

# TEST REPORT

**Applicant:** Comelit Group Spa

**Address of Applicant:** via Don Arrigoni 5 san Lorenzo di Rovetta Bergamo Italy

**Manufacturer:** Zhong Shan Jesmay Electronics Co., Ltd

**Address of Manufacturer:** First Industry District, Tan Zhou, Zhong Shan, Canton, China

**Equipment Under Test (EUT)**

Product Name: Smart Video Doorbell

Model No.: CM96201FR-CMS

**FCC ID:** 2ANSR-CM96201FR

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.231

**Date of sample receipt:** May 27, 2019

**Date of Test:** May 28, 2019-June 20, 2019

**Date of report issued:** June 21, 2019

**Test Result :** PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



**Robinson Lo**  
**Laboratory Manager**

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

## 2 Version

| Version No. | Date          | Description |
|-------------|---------------|-------------|
| 01          | June 21, 2019 | Original    |
|             |               |             |
|             |               |             |
|             |               |             |
|             |               |             |

Prepared By:

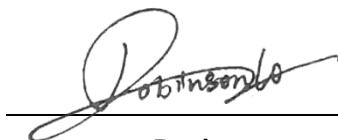


Date:

June 21, 2019

Project Engineer

Check By:



Date:

June 21, 2019

Reviewer

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## 4 Test Summary

| Test Item                                | Section in CFR 47 | Result |
|------------------------------------------|-------------------|--------|
| Antenna Requirement                      | 15.203            | Pass   |
| Conduction Emission                      | 15.207            | Pass   |
| Field strength of the Fundamental Signal | 15.231 (b)        | Pass   |
| Spurious Emissions                       | 15.231 (b)/15.209 | Pass   |
| 20dB Bandwidth                           | 15.231 (c)        | Pass   |
| Dwell Time                               | 15.231 (a)(1)     | Pass   |

Pass: The EUT complies with the essential requirements in the standard.

N/A: Not applicable.

### 4.1 Measurement Uncertainty

| Test Item                                                                                             | Frequency Range | Measurement Uncertainty | Notes |
|-------------------------------------------------------------------------------------------------------|-----------------|-------------------------|-------|
| Radiated Emission                                                                                     | 9kHz ~ 30MHz    | $\pm 4.64\text{dB}$     | (1)   |
| Radiated Emission                                                                                     | 30MHz ~ 1000MHz | $\pm 4.64\text{dB}$     | (1)   |
| Radiated Emission                                                                                     | 1GHz ~ 26.5GHz  | $\pm 3.68\text{dB}$     | (1)   |
| AC Power Line Conducted Emission                                                                      | 0.15MHz ~ 30MHz | $\pm 3.44\text{dB}$     | (1)   |
| Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%. |                 |                         |       |

## 5 General Information

### 5.1 General Description of EUT

|                        |                              |
|------------------------|------------------------------|
| Product Name:          | Smart Video Doorbell         |
| Model No.:             | CM96201FR-CMS                |
| Serial No.:            | as0745qwcd                   |
| Hardware Version:      | ALM-VA-MB-222 (D) 20181031   |
| Software Version:      | V1.0.0                       |
| Test sample(s) ID:     | GTS201905000212-1            |
| Sample(s) Status:      | Engineer sample              |
| Operation Frequency:   | 433.92MHz                    |
| Modulation technology: | ASK                          |
| Antenna Type:          | Integral Antenna             |
| Antenna gain:          | 2.0dBi(declare by applicant) |
| Power supply:          | DC 12V                       |

## 5.2 Test mode

|                   |                                    |
|-------------------|------------------------------------|
| Transmitting mode | Keep the EUT in transmitting mode. |
|-------------------|------------------------------------|

### Per-test mode.

We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which only the worst case was shown in this test report and defined as follows:

|           | Axis                   | X     | Y     | Z     |
|-----------|------------------------|-------|-------|-------|
| 433.92MHz | Field Strength(dBuV/m) | 71.26 | 72.55 | 70.34 |

## 5.3 Description of Support Units

| Manufacturer                  | Description          | Model    | Serial Number |
|-------------------------------|----------------------|----------|---------------|
| Zhong Shan Jesmay Electronics | Smart Video Doorbell | CM93602W | NA            |

## 5.4 Test Facility

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

- **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

- **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2.

- **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

## 5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.  
No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone,  
Xixiang Road, Baoan District, Shenzhen, Guangdong, China  
Tel: 0755-27798480  
Fax: 0755-27798960

## 5.6 Other Information Requested by the Customer

None.

## 6 Test Instruments list

| Radiated Emission: |                                     |                                |                             |               |                     |                         |
|--------------------|-------------------------------------|--------------------------------|-----------------------------|---------------|---------------------|-------------------------|
| Item               | Test Equipment                      | Manufacturer                   | Model No.                   | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                  | 3m Semi- Anechoic Chamber           | ZhongYu Electron               | 9.2(L)*6.2(W)* 6.4(H)       | GTS250        | July. 03 2015       | July. 02 2020           |
| 2                  | Control Room                        | ZhongYu Electron               | 6.2(L)*2.5(W)* 2.4(H)       | GTS251        | N/A                 | N/A                     |
| 3                  | EMI Test Receiver                   | Rohde & Schwarz                | ESU26                       | GTS203        | June. 27 2018       | June. 26 2019           |
| 4                  | BiConiLog Antenna                   | SCHWARZBECK<br>MESS-ELEKTRONIK | VULB9163                    | GTS214        | June. 27 2018       | June. 26 2019           |
| 5                  | Double -ridged waveguide horn       | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA 9120 D                 | GTS208        | June. 27 2018       | June. 26 2019           |
| 6                  | Horn Antenna                        | ETS-LINDGREN                   | 3160                        | GTS217        | June. 27 2018       | June. 26 2019           |
| 7                  | EMI Test Software                   | AUDIX                          | E3                          | N/A           | N/A                 | N/A                     |
| 8                  | Coaxial Cable                       | GTS                            | N/A                         | GTS213        | June. 27 2018       | June. 26 2019           |
| 9                  | Coaxial Cable                       | GTS                            | N/A                         | GTS211        | June. 27 2018       | June. 26 2019           |
| 10                 | Coaxial cable                       | GTS                            | N/A                         | GTS210        | June. 27 2018       | June. 26 2019           |
| 11                 | Coaxial Cable                       | GTS                            | N/A                         | GTS212        | June. 27 2018       | June. 26 2019           |
| 12                 | Amplifier(100kHz-3GHz)              | HP                             | 8347A                       | GTS204        | June. 27 2018       | June. 26 2019           |
| 13                 | Amplifier(2GHz-20GHz)               | HP                             | 84722A                      | GTS206        | June. 27 2018       | June. 26 2019           |
| 14                 | Amplifier (18-26GHz)                | Rohde & Schwarz                | AFS33-18002<br>650-30-8P-44 | GTS218        | June. 27 2018       | June. 26 2019           |
| 15                 | Band filter                         | Amindeon                       | 82346                       | GTS219        | June. 27 2018       | June. 26 2019           |
| 16                 | Power Meter                         | Anritsu                        | ML2495A                     | GTS540        | June. 27 2018       | June. 26 2019           |
| 17                 | Power Sensor                        | Anritsu                        | MA2411B                     | GTS541        | June. 27 2018       | June. 26 2019           |
| 18                 | Wideband Radio Communication Tester | Rohde & Schwarz                | CMW500                      | GTS575        | June. 27 2018       | June. 26 2019           |
| 19                 | Splitter                            | Agilent                        | 11636B                      | GTS237        | June. 27 2018       | June. 26 2019           |
| 20                 | Loop Antenna                        | ZHINAN                         | ZN30900A                    | GTS534        | June. 27 2018       | June. 26 2019           |
| 21                 | Breitband hornantenne               | SCHWARZBECK                    | BBHA 9170                   | GTS579        | Oct. 20 2018        | Oct. 19 2019            |
| 22                 | Amplifier                           | TDK                            | PA-02-02                    | GTS574        | Oct. 20 2018        | Oct. 19 2019            |
| 23                 | Amplifier                           | TDK                            | PA-02-03                    | GTS576        | Oct. 20 2018        | Oct. 19 2019            |
| 24                 | PSA Series Spectrum Analyzer        | Rohde & Schwarz                | FSP                         | GTS578        | June. 27 2018       | June. 26 2019           |

| Conducted Emission |                          |                         |                      |               |                     |                         |
|--------------------|--------------------------|-------------------------|----------------------|---------------|---------------------|-------------------------|
| Item               | Test Equipment           | Manufacturer            | Model No.            | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                  | Shielding Room           | ZhongYu Electron        | 7.3(L)x3.1(W)x2.9(H) | GTS252        | May.15 2019         | May.14 2022             |
| 2                  | EMI Test Receiver        | R&S                     | ESCI 7               | GTS552        | June. 27 2018       | June. 26 2019           |
| 3                  | Coaxial Switch           | ANRITSU CORP            | MP59B                | GTS225        | June. 27 2018       | June. 26 2019           |
| 4                  | Artificial Mains Network | SCHWARZBECK MESS        | NSLK8127             | GTS226        | June. 27 2018       | June. 26 2019           |
| 5                  | Coaxial Cable            | GTS                     | N/A                  | GTS227        | June. 27 2018       | June. 26 2019           |
| 6                  | EMI Test Software        | AUDIX                   | E3                   | N/A           | N/A                 | N/A                     |
| 7                  | Thermo meter             | KTJ                     | TA328                | GTS233        | June. 27 2018       | June. 26 2019           |
| 8                  | Absorbing clamp          | Elektronik-Feinmechanik | MDS21                | GTS229        | June. 27 2018       | June. 26 2019           |

| General used equipment: |                |              |           |               |                     |                         |
|-------------------------|----------------|--------------|-----------|---------------|---------------------|-------------------------|
| Item                    | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                       | Barometer      | ChangChun    | DYM3      | GTS257        | June 27 2018        | June 26 2019            |

## 7 Test results and Measurement Data

### 7.1 Antenna Requirement

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| <b>Standard requirement:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | FCC Part15 C Section 15.203 |
| <b>15.203 requirement:</b><br>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. |                             |
| <b>EUT Antenna:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |
| <i>The antenna is integral antenna, the best case gain of the antenna is 2.0dBi, reference to the appendix II for details</i>                                                                                                                                                                                                                                                                                                                                                    |                             |

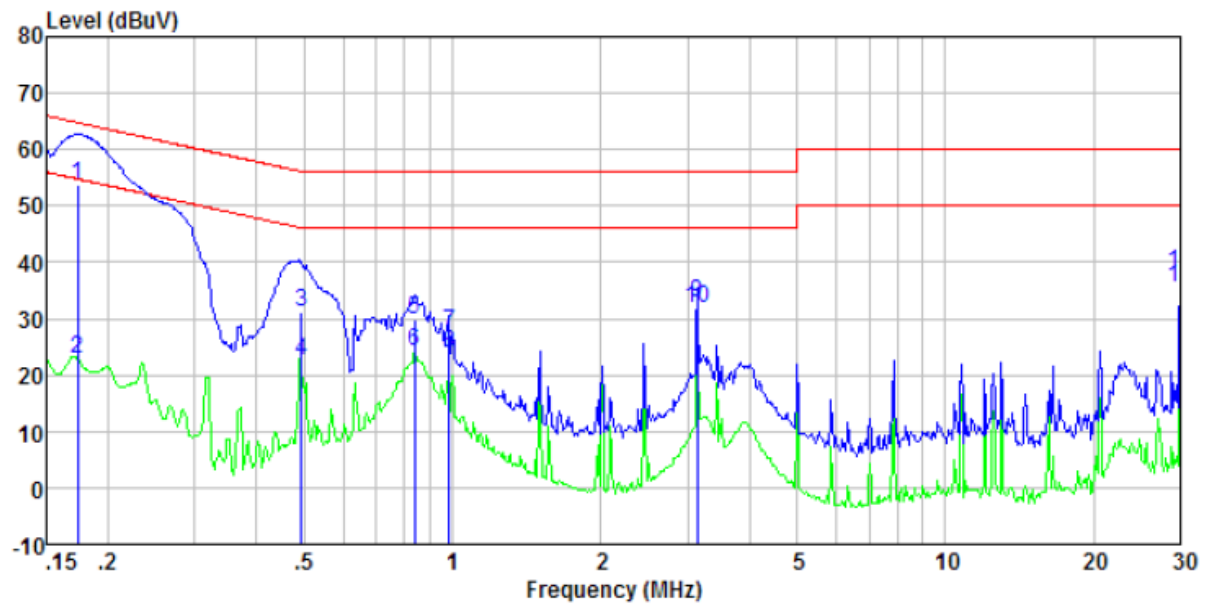
## 7.2 Conducted Emissions

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |              |     |           |           |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------|-----|-----------|-----------|
| Test Requirement:                                | FCC Part15 C Section 15.207                                                                                                                                                                                                                                                                                                                                                                                                          |       |              |     |           |           |
| Test Method:                                     | ANSI C63.10:2013                                                                                                                                                                                                                                                                                                                                                                                                                     |       |              |     |           |           |
| Test Frequency Range:                            | 150KHz to 30MHz                                                                                                                                                                                                                                                                                                                                                                                                                      |       |              |     |           |           |
| Receiver setup:                                  | RBW=9KHz, VBW=30KHz, Sweep time=auto                                                                                                                                                                                                                                                                                                                                                                                                 |       |              |     |           |           |
| Limit:                                           | Frequency range (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                |       | Limit (dBuV) |     |           |           |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                      |       | Quasi-peak   |     | Average   |           |
|                                                  | 0.15-0.5                                                                                                                                                                                                                                                                                                                                                                                                                             |       | 66 to 56*    |     | 56 to 46* |           |
|                                                  | 0.5-5                                                                                                                                                                                                                                                                                                                                                                                                                                |       | 56           |     | 46        |           |
|                                                  | 5-30                                                                                                                                                                                                                                                                                                                                                                                                                                 |       | 60           |     | 50        |           |
| * Decreases with the logarithm of the frequency. |                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |              |     |           |           |
| Test setup:                                      | <div><div><div>Reference Plane</div><div><div>LISN</div><div>AUX Equipment</div><div>E.U.T</div></div><div>40cm</div><div>80cm</div><div><div>LISN</div><div>Filter</div><div>EMI Receiver</div></div><div>AC power</div><div>Test table/Insulation plane</div></div><div><div>Remark:</div><div>E.U.T: Equipment Under Test</div><div>LISN: Line Impedance Stabilization Network</div><div>Test table height=0.8m</div></div></div> |       |              |     |           |           |
| Test Instruments:                                | Refer to section 6.0 for details                                                                                                                                                                                                                                                                                                                                                                                                     |       |              |     |           |           |
| Test mode:                                       | Refer to section 5.2 for details                                                                                                                                                                                                                                                                                                                                                                                                     |       |              |     |           |           |
| Test environment:                                | Temp.:                                                                                                                                                                                                                                                                                                                                                                                                                               | 25 °C | Humid.:      | 50% | Press.:   | 1 010mbar |
| Test voltage:                                    | DC12V                                                                                                                                                                                                                                                                                                                                                                                                                                |       |              |     |           |           |
| Test results:                                    | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |              |     |           |           |

Remark: Both high and low voltages have been tested to show only the worst low voltage test data.

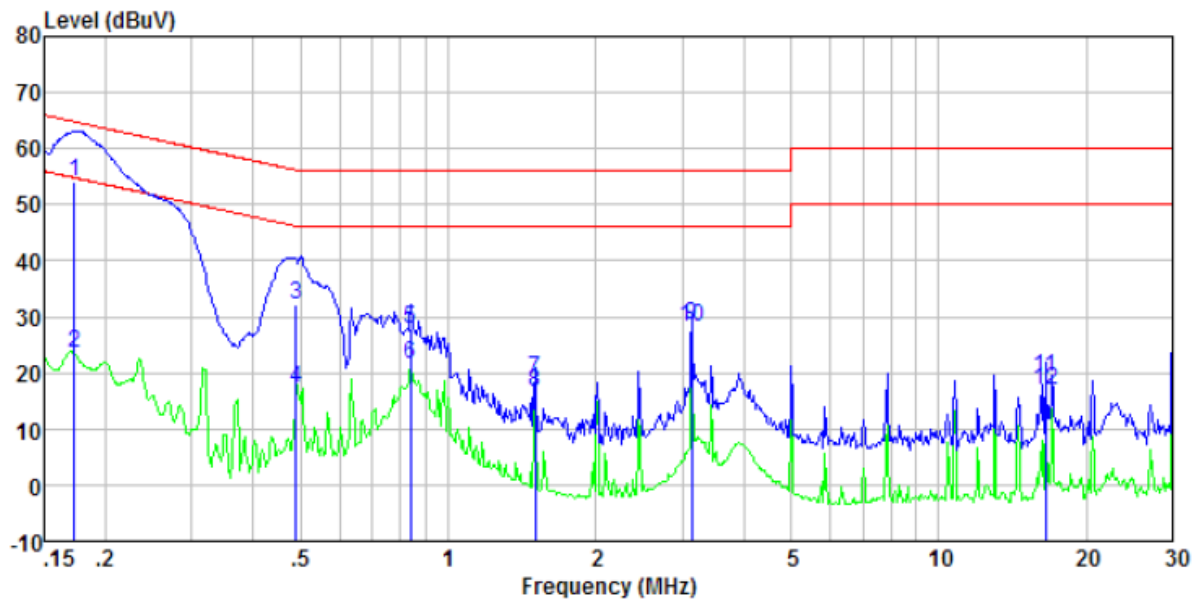
## Measurement data

Mode: Transmitting mode Polarization: Line



| Freq<br>MHz | Reading<br>level<br>dBuV | LISN/ISN<br>factor<br>dB/m | Cable<br>loss<br>dB | Level<br>dBuV | Limit<br>level<br>dBuV | Over<br>limit<br>dB | Remark  |
|-------------|--------------------------|----------------------------|---------------------|---------------|------------------------|---------------------|---------|
| 0.17        | 53.37                    | 0.40                       | 0.09                | 53.86         | 64.77                  | -10.91              | QP      |
| 0.17        | 22.36                    | 0.40                       | 0.09                | 22.85         | 54.77                  | -31.92              | Average |
| 0.49        | 30.88                    | 0.32                       | 0.11                | 31.31         | 56.10                  | -24.79              | QP      |
| 0.49        | 22.01                    | 0.32                       | 0.11                | 22.44         | 46.10                  | -23.66              | Average |
| 0.84        | 29.57                    | 0.23                       | 0.14                | 29.94         | 56.00                  | -26.06              | QP      |
| 0.84        | 23.69                    | 0.23                       | 0.14                | 24.06         | 46.00                  | -21.94              | Average |
| 0.98        | 27.09                    | 0.20                       | 0.15                | 27.44         | 56.00                  | -28.56              | QP      |
| 0.98        | 23.47                    | 0.20                       | 0.15                | 23.82         | 46.00                  | -22.18              | Average |
| 3.14        | 32.51                    | 0.20                       | 0.19                | 32.90         | 56.00                  | -23.10              | QP      |
| 3.14        | 31.34                    | 0.20                       | 0.19                | 31.73         | 46.00                  | -14.27              | Average |
| 30.00       | 37.54                    | 0.40                       | 0.23                | 38.17         | 60.00                  | -21.83              | QP      |
| 30.00       | 34.88                    | 0.40                       | 0.23                | 35.51         | 50.00                  | -14.49              | Average |

Mode: Transmitting mode Polarization: Neutral

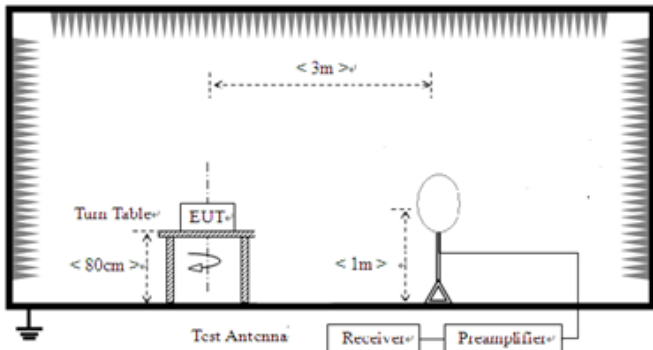


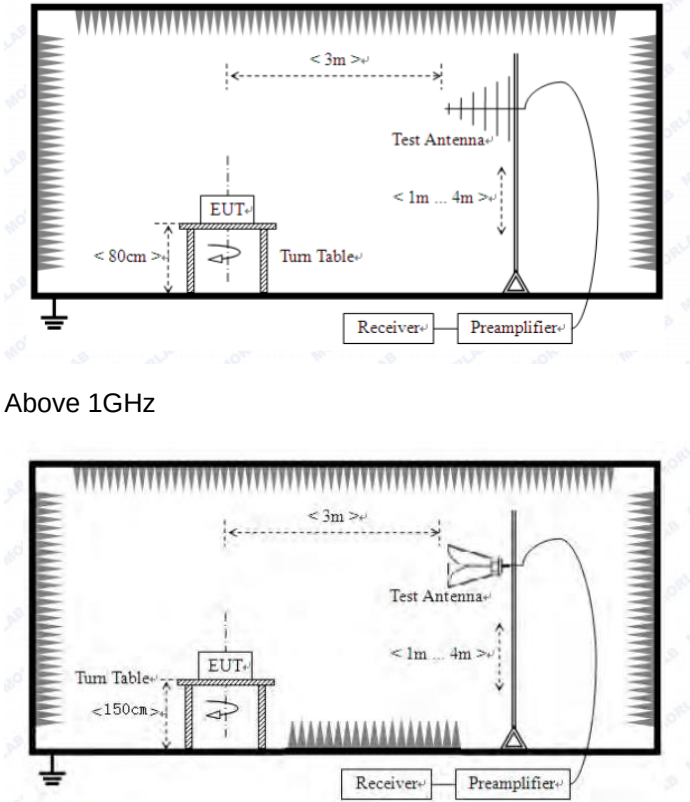
| Freq<br>MHz | Reading<br>level<br>dBuV | LISN/ISN<br>factor<br>dB/m | Cable<br>loss<br>dB | Level<br>dBuV | Limit<br>level<br>dBuV | Over<br>limit<br>dB | Remark  |
|-------------|--------------------------|----------------------------|---------------------|---------------|------------------------|---------------------|---------|
| 0.17        | 53.71                    | 0.40                       | 0.09                | 54.20         | 64.81                  | -10.61              | QP      |
| 0.17        | 23.02                    | 0.40                       | 0.09                | 23.51         | 54.81                  | -31.30              | Average |
| 0.49        | 31.78                    | 0.32                       | 0.11                | 32.21         | 56.19                  | -23.98              | QP      |
| 0.49        | 16.65                    | 0.32                       | 0.11                | 17.08         | 46.19                  | -29.11              | Average |
| 0.84        | 27.65                    | 0.23                       | 0.14                | 28.02         | 56.00                  | -27.98              | QP      |
| 0.84        | 21.30                    | 0.23                       | 0.14                | 21.67         | 46.00                  | -24.33              | Average |
| 1.50        | 18.52                    | 0.20                       | 0.16                | 18.88         | 56.00                  | -37.12              | QP      |
| 1.50        | 16.35                    | 0.20                       | 0.16                | 16.71         | 46.00                  | -29.29              | Average |
| 3.14        | 28.11                    | 0.20                       | 0.19                | 28.50         | 56.00                  | -27.50              | QP      |
| 3.14        | 27.86                    | 0.20                       | 0.19                | 28.25         | 46.00                  | -17.75              | Average |
| 16.49       | 18.68                    | 0.23                       | 0.22                | 19.13         | 60.00                  | -40.87              | QP      |
| 16.49       | 16.61                    | 0.23                       | 0.22                | 17.06         | 50.00                  | -32.94              | Average |

## Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

## 7.3 Radiated Emission Method

|                                                         |                                                                                                                                                        |                                                                                      |                                                        |               |                                                                  |  |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------|---------------|------------------------------------------------------------------|--|
| Test Requirement:                                       | FCC Part15 C Section 15.231 (b)& Section 15.209                                                                                                        |                                                                                      |                                                        |               |                                                                  |  |
| Test Method:                                            | ANSI C63.10:2013                                                                                                                                       |                                                                                      |                                                        |               |                                                                  |  |
| Test Frequency Range:                                   | 9kHz to 5000MHz                                                                                                                                        |                                                                                      |                                                        |               |                                                                  |  |
| Test site:                                              | Measurement Distance: 3m                                                                                                                               |                                                                                      |                                                        |               |                                                                  |  |
| Receiver setup:                                         | 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                                                                           | 120KHz                                                 | 300KHz        | Quasi-peak                                                       |  |
|                                                         | Above 1GHz                                                                                                                                             | Peak                                                                                 | 1MHz                                                   | 3MHz          | Peak                                                             |  |
| Peak                                                    |                                                                                                                                                        | 1MHz                                                                                 | 10Hz                                                   | Average       |                                                                  |  |
| Limit:<br>(Field strength of the<br>fundamental signal) | Frequency                                                                                                                                              | Limit (dBuV/m @3m)                                                                   |                                                        | Remark        |                                                                  |  |
|                                                         | 433.92MHz                                                                                                                                              | 100.83                                                                               |                                                        | Peak Value    |                                                                  |  |
|                                                         |                                                                                                                                                        | 80.83                                                                                |                                                        | Average Value |                                                                  |  |
| Limit:<br>(Spurious Emissions)                          | Fundamental Frequency<br>(MHz)                                                                                                                         |                                                                                      | Field Strength of<br>fundamental<br>(microvolts/meter) |               | Field Strength of<br>Unwanted<br>Emissions<br>(microvolts/meter) |  |
|                                                         | 40.66-40.70                                                                                                                                            |                                                                                      | 2250                                                   |               | 225                                                              |  |
|                                                         | 70-130                                                                                                                                                 |                                                                                      | 1250                                                   |               | 125                                                              |  |
|                                                         | 130-174                                                                                                                                                |                                                                                      | 1250 to 3750**                                         |               | 125 to 735                                                       |  |
|                                                         | 174-260                                                                                                                                                |                                                                                      | 3750                                                   |               | 375                                                              |  |
|                                                         | 260-470                                                                                                                                                |                                                                                      | 3750 to12500                                           |               | 375 to 1250                                                      |  |
|                                                         | Above 470                                                                                                                                              |                                                                                      | 12500                                                  |               | 1250                                                             |  |
|                                                         | Frequency<br>(MHz)                                                                                                                                     |                                                                                      | Class B(dBuV/m @3m)                                    |               |                                                                  |  |
|                                                         |                                                                                                                                                        |                                                                                      | Peak                                                   |               | Average                                                          |  |
|                                                         | Above 1000                                                                                                                                             |                                                                                      | 74                                                     |               | 54                                                               |  |
|                                                         | Or The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level whichever limit permits higher field strength. |                                                                                      |                                                        |               |                                                                  |  |
|                                                         | Test setup:                                                                                                                                            | Below 30MHz                                                                          |                                                        |               |                                                                  |  |
|                                                         |                                                                                                                                                        |  |                                                        |               |                                                                  |  |
| Test setup:                                             | Below 1GHz                                                                                                                                             |                                                                                      |                                                        |               |                                                                  |  |
|                                                         |                                                                                                                                                        |                                                                                      |                                                        |               |                                                                  |  |

|                   |                                                                                                       |
|-------------------|-------------------------------------------------------------------------------------------------------|
|                   |  <p>Above 1GHz</p> |
| Test Instruments: | Refer to section 6.0 for details                                                                      |
| Test mode:        | Refer to section 5.2 for details                                                                      |
| Test environment: | Temp.: 25 °C    Humid.: 50%    Press.: 1 010mbar                                                      |
| Test results:     | Pass                                                                                                  |

## Measurement data:

### 7.3.1 Field Strength of The Fundamental Signal

#### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 433.92          | 89.94             | 16.03                 | 3.02            | 37.52                    | 71.47          | 80.82               | -9.35           | Horizontal   |
| 433.92          | 91.02             | 16.03                 | 3.02            | 37.52                    | 72.55          | 80.82               | -8.27           | Vertical     |

#### Remarks:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- Average limit shall apply to PK value

## 7.3.2 Spurious Emissions

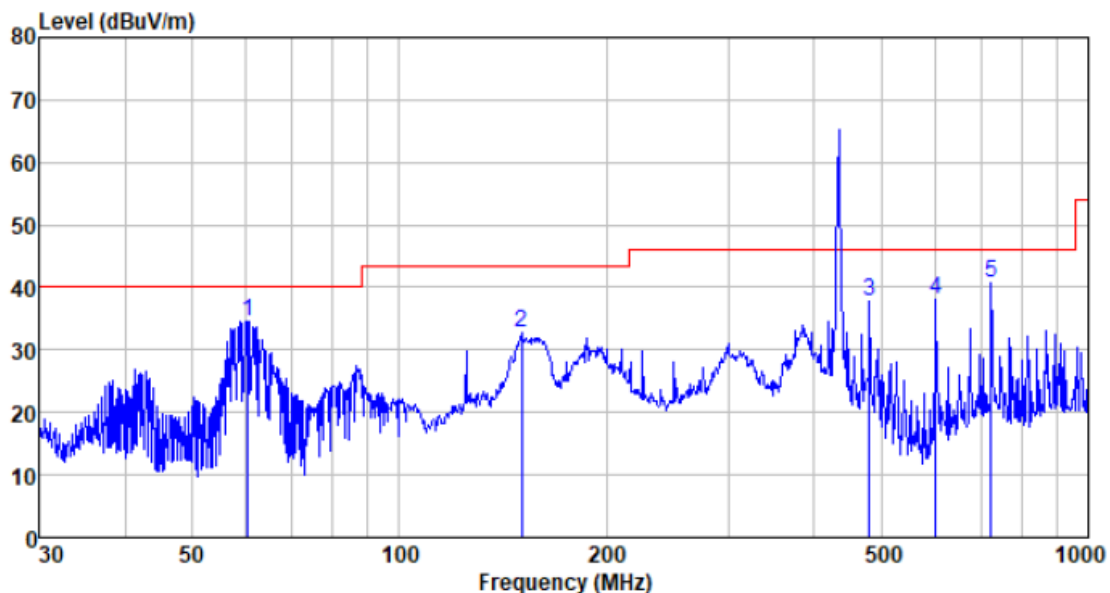
### Measurement data:

#### 9 kHz ~ 30 MHz

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

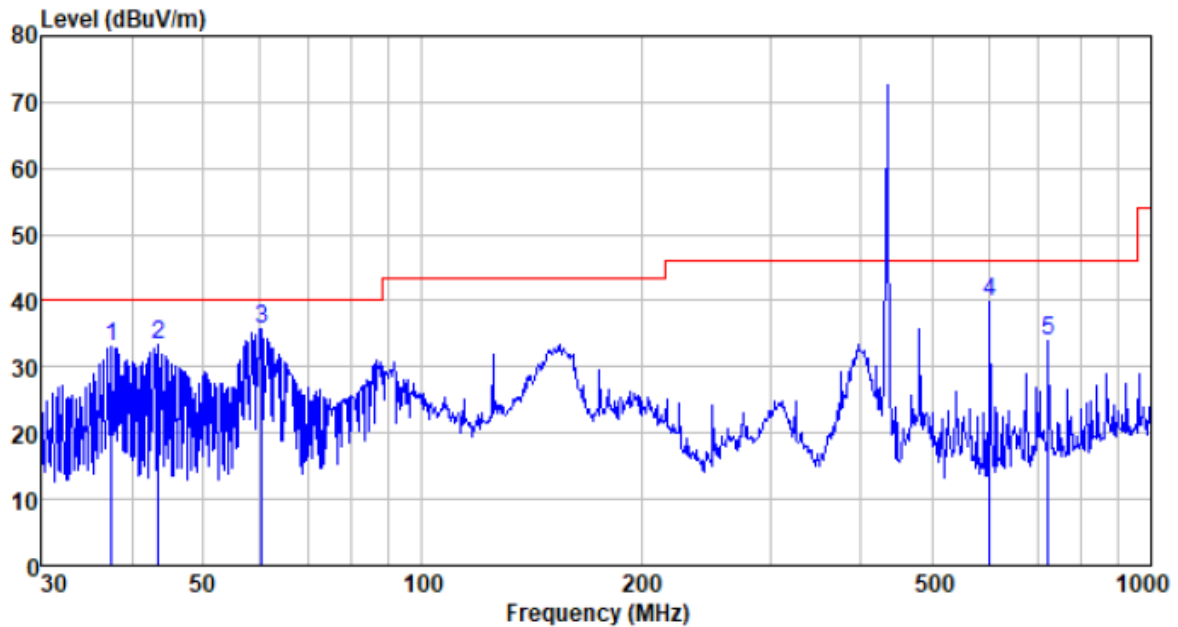
#### Below 1GHz:

|       |                   |               |            |
|-------|-------------------|---------------|------------|
| Mode: | Transmitting mode | Polarization: | Horizontal |
|-------|-------------------|---------------|------------|



| Freq<br>MHz | Reading<br>level<br>dBuV | Antenna<br>factor<br>dB/m | Cable<br>loss<br>dB | Preamp<br>factor<br>dB | level<br>dBuV | Limit<br>level<br>dBuV/m | Over<br>limit<br>dB | Remark |
|-------------|--------------------------|---------------------------|---------------------|------------------------|---------------|--------------------------|---------------------|--------|
| 60.280      | 58.90                    | 11.18                     | 0.86                | 36.33                  | 34.61         | 40.00                    | -5.39               | QP     |
| 150.538     | 60.68                    | 7.65                      | 1.57                | 37.08                  | 32.82         | 43.50                    | -10.68              | QP     |
| 480.528     | 55.04                    | 16.93                     | 3.22                | 37.51                  | 37.68         | 46.00                    | -8.32               | QP     |
| 601.427     | 52.36                    | 19.50                     | 3.73                | 37.54                  | 38.05         | 46.00                    | -7.95               | QP     |
| 721.726     | 54.22                    | 20.03                     | 4.17                | 37.63                  | 40.79         | 46.00                    | -5.21               | QP     |

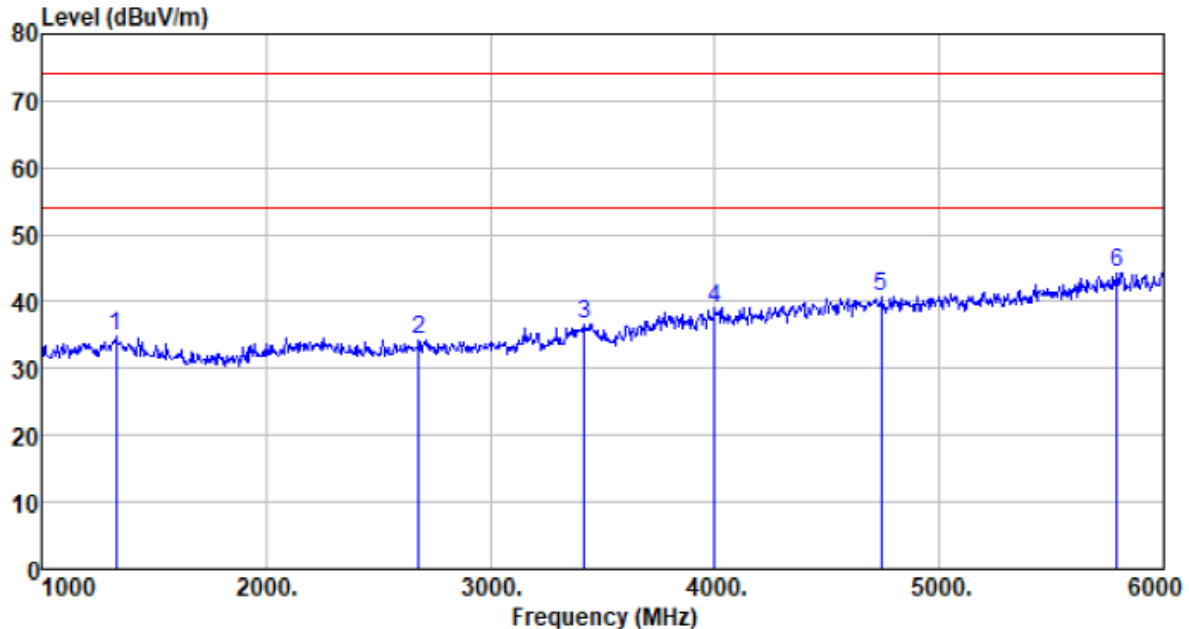
|       |                   |               |          |
|-------|-------------------|---------------|----------|
| Mode: | Transmitting mode | Polarization: | Vertical |
|-------|-------------------|---------------|----------|



| Freq<br>MHz | Reading<br>level<br>dBuV | Antenna<br>factor<br>dB/m | Cable<br>loss<br>dB | Preamp<br>factor<br>dB | level<br>dBuV | Limit<br>level<br>dBuV/m | Over<br>limit<br>dB | Remark |
|-------------|--------------------------|---------------------------|---------------------|------------------------|---------------|--------------------------|---------------------|--------|
| 37.548      | 56.25                    | 11.80                     | 0.64                | 35.52                  | 33.17         | 40.00                    | -6.83               | QP     |
| 43.506      | 56.42                    | 12.24                     | 0.70                | 35.86                  | 33.50         | 40.00                    | -6.50               | QP     |
| 60.280      | 60.10                    | 11.18                     | 0.86                | 36.33                  | 35.81         | 40.00                    | -4.19               | QP     |
| 601.427     | 54.21                    | 19.50                     | 3.73                | 37.54                  | 39.90         | 46.00                    | -6.10               | QP     |
| 721.726     | 47.29                    | 20.03                     | 4.17                | 37.63                  | 33.86         | 46.00                    | -12.14              | QP     |

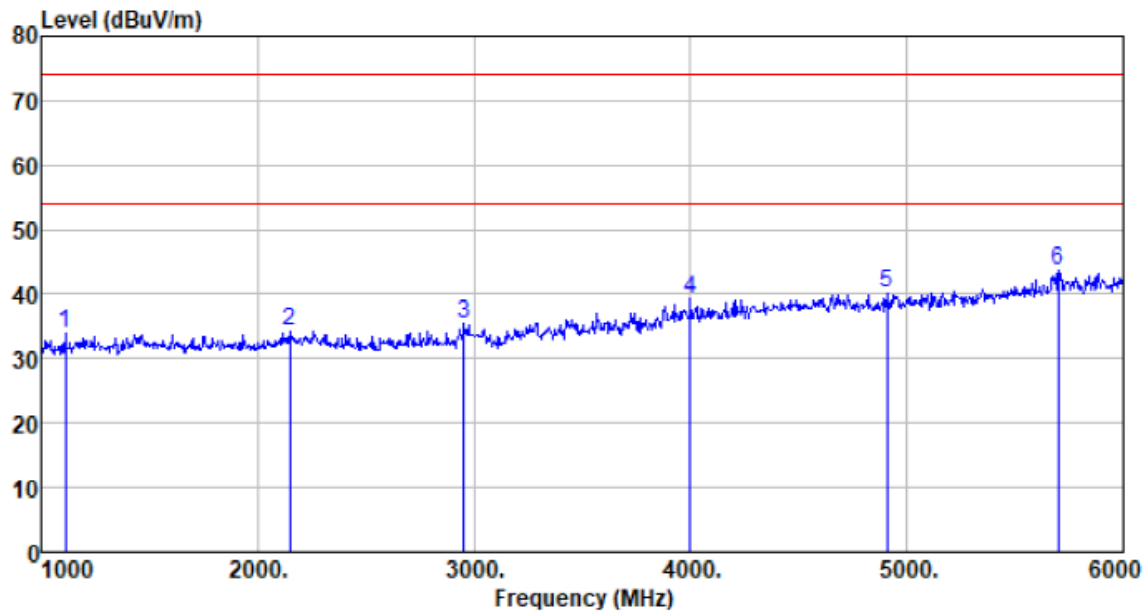
Above 1G:

|       |                   |               |            |
|-------|-------------------|---------------|------------|
| Mode: | Transmitting mode | Polarization: | Horizontal |
|-------|-------------------|---------------|------------|



| Freq<br>MHz | Reading<br>level<br>dBuV | Antenna<br>factor<br>dB/m | Cable<br>loss<br>dB | Preamp<br>factor<br>dB | level<br>dBuV | Limit<br>level<br>dBuV/m | Over<br>limit<br>dB | Remark |
|-------------|--------------------------|---------------------------|---------------------|------------------------|---------------|--------------------------|---------------------|--------|
| 1330.000    | 40.54                    | 25.68                     | 4.57                | 36.03                  | 34.76         | 74.00                    | -39.24              | Peak   |
| 2680.000    | 37.66                    | 28.08                     | 5.65                | 37.08                  | 34.31         | 74.00                    | -39.69              | Peak   |
| 3420.000    | 38.58                    | 28.67                     | 6.80                | 37.35                  | 36.70         | 74.00                    | -37.30              | Peak   |
| 4000.000    | 38.85                    | 29.68                     | 7.87                | 37.40                  | 39.00         | 74.00                    | -35.00              | Peak   |
| 4740.000    | 38.24                    | 31.70                     | 8.54                | 37.70                  | 40.78         | 74.00                    | -33.22              | Peak   |
| 5790.000    | 38.40                    | 32.63                     | 9.93                | 36.67                  | 44.29         | 74.00                    | -29.71              | Peak   |

|       |                   |               |          |
|-------|-------------------|---------------|----------|
| Mode: | Transmitting mode | Polarization: | Vertical |
|-------|-------------------|---------------|----------|

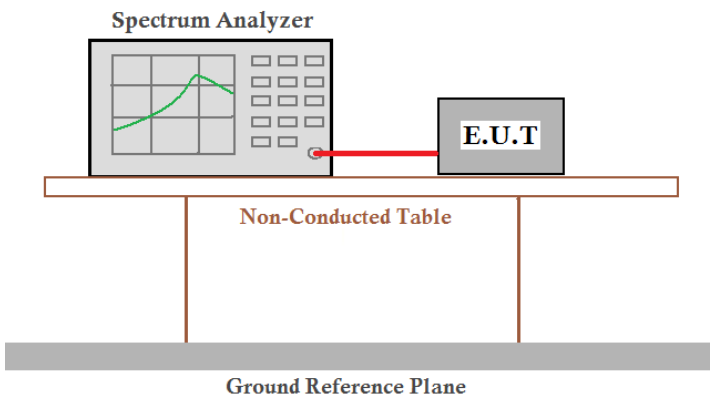


| Freq<br>MHz | Reading<br>level<br>dBuV | Antenna<br>factor<br>dB/m | Cable<br>loss<br>dB | Preamp<br>factor<br>dB | level<br>dBuV | Limit<br>level<br>dBuV/m | Over<br>limit<br>dB | Remark |
|-------------|--------------------------|---------------------------|---------------------|------------------------|---------------|--------------------------|---------------------|--------|
| 1110.000    | 40.70                    | 24.80                     | 4.39                | 35.82                  | 34.07         | 74.00                    | -39.93              | Peak   |
| 2150.000    | 38.24                    | 27.52                     | 5.13                | 36.64                  | 34.25         | 74.00                    | -39.75              | Peak   |
| 2955.000    | 38.45                    | 28.43                     | 5.89                | 37.27                  | 35.50         | 74.00                    | -38.50              | Peak   |
| 4000.000    | 39.04                    | 29.68                     | 7.87                | 37.40                  | 39.19         | 74.00                    | -34.81              | Peak   |
| 4910.000    | 37.46                    | 31.88                     | 8.69                | 37.77                  | 40.26         | 74.00                    | -33.74              | Peak   |
| 5700.000    | 38.19                    | 32.50                     | 9.79                | 36.80                  | 43.68         | 74.00                    | -30.32              | Peak   |

Remarks:

Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

## 7.4 20dB Occupy Bandwidth

|                   |                                                                                                                                                                                                                                                                                                                             |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.231 (c)                                                                                                                                                                                                                                                                                             |
| Test Method:      | ANSI C63.10:2013                                                                                                                                                                                                                                                                                                            |
| Limit:            | The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier. |
| Test setup:       |  <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>             |
| Test Instruments: | Refer to section 6.0 for details                                                                                                                                                                                                                                                                                            |
| Test mode:        | Refer to section 5.2 for details                                                                                                                                                                                                                                                                                            |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                        |

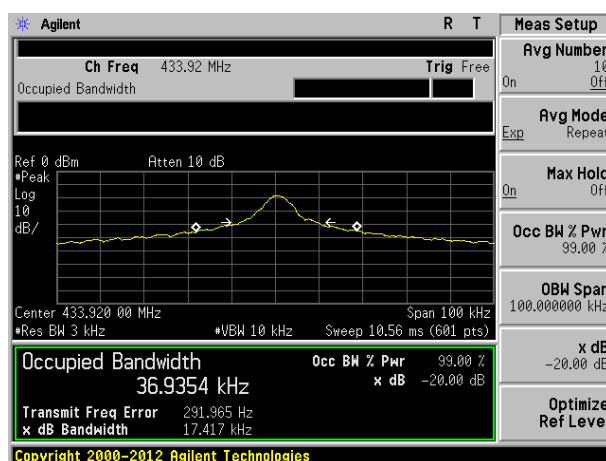
### Measurement Data

| Test Frequency (MHz) | 20dB bandwidth (kHz) | Limit (MHz) | Result |
|----------------------|----------------------|-------------|--------|
| 433.92               | 17.417               | 1.085       | Pass   |

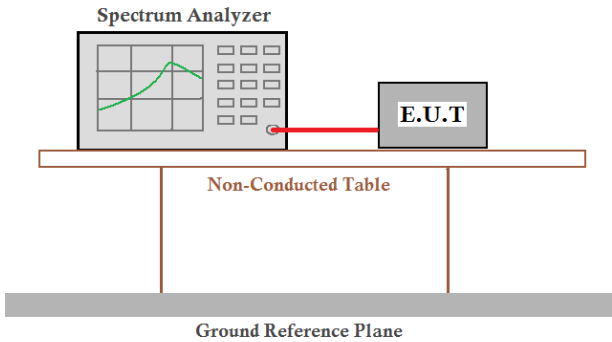
Note: Limit= Fundamental frequency×0.25%

433.92×0.25%=1.085MHz

Test plot as follows:



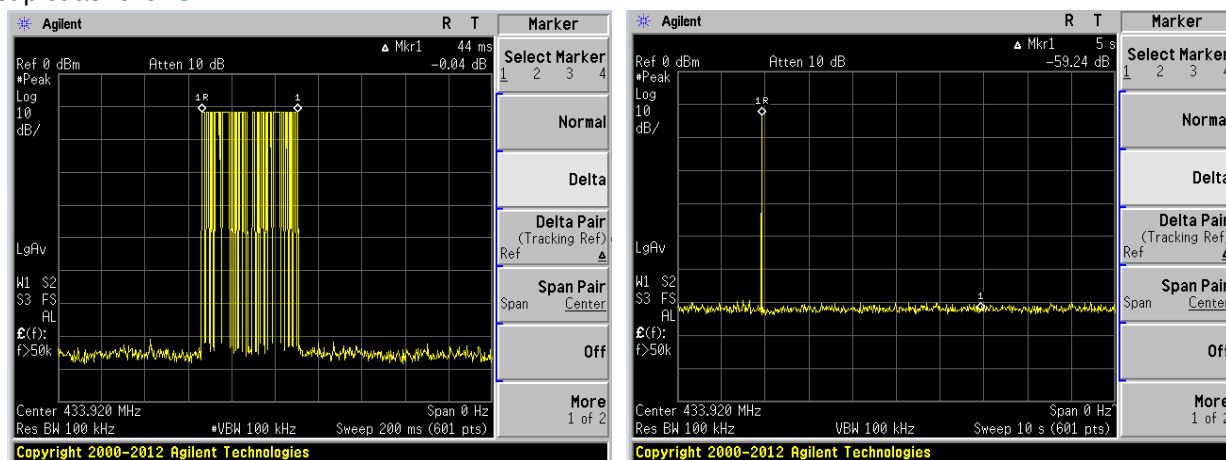
## 7.5 Dwell Time

|                   |                                                                                    |
|-------------------|------------------------------------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.231 (a)(1)                                                 |
| Test Method:      | ANSI C63.10:2013                                                                   |
| Receiver setup:   | RBW=100KHz, VBW=100KHz, span=0Hz, detector: Peak                                   |
| Limit:            | Not more than 5 seconds                                                            |
| Test setup:       |  |
| Test Instruments: | Refer to section 6.0 for details                                                   |
| Test mode:        | Refer to section 5.2 for details                                                   |
| Test results:     | Pass                                                                               |

### Measurement data:

| Frequency (MHz) | Duration of each TX (second) | Limit (second) | Result |
|-----------------|------------------------------|----------------|--------|
| 433.92          | 0.044                        | <5.0           | Pass   |

Test plot as follows:



## 8 Test Setup Photo

Reference to the **appendix I** for details.

## 9 EUT Constructional Details

Reference to the **appendix II** for details.

----- End -----