



# TEST REPORT

Applicant : V-COME Safety Technology Co., Ltd.  
Address : No.12 Xunye Road, Shenzhen City, 518105, China  
Manufacturer : V-COME Safety Technology Co., Ltd.  
Address : No.12 Xunye Road, Shenzhen City, 518105, China  
Product Name : Wireless Interlinked Combination Smoke and Carbon Monoxide Alarm  
Model Number : VCS61F, VCS51F, VCS71F, VCS81  
Trademark : N/A  
FCC ID : 2BUQ9-VCS61F  
Test Date : Feb. 02, 2026 - Mar. 06, 2026  
Date of Report : Mar. 06, 2026

Test Result : This device described above has been tested by BKC, and the test results show that the equipment under test (EUT) is in compliance with the Standard requirements. And it is applicable only to the tested sample identified in the report.

## Test Procedure Used:

Standards : FCC CFR Title 47 Part 15 Subpart C Section 15.231  
ANSI C63.10:2020  
RSS-210 Issue 11, June 25, 2024  
RSS-Gen Issue 5, Amendment 2 (February 2021)

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## 1. General Information

### 1.1. Customer basic information

Contacts : Terry Zhang  
E-Mail : hufu@vcome-safety.com  
Telephone : +86 13066182143

### 1.2. Description of Device (EUT)

EUT Name : Wireless Interlinked Combination Smoke and Carbon Monoxide Alarm  
Model No. : VCS61F, VCS51F, VCS71F, VCS81  
Model Difference : The only differences are the model name, the casing texture, and the markings. The main test model is VCS61F  
Power supply : Input: DC 3V from Battery  
Operation frequency : 433.92MHz  
Radio Field strength : 84.41dBuV/m  
Modulation : ASK  
Antenna Type : spring antenna, Maximum Gain is -0.41dBi  
Intend use environment : Residential, commercial and light industrial environment

### 1.3. Channel List

| Channel | Frequency<br>(MHz) | Channel | Frequency<br>(MHz) | Channel | Frequency<br>(MHz) |
|---------|--------------------|---------|--------------------|---------|--------------------|
| 1       | 433.92             | /       | /                  | /       | /                  |

### 1.4. Summary of test result

| RF PART                                                 |                                                 |        |
|---------------------------------------------------------|-------------------------------------------------|--------|
| Test Items                                              | Test Requirement                                | Result |
| Conducted Emission                                      | 15.207<br>RSS-Gen 8.8                           | N/A    |
| Fundamental & Radiated Spurious<br>Emission Measurement | 15.209, 15.231b<br>RSS-210 A.1.2<br>RSS-Gen 8.9 | PASS   |
| Occupancy Bandwidth                                     | 15.231c<br>RSS-210 A.1.3<br>RSS-Gen 6.7         | PASS   |
| Transmission time                                       | 15.231a<br>RSS-210 A.1.1<br>RSS-Gen 6.10        | PASS   |
| Antenna Requirement                                     | 15.203<br>RSS-Gen 6.8                           | PASS   |

|                                                                                                                                     |            |      |
|-------------------------------------------------------------------------------------------------------------------------------------|------------|------|
| Fundamental field strength                                                                                                          | 15.231 (b) | PASS |
| Remark:<br>N/A is an abbreviation for Not Applicable.<br>Measurement Uncertainty is not taken into account for conformity statement |            |      |

### 1.5.Special Accessories and Auxiliary Equipment

| Description | Manufacturer | Model No. | Hardware Version | Software Version |
|-------------|--------------|-----------|------------------|------------------|
| /           | /            | /         | /                | /                |

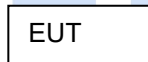
### 1.6.Test mode

The special RF test software was used to control EUT work in Continuous TX mode, and select test channel, wireless mode.

| Test mode                                                    | Low channel | Middle channel | High channel |
|--------------------------------------------------------------|-------------|----------------|--------------|
| ASK                                                          | 433.92MHz   | /              | /            |
| Note: This device is tested in a fully charged battery state |             |                |              |

### 1.7.Block Diagram

Radiated Emission



### 1.8.Test Conditions

| Category                                         | Normal Conditions  | Extreme Conditions |
|--------------------------------------------------|--------------------|--------------------|
| Temperature range                                | 15-35°C            | N/A                |
| Humidity range                                   | 20-75%             | N/A                |
| Pressure range                                   | 86-106kPa          | N/A                |
| Power supply                                     | DC 3V from Battery | N/A                |
| Note: N/A is an abbreviation for Not Applicable. |                    |                    |

### 1.9.Measurement Uncertainty (95% confidence levels, k=2)

| Item                               | MU                            | Remark |
|------------------------------------|-------------------------------|--------|
| Uncertainty for radio frequency    | $\pm 7 \times 10^{-8}$        |        |
| Conducted Emissions (150kHz~30MHz) | $\pm 2.54\text{dB}$           |        |
| Radiated Emission(9KHz~30MHz)      | $\pm 1.6\text{ dB}$           |        |
| Radiated Emission(30MHz~1GHz)      | Vertical: $\pm 4.14\text{dB}$ |        |

|                                                                                                 |                                 |  |
|-------------------------------------------------------------------------------------------------|---------------------------------|--|
|                                                                                                 | Horizontal: $\pm 4.25\text{dB}$ |  |
| Radiated Emission(1GHz~6GHz)                                                                    | $\pm 3.9\text{dB}$              |  |
| Radiated Emission(6GHz~18GHz)                                                                   | $\pm 4.3\text{dB}$              |  |
| Radiated Emission(18GHz~40GHz)                                                                  | $\pm 3.38\text{dB}$             |  |
| Uncertainty for conducted RF Power                                                              | $\pm 0.20\text{dB}$             |  |
| Conducted spurious emissions                                                                    | $\pm 0.24\text{dB}$             |  |
| Uncertainty for temperature                                                                     | $0.6^{\circ}\text{C}$           |  |
| Uncertainty for humidity                                                                        | 1%                              |  |
| Bandwidth                                                                                       | $\pm 1.5 \times 10^{-6}$        |  |
| Time                                                                                            | $\pm 2\%$                       |  |
| Duty Cycle                                                                                      | $\pm 2\%$                       |  |
| Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95% |                                 |  |

## 1.10.Test Facility

| Site Description                  |   |                                                                                                                        |
|-----------------------------------|---|------------------------------------------------------------------------------------------------------------------------|
| Name of Firm                      | : | Shenzhen BKC Testing Co., Ltd.                                                                                         |
| Site Location                     | : | Room 103, 1/F, Huaya Building, Huaya Industrial Park, Longhua Community, Longhua District, Shenzhen, Guangdong, China. |
| ISED CAB identifier               | : | CN0188                                                                                                                 |
| ISED Company Number               | : | 34333                                                                                                                  |
| FCC Designation Number            | : | CN1416                                                                                                                 |
| FCC Test Firm Registration Number | : | 701543                                                                                                                 |

## 1.11. Test Equipment

### Conducted Test Site

| Item | Kind of Equipment               | Manufacturer | Type No.  | Serial No. | Last calibration | Calibrated until |
|------|---------------------------------|--------------|-----------|------------|------------------|------------------|
| 1    | LISN                            | R&S          | ENV216    | 102762     | Mar. 10. 2025    | Mar. 09. 2026    |
| 2    | EMI Test Receiver               | R&S          | ESCI      | 101424     | Mar. 10. 2025    | Mar. 09. 2026    |
| 3    | Rf cables                       | HTEC         | HCE 2M-CE | N/A        | Mar. 10. 2025    | Mar. 09. 2026    |
| 4    | Coupling/<br>Decoupling Network | Diamond      | CX210     | N/A        | Mar. 10. 2025    | Mar. 09. 2026    |
| 5    | CE Testing software             | EZ           | EZ-EMC    | /          | /                | /                |

### Radiated Test Site(Below 1G and Above 1G)

| Item | Kind of Equipment                          | Manufacturer | Type No.   | Serial No. | Last calibration | Calibrated until |
|------|--------------------------------------------|--------------|------------|------------|------------------|------------------|
| 1    | Antenna                                    | Schwarzbeck  | VULB 9168  | 01321      | Mar. 20. 2025    | Mar. 19. 2028    |
| 2    | EMI Test Receiver                          | R&S          | ESRP       | 101478     | Mar. 10. 2025    | Mar. 09. 2026    |
| 3    | Preamplifier                               | HP           | 8447D      | 2727A05345 | Mar. 10. 2025    | Mar. 09. 2026    |
| 4    | Double Ridged<br>Broadband                 | SCHWARZBECK  | BBHA 9120D | 02621      | Mar. 10. 2025    | Mar. 19. 2028    |
| 5    | Preamplifier                               | Schwarzbeck  | BBV 9718D  | 00041      | Mar. 10. 2025    | Mar. 09. 2026    |
| 6    | Rf cables                                  | HUBER+SUHNER | 8M-RE      | N/A        | Mar. 10. 2025    | Mar. 09. 2026    |
| 7    | Rf cables                                  | HUBER+SUHNER | 1.5M-RE    | N/A        | Mar. 10. 2025    | Mar. 09. 2026    |
| 8    | Rf cables                                  | HUBER+SUHNER | 1.5M-AP-RE | N/A        | Mar. 10. 2025    | Mar. 09. 2026    |
| 9    | Loop antenna                               | TESEQ        | HLA6121    | 58357      | Mar. 09. 2025    | Mar. 10. 2026    |
| 10   | Spectrum analyzer                          | R&S          | FSP40      | 200061     | Feb. 13. 2025    | Feb. 12. 2026    |
| 11   | Double Ridged<br>Broadband Horn<br>Antenna | COM-POWER    | AH-1840    | 10100009   | Mar. 10. 2025    | Mar. 09. 2026    |
| 12   | Spectrum                                   | Agilent      | N9020A     | MY50510311 | Mar. 09. 2025    | Mar. 10. 2026    |
| 13   | RE Testing software                        | EZ           | EZ-EMC     | /          |                  | /                |

### RF Test Site

| Item | Kind of Equipment   | Manufacturer    | Type No.   | Serial No.    | Last calibration | Calibrated until |
|------|---------------------|-----------------|------------|---------------|------------------|------------------|
| 1    | Spectrum            | Agilent         | N9020A     | MY50510311    | Mar. 09. 2025    | Mar. 10. 2026    |
| 2    | Vector source       | Agilent         | N5182A     | MY47420223    | Mar. 09. 2025    | Mar. 10. 2026    |
| 3    | All instrument      | Rohde & Schwarz | CMW 500    | 101131        | Mar. 09. 2025    | Mar. 10. 2026    |
| 4    | control unit        | MW              | MW100-RFCB | MW200411BK-34 | Mar. 09. 2025    | Mar. 10. 2026    |
| 5    | RF Testing software | MW              | MTS 8310   | /             | Mar. 09. 2025    | /                |
| 6    | Spectrum analyzer   | R&S             | FSP40      | 200061        | Feb. 13. 2025    | Feb. 12. 2026    |

## Test software

|                  |                     |
|------------------|---------------------|
| Software name    | RF Testing software |
| Software version | 2.0.0.0             |
| Software name    | RE Testing software |
| Software version | EMEC-03A2 RE+       |
| Software name    | CE Testing software |
| Software version | EMEC-3A1+           |



## 2. Conducted emission at the mains terminals test

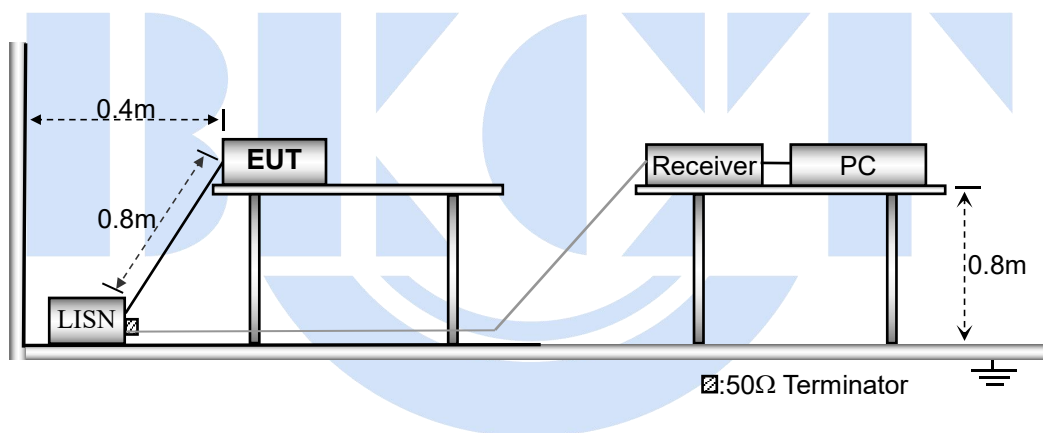
## 2.1.Limit

|                       |                                          |
|-----------------------|------------------------------------------|
| Test Requirement:     | FCC Part15 C Section 15.207, RSS-Gen 8.8 |
| Test Method:          | ANSI C63.10:2020                         |
| Test Frequency Range: | 150KHz to 30MHz                          |
| Receiver setup:       | RBW=9KHz, VBW=30KHz, Sweep time=auto     |

| Frequency<br>MHz | Limits dB(μV)    |               |
|------------------|------------------|---------------|
|                  | Quasi-peak Level | Average Level |
| 0.15 ~ 0.50      | 66 ~ 56*         | 56 ~ 46*      |
| 0.50 ~ 5.00      | 56               | 46            |
| 5.00 ~ 30.00     | 60               | 50            |

Notes: 1. \*Decreasing linearly with logarithm of frequency.  
2. The lower limit shall apply at the transition frequencies.

## 2.2. Test Setup



### 2.3. Test Procedure

1. The EUT was placed 0.1 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
2. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
3. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
4. LISN at least 80 cm from nearest part of EUT chassis.
5. For the actual test configuration, please refer to the related Item—EUT Test Photos.

## 2.4. Test Result

Not Applicable

### 3. Fundamental field strength and Radiated Spurious Emissions

#### 3.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.209, RSS-210 A.1.2, RSS-Gen 8.9  
Test Method: 15.231 (b)  
ANSI C63.10:2020  
Test Result: PASS  
Measurement Distance: 3m

| Frequency    | Detector   | RBW    | VBW    | Value      |
|--------------|------------|--------|--------|------------|
| 9KHz-150KHz  | Quasi-peak | 200Hz  | 600Hz  | Quasi-peak |
| 150KHz-30MHz | Quasi-peak | 9KHz   | 30KHz  | Quasi-peak |
| 30MHz-1GHz   | Quasi-peak | 100KHz | 300KHz | Quasi-peak |
| Above 1GHz   | Peak       | 1MHz   | 3MHz   | Peak       |
|              | Peak       | 1MHz   | 10Hz   | Average    |

Limit: 20dBc in any 100kHz bandwidth outside the operating frequency band.In case the emission fall with the restricted band specified on 15.205(a), then the15.231(b) limit in the table below has to be followed.

| Fundamental frequency (MHz) | Field strength of fundamental (microvolts/meter) | Field strength of spurious emissions (microvolts/meter) |
|-----------------------------|--------------------------------------------------|---------------------------------------------------------|
| 40.66-40.70                 | 2,250                                            | 225                                                     |
| 70-130                      | 1,250                                            | 125                                                     |
| 130-174                     | <sup>1</sup> 1,250 to 3,750                      | <sup>1</sup> 125 to 375                                 |
| 174-260                     | 3,750                                            | 375                                                     |
| 260-470                     | <sup>1</sup> 3,750 to 12,500                     | <sup>1</sup> 375 to 1,250                               |
| Above 470                   | 12,500                                           | 1,250                                                   |

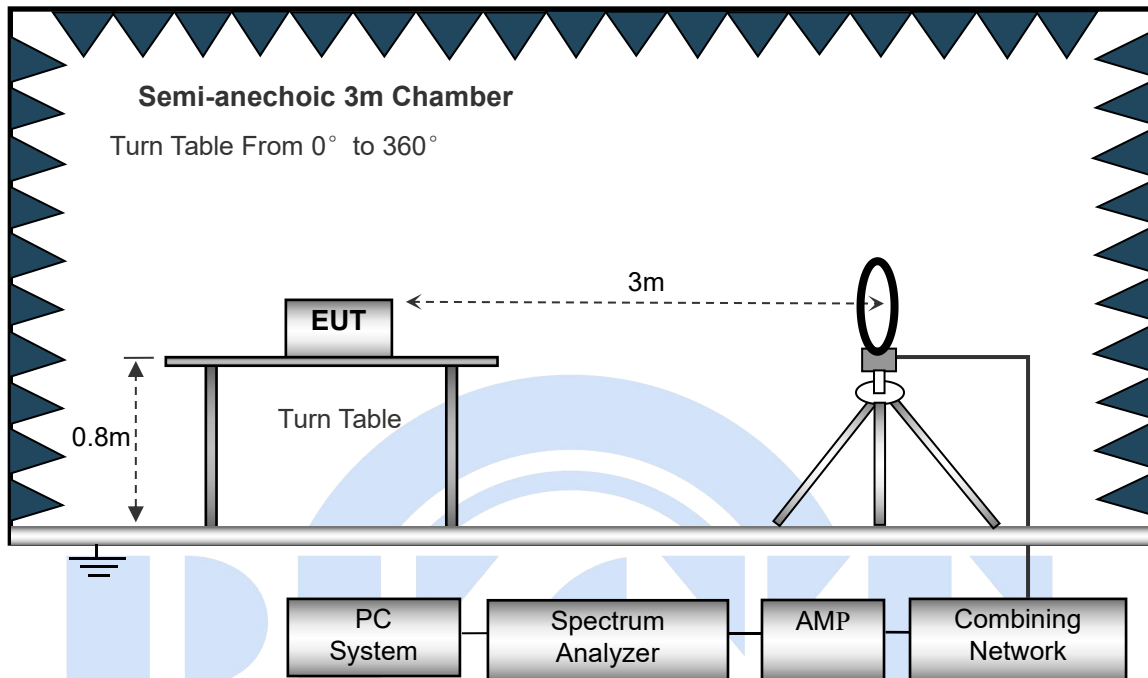
<sup>1</sup> Linear interpolations.

| Frequency (MHz) | Field Strength |              | Field Strength Limit at 3m Measurement Dist |                          |
|-----------------|----------------|--------------|---------------------------------------------|--------------------------|
|                 | uV/m           | Distance (m) | uV/m                                        | dBuV/m                   |
| 0.009 ~ 0.490   | 2400/F(kHz)    | 300          | 10000 * 2400/F(kHz)                         | 20log(2400/F(kHz)) + 80  |
| 0.490 ~ 1.705   | 24000/F(kHz)   | 30           | 100 * 24000/F(kHz)                          | 20log(24000/F(kHz)) + 40 |
| 1.705 ~ 30      | 30             | 30           | 100 * 30                                    | 20log(30) + 40           |
| 30 ~ 88         | 100            | 3            | 100                                         | 20log(100)               |
| 88 ~ 216        | 150            | 3            | 150                                         | 20log(150)               |
| 216 ~ 960       | 200            | 3            | 200                                         | 20log(200)               |
| Above 960       | 500            | 3            | 500                                         | 20log(500)               |

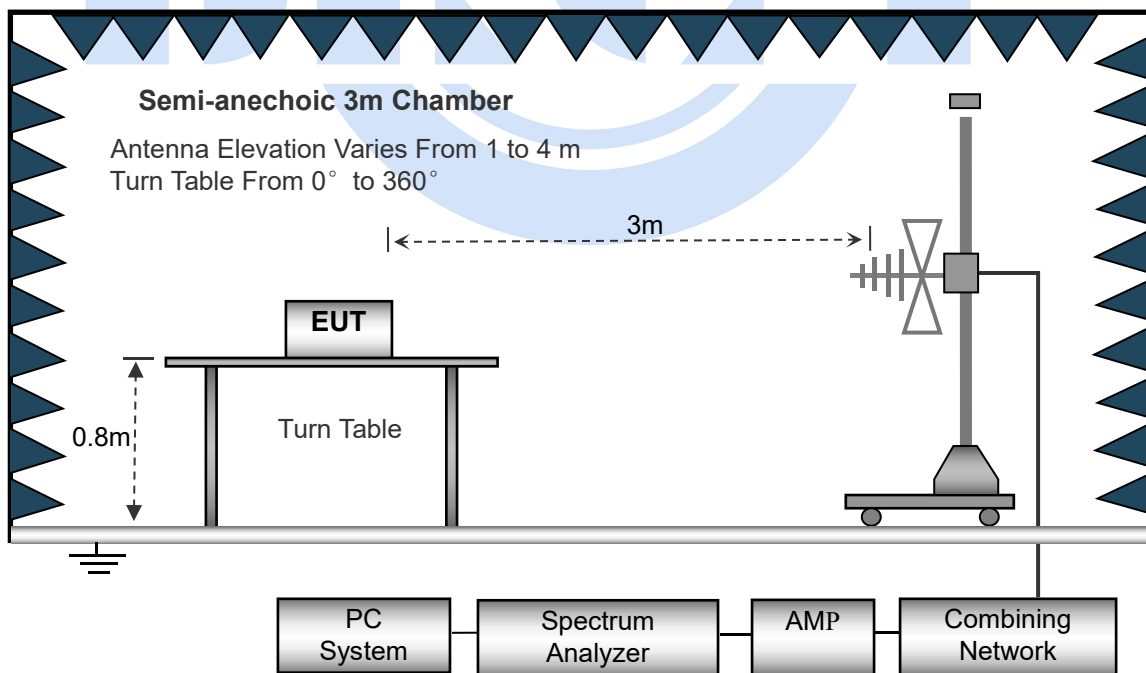
## Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10.

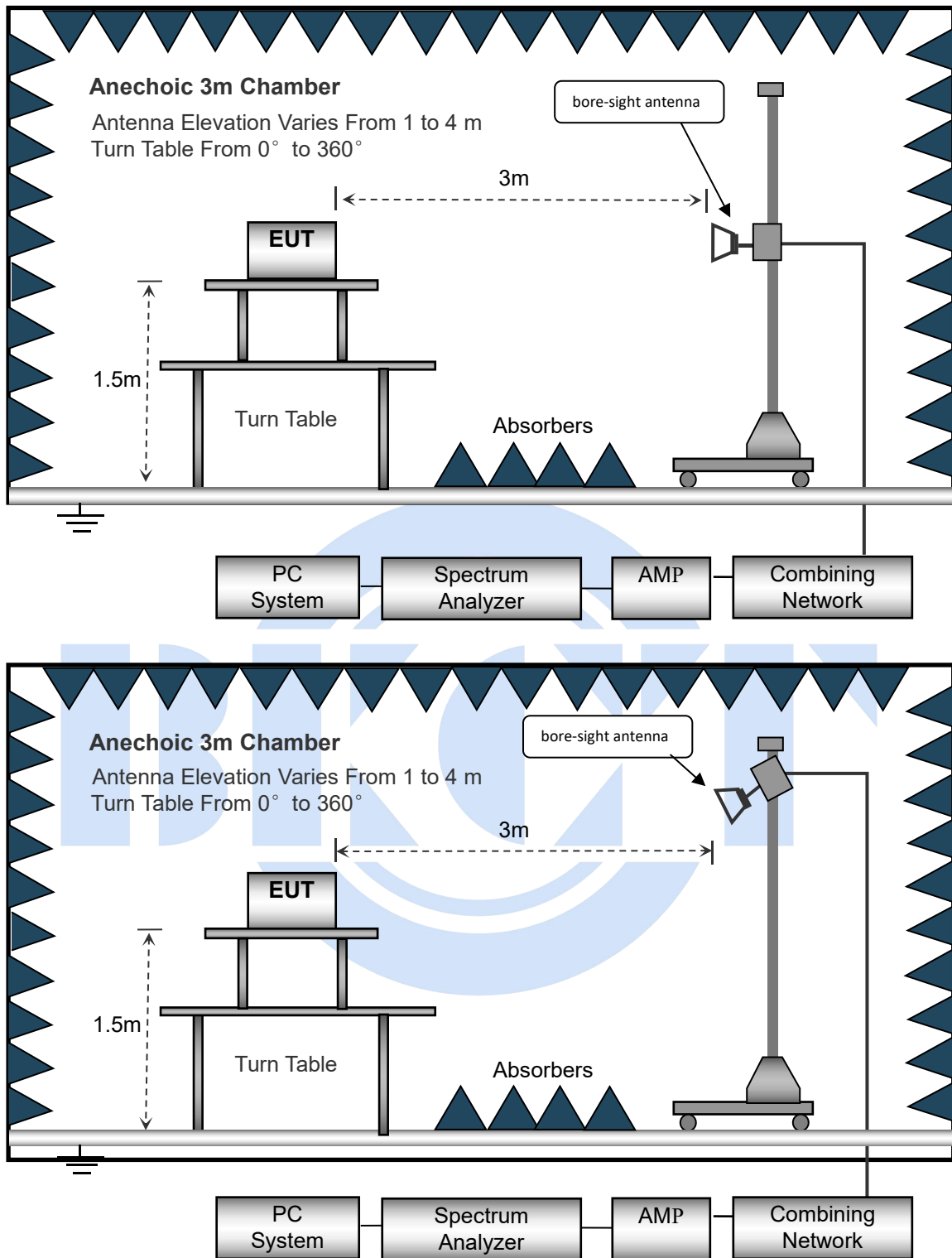
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



### 3.2. Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m for above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in Z axis,so the worst data were shown as follow.



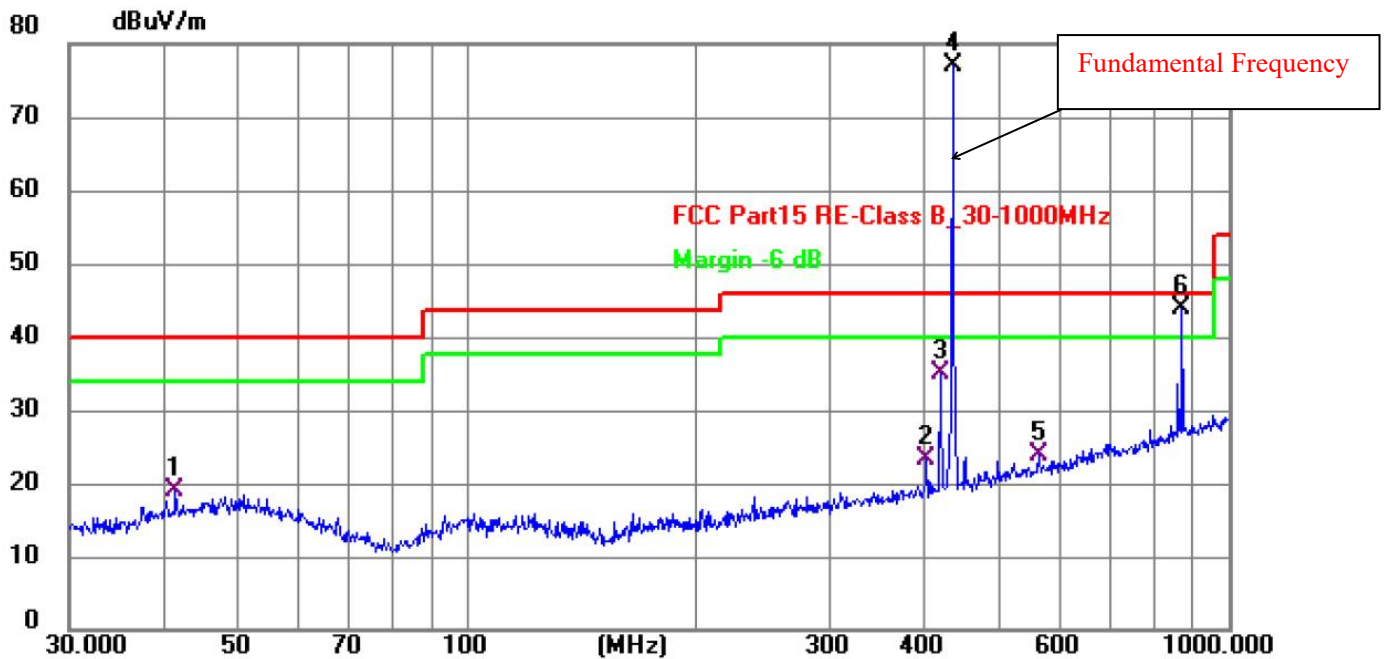
## Test Result

Test Frequency: 9KHz~30MHz

The measurements were more than 20 dB below the limit and not reported.

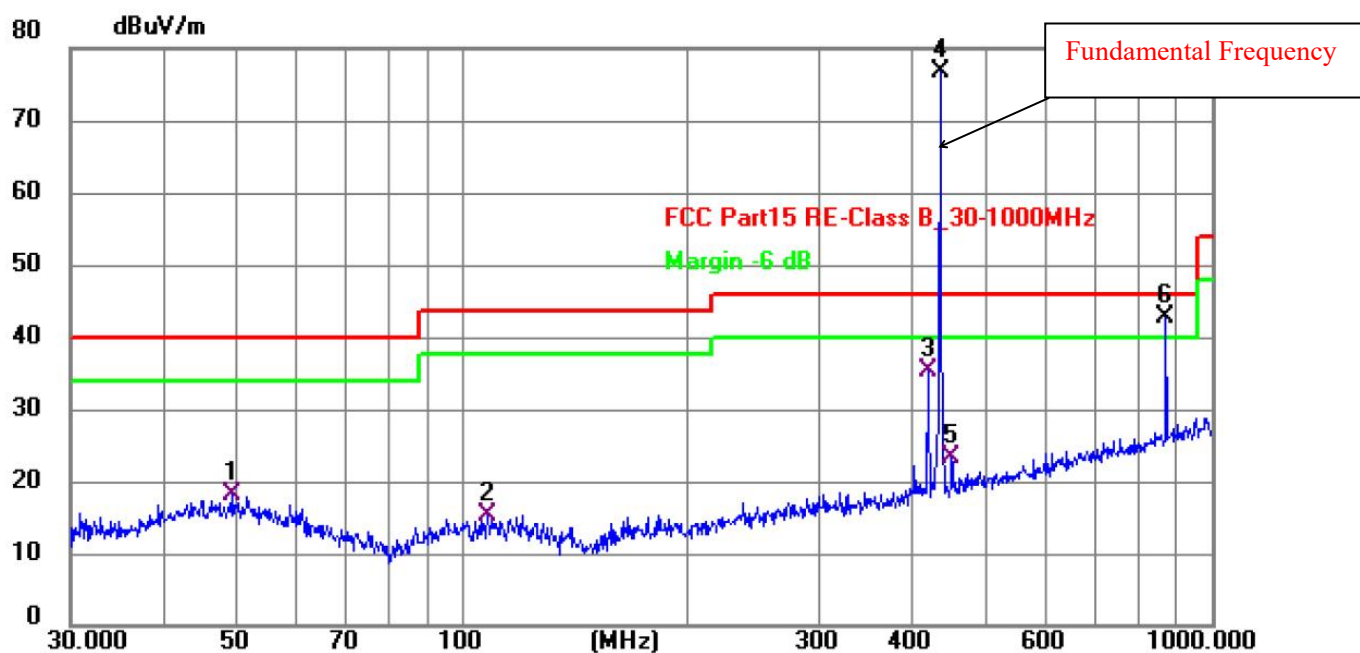
Test Frequency : 30MHz ~ 1GHz

| Radiation Emission Test Data |         |                    |            |
|------------------------------|---------|--------------------|------------|
| Temperature:                 | 25.1℃   | Relative Humidity: | 56%        |
| Pressure:                    | 1008hPa | Phase :            | Horizontal |
| Test Voltage :               | DC 3V   | Test Mode          | Working    |



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 41.4215         | 29.53          | -10.44        | 19.09          | 40.00          | -20.91      | QP       |
| 2   | 401.8385        | 30.93          | -7.69         | 23.24          | 46.00          | -22.76      | QP       |
| 3   | 417.6411        | 42.53          | -7.58         | 34.95          | 46.00          | -11.05      | QP       |
| 4   | 433.9200        | 84.41          | -7.47         | 76.94          | 46.00          | 30.94       | peak     |
| 5   | 562.6624        | 29.88          | -6.13         | 23.75          | 46.00          | -22.25      | QP       |
| 6   | 867.8400        | 44.84          | -0.86         | 43.98          | 46.00          | -2.02       | peak     |

| Radiation Emission Test Data |         |                    |          |
|------------------------------|---------|--------------------|----------|
| Temperature:                 | 25.1°C  | Relative Humidity: | 56%      |
| Pressure:                    | 1008hPa | Phase :            | Vertical |
| Test Voltage :               | DC 3V   | Test Mode          | Working  |



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 49.3594         | 27.83          | -9.75         | 18.08          | 40.00          | -21.92      | QP       |
| 2   | 108.2667        | 27.29          | -12.05        | 15.24          | 43.50          | -28.26      | QP       |
| 3   | 417.6411        | 42.95          | -7.58         | 35.37          | 46.00          | -10.63      | QP       |
| 4   | 433.9200        | 84.27          | -7.47         | 76.80          | 46.00          | 30.80       | peak     |
| 5   | 449.5558        | 30.53          | -7.37         | 23.16          | 46.00          | -22.84      | QP       |
| 6   | 867.8400        | 43.46          | -0.86         | 42.60          | 46.00          | -3.40       | peak     |

For average Emission

| Frequency MHz | Peak Level dBuV/m | Duty cycle factor | Average Level dBuV/m | Limit AV | Margin | Polarization |
|---------------|-------------------|-------------------|----------------------|----------|--------|--------------|
| 433.92        | 84.41             | -6.5              | 77.91                | 80.8     | -2.89  | Horizontal   |
| 867.84        | 44.84             | -6.5              | 38.34                | 60.8     | -22.46 | Horizontal   |

| Frequency MHz | Peak Level dBuV/m | Duty cycle factor | Average Level dBuV/m | Limit AV | Margin | Polarization |
|---------------|-------------------|-------------------|----------------------|----------|--------|--------------|
| 433.92        | 84.27             | -6.5              | 77.77                | 80.8     | -3.03  | Vertical     |
| 867.84        | 43.46             | -6.5              | 36.96                | 60.8     | -23.84 | Vertical     |

Notes: 1. Average emissioXn Level = Peak Level + Duty cycle factor

2. Duty cycle level please see clause 5.

Radiated Spurious Emission ( 1GHz to 10th harmonics)

| Frequency MHz | Reading (dBuV) | Factor (dB/m) | Peak Level dBuV/m | Limit (dBuV/m) | Margin | Detector | Polarization |
|---------------|----------------|---------------|-------------------|----------------|--------|----------|--------------|
| 1301.58       | 50.50          | -6.67         | 43.83             | 74.00          | -30.17 | PK       | Vertical     |
| 1735.44       | 49.26          | -5.34         | 43.92             | 80.80          | -36.88 | PK       | Vertical     |
| 2169.56       | 46.71          | -3.88         | 42.83             | 80.80          | -37.97 | PK       | Vertical     |
| 2603.20       | 45.68          | -1.87         | 43.81             | 80.80          | -36.99 | PK       | Vertical     |
| 3037.28       | 44.80          | -0.19         | 44.61             | 80.80          | -36.19 | PK       | Vertical     |
| 3471.25       | 40.29          | 0.91          | 41.2              | 80.80          | -39.6  | PK       | Vertical     |
| 1301.68       | 46.18          | -6.64         | 39.54             | 74.00          | -34.46 | PK       | Horizontal   |
| 1735.05       | 45.26          | -5.36         | 39.9              | 80.80          | -40.9  | PK       | Horizontal   |
| 2169.55       | 43.02          | -3.83         | 39.19             | 80.80          | -41.61 | PK       | Horizontal   |
| 2603.53       | 44.17          | -1.82         | 42.35             | 80.80          | -38.45 | PK       | Horizontal   |
| 3037.34       | 41.34          | -0.19         | 41.15             | 80.80          | -39.65 | PK       | Horizontal   |
| 3471.08       | 39.29          | -0.91         | 38.38             | 80.80          | -42.42 | PK       | Horizontal   |

Notes: 1. Peak Level = Reading + Factor

| Frequency<br>MHz | Peak<br>Level<br>dBuV/m | Duty<br>cycle<br>factor | Average<br>Level<br>dBuV/m | Limit |       | Margin dB |        | Polarization |
|------------------|-------------------------|-------------------------|----------------------------|-------|-------|-----------|--------|--------------|
|                  |                         |                         |                            | PK    | AV    | PK        | AV     |              |
| 1301.58          | 43.38                   | -6.5                    | 36.88                      | 74.00 | 54.00 | -30.62    | -17.12 | Vertical     |
| 1735.44          | 43.24                   | -6.5                    | 36.74                      | 80.80 | 60.80 | -37.56    | -24.06 | Vertical     |
| 2169.56          | 42.46                   | -6.5                    | 35.96                      | 80.80 | 60.80 | -38.34    | -24.84 | Vertical     |
| 2603.20          | 42.96                   | -6.5                    | 36.46                      | 80.80 | 60.80 | -37.84    | -24.34 | Vertical     |
| 3037.28          | 43.95                   | -6.5                    | 37.45                      | 80.80 | 60.80 | -36.85    | -23.35 | Vertical     |
| 3471.25          | 41.37                   | -6.5                    | 34.87                      | 80.80 | 60.80 | -39.43    | -25.93 | Vertical     |
| 1301.68          | 39.16                   | -6.5                    | 32.66                      | 74.00 | 54.00 | -34.84    | -21.34 | Horizontal   |
| 1735.05          | 38.99                   | -6.5                    | 32.49                      | 80.80 | 60.80 | -41.81    | -28.31 | Horizontal   |
| 2169.55          | 38.93                   | -6.5                    | 32.43                      | 80.80 | 60.80 | -41.87    | -28.37 | Horizontal   |
| 2603.53          | 41.77                   | -6.5                    | 35.27                      | 80.80 | 60.80 | -39.03    | -25.53 | Horizontal   |
| 3037.34          | 41.23                   | -6.5                    | 34.73                      | 80.80 | 60.80 | -39.57    | -26.07 | Horizontal   |
| 3471.08          | 39.81                   | -6.5                    | 33.31                      | 80.80 | 60.80 | -40.99    | -27.49 | Horizontal   |

Notes: 1.Average emission Level = Peak Level + Duty cycle factor

2.Duty cycle level please see clause 5.



## 4. Bandwidth Test

### 4.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.231(c)  
,RSS-210 A1.1, RSS-Gen 6.7  
Test Method: ANSI C63.10:2020  
Test Result: PASS

Limit:

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating between 70 MHz to 900 MHz. Those devices operating above 900 MHz, the emission spurious shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

B.W (20dBc) Limit =  $0.25\% * f(\text{MHz}) = 0.25\% * 433.92\text{MHz} = 1.085\text{MHz}$

### 4.2.Test Setup

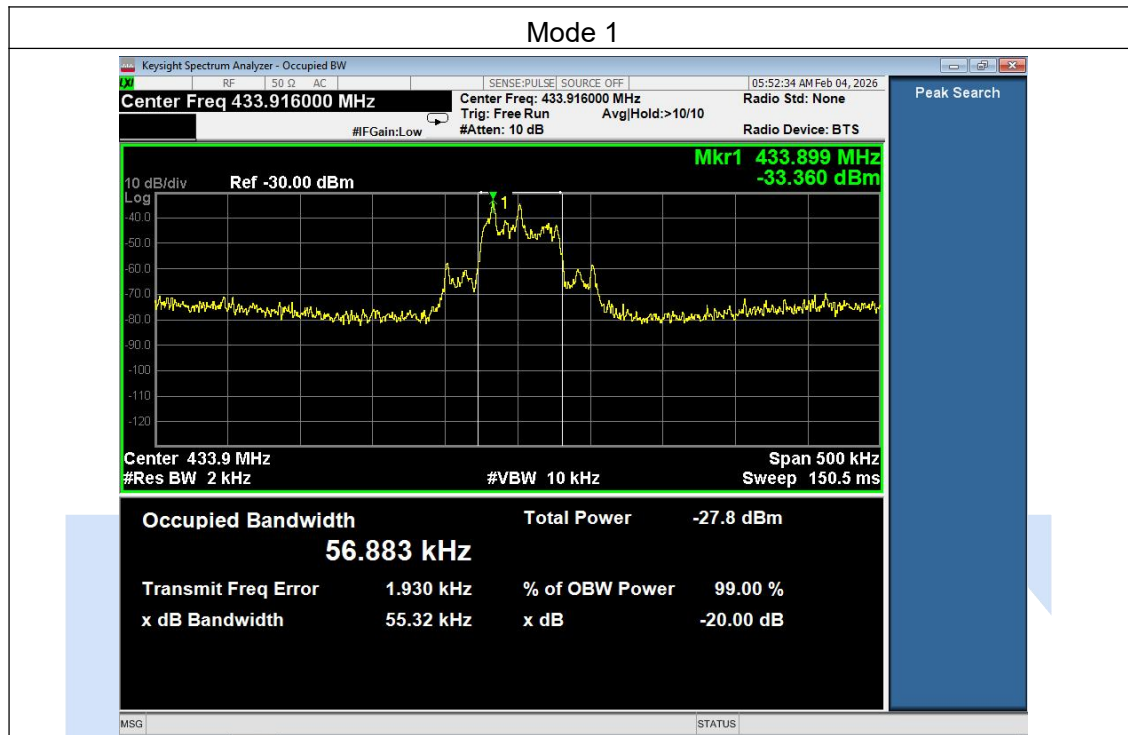


### 4.3.Test Procedure

| Spectrum Parameter | Setting                                       |
|--------------------|-----------------------------------------------|
| Attenuation        | Auto                                          |
| Span Frequency     | > Measurement Bandwidth or Channel Separation |
| RB                 | 1-5%OBW                                       |
| VB                 | ≥RBW                                          |
| Detector           | Peak                                          |
| Trace              | Max Hold                                      |
| Sweep Time         | Auto                                          |

## 4.4.Test Result

| Frequency | 20dB Bandwidth (KHz) | Limit (MHz) | Result |
|-----------|----------------------|-------------|--------|
| 433.92MHz | 55.32                | 1.0848      | PASS   |



## 5. Calculation of Average Factor

### 5.1. Calculation

The output field strengths of specification in accordance with the FCC rules specify measurements with an average detector. During the test, a spectrum analyzer incorporating a peak detector was used. Therefore, a reduction factor can be applied to the resultant peak signal level and compared to the limit for measurement instrumentation incorporating an average detector.

The duty cycle is measured in 100 ms or the repetition cycle period, whichever is a shorter time frame. The duty cycle is measured by placing the spectrum analyzer to set zero span at 1MHz resolution bandwidth.

Averaging factor in dB =  $20\log(\text{duty cycle})$

The duty cycle is simply the on-time divided the duration of one cycle

Duty Cycle =  $(11.55 - 6.600) / (17.10 - 6.600)\text{ms}$

=  $(4.95\text{ms} / 10.5)\text{ms}$

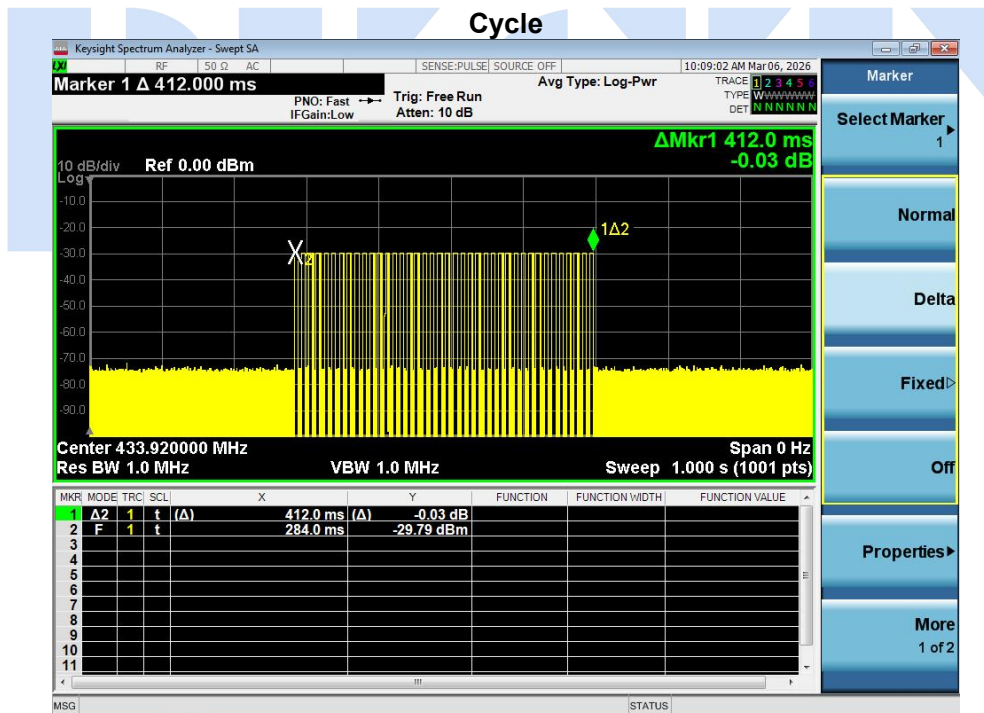
= 0.471

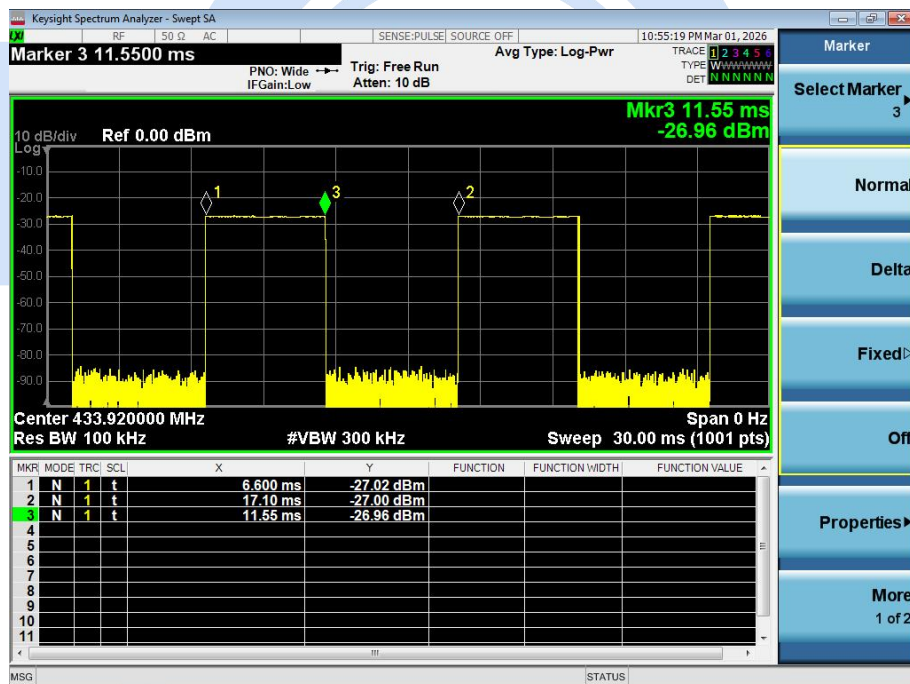
Therefore, the averaging factor is found by  $20\log 0.471 = -6.5\text{dB}$

Test plot as follows:

Note: During the 100ms, the amount of pulse and on-time of pulse are the same for every pulse train.

|              |         |                    |       |
|--------------|---------|--------------------|-------|
| Temperature: | 26 °C   | Relative Humidity: | 54%   |
| Pressure:    | 101kPa  | Test Voltage :     | DC 3V |
| Test Mode :  | TX Mode |                    |       |





## 6. Dwell time

### 6.1.Applicable Standard

According to FCC 15.231(a) and RSS-210 A1.1 requirement:

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

### 6.2.Test Setup



### 6.3.Test Procedure

Check the calibration of the measuring instrument using either an Chip calibrator or a known signal from an external generator.

1.Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.

2.Set RBW to 1MHz and VBW of spectrum analyzer to 3MHz with a convenient frequency span including 100 KHz bandwidth from band edge.

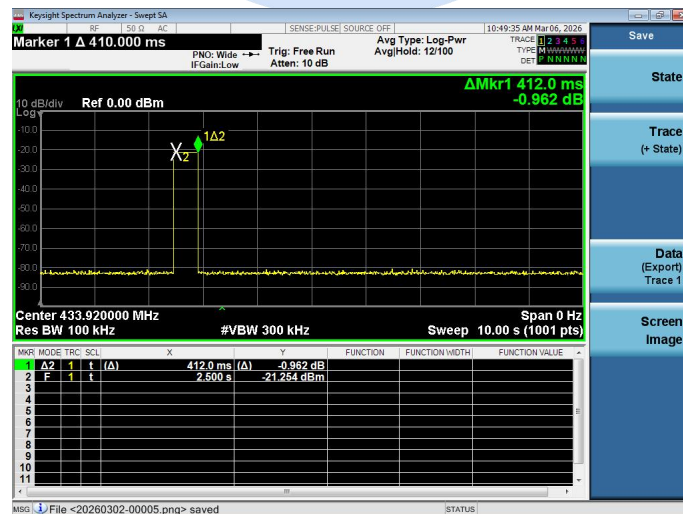
3.Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.

4.Repeat above procedures until all measured frequencies were complete.

### 6.4.Test Result

| Dwell time (second) | Limit (second) | Result |
|---------------------|----------------|--------|
| 0.412s              | <5s            | Pass   |

Test plot as follows:



## 7. Antenna Requirement

According to the FCC Part 15 Paragraph 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. This product has an integrated antenna fulfill the requirement of this section.

According to the RSS-Gen Section 7.1.2, 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. This product has an integrated antenna fulfill the requirement of this section.



## 8. Test Photographs

Please see the attachment for details.



## Appendix I: Photos of the EUT

Please see the attachment for details.

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

