



Test Report

Product Name : 2-in-1 Bluetooth/USB Peripheral Corded
headset

Model No. : Blackwire C710 and Blackwire C720

Applicant : Plantronics, Inc.

Address : 345 Encinal Street, Santa Cruz, CA95060 USA

Date of Receipt : 2012/05/07

Issued Date : 2012/05/28

Report No. : 125163R-ITUSP01V02

Report Version : V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification


Issued Date : 2012/05/28


Report No. : 125163R-ITUSP01V02



Product Name : 2-in-1 Bluetooth/USB Peripheral Corded headset
Applicant : Plantronics, Inc.
Address : 345 Encinal Street, Santa Cruz, CA95060 USA
Manufacturer : Weifang GoerTek Electronics Co., Ltd
Address : Dongfang North Road Hi-tech Industry Development
District, Weifang Shandong, China
Model No. : Blackwire C710 and Blackwire C720
Brand Name : PLANTRONICS
EUT Voltage : DC 3.7V
Applicable Standard : FCC CFR Title 47 Part 15 Subpart B: 2011 Class B
ANSI C63.4: 2009
Test Result : Complied
Performed Location : Quietek Corporation (Linkou Laboratory)
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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, NVLAP
Japan	:	VCCI

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/emc/accreditations/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:

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1. General Information**1.1. EUT Description**

Product Name	2-in-1 Bluetooth/USB Peripheral Corded headset
Trade Name	PLANTRONICS
Model No.	Blackwire C710 and Blackwire C720

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:

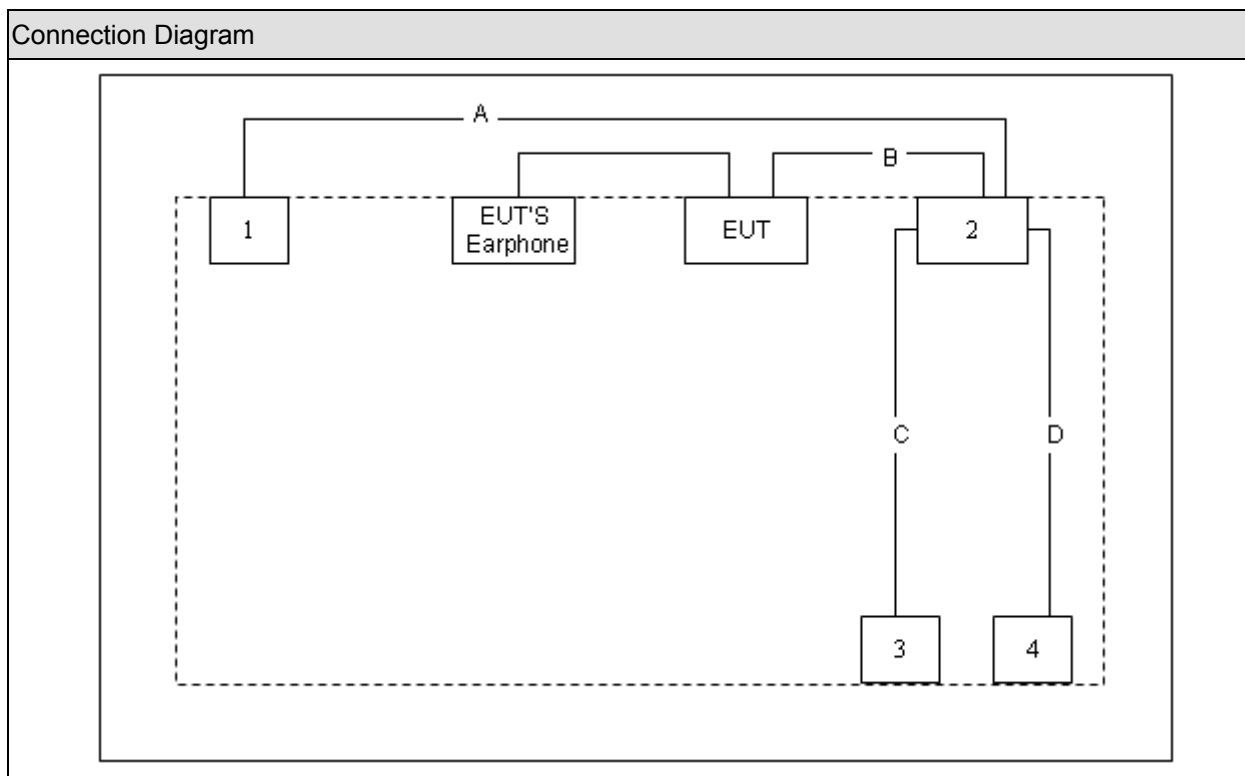
Pre Test Mode (Blackwire C710 and Blackwire C720)
Mode 1: Normal Operation
Final Test Mode (Blackwire C720)
Mode 1: Normal Operation

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 LCD Monitor	DELL	U2410f	CN-OJ257M-72872-99E-1KJL	Non-Shielded, 1.8m
2 Laptop PC	Asus	N80V	8BN0AS226971468	Non-Shielded, 1.8m
3 iPod	Apple	A1199	6U715YGEVQ5	Power by PC
4 USB Mouse	DELL	MOC5UO	10D00JL	Power by PC

1.4. Configuration of Tested System



Signal Cable Type		Signal cable Description
A	VGA Cable	Shielded, 1.8m, with two ferrite core bonded
B	USB Cable	Shielded, 1.2m
C	USB Cable	Shielded, 1.8m
D	USB Cable	Shielded, 1.8m

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Make the EUT playing music by PC, then start to test.

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: 2011 Class B ANSI C63.4: 2009	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart B: 2011 Class B ANSI C63.4: 2009	Yes	No

2.2. List of Test Equipment

Conducted Emission / SR8

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCS 30	838251/001	2011/06/02
LISN	R&S	ESH3-Z5	836679/020	2012/04/07
LISN	R&S	ENV216	100097	2012/04/07
Pulse Limiter	R&S	ESH3-Z2	357.8810.52	2011/09/23

Radiated Emission / CB7

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	Agilent	E4440A	MY46185846	2011/12/12
Bilog Antenna	Schaffner Chase	CBL6112B	2918	2011/07/28
EMI Test Receiver	R&S	ESCS 30	100121	2011/12/06
Pre-Amplifier	QTK	N/A	N/A	2011/07/07
CXA Signal Analyzer	Agilent	N9000A	MY50510072	2012/02/10
Horn Antenna	Schwarzbeck	9120D	576	2011/11/14
Pre-Amplifier	Quietek	AP-180C	CHM/071920	2011/07/12

2.3. Measurement Uncertainty

Conducted Emission
The maximum measurement uncertainty is evaluated as $\pm 2.26\text{dB}$.
Radiated Emission
The maximum measurement uncertainty is evaluated as $\pm 3.19\text{dB}$.

2.4. Test Environment

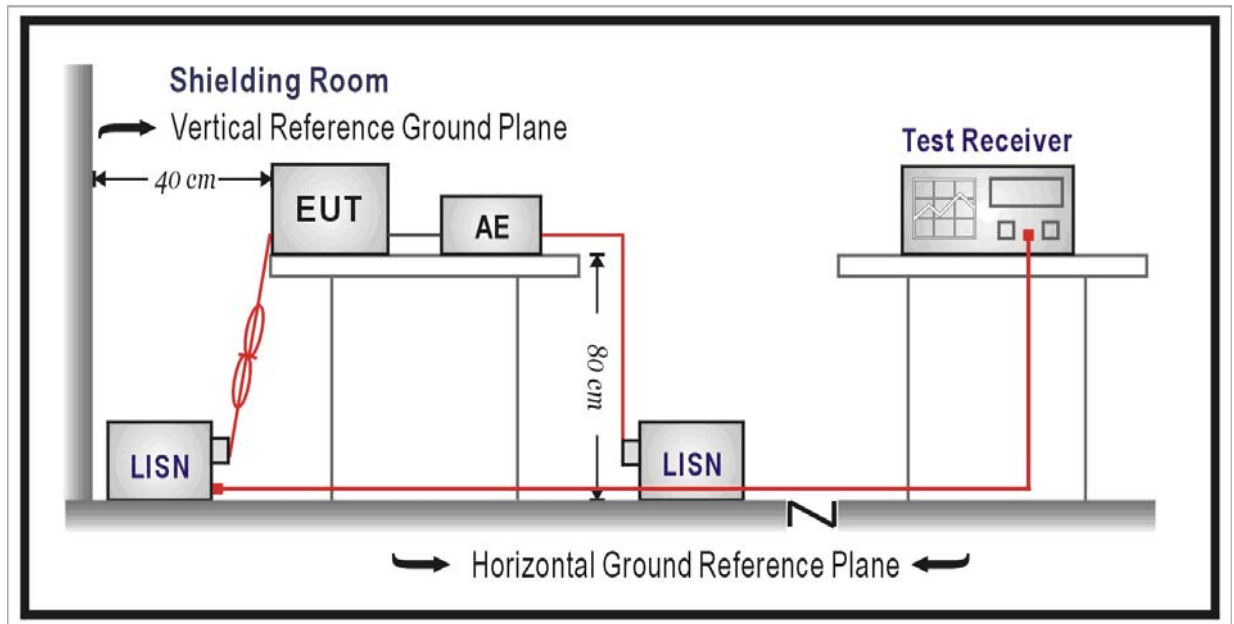
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	24
	Humidity (%RH)	25-75	45
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	44
	Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission

3.1. Test Specification

According to EMC Standard: FCC Part 15.107 Class B and ANSI C63.4

3.2. Test Setup



3.3. Limit

Limits for Conducted Emission		
Frequency range MHz	Limits dB(μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

NOTE: Decreases with the logarithm of the frequency.

3.4. 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 50Ω / 50μH coupling impedance for the

measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50Ω / $50\mu\text{H}$ coupling impedance with 50Ω 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 on conducted measurement.

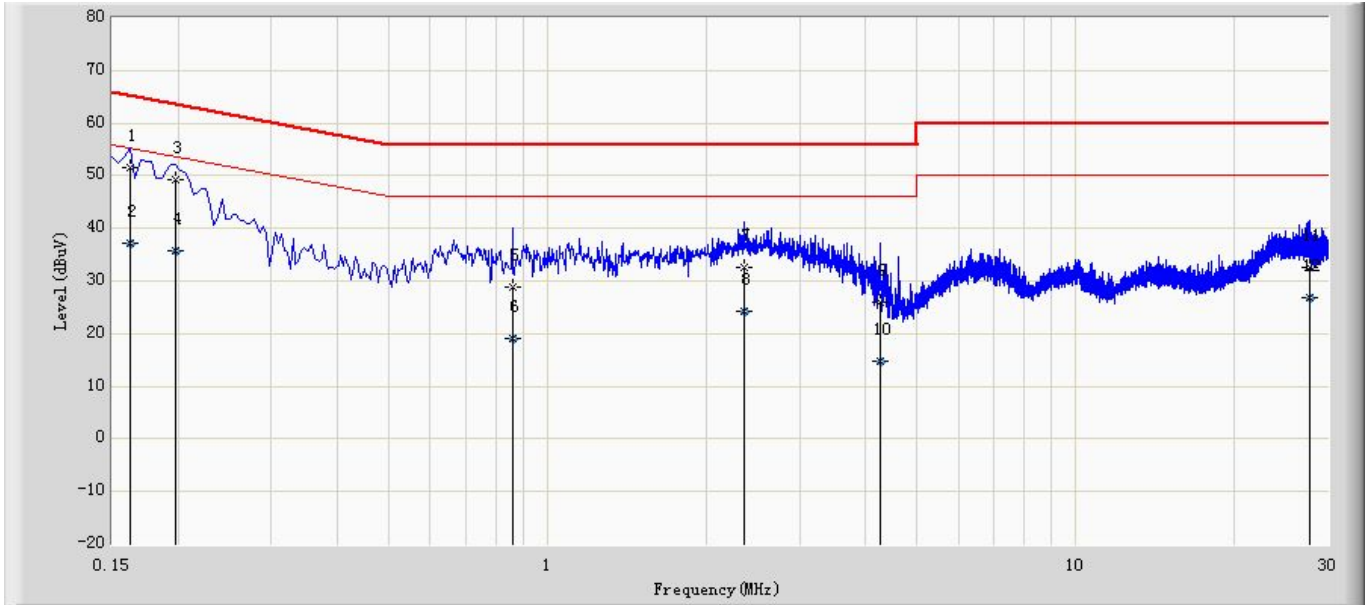
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Deviation from Test Standard

No deviation.

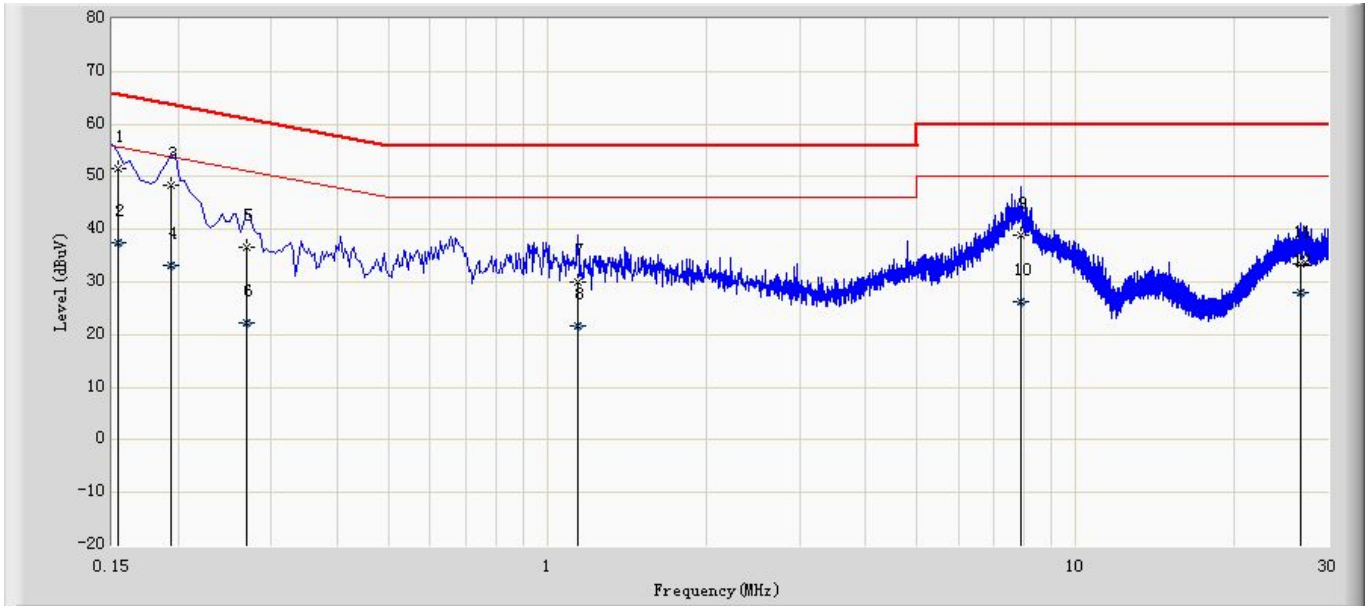
3.6. Test Result

Engineer: Toms	
Site: SR8	Time: 2012/05/15 - 20:06
Limit: FCC_Part15.107_CE_AC Power	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: 2-in-1 Bluetooth/USB Peripheral Corded headset	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.162	51.630	41.784	-13.730	65.361	9.847	QP
2		0.162	37.208	27.362	-18.152	55.361	9.847	AV
3		0.198	49.239	39.379	-14.455	63.694	9.860	QP
4		0.198	35.776	25.917	-17.918	53.694	9.860	AV
5		0.858	28.927	19.108	-27.073	56.000	9.819	QP
6		0.858	18.949	9.130	-27.051	46.000	9.819	AV
7		2.350	32.444	22.643	-23.556	56.000	9.801	QP
8		2.350	24.252	14.451	-21.748	46.000	9.801	AV
9		4.262	26.051	16.206	-29.949	56.000	9.846	QP
10		4.262	14.731	4.885	-31.269	46.000	9.846	AV
11		27.678	32.607	22.018	-27.393	60.000	10.588	QP
12		27.678	26.699	16.111	-23.301	50.000	10.588	AV

Engineer: Toms	
Site: SR8	Time: 2012/05/15 - 20:12
Limit: FCC_Part15.107_CE_AC Power	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: 2-in-1 Bluetooth/USB Peripheral Corded headset	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.154	51.488	41.641	-14.294	65.781	9.846	QP
2		0.154	37.475	27.628	-18.307	55.781	9.846	AV
3		0.194	48.486	38.628	-15.377	63.864	9.859	QP
4		0.194	33.153	23.294	-20.711	53.864	9.859	AV
5		0.270	36.507	26.638	-24.611	61.118	9.870	QP
6		0.270	22.374	12.504	-28.744	51.118	9.870	AV
7		1.142	29.876	20.072	-26.124	56.000	9.804	QP
8		1.142	21.652	11.848	-24.348	46.000	9.804	AV
9		7.854	39.028	29.078	-20.972	60.000	9.950	QP
10		7.854	26.203	16.253	-23.797	50.000	9.950	AV
11		26.726	33.431	22.855	-26.569	60.000	10.576	QP
12		26.726	27.970	17.394	-22.030	50.000	10.576	AV

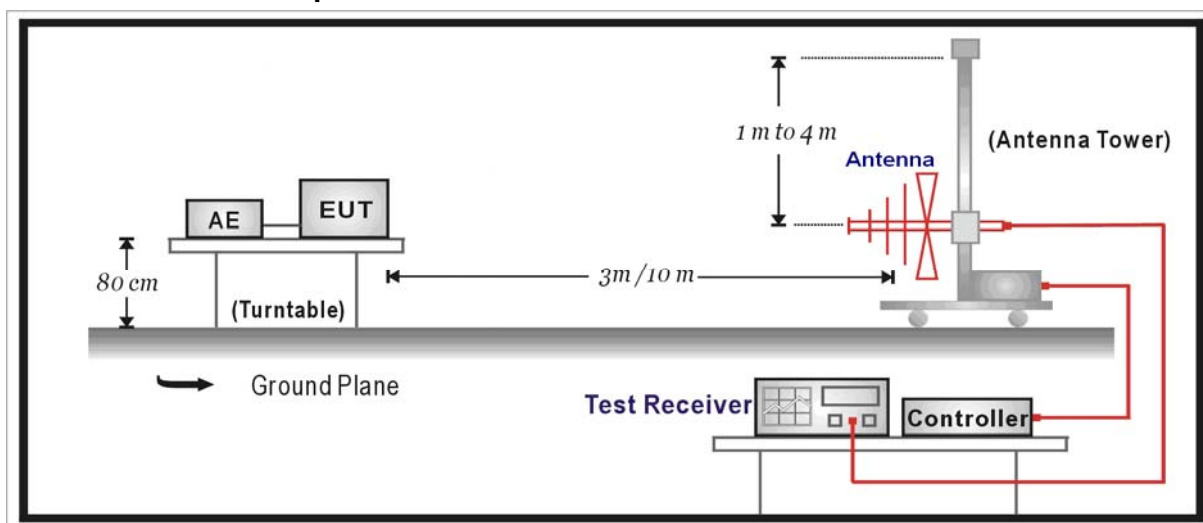
4. Radiated Emission

4.1. Test Specification

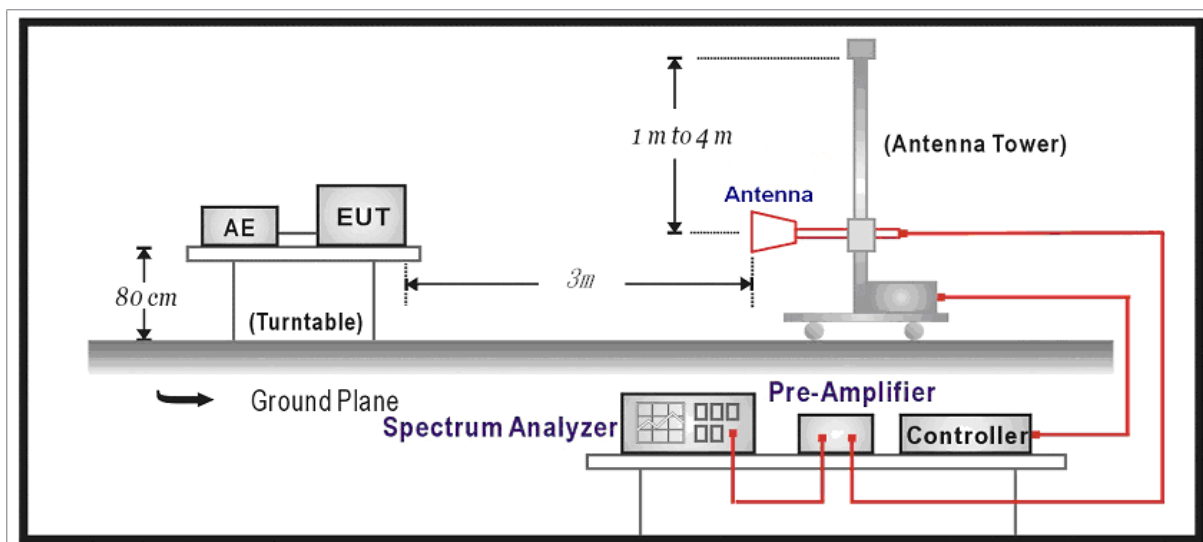
According to EMC Standard: FCC Part 15.109 Class B and ANSI C63.4

4.2. Test Setup

Below 1GHz Test Setup



Above 1GHz Test Setup



4.3. Limit

Limits for Radiated Emission at a measuring distance of 3m	
Frequency of Emission (MHz)	Field Strength dB(μV/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960	54

NOTE: The lower limit shall apply at the transition frequency.

4.4. Test Procedure

The EUT and its simulators are placed on a turntable which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. 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 changed during radiated measurement.

The bandwidth below 1GHz setting on the receiver is 120kHz and above 1GHz is 1MHz.

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 to 108	1000
108 to 500	2000
500 to 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40GHz, whichever is lower

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

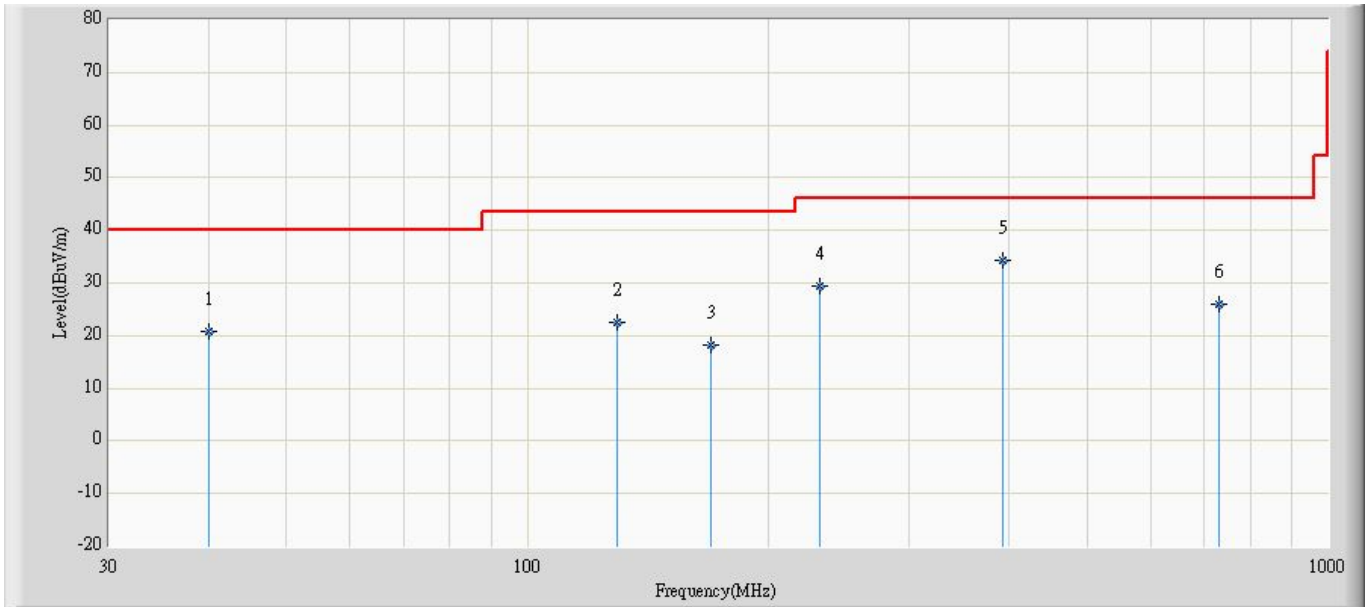
When average radiated emission measurement are included emission measurement Above 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

4.5. Deviation from Test Standard

No deviation.

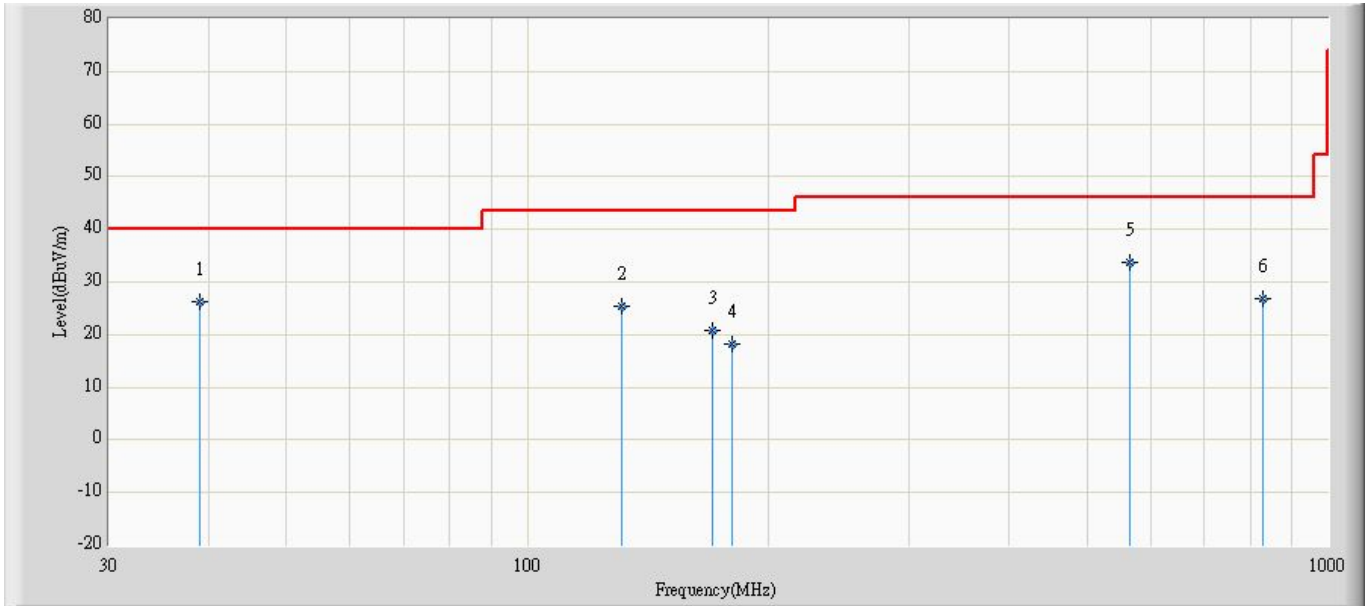
4.6. Test Result

Engineer: Toms	
Site: CB7	Time: 2012/05/21 - 10:28
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27611(30-1000MHz)	Polarity: Horizontal
EUT: 2-in-1 Bluetooth/USB Peripheral Corded headset	Power: AC 120V/60Hz
Note: Mode1: Normal Operation	



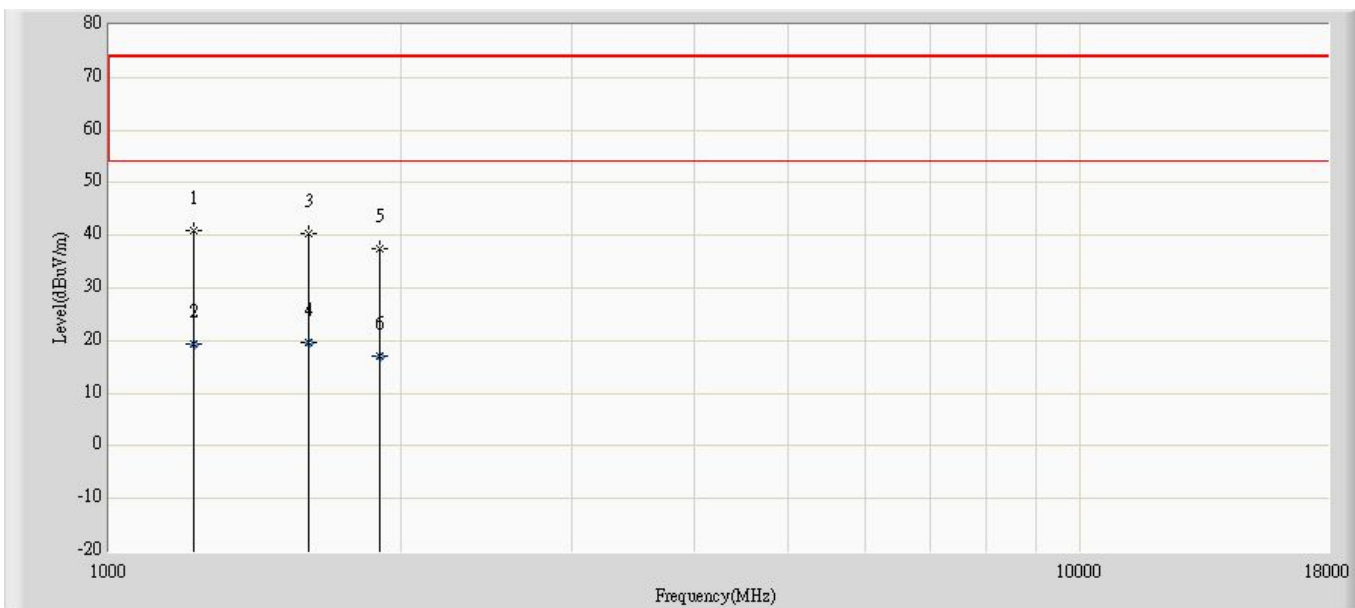
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		39.894	20.759	2.134	-19.241	40.000	18.625	QP
2		129.557	22.430	3.918	-21.070	43.500	18.512	QP
3		169.274	18.082	1.853	-25.418	43.500	16.228	QP
4		232.325	29.382	12.198	-16.618	46.000	17.184	QP
5	*	393.216	34.242	10.904	-11.758	46.000	23.338	QP
6		731.010	26.099	-2.248	-19.901	46.000	28.347	QP

Engineer: Toms	
Site: CB7	Time: 2012/05/21 - 10:28
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27611(30-1000MHz)	Polarity: Vertical
EUT: 2-in-1 Bluetooth/USB Peripheral Corded headset	Power: AC 120V/60Hz
Note: Mode1: Normal Operation	



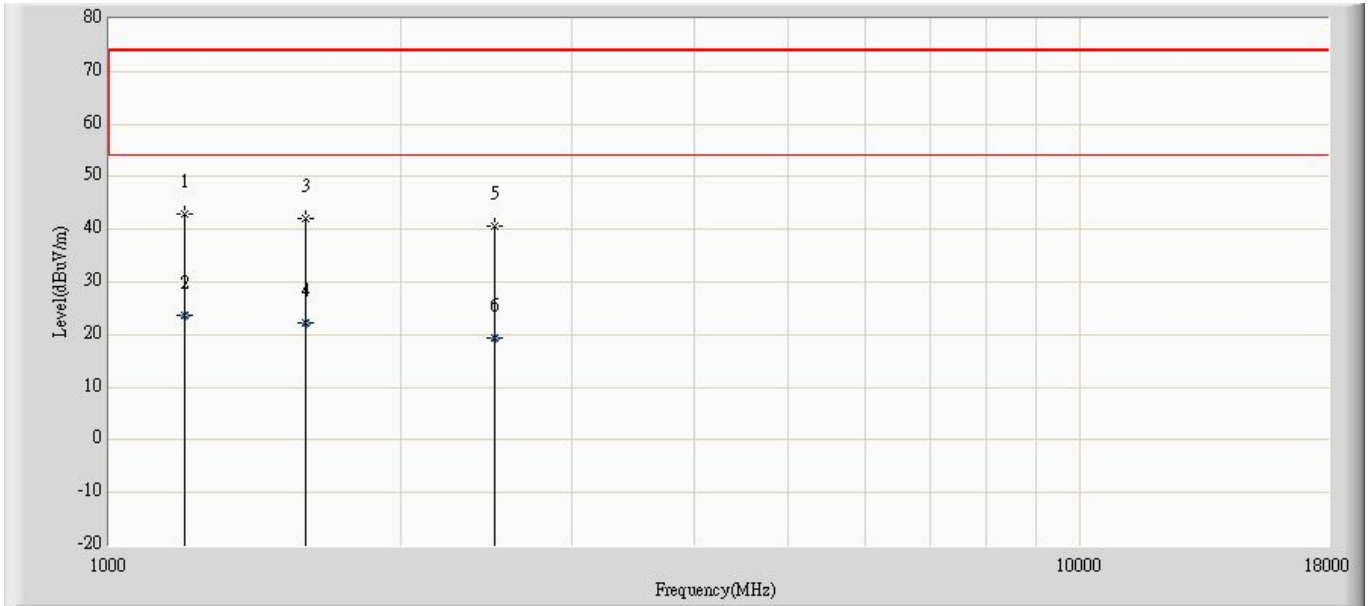
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		38.882	26.354	7.180	-13.646	40.000	19.174	QP
2		130.934	25.392	6.948	-18.108	43.500	18.444	QP
3		170.355	20.667	4.487	-22.833	43.500	16.179	QP
4		180.181	18.200	2.703	-25.300	43.500	15.497	QP
5	*	566.077	33.633	7.006	-12.367	46.000	26.627	QP
6		830.403	26.886	-2.200	-19.114	46.000	29.086	QP

Engineer: Toms	
Site: CB7	Time: 2012/05/21 - 11:13
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: 2-in-1 Bluetooth/USB Peripheral Corded headset	Power: AC 120V/60Hz
Note: Mode1: Normal Operation	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	1221.000	40.947	62.762	-33.053	74.000	-21.815	PK
2			1221.000	19.454	41.269	-34.546	54.000	-21.815	AV
3			1603.500	40.248	61.177	-33.752	74.000	-20.930	PK
4			1603.500	19.640	40.568	-34.360	54.000	-20.930	AV
5			1901.000	37.382	57.435	-36.618	74.000	-20.053	PK
6			1901.000	17.111	37.164	-36.889	54.000	-20.053	AV

Engineer: Toms	
Site: CB7	Time: 2012/05/21 - 11:13
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: 2-in-1 Bluetooth/USB Peripheral Corded headset	Power: AC 120V/60Hz
Note: Mode1: Normal Operation	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			1195.500	42.988	65.007	-31.012	74.000	-22.020	PK
2		*	1195.500	23.818	45.837	-30.182	54.000	-22.020	AV
3			1595.000	42.108	63.028	-31.892	74.000	-20.920	PK
4			1595.000	22.195	43.115	-31.805	54.000	-20.920	AV
5			2496.000	40.550	57.702	-33.450	74.000	-17.152	PK
6			2496.000	19.406	36.558	-34.594	54.000	-17.152	AV