



# **FCC PART 15 SUBPART C FCC PART 15.231 TEST REPORT**

**FCC ID:2BXZT-141003**

**Report No:** CTSL2610830023E

**Product Name:** Ailrinni

**Main Test Model:** 141003

**Series Models:** 141002

**Applicant:** Dongguan Dongzan Lithium Energy Technology Co.,Ltd.

## **EXECUTIVE SUMMARY**

A sample of this product was tested and found to be in compliance with  
FCC PART 15C, FCC PART 15 SUBPART C (15.231).

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applicable to presented Test sample.

**CTSL Testing (Dongguan) Co., Ltd.**

Main company address: Building 1, Houjie Road, Houjie Town, Guangdong  
Province Dongguan City, China

## Test Report

FCC ID:2BXZT-141003

|                         |                                                                                                                                                                                                                 |                                                                                       |                       |            |            |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------|------------|------------|
| Applicant Name          | Dongguan Dongzan Lithium Energy Technology Co.,Ltd.                                                                                                                                                             |                                                                                       |                       |            |            |
| Applicant Address       | Tingshan Industrial Park, Houjie Town, Dongguan City, China                                                                                                                                                     |                                                                                       |                       |            |            |
| Manufacturer Name       | Dongguan Dongzan Lithium Energy Technology Co.,Ltd.                                                                                                                                                             |                                                                                       |                       |            |            |
| Manufacturer Address    | Tingshan Industrial Park, Houjie Town, Dongguan City, China                                                                                                                                                     |                                                                                       |                       |            |            |
| Trade Mark              | /                                                                                                                                                                                                               |                                                                                       |                       |            |            |
| Product name            | Ailrinni                                                                                                                                                                                                        |                                                                                       |                       |            |            |
| Main Test Mode          | 141003                                                                                                                                                                                                          |                                                                                       |                       |            |            |
| Series Models           | 141002                                                                                                                                                                                                          |                                                                                       |                       |            |            |
| Standard                | FCC Part 15 Subpart C (15.231)<br>ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024                                                                                                          |                                                                                       |                       |            |            |
| Test Location           | ISO/IEC 17025 by ILAC-MRA is A2LA 7556.01<br>CTSL Testing (Dongguan) Co., Ltd.<br>1/F, Building 1, No. 15, Jiaoyuansongshan Hetian Village, Houjie Town<br>Dongguan City, Guangdong, People's Republic of China |                                                                                       |                       |            |            |
| Receipt Date            | 2026.08.07                                                                                                                                                                                                      | Test period                                                                           | 2026.08.11-2026.08.24 | Issue Date | 2026.08.31 |
| Conclusion              | The equipment under test was found to be compliance with the requirements of the standards applied.                                                                                                             |                                                                                       |                       |            |            |
| Performs Testing:       | Ethan Zhao                                                                                                                                                                                                      |  |                       |            |            |
| Test Report Reviewer:   | Steve Qin                                                                                                                                                                                                       |                                                                                       |                       |            |            |
| Test Report Authorizer: | Alan Li                                                                                                                                                                                                         |                                                                                       |                       |            |            |

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## 1. GENERAL INFORMATION

### 1.1. General Description of EUT (Equipment Under Test)

| Product Information           |                                                                                                                                                                                                             |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name                  | : Ailrinni                                                                                                                                                                                                  |
| Main Test Model               | : 141003                                                                                                                                                                                                    |
| Series Models                 | : 141002                                                                                                                                                                                                    |
| Model differences             | : All models share identical electrical and mechanical specifications, encompassing RF circuitry and the physical housing; the only variations are the model designation and the external color appearance. |
| Power supply                  | : DC 3V (LITHIUM BATTERY)                                                                                                                                                                                   |
| Battery                       | : DC 3V CR2032 LITHIUM BATTERY                                                                                                                                                                              |
| Software Version              | : V1.0                                                                                                                                                                                                      |
| Hardware Version              | : V1.0                                                                                                                                                                                                      |
| Equipment Under Test          |                                                                                                                                                                                                             |
| Testing sample ID             | : CTSL2620130277-S1 (Engineer sample)<br>CTSL2620130277-S2 (Normal sample)                                                                                                                                  |
| Test supplied                 | : <input type="checkbox"/> supplied by the manufacturer<br><input type="checkbox"/> supplied by the lab (Auxiliary test supplied by test Lab)                                                               |
| Power supply information      | : -                                                                                                                                                                                                         |
| Wireless Specification        |                                                                                                                                                                                                             |
| Modulation Type               | : ASK                                                                                                                                                                                                       |
| Operation frequency           | : 433.926MHz                                                                                                                                                                                                |
| Number of channels            | : 1                                                                                                                                                                                                         |
| Field Strength of Fundamental | : 80.21dB $\mu$ V/m@3m                                                                                                                                                                                      |
| Antenna Gain& type            | : Refer to Section 1.2 of the report.                                                                                                                                                                       |
| Sample Type                   | : Prototype production                                                                                                                                                                                      |
| Type of Device                | : <input checked="" type="checkbox"/> Portable Device; <input type="checkbox"/> Mobile Device; <input type="checkbox"/> Modular Device                                                                      |

Note: For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

## 1.2. Antenna Information

| Ant No.                                                                                                                                                                                                          | Band    | Model Name | Antenna Type | Connector | Gain (dBi) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------|--------------|-----------|------------|
| 1                                                                                                                                                                                                                | 433.926 | /          | PCB Antenna  | /         | 0          |
| Note:<br>1. The antenna gain is declared by the customer and the laboratory is not responsible for the accuracy of the antenna gain.<br>2. The test results of this report only apply to the sample as received. |         |            |              |           |            |

## 1.3. Information of RF Cable

| Cable Loss(dB)                                                                                                                                                                                                          | Provided by                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| 1.0                                                                                                                                                                                                                     | Dongguan Dongzan Lithium Energy Technology Co.,Ltd. |
| Note:<br>1. The customer declared the loss value of the RF Cable. and the test results of this report only apply to the sample as received.<br>2. The laboratory is not responsible for the accuracy of the cable loss. |                                                     |

## 2.SUMMARY OF TEST

### 2.1.Test Standards

FCC Rules Part 15.231: Periodic operation in the band 40.66-40.70 MHz and above 70MHz.  
ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024: American National Standard for Testing Unlicensed Wireless Devices

### 2.2.Summary of test result

| No. | Description of Test Item          | FCC Standard Section | Results                |
|-----|-----------------------------------|----------------------|------------------------|
| 1   | Field Strength of Fundamental     | 15.231(b)            | PASS                   |
| 2   | Radiated Spurious Emissions       | 15.209<br>15.231(b)  | PASS                   |
| 3   | 20dB Bandwidth (Occupy Bandwidth) | 15.231(c)            | PASS                   |
| 4   | Duration Time (Dwell time)        | 15.231(a)(1)         | PASS                   |
| 5   | AC Power Line Conducted Emissions | 15.207               | N/A <sub>(Note1)</sub> |
| 6   | Antenna Requirement               | 15.203               | PASS                   |

Note: "N/A" denotes test is not applicable in this test report.

Note 1: The EUT is powered by a DC 3V (LITHIUM BATTERY) and cannot be connected, either directly or indirectly, to the AC mains supply. Therefore, the AC power line conducted emissions test is not applicable.

## 2.3. Test Facilities

EMC Lab :

A2LA Certificate Number: 7556.01;  
CTSL Testing (Dongguan) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.  
The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

FCC Designation Number: CN1425;  
Test Firm Registration Number: 750639;  
CTSL Testing (Dongguan) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

Industry Canada Registration Number. Is: 34801;  
CAB identifier: CN0192;  
CTSL Testing (Dongguan) Co., Ltd. The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

Name of Firm : CTSL Testing (Dongguan) Co., Ltd.

Main company address:

Building 1, Houjie Road, Houjie Town, Guangdong Province Dongguan City, China

EMC test location/satellite location:

1/F, Building 1, No. 15, Jiaoyuansongshan Hetian Village, Houjie Town Dongguan City, Guangdong, People's Republic of China

## 2.4. Measurement uncertainty

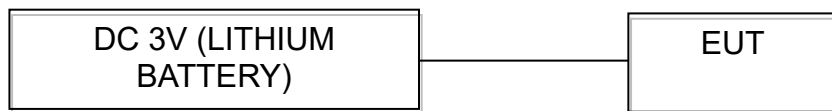
| Test Item                                               | Uncertainty                       |
|---------------------------------------------------------|-----------------------------------|
| Uncertainty for Conduction emission test                | $\pm 3.48\text{dB}$               |
| Uncertainty for spurious emissions test (Below 30MHz)   | $\pm 1.62\text{ dB}$              |
| Uncertainty for spurious emissions test (30MHz-1GHz)    | $\pm 4.60\text{ dB(Polarize: H)}$ |
|                                                         | $\pm 4.68\text{ dB(Polarize: V)}$ |
| Uncertainty for spurious emissions test (1GHz to 25GHz) | $\pm 4.96\text{dB}$               |
| Uncertainty for radio frequency                         | $7 \times 10^{-8}$                |
| Uncertainty for conducted RF Power                      | 1.08dB                            |
| Uncertainty for Power density test                      | 0.26dB                            |
| Uncertainty of bandwidth test                           | 2.36%                             |
| Uncertainty for Temperature                             | 0.5°C                             |
| Uncertainty for Relative Humidity                       | 1.8%RH                            |
| Uncertainty for Atmospheric Pressure                    | 0.16 kPa                          |

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

## 2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 (or 1.5) meter high above ground. EUT was beset into Bluetooth test mode by software before test.

### Connect EUT Antenna Terminal Test method:



(EUT: Ailrinni)

## 2.6. Assistant equipment used for test

| Item | Equipment                                                  | Brand | Model Name/Type No. | FCC ID | Series No. |
|------|------------------------------------------------------------|-------|---------------------|--------|------------|
| 1    | DC 3V (LITHIUM BATTERY)<br>(supplied by the manufacturer.) | -     | CR2032              | -      | -          |
| -    | -                                                          | -     | -                   | -      | -          |

| Supported cables |               |              |        |      |
|------------------|---------------|--------------|--------|------|
| Item             | Shielded Type | Ferrite Core | Length | Note |
| -                | -             | -            | -      | -    |

## 2.7. Test mode

Combining all the rates, modulations, and packet types, the Pre-scans had been carried out. The worst-case test mode was selected for the final test as listed below.

Note: In radiated measurement, the EUT had been pre-scan on the positioned of each 3 axis (X, Y, Z), the worst case was found when positioned on **X-plane**.

| Test Item                         | Test Mode | Test Frequency |
|-----------------------------------|-----------|----------------|
| Duty Cycle                        | TX        | 433.926MHz     |
| Field Strength of Fundamental     | TX        | 433.926MHz     |
| Radiated Spurious Emissions       | TX        | 433.926MHz     |
| 20dB Bandwidth (Occupy Bandwidth) | TX        | 433.926MHz     |
| Duration Time (Dwell time)        | TX        | 433.926MHz     |
| AC Power Line Conducted Emissions | N/A       |                |

## 2.8. Channel List

| Channel No. | Frequency (MHz) |
|-------------|-----------------|
| 01          | 433.962         |

## 2.9. Test Equipment

| For Conducted Emission Test |                 |                      |            |                  |           |           |
|-----------------------------|-----------------|----------------------|------------|------------------|-----------|-----------|
| Equipment                   | Manufacturer    | Model No.            | Serial No. | Calibration Body | Last Cal. | Next Cal. |
| EMI Test Receiver           | Rohde & Schwarz | ESCI 3               | AT005      | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| LISN                        | Rohde & Schwarz | ENV216               | AT006      | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| Pulse Limiter               | Rohde & Schwarz | ESH3-Z2              | AT007      | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| CE Cable                    | Times Microwave | LMR195UF-N MNM-1.50M | AT041      | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| Test Software               | FARAD           | EZ-EMC Ver.3A1.1+    | N/A        | N/A              | N/A       | N/A       |

| For Radiated Emission Test (9kHz-30MHz) |                 |                   |            |                  |           |           |
|-----------------------------------------|-----------------|-------------------|------------|------------------|-----------|-----------|
| Equipment                               | Manufacturer    | Model No.         | Serial No. | Calibration Body | Last Cal. | Next Cal. |
| EMI Test Receiver                       | Rohde & Schwarz | ESCI 7            | AT001      | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| Active Loop Antenna                     | HCT             | 6505              | AT064      | GRG METROLOGY    | Mar 22,26 | Mar 21,27 |
| Test Software                           | FARAD           | EZ-EMC Ver.3A1.1+ | N/A        | N/A              | N/A       | N/A       |
| 9kHz-30MHz Cable                        | Times Microwave | LMR195UF-N MNM-9M | AT045      | GUANGZHOU NEM    | May 28,26 | May 27,27 |

| For Radiated Emissions Test (30MHz-1000MHz)        |                         |                                                                          |                   |                  |           |           |
|----------------------------------------------------|-------------------------|--------------------------------------------------------------------------|-------------------|------------------|-----------|-----------|
| Equipment                                          | Manufacturer            | Model No.                                                                | Serial No.        | Calibration Body | Last Cal. | Next Cal. |
| EMI Test Receiver                                  | Rohde & Schwarz         | ESCI 7                                                                   | AT001             | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| Trilog-Broadband Antenna (Includes 6db attenuator) | SCHWARZBECK             | VULB 9168                                                                | AT002             | LISAI            | May 30,26 | May 29,27 |
| Test Software                                      | FARAD                   | EZ-EMC Ver.3A1.1+                                                        | N/A               | N/A              | N/A       | N/A       |
| 30-1000MHz Cable                                   | Times Microwave Systems | LMR195UF-N MRNMR-3.00M+<br>LMR400UF-N MNM-3.00M+<br>LMR400UF-N MNM-3.00M | AT042+AT043+AT044 | GUANGZHOU NEM    | May 28,26 | May 27,27 |

| For Radiated Emission test (Above 1000MHz) |                         |                                      |              |                  |           |           |
|--------------------------------------------|-------------------------|--------------------------------------|--------------|------------------|-----------|-----------|
| Equipment                                  | Manufacturer            | Model No.                            | Serial No.   | Calibration Body | Last Cal. | Next Cal. |
| Horn Antenna 1-18G                         | SCHWARZBECK             | BBHA 9120 D                          | AT003        | LISAI            | May 30,26 | May 29,27 |
| Horn Antenna 18-40GHz                      | XIBAO                   | XB-WDB18-40K                         | AT064        | LISAI            | May 30,26 | May 29,27 |
| Broadband Preamplifier                     | SCHWARZBECK             | BBV 9718 D                           | AT004        | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| Low Noise Amplifier                        | MWRFTest                | DLA8-18-40G-2078                     | AT065        | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| Spectrum Analyzer 40G                      | Keysight                | N9020B                               | AT066        | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| Spectrum Analyzer 26.5G                    | Keysight                | N9020A                               | AT050        | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| Radio switching unit                       | TiGroup                 | SU319                                | AT055        | N/A              | N/A       | N/A       |
| Filtering unit                             | TiGroup                 | SU319F                               | AT056        | N/A              | N/A       | N/A       |
| Test Software                              | BL                      | BL410-E V25.5 en                     | N/A          | N/A              | N/A       | N/A       |
| Above 1GHz Cable                           | Times Microwave Systems | SFT205-NMN M-7.0M+ SFT205-NMN M-2.0M | AT057+ AT058 | GUANGZHOU NEM    | May 28,26 | May 27,27 |

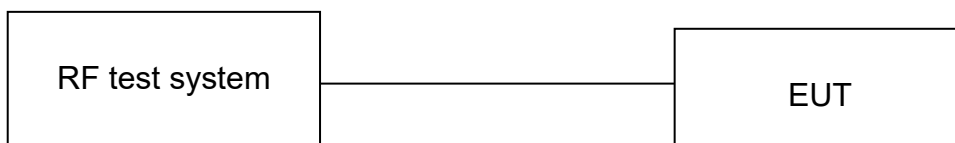
| For Connect EUT Antenna Terminal Test (RF Test system) |              |                  |            |                  |           |           |
|--------------------------------------------------------|--------------|------------------|------------|------------------|-----------|-----------|
| Equipment                                              | Manufacturer | Model No.        | Serial No. | Calibration Body | Last Cal. | Next Cal. |
| Spectrum analyzer                                      | Keysight     | N9020A           | AT050      | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| Power probe unit                                       | Ti Group     | SU319P           | AT053      | GUANGZHOU NEM    | May 28,26 | May 27,27 |
| Switch unit                                            | Ti Group     | SU319S           | AT054      | N/A              | N/A       | N/A       |
| Test Software                                          | BL           | BL410R 3.5.2.621 | N/A        | N/A              | N/A       | N/A       |

### 3. DUTY CYCLE

#### 3.1.Limit

N/A.

#### 3.2.Test Setup



#### 3.3.Spectrum Analyzer Setting

| Spectrum Parameters | Setting                                               |
|---------------------|-------------------------------------------------------|
| Center Frequency    | Test Frequency                                        |
| RBW                 | $\geq$ OBW                                            |
| VBW                 | $\geq$ RBW                                            |
| Span                | Zero                                                  |
| Sweep Time          | At least one period of the pulse train or over 100 ms |
| Detector            | PEAK                                                  |

#### 3.4.Test Procedure

- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 3.3.
- Adjust and configure any EUT switches, controls, or input data streams to ensure that the EUT is transmitting or encoded to obtain the “worst-case” pulse ON time.
- If the pulse train is periodic (i.e., consists of a series of pulses that repeat in a characteristic pattern over a constant time period), and the period (T) is less than or equal to 100 ms, then:
  - Set the TRIGGER on the spectrum analyzer to capture at least one period of the pulse train, including any blanking intervals.
  - Determine the total maximum pulse “ON time” ( $t_{ON}$ ) over one period of the pulse train, If the pulse train contains pulses of different widths, then  $t_{ON}$  is determined by summing the duration of all of the pulses within the pulse train [i.e.,  $t_{ON} = \Sigma(t_1 + t_2 + \dots t_n)$ ].
  - The duty cycle is then determined by dividing the total maximum “ON time” by the period of the pulse train ( $t_{ON}/T$ ).
- If the pulse train is nonperiodic or is periodic with a period that exceeds 100 ms, or as an alternative to step d, then:
  - Set the TRIGGER on the spectrum analyzer to capture the greatest amount of pulse “ON time” over 100 ms.
  - Find the 100 ms period that contains the maximum “on time”; this may require

summing the duration of multiple pulses as described in step d 2).

3) Determine the duty cycle by dividing the total maximum "ON time" by 100 ms ( $t_{ON}/100 \text{ ms}$ ).

- f. Determine the duty cycle correction factor by below Equation to the duty cycle determined in the preceding steps.

$$g. \delta(\text{dB}) = 20\log(\Delta)$$

where

$\delta$  is the duty cycle correction factor (dB)

$\Delta$  is the duty cycle (dimensionless)

- h. Record the results in the test report.

### 3.5. Test Conditions

|                             |                                   |                         |         |
|-----------------------------|-----------------------------------|-------------------------|---------|
| <b>EUT:</b>                 | Vila                              | <b>Main Test Model:</b> | 141003  |
| <b>Test Voltage:</b>        | DC 3.7V from Rechargeable Battery |                         |         |
| <b>Temperature:</b>         | 23.3°C                            | <b>Humidity:</b>        | 51 % RH |
| <b>Atmosphere Pressure:</b> | 100.8kPa                          |                         |         |

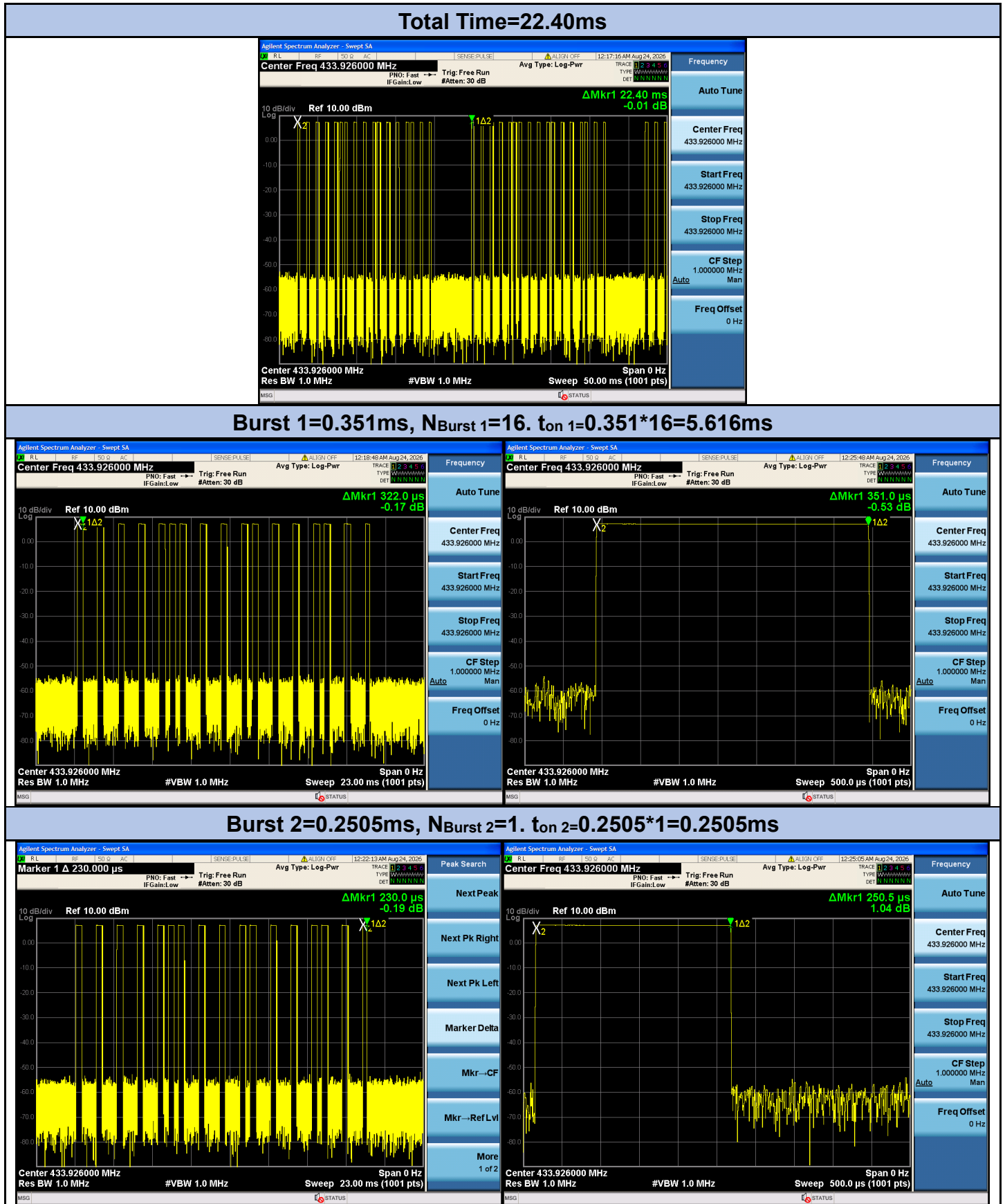
### 3.6. Test Result

| Test Frequency | On Time | Total Time | Duty Cycle | Duty Cycle Correction Factor |
|----------------|---------|------------|------------|------------------------------|
| MHz            | ms      | ms         | %          | dB                           |
| 433.926        | 5.8665  | 22.4       | 26.19      | -11.64                       |

Note:

- $T_{ON \text{ time}} = t_{on \ 1} \times N_{Burst \ 1} + t_{on \ 2} \times N_{Burst \ 2} + t_{on \ n} \times N_{Burst \ n}$   
( $N_{Burst \ n}$  is the number of Burst n in one period or 100ms)
- Duty Cycle = (On Time / Total Time) \* 100%
- Duty Cycle Correction Factor =  $20 \times \text{LOG}(\text{Duty Cycle})$

## 3.7.Original Test Record



## 4. FIELD STRENGTH OF FUNDAMENTAL

### 4.1.Limit

| Fundamental frequency (MHz)        | Field strength of fundamental@3m (microvolts/meter) |
|------------------------------------|-----------------------------------------------------|
| 40.66-40.70                        | 2,250                                               |
| 70-130                             | 1,250                                               |
| 130-174                            | <sup>1</sup> 1,250 to 3,750                         |
| 174-260                            | 3,750                                               |
| 260-470                            | <sup>1</sup> 3,750 to 12,500                        |
| Above 470                          | 12,500                                              |
| <sup>1</sup> Linear interpolations |                                                     |

The EUT fundamental frequency is 433.926MHz, So the Average Limit& Peak Limit is show in below table:

| Fundamental frequency (MHz) | Field strength of fundamental@3m (dBμV/m) |            |
|-----------------------------|-------------------------------------------|------------|
|                             | Average Limit                             | Peak Limit |
| 433.926                     | 80.83                                     | 100.83     |

Note:

1. According to ANSI C63.10 section 7.6.2:

The effective limit at the frequency of interest is found by linearly interpolating using the familiar slope-intercept formula,  $y = mx+b$ , rewritten as in Equation:

$$\text{Limit}[\mu\text{V/m}] = \text{Lim}_{\text{lower}} + \Delta F[(\text{Lim}_{\text{upper}} - \text{Lim}_{\text{lower}}) / (f_{\text{upper}} - f_{\text{lower}})]$$

where

$\text{Lim}_{\text{lower}}$ --is the limit at the lower frequency of the intended band of operation

$\text{Lim}_{\text{upper}}$ --is the limit at the upper frequency of the intended band of operation

$f_{\text{lower}}$ --is the lower frequency of the intended band of operation

$f_{\text{upper}}$ --is the upper frequency of the intended band of operation

$\Delta F$ --equals  $f_c - f_{\text{lower}}$

$F_c$ --is the center frequency of the emission signal

For fundamental frequency 433.926MHz:

$$\text{Average Limit}(\mu\text{V/m}) = 3750 + (433.926 - 260) * [(12500 - 3750) / (470 - 260)] = 10996.91667.$$

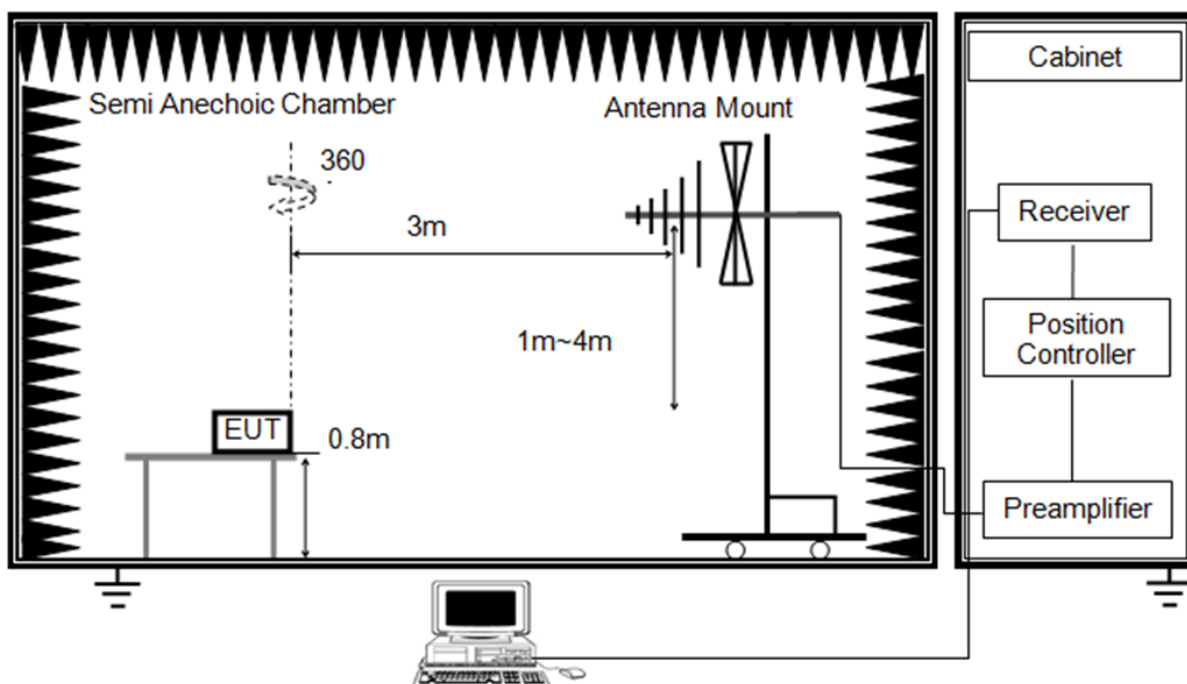
$$2. \text{ Average Limit (dB}\mu\text{V/m)} = 20 \times \text{LOG}[\text{Field Strength } (\mu\text{V/m})] = 20 \times \text{LOG}(10996.91667) = 80.83.$$

3. According to §15.35(b):

$$\text{Peak Limit (dB}\mu\text{V/m)} = \text{Average Limit (dB}\mu\text{V/m)} + 20\text{dB} = 80.83 + 20 = 100.83.$$

## 4.2. Test Setup

Below 1 GHz and above 30 MHz



## 4.3. Spectrum Analyzer Setting

| Spectrum Parameters | Setting        |
|---------------------|----------------|
| Center Frequency    | Test frequency |
| RBW                 | 120KHz         |
| VBW                 | 300KHz         |
| Sweep Time          | Auto           |
| Detector            | PEAK           |
| Trace Mode          | Max Hold       |

## 4.4. Test Procedure

- EUT was placed on a turn table, which is 1.5 meter high above the ground.
- EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower.
- Spectrum analyzer setting parameters in accordance with section 4.4.
- Set the EUT transmit continuously with maximum output power.
- The turn table can rotate 360 degrees to determine the position of the maximum emission level.
- The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test, record the peak value.
- Repeat above procedures until all channels were measured.
- Record the results in the test report.

#### 4.5. Test Conditions

|                             |                                   |                         |         |
|-----------------------------|-----------------------------------|-------------------------|---------|
| <b>EUT:</b>                 | Vila                              | <b>Main Test Model:</b> | 141003  |
| <b>Test Voltage:</b>        | DC 3.7V from Rechargeable Battery |                         |         |
| <b>Temperature:</b>         | 23.3°C                            | <b>Humidity:</b>        | 51 % RH |
| <b>Atmosphere Pressure:</b> | 100.8kPa                          |                         |         |

#### 4.6. Test Result

| Field Strength of Fundamental |                           |                                 |                              |        |       |                |        |              |
|-------------------------------|---------------------------|---------------------------------|------------------------------|--------|-------|----------------|--------|--------------|
| Frequency<br>MHz              | Peak<br>Level<br>(dBuV/m) | Duty<br>Cycle<br>Factor<br>(dB) | Average<br>Level<br>(dBuV/m) | Limit  |       | Margin<br>(dB) |        | Polarization |
|                               |                           |                                 |                              | PK     | AV    | PK             | AV     |              |
| 433.926                       | 74.78                     | -11.64                          | 63.14                        | 100.83 | 80.83 | -26.05         | -17.68 | Vertical     |
|                               | 80.21                     | -11.64                          | 68.57                        |        |       | -20.62         | -12.25 | Horizontal   |

Note:

1. Avg Emission Level=Peak Emission Level+Duty Cycle Correction Factor.
2. Duty Cycle Correction Factor=-11.64.(refer to section 3 of this report )

#### 4.7. Original Test Record

Note: Original Test data Record Please refer to Section 5 as Section 5.5.

## 5. RADIATED SPURIOUS EMISSIONS

### 5.1.Limit

The limits on the field strength of the spurious emissions in the below table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

| Fundamental frequency (MHz)        | Field strength of fundamental@3m (microvolts/meter) |
|------------------------------------|-----------------------------------------------------|
| 40.66-40.70                        | 2,25                                                |
| 70-130                             | 1,25                                                |
| 130-174                            | <sup>1</sup> 1,25 to 3,75                           |
| 174-260                            | 3,75                                                |
| 260-470                            | <sup>1</sup> 3,75 to 12,50                          |
| Above 470                          | 12,50                                               |
| <sup>1</sup> Linear interpolations |                                                     |

The EUT fundamental frequency is 433.926MHz, So the Average Limit& Peak Limit is show in below table:

| Fundamental frequency (MHz) | Field strength of fundamental@3m (dBμV/m) |            |
|-----------------------------|-------------------------------------------|------------|
|                             | Average Limit                             | Peak Limit |
| 433.926                     | 60.83                                     | 80.83      |

Note:

1. According to ANSI C63.10 section 7.6.2:

The effective limit at the frequency of interest is found by linearly interpolating using the familiarslope-intercept formula,  $y = mx + b$ , rewritten as in Equation:

$$\text{Limit}[\mu\text{V/m}] = \text{Lim}_{\text{lower}} + \Delta F[(\text{Lim}_{\text{upper}} - \text{Lim}_{\text{lower}}) / (f_{\text{upper}} - f_{\text{lower}})]$$

where

$\text{Lim}_{\text{lower}}$ --is the limit at the lower frequency of the intended band of operation

$\text{Lim}_{\text{upper}}$ --is the limit at the upper frequency of the intended band of operation

$f_{\text{lower}}$ --is the lower frequency of the intended band of operation

$f_{\text{upper}}$ --is the upper frequency of the intended band of operation

$\Delta F$ --equals  $f_c - f_{\text{lower}}$

$F_c$ --is the center frequency of the emission signal

For fundamental frequency 433.926MHz:

$$\text{Average Limit}(\mu\text{V/m}) = 3750 + (433.926 - 260)[(12500 - 3750)/(470 - 260)] = 10996.66667.$$

$$2. \text{ Average Limit (dB}\mu\text{V/m)} = 20 \times \text{LOG}[\text{Field Strength } (\mu\text{V/m})] = 20 \times \text{LOG}(10996.66667) = 60.83.$$

3. According to §15.35(b):

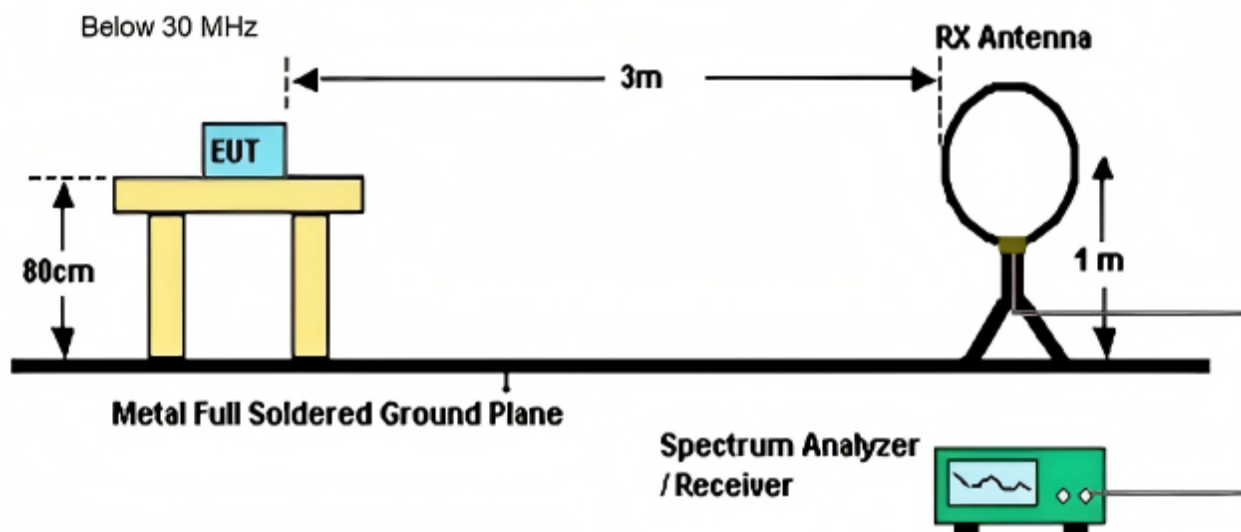
$$\text{Peak Limit (dB}\mu\text{V/m)} = \text{Average Limit (dB}\mu\text{V/m)} + 20\text{dB} = 60.83 + 20 = 80.83.$$

| 15.205 Restricted frequency band |                     |               |             |
|----------------------------------|---------------------|---------------|-------------|
| MHZ                              | MHz                 | MHZ           | GHZ         |
| 0.090-0.110                      | 16.42-16.423        | 399.9-410     | 4.5-5.15    |
| 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   |
| 4.17725-4.17775                  | 37.5-38.25          | 1435-1626.5   | 9.0-9.2     |
| 4.20725-4.20775                  | 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     |             |

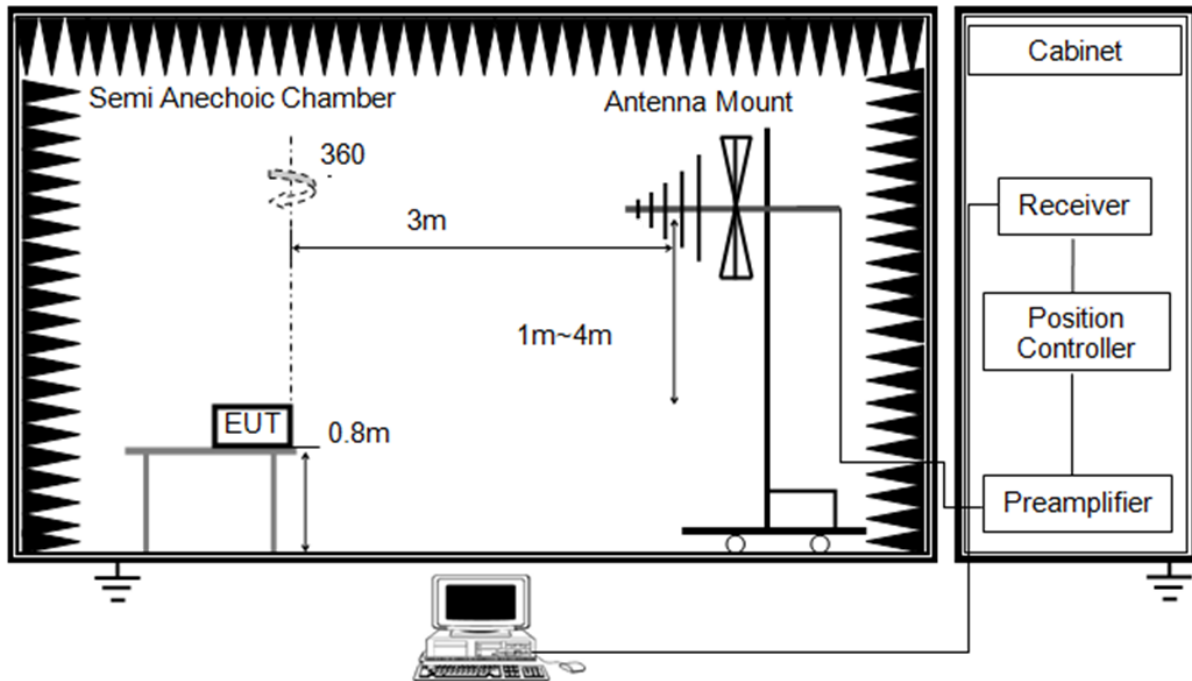
| 15.209 Radiated emission limits |                                   |             |
|---------------------------------|-----------------------------------|-------------|
| Frequency (MHz)                 | Field Strength( $\mu\text{V/m}$ ) | Distance(m) |
| 0.009-0.490                     | $2400/F(\text{kHz})$              | 300         |
| 0.490-1.705                     | $24000/F(\text{kHz})$             | 30          |
| 1.705-30                        | 30                                | 30          |
| 30-88                           | 100                               | 3           |
| 88-216                          | 150                               | 3           |
| 216-960                         | 200                               | 3           |
| Above 960                       | 500                               | 3           |

## 5.2. Test Setup

### (A) Radiated Emission Test Set-Up, Frequency Below 30MHz

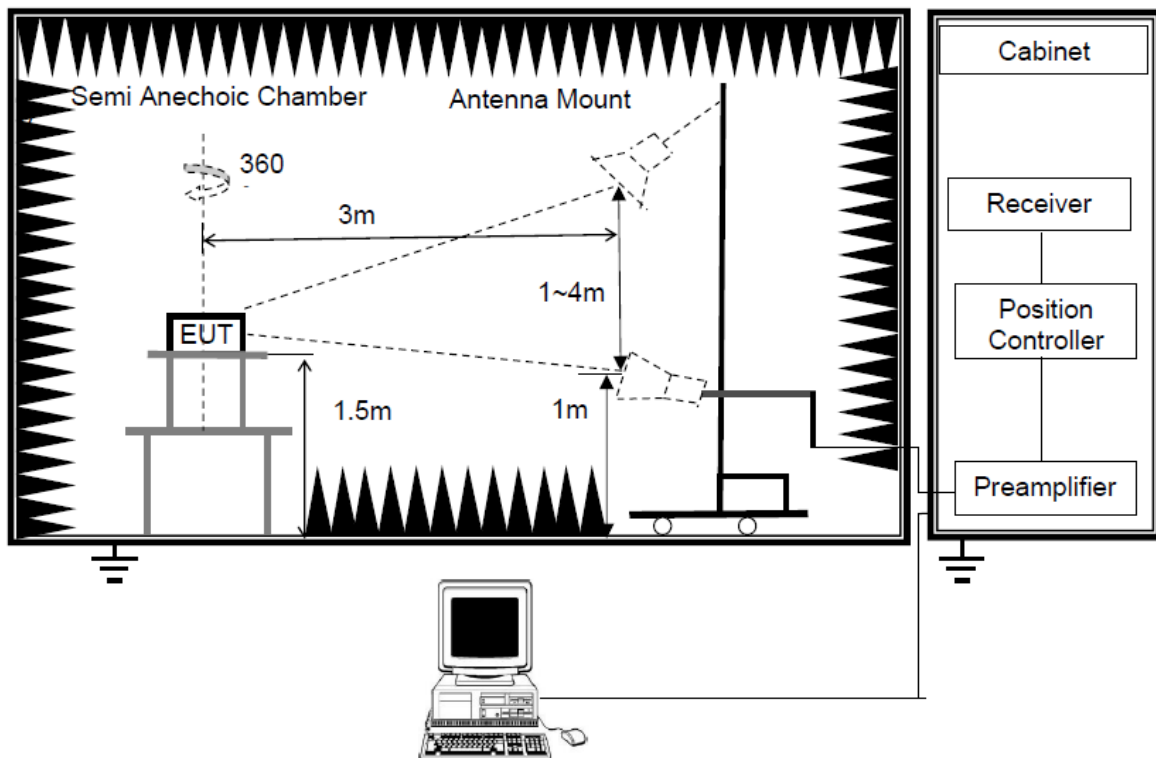


(B) Radiated Emission Test Set-Up, Frequency below 1000MHz  
Below 1 GHz and above 30 MHz



(C) Radiated Emission Test Set-Up, Frequency above 1GHz

Above 1GHz



## 5.3. Spectrum Analyzer Setting

| For 9KHz-150KHz     |                                           |
|---------------------|-------------------------------------------|
| Spectrum Parameters | Setting                                   |
| RBW                 | 300Hz (for Peak&AVG)/CISPR 200Hz (for QP) |
| VBW                 | 300Hz (for Peak&AVG)/CISPR 200Hz (for QP) |
| Start frequency     | 9KHz                                      |
| Stop frequency      | 150KHz                                    |
| Sweep Time          | Auto                                      |
| Detector            | PEAK/QP/AVG                               |
| Trace Mode          | Max Hold                                  |

Note: For 9KHz-90KHz&110KHz-150KHz,the detector is average,other frequency is CISPR QP detector.

| For 150KHz-30MHz    |          |
|---------------------|----------|
| Spectrum Parameters | Setting  |
| RBW                 | 9KHz     |
| VBW                 | 30KHz    |
| Start frequency     | 150KHz   |
| Stop frequency      | 30MHz    |
| Sweep Time          | Auto     |
| Detector            | QP       |
| Trace Mode          | Max Hold |

Note: For 150KHz-490KHz,the detector is average,other frequency is CISPR QP detector.

| For 30MHz-1GHz      |          |
|---------------------|----------|
| Spectrum Parameters | Setting  |
| RBW                 | 120KHz   |
| VBW                 | 300KHz   |
| Start frequency     | 30MHz    |
| Stop frequency      | 1GHz     |
| Sweep Time          | Auto     |
| Detector            | QP       |
| Trace Mode          | Max Hold |

| For Above 1GHz      |                  |                                    |
|---------------------|------------------|------------------------------------|
| Spectrum Parameters | Setting          |                                    |
| RBW                 | 1MHz             |                                    |
| VBW                 | PEAK Measurement | AVG Measurement                    |
|                     | 3MHz             | Duty cycle $\geq$ 98%, VBW=10Hz    |
|                     |                  | Duty cycle $<$ 98%, VBW $\geq$ 1/T |
| Start frequency     | 1GHz             |                                    |
| Stop frequency      | 40GHz            |                                    |
| Sweep Time          | Auto             |                                    |
| Detector            | PEAK             |                                    |
| Trace Mode          | Max Hold         |                                    |

Note: T is the on-time time of the duty cycle, when EUT transmit continuously with maximum output power, unit is seconds. reference section 3 for the on-time time.

#### 5.4. Test Procedure

- EUT was placed on a turn table, which is 0.8 meter high above ground for below 1GHz test, and which is 1.5 meter high above ground for above 1GHz test.
- EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower.
- Set the EUT transmit continuously with maximum output power.
- Spectrum analyzer setting parameters in accordance with section 5.3.
- The turn table can rotate 360 degrees to determine the position of the maximum emission level.
- The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.
- Record the results in the test report.

#### 5.5. Test Conditions

| Radiated Emissions 30-1000MHz |                                   |                  |         |
|-------------------------------|-----------------------------------|------------------|---------|
| EUT:                          | Vila                              | Main Test Model: | 141003  |
| Test Voltage:                 | DC 3.7V from Rechargeable Battery |                  |         |
| Temperature:                  | 23.3°C                            | Humidity:        | 51 % RH |
| Atmosphere Pressure:          | 100.8kPa                          |                  |         |

| Radiated Emissions Above 1GHz & Radiated Band Edge |                                   |                  |         |
|----------------------------------------------------|-----------------------------------|------------------|---------|
| EUT:                                               | Vila                              | Main Test Model: | 141003  |
| Test Voltage:                                      | DC 3.7V from Rechargeable Battery |                  |         |
| Temperature:                                       | 23.3°C                            | Humidity:        | 51 % RH |
| Atmosphere Pressure:                               | 100.8kPa                          |                  |         |

## 5.6. Test Result&Original Test Record

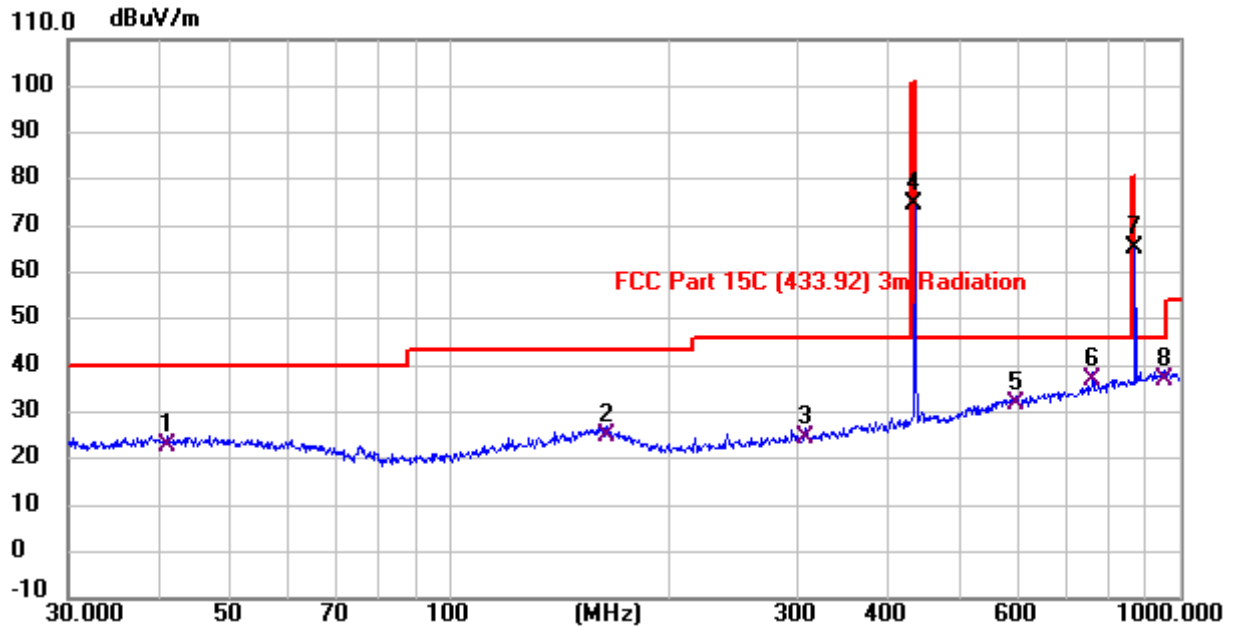
### Radiated Spurious Emission Below 30MHz

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported

### Radiated Spurious Emission 30-1000MHz

EUT: Ailrinni  
M/N: 141003  
Test Voltage: Charging Input: DC 5V by DC Port  
Ant. Pol.: Vertical  
Test Mode: TX Mode  
Note: CH01 433.926MHz

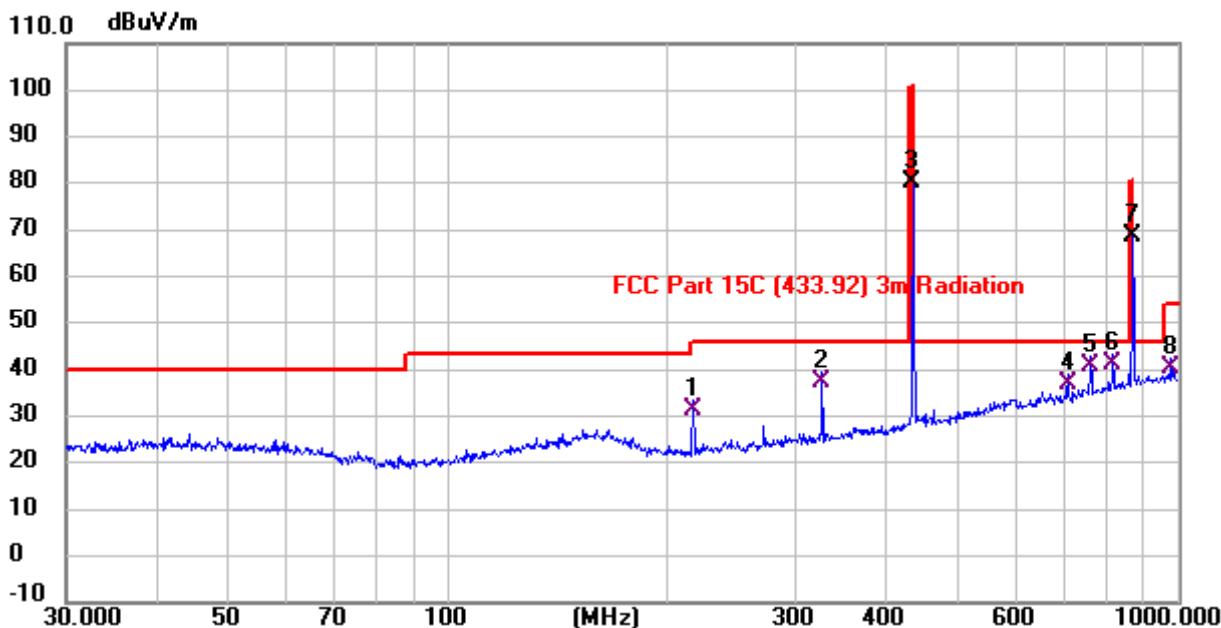
Detailed results are shown below



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 41.132          | 2.95           | 19.96         | 22.91          | 40.00          | -17.09      | QP       |
| 2   | 164.330         | 4.69           | 20.32         | 25.01          | 43.50          | -18.49      | QP       |
| 3   | 307.831         | 4.04           | 20.46         | 24.50          | 46.00          | -21.50      | QP       |
| 4   | 433.926         | 51.18          | 23.60         | 74.78          | 100.83         | -26.05      | peak     |
| 5   | 597.223         | 4.94           | 26.72         | 31.66          | 46.00          | -14.34      | QP       |
| 6   | 760.703         | 7.24           | 29.52         | 36.76          | 46.00          | -9.24       | QP       |
| 7   | 867.852         | 35.07          | 30.35         | 65.42          | 80.83          | -15.41      | peak     |
| 8 * | 952.094         | 5.46           | 31.51         | 36.97          | 46.00          | -9.03       | QP       |

Remarks: 1). Level (dBuV/m) = Reading (dBuV/m) + Factor (dB/m)  
2). Factor(dB/m) =Antenna Factor (dB/m) + Cable loss (dB)  
3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

EUT: Ailrinni  
M/N: 141003  
Test Voltage: Charging Input: DC 5V by DC Port  
Ant. Pol.: Horizontal  
Test Mode: TX Mode  
Note: CH01 433.926MHz  
Detailed results are shown below

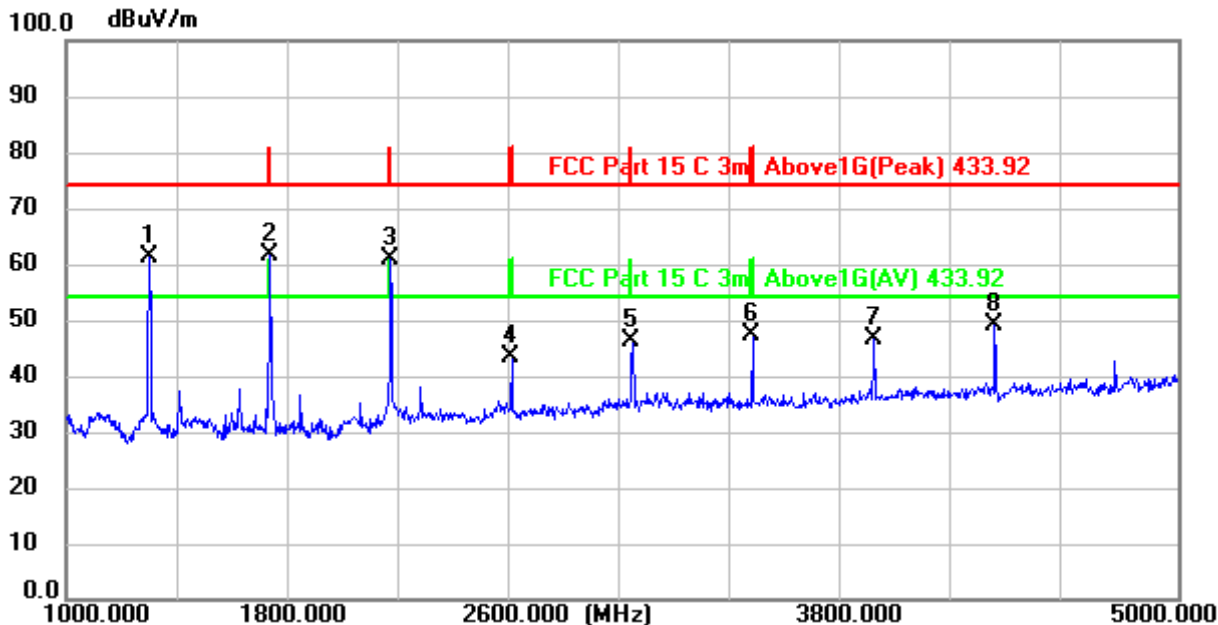


| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 216.783         | 14.16          | 17.26         | 31.42          | 46.00          | -14.58      | QP       |
| 2   | 325.596         | 16.61          | 20.80         | 37.41          | 46.00          | -8.59       | QP       |
| 3   | 433.926         | 56.61          | 23.60         | 80.21          | 100.83         | -20.62      | peak     |
| 4   | 706.700         | 8.51           | 28.52         | 37.03          | 46.00          | -8.97       | QP       |
| 5   | 760.703         | 11.43          | 29.52         | 40.95          | 46.00          | -5.05       | QP       |
| 6 * | 815.968         | 11.41          | 29.92         | 41.33          | 46.00          | -4.67       | QP       |
| 7   | 867.852         | 38.40          | 30.35         | 68.75          | 80.83          | -12.08      | peak     |
| 8   | 979.180         | 8.68           | 31.87         | 40.55          | 54.00          | -13.45      | QP       |

Remarks: 1). Level (dBuV/m) = Reading (dBuV/m) + Factor (dB/m)  
2). Factor(dB/m) = Antenna Factor (dB/m) + Cable loss (dB)  
3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

## Radiated Spurious Emission Above 1GHz

EUT: Ailrinni  
M/N: 141003  
Test Voltage: Charging Input: DC 5V by DC Port  
Ant. Pol.: Vertical  
Test Mode: TX Mode  
Note: CH01 433.926MHz  
Detailed results are shown below

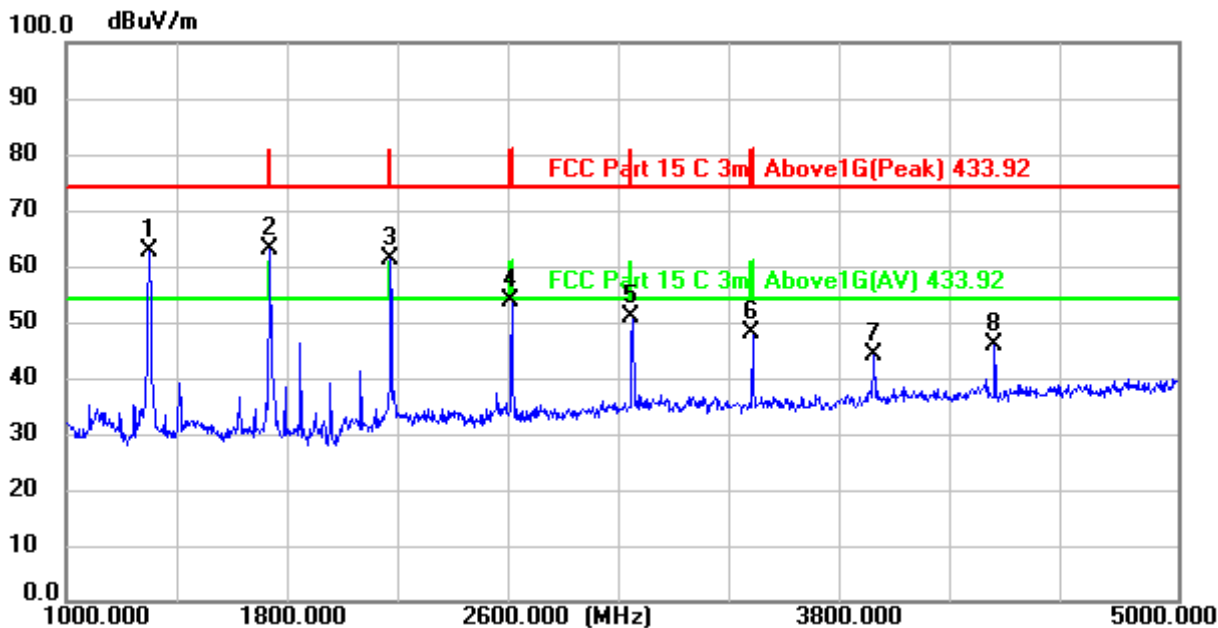


| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1 * | 1301.778        | 66.69          | -5.48         | 61.21          | 74.00          | -12.79      | peak     |
| 2   | 1735.704        | 65.97          | -4.24         | 61.73          | 80.83          | -19.10      | peak     |
| 3   | 2169.630        | 62.64          | -1.69         | 60.95          | 80.83          | -19.88      | peak     |
| 4   | 2603.556        | 43.60          | -0.04         | 43.56          | 80.83          | -37.27      | peak     |
| 5   | 3037.482        | 44.58          | 1.55          | 46.13          | 80.83          | -34.70      | peak     |
| 6   | 3471.408        | 45.27          | 2.18          | 47.45          | 80.83          | -33.38      | peak     |
| 7   | 3905.334        | 42.33          | 4.15          | 46.48          | 74.00          | -27.52      | peak     |
| 8   | 4339.260        | 43.83          | 5.31          | 49.14          | 74.00          | -24.86      | peak     |

Remarks: 1). Level (dBuV/m) = Reading (dBuV/m) + Factor (dB/m)  
2). Factor(dB/m) =Antenna Factor (dB/m) + Cable loss (dB)  
3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

EUT: Ailrinni  
M/N: 141003  
Test Voltage: Charging Input: DC 5V by DC Port  
Ant. Pol.: Horizontal  
Test Mode: TX Mode  
Note: CH01 433.926MHz

Detailed results are shown below



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1 * | 1301.778        | 68.04          | -5.48         | 62.56          | 74.00          | -11.44      | peak     |
| 2   | 1735.704        | 67.11          | -4.24         | 62.87          | 80.83          | -17.96      | peak     |
| 3   | 2169.630        | 63.10          | -1.69         | 61.41          | 80.83          | -19.42      | peak     |
| 4   | 2603.556        | 53.92          | -0.04         | 53.88          | 80.83          | -26.95      | peak     |
| 5   | 3037.482        | 49.49          | 1.55          | 51.04          | 80.83          | -29.79      | peak     |
| 6   | 3471.408        | 45.93          | 2.18          | 48.11          | 80.83          | -32.72      | peak     |
| 7   | 3905.334        | 40.01          | 4.15          | 44.16          | 74.00          | -29.84      | peak     |
| 8   | 4339.260        | 40.41          | 5.31          | 45.72          | 74.00          | -28.28      | peak     |

Remarks: 1). Level (dBuV/m) = Reading (dBuV/m) + Factor (dB/m)  
2). Factor(dB/m) = Antenna Factor (dB/m) + Cable loss (dB)  
3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

| Radiated Spurious Emission (30-1000MHz of 2th harmonics) |                   |                   |                      |       |       |           |       |              |
|----------------------------------------------------------|-------------------|-------------------|----------------------|-------|-------|-----------|-------|--------------|
| Frequency MHz                                            | Peak Level dBuV/m | Duty Cycle factor | Average Level dBuV/m | Limit |       | Margin dB |       | Polarization |
|                                                          |                   |                   |                      | PK    | AV    | PK        | AV    |              |
| 867.852                                                  | 65.42             | -11.64            | 53.78                | 80.83 | 60.83 | -15.41    | -7.04 | Vertical     |
|                                                          | 68.75             | -11.64            | 57.11                | 80.83 | 60.83 | -12.08    | -3.71 | Horizontal   |

| Radiated Spurious Emission (1GHz to 10th harmonics) |                   |                   |                      |       |       |           |        |              |
|-----------------------------------------------------|-------------------|-------------------|----------------------|-------|-------|-----------|--------|--------------|
| Frequency MHz                                       | Peak Level dBuV/m | Duty Cycle factor | Average Level dBuV/m | Limit |       | Margin dB |        | Polarization |
|                                                     |                   |                   |                      | PK    | AV    | PK        | AV     |              |
| 1301.778*                                           | 61.21             | -11.64            | 49.57                | 74.00 | 54.00 | -12.79    | -4.43  | Vertical     |
| 1735.704                                            | 61.73             | -11.64            | 50.09                | 80.83 | 60.83 | -19.10    | -10.73 |              |
| 2169.630                                            | 60.95             | -11.64            | 49.31                | 80.83 | 60.83 | -19.88    | -11.51 |              |
| 2603.556                                            | 43.56             | -11.64            | 31.92                | 80.83 | 60.83 | -37.27    | -28.90 |              |
| 3037.482                                            | 46.13             | -11.64            | 34.49                | 80.83 | 60.83 | -34.70    | -26.33 |              |
| 3471.408                                            | 47.45             | -11.64            | 35.81                | 80.83 | 60.83 | -33.38    | -25.01 |              |
| 3905.334*                                           | 46.48             | -11.64            | 34.84                | 74.00 | 54.00 | -27.52    | -19.16 |              |
| 4339.260*                                           | 49.14             | -11.64            | 37.50                | 74.00 | 54.00 | -24.86    | -16.50 |              |
| 1301.778*                                           | 62.56             | -11.64            | 50.92                | 74.00 | 54.00 | -11.44    | -3.08  | Horizontal   |
| 1735.704                                            | 62.87             | -11.64            | 51.23                | 80.83 | 60.83 | -17.96    | -9.59  |              |
| 2169.630                                            | 61.41             | -11.64            | 49.77                | 80.83 | 60.83 | -19.42    | -11.05 |              |
| 2603.556                                            | 53.88             | -11.64            | 42.24                | 80.83 | 60.83 | -26.95    | -18.58 |              |
| 3037.482                                            | 51.04             | -11.64            | 39.40                | 80.83 | 60.83 | -29.79    | -21.42 |              |
| 3471.408                                            | 48.11             | -11.64            | 36.47                | 80.83 | 60.83 | -32.72    | -24.35 |              |
| 3905.334*                                           | 44.16             | -11.64            | 32.52                | 74.00 | 54.00 | -29.84    | -21.48 |              |
| 4339.260*                                           | 45.72             | -11.64            | 34.08                | 74.00 | 54.00 | -28.28    | -19.92 |              |

Note:

1. Avg Emission Level=Peak Emission Level+Duty Cycle Correction Factor
2. Duty Cycle Correction Factor=-11.64 .(refer to section 3 of this report )
3. “\*”, The frequency points marked with an asterisk (\*)-1301.778 MHz (3rd harmonic), 3905.334 MHz (9th harmonic), and 4339.260 MHz (10th harmonic)-fall within the restricted bands specified in FCC Part 15.205 and therefore must comply with the more stringent limits of FCC Part 15.209(a) (PK 74.0 dBuV/m / AV 54.0 dBuV/m).

## 6. 20dB BANDWIDTH (OCCUPY BANDWIDTH)

### 6.1.Limit

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

### 6.2.Test Setup



### 6.3.Spectrum Analyzer Setting

| Spectrum Parameters | Setting                          |
|---------------------|----------------------------------|
| RBW                 | 1%~5% OBW                        |
| VBW                 | 3×RBW                            |
| Span                | Two times and five times the OBW |
| Sweep Time          | Auto                             |
| Detector            | Peak                             |
| Trace Mode          | Max Hold                         |

### 6.4.Test Procedure

- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 6.3.
- Set the EUT transmit continuously with maximum output power.
- Allow trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.
- Record the results in the test report.

### 6.5. Test Conditions

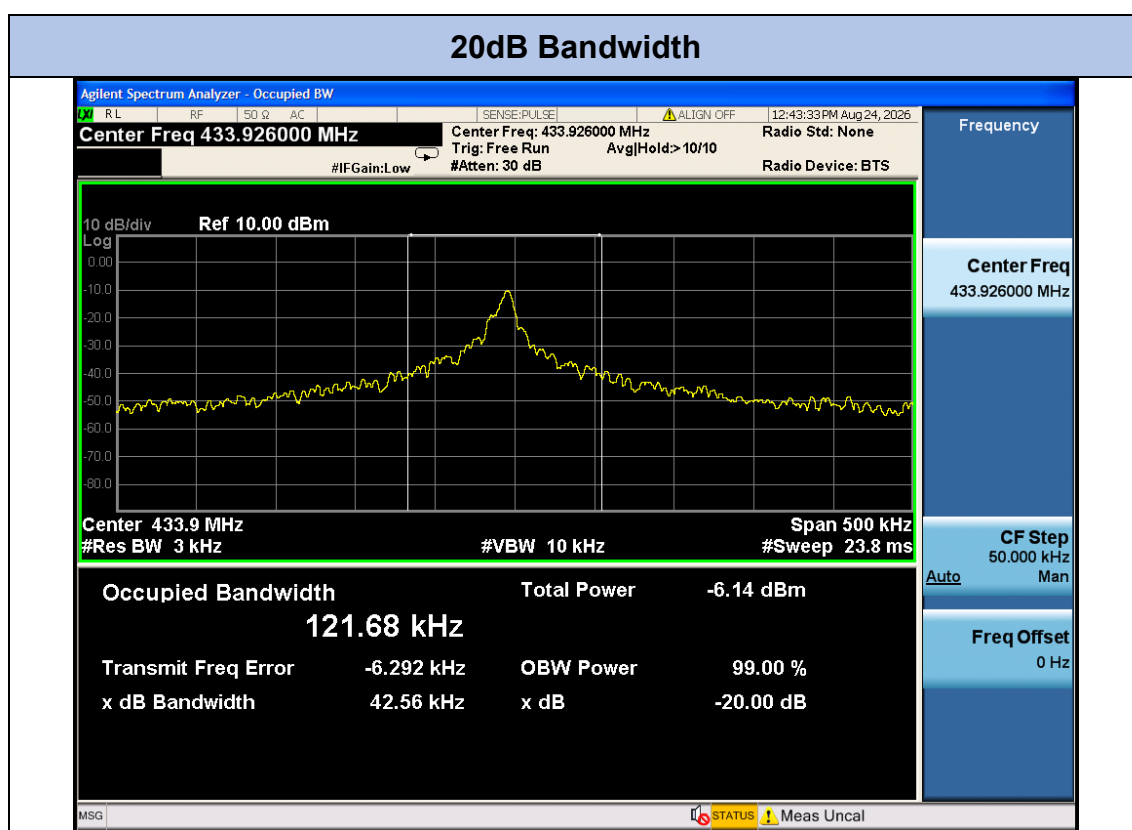
|                             |                                   |                         |         |
|-----------------------------|-----------------------------------|-------------------------|---------|
| <b>EUT:</b>                 | Vila                              | <b>Main Test Model:</b> | 141003  |
| <b>Test Voltage:</b>        | DC 3.7V from Rechargeable Battery |                         |         |
| <b>Temperature:</b>         | 23.3℃                             | <b>Humidity:</b>        | 51 % RH |
| <b>Atmosphere Pressure:</b> | 100.8kPa                          |                         |         |

## 6.6.Test Result

| Test Frequency | 20dB Bandwidth | Limit   | Result |
|----------------|----------------|---------|--------|
| MHz            | MHz            | MHz     |        |
| 433.926        | 0.04256        | ≤1.0848 | Pass   |

Note: Limit (MHz)=433.926×0.25%=1.0848

## 6.7.Original Test Record

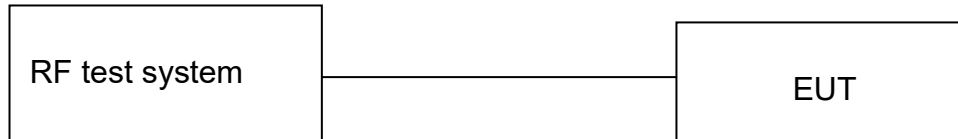


## 7. DURATION TIME (DWELL TIME)

### 7.1.Limit

- (1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.
- (2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.
- (3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

### 7.2.Test Setup



### 7.3.Spectrum Analyzer Setting

| Spectrum Parameters | Setting                                |
|---------------------|----------------------------------------|
| Center Frequency    | Test Frequency                         |
| RBW                 | $\geq$ OBW                             |
| VBW                 | $\geq$ RBW                             |
| Span                | Zero                                   |
| Sweep Time          | At least one period of the pulse train |
| Detector            | PEAK                                   |

### 7.4.Test Procedure

- a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- b. Spectrum analyzer setting parameters in accordance with section 7.3.
- c. Set the EUT transmit in normal use.
- d. Adjust sweep time on the spectrum analyzer to capture at least one period of the pulse train of the EUT.
- e. Allow trace to stabilize, use the marker-delta function to measure the on time and off time of the signal.
- f. Record the results in the test report.

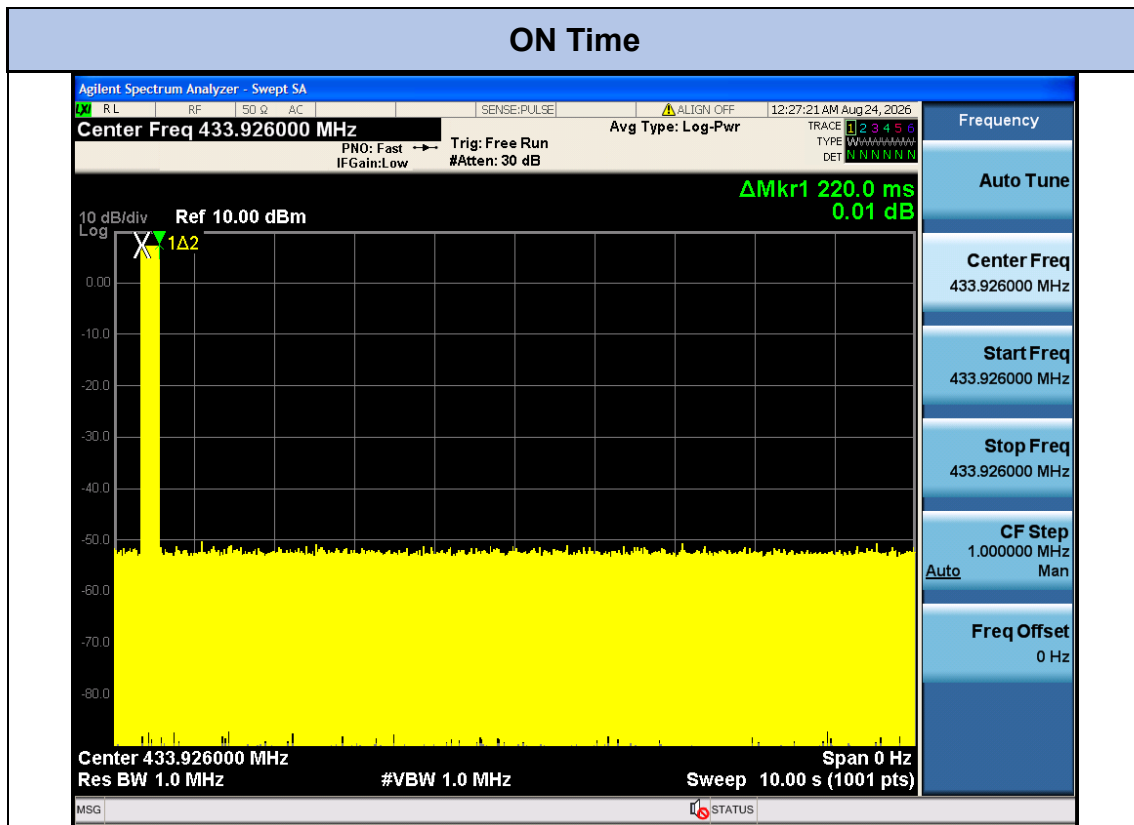
## 7.5. Test Conditions

|                             |                                   |                         |         |
|-----------------------------|-----------------------------------|-------------------------|---------|
| <b>EUT:</b>                 | Vila                              | <b>Main Test Model:</b> | 141003  |
| <b>Test Voltage:</b>        | DC 3.7V from Rechargeable Battery |                         |         |
| <b>Temperature:</b>         | 23.3°C                            | <b>Humidity:</b>        | 51 % RH |
| <b>Atmosphere Pressure:</b> | 100.8kPa                          |                         |         |

## 7.6. Test Result

| Test Frequency | Packet | Limit | Result |
|----------------|--------|-------|--------|
| MHz            | s      | s     |        |
| 433.926        | 0.22   | <5    | PASS   |

## 7.7. Original Test Record



## 8. AC POWER LINE CONDUCTED EMISSIONS

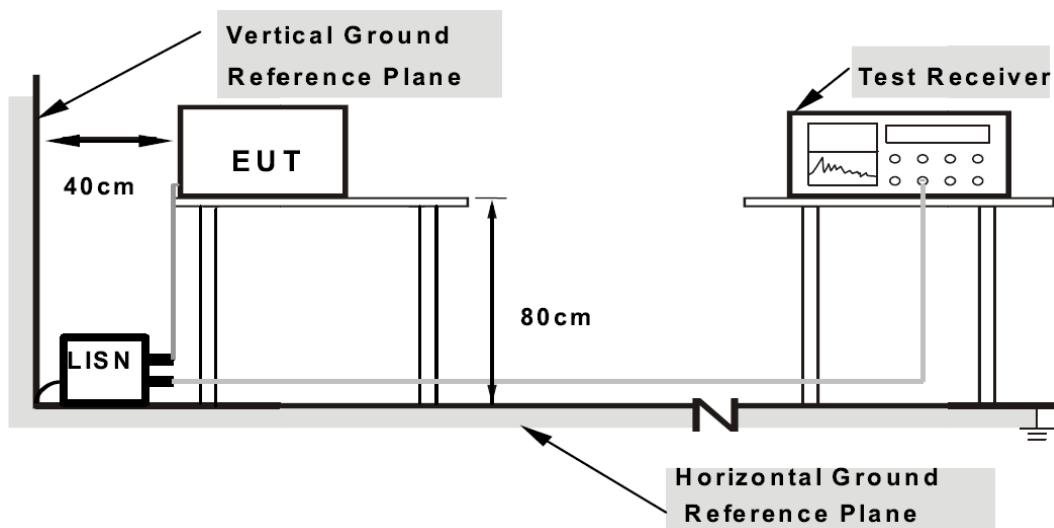
### 8.1. Limit

| Frequency       | Maximum RF Line Voltage          |                               |
|-----------------|----------------------------------|-------------------------------|
|                 | Quasi-Peak Level<br>dB( $\mu$ V) | Average Level<br>dB( $\mu$ V) |
| 150kHz ~ 500kHz | 66 ~ 56*                         | 56 ~ 46*                      |
| 500kHz ~ 5MHz   | 56                               | 46                            |
| 5MHz ~ 30MHz    | 60                               | 50                            |

Note:

1. \* Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

### 8.2. Test Setup



### 8.3. Spectrum Analyzer Setting

| Spectrum Parameters | Setting  |
|---------------------|----------|
| RBW                 | 9KHz     |
| VBW                 | 30KHz    |
| Start frequency     | 150KHz   |
| Stop frequency      | 30MHz    |
| Sweep Time          | Auto     |
| Detector            | QP/AVG   |
| Trace Mode          | Max Hold |

## 8.4. Test Procedure

- The EUT was placed on a non-metallic table, 80cm above the ground plane.
- The EUT Power connected to the power mains through a line impedance stabilization network.
- Provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs).
- Set the EUT transmit continuously with maximum output power.
- Spectrum analyzer setting parameters in accordance with section 8.3.
- The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10 on Conducted Emission Test.
- It was conducted under both AC 120V/60Hz and AC 240V/50Hz input voltages, there was no significant change in radiation emission. Only worse case mode with AC 120V/60Hz voltage is reported.

## 8.5. Test Conditions

|                             |  |                         |  |
|-----------------------------|--|-------------------------|--|
| <b>EUT:</b>                 |  | <b>Main Test Model:</b> |  |
| <b>Test Voltage:</b>        |  |                         |  |
| <b>Temperature:</b>         |  | <b>Humidity:</b>        |  |
| <b>Atmosphere Pressure:</b> |  |                         |  |

## 8.6. Test Result

N/A

(Note: The EUT is powered by a DC 3V (LITHIUM BATTERY) and cannot be connected, either directly or indirectly, to the AC mains supply. Therefore, the AC power line conducted emissions test is not applicable.)

## 9. ANTENNA REQUIREMENTS

### 9.1. Limit

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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

### 9.2. Test Result

The antennas used for this product is PCB antenna, so compliance with antenna requirements. (Please refer to the Section **11. EUT INTERNAL PHOTOS** for details)

## 10. TEST SETUP PHOTOS

**Photo 1 Test Setup Photos of Radiated Emission Test (30-1000MHz)**



**Photo 2 Test Setup Photos of Radiated Emission Test (Above 1GHz)**



## 11. EUT EXTERNAL PHOTOS

**Photo 1 External photos of EUT**

Main Test Model: 141003



**Photo 2 External photos of EUT**

Main Test Model: 141003



**Photo 3 External photos of EUT**  
Main Test Model: 141003



**Photo 4 External photos of EUT**  
Main Test Model: 141003



**Photo 5 External photos of EUT**

Main Test Model: 141003



**Photo 6 External photos of EUT**

Main Test Model: 141003



**Photo 7 External photos of EUT**  
Main Test Model: 141003 (Ailrinni)



**Photo 8 External photos of EUT**  
Main Test Model: 141003 (Ailrinni)

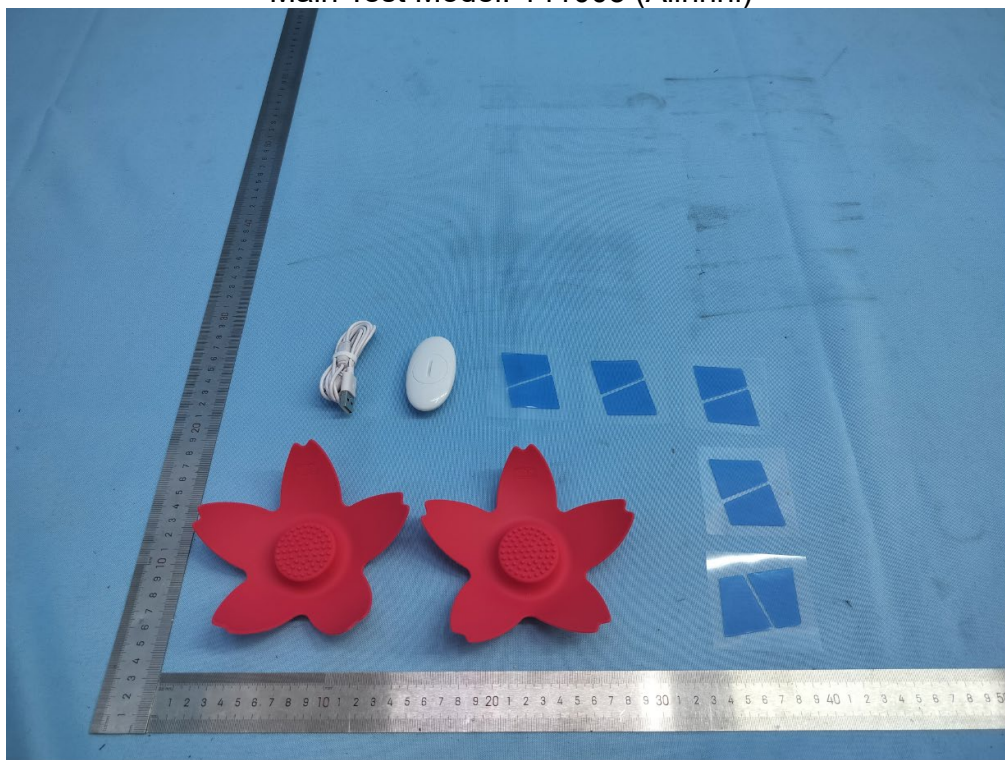


**Photo 9 External photos of EUT**  
Main Test Model: 141002 (Ailrinni)

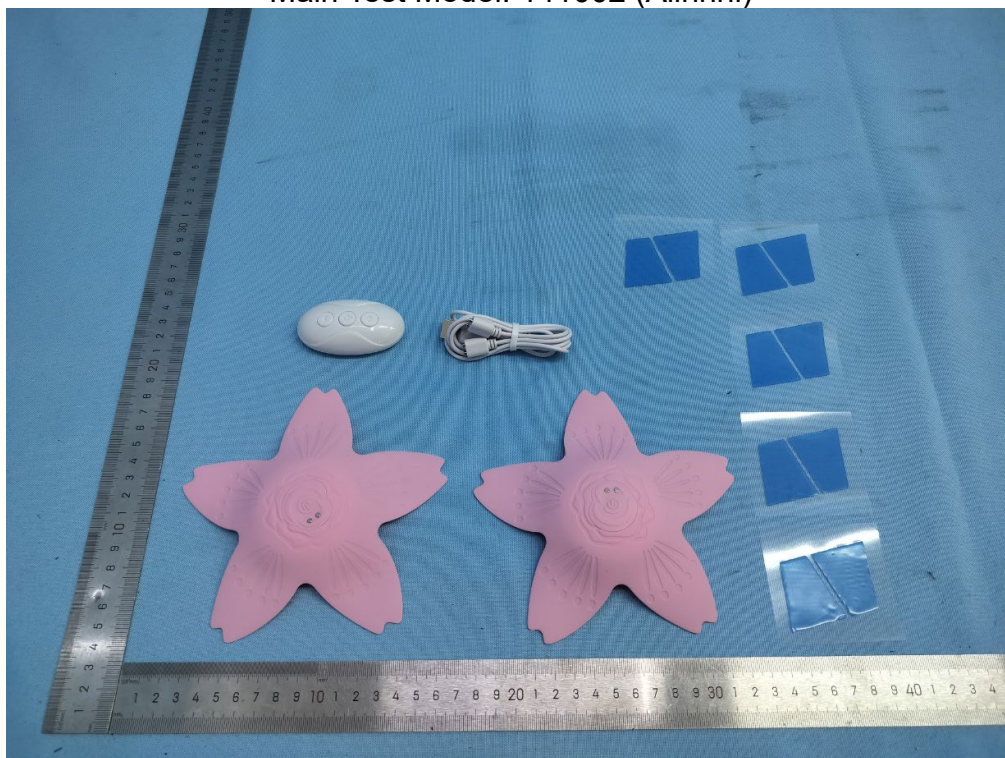
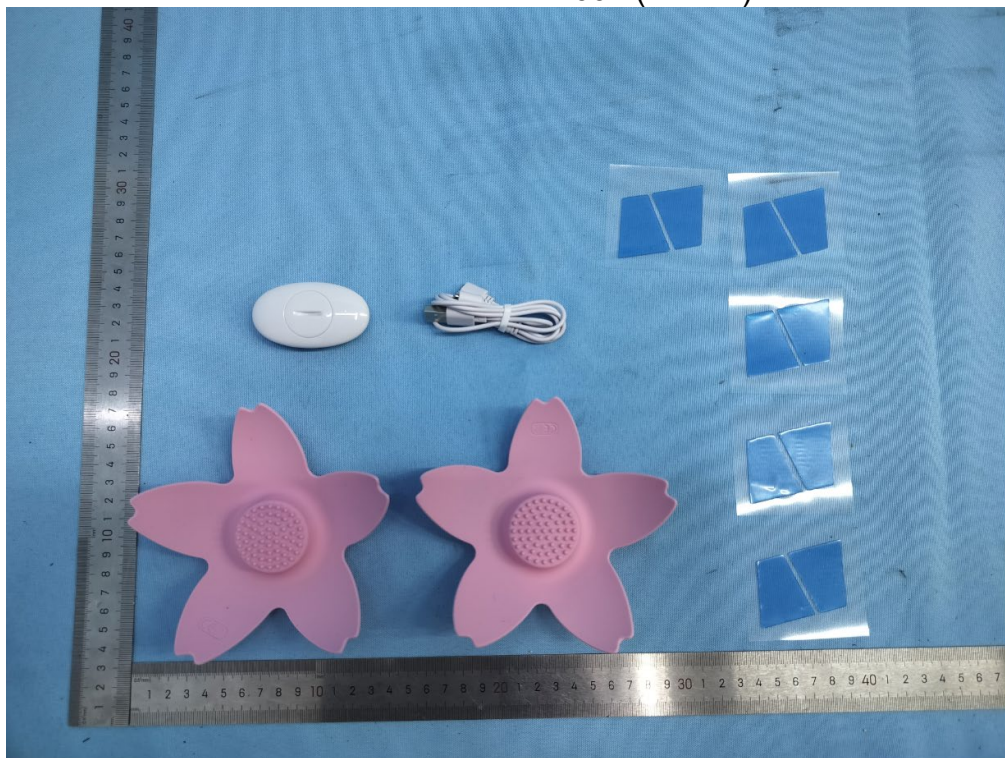


**Photo 10 External photos of EUT**  
Main Test Model: 141002 (Ailrinni)



## 12. EUT INTERNAL PHOTOS

**Photo 1 Internal photos of EUT**

Main Test Model: 141003

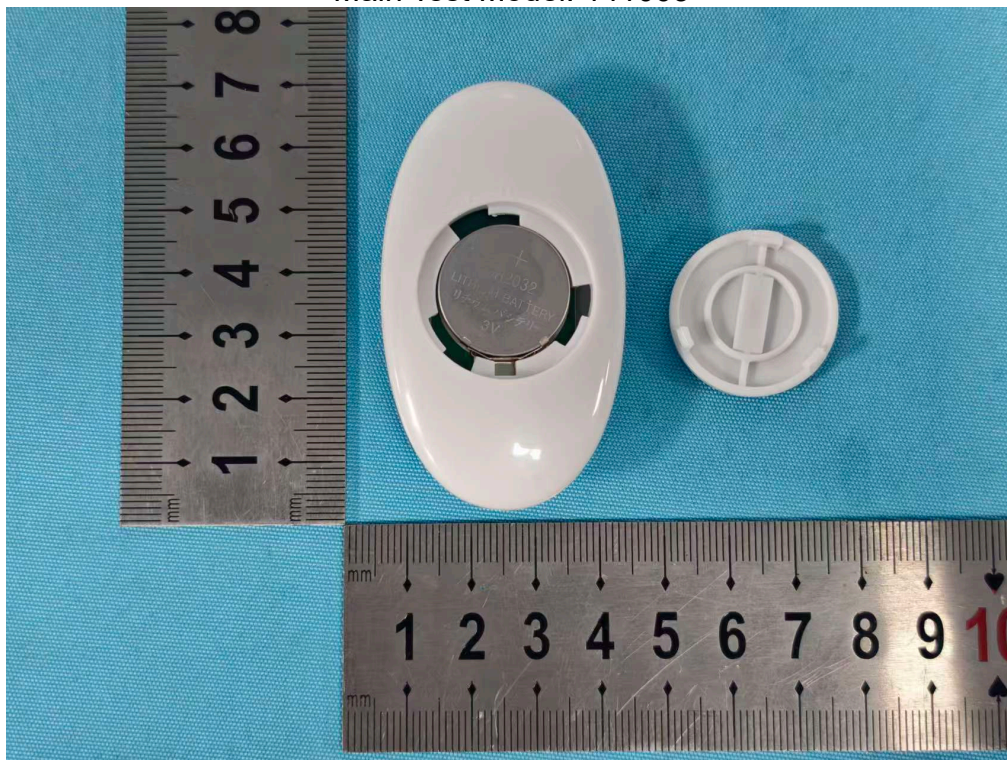
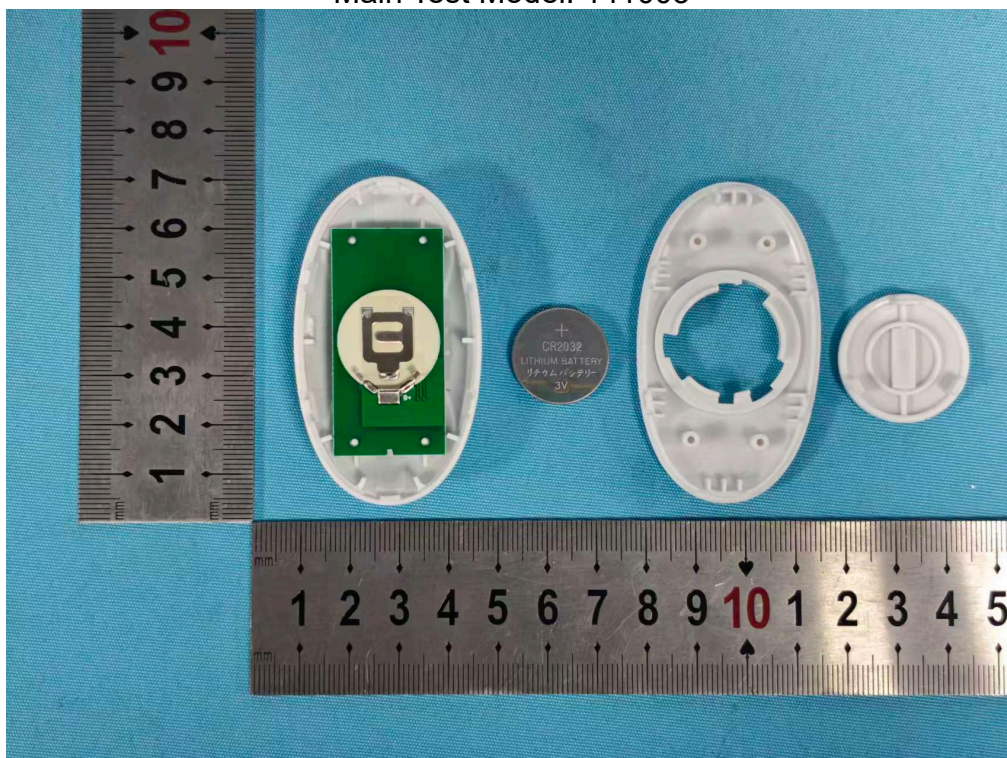


**Photo 2 Internal photos of EUT**

Main Test Model: 141003



Antenna position

**Photo 3 Internal photos of EUT**

Main Test Model: 141003

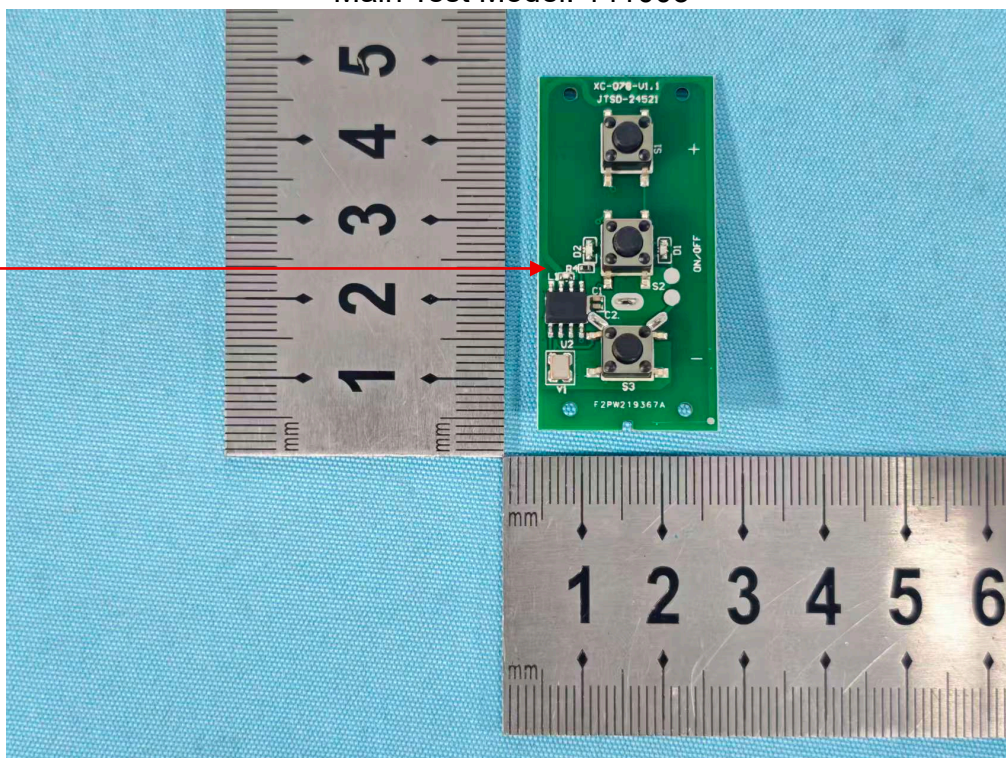


**Photo 4 Internal photos of EUT**

Main Test Model: 141003

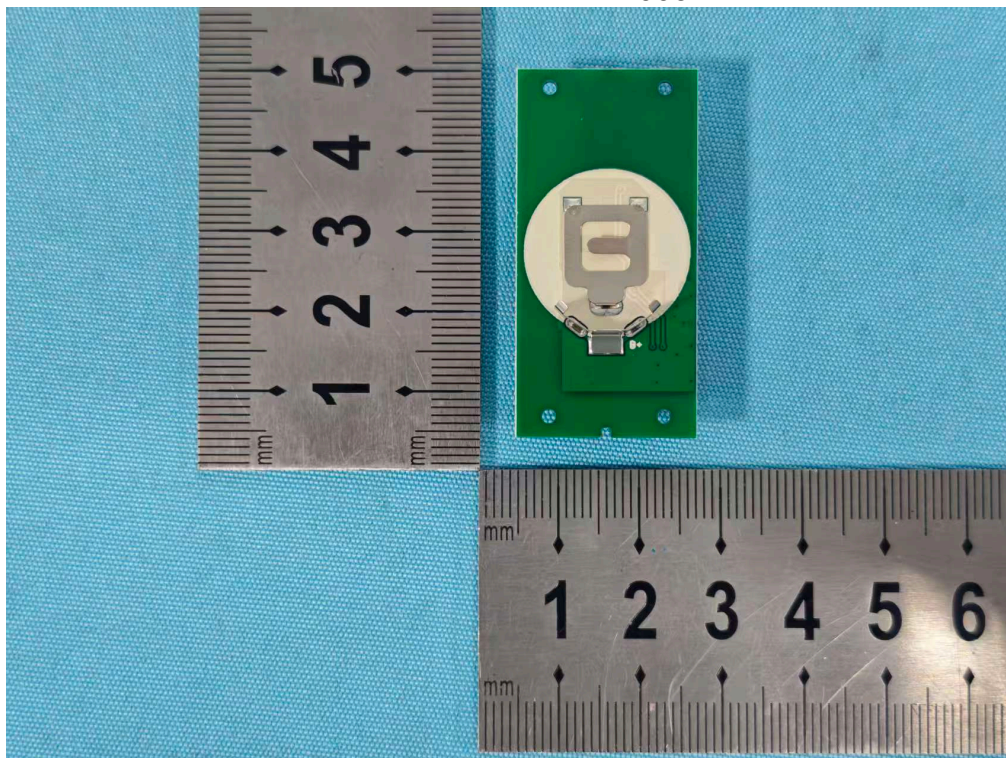
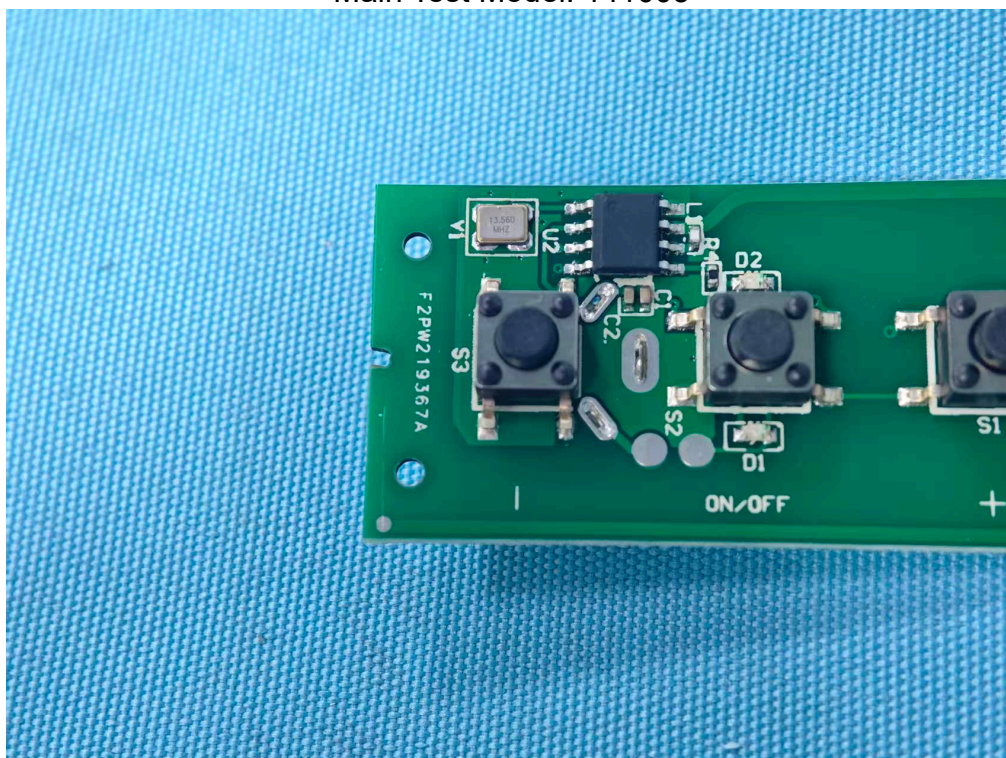


**Photo 5 Internal photos of EUT**  
Main Test Model: 141003



-----End of Test Report-----

Co., Ltd