# FCC REPORT

| | |
|---|---|
| **Applicant:** | Remote Tech LLC |
| **Address of Applicant:** | 310 ALDER RD, DOVER DE 19904 USA |
| **Equipment Under Test (EUT)** | |
| Product Name: | Smart key |
| Model No.: | RT-FD335, RT-FD334 |
| **FCC ID:** | 2AOKM-FD12 |
| **Applicable standards:** | FCC CFR Title 47 Part 15 Subpart C Section 15.231 |
| **Date of sample receipt:** | 06 May, 2021 |
| **Date of Test:** | 07 May, to 23 Jun, 2021 |
| **Date of report issue:** | 24 Jun, 2021 |
| **Test Result:** | PASS* |

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

Authorized Signature:

Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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# 2 Version

| Version No. | Date | Description |
|---|---|---|
| *00* | *24 May, 2021* | *Original* |
| *01* | *24 Jun, 2021* | *1. Updated test frequency range on page 9.*<br>*2. Updated limits on page 9/11.*<br>*3. Updated test data on page 14 to Page 25.* |
| | | |
| | | |
| | | |

| | | | |
|---|---|---|---|
| ***Prepared By:*** | Yaro Wu<br>***Test Engineer*** | ***Date:*** | *24 Jun, 2021* |
| ***Check By:*** | Winner Zhang<br>***Project Engineer*** | ***Date:*** | *24 Jun, 2021* |

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# 4 Test Summary

| Test Item | Section in CFR 47 | Result |
|---|---|---|
| Antenna requirement | 15.203 | 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 |
| Duration Time | 15.231 (a)(1) | Pass |
| Conducted Emission | 15.207 | N/A |

***Remarks:***

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *N/A: The EUT not applicable of the test item.*
3. *The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).*

| | |
|---|---|
| ***Test Method:*** | *ANSI C63.4-2014*<br>*ANSI C63.10-2013* |

# 5 General Information

## 5.1 Client Information

| | |
|---|---|
| Applicant: | Remote Tech LLC |
| Address: | 310 ALDER RD, DOVER DE 19904 USA |
| Manufacturer: | Remote Tech LLC |
| Address: | 310 ALDER RD, DOVER DE 19904 USA |

## 5.2 General Description of E.U.T.

| | |
|---|---|
| Product Name: | Smart key |
| Model No.: | RT-FD335, RT-FD334 |
| Operation Frequency: | 902.375MHz , 903.425MHz |
| Channel numbers: | 1 |
| Modulation type: | FSK |
| Antenna Type: | Internal antenna |
| Antenna gain: | -5.0 dBi |
| Power supply: | DC 3V (CR2025 battery) |
| Remark: | Model No.: All models are identical inside, including the electrical circuit design, layout, components used and internal wiring. Models RT-FD334, RT-FD335 represent appearance of the key with 4 and 5 buttons on the shell. The PCB function is the same for all these models. |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. |

## 5.3 Test mode

| | | | |
|---|---|---|---|
| Transmitting mode: | Keep the EUT in transmitting mode with modulation（new battery used） | | |
| **Pre-Test Mode:** | | | |
| JYT has 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 was shown in this test report and defined as follows: | | | |
| **902.375MHz** | | | |
| Axis | X | Y | Z |
| Field Strength(dBuV/m) | 81.88 | 82.10 | 82.54 |
| **903.425MHz** | | | |
| Axis | X | Y | Z |
| Field Strength(dBuV/m) | 84.12 | 84.35 | 84.82 |
| **Final Test Mode:** | | | |
| According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup”: Z axis (see the test setup photo) | | | |

## 5.4 Description of Support Units

| |
|---|
| N/A |

## 5.5 Measurement Uncertainty

| Parameters | Expanded Uncertainty |
|---|---|
| Radiated Emission (9kHz ~ 30MHz) | ±3.12 dB (k=2) |
| Radiated Emission (30MHz ~ 1000MHz) | ±4.32 dB (k=2) |
| Radiated Emission (1GHz ~ 18GHz) | ±5.16 dB (k=2) |
| Radiated Emission (18GHz ~ 40GHz) | ±3.20 dB (k=2) |

## 5.6 Additions to, deviations, or exclusions from the method

No

## 5.7 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

## 5.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

## 5.9 Test Instruments list

| Radiated Emission: | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Date (mm-dd-yy)** | **Cal. Due date (mm-dd-yy)** |
| 3m SAC | ETS | 9m*6m*6m | 966 | 01-19-2021 | 01-18-2024 |
| BiConiLog Antenna | SCHWARZBECK | VULB9163 | 497 | 03-03-2021 | 03-02-2022 |
| Biconical Antenna | SCHWARZBECK | VUBA9117 | 359 | 06-18-2020 | 06-17-2021 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 916 | 03-03-2021 | 03-02-2022 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 1805 | 06-18-2020 | 06-17-2021 |
| Loop Antenna | SCHWARZBECK | FMZB1519B | 00044 | 03-07-2021 | 03-06-2022 |
| EMI Test Software | AUDIX | E3 | Version: 6.110919b | | |
| Pre-amplifier | HP | 8447D | 2944A09358 | 03-03-2021 | 03-02-2022 |
| Pre-amplifier | CD | PAP-1G18 | 11804 | 03-03-2021 | 03-02-2022 |
| Spectrum analyzer | Rohde & Schwarz | FSP30 | 101454 | 03-03-2021 | 03-02-2022 |
| EMI Test Receiver | Rohde & Schwarz | ESRP7 | 101070 | 03-03-2021 | 03-02-2022 |
| EMI Test Receiver | Rohde & Schwarz | ESRP7 | 101070 | 03-07-2021 | 03-06-2022 |
| Simulated Station | Anritsu | MT8820C | 6201026545 | 03-07-2021 | 03-06-2022 |
| Cable | ZDECL | Z108-NJ-NJ-81 | 1608458 | 03-03-2021 | 03-02-2022 |
| Cable | MICRO-COAX | MFR64639 | K10742-5 | 03-03-2021 | 03-02-2022 |
| Cable | SUHNER | SUCOFLEX100 | 58193/4PE | 03-03-2021 | 03-02-2022 |

| Conducted method: | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Date (mm-dd-yy)** | **Cal. Due date (mm-dd-yy)** |
| Spectrum Analyzer | Keysight | N9010B | MY60240202 | 11-27-2020 | 11-26-2021 |
| Vector Signal Generator | Keysight | N5182B | MY59101009 | 11-27-2020 | 11-26-2021 |
| Analog Signal Generator | Keysight | N5173B | MY59100765 | 11-27-2020 | 11-26-2021 |
| Power Detector Box | MWRF-test | MW100-PSB | MW201020JYT | 11-27-2020 | 11-26-2021 |
| Simulated Station | Rohde & Schwarz | CMW270 | 102335 | 11-27-2020 | 11-26-2021 |
| RF Control Box | MWRF-test | MW100-RFCB | MW200927JYT | N/A | N/A |
| PDU | MWRF-test | XY-G10 | N/A | N/A | N/A |
| Test Software | MWRF-tes | MTS 8310 | Version: 2.0.0.0 | | |
| DC Power Supply | Keysight | E3642A | MY60296194 | 11-27-2020 | 11-26-2021 |
| Temperature Humidity Chamber | ZhongZhi | CZ－C－150D | ZH16491 | 09-23-2020 | 09-22-2021 |

# 6 Test results and Measurement Data

## 6.1 Antenna requirement

| Standard requirement: | FCC Part15 C Section 15.203 |
|---|---|
| 15.203 requirement:<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. | |
| **E.U.T Antenna:** | |
| The EUT make use of a PCB antenna, The typical gain of the antenna is -5.0dBi. | |

## 6.2 Radiated Emission

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.231(a) and 15.209 |
| Test Frequency Range: | 30MHz to 10GHz |
| Test site: | Measurement Distance: 3m (Semi-Anechoic Chamber) |

Receiver setup:

| Frequency | Detector | RBW | VBW | Remark |
|---|---|---|---|---|
| 30MHz-1GHz | Quasi-peak | 120kHz | 300kHz | Quasi-peak Value |
| Above 1GHz | Peak | 1MHz | 3MHz | Peak Value |

Limit:
(Field strength of the fundamental signal)

| Frequency | Limit (dBuV/m @3m) | Remark |
|---|---|---|
| 902.375MHz | 81.94 | Average Value |
| | 101.94 | Peak Value |
| 903.475MHz | 81.94 | Average Value |
| | 101.94 | Peak Value |

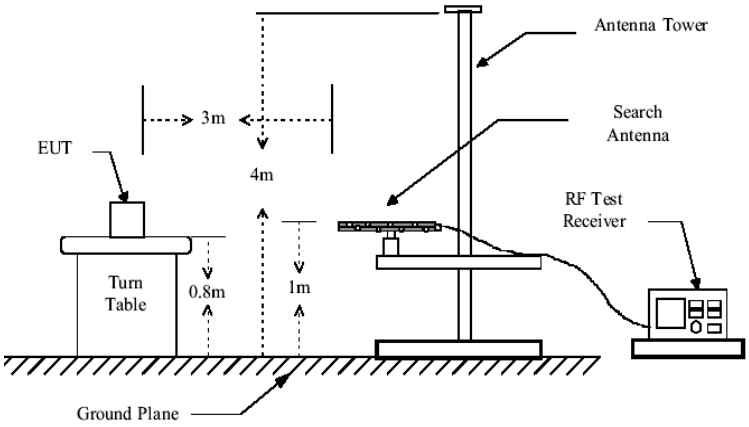
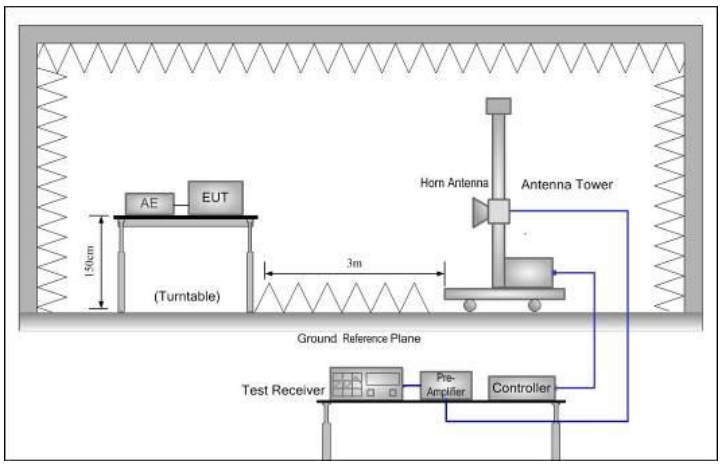
Limit:
(Spurious Emissions)

| Frequency | Limit (dBuV/m @3m) | Remark |
|---|---|---|
| 30MHz-88MHz | 40.0 | Quasi-peak Value |
| 88MHz-216MHz | 43.5 | Quasi-peak Value |
| 216MHz-960MHz | 46.0 | Quasi-peak Value |
| 960MHz-1GHz | 54.0 | Quasi-peak Value |
| Above 1GHz | 54.0 | Average Value |
| | 74.0 | Peak Value |

Or The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level whichever limit permits higher field strength.

Test Procedure:

a. The EUT was placed on the top of a rotating table 0.8m(below 1GHz) /1.5m(above 1GHz) above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The antenna height 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.
d. 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.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

| | |
|---|---|
| Test setup: | Below 1GHz<br>  <br><br>Above 1GHz<br>  <br> |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Pass |

### 6.2.1 Field Strength Of The Fundamental Signal

| Peak value | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor(dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 902.375 | 44.05 | 22.61 | 3.37 | 0.00 | 70.03 | 101.94 | -31.91 | Vertical |
| 902.375 | 56.56 | 22.61 | 3.37 | 0.00 | 82.54 | 101.94 | -19.40 | Horizontal |

| Average value | | | | | | |
|---|---|---|---|---|---|---|
| Frequency (MHz) | Level (dBuV/m) | Duty Cycle factor | Average value (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 902.375 | 70.03 | -5.87 | 64.16 | 81.94 | -17.78 | Vertical |
| 902.375 | 82.54 | -5.87 | 76.67 | 81.94 | -5.27 | Horizontal |

| | |
|---|---|
| Calculate Formula: | Average value=Peak value + Duty Cycle Factor |
| | Duty cycle factor = 20log(Duty cycle) |
| | Duty cycle = on time/100 milliseconds or period, whichever is less |
| Test data: | T on time =50.88*1=50.87ms) |
| | T period =100(ms) |
| | Duty cycle = T on time/T period = T on time /100=50.88% |
| | Duty cycle factor = 20log(Duty cycle) = -5.87 |

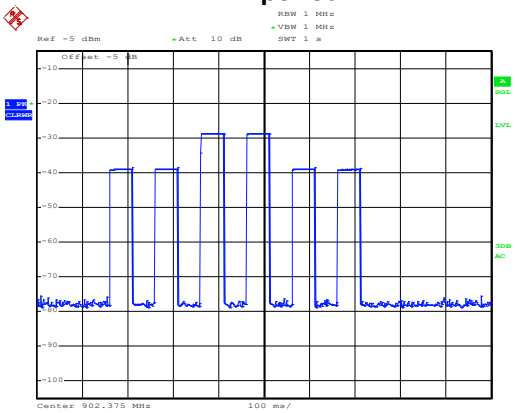
| Peak value | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor(dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 903.425 | 43.71 | 22.61 | 3.37 | 0.00 | 69.69 | 101.94 | -32.25 | Vertical |
| 903.425 | 58.84 | 22.61 | 3.37 | 0.00 | 84.82 | 101.94 | -17.12 | Horizontal |

| Average value | | | | | | |
|---|---|---|---|---|---|---|
| Frequency (MHz) | Level (dBuV/m) | Duty Cycle factor | Average value (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 903.425 | 69.69 | -5.87 | 63.82 | 81.94 | -18.12 | Vertical |
| 903.425 | 84.82 | -5.87 | 78.95 | 81.94 | -2.99 | Horizontal |

| | |
|---|---|
| Calculate Formula: | Average value=Peak value + Duty Cycle Factor |
| | Duty cycle factor = 20log(Duty cycle) |
| | Duty cycle = on time/100 milliseconds or period, whichever is less |
| Test data: | T on time =50.88*1=50.88ms) |
| | T period =100(ms) |
| | Duty cycle = T on time/T period = T on time /100=50.88% |
| | Duty cycle factor = 20log(Duty cycle) = -5.87 |

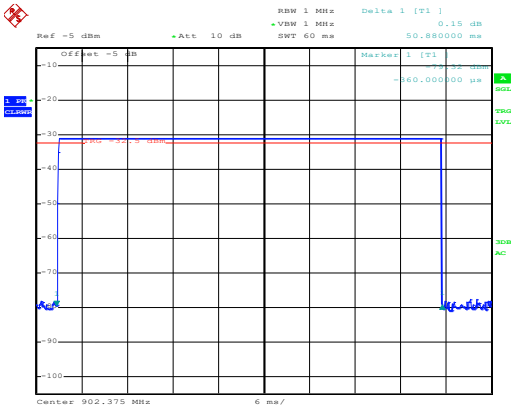
**902.375MHz:**

**T period:**



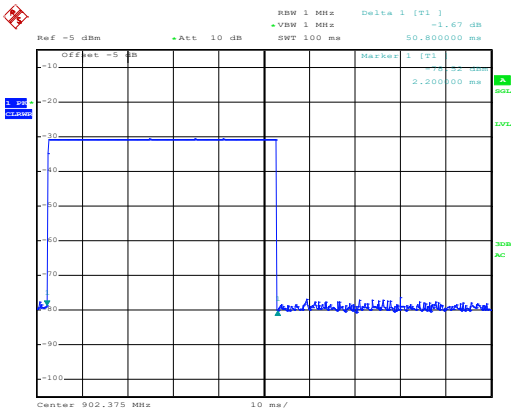

Date: 10.MAY.2021 17:21:20

**T 60ms:**




Date: 10.MAY.2021 17:23:18

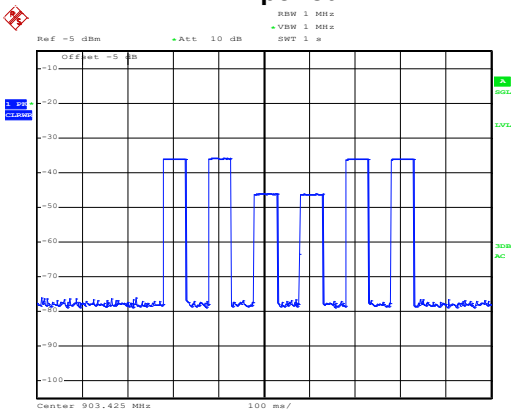
**T 100ms:**




Date: 10.MAY.2021 17:22:21

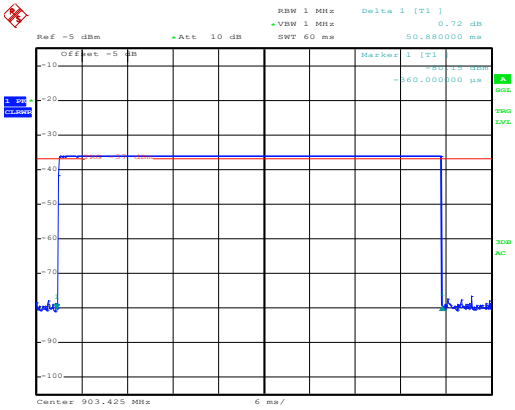
**903.425MHz:**

**T period:**



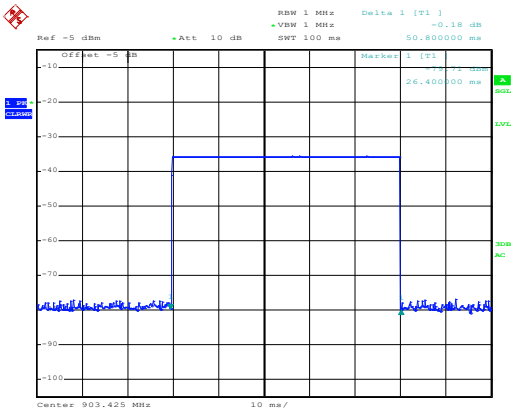

Date: 10.MAY.2021 17:29:20

**T 60ms:**




Date: 10.MAY.2021 17:30:26

**T 100ms:**

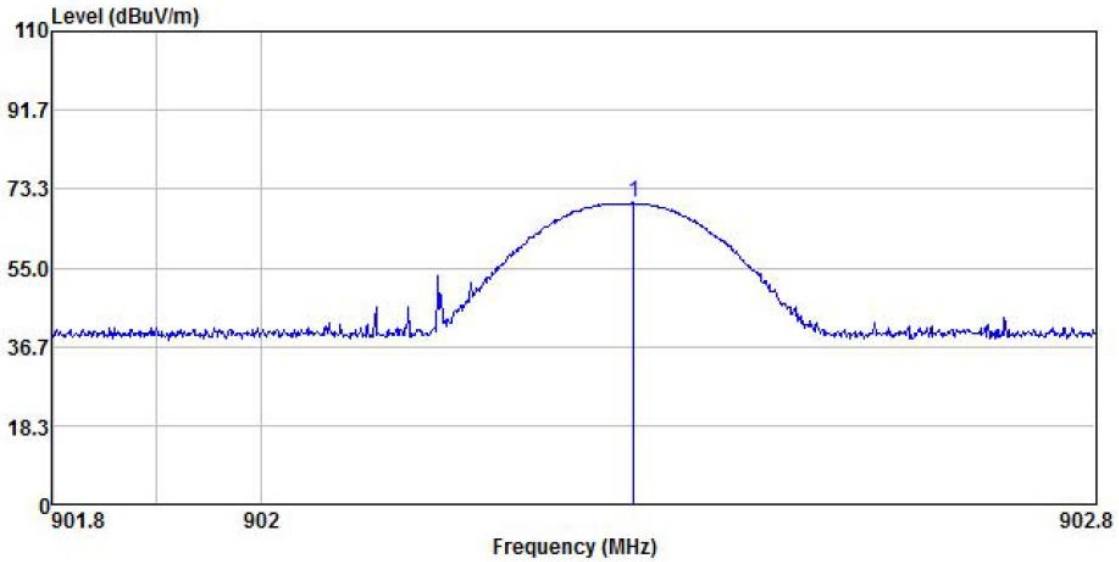



Date: 10.MAY.2021 17:29:48

**Test Plots:**

**902.375 MHz：**

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 902.375 MHz | **Polarization:** | Vertical |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |

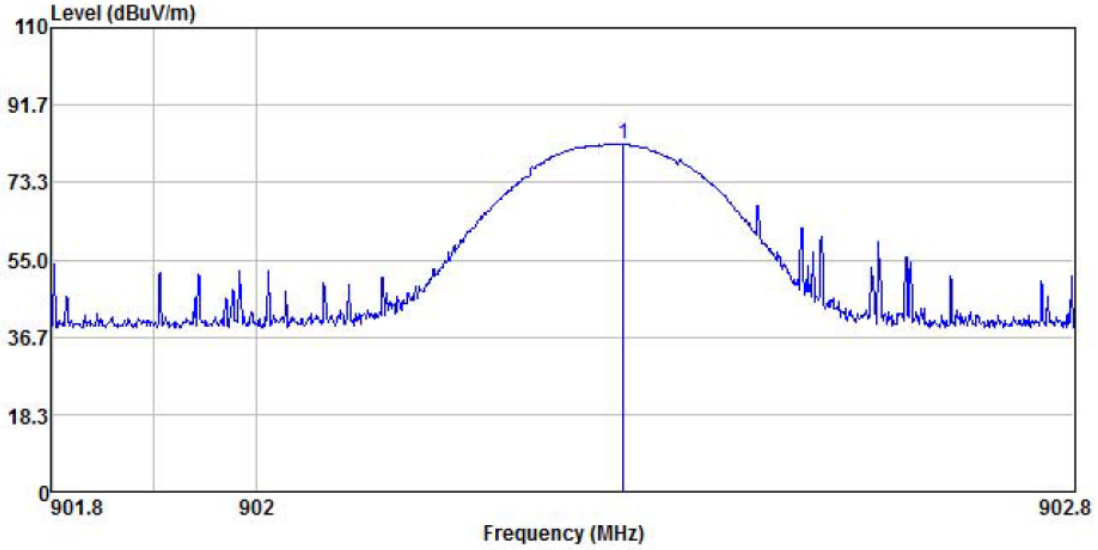



| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 902.357 | 44.05 | 22.61 | 3.37 | 0.00 | 70.03 | ------ | ------ | |

*Remark:*

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

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 902.375 MHz | **Polarization:** | Horizontal |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |



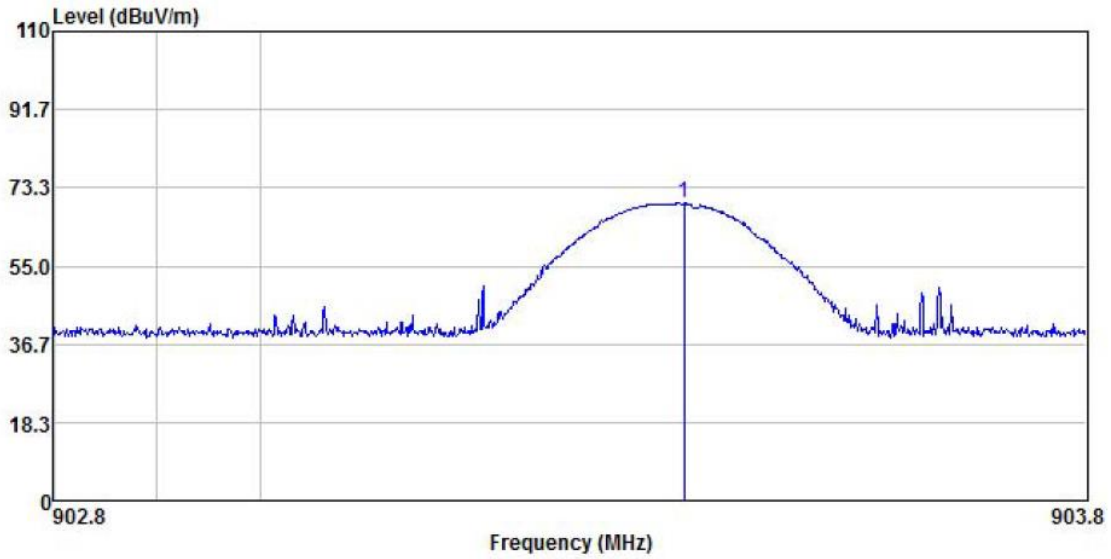

| | Freq | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 902.359 | 56.56 | 22.61 | 3.37 | 0.00 | 82.54 | ------ | ------ | |

*Remark:*

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

**903.425MHz：**

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 903.425MHz | **Polarization:** | Vertical |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |

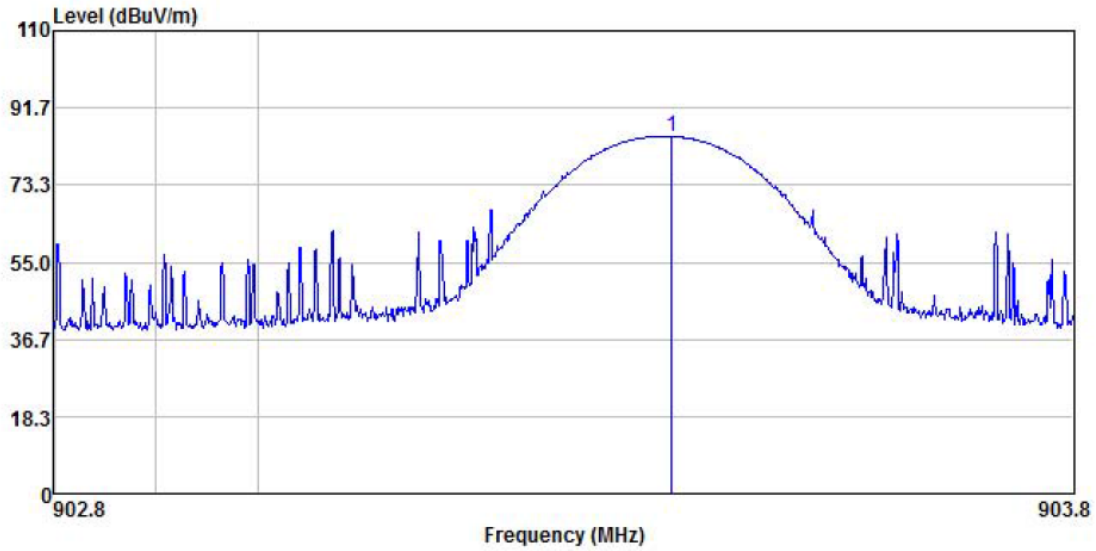



| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 903.410 | 43.71 | 22.61 | 3.37 | 0.00 | 69.69 | ------ | ------ | |

*Remark:*

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

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 903.425MHz | **Polarization:** | Horizontal |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |




| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 903.406 | 58.84 | 22.61 | 3.37 | 0.00 | 84.82 | ------ | ------ | |

*Remark:*

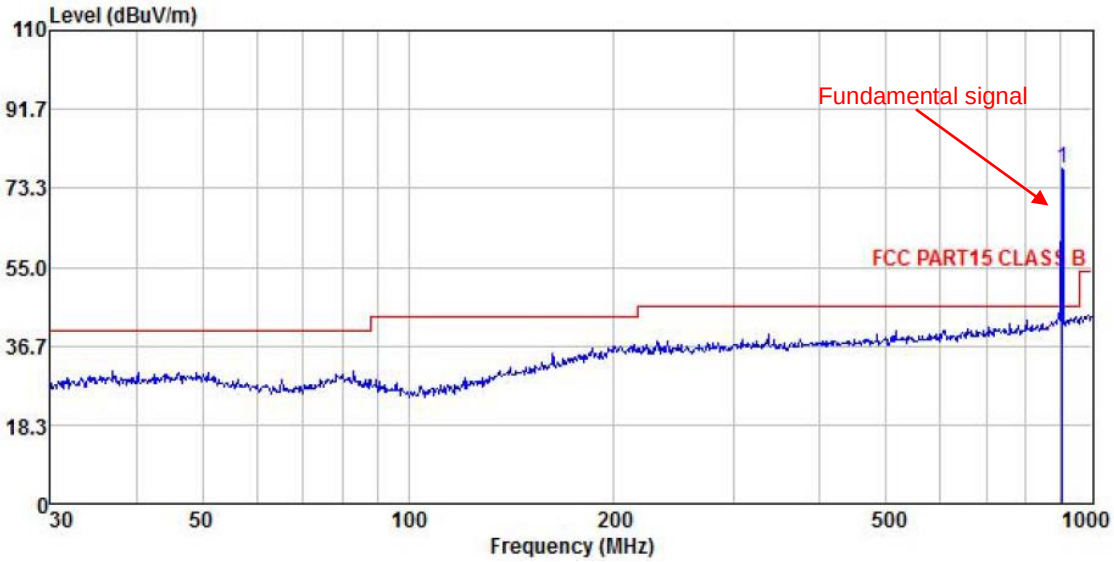
*2. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*

### 6.2.2 Spurious Emissions

**Test Plots:**

**902.375MHz：**

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 30 MHz ~ 1 GHz | **Polarization:** | Vertical |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |

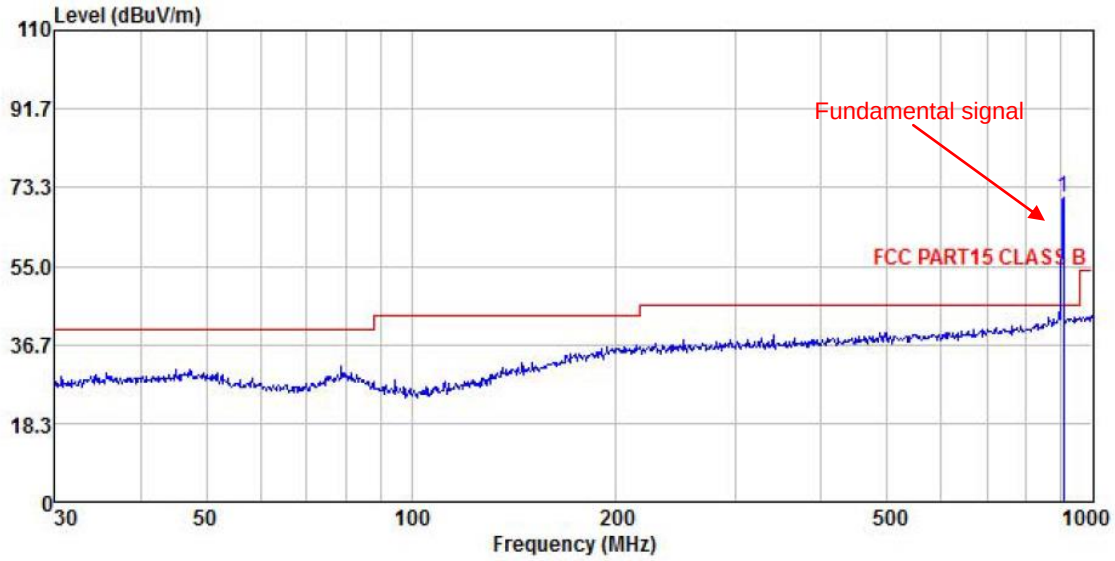



| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 * | 903.309 | 52.05 | 22.61 | 3.37 | 0.00 | 78.03 | 46.00 | 32.03 | PK |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 30 MHz ~ 1 GHz | **Polarization:** | Horizontal |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |



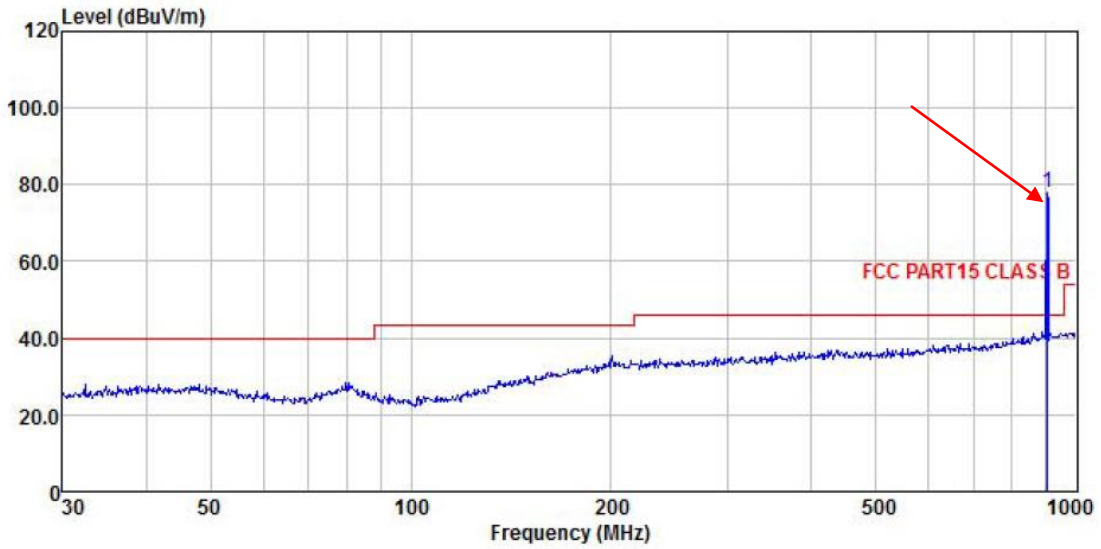

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 * | 906.482 | 44.98 | 22.63 | 3.37 | 0.00 | 70.98 | 46.00 | 24.98 | PK |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

**903.425MHz：**

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 30 MHz ~ 1 GHz | **Polarization:** | Vertical |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |



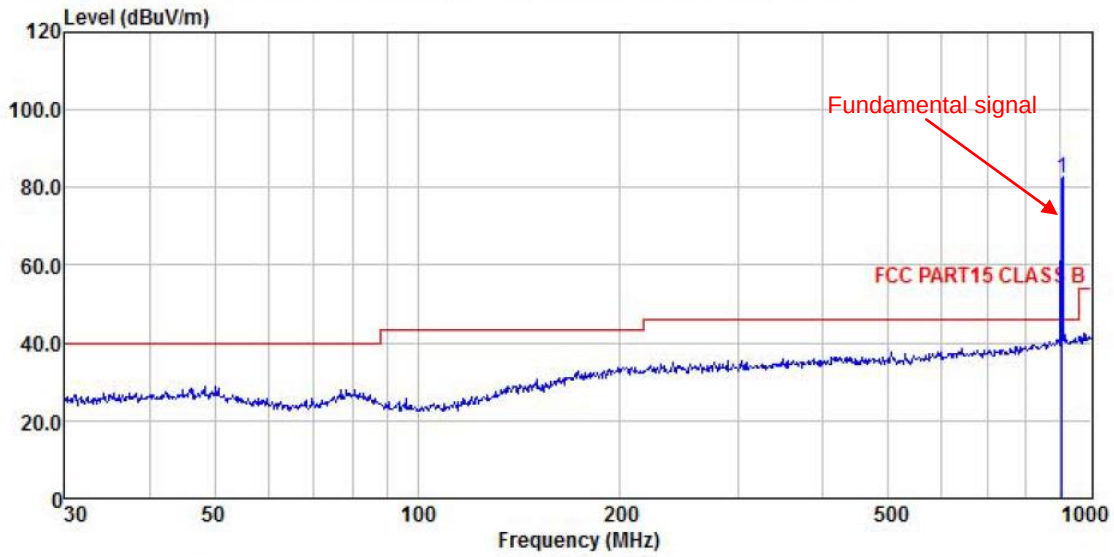

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 * | 903.309 | 51.79 | 22.61 | 3.37 | 0.00 | 77.77 | 46.00 | 31.77 | PK |

*Remark:*

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

*4. The emission levels of other frequencies are very lower than the limit and not show in test report.*

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 30 MHz ~ 1 GHz | **Polarization:** | Horizontal |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |




| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 * | 903.309 | 56.55 | 22.61 | 3.37 | 0.00 | 82.53 | 46.00 | 36.53 | PK |

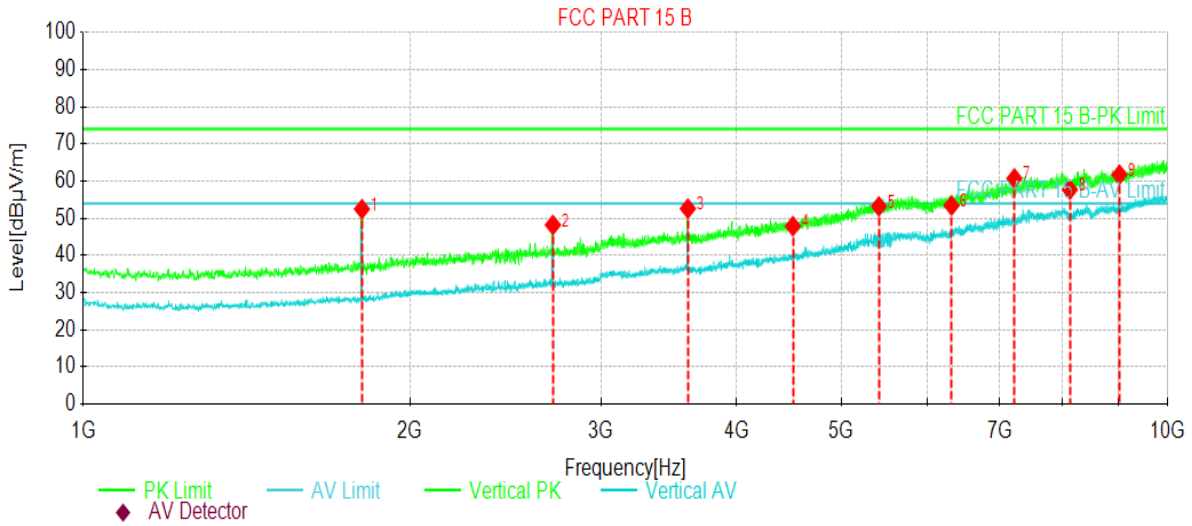
*Remark:*

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

*4. The emission levels of other frequencies are very lower than the limit and not show in test report.*

**902.375MHz：**

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 1 GHz ~ 10 GHz | **Polarization:** | Vertical |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |

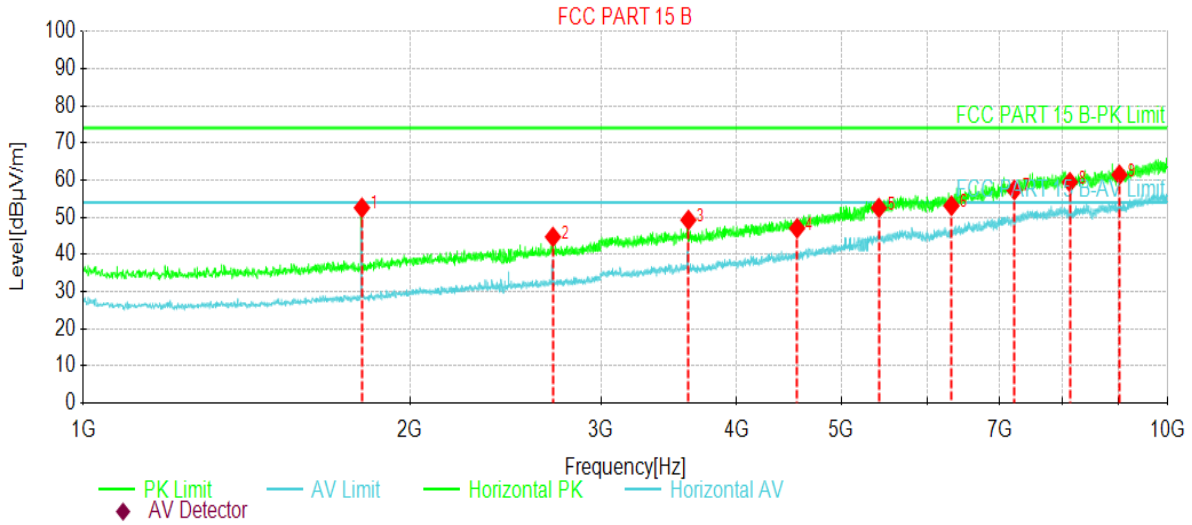



| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|
| 1 | 1806.62 | 71.79 | 52.47 | -19.32 | 74.00 | 21.53 | PK | Vertical |
| 2 | 2710.00 | 63.38 | 48.20 | -15.18 | 74.00 | 25.80 | PK | Vertical |
| 3 | 3608.87 | 64.21 | 52.59 | -11.62 | 74.00 | 21.41 | PK | Vertical |
| 4 | 4511.12 | 55.37 | 47.89 | -7.48 | 74.00 | 26.11 | PK | Vertical |
| 5 | 5414.50 | 55.03 | 53.20 | -1.83 | 74.00 | 20.80 | PK | Vertical |
| 6 | 6316.75 | 53.39 | 53.42 | 0.03 | 74.00 | 20.58 | PK | Vertical |
| 7 | 7219.00 | 56.56 | 60.72 | 4.16 | 74.00 | 13.28 | PK | Vertical |
| 8 | 8121.25 | 51.90 | 57.69 | 5.79 | 74.00 | 16.31 | PK | Vertical |
| 9 | 9023.50 | 54.78 | 61.73 | 6.95 | 74.00 | 12.27 | PK | Vertical |

*Remark:*

1. *Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *worse AV value =PK+duty cycle factor = 55.86<61.94*

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 1 GHz ~ 10 GHz | **Polarization:** | Horizontal |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |



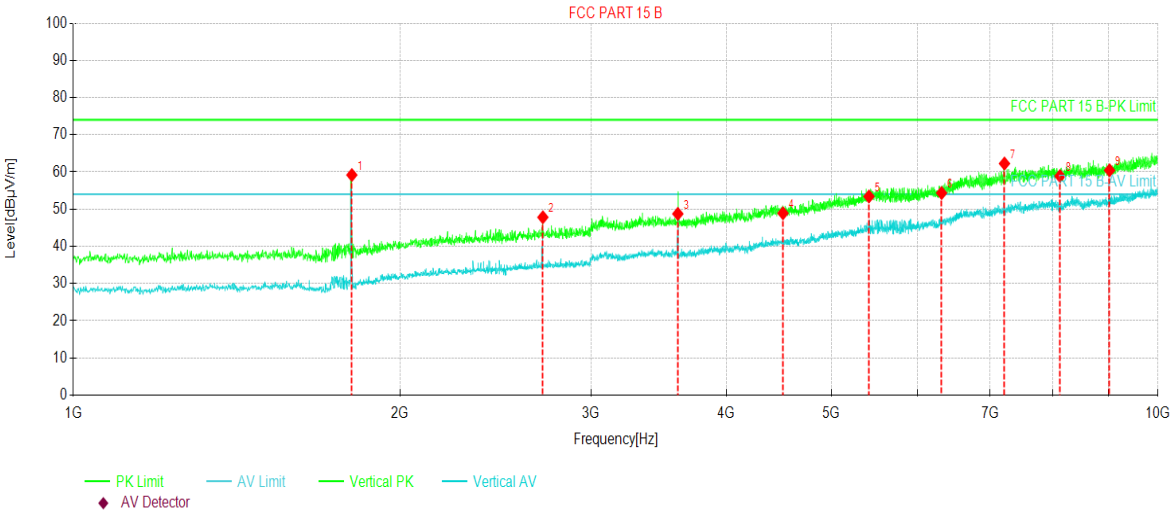

| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|
| 1 | 1806.62 | 71.87 | 52.55 | -19.32 | 74.00 | 21.45 | PK | Horizontal |
| 2 | 2710.00 | 59.90 | 44.72 | -15.18 | 74.00 | 29.28 | PK | Horizontal |
| 3 | 3613.37 | 60.86 | 49.26 | -11.60 | 74.00 | 24.74 | PK | Horizontal |
| 4 | 4551.62 | 54.10 | 47.03 | -7.07 | 74.00 | 26.97 | PK | Horizontal |
| 5 | 5414.50 | 54.35 | 52.52 | -1.83 | 74.00 | 21.48 | PK | Horizontal |
| 6 | 6316.75 | 53.08 | 53.11 | 0.03 | 74.00 | 20.89 | PK | Horizontal |
| 7 | 7219.00 | 53.18 | 57.34 | 4.16 | 74.00 | 16.66 | PK | Horizontal |
| 8 | 8121.25 | 53.66 | 59.45 | 5.79 | 74.00 | 14.55 | PK | Horizontal |
| 9 | 9023.50 | 54.47 | 61.42 | 6.95 | 74.00 | 12.58 | PK | Horizontal |

*Remark:*

1. *Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *worse AV value =PK-duty cycle factor = 55.55<61.94*

**903.425MHz：**

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 1 GHz ~ 10 GHz | **Polarization:** | Vertical |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |



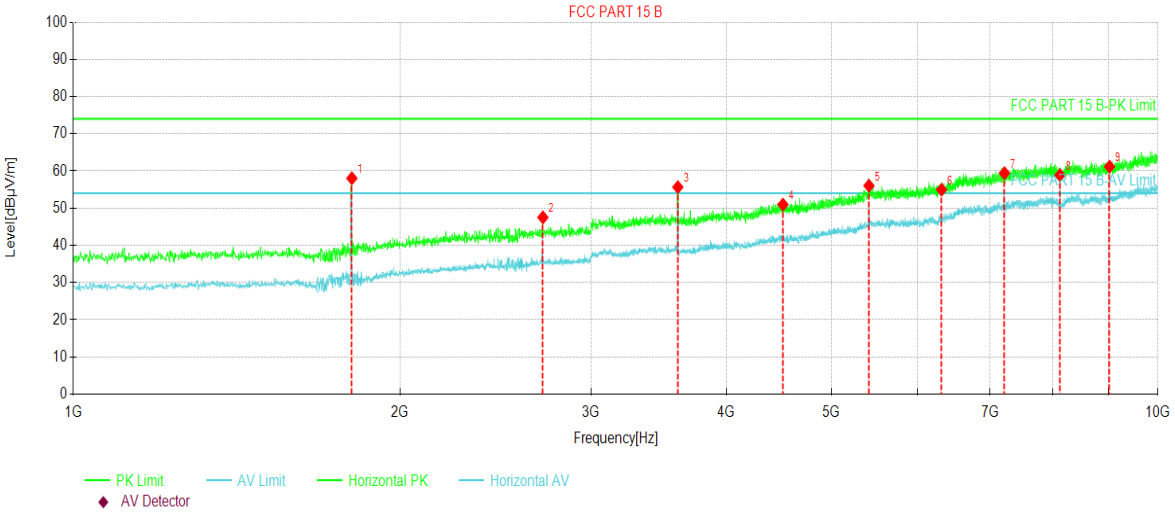

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|
| 1 | 1806.62 | 81.11 | 59.19 | -21.92 | 74.00 | 14.81 | PK | Vertical |
| 2 | 2710.00 | 66.15 | 47.82 | -18.33 | 74.00 | 26.18 | PK | Vertical |
| 3 | 3608.87 | 64.09 | 48.74 | -15.35 | 74.00 | 25.26 | PK | Vertical |
| 4 | 4511.12 | 60.10 | 48.91 | -11.19 | 74.00 | 25.09 | PK | Vertical |
| 5 | 5414.50 | 60.02 | 53.41 | -6.61 | 74.00 | 20.59 | PK | Vertical |
| 6 | 6316.75 | 58.93 | 54.34 | -4.59 | 74.00 | 19.66 | PK | Vertical |

*Remark:*

4. *Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
5. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
6. *worse AV value =PK+duty cycle factor = 53.32<61.94*

| | | | |
|---|---|---|---|
| **Product Name:** | Smart key | **Product Model:** | RT-FD335 |
| **Test By:** | Yaro | **Test mode:** | Tx mode |
| **Test Frequency:** | 1 GHz ~ 10 GHz | **Polarization:** | Horizontal |
| **Test Voltage:** | DC 3V | **Environment:** | Temp: 24℃ Huni: 57% |




**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|
| 1 | 1806.62 | 79.94 | 58.02 | -21.92 | 74.00 | 15.98 | PK | Horizontal |
| 2 | 2710.00 | 65.85 | 47.52 | -18.33 | 74.00 | 26.48 | PK | Horizontal |
| 3 | 3608.87 | 71.00 | 55.65 | -15.35 | 74.00 | 18.35 | PK | Horizontal |
| 4 | 4511.12 | 62.14 | 50.95 | -11.19 | 74.00 | 23.05 | PK | Horizontal |
| 5 | 5414.50 | 62.65 | 56.04 | -6.61 | 74.00 | 17.96 | PK | Horizontal |
| 6 | 6316.75 | 59.57 | 54.98 | -4.59 | 74.00 | 19.02 | PK | Horizontal |

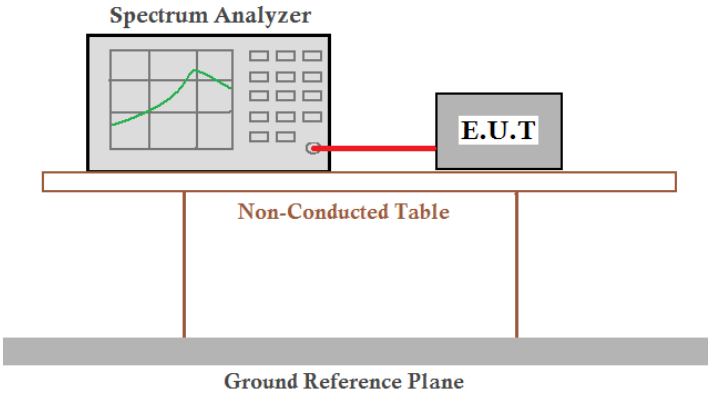
*Remark:*

*4. Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*

*5. The emission levels of other frequencies are very lower than the limit and not show in test report.*

*6. worse AV value =PK-duty cycle factor = 52.15<61.94*

## 6.3 Bandwidth

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.231 (c) |
| Receiver setup: | RBW=1kHz, VBW=3kHz, detector: Peak |
| 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 900 MHz. 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 Procedure: | 1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.<br>2. Set the EUT to proper test channel.<br>3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points.<br>4. Read 20dB bandwidth. |
| Test setup: |  |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

**Measurement Data**

**902.375:**

| 20dB bandwidth (MHz) | 99% Occupy bandwidth (kHz) | Limit (MHz) | Results |
|---|---|---|---|
| 0.028 | 28.00 | 2.2559 | Passed |

Note: Limit= Fundamental frequency×0.25%=902.375×0.25%=2.2559MHz

**903.425:**

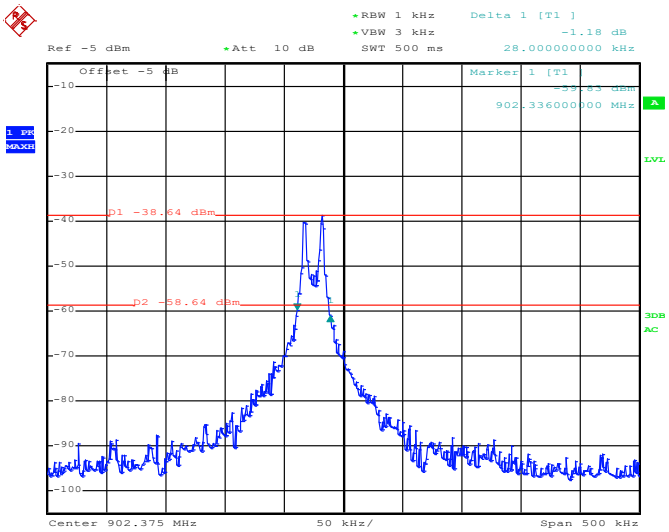
| 20dB bandwidth (MHz) | 99% Occupy bandwidth (kHz) | Limit (MHz) | Results |
|---|---|---|---|
| 0.026 | 27.00 | 2.2587 | Passed |

Note: Limit= Fundamental frequency×0.25%=903.425×0.25%=2.2587MHz

**Test plot as follows:**

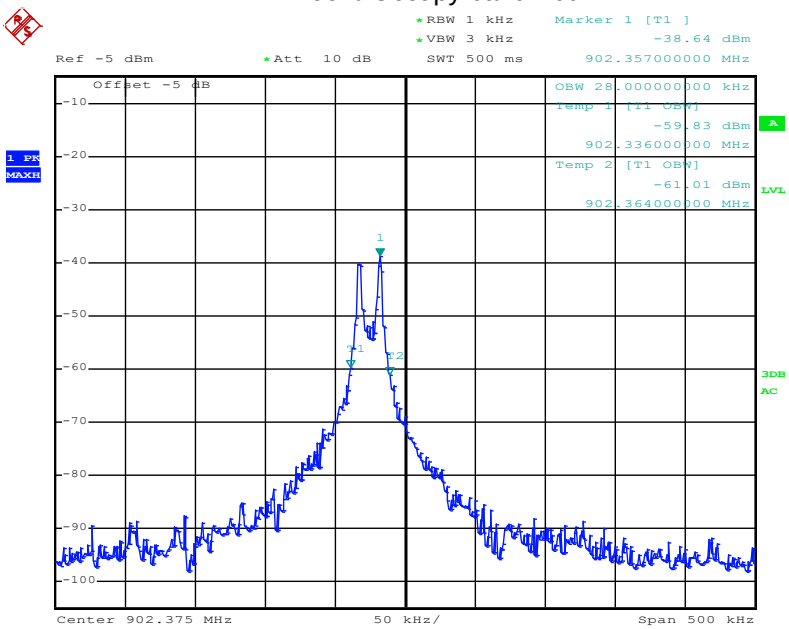
**902.375MHz:**

20dB Emission Bandwidth




Date: 10.MAY.2021 17:19:38

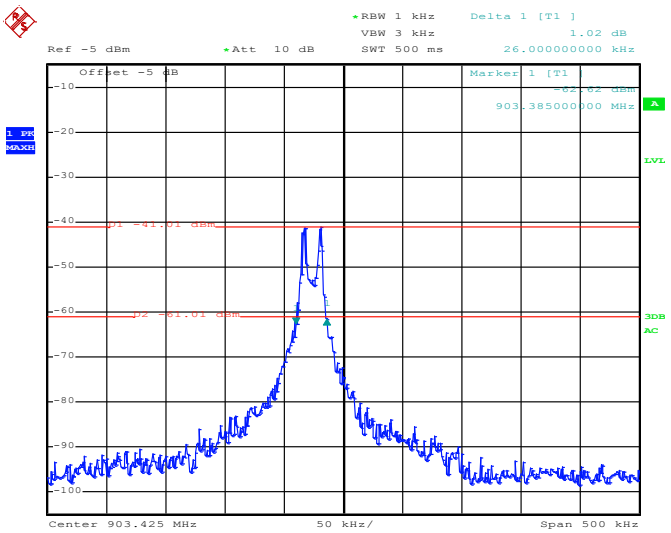
99% Occupy bandwidth




Date: 10.MAY.2021 17:17:19

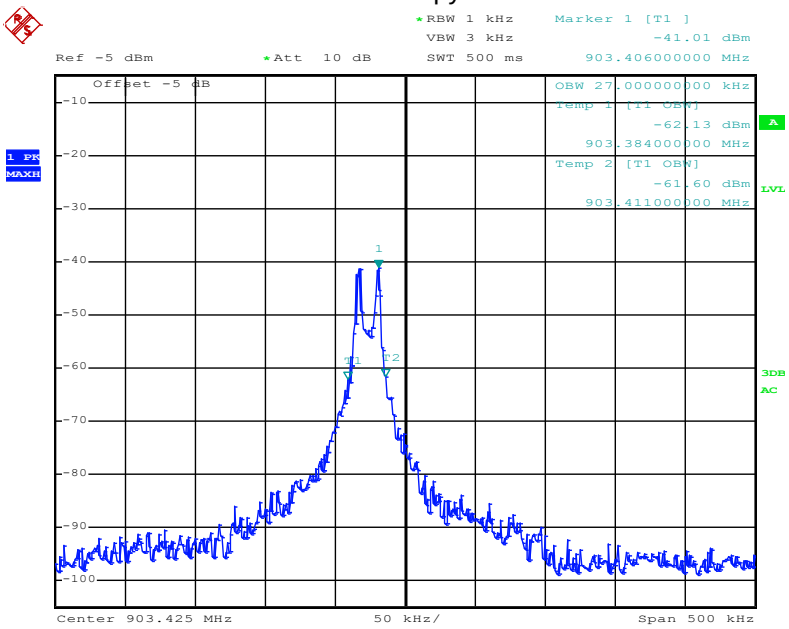
**903.425MHz:**

20dB Emission Bandwidth



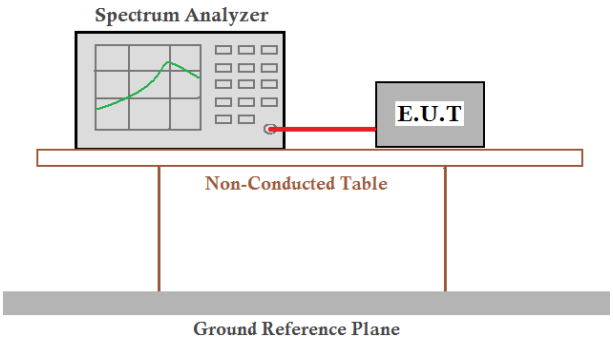

Date: 10.MAY.2021 17:31:55

99% Occupy bandwidth




Date: 10.MAY.2021 17:31:27

## 6.4 Duration Time

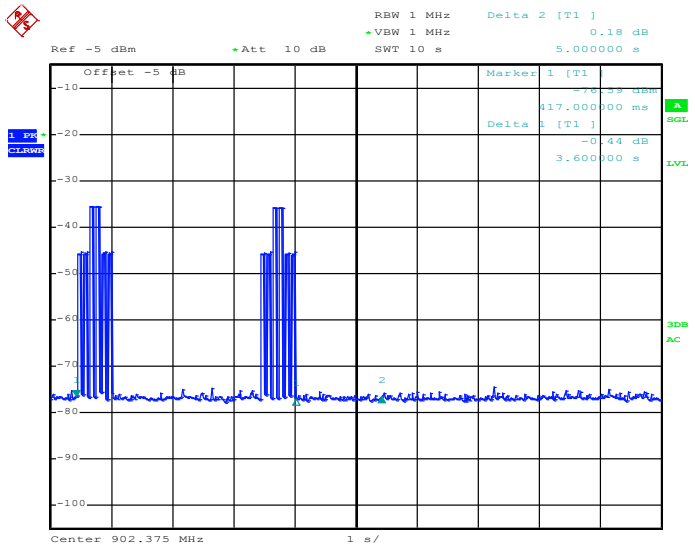
| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.231 (a) (1) |
| Receiver setup: | RBW=1MHz, VBW=3MHz, span=0Hz, detector: Peak |
| Limit: | Not more than 5 seconds |
| Test mode: | Transmitting mode |
| Test Procedure: | 1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.<br>2. Set the EUT to proper test channel.<br>3. Single scan the transmission, and read the transmission time. |
| Test setup: |  |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

**Measurement Data**

| Frequency | Duration time (second) | Limit (second) | Result |
|---|---|---|---|
| 902.375 | 3.60 | <5.0 | Pass |
| 903.425 | 3.58 | <5.0 | Pass |

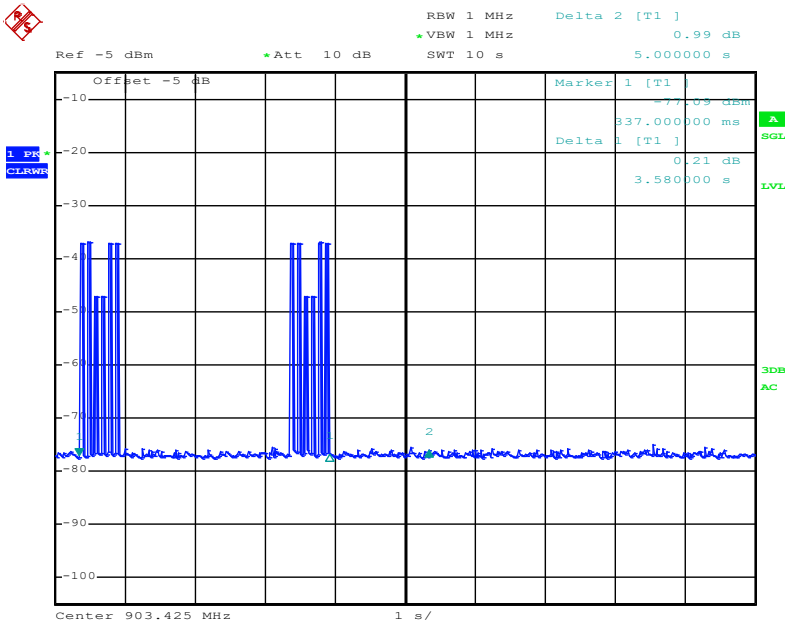
Test plot as follows:

**902.375**




Date: 10.MAY.2021 17:25:51

**903.425**




Date: 10.MAY.2021 17:28:28