



# FCC RF Test Report

## (RFID)

**Report No.:** JYTSZ-R12-2400743

**Applicant:** Colder Products Company

**Address of Applicant:** 4200 W. Round Lake Road, Arden Hills, MN 55112 USA

**Equipment Under Test (EUT)**

Product Name: IdentiQuik2

Model No.: IdentiQuik2, 8621403, INS4DR1700400, INSH4473001

Trade Mark: IdentiQuik

**FCC ID:** U9C-IDENTIQUIK2

**Applicable Standards:** FCC CFR Title 47 Part 15C (§15.225)

**Date of Sample Receipt:** 03 Jul., 2024

**Date of Test:** 04 Jul., to 29 Jul., 2024

**Date of Report Issue:** 29 Sep., 2024

**Test Result:** PASS

**Tested by:**

  
Project Engineer

**Date:**

29 Sep., 2024

**Reviewed by:**

  
Senior Engineer

**Date:**

29 Sep., 2024

**Approved by:**

James Wei

Manager

**Date:**

29 Sep., 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          | 30 Jul., 2024 | Original          |
| 01          | 29 Sep., 2024 | Update Page 18-23 |
|             |               |                   |
|             |               |                   |
|             |               |                   |

## 2 Contents

Page

|                                                             |          |
|-------------------------------------------------------------|----------|
| <b>Cover Page</b>                                           | <b>1</b> |
| <b>1 Version</b>                                            | <b>2</b> |
| <b>2 Contents</b>                                           | <b>3</b> |
| <b>3 General Information</b>                                | <b>4</b> |
| 3.1 Client Information                                      | 4        |
| 3.2 General Description of E.U.T.                           | 4        |
| 3.3 Test Mode and Environment                               | 5        |
| 3.4 Description of Test Auxiliary Equipment                 | 5        |
| 3.5 Measurement Uncertainty                                 | 5        |
| 3.6 Additions to, Deviations, or Exclusions From the Method | 5        |
| 3.7 Laboratory Facility                                     | 5        |
| 3.8 Laboratory Location                                     | 6        |
| 3.9 Test Instruments List                                   | 6        |
| <b>4 Measurement Setup and Procedure</b>                    | <b>7</b> |
| 4.1 Test Setup                                              | 7        |
| 4.2 Test Procedure                                          | 8        |
| <b>5 Test Results</b>                                       | <b>9</b> |
| 5.1 Summary                                                 | 9        |
| 5.1.1 Clause and Data Summary                               | 9        |
| 5.1.2 Test Limit                                            | 10       |
| 5.2 Antenna Requirement                                     | 11       |
| 5.3 20dB Bandwidth                                          | 12       |
| 5.4 Field Strength of Fundamental                           | 14       |
| 5.5 Field Strength of Spurious Emissions                    | 18       |
| 5.6 Frequency Tolerance                                     | 26       |

### 3 General Information

#### 3.1 Client Information

|                       |                                                    |
|-----------------------|----------------------------------------------------|
| Applicant:            | Colder Products Company                            |
| Address:              | 4200 W. Round Lake Road, Arden Hills, MN 55112 USA |
| Manufacturer/Factory: | Colder Products Company                            |
| Address:              | 4200 W. Round Lake Road, Arden Hills, MN 55112 USA |

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

|                        |                                                                                                                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:          | IdentiQuik2                                                                                                                                                                                |
| Model No.:             | IdentiQuik2, 8621403, INS4DR1700400, INSH4473001                                                                                                                                           |
| Operation Frequency:   | 13.56MHz                                                                                                                                                                                   |
| Channel Numbers:       | 1                                                                                                                                                                                          |
| Modulation Type:       | FSK                                                                                                                                                                                        |
| Antenna Type:          | Coil Antenna                                                                                                                                                                               |
| Power Supply:          | DC 8-24V                                                                                                                                                                                   |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects.                                                                                                              |
| Remark:                | IdentiQuik2, 8621403, INS4DR1700400, INSH4473001 were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name. |

### 3.3 Test Mode and Environment

| Test Mode:                                                                                                                                                                                                   |                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Transmitting mode:                                                                                                                                                                                           | Keep the EUT in transmitting mode with modulation             |
| <b>Remark:</b> Pre-scan The EUT was placed on three different polar directions tested: i.e. X axis, Y axis, Z axis, and found Y axis was worse case, so the report only reflects the worse axis tested data. |                                                               |
| Operating Environment:                                                                                                                                                                                       |                                                               |
| Temperature:                                                                                                                                                                                                 | Nominal: 15°C ~ 35°C, Extreme: Low -20°C, High +50°C          |
| Humidity:                                                                                                                                                                                                    | 20 % ~ 75 % RH                                                |
| Atmospheric Pressure:                                                                                                                                                                                        | 1008 mbar                                                     |
| Voltage:                                                                                                                                                                                                     | Nominal: 9.0 Vdc, Extreme: Low 7.65 Vdc, High 10.35 Vdc       |
| Test Engineer:                                                                                                                                                                                               | Vieta (Conducted measurement)<br>Kiran (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 (9kHz ~ 30MHz) (3m SAC)                                                                                                                                                                                                                                                                            | 3.3 dB                                                  |
| Radiated Emission (30MHz ~ 200MHz) (3m SAC)                                                                                                                                                                                                                                                                          | 4.6 dB                                                  |
| Radiated Emission (200MHz ~ 1000MHz) (3m SAC)                                                                                                                                                                                                                                                                        | 5.8 dB                                                  |
| Radiated Emission (1GHz ~ 6GHz) (3m SAC)                                                                                                                                                                                                                                                                             | 4.5 dB                                                  |
| Radiated Emission (6GHz ~ 18GHz) (3m SAC)                                                                                                                                                                                                                                                                            | 4.7 dB                                                  |
| <b>Note:</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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> <li>● <b>FCC - Designation No.: CN1211</b><br/>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.</li> <li>● <b>ISED – CAB identifier.: CN0021</b><br/>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.</li> <li>● <b>CNAS - Registration No.: CNAS L15527</b><br/>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.</li> <li>● <b>A2LA - Registration No.: 4346.01</b><br/>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: <a href="https://portal.a2la.org/scopepdf/4346-01.pdf">https://portal.a2la.org/scopepdf/4346-01.pdf</a></li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 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               |
| Loop Antenna                 | Schwarzbeck     | FMZB 1519 B    | WXJ002-4           | 01-05-2024           | 01-04-2025               |
| BiConiLog Antenna            | Schwarzbeck     | VULB9163       | WXJ002             | 01-09-2024           | 01-08-2025               |
| Pre-amplifier (30MHz ~ 1GHz) | Schwarzbeck     | BBV9743B       | WXJ001-2           | 12-27-2023           | 12-26-2024               |
| EMI Test Receiver            | Rohde & Schwarz | ESRP7          | WXJ003-1           | 12-27-2023           | 12-26-2024               |
| Coaxial Cable (9kHz ~ 30MHz) | JYT             | JYT3M-1G-BB-5M | WXG001-6           | 01-17-2024           | 01-16-2025               |
| Coaxial Cable (30MHz ~ 1GHz) | JYTSZ           | JYT3M-1G-NN-8M | WXG001-4           | 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   |                      |                          |
| EMI Test Software            | AUDIX           | E3             | Version: 6.110919b |                      |                          |

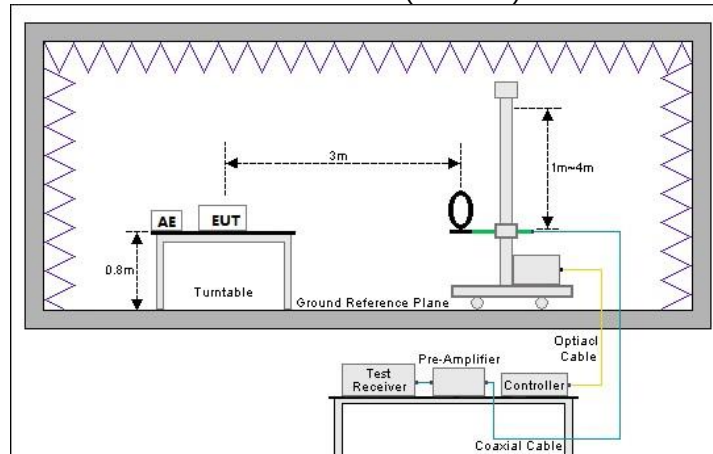
| Conducted Method: |                 |           |            |                      |                          |
|-------------------|-----------------|-----------|------------|----------------------|--------------------------|
| Test Equipment    | Manufacturer    | Model No. | Manage No. | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| EMI Test Receiver | Rohde & Schwarz | ESCI 3    | WXJ003     | 12-27-2023           | 12-26-2024               |
| Spectrum analyzer | Rohde & Schwarz | FSP30     | WXJ004     | 12-27-2023           | 12-26-2024               |
| Spectrum Analyzer | Keysight        | N9020B    | WXJ081-1   | 06-11-2024           | 06-10-2025               |

## 4 Measurement Setup and Procedure

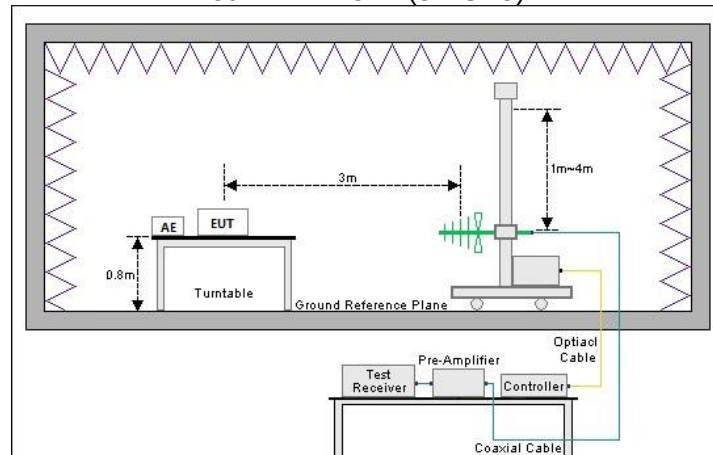
### 4.1 Test Setup

#### 1) Radiated emission measurement:

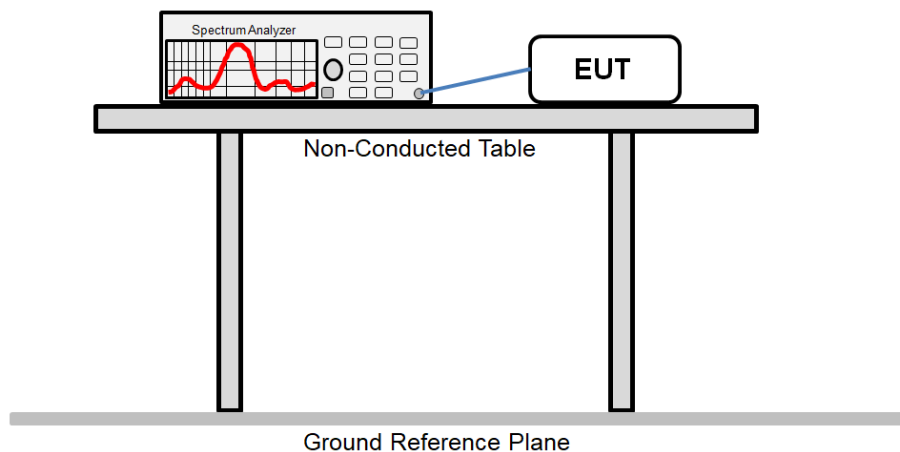
9kHz ~ 30 MHz (3m SAC)



30 MHz ~ 1GHz (3m SAC)



#### 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 analyser 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   |
| 20dB Bandwidth                                                                                                          | 15.215(c)                           | See Section 5.3 | Pass   |
| Field Strength of Fundamental                                                                                           | 15.225 (a)(b)(c)                    | See Section 5.4 | Pass   |
| Field Strength of Spurious Emissions                                                                                    | 15.209<br>15.225 (d)                | See Section 5.5 | Pass   |
| Frequency Tolerance                                                                                                     | 15.225 (e)                          | 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

| Items                                | Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------|-------------------------------|---------------|-------------|-----|---------------|--------------|----|--------------|----|----|---------|-------|---|----------|-------|---|-----------|-------|---|-----------|-----|---|
| 20dB Bandwidth                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                               |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |
| Field Strength of Fundamental        | (a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.<br>(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.<br>(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.<br>(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.                                                                                                                                                                                                                                                                  |                               |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |
| Field Strength of Spurious Emissions | <table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009 – 0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490 – 1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705 – 30.0</td><td>30</td><td>30</td></tr><tr><td>30 – 88</td><td>100**</td><td>3</td></tr><tr><td>88 – 216</td><td>150**</td><td>3</td></tr><tr><td>216 – 960</td><td>200**</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table> <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> | Frequency (MHz)               | Field strength (microvolts/meter) | Measurement distance (meters) | 0.009 – 0.490 | 2400/F(kHz) | 300 | 0.490 – 1.705 | 24000/F(kHz) | 30 | 1.705 – 30.0 | 30 | 30 | 30 – 88 | 100** | 3 | 88 – 216 | 150** | 3 | 216 – 960 | 200** | 3 | Above 960 | 500 | 3 |
| Frequency (MHz)                      | Field strength (microvolts/meter)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Measurement distance (meters) |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |
| 0.009 – 0.490                        | 2400/F(kHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 300                           |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |
| 0.490 – 1.705                        | 24000/F(kHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30                            |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |
| 1.705 – 30.0                         | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 30                            |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |
| 30 – 88                              | 100**                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3                             |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |
| 88 – 216                             | 150**                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3                             |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |
| 216 – 960                            | 200**                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3                             |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |
| Above 960                            | 500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 3                             |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |
| Frequency Tolerance                  | The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of ?20 degrees to + 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                               |                                   |                               |               |             |     |               |              |    |              |    |    |         |       |   |          |       |   |           |       |   |           |     |   |

## 5.2 Antenna Requirement

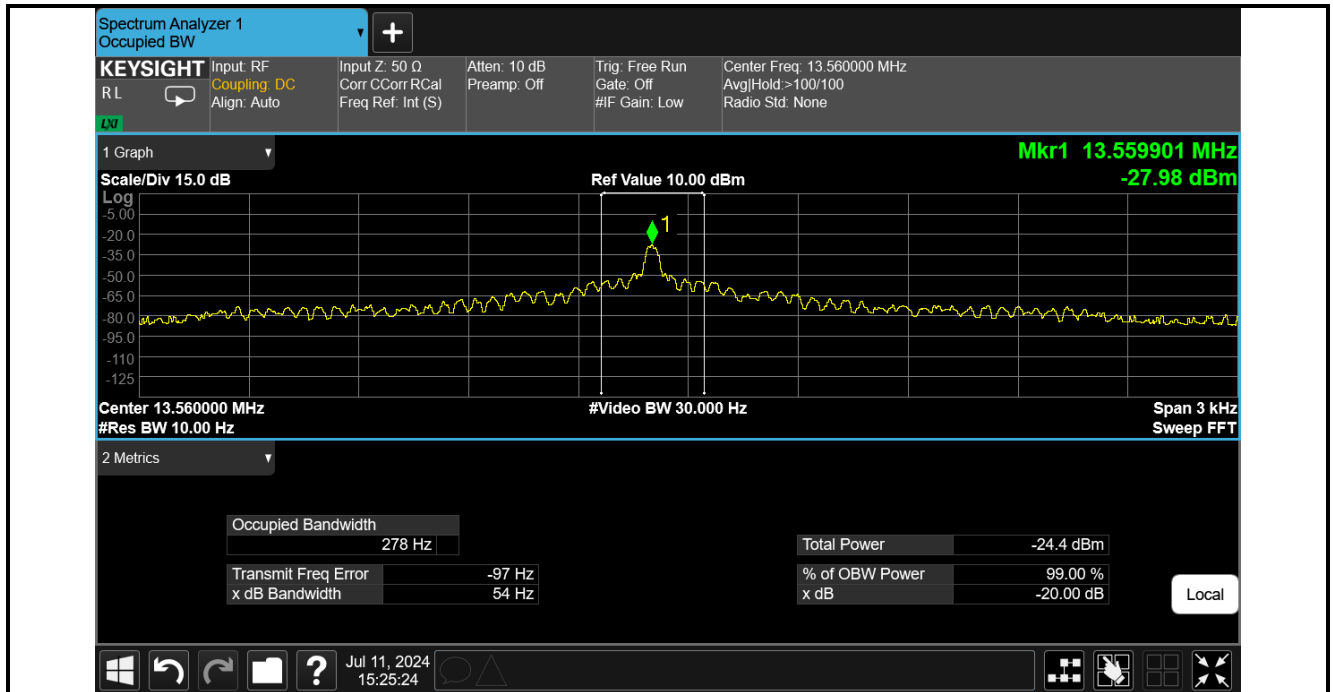
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standard requirement:</b> | FCC Part15 C Section 15.203                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>15.203 requirement:</b>   | 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>        | The EUT make use of a coil antenna.                                                                                                                                                                                                                                                                                                                                                                                                                |

### 5.3 20dB Bandwidth

ANT1:

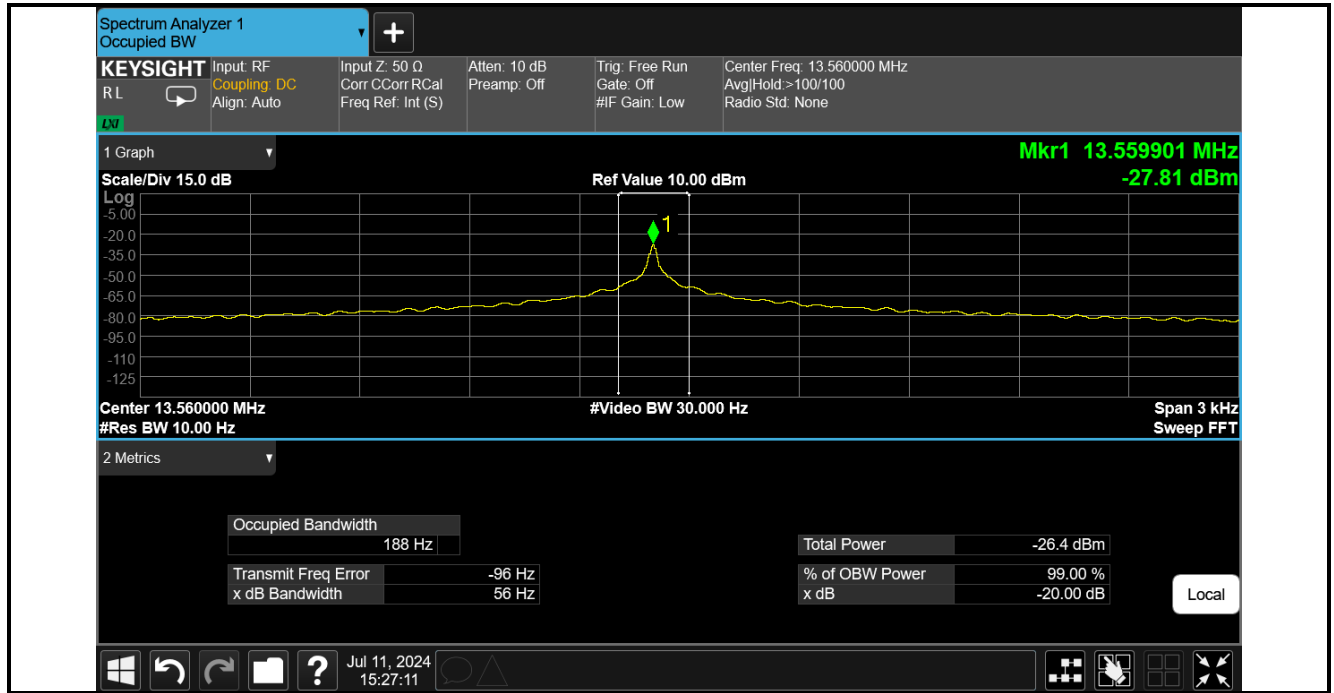
| 20dB bandwidth (kHz)                                                           | Limit (kHz) | Results |
|--------------------------------------------------------------------------------|-------------|---------|
| 0.054                                                                          | 11.2        | Passed  |
| <b>Note:</b> For 13.56MHz, permitted Band is 14 kHz, so the Limit is 11.2 kHz. |             |         |

Test plot as follows:



**ANT2:**

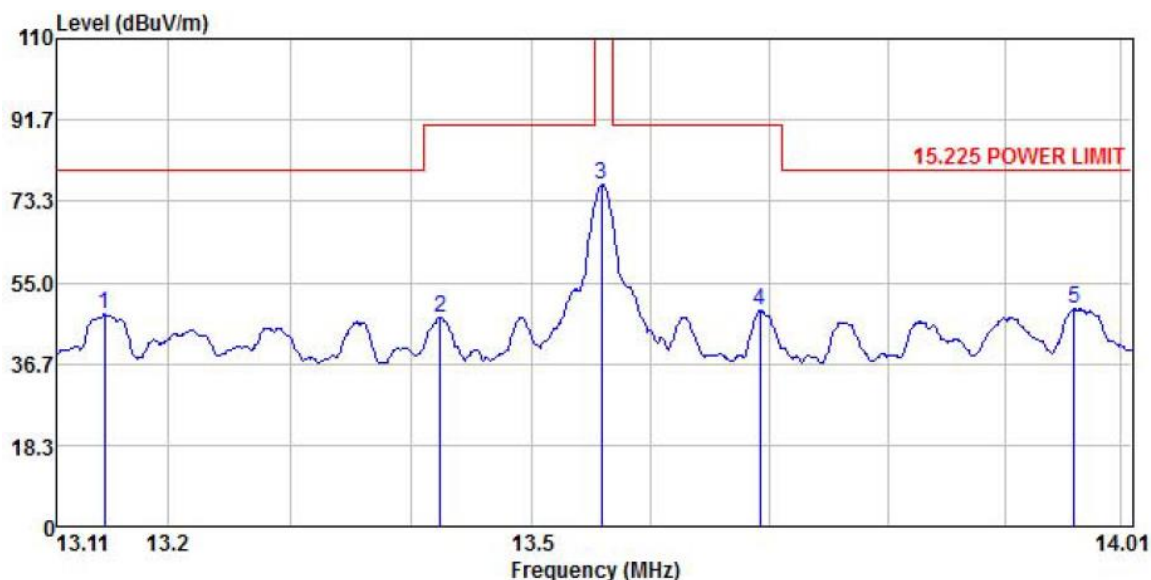
| 20dB bandwidth (kHz)                                                           | Limit (kHz) | Results |
|--------------------------------------------------------------------------------|-------------|---------|
| 0.056                                                                          | 11.2        | Passed  |
| <b>Note:</b> For 13.56MHz, permitted Band is 14 kHz, so the Limit is 11.2 kHz. |             |         |

**Test plot as follows:**


## 5.4 Field Strength of Fundamental

ANT1:

|               |             |                |              |
|---------------|-------------|----------------|--------------|
| Product Name: | IdentiQuik2 | Product Model: | IdentiQuik2  |
| Test By:      | Kiran       | Test mode:     | RFID Tx mode |
| Test Voltage: | DC 15V      | Polarization:  | Coxial       |

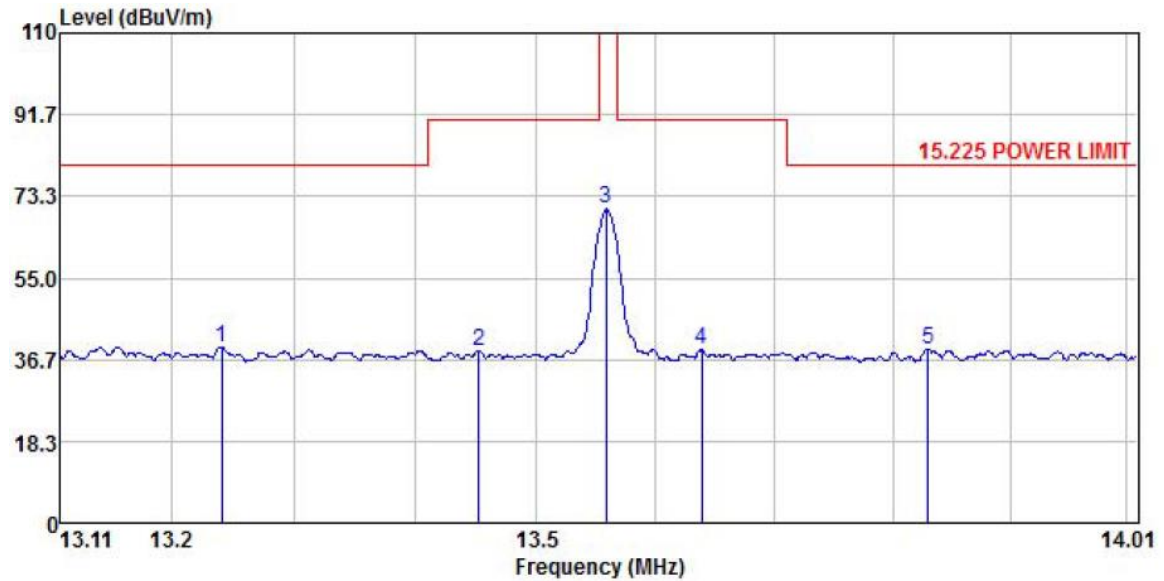


|   | Freq   | Read  | Antenna | Cable | Preamp | Level  | Limit  | Over   | Remark |
|---|--------|-------|---------|-------|--------|--------|--------|--------|--------|
|   | MHz    | Level | Factor  | Loss  | Factor | dBuV/m | dBuV/m | Limit  |        |
|   |        | dBuV  | dB/m    | dB    | dB     |        |        | dB     |        |
| 1 | 13.148 | 27.77 | 19.68   | 0.39  | 0.00   | 47.84  | 80.50  | -32.66 | Peak   |
| 2 | 13.424 | 27.26 | 19.61   | 0.41  | 0.00   | 47.28  | 90.50  | -43.22 | Peak   |
| 3 | 13.558 | 57.22 | 19.59   | 0.41  | 0.00   | 77.22  | 124.00 | -46.78 | Peak   |
| 4 | 13.692 | 28.65 | 19.57   | 0.42  | 0.00   | 48.64  | 90.50  | -41.86 | Peak   |
| 5 | 13.960 | 29.15 | 19.50   | 0.44  | 0.00   | 49.09  | 80.50  | -31.41 | Peak   |

**Remark:**

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

|               |             |                |              |
|---------------|-------------|----------------|--------------|
| Product Name: | IdentiQuik2 | Product Model: | IdentiQuik2  |
| Test By:      | Kiran       | Test mode:     | RFID Tx mode |
| Test Voltage: | DC 15V      | Polarization:  | Coplanar     |



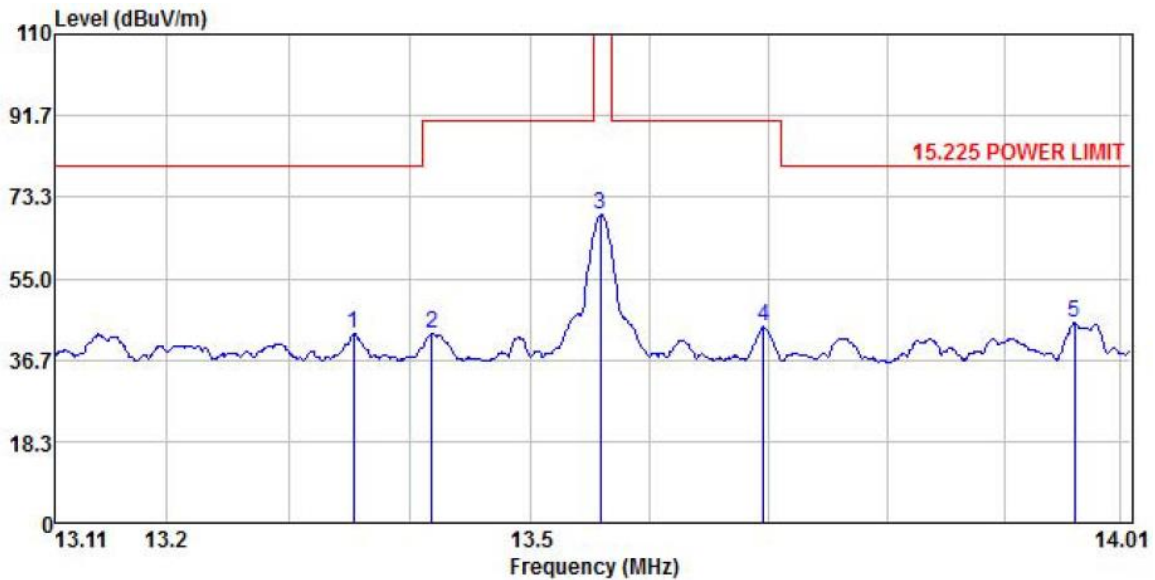
|   | Freq   | ReadAntenna | Cable Preamp | Limit  | Over   |        |
|---|--------|-------------|--------------|--------|--------|--------|
|   | Level  | Factor      | Loss         | Factor | Level  | Line   |
|   | dBuV   | dB/m        | dB           | dB     | dBuV/m | dBuV/m |
|   | MHz    | dBuV        | dB/m         | dB     | dBuV/m | dBuV/m |
| 1 | 13.240 | 19.52       | 19.66        | 0.39   | 0.00   | 39.57  |
| 2 | 13.452 | 18.57       | 19.61        | 0.41   | 0.00   | 38.59  |
| 3 | 13.558 | 50.43       | 19.59        | 0.41   | 0.00   | 70.43  |
| 4 | 13.638 | 18.86       | 19.57        | 0.42   | 0.00   | 38.85  |
| 5 | 13.830 | 19.19       | 19.52        | 0.43   | 0.00   | 39.14  |

#### Remark:

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

**ANT2:**

|                      |             |                       |              |
|----------------------|-------------|-----------------------|--------------|
| <b>Product Name:</b> | IdentiQuik2 | <b>Product Model:</b> | IdentiQuik2  |
| <b>Test By:</b>      | Kiran       | <b>Test mode:</b>     | RFID Tx mode |
| <b>Test Voltage:</b> | DC 15V      | <b>Polarization:</b>  | Coxial       |



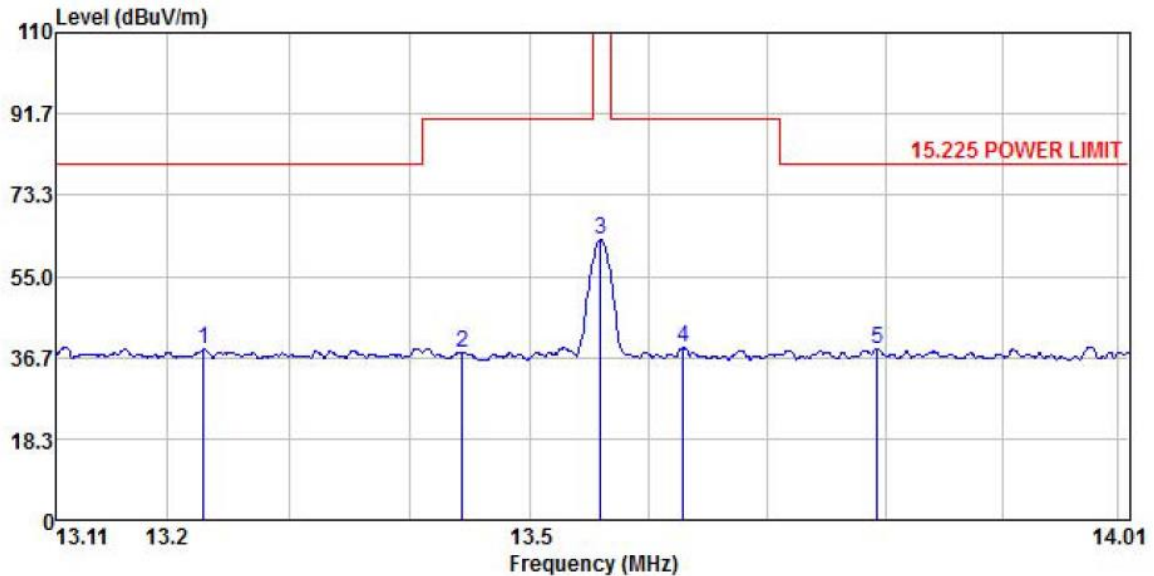
|   | Freq   | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Remark |
|---|--------|------------|----------------|------------|---------------|--------|------------|------------|--------|
|   | MHz    | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |        |
| 1 | 13.353 | 22.42      | 19.63          | 0.40       | 0.00          | 42.45  | 80.50      | -38.05     | Peak   |
| 2 | 13.418 | 22.53      | 19.61          | 0.41       | 0.00          | 42.55  | 90.50      | -47.95     | Peak   |
| 3 | 13.558 | 49.44      | 19.59          | 0.41       | 0.00          | 69.44  | 124.00     | -54.56     | Peak   |
| 4 | 13.695 | 24.21      | 19.57          | 0.42       | 0.00          | 44.20  | 90.50      | -46.30     | Peak   |
| 5 | 13.961 | 25.01      | 19.50          | 0.44       | 0.00          | 44.95  | 80.50      | -35.55     | Peak   |

**Remark:**

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



|               |             |                |              |
|---------------|-------------|----------------|--------------|
| Product Name: | IdentiQuik2 | Product Model: | IdentiQuik2  |
| Test By:      | Kiran       | Test mode:     | RFID Tx mode |
| Test Voltage: | DC 15V      | Polarization:  | Coplanar     |



|   | Freq   | Read  | Antenna | Cable | Preamp | Level  | Limit  | Over   | Remark |
|---|--------|-------|---------|-------|--------|--------|--------|--------|--------|
|   | MHz    | Level | Factor  | Loss  | Factor | dBuV/m | dBuV/m | Limit  |        |
|   |        | dBuV  | dB/m    | dB    | dB     |        |        | dB     |        |
| 1 | 13.230 | 18.36 | 19.66   | 0.39  | 0.00   | 38.41  | 80.50  | -42.09 | Peak   |
| 2 | 13.443 | 17.90 | 19.61   | 0.41  | 0.00   | 37.92  | 90.50  | -52.58 | Peak   |
| 3 | 13.559 | 43.31 | 19.59   | 0.41  | 0.00   | 63.31  | 124.00 | -60.69 | Peak   |
| 4 | 13.628 | 18.87 | 19.57   | 0.42  | 0.00   | 38.86  | 90.50  | -51.64 | Peak   |
| 5 | 13.793 | 18.59 | 19.54   | 0.43  | 0.00   | 38.56  | 80.50  | -41.94 | Peak   |

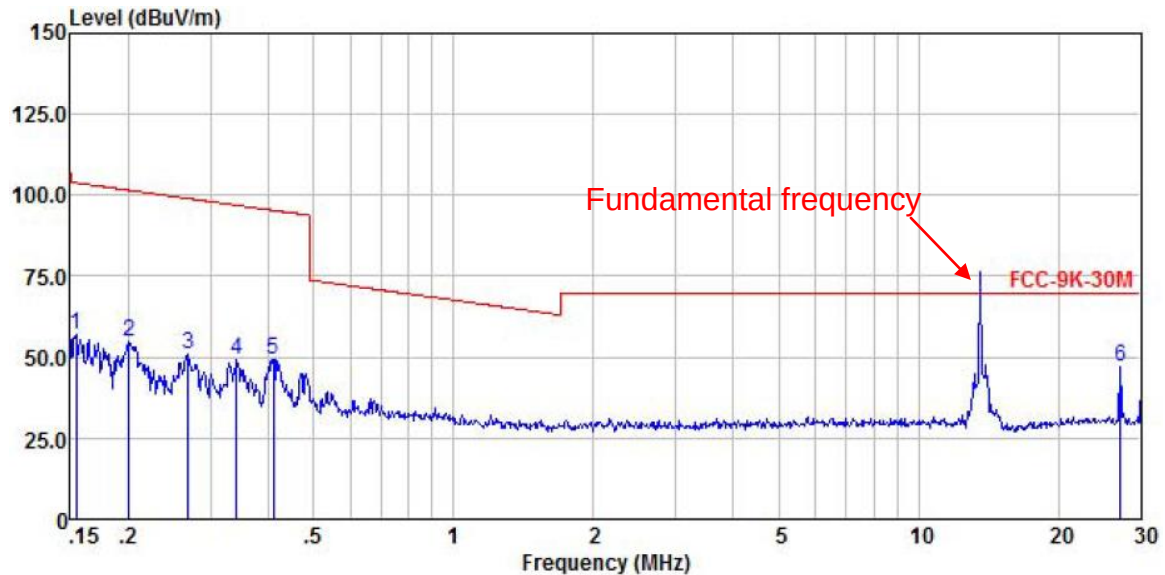
**Remark:**

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

## 5.5 Field Strength of Spurious Emissions

ANT1:

|                 |                  |                |              |
|-----------------|------------------|----------------|--------------|
| Product Name:   | IdentiQuik2      | Product Model: | IdentiQuik2  |
| Test By:        | Robin            | Test mode:     | RFID Tx mode |
| Test Frequency: | 150 kHz – 30 MHz | Polarization:  | Coxial       |
| Test Voltage:   | DC 15V           |                |              |

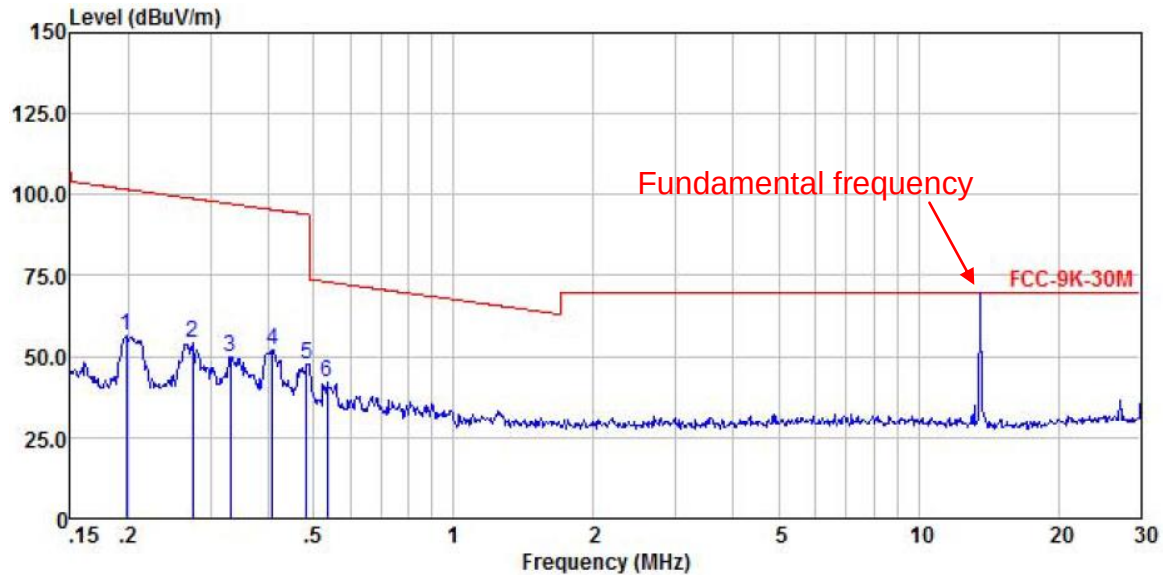


|   | Freq   | ReadAntenna | Cable Preamp |        |       | Limit  | Over   |             |
|---|--------|-------------|--------------|--------|-------|--------|--------|-------------|
|   | Level  | Factor      | Loss         | Factor | Level | Line   | Limit  | Remark      |
|   | MHz    | dBuV        | dB/m         | dB     | dB    | dBuV/m | dBuV/m | dB          |
| 1 | 0.154  | 36.89       | 20.21        | 0.03   | 0.00  | 57.13  | 103.87 | -46.74 Peak |
| 2 | 0.201  | 34.63       | 20.35        | 0.04   | 0.00  | 55.02  | 101.57 | -46.55 Peak |
| 3 | 0.269  | 30.19       | 20.49        | 0.05   | 0.00  | 50.73  | 99.03  | -48.30 Peak |
| 4 | 0.341  | 28.64       | 20.61        | 0.06   | 0.00  | 49.31  | 96.95  | -47.64 Peak |
| 5 | 0.410  | 28.39       | 20.70        | 0.06   | 0.00  | 49.15  | 95.34  | -46.19 Peak |
| 6 | 27.127 | 26.88       | 19.57        | 0.61   | 0.00  | 47.06  | 69.50  | -22.44 Peak |

### Remark:

1. Level = Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of 9 kHz~150 kHz are background noise and very lower than the limit, so not show in test report.

|                 |                  |                |              |
|-----------------|------------------|----------------|--------------|
| Product Name:   | IdentiQuik2      | Product Model: | IdentiQuik2  |
| Test By:        | Robin            | Test mode:     | RFID Tx mode |
| Test Frequency: | 150 kHz – 30 MHz | Polarization:  | Coplanar     |
| Test Voltage:   | DC 15V           |                |              |

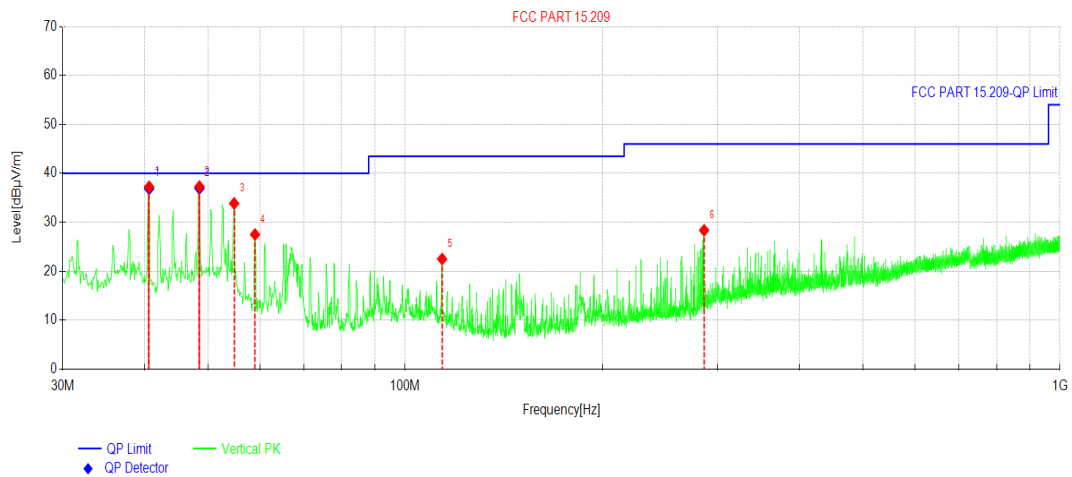


|   | Freq  | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit  | Over   | Remark |
|---|-------|------------|----------------|------------|---------------|--------|--------|--------|--------|
|   | MHz   | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m | dB     |        |
| 1 | 0.198 | 36.03      | 20.34          | 0.04       | 0.00          | 56.41  | 101.70 | -45.29 | Peak   |
| 2 | 0.274 | 33.46      | 20.50          | 0.05       | 0.00          | 54.01  | 98.85  | -44.84 | Peak   |
| 3 | 0.330 | 29.21      | 20.59          | 0.06       | 0.00          | 49.86  | 97.23  | -47.37 | Peak   |
| 4 | 0.408 | 31.48      | 20.70          | 0.06       | 0.00          | 52.24  | 95.39  | -43.15 | Peak   |
| 5 | 0.484 | 26.97      | 20.78          | 0.07       | 0.00          | 47.82  | 93.91  | -46.09 | Peak   |
| 6 | 0.535 | 21.15      | 20.77          | 0.09       | 0.00          | 42.01  | 73.04  | -31.03 | Peak   |

#### Remark:

1. Level = Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of 9 kHz~150 kHz are background noise and very lower than the limit, so not show in test report.

|                 |                   |                |              |
|-----------------|-------------------|----------------|--------------|
| Product Name:   | IdentiQuik2       | Product Model: | IdentiQuik2  |
| Test By:        | Kiran             | Test mode:     | RFID Tx mode |
| Test Frequency: | 30 MHz – 1000 MHz | Polarization:  | Vertical     |
| Test Voltage:   | DC 15V            |                |              |



#### Suspected Data List

| NO. | Freq. [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|-----|-------------|------------------|-------------|----------------|----------------|-------------|-------|----------|
| 1   | 40.6711     | 50.71            | -13.46      | 37.25          | 40.00          | 2.75        | PK    | Vertical |
| 2   | 48.5289     | 50.02            | -12.72      | 37.30          | 40.00          | 2.70        | PK    | Vertical |
| 3   | 54.8345     | 47.03            | -13.18      | 33.85          | 40.00          | 6.15        | PK    | Vertical |
| 4   | 59.0059     | 41.62            | -14.12      | 27.50          | 40.00          | 12.50       | PK    | Vertical |
| 5   | 113.913     | 37.97            | -15.47      | 22.50          | 43.50          | 21.00       | PK    | Vertical |
| 6   | 286.105     | 41.65            | -13.28      | 28.37          | 46.00          | 17.63       | PK    | Vertical |

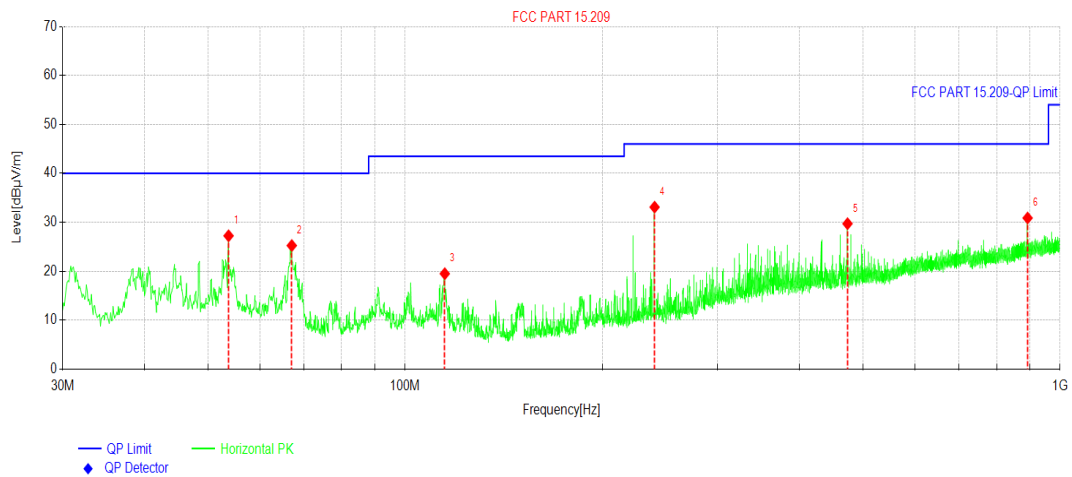
#### Final Data List

| NO. | Freq. [MHz] | QP Reading [dBμV/m] | Factor [dB] | QP Value [dBμV/m] | QP Limit [dBμV/m] | QP Margin [dB] | Angle [°] | Verdict |
|-----|-------------|---------------------|-------------|-------------------|-------------------|----------------|-----------|---------|
| 1   | 40.6711     | 50.34               | -13.46      | 36.88             | 40.00             | 3.12           | 274       | PASS    |
| 2   | 48.5289     | 49.66               | -12.72      | 36.94             | 40.00             | 3.06           | 25        | PASS    |

#### Remark:

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

|                 |                   |                |              |
|-----------------|-------------------|----------------|--------------|
| Product Name:   | IdentiQuik2       | Product Model: | IdentiQuik2  |
| Test By:        | Kiran             | Test mode:     | RFID Tx mode |
| Test Frequency: | 30 MHz – 1000 MHz | Polarization:  | Horizontal   |
| Test Voltage:   | DC 15V            |                |              |



#### Suspected Data List

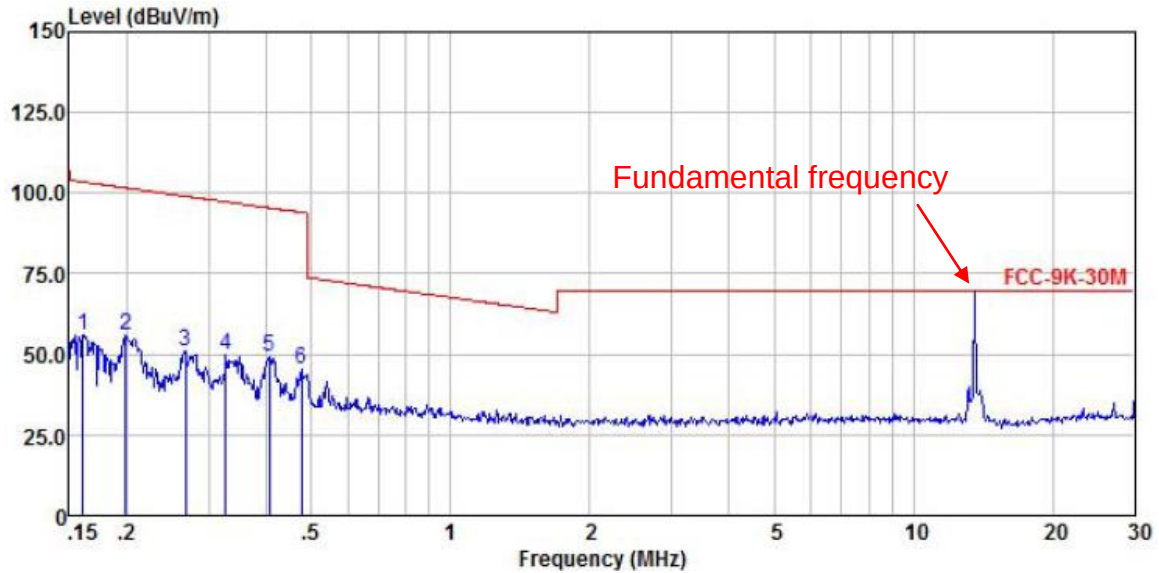
| NO. | Freq. [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity   |
|-----|-------------|------------------|-------------|----------------|----------------|-------------|-------|------------|
| 1   | 53.7674     | 40.21            | -12.97      | 27.24          | 40.00          | 12.76       | PK    | Horizontal |
| 2   | 67.1547     | 40.95            | -15.70      | 25.25          | 40.00          | 14.75       | PK    | Horizontal |
| 3   | 114.980     | 35.07            | -15.57      | 19.50          | 43.50          | 24.00       | PK    | Horizontal |
| 4   | 240.414     | 47.30            | -14.20      | 33.10          | 46.00          | 12.90       | PK    | Horizontal |
| 5   | 473.722     | 39.28            | -9.56       | 29.72          | 46.00          | 16.28       | PK    | Horizontal |
| 6   | 892.222     | 33.64            | -2.76       | 30.88          | 46.00          | 15.12       | PK    | Horizontal |

#### Remark:

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

**ANT2:**

|                        |                  |                       |              |
|------------------------|------------------|-----------------------|--------------|
| <b>Product Name:</b>   | IdentiQuik2      | <b>Product Model:</b> | IdentiQuik2  |
| <b>Test By:</b>        | Robin            | <b>Test mode:</b>     | RFID Tx mode |
| <b>Test Frequency:</b> | 150 kHz – 30 MHz | <b>Polarization:</b>  | Coxial       |
| <b>Test Voltage:</b>   | DC 15V           |                       |              |



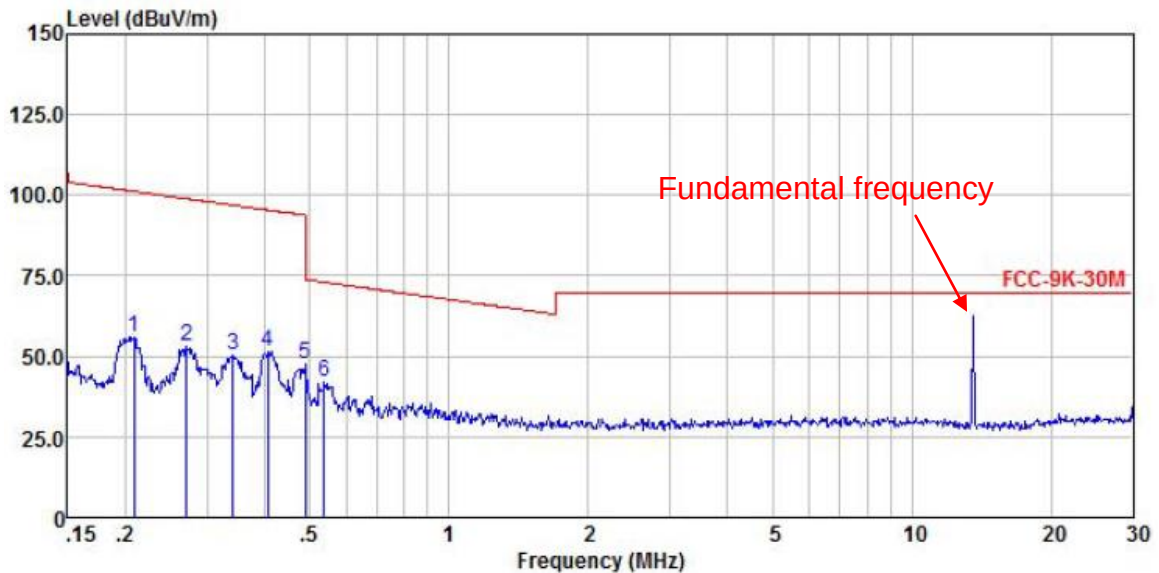
|   | Read  | Antenna | Cable  | Preamp |        | Limit  | Over   |             |
|---|-------|---------|--------|--------|--------|--------|--------|-------------|
|   | Freq  | Level   | Factor | Loss   | Factor | Level  | Line   | Limit       |
|   | MHz   | dBuV    | dB/m   | dB     | dB     | dBuV/m | dBuV/m | dB          |
| 1 | 0.161 | 35.69   | 20.23  | 0.03   | 0.00   | 55.95  | 103.50 | -47.55 Peak |
| 2 | 0.199 | 35.39   | 20.34  | 0.04   | 0.00   | 55.77  | 101.66 | -45.89 Peak |
| 3 | 0.267 | 30.50   | 20.49  | 0.05   | 0.00   | 51.04  | 99.08  | -48.04 Peak |
| 4 | 0.327 | 28.96   | 20.59  | 0.06   | 0.00   | 49.61  | 97.32  | -47.71 Peak |
| 5 | 0.406 | 28.39   | 20.70  | 0.06   | 0.00   | 49.15  | 95.43  | -46.28 Peak |
| 6 | 0.476 | 24.44   | 20.78  | 0.07   | 0.00   | 45.29  | 94.05  | -48.76 Peak |

**Remark:**

1. Level = Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of 9 kHz~150 kHz are background noise and very lower than the limit, so not show in test report.



|                 |                  |                |              |
|-----------------|------------------|----------------|--------------|
| Product Name:   | IdentiQuik2      | Product Model: | IdentiQuik2  |
| Test By:        | Robin            | Test mode:     | RFID Tx mode |
| Test Frequency: | 150 kHz – 30 MHz | Polarization:  | Coplanar     |
| Test Voltage:   | DC 15V           |                |              |

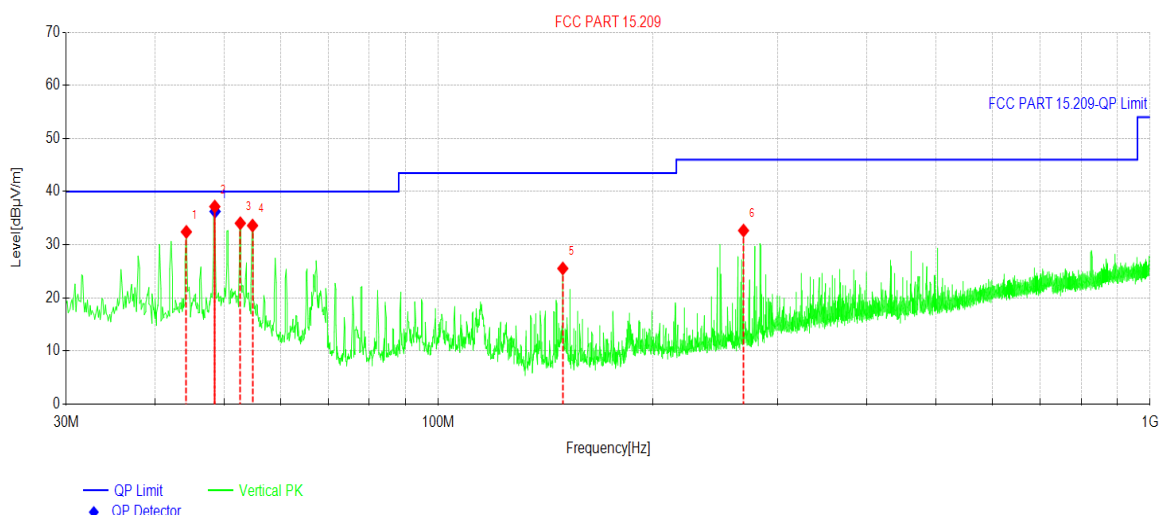


|   | Freq  | Read  | Antenna | Cable | Preamp | Level  | Limit  | Over   |        |
|---|-------|-------|---------|-------|--------|--------|--------|--------|--------|
|   | MHz   | Level | Factor  | Loss  | Factor | Level  | Line   | Limit  | Remark |
|   | MHz   | dBuV  | dB/m    | dB    | dB     | dBuV/m | dBuV/m | dB     |        |
| 1 | 0.208 | 35.71 | 20.36   | 0.04  | 0.00   | 56.11  | 101.24 | -45.13 | Peak   |
| 2 | 0.272 | 32.72 | 20.50   | 0.05  | 0.00   | 53.27  | 98.94  | -45.67 | Peak   |
| 3 | 0.341 | 29.57 | 20.61   | 0.06  | 0.00   | 50.24  | 96.95  | -46.71 | Peak   |
| 4 | 0.406 | 30.84 | 20.70   | 0.06  | 0.00   | 51.60  | 95.43  | -43.83 | Peak   |
| 5 | 0.489 | 26.60 | 20.79   | 0.07  | 0.00   | 47.46  | 93.82  | -46.36 | Peak   |
| 6 | 0.538 | 20.95 | 20.77   | 0.09  | 0.00   | 41.81  | 72.99  | -31.18 | Peak   |

#### Remark:

1. Level = Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of 9 kHz~150 kHz are background noise and very lower than the limit, so not show in test report.

|                 |                   |                |              |
|-----------------|-------------------|----------------|--------------|
| Product Name:   | IdentiQuik2       | Product Model: | IdentiQuik2  |
| Test By:        | Kiran             | Test mode:     | RFID Tx mode |
| Test Frequency: | 30 MHz – 1000 MHz | Polarization:  | Vertical     |
| Test Voltage:   | DC 15V            |                |              |



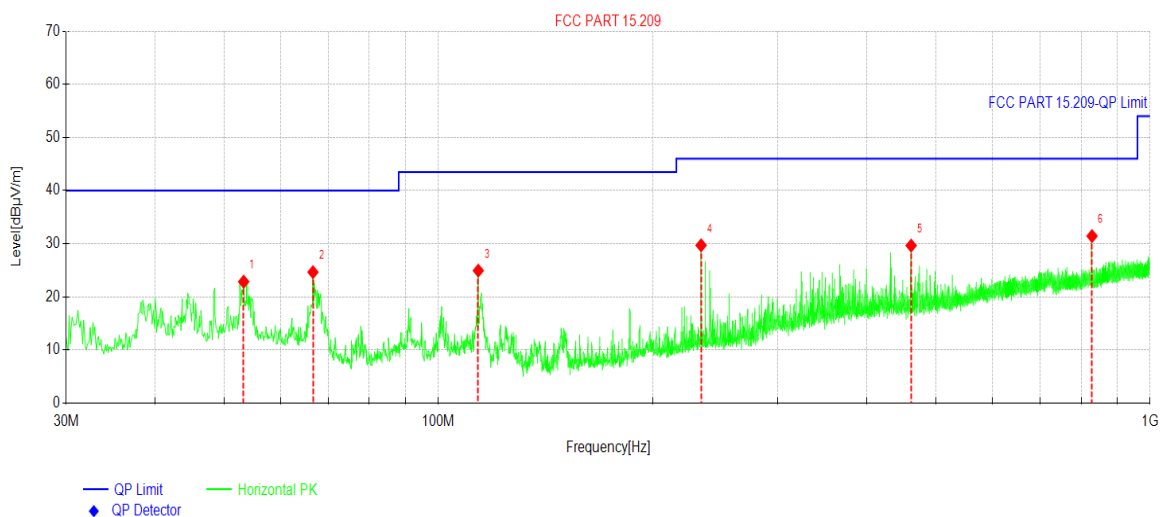
| Suspected Data List |             |                     |             |                   |                   |                |           |          |
|---------------------|-------------|---------------------|-------------|-------------------|-------------------|----------------|-----------|----------|
| NO.                 | Freq. [MHz] | Reading [dBμV/m]    | Factor [dB] | Level [dBμV/m]    | Limit [dBμV/m]    | Margin [dB]    | Trace     | Polarity |
| 1                   | 44.2604     | 45.25               | -12.84      | 32.41             | 40.00             | 7.59           | PK        | Vertical |
| 2                   | 48.5289     | 49.90               | -12.72      | 37.18             | 40.00             | 2.82           | PK        | Vertical |
| 3                   | 52.7003     | 46.85               | -12.81      | 34.04             | 40.00             | 5.96           | PK        | Vertical |
| 4                   | 54.8345     | 46.78               | -13.18      | 33.60             | 40.00             | 6.40           | PK        | Vertical |
| 5                   | 149.613     | 43.75               | -18.23      | 25.52             | 43.50             | 17.98          | PK        | Vertical |
| 6                   | 268.449     | 46.41               | -13.74      | 32.67             | 46.00             | 13.33          | PK        | Vertical |
| Final Data List     |             |                     |             |                   |                   |                |           |          |
| NO.                 | Freq. [MHz] | QP Reading [dBμV/m] | Factor [dB] | QP Value [dBμV/m] | QP Limit [dBμV/m] | QP Margin [dB] | Angle [°] | Verdict  |
| 1                   | 48.5731     | 48.98               | -12.72      | 36.26             | 40.00             | 3.74           | 263.4     | PASS     |

#### Remark:

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



|                 |                   |                |              |
|-----------------|-------------------|----------------|--------------|
| Product Name:   | IdentiQuik2       | Product Model: | IdentiQuik2  |
| Test By:        | Kiran             | Test mode:     | RFID Tx mode |
| Test Frequency: | 30 MHz – 1000 MHz | Polarization:  | Horizontal   |
| Test Voltage:   | DC 15V            |                |              |



#### Suspected Data List

| NO. | Freq. [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity   |
|-----|-------------|------------------|-------------|----------------|----------------|-------------|-------|------------|
| 1   | 53.2823     | 35.73            | -12.87      | 22.86          | 40.00          | 17.14       | PK    | Horizontal |
| 2   | 66.6697     | 40.15            | -15.50      | 24.65          | 40.00          | 15.35       | PK    | Horizontal |
| 3   | 113.816     | 40.39            | -15.45      | 24.94          | 43.50          | 18.56       | PK    | Horizontal |
| 4   | 234.011     | 44.16            | -14.46      | 29.70          | 46.00          | 16.30       | PK    | Horizontal |
| 5   | 461.693     | 39.52            | -9.87       | 29.65          | 46.00          | 16.35       | PK    | Horizontal |
| 6   | 828.874     | 35.21            | -3.77       | 31.44          | 46.00          | 14.56       | PK    | Horizontal |

#### Remark:

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

## 5.6 Frequency Tolerance

### Frequency Stability V.S. Temperature Measurement:

#### ANT1:

| Voltage (Vdc) | Temperature (°C) | Frequency Tolerance (kHz) | Frequency Error (%) | Limit (%) | Results |
|---------------|------------------|---------------------------|---------------------|-----------|---------|
| 15.0          | -20              | -0.097                    | -0.0007             | ±0.01     | Pass    |
|               | -10              | -0.088                    | -0.0006             | ±0.01     | Pass    |
|               | 0                | 0.046                     | 0.0003              | ±0.01     | Pass    |
|               | +10              | 0.037                     | 0.0003              | ±0.01     | Pass    |
|               | +20              | 0.041                     | 0.0003              | ±0.01     | Pass    |
|               | +30              | -0.086                    | -0.0006             | ±0.01     | Pass    |
|               | +40              | -0.074                    | -0.0005             | ±0.01     | Pass    |
|               | +50              | -0.056                    | -0.0004             | ±0.01     | Pass    |

### Frequency Stability V.S. Voltage Measurement:

| Temperature (°C) | Voltage (Vdc) | Frequency Tolerance (kHz) | Frequency Error (%) | Limit (%) | Results |
|------------------|---------------|---------------------------|---------------------|-----------|---------|
| 25.0             | 6.8           | -0.058                    | -0.0004             | ±0.01     | Pass    |
|                  | 15            | -0.066                    | -0.0005             | ±0.01     | Pass    |
|                  | 27.6          | 0.085                     | 0.0006              | ±0.01     | Pass    |

#### ANT2:

| Voltage (Vdc) | Temperature (°C) | Frequency Tolerance (kHz) | Frequency Error (%) | Limit (%) | Results |
|---------------|------------------|---------------------------|---------------------|-----------|---------|
| 15.0          | -20              | -0.096                    | -0.0007             | ±0.01     | Pass    |
|               | -10              | -0.094                    | -0.0007             | ±0.01     | Pass    |
|               | 0                | -0.086                    | -0.0006             | ±0.01     | Pass    |
|               | +10              | -0.076                    | -0.0006             | ±0.01     | Pass    |
|               | +20              | -0.068                    | -0.0005             | ±0.01     | Pass    |
|               | +30              | -0.088                    | -0.0006             | ±0.01     | Pass    |
|               | +40              | -0.076                    | -0.0006             | ±0.01     | Pass    |
|               | +50              | -0.068                    | -0.0005             | ±0.01     | Pass    |

### Frequency Stability V.S. Voltage Measurement:

| Temperature (°C) | Voltage (Vdc) | Frequency Tolerance (kHz) | Frequency Error (%) | Limit (%) | Results |
|------------------|---------------|---------------------------|---------------------|-----------|---------|
| 25.0             | 6.8           | -0.058                    | -0.0004             | ±0.01     | Pass    |
|                  | 15            | -0.066                    | -0.0005             | ±0.01     | Pass    |
|                  | 27.6          | -0.085                    | -0.0006             | ±0.01     | Pass    |

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