

# FCC PART 15C

## Measurement and Test Report

For

**H&F TECHNOLOGIES INCORPORATED**  
**650 FLINN AVENUE, MOORPARK, CA 93021 USA**

**FCC ID: 2ADV7AWX6035T**

|                                      |                                 |
|--------------------------------------|---------------------------------|
| <b>FCC Rules:</b>                    | <u>FCC Part 15.236</u>          |
| <b>Product Description:</b>          | <u>Bodypack Microphone</u>      |
| <b>Tested Model:</b>                 | <u>AWX6035T</u>                 |
| <b>Report No.:</b>                   | <u>WTX19X08059731W</u>          |
| <b>Sample Receipt Date:</b>          | <u>2019-08-27</u>               |
| <b>Tested Date:</b>                  | <u>2019-08-27 to 2019-11-11</u> |
| <b>Issued Date:</b>                  | <u>2019-11-11</u>               |
| <b>Tested By:</b>                    | <u>Mike Shi / Engineer</u>      |
| <b>Reviewed By:</b>                  | <u>Silin Chen / EMC Manager</u> |
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Waltek Testing Group (Shenzhen) Co., Ltd.

## **TABLE OF CONTENTS**

|                                                             |           |
|-------------------------------------------------------------|-----------|
| <b>1. GENERAL INFORMATION.....</b>                          | <b>4</b>  |
| 1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)..... | 4         |
| 1.2 TEST STANDARDS.....                                     | 5         |
| 1.3 TEST METHODOLOGY.....                                   | 5         |
| 1.4 TEST FACILITY .....                                     | 5         |
| 1.5 EUT EXERCISE SOFTWARE .....                             | 6         |
| 1.6 MEASUREMENT UNCERTAINTY .....                           | 6         |
| 1.7 TEST EQUIPMENT LIST AND DETAILS .....                   | 7         |
| <b>2. SUMMARY OF TEST RESULTS .....</b>                     | <b>8</b>  |
| <b>3. ANTENNA REQUIREMENT .....</b>                         | <b>9</b>  |
| 3.1 STANDARD APPLICABLE.....                                | 9         |
| 3.2 EVALUATION INFORMATION .....                            | 9         |
| <b>4. RF OUTPUT POWER .....</b>                             | <b>10</b> |
| 4.1 STANDARD APPLICABLE.....                                | 10        |
| 4.2 TEST PROCEDURE.....                                     | 10        |
| 4.3 SUMMARY OF TEST RESULTS/PLOTS .....                     | 10        |
| <b>5. OCCUPIED BANDWIDTH.....</b>                           | <b>12</b> |
| 5.1 STANDARD APPLICABLE.....                                | 12        |
| 5.2 TEST PROCEDURE.....                                     | 12        |
| 5.4 SUMMARY OF TEST RESULTS/PLOTS .....                     | 12        |
| <b>5. RADIATED SPURIOUS EMISSION.....</b>                   | <b>14</b> |
| 5.1 STANDARD APPLICABLE.....                                | 14        |
| 5.2 TEST PROCEDURE.....                                     | 14        |
| 5.3 SUMMARY OF TEST RESULTS/PLOTS .....                     | 15        |
| <b>6. NECESSARY BANDWIDTH.....</b>                          | <b>23</b> |
| 6.1 STANDARD APPLICABLE.....                                | 23        |
| 6.2 TEST PROCEDURE.....                                     | 23        |
| 6.3 SUMMARY OF TEST RESULTS/PLOTS .....                     | 23        |
| <b>7. FREQUENCY STABILITY .....</b>                         | <b>25</b> |
| 7.1 STANDARD APPLICABLE.....                                | 25        |
| 7.2 TEST PROCEDURE.....                                     | 25        |
| 7.3 TEST RESULTS/PLOTS.....                                 | 25        |

**Report version**

| Version No. | Date of issue | Description |
|-------------|---------------|-------------|
| Rev.00      | 2019-11-11    | Original    |
| /           | /             | /           |

## 1. GENERAL INFORMATION

### 1.1 Product Description for Equipment Under Test (EUT)

#### Client Information

Applicant: H&F TECHNOLOGIES INCORPORATED  
 Address of applicant: 650 FLINN AVENUE, MOORPARK, CA 93021 USA  
  
 Manufacturer: ENPING ENBAO ELECTRONIC CO., LTD.  
 Address of manufacturer: B3, 3 Zone, Enping Park, Industrial Transfer Park of Jiangmen, Guangdong, China

| General Description of EUT                                                             |                     |
|----------------------------------------------------------------------------------------|---------------------|
| Product Name:                                                                          | Bodypack Microphone |
| Trade Name:                                                                            | AUDIO2000'S         |
| Model No.:                                                                             | AWX6035T            |
| Adding Model(s):                                                                       | /                   |
| Rated Voltage:                                                                         | DC1.5V*2            |
| Note: The test data is gathered from a production sample provided by the manufacturer. |                     |

| Items                                                                         | Description               |
|-------------------------------------------------------------------------------|---------------------------|
| RF Output Power:                                                              | Max. 11.65dBm (Conducted) |
| Frequency Range:                                                              | 543.1MHz - 593.5MHz       |
| Modulation:                                                                   | FM                        |
| Quantity of Channels:                                                         | 10                        |
| Antenna Type:                                                                 | External Antenna          |
| Antenna Gain:                                                                 | 0dBi                      |
| For more information refer to the circuit diagram form and the user's manual. |                           |

The test data gathered are from a production sample, provided by the manufacturer.

| Frequency List |                |     |                |
|----------------|----------------|-----|----------------|
| No.            | Frequency(MHz) | No. | Frequency(MHz) |
| 1              | 543.1          | 6   | 575.0          |
| 2              | 554.5          | 7   | 576.625        |
| 3              | 560.5          | 8   | 580.1          |
| 4              | 566.0          | 9   | 588.25         |
| 5              | 567.1          | 10  | 593.5          |

## 1.2 Test Standards

The tests were performed according to following standards:

**FCC Rules Part 15.236:** Operation of wireless microphones in the bands 54-72MHz, 76-88MHz, 174-216 MHz, 470-608MHz and 614-698MHz.

**TIA/EIA 603 E March 2016:** Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

**ANSI C63.10-2013:** American National Standard for Testing Unlicensed Wireless Devices.

**ETSI EN 300 422-2 V2.1.2 (2017-01):** Wireless Microphones; Audio PMSE up to 3 GHz; Part 1: Class A Receivers; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU.

**Maintenance of compliance** is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

## 1.3 Test Methodology

All measurements contained in this report were conducted with FCC Rules Part 15.236.

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

## 1.4 Test Facility

### **Address of the test laboratory**

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China

### **FCC – Registration No.: 125990**

Waltek Testing Group (Shenzhen) Co., Ltd. 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. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

### **Industry Canada (IC) Registration No.: 11464A**

The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

## 1.5 EUT Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components. The test software is started while the whole system is on.

| Test Mode List |                |          |
|----------------|----------------|----------|
| Test Mode      | Description    | Remark   |
| TM1            | Low Channel    | 543.1MHz |
| TM2            | Middle Channel | 567.1MHz |
| TM3            | High Channel   | 593.5MHz |

| Test Conditions    |           |
|--------------------|-----------|
| Temperature:       | 22~25 °C  |
| Relative Humidity: | 50~56 %.  |
| ATM Pressure:      | 1019 mbar |

| EUT Cable List and Details |            |                     |                        |
|----------------------------|------------|---------------------|------------------------|
| Cable Description          | Length (m) | Shielded/Unshielded | With / Without Ferrite |
| /                          | /          | /                   | /                      |

| Special Cable List and Details |            |                     |                        |
|--------------------------------|------------|---------------------|------------------------|
| Cable Description              | Length (m) | Shielded/Unshielded | With / Without Ferrite |
| /                              | /          | /                   | /                      |

| Auxiliary Equipment List and Details |              |       |               |
|--------------------------------------|--------------|-------|---------------|
| Description                          | Manufacturer | Model | Serial Number |
| /                                    | /            | /     | /             |

## 1.6 Measurement Uncertainty

| Measurement uncertainty        |            |                                |
|--------------------------------|------------|--------------------------------|
| Parameter                      | Conditions | Uncertainty                    |
| RF Output Power                | Conducted  | $\pm 0.42\text{dB}$            |
| Occupied Bandwidth             | ---        | $\pm 1 \times 10^{-7}$         |
| Frequency Stability            | 2.3%       | $\pm 5\%$                      |
| Conducted Spurious Emission    | Conducted  | $\pm 2.17\text{dB}$            |
| Conducted Emissions            | Conducted  | 9-150kHz $\pm 3.74\text{dB}$   |
|                                |            | 0.15-30MHz $\pm 3.34\text{dB}$ |
| Transmitter Spurious Emissions | Radiated   | 30-200MHz $\pm 4.52\text{dB}$  |
|                                |            | 0.2-1GHz $\pm 5.56\text{dB}$   |
|                                |            | 1-6GHz $\pm 3.84\text{dB}$     |
|                                |            | 6-18GHz $\pm 3.92\text{dB}$    |

## 1.7 Test Equipment List and Details

| No.       | Description       | Manufacturer    | Model                 | Serial No. | Cal Date   | Due Date   |
|-----------|-------------------|-----------------|-----------------------|------------|------------|------------|
| SEMT-1072 | Spectrum Analyzer | Agilent         | E4407B                | MY41440400 | 2019-04-30 | 2020-04-29 |
| SEMT-1031 | Spectrum Analyzer | Rohde & Schwarz | FSP30                 | 836079/035 | 2019-04-30 | 2020-04-29 |
| SEMT-1007 | EMI Test Receiver | Rohde & Schwarz | ESVB                  | 825471/005 | 2019-04-30 | 2020-04-29 |
| SEMT-1008 | Amplifier         | Agilent         | 8447F                 | 3113A06717 | 2019-04-30 | 2020-04-29 |
| SEMT-1043 | Amplifier         | C&D             | PAP-1G18              | 2002       | 2019-04-30 | 2020-04-29 |
| SEMT-1011 | Broadband Antenna | Schwarz beck    | VULB9163              | 9163-333   | 2019-05-05 | 2021-05-04 |
| SEMT-1042 | Horn Antenna      | ETS             | 3117                  | 00086197   | 2019-05-05 | 2021-05-04 |
| SEMT-1069 | Loop Antenna      | Schwarz beck    | FMZB 1516             | 9773       | 2019-05-05 | 2021-05-04 |
| SEMT-1001 | EMI Test Receiver | Rohde & Schwarz | ESPI                  | 101611     | 2019-04-30 | 2020-04-29 |
| SEMT-1003 | L.I.S.N           | Schwarz beck    | NSLK8126              | 8126-224   | 2019-04-30 | 2020-04-29 |
| SEMT-1002 | Pulse Limiter     | Rohde & Schwarz | ESH3-Z2               | 100911     | 2019-04-30 | 2020-04-29 |
| SEMT-1166 | Power Limiter     | Agilent         | N9356B                | MY45450376 | 2019-04-30 | 2020-04-29 |
| SEMT-1048 | RF Limiter        | ATTEN           | AT-BSF-2400~2500      | /          | 2019-04-30 | 2020-04-29 |
| SEMT-1076 | RF Switcher       | Top Precision   | RCS03-A2              | /          | 2019-04-30 | 2020-04-29 |
| SEMT-C001 | Cable             | Zheng DI        | LL142-07-07-10M(A)    | /          | 2019-03-18 | 2020-03-17 |
| SEMT-C002 | Cable             | Zheng DI        | ZT40-2.92J-2.92J-6M   | /          | 2019-03-18 | 2020-03-17 |
| SEMT-C003 | Cable             | Zheng DI        | ZT40-2.92J-2.92J-2.5M | /          | 2019-03-18 | 2020-03-17 |
| SEMT-C004 | Cable             | Zheng DI        | 2M0RFC                | /          | 2019-03-18 | 2020-03-17 |
| SEMT-C005 | Cable             | Zheng DI        | 1M0RFC                | /          | 2019-03-18 | 2020-03-17 |
| SEMT-C006 | Cable             | Zheng DI        | 1M0RFC                | /          | 2019-03-18 | 2020-03-17 |

| Software List                           |              |        |         |
|-----------------------------------------|--------------|--------|---------|
| Description                             | Manufacturer | Model  | Version |
| EMI Test Software (Radiated Emission)*  | Farad        | EZ-EMC | RA-03A1 |
| EMI Test Software (Conducted Emission)* | Farad        | EZ-EMC | RA-03A1 |

\*Remark: indicates software version used in the compliance certification testing



## 2. SUMMARY OF TEST RESULTS

| FCC Rules                     | Description of Test Item               | Result    |
|-------------------------------|----------------------------------------|-----------|
| §15.203                       | Antenna Requirement                    | Compliant |
| §15.207                       | Conducted Emission                     | Compliant |
| §15.236(d)(1)                 | Output Power Measurement               | Compliant |
| §15.236(f)(2)                 | Occupied Bandwidth Emission            | Compliant |
| §15.236(g)/ ETSI EN 300 422-1 | Necessary Bandwidth Spurious emissions | Compliant |
| §15.236(g)                    | Radiated Spurious Emission             | Compliant |
| §15.236(g)                    | Spurious Emission at Antenna Port      | Compliant |
| §15.236(f)(3)                 | Frequency Stability                    | Compliant |

Note: N/A mean not applicable.

### **3. Antenna Requirement**

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#### **3.1 Standard Applicable**

According to FCC Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

#### **3.2 Evaluation Information**

This product has an Integral antenna, fulfill the requirement of this section.

## 4. RF OUTPUT POWER

### 4.1 Standard Applicable

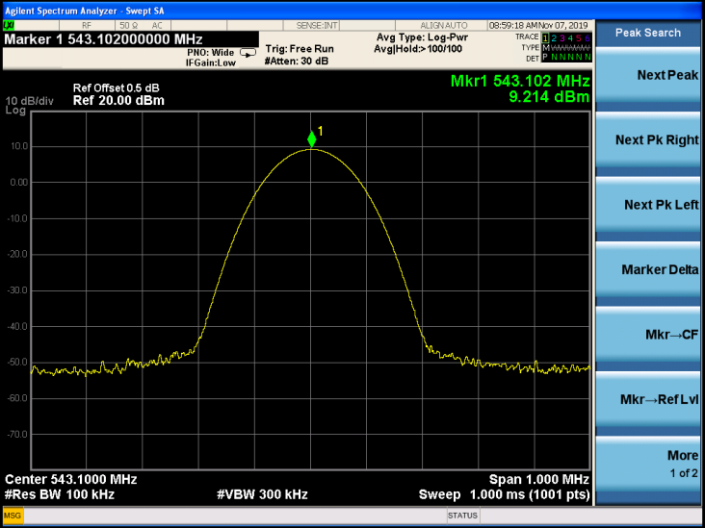
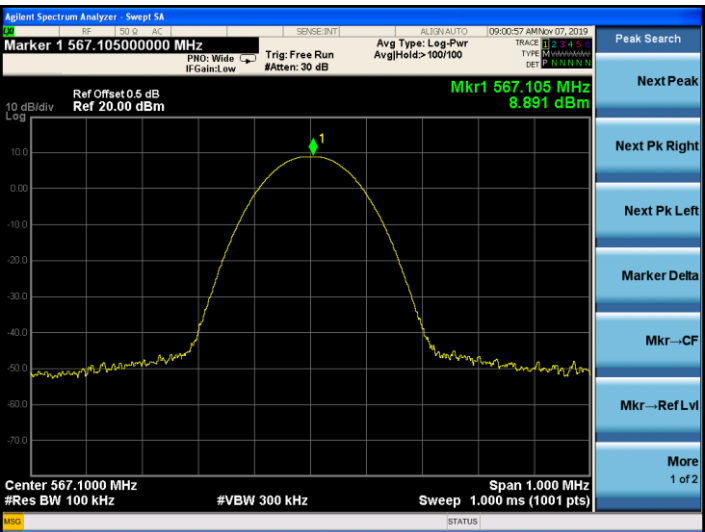
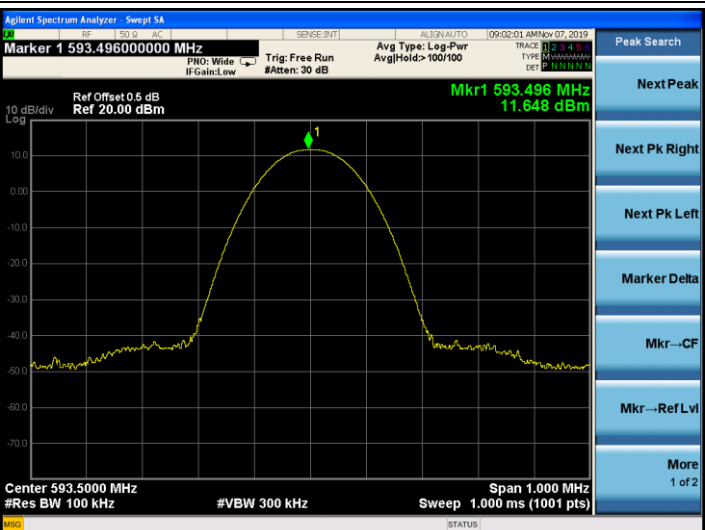
According to FCC 15.236(d)(1), for low power auxiliary station operating in the 470-608, and 614-698 MHz bands, In the bands allocated and assigned for broadcast television and in the 600 MHz service band: 50 mW EIRP

### 4.2 Test Procedure

- a) Set RBW  $\geq$  EBW
- b) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Recorded the test data

### 4.3 Summary of Test Results/Plots

| Test Channel | Measured Value(dBm) | Antenna Gain(dBi) | ERP (dBm) | Limit(dBm) |
|--------------|---------------------|-------------------|-----------|------------|
| Low          | 9.21                | 0                 | 9.21      | 17         |
| Middle       | 8.89                | 0                 | 8.89      | 17         |
| High         | 11.65               | 0                 | 11.65     | 17         |

|               |                                                                                      |
|---------------|--------------------------------------------------------------------------------------|
| <p>Low</p>    |    |
| <p>Middle</p> |   |
| <p>High</p>   |  |

## 5. OCCUPIED BANDWIDTH

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### 5.1 Standard Applicable

According to FCC 15.236(f), the operating frequency within a permissible band of operation as defined in paragraph (c) must comply with the following requirements.

- (1) The frequency selection shall be offset from the upper or lower band limits by 25 kHz or an integral multiple thereof.
- (2) One or more adjacent 25 kHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200 kHz. Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in Section 8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08) (incorporated by reference, see §15.38). Emissions outside this band shall comply with the limit specified at the edges of the ETSI mask

### 5.2 Test Procedure

According to TIA-603 for additional Test Set-Up procedures, the occupied bandwidth of emission was measured with a Spectrum Analyzer connected to the antenna terminal while EUT was operating in 2.5kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation. Then mark the –26dB Bandwidth and record it.

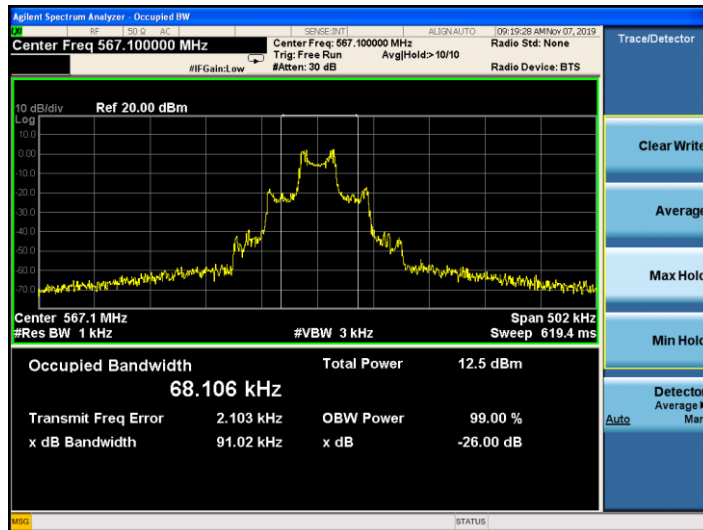
### 5.4 Summary of Test Results/Plots

| Test Channel | -26dB Bandwidth (kHz) | 99% Bandwidth(kHz) | Limit (kHz) | Result |
|--------------|-----------------------|--------------------|-------------|--------|
| Low          | 91.27                 | 68.376             | 200         | Pass   |
| Middle       | 91.02                 | 68.106             | 200         | Pass   |
| High         | 90.80                 | 67.911             | 200         | Pass   |

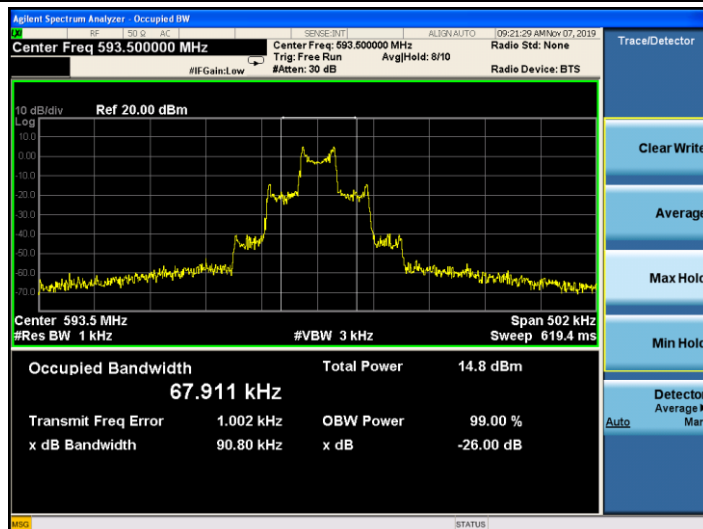
Low



Middle



High



## 5. RADIATED SPURIOUS EMISSION

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### 5.1 Standard Applicable

According to FCC 15.236(g), emission within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the Spurious emissions in Section 8.4 of ETSI EN 300422-1. Emissions outside this band shall comply with the limit specified at the edges of the ETSI mask.

### 5.2 Test Procedure

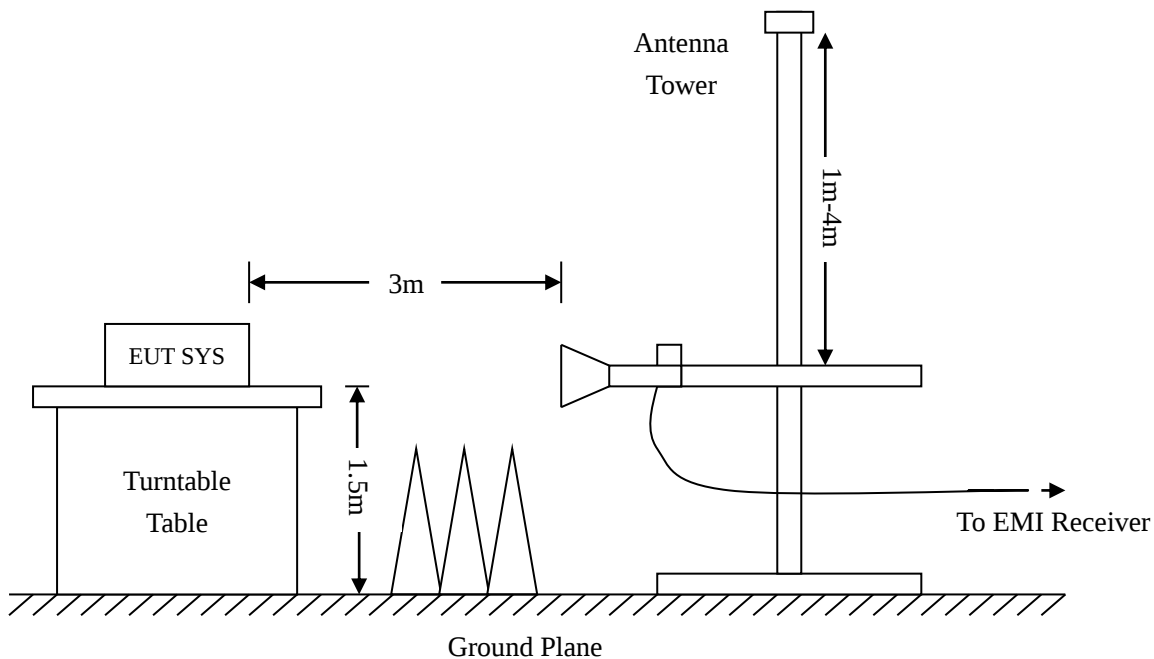
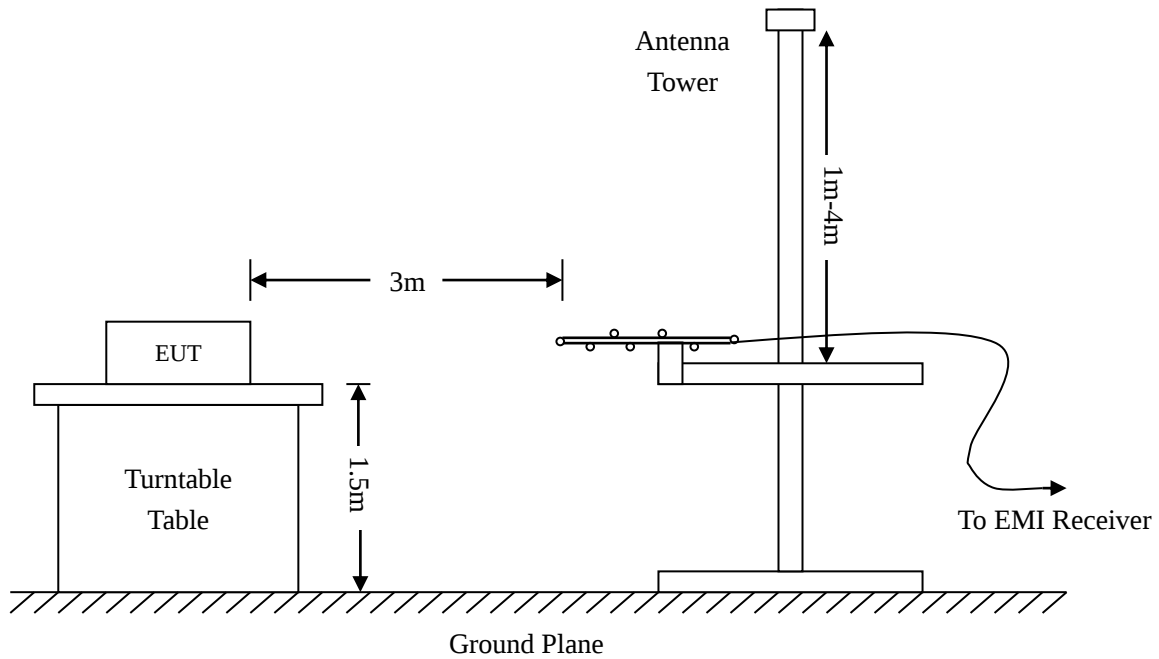
The setup of EUT is according with per TIA/EIA Standard 603 and ANSI C63.4-2014 measurement procedure.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious attenuation limit in dB =  $43 + 10 \text{ Log}_{10} (\text{power in Watts})$



Frequency :9kHz-30MHz  
RBW=10KHz,  
VBW =30KHz  
Sweep time= Auto  
Trace = max hold  
Detector function = peak

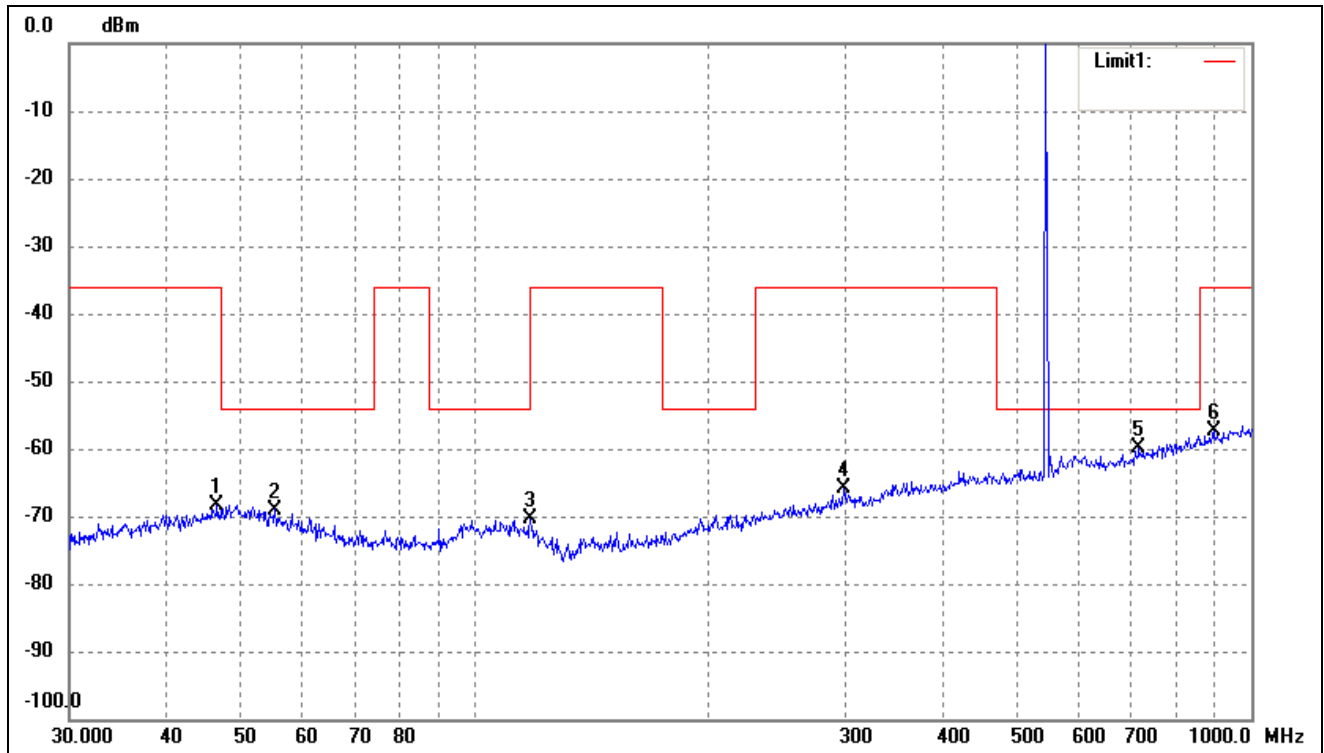
Frequency :30MHz-1GHz  
RBW=120KHz,  
VBW=300KHz  
Sweep time= Auto  
Trace = max hold  
Detector function = peak, QP

Frequency :Above 1GHz  
RBW=1MHz,  
VBW=3MHz(Peak), 10Hz(AV)  
Sweep time= Auto  
Trace = max hold  
Detector function = peak, AV

### 5.3 Summary of Test Results/Plots

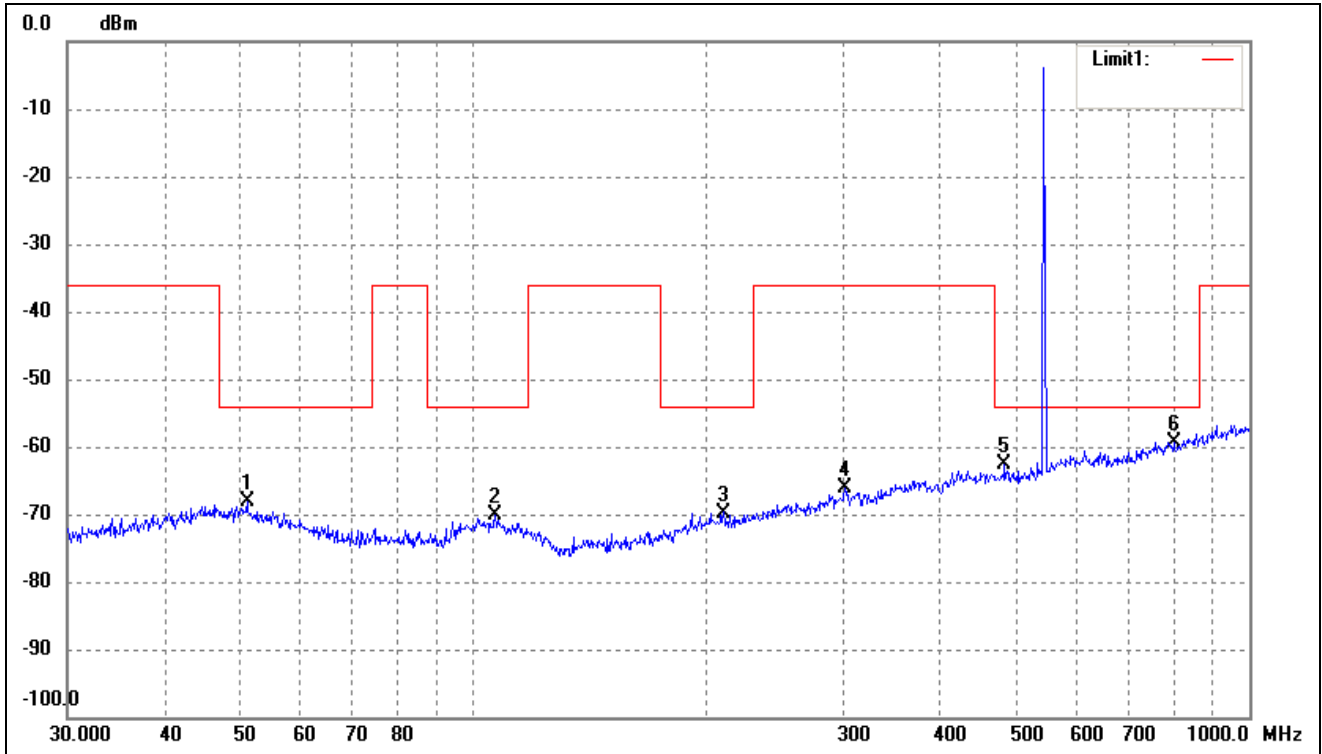
According to the data below, the FCC Part 15.236 standards, and had the worst margin of:

|              |     |           |            |
|--------------|-----|-----------|------------|
| Test Channel | Low | Polarity: | Horizontal |
|--------------|-----|-----------|------------|



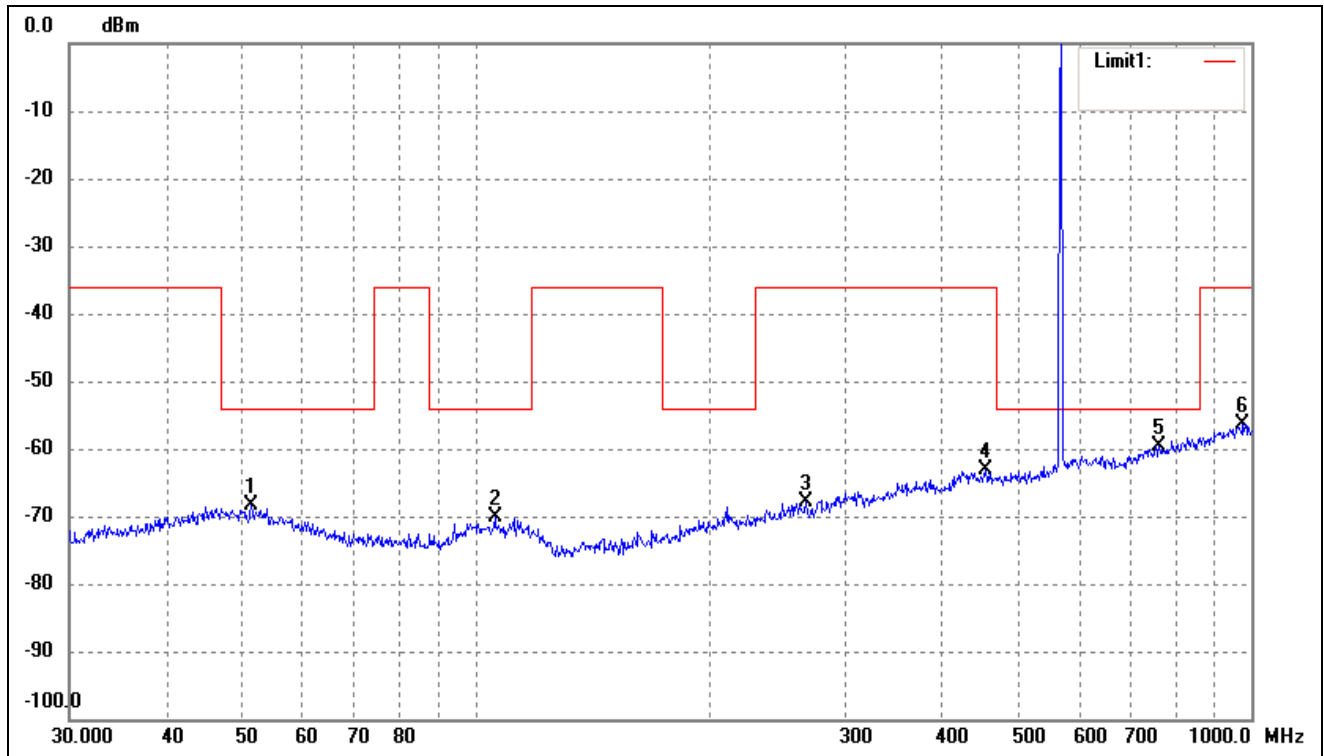
| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 46.5030            | -68.94           | 0.57          | -68.37          | -36.00         | -32.37         | 327           | 100            | peak   |
| 2   | 55.2207            | -68.60           | -0.40         | -69.00          | -54.00         | -15.00         | 108           | 100            | peak   |
| 3   | 117.7725           | -68.27           | -2.10         | -70.37          | -54.00         | -16.37         | 62            | 100            | peak   |
| 4   | 298.2681           | -68.39           | 2.47          | -65.92          | -36.00         | -29.92         | 116           | 100            | peak   |
| 5   | 716.6820           | -68.47           | 8.51          | -59.96          | -54.00         | -5.96          | 149           | 100            | peak   |
| 6   | 893.8567           | -68.46           | 11.13         | -57.33          | -36.00         | -21.33         | 152           | 100            | peak   |

|              |     |           |          |
|--------------|-----|-----------|----------|
| Test Channel | Low | Polarity: | Vertical |
|--------------|-----|-----------|----------|



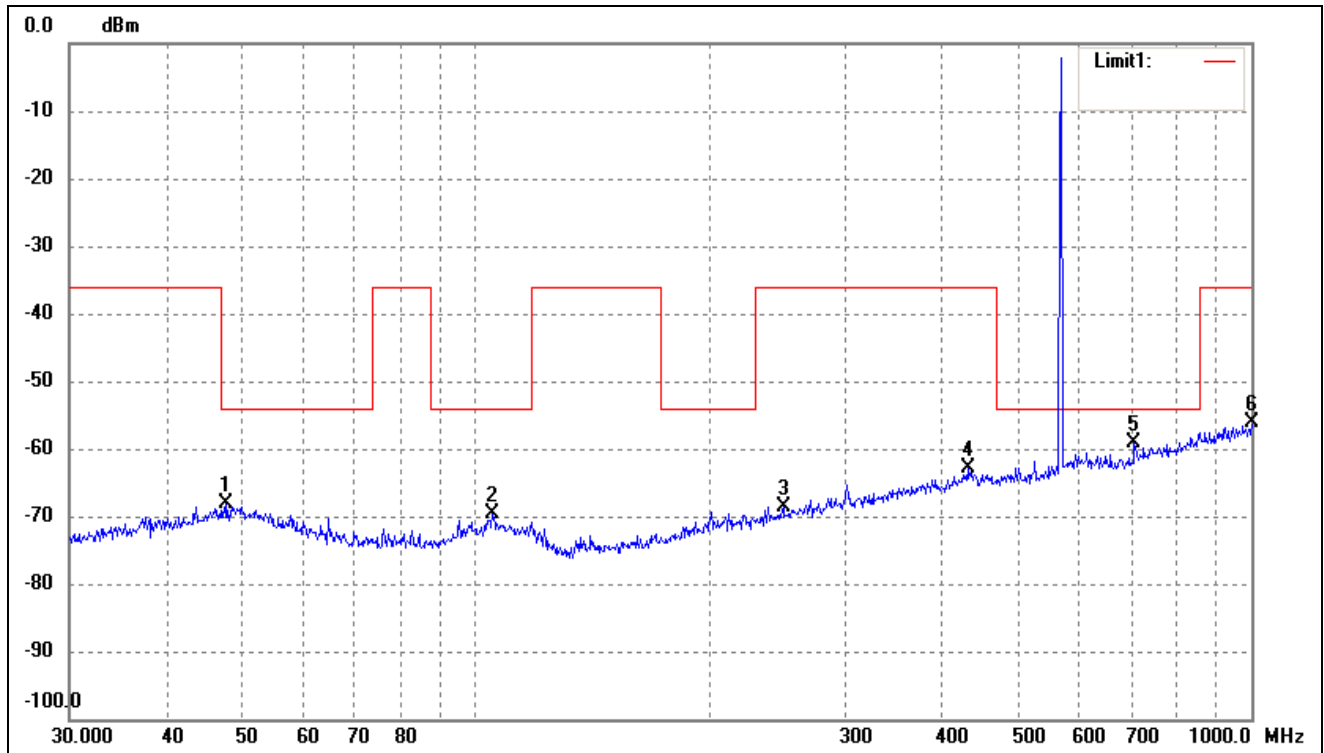
| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 51.1209            | -68.69           | 0.55          | -68.14          | -54.00         | -14.14         | 228           | 100            | peak   |
| 2   | 106.7587           | -68.83           | -1.27         | -70.10          | -54.00         | -16.10         | 259           | 100            | peak   |
| 3   | 210.0482           | -69.01           | -0.74         | -69.75          | -54.00         | -15.75         | 70            | 100            | peak   |
| 4   | 301.4224           | -68.73           | 2.56          | -66.17          | -36.00         | -30.17         | 350           | 100            | peak   |
| 5   | 483.9094           | -67.94           | 5.40          | -62.54          | -54.00         | -8.54          | 281           | 100            | peak   |
| 6   | 798.9797           | -68.88           | 9.57          | -59.31          | -54.00         | -5.31          | 218           | 100            | peak   |

|              |        |           |            |
|--------------|--------|-----------|------------|
| Test Channel | Middle | Polarity: | Horizontal |
|--------------|--------|-----------|------------|



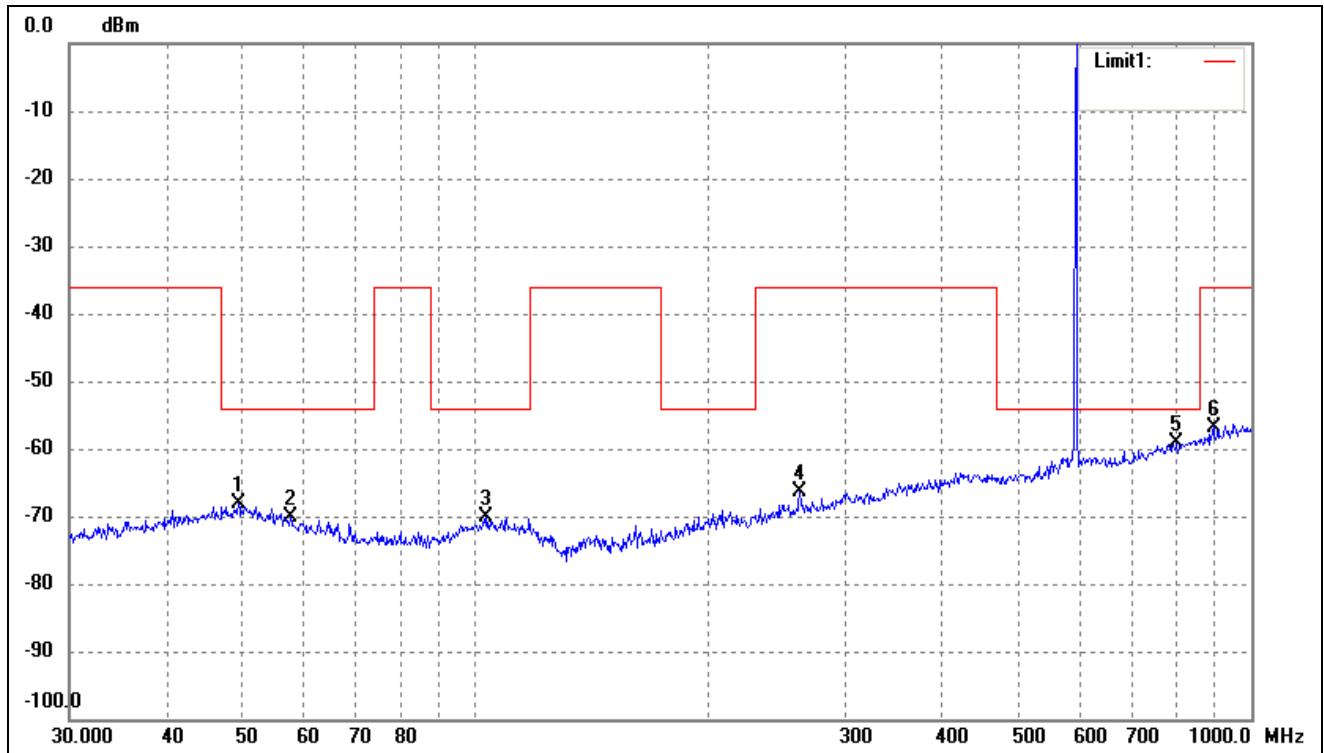
| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 51.4807            | -68.80           | 0.47          | -68.33          | -54.00         | -14.33         | 202           | 100            | peak   |
| 2   | 106.0126           | -68.93           | -1.28         | -70.21          | -54.00         | -16.21         | 95            | 100            | peak   |
| 3   | 266.6089           | -68.89           | 1.09          | -67.80          | -36.00         | -31.80         | 270           | 100            | peak   |
| 4   | 454.3100           | -68.53           | 5.34          | -63.19          | -36.00         | -27.19         | 116           | 100            | peak   |
| 5   | 760.7036           | -68.80           | 9.26          | -59.54          | -54.00         | -5.54          | 117           | 100            | peak   |
| 6   | 975.7529           | -68.51           | 12.11         | -56.40          | -36.00         | -20.40         | 313           | 100            | peak   |

|              |        |           |          |
|--------------|--------|-----------|----------|
| Test Channel | Middle | Polarity: | Vertical |
|--------------|--------|-----------|----------|



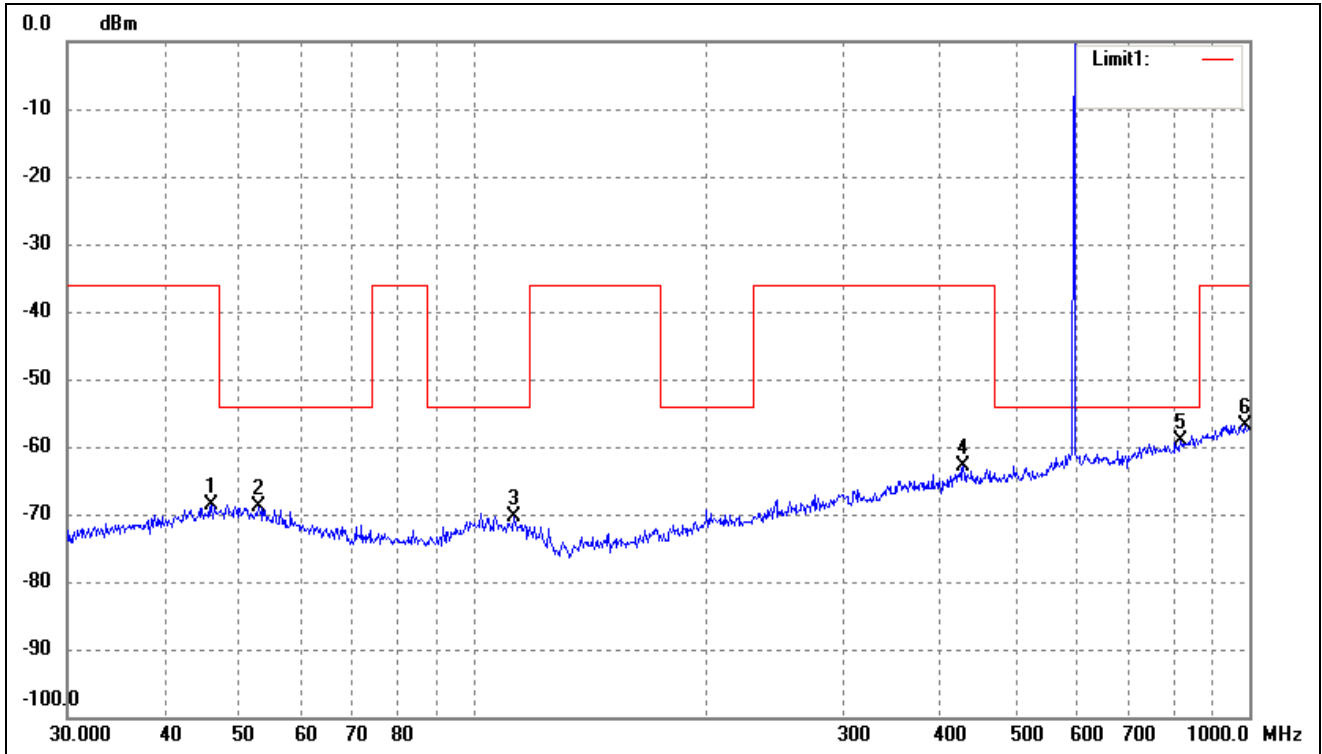
| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 47.8260            | -68.88           | 0.66          | -68.22          | -54.00         | -14.22         | 222           | 100            | peak   |
| 2   | 105.2718           | -68.37           | -1.29         | -69.66          | -54.00         | -15.66         | 171           | 100            | peak   |
| 3   | 249.4250           | -69.42           | 0.77          | -68.65          | -36.00         | -32.65         | 136           | 100            | peak   |
| 4   | 431.0316           | -68.41           | 5.61          | -62.80          | -36.00         | -26.80         | 114           | 100            | peak   |
| 5   | 706.6999           | -67.34           | 8.14          | -59.20          | -54.00         | -5.20          | 277           | 100            | peak   |
| 6   | 1000.0000          | -68.42           | 12.40         | -56.02          | -36.00         | -20.02         | 109           | 100            | peak   |

|              |      |           |            |
|--------------|------|-----------|------------|
| Test Channel | High | Polarity: | Horizontal |
|--------------|------|-----------|------------|



| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 49.5328            | -68.86           | 0.78          | -68.08          | -54.00         | -14.08         | 78            | 100            | peak   |
| 2   | 57.7962            | -69.03           | -1.02         | -70.05          | -54.00         | -16.05         | 292           | 100            | peak   |
| 3   | 103.4421           | -68.76           | -1.33         | -70.09          | -54.00         | -16.09         | 70            | 100            | peak   |
| 4   | 261.9753           | -67.28           | 1.02          | -66.26          | -36.00         | -30.26         | 213           | 100            | peak   |
| 5   | 801.7863           | -68.72           | 9.62          | -59.10          | -54.00         | -5.10          | 263           | 100            | peak   |
| 6   | 893.8567           | -67.88           | 11.13         | -56.75          | -36.00         | -20.75         | 252           | 100            | peak   |

|              |      |           |          |
|--------------|------|-----------|----------|
| Test Channel | High | Polarity: | Vertical |
|--------------|------|-----------|----------|



| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct<br>dB | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|------------------|---------------|-----------------|----------------|----------------|---------------|----------------|--------|
| 1   | 46.0164            | -69.21           | 0.53          | -68.68          | -36.00         | -32.68         | 279           | 100            | peak   |
| 2   | 52.9453            | -68.92           | 0.12          | -68.80          | -54.00         | -14.80         | 100           | 100            | peak   |
| 3   | 112.9196           | -68.79           | -1.54         | -70.33          | -54.00         | -16.33         | 316           | 100            | peak   |
| 4   | 428.0193           | -68.50           | 5.61          | -62.89          | -36.00         | -26.89         | 109           | 100            | peak   |
| 5   | 815.9678           | -69.09           | 9.96          | -59.13          | -54.00         | -5.13          | 213           | 100            | peak   |
| 6   | 986.0717           | -68.99           | 12.23         | -56.76          | -36.00         | -20.76         | 321           | 100            | peak   |



## ➤ Spurious Emissions Above 1GHz

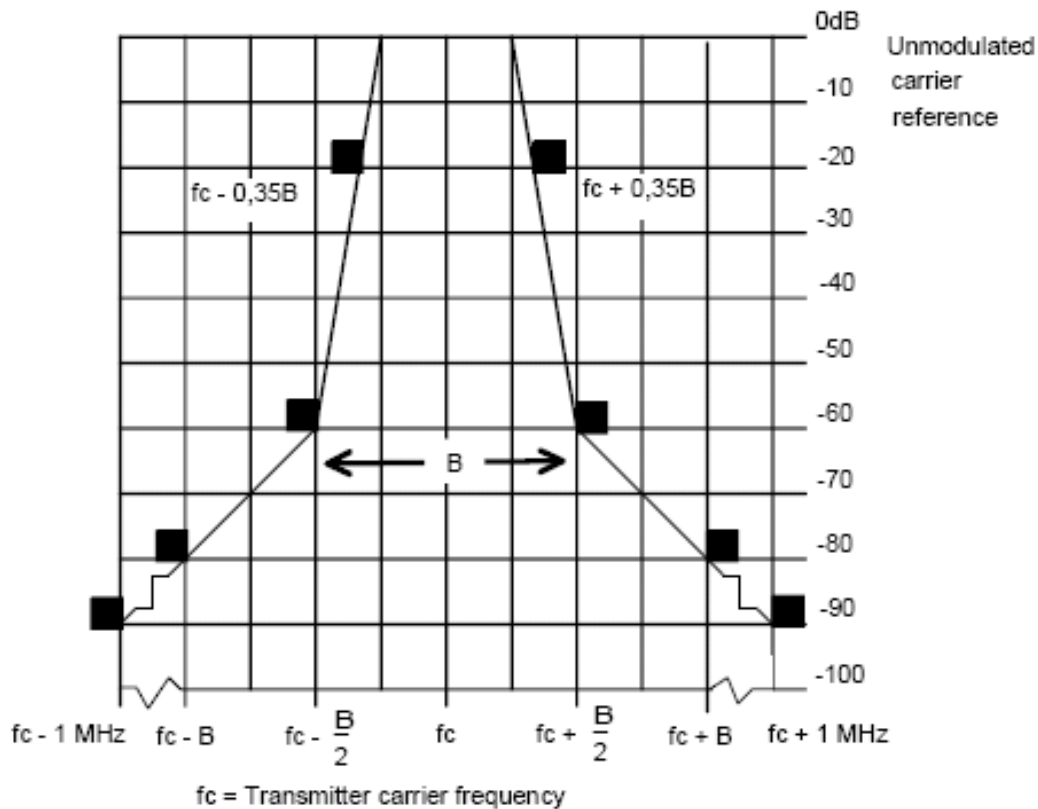
| Frequency               | Reading | Correct | Result | Limit | Margin | Polar |
|-------------------------|---------|---------|--------|-------|--------|-------|
| (MHz)                   | (dBm)   | dB      | (dBm)  | (dBm) | (dB)   | H/V   |
| Low Channel-543.1MHz    |         |         |        |       |        |       |
| 1086.2                  | -49.69  | 7.92    | -41.77 | -30   | -11.77 | H     |
| 1629.3                  | -57.36  | 13.97   | -43.39 | -30   | -13.39 | H     |
| 1086.2                  | -49.85  | 7.92    | -41.93 | -30   | -11.93 | V     |
| 1629.3                  | -49.21  | 13.64   | -35.57 | -30   | -5.57  | V     |
| Middle Channel-567.1MHz |         |         |        |       |        |       |
| 1134.2                  | -54.24  | 8.27    | -45.97 | -30   | -15.97 | H     |
| 1701.3                  | -55.78  | 13.73   | -42.05 | -30   | -12.05 | H     |
| 1134.2                  | -48.86  | 8.27    | -40.59 | -30   | -10.59 | V     |
| 1701.3                  | -48.37  | 13.73   | -34.64 | -30   | -4.64  | V     |
| High Channel-593.5MHz   |         |         |        |       |        |       |
| 1187.0                  | -52.33  | 8.27    | -44.06 | -30   | -14.06 | H     |
| 1780.5                  | -53.82  | 13.73   | -40.09 | -30   | -10.09 | H     |
| 1187.0                  | -50.79  | 8.27    | -42.52 | -30   | -12.52 | V     |
| 1780.5                  | -47.84  | 13.73   | -34.11 | -30   | -4.11  | V     |

## 6. Necessary bandwidth

### 6.1 Standard Applicable

According to §15.236(g), emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1, Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 1: Technical characteristics and methods of measurement. Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1.

According to ETSI EN 300 422-2 V2.1.1 section 8.3, the transmitter output spectrum shall be within the mask defined in the following figure.

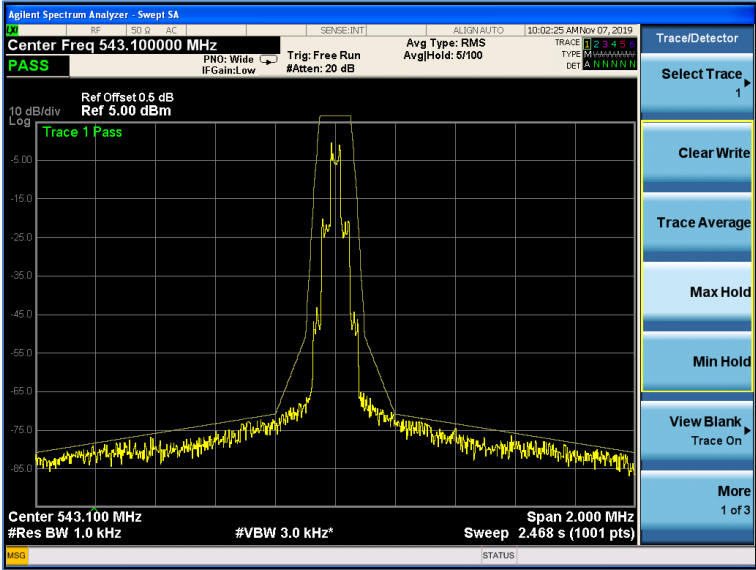
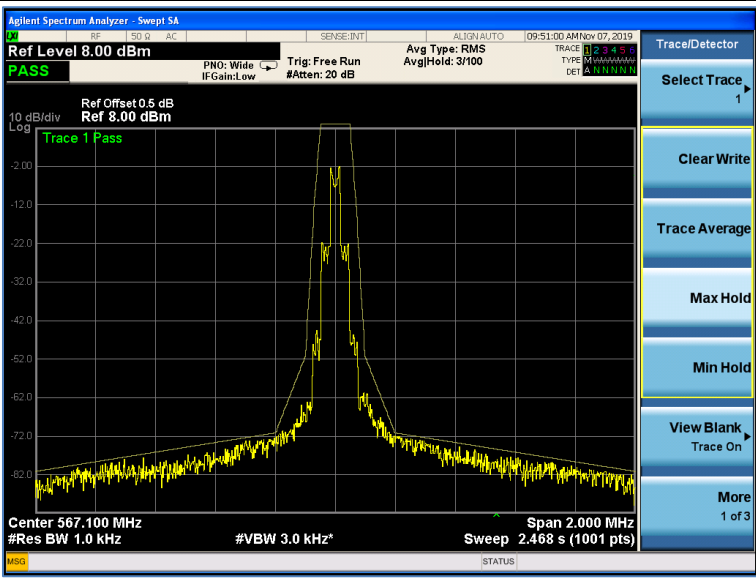
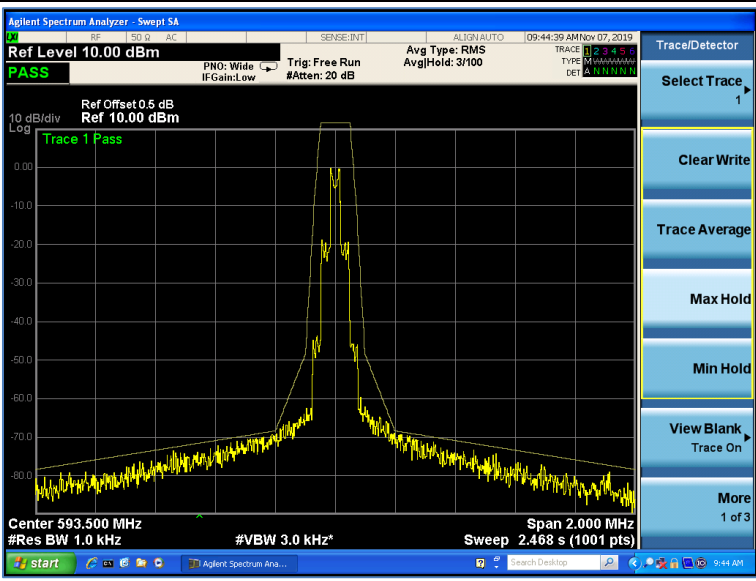


### 6.2 Test Procedure

Please refer to ETSI EN 300 422-2 V2.1.1 section 8.3

### 6.3 Summary of Test Results/Plots

Refer to the attached plots.

|               |                                                                                      |
|---------------|--------------------------------------------------------------------------------------|
| <p>Low</p>    |    |
| <p>Middle</p> |   |
| <p>High</p>   |  |

## 7. FREQUENCY STABILITY

### 7.1 Standard Applicable

According to FCC 15.236(f)(3), the frequency tolerance of the carrier signal shall be maintained within  $\pm 0.005\%$  of the operating frequency over a temperature variation of  $-20$  degrees to  $+50$  degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. Battery operated equipment shall be tested using a new battery.

### 7.2 Test Procedure

1. Setup the configuration of the ambient temperature form  $-30$  °C to  $50$  °C with sufficient time. And measure the different power of the EUT with an artificial power from highest to end point voltage.
2. Set frequency counter center frequency to the right frequency needs to be measured.

### 7.3 Test Results/Plots

| Test conditions            |             | Frequency Error |          |          |
|----------------------------|-------------|-----------------|----------|----------|
|                            |             | 543.1MHz        | 567.1MHz | 593.5MHz |
| Tmin (20 °C)               | Vmin(2.55V) | 543.1092        | 567.1113 | 593.5131 |
|                            | Vmax(3.45V) | 543.1052        | 567.1111 | 593.5109 |
| T(-20 °C)                  | Vnom(3.0V)  | 543.1064        | 567.1138 | 593.5132 |
| T(-10 °C)                  | Vnom(3.0V)  | 543.1135        | 567.1150 | 593.5127 |
| T(0 °C)                    | Vnom(3.0V)  | 543.1057        | 567.1108 | 593.5140 |
| T(10 °C)                   | Vnom(3.0V)  | 543.1129        | 567.1150 | 593.5085 |
| Tnom(20 °C)                | Vnom(3.0V)  | 543.1099        | 567.1124 | 593.5062 |
| T(30 °C)                   | Vnom(3.0V)  | 543.1144        | 567.1083 | 593.5061 |
| T(40 °C)                   | Vnom(3.0V)  | 543.1141        | 567.1144 | 593.5062 |
| T(50 °C)                   | Vnom(3.0V)  | 543.1092        | 567.1060 | 593.5063 |
| Tmax(20 °C)                | Vmin(2.55V) | 543.1087        | 567.1107 | 593.5078 |
|                            | Vmax(3.45V) | 543.1066        | 567.1129 | 593.5109 |
| Max. frequency error (ppm) |             | 25.27           | 26.56    | 26.45    |
| Limit (ppm)                |             | $\pm 50$ ppm    |          |          |
| End Point                  |             | DC 3.0V         |          |          |

\*\*\*\*\* END OF REPORT \*\*\*\*\*