

# ***FCC TEST REPORT***

**FCC ID** : WC2DS-492R  
**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-492,EC-W160

**Standards** : FCC PART15 SUBPART B

**Date of Test** : August 26, 2009

**Test Engineer** : Olic huang

**Reviewed By** : 

|                      |               |
|----------------------|---------------|
| <b>Test Result :</b> | <b>PASS *</b> |
|----------------------|---------------|

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

1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District, Shenzhen 518105, China.

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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

| <b>Test</b>                             | <b>Test Requirement</b> | <b>Test Method</b> | <b>Class / Severity</b> | <b>Result</b> |
|---|-------------------------|--------------------|-------------------------|---------------|
| Radiated Emission<br>(30MHz to 5GHz)    | FCC PART15:2007         | ANSI C63.4: 2003   | Class B                 | PASS          |
| Conducted Emission<br>(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-492,EC-W160  
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/<br>E7405A                                  | MY451149<br>43 | W2008001    | 9k-26.5GHz    | Aug-09    | Aug-10   | Wws200<br>81596 | ±1dB   |
| Trilog Broadband Antenne 30-3000 MHz   | SCHWARZB<br>ECK MESS-<br>ELEKTROM<br>/ VULB9163     | 336            | W2008002    | 30-3000 MHz   | Aug-09    | Aug-10   |                 | ±1dB   |
| Broad-band Horn Antenna 1-18 GHz   | SCHWARZB<br>ECK MESS-<br>ELEKTROM<br>/ VULB9163     | 667            | W2008003    | 1-18GHz       | Aug-09    | Aug-10   |                 | f < 10<br>GHz :<br>±1dB<br>10GHz < f <<br>18 GHz :<br>±1.5dB |
| Broadband Preamplifier 0.5-18 GHz  | SCHWARZB<br>ECK MESS-<br>ELEKTROM<br>/ 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<br>ECK MESS-<br>ELEKTROM<br>/ AK 9515<br>H | -              | -           | -             | Aug-09    | Aug-10   |                 | -  |
| 10m 50 Ohm Coaxial Cable with N-plug, individual length, usable up to 3(5)GHz, Connector | SCHWARZB<br>ECK MESS-<br>ELEKTROM<br>/ AK 9513      |                |             |               | Aug-09    | Aug-10   |                 |  |
| Positioning Controller   | C&C LAB/<br>CC-C-IF                                 |                |             |               | N/A       | N/A      |                 |  |
| Color Monitor  | SUNSP0/<br>SP-14C                                   |                |             |               | N/A       | N/A      |                 |  |
| Test Receiver  | ROHDE&SC<br>HWARZ/<br>ESPI                          | 101155         | W2005001    | 9k-3GHz       | Aug-09    | Aug-10   | Wws200<br>80942 | ±1dB   |
| EMI Receiver   | Beijingkehua<br>n                                   | KH3931         |             | 9k-1GHz       | Aug-09    | Aug-10   |                 |  |
| Two-Line V-Network   | ROHDE&SC<br>HWARZ/<br>ENV216                        | 100115         | W2005002    | 50Ω/50μH      | Aug-09    | Aug-10   | Wws200<br>80941 | ±10%   |

| Equipment Name  | Manufacturer Model                             | Equipment No    | Internal No | Specification  | Cal. Date | Due Date | Cert. No        | Uncertainty  |
|---|--|-----------------|-------------|--|-----------|----------|-----------------|--|
| Absorbing Clamp   | ROHDE&SC<br>HWARZ/<br>MDS-21                   | 100205          | W2005003    | impedance 50<br>Ω<br>loss<br>: 17 dB                                     | Aug-09    | Aug-10   | Wws200<br>80943 | ±1dB   |
| 10m 50 Ohm Coaxial Cable with N-plug, individual length, usable up to 3(5)GHz, Connectors | SCHWARZB<br>ECK MESS-<br>ELEKTROM<br>/ AK 9514 |                 |             |  | Aug-09    | Aug-10   |                 |  |
| Digital Power Analyzer  | Em Test<br>AG/Switzerland/<br>DPA 500          | V07451<br>03095 | W2008012    | Power :<br>2000VA<br>Vol-range : 0-<br>300V<br>Freq_range :<br>10-80Hz   | Aug-09    | Aug-10   | Wwd200<br>81185 | Voltage<br>distinguish:0<br>.025%<br>Power_freq<br>distinguish:0<br>.02Hz    |
| Power Source  | Em Test<br>AG/Switzerland/<br>ACS 500          | V07451<br>03096 | W2008013    | Vol-range : 0-<br>300V<br>Power_freq :<br>10-80Hz                        |           |          |                 |  |
| Electrostatic Discharge Simulator   | Em Test<br>AG/Switzerland/<br>DITO             | V07451<br>03094 | W2008005    | Contact<br>discharge :<br>500V-10KV<br>Air<br>discharge :<br>500V-16.5KV | Aug-09    | Aug-10   | Wwc200<br>82400 | 7.5A current<br>will be<br>changed in<br>V <sub>m</sub> =1.5V                |
| RF Generator  | TESEQ<br>GmbH/<br>NSG4070                      | 25781           | W2008008    | Freq-range :<br>9K-1GHz<br>RF voltage : -<br>60 dBm-<br>+10dBm           | Aug-09    | Aug-10   | Wws200<br>81890 | Power_freq<br>distinguish:0.<br>1Hz<br>RFelectricity<br>distinguish<br>0.1 B |
| CDN M-Type  | TESEQ<br>GmbH/ CDN<br>M016                     | 25112           | W2008009    | Voltage<br>correct factor<br>9.5 dB                                      | Aug-09    | Aug-10   | Wwc200<br>82396 | 150K-<br>80MHz :<br>±1dB<br>80-<br>230MHz:-2-<br>+3dB                        |
| EM-Clamp  | TESEQ<br>GmbH/<br>KEMZ 801                     | 25453           | W2008010    | Freq_range :<br>0.15-1000<br>MHz   | Aug-09    | Aug-10   | Wwc200<br>82397 | 0.3-400<br>MHz : ±4dB<br>Other freq :<br>±5dB                                |
| Attenuator 6dB  | TESEQ<br>GmbH/<br>ATN6050                      | 25365           |             |  | Aug-09    | Aug-10   | Wws200<br>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<br>Pulse current : 100A-2.2KA | Aug-09    | Aug-10   | Wwc20082401 | voltage: ±10%<br>Pulse current : ±10%  |
| Capacitive Coupling Clamp               | SCHAFFNE R/ CDN 8014                   | 25311        |             |  | Aug-09    | Aug-10   | Wwc20082398 | -  |
| Signal and Data Line Coupling Network   | SCHAFFNE R/ CDN 117                    | 25627        | W2008011    | 1.2/50µS   | Aug-09    | Aug-10   | Wwc20082399 | -  |
| AC Power Supply                         | TONGYUN/ DTDGC-4                       |              |             |  | Aug-09    | Aug-10   | Wws20080944 | -  |
| Exposure Level Tester ELT-400           | Narda Safety TEST Solutions/2304/03    | M-0155       | w2008022    | Test freq range : 1 – 400kHz                     | Aug-09    | Aug-10   | Wwd20081191 | Test uncertainty : 1 – 120kHz:±1.83%, 120 kHz-400 kHz: ±4.06%                    |
| Magnetic Field Probe 100cm <sup>2</sup> | Narda Safety TEST Solutions/2300/90.10 | 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 $\mu$ V/m between 0.15MHz & 0.5MHz  
56 dB $\mu$ V/m between 0.5MHz & 5MHz  
60 dB $\mu$ 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 $\mu$ V/m between 30MHz & 88MHz<br>43.5 dB $\mu$ V/m between 88MHz & 216MHz<br>46.0 dB $\mu$ V/m between 216MHz & 960MHz<br>54.0 dB $\mu$ V/m zbove 960MHz |
| Detector:             | Peak for pre-scan (120kHz resolution bandwidth)<br>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 worse 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 $\mu$ 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

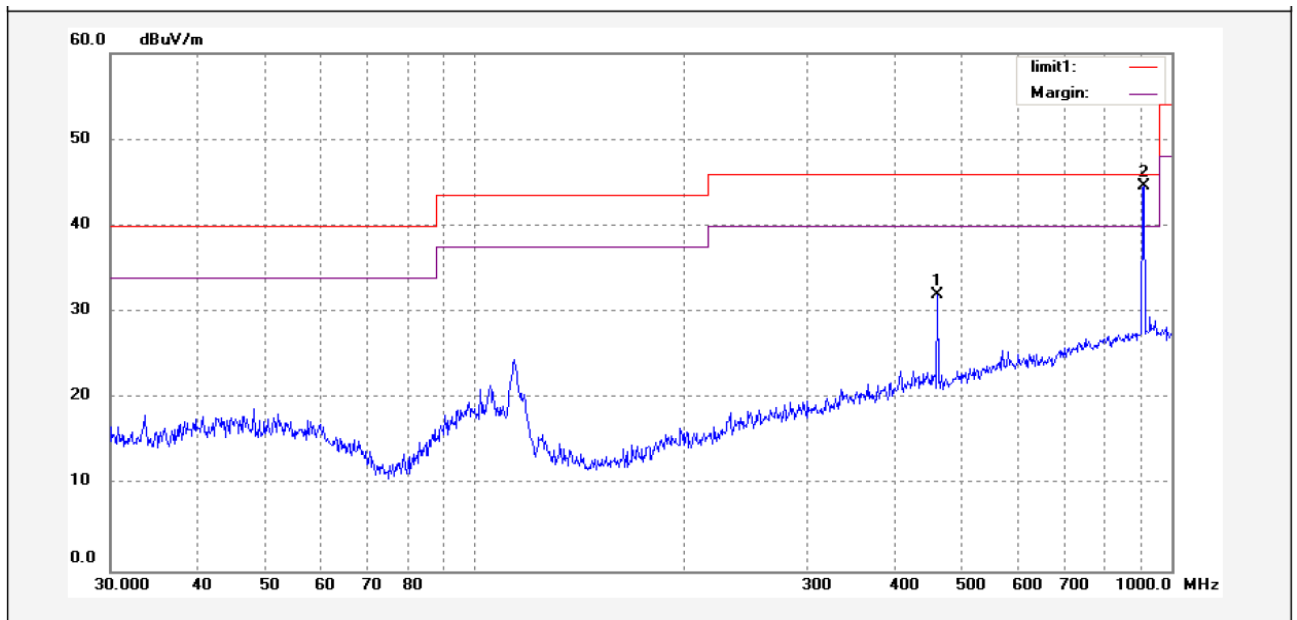
All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor 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  $\pm 5.03$ dB.

### 5.2.6 Radiated Emissions Test Data

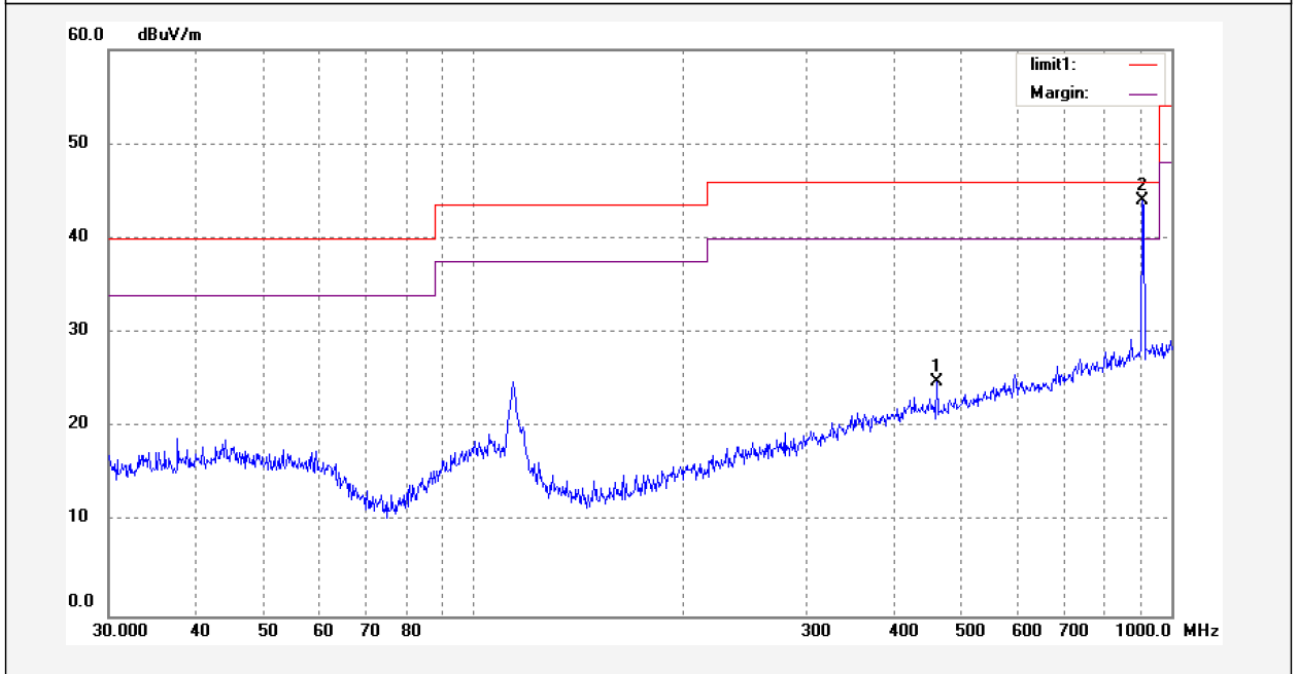
**Below 1GHz**

**Antenna Polarization: Vertical**



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 461.6313    | 11.57            | 20.43       | 32.00           | 46.00          | -14.00      | peak     |        |
| 2   | 912.6953    | 17.56            | 26.06       | 43.62           | 46.00          | -2.38       | peak     |        |

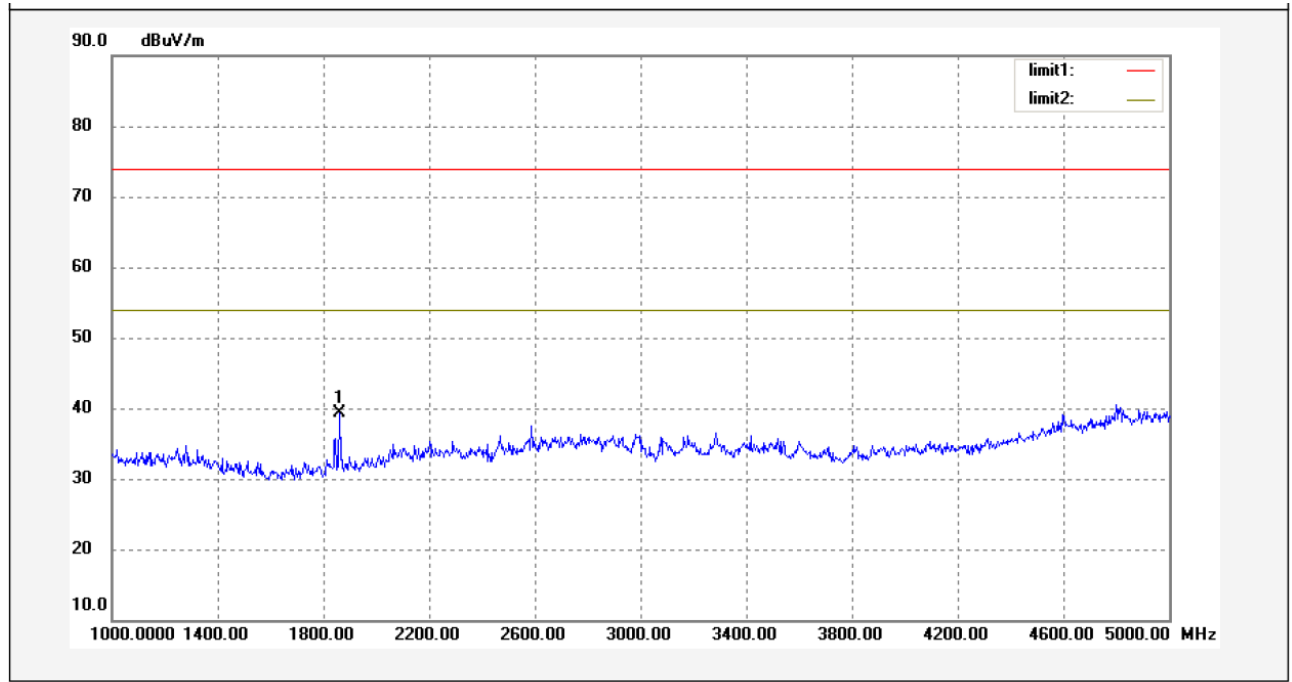
**Antenna Polarization:Horizontal**



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 461.6313    | 4.42             | 20.42       | 24.84           | 46.00          | -21.16      | peak     |        |
| 2   | 909.4941    | 17.92            | 26.03       | 43.95           | 46.00          | -2.05       | peak     |        |

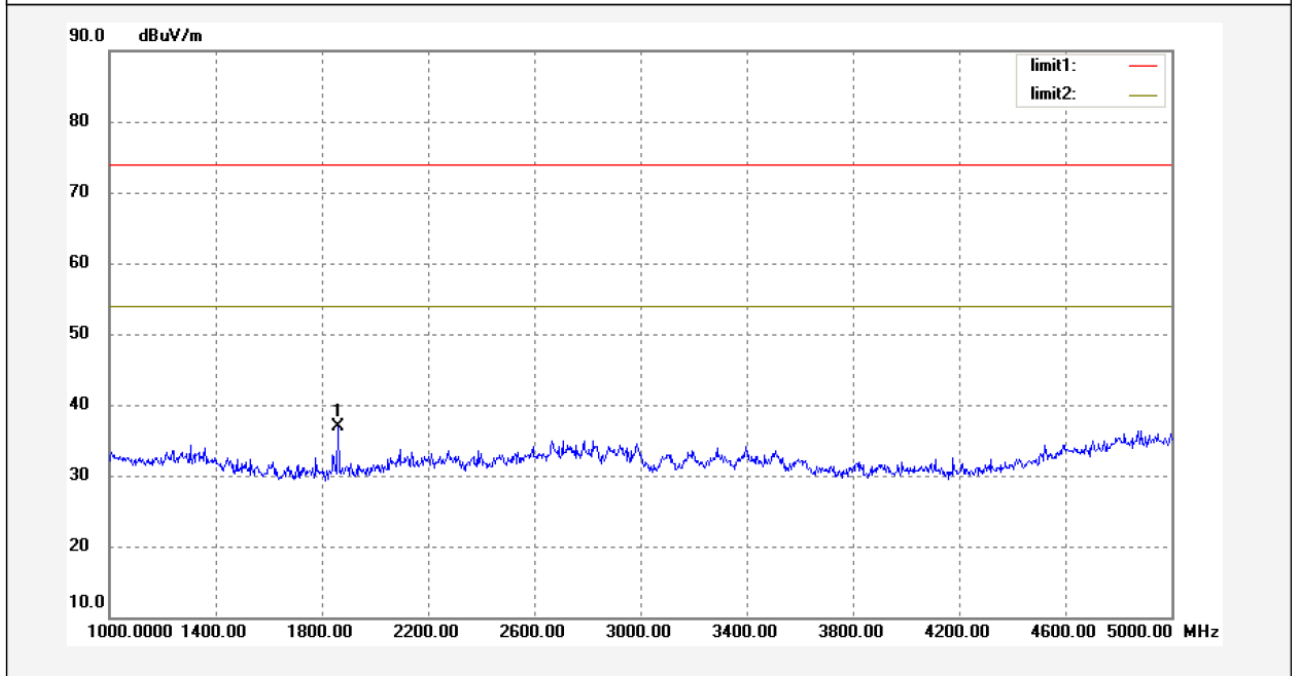
Above 1GHz

Antenna Polarization:Vertical



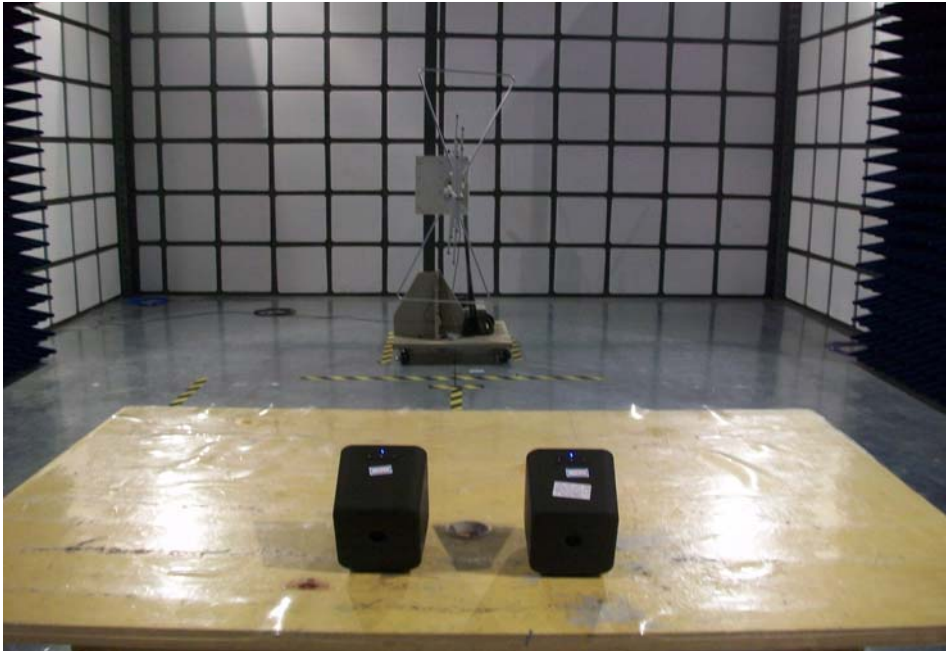
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 1861.723    | 47.81            | -8.53       | 39.28           | 74.00          | -34.72      | peak     |        |

**Antenna Polarization:Horizontal**

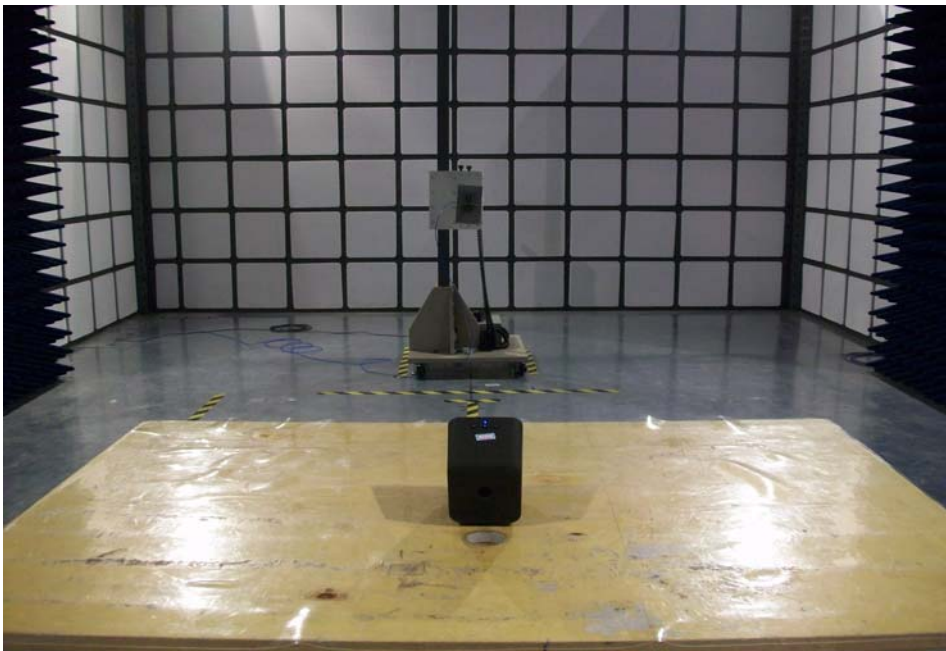


| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 1861.723    | 46.68            | -9.68       | 37.00           | 74.00          | -37.00      | peak     |        |

**5.2.7 Photograph- Radiated Emission Test Setup  
Below 1GHz**



**Above 1GHz**





## 6 Photographs - Constructional Details

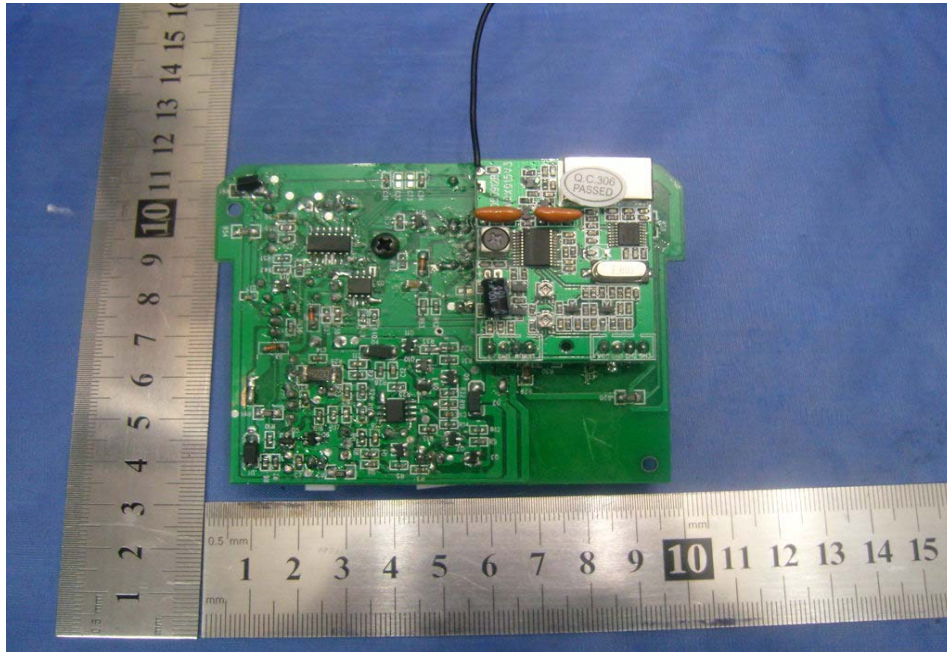
### 6.1 EUT – Front View



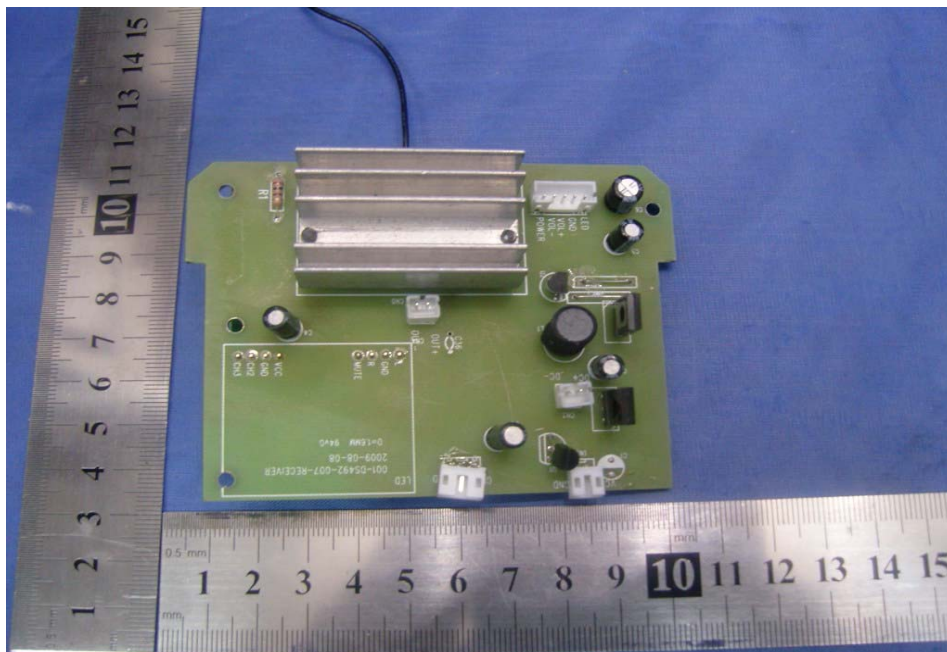
### 6.2 EUT – Back View



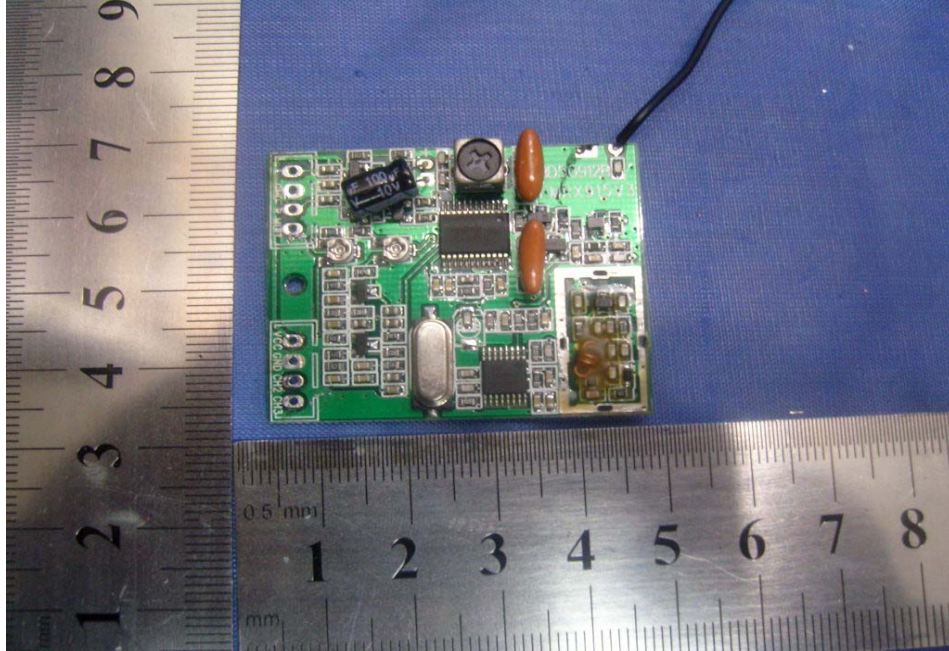
### 6.3 EUT – PCB1-Front View



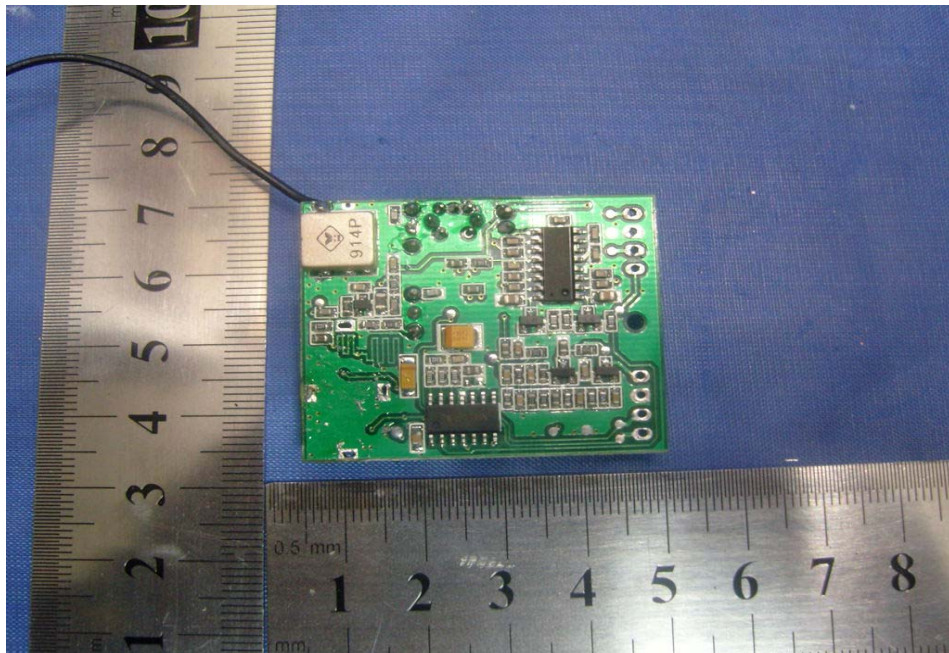
### 6.4 EUT – PCB1-Back View



**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

