

TECHNICAL REPORT



Report No.: FCC 1908237-02  
File Reference No.: 2019-09-04

Applicant: Richen Industrial Co., Ltd.  
Product: GuruGear Behind the neck waterproof IPX5 BT Headphones  
Model No.: A3, A3B, NPFU0  
Trademark: ILE, GuruGear  
Test Standards: FCC Part 15.247

Test Result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10, FCC Part 15.247 for the evaluation of electromagnetic compatibility

Approved By

*Jack Chung*

Jack Chung

Manager

Dated: September 04, 2019

**Results appearing herein relate only to the sample tested**

**The technical reports is issued errors and omissions exempt and is subject to withdrawal at**

**SHENZHEN TIMEWAY TESTING LABORATORIES**

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



### **Special Statement:**

The testing quality ability of our laboratory meet with “Quality Law of People’s Republic of China” Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

#### **CNAS-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

#### **FCC-Registration No.: 744189**

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

#### **Industry Canada (IC) —Registration No.:5205A**

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

#### **A2LA (Certification Number:5013.01)**

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01



Test Report Conclusion  
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## 1.0 General Details

### 1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TESTING LABORATORIES.  
Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China  
Telephone: (755) 83448688  
Fax: (755) 83442996  
Site Listed with Federal Communications commission (FCC)  
Registration Number:744189  
For 3m Anechoic Chamber  
Site Listed with Industry Canada of Ottawa, Canada  
Registration Number: IC: 5205A  
For 3m Anechoic Chamber

### 1.2 Applicant Details

Applicant: Richen Industrial Co., Ltd.  
Address: Rm.1688, Building A, Bantian International Center, No.5 Huancheng South Street, Longgang, 518129, Shenzhen  
Telephone: --  
Fax: --

### 1.3 Description of EUT

Product: GuruGear Behind the neck waterproof IPX5 BT Headphones  
Manufacturer: Richen Industrial Co., Ltd.  
Address: Rm.1688, Building A, Bantian International Center, No.5 Huancheng South Street, Longgang, 518129, Shenzhen  
Brand Name: ILE  
Additional Brand Name: GuruGear  
Model Number: A3  
Additional Model Number: A3B, NPFU0  
Type of Modulation GFSK ( Bluetooth BLE)  
Frequency range 2402-2480MHz  
Frequency Selection By software  
Channel Number 40  
Input Voltage: DC5V or Built-in 3.7V, 150mAh Li-ion battery

### 1.4 Submitted Sample: 1 Samples

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1.5 Test Duration

2019-08-28 to 2019-09-04

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

1.7 Test Engineer

The sample tested by \_\_\_\_\_

Print Name: Terry Tang



<b>2.0 Test Equipment</b>					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2019-06-21	2020-06-20
LISN	R&S	EZH3-Z5	100294	2019-06-21	2020-06-20
LISN	R&S	EZH3-Z5	100253	2019-06-21	2020-06-20
Ultra Broadband ANT	R&S	HL562	100157	2019-06-21	2020-06-20
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2019-06-21	2020-06-20
Loop Antenna	EMCO	6507	00078608	2018-06-25	2021-06-24
Spectrum	R&S	FSIQ26	100292	2019-06-21	2020-06-20
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2019-06-21	2021-06-20
Horn Antenna	R&S	BBHA 9120D	9120D-631	2018-07-09	2021-07-08
Power meter	Anritsu	ML2487A	6K00003613	2019-08-22	2020-08-21
Power sensor	Anritsu	MA2491A	32263	2019-08-22	2020-08-21
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2018-07-04	2021-07-03
9*6*6 Anechoic	--	--	N/A	2018-02-07	2021-02-06
EMI Test Receiver	RS	ESVB	826156/011	2019-06-21	2020-06-20
EMI Test Receiver	RS	ESH3	860904/006	2019-06-21	2020-06-20
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2019-06-21	2020-06-20
Spectrum	HP/Agilent	E4407B	MY50441392	2019-06-21	2020-06-20
Spectrum	RS	FSP	1164.4391.38	2019-01-20	2020-01-19
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA	--	2019-06-21	2020-06-20
RF Cable	Zhengdi	7m	--	2019-06-21	2020-06-20
RF Switch	EM	EMSW18	060391	2019-06-21	2020-06-20
Pre-Amplifier	Schwarebeck	BBV9743	#218	2019-06-21	2020-06-20
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2019-06-21	2020-06-20
LISN	SCHAFFNER	NNB42	00012	2019-01-08	2020-01-07

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### 3.0 Technical Details

#### 3.1 Summary of test results

The EUT has been tested according to the following specifications:			
Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(d)	Restricted Band Radiation Restricted band limit: Table 15.209	PASS	Complies

**Note: This is a C2PC test report based on original FCC ID: RMZ-A3B. The original FCC test report number is FCC1702039-02.**

#### 3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

#### 4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.

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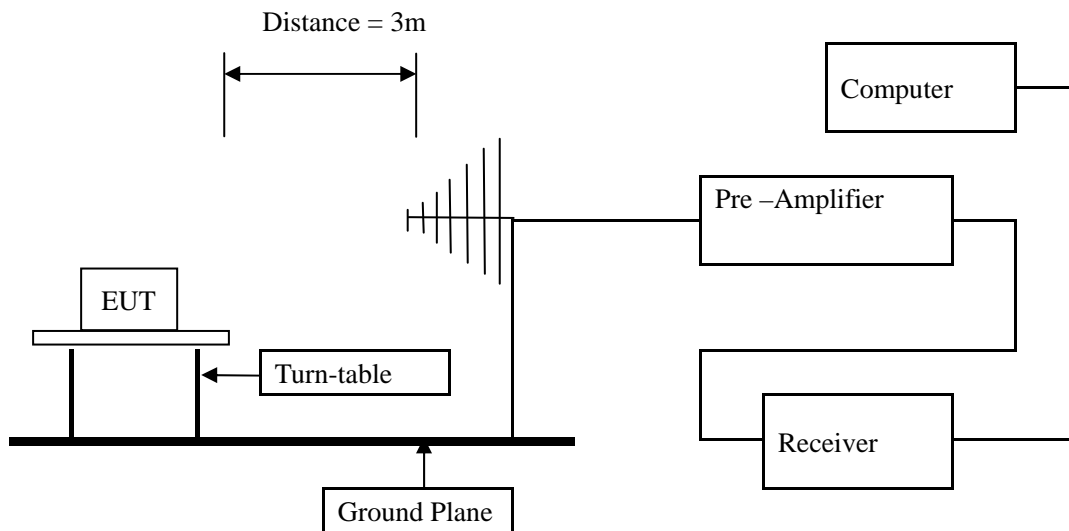


## 5 Radiated Emission Test

### 5.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No.744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=1MHz VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a “QP” in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.

### Block diagram of Test setup



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5.2 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

**Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109**

Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
  2. In the Above Table, the higher limit applies at the band edges.
  3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

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**Test result**

**General Radiated Emission Data and Harmonics Radiated Emission Data**

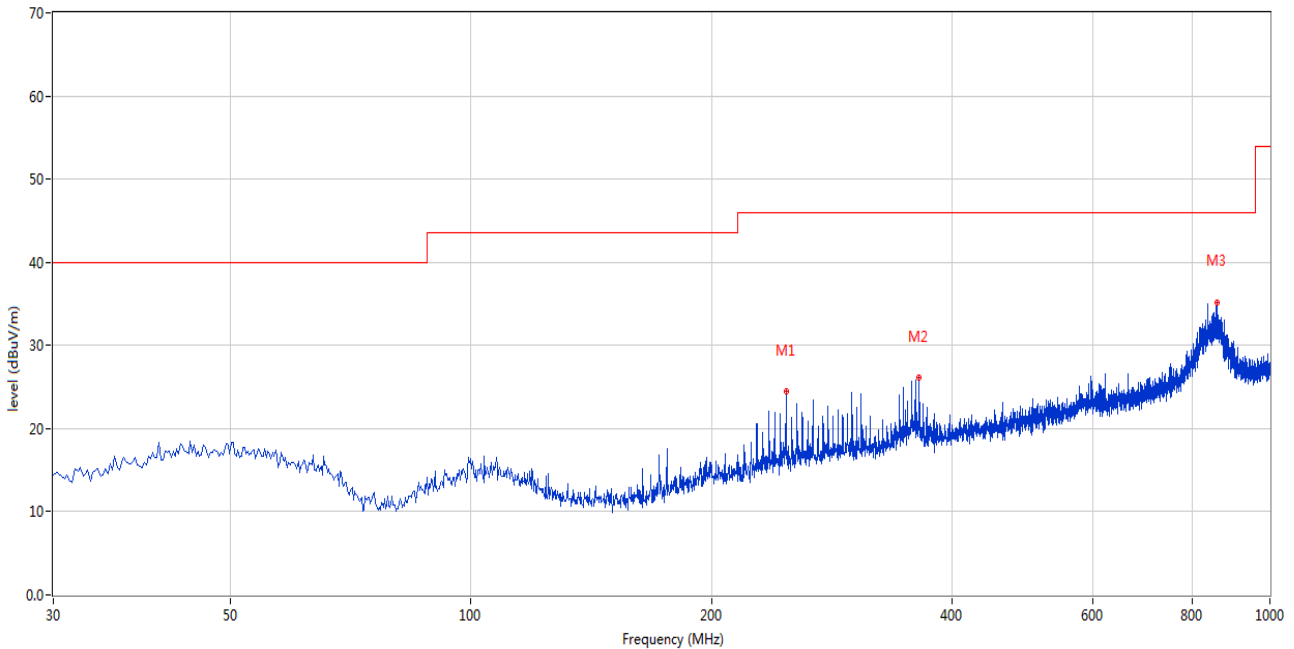
**Radiated Emission In Horizontal (30MHz----1000MHz)**

**EUT set Condition: Keep Bluetooth Transmitting**

**Results: Pass**

**Test Figure:**

FCC\_FCC Part 15B Class B 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	247.953	24.48	-12.15	46.0	-21.52	Peak	0.00	100	H	Pass
2	364.081	26.13	-9.55	46.0	-19.87	Peak	193.00	100	H	Pass
3	857.688	35.18	-2.38	46.0	-10.82	Peak	87.00	100	H	Pass

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**Test result**

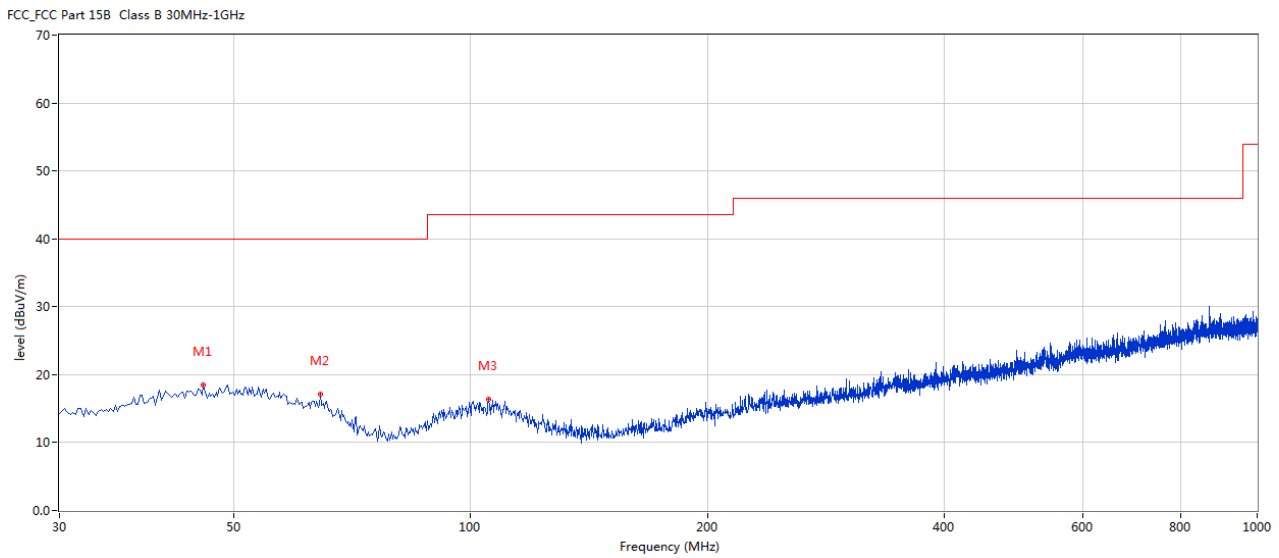
**General Radiated Emission Data and Harmonics Radiated Emission Data**

**Radiated Emission In Vertical (30MHz----1000MHz)**

EUT set Condition: **Keep Transmitting**

**Results: Pass**

Test Figure:



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	45.759	18.44	-11.40	40.0	-21.56	Peak	253.00	100	V	Pass
2	64.426	17.07	-13.43	40.0	-22.93	Peak	155.00	100	V	Pass
3	105.399	16.35	-13.25	43.5	-27.15	Peak	67.00	100	V	Pass

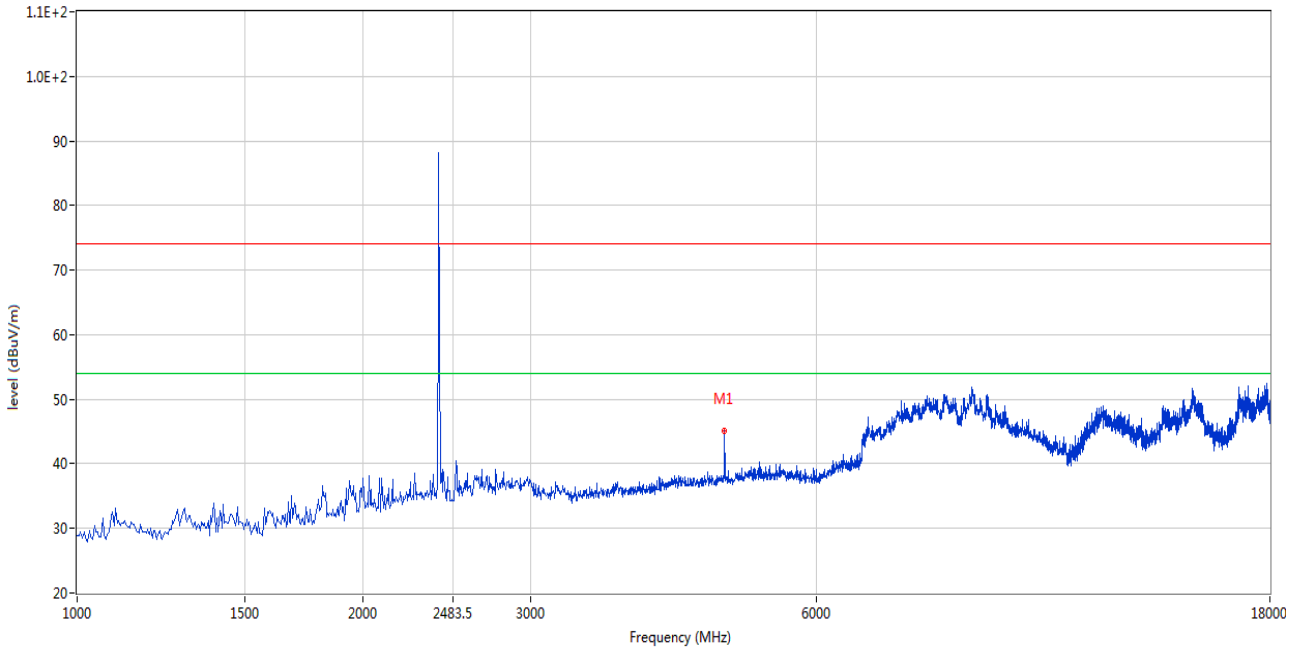
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Please refer to the following test plots for details:

**Low Channel: Vertical**

CE\_FCC Part 15B Class B 1GHz-18GHz - 2



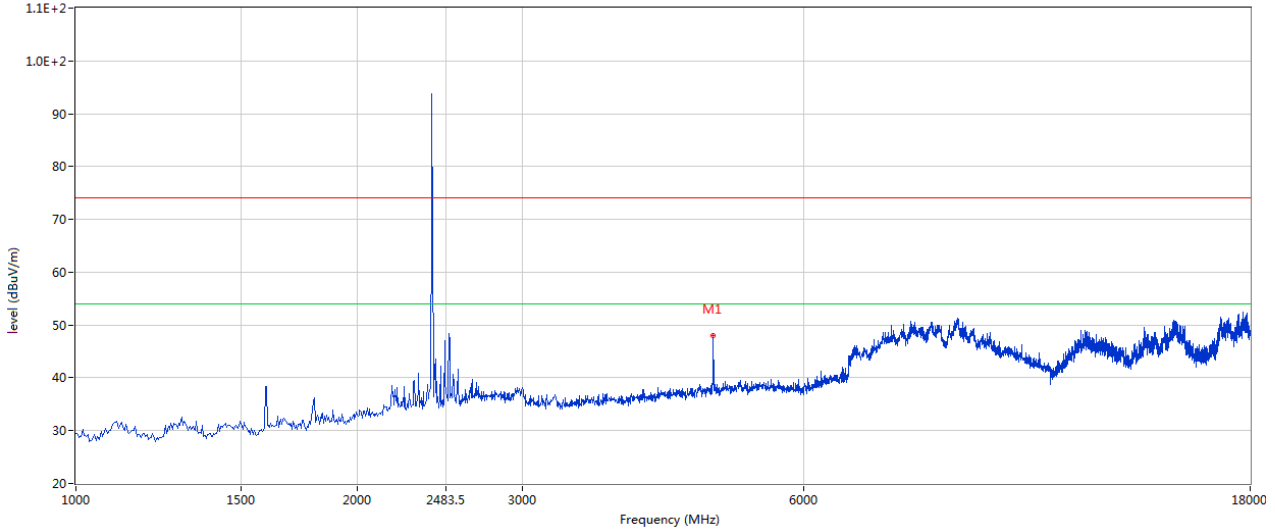
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	4802.799	45.05	3.12	74.0	-28.95	Peak	209.00	100	V	Pass

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**Low Channel : Horizontal**

CE\_FCC Part 15B Class B 1GHz-18GHz - 2



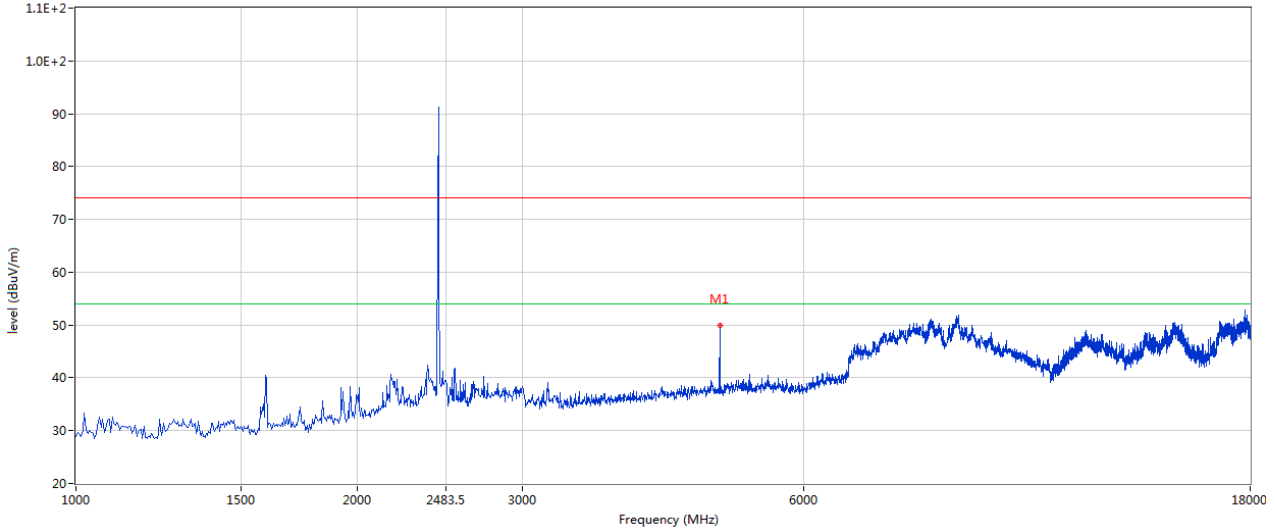
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	4802.799	48.97	3.12	74.0	-25.03	Peak	206.00	100	H	Pass

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**Middle Channel : Vertical**

CE\_FCC Part 15B Class B 1GHz-18GHz - 2



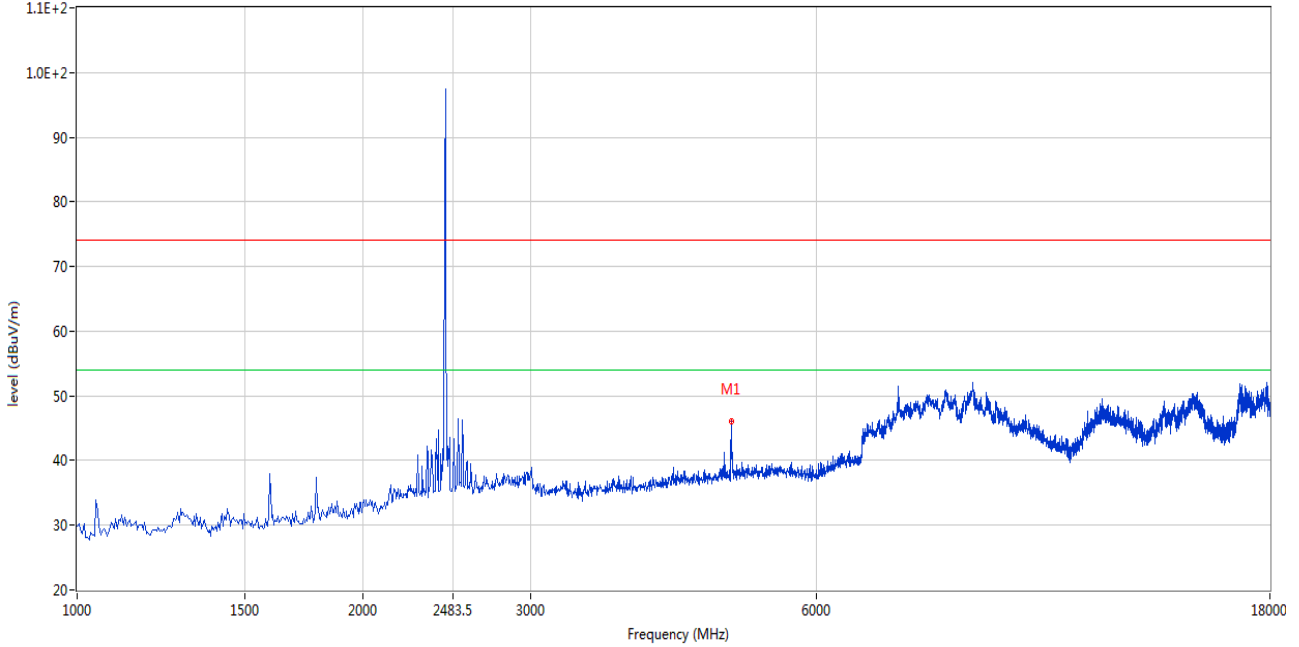
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	4879.280	49.96	3.20	74.0	-24.04	Peak	8.00	100	V	Pass

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**Middle Channel : Horizontal**

CE\_FCC Part 15B Class B 1GHz-18GHz - 2



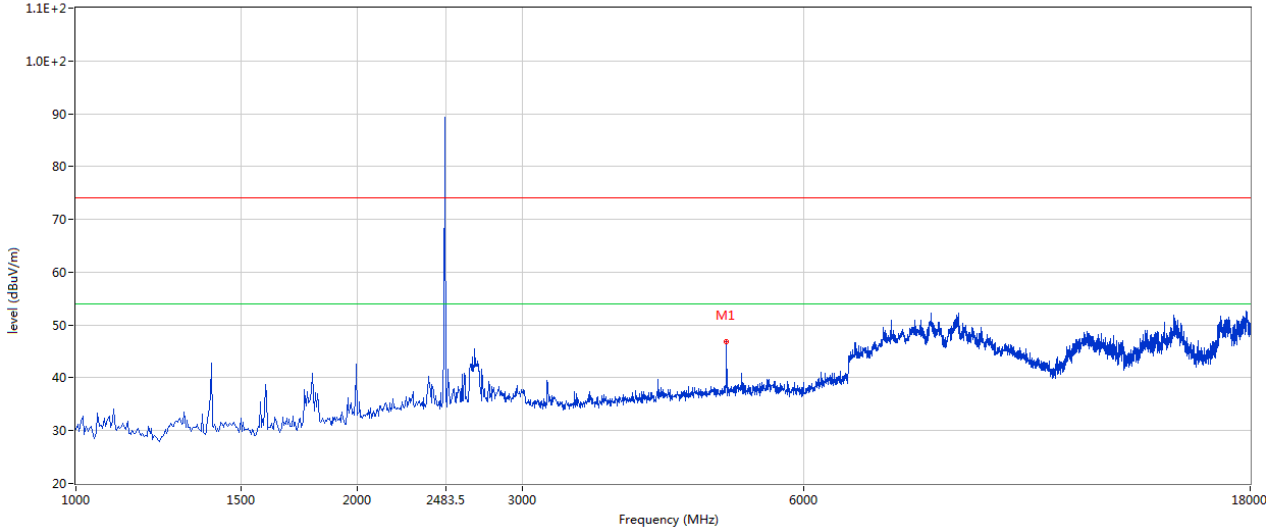
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	4879.280	47.17	3.20	74.0	-26.83	Peak	164.00	100	H	Pass

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**High Channel : Vertical**

CE\_FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	4960.010	46.79	3.36	74.0	-27.21	Peak	156.00	100	V	Pass

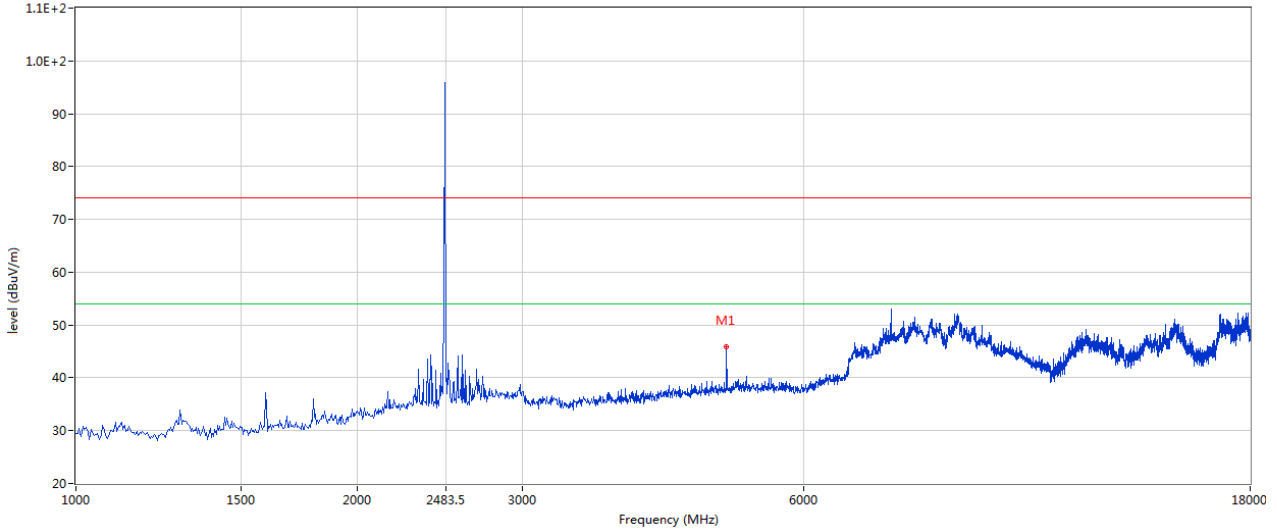
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**High Channel : Horizontal**

CE\_FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	4960.010	45.89	3.36	74.0	-28.11	Peak	159.00	100	H	Pass

- Note: 1. for the radiated emissions above 18G, it is the floor noise.**  
**2. Results = Reading + AF + Cable - Preamp**

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## **6.0 Restricted Band Measurement**

### **6.1 Test Setup**

Please see the clause 5 for the test setup

### **6.2 Limits of Out of Band Emissions Measurement**

Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

### **6.3 Test Procedure**

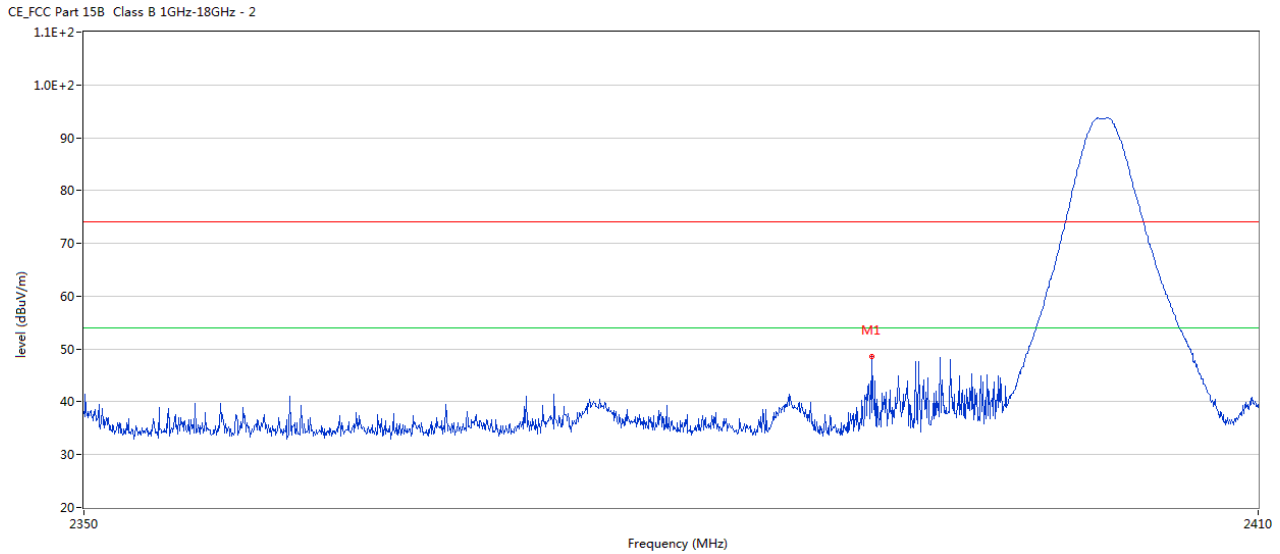
For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of Radiated emission test. Peak values with RBW=VBW=1MHz and PK detector.

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**6.4 Restrict Band Measurement**

EUT	GuruGear Behind the neck waterproof IPX5 BT Headphones	Model	A3
Mode	Keep Transmitting	Input Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



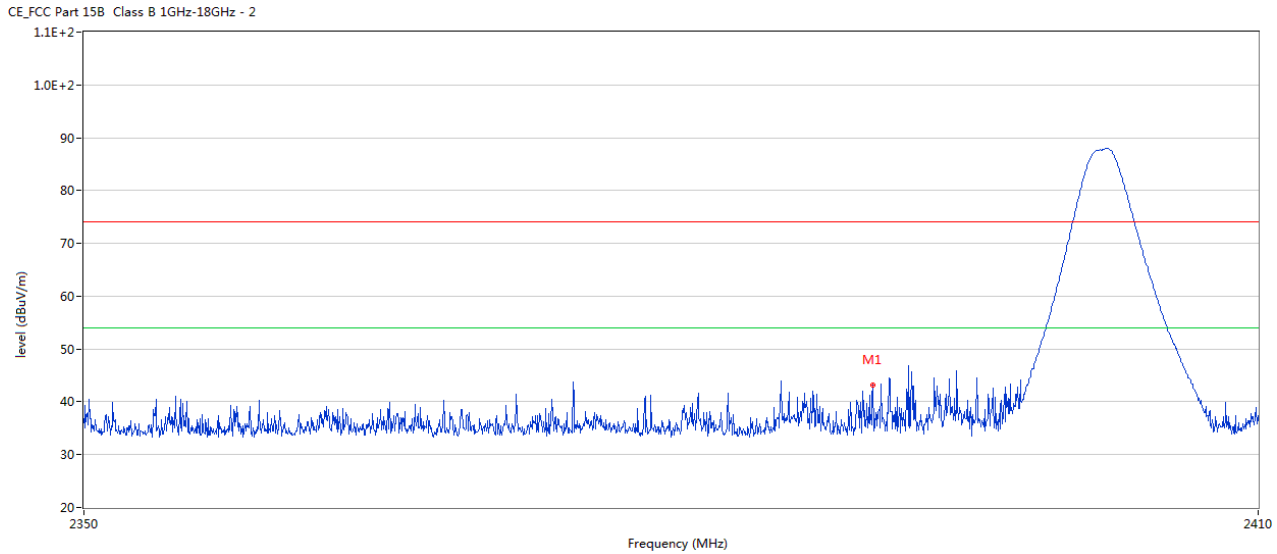
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2390	48.53	-3.53	74.0	-25.47	Peak	0.00	100	H	Pass

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**6.4 Restrict Band Measurement**

EUT	GuruGear Behind the neck waterproof IPX5 BT Headphones	Model	A3
Mode	Keep Transmitting	Input Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2390	43.18	-3.53	74.0	-30.82	Peak	221.00	100	V	Pass

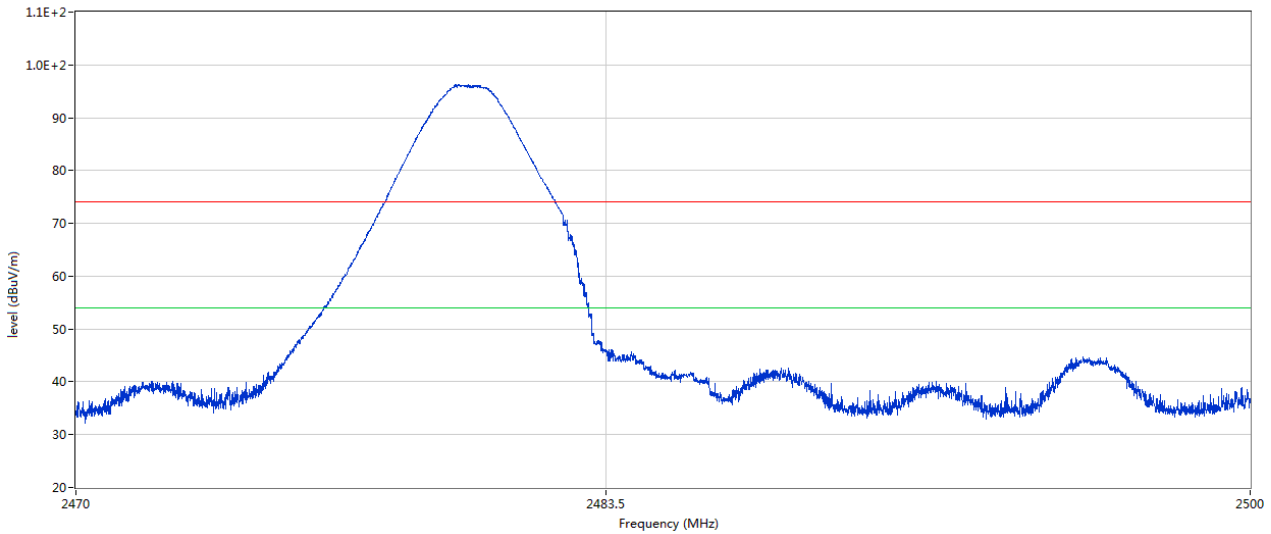
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**6.4 Restrict Band Measurement**

EUT	GuruGear Behind the neck waterproof IPX5 BT Headphones	Model	A3
Mode	Keep Transmitting	Input Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		

CE\_FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2483.5	47.06	-3.57	74.0	-26.94	Peak	167.00	100	H	Pass

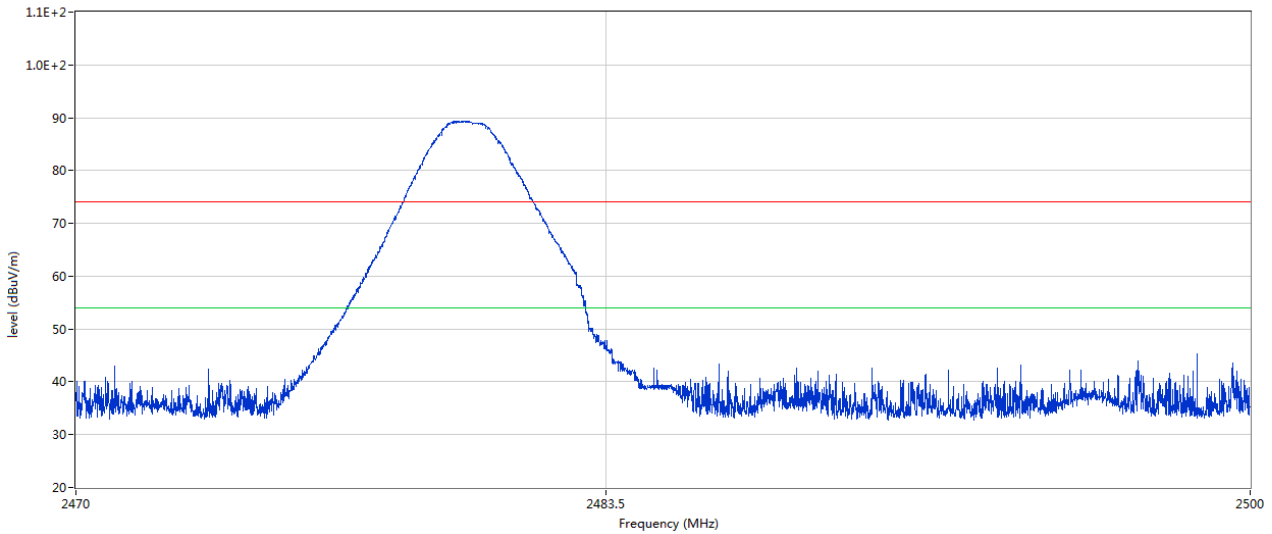
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**6.4 Restrict Band Measurement**

EUT	GuruGear Behind the neck waterproof IPX5 BT Headphones	Model	A3
Mode	Keep Transmitting	Input Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		

CE\_FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2483.5	46.59	-3.57	74.0	-27.41	Peak	153.00	100	V	Pass

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## **8.0 Antenna Requirement**

### **8.1 Standard Applicable**

For intentional device, according to FCC 47 CFR Section 15.203, 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **8.2 Antenna Connected construction**

Ceramic antenna used. The gain of the antennas is -0.8dBi.

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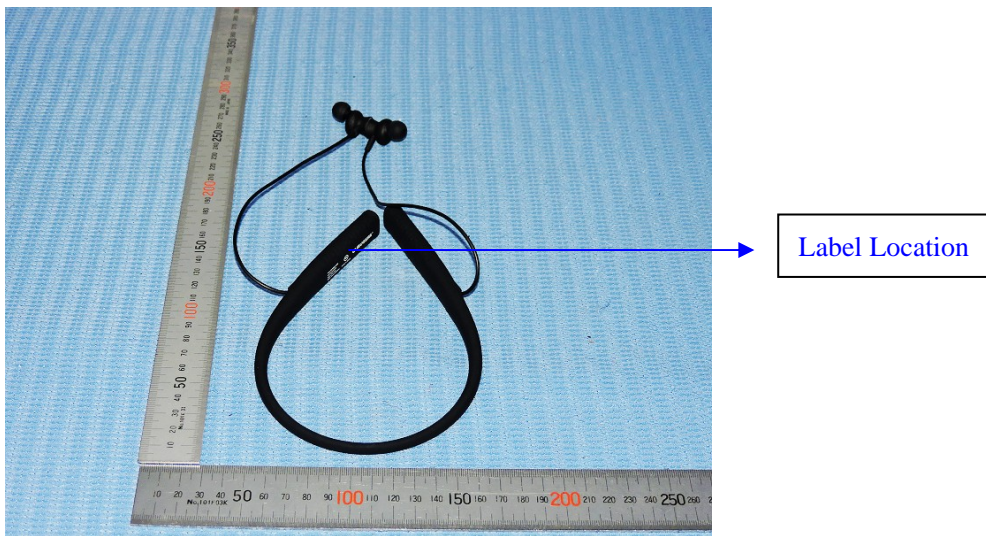


## 9.0 FCC ID Label

**FCCID: RMZ-A3B**

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

### Mark Location:



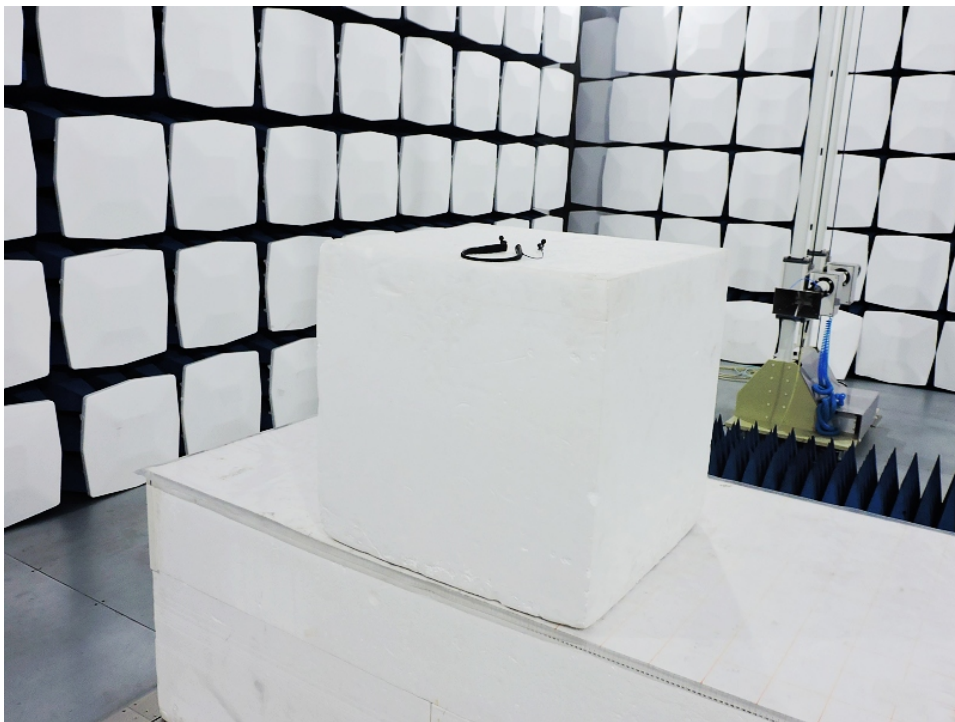
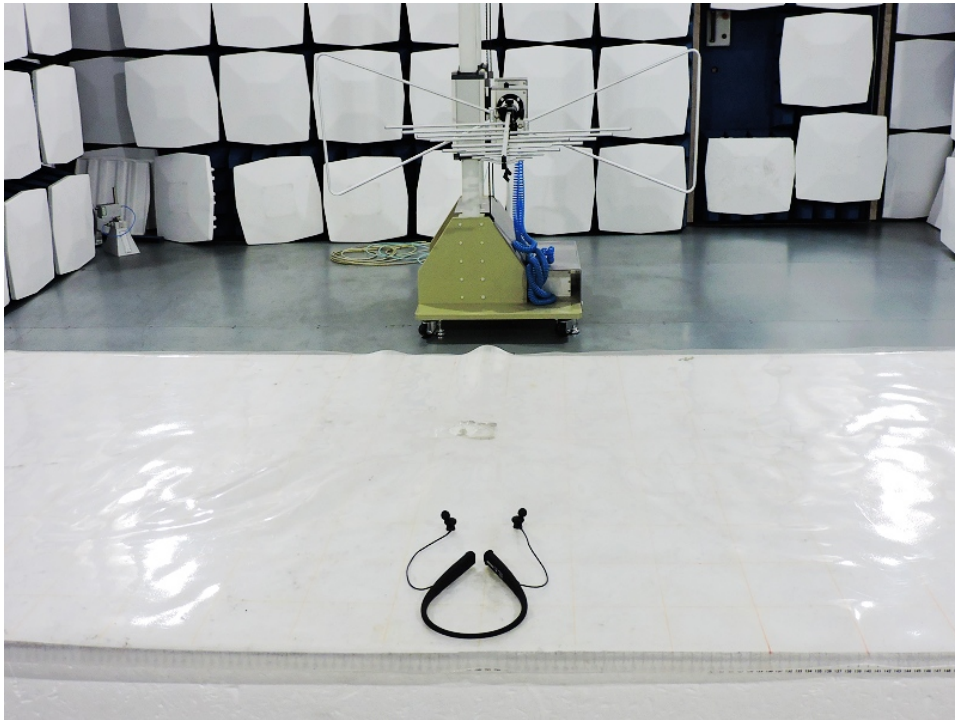
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10.0 Photo of testing  
Radiated Emission Test Setup:



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### Photographs – EUT

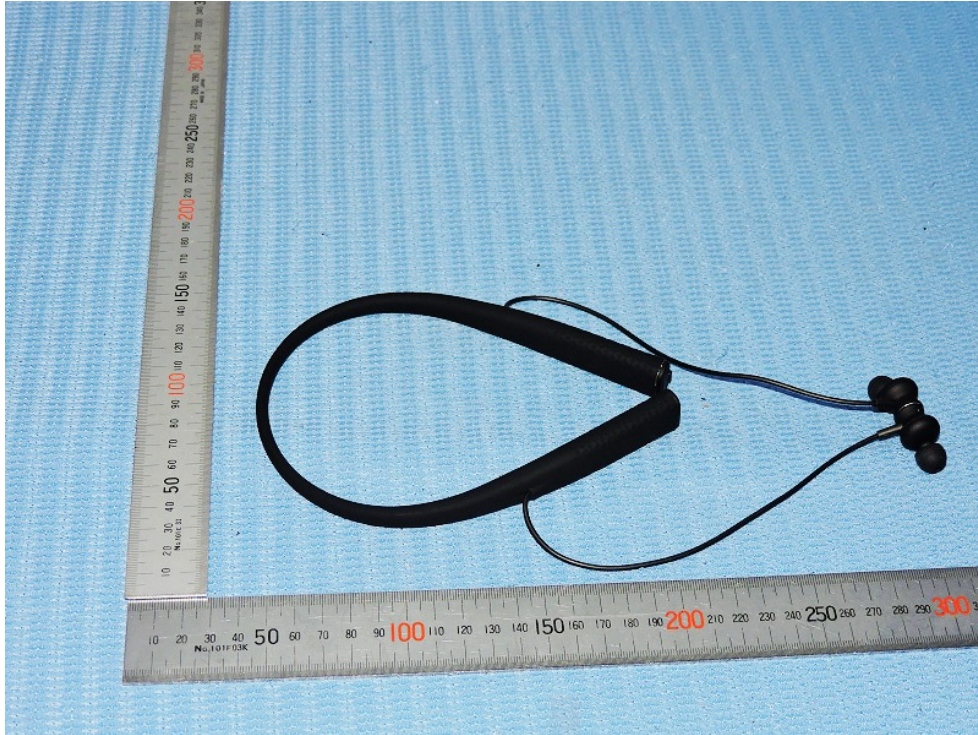
Outside view



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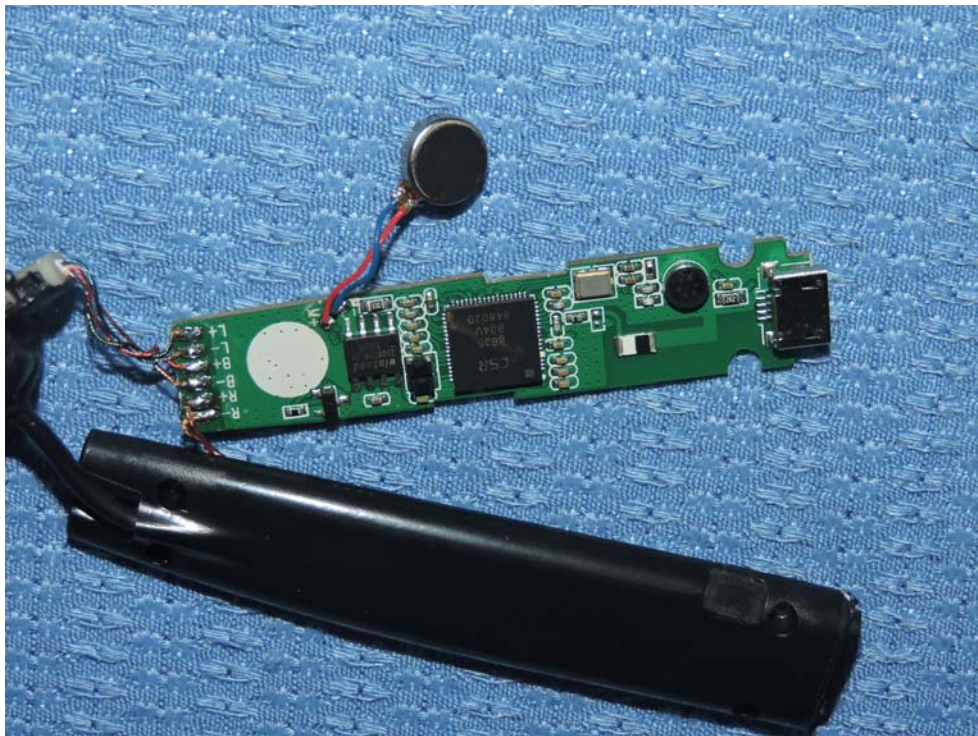
Outside view



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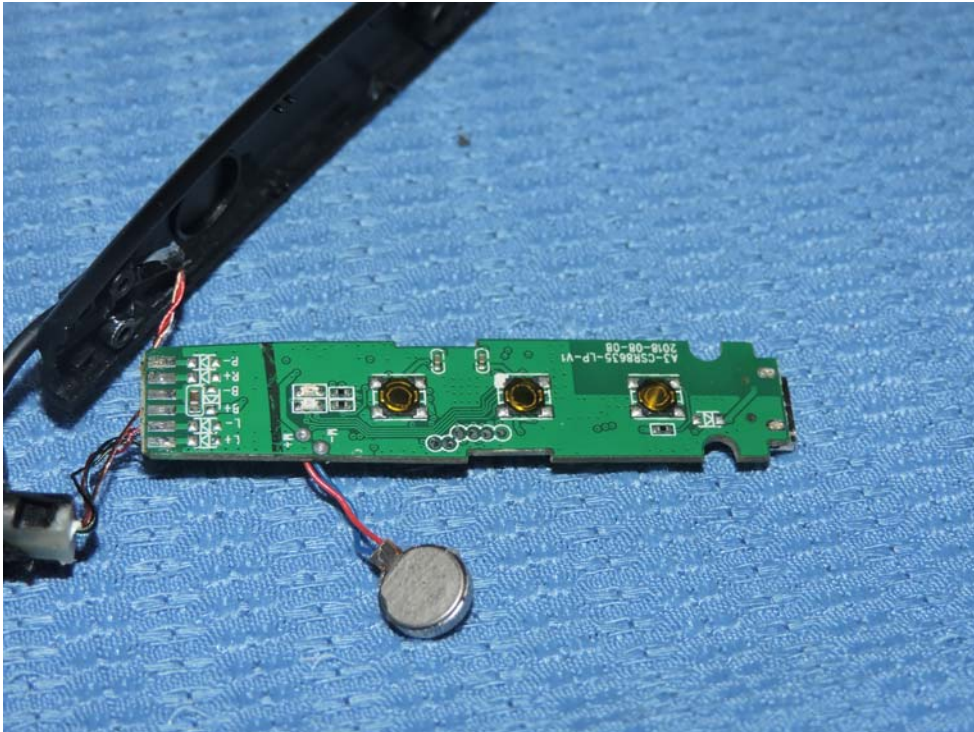
Inside view



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Inside view



**End of the report**

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