



# Test Report

## FCC Part15 Subpart C & RSS-247 Issue 2

Product Name : BLUETOOTH EARPHONE

Model No. : LTI600

FCC ID : Y2SLTI600

IC : 9452A-LTI600

Applicant : Libratone A/S

Address : Sundkaj 9,DK-2150 Nordhavn,Denmark

Date of Receipt : Jan. 18, 2018

Test Date : Jan. 19, 2018~ Mar. 12, 2018

Issued Date : Mar. 13, 2018

Report No. : 1812113R-RF-US-P06V02

Report Version : V 2.1

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.


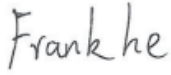

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## Test Report Certification

Issued Date : Mar. 13, 2018  
Report No. : 1812113R-RF-US-P06V02



Product Name : BLUETOOTH EARPHONE  
Applicant : Libratone A/S  
Address : Sundkaj 9,DK-2150 Nordhavn,Denmark  
Manufacturer : Libratone A/S  
Address : Sundkaj 9,DK-2150 Nordhavn,Denmark  
Model No. : LTI600  
FCC ID : Y2SLTI600  
IC : 9452A-LTI600  
EUT Voltage : DC 5V  
Test Voltage : AC 120V/60Hz  
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C  
ANSI C63.10:2013;  
KDB 558074 D01v04  
RSS-Gen Issue 4 / RSS-247 Issue 2  
Test Result : Complied  
Performed Location : DEKRA Testing & Certification (Suzhou) Co., Ltd.  
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FCC Designation Number: CN1199; ISED Lab Code: 4075B  
Documented By :   
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Approved By :   
(Engineering Manager: Harry Zhao )

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## History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1812113R-RF-US-P06V02	V1.0	Initial Issued Report	Feb. 11, 2018
1812113R-RF-US-P06V02	V2.0	Modified EUT Voltage	Feb. 27, 2018
1812113R-RF-US-P06V02	V2.1	Retested bandedge data and updated the test time	Mar. 13, 2018

## 1. General Information

### 1.1. EUT Description

Product Name	BLUETOOTH EARPHONE
Model No.	LTi600
EUT Voltage	DC 5V
Test Voltage	AC 120V/60Hz
Bluetooth Specification	V4.2
Frequency Range	2402- 2480 MHz
Channel Number	V4.2: 40
Channel Separation	V4.2: 2MHz
Type of Modulation	V4.2: GFSK
Data Rate	V4.2: 1Mbps(GFSK)
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

## 1.2. Working Frequency of Each Channel:

Bluetooth Working Frequency of Each Channel: (For V4.2)							
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

## 1.3. Antenna information

Model No.	N/A					
Antenna manufacturer	N/A					
Antenna Delivery	<input checked="" type="checkbox"/>	1*TX+1*RX	<input type="checkbox"/>	2*TX+2*RX	<input type="checkbox"/>	3*TX+3*RX
Antenna technology	<input checked="" type="checkbox"/>	SISO				
	<input type="checkbox"/>	MIMO	<input type="checkbox"/>	Basic		
			<input type="checkbox"/>	CDD		
			<input type="checkbox"/>	Sectorized		
			<input type="checkbox"/>	Beam-forming		
Antenna Type	<input type="checkbox"/>	External	<input type="checkbox"/>	Dipole		
			<input type="checkbox"/>	Sectorized		
	<input checked="" type="checkbox"/>	Internal	<input type="checkbox"/>	PIFA		
			<input checked="" type="checkbox"/>	SMD		
			<input type="checkbox"/>	PCB		
			<input type="checkbox"/>	Ceramic Chip Antenna		
			<input type="checkbox"/>	Monopole Antenna		
Antenna Technology	Ant Gain (dBi)					
<input checked="" type="checkbox"/> SISO	Ant1:2					

#### 1.4. Mode of Operation

Test Mode
Mode 1: Transmit-1Mbps(GFSK_BLE)

#### 1.5. Tested System Details

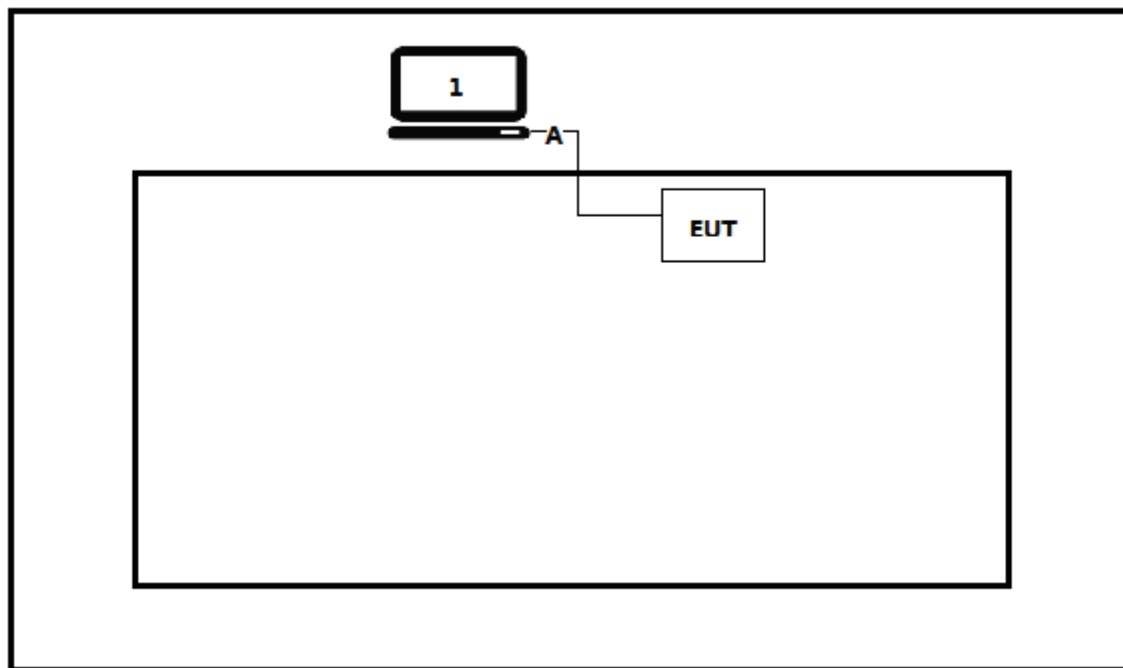
The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

No.	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Think Pad	2526	LV-A3285	Power by adapter
A	USB cable	N/A	N/A	N/A	Shielded,0.5m
B	USB cable	N/A	N/A	N/A	Shielded,10m

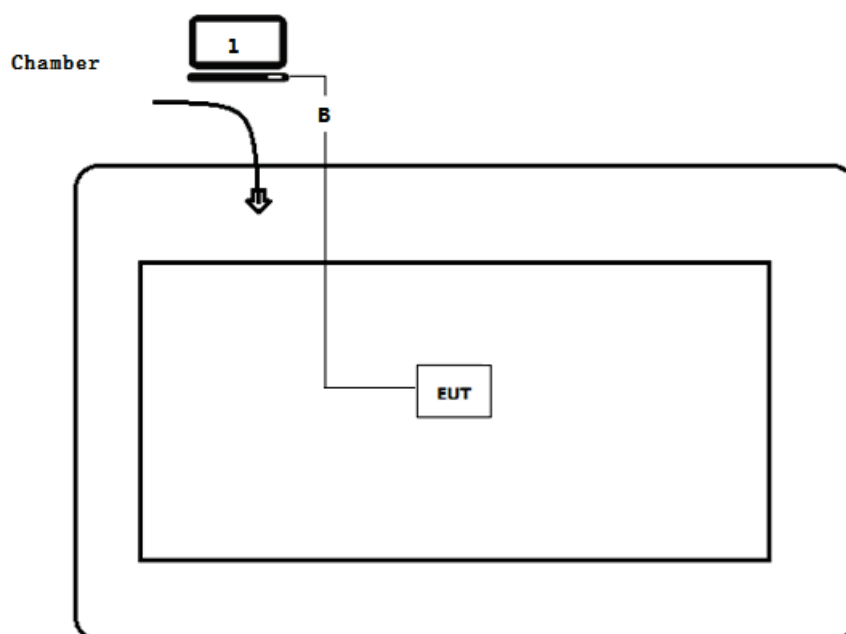


## 1.6. Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



### **1.7. EUT Exercise Software**

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Run RF software [BlueTest 3], and set the test mode and channel, then press OK to start to continue transmit.

## 2. Technical Test

### 2.1. Summary of Test Result

#### For FCC

Performed Test Item	Normative References	Limit	Result
AC Power Line Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	FCC 15.207	PASS
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	FCC 15.209	PASS
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(d)	$\geq 20\text{dBc}$	PASS
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	FCC 15.209	PASS
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(2)	$\geq 500\text{kHz}$	PASS
Fundamental emission output power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(3)	$\leq 30\text{dBm}$	PASS
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(e)	$\leq 8\text{dBm}/3\text{kHz}$	PASS
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	FCC 15.203	PASS

**For ISED**

Performed Test Item	Normative References	Limit	Result
AC Power Line Conducted Emission	RSS-Gen Issue 4 Section 8.8	RSS-Gen	PASS
Emissions in restricted frequency bands	RSS-Gen Issue 4 Section 8.9	RSS-Gen	PASS
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section A5.5	$\geq 20\text{dBc}$	PASS
Radiated Emission Band Edge	RSS-247 Issue 2 Section A5.5	RSS-247	PASS
Occupied Bandwidth	RSS-Gen Issue 4 Section 6.6 RSS-247 Issue 2 Section A5.2(1)	$\geq 500\text{kHz}$	PASS
Fundamental emission output power	RSS-247 Issue 2 Section A5.4(4)	$\leq 30\text{dBm}$	PASS
Power Spectral Density	RSS-247 Issue 2 Section A5.2(2)	$\leq 8\text{dBm}/3\text{kHz}$	PASS
Antenna Requirement	RSS-Gen Issue 4 Section 8.3	RSS-Gen Issue 4	PASS

## 2.2. Test Frequency configuration:

Modulation Mode	Channel	Frequency	Channel	Frequency	Channel	Frequency
BLE	00	2402 MHz	19	2440 MHz	39	2480MHz

## 2.3. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

## 2.4. Measurement Uncertainty

Test Items	Uncertainty
AC Power Line Conducted Emission	$\pm 2.02\text{dB}$
Radiated Emission	Below 1GHz $\pm 3.8\text{ dB}$
	Above 1GHz $\pm 3.9\text{ dB}$
RF Antenna Port Conducted Emission	$\pm 1.27\text{dB}$
Radiated Emission Band Edge	$\pm 3.9\text{dB}$
Occupied Bandwidth	$\pm 1\text{kHz}$
Power Spectral Density	$\pm 1.27\text{dB}$

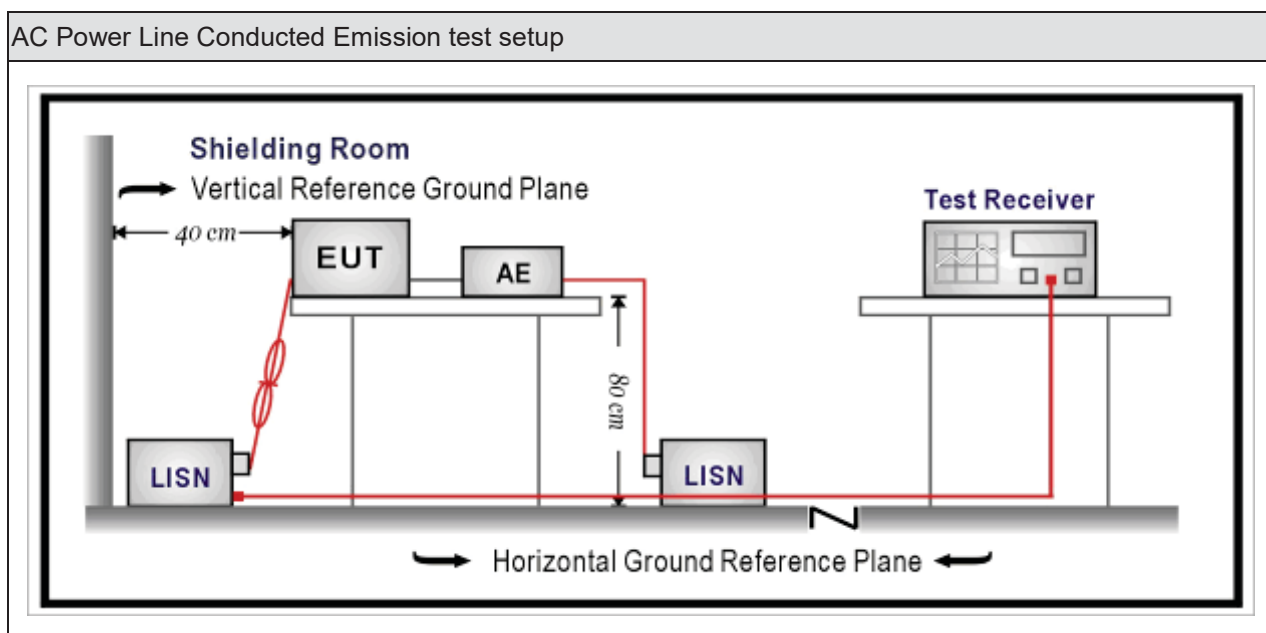
### 3. AC Power Line Conducted Emission

#### 3.1. Test Equipment

AC Power Line Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100906	2017.03.05	2018.03.04
Two-Line V-Network	R&S	ENV 216	101189	2017.07.16	2018.07.15
Two-Line V-Network	R&S	ENV 216	101044	2017.09.16	2018.09.15
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	07081402	2017.09.16	2018.09.15
Temperature/Humidity Meter	Zhichen	ZC1-2	TR1-TH	2018.01.04	2019.01.03

Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

#### 3.2. Test Setup



### 3.3. Limit

Frequency of Emission (MHz)	Conducted Limit	
	Quasi-peak (dB $\mu$ V)	Average (dB $\mu$ V)
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	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.		

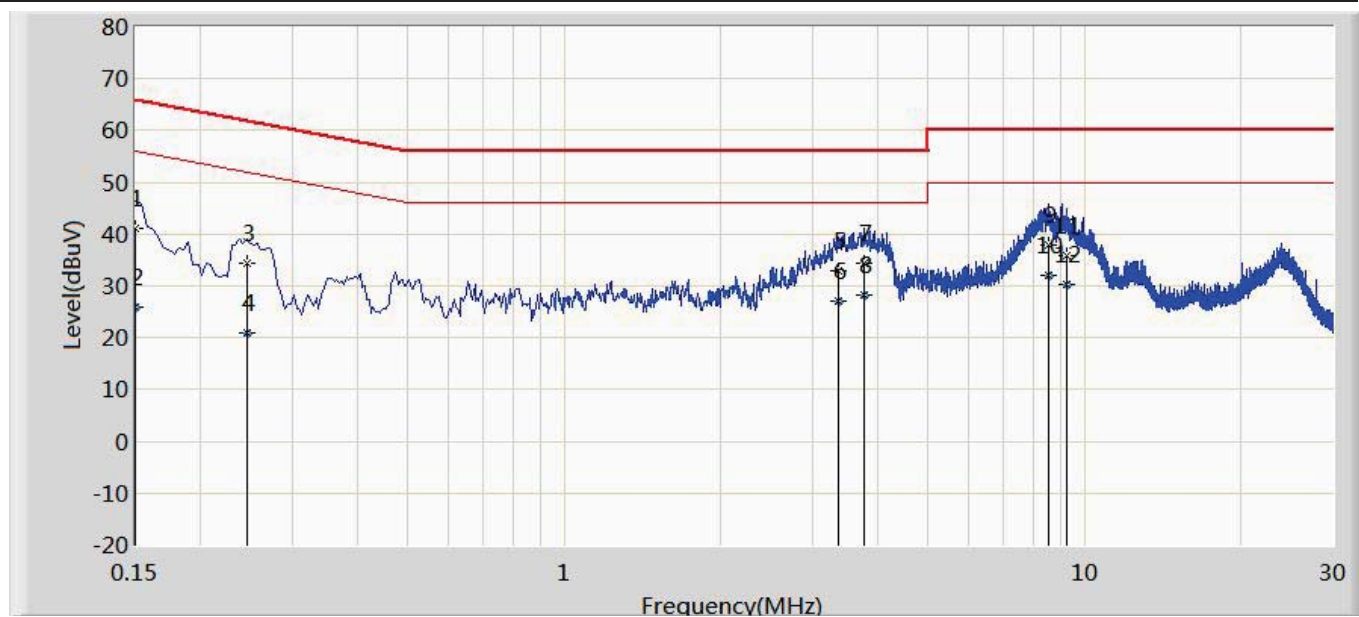
### 3.4. Test Procedure

Test Method			
	References Rule	Chapter	Item
<input checked="" type="checkbox"/>	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices



### 3.5. Test Result

Engineer: Nino	
Site: TR1	Time: 2018/01/22
Limit: FCC_Part15.207_CE	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Mode 1	



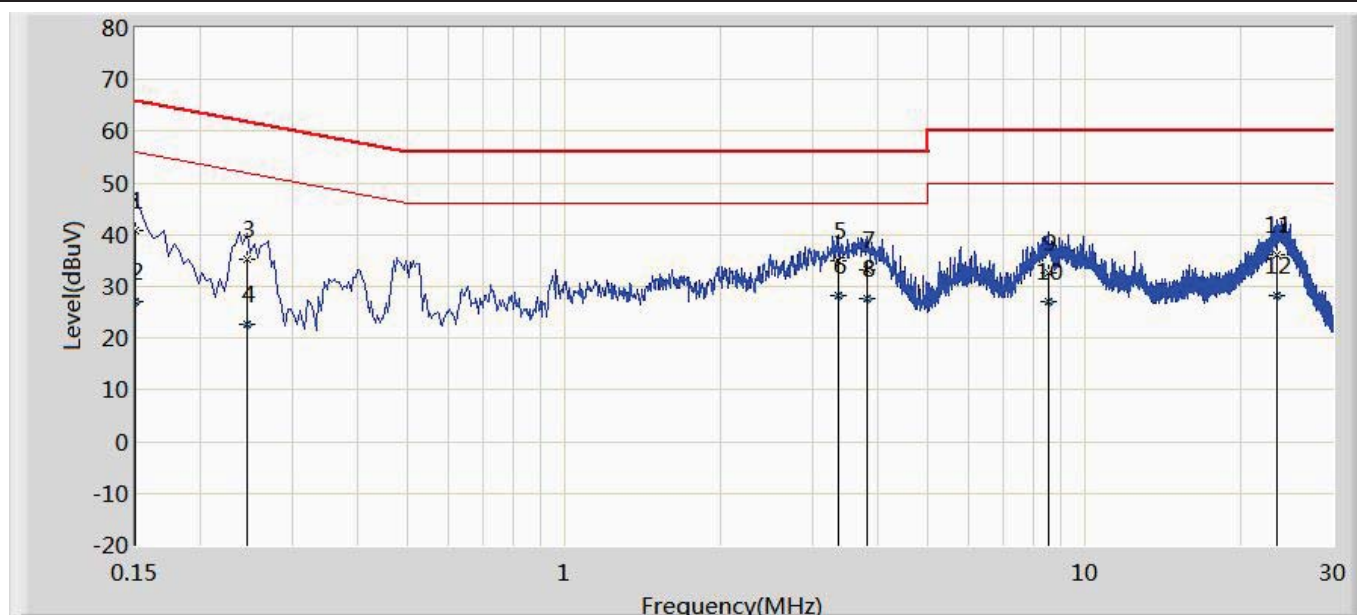
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.150	41.025	31.390	-24.975	66.000	9.610	0.025	0.000	QP
2		0.150	25.953	16.318	-30.047	56.000	9.610	0.025	0.000	AV
3		0.246	34.265	24.634	-27.626	61.891	9.600	0.031	0.000	QP
4		0.246	20.915	11.284	-30.976	51.891	9.600	0.031	0.000	AV
5		3.370	32.907	23.159	-23.093	56.000	9.633	0.115	0.000	QP
6		3.370	27.103	17.355	-18.897	46.000	9.633	0.115	0.000	AV
7		3.770	34.255	24.492	-21.745	56.000	9.639	0.123	0.000	QP
8	*	3.770	28.345	18.583	-17.655	46.000	9.639	0.123	0.000	AV
9		8.514	37.806	27.884	-22.194	60.000	9.736	0.186	0.000	QP
10		8.514	32.013	22.091	-17.987	50.000	9.736	0.186	0.000	AV
11		9.246	35.870	25.925	-24.130	60.000	9.752	0.193	0.000	QP
12		9.246	30.377	20.432	-19.623	50.000	9.752	0.193	0.000	AV

Note:

1. " \* ", means this data is the worst emission level.

2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Nino	
Site: TR1	Time: 2018/01/22
Limit: FCC_Part15.207_CE	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.150	40.746	31.128	-25.254	66.000	9.594	0.025	0.000	QP
2		0.150	27.037	17.418	-28.963	56.000	9.594	0.025	0.000	AV
3		0.246	35.281	25.652	-26.611	61.891	9.598	0.031	0.000	QP
4		0.246	22.696	13.068	-29.195	51.891	9.598	0.031	0.000	AV
5		3.358	35.020	25.277	-20.980	56.000	9.628	0.115	0.000	QP
6	*	3.358	28.389	18.646	-17.611	46.000	9.628	0.115	0.000	AV
7		3.814	33.299	23.541	-22.701	56.000	9.634	0.124	0.000	QP
8		3.814	27.515	17.757	-18.485	46.000	9.634	0.124	0.000	AV
9		8.546	32.769	22.836	-27.231	60.000	9.747	0.187	0.000	QP
10		8.546	27.146	17.212	-22.854	50.000	9.747	0.187	0.000	AV
11		23.482	36.034	25.206	-23.966	60.000	10.514	0.314	0.000	QP
12		23.482	28.384	17.556	-21.616	50.000	10.514	0.314	0.000	AV

## Note:

1. " \* ", means this data is the worst emission level.

2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

## 4. Emissions in restricted frequency bands

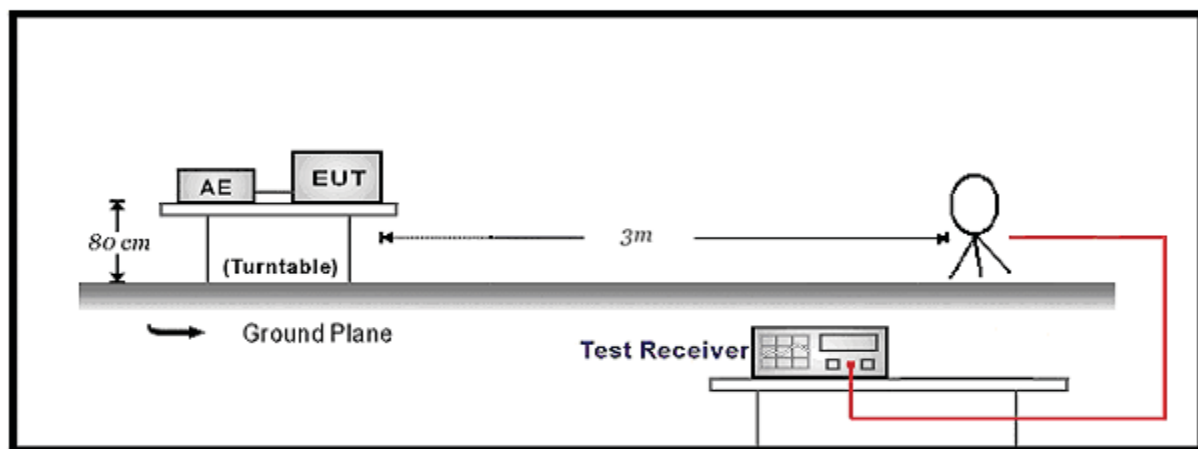
### 4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2017.03.29	2018.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2017.11.16	2018.11.15
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2017.10.16	2018.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2017.03.02	2018.03.01
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2018.01.03	2019.01.02
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

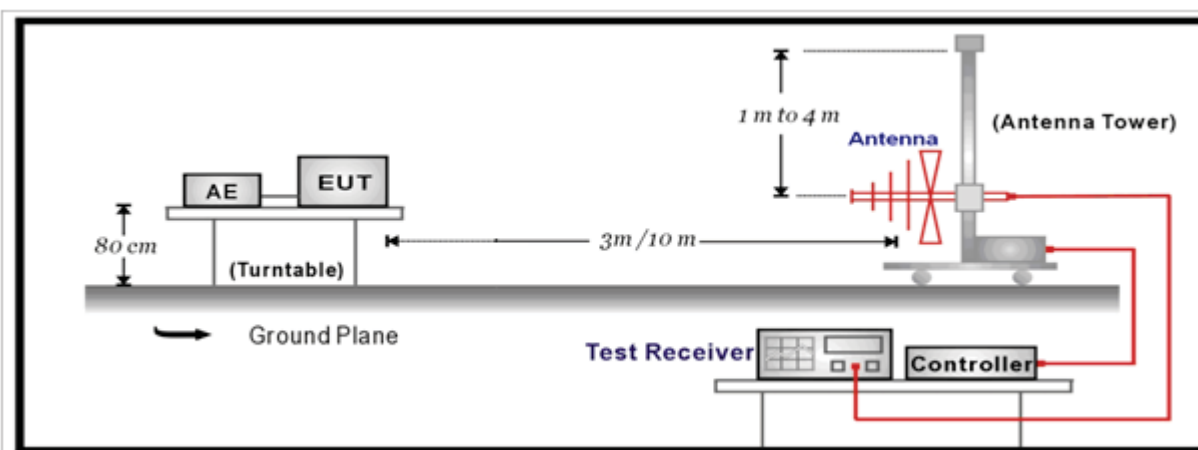
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2018.01.04	2019.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2017.05.06	2018.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2017.05.06	2018.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2018.01.22	2019.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2017.11.25	2018.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.02	2018.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.02	2018.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.02	2018.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2017.06.10	2018.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2018.01.04	2019.01.03
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

## 4.2. Test Setup

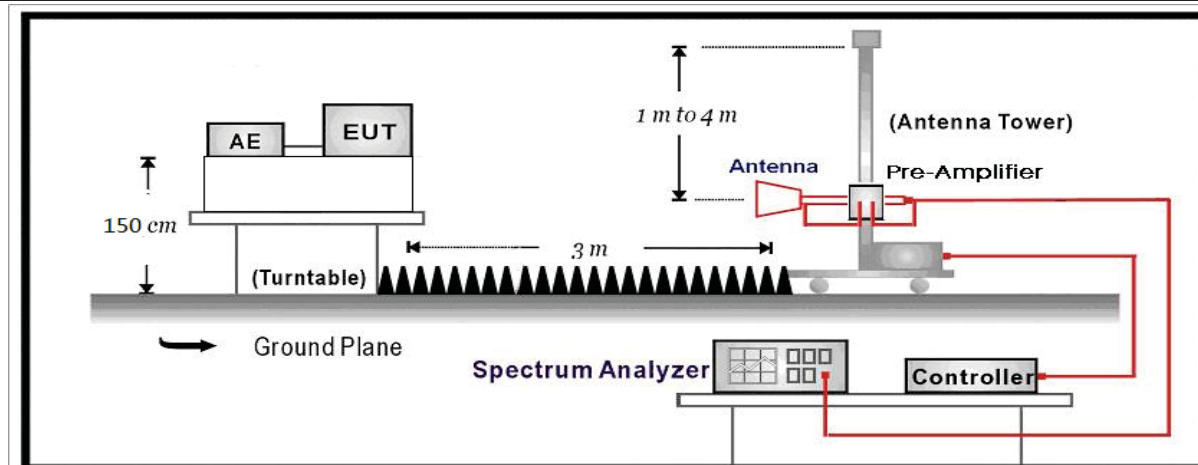
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



### 4.3. Limit

#### For FCC

Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			

**For IC:**

Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090-0.110	13.36-13.41	1645.5-1646.5	9.0-9.2
2.1735-2.1905	16.42-16.423	1660-1710	9.3-9.5
3.020-3.026	16.69475-16.69525	1718.8-1722.2	10.6-12.7
4.125-4.128	16.80425-16.80475	2200-2300	13.25-13.4
4.17725-4.17775	25.5-25.67	2310-2390	14.47-14.5
4.20725-4.20775	37.5-38.25	2655-2900	15.35-16.2
5.677-5.683	73-74.6	3260-3267	17.7-21.4
6.215-6.218	74.8-75.2	3332-3339	22.01-23.12
6.26775-6.26825	108-138	3345.8-3358	23.6-24.0
6.31175-6.31225	156.52475-156.52525	3500-4400	31.2-31.8
8.291-8.294	156.7-156.9	4500-5150	36.43-36.5
8.362-8.366	240-285	5350-5460	Above 38.6
8.37625-8.38675	322-335.4	7250-7750	
8.41425-8.41475	399.9-410	8025-8500	
12.29-12.293	608-614		
12.51975-12.52025	960-1427		
12.57675-12.57725	1435-1626.5		

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength ( $\mu$ V/m)	Field strength (dB $\mu$ V/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 <sub>(Note 1)</sub>
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 <sub>(Note 1)</sub>
1.705 - 30	30	29.5	30 <sub>(Note 1)</sub>
30 - 88	100	40	3 <sub>(Note 2)</sub>
88 - 216	150	43.5	3 <sub>(Note 2)</sub>
216 - 960	200	46	3 <sub>(Note 2)</sub>
Above 960	500	54	3 <sub>(Note 2)</sub>

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

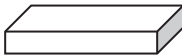





Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

#### 4.4. Test Procedure

Test Method						
	References Rule		Chapter	Description		
<input type="checkbox"/>	ANSI C63.10		11.11	Emissions in non-restricted frequency bands		
	<input type="checkbox"/>	ANSI C63.10	11.11.2	Reference level measurement		
	<input type="checkbox"/>	ANSI C63.10	11.11.3	Emission level measurement		
<input checked="" type="checkbox"/>	ANSI C63.10		11.12	Emissions in restricted frequency bands		
	<input checked="" type="checkbox"/>	ANSI C63.10	11.12.1	Radiated emission measurements		
	<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.7	Radiated spurious emission test		
		<input checked="" type="checkbox"/>	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz	
		<input checked="" type="checkbox"/>	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz	
		<input checked="" type="checkbox"/>	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz	
		<input type="checkbox"/>	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure	
		<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.4	Peak power measurement procedure	
		<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.5	Average power measurement procedures	
			<input type="checkbox"/>	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
			<input type="checkbox"/>	ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
			<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

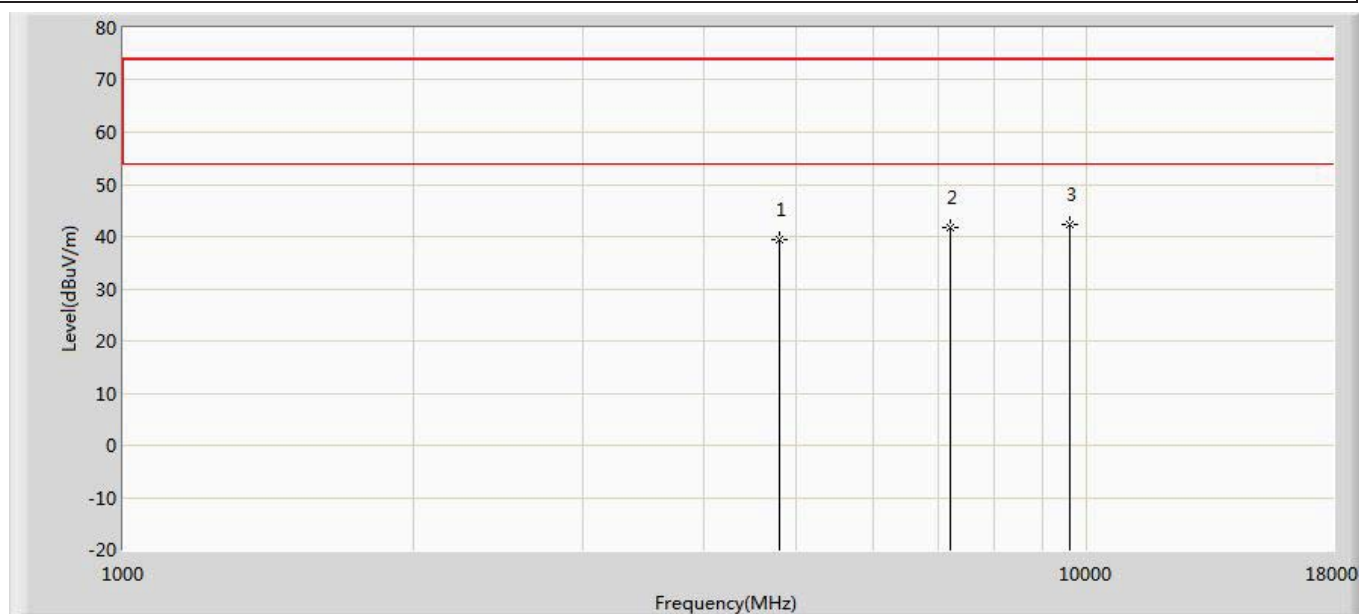


#### 4.5. EUT test Axis definition

Item	Emissions in restricted frequency bands			
Device Category	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input checked="" type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input checked="" type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input type="checkbox"/>	Conducted		
	<input type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

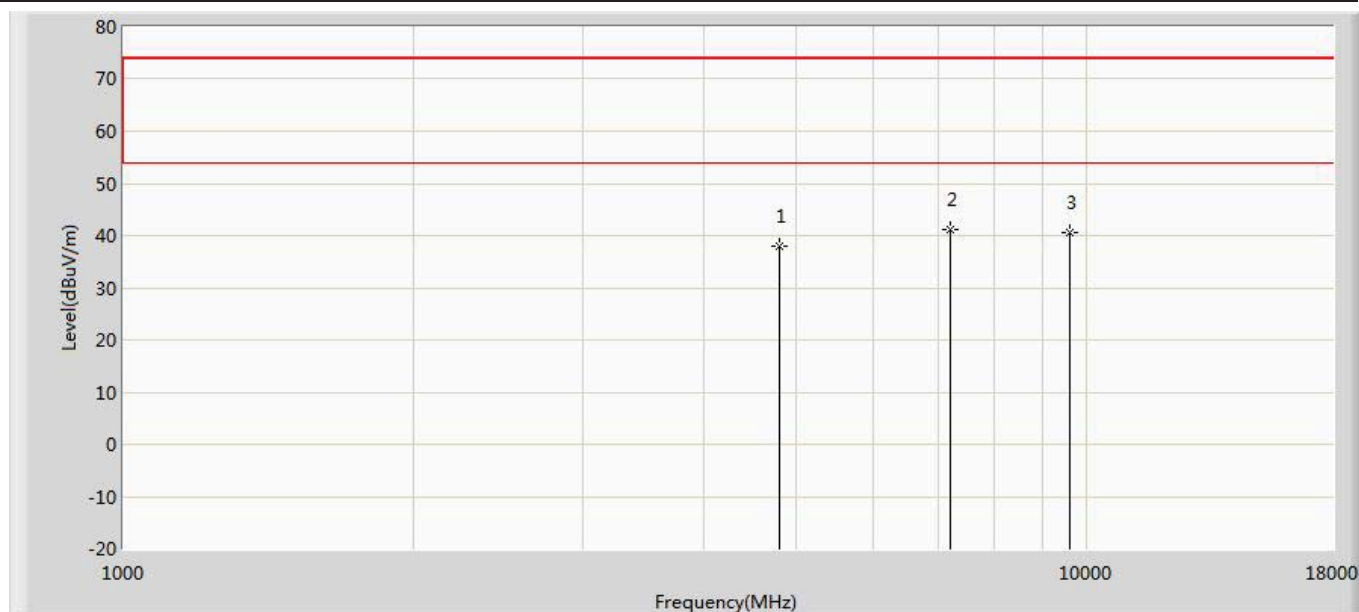
#### 4.6. Test Result

Site: AC5	Time: - 13:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Mode 1:Transmit at channel 2402MHz by BLE	



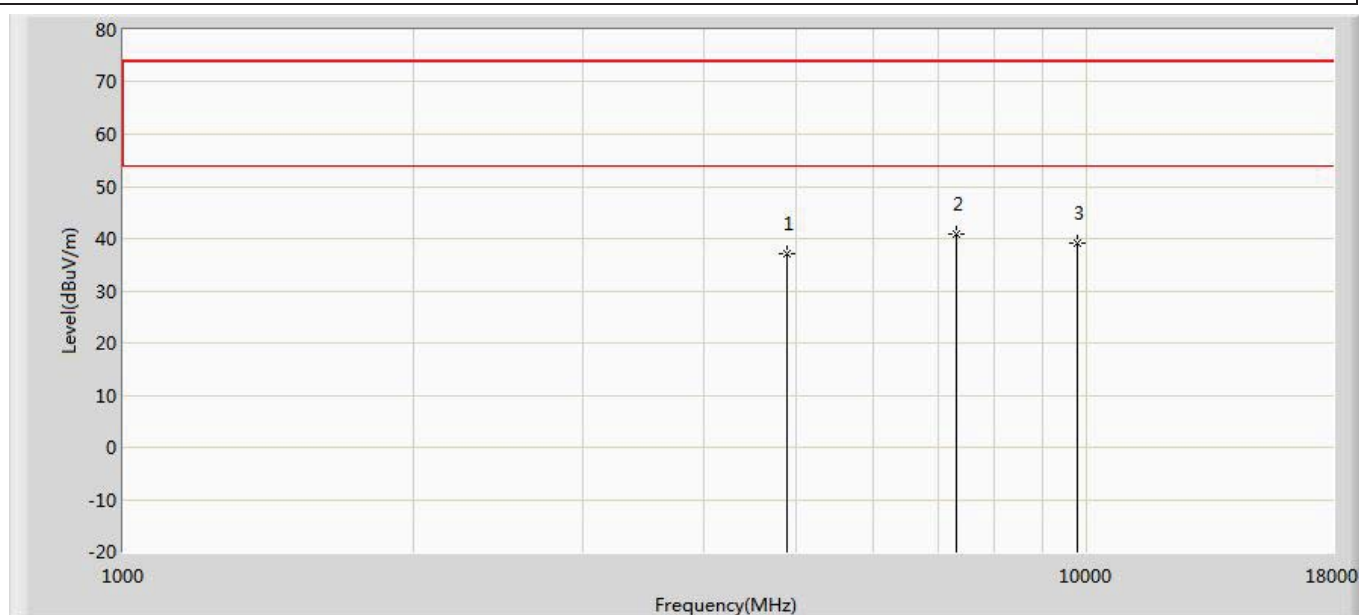
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.550	41.202	-34.450	74.000	-1.652	PK
2		7206.000	41.713	38.833	-32.287	74.000	2.880	PK
3	*	9608.000	42.425	37.598	-31.575	74.000	4.827	PK

Site: AC5	Time: 2018/01/23 - 13:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Mode 1:Transmit at channel 2402MHz by BLE	



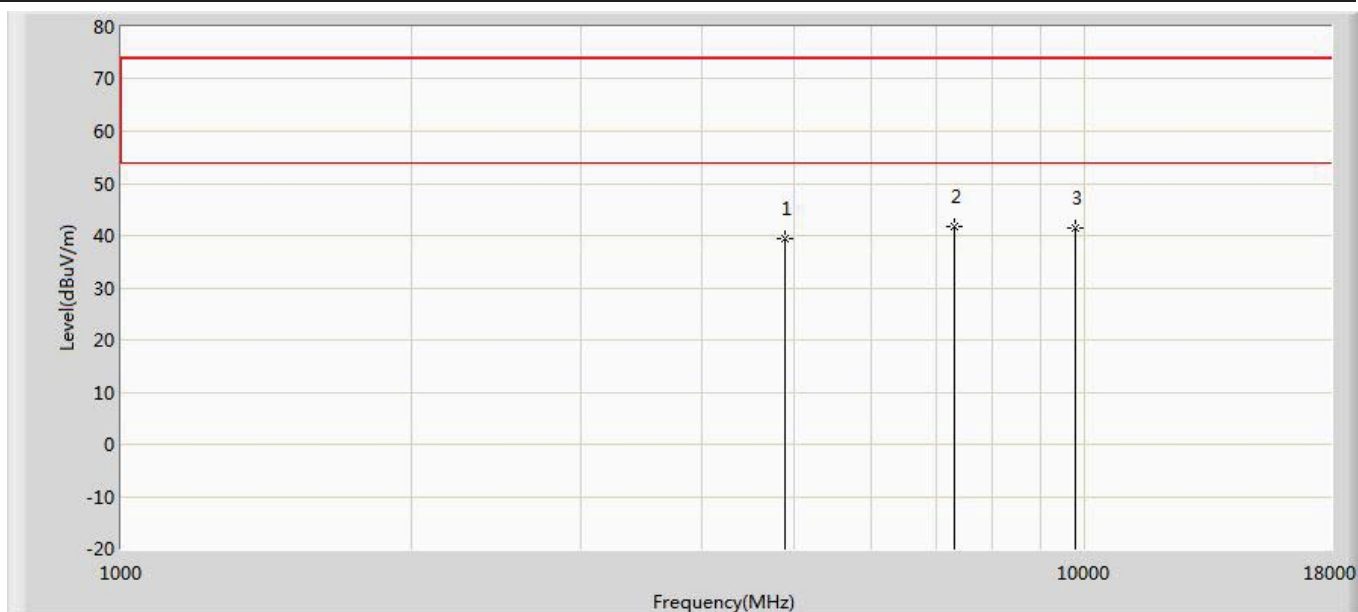
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	37.910	39.562	-36.090	74.000	-1.652	PK
2	*	7206.000	41.181	38.301	-32.819	74.000	2.880	PK
3		9608.000	40.644	35.817	-33.356	74.000	4.827	PK

Site: AC5	Time: 2018/01/23 - 13:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Mode 1:Transmit at channel 2440MHz by BLE	



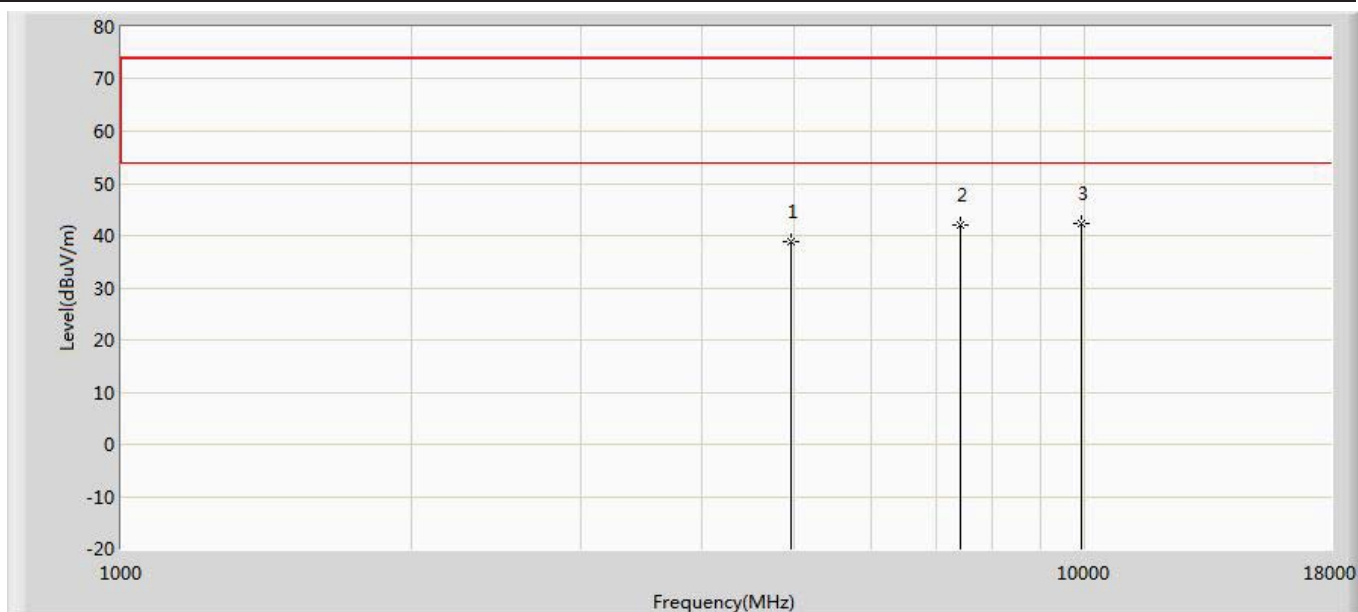
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	37.191	38.827	-36.809	74.000	-1.635	PK
2	*	7320.000	40.837	38.017	-33.163	74.000	2.820	PK
3		9760.000	39.082	35.024	-34.918	74.000	4.058	PK

Site: AC5	Time: 2018/01/23 - 13:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Mode 1:Transmit at channel 2440MHz by BLE	



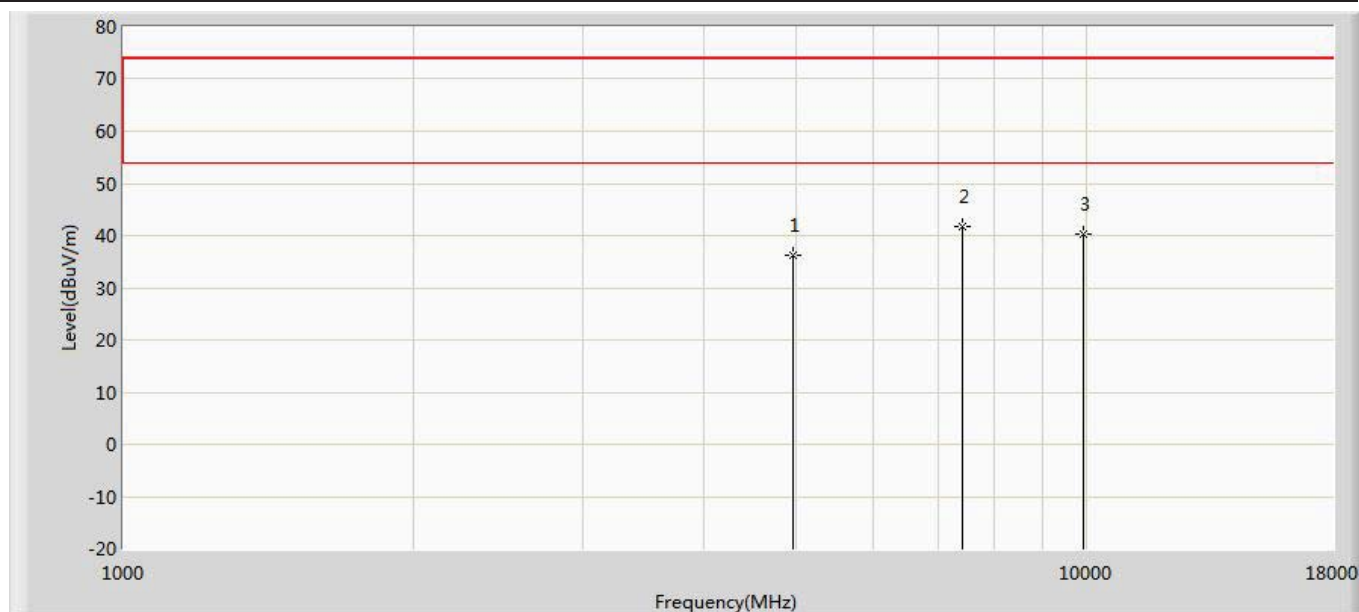
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4880.000	39.313	40.949	-34.687	74.000	-1.635	PK
2	*	7320.000	41.790	38.970	-32.210	74.000	2.820	PK
3		9760.000	41.342	37.284	-32.658	74.000	4.058	PK

Site: AC5	Time: 2018/01/23 - 13:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Mode 1:Transmit at channel 2480MHz by BLE	



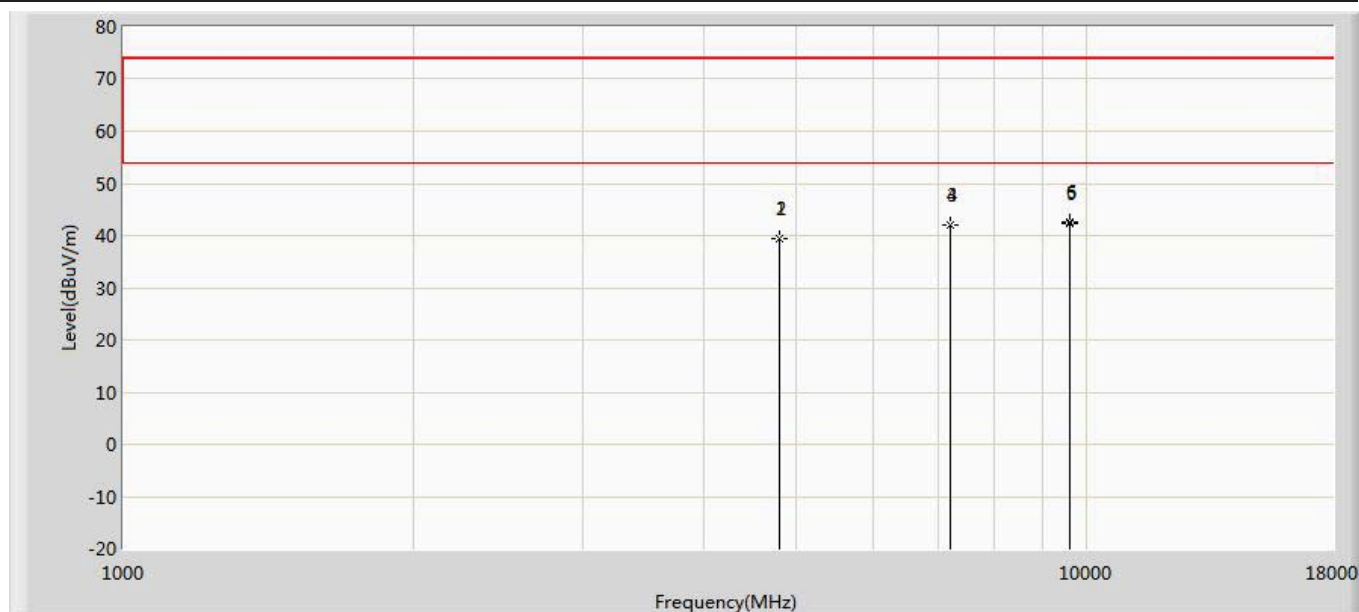
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	38.741	40.667	-35.259	74.000	-1.926	PK
2		7440.000	42.059	39.346	-31.941	74.000	2.713	PK
3	*	9920.000	42.230	37.099	-31.770	74.000	5.130	PK

Site: AC5	Time: 2018/01/23 - 13:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Mode 1:Transmit at channel 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	36.298	38.224	-37.702	74.000	-1.926	PK
2	*	7440.000	41.872	39.159	-32.128	74.000	2.713	PK
3		9920.000	40.429	35.298	-33.571	74.000	5.130	PK

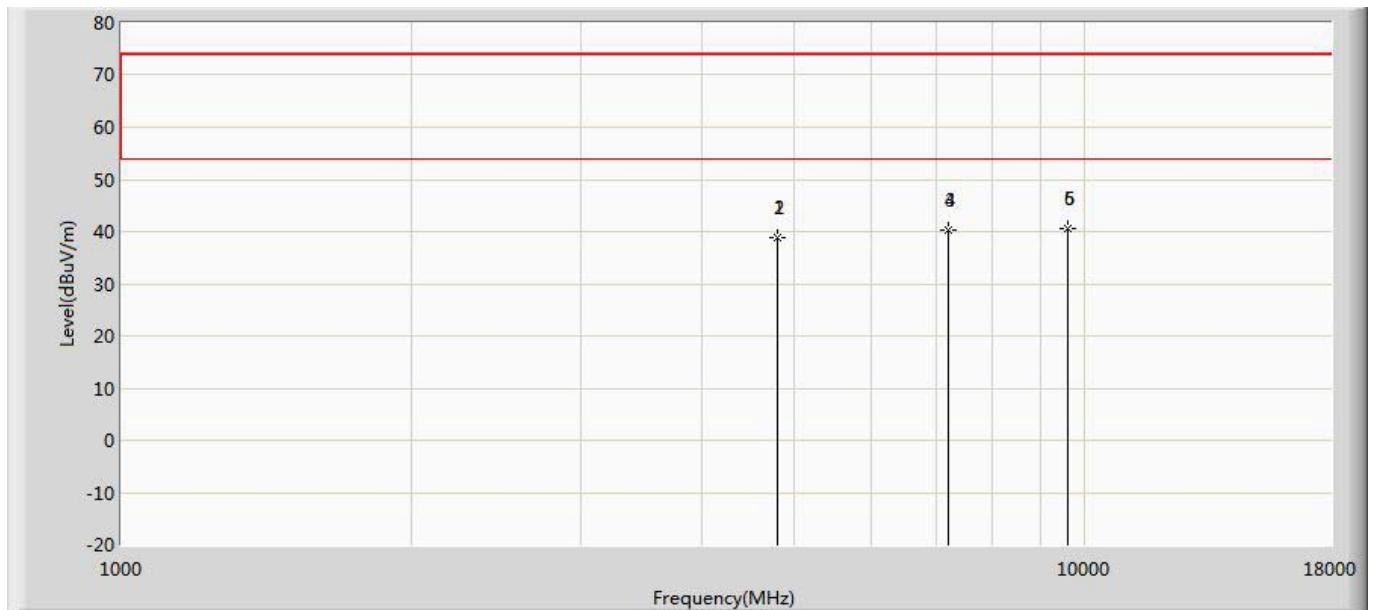
Site: AC5	Time: 2018/01/23 - 13:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Transmit at channel 2402MHz by BLE+DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	39.366	41.018	-34.634	74.000	-1.652	PK
2		4804.120	39.369	41.022	-34.631	74.000	-1.653	PK
3		7206.000	42.119	39.239	-31.881	74.000	2.880	PK
4		7206.320	42.127	39.254	-31.873	74.000	2.872	PK
5		9607.985	42.391	37.564	-31.609	74.000	4.826	PK
6	*	9608.000	42.584	37.757	-31.416	74.000	4.827	PK



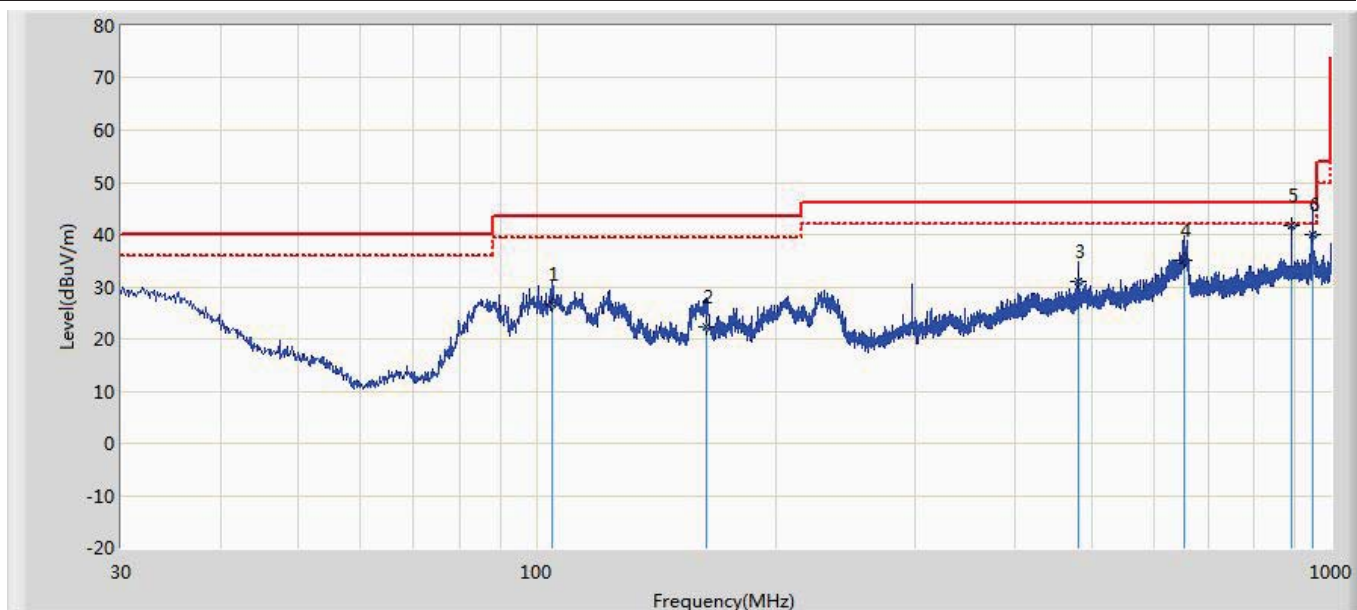
Site: AC5	Time: 2018/01/23 - 13:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Transmit at channel 2402MHz by BLE+DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	38.842	40.494	-35.158	74.000	-1.652	PK
2		4804.120	38.868	40.521	-35.132	74.000	-1.653	PK
3		7206.000	40.368	37.488	-33.632	74.000	2.880	PK
4		7206.250	40.397	37.523	-33.603	74.000	2.874	PK
5	*	9608.000	40.602	35.775	-33.398	74.000	4.827	PK
6		9608.210	40.506	35.674	-33.494	74.000	4.833	PK

### The worst case of Radiated Emission below 1GHz:

Site: AC2	Time: 2018/1/29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Mode 1	

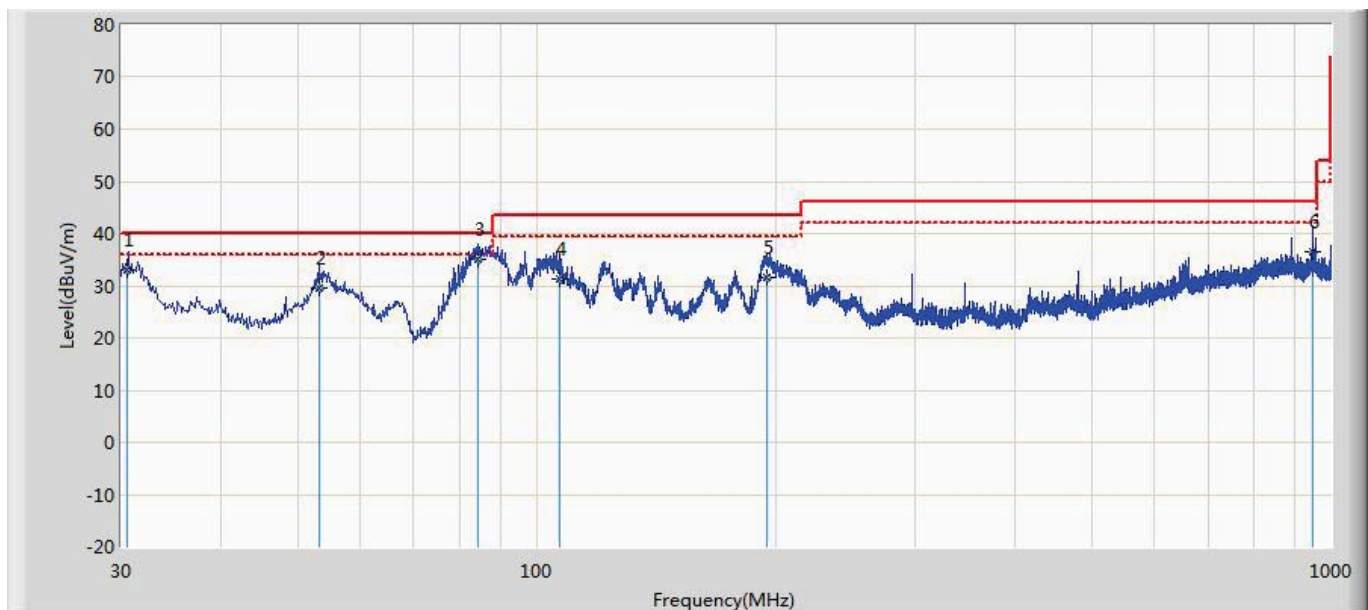


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		104.811	26.786	9.900	-16.714	43.500	9.980	6.907	0.000	200	206	QP
2		163.254	22.288	4.800	-21.212	43.500	10.230	7.258	0.000	300	346	QP
3		480.080	31.113	4.100	-14.887	46.000	18.991	8.022	0.000	200	180	QP
4		652.255	35.162	6.700	-10.838	46.000	19.827	8.634	0.000	100	260	QP
5	*	890.826	41.713	9.500	-4.287	46.000	22.985	9.228	0.000	100	235	QP
6		948.827	40.103	6.900	-5.897	46.000	23.856	9.347	0.000	100	359	QP

Note:

1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: AC2	Time: 2018/1/29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: BLUETOOTH EARPHONE	Power: 120V/60HzAC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		30.524	33.090	8.900	-6.910	40.000	17.564	6.625	0.000	100	245	QP
2		53.159	29.429	11.100	-10.571	40.000	11.730	6.599	0.000	100	103	QP
3	*	84.287	34.943	18.800	-5.057	40.000	9.454	6.690	0.000	100	210	QP
4		106.751	31.356	9.400	-12.144	43.500	15.037	6.920	0.000	200	62	QP
5		195.385	31.617	9.200	-11.883	43.500	15.086	7.331	0.000	100	204	QP
6		950.045	36.479	3.100	-9.521	46.000	24.029	9.350	0.000	100	204	QP

Note:

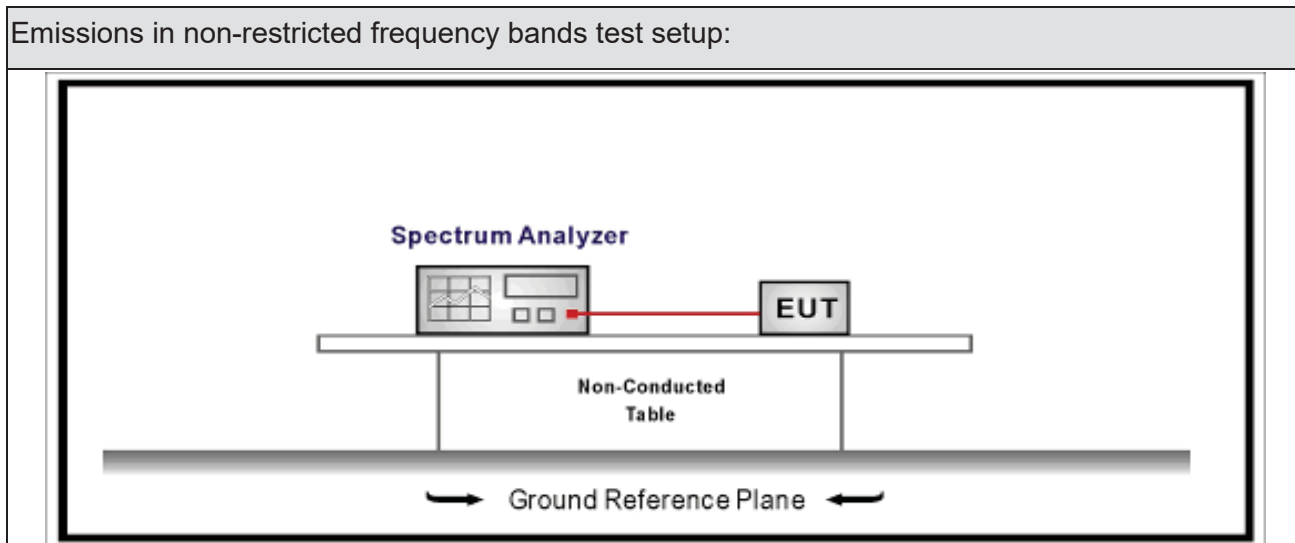
1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

## 5. Emissions in non-restricted frequency bands

### 5.1. Test Equipment

Emissions in non-restricted frequency bands / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

### 5.2. Test Setup



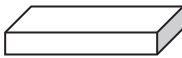

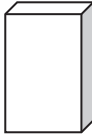



### 5.3. Limit

Un-Restricted Band Emissions Limit	
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30c(Note1)
RF Output power(PK detector)	20c(Note2)
<p>Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).</p> <p>Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).</p>	

## 5.4. Test Procedure

Test Method					
	References Rule		Chapter	Description	
<input checked="" type="checkbox"/>	ANSI C63.10		11.11	Emissions in non-restricted frequency bands	
	<input checked="" type="checkbox"/>	ANSI C63.10	11.11.2	Reference level measurement	
	<input checked="" type="checkbox"/>	ANSI C63.10	11.11.3	Emission level measurement	
<input type="checkbox"/>	ANSI C63.10		11.12	Emissions in restricted frequency bands	
	<input type="checkbox"/>	ANSI C63.10	11.12.1	Radiated emission measurements	
	<input type="checkbox"/>	ANSI C63.10	11.12.2.7	Radiated spurious emission test	
<input type="checkbox"/>	ANSI C63.10		6.4	Radiated emissions from unlicensed wireless devices below 30 MHz	
<input type="checkbox"/>	ANSI C63.10		6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz	
<input type="checkbox"/>	ANSI C63.10		6.6	Radiated emissions from unlicensed wireless devices above 1 GHz	
	<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2	Antenna-port conducted measurements	
		<input type="checkbox"/>	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
		<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.4	Peak power measurement procedure
		<input type="checkbox"/>	ANSI C63.10	11.12.2.5	Average power measurement procedures
		<input type="checkbox"/>	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
		<input type="checkbox"/>	ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
		<input type="checkbox"/>	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

### 5.5. EUT test Axis definition

Item	Emissions in non-restricted frequency bands			
Device Category	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

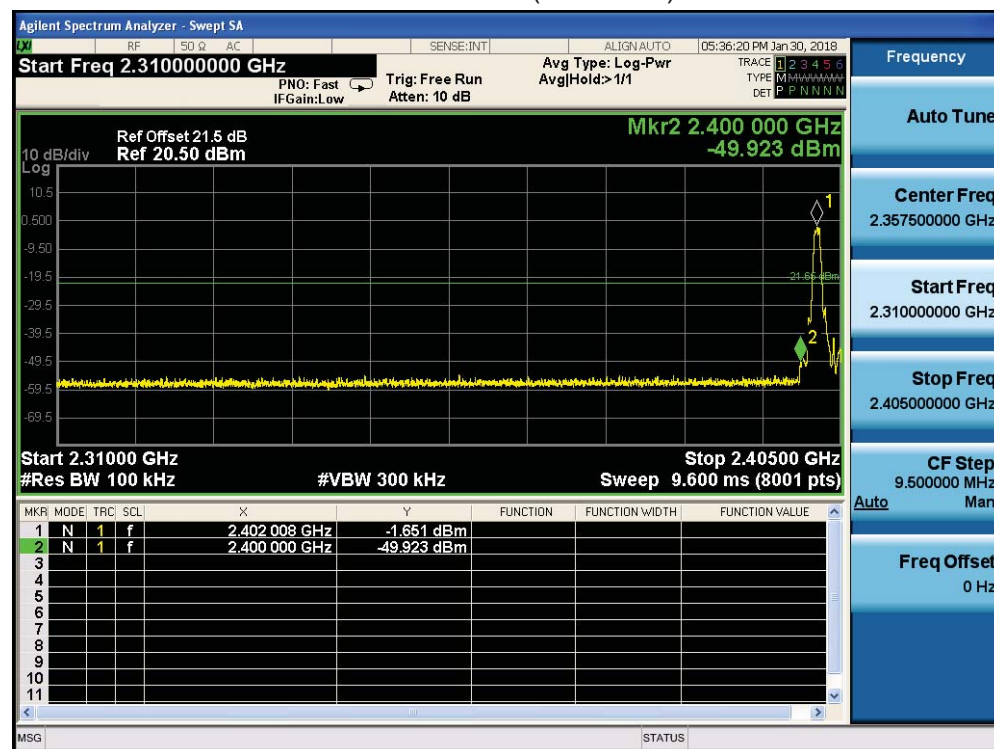
## 5.6. Test Result

Product Name	: BLUETOOTH EARPHONE	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2018.01.30	Test Engineer	: Damon

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	00	2402	-1.651	2400.00	-49.923	48.272	>20	Pass
1	39	2480	1.436	2500.00	-56.141	57.577	>20	Pass

Note: The worst case of Emissions in non-restricted frequency bands as below:

Mode 1 CH00 (2402MHz)





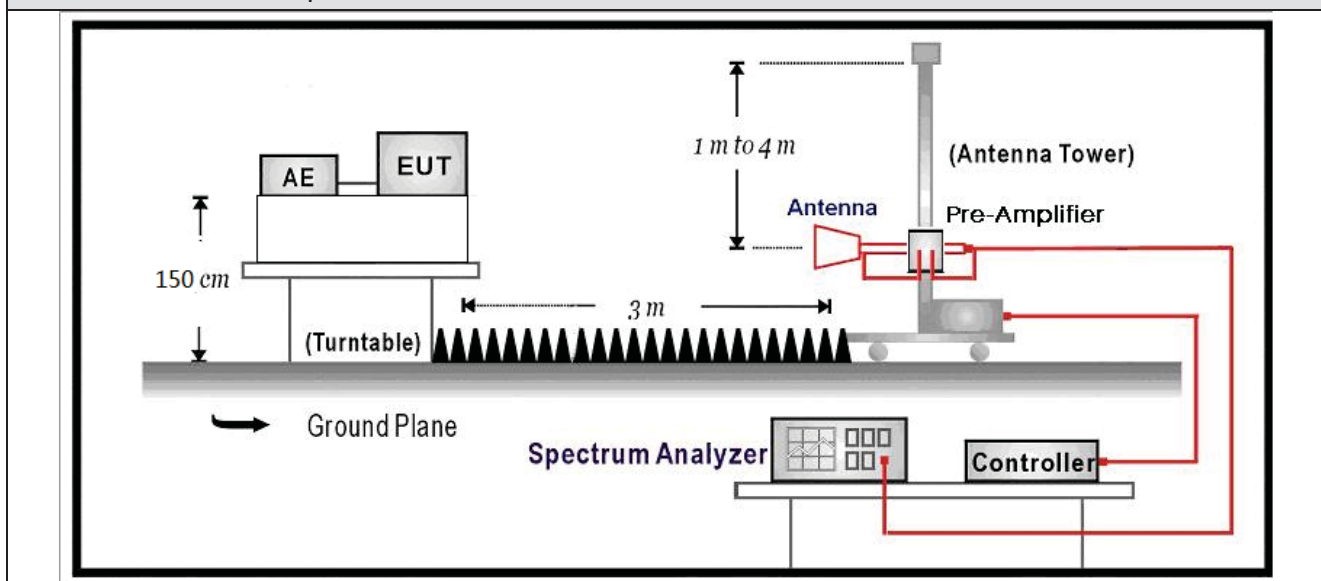
## 6. Radiated Emission Band Edge

### 6.1. Test Equipment

Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Receiver	Agilent	N9038A	MY51210196	2017.07.16	2018.07.15
Pre-Amplifier	Miteq	NSP1800-25	1364185	2017.05.03	2018.05.02
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2017.07.12	2018.07.11
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2017.09.18	2018.09.17
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2017.02.28	2018.02.27
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2017.02.28	2018.02.27
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2018.01.05	2019.01.04

## 6.2. Test Setup

Above 1GHz Test Setup:



## 6.3. Limit

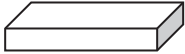
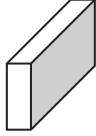
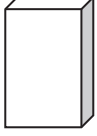



Band edge Limit				
Frequency bands (MHz)	Detector	Limit (dB $\mu$ V/m)	RBW (MHz)	Distance (m)
2310-2390	PK	74	1	3
2483.5-2500	AV	54	1	3

Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.

## 6.4. Test Procedure

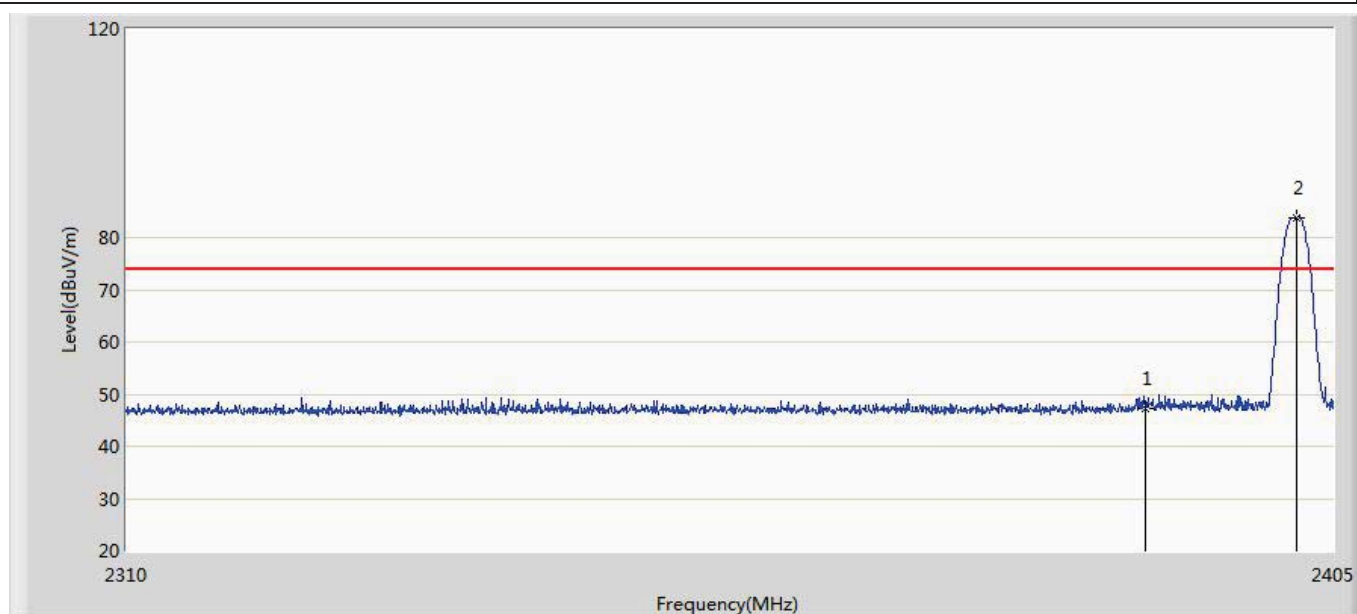
Test Method						
	References Rule			Chapter	Description	
<input checked="" type="checkbox"/>	ANSI C63.10			6.10	Band-edge testing	
	<input checked="" type="checkbox"/>	ANSI C63.10		6.10.5	Restricted-band band-edge measurements	
	<input type="checkbox"/>	ANSI C63.10		6.10.6	Marker-delta method	
<input checked="" type="checkbox"/>	ANSI C63.10			11.12	Emissions in restricted frequency bands	
	<input checked="" type="checkbox"/>	ANSI C63.10		11.12.1	Radiated emission measurements	
	<input checked="" type="checkbox"/>	ANSI C63.10		11.12.2.7	Radiated spurious emission test	
<input type="checkbox"/>	ANSI C63.10			6.4	Radiated emissions from unlicensed wireless devices below 30 MHz	
<input type="checkbox"/>	ANSI C63.10			6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz	
<input checked="" type="checkbox"/>	ANSI C63.10			6.6	Radiated emissions from unlicensed wireless devices above 1 GHz	
		<input type="checkbox"/>	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure	
		<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.4	Peak power measurement procedure	
		<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.5	Average power measurement procedures	
			<input type="checkbox"/>	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
			<input type="checkbox"/>	ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
			<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

## 6.5. EUT test definition

Item	Radiated Emission Band Edge			
Device Category	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input checked="" type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input checked="" type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input type="checkbox"/>	Conducted		
	<input type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

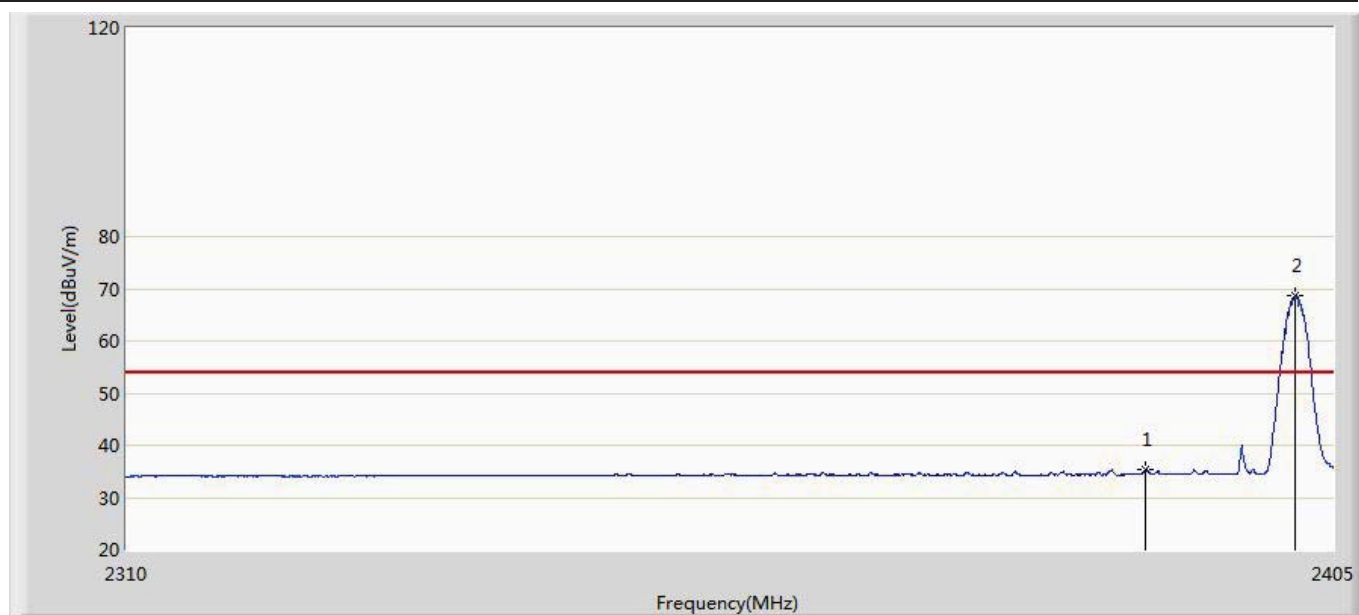
## 6.6 Test Result

Profile: Geer	Page No.: 85
Site: AC5	Time: 2018/03/11 - 16:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONE	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 2402MHz by BLE	



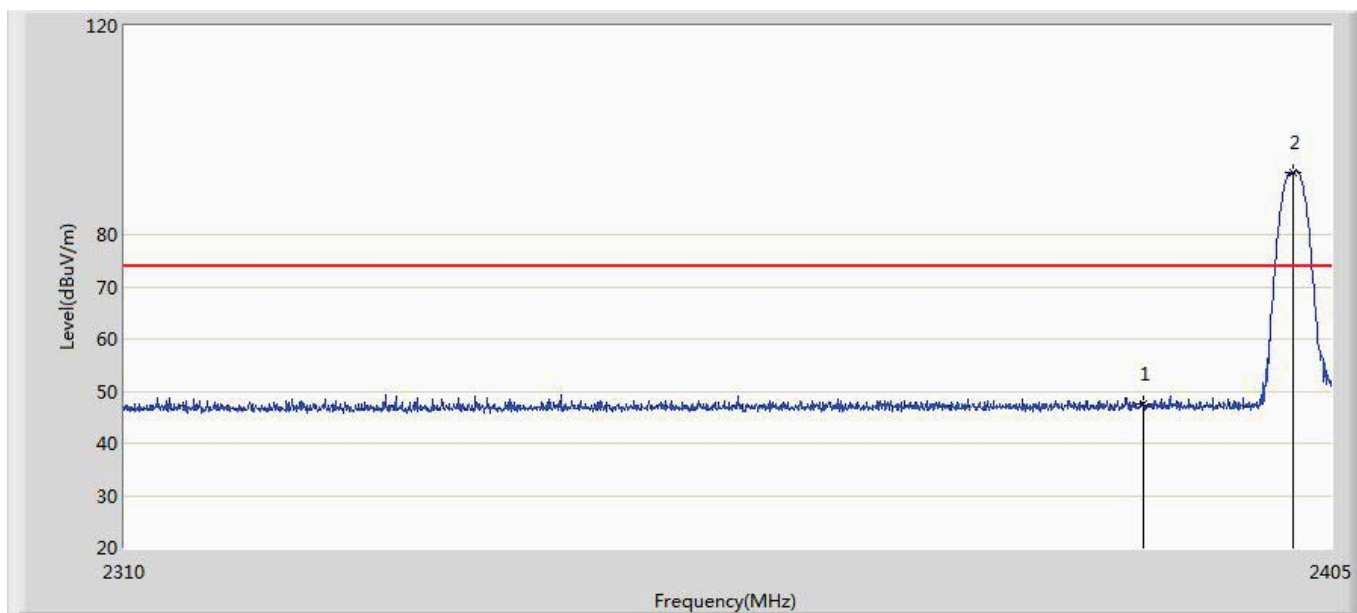
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.207	15.039	-26.793	74.000	32.168	PK
2	*	2402.055	83.879	51.697	9.879	74.000	32.182	PK

Profile: Geer	Page No.: 86
Site: AC5	Time: 2018/03/11 - 16:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONE	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 2402MHz by BLE	



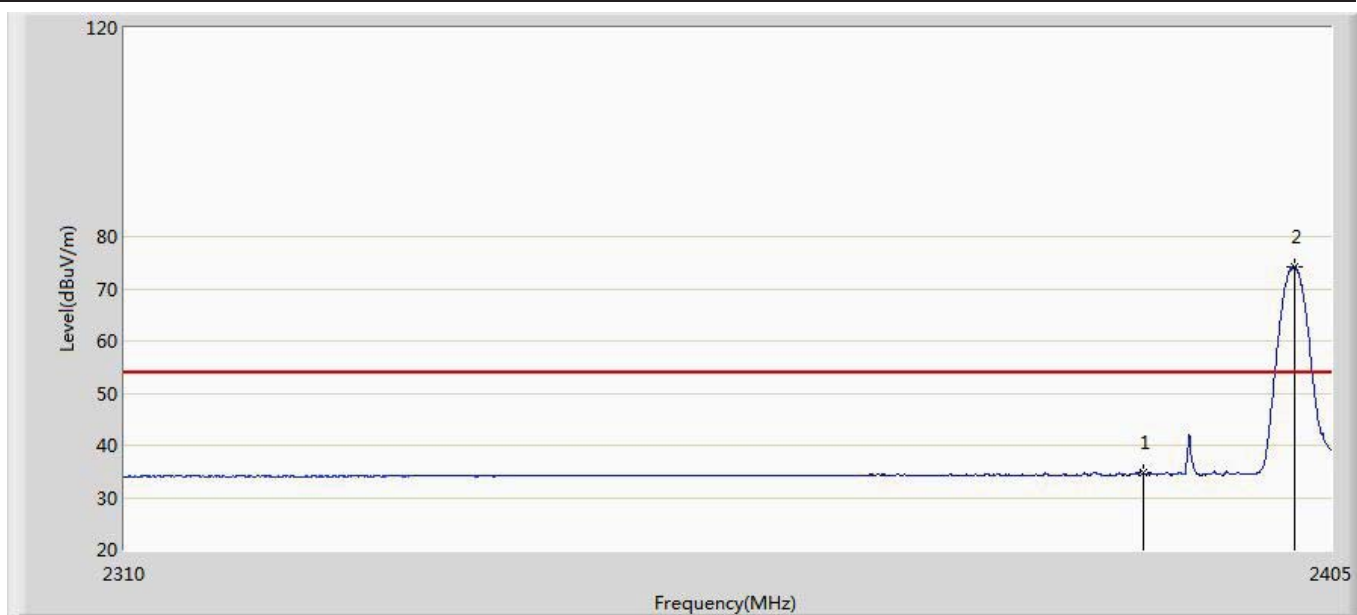
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	35.321	3.153	-18.679	54.000	32.168	AV
2	*	2401.960	68.625	36.443	14.625	54.000	32.182	AV

Profile: Geer	Page No.: 87
Site: AC5	Time: 2018/03/11 - 16:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONE	Power: AC 120V/60Hz
Note: Mode 4:Transmit 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		2390.000	47.640	15.472	-26.360	74.000	32.168	PK
2	*	2401.960	91.990	59.808	17.990	74.000	32.182	PK

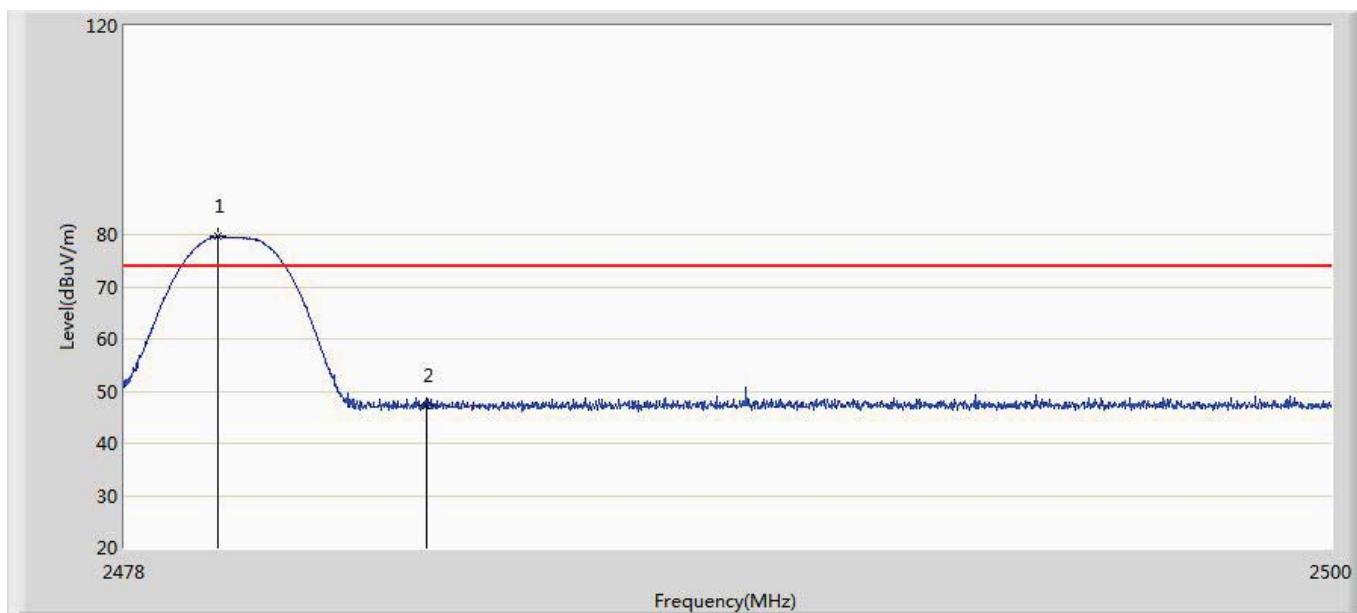
Profile: Geer	Page No.: 88
Site: AC5	Time: 2018/03/11 - 16:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONE	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 2402MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	34.745	2.577	-19.255	54.000	32.168	AV
2	*	2402.103	74.311	42.128	20.311	54.000	32.183	AV

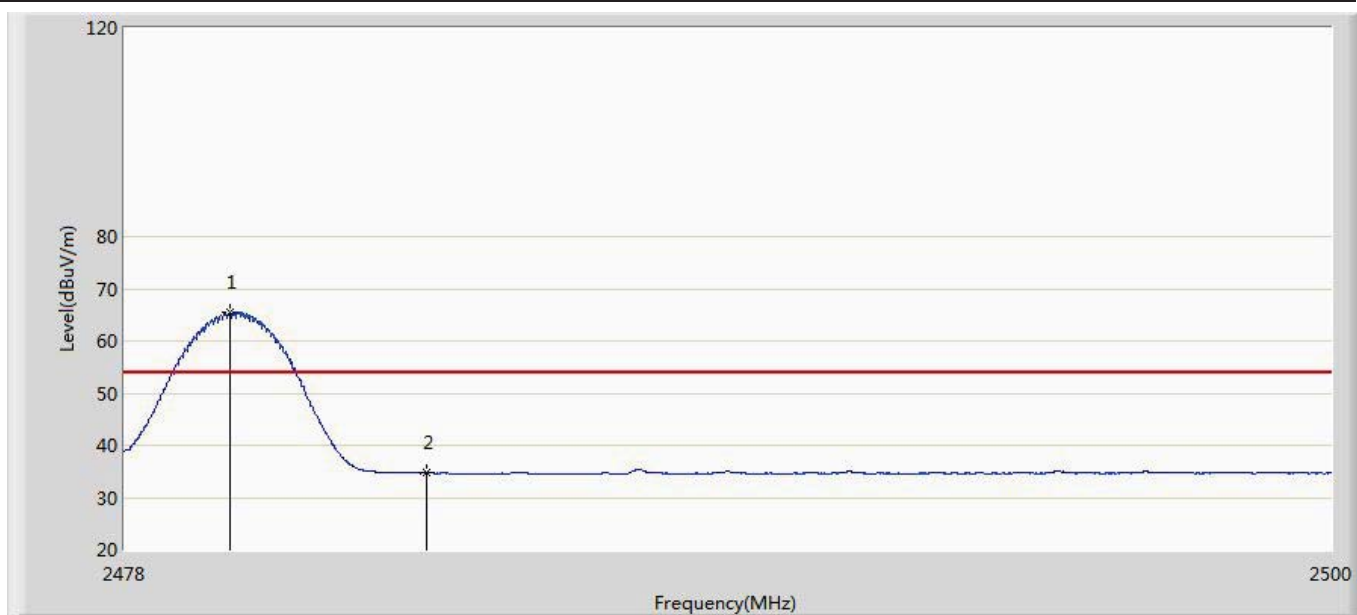


Profile: Geer	Page No.: 89
Site: AC5	Time: 2018/03/11 - 16:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONE	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 2480MHz by BLE	



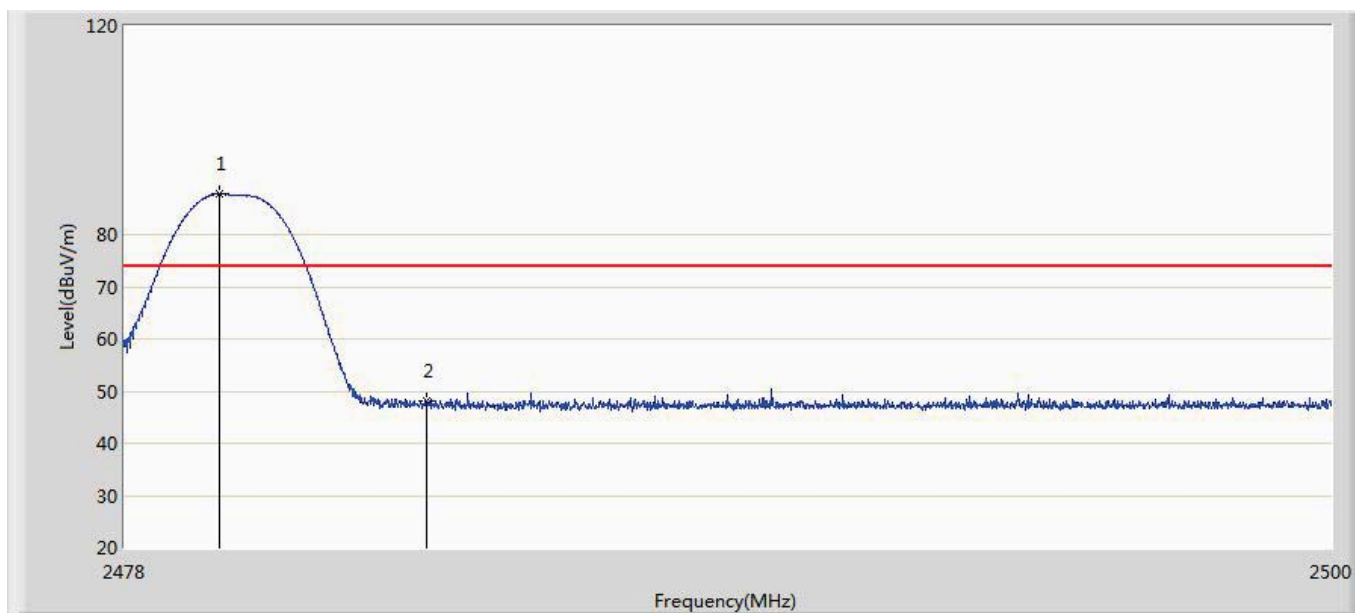
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.705	79.615	47.339	5.615	74.000	32.276	PK
2		2483.500	47.376	15.096	-26.624	74.000	32.280	PK

Profile: Geer	Page No.: 90
Site: AC5	Time: 2018/03/11 - 16:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: BLUETOOTH EARPHONE	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 2480MHz by BLE	



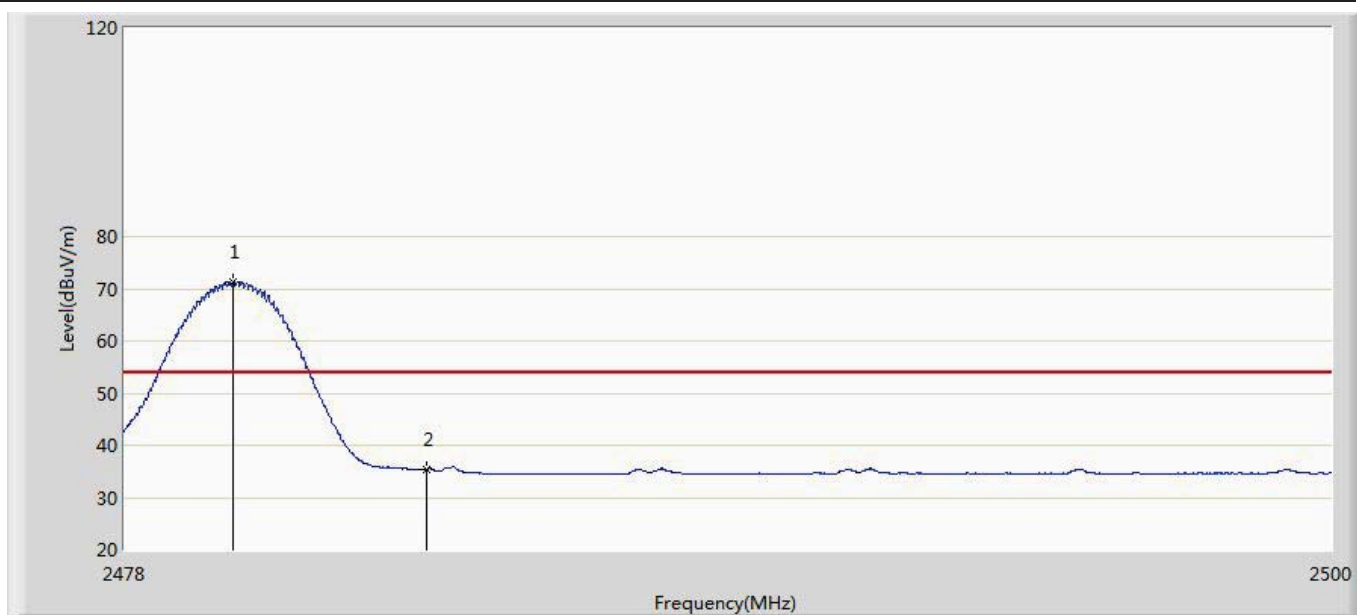
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.914	65.511	33.235	11.511	54.000	32.276	AV
2		2483.500	34.683	2.403	-19.317	54.000	32.280	AV

Profile: Geer	Page No.: 91
Site: AC5	Time: 2018/03/11 - 16:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONE	Power: AC 120V/60Hz
Note: Mode 4: Transmit at channel 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.738	87.768	55.492	13.768	74.000	32.276	PK
2		2483.500	48.141	15.861	-25.859	74.000	32.280	PK

Profile: Geer	Page No.: 92
Site: AC5	Time: 2018/03/11 - 16:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: BLUETOOTH EARPHONE	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 2480MHz by BLE	



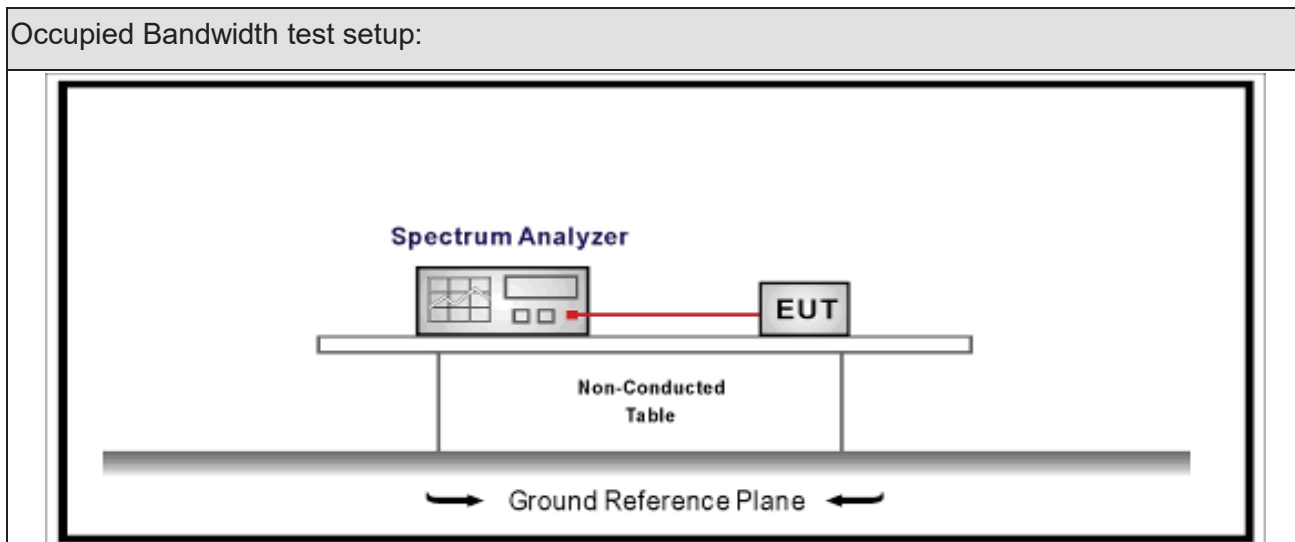
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.969	71.374	39.098	17.374	54.000	32.276	AV
2		2483.500	35.387	3.107	-18.613	54.000	32.280	AV

## 7. Occupied Bandwidth

### 7.1. Test Equipment

Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

### 7.2. Test Setup



### 7.3. Limit

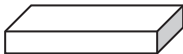

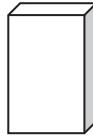



#### Occupied Bandwidth

Systems using digital modulation techniques operate in the 2400-2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz

### 7.4. Test Procedure

Test Method				
	Reference Rule		Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10		11.8	DTS bandwidth
	<input type="checkbox"/>	ANSI C63.10	11.8.1	Option 1
	<input checked="" type="checkbox"/>	ANSI C63.10	11.8.2	Option 2

## 7.5. EUT test definition

Item	Occupied Bandwidth			
Device Category	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

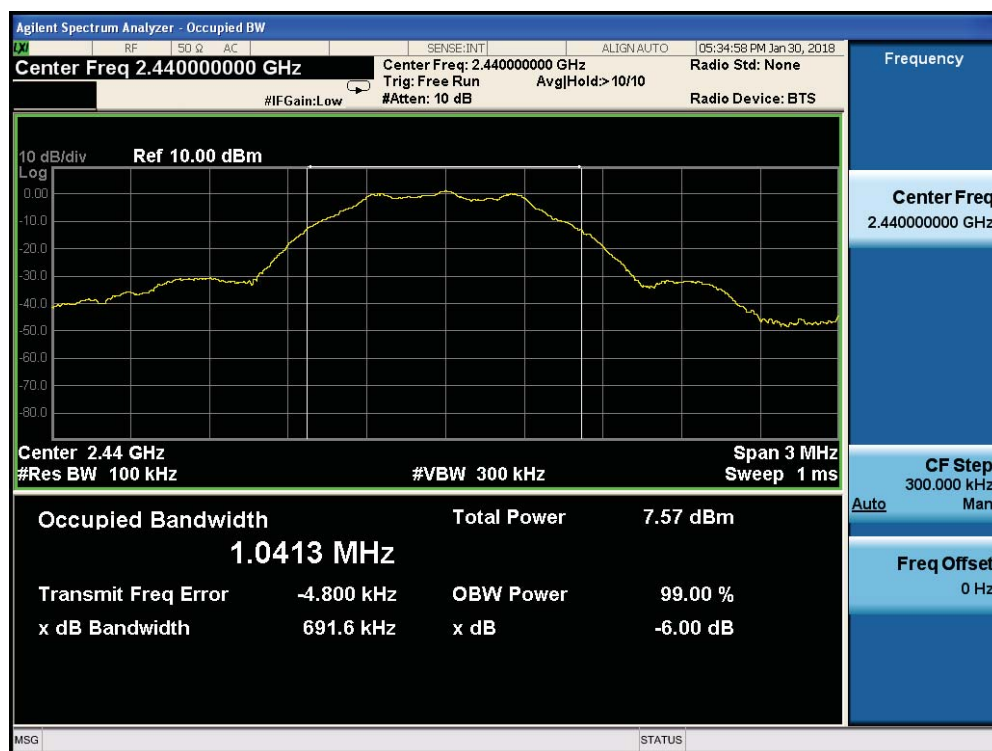
## 7.6. Test Result

Product Name	: BLUETOOTH EARPHONE	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2018.01.30	Test Engineer	: Damon

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (kHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
1	00	2402	1045.2	692.3	>500	Pass
1	19	2440	1041.3	691.6	>500	Pass
1	39	2480	1045.1	693.0	>500	Pass

Note : The worst case of Occupied Bandwidth as below:

### Mode 1 CH19 (2440MHz)





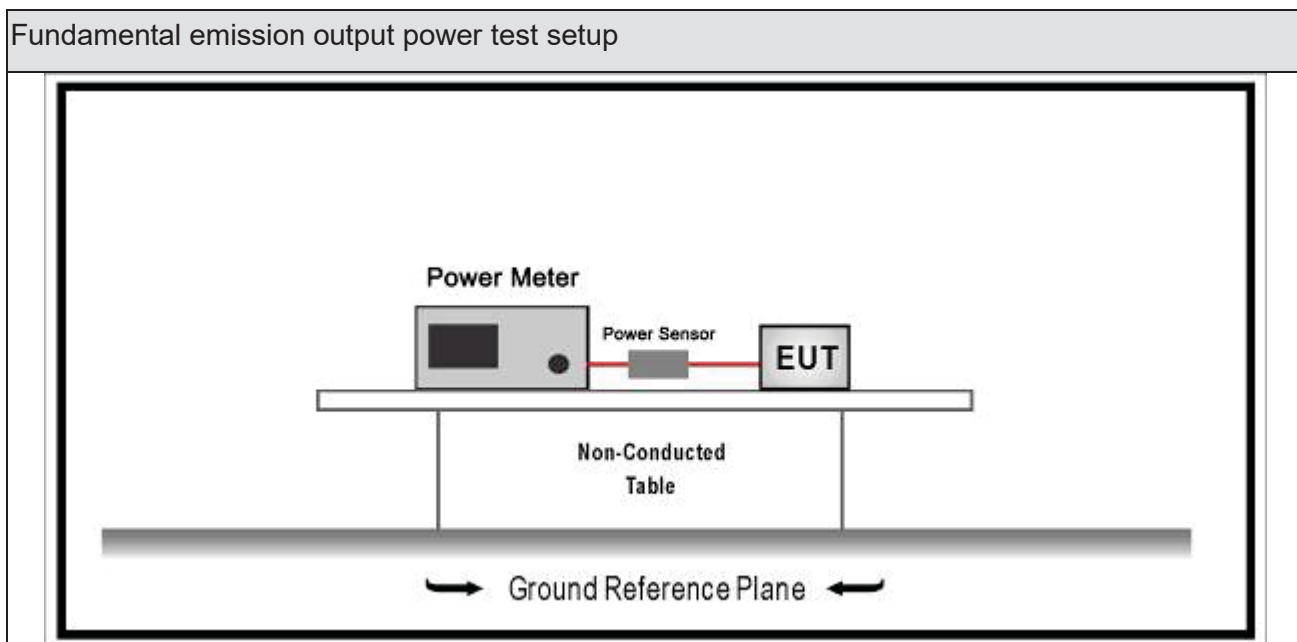
## 8. Fundamental emission output power

### 8.1. Test Equipment

Fundamental emission output power/ TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2018.01.04	2019.01.03
Spectrum Analyzer	Agilent	N9010A	MY48030494	2018.01.04	2019.01.03
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2017.10.14	2018.10.13
Power Sensor	Anritsu	MA2411B	0846014	2017.10.14	2018.10.13
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2017.04.10	2018.04.09

Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

### 8.2. Test Setup



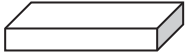





### 8.3. Limit

Fundamental emission output power Limit			
<input checked="" type="checkbox"/>	$G_{TX} < 6\text{dBi}$		$P_{out} \leq 30\text{dBm}$
<input type="checkbox"/>	$G_{TX} > 6\text{dBi}$		
	<input type="checkbox"/>	Non-Fix point-point	$P_{out} \leq 30 - (G_{TX} - 6)$
	<input type="checkbox"/>	Fix point-point	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
	<input type="checkbox"/>	Point-to-multipoint	$P_{out} \leq 30 - (G_{TX} - 6)$
	<input type="checkbox"/>	Overlap Beams	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
	<input type="checkbox"/>	Aggregate power transmitted simultaneously on all beams	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
	<input type="checkbox"/>	single directional beam	$P_{out} \leq 30 - [(G_{TX} - 6)]/3 + 8\text{dB}$
Note 1 : $G_{TX}$ directional gain of transmitting antennas.			
Note 2 : $P_{out}$ is maximum peak conducted output power .			

## 8.4. Test Procedure

Fundamental emission output power Test Method						
	References Rule			Chapter	Description	
<input checked="" type="checkbox"/>	ANSI C63.10			11.9	Fundamental emission output power	
	<input checked="" type="checkbox"/>	ANSI C63.10		11.9.1	Maximum peak conducted output power	
		<input type="checkbox"/>	ANSI C63.10	11.9.1.1	RBW ≥ DTS bandwidth	
		<input type="checkbox"/>	ANSI C63.10	11.9.1.2	Integrated band power method	
		<input checked="" type="checkbox"/>	ANSI C63.10	11.9.1.3	PKPM1 Peak power meter method	
	<input type="checkbox"/>	ANSI C63.10		11.9.2	Maximum conducted (average) output power	
		<input type="checkbox"/>	ANSI C63.10		11.9.2.2	Measurement using a spectrum analyzer (SA)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.2	Method AVGSA-1(Duty cycle≥98%)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.3	Method AVGSA-1A(Duty cycle≥98%)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.4	Method AVGSA-2(Duty cycle≤98%)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.5	Method AVGSA-2A(Duty cycle≤98%)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.4	Method AVGSA-3
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.5	Method AVGSA-3A
		<input type="checkbox"/>	ANSI C63.10		11.9.2.3	Measurement using a power meter (PM)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.3.1	Method AVGPM
			<input type="checkbox"/>	ANSI C63.10	11.9.2.3.2	Method AVGPM-G

## 8.5. EUT test definition

Item	Fundamental emission output power			
Device Category	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

## 8.6. Test Result

Product Name	:	BLUETOOTH EARPHONE	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2018.01.30	Test Engineer	:	Damon

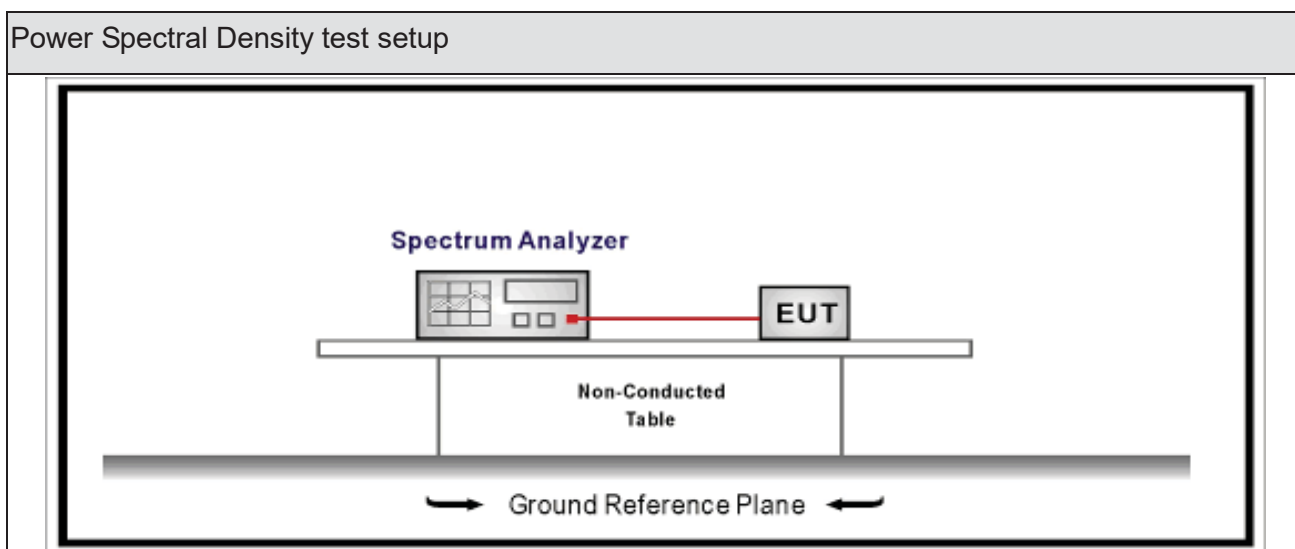
Mode	Channel	Test Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
1	00	2402	-1.01	30	Pass
1	19	2440	1.30	30	Pass
1	39	2480	2.05	30	Pass

## 9. Power Spectral Density

### 9.1. Test Equipment

Power Spectral Density / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

### 9.2. Test Setup



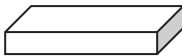





### 9.3. Limit

Power Spectral Density Limit
Power Spectral Density $\leq 8\text{dBm}/3\text{kHz}$

## 9.4. Test Procedure

Power Spectral Density Test Method				
	References Rule		Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10		11.10	Maximum power spectral density level in the fundamental emission
	<input checked="" type="checkbox"/>	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
	<input type="checkbox"/>	ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle $\geq 98\%$ )
	<input type="checkbox"/>	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle $\geq 98\%$ )
	<input type="checkbox"/>	ANSI C63.10	11.10.5	Method AVGPSD-2(Duty cycle $< 98\%$ )
	<input type="checkbox"/>	ANSI C63.10	11.10.6	Method AVGPSD-2A(Duty cycle $< 98\%$ )
	<input type="checkbox"/>	ANSI C63.10	11.10.7	Method AVGPSD-3
	<input type="checkbox"/>	ANSI C63.10	11.10.8	Method AVGPSD-3A

## 9.5. EUT test definition

Item	Power Spectral Density Test Method			
Device Category	<input type="checkbox"/>	Fixed point-to-point		
	<input type="checkbox"/>	Emit multiple directional beams, simultaneously or sequentially		
	<input checked="" type="checkbox"/>	Other cases		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				



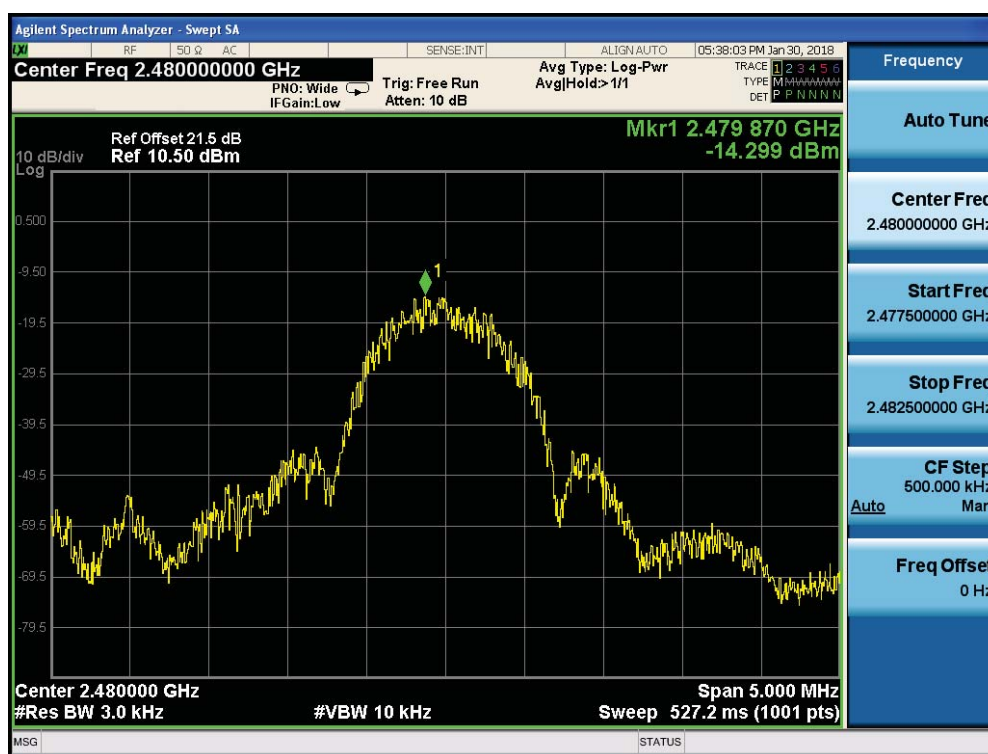
## 9.6. Test Result

Product Name	: BLUETOOTH EARPHONE	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2018.01.30	Test Engineer	: Damon

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	00	2402	-17.871	-17.871	8	Pass
1	19	2440	-14.533	-14.533	8	Pass
1	39	2480	-14.299	-14.299	8	Pass

Note : The worst case of Power Spectral Density as below:

### Mode 1 CH39(2480MHz)



## 10. Antenna Requirement

### 10.1. Limit

Antenna Requirement Limit	
<p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</p>	

### 10.2. Antenna Connector Construction

Antenna Connector Construction	
<input type="checkbox"/>	The use of a permanently attached antenna
<input type="checkbox"/>	The antenna use of a unique coupling to the intentional radiator
<input checked="" type="checkbox"/>	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document "Internal Photograph" to show the antenna connector.	

\_\_\_\_\_ The End \_\_\_\_\_