



# FCC Test Report

APPLICANT : Shenzhen Tinno Mobile Technology Corp.  
EQUIPMENT : Smartphone  
BRAND NAME : TINNO  
MODEL NAME : U705AA, U705AC  
FCC ID : XD6U705AA  
STANDARD : 47 CFR Part 15 Subpart B  
CLASSIFICATION : Certification

The product was received on Feb. 21, 2020 and testing was completed on Mar. 14, 2020. We, Sporton International (ShenZhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (ShenZhen) Inc., the test report shall not be reproduced except in full.

Reviewed by: Derreck Chen / Supervisor

Approved by: Eric Shih / Manager



**Sporton International (ShenZhen) Inc.**

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People's Republic of China



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### REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION             | ISSUED DATE  |
|------------|---------|-------------------------|--------------|
| FC022101   | Rev. 01 | Initial issue of report | May 08, 2020 |
|            |         |                         |              |
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### SUMMARY OF TEST RESULT

| Report Section | FCC Rule | Description           | Limit           | Result | Remark   |
|----------------|----------|-----------------------|-----------------|--------|--|
| 3.1            | 15.107   | AC Conducted Emission | < 15.107 limits | PASS   | Under limit<br>3.08 dB at<br>0.170 MHz                     |
| 3.2            | 15.109   | Radiated Emission     | < 15.109 limits | PASS   | Under limit<br>3.38 dB at<br>257.950 MHz<br>for Quasi-Peak |

|  |
|--|
| <b>Declaration of Conformity:</b>  |
| The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.   |
| <b>Comments and Explanations:</b>  |
| The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification. |



# 1. General Description

## 1.1. Applicant

**Shenzhen Tinno Mobile Technology Corp.**

4/F, H-3 Building, OCT Eastern Industrial Park. NO.1 XiangShan East Road, Nan Shan District, Shenzhen, P. R. China.

## 1.2. Manufacturer

**Shenzhen Tinno Mobile Technology Corp.**

4/F, H-3 Building, OCT Eastern Industrial Park. NO.1 XiangShan East Road, Nan Shan District, Shenzhen, P. R. China.

## 1.3. Product Feature of Equipment Under Test

| Product Feature                        |   |
|--|---|
| <b>Equipment</b>                       | Smartphone  |
| <b>Brand Name</b>                      | TINNO   |
| <b>Model Name</b>                      | U705AA, U705AC  |
| <b>FCC ID</b>                          | XD6U705AA   |
| <b>EUT supports Radios application</b> | GSM/WCDMA/LTE<br>WLAN 2.4GHz 802.11b/g/n HT20<br>WLAN 5GHz 802.11a/n/ac HT20/HT40/VHT20/VHT40/VHT80<br>Bluetooth BR/EDR/LE<br>NFC and GNSS                |
| <b>IMEI Code</b>                       | Conduction:<br>865638040005622 for Sample 1<br>865638040004021 for Sample 2<br>Radiation:<br>865638040006968 for Sample 1<br>865638040004112 for Sample 2 |
| <b>HW Version</b>                      | V1.0  |
| <b>SW Version</b>                      | U705AA SW: U705AAV01.16.11<br>U705AC SW: U705ACV01.43.01  |
| <b>EUT Stage</b>                       | Identical Prototype   |

**Remark:**

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are two types of EUT sample 1(Model Name: U705AA) and sample 2(Model Name: U705AC), the change note could be referred to the product equality declaration which is exhibit separately. According to the difference, we chose the sample 1 to perform all tests, sample 2 verify the worst of sample 1.



### 1.4. Product Specification of Equipment Under Test

| Standards-related Product Specification |   |
|---|---|
| <b>Tx Frequency</b>                     | GSM850: 824.2 MHz ~ 848.8 MHz<br>GSM1900: 1850.2 MHz ~ 1909.8MHz<br>WCDMA Band V: 826.4 MHz ~ 846.6 MHz<br>WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz<br>WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz<br>LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz<br>LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 5 : 824.7 MHz ~ 848.3 MHz<br>LTE Band 12 : 699.7 MHz ~ 715.3 MHz<br>LTE Band 14: 790.5 MHz ~ 795.5 MHz<br>LTE Band 30 : 2307.5 MHz ~ 2312.5 MHz<br>LTE Band 66 : 1710.7 MHz ~ 1779.3 MHz<br>802.11b/g/n: 2412 MHz ~ 2462 MHz<br>802.11a/n/ac: 5180 MHz ~ 5240 MHz;<br>5260 MHz ~ 5320 MHz;<br>5500 MHz ~ 5700 MHz<br>5745 MHz ~ 5825 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz<br>NFC : 13.56 MHz  |
| <b>Rx Frequency</b>                     | GSM850: 869.2 MHz ~ 893.8 MHz<br>GSM1900: 1930.2 MHz ~ 1989.8 MHz<br>WCDMA Band V: 871.4 MHz ~ 891.6 MHz<br>WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz<br>WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz<br>LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz<br>LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz<br>LTE Band 5 : 869.7 MHz ~ 893.3 MHz<br>LTE Band 12 : 729.7 MHz ~ 745.3 MHz<br>LTE Band 14: 760.5 MHz ~ 765.5 MHz<br>LTE Band 29 : 718.5 MHz ~ 726.5 MHz<br>LTE Band 30 : 2352.5 MHz ~ 2357.5 MHz<br>LTE Band 66 : 2110.7 MHz~ 2179.3 MHz<br>802.11b/g/n: 2412 MHz ~ 2462 MHz<br>802.11a/n/ac: 5180 MHz ~ 5240 MHz;<br>5260 MHz ~ 5320 MHz;<br>5500 MHz ~ 5700 MHz<br>5745 MHz ~ 5825 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz<br>GNSS : 1559 MHz ~ 1610 MHz<br>NFC : 13.56 MHz |
| <b>Antenna Type</b>                     | WWAN : LDS Antenna<br>WLAN : LDS Antenna<br>Bluetooth : LDS Antenna<br>GNSS: LDS Antenna<br>NFC : Loop Antenna  |
| <b>Type of Modulation</b>               | GSM: GMSK<br>GPRS: GMSK<br>EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK<br>WCDMA : BPSK<br>HSDPA/DC-HSDPA : QPSK   |



|  |   |
|--|---|
|  | HSUPA : QPSK<br>HSPA+ : 16QAM<br>DC-HSDPA : 64QAM<br>LTE: QPSK / 16QAM / 64QAM<br>802.11b : DSSS (DBPSK / DQPSK / CCK)<br>802.11a/g/n/ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)<br>Bluetooth LE : GFSK<br>Bluetooth (1Mbps) : GFSK<br>Bluetooth (2Mbps) : π/4-DQPSK<br>Bluetooth (3Mbps) : 8-DPSK<br>GNSS : BPSK<br>NFC: ASK |
|--|---|

**Note:**

1. GNSS Rx = GPS
2. WLAN operation in 5600 MHz ~ 5650 MHz is notched.

### 1.5. Modification of EUT

No modifications are made to the EUT during all test items.

### 1.6. Test Location

Sporton International (Shenzhen) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

|                           |   |                            |                                       |
|---------------------------|---|----------------------------|---------------------------------------|
| <b>Test Firm</b>          | Sporton International (Shenzhen) Inc.   |                            |                                       |
| <b>Test Site Location</b> | 1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China<br>TEL: +86-755-86379589<br>FAX: +86-755-86379595 |                            |                                       |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>   | <b>FCC Designation No.</b> | <b>FCC Test Firm Registration No.</b> |
|                           | CO01-SZ   | CN1256                     | 421272                                |

|                           |   |                            |                                       |
|---------------------------|---|----------------------------|---------------------------------------|
| <b>Test Firm</b>          | Sporton International (Shenzhen) Inc.   |                            |                                       |
| <b>Test Site Location</b> | No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan Shenzhen, 518055 People's Republic of China<br>TEL: +86-755-33202398 |                            |                                       |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>   | <b>FCC Designation No.</b> | <b>FCC Test Firm Registration No.</b> |
|                           | 03CH01-SZ   | CN1256                     | 421272                                |



### 1.7. Test Software

| Item | Site      | Manufacture | Name | Version     |
|------|-----------|-------------|------|-------------|
| 1.   | 03CH01-SZ | AUDIX       | E3   | 6.2009-8-24 |
| 2.   | CO01-SZ   | AUDIX       | E3   | 6.120613b   |

### 1.8. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR Part 15 Subpart B
- ♦ ANSI C63.4-2014

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.





## 2. Test Configuration of Equipment Under Test

### 2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

| Test Items            | Function Type  |
|-----------------------|--|
| AC Conducted Emission | Mode 1: GSM850 Idle(Middle CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + Camera(Rear) + SD Card load for Sample 1         |
|                       | Mode 2: GSM1900 Idle(Middle CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(5G) + Camera(Front) + SD Card load for Sample 1         |
|                       | Mode 3: WCDMA Band V Idle(Low CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + MPEG4(Colour bar) + SD Card Link for Sample 1 |
|                       | Mode 4: LTE Band 12 Idle(Middle CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(5G) + NFC On + SD Card load for Sample 1            |
|                       | Mode 5: LTE Band 14 Idle(High CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + Camera(Rear) + SD Card load for Sample 1      |
|                       | Mode 6: LTE Band 29 Idle(Middle CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(5G) + H-Pattern + SD Card load for Sample 1         |
|                       | Mode 7: LTE Band 66 Idle(Low CH) + USB Cable 1(Data Link with Notebook) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + GNSS RX + SD Card Link for Sample 1          |
|                       | Mode 8: GSM850 Idle(Middle CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + Camera(Rear) + SD Card load for Sample 2         |
|                       | Mode 9: GSM850 Idle(Middle CH) + USB Cable 2(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + Camera(Rear) + SD Card load for Sample 1         |
|                       | Mode 10 : LTE Band 66 Idle(Low CH) + USB Cable 2(Data Link with Notebook) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + GNSS RX + SD Card Link for Sample 1        |

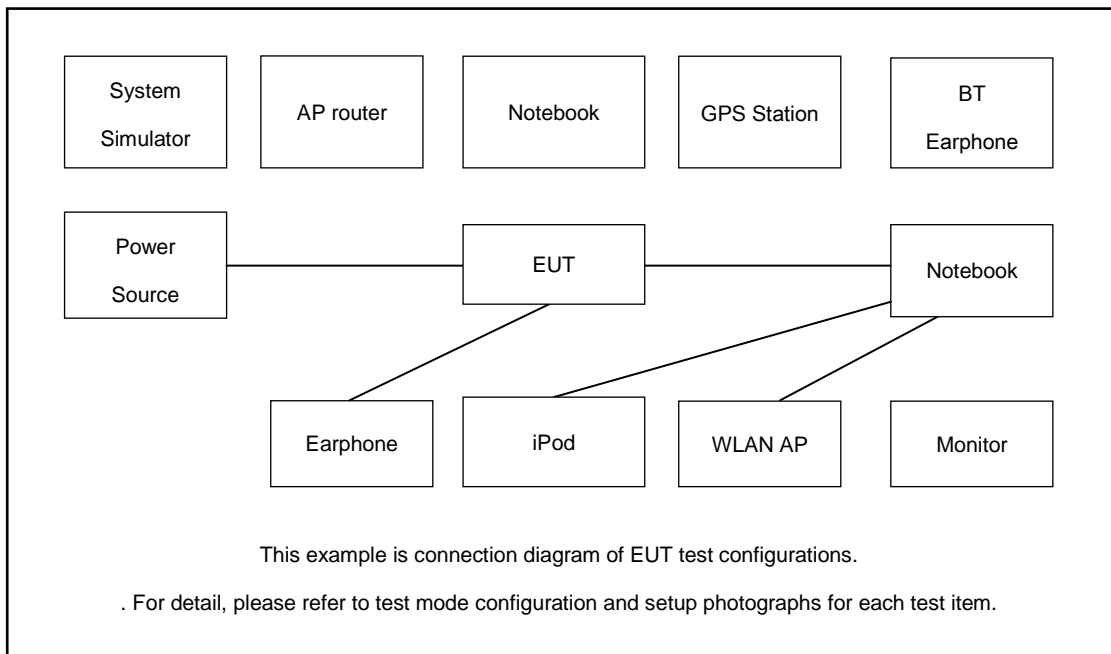


|                    |   |
|--------------------|---|
| Radiated Emissions | <p>Mode 1: GSM850 Idle(Middle CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + Camera(Rear) + SD Card load for Sample 1</p> <p>Mode 2: GSM1900 Idle(Middle CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(5G) + Camera(Front) + SD Card load for Sample 1</p> <p>Mode 3: WCDMA Band V Idle(Low CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + MPEG4(Colour bar) + SD Card Link for Sample 1</p> <p>Mode 4: LTE Band 12 Idle(Middle CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(5G) + NFC On + SD Card load for Sample 1</p> <p>Mode 5: LTE Band 14 Idle(High CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + Camera(Rear) + SD Card load for Sample 1</p> <p>Mode 6: LTE Band 29 Idle(Middle CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(5G) + H-Pattern + SD Card load for Sample 1</p> <p>Mode 7: LTE Band 66 Idle(Low CH) + USB Cable 1(Data Link with Notebook) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + GNSS RX + SD Card Link for Sample 1</p> <p>Mode 8: GSM850 Idle(Middle CH) + USB Cable 1(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + Camera(Rear) + SD Card load for Sample 2</p> <p>Mode 9: GSM850 Idle(Middle CH) + USB Cable 2(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + Camera(Rear) + SD Card load for Sample 2</p> <p>Mode 10 : LTE Band 66 Idle(Low CH) + USB Cable 2(Data Link with Notebook) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + GNSS RX + SD Card Link for Sample 2</p> |
|--------------------|---|

**Remark:**

1. The worst case of AC is mode 1; only the test data of this mode is reported.
2. The worst case of RE is mode 8; only the test data of this mode is reported.
3. Data Link with Notebook means data application transferred mode between EUT and Notebook.
4. Pre-scanned Low/Middle/High channel for GSM850/WCDMA Band V/LTE Band 12/14/29/66, the worst channel was recorded in this report.

## 2.2. Connection Diagram of Test System



The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application

## 2.3. Support Unit used in test configuration and system

| Item | Equipment            | Trade Name | Model Name           | FCC ID      | Data Cable     | Power Cord   |
|------|----------------------|------------|----------------------|-------------|----------------|--|
| 1.   | System Simulator     | R&S        | CMU 200              | N/A         | N/A            | Unshielded, 1.8 m  |
| 2.   | Base Station(LTE)    | Anritsu    | MT8820C              | N/A         | N/A            | Unshielded,1.8m  |
| 3.   | Labsat               | RACELOGIC  | 18645                | N/A         | N/A            | Unshielded,1.8m  |
| 4.   | LABS ATGPS Simulator | RACELOGIC  | RLLS03-2P            | Fcc DoC     | N/A            | Unshielded,1.8m  |
| 5.   | WLAN AP              | Dlink      | DIR-820L             | KA2IR820LA1 | N/A            | Unshielded,1.8m  |
| 6.   | WLAN AP              | ASUS       | RT-AC66U             | MSQ-RTAC66U | N/A            | Unshielded,1.8m  |
| 7.   | Notebook             | Lenovo     | E540                 | FCC DoC     | N/A            | AC I/P:<br>Unshielded, 1.2 m<br>DC O/P:<br>Shielded, 1.8 m |
| 8.   | Bluetooth Earphone   | Samsung    | EO-MG900             | PYAHS-107W  | N/A            | N/A  |
| 9.   | Earphone             | apple      | DCAY1V-A9007ZJW3-000 | N/A         | N/A            | N/A  |
| 10.  | IPod                 | Apple      | MC69029/A            | N/A         | N/A            | N/A  |
| 11.  | iPod                 | Apple      | MC525 ZP/A           | DoC         | Shielded, 1.0m | N/A  |



## **2.4. EUT Operation Test Setup**

The EUT was in GSM or WCDMA or LTE idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. Data application is transferred between notebook and EUT via USB cable.
2. Turn on camera to capture images.
3. Turn on MPEG4 function.
4. Turn on NFC function.
5. Turn on GNSS function to make the EUT receive continuous signals from GNSS station.
6. Execute "H Pattern" to show H Pattern via HDMI Cable on the Monitor.

### 3. Test Result

#### 3.1. Test of AC Conducted Emission Measurement

##### 3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

<Class B Limit>

| Frequency of emission<br>(MHz) | Conducted limit (dBuV) |           |
|--------------------------------|------------------------|-----------|
|                                | Quasi-peak             | Average   |
| 0.15-0.5                       | 66 to 56*              | 56 to 46* |
| 0.5-5                          | 56                     | 46        |
| 5-30                           | 60                     | 50        |

\*Decreases with the logarithm of the frequency.

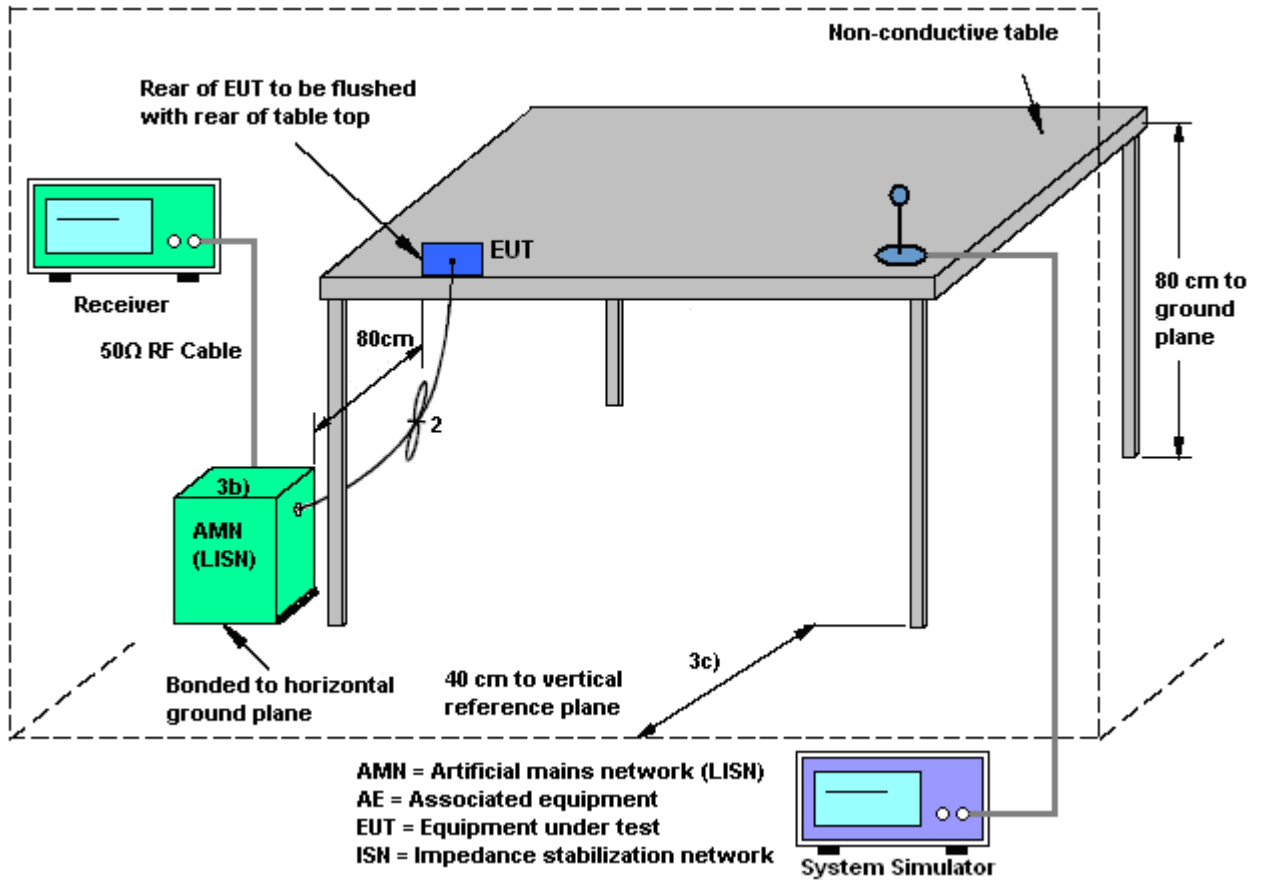
##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

##### 3.1.3 Test Procedure

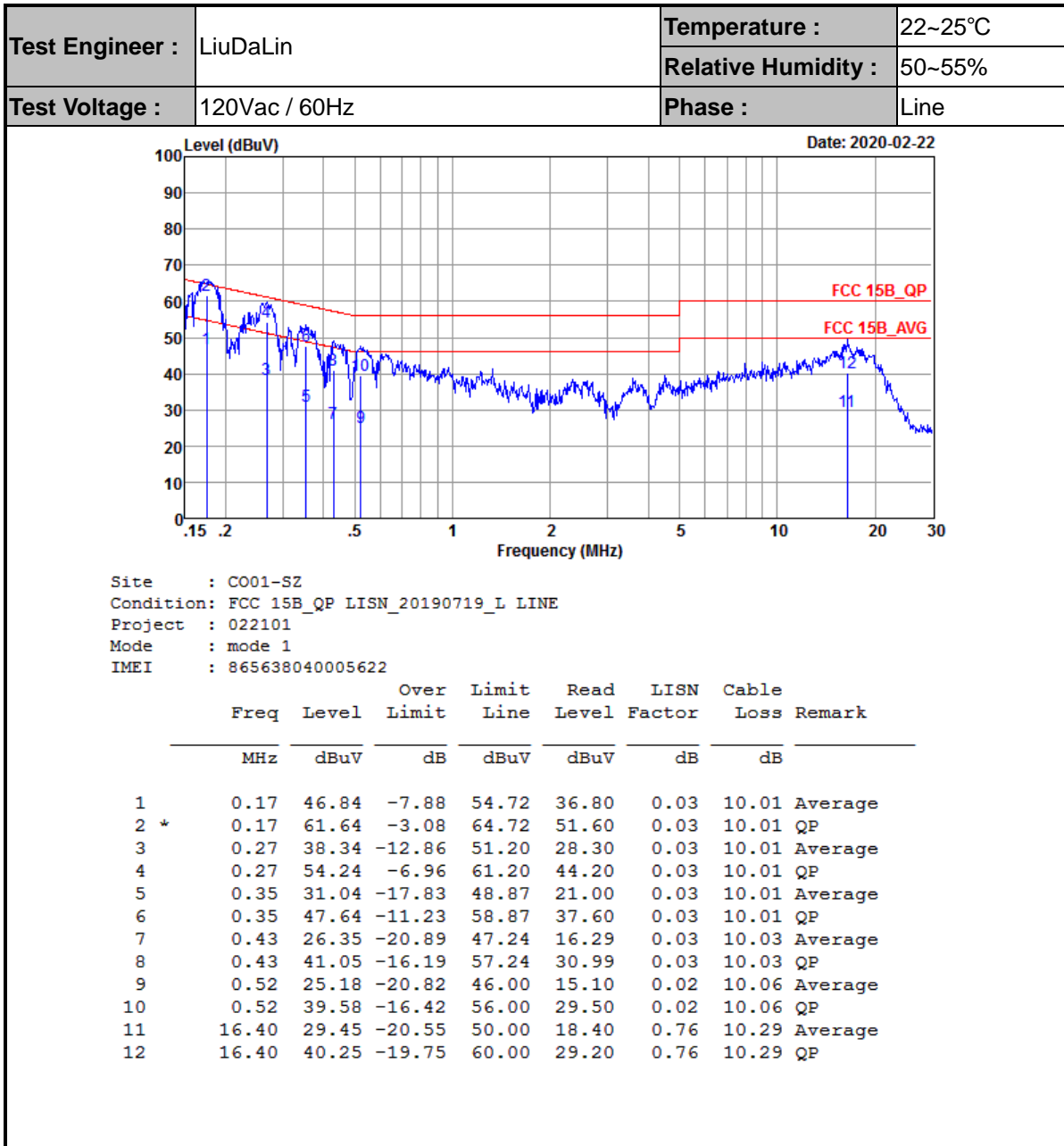
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

### 3.1.4 Test Setup



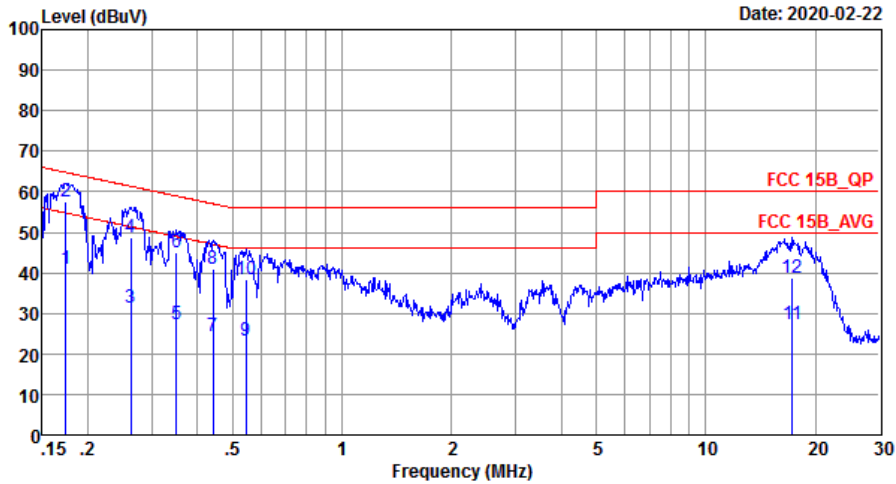


3.1.5 Test Result of AC Conducted Emission





|                 |               |                     |         |
|-----------------|---------------|---------------------|---------|
| Test Engineer : | LiuDaLin      | Temperature :       | 22~25°C |
|                 |               | Relative Humidity : | 50~55%  |
| Test Voltage :  | 120Vac / 60Hz | Phase :             | Neutral |



Site : C001-SZ  
 Condition: FCC 15B\_QP LISN\_20190719\_N NEUTRAL  
 Project : 022101  
 Mode : mode 1  
 IMEI : 865638040005622

|     | Freq  | Level | Over   | Limit | Read  | LISN   | Cable | Remark  |
|-----|-------|-------|--------|-------|-------|--------|-------|---------|
|     | MHz   | dBuV  | Limit  | Line  | Level | Factor | Loss  |         |
|     |       |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1   | 0.17  | 41.04 | -13.73 | 54.77 | 31.00 | 0.03   | 10.01 | Average |
| 2 * | 0.17  | 57.64 | -7.13  | 64.77 | 47.60 | 0.03   | 10.01 | QP      |
| 3   | 0.26  | 31.54 | -19.80 | 51.34 | 21.50 | 0.03   | 10.01 | Average |
| 4   | 0.26  | 48.84 | -12.50 | 61.34 | 38.80 | 0.03   | 10.01 | QP      |
| 5   | 0.35  | 27.43 | -21.53 | 48.96 | 17.40 | 0.02   | 10.01 | Average |
| 6   | 0.35  | 45.03 | -13.93 | 58.96 | 35.00 | 0.02   | 10.01 | QP      |
| 7   | 0.44  | 24.35 | -22.67 | 47.02 | 14.30 | 0.02   | 10.03 | Average |
| 8   | 0.44  | 41.05 | -15.97 | 57.02 | 31.00 | 0.02   | 10.03 | QP      |
| 9   | 0.54  | 23.08 | -22.92 | 46.00 | 13.00 | 0.02   | 10.06 | Average |
| 10  | 0.54  | 38.28 | -17.72 | 56.00 | 28.20 | 0.02   | 10.06 | QP      |
| 11  | 17.29 | 27.44 | -22.56 | 50.00 | 16.70 | 0.45   | 10.29 | Average |
| 12  | 17.29 | 38.84 | -21.16 | 60.00 | 28.10 | 0.45   | 10.29 | QP      |

Note:

- Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
- Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)



## 3.2. Test of Radiated Emission Measurement

### 3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

<Class B Limit>

| Frequency (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 30 – 88         | 100                               | 3                             |
| 88 – 216        | 150                               | 3                             |
| 216 - 960       | 200                               | 3                             |
| Above 960       | 500                               | 3                             |

### 3.2.2. Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.2.3. Test Procedures

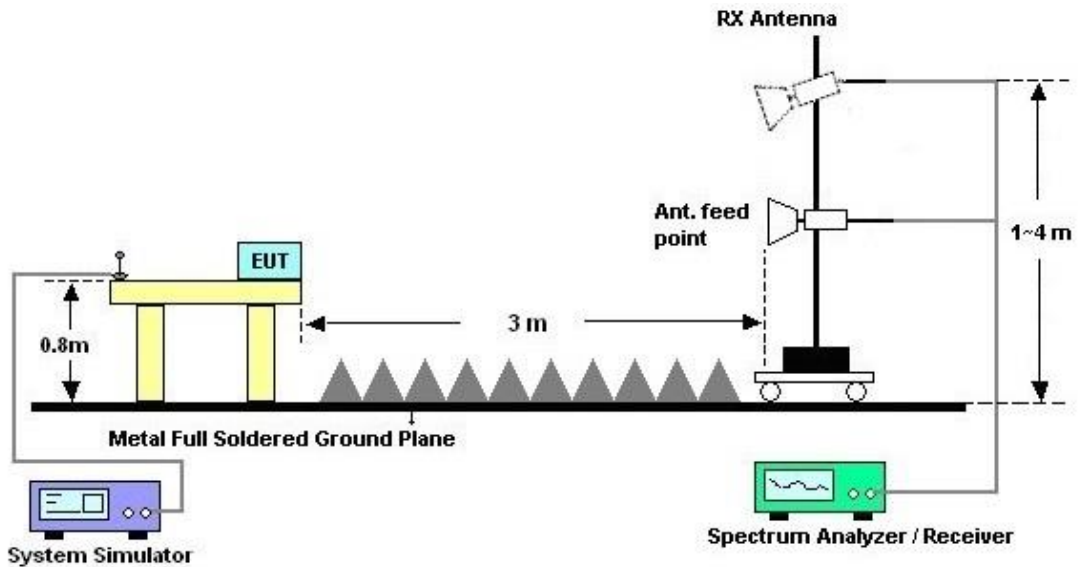
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, 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.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dBμV/m) = 20 log Emission level (μV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

### 3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



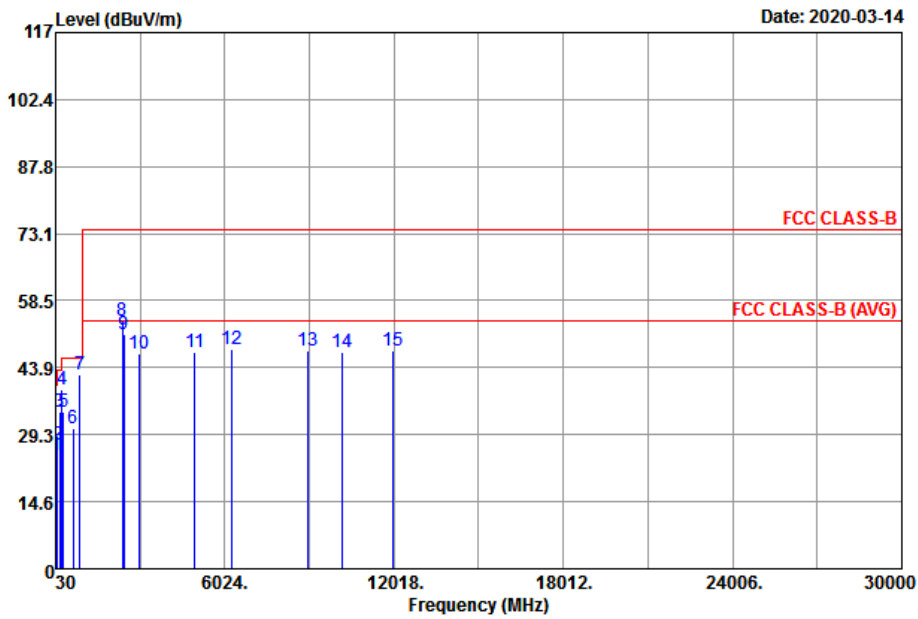
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

|                 |   |                     |            |
|-----------------|---|---------------------|------------|
| Test Engineer : | Vikki   | Temperature :       | 24~25°C    |
|                 |   | Relative Humidity : | 48~49%     |
| Test Distance : | 3m  | Polarization :      | Horizontal |
| Remark :        | #7 is system simulator signal which can be ignored.<br>#8 and #9 is RF signal which comes from Bluetooth and WLAN Access Point used to connect the EUT, and which can be ignored. |                     |            |

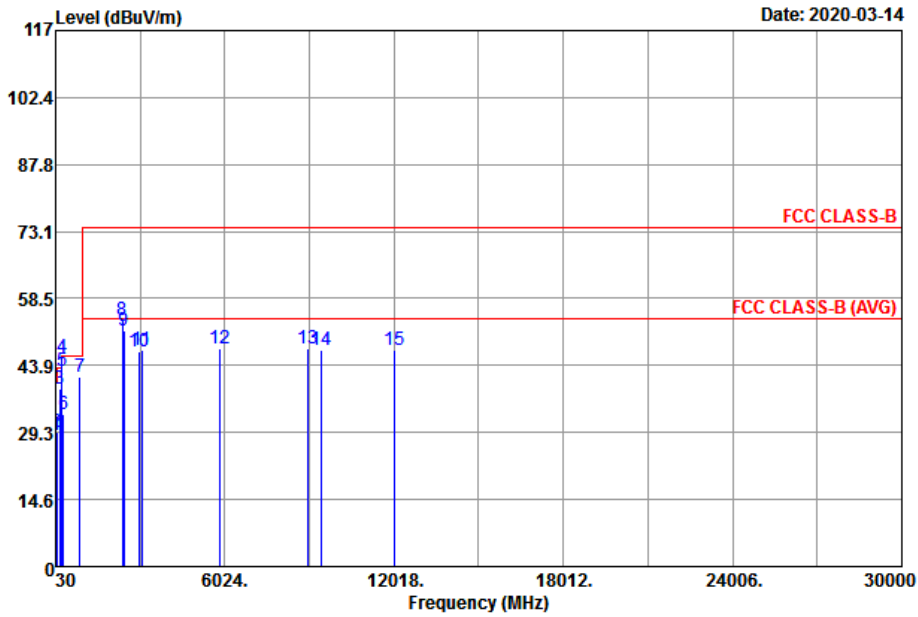


Site : 03CH01-SZ  
 Condition : FCC CLASS-B 3m LF\_ANT(35408)\_2019 HORIZONTAL  
 Project : 022101  
 Mode : Mode 8  
 IMEI : 865638040004112  
 Plane : Y

|    | Freq     | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | A/Pos | T/Pos | Remark |      |
|----|----------|--------|--------|--------|-------------|-------|--------|-------|-------|--------|------|
|    | MHz      | dBuV/m | dB     | dBuV/m | dBuV        | dB/m  | dB     | dB    | cm    | deg    |      |
| 1  | 30.00    | 24.72  | -15.28 | 40.00  | 30.11       | 24.90 | 1.01   | 31.30 | ---   | ---    | Peak |
| 2  | 101.78   | 27.07  | -16.43 | 43.50  | 39.56       | 17.26 | 1.85   | 31.60 | ---   | ---    | Peak |
| 3  | 173.56   | 34.16  | -9.34  | 43.50  | 47.40       | 15.72 | 2.39   | 31.35 | ---   | ---    | Peak |
| 4  | 260.86   | 38.97  | -7.03  | 46.00  | 48.06       | 19.62 | 2.92   | 31.63 | 115   | 230    | Peak |
| 5  | 311.30   | 34.07  | -11.93 | 46.00  | 42.65       | 19.62 | 3.18   | 31.38 | ---   | ---    | Peak |
| 6  | 648.86   | 30.79  | -15.21 | 46.00  | 32.22       | 25.39 | 4.59   | 31.41 | ---   | ---    | Peak |
| 7  | 880.69   | 42.53  |        |        | 41.97       | 26.70 | 5.32   | 31.46 | ---   | ---    | Peak |
| 8  | 2402.00  | 53.94  |        |        | 69.93       | 32.90 | 8.84   | 57.73 | ---   | ---    | Peak |
| 9  | 2437.00  | 51.04  |        |        | 66.86       | 32.95 | 8.92   | 57.69 | ---   | ---    | Peak |
| 10 | 2992.00  | 46.99  | -27.01 | 74.00  | 60.87       | 33.48 | 9.95   | 57.31 | ---   | ---    | Peak |
| 11 | 4958.00  | 47.27  | -26.73 | 74.00  | 55.70       | 34.89 | 14.26  | 57.58 | ---   | ---    | Peak |
| 12 | 6262.00  | 47.81  | -26.19 | 74.00  | 55.29       | 36.11 | 14.34  | 57.93 | 119   | 214    | Peak |
| 13 | 8942.00  | 47.66  | -26.34 | 74.00  | 51.11       | 37.06 | 18.50  | 59.01 | ---   | ---    | Peak |
| 14 | 10182.00 | 47.21  | -26.79 | 74.00  | 47.57       | 38.44 | 20.39  | 59.19 | ---   | ---    | Peak |
| 15 | 11977.50 | 47.60  | -26.40 | 74.00  | 44.15       | 39.77 | 20.90  | 57.22 | ---   | ---    | Peak |



|                 |   |                     |          |
|-----------------|---|---------------------|----------|
| Test Engineer : | Vikki   | Temperature :       | 24~25°C  |
|                 |   | Relative Humidity : | 48~49%   |
| Test Distance : | 3m  | Polarization :      | Vertical |
| Remark :        | #7 is system simulator signal which can be ignored.<br>#8 and #9 is RF signal which comes from Bluetooth and WLAN Access Point used to connect the EUT, and which can be ignored. |                     |          |



Site : 03CH01-SZ  
 Condition : FCC CLASS-B 3m LF\_ANT(35408)\_2019 VERTICAL  
 Project : 022101  
 Mode : Mode 8  
 IMEI : 865638040004112  
 Plane : Y

|    | Freq     | Level  | Over Limit | Limit Line | ReadAntenna | Cable | Preamp | A/Pos | T/Pos | Remark |      |
|----|----------|--------|------------|------------|-------------|-------|--------|-------|-------|--------|------|
|    | MHz      | dBuV/m | dB         | dBuV/m     | dBuV        | dB/m  | dB     | dB    | cm    | deg    |      |
| 1  | 37.76    | 28.53  | -11.47     | 40.00      | 37.90       | 20.90 | 1.13   | 31.40 | ---   | ---    | Peak |
| 2  | 60.07    | 29.45  | -10.55     | 40.00      | 47.33       | 12.30 | 1.42   | 31.60 | ---   | ---    | Peak |
| 3  | 170.65   | 38.62  | -4.88      | 43.50      | 51.76       | 15.85 | 2.37   | 31.36 | ---   | ---    | Peak |
| 4  | 257.95   | 45.74  | -0.26      | 46.00      | 54.99       | 19.50 | 2.90   | 31.65 | 100   | 75     | Peak |
| 5  | 257.95   | 42.62  | -3.38      | 46.00      | 51.87       | 19.50 | 2.90   | 31.65 | 100   | 75     | QP   |
| 6  | 309.36   | 33.09  | -12.91     | 46.00      | 41.73       | 19.57 | 3.17   | 31.38 | ---   | ---    | Peak |
| 7  | 880.69   | 41.36  |            |            | 40.80       | 26.70 | 5.32   | 31.46 | ---   | ---    | Peak |
| 8  | 2402.00  | 53.69  |            |            | 69.68       | 32.90 | 8.84   | 57.73 | ---   | ---    | Peak |
| 9  | 2437.00  | 51.54  |            |            | 67.36       | 32.95 | 8.92   | 57.69 | ---   | ---    | Peak |
| 10 | 2968.00  | 46.89  | -27.11     | 74.00      | 60.85       | 33.47 | 9.89   | 57.32 | ---   | ---    | Peak |
| 11 | 3076.00  | 47.19  | -26.81     | 74.00      | 60.87       | 33.50 | 10.09  | 57.27 | ---   | ---    | Peak |
| 12 | 5828.00  | 47.72  | -26.28     | 74.00      | 55.63       | 35.56 | 14.13  | 57.60 | 120   | 280    | Peak |
| 13 | 8982.00  | 47.70  | -26.30     | 74.00      | 50.87       | 37.09 | 18.74  | 59.00 | ---   | ---    | Peak |
| 14 | 9446.00  | 47.14  | -26.86     | 74.00      | 48.50       | 37.46 | 20.36  | 59.18 | ---   | ---    | Peak |
| 15 | 12037.50 | 47.26  | -26.74     | 74.00      | 43.74       | 39.81 | 20.93  | 57.22 | ---   | ---    | Peak |

Note:

- Level(dBμV/m) = Read Level(dBμV) + Antenna Factor(dB/m) + Cable Loss(dB) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)



### 4. List of Measuring Equipment

| Instrument                        | Manufacturer | Model No.                    | Serial No.   | Characteristics | Calibration Date | Test Date     | Due Date      | Remark                |
|-----------------------------------|--------------|------------------------------|--------------|-----------------|------------------|---------------|---------------|-----------------------|
| EMI Receiver                      | R&S          | ESR7                         | 101630       | 9kHz~7GHz;      | Dec. 26, 2019    | Feb. 22, 2020 | Dec. 25, 2020 | Conduction (CO01-SZ)  |
| AC LISN                           | EMCO         | 3816/2SH                     | 00103912     | 9kHz~30MHz      | Oct. 17, 2019    | Feb. 22, 2020 | Oct. 16, 2020 | Conduction (CO01-SZ)  |
| AC LISN (for auxiliary equipment) | EMCO         | 3816/2SH                     | 00103892     | 9kHz~30MHz      | Dec. 26, 2019    | Feb. 22, 2020 | Dec. 25, 2020 | Conduction (CO01-SZ)  |
| AC Power Source                   | Chroma       | 61602                        | 616020000891 | 100Vac~250Vac   | Jul. 23, 2019    | Feb. 22, 2020 | Jul. 22, 2020 | Conduction (CO01-SZ)  |
| EMI Test Receiver&SA              | Agilent      | N9038A                       | MY52260185   | 20Hz~26.5GHz    | Jul. 22, 2019    | Mar. 14, 2020 | Jul. 21, 2020 | Radiation (03CH01-SZ) |
| EXA Spectrum Analyzer             | KEYSIGHT     | N9010A                       | MY55150213   | 10Hz~44GHz      | Apr. 16, 2019    | Mar. 14, 2020 | Apr. 15, 2020 | Radiation (03CH01-SZ) |
| HF Amplifier                      | KEYSIGHT     | 83017A                       | MY53270104   | 0.5GHz~26.5GHz  | Dec. 27, 2019    | Mar. 14, 2020 | Dec. 26, 2020 | Radiation (03CH01-SZ) |
| Bilog Antenna                     | TeseQ        | CBL6112D                     | 35407        | 30MHz~2GHz      | Jul. 19, 2019    | Mar. 14, 2020 | Jul. 18, 2020 | Radiation (03CH01-SZ) |
| Double Ridge Horn Antenna         | ETS-Lindgren | 3117                         | 00119436     | 1GHz~18GHz      | Aug. 27, 2019    | Mar. 14, 2020 | Aug. 26, 2020 | Radiation (03CH01-SZ) |
| LF Amplifier                      | Burgeon      | BPA-530                      | 102209       | 0.01~3000Mhz    | Apr. 16, 2019    | Mar. 14, 2020 | Apr. 15, 2020 | Radiation (03CH01-SZ) |
| HF Amplifier                      | MITEQ        | AMF-7D-0010<br>1800-30-10P-R | 1943528      | 1GHz~18GHz      | Oct. 18, 2019    | Mar. 14, 2020 | Oct. 17, 2020 | Radiation (03CH01-SZ) |
| HF Amplifier                      | MITEQ        | TTA1840-35-H<br>G            | 1871923      | 18GHz~40GHz     | Jul. 22, 2019    | Mar. 14, 2020 | Jul. 21, 2020 | Radiation (03CH01-SZ) |
| SHF-EHF Horn                      | com-power    | AH-840                       | 101071       | 18Ghz~40GHz     | Apr. 16, 2019    | Mar. 14, 2020 | Apr. 15, 2020 | Radiation (03CH01-SZ) |
| AC Power Source                   | Chroma       | 61601                        | 616010001985 | N/A             | NCR              | Mar. 14, 2020 | NCR           | Radiation (03CH01-SZ) |
| Turn Table                        | EM           | EM1000                       | N/A          | 0~360 degree    | NCR              | Mar. 14, 2020 | NCR           | Radiation (03CH01-SZ) |
| Antenna Mast                      | EM           | EM1000                       | N/A          | 1 m~4 m         | NCR              | Mar. 14, 2020 | NCR           | Radiation (03CH01-SZ) |

NCR: No Calibration Required



## 5. Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

|   |       |
|---|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 2.6dB |
|---|-------|

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

|   |       |
|---|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 4.8dB |
|---|-------|

### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

|   |       |
|---|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 5.0dB |
|---|-------|

### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

|   |       |
|---|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 4.3dB |
|---|-------|