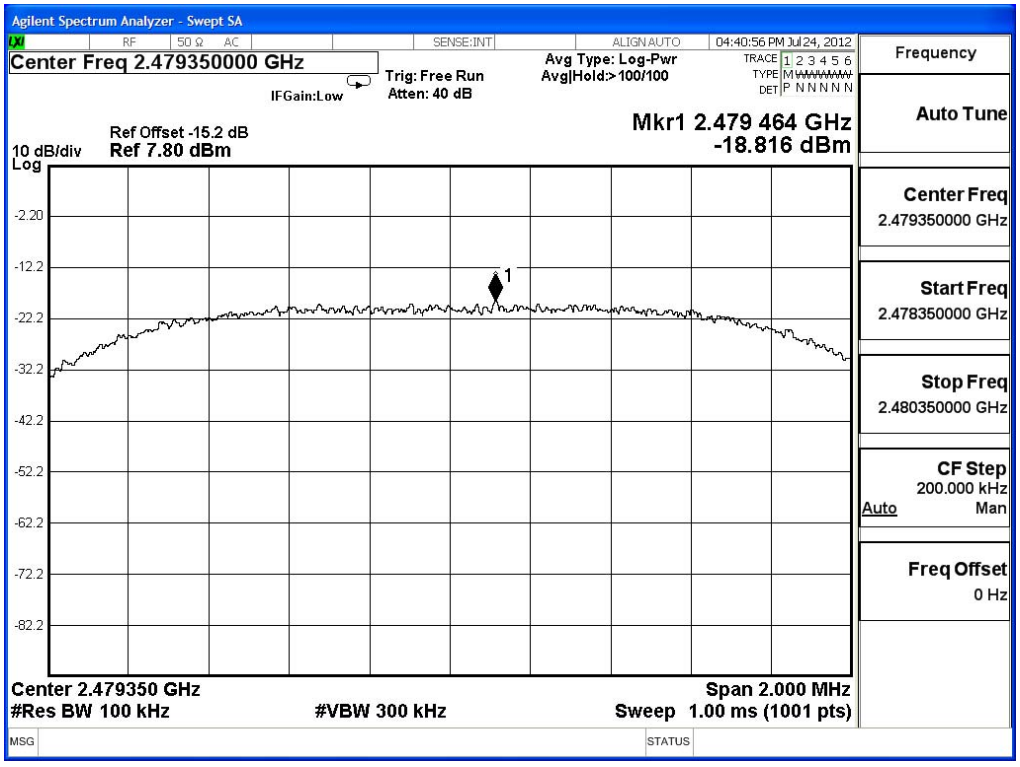
Figure Channel 41:



Product : Afterglow Universal/ XBOX360/ PS3 Wireless Headset
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2479.35MHz) -

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
39	2479.35	-18.816	< 8dBm	Pass

Figure Channel 39



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.