

FCC
EMC
TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
Cooler portable bluetooth speakers

ISSUED TO
Goldar Investments LLC

1201 Brickell Ave # 620, Miami Florida 33131 U.S.A



Prepared by: 
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Date 2014.5.13
Approved by: 
Wei Yanquan
(Lab Director)
Date 2014.5.13

Report No.: BL-SZ1440049-401
EUT Type: Cooler portable bluetooth speakers
Model Name: KGO-SS01
Brand Name: KALEIGO
Test Standard: 47 CFR Part 15 Subpart B
FCC ID: 2AB93KGOSS01
Test conclusion: PASS
Test Date: 2014.05.04- 2014.05.10
Date of Issue: 2014.05.13

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Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>2014.05.13</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6683 3402
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	<p>The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1.</p> <p>The laboratory has been listed by US Federal Communications Commission to perform electromagnetic emission measurements. The recognition numbers of test site are 832625.</p> <p>The laboratory has met the requirements of the IAS Accreditation Criteria for Testing Laboratories (AC89), has demonstrated compliance with ISO/IEC Standard 17025:2005. The accreditation certificate number is TL-588.</p> <p>The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791.</p>
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Test Environment Condition

Ambient Temperature	15 to 35°C
Ambient Relative Humidity	30 to 60%
Ambient Pressure	86 to 106kPa

1.4 Announce

- (1) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (2) The test report is invalid if there is any evidence and/or falsification.
- (3) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (4) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

2 PRODUCT INFORMATION

2.1 Applicant

Applicant	Goldar Investments LLC
Address	1201 Brickell Ave # 620, Miami Florida 33131 U.S.A

2.2 Manufacturer

Manufacturer	Shenzhen Mgitec Co Ltd
Address	2F, Build B, AnHua Industrial Park, No.35 Distrct, Baoan, Shenzhen, China

2.3 General Description for Equipment under Test (EUT)

EUT Type	Cooler portable bluetooth speakers
Model Name	KGO-SS01
Hardware Version	V 1.0
Software Version	V 1.0
Network and Wireless connectivity	BT 3.0+EDR
Display	N/A
About the Product	The EUT is a Cooler portable bluetooth speakers, it contains Bluetooth Module operating at 2.4GHz ISM band which supports Bluetooth 3.0. The EUT is equipped with a mini USB port, and an AUX port.

2.4 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	N/A
	Model No	N/A
	Serial No	N/A
	Capacitance	1200 mAh
	Rated Voltage	3.7V
	Extreme Voltage	Low: 3.5V / High:4.2V

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	FCC 47 CFR Part 15 Subpart B (10-1-09 Edition)	Radio Frequency Devices

3.2 Verdict

No.	Description	FCC Rule	Test Verdict	Result
1	Radiated Emission	15.109	PASS	Annex A .1
2	Conducted Emission, AC Ports	15.107	PASS	Annex A .2

Note: The tests were performed according to the method of measurements prescribed in ANSI C63.4 2009.

3.3 Test Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions (9KHz-30MHz)	1.12dB
Radiated emissions (30MHz-1GHz)	2.11dB
Radiated emissions (1GHz-25GHz)	3.31dB

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

Environment Parameter	Selected Values During Tests		
	Temperature	Voltage	Relative Humidity
Normal Temperature, Normal Voltage (NTNV)	23°C~25°C	3.7V	50%-55%

4.2 Test Equipment List

Radiated Emission Test						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2013.06.04	2014.06.03	<input checked="" type="checkbox"/>
Attenuator	KMW	20dB	110617091	2013.05.14	2014.05.13	<input checked="" type="checkbox"/>
Test Antenna- Loop(9kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2013.07.02	2014.07.01	<input type="checkbox"/>
Test Antenna- Bi-Log(30MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2013.07.03	2014.07.02	<input checked="" type="checkbox"/>
Test Antenna- Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1148	2013.07.02	2014.07.01	<input checked="" type="checkbox"/>
Test Antenna- Horn(15-26.5 GHz)	SCHWARZBECK	BBHA 9170	9170-305	2013.07.02	2014.07.01	<input type="checkbox"/>
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2013.10.07	2014.10.06	<input checked="" type="checkbox"/>

Conducted disturbance Test						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2013.06.04	2014.06.03	<input checked="" type="checkbox"/>
LISN	SCHWARZBECK	NSLK 8127	8127-687	2013.06.04	2014.06.03	<input checked="" type="checkbox"/>
AMN	SCHWARZBECK	NNBM812 4	8124-509	2013.06.29	2014.06.28	<input type="checkbox"/>
AMN	SCHWARZBECK	NNBM812 4	8124-510	2013.06.29	2014.06.28	<input type="checkbox"/>
ISN	TESEQ	ISN T800	34449	2013.06.29	2014.06.28	<input type="checkbox"/>

4.3 Test Enclosure list

Description	Manufacturer	Model	Serial No.	Length	Description	Use
PC	SOEYI	B123	N/A	N/A	N/A	<input checked="" type="checkbox"/>
Printer	HP	DESKJET 1000	N/A	N/A	N/A	<input checked="" type="checkbox"/>
Keyboard	logitech	Y-BP62a	N/A	N/A	N/A	<input checked="" type="checkbox"/>
Mouse	logitech	M100	N/A	N/A	N/A	<input checked="" type="checkbox"/>
USB disk	Kingston	N/A	N/A	N/A	N/A	<input type="checkbox"/>
TF Card	Kingston	N/A	N/A	N/A	N/A	<input type="checkbox"/>
VGA Cable	N/A	N/A	N/A	1.5m	Shielded with core	<input type="checkbox"/>
HDMI Cable	N/A	N/A	N/A	1.5m	Shielded with core	<input type="checkbox"/>
DVI Cable	N/A	N/A	N/A	1.5m	Shielded with core	<input type="checkbox"/>
IPhone	Apple	A1530	N/A	N/A	N/A	<input type="checkbox"/>

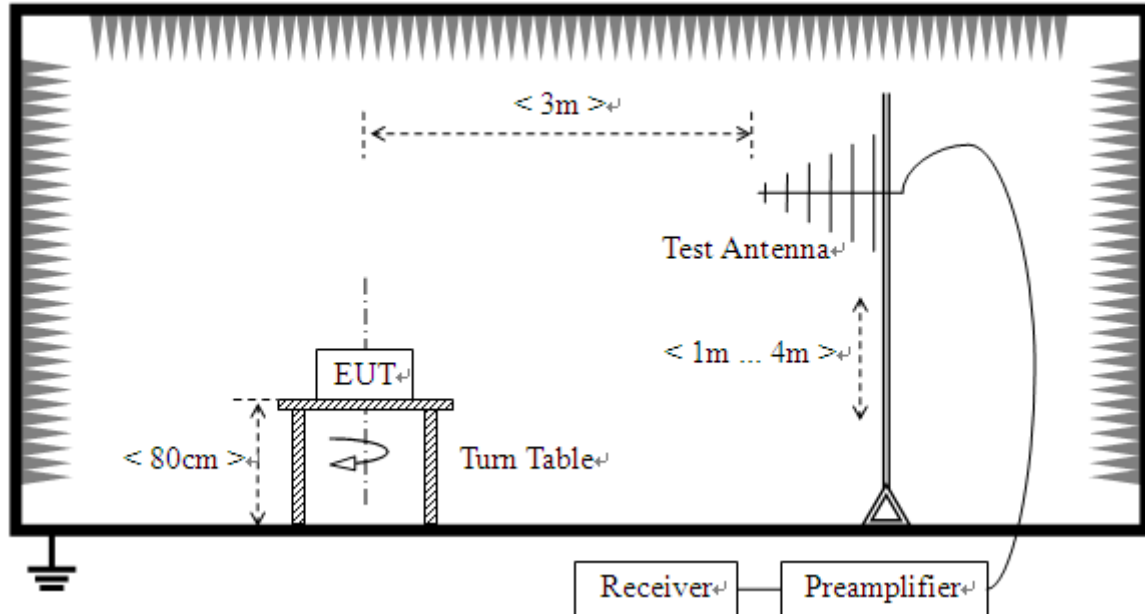
4.4 Test Configurations

Test Configurations (TC) No.	Description
TC01	<u>Bluetooth mode</u> The EUT configuration of the emission tests is EUT + PC+ iPhone. During the measurement, the EUT with a built-in rechargeable lithium-ion battery was powered by PC via the USB cable. A Bluetooth link was established between the EUT and the iPhone, the EUT was working normally as a music player.
TC02	<u>The AUX mode</u> During the measurement, the EUT with a built-in rechargeable lithium-ion battery was powered by PC via the USB cable. And the EUT was connected with the PC through the AUX cable, working normally as a music player.

Note: Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report.

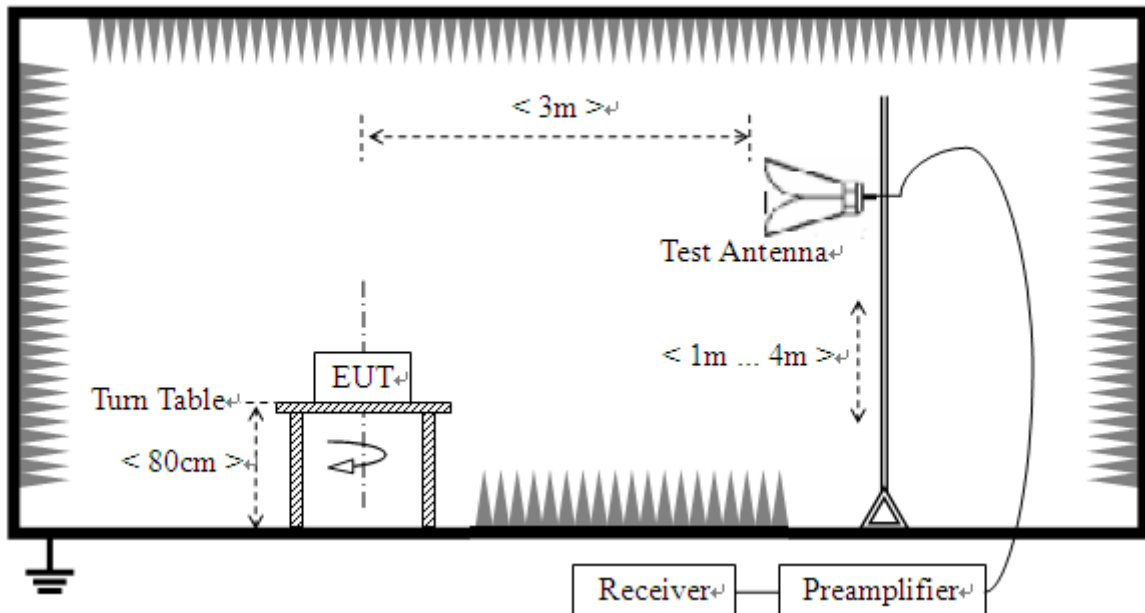
4.5 Test Setups

Test Setup 1



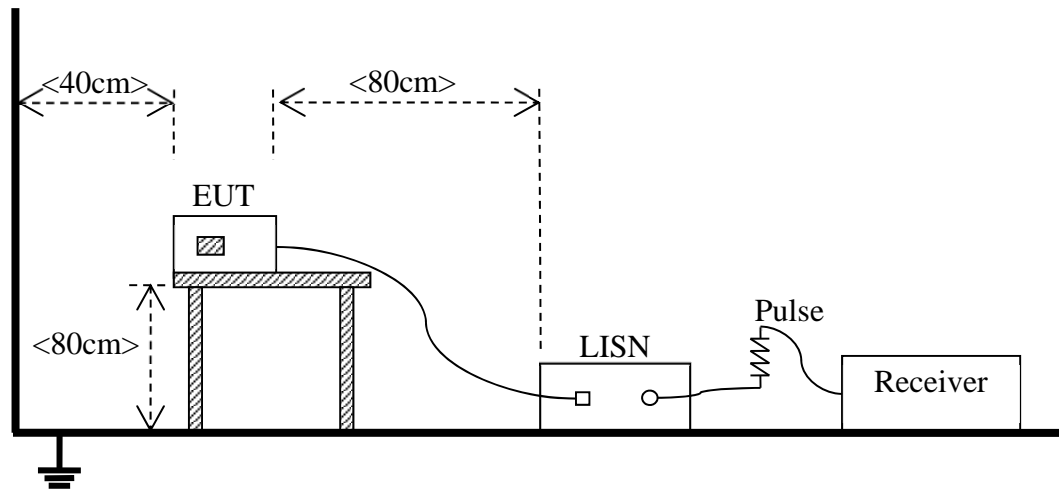
(For Radiated Emission Test (30MHz-1GHz))

Test Setup 2



(For Radiated Emission Test (above 1GHz))

Test Setup 3



(For Conducted Emission, AC Ports Test)

4.6 Test Conditions

Test Case	Test Conditions	
Radiated Emission	Test Env.	NTNV
	Test Setup	Test Setup 1&2
	Test Configuration	TC01~TC02
Conducted Emission, AC Ports	Test Env.	NTNV
	Test Setup	Test Setup 3
	Test Configuration	TC01~TC02

5 TEST ITEMS

5.1 Emission Tests

5.1.1 Radiated Emission

5.1.1.1 Limit

Frequency range (MHz)	Field Strength	
	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE:

- 1) Field Strength ($\text{dB}\mu\text{V/m}$) = $20 \cdot \log[\text{Field Strength } (\mu\text{V/m})]$.
- 2) In the emission tables above, the tighter limit applies at the band edges.

5.1.1.2 Test Procedure

An initial pre-scan was performed in the chamber using the EMI Receiver in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bi-Log antenna with 2 orthogonal polarities.

5.1.2 Conducted Emission

5.1.2.1 Test Limit

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

- 1) The limit is applicable to Class B ITE.
- 2) The lower limit shall apply at the band edges.
- 3) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

5.1.2.2 Test Procedure

The EUT is connected to the power mains through a LISN which provides 50 Ω /50 μ H of coupling impedance for the measuring instrument. The test frequency range is from 150kHz to 30MHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels that are more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed.

ANNEX A TEST RESULTS

A.1 Radiated Emission

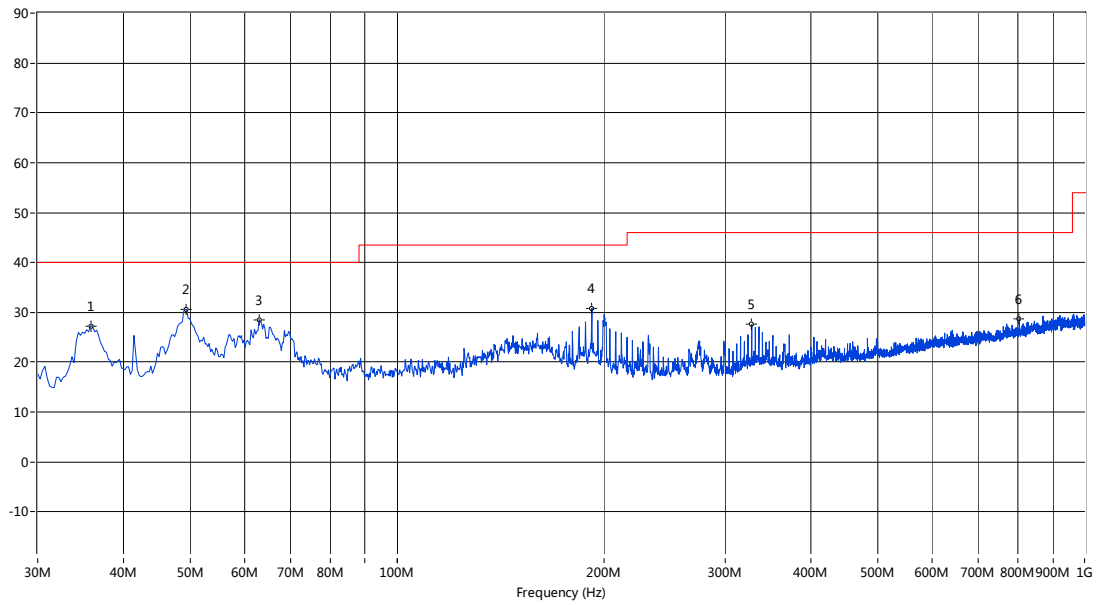
Test Data

NO.	Fre. (MHz)	PK (dBμV/ m)	QP (dBμV/ m)	AV (dBμV/ /m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/ m)	Antenna	Verdict
1	35.819	27.31	--	--	--	40.0	--	Vertical	PASS
2	49.395	30.62	--	--	--	40.0	--	Vertical	PASS
3	62.972	28.53	--	--	--	40.0	--	Vertical	PASS
4	191.950	30.87	--	--	--	43.5	--	Vertical	PASS
5	327.958	27.60	--	--	--	46.0	--	Vertical	PASS
6	803.382	28.78	--	--	--	46.0	--	Vertical	PASS
7	1994.751	43.46	--	--	74.0	--	54.0	Vertical	PASS
8	2200.700	47.69	--	--	74.0	--	54.0	Vertical	PASS
9	2424.644	99.72	--	--	74.0	--	54.0	Vertical	N/A ^{NOTE}
10	2562.109	44.71	--	--	74.0	--	54.0	Vertical	PASS
11	3978.505	42.67	--	--	74.0	--	54.0	Vertical	PASS
12	4727.568	44.24	--	--	74.0	--	54.0	Vertical	PASS
13	30.970	26.69	--	--	--	40.0	--	Horizontal	PASS
14	63.457	37.25	35.86	--	--	40.0	--	Horizontal	PASS
15	144.916	29.68	--	--	--	43.5	--	Horizontal	PASS
16	199.708	32.20	--	--	--	43.5	--	Horizontal	PASS
17	233.164	32.47	43.27	--	--	46.0	--	Horizontal	PASS
18	323.837	32.61	40.80	--	--	46.0	--	Horizontal	PASS
19	1994.751	41.23	--	--	74.0	--	54.0	Horizontal	PASS
20	2319.170	46.48	--	--	74.0	--	54.0	Horizontal	PASS
21	2440.140	101.84	--	--	74.0	--	54.0	Horizontal	N/A ^{NOTE}
22	2631.092	48.00	--	--	74.0	--	54.0	Horizontal	PASS
23	3969.508	42.41	--	--	74.0	--	54.0	Horizontal	PASS
24	5880.030	46.15	--	--	74.0	--	54.0	Horizontal	PASS

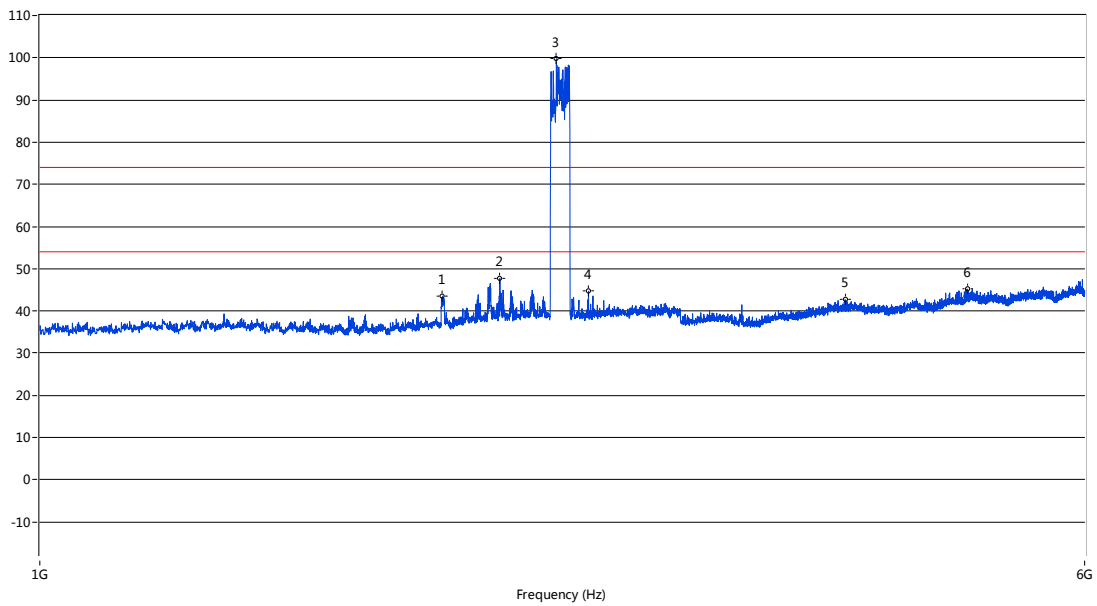
Note: The marked spikes near 2400MHz with circle should be ignored because they are Bluetooth carrier frequency.

Test Plots

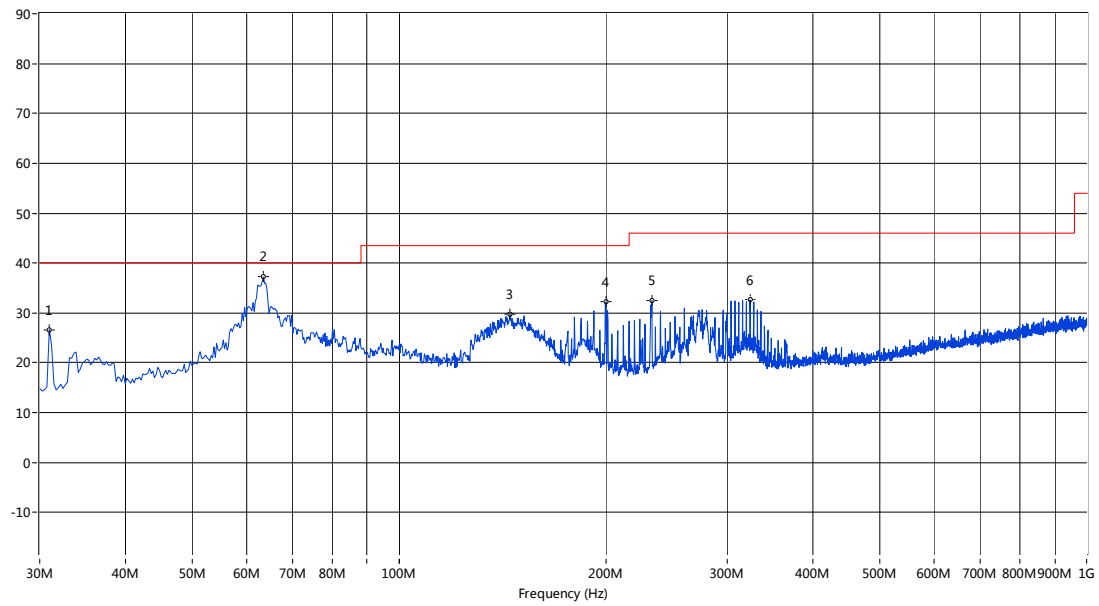
A.1.1 Test Antenna Vertical, 30MHz – 1GHz



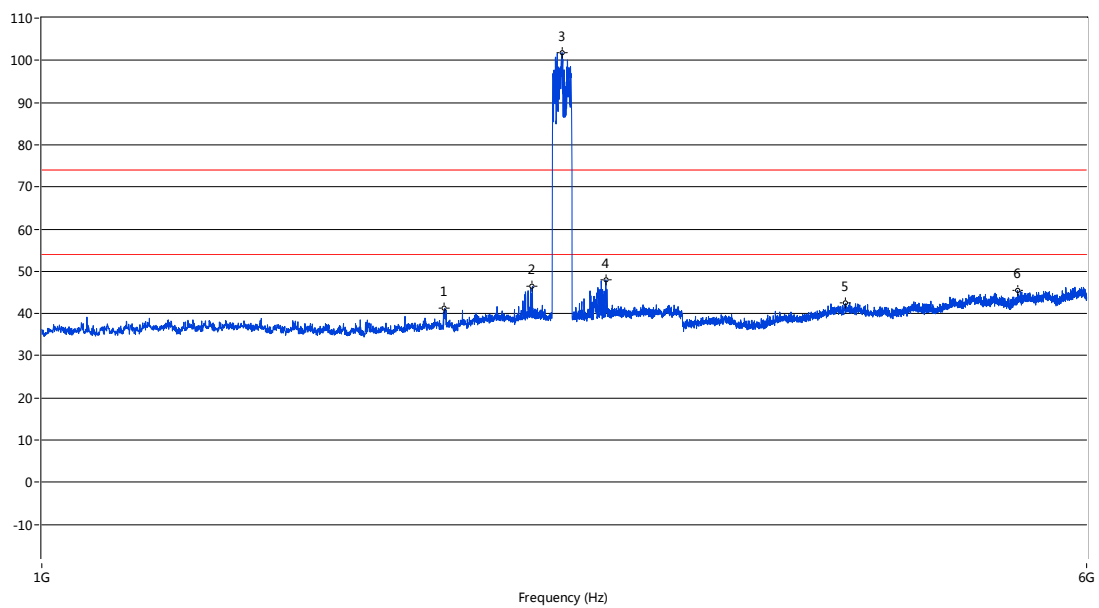
A.1.2 Test Antenna Vertical, 1GHz – 6GHz



A.1.3 Test Antenna Horizontal, 30MHz – 1GHz



A.1.4 Test Antenna Horizontal, 1GHz – 6GHz



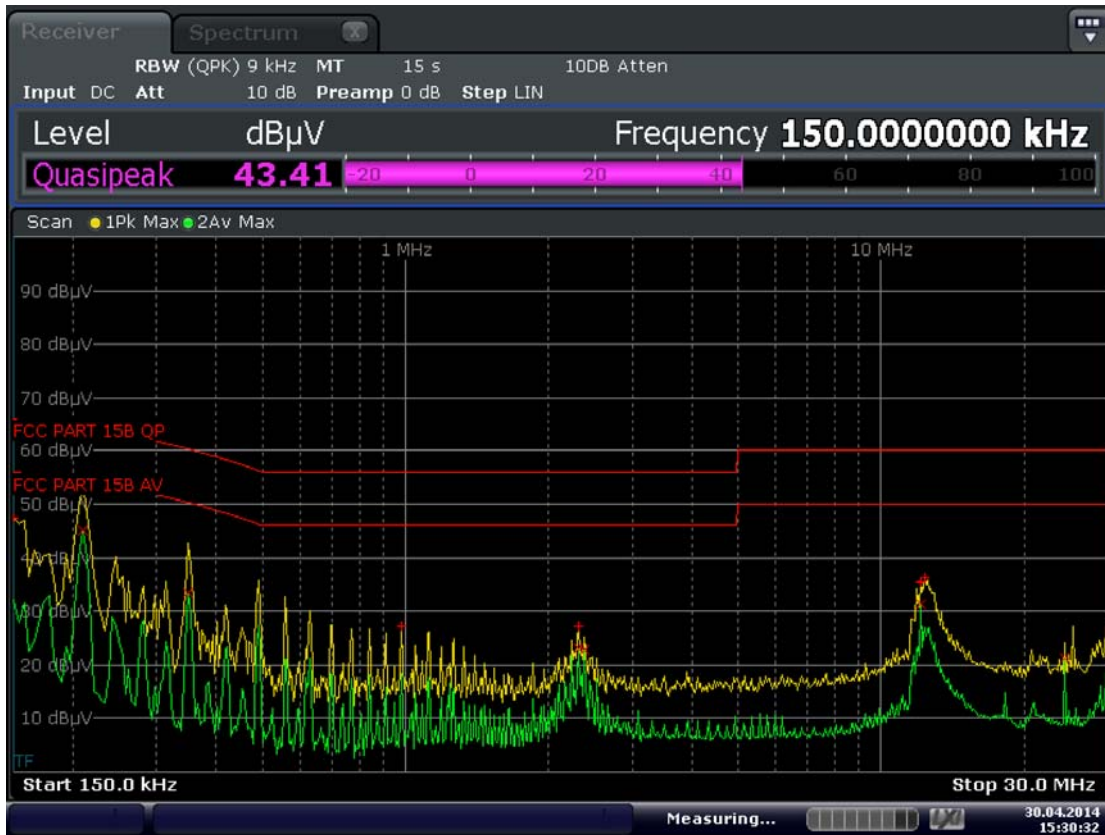
A.2 Conducted Emission

Test Data

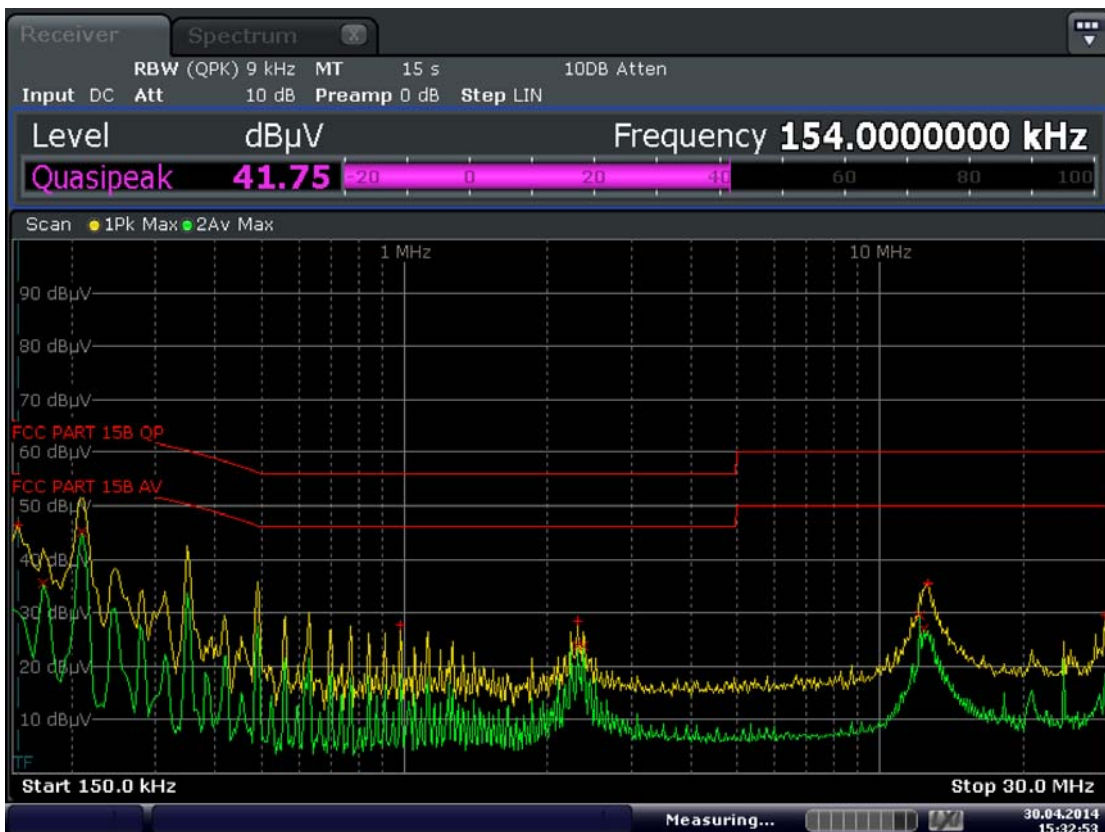
No.	Frequency (MHz)	Measurement Level (dBuV)	Limit (dBuV)	Margin (dB)	Phase	Detector	Result
1	0.150	47.49	66.00	-18.51	L	QP	PASS
2	0.210	53.92	64.29	-10.37	L	QP	PASS
3	0.210	45.09	54.29	-9.20	L	AV	PASS
4	0.350	33.54	50.29	-16.75	L	AV	PASS
5	0.982	27.11	56.00	-28.89	L	QP	PASS
6	2.310	27.15	56.00	-28.85	L	QP	PASS
7	2.310	23	46.00	-23.00	L	AV	PASS
8	2.382	22.68	46.00	-23.32	L	AV	PASS
9	12.154	35.42	60.00	-24.58	L	QP	PASS
10	12.154	31.4	50.00	-18.60	L	AV	PASS
11	12.418	36.36	60.00	-23.64	L	QP	PASS
12	24.306	21.17	50.00	-28.83	L	AV	PASS
13	0.154	46.45	65.89	-19.44	N	QP	PASS
14	0.174	35.39	55.31	-19.92	N	AV	PASS
15	0.210	53.31	64.29	-10.98	N	QP	PASS
16	0.210	45.13	54.29	-9.16	N	AV	PASS
17	0.982	27.62	56.00	-28.38	N	QP	PASS
18	2.314	28.42	56.00	-27.58	N	QP	PASS
19	2.314	23.91	46.00	-22.09	N	AV	PASS
20	2.382	23.91	46.00	-22.09	N	AV	PASS
21	12.154	29.45	50.00	-20.55	N	AV	PASS
22	12.386	26.91	50.00	-23.09	N	AV	PASS
23	12.594	35.45	60.00	-24.55	N	QP	PASS
24	29.786	29.44	60.00	-30.56	N	QP	PASS

Test Plots

A.2.1 L Phase



A.2.2 N Phase

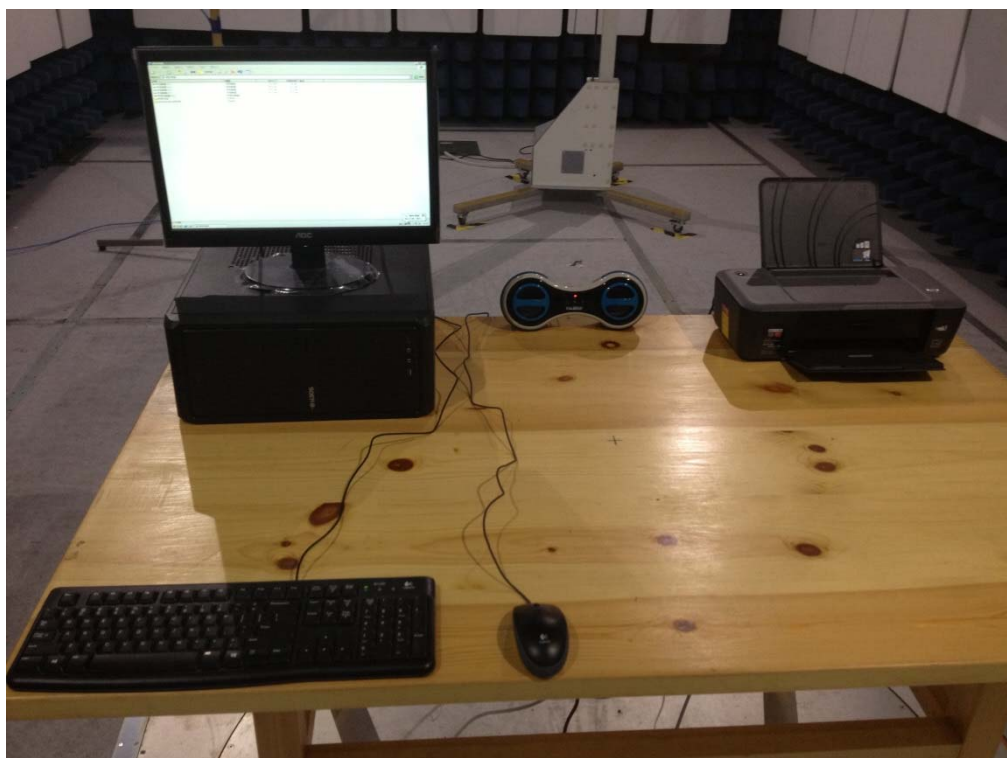


ANNEX B TEST SETUP PHOTOS

B.1 Radiated Field Strength Measurement



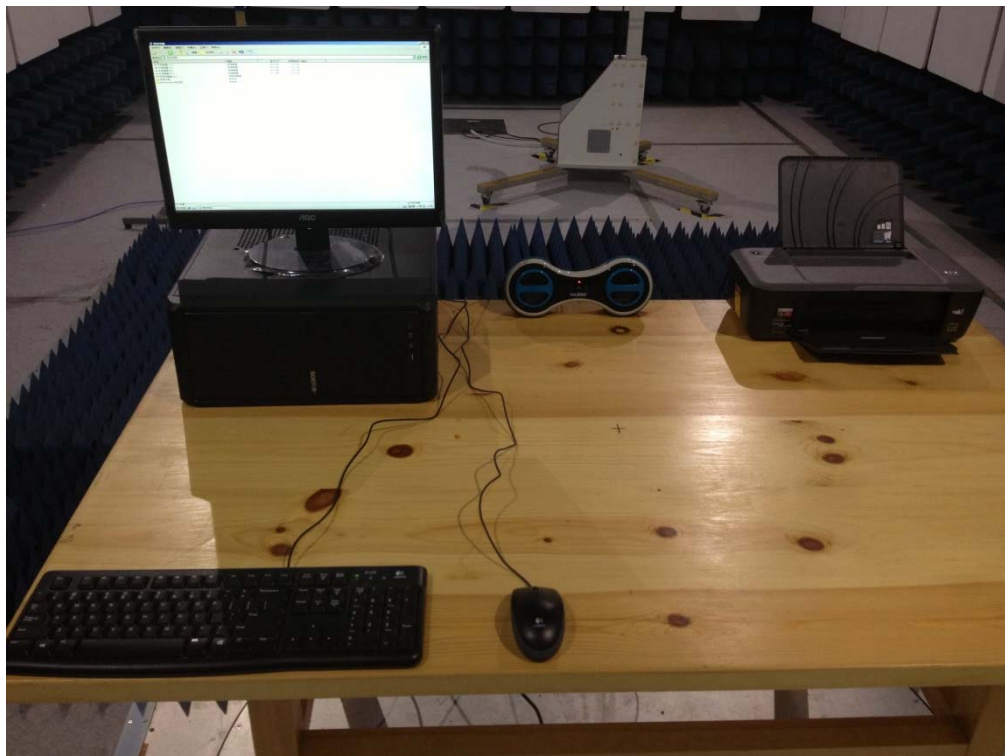
THE BACK OF THE TEST PHOTO (30MHz-1GHz)



THE FRONT OF THE TEST PHOTO (30MHz-1GHz)



THE BACK OF THE TEST PHOTO (Above 1GHz)



THE FRONT OF THE TEST PHOTO (Above 1GHz)

B.2 Conducted Emission



THE BACK OF THE TEST PHOTO



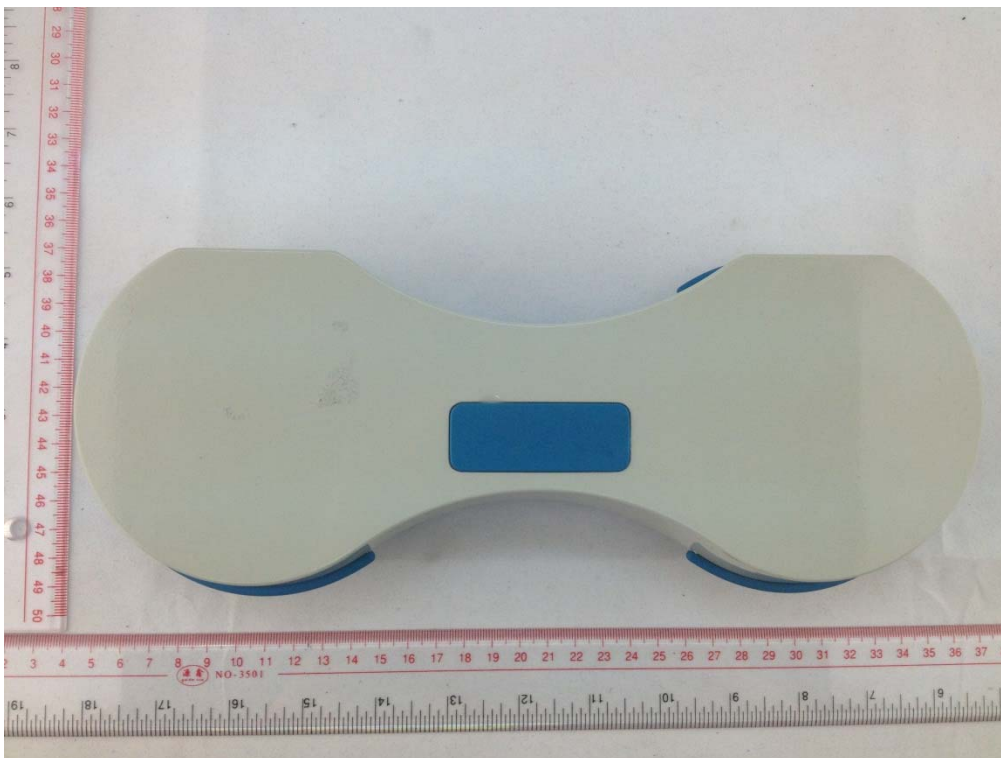
THE FRONT OF THE TEST PHOTO

ANNEX C EUT PHOTOS

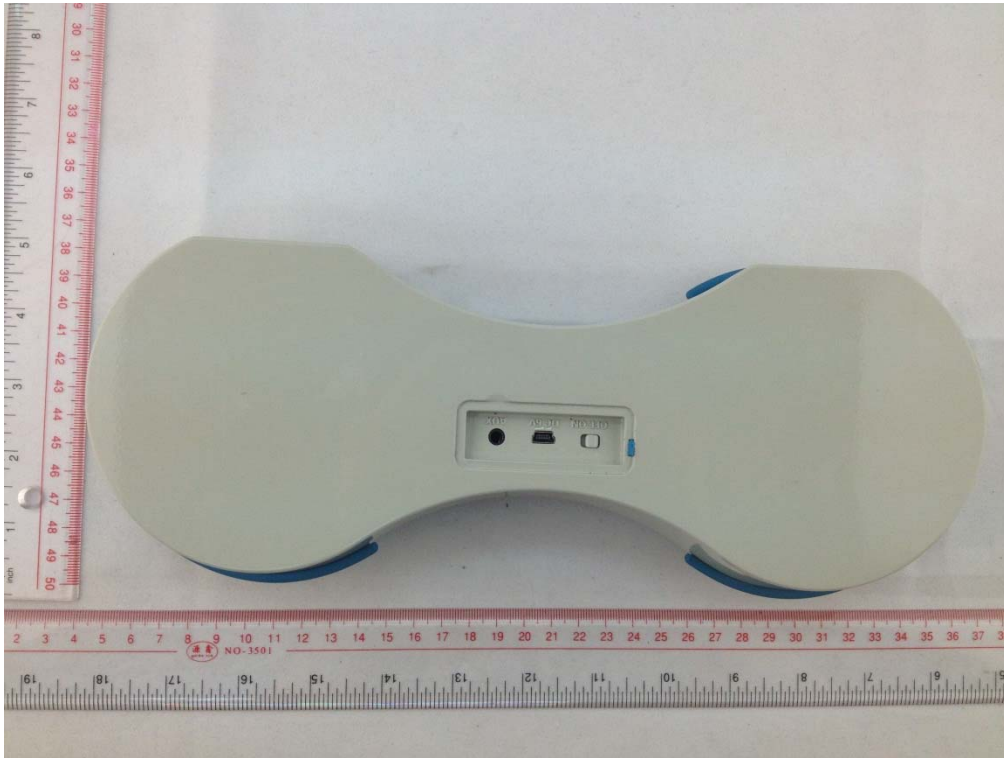
C.1 Appearance of the EUT



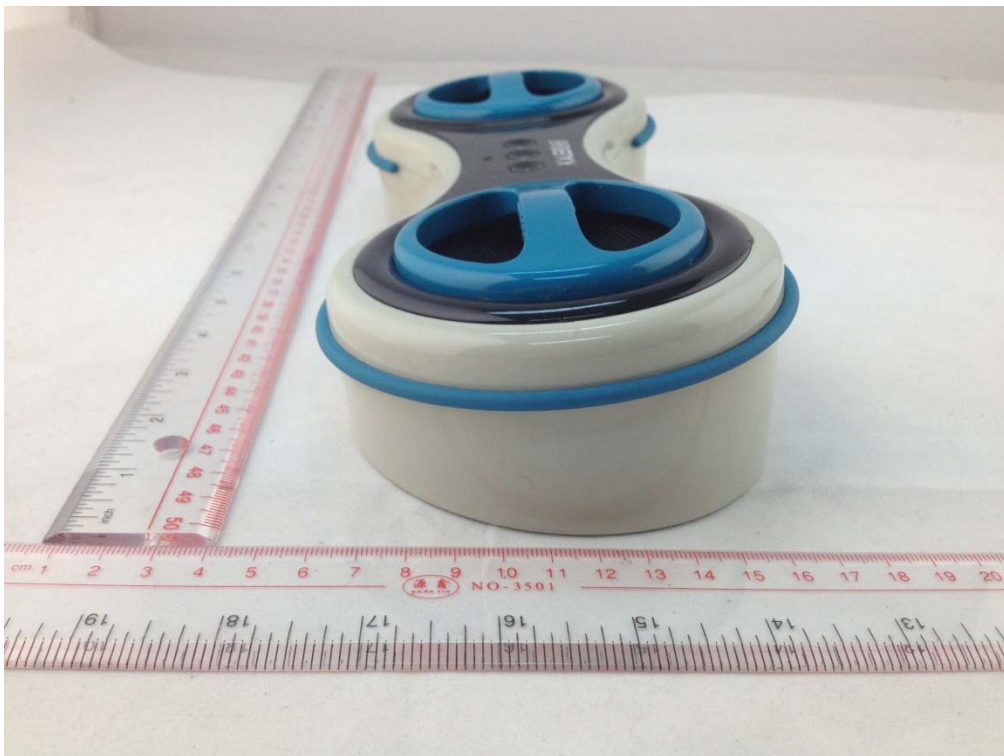
THE FRONT OF EUT



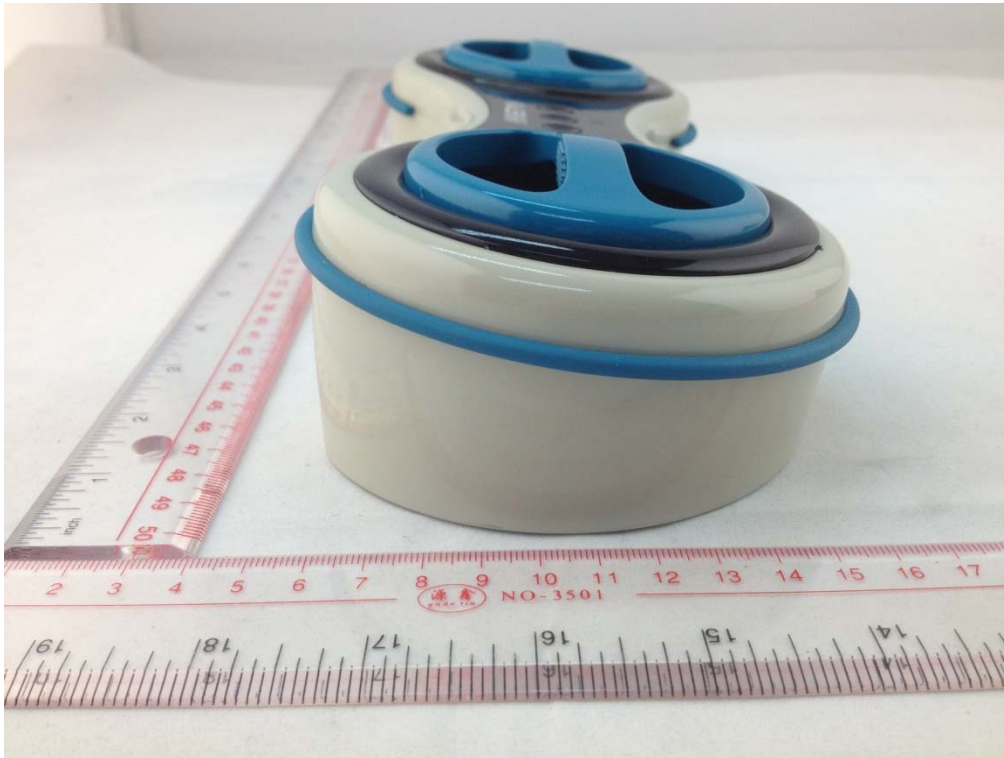
THE BACK OF EUT (1)



THE BACK OF EUT (2)



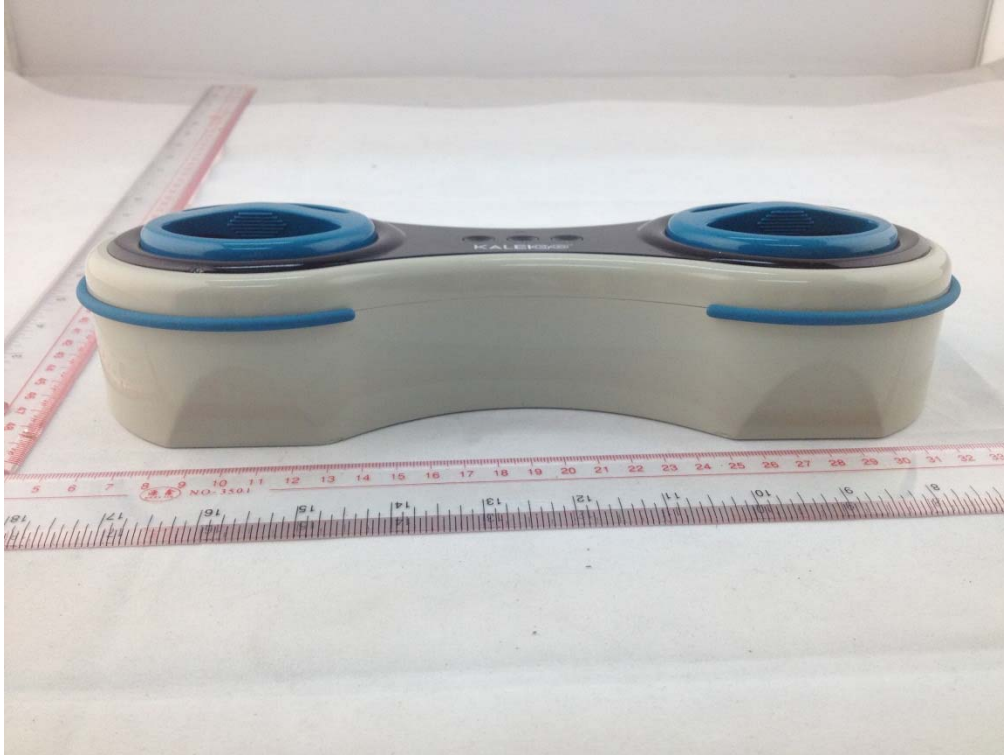
THE LEFT OF EUT



THE RIGHT OF EUT

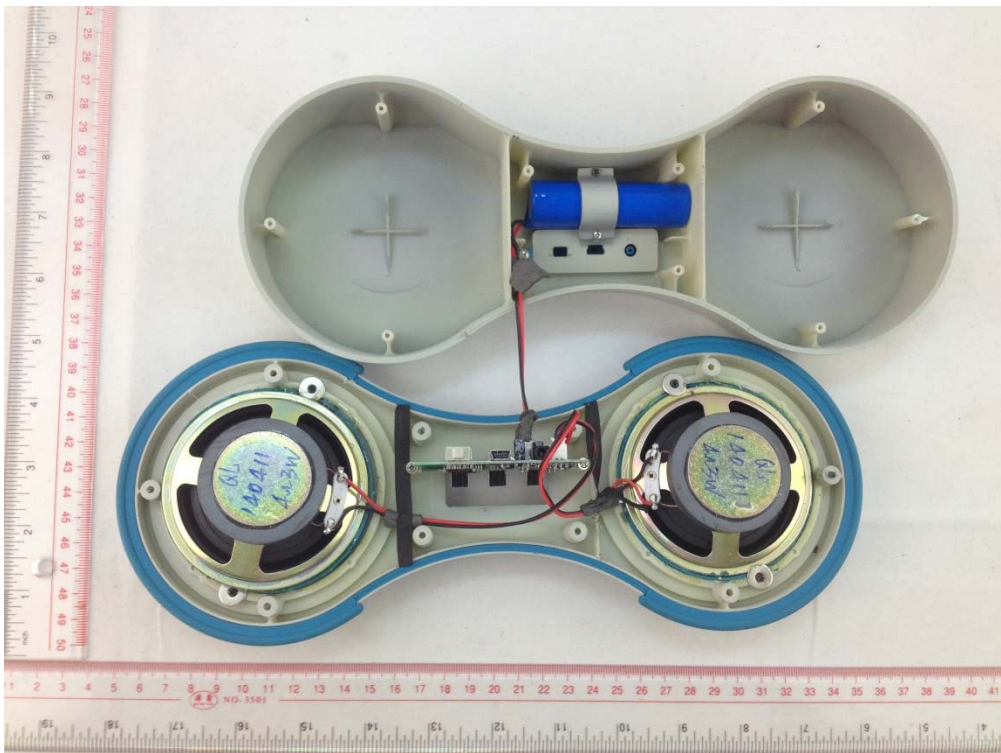


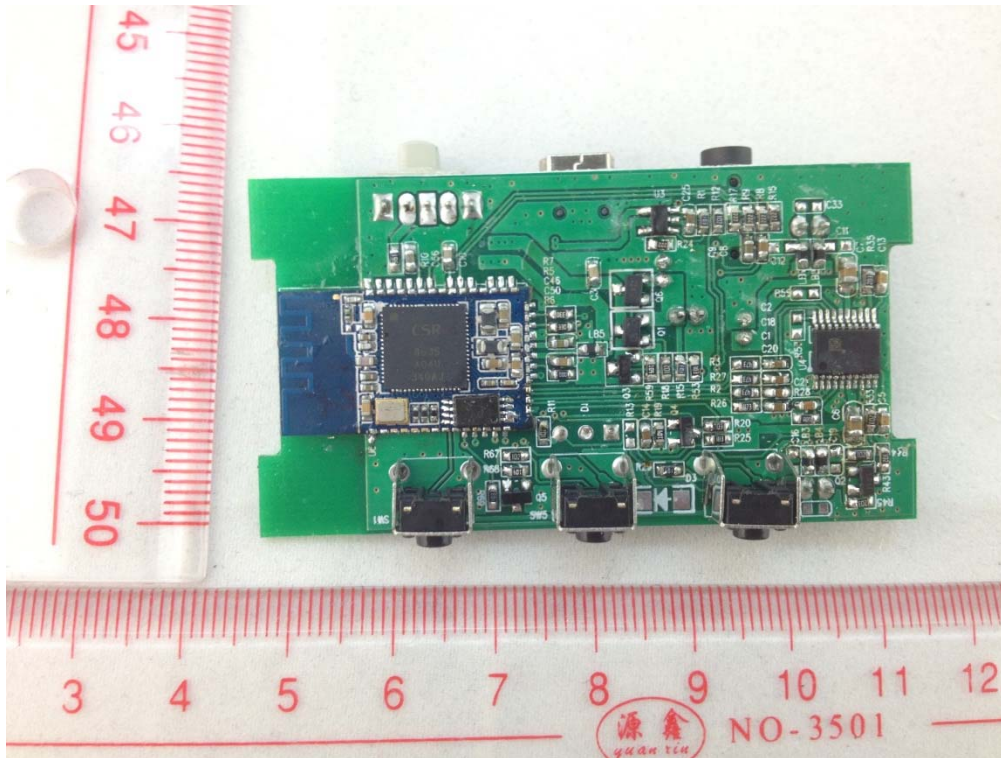
THE UP OF EUT



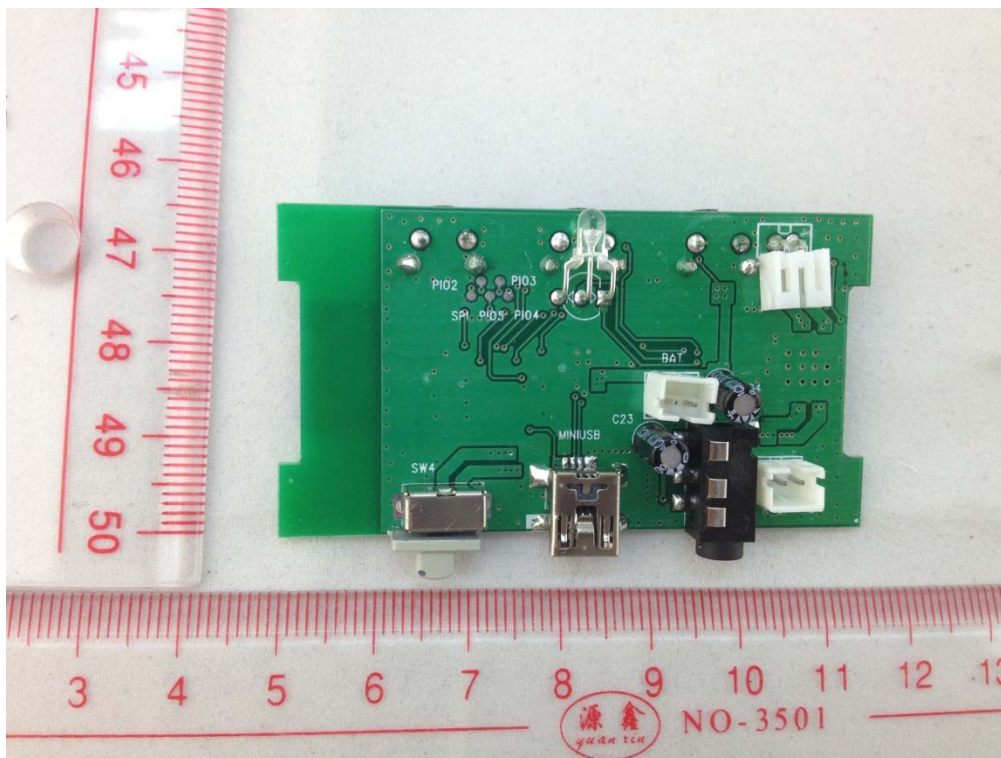
THE DOWN OF EUT

C.2 Inside of the EUT





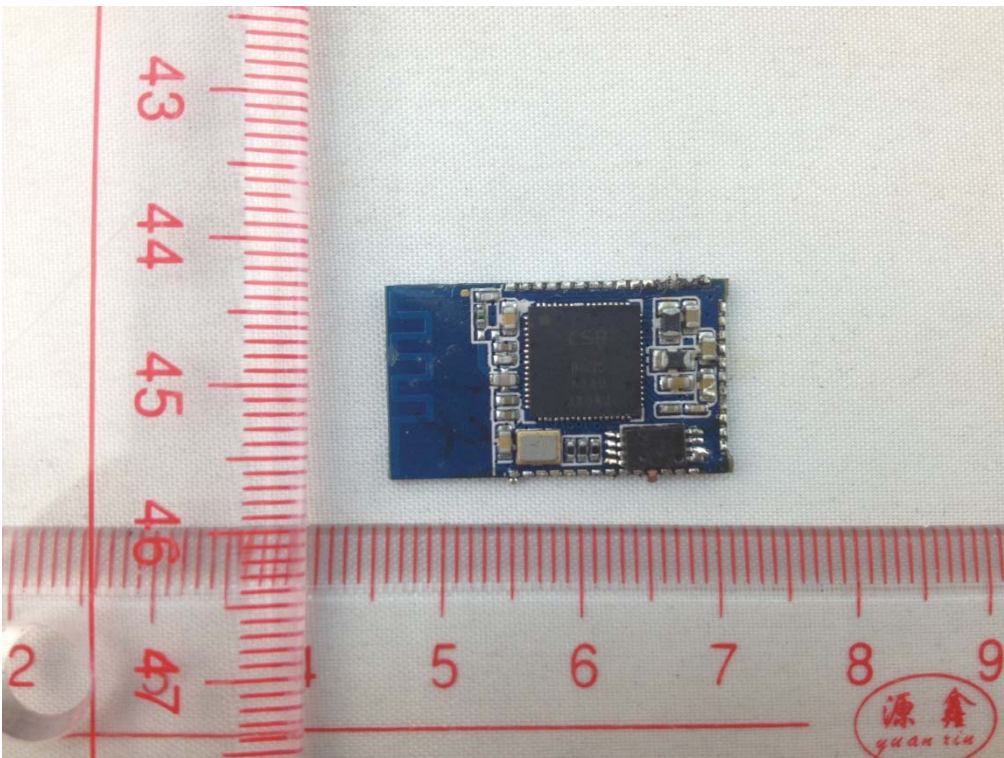
Main Board



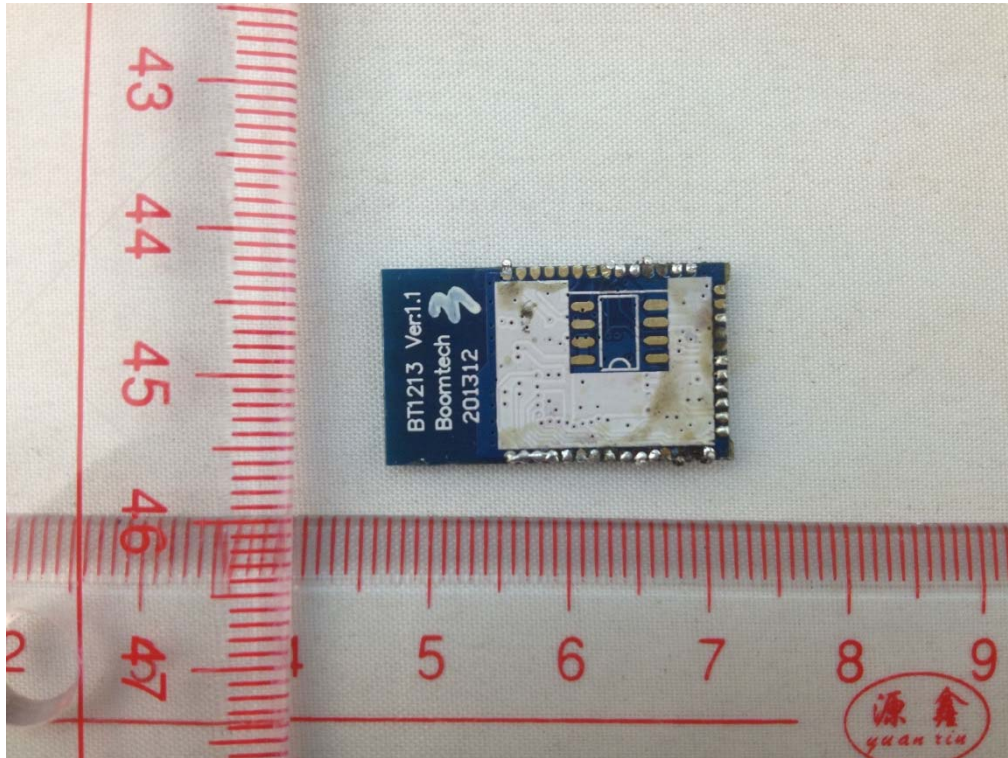
Main Board



Battery



RF Board (FRONT)



RF Board (BACK)
--END OF REPORT--