

## ***FCC TEST REPORT***

Under  
*FCC Part 74 Subpart H*

Prepared For:

**Enping city heng sheng electronic hardware co., LTD**

C5-1 industrial four-way, enping industrial transfer park, Jiangmen, China

**FCC ID: 2ADBCMS-1010**

**EUT: UHF Wireless Microphone**

**Model: MS-1010**

March 12, 2015

**Issue Date:**

Original Report

**Report Type:**

*Eric Guo*

**Test Engineer: Eric Guo**

*Apollo Liu*

**Review By: Apollo Liu / Manager**

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# 1. General Information

## 1.1 Notes

The test results of this report relate exclusively to the test item specified in 1.5. The KMO Lab does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the KMO Lab.

## 1.2 Testing Laboratory

### Ke Mei Ou Laboratory Co., Ltd.

ANSI-ASQ National Accreditation Board/ACLASS ISO/IEC 17025 Accredited Lab for telecommunication standards. The Registration Number is AT-1532. The testing quality system meets with ISO/IEC-17025 requirements, This approval results is accepted by MRA of ILAC.

FCC Test Site Registration Number: 962205

IC Test Site Registration Number: 4986A-2

Email: [kmo@kmlab.com](mailto:kmo@kmlab.com)

Internet: [www.kmlab.com](http://www.kmlab.com)

## 1.3 Details of Applicant

Name : Enping city heng sheng electronic hardware co., LTD  
Address : C5-1 industrial four-way, enping industrial transfer park, Jiangmen, China

## 1.4 Application Details

Date of Receipt of Application : December 29, 2014  
Date of Receipt of Test Item : December 29, 2014  
Date of Test : January 22~February 3, 2015

## 1.5 Test Item

Manufacturer : Same as applicant  
Address : Same as applicant  
Trade Name : N/A  
Model No.(Base) : MS-1010  
Model No.(Extension) : MS-1011,MS-1020,MS-1030,MS-2018,MS-2028,MS-2038,MS-2068,MS-2178  
Description : UHF Wireless microphone

## Additional Information

Frequency : UHF: 575.700MHz~581.300MHz  
Modulation Mode : FM  
Nominal Deviation :  $\pm 40$ KHz  
Audio Frequency Response : 40Hz to 20KHz  
S/N Ratio :  $\geq 100$ dB  
T.H.D :  $\leq 0.5\%$   
Service Areas : N/A  
Power : DC 3V(AA 1.5V\*2)  
Antenna : Internal 0dBi

## 1.6 Test Standards

*FCC Part 74 Subpart H*

Note: All radiated measurements were made in all three orthogonal planes. The values reported are the maximum values.

## 2. Technical Test

### 2.1 Summary of Test Results

The EUT has been tested according to the following specifications:

| Standard   | Test Type                      | Limit  | Result | Notes       |
|--|--------------------------------|--|--------|-------------|
| FCC Part 15, Paragraph 15.207  | Conducted Test                 | FCC15.207(a)   | N/A    | Power by DC |
| FCC Part 74, Paragraph 74.861(e)(1)(i)   | Output Power Measurement       | 74.861 e) 1)<br>54–72, 76–88 & 174–216 MHz<br>bands, 50 mW<br>470–608 and 614–806 MHz<br>bands, 250 mW | PASS   | Complies.   |
| FCC Part 2, Paragraph 2.1047(a)  | Modulation Characteristics     | 74.861 e) 3)<br>Within 75kHz   | PASS   | Complies.   |
| FCC Part 2, Paragraph 2.1049 (c)(1)  | Occupied Bandwidth of Emission | 74.861 e) 5)<br>Within 200kHz  | PASS   | Complies.   |
| FCC Part 2, Paragraph 2.1053 & FCC Part 74, Paragraph 74.861(e)(6)               | Field Strength of Emission     | 74.861 e) 6)<br>within the mask<br>&<br>74.861 d) 3)<br>< 43+10lgP(W) dB                               | PASS   | Complies.   |
| FCC Part 2, Paragraph 2.1055 (a)(1)(d)(2) & FCC Part 74, Paragraph 74.861(e)(4). | Frequency Stability            | 74.861 e) 4)<br><0.005% 50 ppm   | PASS   | Complies.   |

## 3. EUT Modifications

No modification by test lab.

## 4. Conducted Power Line Test

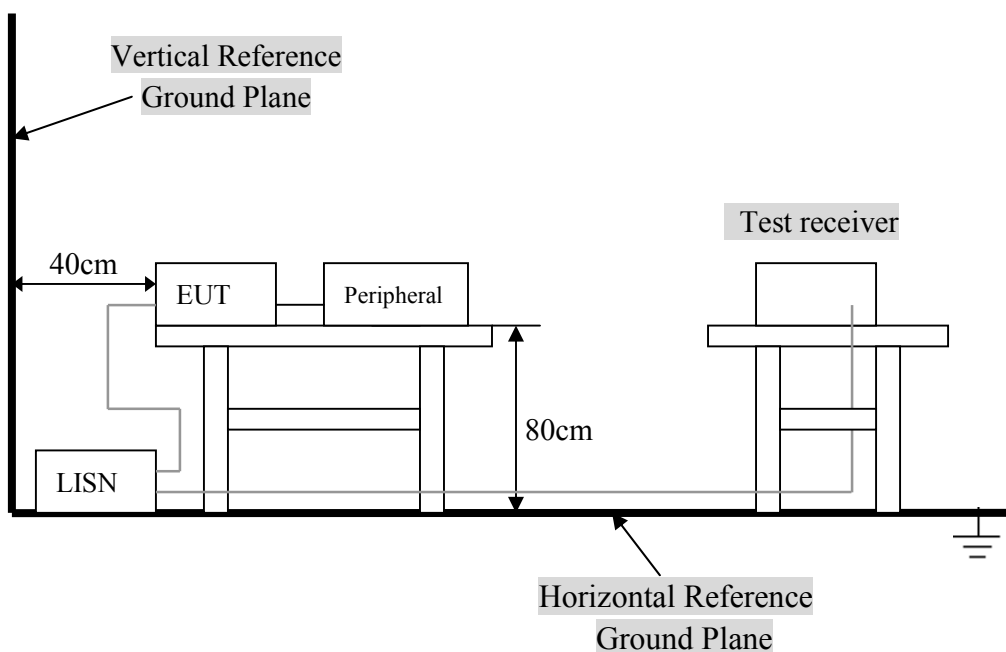
### 4.1 Test Equipment

Please refer to Section 12 this report.

### 4.2 Test Procedure

The EUT was tested according to ANSI C63.4 - 2003. The frequency spectrum from 0.15 MHz to 30 MHz was investigated. The LISN used was 50 ohm / 50 u-Henry as specified by section 5.1 of ANSI C63.4 - 2003. cables and peripherals were moved to find the maximum emission levels for each frequency.

### 4.3 Test Setup



For the actual test configuration, Please refer to the related items – Photos of Testing.

#### 4. 4 Configuration of The EUT

Two frequencies are provided by EUT. The 2 frequencies of 575.700MHz, 581.300MHz were for test.

Note:

- 1) Below 1GHz, the frequency 575.700MHz, 581.300MHz were pre-tested in chamber.
- 2) Above 1GHz, the frequency 575.700MHz, 581.300MHz were tested individually.

##### A. EUT

| Device                  | Manufacturer      | Model # | FCC ID       |
|-------------------------|-------------------|---------|--------------|
| UHF Wireless microphone | Same as applicant | MS-1010 | 2ADBCMS-1010 |

##### B. Internal Devices

| Device | Manufacturer | Model # | FCCID / DoC |
|--------|--------------|---------|-------------|
| N/A    |              |         |             |
|        |              |         |             |
|        |              |         |             |
|        |              |         |             |
|        |              |         |             |
|        |              |         |             |

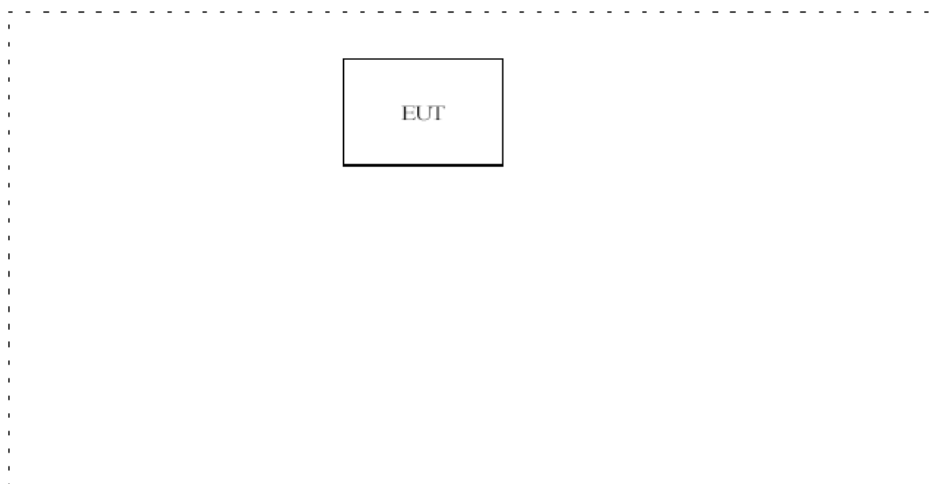
##### C. Peripherals

| Device | Manufacturer | Model #<br>Serial # | FCC ID/<br>DoC | Cable |
|--------|--------------|---------------------|----------------|-------|
| N/A    |              |                     |                |       |
|        |              |                     |                |       |
|        |              |                     |                |       |

#### 4. 5 EUT Operating Condition

Operating condition is according to ANSI C63.4 - 2003.

- A. Setup the EUT and simulators as shown on follow.
- B. Enable RF signal and confirm EUT active.
- C. Modulate output capacity of EUT up to specification.



#### 4. 6 Conducted Power Line Emission Limits

| FCC Part 15 Paragraph 15.207 (dBuV) |               |               |
|-------------------------------------|---------------|---------------|
| Frequency Range (MHz)               | Class A QP/AV | Class B QP/AV |
| 0.15 – 0.5                          | 79/66         | 66-56/56-46   |
| 0.5 – 5.0                           | 73/60         | 56/46         |
| 5.0 - 30                            | 73/60         | 60/50         |

**NOTE** : In the above table, the tighter limit applies at the band edges.

#### 4. 7 Conducted Power Line Test Result

**Results**

| Power Line<br>(L,N) | Eut Operating mode<br>or operating mode no. | Detector<br>(Peak,<br>AV,QP) | Additional (scan-)<br>information (e.g. Pre-test<br>Fastscan, Maxhold, Final<br>measurement.) | Result<br>(Passed / Failed) |
|---------------------|---|------------------------------|---|-----------------------------|
| L+N                 | --  | QP&AV                        | Normal  | N/A                         |

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All readings are quasi -peak values with a resolution bandwidth of 9 KHz.

- Temperature : 26 °C
- Humidity : 53 % RH

| FCC 15.207         |                 |    |                  |              |    |             |    |
|--------------------|-----------------|----|------------------|--------------|----|-------------|----|
| Frequency<br>(MHz) | Emission (dBuV) |    | LINE/<br>NEUTRAL | Limit (dBuV) |    | Margin (dB) |    |
|                    | QP              | AV |                  | QP           | AV | QP          | AV |
| N/A                |                 |    | Line             |              |    |             |    |
|                    |                 |    | Neutral          |              |    |             |    |
|                    |                 |    | Line             |              |    |             |    |
|                    |                 |    | Neutral          |              |    |             |    |
|                    |                 |    | Line             |              |    |             |    |
|                    |                 |    | Neutral          |              |    |             |    |

Note: NF = No Significant Peak was Found.

**Remarks :**

- 1.Uncertainty in conducted emission measured is <+/- 2dB.
- 2.QP and AV are abbreviations of quasi-peak and average individually.
- 3.The emission levels of other frequencies were very low against the limit.
- 4.The Quasi-peak emission level also meets average limit and measurement with the average detector is unnecessary.
- 5.Margin Value= Emission Level – Limit Value.



## 5. Output Power Measurement & RF Exposure Requirements

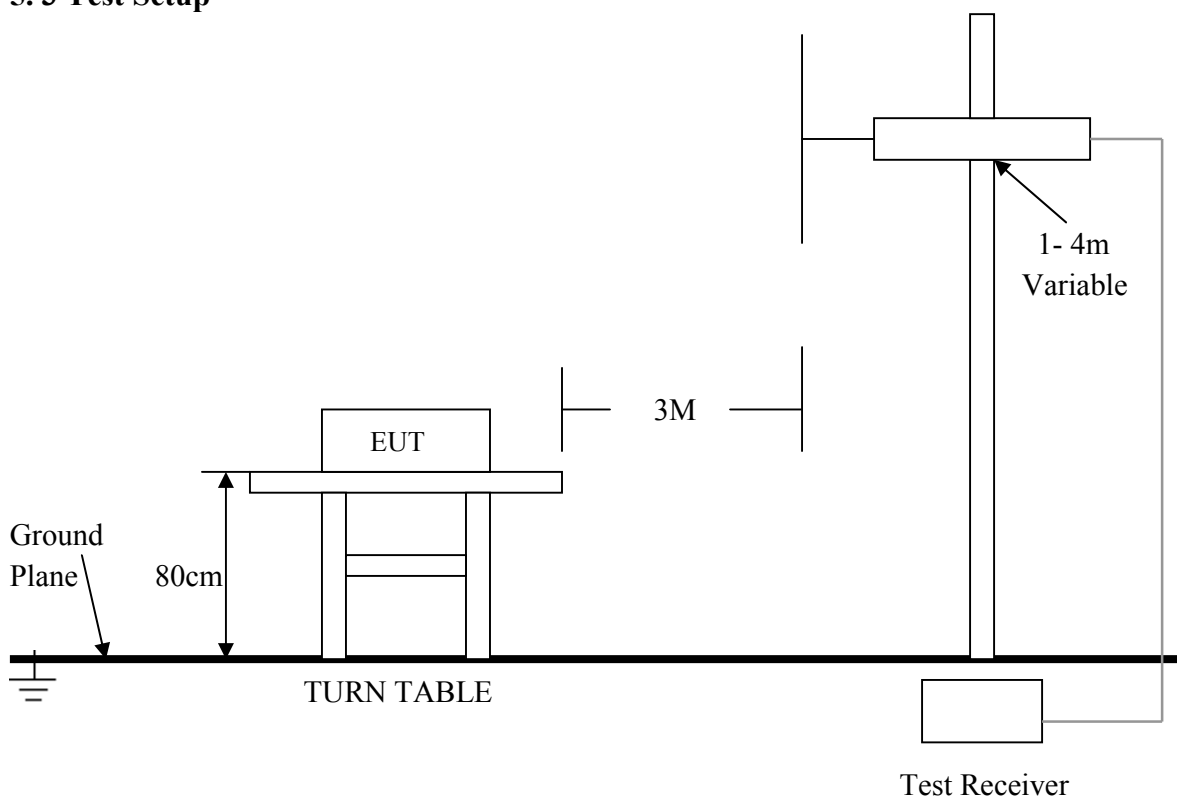
### 5.1 Test Equipment

Please refer to Section 12 this report.

### 5.2 Test Procedure

1. Setup the configuration as section 5.3 this report test setup for frequencies measured below and above 1GHz respectively. adjusting the input voltage to produce the maximum power as measured.
2. Adjust the analyzer for each frequency measured in chapter 6 on a 1MHz frequency span and 1MHz resolution bandwidth.
3. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on test receiver, then change the orientation of EUT on test table over a range from 0 degree to 360 degree, and record the highest value indicated on test receiver as reference value.
4. Repeat step 3 until all frequencies need to be measured were complete.
5. Repeat step 4 with search antenna in vertical polarized orientations.
6. Replace the EUT with a tuned dipole antenna (horn antenna for above 1GHz) relative to each frequency in horizontally polarized orientation and as the same polarized orientation with search antenna. Connect the tuned dipole antenna to a standard signal generator(SG) via a low loss cable. Power on the SG and tune the right frequency in measuring as well as set SG at a appreciated output level. Rise and lower the search antenna to get the highest value on test receiver, and then hold this position. Adjust the SG output to get a identical value derived from step 3 on test receiver. Record this value for result calculated.
7. Repeat step 6 until all frequencies need to be measured were complete.
8. Repeat step 7 with both dipole antenna (horn antenna for above 1 GHz) and search antenna in vertical polarized orientations.

### 5.3 Test Setup



For the actual test configuration , please refer to the related items – Photos of Testing.

## 5.4 Configuration of The EUT

Same as section 4 . 4 of this report

## 5.5 EUT Operating Condition

Same as section 4 . 5 of this report.

## 5.6 Rules and Specification Limits

According to § 74.861(e)(1)(ii), the output power shall not exceed 250 milliwatts.

## 5.7 Output Power Test Result

|              |                            |             |                    |
|--------------|----------------------------|-------------|--------------------|
| Product      | : UHF Wireless microphone  | Test Mode   | : CH Low ~ CH High |
| Test Item    | : Output Power Measurement | Temperature | : 25 °C            |
| Test Voltage | : DC 3V(AA 1.5V*2)         | Humidity    | : 56%RH            |
| Test Result  | : <b>PASS</b>              |             |                    |

### ERP

| Frequency.<br>(MHz) | Result<br>(dBm) | Output Power<br>(mW) | Limit<br>(mW) |
|---------------------|-----------------|----------------------|---------------|
| 575.680             | 6.89            | 4.89                 | 250.0         |
| 581.320             | 9.14            | 8.20                 | 250.0         |
| -                   |                 |                      |               |
| -                   |                 |                      |               |

**Note:** For measured frequency below 1GHz, a tuned dipole antenna is used.

## 5.8 Result Calculation

Result calculation is as following:

Result = SG Reading + Cable Loss + Antenna Gain Corrected

Antenna Gain Corrected: is used for antenna other than dipole to convert radiated power to ERP.

$$mW = \log^{-1} \left[ \frac{\text{Result(dBm)}}{10} \right]$$

## 5.9 RF Exposure Requirements

### 5.9.1 Test Equipment

Please refer to Section 12 this report.

### 5.9.2 Limit

According to FCC Part 1.1307, 2.1091, and 2.1093, Systems operating under provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commissions guidelines. According to KDB 447498 D01 General RF Exposure v05r02, section 4.3.1, the 1-g SAR test exclusion thresholds at test separation distance  $\leq 50$  mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$$

| Frequency Range    |                     | Maximum measured transmitter power frequency(MHz) | Threshold value |
|--------------------|---------------------|---|-----------------|
| Low Frequency(MHz) | High Frequency(MHz) |   |                 |
| 575.680            | 581.320             | 581.320   | 3.0             |

### 5.9.3 Test Result

Product : UHF Wireless microphone  
 Test Item : RF Exposure  
 Test Voltage : DC 3V(AA 1.5V\*2)  
 Test Result : **PASS**

Test Mode : CH Low ~ CH High  
 Temperature : 25 °C  
 Humidity : 56%RH

| RF Exposure Requirements   | Compliance with FCC Rules   |
|--|---|
| $[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$<br>The min. test separation distance (mm) is 5 mm, | The max. average power of channel, including tune-up tolerance(mW) is 9.14 dBm = 8.20 mW@581.320MHz With Tune-up tolerance),<br>Prediction distance: 5 mm<br>The threshold value is 1.25 <3.0 (with Tune-up tolerance)<br>Therefore, standalone SAR measurements are not required for both head and body. |

## 6. Modulation Characteristics

### 6.1 Test Equipment

Please refer to Section 12 this report.

### 6.2 Test Procedure

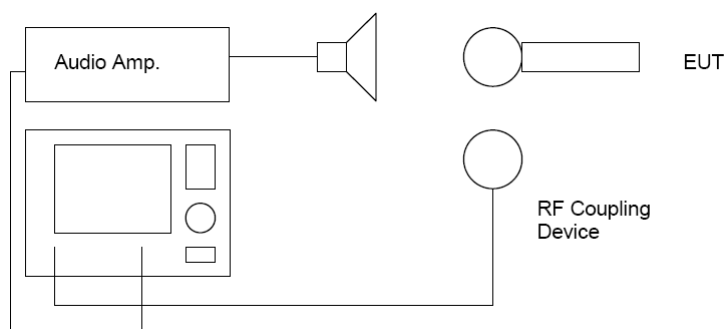
#### A. Audio Frequency Response

- 1) The audio signal was coupled to the microphone via a calibrated loudspeaker.
- 2) The audio signal was adjusted for 20% nominal modulation at 1 kHz. This was taken as 0 dB reference.
- 3) With input level held constant, the audio signal was varied from 100Hz to 30kHz.
- 4) The response was measured and recorded with a CMS54 Radio communication Tester.

#### B. Modulation Limit

- 1) The audio signal was coupled to the microphone via a calibrated loudspeaker.
- 2) The modulation response was measured for 100Hz to 15kHz including the frequency with maximum response found during "Audio Frequency Response Test".
- 3) The input level was varied from 30% modulation to 20 dB higher than the saturation point. The resulting deviation was measured with a CMS54 Radio communication Tester.
- 4) Measurements were performed for positive and negative deviation.

### 6.3 Test Setup

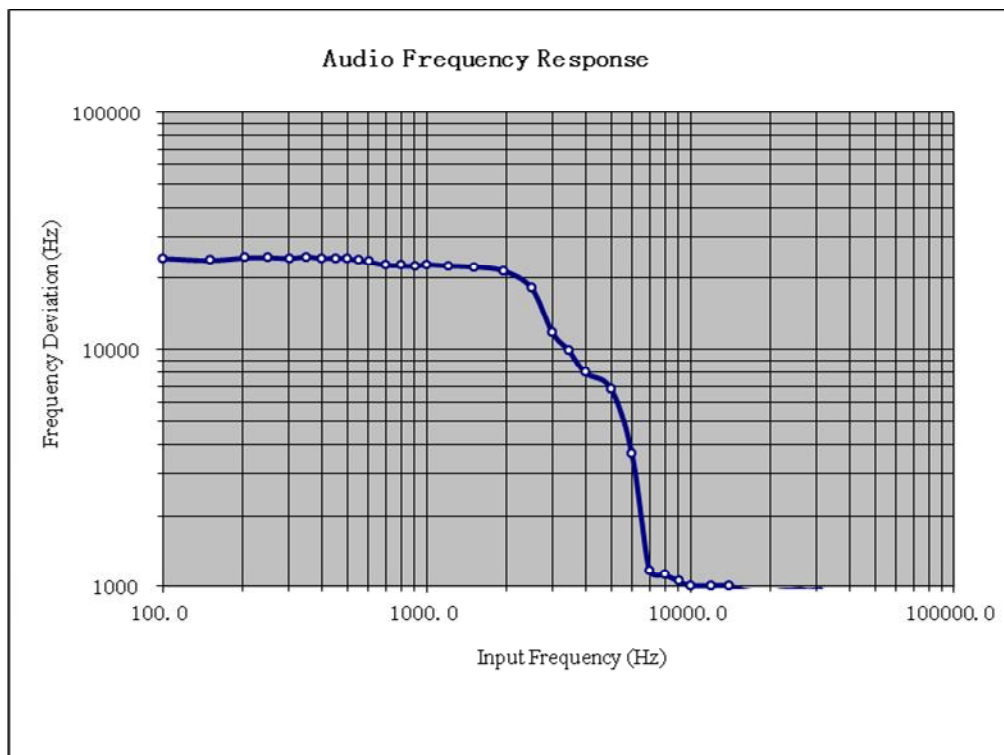


### 6.4 Rules and Specification Limits

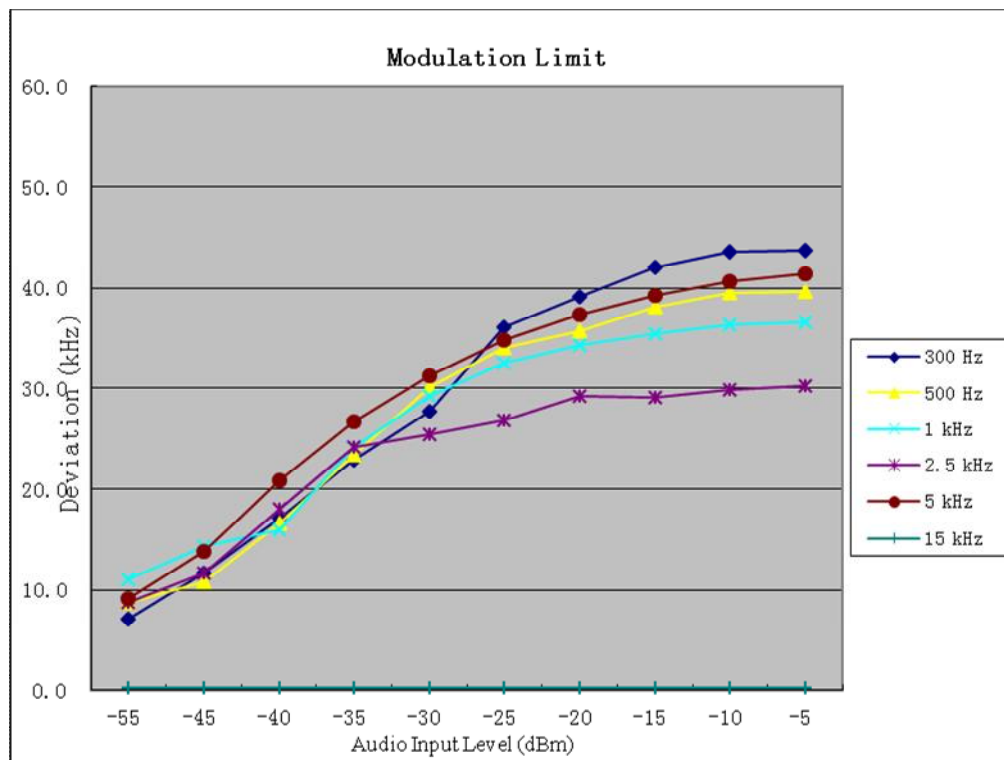
According to § 2.1047 (a), for Voice Modulated Communication Equipment, the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be measured.

## 6.5 Test Result

### A. Audio Frequency Response



### B. Modulation Limit



## 7. Occupied Bandwidth of Emission

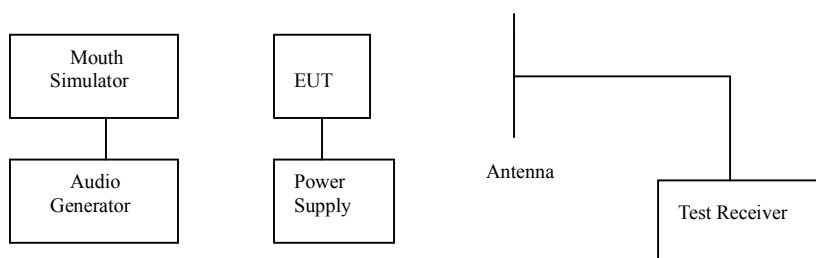
### 7.1 Test Equipment

Please refer to Section 12 this report.

### 7.2 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Set the output of the signal generator to 15KHz. Increase the amplitude of the signal, while monitoring the modulation meter. Until modulation is maximum measure the bandwidth under 26dB compared to the unmodulated fundamental carrier peak level of the modulated signal displayed on the test receiver

### 7.3 Test Setup



### 7.4 Rules and Specification Limits

According to § 2.1049 (c)(1): ANSI / TIA / EIA-603-1992, Paragraph 2.2.11

According to § 74.861 (e)(3), Any form of modulation may be used. A maximum deviation of  $\pm 75$  KHz is permitted when frequency modulation is employed.

According to § 74.861 (e)(5), The operation bandwidth shall not exceed 200KHz.

7.5 Occupied Bandwidth Test Result

The occupied bandwidth's plot is presented on following pager, which illustrates compliance with the rules.

Calculation of Necessary Bandwidth (Bn)

M = Max. Modulation Frequency = 15 KHz

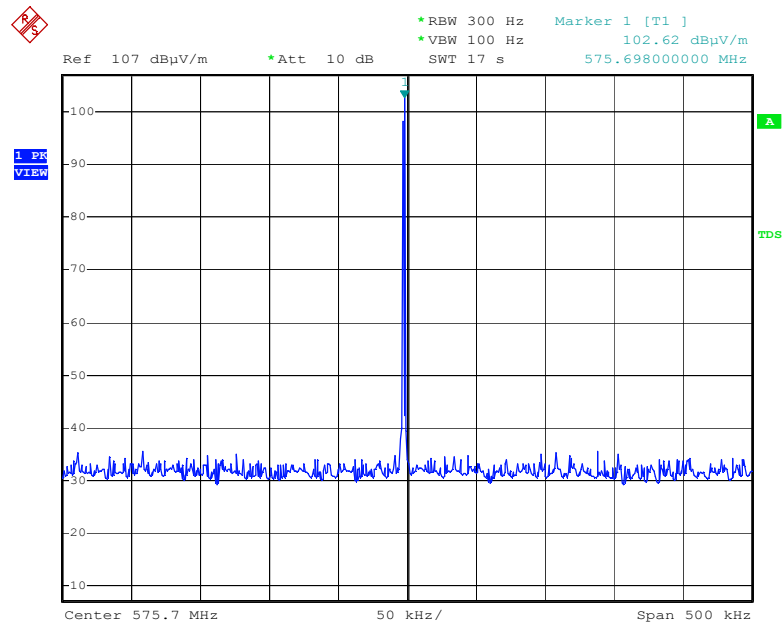
D = Peak Frequency Deviation = 43.6 KHz

K = 1

Bn = 117.2 KHz

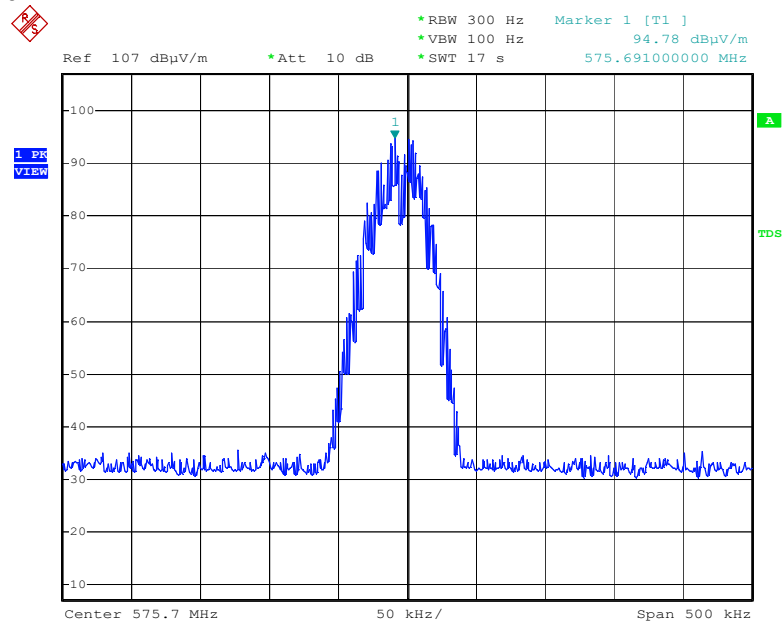
|              |                                  |             |                    |
|--------------|----------------------------------|-------------|--------------------|
| Product      | : UHF Wireless microphone        | Test Mode   | : CH Low ~ CH High |
| Test Item    | : Occupied Bandwidth Measurement | Temperature | : 25 °C            |
| Test Voltage | : DC 3V(AA 1.5V*2)               | Humidity    | : 56%RH            |
| Test Result  | : <b>PASS</b>                    |             |                    |

Unmodulated



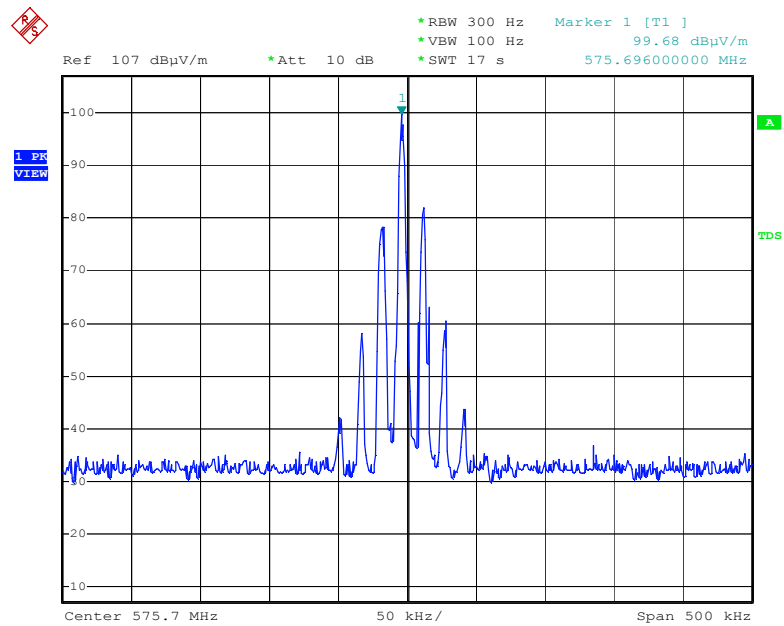
Date: 26.JAN.2015 11:08:11

2.5 kHz Modulation



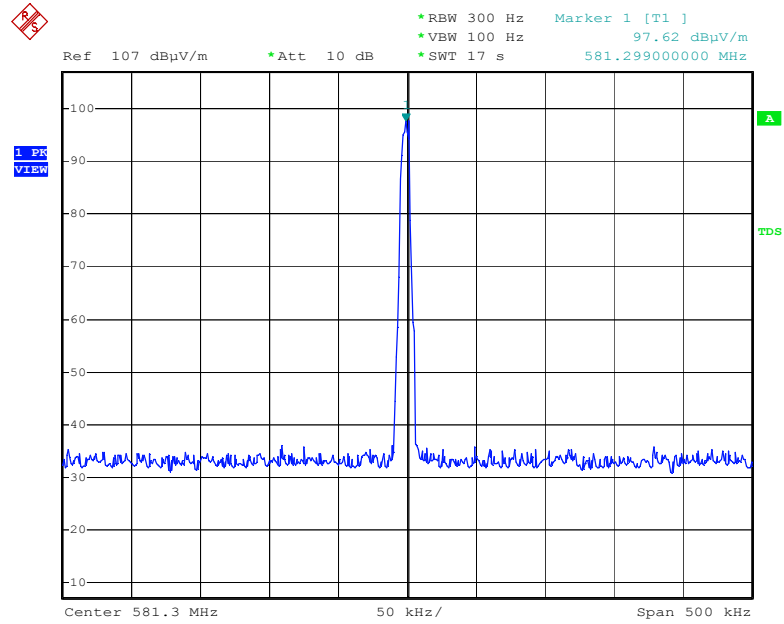
Date: 26.JAN.2015 14:11:25

15 KHz modulation



Date: 26.JAN.2015 14:07:56

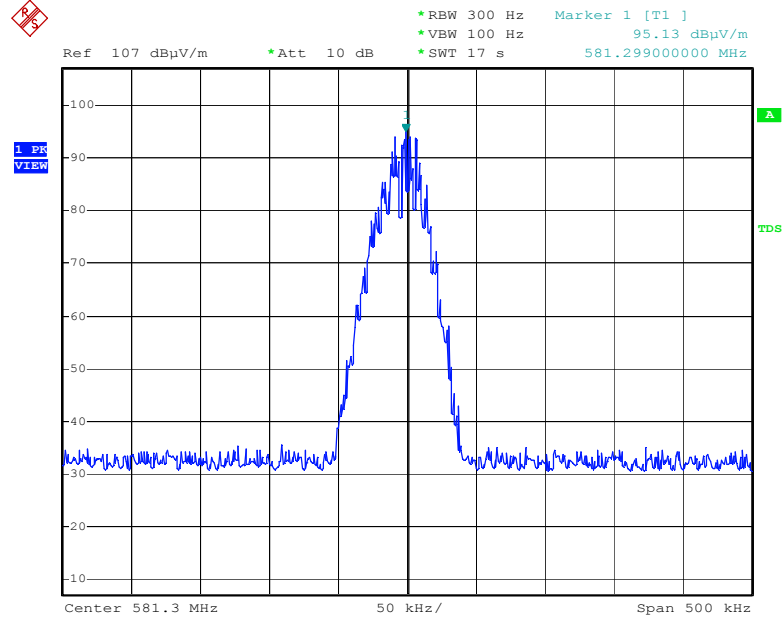
Unmodulated



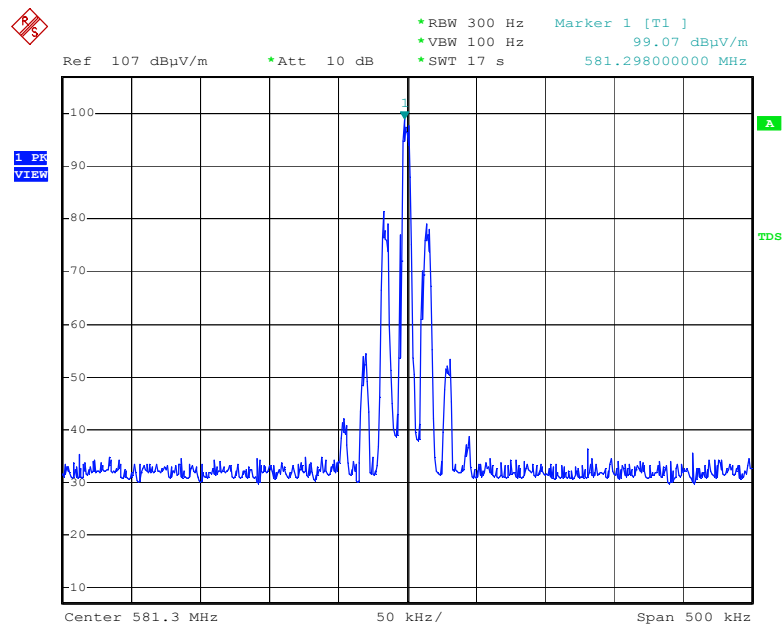
Date: 26.JAN.2015 14:19:41



2.5 kHz Modulation



15 KHz modulation



## 8. Field Strength of Emission

### 8.1 Test Equipment

Please refer to Section 12 this report.

### 8.2 Test Procedure

1. Setup the configuration in Section 5.3 this report for frequencies measured below and above 1GHz respectively, adjusting the input voltage to produce the maximum power as measured in Section 5 this report.
2. Adjust the test receiver for each frequency measured on a 1MHz frequency span and 1MHz resolution bandwidth.
3. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on test receiver. Then change the orientation of EUT on test table over a range from 0 degree to 360 degree, and record the highest value indicated on test receiver as reference value.
4. Repeat step 3 until all frequencies need to be measured were complete.
5. Repeat step 4 with search antenna in vertical polarized orientations.
6. Replace the EUT with a tuned dipole antenna (horn antenna for above 1GHz) relative to each frequency in horizontally polarized orientation and as the same polarized orientation with search antenna. Connect the tuned dipole antenna to a standard signal generator (SG) via a low loss cable. Power on the SG and tune right frequency in measuring as well as set SG at a appreciated output level. Rise and lower the search antenna to get the highest value on test receiver, and then hold this position. Adjust the SG output to get a identical value derived from step 3 on test receiver. Record this value for result calculated.
7. Repeat step 6 until all frequency need to be measured were complete.
8. Repeat step 7 with both dipole antenna (horn antenna for above 1GHz) and search antenna in vertical polarized orientations.

### 8.3 Rules and Specification Limits

According to § 2.1053(a): ANSI/ TIA/ EIA-603-1992, Paragraph 2.2.12,

Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, Power leads, or intermediate circuit elements under normal conditions of installation and operation.

According to § 74.861 (e)(6)(iii):

Spurious and harmonics must be at least  $43 + 10\log(\text{Output Power})$  below the carrier peak.

According to § 2.1057:

In all measurements set forth, the test receiver should be investigated from the lowest radio frequency generated in the equipment up to at least the 10<sup>th</sup> harmonic of the carrier frequency.

## 8.4 Test Result

Product : UHF Wireless microphone  
 Test Item : Field Strength of Emission  
 Test Voltage : DC 3V(AA 1.5V\*2)  
 Test Result : **PASS**  
 Test Mode : 575.700MHz  
 Temperature : 25 °C  
 Humidity : 56%RH

Unmodulated carrier output power is 6.89dBm, or 4.89 mW(ERP). The limit of spurious or harmonics is calculated as following:

$$6.89 - [43 + 10 \log(\text{carrier output power in W})]$$

### 575.700MHz

| Frequency (MHz) | Result (dBm)<br>Hori. / Vert. |        | Limit (dBm) | Margin (dB)<br>Hori. / Vert. |        |
|-----------------|-------------------------------|--------|-------------|------------------------------|--------|
| 287.840         | -32.96                        | -46.61 | -13.00      | -19.96                       | -33.61 |
| 383.800         | -48.16                        | -61.76 | -13.00      | -35.16                       | -48.76 |
| 671.640         | -54.92                        | -52.35 | -13.00      | -41.92                       | -39.35 |
| 863.560         | -38.98                        | -35.76 | -13.00      | -25.98                       | -22.76 |
| 1151.400        | -41.73                        | -45.76 | -13.00      | -28.73                       | -32.76 |
| 5757.000        | -47.20                        | -48.01 | -13.00      | -34.20                       | -35.01 |

- Note:**
- a. For measured frequency below 1GHz, a tuned dipole antenna is used.
  - b. Result calculation is as following:  
 Result = SG Reading + Cable Loss + Antenna Gain Corrected.  
 Antenna Gain Corrected: is used for antenna other than dipole to convert radiated power to ERP.
  - c. Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60dB from limit value.

Product : UHF Wireless microphone  
 Test Item : Field Strength of Emission  
 Test Voltage : DC 3V(AA 1.5V\*2)  
 Test Result : **PASS**  
 Test Mode : 581.300MHz  
 Temperature : 25 °C  
 Humidity : 56%RH

Unmodulated carrier output power is 9.14dBm, or 8.20mW(ERP). The limit of spurious or harmonics is calculated as following:

$$9.14 - [43 + 10 \log(\text{carrier output power in W})]$$

### 581.300MHz

| Frequency (MHz) | Result (dBm)<br>Hori. / Vert. |        | Limit (dBm) | Margin (dB)<br>Hori. / Vert. |        |
|-----------------|-------------------------------|--------|-------------|------------------------------|--------|
| 214.760         | -65.26                        | -68.57 | -13.00      | -52.26                       | -55.57 |
| 290.640         | -41.62                        | -47.02 | -13.00      | -28.62                       | -34.02 |
| 387.560         | -58.03                        | -64.33 | -13.00      | -45.03                       | -51.33 |
| 871.960         | -36.20                        | -37.96 | -13.00      | -23.20                       | -24.96 |
| 1162.600        | -40.50                        | -44.63 | -13.00      | -27.50                       | -31.63 |
| 5813.000        | -45.42                        | -47.79 | -13.00      | -32.42                       | -34.79 |

- Note:**
- a. For measured frequency below 1GHz, a tuned dipole antenna is used.
  - b. Result calculation is as following:  
 Result = SG Reading + Cable Loss + Antenna Gain Corrected.  
 Antenna Gain Corrected: is used for antenna other than dipole to convert radiated power to ERP.
  - c. Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60dB from limit value.

## 9. Frequency Stability Measurement

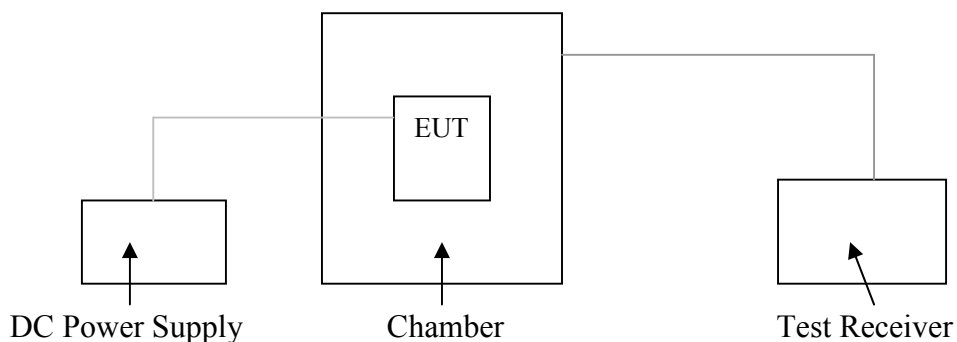
### 9.1 Test Equipment

Please refer to Section 12 this report.

### 9.2 Test Procedure

1. Place the EUT in the chamber, powered in its normal operation.
2. Set the temperature of the chamber  $-30$  degree Centigrade. Allow the equipment to stabilize at that temperature.
3. Measurement the carrier frequency using preamplifier and frequency counter.
4. Repeated procedures 1 to 3 from  $-20$  to  $50$  degree Centigrade at intervals of  $10$  degree.

### 9.3 Test Setup



### 9.4 Rules and Specification Limits

According to § 2.1055 (a)(1), The frequency stability shall be measured with variation of ambient temperature from  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  centigrade, and according to § 2.1055 (d)(2), the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point which is specified by the manufacturer.

According to § 74.861(e)(4): The frequency tolerance of the transmitter shall be  $0.005$  percent.

## 9.5 Test Result

### Frequency stability versus environment temperature Wireless Microphone Transmitter: DC 3V

| Environment Temperature (°C) | Power Supplied (Vdc) | Frequency Measured (MHz) | Frequency Tolerance (ppm) | Nominal Frequency | Limit (ppm) |
|------------------------------|----------------------|--------------------------|---------------------------|-------------------|-------------|
| 50                           | New Batt.            | 575.6925                 | 13.0276                   | 575.700           | 50          |
| 40                           | New Batt.            | 575.6943                 | 9.9010                    | 575.700           | 50          |
| 30                           | New Batt.            | 575.6956                 | 7.6429                    | 575.700           | 50          |
| 20                           | New Batt.            | 575.6989                 | 1.9107                    | 575.700           | 50          |
| 10                           | New Batt.            | 575.7011                 | 1.9017                    | 575.700           | 50          |
| 0                            | New Batt.            | 575.7028                 | 4.8636                    | 575.700           | 50          |
| -10                          | New Batt.            | 575.7041                 | 7.1218                    | 575.700           | 50          |
| -20                          | New Batt.            | 575.7055                 | 9.5536                    | 575.700           | 50          |
| -30                          | New Batt.            | 575.7068                 | 11.8117                   | 575.700           | 50          |

### Frequency stability versus end-point supplied voltage (DC 2.55V)

| Environment Temperature (°C) | Power Supplied (Vdc) | Frequency Measured (MHz) | Frequency Tolerance (ppm) | Nominal Frequency | Limit (ppm) |
|------------------------------|----------------------|--------------------------|---------------------------|-------------------|-------------|
| 25                           | End-Point            | 575.6986                 | 2.4318                    | 575.700           | 50          |

### Frequency stability versus environment temperature Wireless Microphone Transmitter: DC 3V

| Environment Temperature (°C) | Power Supplied (Vdc) | Frequency Measured (MHz) | Frequency Tolerance (ppm) | Nominal Frequency | Limit (ppm) |
|------------------------------|----------------------|--------------------------|---------------------------|-------------------|-------------|
| 50                           | New Batt.            | 581.2911                 | 15.3105                   | 581.300           | 50          |
| 40                           | New Batt.            | 581.2928                 | 12.3860                   | 581.300           | 50          |
| 30                           | New Batt.            | 581.2944                 | 9.6336                    | 581.300           | 50          |
| 20                           | New Batt.            | 581.2967                 | 5.6769                    | 581.300           | 50          |
| 10                           | New Batt.            | 581.2994                 | 1.0322                    | 581.300           | 50          |
| 0                            | New Batt.            | 581.3014                 | 2.4084                    | 581.300           | 50          |
| -10                          | New Batt.            | 581.3032                 | 5.5049                    | 581.300           | 50          |
| -20                          | New Batt.            | 581.3049                 | 8.4294                    | 581.300           | 50          |
| -30                          | New Batt.            | 581.3064                 | 11.0098                   | 581.300           | 50          |

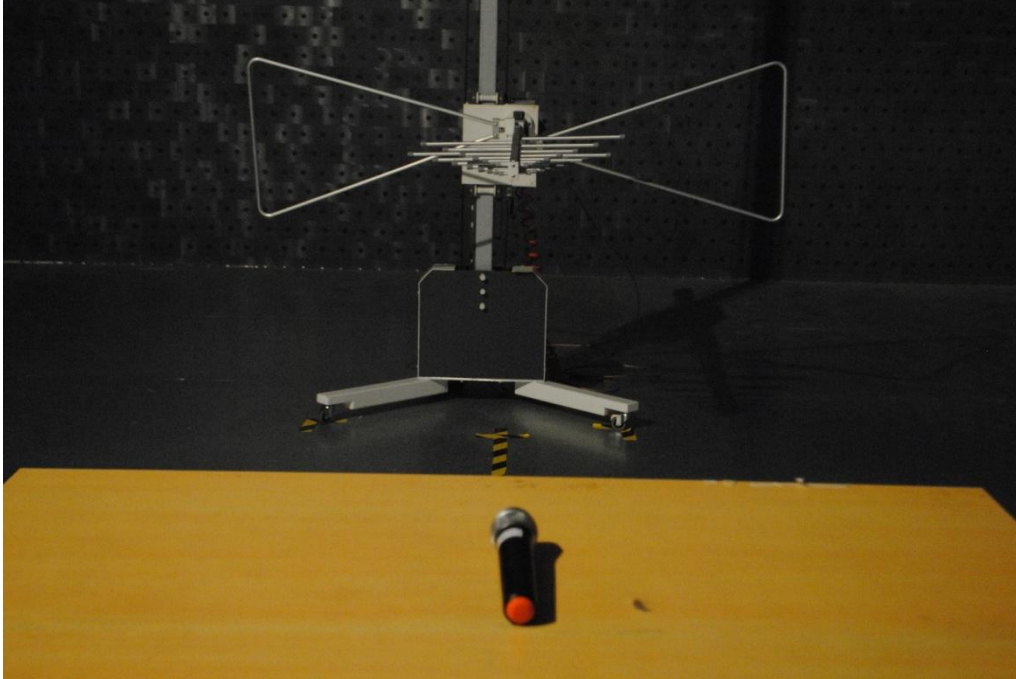
### Frequency stability versus end-point supplied voltage (DC 2.55V)

| Environment Temperature (°C) | Power Supplied (Vdc) | Frequency Measured (MHz) | Frequency Tolerance (ppm) | Nominal Frequency | Limit (ppm) |
|------------------------------|----------------------|--------------------------|---------------------------|-------------------|-------------|
| 25                           | End-Point            | 581.2886                 | 2.4084                    | 581.300           | 50          |

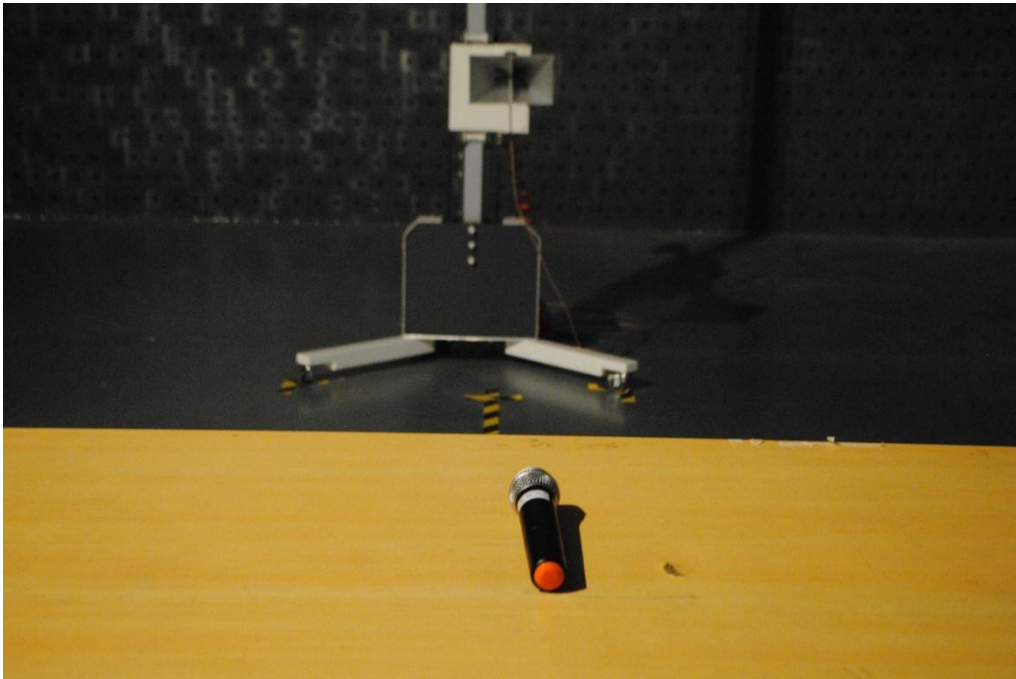
## 10. Photos of Testing

### 10.1 EUT Test Photographs

Radiated Emission test view(Frequency from 30MHz to 1GHz)



Radiated Emission test view(Frequency above 1GHz)

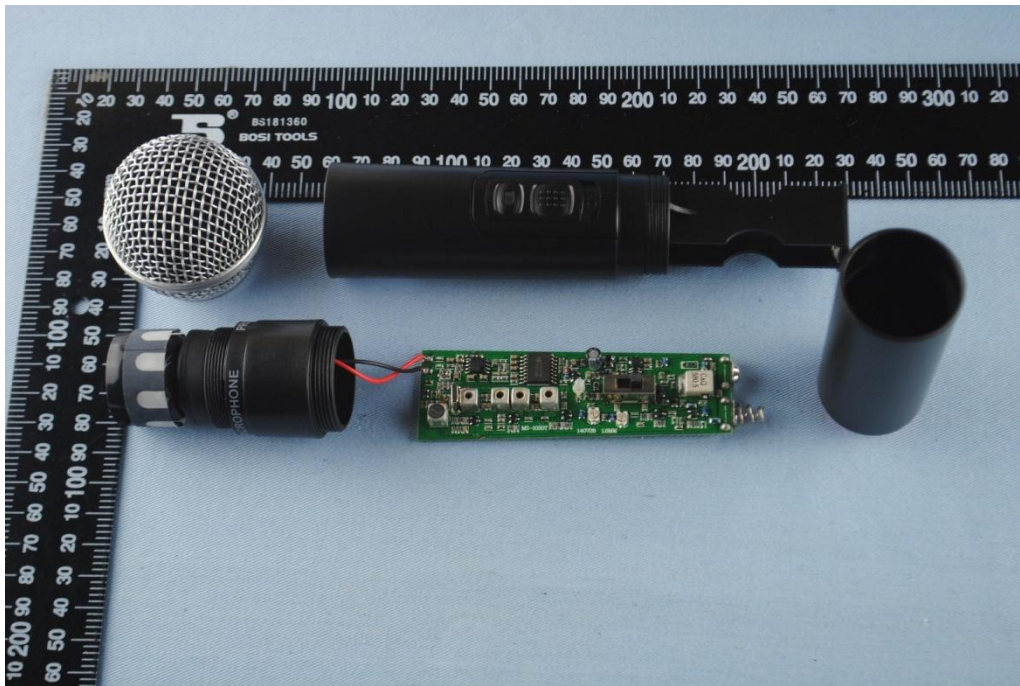




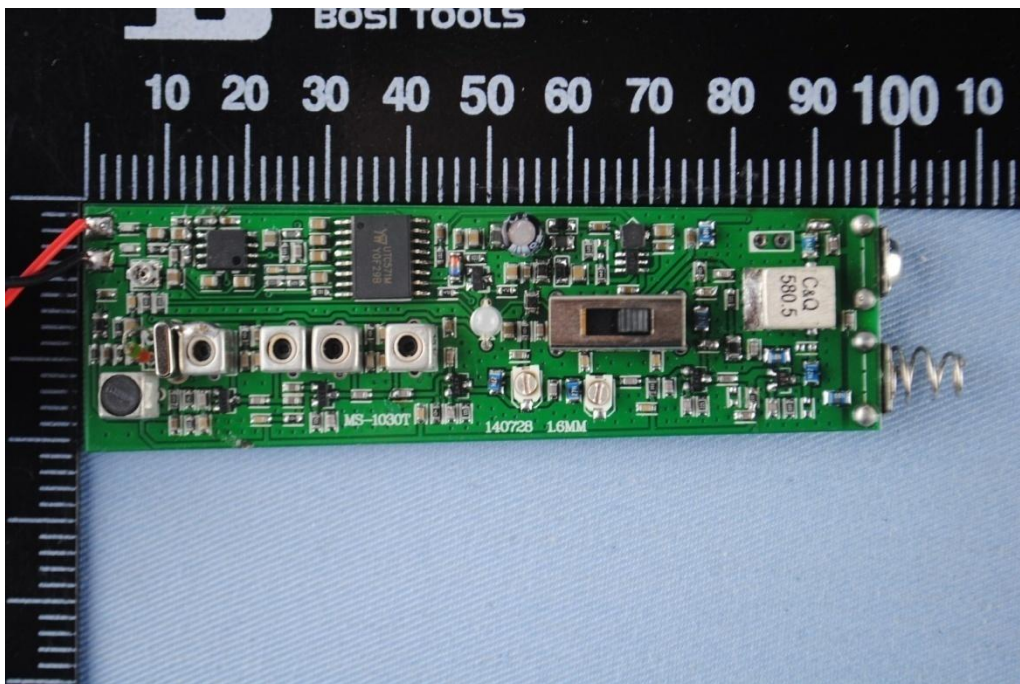
10. 2 EUT Detailed Photographs



EUT inside whole view

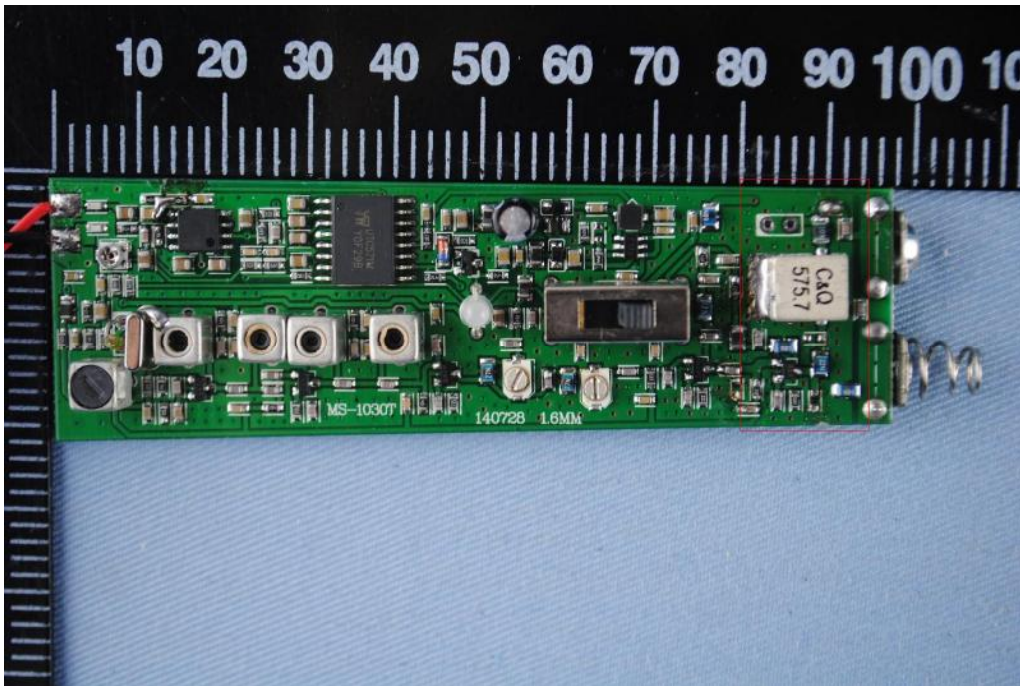


Main board component side

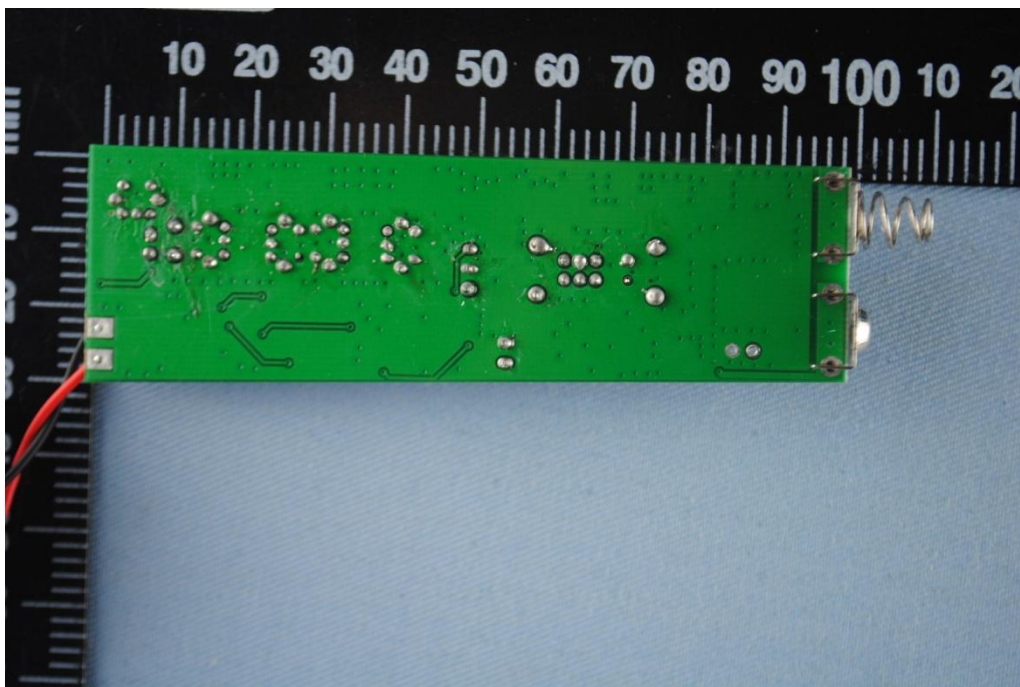




Antenna Location



Main board solder side



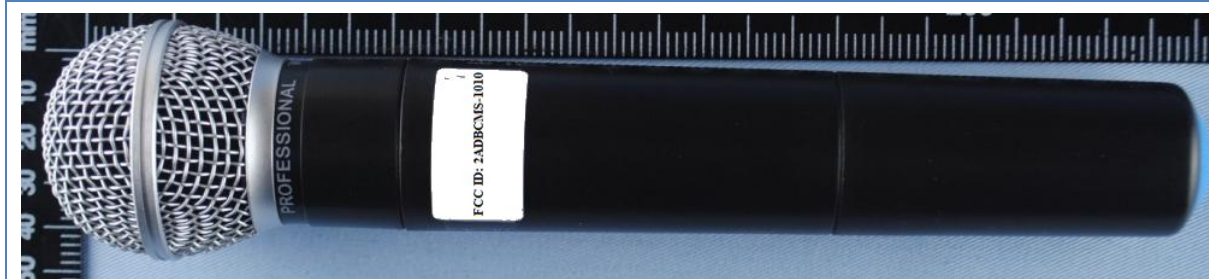
## 11. FCC ID Label

**FCC ID: 2ADBCMS-1010**

**This device complies with Part 74 of the FCC Rules.**

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



## 12. Test Equipment

The following test equipments were used during the radiated & conducted emission test:

| Equipment/<br>Facilities             | Manufacturer       | Model #        | Serial No. | Due Date       |
|--------------------------------------|--------------------|----------------|------------|----------------|
| Turntable                            | Innco systems GmbH | CT-0801        | KMO-SZ114  | NCR            |
| Antenna Tower                        | Innco systems GmbH | MM4000-PP      | KMO-SZ115  | NCR            |
| Controller                           | Innco systems GmbH | CO2000         | KMO-SZ116  | NCR            |
| Pre-Amplifier                        | Agilent            | 87405C         | KMO-SZ155  | Dec.6, 2015    |
| Pre-Amplifier                        | Com-Power          | PAM-840        | KMO-SZ156  | Dec.6, 2015    |
| Horn Antenna                         | Com-Power          | AH-840         | KMO-SZ157  | Dec.6, 2015    |
| EMI Test Receiver                    | Rohde & Schwarz    | ESPI7          | KMO-SZ002  | June 27, 2015  |
| Spectrum Analyzer                    | Rohde & Schwarz    | FSP40          | KMO-SZ003  | June 27, 2015  |
| Signal Generator                     | FLUKE              | PM5418+Y/C     | KMO-SZ020  | May 27, 2015   |
| Loop Antenna                         | Rohde & Schwarz    | HFH2-Z2        | KMO-SZ004  | Jan. 30, 2016  |
| Trilog-Super Broadband Antenna       | SCHWARZBECK        | VULB9161       | KMO-SZ005  | Sep.18, 2015   |
| Trilog-Super Broadband Antenna       | SCHWARZBECK        | VULB9161       | KMO-SZ006  | Sep.18, 2015   |
| Broad-Band Horn Antenna              | SCHWARZBECK        | BBHA 9120D     | KMO-SZ007  | Sep.18, 2015   |
| Broad-Band Horn Antenna              | SCHWARZBECK        | BBHA 9120D     | KMO-SZ008  | Sep.18, 2015   |
| AMN                                  | Rohde & Schwarz    | ESH3-Z5        | KMO-SZ009  | June 27, 2015  |
| Pulse Limiter                        | SCHWARZBECK        | VTSD 9561-F    | KMO-SZ077  | Nov.29, 2015   |
| ISN                                  | SCHWARZBECK        | NTFM 8158 CAT3 | KMO-SZ070  | Nov.19, 2015   |
| ISN                                  | SCHWARZBECK        | NTFM 8158 CAT5 | KMO-SZ071  | Nov.19, 2015   |
| ISN                                  | SCHWARZBECK        | NTFM 8158 CAT6 | KMO-SZ072  | Nov.19, 2015   |
| KMO Shielded Room                    | KMO                | KMO-001        | KMO-SZ036  | NCR            |
| Coaxial Cable with N-Connectors      | SCHWARZBECK        | AK9515H        | KMO-SZ037  | Sep.18, 2015   |
| AC Power Source / Analyzer           | Agilent            | 6813B          | KMO-SZ166  | July 22, 2015  |
| Digital Radio Communication Tester   | Rohde & Schwarz    | CMD60          | KMO-SZ169  | April 10, 2015 |
| Universal Radio Communication Tester | Rohde & Schwarz    | CMU200         | KMO-SZ170  | April 10, 2015 |
| Program Control Telephone Exchanger  | Excelltel          | CDX8000-M      | KMO-SZ221  | NCR            |
| 3m Anechoic Chamber                  | KMO                | KMO-3AC        | KMO-3AC-1  | Nov.12, 2016   |
| Temperature Chamber                  | TABAI              | PSL-4GTW       | N/A        | Feb.10, 2016   |