FCC TEST REPORT

FCC Part 15B: 2012

MEASUREMENT AND TEST REPORT

For

ITECH INDUSTRIAL LIMITED

F2, BUILDING28, BAISHIXIA NEW DEVELOPMENT ZONE, FUYONG TOWN, BAO'AN DISTRICT SHENZHEN

Model: 62132

FCC ID: 2AALE62132

July. 02, 2013

This Report Concerns: ☒ Original Report	**Equipment Type:** MINI SPEAKER
Test Engineer:	Bill Jing
Report Number:	POCE13070116RF
Test Date:	June. 28, 2013 to July. 01, 2013
Reviewed By:	Machael Mo
Prepared By:	**Shenzhen POCE Technology Co., Ltd.** Room 501-502, Bldg. 1, Xinghua Garden, Bao'an Road, Xixiang, Bao'an District, Shenzhen, Guangdong, China Tel: 86-755-2911 3252 Fax: 86-755-2911 3135

TABLE OF CONTENTS

Description Page

1 GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	MINI SPEAKER
Trade Name:	:	N/A
Model Number	:	62132
DIFF	:	N/A
Test Voltage	:	DC5V from PC or DC 3.7V From battery
Rating	:	DC5V, 0.5A
Highest frequency	:	27MHz
Applicant	:	ITECH INDUSTRIAL LIMITED
Address	:	F2, BUILDING28, BAISHIXIA NEW DEVELOPMENT ZONE, FUYONG TOWN, BAO'AN DISTRICT SHENZHEN
Manufacturer	:	ITECH INDUSTRIAL LIMITED
Address	:	F2, BUILDING28, BAISHIXIA NEW DEVELOPMENT ZONE, FUYONG TOWN, BAO'AN DISTRICT SHENZHEN
Received	:	July. 02, 2013
Date of Test	:	June. 28, 2013 to July. 01, 2013

Note: This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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1.2.Description of test facility

All measurement required was performed at laboratory of NTEK Testing Technology Co., Ltd at 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

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

FCC – Registration No.: 238937

NTEK Testing Technology Co., Ltd .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 238937.

1.3. Test Standards

The following Declaration of Conformity report of EUT is prepared in accordance with

47CFR Part 15(2012):Radio Frequency Device: Subpart B; Unintentional radiators Class B

1.4. Test Summary

TEST ITEMS	RESULT	NOTE
Disturbance voltage at a.c. mains terminal	PASS	
Radiated emission	PASS	

Notes: N/A=Not Applicable

1.5. Measurement Uncertainty

Radiation Uncertainty : Ur = ±3.84dB

Conduction Uncertainty : Uc = ±2.72dB

2. POWER LINE CONDUCTED MEASUREMENT

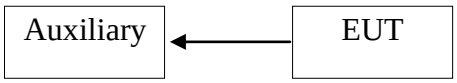
2.1.Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCS30	8289851018	Dec. 20, 2012	1 Year
2.	L.I.S.N.	Rohde & Schwarz	ESH2-Z5	834549/005	Dec. 20, 2012	1 Year
3.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	Dec. 20, 2012	1 Year
4.	RF Cable	FUJIKURA	RG-55/U	LISN Cable	Dec. 20, 2012	1 Year

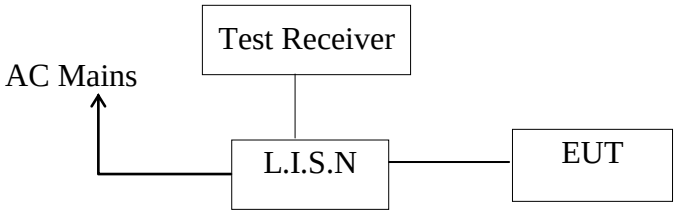
2.2.Block Diagram of Test Setup

2.2.1 Block diagram of connection between the EUT and simulators



(EUT: MINI SPEAKER)

2.2.2 Block diagram of test setup



(EUT: MINI SPEAKER)

2.3.Power Line Conducted Emission Measurement Limits (Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

2.4.Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

EUT : MINI SPEAKER
Model Number : 62132

2.5.Operating Condition of EUT

2.5.1. Setup the EUT and simulator as shown as Section 2.2.
2.5.2. Turn on the power of all equipment.
2.5.3. Let the EUT work in test mode (Normal) and measure it.

2.6.Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm-coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC/ANSI C63.4-2009 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9KHz.
The frequency range from 150KHz to 30MHz is checked.
The test result is reported on Section 2.7.
The frequency range from 150KHz to 30 MHz is investigated.

2.7.Power Line Conducted Emission Measurement Results

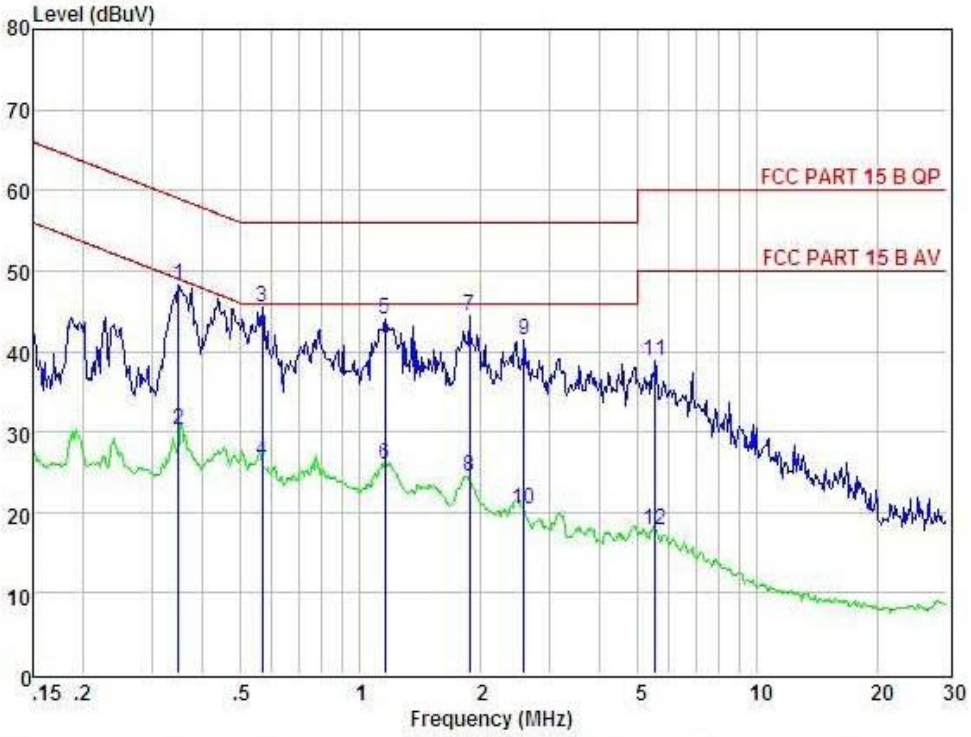
Pass.
The details of test mode is as follows：

No.	Test Mode
1.	Charger and Play mp3 connect PC

Please reference to the following pages

Conducted Emission Test Data

EUT: MINI SPEAKER
M/N: 62132
Operating Condition: Charger and Play mp3 connect PC
Operator: Bill
Test Specification: DC5V From PC with AC 120V/60Hz
Comment: Polarization: Line



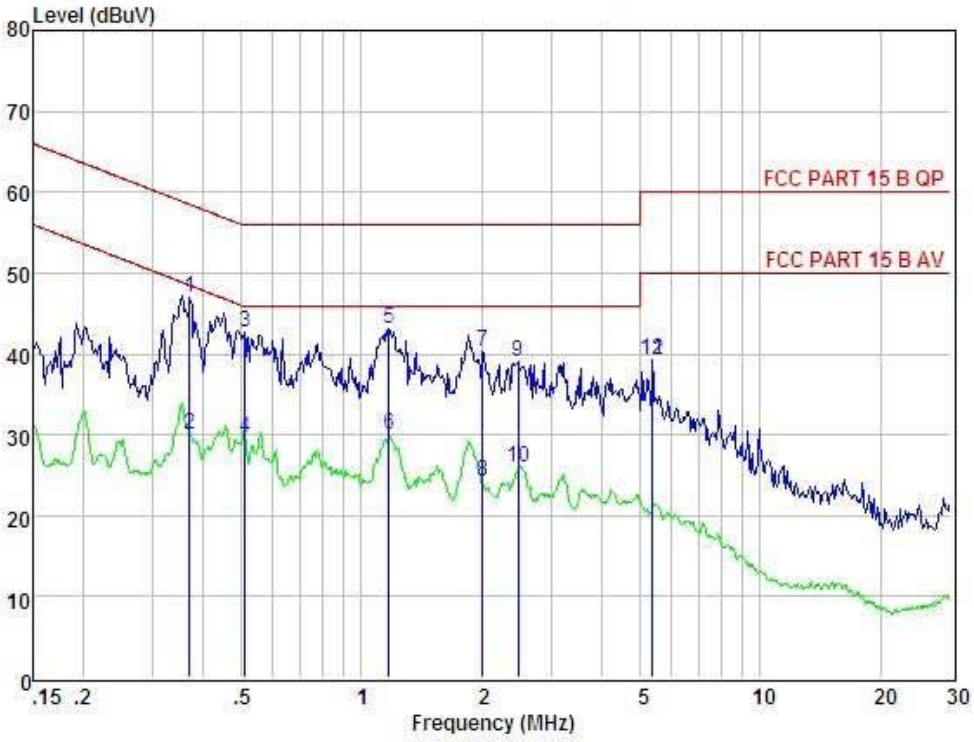
Condition : FCC PART 15 B QP POL: LINE Temp:24 ℃ Hum:56 %

Item	Freq	Read	LISN Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.35	38.47	0.03	-9.72	0.10	48.32	59.00	-10.68	QP
2	0.35	20.47	0.03	-9.72	0.10	30.32	49.00	-18.68	Average
3	0.57	35.55	0.03	-9.72	0.10	45.40	56.00	-10.60	QP
4	0.57	16.55	0.03	-9.72	0.10	26.40	46.00	-19.60	Average
5	1.15	34.16	0.04	-9.71	0.10	44.01	56.00	-11.99	QP
6	1.15	16.16	0.04	-9.71	0.10	26.01	46.00	-19.99	Average
7	1.89	34.59	0.05	-9.70	0.10	44.44	56.00	-11.56	QP
8	1.89	14.59	0.05	-9.70	0.10	24.44	46.00	-21.56	Average
9	2.58	31.58	0.06	-9.70	0.11	41.45	56.00	-14.55	QP
10	2.58	10.58	0.06	-9.70	0.11	20.45	46.00	-25.55	Average
11	5.53	29.00	0.10	-9.64	0.13	38.87	60.00	-21.13	QP
12	5.53	8.00	0.10	-9.64	0.13	17.87	50.00	-32.13	Average

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

Conducted Emission Test Data

EUT: MINI SPEAKER
M/N: 62132
Operating Condition: Charger and Play mp3 connect PC
Operator: Bill
Test Specification: DC5V From PC with AC 120V/60Hz
Comment: Polarization: Neutral



Condition : FCC PART 15 B QP POL: NEUTRAL Temp:24 ℃ Hum:56 %

Item	Freq	Read	LISN Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.37	37.08	0.03	-9.72	0.10	46.93	58.47	-11.54	QP
2	0.37	20.08	0.03	-9.72	0.10	29.93	48.47	-18.54	Average
3	0.51	32.77	0.03	-9.72	0.10	42.62	56.00	-13.38	QP
4	0.51	19.77	0.03	-9.72	0.10	29.62	46.00	-16.38	Average
5	1.17	33.24	0.04	-9.71	0.10	43.09	56.00	-12.91	QP
6	1.17	20.24	0.04	-9.71	0.10	30.09	46.00	-15.91	Average
7	2.01	30.43	0.06	-9.70	0.10	40.29	56.00	-15.71	QP
8	2.01	14.43	0.06	-9.70	0.10	24.29	46.00	-21.71	Average
9	2.47	29.10	0.06	-9.70	0.11	38.97	56.00	-17.03	QP
10	2.47	16.10	0.06	-9.70	0.11	25.97	46.00	-20.03	Average
11	5.36	29.45	0.10	-9.66	0.13	39.34	60.00	-20.66	QP
12	5.36	29.45	0.10	-9.66	0.13	39.34	50.00	-10.66	Average

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

3. RADIATED EMISSION MEASUREMENT

3.1.Test Equipment

The following test equipments are used during the radiated emission measurement:

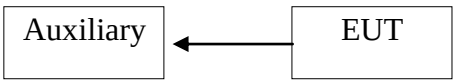
3.1.1.For Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	ANRITSU	MS2661C	6200140915	Dec. 20, 2012	1 Year
2.	Test Receiver	Rohde & Schwarz	ESCS30	828985/018	Dec. 20, 2012	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	142	Dec. 20, 2012	1 Year
4.	50 Coaxial Switch	Anritsu Corp	MP59B	6100237248	Dec. 20, 2012	1 Year
5.	Cable	Schwarzbeck	AK9513(1m)	CR RX2	Dec. 20, 2012	1 Year
6.	Cable	Schwarzbeck	AK9513(10m)	AC RX1	Dec. 20, 2012	1 Year
7.	Cable	Rosenberger	N/A(6m)	CR RX1	Dec. 20, 2012	1 Year
8.	Cable	Rosenberger	N/A(10m)	FP2RX2	Dec. 20, 2012	1 Year
9.	DC Power Filter	MPE	23872C	N/A	Dec. 20, 2012	1 Year
10.	Single Phase Power Line Filter	MPE	23332C	N/A	Dec. 20, 2012	1 Year
11.	3 Phase Power Line Filter	MPE	23333C	N/A	Dec. 20, 2012	1 Year
12.	Signal Generator	HP	8648A	3625U00573	Dec. 20, 2012	1 Year

3.2.B

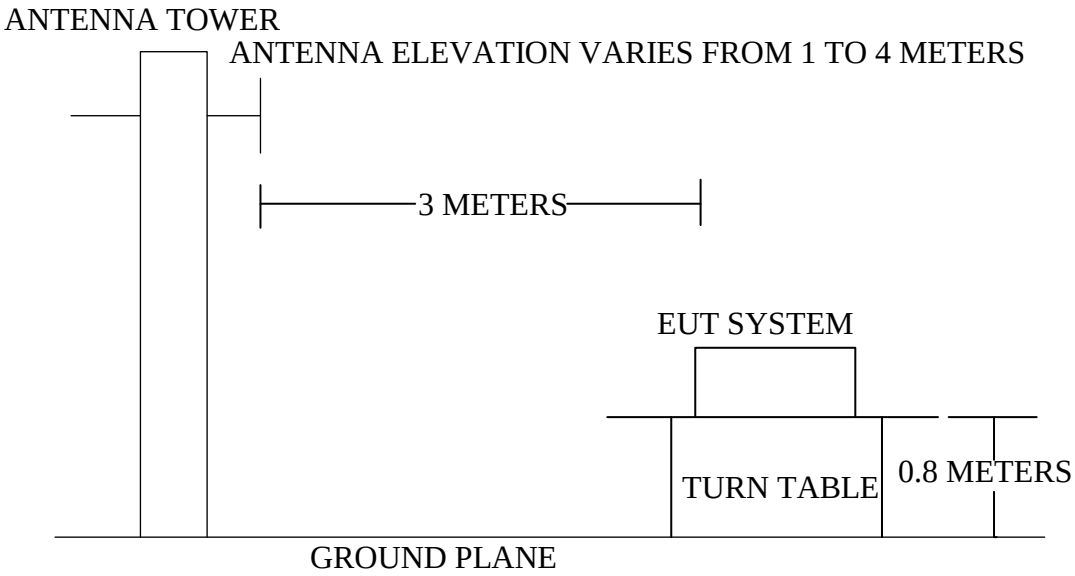
lock Diagram of Test Setup

3.2.1.Block diagram of connection between the EUT and simulators



(EUT: MINI SPEAKER)

3.2.2.Anechoic Chamber Test Setup Diagram



(EUT: MINI SPEAKER)

3.3.Radiated Emission Limit (Class B)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Remark： (1) Emission level (dB)μV = 20 log Emission level μV/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.

3.4.EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

MINI SPEAKER (EUT)

Model Number : 62132
Serial Number : N/A

3.5.Operating Condition of EUT

1. Setup the EUT as shown in Section 3.2.
2. Let the EUT work in test mode (Charger and Play mp3 connect PC) and measure it.

3.6.Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2009 on radiated emission measurement.
The bandwidth of the EMI test receiver (R&S ESCS30) is set at 120KHz.

The frequency range from 30MHz to 1000MHz is investigated.

3.7.Radiated Emission Measurement Results

PASS
Please reference to the following pages

For frequency range 30MHz~1000MHz

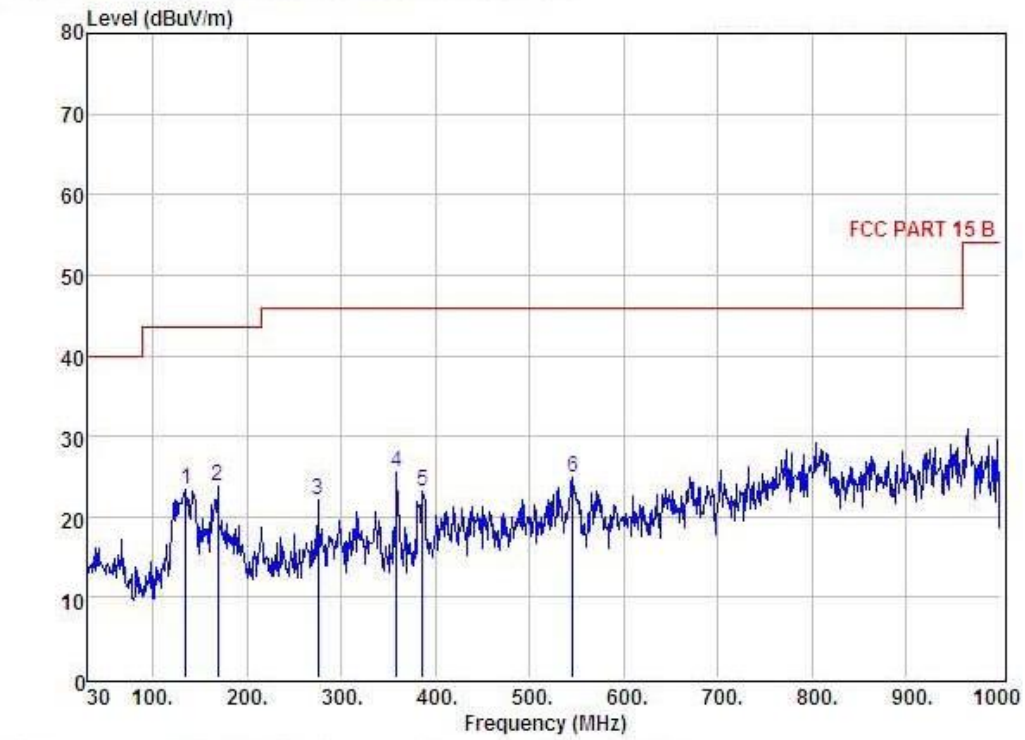
No.	Test Mode
1.	Charger and Play mp3 connect PC
2.	Play mp3 connect battery

The EUT with the following test mode was tested and read Q.P values, the worst test mode is 1 (Charger and Play mp3 connect PC) ,test results listed in next pages.

For frequency range 1000MHz~6000MHz:
The EUT high frequency is 27MHz, less than 108MHz, so the test not applicable.

Radiated Emission Test Data

EUT: MINI SPEAKER
M/N: 62132
Operating Condition: Charger and Play mp3 connect PC
Test Site: 3m CHAMBER
Operator: Bill
Test Specification: DC5V
Comment: Polarization: Vertical



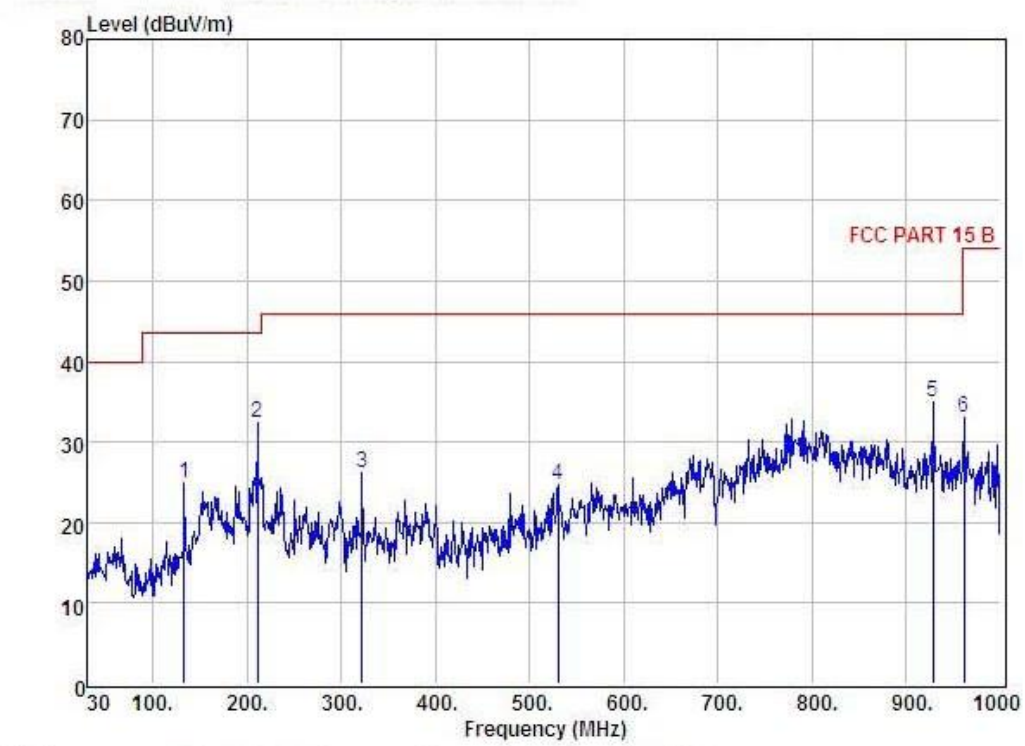
Condition : FCC PART 15 B 3m POL: VERTICAL

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	134.76	36.71	13.08	26.89	0.46	23.36	43.50	-20.14	QP
2	168.71	36.95	13.37	26.92	0.50	23.90	43.50	-19.60	QP
3	275.41	36.52	12.26	27.15	0.53	22.16	46.00	-23.84	QP
4	358.83	38.19	13.99	27.29	0.57	25.46	46.00	-20.54	QP
5	385.99	35.15	14.51	27.39	0.82	23.09	46.00	-22.91	QP
6	546.04	34.65	17.32	27.70	0.66	24.93	46.00	-21.07	QP

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Radiated Emission Test Data

EUT: MINI SPEAKER
M/N: 62132
Operating Condition: Charger and Play mp3 connect PC
Test Site: 3m CHAMBER
Operator: Bill
Test Specification: DC5V
Comment: Polarization: Horizontal



Condition : FCC PART 15 B 3m POL: HORIZONTAL

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	132.82	38.23	12.93	26.89	0.53	24.80	43.50	-18.70	QP
2	211.39	48.73	10.18	27.03	0.60	32.48	43.50	-11.02	QP
3	321.97	39.50	13.38	27.22	0.56	26.22	46.00	-19.78	QP
4	530.52	34.21	17.06	27.68	1.10	24.69	46.00	-21.31	QP
5	928.22	39.23	22.00	27.63	1.29	34.89	46.00	-11.11	QP
6	961.20	36.85	22.17	27.61	1.53	32.94	54.00	-21.06	QP

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

4. PHOTOGRAPH

4.1.Photos of Radiated Emission Measurement

4.2.Photos of Conducted Emission Measurement

APPENDIX I
(Photos of EUT)

FIGURE
GENERAL APPEARANCE OF EUT

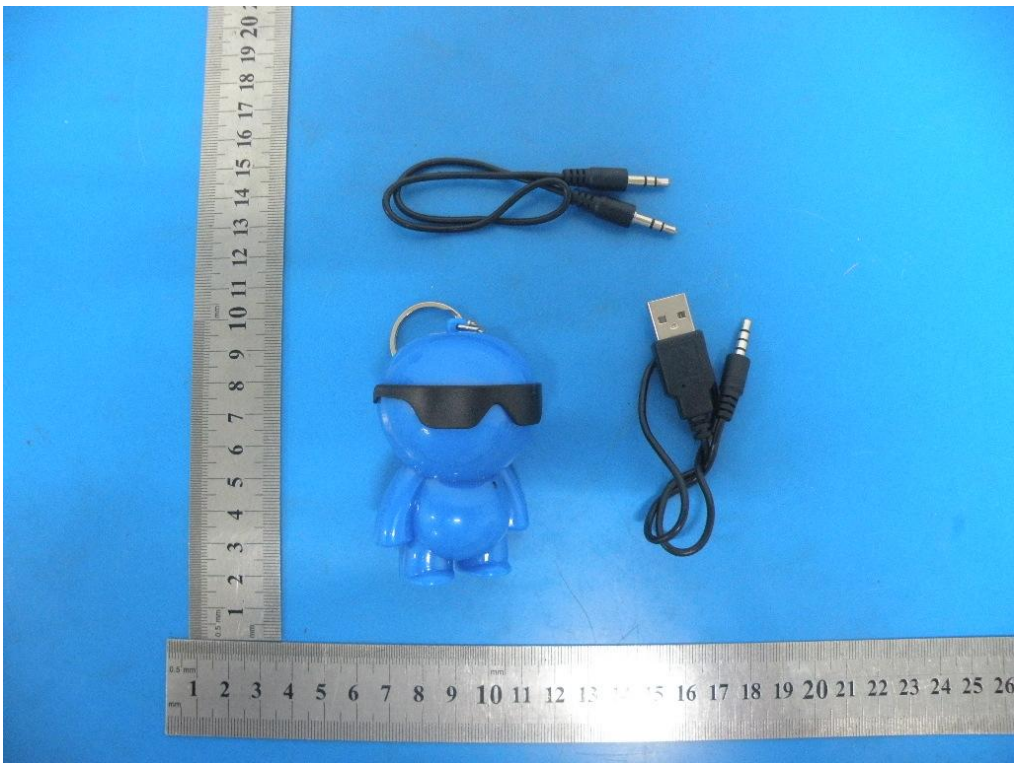


Fig. 1

Fig. 2

Fig.3

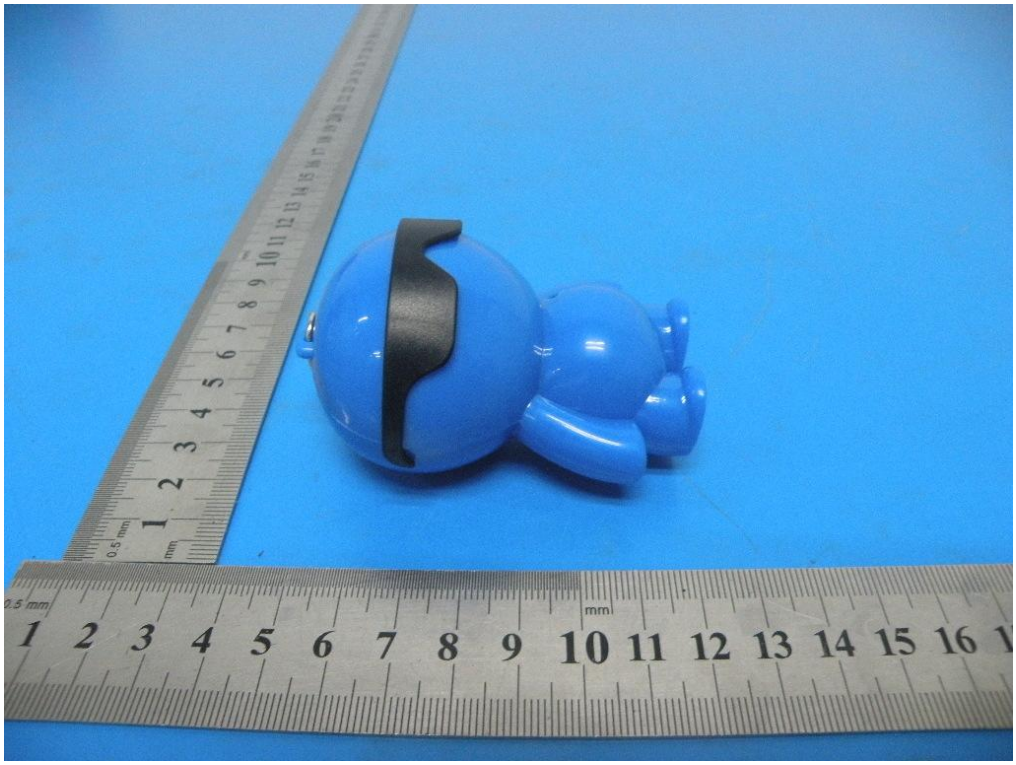


Fig.4

Fig.5

Fig.6

Fig.7

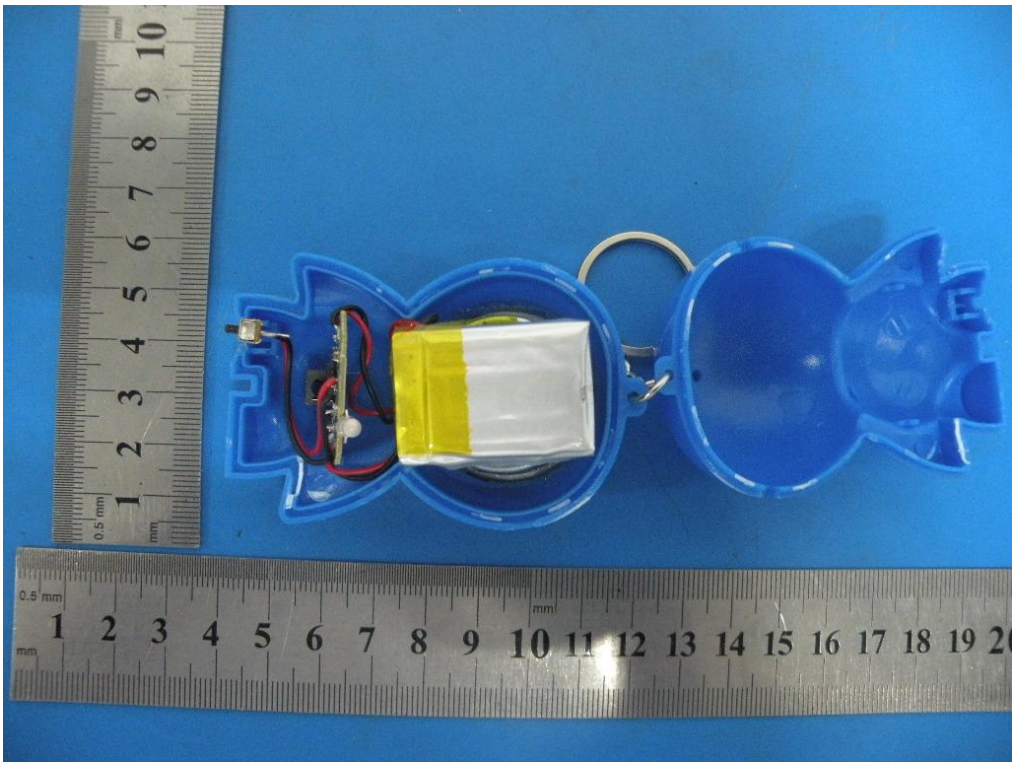


Fig.8

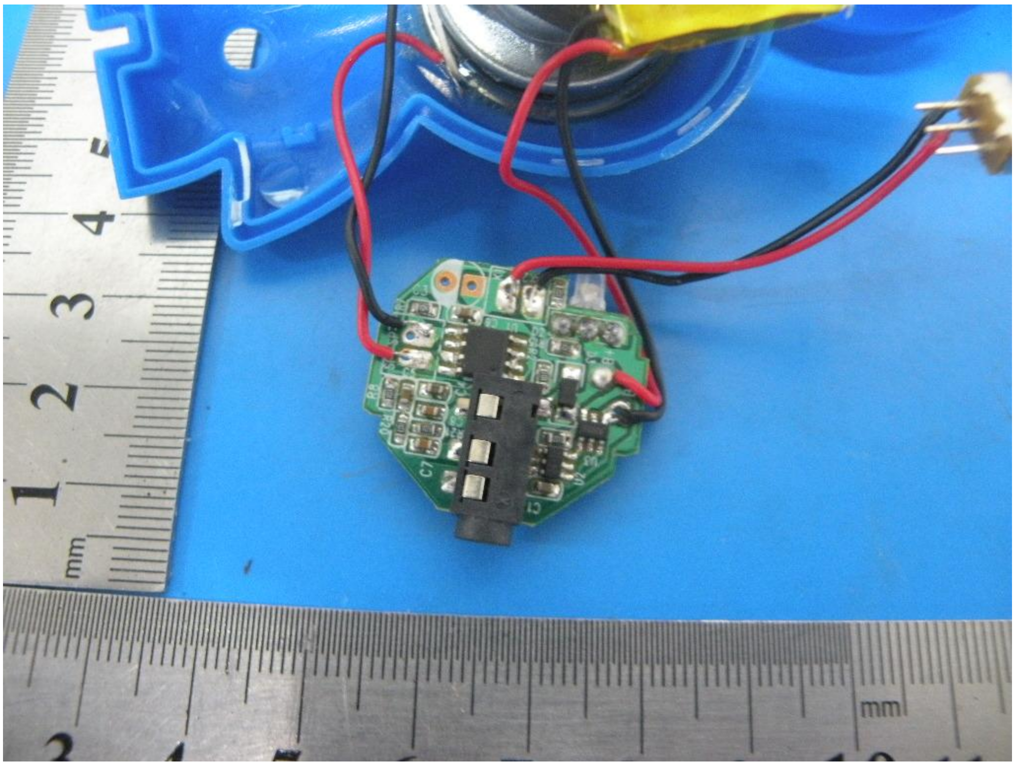


Fig.9

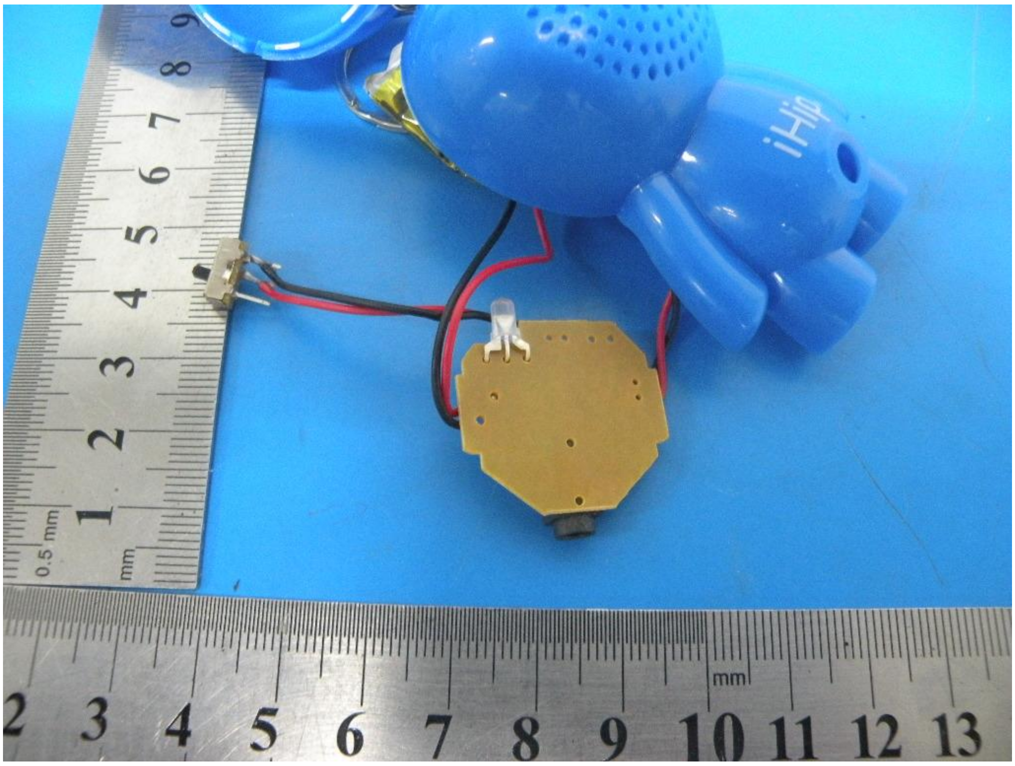


Fig.10

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