

## FCC AND ISCED CERTIFICATION TEST REPORT

|                             |                                                                                 |
|-----------------------------|---------------------------------------------------------------------------------|
| <b>Applicant:</b>           | Guangzhou Shikun Electronics Co., Ltd                                           |
| <b>Address:</b>             | NO.6 Liankun Road, Huangpu District, Guangzhou, China                           |
| <b>Manufacturer:</b>        | Guangzhou Shikun Electronics Co., Ltd                                           |
| <b>Address:</b>             | NO.6 Liankun Road, Huangpu District, Guangzhou, China                           |
| <b>Product Description:</b> | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |
| <b>Brand Name:</b>          | NA                                                                              |
| <b>Tested Model:</b>        | SKI.WB663U.2                                                                    |
| <b>FCC ID:</b>              | 2AR82-SKIWB663U21                                                               |
| <b>IC:</b>                  | 24728-SKIWB663U21                                                               |
| <b>Report No.:</b>          | JCF240621101-007                                                                |
| <b>Received Date:</b>       | Jun. 22, 2024                                                                   |
| <b>Tested Date:</b>         | Jun. 22, 2024 ~ Jun. 28, 2024                                                   |
| <b>Issued Date:</b>         | Jun. 28, 2024                                                                   |
| <b>Test Standards:</b>      | FCC Rules and Regulations Part 15 Subpart C,<br>RSS-247 Issue 3 August 2023     |
| <b>Test Procedure:</b>      | ANSI C63.10:2013, RSS-Gen Issue 5 A2, Feb. 2021                                 |
| <b>Test Result:</b>         | Pass                                                                            |

|                                                                                     |                            |
|-------------------------------------------------------------------------------------|----------------------------|
| <b>Prepared By:</b>                                                                 |                            |
|  |                            |
| <u>Kennys Zhang/Engineer</u>                                                        | <b>Date:</b> Jun. 28, 2024 |

|                                                                                     |                            |
|-------------------------------------------------------------------------------------|----------------------------|
| <b>Reviewed By:</b>                                                                 |                            |
|  |                            |
| <u>Roger Li/Engineer</u>                                                            | <b>Date:</b> Jun. 28, 2024 |

|                                                                                     |                            |
|-------------------------------------------------------------------------------------|----------------------------|
| <b>Approved By:</b>                                                                 |                            |
|  |                            |
| <u>Talent Zhang/Engineer</u>                                                        | <b>Date:</b> Jun. 28, 2024 |

Note: The test results in this report apply exclusively to the tested model / sample. Without written approval of Guangzhou Jingce Testing Technology Co., Ltd. the test report shall not be reproduced except in full.

Report Revise Record

| Report Version | Revise Time | Issued Date   | Valid Version   | Notes |
|----------------|-------------|---------------|-----------------|-------|
| V1.0           | /           | Jun. 28, 2024 | Original Report | /     |

## Table of Contents

|                                                                  |           |
|------------------------------------------------------------------|-----------|
| <b>1. Test Report Declare .....</b>                              | <b>4</b>  |
| <b>2. Summary of Test Results .....</b>                          | <b>5</b>  |
| <b>3. Test Laboratory .....</b>                                  | <b>5</b>  |
| <b>4. Equipment Under Test .....</b>                             | <b>6</b>  |
| 4.1. Description of EUT .....                                    | 6         |
| 4.2. Channel List .....                                          | 6         |
| 4.3. Packet Type Configuration .....                             | 7         |
| 4.4. Test Channel Configuration .....                            | 7         |
| 4.5. Test environment conditions .....                           | 7         |
| 4.6. The Worse Case Power Setting Parameter .....                | 7         |
| 4.7. Description of Available Antennas .....                     | 8         |
| <b>5. Description of Test Setup .....</b>                        | <b>8</b>  |
| 5.1. Accessory .....                                             | 8         |
| 5.2. Support Equipment .....                                     | 8         |
| 5.3. Test Setup .....                                            | 8         |
| 5.4. Setup Diagram for Tests .....                               | 8         |
| <b>6. Measurement Uncertainty .....</b>                          | <b>9</b>  |
| <b>7. Measuring Instrument and Software Used .....</b>           | <b>9</b>  |
| <b>8. Conducted Output Power .....</b>                           | <b>11</b> |
| 8.1. Block diagram of test setup .....                           | 11        |
| 8.2. Limits .....                                                | 11        |
| 8.3. Test Procedure .....                                        | 11        |
| 8.4. Results .....                                               | 11        |
| <b>9. Radiated Emission .....</b>                                | <b>12</b> |
| 9.1. Block diagram of test setup .....                           | 12        |
| 9.2. Limit .....                                                 | 13        |
| 9.3. Test Procedure .....                                        | 14        |
| 9.4. Results .....                                               | 16        |
| 9.5. Original test data .....                                    | 16        |
| <b>10. Antenna Requirements .....</b>                            | <b>17</b> |
| 10.1. Limits .....                                               | 17        |
| 10.2. Result .....                                               | 17        |
| <b>APPENDIX A – Radiated Emission Below 1GHz Test Data .....</b> | <b>18</b> |
| <b>APPENDIX B – Radiated Emission Above 1GHz Test Data .....</b> | <b>20</b> |

## 1. Test Report Declare

|                                |                                                                                 |
|--------------------------------|---------------------------------------------------------------------------------|
| <b>Applicant:</b>              | Guangzhou Shikun Electronics Co., Ltd                                           |
| <b>Address:</b>                | NO.6 Liankun Road, Huangpu District, Guangzhou, China                           |
| <b>Manufacturer:</b>           | Guangzhou Shikun Electronics Co., Ltd                                           |
| <b>Address:</b>                | NO.6 Liankun Road, Huangpu District, Guangzhou, China                           |
| <b>Product Name:</b>           | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |
| <b>Brand Name:</b>             | NA                                                                              |
| <b>Model Name:</b>             | SKI.WB663U.2                                                                    |
| <b>Difference Description:</b> | NA                                                                              |

### We Declare:

The equipment described above is tested by Guangzhou Jingce Testing Technology Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Guangzhou Jingce Testing Technology Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests except as provided information by clients.

## 2. Summary of Test Results

| Summary of Test Results |                                             |                                                                                                               |             |
|-------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------|
| Clause                  | Test Items                                  | FCC/ISED Rules                                                                                                | Test Result |
| 1                       | 20 dB Bandwidth and 99 % Occupied Bandwidth | FCC 15.247 (a) (1)<br>RSS-247 Clause 5.1 (a)<br>RSS-Gen Clause 6.7                                            | NA          |
| 2                       | Conducted Output Power                      | FCC 15.247 (b) (1)<br>RSS-247 Clause 5.1 (b)                                                                  | Pass        |
| 3                       | Carrier Hopping Channel Separation          | FCC 15.247 (a) (1)<br>RSS-247 Clause 5.1 (b)                                                                  | NA          |
| 4                       | Number of Hopping Frequency                 | 15.247 (a) (1) III<br>RSS-247 Clause 5.1 (d)                                                                  | NA          |
| 5                       | Time of Occupancy (Dwell Time)              | 15.247 (a) (1) III<br>RSS-247 Clause 5.1 (d)                                                                  | NA          |
| 6                       | Conducted Band edge                         | FCC 15.247 (d)<br>RSS-247 Clause 5.5                                                                          | NA          |
| 7                       | Radiated Band edge and Spurious             | FCC 15.247 (d)<br>FCC 15.209<br>FCC 15.205<br>RSS-247 Clause 5.5<br>RSS-GEN Clause 8.9<br>RSS-GEN Clause 8.10 | Pass        |
| 8                       | Conducted Emission Test For AC Power Port   | FCC 15.207<br>RSS-GEN Clause 8.8                                                                              | NA          |
| 9                       | Antenna Requirement                         | FCC 15.203<br>RSS-GEN Clause 6.8                                                                              | Pass        |

Note: The EUT has only added antenna to the original report. So above test items clause 2&7&9 need to be retest, the other test items reference report "4790010773.1-2".

## 3. Test Laboratory

Guangzhou Jingce Testing Technology Co., Ltd.

Add.: No.10, Hefeng No.1 street, Huangpu District, Guangzhou, Guangdong, People's Republic of China

Association for Laboratory Accreditation(A2LA). Certificate Number: 6594.03

FCC Designation Number: CN1381. Test Firm Registration Number: 486550

IC Test Firm Registration Number: 31808

Conformity Assessment Body identifier: CN0173

## 4. Equipment Under Test

### 4.1. Description of EUT

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| <b>EUT Name:</b>                 | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |
| <b>Model Number:</b>             | SKI.WB663U.2                                                                    |
| <b>EUT Function Description:</b> | Please refer to user manual of this device                                      |
| <b>Power Supply:</b>             | DC 3.3V+/-0.3                                                                   |
| <b>Hardware Version:</b>         | NA                                                                              |
| <b>Software Version:</b>         | NA                                                                              |
| <b>Radio Specification:</b>      | Bluetooth V5.1                                                                  |
| <b>Operation Frequency:</b>      | 2402 MHz - 2480 MHz                                                             |
| <b>Modulation:</b>               | GFSK, $\pi/4$ -DQPSK, 8DPSK                                                     |
| <b>Data Rate:</b>                | 1Mbps, 2Mbps, 3Mbps                                                             |
| <b>Antenna Type:</b>             | PCB Antenna, MAX. Gain: 4.04 dBi                                                |

Note 1: EUT is the ab. of equipment under test.

Note 2: The antenna gain is declared by the customer and the laboratory is not responsible for the accuracy of the antenna gain.

### 4.2. Channel List

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| 0       | 2402            | 20      | 2422            | 40      | 2442            | 60      | 2462            |
| 1       | 2403            | 21      | 2423            | 41      | 2443            | 61      | 2463            |
| 2       | 2404            | 22      | 2424            | 42      | 2444            | 62      | 2464            |
| 3       | 2405            | 23      | 2425            | 43      | 2445            | 63      | 2465            |
| 4       | 2406            | 24      | 2426            | 44      | 2446            | 64      | 2466            |
| 5       | 2407            | 25      | 2427            | 45      | 2447            | 65      | 2467            |
| 6       | 2408            | 26      | 2428            | 46      | 2448            | 66      | 2468            |
| 7       | 2409            | 27      | 2429            | 47      | 2449            | 67      | 2469            |
| 8       | 2410            | 28      | 2430            | 48      | 2450            | 68      | 2470            |
| 9       | 2411            | 29      | 2431            | 49      | 2451            | 69      | 2471            |
| 10      | 2412            | 30      | 2432            | 50      | 2452            | 70      | 2472            |
| 11      | 2413            | 31      | 2433            | 51      | 2453            | 71      | 2473            |
| 12      | 2414            | 32      | 2434            | 52      | 2454            | 72      | 2474            |
| 13      | 2415            | 33      | 2435            | 53      | 2455            | 73      | 2475            |
| 14      | 2416            | 34      | 2436            | 54      | 2456            | 74      | 2476            |
| 15      | 2417            | 35      | 2437            | 55      | 2457            | 75      | 2477            |
| 16      | 2418            | 36      | 2438            | 56      | 2458            | 76      | 2478            |
| 17      | 2419            | 37      | 2439            | 57      | 2459            | 77      | 2479            |
| 18      | 2420            | 38      | 2440            | 58      | 2460            | 78      | 2480            |
| 19      | 2421            | 39      | 2441            | 59      | 2461            | /       | /               |

### 4.3. Packet Type Configuration

| Test Mode      | Packet Type | Setting(Packet Length) |
|----------------|-------------|------------------------|
| GFSK           | DH1         | 27                     |
|                | DH3         | 183                    |
|                | DH5         | 339                    |
| $\pi/4$ -DQPSK | 2-DH1       | 54                     |
|                | 2-DH3       | 367                    |
|                | 2-DH5       | 679                    |
| 8DPSK          | 3-DH1       | 83                     |
|                | 3-DH3       | 552                    |
|                | 3-DH5       | 1021                   |

### 4.4. Test Channel Configuration

| Tested mode, channel, information  |             |                 |
|------------------------------------|-------------|-----------------|
| Mode                               | Channel     | Frequency (MHz) |
| GFSK hopping on Tx mode            | CH0 to CH78 | 2402 to 2480    |
| $\pi/4$ -DQPSK hopping on Tx mode  | CH0 to CH78 | 2402 to 2480    |
| 8DPSK hopping on Tx mode           | CH0 to CH78 | 2402 to 2480    |
| GFSK hopping off Tx mode           | LCH: CH0    | 2402            |
|                                    | MCH: CH39   | 2441            |
|                                    | HCH: CH78   | 2480            |
| $\pi/4$ -DQPSK hopping off Tx mode | LCH: CH0    | 2402            |
|                                    | MCH: CH39   | 2441            |
|                                    | HCH: CH78   | 2480            |
| 8DPSK hopping off Tx mode          | LCH: CH0    | 2402            |
|                                    | MCH: CH39   | 2441            |
|                                    | HCH: CH78   | 2480            |

### 4.5. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

|                    |            |
|--------------------|------------|
| Temperature range: | 21-25 °C   |
| Humidity range:    | 40-75%     |
| Pressure range:    | 86-106 kPa |

### 4.6. The Worse Case Power Setting Parameter

| The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band |                         |                             |       |       |
|--------------------------------------------------------------------|-------------------------|-----------------------------|-------|-------|
| Test Software                                                      |                         | WCN_Combo_Tool              |       |       |
| Modulation Type                                                    | Transmit Antenna Number | Test Software Setting Value |       |       |
|                                                                    |                         | CH 0                        | CH 39 | CH 78 |
| GFSK                                                               | 1                       | 5                           | 6     | 6     |
| 8DPSK                                                              | 1                       | 5                           | 6     | 6     |

#### 4.7. Description of Available Antennas

| Test Mode | Transmit and Receive Mode                    | Description                                              |
|-----------|----------------------------------------------|----------------------------------------------------------|
| GFSK      | <input checked="" type="checkbox"/> 1TX, 1RX | Antenna 1 can be used as transmitting/receiving antenna. |
| 8DPSK     | <input checked="" type="checkbox"/> 1TX, 1RX | Antenna 1 can be used as transmitting/receiving antenna. |

### 5. Description of Test Setup

#### 5.1. Accessory

| Description of Accessories | Manufacturer | Model Number | Description | Remark |
|----------------------------|--------------|--------------|-------------|--------|
| /                          | /            | /            | /           | /      |

#### 5.2. Support Equipment

| Equipment | Brand Name | Model Name | P/N |
|-----------|------------|------------|-----|
| PC        | Lenovo     | T480       | /   |

#### 5.3. Test Setup

The EUT can work in Fixed Frequency mode.

#### 5.4. Setup Diagram for Tests





## 6. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| Test Item                    | Uncertainty |
|------------------------------|-------------|
| AC Power Conduction emission | 1.37 dB     |
| All Radiated emissions       | 5.4dB       |
| Conducted emissions          | 3.09 dB     |
| Occupied Channel Bandwidth   | 1.1%        |
| Conducted Output power       | 0.82dB      |
| Power Spectral Density       | 0.82dB      |

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of  $k = 2$ .

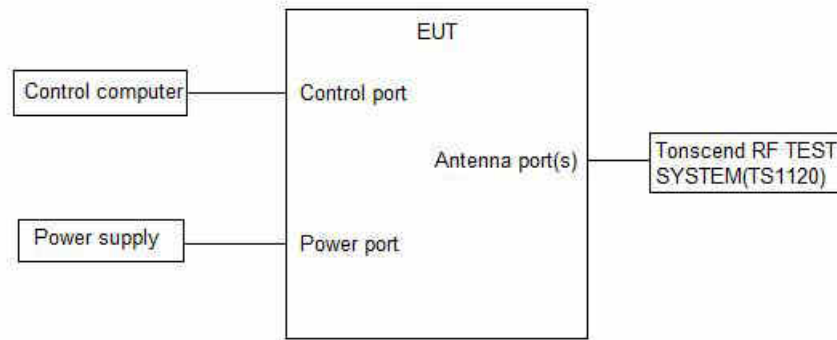
## 7. Measuring Instrument and Software Used

| TS Test System                      |                                     |              |              |             |               |               |
|-------------------------------------|-------------------------------------|--------------|--------------|-------------|---------------|---------------|
| Used                                | Equipment                           | Manufacturer | Model No.    | Serial No.  | Last Cal.     | Due. Date     |
| <input checked="" type="checkbox"/> | Spectrum Analyzer                   | Keysight     | N9030B       | MY56320512  | Sep. 12, 2023 | Sep. 11, 2024 |
| <input checked="" type="checkbox"/> | Vector Signal Generator             | Keysight     | N5182B       | MY57300334  | Sep. 12, 2023 | Sep. 11, 2024 |
| <input checked="" type="checkbox"/> | Signal Generator                    | Keysight     | N5171B       | MY57280639  | Sep. 12, 2023 | Sep. 11, 2024 |
| <input checked="" type="checkbox"/> | DC POWER                            | Keysight     | E342A        | MY59020356  | Jul. 14, 2023 | Jul. 13, 2024 |
| <input checked="" type="checkbox"/> | Incubator thermometer               | GWS          | EL-02JA      | 21107288    | Sep. 12, 2023 | Sep. 11, 2024 |
| <input checked="" type="checkbox"/> | Control unit(Power sensor)          | Tonscend     | JS0806-2     | /           | Sep. 12, 2023 | Sep. 11, 2024 |
| <input checked="" type="checkbox"/> | Wideband radio communication tester | R&S          | CMW500       | 163478      | Jul. 11, 2023 | Jul. 10, 2024 |
| <input checked="" type="checkbox"/> | Spectrum Analyzer                   | Keysight     | N9020B       | MY60112206  | Sep. 12, 2023 | Sep. 12, 2024 |
| <input checked="" type="checkbox"/> | Control unit(Power sensor)          | Tonscend     | JS0806-2     | 21H8060465  | Sep. 12, 2023 | Sep. 12, 2024 |
| Software                            |                                     |              |              |             |               |               |
| Used                                | Description                         | Manufacturer | Name         |             | Version       |               |
| <input checked="" type="checkbox"/> | Test software                       | Tonscend     | JS1120-3     |             | V3.3.10       |               |
| RSE Test System                     |                                     |              |              |             |               |               |
| Used                                | Equipment                           | Manufacturer | Model No.    | Serial No.  | Last Cal.     | Due. Date     |
| <input checked="" type="checkbox"/> | EMI Receiver                        | R&S          | ESW          | 101685      | Jul. 12, 2023 | Jul. 11, 2024 |
| <input checked="" type="checkbox"/> | Bilog Antenna                       | Schwarzbeck  | VULB 9163    | 01361       | Aug. 16, 2023 | Aug. 15, 2024 |
| <input checked="" type="checkbox"/> | Horn Antenna 1                      | Schwarzbeck  | BBHA 9120 D  | 02411       | May. 25, 2023 | May. 24, 2024 |
| <input checked="" type="checkbox"/> | Horn Antenna 2                      | ETS          | BBHA 9170    | 1090        | Sep. 04, 2023 | Sep. 03, 2024 |
| <input checked="" type="checkbox"/> | loop-antenna                        | Schwarzbeck  | FMZB 1513-60 | 00030       | Jan. 14, 2024 | Jan. 13, 2025 |
| <input checked="" type="checkbox"/> | Signal Pre-Amplifier                | Tonscend     | TAP01018050  | AP21C806122 | Jul. 10, 2023 | Jul. 09, 2024 |

|                                           |                           |              |           |             |               |               |
|-------------------------------------------|---------------------------|--------------|-----------|-------------|---------------|---------------|
| <input checked="" type="checkbox"/>       | Signal Pre-Amplifier      | Tonscend     | TAP9K3G32 | AP20K806104 | Jul. 10, 2023 | Jul. 09, 2024 |
| <input checked="" type="checkbox"/>       | Signal Pre-Amplifier      | ETS          | 3116C-PA  | 00217677    | Aug. 24, 2023 | Aug. 23, 2024 |
| <input checked="" type="checkbox"/>       | 3m Fully-anechoic Chamber | ETS          | RFD-100   | /           | Apr. 24, 2021 | Apr. 23, 2024 |
| Software                                  |                           |              |           |             |               |               |
| Used                                      | Description               | Manufacturer | Name      |             | Version       |               |
| <input checked="" type="checkbox"/>       | Test software             | Tonscend     | TS+       |             | V3.0.0.4      |               |
| Conducted Emission Test For AC Power Port |                           |              |           |             |               |               |
| Used                                      | Equipment                 | Manufacturer | Model No. | Serial No.  | Last Cal.     | Due. Date     |
| <input checked="" type="checkbox"/>       | LISN                      | R&S          | ENV216    | 102154      | Jul. 10, 2023 | Jul. 09, 2024 |
| <input checked="" type="checkbox"/>       | EMI Receiver              | R&S          | ESR3      | 102509      | Jul. 12, 2023 | Jul. 11, 2024 |
| Software                                  |                           |              |           |             |               |               |
| Used                                      | Description               | Manufacturer | Name      |             | Version       |               |
| <input checked="" type="checkbox"/>       | Test software             | EZ           | EZ-EMC    |             | EMEC-3A1      |               |
| Other Instrument                          |                           |              |           |             |               |               |
| Used                                      | Equipment                 | Manufacturer | Model No. | Serial No.  | Last Cal.     | Due. Date     |
| <input checked="" type="checkbox"/>       | Temperature & Humidity    | Temperature  | HTC-1     | /           | Nov. 02, 2023 | Nov. 01, 2024 |

## 8. Conducted Output Power

### 8.1. Block diagram of test setup



### 8.2. Limits

| CFR 47 FCC Part15 (15.247) , Subpart C<br>ISED RSS-247 ISSUE 3 |                                   |                                                                                                                                                                                                                                                                                               |                       |
|----------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Section                                                        | Test Item                         | Limit                                                                                                                                                                                                                                                                                         | Frequency Range (MHz) |
| CFR 47 FCC<br>15.247 (b) (1)<br>ISED RSS-247<br>Clause 5.4 (b) | Peak<br>Conducted<br>Output Power | Hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel:<br>1 watt or 30dBm;<br><br>Hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel : 125 mW or 21dBm | 2400-2483.5           |

### 8.3. Test Procedure

- (1) Connect EUT's antenna output to spectrum analyzer by RF cable.
  - (2) Measure the maximum output power of EUT by spectrum analyzer with PK detector and RBW=3 MHz (above 20 dB bandwidth of measured signal), VBW=8 MHz
- Note: The attenuator loss was inputted into spectrum analyzer as amplitude offset.

### 8.4. Results

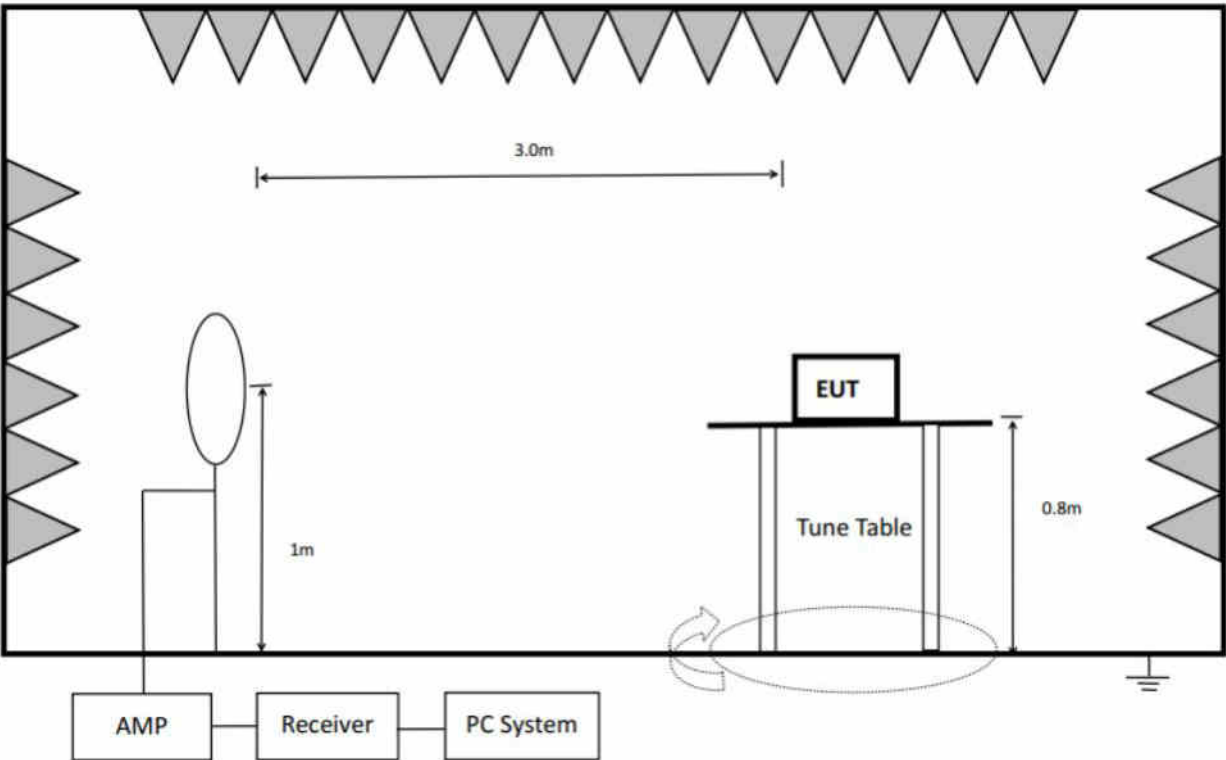
| Test Mode | Ant. | Freq. (MHz) | Conducted Peak Power (dBm) | EIRP (dBm) | Conducted Limit (dBm) | EIRP Limit (dBm) | Verdict |
|-----------|------|-------------|----------------------------|------------|-----------------------|------------------|---------|
| DH5       | Ant1 | 2402        | 5.15                       | 9.19       | ≤20.97                | ≤36              | PASS    |
|           |      | 2441        | 6.65                       | 10.69      | ≤20.97                | ≤36              | PASS    |
|           |      | 2480        | 5.29                       | 9.33       | ≤20.97                | ≤36              | PASS    |
| 3DH5      | Ant1 | 2402        | 4.92                       | 8.96       | ≤20.97                | ≤36              | PASS    |
|           |      | 2441        | 6.39                       | 10.43      | ≤20.97                | ≤36              | PASS    |
|           |      | 2480        | 5.08                       | 9.12       | ≤20.97                | ≤36              | PASS    |

The test Conducted Power reference report "4790010773.1-2"

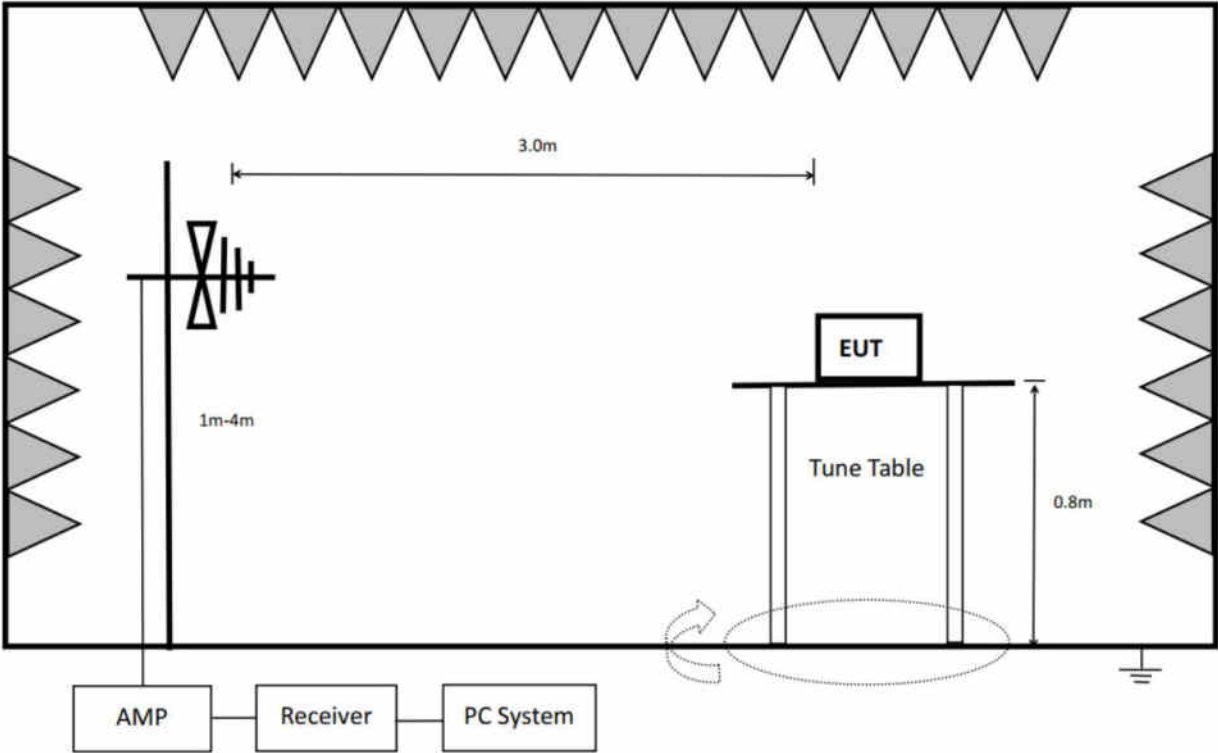
9. Radiated Emission

9.1. Block diagram of test setup

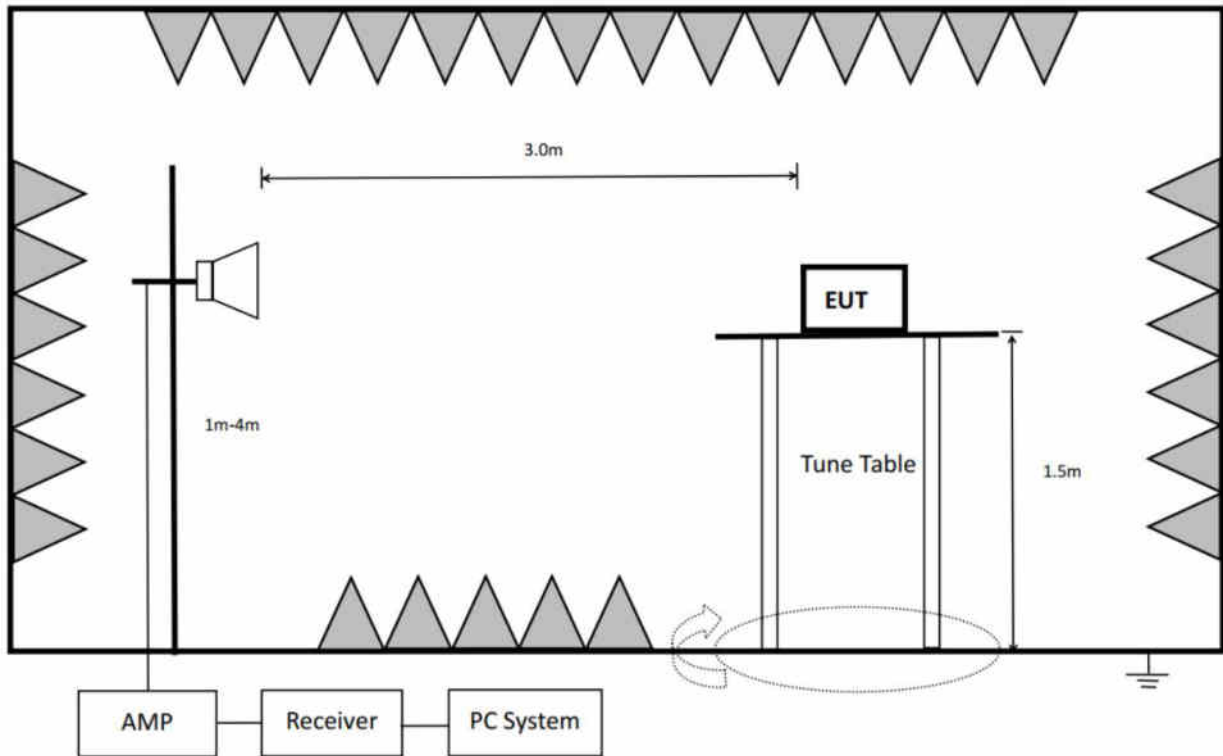
In 3m Anechoic Chamber, test setup diagram for 9kHz - 30MHz:



In 3m Anechoic Chamber, test setup diagram for 30 MHz - 1 GHz:



In 3m Anechoic Chamber, test setup diagram for frequency above 1 GHz:



Note: For harmonic emissions test an appropriate high pass filter was inserted in the input port of AMP.

## 9.2. Limit

(1) FCC 15.205 Restricted frequency band

| MHz                      | MHz                 | MHz           | GHz              |
|--------------------------|---------------------|---------------|------------------|
| 0.090-0.110              | 16.42-16.423        | 399.9-410     | 4.5-5.15         |
| <sup>1</sup> 0.495-0.505 | 16.69475-16.69525   | 608-614       | 5.35-5.46        |
| 2.1735-2.1905            | 16.80425-16.80475   | 960-1240      | 7.25-7.75        |
| 4.125-4.128              | 25.5-25.67          | 1300-1427     | 8.025-8.5        |
| 4.1772&4.17775           | 37.5-38.25          | 1435-1626.5   | 9.0-9.2          |
| 4.2072&4.20775           | 73-74.6             | 1645.5-1646.5 | 9.3-9.5          |
| 6.215-6.218              | 74.8-75.2           | 1660-1710     | 10.6-12.7        |
| 6.26775-6.26825          | 108-121.94          | 1718.8-1722.2 | 13.25-13.4       |
| 6.31175-6.31225          | 123-138             | 2200-2300     | 14.47-14.5       |
| 8.291-8.294              | 149.9-150.05        | 2310-2390     | 15.35-16.2       |
| 8.362-8.366              | 156.52475-156.52525 | 2483.5-2500   | 17.7-21.4        |
| 8.37625-8.38675          | 156.7-156.9         | 2690-2900     | 22.01-23.12      |
| 8.41425-8.41475          | 162.0125-167.17     | 3260-3267     | 23.6-24.0        |
| 12.29-12.293             | 167.72-173.2        | 3332-3339     | 31.2-31.8        |
| 12.51975-12.52025        | 240-285             | 3345.8-3358   | 36.43-36.5       |
| 12.57675-12.57725        | 322-335.4           | 3600-4400     | ( <sup>2</sup> ) |
| 13.36-13.41              |                     |               |                  |

<sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup>Above 38.6

## (2) FCC 15.209 Limit.

| Frequency<br>MHz | Distance<br>Meters | Field Strengths Limit                                                     |                                   |
|------------------|--------------------|---------------------------------------------------------------------------|-----------------------------------|
|                  |                    | $\mu\text{V}/\text{m}$                                                    | $\text{dB}(\mu\text{V})/\text{m}$ |
| 0.009 ~ 0.490    | 300                | 2400/F(kHz)                                                               | 67.6-20log(F)                     |
| 0.490 ~ 1.705    | 30                 | 24000/F(kHz)                                                              | 87.6-20log(F)                     |
| 1.705 ~ 30.0     | 30                 | 30                                                                        | 29.54                             |
| 30 ~ 88          | 3                  | 100                                                                       | 40.0                              |
| 88 ~ 216         | 3                  | 150                                                                       | 43.5                              |
| 216~960          | 3                  | 200                                                                       | 46.0                              |
| 960~1000         | 3                  | 500                                                                       | 54.0                              |
| Above 1000       | 3                  | 74.0 dB( $\mu\text{V}$ )/m (Peak)<br>54.0 dB( $\mu\text{V}$ )/m (Average) |                                   |

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.

About Restricted bands of operation please refer to RSS-Gen section 8.10 and FCC § 15.205 (a),

### 9.3. Test Procedure

Below 30 MHz:

The setting of the spectrum Analyzer

|       |                                                                   |
|-------|-------------------------------------------------------------------|
| RBW   | 300 Hz (From 9 kHz to 0.15 MHz)/ 10 kHz (From 0.15 MHz to 30 MHz) |
| VBW   | 1 kHz (From 9 kHz to 0.15 MHz)/ 30 kHz (From 0.15 MHz to 30 MHz)  |
| Sweep | Auto                                                              |
| Trace | Max hold                                                          |

1. The testing follows the guidelines in ANSI C63.10-2013

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm meter above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of 1 meter height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT

measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

Below 1 GHz and above 30 MHz:

The setting of the spectrum Analyzer

|       |          |
|-------|----------|
| RBW   | 100 kHz  |
| VBW   | 300 kHz  |
| Sweep | Auto     |
| Trace | Max hold |

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

Above 1 GHz:

|          |                                |
|----------|--------------------------------|
| RBW      | 1 MHz                          |
| VBW      | PEAK: 3 MHz<br>AVG: see note 6 |
| Sweep    | Auto                           |
| Detector | Peak                           |
| Trace    | Max hold                       |

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 1.5m above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for AVG measurements. For the Duty Cycle please refer to clause 7.1. On Time And Duty Cycle.

7. Restriction band: Investigated frequency range from 2310 MHz to 2410 MHz and 2470MHz to 2500 MHz.

All restriction band should comply with 15.209, other emission should be at least 20 dB below the fundamental.

Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

Note 2: The EUT does not support simultaneous transmission.

Note 3: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

#### **9.4. Results**

Pass. (See below detailed test result)

All the emissions except fundamental emission from 9 kHz to 25 GHz were comply with 15.209 limits.

Note1: According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz, so the final test was performed with frequency range from 30 MHz to 26 GHz and recorded in below.

Note2: For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in GFSK, TX 2441 MHz mode.

Note3: For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

#### **9.5. Original test data**

Below 1 GHz and above 30 MHz test data Refer to appendix A

Above 1 GHz test data Refer to appendix B



## 10. Antenna Requirements

### 10.1. Limits

Please refer to FCC § 15.203

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 shall be considered sufficient to comply with the provisions of this section. 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.

Please refer to FCC § 15.247(b)(4)

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 10.2. Result

The antenna used for this product is PCB antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 4.04 dBi.

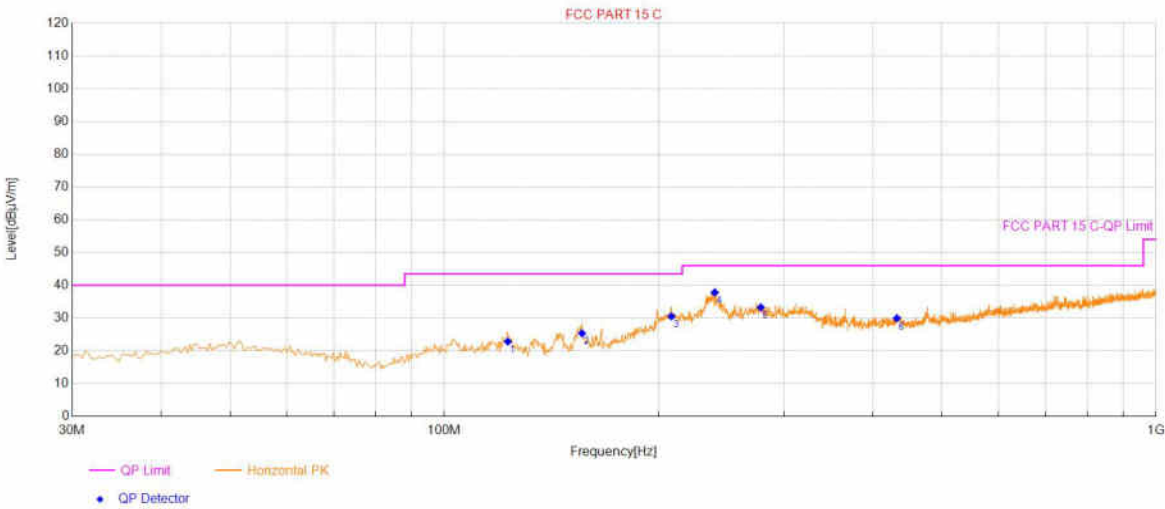
APPENDIX A – Radiated Emission Below 1GHz Test Data

Test Report

| Project Information          |                                                                                 |           |          |
|------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                    |                                                                                 |           |          |
| EUT:                         | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                       | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                        | DH5_2441                                                                        | Voltage:  | DC 3.3V  |
| Environment:                 | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                      | Power Set : 6                                                                   |           |          |
| Test Standard: FCC PART 15 C |                                                                                 |           |          |

Start of Test: 2024-06-25

Test Graph



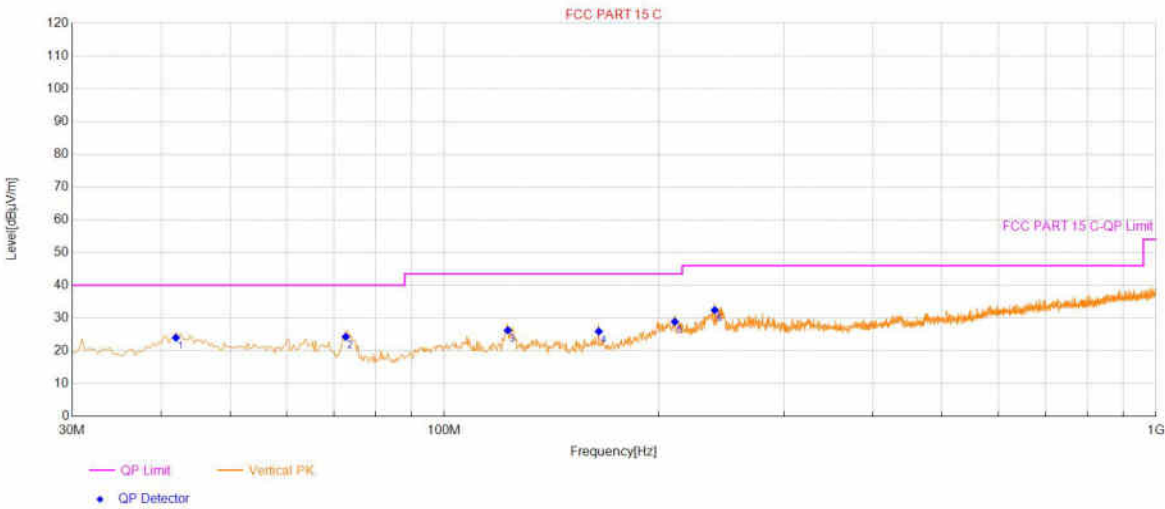
| Final Data List |                 |                   |                   |                |             |           |            |         |
|-----------------|-----------------|-------------------|-------------------|----------------|-------------|-----------|------------|---------|
| NO.             | Frequency (MHz) | QP Value (dBµV/m) | QP Limit (dBµV/m) | QP Margin (dB) | Height (cm) | Angle (°) | Polarity   | Verdict |
| 1               | 122.8276        | 22.83             | 43.50             | 20.67          | 100         | 64        | Horizontal | PASS    |
| 2               | 156.1420        | 25.36             | 43.50             | 18.14          | 100         | 97        | Horizontal | PASS    |
| 3               | 208.5395        | 30.54             | 43.50             | 12.96          | 100         | 148       | Horizontal | PASS    |
| 4               | 239.9133        | 37.83             | 46.00             | 8.17           | 100         | 250       | Horizontal | PASS    |
| 5               | 278.4028        | 33.26             | 46.00             | 12.74          | 100         | 359       | Horizontal | PASS    |
| 6               | 432.3608        | 29.94             | 46.00             | 16.06          | 100         | 359       | Horizontal | PASS    |

Test Report

| Project Information          |                                                                                 |           |          |
|------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                    |                                                                                 |           |          |
| EUT:                         | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                       | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                        | DH5_2441                                                                        | Voltage:  | DC 3.3V  |
| Environment:                 | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                      | Power Set : 6                                                                   |           |          |
| Test Standard: FCC PART 15 C |                                                                                 |           |          |

Start of Test: 2024-06-25

Test Graph



| Final Data List |                 |                   |                   |                |             |           |          |         |
|-----------------|-----------------|-------------------|-------------------|----------------|-------------|-----------|----------|---------|
| NO.             | Frequency (MHz) | QP Value (dBµV/m) | QP Limit (dBµV/m) | QP Margin (dB) | Height (cm) | Angle (°) | Polarity | Verdict |
| 1               | 41.9673         | 24.00             | 40.00             | 16.00          | 100         | 270       | Vertical | PASS    |
| 2               | 72.6942         | 24.28             | 40.00             | 15.72          | 100         | 92        | Vertical | PASS    |
| 3               | 122.8276        | 26.27             | 43.50             | 17.23          | 100         | 186       | Vertical | PASS    |
| 4               | 164.8750        | 25.93             | 43.50             | 17.57          | 100         | 210       | Vertical | PASS    |
| 5               | 210.8036        | 28.87             | 43.50             | 14.63          | 100         | 65        | Vertical | PASS    |
| 6               | 239.9133        | 32.42             | 46.00             | 13.58          | 100         | 313       | Vertical | PASS    |

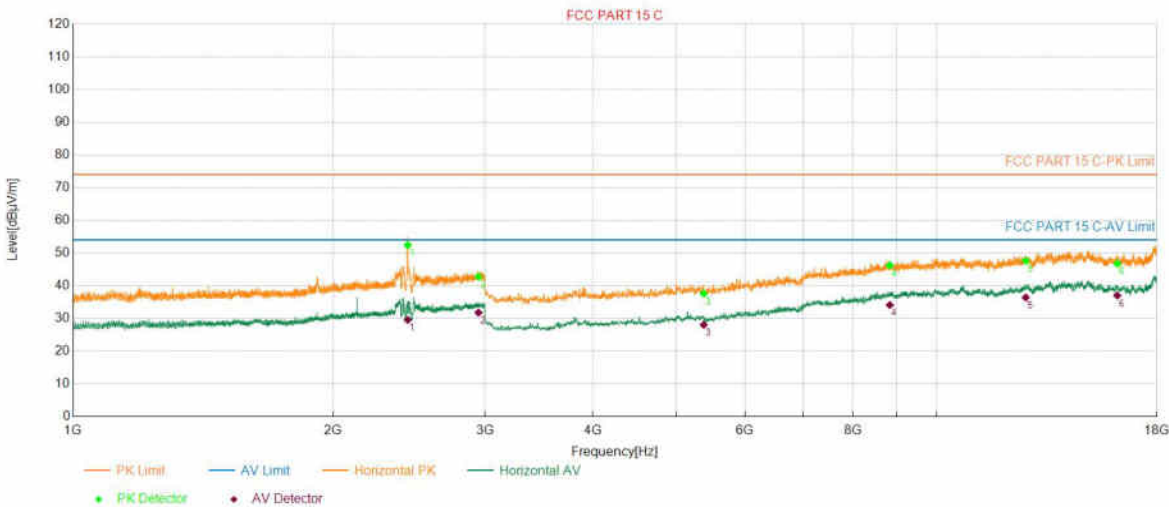
APPENDIX B – Radiated Emission Above 1GHz Test Data

Test Report

| Project Information          |                                                                                 |           |          |
|------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                    |                                                                                 |           |          |
| EUT:                         | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                       | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                        | DH5_2441                                                                        | Voltage:  | DC 3.3V  |
| Environment:                 | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                      | Power Set : 6                                                                   |           |          |
| Test Standard: FCC PART 15 C |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



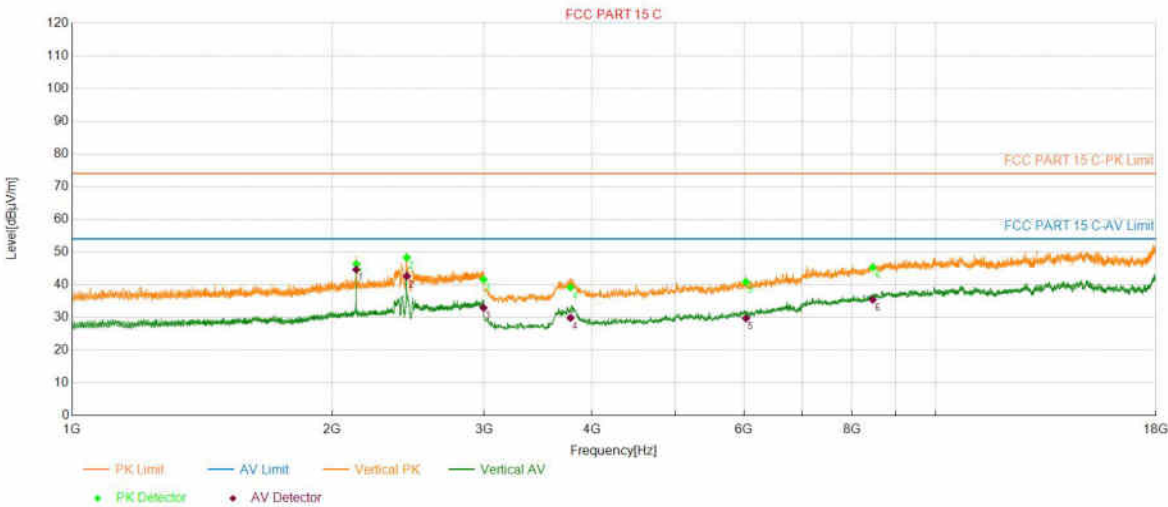
| PK Final Data List |                 |                   |                   |                |                   |                   |                |             |           |            |
|--------------------|-----------------|-------------------|-------------------|----------------|-------------------|-------------------|----------------|-------------|-----------|------------|
| NO                 | Frequency (MHz) | PK Value (dBμV/m) | PK Limit (dBμV/m) | PK Margin (dB) | AV Value (dBμV/m) | AV Limit (dBμV/m) | AV Margin (dB) | Height (cm) | Angle (°) | Polarity   |
| 1                  | 2441.0882       | 52.41             | 74.00             | 21.59          | 29.56             | 54.00             | 24.44          | 150         | 51        | Horizontal |
| 2                  | 2947.5895       | 42.75             | 74.00             | 31.25          | 31.79             | 54.00             | 22.21          | 150         | 241       | Horizontal |
| 3                  | 5373.4746       | 37.61             | 74.00             | 36.39          | 28.08             | 54.00             | 25.92          | 150         | 10        | Horizontal |
| 4                  | 8827.1654       | 46.24             | 74.00             | 27.76          | 34.12             | 54.00             | 19.88          | 150         | 5         | Horizontal |
| 5                  | 12682.9365      | 47.64             | 74.00             | 26.36          | 36.41             | 54.00             | 17.59          | 150         | 57        | Horizontal |
| 6                  | 16190.6381      | 46.76             | 74.00             | 27.24          | 37.01             | 54.00             | 16.99          | 150         | 0         | Horizontal |

Test Report

| Project Information          |                                                                                 |           |          |
|------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                    |                                                                                 |           |          |
| EUT:                         | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                       | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                        | DH5_2441                                                                        | Voltage:  | DC 3.3V  |
| Environment:                 | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                      | Power Set : 6                                                                   |           |          |
| Test Standard: FCC PART 15 C |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



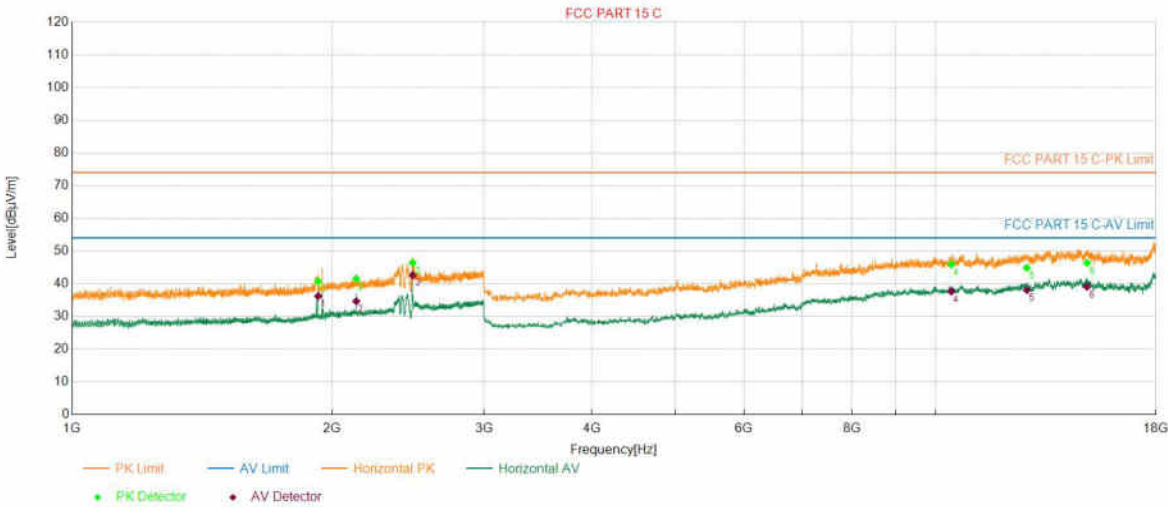
| PK Final Data List |                 |                   |                   |                |                   |                   |                |             |           |          |
|--------------------|-----------------|-------------------|-------------------|----------------|-------------------|-------------------|----------------|-------------|-----------|----------|
| NO                 | Frequency (MHz) | PK Value (dBµV/m) | PK Limit (dBµV/m) | PK Margin (dB) | AV Value (dBµV/m) | AV Limit (dBµV/m) | AV Margin (dB) | Height (cm) | Angle (°) | Polarity |
| 1                  | 2133.4266       | 46.33             | 74.00             | 27.67          | 44.65             | 54.00             | 9.35           | 150         | 102       | Vertical |
| 2                  | 2441.0882       | 48.33             | 74.00             | 25.67          | 42.61             | 54.00             | 11.39          | 150         | 168       | Vertical |
| 3                  | 2995.1990       | 41.60             | 74.00             | 32.40          | 32.96             | 54.00             | 21.04          | 150         | 62        | Vertical |
| 4                  | 3777.1554       | 39.20             | 74.00             | 34.80          | 29.88             | 54.00             | 24.12          | 150         | 98        | Vertical |
| 5                  | 6030.6061       | 40.87             | 74.00             | 33.13          | 29.76             | 54.00             | 24.24          | 150         | 172       | Vertical |
| 6                  | 8455.0910       | 45.31             | 74.00             | 28.69          | 35.43             | 54.00             | 18.57          | 150         | 245       | Vertical |

Test Report

| Project Information          |                                                                                 |           |          |
|------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                    |                                                                                 |           |          |
| EUT:                         | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                       | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                        | DH5_2480                                                                        | Voltage:  | DC 3.3V  |
| Environment:                 | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                      | Power Set : 6                                                                   |           |          |
| Test Standard: FCC PART 15 C |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



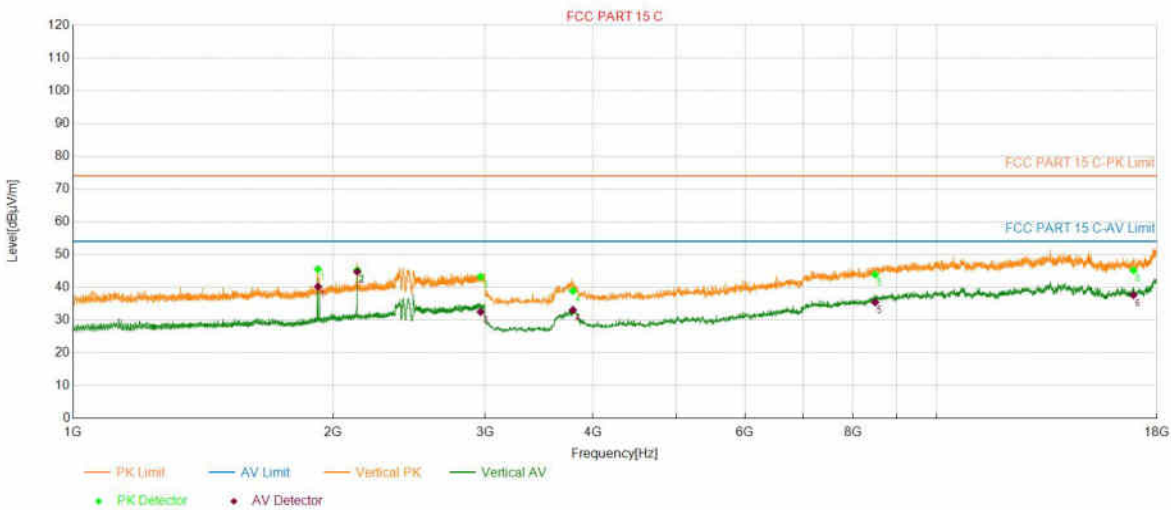
| PK Final Data List |                 |                   |                   |                |                   |                   |                |             |           |            |
|--------------------|-----------------|-------------------|-------------------|----------------|-------------------|-------------------|----------------|-------------|-----------|------------|
| NO                 | Frequency (MHz) | PK Value (dBµV/m) | PK Limit (dBµV/m) | PK Margin (dB) | AV Value (dBµV/m) | AV Limit (dBµV/m) | AV Margin (dB) | Height (cm) | Angle (°) | Polarity   |
| 1                  | 1926.9853       | 40.74             | 74.00             | 33.26          | 36.23             | 54.00             | 17.77          | 150         | 62        | Horizontal |
| 2                  | 2133.4266       | 41.50             | 74.00             | 32.50          | 34.66             | 54.00             | 19.34          | 150         | 114       | Horizontal |
| 3                  | 2479.8959       | 46.40             | 74.00             | 27.60          | 42.63             | 54.00             | 11.37          | 150         | 187       | Horizontal |
| 4                  | 10429.4858      | 45.95             | 74.00             | 28.05          | 37.64             | 54.00             | 16.36          | 150         | 141       | Horizontal |
| 5                  | 12754.9509      | 44.90             | 74.00             | 29.10          | 38.06             | 54.00             | 15.94          | 150         | 181       | Horizontal |
| 6                  | 14975.3950      | 46.38             | 74.00             | 27.62          | 39.07             | 54.00             | 14.93          | 150         | 55        | Horizontal |

Test Report

| Project Information          |                                                                                 |           |          |
|------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                    |                                                                                 |           |          |
| EUT:                         | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                       | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                        | DH5_2480                                                                        | Voltage:  | DC 3.3V  |
| Environment:                 | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                      | Power Set : 6                                                                   |           |          |
| Test Standard: FCC PART 15 C |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



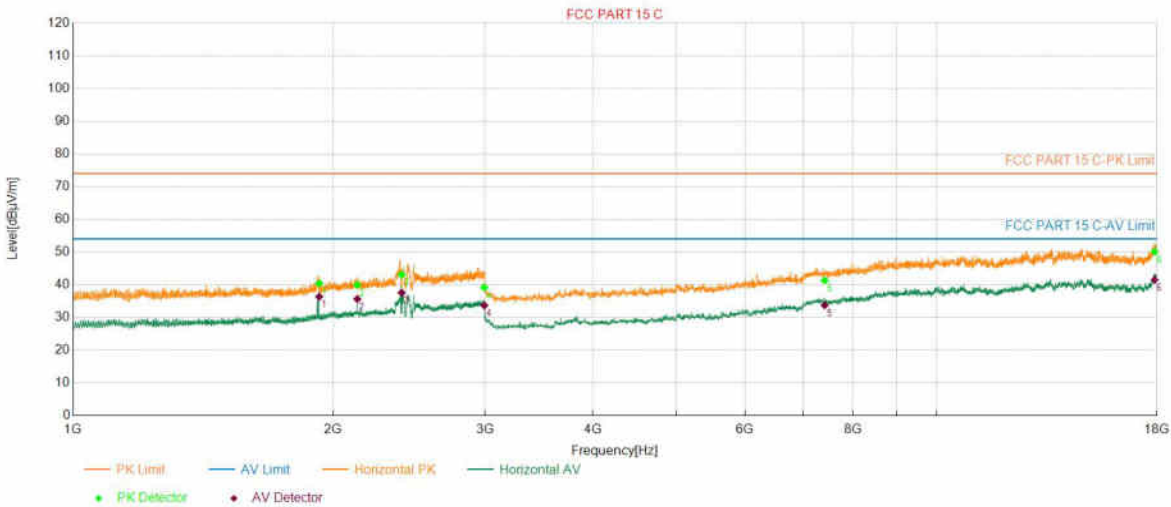
| PK Final Data List |                 |                   |                   |                |                   |                   |                |             |           |          |
|--------------------|-----------------|-------------------|-------------------|----------------|-------------------|-------------------|----------------|-------------|-----------|----------|
| NO                 | Frequency (MHz) | PK Value (dBµV/m) | PK Limit (dBµV/m) | PK Margin (dB) | AV Value (dBµV/m) | AV Limit (dBµV/m) | AV Margin (dB) | Height (cm) | Angle (°) | Polarity |
| 1                  | 1921.3842       | 45.50             | 74.00             | 28.50          | 40.18             | 54.00             | 13.82          | 150         | 241       | Vertical |
| 2                  | 2133.4266       | 45.27             | 74.00             | 28.73          | 44.76             | 54.00             | 9.24           | 150         | 103       | Vertical |
| 3                  | 2964.3928       | 43.24             | 74.00             | 30.76          | 32.48             | 54.00             | 21.52          | 150         | 103       | Vertical |
| 4                  | 3792.1584       | 38.87             | 74.00             | 35.13          | 33.06             | 54.00             | 20.94          | 150         | 110       | Vertical |
| 5                  | 8488.0976       | 43.87             | 74.00             | 30.13          | 35.43             | 54.00             | 18.57          | 150         | 312       | Vertical |
| 6                  | 16901.7803      | 45.18             | 74.00             | 28.82          | 37.63             | 54.00             | 16.37          | 150         | 321       | Vertical |

Test Report

| Project Information          |                                                                                 |           |          |
|------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                    |                                                                                 |           |          |
| EUT:                         | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                       | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                        | DH5_2402                                                                        | Voltage:  | DC 3.3V  |
| Environment:                 | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                      | Power Set : 5                                                                   |           |          |
| Test Standard: FCC PART 15 C |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



| PK Final Data List |                 |                   |                   |                |                   |                   |                |             |           |            |
|--------------------|-----------------|-------------------|-------------------|----------------|-------------------|-------------------|----------------|-------------|-----------|------------|
| NO                 | Frequency (MHz) | PK Value (dBµV/m) | PK Limit (dBµV/m) | PK Margin (dB) | AV Value (dBµV/m) | AV Limit (dBµV/m) | AV Margin (dB) | Height (cm) | Angle (°) | Polarity   |
| 1                  | 1927.3854       | 40.42             | 74.00             | 33.58          | 36.35             | 54.00             | 17.65          | 150         | 213       | Horizontal |
| 2                  | 2133.4266       | 39.92             | 74.00             | 34.08          | 35.63             | 54.00             | 18.37          | 150         | 120       | Horizontal |
| 3                  | 2401.8803       | 43.14             | 74.00             | 30.86          | 37.57             | 54.00             | 16.43          | 150         | 53        | Horizontal |
| 4                  | 2993.1986       | 39.20             | 74.00             | 34.80          | 33.66             | 54.00             | 20.34          | 150         | 303       | Horizontal |
| 5                  | 7419.8839       | 41.33             | 74.00             | 32.67          | 33.75             | 54.00             | 20.25          | 150         | 351       | Horizontal |
| 6                  | 17888.9777      | 50.09             | 74.00             | 23.91          | 41.48             | 54.00             | 12.52          | 150         | 1         | Horizontal |

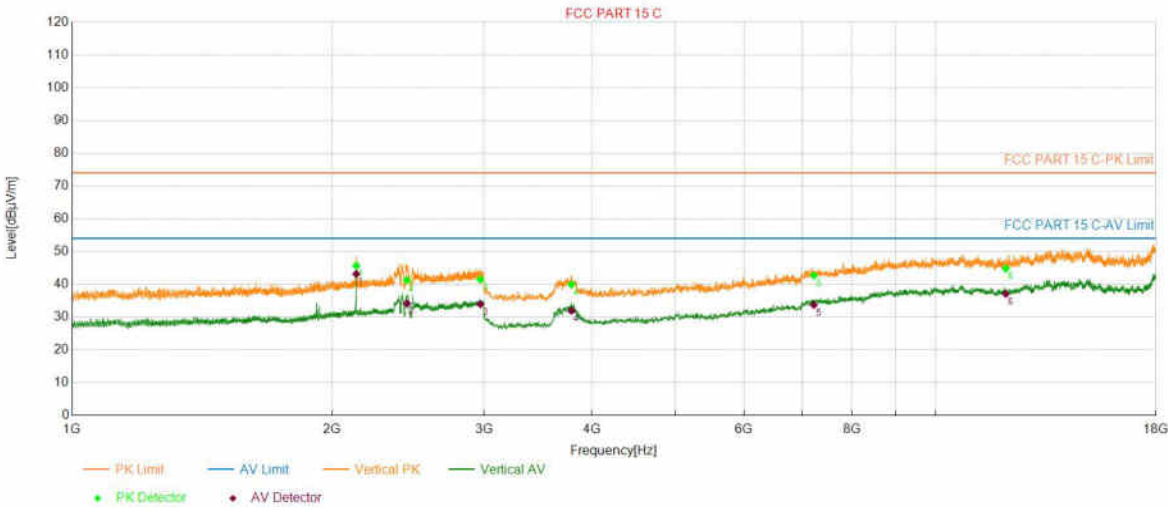


Test Report

| Project Information          |                                                                                 |           |          |
|------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                    |                                                                                 |           |          |
| EUT:                         | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                       | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                        | DH5_2402                                                                        | Voltage:  | DC 3.3V  |
| Environment:                 | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                      | Power Set : 5                                                                   |           |          |
| Test Standard: FCC PART 15 C |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



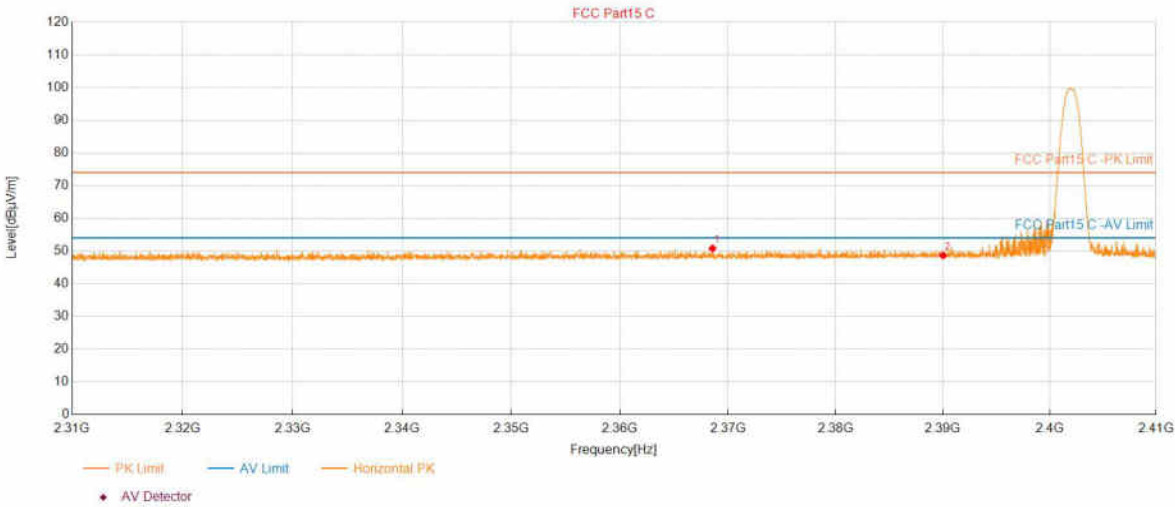
| PK Final Data List |                 |                   |                   |                |                   |                   |                |             |           |          |
|--------------------|-----------------|-------------------|-------------------|----------------|-------------------|-------------------|----------------|-------------|-----------|----------|
| NO                 | Frequency (MHz) | PK Value (dBµV/m) | PK Limit (dBµV/m) | PK Margin (dB) | AV Value (dBµV/m) | AV Limit (dBµV/m) | AV Margin (dB) | Height (cm) | Angle (°) | Polarity |
| 1                  | 2133.4266       | 45.68             | 74.00             | 28.32          | 43.16             | 54.00             | 10.84          | 150         | 99        | Vertical |
| 2                  | 2441.8883       | 41.30             | 74.00             | 32.70          | 34.13             | 54.00             | 19.87          | 150         | 188       | Vertical |
| 3                  | 2970.3940       | 41.48             | 74.00             | 32.52          | 33.95             | 54.00             | 20.05          | 150         | 167       | Vertical |
| 4                  | 3786.1572       | 39.95             | 74.00             | 34.05          | 31.94             | 54.00             | 22.06          | 150         | 114       | Vertical |
| 5                  | 7227.8455       | 42.71             | 74.00             | 31.29          | 33.74             | 54.00             | 20.26          | 150         | 124       | Vertical |
| 6                  | 12058.8117      | 44.81             | 74.00             | 29.19          | 37.07             | 54.00             | 16.93          | 150         | 31        | Vertical |

Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | DH5_2402                                                                        | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 5                                                                   |           |          |
| Test Standard: FCC Part15C AV |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



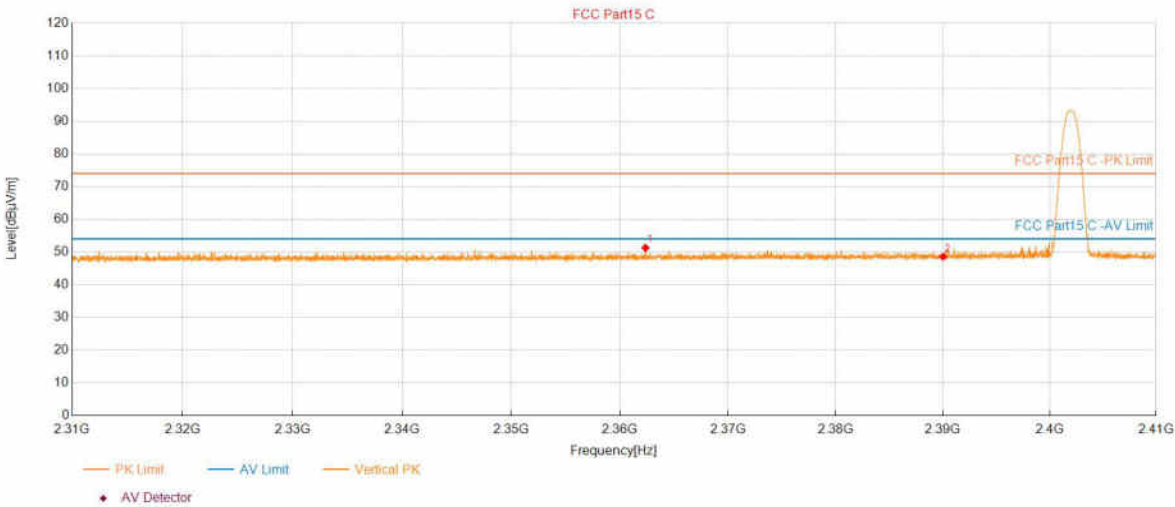
| Suspected Data List |                 |                |                |             |             |           |            |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|------------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity   |
| 1                   | 2368.572        | 50.79          | 74.00          | 23.21       | 150         | 159       | Horizontal |
| 2                   | 2390.016        | 48.68          | 74.00          | 25.32       | 150         | 330       | Horizontal |

Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | DH5_2402                                                                        | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 5                                                                   |           |          |
| Test Standard: FCC Part15C AV |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



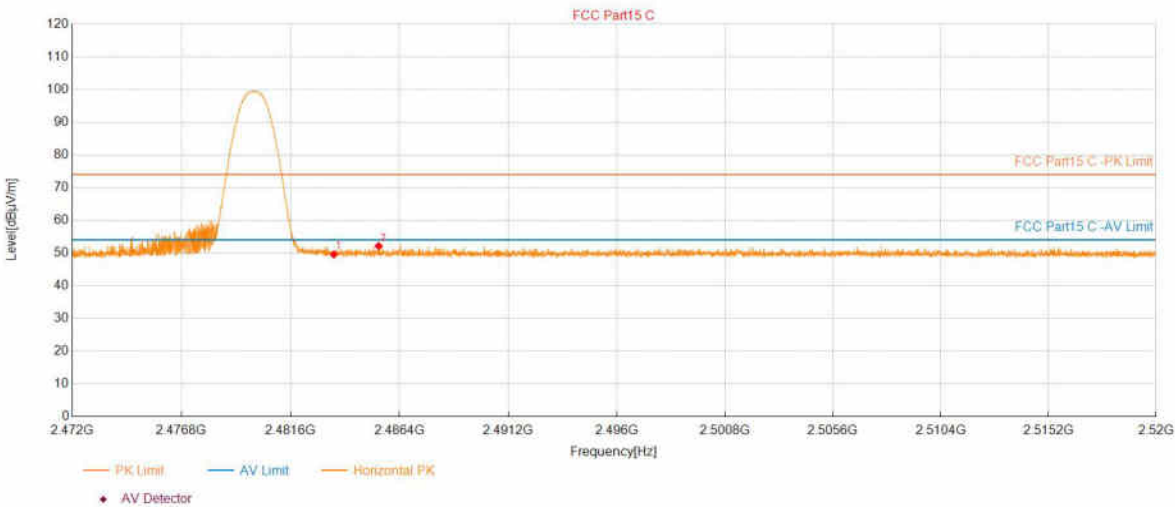
| Suspected Data List |                 |                |                |             |             |           |          |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|----------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity |
| 1                   | 2362.370        | 51.29          | 74.00          | 22.71       | 150         | 182       | Vertical |
| 2                   | 2390.016        | 48.56          | 74.00          | 25.44       | 150         | 218       | Vertical |

Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | DH5_2480                                                                        | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 6                                                                   |           |          |
| Test Standard: FCC Part15C AV |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



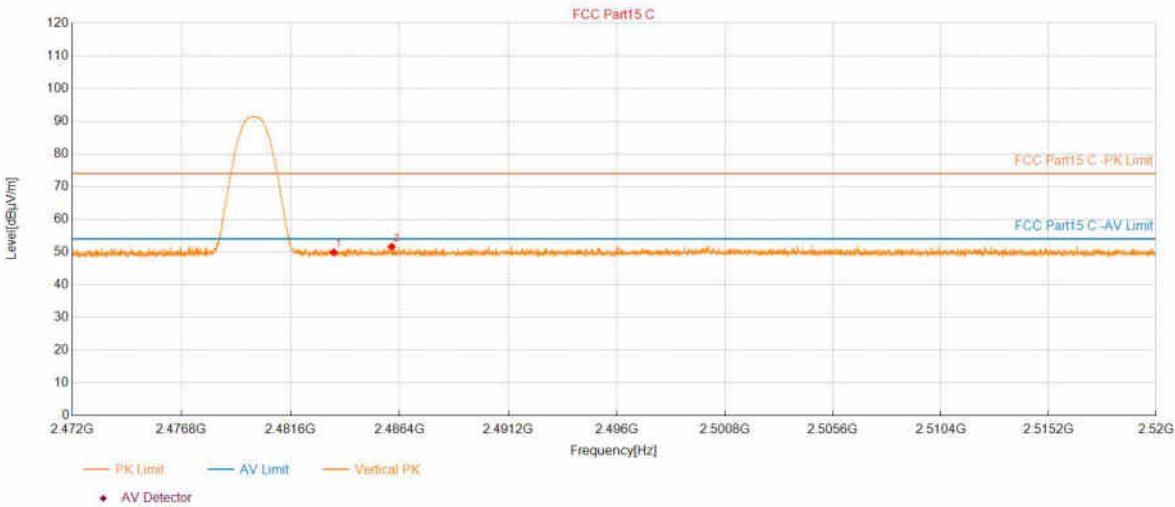
| Suspected Data List |                 |                |                |             |             |           |            |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|------------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity   |
| 1                   | 2483.503        | 49.57          | 74.00          | 24.43       | 150         | 346       | Horizontal |
| 2                   | 2485.481        | 52.13          | 74.00          | 21.87       | 150         | 359       | Horizontal |

Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | DH5_2480                                                                        | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 6                                                                   |           |          |
| Test Standard: FCC Part15C AV |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



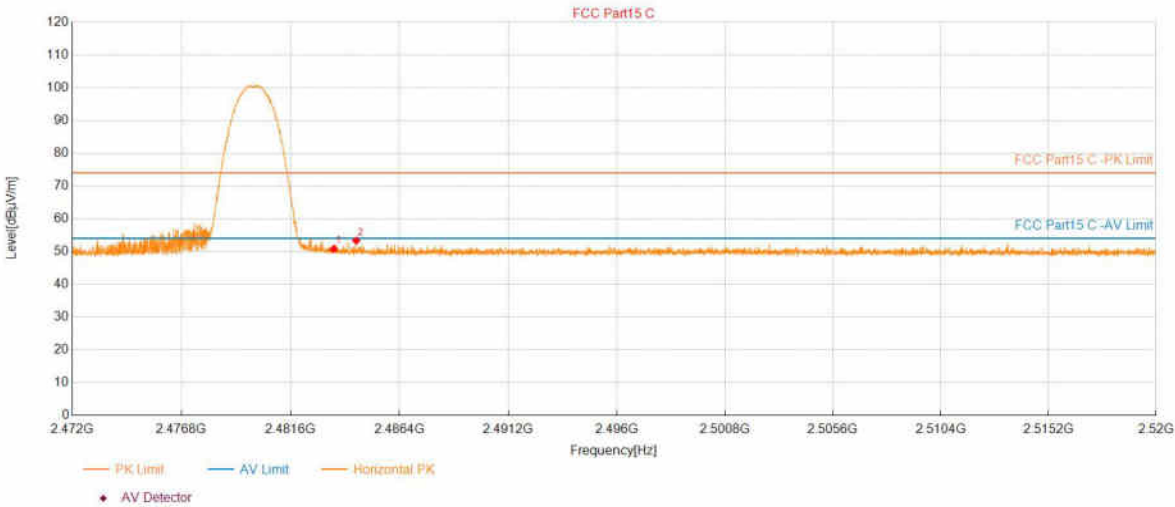
| Suspected Data List |                 |                |                |             |             |           |          |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|----------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity |
| 1                   | 2483.503        | 49.91          | 74.00          | 24.09       | 150         | 64        | Vertical |
| 2                   | 2486.057        | 51.64          | 74.00          | 22.36       | 150         | 83        | Vertical |

Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | 2DH5_2480                                                                       | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 6                                                                   |           |          |
| Test Standard: FCC Part15C AV |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



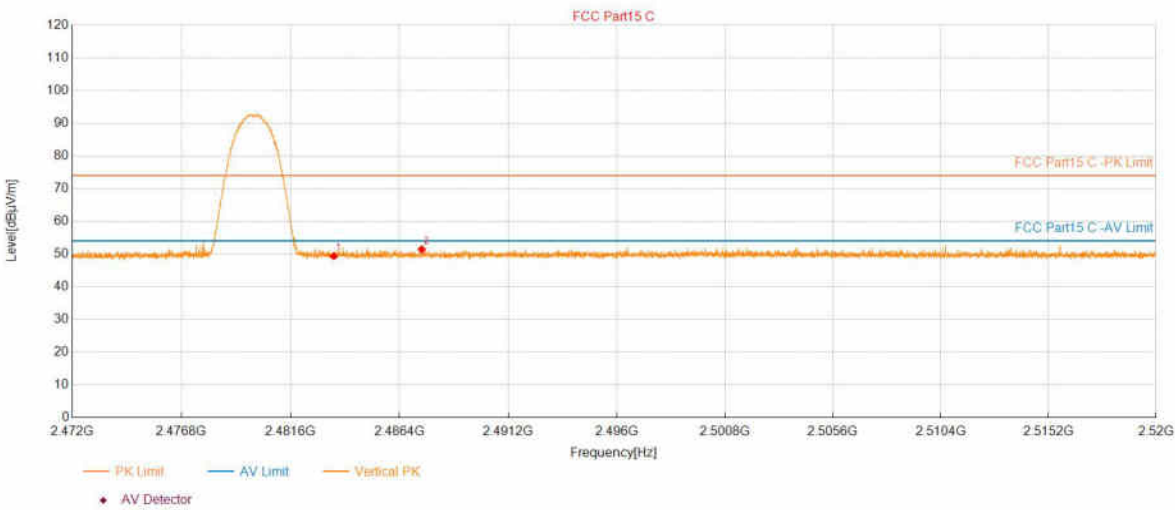
| Suspected Data List |                 |                |                |             |             |           |            |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|------------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity   |
| 1                   | 2483.503        | 50.78          | 74.00          | 23.22       | 150         | 279       | Horizontal |
| 2                   | 2484.492        | 53.34          | 74.00          | 20.66       | 150         | 44        | Horizontal |

Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | 2DH5_2480                                                                       | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 6                                                                   |           |          |
| Test Standard: FCC Part15C AV |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



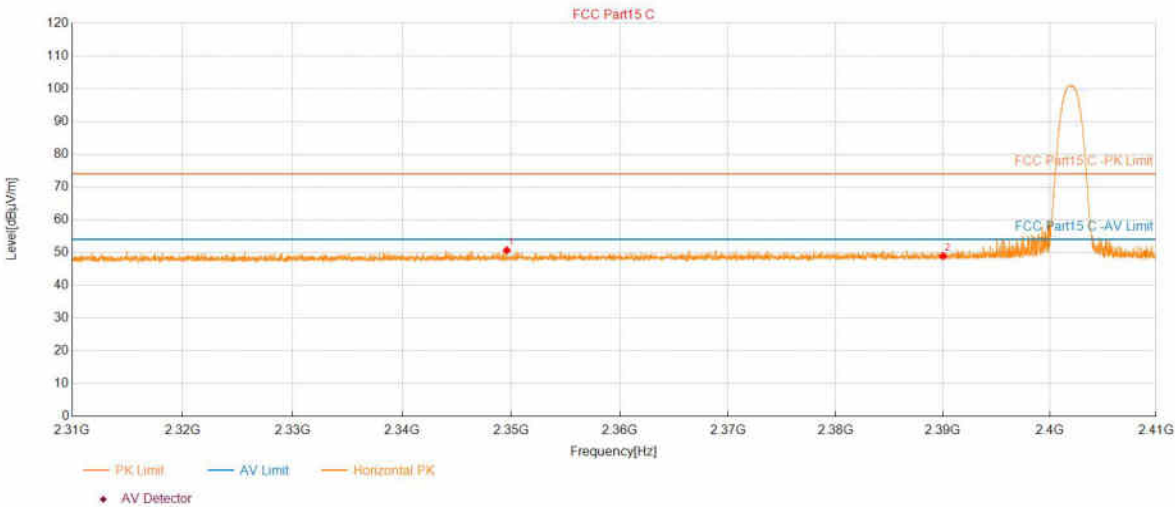
| Suspected Data List |                 |                |                |             |             |           |          |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|----------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity |
| 1                   | 2483.503        | 49.36          | 74.00          | 24.64       | 150         | 326       | Vertical |
| 2                   | 2487.382        | 51.44          | 74.00          | 22.56       | 150         | 191       | Vertical |

Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | 2DH5_2402                                                                       | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 5                                                                   |           |          |
| Test Standard: FCC Part15C PK |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



| Suspected Data List |                 |                |                |             |             |           |            |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|------------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity   |
| 1                   | 2349.588        | 50.68          | 74.00          | 23.32       | 150         | 360       | Horizontal |
| 2                   | 2390.016        | 48.93          | 74.00          | 25.07       | 150         | 346       | Horizontal |

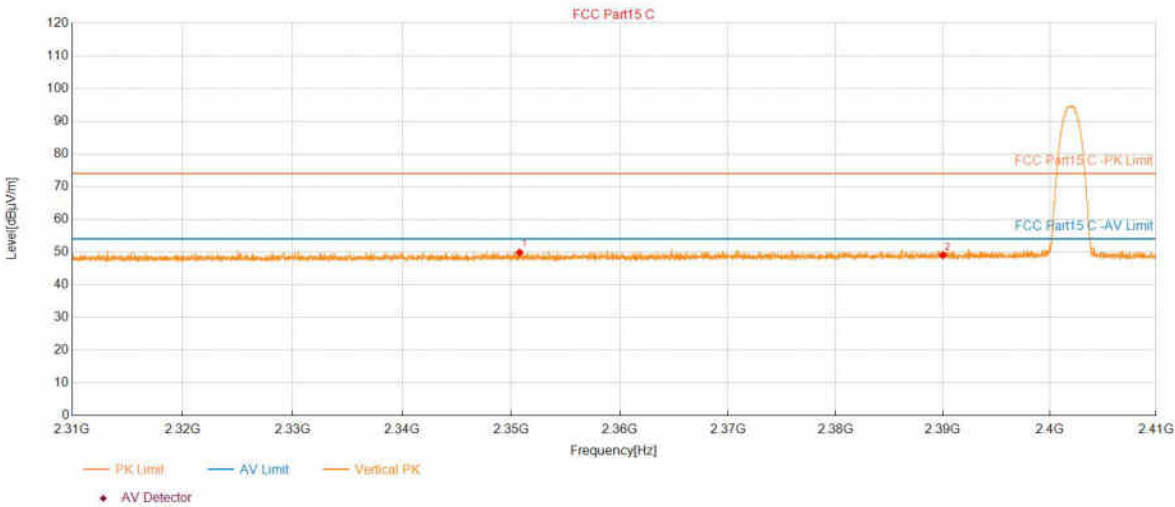


Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | 2DH5_2402                                                                       | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 5                                                                   |           |          |
| Test Standard: FCC Part15C PK |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



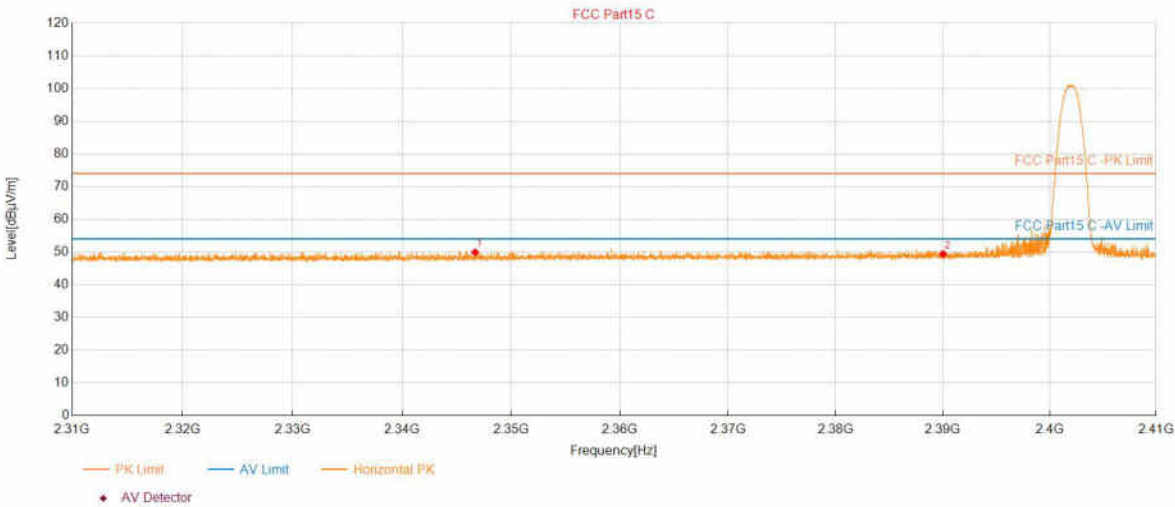
| Suspected Data List |                 |                |                |             |             |           |          |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|----------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity |
| 1                   | 2350.768        | 49.84          | 74.00          | 24.16       | 150         | 292       | Vertical |
| 2                   | 2390.016        | 49.04          | 74.00          | 24.96       | 150         | 6         | Vertical |

Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | 3DH5_2402                                                                       | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 5                                                                   |           |          |
| Test Standard: FCC Part15C PK |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



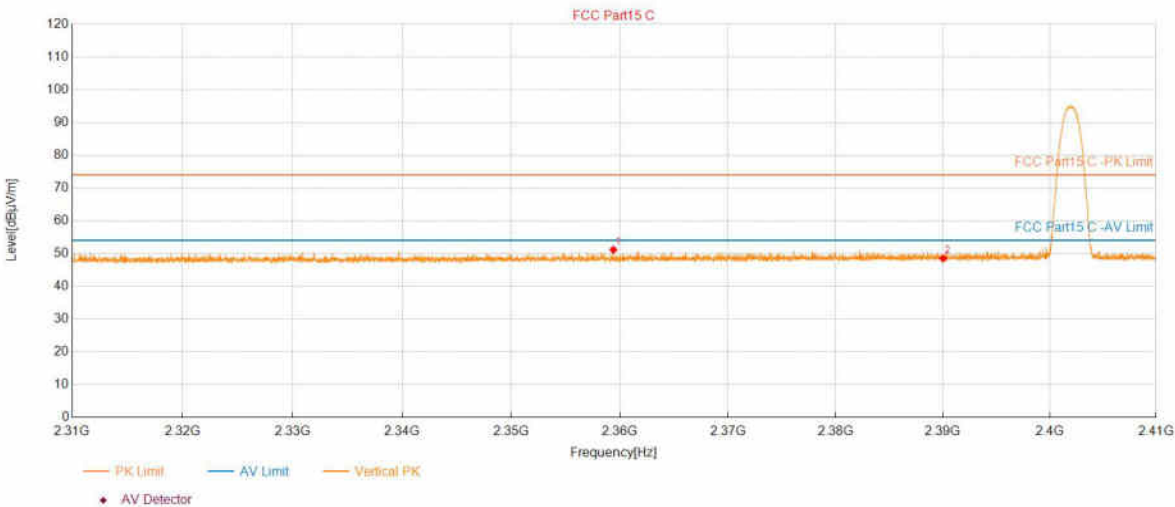
| Suspected Data List |                 |                |                |             |             |           |            |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|------------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity   |
| 1                   | 2346.687        | 49.91          | 74.00          | 24.09       | 150         | 3         | Horizontal |
| 2                   | 2390.016        | 49.42          | 74.00          | 24.58       | 150         | 89        | Horizontal |

Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | 3DH5_2402                                                                       | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 5                                                                   |           |          |
| Test Standard: FCC Part15C PK |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



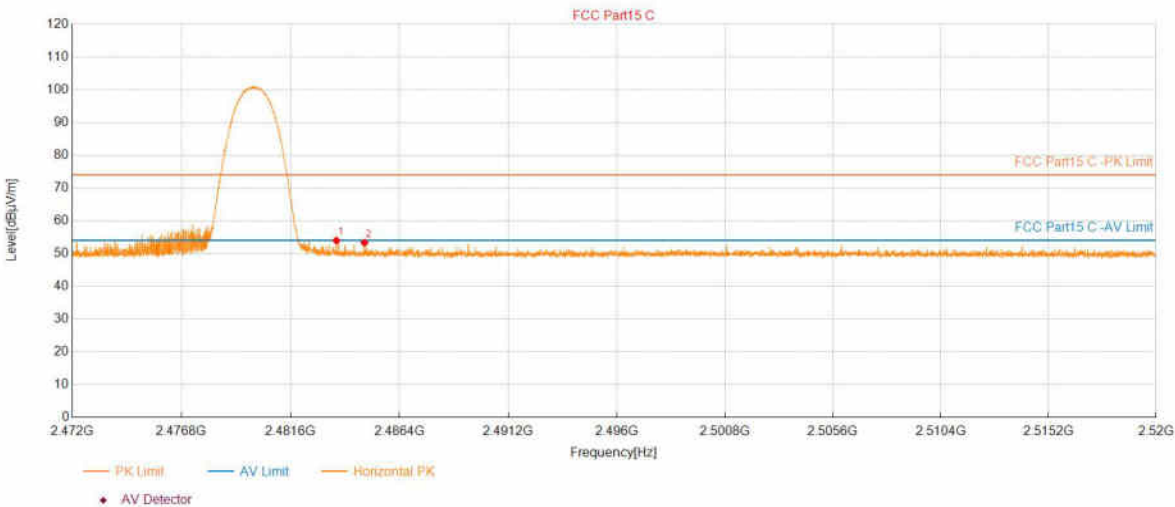
| Suspected Data List |                 |                |                |             |             |           |          |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|----------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity |
| 1                   | 2359.410        | 51.16          | 74.00          | 22.84       | 150         | 240       | Vertical |
| 2                   | 2390.016        | 48.48          | 74.00          | 25.52       | 150         | 81        | Vertical |

Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | 3DH5_2480                                                                       | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 6                                                                   |           |          |
| Test Standard: FCC Part15C AV |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



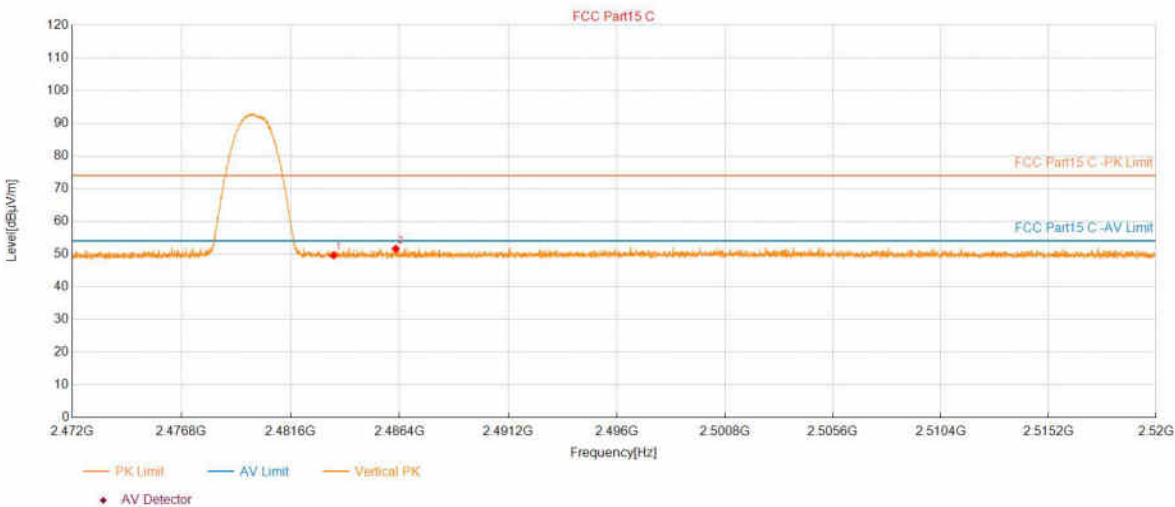
| Suspected Data List |                 |                |                |             |             |           |            |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|------------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity   |
| 1                   | 2483.618        | 53.96          | 74.00          | 20.04       | 150         | 53        | Horizontal |
| 2                   | 2484.857        | 53.31          | 74.00          | 20.69       | 150         | 101       | Horizontal |

Test Report

| Project Information           |                                                                                 |           |          |
|-------------------------------|---------------------------------------------------------------------------------|-----------|----------|
| Customer:                     |                                                                                 |           |          |
| EUT:                          | IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth2.1+EDR/4.2/5.1 |           |          |
| Model:                        | SKI.WB663U.2                                                                    | SN:       |          |
| Mode:                         | 3DH5_2480                                                                       | Voltage:  | DC 3.3V  |
| Environment:                  | Temp: 25°C; Humi:60%                                                            | Engineer: | Soho Liu |
| Remark:                       | Power Set : 6                                                                   |           |          |
| Test Standard: FCC Part15C AV |                                                                                 |           |          |

Start of Test:2024-06-24

Test Graph



| Suspected Data List |                 |                |                |             |             |           |          |
|---------------------|-----------------|----------------|----------------|-------------|-------------|-----------|----------|
| NO.                 | Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Angle (°) | Polarity |
| 1                   | 2483.503        | 49.57          | 74.00          | 24.43       | 150         | 12        | Vertical |
| 2                   | 2486.240        | 51.60          | 74.00          | 22.40       | 150         | 184       | Vertical |

END OF REPORT