

FCC TEST REPORT

FCC ID : WC2DS-987R
Applicant : Wonders Technology Co., Ltd.
Address : DOSS Industrial Zone, Qiping Kengdu Industrial Area Guihua Village,
Guanlan Town Baoan District, ShenZhen, China

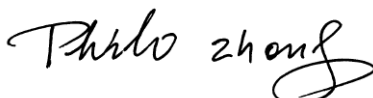
Equipment Under Test (EUT) :

Product Name : Wireless Speaker
Model No. : DS-987,40-285

Standards : FCC PART15 SUBPART B

Date of Test : August 24, 2009

Test Engineer : Olic huang

Reviewed By : 

Test Result :	PASS *
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PERPARED BY:
Waltek Services (Shenzhen) Co., Ltd.

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*The sample detailed above has been tested to the requirements of Council Directives ANSI C63.4:2003.
The test results have been reviewed against the Directives above and found to meet their essential requirements

2 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 5GHz)	FCC PART15:2007	ANSI C63.4: 2003	Class B	PASS
Conducted Emission (150KHz to 30MHz)	FCC PART15:2007	ANSI C63.4: 2003	Class B	N/A

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4 General Information

4.1 Client Information

Applicant: Wonders Technology Co., Ltd.
Address of Applicant: DOSS Industrial Zone, Qiping Kengdu Industrial Area Guihua Village, Guanlan Town Baoan District, ShenZhen, China

Manufacturer: Wonders Technology Co., Ltd.
Address of Manufacturer: DOSS Industrial Zone, Qiping Kengdu Industrial Area Guihua Village, Guanlan Town Baoan District, ShenZhen, China

4.2 General Description of E.U.T.

Product Name: Wireless Speaker
Model No.: DS-987,40-285
Medel difference: The components of PCB and circuit of EUT are identical except the color and appearance of EUT. DS-987 is the test sample.

4.3 Details of E.U.T.

Power Supply: 7.4V ,800mAh
Working Frequency 914MHz to 915MHz

4.4 Description of Support Units

The customer requested FCC tests for a Wireless Speaker as a receiver.

The standard used was FCC PART15 SUBPART B Rules.

4.5 Test Facility

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

- **IC – Registration No.: 7760A**

Waltek Services(Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration No.:7760A.

- **FCC – Registration No.: 880581**

Waltek Services(Shenzhen) Co., Ltd. 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.:880581, June 24, 2008. compliance.

4.6 Test Location

All Emission tests were performed at:-

Waltek Services(Shenzhen) Co., Ltd. at 1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District, Shenzhen 518105, China.

5 Equipment Used during Test

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY451149 43	W2008001	9k-26.5GHz	Aug-09	Aug-10	Wws200 81596	±1dB
Trilog Broadband Antenne 30-3000 MHz	SCHWARZB ECK MESS- ELEKTROM / VULB9163	336	W2008002	30-3000 MHz	Aug-09	Aug-10		±1dB
Broad-band Horn Antenna 1-18 GHz	SCHWARZB ECK MESS- ELEKTROM / VULB9163	667	W2008003	1-18GHz	Aug-09	Aug-10		f < 10 GHz : ±1dB 10GHz < f < 18 GHz : ±1.5dB
Broadband Preamplifier 0.5-18 GHz	SCHWARZB ECK MESS- ELEKTROM / BBV 9718	9718-148	W2008004	0.5-18GHz	Aug-09	Aug-10		±1.2dB
10m Coaxial Cable with N-male Connectors usable up to 18GHz,	SCHWARZB ECK MESS- ELEKTROM / AK 9515 H	-	-	-	Aug-09	Aug-10		-
10m 50 Ohm Coaxial Cable with N-plug, individual length, usable up to 3(5)GHz, Connector	SCHWARZB ECK MESS- ELEKTROM / AK 9513				Aug-09	Aug-10		
Positioning Controller	C&C LAB/ CC-C-IF				N/A	N/A		
Color Monitor	SUNSP0/ SP-14C				N/A	N/A		
Test Receiver	ROHDE&SC HWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug-09	Aug-10	Wws200 80942	±1dB
EMI Receiver	Beijingkehua n	KH3931		9k-1GHz	Aug-09	Aug-10		
Two-Line V-Network	ROHDE&SC HWARZ/ ENV216	100115	W2005002	50Ω/50μH	Aug-09	Aug-10	Wws200 80941	±10%

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
Absorbing Clamp	ROHDE&SC HWARZ/ MDS-21	100205	W2005003	impedance 50 Ω loss : 17 dB	Aug-09	Aug-10	Wws200 80943	±1dB
10m 50 Ohm Coaxial Cable with N-plug, individual length, usable up to 3(5)GHz, Connectors	SCHWARZBECK MESS-ELEKTROM / AK 9514				Aug-09	Aug-10		
Digital Power Analyzer	Em Test AG/Switzerland/ DPA 500	V07451 03095	W2008012	Power : 2000VA Vol-range : 0-300V Freq_range : 10-80Hz	Aug-09	Aug-10	Wwd200 81185	Voltage distinguish: 0.025% Power_freq distinguish: 0.02Hz
Power Source	Em Test AG/Switzerland/ ACS 500	V07451 03096	W2008013	Vol-range : 0-300V Power_freq : 10-80Hz				
Electrostatic Discharge Simulator	Em Test AG/Switzerland/DITO	V07451 03094	W2008005	Contact discharge : 500V-10KV Air discharge : 500V-16.5KV	Aug-09	Aug-10	Wwc200 82400	7.5A current will be changed in V _m =1.5V
RF Generator	TESEQ GmbH/ NSG4070	25781	W2008008	Freq-range : 9K-1GHz RF voltage : -60 dBm-+10dBm	Aug-09	Aug-10	Wws200 81890	Power_freq distinguish 0.1Hz RF electric distinguish 0.1 B
CDN M-Type	TESEQ GmbH/ CDN M016	25112	W2008009	Voltage correct factor 9.5 dB	Aug-09	Aug-10	Wwc200 82396	150K-80MHz : ±1dB 80-230MHz: -2-+3dB
EM-Clamp	TESEQ GmbH/ KEMZ 801	25453	W2008010	Freq_range : 0.15-1000 MHz	Aug-09	Aug-10	Wwc200 82397	0.3-400 MHz : ±4dB Other freq : ±5dB
Attenuator 6dB	TESEQ GmbH/ ATN6050	25365			Aug-09	Aug-10	Wws200 81597	

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
All Modules Generator	SCHAFFNE R/6150	34579	W2008006	voltage:200V-4.4KV Pulse current : 100A-2.2KA	Aug-09	Aug-10	Wwc200 82401	voltage: ±10% Pulse current : ±10%
Capacitive Coupling Clamp	SCHAFFNE R/ CDN 8014	25311			Aug-09	Aug-10	Wwc200 82398	-
Signal and Data Line Coupling Network	SCHAFFNE R/ CDN 117	25627	W2008011	1.2/50µS	Aug-09	Aug-10	Wwc200 82399	-
AC Power Supply	TONGYUN/ DTDGC-4				Aug-09	Aug-10	Wws200 80944	-
Exposure Level Tester ELT-400	Narda Safety TEST Solutions/230 4/03	M-0155	w2008022	Test freq range : 1 – 400kHz	Aug-09	Aug-10	Wwd200 81191	Test uncertainty : 1 – 120kHz:±1.83%, 120 kHz-400 kHz: ±4.06%
Magnetic Field Probe 100cm ²	Narda Safety TEST Solutions/230 0/90.10	M-1070	w2008021	Test freq range : 1 – 400kHz				Test uncertainty : 1Hz-10Hz: ±16.2%, 10Hz - 120kHz:±2.2%, 120 kHz-400 kHz: ±4.7%
Active Loop Antenna Charger 10kHz-30MHz	Beijing Dazhi / ZN30900A	-	-	10kHz-30MHz	Aug-09	Aug-10		±1dB

5.1 Conduction Emissions, 0.15MHz to 30MHz

Test Requirement: FCC PART15 B
Test Method: ANSI C63.4: 2003
Test Result: Pass
Frequency Range: 150kHz to 30MHz
Class: Class B
Limit: 66-56 dB μ V/m between 0.15MHz & 0.5MHz
56 dB μ V/m between 0.5MHz & 5MHz
60 dB μ V/m between 5MHz & 30MHz
Detector: Peak for pre-scan (9kHz Resolution Bandwidth)
Quasi-Peak & Average if maximised peak within 6dB of Average
Limit

Remark:Due to the EUT works with battery,the test was not performed in this test report.

5.2 Radiated Emissions, 30MHz to 5GHz

Test Requirement:	FCC PART15 B
Test Method:	ANSI C63.4: 2003
Test Result:	PASS
Frequency Range:	30MHz to 5GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dB μ V/m between 30MHz & 88MHz 43.5 dB μ V/m between 88MHz & 216MHz 46.0 dB μ V/m between 216MHz & 960MHz 54.0 dB μ V/m zbove 960MHz
Detector:	Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximised peak within 6dB of limit

5.2.1 E.U.T Operation

Operating Environment:	
Temperature:	25.5 °C
Humidity:	51 % RH
Atmospheric Pressure:	1012 mbar

EUT Operation :

The EUT was placed on the test table in receiving mode,Channel 1,Channel 2 and Channel 3 were tested and the worst case was channel 1,so the data were shown as follow.

5.2.2 EUT Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4: 2003, The specification used in this report was the FCC PART15 B limits.

5.2.3 Spectrum Analyzer Setup

According to FCC PART15 B Rules, the system was tested to 5GHz.

Below 1GHz

Start Frequency	30 MHz
Stop Frequency	1000 MHz
Sweep Speed	Auto
IF Bandwidth.....	120KHz
Video Bandwidth	100KHz
Quasi-Peak Adapter Bandwidth	120 KHz
Quasi-Peak Adapter Mode.....	Normal
Resolution Bandwidth	100KHz

Above 1GHz

Start Frequency	1GHz
Stop Frequency	5GHz
Sweep Speed	Auto
IF Bandwidth.....	120KHz
Video Bandwidth	1000KHz
Quasi-Peak Adapter Bandwidth	120 KHz
Quasi-Peak Adapter Mode.....	Normal
Resolution Bandwidth	1000KHz

5.2.4 Test procedure

For the radiated emissions test. ANSI STANDARD C63.4-2003 12.1.1.2 OTHER TYPES OF RECEIVERS: A typical signal or an unmodulated CW signal at the operating frequency of the EUT shall be supplied to the EUT for all measurements. Such a signal may be supplied by either a signal generator and an antenna in close proximity to the EUT or directly conducted into the antenna terminals of the EUT. The signal level shall be sufficient to the local oscillator of the EUT.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant 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 μ V of specification limits), and are distinguished with a "Qp" in the data table.

The EUT was under normal mode during the final qualification test and the configuration was used to represent the worst case results.

5.2.5 Measurement Uncertainty

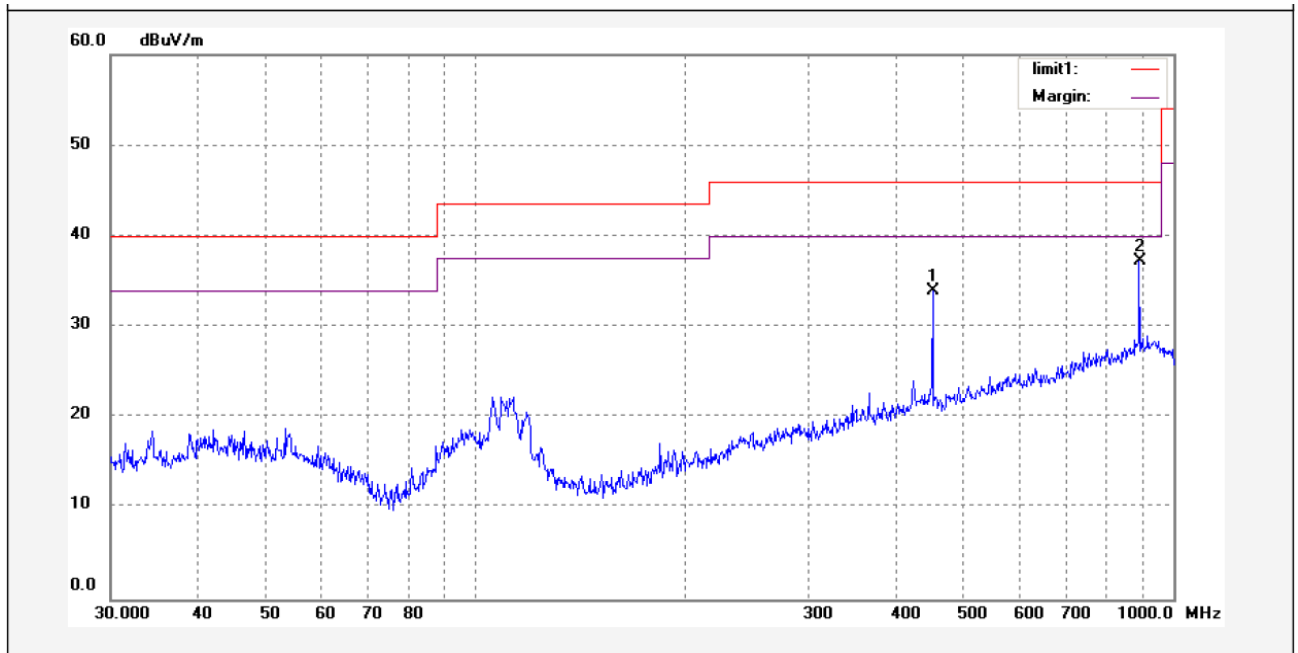
All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Waltek EMC Lab is ± 5.03 dB.

5.2.6 Radiated Emissions Test Data

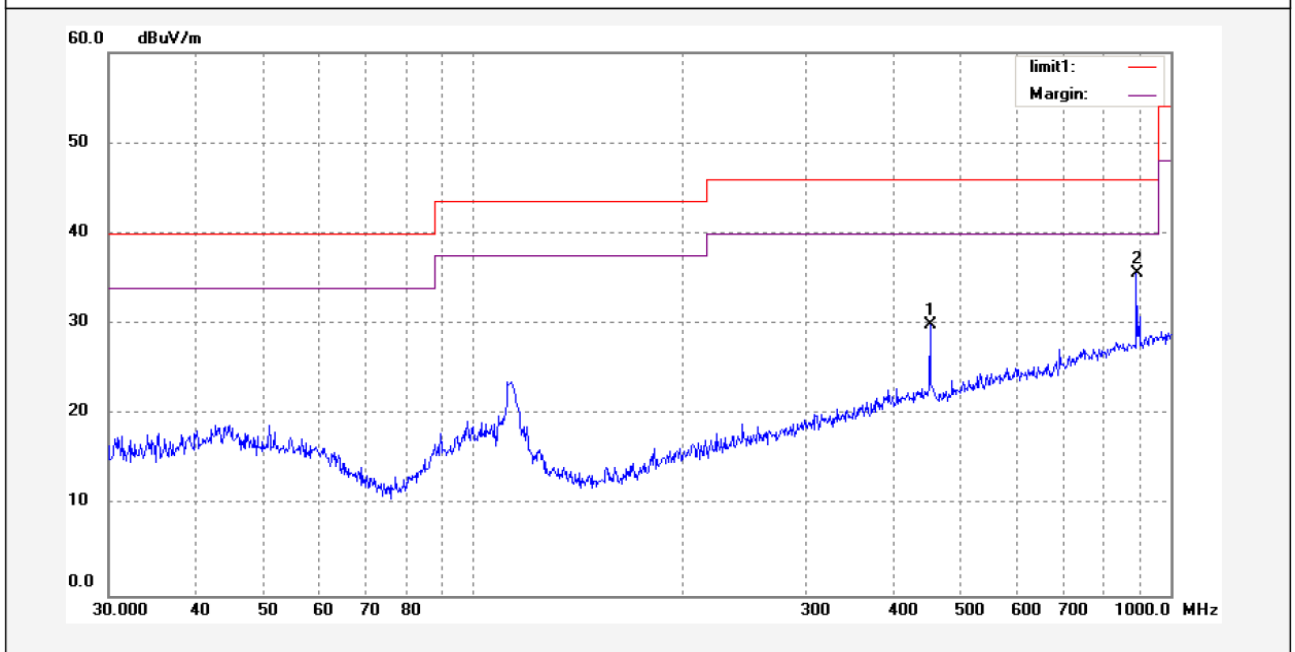
Below 1GHz

Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	452.0013	13.56	20.38	33.94	46.00	-12.06	peak	
2	893.6557	11.36	25.91	37.27	46.00	-8.73	peak	

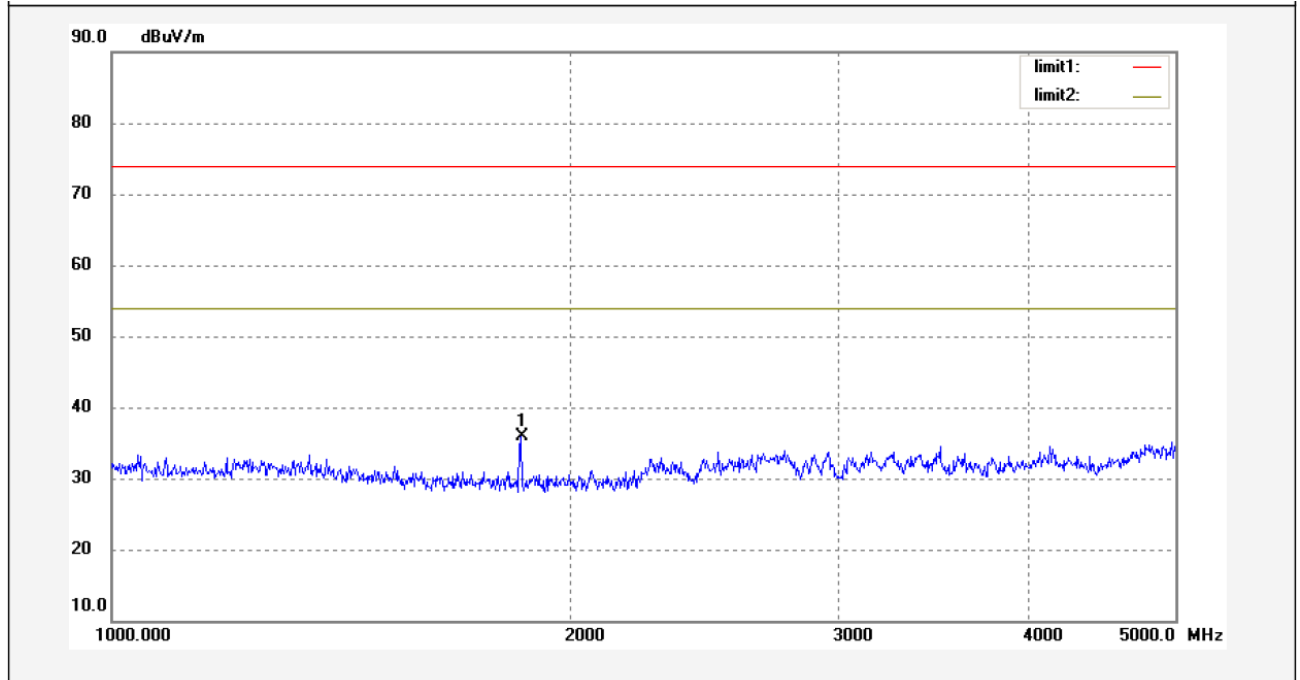
Antenna Polarization:Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	452.0013	9.51	20.37	29.88	46.00	-16.12	peak	
2	893.6557	9.70	25.90	35.60	46.00	-10.40	peak	

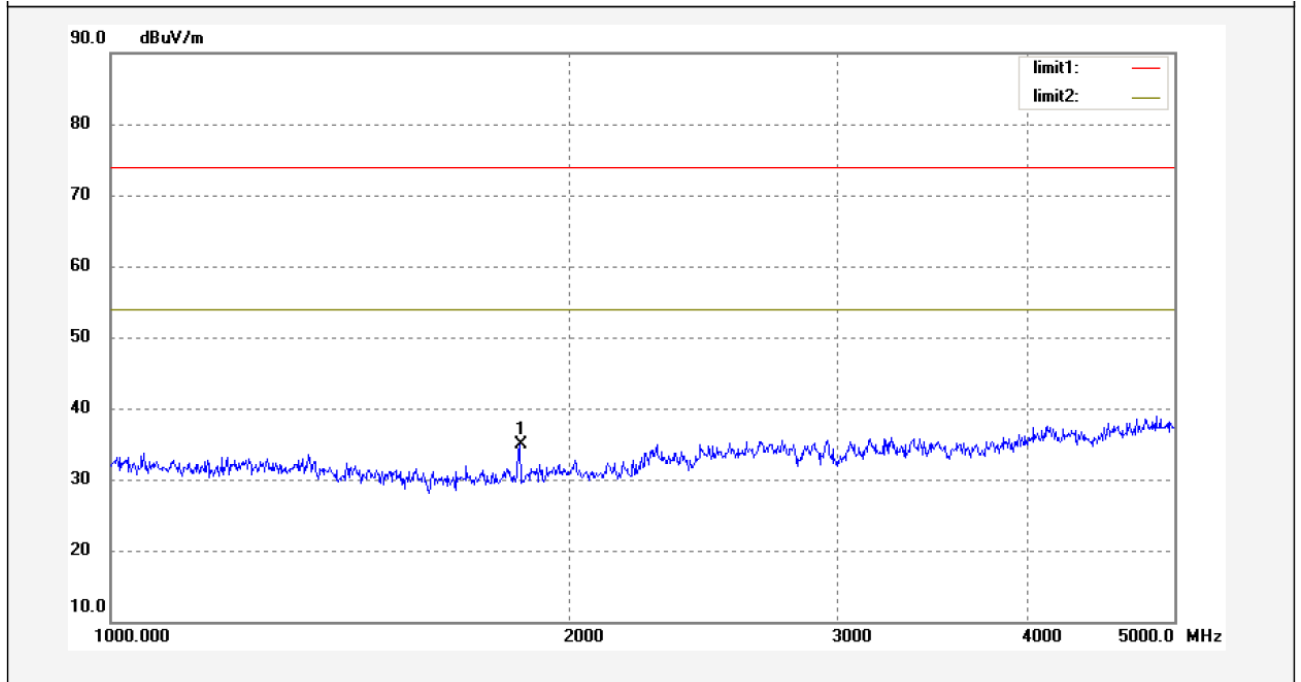
Above 1GHz

Antenna Polarization:Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1856.407	45.55	-9.68	35.87	74.00	-38.13	peak	

Antenna Polarization:Horizontal



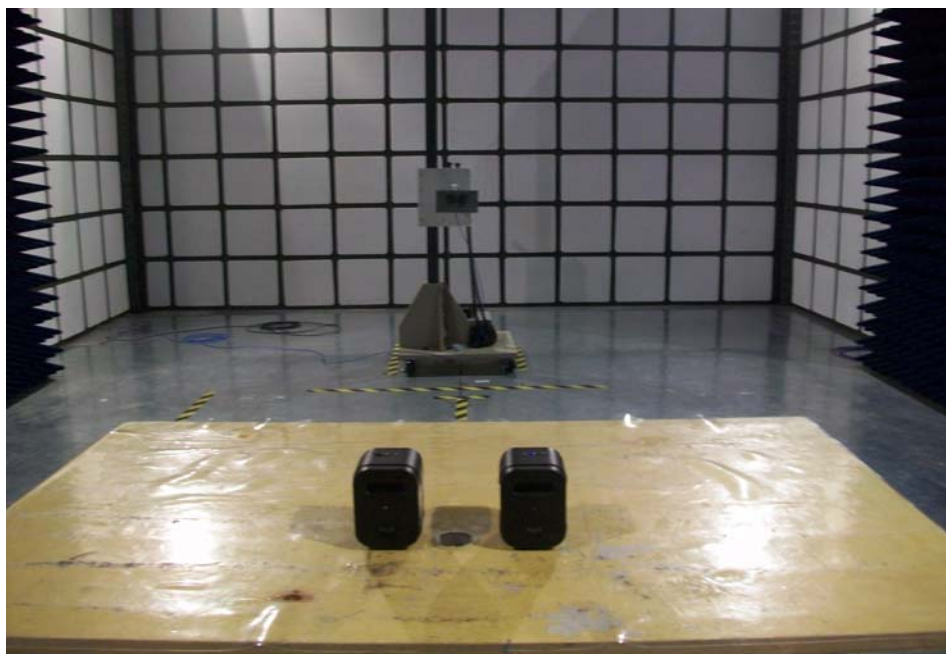
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1856.407	43.51	-8.55	34.96	74.00	-39.04	peak	

5.2.7 Photograph- Radiated Emission Test Setup

Below 1GHz



Above 1GHz



6 Photographs - Constructional Details

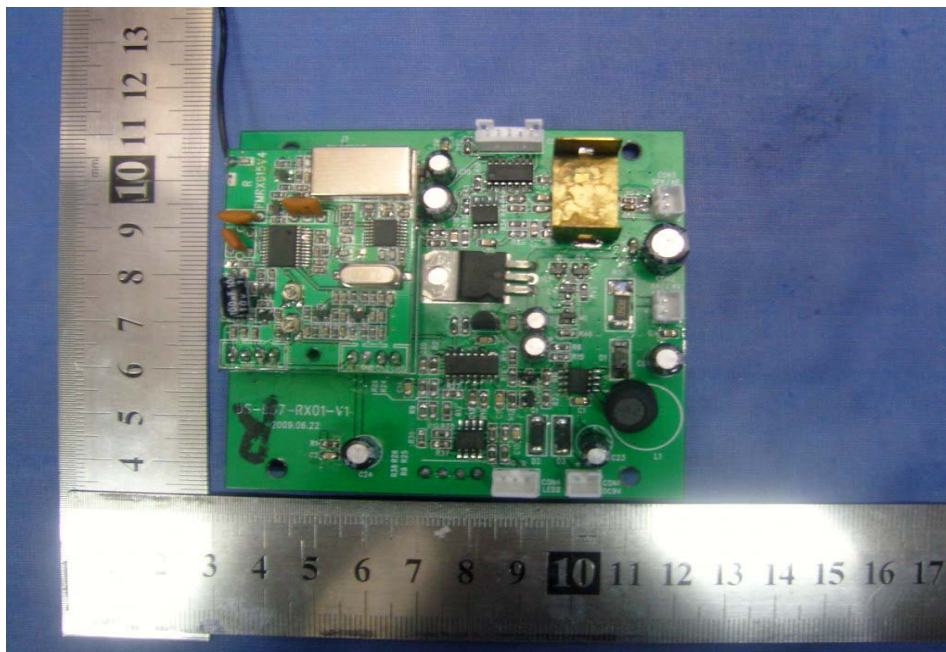
6.1 EUT – Front View



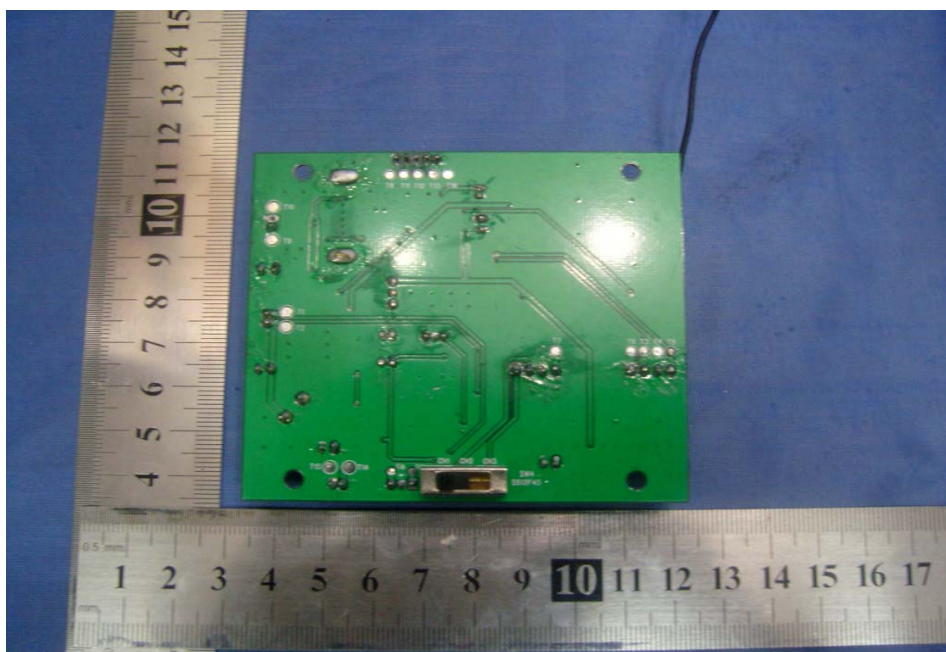
6.2 EUT - Back View



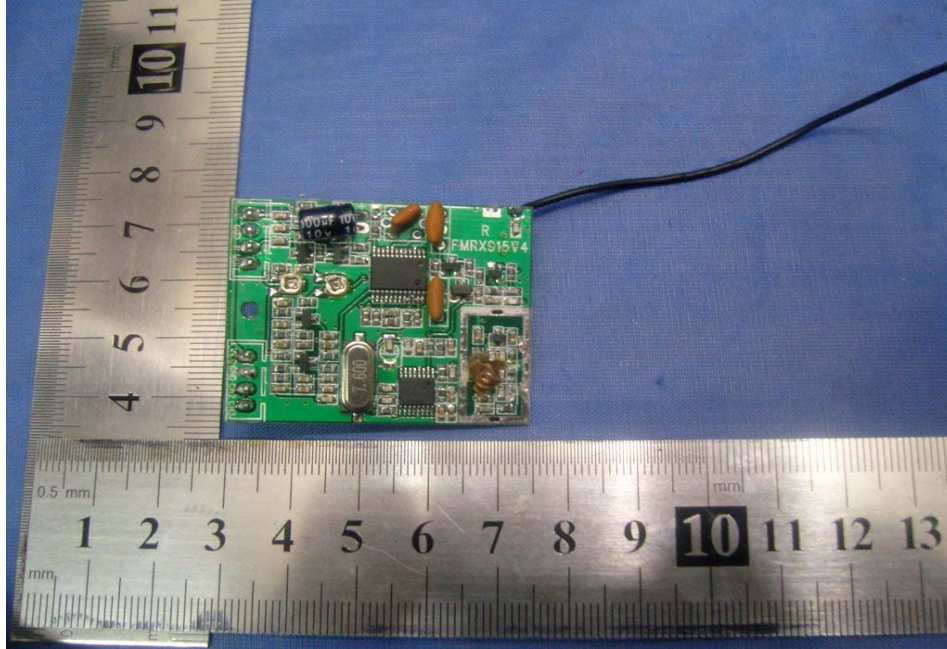
6.3 EUT – PCB1-Front View



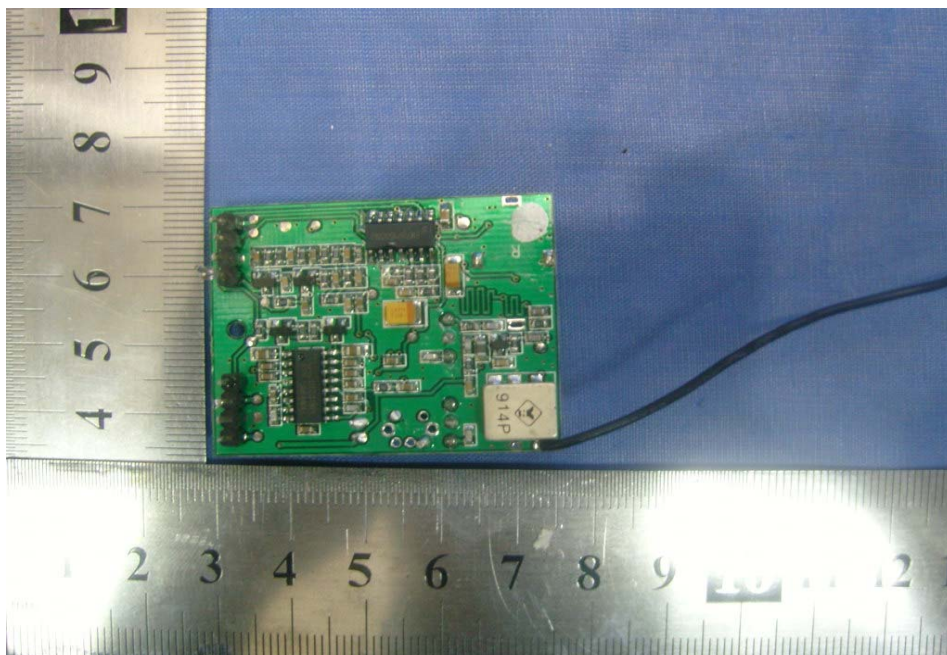
6.4 EUT – PCB1-Back View



6.5 EUT – PCB2-Front View



6.6 EUT – PCB2-Back View



7 FCC ID Label

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

The Label must not be a stick-on paper. 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.

Proposed Label Location on EUT
EUT Bottom View/proposed FCC Mark Location

