



# FCC Test Report

APPLICANT : Motorola Mobility LLC  
EQUIPMENT : Mobile Cellular Phone  
BRAND NAME : Motorola  
MODEL NAME : XT2425-4  
FCC ID : IHDT56AP7  
STANDARD : 47 CFR Part 15 Subpart B  
CLASSIFICATION : Certification  
TEST DATE(S) : Oct. 31, 2023 ~ Nov. 03, 2023

We, Sporton International Inc. (Shenzhen), 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 Inc. (Shenzhen), the test report shall not be reproduced except in full.

Jason Jia

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Approved by: Jason Jia



**Sporton International Inc. (ShenZhen)**

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**People's Republic of China**



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## REVISION HISTORY

| REPORT NO.  | VERSION | DESCRIPTION             | ISSUED DATE   |
|-------------|---------|-------------------------|---------------|
| FC3O1717-04 | Rev. 01 | Initial issue of report | Nov. 14, 2023 |
|             |         |                         |               |
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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>7.10 dB at<br>0.150 MHz  |
| 3.2            | 15.109   | Radiated Emission     | < 15.109 limits | PASS   | Under limit<br>5.27 dB at<br>38.730 MHz |

**Conformity Assessment Condition:**

The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account. Please refer to each test results in the section "Measurement Uncertainty".

**Disclaimer:**

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



## 1. General Description

### 1.1. Applicant

Motorola Mobility LLC

222 W. Merchandise Mart Plaza, Chicago IL 60654, USA

### 1.2. Manufacturer

Motorola Mobility LLC

222 W. Merchandise Mart Plaza, Chicago IL 60654, USA

### 1.3. Product Feature of Equipment Under Test

| Product Feature                 |                                                                                                                                                                   |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment                       | Mobile Cellular Phone                                                                                                                                             |
| Brand Name                      | Motorola                                                                                                                                                          |
| Model Name                      | XT2425-4                                                                                                                                                          |
| FCC ID                          | IHDT56AP7                                                                                                                                                         |
| EUT supports Radios application | GSM/WCDMA/LTE<br>WLAN 2.4GHz 802.11b/g/n HT20/HT40<br>WLAN 5GHz 802.11a/n HT20/HT40<br>WLAN 5GHz 802.11ac VHT20/VHT40/VHT80<br>Bluetooth BR/EDR/LE<br>GNSS/NFC/FM |
| IMEI Code                       | Radiation/Conduction:<br>351966220008962/351966220010273 for sample 1<br>355913380013651/355913380014121 for sample 2                                             |
| HW Version                      | DVT2                                                                                                                                                              |
| SW Version                      | UTA34.66                                                                                                                                                          |
| EUT Stage                       | 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 samples under test, the main difference could be referred to the XT2425-4\_Operational Description of Product Equality Declaration which is exhibit separately. According to the difference, we choose sample 1 to perform full test and the sample 2 verify the difference.

## 1.4. Product Specification of Equipment Under Test

| Standards-related Product Specification |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tx Frequency</b>                     | GSM850: 824 MHz ~ 849 MHz<br>GSM1900: 1850MHz ~ 1910MHz<br>WCDMA Band II: 1850 MHz ~ 1910 MHz<br>WCDMA Band V: 824 MHz ~ 849 MHz<br>LTE Band 2 : 1850 MHz ~ 1910 MHz<br>LTE Band 5 : 824 MHz ~ 849 MHz<br>LTE Band 7 : 2500 MHz ~ 2570 MHz<br>LTE Band 38 : 2570 MHz ~ 2620 MHz<br>LTE Band 41 : 2535 MHz ~ 2655 MHz<br>802.11b/g/n: 2400 MHz ~ 2483.5 MHz<br>802.11a/n/ac: 5150 MHz ~ 5250 MHz;<br>5250 MHz ~ 5350 MHz;<br>5470 MHz ~ 5725 MHz<br>5725 MHz ~ 5850 MHz<br>Bluetooth: 2400 MHz ~ 2483.5 MHz<br>NFC : 13.56 MHz                                                         |
| <b>Rx Frequency</b>                     | GSM850: 869 MHz ~ 894 MHz<br>GSM1900: 1930 MHz ~ 1990 MHz<br>WCDMA Band II: 1930 MHz ~ 1990 MHz<br>WCDMA Band V: 869 MHz ~ 894 MHz<br>LTE Band 2 : 1930 MHz ~ 1990 MHz<br>LTE Band 5 : 869 MHz ~ 894 MHz<br>LTE Band 7 : 2620 MHz ~ 2690 MHz<br>LTE Band 38: 2570 MHz ~ 2620 MHz<br>LTE Band 41 : 2535 MHz ~ 2655 MHz<br>802.11b/g/n: 2400 MHz ~ 2483.5 MHz<br>802.11a/n/ac: 5150 MHz ~ 5250 MHz;<br>5250 MHz ~ 5350 MHz;<br>5470 MHz ~ 5725 MHz<br>5725 MHz ~ 5850 MHz<br>Bluetooth: 2400 MHz ~ 2483.5 MHz<br>NFC : 13.56 MHz<br>GNSS : 1559 MHz ~ 1610 MHz<br>FM : 88 MHz ~ 108 MHz |
| <b>Antenna Type</b>                     | WWAN : PIFA Antenna<br>WLAN : PIFA Antenna<br>Bluetooth : PIFA Antenna<br>GNSS: PIFA Antenna<br>NFC: Loop Antenna<br>FM : External Earphone Antenna                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Type of Modulation</b>               | GSM/GPRS: GMSK<br>EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK<br>WCDMA : BPSK<br>HSPA : 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: OFDM (BPSK / QPSK / 16QAM / 64QAM)<br>802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)                                                                                                                                                                                                                                                                           |

|  |                                                                                                                                                      |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Bluetooth LE : GFSK<br>Bluetooth (1Mbps) : GFSK<br>Bluetooth (2Mbps) : $\pi/4$ -DQPSK<br>Bluetooth (3Mbps) : 8-DPSK<br>GNSS : BPSK<br>NFC: ASK<br>FM |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------|

## 1.5. Modification of EUT

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

## 1.6. Test Location

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

|                           |                                                                                                                                                                            |                            |                                       |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------|
| <b>Test Firm</b>          | Sporton International Inc. (Shenzhen)                                                                                                                                      |                            |                                       |
| <b>Test Site Location</b> | 1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan,<br>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 Inc. (Shenzhen)                                                                                                                                                                                 |                            |                                       |
| <b>Test Site Location</b> | 101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang<br>Community, Fuyong Street, Baoan District, Shenzhen City, Guangdong<br>Province 518103 People's Republic of China<br>TEL: +86-755-86066985 |                            |                                       |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                                                                                               | <b>FCC Designation No.</b> | <b>FCC Test Firm Registration No.</b> |
|                           | 03CH05-SZ                                                                                                                                                                                                             | CN1256                     | 421272                                |

## 1.7. Test Software

| Item | Site      | Manufacturer | Name | Version     |
|------|-----------|--------------|------|-------------|
| 1.   | 03CH05-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.

## 1.9. Specification of Accessory

| Specification of Accessory |            |                    |            |               |
|----------------------------|------------|--------------------|------------|---------------|
| AC Adapter 1(US)           | Brand Name | Motorola (Salcomp) | Model Name | MC-331        |
| AC Adapter 1(EU)           | Brand Name | Motorola (Salcomp) | Model Name | MC-332        |
| AC Adapter 1(UK)           | Brand Name | Motorola (Salcomp) | Model Name | MC-333        |
| AC Adapter 1(AR)           | Brand Name | Motorola (Salcomp) | Model Name | MC-336        |
| AC Adapter 1(CHILE)        | Brand Name | Motorola (Salcomp) | Model Name | MC-339        |
| AC Adapter 2(US)           | Brand Name | Motorola (Acbel)   | Model Name | MC-331        |
| AC Adapter 2(EU)           | Brand Name | Motorola (Acbel)   | Model Name | MC-332        |
| AC Adapter 2(UK)           | Brand Name | Motorola (Acbel)   | Model Name | MC-333        |
| AC Adapter 3(IN)           | Brand Name | Motorola (AOHAI)   | Model Name | MC-334        |
| AC Adapter 3(IN local)     | Brand Name | Motorola (Xihi)    | Model Name | MC-334        |
| Battery 1                  | Brand Name | Motorola (ATL)     | Model Name | PC60          |
| Battery 2                  | Brand Name | Motorola (sunwoda) | Model Name | PC60          |
| USB Cable 1                | Brand Name | Motorola (Juwei)   | Model Name | JWUB1614-T03H |
| USB Cable 2                | Brand Name | Motorola (saibao)  | Model Name | STN-A128A     |

## 2. Test Configuration of Equipment Under Test

### 2.1. Test Mode

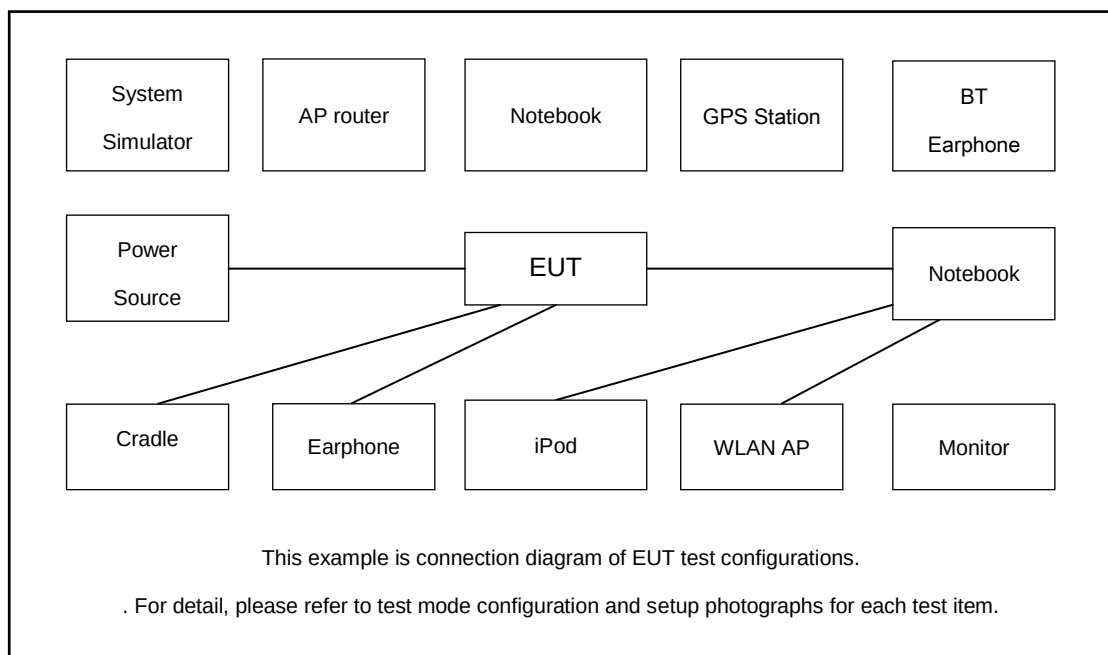
The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

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

| Test Items            | Function Type                                                                                                                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC Conducted Emission | Mode 1: GSM 850 Idle(Middle CH) + Camera(Rear) + Earphone + SIM 1 + Battery 1 + (SD Card Load) + USB Cable 1 (Charging from Adapter1 ) for Sample 1                                       |
|                       | Mode 2: WCDMA Band V Idle(Low CH) + Camera(Front) + Earphone + SIM 2 + Battery 1 + (SD Card Load) + USB Cable 2 (Charging from Adapter2 ) for Sample 1                                    |
|                       | Mode 3: LTE Band 5 Idle(Middle CH) + MPEG4(Run Color Bar) + Earphone + SIM 1 + Battery 1 + (SD Card Load) + USB Cable 2(Charging from Adapter3 ) for Sample 1                             |
|                       | Mode 4: LTE Band 5 Idle(Middle CH) + FM(98MHz)RX + Earphone + SIM 2 + Battery 1 + (SD Card Load) + USB Cable 1(Data Link with Notebook) + EUT (eMMC) USB Data Link to NB) for Sample 1    |
|                       | Mode 5: LTE Band 5 Idle(Middle CH) + FM(98MHz)RX + Earphone + SIM 1 + Battery 1 + (SD Card Load) + USB Cable 1(Data Link with Notebook) + NB USB Data Link to EUT (eMMC) for Sample 1     |
|                       | Mode 6: LTE Band 5 Idle(Middle CH) + FM(98MHz)RX + Earphone + SIM 2 + Battery 1 + (SD Card Link) + USB Cable 1(Data Link with Notebook) + EUT (SD Card) USB Data Link to NB) for Sample 1 |
|                       | Mode 7: LTE Band 5 Idle(Middle CH) + FM(98MHz)RX + Earphone + SIM 1 + Battery 1 + (SD Card Link) + USB Cable 1(Data Link with Notebook) + NB USB Data Link to EUT (SD Card) for Sample 1  |
|                       | Mode 8: LTE Band 5 Idle(Middle CH) + FM(98MHz)RX + Earphone + SIM 2 + Battery 1 + (SD Card Load) + USB Cable 1(Data Link with Notebook) for Sample 1                                      |
|                       | Mode 9: LTE Band 5 Idle(Middle CH) + Camera(Front) + Earphone + SIM 2 + Battery 2 + (SD Card Load) + USB Cable 1(Data Link with Notebook) + EUT (eMMC) USB Data Link to NB) for Sample 2  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Radiated Emissions                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Mode 1: GSM 850 Idle(Middle CH) + Camera(Rear) + Earphone + SIM 1 + Battery 1 + (SD Card Load) + USB Cable 1 (Charging from Adapter1 ) for Sample 1</p> <p>Mode 2: WCDMA Band V Idle(Low CH) + Camera(Front) + Earphone + SIM 2 + Battery 1 + (SD Card Load) + USB Cable 2 (Charging from Adapter2 ) for Sample 1</p> <p>Mode 3: LTE Band 5 Idle(Middle CH) + MPEG4(Run Color Bar) + Earphone + SIM 1 + Battery 1 + (SD Card Load) + USB Cable 2(Charging from Adapter3 ) for Sample 1</p> <p>Mode 4: LTE Band 5 Idle(Middle CH) + FM(98MHz)RX + Earphone + SIM 2 + Battery 1 + (SD Card Load) + USB Cable 1(Data Link with Notebook) + EUT (eMMC) USB Data Link to NB) for Sample 1</p> <p>Mode 5: LTE Band 5 Idle(Middle CH) + MPEG4(Run Color Bar) + Earphone + SIM 1 + Battery 1 + (SD Card Load) + USB Cable 1(Data Link with Notebook) + NB USB Data Link to EUT (eMMC) for Sample 1</p> <p>Mode 6: LTE Band 5 Idle(Middle CH) + MPEG4(Run Color Bar) + Earphone + SIM 2 + Battery 1 + (SD Card Link) + USB Cable 1(Data Link with Notebook) + EUT (SD Card) USB Data Link to NB) for Sample 1</p> <p>Mode 7: LTE Band 5 Idle(Middle CH) + MPEG4(Run Color Bar) + Earphone + SIM 1 + Battery 1 + (SD Card Link) + USB Cable 1(Data Link with Notebook) + NB USB Data Link to EUT (SD Card) for Sample 1</p> <p>Mode 8: LTE Band 5 Idle(Middle CH) + MPEG4(Run Color Bar) + Earphone + SIM 2 + Battery 1 + (SD Card Link) + USB Cable 1(Data Link with Notebook) for Sample 1</p> <p>Mode 9: LTE Band 5 Idle(Middle CH) + Camera(Rear) OR Camera(Front) + Earphone + SIM 2 + Battery 2 + (SD Card Link) + USB Cable 3(Charging from Adapter3 ) + for Sample 2</p> |
| <b>Remark:</b> <ol style="list-style-type: none"> <li>1. The worst case of AC is mode 4; only the test data of this mode is reported.</li> <li>2. The worst case of RE is mode 3; only the test data of this mode is reported.</li> <li>3. Data Link with Notebook means data application transferred mode between EUT and Notebook</li> <li>4. Pre-scanned Low/Middle/High channel, the worst channel was recorded in this report.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## 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.   | Base Station    | Anritsu    | MT8820C              | N/A         | N/A        | Unshielded,1.8m                                            |
| 2.   | WLAN AP         | Dlink      | DIR-820L             | KA21R820LA1 | N/A        | Unshielded,1.8m                                            |
| 3.   | Earphone        | apple      | DCAY1V-A900FZJW3-000 | N/A         | N/A        | N/A                                                        |
| 4.   | NOTE BOOK       | Lenovo     | E540                 | FCC DoC     | N/A        | AC I/P :<br>Unshielded, 1.2m<br>DC O/P : Shielded,<br>1.8m |
| 5.   | FM Base Station | R&S        | SMB100A              | Fcc DoC     | N/A        | Shielded, 1.5m                                             |
| 6.   | SD Card         | Kingston   | 3300-10000-078       | Fcc DoC     | N/A        | N/A                                                        |
| 7.   | Ipod            | apple      | N/A                  | MC69029/A   | N/A        | 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.

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 FM function to make the EUT receive continuous signals from FM station.

### 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.

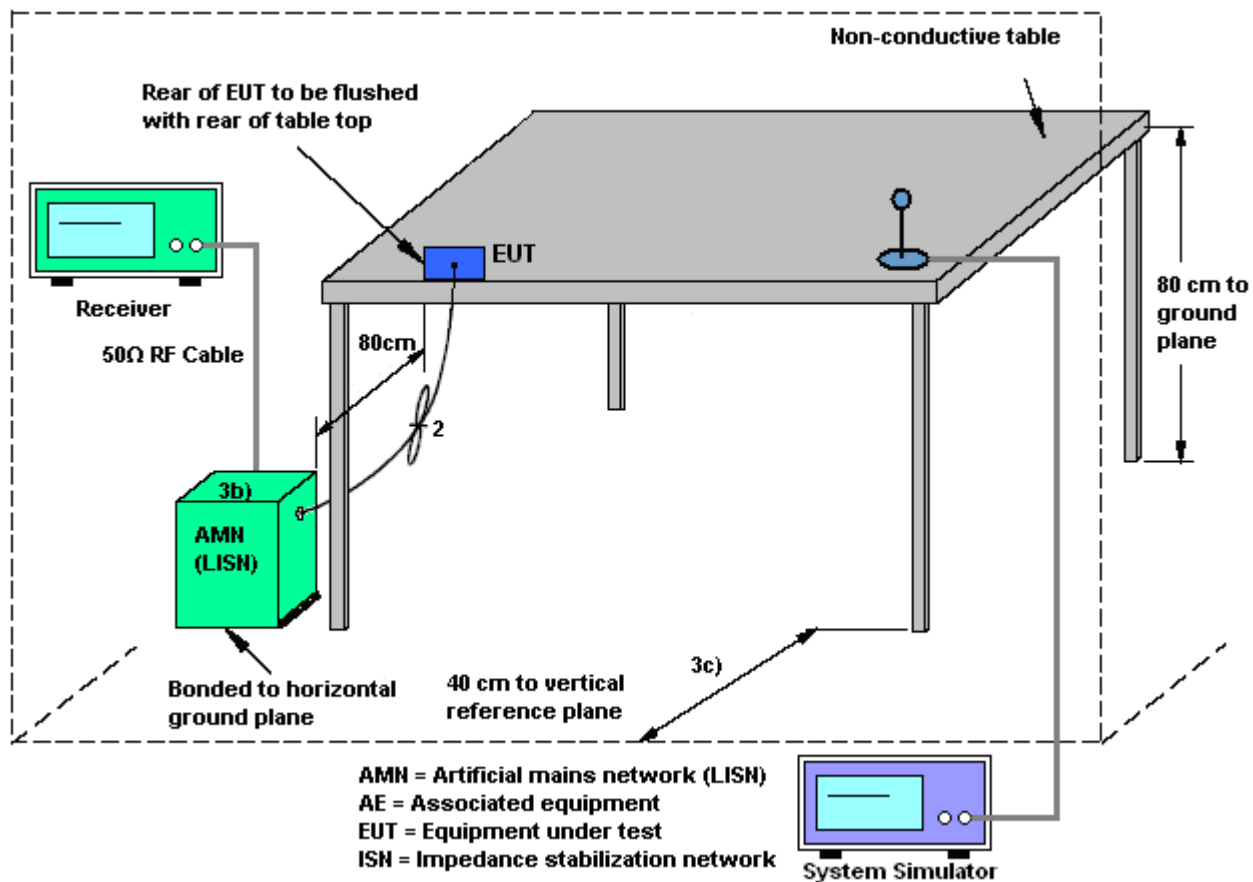
##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedure

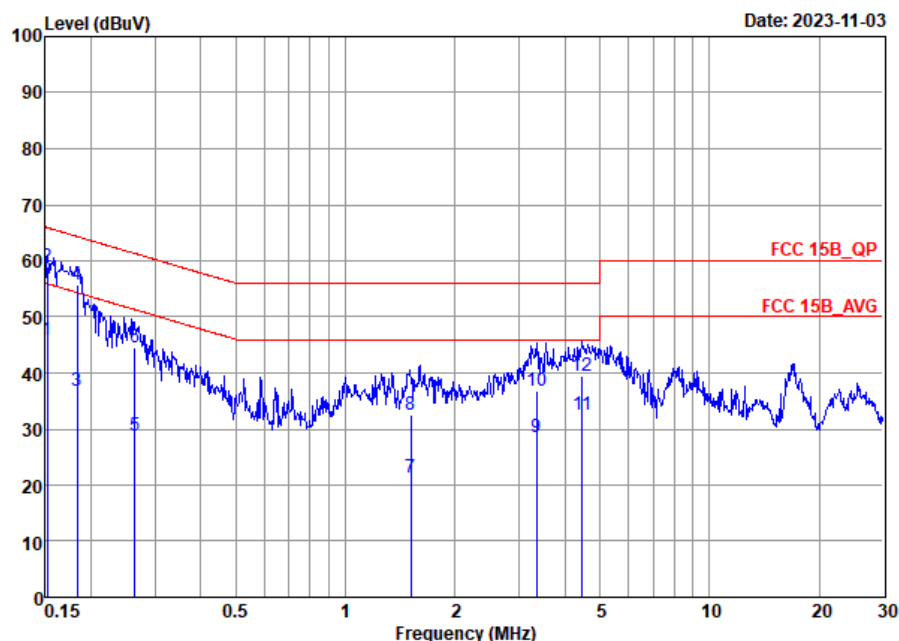
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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



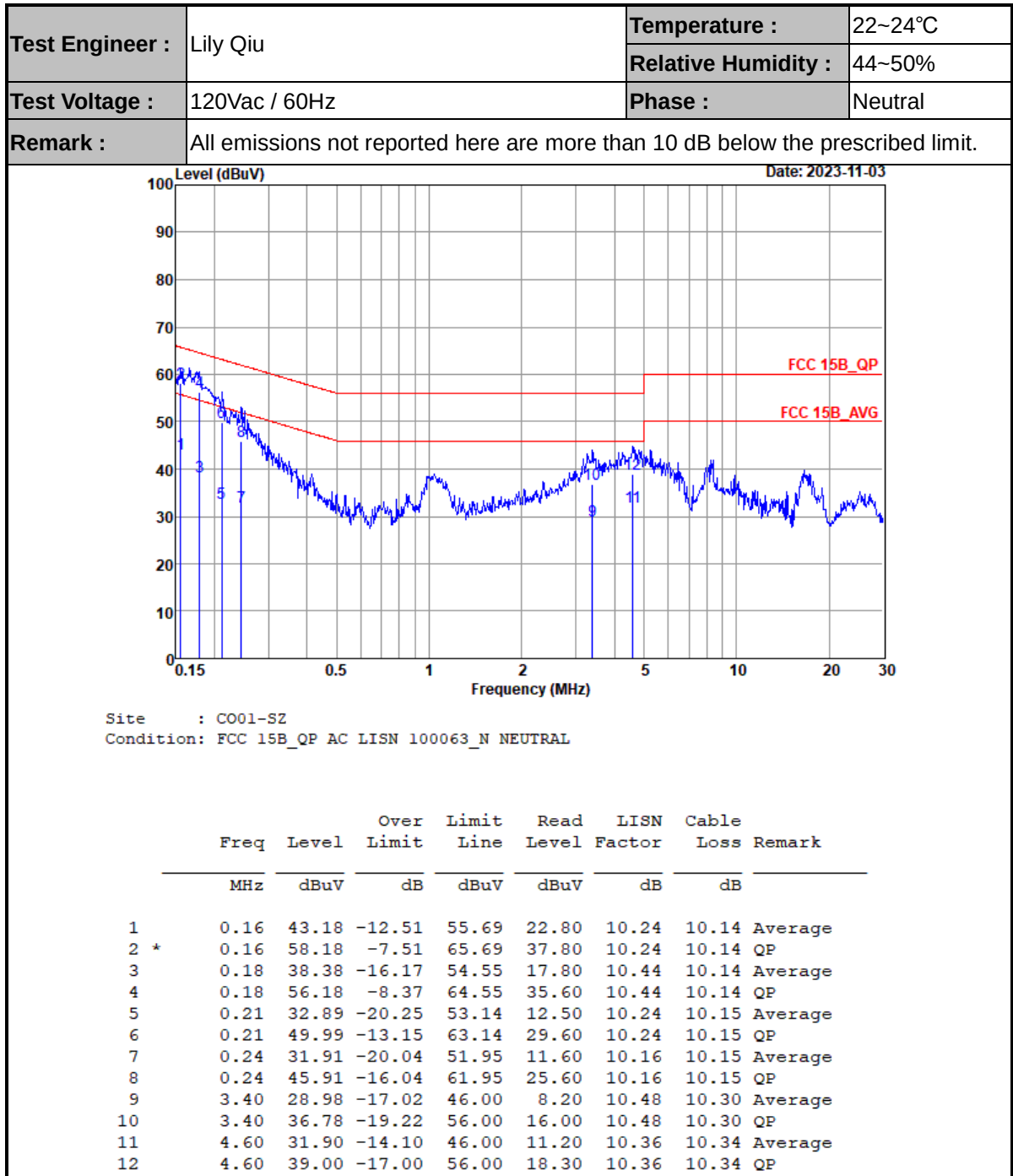
### 3.1.5 Test Result of AC Conducted Emission

|                        |                                                                                 |                            |         |
|------------------------|---------------------------------------------------------------------------------|----------------------------|---------|
| <b>Test Engineer :</b> | Lily Qiu                                                                        | <b>Temperature :</b>       | 22~24°C |
|                        |                                                                                 | <b>Relative Humidity :</b> | 44~50%  |
| <b>Test Voltage :</b>  | 120Vac / 60Hz                                                                   | <b>Phase :</b>             | Line    |
| <b>Remark :</b>        | All emissions not reported here are more than 10 dB below the prescribed limit. |                            |         |



Site : CO01-SZ  
Condition: FCC 15B\_QP AC LISN 100063\_L LINE

|     | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark  |
|-----|------|-------|------------|------------|------------|-------------|------------|---------|
|     | MHz  | dBuV  | dB         | dBuV       | dBuV       | dB          | dB         |         |
| 1   | 0.15 | 45.81 | -10.10     | 55.91      | 25.30      | 10.38       | 10.13      | Average |
| 2 * | 0.15 | 58.81 | -7.10      | 65.91      | 38.30      | 10.38       | 10.13      | QP      |
| 3   | 0.18 | 36.80 | -17.53     | 54.33      | 16.30      | 10.35       | 10.15      | Average |
| 4   | 0.18 | 55.70 | -8.63      | 64.33      | 35.20      | 10.35       | 10.15      | QP      |
| 5   | 0.26 | 28.85 | -22.44     | 51.29      | 8.60       | 10.10       | 10.15      | Average |
| 6   | 0.26 | 44.55 | -16.74     | 61.29      | 24.30      | 10.10       | 10.15      | QP      |
| 7   | 1.51 | 21.38 | -24.62     | 46.00      | 0.50       | 10.68       | 10.20      | Average |
| 8   | 1.51 | 32.58 | -23.42     | 56.00      | 11.70      | 10.68       | 10.20      | QP      |
| 9   | 3.35 | 28.63 | -17.37     | 46.00      | 8.20       | 10.13       | 10.30      | Average |
| 10  | 3.35 | 36.93 | -19.07     | 56.00      | 16.50      | 10.13       | 10.30      | QP      |
| 11  | 4.48 | 32.56 | -13.44     | 46.00      | 12.00      | 10.22       | 10.34      | Average |
| 12  | 4.48 | 39.56 | -16.44     | 56.00      | 19.00      | 10.22       | 10.34      | QP      |



Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. 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<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(meters) |
|--------------------|--------------------------------------|----------------------------------|
| 30 – 88            | 100                                  | 3                                |
| 88 – 216           | 150                                  | 3                                |
| 216 - 960          | 200                                  | 3                                |
| Above 960          | 500                                  | 3                                |

### 3.2.2. Measuring Instruments

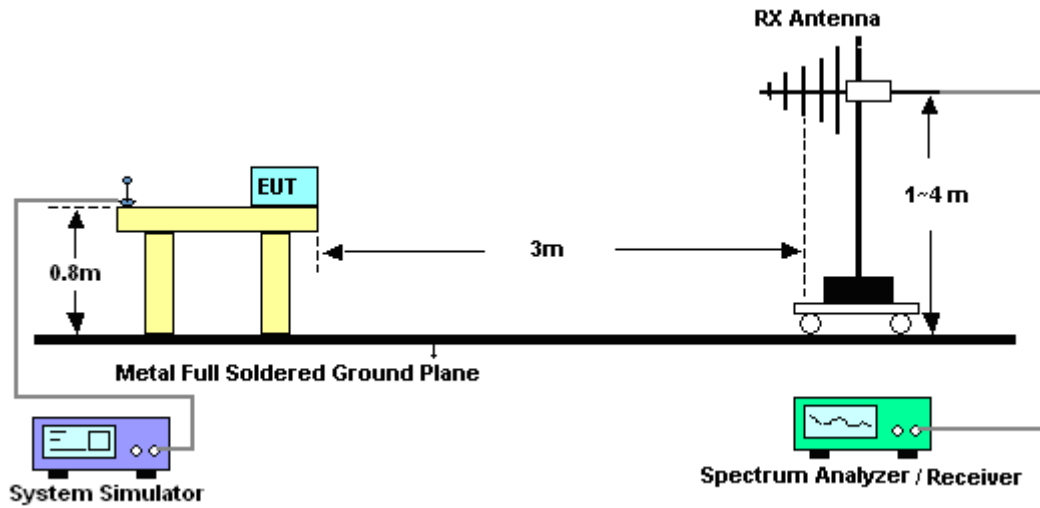
The measuring equipment is listed in the section 4 of this test report.

### 3.2.3. Test Procedures

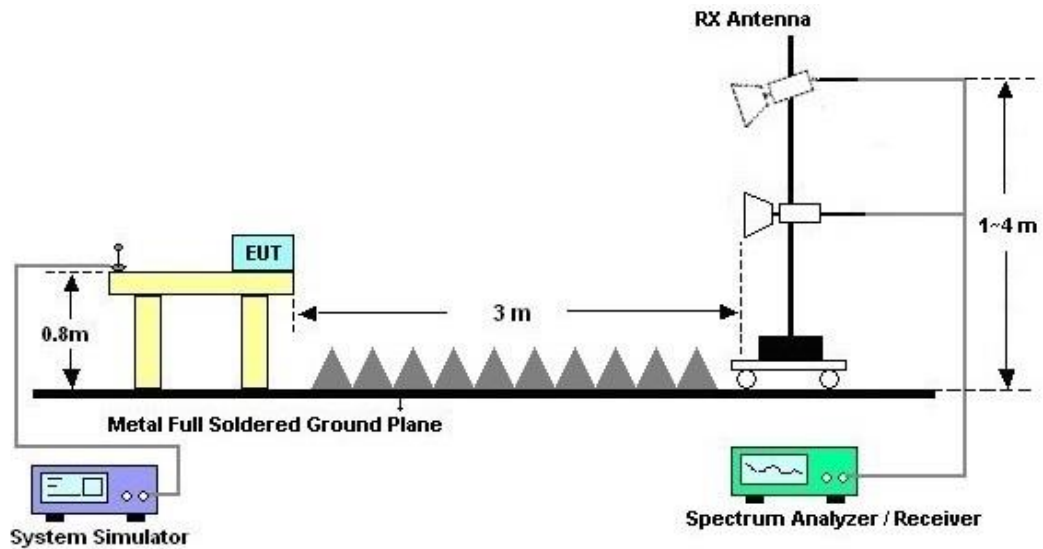
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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
10. Exploratory radiated emissions testing of handheld and/or body-worn devices shall include rotation of the EUT through three orthogonal axes (X/Y/Z Plane) to determine the orientation (attitude) that maximizes the emissions.

### 3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz

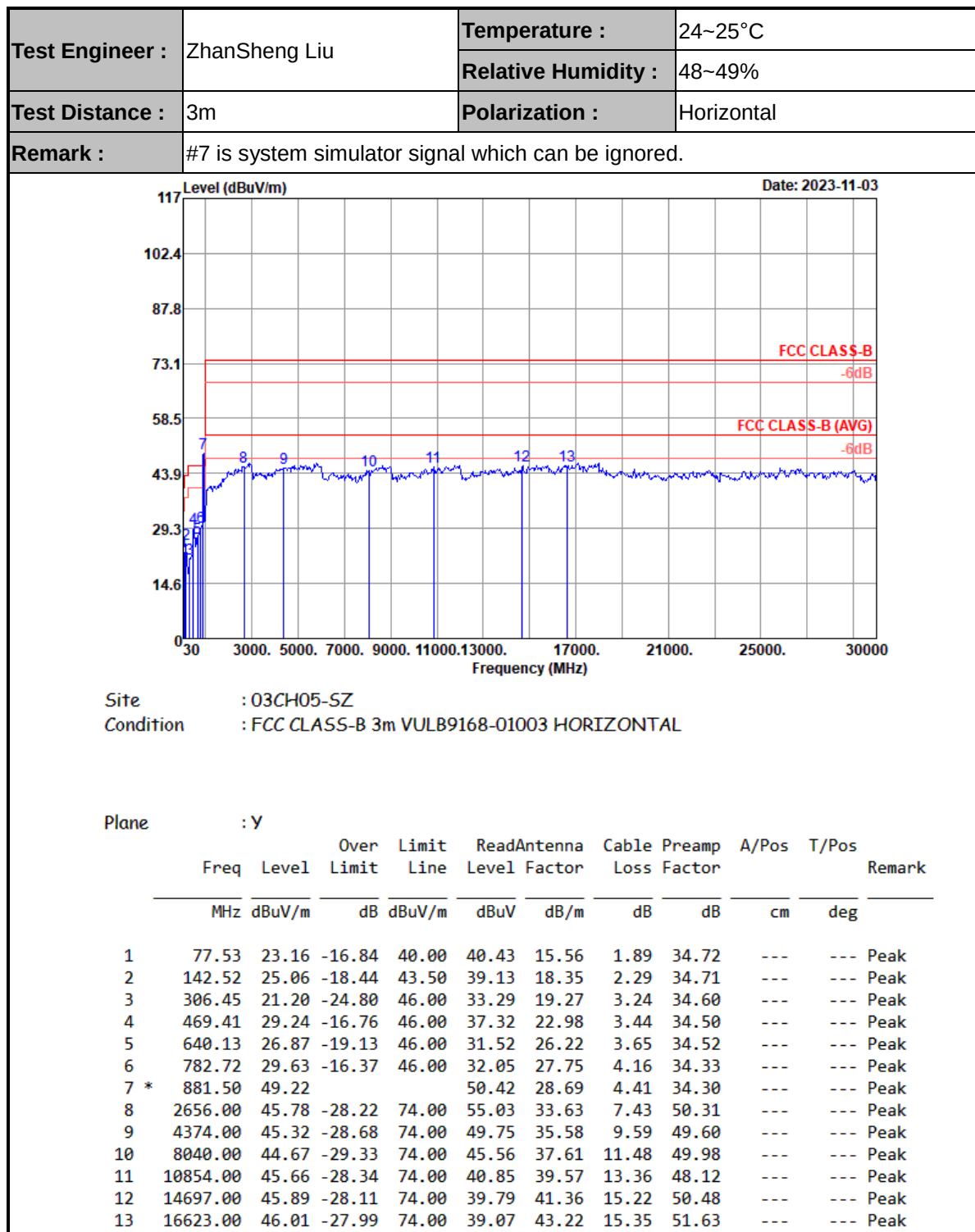


For radiated emissions above 1GHz



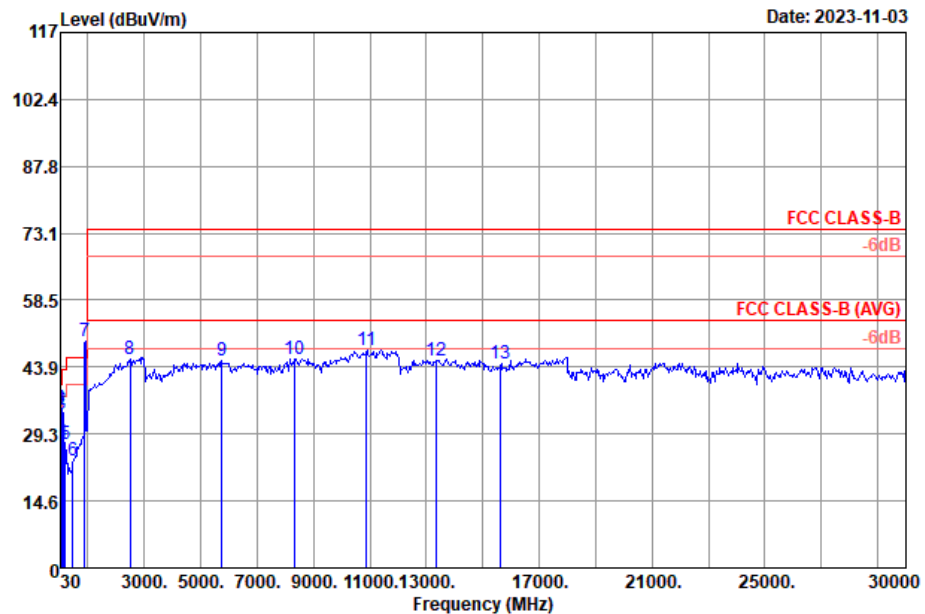


## 3.2.5. Test Result of Radiated Emission





|                 |                                                     |                     |          |
|-----------------|-----------------------------------------------------|---------------------|----------|
| Test Engineer : | ZhanSheng Liu                                       | Temperature :       | 24~25°C  |
|                 |                                                     | Relative Humidity : | 48~49%   |
| Test Distance : | 3m                                                  | Polarization :      | Vertical |
| Remark :        | #7 is system simulator signal which can be ignored. |                     |          |



Site : 03CH05-SZ  
Condition : FCC CLASS-B 3m VULB9168-01003 VERTICAL

Plane : Y

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamplifier | A/Pos | T/Pos | Remark |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|--------------|-------|-------|--------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB           | cm    | deg   |        |
| 1   | 38.73    | 34.73  | -5.27      | 40.00      | 49.11             | 19.16          | 1.33       | 34.87        | ---   | ---   | Peak   |
| 2   | 64.92    | 34.43  | -5.57      | 40.00      | 49.52             | 17.95          | 1.81       | 34.85        | ---   | ---   | Peak   |
| 3   | 77.53    | 33.47  | -6.53      | 40.00      | 50.74             | 15.56          | 1.89       | 34.72        | ---   | ---   | Peak   |
| 4   | 123.12   | 27.23  | -16.27     | 43.50      | 43.03             | 16.78          | 2.17       | 34.75        | ---   | ---   | Peak   |
| 5   | 197.81   | 27.18  | -16.32     | 43.50      | 43.05             | 16.11          | 2.72       | 34.70        | ---   | ---   | Peak   |
| 6   | 469.41   | 23.48  | -22.52     | 46.00      | 31.56             | 22.98          | 3.44       | 34.50        | ---   | ---   | Peak   |
| 7 * | 881.50   | 49.59  |            |            | 50.79             | 28.69          | 4.41       | 34.30        | ---   | ---   | Peak   |
| 8   | 2500.00  | 45.69  | -28.31     | 74.00      | 55.32             | 33.60          | 7.27       | 50.50        | ---   | ---   | Peak   |
| 9   | 5742.00  | 45.15  | -28.85     | 74.00      | 47.95             | 36.34          | 9.96       | 49.10        | ---   | ---   | Peak   |
| 10  | 8343.00  | 45.49  | -28.51     | 74.00      | 45.80             | 37.74          | 11.74      | 49.79        | ---   | ---   | Peak   |
| 11  | 10881.00 | 47.52  | -26.48     | 74.00      | 42.68             | 39.58          | 13.36      | 48.10        | ---   | ---   | Peak   |
| 12  | 13368.00 | 45.34  | -28.66     | 74.00      | 37.40             | 40.53          | 14.30      | 46.89        | ---   | ---   | Peak   |
| 13  | 15618.00 | 44.52  | -29.48     | 74.00      | 37.92             | 42.14          | 15.55      | 51.09        | ---   | ---   | Peak   |

Note:

- Level(dBuV/m) = Read Level(dBuV) + Antenna Factor(dB/m) + Cable Loss(dB) - Preamplifier Factor(dB)
- Over Limit(dB) = Level(dBuV/m) - Limit Line(dBuV/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;         | Jul. 06, 2023    | Oct .31, 2023<br>~Nov. 03, 2023 | Jul. 05, 2024 | Conduction<br>(CO01-SZ)  |
| AC LISN                                 | R&S             | ENV216    | 100063       | 9kHz~30MHz         | Aug. 21, 2023    | Oct .31, 2023<br>~Nov. 03, 2023 | Aug. 20, 2024 | Conduction<br>(CO01-SZ)  |
| AC LISN<br>(for auxiliary<br>equipment) | EMCO            | 3816/2SH  | 00103892     | 9kHz~30MHz         | Oct. 16, 2023    | Oct .31, 2023<br>~Nov. 03, 2023 | Oct. 15, 2024 | Conduction<br>(CO01-SZ)  |
| AC Power<br>Source                      | Chroma          | 61602     | 616020000891 | 100Vac~250Vac      | Jul. 07, 2023    | Oct .31, 2023<br>~Nov. 03, 2023 | Jul. 06, 2024 | Conduction<br>(CO01-SZ)  |
| EMI Test<br>Receiver                    | R&S             | ESR7      | 102261       | 9kHz~7GHz          | Apr. 04, 2023    | Nov. 01, 2023<br>~Nov. 03, 2023 | Apr. 03, 2024 | Radiation<br>(03CH05-SZ) |
| EXA Spectrum<br>Analyzer                | KEYSIGHT        | N9010B    | MY59071191   | 10Hz~44GHz         | Apr. 04, 2023    | Nov. 01, 2023<br>~Nov. 03, 2023 | Apr. 03, 2024 | Radiation<br>(03CH05-SZ) |
| Log-periodic<br>Antenna                 | SCHWARZBE<br>CK | VULB 9168 | 01001        | 20MHz~1.5GHz       | Jul. 08, 2023    | Nov. 01, 2023<br>~Nov. 03, 2023 | Jul. 07, 2024 | Radiation<br>(03CH05-SZ) |
| Amplifier                               | EM Electronics  | EM330     | 060756       | 0.01Hz<br>~3000MHz | Apr. 04, 2023    | Nov. 01, 2023<br>~Nov. 03, 2023 | Apr. 03, 2024 | Radiation<br>(03CH05-SZ) |
| Double Ridge<br>Horn Antenna            | SCHWARZBE<br>CK | BBHA9120D | 9120D-2206   | 1GHz~18GHz         | Apr. 04, 2023    | Nov. 01, 2023<br>~Nov. 03, 2023 | Apr. 03, 2024 | Radiation<br>(03CH05-SZ) |
| HF Amplifier                            | EM Electronics  | EM01G18GA | 060781       | 1GHz~18GHz         | Apr. 04, 2023    | Nov. 01, 2023<br>~Nov. 03, 2023 | Apr. 03, 2024 | Radiation<br>(03CH05-SZ) |
| HF Amplifier                            | EM Electronics  | EM18G40G  | 060778       | 18GHz~40GHz        | Apr. 04, 2023    | Nov. 01, 2023<br>~Nov. 03, 2023 | Apr. 03, 2024 | Radiation<br>(03CH05-SZ) |
| Horn Antenna                            | SCHWARZBE<br>CK | BBHA9170  | 00983        | 15GHz~40GHz        | Apr. 08, 2023    | Nov. 01, 2023<br>~Nov. 03, 2023 | Apr. 07, 2024 | Radiation<br>(03CH05-SZ) |
| AC Power<br>Source                      | APC             | AFV-S-600 | F119050013   | N/A                | Oct. 18, 2023    | Nov. 01, 2023<br>~Nov. 03, 2023 | Oct. 17, 2024 | Radiation<br>(03CH05-SZ) |
| Turn Table                              | EMEC            | T-200-S-1 | 060925-T     | 0~360 degree       | NCR              | Nov. 01, 2023<br>~Nov. 03, 2023 | NCR           | Radiation<br>(03CH05-SZ) |
| Antenna Mast                            | EMEC            | MBS-400-1 | 060927       | 1 m~4 m            | NCR              | Nov. 01, 2023<br>~Nov. 03, 2023 | NCR           | Radiation<br>(03CH05-SZ) |

NCR: No Calibration Required

## 5. Measurement Uncertainty

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

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 2.7dB |
|-------------------------------------------------------------------------|-------|

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

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 4.2dB |
|-------------------------------------------------------------------------|-------|

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

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 5.1dB |
|-------------------------------------------------------------------------|-------|

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

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 4.1dB |
|-------------------------------------------------------------------------|-------|