

FCC Test Report

Client Name : SHENZHEN MAONO TECHNOLOGY CO., LTD
Address : 401, Building47, SoftwareTown of Universiade,
No.8288 Longgang Rd., He'ao Community,
Yuanshan Street, Longgang District, Shenzhen, China
Product Name : microphone
Date : Jan. 25, 2021



Shenzhen Anbotek Compliance Laboratory Limited

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TEST REPORT

Applicant : SHENZHEN MAONO TECHNOLOGY CO., LTD
Manufacturer : SHENZHEN DING CHUANG SMART MANUFACTURING CO., LTD.
Product Name : microphone
Model No. : AU-HD300
Trade Mark : MAONO
Rating(s) : Input: DC 5V, 80mA, 0.4W
Test Standard(s) : FCC Rules and Regulations Part 15 Subpart B: 2019
Test Method(s) : ANSI C63.4-2014

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full responsibility for the accuracy and completeness of these measurements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited

Date of Receipt: Jan. 14, 2021

Date of Test: Jan. 14~20, 2021

Prepared By:



(Engineer / Winnie Huang)

Reviewer:



(Supervisor / Well Wang)

Approved & Authorized Signer:



(Manager / KingKong Jin)

1. General Information

1.1. Client Information

| | | |
|--------------|---|---|
| Applicant | : | SHENZHEN MAONO TECHNOLOGY CO., LTD |
| Address | : | 401, Building47, SoftwareTown of Universiade, No.8288 Longgang Rd., He'ao Community, Yuanshan Street, Longgang District, Shenzhen,China |
| Manufacturer | : | SHENZHEN DING CHUANG SMART MANUFACTURING CO., LTD. |
| Address | : | 3/F NO. 1 AOXIANG ROAD, ZHANGBEI COMMUNITY, LONGCHENG STREET, LONGGANG DISTRICT, SHENZHEN, GUANGDONG, CHINA |
| Factory | : | SHENZHEN DING CHUANG SMART MANUFACTURING CO., LTD. |
| Address | : | 3/F NO. 1 AOXIANG ROAD, ZHANGBEI COMMUNITY, LONGCHENG STREET, LONGGANG DISTRICT, SHENZHEN, GUANGDONG, CHINA |

1.2. Description of Device (EUT)

| | | |
|--|---|----------------------------|
| Product Name | : | microphone |
| Model No. | : | AU-HD300 |
| Trade Mark | : | MAONO |
| Test Power Supply | : | DC 5V via PC / DC 5V Mixer |
| Test Sample No. | : | 1-1-1 |
| Product Description | : | Adapter: N/A |
| Remark: (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. | | |

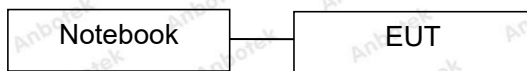
1.3. Auxiliary Equipment Used During Test

| | | |
|----------|---|---|
| Notebook | : | Manufacturer: MacBook Air |
| | | Model: A1466 |
| | | Input: 14.85V/3.05A CMIIT ID:C02HXB48DRVC |
| | | Adapter |
| | | Input: AC 100-240V, 1A, 50-60Hz Output: 14.85V/3.05A |

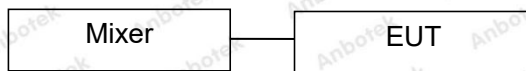
1.4. Description of Test Modes

| Pretest Modes | Descriptions |
|---------------|--------------|
| Mode 1 | Type-C Input |
| Mode 2 | MIC Input |

For Mode 1 Block Diagram of Test Setup



For Mode 2 Block Diagram of Test Setup



1.5. Test Summary

| Test Items | Test Modes | Status |
|--|------------|--------|
| Power Line Conducted Emission Test (150KHz To 30MHz) | / | N |
| Radiated Emission Test (30MHz To 1000MHz) | All Mode | P |
| P) Indicates "PASS". N) Indicates "Not applicable". | | |

1.6. Test Equipment List

Radiated Emission Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------------|--------------------|-----------|------------|---------------|---------------|
| 1. | EMI Test Receiver | Rohde & Schwarz | ESCI | 100627 | Oct. 26, 2020 | 1 Year |
| 2. | Pre-amplifier | Schwarzbeck | BBV-9745 | 9745-075 | Oct. 26, 2020 | 1 Year |
| 3. | Bilog Broadband Antenna | SCHWARZBECK | VULB 9163 | 01109 | Nov. 02, 2020 | 2 Year |
| 4. | Software Name EZ-EMC | Ferrari Technology | EMEC-3A1 | N/A | N/A | N/A |

1.7. Measurement Uncertainty

| | | |
|-------------------------|---|--------------------------|
| Radiation Uncertainty | : | Ur = 4.7 dB (Horizontal) |
| | | Ur = 4.3 dB (Vertical) |
| Conduction Uncertainty | : | Uc = 3.4 dB |
| Disturbance Uncertainty | : | Ud = 3.4 dB |

1.8. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory 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. 184111, September 30, 2020.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A, September 30, 2020.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518128

2. Radiated Emission Test

2.1. Test Standard and Limit

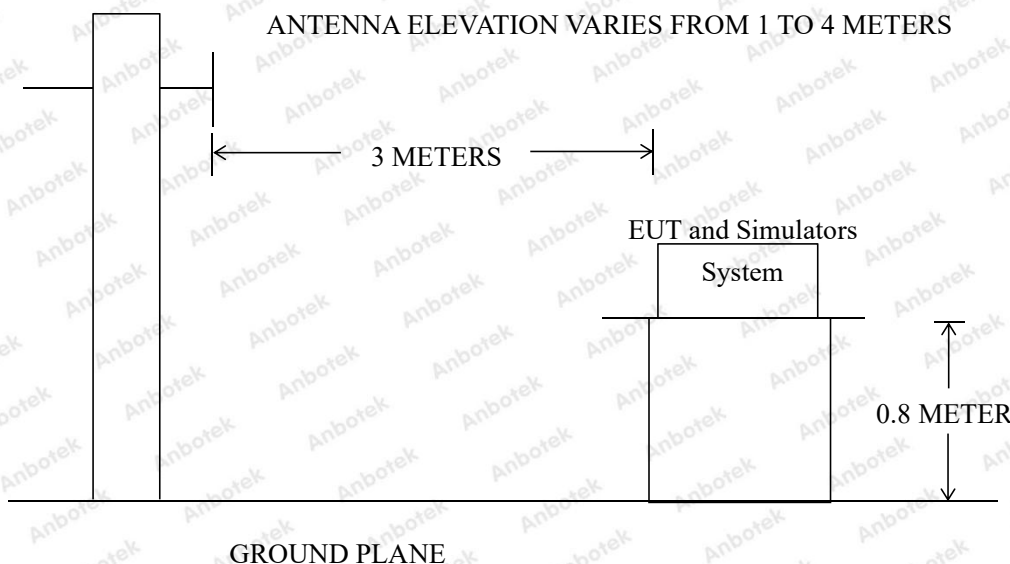
| | |
|---------------|-----------------------|
| Test Standard | FCC Part 15 Subpart B |
|---------------|-----------------------|

Radiated Emission Test Limit (Subpart B Class B)

| Test Limit | Frequency (MHz) | DISTANCE (Meters) | FIELD STRENGTHS LIMIT | |
|------------|-----------------|-------------------|-----------------------|----------------------------|
| | | | $\mu\text{V/m}$ | $(\text{dB}\mu\text{V/m})$ |
| | 30 ~ 88 | 3 | 100 | 40 |
| | 88 ~ 216 | 3 | 150 | 43.5 |
| | 216 ~ 960 | 3 | 200 | 46 |
| | 960 ~ 1000 | 3 | 500 | 54 |

Remark: (1) Emission level $(\text{dB})\mu\text{V} = 20 \log$ Emission level $\mu\text{V/m}$
 (2) The smaller limit shall apply at the cross point between two frequency bands.
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

2.2. Test Setup



2.3. EUT Configuration on Measurement

The following equipments are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

2.4. Operating Condition of EUT

2.4.1. Setup the EUT as shown in Section 2.2.

2.4.2. Turn on the power of all equipments.

2.4.3. Let the EUT work in test mode and measure it.

2.5. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (Trilog Broadband Antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

The bandwidth of the EMI test receiver (ESCI) is set at 120kHz.

The frequency range from 30MHz to 1000MHz is checked.

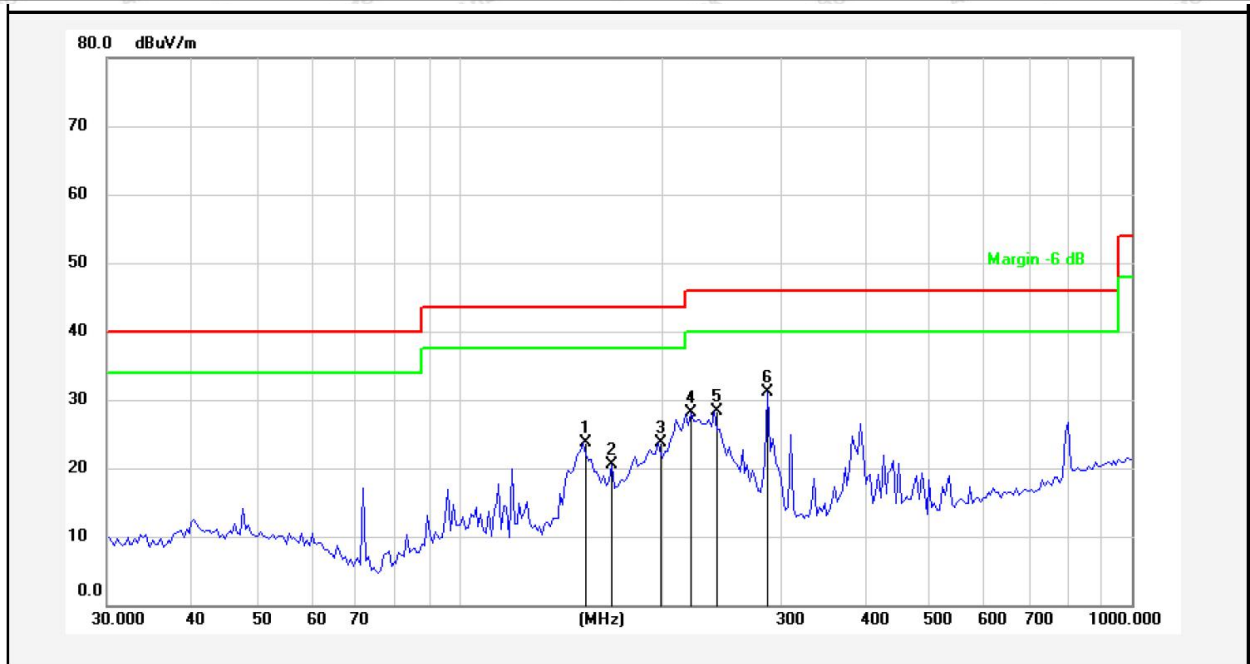
The test results are listed in Section 2.6.

2.6. Test Results

PASS

The test curves are shown in the following pages.

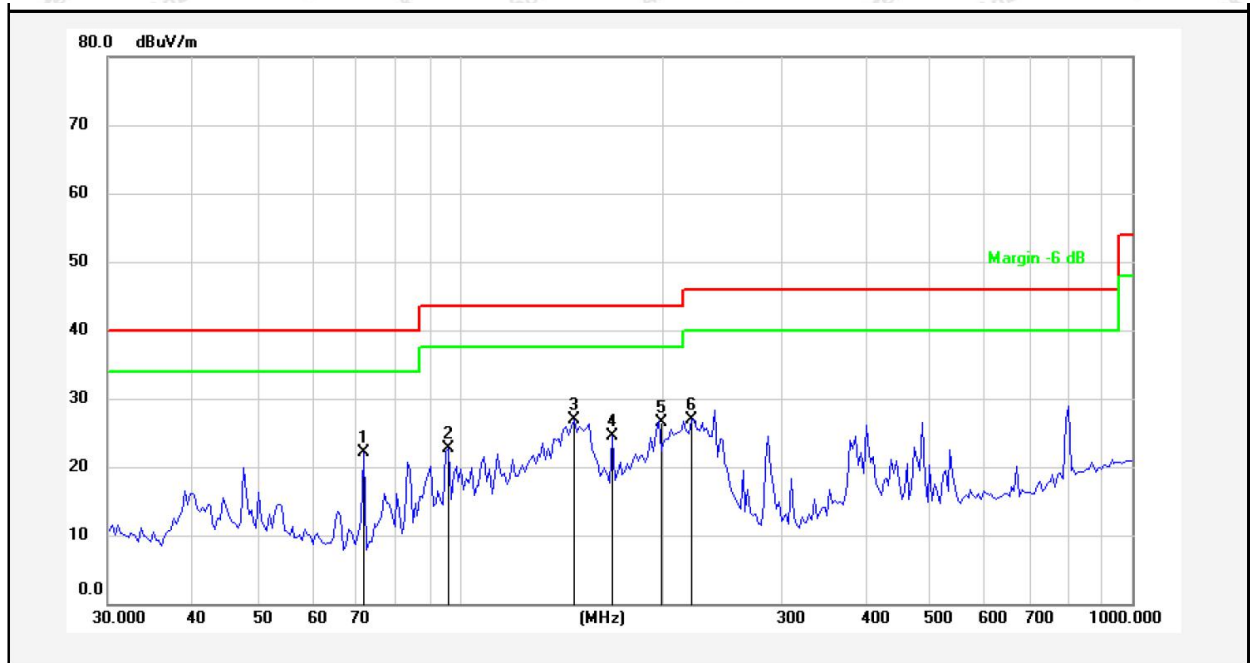
| | | | |
|-------------------|----------------------------------|-----------------------------|------------------------|
| Test item: | Radiation Test | Polarization: | Horizontal |
| Standard: | (RE)FCC Part 15 Subpart B | Power Source: | DC 5V via PC |
| Distance: | 3m | Temp.(°C)/Hum.(%RH): | 22.1(°C)/50%RH |
| Test Mode: | Type-C Input | | |



| No. | Freq. (MHz) | Reading (dBuV) | Factor () | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|----------------|------------|-----------------|----------------|-----------------|----------|-------------|--------------|--------|
| 1 | 153.2004 | 43.94 | -20.21 | 23.73 | 43.50 | -19.77 | peak | | | |
| 2 | 168.7093 | 40.16 | -19.60 | 20.56 | 43.50 | -22.94 | peak | | | |
| 3 | 197.5462 | 41.59 | -17.82 | 23.77 | 43.50 | -19.73 | peak | | | |
| 4 | 221.3921 | 45.13 | -17.07 | 28.06 | 46.00 | -17.94 | peak | | | |
| 5 | 239.5670 | 44.48 | -16.22 | 28.26 | 46.00 | -17.74 | peak | | | |
| 6 | 287.9904 | 48.51 | -17.35 | 31.16 | 46.00 | -14.84 | peak | | | |

Note: **Result=Reading+Factor** **Over Limit=Result-Limit**

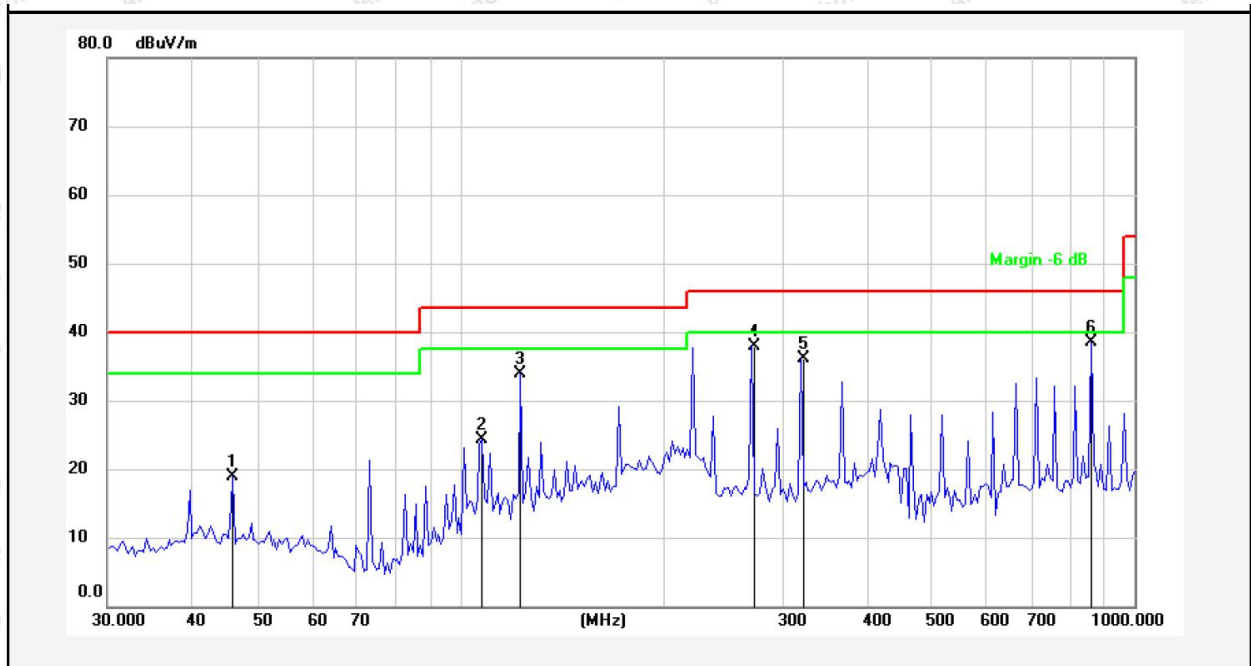
| | | | |
|-------------------|----------------------------------|-----------------------------|------------------------|
| Test item: | Radiation Test | Polarization: | Vertical |
| Standard: | (RE)FCC Part 15 Subpart B | Power Source: | DC 5V via PC |
| Distance: | 3m | Temp.(°C)/Hum.(%RH): | 22.1(°C)/50%RH |
| Test Mode: | Type-C Input | | |



| No. | Freq. (MHz) | Reading (dBuV) | Factor () | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|----------------|------------|-----------------|----------------|-----------------|----------|-------------|--------------|--------|
| 1 | 72.0843 | 42.89 | -20.74 | 22.15 | 40.00 | -17.85 | peak | | | |
| 2 | 96.2672 | 38.68 | -15.96 | 22.72 | 43.50 | -20.78 | peak | | | |
| 3 | 147.9214 | 47.32 | -20.37 | 26.95 | 43.50 | -16.55 | peak | | | |
| 4 | 168.7093 | 44.02 | -19.60 | 24.42 | 43.50 | -19.08 | peak | | | |
| 5 | 197.5462 | 44.42 | -17.82 | 26.60 | 43.50 | -16.90 | peak | | | |
| 6 | 221.3921 | 43.95 | -17.07 | 26.88 | 46.00 | -19.12 | peak | | | |

Note: **Result=Reading+Factor** **Over Limit=Result-Limit**

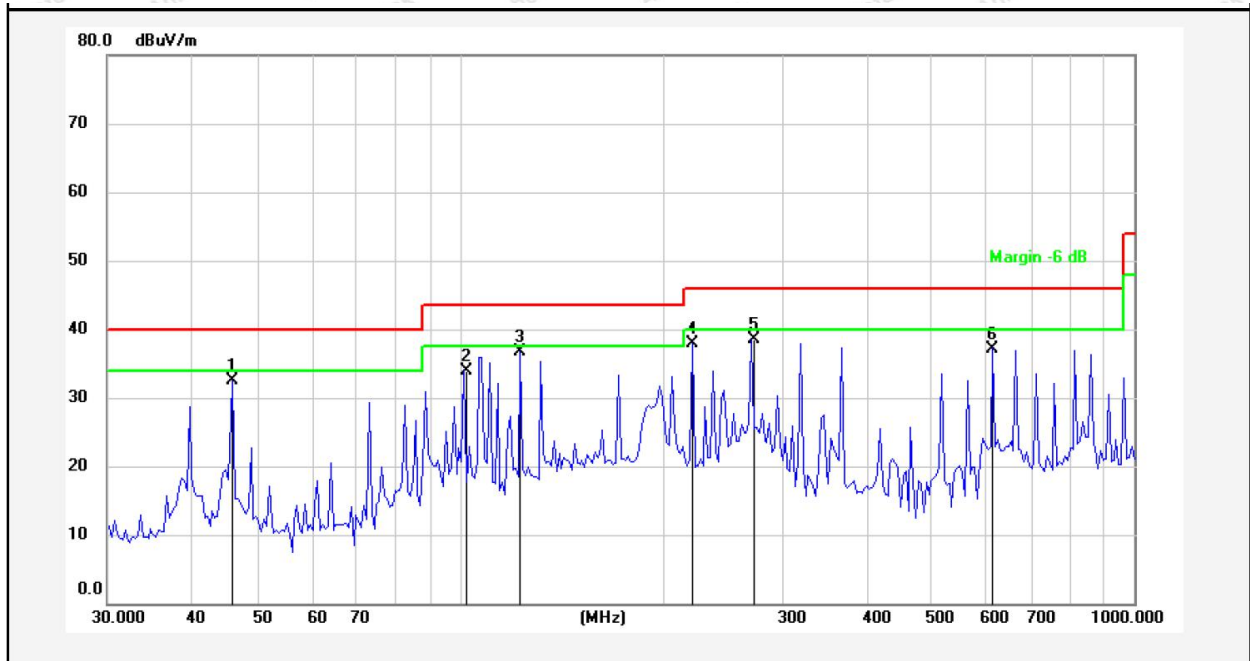
Test item: Radiation Test **Polarization:** Horizontal
Standard: (RE)FCC Part 15 Subpart B **Power Source:** DC 5V Mixer
Distance: 3m **Temp.(°C)/Hum.(%RH):** 22.1(°C)/50%RH
Test Mode: MIC Input



| No. | Freq. (MHz) | Reading (dBuV) | Factor () | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|----------------|------------|-----------------|----------------|-----------------|----------|-------------|--------------|--------|
| 1 | 46.0970 | 34.51 | -15.68 | 18.83 | 40.00 | -21.17 | peak | | | |
| 2 | 107.8876 | 40.58 | -16.37 | 24.21 | 43.50 | -19.29 | peak | | | |
| 3 | 123.0494 | 52.60 | -18.73 | 33.87 | 43.50 | -9.63 | peak | | | |
| 4 | 270.8493 | 54.86 | -16.92 | 37.94 | 46.00 | -8.06 | peak | | | |
| 5 | 319.9370 | 52.90 | -16.79 | 36.11 | 46.00 | -9.89 | peak | | | |
| 6 | 861.5443 | 46.62 | -8.11 | 38.51 | 46.00 | -7.49 | peak | | | |

Note: Result=Reading+Factor Over Limit=Result-Limit

| | | | |
|-------------------|----------------------------------|-----------------------------|------------------------|
| Test item: | Radiation Test | Polarization: | Vertical |
| Standard: | (RE)FCC Part 15 Subpart B | Power Source: | DC 5V Mixer |
| Distance: | 3m | Temp.(°C)/Hum.(%RH): | 22.1(°C)/50%RH |
| Test Mode: | MIC Input | | |

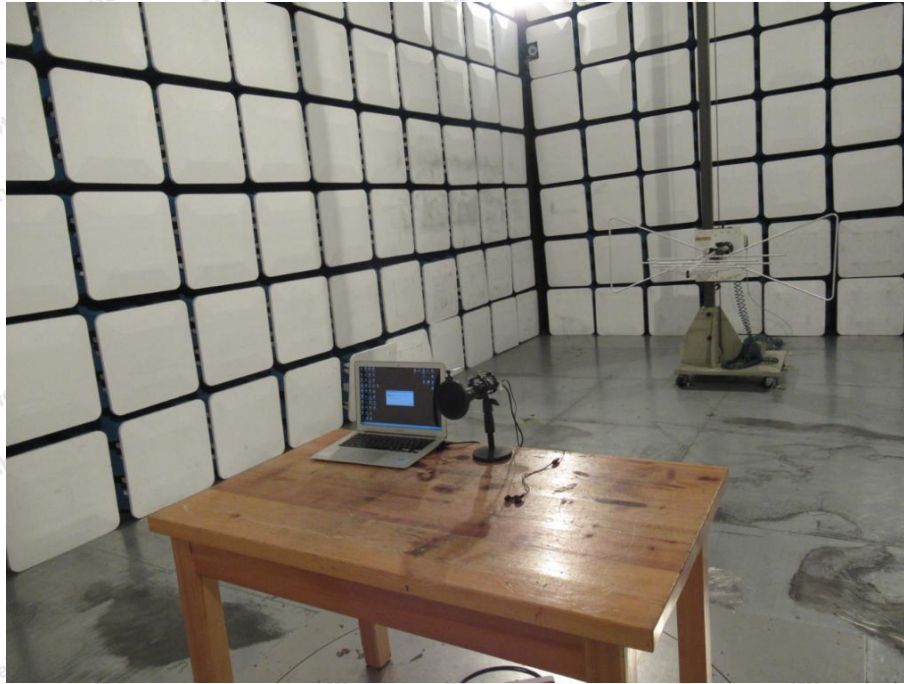


| No. | Freq. (MHz) | Reading (dBUV) | Factor () | Result (dBUV/m) | Limit (dBUV/m) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|----------------|------------|-----------------|----------------|-----------------|----------|-------------|--------------|--------|
| 1 | 46.0970 | 48.09 | -15.68 | 32.41 | 40.00 | -7.59 | peak | | | |
| 2 | 101.4663 | 49.65 | -15.81 | 33.84 | 43.50 | -9.66 | peak | | | |
| 3 | 123.0494 | 55.40 | -18.73 | 36.67 | 43.50 | -6.83 | peak | | | |
| 4 | 221.3916 | 54.92 | -17.06 | 37.86 | 46.00 | -8.14 | peak | | | |
| 5 | 270.8493 | 55.49 | -16.92 | 38.57 | 46.00 | -7.43 | peak | | | |
| 6 | 617.4533 | 49.19 | -11.99 | 37.20 | 46.00 | -8.80 | peak | | | |

Note: **Result=Reading+Factor** **Over Limit=Result-Limit**

APPENDIX I -- TEST SETUP PHOTOGRAPH

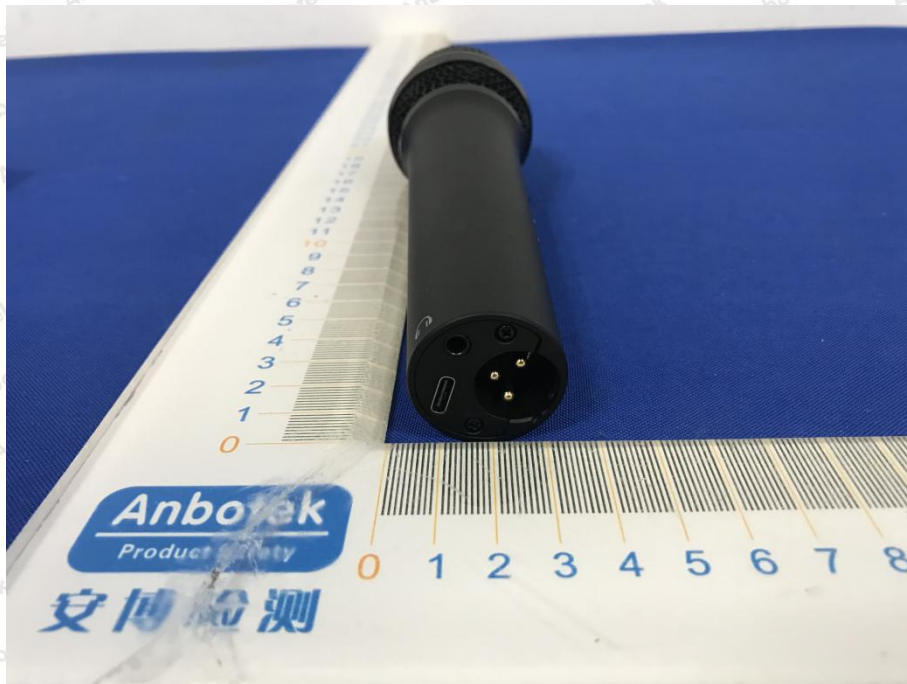
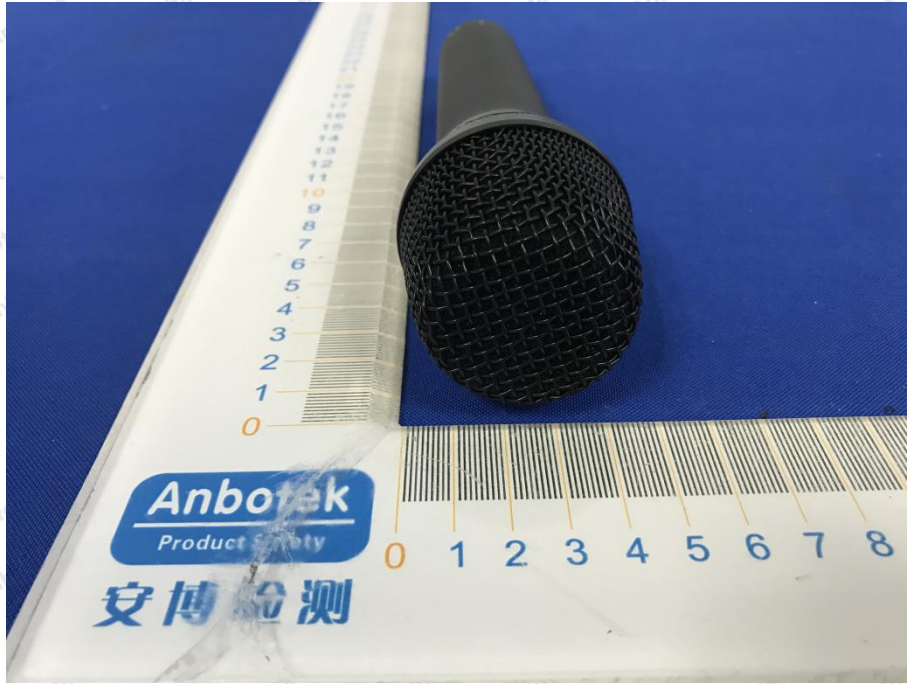
Photo of Radiated Emission Test

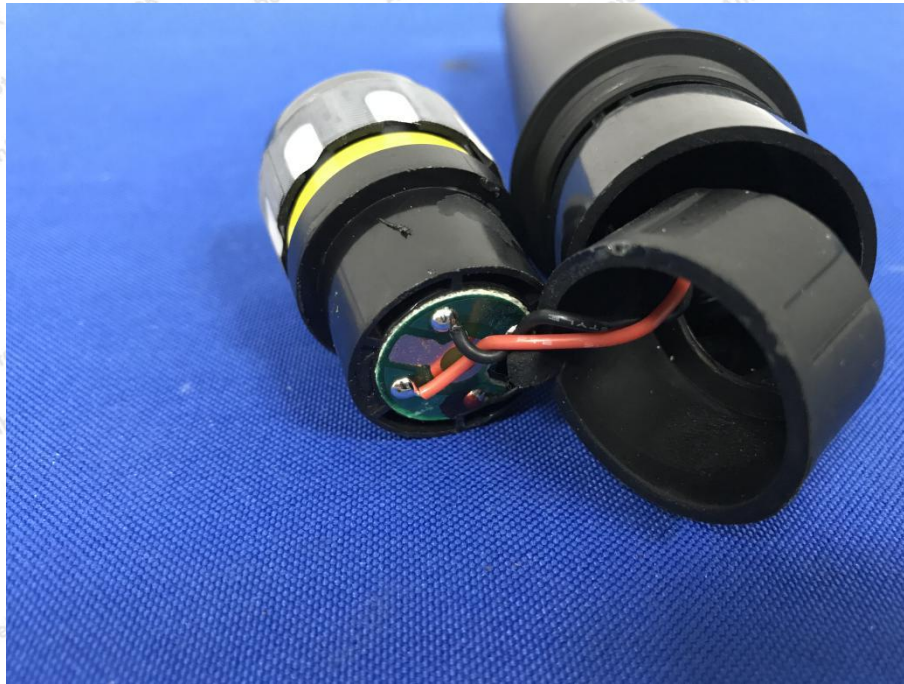


APPENDIX II -- EXTERNAL PHOTOGRAPH







APPENDIX III -- INTERNAL PHOTOGRAPH

----- End of Report -----

