

EMC TEST REPORT

For

Portable wireless outdoor/indoor music system

Model Number: WIOS-20

FCC ID: VKJSPROUT-WS1RX

Report Number : F78000803

Test Laboratory	:	Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory Guangdong EMC Compliance Test Center
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TEST REPORT DECLARATION

Applicant : Sprout Ltd.
 Address : Suite 1206, Greenfield Tower, Concordia Plaza
 One Science Museum Road, Tsim Sha Tsui East, Kowloon, Hong Kong.
 Manufacturer : Shenzhen Flying Electronics
 Address : 6th Floor,B2 Building, Taiming Science & Technology Industrial Park,Yousong Village,Longhua, Baoan, Shenzhen,China
 EUT Description : Portable wireless outdoor/indoor music system
 Model Number : WIOS-20
 FCC ID : VKJSPROUT-WS1RX

Test Standards:

FCC Part 15 Subpart B

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part Subpart B.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Tested by:	<u>Winnie Hou</u> (Winnie Hou)	Date:	<u>2007.8.24</u>
Checked by:	<u>Louis Lin</u> (Louis Lin)	Date:	<u>2007.8.24</u>
Approved by:	<u>Peter Lin</u> (Peter Lin)	Date:	<u>2007.8.24</u>

1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	FCC Rules	Test Results
Conducted Disturbance	15.207	Pass
Radiated disturbance	15.209	Pass

2. GENERAL INFORMATION

2.1. Report information

- 2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.
- 2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

2.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at Bldg. of Metrology & Quality Inspection, Longzhu Road, Nanshan District, Shenzhen, Guangdong, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Committee for Laboratories (**CNAL**) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is L0579.

The Laboratory is listed in the United States of American Federal Communications Commission (**FCC**), and the registration number are **97379**(open area test site) and **274801**(semi anechoic chamber).

The Laboratory is listed in Voluntary Control Council for Interference by Information Technology Equipment (**VCCI**), and the registration number are **R-1974**(open area test site) , **R-1966**(semi anechoic chamber), **C-2117**(mains ports conducted interference measurement) and **T-180**(telecommunication ports conducted interference measurement).

The Laboratory is registered to perform emission tests with Industry Canada (**IC**), and the registration number is **IC4174**.

TUV Rhineland accredits the Laboratory for conformance to IEC and EN standards, the registration number is **E2024086Z02**.

Measurement Uncertainty

2.3. Measurement Uncertainty

Conducted Disturbance : 9kHz~30MHz 3.5dB

Radiated Disturbance: 30MHz~1000MHz 4.5dB
1GHz~18GHz 4.6dB

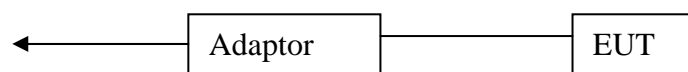
3. PRODUCT DESCRIPTION

3.1. EUT Description

Description	:	Portable wireless outdoor/indoor music system
Manufacturer	:	Shenzhen Flying Electronics
Model Number	:	WIOS-20
Input Power	:	Adapter: Input:AC100-240V 50/60Hz 0.5A Output:DC15V 2A

The test report issued for receiver only.

3.2. Block Diagram of EUT Configuration



3.3. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: VKJSPROUT-WS1RX filing to comply with Section 15.249 of the FCC Part 15, Subpart C Rules.

3.4. Operating Condition of EUT

Mode 1: 902.4MHz RX
Mode 2:904.0MHz RX

3.5. Special Accessories

Not available for this EUT intended for grant.

3.6. Equipment Modifications

Not available for this EUT intended for grant.

3.7. Support Equipment List

Audio Generator:
M/N: AD-203D
S/N:SB3612
Manufacturer: KENWOOD

3.8. Test Conditions

Date of test: Aug.22-23,2007
Date of EUT Receive: Aug.21,2007
Temperature: 24 °C
Relative Humidity: 53%

4. TEST EQUIPMENT USED

4.1. Test Equipment Used to Measure Conducted Disturbance

Table 2 Conducted Disturbance Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB2603	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jan.25, 2007	1 Year
SB3321	AMN	Rohde & Schwarz	ESH2-Z5	Jan.25, 2007	1 Year
SB2604	AMN	Rohde & Schwarz	ESH3-Z5	Jan.25, 2007	1 Year
SB3612	Audio generator	KENWOOD	AD-203D	Jan.25, 2007	1 Year

4.2. Test Equipment Used to Measure Radiated Disturbance and bandwidth

Table 3 Radiated Disturbance Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB3436	EMI Test Receiver	Rohde & Schwarz	ESI26	Jan.25, 2007	1 Year
SB3440	Bilog Antenna	Chase	CBL6112B	Jan.25, 2007	1 Year
SB3435	Horn Antenna	Rohde & Schwarz	HF906	Jan.25, 2007	1 Year
SB3435 /01	Amplifier(1-18GHz)	Rohde & Schwarz	---	Jan.25, 2007	1 Year
SB3612	Audio generator	KENWOOD	AD-203D	Jan.25, 2007	1 Year

5. CONDUCTED DISTURBANCE TEST

5.1. Test Standard and Limit

5.1.1. Test Standard

FCC Part 15 Subpart B

5.1.2. Test Limit

Table 4 Conducted Disturbance Test Limit (Class B)

Frequency	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

- Decreasing linearly with logarithm of the frequency
- The lower limit shall apply at the transition frequency.

5.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. According to the requirements in Section 7 and 13 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

5.3. Test Arrangement

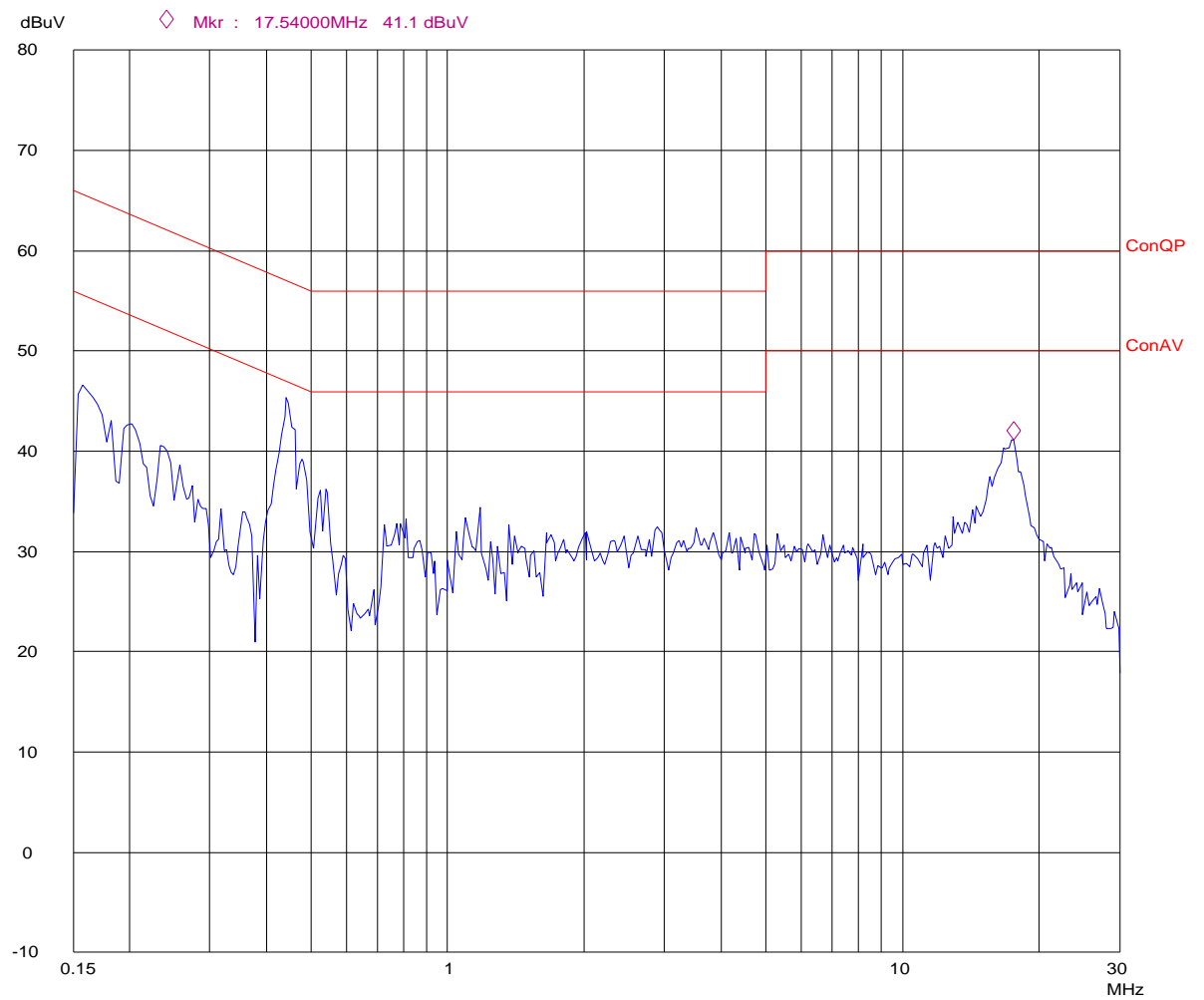
The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

5.4. Test Data

The emissions don't show in below are too low against the limits. Refer to the test curves .

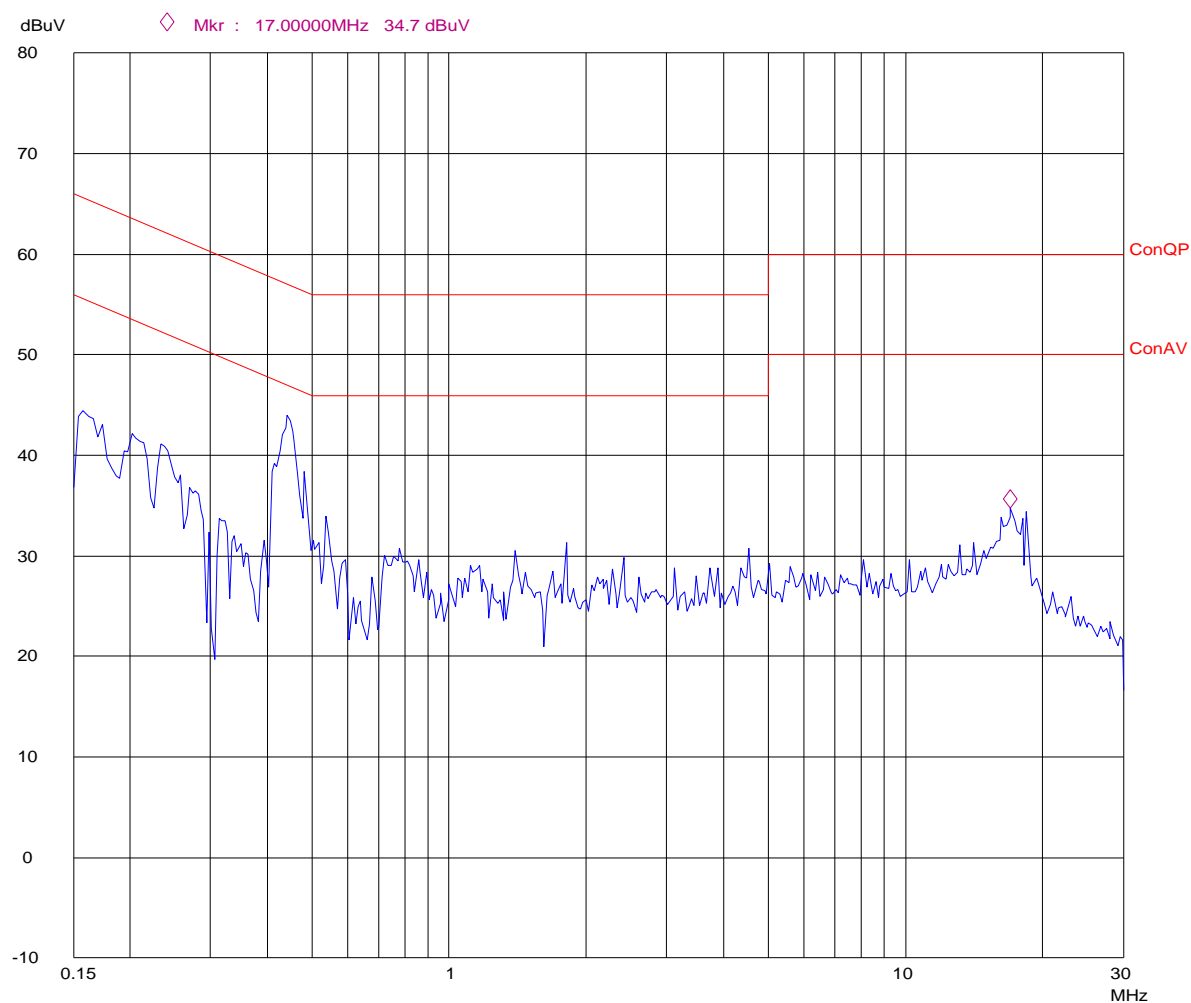
Conducted Disturbance

EUT: M/N:WIOS-20 RX
Op Cond: CH2
Test Spec: N
Comment: AC 120V/60Hz



Conducted Disturbance

EUT: M/N:WIOS-20 RX
Op Cond: CH2
Test Spec: L
Comment: AC 120V/60Hz



6. RADIATED DISTURBANCE TEST

6.1. Test Standard and Limit

6.1.1. Test Standard

FCC Part 15 Subpart B

6.1.2. Test Limit

Table 5 Radiated Disturbance Test Limit (Class B)

FREQUENCY MHz	FIELD STRENGTHS LIMITS ($\mu\text{V/m}$)	FIELD STRENGTHS LIMITS dB ($\mu\text{V/m}$)
30 ~ 88	100	40.0
88 ~ 216	150	43.5
216 ~ 960	200	46.0
960 ~	500	54.0

* The lower limit shall apply at the transition frequency.

* The test distance is 3m.

6.2. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8 and 13 of ANSI C63.4-2003.

The RBW of the EMI test receiver is :

30~1000MHz 120KHz
1000-18000MHz 1MHz

6.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

6.4. Test Data

Note: 1. Emission level(dBuV/m)=Reading Value(dBuV) + Correction Factor(dB/m)+ Antenna Factor (dB/m)

2. Correction Factor(dB/m) = Cable Factor (dB)+Amplifier Factor(dB)

3. The other emission levels were very low against the limit.

Table 6 Radiated Disturbance Test Data (FCC Part15)

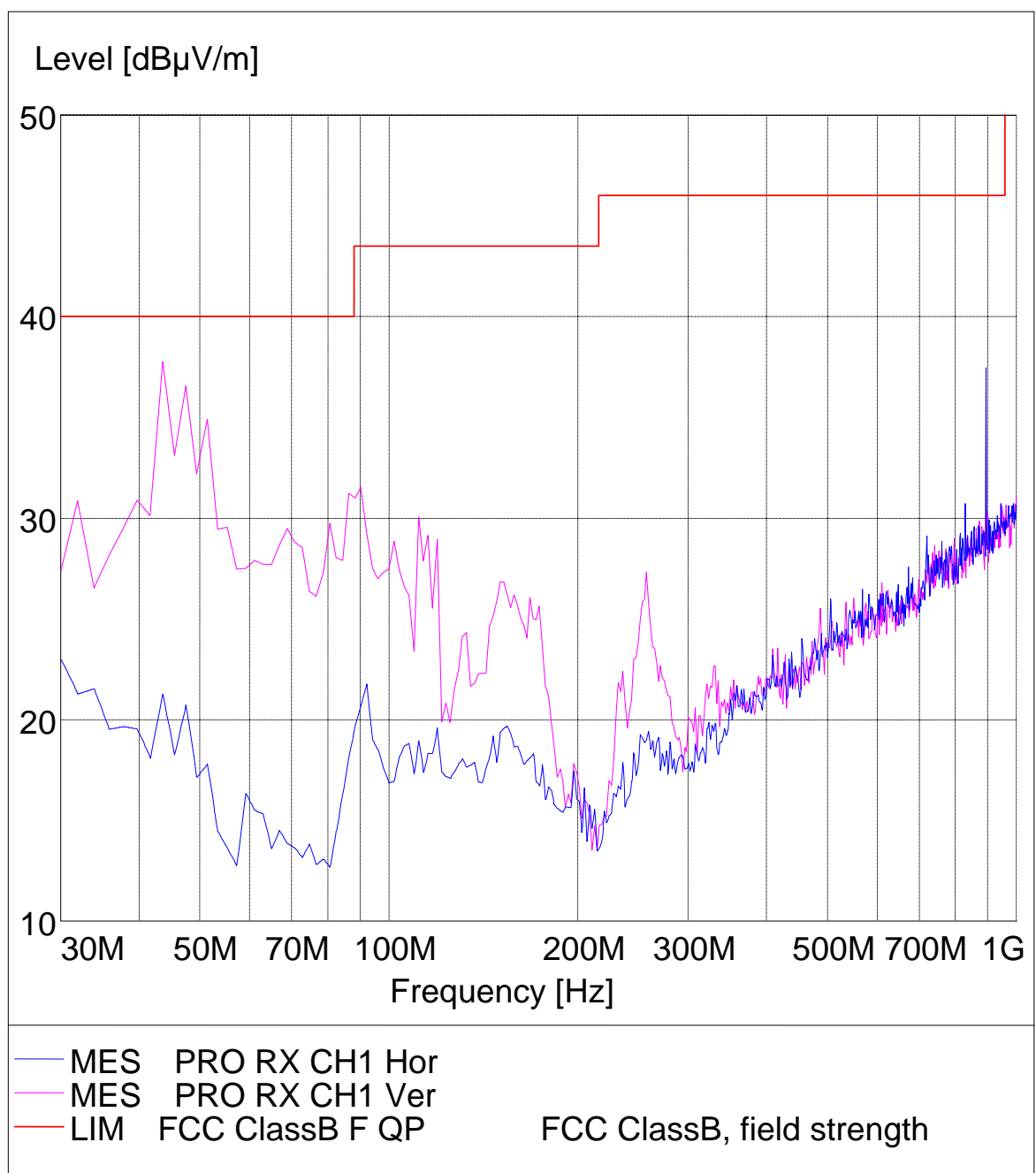
Model number:WIOS-20 Test Mode: ch 1							
Frequency (MHz)	Polarization	Reading Value (dB μ V)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Note
48.252	V	25.2	1.2	8.5	34.9	40.0	---
893.304	V	10.3	5.1	20.7	36.1	46.0	---
893.294	H	11.5	5.1	20.7	37.3	46.0	---

Table 6 Radiated Disturbance Test Data (FCC Part15)

Model number:WIOS-20 Test Mode:ch 2							
Frequency (MHz)	Polarization	Reading (dB μ V)	Cable Loss (dB)	Antenna Factor (dB/m)	Level dB (μ V/m)	Limits dB (μ V/m)	Note
891.703	H	14.5	5.1	20.7	40.3	46.0	---
44.246	V	22.1	1.2	10.5	33.8	40.0	---
891.904	V	8.9	5.1	20.7	34.7	46.0	---

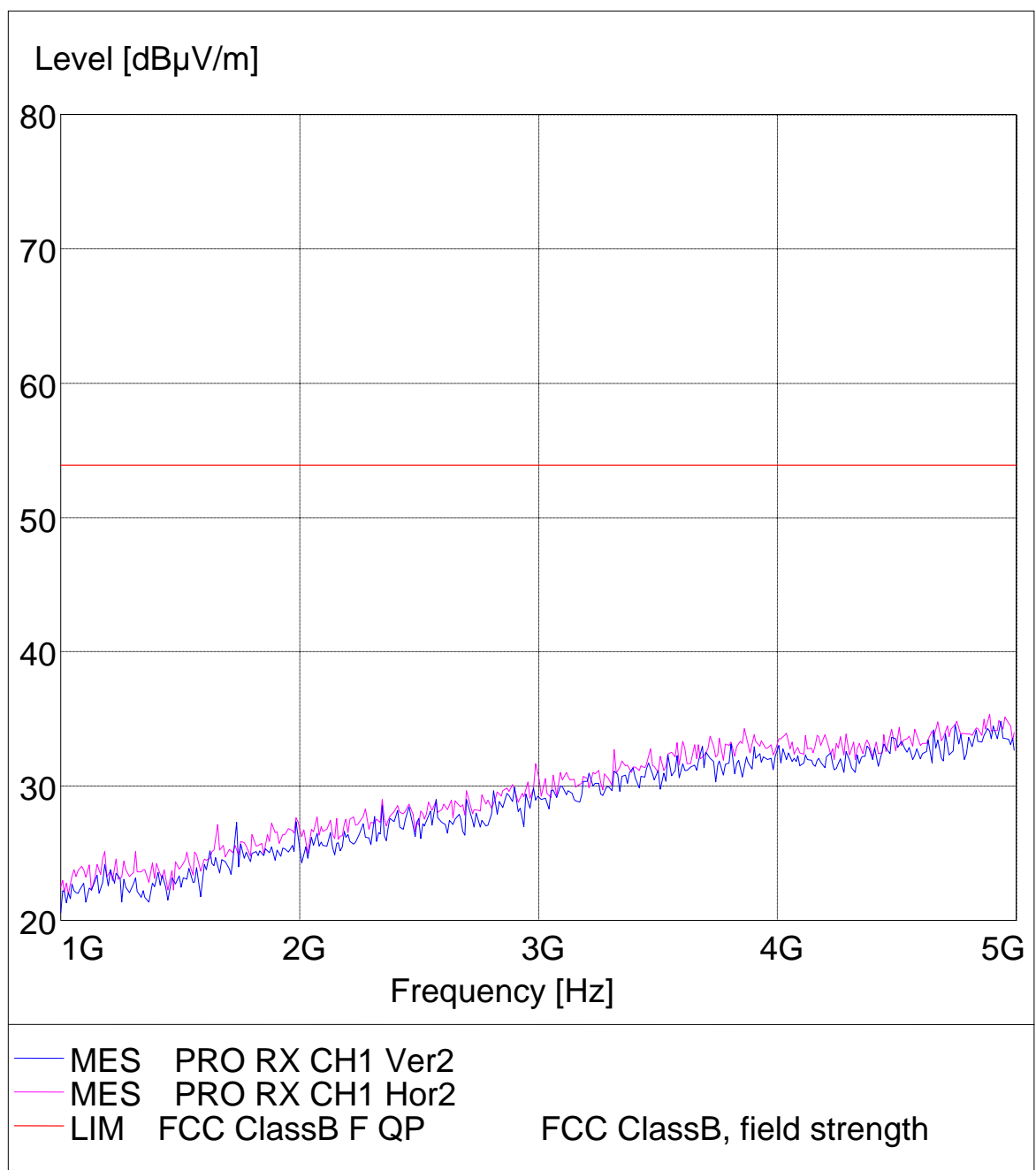
Radiated Disturbance

EUT: M/N:WIOS-20
Manufacturer:
Operating Condition: RX CH1
Test Site: SMQ EMC Lab.SAC
Test Specification: Horizontal & Vertical
Comment : AC 120V/60Hz



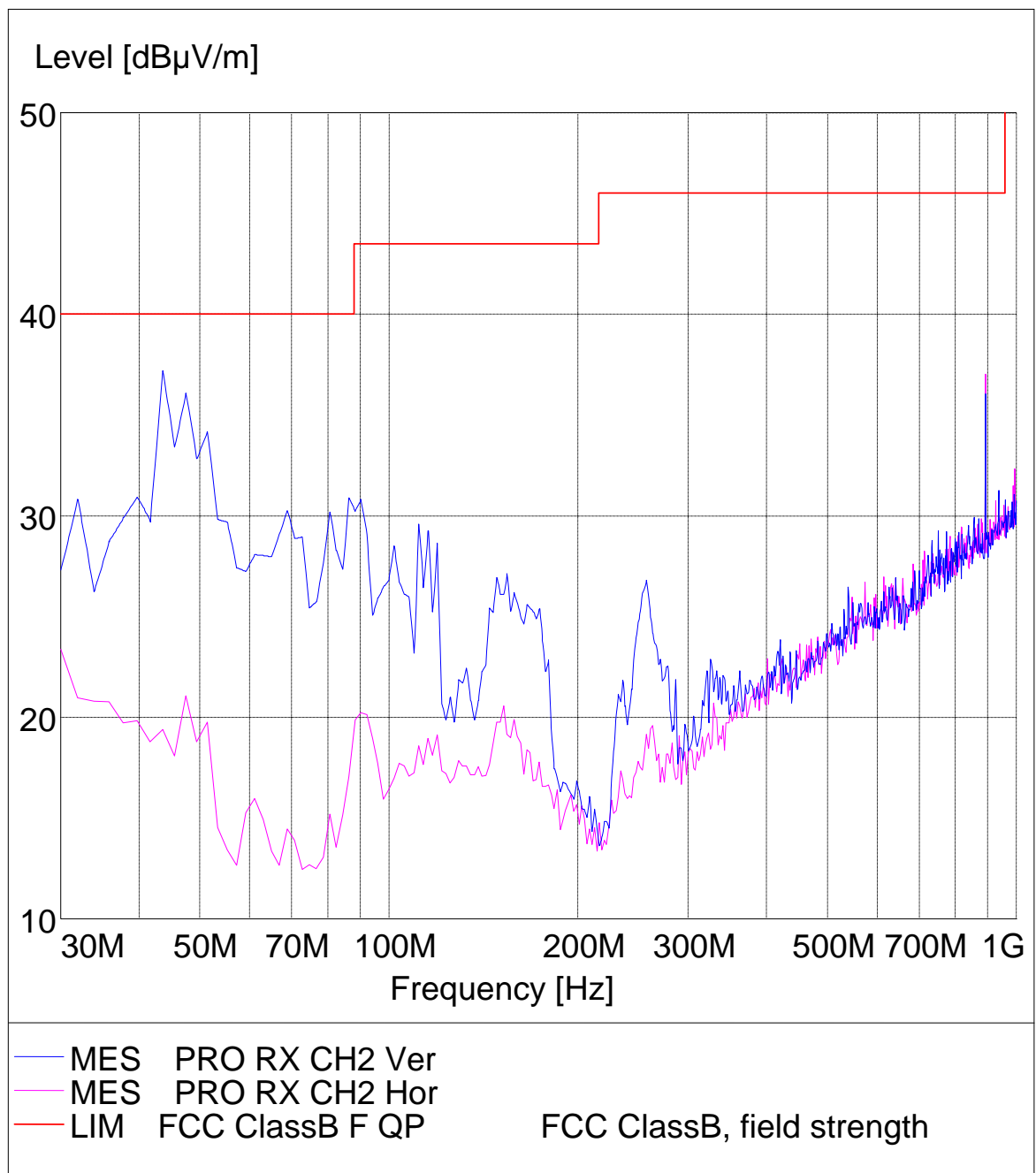
Radiated Disturbance

EUT: M/N:WIOS-20
Manufacturer:
Operating Condition: RX CH1
Test Site: SMQ EMC Lab.SAC
Operator:
Test Specification: Horizontal & Vertical
Comment: AC 120V/60Hz



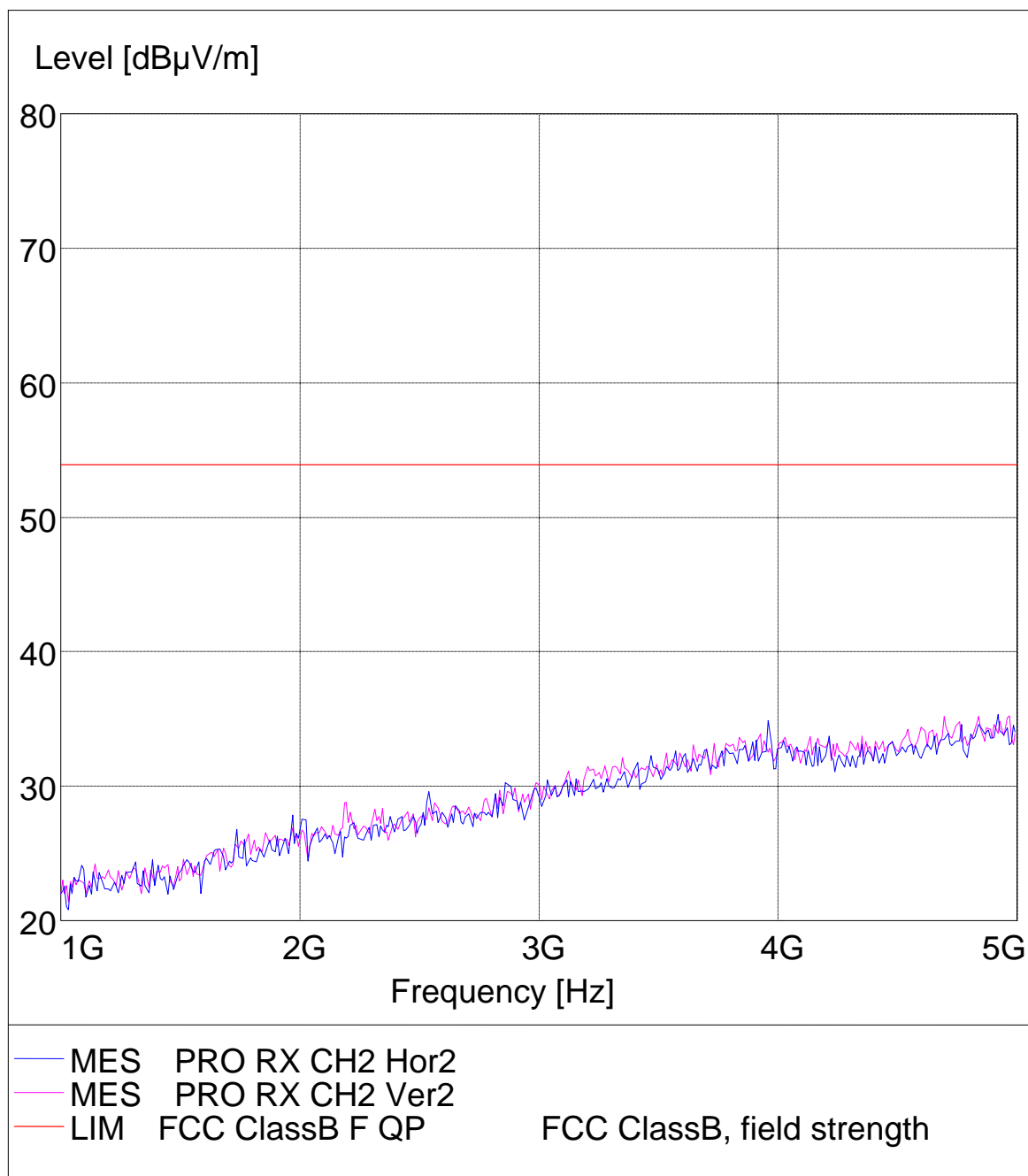
Radiated Disturbance

EUT: M/N:Pro solutions
 Manufacturer:
 Operating Condition: RX CH2
 Test Site: SMQ EMC Lab.SAC
 Test Specification: Horizontal & Vertical
 Comment : AC 120V/60Hz



Radiated Disturbance

EUT: M/N:Pro solutions
Manufacturer:
Operating Condition: RX CH2
Test Site: SMQ EMC Lab.SAC
Operator:
Test Specification: Horizontal & Vertical
Comment: AC 120V/60Hz



APPENDIX I TEST PHOTO

Photo 1 Conducted Emission Test

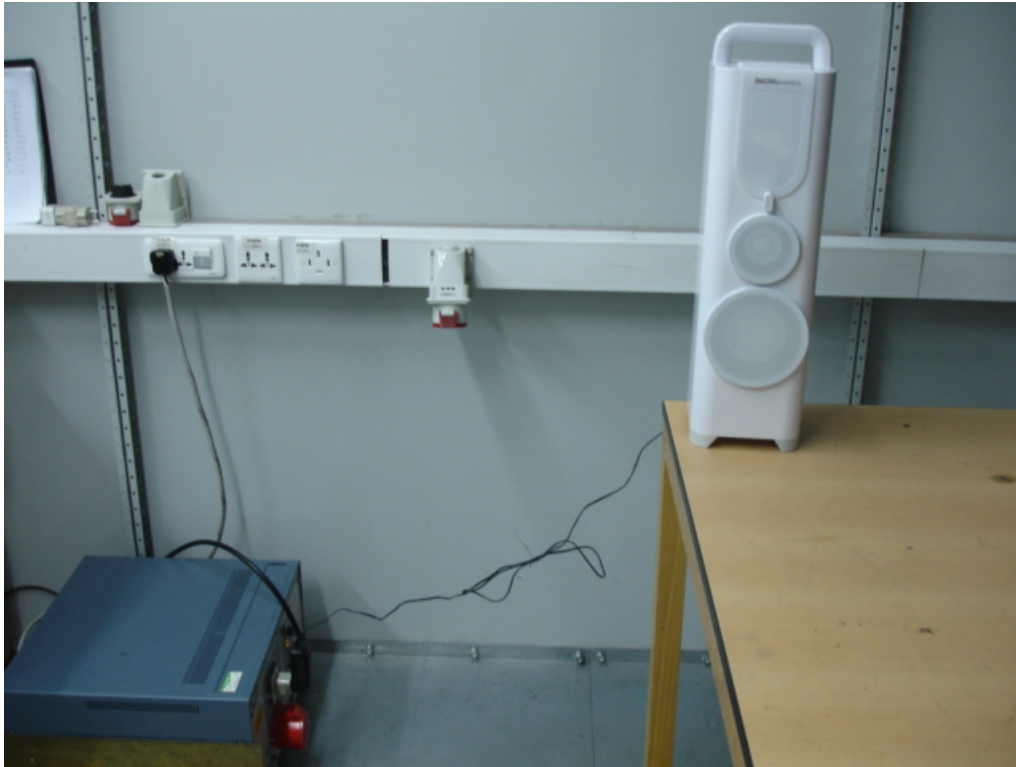


Photo 2 Radiated Emission Test

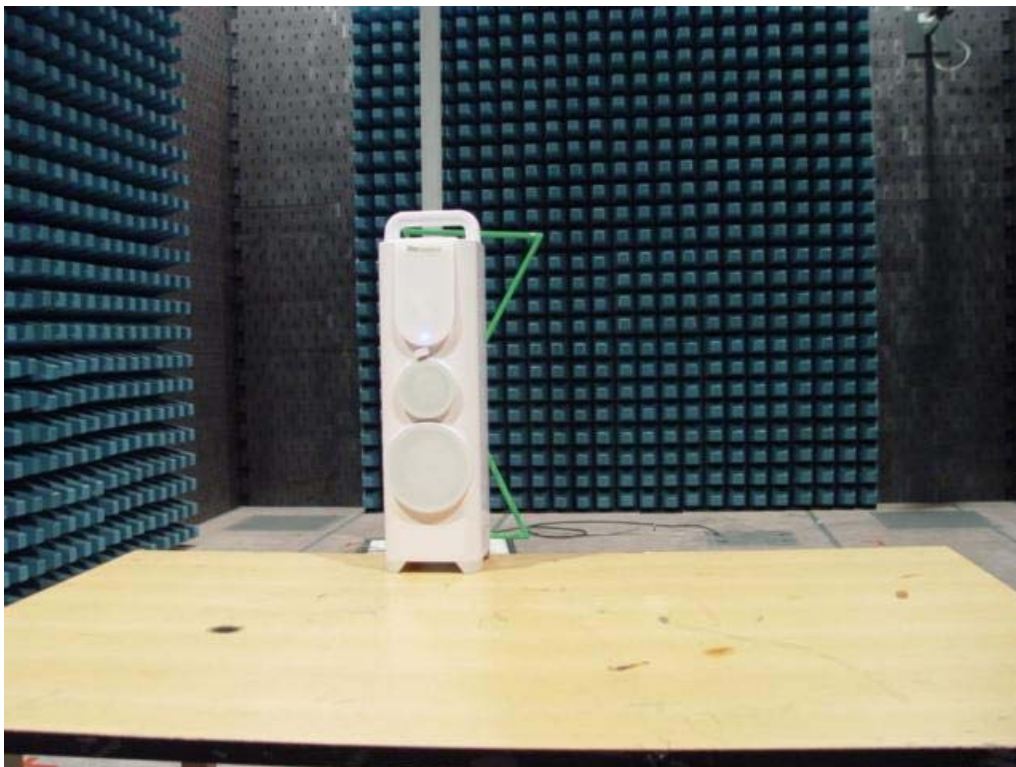


Photo 3 Radiated Emission Test



APPENDIX II EUT PHOTO

Photo 1 Appearance of EUT



Photo 2 Appearance of EUT

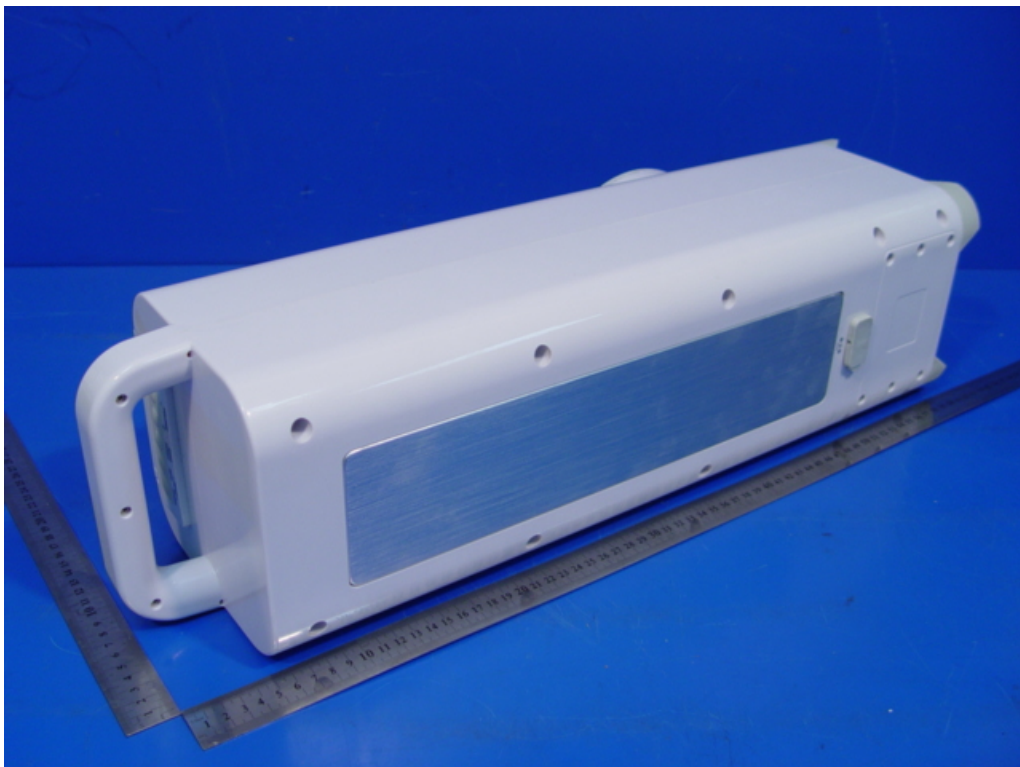


Photo 3 Inside of EUT

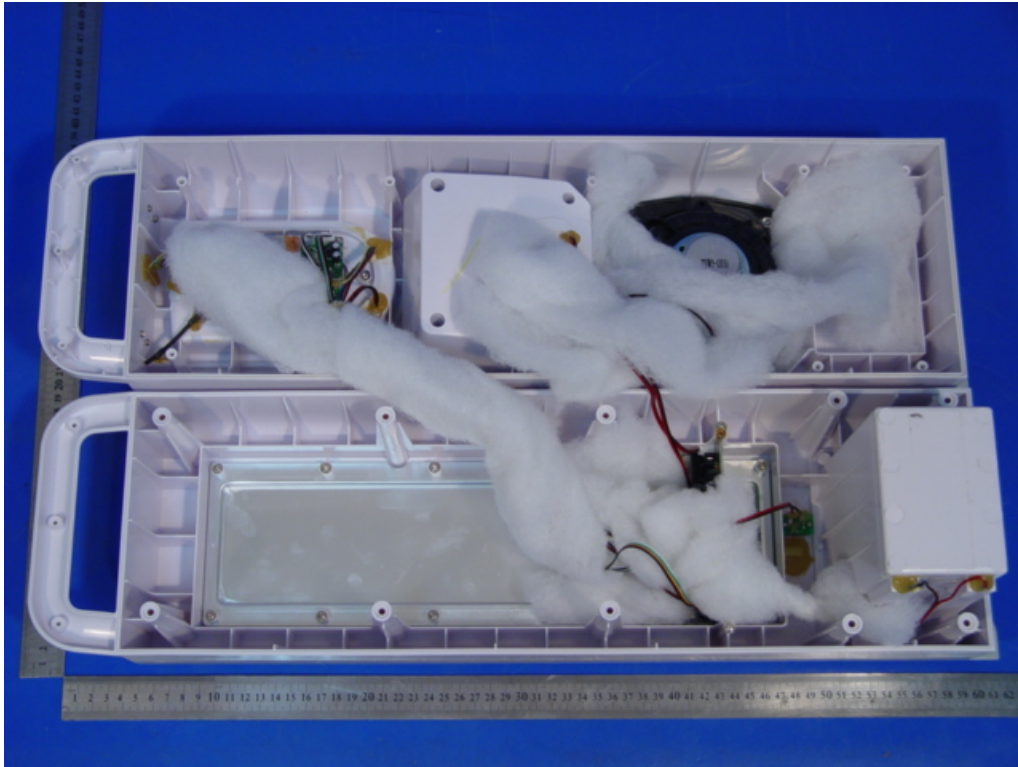


Photo 4 Inside of EUT

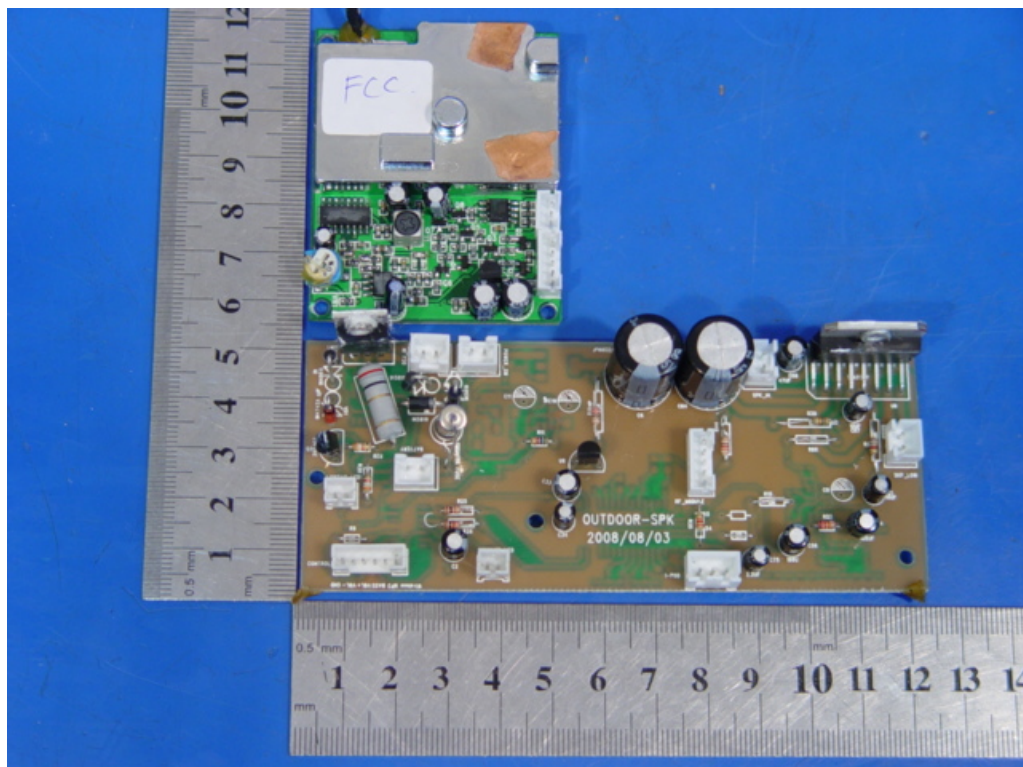


Photo 5 Inside of EUT

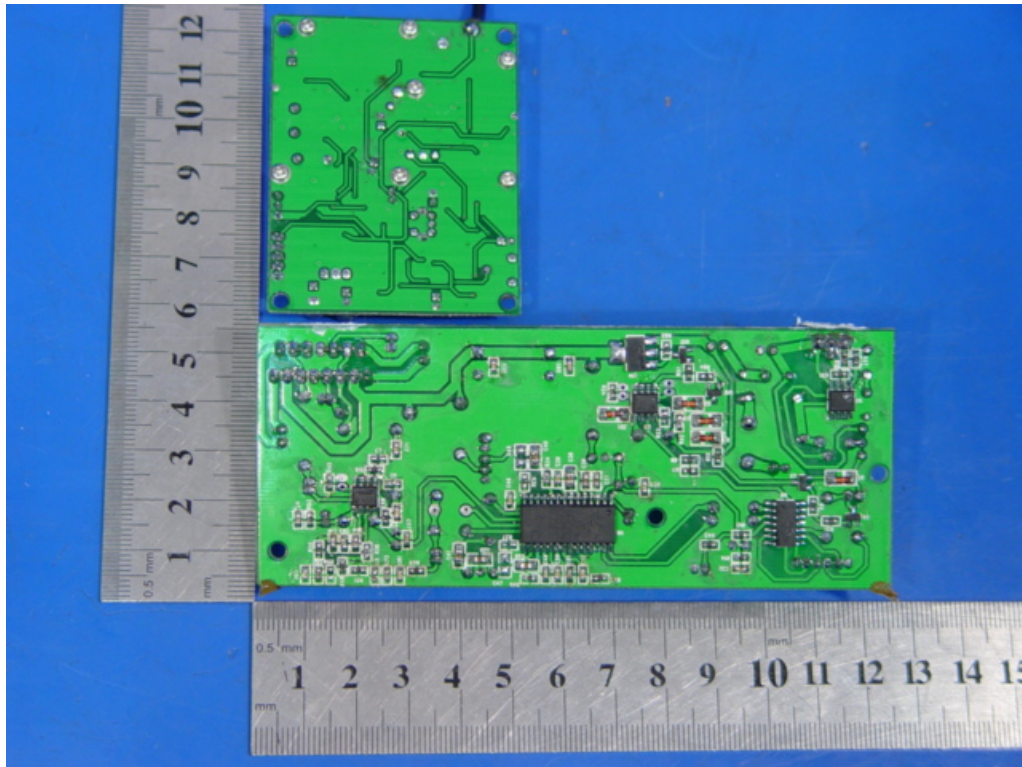


Photo 6 Inside of EUT

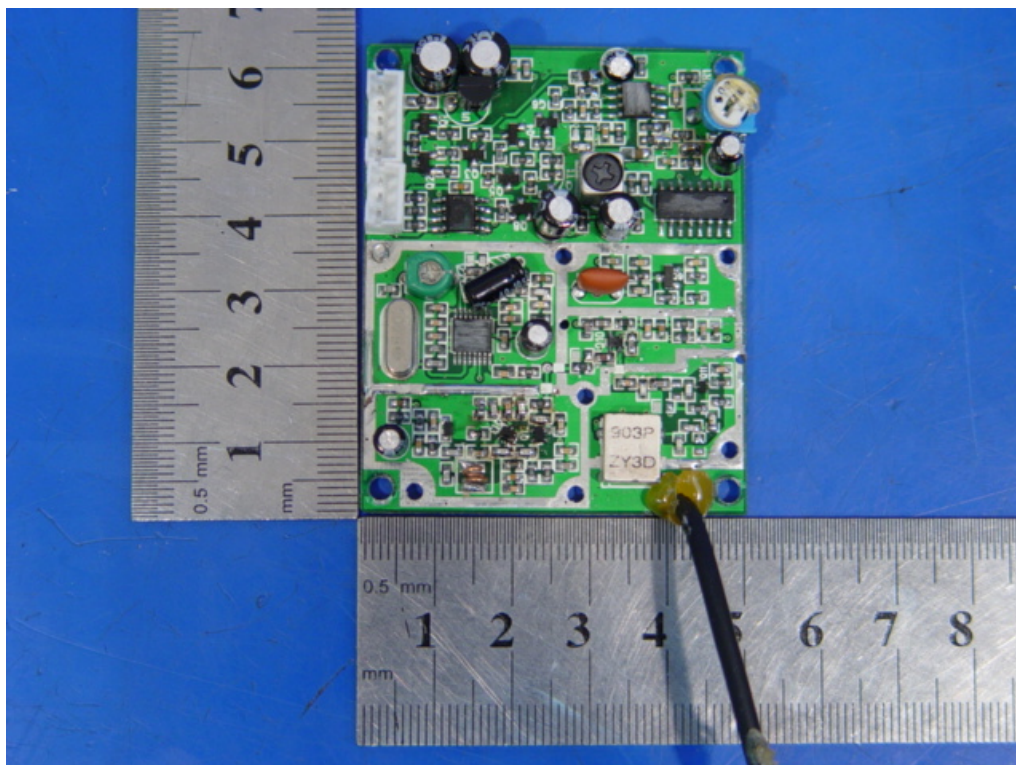


Photo 7 Adaptor

