



## FCC ID & IC - TEST REPORT

|                                     |                                                                                                                            |                |                 |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|
| Report Number                       | : 709992205006-00                                                                                                          | Date of Issue: | August 15, 2022 |
| Model                               | : APF V3.4                                                                                                                 |                |                 |
| Product Type                        | : Automatic Press Fixture                                                                                                  |                |                 |
| Applicant                           | : Suzhou Secote Precision Electronic Co.,Ltd.                                                                              |                |                 |
| Address                             | : No. 585, Songjia Road, Guoxiang Street, Wuzhong District,<br>215128 Suzhou, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA |                |                 |
| Production Facility                 | : Suzhou Secote Precision Electronic Co.,Ltd.                                                                              |                |                 |
| Address                             | : No. 585, Songjia Road, Guoxiang Street, Wuzhong District,<br>215128 Suzhou, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA |                |                 |
| Test Result                         | : <input checked="" type="checkbox"/> Positive <input type="checkbox"/> Negative                                           |                |                 |
| Total pages including<br>Appendices | : 26                                                                                                                       |                |                 |

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## 2 Details about the Test Laboratory

### Details about the Test Laboratory

#### Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch  
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FCC Registration No.: 820234

FCC Designation Number: CN1183

ISED#: 25988

CAB identifier CN0101

### 3 Description of the Equipment Under Test

#### Description of the Equipment Under Test

|                            |                                                                                                                                            |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Product:                   | Automatic Press Fixture                                                                                                                    |
| Model no.:                 | APF V3.4                                                                                                                                   |
| FCC ID:                    | 2A72V-APF                                                                                                                                  |
| IC:                        | 28856-APF                                                                                                                                  |
| Rating:                    | Input: 100-240V, 50/60Hz, 150W                                                                                                             |
| Modulation type:           | ASK                                                                                                                                        |
| Hardware version:          | V3.4                                                                                                                                       |
| Software version:          | V2.5                                                                                                                                       |
| RF Transmission Frequency: | 13.56MHz                                                                                                                                   |
| Antenna Type:              | PCB loop antenna                                                                                                                           |
| Description of the EUT:    | The EUT was an Automatic Press Fixture which will be used in the factory. This device has RFID function, transmitter operated at 13.56MHz. |
| Test sample no.:           | SHA-654455-1                                                                                                                               |

The following statement shall be placed in a prominent location in the text of the user manual:

**NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment.**

**This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.**

#### 4 Summary of Test Standards

| Test Standards                               |                                                                        |
|----------------------------------------------|------------------------------------------------------------------------|
| FCC Part 15 Subpart C                        | PART 15 - RADIO FREQUENCY DEVICES<br>Subpart C - Intentional Radiators |
| RSS-Gen Issue 5<br>Amendment 1<br>March 2019 | General Requirements for Compliance of Radio Apparatus                 |
| RSS-210<br>Issue 10 December<br>2019         | Licence-Exempt Radio Apparatus: Category I                             |

All the test methods were according to ANSI C63.10-2013.

## 5 Summary of Test Results

| Technical Requirements                                        |                                    |       |             |             |
|---------------------------------------------------------------|------------------------------------|-------|-------------|-------------|
| FCC Part 15 Subpart C, RSS-Gen and RSS-210                    |                                    |       |             |             |
| Test Condition                                                |                                    | Pages | Test Site   | Test Result |
| §15.207<br>RSS-Gen Section 7.2.4                              | Conducted emission AC power port   | 10-12 | Test Site 1 | Pass        |
| §15.205, §15.209, 15.225 (a, b, c, d)<br>RSS-210 Section A2.6 | Radiated Emission, 9KHz to 1000MHz | 13-19 | Test Site 1 | Pass        |
| §15.215 (c)<br>RSS-Gen Section 4.6.1                          | 20dB and 99% Bandwidth Measurement | 20-21 | Test Site 1 | Pass        |
| §15.225(e)<br>RSS-210 Section A2.6                            | Frequency Stability                | 22    | Test Site 1 | Pass        |
| §15.203<br>RSS-Gen Section 7.1.2                              | Antenna requirement                | --    | See Note 1  | Pass        |

Note 1: The EUT uses a PCB Loop Antenna. In accordance to §15.203 and RSS-Gen Section 7.1.2. It is considered sufficiently to comply with the provisions of this section.

## 6 General Remarks

### Remarks

This submittal(s) (test report) is intended for FCC ID: 2A72V-APF IC: 28856-APF complies with Section 15.205, 15.207, 15.209, 15.225 of the FCC Part 15, Subpart C Rules and RSS-210, RSS-GEN.

### SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

□ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

□ - **Does not** fulfill the general approval requirements.

Sample Received Date: June 9, 2022

Testing Start Date: June 10, 2022

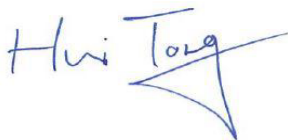
Testing End Date: June 18, 2022

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

Reviewed by:

Prepared by:

Tested by:



Hui TONG  
EMC Section Manager



Zhining ZHANG  
EMC Project Manager



Yiquan WANG  
EMC Test Engineer

## 7 Systems test configuration

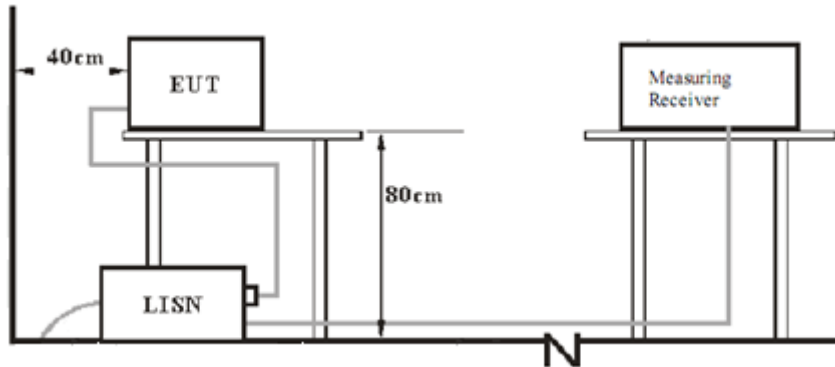
Auxiliary Equipment Used during Test:

| DESCRIPTION | MANUFACTURER | MODEL NO.(SHIELD) | S/N(LENGTH)     |
|-------------|--------------|-------------------|-----------------|
| Notebook    | Lenove       | E470              | PF-OU5TS7 17/09 |

Test software: SSCOM V5.13.1 set the RFID continue transmit.

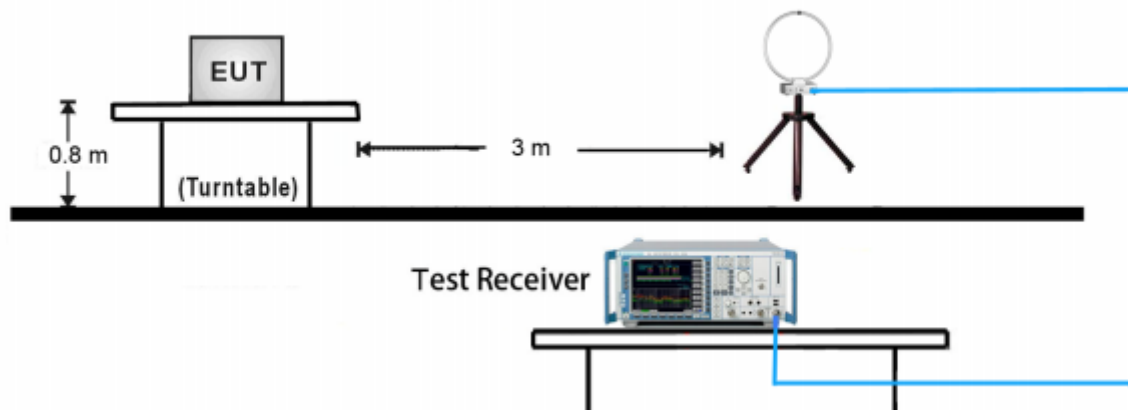
## 8 Test Setups

### 8.1 AC Power Line Conducted Emission test setups

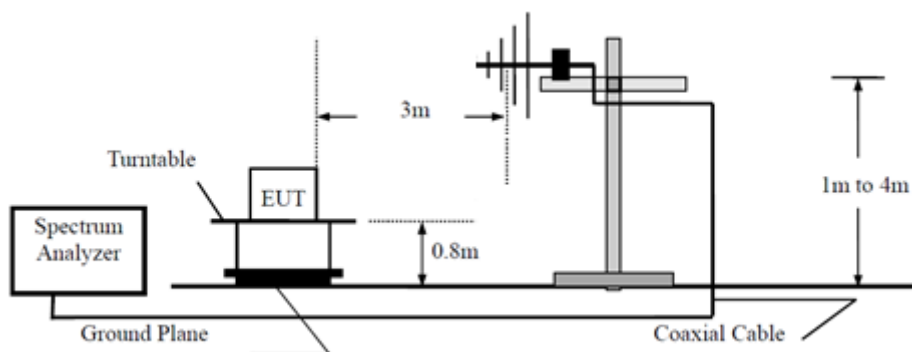


### 8.2 Radiated test setups

9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test- Setup



## 9 Test Methodology

## 10 Conducted Emission

### Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

### Limit

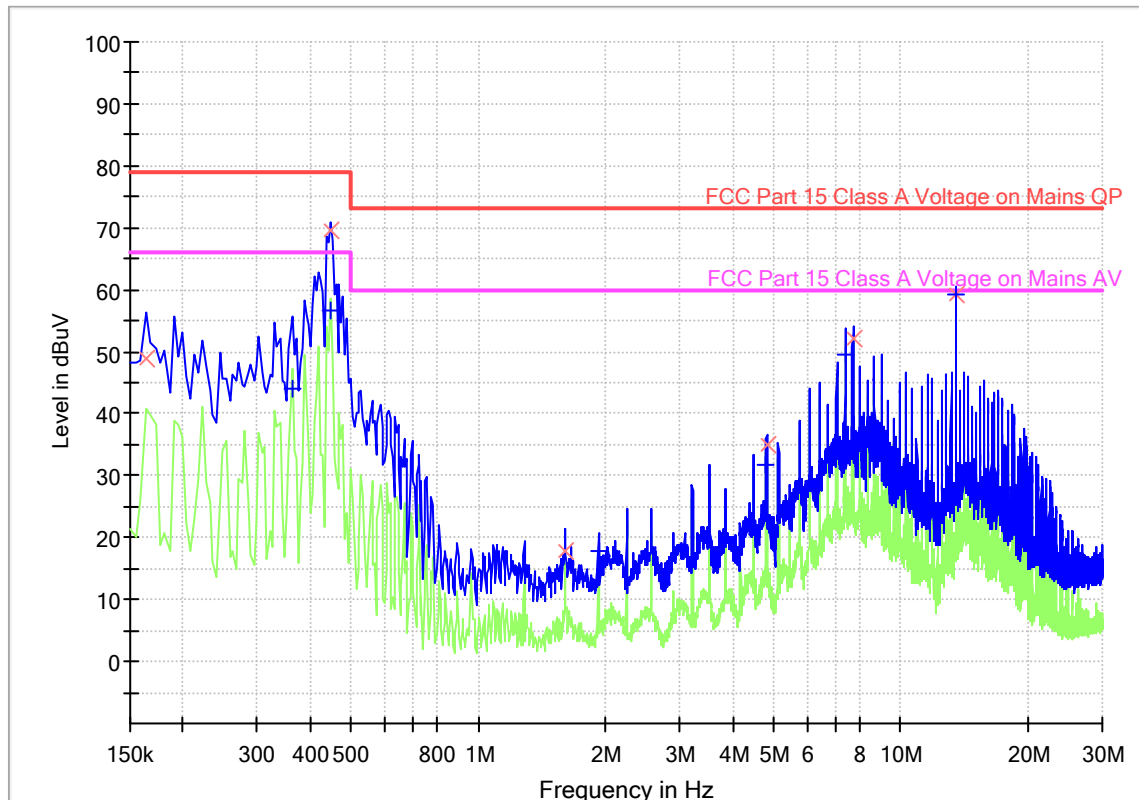
The FCC Class 'A' conducted limits are given below. The lower limit shall apply at the transition frequency.

| Frequency<br>MHz | QP Limit<br>dB $\mu$ V | AV Limit<br>dB $\mu$ V |
|------------------|------------------------|------------------------|
| 0.150-0.500      | 79                     | 66                     |
| 0.500-5          | 73                     | 60                     |
| 5-30             | 73                     | 60                     |

Decreasing linearly with logarithm of the frequency

## Conducted Emission

Product Type : Automatic Press Fixture  
M/N : APF V3.4  
Operating Condition : Mode 1: Transmit at 13.56MHz  
Test Specification : L-line  
Comment : AC 120V/60Hz



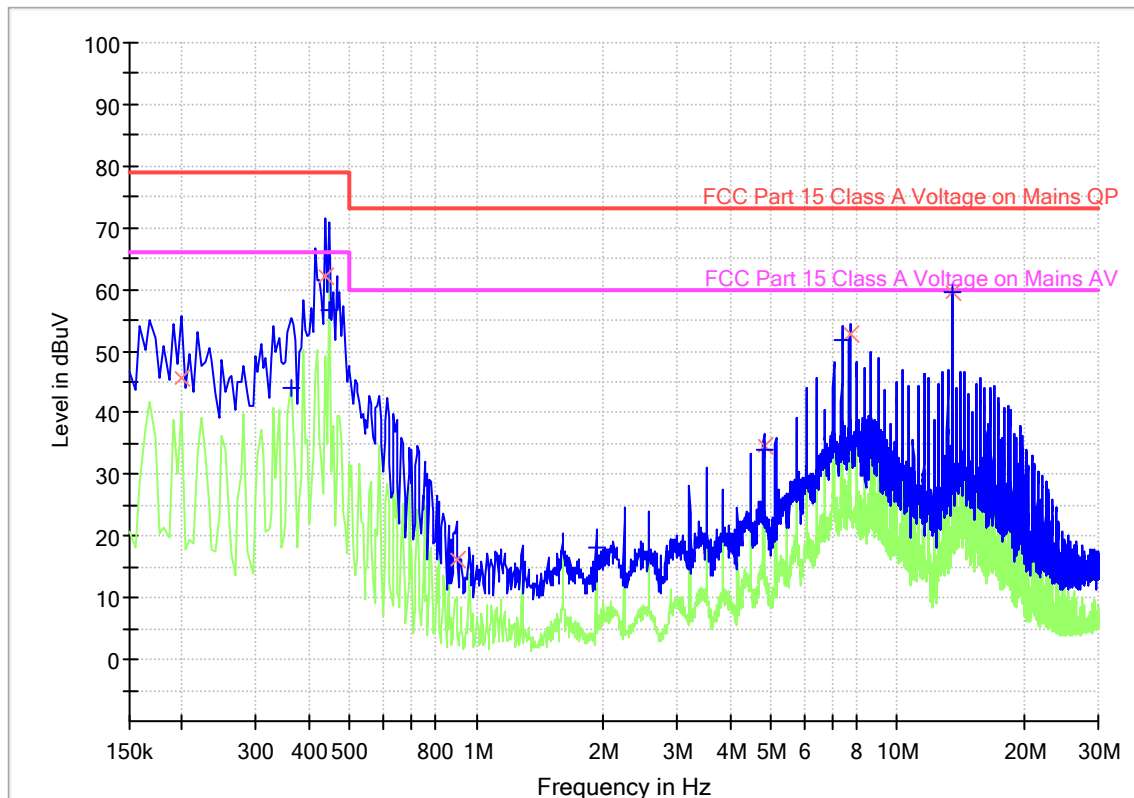
Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)  
Factor (dB) = Cable Loss (dB) + LISN Factor (dB) + 10dB Attenuator

## Final Result

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.163500        | 48.91            | ---             | 79.00        | 30.09       | 1000.0          | 9.000           | L1   | 19.5       |
| 0.361500        | ---              | 44.11           | 66.00        | 21.89       | 1000.0          | 9.000           | L1   | 19.5       |
| 0.447000        | ---              | 56.68           | 66.00        | 9.32        | 1000.0          | 9.000           | L1   | 19.5       |
| 0.447000        | 69.47            | ---             | 79.00        | 9.53        | 1000.0          | 9.000           | L1   | 19.5       |
| 1.603500        | 17.88            | ---             | 73.00        | 55.12       | 1000.0          | 9.000           | L1   | 19.5       |
| 1.927500        | ---              | 17.76           | 60.00        | 42.24       | 1000.0          | 9.000           | L1   | 19.5       |
| 4.812000        | ---              | 31.67           | 60.00        | 28.33       | 1000.0          | 9.000           | L1   | 19.6       |
| 4.816500        | 34.83            | ---             | 73.00        | 38.17       | 1000.0          | 9.000           | L1   | 19.6       |
| 7.386000        | ---              | 49.60           | 60.00        | 10.40       | 1000.0          | 9.000           | L1   | 19.6       |
| 7.710000        | 52.24            | ---             | 73.00        | 20.76       | 1000.0          | 9.000           | L1   | 19.6       |
| 13.560000       | ---              | 59.34           | 60.00        | 0.66        | 1000.0          | 9.000           | L1   | 19.7       |
| 13.560000       | 59.39            | ---             | 73.00        | 13.61       | 1000.0          | 9.000           | L1   | 19.7       |

Remark: This device defined as Class A digital device. It will be used in a commercial environment.

Product Type : Automatic Press Fixture  
M/N : APF V3.4  
Operating Condition : Mode 1: Transmit at 13.56MHz  
Test Specification : N-line  
Comment : AC 120V/60Hz



## Final Result

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.199500        | 45.66            | ---             | 79.00        | 33.34       | 1000.0          | 9.000           | N    | 19.5       |
| 0.361500        | ---              | 44.00           | 66.00        | 22.00       | 1000.0          | 9.000           | N    | 19.5       |
| 0.438000        | 62.01            | ---             | 79.00        | 16.99       | 1000.0          | 9.000           | N    | 19.5       |
| 0.447000        | ---              | 56.50           | 66.00        | 9.50        | 1000.0          | 9.000           | N    | 19.5       |
| 0.897000        | 16.24            | ---             | 73.00        | 56.76       | 1000.0          | 9.000           | N    | 19.5       |
| 1.927500        | ---              | 18.05           | 60.00        | 41.95       | 1000.0          | 9.000           | N    | 19.5       |
| 4.816500        | 34.75            | ---             | 73.00        | 38.25       | 1000.0          | 9.000           | N    | 19.5       |
| 4.816500        | ---              | 34.05           | 60.00        | 25.95       | 1000.0          | 9.000           | N    | 19.5       |
| 7.381500        | ---              | 51.72           | 60.00        | 8.28        | 1000.0          | 9.000           | N    | 19.6       |
| 7.705500        | 52.92            | ---             | 73.00        | 20.08       | 1000.0          | 9.000           | N    | 19.6       |
| 13.560000       | ---              | 59.67           | 60.00        | 0.33        | 1000.0          | 9.000           | N    | 19.7       |
| 13.560000       | 59.71            | ---             | 73.00        | 13.29       | 1000.0          | 9.000           | N    | 19.7       |

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)  
Factor (dB) = Cable Loss (dB) + LISN Factor (dB) + 10dB Attenuator

Remark: This device defined as Class A digital device, it will be used in a commercial environment.

## 11 Radiated Emission

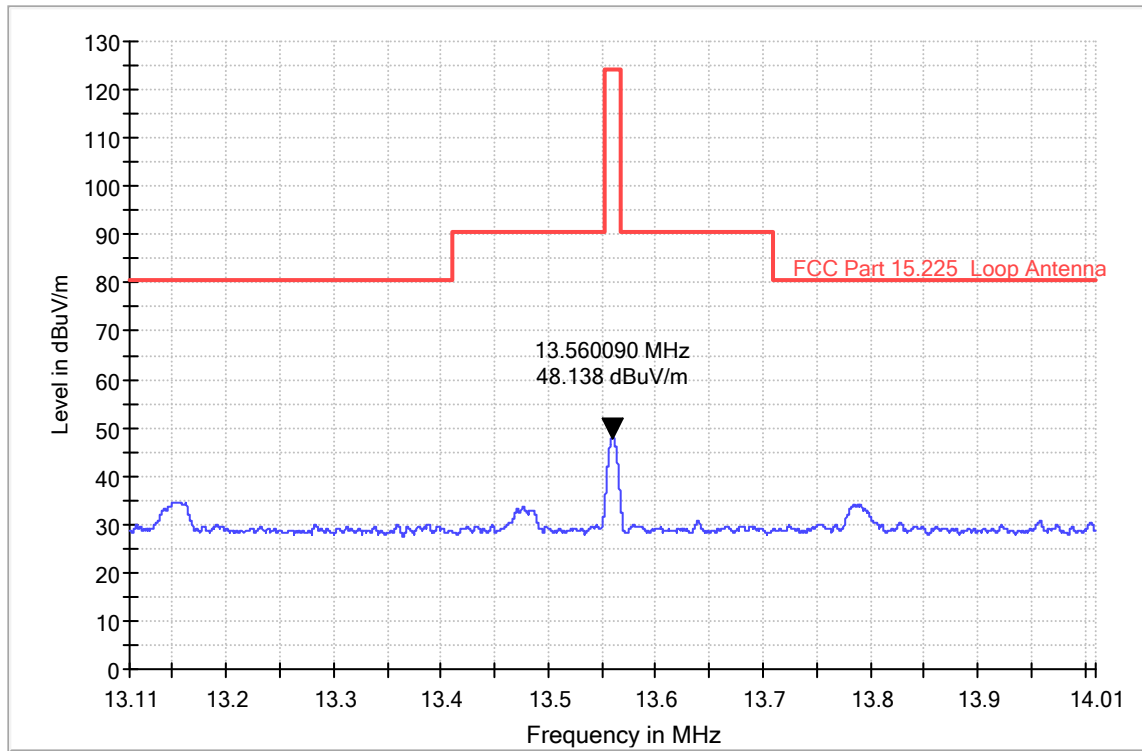
### Test Method

1. The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meters chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
4. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
5. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
6. Use the following spectrum analyzer settings According to C63.10:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 kHz for  $f < 1$  GHz; VBW RBW; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3MHz for  $f \geq 1$  GHz for peak measurement.For average measurement:  
VBW = 10 Hz, when duty cycle is no less than 98 percent.  
VBW  $\geq 1/T$ , when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
7. Repeat above procedures until all frequencies measured were complete.

### Limit

According to §15.225 (a, b, c), the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

FCC 15.225 RE\_Loop E\_pre



**Limits for 15.209 Radiated emission limits; general requirements**

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300                           |
| 0.490-1.705     | 24000/F(kHz)                      | 30                            |
| 1.705-30.0      | 30                                | 30                            |
| 30-88           | 100                               | 3                             |
| 88-216          | 150                               | 3                             |
| 216-960         | 200                               | 3                             |
| Above 960       | 500                               | 3                             |

| Frequency             | Limit at 3m (dBuV/m)       |
|-----------------------|----------------------------|
| 0.009 MHz – 0.490 MHz | 128.5 to 93.8 <sup>1</sup> |
| 0.490 MHz – 1.705 MHz | 73.8 to 63 <sup>1</sup>    |
| 1.705 MHz – 30 MHz    | 69.5 <sup>1</sup>          |
| 30 MHz – 88 MHz       | 40.0 <sup>1</sup>          |
| 88 MHz – 216 MHz      | 43.5 <sup>1</sup>          |
| 216 MHz – 960 MHz     | 46.0 <sup>1</sup>          |
| Above 960 MHz         | 54.0 <sup>1</sup>          |
| Above 1000 MHz        | 54.0 <sup>2</sup>          |
| Above 1000 MHz        | 74.0 <sup>3</sup>          |

<sup>1</sup>Limit is with detector with bandwidths as defined in CISPR-16-1-1 except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz where an Average detector is used.

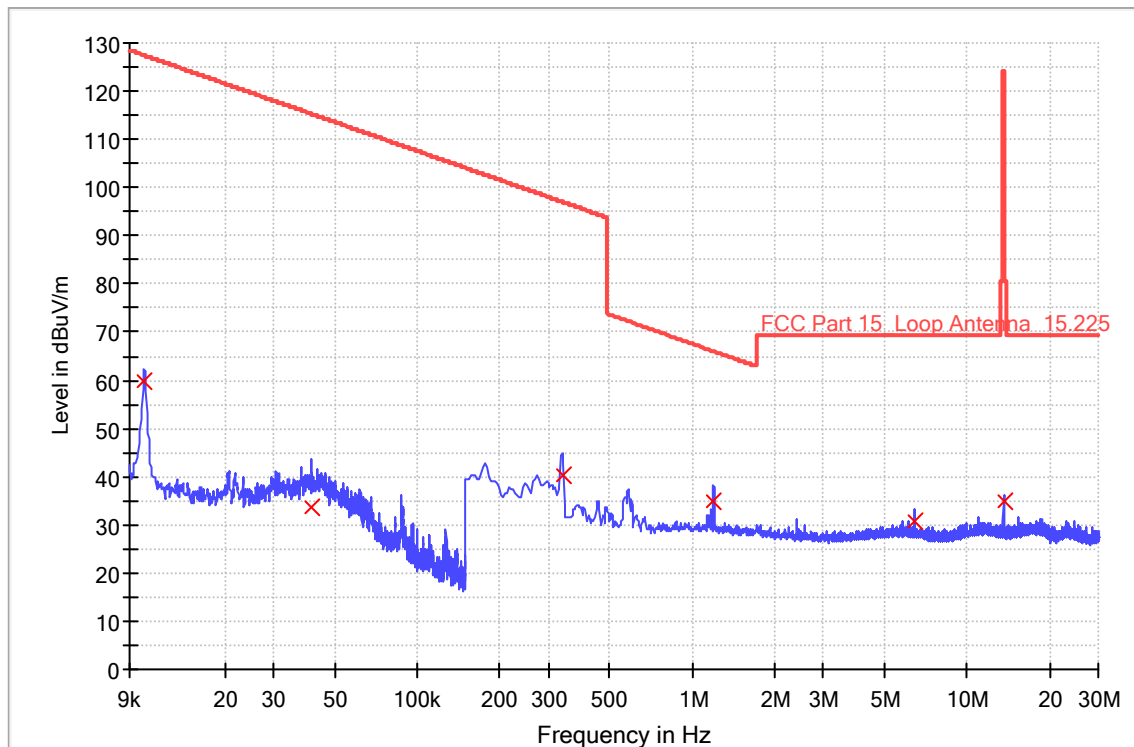
<sup>2</sup>Limit is with 1 MHz measurement bandwidth and using an Average detector

<sup>3</sup>Limit is with 1 MHz measurement bandwidth and using a Peak detector

## Spurious radiated emissions for transmitter

|                              |                          |
|------------------------------|--------------------------|
| Site: 3 meter chamber        | Time: 2022/06/14 - 14:21 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Wang Yiquan    |
| Probe: HFH2-Z2               | Polarity: Horizontal     |
| EUT: Automatic Press Fixture | Power: AC 120V,60Hz      |
| Note: Transmit at 13.56MHz.  |                          |

RE\_Loop E\_pre

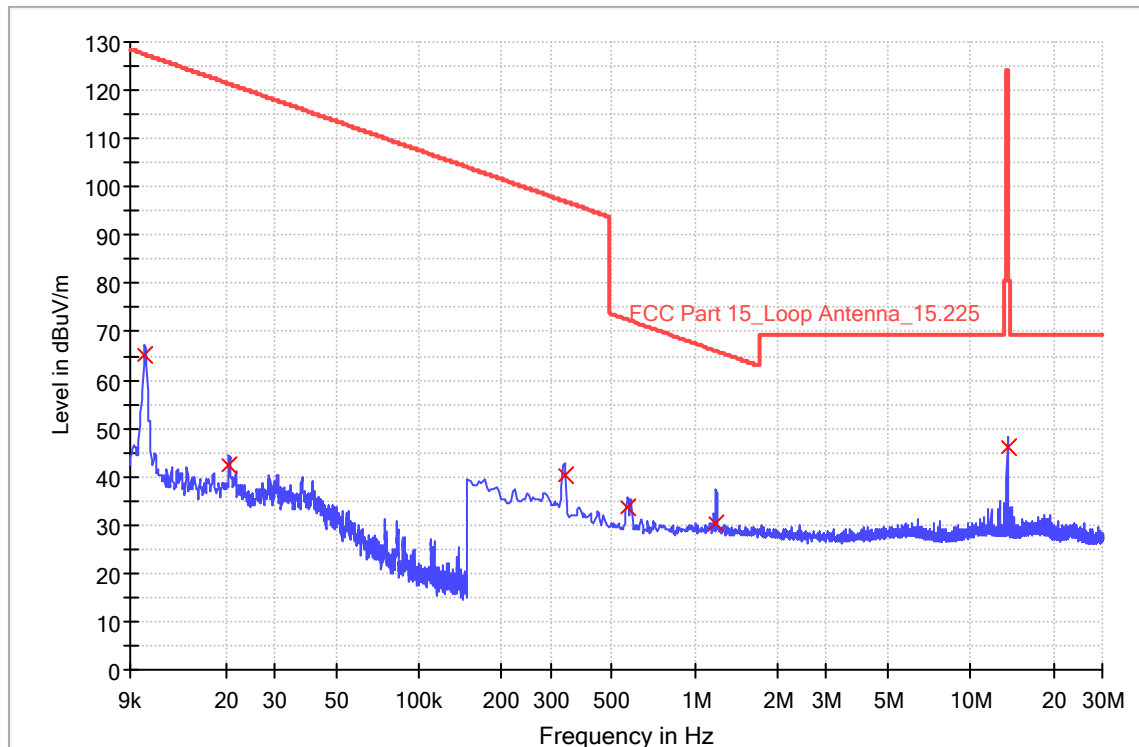


## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Margin - QPK (dB) |
|-----------------|--------------------|-----------------|-----------------|-------------|-----|---------------|--------------|-------------------|
| 0.010200        | 59.9               | 1000.0          | 0.200           | 155.0       | H   | 19.0          | 19.7         | 67.542            |
| 0.041400        | 33.8               | 1000.0          | 0.200           | 155.0       | H   | 146.0         | 19.0         | 81.494            |
| 0.338000        | 40.3               | 1000.0          | 9.000           | 155.0       | H   | 95.0          | 18.8         | 56.686            |
| 1.198000        | 35.0               | 1000.0          | 9.000           | 155.0       | H   | 200.0         | 18.9         | 31.025            |
| 6.414000        | 30.9               | 1000.0          | 9.000           | 155.0       | H   | 272.0         | 18.9         | 38.612            |
| 13.562000       | 35.1               | 1000.0          | 9.000           | 155.0       | H   | 326.0         | 18.8         | 88.950            |

|                              |                          |
|------------------------------|--------------------------|
| Site: 3 meter chamber        | Time: 2022/06/14 - 14:30 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Wang Yiquan    |
| Probe: HFH2-Z2               | Polarity: Vertical       |
| EUT: Automatic Press Fixture | Power: AC 120V,60Hz      |
| Note: Transmit at 13.56MHz.  |                          |

RE\_Loop E\_pre

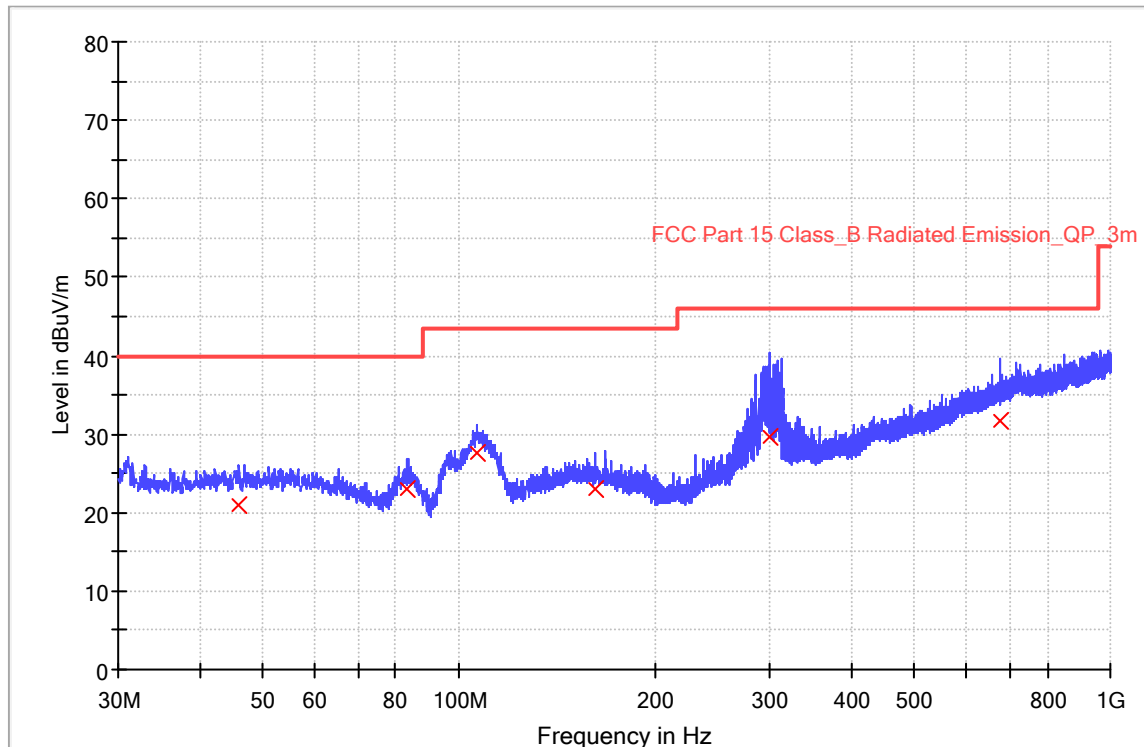


## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Margin - QPK (dB) |
|-----------------|--------------------|-----------------|-----------------|-------------|-----|---------------|--------------|-------------------|
| 0.010200        | 65.1               | 1000.0          | 0.200           | 155.0       | H   | 68.0          | 19.7         | 62.292            |
| 0.020520        | 42.4               | 1000.0          | 0.200           | 155.0       | H   | 208.0         | 19.1         | 79.010            |
| 0.338000        | 40.3               | 1000.0          | 9.000           | 155.0       | H   | 122.0         | 18.8         | 56.746            |
| 0.570000        | 33.5               | 1000.0          | 9.000           | 155.0       | H   | 252.0         | 18.9         | 38.946            |
| 1.198000        | 30.5               | 1000.0          | 9.000           | 155.0       | H   | 164.0         | 18.9         | 35.565            |
| 13.562000       | 46.2               | 1000.0          | 9.000           | 155.0       | H   | 10.0          | 18.8         | 77.850            |

|                              |                          |
|------------------------------|--------------------------|
| Site: 3 meter chamber        | Time: 2022/06/14 - 14:41 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Wang Yiquan    |
| Probe: VULB 9168             | Polarity: Horizontal     |
| EUT: Automatic Press Fixture | Power: AC 120V,60Hz      |
| Note: Transmit at 13.56MHz.  |                          |

RE\_VULB9168\_pre\_Cont\_30-1000

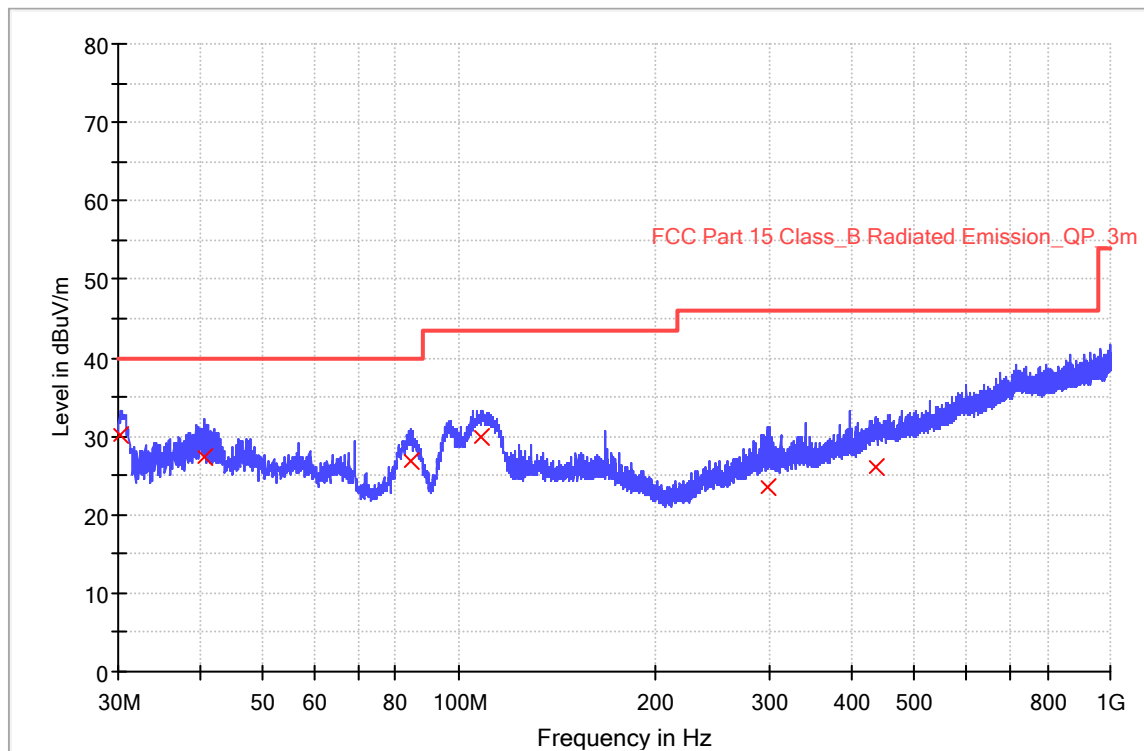


## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Margin - QPK (dB) |
|-----------------|--------------------|-----------------|-----------------|-------------|-----|---------------|--------------|-------------------|
| 45.960000       | 21.0               | 1000.0          | 120.000         | 100.0       | H   | 172.0         | 20.4         | 19.1              |
| 83.480000       | 22.9               | 1000.0          | 120.000         | 100.0       | H   | 332.0         | 15.0         | 17.1              |
| 106.680000      | 27.7               | 1000.0          | 120.000         | 100.0       | H   | 48.0          | 16.9         | 15.8              |
| 161.480000      | 23.1               | 1000.0          | 120.000         | 100.0       | H   | 0.0           | 20.8         | 20.4              |
| 300.760000      | 29.6               | 1000.0          | 120.000         | 100.0       | H   | 94.0          | 21.5         | 16.4              |
| 677.800000      | 31.8               | 1000.0          | 120.000         | 100.0       | H   | 0.0           | 30.0         | 14.2              |

|                              |                          |
|------------------------------|--------------------------|
| Site: 3 meter chamber        | Time: 2022/06/14 - 14:52 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Wang Yiquan    |
| Probe: VULB 9168             | Polarity: Vertical       |
| EUT: Automatic Press Fixture | Power: AC 120V,60Hz      |
| Note: Transmit at 13.56MHz.  |                          |

RE\_VULB9168\_pre\_Cont\_30-1000



## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBuV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Margin - QPK (dB) |
|-----------------|--------------------|-----------------|-----------------|-------------|-----|---------------|--------------|-------------------|
| 30.320000       | 30.1               | 1000.0          | 120.000         | 100.0       | V   | 72.0          | 19.4         | 9.9               |
| 40.760000       | 27.5               | 1000.0          | 120.000         | 100.0       | V   | 110.0         | 20.1         | 12.5              |
| 84.400000       | 26.8               | 1000.0          | 120.000         | 100.0       | V   | 168.0         | 14.9         | 13.2              |
| 107.920000      | 29.9               | 1000.0          | 120.000         | 100.0       | V   | 19.0          | 17.1         | 13.7              |
| 297.480000      | 23.4               | 1000.0          | 120.000         | 100.0       | V   | 222.0         | 21.4         | 22.6              |
| 437.120000      | 26.1               | 1000.0          | 120.000         | 100.0       | V   | 290.0         | 25.6         | 19.9              |

## 12 20dB and 99% Bandwidth Measurement

### Test Method for 20dB Bandwidth

1. Set to the maximum power setting and enable the EUT transmit continuously.
2. Use the following test receiver settings:  
Span = approximately 5 times the 20dB bandwidth, centered on a hopping channel  
RBW = 1% to 5% of the 20dB bandwidth of the emission being measured, VBW  $\geq$  RBW,  
Sweep = auto, Detector function = peak, Trace = max hold
3. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth. Record the results.
4. Repeat above procedures until all frequencies measured were complete.

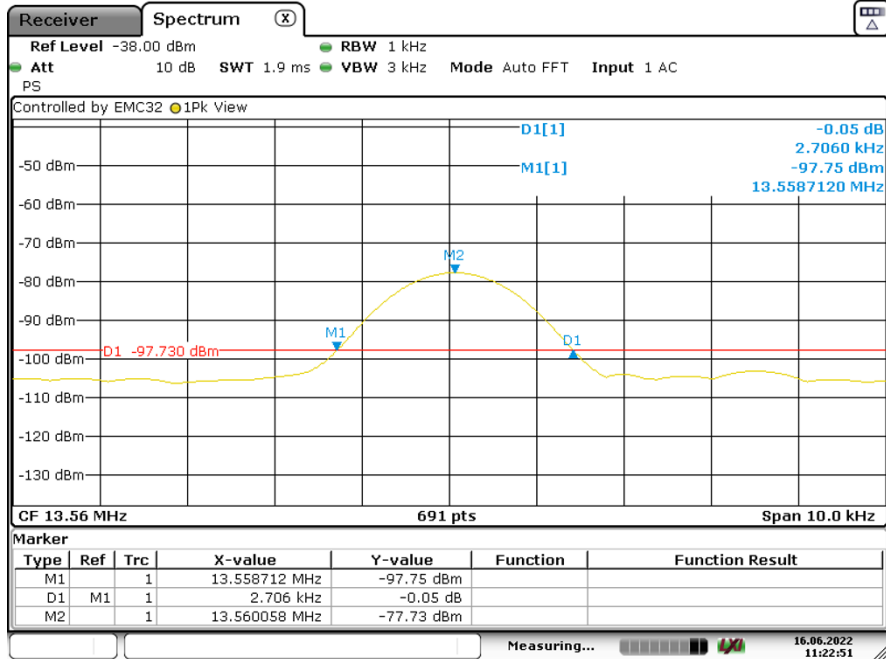
### Test Method for 99 % Bandwidth

1. Use the following spectrum analyzer settings:  
RBW = 1% to 5% of the actual occupied, VBW  $\geq$  3RBW, Sweep = auto,  
Detector function = peak, Trace = max hold
2. Use the automatic bandwidth measurement capability of an instrument, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be  $\geq$  6 dB.
3. Allow the trace to stabilize, record the X dB Bandwidth value.

### Test Result

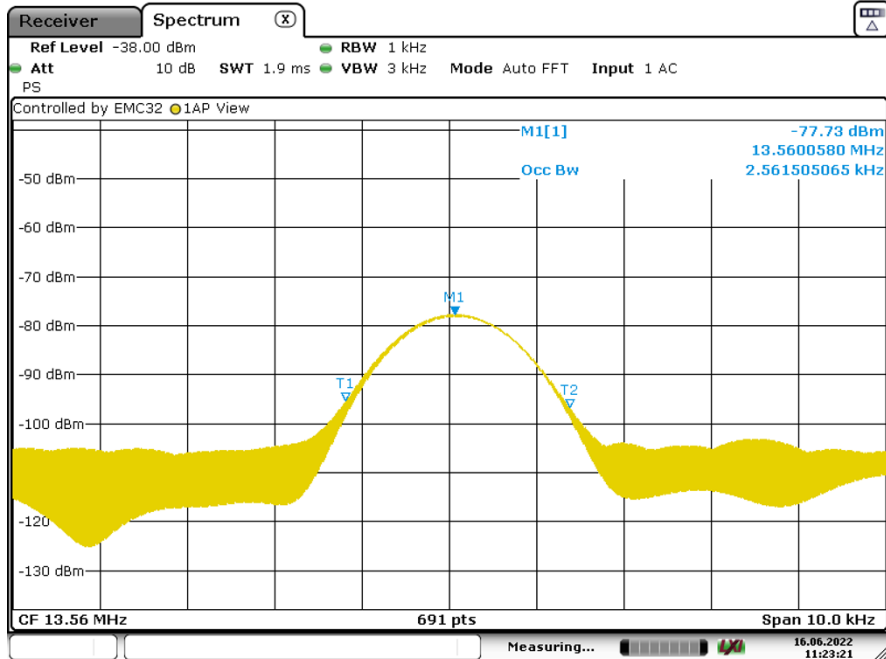
| Channel  | 20dB Bandwidth (kHz) | 99% Bandwidth (kHz) | Limit (KHz) |
|----------|----------------------|---------------------|-------------|
| 13.56MHz | 2.706 kHz            | 2.5615 kHz          | NA          |

## 20dB Bandwidth test result



Date: 16 JUN 2022 11:22:52

## 99% Bandwidth test result



Date: 16 JUN 2022 11:23:21

## 13 FREQUENCY STABILITY

### Test Method

1. The equipment under test was connected to an external AC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber.
2. After the temperature stabilized for approximately 20 minutes, the frequency of the output signal was recorded from the counter.
3. At room temperature ( $25\pm5^{\circ}\text{C}$ ), an external variable AC power supply was connected to the EUT. The frequency of the transmitter was measured for 115%, 100% and 85% of the nominal operating input voltage.

### Limit

The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$  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.

For battery operated equipment, the equipment tests shall be performed using a new battery.

### Test Result

| Frequency Stability: Temperature variation |                 |                    |                             |                    |        |
|--------------------------------------------|-----------------|--------------------|-----------------------------|--------------------|--------|
| Temperature<br>(° C)                       | Voltage<br>(AC) | Frequency<br>(MHz) | Frequency<br>Error<br>(kHz) | Limit<br>(kHz)     | Result |
| 20                                         | 120V            | 13.5600            | NA                          | NA                 | Pass   |
| 50                                         | 120V            | 13.5601            | 0.0001                      | within $\pm 1.356$ | Pass   |
| -20                                        | 120V            | 13.5600            | 0                           | within $\pm 1.356$ | Pass   |

| Frequency Stability: Voltage variation |                 |                    |                             |                    |        |
|----------------------------------------|-----------------|--------------------|-----------------------------|--------------------|--------|
| Temperature<br>(° C)                   | Voltage<br>(AC) | Frequency<br>(MHz) | Frequency<br>Error<br>(kHz) | Limit<br>(kHz)     | Result |
| 20                                     | 102V            | 13.5600            | NA                          | NA                 | Pass   |
| 20                                     | 120V            | 13.5600            | 0                           | within $\pm 1.356$ | Pass   |
| 20                                     | 138V            | 13.5600            | 0                           | within $\pm 1.356$ | Pass   |

## 14 Test Equipment List

### List of Test Instruments

| USED                                | Equipment Name                      | Model       | Manufacturer   | Equipment ID.    | Calibration Date | Calibration Due |
|-------------------------------------|-------------------------------------|-------------|----------------|------------------|------------------|-----------------|
| <input checked="" type="checkbox"/> | EMI test receiver                   | ESR3        | R&S            | S1503109-YQ-EMC  | 2022.8.1         | 2023.7.31       |
| <input checked="" type="checkbox"/> | Trilog super broadband test antenna | SCHWARZBECK | VULB9168       | S1808296-YQ-EMC  | 2021.9.23        | 2024.9.22       |
| <input checked="" type="checkbox"/> | Temperature Chamber                 | HTT-100AP   | Shanghai HUCAN | S2201430b-YQ-EMC | 2022-3-08        | 2023-3-07       |
| <input checked="" type="checkbox"/> | Loop antenna                        | HFH2-Z2     | R&S            | S1503013-YQ-EMC  | 2022-6-13        | 2022-6-12       |
| <input checked="" type="checkbox"/> | EMI test receiver                   | R & S       | ESR3           | S1503001-YQ-EMC  | 2022.8.1         | 2023.7.31       |
| <input checked="" type="checkbox"/> | 2-Line V-network                    | R & S       | ENV216         | S1503103-YQ-EMC  | 2022.8.1         | 2023.7.31       |

## 15 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

| Items                | Extended Uncertainty                            |
|----------------------|-------------------------------------------------|
| Radiated Disturbance | 30MHz to 1GHz, $\pm 5.03\text{dB}$ (Horizontal) |
|                      | $\pm 5.11\text{dB}$ (Vertical)                  |
|                      | 1GHz to 18GHz, $\pm 5.15\text{dB}$ (Horizontal) |
|                      | $\pm 5.12\text{dB}$ (Vertical)                  |

## 16 Photographs of Test Set-ups

Refer to the < Test Setup photos >.

## 17 Photographs of EUT

Refer to the < External Photos > & < Internal Photos >.

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THE END