FCC Test Report

Report No.: AGC01824170203FE03

FCC ID	:	2AHYV-UNIVERS
APPLICATION PURPOSE	:	Class II Permissive Change
PRODUCT DESIGNATION	:	BTJLABMIC
BRAND NAME	:	JLAB
MODEL NAME	:	See Page 4
CLIENT	:	PEAG, LLC dba JLab Audio
DATE OF ISSUE	:	Mar.27, 2017
STANDARD(S) **TEST PROCEDURE(S)**	:	FCC Part 15 Rules
REPORT VERSION	:	V1.1

Attestation of Global Compliance (Shenzhen) Co., Ltd

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jan.07, 2017	Valid	Original Report
V1.1	1	Mar.27, 2017	Valid	Revise Report

Note: Owing to the product under testing was identical with the AGC01824161201FE03's product except for the battery. So the test data may refer to the AGC01824161201FE03 except for test data below 1GHz in the report.

TABLE OF CONTENTS

1. VERIFICATION OF CONFORMITY

Applicant	PEAG, LLC dba JLab Audio
Address	3402 Piazza DOro Way Suite 230 Oceanside, CA, United States, 92056
Manufacturer	Dongguan Siyoto Electronics Co., Ltd.
Address	Hecheng Industrial District, Dongjiang, Qiaotou Town, Dongguan City, Guangdong, China
Product Designation	BTJLABMIC
Brand Name	JLAB
Test Model	BTJLABMIC
Series Model	Metal BT, JBuds Pro BT, Metal Plus BT, Metal Mini BT, JBuds Elite BT, Metal Neon BT
Model difference	All the same except for the appearance and color.
Date of test	Mar.05, 2017 to Mar.10, 2017
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-US-BR/RF

We hereby certify that:
The above equipment was tested by Dongguan Precise Testing Service Co., Ltd. The test data, the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 15.249.

Tested By Strive Liang

Strive Liang(Liang Faqiang) Mar.10, 2017

Reviewed By Forrest Lei

Forrest Lei(Lei Yonggang) Mar.27, 2017

Approved By Solger Zhang

Solger Zhang(Zhang Hongyi)
Authorized Officer Mar.27, 2017

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	2.402 GHz to 2.480GHz
RF Output Power	0.68dBm(Max EIRP Power=Max radiation field-95.2)
Bluetooth Version	V4.1
Modulation	GFSK, π /4-DQPSK, 8DPSK
Number of channels	79
Hardware Version	HDV3.0_1
Software Version	HDV3.0_1
Antenna Designation	Ceramic Antenna
Antenna Gain	2dBi
Power Supply	DC 3.7V by battery

Note: The EUT didn't support BLE.

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency
2400~2483.5MHz	0	2402MHz
	1	2403MHz
	:	:
	38	2440 MHz
	39	2441 MHz
	40	2442 MHz
	:	:
	77	2479 MHz
	78	2480 MHz

3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U，where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2，providing a level of confidence of approximately 95 %。

No.	Item	Uncertainty
1	Conducted Emission Test	±3.18dB
2	All emissions,radiated	±3.91dB
3	Temperature	±0.5°C
4	Humidity	±2%

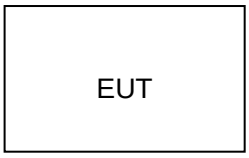
4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	BT Link

5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure 1: (Normal hopping)



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Ipod	APPLE	A1367	A.E

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.249(a) §15.209	Radiated Emission	Compliant

6. TEST FACILITY

Site	Dongguan Precise Testing Service Co., Ltd.
Location	Building D,Baoding Technology Park,Guangming Road2,Dongcheng District, Dongguan, Guangdong, China,
FCC Registration No.	371540
Description	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2014.

7 TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10-2013.

8. ALL TEST EQUIPMENT LIST

FOR RADIATED EMISSION TEST (BELOW 1GHz)

Radiated Emission Test Site					
Name of Equipment	**Manufacturer**	**Model Number**	**Serial Number**	**Last Calibration**	**Due Calibration**
EMI Test Receiver	ROHDE & SCHWARZBECK	ESCI	101417	July 4, 2016	July 3, 2017
Trilog Broadband Antenna (25M-1GHz)	SCHWARZBECK	VULB9160	9160-3355	July 4, 2016	July 3, 2017
Signal Amplifier	SCHWARZBECK	BBV 9475	9745-0013	July 4, 2016	July 3, 2017
RF Cable	SCHWARZBECK	AK9515E	96221	July 4, 2016	July 3, 2017
3m Anechoic Chamber	CHENGYU	966	PTS-001	June 6, 2016	June 5, 2017
Multi-Device Positioning Controller	MAX-FULL	MF-7802	MF780208339	N/A	N/A
Active loop antenna (9K-30MHz)	SCHWARZBECK	FMZB1519	1519-038	June 6, 2016	June 5, 2017
Spectrum Analyzer	AGILENT	E4407B	MY46185649	June 6, 2016	June 5, 2017
Radiation Cable 1	MXT	RS1	R005	June 6, 2016	June 5, 2017
Radiation Cable 2	MXT	RS1	R006	June 6, 2016	June 5, 2017

9. RADIATED EMISSION

9.1TEST LIMIT

Standard FCC15.249

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
900-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

Standard FCC 15.209

Frequency (MHz)	Distance Meters	Field Strengths Limit	
		μ V/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(kHz)	---
0.490 ~ 1.705	30	24000/F(kHz)	---
1.705 ~ 30	30	30	---
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Remark： (1) Emission level dBμ V = 20 log Emission level μ V/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

9.2. MEASUREMENT PROCEDURE

1. The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(below 1GHz)
2. The height of the test antenna shall vary between 1m to 4m.Both horizontal and vertical polarization Of the antenna are set to make the measurement.
3. The initial step in collecting radiated emission data is a receive peak detector mode. Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
4. All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform(Bleow 1GHz)

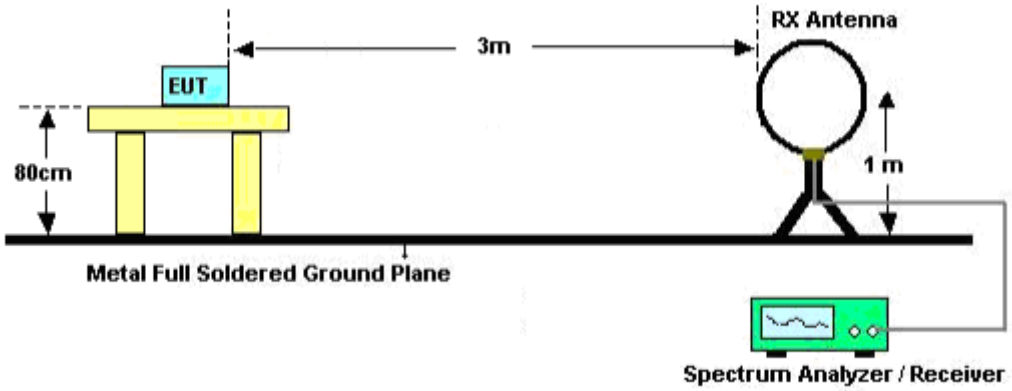
The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

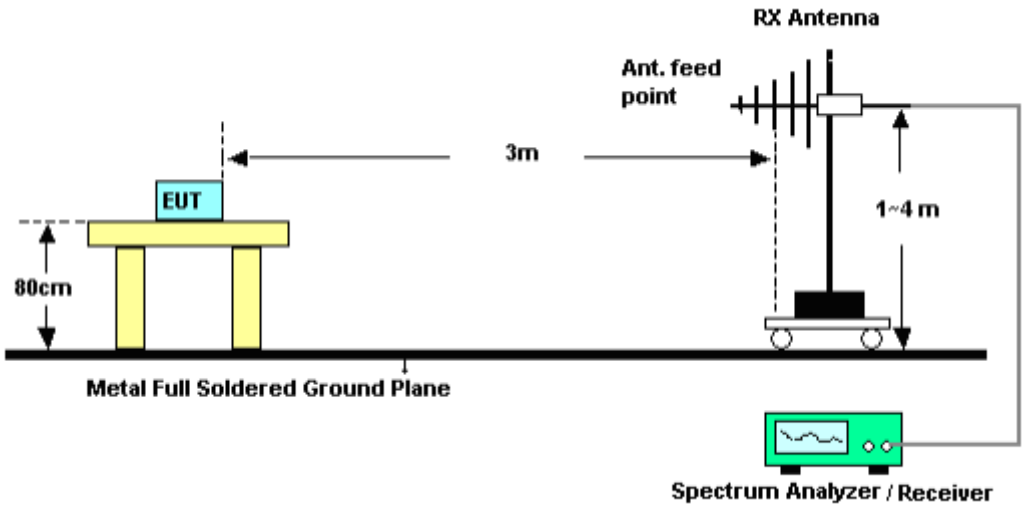
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

9.3. TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



9.4. TEST RESULT

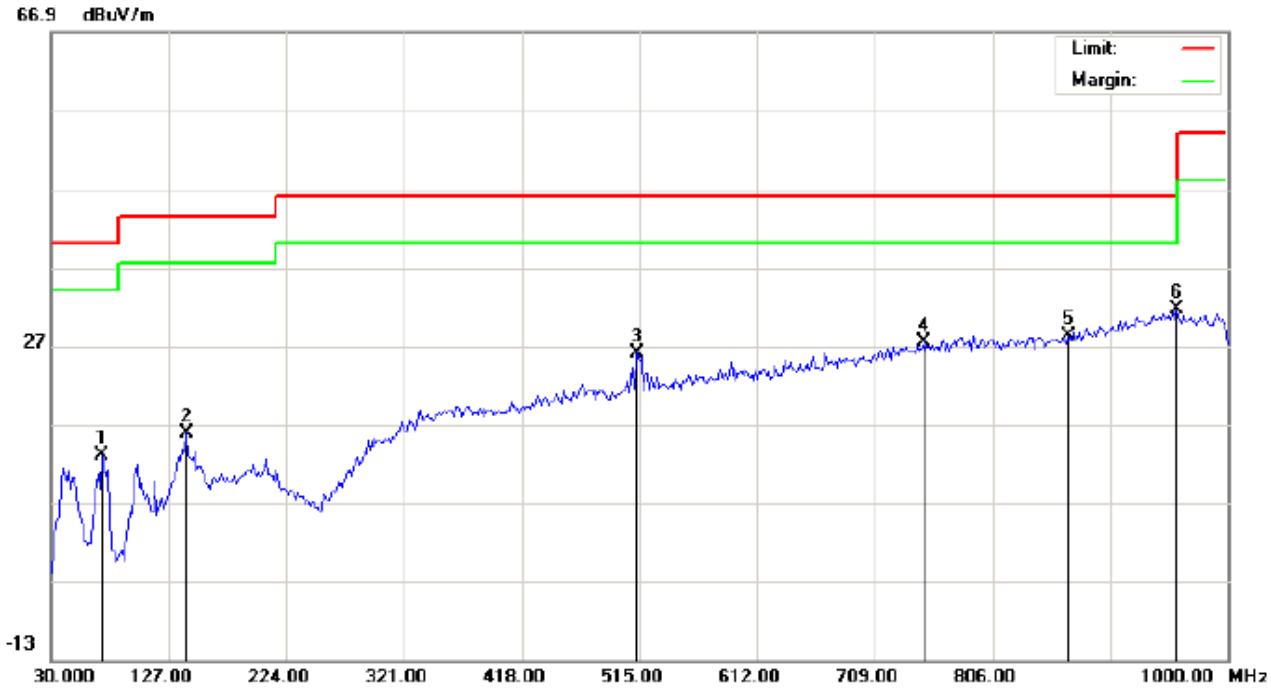
BTJLABMIC

RADIATED EMISSION BELOW 30MHz

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHz

RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL-HORIZONTAL



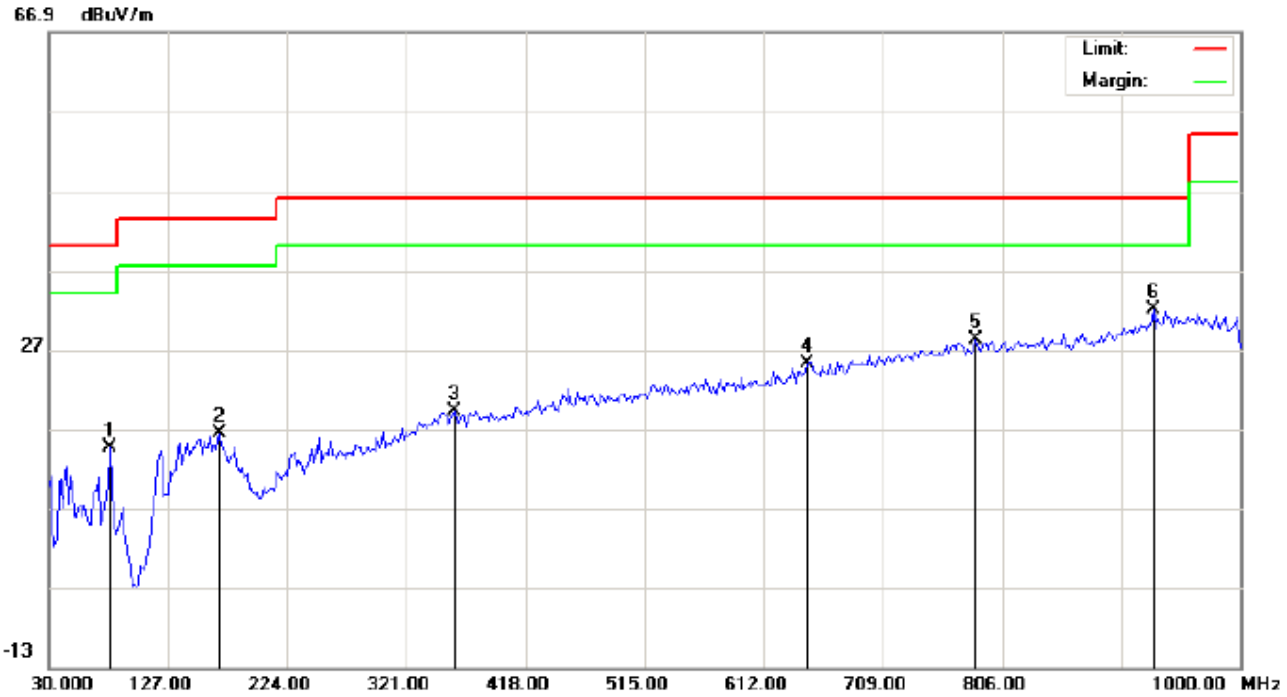
Site: site #1
Limit: FCC Class B 3M Radiation
EUT: BTJLABMIC
M/N: BTJLABMIC
Mode: BT Link
Note:

Polarization: *Horizontal*
Power:
Distance:

Temperature: 22.2
Humidity: 54.3 %

No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		72.0333	4.66	8.28	12.94	40.00	-27.06	peak			
2		141.5500	0.97	14.82	15.79	43.50	-27.71	peak			
3		513.3832	4.61	21.49	26.10	46.00	-19.90	peak			
4		749.4167	0.75	26.61	27.36	46.00	-18.64	peak			
5		869.0500	0.30	27.81	28.11	46.00	-17.89	peak			
6	*	957.9667	1.73	29.92	31.65	46.00	-14.35	peak			

RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL -VERTICAL



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: BTJLABMIC
M/N: BTJLABMIC
Mode: BT Link
Note:

Polarization: *Vertical*
Power:
Distance:

Temperature: 22.2
Humidity: 54.3 %

No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		80.1167	12.79	1.84	14.63	40.00	-25.37	peak			
2		169.0333	1.70	14.76	16.46	43.50	-27.04	peak			
3		359.8000	0.46	18.80	19.26	46.00	-26.74	peak			
4		647.5667	1.32	23.80	25.12	46.00	-20.88	peak			
5		784.9833	1.13	27.11	28.24	46.00	-17.76	peak			
6	*	928.8667	2.65	29.41	32.06	46.00	-13.94	peak			

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The “Factor” value can be calculated automatically by software of measurement system.

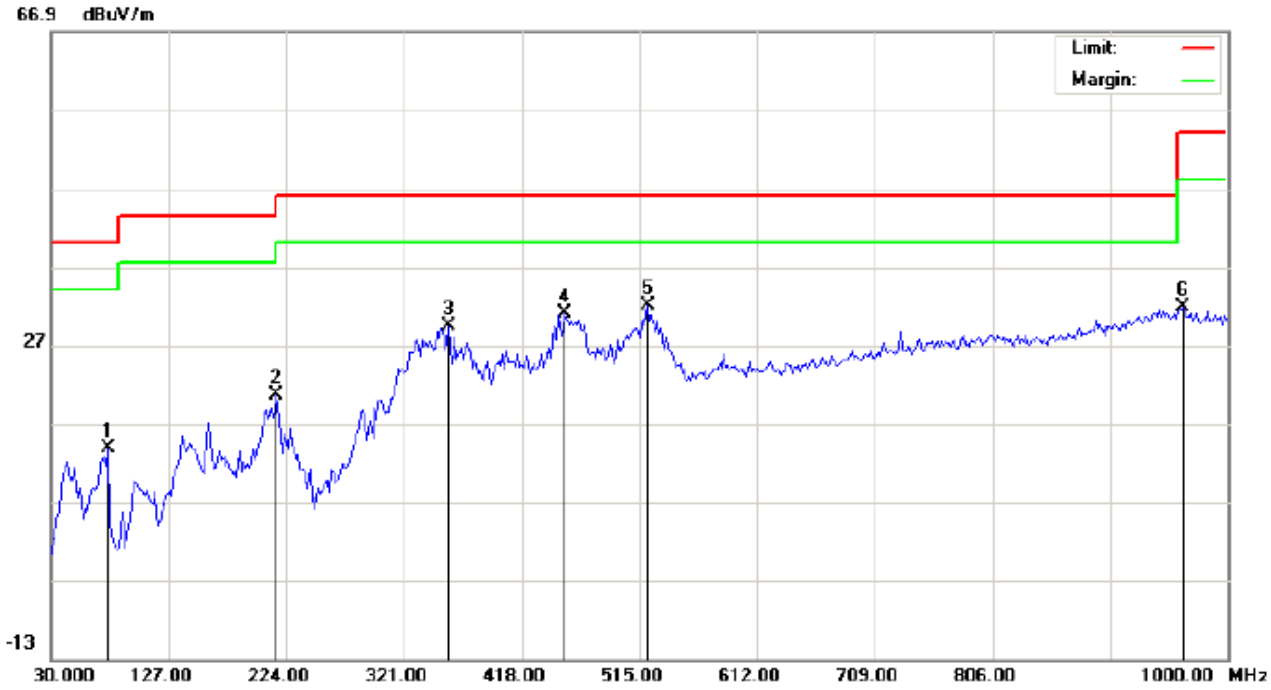
JBuds Elite BT

RADIATED EMISSION BELOW 30MHz

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHz

RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL-HORIZONTAL



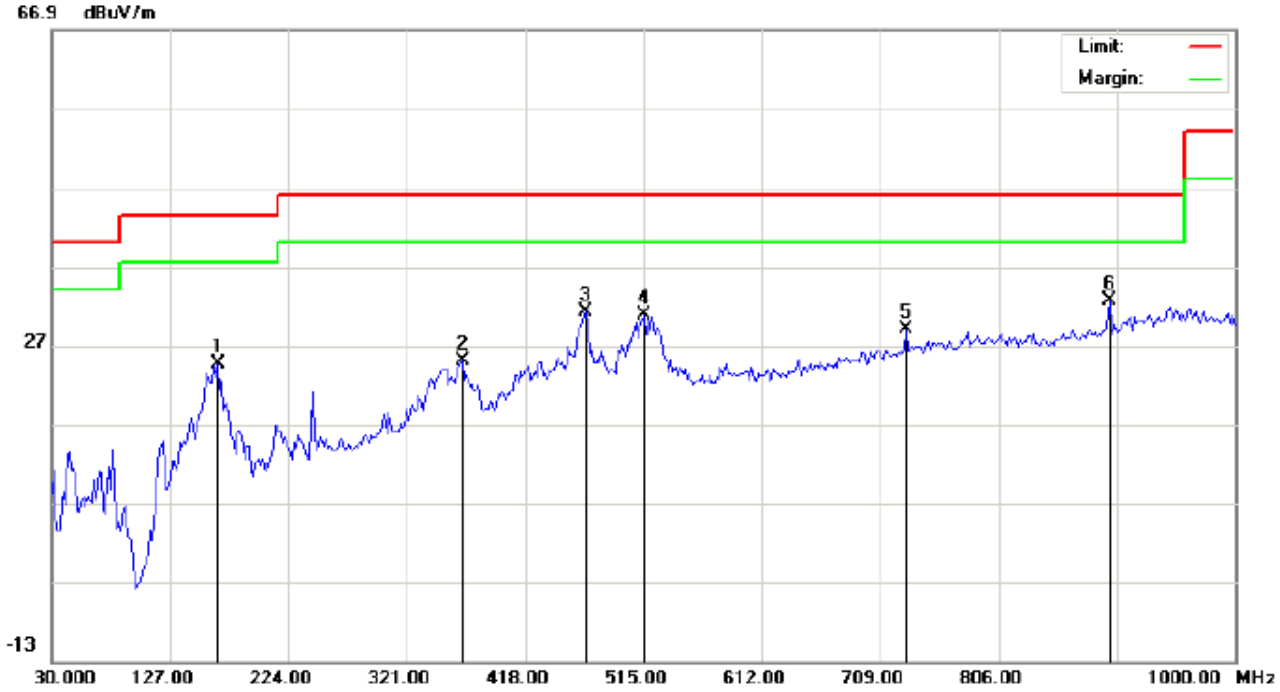
Site: site #1
Limit: FCC Class B 3M Radiation
EUT: BTJLABMIC
M/N: JBuds Elite BT
Mode: BT Link
Note:

Polarization: *Horizontal*
Power:
Distance:

Temperature: 23.6
Humidity: 52.9 %

No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		76.8833	10.30	3.54	13.84	40.00	-26.16	peak			
2		215.9167	10.24	10.38	20.62	43.50	-22.88	peak			
3		358.1833	10.69	18.79	29.48	46.00	-16.52	peak			
4		453.5667	10.31	20.63	30.94	46.00	-15.06	peak			
5	*	521.4667	10.25	21.71	31.96	46.00	-14.04	peak			
6		962.8167	1.92	29.88	31.80	54.00	-22.20	peak			

RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL -VERTICAL



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: BTJLABMIC
M/N: JBuds Elite BT
Mode: BT Link
Note:

Polarization: *Vertical*
Power:
Distance:

Temperature: 23.6
Humidity: 52.9 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		165.8000	9.62	14.96	24.58	43.50	-18.92	peak			
2		366.2667	6.21	18.85	25.06	46.00	-20.94	peak			
3		468.1167	10.46	20.79	31.25	46.00	-14.75	peak			
4		515.0000	9.19	21.53	30.72	46.00	-15.28	peak			
5		730.0167	2.88	26.05	28.93	46.00	-17.07	peak			
6	*	896.5333	4.04	28.52	32.56	46.00	-13.44	peak			

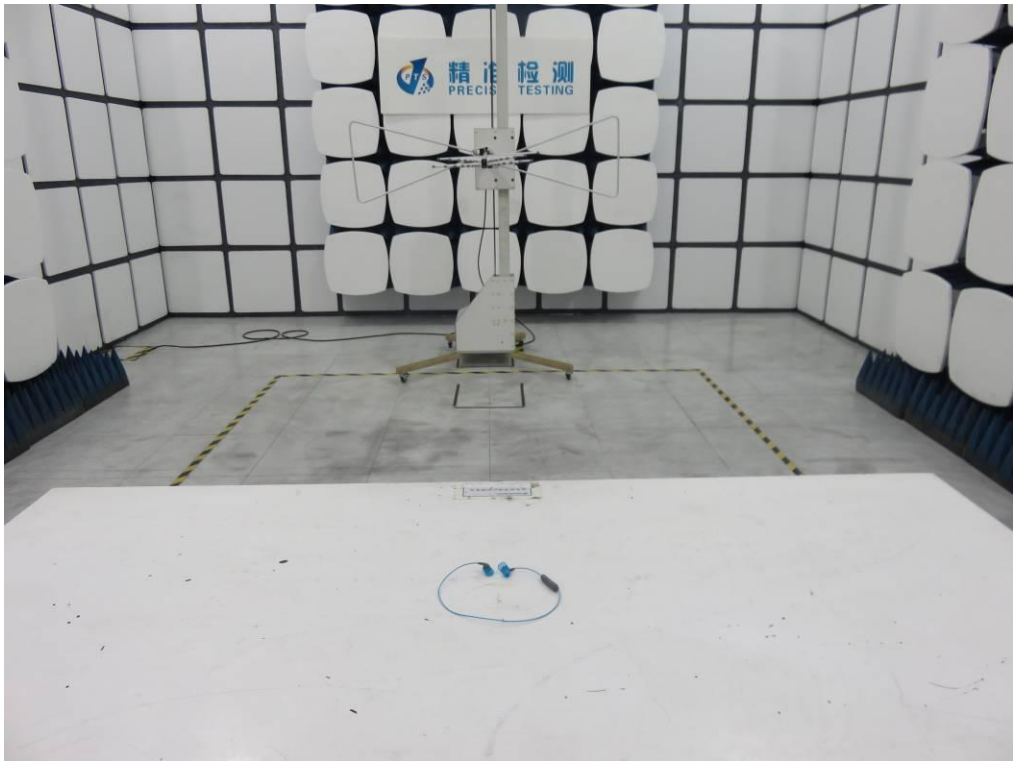
RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The “Factor” value can be calculated automatically by software of measurement system.

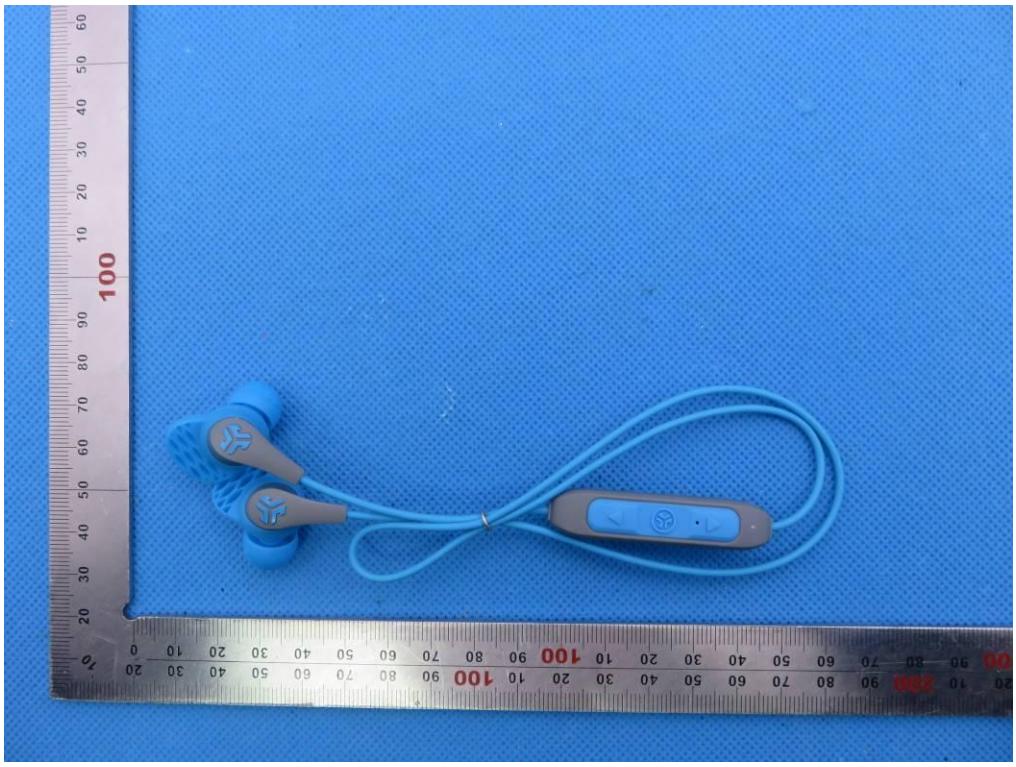
APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC RADIATED EMISSION TEST SETUP

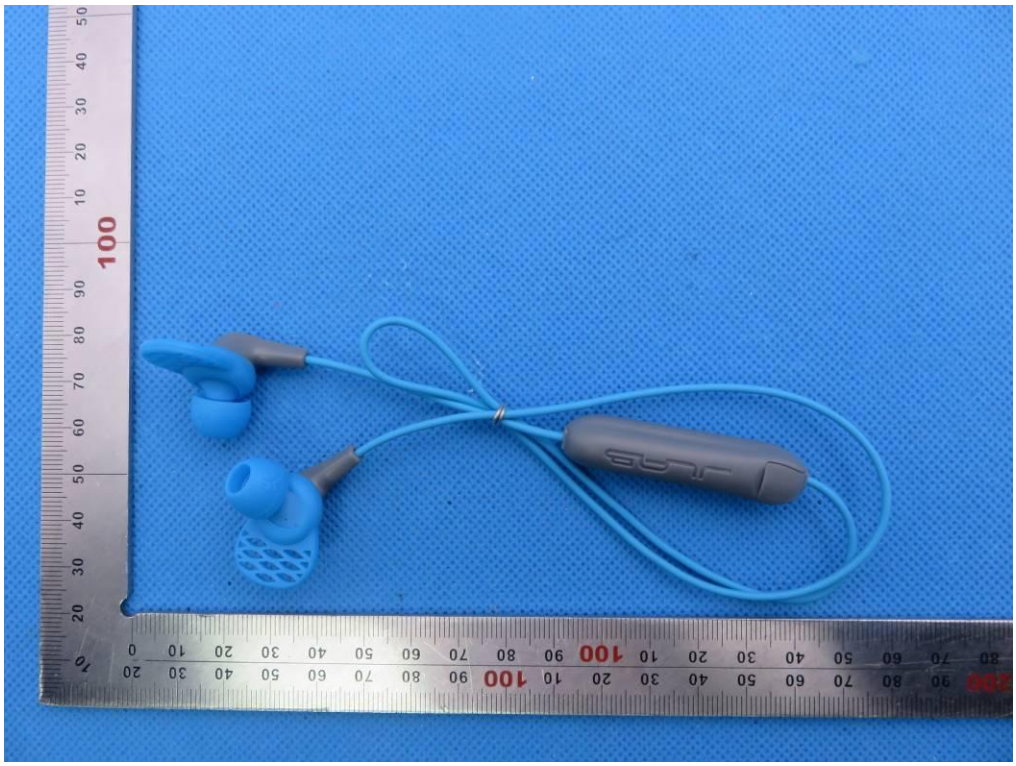


APPENDIX B: PHOTOGRAPHS OF EUT

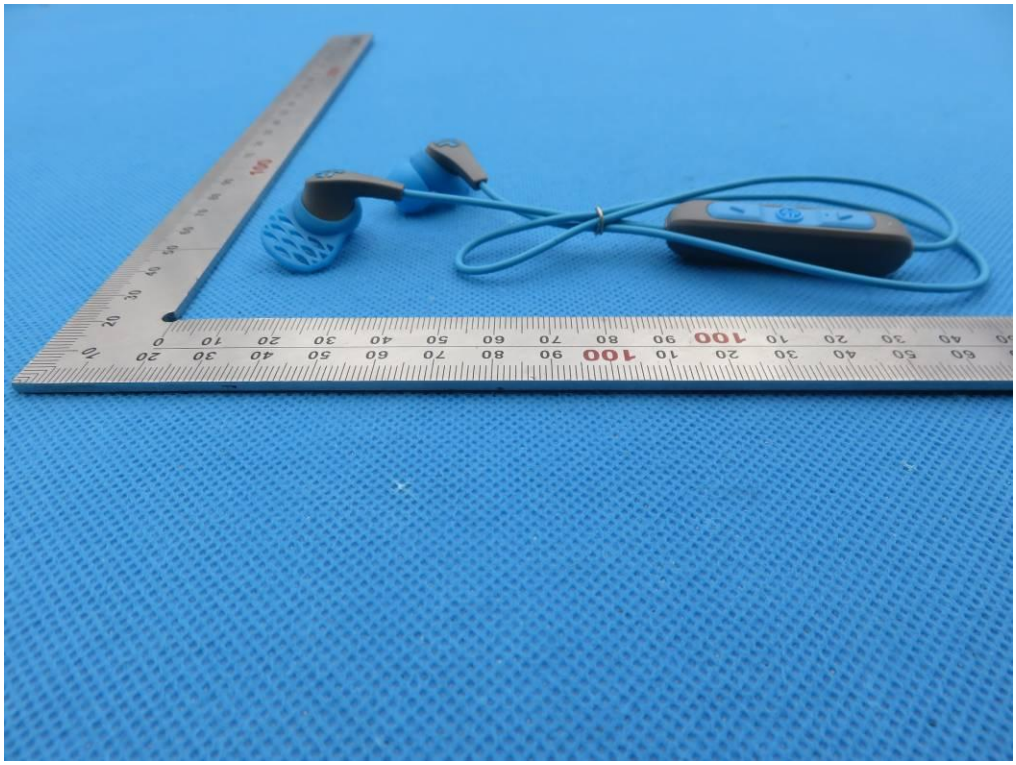
TOP VIEW OF EUT



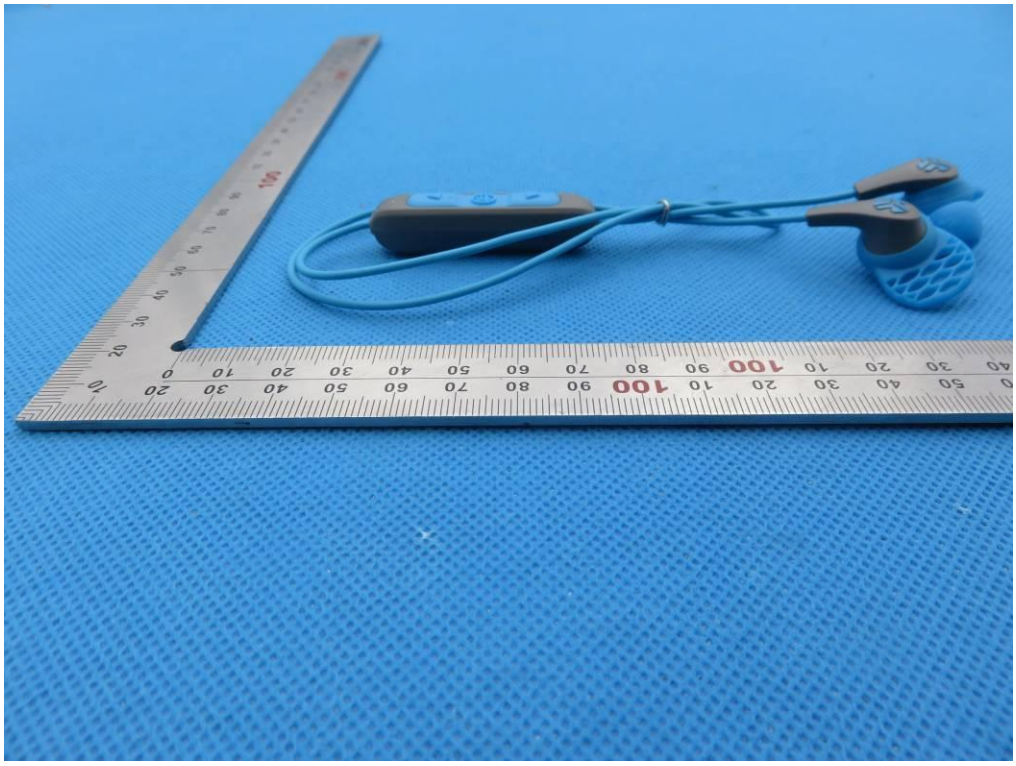
BOTTOM VIEW OF EUT



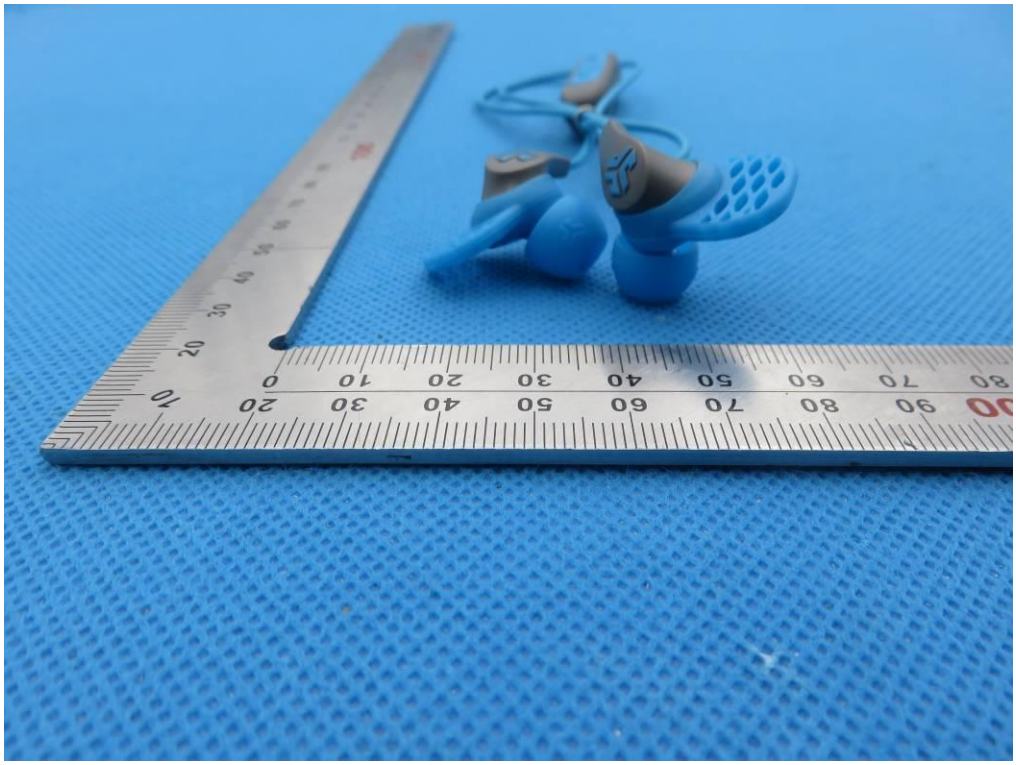
FRONT VIEW OF EUT



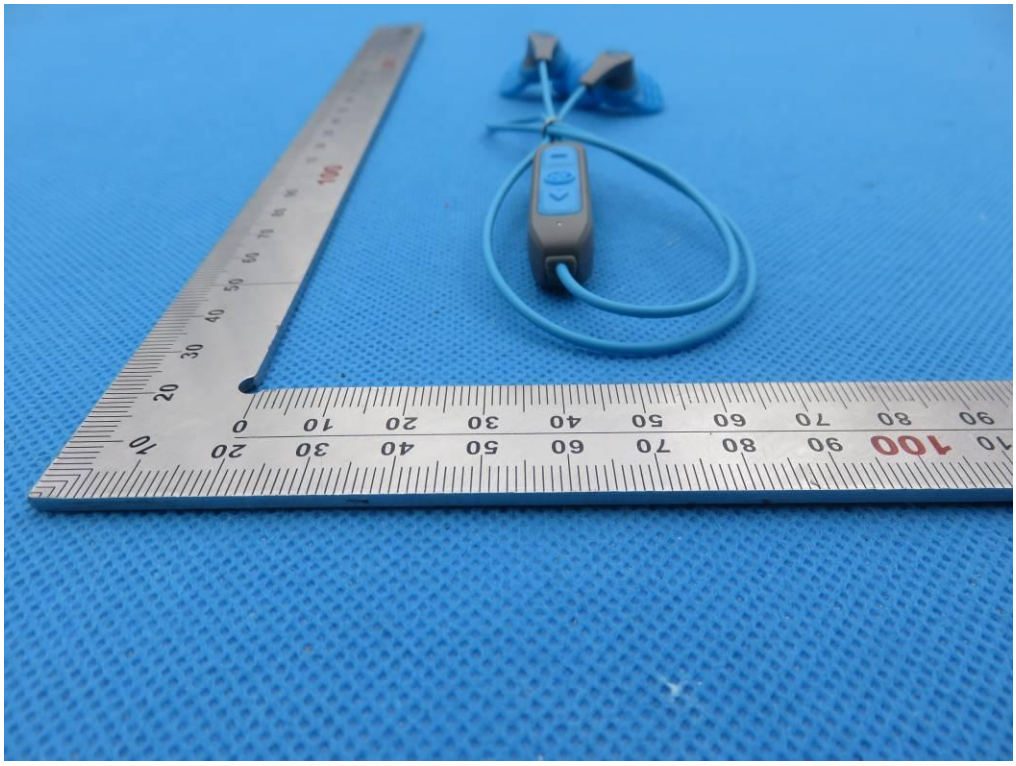
BACK VIEW OF EUT



LEFT VIEW OF EUT

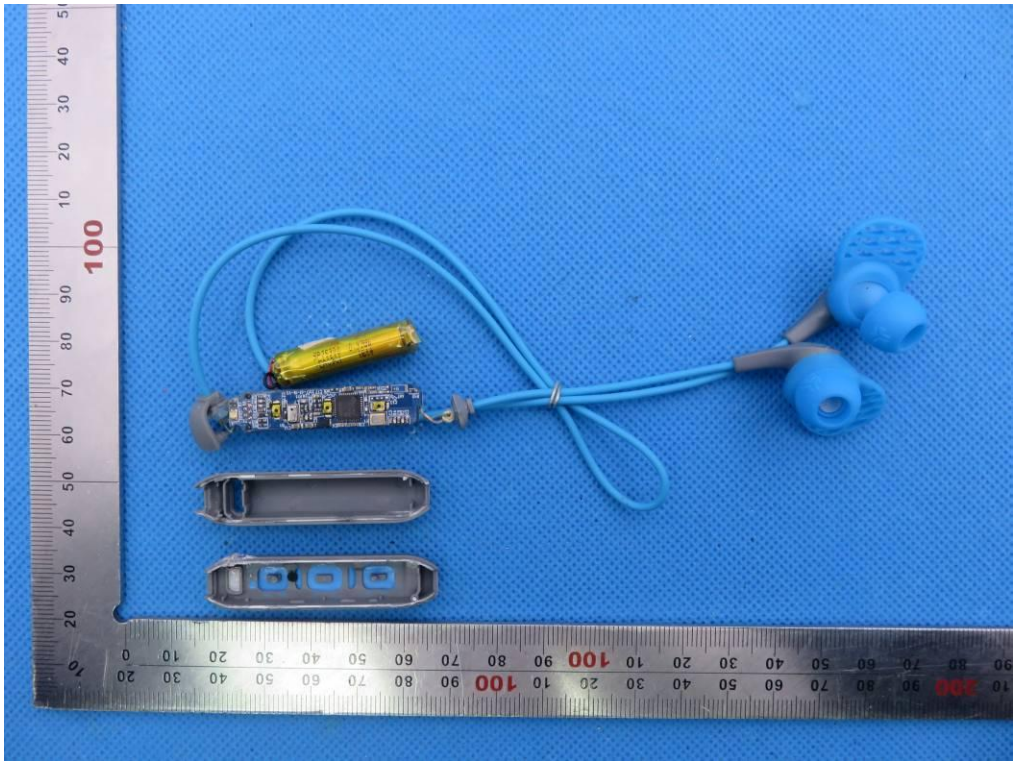


RIGHT VIEW OF EUT

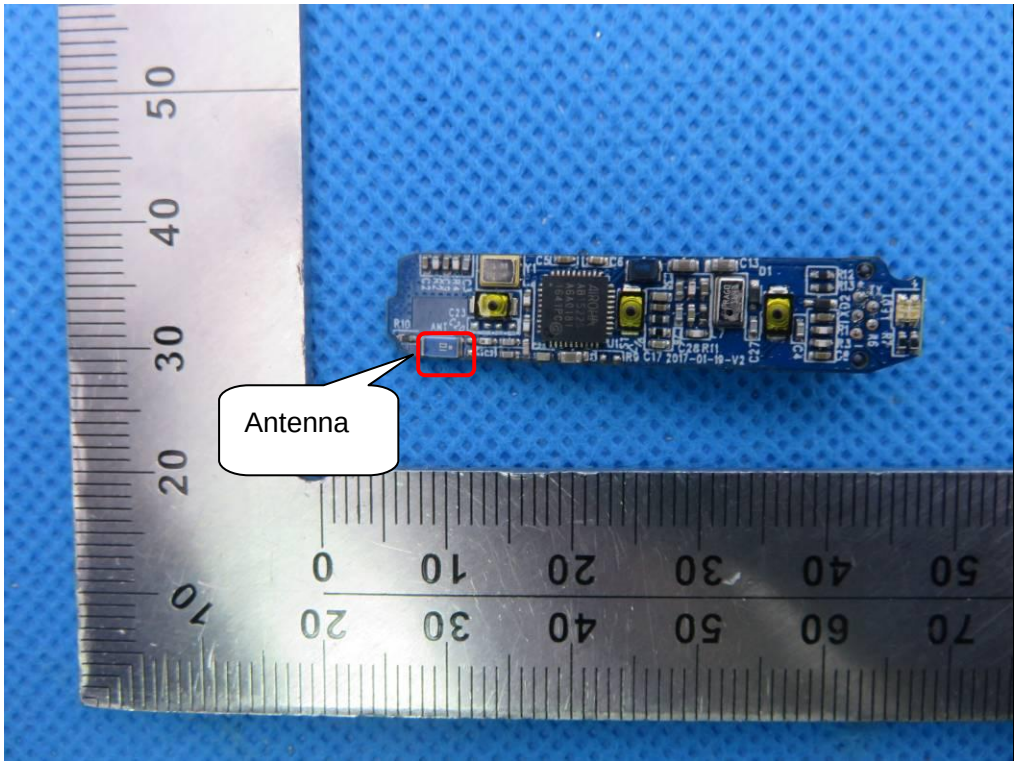


VIEW OF EUT (PORT)

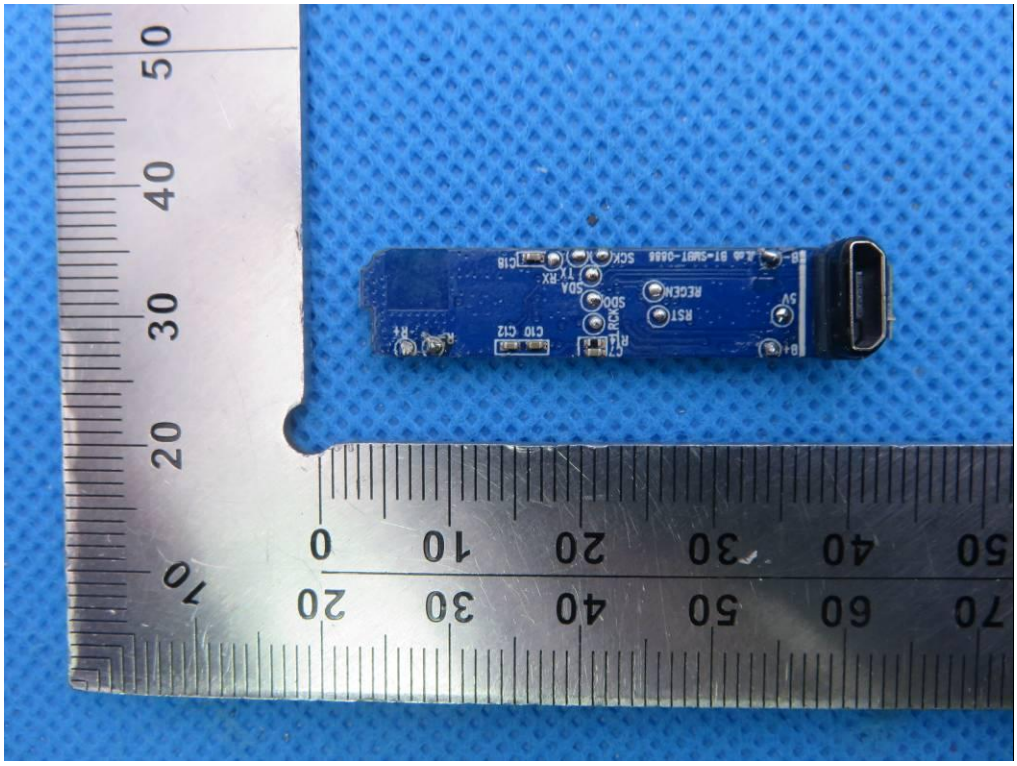
OPEN VIEW OF EUT



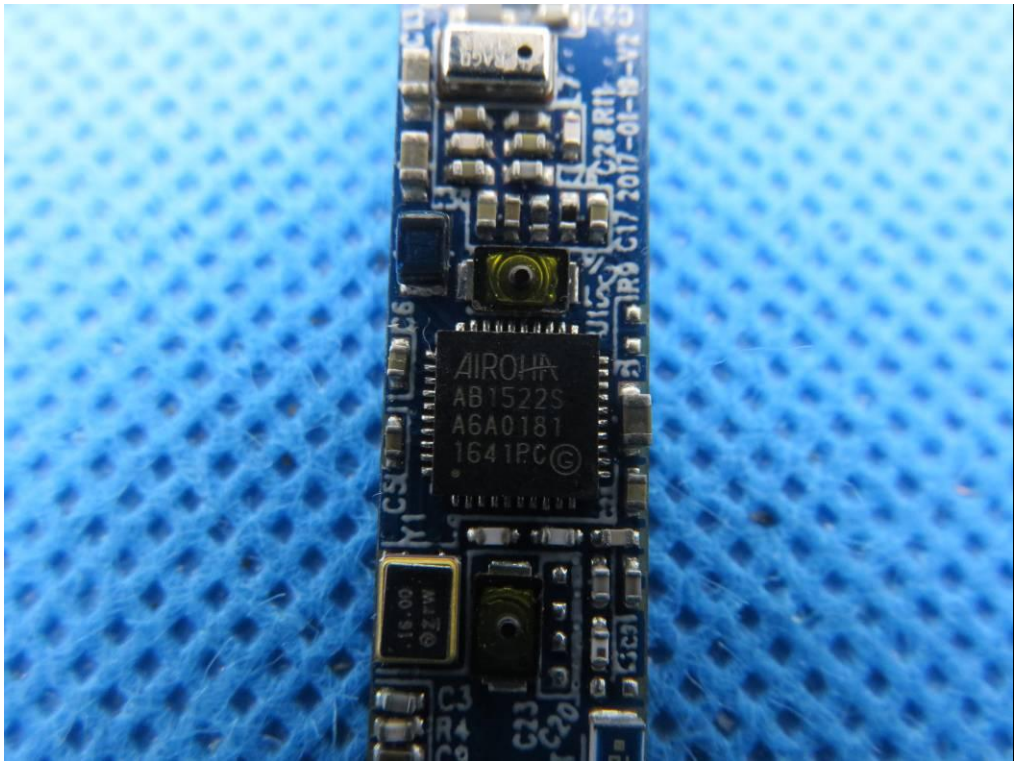
INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



SERIES Model

TOP VIEW OF EUT(JBuds Elite BT)

BOTTOM VIEW OF EUT(JBuds Elite BT)

TOP VIEW OF EUT(Metal BT)

BOTTOM VIEW OF EUT(Metal BT)

TOP VIEW OF EUT(JBuds Pro BT)

BOTTOM VIEW OF EUT(JBuds Pro BT)

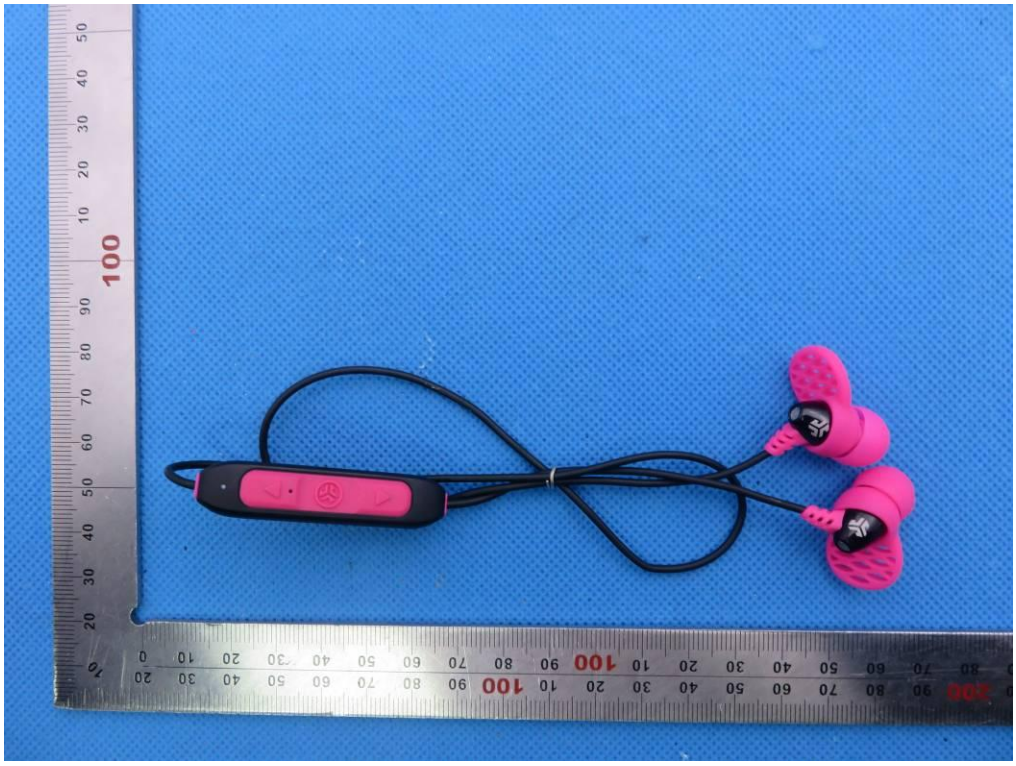
TOP VIEW OF EUT(Metal Plus BT)

BOTTOM VIEW OF EUT(Metal Plus BT)

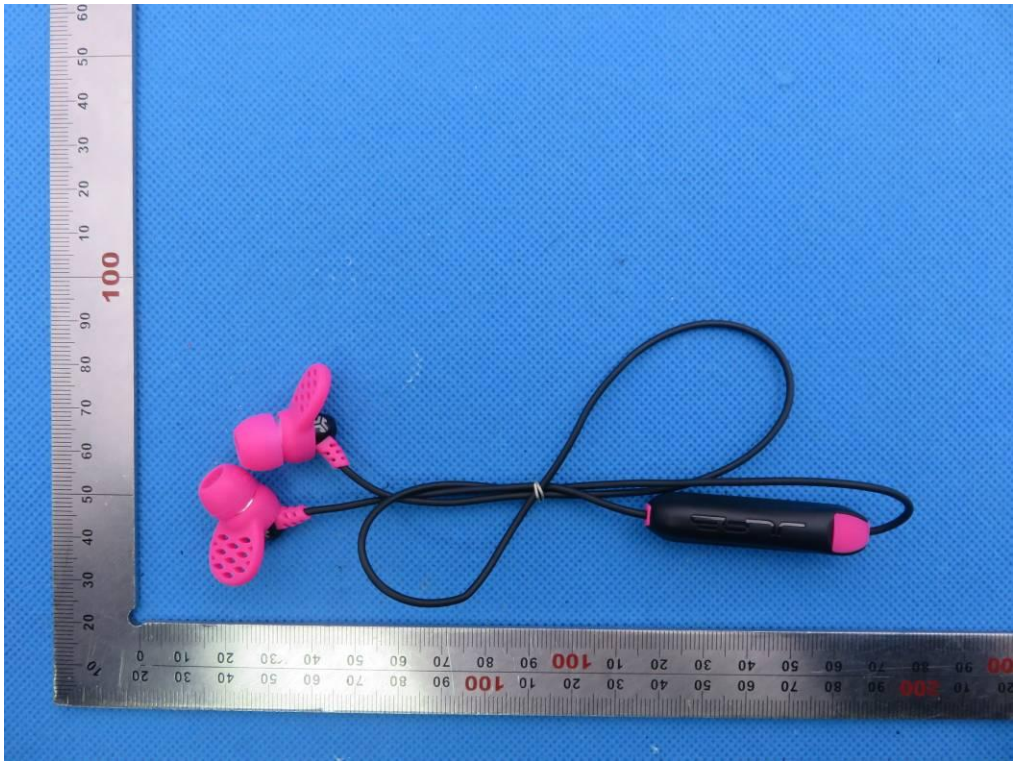
TOP VIEW OF EUT(Metal Mini BT)

BOTTOM VIEW OF EUT(Metal Mini BT)

TOP VIEW OF EUT(Metal Neon BT)



BOTTOM VIEW OF EUT(Metal Neon BT)



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