FCC Part15 Subpart B
Test Report

Product Name	:	Wireless Stereo Headphone
Model No.	:	BackBeat PRO
FCC ID	:	AL8-BBP
IC	:	457A-BBP

Applicant	:	Plantronics, Inc.
Address	:	345 Encinal Street, Santa Cruz, CA95060 USA

Date of Receipt	:	Mar. 13, 2014
Test Date	:	Mar. 13, 2014~ Apr. 01, 2014
Issued Date	:	Apr. 25, 2014
Report No.	:	1430276R-RF-US-P01V03
Report Version	:	V 1.1

Test Report Certification

Issued Date : Apr. 25, 2014
Report No. :1430276R-RF-US-P01V03

QuieTek

Product Name	:	Wireless Stereo Headphone
Applicant	:	Plantronics, Inc.
Address	:	345 Encinal Street, Santa Cruz, CA95060 USA
Manufacturer	:	Weifang GoerTek Electronics Co,.Ltd.
Address	:	Weifang Free Trade Zone, Gaoxin 2 Road, High-Tech Industrial Development Zone, Weifang, Shandong Province, 261205, China
Model No.	:	BackBeat PRO
FCC ID	:	AL8-BBP
IC	:	457A-BBP
EUT Voltage	:	DC 3.7V
Brand Name	:	Plantronics
Applicable Standard	:	FCC Part 15 Subpart B: 2012 Class B ANSI C63.4: 2009 ICES-003 Issue 5: 2012 Class B
Test Result	:	Complied
Performed Location	:	Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392; IC Lab Code: 4075B

Documented By	:	Alice Ni
Reviewed By	:	Jamie Yuan
Approved By	:	Jeff Chen

Laboratory Information

We, **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC**
Japan	**:**	**VCCI**
China	**:**	**CNAS**

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/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory :
No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.
TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

LinKou Testing Laboratory :
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

Suzhou Testing Laboratory :
No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., SuZhou, China
TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : service@quietek.com

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1. General Information

1.1. EUT Description

Product Name	Wireless Stereo Headphone
Brand Name	Plantronics
Model No.	BackBeat PRO
Working Voltage	DC 3.7V
Bluetooth Specification	3.0HS + Version 4.0
Frequency Range	2402- 2480 MHz
Channel Number	V3.0+HS: 79 V4.0: 40
Channel Separation	V3.0+HS: 1MHz V4.0: 2MHz
Type of Modulation	V3.0+HS: GFSK, Pi/4 DQPSK, 8DPSK V4.0: GFSK
Data Rate	V3.0+HS: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK) V4.0: 1Mbps(GFSK)
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List
Adapter	Brand Name: Plantronics M/N:SSC-4W5 050075 Input: 100-240V 50/60Hz 0.2A Output: 5.0V, 750mA

Bluetooth Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz	03	2405 MHz
04	2406 MHz	05	2407 MHz	06	2408 MHz	07	2409 MHz
08	2410 MHz	09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz	15	2417 MHz
16	2418 MHz	17	2419 MHz	18	2420 MHz	19	2421 MHz
20	2422 MHz	21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz	27	2429 MHz
28	2430 MHz	29	2431 MHz	30	2432 MHz	31	2433 MHz
32	2434 MHz	33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz	39	2441 MHz
40	2442 MHz	41	2443 MHz	42	2444 MHz	43	2445 MHz
44	2446 MHz	45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz	51	2453 MHz
52	2454 MHz	53	2455 MHz	54	2456 MHz	55	2457 MHz
56	2458 MHz	57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz	63	2465 MHz
64	2466 MHz	65	2467 MHz	66	2468 MHz	67	2469 MHz
68	2470 MHz	69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz	75	2477 MHz
76	2478 MHz	77	2479 MHz	78	2480 MHz	N/A	N/A

Bluetooth Working Frequency of Each Channel: (For V4.0)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	03	2408 MHz
04	2410 MHz	05	2412 MHz	06	2414 MHz	07	2416 MHz
08	2418 MHz	09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	15	2432 MHz
16	2434 MHz	17	2436 MHz	18	2438 MHz	19	2440 MHz
20	2442 MHz	21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	27	2456 MHz
28	2458 MHz	29	2460 MHz	30	2462 MHz	31	2464 MHz
32	2466 MHz	33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	39	2480 MHz

Bluetooth Antenna List

Antenna	Manufacturer	Model No.	Peak Gain
PCB antenna	Goertek	IFA antenna	2.61dBi for 2.4GHz

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Receive by DH5
Mode 2: Receive by 2DH5
Mode 3: Receive by 3DH5
Mode4 : Receive by BLE

Note:

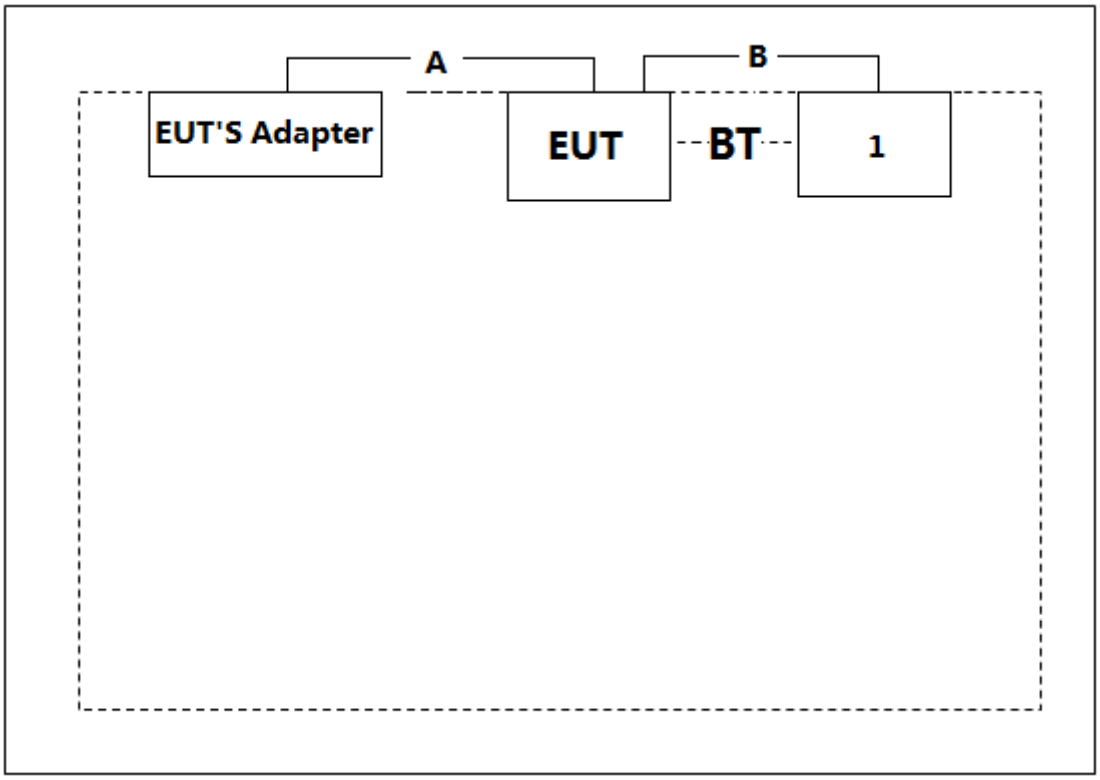
1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.

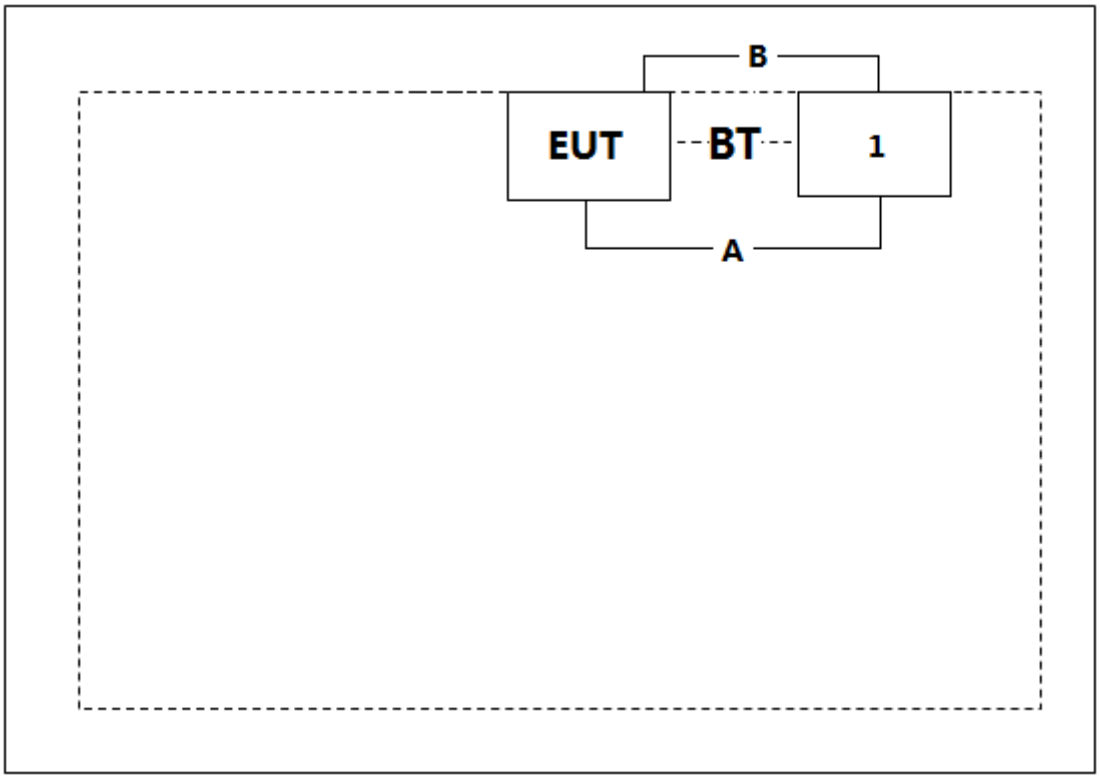
1.3. Tested System Details

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	ThinkPad	ThinkPad X220	N/A	Non-Shielded, 1.8m

1.4. Configuration of Tested System

Connection Diagram (Mode 1 & 3)


Connection Diagram (Mode 2 & 4)


Signal Cable Type	Signal cable Description

A	USB Cable	Shielded, 1.5m
B	Audio Cable	Shielded, 1.5m

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Run the RF test software “Blue Test 3”, and set the test mode and channel, then press OK to start continue receive.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Emission			
Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart B: 2012 Class B ANSI C63.4: 2009	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart B: 2012 Class B ANSI C63.4: 2009	Yes	No

2.2. List of Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No	Cali. Due Date
EMI Test Receiver	R&S	ESCI	100906	2015/01/07
Two-Line V-Network	R&S	ENV216	101043	2014/03/30
Two-Line V-Network	R&S	ENV216	101044	2014/09/16
Impedance Stabilization Network	Teseq GmbH	ISN T800	30306	2015/02/20
Impedance Stabilization Network	Teseq GmbH	ISN T8-Cat6	29680	2015/02/20
Impedance Stabilization Network	Teseq GmbH	ISN ST08	31281	2015/02/20
Current Probe	R&S	EZ-17	100255	2014/03/30
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2015/03/01
50ohm Termination	SHX	TF2	07081401	2014/09/16
50ohm Termination	SHX	TF2	07081402	2014/09/16
50ohm Termination	SHX	TF2	07081403	2014/09/16
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2015/01/08

Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
EMI Test Receiver	R&S	ESCI	100573	2014/03/30
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2014/10/15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2015/03/01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2015/01/08

Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2014/03/30
Preamplifier	Miteq	NSP1800-25	1364185	2014/05/03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2014/05/03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2014/10/15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	737	2014/11/24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2014/11/24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2015/03/01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2015/03/01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2015/03/01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2015/01/08

2.3. Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.26 dB.

Radiated Emission

The measurement uncertainty is evaluated as ± 3.19 dB.

2.4. Test Environment

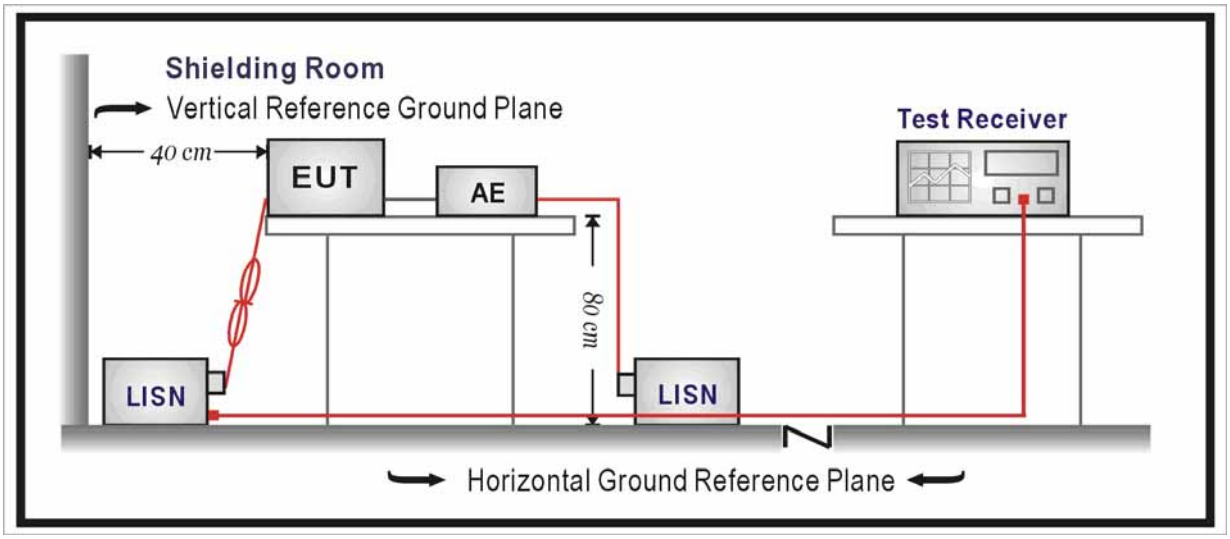
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	47
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	28
	Humidity (%RH)	25-75	46
	Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission

3.1. Test Specification

According to EMC Standard: FCC Part 15 Subpart B Class B, ANSI C63.4

3.2. Test Setup



3.3. Limit

FCC Part 15 Subpart B Paragraph 15.107 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

3.4. Test Procedure

The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the

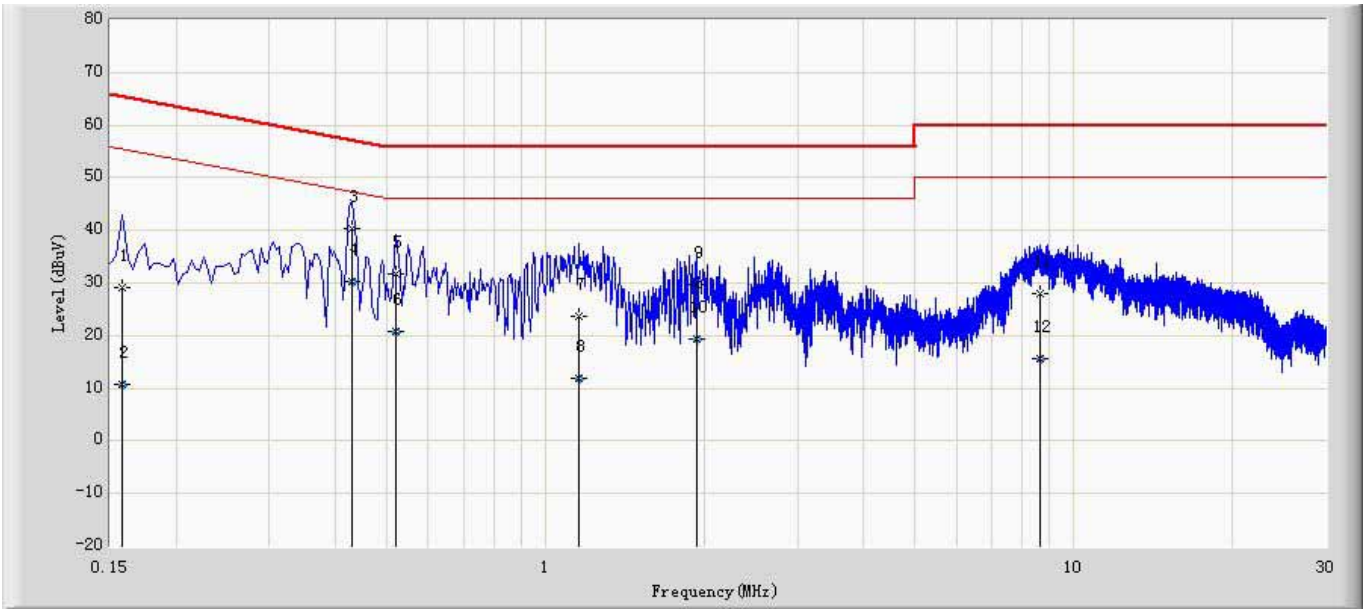
EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Deviation from Test Standard

No deviation.

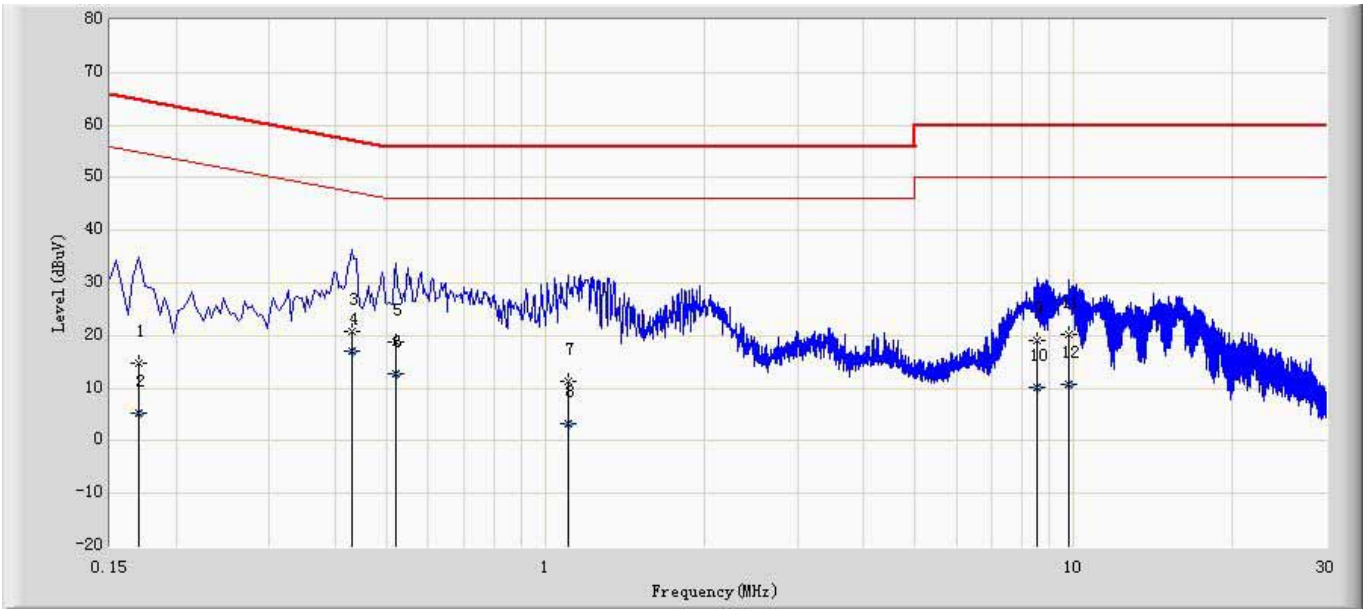
3.6. Test Result

Site: TR1	Time: 2014/03/26 - 17:15
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode1: Charging by Adapter and playing music by BT	



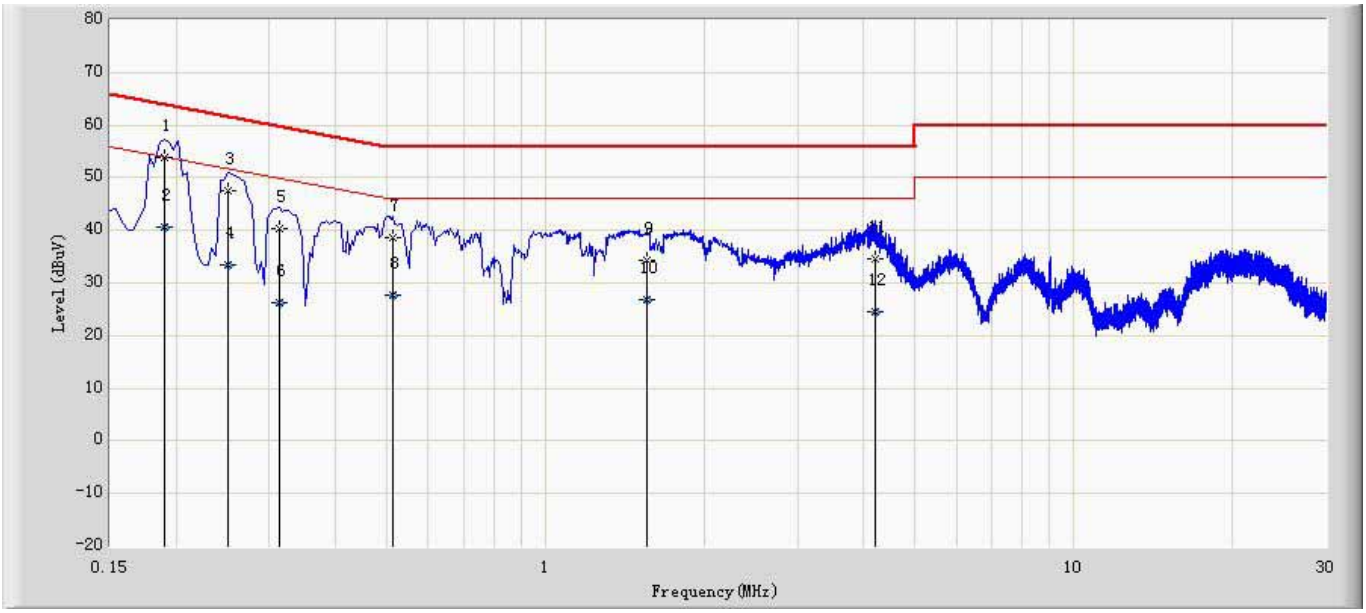
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.158	29.218	19.227	-36.350	65.568	9.991	QP
2		0.158	10.717	0.727	-44.851	55.568	9.991	AV
3		0.430	40.268	30.244	-16.985	57.253	10.025	QP
4	*	0.430	30.336	20.312	-16.917	47.253	10.025	AV
5		0.522	31.746	21.706	-24.254	56.000	10.040	QP
6		0.522	20.800	10.760	-25.200	46.000	10.040	AV
7		1.154	23.803	13.780	-32.197	56.000	10.023	QP
8		1.154	11.975	1.952	-34.025	46.000	10.023	AV
9		1.930	29.725	19.767	-26.275	56.000	9.958	QP
10		1.930	19.482	9.524	-26.518	46.000	9.958	AV
11		8.662	28.073	17.753	-31.927	60.000	10.320	QP
12		8.662	15.622	5.303	-34.378	50.000	10.320	AV

Site: TR1	Time: 2014/03/26 - 17:15
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode1: Charging by Adapter and playing music by BT	



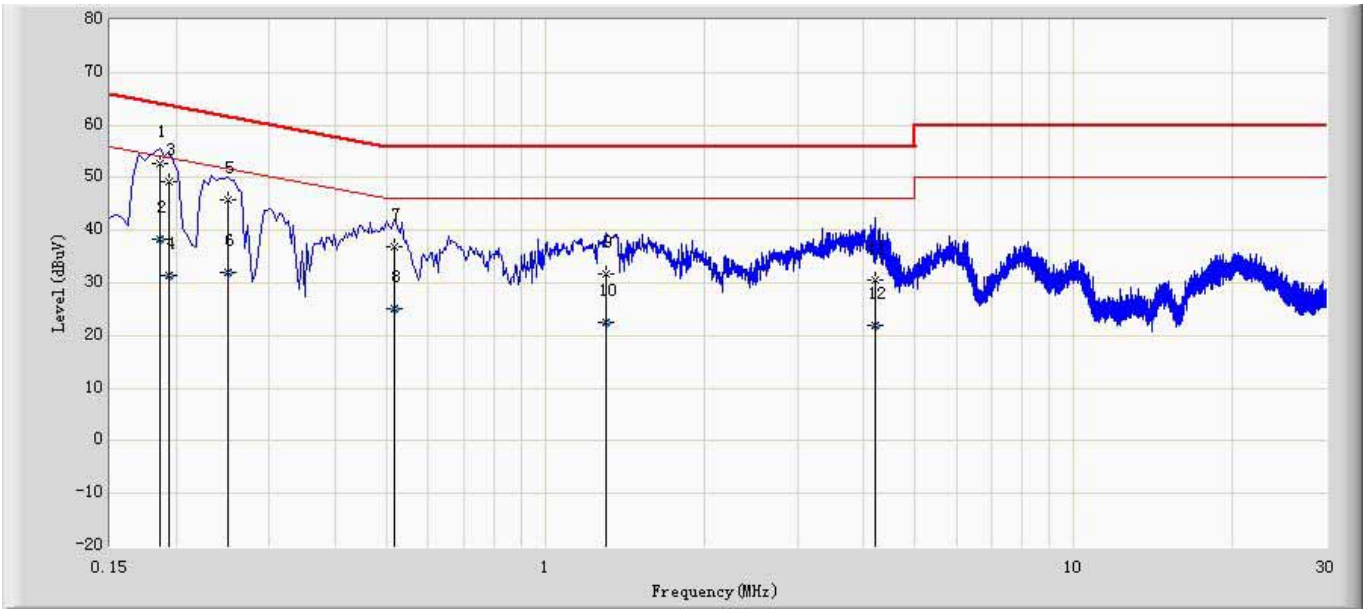
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.170	14.828	4.977	-50.132	64.960	9.851	QP
2		0.170	5.336	-4.515	-49.624	54.960	9.851	AV
3		0.430	20.679	10.778	-36.574	57.253	9.901	QP
4	*	0.430	16.931	7.030	-30.322	47.253	9.901	AV
5		0.522	18.852	8.950	-37.148	56.000	9.902	QP
6		0.522	12.810	2.908	-33.190	46.000	9.902	AV
7		1.102	11.371	1.566	-44.629	56.000	9.806	QP
8		1.102	3.149	-6.657	-42.851	46.000	9.806	AV
9		8.530	19.134	9.174	-40.866	60.000	9.960	QP
10		8.530	10.094	0.134	-39.906	50.000	9.960	AV
11		9.766	20.232	10.242	-39.768	60.000	9.990	QP
12		9.766	10.769	0.779	-39.231	50.000	9.990	AV

Site: TR1	Time: 2014/04/19 - 11:09
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode 2: Charging by PC and playing music by BT	



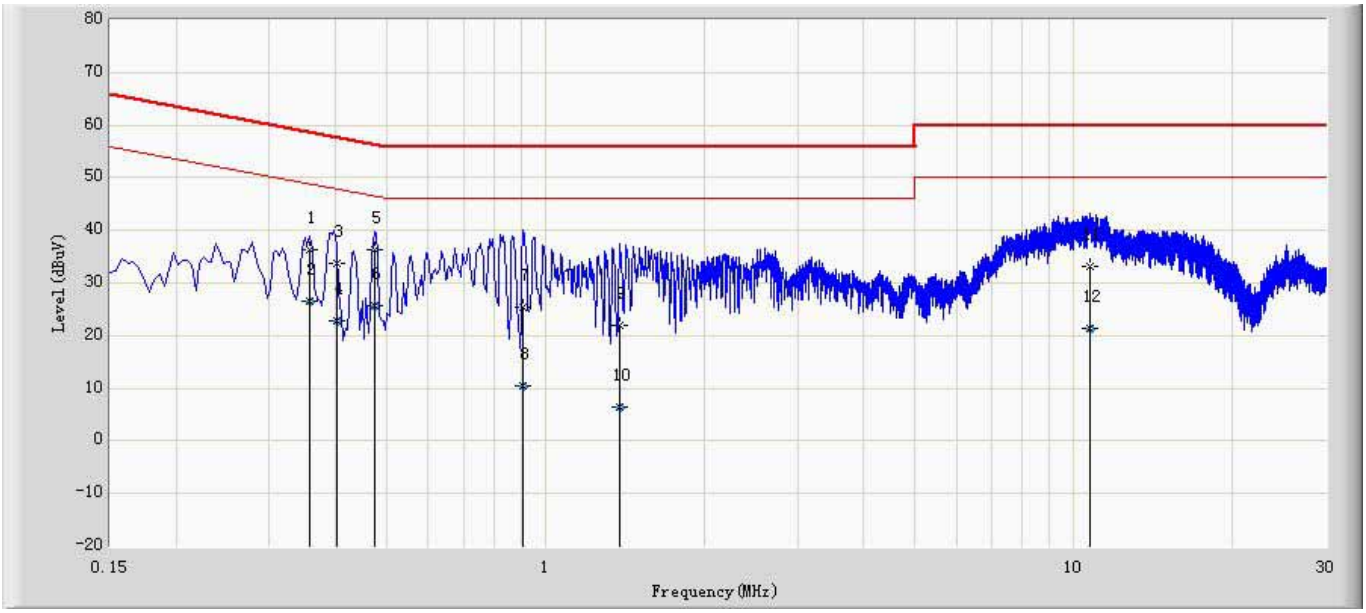
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.190	53.829	43.971	-10.208	64.037	9.858	QP
2		0.190	40.555	30.697	-13.482	54.037	9.858	AV
3		0.250	47.642	37.774	-14.115	61.757	9.867	QP
4		0.250	33.471	23.604	-18.286	51.757	9.867	AV
5		0.314	40.236	30.360	-19.628	59.864	9.876	QP
6		0.314	26.138	16.262	-23.726	49.864	9.876	AV
7		0.514	38.754	28.850	-17.246	56.000	9.904	QP
8		0.514	27.691	17.787	-18.309	46.000	9.904	AV
9		1.558	34.230	24.432	-21.770	56.000	9.797	QP
10		1.558	26.871	17.073	-19.129	46.000	9.797	AV
11		4.206	34.593	24.756	-21.407	56.000	9.837	QP
12		4.206	24.670	14.833	-21.330	46.000	9.837	AV

Site: TR1	Time: 2014/04/19 - 11:09
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode 2: Charging by PC and playing music by BT	



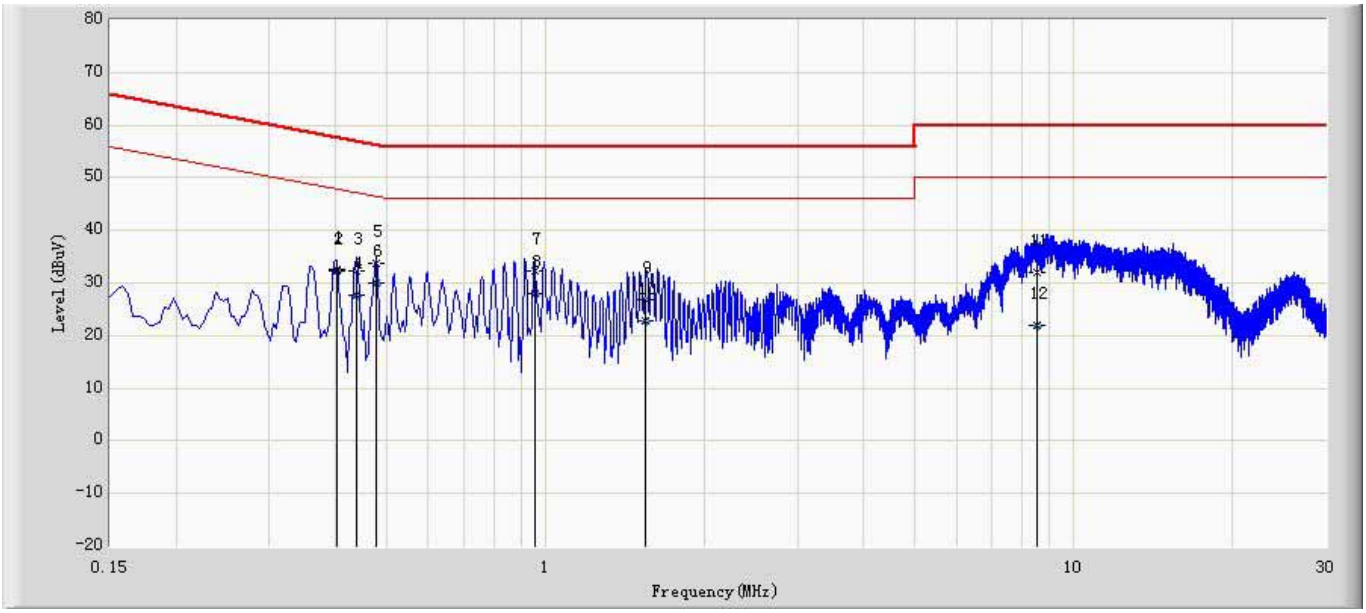
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.186	52.581	42.647	-11.632	64.213	9.934	QP
2		0.186	38.245	28.311	-15.968	54.213	9.934	AV
3		0.194	49.235	39.311	-14.629	63.864	9.924	QP
4		0.194	31.330	21.406	-22.534	53.864	9.924	AV
5		0.250	45.897	35.973	-15.860	61.757	9.925	QP
6		0.250	32.050	22.126	-19.707	51.757	9.925	AV
7		0.518	36.830	26.787	-19.170	56.000	10.043	QP
8		0.518	24.997	14.954	-21.003	46.000	10.043	AV
9		1.306	31.806	21.800	-24.194	56.000	10.006	QP
10		1.306	22.557	12.551	-23.443	46.000	10.006	AV
11		4.202	30.606	20.550	-25.394	56.000	10.056	QP
12		4.202	21.930	11.874	-24.070	46.000	10.056	AV

Site: TR1	Time: 2014/04/29 - 10:48
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode3: Charging by Adapter and playing music by Audio Cable	



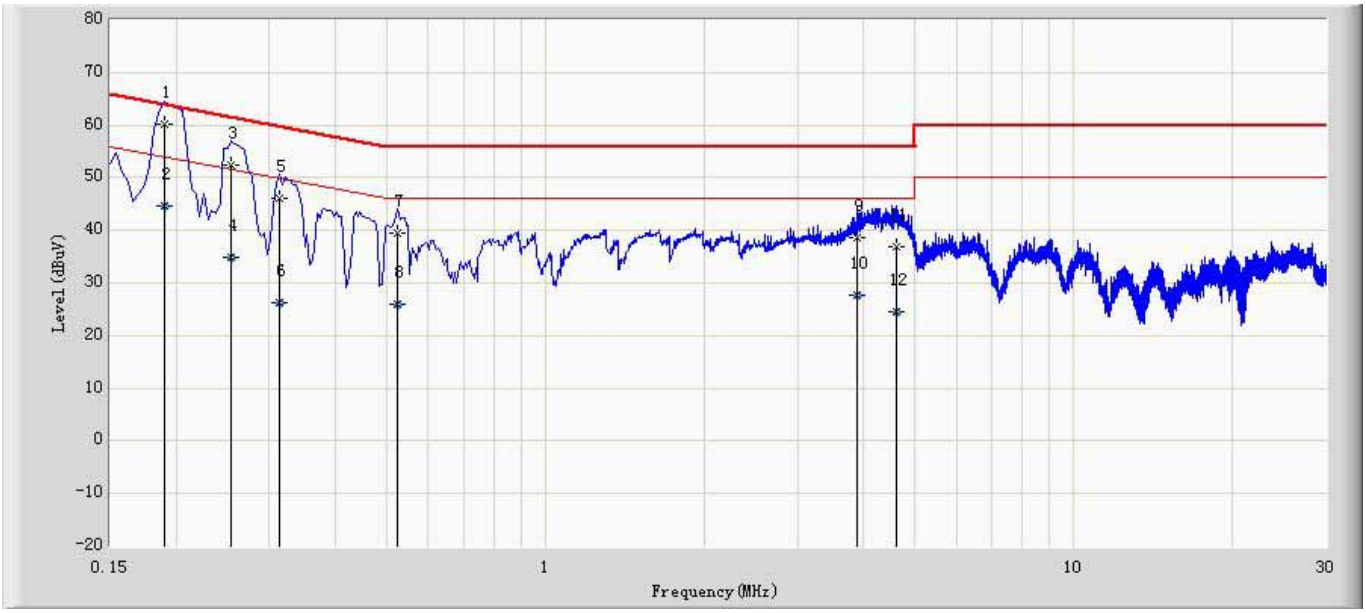
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.358	36.458	26.479	-22.317	58.775	9.979	QP
2		0.358	26.534	16.555	-22.241	48.775	9.979	AV
3		0.402	33.805	23.800	-24.007	57.812	10.006	QP
4		0.402	22.690	12.684	-25.122	47.812	10.006	AV
5	*	0.474	36.462	26.416	-19.982	56.444	10.047	QP
6		0.474	25.778	15.731	-20.666	46.444	10.047	AV
7		0.906	25.401	15.408	-30.599	56.000	9.993	QP
8		0.906	10.425	0.432	-35.575	46.000	9.993	AV
9		1.382	22.054	12.046	-33.946	56.000	10.008	QP
10		1.382	6.300	-3.708	-39.700	46.000	10.008	AV
11		10.706	33.205	22.849	-26.795	60.000	10.356	QP
12		10.706	21.419	11.063	-28.581	50.000	10.356	AV

Site: TR1	Time: 2014/04/29 - 10:48
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode3: Charging by Adapter and playing music by Audio Cable	



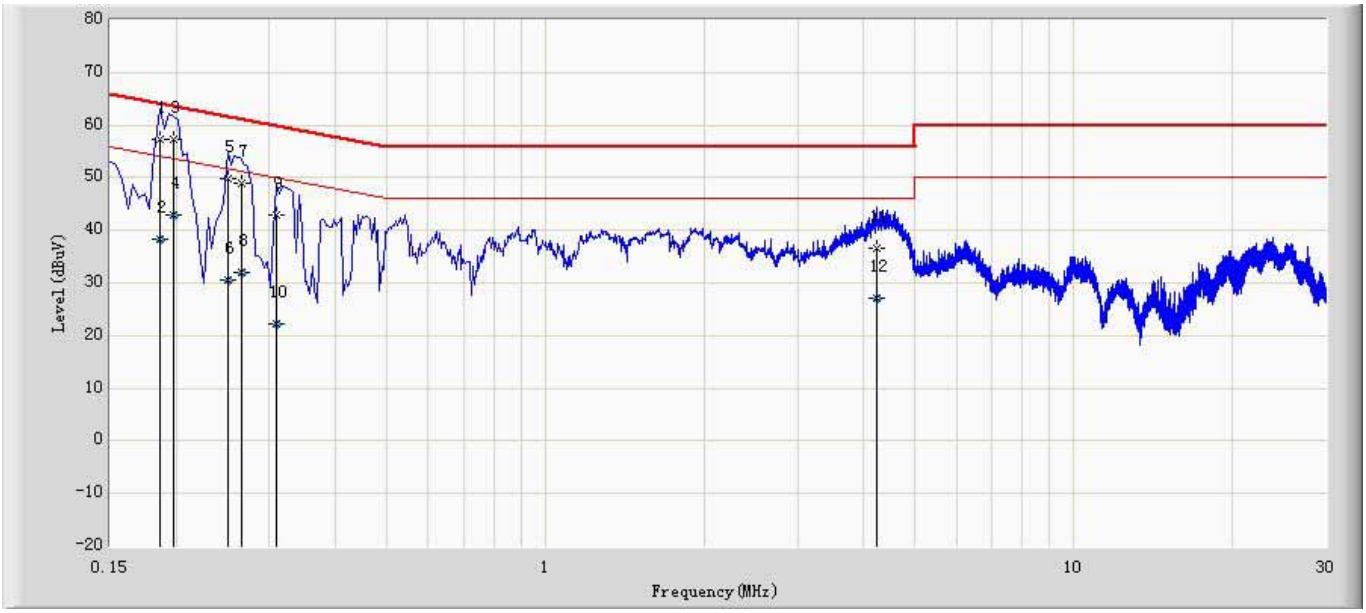
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.402	32.545	22.653	-25.267	57.812	9.891	QP
2	*	0.402	32.172	22.280	-15.640	47.812	9.891	AV
3		0.438	32.259	22.356	-24.841	57.100	9.902	QP
4		0.438	27.590	17.688	-19.510	47.100	9.902	AV
5		0.478	33.722	23.815	-22.652	56.374	9.908	QP
6		0.478	29.990	20.083	-16.384	46.374	9.908	AV
7		0.954	32.248	22.432	-23.752	56.000	9.816	QP
8		0.954	27.895	18.079	-18.105	46.000	9.816	AV
9		1.550	26.955	17.158	-29.045	56.000	9.798	QP
10		1.550	22.919	13.122	-23.081	46.000	9.798	AV
11		8.498	31.929	21.969	-28.071	60.000	9.960	QP
12		8.498	21.886	11.926	-28.114	50.000	9.960	AV

Site: TR1	Time: 2014/04/29 - 10:48
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode4: Charging by PC and playing music by Audio Cable	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.190	60.216	50.290	-3.821	64.037	9.926	QP
2		0.190	44.747	34.820	-9.290	54.037	9.926	AV
3		0.254	52.534	42.607	-9.091	61.625	9.927	QP
4		0.254	34.774	24.847	-16.851	51.625	9.927	AV
5		0.314	45.971	36.015	-13.893	59.864	9.957	QP
6		0.314	26.361	16.405	-23.503	49.864	9.957	AV
7		0.526	39.410	29.373	-16.590	56.000	10.037	QP
8		0.526	25.944	15.908	-20.056	46.000	10.037	AV
9		3.902	38.505	28.459	-17.495	56.000	10.047	QP
10		3.902	27.760	17.713	-18.240	46.000	10.047	AV
11		4.626	36.854	26.775	-19.146	56.000	10.079	QP
12		4.626	24.565	14.486	-21.435	46.000	10.079	AV

Site: TR1	Time: 2014/04/29 - 10:48
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode4: Charging by PC and playing music by Audio Cable	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.186	57.161	47.303	-7.052	64.213	9.857	QP
2		0.186	38.446	28.588	-15.767	54.213	9.857	AV
3	*	0.198	57.237	47.378	-6.457	63.694	9.860	QP
4		0.198	42.846	32.986	-10.848	53.694	9.860	AV
5		0.250	49.932	40.065	-11.825	61.757	9.867	QP
6		0.250	30.587	20.720	-21.170	51.757	9.867	AV
7		0.266	48.896	39.027	-12.346	61.242	9.869	QP
8		0.266	31.944	22.075	-19.298	51.242	9.869	AV
9		0.310	42.825	32.949	-17.145	59.970	9.875	QP
10		0.310	22.177	12.302	-27.793	49.970	9.875	AV
11		4.246	36.722	26.882	-19.278	56.000	9.839	QP
12		4.246	27.157	17.317	-18.843	46.000	9.839	AV

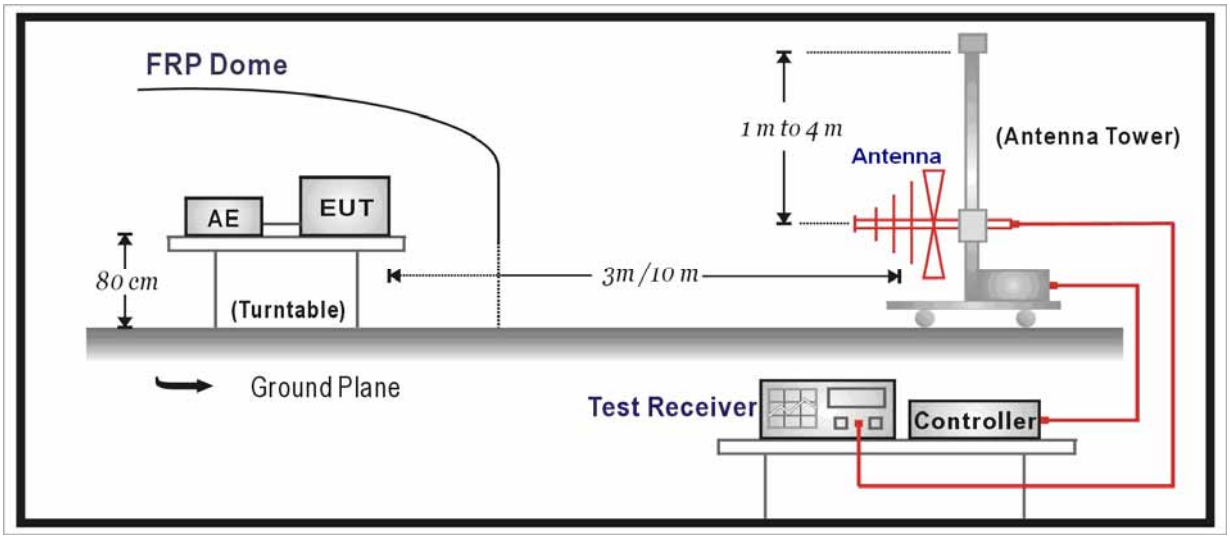
4. Radiated Emission

4.1. Test Specification

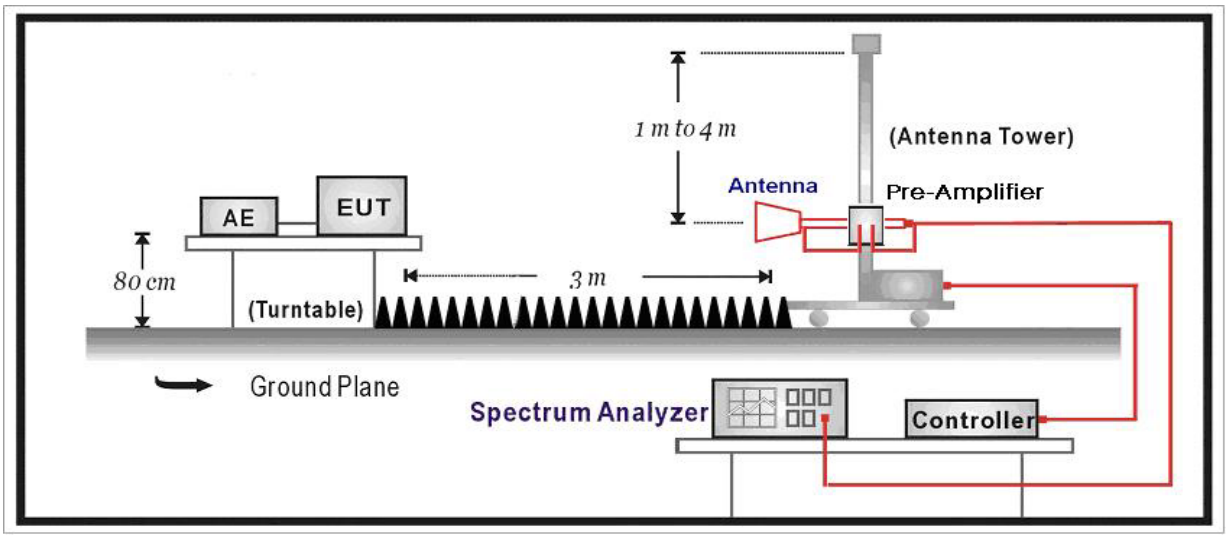
According to EMC Standard: FCC Part 15 Subpart B Class B, ANSI C63.4

4.2. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

FCC Part 15 Subpart B Paragraph 15.109		
Frequency (MHz)	Distance (m)	Level (dBuV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 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 can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.
For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 - 108	1000
108 - 500	2000

500 - 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

On any frequency or frequencies below or equal to 1000 MHz, the radiated limits shown are based on measuring equipment employing a quasi-peak detector function and above 1000 MHz, the radiated limits shown are based measuring equipment employing an average detector function.

When average radiated emission measurement are included emission measurement Above 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

For class A, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and above 1GHz.

For class B, the measurement distance between the EUT and antenna is 3 meters for under 1GHz and 3 meters for above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCI) is 120 kHz and above 1GHz is 1MHz.

Note: When measurement above 1GHz, the horn antenna will bend down a little (as horn antenna have the narrow beamwidth) in order to find the maximum emission of EUT.

4.5. Deviation from Test Standard

No deviation.

4.6. Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Measure Level = Reading Level + Cable Loss + Antenna Factor - Preamplifier Gain

Mode 1: Receive-1Mbps (GFSK_DH5)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
00	H	2394.0	39.7	0.7	40.4	54(Note)	-13.6	PK
	V	2496.0	39.6	0.6	40.2	54(Note)	-13.8	PK
	H	3584.0	38.2	3.1	41.2	54(Note)	-12.8	PK
	V	3346.0	37.1	2.7	39.8	54(Note)	-14.2	PK
39	H	2445.0	39.5	1.2	40.7	54(Note)	-13.3	PK
	V	2309.0	40.3	-0.4	39.9	54(Note)	-14.1	PK
	H	3380.0	38.6	2.7	41.4	54(Note)	-12.6	PK
	V	3363.0	38.5	2.8	41.3	54(Note)	-12.7	PK
78	H	2479.0	39.9	1.5	41.4	54(Note)	-12.6	PK
	V	2462.0	41.2	0.4	41.7	54(Note)	-12.3	PK
	H	3176.0	39.4	2.4	41.8	54(Note)	-12.2	PK
	V	3584.0	38.6	3.2	41.8	54(Note)	-12.2	PK

Note: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Mode 2: Receive-2Mbps (Pi/4 DQPSK_DH5)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
00	H	2462.0	40.0	1.4	41.4	54(Note)	-12.6	PK
	V	2020.0	39.7	-0.9	38.9	54(Note)	-15.1	PK
	H	3159.0	38.7	2.4	41.1	54(Note)	-12.9	PK
	V	3091.0	39.8	1.9	41.6	54(Note)	-12.4	PK
39	H	1782.0	40.1	-1.1	39.0	54(Note)	-15.0	PK
	V	1986.0	40.1	-1.0	39.0	54(Note)	-15.0	PK
	H	3380.0	38.5	2.7	41.3	54(Note)	-12.7	PK
	V	2785.0	39.9	1.4	41.3	54(Note)	-12.7	PK
78	H	1697.0	41.1	-1.9	39.2	54(Note)	-14.8	PK
	V	2530.0	39.0	0.8	39.8	54(Note)	-14.2	PK
	H	2496.0	39.8	1.7	41.5	54(Note)	-12.5	PK
	V	3363.0	38.0	2.8	40.7	54(Note)	-13.3	PK

Note: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn’t be performed.

Mode 3: Receive-3Mbps (8DPSK_DH5)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
00	H	2853.0	39.8	1.2	41.0	54(Note)	-13.0	PK
	V	2785.0	39.0	1.4	40.4	54(Note)	-13.6	PK
	H	3363.0	39.1	2.7	41.9	54(Note)	-12.1	PK
	V	3584.0	37.4	3.2	40.6	54(Note)	-13.4	PK
39	H	2479.0	39.2	1.5	40.7	54(Note)	-13.3	PK
	V	2496.0	39.7	0.6	40.3	54(Note)	-13.7	PK
	H	3397.0	38.7	2.8	41.4	54(Note)	-12.6	PK
	V	3278.0	38.7	2.5	41.2	54(Note)	-12.8	PK
78	H	2360.0	40.4	0.4	40.8	54(Note)	-13.2	PK
	V	2377.0	40.1	-0.1	40.0	54(Note)	-14.0	PK
	H	3125.0	38.8	2.3	41.1	54(Note)	-12.9	PK
	V	3040.0	39.1	1.7	40.9	54(Note)	-13.1	PK

Note: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn’t be performed.

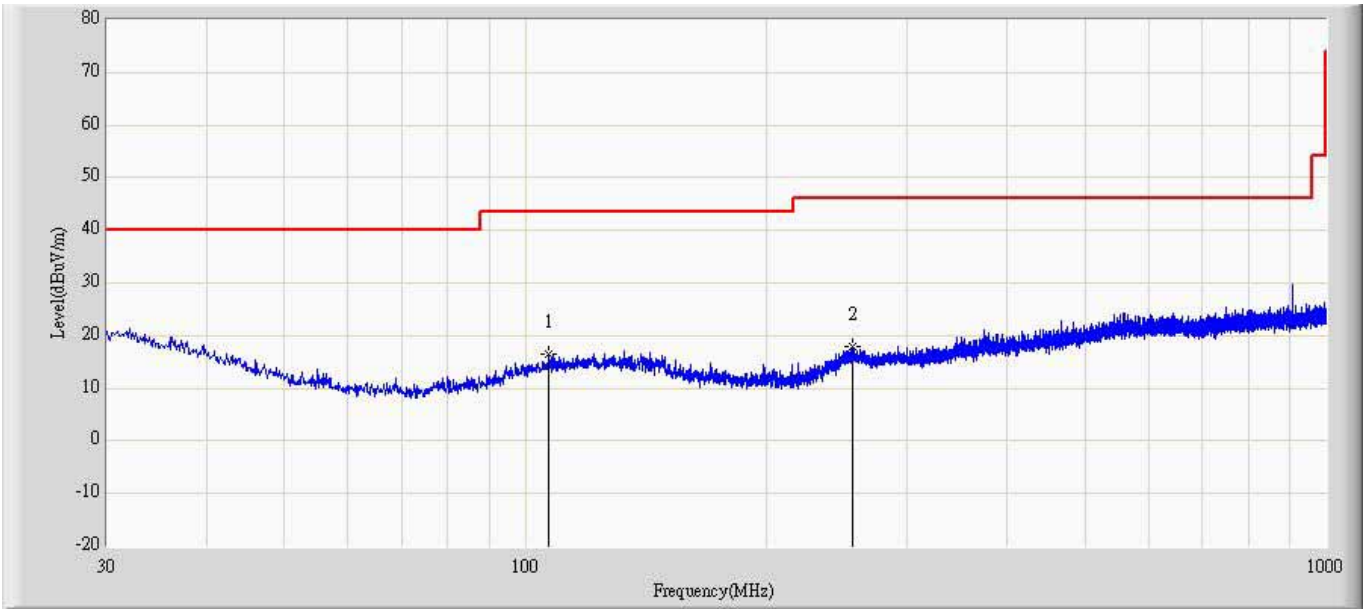
Mode 4: Receive-1Mbps (GFSK)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
00	H	2445.0	39.3	1.2	40.5	54(Note)	-13.5	PK
	V	2326.0	40.7	-0.3	40.4	54(Note)	-13.6	PK
	H	2904.0	39.9	1.5	41.4	54(Note)	-12.6	PK
	V	3363.0	38.8	2.8	41.6	54(Note)	-12.4	PK
39	H	2496.0	39.6	1.7	41.3	54(Note)	-12.7	PK
	V	2462.0	39.0	0.4	39.5	54(Note)	-14.5	PK
	H	3278.0	39.2	2.7	41.8	54(Note)	-12.2	PK
	V	3465.0	38.0	3.0	41.0	54(Note)	-13.0	PK
78	H	2513.0	39.1	1.7	40.8	54(Note)	-13.2	PK
	V	2020.0	44.6	-0.9	43.7	54(Note)	-10.3	PK
	H	3091.0	39.2	2.2	41.4	54(Note)	-12.6	PK
	V	2683.0	39.5	1.2	40.7	54(Note)	-13.3	PK

Note: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

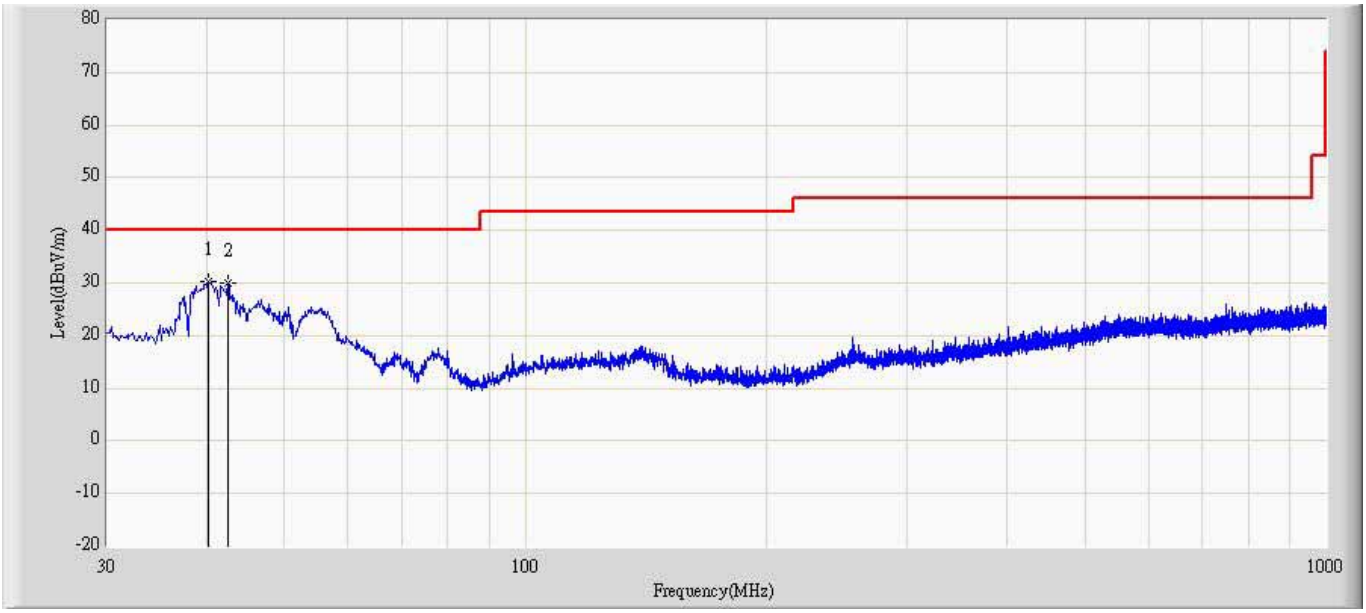
The worst case of Radiated Emission below 1GHz:

Site: AC2	Time: 2014/03/17 - 17:29
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27611(30-2000MHz)	Polarity: Horizontal
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode1: Receive at channel 2402MHz by DH5	



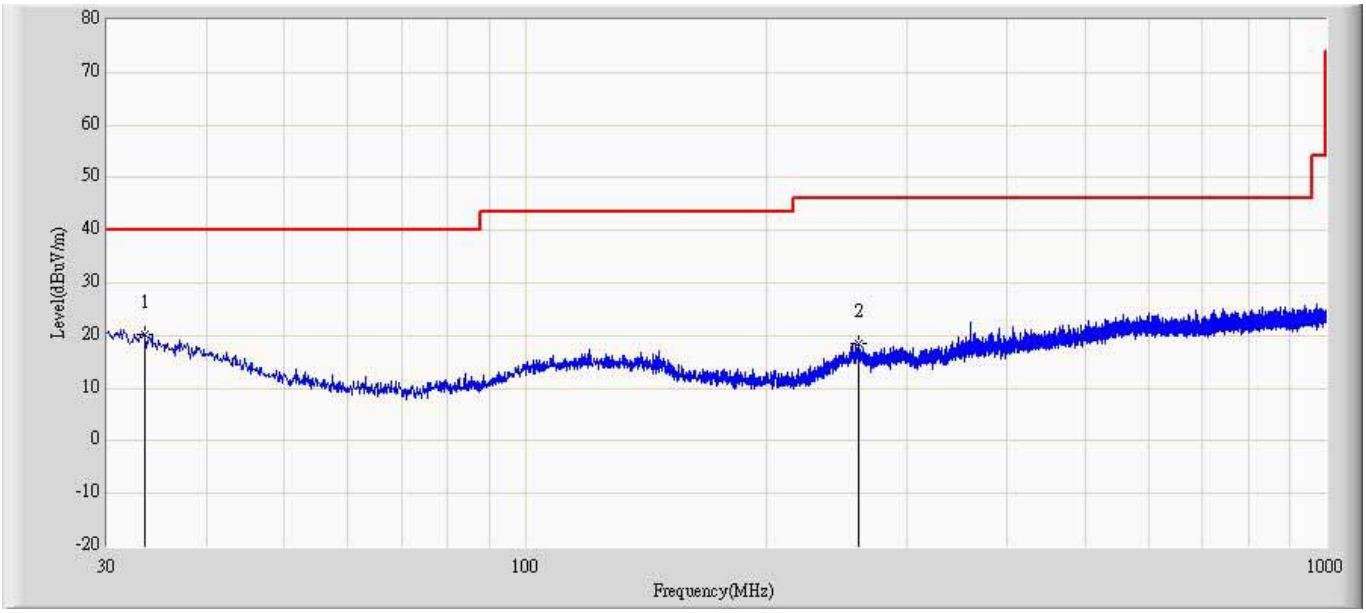
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	106.994	16.588	4.308	-26.912	43.500	12.280	QP
2		256.010	17.970	3.739	-28.030	46.000	14.231	QP

Site: AC2	Time: 2014/03/17 - 17:30
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27611(30-2000MHz)	Polarity: Vertical
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode1: Receive at channel 2402MHz by DH5	



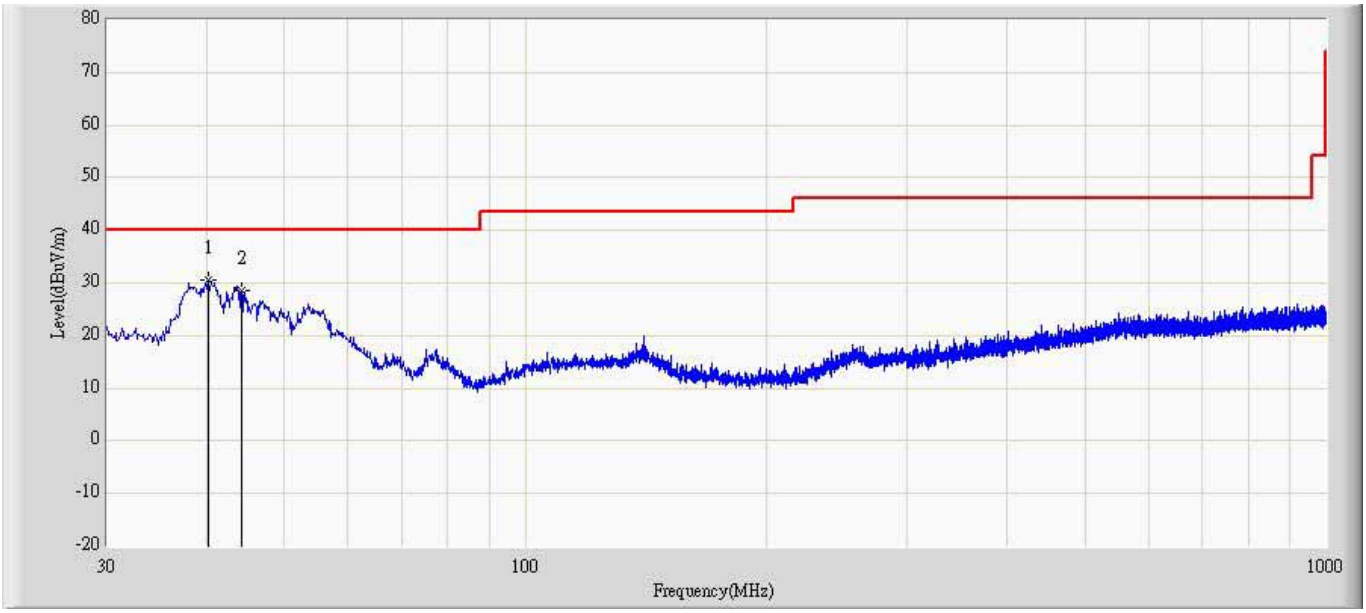
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	40.185	30.342	16.599	-9.658	40.000	13.743	QP
2		42.489	29.998	17.393	-10.002	40.000	12.605	QP

Site: AC2	Time: 2014/03/17 - 17:31
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27611(30-2000MHz)	Polarity: Horizontal
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode4: Receive at channel 2402MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	33.516	20.307	3.904	-19.693	40.000	16.403	QP
2		260.375	18.615	4.132	-27.385	46.000	14.483	QP

Site: AC2	Time: 2014/03/17 - 17:32
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27611(30-2000MHz)	Polarity: Vertical
EUT: Wireless Stereo Headphone	Power: AC 120V/60Hz
Note: Mode4: Receive at channel 2402MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	40.185	30.524	16.781	-9.476	40.000	13.743	QP
2		44.186	28.660	16.894	-11.340	40.000	11.766	QP

The End