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# FCC Test Report

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Report No.: AGC07573160704FE03

**FCC ID** : 2AJLHPT5500  
**APPLICATION PURPOSE** : Original Equipment  
**PRODUCT DESIGNATION** : Wireless Guide System  
**BRAND NAME** : Plant-Tour.com  
**MODEL NAME** : PT-5500  
**CLIENT** : PlantTours Communications Co.  
**DATE OF ISSUE** : Aug.19, 2016  
**STANDARD(S)** : FCC Part 15.237  
**REPORT VERSION** : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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### Report Revise Record

| Report Version | Revise Time | Issued Date  | Valid Version | Notes           |
|----------------|-------------|--------------|---------------|-----------------|
| V1.0           | /           | Aug.19, 2016 | Valid         | Original Report |

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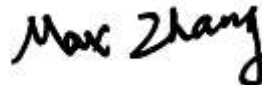
## 1. VERIFICATION OF CONFORMITY

|                                 |  |
|---------------------------------|--|
| <b>Applicant</b>                | PlantTours Communications Co.  |
| <b>Address</b>                  | 810 TYVOLA RD. SUITE 132, CHARLOTTE, North Carolina,28217,United States          |
| <b>Manufacturer</b>             | NINGBO PROMIC TECHNOLOGY CO.,LTD   |
| <b>Address</b>                  | NO.25-3 GangXi Avenue, Ningbo.Free Trade Zone, WestArea,Zhejiang,p.r.c<br>315800 |
| <b>Product Designation</b>      | Wireless Guide System  |
| <b>Brand Name</b>               | Plant-Tour.com   |
| <b>Test Model</b>               | PT-5500  |
| <b>Date of test</b>             | Aug.03, 2016 to Aug.18, 2016   |
| <b>Deviation</b>                | None   |
| <b>Condition of Test Sample</b> | Normal   |
| <b>Report Template</b>          | AGCRT-US-BR/RF (2013-03-01)  |

We hereby certify that:

The above equipment was tested by Dongguan Precise Testing Service Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC part 15.237.

Tested by



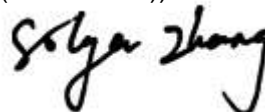
Max Zhang(Zhang Yi) Aug. 19, 2016

Reviewed by



Bart Xie(Xie Xiaobin)) Aug. 19, 2016

Approved by



Solger Zhang(Zhang Hongyi)  
Authorized Officer Aug. 19, 2016

## 2. GENERAL INFORMATION

### 2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

|                            |                                     |
|----------------------------|-------------------------------------|
| <b>Operation Frequency</b> | 72.1-72.9MHz; 74.7MHz; 75.3-75.9MHz |
| <b>Field Strength(3m)</b>  | 60.64dBuV/m(AV)@3m                  |
| <b>Modulation</b>          | FM                                  |
| <b>Number of channels</b>  | 17                                  |
| <b>Hardware Version</b>    | REV01                               |
| <b>Software Version</b>    | REV01                               |
| <b>Antenna Designation</b> | External antenna(Fixed by solder)   |
| <b>Antenna Gain</b>        | 2dBi                                |
| <b>Power Supply</b>        | DC3.7V by battery                   |

**NOTE:** 1. About the EUT, please refer to User's Manual.

Channel list

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 01      | 72.1            | 10      | 74.7            |
| 02      | 72.2            | 11      | 75.3            |
| 03      | 72.3            | 12      | 75.4            |
| 04      | 72.4            | 13      | 75.5            |
| 05      | 72.5            | 14      | 75.6            |
| 06      | 72.6            | 15      | 75.7            |
| 07      | 72.7            | 16      | 75.8            |
| 08      | 72.8            | 17      | 75.9            |
| 09      | 72.9            |         |                 |

### 3. MEASUREMENT UNCERTAINTY

Conducted measurement: +/- 3.18dB

Radiated measurement: +/- 3.91dB

### 4. DESCRIPTION OF TEST MODES

| NO.   | TEST MODE DESCRIPTION |
|---|-----------------------|
| 1   | Transmitting mode     |
| Note:<br>1. For Radiated Emission, 3axis were chosen for testing for each applicable mode.<br>2. The EUT had been tested under normal operating condition.<br>3. Only the result of the worst case was recorded in the report, if no other cases. |                       |

### 5. SYSTEM TEST CONFIGURATION

#### 5.1. EQUIPMENT USED IN EUT SYSTEM

| Item | Equipment             | Model No. | ID or Specification | Remark |
|------|-----------------------|-----------|---------------------|--------|
| 1    | Wireless Guide System | PT-5500   | 2AJLHPT5500         | EUT    |

#### 5.2. SUMMARY OF TEST RESULTS

| FCC RULES | DESCRIPTION OF TEST                                 | RESULT    |
|-----------|---|-----------|
| 15.237    | Field Strength of Fundamental and Spurious Emission | Compliant |
| 15.237    | Bandwidth   | Compliant |

## 6. TEST FACILITY

|                             |  |
|-----------------------------|--|
| <b>Site</b>                 | Dongguan Precise Testing Service Co., Ltd.   |
| <b>Location</b>             | Building D, Baoding Technology Park, Guangming Road2, Dongcheng District, Dongguan, Guangdong, China.  |
| <b>FCC Registration No.</b> | 371540   |
| <b>Description</b>          | The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2014. |

## ALL TEST EQUIPMENT LIST

| Radiated Emission Test Site         |                 |              |               |                  |                 |
|-------------------------------------|-----------------|--------------|---------------|------------------|-----------------|
| Name of Equipment                   | Manufacturer    | Model Number | Serial Number | Last Calibration | Due Calibration |
| EMI Test Receiver                   | Rohde & Schwarz | ESCI         | 101417        | July 3, 2016     | July 2, 2017    |
| Trilog Broadband Antenna (25M-1GHz) | SCHWARZBECK     | VULB9160     | 9160-3355     | July 3, 2016     | July 2, 2017    |
| Signal Amplifier                    | SCHWARZBECK     | BBV 9475     | 9745-0013     | July 3, 2016     | July 2, 2017    |
| RF Cable                            | SCHWARZBECK     | AK9515E      | 96221         | July 3, 2016     | July 2, 2017    |
| 3m Anechoic Chamber                 | CHENGYU         | 966          | PTS-001       | June 3, 2016     | June 2, 2017    |
| MULTI-DEVICE Positioning Controller | Max-Full        | MF-7802      | MF780208339   | N/A              | N/A             |
| Active loop antenna (9K-30MHz)      | Schwarzbeck     | FMZB1519     | 1519-038      | June 3, 2016     | June 2, 2017    |
| Spectrum analyzer                   | Agilent         | E4407B       | MY46185649    | June 3, 2016     | June 2, 2017    |

## 7. RADIATED EMISSION

### 7.1. MEASUREMENT PROCEDURE

1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground and opposite the horn antenna. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions below 1GHz, use 120KHz RBW and VBW $\geq$ 3RBW for QP reading.
7. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.
8. Only the worst case is reported.

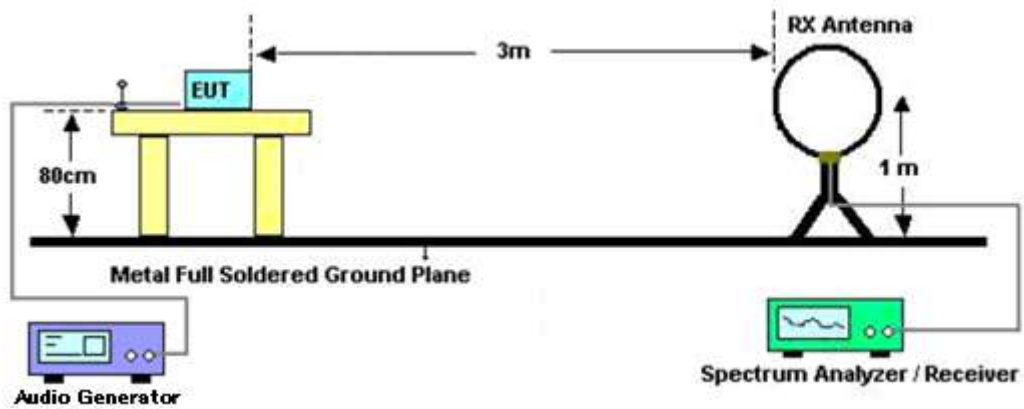
The following table is the setting of spectrum analyzer and receiver.

| Receiver Parameter    | Setting                         |
|-----------------------|---------------------------------|
| Start ~Stop Frequency | 9KHz~150KHz/RBW 200Hz for QP    |
| Start ~Stop Frequency | 150KHz~30MHz/RBW 9KHz for QP    |
| Start ~Stop Frequency | 30MHz~1000MHz/RBW 120KHz for QP |

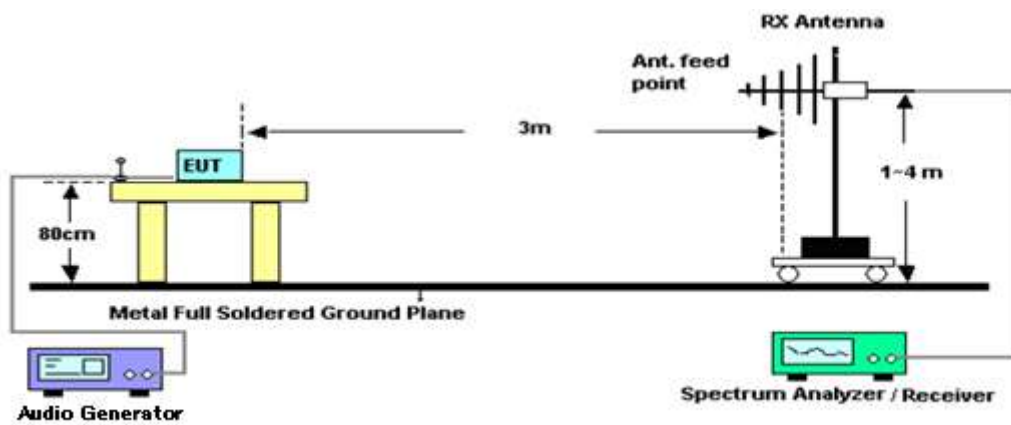


## 7.2. TEST SETUP

### Radiated Emission Test-Setup Frequency Below 30MHz



### RADIATED EMISSION TEST SETUP 30MHz-1000MHz



### 7.3. TEST RESULT

For field strength of fundamental and band edge emission

Transmitting at 72.1MHz

| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
|---------------|--------------|----------------|----------------|-----------|-----------|----------|
| 72.100        | H            | 60.74          | 118.06         | 57.32     | Pass      | PK       |
| 72.100        | H            | 60.02          | 98.06          | 38.04     | Pass      | AV       |
| 72.100        | V            | 53.94          | 118.06         | 64.12     | Pass      | PK       |
| 72.100        | V            | 53.18          | 98.06          | 44.88     | Pass      | AV       |
| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
| 72.000        | H            | 35.44          | 40.00          | 4.56      | Pass      | QP       |
| 72.000        | V            | 29.12          | 40.00          | 10.88     | Pass      | QP       |
| 72.200        | H            | 36.28          | 40.00          | 3.72      | Pass      | QP       |
| 72.200        | V            | 29.41          | 40.00          | 10.59     | Pass      | QP       |

Transmitting at 72.5MHz

| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
|---------------|--------------|----------------|----------------|-----------|-----------|----------|
| 72.500        | H            | 60.35          | 118.06         | 57.71     | Pass      | PK       |
| 72.500        | H            | 59.84          | 98.06          | 38.22     | Pass      | AV       |
| 72.500        | V            | 53.47          | 118.06         | 64.59     | Pass      | PK       |
| 72.500        | V            | 52.71          | 98.06          | 45.35     | Pass      | AV       |
| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
| 72.400        | H            | 35.31          | 40.00          | 4.69      | Pass      | QP       |
| 72.400        | V            | 29.07          | 40.00          | 10.93     | Pass      | QP       |
| 72.600        | H            | 36.59          | 40.00          | 3.41      | Pass      | QP       |
| 72.600        | V            | 29.21          | 40.00          | 10.79     | Pass      | QP       |

Transmitting at 72.9MHz

| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
|---------------|--------------|----------------|----------------|-----------|-----------|----------|
| 72.900        | H            | 60.16          | 118.06         | 57.90     | Pass      | PK       |
| 72.900        | H            | 59.62          | 98.06          | 38.44     | Pass      | AV       |
| 72.900        | V            | 53.07          | 118.06         | 64.99     | Pass      | PK       |
| 72.900        | V            | 52.44          | 98.06          | 45.62     | Pass      | AV       |
| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
| 72.800        | H            | 35.18          | 40.00          | 4.82      | Pass      | QP       |
| 72.800        | V            | 28.95          | 40.00          | 11.05     | Pass      | QP       |
| 73.000        | H            | 36.17          | 40.00          | 3.83      | Pass      | QP       |
| 73.000        | V            | 29.03          | 40.00          | 10.97     | Pass      | QP       |

Transmitting at 74.7MHz

| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
|---------------|--------------|----------------|----------------|-----------|-----------|----------|
| 74.700        | H            | 60.78          | 118.06         | 57.28     | Pass      | PK       |
| 74.700        | H            | 59.94          | 98.06          | 38.12     | Pass      | AV       |
| 74.700        | V            | 53.27          | 118.06         | 64.79     | Pass      | PK       |
| 74.700        | V            | 52.65          | 98.06          | 45.41     | Pass      | AV       |
| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
| 74.800        | H            | 35.31          | 40.00          | 4.69      | Pass      | QP       |
| 74.800        | V            | 29.18          | 40.00          | 10.82     | Pass      | QP       |
| 74.800        | H            | 36.47          | 40.00          | 3.53      | Pass      | QP       |
| 74.800        | V            | 29.55          | 40.00          | 10.45     | Pass      | QP       |

Transmitting at 75.3MHz

| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
|---------------|--------------|----------------|----------------|-----------|-----------|----------|
| 75.300        | H            | 61.25          | 118.06         | 56.81     | Pass      | PK       |
| 75.300        | H            | 60.64          | 98.06          | 37.42     | Pass      | AV       |
| 75.300        | V            | 54.31          | 118.06         | 63.75     | Pass      | PK       |
| 75.300        | V            | 53.71          | 98.06          | 44.35     | Pass      | AV       |
| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
| 75.200        | H            | 35.77          | 40.00          | 4.23      | Pass      | QP       |
| 75.200        | V            | 29.84          | 40.00          | 10.16     | Pass      | QP       |
| 75.400        | H            | 36.17          | 40.00          | 3.83      | Pass      | QP       |
| 75.400        | V            | 29.66          | 40.00          | 10.34     | Pass      | QP       |

Transmitting at 75.6MHz

| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
|---------------|--------------|----------------|----------------|-----------|-----------|----------|
| 75.600        | H            | 60.89          | 118.06         | 57.17     | Pass      | PK       |
| 75.600        | H            | 60.24          | 98.06          | 37.82     | Pass      | AV       |
| 75.600        | V            | 53.74          | 118.06         | 64.32     | Pass      | PK       |
| 75.600        | V            | 52.87          | 98.06          | 45.19     | Pass      | AV       |
| Frequency MHz | Polarization | Level dB(uV/m) | Limit dB(uV/m) | Margin dB | Pass/Fail | Detector |
| 75.500        | H            | 35.94          | 40.00          | 4.06      | Pass      | QP       |
| 75.500        | V            | 29.47          | 40.00          | 10.53     | Pass      | QP       |
| 75.700        | H            | 36.51          | 40.00          | 3.49      | Pass      | QP       |
| 75.700        | V            | 29.38          | 40.00          | 10.62     | Pass      | QP       |

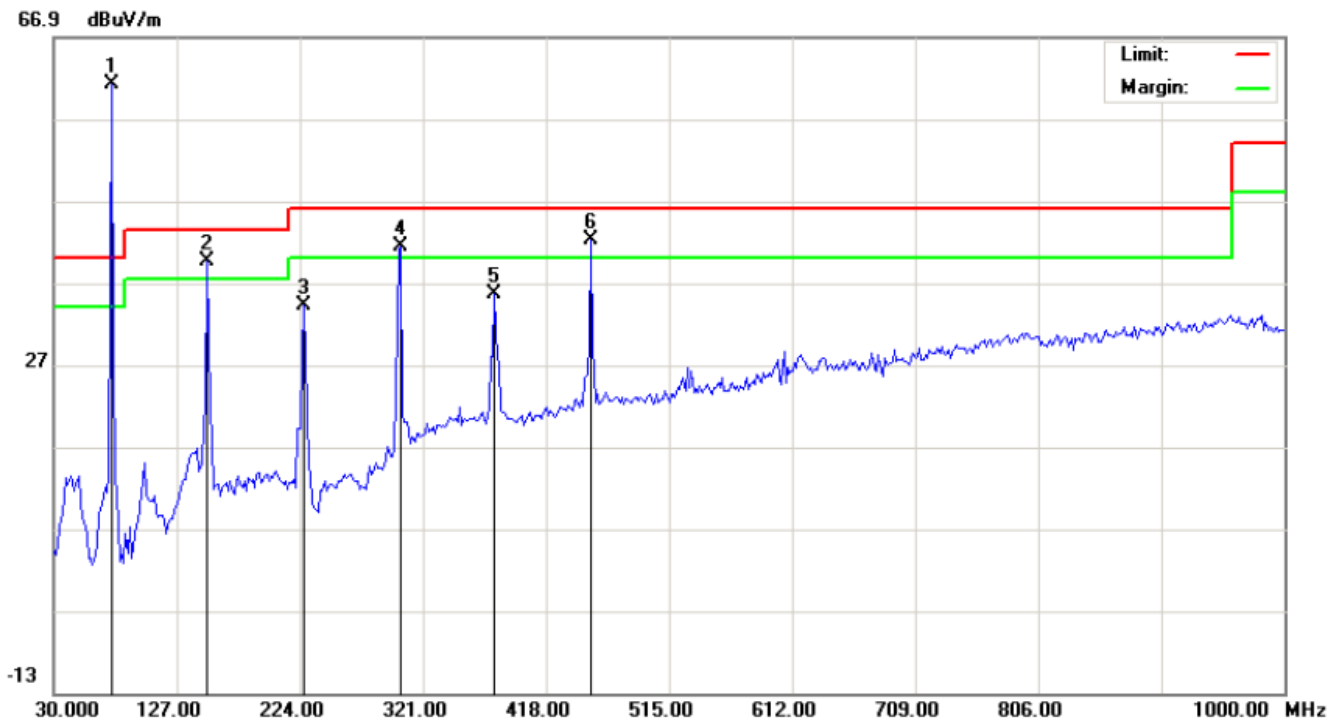
Transmitting at 75.9MHz

| Frequency<br>MHz | Polarization | Level<br>dB(uV/m) | Limit<br>dB(uV/m) | Margin<br>dB | Pass/Fail | Detector |
|------------------|--------------|-------------------|-------------------|--------------|-----------|----------|
| 75.900           | H            | 60.68             | 118.06            | 57.38        | Pass      | PK       |
| 75.900           | H            | 60.04             | 98.06             | 38.02        | Pass      | AV       |
| 75.900           | V            | 53.47             | 118.06            | 64.59        | Pass      | PK       |
| 75.900           | V            | 52.55             | 98.06             | 45.51        | Pass      | AV       |
| Frequency<br>MHz | Polarization | Level<br>dB(uV/m) | Limit<br>dB(uV/m) | Margin<br>dB | Pass/Fail | Detector |
| 75.800           | H            | 35.61             | 40.00             | 4.39         | Pass      | QP       |
| 75.800           | V            | 29.30             | 40.00             | 10.70        | Pass      | QP       |
| 76.000           | H            | 36.16             | 40.00             | 3.84         | Pass      | QP       |
| 76.000           | V            | 29.07             | 40.00             | 10.93        | Pass      | QP       |

RADIATED EMISSION BELOW 30MHz

No emission found between lowest internal used/generated frequencies to 30MHz.

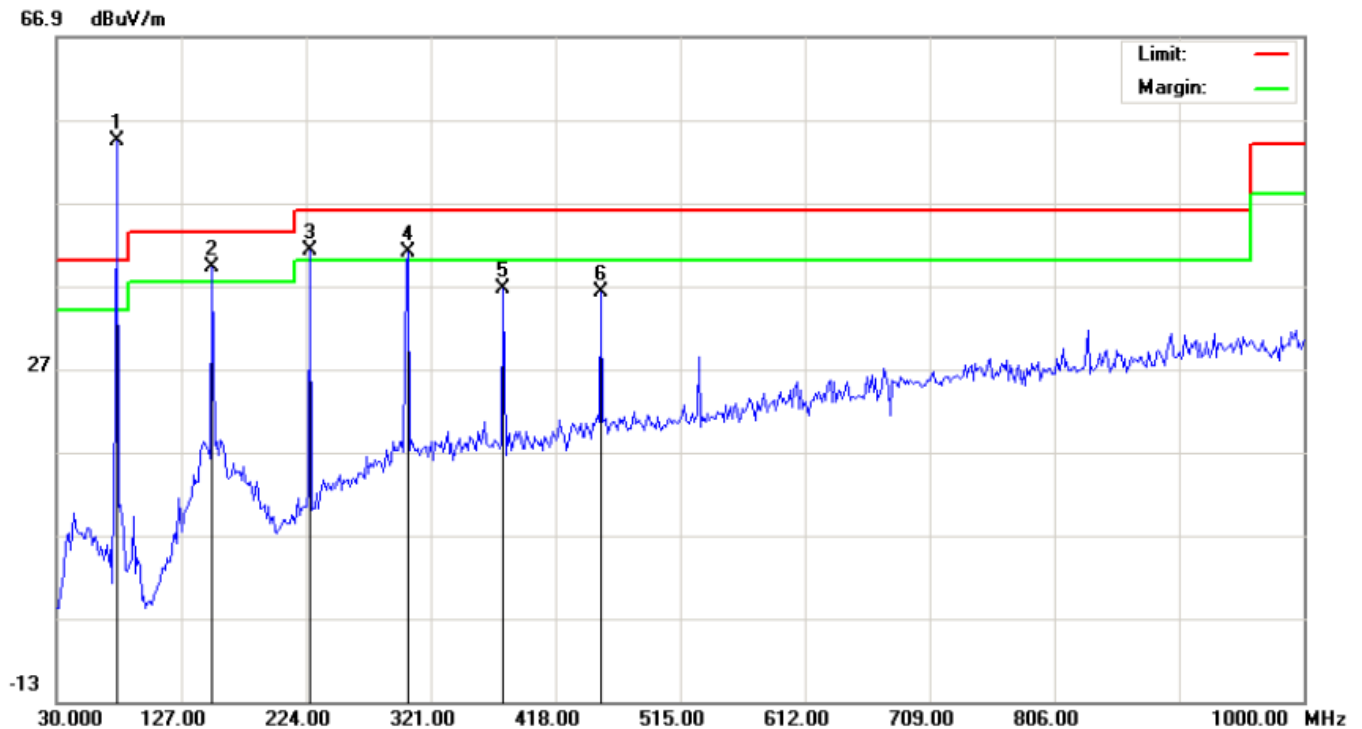
RADIATED EMISSION BELOW 1GHZ-Horizontal



| No. | Mk | Freq.    | Reading | Factor | Measurement | Limit  | Over   | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|--------|----------|----------------|--------------|---------|
|     |    | MHz      | dBuV    | dB/m   | dBuV/m      | dBuV/m | dB     |          | cm             | degree       |         |
| 1   | *  | 75.2877  | 56.13   | 5.12   | 61.25       |        |        |          |                |              |         |
| 2   | !  | 151.2500 | 27.18   | 12.46  | 39.64       | 43.50  | -3.86  | peak     |                |              |         |
| 3   |    | 227.2333 | 25.00   | 9.22   | 34.22       | 46.00  | -11.78 | peak     |                |              |         |
| 4   | !  | 303.2167 | 25.77   | 15.62  | 41.39       | 46.00  | -4.61  | peak     |                |              |         |
| 5   |    | 377.5833 | 16.63   | 18.92  | 35.55       | 46.00  | -10.45 | peak     |                |              |         |
| 6   | !  | 453.5667 | 21.49   | 20.63  | 42.12       | 46.00  | -3.88  | peak     |                |              |         |

RESULT: PASS

### RADIATED EMISSION BELOW 1GHZ-Vertical



| No. | Mk | Freq.    | Reading | Factor | Measurement | Limit  | Over  | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|-------|----------|----------------|--------------|---------|
|     |    | MHz      | dBuV    | dB/m   | dBuV/m      | dBuV/m | dB    |          | cm             | degree       |         |
| 1   | *  | 75.2877  | 51.74   | 2.57   | 54.31       |        |       |          |                |              |         |
| 2   | !  | 151.2500 | 23.88   | 15.27  | 39.15       | 43.50  | -4.35 | peak     |                |              |         |
| 3   | !  | 227.2333 | 29.52   | 11.67  | 41.19       | 46.00  | -4.81 | peak     |                |              |         |
| 4   | !  | 303.2167 | 25.35   | 15.62  | 40.97       | 46.00  | -5.03 | peak     |                |              |         |
| 5   |    | 377.5833 | 17.76   | 18.92  | 36.68       | 46.00  | -9.32 | peak     |                |              |         |
| 6   |    | 453.5667 | 15.53   | 20.63  | 36.16       | 46.00  | -9.84 | peak     |                |              |         |

**RESULT: PASS**

**Note:**

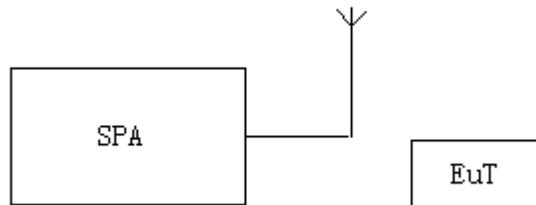
- Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.
- The "Factor" value can be calculated automatically by software of measurement system.
- All test modes had been tested. The transmitting at 75.3MHz is the worst case and recorded in the report.

## 8. BANDWIDTH

### 8.1. MEASUREMENT PROCEDURE

1. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.
2. The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.
3. Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than  $10 \log (OBW/RBW)$  below the reference level.
4. Steps 1 through 3 might require iteration to adjust within the specified tolerances.

### 8.2. TEST SETUP





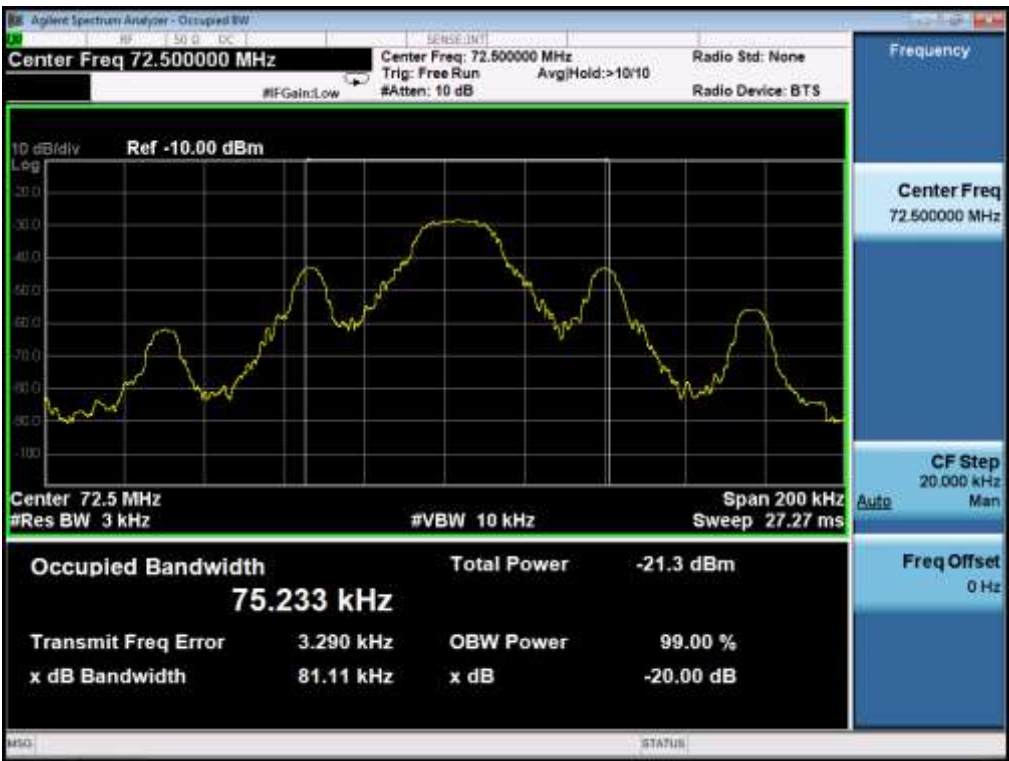
### 8.3. TEST RESULT

| Channel Frequency(MHz) | -20dB bandwidth (kHz) | Limit(kHz) |
|------------------------|-----------------------|------------|
| 72.1                   | 81.60                 | 200        |
| 72.5                   | 81.11                 | 200        |
| 72.9                   | 80.98                 | 200        |
| 74.7                   | 81.47                 | 200        |
| 75.3                   | 85.53                 | 200        |
| 75.6                   | 84.55                 | 200        |
| 75.9                   | 91.21                 | 200        |

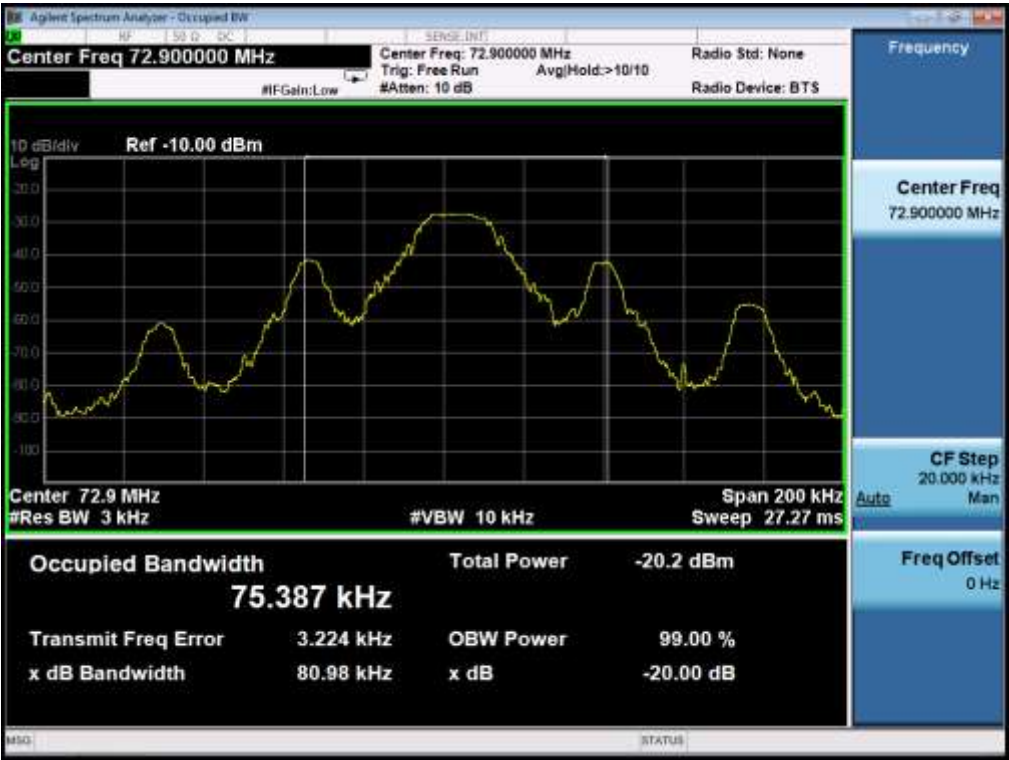
TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 72.1MHz



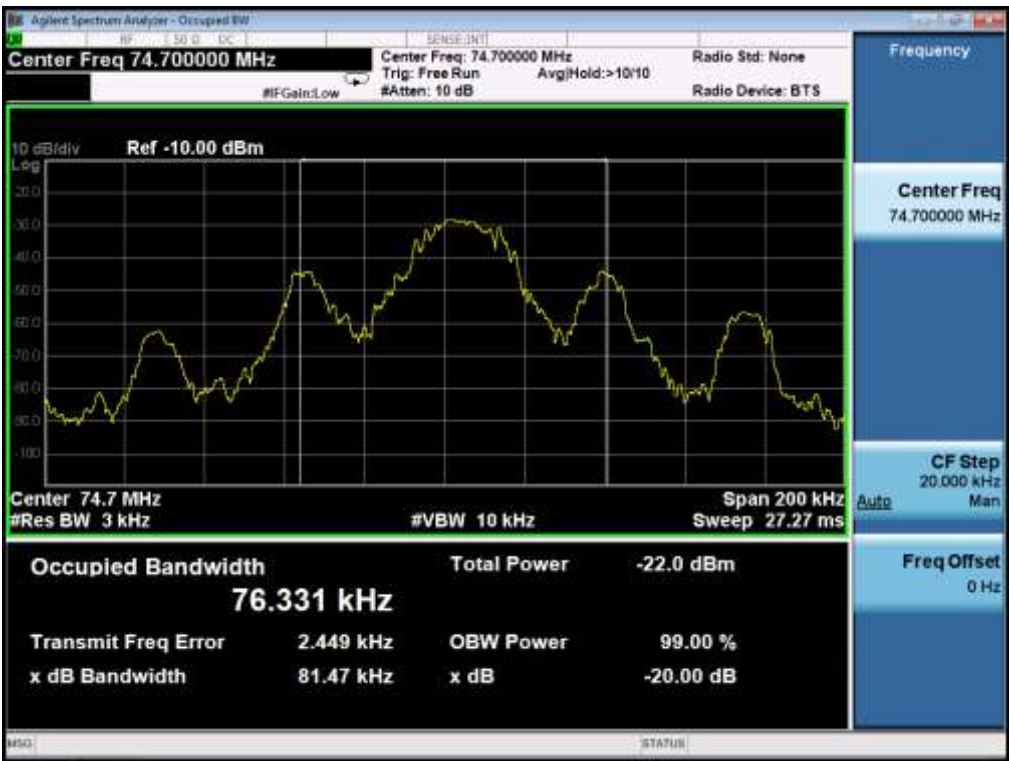
TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 72.5MHz



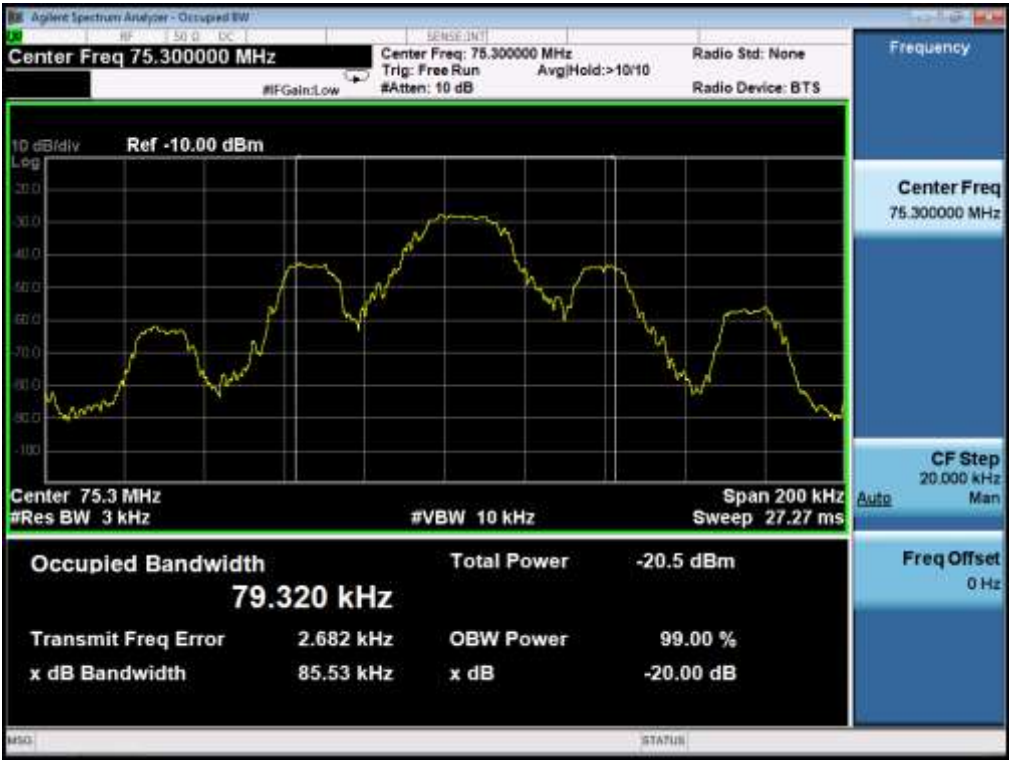
TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 72.9MHz



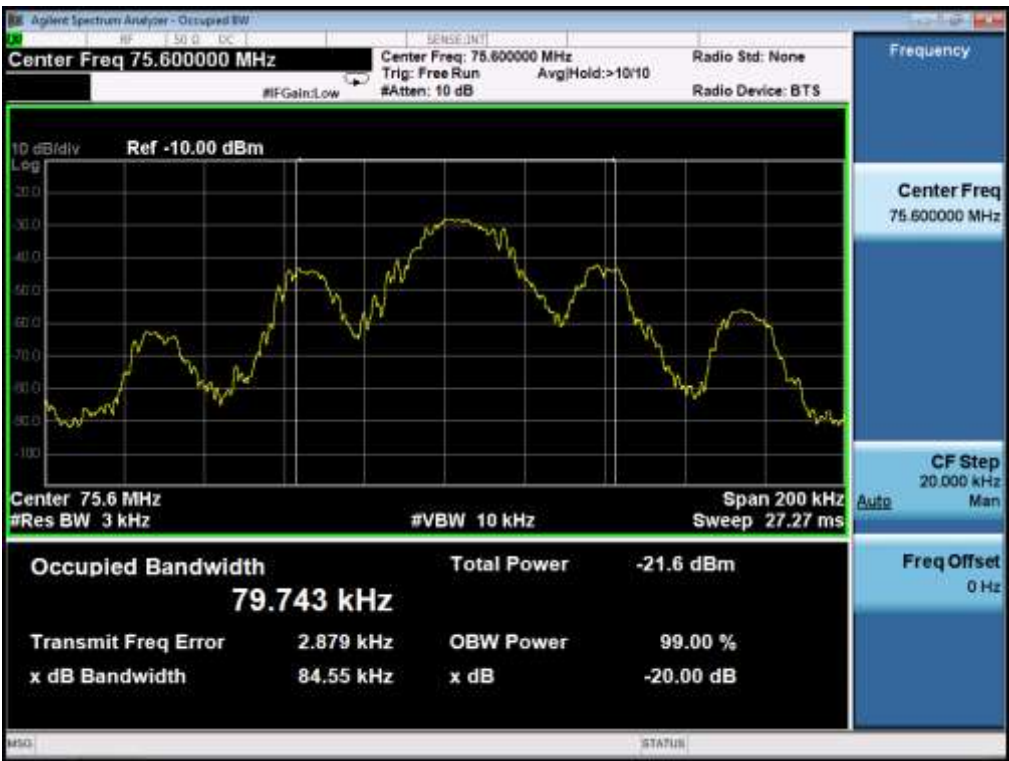
TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 74.7MHz



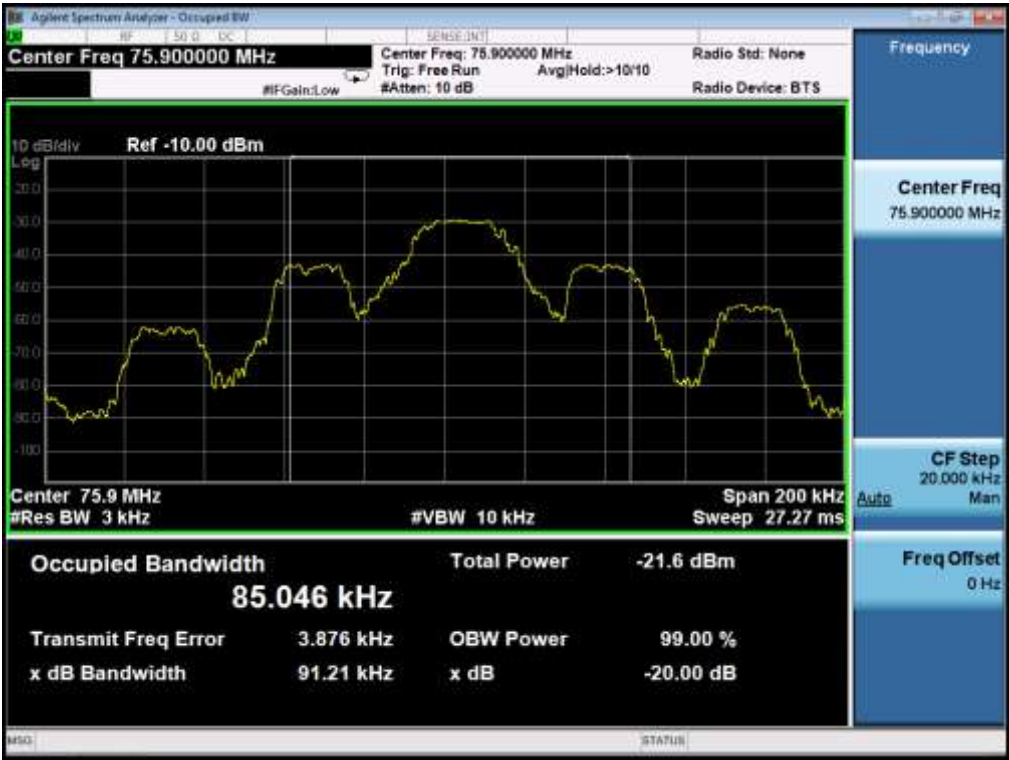
TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 75.3MHz



TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 75.6MHz

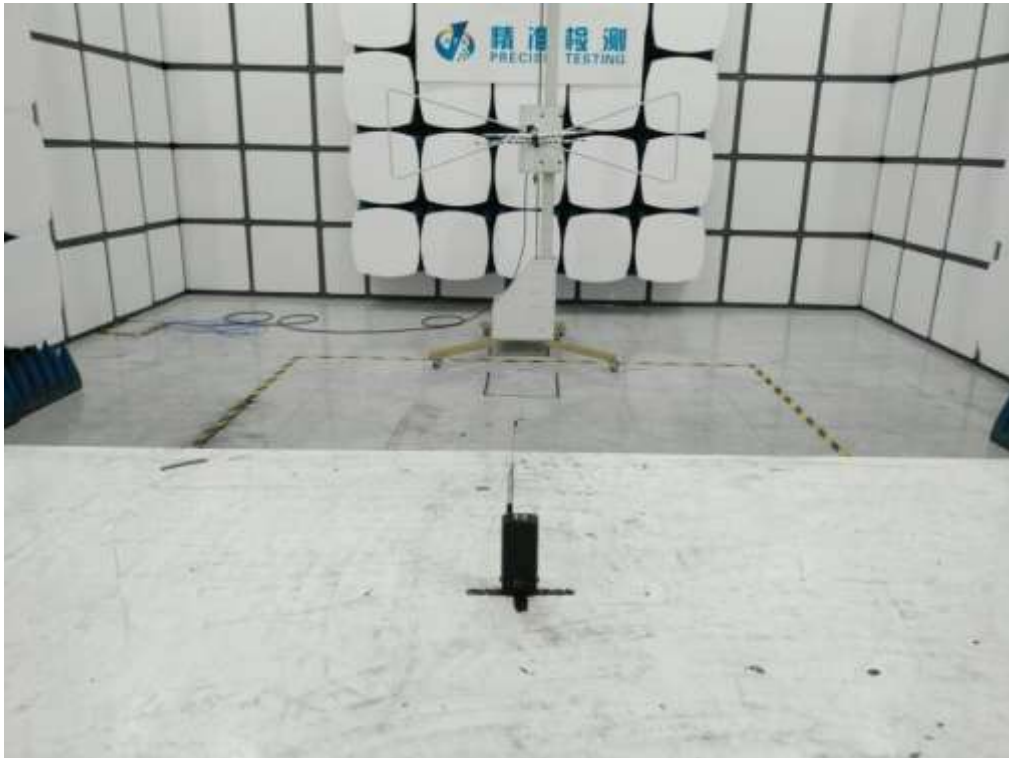


TEST PLOT OF BANDWIDTH FOR TRANSMITTING at 75.9MHz



## APPENDIX A: PHOTOGRAPHS OF TEST SETUP

### RADIATED EMISSION TEST SETUP BELOW 1G





## APPENDIX B: PHOTOGRAPHS OF EUT

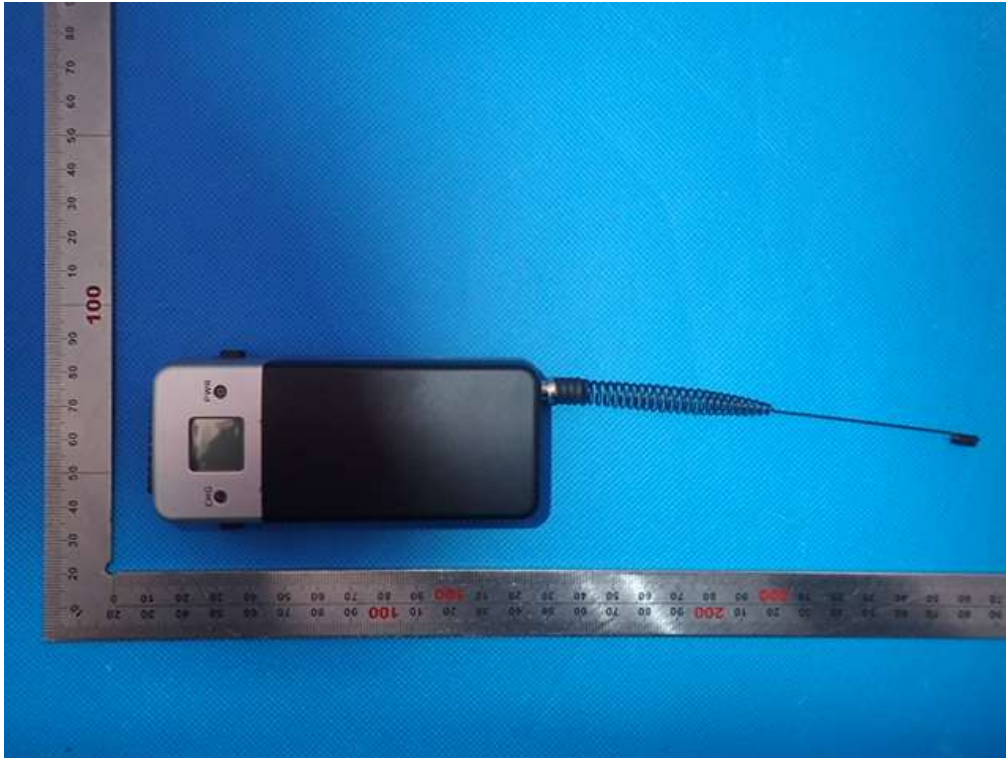
TOP VIEW OF EUT



BOTTOM VIEW OF EUT



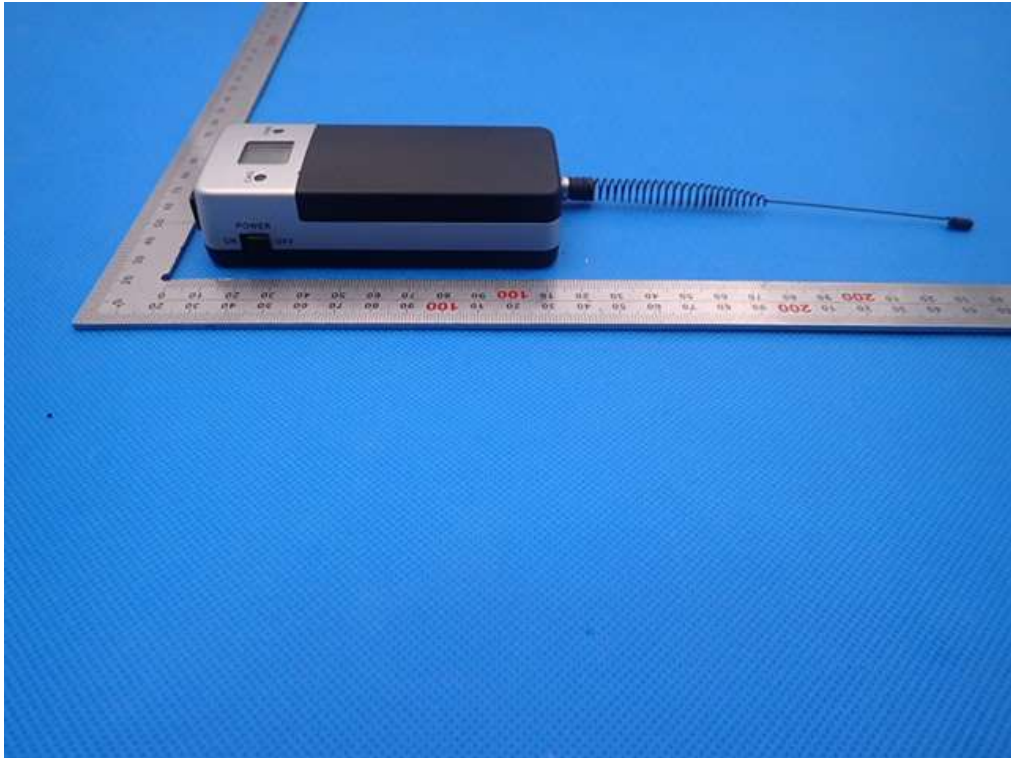
FRONT VIEW OF EUT



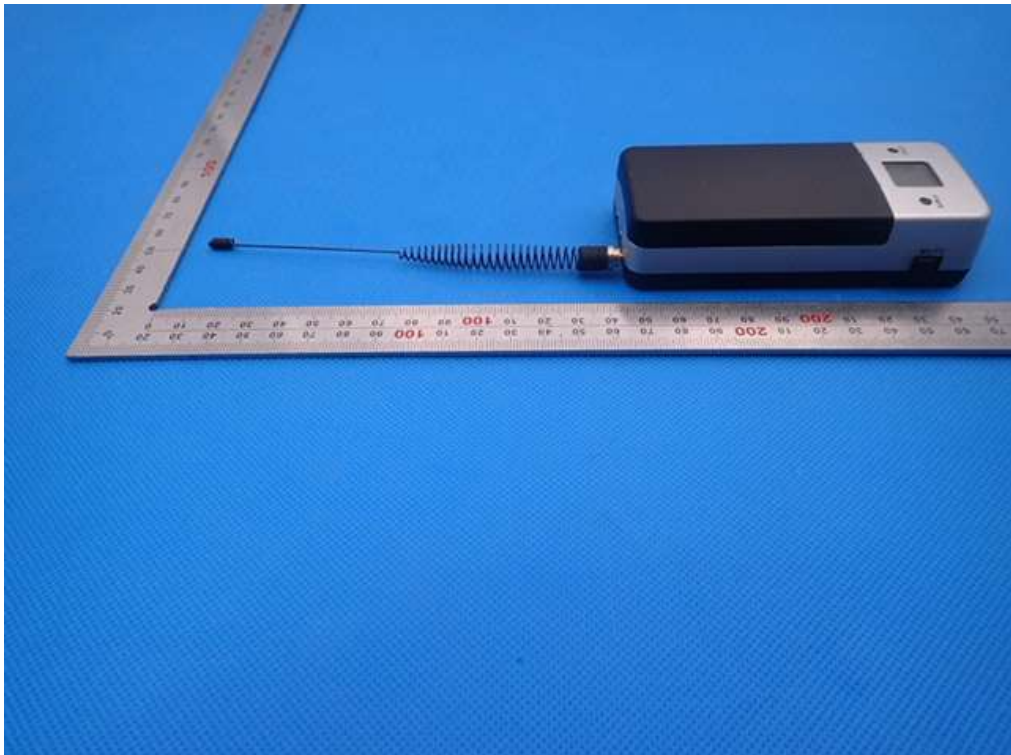
BACK VIEW OF EUT



LEFT VIEW OF EUT

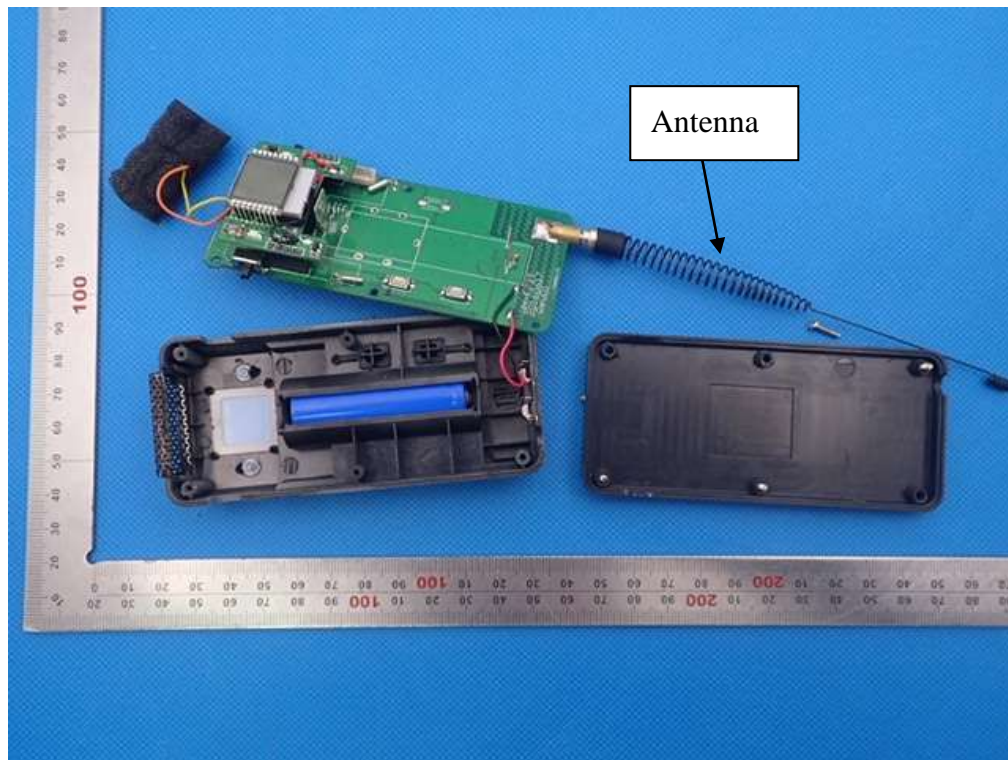


RIGHT VIEW OF EUT

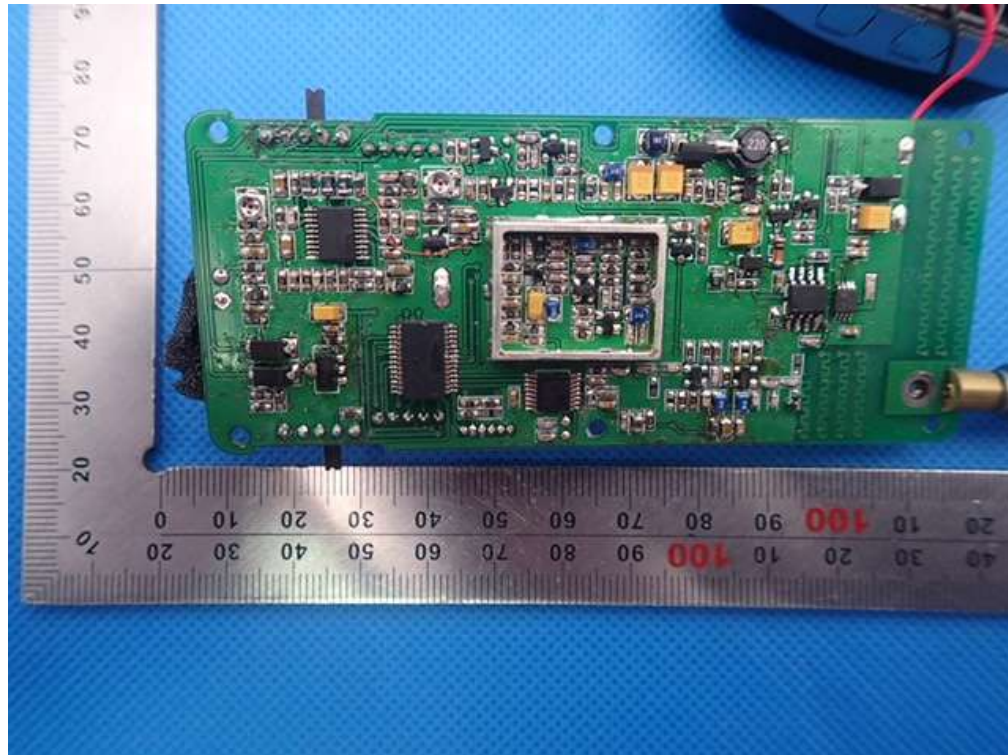




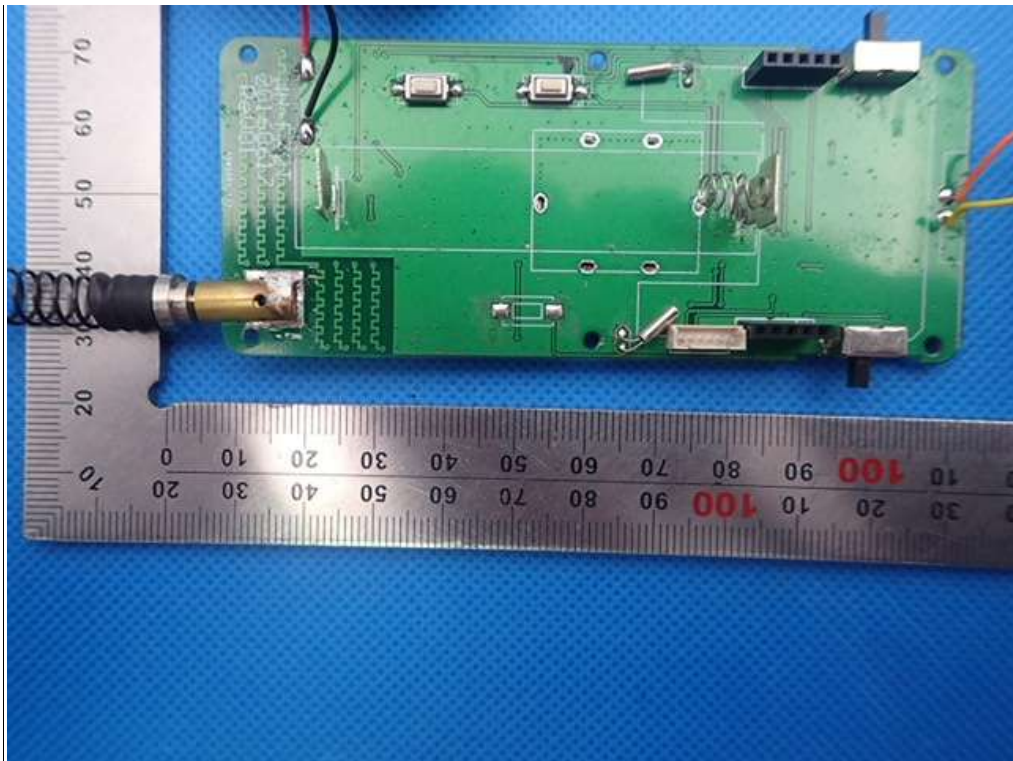
OPEN VIEW OF EUT



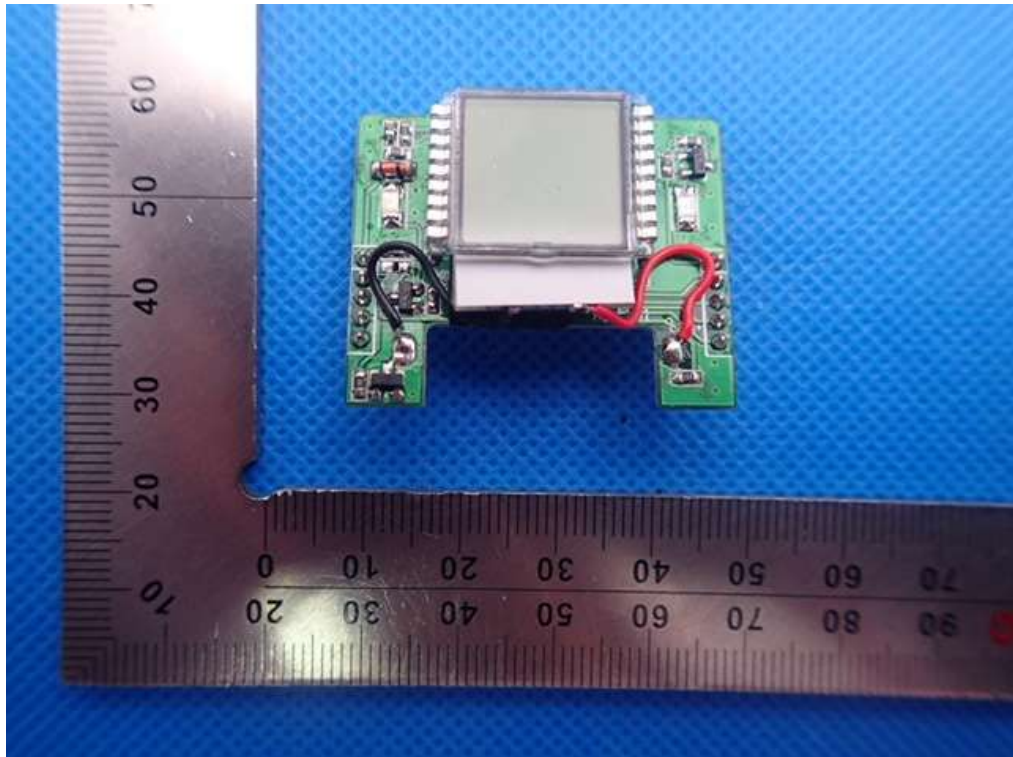
INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2

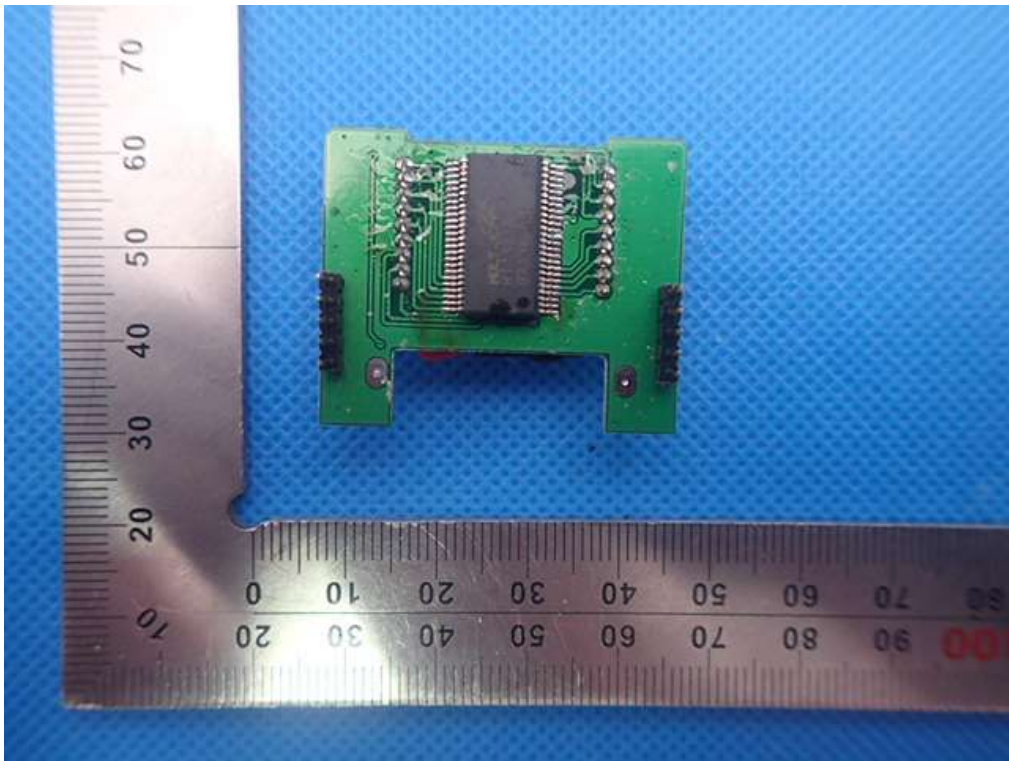


INTERNAL VIEW OF EUT-3





INTERNAL VIEW OF EUT-4



----END OF REPORT----