



# FCC RF Test Report

**Report No.:** JYTSZ-R12-2400421  
**Applicant:** Voxx Electronics Corporation  
**Address of Applicant:** 2365 Pontiac Road, Auburn Hills, Michigan 48326 - USA  
**Equipment Under Test (EUT)**  
**Product Name:** KiB Ekey  
**Model No.:** 1412VD  
**Trade Mark:** N/A  
**FCC ID:** EZS1412VD  
**Applicable Standards:** FCC CFR Title 47 Part 15C (§15.231)  
**Date of Sample Receipt:** 17 Apr., 2024  
**Date of Test:** 18 Apr., to 09 Jul., 2024  
**Date of Report Issue:** 15 Jul., 2024  
**Test Result:** PASS

**Tested by:**

*James Ding*  
Project Engineer

**Date:**

15 Jul., 2024

**Reviewed by:**

*Weto Chang*  
Senior Engineer

**Date:**

15 Jul., 2024

**Approved by:**

*James Wei*  
Manager

**Date:**

15 Jul., 2024

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

## 1 Version

| Version No. | Date          | Description                                             |
|-------------|---------------|---------------------------------------------------------|
| 00          | 26 Jun., 2024 | Original                                                |
| 01          | 09 Jul., 2024 | Updated reports on pages 4, 13, 22, 31, 32, 35, and 36. |
| 02          | 15 Jul., 2024 | Updated reports on page 37.                             |
|             |               |                                                         |
|             |               |                                                         |

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### 3 General Information

#### 3.1 Client Information

|               |                                                                                 |
|---------------|---------------------------------------------------------------------------------|
| Applicant:    | Voxx Electronics Corporation                                                    |
| Address:      | 2365 Pontiac Road, Auburn Hills, Michigan 48326 - USA                           |
| Manufacturer: | Nutek Coroproration                                                             |
| Address:      | no. 167, Lane 235, Bauchiau Rd, Xindian District, New Taeipi City 23145, Taiwan |
| Factory:      | Voxx Automotive Corporation                                                     |
| Address:      | 2351 J. Lawson Blvd, Orlando, FL 32824 - USA                                    |

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

|                        |                                                                               |
|------------------------|-------------------------------------------------------------------------------|
| Product Name:          | KiB Ekey                                                                      |
| Model No.:             | 1412VD                                                                        |
| Operation Frequency:   | 312.1MHz~315.12MHz; 433.58MHz~433.92MHz; 902.365MHz~903.417MHz                |
| Channel Numbers:       | 1                                                                             |
| Modulation Type:       | FSK, OOK                                                                      |
| Antenna Type:          | PCB Antenna                                                                   |
| Antenna Gain:          | -9.7dBi (declare by Applicant)                                                |
| Power Supply:          | DC 12V                                                                        |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. |

### 3.3 Test Mode and Environment

| Test Mode:                                                                                                                                                                                                                                          |                |                                                                         |         |                |             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------|---------|----------------|-------------|
| Transmitting mode:                                                                                                                                                                                                                                  |                | Keep the EUT in transmitting mode with modulation                       |         |                |             |
| <b>Remark:</b> The EUT was placed on three different polar directions tested: i.e. X axis, Y axis, Z axis, and found the test results are both the “worst case” and “worst setup”: Y axis, so the report only reflects the test data of worst mode. |                |                                                                         |         |                |             |
| Operation Frequency each of channel                                                                                                                                                                                                                 |                |                                                                         |         |                |             |
| Channel                                                                                                                                                                                                                                             | Frequency(MHz) | Modulation                                                              | Channel | Frequency(MHz) | Modulation  |
| 1                                                                                                                                                                                                                                                   | 312.10         | FSK                                                                     | 15      | 315.10         | FSK         |
| 2                                                                                                                                                                                                                                                   | 312.50         | FSK                                                                     | 16      | 315.12         | FSK         |
| 3                                                                                                                                                                                                                                                   | 313.25         | FSK                                                                     | 17      | 433.58         | FSK         |
| 4                                                                                                                                                                                                                                                   | 313.45         | FSK                                                                     | 18      | 433.64         | FSK         |
| 5                                                                                                                                                                                                                                                   | 313.55         | FSK                                                                     | 19      | 433.873        | FSK         |
| 6                                                                                                                                                                                                                                                   | 313.85         | FSK                                                                     | 20      | 433.92         | FSK and OOK |
| 7                                                                                                                                                                                                                                                   | 314.00         | FSK                                                                     | 21      | 433.97         | FSK         |
| 8                                                                                                                                                                                                                                                   | 314.01         | FSK                                                                     | 22      | 433.98         | FSK         |
| 9                                                                                                                                                                                                                                                   | 314.15         | FSK                                                                     | 23      | 434.30         | FSK         |
| 10                                                                                                                                                                                                                                                  | 314.35         | FSK                                                                     | 24      | 902.365        | FSK         |
| 11                                                                                                                                                                                                                                                  | 314.90         | FSK                                                                     | 25      | 903.417        | FSK         |
| 12                                                                                                                                                                                                                                                  | 314.975        | FSK                                                                     |         |                |             |
| 13                                                                                                                                                                                                                                                  | 315.00         | FSK and OOK                                                             |         |                |             |
| 14                                                                                                                                                                                                                                                  | 315.014        | FSK                                                                     |         |                |             |
| <b>Remark:</b><br>1. Selected channel No.13 and No.20 to perform the test for FSK and OOK mode.<br>2. Selected 312.10MHz, 902.35MHz Frequency to perform the test for FSK mode.                                                                     |                |                                                                         |         |                |             |
| Operating Environment:                                                                                                                                                                                                                              |                |                                                                         |         |                |             |
| Temperature:                                                                                                                                                                                                                                        |                | 15℃ ~ 35℃                                                               |         |                |             |
| Humidity:                                                                                                                                                                                                                                           |                | 20 % ~ 75 % RH                                                          |         |                |             |
| Atmospheric Pressure:                                                                                                                                                                                                                               |                | 1008 mbar                                                               |         |                |             |
| Test Engineer:                                                                                                                                                                                                                                      |                | Lucas Ding (Conducted measurement)<br>Kiran Zeng (Radiated measurement) |         |                |             |

### 3.4 Description of Test Auxiliary Equipment

| Manufacturer | Description | Model | Serial Number | FCC ID/DoC |
|--------------|-------------|-------|---------------|------------|
| N/A          | N/A         | N/A   | N/A           | N/A        |

### 3.5 Measurement Uncertainty

| Parameter                                                                                                                                                                                                                                                                                                              | Expanded Uncertainty<br>(Confidence of 95%(U = 2Uc(y))) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Radiated Emission (30MHz ~ 200MHz) (3m SAC)                                                                                                                                                                                                                                                                            | 4.6 dB                                                  |
| Radiated Emission (200MHz ~ 1000MHz) (3m SAC)                                                                                                                                                                                                                                                                          | 5.8 dB                                                  |
| Radiated Emission (1GHz ~ 6GHz) (3m FAR)                                                                                                                                                                                                                                                                               | 4.95 dB                                                 |
| Radiated Emission (6GHz ~ 18GHz) (3m FAR)                                                                                                                                                                                                                                                                              | 5.23 dB                                                 |
| <b>Remark:</b> All the measurement uncertainty value were shown with a coverage k=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance. |                                                         |

### 3.6 Additions to, Deviations, or Exclusions From the Method

|    |
|----|
| No |
|----|

### 3.7 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 and 10m 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.

● **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

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

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 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>

### 3.8 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-JYTee@lets.com, Website: <http://jyt.lets.com>

### 3.9 Test Instruments List

| Radiated Emission(3m SAC):   |                 |                 |                  |                      |                          |
|------------------------------|-----------------|-----------------|------------------|----------------------|--------------------------|
| Test Equipment               | Manufacturer    | Model No.       | Manage No.       | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| 3m SAC                       | ETS             | 9m*6m*6m        | WXJ001-1         | 04-14-2021           | 04-13-2026               |
| BiConiLog Antenna            | Schwarzbeck     | VULB9163        | WXJ002           | 01-09-2024           | 01-08-2025               |
| Horn Antenna                 | Schwarzbeck     | BBHA9120D       | WXJ002-2         | 01-05-2024           | 01-04-2025               |
| Pre-amplifier (30MHz ~ 1GHz) | Schwarzbeck     | BBV9743B        | WXJ001-2         | 12-27-2023           | 12-26-2024               |
| Pre-amplifier (1GHz ~ 18GHz) | SKET            | LNPA_0118G-50   | WXJ001-3         | 12-27-2023           | 12-26-2024               |
| EMI Test Receiver            | Rohde & Schwarz | ESRP7           | WXJ003-1         | 12-27-2023           | 12-26-2024               |
| Spectrum Analyzer            | Rohde & Schwarz | FSP 30          | WXJ004           | 12-27-2023           | 12-26-2024               |
| Coaxial Cable (30MHz ~ 1GHz) | JYTSZ           | JYT3M-1G-NN-8M  | WXG001-4         | 01-17-2024           | 01-16-2025               |
| Coaxial Cable (1GHz ~ 18GHz) | JYTSZ           | JYT3M-18G-NN-8M | WXG001-5         | 01-17-2024           | 01-16-2025               |
| Band Reject Filter Group     | Tonscend        | JS0806-F        | WXJ089           | N/A                  |                          |
| Test Software                | Tonscend        | TS+             | Version: 3.0.0.1 |                      |                          |

| Radiated Emission(3m FAR):    |                 |                 |                |                      |                          |
|-------------------------------|-----------------|-----------------|----------------|----------------------|--------------------------|
| Test Equipment                | Manufacturer    | Model No.       | Manage No.     | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| 3m FAR                        | YUNYI           | 9m*6m*6m        | WXJ097         | 06-15-2023           | 06-14-2028               |
| BiConiLog Antenna             | Schwarzbeck     | VULB9163        | WXJ097-2       | 07-13-2023           | 07-12-2024               |
| Horn Antenna                  | Schwarzbeck     | BBHA9120D       | WXJ097-3       | 07-14-2023           | 07-13-2024               |
| Horn Antenna                  | Schwarzbeck     | BBHA9120D       | WXJ002-3       | 12-28-2023           | 12-27-2024               |
| Horn Antenna                  | Schwarzbeck     | BBHA9170        | WXJ002-5       | 12-28-2023           | 12-27-2024               |
| Horn Antenna                  | Schwarzbeck     | BBHA9170        | WXJ002-6       | 12-28-2023           | 12-27-2024               |
| Pre-amplifier (30MHz ~ 1GHz)  | YUNYI           | PAM-310N        | WXJ097-5       | 05-14-2023           | 05-13-2024               |
|                               |                 |                 |                | 04-24-2024           | 04-23-2025               |
| Pre-amplifier (1GHz ~ 18GHz)  | YUNYI           | PAM-118N        | WXJ097-6       | 05-14-2023           | 05-13-2024               |
|                               |                 |                 |                | 04-24-2024           | 04-23-2025               |
| Pre-amplifier (18GHz ~ 40GHz) | RF System       | TRLA-180400G45B | WXJ002-7       | 12-28-2023           | 12-27-2024               |
| EMI Test Receiver             | Rohde & Schwarz | ESCI3           | WXJ003         | 12-27-2023           | 12-26-2024               |
| Spectrum Analyzer             | Rohde & Schwarz | FSP 30          | WXJ004         | 12-27-2023           | 12-26-2024               |
| Spectrum Analyzer             | KEYSIGHT        | N9010B          | WXJ081-1       | 06-13-2023           | 06-12-2024               |
|                               |                 |                 |                | 06-11-2024           | 06-10-2025               |
| Coaxial Cable (30MHz ~ 1GHz)  | JYTSZ           | JYT3M-1G-NN-13M | WXG097-1       | 08-01-2023           | 07-31-2024               |
| Coaxial Cable (1GHz ~ 18GHz)  | JYTSZ           | JYT3M-18G-NN-8M | WXG097-2       | 08-01-2023           | 07-31-2024               |
| Coaxial Cable (18GHz ~ 40GHz) | JYTSZ           | JYT3M-40G-SS-8M | WXG097-3       | 08-01-2023           | 07-31-2024               |
| High Band Reject Filter Group | Tonscend        | JS0806-F        | WXJ089         | N/A                  |                          |
| Low Band Reject Filter Group  | Tonscend        | JS0806-F        | WXJ097-4       | N/A                  |                          |
| Test Software                 | Tonscend        | TS+             | Version: 5.0.0 |                      |                          |

| Conducted Method: |              |           |            |                      |                          |
|-------------------|--------------|-----------|------------|----------------------|--------------------------|
| Test Equipment    | Manufacturer | Model No. | Manage No. | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| Spectrum Analyzer | Keysight     | N9010B    | WXJ004-3   | 11-01-2023           | 10-31-2024               |
| DC Power Supply   | Keysight     | E3642A    | WXJ025-2   | N/A                  |                          |

## 4 Measurement Setup and Procedure

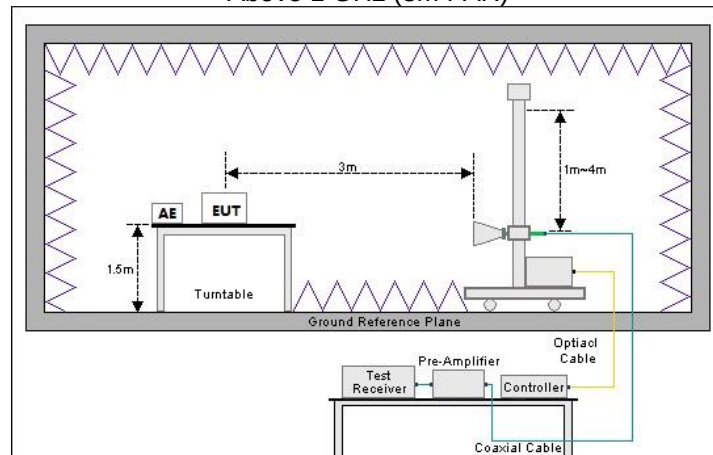
### 4.1 Test Setup

Radiated emission measurement:

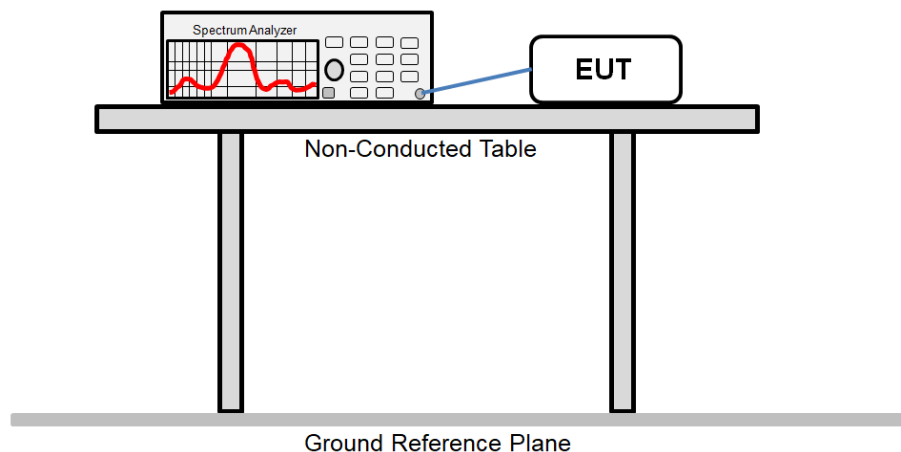
30 MHz – 1000 MHz (3m SAC)



Above 1 GHz (3m FAR)



Conducted test method:



## 4.2 Test Procedure

| Test method           | Test step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Radiated emission     | <ol style="list-style-type: none"> <li>1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.</li> <li>2. EUT works in each mode of operation that needs to be tested, and having the EUT continuously working, respectively on 3 axis (X, Y &amp; Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.</li> <li>3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.</li> </ol> |
| Conducted test method | <ol style="list-style-type: none"> <li>1. The antenna port of EUT was connected to the RF port of the spectrum analyzer through an RF cable.</li> <li>2. The EUT is keeping in continuous transmission mode and tested in all modulation modes.</li> <li>3. The test data is saved by the screenshot function of the spectrum analyzer.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## 5 Test Results

### 5.1 Summary

#### 5.1.1 Clause and Data Summary

| Test items                                                                                                              | Standard clause                     | Test data       | Result |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------|--------|
| Antenna Requirement                                                                                                     | 15.203                              | See Section 5.2 | Pass   |
| AC Power Line Conducted Emission                                                                                        | 15.207                              | N/A             | N/A    |
| 20dB Bandwidth                                                                                                          | 15.231 (c)                          | See Section 5.3 | Pass   |
| Field Strength of Fundamental                                                                                           | 15.231 (b)                          | See Section 5.4 | Pass   |
| Field Strength of Spurious Emissions                                                                                    | 15.209<br>15.231 (b)                | See Section 5.5 | Pass   |
| Duration Time                                                                                                           | 15.231 (a)(1)                       | See Section 5.6 | Pass   |
| <b>Remark:</b><br>1. Pass: The EUT complies with the essential requirements in the standard.<br>2. N/A: Not Applicable. |                                     |                 |        |
| <b>Test Method:</b>                                                                                                     | ANSI C63.4-2014<br>ANSI C63.10-2013 |                 |        |

## 5.1.2 Test Limit

| Test items                                                                | Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                         |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------|---------------|------|-----|----------------|------|-----|-----------------|---------------------------|-------------------------|-----------------|------|-----|-----------------|----------------------------|--------------------------|--------------|-------|------|-----------------|---------------------|----------|---------|------|------------|----------|------|------------|-----------|------|------------|------------|------|------------|-----------|---------------------|--|---------|-------|-------------|------|------|
| 20dB Bandwidth                                                            | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                         |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| Field Strength of Fundamental<br><br>Field Strength of Spurious Emissions | <table><tr><th>Fundamental Frequency (MHz)</th><th>Field strength of fundamental (microvolts/meter)</th><th>Field strength of spurious emissions (microvolts/meter)</th></tr><tr><td>40.66 – 40.70</td><td>2250</td><td>225</td></tr><tr><td>70.00 – 130.00</td><td>1250</td><td>125</td></tr><tr><td>130.00 – 174.00</td><td><sup>1</sup>1250 to 3750</td><td><sup>1</sup>125 to 375</td></tr><tr><td>174.00 – 260.00</td><td>3750</td><td>375</td></tr><tr><td>260.00 – 470.00</td><td><sup>1</sup>3750 to 12500</td><td><sup>1</sup>375 to 1250</td></tr><tr><td>Above 470.00</td><td>12500</td><td>1250</td></tr></table> <p><sup>1</sup>Linear interpolations.</p> <p>(1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.</p> <p>(2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in § 15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of § 15.205 shall be demonstrated using the measurement instrumentation specified in that section.</p> <p>(3) The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in § 15.209, whichever limit permits a higher field strength:</p> <table><tr><th>Frequency (MHz)</th><th>Limit (dBµV/m) @ 3m</th><th>Detector</th></tr><tr><td>30 – 88</td><td>40.0</td><td>Quasi-peak</td></tr><tr><td>88 – 216</td><td>43.5</td><td>Quasi-peak</td></tr><tr><td>216 – 960</td><td>46.0</td><td>Quasi-peak</td></tr><tr><td>960 – 1000</td><td>54.0</td><td>Quasi-peak</td></tr></table> <p><b>Note:</b> The more stringent limit applies at transition frequencies.</p> <table><tr><th rowspan="2">Frequency</th><th colspan="2">Limit (dBµV/m) @ 3m</th></tr><tr><th>Average</th><th>Peake</th></tr><tr><td>Above 1 GHz</td><td>54.0</td><td>74.0</td></tr></table> <p><b>Note:</b> The measurement bandwidth shall be 1 MHz or greater.</p> | Fundamental Frequency (MHz)                             | Field strength of fundamental (microvolts/meter) | Field strength of spurious emissions (microvolts/meter) | 40.66 – 40.70 | 2250 | 225 | 70.00 – 130.00 | 1250 | 125 | 130.00 – 174.00 | <sup>1</sup> 1250 to 3750 | <sup>1</sup> 125 to 375 | 174.00 – 260.00 | 3750 | 375 | 260.00 – 470.00 | <sup>1</sup> 3750 to 12500 | <sup>1</sup> 375 to 1250 | Above 470.00 | 12500 | 1250 | Frequency (MHz) | Limit (dBµV/m) @ 3m | Detector | 30 – 88 | 40.0 | Quasi-peak | 88 – 216 | 43.5 | Quasi-peak | 216 – 960 | 46.0 | Quasi-peak | 960 – 1000 | 54.0 | Quasi-peak | Frequency | Limit (dBµV/m) @ 3m |  | Average | Peake | Above 1 GHz | 54.0 | 74.0 |
| Fundamental Frequency (MHz)                                               | Field strength of fundamental (microvolts/meter)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Field strength of spurious emissions (microvolts/meter) |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| 40.66 – 40.70                                                             | 2250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 225                                                     |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| 70.00 – 130.00                                                            | 1250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 125                                                     |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| 130.00 – 174.00                                                           | <sup>1</sup> 1250 to 3750                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <sup>1</sup> 125 to 375                                 |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| 174.00 – 260.00                                                           | 3750                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 375                                                     |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| 260.00 – 470.00                                                           | <sup>1</sup> 3750 to 12500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <sup>1</sup> 375 to 1250                                |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| Above 470.00                                                              | 12500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1250                                                    |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| Frequency (MHz)                                                           | Limit (dBµV/m) @ 3m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Detector                                                |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| 30 – 88                                                                   | 40.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Quasi-peak                                              |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| 88 – 216                                                                  | 43.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Quasi-peak                                              |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| 216 – 960                                                                 | 46.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Quasi-peak                                              |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| 960 – 1000                                                                | 54.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Quasi-peak                                              |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| Frequency                                                                 | Limit (dBµV/m) @ 3m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                         |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
|                                                                           | Average                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Peake                                                   |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| Above 1 GHz                                                               | 54.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 74.0                                                    |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |
| Duration Time                                                             | A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                         |                                                  |                                                         |               |      |     |                |      |     |                 |                           |                         |                 |      |     |                 |                            |                          |              |       |      |                 |                     |          |         |      |            |          |      |            |           |      |            |            |      |            |           |                     |  |         |       |             |      |      |

## 5.2 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>E.U.T Antenna:</b><br>The EUT make use of an induction coil antenna.<br>The antenna of EUT is a PCB Antenna which cannot replace by end-user. See product internal photos for details.                                                                                                                                                                                                                                                                                        |                             |

### 5.3 20dB Bandwidth

#### FSK:

| Frequency (MHz)                                  | 20dB bandwidth (MHz) | Limit (MHz) | Results |
|--------------------------------------------------|----------------------|-------------|---------|
| 312.1                                            | 0.04977              | 0.78025     | Pass    |
| 315                                              | 0.05057              | 0.7875      | Pass    |
| 433.92                                           | 0.05052              | 1.0848      | Pass    |
| 902                                              | 0.05087              | 2.255       | Pass    |
| <b>Note:</b> Limit = Fundamental frequency×0.25% |                      |             |         |

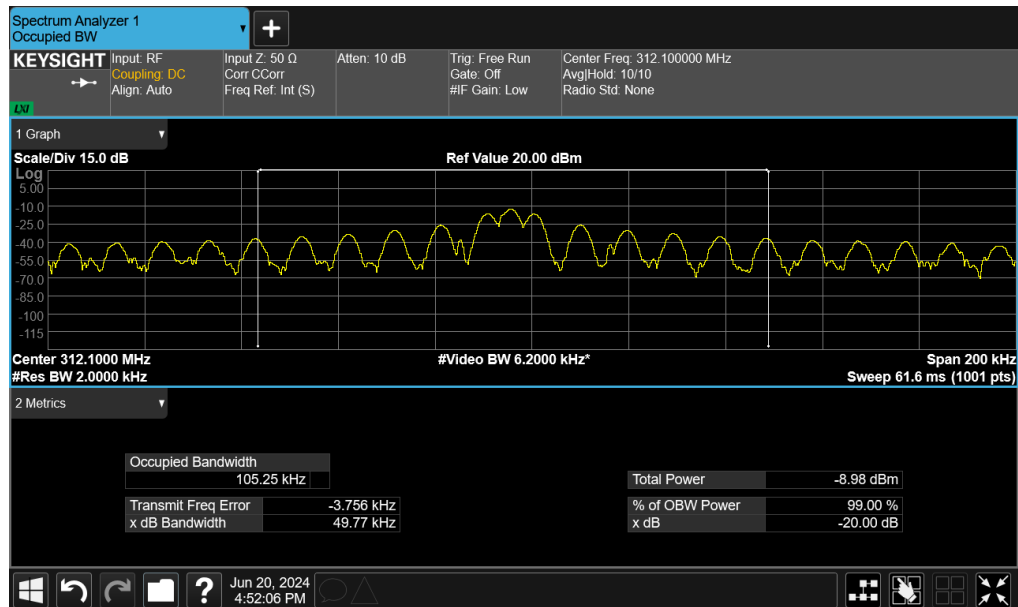
#### OOK:

| Frequency (MHz)                                  | 20dB bandwidth (MHz) | Limit (MHz) | Results |
|--------------------------------------------------|----------------------|-------------|---------|
| 315                                              | 0.04884              | 0.7875      | Pass    |
| 433.92                                           | 0.04974              | 1.0848      | Pass    |
| <b>Note:</b> Limit = Fundamental frequency×0.25% |                      |             |         |

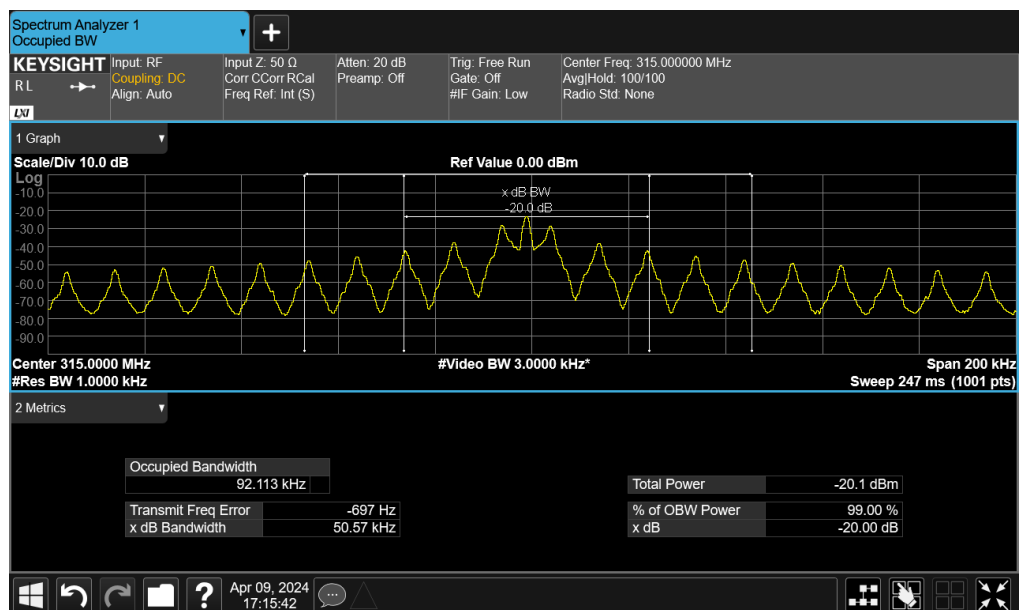
Test plot as follows:

FSK:

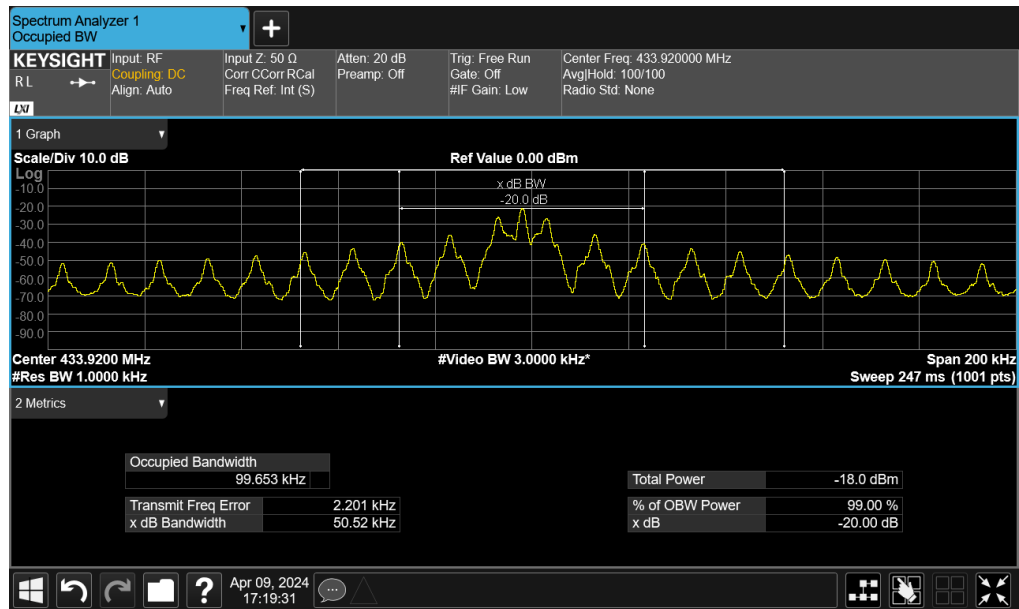
312.1MHz



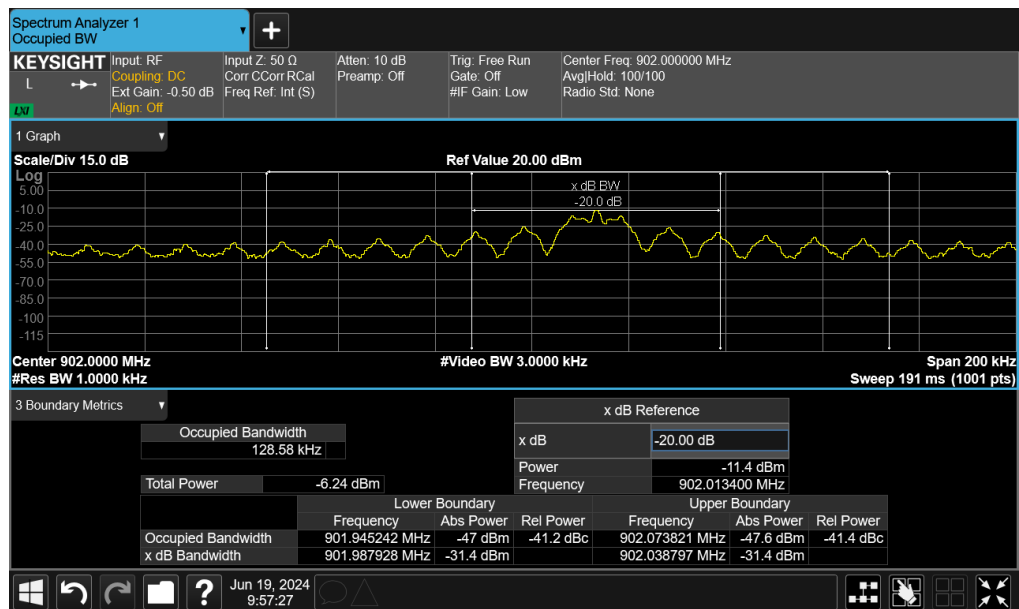
315MHz



### 433.92MHz

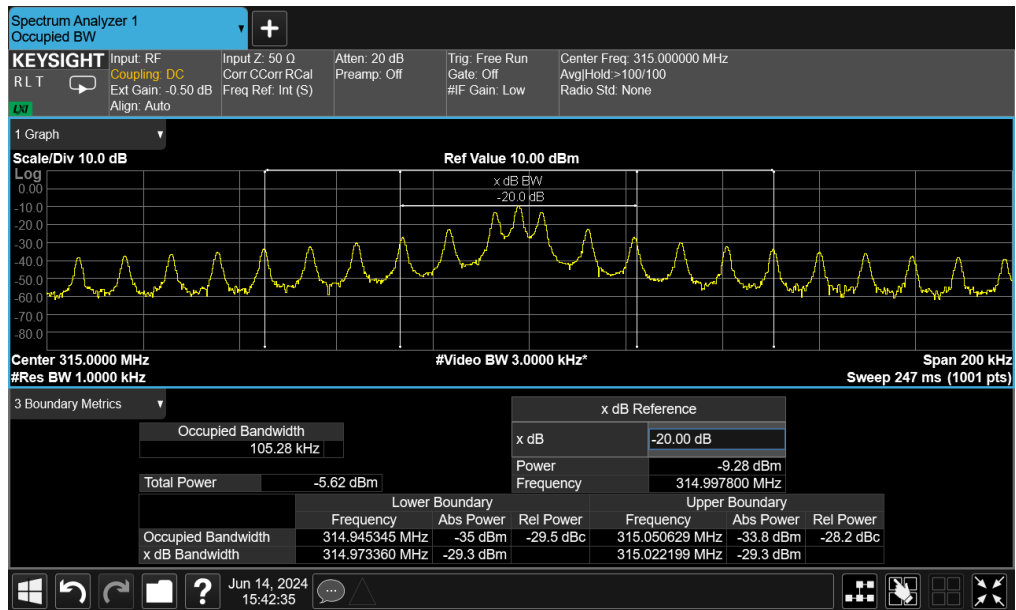


### 902MHz

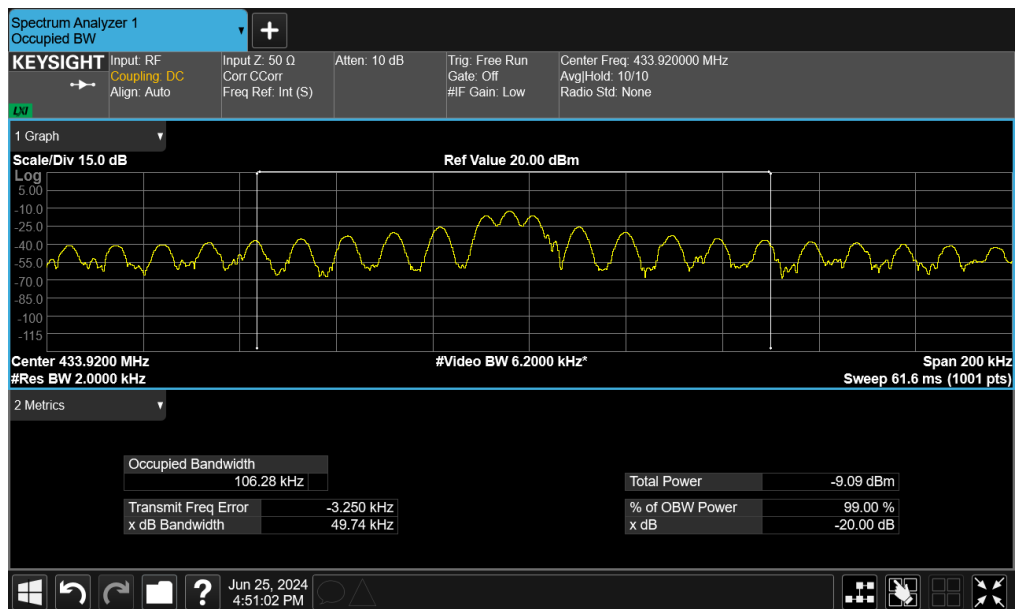


OOK:

### 315MHz



### 433.92MHz



## 5.4 Field Strength of Fundamental

FSK:

### 312.1MHz

| Peak value                              |                                                                    |                   |                        |                |             |              |
|-----------------------------------------|--------------------------------------------------------------------|-------------------|------------------------|----------------|-------------|--------------|
| Frequency (MHz)                         | Reading (dBuV/m)                                                   | Factor (dB/m)     | Level (dBuV/m)         | Limit (dBuV/m) | Margin (dB) | Polarization |
| 312.0003                                | 71.50                                                              | -12.81            | 58.69                  | 95.45          | 36.76       | Vertical     |
| 312.1223                                | 84.61                                                              | -12.81            | 71.80                  | 95.45          | 23.65       | Horizontal   |
| Average value                           |                                                                    |                   |                        |                |             |              |
| Frequency (MHz)                         | Level (dBuV/m)                                                     | Duty cycle factor | Average value (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Polarization |
| 312.0003                                | 58.69                                                              | -3.36             | 55.33                  | 75.45          | 20.12       | Vertical     |
| 312.1223                                | 71.80                                                              | -3.36             | 68.44                  | 75.45          | 7.01        | Horizontal   |
| Duty Cycle Factor<br>Calculate Formula: | Average value = Peak value + Duty Cycle Factor                     |                   |                        |                |             |              |
|                                         | Duty cycle factor = $20\log(\text{Duty cycle})$                    |                   |                        |                |             |              |
|                                         | Duty cycle = on time/100 milliseconds or period, whichever is less |                   |                        |                |             |              |
|                                         | T on time = 54.40(ms)                                              |                   |                        |                |             |              |
|                                         | T period = 80.10(ms)                                               |                   |                        |                |             |              |
|                                         | Duty cycle = 67.92%                                                |                   |                        |                |             |              |
|                                         | Duty cycle factor = $20\log(\text{Duty cycle}) = -3.36$            |                   |                        |                |             |              |

### 315MHz

| Peak value                              |                                                                    |                   |                        |                |             |              |
|-----------------------------------------|--------------------------------------------------------------------|-------------------|------------------------|----------------|-------------|--------------|
| Frequency (MHz)                         | Reading (dBuV/m)                                                   | Factor (dB/m)     | Level (dBuV/m)         | Limit (dBuV/m) | Margin (dB) | Polarization |
| 315                                     | 78.50                                                              | -12.81            | 65.69                  | 95.62          | 29.93       | Vertical     |
| 315                                     | 87.44                                                              | -12.81            | 74.63                  | 95.62          | 20.99       | Horizontal   |
| Average value                           |                                                                    |                   |                        |                |             |              |
| Frequency (MHz)                         | Level (dBuV/m)                                                     | Duty cycle factor | Average value (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Polarization |
| 315                                     | 65.69                                                              | -11.56            | 54.13                  | 75.62          | 21.49       | Vertical     |
| 315                                     | 74.63                                                              | -11.56            | 63.07                  | 75.62          | 12.55       | Horizontal   |
| Duty Cycle Factor<br>Calculate Formula: | Average value = Peak value + Duty Cycle Factor                     |                   |                        |                |             |              |
|                                         | Duty cycle factor = $20\log(\text{Duty cycle})$                    |                   |                        |                |             |              |
|                                         | Duty cycle = on time/100 milliseconds or period, whichever is less |                   |                        |                |             |              |
|                                         | T on time = 13.34(ms)                                              |                   |                        |                |             |              |
|                                         | T period = 50.50(ms)                                               |                   |                        |                |             |              |
|                                         | Duty cycle = 26.42%                                                |                   |                        |                |             |              |
|                                         | Duty cycle factor = $20\log(\text{Duty cycle}) = -11.56$           |                   |                        |                |             |              |

### 433.92MHz

| Peak value                           |                                                                    |                   |                        |                |             |              |
|--------------------------------------|--------------------------------------------------------------------|-------------------|------------------------|----------------|-------------|--------------|
| Frequency (MHz)                      | Reading (dBuV/m)                                                   | Factor (dB/m)     | Level (dBuV/m)         | Limit (dBuV/m) | Margin (dB) | Polarization |
| 433.9282                             | 76.82                                                              | -10.09            | 66.73                  | 100.82         | 34.09       | Vertical     |
| 433.9282                             | 87.39                                                              | -10.09            | 77.30                  | 100.82         | 23.52       | Horizontal   |
| Average value                        |                                                                    |                   |                        |                |             |              |
| Frequency (MHz)                      | Level (dBuV/m)                                                     | Duty cycle factor | Average value (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Polarization |
| 433.9282                             | 66.73                                                              | -11.58            | 55.15                  | 80.82          | 25.67       | Vertical     |
| 433.9282                             | 77.30                                                              | -11.58            | 65.72                  | 80.82          | 15.10       | Horizontal   |
| Duty Cycle Factor 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 |                   |                        |                |             |              |
|                                      | T on time = 13.32(ms)                                              |                   |                        |                |             |              |
|                                      | T period = 50.50(ms)                                               |                   |                        |                |             |              |
|                                      | Duty cycle = 26.53%                                                |                   |                        |                |             |              |
|                                      | Duty cycle factor = 20log(Duty cycle) = -11.58                     |                   |                        |                |             |              |

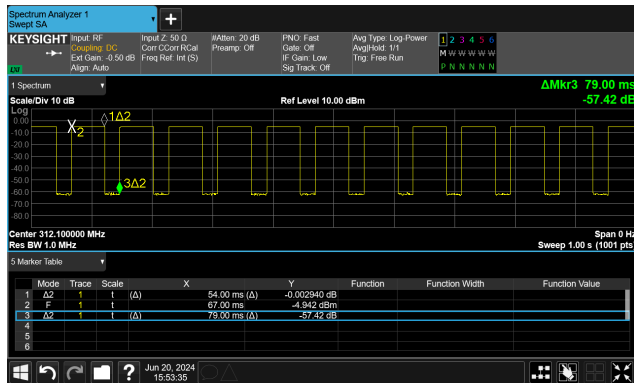
### 902MHz

| Peak value                           |                                                                    |                   |                        |                |             |              |
|--------------------------------------|--------------------------------------------------------------------|-------------------|------------------------|----------------|-------------|--------------|
| Frequency (MHz)                      | Reading (dBuV/m)                                                   | Factor (dB/m)     | Level (dBuV/m)         | Limit (dBuV/m) | Margin (dB) | Polarization |
| 902.0251                             | 72.53                                                              | -2.68             | 69.85                  | 101.93         | 32.08       | Vertical     |
| 902.0251                             | 80.42                                                              | -2.68             | 77.74                  | 101.93         | 24.19       | Horizontal   |
| Average value                        |                                                                    |                   |                        |                |             |              |
| Frequency (MHz)                      | Level (dBuV/m)                                                     | Duty cycle factor | Average value (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Polarization |
| 902.0251                             | 69.85                                                              | -11.59            | 58.26                  | 81.93          | 23.67       | Vertical     |
| 902.0251                             | 77.74                                                              | -11.59            | 66.15                  | 81.93          | 15.78       | Horizontal   |
| Duty Cycle Factor 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 |                   |                        |                |             |              |
|                                      | T on time = 13.3(ms)                                               |                   |                        |                |             |              |
|                                      | T period = 50.50(ms)                                               |                   |                        |                |             |              |
|                                      | Duty cycle = 26.34%                                                |                   |                        |                |             |              |
|                                      | Duty cycle factor = 20log(Duty cycle) = -11.59                     |                   |                        |                |             |              |

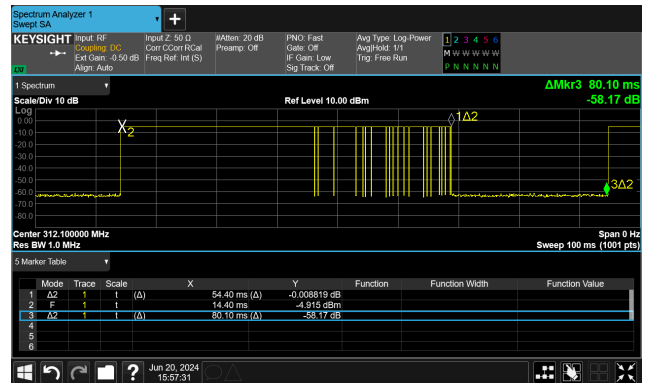
# FSK:

## 312.1MHz:

T period:

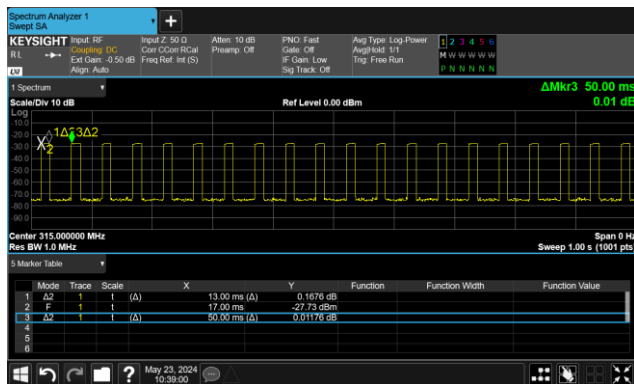


T 100ms:



## 315MHz:

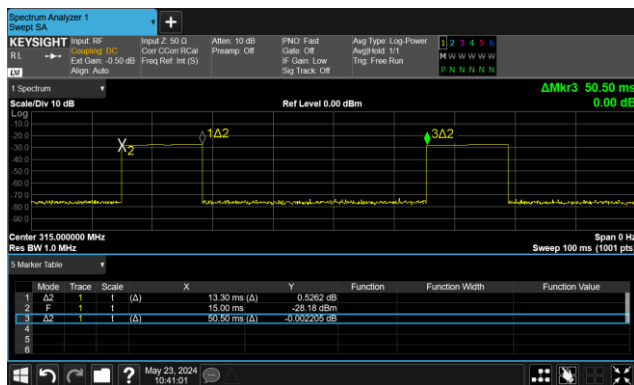
T period:



T 100ms:



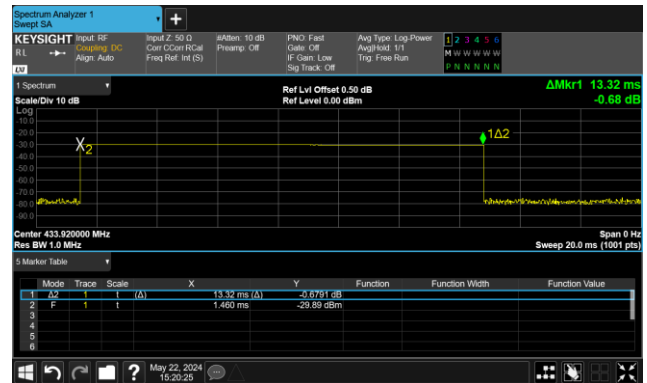
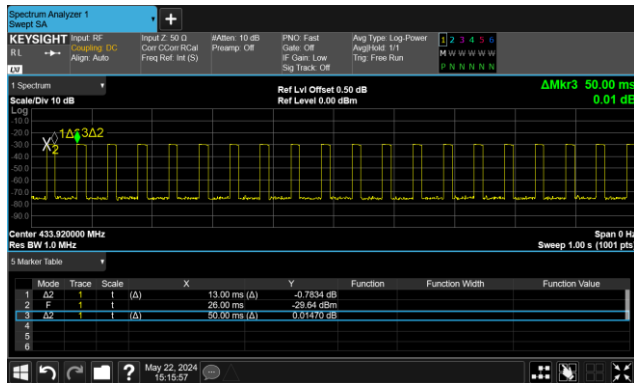
T 62ms:



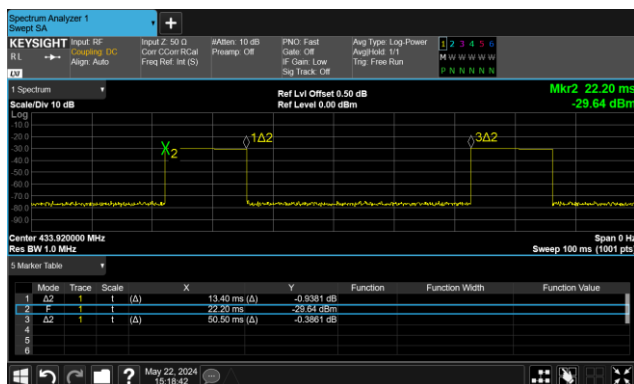
433.92MHz:

T period:

T 100ms:



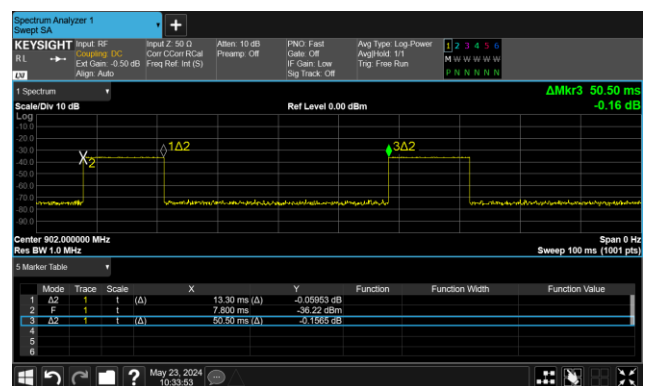
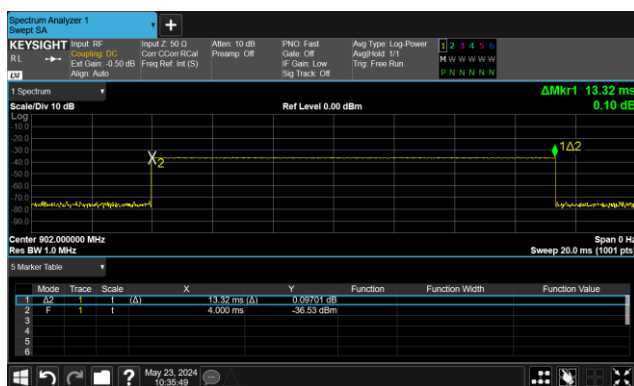
T 62ms:



902MHz:

T period:

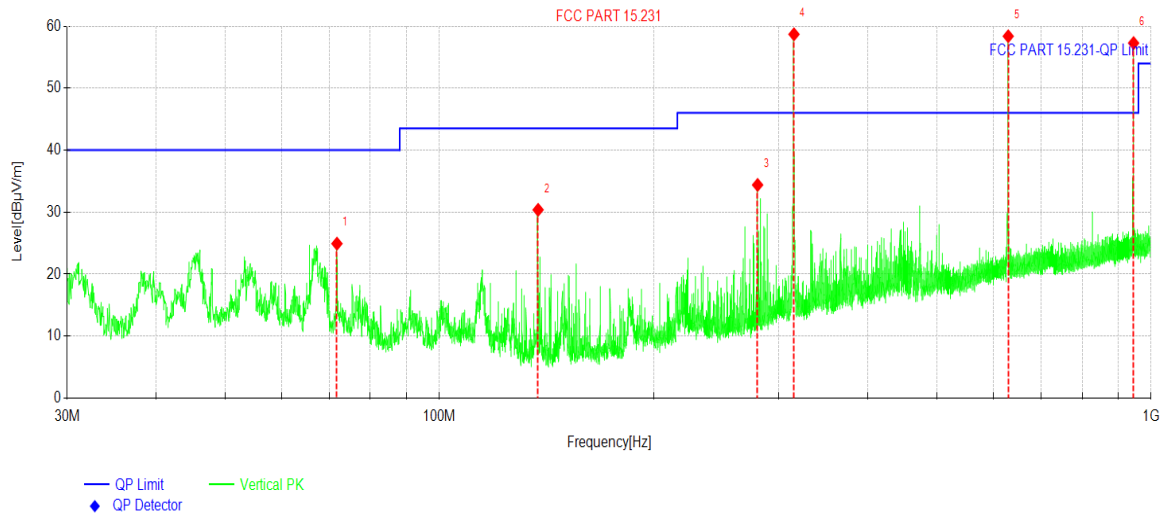
T 100ms:



## 5.5 Field Strength of Spurious Emissions

### 312.1MHz:

|                 |                   |                |                  |
|-----------------|-------------------|----------------|------------------|
| Product Name:   | KiB Ekey          | Product Model: | 1412VD           |
| Test By:        | Kiran Zeng        | Test mode:     | 312.1MHz Tx mode |
| Test Frequency: | 30 MHz – 1000 MHz | Polarization:  | Vertical         |
| Test Voltage:   | DC 12V            |                |                  |



| Suspected Data List |             |                  |             |                |                |             |       |          |
|---------------------|-------------|------------------|-------------|----------------|----------------|-------------|-------|----------|
| NO.                 | Freq. [MHz] | Reading [dBuV/m] | Factor [dB] | Level [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Trace | Polarity |
| 1                   | 71.8091     | 42.57            | -17.65      | 24.92          | 40.00          | 15.08       | PK    | Vertical |
| 2                   | 137.675     | 48.58            | -18.20      | 30.38          | 43.50          | 13.12       | PK    | Vertical |
| 3                   | 280.030     | 47.89            | -13.50      | 34.39          | 46.00          | 11.61       | PK    | Vertical |
| 4                   | 312.000     | 71.50            | -12.81      | 58.69          | 95.45          | 36.76       | PK    | Vertical |
| 5                   | 624.023     | 64.73            | -6.35       | 58.38          | 75.45          | 17.07       | PK    | Vertical |
| 6                   | 936.046     | 59.65            | -2.38       | 57.27          | 75.45          | 18.18       | PK    | Vertical |

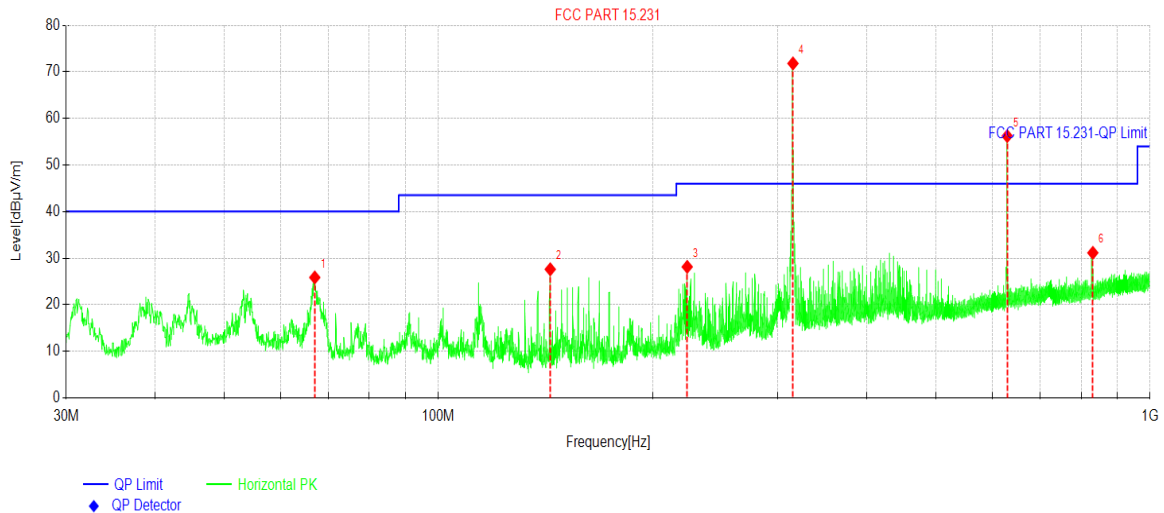
  

| NO. | Frequency (MHz) | Level (dBuV/m) | Duty cycle factor | Average value (dBuV/m) | Limit Line (dBuV/m) | Margin (dB) | Trace | Polarity |
|-----|-----------------|----------------|-------------------|------------------------|---------------------|-------------|-------|----------|
| 1   | 312.000         | 58.69          | -3.36             | 55.33                  | 75.45               | 20.12       | AV    | Vertical |
| 2   | 624.023         | 58.38          | -3.36             | 55.02                  | 55.45               | 0.43        | AV    | Vertical |
| 3   | 936.046         | 57.27          | -3.36             | 53.91                  | 55.45               | 1.54        | AV    | Vertical |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |                   |                |                  |
|-----------------|-------------------|----------------|------------------|
| Product Name:   | KiB Ekey          | Product Model: | 1412VD           |
| Test By:        | Kiran Zeng        | Test mode:     | 312.1MHz Tx mode |
| Test Frequency: | 30 MHz – 1000 MHz | Polarization:  | Horizontal       |
| Test Voltage:   | DC 12V            |                |                  |



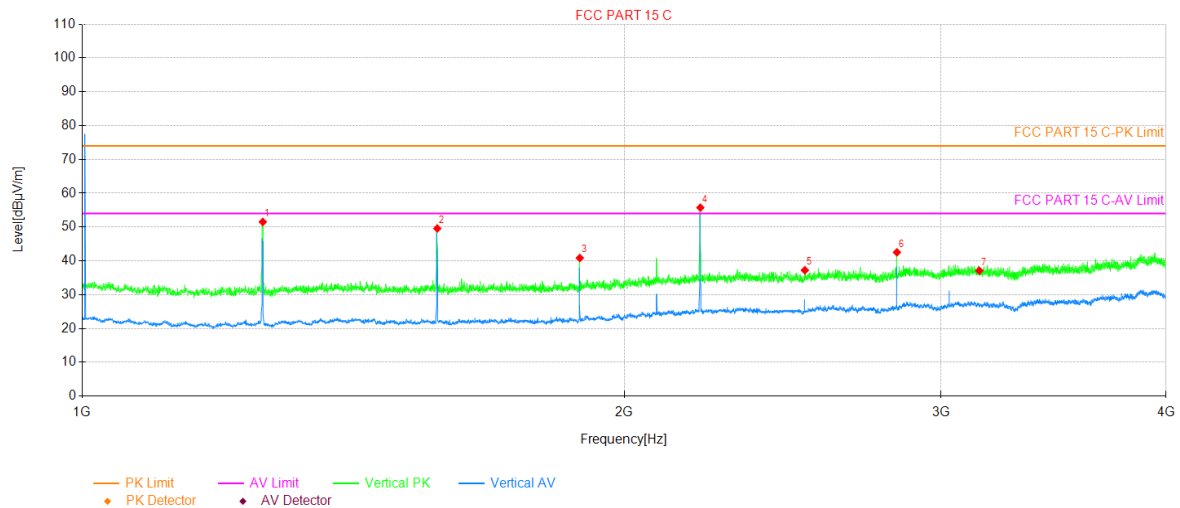
| Suspected Data List |             |                 |             |                |                |             |       |            |
|---------------------|-------------|-----------------|-------------|----------------|----------------|-------------|-------|------------|
| NO.                 | Freq. [MHz] | Reading[dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity   |
| 1                   | 67.0559     | 41.51           | -15.66      | 25.85          | 40.00          | 14.15       | PK    | Horizontal |
| 2                   | 143.641     | 45.94           | -18.34      | 27.60          | 43.50          | 15.90       | PK    | Horizontal |
| 3                   | 223.718     | 43.09           | -14.96      | 28.13          | 46.00          | 17.87       | PK    | Horizontal |
| 4                   | 312.122     | 84.61           | -12.81      | 71.80          | 95.45          | 23.65       | PK    | Horizontal |
| 5                   | 623.975     | 62.55           | -6.35       | 56.20          | 75.45          | 19.25       | PK    | Horizontal |
| 6                   | 831.066     | 34.94           | -3.80       | 31.14          | 75.45          | 44.31       | PK    | Horizontal |

| NO. | Frequency (MHz) | Level (dBμV/m) | Duty cycle factor | Average value (dBμV/m) | Limit Line (dBμV/m) | Margin (dB) | Trace | Polarity   |
|-----|-----------------|----------------|-------------------|------------------------|---------------------|-------------|-------|------------|
| 1   | 312.12          | 71.80          | -3.36             | 68.44                  | 75.45               | 7.01        | AV    | Horizontal |
| 2   | 623.97          | 56.20          | -3.36             | 52.84                  | 54.00               | 1.16        | AV    | Horizontal |

**Remark:**

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |                     |                |                  |
|-----------------|---------------------|----------------|------------------|
| Product Name:   | KiB Ekey            | Product Model: | 1412VD           |
| Test By:        | Kiran Zeng          | Test mode:     | 312.1MHz Tx mode |
| Test Frequency: | 1000 MHz – 4000 MHz | Polarization:  | Vertical         |
| Test Voltage:   | DC 12V              |                |                  |



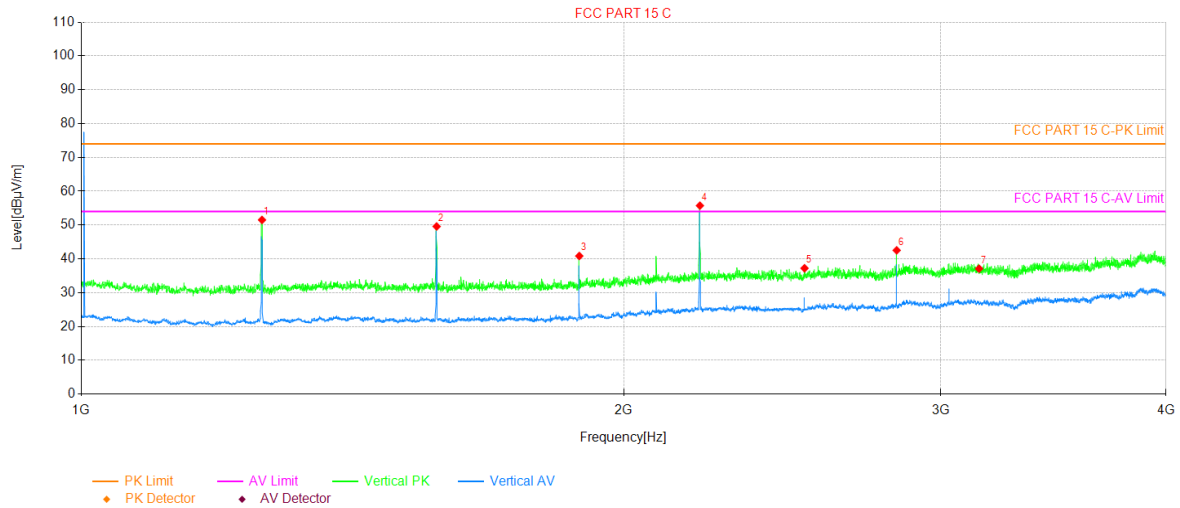
#### Suspected Data List

| NO. | Freq. [MHz] | Reading [dBμV] | Factor [dB/m] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Angle [°] | Detector | Verdict | Polarity |
|-----|-------------|----------------|---------------|----------------|----------------|-------------|-----------|----------|---------|----------|
| 1   | 1248.88     | 75.42          | -23.91        | 51.51          | 74.00          | 22.49       | 209       | PK       | PASS    | Vertical |
| 2   | 1560.88     | 72.93          | -23.35        | 49.58          | 74.00          | 24.42       | 88        | PK       | PASS    | Vertical |
| 3   | 1872.88     | 62.92          | -22.07        | 40.85          | 74.00          | 33.15       | 294       | PK       | PASS    | Vertical |
| 4   | 2184.88     | 74.88          | -19.15        | 55.73          | 74.00          | 18.27       | 230       | PK       | PASS    | Vertical |
| 5   | 2496.25     | 55.43          | -18.21        | 37.22          | 74.00          | 36.78       | 41        | PK       | PASS    | Vertical |
| 6   | 2808.25     | 59.14          | -16.62        | 42.52          | 74.00          | 31.48       | 230       | PK       | PASS    | Vertical |
| 7   | 3121.00     | 52.45          | -15.36        | 37.09          | 74.00          | 36.91       | 216       | PK       | PASS    | Vertical |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |                     |                |                  |
|-----------------|---------------------|----------------|------------------|
| Product Name:   | KiB Ekey            | Product Model: | 1412VD           |
| Test By:        | Kiran Zeng          | Test mode:     | 312.1MHz Tx mode |
| Test Frequency: | 1000 MHz – 4000 MHz | Polarization:  | Horizontal       |
| Test Voltage:   | DC 12V              |                |                  |



#### Suspected Data List

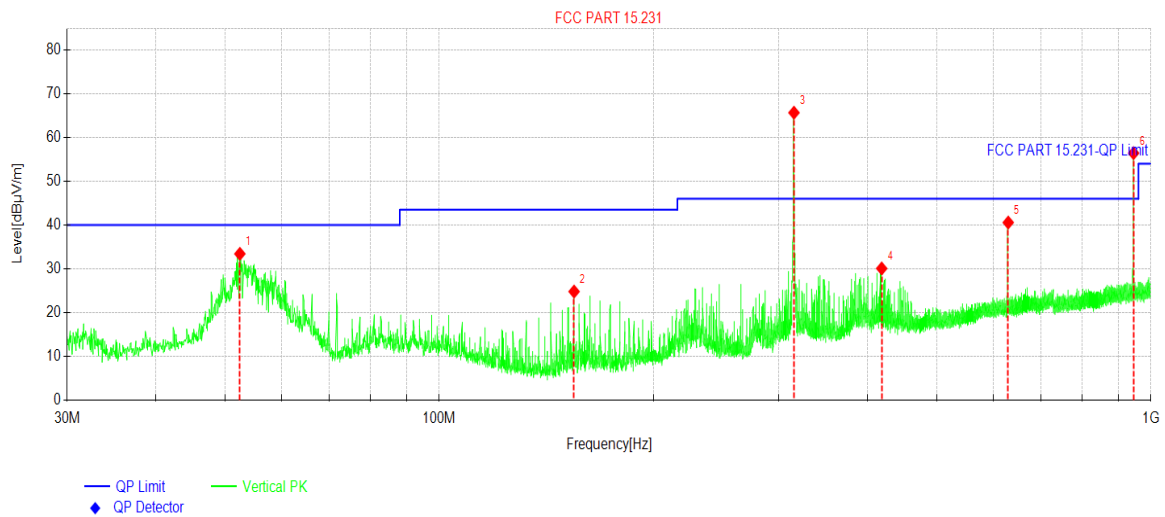
| NO. | Freq. [MHz] | Reading [dBμV] | Factor [dB/m] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Angle [°] | Detector | Verdict | Polarity   |
|-----|-------------|----------------|---------------|----------------|----------------|-------------|-----------|----------|---------|------------|
| 1   | 1248.88     | 75.42          | -23.91        | 51.51          | 74.00          | 22.49       | 209       | PK       | PASS    | Horizontal |
| 2   | 1560.88     | 72.93          | -23.35        | 49.58          | 74.00          | 24.42       | 88        | PK       | PASS    | Horizontal |
| 3   | 1872.88     | 62.92          | -22.07        | 40.85          | 74.00          | 33.15       | 294       | PK       | PASS    | Horizontal |
| 4   | 2184.88     | 74.88          | -19.15        | 55.73          | 74.00          | 18.27       | 230       | PK       | PASS    | Horizontal |
| 5   | 2496.25     | 55.43          | -18.21        | 37.22          | 74.00          | 36.78       | 41        | PK       | PASS    | Horizontal |
| 6   | 2808.25     | 59.14          | -16.62        | 42.52          | 74.00          | 31.48       | 230       | PK       | PASS    | Horizontal |
| 7   | 312.00      | 52.45          | -15.36        | 37.09          | 74.00          | 36.91       | 216       | PK       | PASS    | Horizontal |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

### 315MHz:

|                 |                   |                |                |
|-----------------|-------------------|----------------|----------------|
| Product Name:   | KiB Ekey          | Product Model: | 1412VD         |
| Test By:        | Kiran Zeng        | Test mode:     | 315MHz Tx mode |
| Test Frequency: | 30 MHz – 1000 MHz | Polarization:  | Vertical       |
| Test Voltage:   | DC 12V            |                |                |



#### Suspected Data List

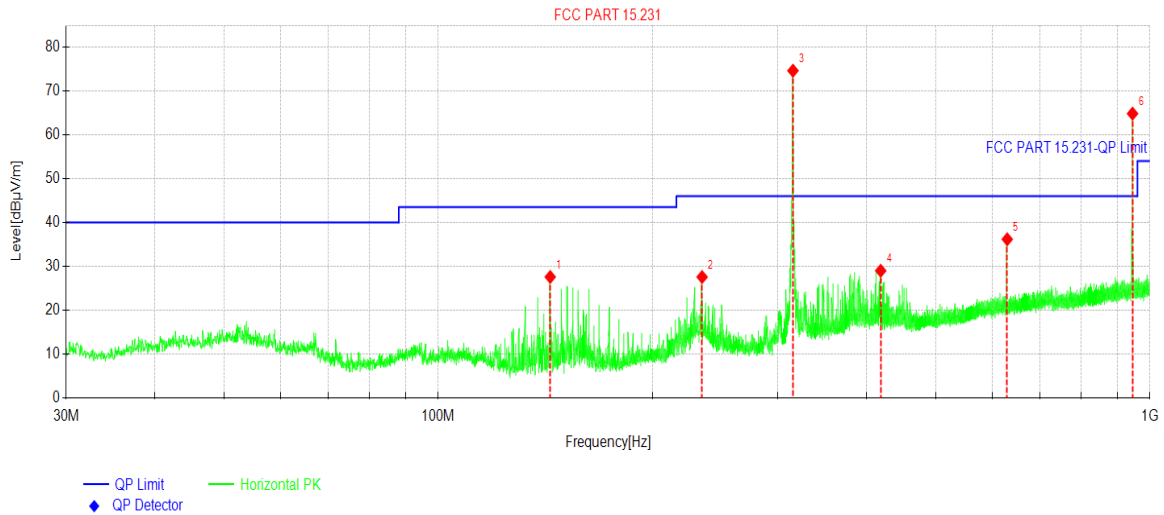
| NO. | Freq. [MHz] | Reading[dBuV/m] | Factor [dB] | Level [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Trace | Polarity |
|-----|-------------|-----------------|-------------|----------------|----------------|-------------|-------|----------|
| 1   | 52.4566     | 46.24           | -12.81      | 33.43          | 40.00          | 6.57        | PK    | Vertical |
| 2   | 154.651     | 42.87           | -18.06      | 24.81          | 43.50          | 18.69       | PK    | Vertical |
| 3   | 315         | 78.50           | -12.81      | 65.69          | 95.62          | 29.93       | PK    | Vertical |
| 4   | 418.407     | 40.51           | -10.43      | 30.08          | 46.00          | 15.92       | PK    | Vertical |
| 5   | 630.023     | 46.94           | -6.35       | 40.59          | 75.62          | 35.03       | PK    | Vertical |
| 6   | 945.046     | 58.82           | -2.38       | 56.44          | 75.62          | 19.18       | PK    | Vertical |

| NO. | Frequen cy [MHz] | Level (dBuV/m) | Duty cycle factor | Average value (dBuV/m) | Limit Line (dBuV/m) | Margin (dB) | Trace | Polarity |
|-----|------------------|----------------|-------------------|------------------------|---------------------|-------------|-------|----------|
| 1   | 315              | 65.69          | -11.56            | 54.13                  | 75.62               | 21.49       | AV    | Vertical |
| 2   | 630.023          | 40.59          | -11.56            | 29.03                  | 55.62               | 26.59       | AV    | Vertical |
| 3   | 945.046          | 56.44          | -11.56            | 44.88                  | 54.00               | 9.12        | AV    | Vertical |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |                   |                |                |
|-----------------|-------------------|----------------|----------------|
| Product Name:   | KiB Ekey          | Product Model: | 1412VD         |
| Test By:        | Kiran Zeng        | Test mode:     | 315MHz Tx mode |
| Test Frequency: | 30 MHz – 1000 MHz | Polarization:  | Horizontal     |
| Test Voltage:   | DC 12V            |                |                |



#### Suspected Data List

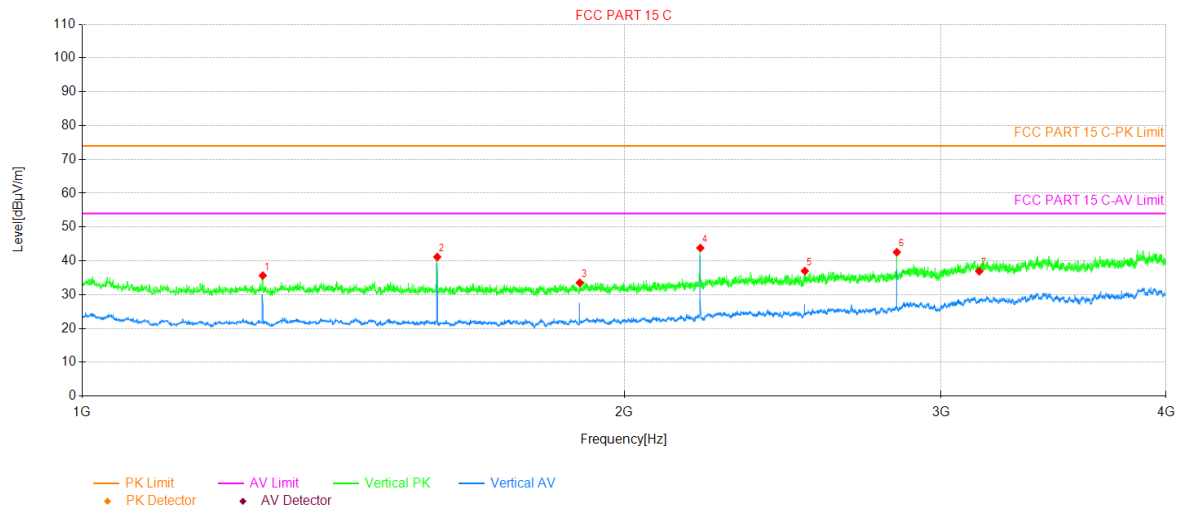
| NO. | Freq. [MHz] | Reading[dBuV/m] | Factor [dB] | Level [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Trace | Polarity   |
|-----|-------------|-----------------|-------------|----------------|----------------|-------------|-------|------------|
| 1   | 143.641     | 45.93           | -18.34      | 27.59          | 43.50          | 15.91       | PK    | Horizontal |
| 2   | 234.777     | 41.99           | -14.42      | 27.57          | 46.00          | 18.43       | PK    | Horizontal |
| 3   | 315.000     | 87.44           | -12.81      | 74.63          | 95.62          | 20.99       | PK    | Horizontal |
| 4   | 418.407     | 39.43           | -10.43      | 29.00          | 46.00          | 17.00       | PK    | Horizontal |
| 5   | 630.023     | 42.53           | -6.35       | 36.18          | 75.62          | 39.44       | PK    | Horizontal |
| 6   | 945.05      | 67.22           | -2.38       | 64.84          | 75.62          | 10.78       | PK    | Horizontal |

| NO. | Frequency (MHz) | Level (dBuV/m) | Duty cycle factor | Average value (dBuV/m) | Limit Line (dBuV/m) | Margin (dB) | Trace | Polarity   |
|-----|-----------------|----------------|-------------------|------------------------|---------------------|-------------|-------|------------|
| 1   | 315             | 74.63          | -11.56            | 63.07                  | 75.62               | 12.55       | AV    | Horizontal |
| 2   | 630.02          | 36.18          | -11.56            | 24.62                  | 55.62               | 31.00       | AV    | Horizontal |
| 3   | 945.05          | 64.84          | -11.56            | 53.28                  | 54.00               | 0.72        | AV    | Horizontal |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |                     |                |                |
|-----------------|---------------------|----------------|----------------|
| Product Name:   | KiB Ekey            | Product Model: | 1412VD         |
| Test By:        | Kiran Zeng          | Test mode:     | 315MHz Tx mode |
| Test Frequency: | 1000 MHz – 4000 MHz | Polarization:  | Vertical       |
| Test Voltage:   | DC 12V              |                |                |



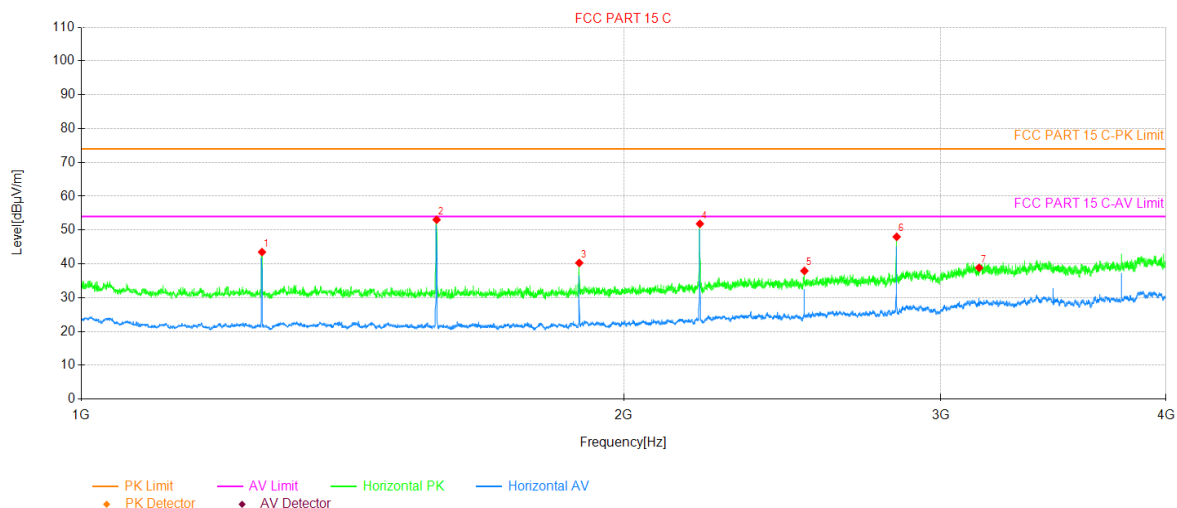
#### Suspected Data List

| NO. | Freq. [MHz] | Reading [dBμV] | Factor [dB/m] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Angle [°] | Detector | Verdict | Polarity |
|-----|-------------|----------------|---------------|----------------|----------------|-------------|-----------|----------|---------|----------|
| 1   | 1259.88     | 58.54          | -22.89        | 35.65          | 74.00          | 38.35       | 88        | PK       | PASS    | Vertical |
| 2   | 1574.88     | 63.75          | -22.60        | 41.15          | 74.00          | 32.85       | 95        | PK       | PASS    | Vertical |
| 3   | 1889.88     | 55.30          | -21.77        | 33.53          | 74.00          | 40.47       | 143       | PK       | PASS    | Vertical |
| 4   | 2204.88     | 64.19          | -20.37        | 43.82          | 74.00          | 30.18       | 246       | PK       | PASS    | Vertical |
| 5   | 2520.25     | 55.56          | -18.57        | 36.99          | 74.00          | 37.01       | 88        | PK       | PASS    | Vertical |
| 6   | 2834.88     | 58.93          | -16.37        | 42.56          | 74.00          | 31.44       | 130       | PK       | PASS    | Vertical |
| 7   | 3150.00     | 50.78          | -13.86        | 36.92          | 74.00          | 37.08       | 330       | PK       | PASS    | Vertical |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |                     |                |                |
|-----------------|---------------------|----------------|----------------|
| Product Name:   | KiB Ekey            | Product Model: | 1412VD         |
| Test By:        | Kiran Zeng          | Test mode:     | 315MHz Tx mode |
| Test Frequency: | 1000 MHz – 4000 MHz | Polarization:  | Horizontal     |
| Test Voltage:   | DC 12V              |                |                |



#### Suspected Data List

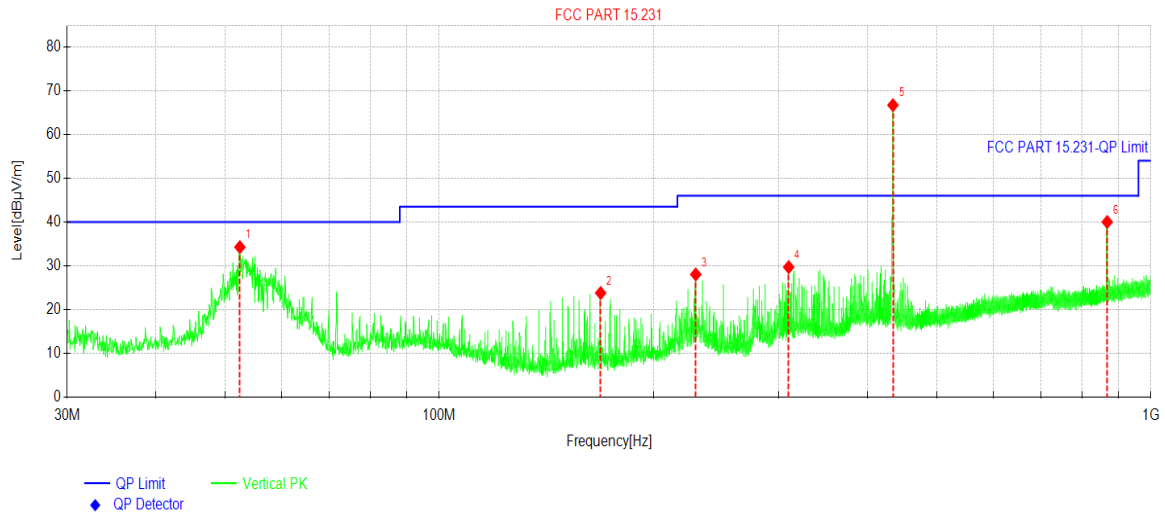
| NO. | Freq. [MHz] | Reading [dBμV] | Factor [dB/m] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Angle [°] | Detector | Verdict | Polarity   |
|-----|-------------|----------------|---------------|----------------|----------------|-------------|-----------|----------|---------|------------|
| 1   | 1259.88     | 66.37          | -22.89        | 43.48          | 74.00          | 30.52       | 312       | PK       | PASS    | Horizontal |
| 2   | 1574.88     | 75.65          | -22.60        | 53.05          | 74.00          | 20.95       | 0         | PK       | PASS    | Horizontal |
| 3   | 1889.88     | 62.05          | -21.77        | 40.28          | 74.00          | 33.72       | 8         | PK       | PASS    | Horizontal |
| 4   | 2204.88     | 72.21          | -20.37        | 51.84          | 74.00          | 22.16       | 8         | PK       | PASS    | Horizontal |
| 5   | 2519.88     | 56.51          | -18.58        | 37.93          | 74.00          | 36.07       | 21        | PK       | PASS    | Horizontal |
| 6   | 2835.25     | 64.36          | -16.36        | 48.00          | 74.00          | 26.00       | 0         | PK       | PASS    | Horizontal |
| 7   | 3150.25     | 52.70          | -13.86        | 38.84          | 74.00          | 35.16       | 63        | PK       | PASS    | Horizontal |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

## 433.92MHz:

|                 |                   |                |                   |
|-----------------|-------------------|----------------|-------------------|
| Product Name:   | KiB Ekey          | Product Model: | 1412VD            |
| Test By:        | Kiran Zeng        | Test mode:     | 433.92MHz Tx mode |
| Test Frequency: | 30 MHz – 1000 MHz | Polarization:  | Vertical          |
| Test Voltage:   | DC 12V            |                |                   |



## Suspected Data List

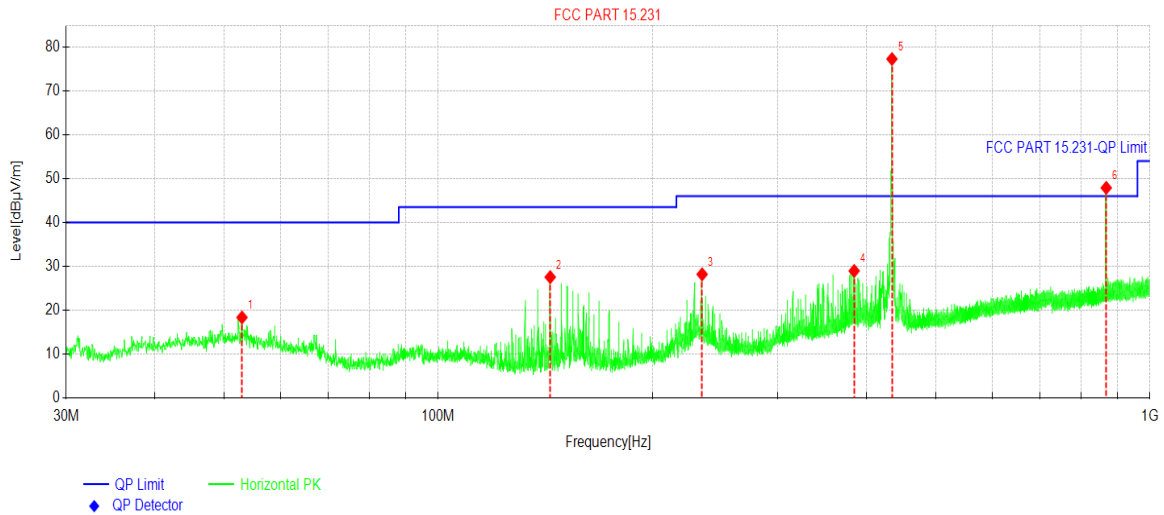
| NO. | Freq. [MHz] | Reading[dBuV/m] | Factor [dB] | Level [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Trace | Polarity |
|-----|-------------|-----------------|-------------|----------------|----------------|-------------|-------|----------|
| 1   | 52.4566     | 47.09           | -12.81      | 34.28          | 40.00          | 5.72        | PK    | Vertical |
| 2   | 168.522     | 41.34           | -17.55      | 23.79          | 43.50          | 19.71       | PK    | Vertical |
| 3   | 229.248     | 42.76           | -14.72      | 28.04          | 46.00          | 17.96       | PK    | Vertical |
| 4   | 309.665     | 42.60           | -12.88      | 29.72          | 46.00          | 16.28       | PK    | Vertical |
| 5   | 433.928     | 76.82           | -10.09      | 66.73          | 100.82         | 34.09       | PK    | Vertical |
| 6   | 867.830     | 43.09           | -3.07       | 40.02          | 80.82          | 40.80       | PK    | Vertical |

| NO. | Frequency (MHz) | Level (dBuV/m) | Duty cycle factor | Average value (dBuV/m) | Limit Line (dBuV/m) | Margin (dB) | Trace | Polarity |
|-----|-----------------|----------------|-------------------|------------------------|---------------------|-------------|-------|----------|
| 1   | 433.956         | 66.73          | -11.58            | 55.15                  | 80.82               | 25.67       | AV    | Vertical |
| 2   | 867.886         | 40.02          | -11.58            | 28.44                  | 60.82               | 32.38       | AV    | Vertical |

## Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |                   |                |                   |
|-----------------|-------------------|----------------|-------------------|
| Product Name:   | KiB Ekey          | Product Model: | 1412VD            |
| Test By:        | Kiran Zeng        | Test mode:     | 433.92MHz Tx mode |
| Test Frequency: | 30 MHz – 1000 MHz | Polarization:  | Horizontal        |
| Test Voltage:   | DC 12V            |                |                   |



#### Suspected Data List

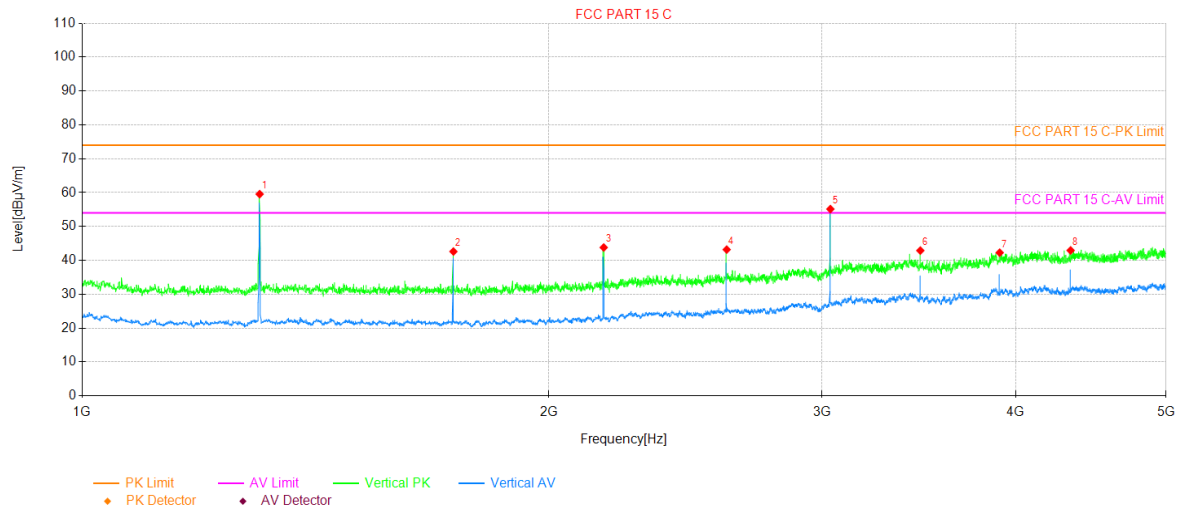
| NO. | Freq. [MHz] | Reading[dBuV/m] | Factor [dB] | Level [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Trace | Polarity   |
|-----|-------------|-----------------|-------------|----------------|----------------|-------------|-------|------------|
| 1   | 52.9902     | 31.16           | -12.81      | 18.35          | 40.00          | 21.65       | PK    | Horizontal |
| 2   | 143.641     | 45.89           | -18.34      | 27.55          | 43.50          | 15.95       | PK    | Horizontal |
| 3   | 234.825     | 42.60           | -14.41      | 28.19          | 46.00          | 17.81       | PK    | Horizontal |
| 4   | 383.970     | 40.08           | -11.12      | 28.96          | 46.00          | 17.04       | PK    | Horizontal |
| 5   | 433.928     | 87.39           | -10.09      | 77.30          | 100.82         | 23.52       | PK    | Horizontal |
| 6   | 867.879     | 50.98           | -3.07       | 47.91          | 80.82          | 32.91       | PK    | Horizontal |

| NO. | Frequen cy (MHz) | Level (dBuV/m) | Duty cycle factor | Average value (dBuV/m) | Limit Line (dBuV/m) | Margin (dB) | Trace | Polarity   |
|-----|------------------|----------------|-------------------|------------------------|---------------------|-------------|-------|------------|
| 1   | 433.956          | 77.30          | -11.58            | 65.72                  | 80.82               | 15.10       | AV    | Horizontal |
| 2   | 867.886          | 47.91          | -11.58            | 36.33                  | 60.82               | 24.49       | AV    | Horizontal |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |                     |                |                   |
|-----------------|---------------------|----------------|-------------------|
| Product Name:   | KiB Ekey            | Product Model: | 1412VD            |
| Test By:        | Kiran Zeng          | Test mode:     | 433.92MHz Tx mode |
| Test Frequency: | 1000 MHz – 5000 MHz | Polarization:  | Vertical          |
| Test Voltage:   | DC 12V              |                |                   |



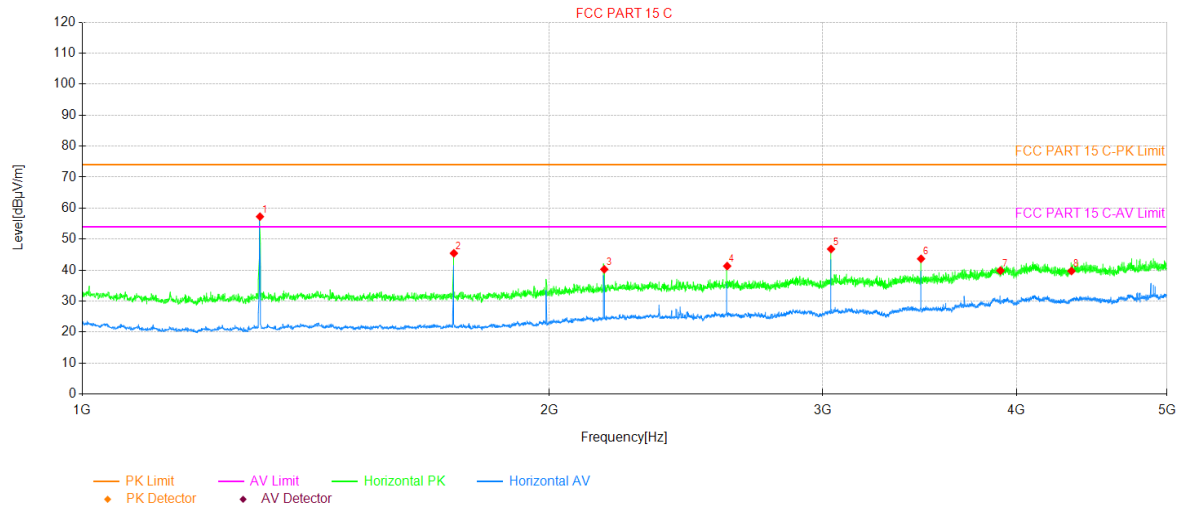
Suspected Data List

| NO. | Freq. [MHz]     | Reading [dBμV] | Factor [dB/m]     | Level [dBμV/m]         | Limit [dBμV/m]      | Margin [dB] | Angle [°]    | Detector | Verdict | Polarity |
|-----|-----------------|----------------|-------------------|------------------------|---------------------|-------------|--------------|----------|---------|----------|
| 1   | 1301.76         | 83.55          | -23.78            | 59.77                  | 74.00               | 14.23       | 103          | PK       | PASS    | Vertical |
| 2   | 1735.68         | 65.79          | -22.87            | 42.92                  | 80.82               | 37.90       | 250          | PK       | PASS    | Vertical |
| 3   | 2169.60         | 67.91          | -19.60            | 48.31                  | 80.82               | 32.51       | 340          | PK       | PASS    | Vertical |
| 4   | 2603.52         | 57.67          | -17.36            | 40.31                  | 80.82               | 40.51       | 284          | PK       | PASS    | Vertical |
| 5   | 3037.44         | 72.30          | -16.10            | 56.20                  | 80.82               | 24.62       | 68           | PK       | PASS    | Vertical |
| 6   | 3471.36         | 54.50          | -14.10            | 40.40                  | 80.82               | 40.42       | 172          | PK       | PASS    | Vertical |
| 7   | 3905.28         | 49.85          | -10.17            | 39.68                  | 80.82               | 41.14       | 166          | PK       | PASS    | Vertical |
| 8   | 4339.20         | 50.64          | -9.47             | 41.17                  | 80.82               | 39.65       | 166          | PK       | PASS    | Vertical |
| NO. | Frequency (MHz) | Level (dBuV/m) | Duty cycle factor | Average value (dBuV/m) | Limit Line (dBuV/m) | Margin (dB) | Polarization |          |         |          |
| 1   | 1301.50         | 59.77          | -11.58            | 48.19                  | 54.00               | 5.81        | Vertical     |          |         |          |
| 2   | 1735.50         | 42.92          | -11.58            | 31.34                  | 60.82               | 29.48       | Vertical     |          |         |          |
| 3   | 2169.50         | 48.31          | -11.58            | 36.73                  | 60.82               | 24.09       | Vertical     |          |         |          |
| 4   | 2603.50         | 40.31          | -11.58            | 28.73                  | 60.82               | 32.09       | Vertical     |          |         |          |
| 5   | 3037.50         | 56.20          | -11.58            | 44.62                  | 60.82               | 16.20       | Vertical     |          |         |          |
| 6   | 3471.50         | 40.40          | -11.58            | 28.82                  | 60.82               | 32.00       | Vertical     |          |         |          |
| 7   | 3905.50         | 39.68          | -11.58            | 28.10                  | 60.82               | 32.72       | Vertical     |          |         |          |
| 8   | 4339.20         | 41.17          | -11.58            | 29.59                  | 60.82               | 31.23       | Vertical     |          |         |          |

**Remark:**

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |                     |                |                   |
|-----------------|---------------------|----------------|-------------------|
| Product Name:   | KiB Ekey            | Product Model: | 1412VD            |
| Test By:        | Kiran Zeng          | Test mode:     | 433.92MHz Tx mode |
| Test Frequency: | 1000 MHz – 5000 MHz | Polarization:  | Horizontal        |
| Test Voltage:   | DC 12V              |                |                   |



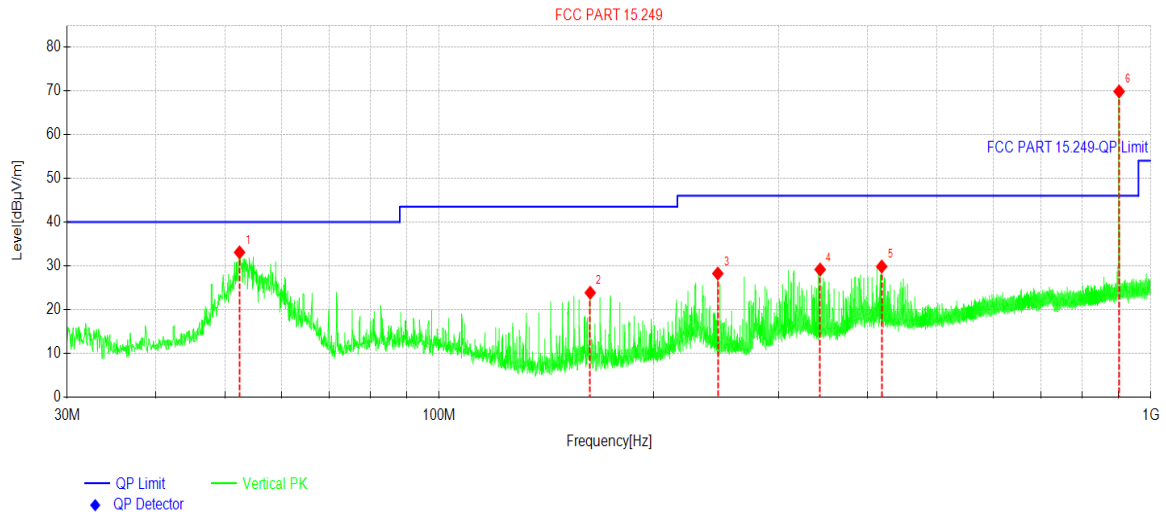
| Suspected Data List |                 |                |                   |                        |                     |             |              |          |         |            |
|---------------------|-----------------|----------------|-------------------|------------------------|---------------------|-------------|--------------|----------|---------|------------|
| NO.                 | Freq. [MHz]     | Reading [dBμV] | Factor [dB/m]     | Level [dBμV/m]         | Limit [dBμV/m]      | Margin [dB] | Angle [°]    | Detector | Verdict | Polarity   |
| 1                   | 1301.76         | 81.03          | -23.78            | 57.25                  | 74.00               | 16.75       | 112          | PK       | PASS    | Horizontal |
| 2                   | 1735.68         | 68.31          | -22.87            | 45.44                  | 74.00               | 28.56       | 322          | PK       | PASS    | Horizontal |
| 3                   | 2169.60         | 59.85          | -19.60            | 40.25                  | 74.00               | 33.75       | 105          | PK       | PASS    | Horizontal |
| 4                   | 2603.52         | 58.67          | -17.36            | 41.31                  | 74.00               | 32.69       | 21           | PK       | PASS    | Horizontal |
| 5                   | 3037.44         | 62.90          | -16.10            | 46.80                  | 74.00               | 27.20       | 118          | PK       | PASS    | Horizontal |
| 6                   | 3471.36         | 57.76          | -14.10            | 43.66                  | 74.00               | 30.34       | 182          | PK       | PASS    | Horizontal |
| 7                   | 3905.28         | 50.01          | -10.17            | 39.84                  | 74.00               | 34.16       | 182          | PK       | PASS    | Horizontal |
| 8                   | 4339.20         | 49.19          | -9.47             | 39.72                  | 74.00               | 34.28       | 338          | PK       | PASS    | Horizontal |
| NO.                 | Frequency (MHz) | Level (dBuV/m) | Duty cycle factor | Average value (dBuV/m) | Limit Line (dBuV/m) | Margin (dB) | Polarization |          |         |            |
| 1                   | 1301.50         | 57.25          | -11.58            | 45.67                  | 54.00               | 8.33        | Horizontal   |          |         |            |
| 2                   | 1735.50         | 45.44          | -11.58            | 33.86                  | 60.82               | 26.96       | Horizontal   |          |         |            |
| 3                   | 2169.50         | 40.25          | -11.58            | 28.67                  | 60.82               | 32.15       | Horizontal   |          |         |            |
| 4                   | 2603.50         | 41.31          | -11.58            | 29.73                  | 60.82               | 31.09       | Horizontal   |          |         |            |
| 5                   | 3037.50         | 46.80          | -11.58            | 35.22                  | 60.82               | 25.60       | Horizontal   |          |         |            |
| 6                   | 3471.50         | 43.66          | -11.58            | 32.08                  | 60.82               | 28.74       | Horizontal   |          |         |            |
| 7                   | 3905.50         | 39.84          | -11.58            | 28.26                  | 60.82               | 32.56       | Horizontal   |          |         |            |
| 8                   | 4339.20         | 39.72          | -11.58            | 28.14                  | 60.82               | 32.68       | Horizontal   |          |         |            |

**Remark:**

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

**902MHz:**

|                        |                   |                       |                |
|------------------------|-------------------|-----------------------|----------------|
| <b>Product Name:</b>   | KiB Ekey          | <b>Product Model:</b> | 1412VD         |
| <b>Test By:</b>        | Kiran Zeng        | <b>Test mode:</b>     | 902MHz Tx mode |
| <b>Test Frequency:</b> | 30 MHz – 1000 MHz | <b>Polarization:</b>  | Vertical       |
| <b>Test Voltage:</b>   | DC 12V            |                       |                |

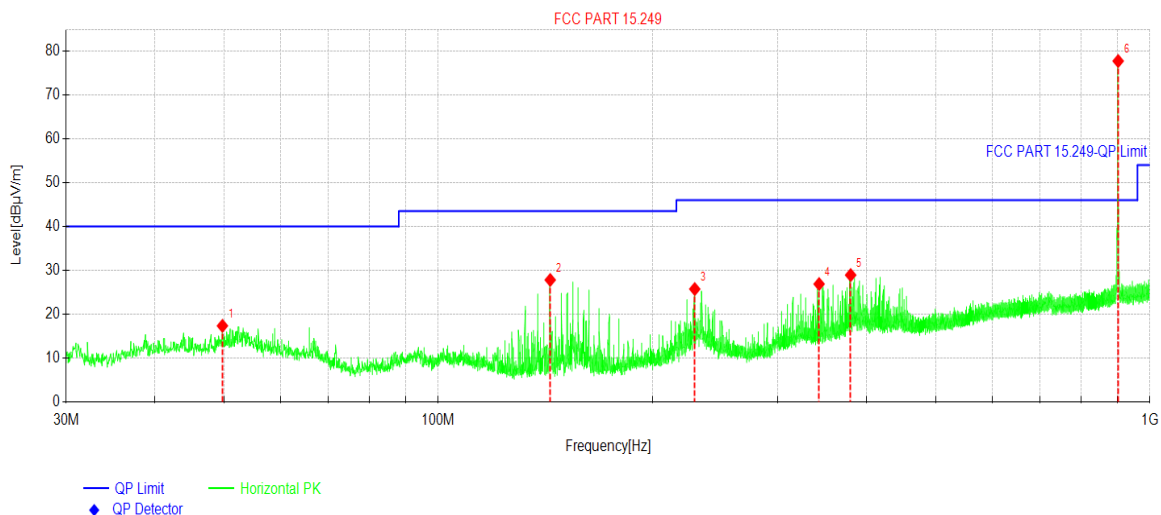

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|-----|-------------|------------------|-------------|----------------|----------------|-------------|-------|----------|
| 1   | 52.4081     | 45.89            | -12.81      | 33.08          | 40.00          | 6.92        | PK    | Vertical |
| 2   | 162.945     | 41.56            | -17.71      | 23.85          | 43.50          | 19.65       | PK    | Vertical |
| 3   | 246.223     | 42.23            | -13.98      | 28.25          | 46.00          | 17.75       | PK    | Vertical |
| 4   | 342.840     | 40.86            | -11.70      | 29.16          | 46.00          | 16.84       | PK    | Vertical |
| 5   | 418.407     | 40.28            | -10.43      | 29.85          | 46.00          | 16.15       | PK    | Vertical |
| 6   | 902.025     | 72.53            | -2.68       | 69.85          | 101.93         | 32.08       | PK    | Vertical |

**Remark:**

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |                   |                |                |
|-----------------|-------------------|----------------|----------------|
| Product Name:   | KiB Ekey          | Product Model: | 1412VD         |
| Test By:        | Kiran Zeng        | Test mode:     | 902MHz Tx mode |
| Test Frequency: | 30 MHz – 1000 MHz | Polarization:  | Horizontal     |
| Test Voltage:   | DC 12V            |                |                |



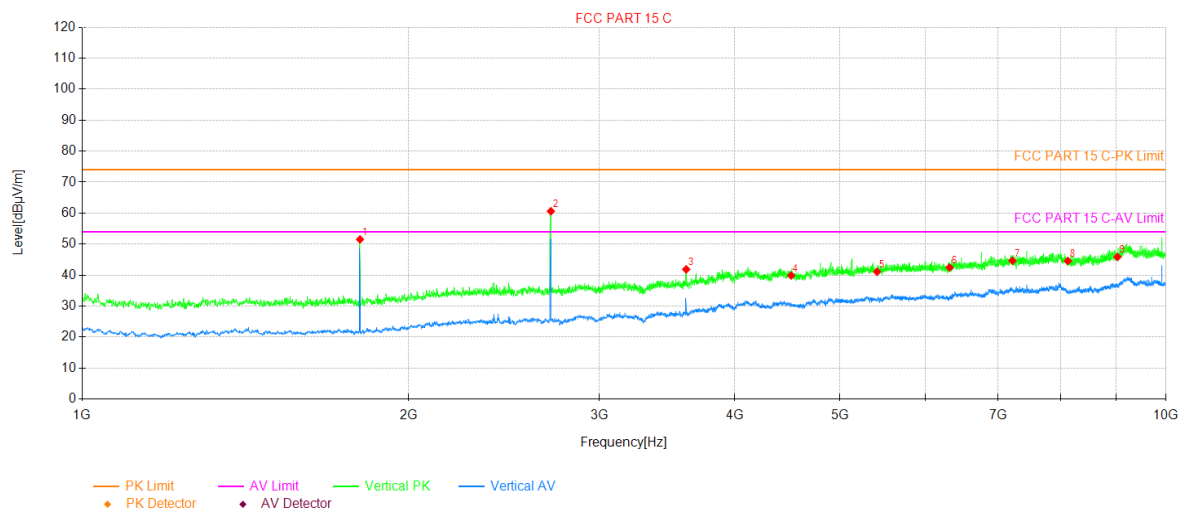
#### Suspected Data List

| NO. | Freq. [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity   |
|-----|-------------|------------------|-------------|----------------|----------------|-------------|-------|------------|
| 1   | 49.7405     | 30.05            | -12.71      | 17.34          | 40.00          | 22.66       | PK    | Horizontal |
| 2   | 143.641     | 46.15            | -18.34      | 27.81          | 43.50          | 15.69       | PK    | Horizontal |
| 3   | 229.248     | 40.46            | -14.72      | 25.74          | 46.00          | 20.26       | PK    | Horizontal |
| 4   | 342.792     | 38.58            | -11.70      | 26.88          | 46.00          | 19.12       | PK    | Horizontal |
| 5   | 379.654     | 40.11            | -11.19      | 28.92          | 46.00          | 17.08       | PK    | Horizontal |
| 6   | 902.025     | 80.42            | -2.68       | 77.74          | 101.93         | 24.19       | PK    | Horizontal |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |              |                |                |
|-----------------|--------------|----------------|----------------|
| Product Name:   | KiB Ekey     | Product Model: | 1412VD         |
| Test By:        | Kiran Zeng   | Test mode:     | 902MHz Tx mode |
| Test Frequency: | 1GHz – 10GHz | Polarization:  | Vertical       |
| Test Voltage:   | DC 12V       |                |                |



#### Suspected Data List

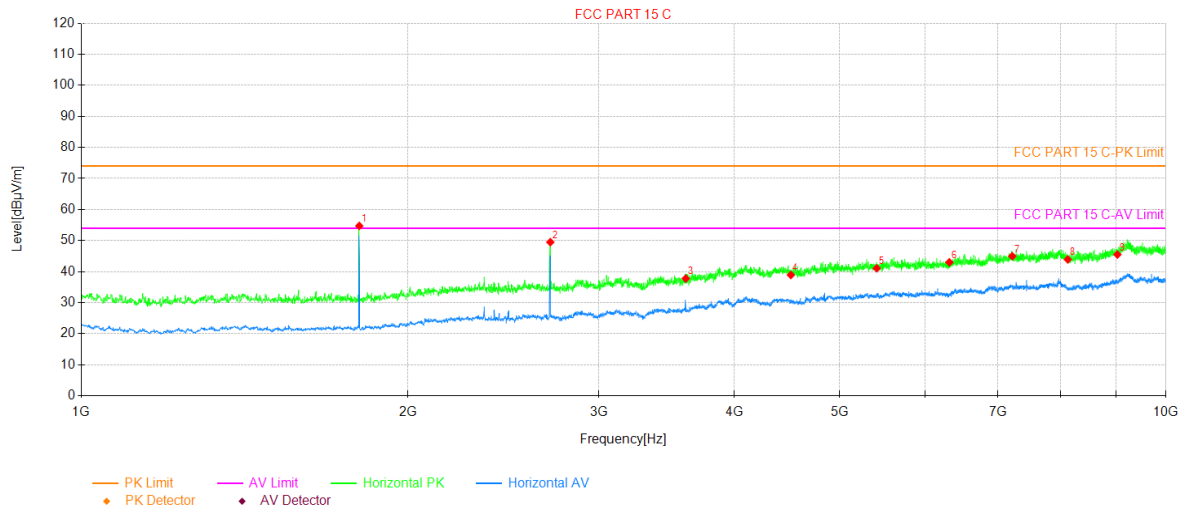
| NO. | Freq.<br>[MHz] | Reading<br>[dBμV] | Factor<br>[dB/m] | Level<br>[dBμV/m] | Limit<br>[dBμV/m] | Margin<br>[dB] | Angle<br>[°] | Detector | Verdict | Polarity |
|-----|----------------|-------------------|------------------|-------------------|-------------------|----------------|--------------|----------|---------|----------|
| 1   | 1804.38        | 74.32             | -22.80           | 51.52             | 81.93             | 30.41          | 312          | PK       | PASS    | Vertical |
| 2   | 2706.63        | 78.00             | -17.40           | 60.60             | 74.00             | 13.40          | 312          | PK       | PASS    | Vertical |
| 3   | 3608.00        | 55.62             | -13.76           | 41.86             | 81.93             | 40.07          | 319          | PK       | PASS    | Vertical |
| 4   | 4510.00        | 49.14             | -9.25            | 39.89             | 81.93             | 42.04          | 284          | PK       | PASS    | Vertical |
| 5   | 5412.00        | 48.45             | -7.36            | 41.09             | 81.93             | 40.84          | 26           | PK       | PASS    | Vertical |
| 6   | 6314.00        | 49.11             | -6.64            | 42.47             | 81.93             | 39.46          | 284          | PK       | PASS    | Vertical |
| 7   | 7216.00        | 48.18             | -3.54            | 44.64             | 81.93             | 37.29          | 305          | PK       | PASS    | Vertical |
| 8   | 8118.00        | 46.66             | -2.09            | 44.57             | 81.93             | 37.36          | 131          | PK       | PASS    | Vertical |
| 9   | 9020.00        | 46.16             | -0.28            | 45.88             | 81.93             | 36.05          | 131          | PK       | PASS    | Vertical |

| NO. | Frequency<br>(MHz) | Level<br>(dBuV/m) | Duty cycle factor | Average value<br>(dBuV/m) | Limit<br>Line<br>(dBuV/m) | Margin<br>(dB) | Polarization |
|-----|--------------------|-------------------|-------------------|---------------------------|---------------------------|----------------|--------------|
| 1   | 1803.25            | 51.52             | -11.59            | 39.93                     | 61.93                     | 22.00          | Vertical     |
| 2   | 2705.50            | 60.60             | -11.59            | 49.01                     | 54.00                     | 4.99           | Vertical     |
| 3   | 3607.75            | 41.86             | -11.59            | 30.27                     | 61.93                     | 31.66          | Vertical     |
| 4   | 4510.00            | 39.89             | -11.59            | 28.30                     | 61.93                     | 33.63          | Vertical     |
| 5   | 5412.25            | 41.09             | -11.59            | 29.50                     | 61.93                     | 32.43          | Vertical     |
| 6   | 6314.00            | 42.47             | -11.59            | 30.88                     | 61.93                     | 31.05          | Vertical     |
| 7   | 7216.00            | 44.64             | -11.59            | 33.05                     | 61.93                     | 28.88          | Vertical     |
| 8   | 8118.00            | 44.57             | -11.59            | 32.98                     | 61.93                     | 28.95          | Vertical     |
| 9   | 9020.00            | 45.88             | -11.59            | 34.29                     | 61.93                     | 27.64          | Vertical     |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

|                 |              |                |                |
|-----------------|--------------|----------------|----------------|
| Product Name:   | KiB Ekey     | Product Model: | 1412VD         |
| Test By:        | Kiran Zeng   | Test mode:     | 902MHz Tx mode |
| Test Frequency: | 1GHz – 10GHz | Polarization:  | Horizontal     |
| Test Voltage:   | DC 12V       |                |                |



| Suspected Data List |                 |                |                   |                        |                     |             |              |          |         |            |
|---------------------|-----------------|----------------|-------------------|------------------------|---------------------|-------------|--------------|----------|---------|------------|
| NO.                 | Freq. [MHz]     | Reading [dBμV] | Factor [dB/m]     | Level [dBμV/m]         | Limit [dBμV/m]      | Margin [dB] | Angle [°]    | Detector | Verdict | Polarity   |
| 1                   | 1804.38         | 77.53          | -22.80            | 54.73                  | 81.93               | 30.41       | 49           | PK       | PASS    | Horizontal |
| 2                   | 2706.63         | 66.90          | -17.40            | 49.50                  | 74.00               | 13.40       | 277          | PK       | PASS    | Horizontal |
| 3                   | 3608.00         | 51.54          | -13.76            | 37.78                  | 81.93               | 40.07       | 332          | PK       | PASS    | Horizontal |
| 4                   | 4510.00         | 48.19          | -9.25             | 38.94                  | 81.93               | 42.04       | 222          | PK       | PASS    | Horizontal |
| 5                   | 5412.00         | 48.45          | -7.36             | 41.09                  | 81.93               | 40.84       | 13           | PK       | PASS    | Horizontal |
| 6                   | 6314.00         | 49.66          | -6.64             | 43.02                  | 81.93               | 39.46       | 111          | PK       | PASS    | Horizontal |
| 7                   | 7216.00         | 48.52          | -3.54             | 44.98                  | 81.93               | 37.29       | 146          | PK       | PASS    | Horizontal |
| 8                   | 8118.00         | 46.03          | -2.09             | 43.94                  | 81.93               | 37.36       | 125          | PK       | PASS    | Horizontal |
| 9                   | 9020.00         | 45.78          | -0.28             | 45.50                  | 81.93               | 36.05       | 49           | PK       | PASS    | Horizontal |
| NO.                 | Frequency (MHz) | Level (dBμV/m) | Duty cycle factor | Average value (dBμV/m) | Limit Line (dBμV/m) | Margin (dB) | Polarization |          |         |            |
| 1                   | 1803.25         | 54.73          | -11.59            | 43.14                  | 61.93               | 18.79       | Horizontal   |          |         |            |
| 2                   | 2705.50         | 49.50          | -11.59            | 37.91                  | 54.00               | 16.09       | Horizontal   |          |         |            |
| 3                   | 3607.75         | 37.78          | -11.59            | 26.19                  | 61.93               | 35.74       | Horizontal   |          |         |            |
| 4                   | 4510.00         | 38.94          | -11.59            | 27.35                  | 61.93               | 34.58       | Horizontal   |          |         |            |
| 5                   | 5412.25         | 41.09          | -11.59            | 29.50                  | 61.93               | 32.43       | Horizontal   |          |         |            |
| 6                   | 6314.00         | 43.02          | -11.59            | 31.43                  | 61.93               | 30.50       | Horizontal   |          |         |            |
| 7                   | 7216.00         | 44.98          | -11.59            | 33.39                  | 61.93               | 28.54       | Horizontal   |          |         |            |
| 8                   | 8118.00         | 43.94          | -11.59            | 32.35                  | 61.93               | 29.58       | Horizontal   |          |         |            |
| 9                   | 9020.00         | 45.50          | -11.59            | 33.91                  | 61.93               | 28.02       | Horizontal   |          |         |            |

#### Remark:

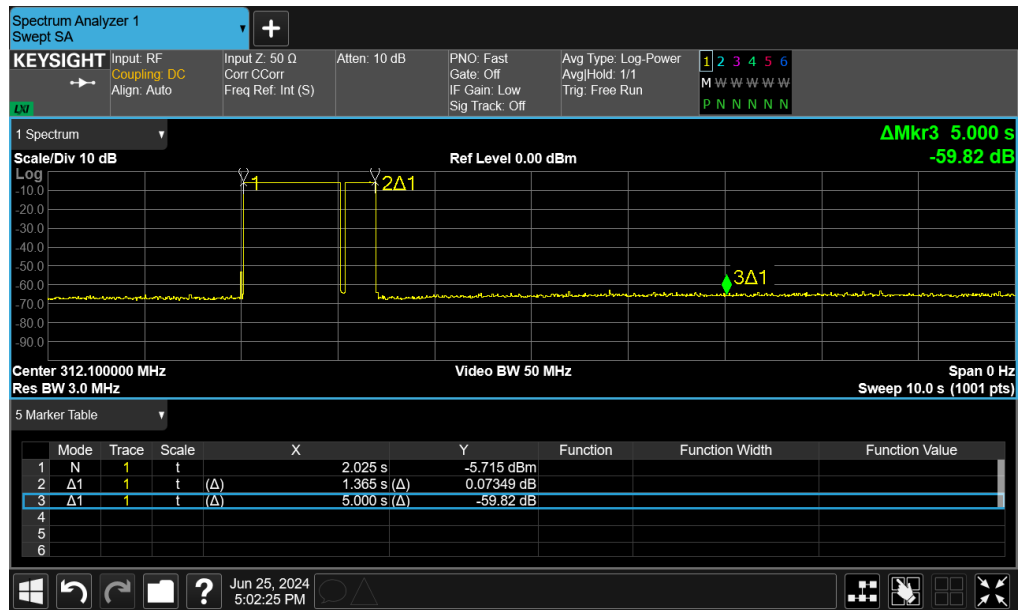
1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).

## 5.6 Duration Time

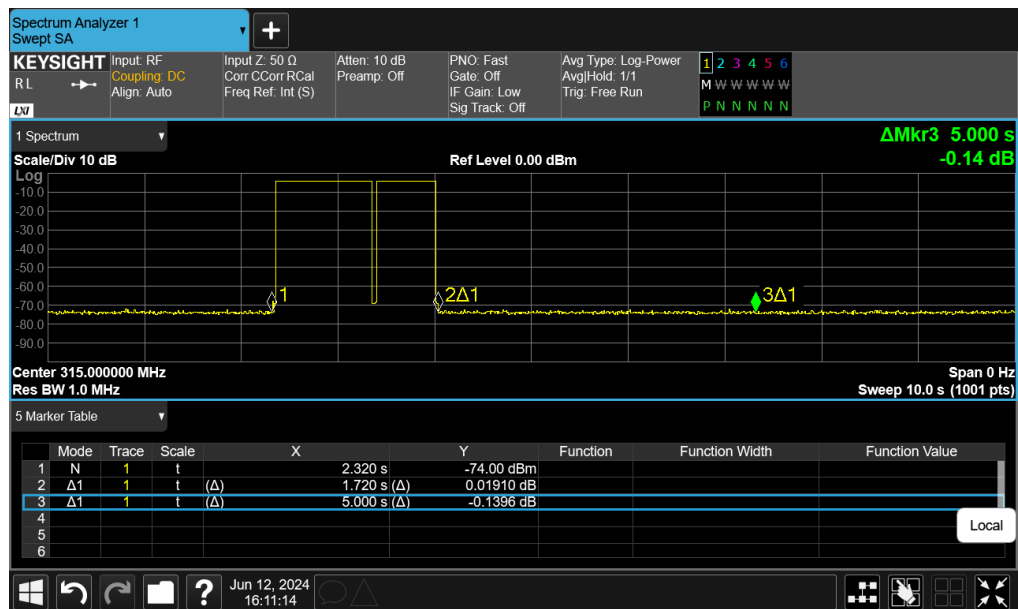
| Measurement monitoring                                                                                                                                                         | Result |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| EUT launch control is used in the mobile phone software, which automatically deactivates the transmitter within 5 seconds after the launch switch in the software is released. | Pass   |

Test plot as follows:

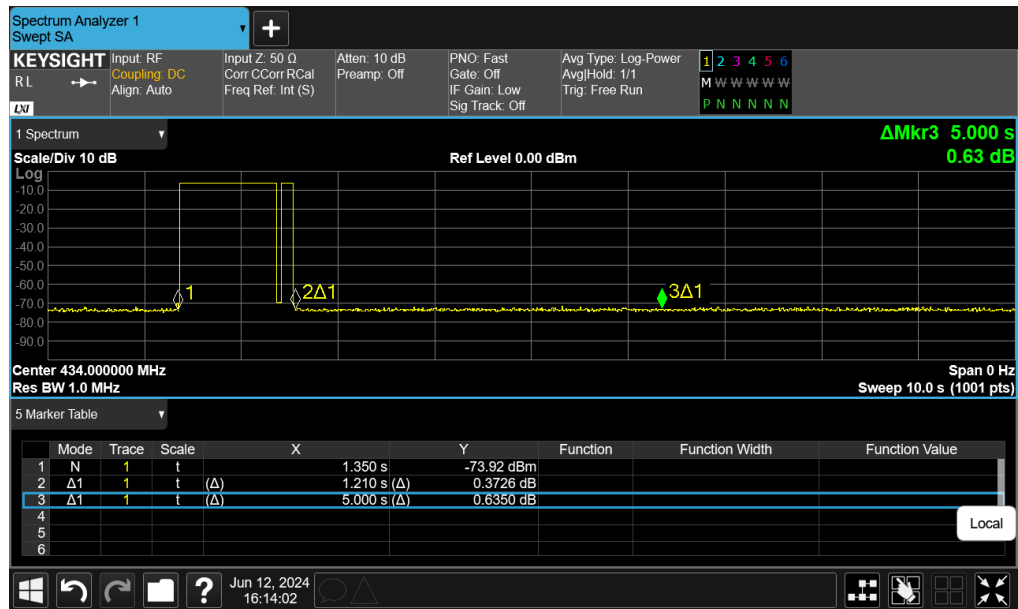
### 312.1MHz



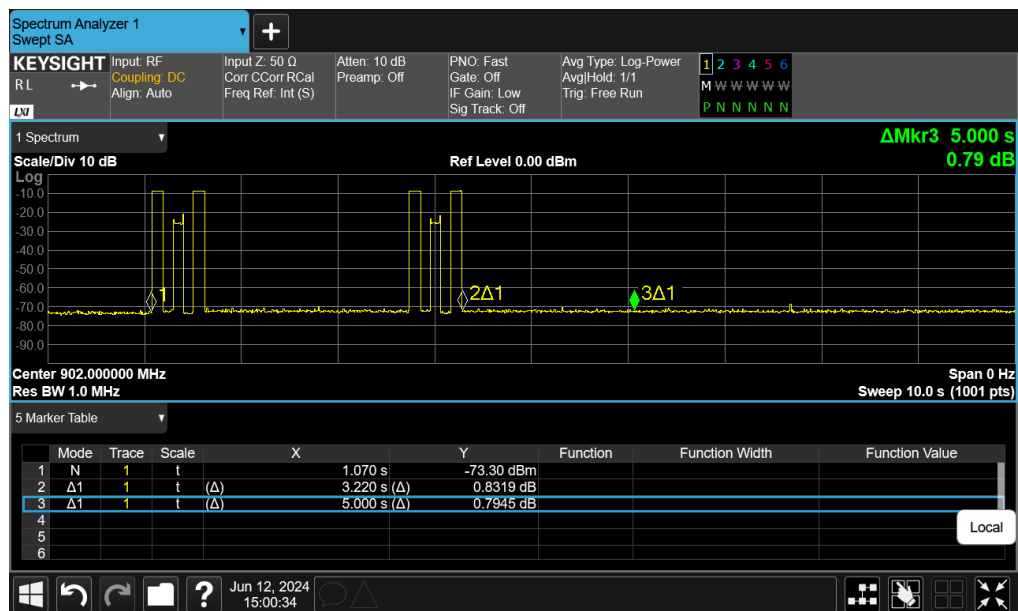
### 315MHz



### 433.92MHz



### 902MHz



-----End of report-----